

| | | | |
|-------------------|-------------|-----------|-------------|
| FED. RD. DIV. NO. | PROJECT NO. | SHEET NO. | |
| 6 | C 867-1-17 | 1 | |
| STATE | DIST. | COUNTY | |
| TEXAS | WACO | HAMILTON | |
| CONT. | SECT. | JOB | HIGHWAY NO. |
| 0867 | 01 | 017 | FM 932 |

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| 2-3 | INDEX OF SHEETS |

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

PROJECT NO. C 867-1-17

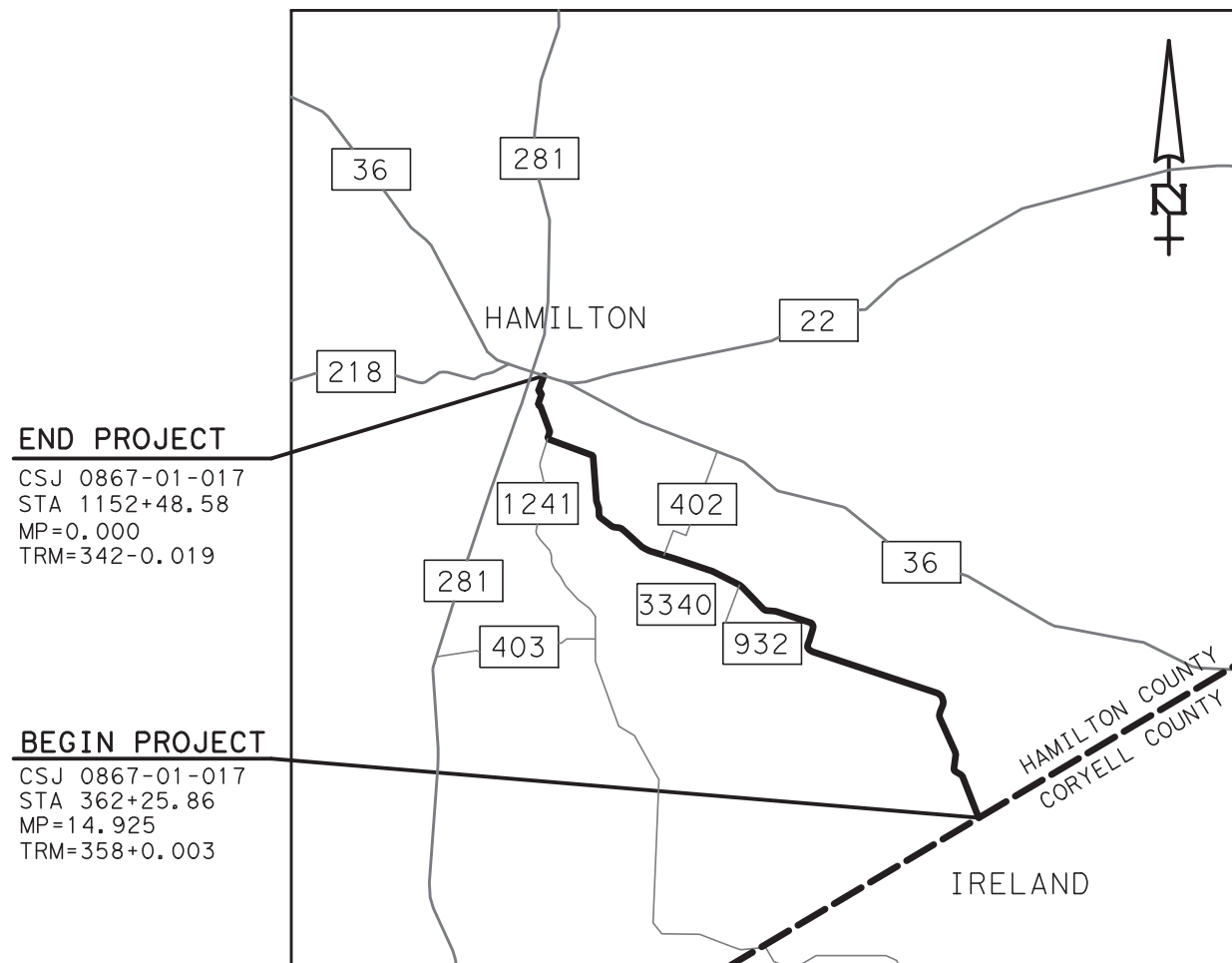
HAMILTON COUNTY

FM 932

| | | | |
|---------------------------|---------|-----------------|--------------|
| TOTAL LENGTH OF PROJECT = | ROADWAY | = 79,022.72 FT. | = 14.966 MI. |
| | BRIDGE | = 0.00 FT. | = 0.000 MI. |
| | TOTAL | = 79,022.72 FT. | = 14.966 MI. |

CSJ 0867-01-017 LIMITS: FROM SH 36 TO CORYELL COUNTY LINE

FOR THE CONSTRUCTION OF REHABILITATION OF EXISTING ROAD
CONSISTING OF REHABILITATE AND WIDEN ROADWAY

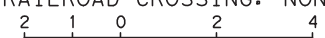


END PROJECT
CSJ 0867-01-017
STA 1152+48.58
MP=0.000
TRM=342+0.019

BEGIN PROJECT
CSJ 0867-01-017
STA 362+25.86
MP=14.925
TRM=358+0.003

VICINITY MAP

EXCEPTIONS: NONE
EQUATIONS: NONE
RAILROAD CROSSING: NONE



HORIZONTAL SCALE: 1" = 4 MI.

DESIGN SPEED = 30 MPH

2022 ADT = 1,340 VPD

2042 ADT = 1,750 VPD



SUBMITTED FOR LETTING 9/20/2021

Daniel P. McCullough P.E.
DANIEL P. MCCULLOUGH, P.E.



RECOMMENDED FOR LETTING 9/28/2021

DocuSigned by: *Jarod E. Johnson* P.E. P.E.
95CEAC277D81429...

RECOMMENDED FOR LETTING 10/25/2020

Victor J. ... P.E.
DIRECTOR OF TDP

APPROVED FOR LETTING: 10/25/2021

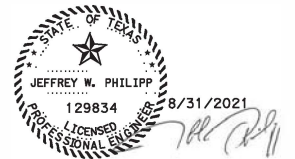
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SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION,
NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS,
SHALL GOVERN ON THIS PROJECT: SPECIAL LABOR PROVISIONS FOR STATE
PROJECTS (000---008).

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FM 932

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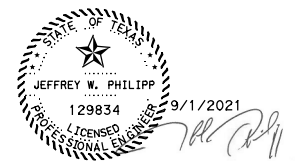
(SHEET 1 OF 2)

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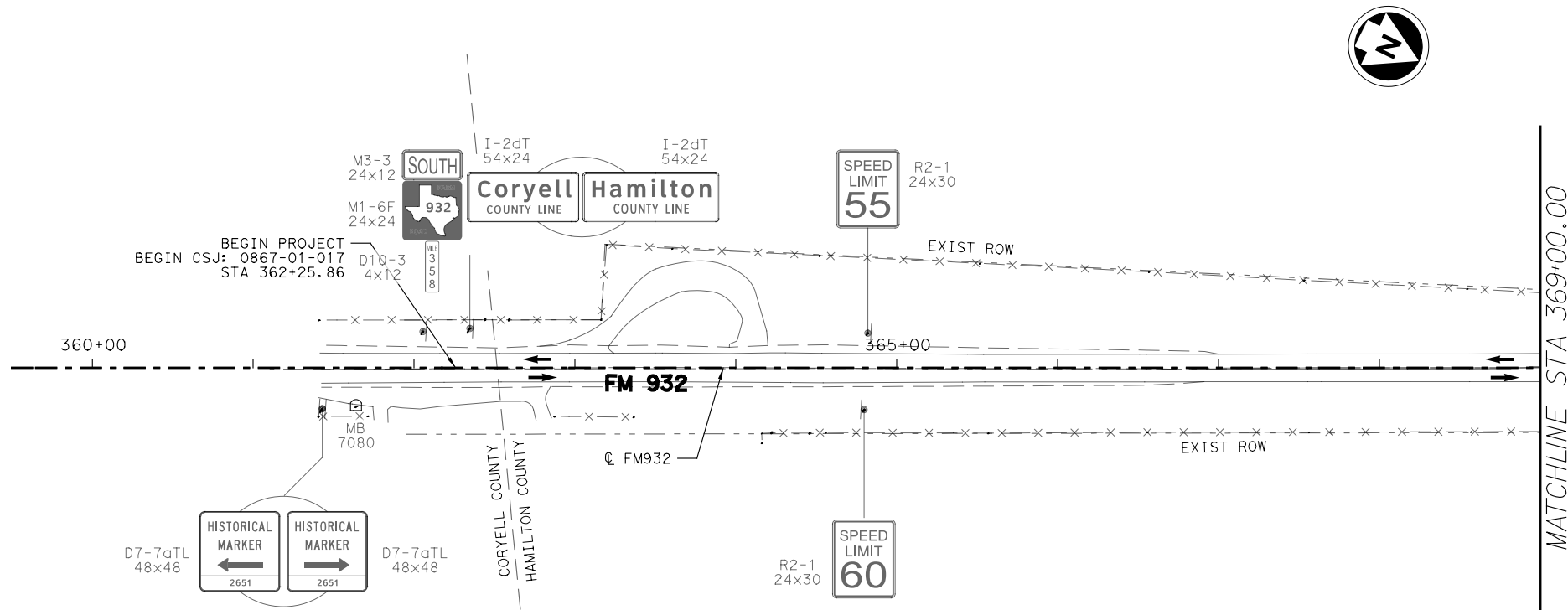
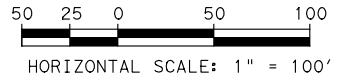
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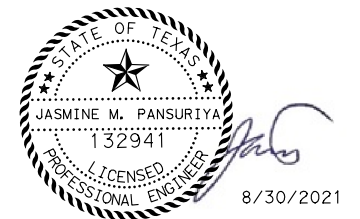
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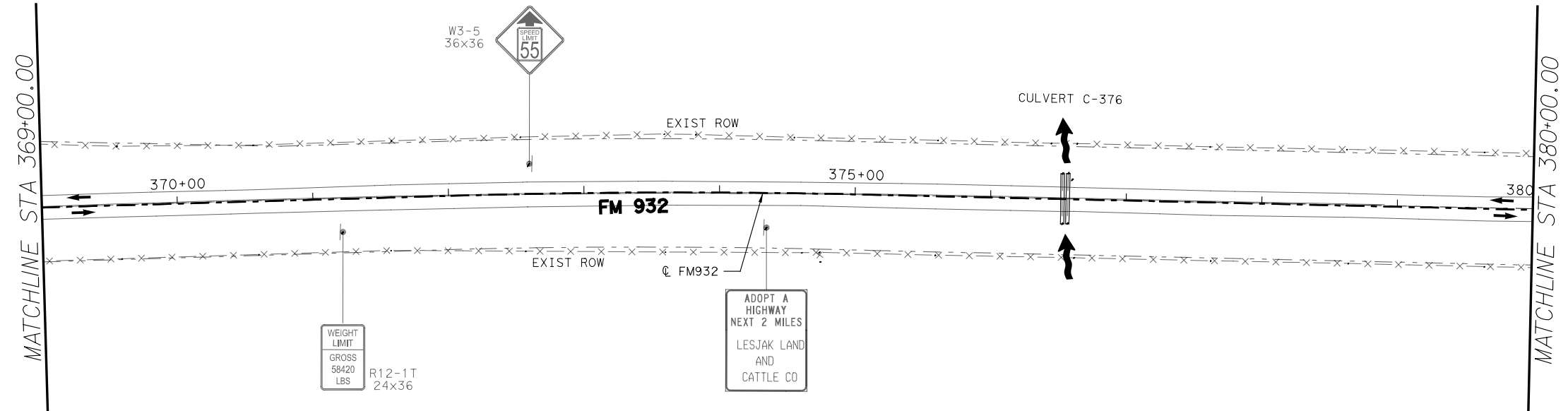
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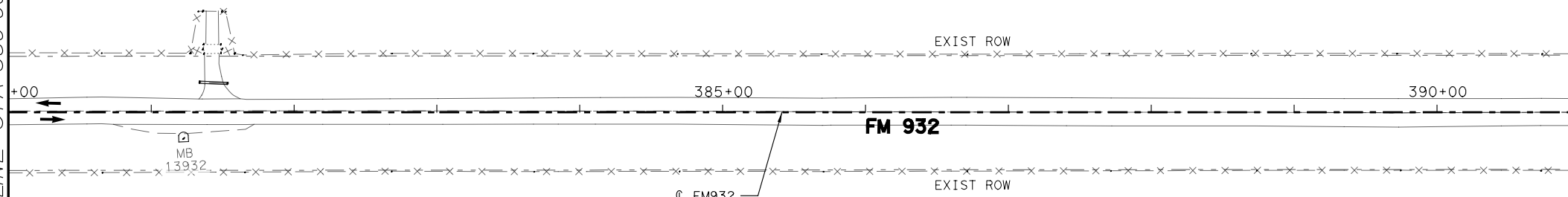
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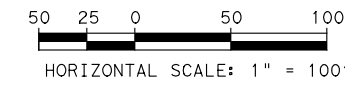
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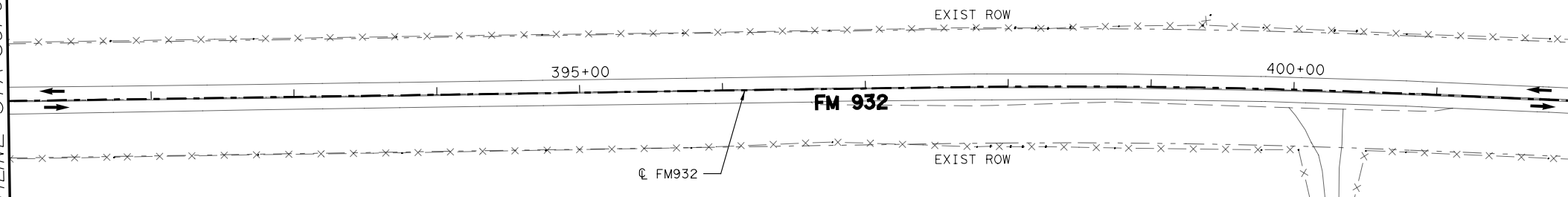


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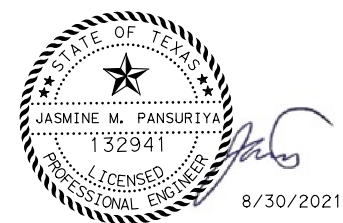


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MATCHLINE STA 402+00.00

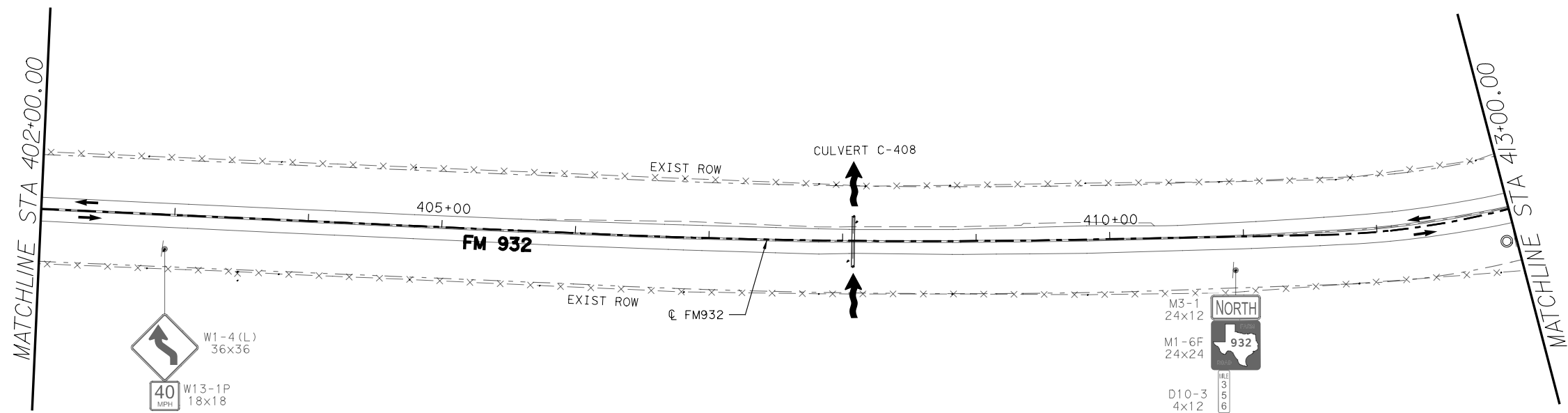
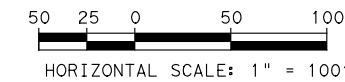


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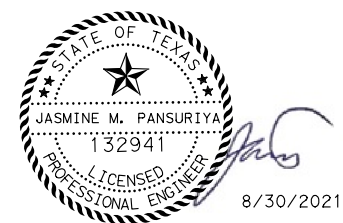
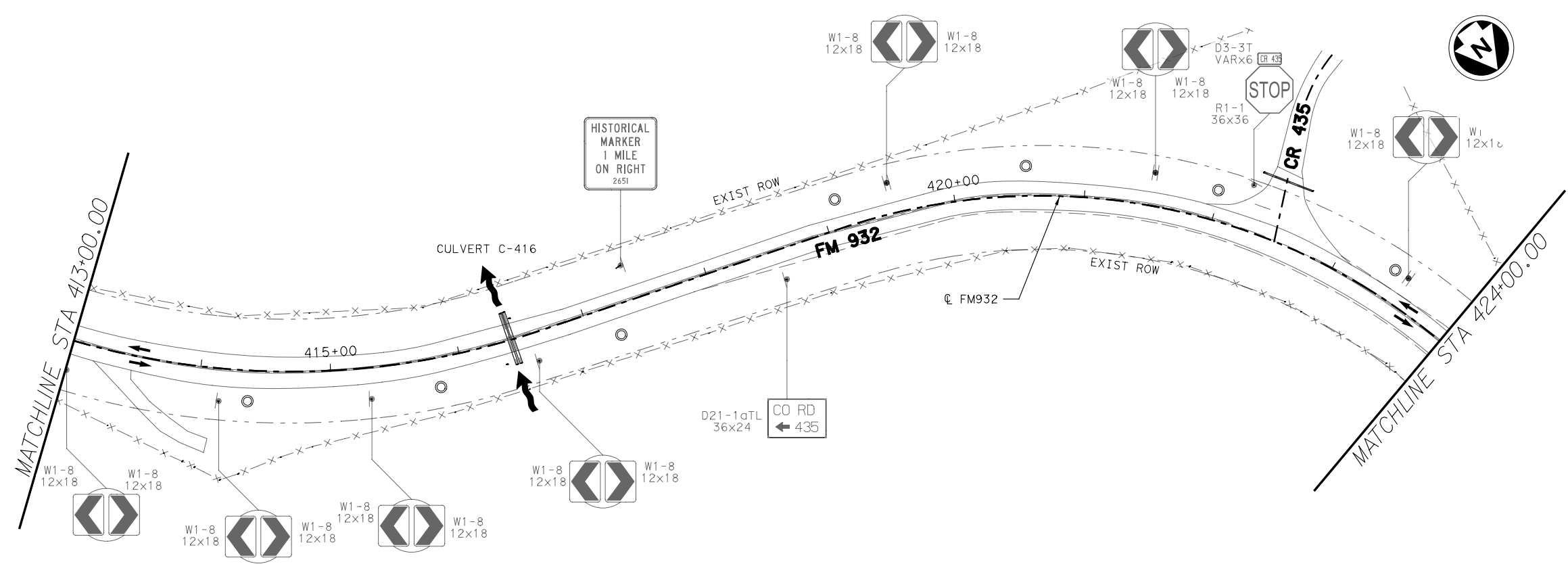
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| GRAPHICS RP | TX | WACO | HAMILTON | 5 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



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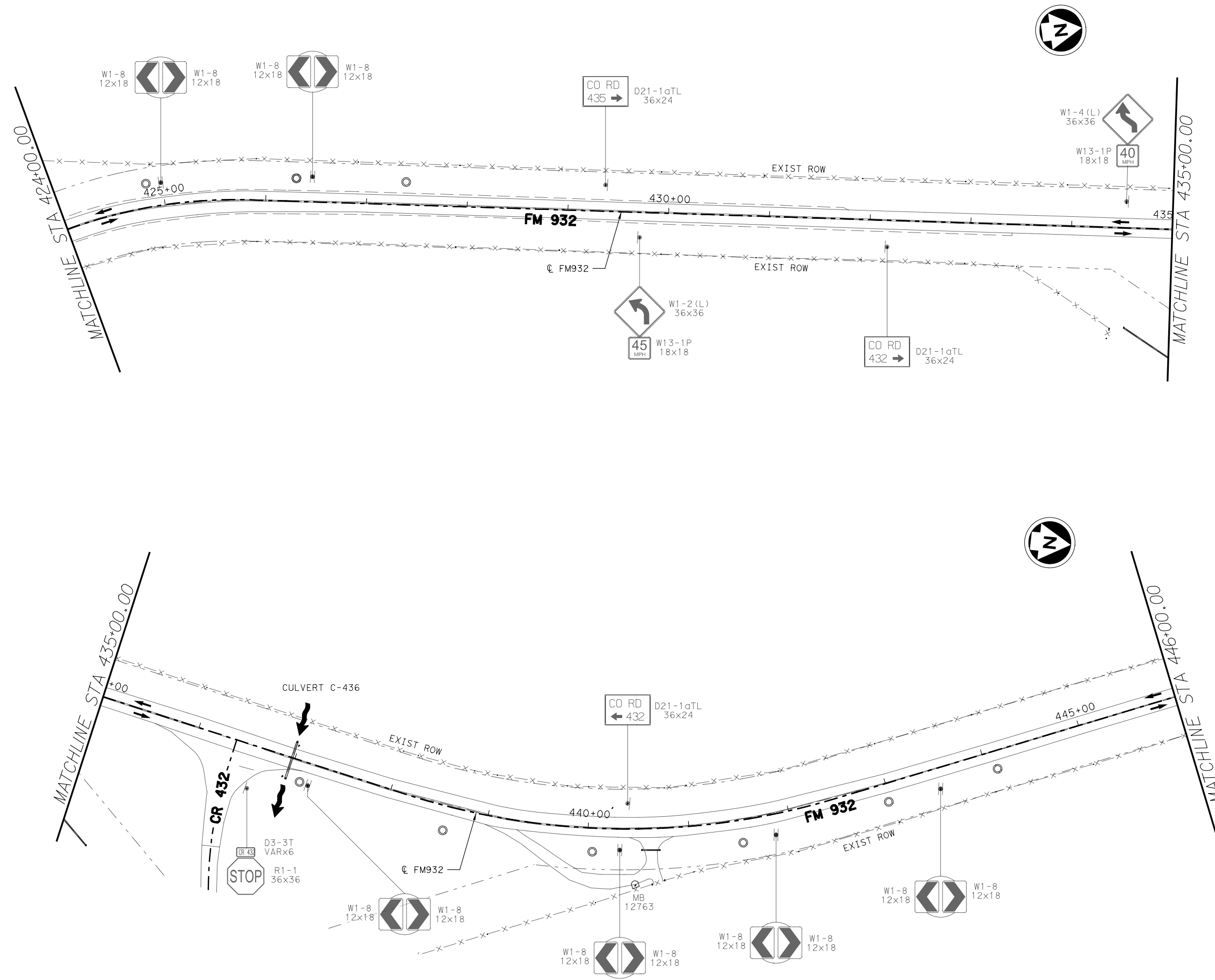
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STA 402+00.00 TO STA 424+00.00

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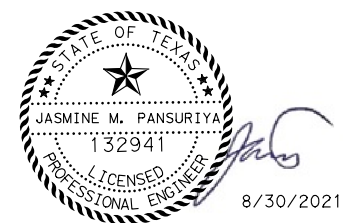
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50 25 0 50 100
 HORIZONTAL SCALE: 1" = 100'

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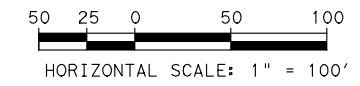
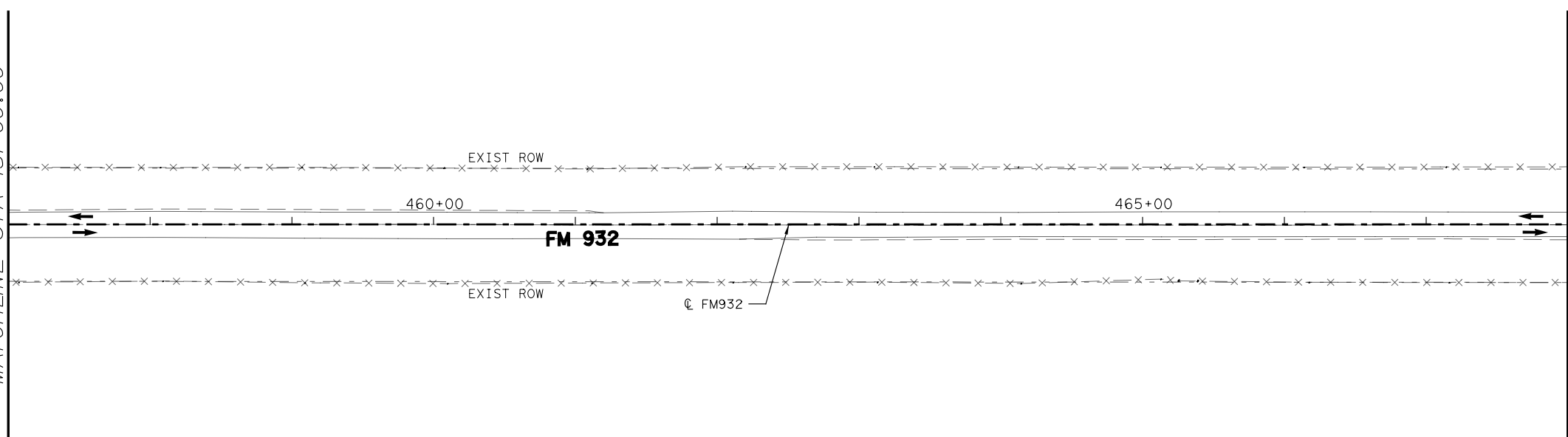
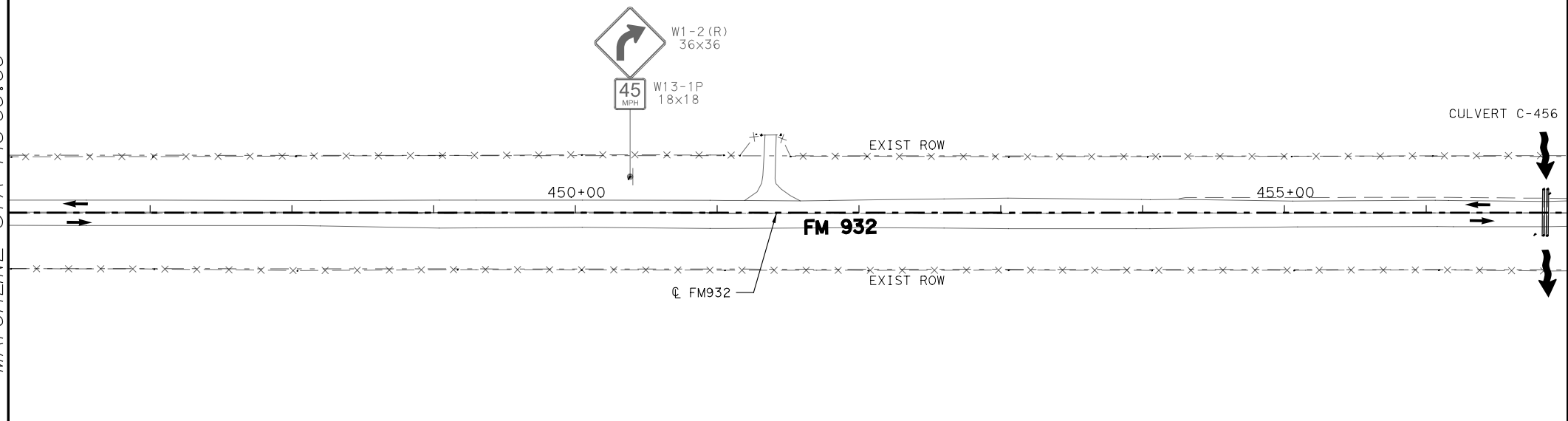
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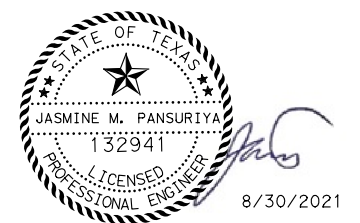
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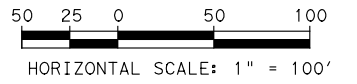


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(SHEET 5 OF 37)

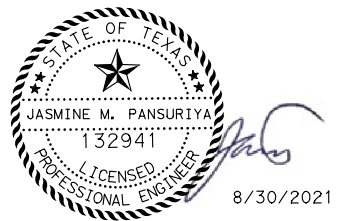
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| JMP | 0867 | 01 | 017 | |



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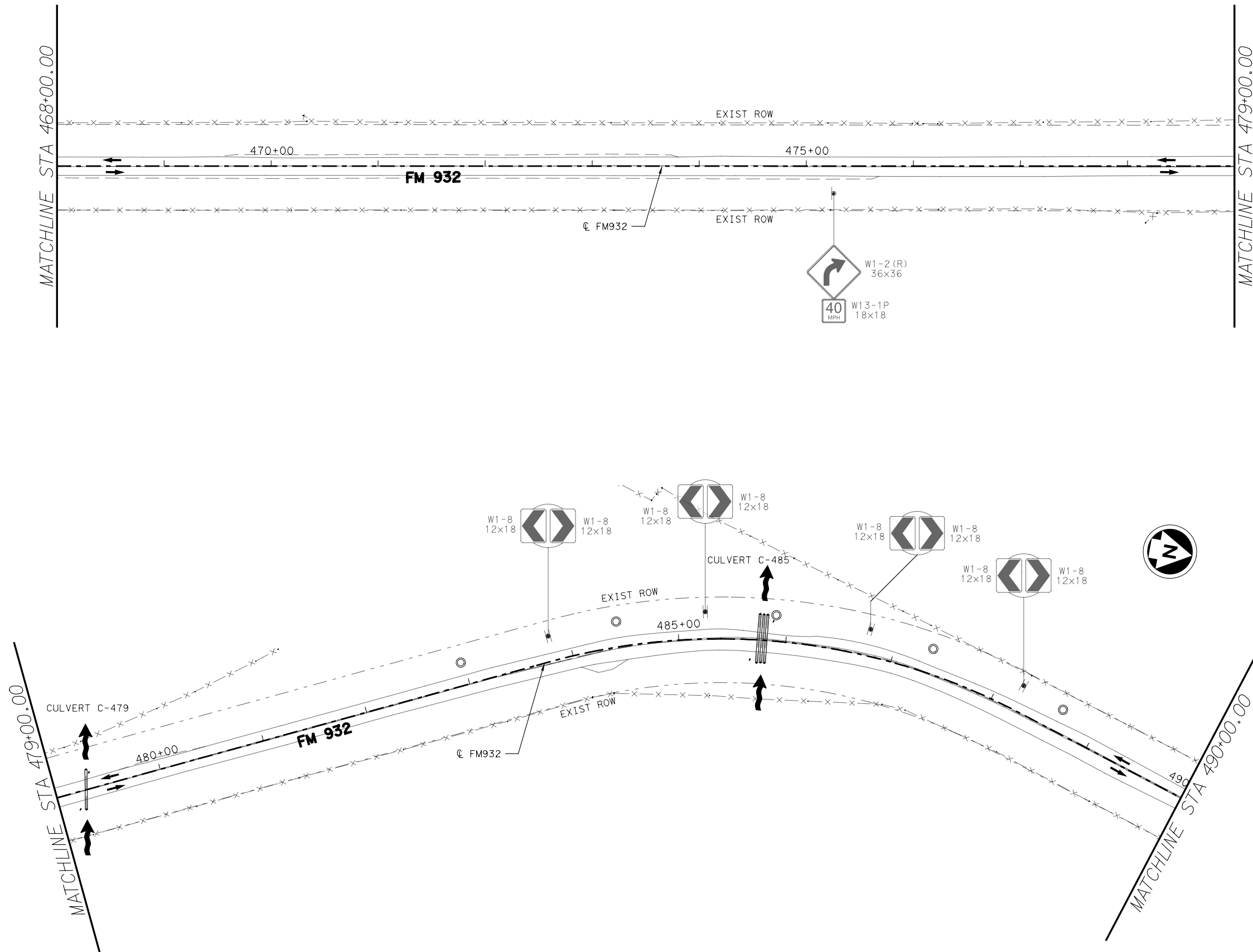
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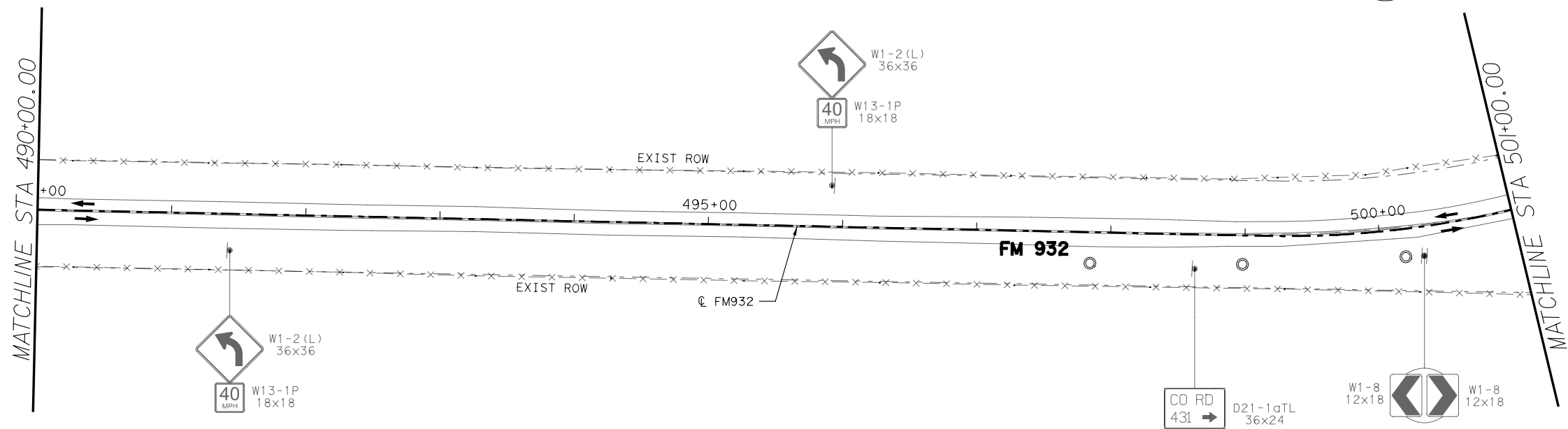
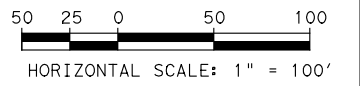
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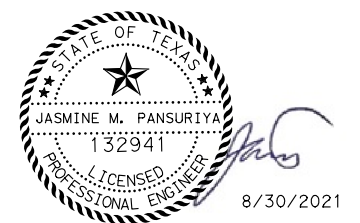
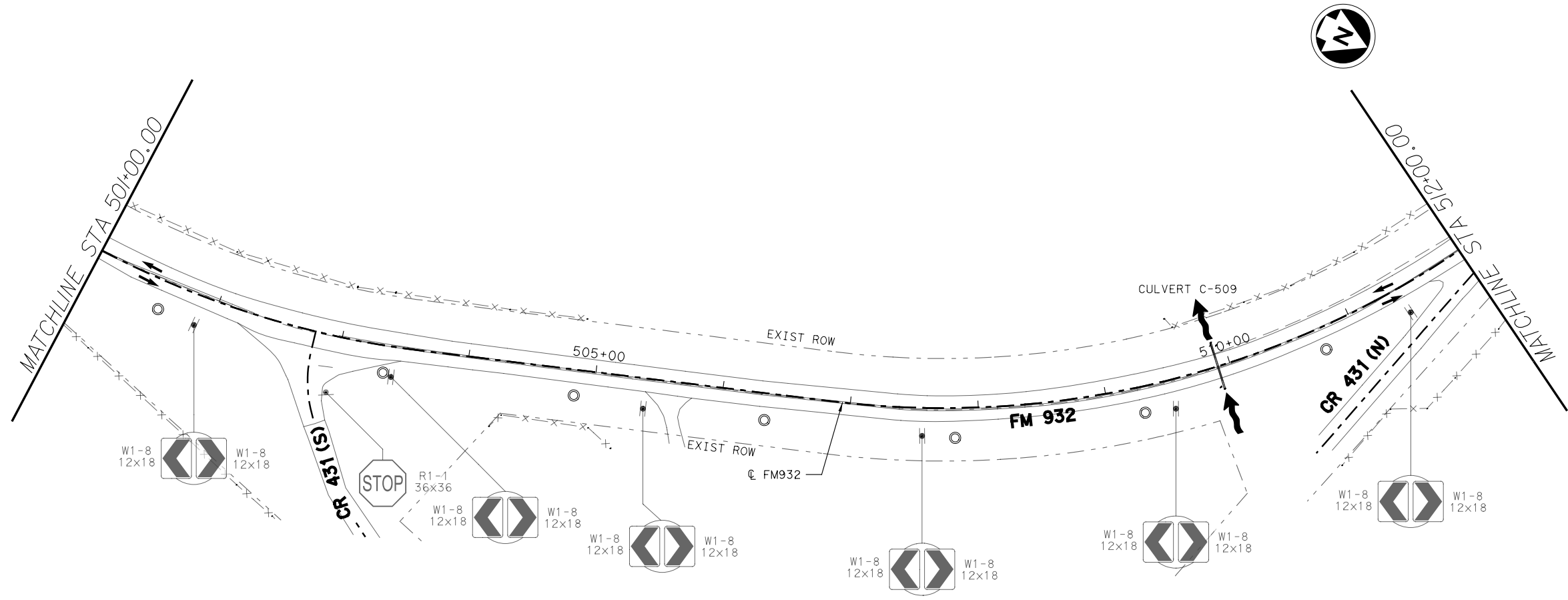




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FM 932

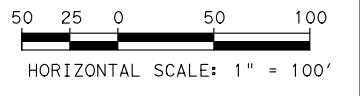
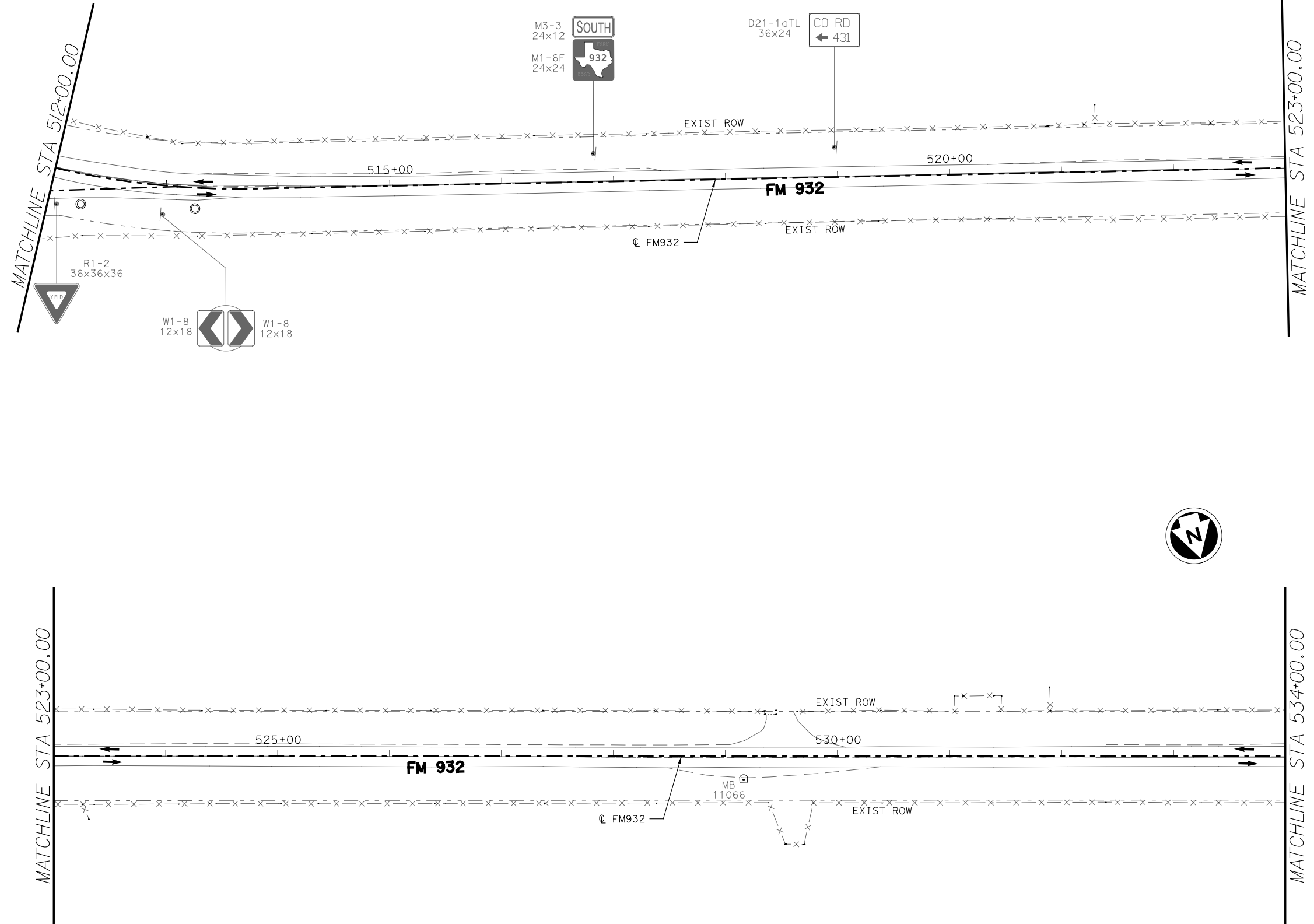
EXISTING PROJECT LAYOUT
STA 490+00.00 TO STA 512+00.00

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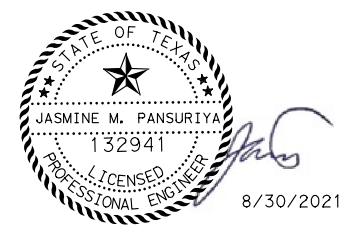
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⊙ LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



FM 932

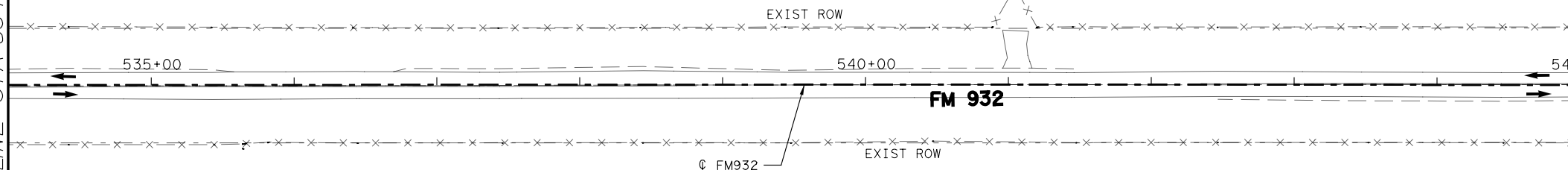
EXISTING PROJECT LAYOUT
 STA 512+00.00 TO STA 534+00.00

(SHEET 8 OF 37)

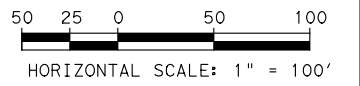
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|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 11 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*EXISTING*09.dgn
 DATE: 8/30/2021 3:33:33 PM

MATCHLINE STA 534+00.00



MATCHLINE STA 545+00.00

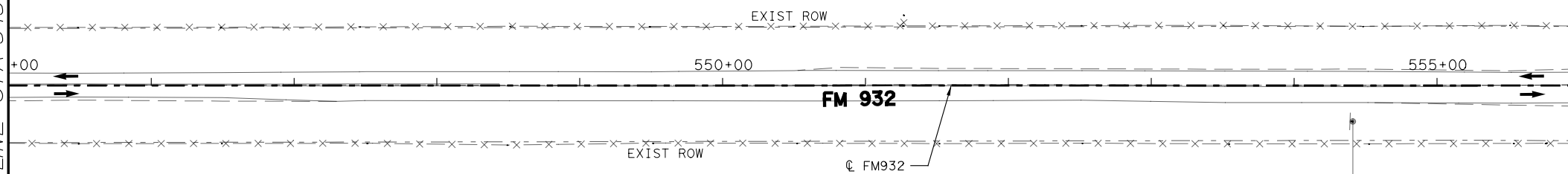


NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.

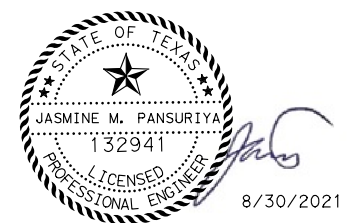
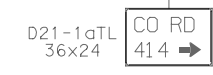
* EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.

© LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.

MATCHLINE STA 545+00.00



MATCHLINE STA 556+00.00



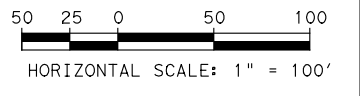
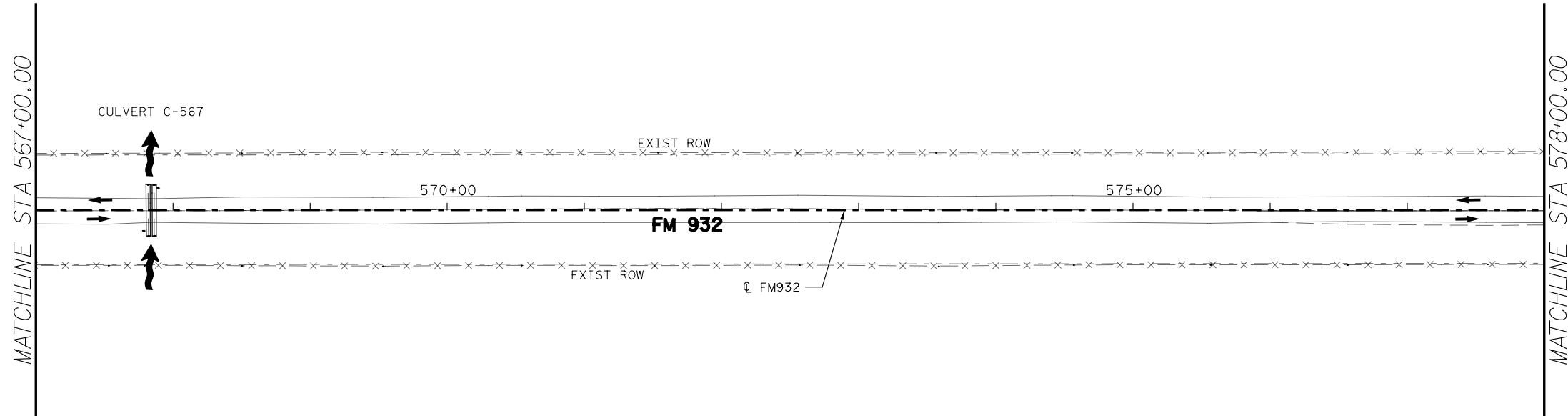
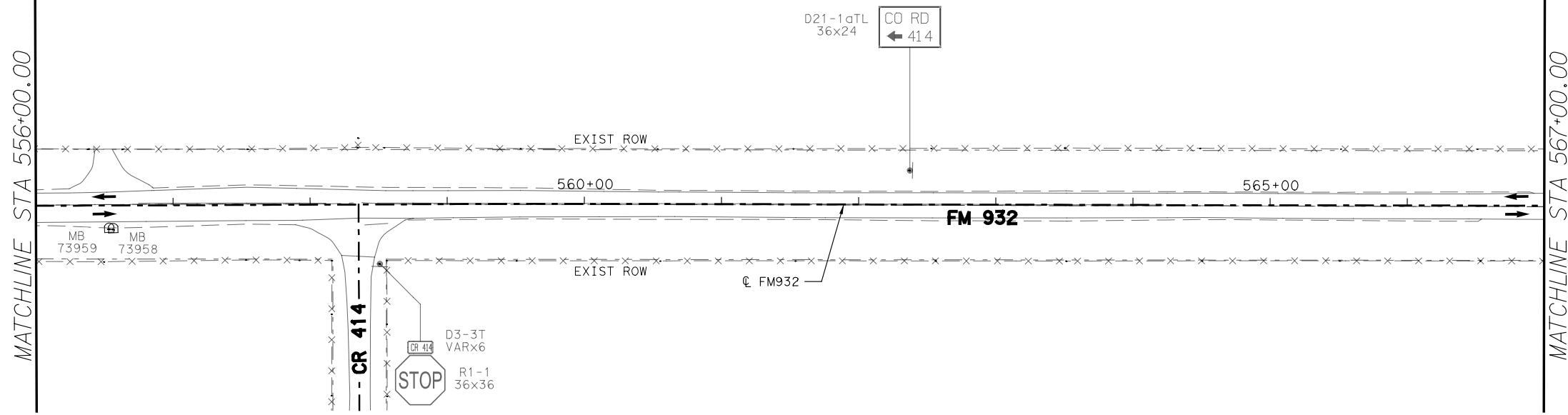
FM 932

EXISTING PROJECT LAYOUT
 STA 534+00.00 TO STA 556+00.00

(SHEET 9 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 12 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

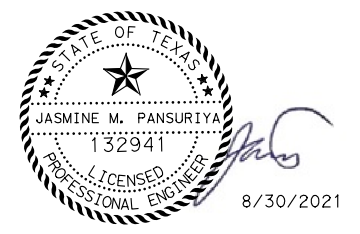
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NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.

* EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.

© LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



FM 932

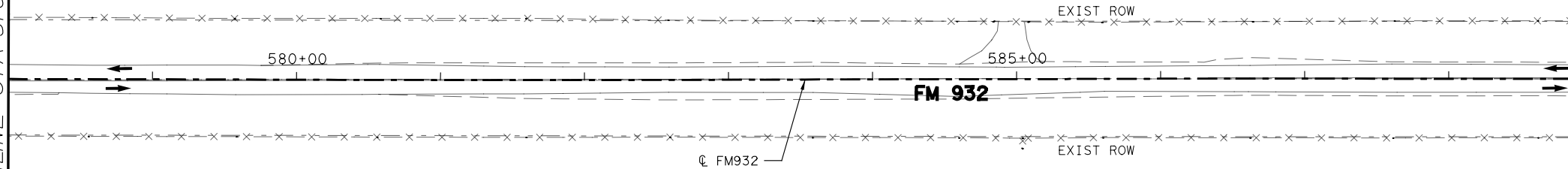
EXISTING PROJECT LAYOUT
 STA 556+00.00 TO STA 578+00.00

(SHEET 10 OF 37)

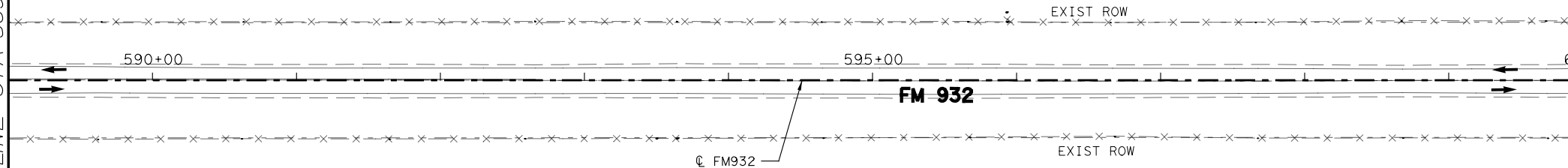
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| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 13 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*EXISTING*11.dgn
 DATE: 8/30/2021 3:33:34 PM

MATCHLINE STA 578+00.00

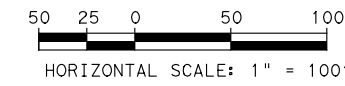


MATCHLINE STA 589+00.00

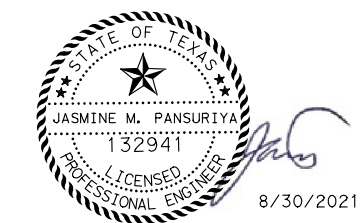


MATCHLINE STA 589+00.00

MATCHLINE STA 600+00.00



NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.
 * EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
 © LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



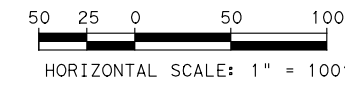
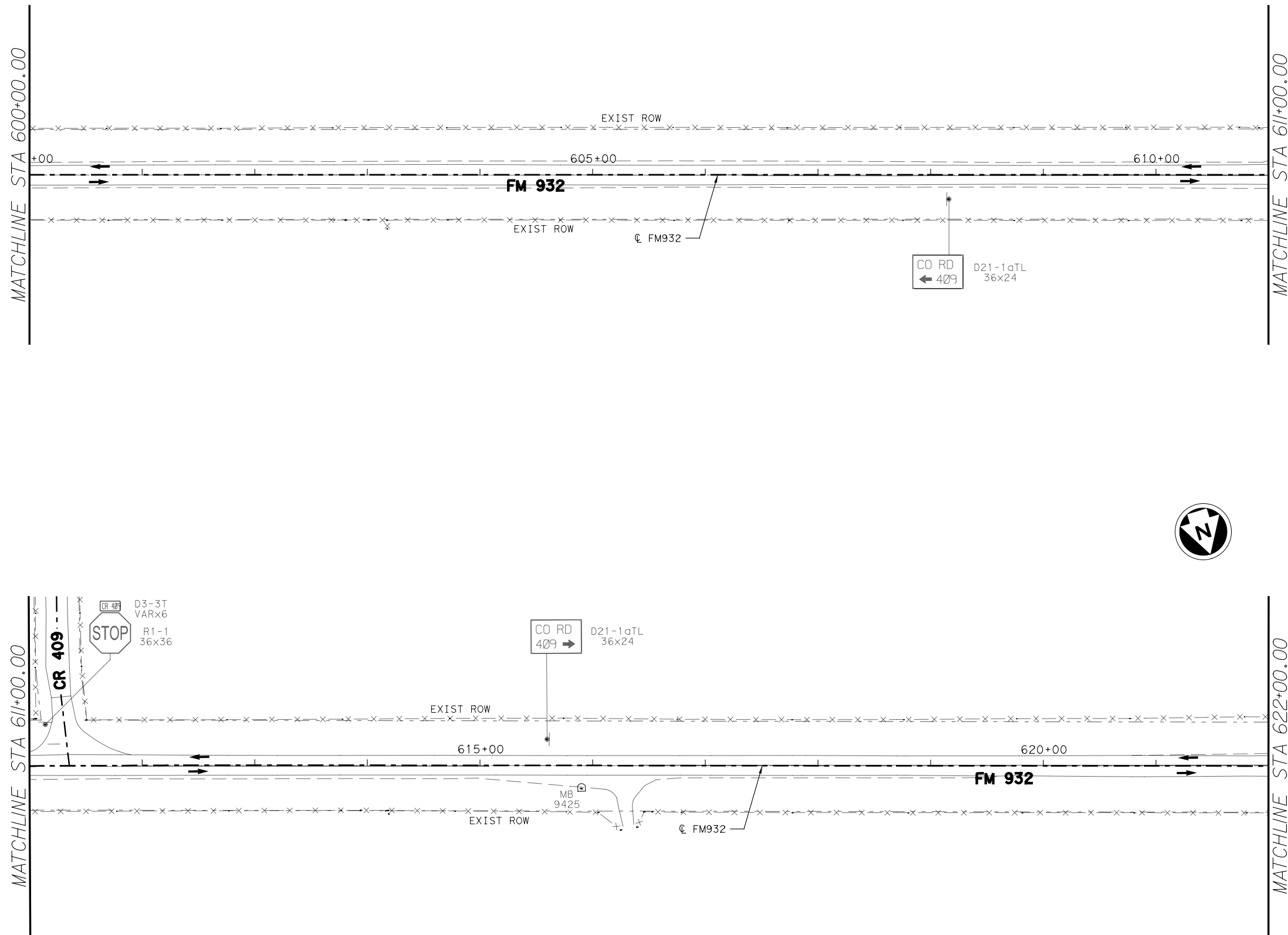
FM 932

EXISTING PROJECT LAYOUT
 STA 578+00.00 TO STA 600+00.00

(SHEET 11 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 14 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

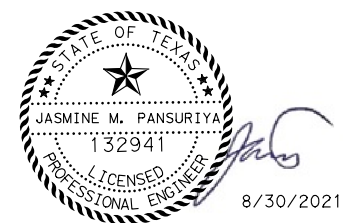
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 DATE: 8/30/2021 3:33:35 PM



NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.

* EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.

© LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



FM 932

EXISTING PROJECT LAYOUT
 STA 600+00.00 TO STA 622+00.00

(SHEET 12 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 15 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

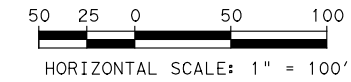
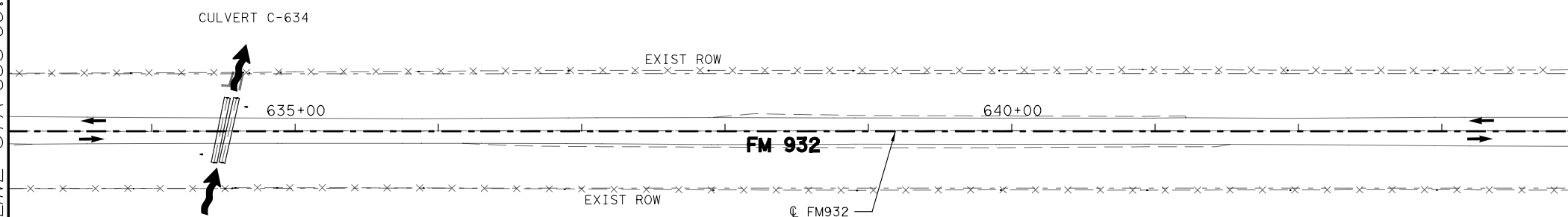
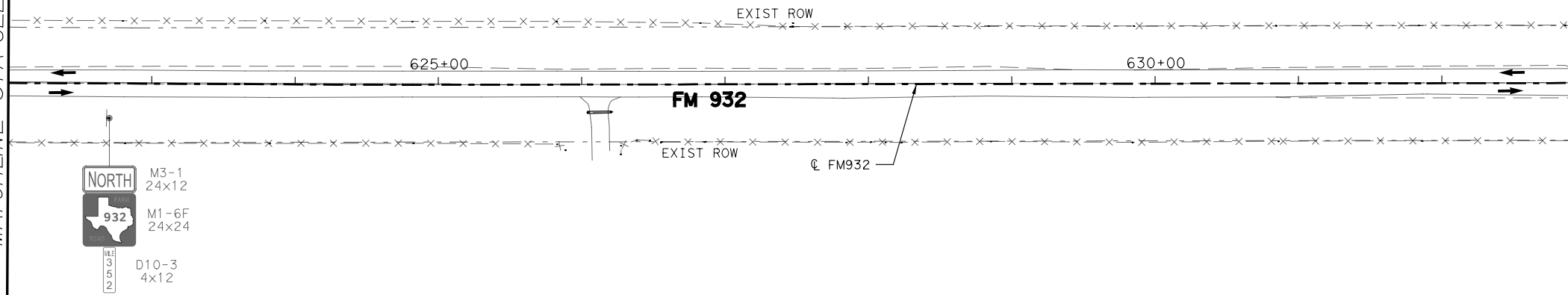
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MATCHLINE STA 622+00.00

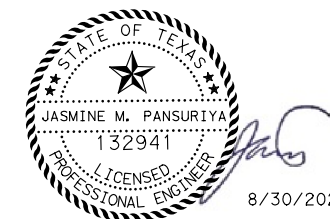
MATCHLINE STA 633+00.00

MATCHLINE STA 633+00.00

MATCHLINE STA 644+00.00



- NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.
- * EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
 - © LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.

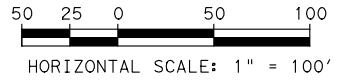


FM 932

EXISTING PROJECT LAYOUT
 STA 622+00.00 TO STA 644+00.00

(SHEET 13 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 16 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



MATCHLINE STA 644+00.00

MATCHLINE STA 655+00.00

CULVERT C-646

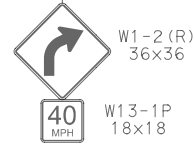
645+00

FM 932

650+00

655+00

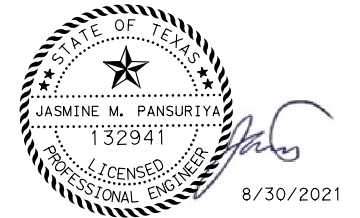
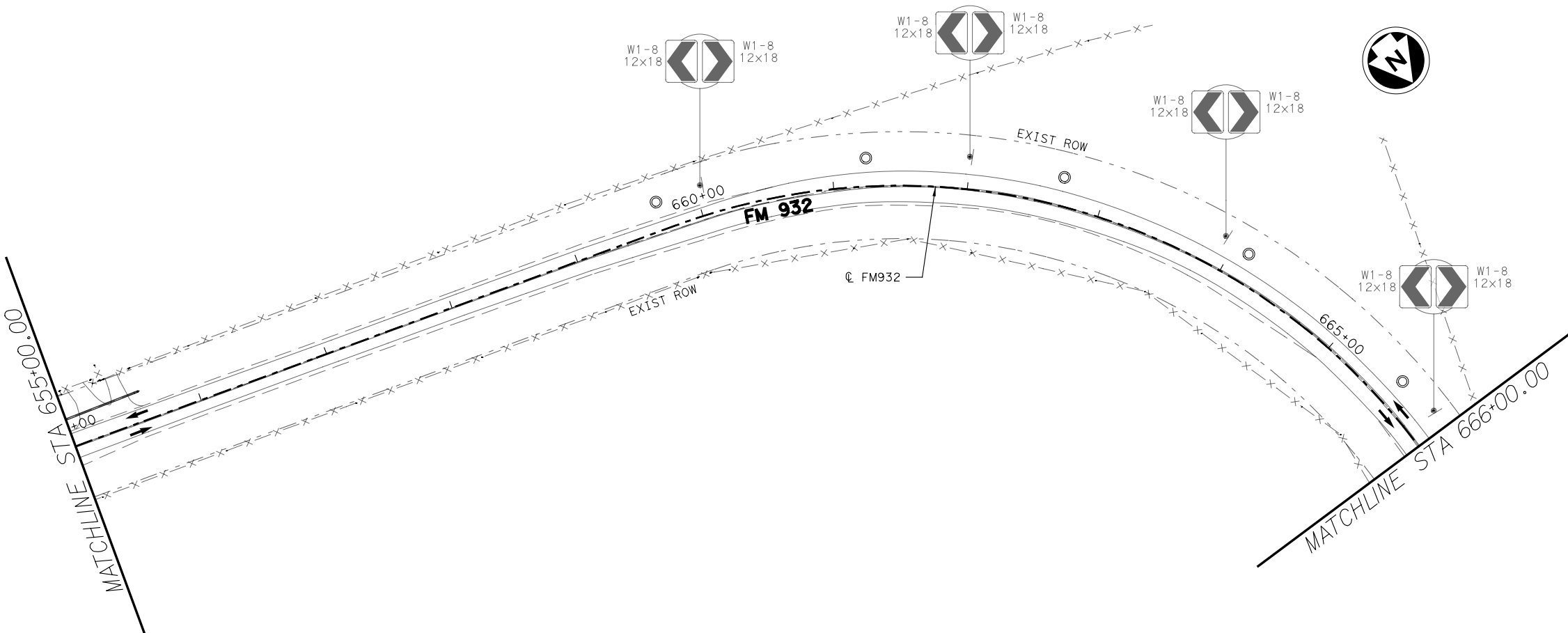
FM932



NOTE:
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* EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.

© LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



FM 932

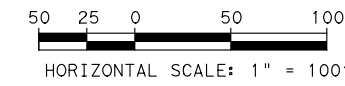
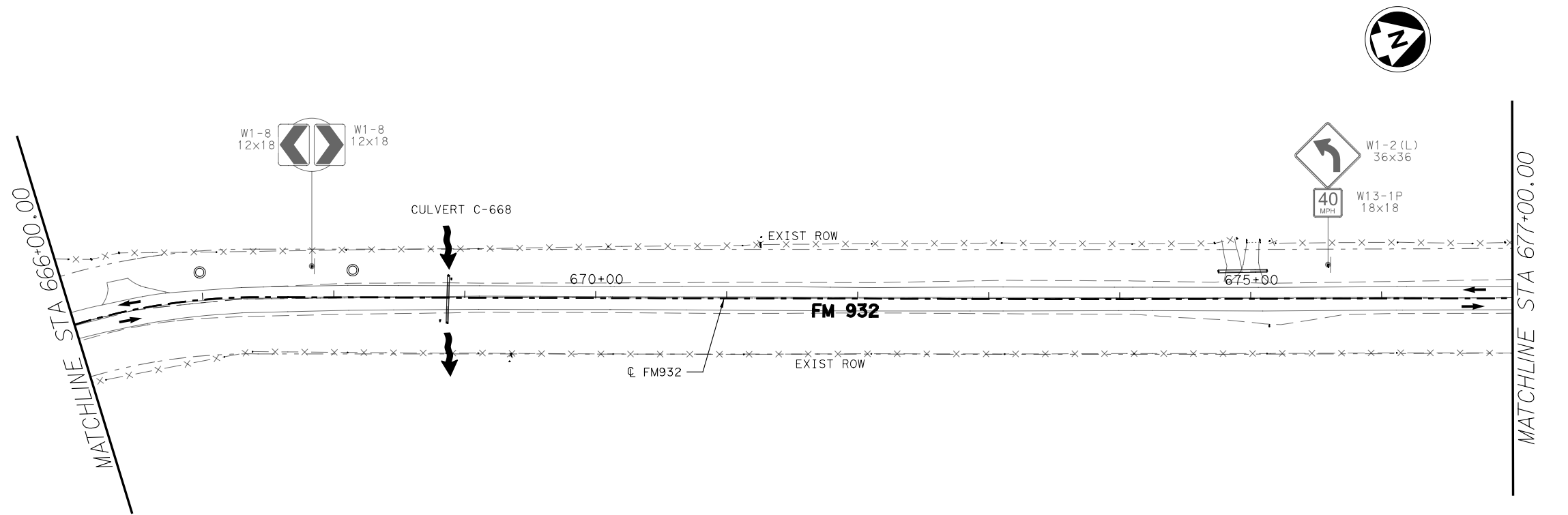
EXISTING PROJECT LAYOUT
STA 644+00.00 TO STA 666+00.00

(SHEET 14 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 17 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*EXISTING*14.dgn
DATE: 8/30/2021 3:33:37 PM

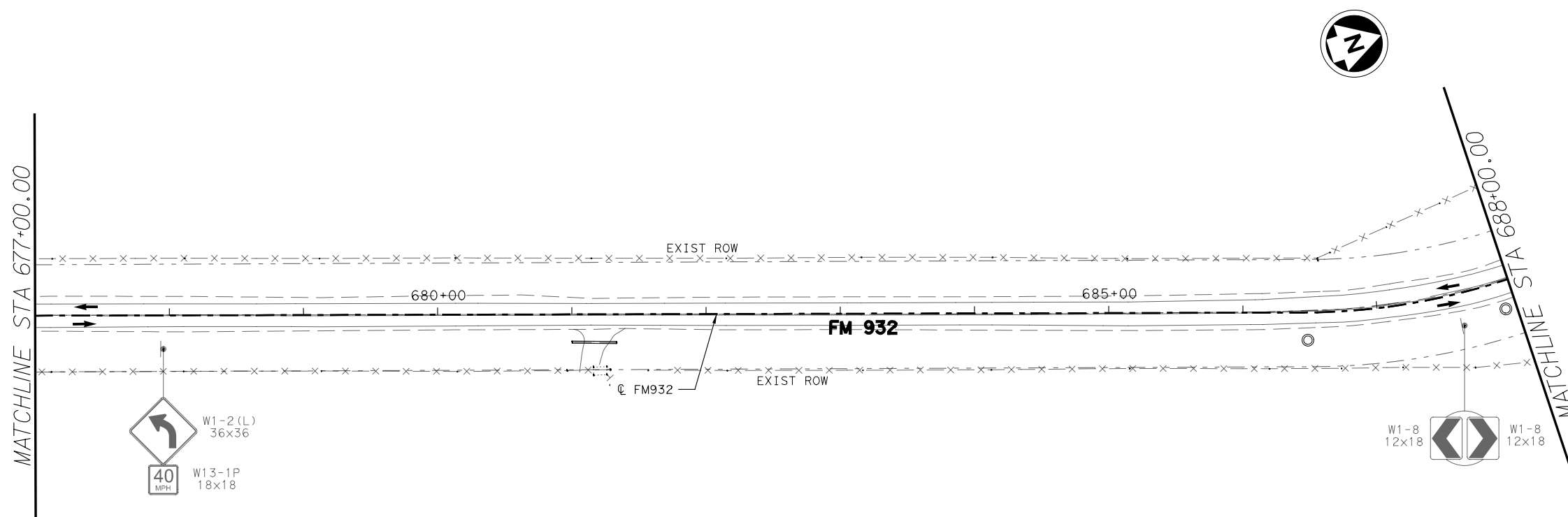
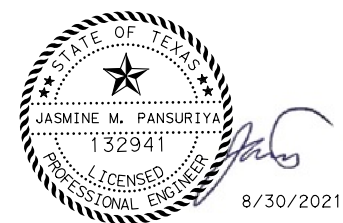
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 DATE: 8/30/2021 3:33:38 PM



NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.

* EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.

© LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



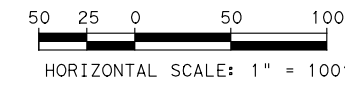
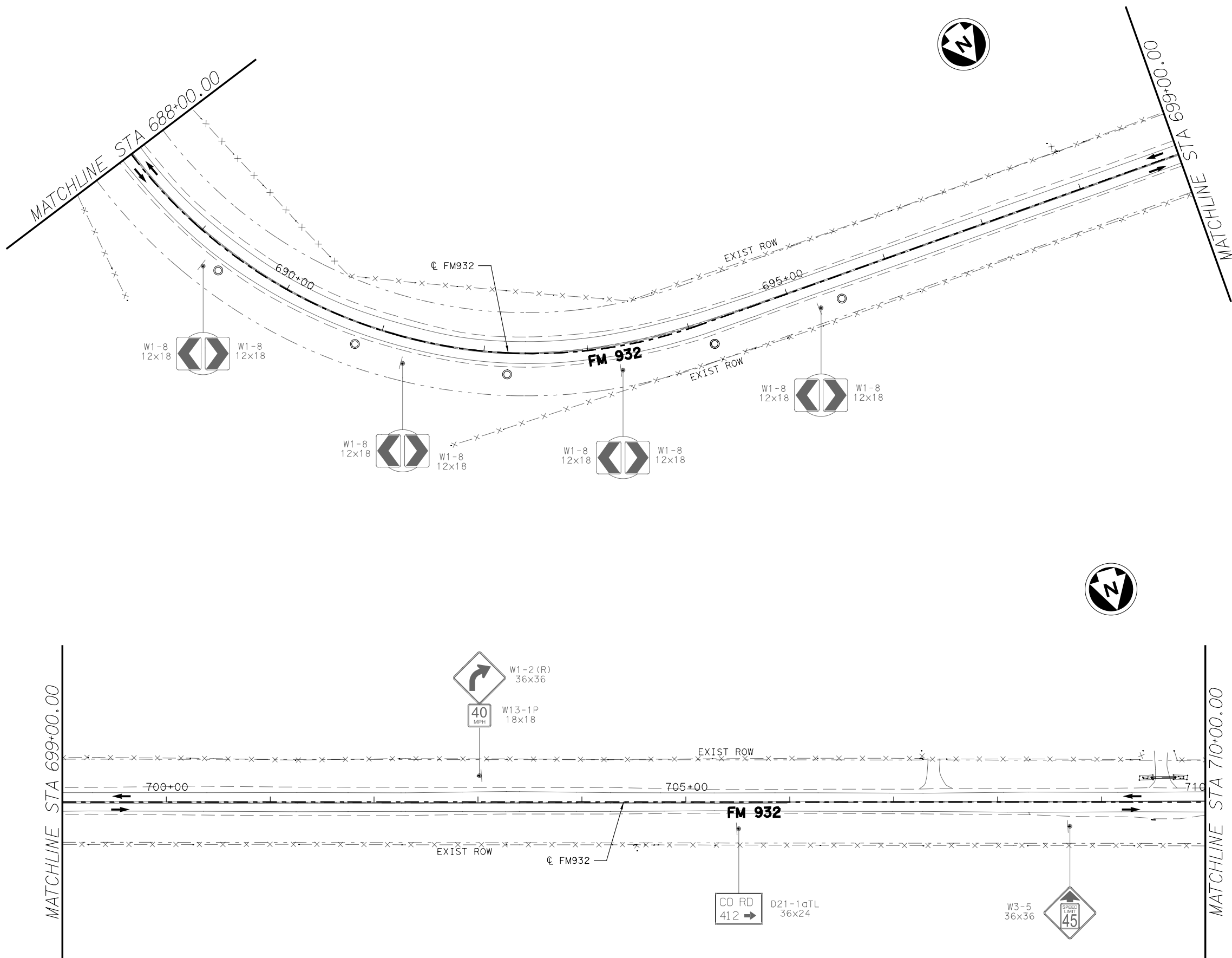
FM 932

EXISTING PROJECT LAYOUT
 STA 666+00.00 TO STA 688+00.00

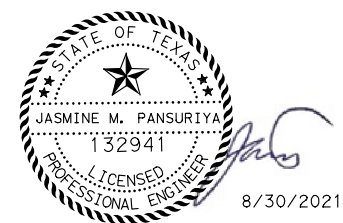
(SHEET 15 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 18 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*EXISTING*16.dgn
 DATE: 8/30/2021 3:33:39 PM



NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.
 * EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
 © LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.

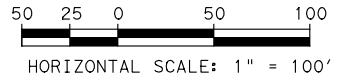


FM 932

EXISTING PROJECT LAYOUT
 STA 688+00.00 TO STA 710+00.00

(SHEET 16 OF 37)

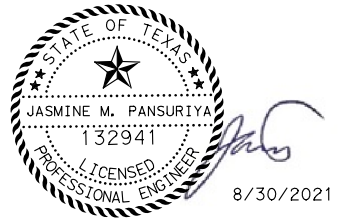
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|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 19 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.

* EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.

© LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.

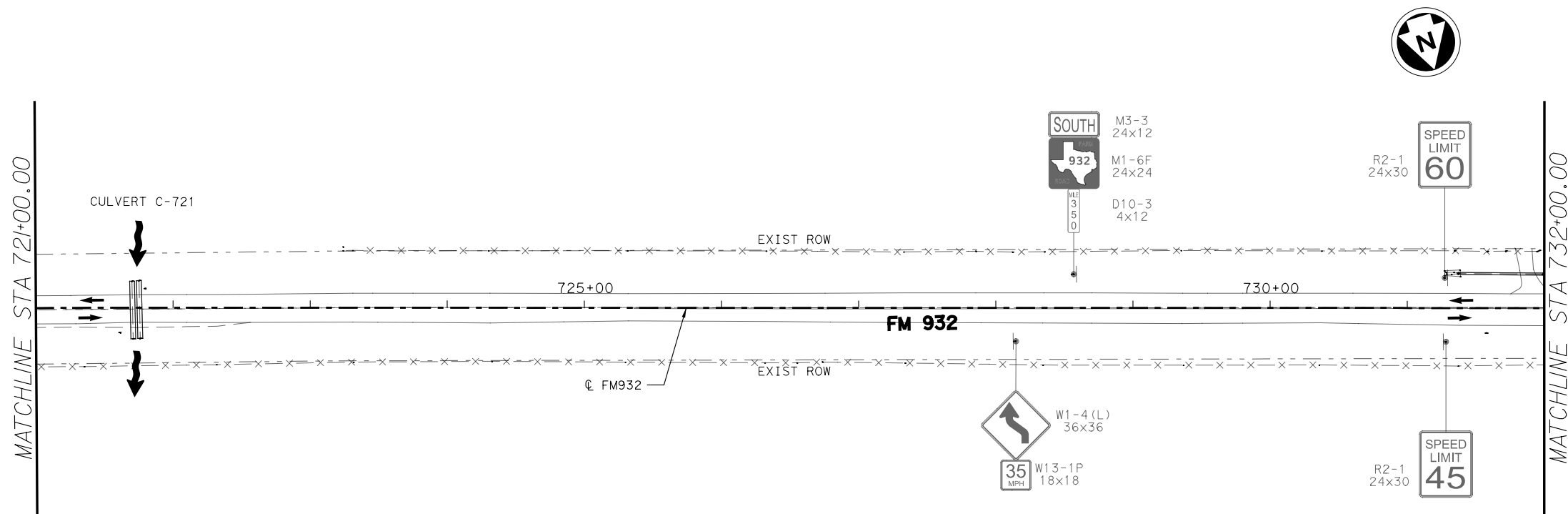
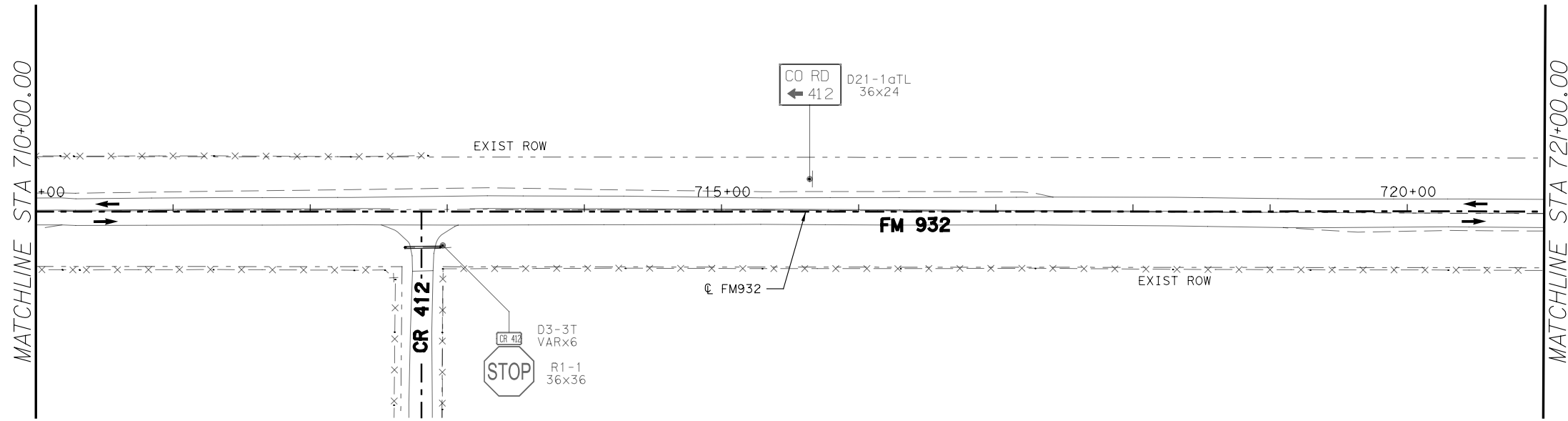


FM 932

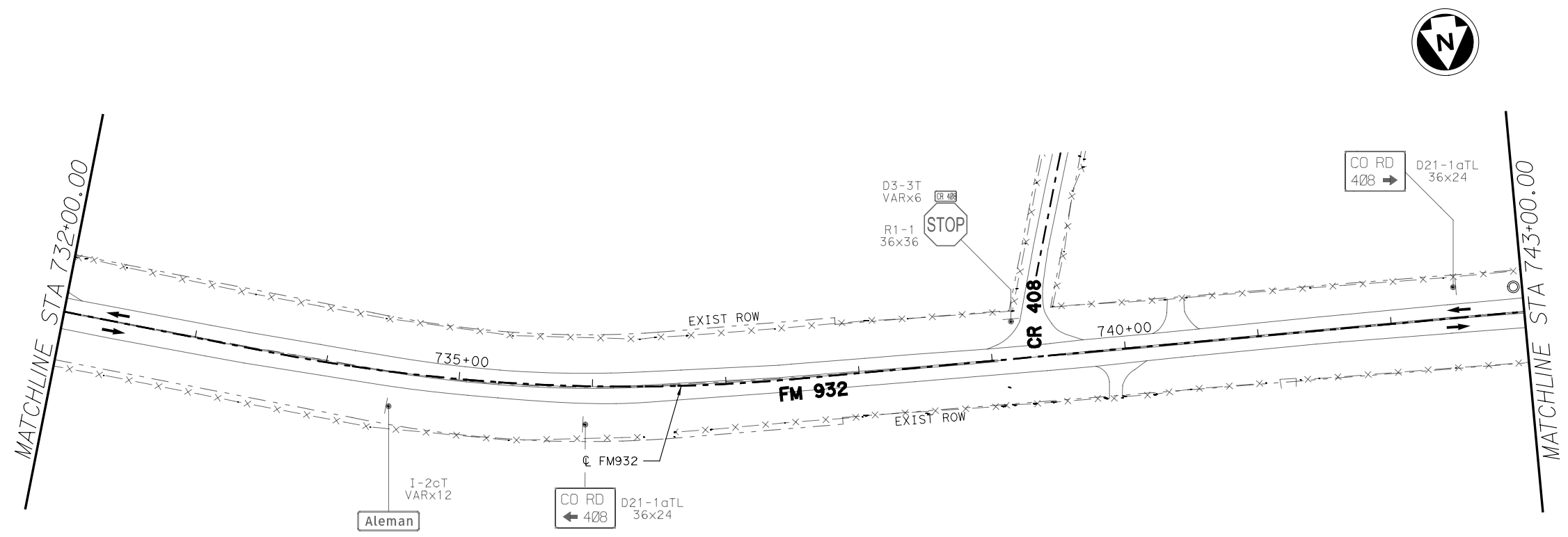
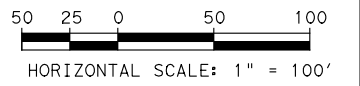
EXISTING PROJECT LAYOUT
 STA 710+00.00 TO STA 732+00.00

(SHEET 17 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 20 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



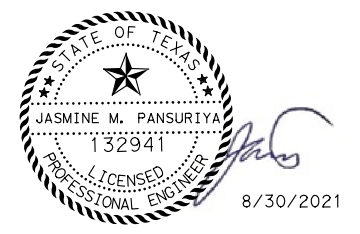
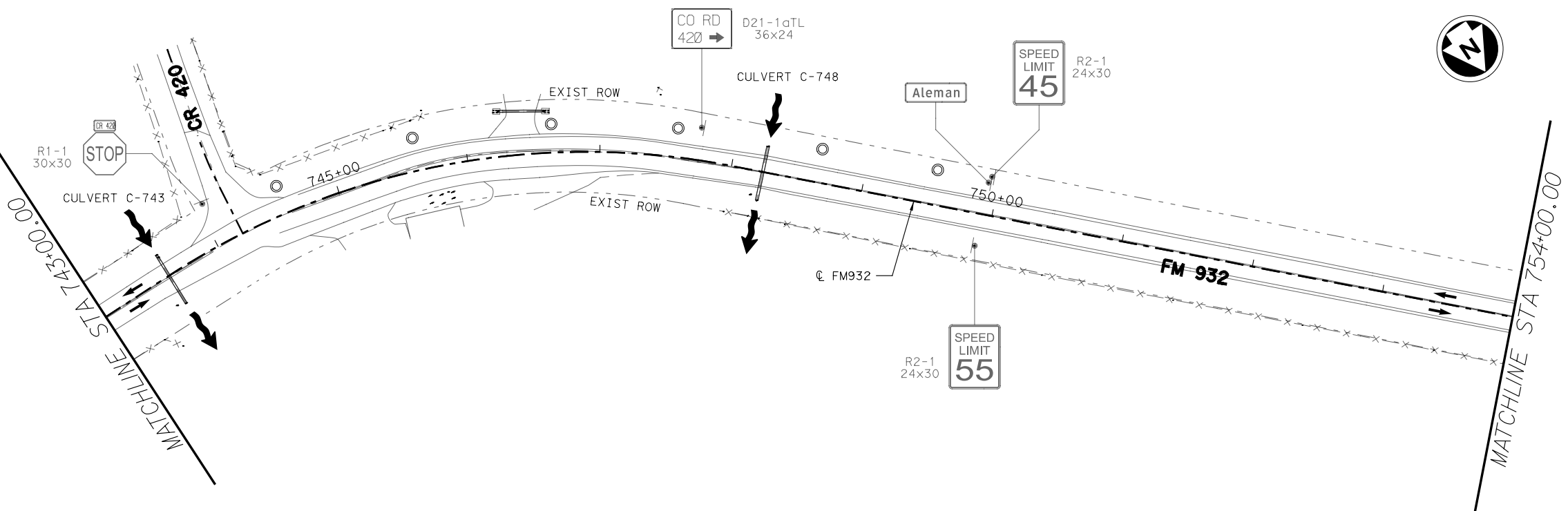
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 DATE: 8/30/2021 3:33:40 PM



NOTE:
EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.

* EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.

© LOCATION OF DRUMS TO COMPLY WITH D&M(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



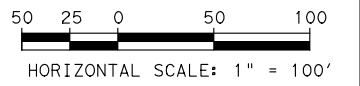
FM 932

EXISTING PROJECT LAYOUT
STA 732+00.00 TO STA 754+00.00

(SHEET 18 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
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| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

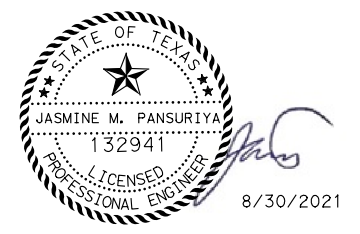
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DATE: 8/30/2021 3:33:41 PM



NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.

* EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.

© LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.

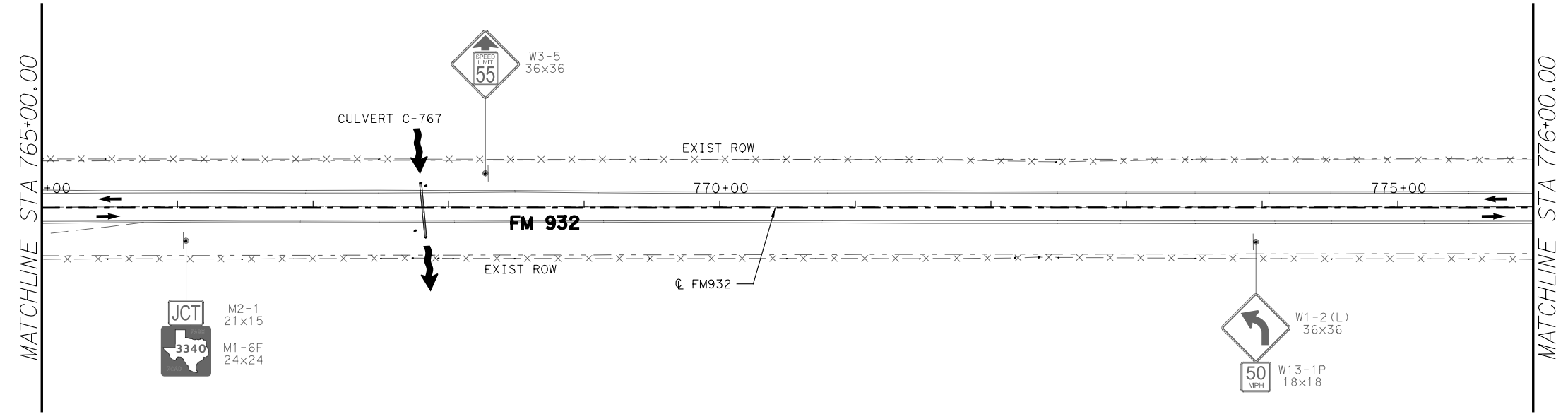
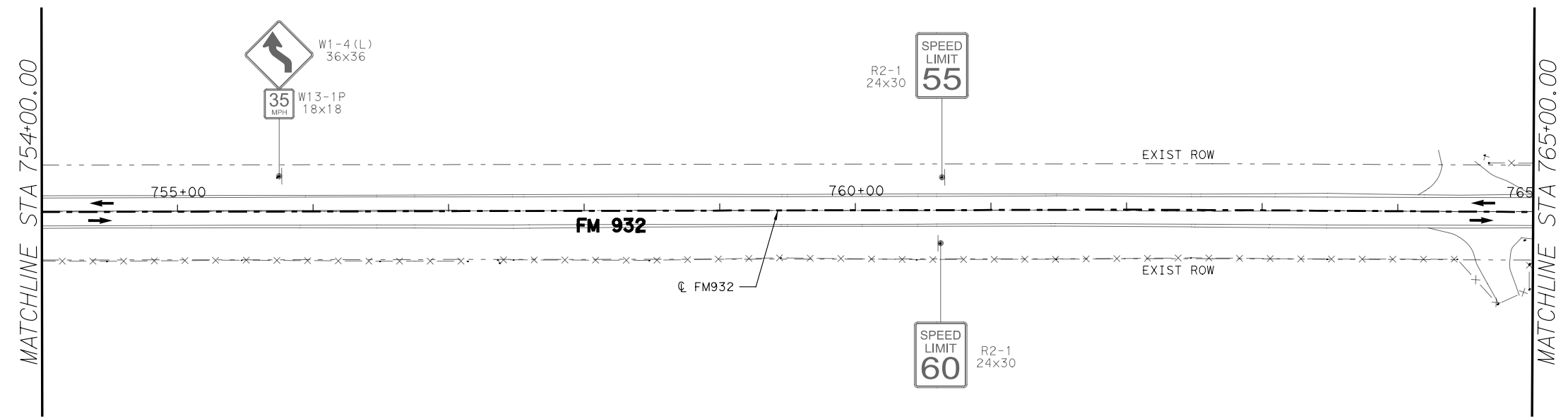


FM 932

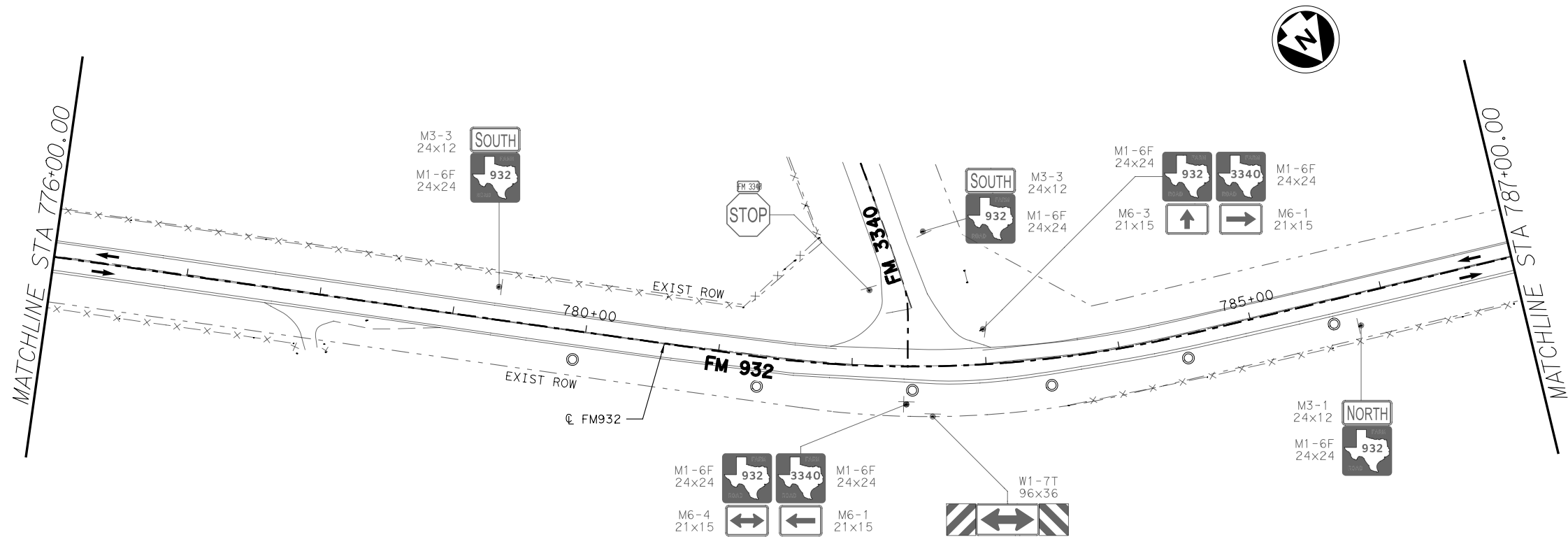
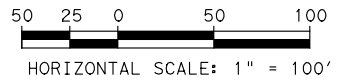
EXISTING PROJECT LAYOUT
 STA 754+00.00 TO STA 776+00.00

(SHEET 19 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
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| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



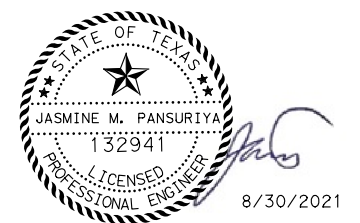
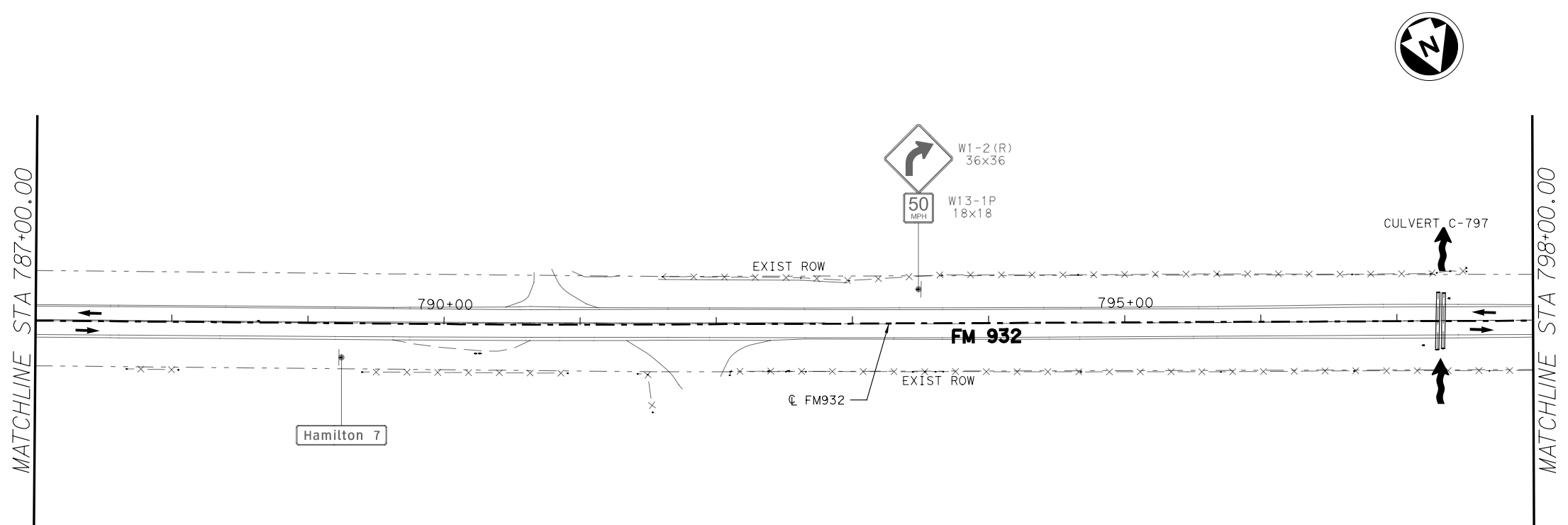
FILE: FM932*OTHON*EXISTING*19.dgn
 DATE: 8/30/2021 3:33:42 PM



NOTE:
EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.

* EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.

⊙ LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



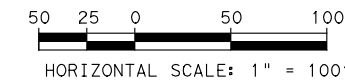
FM 932

EXISTING PROJECT LAYOUT
STA 776+00.00 TO STA 798+00.00

(SHEET 20 OF 37)

| | | | | |
|----------------|---------------------|---|-----------------|--------------------|
| DESIGN RP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK JMP | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 23 |
| GRAPHICS RP | CONTROL | SECTION | JOB | 23 |
| GRPH CHECK JMP | 0867 | 01 | 017 | |

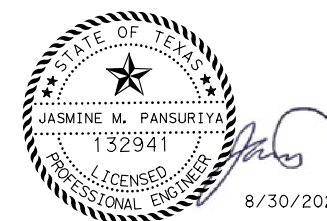
FILE: FM932*OTHON*EXISTING*20.dgn
DATE: 8/30/2021 3:33:42 PM



NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.

* EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.

© LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.

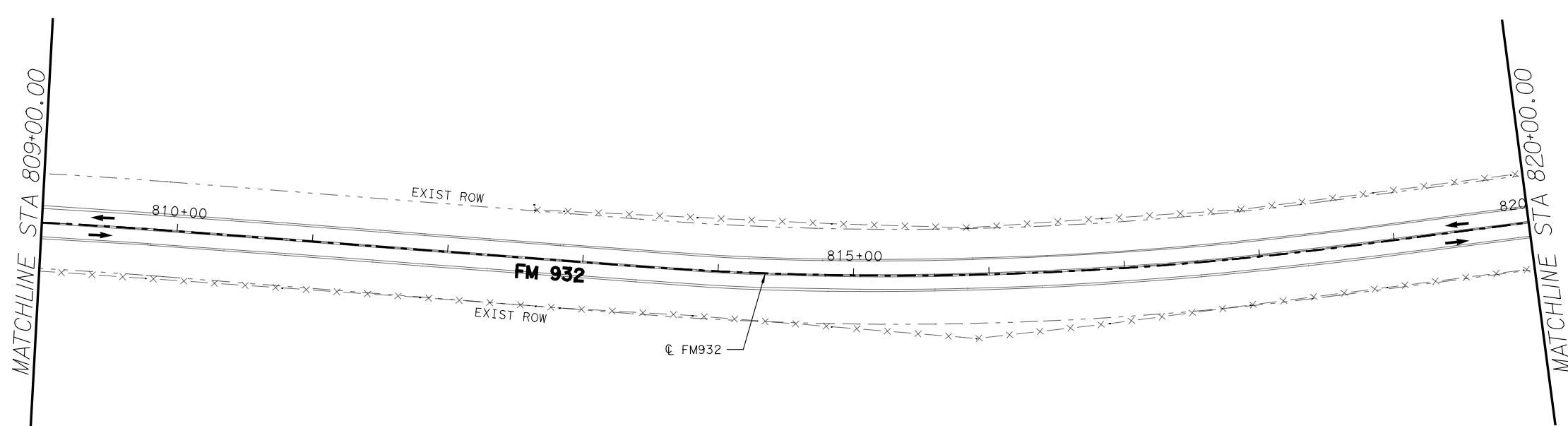
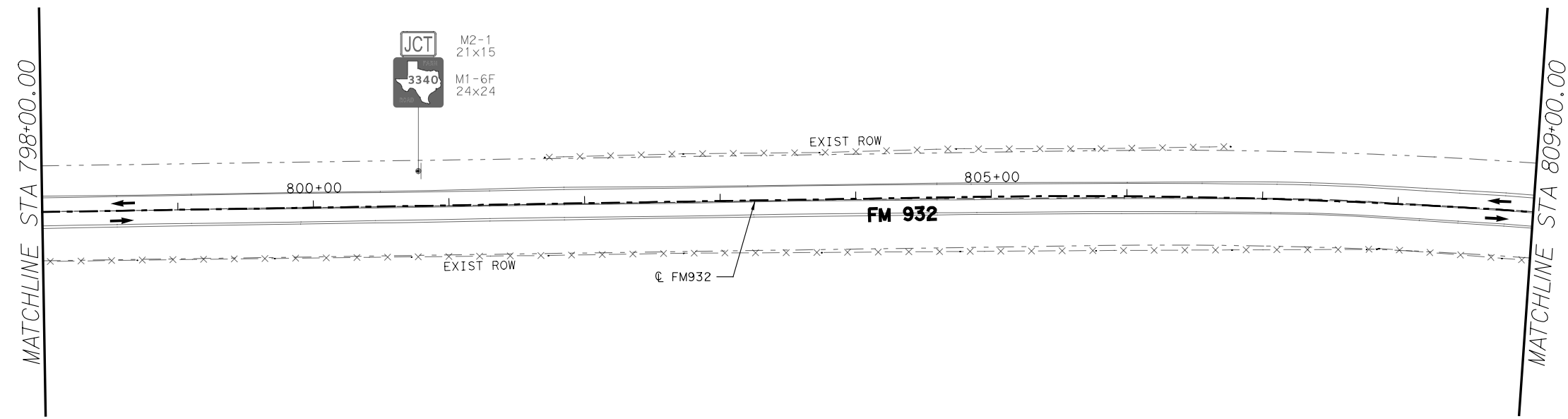


FM 932

EXISTING PROJECT LAYOUT
 STA 798+00.00 TO STA 820+00.00

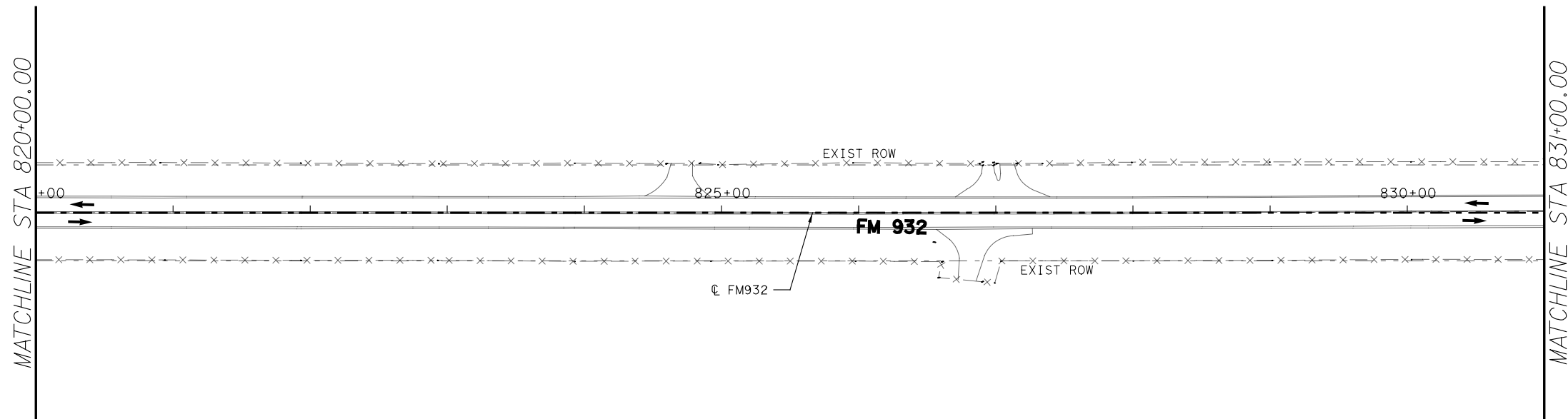
(SHEET 21 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 24 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*EXISTING*21.dgn
 DATE: 8/30/2021 3:33:43 PM

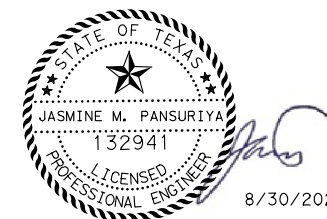
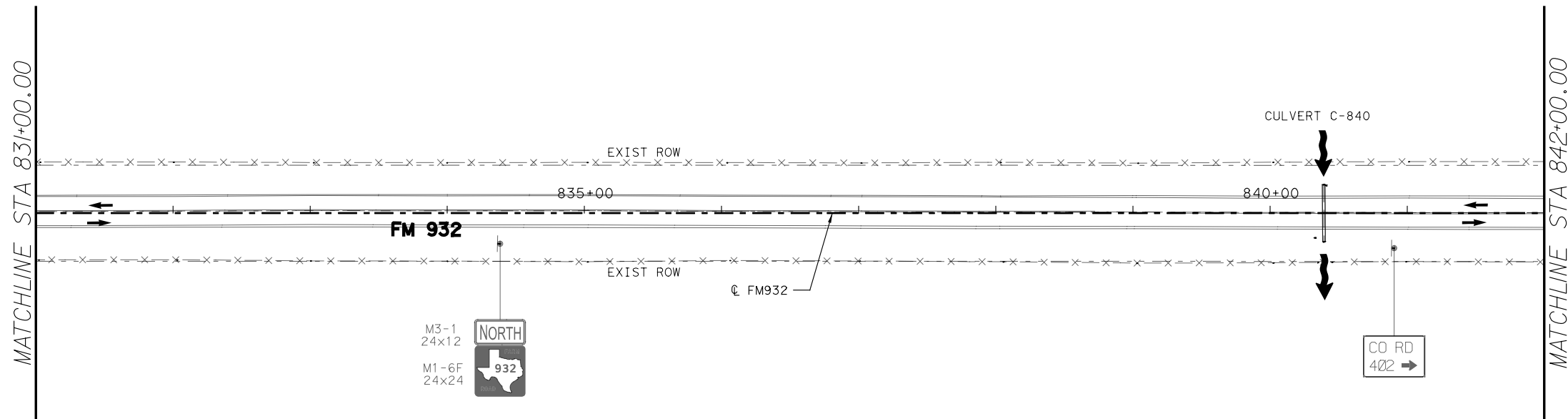
FILE: FM932*OTHON*EXISTING*22.dgn
 DATE: 8/30/2021 3:33:44 PM



NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.

* EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.

© LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.

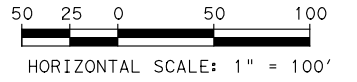


FM 932

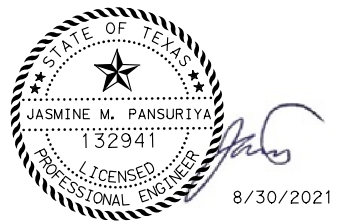
EXISTING PROJECT LAYOUT
 STA 820+00.00 TO STA 842+00.00

(SHEET 22 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 25 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



- NOTE:
EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.
- * EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
 - © LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



FM 932

EXISTING PROJECT LAYOUT
STA 842+00.00 TO STA 864+00.00

(SHEET 23 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 26 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

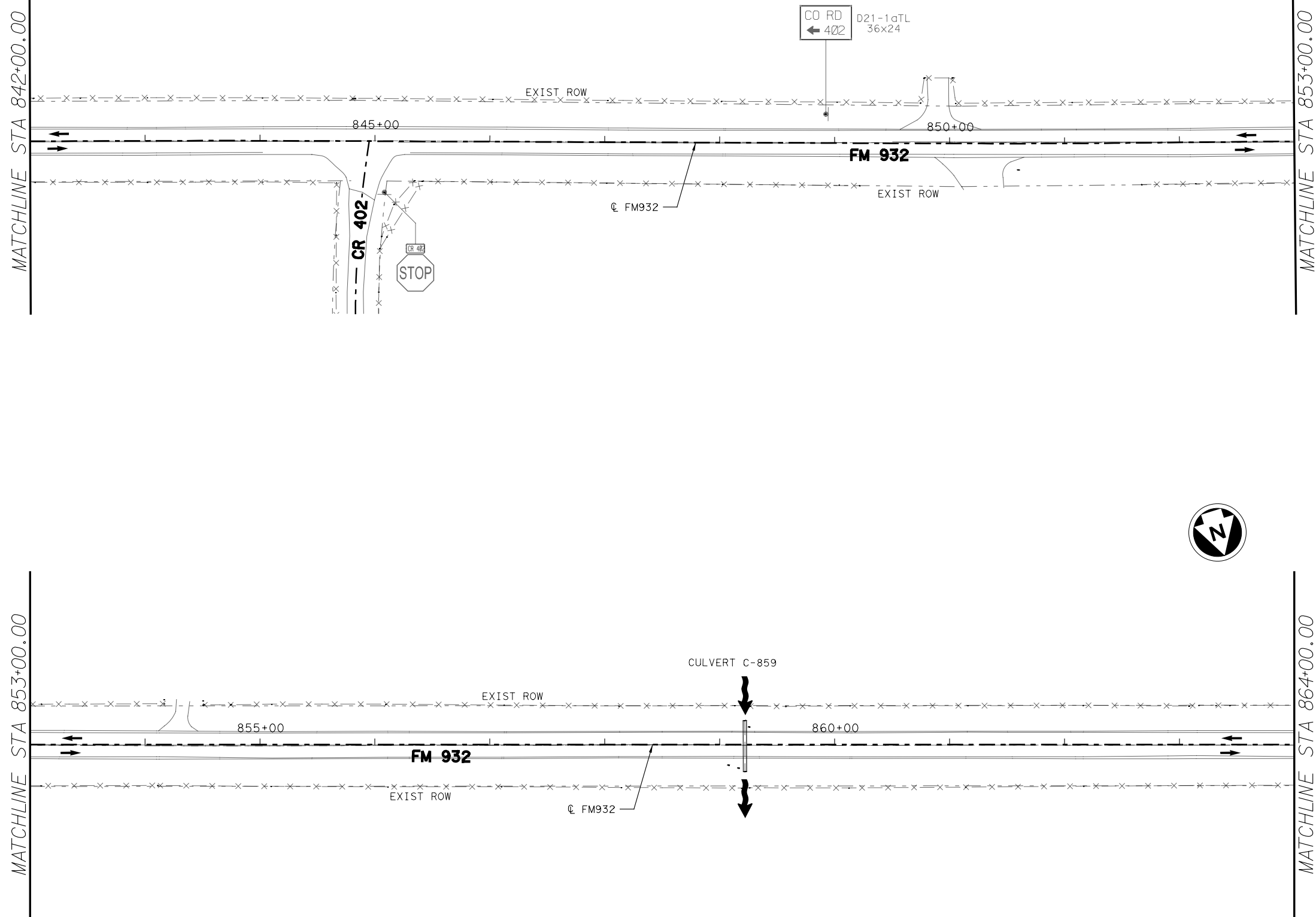
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DATE: 8/30/2021 3:33:45 PM

MATCHLINE STA 842+00.00

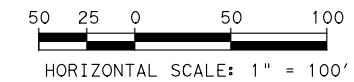
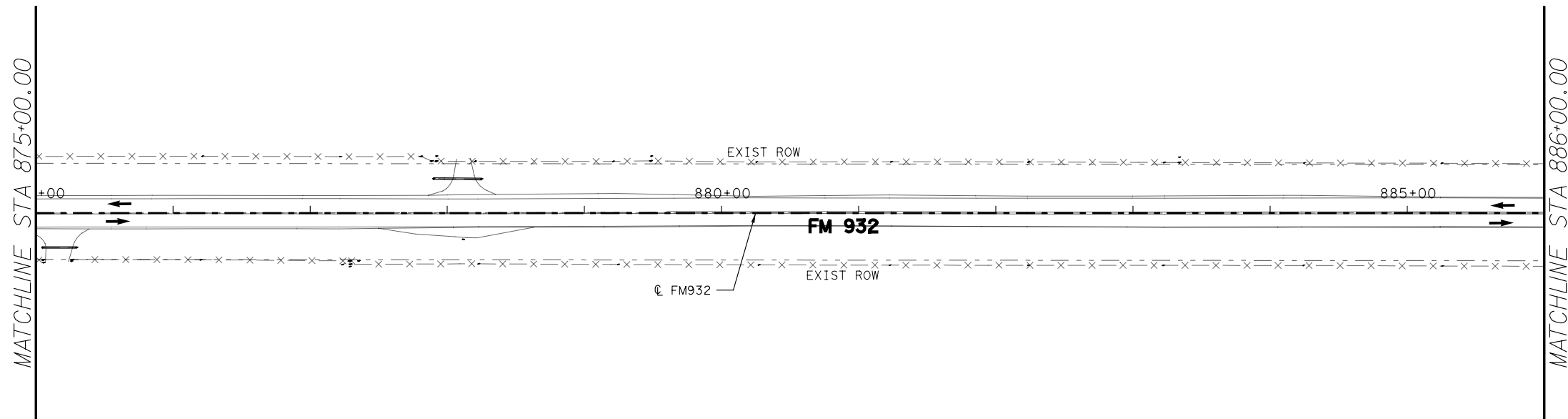
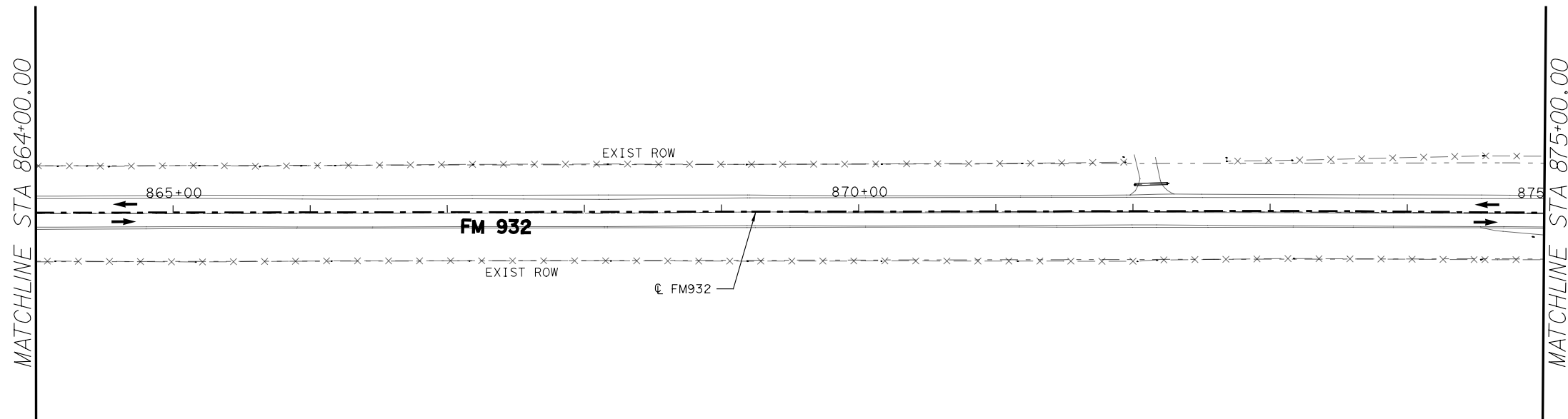
MATCHLINE STA 853+00.00

MATCHLINE STA 853+00.00

MATCHLINE STA 864+00.00



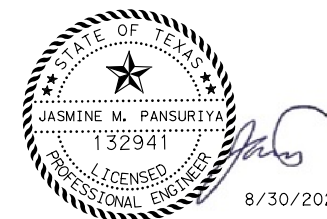
FILE: FM932*OTHON*EXISTING*24.dgn
 DATE: 8/30/2021 3:33:46 PM



NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.

* EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.

© LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.

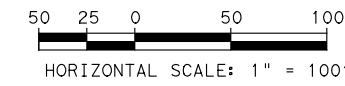


FM 932

EXISTING PROJECT LAYOUT
 STA 864+00.00 TO STA 886+00.00

(SHEET 24 OF 37)

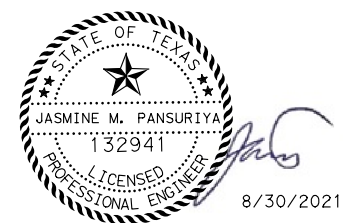
| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 27 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.

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⊙ LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



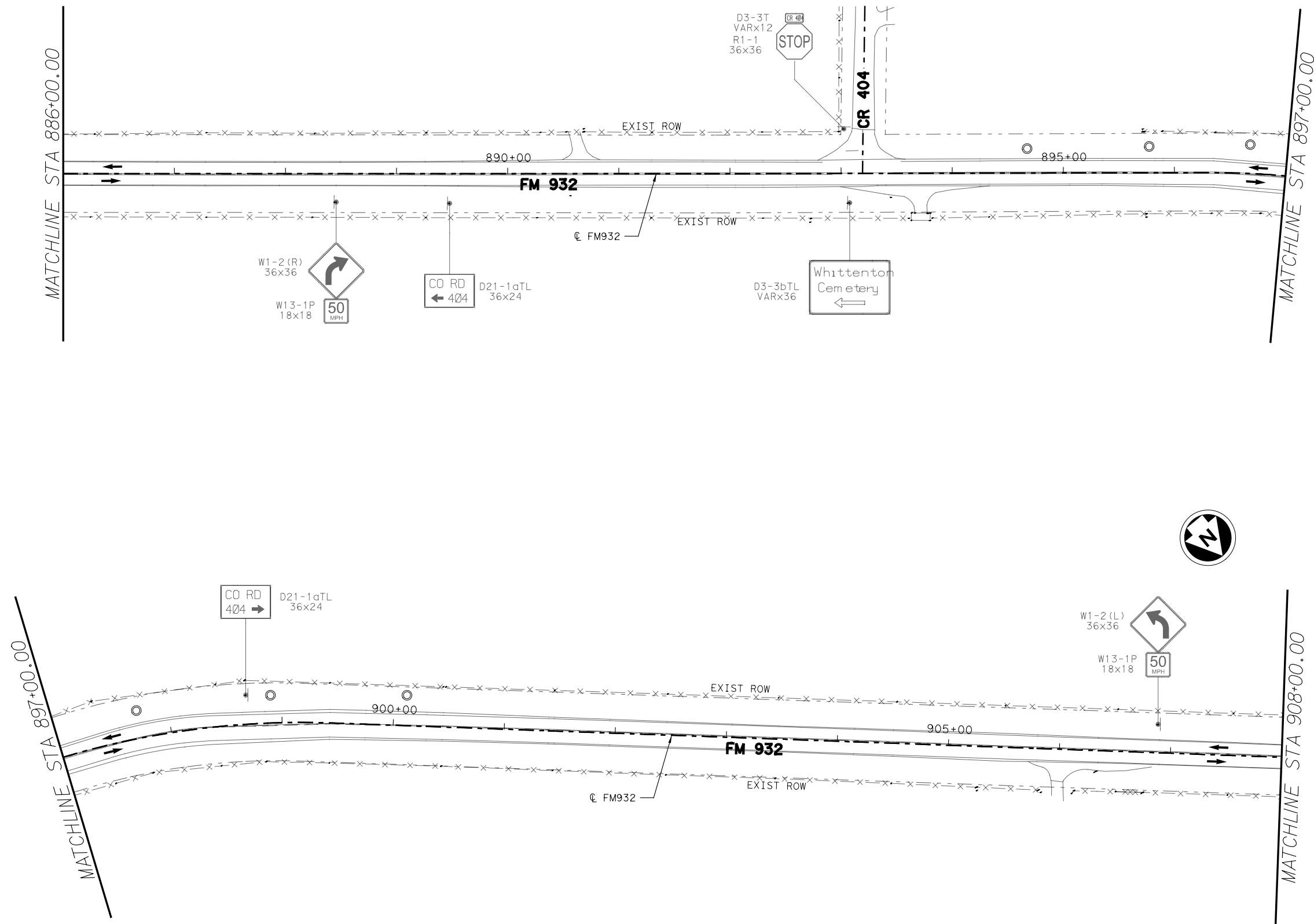
FM 932

EXISTING PROJECT LAYOUT
 STA 886+00.00 TO STA 908+00.00

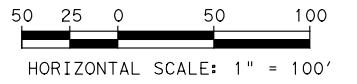
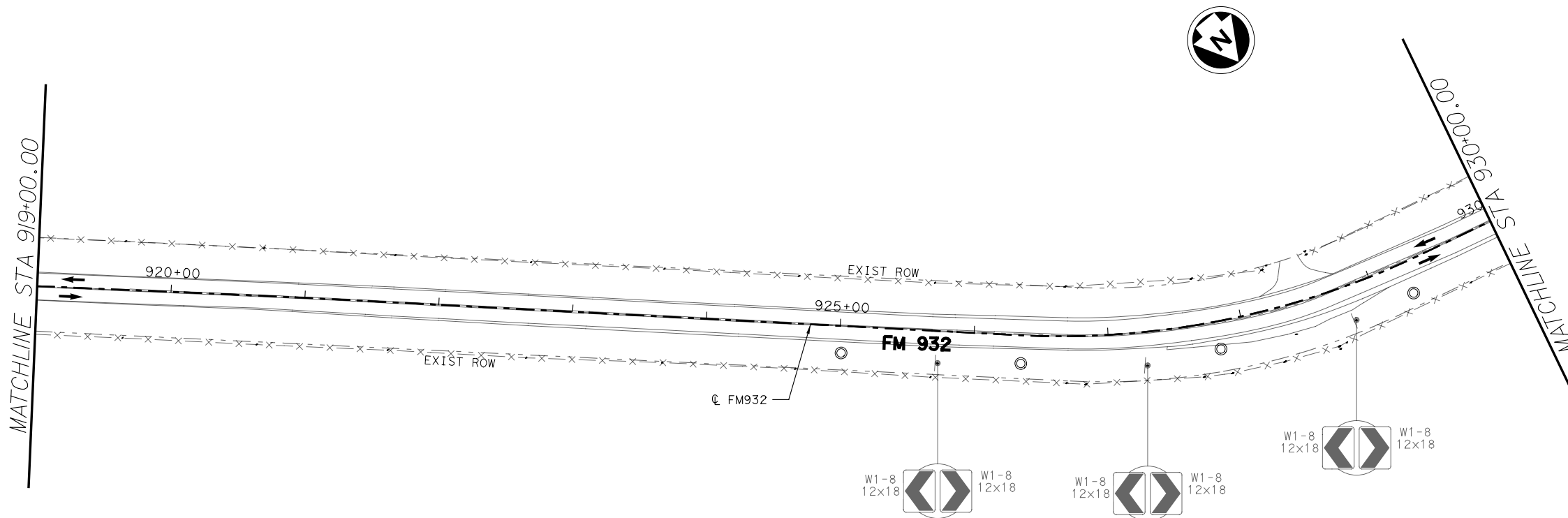
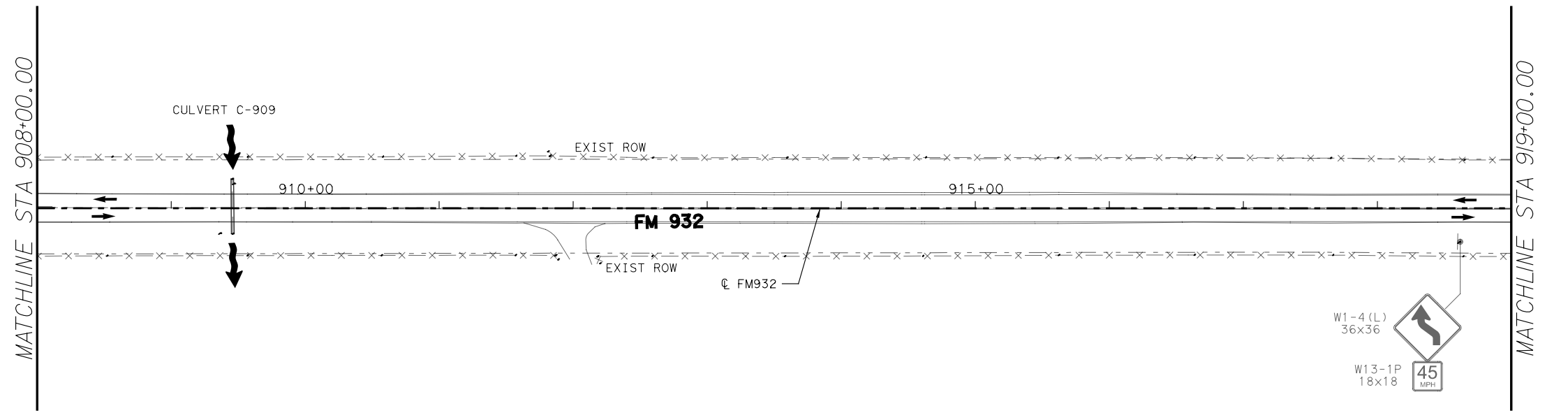
(SHEET 25 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 28 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*EXISTING*25.dgn
 DATE: 8/30/2021 3:33:46 PM



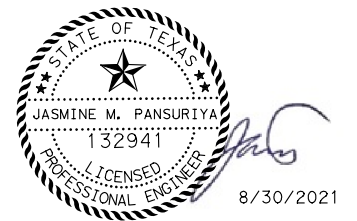
FILE: FM932*OTHON*EXISTING*26.dgn
 DATE: 8/30/2021 3:33:47 PM



NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.

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© LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.

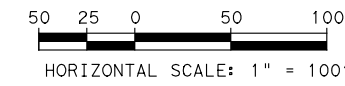


FM 932

EXISTING PROJECT LAYOUT
 STA 908+00.00 TO STA 930+00.00

(SHEET 26 OF 37)

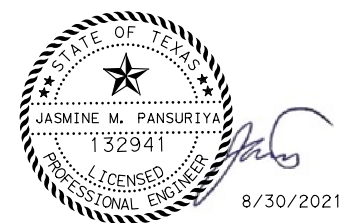
| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 29 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



NOTE:
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⊙ LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CW1-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



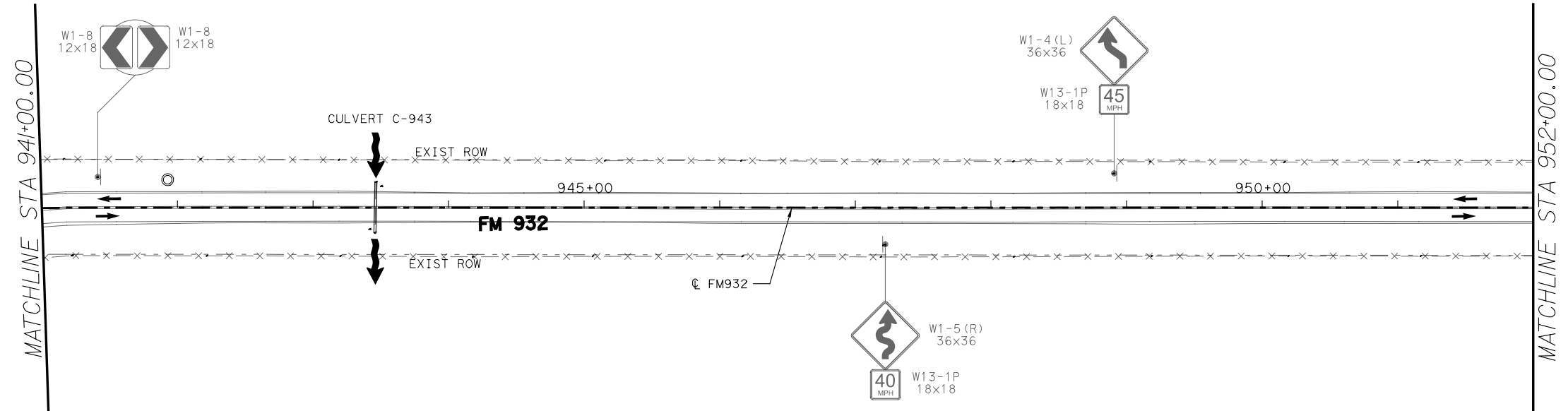
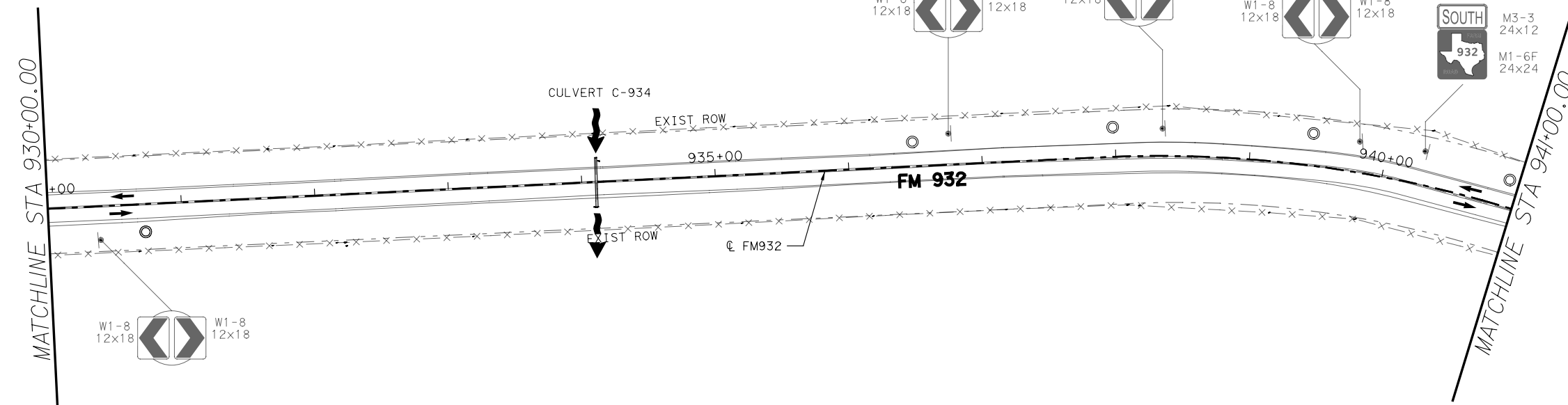
FM 932

EXISTING PROJECT LAYOUT

STA 930+00.00 TO STA 952+00.00

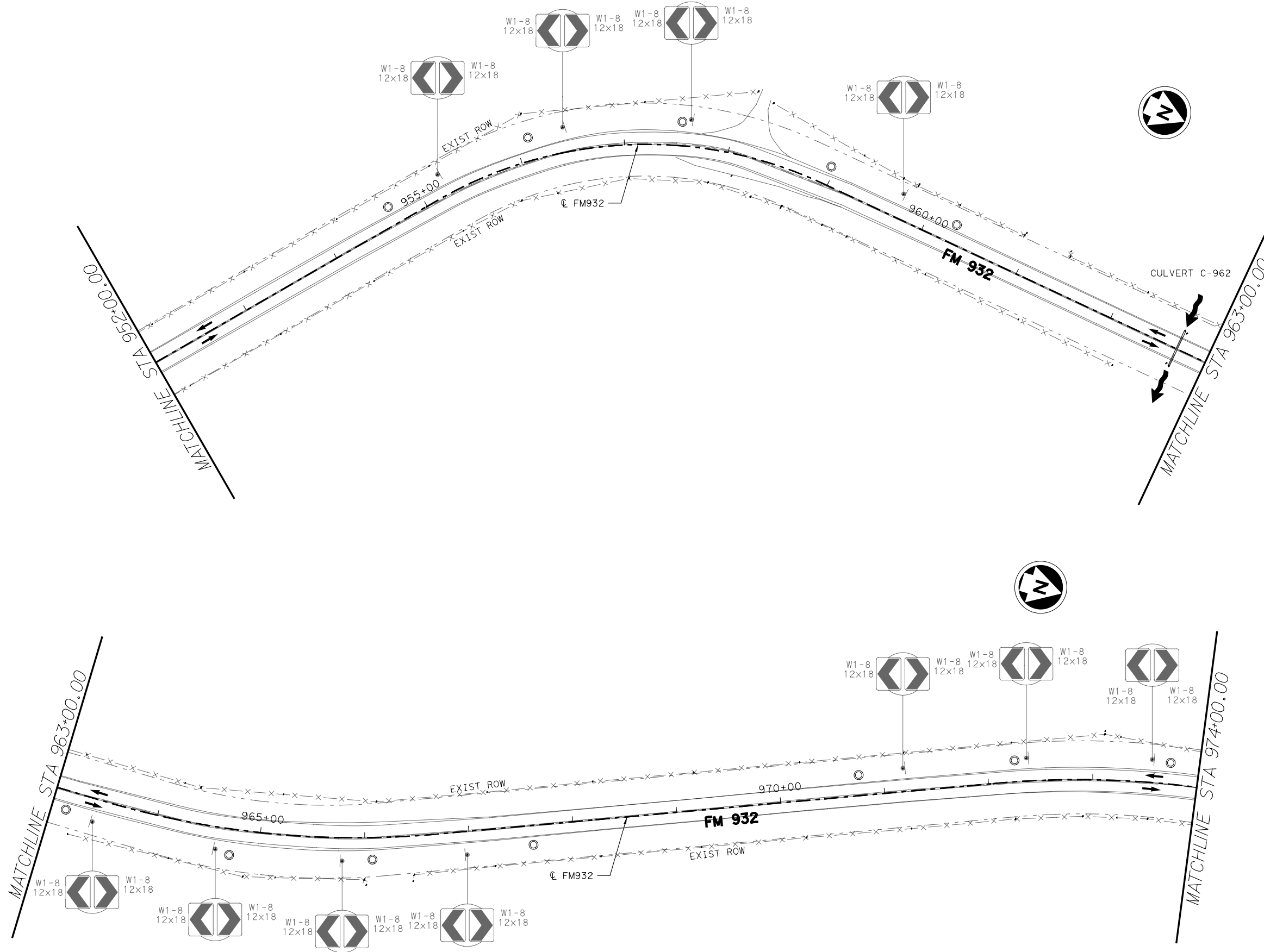
(SHEET 27 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 30 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



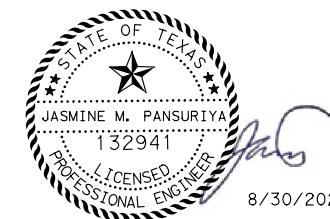
FILE: FM932*OTHON*EXISTING*27.dgn
 DATE: 8/30/2021 3:33:48 PM

FILE: FM932*OTHON*EXISTING*28.dgn
 DATE: 8/30/2021 3:33:49 PM



50 25 0 50 100
 HORIZONTAL SCALE: 1" = 100'

NOTE:
 EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.
 * EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
 © LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CW1-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



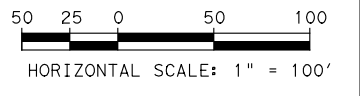
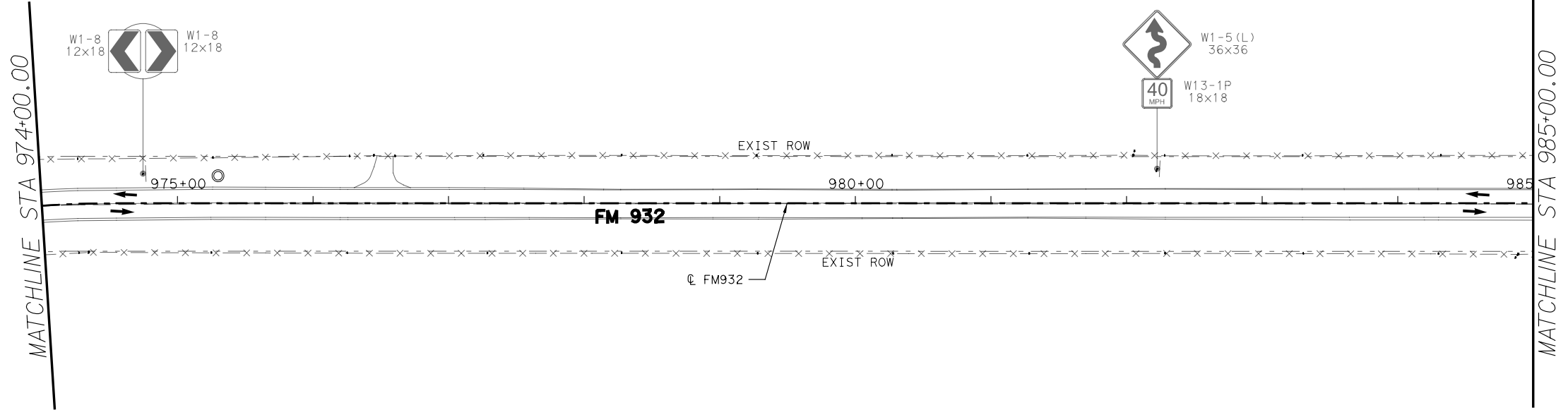
FM 932

EXISTING PROJECT LAYOUT
 STA 952+00.00 TO STA 974+00.00

(SHEET 28 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 31 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

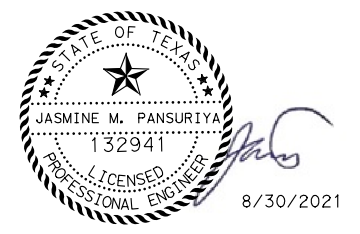
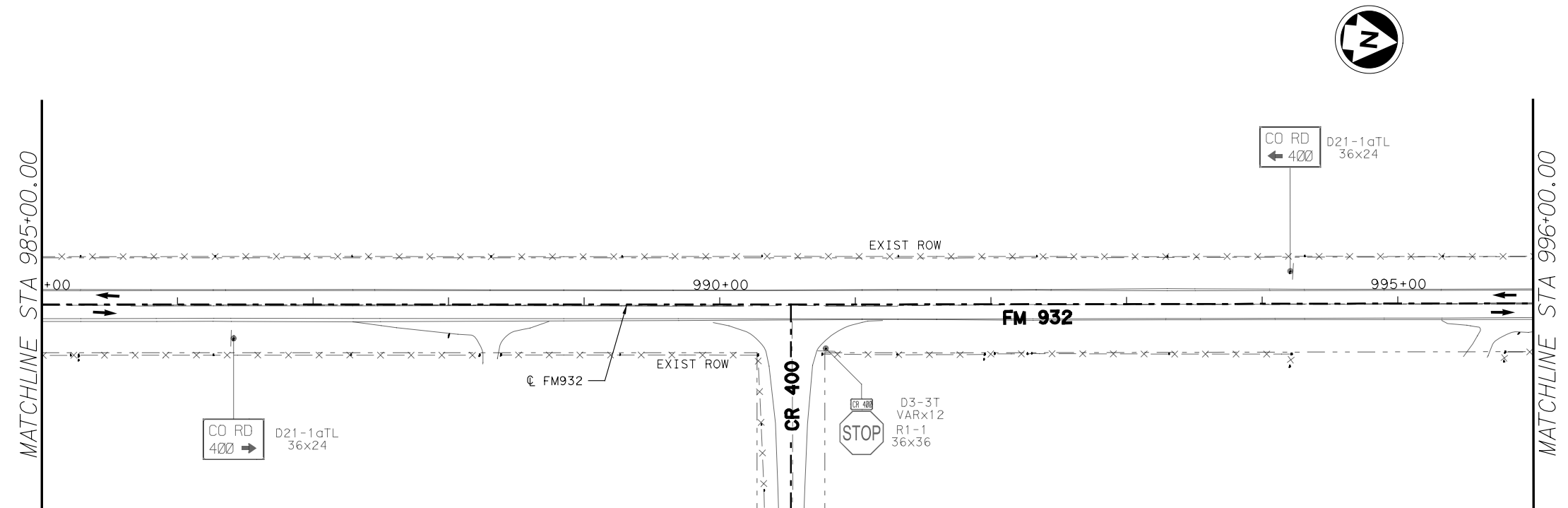
FILE: FM932*OTHON*EXISTING*29.dgn
 DATE: 8/30/2021 3:33:50 PM



NOTE:
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© LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



FM 932

EXISTING PROJECT LAYOUT
 STA 974+00.00 TO STA 996+00.00

(SHEET 29 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 32 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

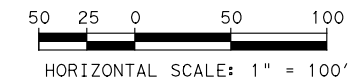
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 DATE: 8/30/2021 3:33:50 PM

MATCHLINE STA 996+00.00

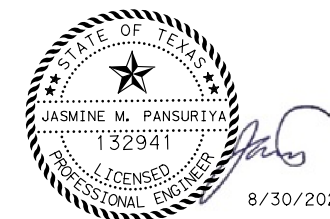
MATCHLINE STA 1007+00.00

MATCHLINE STA 1007+00.00

MATCHLINE STA 1018+00.00



NOTE:
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 © LOCATION OF DRUMS TO COMPLY WITH D&M(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.

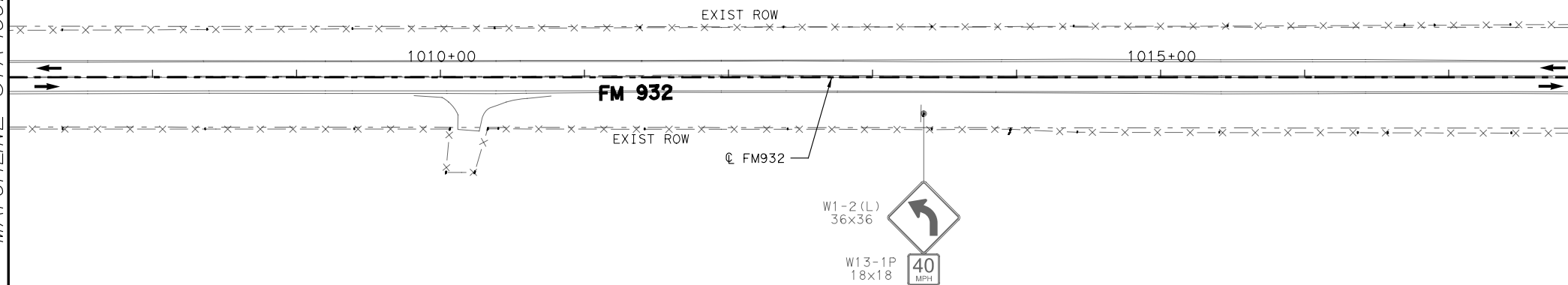
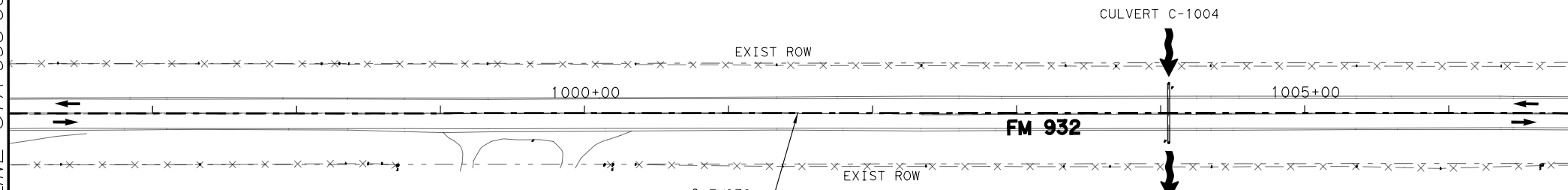


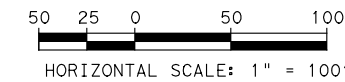
FM 932

EXISTING PROJECT LAYOUT
 STA 996+00.00 TO STA 1018+00.00

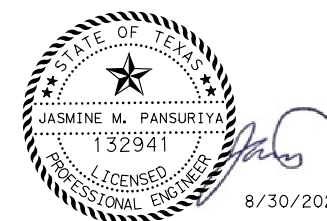
(SHEET 30 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 33 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |





NOTE:
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 * EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
 © LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



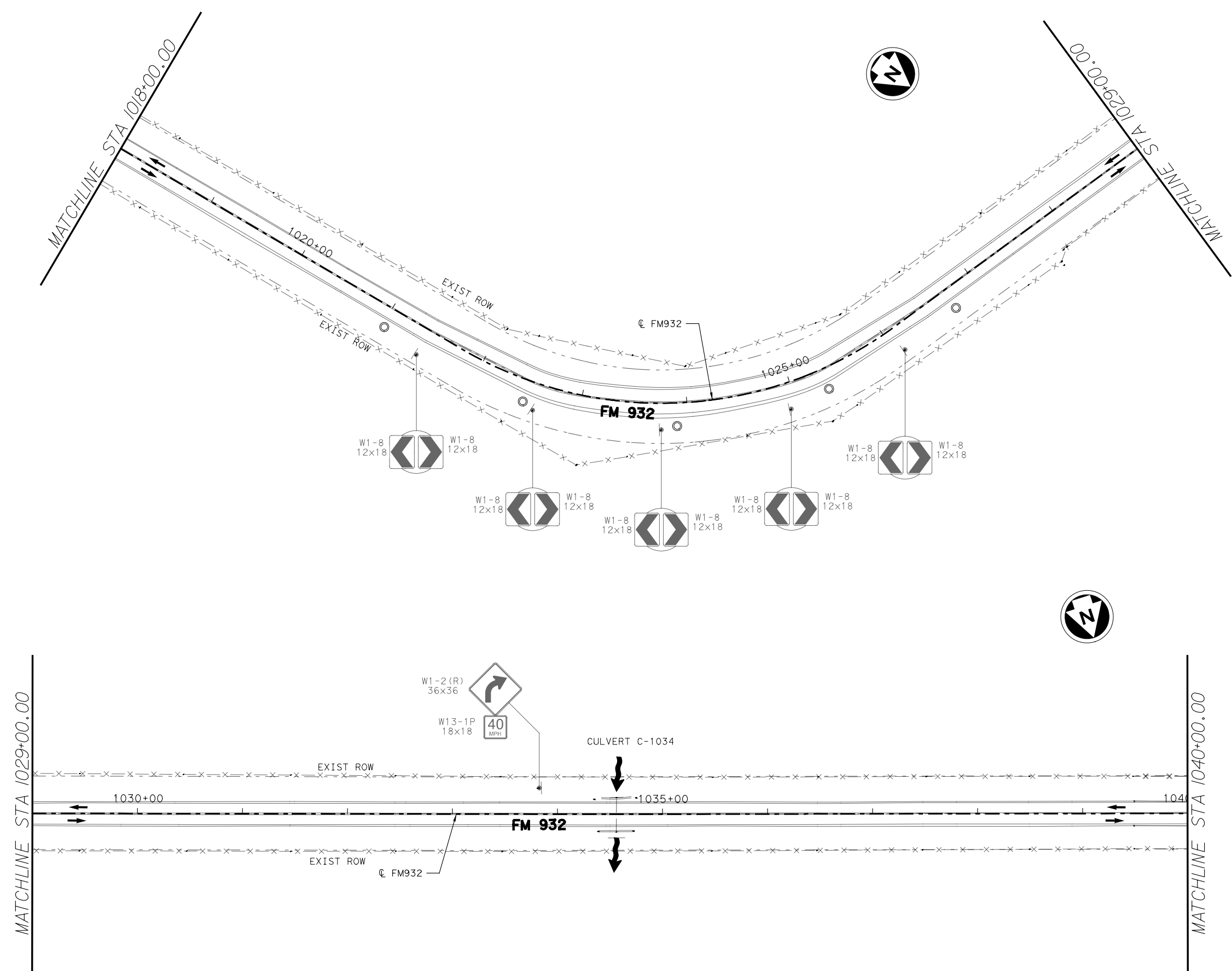
FM 932

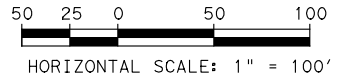
EXISTING PROJECT LAYOUT
 STA 1018+00.00 TO STA 1040+00.00

(SHEET 31 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 34 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*EXISTING*31.dgn
 DATE: 8/30/2021 3:33:51 PM

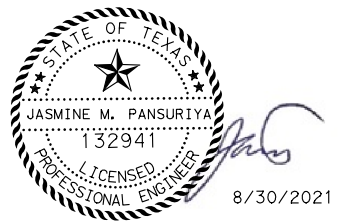




NOTE:
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© LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



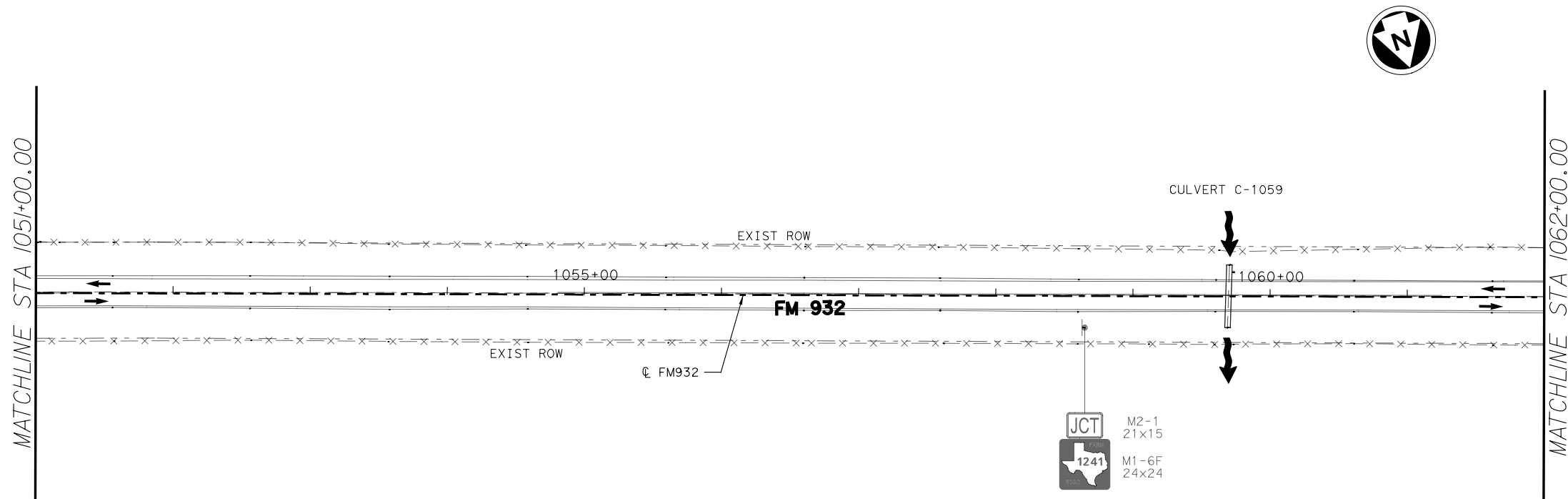
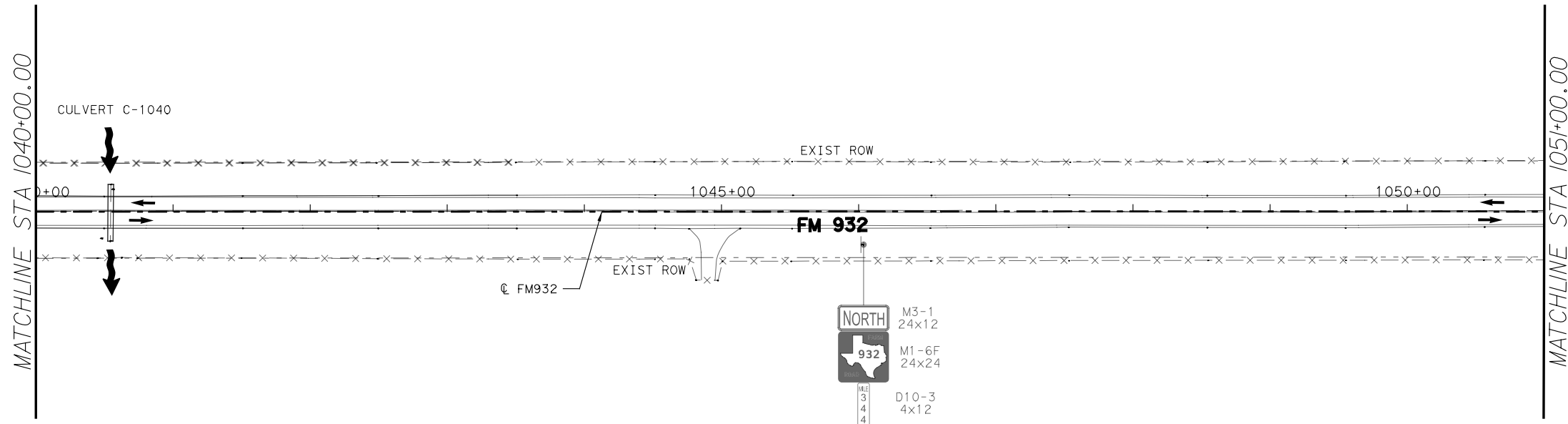
FM 932

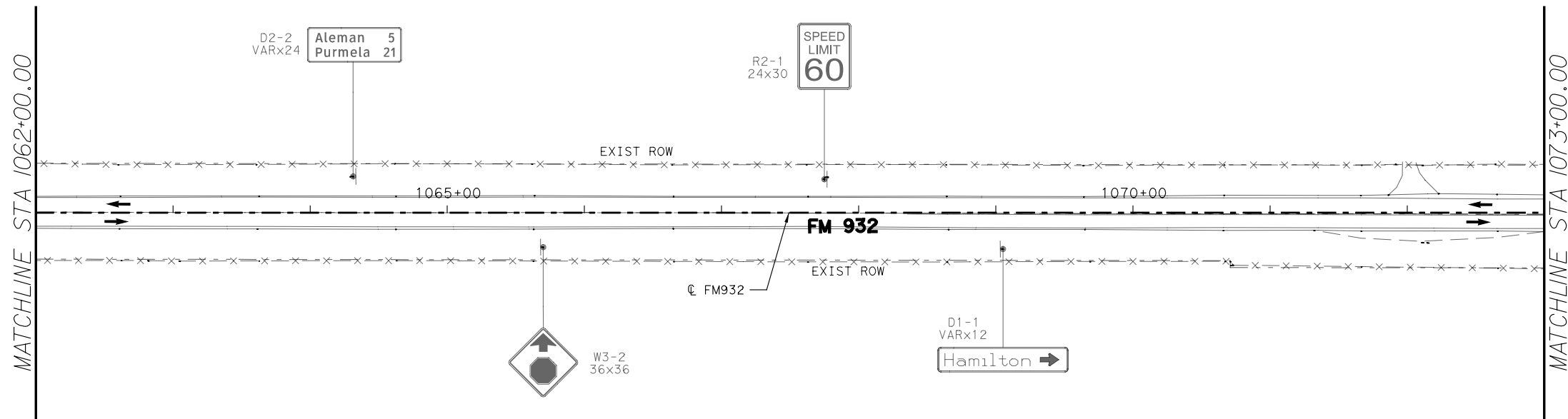
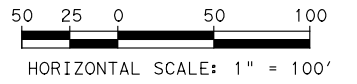
EXISTING PROJECT LAYOUT
 STA 1040+00.00 TO STA 1062+00.00

(SHEET 32 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 35 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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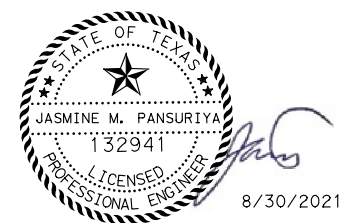
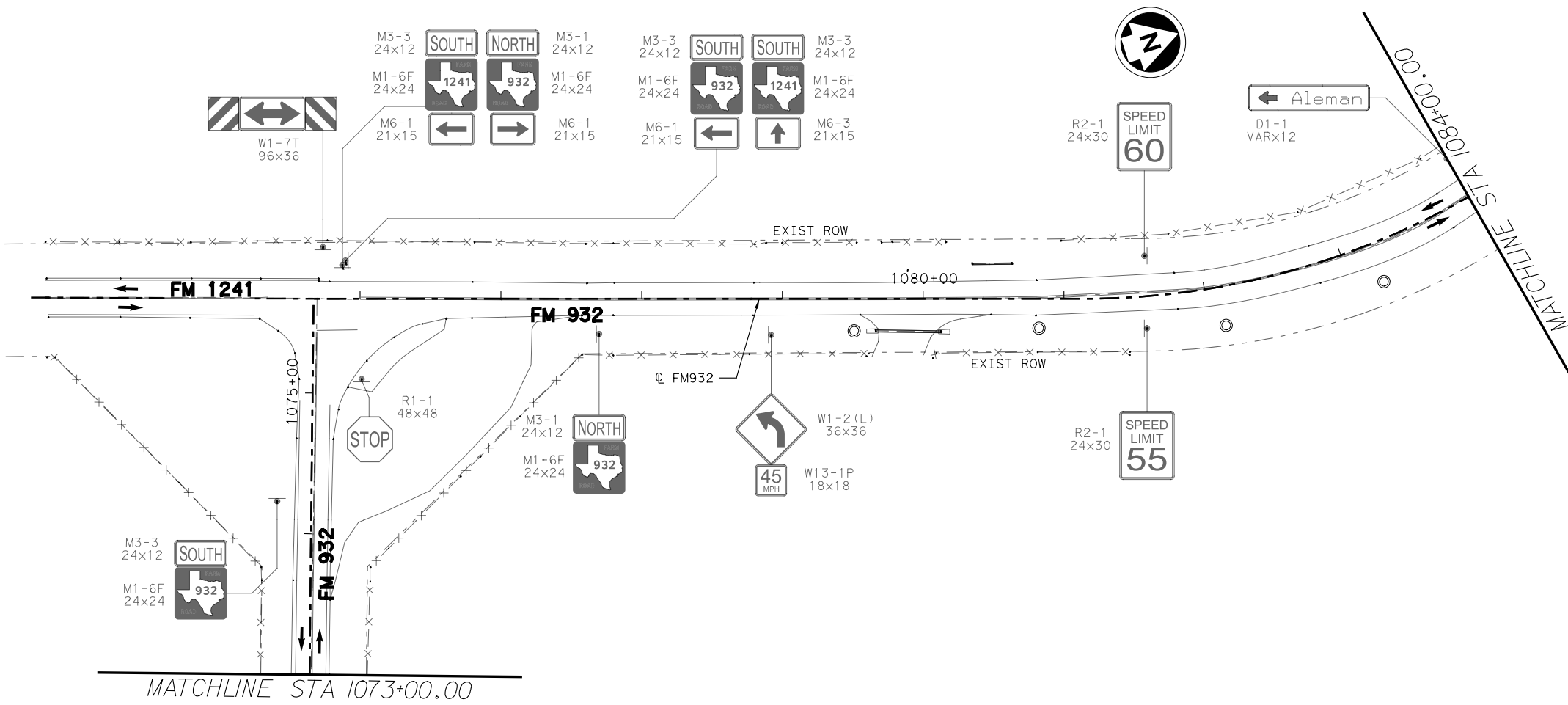




NOTE:
EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED.

* EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.

© LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.



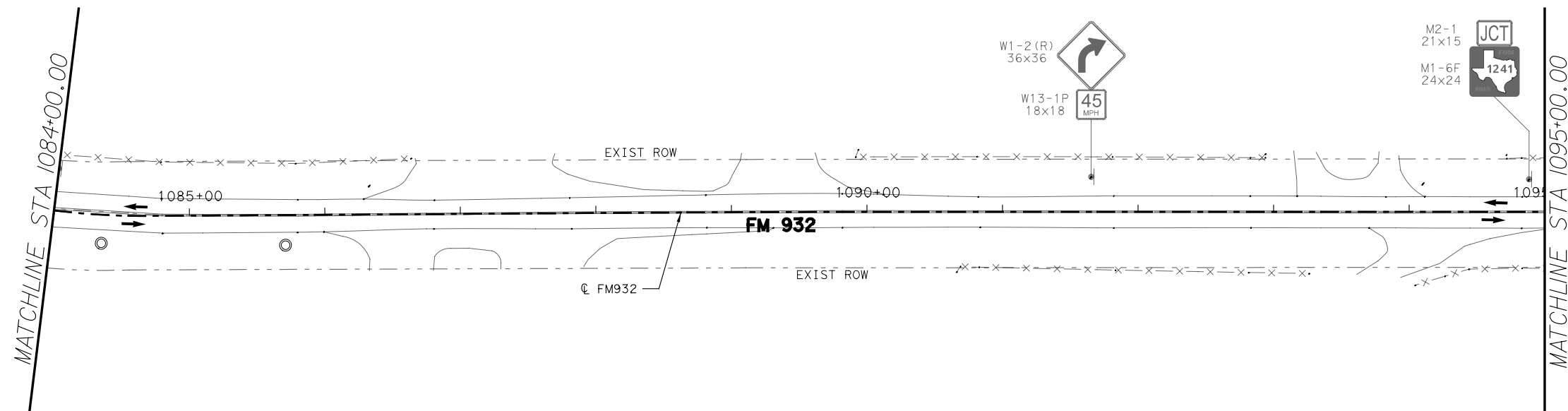
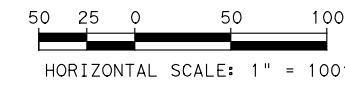
FM 932

EXISTING PROJECT LAYOUT
STA 1062+00.00 TO STA 1084+00.00

(SHEET 33 OF 37)

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| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
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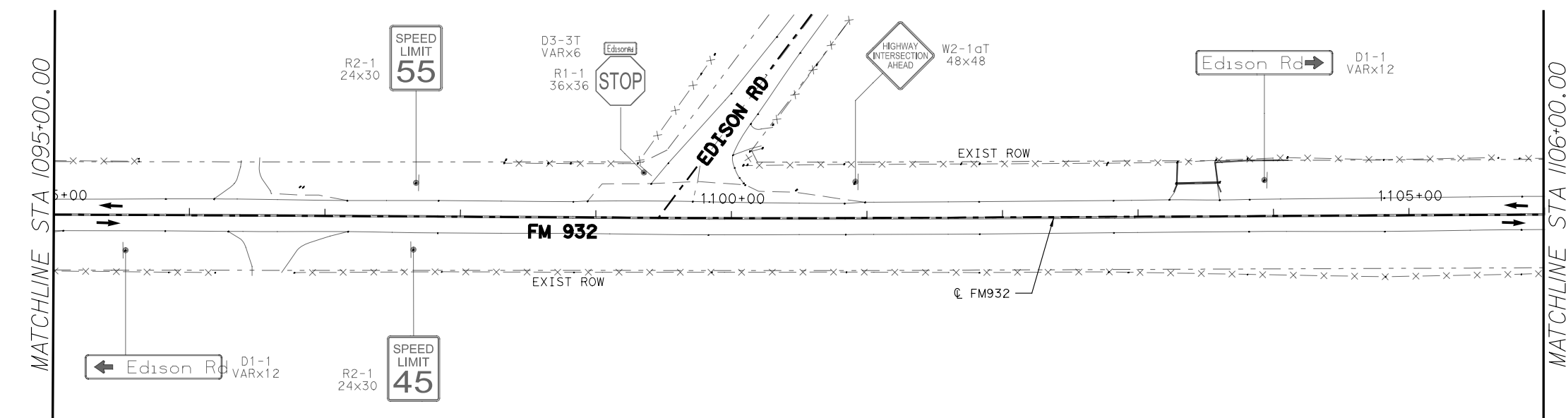
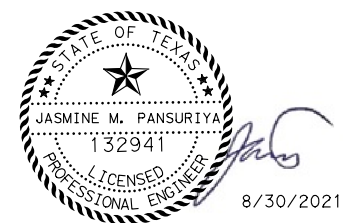
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FM 932

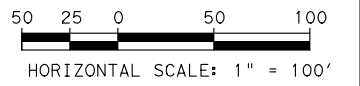
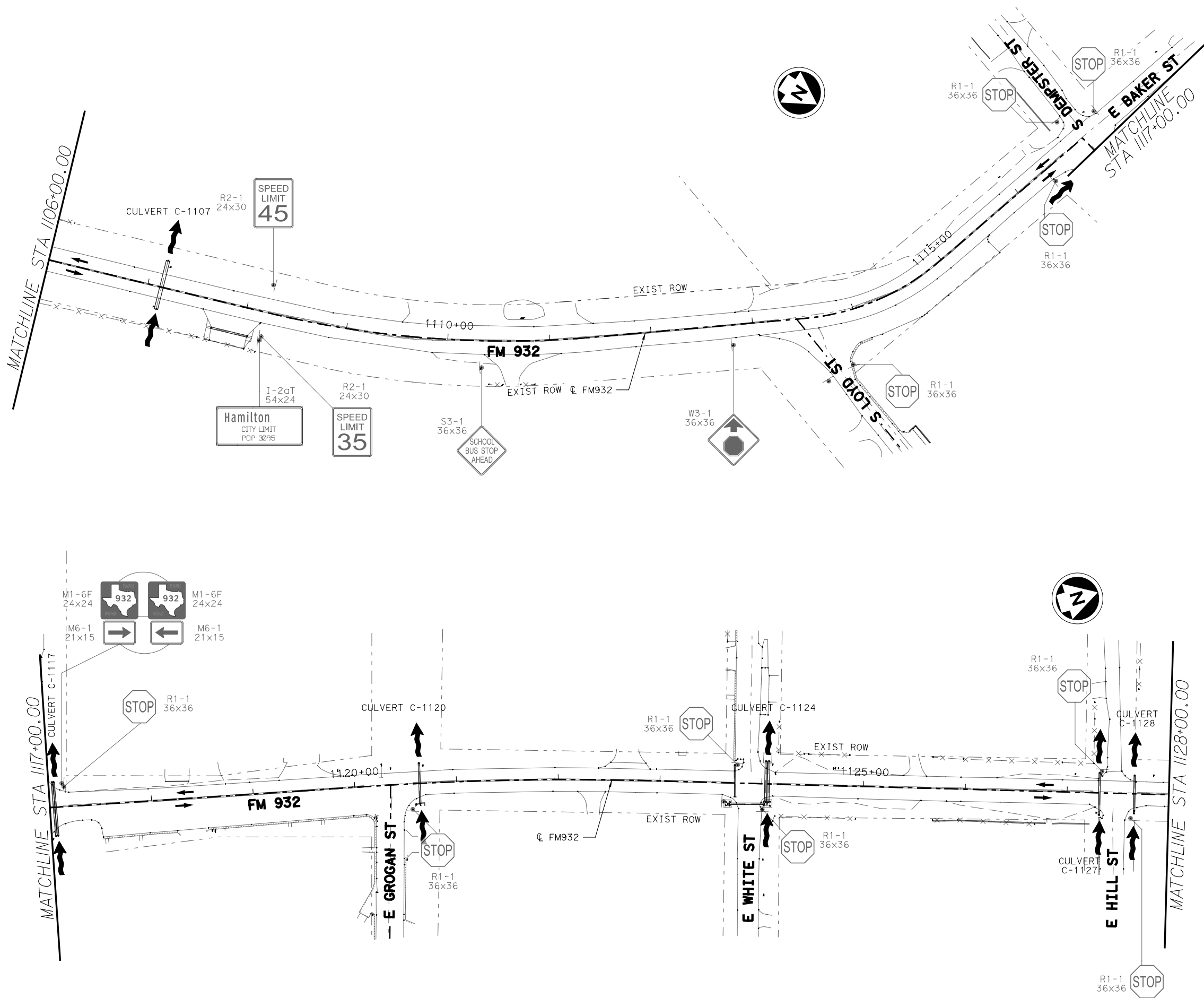
EXISTING PROJECT LAYOUT
STA 1084+00.00 TO STA 1106+00.00

(SHEET 34 OF 37)

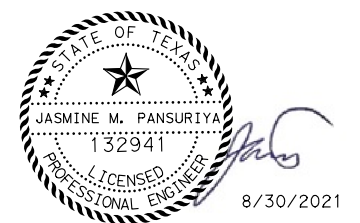
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 © LOCATION OF DRUMS TO COMPLY WITH D&OM(3)-20. FOR TEMPORARY, INSTALL ORANGE CHEVRONS CWI-8 SUBSIDIARY TO ITEM 502 ON DRUMS.

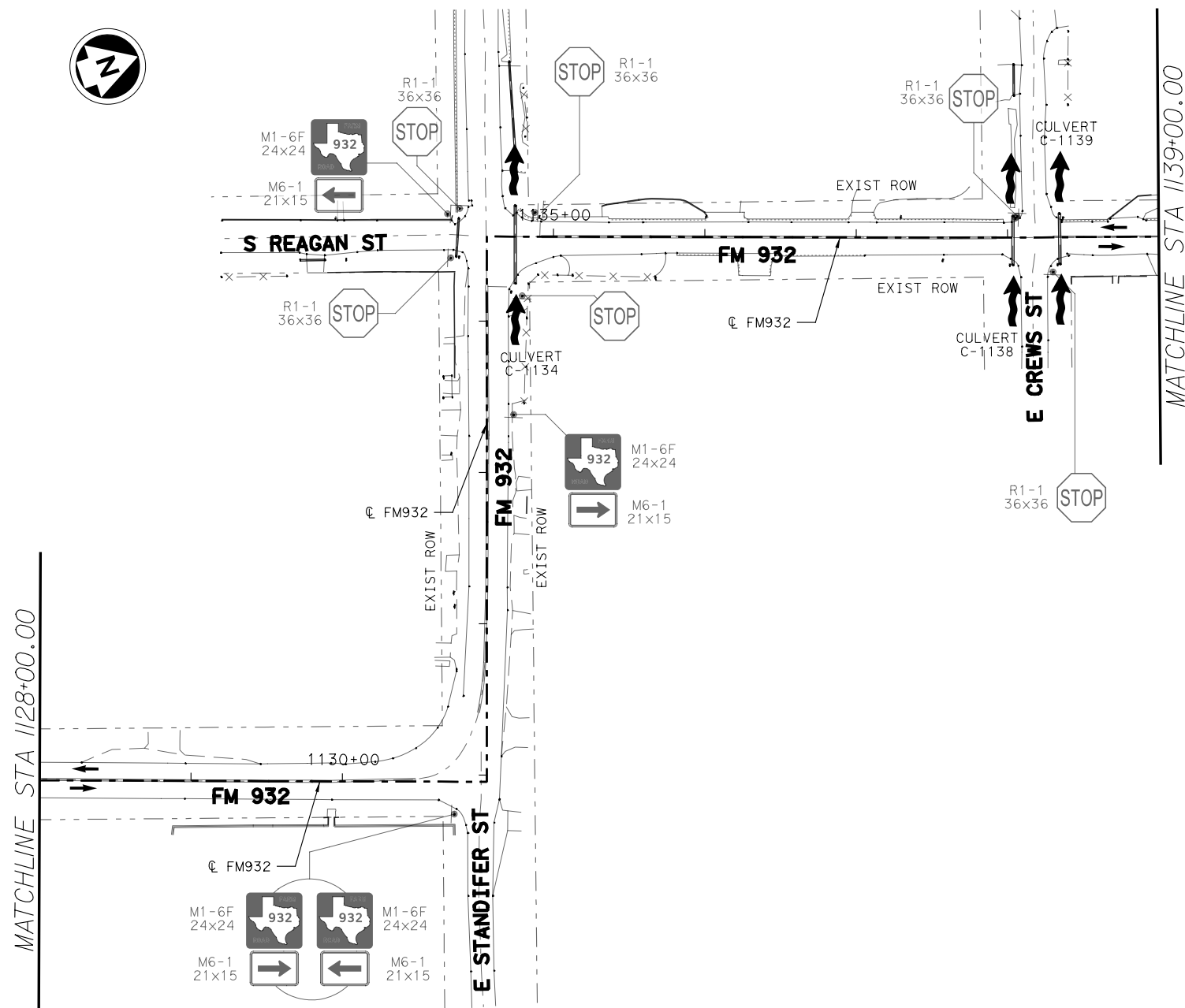
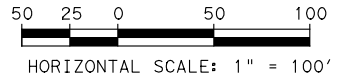


FM 932

EXISTING PROJECT LAYOUT
 STA 1106+00.00 TO STA 1128+00.00

(SHEET 35 OF 37)

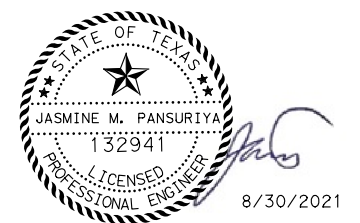
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| DESIGN RP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK JMP | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 38 |
| GRAPHICS RP | CONTROL | SECTION | JOB | |
| GRPH CHECK JMP | 0867 | 01 | 017 | |



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8/30/2021



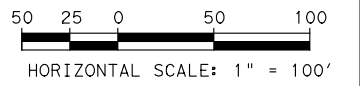
FM 932

EXISTING PROJECT LAYOUT
 STA 1128+00.00 TO STA 1139+00.00

(SHEET 36 OF 37)

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| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
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| JMP | 0867 | 01 | 017 | |

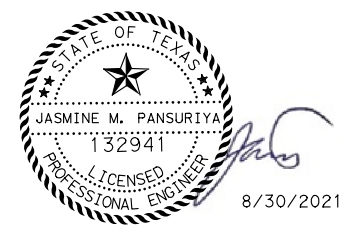
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* EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.

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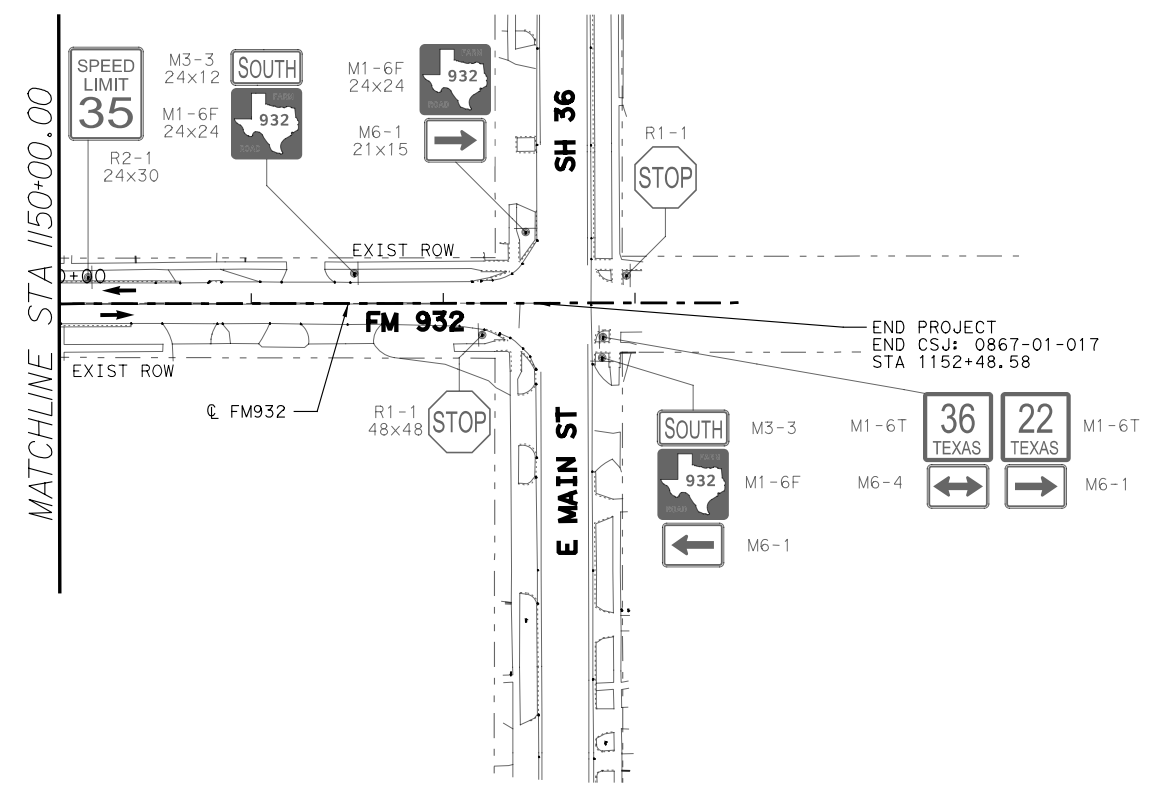
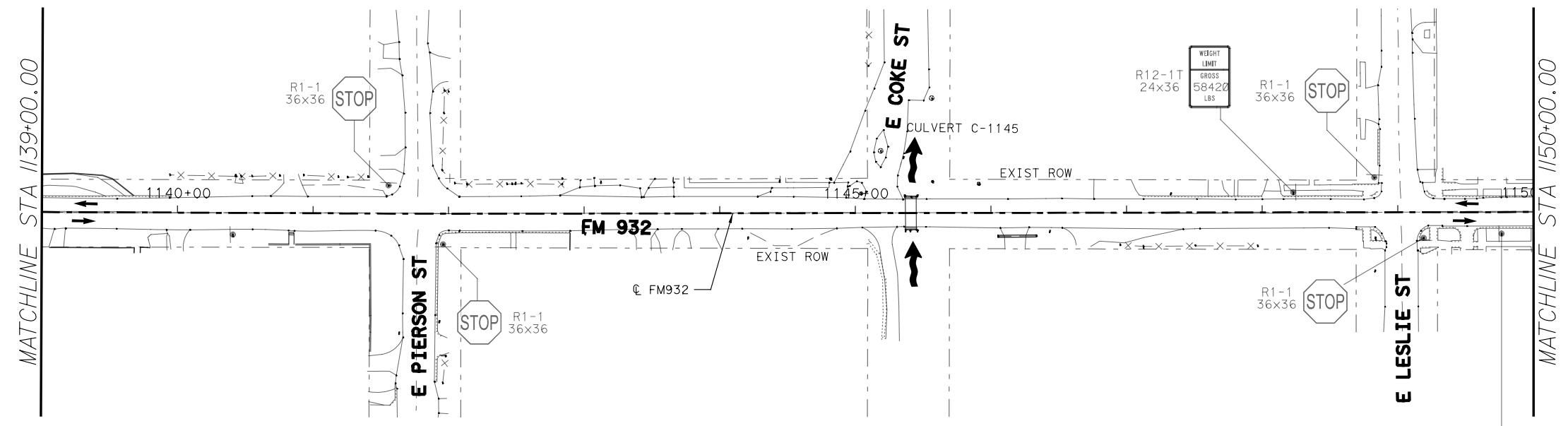


FM 932

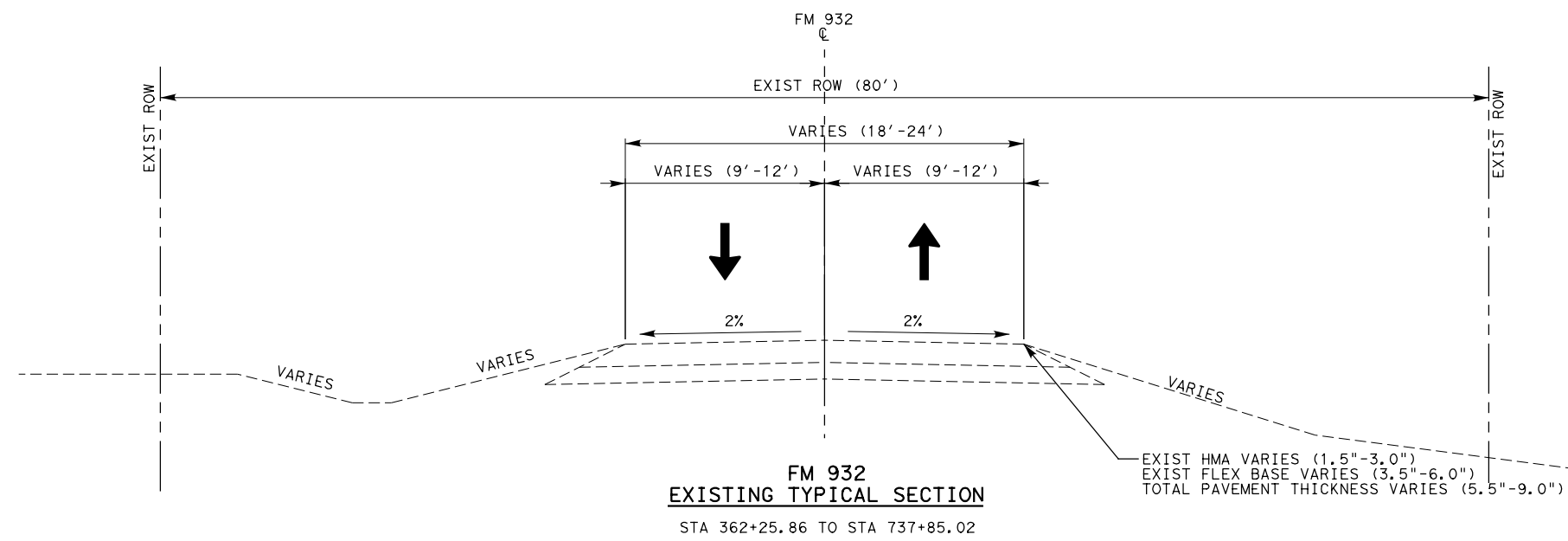
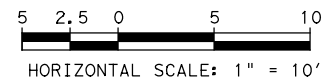
EXISTING PROJECT LAYOUT
STA 1139+00.00 TO END PROJECT

(SHEET 37 OF 37)

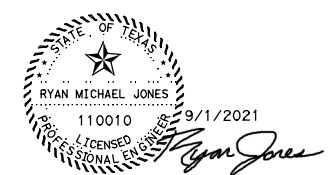
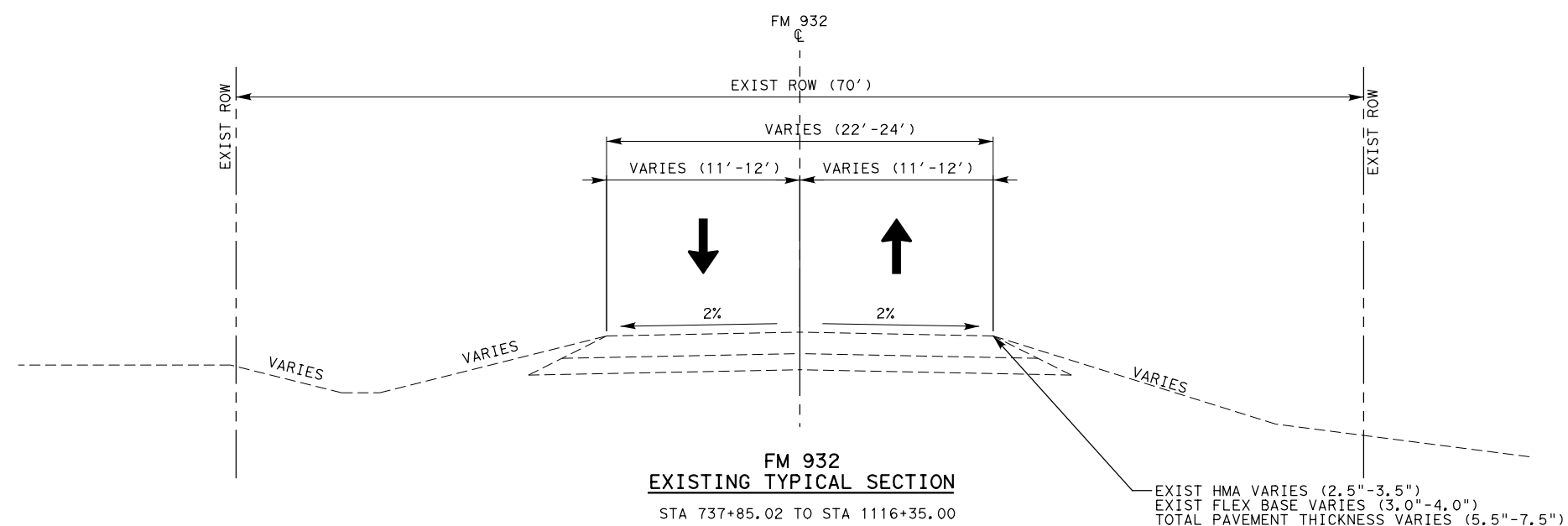
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| DESIGN CK JMP | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 40 |
| GRAPHICS RP | CONTROL | SECTION | JOB | 40 |
| GRPH CHECK JMP | 0867 | 01 | 017 | |



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NOTES:
1) CONTRACTOR'S ATTENTION IS DRAWN TO THE POSSIBLE PRESENCE OF FULL DEPTH HMA REPAIRS AND PATCHES THROUGHOUT THE ROADWAY SECTION.

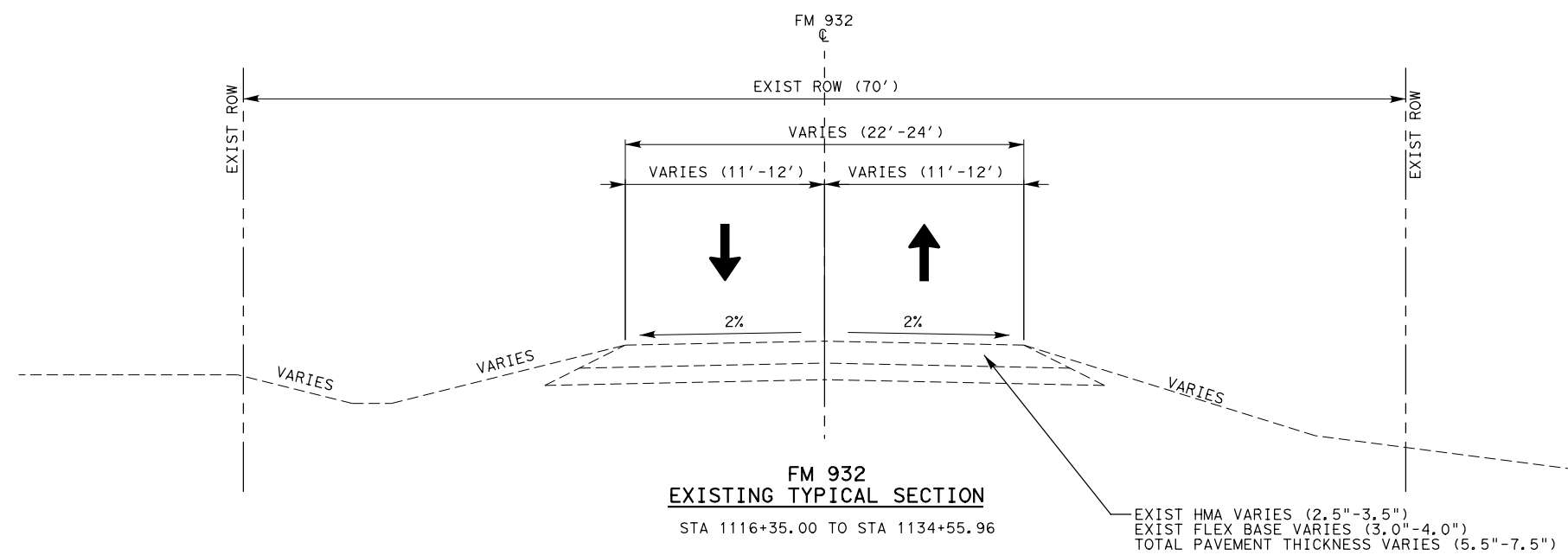
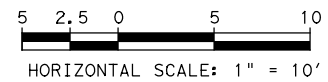


FM 932

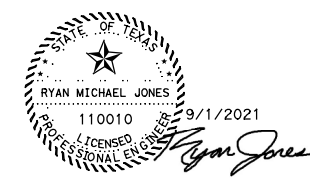
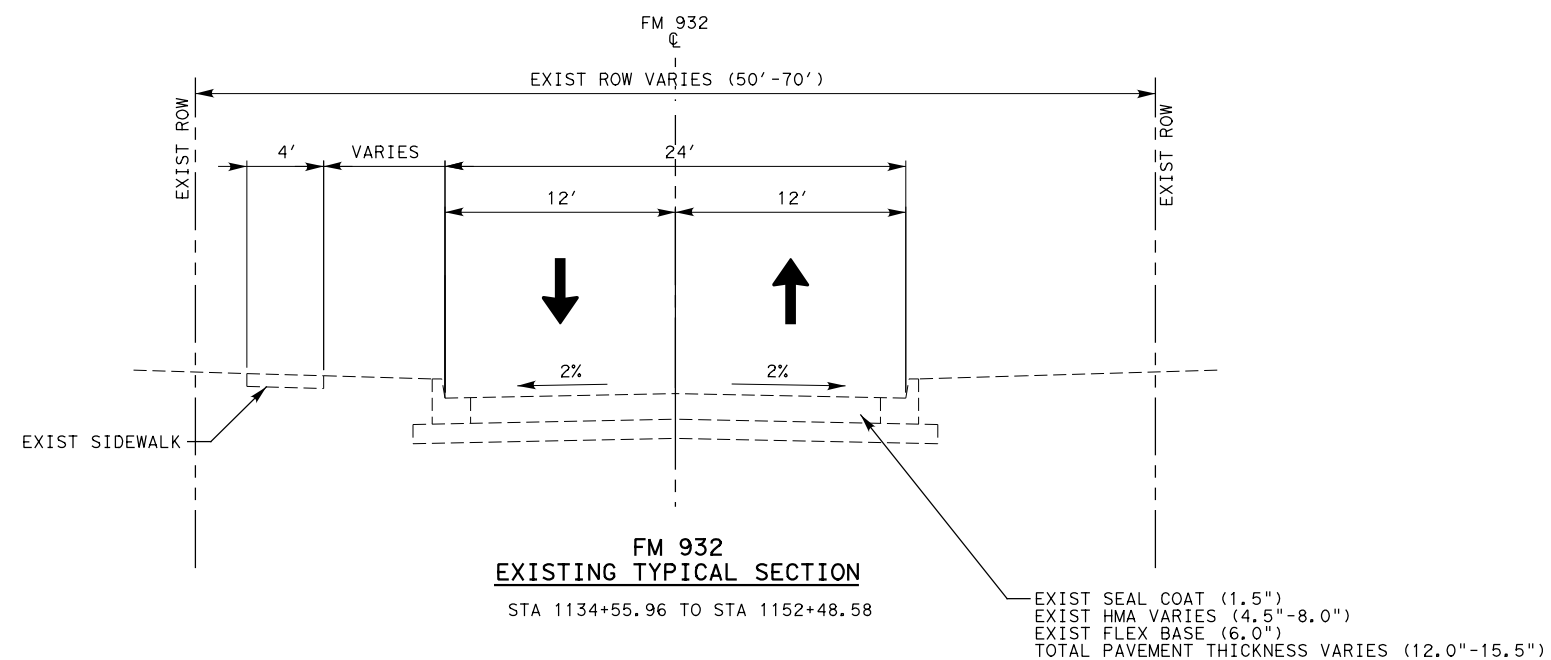
TYPICAL SECTIONS

(SHEET 1 OF 4)

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| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 41 |
| GRAPHICS JP | CONTROL | SECTION | JOB | |
| GRPH CHECK RJ | 0867 | 01 | 017 | |



NOTES:
 1) CONTRACTOR'S ATTENTION IS DRAWN TO THE POSSIBLE PRESENCE OF FULL DEPTH HMA REPAIRS AND PATCHES THROUGHOUT THE ROADWAY SECTION.

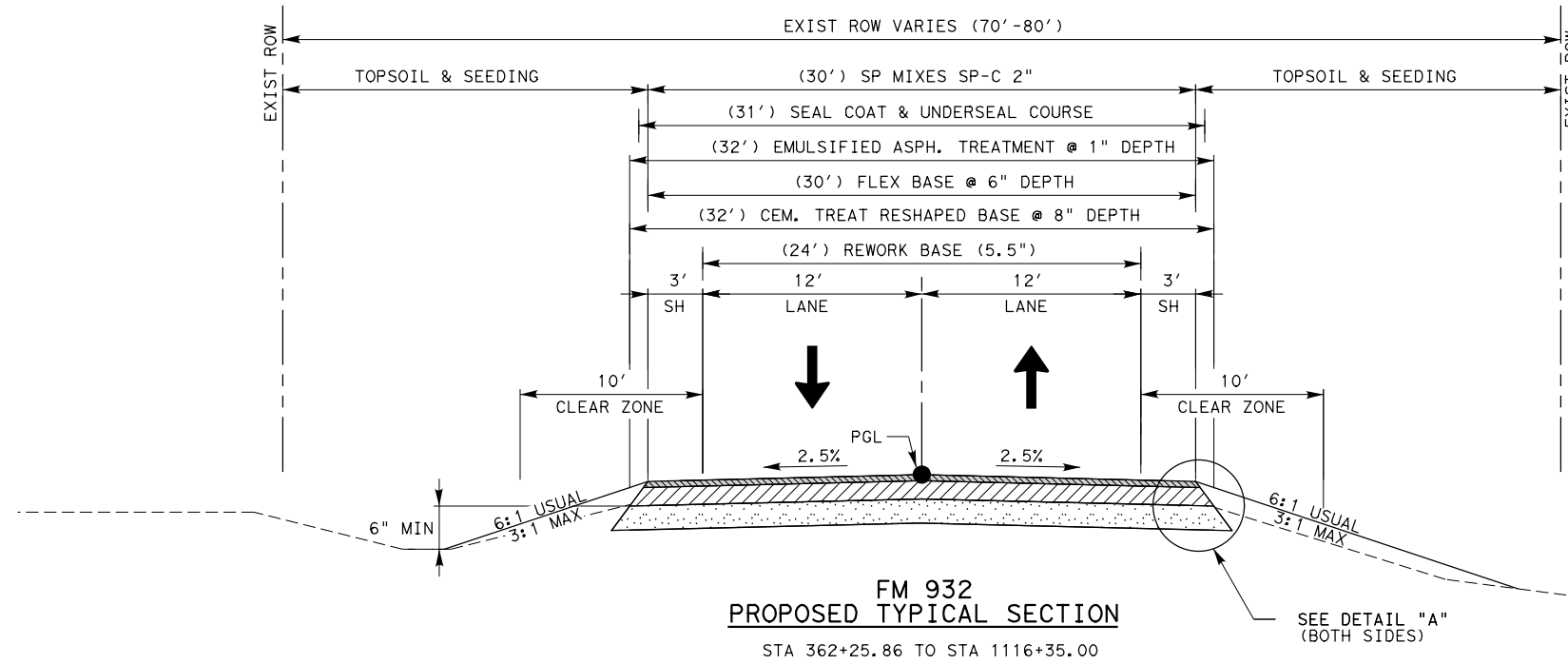


FM 932
TYPICAL SECTIONS

(SHEET 2 OF 4)

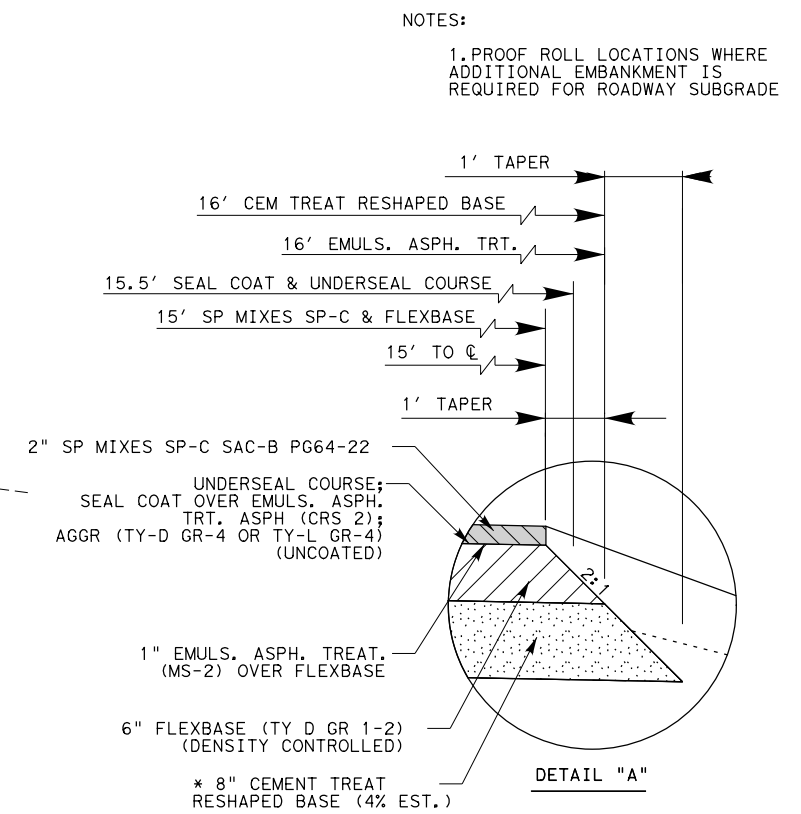
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| DESIGN CK RJ | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 42 |
| GRAPHICS JP | CONTROL | SECTION | JOB | |
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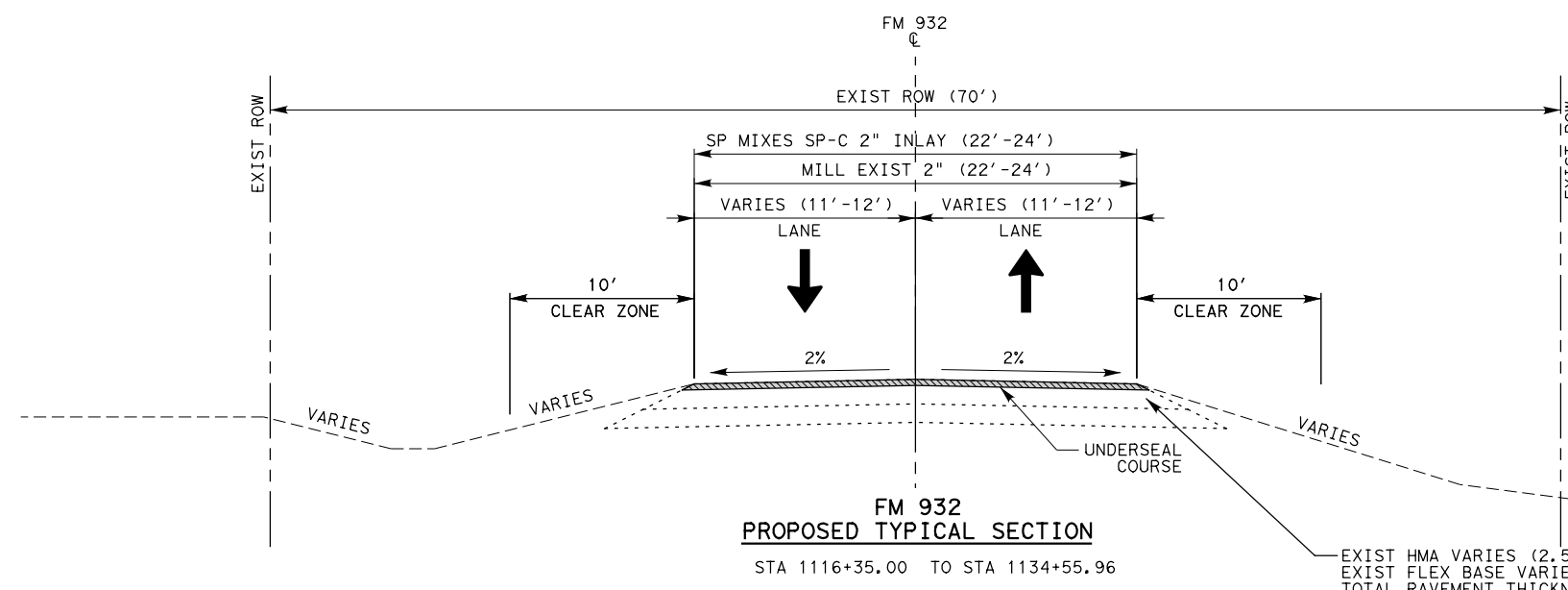
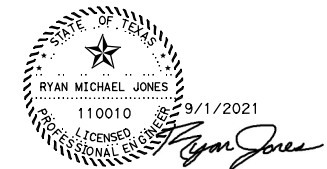


**FM 932
PROPOSED TYPICAL SECTION**
STA 362+25.86 TO STA 1116+35.00

SEE DETAIL "A"
(BOTH SIDES)



* ADDITIONAL FLEXBASE TO REACH THE 8" DEPTH WILL BE TYD GR 3 (ITEM 247-6509).



**FM 932
PROPOSED TYPICAL SECTION**
STA 1116+35.00 TO STA 1134+55.96

EXIST HMA VARIES (2.5"-3.5")
EXIST FLEX BASE VARIES (3.0"-4.0")
TOTAL PAVEMENT THICKNESS VARIES (5.5"-7.5")

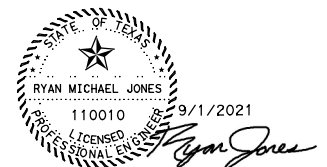
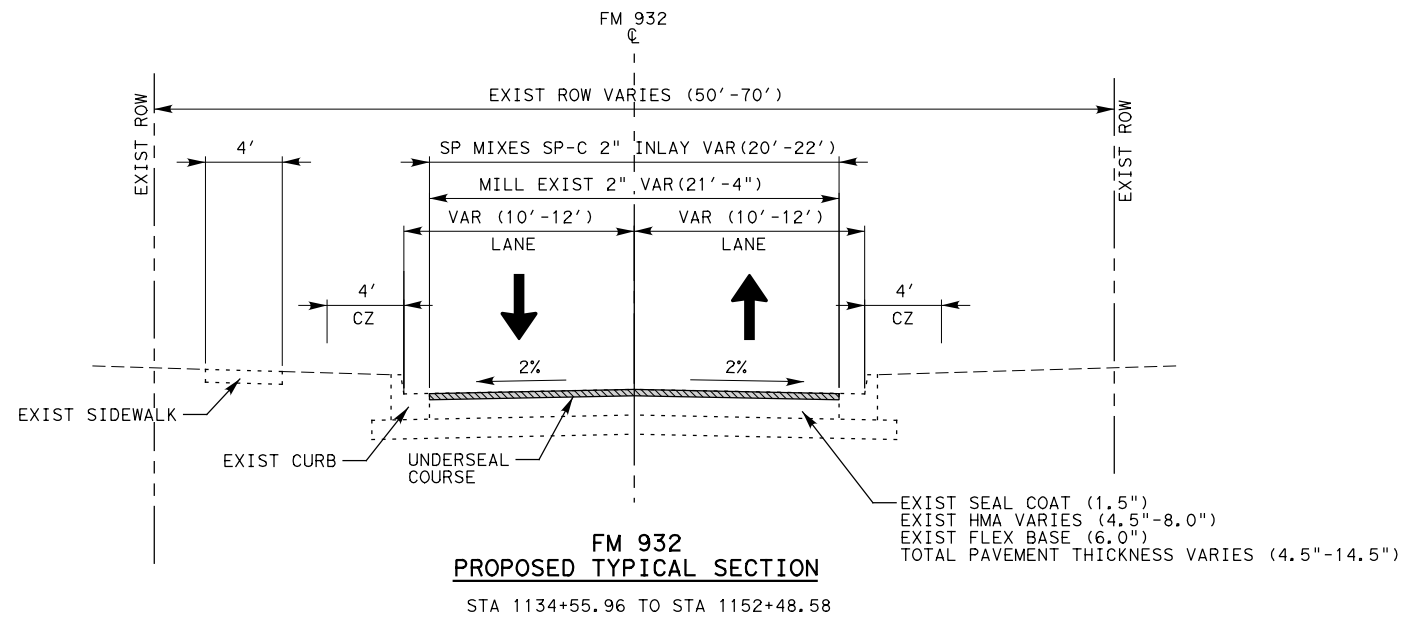


FM 932
TYPICAL SECTIONS

(SHEET 3 OF 4)

| | | | | |
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| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 43 |
| GRAPHICS JP | CONTROL | SECTION | JOB | |
| GRPH CHECK RJ | 0867 | 01 | 017 | |

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FIRM REGISTRATION NO. F-230



FM 932

TYPICAL SECTIONS

(SHEET 4 OF 4)

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| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 44 |
| GRAPHICS JP | CONTROL 0867 | SECTION 01 | JOB 017 | |
| GRPH CHECK RJ | | | | |

BASIS OF ESTIMATE TABLES

| Table 1: Basis of Estimate for Erosion Control Items | | | | |
|--|--------------------------------------|-------------------|---------|------------|
| Item | Description | Rate | Basis | Quantities |
| *166 | FERTILIZER | | | |
| | FERTILIZER (20-10-10) (PERMANENT) | 300 LBS / AC | 82.1 AC | 12.3 TON |
| | FERTILIZER (20-10-10) (TEMPORARY) | 300 LBS / AC | 82.1 AC | 12.3 TON |
| 168 | VEGETATIVE WATERING | | | |
| | (3 APPLICATIONS - PERM) | 13,100 GAL/AC/APP | 82.1 AC | 3227 MG |
| | (3 APPLICATIONS - TEMP) | 13,100 GAL/AC/APP | 82.1 AC | 3227 MG |

* FOR CONTRACTOR'S INFORMATION ONLY

| Table 2: Basis of Estimate for Base Work | | | | |
|--|------------------------------------|-------------------------------|-------------------|-------------------------|
| Item | Description | Rate | Basis | Quantities |
| 216 | PROOF ROLLING | | | |
| | PROOF ROLLING | 8HR /ROADBED-MILE | 14.3 ROADBED-MILE | 114 HR |
| 247 | FLEXIBLE BASE | | | |
| | (TY D GR 1-2 FNAL POS) | 138 LB/CF | 1,133,244 CF | 41,972 CY 78,035 TON |
| | (TY D GR 3 FNAL POS) | 138 LB/CF | 1,136,241 CF | 42,083 CY 78,401 TON |
| 275 | CEMENT TREATMENT (ROAD-MIXED) | | | |
| | CEMENT TREATMENT (ROAD-MIXED) (8") | 3.0 LB / SY / IN (EST'D @ 4%) | 268,775 SY | 3,256 TON |
| 314 | EMULSIFIED ASPHALT TREATMENT (1") | | | |
| | EMULS ASPH (BS OR SUBGR TRT)(MS-2) | 0.20 GAL / SY / IN | 268,725 SY | 53,745 GAL |

| Table 3: Basis of Estimate for Seal Coats | | | | |
|---|-------------------------------|---------------|------------|-------------|
| Item | Description | Rate | Basis | Quantities |
| 316 | ASPH (CRS-2) | 0.45 GAL / SY | 252,013 SY | 113,406 GAL |
| | AGGR (TY-D GR-4 OR TY-L GR-4) | 1 CY / 135 SY | 252,013 SY | 1,857 CY |

| Table 4: Basis of Estimate for Asphalt Pavements | | | | |
|--|------------------------|------------------|------------|------------|
| Item | Description | Rate | Basis | Quantities |
| 3077 | SUPERPAVE MIXTURE (SP) | | | |
| | SP-C SAC-B PG64-22 | 110 LB / SY / IN | 261,973 SY | 28,817 TON |

| Table 5: Basis of Estimate for Roadside Maintenance | | | | |
|---|-----------------|-----------------|------------|------------|
| Item | Description | Rate | Basis | Quantities |
| 730 | ROADSIDE MOWING | 72.0 AC / CYCLE | 6 CYC / YR | 432 AC |

| Table 6: Basis of Estimate for Interlayer Material | | | | |
|--|---|---------------|------------|------------|
| Item | Description | Rate | Basis | Quantities |
| 3085 | UNDERSEAL COURSE | | | |
| | FOR CONTRACTORS INFORMATION | | | |
| | SPRAY APPLIED MEMBRANE | 0.25 GAL / SY | 262,192 SY | 65,548 GAL |
| | TRAIL | 0.20 GAL / SY | 262,192 SY | 52,439 GAL |
| | ASPH (AC-15P, AC-20XP, AC10-2TR, AC-12-5TR) | 0.25 GAL / SY | 262,192 SY | 65,548 GAL |
| | AGGR (TY-PD GR-5 OR TY-PL GR-5) (SAC-B) | 1 CY / 150 SY | 262,192 SY | 1,748 CY |

GENERAL

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

The disturbed area for this project, as shown on the plans is 82.16 acres. However, the Total Disturbed Area (TDA) will establish the required authorization for storm water discharges. The TDA of this project will be determined by the sum of the disturbed area in all project locations in the contract, and all disturbed area on all Project-Specific Locations (PSL) located in the project limits and/or within 1 mile of the project limits. The department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction site as shown on the plans, according to the TDA of the project. The contractor will obtain any required authorization from the TCEQ for the discharge of storm water from any PSL for construction support activities on or off of the project row according to the TDA of the project. When the TDA for the project exceeds 1 acre, provide a copy of the appropriate application of permit (NOI, or Construction Site Notice) to the engineer, for any PSL located in the project limits or within 1 mile of the project limits. Follow the directives and adhere to all requirements set forth in the TCEQ, Texas Pollution Discharge Elimination System, Construction General Permit (TPDES, CGP).

There is a high probability that an environmentally sensitive area could be encountered on the contractor designated Project-Specific Locations (PSL) for this project (haul roads, equipment staging areas, borrow pits, disposal sites, field offices, storage areas, parking areas, etc.). Item 7.6 "Project-Specific Locations", provides a listing of regulatory agencies that may need to be contacted regarding this project.

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

Bill Compton - Wacoprebid@txdot.gov, 254-867-2707, 100 S. Loop Dr., Waco, TX
Carmen Chau - Wacoprebid@txdot.gov, 254-867-2794, 100 S. Loop Dr., Waco, TX

Or Via phone or in person to the following individual(s):
Area Engineer's: Jarod Johnson 254-865-7118
Assistant Area Engineer's: Ross Langdale 254-865-7115

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

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

Paper copies of cross-sections may be produced by using the provided .pdf file located on the above FTP Website at the bidders' expense and at copying companies. This data is for non-construction purposes only and it is the responsibility of the prospective bidder to validate the enclosed data with appropriate plans, specifications and estimate for the project(s).

GENERAL NOTES**ITEM 5: CONTROL OF THE WORK**

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

Where a precast or cast-in-place concrete element is shown in the plans, Contractor may submit a precast concrete alternate 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 Department. Contractor is responsible for impacts to the project schedule and cost resulting from the use of alternates.

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

ITEM 6: CONTROL OF MATERIALS

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

ITEM 7: LEGAL RELATIONS AND RESPONSIBILITIES

No significant traffic generator events identified.

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

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

The contractor is alerted to the possible presence of swallows under the existing bridges or culverts. Because the migratory bird treaty act prohibits harm to swallows, their eggs or their nestlings, the contractor will not begin potentially disturbing activities on or near the bridge until the birds have abandoned any occupied nests (approximately September 1). Active nests may not be removed regardless of the date.

Prior to the swallows returning to the nests (approximately March 1), abandoned nests will be removed from the bridge. The contractor will prevent the establishment of new nests on any portion of the structure. Methods for preventing the establishment of new nests must be approved by the project Engineer. Examples of acceptable nest prevention methods are bird-deterrent netting and bird-repelling sprays and/or gels to be applied to the structure. This work will not be paid for directly but will be subsidiary to the various bid items.

The Contractor will submit detailed site-specific plans for work in each "water of the United States" designated on the EPIC sheet. These plans must be approved by the TxDOT Engineer prior to starting any work in these areas. The plans must also describe facilities and work activities adjacent the Ordinary High-Water Marks. The plan must show actual dimensions and materials for:

- Proposed construction roads and work areas leading to or in close proximity to the Ordinary High-Water Marks
- Temporary material or equipment storage areas in close proximity to the Ordinary High-Water Marks
- Locations of proposed sediment and erosion control devices
- Identification of construction equipment and construction techniques to accomplish the work

Once this drawing and supporting information is reviewed and approved by TxDOT, all construction workers should be made aware of the limits designated on the drawings by the Contractor's supervision. Work in all waters of the US will be limited to the minimum necessary required to construct the culvert or roadway fills. Work will also include all activities needed for culvert demolitions. Working or disturbing soil in the stream channel outside the limits of the work plan will not be allowed. Orange fencing will be provided and maintained to establish the TxDOT approved boundaries in which work may be conducted between the Ordinary High-Water Marks. Orange fencing will not be paid for but will be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling".

ITEM 8: PROSECUTION AND PROGRESS

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

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

For this project, provide a Bar Chart progress schedule.

ITEM 100: PREPARING RIGHT OF WAY

The limits of preparing right of way will be measured as shown on the plan and profile layout sheets.

Remove the existing roadway delineators and object markers as shown on the plans, or as directed, during construction within the right of way. Delineator and object marker removals are subsidiary to this Item.

Remove all trees within the right of way where designated for Preparing Right of Way unless designated for preservation or as directed by the engineer.

Tree trimming and tree removal are subsidiary to preparing right of way.

Trees to be removed near gas lines shall be cut and ground 2' below grade.

The Contractor will take precautions to avoid harm to any wildlife encountered during the project; this includes active nests or burrows.

All Oak Tree Species:

1. To avoid the spread of Oak Wilt or other disease, all species of oak trees that are damaged or cut (branches, roots and/or stumps) for any reason during this contract, must be treated with a commercial wound dressing within 20 minutes of causing the damage or cut.
2. To prevent the spread of infection from tree to tree when pruning oak trees (all species), the Contractor must disinfect all pruning tools with a solution of 70% isopropyl alcohol after all cutting is complete on each oak tree.
3. Potentially dangerous trees or limbs will be removed as soon as possible.
4. The Engineer can stop all Work operations if the dressing, cut and removal requirements are not followed.
5. Pruning shall be in accordance with ANSI A300 pruning standard.

The Contractor will be responsible for leaving the project site clean and neat in appearance upon completion and before final acceptance by the Engineer.

Limits as shown in the plans are approximate. Actual limits may vary.

Remove and dispose of cuttings within five (5) calendar days after cutting.

Material will be disposed of in accordance with federal, state, and local regulations. No material will be placed on private property unless otherwise approved in writing by the Engineer. The Contractor will provide sufficient documentation to verify proper disposal.

Wood chips may be left on the right of way no deeper than two (2) inches outside of city limits. Do not trespass on private property while perform work on this contract. Do not cut or damage timber outside the right-of-way lines.

Remove all fallen parts of trees, damaged limbs, and dead limbs. This work will not be paid for directly but will be considered subsidiary to this item.

Tree Trimming: Contractor may use a buzzbar type saw for trimming trees. If using a buzzbar type saw, branches may not protrude from the trunk. The use of a brushax will not be allowed.

Trees will be trimmed to a clearance height of 18'.

Stump removal is subsidiary to this bid item for trees removed by Contractor.

ITEM 110: EXCAVATION

In a cut section, when soils are encountered at subgrade depths that are unstable and are deemed unsuitable by the Engineer, undercut this material for a minimum depth of one (1.0) foot below the maximum depth as determined and replace with a material having a plasticity index less than 25 and a liquid limit of less than 50.

ITEMS 110 & 132: EXCAVATION & EMBANKMENT

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

In those cases where fixed features require, the governing slopes indicated herein and on the cross sections may be varied between the limits and to the extent determined.

ITEM 132: EMBANKMENT

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

Perform Tex-106-E (Plasticity Index) by an approved laboratory on excavated soils from sources outside right of way when used in roadway embankment. Provide the test results at no expense to the department. The engineer will sample and test soils produced by the construction project for specification requirements or material sources specified in the plans.

Some of the millings from Item 354 will be used for backfilling roadway edge after final overlay as directed by the Engineer. Any additional RAP necessary for final backfilling will be required from an approved contractor source. All work is subsidiary to Item 132.

ITEM 160: TOPSOIL

Salvage the existing topsoil from the cut/fill areas. Topsoil not stored in small windrows will be stockpiled in locations with heights no greater than four (4) feet and dumped loose from Contractor equipment. The Contractor will minimize topsoil compaction and limit equipment being driven over stockpiled topsoil.

Additional Topsoil will come from approved sources outside of the ROW. Topsoil must come from a location within six (6) inches of the natural ground surface to ensure it contains nutrients and is not sterile soil. Off ROW topsoil will contain a minimum organic content of three & one-half (3.5%) percent, based on soil test results.

ITEM 164: SEEDING FOR EROSION CONTROL

Temporary seeding mixtures (cool and warm) will also include three (3) lbs of Bermuda grass seed per acre, with all seeds being planted concurrently.

Contractor will mow or disc wheat and or oats in spring prior to vegetation going to seed.

Permanent seed mixes for both urban and rural projects including sand or clay soils in the Waco District will be bid and installed to include a minimum of one & one-half (1.5) pounds per acre Green Sprangle top seed and four (4) pounds per acre Bermudagrass seed, with other seed types also being included and quantities remaining unchanged.

ITEM 210: ROLLING

The mill and inlay section requires the light pneumatic non-vibratory rollers.

ITEM 247: FLEXIBLE BASE

Construct uniform layer thickness of 6 inches, or less with the required density and moisture content.

Minimum PI is equal to three (3) for all grades, or a minimum Bar Linear Shrinkage of 2%.

RAP may be incorporated into flexbase material

ITEMS 251 and 354: REWORKING BASE COURSES AND PLANING AND TEXTURING PAVEMENT

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

Separate the asphalt pavement from the base material. Stockpile the asphalt pavement along FM 932 at Sta 664+00, approximately 8.4 miles southeast of Hamilton city limit. Place the asphalt pavement material in a stockpile that meets the dimensions and requirements designated by the engineer.

Properly dispose of unsalvageable material at Contractor's expense.

Remove the loose material from the roadway before opening to traffic.

ITEM 275: CEMENT TREATMENT (ROAD-MIXED)

This material must meet a minimum seven (7) day unconfined compressive strength of 150 psi, determined by test method Tex-120-E.

Cure the cement treated material with an application of MS-2 at a rate of 0.2 gal/sy. Water curing will not be allowed.

MS-2 used for curing is subsidiary to item 275.

ITEM 314: EMULSIFIED ASPHALT TREATMENT

Apply MS-2 as a prime, dilute the asphalt with base finish water, distribute in successive applications, and work into the top 1" of flexbase.

Prior to application, emulsion may be diluted with water up to a maximum dilution of one (1) part emulsion to six (6) parts water (14% diluted emulsion mixture) as directed.

ITEM 316: SEAL COAT

Warm Season asphalt will be applied between May 1 and September 15 unless approved in writing.

Cool Season asphalt will be applied between September 15 and May 1 unless approved in writing.

No AC or Emulsion for surface treatment items will be placed between September 15 and May 1 unless approved in writing.

All trucks hauling materials to be paid for by truck measurement will be "struck off" prior to delivery to the project.

Utilize an asphalt distributor capable of providing a transversely varied asphalt rate. The Engineer will select the pavements where the transversely varied asphalt rate is required. When a transversely varied rate is required, the asphalt rate outside of the wheel paths will be between 22 and 32% higher than the asphalt rate applied in the wheel paths. Provide calibration documents to the Engineer that include a description of the spray bar(s) and nozzles that will be used and the percentage difference in asphalt rate achieved by each tested spray bar and nozzle arrangement. The nozzles proposed for use shall be clearly stamped or marked from the factory identifying the manufacturer.

In addition to the temperature requirements of this Item, AC Asphalts used in Surface Treatments and Sealcoats must be placed between May 15 and August 31. Emulsions may be substituted for AC Asphalts outside this timeframe only with the approval of the Engineer.

ITEM 320: EQUIPMENT FOR ASPHALT CONCRETE PAVEMENT

Use a self-propelled wheel mounted MTV capable of receiving mix from the haul trucks, separate from the paver. It shall have a minimum storage capacity of approximately 25 tons. It shall be equipped with a pivoting discharge conveyor and shall completely and thoroughly remix the material prior to placement. The effectiveness of the MTV's remixing ability is subject to the approval of the Engineer. In addition, the paver shall have a surge storage insert with a minimum capacity of 20 tons.

The use of windrow pick-up equipment is allowed except on the first course of roadway material placed over the subgrade.

ITEM 351: FLEXIBLE PAVEMENT STRUCTURE REPAIR

For this project, a laydown machine will be required during the construction & placement of this item.

Locations and Quantities will vary as directed. The minimum area to be repaired will be five (5) SY.

ITEM 354: PLANING AND TEXTURING PAVEMENT

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

ITEM 400: EXCAVATION AND BACKFILL OF STRUCTURES

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

CLASS B bedding is required if rock is encountered.

ITEM 421: HYDRAULIC CEMENT CONCRETE

Furnish mix designs to the Engineer in a format compatible to the latest version of the Department's Construction Management System (Site Manager). Mix Design templates will be provided by the Engineer.

Provide sulfate resistant concrete for box culverts and all drilled shafts.

Supply the Engineer with a list of certified personnel and copies of their current ACI certificates before beginning production and when personnel changes are made. Supply hard copies of calibration reports for testing equipment when required by the Engineer.

ITEM 427: SURFACE FINISHES FOR CONCRETE

Table of Special Surface Finishes and Coatings

| ITEM | SPECIAL SURFACE FINISH | COATING | REMARKS |
|----------|------------------------------|---------|---------|
| CULVERTS | SURFACE AREA I RUB FINISH | NONE | N/A |

Apply an Ordinary Surface Finish to elements not listed in "Surface Area I".

Special Surface Finishes listed above will not be paid for directly but are considered subsidiary to various bid items.

ITEM 440: REINFORCEMENT FOR CONCRETE

All ties, chairs and other appurtenances used with epoxy coated reinforcing shall be epoxy coated or non-metallic.

Fiber Reinforced Concrete (FRC) can be used as a substitute for Non-Structural Class Reinforced Concrete in Mow-Strip and Rip Rap Items. FRC may also be used for other Non-Structural Class Reinforced Concrete Items as approved.

ITEM 462: CONCRETE BOX CULVERTS AND DRAINS

Joints between pre-cast concrete box culverts will be pre-formed flexible joint sealants as described in Section 464.3.3, "Jointing".

For this contract the contractor may use either pre-cast or cast in place culvert construction.

Reshape embankment side slopes, provide embankment as required, and add topsoil to achieve a smooth uniform finish around the installation of the safety end treatments and culvert extensions as directed. Finishing and reshaping work will be subsidiary to Items 132, "Embankment", Item 162, "Sodding for Erosion Control", and Item 467, "Safety End Treatment".

Provide and install pneumatically placed concrete on the ditch bottom and side slopes between temporary terminations between old and new culverts. Pneumatically placed concrete will be placed to the height of the largest culvert on the ditch side slopes; and to a limit 10 feet outside the location of BMPs along the ditch bottom. Cement stabilized sand may be substituted for pneumatically placed concrete, with Engineer approval.

ITEM 464: REINFORCED CONCRETE PIPE

The concrete collars and the connections of pipes to existing or proposed concrete boxes or pipe will not be paid for directly but will be considered subsidiary to the various bid items.

ITEM 471: FRAMES, GRATES, RINGS AND COVERS

For typical applications, supply un-painted cast iron inlet grate and frame and/or cast iron manhole frame and cover in areas subject to traffic loading, provide heavy steel manhole covers or grates and associated steel frame. Tack weld steel inlet grates and manhole covers to steel frames.

ITEM 496: REMOVING STRUCTURES

Inlet grates and manhole covers become the property of the contractor for disposal.

ITEM 500: MOBILIZATION

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

ITEM 502: BARRICADES, SIGNS, AND TRAFFIC HANDLING

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

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

A meeting between the contractor and Engineer to discuss upcoming changes in construction phasing and traffic switches is required at least fourteen (14) days prior to the phase change. Items to be discussed at this meeting include temporary signing, traffic control, pavement markings, the processes necessary for the phase change and subcontractor scheduling.

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

When excavation is required next to a pavement lane carrying traffic and the widening is not completed by the end of the work day, backfill against the edge of the pavement with at least a 3:1 slope using an acceptable material to support vehicular traffic. Carefully remove and dispose of this material when work resumes. Backfilling pavement edges, and the materials required for the work will be subsidiary to this item.

Place barricades and signs in locations that do not obstruct the sight distance of drivers entering the highway from driveways or side streets.

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

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

Limit lane closures along FM 932 in-town section to the hours between 9:00 am and 3:30 pm. Work in other areas of the project is not restricted to this time frame.

ITEM 504: FIELD OFFICE

Furnish one Asphalt Mix Control Laboratory (Type D) for this project.

ITEM 506: TEMPORARY EROSION, SEDIMENTATION AND ENVIRONMENTAL CONTROLS

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

If temporary construction stream crossings are allowed under a Nationwide Permit, submit in writing for approval the type and location of each temporary stream crossing. Use temporary bridges, timber mats, or other structurally sound and non-eroding material for temporary stream crossings. A temporary culvert crossing will consist of storm sewer pipes and 4- to 8-inch nominal size rock. Temporary stream crossings must not cause more than minimal changes to the hydraulic flow characteristics of the stream, increase flooding, or cause more than minimal degradation of water quality. Remove the temporary stream crossings in their entirety and return the affected areas to their pre-existing elevation. All work and materials use for temporary construction stream crossings will not be paid for directly but are subsidiary to pertinent Items.

Provide SW3P Signs. Obtain from the Engineer a copy of the project's completed TPDES Storm Water Program Construction Site Notice and Contractor Site Notice. Laminate the sheets and bond with adhesive to 36" X 36" sign blanks. Ensure the sheets remain dry. Apply Type C Blue reflective sheeting as the background and add the text "SW3P" in 5" white lettering, centered at the top. Attach the signs to approved temporary mounts and locate at each of the project limits just inside the right of way line at a readable height or as directed by the Engineer. If the sign cannot be placed outside the clear zone, it must adhere to the TMUTCD. SW3P signs, maintenance, and reposting (for replacement or as needed to ensure readability) will be subsidiary to Item 502.

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

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

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

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

ITEM 512: PORTABLE TRAFFIC BARRIER:

Department-furnished concrete traffic barrier units are at a TxDOT yard near the project location or other locations within fifty (50) miles of the project as directed. Barrier provided by TxDOT will be single slope or F-shape barrier. The Contractor will furnish equipment necessary to load the units at the stockpile locations.

The current locations for barrier are:

FM 116 yard in Coryell County

**** Contact District Construction office to verify barrier availability and type. Designate the appropriate type above, if quantity mandates use of both, provide quantity for each in plan summaries. For locations, provide list of planned locations****

For designated source portable barrier, the Department will provide the connection hardware. Should adequate hardware not be available, the Contractor will acquire the hardware, provide to the Department and be reimbursed via force account.

Upon completion of the project, all barrier will remain property of the Department and stockpiled at a TxDOT yard near the project location or other locations within fifty (50) miles of the project as directed. The Contractor will furnish equipment necessary to load and unload the units at the stockpile locations. When stockpiling, separate damaged barriers from salvaged barriers as directed.

Stockpiling of portable concrete traffic barriers will not be permitted to be stockpiled (stacked) more than three (3) barriers high in any direction.

Portable concrete traffic barrier that is determined unusable will become property of contractor and will not be returned to TxDOT stockpile location. This work will be considered subsidiary to this item.

All hardware will become the property of the Department and will be returned to the TxDOT Maintenance yard within fifty (50) miles of the project as directed. Place hardware in fifty-five (55) gallon barrels with holes in bottom to allow drainage.

ITEM 530: INTERSECTIONS, DRIVEWAYS AND TURNOUTS:

Farm to Market (FM) sidestreets to be paid for using (ACP)(Type 2).

County Roads (CR) to be paid for using item 530 Driveways (ACP).

Turnouts will be paid for under Roadway pavement items.

Removal of existing asphalt intersection pavement and driveway is subsidiary to Item 530.

ITEM 545: CRASH CUSHION ATTENUATORS

Stockpile crash cushion attenuators at FM 116 yard in Coryell County.

ITEM 560: MAILBOX ASSEMBLIES

Mailboxes will be kept in a position accessible to the carrier's vehicle along the travel way except when performance of grading operations necessitates the moving of mailboxes. When grading operations necessitate the moving of mailboxes, the contractor will place them at a nearby location which will be accessible to the carrier's vehicle. Mailboxes will be returned to a position accessible to the carrier's vehicle along the travel way when grading operations are not in progress. This work will not be paid for directly, but will be subsidiary to Item 560, "Mailbox Assemblies".

ITEM 585: RIDE QUALITY FOR PAVEMENT SURFACES

Use Surface Test Type A on all intersections and driveways.

Use Surface Test Type B pay adjustment schedule 2 on the travel lanes.

The contractor will ensure satisfactory profile results in the intermediate paving layers (mixture) to eliminate corrective action for excessive deviations in the final surface layers.

Milling will not be allowed as a corrective action for excessive deviations in the surface layer.

ITEM 636: SIGNS

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

Stake the location of the new signs to be approved.

ITEM 644: SMALL ROADSIDE SIGN ASSEMBLIES

Bolt Clamp type will be used on Texas Triangular Slip Base System.

As practical with new construction, leave the existing sign assemblies in place until the proposed foundation, post and sign are in installed, and then remove the old sign assemblies.

Do not leave any sign foundation holes open overnight. Ensure all holes drilled are at least the minimum required depth with no loose material remaining in the hole.

Stake proposed sign locations and receive approval before installation of sign foundations.

Existing Mile Markers Signs are to be relocated to their original location(s) as they were prior to the beginning of the project.

Expanded foam foundations are not permitted.

Cut the bottom of all posts square.

For sign types which design details are not shown on these plans, fabricate according to the "STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS".

Removed material that is deemed salvageable (signs and posts) will be the property of TxDOT. Deliver salvageable material to the TxDOT Maintenance Office. Remove unsalvageable material.

The Contractor will relocate the existing double-sided street name signs and furnish the post mounted brackets for the street name signs to be paid for as part of the proposed Stop Signs (R1-1). Existing street name signs will be mounted above Stop signs. If damaged while being relocated, the Contractor will furnish new double-sided street name sign at their own expense.

ITEM 658: DELINEATOR AND OBJECT MARKER ASSEMBLIES

All flexible and GF2 delineators will have a tubular body.

ITEM 662: WORK ZONE PAVEMENT MARKINGS

Paint and beads may be used for non-removable pavement markings.

ITEM 666: RETROREFLECTORIZED PAVEMENT MARKINGS

The Contractor will layout the proposed striping in accordance with TxDOT Traffic Control Plan Standards and latest version Texas Manual on Uniform Traffic Control Devices (TMUTCD) and project striping layout sheets. The Engineer will verify proposed striping layout prior to the beginning of striping operations.

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

ITEM 730: ROADSIDE MOWING:

Throughout the course of the project, when in the opinion of the Engineer, tall grass and weeds affect the safety of the public by restricting visibility, interfere with normal traffic flow or appear unsightly, the contractor will be required to mow same. Final cleanup will include mowing of grass and weeds. This work will be paid by the acre.

Mowing cycles will coincide with adjoining construction projects and adjoining segments maintained by contracted maintenance.

At the discretion of the Engineer, mow non-paved areas within the project prior to placement of permanent vegetation. The Contractor will plan and schedule to perform the full width mowing cycle work under this Item as follows:

RURAL AREAS

- At least two (2) times per year
- June 1 to July 15 and late October to late November

ITEM 3077: SUPERPAVE MIXTURES

RAP from Contractor owned sources may be used if the RAP is fractionated.

Use aggregate that meets the Surface Aggregate Classification (SAC) requirement of Class A.

Superpave gradations will be required to be below the reference zones shown in **Table 9** on surface mixes.

Maximum stripping of 0% is required.

The number of design gyrations (N_{des}) for this project is 50. Contractor to make adjustments as upon agreement from the Engineer.

ITEM 6001: PORTABLE CHANGEABLE MESSAGE SIGN

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

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

Furnish 2 portable changeable message signs. The portable changeable message sign(s) will be used for all lane closures as shown on the traffic control plan standard sheets.

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

ITEM 6185: TRUCK MOUNTED ATTENUATORS

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

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

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

| TCP 3 Series | Scenario | | | Required TMA |
|--------------|----------|---|---|--------------|
| (3-1)-13 | All | | | 2 |
| (3-3)-14 | A | B | D | 2 |
| | C | | | 3 |

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

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

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

The contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMA needed for the project for those times per plan requirements. Additional TMAs used that are not specified in the plans in which the contractor expects compensation will require prior approval from the Engineer.



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0867-01-017

DISTRICT Waco
HIGHWAY FM 932

COUNTY Hamilton

| CONTROL SECTION JOB | | | | 0867-01-017 | | TOTAL EST. | TOTAL FINAL |
|---------------------|----------|---|------|-------------|-------|-------------|-------------|
| PROJECT ID | | | | A00004610 | | | |
| COUNTY | | | | Hamilton | | | |
| HIGHWAY | | | | FM 932 | | | |
| ALT | BID CODE | DESCRIPTION | UNIT | EST. | FINAL | | |
| | 100-6002 | PREPARING ROW | STA | 790.250 | | 790.250 | |
| | 104-6017 | REMOVING CONC (DRIVEWAYS) | SY | 106.000 | | 106.000 | |
| | 110-6001 | EXCAVATION (ROADWAY) | CY | 8,798.000 | | 8,798.000 | |
| | 110-6002 | EXCAVATION (CHANNEL) | CY | 397.000 | | 397.000 | |
| | 132-6004 | EMBANKMENT (FINAL)(DENS CONT)(TY B) | CY | 28,425.000 | | 28,425.000 | |
| | 160-6003 | FURNISHING AND PLACING TOPSOIL (4") | SY | 380,242.000 | | 380,242.000 | |
| | 164-6035 | DRILL SEEDING (PERM) (RURAL) (CLAY) | SY | 380,242.000 | | 380,242.000 | |
| | 164-6041 | DRILL SEEDING (TEMP) (WARM) | SY | 190,121.000 | | 190,121.000 | |
| | 164-6043 | DRILL SEEDING (TEMP) (COOL) | SY | 190,121.000 | | 190,121.000 | |
| | 168-6001 | VEGETATIVE WATERING | MG | 6,454.000 | | 6,454.000 | |
| | 169-6004 | SOIL RETENTION BLANKETS (CL 1) (TY D) | SY | 14,109.000 | | 14,109.000 | |
| | 216-6001 | PROOF ROLLING | HR | 114.000 | | 114.000 | |
| | 247-6053 | FL BS (CMP IN PLC)(TYD GR1-2)(FNAL POS) | CY | 41,972.000 | | 41,972.000 | |
| | 247-6509 | FL BS (RDWY DEL)(TY D GR 3)(FINAL POS) | CY | 42,083.000 | | 42,083.000 | |
| | 251-6498 | REWORK BS MTL (TY C)(5.5")(ORD COMP) | SY | 179,634.000 | | 179,634.000 | |
| | 275-6001 | CEMENT | TON | 3,256.000 | | 3,256.000 | |
| | 275-6011 | CEMENT TREAT(EXIST MATL)(8") | SY | 268,775.000 | | 268,775.000 | |
| | 314-6006 | EMULS ASPH (BS OR SUBGR TRT)(MS-2) | GAL | 53,745.000 | | 53,745.000 | |
| | 316-6022 | ASPH (CRS-2) | GAL | 113,406.000 | | 113,406.000 | |
| | 316-6397 | AGGR(TY-D GR-4 OR TY-L GR-4) | CY | 1,857.000 | | 1,857.000 | |
| | 351-6004 | FLEXIBLE PAVEMENT STRUCTURE REPAIR(8") | SY | 3,200.000 | | 3,200.000 | |
| | 354-6045 | PLANE ASPH CONC PAV (2") | SY | 9,222.000 | | 9,222.000 | |
| | 400-6005 | CEM STABIL BKFL | CY | 958.000 | | 958.000 | |
| | 400-6006 | CUT & RESTORING PAV | SY | 707.000 | | 707.000 | |
| | 402-6001 | TRENCH EXCAVATION PROTECTION | LF | 558.000 | | 558.000 | |
| | 403-6001 | TEMPORARY SPL SHORING | SF | 1,440.000 | | 1,440.000 | |
| | 432-6033 | RIPRAP (STONE PROTECTION)(18 IN) | CY | 583.000 | | 583.000 | |
| | 462-6003 | CONC BOX CULV (4 FT X 2 FT) | LF | 100.000 | | 100.000 | |
| | 462-6007 | CONC BOX CULV (5 FT X 3 FT) | LF | 94.000 | | 94.000 | |
| | 462-6011 | CONC BOX CULV (6 FT X 4 FT) | LF | 50.000 | | 50.000 | |
| | 462-6015 | CONC BOX CULV (7 FT X 4 FT) | LF | 50.000 | | 50.000 | |
| | 462-6022 | CONC BOX CULV (8 FT X 7 FT) | LF | 96.000 | | 96.000 | |
| | 464-6005 | RC PIPE (CL III)(24 IN) | LF | 600.000 | | 600.000 | |
| | 464-6007 | RC PIPE (CL III)(30 IN) | LF | 88.000 | | 88.000 | |
| | 464-6008 | RC PIPE (CL III)(36 IN) | LF | 602.000 | | 602.000 | |
| | 464-6017 | RC PIPE (CL IV)(18 IN) | LF | 50.000 | | 50.000 | |
| | 464-6018 | RC PIPE (CL IV)(24 IN) | LF | 180.000 | | 180.000 | |

| | | | |
|----------|----------|-------------|-------|
| DISTRICT | COUNTY | CCSJ | SHEET |
| Waco | Hamilton | 0867-01-017 | 46 |



CONTROLLING PROJECT ID 0867-01-017

DISTRICT Waco
HIGHWAY FM 932

COUNTY Hamilton

Estimate & Quantity Sheet

| CONTROL SECTION JOB | | | | 0867-01-017 | | TOTAL EST. | TOTAL FINAL |
|---------------------|----------|--|------|-------------|-------|------------|-------------|
| PROJECT ID | | | | A00004610 | | | |
| COUNTY | | | | Hamilton | | | |
| HIGHWAY | | | | FM 932 | | | |
| ALT | BID CODE | DESCRIPTION | UNIT | EST. | FINAL | | |
| | 466-6097 | HEADWALL (CH - PW - 0) (DIA= 24 IN) | EA | 9.000 | | 9.000 | |
| | 466-6101 | HEADWALL (CH - PW - 0) (DIA= 36 IN) | EA | 12.000 | | 12.000 | |
| | 466-6179 | WINGWALL (PW - 1) (HW=4 FT) | EA | 2.000 | | 2.000 | |
| | 466-6180 | WINGWALL (PW - 1) (HW=5 FT) | EA | 4.000 | | 4.000 | |
| | 466-6181 | WINGWALL (PW - 1) (HW=6 FT) | EA | 2.000 | | 2.000 | |
| | 466-6183 | WINGWALL (PW - 1) (HW=8 FT) | EA | 2.000 | | 2.000 | |
| | 466-6184 | WINGWALL (PW - 1) (HW=9 FT) | EA | 2.000 | | 2.000 | |
| | 467-6358 | SET (TY II) (18 IN) (RCP) (4: 1) (C) | EA | 2.000 | | 2.000 | |
| | 467-6363 | SET (TY II) (18 IN) (RCP) (6: 1) (P) | EA | 52.000 | | 52.000 | |
| | 467-6388 | SET (TY II) (24 IN) (RCP) (3: 1) (C) | EA | 3.000 | | 3.000 | |
| | 467-6390 | SET (TY II) (24 IN) (RCP) (4: 1) (C) | EA | 19.000 | | 19.000 | |
| | 467-6395 | SET (TY II) (24 IN) (RCP) (6: 1) (P) | EA | 30.000 | | 30.000 | |
| | 467-6419 | SET (TY II) (30 IN) (RCP) (4: 1) (C) | EA | 4.000 | | 4.000 | |
| | 467-6450 | SET (TY II) (36 IN) (RCP) (4: 1) (C) | EA | 6.000 | | 6.000 | |
| | 496-6007 | REMOV STR (PIPE) | LF | 2,201.000 | | 2,201.000 | |
| | 496-6093 | REMOV STR (MASONARY) | LF | 29.000 | | 29.000 | |
| | 500-6001 | MOBILIZATION | LS | 1.000 | | 1.000 | |
| | 502-6001 | BARRICADES, SIGNS AND TRAFFIC HANDLING | MO | 27.000 | | 27.000 | |
| | 506-6002 | ROCK FILTER DAMS (INSTALL) (TY 2) | LF | 5,598.000 | | 5,598.000 | |
| | 506-6011 | ROCK FILTER DAMS (REMOVE) | LF | 5,598.000 | | 5,598.000 | |
| | 506-6038 | TEMP SEDMT CONT FENCE (INSTALL) | LF | 35,925.000 | | 35,925.000 | |
| | 506-6039 | TEMP SEDMT CONT FENCE (REMOVE) | LF | 35,925.000 | | 35,925.000 | |
| | 508-6001 | CONSTRUCTING DETOURS | SY | 2,300.000 | | 2,300.000 | |
| | 512-6013 | PORT CTB (DES SOURCE)(SGL SLP)(TY 1) | LF | 210.000 | | 210.000 | |
| | 512-6025 | PORT CTB (MOVE)(SGL SLP)(TY 1) | LF | 2,940.000 | | 2,940.000 | |
| | 512-6037 | PORT CTB (STKPL)(SGL SLP)(TY 1) | LF | 210.000 | | 210.000 | |
| | 530-6004 | DRIVEWAYS (CONC) | SY | 106.000 | | 106.000 | |
| | 530-6005 | DRIVEWAYS (ACP) | SY | 11,497.000 | | 11,497.000 | |
| | 530-6023 | INTERSECTIONS (ACP) (TYPE 2) | SY | 1,543.000 | | 1,543.000 | |
| | 545-6003 | CRASH CUSH ATTEN (MOVE & RESET) | EA | 54.000 | | 54.000 | |
| | 545-6005 | CRASH CUSH ATTEN (REMOVE) | EA | 2.000 | | 2.000 | |
| | 545-6019 | CRASH CUSH ATTEN (INSTL)(S)(N)(TL3) | EA | 2.000 | | 2.000 | |
| | 552-6001 | WIRE FENCE (TY A) | LF | 925.000 | | 925.000 | |
| | 560-6007 | MAILBOX INSTALL-S (WC-POST) TY 3 | EA | 41.000 | | 41.000 | |
| | 560-6008 | MAILBOX INSTALL-D (WC-POST) TY 3 | EA | 7.000 | | 7.000 | |
| | 560-6013 | MAILBOX INSTALL-M (TWW-POST) TY 4 | EA | 7.000 | | 7.000 | |
| | 644-6001 | IN SM RD SN SUP&AM TY10BWG(1)SA(P) | EA | 274.000 | | 274.000 | |



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| DISTRICT | COUNTY | CCSJ | SHEET |
| Waco | Hamilton | 0867-01-017 | 46A |



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0867-01-017

DISTRICT Waco
HIGHWAY FM 932

COUNTY Hamilton

| CONTROL SECTION JOB | | | | 0867-01-017 | | TOTAL EST. | TOTAL FINAL |
|---------------------|-----------|---|------|-------------|-------|-------------|-------------|
| PROJECT ID | | | | A00004610 | | | |
| COUNTY | | | | Hamilton | | | |
| HIGHWAY | | | | FM 932 | | | |
| ALT | BID CODE | DESCRIPTION | UNIT | EST. | FINAL | | |
| | 644-6002 | IN SM RD SN SUP&AM TY10BWG(1)SA(P-BM) | EA | 12.000 | | 12.000 | |
| | 644-6004 | IN SM RD SN SUP&AM TY10BWG(1)SA(T) | EA | 16.000 | | 16.000 | |
| | 644-6018 | IN SM RD SN SUP&AM TY10BWG(2)SA(P-EXAL) | EA | 2.000 | | 2.000 | |
| | 644-6030 | IN SM RD SN SUP&AM TYS80(1)SA(T) | EA | 2.000 | | 2.000 | |
| | 644-6033 | IN SM RD SN SUP&AM TYS80(1)SA(U) | EA | 7.000 | | 7.000 | |
| | 644-6080 | RELOCATE SM RD SN SUP & AM TY TEMP | EA | 212.000 | | 212.000 | |
| | 658-6047 | INSTL OM ASSM (OM-2Y)(WC)GND | EA | 138.000 | | 138.000 | |
| | 662-6004 | WK ZN PAV MRK NON-REMOV (W)4"(SLD) | LF | 157,500.000 | | 157,500.000 | |
| | 662-6032 | WK ZN PAV MRK NON-REMOV (Y)4"(BRK) | LF | 120.000 | | 120.000 | |
| | 662-6034 | WK ZN PAV MRK NON-REMOV (Y)4"(SLD) | LF | 157,500.000 | | 157,500.000 | |
| | 662-6063 | WK ZN PAV MRK REMOV (W)4"(SLD) | LF | 141,400.000 | | 141,400.000 | |
| | 662-6111 | WK ZN PAV MRK SHT TERM (TAB)TY Y-2 | EA | 3,938.000 | | 3,938.000 | |
| | 666-6006 | REFL PAV MRK TY I (W)4"(DOT)(100MIL) | LF | 28.000 | | 28.000 | |
| | 666-6048 | REFL PAV MRK TY I (W)24"(SLD)(100MIL) | LF | 331.000 | | 331.000 | |
| | 666-6123 | REFL PAV MRK TY I (Y)4"(DOT)(100MIL) | LF | 28.000 | | 28.000 | |
| | 666-6303 | RE PM W/RET REQ TY I (W)4"(SLD)(100MIL) | LF | 15,026.000 | | 15,026.000 | |
| | 666-6312 | RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL) | LF | 95.000 | | 95.000 | |
| | 666-6315 | RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL) | LF | 17,307.000 | | 17,307.000 | |
| | 666-6342 | REF PROF PAV MRK TY I(W)4"(SLD)(100MIL) | LF | 137,886.000 | | 137,886.000 | |
| | 666-6344 | REF PROF PAV MRK TY I(Y)4"(BRK)(100MIL) | LF | 9,555.000 | | 9,555.000 | |
| | 666-6345 | REF PROF PAV MRK TY I(Y)4"(SLD)(100MIL) | LF | 89,817.000 | | 89,817.000 | |
| | 672-6009 | REFL PAV MRKR TY II-A-A | EA | 1,860.000 | | 1,860.000 | |
| | 730-6107 | FULL - WIDTH MOWING | CYC | 6.000 | | 6.000 | |
| | 3077-6013 | SP MIXESSP-CSAC-B PG64-22 | TON | 28,817.000 | | 28,817.000 | |
| | 3085-6001 | UNDERSEAL COURSE | GAL | 65,548.000 | | 65,548.000 | |
| | 6001-6002 | PORTABLE CHANGEABLE MESSAGE SIGN | EA | 4.000 | | 4.000 | |
| | 6056-6001 | PREFORMED IN-LANE(TRANS) RUMBLE STRIP | LF | 80.000 | | 80.000 | |
| | 6185-6002 | TMA (STATIONARY) | DAY | 180.000 | | 180.000 | |
| | 6185-6003 | TMA (MOBILE OPERATION) | HR | 544.000 | | 544.000 | |
| | 18 | ENVIRONMENTAL: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING) | LS | 1.000 | | 1.000 | |
| | | SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING) | LS | 1.000 | | 1.000 | |
| 1A | 464-6003 | RC PIPE (CL III)(18 IN) | LF | 1,248.000 | | 1,248.000 | |
| | 464-6085 | RC PIPE (CL III) (24 IN) (ALT) | LF | 624.000 | | 624.000 | |
| 1 | 4122-6004 | THERMO PIPE(18")(HDPE)(TY S)(CSB) | LF | 1,248.000 | | 1,248.000 | |
| | 4122-6005 | THERMO PIPE(24")(HDPE)(TY S)(CSB) | LF | 624.000 | | 624.000 | |


| | | | |
|----------|----------|-------------|-------|
| DISTRICT | COUNTY | CCSJ | SHEET |
| Waco | Hamilton | 0867-01-017 | 46B |


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| SUMMARY OF ROADWAY ITEMS LOCATION | 552 | 3077 | 3085 |
|--------------------------------------|----------------------|-----------------------------------|---------------------|
| | 6001 | 6013 | 6001 |
| | WIRE FENCE (TY A) | SP MIXES SP-C SAC-B PG64-22 | UNDERSEAL COURSE |
| LF | TON | GAL | |
| PLAN LAYOUT (1 OF 74) | | 247 | 562 |
| PLAN LAYOUT (2 OF 74) | | 403 | 917 |
| PLAN LAYOUT (3 OF 74) | | 406 | 923 |
| PLAN LAYOUT (4 OF 74) | | 403 | 917 |
| PLAN LAYOUT (5 OF 74) | 30 | 403 | 917 |
| PLAN LAYOUT (6 OF 74) | 30 | 403 | 917 |
| PLAN LAYOUT (7 OF 74) | | 403 | 917 |
| PLAN LAYOUT (8 OF 74) | | 406 | 923 |
| PLAN LAYOUT (9 OF 74) | 40 | 403 | 917 |
| PLAN LAYOUT (10 OF 74) | | 403 | 917 |
| PLAN LAYOUT (11 OF 74) | | 403 | 917 |
| PLAN LAYOUT (12 OF 74) | | 403 | 917 |
| PLAN LAYOUT (13 OF 74) | | 403 | 917 |
| PLAN LAYOUT (14 OF 74) | 55 | 403 | 917 |
| PLAN LAYOUT (15 OF 74) | 90 | 403 | 917 |
| PLAN LAYOUT (16 OF 74) | 60 | 405 | 921 |
| PLAN LAYOUT (17 OF 74) | | 403 | 917 |
| PLAN LAYOUT (18 OF 74) | | 403 | 917 |
| PLAN LAYOUT (19 OF 74) | | 406 | 923 |
| PLAN LAYOUT (20 OF 74) | 40 | 403 | 917 |
| PLAN LAYOUT (21 OF 74) | | 403 | 917 |
| PLAN LAYOUT (22 OF 74) | 30 | 403 | 917 |
| PLAN LAYOUT (23 OF 74) | 30 | 403 | 917 |
| PLAN LAYOUT (24 OF 74) | | 405 | 921 |
| PLAN LAYOUT (25 OF 74) | | 403 | 917 |
| PLAN LAYOUT (26 OF 74) | 40 | 403 | 917 |
| PLAN LAYOUT (27 OF 74) | 110 | 406 | 923 |
| PLAN LAYOUT (28 OF 74) | | 403 | 917 |
| PLAN LAYOUT (29 OF 74) | 60 | 406 | 923 |
| PLAN LAYOUT (30 OF 74) | | 403 | 917 |
| PLAN LAYOUT (31 OF 74) | | 403 | 917 |
| PLAN LAYOUT (32 OF 74) | | 406 | 923 |
| PLAN LAYOUT (33 OF 74) | | 403 | 917 |
| PLAN LAYOUT (34 OF 74) | | 406 | 923 |
| PLAN LAYOUT (35 OF 74) | | 406 | 923 |
| PLAN LAYOUT (36 OF 74) | 30 | 406 | 923 |
| PLAN LAYOUT (37 OF 74) | | 405 | 921 |
| PLAN LAYOUT (38 OF 74) | 30 | 403 | 917 |
| PLAN LAYOUT (39 OF 74) | | 405 | 921 |
| PLAN LAYOUT (40 OF 74) | | 406 | 923 |
| PLAN LAYOUT (41 OF 74) | | 403 | 917 |
| PLAN LAYOUT (42 OF 74) | | 403 | 917 |
| PLAN LAYOUT (43 OF 74) | | 405 | 921 |
| PLAN LAYOUT (44 OF 74) | | 403 | 917 |
| PLAN LAYOUT (45 OF 74) | | 405 | 921 |
| PLAN LAYOUT (46 OF 74) | | 403 | 917 |
| PLAN LAYOUT (47 OF 74) | | 408 | 927 |
| PLAN LAYOUT (48 OF 74) | | 406 | 923 |
| PLAN LAYOUT (49 OF 74) | | 408 | 927 |
| PLAN LAYOUT (50 OF 74) | | 405 | 921 |
| PLAN LAYOUT (51 OF 74) | 30 | 403 | 917 |
| PLAN LAYOUT (52 OF 74) | | 406 | 923 |
| PLAN LAYOUT (53 OF 74) | | 403 | 917 |
| PLAN LAYOUT (54 OF 74) | | 403 | 917 |
| PLAN LAYOUT (55 OF 74) | 30 | 406 | 923 |
| PLAN LAYOUT (56 OF 74) | | 403 | 917 |
| PLAN LAYOUT (57 OF 74) | 60 | 403 | 917 |
| PLAN LAYOUT (58 OF 74) | | 407 | 925 |
| PLAN LAYOUT (59 OF 74) | | 405 | 922 |
| PLAN LAYOUT (60 OF 74) | | 403 | 917 |
| PLAN LAYOUT (61 OF 74) | | 403 | 917 |
| PLAN LAYOUT (62 OF 74) | 100 | 403 | 917 |
| PLAN LAYOUT (63 OF 74) | 30 | 403 | 917 |
| PLAN LAYOUT (64 OF 74) | | 403 | 917 |
| PLAN LAYOUT (65 OF 74) | | 406 | 923 |
| PLAN LAYOUT (66 OF 74) | | 406 | 923 |
| PLAN LAYOUT (67 OF 74) | | 407 | 925 |
| PLAN LAYOUT (68 OF 74) | | 407 | 925 |
| PLAN LAYOUT (69 OF 74) | | 369 | 838 |
| PLAN LAYOUT (70 OF 74) | | 185 | 421 |
| PLAN LAYOUT (71 OF 74) | | 214 | 488 |
| PLAN LAYOUT (72 OF 74) | | 267 | 607 |
| PLAN LAYOUT (73 OF 74) | | 303 | 689 |
| PLAN LAYOUT (74 OF 74) | | 148 | 337 |
| PROJECT TOTALS | 925 | 28817 | 65548 |

| SUMMARY OF ROADWAY ITEMS (SIDE STREETS) LOCATION | ** | ** | ** | | | | | | | | | | * | * | * |
|--|-----------------------------|--|--|---------------------|--------------------|-------------------------------------|---|--|---|---|----------------------------------|-----------------------------------|------|---|---|
| | ALT BID | ALT BID | BASE BID | | BASE BID | | * | | * | | * | | | | |
| | 464 | 464 | 467 | 467 | 496 | 530 | 530 | 560 | 4122 | 4122 | 247 | 310 | 3077 | | |
| | 6003 | 6085 | 6363 | 6395 | 6007 | 6005 | 6023 | 6007 | 6004 | 6005 | | | | | |
| RC PIPE (CL II) (18 IN) | RC PIPE (CL III) (24 IN) | SET (TY II) (18 IN) (RCP) (6: 1) (P) | SET (TY II) (24 IN) (RCP) (6: 1) (P) | REMOV STR (PIPE) | DRIVEWAYS (ACP) | INTERSECTIO NS (ACP) (TYPE 2) | MAILBOX INSTALL-S (WC-POST) TY 3 | THERMO PIPE (18") (HD PE) (TYS) (C SB) | THERMO PIPE (24") (HDPE (TYS) (CSB) | FL BS (CMP IN PLC) (TYD GR1-2) (FNAL | PRIME COAT (MC-30 OR AE-P) | SP MIXES SP-C SAC-B PG64-22 | | | |
| LF | LF | EA | EA | LF | SY | SY | | LF | LF | CY | GAL | TON | | | |
| CR 435 | | 44 | | 2 | 41 | 402 | | | 44.0 | 46 | 81 | 45 | | | |
| CR 432 | | | | | | 319 | | | | 35 | 64 | 35 | | | |
| CR 431 S | 72 | | 2 | | | 435 | | 72 | | 48 | 87 | 48 | | | |
| CR 431 N | | 88 | | 2 | | 356 | | | 88.0 | 40 | 64 | 40 | | | |
| CR 414 | 64 | | 2 | | | 330 | | 64 | | 37 | 54 | 36 | | | |
| CR 409 | | | | | | 273 | | | | 30 | 63 | 30 | | | |
| CR 412 | 40 | | 2 | | 52 | 318 | | 40 | | 35 | 43 | 35 | | | |
| CR 408 | 64 | | 2 | | | 215 | | 1 | 64 | 24 | 81 | 24 | | | |
| CR 420 | 60 | | 2 | | | 406 | | 60 | | 45 | 101 | 45 | | | |
| FM 3340 | | | | | | | 507 | | | 169 | 47 | 56 | | | |
| CR 402 | | | | | | 235 | | | | 26 | 48 | 26 | | | |
| CR 404 | | | | | | 238 | | | | 26 | 58 | 26 | | | |
| CR 400 | | | | | | 290 | | | | 32 | 80 | 32 | | | |
| FM 1241 | | | | | | | 742 | | | 247 | 148 | 82 | | | |
| EDISON RD | 120 | | 2 | | | 398 | | 1 | 120 | 44 | 42 | 44 | | | |
| S LOYD ST | | | | | | 212 | | | | 24 | 27 | 24 | | | |
| PROJECT TOTALS | 420 | 132 | 12 | 4 | 93 | 4427 | 1249 | 2 | 420 | 132 | 908 | 1088 | 628 | | |

* FOR CONTRACTOR INFORMATION ONLY
 ** ALTERNATIVE TO ITEM 4122 IS ITEM 464
 *** SEE SUMMARY OF DRIVEWAYS AND TURNOUTS FOR ADDITIONAL QUANTITIES


FIRM REGISTRATION NO. F-230



© 2022

FM 932

SUMMARY OF QUANTITIES

(SHEET 2 OF 2)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 47A |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



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DATE: 11/8/2021 10:01:27 AM jphili.ipp

| SUMMARY OF DRIVEWAYS, AND TURNOUTS | | | | ALT BID ALT BID | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|-----------------|----------|---------|-----------------|------|---------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|------------------|------------------|-----------------|-----------------------------|---------------------------------|----------------------------------|----------------------------------|---------------------------------------|---------------------------------------|---|----------------------------|-----------------|----------------|-----------------------------|--|
| LOCATION/STATION | EXIST DRWY TYPE | ITEM | | | | 104 | 464 | 464 | 467 | 467 | 496 | 530 | 530 | 530 | 560 | 560 | 560 | BASE BID | | BASE BID | | | | | |
| | | DRIVEWAY | | | | 6017 | 6003 | 6085 | 6363 | 6395 | 6007 | 6004 | 6005 | 6023 | 6007 | 6008 | 6013 | 4122 | 4122 | 247 | 310 | 496 | 530 | 3077 | |
| | | WIDTH | LENGTH | R1 | R2 | REMOVING CONC (DRIVEWAYS) | RC PIPE (CL III) (18 IN) | RC PIPE (CL III) (24 IN) | SET (TY II) (18 IN) (RCP) (6:1) (P) | SET (TY II) (24 IN) (RCP) (6:1) (P) | REMOV STR (PIPE) | DRIVEWAYS (CONC) | DRIVEWAYS (ACP) | INTESECTIONS (ACP) (TYPE 2) | MAILBOX INSTALL-S (WC-POST) TY3 | MAILBOX INSTALL-D (WC-POST) TY 3 | MAILBOX INSTALL-M (TWW-POST) TY4 | THERMO PIPE (18") (HDPE) (TY S) (CSB) | THERMO PIPE (24") (HDPE) (TY S) (CSB) | FL BS (CMP IN PLC) (TYD GR1-2) (FNAL POS) | PRIME COAT (MC-30 OR AE-P) | REMOV STR (SET) | TURNOUTS (ACP) | SP MIXES SP-C SAC-B PG64-22 | |
| (LT/RT) | | FT | FT | FT | FT | | | | | LF | SY | SY | SY | EA | EA | EA | LF | LF | CY | GAL | EA | SY | TON | | |
| 1 | 362+51.56 | LT | GRAVEL | 16.0 | 15.0 | 15 | 15 | | | | | | | | | | | | | 4 | 8 | | | 4 | |
| 2 | 362+77.44 | RT | GRAVEL | 16.0 | 26.0 | 15 | 15 | | | | | | | | | | | | | 6 | 12 | | | 6 | |
| 3 | 363+39.09 | LT | GRAVEL | 12.0 | 25.0 | 60 | 5 | | | | | | | | | | | | | 7 | 12 | | | 7 | |
| 4 | 364+06.02 | LT | GRAVEL | 16.0 | 25.0 | 15 | 15 | | | | | | | | | | | | | 6 | 11 | | | 6 | |
| 5 | 381+42.43 | LT | GRAVEL | 16.0 | 25.0 | 15 | 15 | | | 40 | | | 2 | 20 | | | | | 40 | 6 | 11 | | 23 | 6 | |
| 6 | 400+25.04 | RT | GRAVEL | 20.0 | 25.0 | 25 | 25 | | | | | | | | | | | | | 9 | 17 | | | 9 | |
| 7 | 413+74.27 | RT | GRAVEL | 16.0 | 25.0 | 15 | 15 | | | | | | | | | | | | | 6 | 11 | | | 6 | |
| 8 | 434+01.77 | RT | GRAVEL | 25.0 | 26.0 | 5 | 50 | | | | | | | | | | | | | 9 | 16 | | | 9 | |
| 9 | 440+61.49 | RT | GRAVEL | 19.0 | 25.0 | 15 | 15 | | | 56 | | | 2 | 18 | | | | | 56 | 6 | 11 | | 22 | 6 | |
| 10 | 451+37.10 | LT | GRAVEL | 16.0 | 25.0 | 15 | 15 | | | | | | | | | | | | | 6 | 11 | | | 6 | |
| 11 | 465+33.84 | RT | GRAVEL | 16.0 | 25.0 | 15 | 15 | | | | | | | | | | | | | 6 | 11 | | | 6 | |
| 12 | 484+27.00 | RT | GRAVEL | 18.0 | 27.0 | 15 | 15 | | | | | | | | | | | | | 7 | 13 | | | 7 | |
| 13 | 484+39.03 | LT | GRAVEL | 20.0 | 23.0 | 15 | 15 | | | | | | | | | | | | | 7 | 12 | | | 7 | |
| 14 | 505+68.04 | RT | GRAVEL | 19.0 | 26.0 | 15 | 15 | | | | | | | | | | | | | 7 | 13 | | | 7 | |
| 15 | 521+27.81 | LT | GRAVEL | 20.0 | 25.0 | 15 | 15 | | | | | | | | | | | | | 7 | 13 | | | 7 | |
| 16 | 529+48.32 | LT | GRAVEL | 26.0 | 25.0 | 25 | 25 | | | | | | | 103 | | 1 | | | | 11 | 21 | | | 11 | |
| 17 | 529+59.81 | RT | GRAVEL | 20.0 | 25.0 | 15 | 15 | | | 56 | | | 2 | | | | | 56 | | 7 | 13 | | 16 | 7 | |
| 18 | 541+05.22 | LT | GRAVEL | 20.0 | 24.0 | 15 | 15 | | | | | | | | | | | | | 7 | 13 | | | 7 | |
| 19 | 555+98.37 | RT | GRAVEL | 18.0 | 24.0 | 15 | 15 | | | | | | | | | | | | | 6 | 12 | | | 6 | |
| 20 | 556+49.52 | LT | GRAVEL | 16.0 | 26.0 | 25 | 25 | | | | | | | | | 1 | | | | 9 | 15 | | 23 | 8 | |
| 21 | 584+96.52 | LT | GRAVEL | 20.0 | 25.0 | 25 | 20 | | | | | | | | | | | | | 9 | 16 | | | 9 | |
| 22 | 603+15.57 | RT | GRAVEL | 22.0 | 25.0 | 15 | 15 | | | 32 | | | 2 | | | | | 32 | | 8 | 14 | | | 8 | |
| 23 | 616+29.64 | RT | GRAVEL | 17.0 | 25.0 | 25 | 25 | | | | | | | | 1 | | | | | 9 | 15 | | 16 | 8 | |
| 24 | 626+13.21 | RT | GRAVEL | 16.0 | 25.0 | 15 | 15 | | | 32 | | | 2 | 16 | | | | 32 | | 6 | 11 | | | 6 | |
| 25 | 648+41.64 | LT | GRAVEL | 16.0 | 25.0 | 15 | 15 | | | | | | | | | | | | 32 | 6 | 12 | | | 6 | |
| 26 | 655+13.09 | LT | GRAVEL | 20.0 | 25.0 | 15 | 15 | | | | | | | | | | | | 32 | 7 | 13 | | 24 | 7 | |
| 27 | 655+46.16 | LT | GRAVEL | 16.0 | 25.0 | 15 | 15 | | | | | | | | | | | | 32 | 6 | 11 | | | 6 | |
| 28 | 666+34.56 | LT | GRAVEL | 22.0 | 23.0 | 15 | 15 | | | | | | | | | | | | | 7 | 13 | | | 7 | |
| 29 | 674+92.57 | LT | ASPHALT | 30.0 | 23.0 | 15 | 15 | | | | | | | | | | | | 40 | 10 | 17 | | 23 | 9 | |
| 30 | 676+85.60 | LT | GRAVEL | 24.0 | 23.0 | 15 | 15 | | | 32 | | | 2 | | | | | 32 | | 8 | 14 | | | 8 | |
| 31 | 681+15.40 | RT | GRAVEL | 21.0 | 26.0 | 15 | 15 | | | 8 | | | 2 | | | | | 8 | | 8 | 15 | | | 8 | |
| 32 | 698+07.45 | LT | GRAVEL | 16.0 | 26.0 | 15 | 15 | | | | | | | | | | | | | 6 | 12 | | | 6 | |
| 33 | 707+38.71 | LT | GRAVEL | 16.0 | 25.0 | 15 | 15 | | | 32 | | | 2 | | | | | 32 | | 6 | 11 | | | 6 | |
| 34 | 709+57.29 | LT | GRAVEL | 16.0 | 25.0 | 15 | 15 | | | | | | | 2 | 23 | | | | 32 | 6 | 11 | 2 | 23 | 6 | |
| 35 | 727+99.35 | LT | GRAVEL | 22.0 | 27.0 | 15 | 15 | | | 32 | | | 2 | | | | | 32 | | 8 | 14 | | | 8 | |
| 36 | 731+84.69 | LT | GRAVEL | 16.0 | 28.0 | 15 | 15 | | | 32 | | | 2 | 62 | | | | 32 | | 7 | 13 | 1 | 23 | 7 | |
| 37 | 736+64.02 | LT | GRAVEL | 16.0 | 26.0 | 15 | 15 | | | | | | | | | | | | | 6 | 12 | | | 6 | |
| 38 | 736+73.89 | RT | GRAVEL | 16.0 | 23.0 | 15 | 15 | | | | | | | | | | | | 32 | 6 | 10 | | | 6 | |
| SHEET TOTAL | | | | | | 0 | 312 | 240 | 18 | 12 | 253 | | 2456 | 0 | 4 | 3 | 0 | 312 | 240 | 273 | 491 | 3 | 193 | 270 | |

*** **

* FOR CONTRACTOR INFORMATION ONLY TO USE IN DETERMINING THE MATERIALS REQUIRED FOR DRIVEWAY AND TURNOUT QUANTITIES.
** ALTERNATE TO ITEM 4122 IS ITEM 464
*** SEE SUMMARY OF ROADWAY ITEMS (SIDESTREETS) FOR ADDITIONAL QUANTITIES

FIRM REGISTRATION NO. F-230

FM 932

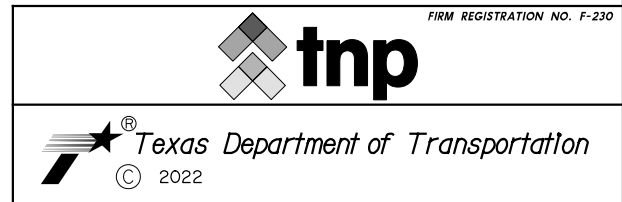
SUMMARY OF QUANTITIES

(SHEET 1 OF 3)

| | | | | |
|------------------|---------------------------|--|--------------------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 47B |
| GRAPHICS JP | CONTROL 0867 | SECTION 01 | JOB 017 | |
| GRPH CHECK RJ | | | | |

| SUMMARY OF DRIVEWAYS, AND TURNOUTS | | | | | | | | ALT BID ALT BID | | | | | | | | | | | | | | ** | ** | * | * | * | * | * |
|------------------------------------|-----------------|----------|--------|--------|------|---------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|------------------|------------------|-----------------|-----------------------------|---------------------------------|----------------------------------|----------------------------------|---------------------------------------|---------------------------------------|---|----------------------------|-----------------|----------------|-----------------------------|-----|------|---|---|
| LOCATION/STATION | EXIST DRWY TYPE | ITEM | | | | 104 | 464 | 464 | 467 | 467 | 496 | 530 | 530 | 530 | 560 | 560 | 560 | BASE BID | | BASE BID | | 247 | 310 | 496 | 530 | 3077 | | |
| | | BID CODE | | | | 6017 | 6003 | 6085 | 6363 | 6395 | 6007 | 6004 | 6005 | 6023 | 6007 | 6008 | 6013 | 4122 | 4122 | | | | | | | | | |
| | | DRIVEWAY | | | | REMOVING CONC (DRIVEWAYS) | RC PIPE (CL III) (18 IN) | RC PIPE (CL III) (24 IN) | SET (TY II) (18 IN) (RCP) (6:1) (P) | SET (TY II) (24 IN) (RCP) (6:1) (P) | REMOV STR (PIPE) | DRIVEWAYS (CONC) | DRIVEWAYS (ACP) | INTESECTIONS (ACP) (TYPE 2) | MAILBOX INSTALL-S (WC-POST) TY3 | MAILBOX INSTALL-D (WC-POST) TY 3 | MAILBOX INSTALL-M (TWW-POST) TY4 | THERMO PIPE (18") (HDPE) (TY S) (CSB) | THERMO PIPE (24") (HDPE) (TY S) (CSB) | FL BS (CMP IN PLC) (TYD GR1-2) (FNAL POS) | PRIME COAT (MC-30 OR AE-P) | REMOV STR (SET) | TURNOUTS (ACP) | SP MIXES SP-C SAC-B PG64-22 | | | | |
| | | (LT/RT) | WIDTH | LENGTH | R1 | R2 | SY | LF | LF | EA | EA | LF | SY | SY | SY | EA | EA | EA | LF | LF | CY | GAL | EA | SY | TON | | | |
| 39 | 739+89.73 | RT | GRAVEL | 16.0 | 20.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 40 | 740+40.98 | LT | GRAVEL | 16.0 | 20.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 41 | 741+19.52 | RT | GRAVEL | 16.0 | 21.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 42 | 745+10.70 | RT | GRAVEL | 45.0 | 17.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 43 | 746+42.43 | RT | GRAVEL | 50.0 | 15.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 44 | 746+43.52 | LT | GRAVEL | 24.0 | 25.0 | 20 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 45 | 757+37.35 | RT | GRAVEL | 18.0 | 21.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 46 | 764+46.01 | LT | GRAVEL | 28.0 | 20.0 | 20 | 60 | | | | | | | | | | | | | | | | | | | | | |
| 47 | 764+70.18 | RT | GRAVEL | 28.0 | 20.0 | 20 | 20 | | | | | | | | | | | | | | | | | | | | | |
| 48 | 777+97.18 | RT | GRAVEL | 16.0 | 19.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 49 | 790+73.98 | LT | GRAVEL | 18.0 | 21.0 | 20 | 20 | | | | | | | | | | | | | | | | | | | | | |
| 50 | 791+15.18 | RT | GRAVEL | 16.0 | 19.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 51 | 791+84.99 | RT | GRAVEL | 40.0 | 20.0 | 20 | 20 | | | | | | | | | | | | | | | | | | | | | |
| 52 | 809+27.48 | LT | GRAVEL | 20.0 | 21.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 53 | 816+25.83 | RT | GRAVEL | 20.0 | 21.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 54 | 824+70.87 | LT | GRAVEL | 18.0 | 20.0 | 20 | 20 | | | | | | | | | | | | | | | | | | | | | |
| 55 | 826+81.68 | RT | GRAVEL | 21.0 | 20.0 | 20 | 20 | | | | | | | | | | | | | | | | | | | | | |
| 56 | 827+01.96 | LT | GRAVEL | 24.0 | 20.0 | 20 | 20 | | | | | | | | | | | | | | | | | | | | | |
| 57 | 849+89.99 | LT | GRAVEL | 21.0 | 18.0 | 20 | 20 | | | | | | | | | | | | | | | | | | | | | |
| 58 | 850+27.96 | RT | GRAVEL | 40.0 | 22.0 | 20 | 20 | | | | | | | | | | | | | | | | | | | | | |
| 59 | 854+32.71 | LT | GRAVEL | 16.0 | 19.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 60 | 872+10.01 | LT | GRAVEL | 17.0 | 20.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 61 | 875+15.51 | RT | GRAVEL | 18.0 | 19.0 | 20 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 62 | 878+11.99 | LT | GRAVEL | 16.0 | 21.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 63 | 890+60.55 | LT | GRAVEL | 17.0 | 20.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 64 | 893+71.90 | RT | GRAVEL | 16.0 | 20.0 | 15 | 20 | | | | | | | | | | | | | | | | | | | | | |
| 65 | 895+79.65 | LT | GRAVEL | 16.0 | 21.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 66 | 905+99.33 | RT | GRAVEL | 16.0 | 19.0 | 20 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 67 | 912+02.90 | RT | GRAVEL | 20.0 | 19.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 68 | 928+47.23 | LT | GRAVEL | 16.0 | 18.0 | 20 | 20 | | | | | | | | | | | | | | | | | | | | | |
| 69 | 958+19.61 | LT | GRAVEL | 30.0 | 23.0 | 20 | 20 | | | | | | | | | | | | | | | | | | | | | |
| 70 | 961+17.98 | LT | GRAVEL | 38.0 | 20.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 71 | 966+22.08 | RT | GRAVEL | 48.0 | 22.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 72 | 976+53.26 | LT | GRAVEL | 16.0 | 20.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 73 | 988+31.05 | RT | GRAVEL | 16.0 | 21.0 | 20 | 20 | | | | | | | | | | | | | | | | | | | | | |
| 74 | 992+07.14 | RT | GRAVEL | 24.0 | 21.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 75 | 995+59.35 | RT | GRAVEL | 20.0 | 21.0 | 40 | 10 | | | | | | | | | | | | | | | | | | | | | |
| 76 | 999+18.83 | RT | GRAVEL | 16.0 | 20.0 | 20 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 77 | 999+89.80 | RT | GRAVEL | 16.0 | 20.0 | 20 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 78 | 1010+19.75 | RT | GRAVEL | 16.0 | 20.0 | 20 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 79 | 1044+90.79 | RT | GRAVEL | 16.0 | 19.0 | 15 | 15 | | | | | | | | | | | | | | | | | | | | | |
| 80 | 1072+01.73 | LT | GRAVEL | 16.0 | 20.0 | 15 | 20 | | | | | | | | | | | | | | | | | | | | | |
| 81 | 1079+83.06 | RT | GRAVEL | 36.0 | 23.0 | 25 | 15 | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTAL | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* FOR CONTRACTOR INFORMATION ONLY TO USE IN DETERMINING THE MATERIALS REQUIRED FOR DRIVEWAY AND TURNOUT QUANTITIES.
 ** ALTERNATIVE TO ITEM 4122 IS ITEM 464
 *** SEE SUMMARY OF ROADWAY ITEMS (SIDESTREETS) FOR ADDITIONAL QUANTITIES



FM 932

SUMMARY OF QUANTITIES

(SHEET 2 OF 3)

| | | | | |
|---------------|---------------------|---|-----------------|--------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 47C |
| GRAPHICS JP | CONTROL | SECTION | JOB | |
| GRPH CHECK RJ | 0867 | 01 | 017 | |

FILE: P:\MSGP\TXD18248\05-FM932\PROD\SHEETS\QTY*DRWY02.dgn
 DATE: 11/8/2021 10:01:34 AM jph11.ipp

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\QTY*DRWY03.dgn
 DATE: 11/8/2021 10:01:38 AM jphillip

| SUMMARY OF DRIVEWAYS, AND TURNOUTS | | | | ALT BID ALT BID | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|-----------------|----------|----------|-----------------|------|---------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|------------------|------------------|-----------------|-----------------------------|---------------------------------|----------------------------------|----------------------------------|--------------------------------------|--------------------------------------|---|----------------------------|-----------------|----------------|-----------------------------|--|
| LOCATION/STATION | EXIST DRWY TYPE | ITEM | | | | 104 | 464 | 464 | 467 | 467 | 496 | 530 | 530 | 530 | 560 | 560 | 560 | 4122 | 4122 | 247 | 310 | 496 | 530 | 3077 | |
| | | BID CODE | | | | 6017 | 6003 | 6085 | 6363 | 6395 | 6007 | 6004 | 6005 | 6023 | 6007 | 6008 | 6013 | 4122 | 4122 | | | | | | |
| | | DRIVEWAY | | | | REMOVING CONC (DRIVEWAYS) | RC PIPE (CL III) (18 IN) | RC PIPE (CL III) (24 IN) | SET (TY II) (18 IN) (RCP) (6:1) (P) | SET (TY II) (24 IN) (RCP) (6:1) (P) | REMOV STR (PIPE) | DRIVEWAYS (CONC) | DRIVEWAYS (ACP) | INTESECTIONS (ACP) (TYPE 2) | MAILBOX INSTALL-S (WC-POST) TY3 | MAILBOX INSTALL-D (WC-POST) TY 3 | MAILBOX INSTALL-M (TWW-POST) TY4 | THERMO PIPE (18") (HDPE) (TYS) (CSB) | THERMO PIPE (24") (HDPE) (TYS) (CSB) | FL BS (CMP IN PLC) (TYD GR1-2) (FNAL POS) | PRIME COAT (MC-30 OR AE-P) | REMOV STR (SET) | TURNOUTS (ACP) | SP MIXES SP-C SAC-B PG64-22 | |
| (LT/RT) | | WIDTH | LENGTH | R1 | R2 | SY | LF | LF | EA | EA | LF | SY | SY | SY | EA | EA | EA | LF | LF | CY | GAL | EA | SY | TON | |
| 82 | 1080+48.97 | LT | GRAVEL | 16.0 | 27.0 | 15 | 15 | | | | | | | | | | | | | 7 | 12 | | | 7 | |
| 83 | 1086+56.29 | RT | GRAVEL | 47.0 | 25.0 | 20 | 20 | | | | | | | | | | | | | 17 | 30 | | | 17 | |
| 84 | 1087+17.87 | LT | GRAVEL | 101.0 | 24.0 | 20 | 20 | | | | | | | | | | | | | | | | 17 | 0 | |
| 85 | 1087+59.78 | RT | GRAVEL | 60.0 | 26.0 | 40 | 20 | | | | | | | | | | | | | 22 | 39 | | | 22 | |
| 86 | 1089+34.74 | LT | GRAVEL | 57.0 | 24.0 | 20 | 46 | | | | | | | | | | | | | 21 | 38 | | | 21 | |
| 87 | 1093+25.18 | LT | GRAVEL | 20.0 | 24.0 | 15 | 20 | | | | | | | | | | | | | 8 | 14 | | | 8 | |
| 88 | 1093+84.85 | LT | GRAVEL | 18.0 | 24.0 | 20 | 20 | | | | | | | | | | | | | 8 | 14 | | 16 | 7 | |
| 89 | 1093+91.98 | RT | GRAVEL | 45.0 | 26.0 | 12 | 115 | | | | | | | | | | | | | 20 | 37 | | | 20 | |
| 90 | 1096+44.48 | LT | GRAVEL | 16.0 | 25.0 | 20 | 20 | | | | | | | | | | | | | 7 | 13 | | 16 | 7 | |
| 91 | 1096+61.36 | RT | GRAVEL | 32.0 | 25.0 | 20 | 20 | | | | | | | | | | | | | 12 | 22 | | | 12 | |
| 92 | 1103+43.39 | LT | GRAVEL | 28.0 | 26.0 | 15 | 15 | | | | | | | | | | | | 48 | 10 | 18 | | | 10 | |
| 93 | 1107+88.56 | RT | CONCRETE | 36.0 | 25.0 | 15 | 15 | 106 | | | | | | | | | | | 48 | | | | | | |
| 94 | 1110+06.18 | LT | GRAVEL | 95.0 | 20.0 | 15 | 15 | | | | | | | | | | | | | 25 | 46 | | 15 | 25 | |
| 95 | 1110+62.49 | RT | GRAVEL | 18.0 | 30.0 | 20 | 20 | | | | | | | | | | | | | 9 | 15 | | | 8 | |
| 96 | 1111+11.96 | LT | GRAVEL | 30.0 | 22.0 | 15 | 15 | | | | | | | | | | | | | 9 | 17 | | | 9 | |
| 97 | 1113+09.54 | LT | GRAVEL | 16.0 | 20.0 | 15 | 30 | | | | | | | | | | | | | 7 | 12 | | | 6 | |
| 98 | 1114+00.97 | LT | ASPHALT | 64.0 | 21.0 | 15 | 15 | | | | | | | | | | | | | 18 | 32 | | | 17 | |
| 99 | 1118+60.33 | RT | | | | | | | | | | | | | | | | | | | | | | | |
| 100 | 1119+82.93 | RT | | | | | | | | | | | | | | | | | | | | | | | |
| 101 | 1120+29.31 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 102 | 1122+24.00 | RT | | | | | | | | | | | | | | | | | | | | | | | |
| 103 | 1124+79.96 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 104 | 1124+89.23 | RT | | | | | | | | | | | | | | | | | | | | | | | |
| 105 | 1125+10.23 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 106 | 1126+95.86 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 107 | 1131+82.59 | RT | | | | | | | | | | | | | | | | | | | | | | | |
| 108 | 1131+99.41 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 109 | 1132+30.10 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 110 | 1132+45.96 | RT | | | | | | | | | | | | | | | | | | | | | | | |
| 111 | 1133+08.98 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 112 | 1134+90.72 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 113 | 1135+96.40 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 114 | 1137+31.16 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 115 | 1140+44.87 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 116 | 1142+49.27 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 117 | 1143+00.73 | RT | | | | | | | | | | | | | | | | | | | | | | | |
| 118 | 1143+11.70 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 119 | 1144+20.72 | RT | | | | | | | | | | | | | | | | | | | | | | | |
| 120 | 1144+43.42 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 121 | 1145+35.39 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 122 | 1146+43.73 | RT | | | | | | | | | | | | | | | | | | | | | | | |
| 123 | 1147+32.71 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| 124 | 1147+77.94 | LT | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET TOTAL | | | | | | | | | | | | | | | | | | | | | | | | | |
| TOTAL | | | | | | | | | | | | | | | | | | | | | | | | | |

* FOR CONTRACTOR INFORMATION ONLY TO USE IN DETERMINING THE MATERIALS REQUIRED FOR DRIVEWAY AND TURNOUT QUANTITIES.

** ALTERNATIVE TO ITEM 4122 IS ITEM 464

*** SEE SUMMARY OF ROADWAY ITEMS (SIDEStreETS) FOR ADDITIONAL QUANTITIES



FIRM REGISTRATION NO. F-230



FM 932

SUMMARY OF QUANTITIES

(SHEET 3 OF 3)

| | | | | |
|---------------|---------------------|---|-----------------|--------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. |
| GRAPHICS JP | CONTROL | SECTION | JOB | 47D |
| GRPH CHECK RJ | 0867 | 01 | 017 | |

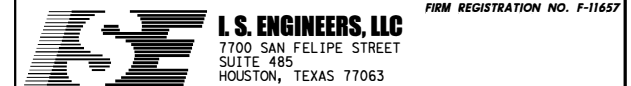
SUMMARY OF CULVERT CROSSING QUANTITIES

| DRAINAGE STRUCTURE ID | 400 | 400 | 402 | 403 | 432 | 462 | 462 | 462 | 462 | 462 | 464 | 464 | 464 | 464 | 464 | 466 | 466 | 466 | 466 |
|--------------------------|--------------------|---------------------------|------------------------------------|--------------------------|---|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|---|---|-----------------------------------|-----------------------------------|
| | 6005 | 6006 | 6001 | 6001 | 6033 | 6003 | 6007 | 6011 | 6015 | 6022 | 6005 | 6007 | 6008 | 6017 | 6018 | 6097 | 6101 | 6179 | 6180 |
| | CEM STABIL BKFL | CUT & RESTORING PAV | TRENCH EXCAVATION PROTECTION | TEMPORARY SPL SHORING | RIPRAP (STONE PROTECTION) (18 IN) | CONC BOX CULV (4 FT X 2 FT) | CONC BOX CULV (5 FT X 3 FT) | CONC BOX CULV (6 FT X 4 FT) | CONC BOX CULV (7 FT X 4 FT) | CONC BOX CULV (8 FT X 7 FT) | RC PIPE (CL III) (24 IN) | RC PIPE (CL III) (30 IN) | RC PIPE (CL III) (36 IN) | RC PIPE (CL IV) (18 IN) | RC PIPE (CL IV) (24 IN) | HEADWALL (CH - PW - 0) (DIA= 24 IN) | HEADWALL (CH - PW - 0) (DIA= 36 IN) | WINGWALL (PW - 1) (HW=4 FT) | WINGWALL (PW - 1) (HW=5 FT) |
| | CY | SY | LF | SF | CY | LF | LF | LF | LF | LF | LF | LF | LF | LF | EA | EA | EA | EA | |
| C-376 | 43 | 31 | 17 | | | | | | | | | | | | | | | | |
| C-408 | 20 | 15 | 10 | | | | | | | | 50 | | | | | 1 | | | |
| C-416 | 35 | 27 | 16 | | 34 | | | | | | 100 | | | | | 1 | | | |
| C-436 | 19 | 15 | | | | | | | | | | | | 44 | | | | | |
| C-456 | 20 | 15 | | | | | | | | | 50 | | | | | | | | |
| C-479 | 21 | 15 | | | | | | | | | 48 | | | | | | | | |
| C-485 | 50 | 39 | 28 | | | | | | | | 162 | | | | | | | | |
| C-509 | 16 | 13 | | | | | | | | | | | 50 | | | | | | |
| C-567 | 53 | 36 | 30 | | | | | | | | | | | | | | 2 | | |
| C-634 | 43 | 34 | 36 | | 100 | | | | 50 | | | | 100 | | | | | | |
| C-646 | 108 | 53 | 37 | | | | | | | | | | 204 | | | | | | |
| C-668 | 19 | 15 | | | | | | | | | | | | 44 | | | | | |
| C-721 | 38 | 31 | 42 | | 75 | | | 50 | | | | | | | | | | | |
| C-743 | 20 | 15 | | | 10 | | | | | | 50 | | | | | 1 | | | |
| C-748 | 28 | 19 | 26 | | 43 | | | | | | | | 50 | | | 2 | | | |
| C-767 | 20 | 15 | | | | | | | | | 46 | | | | | 1 | | | |
| C-797 | 53 | 36 | 29 | | | | | | | | | | 100 | | | | 2 | | |
| C-840 | 28 | 19 | 26 | | | | | | | | | | 50 | | | | 2 | | |
| C-859 | 28 | 19 | 32 | | | | | | | | | | 48 | | | | 2 | | |
| C-909 | 28 | 19 | 30 | | | | | | | | | | 50 | | | | 2 | | |
| C-934 | 20 | 15 | | | | | | | | | | | | 46 | | 1 | | | |
| C-943 | 20 | 15 | 37 | | | | | | | | 46 | | | | | 1 | | | |
| C-962 | 20 | 15 | | | | | | | | | | | | 46 | | 1 | | | |
| C-1004 | 20 | 15 | 18 | | | | | | | | | | | | | 2 | | | |
| C-1034 | 83 | 71 | 33 | 1,440 | 176 | | | | | 96 | | | | | | | | | |
| C-1040 | 32 | 27 | 32 | | 44 | | | 46 | | | | | | | | | | | 2 |
| C-1059 | 32 | 27 | 38 | | 41 | | | 48 | | | | | | | | | | | 2 |
| C-1107 | 41 | 41 | 41 | | 60 | 100 | | | | | | | | | | | | 2 | |
| PROJECT TOTALS | 958 | 707 | 558 | 1,440 | 583 | 100 | 94 | 50 | 50 | 96 | 600 | 88 | 602 | 50 | 180 | 9 | 12 | 2 | 4 |

FILENAME: L:\waco Distr\ict\FM 932*FM 2410\CADD\Sheets\07 Drainage Detail\FM 932*Culvert Quantities*01.dgn

DRAWING DATE: 09/01/2021

FINAL SUBMITTAL



FM 932

SUMMARY OF QUANTITIES

(SHEET 1 OF 2)

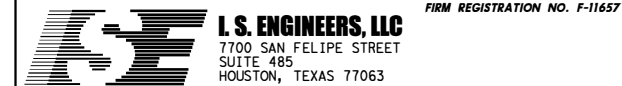
| | | | | |
|----------------|-------------------|-------------------------|-----------------|-------------|
| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| SRS | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS TW | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. |
| GRPH CHECK SRS | CONTROL 0867 | SECTION 01 | JOB 017 | 47E |

FILENAME: L:\waco District\FM 932*FM 2410\CADD\Sheets\07 Drainage Details\FM 932\Culvert Quantities*02.dgn

DRAWING DATE: 09/01/2021

| SUMMARY OF CULVERT CROSSING QUANTITIES | | | | | | | | | | | |
|--|-----------------------------------|-----------------------------------|-----------------------------------|---|---|---|---|---|---------------------|-------------------------|----|
| DRAINAGE STRUCTURE ID | 466 | 466 | 466 | 467 | 467 | 467 | 467 | 467 | 496 | 496 | |
| | 6181 | 6183 | 6184 | 6358 | 6388 | 6390 | 6419 | 6450 | 6007 | 6093 | |
| | WINGWALL (PW - 1) (HW=6 FT) | WINGWALL (PW - 1) (HW=8 FT) | WINGWALL (PW - 1) (HW=9 FT) | SET (TY II) (18 IN) (RCP) (4: 1) (C) | SET (TY II) (24 IN) (RCP) (3: 1) (C) | SET (TY II) (24 IN) (RCP) (4: 1) (C) | SET (TY II) (30 IN) (RCP) (4: 1) (C) | SET (TY II) (36 IN) (RCP) (4: 1) (C) | REMOV STR (PIPE) | REMOV STR (MASONARY) | |
| EA | EA | EA | EA | EA | EA | EA | EA | EA | LF | LF | |
| C-376 | | | | | | | 4 | | | 74 | |
| C-408 | | | | | | 1 | | | | 38 | |
| C-416 | | | | | | 2 | | | | 83 | |
| C-436 | | | | | | 2 | | | | 38 | |
| C-456 | | | | | | 2 | | | | 66 | |
| C-479 | | | | | | 2 | | | | 37 | |
| C-485 | | | | | 3 | 3 | | | | 135 | |
| C-509 | | | | 2 | | | | | | 38 | |
| C-567 | | | | | | | | | | 75 | |
| C-634 | | 2 | | | | | | | | 93 | 29 |
| C-646 | | | | | | | | 6 | | 164 | |
| C-668 | | | | | | 2 | | | | 36 | |
| C-721 | 2 | | | | | | | | | 84 | |
| C-743 | | | | | | 1 | | | | 43 | |
| C-748 | | | | | | | | | | 42 | |
| C-767 | | | | | | 1 | | | | 40 | |
| C-797 | | | | | | | | | | 84 | |
| C-840 | | | | | | | | | | 42 | |
| C-859 | | | | | | | | | | 44 | |
| C-909 | | | | | | | | | | 41 | |
| C-934 | | | | | | 1 | | | | 37 | |
| C-943 | | | | | | 1 | | | | 37 | |
| C-962 | | | | | | 1 | | | | 38 | |
| C-1004 | | | | | | | | | | 41 | |
| C-1034 | | | 2 | | | | | | | 33 | |
| C-1040 | | | | | | | | | | 41 | |
| C-1059 | | | | | | | | | | 46 | |
| C-1107 | | | | | | | | | | 49 | |
| PROJECT TOTALS | 2 | 2 | 2 | 2 | 3 | 19 | 4 | 6 | 1,619 | 29 | |

FINAL SUBMITTAL



FM 932

SUMMARY OF QUANTITIES

(SHEET 2 OF 2)

| | | | | | |
|----------------|-------------------|-------------------------|-----------------|-----------|-------------|
| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
| DESIGN CK SRS | 6 | (SEE TITLE SHEET) | | | FM 932 |
| GRAPHICS TW | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. | |
| GRPH CHECK SRS | CONTROL 0867 | SECTION 01 | JOB 017 | 47F | |

SUMMARY OF PAVEMENT MARKING ITEMS

| LOCATION | 666 6048 | 666 6006 | 666 6123 | 666 6303 | 666 6312 | 666 6315 | 666 6342 | * 666 6344 | * 666 6345 | * 672 6009 | 6056 6001 |
|----------------|---|--|--|---|---|---|--|--|--|----------------------------|--|
| | REFL PAV MRK TY I (W) 24" (SLD) (100MIL) | REFL PAV MRK TY I (W) 4" (DOT) (100MIL) | REFL PAV MRK TY I (Y) 4" (DOT) (100MIL) | RE PM W/RET REQ TY I (W) 4" (SLD) (100MIL) | RE PM W/RET REQ TY I (Y) 4" (BRK) (100MIL) | RE PM W/RET REQ TY I (Y) 4" (SLD) (100MIL) | REF PROF PAV MRK TY I (W) 4" (SLD) (100MIL) | REF PROF PAV MRK TY I (Y) 4" (BRK) (100MIL) | REF PROF PAV MRK TY I (Y) 4" (SLD) (100MIL) | REFL PAV MRKR TY II-A-A | PREFORMED IN-LANE (TRANS) RUMBLE STRIP |
| | LF | LF | LF | LF | LF | LF | LF | LF | LF | EA | LF |
| SHEET 01 | | | | | | | 3549 | 444 | 1500 | 43 | |
| SHEET 02 | | | | | | | 4400 | 525 | 1200 | 42 | |
| SHEET 03 | 16 | | | | | | 4347 | | 4292 | 55 | |
| SHEET 04 | 14 | | | | | | 4295 | 63 | 3941 | 53 | |
| SHEET 05 | | | | | | | 4400 | 550 | 700 | 37 | |
| SHEET 06 | | | | | | | 4400 | 363 | 2474 | 50 | |
| SHEET 07 | 12 | | | | | | 4270 | | 4140 | 52 | |
| SHEET 08 | | | | | | | 4330 | 488 | 1560 | 45 | |
| SHEET 09 | | | | | | | 4400 | 550 | 1750 | 50 | |
| SHEET 10 | 11 | | | | | | 4310 | 315 | 2960 | 53 | |
| SHEET 11 | | | | | | | 4400 | 550 | 2050 | 54 | |
| SHEET 12 | 12 | | | | | | 4322 | 531 | 1522 | 47 | |
| SHEET 13 | | | | | | | 4400 | 425 | 2000 | 47 | |
| SHEET 14 | | | | | | | 4400 | 363 | 2650 | 52 | |
| SHEET 15 | | | | | | | 4400 | 400 | 2500 | 53 | |
| SHEET 16 | | | | | | | 4400 | 63 | 4150 | 55 | |
| SHEET 17 | 12 | | | 150 | 19 | 75 | 4185 | 349 | 2730 | 55 | |
| SHEET 18 | 24 | | | 3457 | 76 | 3014 | 800 | 100 | 400 | 53 | |
| SHEET 19 | | | | | | | 4400 | 375 | 2200 | 47 | |
| SHEET 20 | 16 | | | | | | 4317 | 283 | 3104 | 54 | |
| SHEET 21 | | | | | | | 4400 | 200 | 3600 | 55 | |
| SHEET 22 | | | | | | | 4400 | 200 | 3600 | 55 | |
| SHEET 23 | 11 | | | | | | 4322 | 381 | 2522 | 52 | |
| SHEET 24 | | | | | | | 4400 | 388 | 2300 | 49 | |
| SHEET 25 | 11 | | | | | | 4332 | 163 | 3614 | 56 | |
| SHEET 26 | | | | | | | 4400 | 213 | 3550 | 57 | |
| SHEET 27 | | | | | | | 4400 | | 4400 | 56 | |
| SHEET 28 | | | | | | | 4400 | | 4400 | 56 | |
| SHEET 29 | 14 | | | | | | 4313 | 504 | 1813 | 49 | |
| SHEET 30 | | | | | | | 4400 | 125 | 3900 | 56 | |
| SHEET 31 | | | | | | | 4400 | | 4400 | 56 | |
| SHEET 32 | | | | | | | 4400 | 400 | 2200 | 49 | |
| SHEET 33 | 40 | | | 2036 | | 1890 | 2594 | 244 | 1695 | 58 | 80 |
| SHEET 34 | 29 | | | 4313 | | 4226 | | | | 54 | |
| SHEET 35 | 34 | | | 4000 | | 3850 | | | | 50 | |
| SHEET 36 | 35 | 28 | 28 | 1070 | | 1746 | | | | 23 | |
| SHEET 37 | 40 | | | | | 2506 | | | | 32 | |
| PROJECT TOTALS | 331 | 28 | 28 | 15026 | 95 | 17307 | 137886 | 9555 | 89817 | 1860 | 80 |

* FOR CONTRACTOR PURPOSES ONLY. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

FILE: FM932*OTHON*SUMMARY*QTY*01.dgn
DATE: 10/26/2021 3:58:50 PM



FM 932

SUMMARY OF QUANTITIES

(SHEET 1 OF 3)


| | | | | |
|----------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK JMP | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRPH CHECK JMP | TX | WACO | HAMILTON | 47G |
| | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| SUMMARY OF WORKZONE TRAFFIC CONTROL ITEMS | | | | | | | | |
|---|----------------------|--|----------------------------------|-----------------------------------|---------------------------------|---------------------------|--|--------------------------------------|
| LOCATION | 508 6001 | 512 6013 | 512 6025 | 512 6037 | 545 6003 | 545 6005 | 545 6019 | 662 6034 |
| | CONSTRUCTING DETOURS | PORT CTB (DES SOURCE) (SGL SLP) (TY 1) | PORT CTB (MOVE) (SGL SLP) (TY 1) | PORT CTB (STKPL) (SGL SLP) (TY 1) | CRASH CUSH ATTEN (MOVE & RESET) | CRASH CUSH ATTEN (REMOVE) | CRASH CUSH ATTEN (INSTL) (S) (N) (TL3) | WK ZN PAV MRK NON-REMOV (Y) 4" (SLD) |
| | SY | LF | LF | LF | EA | EA | EA | LF |
| CULVERT REPLACEMENT(S)/EXTENSION(S) | 2300 | 210 | 2940 | 210 | 54 | 2 | 2 | 3000 |
| ROADWAY RECONSTRUCTION | | | | | | | | 154500 |
| PROJECT TOTALS | 2300 | 210 | 2940 | 210 | 54 | 2 | 2 | 157500 |


| SUMMARY OF WORKZONE TRAFFIC CONTROL ITEMS | | | | | | | |
|---|--------------------------------------|--------------------------------------|----------------------------------|-------------------------------------|----------------------------------|------------------|------------------------|
| LOCATION | 662 6004 | 662 6032 | 662 6063 | 662 6111 | 6001 6002 | 6185 6002 | 6185 6003 |
| | WK ZN PAV MRK NON-REMOV (W) 4" (SLD) | WK ZN PAV MRK NON-REMOV (Y) 4" (BRK) | WK ZN PAV MRK REMOV (W) 4" (SLD) | WK ZN PAV MRK SHT TERM (TAB) TY Y-2 | PORTABLE CHANGEABLE MESSAGE SIGN | TMA (STATIONARY) | TMA (MOBILE OPERATION) |
| | LF | LF | LF | EA | EA | DAY | HR |
| CULVERT REPLACEMENT(S)/EXTENSION(S) | 3000 | | | | | 180 | |
| ROADWAY RECONSTRUCTION | 154500 | 120 | 141400 | 3938 | 4 | | 544 |
| PROJECT TOTALS | 157500 | 120 | 141400 | 3938 | 4 | 180 | 544 |

| SUMMARY OF SIGNING ITEMS | | | | | | | | |
|--------------------------|--------------------------------------|---|--------------------------------------|---|------------------------------------|------------------------------------|------------------------------------|--------------------------------|
| LOCATION | 644 6001 | 644 6002 | 644 6004 | 644 6018 | 644 6030 | 644 6033 | 644 6080 | 658 6047 |
| | IN SM RD SN SUP&M TY10BWG (1) SA (P) | IN SM RD SN SUP&M TY10BWG (1) SA (P-BM) | IN SM RD SN SUP&M TY10BWG (1) SA (T) | IN SM RD SN SUP&M TY10BWG (2) SA (P-EXAL) | IN SM RD SN SUP&M TYS80 (1) SA (T) | IN SM RD SN SUP&M TYS80 (1) SA (U) | RELOCATE SM RD SN SUP & AM TY TEMP | INSTL OM ASSM (OM-2Y) (WC) GND |
| | EA | EA | EA | EA | EA | EA | EA | EA |
| SHEET 01 | 8 | | 3 | | | | 7 | 4 |
| SHEET 02 | 2 | | | | | | | |
| SHEET 03 | 11 | 1 | 1 | | | | 12 | 8 |
| SHEET 04 | 11 | 1 | | | | | 12 | 4 |
| SHEET 05 | 3 | | | | | | 1 | 4 |
| SHEET 06 | 7 | | | | | | 5 | 8 |
| SHEET 07 | 12 | | | | | | 11 | 4 |
| SHEET 08 | 7 | | | | | | 4 | |
| SHEET 09 | 5 | | | | | | 1 | |
| SHEET 10 | 4 | 1 | | | | | 2 | 4 |
| SHEET 11 | 3 | | | | | | | |
| SHEET 12 | 6 | 1 | | | | | 3 | |
| SHEET 13 | 4 | | | | | | 1 | 4 |
| SHEET 14 | 7 | | | | | | 5 | 4 |
| SHEET 15 | 8 | | | | | | 4 | 4 |
| SHEET 16 | 8 | | | | | | 7 | |
| SHEET 17 | 9 | 1 | | | | | 6 | 4 |
| SHEET 18 | 14 | 2 | 2 | | | | 9 | 8 |
| SHEET 19 | 10 | | | | | | 6 | 4 |
| SHEET 20 | 11 | 1 | 1 | 1 | | 3 | 10 | 4 |
| SHEET 21 | 2 | | | | | | 1 | |
| SHEET 22 | 4 | | | | | | 2 | 4 |
| SHEET 23 | 5 | 1 | | | | | 2 | 4 |
| SHEET 24 | 2 | | | | | | | |
| SHEET 25 | 12 | 1 | 1 | | | | 6 | |
| SHEET 26 | 6 | | | | | | 4 | 4 |
| SHEET 27 | 8 | | | | | | 8 | 8 |
| SHEET 28 | 13 | | | | | | 12 | 4 |
| SHEET 29 | 9 | 1 | | | | | 5 | |
| SHEET 30 | 2 | | | | | | 1 | 4 |
| SHEET 31 | 6 | | | | | | 6 | 4 |
| SHEET 32 | 7 | | | | | | 2 | 8 |
| SHEET 33 | 11 | | 3 | 1 | 1 | 2 | 14 | |
| SHEET 34 | 5 | 1 | 3 | | | | 8 | |
| SHEET 35 | 16 | | 1 | | | 1 | 16 | 18 |
| SHEET 36 | 8 | | | | | 1 | 9 | 8 |
| SHEET 37 | 8 | | 1 | | 1 | | 10 | 4 |
| PROJECT TOTALS | 274 | 12 | 16 | 2 | 2 | 7 | 212 | 138 |

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DATE: 10/18/2021 6:28:24 PM



OTHON ENGINEERING
FIRM REGISTRATION NO. F-1471



Texas Department of Transportation
© 2022

FM 932

SUMMARY OF QUANTITIES

(SHEET 2 OF 3)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JMP | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| JMP | TX | WACO | HAMILTON | 47H |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

SUMMARY OF EROSION CONTROL ITEMS

| LOCATION | 160 | 164 | 164 | 164 | 168 | 169 | 506 | 506 | 506 | 506 | 730 |
|----------------|--|--|--------------------------------|--------------------------------|---------------------|---|--------------------------------------|------------------------------|------------------------------------|-----------------------------------|---------------------|
| | 6003 | 6035 | 6041 | 6043 | 6001 | 6004 | 6002 | 6011 | 6038 | 6039 | 6107 |
| | FURNISHING AND PLACING TOPSOIL (4") | DRILL SEEDING (PERM) (RURAL) (CLAY) | DRILL SEEDING (TEMP) (WARM) | DRILL SEEDING (TEMP) (COOL) | VEGETATIVE WATERING | SOIL RETENTION BLANKETS (CL 1) (TY D) | ROCK FILTER DAMS (INSTALL) (TY 2) | ROCK FILTER DAMS (REMOVE) | TEMP SEDMT CONT FENCE (INSTALL) | TEMP SEDMT CONT FENCE (REMOVE) | FULL - WIDTH MOWING |
| | SY | SY | SY | SY | MG | SY | LF | LF | LF | LF | CYC |
| SHEET 01 | 10768 | 10768 | 5384 | 5384 | | 556 | 187 | 187 | 579 | 579 | |
| SHEET 02 | 12037 | 12037 | 6018 | 6018 | | | 155 | 155 | 199 | 199 | |
| SHEET 03 | 11903 | 11903 | 5952 | 5952 | | 1092 | 182 | 182 | 1170 | 1170 | |
| SHEET 04 | 16141 | 16141 | 8070 | 8070 | | 737 | 182 | 182 | 1014 | 1014 | |
| SHEET 05 | 12105 | 12105 | 6053 | 6053 | | 555 | 156 | 156 | 2637 | 2637 | |
| SHEET 06 | 12065 | 12065 | 6032 | 6032 | | 1186 | 203 | 203 | 1110 | 1110 | |
| SHEET 07 | 13594 | 13594 | 6797 | 6797 | | 567 | 219 | 219 | 932 | 932 | |
| SHEET 08 | 12036 | 12036 | 6018 | 6018 | | | 152 | 152 | 1771 | 1771 | |
| SHEET 09 | 12134 | 12134 | 6067 | 6067 | | | 190 | 190 | 1156 | 1156 | |
| SHEET 10 | 12216 | 12216 | 6108 | 6108 | | 555 | 114 | 114 | 1242 | 1242 | |
| SHEET 11 | 12121 | 12121 | 6061 | 6061 | | | 152 | 152 | 764 | 764 | |
| SHEET 12 | 12125 | 12125 | 6062 | 6062 | | | 156 | 156 | 1419 | 1419 | |
| SHEET 13 | 11992 | 11992 | 5996 | 5996 | | 554 | 216 | 216 | 1565 | 1565 | |
| SHEET 14 | 11923 | 11923 | 5962 | 5962 | | 659 | 248 | 248 | 1200 | 1200 | |
| SHEET 15 | 11873 | 11873 | 5936 | 5936 | | 547 | 186 | 186 | 602 | 602 | |
| SHEET 16 | 12073 | 12073 | 6037 | 6037 | | | 173 | 173 | 1347 | 1347 | |
| SHEET 17 | 11963 | 11963 | 5981 | 5981 | | 556 | 180 | 180 | 960 | 960 | |
| SHEET 18 | 9773 | 9773 | 4887 | 4887 | | 770 | 121 | 121 | 2107 | 2107 | |
| SHEET 19 | 9370 | 9370 | 4685 | 4685 | | 444 | 188 | 188 | 990 | 990 | |
| SHEET 20 | 10650 | 10650 | 5325 | 5325 | | 435 | 153 | 153 | 2049 | 2049 | |
| SHEET 21 | 9736 | 9736 | 4868 | 4868 | | | 161 | 161 | 879 | 879 | |
| SHEET 22 | 9487 | 9487 | 4743 | 4743 | | 446 | 123 | 123 | 1016 | 1016 | |
| SHEET 23 | 9526 | 9526 | 4763 | 4763 | | 441 | 113 | 113 | 1105 | 1105 | |
| SHEET 24 | 9528 | 9528 | 4764 | 4764 | | | 160 | 160 | 319 | 319 | |
| SHEET 25 | 9644 | 9644 | 4822 | 4822 | | | 126 | 126 | 1146 | 1146 | |
| SHEET 26 | 9545 | 9545 | 4773 | 4773 | | 444 | 152 | 152 | 507 | 507 | |
| SHEET 27 | 9644 | 9644 | 4822 | 4822 | | 887 | 136 | 136 | 1001 | 1001 | |
| SHEET 28 | 9381 | 9381 | 4690 | 4690 | | 445 | 160 | 160 | 757 | 757 | |
| SHEET 29 | 9492 | 9492 | 4746 | 4746 | | | 125 | 125 | 1182 | 1182 | |
| SHEET 30 | 9312 | 9312 | 4656 | 4656 | | 418 | 92 | 92 | 671 | 671 | |
| SHEET 31 | 9581 | 9581 | 4791 | 4791 | | 493 | 125 | 125 | 364 | 364 | |
| SHEET 32 | 9409 | 9409 | 4704 | 4704 | | 796 | 135 | 135 | 352 | 352 | |
| SHEET 33 | 12050 | 12050 | 6025 | 6025 | | | 120 | 120 | 655 | 655 | |
| SHEET 34 | 10596 | 10596 | 5298 | 5298 | | | 207 | 207 | 453 | 453 | |
| SHEET 35 | 4449 | 4449 | 2225 | 2225 | | 526 | 150 | 150 | 705 | 705 | |
| SHEET 36 | | | | | | | | | | | |
| SHEET 37 | | | | | | | | | | | |
| PROJECT TOTALS | 380242 | 380242 | 190121 | 190121 | 6454 | 14109 | 5598 | 5598 | 35925 | 35925 | 6 |

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DATE: 10/18/2021 6:28:24 PM



FM 932

SUMMARY OF QUANTITIES

(SHEET 3 OF 3)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 471 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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.

| LOC NO. | TCP PHASE | PLAN SHEET NUMBER | LOCATION | STA | TEST LEVEL | DIRECTION OF TRAFFIC (UNI/BI) | FOUNDATION PAD | | BACKUP SUPPORT | | | AVAILABLE SITE LENGTH | CRASH CUSHION | | | | | | | | | | | |
|---------|-----------|-------------------|---------------------|-----------|------------|-------------------------------|-------------------|--------------------|-------------------------------|-------|--------|-----------------------|---------------|--------|--------------|-------------|-----|-----|-----|-----|-----|-----|---|--|
| | | | | | | | PROPOSED MATERIAL | PROPOSED THICKNESS | DESCRIPTION | WIDTH | HEIGHT | | INSTALL | REMOVE | MOVE / RESET | | L N | L W | R N | R W | S N | S W | | |
| | | | | | | | | | | | | | | | MOVE/RESET | FROM LOC. # | | | | | | | | |
| 1A | STAGE 1 | 50 | SE OF CULVERT C-567 | 567+84.12 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | X | | | | | | | | | | X | |
| 1B | STAGE 1 | 50 | SW OF CULVERT C-567 | 567+84.12 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | X | | | | | | | | | | X | |
| 1C | STAGE 2 | 50 | NE OF CULVERT C-567 | 567+84.12 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 1A | | | | | | | X | |
| 1D | STAGE 2 | 50 | NW OF CULVERT C-567 | 567+84.12 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 1B | | | | | | | X | |
| 2A | STAGE 1 | 50 | SE OF CULVERT C-634 | 634+50.99 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 1C | | | | | | | X | |
| 2B | STAGE 1 | 50 | SW OF CULVERT C-634 | 634+50.99 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 1D | | | | | | | X | |
| 2C | STAGE 2 | 50 | NE OF CULVERT C-634 | 634+50.99 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 2A | | | | | | | X | |
| 2D | STAGE 2 | 50 | NW OF CULVERT C-634 | 634+50.99 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 2B | | | | | | | X | |
| 3A | STAGE 1 | 50 | SE OF CULVERT C-646 | 646+27.09 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 2C | | | | | | | X | |
| 3B | STAGE 1 | 50 | SW OF CULVERT C-646 | 646+27.09 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 2D | | | | | | | X | |
| 3C | STAGE 2 | 50 | NE OF CULVERT C-646 | 646+27.09 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 3A | | | | | | | X | |
| 3D | STAGE 2 | 50 | NW OF CULVERT C-646 | 646+27.09 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 3B | | | | | | | X | |
| 4A | STAGE 1 | 50 | NE OF CULVERT C-721 | 721+73.07 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 3C | | | | | | | X | |
| 4B | STAGE 1 | 50 | NW OF CULVERT C-721 | 721+73.07 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 3D | | | | | | | X | |
| 4C | STAGE 2 | 50 | SE OF CULVERT C-721 | 721+73.07 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 4A | | | | | | | X | |
| 4D | STAGE 2 | 50 | SW OF CULVERT C-721 | 721+73.07 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 4B | | | | | | | X | |
| 5A | STAGE 1 | 50 | NE OF CULVERT C-748 | 748+23.93 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 4C | | | | | | | X | |
| 5B | STAGE 1 | 50 | NW OF CULVERT C-748 | 748+23.93 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 4D | | | | | | | X | |
| 5C | STAGE 2 | 50 | SE OF CULVERT C-748 | 748+23.93 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 5A | | | | | | | X | |
| 5D | STAGE 2 | 50 | SW OF CULVERT C-748 | 748+23.93 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 5B | | | | | | | X | |
| 6A | STAGE 1 | 50 | SE OF CULVERT C-797 | 797+32.02 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 5C | | | | | | | X | |
| 6B | STAGE 1 | 50 | SW OF CULVERT C-797 | 797+32.02 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 5D | | | | | | | X | |
| 6C | STAGE 2 | 50 | NE OF CULVERT C-797 | 797+32.02 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 6A | | | | | | | X | |
| 6D | STAGE 2 | 50 | NW OF CULVERT C-797 | 797+32.02 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 6B | | | | | | | X | |
| | | | | | | | | | | | | TOTALS | 2 | | 22 | | | | | | | | | |

LEGEND:
 L=LOW MAINTENANCE
 R=REUSABLE
 S=SACRIFICIAL
 N=NARROW
 W=WIDE

FOR DEFINITIONS SEE THE "CRASH CUSHION CATEGORIZATION CHART.PDF" AT THE DESIGN DIVISION (ROADWAY STANDARDS) WEBSITE. USE QUICK LINKS TO ACCESS ATTENUATORS / CRASH CUSHIONS SECTION.
<http://www.dot.state.tx.us/insdot/orgchart/cmd/cserve/standard/rdwylse.htm>

CRASH CUSHION SUMMARY SHEET 1 OF 3

| | | | |
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| FILE: ccss.dgn | DN: TxDOT | CK: | CK: |
| © TxDOT | CONT 0867 | SECT 01 | JOB 017 |
| REVISIONS | HIGHWAY FM 932 | | |
| | DIST WACO | COUNTY HAMILTON | |
| | FEDERAL AID PROJECT | | SHEET NO. 48 |

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| LOC NO. | TCP PHASE | PLAN SHEET NUMBER | LOCATION | STA | TEST LEVEL | DIRECTION OF TRAFFIC (UNI/BI) | FOUNDATION PAD | | BACKUP SUPPORT | | | AVAILABLE SITE LENGTH | CRASH CUSHION | | | | | | | | | | | | | | | | | | | | |
|---------|-----------|-------------------|----------------------|------------|------------|-------------------------------|-------------------|--------------------|-------------------------------|-------|--------|-----------------------|---------------|--------|--------------|-------------|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | PROPOSED MATERIAL | PROPOSED THICKNESS | DESCRIPTION | WIDTH | HEIGHT | | INSTALL | REMOVE | MOVE / RESET | | L | L | R | R | S | S | | | | | | | | | | | |
| | | | | | | | | | | | | | | | MOVE/RESET | FROM LOC. # | N | W | N | W | N | W | | | | | | | | | | | |
| 7A | STAGE 1 | 50 | NE OF CULVERT C-840 | 840+39.20 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 6C | | | | | | X | | | | | | | | | | | |
| 7B | STAGE 1 | 50 | NW OF CULVERT C-840 | 840+39.20 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 6D | | | | | | X | | | | | | | | | | | |
| 7C | STAGE 2 | 50 | SE OF CULVERT C-840 | 840+39.20 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 7A | | | | | | X | | | | | | | | | | | |
| 7D | STAGE 2 | 50 | SW OF CULVERT C-567 | 840+39.20 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 7B | | | | | | X | | | | | | | | | | | |
| 8A | STAGE 1 | 50 | NE OF CULVERT C-859 | 859+21.92 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 7C | | | | | | X | | | | | | | | | | | |
| 8B | STAGE 1 | 50 | NW OF CULVERT C-859 | 859+21.92 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 7D | | | | | | X | | | | | | | | | | | |
| 8C | STAGE 2 | 50 | SE OF CULVERT C-859 | 859+21.92 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 8A | | | | | | X | | | | | | | | | | | |
| 8D | STAGE 2 | 50 | NW OF CULVERT C-859 | 859+21.92 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 8B | | | | | | X | | | | | | | | | | | |
| 9A | STAGE 1 | 50 | NE OF CULVERT C-909 | 909+45.77 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 8C | | | | | | X | | | | | | | | | | | |
| 9B | STAGE 1 | 50 | NW OF CULVERT C-909 | 909+45.77 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 8D | | | | | | X | | | | | | | | | | | |
| 9C | STAGE 2 | 50 | SE OF CULVERT C-909 | 909+45.77 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 9A | | | | | | X | | | | | | | | | | | |
| 9D | STAGE 2 | 50 | SW OF CULVERT C-909 | 909+45.77 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 9B | | | | | | X | | | | | | | | | | | |
| 10A | STAGE 1 | 50 | NE OF CULVERT C-1004 | 1004+05.63 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 9C | | | | | | X | | | | | | | | | | | |
| 10B | STAGE 1 | 50 | SE OF CULVERT C-1004 | 1004+05.63 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 9D | | | | | | X | | | | | | | | | | | |
| 10C | STAGE 2 | 50 | NW OF CULVERT C-1004 | 1004+05.63 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 10A | | | | | | X | | | | | | | | | | | |
| 10D | STAGE 2 | 50 | SW OF CULVERT C-1004 | 1004+05.63 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 10B | | | | | | X | | | | | | | | | | | |
| 11A | STAGE 1 | 50 | NE OF CULVERT C-1034 | 1034+56.10 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 10C | | | | | | X | | | | | | | | | | | |
| 11B | STAGE 1 | 50 | NW OF CULVERT C-1034 | 1034+56.10 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 10D | | | | | | X | | | | | | | | | | | |
| 11C | STAGE 2 | 50 | SE OF CULVERT C-1034 | 1034+56.10 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 11A | | | | | | X | | | | | | | | | | | |
| 11D | STAGE 2 | 50 | SW OF CULVERT C-1034 | 1034+56.10 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 11B | | | | | | X | | | | | | | | | | | |
| 12A | STAGE 1 | 50 | NE OF CULVERT C-1040 | 1040+54.53 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 11C | | | | | | X | | | | | | | | | | | |
| 12B | STAGE 1 | 50 | NW OF CULVERT C-1040 | 1040+54.53 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 11D | | | | | | X | | | | | | | | | | | |
| 12C | STAGE 2 | 50 | SE OF CULVERT C-1040 | 1040+54.53 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 12A | | | | | | X | | | | | | | | | | | |
| 12D | STAGE 2 | 50 | SW OF CULVERT C-1040 | 1040+54.53 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 12B | | | | | | X | | | | | | | | | | | |
| | | | | | | | | | | | | TOTALS | | | 24 | | | | | | | | | | | | | | | | | | |

LEGEND:
 L=LOW MAINTENANCE
 R=REUSABLE
 S=SACRIFICIAL
 N=NARROW
 W=WIDE

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<http://www.dot.state.tx.us/insdot/orgchart/cmd/cserve/standard/rdwylse.htm>

CRASH CUSHION SUMMARY SHEET 2 OF 3

| | | | |
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| FILE: ccss.dgn | DN: TxDOT | CK: | CK: |
| © TxDOT | CONT | SECT | JOB |
| REVISIONS | 0867 | 01 | 017 |
| | DIST | COUNTY | |
| | WACO | HAMILTON | |
| | FEDERAL AID PROJECT | | SHEET NO. |
| | | | 49 |

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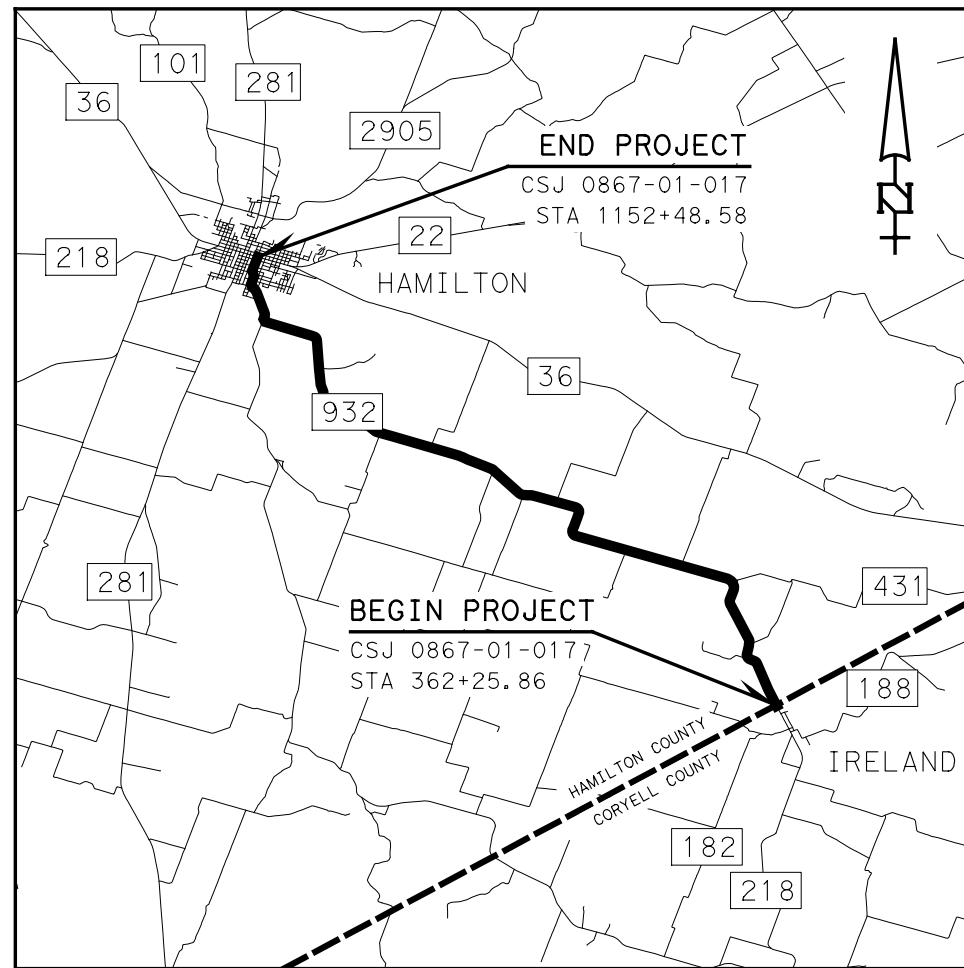
| LOC NO. | TCP PHASE | PLAN SHEET NUMBER | LOCATION | STA | TEST LEVEL | DIRECTION OF TRAFFIC (UNI/BI) | FOUNDATION PAD | | BACKUP SUPPORT | | | AVAILABLE SITE LENGTH | CRASH CUSHION | | | | | | | | | | |
|---------|-----------|-------------------|----------------------|------------|------------|-------------------------------|-------------------|--------------------|-------------------------------|-------|--------|-----------------------|---------------|--------|--------------|-------------|-----|-----|-----|-----|-----|-----|--|
| | | | | | | | PROPOSED MATERIAL | PROPOSED THICKNESS | DESCRIPTION | WIDTH | HEIGHT | | INSTALL | REMOVE | MOVE / RESET | | L N | L W | R N | R W | S N | S W | |
| | | | | | | | | | | | | | | | MOVE/RESET | FROM LOC. # | | | | | | | |
| 13A | STAGE 1 | 50 | NE OF CULVERT C-1059 | 1059+69.69 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 12C | | | | | | X | |
| 13B | STAGE 1 | 50 | NW OF CULVERT C-1059 | 1059+69.69 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 12D | | | | | | X | |
| 13C | STAGE 2 | 50 | SE OF CULVERT C-1059 | 1059+69.69 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 13A | | | | | | X | |
| 13D | STAGE 2 | 50 | SW OF CULVERT C-1059 | 1059+69.69 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 13B | | | | | | X | |
| 14A | STAGE 1 | 50 | NW OF CULVERT C-1107 | 1107+13.72 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 13C | | | | | | X | |
| 14B | STAGE 1 | 50 | SW OF CULVERT C-1107 | 1107+13.72 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | | X | 13D | | | | | | X | |
| 14C | STAGE 2 | 50 | NE OF CULVERT C-1107 | 1107+13.72 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | X | X | 14A | | | | | | X | |
| 14D | STAGE 2 | 50 | SE OF CULVERT C-1107 | 1107+13.72 | TL-3 | BI | TEMP PVMT | 10" | SINGLE SLOPE CONCRETE BARRIER | 24" | 42" | AS NEEDED | | X | X | 14B | | | | | | X | |
| | | | | | | | | | | | | TOTALS | | 2 | 8 | | | | | | | | |
| | | | | | | | | | | | | PROJECT TOTALS | 2 | 2 | 54 | | | | | | | | |

LEGEND:
 L=LOW MAINTENANCE
 R=REUSABLE
 S=SACRIFICIAL
 N=NARROW
 W=WIDE

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<http://www.dot.state.tx.us/insdot/orgchart/cmd/cserve/standard/rdwylse.htm>

CRASH CUSHION SUMMARY SHEET 3 OF 3

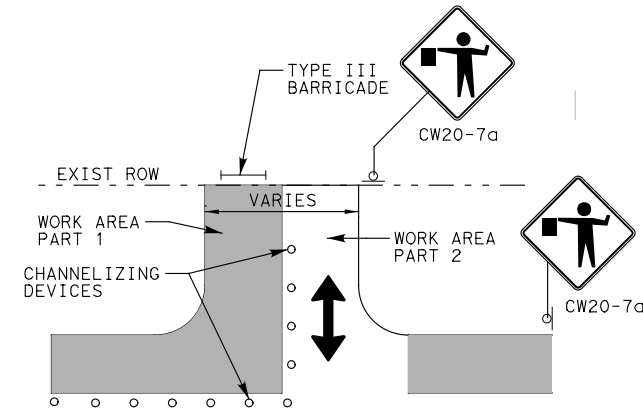
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| FILE: ccss.dgn | DN: TxDOT | CK: | CK: |
| © TxDOT | CONT | SECT | JOB |
| REVISIONS | 0867 | 01 | 017 |
| | DIST | COUNTY | |
| | WACO | HAMILTON | |
| | FEDERAL AID PROJECT | | SHEET NO. |
| | | | 50 |



VICINITY MAP NTS

GENERAL

- INSTALL ALL SIGNS, BARRICADES AND TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE STANDARD BC SHEETS AND AS DIRECTED.
- ADDITIONAL SIGNS, BARRICADES OR TRAFFIC CONTROL DEVICES OTHER THAN THOSE SPECIFIED MAY BE REQUIRED FOR THE SAFE MOVEMENT OF TRAFFIC THROUGH THE PROJECT. PAYMENT FOR ALL SUCH SIGNS, BARRICADES OF TRAFFIC CONTROL DEVICES WILL BE CONSIDERED SUBSIDIARY TO THE ITEM "BARRICADES, SIGNS AND TRAFFIC HANDLING."
- WORK SITES SHOULD BE CAREFULLY MONITORED TO ENSURE THAT TRAFFIC CONTROL MEASURES ARE OPERATING EFFECTIVELY AND THAT ALL DEVICES USED ARE CLEARLY VISIBLE, CLEAN AND IN GOOD REPAIR.
- THE CONTRACTOR WILL PROVIDE SAFE ACCESS TO AND FROM ALL PRIVATE PROPERTY AT ALL TIMES AND IN ALL WEATHER CONDITIONS.
- THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A DETAILED SCHEDULE OF WORK PRIOR TO THE BEGINNING OF CONSTRUCTION WHICH GENERALLY CONFORMS TO THE SEQUENCE SHOWN ON THE TCP SEQUENCE OF CONSTRUCTION BELOW.
- COMPLETE ALL WORK ON PROJECT AS SHOWN ON THE VARIOUS PLAN SHEETS AND IN COMPLIANCE WITH THE GENERAL NOTES OF THIS CONTRACT.
- ANY REQUEST TO ALTER THE SEQUENCE OF CONSTRUCTION OR TRAFFIC CONTROL PLAN WILL BE SUBMITTED TO THE ENGINEER FOR THEIR WRITTEN APPROVAL.
- VERTICAL LONGITUDINAL TAPERS BETWEEN THE WORK AREA AND NON-WORK AREA WILL BE PROVIDED AT ALL TIMES FOR VEHICULAR SAFETY. TAPERS WILL HAVE A RATE OF 1" VERTICAL:50' HORIZONTAL. ALL WORK AND MATERIAL IS SUBSIDIARY TO ITEM 502.
- MOVE SIGNS TO TEMPORARY MOUNTS ONLY FOR AREAS THAT ARE BEING CONSTRUCTED. EXISTING SIGNS ARE TO REMAIN IN PLACE AS LONG AS CONSTRUCTION HAS NOT BEGUN IN THAT AREA.
- DAY CLOSURE OF ONE LANE SHALL BE REQUIRED FOR CULVERT REPLACEMENTS USING TXDOT STANDARD TCP(1-2)-18 AND CULVERT PHASING STAGE CONSTRUCTION WITH FLAGGERS WHEN PARTIAL REPLACEMENT OF CULVERT CAN BE ACHIEVED IN A DAY. IN THE EVENT PARTIAL REPLACEMENT OF CULVERT IS NOT EXPECTED TO BE COMPLETED IN A DAY, TEMPORARY CONCRETE BARRIERS (SSCB) AND CRASH CUSHIONS SHALL BE IN PLACE IN ACCORDANCE WITH THE CULVERT PHASING STAGE CONSTRUCTION PLANS. ALL RELATED WORK AND MATERIALS WILL BE PAID FOR BY VARIOUS PAY ITEMS.

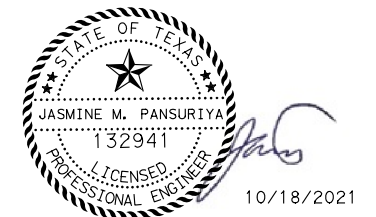


TYPICAL DRIVEWAY/SIDE STREET CONSTRUCTION

SEQUENCE OF CONSTRUCTION

- SCHEDULE PROPOSED WORK IN ONLY ONE WORK AREA AT A TIME. THERE WILL BE NO WORK PERFORMED IN MORE THAN ONE WORK AREA AT A TIME.
- FINISH PROPOSED WORK IN EACH WORK AREA BEFORE PROCEEDING TO PERFORM WORK IN ANOTHER WORK AREA. AT A MINIMUM, ALL SAFETY END TREATMENTS FOR SIDE ROAD AND CROSS DRAINAGE CULVERTS AND MGF ITEMS WILL BE COMPLETE AND IN PLACE. OBTAIN APPROVAL BEFORE PROCEEDING TO BEGIN WORK IN ANOTHER WORK AREA.
- THE CONTRACTOR WILL BE REQUIRED TO SUBMIT A DETAILED SCHEDULE OF WORK TO THE AREA ENGINEER PRIOR TO THE BEGINNING OF CONSTRUCTION, WHICH GENERALLY CONFORMS TO THE FOLLOWING SEQUENCE:

- INSTALL PROJECT LIMIT SIGNING AND BARRICADES PRIOR TO ANY OTHER WORK. COVER ANY EXISTING SIGN(S) NOT APPLICABLE TO THE TRAFFIC PATTERN DURING WORK ZONE SETUP.
- INSTALL REQUIRED TEMPORARY EROSION CONTROL DEVICES AS DIRECTED BY ENGINEER.
- REPLACE OR EXTEND CROSS DRAINAGE STRUCTURES USING TXDOT STANDARD TCP(1-2)-18 AND CULVERT PHASING STAGE CONSTRUCTION WITH FLAGGERS FOR SMALL CULVERT CONSTRUCTION. REFER TO DRAINAGE PLANS FOR LOCATIONS OF CULVERT(S). REFER TO CULVERT PHASING STAGE CONSTRUCTION PLANS FOR INFORMATION ON APPLICABLE CULVERT LOCATION(S) WHERE PARTIAL CULVERT REPLACEMENT IS EXPECTED TO BE COMPLETED MORE THAN A DAY.
- CONTRACTOR SHALL RECONSTRUCT ONLY WHAT CAN BE DONE IN A DAY TO ALLOW FULL ROADWAY TRAFFIC AT NIGHT. CONSTRUCT SUBGRADE WIDENING, REWORK ROADWAY, ADD FLEX BASE TO REACH 8 IN DEPTH, AND CEMENT TREAT MATERIAL TO PROPOSED LIMITS USING DAYTIME LANE CLOSURES. REOPEN THE FULL ROADWAY WIDTH TO TRAFFIC AT THE END OF THE DAY. PLACE DROPPER CONES AND BI-DIRECTIONAL PANELS ON RECONSTRUCTED PAVEMENT. THE CONTRACTOR SHALL LIMIT CONSTRUCTION TO A MAXIMUM OF TWO MILE SECTION AT A TIME.
- PLACE UNTREATED FLEX BASE LAYER ON CEMENT TREATED LAYER. APPLY EMULSION AND SEAL COAT ON ENTIRE ROADWAY USING DAYTIME LANE CLOSURES. PLACE NON-REMOVABLE WORK ZONE MARKINGS ON TOP OF SEAL COAT PRIOR TO REOPENING FULL ROADWAY WIDTH TO TRAFFIC AT END OF THE DAY. THE CONTRACTOR SHALL CONSTRUCT UP TO THE SEAL COAT PRIOR TO MOVING ON THE NEXT SECTION.
- REPEAT STEPS C.1 THRU C.6 FOR ROADWAY REHABILITATION & WIDENING.
- PLANE THE ROADWAY TO THE LIMITS SHOWN IN THE PLAN USING DAYTIME LANE CLOSURES. PLACE NON-REMOVABLE WORK ZONE PAVEMENT MARKINGS OVER MILLED SECTION PRIOR TO REOPENING THE ROADWAY TO NORMAL TRAFFIC. PLACE FINAL OVERLAY ONE LANE AT A TIME FOR LENGTH OF THE PROJECT USING DAYTIME LANE CLOSURES.
- PLACE PERMANENT PAVEMENT MARKINGS AND PERMANENT SIGNS.
- COMPLETE ALL OTHER WORK AS SHOWN ON THE PLANS.
- CLEAN UP PROJECT, REMOVE TEMPORARY EROSION CONTROL DEVICES AND PROJECT BARRICADES.



FM 932

TRAFFIC CONTROL PLAN SEQUENCE OF CONSTRUCTION

(SHEET 1 OF 1)

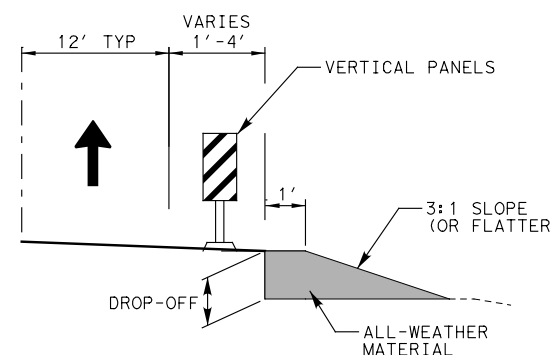
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| DESIGN RP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 51 |
| GRPH CHECK JMP | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| ADVANCED SIGNING | | |
|---------------------------|-------|--|
| G20-1 W/ PLAQUE OR G20-5T | 48X26 | BEGIN ROAD WORK NEXT X MILES |
| G20-6T | 48X30 | NAME, ADDRESS, CITY, STATE, CONTRACTOR |
| G20-10T | 60X48 | STAY ALERT TALK OR TEXT LATER |
| G20-9T | 36X30 | BEGIN WORK ZONE |
| G20-2bT | 36X18 | END WORK ZONE |
| R20-3T | 48X42 | OBEY WARNING SIGNS STATE LAW |
| G20-1a | 72X36 | ROAD WORK NEXT X MILES |
| CW20-1D | 48X48 | ROAD WORK AHEAD |
| R20-5T | 36X36 | TRAFFIC FINES DOUBLE |
| R20-5aTP PLAQUE | 36X18 | WHEN WORKERS ARE PRESENT |
| G20-2 | 48X24 | END ROAD WORK |

- SIGNS G20-1 WITH PLAQUE OR G20-5T, G20-6T, G20-10T, G20-2a, G20-2bT, CW20-1D, R20-3T, R20-5T, G20-9T AND R20-5aTP PLAQUE WILL BE REQUIRED AT PROJECT LIMITS.
- CW20-1D AND G20-2 WILL BE REQUIRED AT ALL CROSSROADS.
- G20-1a WILL BE REQUIRED AT ALL MAJOR CROSSROADS.

NOTES

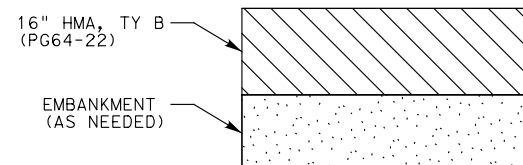
- ALL TRAFFIC CONTROL DEVICES WILL CONFORM WITH THE TEXAS "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" (TMUTCD), AND WILL BE MAINTAINED. ADDITIONAL GUIDELINES FOR TRAFFIC CONTROL DEVICES MAY BE FOUND IN THE TMUTCD.
- FOR CHANNELING DEVICE PLACEMENT AND SPACING FOR ALL PHASES, REFER TO THE TCP STANDARDS.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR SIDE STREETS AND DRIVEWAYS.

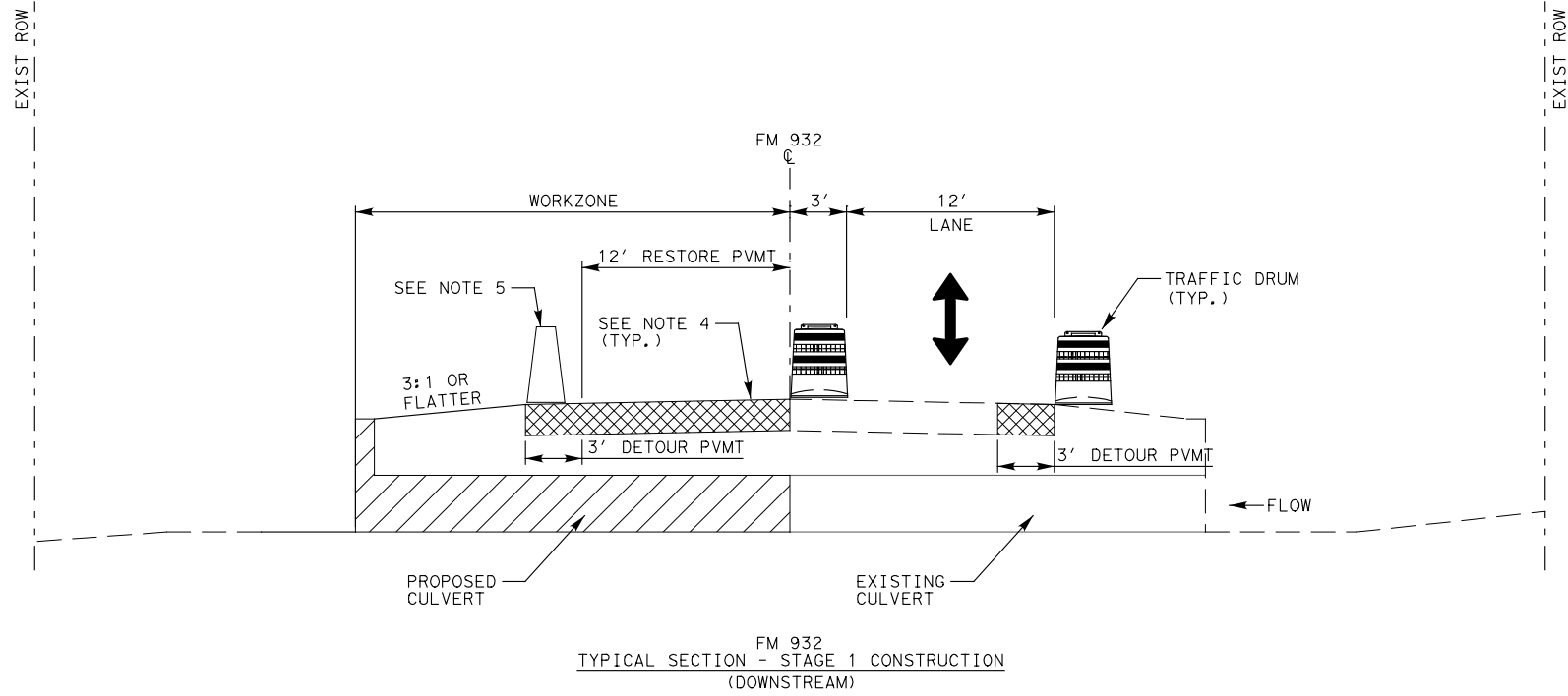


PAV EDGE DROP-OFF DETAIL

- LESS THAN 2 INCHES: CW8-11 SIGNS ARE REQUIRED.
- GREATER THAN 2 INCHES: VERTICAL PANELS AND EITHER CW8-9a OR CW8-11 SIGNS ARE REQUIRED.
- THE SAFETY SLOPE WILL BE CONSTRUCTED WITH AN ALL-WEATHER MATERIAL SUCH AS RAP, WHICH IS CLEAN AND FREE OF DEBRIS AND LARGE ROCKS.

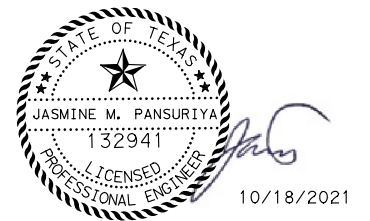
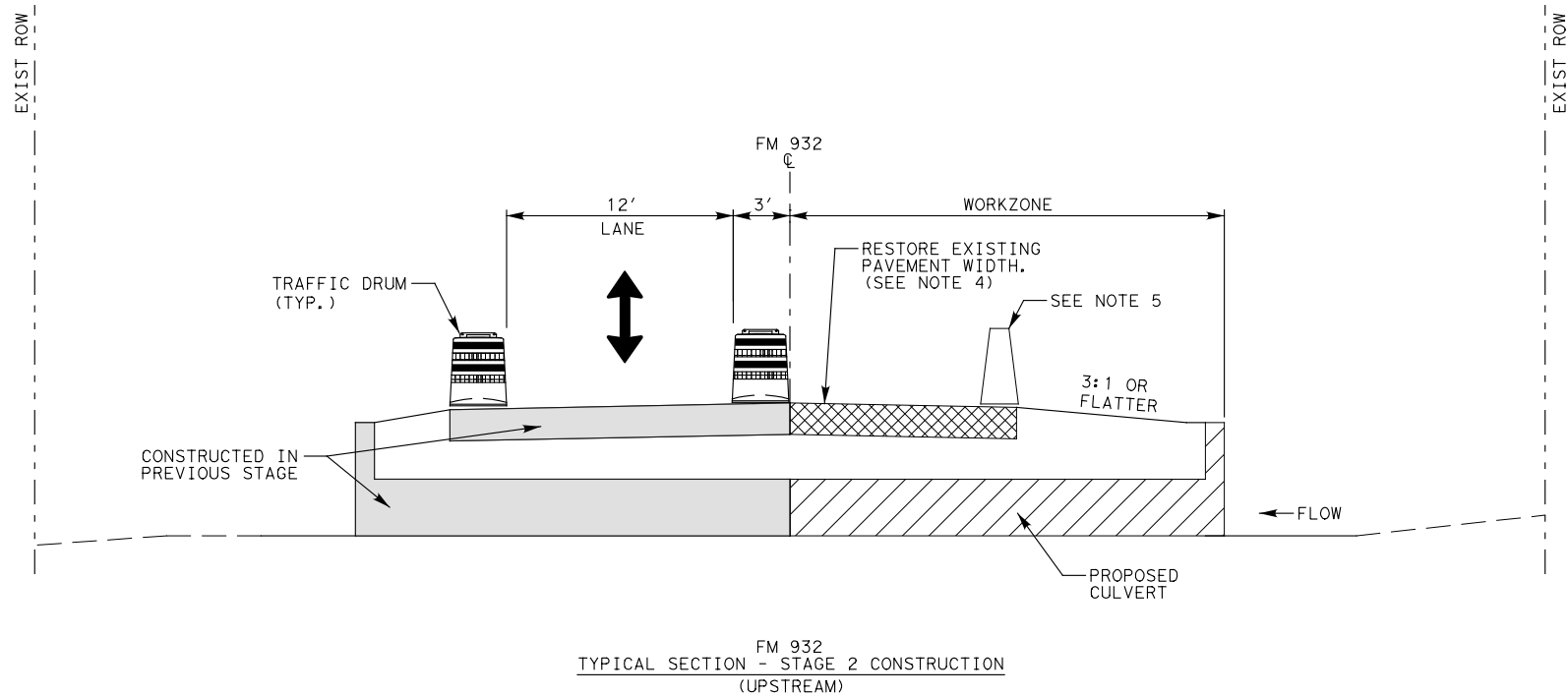
DETOUR PAVEMENT SECTION





NOTES:

1. SEE ROADWAY PLANS FOR PROPOSED SIDE SLOPES.
2. SEE CULVERT PLANS FOR CULVERT AND WINGWALL DETAILS.
3. SEE DRAINAGE PLANS FOR LOCATIONS OF CULVERT REPLACEMENT(S) AND EXTENSION(S).
4. REFER TO SEQUENCE OF CONSTRUCTION FOR DETOUR AND RESTORE PAVEMENT SECTION INFORMATION.
5. PLACE CONCRETE BARRIERS AND CRASH CUSHIONS PRIOR TO OPENING THE ROADWAY WHEN STAGED REPLACEMENT WORK IS EXPECTED MORE THAN ONE (1) WORKING DAY.

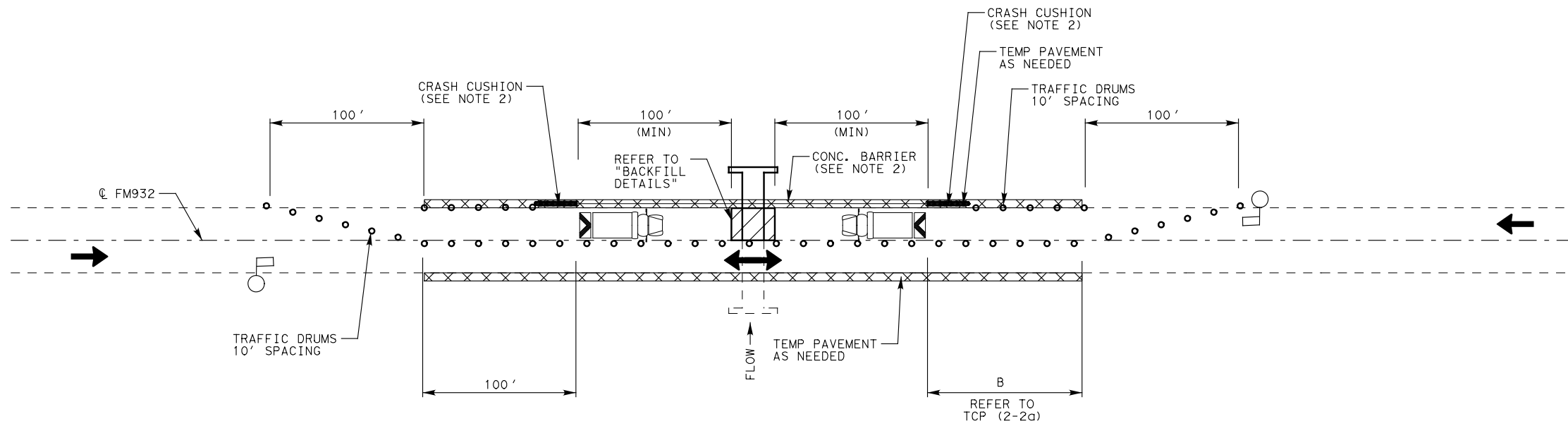


FM 932

**CULVERT PHASING
STAGE CONSTRUCTION**

SHEET (1 OF 2)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 52 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



STAGE 1 CONSTRUCTION (DOWNSTREAM)

SCALE: N. T. S.

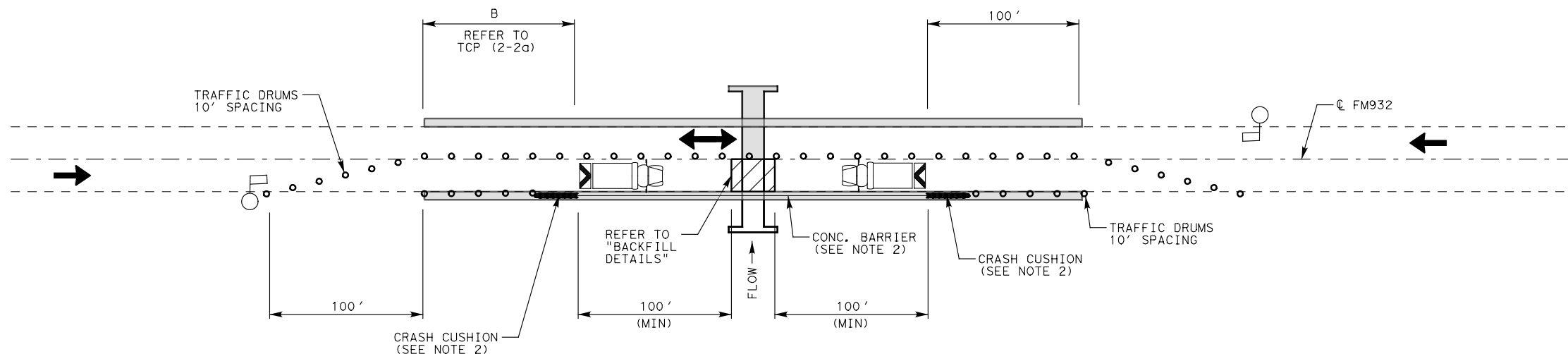
APPLICABLE LOCATION(S) FOR CONCRETE BARRIER PLACEMENT ALONG SHOULDERS (SEE NOTE 2)

- CULVERT C-567
- CULVERT C-634
- CULVERT C-646
- CULVERT C-721
- CULVERT C-748
- CULVERT C-797
- CULVERT C-840
- CULVERT C-859
- CULVERT C-909
- CULVERT C-1004
- CULVERT C-1034
- CULVERT C-1040
- CULVERT C-1059
- CULVERT C-1107

NOTES:

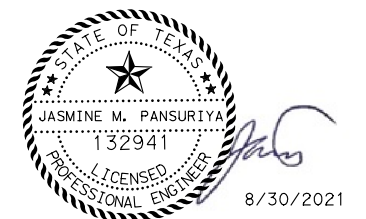
1. ALL WARNING SIGNS, BARRICADES AND CHANNELING DEVICES SHALL BE PLACED IN ACCORDANCE WITH THE "TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" OR AS DIRECTED BY THE ENGINEER TO MEET LOCAL CONDITIONS AND IN ACCORDANCE WITH TCP (2-2a).
2. PLACE CONCRETE BARRIERS AND CRASH CUSHIONS PRIOR TO OPENING THE ROADWAY WHEN STAGED REPLACEMENT WORK IS EXPECTED MORE THAN ONE (1) WORKING DAY.
3. THE CONTRACTOR SHALL CONSTRUCT ONE CULVERT AT A TIME UNLESS APPROVED BY THE ENGINEER.
4. REFER TO DRAINAGE PLANS FOR DETAILS AND INFORMATION FOR CULVERT REPLACEMENT(S) AND EXTENSION(S).

| LEGEND | |
|--------|--|
| | CONSTRUCTION THIS PHASE |
| | TEMPORARY CONSTRUCTION THIS PHASE |
| | CONSTRUCTION PREVIOUS PHASE |
| | CRASH CUSHION |
| | CONCRETE SAFETY BARRIER |
| | CHANNELIZING DEVICES |
| | FLAGGER |
| | HEAVY WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR |



STAGE 2 CONSTRUCTION (UPSTREAM)

SCALE: N. T. S.

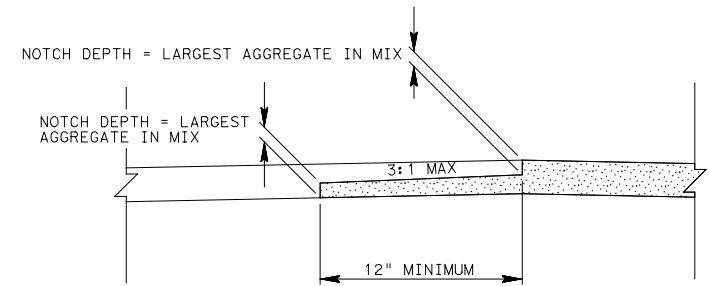
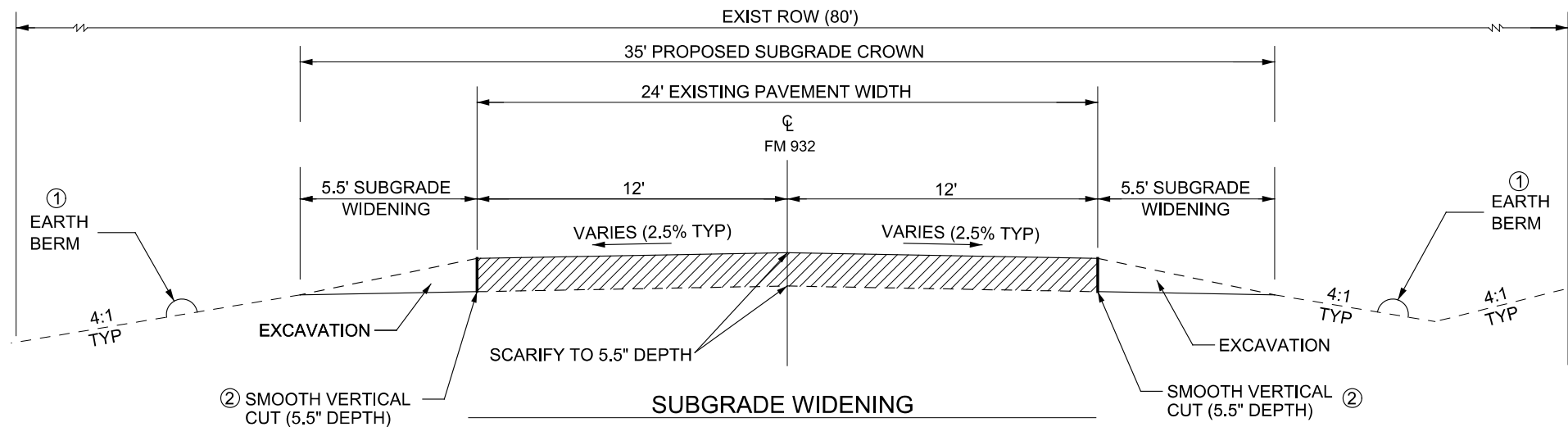


FM 932

CULVERT PHASING
STAGE CONSTRUCTION

(SHEET 2 OF 2)

| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
|-------------|-------------------|-------------------------|----------|--|-------------|
| JMP | 6 | (SEE TITLE SHEET) | | | FM 932 |
| GRAPHICS RP | TX | WACO | HAMILTON | | 53 |
| GRPH CHECK | CONTROL | SECTION | JOB | | |
| JMP | 0867 | 01 | 017 | | |



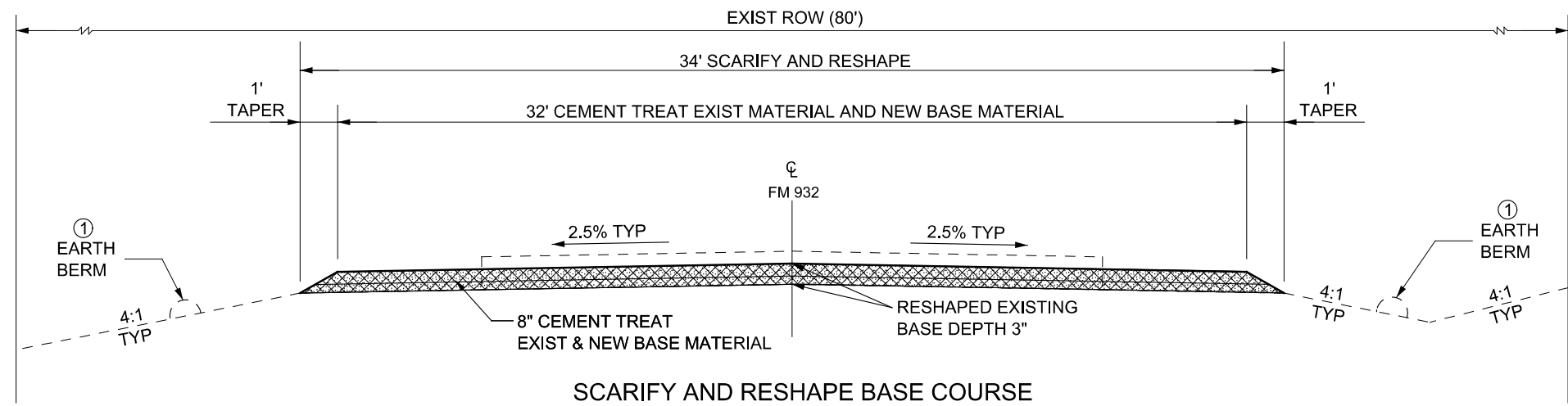
TAPERED JOINT DETAIL

NOTES: LONGITUDINAL JOINTS SHALL BE CONSTRUCTED BY TAPERING THE BITUMINOUS MAT. THE TAPERED PORTION SHALL EXTEND BEYOND THE NORMAL LANE WIDTH. THE TAPERED PORTION OF THE MAT SHALL BE CONSTRUCTED BY THE USE OF AN APPROVED STRIKE-OFF DEVICE THAT WILL PROVIDE A UNIFORM SLOPE AND WILL NOT RESTRICT THE MAIN SCREED. TACK COAT SHALL BE APPLIED TO THE IN-PLACE TAPER BEFORE THE ADJACENT MAT IS PLACED. FINAL DENSITY REQUIREMENTS FOR THE ENTIRE PAVEMENT, INCLUDING THE TAPER AREA, WILL REMAIN UNCHANGED. COMPACTION OF THE INITIAL TAPER SECTION WILL BE REQUIRED AS NEAR TO FINAL DENSITY AS POSSIBLE.

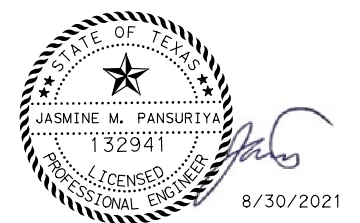
NOTCH DEPTH = LARGEST AGGREGATE IN MIX.

HOT MIX LONGITUDINAL JOINT DETAILS

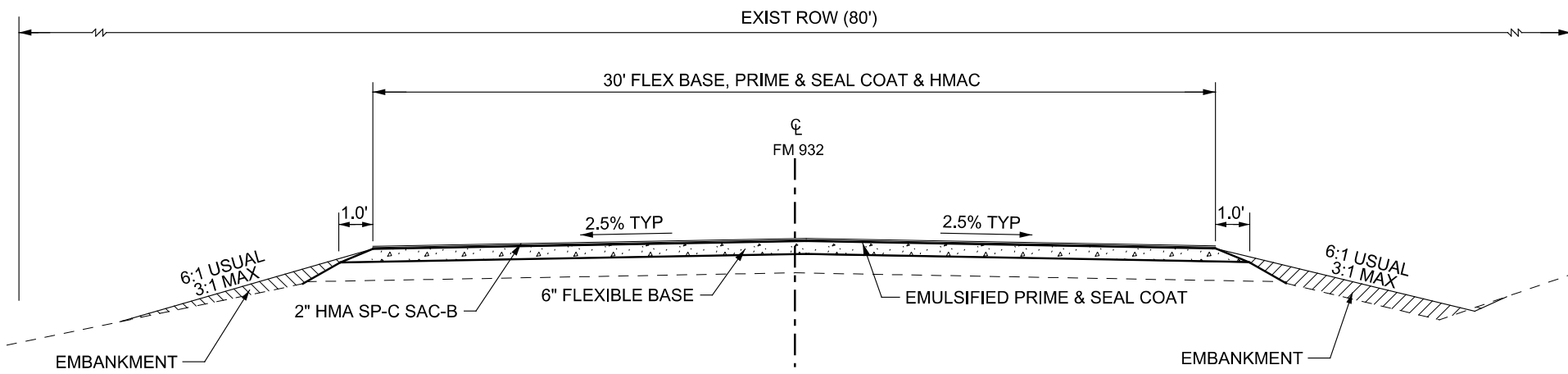
- ① FURNISHING AND PLACING TOPSOIL (4"). EXISTING TOPSOIL SHALL BE REMOVED TO A DEPTH OF 4" AND WINDROWED OUTSIDE OF THE WORK AREA CREATING A BERM, AND THEN RETURNED TO SLOPES UPON COMPLETION OF ROADWAY WIDENING.
- ② EXCAVATION INCLUDED UNDER ITEM 110-6001.



SCARIFY AND RESHAPE BASE COURSE



8/30/2021



FLEX BASE, EMULSIFIED PRIME & SEAL COAT, 2" HMA OVERLAY, EMBANKMENT/EXCAVATION, BACKFILL

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FM 932

**TRAFFIC CONTROL
TYPICAL SECTIONS**

(SHEET 1 OF 1)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 54 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.
4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.
5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.
6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.
7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.
9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.
10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.
11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.
12. The Engineer has the final decision on the location of all traffic control devices.
13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:

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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.
2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

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

SHEET 1 OF 12



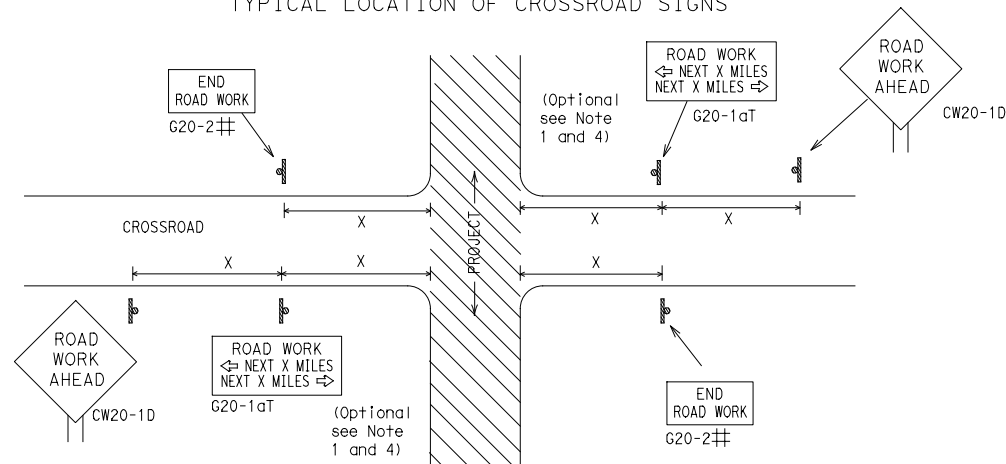
**BARRICADE AND CONSTRUCTION
GENERAL NOTES
AND REQUIREMENTS**

BC (1) -21

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| © TxDOT | November 2002 | CONT | SECT | JOB | HIGHWAY | | | | |
| 4-03 | 7-13 | 0867 | 01 | 017 | FM 932 | | | | |
| 9-07 | 8-14 | DIST | COUNTY | | SHEET NO. | | | | |
| 5-10 | 5-21 | WACO | HAMILTON | | 55 | | | | |

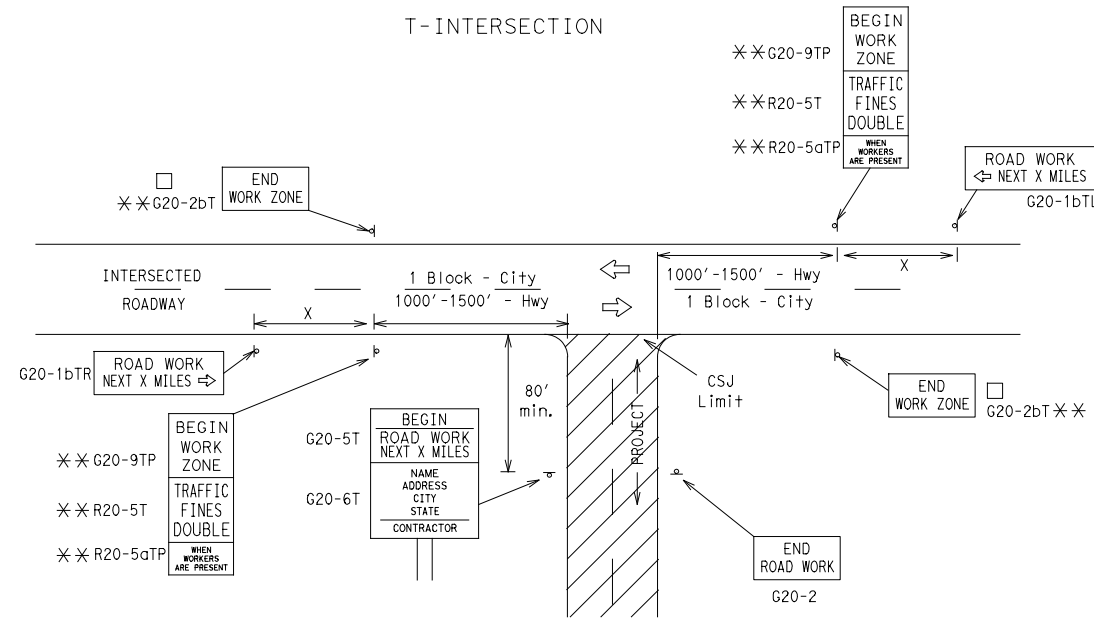
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TYPICAL LOCATION OF CROSSROAD SIGNS



- ## May be mounted on back of "ROAD WORK AHEAD" (CW20-1D) sign with approval of Engineer. (See note 2 below)
- 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.
 - 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.
 - 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.
 - 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.
 - Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
 - 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

- 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.
- 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}

| Sign Number or Series | SIZE | | SPACING | |
|---------------------------------------|-------------------|--------------------|------------------|--------------------------------|
| | Conventional Road | Expressway/Freeway | Posted Speed MPH | Sign Spacing "X" Feet (Apprx.) |
| CW20 ⁴ | 48" x 48" | 48" x 48" | 30 | 120 |
| CW21 | | | 35 | 160 |
| CW22 | | | 40 | 240 |
| CW23 | | | 45 | 320 |
| CW1, CW2, CW7, CW8, CW9, CW11, CW14 | 36" x 36" | 48" x 48" | 50 | 400 |
| CW3, CW4, CW5, CW6, CW8-3, CW10, CW12 | 48" x 48" | 48" x 48" | 60 | 600 ² |
| | | | 65 | 700 ² |
| | | | 70 | 800 ² |
| | | | 80 | 1000 ² |
| * | | | * | * ³ |

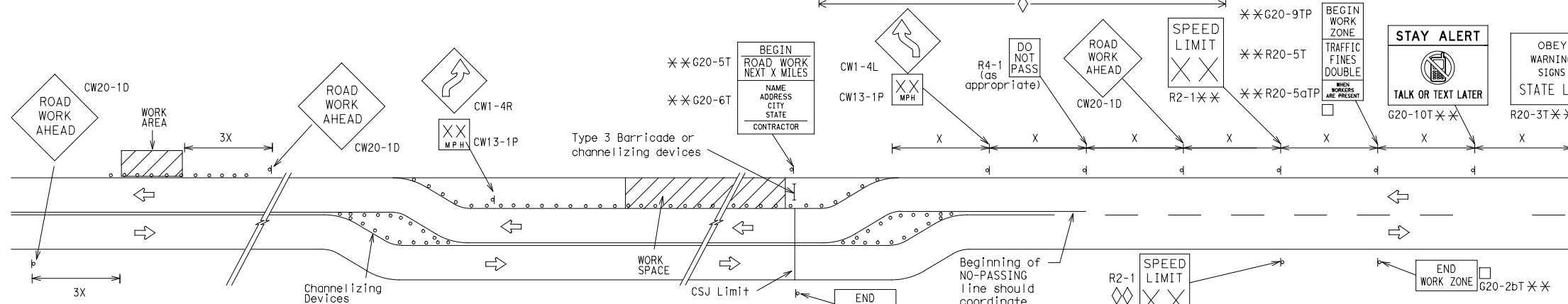
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

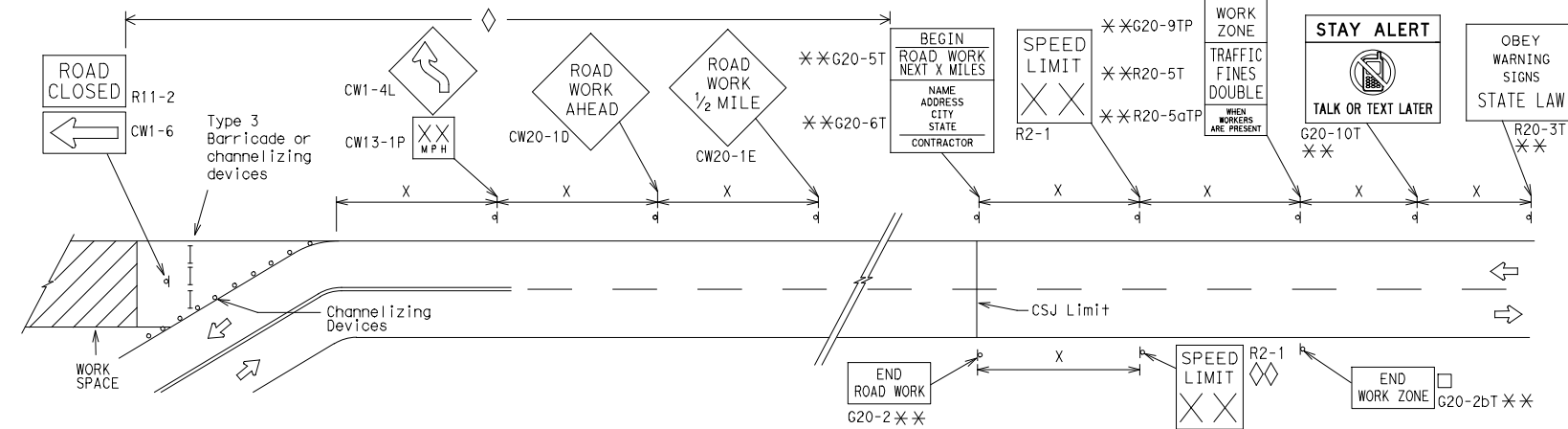
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be 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".
- Only diamond shaped warning sign sizes are indicated.
- See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

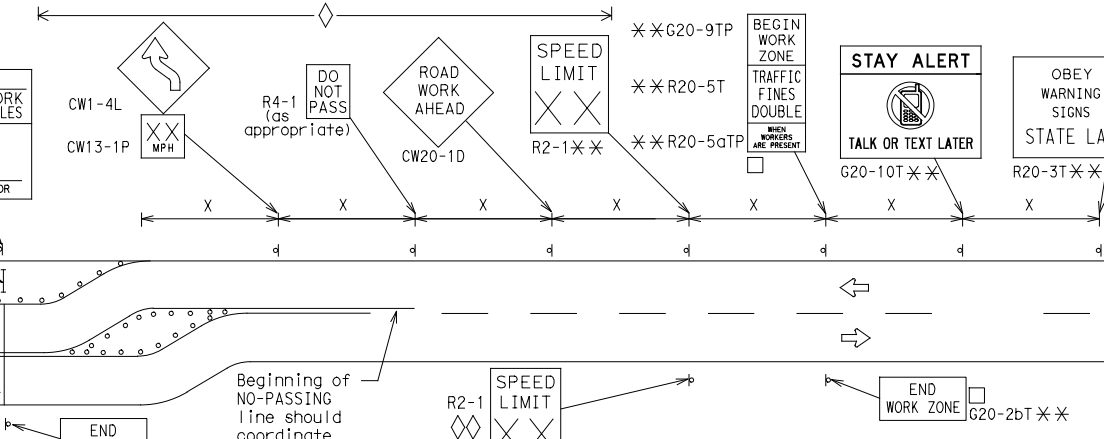


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

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



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



NOTES

- The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES" (G20-5T) sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.
- The "BEGIN WORK ZONE" (G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.
 - CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.
 - Area for placement of "ROAD WORK AHEAD" (CW20-1D) sign and other signs or devices as called for on the Traffic Control Plan.
 - Contractor will install a regulatory speed limit sign at the end of the work zone.

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

SHEET 2 OF 12



BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

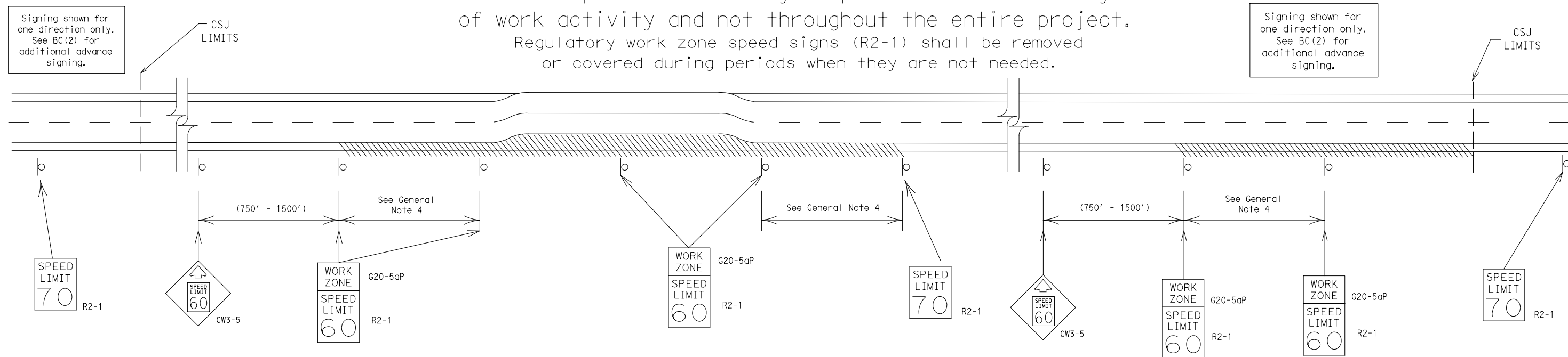
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| © TxDOT November 2002 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 9-07 8-14 | DIST | COUNTY | SHEET NO. | |
| 7-13 5-21 | WACO | HAMILTON | 56 | |

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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:

- rough road or damaged pavement surface
- substantial alteration of roadway geometrics (diversions)
- construction detours
- grade
- width
- 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

- Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
- Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
- Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
- 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 |
- Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
- 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.
- Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
- Techniques that may help reduce traffic speeds include but are not limited to:
 - Law enforcement.
 - Flagger stationed next to sign.
 - Portable changeable message sign (PCMS).
 - Low-power (drone) radar transmitter.
 - Speed monitor trailers or signs.
- Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
- For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

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SHEET 3 OF 12



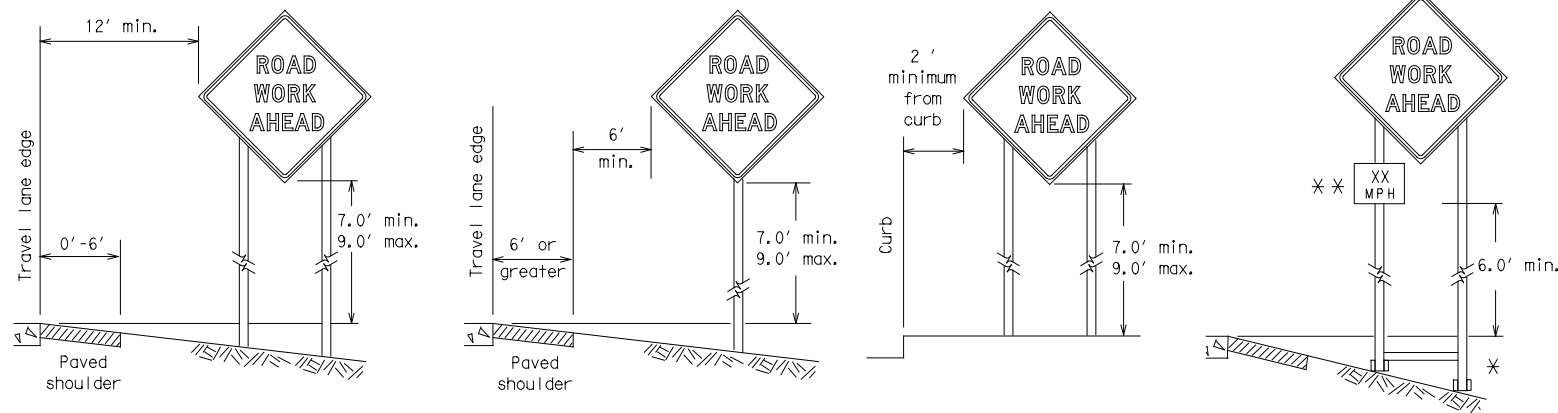
BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

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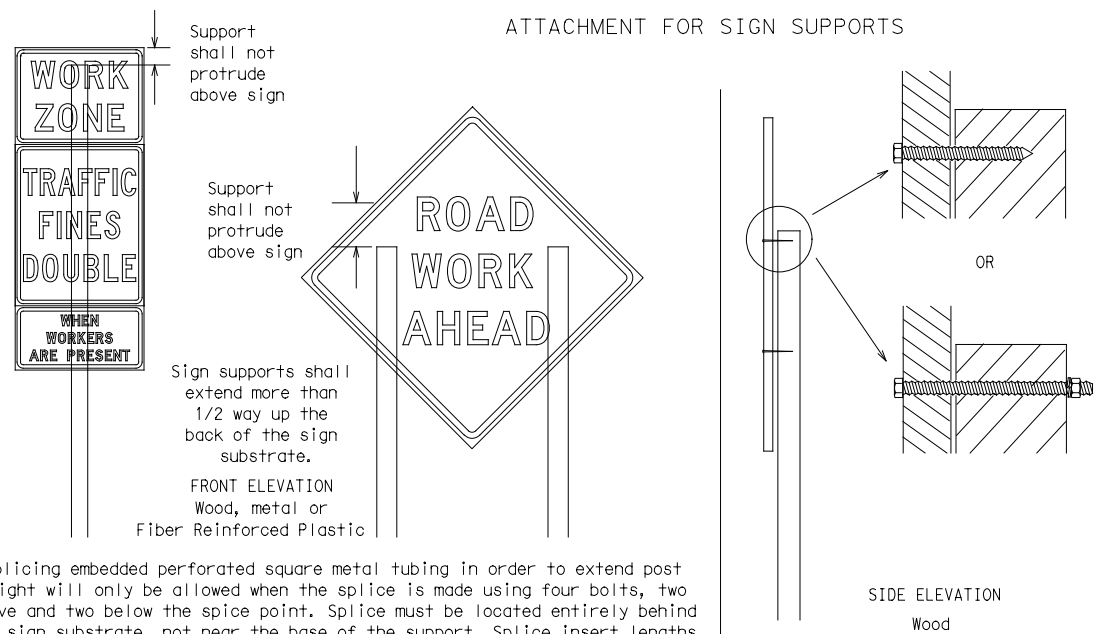
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



* 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



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 splice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

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

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

GENERAL NOTES FOR WORK ZONE SIGNS

- Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
- Wooden sign posts shall be painted white.
- Barricades shall NOT be used as sign supports.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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)

- 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.
 - Long-term stationary - work that occupies a location more than 3 days.
 - 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.
 - Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
 - Short, duration - work that occupies a location up to 1 hour.
 - Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

- 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.
- 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.
- Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
- 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.
- 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

- 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

- 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.
- "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
- 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

- 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).
- White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
- 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

- 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

- When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
- 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.
- 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.
- When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
- Burlap shall NOT be used to cover signs.
- Duct tape or other adhesive material shall NOT be affixed to a sign face.
- Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

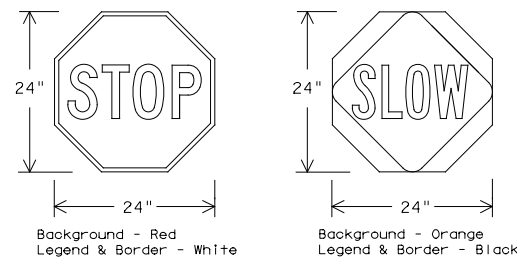
- Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
- The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
- Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
- 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.
- 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.
- 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.
- Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

- 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.

STOP/SLOW PADDLES

- STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
- STOP/SLOW paddles shall be retroreflectorized when used at night.
- STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
- 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

- 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.
- 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.
- When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
- 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.
- 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.
- 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.

SHEET 4 OF 12

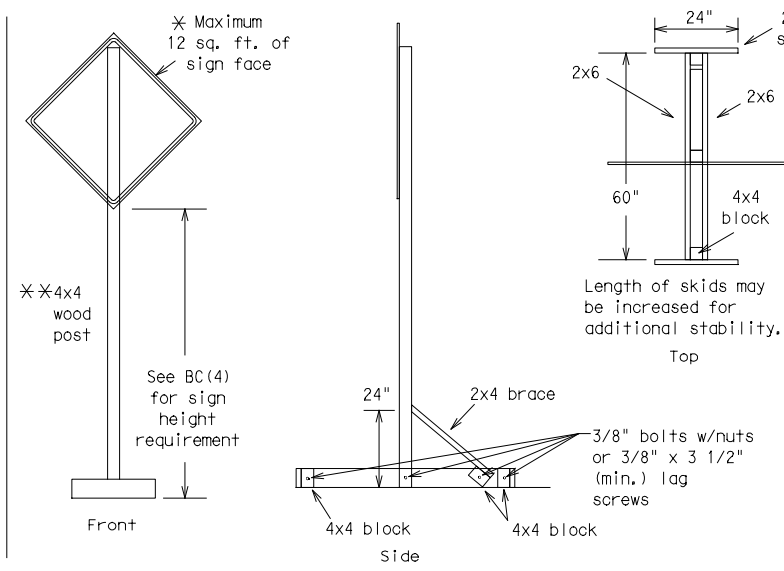
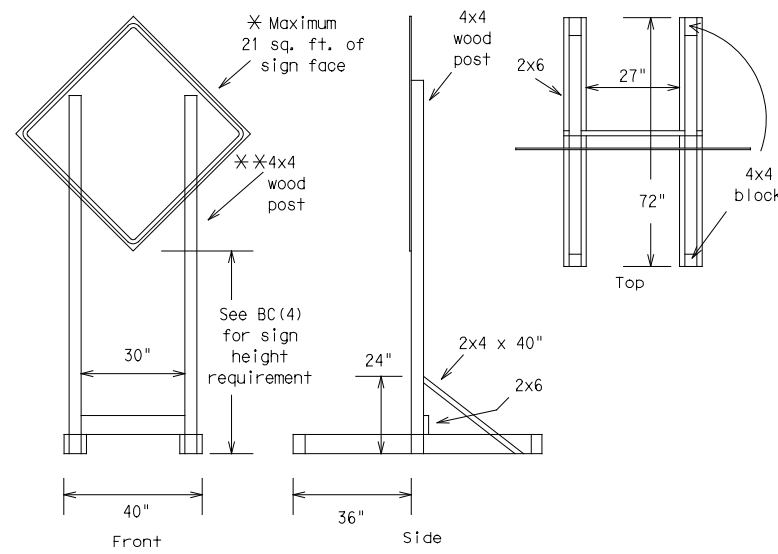
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

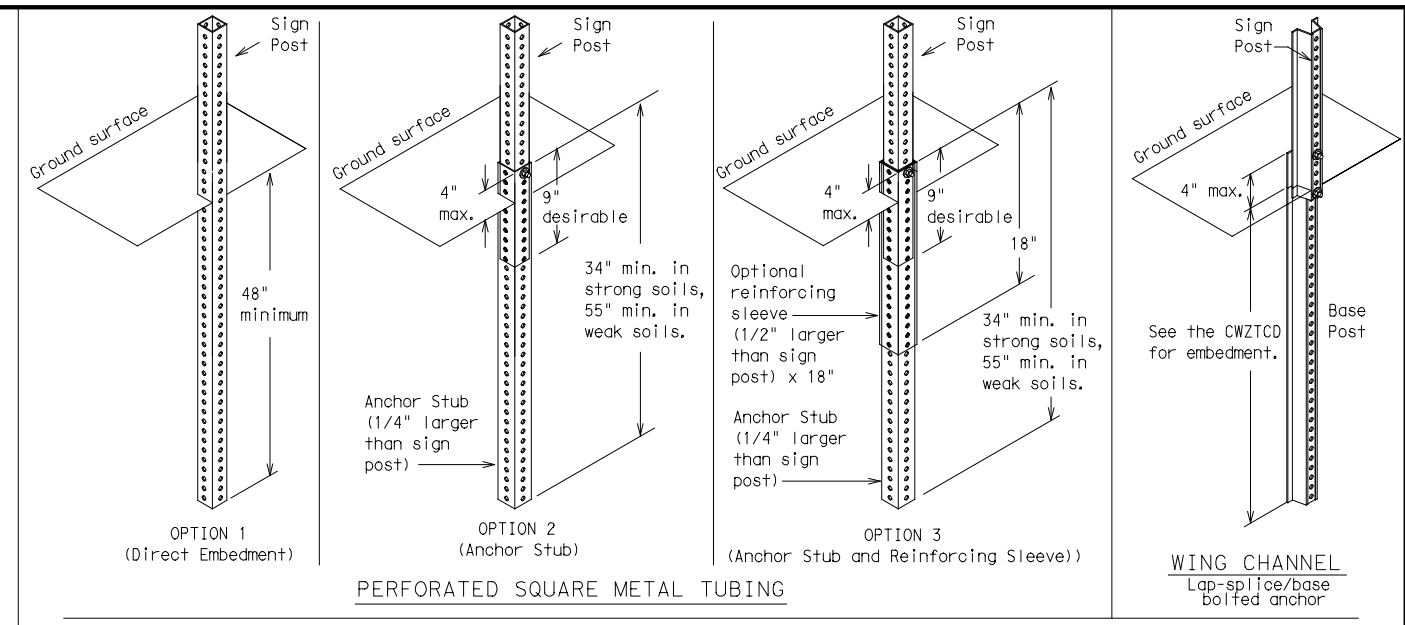
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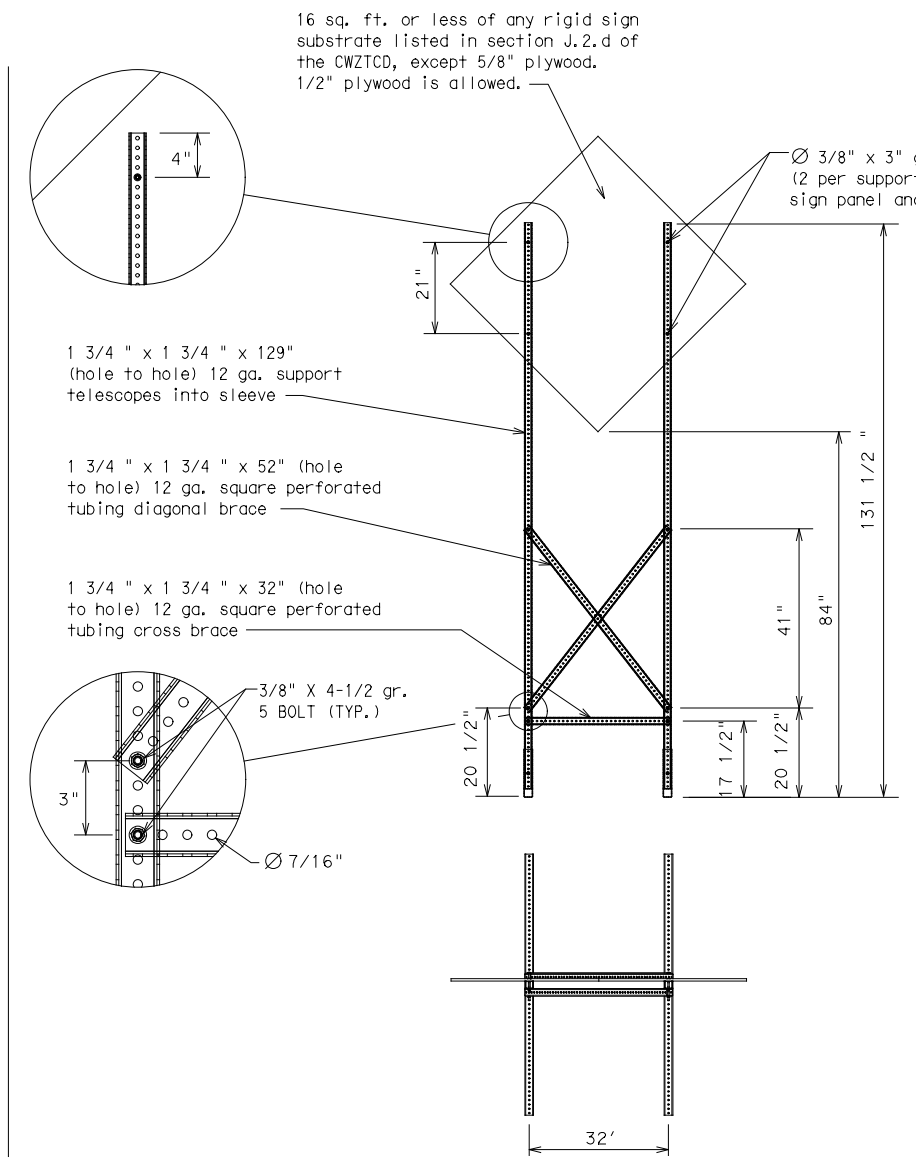
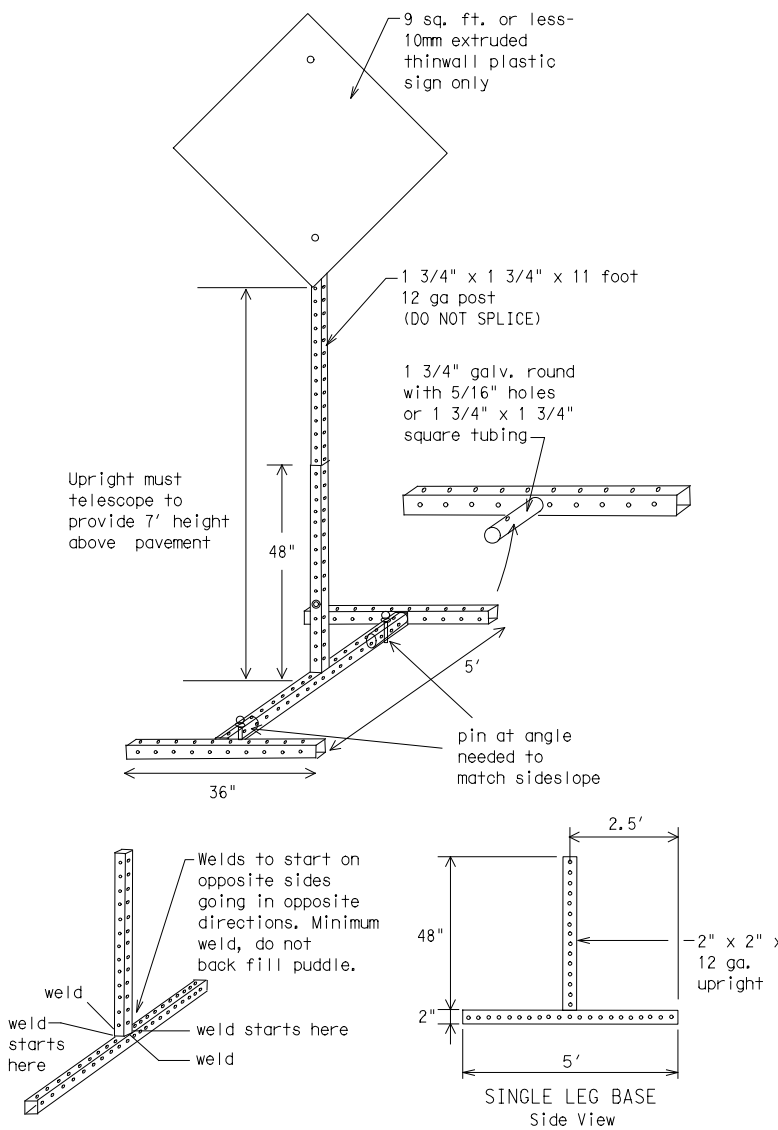
SKID MOUNTED WOOD SIGN SUPPORTS

* 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**
- 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.
 - No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
 - When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.
- * See BC(4) for definition of "Work Duration."
 - ** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.
 - See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

SHEET 5 OF 12



BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

PORTABLE CHANGEABLE MESSAGE SIGNS

- The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
- 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.
- 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.
- Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
- Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
- When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
- 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.
- 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.
- Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
- 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.
- Do not use the word "Danger" in message.
- Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
- Do not display messages that scroll horizontally or vertically across the face of the sign.
- 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.
- 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.
- Each line of text should be centered on the message board rather than left or right justified.
- 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 | WORD OR PHRASE | ABBREVIATION |
|------------------------|--------------|----------------|--------------|
| Access Road | ACCS RD | Major | MAJ |
| Alternate | ALT | Miles | MI |
| Avenue | AVE | Miles Per Hour | MPH |
| Best Route | BEST RTE | Minor | MNR |
| Boulevard | BLVD | Monday | MON |
| Bridge | BRDG | Normal | NORM |
| Canot | CANT | North | N |
| Center | CTR | Northbound | (route) N |
| Construction Ahead | CONST AHD | Parking | PKING |
| CROSSING | XING | Road | RD |
| Detour Route | DETOUR RTE | Right Lane | RT LN |
| Do Not | DONT | Saturday | SAT |
| East | E | Service Road | SERV RD |
| Eastbound | (route) E | Shoulder | SHLDR |
| Emergency | EMER | Slippery | SLIP |
| Emergency Vehicle | EMER VEH | South | S |
| Entrance, Enter | ENT | Southbound | (route) S |
| Express Lane | EXP LN | Speed | SPD |
| Expressway | EXPWY | Street | ST |
| XXXX Feet | XXXX FT | Sunday | SUN |
| Fog Ahead | FOG AHD | Telephone | PHONE |
| Freeway | FRWY, FWY | Temporary | TEMP |
| Freeway Blocked | FWY BLKD | Thursday | THURS |
| Friday | FRI | To Downtown | TO DWNTN |
| Hazardous Driving | HAZ DRIVING | Traffic | TRAF |
| Hazardous Material | HAZMAT | Travelers | TRVLR |
| High-Occupancy Vehicle | HOV | Tuesday | TUES |
| Highway | HWY | Time Minutes | TIME MIN |
| Hour(s) | HR, HRS | Upper Level | UPR LEVEL |
| Information | INFO | Vehicles (s) | VEH, VEHS |
| It Is | ITS | Warning | WARN |
| Junction | JCT | Wednesday | WED |
| Left | LFT | Weight Limit | WT LIMIT |
| Left Lane | LFT LN | West | W |
| Lane Closed | LN CLOSED | Westbound | (route) W |
| Lower Level | LWR LEVEL | Wet Pavement | WET PVMT |
| Maintenance | MAINT | Will Not | WONT |

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

| |
|-----------------------|
| FREEWAY CLOSED X MILE |
| ROAD CLOSED AT SH XXX |
| ROAD CLSD AT FM XXXX |
| RIGHT X LANES CLOSED |
| CENTER LANE CLOSED |
| NIGHT LANE CLOSURES |
| VARIOUS LANES CLOSED |
| EXIT CLOSED |
| MALL DRIVEWAY CLOSED |
| XXXXXXXX BLVD CLOSED |

Other Condition List

| |
|--------------------------|
| FRONTAGE ROAD CLOSED |
| SHOULDER CLOSED XXX FT |
| RIGHT LN CLOSED XXX FT |
| RIGHT X LANES OPEN |
| DAYTIME LANE CLOSURES |
| I-XX SOUTH EXIT CLOSED |
| EXIT XXX CLOSED X MILE |
| RIGHT LN TO BE CLOSED |
| X LANES CLOSED TUE - FRI |

* 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 |
| DETOUR NEXT X EXITS |
| USE EXIT XXX |
| STAY ON US XXX SOUTH |
| TRUCKS USE US XXX N |
| WATCH FOR TRUCKS |
| EXPECT DELAYS |
| REDUCE SPEED XXX FT |
| USE OTHER ROUTES |
| STAY IN LANE |

Location List

| |
|--------------------------|
| AT FM XXXX |
| BEFORE RAILROAD CROSSING |
| NEXT X MILES |
| PAST US XXX EXIT |
| XXXXXXXX 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

- Only 1 or 2 phases are to be used on a PCMS.
- The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
- A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
- A Location Phase is necessary only if a distance or location is not included in the first phase selected.
- 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.
- 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

- The words RIGHT, LEFT and ALL can be interchanged as appropriate.
- Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
- EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
- Highway names and numbers replaced as appropriate.
- ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
- AHEAD may be used instead of distances if necessary.
- FT and MI, MILE and MILES interchanged as appropriate.
- AT, BEFORE and PAST interchanged as needed.
- 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

- 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.
- 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.
- 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.
- 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.

SHEET 6 OF 12



BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC (6) -21

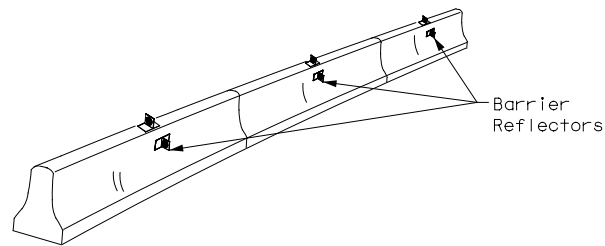
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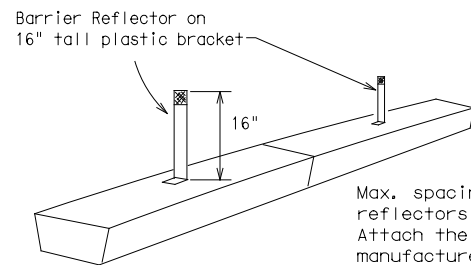
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors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



CONCRETE TRAFFIC BARRIER (CTB)



LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

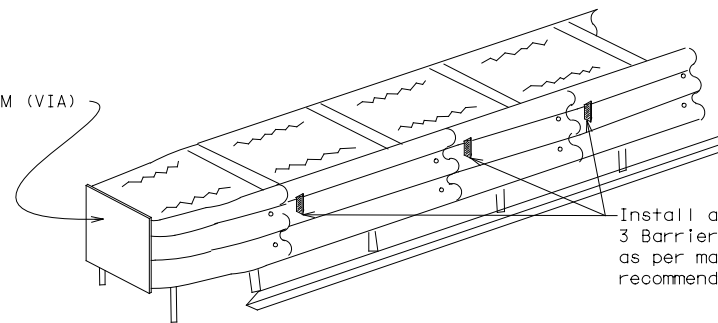
LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

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

LOW PROFILE CONCRETE BARRIER (LPCB)

- 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.
- 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.
- When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
- Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
- Maximum spacing of Barrier Reflectors is forty (40) feet.
- Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
- Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
- Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
- Single slope barriers shall be delineated as shown on the above detail.

See D & OM (VIA)



DELINEATION OF END TREATMENTS

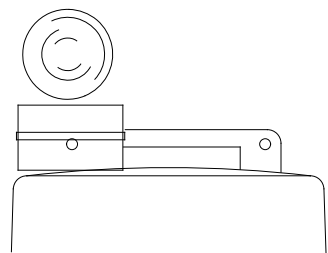
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

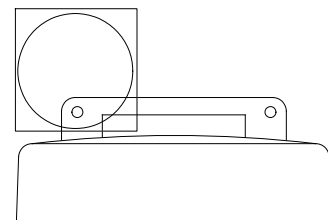
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet 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.
- 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".
- The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
- 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.
- 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.
- The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.



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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- 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.
- 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.
- Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
- Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
- The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.



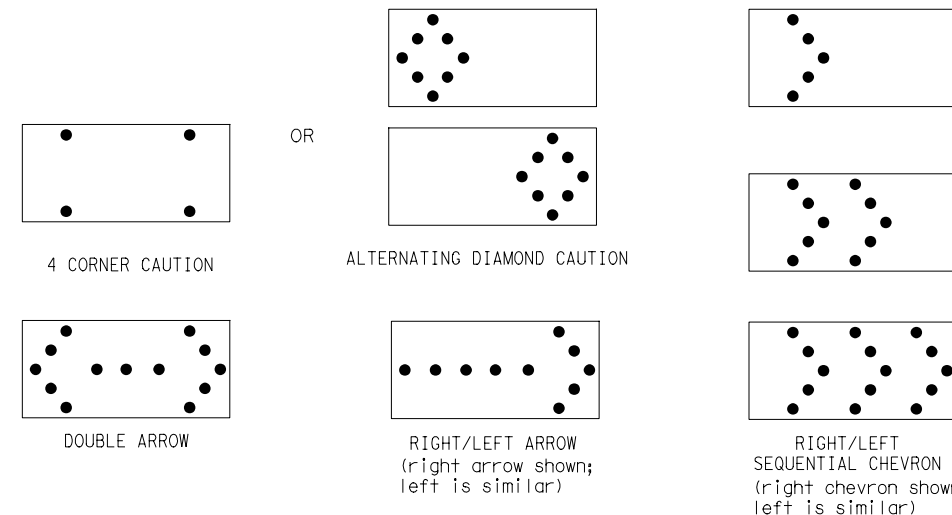
Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

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

- 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.
- 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.
- The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
- Round reflectors shall be fully reflectorized, including the area where attached to the drum.
- 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.
- 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.
- When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
- The warning reflector should be mounted on the side of the handle nearest approaching traffic.
- 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.

- 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.
- 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.
- 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.
- The Flashing Arrow Board should be able to display the following symbols:



- The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
- The straight line caution display is NOT ALLOWED.
- 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.
- 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.
- The sequential arrow display is NOT ALLOWED.
- The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
- The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
- A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
- 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.
- Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

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

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

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

- Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
- Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
- Refer to the CWZTCD for a list of approved TMAs.
- TMAs are required on freeways unless otherwise noted in the plans.
- 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.
- 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.

SHEET 7 OF 12



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

BC(7)-21

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GENERAL NOTES

- For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
- 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.
- 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.
- 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).
- 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.
- 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:

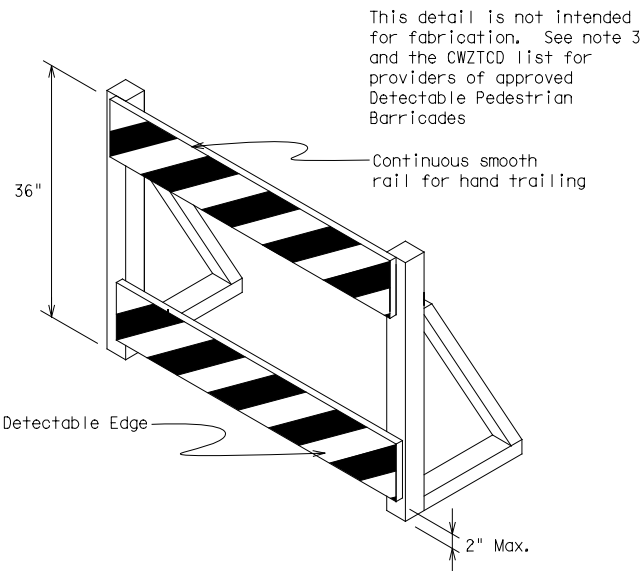
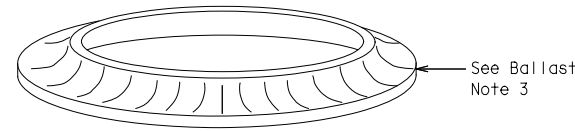
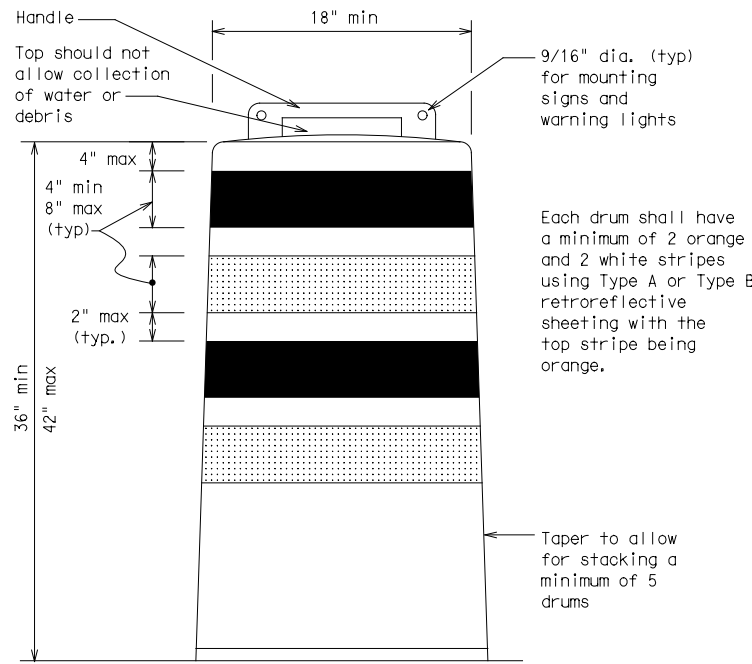
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
- 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.
- 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.
- 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.
- 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.
- 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.
- Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
- Drum body shall have a maximum unballasted weight of 11 lbs.
- Drum and base shall be marked with manufacturer's name and model number.

RETROREFLECTIVE SHEETING

- 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.
- 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.

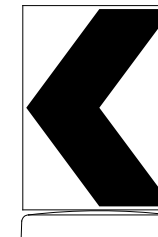
BALLAST

- 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.
- 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.
- Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
- 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.
- 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.
- Ballast shall not be placed on top of drums.
- Adhesives may be used to secure base of drums to pavement.

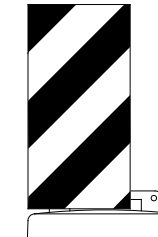


DETECTABLE PEDESTRIAN BARRICADES

- 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.
- 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.
- 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.
- 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.
- Warning lights shall not be attached to detectable pedestrian barricades.
- 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

- Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
- 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.
- 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.
- 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.
- Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
- Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
- 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.
- R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

SHEET 8 OF 12

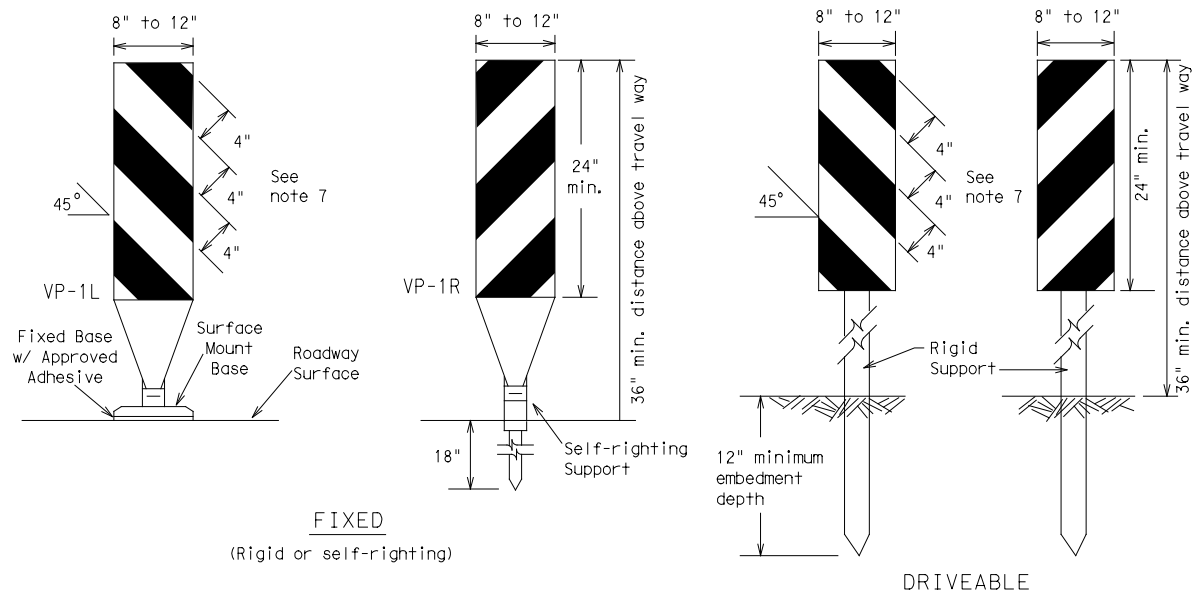


BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

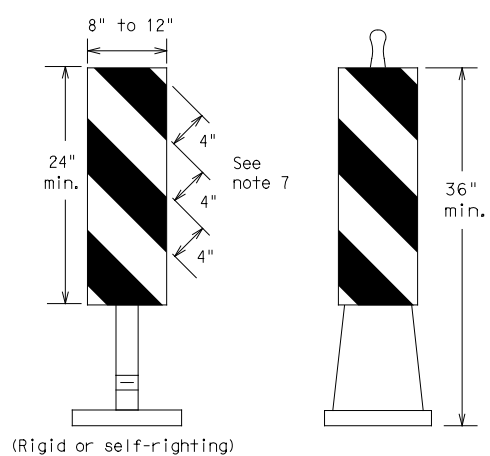
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FIXED
(Rigid or self-righting)

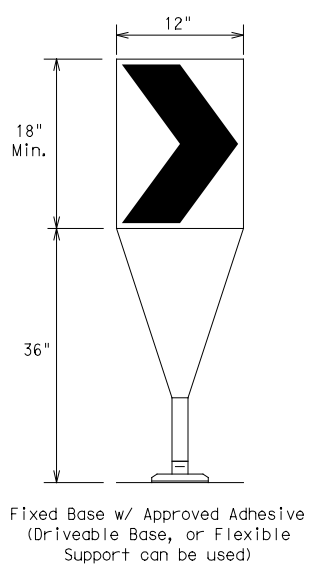
DRIVEABLE



PORTABLE

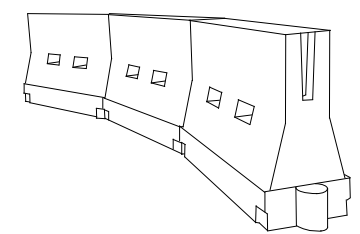
VERTICAL PANELS (VPs)

- Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
- 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.
- 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.
- VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
- Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
- Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



- The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
- 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.
- 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.
- To be effective, the chevron should be visible for at least 500 feet.
- 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.
- 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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

- 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.
- LCDs may be used instead of a line of cones or drums.
- LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
- LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
- LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
- 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

- 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.
- 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.
- 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.
- 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.
- 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

GENERAL NOTES

- 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).
- 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.
- 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).
- 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.
- Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
- 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.
- 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.

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12



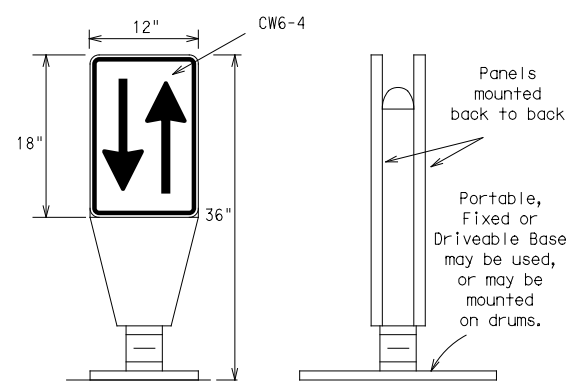
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

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OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



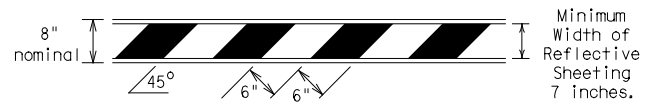
- Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
- The OTLD may be used in combination with 42" cones or VPs.
- Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
- 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.

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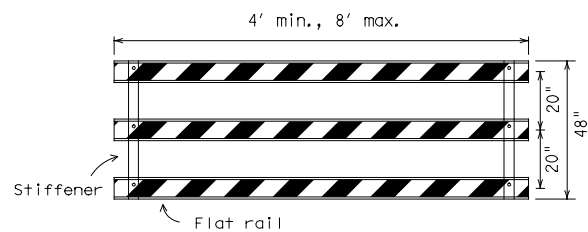
TYPE 3 BARRICADES

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.



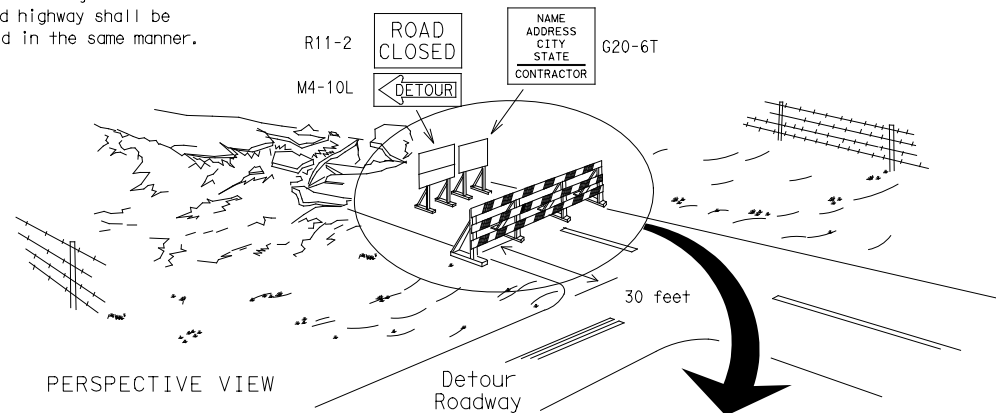
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

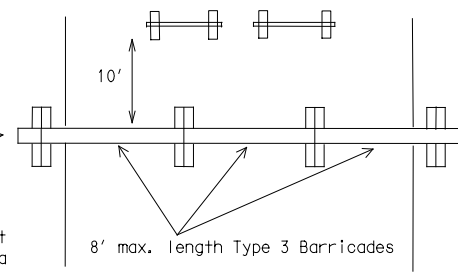
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

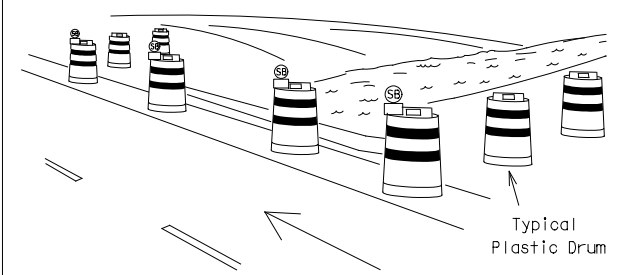
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



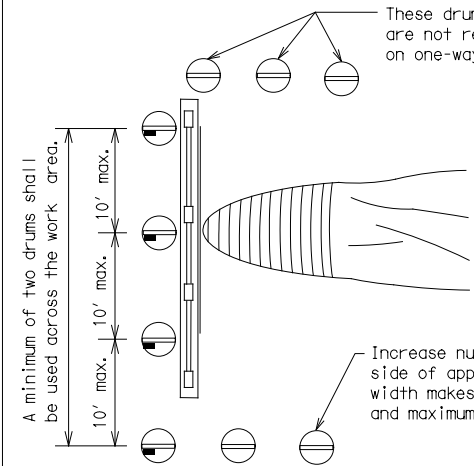
PLAN VIEW

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

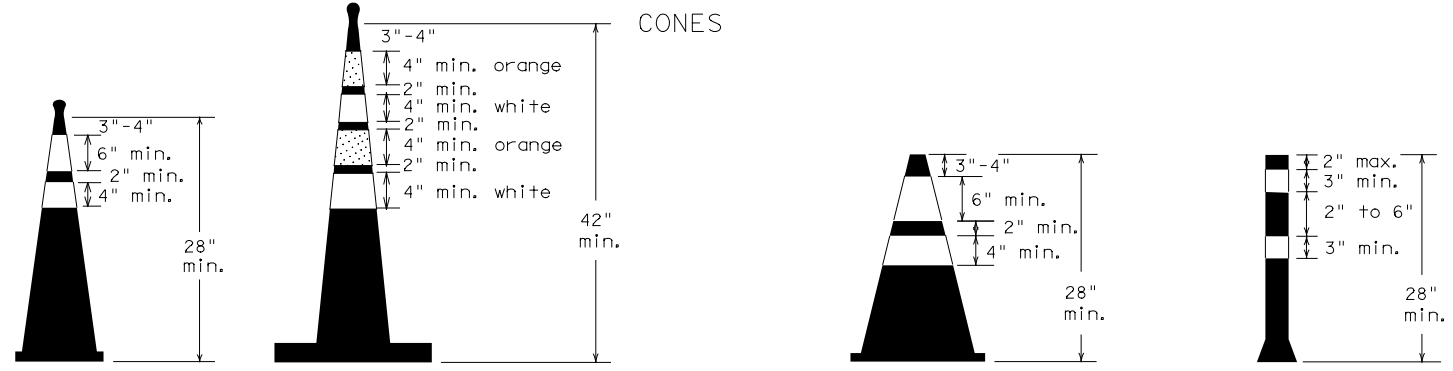


PLAN VIEW

1. Where positive redirection 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 |
| | Steady burn warning light or yellow warning reflector |

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



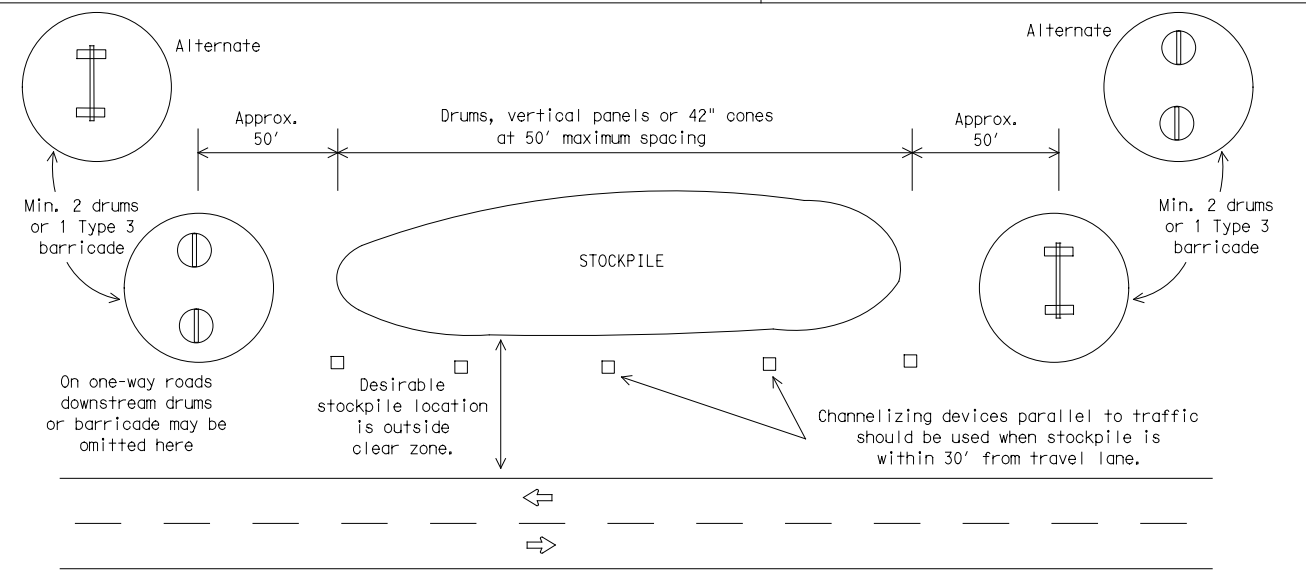
Two-Piece cones

One-Piece cones

Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

| | | | | |
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| FILE: bc-21.dgn | DN: TxDOT | CK: TxDOT | OW: TxDOT | CK: TxDOT |
| ©TxDOT November 2002 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 9-07 8-14 | DIST | COUNTY | SHEET NO. | |
| 7-13 5-21 | WACO | HAMILTON | 64 | |

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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.

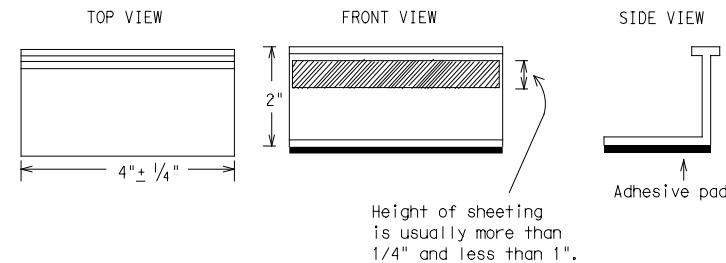
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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).

SHEET 11 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

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| FILE: bc-21.dgn | DN: TxDOT | CK: TxDOT | OW: TxDOT | CK: TxDOT |
| ©TxDOT February 1998 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 2-98 9-07 5-21 | DIST | COUNTY | SHEET NO. | |
| 1-02 7-13 | WACO | HAMILTON | 65 | |
| 11-02 8-14 | | | | |

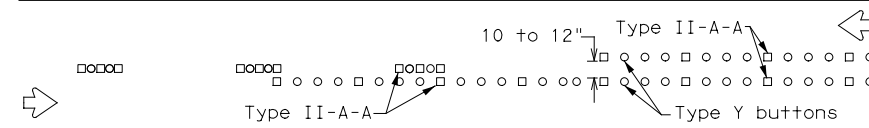
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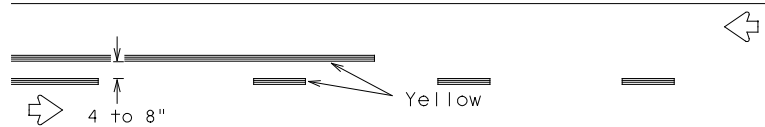
PAVEMENT MARKING PATTERNS



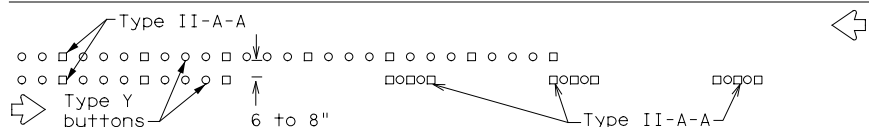
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



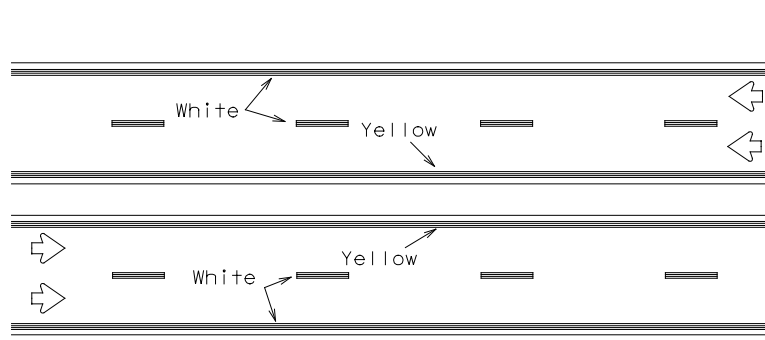
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



RAISED PAVEMENT MARKERS - PATTERN B

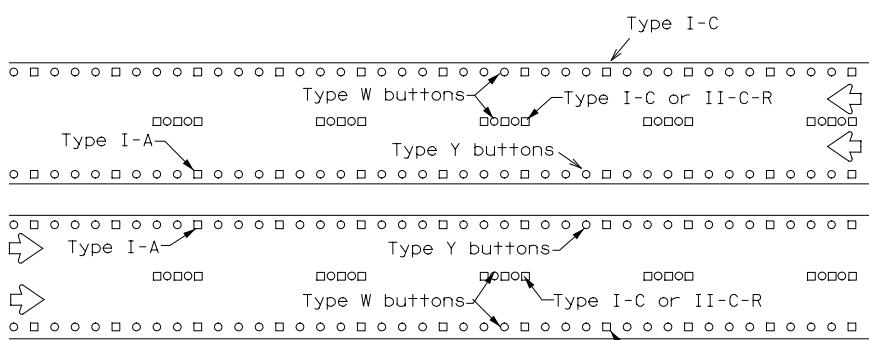
Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer. Prefabricated markings may be substituted for reflectorized pavement markings.

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



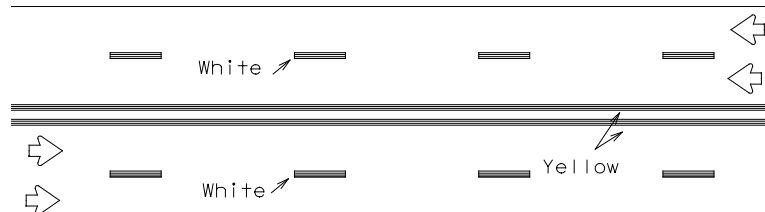
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



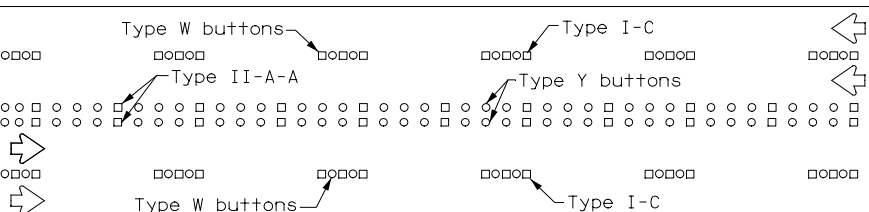
RAISED PAVEMENT MARKERS

EDGE & LANE LINES FOR DIVIDED HIGHWAY



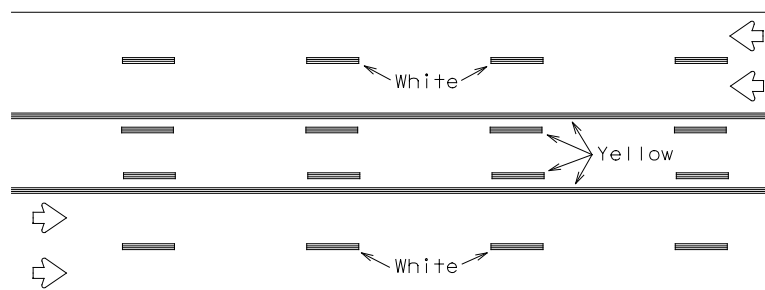
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



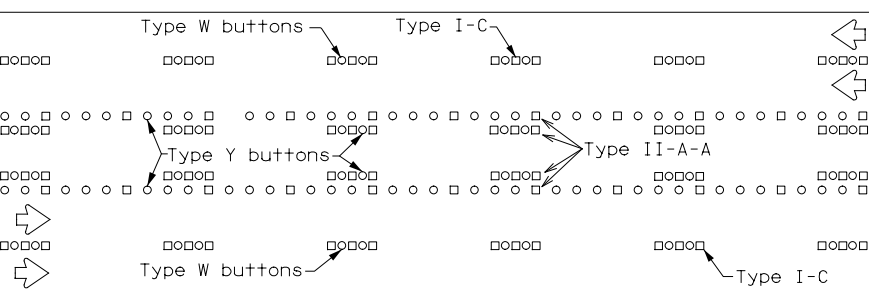
RAISED PAVEMENT MARKERS

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

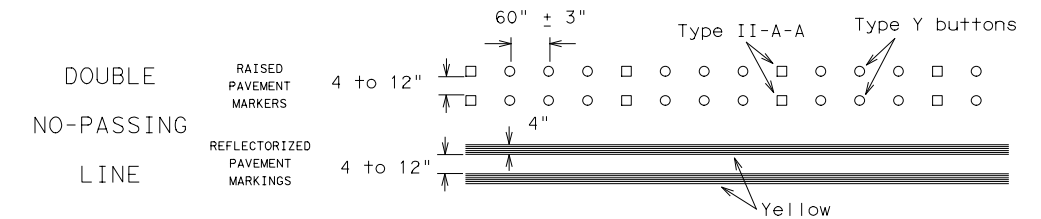
Prefabricated markings may be substituted for reflectorized pavement markings.



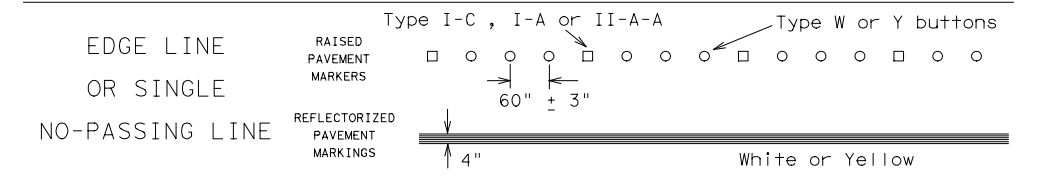
RAISED PAVEMENT MARKERS

TWO-WAY LEFT TURN LANE

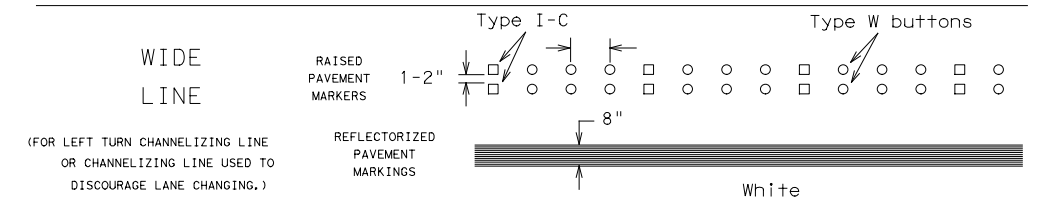
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



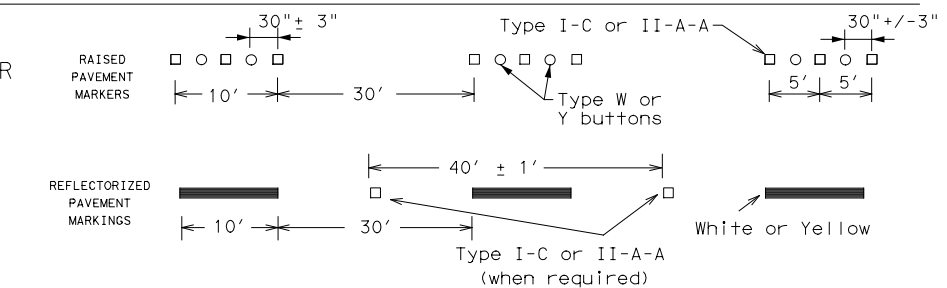
SOLID LINES



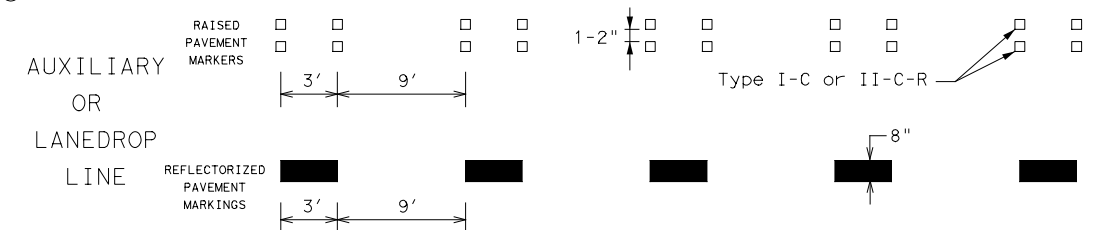
WIDE LINE



CENTER LINE OR LANE LINE

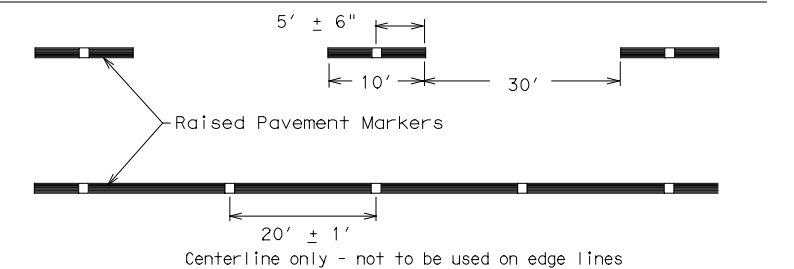


BROKEN LINES



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.



SHEET 12 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

| | | | | |
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| ©TxDOT February 1998 | CONT | SECT | JOB | HIGHWAY |
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| 1-97 9-07 5-21 | | | | |
| 2-98 7-13 | DIST | COUNTY | | SHEET NO. |
| 11-02 8-14 | WACO | HAMILTON | | 66 |

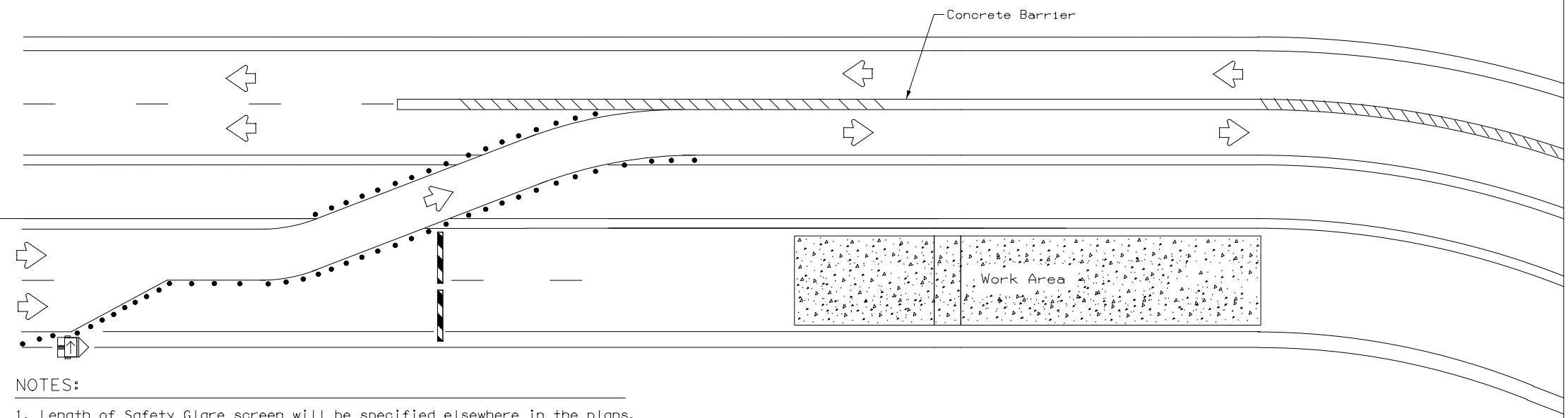
Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

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| LEGEND | |
|--------|--------------------------------------|
| | Type 3 Barricade |
| | Channelizing Devices |
| | Trailer Mounted Flashing Arrow Board |
| | Sign |
| | Safety glare screen |

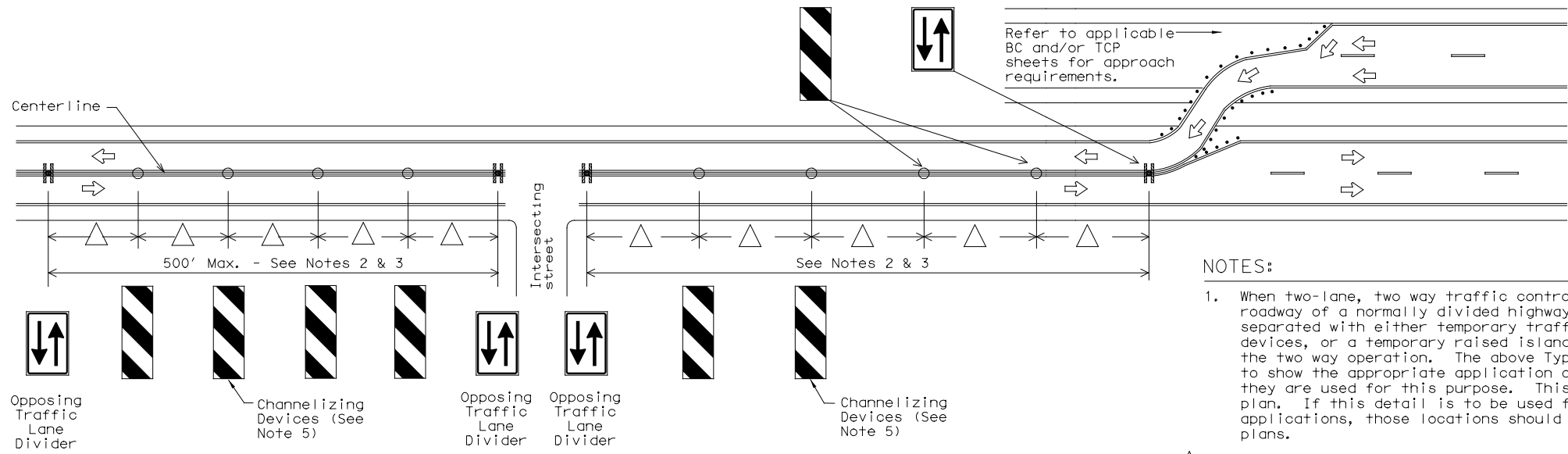
| DEPARTMENTAL MATERIAL SPECIFICATIONS | |
|---|----------|
| SIGN FACE MATERIALS | DMS-8300 |
| DELINEATORS AND OBJECT MARKERS | DMS-8600 |
| MODULAR GLARE SCREENS FOR HEADLIGHT BARRIER | DMS-8610 |

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>

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



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.

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



TRAFFIC CONTROL PLAN TYPICAL DETAILS

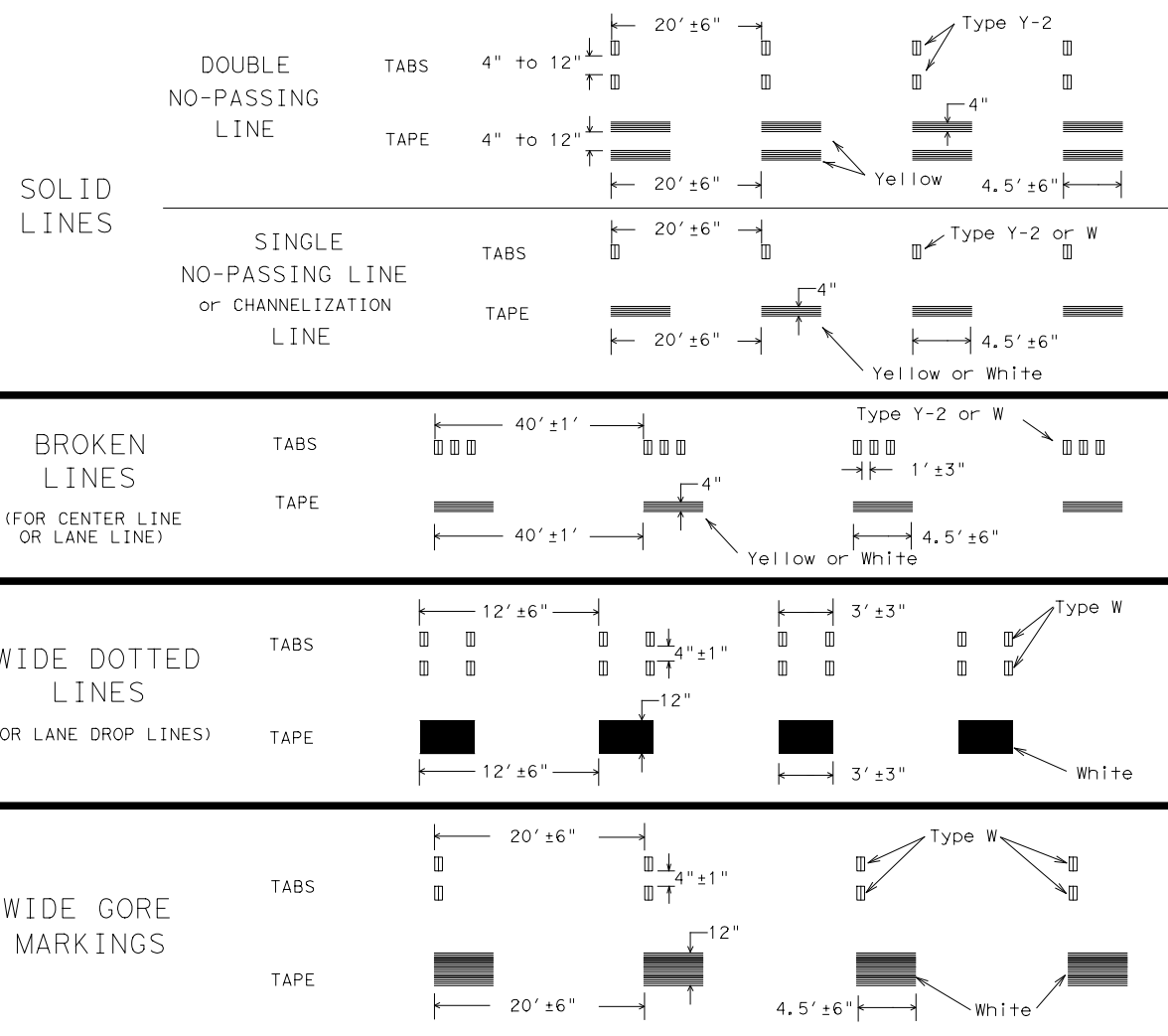
WZ (TD) - 17

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| © TxDOT | February 1998 | CONT | SECT | JOB | HIGHWAY | | | | |
| REVISIONS | | 0867 | 01 | 017 | FM 932 | | | | |
| 4-98 | 2-17 | DIST | COUNTY | | SHEET NO. | | | | |
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| 7-13 | | | | | | | | | |

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WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



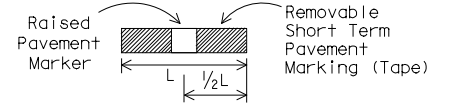
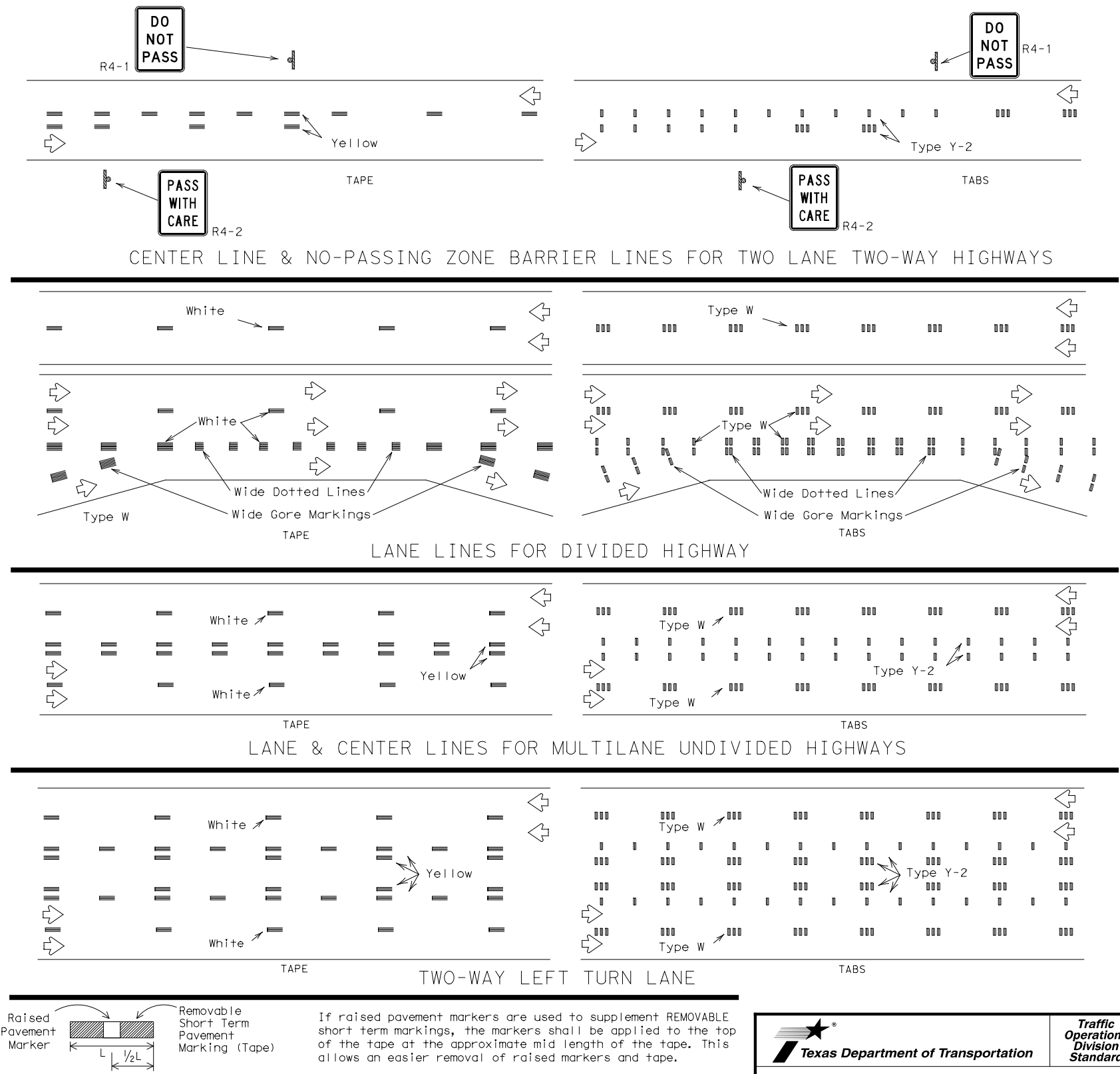
NOTES:

- Short term pavement markings may be prefabricated markings (stick down tape) or temporary flexible-reflective roadway marker tabs unless otherwise specified elsewhere in plans.
- Short term pavement markings shall NOT be used to simulate edge lines.
- 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.
- 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.
- 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.
- 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.
- 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).
- 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)

- 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).
- Tabs shall meet requirements of Departmental Material Specification DMS-8242.
- 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.
- 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



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

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

RAISED PAVEMENT MARKERS

- 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)

- 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



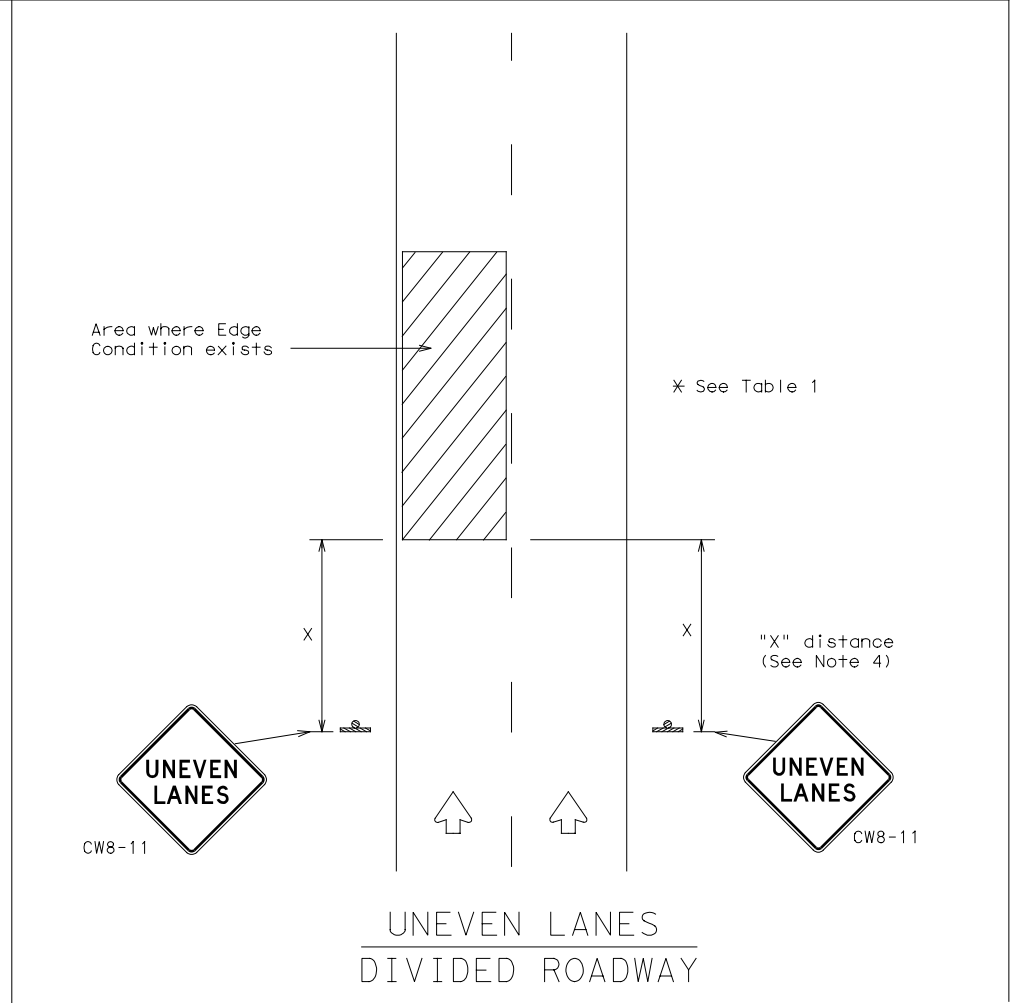
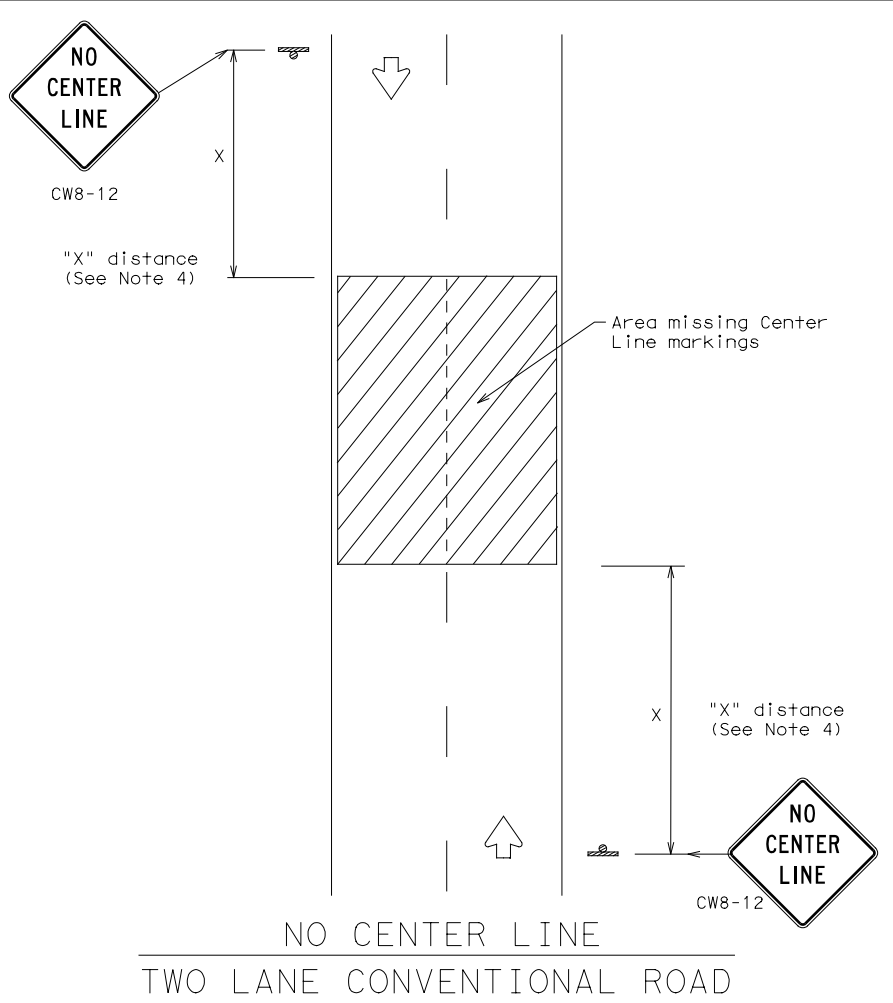
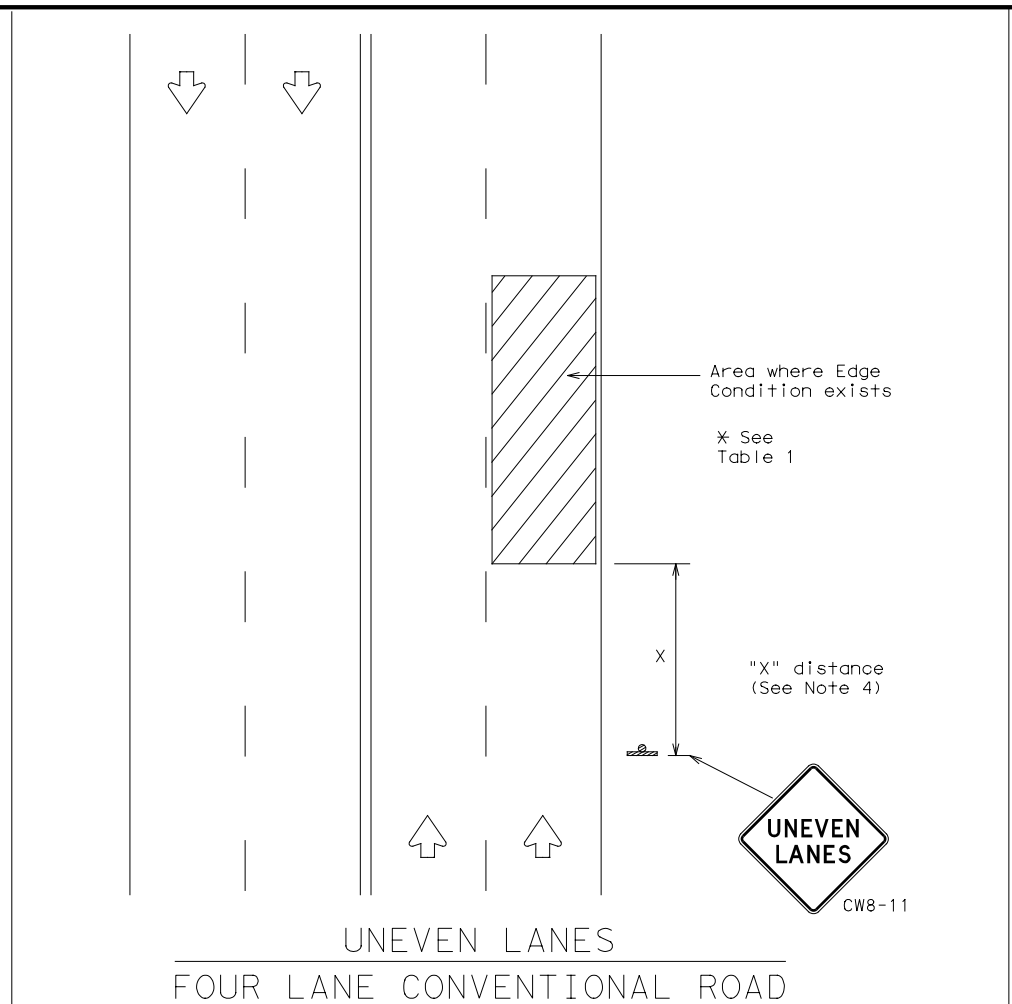
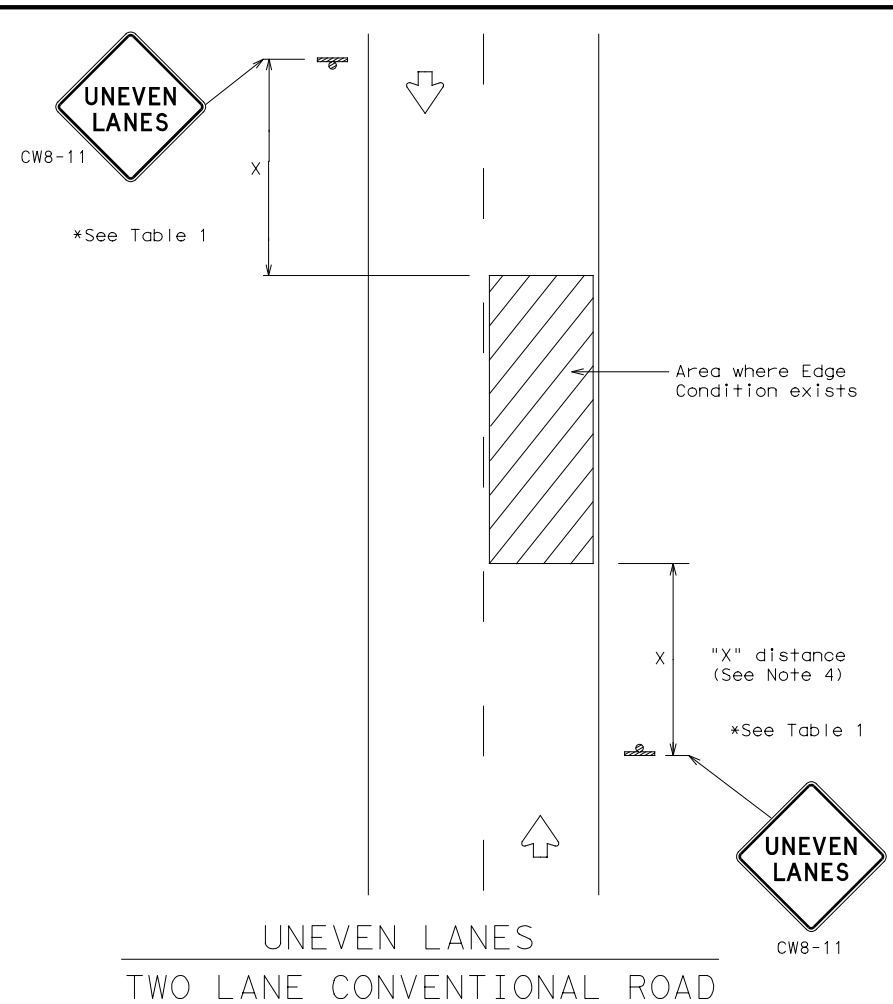
WORK ZONE SHORT TERM PAVEMENT MARKINGS

WZ (STPM) - 13

| | | | | | | | | | |
|--------|---------------|------|-----------|------|-------|------|--------|----------|-----------|
| FILE: | wzstpm-13.dgn | DN: | TxDOT | CK: | TxDOT | OW: | TxDOT | CK: | TxDOT |
| ©TxDOT | April 1992 | CONT | 0867 | SECT | 01 | JOB | 017 | HIGHWAY | FM 932 |
| 1-97 | 3-03 | 7-13 | REVISIONS | | DIST | WACO | COUNTY | HAMILTON | SHEET NO. |
| | | | | | | | | | 68 |

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FILE: wzu1-13.dgn



| 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.

| Edge Condition | Edge Height (D) | * Warning Devices |
|----------------|---|-------------------|
| ① | Less than or equal to: 1/4" (maximum-planing) 1/2" (typical-overlay) | Sign: CW8-11 |
| ② | Less than or equal to 3" | Sign: CW8-11 |
| ③ | 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" |



SIGNING FOR UNEVEN LANES

WZ (UL) -13

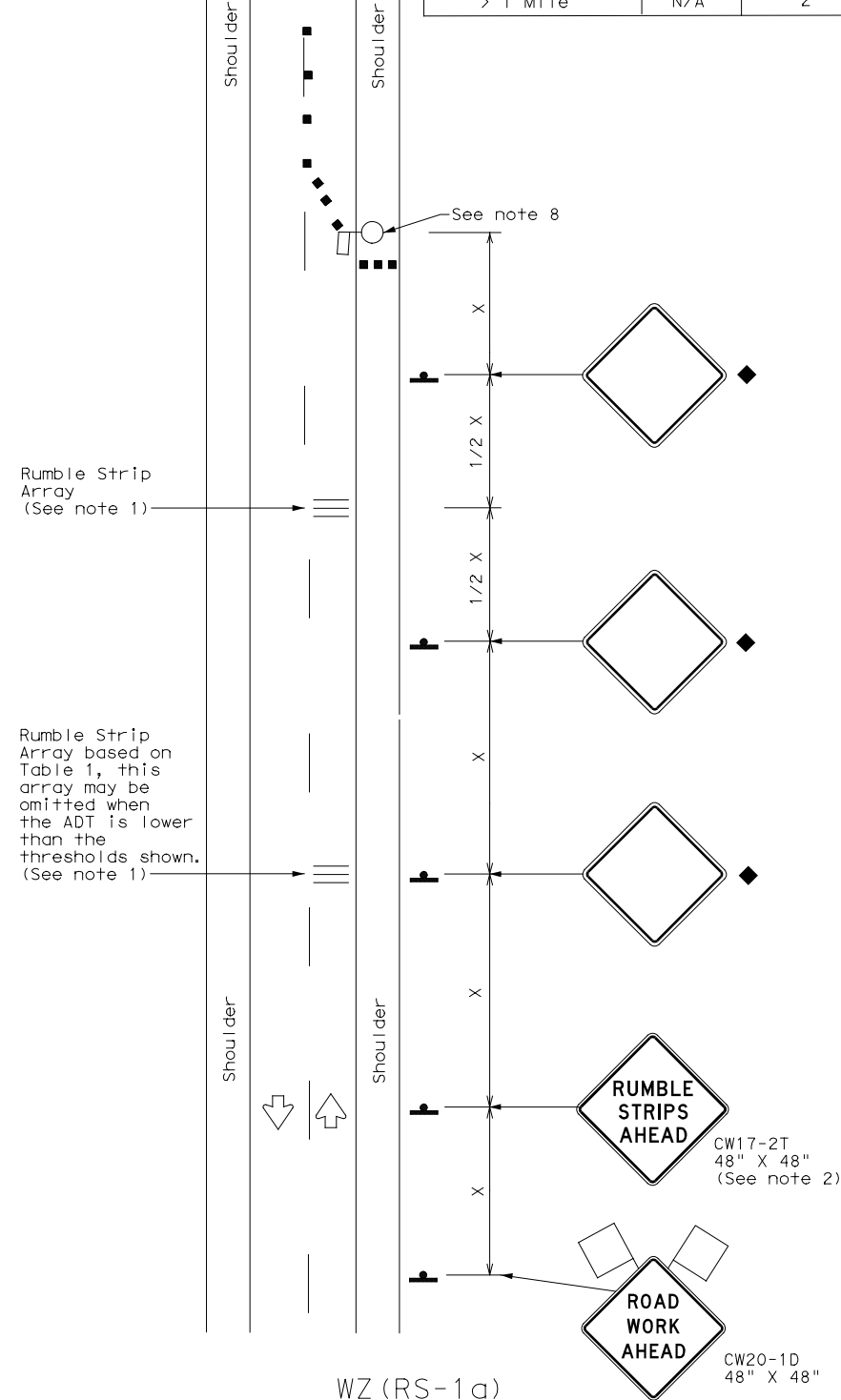
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| © TxDOT April 1992 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 8-95 2-98 7-13 | DIST | COUNTY | SHEET NO. | |
| 1-97 3-03 | WACO | HAMILTON | 69 | |

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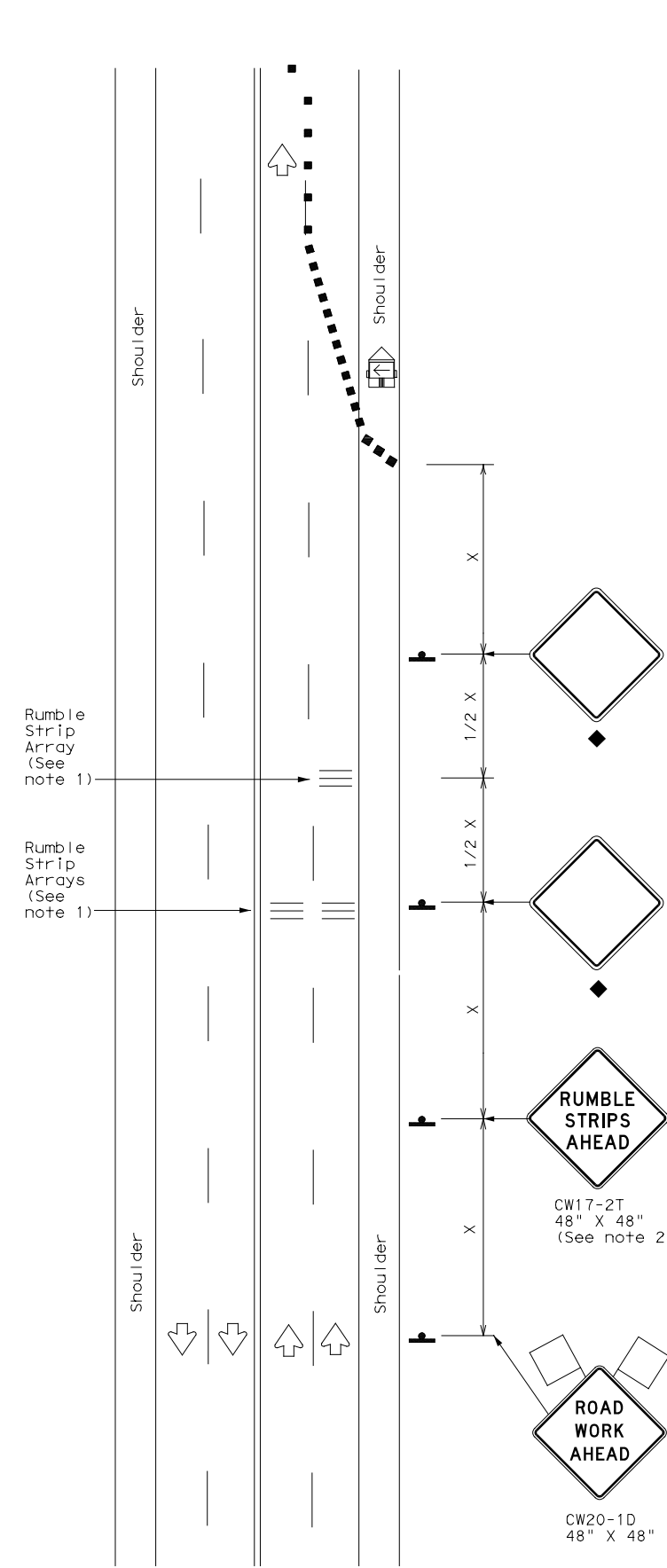
DATE: 8/30/2021 3:34:07 PM
FILE: wzrs16.dgn

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

| 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

- 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.
- 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.
- Temporary Rumble Strips will be considered subsidiary to Item 502, and shall be a product listed on the Compliant Work Zone Traffic Control Devices.
- Removal of the Temporary Rumble Strips should be accomplished before removing the advance warning signs.
- Temporary Rumble Strips should not be used on horizontal curves, loose gravel, soft or bleeding asphalt, heavily rutted pavements or unpaved surfaces.
- Temporary Rumble Strips shall be installed and maintained as per manufacturer's recommendations.
- This standard sheet shall be used in conjunction with other appropriate TCP standard, TMUTCD typical application or project specific detail for the project.
- The one-lane two-way application may utilize a flagger, an AFAD or a portable traffic signal.
- Temporary Rumble Strips may be used on freeways or expressways based on engineering judgment.

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

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

| Posted Speed * | Formula | Minimum Desirable Taper Lengths ** | | | Suggested Maximum Spacing of Channelizing Devices | | Minimum Sign Spacing "X" Distance | Suggested Longitudinal Buffer Space "B" |
|----------------|--------------------------|------------------------------------|------------|------------|---|--------------|-----------------------------------|---|
| | | 10' Offset | 11' Offset | 12' Offset | On a Taper | On a Tangent | | |
| 30 | L = 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)

| 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.

Traffic Operations Division Standard

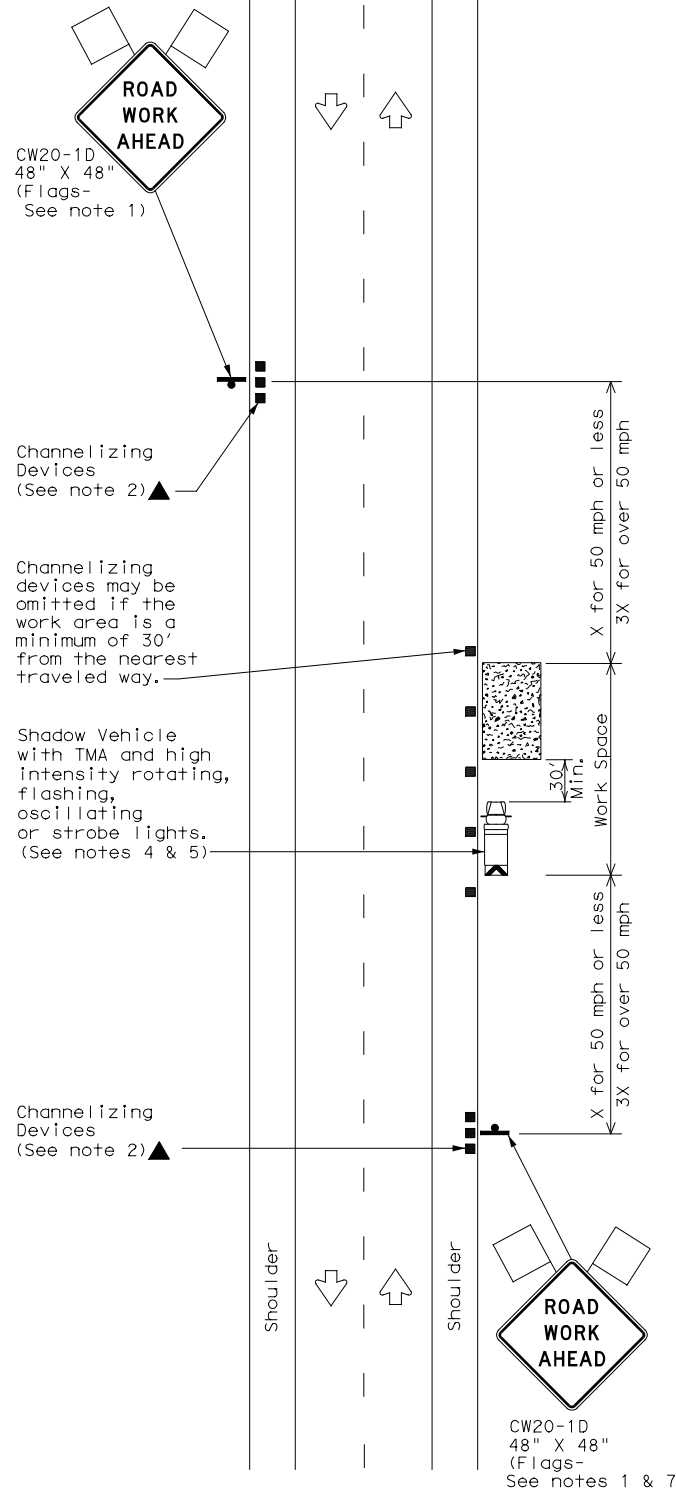
TEMPORARY RUMBLE STRIPS

WZ (RS) - 16

| | | | | |
|-----------------------|-----------|-----------|-----------|-----------|
| FILE: wzrs16.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
| © TxDOT November 2012 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 2-14 | DIST | COUNTY | SHEET NO. | |
| 4-16 | WACO | HAMILTON | 70 | |

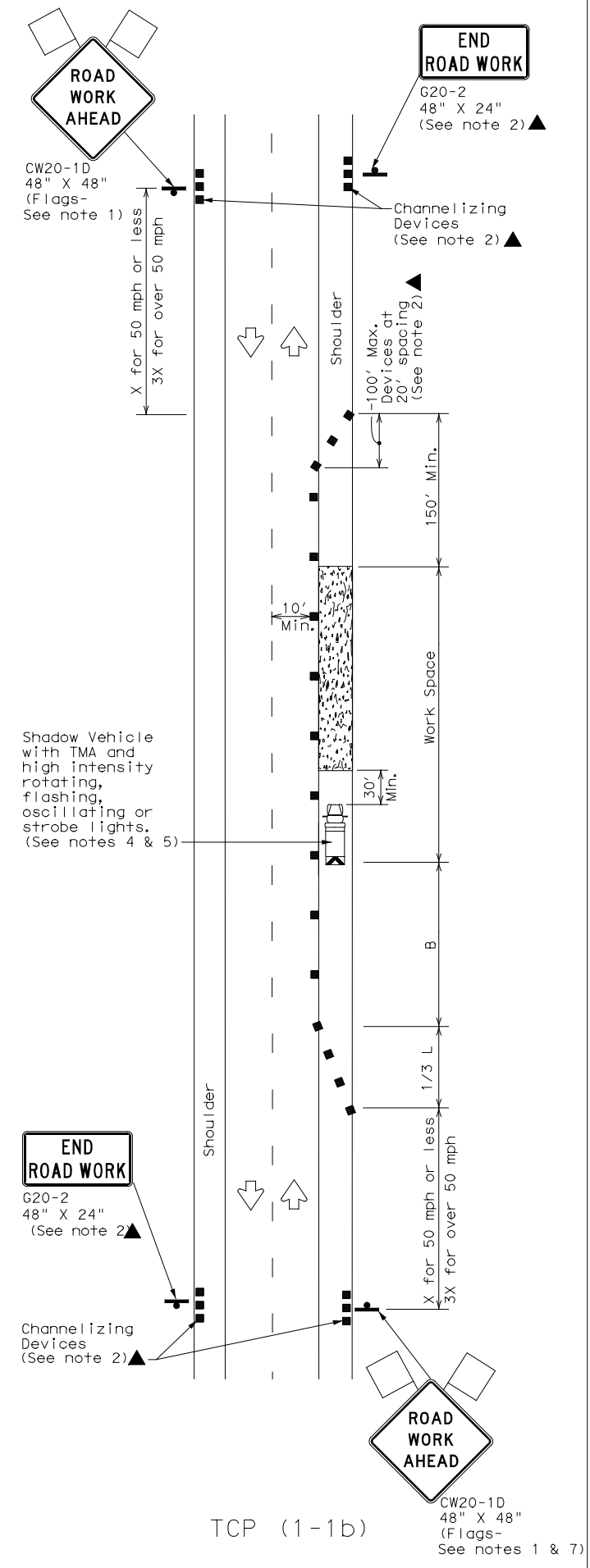
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FILE: tcp1-1-18.dgn



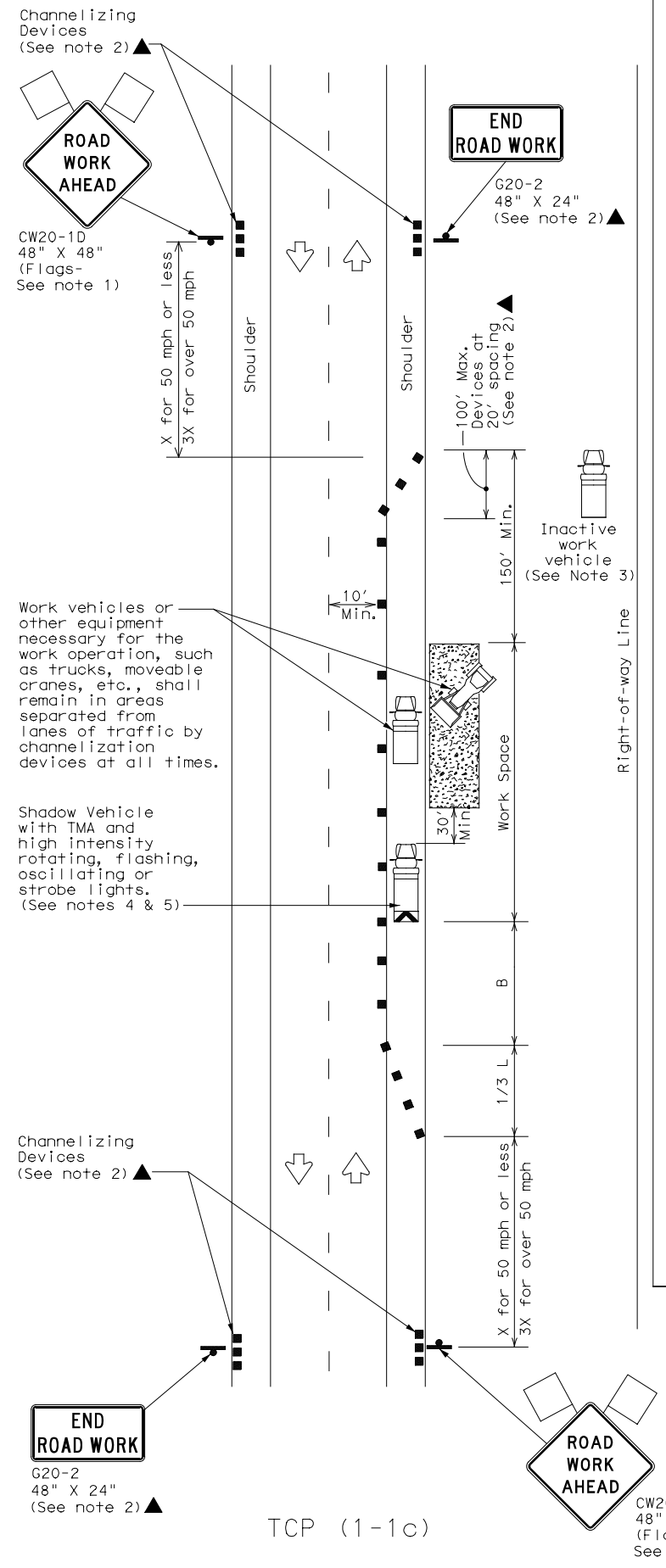
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

LEGEND

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

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

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

TYPICAL USAGE

| MOBILE | SHORT DURATION | SHORT TERM STATIONARY | INTERMEDIATE TERM STATIONARY | LONG TERM STATIONARY |
|--------|----------------|-----------------------|------------------------------|----------------------|
| | ✓ | ✓ | | |

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



TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

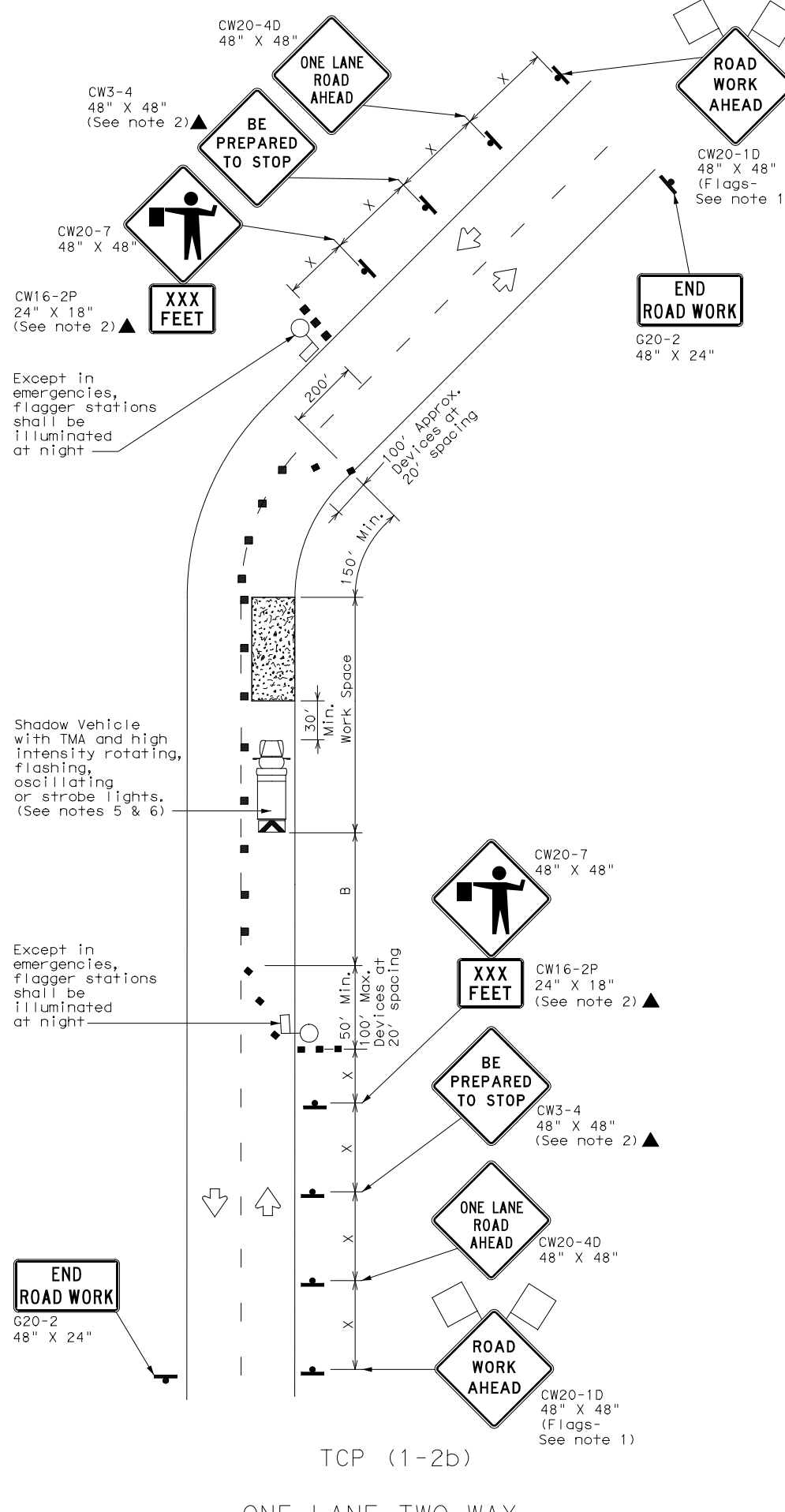
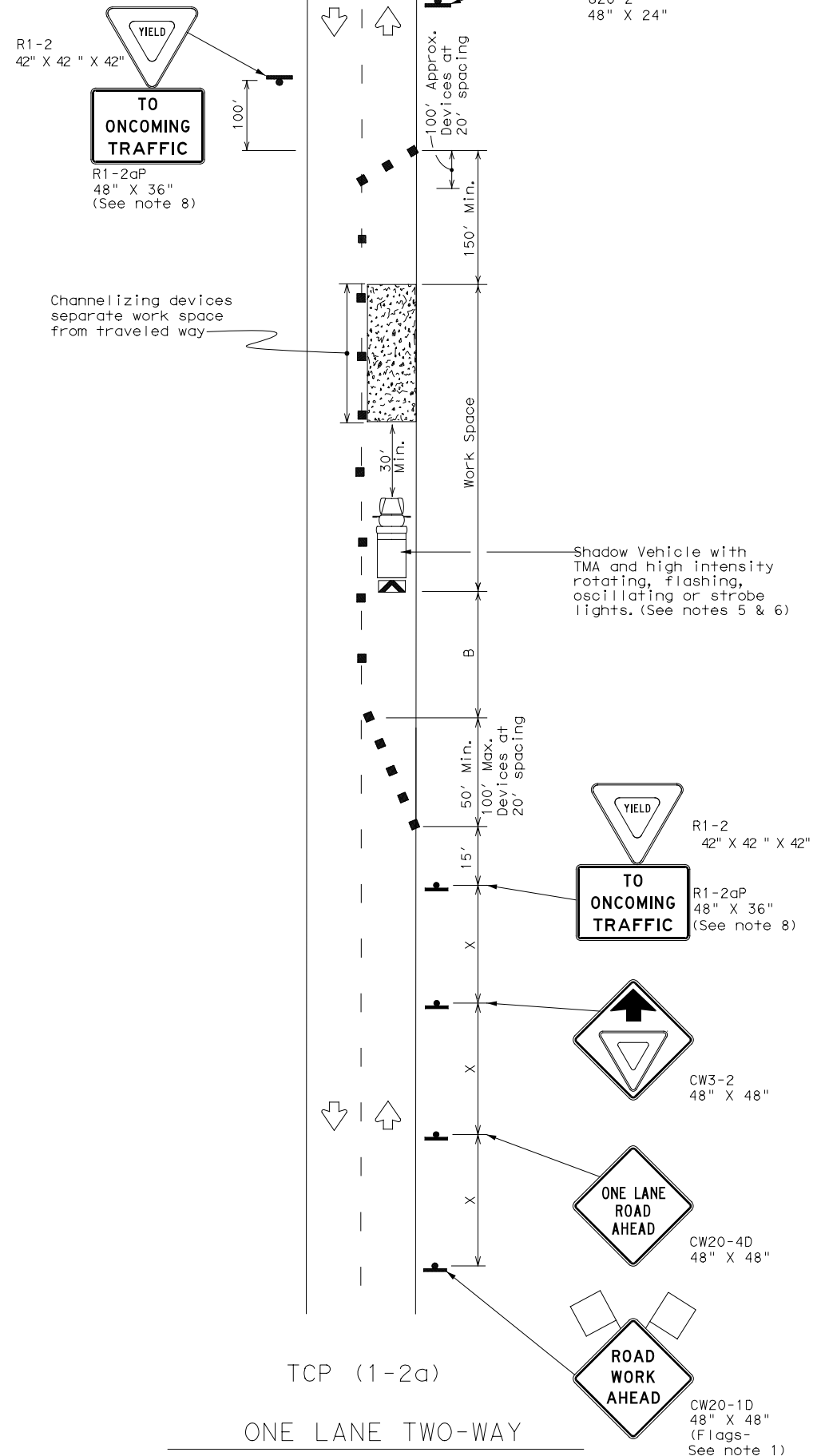
TCP (1-1) - 18

| | | | | |
|-----------------------|------------|------------------|--------------|-----------------|
| FILE: tcp1-1-18.dgn | DN: | CK: | DW: | CK: |
| © TxDOT December 1985 | CON: 0867 | SECT: 01 | JOB: 017 | HIGHWAY: FM 932 |
| REVISIONS | DIST: WACO | COUNTY: HAMILTON | SHEET NO. 71 | |
| 2-94 4-98 | | | | |
| 8-95 2-12 | | | | |
| 1-97 2-18 | | | | |

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FILE: tcp1-2-18.dgn

Warning Sign Sequence in Opposite Direction Same as Below



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

| Posted Speed * X | Formula L = $\frac{WS^2}{60}$ | Minimum Desirable Taper Lengths ** | | | Suggested Maximum Spacing of Channelizing Devices | | Minimum Sign Spacing "X" Distance | Suggested Longitudinal Buffer Space "B" | Stopping Sight Distance |
|---------------------|----------------------------------|------------------------------------|------------|------------|---|--------------|-----------------------------------|---|-------------------------|
| | | 10' Offset | 11' Offset | 12' Offset | On a Taper | On a Tangent | | | |
| 30 | L = $\frac{WS^2}{60}$ | 150' | 165' | 180' | 30' | 60' | 120' | 90' | 200' |
| 35 | | 205' | 225' | 245' | 35' | 70' | 160' | 120' | 250' |
| 40 | | 265' | 295' | 320' | 40' | 80' | 240' | 155' | 305' |
| 45 | | 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

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

Texas Department of Transportation

Traffic Operations Division Standard

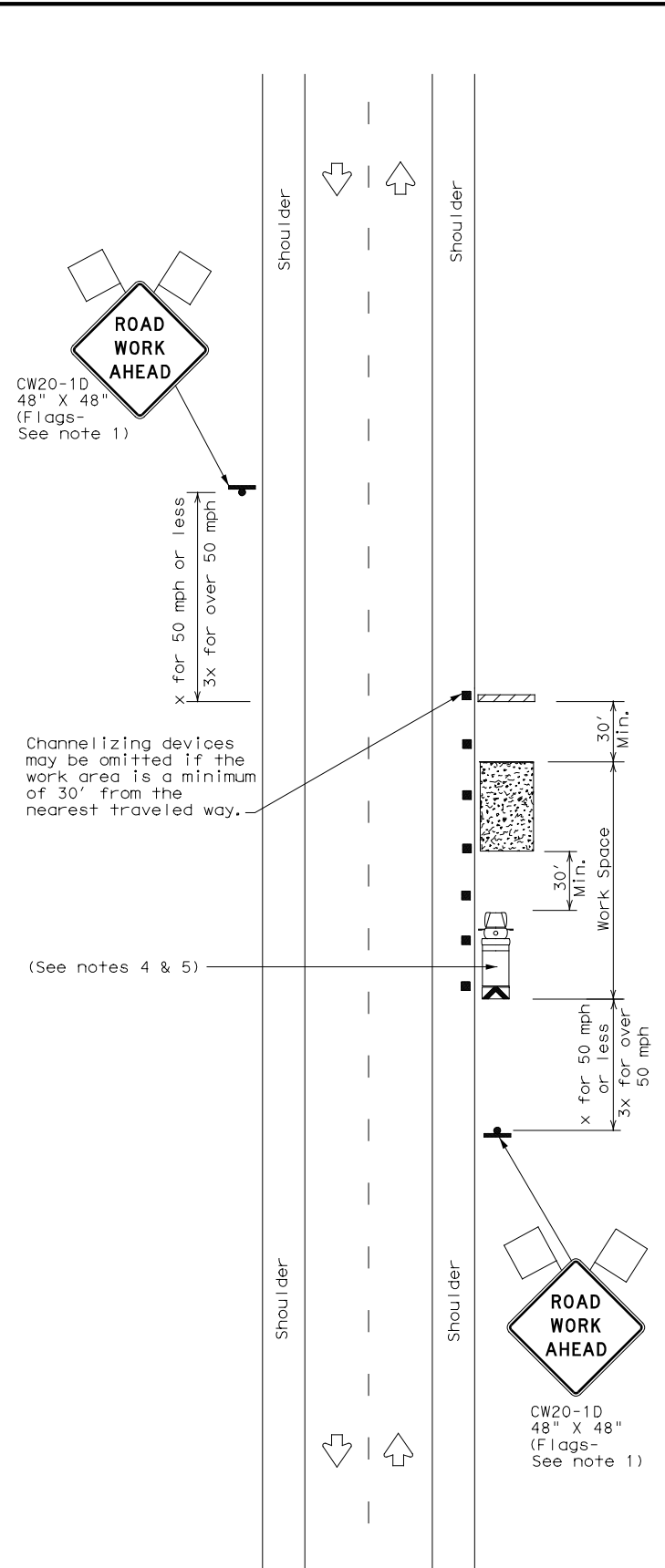
TRAFFIC CONTROL PLAN ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP (1-2) - 18

| | | | | |
|-----------------------|------|----------|-----------|---------|
| FILE: tcp1-2-18.dgn | DN: | CK: | DW: | CK: |
| © TxDOT December 1985 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 4-90 4-98 | DIST | COUNTY | SHEET NO. | |
| 2-94 2-12 | WACO | HAMILTON | 72 | |
| 1-97 2-18 | | | | |

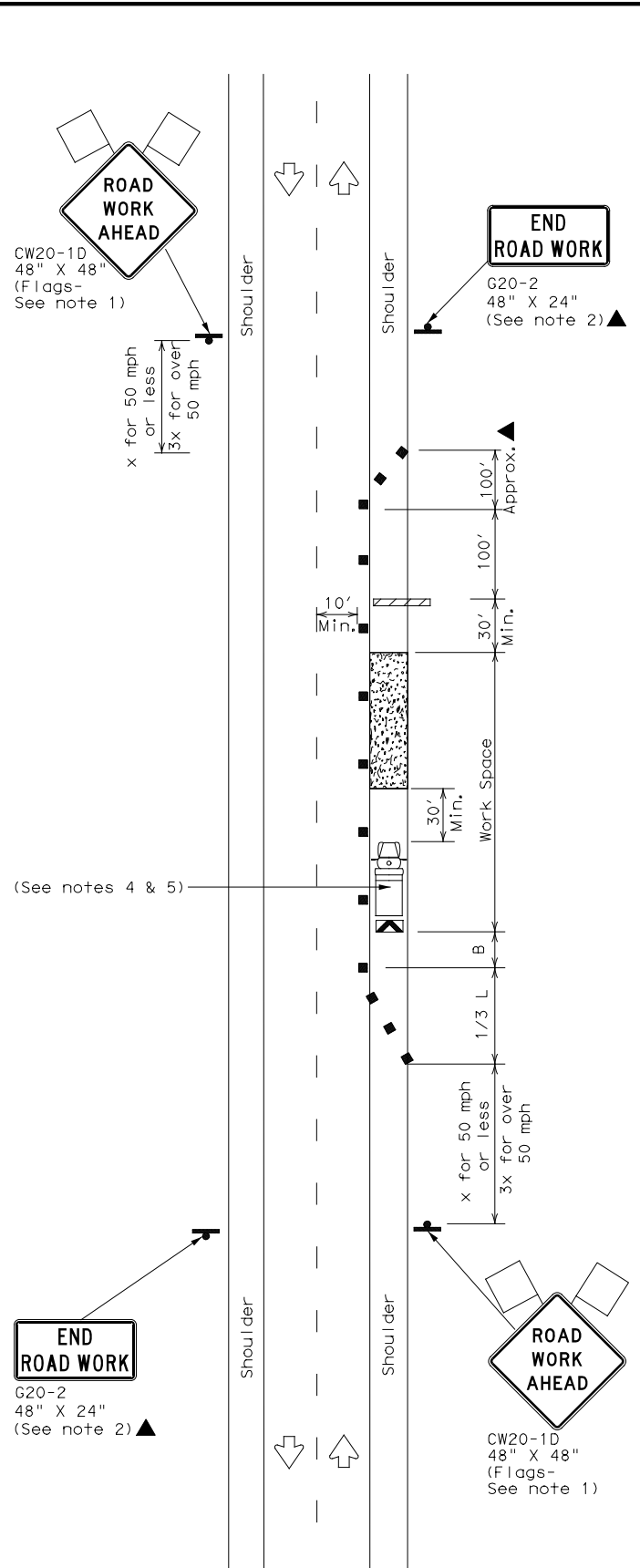
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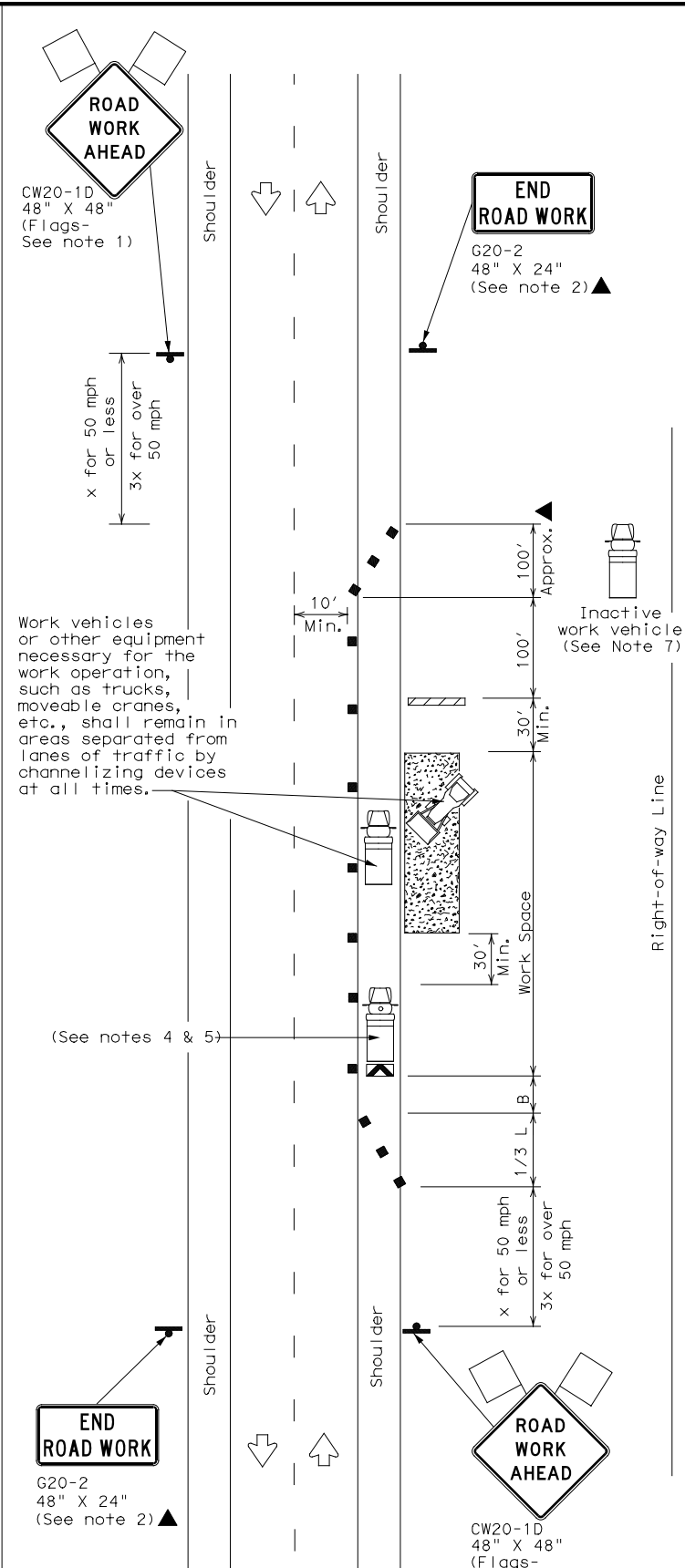
TCP (2-1a)

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

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

- Flags attached to signs where shown, are REQUIRED.
- 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.
- Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
- 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.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
- See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
- Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
- CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.



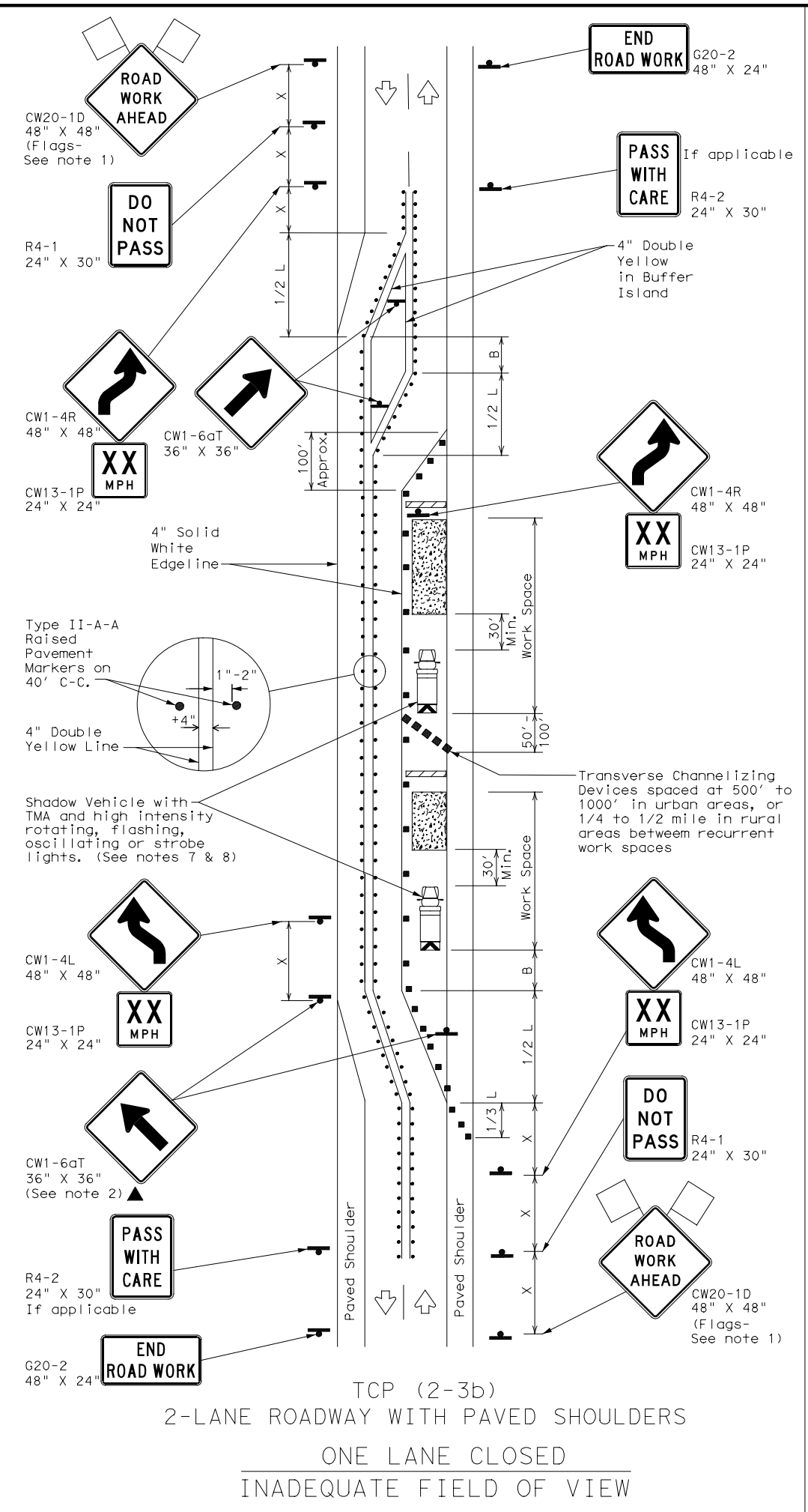
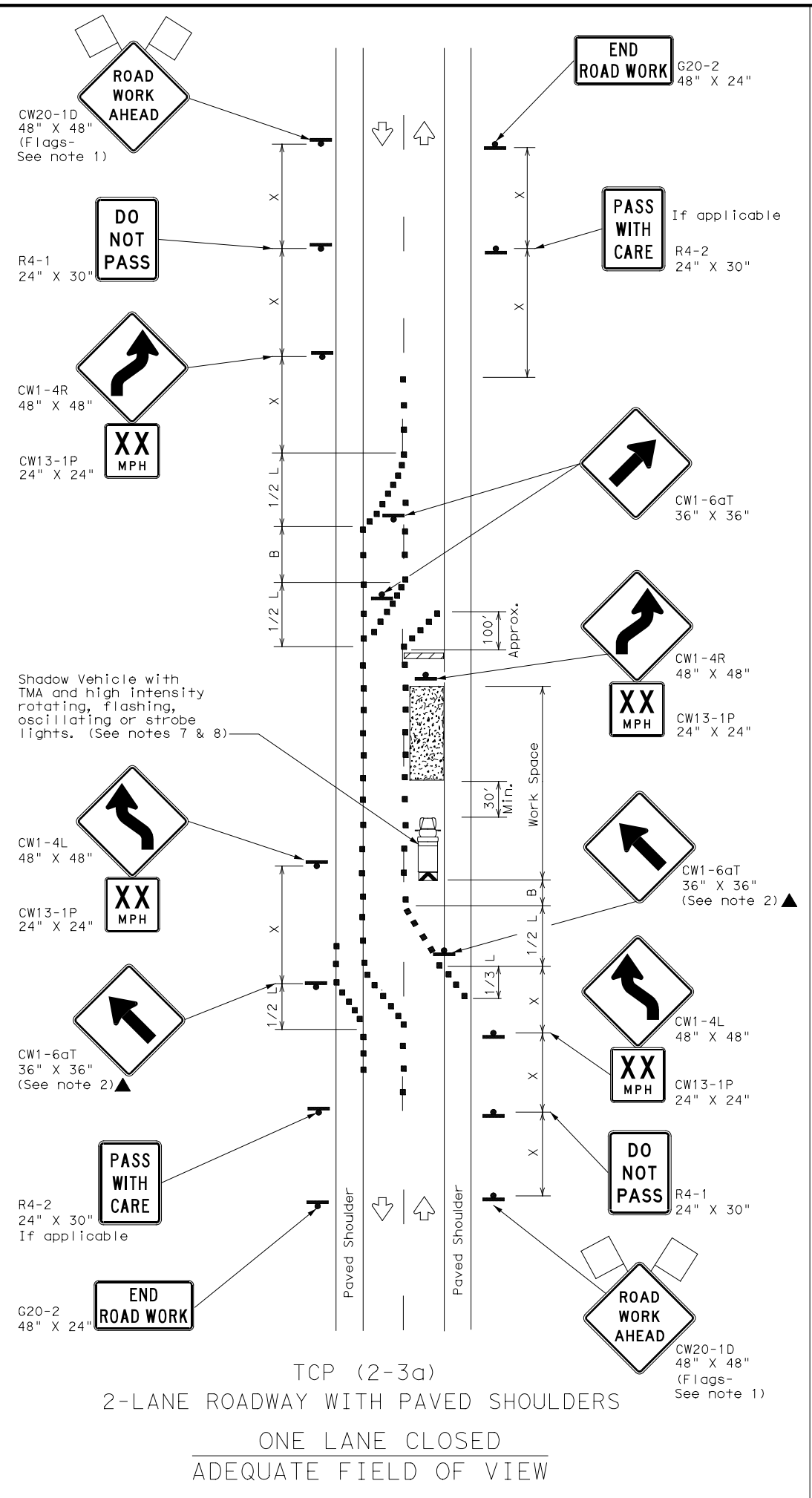
TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP (2-1) - 18

| | | | | |
|-----------------------|------|----------|-----------|---------|
| FILE: tcp2-1-18.dgn | DN: | CK: | DW: | CK: |
| © TxDOT December 1985 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 2-94 4-98 | DIST | COUNTY | SHEET NO. | |
| 8-95 2-12 | WACO | HAMILTON | 73 | |
| 1-97 2-18 | | | | |

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

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

TYPICAL USAGE

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

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - 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.
 - 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.
 - 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.
 - 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.
 - Conflicting pavement marking shall be removed for long term projects.
 - 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.
 - 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)**
- 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

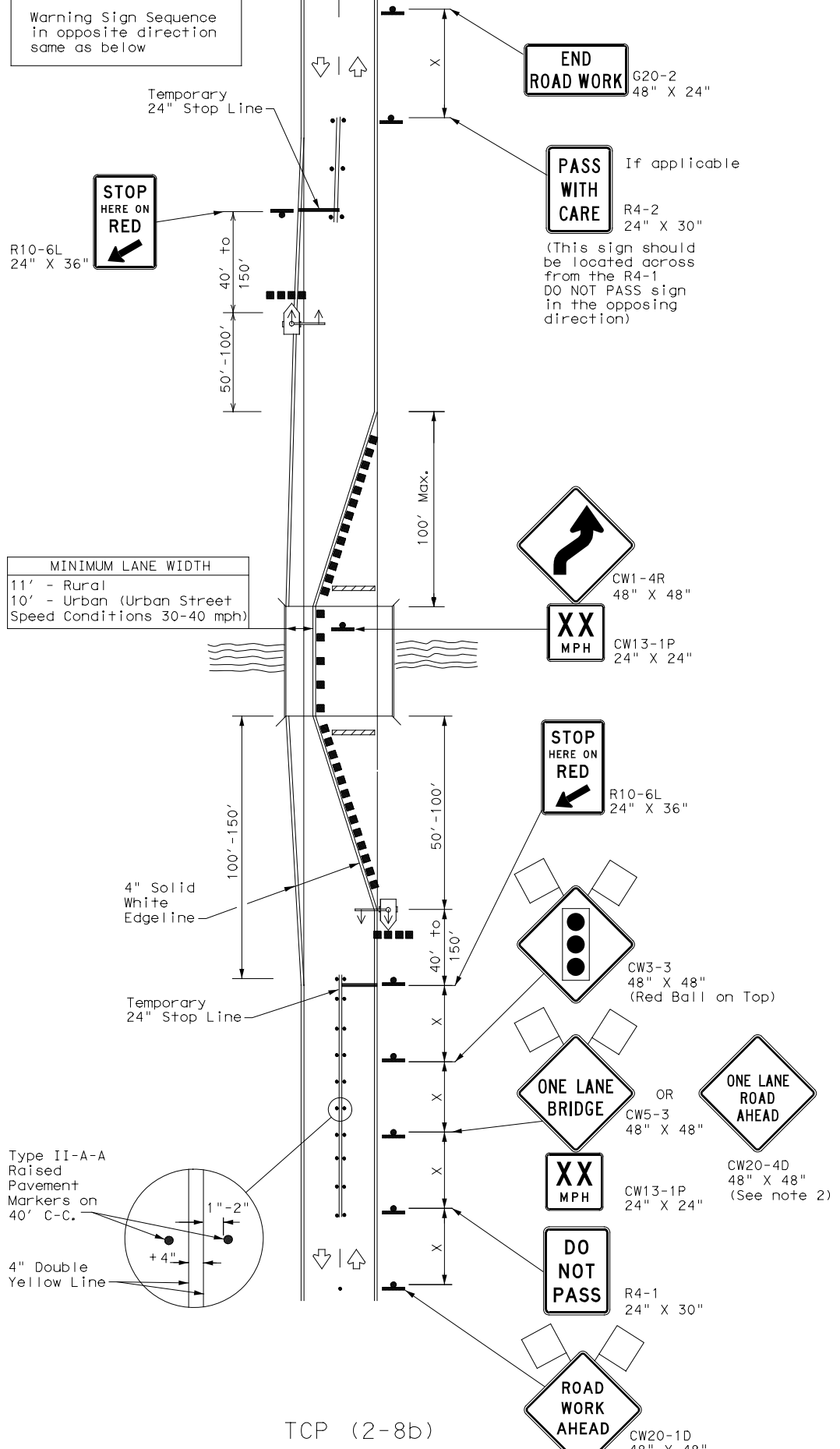
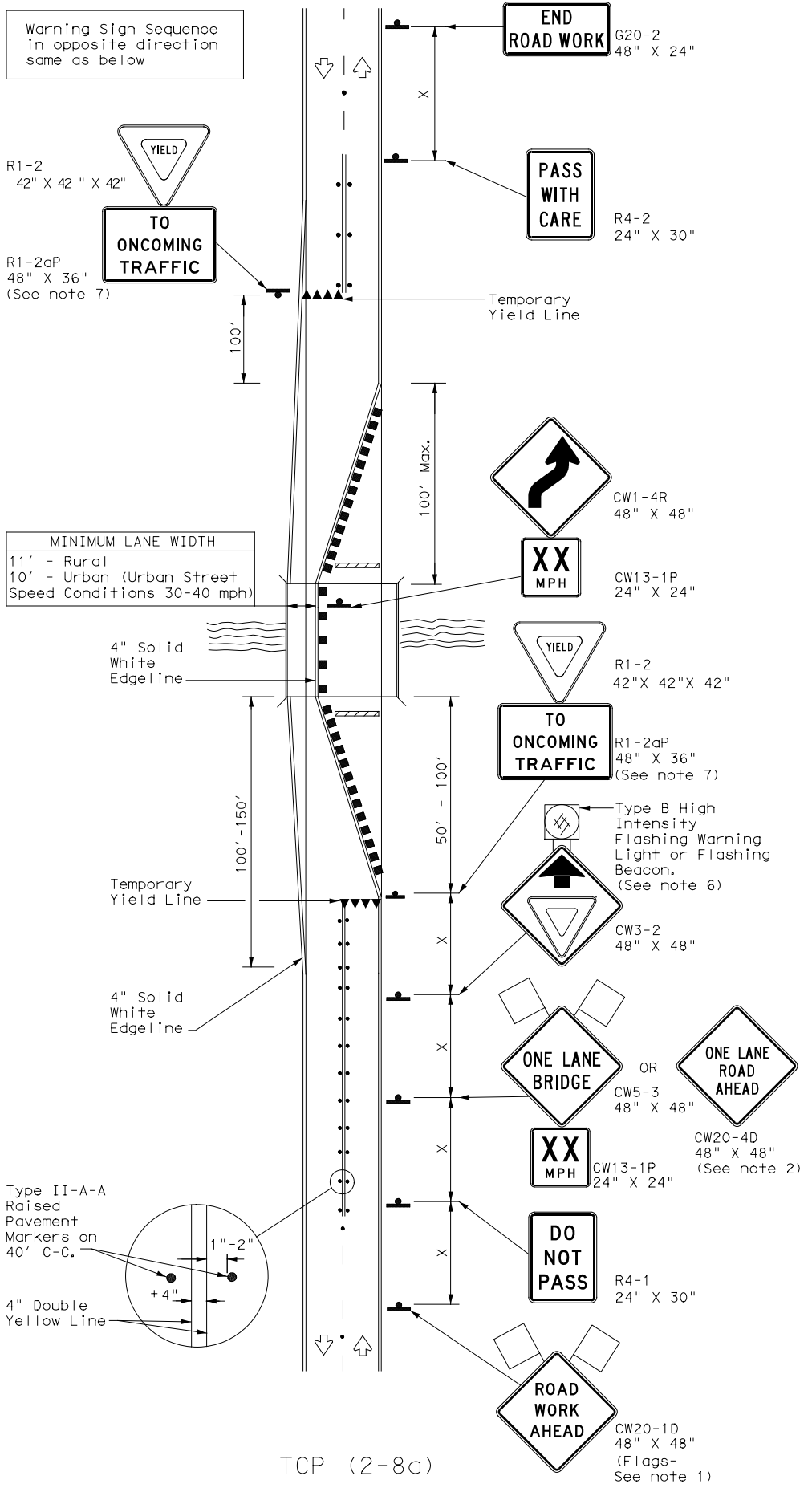
TRAFFIC CONTROL PLAN
TRAFFIC SHIFTS ON
TWO-LANE ROADS

TCP (2-3) - 18

| | | | | |
|-----------------------|-------|----------|------------|----------|
| FILE: tcp(2-3)-18.dgn | DN: | CK: | DW: | CK: |
| © TxDOT December 1985 | CON: | SECT: | JOB: | HIGHWAY: |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 8-95 3-03 | DIST: | COUNTY: | SHEET NO.: | |
| 1-97 2-12 | WACO | HAMILTON | 74 | |
| 4-98 2-18 | | | | |

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FILE: tcp2-8-18.dgn



LEGEND

| | | | |
|--|----------------------------------|--|--------------------------------------|
| | Type 3 Barricade | | Channelizing Devices |
| | Sign | | Traffic Flow |
| | Flag | | Flagger |
| | Raised Pavement Markers Ty II-AA | | Temporary or Portable Traffic Signal |

| Posted Speed * | Formula | Minimum Desirable Taper Lengths ** | | | Suggested Maximum Spacing of Channelizing Devices | | Minimum Sign Spacing "X" Distance | Suggested Longitudinal Buffer Space "B" | Stopping Sight Distance |
|----------------|--------------------------|------------------------------------|------------|------------|---|--------------|-----------------------------------|---|-------------------------|
| | | 10' Offset | 11' Offset | 12' Offset | On a Taper | On a Tangent | | | |
| 30 | L = 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
- Flags attached to signs where shown are REQUIRED.
 - When this TCP is used at a location which does not involve a bridge, a 48" x 48" CW20-4D "ONE LANE ROAD AHEAD" signs should be used in lieu of the CW5-3 "ONE LANE BRIDGE" signs. The CW13-1P Advisory Speed Plaque is required with either warning sign.
 - Raised pavement markers shall be placed 40 feet c-c on centerline between DO NOT PASS signs and stop or yield lines.
 - For intermediate term situations, when it is not feasible to remove and restore pavement markings, the channelization must be made dominant by using a very close spacing. This is especially important in locations of conflicting information, such as where traffic is directed over a double yellow centerline. In such locations a maximum channelizing device spacing of 20 feet is recommended. The 20 foot channelizing device spacing recommendation is intended for the area of conflicting information and not the entire work zone.
- TCP (2-8a)
- Traffic control by CW3-2 "YIELD AHEAD" symbol signs for one lane two-way traffic control operations should be limited to work spaces less than 400 feet long and roadways with less than 2000 ADT. Otherwise, portable traffic signals should be used.
 - If power is available, a flashing beacon should be attached to the CW3-2 "YIELD AHEAD" symbol sign for emphasis.
 - The R1-2 "YIELD" and R1-2aP "TO ONCOMING TRAFFIC" signs and other regulatory signs shall be installed at 7 foot minimum mounting height.
- TCP (2-8b)
- A list of approved Portable Traffic Signals can be found in the "Compliant Work Zone Traffic Control Devices" list.
 - Portable traffic signals should be located to provide adequate stopping sight distance for approaching motorist (See table above).

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
LONG TERM ONE-LANE
TWO-WAY CONTROL

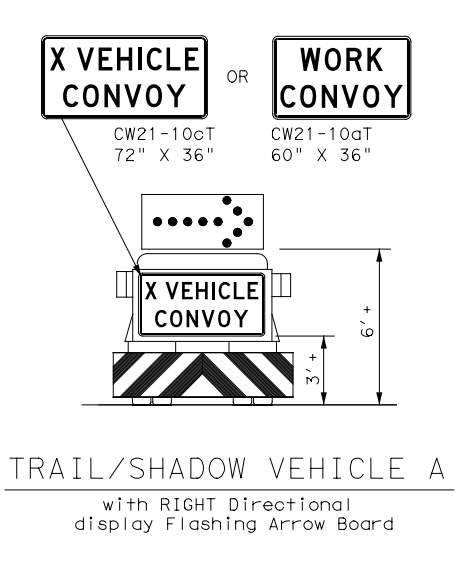
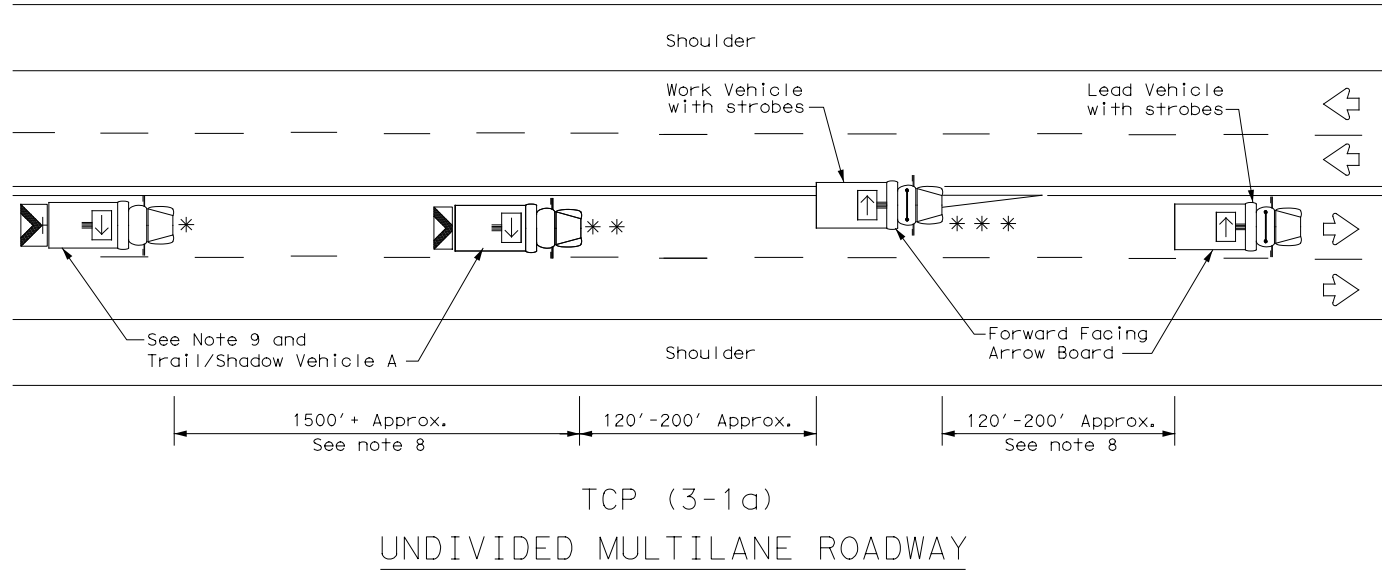
TCP (2-8) - 18

| | | | | |
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| © TxDOT December 1985 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 8-95 3-03 | DIST | COUNTY | SHEET NO. | |
| 1-97 2-12 | WACO | HAMILTON | 75 | |
| 4-98 2-18 | | | | |

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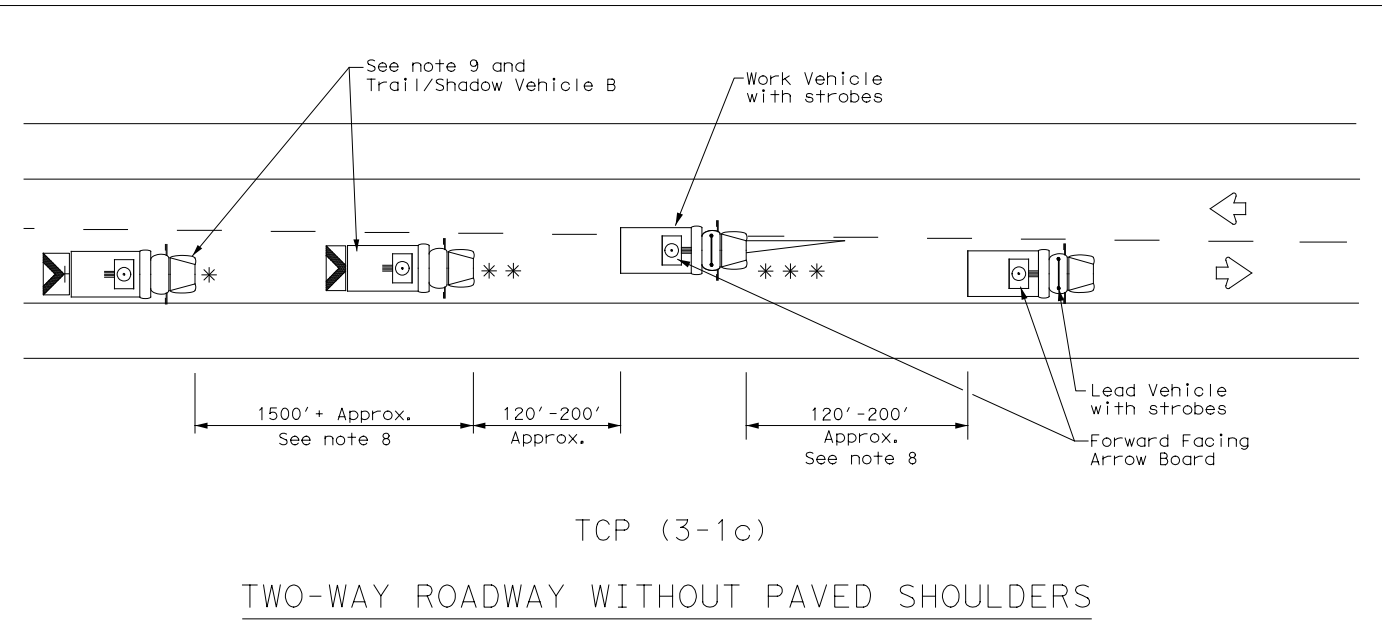
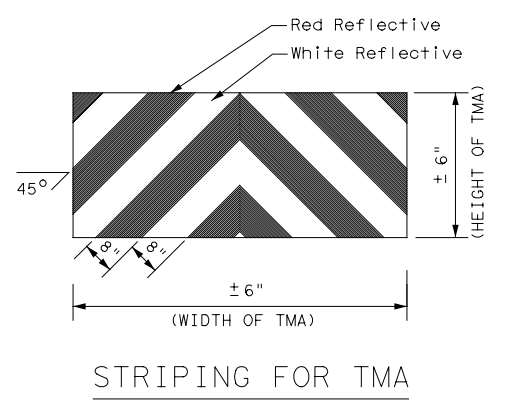
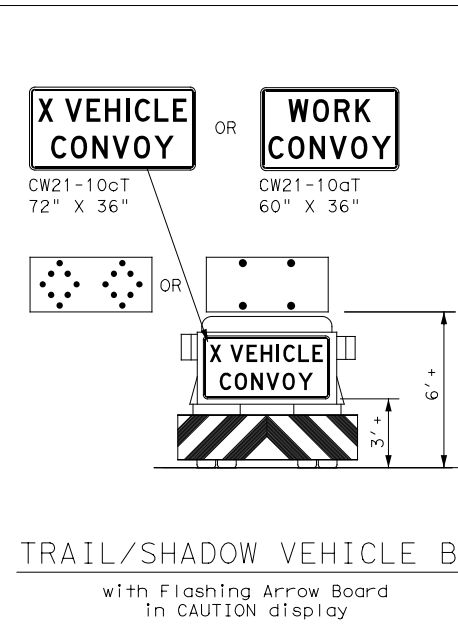
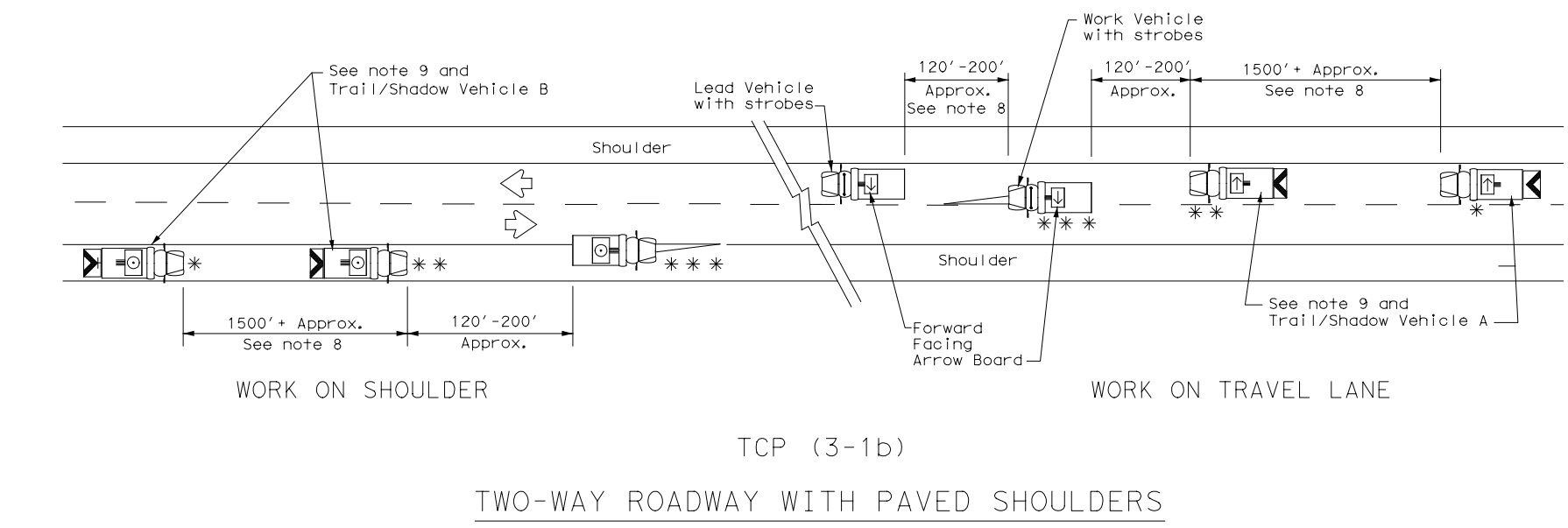


| LEGEND | | | |
|--------|--------------------------------|---------------------|---|
| * | Trail Vehicle | ARROW BOARD DISPLAY | |
| ** | Shadow Vehicle | | |
| *** | Work Vehicle | | RIGHT Directional |
| | Heavy Work Vehicle | | LEFT Directional |
| | Truck Mounted Attenuator (TMA) | | Double Arrow |
| | 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.



Texas Department of Transportation

Traffic Operations Division Standard

**TRAFFIC CONTROL PLAN
MOBILE OPERATIONS
UNDIVIDED HIGHWAYS**

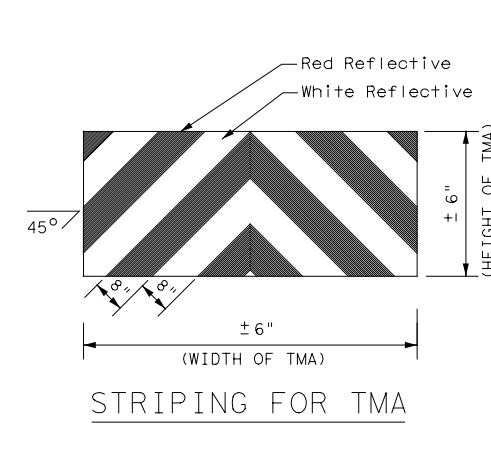
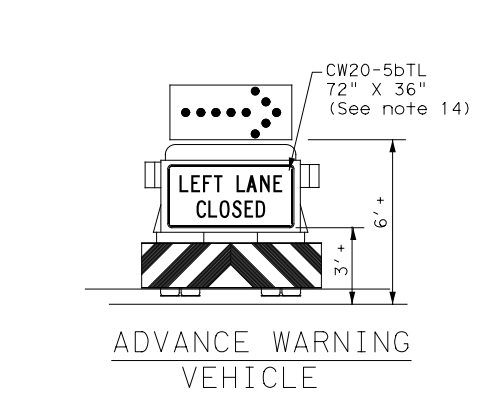
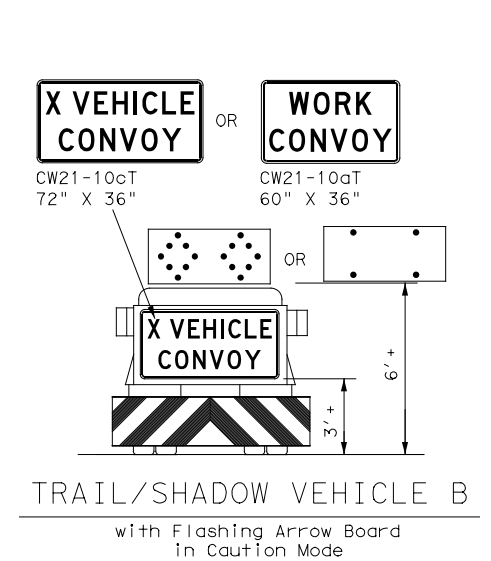
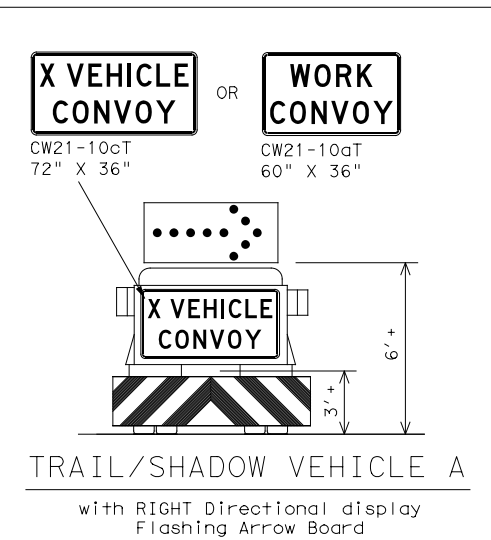
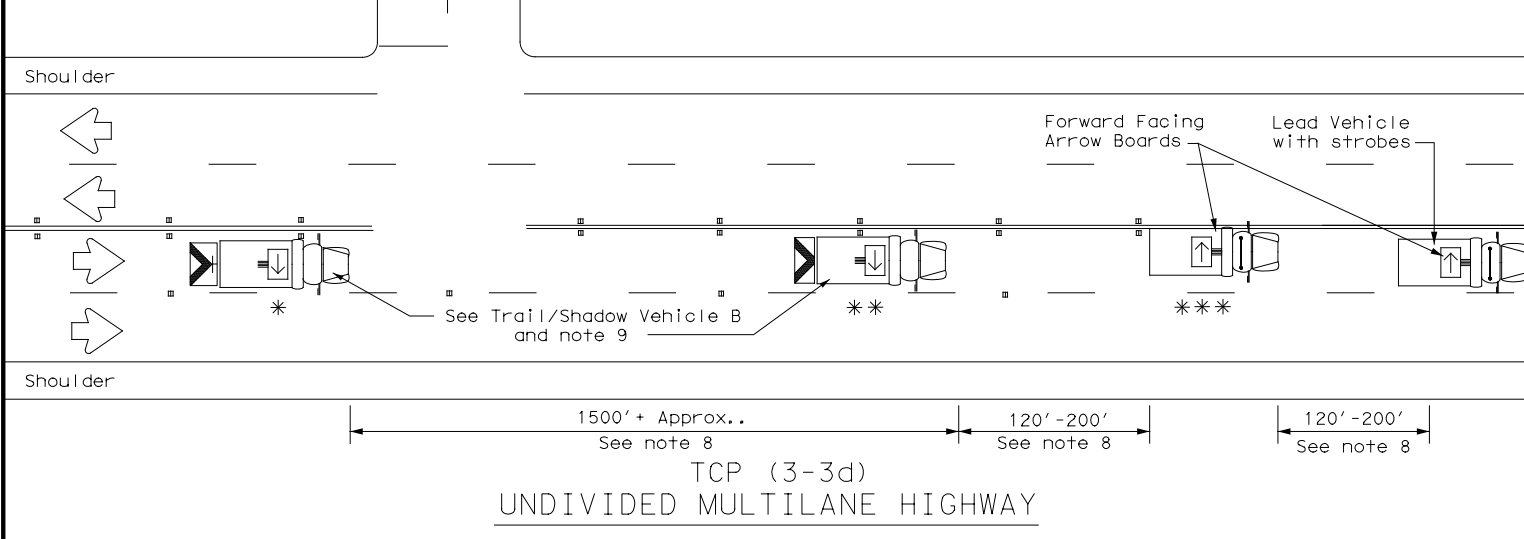
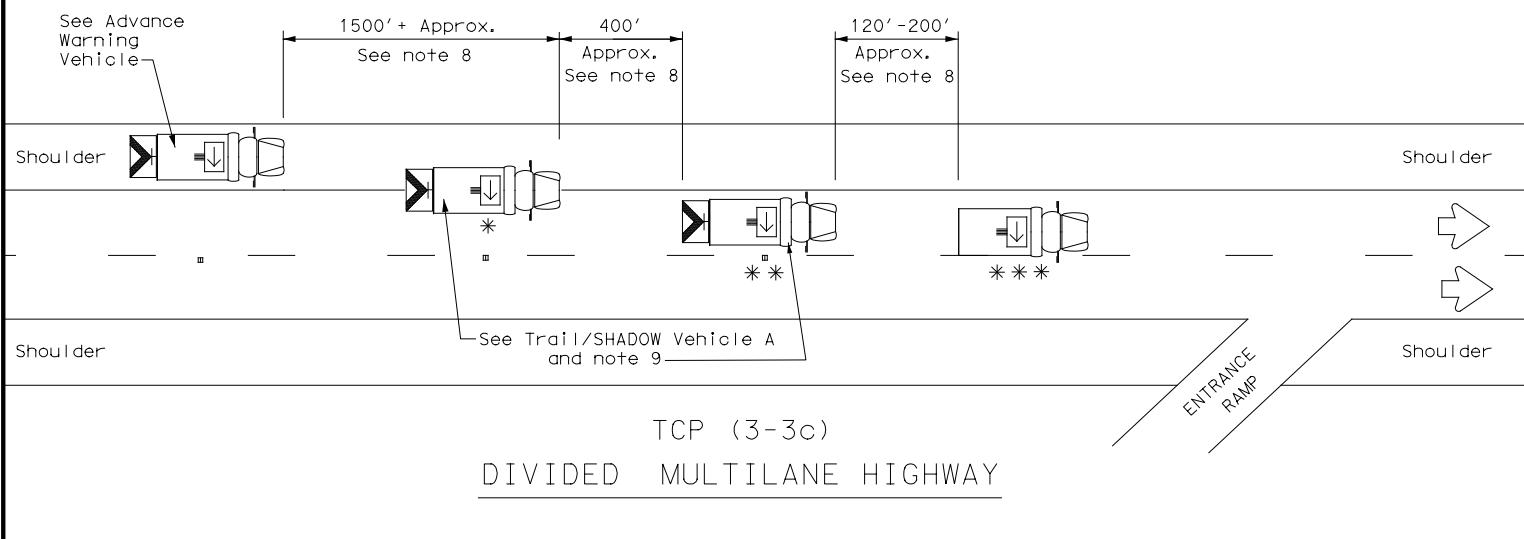
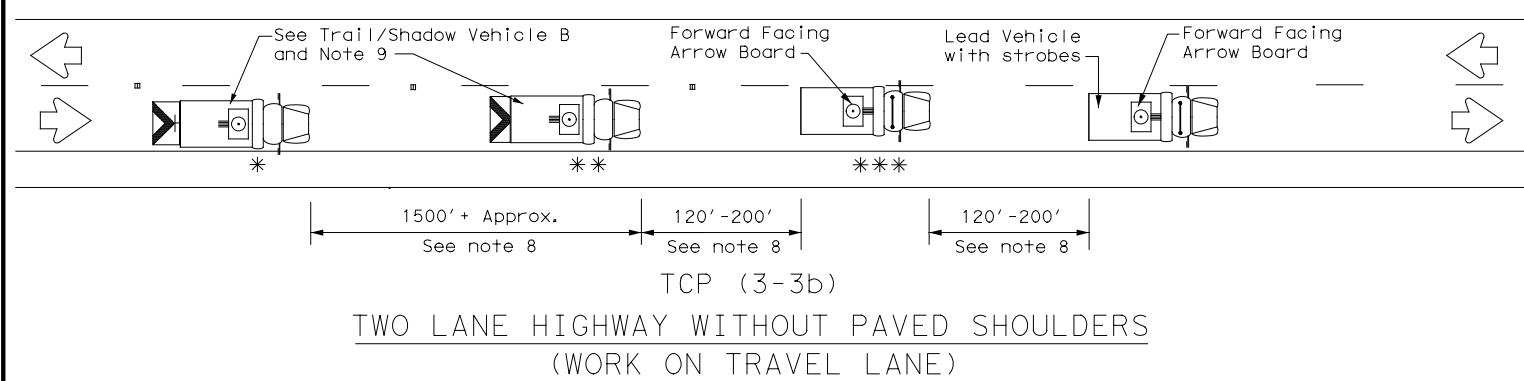
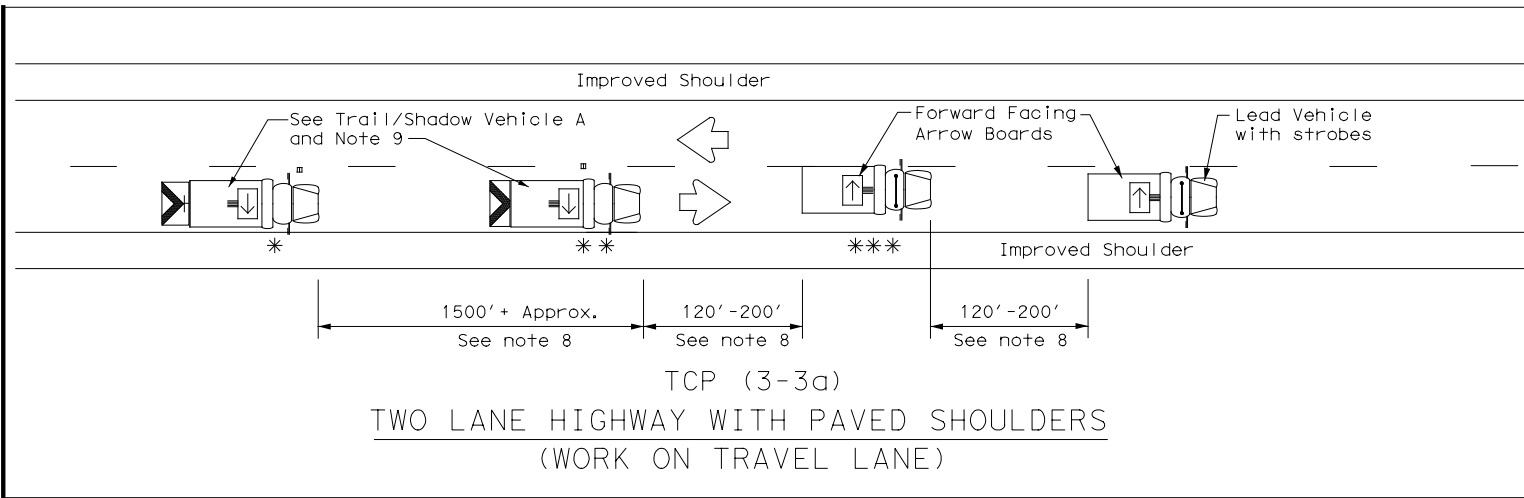
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| | | | | | | | | | |
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| © TxDOT | December 1985 | CONT | SECT | JOB | HIGHWAY | | | | |
| REVISIONS | | 0867 | 01 | 017 | FM 932 | | | | |
| 2-94 | 4-98 | DIST | COUNTY | SHEET NO. | | | | | |
| 8-95 | 7-13 | WACO | HAMILTON | 76 | | | | | |
| 1-97 | | | | | | | | | |

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 FILE: tcp3-3.dgn



| 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.

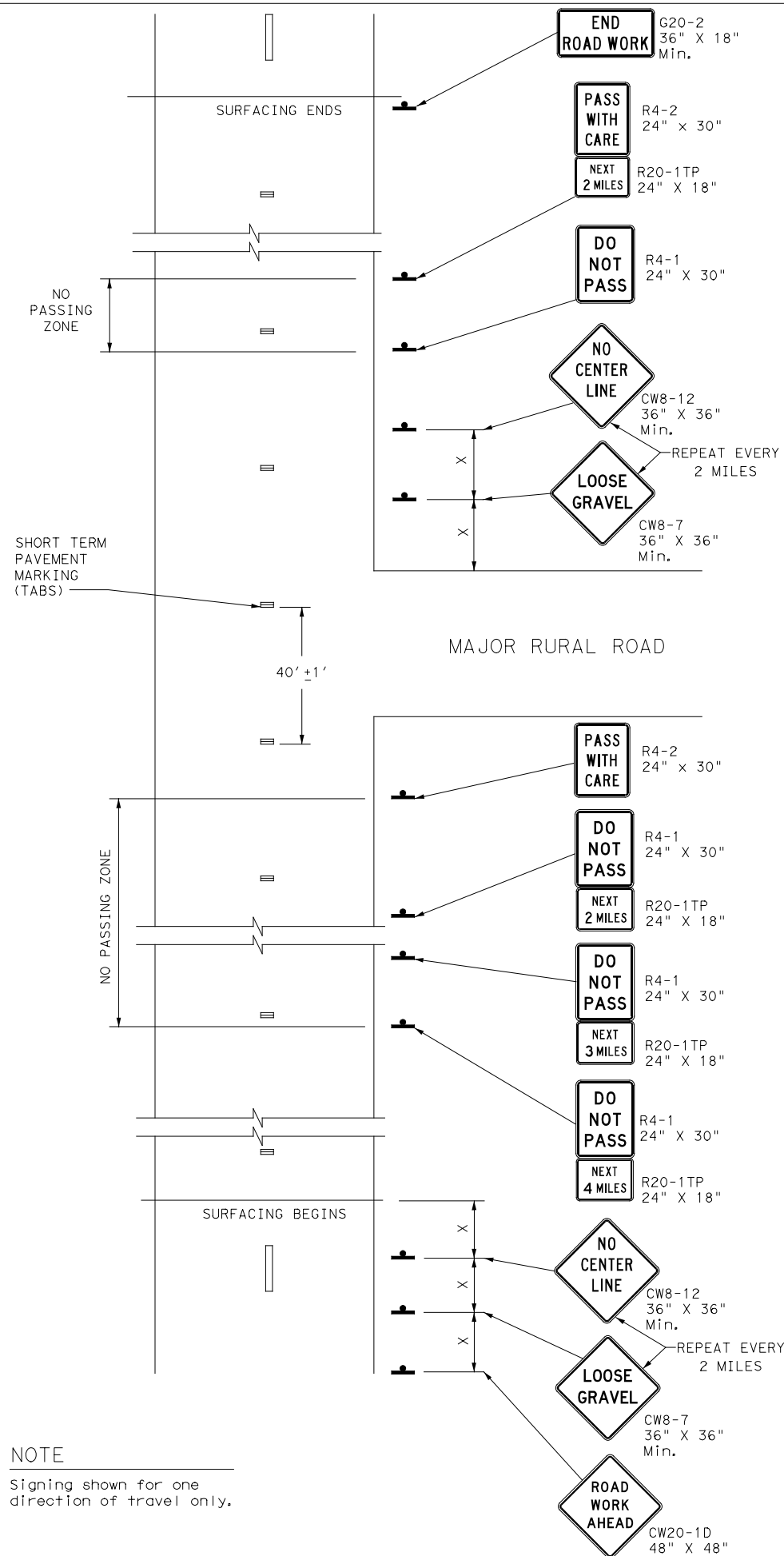
Texas Department of Transportation
Traffic Operations Division Standard

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

| | | | | |
|------------------------|-----------|-----------|-----------|-----------|
| FILE: tcp3-3.dgn | DN: TxDOT | CK: TxDOT | OW: TxDOT | CK: TxDOT |
| © TxDOT September 1987 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 2-94 4-98 | DIST | COUNTY | SHEET NO. | |
| 8-95 7-13 | WACO | HAMILTON | 77 | |
| 1-97 7-14 | | | | |

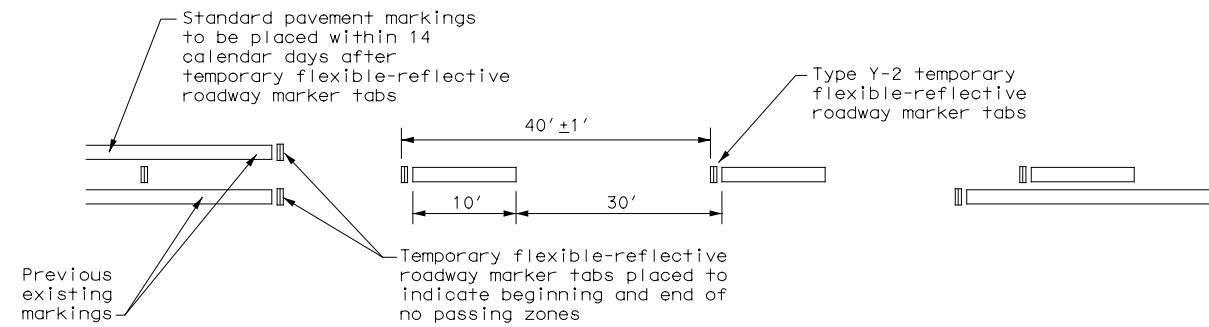
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NOTE
Signing shown for one direction of travel only.

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.

Traffic Operations Division Standard

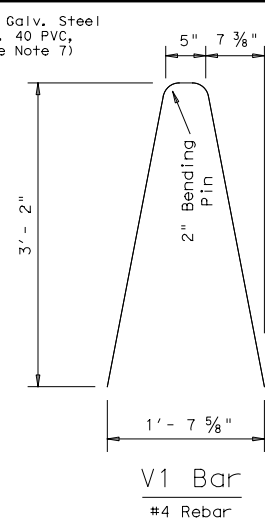
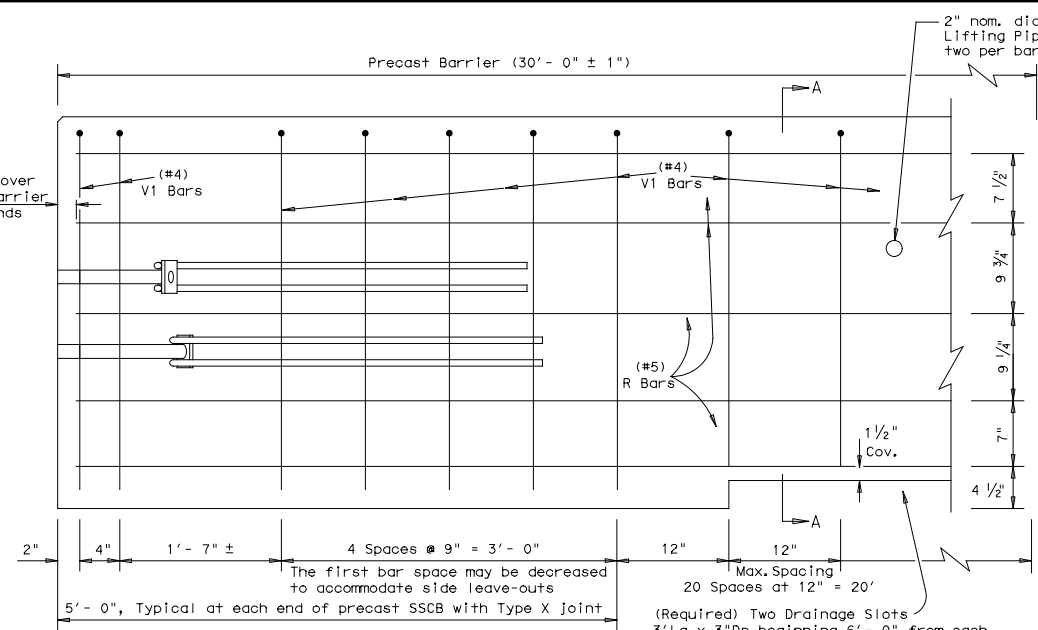
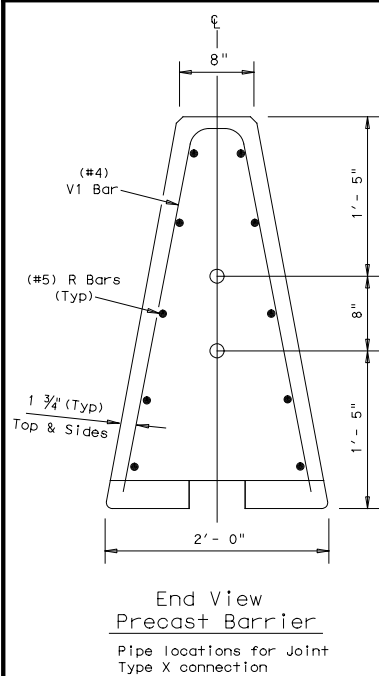
TRAFFIC CONTROL DETAILS FOR SURFACING OPERATIONS

TCP (7-1) - 13

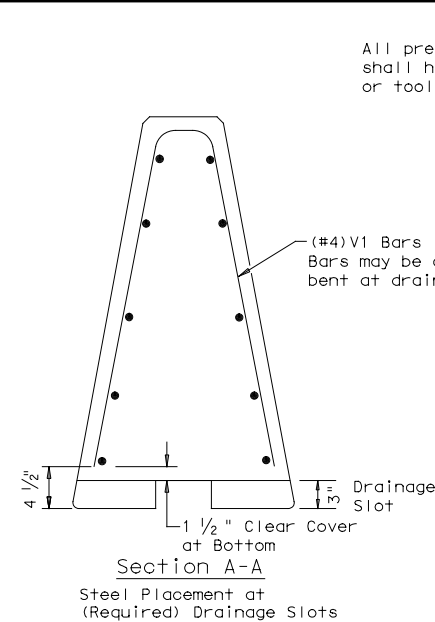
| | | | | |
|--------------------|-----------|-----------|-----------|-----------|
| FILE: tcp7-1.dgn | DN: TxDOT | CK: TxDOT | DN: TxDOT | CK: TxDOT |
| © TxDOT March 1991 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 4-92 4-98 | DIST | COUNTY | | SHEET NO. |
| 1-97 7-13 | WACO | HAMILTON | | 78 |

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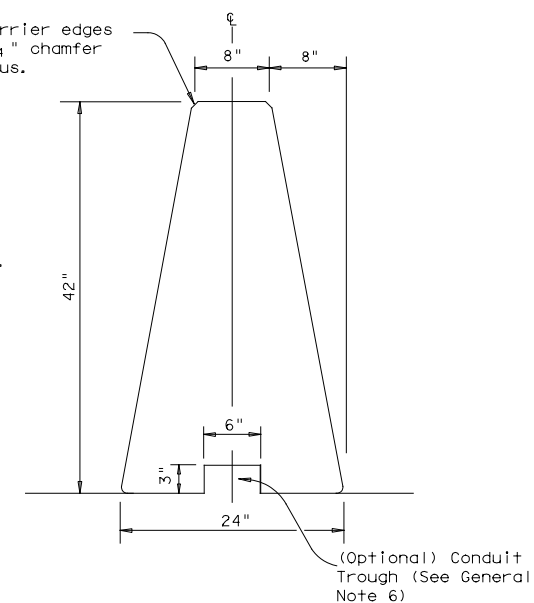
DATE: 8/30/2021
FILE: sscb210.dgn



Note:
V1 Bars above the drainage slots may be bent to accommodate 1 1/2 inch clear cover as directed by the Engineer.



All precast barrier edges shall have a 3/4 inch chamfer or tooled radius.

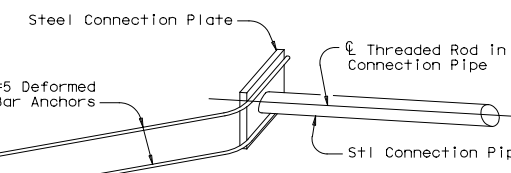


Single Slope Concrete Traffic Barrier

Precast SSCB barrier may be connected to cast-in-place SSBC. The joint connection "Types" may be used in the cast-in-place barrier, to match the precast barrier connection.

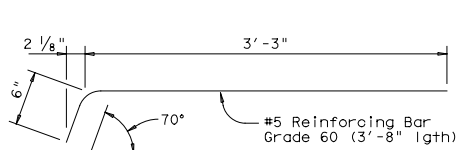
General Notes

- Concrete shall be Class H with a minimum compressive strength of 3,600 psi.
- Where used, rebar reinforcement shall be Grade 60 and conform to ASTM A615.
- Precast barrier length shall be 30 ft. unless otherwise specified on the plans.
- All precast barrier edges shall have a 3/4 inch chamfer or a tooled radius.
- All concrete, reinforcement, joint connection systems, grout etc. as shown, are considered as part of the barrier payment.
- Conduit trough when required shall be shown elsewhere on the plans, or as directed by the Engineer.
- Regardless of the method of handling, barrier lifting points shall be approx. 7.5 feet from the ends of the barrier. Lifting devices and attachments to barrier sections shall be approved by the Engineer.
- Surface finishing and grouting (where required) shall be two parts sand one part cement with enough water to make the mixture plastic. Grouting shall be done in a manner that will assure a smooth surface. Surface finishing shall be considered subsidiary to the various bid items.
- All steel assemblies shall be galvanized after fabrication in accordance with Item 445, "Galvanizing."



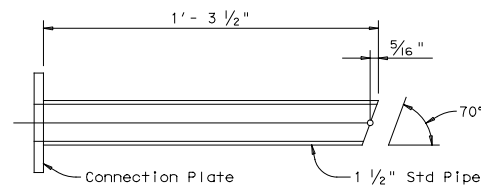
ISOMETRIC OF TYPICAL WELDED ASSEMBLY

Four (4) [2 Upper & 2 Lower] Assemblies required per joint.



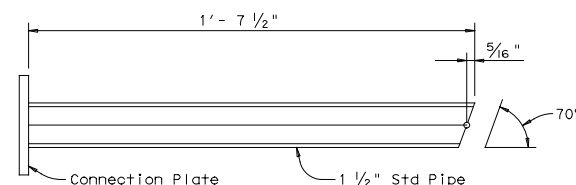
DEFORMED BAR ANCHOR DETAILS

Two (2) Bars required per assembly. Eight (8) required per joint.



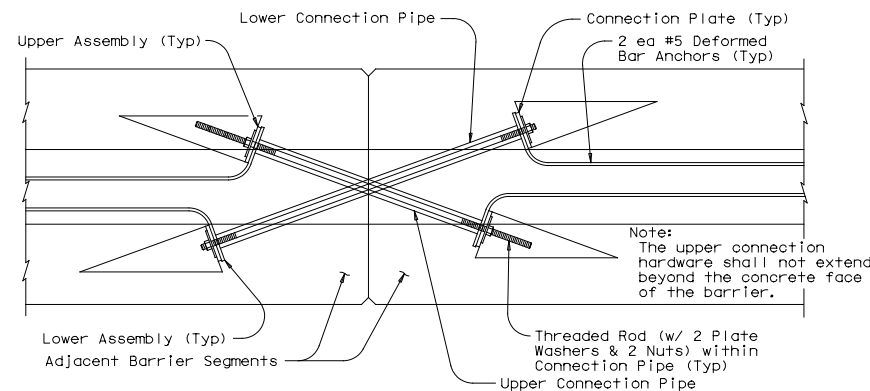
UPPER CONNECTION PIPE DETAILS

One (1) Steel Pipe required per Upper Assembly. Two (2) required per joint.



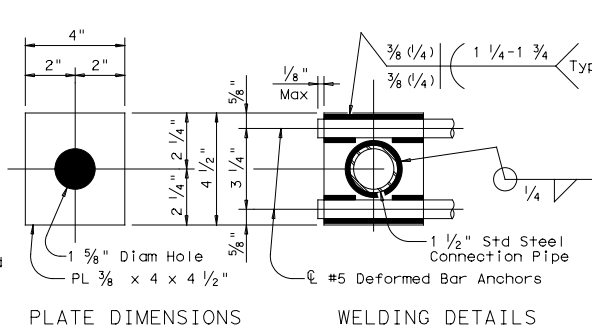
LOWER CONNECTION PIPE DETAILS

One (1) Steel Pipe required per Lower Assembly. Two (2) required per joint.



TYPE X JOINT INSTALLATION DETAIL

Barrier reinforcing and Type X Joint Leave-Out dimensions not shown for clarity.



CONNECTION BOLT OR THREADED ROD DETAIL

Two (2) Threaded Rods (Or Equivalent Hex Hd. Bolts) (w/ Two (2) PL 3/8 x 3 x 3 Plate Washers & Two (2) Std Hex Nuts) required per joint.

* The connection hardware shall not extend beyond the concrete face of the barrier. Hex head bolts may be provided. The proper length of all hardware should be verified.

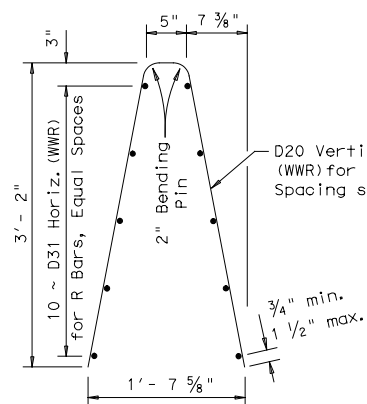
PLATE DIMENSIONS

WELDING DETAILS

CONNECTION PLATE DETAILS

One (1) Plate required per assembly. Four (4) required per joint. All steel fittings for joint Type X shall be galvanized after fabrication in accordance with Item 445.

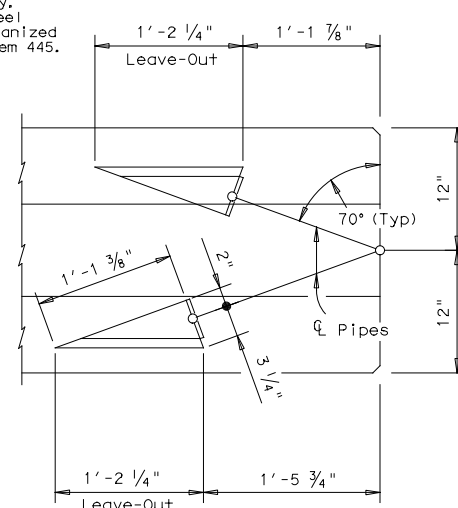
Weight of one precast 30 ft. (SSCB) segment = Approx. 10.5 Tons or 717 lbs per ft.



Welded Wire Reinforcement (WWR) Option for Bars R and V1

(WWR) General Notes

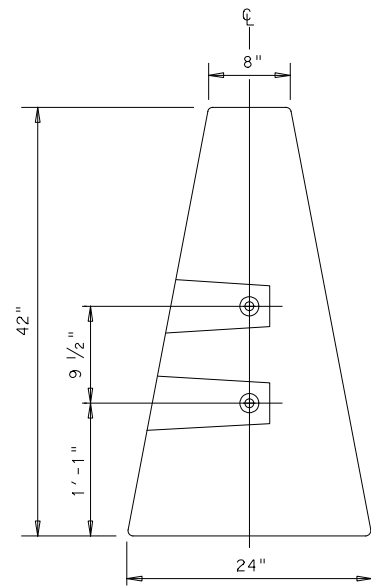
- Deformed Welded Wire Reinforcement (WWR) shall conform to ASTM A497.
- Welded wire cage may be cut or bent to accommodate the Type X joint connection and drainage slots, as directed by the Engineer.
- All reinforcement shall comply with Item 440, "Reinforcing Steel."
- Combinations of reinforcing steel and WWR will be permitted, as directed by the Engineer. The dimension from the end of the barrier section to the first wire shall not exceed 3 inches.



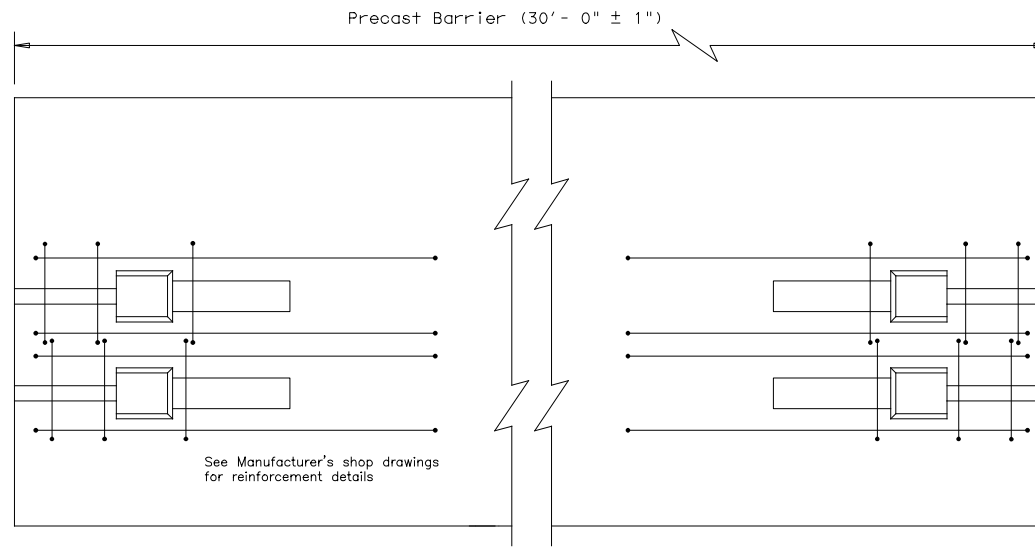
BARRIER PLAN AT JOINT

| | | | |
|--|-----------|---------------------------------|-----------|
| | | Design Division Standard | |
| SINGLE SLOPE CONCRETE BARRIER PRECAST BARRIER (TYPE 1) SSCB(2)-10 | | | |
| FILE: sscb210.dgn | DN: TxDOT | CK: AM | DW: BD |
| © TxDOT December 2010 | CONT SECT | JOB | HIGHWAY |
| REVISIONS | 0867 01 | 017 | FM 932 |
| | DIST | COUNTY | SHEET NO. |
| | WACO | HAMILTON | 79 |

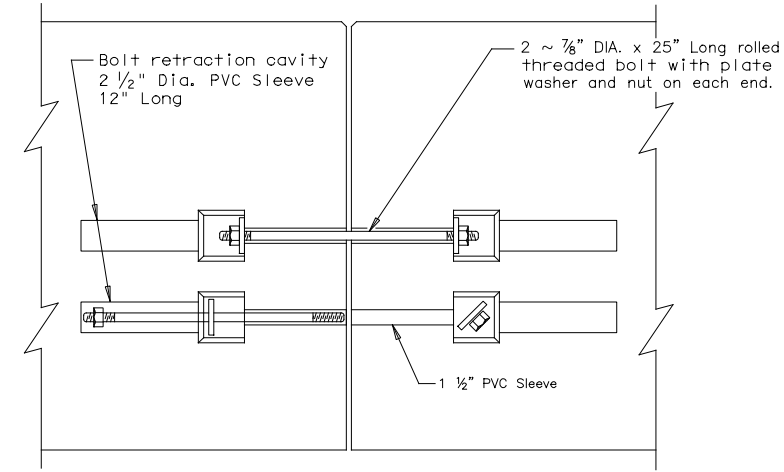
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END VIEW
"QUICK-BOLT" POCKET LOCATIONS

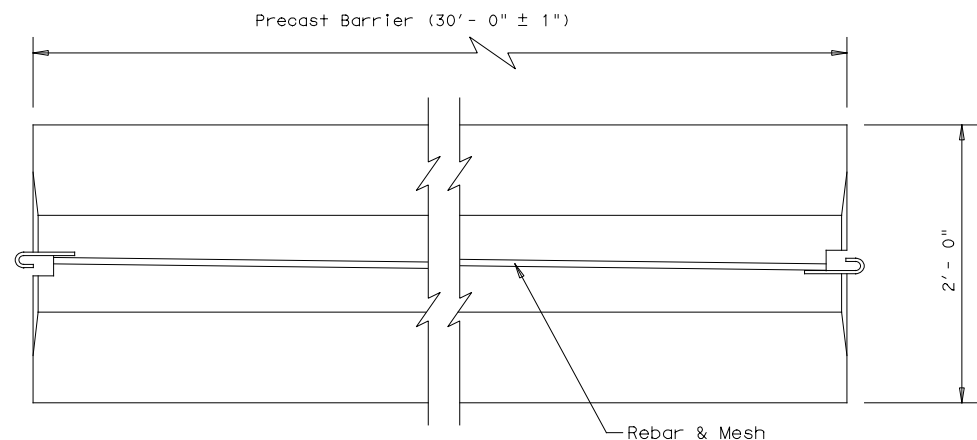


ELEVATION VIEW
"QUICK-BOLT" (SSCB)
See Manufacturer's shop drawing for additional details

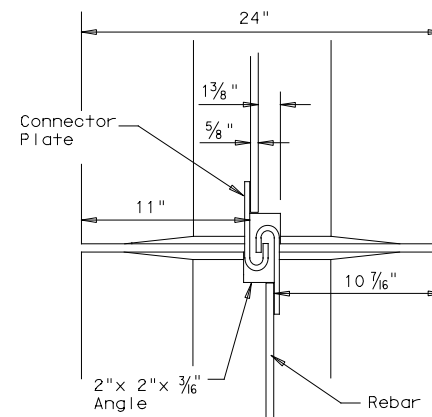


ELEVATION VIEW SHOWING JOINT CONNECTION
"QUICK-BOLT"

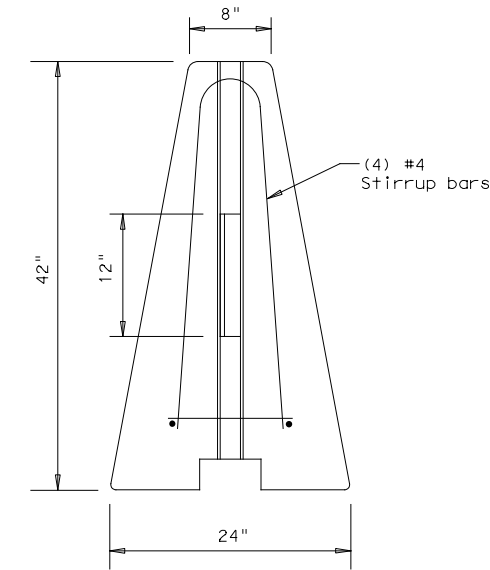
Joint Connection (Type Q)



TOP VIEW
PRECAST (SSCB) WITH J-J HOOKS
See Manufacturer's shop drawing for additional details



VIEW FROM ABOVE
J-J HOOK CONNECTION



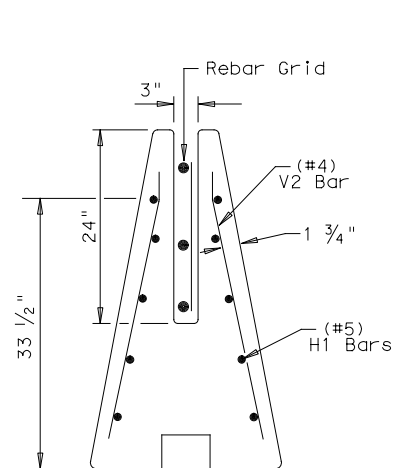
END VIEW

Proprietary Joint Connections (SSCB)

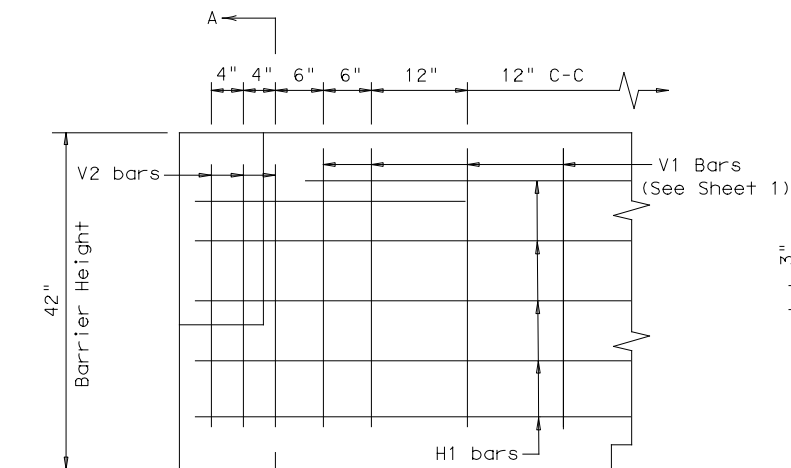
Two proprietary joint connections are acceptable as alternates to the (Type X) connection shown, here on. These joint connections types are:

J-J Hooks by Easi-Set Industries, (800)547-4045
Quick-Bolt by Bexar Concrete, (210)497-3773

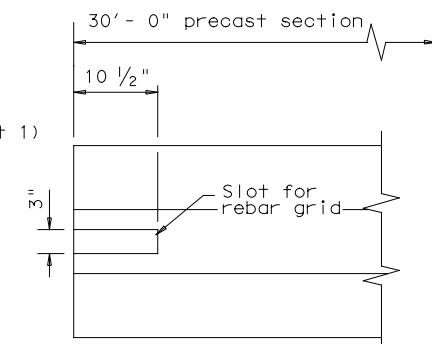
If one of these connection systems are exclusively specified in the plans, prior approval for sole source use must be obtained. Details of the connection components and barrier reinforcement for these systems, will be shown on the manufacturer's shop drawing(s) furnished to the Engineer.



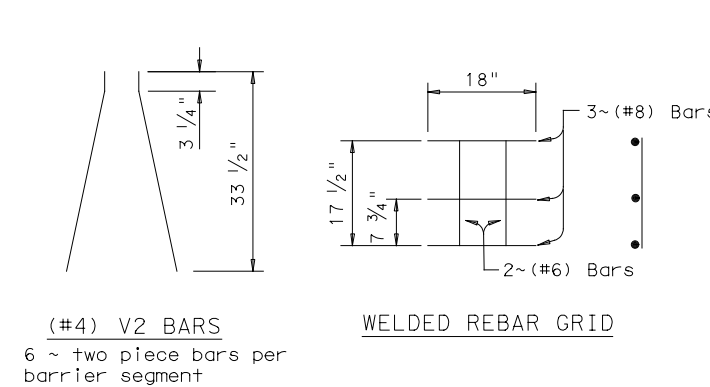
SECTION A-A
Showing (Type R)
Rebar Grid



ELEVATION
V1 Bars (See Sheet 1)



TOP VIEW
JOINT CONNECTION
Typical at both ends of barrier segment



WELDED REBAR GRID

Joint Connection (Type R)

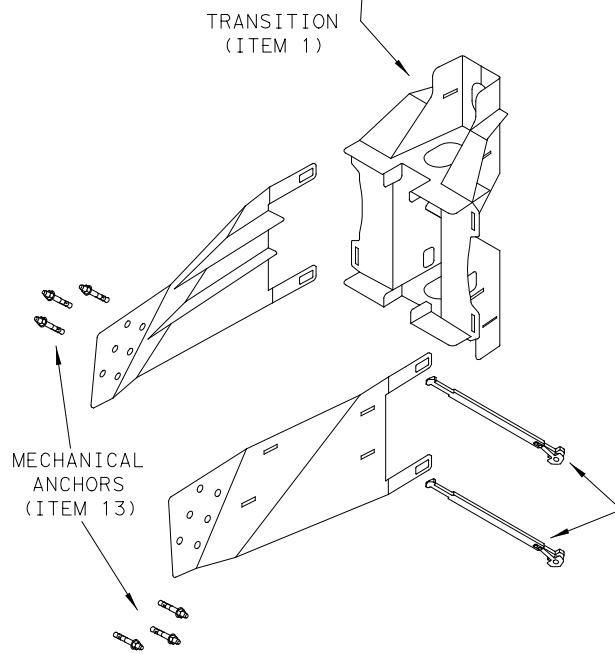
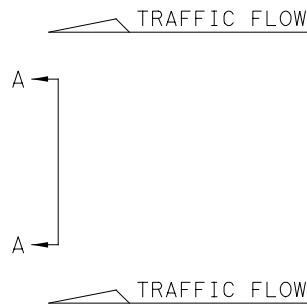
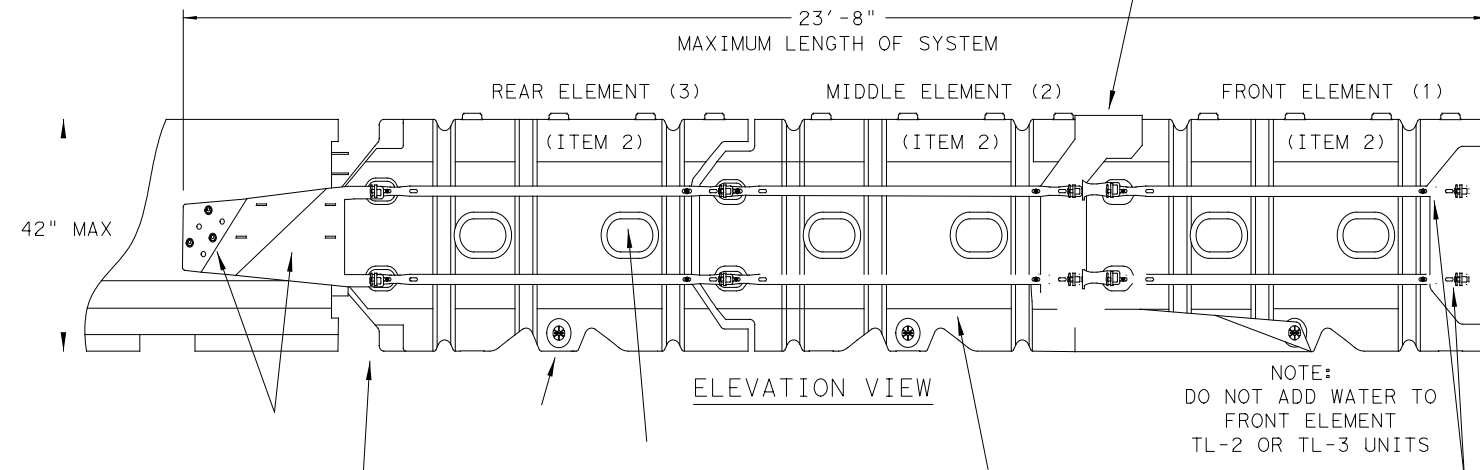
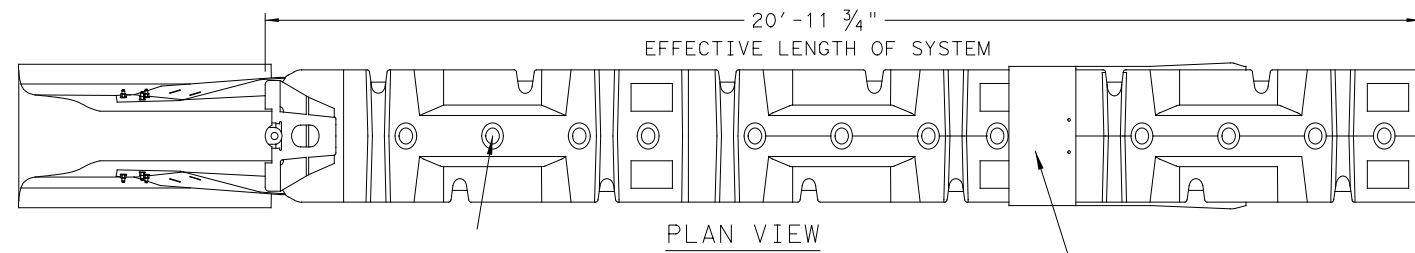
SINGLE SLOPE CONCRETE BARRIER
PRECAST BARRIER (TYPE 1)
SSCB (2) -10

| | | | | |
|----------------------|-----------|----------|-----------|---------|
| FILE: sscb210.dgn | DN: TxDOT | CK: AM | DW: VP | CK: |
| ©TxDOT December 2010 | CONT | SECT | JOB | HIGHWAY |
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DATE: 8/30/2021
FILE: absorbm19.dgn

SYSTEM SHOWN - ABSORB-M TL-3



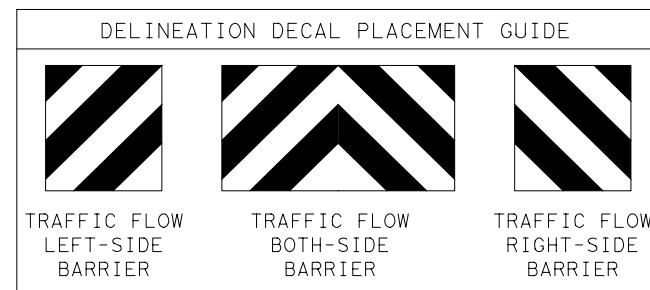
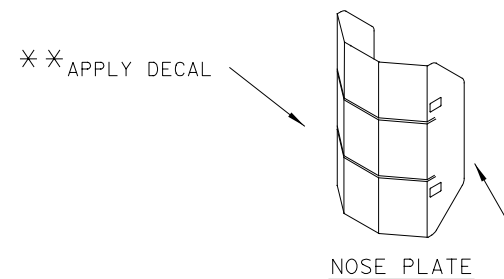
| TEST LEVEL | NUMBER OF ELEMENTS | EFFECTIVE LENGTH | MAXIMUM LENGTH |
|------------|--------------------|------------------|----------------|
| TL-2 | 2 | 14' - 7 3/4" | 17' - 4" |
| TL-3 | 3 | 20' - 11 3/4" | 23' - 8" |

| BILL OF MATERIALS (BOM) ABSORB-M TL-3 & TL-2 SYSTEMS | | | QTY | QTY |
|--|----------------|--------------------------------------|-------------|-------------|
| ITEM # | PART NUMBER | PART DESCRIPTION | TL-2 SYSTEM | TL-3 SYSTEM |
| 1 | BSI-1809036-00 | TRANSITION-(GALV) | 1 | 1 |
| 2 | BSI-1808002-00 | PRE-ASSEMBLED ABSORBING (ELEMENTS) | 2 | 3 |
| 3 | BSI-4004598 | FILL CAPS | 8 | 12 |
| 4 | BSI-4004599 | DRAIN PLUGS | 2 | 3 |
| 5 | BSI-1809053-00 | TENSION STRAP-(GALV) | 8 | 12 |
| 6 | BSI-2001998 | C-SCR FH 3/8-16 X 1 1/2 GR5 PLT | 8 | 12 |
| 7 | BSI-2001999 | C-SCR FH 3/8-16 X 1 GR5 PLT | 8 | 12 |
| 8 | BSI-1809035-00 | MIDNOSE-(GALV) | 1 | 1 |
| 9 | BSI-1808014-00 | NOSE PLATE | 1 | 1 |
| 10 | BSI-1809037-00 | TRANSITION STRAP (LEFT-HAND)-(GALV) | 1 | 1 |
| 11 | BSI-1809038-00 | TRANSITION STRAP (RIGHT-HAND)-(GALV) | 1 | 1 |
| 12 | BSI-1808005-00 | PIN ASSEMBLY | 8 | 10 |
| 13 | BSI-2002001 | ANC MECH 5/8-11X5 (GALV) | 6 | 6 |
| 14 | ABSORB-M | INSTALLATION AND INSTRUCTIONS MANUAL | 1 | 1 |

* COMPONENTS PRE-ASSEMBLED WITH ELEMENT ASSEMBLY

GENERAL NOTES

- FOR SPECIFIC INFORMATION REGARDING THE INSTALLATION AND TECHNICAL GUIDANCE, CONTACT: LINDSAY TRANSPORTATION SOLUTIONS (LTS) - BARRIER SYSTEMS, INC. AT (707) 374-6800. 180 RIVER ROAD, RIO VISTA, CA 94571
- THE ABSORB-M SYSTEM IS ONLY APPROVED FOR USE IN (TEMPORARY WORK ZONE) LOCATIONS.
- THE ABSORB-M IS A WATER FILLED NON-REDIRECTIVE, GATING CRASH CUSHION THAT DOES NOT NEED TO BE ATTACHED TO A FOUNDATION AND CAN BE INSTALLED ON TOP OF CONCRETE, ASPHALT, OR ANY SURFACE CAPABLE OF BEARING THE WEIGHT OF THE SYSTEM.
- MAXIMUM PERMISSIBLE CROSS-SLOPE IS 8%.
- THE INSTALLATION AREA SHOULD BE FREE FROM CURBS, ELEVATED OBJECTS, OR DEPRESSIONS.
- THE ABSORB-M SHOULD BE LOCATED APPROXIMATELY PARALLEL WITH THE BARRIER.
- THE USE OF THE ABSORB-M IS RESTRICTED TO A BARRIER HEIGHT OF UP TO 42 INCHES.
- DO NOT ADD WATER TO FRONT ELEMENT (TL-2 OR TL-3 UNIT).



NOTE: APPLY A HIGH REFLECTIVE DECAL TO THE NOSE PLATE. DELINEATION DECAL ORIENTATION IS SHOWN ON THE CONSTRUCTION PLAN SET AND SHALL BE IN ACCORDANCE WITH THE TEXAS MUTCD FOR (TRAFFIC CONTROL DEVICES). DECALS ARE AVAILABLE FOR TRAFFIC FLOW ON THE LEFT-SIDE, BOTH -SIDES AND RIGHT-SIDE.

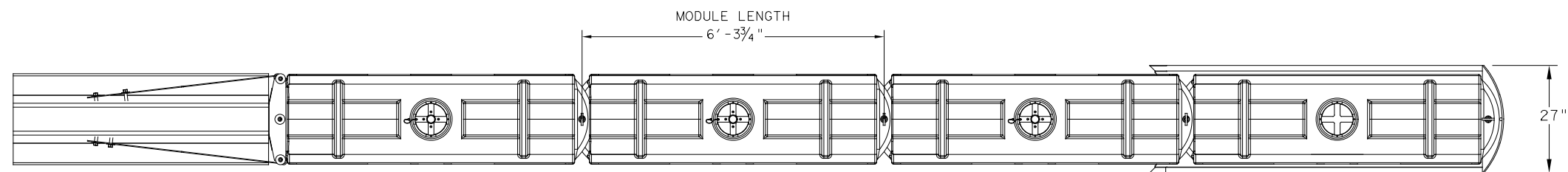
NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE ABSORB-M, IT IS NOT INTENDED TO REPLACE THE INSTALLATION INSTRUCTIONS MANUAL.

SACRIFICIAL

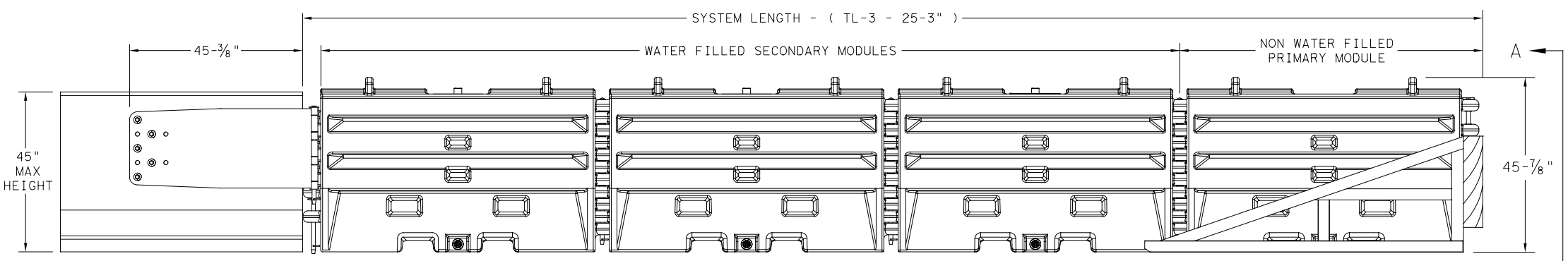
| | | | |
|--|-----------|---------------------------------|---------|
| | | Design Division Standard | |
| LINDSAY TRANSPORTATION SOLUTIONS CRASH CUSHION (MASH TL-3 & TL-2) TEMPORARY - WORK ZONE ABSORB(M) - 19 | | | |
| FILE: absorbm19 | DN: TxDOT | CK: KM | DW: VP |
| © TXDOT: JULY 2019 | CONT SECT | JOB | HIGHWAY |
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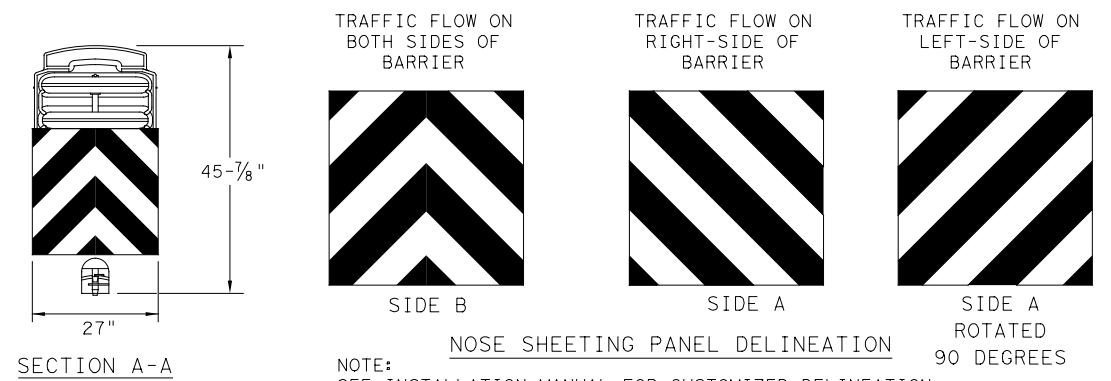
DATE: 8/30/2021
FILE: sled19.dgn



PLAN VIEW



ELEVATION VIEW



SECTION A-A

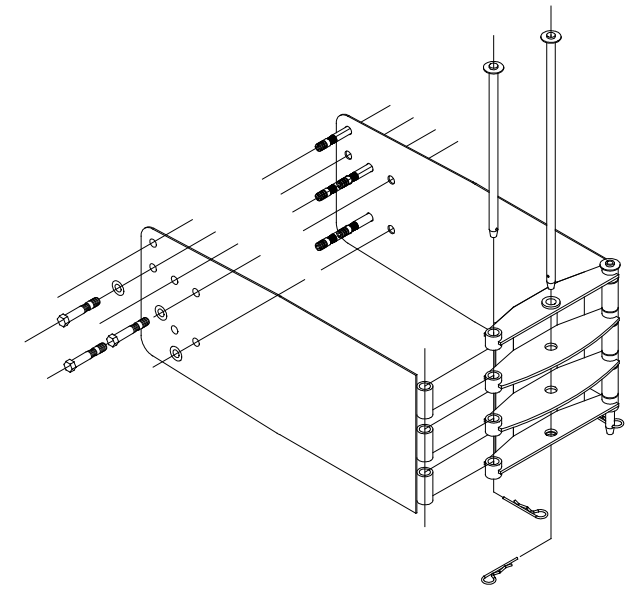
NOTE:
SEE INSTALLATION MANUAL FOR CUSTOMIZED DELINEATION NOSE SHEETING FOR DECAL PLACEMENT.

| TEST LEVEL | NUMBER OF SECONDARY MODULES | SYSTEM LENGTH |
|------------|-----------------------------|---------------|
| TL-3 | 3 | 25' 3" |

GENERAL NOTES

- REFER TO THE INSTALLATION MANUAL FOR SPECIFIC SYSTEM ASSEMBLY AND MODULE ORIENTATION. FOR ADDITIONAL INFORMATION, CONTACT TRAFFIX, INC. AT (949) 361-5663.
- THE SLED SYSTEM IS A MASH APPROVED TEST LEVEL 3 (TL-3) CRASH CUSHION APPROVED FOR USE IN TEMPORARY WORK ZONES. THE SLED SYSTEM IS A NON-REDIRECTIVE, GATING CRASH CUSHION THAT DOES NOT NEED TO BE ATTACHED TO THE GROUND AND CAN BE INSTALLED ON CONCRETE, ASPHALT, GRAVEL OR COMPACTED SOIL.
- MAXIMUM PERMISSIBLE CROSS SLOPE IS 8° (DEGREES) (14%).
- THE INSTALLATION AREA SHOULD BE FREE FROM CURBS, ELEVATED OBJECTS, OR DEPRESSIONS.
- THE SLED SYSTEM CAN BE ATTACHED TO:
 - CONCRETE BARRIER, TEMPORARY OR PERMANENT, 45" MAXIMUM HEIGHT
 - STEEL BARRIER
 - PLASTIC BARRIER
 - CONCRETE BRIDGE ABUTMENTS
 - W-BEAM GUARD RAIL
 - THRIE BEAM GUARD RAIL

| BILL OF MATERIAL | | |
|------------------|---|-----------|
| PART NUMBER | DESCRIPTION | QTY: TL-3 |
| 45131 | TRANSITION FRAME, GALVANIZED | 1 |
| 45150 | TRANSITION PANEL, GALVANIZED | 2 |
| 45147-CP | TRANSITION SHORT DROP PIN W/ KEEPER PIN, GALVANIZED | 2 |
| 45148-CP | TRANSITION LONG DROP PIN W/ KEEPER PIN, GALVANIZED | 1 |
| 45050 | ANCHOR BOLTS | 9 |
| 12060 | WASHER, 3/4" ID X 2" OD | 9 |
| 45044-Y | SLED YELLOW WATER FILLED MODULE | 3 |
| 45044-YH | SLED YELLOW "NO FILL" MODULE | 1 |
| 45044-S | CIS (CONTAINMENT IMPACT SLED), GALVANIZED | 1 |
| 45043-CP | T-PIN W/ KEEPER PIN | 4 |
| 18009-B-I | FILL CAP W/ "DRIVE BY" FLOAT INDICATOR | 3 |
| 45033-RC-B | DRAIN PLUG | 3 |
| 45032-DPT | DRAIN PLUG REMOVAL TOOL | 1 |



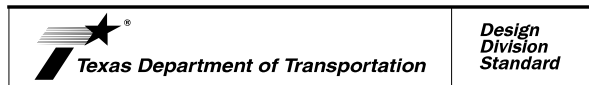
SLED TRANSITION COMPONENTS FOR ATTACHMENT TO CMB

NOTE:
SEE MANUFACTURER'S INSTALLATION MANUAL FOR FURTHER DETAILS.

| TRANSITION OPTIONS |
|---|
| SLED TRANSITION TO CONCRETE TRAFFIC BARRIER (TEMPORARY OR PERMANENT) |
| SLED TRANSITION TO STEEL TRAFFIC BARRIER (CONTACT MFGR FOR PROPER TRANSITION) |
| SLED TRANSITION TO PLASTIC TRAFFIC BARRIER (CONTACT MFGR FOR PROPER TRANSITION) |
| SLED TRANSITION TO W-BEAM OR THRIE BEAM GUARD RAIL (CONTACT MFGR FOR PROPER TRANSITION) |
| SLED TRANSITION TO CONCRETE BRIDGE ABUTMENT |

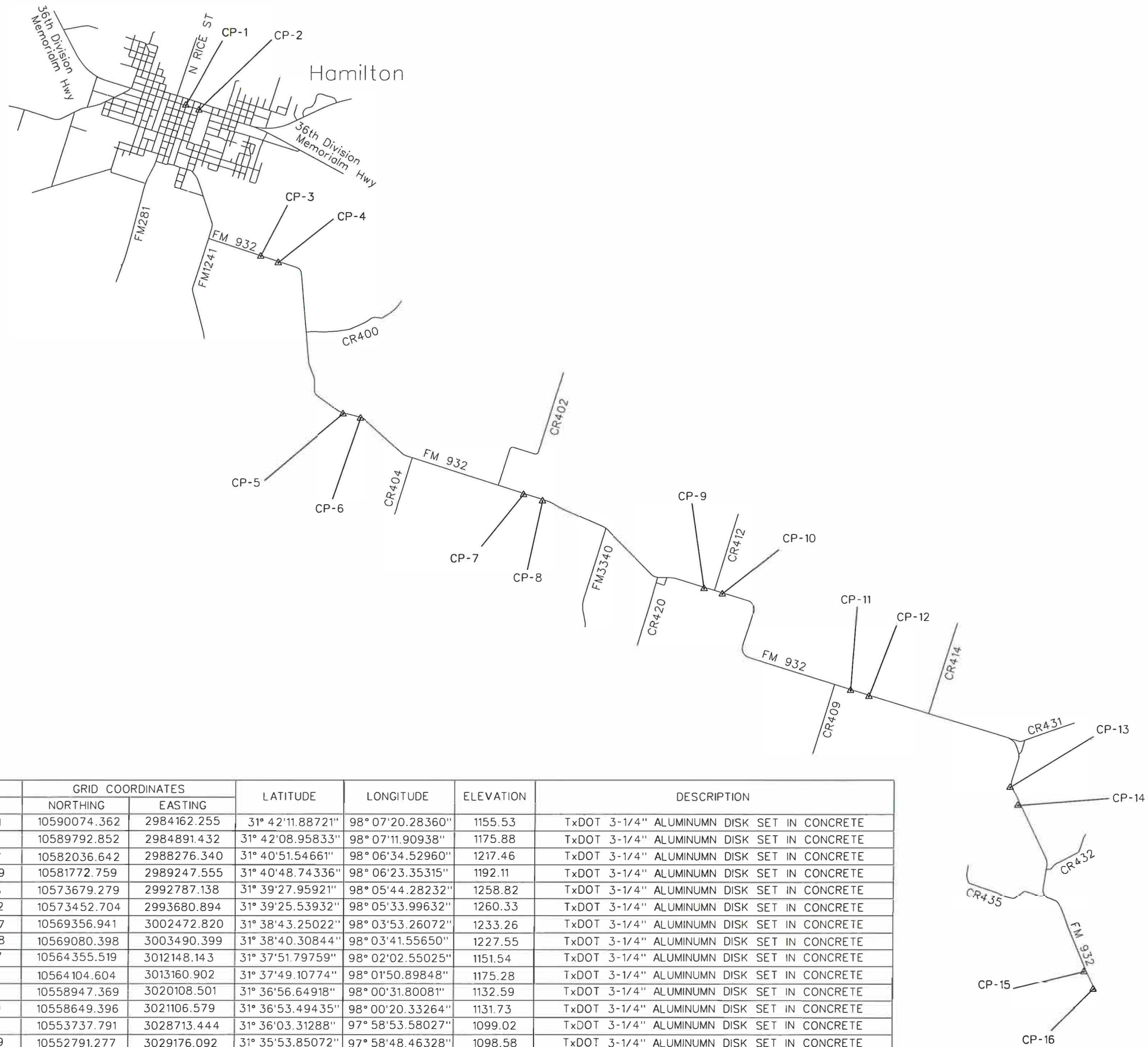
NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE SLED, IT IS NOT INTENDED TO REPLACE THE INSTALLATION INSTRUCTIONS MANUAL.

SACRIFICIAL



SLED
CRASH CUSHION
TL-3 MASH COMPLIANT
(TEMPORARY, WORK ZONE)
SLED-19

| | | | | |
|------------------------|-----------|--------|-----------|---------|
| FILE: sled19.dgn | DN: TxDOT | CK: KM | DW: VP | CK: |
| © TxDOT: DECEMBER 2019 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| DIST | COUNTY | | SHEET NO. | |
| WACO | HAMILTON | | 82 | |



NOTES:
 1. COORDINATE SHOWN HEREON REFER TO THE TEXAS COORDINATE SYSTEM OF 1983 (CENTRAL ZONE 4203; NAD83(2011) EPOCH 2010) AS DERIVED LOCALLY FROM TXDOT'S CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) VIA REAL TIME KINEMATIC (RTK) METHODS. AN AVERAGE COMBINATION FACTOR OF 1.0001 WAS USED TO SCALE GRID COORDINATES AND DISTANCES TO SURFACE.

2. THE ELEVATIONS SHOWN ARE NAVD88 AND WERE DERIVED FROM THE ABOVE RTK OBSERVATIONS. ORTHOMETRIC HEIGHTS WERE CALCULATED BY APPLYING THE GEOID12B MODEL TO THE ELLIPSOID HEIGHTS.

3. FIELD SURVEYS WERE CONDUCTED BY TEAGUE NALL & PERKINS, INC., JUNE 2019



Steve L. Hampton 8/19/21
 Steve L. Hampton DATE
 Registered Professional Land Surveyor
 No. 5172

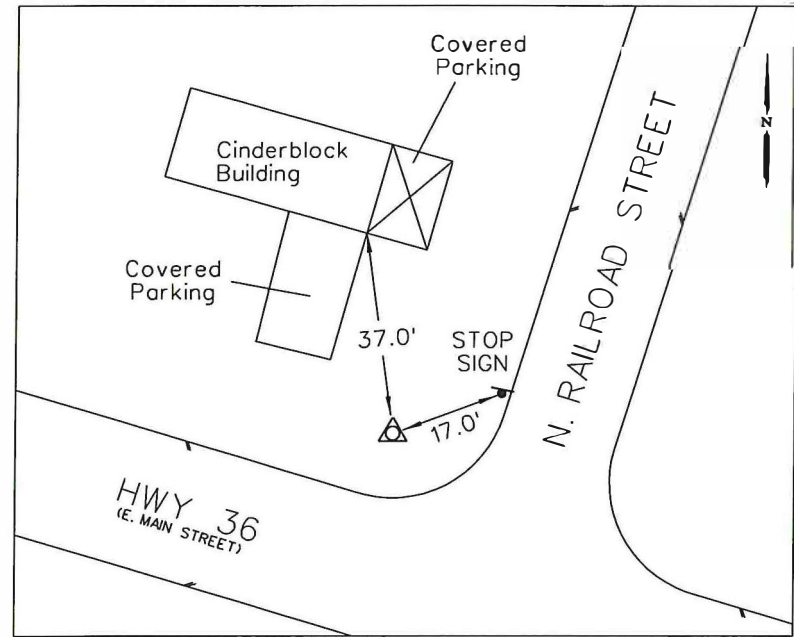
TEAGUE NALL & PERKINS
 5237 N. RIVERSIDE DR., SUITE 100
 FORT WORTH, TEXAS 76137
 TBPLS FIRM NO. 100116-00

| FM 932 | SURFACE COORDINATES | | GRID COORDINATES | | LATITUDE | LONGITUDE | ELEVATION | DESCRIPTION |
|--------|---------------------|-------------|------------------|-------------|-------------------|-------------------|-----------|---|
| | NORTHING | EASTING | NORTHING | EASTING | | | | |
| CP-1 | 10591133.369 | 2984460.671 | 10590074.362 | 2984162.255 | 31° 42' 11.88721" | 98° 07' 20.28360" | 1155.53 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-2 | 10590851.831 | 2985189.921 | 10589792.852 | 2984891.432 | 31° 42' 08.95833" | 98° 07' 11.90938" | 1175.88 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-3 | 10583094.846 | 2988575.167 | 10582036.642 | 2988276.340 | 31° 40' 51.54661" | 98° 06' 34.52960" | 1217.46 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-4 | 10582830.936 | 2989546.479 | 10581772.759 | 2989247.555 | 31° 40' 48.74336" | 98° 06' 23.35315" | 1192.11 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-5 | 10574736.646 | 2993086.416 | 10573679.279 | 2992787.138 | 31° 39' 27.95921" | 98° 05' 44.28232" | 1258.82 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-6 | 10574510.049 | 2993980.262 | 10573452.704 | 2993680.894 | 31° 39' 25.53932" | 98° 05' 33.99632" | 1260.33 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-7 | 10570413.877 | 3002773.067 | 10569356.941 | 3002472.820 | 31° 38' 43.25022" | 98° 03' 53.26072" | 1233.26 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-8 | 10570137.306 | 3003790.748 | 10569080.398 | 3003490.399 | 31° 38' 40.30844" | 98° 03' 41.55650" | 1227.55 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-9 | 10565411.955 | 3012449.357 | 10564355.519 | 3012148.143 | 31° 37' 51.79759" | 98° 02' 02.55025" | 1151.54 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-10 | 10565161.014 | 3013462.218 | 10564104.604 | 3013160.902 | 31° 37' 49.10774" | 98° 01' 50.89848" | 1175.28 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-11 | 10560003.263 | 3020410.512 | 10558947.369 | 3020108.501 | 31° 36' 56.64918" | 98° 00' 31.80081" | 1132.59 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-12 | 10559705.261 | 3021408.689 | 10558649.396 | 3021106.579 | 31° 36' 53.49435" | 98° 00' 20.33264" | 1131.73 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-13 | 10554793.165 | 3029016.315 | 10553737.791 | 3028713.444 | 31° 36' 03.31288" | 97° 58' 53.58027" | 1099.02 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-14 | 10553846.556 | 3029479.009 | 10552791.277 | 3029176.092 | 31° 35' 53.85072" | 97° 58' 48.46328" | 1098.58 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-15 | 10544990.141 | 3033092.295 | 10543935.747 | 3032789.017 | 31° 34' 25.47076" | 97° 58' 08.87283" | 1058.05 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |
| CP-16 | 10544042.082 | 3033499.138 | 10542987.784 | 3033195.819 | 31° 34' 16.00544" | 97° 58' 04.40429" | 1071.69 | TxDOT 3-1/4" ALUMINUMN DISK SET IN CONCRETE |



FM 932
 SURVEY CONTROL INDEX

| | | | |
|------------------------|--|--------------------|-----------------------|
| SCALE: N/A | | | |
| FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. SEE TITLE SHEET | | HIGHWAY NO. FM 932 |
| STATE TEXAS | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 83 |
| CONTROL 0867 | SECTION 01 | JOB 017 | |



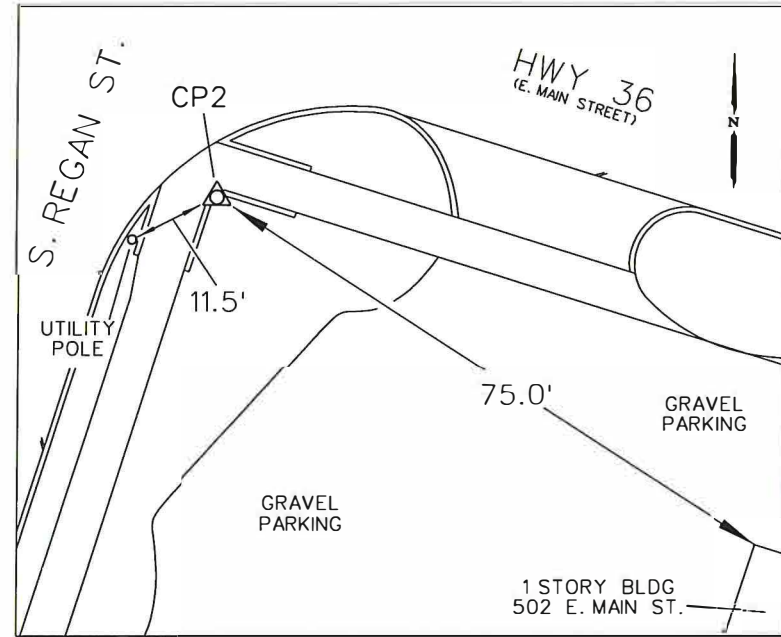
CONTROL POINT: CP-1

CP-1 IS A 3-1/4" TxDOT ALUMINUM DISK SET IN CONCRETE, LOCATED 17.0' S.W. OF A "STOP" SIGN OF N. RAILROAD ST. AND 37.0' S.E. OF THE S.E. CORNER OF A CINDERBLOCK BUILDING LOCATED AT THE N.W. INTERSECTION OF HWY 36 AND N. RAILROAD ST.

LATITUDE: 31° 42' 11.88721"
LONGITUDE: 98° 07' 20.28360"

SURFACE COORDINATES:
NORTHING: 10,591,133.369
EASTING: 2,984,460.671
ELEVATION: 1,155.53'

GRID COORDINATES:
NORTHING: 10,590,074.362
EASTING: 2,984,162.255
ELEVATION: 1,155.53'



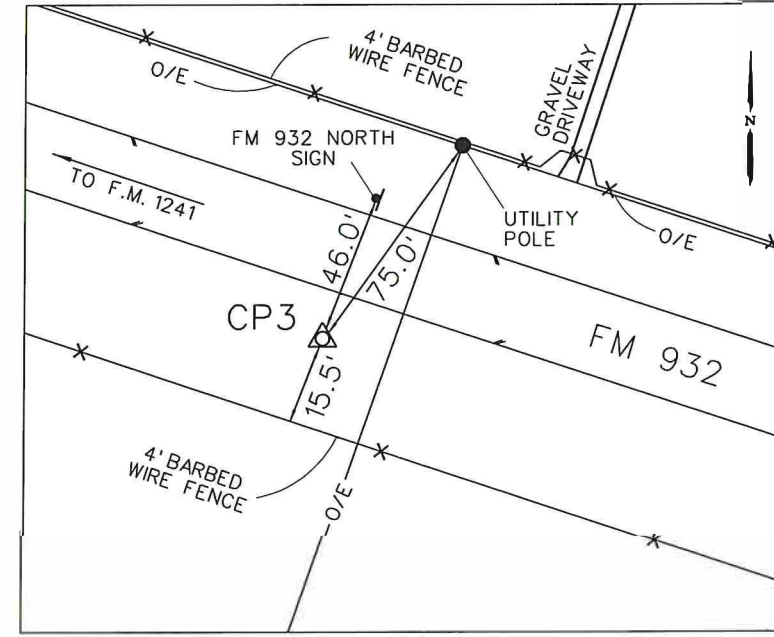
CONTROL POINT: CP-2

CP-2 IS A 3-1/4" TxDOT ALUMINUM DISK SET IN CONCRETE, LOCATED 11.5' N.E. OF A UTILITY POLE ON THE EAST CURB LINE OF S. REGAN ST. AND 75.0' N.W. OF THE N.W. CORNER OF A 1 STORY BUILDING WITH AN ADDRESS OF 502 E. MAIN ST.

LATITUDE: 31° 42' 08.95833"
LONGITUDE: 98° 07' 11.90938"

SURFACE COORDINATES:
NORTHING: 10,590,851.831
EASTING: 2,985,189.921
ELEVATION: 1,175.88'

GRID COORDINATES:
NORTHING: 10,589,792.852
EASTING: 2,984,891.432
ELEVATION: 1,175.88'



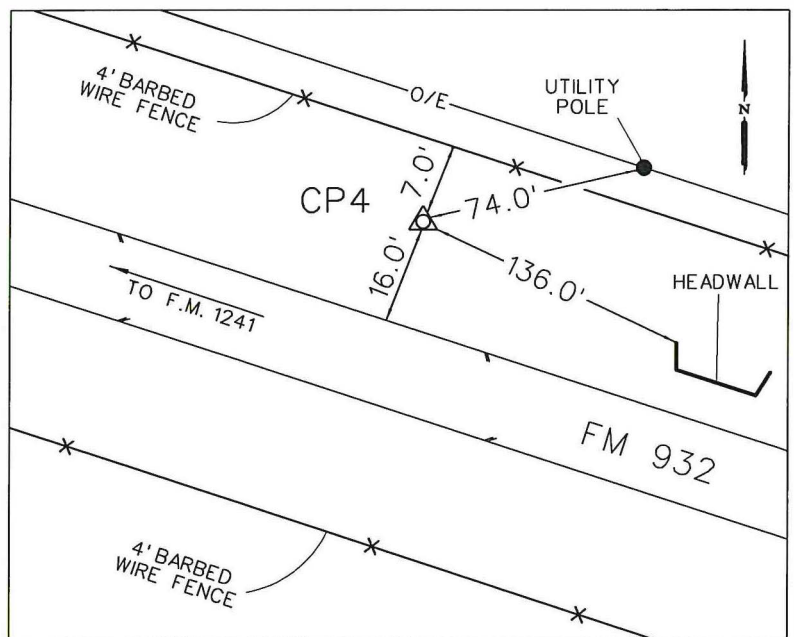
CONTROL POINT: CP-3

CP-3 IS A 3-1/4" TxDOT ALUMINUM DISK SET IN CONCRETE, LOCATED +/- 2,958.0' S.E. OF THE INTERSECTION OF F.M. 1241 AND FM 932, ALSO 15.5' N.E. OF A BARBED WIRE FENCE, 46.0' S.W. OF A SIGN FOR FM 932 NORTH AND 75.0' S.W. OF A UTILITY POLE LOCATED ALONG A FENCE IN THE NORTH R.O.W. OF FM 932.

LATITUDE: 31° 40' 51.54661"
LONGITUDE: 98° 06' 34.52960"

SURFACE COORDINATES:
NORTHING: 10,583,094.846
EASTING: 2,988,575.167
ELEVATION: 1,217.46'

GRID COORDINATES:
NORTHING: 10,582,036.642
EASTING: 2,988,276.340
ELEVATION: 1,217.46'



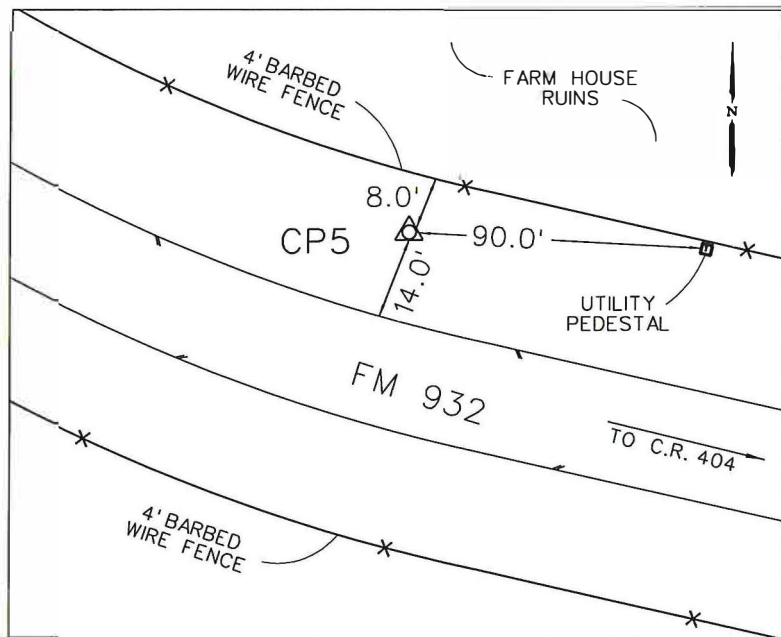
CONTROL POINT: CP-4

CP-4 IS A 3-1/4" TxDOT ALUMINUM DISK SET IN CONCRETE, LOCATED +/- 3,963.0' S.E. OF THE INTERSECTION OF F.M. 1241 AND FM 932, ALSO 16.0' N.E. OF THE N.E.O.A. OF FM 932, 136.0' N.W. OF THE N.W. END OF A CONCRETE WINGWALL AND 74.0' S.W. OF A UTILITY POLE LOCATED ALONG A FENCE IN THE NORTH R.O.W. OF FM 932.

LATITUDE: 31° 40' 48.74336"
LONGITUDE: 98° 06' 23.35315"

SURFACE COORDINATES:
NORTHING: 10,582,830.936
EASTING: 2,989,546.479
ELEVATION: 1,192.11'

GRID COORDINATES:
NORTHING: 10,581,772.759
EASTING: 2,989,247.555
ELEVATION: 1,192.11'



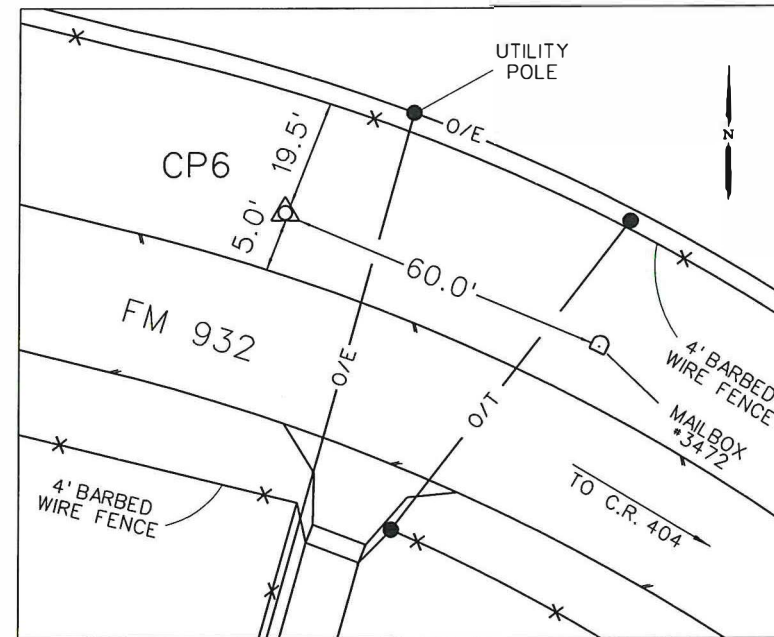
CONTROL POINT: CP-5

CP-5 IS A 3-1/4" TxDOT ALUMINUM DISK SET IN CONCRETE, LOCATED +/- 4,490.0' N.W. OF THE INTERSECTION OF C.R. 404 AND FM 932, ALSO 14.0' N.E. OF THE NORTH E.O.A. OF FM 932, 8.0' S.W. OF A BARBED WIRE FENCE AND 90.0' S.W. OF A UTILITY PEDESTAL LOCATED ALONG A FENCE IN THE NORTH R.O.W. OF FM 932.

LATITUDE: 31° 39' 27.95921"
LONGITUDE: 98° 05' 44.28232"

SURFACE COORDINATES:
NORTHING: 10,574,736.646
EASTING: 2,993,086.416
ELEVATION: 1,258.82'

GRID COORDINATES:
NORTHING: 10,573,679.279
EASTING: 2,992,787.138
ELEVATION: 1,258.82'



CONTROL POINT: CP-6

CP-6 IS A 3-1/4" TxDOT ALUMINUM DISK SET IN CONCRETE, LOCATED +/- 3,567.0' N.W. OF THE INTERSECTION OF C.R. 404 AND FM 932, ALSO 5.0' N.E. OF THE NORTH E.O.A. OF FM 932, 19.5' S.W. OF A BARBED WIRE FENCE AND 60.0' N.W. OF A MAILBOX LABELED 3472 LOCATED IN THE NORTH R.O.W. OF FM 932.

LATITUDE: 31° 39' 25.53932"
LONGITUDE: 98° 05' 33.99632"

SURFACE COORDINATES:
NORTHING: 10,574,510.049
EASTING: 2,993,980.262
ELEVATION: 1,260.33'

GRID COORDINATES:
NORTHING: 10,573,452.704
EASTING: 2,993,680.894
ELEVATION: 1,260.33'

NOTES:
1. COORDINATES SHOWN HEREON REFER TO THE TEXAS COORDINATE SYSTEM OF 1983 (CENTRAL ZONE 4203; NAD83(2011) EPOCH 2010) AS DERIVED LOCALLY FROM TxDOT'S CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) VIA REAL TIME KINEMATIC (RTK) METHODS. AN AVERAGE COMBINATION FACTOR OF 1.0001 WAS USED TO SCALE GRID COORDINATES AND DISTANCES TO SURFACE.
2. THE ELEVATIONS SHOWN ARE NAVD88 AND WERE DERIVED FROM THE ABOVE RTK OBSERVATIONS. ORTHOMETRIC HEIGHTS WERE CALCULATED BY APPLYING THE GEOID12B MODEL TO THE ELLIPSOID HEIGHTS.
3. FIELD SURVEYS WERE CONDUCTED BY TEAGUE NALL & PERKINS, INC., JUNE 2019



Steve L. Hampton 8/19/21

Steve L. Hampton DATE
Registered Professional Land Surveyor
No. 5172

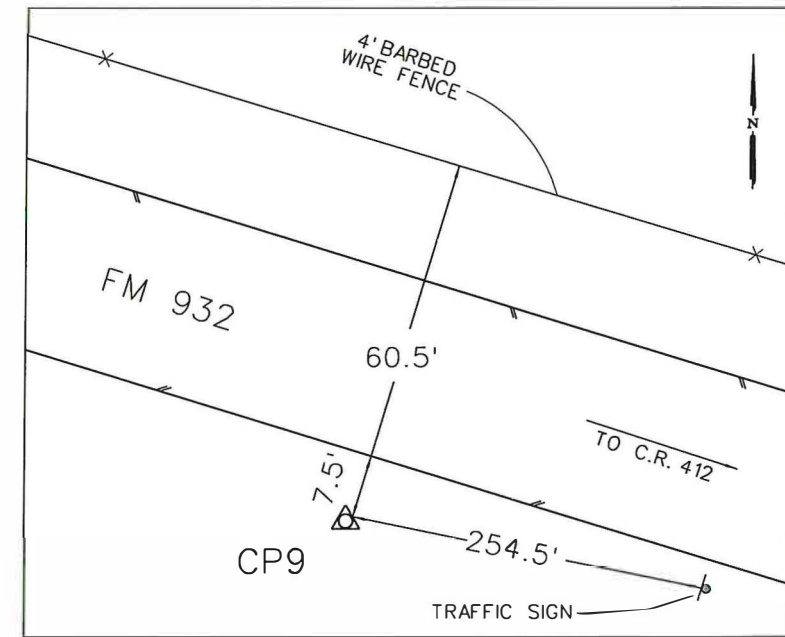
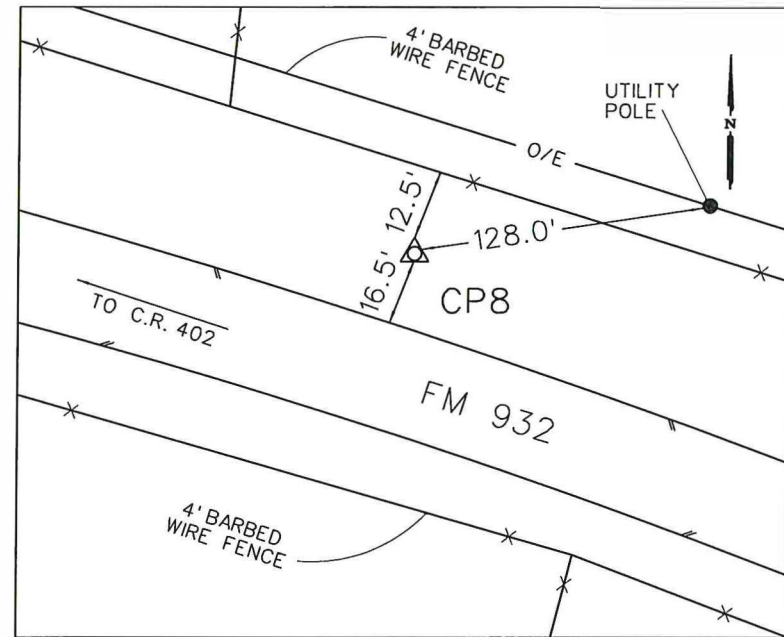
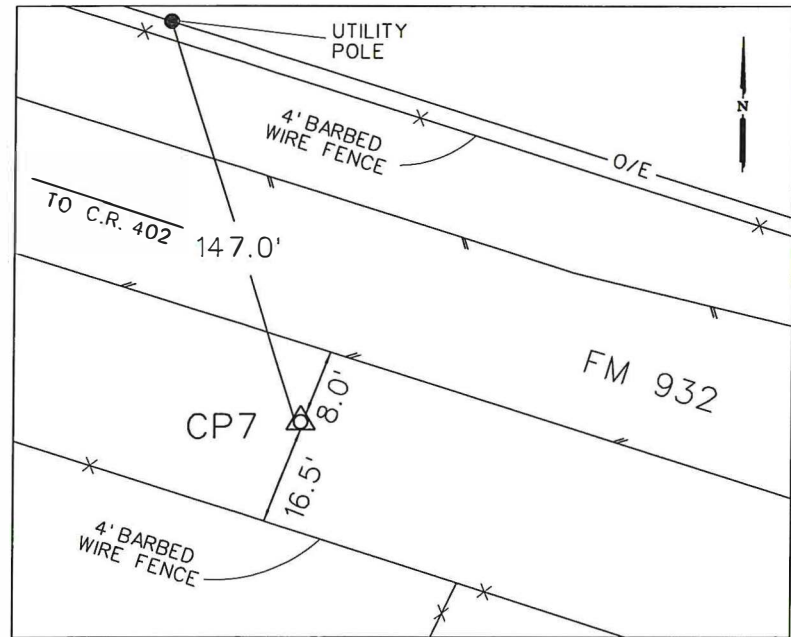
TEAGUE NALL & PERKINS
5237 N. RIVERSIDE DR., SUITE 100
FORT WORTH, TEXAS 76137

TBPLS FIRM NO. 100116-00



FM 932
SURVEY CONTROL

| | | | |
|-------------------|-------------------------|--------------|-----------|
| SCALE: N/A | | SHEET 1 OF 3 | |
| FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | HIGHWAY NO. | |
| 6 | SEE TITLE SHEET | FM 932 | |
| STATE | DISTRICT | COUNTY | SHEET NO. |
| TEXAS | WACO | HAMILTON | 84 |
| CONTROL | SECTION | JOB | |
| 0867 | 01 | 017 | |



NOTES:
 1. COORDINATES SHOWN HEREON REFER TO THE TEXAS COORDINATE SYSTEM OF 1983 (CENTRAL ZONE 4203; NAD83(2011) EPOCH 2010) AS DERIVED LOCALLY FROM TXDOT'S CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) VIA REAL TIME KINEMATIC (RTK) METHODS. AN AVERAGE COMBINATION FACTOR OF 1.0001 WAS USED TO SCALE GRID COORDINATES AND DISTANCES TO SURFACE.
 2. THE ELEVATIONS SHOWN ARE NAVD88 AND WERE DERIVED FROM THE ABOVE RTK OBSERVATIONS. ORTHOMETRIC HEIGHTS WERE CALCULATED BY APPLYING THE GEOID12B MODEL TO THE ELLIPSOID HEIGHTS.
 3. FIELD SURVEYS WERE CONDUCTED BY TEAGUE NALL & PERKINS, INC., DECEMBER 2019



CONTROL POINT: CP-7
 CP-7 IS A 3-1/4" TXDOT ALUMINUM DISK SET IN CONCRETE, LOCATED +/- 1,468.0' S.E. OF THE INTERSECTION OF C.R. 402 AND FM 932, ALSO 8.0' S.W. OF THE SOUTH E.O.A. OF FM 932, 16.5' N.E. OF OF A BARBED WIRE FENCE AND 147.0' S.E. OF A UTILITY POLE LOCATED ALONG THE NORTH R.O.W. OF FM 932.
 LATITUDE: 31° 38' 43.25022"
 LONGITUDE: 98° 03' 53.26072"
 SURFACE COORDINATES: GRID COORDINATES:
 NORTHING: 10,570,413.877 NORTHING: 10,569,356.941
 EASTING: 3,002,773.067 EASTING: 3,002,472.820
 ELEVATION: 1,233.26' ELEVATION: 1,233.26'

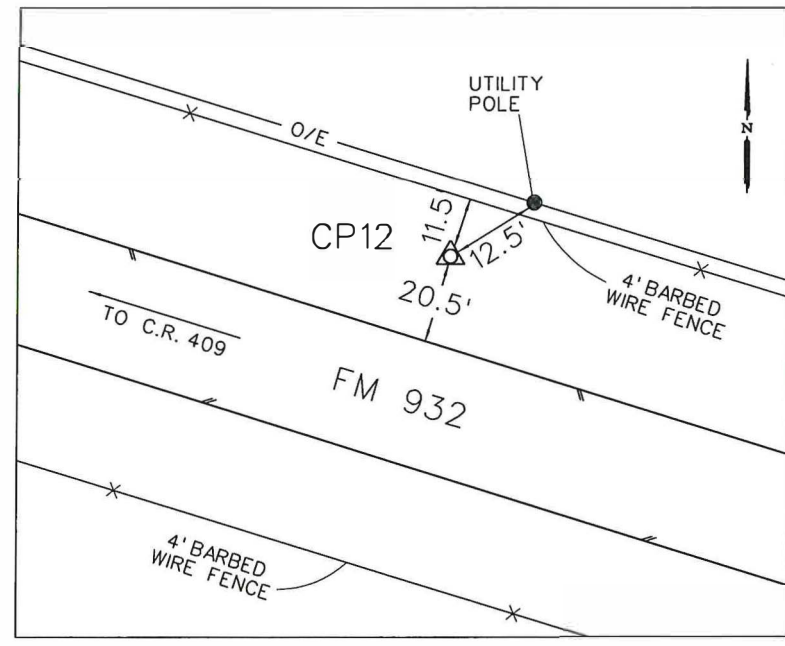
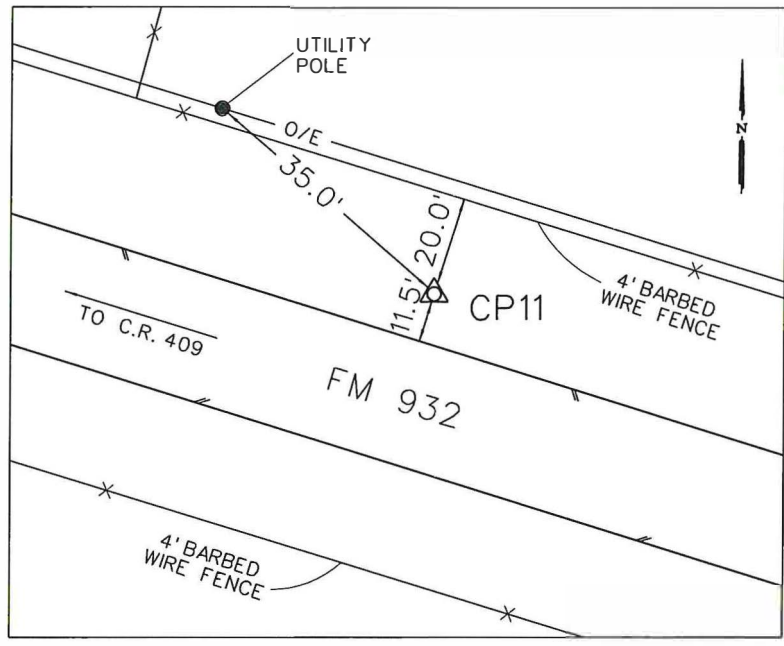
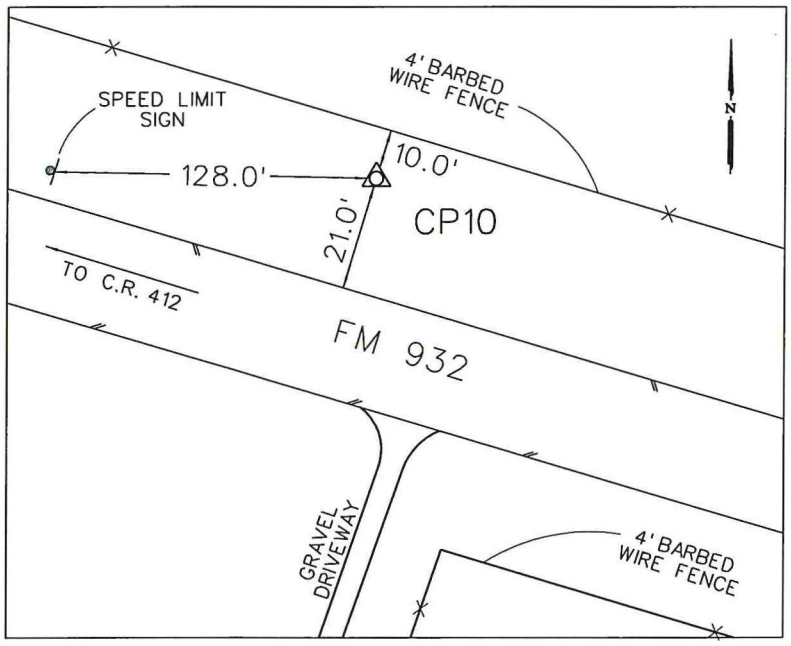
CONTROL POINT: CP-8
 CP-8 IS A 3-1/4" TXDOT ALUMINUM DISK SET IN CONCRETE, LOCATED +/- 2,516.0' S.E. OF THE INTERSECTION OF C.R. 402 AND FM 932, ALSO 16.5' N.E. OF THE NORTH E.O.A. OF FM 932, 12.5' S.W. OF OF A BARBED WIRE FENCE AND 128.0' S.W. OF A UTILITY POLE LOCATED ALONG THE NORTH R.O.W. OF FM 932.
 LATITUDE: 31° 38' 40.30844"
 LONGITUDE: 98° 03' 41.55650"
 SURFACE COORDINATES: GRID COORDINATES:
 NORTHING: 10,570,137.306 NORTHING: 10,569,080.398
 EASTING: 3,003,790.748 EASTING: 3,003,490.399
 ELEVATION: 1,227.55' ELEVATION: 1,227.55'

CONTROL POINT: CP-9
 CP-9 IS A 3-1/4" TXDOT ALUMINUM DISK SET IN CONCRETE, LOCATED +/- 537.0' N.W. OF THE INTERSECTION OF C.R. 412 AND FM 932, ALSO 7.5' S.W. OF THE SOUTH E.O.A. OF FM 932, 60.5' S.W. OF A BARBED WIRE FENCE LOCATED ALONG THE NORTH R.O.W. OF FM 932 AND 254.5' N.W. OF A TRAFFIC SIGN LOCATED IN THE SOUTH R.O.W. OF FM 932.
 LATITUDE: 31° 37' 51.79759"
 LONGITUDE: 98° 02' 02.55025"
 SURFACE COORDINATES: GRID COORDINATES:
 NORTHING: 10,565,411.955 NORTHING: 10,564,355.519
 EASTING: 3,012,449.357 EASTING: 3,012,148.143
 ELEVATION: 1,151.54' ELEVATION: 1,151.54'

Steve L. Hampton 8/19/21

Steve L. Hampton DATE
 Registered Professional Land Surveyor
 No. 5172

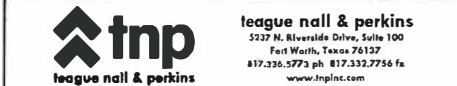
TEAGUE NALL & PERKINS
 5237 N. RIVERSIDE DR., SUITE 100
 FORT WORTH, TEXAS 76137
 TBPLS FIRM NO. 100116-00



CONTROL POINT: CP-10
 CP-10 IS A 3-1/4" TXDOT ALUMINUM DISK SET IN CONCRETE, LOCATED +/- 506.0' S.E. OF THE INTERSECTION OF C.R. 412 AND FM 932, ALSO 21.0' N.E. OF THE NORTH E.O.A. OF FM 932, 10.0' S.W. OF OF A BARBED WIRE FENCE AND 128.0' N.E. OF A SPEED LIMIT SIGN LOCATED IN THE NORTH R.O.W. OF FM 932.
 LATITUDE: 31° 37' 49.10774"
 LONGITUDE: 98° 01' 50.89848"
 SURFACE COORDINATES: GRID COORDINATES:
 NORTHING: 10,565,161.014 NORTHING: 10,564,104.604
 EASTING: 3,013,462.218 EASTING: 3,013,160.901
 ELEVATION: 1,175.28' ELEVATION: 1,175.28'

CONTROL POINT: CP-11
 CP-11 IS A 3-1/4" TXDOT ALUMINUM DISK SET IN CONCRETE, LOCATED +/- 987.0' S.E. OF THE INTERSECTION OF C.R. 409 AND FM 932, ALSO 11.5' N.E. OF THE NORTH E.O.A. OF FM 932, 20.0' S.W. OF OF A BARBED WIRE FENCE AND 35.0' S.E. OF A UTILITY POLE LOCATED ALONG THE NORTH R.O.W. OF FM 932.
 LATITUDE: 31° 36' 56.64918"
 LONGITUDE: 98° 01' 50.89848"
 SURFACE COORDINATES: GRID COORDINATES:
 NORTHING: 10,560,003.263 NORTHING: 10,558,947.369
 EASTING: 3,020,410.512 EASTING: 3,020,108.501
 ELEVATION: 1,132.59' ELEVATION: 1,132.59'

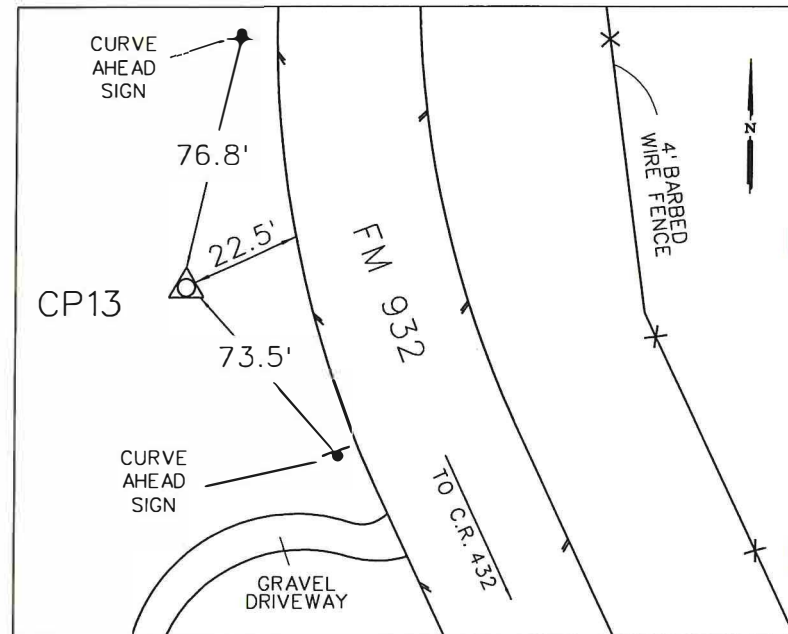
CONTROL POINT: CP-12
 CP-12 IS A 3-1/4" TXDOT ALUMINUM DISK SET IN CONCRETE, LOCATED +/- 2,028.0' S.E. OF THE INTERSECTION OF C.R. 409 AND FM 932, ALSO 20.5' N.E. OF THE NORTH E.O.A. OF FM 932, 11.5' S.W. OF OF A BARBED WIRE FENCE AND 12.5' S.W. OF A UTILITY POLE LOCATED ALONG THE NORTH R.O.W. OF FM 932.
 LATITUDE: 31° 36' 53.49435"
 LONGITUDE: 98° 00' 20.33264"
 SURFACE COORDINATES: GRID COORDINATES:
 NORTHING: 10,559,705.261 NORTHING: 10,558,649.396
 EASTING: 3,021,408.689 EASTING: 3,021,106.579
 ELEVATION: 1,131.73' ELEVATION: 1,131.73'



FM 932
 SURVEY CONTROL

SCALE: N/A SHEET 2 OF 3

| | | |
|-------------------|-------------------------|-------------|
| FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | HIGHWAY NO. |
| 6 | SEE TITLE SHEET | FM 932 |
| STATE | DISTRICT | COUNTY |
| TEXAS | WACO | HAMILTON |
| CONTROL | SECTION | JOB |
| 0867 | 01 | 017 |
| | | SHEET NO. |
| | | 85 |



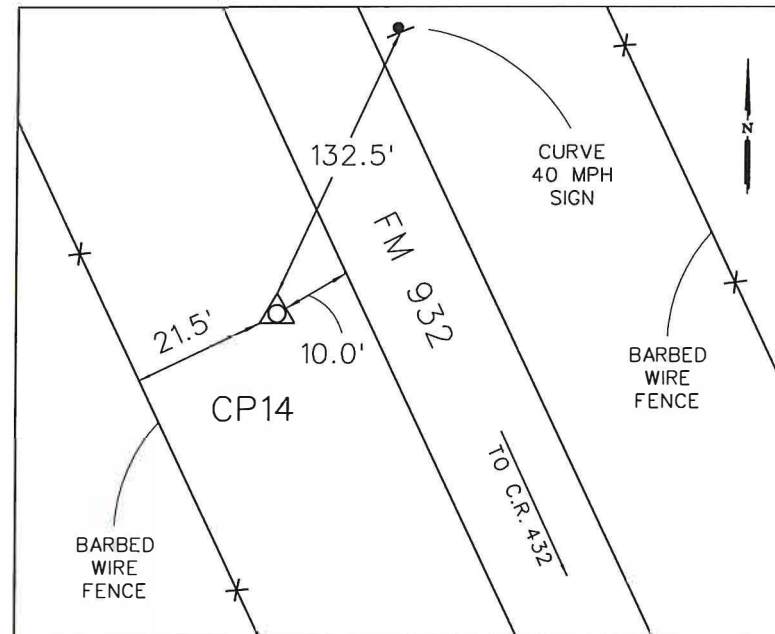
CONTROL POINT: CP-13

CP-13 IS A 3-1/4" TxDOT ALUMINUM DISK SET IN CONCRETE, LOCATED +/- 4,785.0' N.W. OF THE INTERSECTION OF C.R. 432 AND FM 932, ALSO 22.5' S.W. OF THE WEST E.O.A. OF FM 932, 77.0' S.W. A CURVE AHEAD SIGN AND 74' N.W. OF A CURVE AHEAD SIGN.

LATITUDE: 31° 36' 03.31288"
LONGITUDE: 97° 58' 53.58027"

SURFACE COORDINATES:
NORTHING: 10,554,793.165
EASTING: 3,029,016.315
ELEVATION: 1,099.02'

GRID COORDINATES:
NORTHING: 10,553,737.791
EASTING: 3,028,713.444
ELEVATION: 1,099.02'



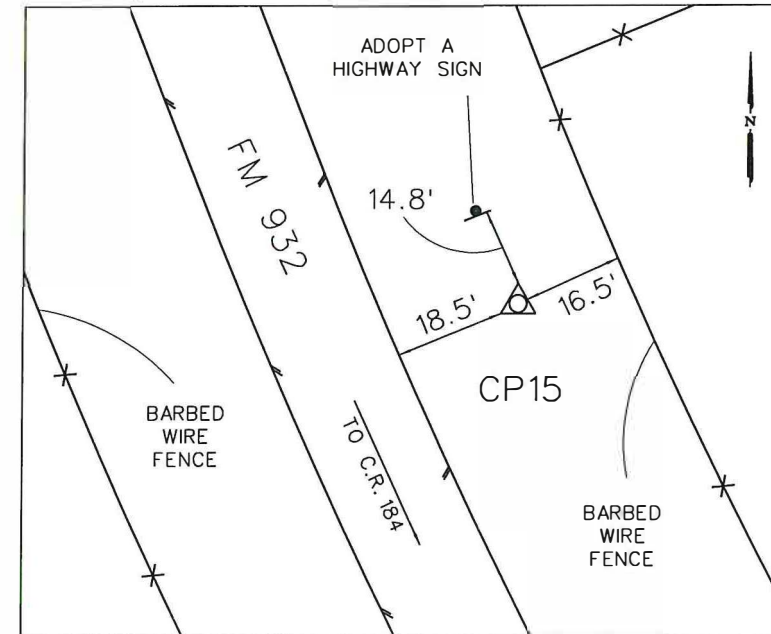
CONTROL POINT: CP-14

CP-14 IS A 3-1/4" TxDOT ALUMINUM DISK SET IN CONCRETE, LOCATED +/- 3,760.0' N.W. OF THE INTERSECTION OF C.R. 432 AND FM 932, ALSO 10.0' S.W. OF THE WEST E.O.A. OF FM 932, 21.5' N.E. OF OF A BARBED WIRE FENCE AND 132.5' S.W. OF A 40 MPH SIGN LOCATED ON THE EAST SIDE OF FM 932.

LATITUDE: 31° 35' 53.85072"
LONGITUDE: 97° 58' 48.46328"

SURFACE COORDINATES:
NORTHING: 10,553,846.556
EASTING: 3,029,479.009
ELEVATION: 1,098.58'

GRID COORDINATES:
NORTHING: 10,552,791.277
EASTING: 3,029,176.092
ELEVATION: 1,098.58'



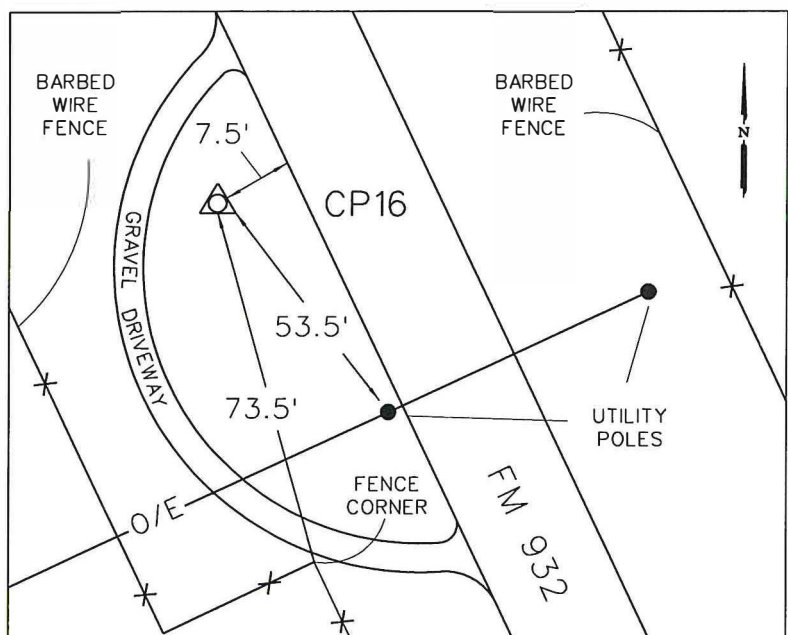
CONTROL POINT: CP-15

CP-15 IS A 3-1/4" TxDOT ALUMINUM DISK SET IN CONCRETE, LOCATED 2,060.0' NORTH OF THE INTERSECTION OF C.R. 184 AND FM 932, ALSO 16.5' S.W. OF A BARBED WIRE FENCE, 14.8' S.E. OF A ADOPT A HIGHWAY SIGN N.E. 18.5' FROM THE EAST E.O.A. OF 932.

LATITUDE: 31° 34' 25.47076"
LONGITUDE: 97° 58' 08.87283"

SURFACE COORDINATES:
NORTHING: 10,544,990.141
EASTING: 3,033,092.295
ELEVATION: 1,058.05'

GRID COORDINATES:
NORTHING: 10,543,935.747
EASTING: 3,032,789.017
ELEVATION: 1,058.05'



CONTROL POINT: CP-16

CP-16 IS A 3-1/4" TxDOT ALUMINUM DISK SET IN CONCRETE, LOCATED 1,025.0' NORTH OF THE INTERSECTION OF C.R. 184 AND FM 932, ALSO 7.5' S.W. OF THE W. E.O.A. OF FM 932, 53.5' N.W. OF A UTILITY POLE, 73.5' N.W. FENCE CORNER.

LATITUDE: 31° 34' 16.00544"
LONGITUDE: 97° 58' 04.40429"

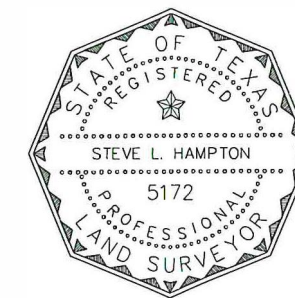
SURFACE COORDINATES:
NORTHING: 10,544,042.082
EASTING: 3,033,499.138
ELEVATION: 1,071.69'

GRID COORDINATES:
NORTHING: 10,542,987.784
EASTING: 3,033,195.819
ELEVATION: 1,071.69'

NOTES:
1. COORDINATES SHOWN HEREON REFER TO THE TEXAS COORDINATE SYSTEM OF 1983 (CENTRAL ZONE 4203; NAD83(2011) EPOCH 2010) AS DERIVED LOCALLY FROM TxDOT'S CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) VIA REAL TIME KINEMATIC (RTK) METHODS. AN AVERAGE COMBINATION FACTOR OF 1.0001 WAS USED TO SCALE GRID COORDINATES AND DISTANCES TO SURFACE.

2. THE ELEVATIONS SHOWN ARE NAVD88 AND WERE DERIVED FROM THE ABOVE RTK OBSERVATIONS. ORTHOMETRIC HEIGHTS WERE CALCULATED BY APPLYING THE GEOID12B MODEL TO THE ELLIPSOID HEIGHTS.

3. FIELD SURVEYS WERE CONDUCTED BY TEAGUE NALL & PERKINS, INC., DECEMBER 2019

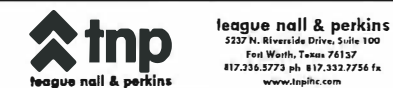


Steve L. Hampton 8/19/21

Steve L. Hampton DATE
Registered Professional Land Surveyor
No. 5172

TEAGUE NALL & PERKINS
5237 N. RIVERSIDE DR., SUITE 100
FORT WORTH, TEXAS 76137

TBPLS FIRM NO. 100116-00



FM 932
SURVEY CONTROL

| | | | |
|-------------------|------------------------|--------------|-----------|
| SCALE: N/A | | SHEET 3 OF 3 | |
| FED. RD. DIV. NO. | FEDERAL AD PROJECT NO. | HIGHWAY NO. | |
| 6 | SEE TITLE SHEET | FM 932 | |
| STATE | DISTRICT | COUNTY | SHEET NO. |
| TEXAS | WACO | HAMILTON | 86 |
| CONTROL | SECTION | JOB | |
| 0867 | 01 | 017 | |

PROPOSED FM 932 - HORIZONTAL ALIGNMENT

Chain M-FM932PC contains:
 9320001 CUR M-FM932PC1 CUR M-FM932PC2 CUR M-FM932PC3 CUR M-FM932PC4 CUR M-FM932PC5 CUR M-FM932PC6 CUR M-FM932PC7 CUR M-FM932PC8 CUR M-FM932PC9 9320002 CUR M-FM932PC10 CUR M-FM932PC11 9320003 CUR M-FM932PC12 CUR M-FM932PC13 9320004 CUR M-FM932PC14 CUR M-FM932PC15 CUR M-FM932PC16 CUR M-FM932PC17 CUR M-FM932PC18 CUR M-FM932PC19 CUR M-FM932PC20 CUR M-FM932PC21 CUR M-FM932PC22 CUR M-FM932PC23 CUR M-FM932PC24 CUR M-FM932PC25 CUR M-FM932PC26 CUR M-FM932PC27 9320005 CUR M-FM932PC28 9320006 CUR M-FM932PC29 CUR M-FM932PC30 CUR M-FM932PC31 CUR M-FM932PC32 CUR M-FM932PC33 CUR M-FM932PC34 9320007 CUR M-FM932PC35 CUR M-FM932PC36 9320008 9320009 9320010 CUR M-FM932PC37 CUR M-FM932PC38 9320011 CUR M-FM932PC39 CUR M-FM932PC40 CUR M-FM932PC41 9320012 CUR M-FM932PC42 9320013 9320014 CUR M-FM932PC43 CUR M-FM932PC44 9320015

Beginning chain M-FM932PC description

Point 9320001 N 10,543,652.7511 E 3,033,706.1379 Sta 359+50.00

Course from 9320001 to PC M-FM932PC1 N 25° 53' 48.82" W Dist 1,258.2766

Curve Data

 Curve M-FM932PC1
 P.I. Station = 373+55.78 N 10,544,917.3611 E 3,033,092.1609
 Delta = 2° 56' 58.68" (RT)
 Degree = 1° 00' 00.36"
 Tangent = 147.4994
 Length = 294.9337
 Radius = 5,729.0000
 External = 1.8985
 Long Chord = 294.9011
 Mid. Ord. = 1.8978
 P.C. Station = 372+08.28 N 10,544,784.6734 E 3,033,156.5818
 P.T. Station = 375+03.21 N 10,545,053.1880 E 3,033,034.6533
 C.C. = N 10,547,286.8315 E 3,038,310.2839
 Back = N 25° 53' 48.82" W
 Ahead = N 22° 56' 50.14" W
 Chord Bear = N 24° 25' 19.48" W

Course from PT M-FM932PC1 to PC M-FM932PC2 N 22° 56' 50.14" W Dist 2,251.9889

Curve Data

 Curve M-FM932PC2
 P.I. Station = 399+20.91 N 10,547,279.5573 E 3,032,092.0332
 Delta = 3° 18' 48.77" (RT)
 Degree = 1° 00' 00.36"
 Tangent = 165.7069
 Length = 331.3214
 Radius = 5,729.0000
 External = 2.3960
 Long Chord = 331.2752
 Mid. Ord. = 2.3950
 P.C. Station = 397+55.20 N 10,547,126.9638 E 3,032,156.6397
 P.T. Station = 400+86.52 N 10,547,435.6300 E 3,032,036.3548
 C.C. = N 10,549,360.6073 E 3,037,432.2702
 Back = N 22° 56' 50.14" W
 Ahead = N 19° 38' 01.36" W
 Chord Bear = N 21° 17' 25.75" W

Course from PT M-FM932PC2 to PC M-FM932PC3 N 19° 38' 01.36" W Dist 517.9715

Curve Data

 Curve M-FM932PC3
 P.I. Station = 407+88.49 N 10,548,096.7913 E 3,031,800.4874
 Delta = 3° 40' 44.97" (LT)
 Degree = 1° 00' 00.36"
 Tangent = 184.0026
 Length = 367.8787
 Radius = 5,729.0000
 External = 2.9541
 Long Chord = 367.8155
 Mid. Ord. = 2.9526
 P.C. Station = 406+04.49 N 10,547,923.4866 E 3,031,862.3133
 P.T. Station = 409+72.37 N 10,548,265.7714 E 3,031,727.6681
 C.C. = N 10,545,998.5093 E 3,026,466.3979
 Back = N 19° 38' 01.36" W
 Ahead = N 23° 18' 46.33" W
 Chord Bear = N 21° 28' 23.85" W

Course from PT M-FM932PC3 to PC M-FM932PC4 N 23° 18' 46.33" W Dist 185.4642

Curve Data

 Curve M-FM932PC4
 P.I. Station = 414+28.15 N 10,548,684.3353 E 3,031,547.2945
 Delta = 48° 30' 17.14" (LT)
 Degree = 9° 32' 57.47"
 Tangent = 270.3103
 Length = 507.9407
 Radius = 600.0000
 External = 58.0788
 Long Chord = 492.9081
 Mid. Ord. = 52.9530
 P.C. Station = 411+57.83 N 10,548,436.0938 E 3,031,654.2703
 P.T. Station = 416+65.78 N 10,548,768.6836 E 3,031,290.4813
 C.C. = N 10,548,198.6428 E 3,031,103.2558
 Back = N 23° 18' 46.33" W
 Ahead = N 71° 49' 03.48" W
 Chord Bear = N 47° 33' 54.90" W

Course from PT M-FM932PC4 to PC M-FM932PC5 N 71° 49' 03.48" W Dist 242.9295

PROPOSED FM 932 (cont.) - HORIZONTAL ALIGNMENT

Curve Data

 Curve M-FM932PC5
 P.I. Station = 423+16.43 N 10,548,971.7156 E 3,030,672.3150
 Delta = 80° 41' 27.52" (RT)
 Degree = 11° 56' 11.83"
 Tangent = 407.7252
 Length = 675.9952
 Radius = 480.0000
 External = 149.7935
 Long Chord = 621.4993
 Mid. Ord. = 114.1658
 P.C. Station = 419+08.71 N 10,548,844.4880 E 3,031,059.6817
 P.T. Station = 425+84.70 N 10,549,374.5611 E 3,030,735.2069
 C.C. = N 10,549,300.5207 E 3,031,209.4621
 Back = N 71° 49' 03.48" W
 Ahead = N 8° 52' 24.05" E
 Chord Bear = N 31° 28' 19.71" W

Course from PT M-FM932PC5 to PC M-FM932PC6 N 8° 52' 24.05" E Dist 1,229.9926

Curve Data

 Curve M-FM932PC6
 P.I. Station = 440+38.60 N 10,550,811.0633 E 3,030,959.4726
 Delta = 34° 32' 59.91" (LT)
 Degree = 7° 57' 27.89"
 Tangent = 223.9103
 Length = 434.1678
 Radius = 720.0000
 External = 34.0131
 Long Chord = 427.6196
 Mid. Ord. = 32.4788
 P.C. Station = 438+14.69 N 10,550,589.8328 E 3,030,924.9342
 P.T. Station = 442+48.86 N 10,551,012.8632 E 3,030,862.4542
 C.C. = N 10,550,700.8934 E 3,030,213.5514
 Back = N 8° 52' 24.05" E
 Ahead = N 25° 40' 35.86" W
 Chord Bear = N 8° 24' 05.91" W

Course from PT M-FM932PC6 to PC M-FM932PC7 N 25° 40' 35.86" W Dist 4,128.0358

Curve Data

 Curve M-FM932PC7
 P.I. Station = 486+14.35 N 10,554,947.2772 E 3,028,970.9248
 Delta = 43° 10' 58.57" (RT)
 Degree = 9° 32' 57.47"
 Tangent = 237.4535
 Length = 452.2106
 Radius = 600.0000
 External = 45.2783
 Long Chord = 441.5833
 Mid. Ord. = 42.1012
 P.C. Station = 483+76.90 N 10,554,733.2713 E 3,029,073.8114
 P.T. Station = 488+29.11 N 10,555,173.7327 E 3,029,042.3534
 C.C. = N 10,554,993.2462 E 3,029,614.5637
 Back = N 25° 40' 35.86" W
 Ahead = N 17° 30' 22.71" E
 Chord Bear = N 4° 05' 06.58" W

Course from PT M-FM932PC7 to PC M-FM932PC8 N 17° 30' 22.71" E Dist 1,086.3897

Curve Data

 Curve M-FM932PC8
 P.I. Station = 501+46.09 N 10,556,429.7190 E 3,029,438.5164
 Delta = 35° 31' 02.61" (LT)
 Degree = 7° 57' 27.89"
 Tangent = 230.5943
 Length = 446.3247
 Radius = 720.0000
 External = 36.0250
 Long Chord = 439.2127
 Mid. Ord. = 34.3083
 P.C. Station = 499+15.50 N 10,556,209.8050 E 3,029,369.1511
 P.T. Station = 503+61.82 N 10,556,649.0135 E 3,029,367.2164
 C.C. = N 10,556,426.3887 E 3,028,682.4988
 Back = N 17° 30' 22.71" E
 Ahead = N 18° 00' 39.91" W
 Chord Bear = N 0° 15' 08.60" W

Course from PT M-FM932PC8 to PC M-FM932PC9 N 18° 00' 39.91" W Dist 322.8891

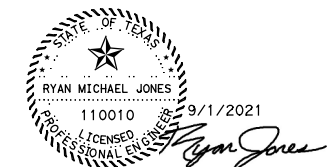
Curve Data

 Curve M-FM932PC9
 P.I. Station = 510+61.09 N 10,557,314.0140 E 3,029,151.0024
 Delta = 55° 11' 46.92" (LT)
 Degree = 7° 57' 27.89"
 Tangent = 376.3778
 Length = 693.6180
 Radius = 720.0000
 External = 92.4409
 Long Chord = 667.1058
 Mid. Ord. = 81.9229
 P.C. Station = 506+84.71 N 10,556,956.0799 E 3,029,267.3788
 P.T. Station = 513+78.33 N 10,557,422.7523 E 3,028,790.6744
 C.C. = N 10,556,733.4552 E 3,028,582.6611
 Back = N 18° 00' 39.91" W
 Ahead = N 73° 12' 26.83" W
 Chord Bear = N 45° 36' 33.37" W

Course from PT M-FM932PC9 to 9320002 N 73° 12' 26.83" W Dist 2,777.8712

Point 9320002 N 10,558,225.2994 E 3,026,131.2596 Sta 541+56.20

Course from 9320002 to PC M-FM932PC10 N 73° 07' 12.77" W Dist 1,773.5469



FM 932

HORIZONTAL ALIGNMENT DATA

(SHEET 1 OF 7)

| | | | | |
|-----------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. |
| RJ | TX | WACO | HAMILTON | 87 |
| GRAPHICS | CONTROL | SECTION | JOB | |
| JP | RJ | 0867 | 01 017 | |

PROPOSED FM 932 (cont.) - HORIZONTAL ALIGNMENT

Curve Data

Curve M-FM932PC10
P.I. Station = 559+59.38 N 10,558,748.8785 E 3,024,405.7696
Delta = 0° 20' 22.37" (RT)
Degree = 0° 34' 22.65"
Tangent = 29.6311
Length = 59.2621
Radius = 10,000.0000
External = 0.0439
Long Chord = 59.2620
Mid. Ord. = 0.0439
P.C. Station = 559+29.75 N 10,558,740.2747 E 3,024,434.1241
P.T. Station = 559+89.01 N 10,558,757.6502 E 3,024,377.4666
C.C. = N 10,568,309.4355 E 3,027,337.7701
Back = N 73° 07' 12.77" W
Ahead = N 72° 46' 50.41" W
Chord Bear = N 72° 57' 01.59" W

Course from PT M-FM932PC10 to PC M-FM932PC11 N 72° 46' 50.41" W Dist 2,146.1085

Curve Data

Curve M-FM932PC11
P.I. Station = 581+59.10 N 10,559,400.0617 E 3,022,304.6463
Delta = 0° 16' 29.17" (LT)
Degree = 0° 34' 22.65"
Tangent = 23.9783
Length = 47.9565
Radius = 10,000.0000
External = 0.0287
Long Chord = 47.9565
Mid. Ord. = 0.0287
P.C. Station = 581+35.12 N 10,559,392.9634 E 3,022,327.5499
P.T. Station = 581+83.07 N 10,559,407.0501 E 3,022,281.7090
C.C. = N 10,549,841.1781 E 3,019,367.2464
Back = N 72° 46' 50.41" W
Ahead = N 73° 03' 19.58" W
Chord Bear = N 72° 55' 04.99" W

Course from PT M-FM932PC11 to 9320003 N 73° 03' 19.58" W Dist 451.2806

Point 9320003 N 10,559,538.5742 E 3,021,850.0197 Sta 586+34.35

Course from 9320003 to PC M-FM932PC12 N 72° 52' 46.84" W Dist 2,584.8621

Curve Data

Curve M-FM932PC12
P.I. Station = 612+47.13 N 10,560,307.7209 E 3,019,353.0209
Delta = 0° 19' 11.46" (RT)
Degree = 0° 34' 22.65"
Tangent = 27.9122
Length = 55.8242
Radius = 10,000.0000
External = 0.0390
Long Chord = 55.8242
Mid. Ord. = 0.0390
P.C. Station = 612+19.22 N 10,560,299.5041 E 3,019,379.6963
P.T. Station = 612+75.04 N 10,560,316.0864 E 3,019,326.3918
C.C. = N 10,569,856.3907 E 3,022,323.4893
Back = N 72° 52' 46.84" W
Ahead = N 72° 33' 35.38" W
Chord Bear = N 72° 43' 11.11" W

Course from PT M-FM932PC12 to PC M-FM932PC13 N 72° 33' 35.38" W Dist 1,153.5723

Curve Data

Curve M-FM932PC13
P.I. Station = 624+61.75 N 10,560,671.7557 E 3,018,194.2320
Delta = 0° 22' 47.13" (LT)
Degree = 0° 34' 22.65"
Tangent = 33.1402
Length = 66.2801
Radius = 10,000.0000
External = 0.0549
Long Chord = 66.2800
Mid. Ord. = 0.0549
P.C. Station = 624+28.61 N 10,560,661.8233 E 3,018,225.8488
P.T. Station = 624+94.89 N 10,560,681.4784 E 3,018,162.5502
C.C. = N 10,551,121.5189 E 3,015,228.7513
Back = N 72° 33' 35.38" W
Ahead = N 72° 56' 22.51" W
Chord Bear = N 72° 44' 58.95" W

Course from PT M-FM932PC13 to 9320004 N 72° 56' 22.51" W Dist 2,176.9092

Point 9320004 N 10,561,320.1397 E 3,016,081.4338 Sta 646+71.80

Course from 9320004 to PC M-FM932PC14 N 72° 52' 13.49" W Dist 1,306.2914

PROPOSED FM 932 (cont.) - HORIZONTAL ALIGNMENT

Curve Data

Curve M-FM932PC14
P.I. Station = 664+67.97 N 10,561,849.1724 E 3,014,364.9404
Delta = 90° 34' 24.25" (RT)
Degree = 11° 48' 48.83"
Tangent = 489.8782
Length = 766.6900
Radius = 485.0000
External = 204.3516
Long Chord = 689.3171
Mid. Ord. = 143.7736
P.C. Station = 659+78.09 N 10,561,704.8867 E 3,014,833.0881
P.T. Station = 667+44.78 N 10,562,315.8528 E 3,014,513.9039
C.C. = N 10,562,168.3726 E 3,014,975.9370
Back = N 72° 52' 13.49" W
Ahead = N 17° 42' 10.76" E
Chord Bear = N 27° 35' 01.37" W

Course from PT M-FM932PC14 to PC M-FM932PC15 N 17° 42' 10.76" E Dist 595.9415

Curve Data

Curve M-FM932PC15
P.I. Station = 673+66.22 N 10,562,907.8568 E 3,014,702.8705
Delta = 0° 17' 31.54" (LT)
Degree = 0° 34' 22.65"
Tangent = 25.4901
Length = 50.9800
Radius = 10,000.0000
External = 0.0325
Long Chord = 50.9799
Mid. Ord. = 0.0325
P.C. Station = 673+40.73 N 10,562,883.5738 E 3,014,695.1194
P.T. Station = 673+91.71 N 10,562,932.1790 E 3,014,710.4977
C.C. = N 10,565,924.4014 E 3,005,168.6632
Back = N 17° 42' 10.76" E
Ahead = N 17° 24' 39.22" E
Chord Bear = N 17° 33' 24.99" E

Course from PT M-FM932PC15 to PC M-FM932PC16 N 17° 24' 39.22" E Dist 1,253.6220

Curve Data

Curve M-FM932PC16
P.I. Station = 691+36.58 N 10,564,597.1062 E 3,015,232.6019
Delta = 90° 44' 00.63" (LT)
Degree = 11° 48' 48.83"
Tangent = 491.2491
Length = 768.0453
Radius = 485.0000
External = 205.3265
Long Chord = 690.2700
Mid. Ord. = 144.2554
P.C. Station = 686+45.33 N 10,564,128.3644 E 3,015,085.6093
P.T. Station = 694+13.37 N 10,564,738.0861 E 3,014,762.0168
C.C. = N 10,564,273.4872 E 3,014,622.8303
Back = N 17° 24' 39.22" E
Ahead = N 73° 19' 21.41" W
Chord Bear = N 27° 57' 21.09" W

Course from PT M-FM932PC16 to PC M-FM932PC17 N 73° 19' 21.41" W Dist 2,633.8229

Curve Data

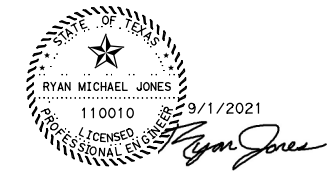
Curve M-FM932PC17
P.I. Station = 721+07.79 N 10,565,511.3371 E 3,012,180.9362
Delta = 0° 41' 39.74" (RT)
Degree = 0° 34' 22.65"
Tangent = 60.5962
Length = 121.1909
Radius = 10,000.0000
External = 0.1836
Long Chord = 121.1902
Mid. Ord. = 0.1836
P.C. Station = 720+47.20 N 10,565,493.9470 E 3,012,238.9835
P.T. Station = 721+68.39 N 10,565,529.4293 E 3,012,123.1040
C.C. = N 10,575,073.3054 E 3,015,108.8080
Back = N 73° 19' 21.41" W
Ahead = N 72° 37' 41.67" W
Chord Bear = N 72° 58' 31.54" W

Course from PT M-FM932PC17 to PC M-FM932PC18 N 72° 37' 41.67" W Dist 1,185.6326

Curve Data

Curve M-FM932PC18
P.I. Station = 735+56.02 N 10,565,943.7345 E 3,010,798.7674
Delta = 16° 25' 13.33" (LT)
Degree = 4° 05' 33.20"
Tangent = 201.9971
Length = 401.2253
Radius = 1,400.0000
External = 14.4974
Long Chord = 399.8536
Mid. Ord. = 14.3488
P.C. Station = 733+54.02 N 10,565,883.4241 E 3,010,991.5509
P.T. Station = 737+55.24 N 10,565,947.0885 E 3,010,596.7981
C.C. = N 10,564,547.2815 E 3,010,573.5523
Back = N 72° 37' 41.67" W
Ahead = N 89° 02' 55.00" W
Chord Bear = N 80° 50' 18.33" W

Course from PT M-FM932PC18 to PC M-FM932PC19 N 89° 02' 55.00" W Dist 601.7324



FM 932

HORIZONTAL ALIGNMENT DATA

(SHEET 2 OF 7)

| | | | | |
|-----------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. |
| RJ | TX | WACO | HAMILTON | 88 |
| GRAPHICS | CONTROL | SECTION | JOB | |
| JP | RJ | 0867 | 01 | 017 |

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PROPOSED FM 932 (cont.) - HORIZONTAL ALIGNMENT

Curve Data

| | | | | |
|-------------------|----------------------|------|-----------------|------------------|
| Curve M-FM932PC19 | | | | |
| P.I. Station | 745+89.65 | N | 10,565,960.9431 | E 3,009,762.5024 |
| Delta | 44° 03' 43.99" | (RT) | | |
| Degree | 9° 57' 52.14" | | | |
| Tangent | 232.6783 | | | |
| Length | 442.1927 | | | |
| Radius | 575.0000 | | | |
| External | 45.2936 | | | |
| Long Chord | 431.3765 | | | |
| Mid. Ord. | 41.9863 | | | |
| P.C. Station | 743+56.98 | N | 10,565,957.0797 | E 3,009,995.1487 |
| P.T. Station | 747+99.17 | N | 10,566,125.5106 | E 3,009,598.0131 |
| C.C. | | N | 10,566,532.0004 | E 3,010,004.6960 |
| Back | = N 89° 02' 55.00" W | | | |
| Ahead | = N 44° 59' 11.00" W | | | |
| Chord Bear | = N 67° 01' 03.00" W | | | |

Course from PT M-FM932PC19 to PC M-FM932PC20 N 44° 59' 11.00" W Dist 1,373.0771

Curve Data

| | | | | |
|-------------------|----------------------|------|-----------------|------------------|
| Curve M-FM932PC20 | | | | |
| P.I. Station | 762+13.81 | N | 10,567,126.0525 | E 3,008,597.9464 |
| Delta | 0° 28' 34.74" | (RT) | | |
| Degree | 0° 34' 22.65" | | | |
| Tangent | 41.5668 | | | |
| Length | 83.1331 | | | |
| Radius | 10,000.0000 | | | |
| External | 0.0864 | | | |
| Long Chord | 83.1328 | | | |
| Mid. Ord. | 0.0864 | | | |
| P.C. Station | 761+72.25 | N | 10,567,096.6534 | E 3,008,627.3316 |
| P.T. Station | 762+55.38 | N | 10,567,155.6949 | E 3,008,568.8067 |
| C.C. | | N | 10,574,166.0413 | E 3,015,700.0789 |
| Back | = N 44° 59' 11.00" W | | | |
| Ahead | = N 44° 30' 36.26" W | | | |
| Chord Bear | = N 44° 44' 53.63" W | | | |

Course from PT M-FM932PC20 to PC M-FM932PC21 N 44° 30' 36.26" W Dist 1,862.1131

Curve Data

| | | | | |
|-------------------|----------------------|------|-----------------|------------------|
| Curve M-FM932PC21 | | | | |
| P.I. Station | 782+88.90 | N | 10,568,605.8566 | E 3,007,143.2356 |
| Delta | 21° 33' 59.35" | (LT) | | |
| Degree | 6° 21' 58.31" | | | |
| Tangent | 171.4114 | | | |
| Length | 338.7656 | | | |
| Radius | 900.0000 | | | |
| External | 16.1779 | | | |
| Long Chord | 336.7692 | | | |
| Mid. Ord. | 15.8922 | | | |
| P.C. Station | 781+17.49 | N | 10,568,483.6185 | E 3,007,263.4009 |
| P.T. Station | 784+56.26 | N | 10,568,675.3666 | E 3,006,986.5504 |
| C.C. | | N | 10,567,852.6873 | E 3,006,621.5864 |
| Back | = N 44° 30' 36.26" W | | | |
| Ahead | = N 66° 04' 35.61" W | | | |
| Chord Bear | = N 55° 17' 35.93" W | | | |

Course from PT M-FM932PC21 to PC M-FM932PC22 N 66° 04' 35.61" W Dist 556.3711

Curve Data

| | | | | |
|-------------------|----------------------|------|-----------------|------------------|
| Curve M-FM932PC22 | | | | |
| P.I. Station | 790+76.65 | N | 10,568,926.9472 | E 3,006,419.4532 |
| Delta | 0° 44' 01.21" | (LT) | | |
| Degree | 0° 34' 22.65" | | | |
| Tangent | 64.0256 | | | |
| Length | 128.0495 | | | |
| Radius | 10,000.0000 | | | |
| External | 0.2050 | | | |
| Long Chord | 128.0486 | | | |
| Mid. Ord. | 0.2050 | | | |
| P.C. Station | 790+12.63 | N | 10,568,900.9838 | E 3,006,477.9782 |
| P.T. Station | 791+40.68 | N | 10,568,952.1590 | E 3,006,360.6005 |
| C.C. | | N | 10,559,760.1026 | E 3,002,422.8220 |
| Back | = N 66° 04' 35.61" W | | | |
| Ahead | = N 66° 48' 36.82" W | | | |
| Chord Bear | = N 66° 26' 36.21" W | | | |

Course from PT M-FM932PC22 to PC M-FM932PC23 N 66° 48' 36.82" W Dist 1,345.4519

Curve Data

| | | | | |
|-------------------|----------------------|------|-----------------|------------------|
| Curve M-FM932PC23 | | | | |
| P.I. Station | 807+45.77 | N | 10,569,584.2071 | E 3,004,885.1946 |
| Delta | 6° 11' 32.35" | (RT) | | |
| Degree | 1° 11' 37.18" | | | |
| Tangent | 259.6360 | | | |
| Length | 518.7665 | | | |
| Radius | 4,800.0000 | | | |
| External | 7.0168 | | | |
| Long Chord | 518.5140 | | | |
| Mid. Ord. | 7.0066 | | | |
| P.C. Station | 804+86.13 | N | 10,569,481.9682 | E 3,005,123.8535 |
| P.T. Station | 810+04.90 | N | 10,569,711.5927 | E 3,004,658.9563 |
| C.C. | | N | 10,573,894.1553 | E 3,007,013.9871 |
| Back | = N 66° 48' 36.82" W | | | |
| Ahead | = N 60° 37' 04.47" W | | | |
| Chord Bear | = N 63° 42' 50.64" W | | | |

Course from PT M-FM932PC23 to PC M-FM932PC24 N 60° 37' 04.47" W Dist 326.9866

PROPOSED FM 932 (cont.) - HORIZONTAL ALIGNMENT

Curve Data

| | | | | |
|-------------------|----------------------|------|-----------------|------------------|
| Curve M-FM932PC24 | | | | |
| P.I. Station | 816+01.89 | N | 10,570,004.4948 | E 3,004,138.7587 |
| Delta | 11° 51' 27.17" | (LT) | | |
| Degree | 2° 12' 13.26" | | | |
| Tangent | 270.0036 | | | |
| Length | 538.0784 | | | |
| Radius | 2,600.0000 | | | |
| External | 13.9820 | | | |
| Long Chord | 537.1187 | | | |
| Mid. Ord. | 13.9072 | | | |
| P.C. Station | 813+31.88 | N | 10,569,872.0226 | E 3,004,374.0309 |
| P.T. Station | 818+69.96 | N | 10,570,085.7968 | E 3,003,881.2865 |
| C.C. | | N | 10,567,606.4679 | E 3,003,098.3892 |
| Back | = N 60° 37' 04.47" W | | | |
| Ahead | = N 72° 28' 31.64" W | | | |
| Chord Bear | = N 66° 32' 48.05" W | | | |

Course from PT M-FM932PC24 to PC M-FM932PC25 N 72° 28' 31.64" W Dist 2,460.6549

Curve Data

| | | | | |
|-------------------|----------------------|------|-----------------|------------------|
| Curve M-FM932PC25 | | | | |
| P.I. Station | 843+69.88 | N | 10,570,838.5569 | E 3,001,497.3978 |
| Delta | 0° 26' 59.57" | (RT) | | |
| Degree | 0° 34' 22.65" | | | |
| Tangent | 39.2597 | | | |
| Length | 78.5189 | | | |
| Radius | 10,000.0000 | | | |
| External | 0.0771 | | | |
| Long Chord | 78.5187 | | | |
| Mid. Ord. | 0.0771 | | | |
| P.C. Station | 843+30.62 | N | 10,570,826.7352 | E 3,001,534.8354 |
| P.T. Station | 844+09.14 | N | 10,570,850.6721 | E 3,001,460.0543 |
| C.C. | | N | 10,580,362.6157 | E 3,004,545.9787 |
| Back | = N 72° 28' 31.64" W | | | |
| Ahead | = N 72° 01' 32.07" W | | | |
| Chord Bear | = N 72° 15' 01.85" W | | | |

Course from PT M-FM932PC25 to PC M-FM932PC26 N 72° 01' 32.07" W Dist 596.0864

Curve Data

| | | | | |
|-------------------|----------------------|------|-----------------|------------------|
| Curve M-FM932PC26 | | | | |
| P.I. Station | 850+74.26 | N | 10,571,055.9256 | E 3,000,827.3882 |
| Delta | 0° 47' 28.13" | (LT) | | |
| Degree | 0° 34' 22.65" | | | |
| Tangent | 69.0416 | | | |
| Length | 138.0811 | | | |
| Radius | 10,000.0000 | | | |
| External | 0.2383 | | | |
| Long Chord | 138.0800 | | | |
| Mid. Ord. | 0.2383 | | | |
| P.C. Station | 850+05.22 | N | 10,571,034.6199 | E 3,000,893.0603 |
| P.T. Station | 851+43.30 | N | 10,571,076.3225 | E 3,000,761.4283 |
| C.C. | | N | 10,561,522.6763 | E 2,997,807.1358 |
| Back | = N 72° 01' 32.07" W | | | |
| Ahead | = N 72° 49' 00.20" W | | | |
| Chord Bear | = N 72° 25' 16.13" W | | | |

Course from PT M-FM932PC26 to PC M-FM932PC27 N 72° 49' 00.20" W Dist 2,141.3678

Curve Data

| | | | | |
|-------------------|----------------------|------|-----------------|------------------|
| Curve M-FM932PC27 | | | | |
| P.I. Station | 873+32.63 | N | 10,571,723.1151 | E 2,998,669.8184 |
| Delta | 0° 32' 58.63" | (RT) | | |
| Degree | 0° 34' 22.65" | | | |
| Tangent | 47.9637 | | | |
| Length | 95.9267 | | | |
| Radius | 10,000.0000 | | | |
| External | 0.1150 | | | |
| Long Chord | 95.9263 | | | |
| Mid. Ord. | 0.1150 | | | |
| P.C. Station | 872+84.67 | N | 10,571,708.9452 | E 2,998,715.6412 |
| P.T. Station | 873+80.60 | N | 10,571,737.7238 | E 2,998,624.1336 |
| C.C. | | N | 10,581,262.5914 | E 3,001,669.9337 |
| Back | = N 72° 49' 00.20" W | | | |
| Ahead | = N 72° 16' 01.57" W | | | |
| Chord Bear | = N 72° 32' 30.88" W | | | |

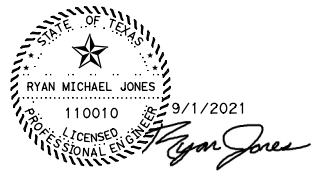
Course from PT M-FM932PC27 to 9320005 N 72° 16' 01.57" W Dist 1,792.5907

Point 9320005 N 10,572,283.7111 E 2,996,916.7148 Sta 891+73.19

Course from 9320005 to PC M-FM932PC28 N 72° 23' 24.45" W Dist 458.0455

Curve Data

| | | | | |
|-------------------|----------------------|------|-----------------|------------------|
| Curve M-FM932PC28 | | | | |
| P.I. Station | 897+90.16 | N | 10,572,470.3651 | E 2,996,328.6586 |
| Delta | 23° 55' 39.61" | (RT) | | |
| Degree | 7° 38' 21.97" | | | |
| Tangent | 158.9227 | | | |
| Length | 313.2124 | | | |
| Radius | 750.0000 | | | |
| External | 16.6527 | | | |
| Long Chord | 310.9413 | | | |
| Mid. Ord. | 16.2910 | | | |
| P.C. Station | 896+31.23 | N | 10,572,422.2855 | E 2,996,480.1340 |
| P.T. Station | 899+44.45 | N | 10,572,575.7484 | E 2,996,209.7016 |
| C.C. | | N | 10,573,137.1394 | E 2,996,707.0346 |
| Back | = N 72° 23' 24.45" W | | | |
| Ahead | = N 48° 27' 44.85" W | | | |
| Chord Bear | = N 60° 25' 34.65" W | | | |



FM 932

HORIZONTAL ALIGNMENT DATA

(SHEET 3 OF 7)

| | | | | |
|------------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | RJ | STATE | DISTRICT | COUNTY |
| GRAPHICS | JP | TX | WACO | HAMILTON |
| GRPH CHECK | RJ | CONTROL | SECTION | JOB |
| | | 0867 | 01 | 017 |
| | | | | 89 |

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PROPOSED FM 932 (cont.) - HORIZONTAL ALIGNMENT

Course from PT M-FM932PC28 to 9320006 N 48° 27' 44.85" W Dist 1,123.2030
Point 9320006 N 10,573,320.5563 E 2,995,368.9601 Sta 910+67.65
Course from 9320006 to PC M-FM932PC29 N 48° 27' 32.56" W Dist 964.4716

Curve Data
Curve M-FM932PC29
P.I. Station 920+83.06 N 10,573,993.9283 E 2,994,608.9469
Delta = 0° 35' 01.19" (RT)
Degree = 0° 34' 22.65"
Tangent = 50.9348
Length = 101.8687
Radius = 10,000.0000
External = 0.1297
Long Chord = 101.8682
Mid. Ord. = 0.1297
P.C. Station 920+32.12 N 10,573,960.1507 E 2,994,647.0706
P.T. Station 921+33.99 N 10,574,028.0926 E 2,994,571.1692
C.C. Station 921+33.99 N 10,581,444.9694 E 3,001,278.6231
Back = N 48° 27' 32.56" W
Ahead = N 47° 52' 31.37" W
Chord Bear = N 48° 10' 01.96" W

Course from PT M-FM932PC29 to PC M-FM932PC30 N 47° 52' 31.37" W Dist 497.3389

Curve Data
Curve M-FM932PC30
P.I. Station 927+91.26 N 10,574,468.9515 E 2,994,083.6822
Delta = 28° 42' 22.78" (LT)
Degree = 9° 10' 02.37"
Tangent = 159.9283
Length = 313.1375
Radius = 625.0000
External = 20.1372
Long Chord = 309.8725
Mid. Ord. = 19.5087
P.C. Station 926+31.33 N 10,574,361.6804 E 2,994,202.2990
P.T. Station 929+44.47 N 10,574,506.0642 E 2,993,928.1197
C.C. Station 929+44.47 N 10,573,898.1256 E 2,993,783.0832
Back = N 47° 52' 31.37" W
Ahead = N 76° 34' 54.14" W
Chord Bear = N 62° 13' 42.76" W

Course from PT M-FM932PC30 to PC M-FM932PC31 N 76° 34' 54.14" W Dist 843.4485

Curve Data
Curve M-FM932PC31
P.I. Station 939+60.87 N 10,574,741.9297 E 2,992,939.4603
Delta = 21° 45' 22.74" (RT)
Degree = 6° 21' 58.31"
Tangent = 172.9569
Length = 341.7474
Radius = 900.0000
External = 16.4683
Long Chord = 339.6980
Mid. Ord. = 16.1723
P.C. Station 937+87.91 N 10,574,701.7936 E 2,993,107.6958
P.T. Station 941+29.66 N 10,574,841.5650 E 2,992,798.0853
C.C. Station 941+29.66 N 10,575,577.2252 E 2,993,316.5485
Back = N 76° 34' 54.14" W
Ahead = N 54° 49' 31.41" W
Chord Bear = N 65° 42' 12.78" W

Course from PT M-FM932PC31 to PC M-FM932PC32 N 54° 49' 31.41" W Dist 1,382.4329

Curve Data
Curve M-FM932PC32
P.I. Station 957+20.25 N 10,575,757.8579 E 2,991,497.9345
Delta = 54° 59' 05.56" (RT)
Degree = 14° 19' 26.20"
Tangent = 208.1597
Length = 383.8669
Radius = 400.0000
External = 50.9218
Long Chord = 369.3052
Mid. Ord. = 45.1713
P.C. Station 955+12.09 N 10,575,637.9433 E 2,991,668.0843
P.T. Station 958+95.96 N 10,575,966.0168 E 2,991,498.5139
C.C. Station 958+95.96 N 10,575,964.9034 E 2,991,898.5124
Back = N 54° 49' 31.41" W
Ahead = N 0° 09' 34.15" E
Chord Bear = N 27° 19' 58.63" W

Course from PT M-FM932PC32 to PC M-FM932PC33 N 0° 09' 34.15" E Dist 449.0325

Curve Data
Curve M-FM932PC33
P.I. Station 965+08.82 N 10,576,578.8724 E 2,991,500.2199
Delta = 21° 49' 06.08" (LT)
Degree = 6° 44' 26.45"
Tangent = 163.8254
Length = 323.6818
Radius = 850.0000
External = 15.6436
Long Chord = 321.7296
Mid. Ord. = 15.3609
P.C. Station 963+44.99 N 10,576,415.0476 E 2,991,499.7638
P.T. Station 966+68.68 N 10,576,731.1313 E 2,991,439.7552
C.C. Station 966+68.68 N 10,576,417.4136 E 2,990,649.7671
Back = N 0° 09' 34.15" E
Ahead = N 21° 39' 31.93" W
Chord Bear = N 10° 44' 58.89" W

PROPOSED FM 932 (cont.) - HORIZONTAL ALIGNMENT

Course from PT M-FM932PC33 to PC M-FM932PC34 N 21° 39' 31.93" W Dist 538.3588

Curve Data
Curve M-FM932PC34
P.I. Station 973+31.70 N 10,577,347.3478 E 2,991,195.0452
Delta = 16° 13' 03.73" (RT)
Degree = 6° 32' 53.12"
Tangent = 124.6689
Length = 247.6708
Radius = 875.0000
External = 8.8367
Long Chord = 246.8448
Mid. Ord. = 8.7484
P.C. Station 972+07.03 N 10,577,231.4808 E 2,991,241.0580
P.T. Station 974+54.71 N 10,577,471.4549 E 2,991,183.2237
C.C. Station 974+54.71 N 10,577,554.4255 E 2,992,054.2810
Back = N 21° 39' 31.93" W
Ahead = N 5° 26' 28.20" W
Chord Bear = N 13° 33' 00.06" W

Course from PT M-FM932PC34 to 9320007 N 5° 26' 28.20" W Dist 1,669.5008

Point 9320007 N 10,579,133.4331 E 2,991,024.9156 Sta 991+24.21

Course from 9320007 to PC M-FM932PC35 N 5° 32' 15.07" W Dist 1,478.0318

Curve Data
Curve M-FM932PC35
P.I. Station 1006+35.35 N 10,580,637.5252 E 2,990,879.0939
Delta = 0° 22' 45.98" (RT)
Degree = 0° 34' 22.65"
Tangent = 33.1125
Length = 66.2247
Radius = 10,000.0000
External = 0.0548
Long Chord = 66.2246
Mid. Ord. = 0.0548
P.C. Station 1006+02.24 N 10,580,604.5672 E 2,990,882.2892
P.T. Station 1006+68.46 N 10,580,670.5036 E 2,990,876.1170
C.C. Station 1006+68.46 N 10,581,569.5429 E 3,000,835.6214
Back = N 5° 32' 15.07" W
Ahead = N 5° 09' 29.09" W
Chord Bear = N 5° 20' 52.08" W

Course from PT M-FM932PC35 to PC M-FM932PC36 N 5° 09' 29.09" W Dist 1,507.9119

Curve Data
Curve M-FM932PC36
P.I. Station 1024+23.16 N 10,582,418.0957 E 2,990,718.3627
Delta = 66° 41' 51.07" (LT)
Degree = 15° 16' 43.95"
Tangent = 246.7860
Length = 436.5342
Radius = 375.0000
External = 73.9191
Long Chord = 412.3004
Mid. Ord. = 61.7476
P.C. Station 1021+76.37 N 10,582,172.3091 E 2,990,740.5497
P.T. Station 1026+12.91 N 10,582,494.9481 E 2,990,483.8482
C.C. Station 1026+12.91 N 10,582,138.5951 E 2,990,367.0683
Back = N 5° 09' 29.09" W
Ahead = N 71° 51' 20.16" W
Chord Bear = N 38° 30' 24.63" W

Course from PT M-FM932PC36 to 9320008 N 71° 51' 20.16" W Dist 843.0893

Point 9320008 N 10,582,757.4970 E 2,989,682.6817 Sta 1034+56.00

Course from 9320008 to 9320009 N 72° 01' 22.01" W Dist 1,566.3754

Point 9320009 N 10,583,240.9413 E 2,988,192.7779 Sta 1050+22.37

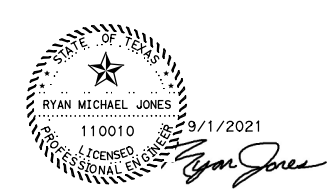
Course from 9320009 to 9320010 N 71° 51' 02.00" W Dist 2,544.5769

Point 9320010 N 10,584,033.5682 E 2,985,774.8006 Sta 1075+66.95

Course from 9320010 to PC M-FM932PC37 N 17° 33' 46.59" E Dist 547.7610

Curve Data
Curve M-FM932PC37
P.I. Station 1082+98.94 N 10,584,731.4377 E 2,985,995.6811
Delta = 37° 02' 16.31" (LT)
Degree = 10° 25' 02.69"
Tangent = 184.2295
Length = 355.5380
Radius = 550.0000
External = 30.0349
Long Chord = 349.3798
Mid. Ord. = 28.4797
P.C. Station 1081+14.71 N 10,584,555.7959 E 2,985,940.0893
P.T. Station 1084+70.25 N 10,584,905.1270 E 2,985,934.2601
C.C. Station 1084+70.25 N 10,584,721.7602 E 2,985,415.7270
Back = N 17° 33' 46.59" E
Ahead = N 19° 28' 29.72" W
Chord Bear = N 0° 57' 21.56" W

Course from PT M-FM932PC37 to PC M-FM932PC38 N 19° 28' 29.72" W Dist 427.2090



FM 932
HORIZONTAL ALIGNMENT DATA

(SHEET 4 OF 7)

Table with 4 columns: DESIGN, FED. RD. DIV. NO., FEDERAL AID PROJECT NO., HIGHWAY NO. and 4 rows of project details including JP, RJ, TX, WACO, HAMILTON, CONTROL, SECTION, JOB, and 0867, 01, 017.

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PROPOSED FM 932 (cont.) - HORIZONTAL ALIGNMENT

Curve Data

Curve M-FM932PC38
P.I. Station = 1089+29.59 N 10,585,338.1898 E 2,985,781.1178
Delta = 0° 22' 05.61" (RT)
Degree = 0° 34' 22.65"
Tangent = 32.1339
Length = 64.2676
Radius = 10,000.0000
External = 0.0516
Long Chord = 64.2675
Mid. Ord. = 0.0516
P.C. Station = 1088+97.46 N 10,585,307.8943 E 2,985,791.8311
P.T. Station = 1089+61.73 N 10,585,368.5534 E 2,985,770.5995
C.C. = N 19° 28' 29.72" W 2,995,219.7061
Back = N 19° 06' 24.11" W
Ahead = N 19° 17' 26.91" W
Chord Bear = N 19° 17' 26.91" W

Course from PT M-FM932PC38 to 9320011 N 19° 06' 24.11" W Dist 519.4354

Point 9320011 N 10,585,859.3735 E 2,985,600.5735 Sta 1094+81.16

Course from 9320011 to PC M-FM932PC39 N 19° 05' 49.59" W Dist 500.9886

Curve Data

Curve M-FM932PC39
P.I. Station = 1100+33.70 N 10,586,381.5001 E 2,985,419.8005
Delta = 0° 35' 26.43" (LT)
Degree = 0° 34' 22.65"
Tangent = 51.5466
Length = 103.0923
Radius = 10,000.0000
External = 0.1329
Long Chord = 103.0919
Mid. Ord. = 0.1329
P.C. Station = 1099+82.15 N 10,586,332.7904 E 2,985,436.6650
P.T. Station = 1100+85.24 N 10,586,430.0335 E 2,985,402.4347
C.C. = N 19° 05' 49.59" W 2,975,987.0107
Back = N 19° 41' 16.02" W
Ahead = N 19° 23' 32.80" W
Chord Bear = N 19° 23' 32.80" W

Course from PT M-FM932PC39 to PC M-FM932PC40 N 19° 41' 16.02" W Dist 735.2965

Curve Data

Curve M-FM932PC40
P.I. Station = 1109+84.67 N 10,587,276.8819 E 2,985,099.4228
Delta = 18° 38' 30.24" (LT)
Degree = 5° 43' 46.48"
Tangent = 164.1303
Length = 325.3596
Radius = 1,000.0000
External = 13.3799
Long Chord = 323.9264
Mid. Ord. = 13.2032
P.C. Station = 1108+20.54 N 10,587,122.3463 E 2,985,154.7174
P.T. Station = 1111+45.90 N 10,587,405.6351 E 2,984,997.6320
C.C. = N 19° 41' 16.02" W 2,984,213.1750
Back = N 38° 19' 46.26" W
Ahead = N 29° 00' 31.14" W
Chord Bear = N 29° 00' 31.14" W

Course from PT M-FM932PC40 to PC M-FM932PC41 N 38° 19' 46.26" W Dist 205.3022

Curve Data

Curve M-FM932PC41
P.I. Station = 1114+26.70 N 10,587,625.9107 E 2,984,823.4844
Delta = 35° 37' 15.81" (LT)
Degree = 24° 22' 52.26"
Tangent = 75.4979
Length = 146.1006
Radius = 235.0000
External = 11.8298
Long Chord = 143.7590
Mid. Ord. = 11.2628
P.C. Station = 1113+51.20 N 10,587,566.6858 E 2,984,870.3070
P.T. Station = 1114+97.30 N 10,587,646.7833 E 2,984,750.9292
C.C. = N 38° 19' 46.26" W 2,984,685.9596
Back = N 73° 57' 02.07" W
Ahead = N 56° 08' 24.16" W
Chord Bear = N 56° 08' 24.16" W

Course from PT M-FM932PC41 to 9320012 N 73° 57' 02.07" W Dist 185.7596

Point 9320012 N 10,587,698.1396 E 2,984,572.4098 Sta 1116+83.06

Course from 9320012 to PC M-FM932PC42 N 12° 54' 42.22" E Dist 337.2130

PROPOSED FM 932 (cont.) - HORIZONTAL ALIGNMENT

Curve Data

Curve M-FM932PC42
P.I. Station = 1121+54.17 N 10,588,157.3339 E 2,984,677.6783
Delta = 5° 21' 11.87" (RT)
Degree = 2° 00' 01.98"
Tangent = 133.8930
Length = 267.5911
Radius = 2,864.0000
External = 3.1281
Long Chord = 267.4938
Mid. Ord. = 3.1247
P.C. Station = 1120+20.27 N 10,588,026.8263 E 2,984,647.7599
P.T. Station = 1122+87.87 N 10,588,284.4809 E 2,984,719.6421
C.C. = N 12° 54' 42.22" E 2,987,439.3451
Back = N 18° 15' 54.09" E
Ahead = N 15° 35' 18.15" E
Chord Bear = N 15° 35' 18.15" E

Course from PT M-FM932PC42 to 9320013 N 18° 15' 54.09" E Dist 807.6287

Point 9320013 N 10,589,051.4188 E 2,984,972.7632 Sta 1130+95.49

Course from 9320013 to 9320014 N 71° 55' 58.57" W Dist 360.4704

Point 9320014 N 10,589,163.2115 E 2,984,630.0662 Sta 1134+55.96

Course from 9320014 to PC M-FM932PC43 N 18° 12' 02.59" E Dist 292.3212

Curve Data

Curve M-FM932PC43
P.I. Station = 1138+00.38 N 10,589,490.3953 E 2,984,737.6433
Delta = 0° 35' 49.03" (LT)
Degree = 0° 34' 22.65"
Tangent = 52.0943
Length = 104.1877
Radius = 10,000.0000
External = 0.1357
Long Chord = 104.1872
Mid. Ord. = 0.1357
P.C. Station = 1137+48.29 N 10,589,440.9073 E 2,984,721.3718
P.T. Station = 1138+52.47 N 10,589,540.0500 E 2,984,753.3983
C.C. = N 18° 12' 02.59" E 2,975,221.6905
Back = N 17° 36' 13.57" E
Ahead = N 17° 54' 08.08" E
Chord Bear = N 17° 54' 08.08" E

Course from PT M-FM932PC43 to PC M-FM932PC44 N 17° 36' 13.57" E Dist 306.3963

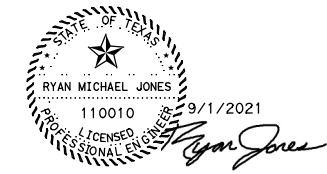
Curve Data

Curve M-FM932PC44
P.I. Station = 1141+89.85 N 10,589,861.6273 E 2,984,855.4319
Delta = 0° 21' 18.01" (LT)
Degree = 0° 34' 22.65"
Tangent = 30.9800
Length = 61.9599
Radius = 10,000.0000
External = 0.0480
Long Chord = 61.9598
Mid. Ord. = 0.0480
P.C. Station = 1141+58.87 N 10,589,832.0980 E 2,984,846.0625
P.T. Station = 1142+20.83 N 10,589,891.2140 E 2,984,864.6181
C.C. = N 17° 36' 13.57" E 2,975,314.3547
Back = N 17° 14' 55.55" E
Ahead = N 17° 25' 34.56" E
Chord Bear = N 17° 25' 34.56" E

Course from PT M-FM932PC44 to 9320015 N 17° 14' 55.55" E Dist 1,134.4267


Point 9320015 N 10,590,974.6213 E 2,985,200.9994 Sta 1153+55.26

Ending chain M-FM932PC description



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FIRM REGISTRATION NO. F-230



Texas Department of Transportation
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FM 932

HORIZONTAL ALIGNMENT DATA

(SHEET 5 OF 7)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 91 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

PROPOSED FM 932 SIDESTREET- HORIZONTAL ALIGNMENT

CR 435

Point CR4350001 N 10,548,960.0391 E 3,030,653.5672 Sta 0+25.00
 Course from CR4350001 to PC CR4351 N 76° 45' 01.24" E Dist 21.9644

Curve Data

Curve CR4351
 P.I. Station = 0+76.60 N 10,548,971.8666 E 3,030,703.7983
 Delta = 27° 36' 28.92" (LT)
 Degree = 47° 29' 38.94"
 Tangent = 29.6404
 Length = 58.1293
 Radius = 120.6376
 External = 3.5879
 Long Chord = 57.5686
 Mid. Ord. = 3.4843
 P.C. Station = 0+46.96 N 10,548,965.0732 E 3,030,674.9469
 P.T. Station = 1+05.09 N 10,548,991.2568 E 3,030,726.2164
 C.C. = N 76° 45' 01.24" E
 Back = N 49° 08' 32.32" E
 Ahead = N 62° 56' 46.78" E
 Chord Bear = N 62° 56' 46.78" E

Course from PT CR4351 to CR4350002 N 49° 08' 32.32" E Dist 94.9063

Point CR4350002 N 10,549,053.3429 E 3,030,797.9975 Sta 2+00.00

CR 432

Point CR4320001 N 10,550,416.5618 E 3,030,897.8833 Sta 1+00.00
 Course from CR4320001 to PC CR4321 S 81° 07' 35.95" E Dist 30.5262

Curve Data

Curve CR4321
 P.I. Station = 2+05.56 N 10,550,400.2790 E 3,031,002.1802
 Delta = 21° 40' 20.07" (LT)
 Degree = 14° 36' 58.57"
 Tangent = 75.0342
 Length = 148.2748
 Radius = 392.0000
 External = 7.1167
 Long Chord = 147.3924
 Mid. Ord. = 6.9898
 P.C. Station = 1+30.53 N 10,550,411.8531 E 3,030,928.0441
 P.T. Station = 2+78.80 N 10,550,416.9013 E 3,031,075.3501
 C.C. = N 81° 07' 35.95" E
 Back = N 77° 12' 03.98" E
 Ahead = N 88° 02' 14.01" E
 Chord Bear = N 88° 02' 14.01" E

Curve Data

Curve CR4322
 P.I. Station = 3+24.84 N 10,550,427.1013 E 3,031,120.2496
 Delta = 22° 32' 42.75" (LT)
 Degree = 24° 48' 12.12"
 Tangent = 46.0435
 Length = 90.8958
 Radius = 231.0000
 External = 4.5441
 Long Chord = 90.3105
 Mid. Ord. = 4.4564
 P.C. Station = 2+78.80 N 10,550,416.9013 E 3,031,075.3501
 P.T. Station = 3+69.70 N 10,550,453.7368 E 3,031,157.8069
 C.C. = N 77° 12' 03.98" E
 Back = N 54° 39' 21.23" E
 Ahead = N 65° 55' 42.60" E
 Chord Bear = N 65° 55' 42.60" E

Course from PT CR4322 to CR4320002 N 54° 39' 21.23" E Dist 20.3033

Point CR4320002 N 10,550,465.4820 E 3,031,174.3682 Sta 3+90.00

CR 431 (S)

Point S4310001 N 10,556,568.8228 E 3,029,388.2696 Sta 1+00.00
 Course from S4310001 to PC CR431S1 N 78° 35' 24.72" E Dist 15.6207

Curve Data

Curve CR431S1
 P.I. Station = 1+44.13 N 10,556,577.5525 E 3,029,431.5259
 Delta = 31° 49' 23.59" (LT)
 Degree = 57° 17' 44.81"
 Tangent = 28.5077
 Length = 55.5420
 Radius = 100.0000
 External = 3.9841
 Long Chord = 54.8308
 Mid. Ord. = 3.8314
 P.C. Station = 1+15.62 N 10,556,571.9129 E 3,029,403.5816
 P.T. Station = 1+71.16 N 10,556,597.0793 E 3,029,452.2959
 C.C. = N 78° 35' 24.71" E
 Back = N 46° 46' 01.12" E
 Ahead = N 62° 40' 42.92" E
 Chord Bear = N 62° 40' 42.92" E

Course from PT CR431S1 to PC CR431S2 N 46° 46' 01.12" E Dist 31.4288

CR 431 (S) (CONT.)

Curve Data

Curve CR431S2
 P.I. Station = 2+52.04 N 10,556,652.4755 E 3,029,511.2188
 Delta = 24° 15' 56.33" (LT)
 Degree = 24° 54' 40.35"
 Tangent = 49.4456
 Length = 97.4085
 Radius = 230.0000
 External = 5.2549
 Long Chord = 96.6822
 Mid. Ord. = 5.1375
 P.C. Station = 2+02.59 N 10,556,618.6069 E 3,029,475.1940
 P.T. Station = 3+00.00 N 10,556,698.1568 E 3,029,530.1418
 C.C. = N 10,556,786.1790 E 3,029,317.6516
 Back = N 46° 46' 01.12" E
 Ahead = N 22° 30' 04.79" E
 Chord Bear = N 34° 38' 02.96" E

CR 431 (N)

Point N4310001 N 10,557,399.9763 E 3,028,854.9654 Sta 1+00.00
 Course from N4310001 to N4310002 S 73° 55' 00.48" E Dist 300.0000
 Point N4310002 N 10,557,316.8664 E 3,029,143.2235 Sta 4+00.00

CR 414

Point CR4140001 N 10,558,712.8577 E 3,024,524.4784 Sta 1+00.00
 Course from CR4140001 to CR4140002 N 16° 52' 47.23" E Dist 200.0000
 Point CR4140002 N 10,558,904.2409 E 3,024,582.5514 Sta 3+00.00

CR 409

Point CR4090001 N 10,560,080.9209 E 3,019,411.7055 Sta 1+00.00
 Course from CR4090001 to PC CR4091 N 16° 33' 49.29" E Dist 80.1967

Curve Data

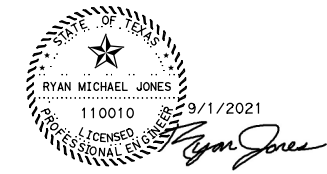
Curve CR4091
 P.I. Station = 2+11.61 N 10,560,187.9012 E 3,019,443.5239
 Delta = 5° 59' 39.74" (LT)
 Degree = 9° 32' 57.47"
 Tangent = 31.4151
 Length = 62.7729
 Radius = 600.0000
 External = 0.8219
 Long Chord = 62.7443
 Mid. Ord. = 0.8207
 P.C. Station = 1+80.20 N 10,560,157.7897 E 3,019,434.5681
 P.T. Station = 2+42.97 N 10,560,218.7834 E 3,019,449.2862
 C.C. = N 16° 33' 49.29" E
 Back = N 10° 34' 09.55" E
 Ahead = N 13° 33' 59.42" E
 Chord Bear = N 13° 33' 59.42" E

Course from PT CR4091 to CR4090002 N 10° 34' 09.55" E Dist 57.0304

Point CR4090002 N 10,560,274.8462 E 3,019,459.7470 Sta 3+00.00

CR 412

Point CR4120001 N 10,565,274.1012 E 3,012,972.8201 Sta 1+00.00
 Course from CR4120001 to CR4120002 N 16° 40' 38.59" E Dist 200.0000
 Point CR4120002 N 10,565,465.6884 E 3,013,030.2165 Sta 3+00.00



FM 932

HORIZONTAL ALIGNMENT DATA

(SHEET 6 OF 7)

| | | | | |
|------------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | RJ | STATE | DISTRICT | COUNTY |
| GRAPHICS | JP | TX | WACO | HAMILTON |
| GRPH CHECK | RJ | CONTROL | SECTION | JOB |
| | | 0867 | 01 | 017 |

PROPOSED FM 932 SIDESTREET- HORIZONTAL ALIGNMENT

CR 408

Point CR4080001 N 10,565,757.0009 E 3,010,370.7723 Sta 1+00.00
 Course from CR4080001 to PC CR4081 N 17° 22' 30.06" E Dist 142.0207

Curve Data

Curve CR4081
 P.I. Station = 2+56.45 N 10,565,906.3140 E 3,010,417.4927
 Delta = 16° 25' 25.05" (LT)
 Degree = 57° 17' 44.81"
 Tangent = 14.4313
 Length = 28.6646
 Radius = 100.0000
 External = 1.0359
 Long Chord = 28.5666
 Mid. Ord. = 1.0253
 P.C. Station = 2+42.02 N 10,565,892.5413 E 3,010,413.1832
 P.T. Station = 2+70.69 N 10,565,920.7433 E 3,010,417.7323
 C.C. = N 10,565,922.4037 E 3,010,317.7461
 Back = N 17° 22' 30.06" E
 Ahead = N 0° 57' 05.00" E
 Chord Bear = N 9° 09' 47.53" E

Course from PT CR4081 to CR4080002 N 0° 57' 05.01" E Dist 29.3148

Point CR4080002 N 10,565,950.0540 E 3,010,418.2191 Sta 3+00.00

CR 420

Point CR4200001 N 10,565,766.7116 E 3,009,888.1109 Sta 1+00.00
 Course from CR4200001 to PC CR4201 N 14° 39' 08.62" E Dist 120.9726

Curve Data

Curve CR4201
 P.I. Station = 2+40.14 N 10,565,902.2913 E 3,009,923.5592
 Delta = 7° 18' 37.41" (LT)
 Degree = 19° 05' 54.94"
 Tangent = 19.1646
 Length = 38.2771
 Radius = 300.0000
 External = 0.6115
 Long Chord = 38.2512
 Mid. Ord. = 0.6103
 P.C. Station = 2+20.97 N 10,565,883.7500 E 3,009,918.7114
 P.T. Station = 2+59.25 N 10,565,921.2987 E 3,009,926.0082
 C.C. = N 10,565,959.6362 E 3,009,628.4679
 Back = N 14° 39' 08.62" E
 Ahead = N 7° 20' 31.21" E
 Chord Bear = N 10° 59' 49.92" E

Course from PT CR4201 to CR4200002 N 7° 20' 31.21" E Dist 40.7503

Point CR4200002 N 10,565,961.7148 E 3,009,931.2158 Sta 3+00.00

FM 3340

Point FM33400001 N 10,568,383.4846 E 3,007,093.8113 Sta 1+00.00
 Course from FM33400001 to PC FM33401 N 17° 15' 39.46" E Dist 127.1926

Curve Data

Curve FM33401
 P.I. Station = 2+45.12 N 10,568,522.0693 E 3,007,136.8721
 Delta = 20° 19' 40.33" (RT)
 Degree = 57° 17' 44.81"
 Tangent = 17.9279
 Length = 35.4788
 Radius = 100.0000
 External = 1.5943
 Long Chord = 35.2930
 Mid. Ord. = 1.5693
 P.C. Station = 2+27.19 N 10,568,504.9489 E 3,007,131.5524
 P.T. Station = 2+62.67 N 10,568,536.2755 E 3,007,147.8079
 C.C. = N 10,568,475.2764 E 3,007,227.0487
 Back = N 17° 15' 39.46" E
 Ahead = N 37° 35' 19.79" E
 Chord Bear = N 27° 25' 29.62" E

Course from PT FM33401 to FM33400002 N 37° 35' 19.78" E Dist 37.3286

Point FM33400002 N 10,568,565.8550 E 3,007,170.5780 Sta 3+00.00

CR 402

Curve Data

Curve CR4021
 P.I. Station = 1+91.14 N 10,570,958.6392 E 3,001,419.2052
 Delta = 10° 31' 12.93" (LT)
 Degree = 5° 47' 14.83"
 Tangent = 91.1447
 Length = 181.7770
 Radius = 990.0000
 External = 4.1868
 Long Chord = 181.5218
 Mid. Ord. = 4.1692
 P.C. Station = 1+00.00 N 10,570,877.2067 E 3,001,378.2649
 P.T. Station = 2+81.78 N 10,571,046.1778 E 3,001,444.5892
 C.C. = N 10,571,321.8942 E 3,000,493.7577
 Back = N 26° 41' 27.75" E
 Ahead = N 16° 10' 14.82" E
 Chord Bear = N 21° 25' 51.28" E

CR 404

Point CR4040001 N 10,572,138.2861 E 2,996,713.8840 Sta 1+00.00
 Course from CR4040001 to CR4040002 N 18° 32' 38.71" E Dist 200.0000
 Point CR4040002 N 10,572,327.9020 E 2,996,777.4909 Sta 3+00.00

CR 400

Point CR4000003 N 10,579,062.0602 E 2,991,031.7141 Sta 1+00.00
 Course from CR4000003 to CR4000004 N 84° 33' 31.80" E Dist 200.0000
 Point CR4000004 N 10,579,081.0249 E 2,991,230.8129 Sta 3+00.00

FM 1241

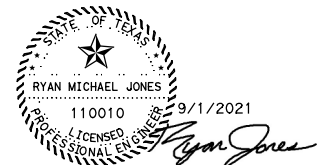
Point FM12410001 N 10,583,843.1521 E 2,985,713.6313 Sta 1+00.00
 Course from FM12410001 to FM12410002 N 17° 48' 32.72" E Dist 200.0000
 Point FM12410002 N 10,584,033.5682 E 2,985,774.8006 Sta 3+00.00

EDISON RD

Point ER0001 N 10,586,359.1596 E 2,985,257.8007 Sta 1+00.00
 Course from ER0001 to ER0002 S 72° 24' 55.55" E Dist 200.0000
 Point ER0002 N 10,586,298.7369 E 2,985,448.4551 Sta 3+00.00

S. LOYD ST

Point LS0001 N 10,587,560.7163 E 2,984,875.0264 Sta 1+00.00
 Course from LS0001 to LS0002 N 17° 53' 03.71" E Dist 200.0000
 Point LS0002 N 10,587,751.0519 E 2,984,936.4458 Sta 3+00.00

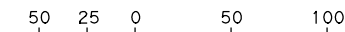


FM 932

HORIZONTAL ALIGNMENT DATA

(SHEET 7 OF 7)

| | | | | |
|-----------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. |
| RJ | TX | WACO | HAMILTON | 93 |
| GRAPHICS | CONTROL | SECTION | JOB | |
| JP | RJ | 0867 | 01 | 017 |

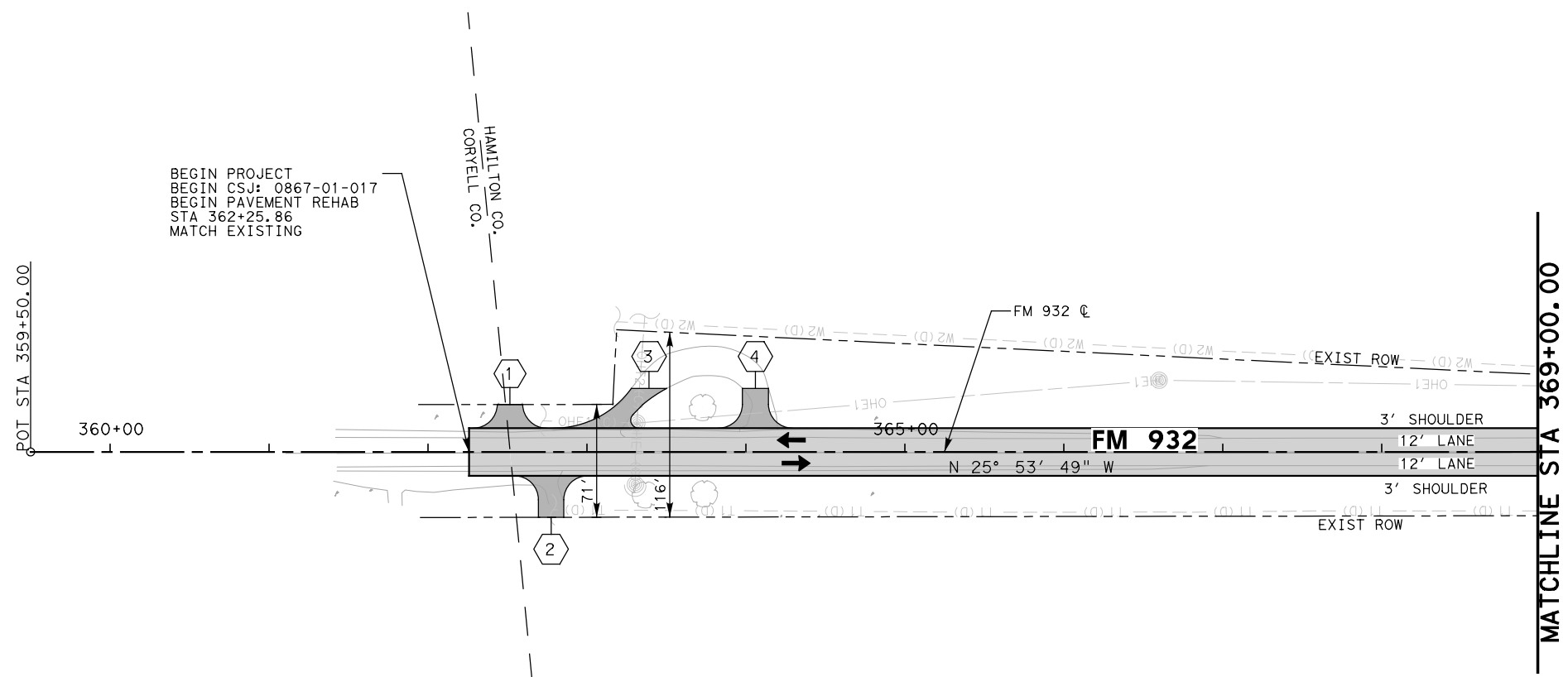


HORIZONTAL SCALE: 1" = 100'



VERTICAL SCALE: 1" = 10'

- NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

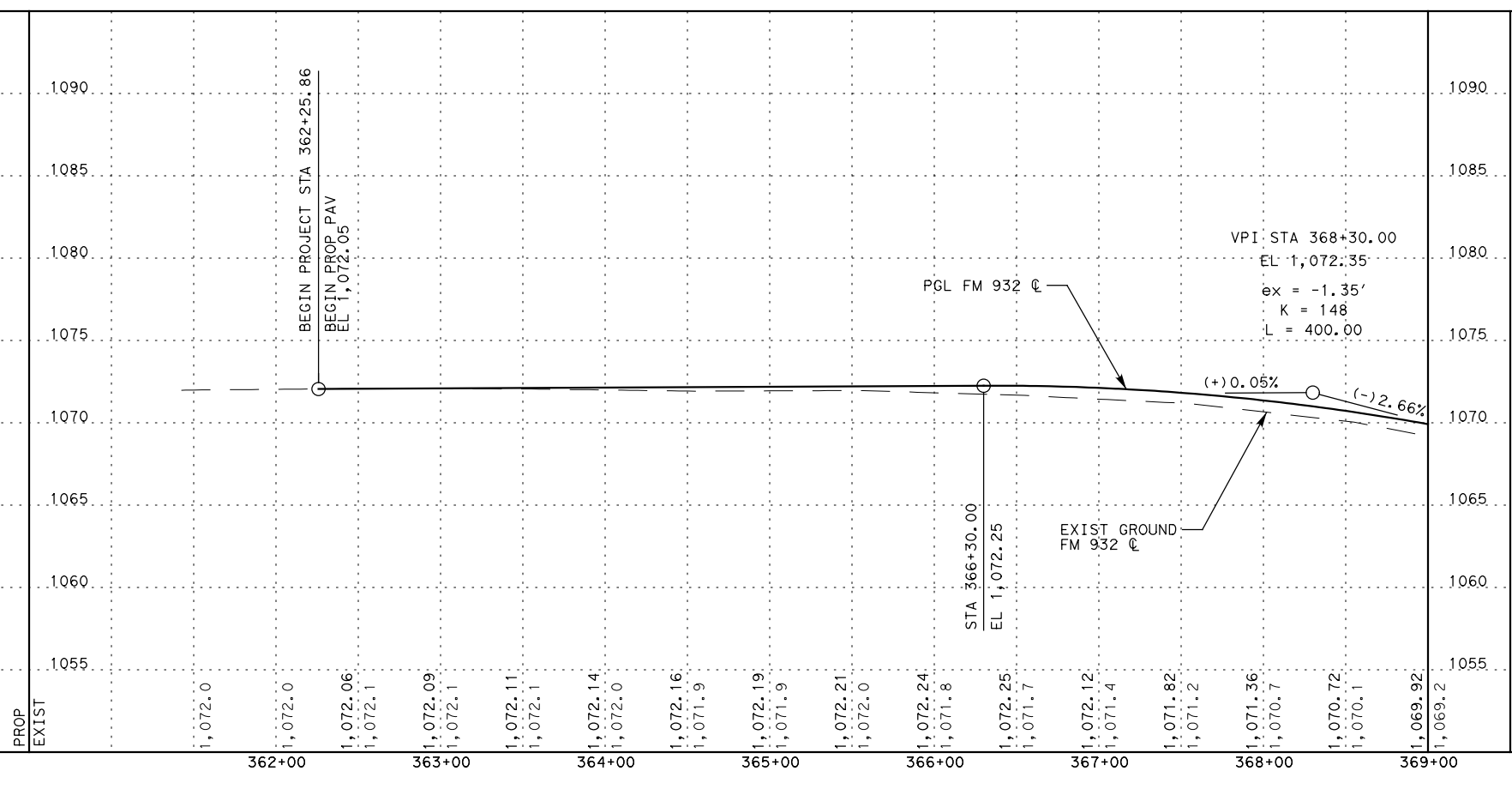


BEGIN PROJECT
 BEGIN CSJ: 0867-01-017
 BEGIN PAVEMENT REHAB
 STA 362+25.86
 MATCH EXISTING

| STA 362+25.86 to | STA 363+00.00 to | STA 364+00.00 to | STA 365+00.00 to | STA 366+00.00 to | STA 367+00.00 to | STA 368+00.00 to | STA 369+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|--------------------|
| 120 | 146 | 122 | 92 | 56 | 38 | 29 | 603 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 2 | 3 | 4 | 11 | 21 | 17 | 19 | 77 | | | CY | EXCAVATION (RDWY) |
| 0.75 | 1 | 1 | 1 | 1 | 1 | 1 | 6.75 | | | STA | PREPARING R. O. W. |
| 41.7 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 374.7 | | | CY | FLEXBASE |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

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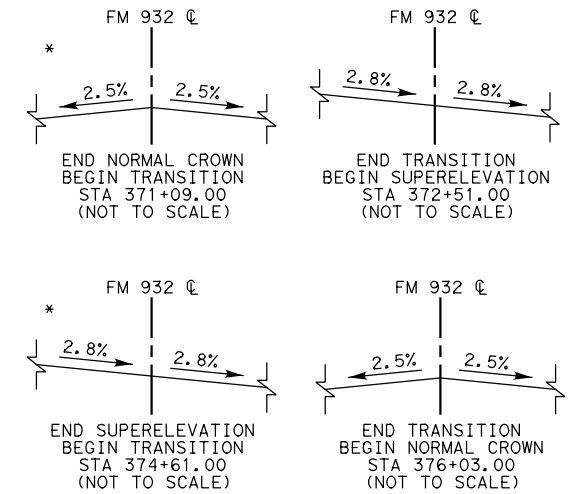
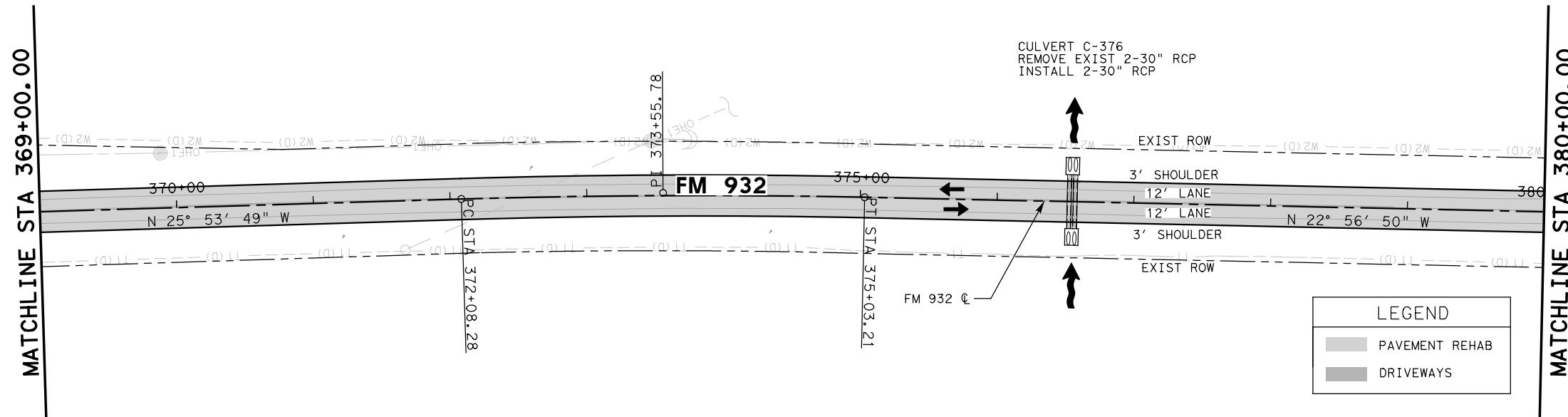
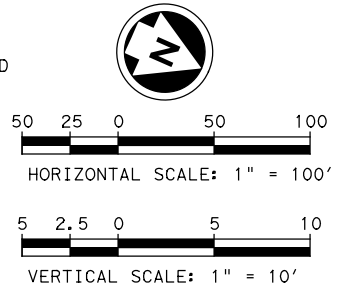
FM 932
PLAN AND PROFILE LAYOUT
 STA 362+25.86 TO STA 369+00.00

(SHEET 1 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 94 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

PI Station = 373+55.78
 Delta = 2° 56' 58.68" (RT)
 Degree of Curve = 1° 00' 00.36"
 Tangent = 147.50
 Length = 294.93
 Radius = 5729.00
 PC Station = 372+08.28
 PT Station = 375+03.21

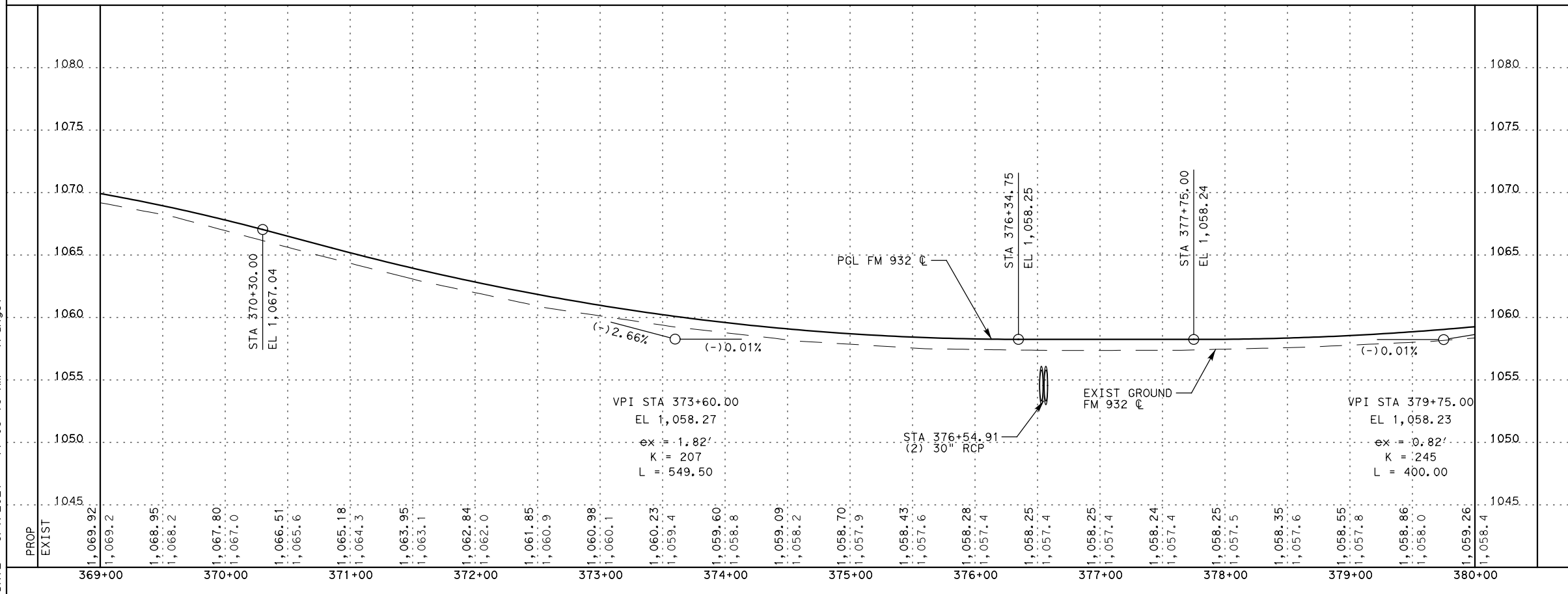
NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



| SECTION TOTALS | | | | | | | | | | | ESTIMATED | FINAL | UNIT | DESCRIPTION |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-----------|-------|------|-------------------|
| STA 369+00.00 to STA 370+00.00 | STA 370+00.00 to STA 371+00.00 | STA 371+00.00 to STA 372+00.00 | STA 372+00.00 to STA 373+00.00 | STA 373+00.00 to STA 374+00.00 | STA 374+00.00 to STA 375+00.00 | STA 375+00.00 to STA 376+00.00 | STA 376+00.00 to STA 377+00.00 | STA 377+00.00 to STA 378+00.00 | STA 378+00.00 to STA 379+00.00 | STA 379+00.00 to STA 380+00.00 | 140 | 390 | CY | EXCAVATION (RDWY) |
| 18 | 14 | 15 | 8 | 15 | 13 | 9 | 5 | 7 | 20 | 16 | 11 | 11 | STA | PREPARING R.O.W. |
| 18 | 24 | 34 | 34 | 28 | 29 | 34 | 99 | 44 | 23 | 23 | 610.5 | 610.5 | CY | FLEXBASE |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | | | | |

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

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 DATE: 9/1/2021 11:03:13 AM fRange1



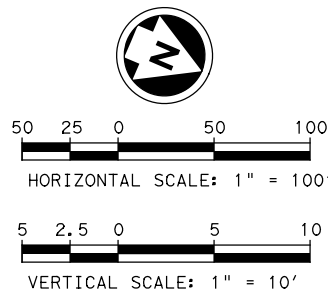
FM 932

PLAN AND PROFILE LAYOUT
 STA 369+00.00 TO STA 380+00.00

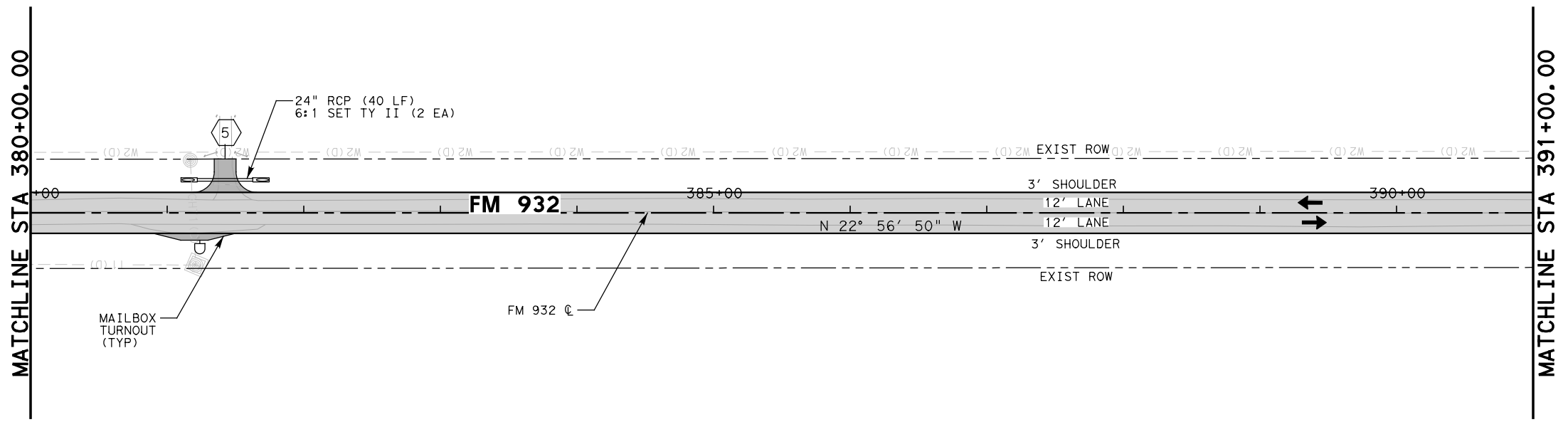
(SHEET 2 OF 74)

| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | | | | 95 |

| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |



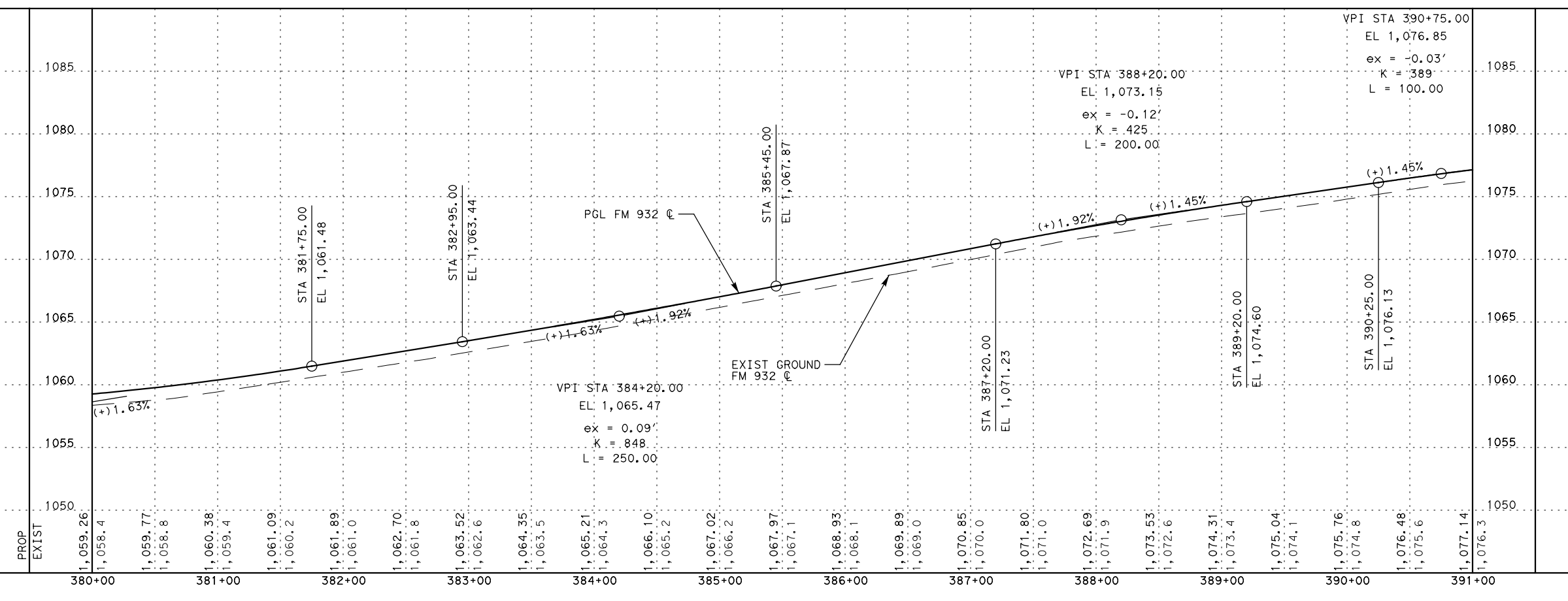
NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

| STA 380+00.00 to STA 381+00.00 | STA 381+00.00 to STA 382+00.00 | STA 382+00.00 to STA 383+00.00 | STA 383+00.00 to STA 384+00.00 | STA 384+00.00 to STA 385+00.00 | STA 385+00.00 to STA 386+00.00 | STA 386+00.00 to STA 387+00.00 | STA 387+00.00 to STA 388+00.00 | STA 388+00.00 to STA 389+00.00 | STA 389+00.00 to STA 390+00.00 | STA 390+00.00 to STA 391+00.00 | SECTION TOTALS | | | |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|--|--|-------------------|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | |
| 10 | 21 | 8 | 9 | 10 | 7 | 5 | 3 | 0 | 2 | 5 | 80 | | | EXCAVATION (RDWY) |
| 36 | 35 | 29 | 28 | 27 | 40 | 46 | 42 | 44 | 35 | 26 | 388 | | | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 610.5 | | | FLEXBASE |

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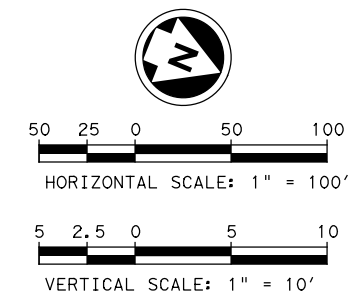


FM 932
PLAN AND PROFILE LAYOUT
 STA 380+00.00 TO STA 391+00.00

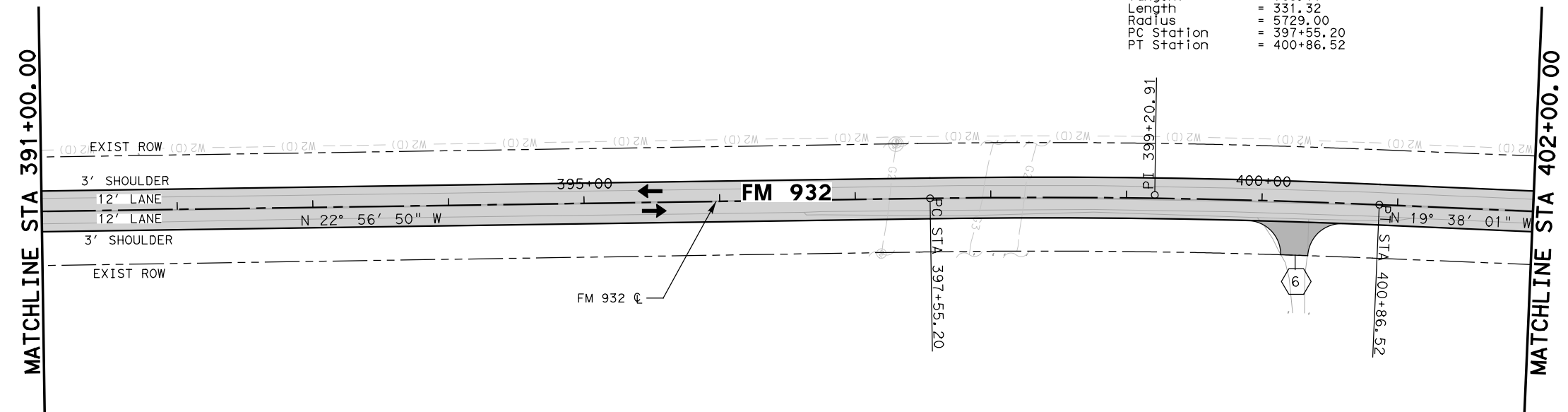
(SHEET 3 OF 74)

| | | | | |
|------------------|------------------------|--|----------|-----------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 96 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

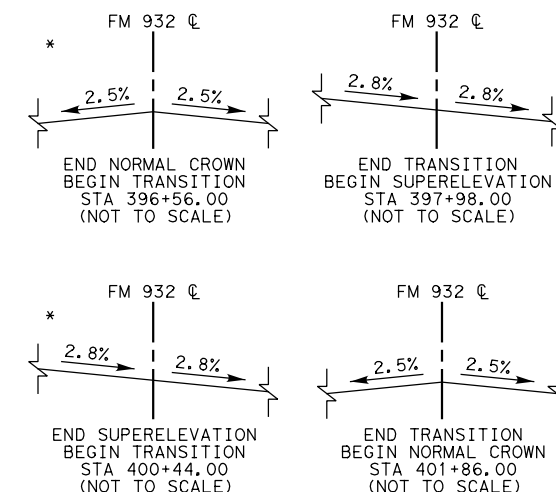
| LEGEND | |
|-----------|----------------|
| [Pattern] | PAVEMENT REHAB |
| [Pattern] | DRIVEWAYS |



PI Station = 399+20.91
 Delta = 3° 18' 48.77" (RT)
 Degree of Curve = 1° 00' 00.36"
 Tangent = 165.71
 Length = 331.32
 Radius = 5729.00
 PC Station = 397+55.20
 PT Station = 400+86.52



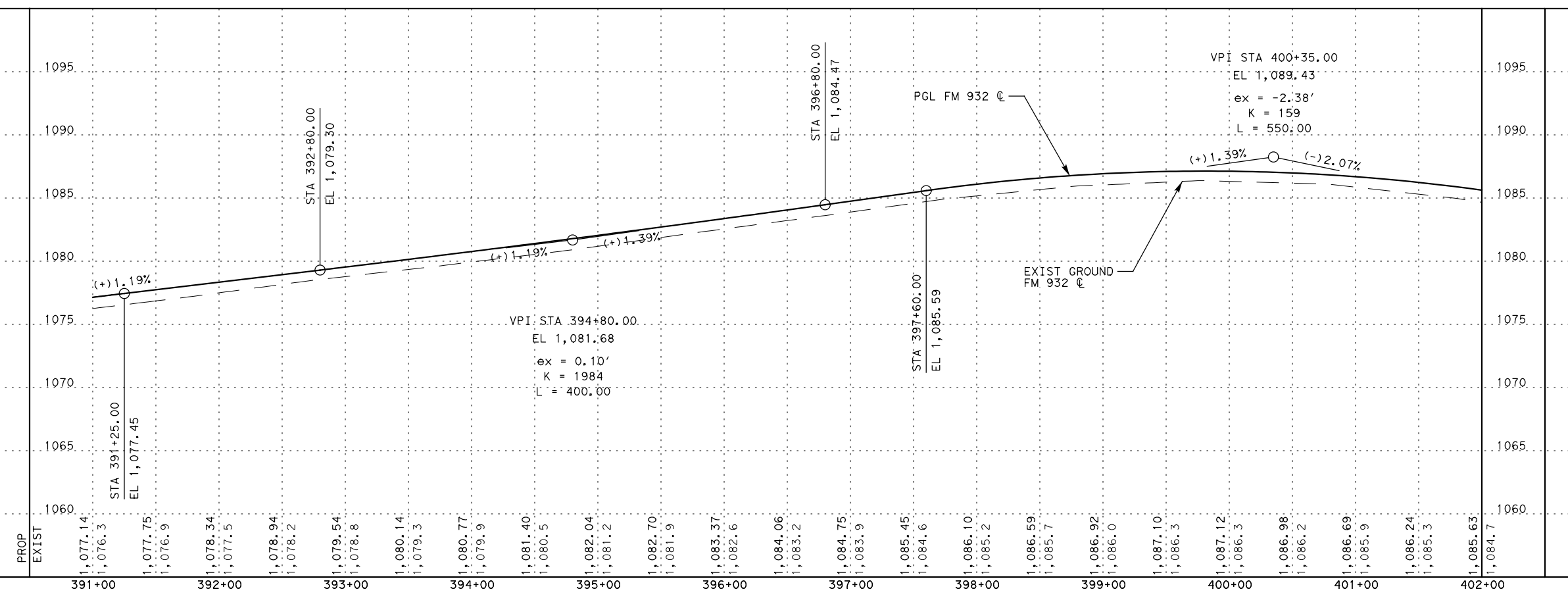
NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

| | | | | | | | | | | | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| STA 391+00.00 to | STA 392+00.00 to | STA 393+00.00 to | STA 394+00.00 to | STA 395+00.00 to | STA 396+00.00 to | STA 397+00.00 to | STA 398+00.00 to | STA 399+00.00 to | STA 400+00.00 to | STA 401+00.00 to | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 10 | 21 | 15 | 11 | 16 | 21 | 9 | 4 | 9 | 16 | 15 | 147 | 312 | CY | EXCAVATION (RDWY) |
| 21 | 23 | 18 | 19 | 22 | 22 | 38 | 44 | 42 | 40 | 23 | 312 | 312 | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | CY | FLEXBASE |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP04.dgn
DATE: 9/1/2021 11:03:17 AM fRange1



FM 932

PLAN AND PROFILE LAYOUT
STA 391+00.00 TO STA 402+00.00

(SHEET 4 OF 74)

| | | | | | | | | |
|------------|----|-------------------|------|-------------------------|-------------------|-------------|----------|--|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 | |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON | |
| GRAPHICS | JP | CONTROL | 0867 | SECTION | 01 | JOB | 017 | |
| GRPH CHECK | RJ | | | | | | 97 | |



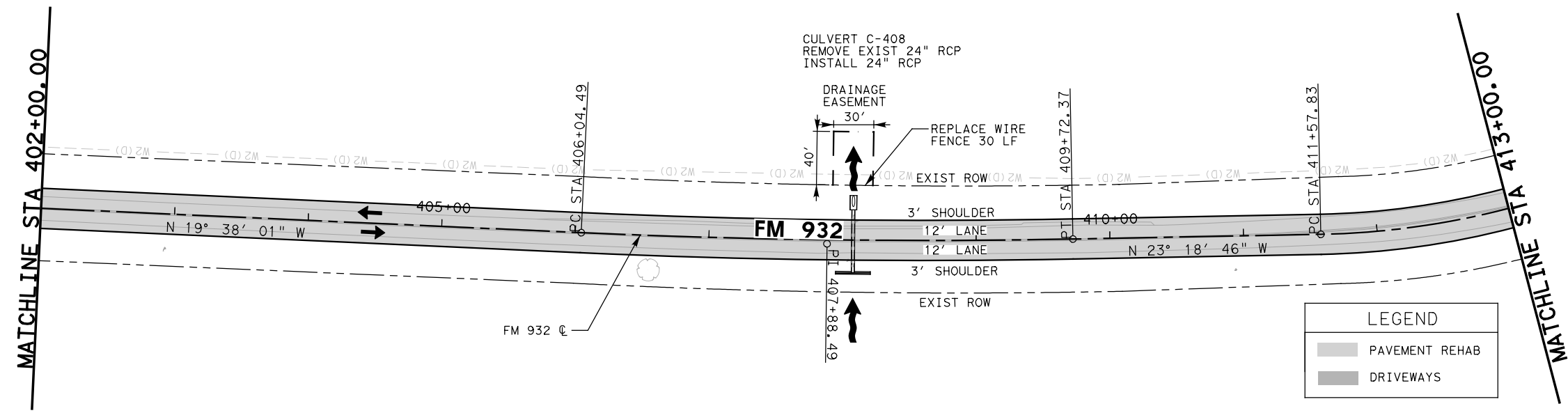
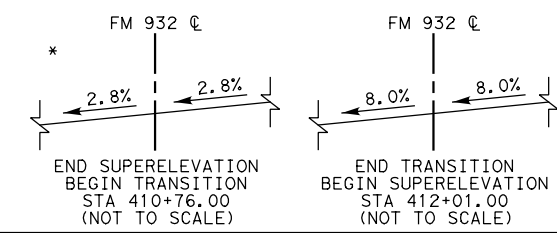
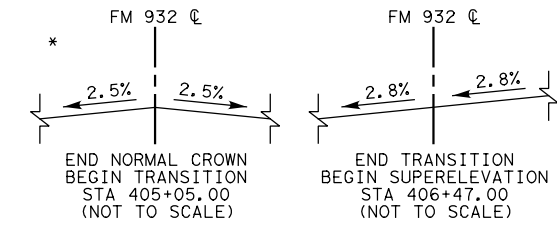
HORIZONTAL SCALE: 1" = 100'



VERTICAL SCALE: 1" = 10'

PI Station = 407+88.49
 Delta = 3° 40' 44.97" (LT)
 Degree of Curve = 1° 00' 00.36"
 Tangent = 184.00
 Length = 367.88
 Radius = 5729.00
 PC Station = 406+04.49
 PT Station = 409+72.37

- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM



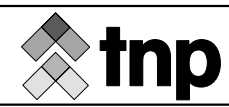
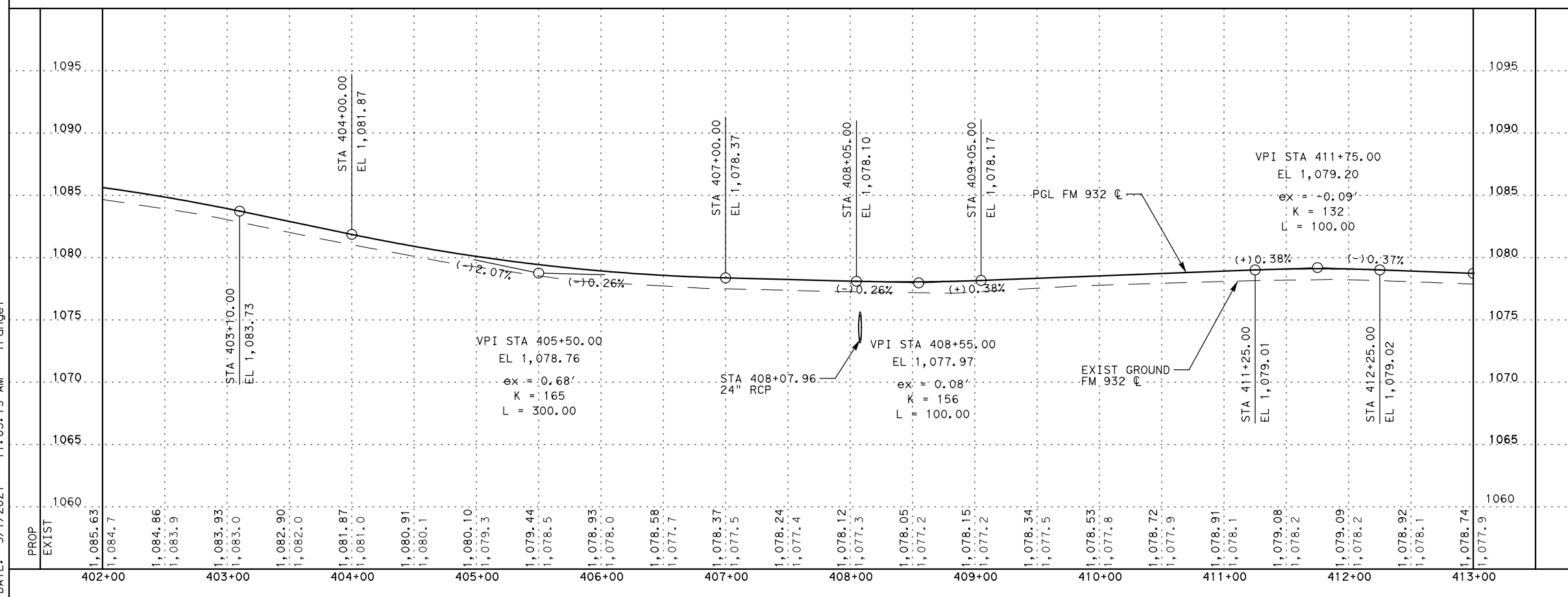
LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

| STA 402+00.00 to | STA 403+00.00 to | STA 404+00.00 to | STA 405+00.00 to | STA 406+00.00 to | STA 407+00.00 to | STA 408+00.00 to | STA 409+00.00 to | STA 410+00.00 to | STA 411+00.00 to | STA 412+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| 16 | 19 | 23 | 8 | 2 | 1 | 1 | 4 | 8 | 12 | 12 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 23 | 15 | 16 | 29 | 69 | 111 | 85 | 45 | 28 | 27 | 27 | 102 | 475 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | CY | FLEXBASE |

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

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DATE: 9/1/2021 11:03:19 AM frrange1

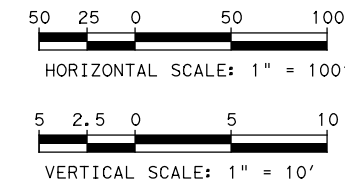


Texas Department of Transportation
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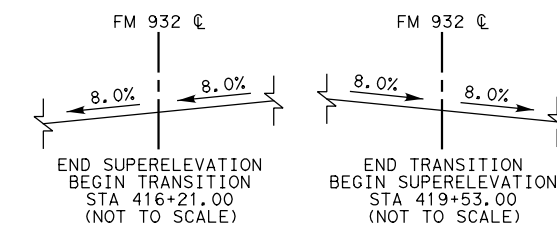
FM 932
PLAN AND PROFILE LAYOUT
STA 402+00.00 TO STA 413+00.00

(SHEET 5 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 98 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM

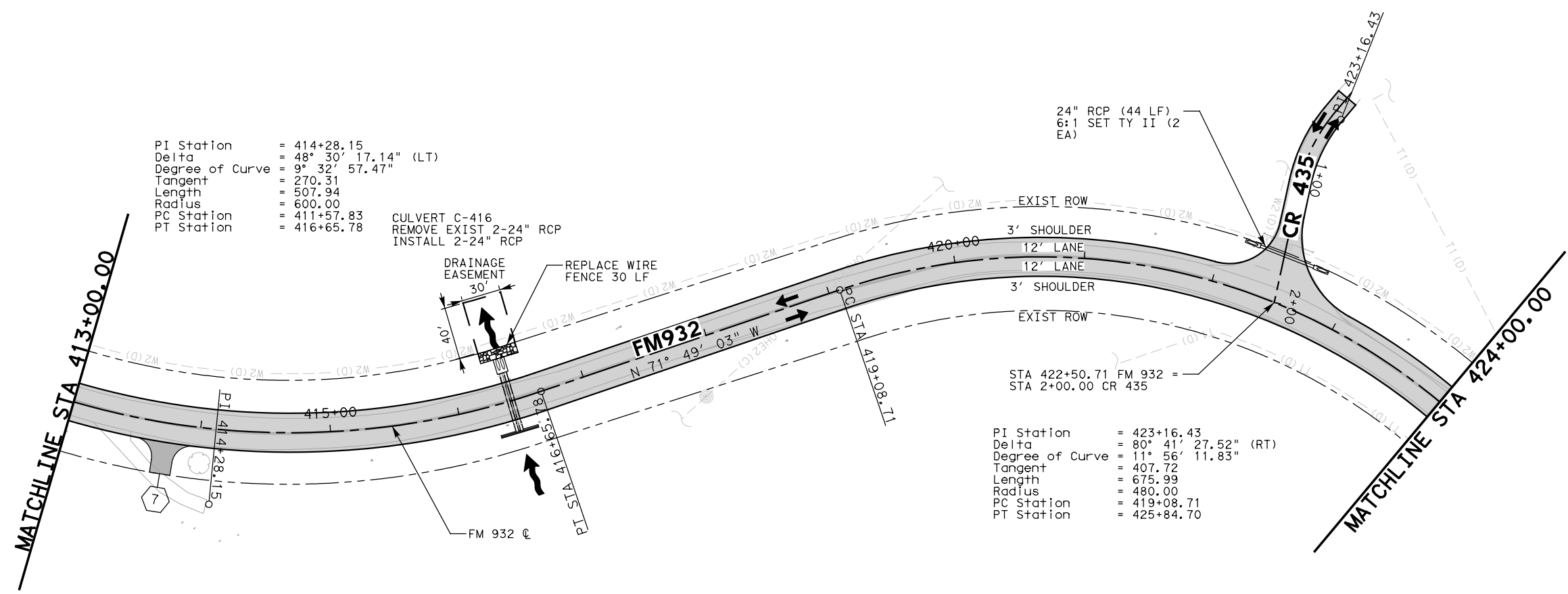


| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

PI Station = 414+28.15
 Delta = 48° 30' 17.14" (LT)
 Degree of Curve = 9° 32' 57.47"
 Tangent = 270.31
 Length = 507.94
 Radius = 600.00
 PC Station = 411+57.83
 PT Station = 416+65.78

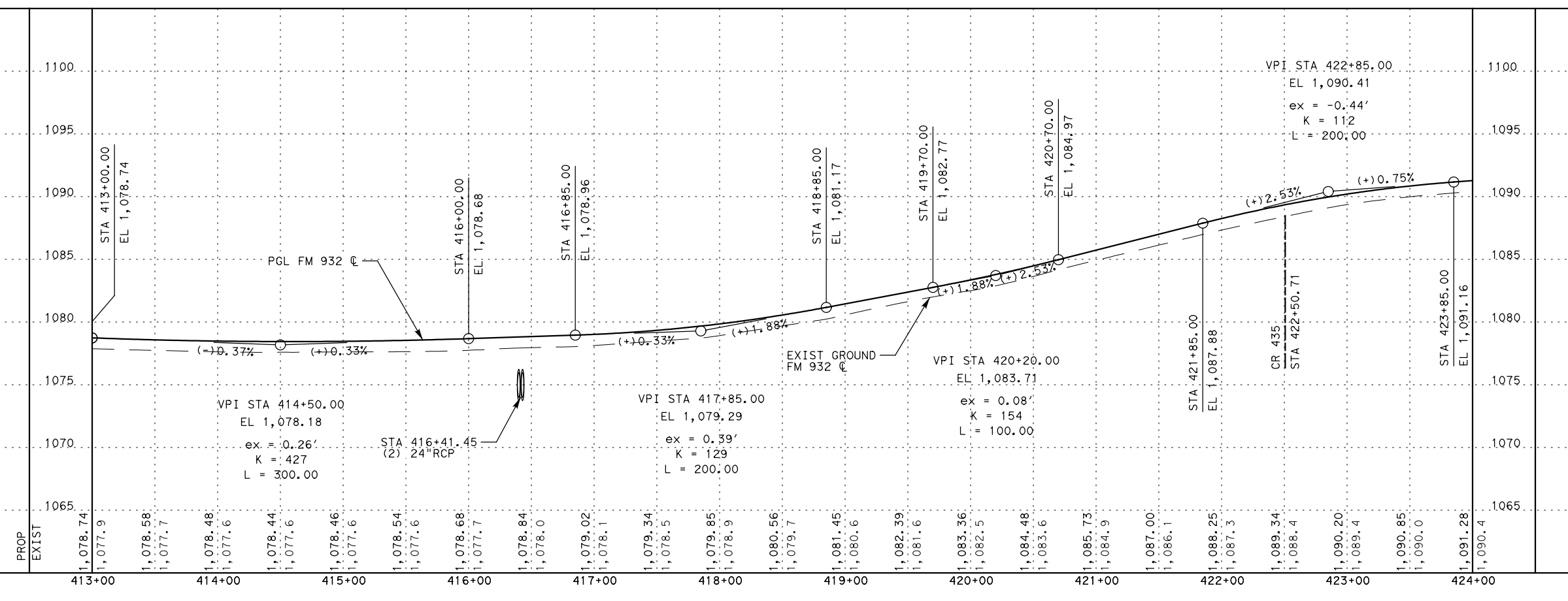
CULVERT C-416
 REMOVE EXIST 2-24" RCP
 INSTALL 2-24" RCP

PI Station = 423+16.43
 Delta = 80° 41' 27.52" (RT)
 Degree of Curve = 11° 56' 11.83"
 Tangent = 407.72
 Length = 675.99
 Radius = 480.00
 PC Station = 419+08.71
 PT Station = 425+84.70



| STA 413+00.00 to | STA 414+00.00 to | STA 415+00.00 to | STA 416+00.00 to | STA 417+00.00 to | STA 418+00.00 to | STA 419+00.00 to | STA 420+00.00 to | STA 421+00.00 to | STA 422+00.00 to | STA 423+00.00 to | STA 424+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| 9 | 8 | 8 | 20 | 17 | 15 | 15 | 4 | 3 | 5 | 3 | 3 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 25 | 25 | 39 | 116 | 49 | 34 | 47 | 30 | 26 | 12 | 24 | 24 | 107 | 427 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | CY | FLEXBASE |

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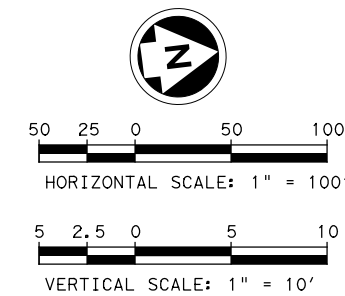
FM 932

PLAN AND PROFILE LAYOUT
 STA 413+00.00 TO STA 424+00.00

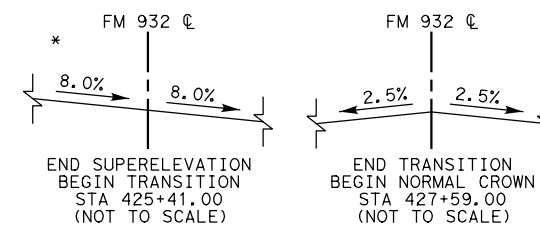
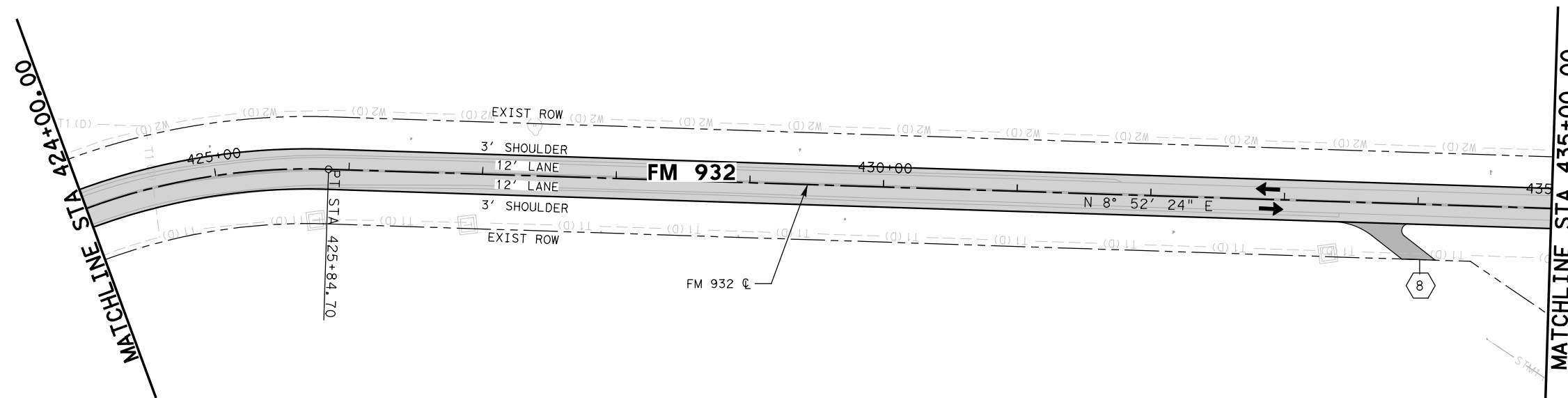
(SHEET 6 OF 74)

| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | 017 | | | |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |



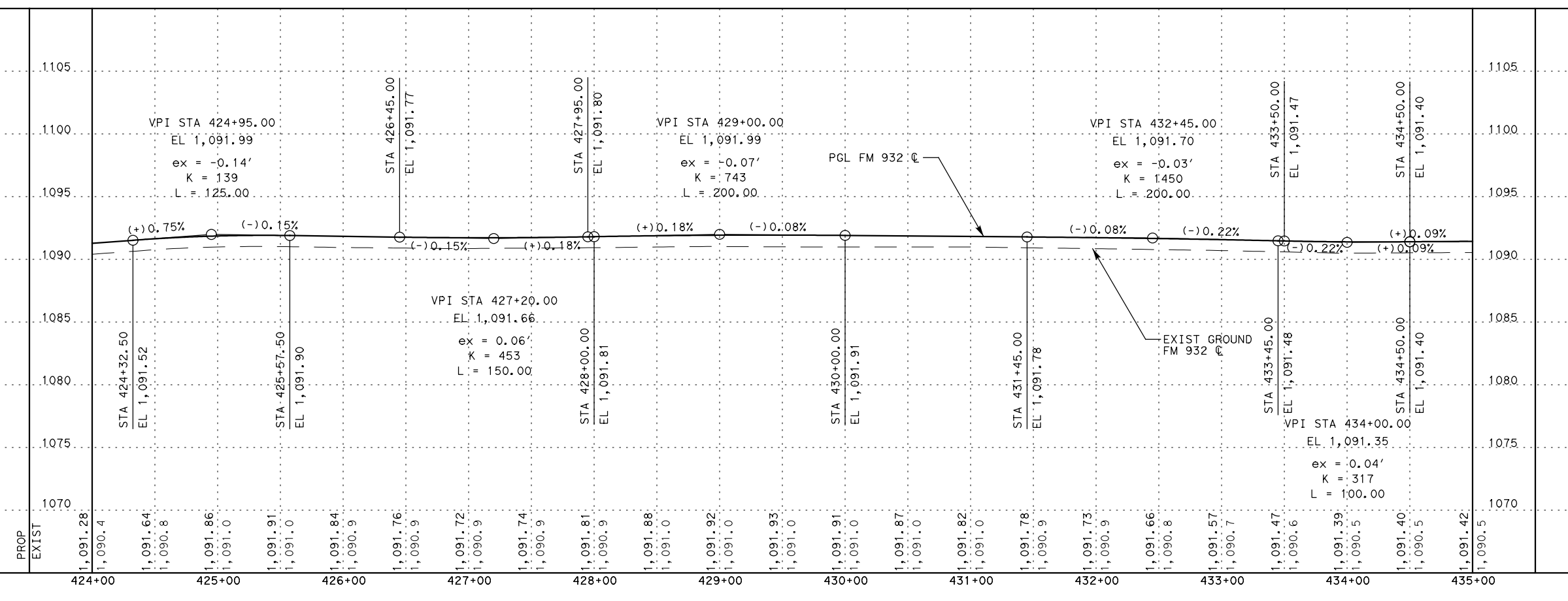
NOTES:
1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

| STA 424+00.00 to | STA 425+00.00 to | STA 426+00.00 to | STA 427+00.00 to | STA 428+00.00 to | STA 429+00.00 to | STA 430+00.00 to | STA 431+00.00 to | STA 432+00.00 to | STA 433+00.00 to | STA 434+00.00 to | STA 435+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| 3 | 6 | 14 | 25 | 17 | 13 | 19 | 25 | 27 | 27 | 23 | 23 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 33 | 50 | 34 | 33 | 23 | 18 | 19 | 18 | 19 | 20 | 19 | 19 | 199 | 286 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

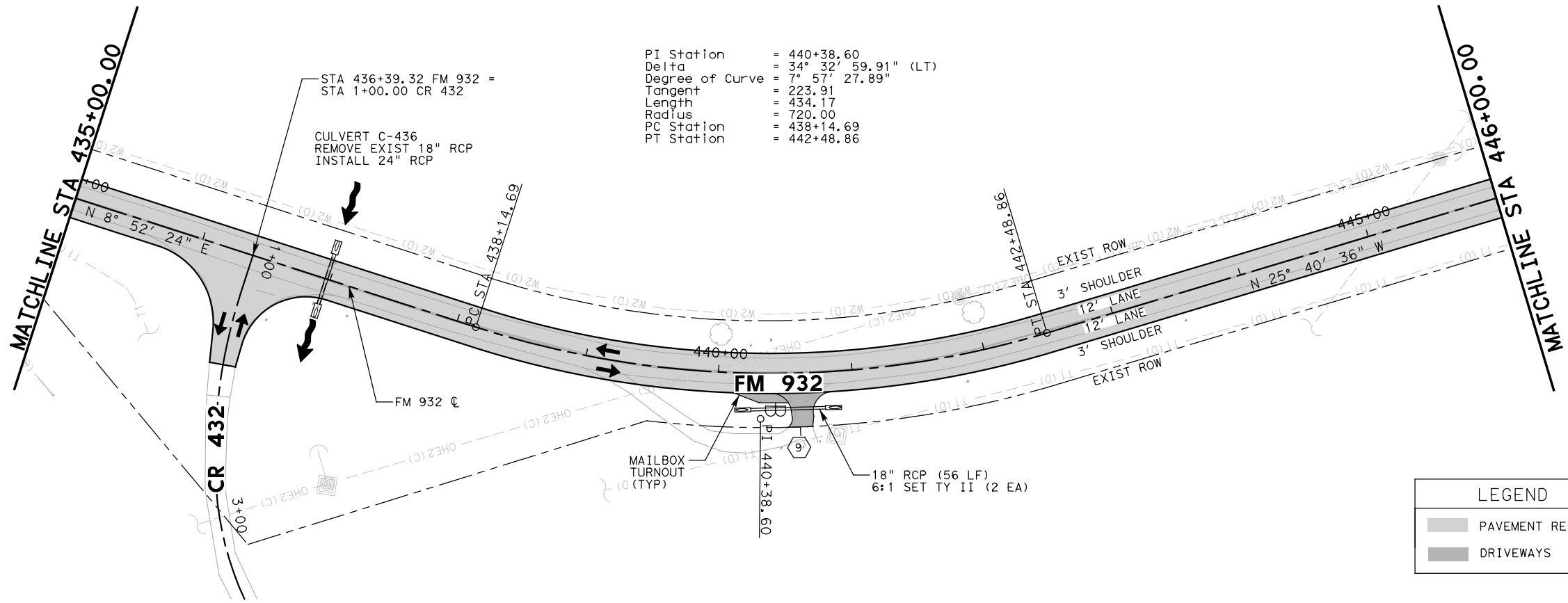
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FM 932
PLAN AND PROFILE LAYOUT
STA 424+00.00 TO STA 435+00.00

(SHEET 7 OF 74)

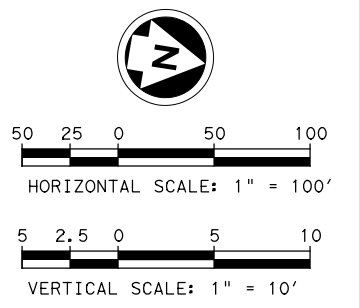
| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | | | | 100 |



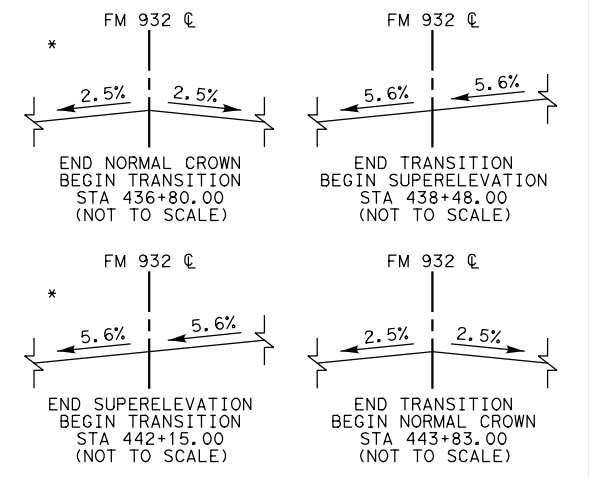
PI Station = 440+38.60
 Delta = 34° 32' 59.91" (LT)
 Degree of Curve = 7° 57' 27.89"
 Tangent = 223.91
 Length = 434.17
 Radius = 720.00
 PC Station = 438+14.69
 PT Station = 442+48.86

LEGEND

- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



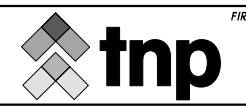
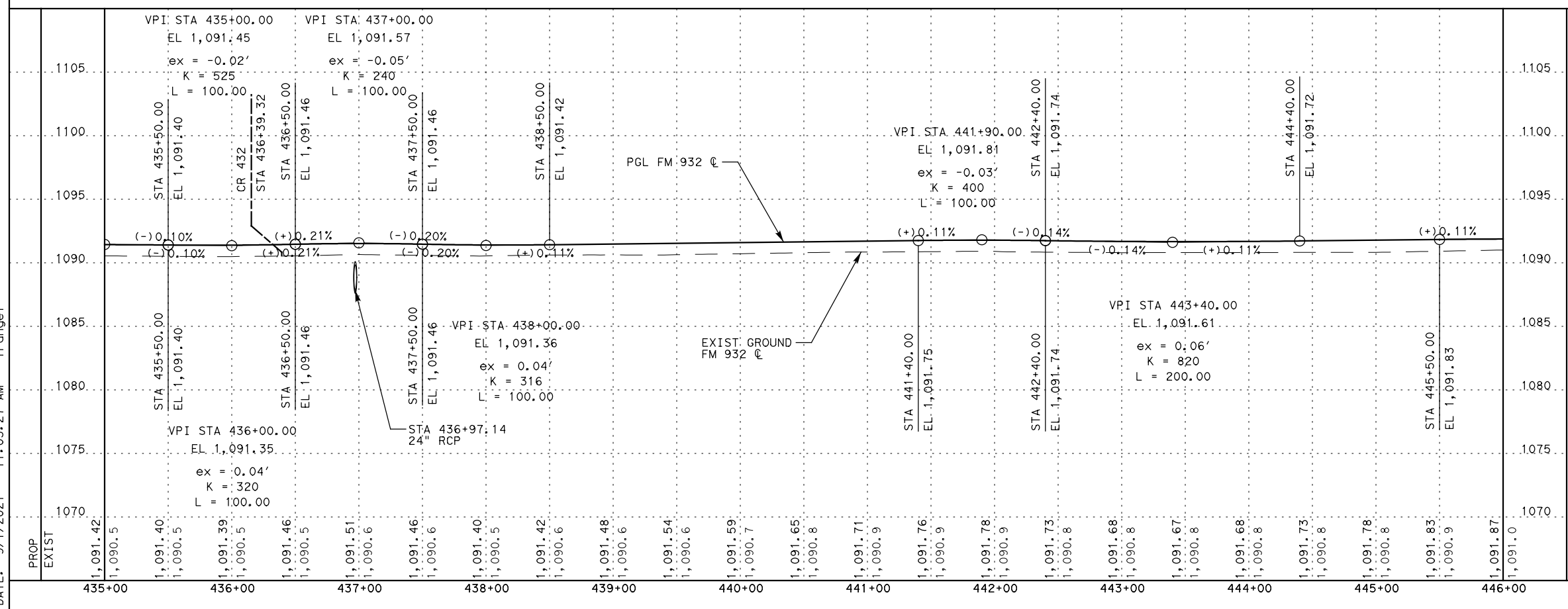
LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

| STA 435+00.00 to | STA 436+00.00 to | STA 437+00.00 to | STA 438+00.00 to | STA 439+00.00 to | STA 440+00.00 to | STA 441+00.00 to | STA 442+00.00 to | STA 443+00.00 to | STA 444+00.00 to | STA 445+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|------------------------------|
| 19 | 13 | 9 | 13 | 10 | 12 | 9 | 8 | 11 | 13 | 10 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 15 | 23 | 38 | 48 | 41 | 30 | 53 | 41 | 26 | 33 | 29 | 127 | 377 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | EMPAVEMENT |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | CY | PREPARING R.O.W. FLEXBASE |

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

FILE: P:\MSGP\TXD18248\05-FM932\PROD\SHEETS\RP08.dgn
 DATE: 9/1/2021 11:03:27 AM frrange1



FIRM REGISTRATION NO. F-230



FM 932

PLAN AND PROFILE LAYOUT
 STA 435+00. TO STA 446+00.00

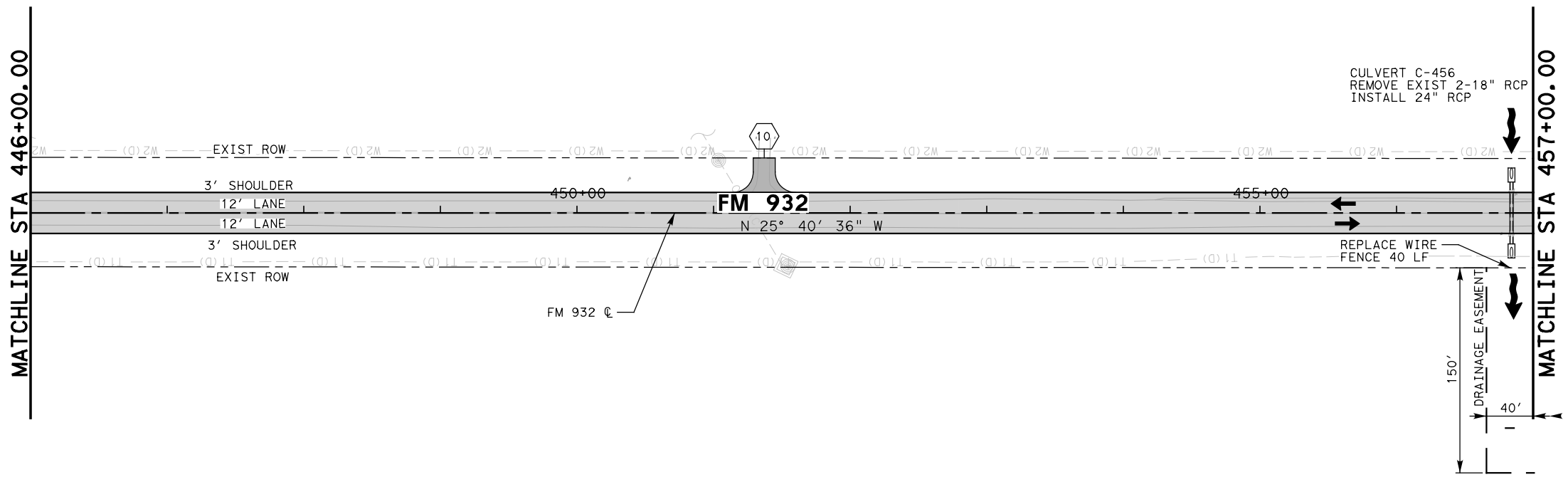
(SHEET 8 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 101 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| STA 446+00.00 to | STA 447+00.00 to | STA 448+00.00 to | STA 449+00.00 to | STA 450+00.00 to | STA 451+00.00 to | STA 452+00.00 to | STA 453+00.00 to | STA 454+00.00 to | STA 455+00.00 to | STA 456+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-----|-------------------|--|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | |
| 12 | 18 | 16 | 11 | 14 | 15 | 7 | 5 | 4 | 4 | 6 | 112 | CY | EXCAVATION (RDWY) | |
| 24 | 19 | 17 | 19 | 22 | 24 | 22 | 28 | 38 | 46 | 59 | 318 | CY | EMBANKMENT | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R.O.W. | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE | |

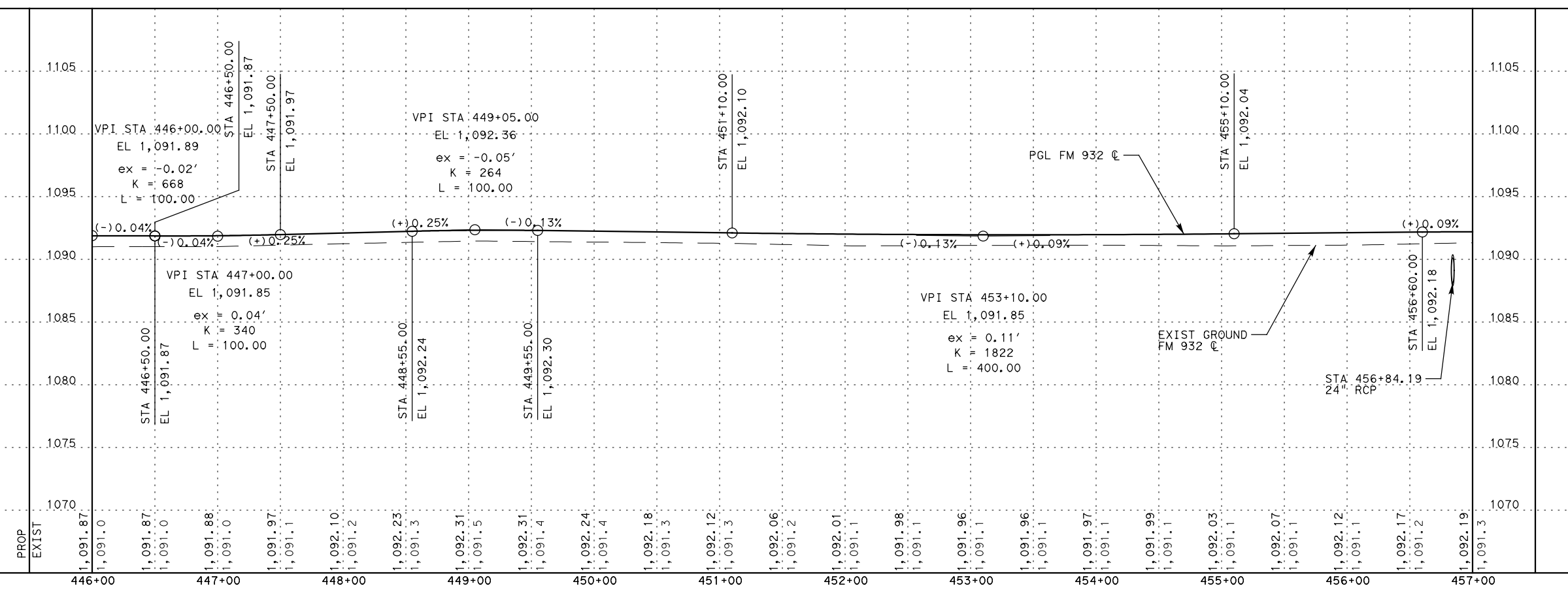


- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH HANNEL EXCAVATION ITEM.



| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

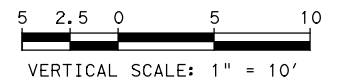
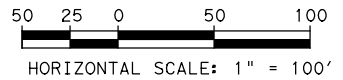
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 DATE: 9/1/2021 11:03:30 AM fRange1



FM 932
PLAN AND PROFILE LAYOUT
 STA 446+00.00 TO STA 457+00.00

(SHEET 9 OF 74)

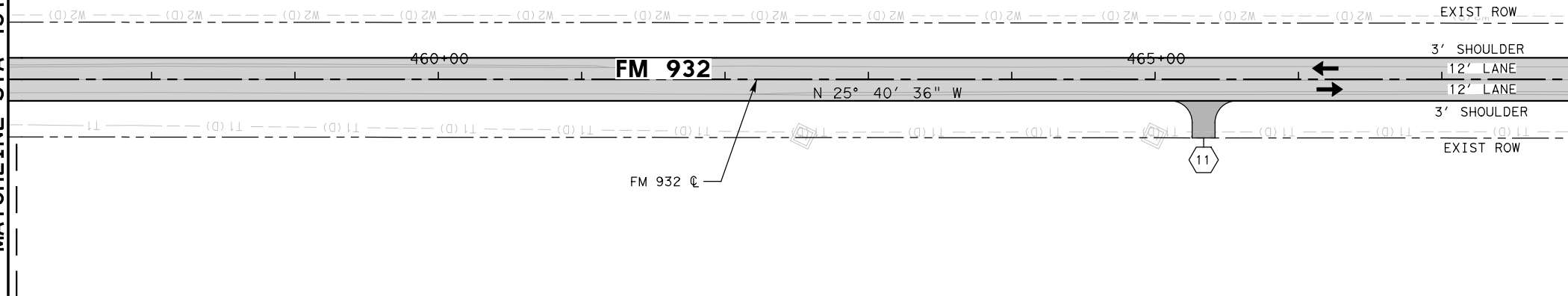
| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 102 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.

MATCHLINE STA 457+00.00

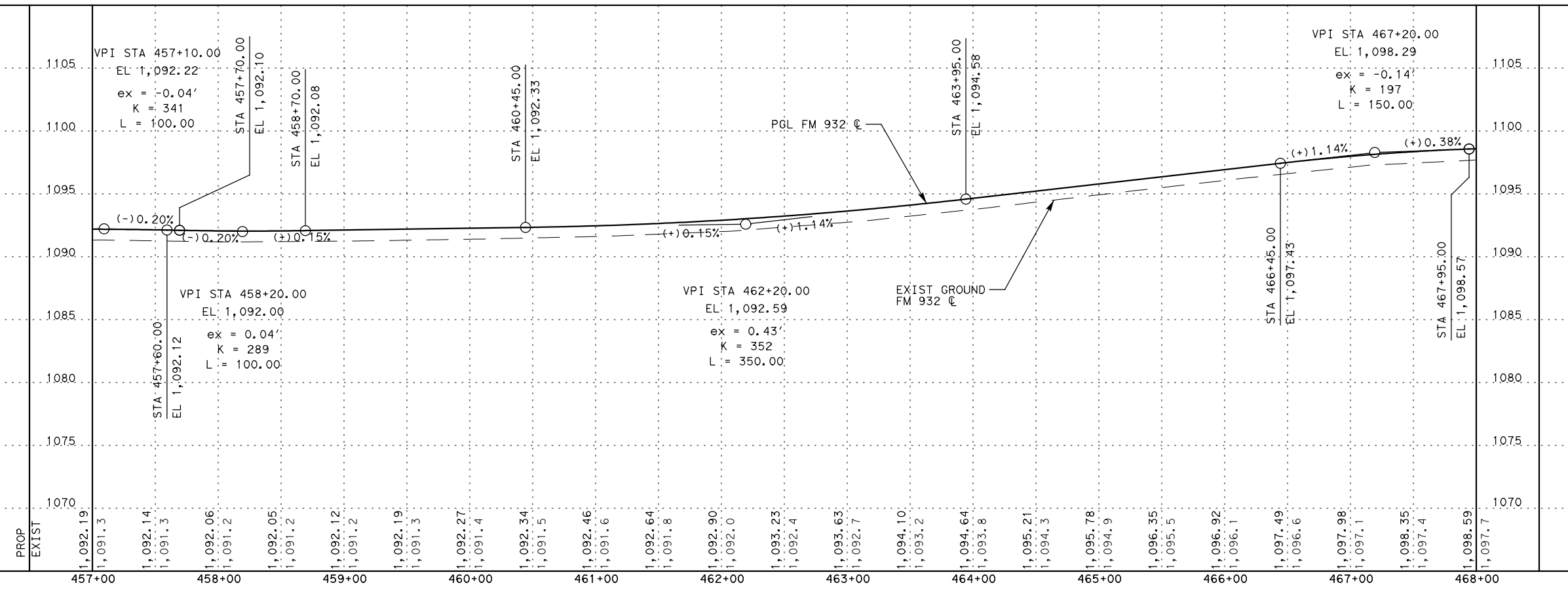
MATCHLINE STA 468+00.00



| | | | | | | | | | | | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| STA 457+00.00 to | STA 458+00.00 to | STA 459+00.00 to | STA 460+00.00 to | STA 461+00.00 to | STA 462+00.00 to | STA 463+00.00 to | STA 464+00.00 to | STA 465+00.00 to | STA 466+00.00 to | STA 467+00.00 to | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 8 | 7 | 7 | 9 | 14 | 13 | 16 | 19 | 25 | 28 | 23 | 169 | | CY | EXCAVATION (RDWY) |
| 46 | 40 | 35 | 31 | 27 | 21 | 19 | 28 | 22 | 18 | 22 | 309 | | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP10.dgn
DATE: 9/1/2021 11:03:33 AM fRange1



FIRM REGISTRATION NO. F-230



FM 932

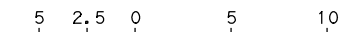
PLAN AND PROFILE LAYOUT
STA 457+00.00 TO STA 468+00.00

(SHEET 10 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 103 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



HORIZONTAL SCALE: 1" = 100'

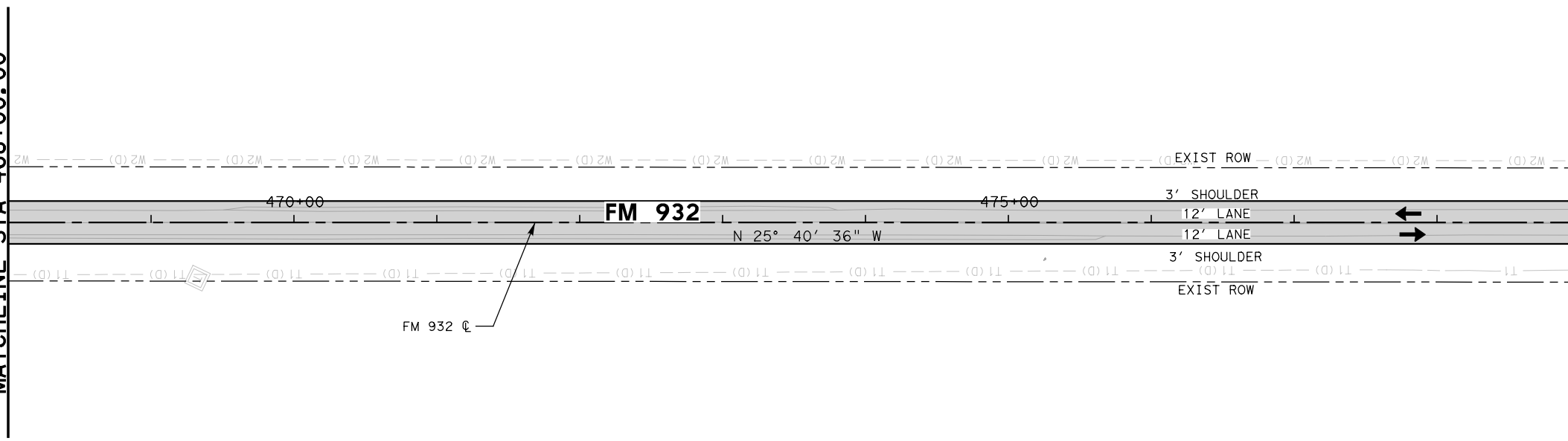


VERTICAL SCALE: 1" = 10'

- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.

MATCHLINE STA 468+00.00

MATCHLINE STA 479+00.00

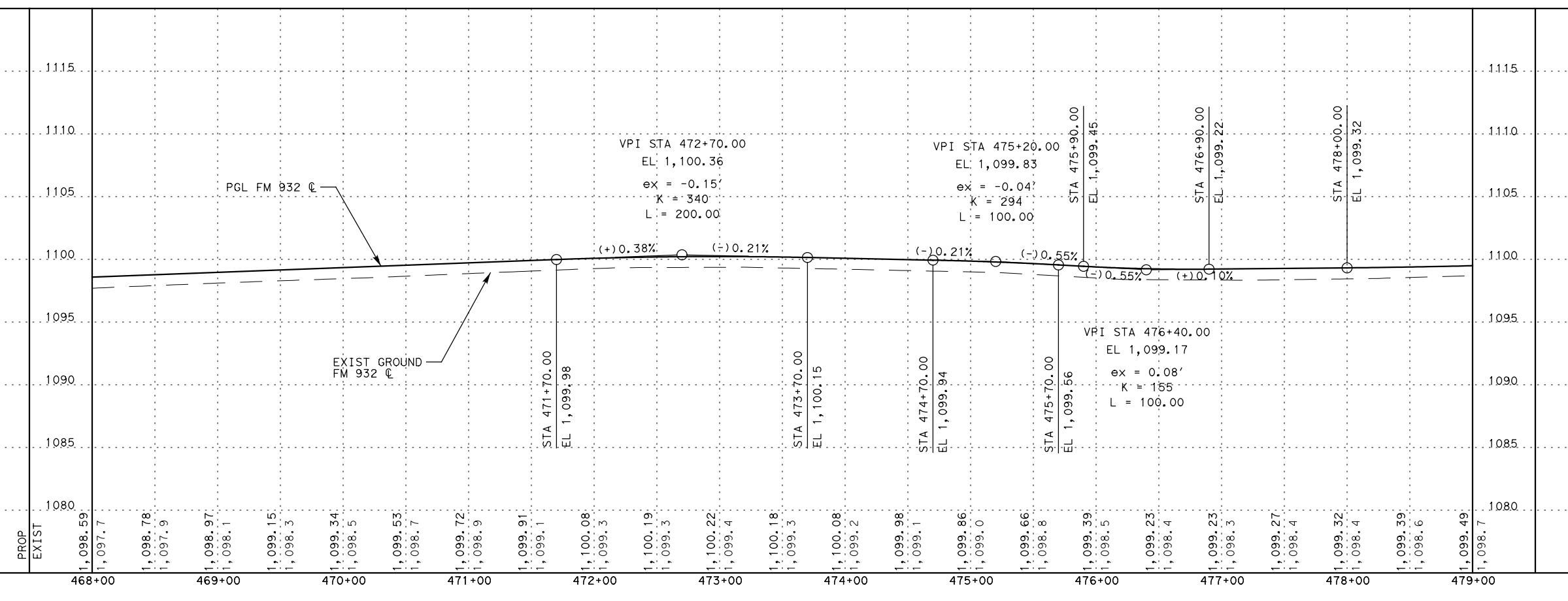


FM 932 CL

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

| | | | | | | | | | | | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| STA 468+00.00 to | STA 469+00.00 to | STA 470+00.00 to | STA 471+00.00 to | STA 472+00.00 to | STA 473+00.00 to | STA 474+00.00 to | STA 475+00.00 to | STA 476+00.00 to | STA 477+00.00 to | STA 478+00.00 to | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 18 | 14 | 15 | 24 | 33 | 25 | 25 | 20 | 14 | 6 | 5 | 199 | | CY | EXCAVATION (RDWY) |
| 17 | 20 | 24 | 23 | 24 | 24 | 19 | 19 | 20 | 26 | 38 | 254 | | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

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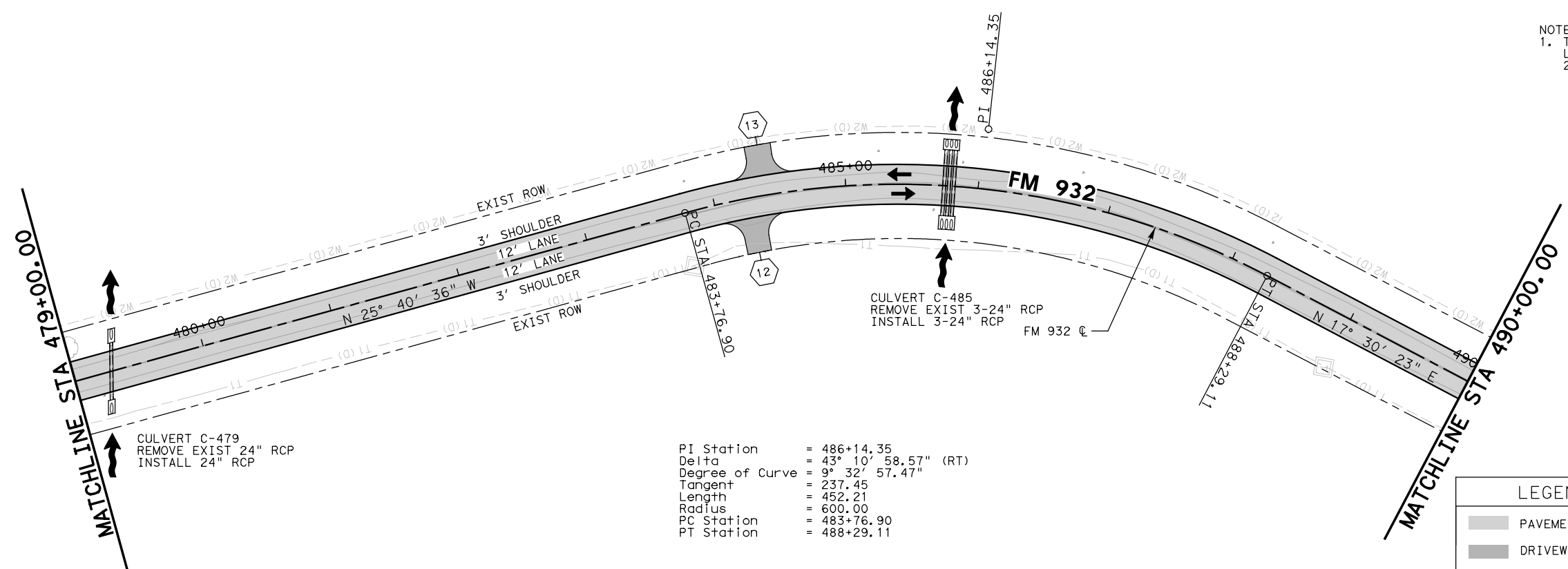
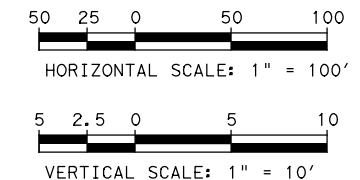


FM 932
PLAN AND PROFILE LAYOUT
STA 468+00.00 TO STA 479+00.00

(SHEET 11 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 104 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

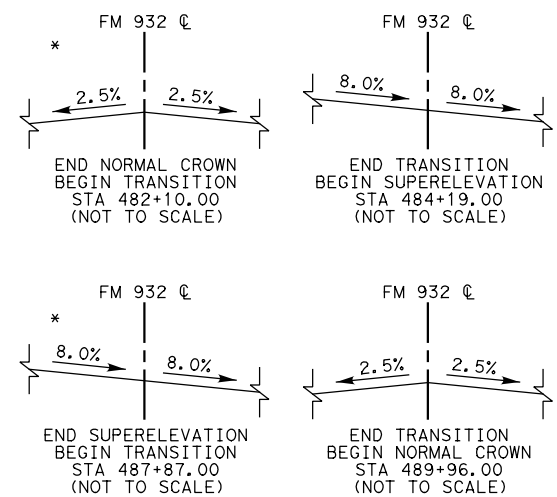
NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



PI Station = 486+14.35
 Delta = 43° 10' 58.57" (RT)
 Degree of Curve = 9° 32' 57.47"
 Tangent = 237.45
 Length = 452.21
 Radius = 600.00
 PC Station = 483+76.90
 PT Station = 488+29.11

LEGEND

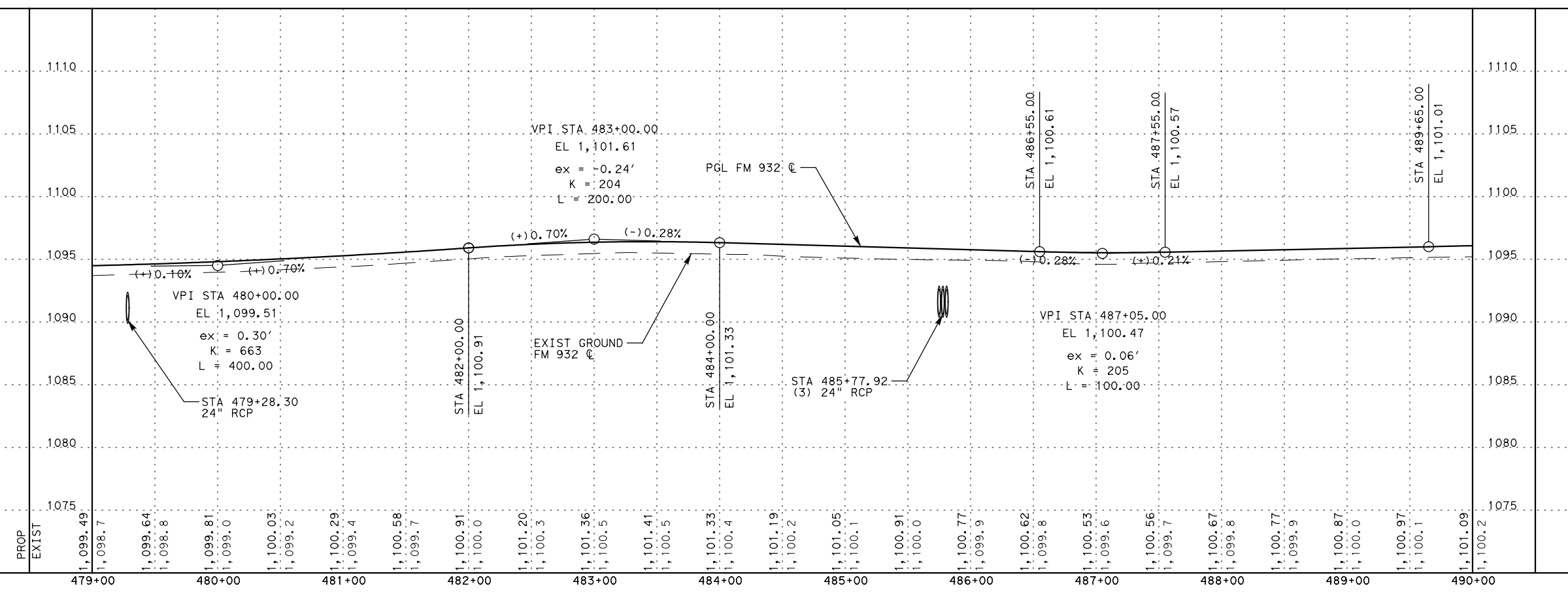
- PAVEMENT REHAB
- DRIVEWAYS



| STA 479+00.00 to STA 480+00.00 | STA 480+00.00 to STA 481+00.00 | STA 481+00.00 to STA 482+00.00 | STA 482+00.00 to STA 483+00.00 | STA 483+00.00 to STA 484+00.00 | STA 484+00.00 to STA 485+00.00 | STA 485+00.00 to STA 486+00.00 | STA 486+00.00 to STA 487+00.00 | STA 487+00.00 to STA 488+00.00 | STA 488+00.00 to STA 489+00.00 | STA 489+00.00 to STA 490+00.00 | SECTION TOTALS | | |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|-----|-------------------|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | |
| 5 | 6 | 14 | 14 | 28 | 23 | 8 | 12 | 11 | 4 | 0 | 125 | CY | EXCAVATION (RDWY) |
| 45 | 25 | 18 | 18 | 79 | 79 | 51 | 44 | 75 | 103 | 52 | 589 | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 1 | 1 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE |

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

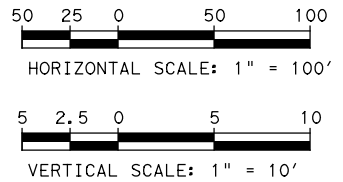
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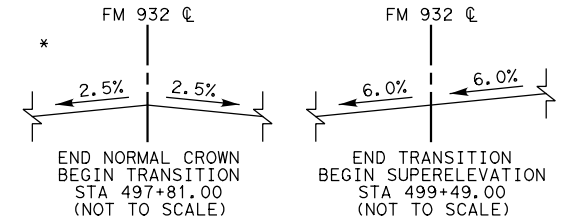
FM 932
PLAN AND PROFILE LAYOUT
 STA 479+00.00 TO STA 490+00.00

(SHEET 12 OF 74)

| | | | | |
|------------------|------------------------|--|----------|-----------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 105 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



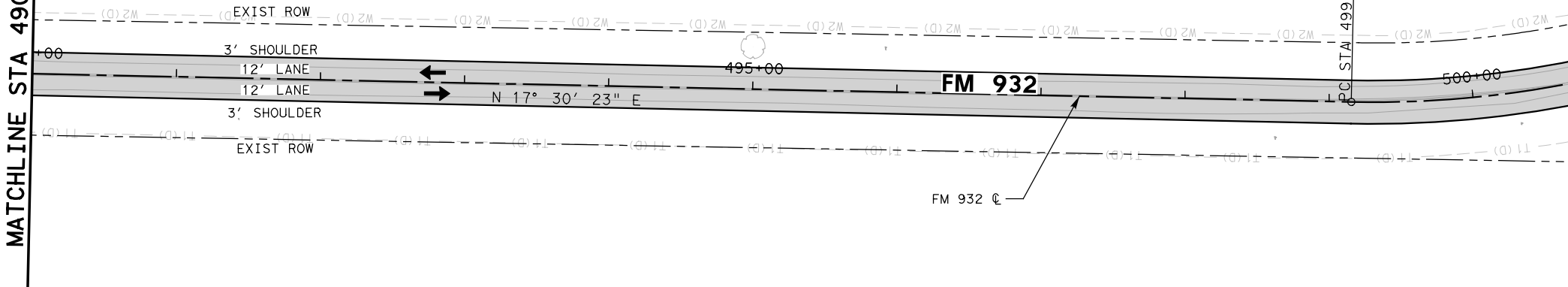
NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

MATCHLINE STA 490+00.00

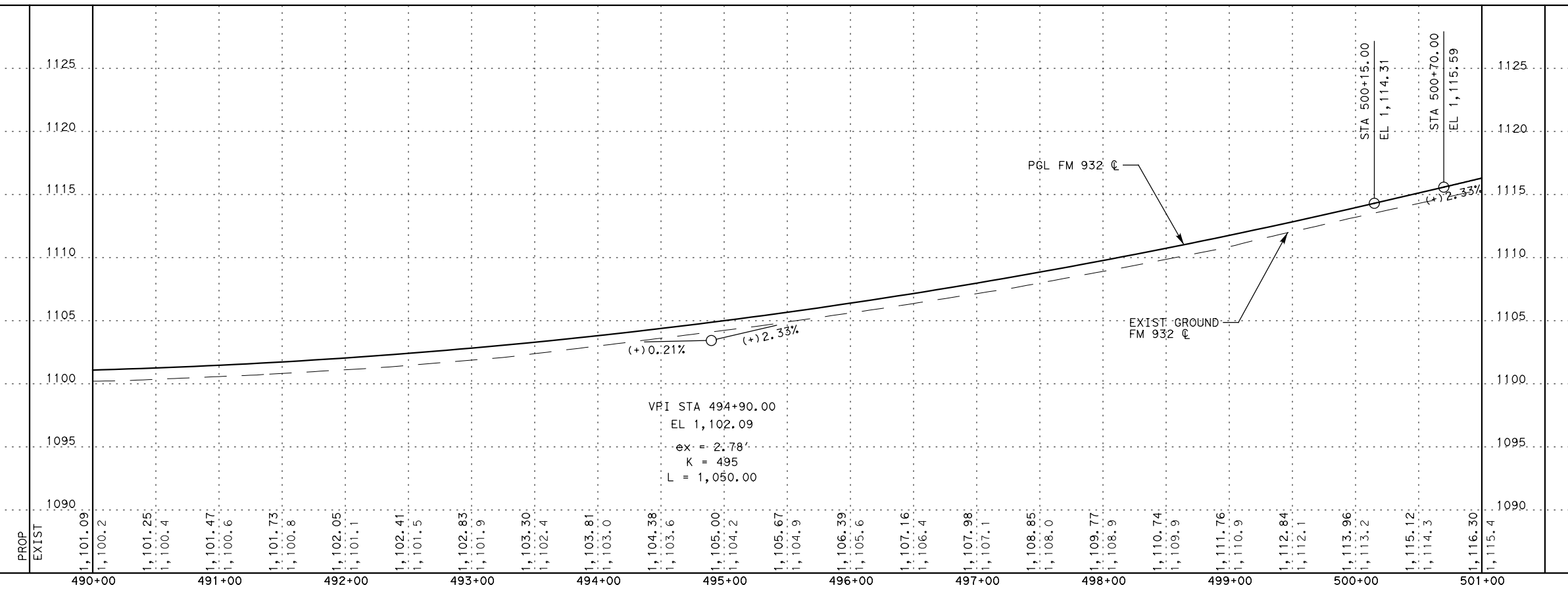
MATCHLINE STA 501+00.00



| SECTION TOTALS | | | | | | | | | | | ESTIMATED | FINAL | UNIT | DESCRIPTION |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-----------|-------|------|-------------------|
| STA 490+00.00 to STA 491+00.00 | STA 491+00.00 to STA 492+00.00 | STA 492+00.00 to STA 493+00.00 | STA 493+00.00 to STA 494+00.00 | STA 494+00.00 to STA 495+00.00 | STA 495+00.00 to STA 496+00.00 | STA 496+00.00 to STA 497+00.00 | STA 497+00.00 to STA 498+00.00 | STA 498+00.00 to STA 499+00.00 | STA 499+00.00 to STA 500+00.00 | STA 500+00.00 to STA 501+00.00 | | | | |
| 0 | 2 | 3 | 6 | 12 | 7 | 4 | 2 | 0 | 4 | 4 | 44 | | CY | EXCAVATION (RDWY) |
| 47 | 45 | 45 | 42 | 39 | 59 | 74 | 74 | 100 | 136 | 60 | 721 | | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP13.dgn
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FIRM REGISTRATION NO. F-230

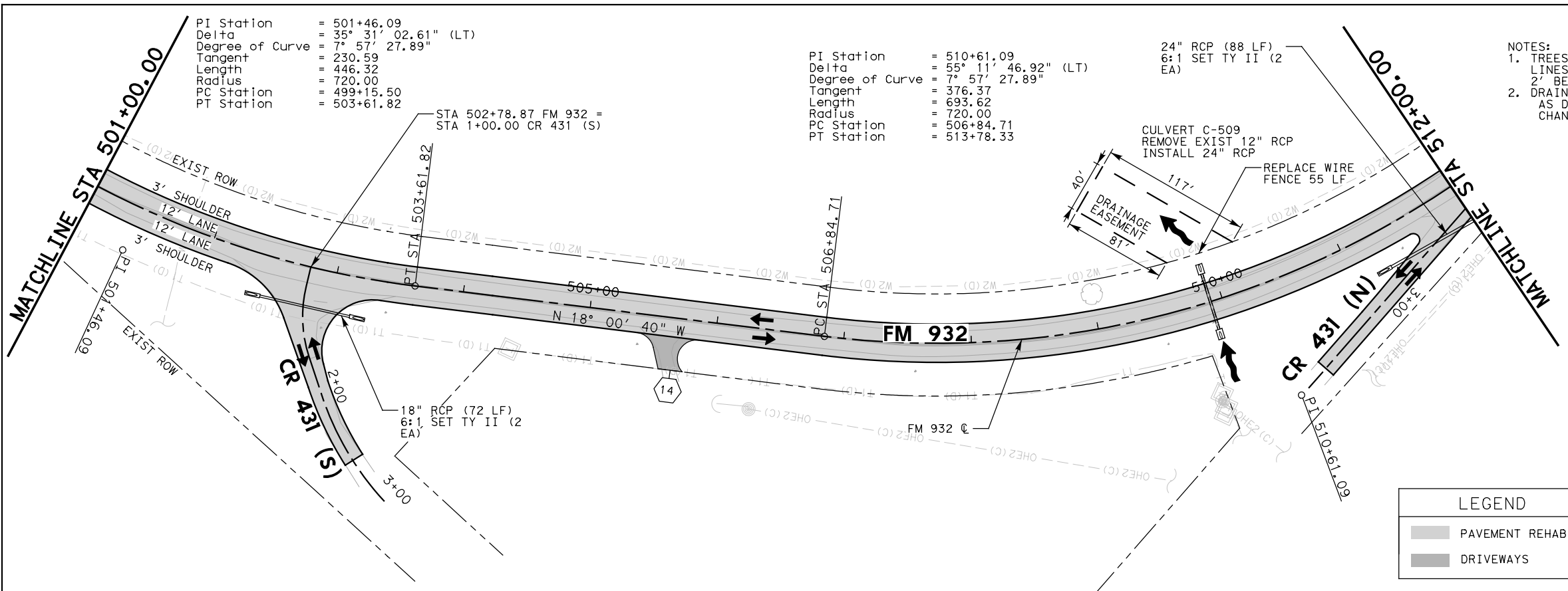


FM 932

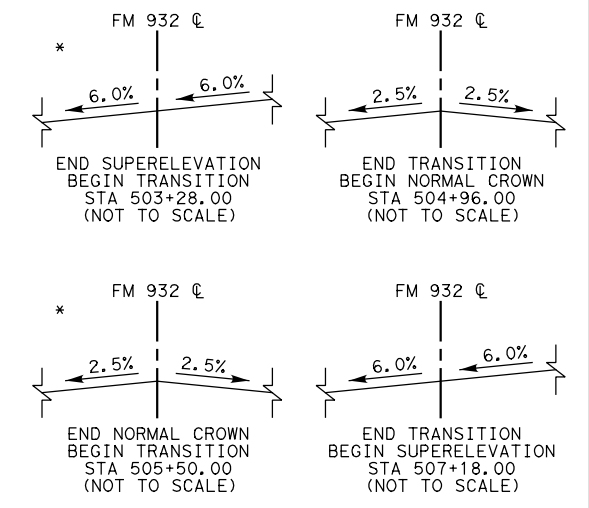
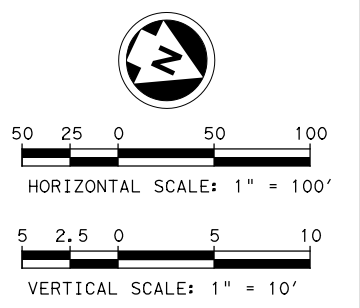
PLAN AND PROFILE LAYOUT
 STA 490+00.00 TO STA 501+00.00

(SHEET 13 OF 74)

| | | | | |
|------------------|------------------------|--|----------|-----------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 106 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.

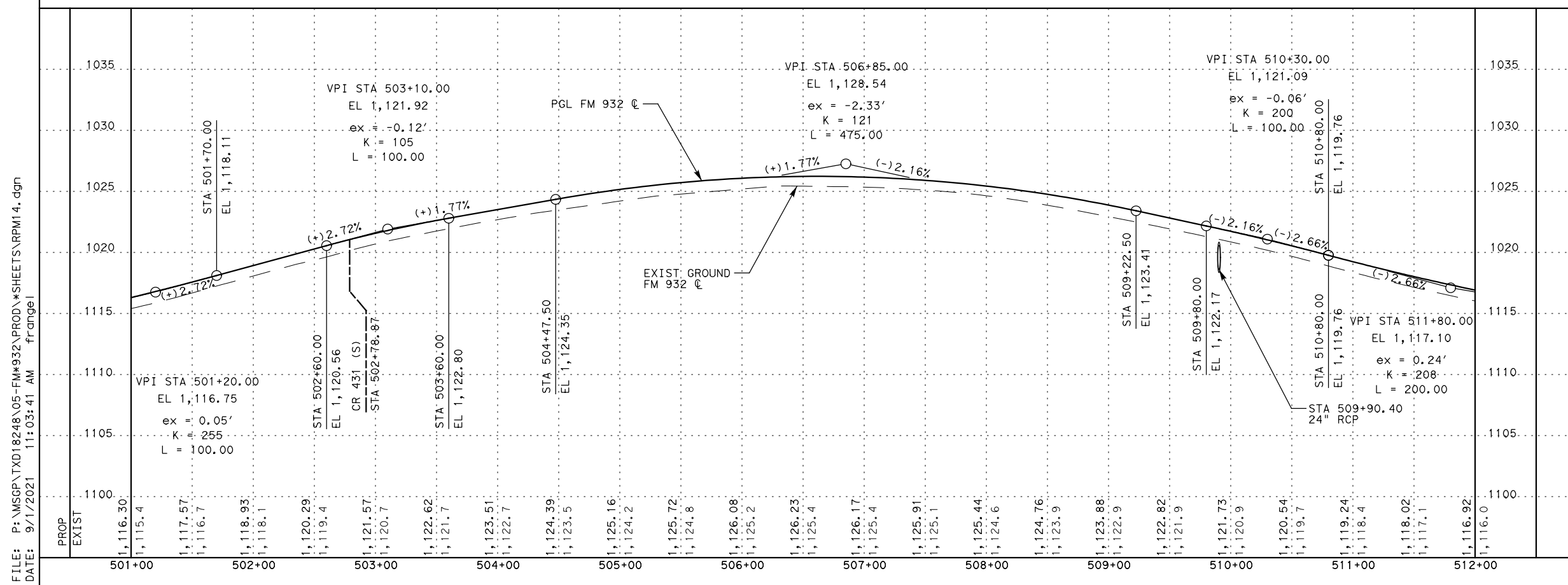


LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

| STA 501+00.00 to | STA 502+00.00 to | STA 503+00.00 to | STA 504+00.00 to | STA 505+00.00 to | STA 506+00.00 to | STA 507+00.00 to | STA 508+00.00 to | STA 509+00.00 to | STA 510+00.00 to | STA 511+00.00 to | STA 512+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| 4 | 2 | 4 | 23 | 33 | 18 | 16 | 11 | 7 | 3 | 5 | 126 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 29 | 20 | 27 | 19 | 24 | 2425 | 32 | 39 | 38 | 23 | 23 | 2699 | | | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | | CY | FLEXBASE |

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.



FM 932
PLAN AND PROFILE LAYOUT
 STA 501+00.00 TO STA 512+00.00

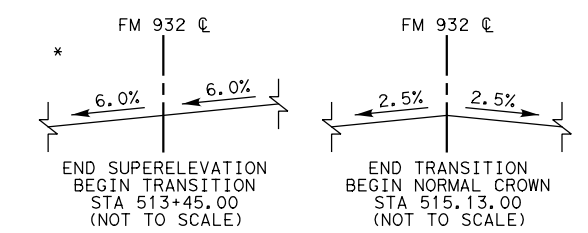
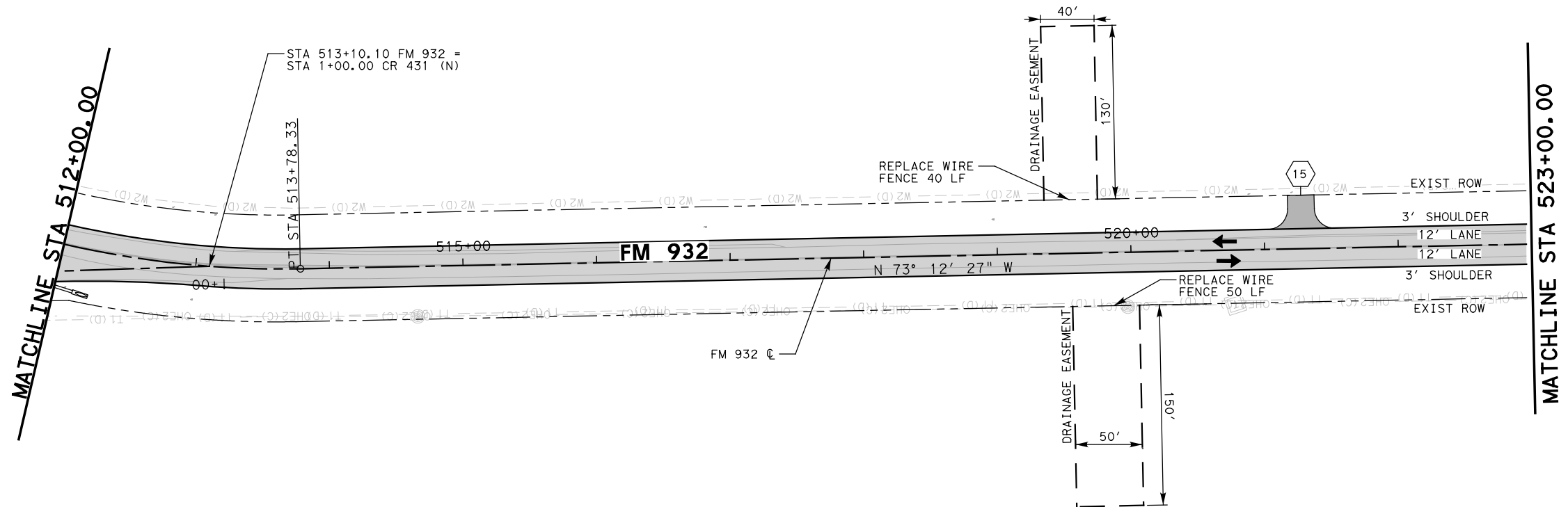
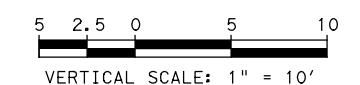
(SHEET 14 OF 74)

| | | | | |
|---------------|---------------------|---|----------|--------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 107 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

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 DATE: 9/1/2021 11:03:41 AM frrange1

| STA 512+00.00 to | STA 513+00.00 to | STA 514+00.00 to | STA 515+00.00 to | STA 516+00.00 to | STA 517+00.00 to | STA 518+00.00 to | STA 519+00.00 to | STA 520+00.00 to | STA 521+00.00 to | STA 522+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-----|-------------------|--|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | |
| 2 | 3 | 6 | 18 | 19 | 14 | 13 | 9 | 15 | 15 | 10 | 124 | CY | EXCAVATION (RDWY) | |
| 23 | 48 | 32 | 21 | 21 | 22 | 17 | 20 | 20 | 21 | 24 | 269 | CY | EMBANKMENT | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R.O.W. | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE | |

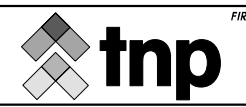
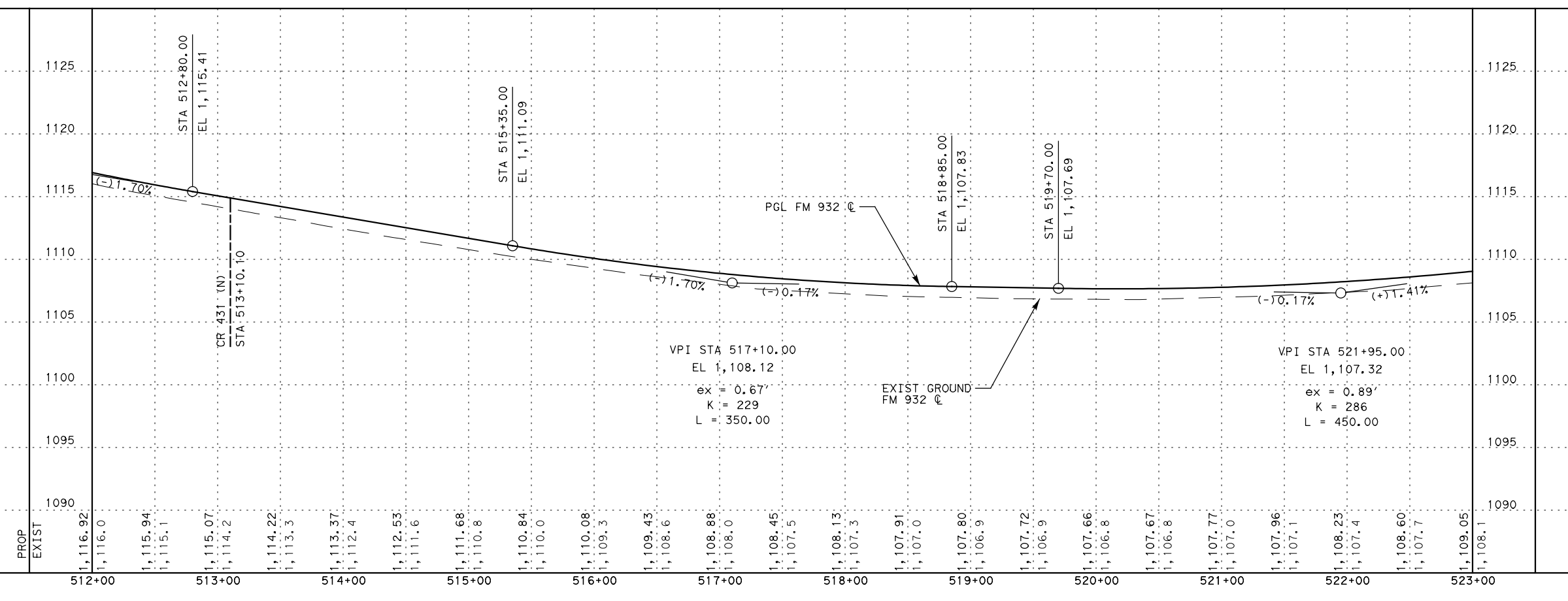
- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.



*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP15.dgn
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FIRM REGISTRATION NO. F-230



FM 932

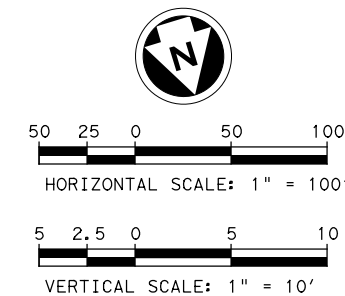
PLAN AND PROFILE LAYOUT

STA 512+00.00 TO STA 523+00.00

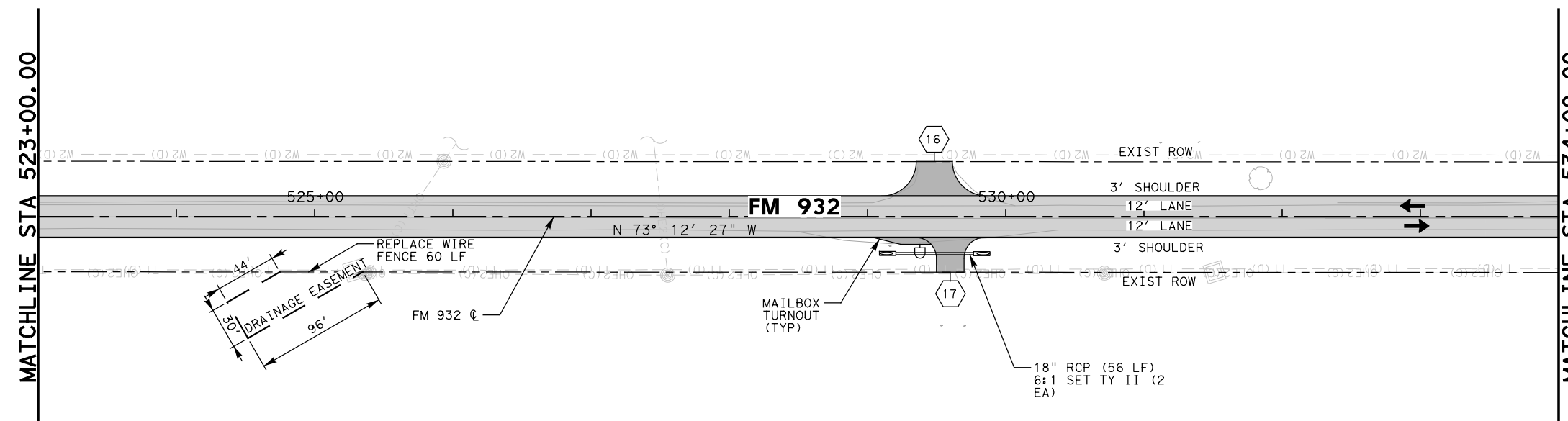
(SHEET 15 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 108 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |



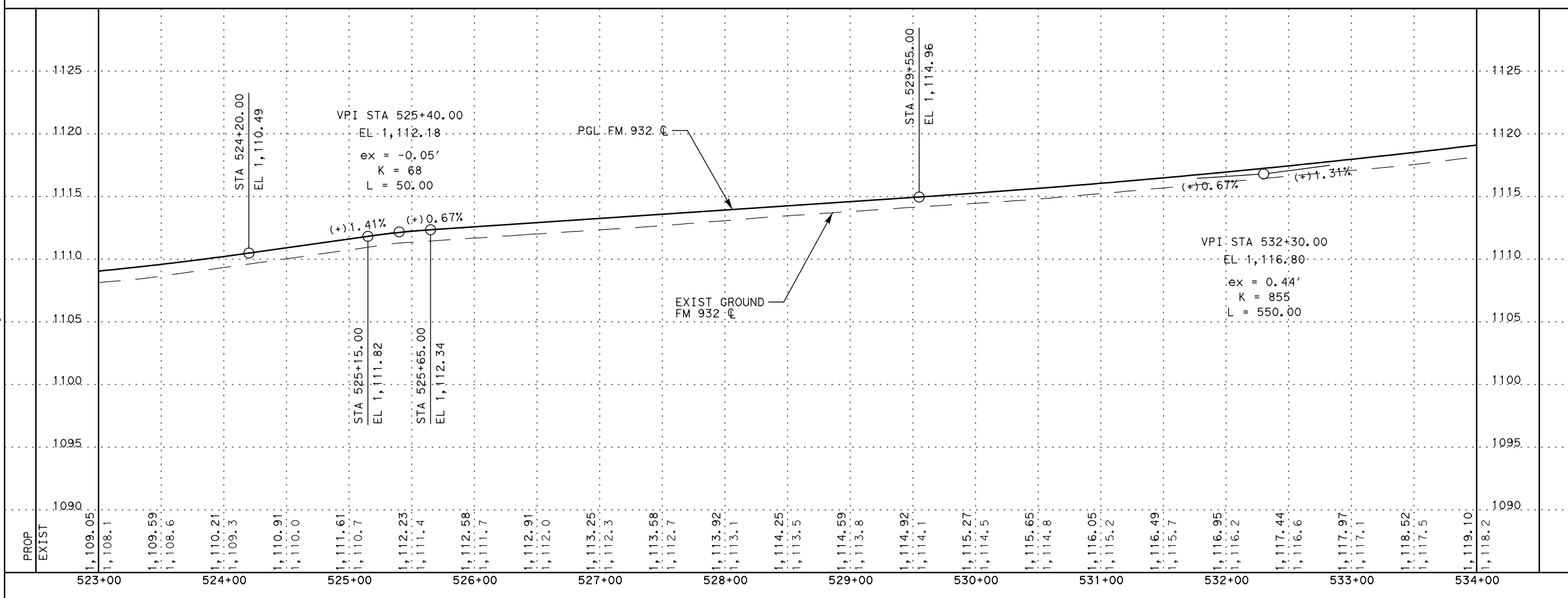
- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.



| | | | | | | | | | | | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| STA 523+00.00 to | STA 524+00.00 to | STA 525+00.00 to | STA 526+00.00 to | STA 527+00.00 to | STA 528+00.00 to | STA 529+00.00 to | STA 530+00.00 to | STA 531+00.00 to | STA 532+00.00 to | STA 533+00.00 to | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 14 | 22 | 19 | 19 | 22 | 25 | 33 | 20 | 22 | 16 | 5 | 217 | 217 | CY | EXCAVATION (RDWY) |
| 26 | 22 | 18 | 31 | 25 | 23 | 56 | 24 | 20 | 29 | 35 | 309 | 309 | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | CY | FLEXBASE |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP16.dgn
DATE: 9/1/2021 11:03:45 AM fRange1



FM 932

PLAN AND PROFILE LAYOUT
STA 523+00.00 TO STA 534+00.00

(SHEET 16 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 109 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

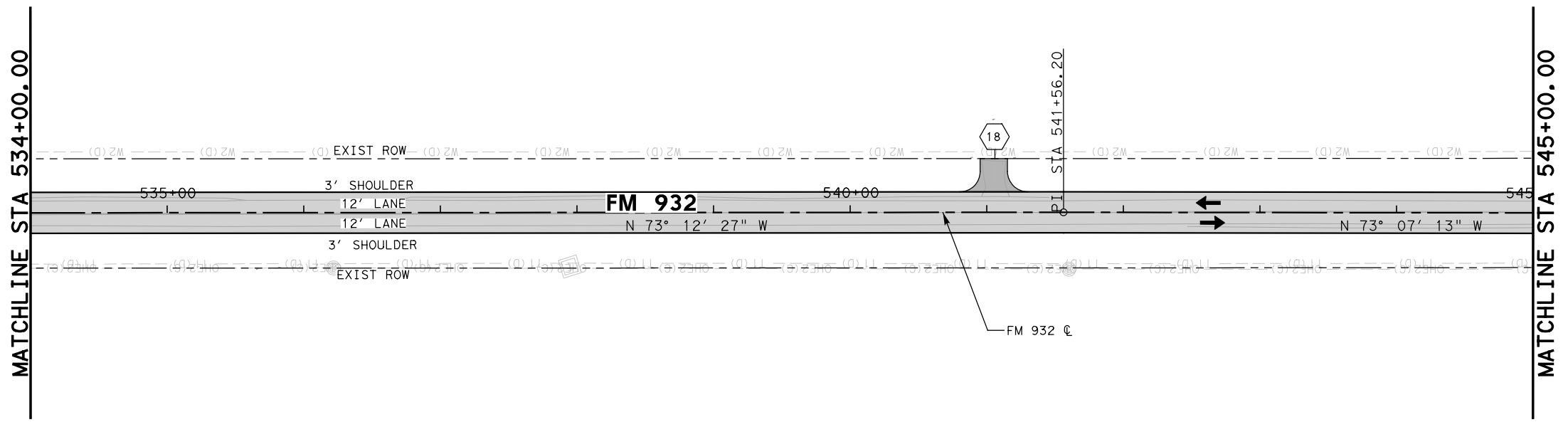


HORIZONTAL SCALE: 1" = 100'



VERTICAL SCALE: 1" = 10'

- NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

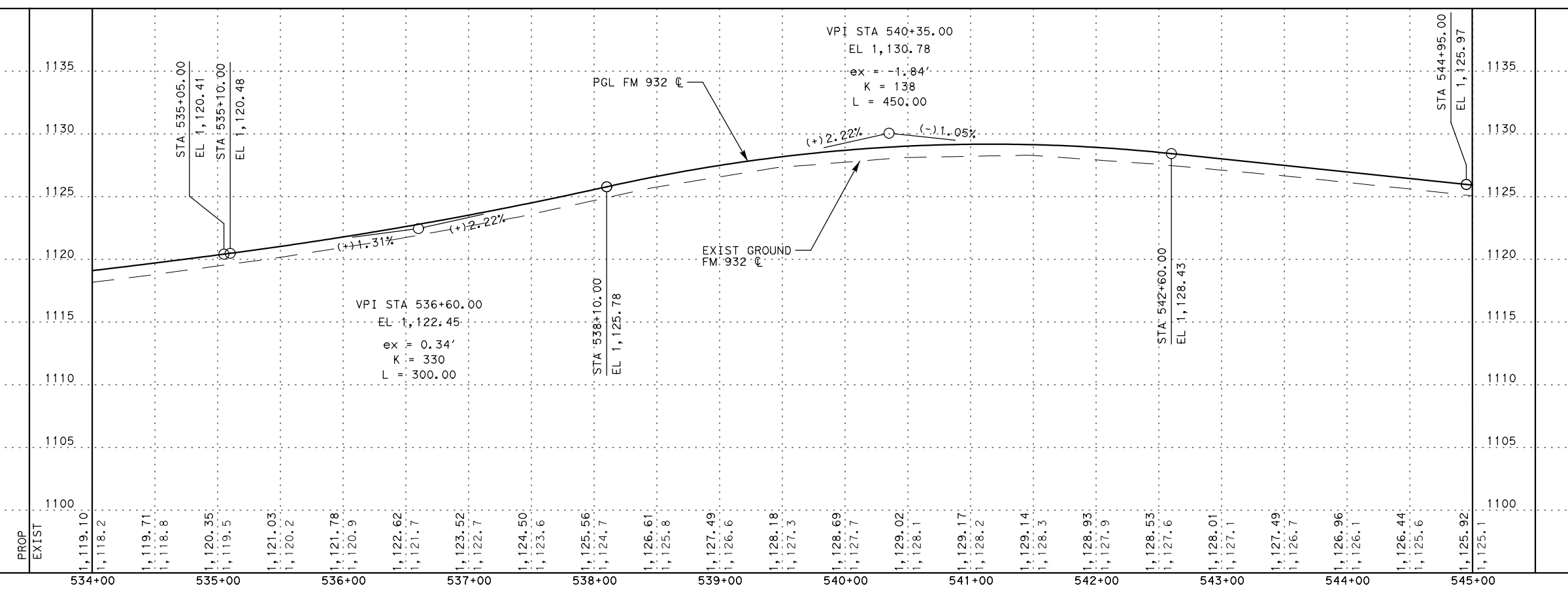


| | | | | | | | | | | | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| STA 534+00.00 to | STA 535+00.00 to | STA 536+00.00 to | STA 537+00.00 to | STA 538+00.00 to | STA 539+00.00 to | STA 540+00.00 to | STA 541+00.00 to | STA 542+00.00 to | STA 543+00.00 to | STA 544+00.00 to | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 2 | 3 | 2 | 4 | 5 | 17 | 23 | 15 | 14 | 18 | 17 | 120 | | CY | EXCAVATION (RDWY) |
| 46 | 44 | 37 | 41 | 40 | 30 | 24 | 35 | 26 | 19 | 21 | 363 | | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

LEGEND

| | |
|--|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP17.dgn
 DATE: 9/1/2021 11:03:47 AM fRange1



FM 932

PLAN AND PROFILE LAYOUT
 STA 534+00.00 TO STA 545+00.00

(SHEET 17 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 110 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

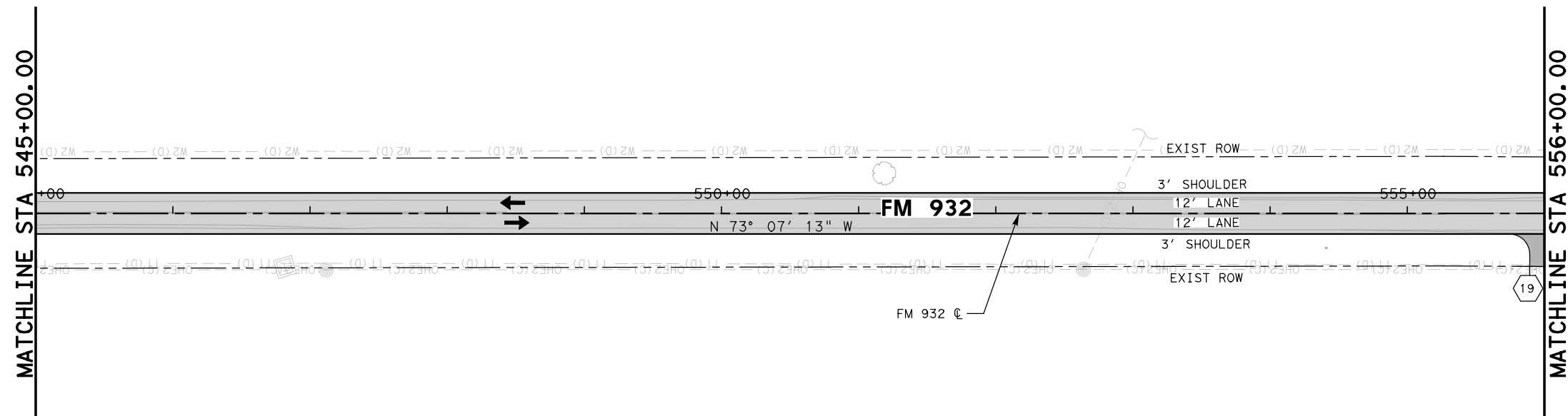


HORIZONTAL SCALE: 1" = 100'



VERTICAL SCALE: 1" = 10'

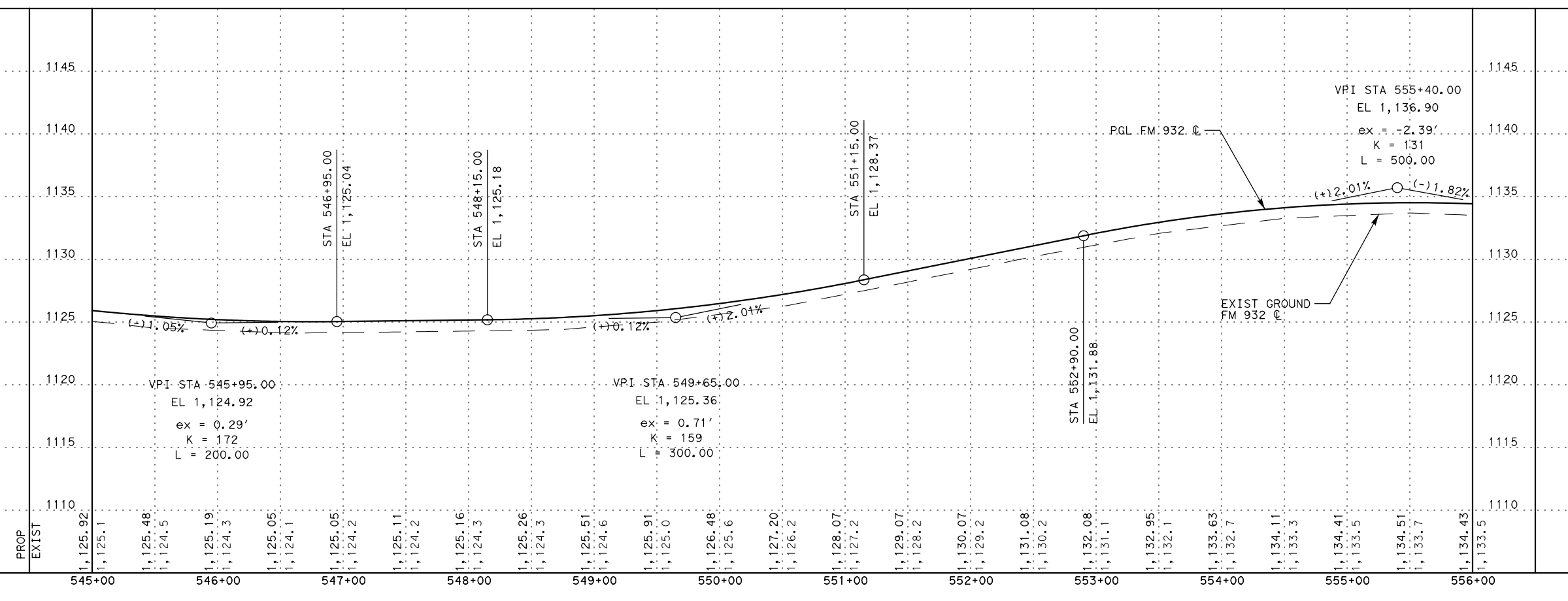
- NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



| SECTION TOTALS | | | | | | | | | | | ESTIMATED | FINAL | UNIT | DESCRIPTION |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-----------|-------|------|-------------------|
| STA 545+00.00 to STA 546+00.00 | STA 546+00.00 to STA 547+00.00 | STA 547+00.00 to STA 548+00.00 | STA 548+00.00 to STA 549+00.00 | STA 549+00.00 to STA 550+00.00 | STA 550+00.00 to STA 551+00.00 | STA 551+00.00 to STA 552+00.00 | STA 552+00.00 to STA 553+00.00 | STA 553+00.00 to STA 554+00.00 | STA 554+00.00 to STA 555+00.00 | STA 555+00.00 to STA 556+00.00 | 42 | 383 | CY | EXCAVATION (RDWY) |
| 13 | 6 | 2 | 2 | 1 | 2 | 2 | 3 | 0 | 2 | 9 | 383 | 11 | CY | EMBANKMENT |
| 19 | 25 | 43 | 45 | 40 | 35 | 35 | 38 | 41 | 34 | 28 | 11 | 11 | STA | PREPARING R.O.W. |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 611 | 611 | CY | FLEXBASE |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP18.dgn
 DATE: 9/1/2021 11:03:49 AM fRange1



FM 932

PLAN AND PROFILE LAYOUT
 STA 545+00.00 TO STA 556+00.00

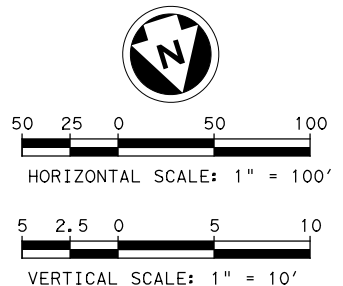
(SHEET 18 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 111 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

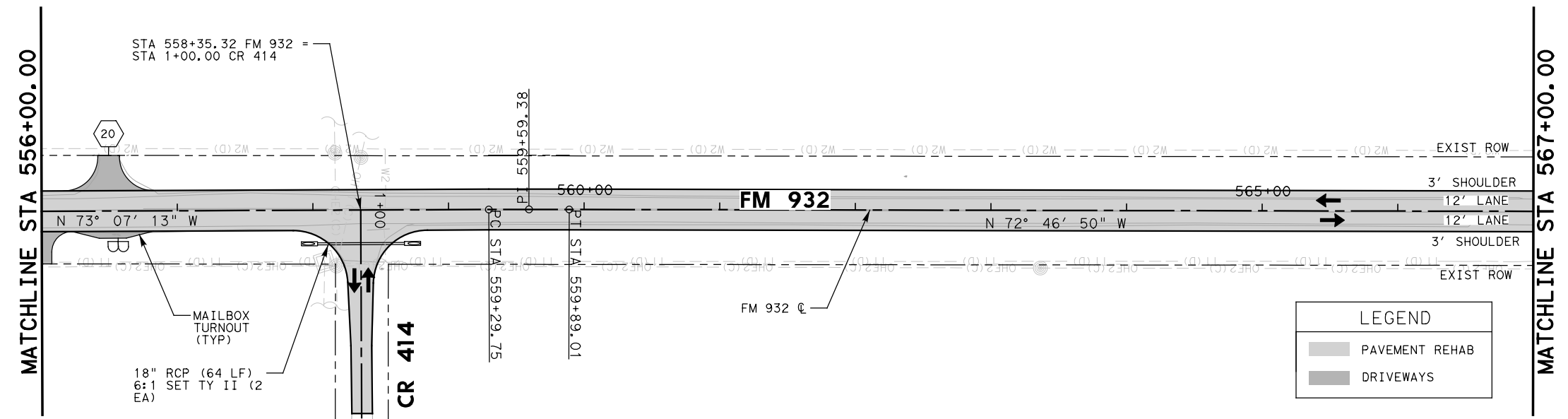
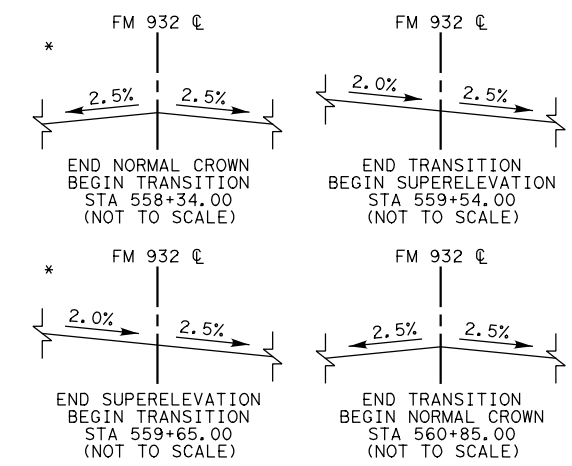
PI Station = 559+59.38
 Delta = 0° 20' 22.37" (RT)
 Degree of Curve = 0° 54' 22.65"
 Tangent = 29.83
 Length = 59.26
 Radius = 10000.00
 PC Station = 559+29.75
 PT Station = 559+89.01

LEGEND

- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



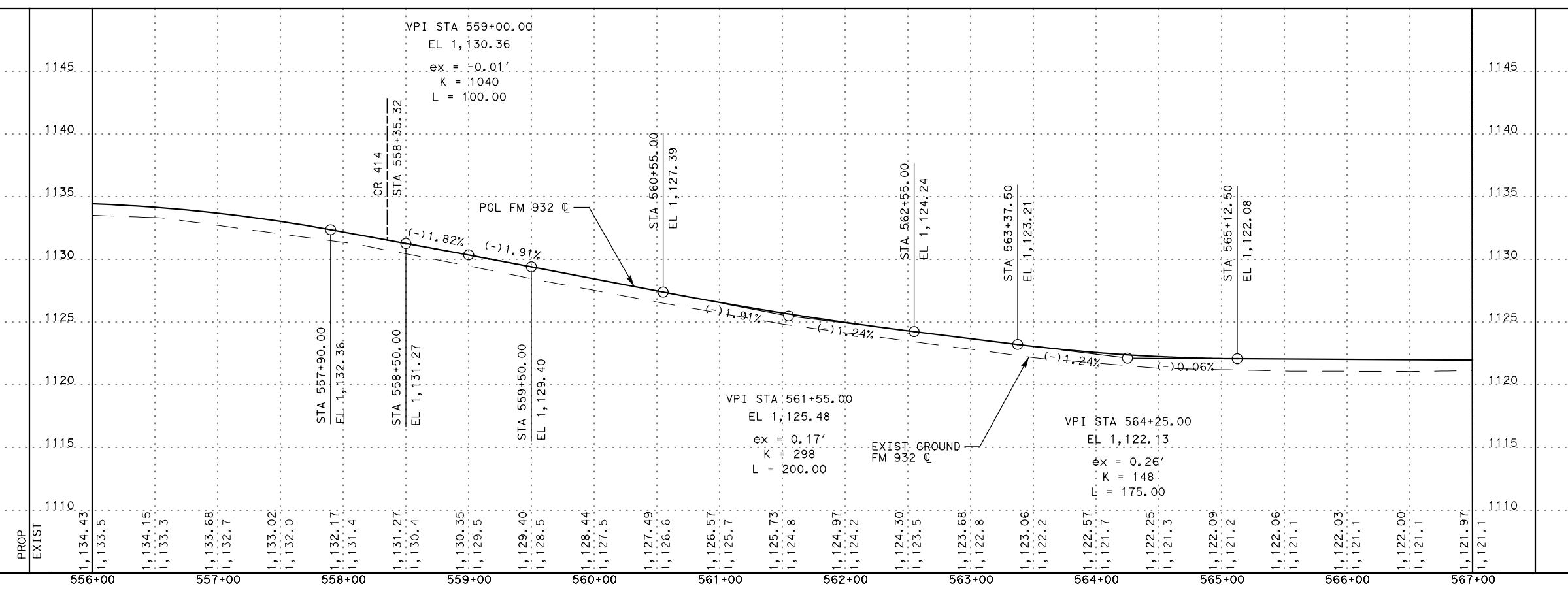
LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

| | | | | | | | | | | | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| STA 556+00.00 to | STA 557+00.00 to | STA 558+00.00 to | STA 559+00.00 to | STA 560+00.00 to | STA 561+00.00 to | STA 562+00.00 to | STA 563+00.00 to | STA 564+00.00 to | STA 565+00.00 to | STA 566+00.00 to | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 28 | 8 | 9 | 0 | 4 | 6 | 8 | 5 | 5 | 0 | 0 | 73 | 453 | CY | EXCAVATION (RDWY) |
| 24 | 22 | 23 | 73 | 42 | 25 | 26 | 34 | 40 | 64 | 80 | 453 | 11 | STA | PREPARING R.O.W. |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 611 | | CY | FLEXBASE |

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

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 DATE: 9/1/2021 11:03:51 AM f_rangel



FIRM REGISTRATION NO. F-230
 Texas Department of Transportation
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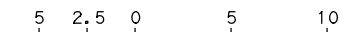
FM 932
PLAN AND PROFILE LAYOUT
 STA 556+00.00 TO STA 567+00.00

(SHEET 19 OF 74)

| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | | | | 112 |

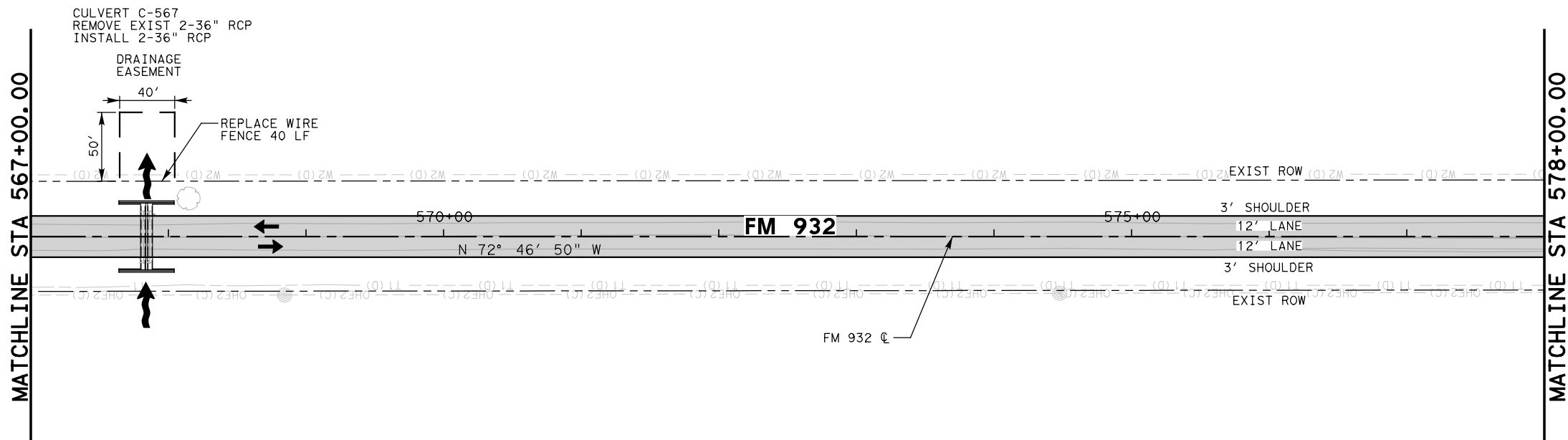


HORIZONTAL SCALE: 1" = 100'



VERTICAL SCALE: 1" = 10'

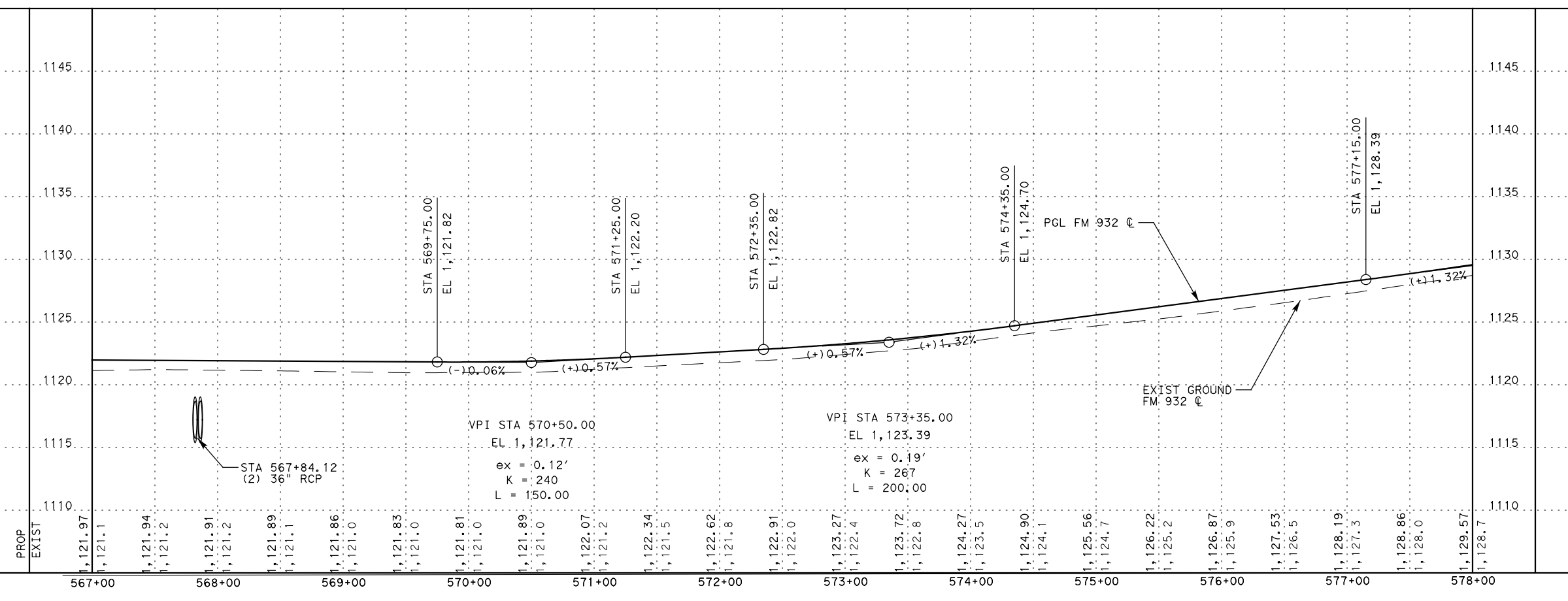
- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.



| STA 567+00.00 to STA 568+00.00 | STA 568+00.00 to STA 569+00.00 | STA 569+00.00 to STA 570+00.00 | STA 570+00.00 to STA 571+00.00 | STA 571+00.00 to STA 572+00.00 | STA 572+00.00 to STA 573+00.00 | STA 573+00.00 to STA 574+00.00 | STA 574+00.00 to STA 575+00.00 | STA 575+00.00 to STA 576+00.00 | STA 576+00.00 to STA 577+00.00 | STA 577+00.00 to STA 578+00.00 | SECTION TOTALS | | | | |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|--|--|--|----------------------|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | | |
| 4 | 1 | 0 | 2 | 2 | 5 | 7 | 11 | 3 | 2 | 7 | 44 | | | | EXCAVATION (RDWY) |
| 117 | 120 | 84 | 56 | 45 | 34 | 28 | 27 | 31 | 34 | 31 | 607 | | | | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | | | STA PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | | | FLEXBASE |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM-932\PROD\SHEETS\RP20.dgn
DATE: 9/1/2021 11:03:53 AM fRange1



Texas Department of Transportation
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FM 932
PLAN AND PROFILE LAYOUT
STA 567+00.00 TO STA 578+00.00

(SHEET 20 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 113 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

PI Station = 581+59.10
 Delta = 0° 16' 29.17" (LT)
 Degree of Curve = 0° 34' 22.65"
 Tangent = 23.98
 Length = 47.95
 Radius = 10000.00
 PC Station = 581+35.12
 PT Station = 581+83.07



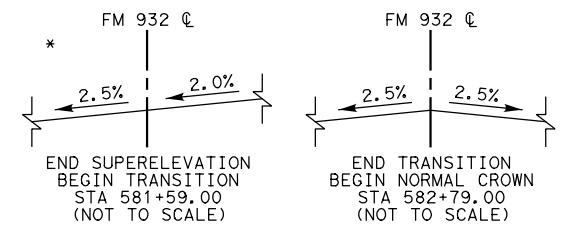
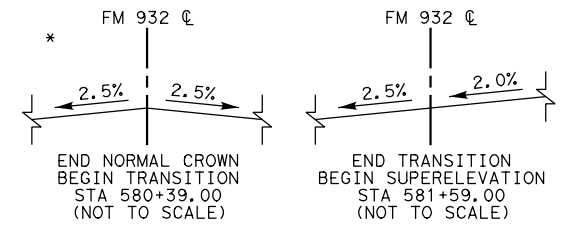
50 25 0 50 100

HORIZONTAL SCALE: 1" = 100'

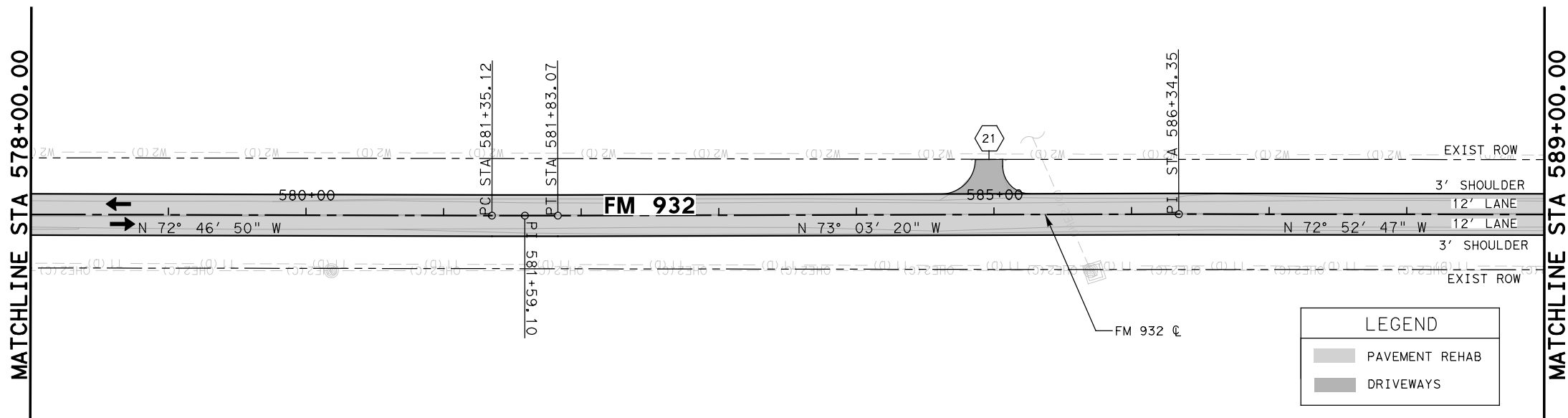
5 2.5 0 5 10

VERTICAL SCALE: 1" = 10'

NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

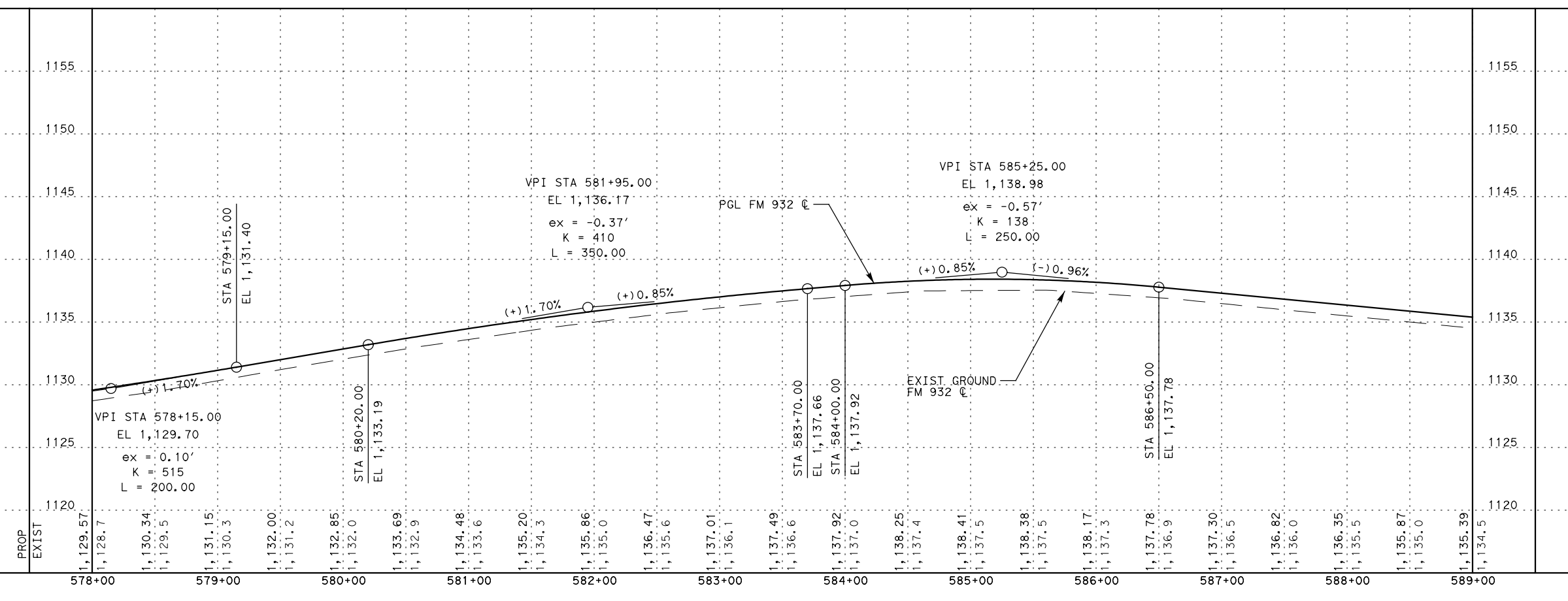


*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.



| SECTION TOTALS | | | | | | | | | | | ESTIMATED | FINAL | UNIT | DESCRIPTION |
|----------------|------|------|------|------|------|------|------|------|------|------|-----------|-------|------|-------------------|
| 3 | 5 | 4 | 5 | 11 | 20 | 22 | 31 | 30 | 27 | 11 | 169 | | CY | EXCAVATION (RDWY) |
| 38 | 37 | 31 | 43 | 25 | 30 | 49 | 48 | 24 | 26 | 24 | 375 | | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

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FM 932

PLAN AND PROFILE LAYOUT
 STA 578+00.00 TO STA 589+00.00

(SHEET 21 OF 74)

| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | | | | 114 |



50 25 0 50 100

HORIZONTAL SCALE: 1" = 100'

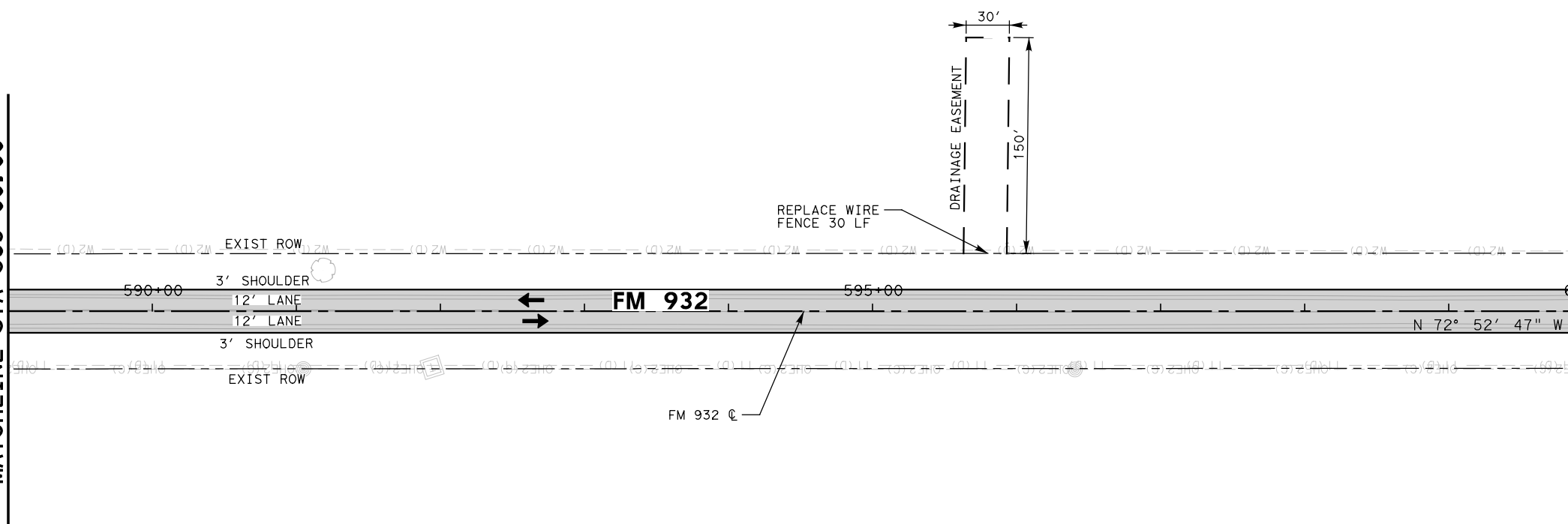
5 2.5 0 5 10

VERTICAL SCALE: 1" = 10'

- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.

MATCHLINE STA 589+00.00

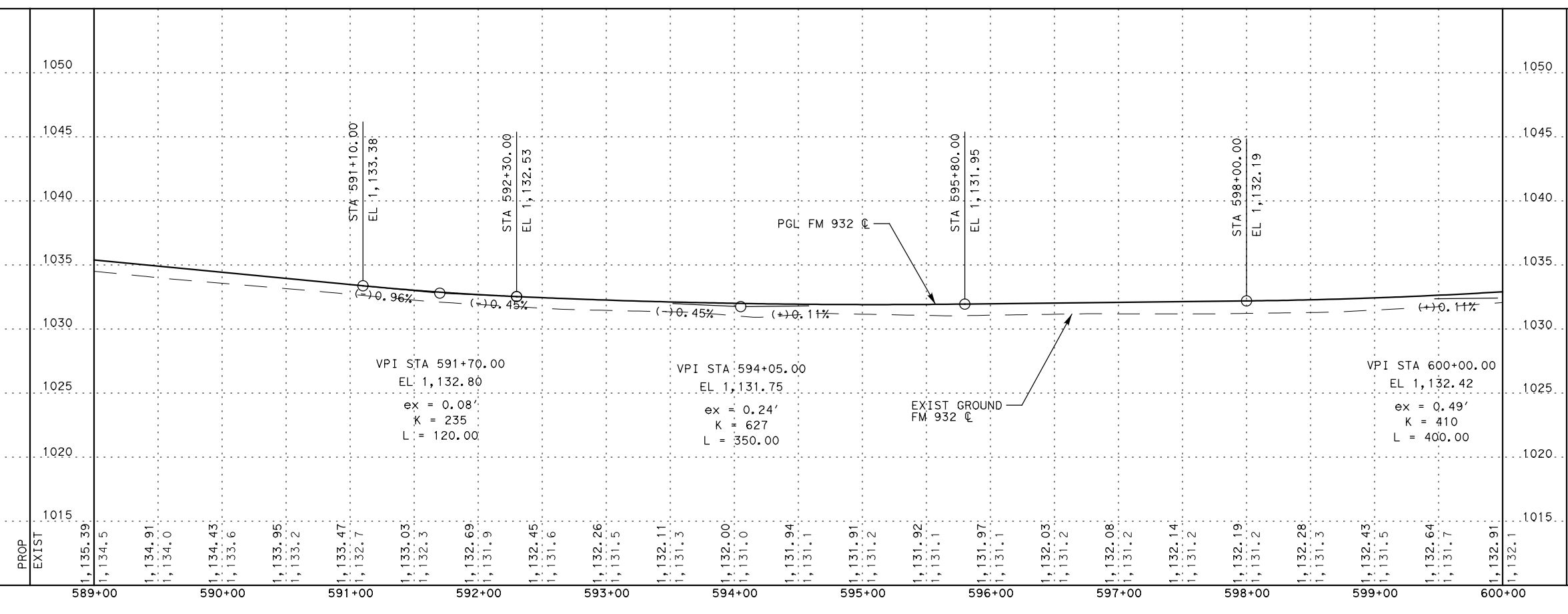
MATCHLINE STA 600+00.00



| | | | | | | | | | | | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|--------------------|
| STA 589+00.00 to | STA 590+00.00 to | STA 591+00.00 to | STA 592+00.00 to | STA 593+00.00 to | STA 594+00.00 to | STA 595+00.00 to | STA 596+00.00 to | STA 597+00.00 to | STA 598+00.00 to | STA 599+00.00 to | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 12 | 22 | 29 | 20 | 22 | 17 | 10 | 8 | 8 | 10 | 17 | 175 | | CY | EXCAVATION (RDWY) |
| 26 | 22 | 20 | 27 | 25 | 37 | 34 | 34 | 26 | 22 | 18 | 291 | | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | STA | PREPARING R. O. W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

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DATE: 9/1/2021 11:03:57 AM fRange1



FM 932
PLAN AND PROFILE LAYOUT
STA 589+00.00 TO STA 600+00.00

(SHEET 22 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 115 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| STA 600+00.00 to | STA 601+00.00 to | STA 602+00.00 to | STA 603+00.00 to | STA 604+00.00 to | STA 605+00.00 to | STA 606+00.00 to | STA 607+00.00 to | STA 608+00.00 to | STA 609+00.00 to | STA 610+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| STA 601+00.00 | STA 602+00.00 | STA 603+00.00 | STA 604+00.00 | STA 605+00.00 | STA 606+00.00 | STA 607+00.00 | STA 608+00.00 | STA 609+00.00 | STA 610+00.00 | STA 611+00.00 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 35 | 37 | 24 | 19 | 16 | 15 | 29 | 25 | 22 | 22 | 16 | 260 | | CY | EXCAVATION (RDWY) |
| 16 | 16 | 20 | 31 | 22 | 23 | 24 | 22 | 17 | 20 | 25 | | | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

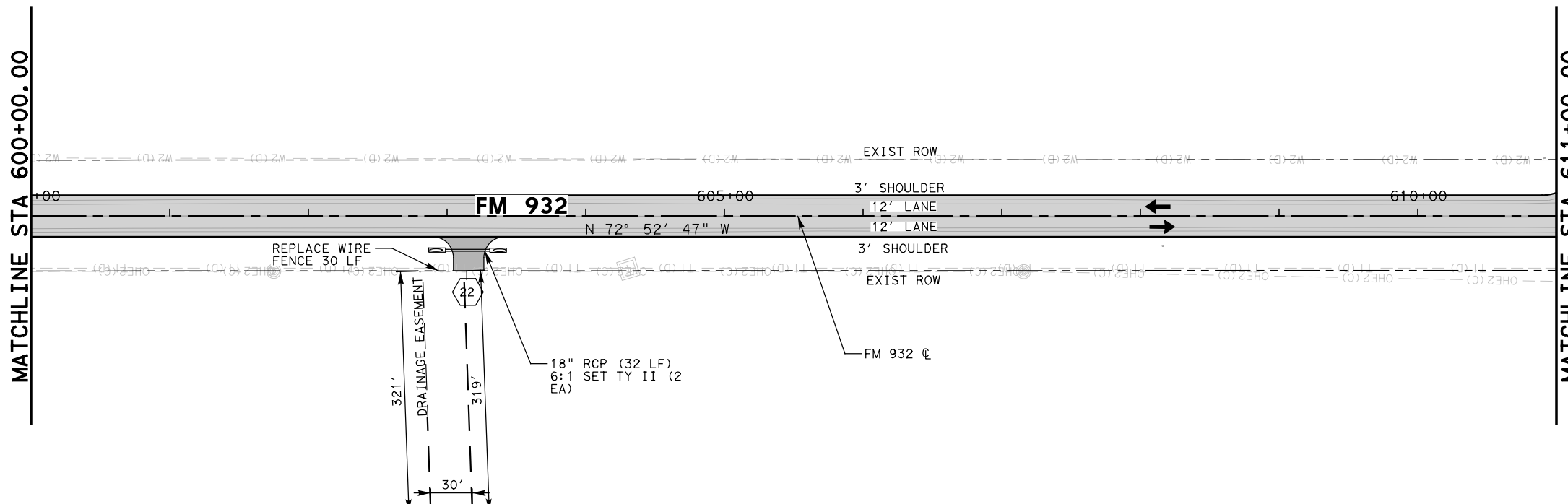


HORIZONTAL SCALE: 1" = 100'



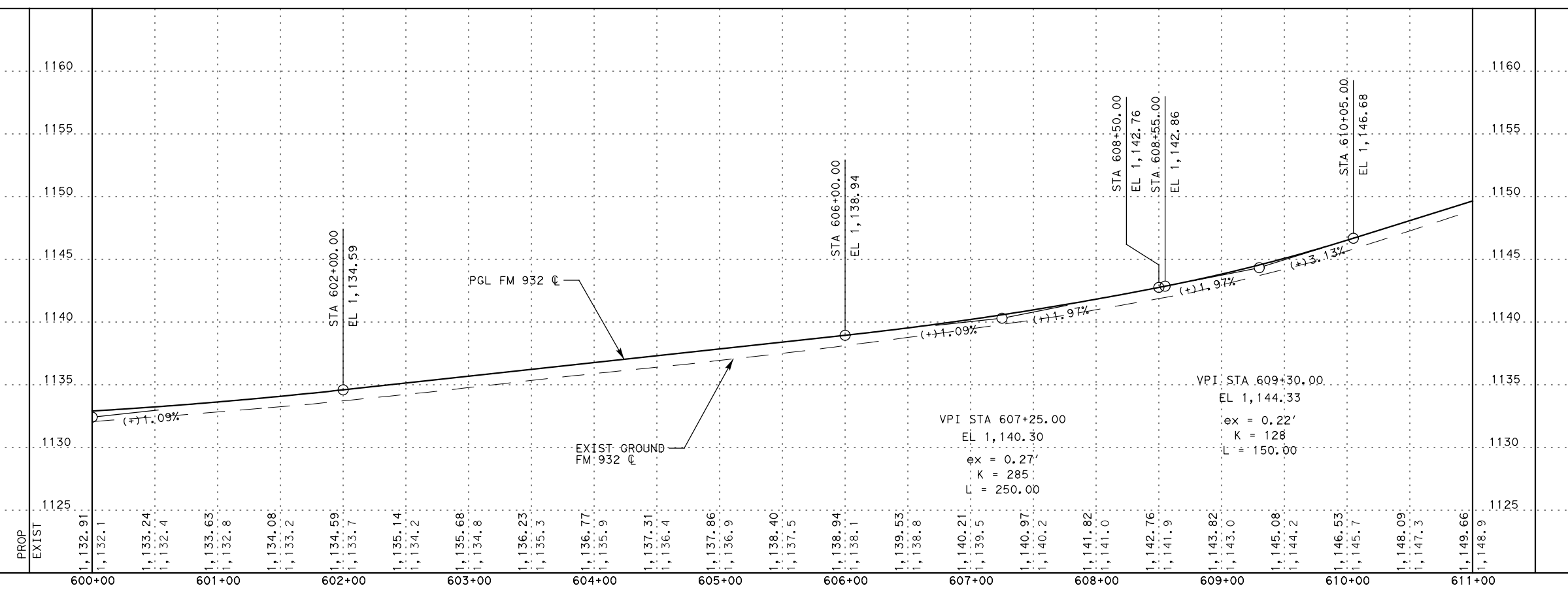
VERTICAL SCALE: 1" = 10'

- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.



| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP23.dgn
DATE: 9/1/2021 11:03:59 AM fRange1



FM 932
PLAN AND PROFILE LAYOUT
STA 600+00.00 TO STA 611+00.00

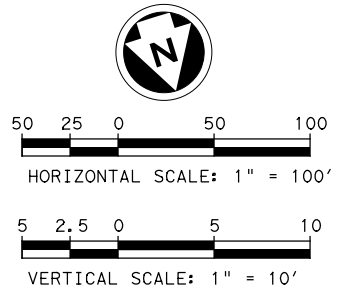
(SHEET 23 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 116 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

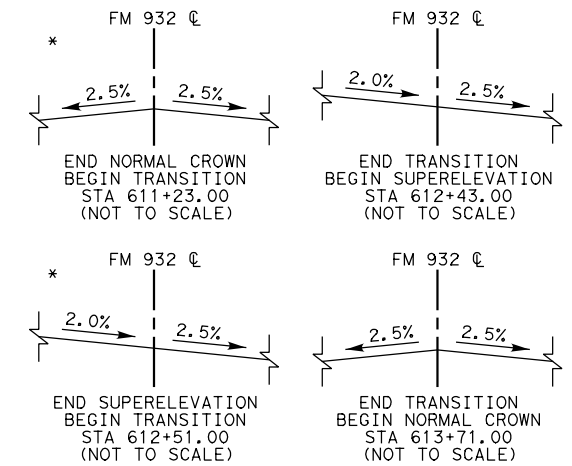
PI Station = 612+47.13
 Delta = 0° 19' 11.46" (RT)
 Degree of Curve = 0° 34' 22.65"
 Tangent = 27.91
 Length = 55.82
 Radius = 10000.00
 PC Station = 612+19.22
 PT Station = 612+75.04

LEGEND

- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

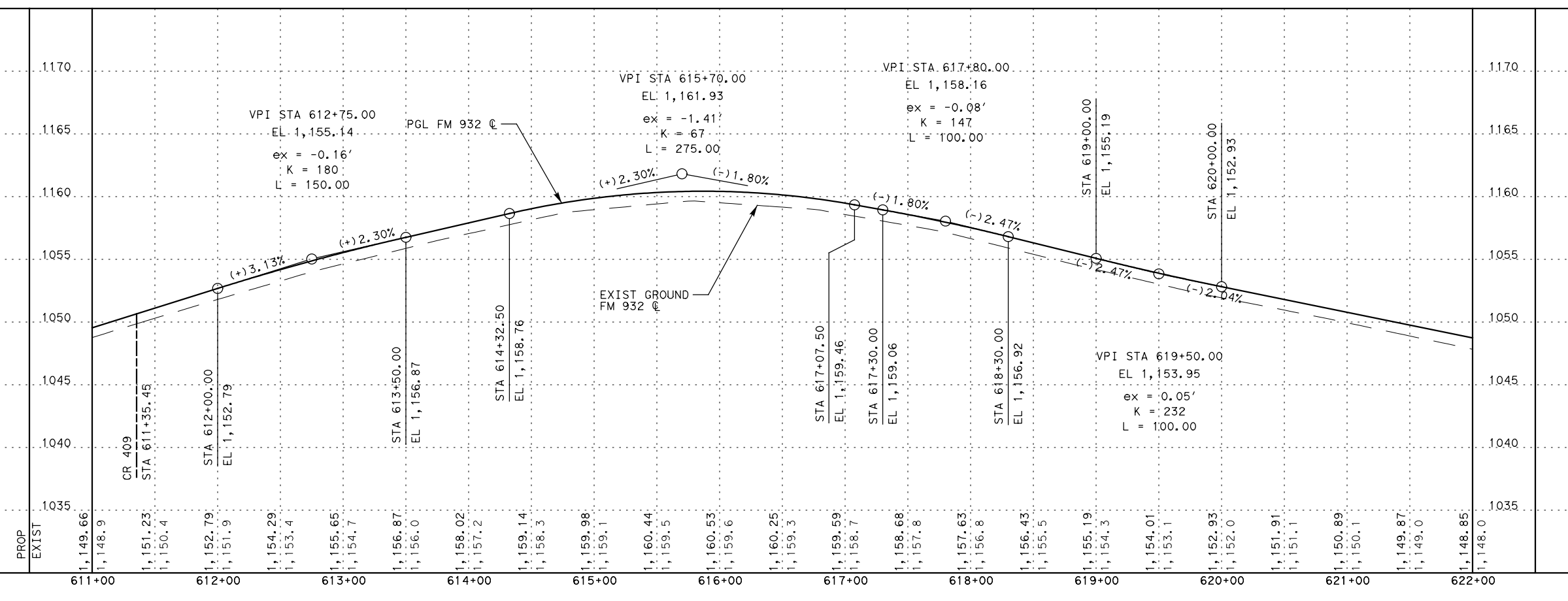
MATCHLINE STA 611+00.00

MATCHLINE STA 622+00.00

| STA 611+00.00 to | STA 612+00.00 to | STA 613+00.00 to | STA 614+00.00 to | STA 615+00.00 to | STA 616+00.00 to | STA 617+00.00 to | STA 618+00.00 to | STA 619+00.00 to | STA 620+00.00 to | STA 621+00.00 to | STA 622+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| 22 | 12 | 22 | 24 | 28 | 25 | 20 | 18 | 20 | 16 | 9 | 216 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 13 | 34 | 21 | 21 | 21 | 21 | 26 | 24 | 17 | 18 | 24 | 240 | CY | | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | | CY | FLEXBASE |

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP24.dgn
 DATE: 9/1/2021 11:04:02 AM frrange1



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FM 932
PLAN AND PROFILE LAYOUT
 STA 611+00.00 TO STA 622+00.00

(SHEET 24 OF 74)

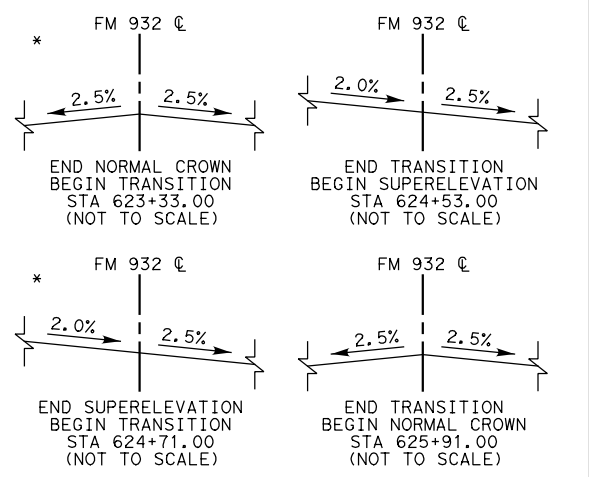
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|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | 017 | | | |

117

PI Station = 624+61.75
 Delta = 0° 22' 47.13" (LT)
 Degree of Curve = 0° 34' 22.65"
 Tangent = 33.14
 Length = 66.28
 Radius = 10000.00
 PC Station = 624+28.61
 PT Station = 624+94.89



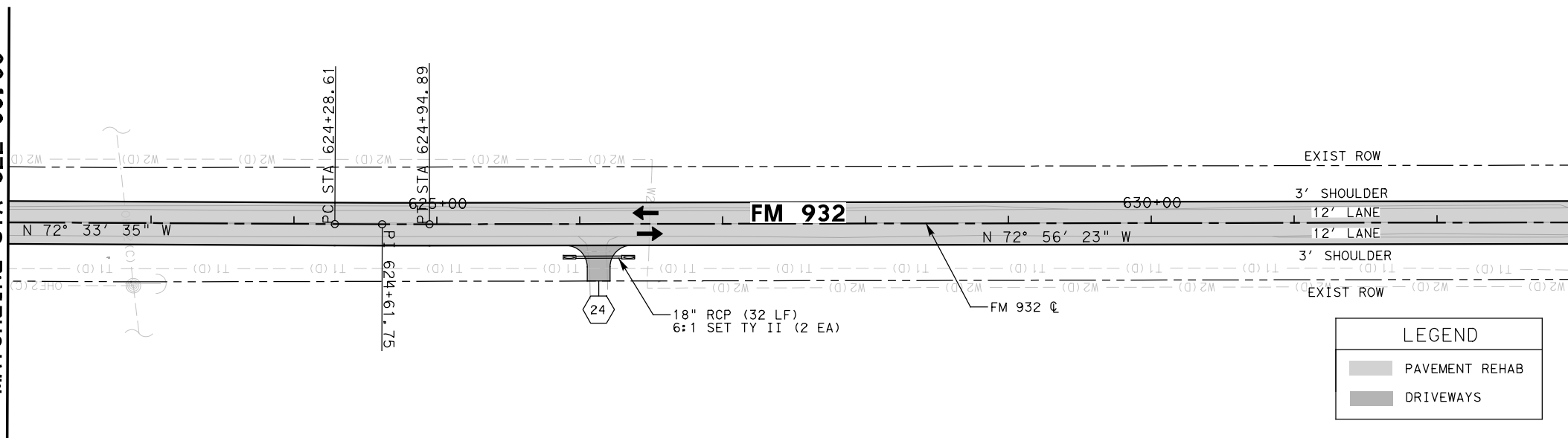
NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

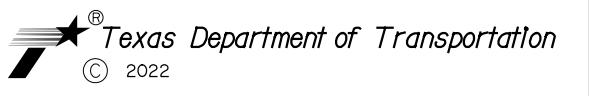
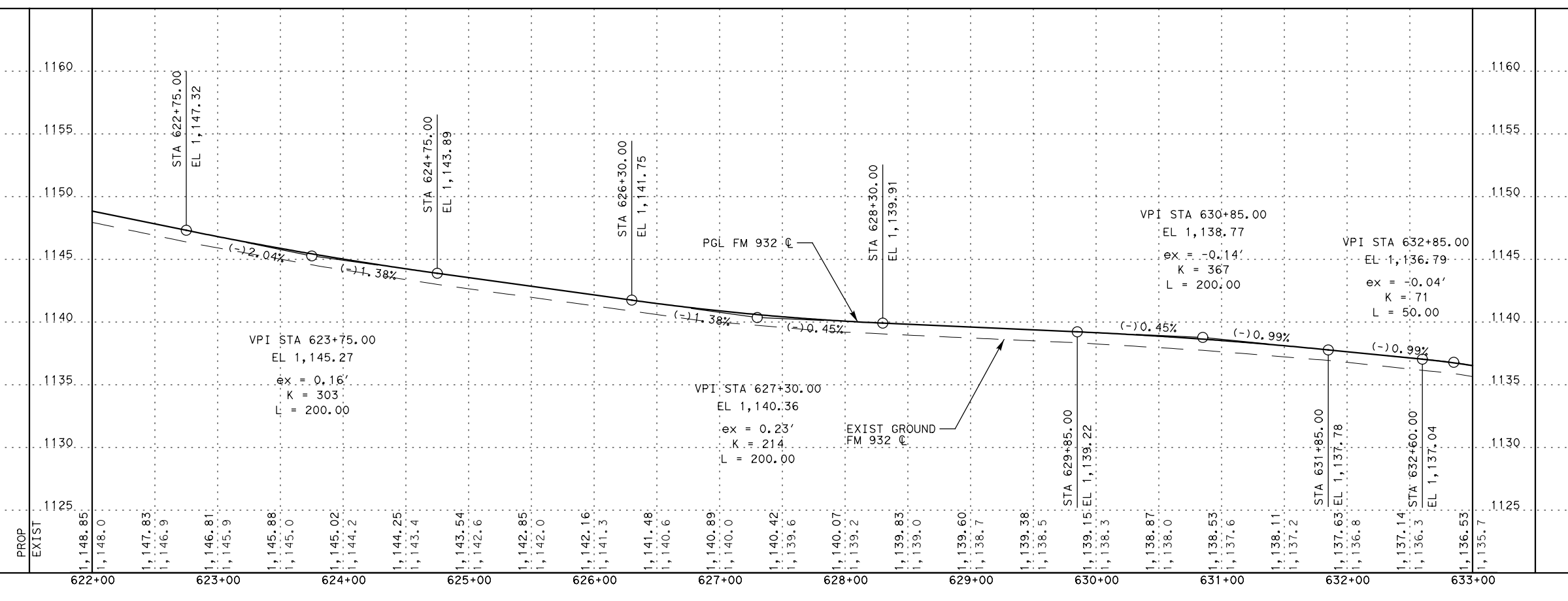
MATCHLINE STA 622+00.00

MATCHLINE STA 633+00.00



| SECTION TOTALS | | | | | | | | | | | ESTIMATED | FINAL | UNIT | DESCRIPTION |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-----------|-------|------|-------------------|
| STA 623+00.00 to STA 624+00.00 | STA 624+00.00 to STA 625+00.00 | STA 625+00.00 to STA 626+00.00 | STA 626+00.00 to STA 627+00.00 | STA 627+00.00 to STA 628+00.00 | STA 628+00.00 to STA 629+00.00 | STA 629+00.00 to STA 630+00.00 | STA 630+00.00 to STA 631+00.00 | STA 631+00.00 to STA 632+00.00 | STA 632+00.00 to STA 633+00.00 | STA 633+00.00 to STA 634+00.00 | 92 | 415 | CY | EXCAVATION (RDWY) |
| 6 | 9 | 4 | 8 | 13 | 17 | 13 | 10 | 6 | 3 | 3 | 415 | 11 | STA | EMPAVEMENT |
| 27 | 22 | 42 | 27 | 23 | 27 | 20 | 27 | 43 | 84 | 73 | 415 | 11 | STA | PREPARING R.O.W. |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 611 | 611 | CY | FLEXBASE |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP25.dgn
 DATE: 9/1/2021 11:04:04 AM fRange1



FM 932
PLAN AND PROFILE LAYOUT
 STA 622+00.00 TO STA 633+00.00

(SHEET 25 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 118 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



HORIZONTAL SCALE: 1" = 100'

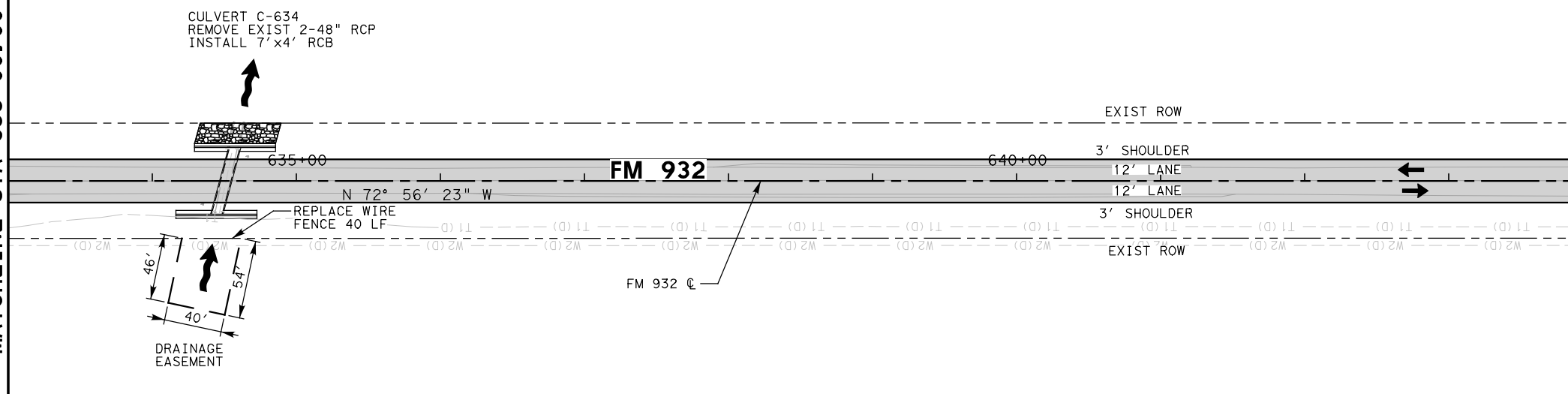


VERTICAL SCALE: 1" = 10'

- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.

MATCHLINE STA 633+00.00

MATCHLINE STA 644+00.00

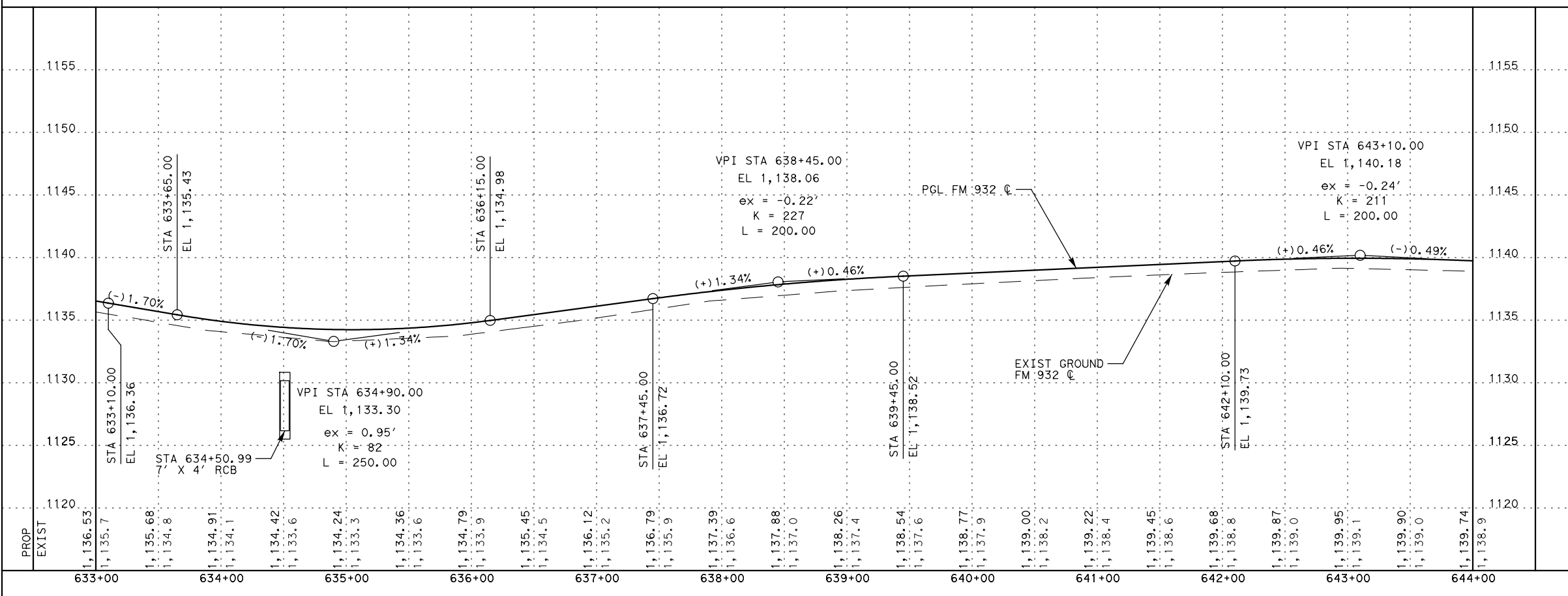


LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

| SECTION TOTALS | | | | | | | | | | | ESTIMATED | FINAL | UNIT | DESCRIPTION |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-----------|-------|------|-------------------|
| STA 633+00.00 to STA 634+00.00 | STA 634+00.00 to STA 635+00.00 | STA 635+00.00 to STA 636+00.00 | STA 636+00.00 to STA 637+00.00 | STA 637+00.00 to STA 638+00.00 | STA 638+00.00 to STA 639+00.00 | STA 639+00.00 to STA 640+00.00 | STA 640+00.00 to STA 641+00.00 | STA 641+00.00 to STA 642+00.00 | STA 642+00.00 to STA 643+00.00 | STA 643+00.00 to STA 644+00.00 | 118 | 118 | CY | EXCAVATION (RDWY) |
| 4 | 8 | 17 | 10 | 11 | 10 | 10 | 14 | 12 | 11 | 11 | 547 | 547 | CY | EMBANKMENT |
| 85 | 197 | 33 | 28 | 34 | 32 | 27 | 28 | 32 | 26 | 25 | 11 | 11 | STA | PREPARING R.O.W. |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 611 | 611 | CY | FLEXBASE |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | | | | |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP26.dgn
DATE: 9/1/2021 11:04:06 AM fRange1



FIRM REGISTRATION NO. F-230



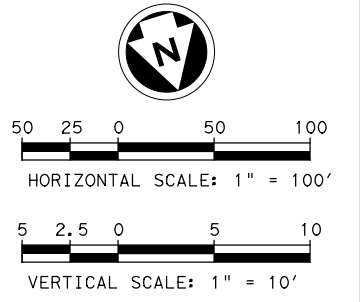
FM 932

PLAN AND PROFILE LAYOUT
STA 633+00.00 TO STA 644+00.00

(SHEET 26 OF 74)

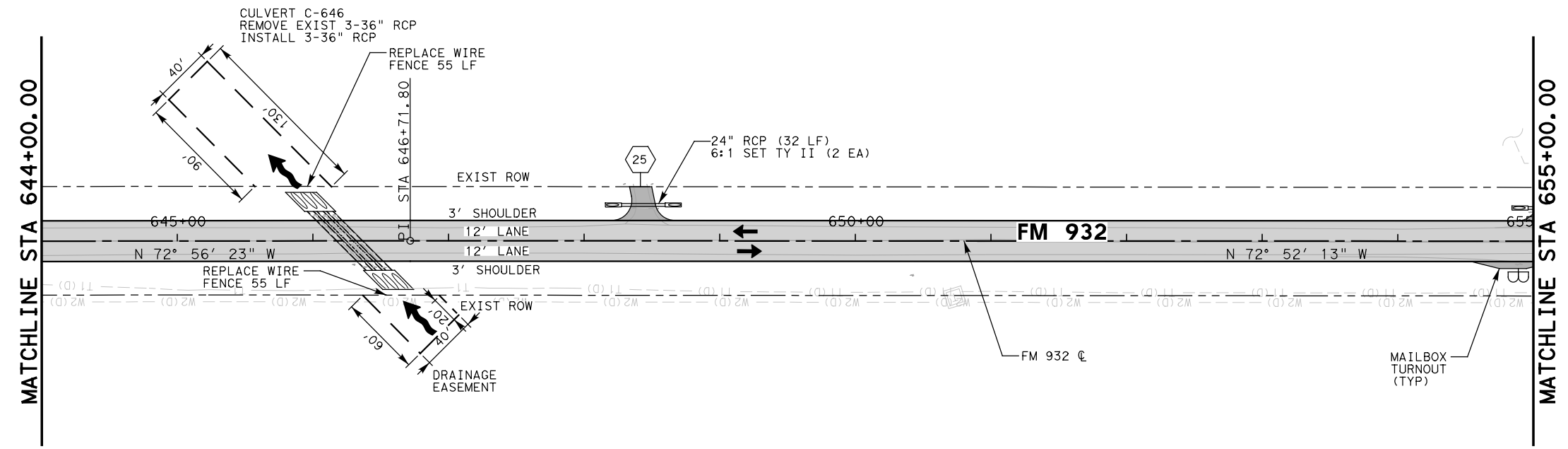
| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 119 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |



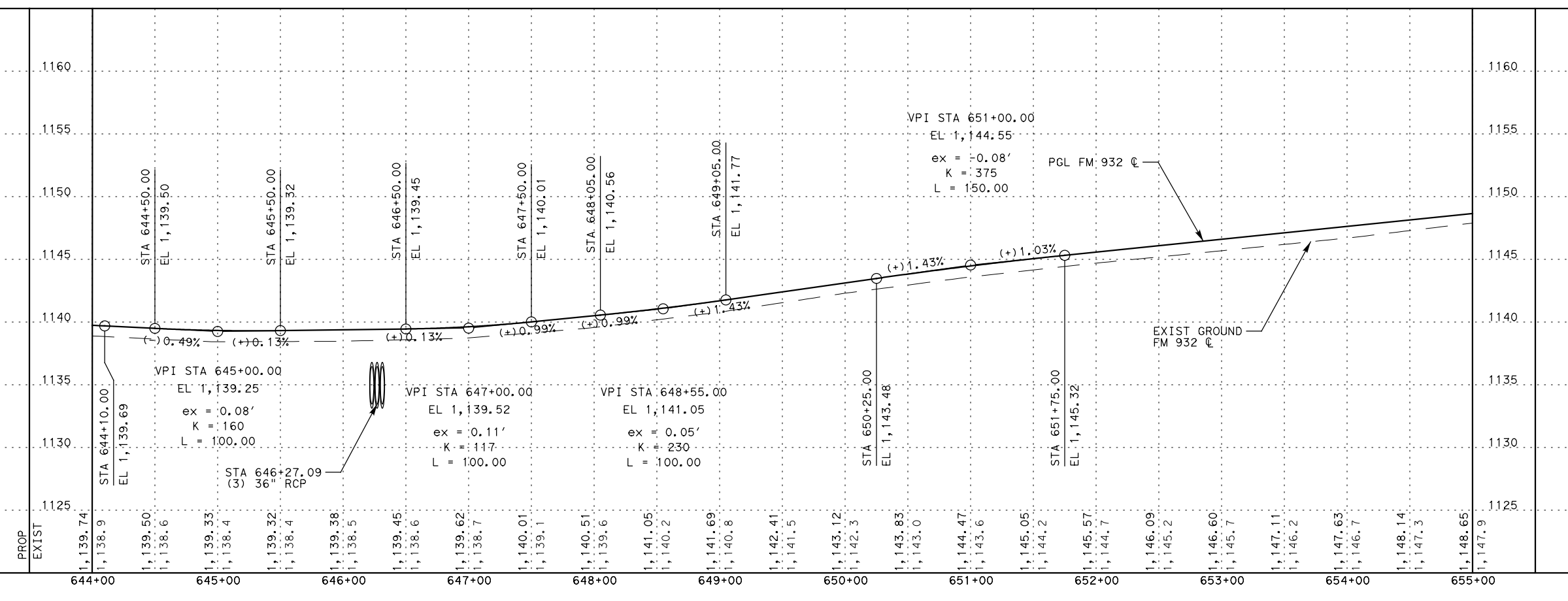
- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |



| STA 644+00.00 to | STA 645+00.00 to | STA 646+00.00 to | STA 647+00.00 to | STA 648+00.00 to | STA 649+00.00 to | STA 650+00.00 to | STA 651+00.00 to | STA 652+00.00 to | STA 653+00.00 to | STA 654+00.00 to | SECTION TOTALS | | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------|-------------------|
| 17 | 8 | 3 | 4 | 6 | 8 | 6 | 10 | 8 | 9 | 13 | ESTIMATED | FINAL | UNIT | DESCRIPTION | |
| 20 | 85 | 193 | 64 | 28 | 27 | 42 | 31 | 26 | 34 | 34 | 584 | | | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | | CY | FLEXBASE |

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DATE: 9/1/2021 11:04:08 AM fRange1

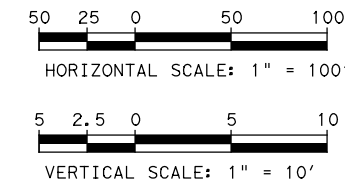


FM 932

PLAN AND PROFILE LAYOUT
STA 644+00.00 TO STA 655+00.00

(SHEET 27 OF 74)

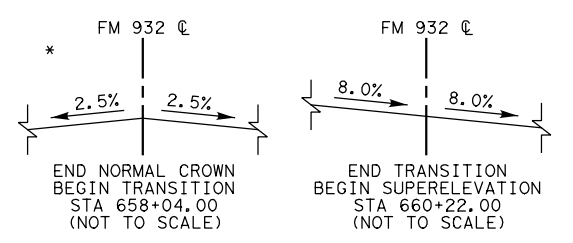
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|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | | | | 120 |



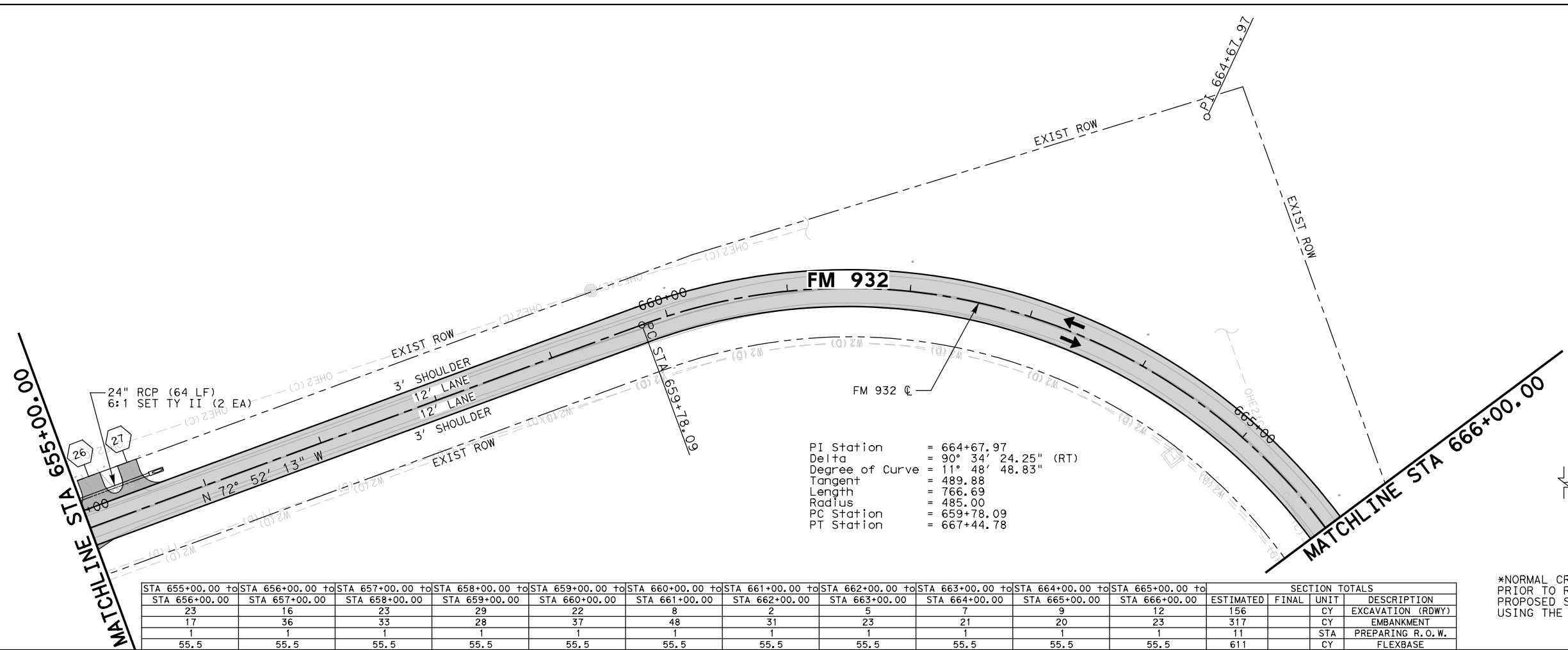
- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

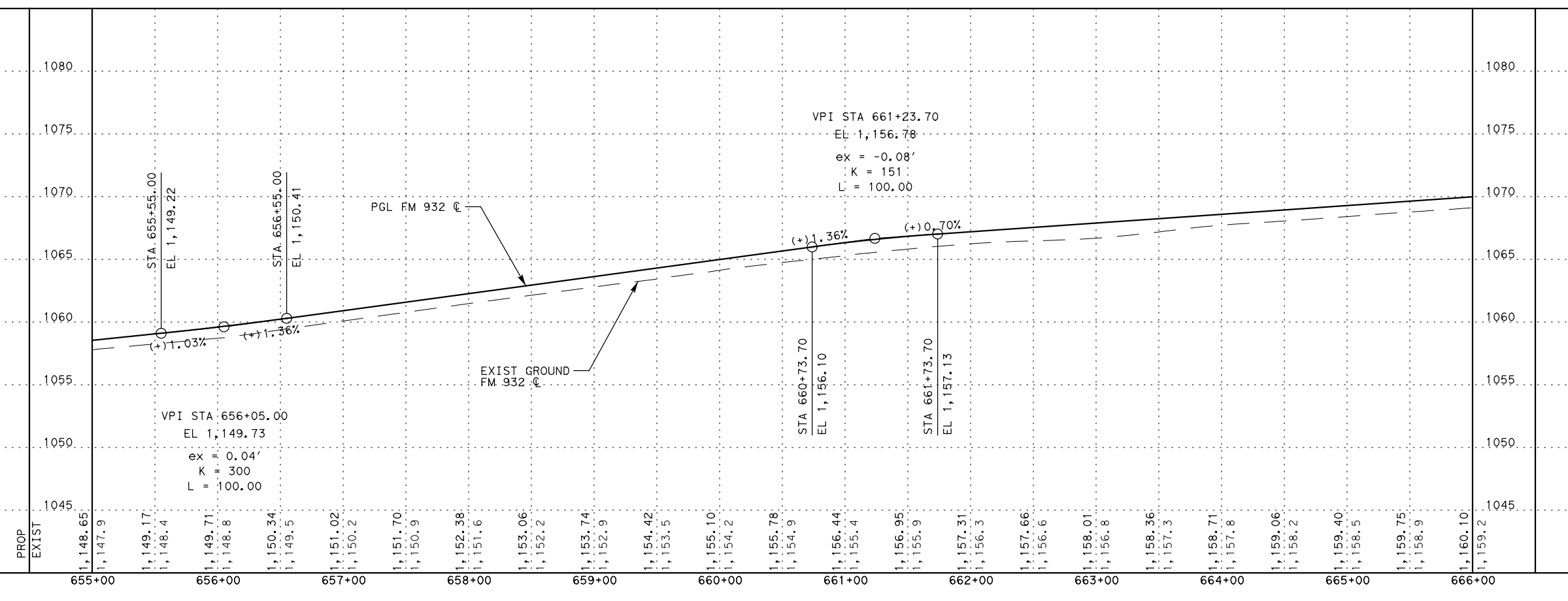


*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.



| SECTION TOTALS | | | | | | | | | | | ESTIMATED | FINAL | UNIT | DESCRIPTION |
|----------------|------|------|------|------|------|------|------|------|------|------|-----------|-------|-------------------|-------------|
| 23 | 16 | 23 | 29 | 22 | 8 | 2 | 5 | 7 | 9 | 12 | 156 | CY | EXCAVATION (RDWY) | |
| 17 | 36 | 33 | 28 | 37 | 48 | 31 | 23 | 21 | 20 | 23 | 317 | CY | EMBANKMENT | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R.O.W. | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE | |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP28.dgn
DATE: 9/1/2021 11:04:10 AM f:range1



FM 932

PLAN AND PROFILE LAYOUT
STA 655+00.00 TO STA 666+00.00

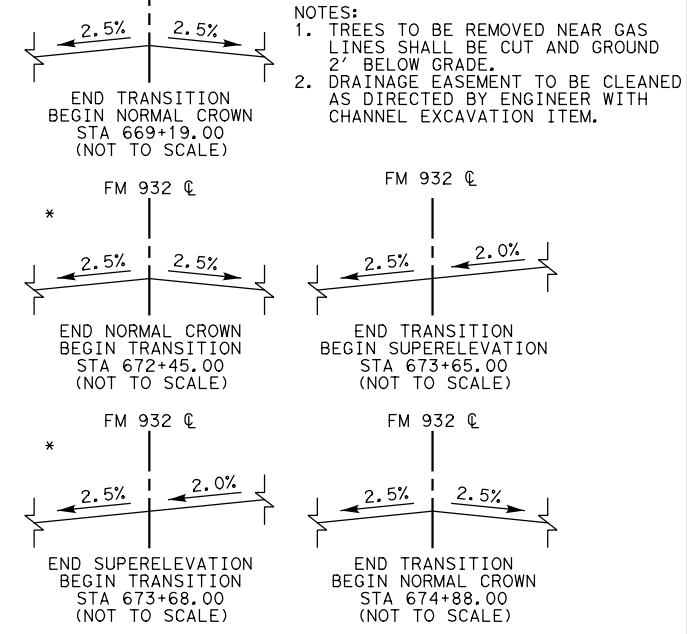
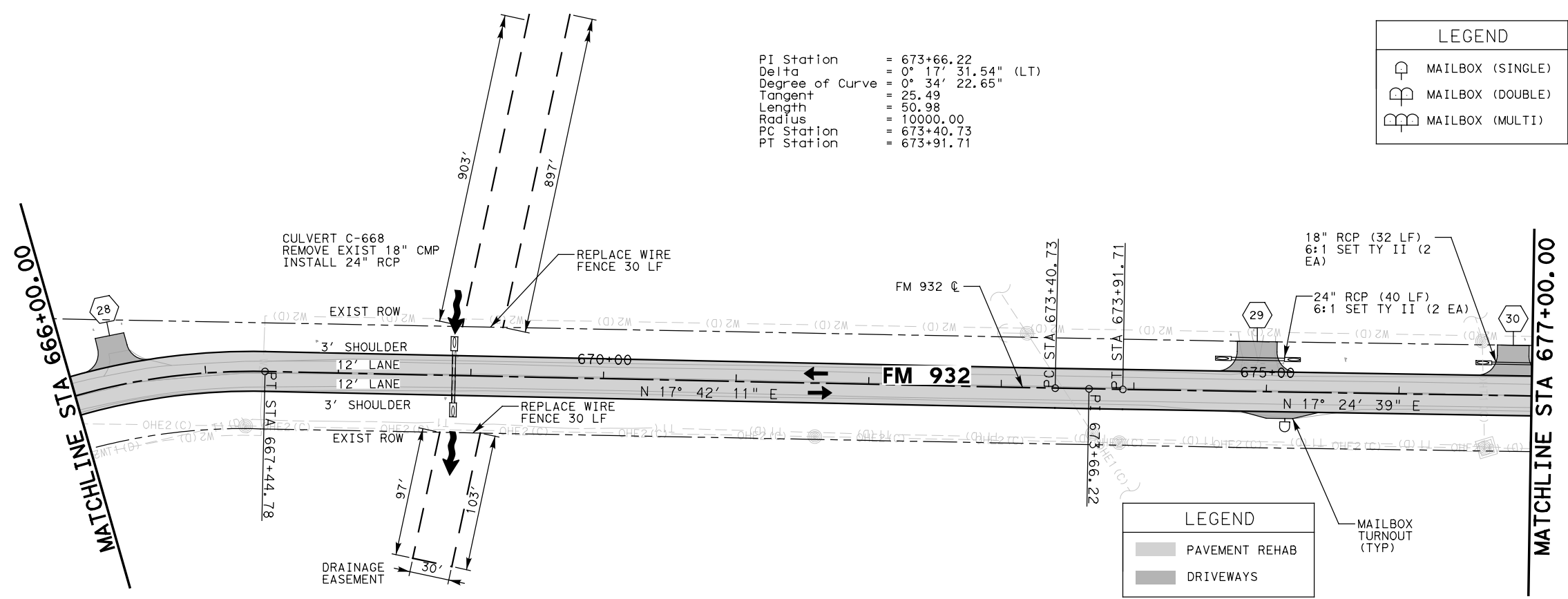
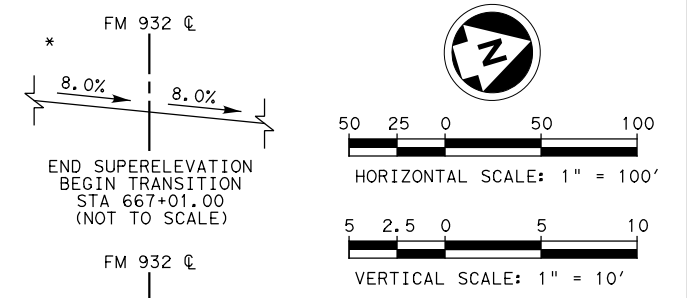
(SHEET 28 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 121 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

PI Station = 673+66.22
 Delta = 0° 17' 31.54" (LT)
 Degree of Curve = 0° 34' 22.65"
 Tangent = 25.49
 Length = 50.98
 Radius = 10000.00
 PC Station = 673+40.73
 PT Station = 673+91.71

LEGEND

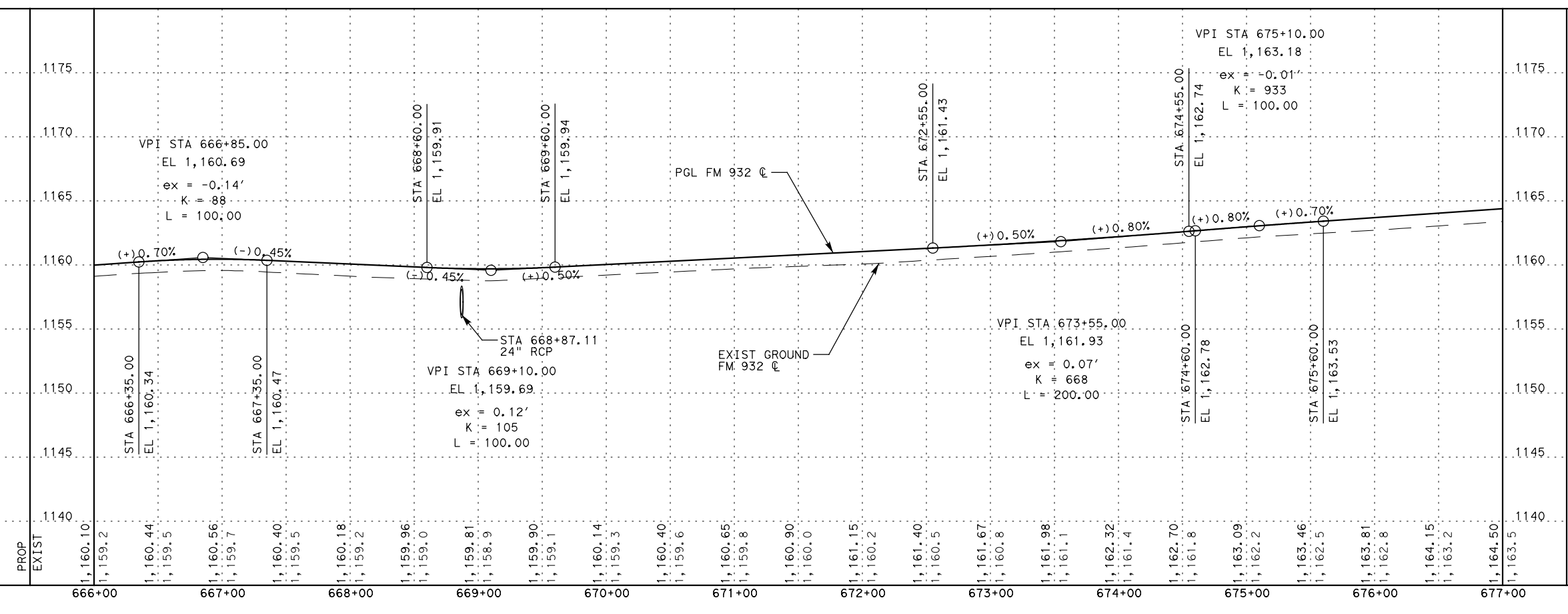
- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



| STA 666+00.00 to | STA 667+00.00 to | STA 668+00.00 to | STA 669+00.00 to | STA 670+00.00 to | STA 671+00.00 to | STA 672+00.00 to | STA 673+00.00 to | STA 674+00.00 to | STA 675+00.00 to | STA 676+00.00 to | SECTION TOTALS | ESTIMATED | FINAL | UNIT | DESCRIPTION |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-----------|-------|------|-------------------|
| 6 | 10 | 9 | 18 | 20 | 14 | 8 | 6 | 16 | 20 | 9 | 136 | 402 | 11 | CY | EXCAVATION (RDWY) |
| 33 | 42 | 44 | 29 | 26 | 26 | 32 | 52 | 50 | 30 | 38 | 402 | 11 | 11 | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 611 | | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | | | | CY | FLEXBASE |

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP29.dgn
DATE: 9/1/2021 11:04:13 AM fRange1



tnp FIRM REGISTRATION NO. F-230

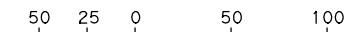
Texas Department of Transportation
© 2022

FM 932

PLAN AND PROFILE LAYOUT
STA 666+00.00 TO STA 677+00.00

(SHEET 29 OF 74)

| | | | | | | | |
|------------|----|-------------------|------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | 0867 | SECTION | 01 | JOB | 017 |
| GRPH CHECK | RJ | | | | | | 122 |

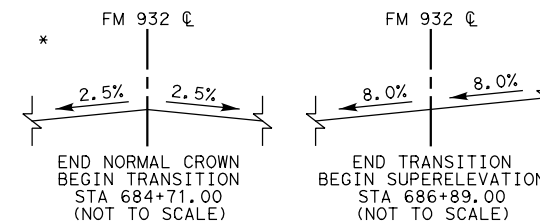


HORIZONTAL SCALE: 1" = 100'

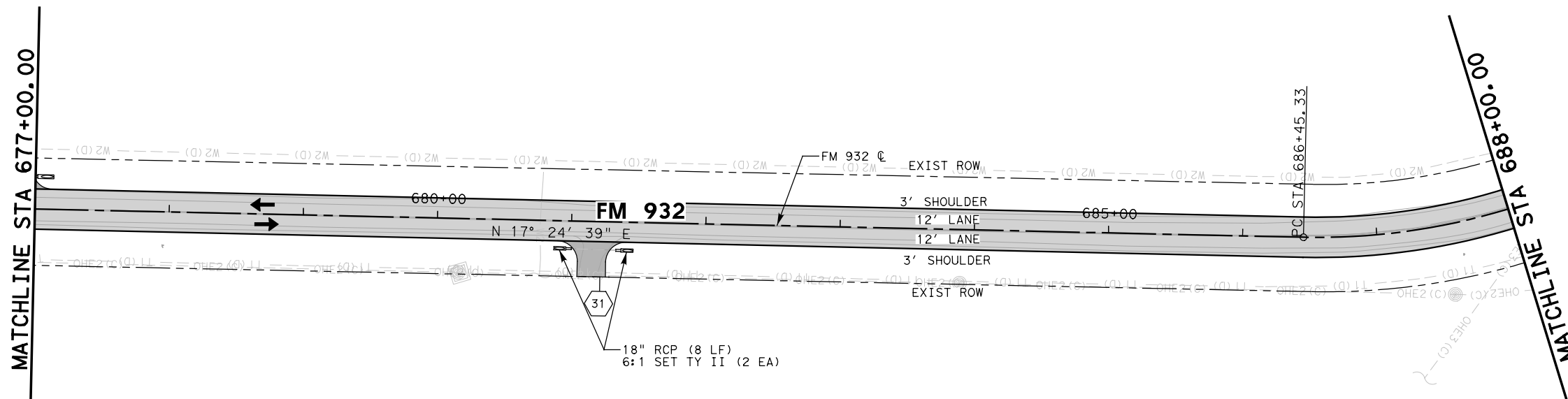


VERTICAL SCALE: 1" = 10'

NOTES:
1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



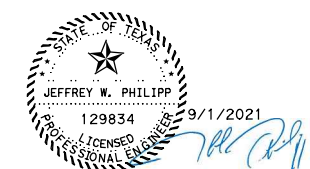
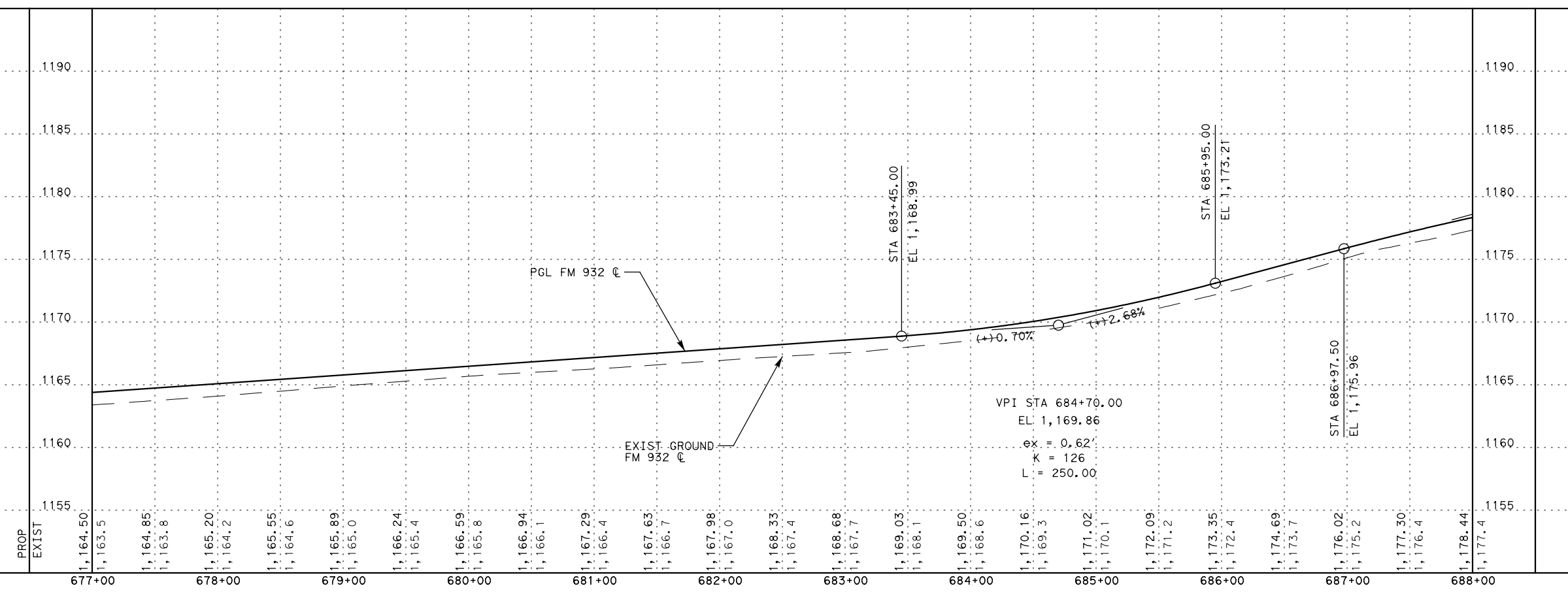
*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.



| STA 677+00.00 to STA 678+00.00 | STA 678+00.00 to STA 679+00.00 | STA 679+00.00 to STA 680+00.00 | STA 680+00.00 to STA 681+00.00 | STA 681+00.00 to STA 682+00.00 | STA 682+00.00 to STA 683+00.00 | STA 683+00.00 to STA 684+00.00 | STA 684+00.00 to STA 685+00.00 | STA 685+00.00 to STA 686+00.00 | STA 686+00.00 to STA 687+00.00 | STA 687+00.00 to STA 688+00.00 | SECTION TOTALS | | | |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|-----|-------------------|--|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | |
| 11 | 15 | 20 | 24 | 15 | 14 | 19 | 17 | 11 | 11 | 5 | 162 | CY | EXCAVATION (RDWY) | |
| 35 | 34 | 29 | 24 | 26 | 27 | 22 | 19 | 42 | 115 | 66 | 439 | CY | EMBANKMENT | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R.O.W. | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE | |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP30.dgn
DATE: 9/1/2021 11:04:15 AM fRange1

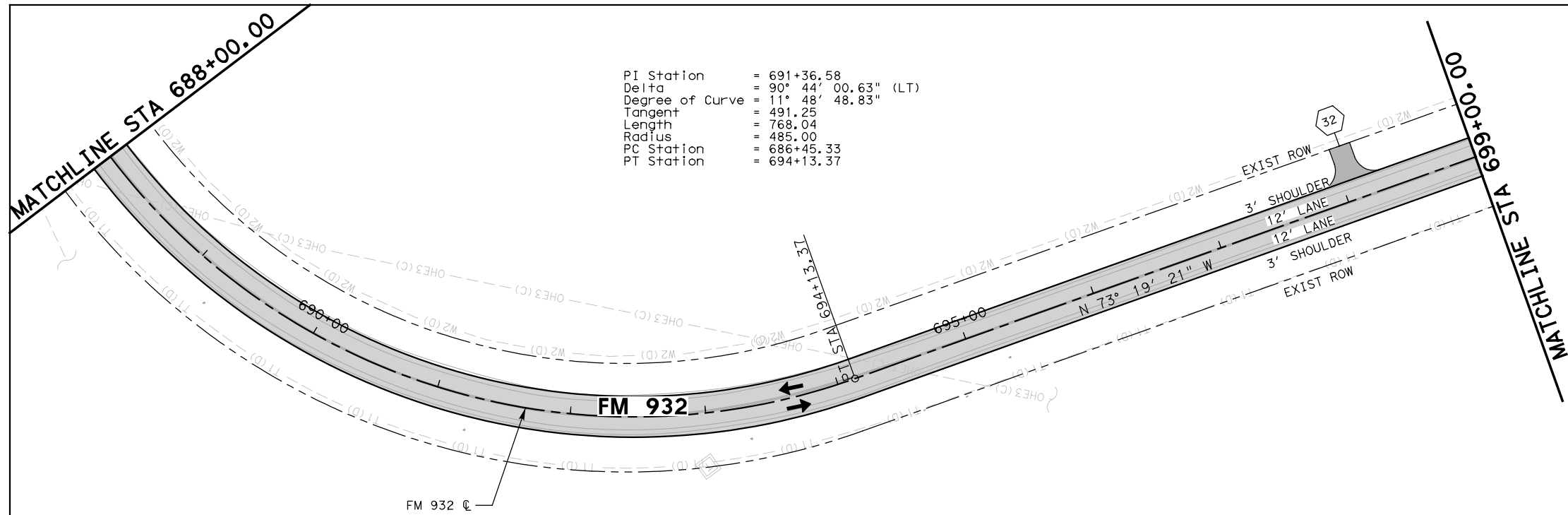


FM 932

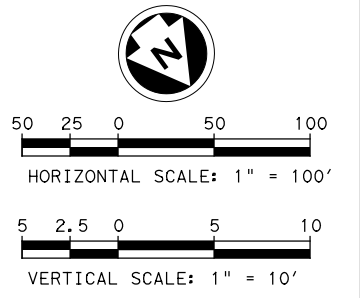
PLAN AND PROFILE LAYOUT
STA 677+00.00 TO STA 688+00.00

(SHEET 30 OF 74)

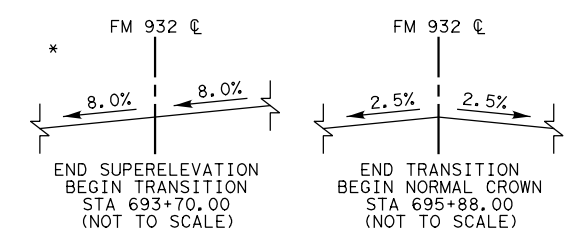
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|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 123 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



PI Station = 691+36.58
 Delta = 90° 44' 00.63" (LT)
 Degree of Curve = 11° 48' 48.83"
 Tangent = 491.25
 Length = 768.04
 Radius = 485.00
 PC Station = 686+45.33
 PT Station = 694+13.37



NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



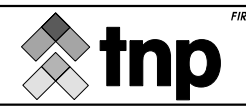
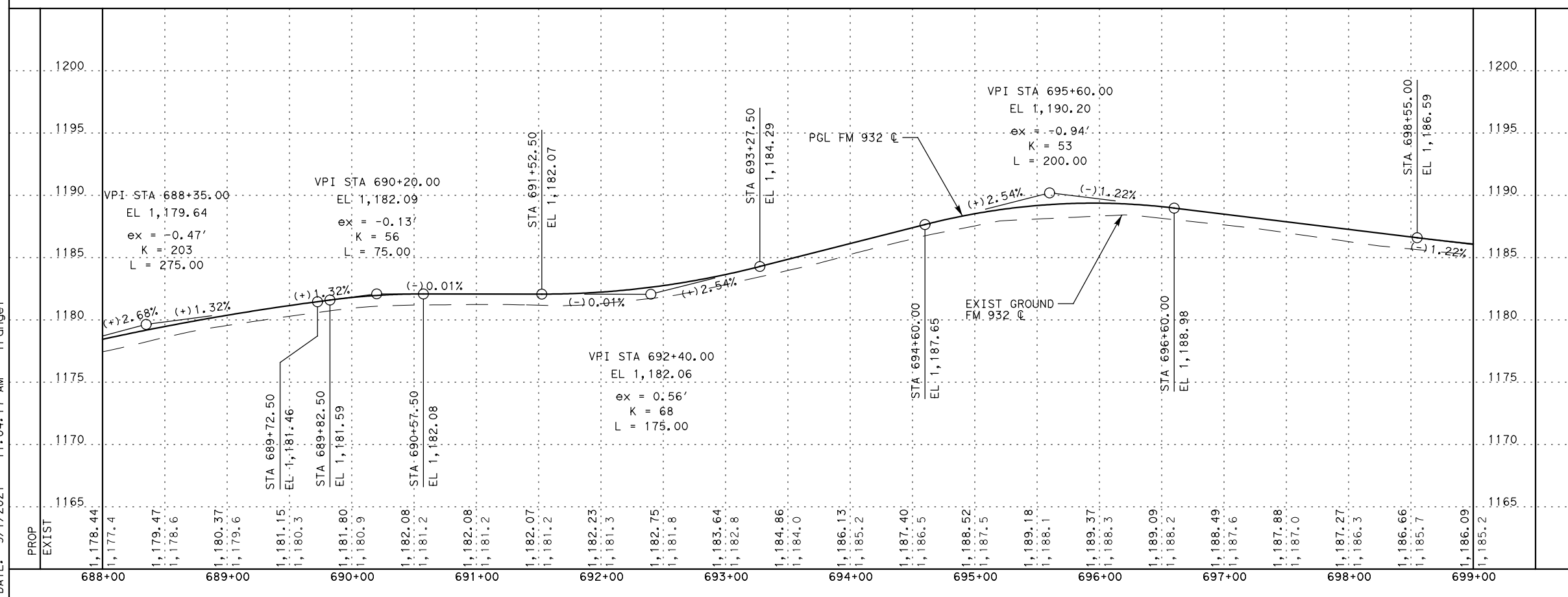
*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

| STA 688+00.00 to | STA 689+00.00 to | STA 690+00.00 to | STA 691+00.00 to | STA 692+00.00 to | STA 693+00.00 to | STA 694+00.00 to | STA 695+00.00 to | STA 696+00.00 to | STA 697+00.00 to | STA 698+00.00 to | STA 699+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| 3 | 3 | 3 | 5 | 3 | 6 | 10 | 5 | 11 | 12 | 10 | 71 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 45 | 52 | 76 | 55 | 46 | 62 | 54 | 38 | 36 | 28 | 31 | 523 | | | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | | CY | FLEXBASE |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP31.dgn
 DATE: 9/1/2021 11:04:17 AM ffrange1



Texas Department of Transportation
 © 2022

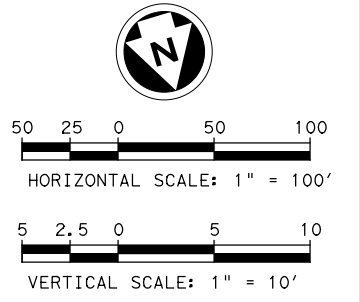
FM 932

PLAN AND PROFILE LAYOUT
 STA 688+00.00 TO STA 699+00.00

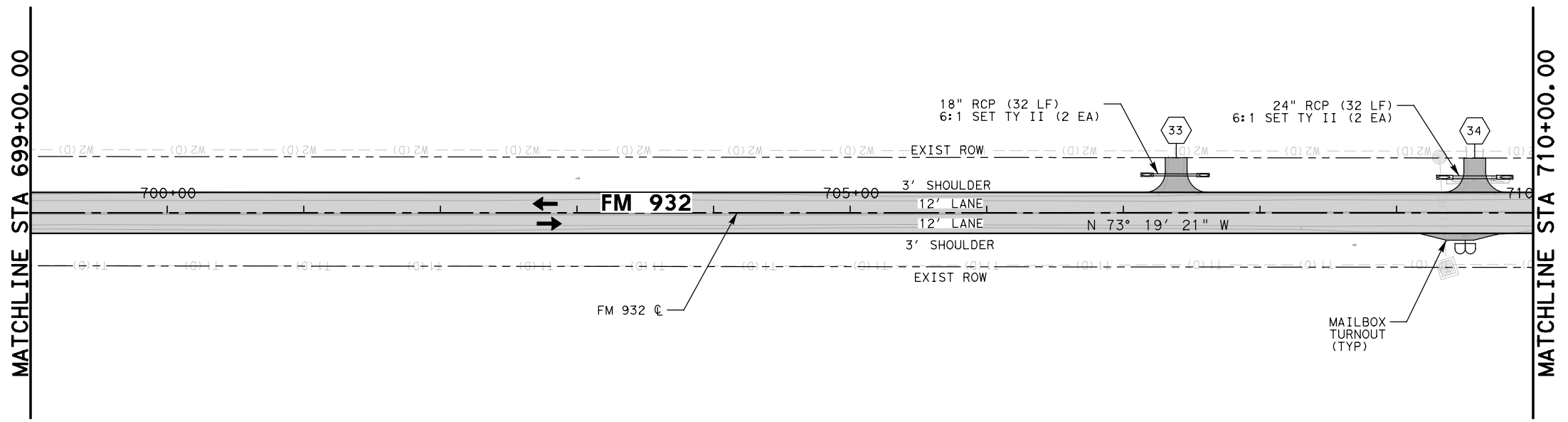
(SHEET 31 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 124 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |



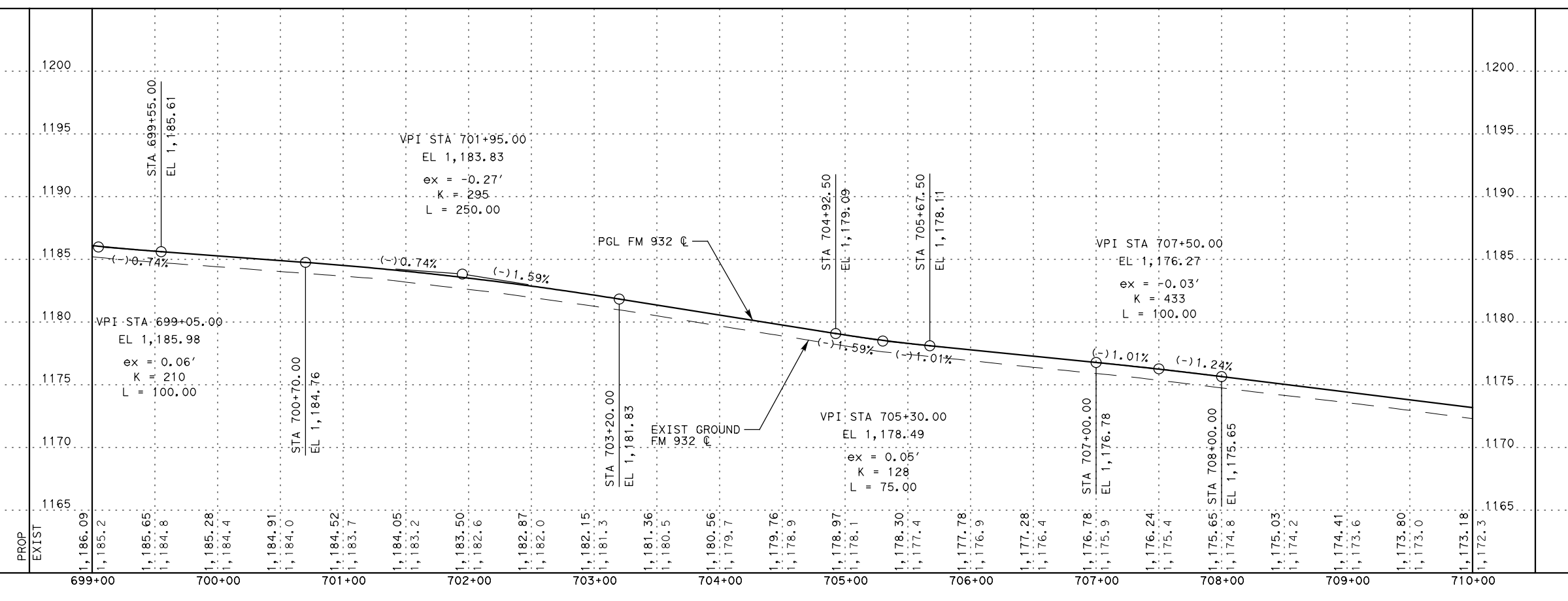
NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

| STA 699+00.00 to STA 700+00.00 | STA 700+00.00 to STA 701+00.00 | STA 701+00.00 to STA 702+00.00 | STA 702+00.00 to STA 703+00.00 | STA 703+00.00 to STA 704+00.00 | STA 704+00.00 to STA 705+00.00 | STA 705+00.00 to STA 706+00.00 | STA 706+00.00 to STA 707+00.00 | STA 707+00.00 to STA 708+00.00 | STA 708+00.00 to STA 709+00.00 | STA 709+00.00 to STA 710+00.00 | SECTION TOTALS | | | | |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|-------|------|-------------|-------------------|
| 15 | 17 | 13 | 12 | 18 | 22 | 14 | 10 | 9 | 13 | 33 | ESTIMATED | FINAL | UNIT | | |
| 29 | 24 | 28 | 32 | 23 | 17 | 34 | 52 | 29 | 39 | 34 | 176 | 341 | CY | | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | CY | | |
| | | | | | | | | | | | | | | DESCRIPTION | |
| | | | | | | | | | | | | | | | EXCAVATION (RDWY) |
| | | | | | | | | | | | | | | | EMBANKMENT |
| | | | | | | | | | | | | | | | PREPARING R.O.W. |
| | | | | | | | | | | | | | | | FLEXBASE |

FILE: P:\MSGP\TXD18248\05-FM932\PROD\SHEETS\RP32.dgn
 DATE: 9/1/2021 11:04:19 AM fRange1



tnp FIRM REGISTRATION NO. F-230

Texas Department of Transportation
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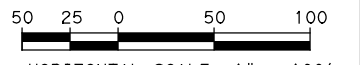
FM 932

PLAN AND PROFILE LAYOUT
 STA 699+00.00 TO STA 710+00.00

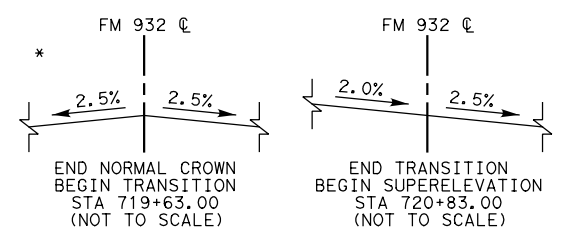
(SHEET 32 OF 74)

| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | | | | 125 |

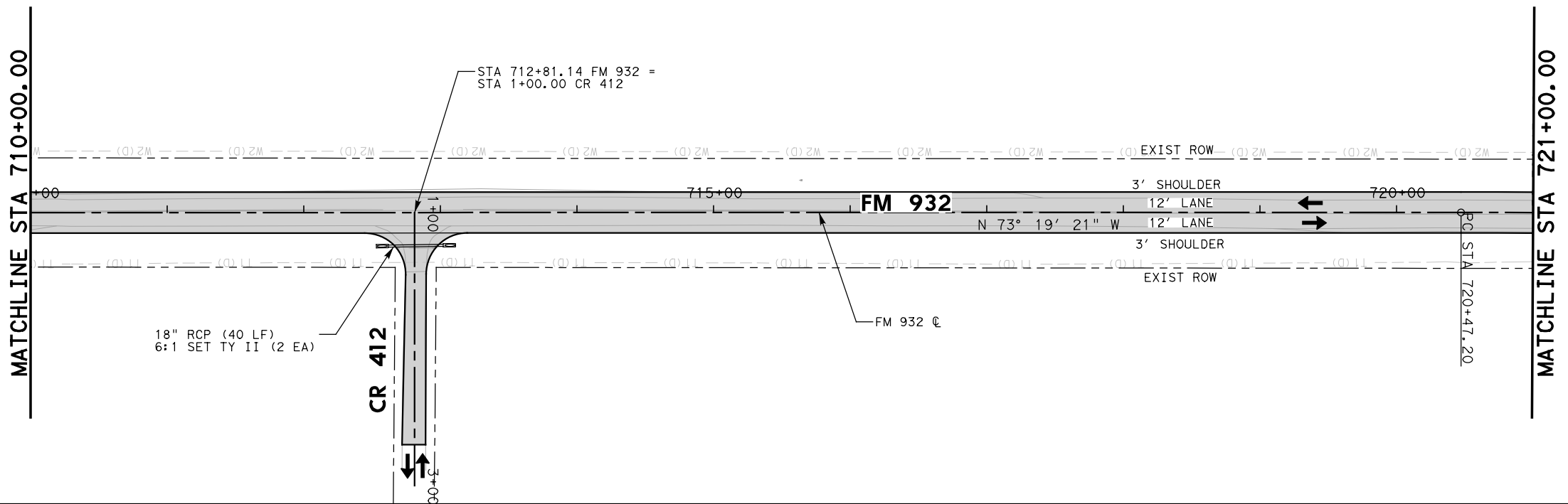
| STA 710+00.00 to | STA 711+00.00 to | STA 712+00.00 to | STA 713+00.00 to | STA 714+00.00 to | STA 715+00.00 to | STA 716+00.00 to | STA 717+00.00 to | STA 718+00.00 to | STA 719+00.00 to | STA 720+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-----|-------------------|--|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | |
| 8 | 11 | 19 | 16 | 13 | 15 | 9 | 7 | 6 | 4 | 2 | 110 | CY | EXCAVATION (RDWY) | |
| 47 | 29 | 19 | 27 | 28 | 30 | 34 | 35 | 34 | 54 | 116 | 453 | CY | EMBANKMENT | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R.O.W. | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE | |



NOTES:
1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

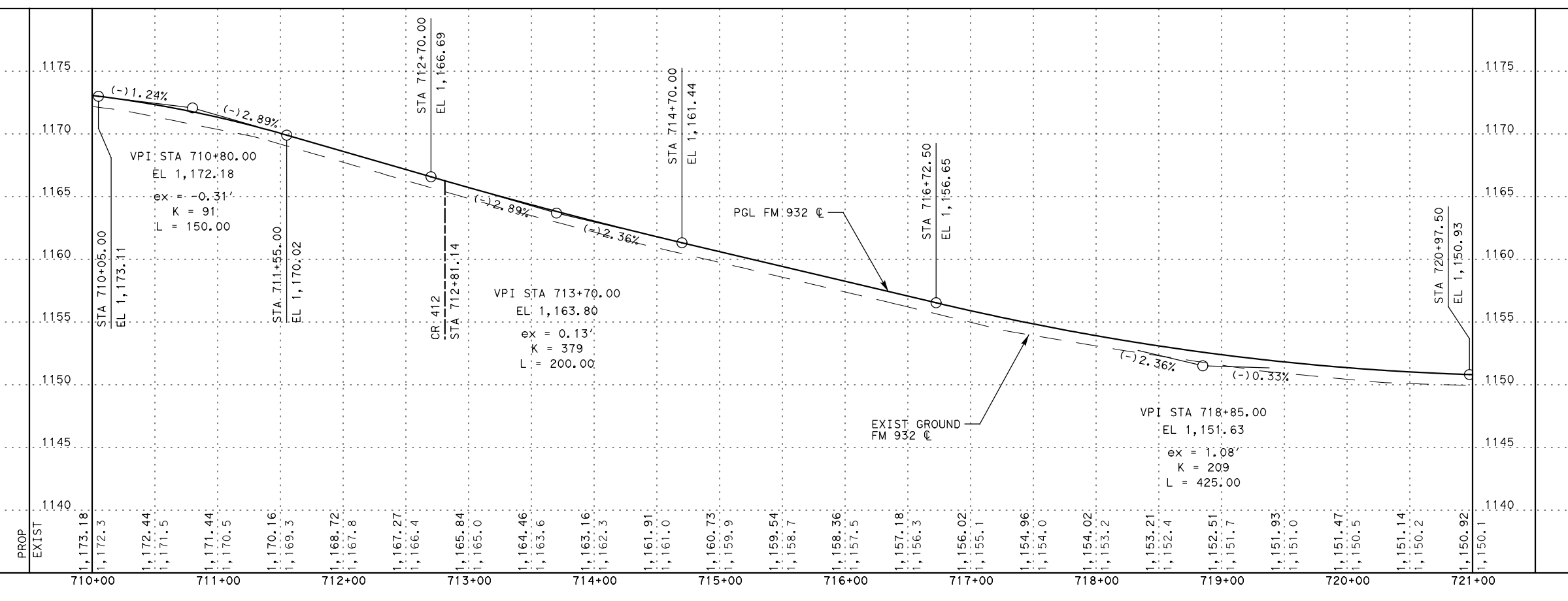


*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.



| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

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DATE: 9/1/2021 11:04:21 AM fRange1



FIRM REGISTRATION NO. F-230

Texas Department of Transportation
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FM 932
PLAN AND PROFILE LAYOUT
STA 710+00.00 TO STA 721+00.00

(SHEET 33 OF 74)

| | | | | |
|------------------|------------------------|--|----------|-----------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 126 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| STA 721+00.00 to | STA 722+00.00 to | STA 723+00.00 to | STA 724+00.00 to | STA 725+00.00 to | STA 726+00.00 to | STA 727+00.00 to | STA 728+00.00 to | STA 729+00.00 to | STA 730+00.00 to | STA 731+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-----|-------------------|--|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | |
| 1 | 0 | 1 | 2 | 4 | 6 | 5 | 4 | 5 | 4 | 9 | 41 | CY | EXCAVATION (RDWY) | |
| 234 | 138 | 69 | 56 | 53 | 33 | 37 | 42 | 42 | 44 | 52 | 800 | CY | EMBANKMENT | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R.O.W. | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE | |

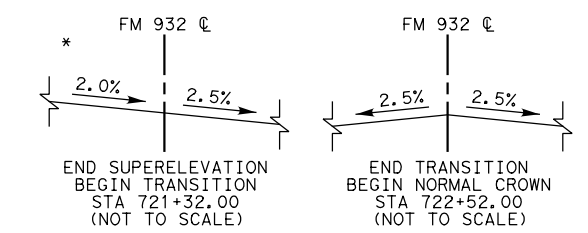
LEGEND

- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)

50 25 0 50 100
HORIZONTAL SCALE: 1" = 100'

5 2.5 0 5 10
VERTICAL SCALE: 1" = 10'

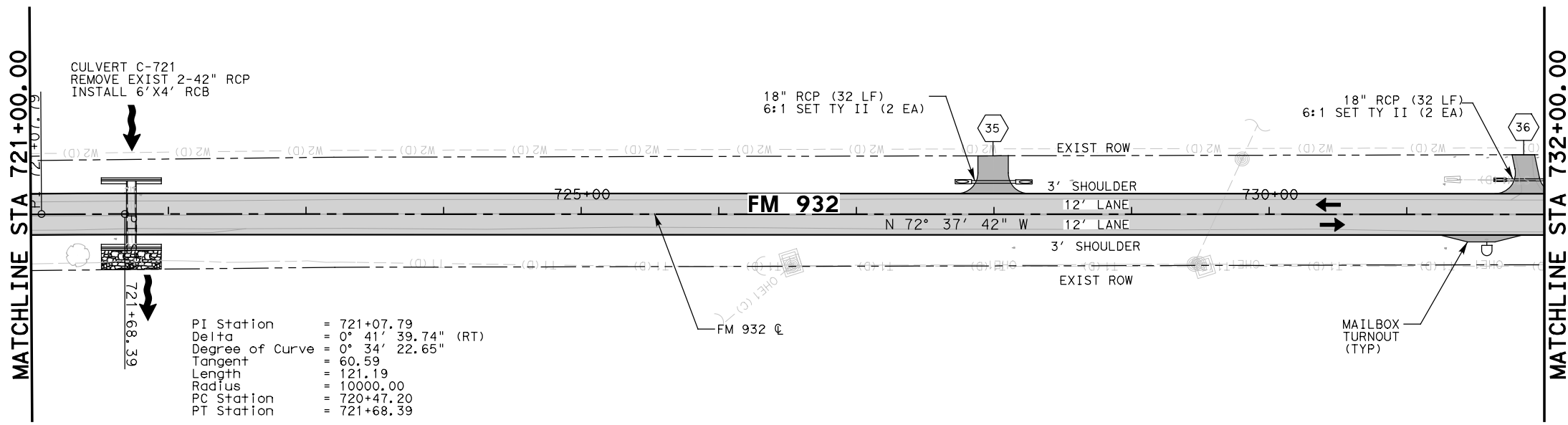
NOTES:
1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

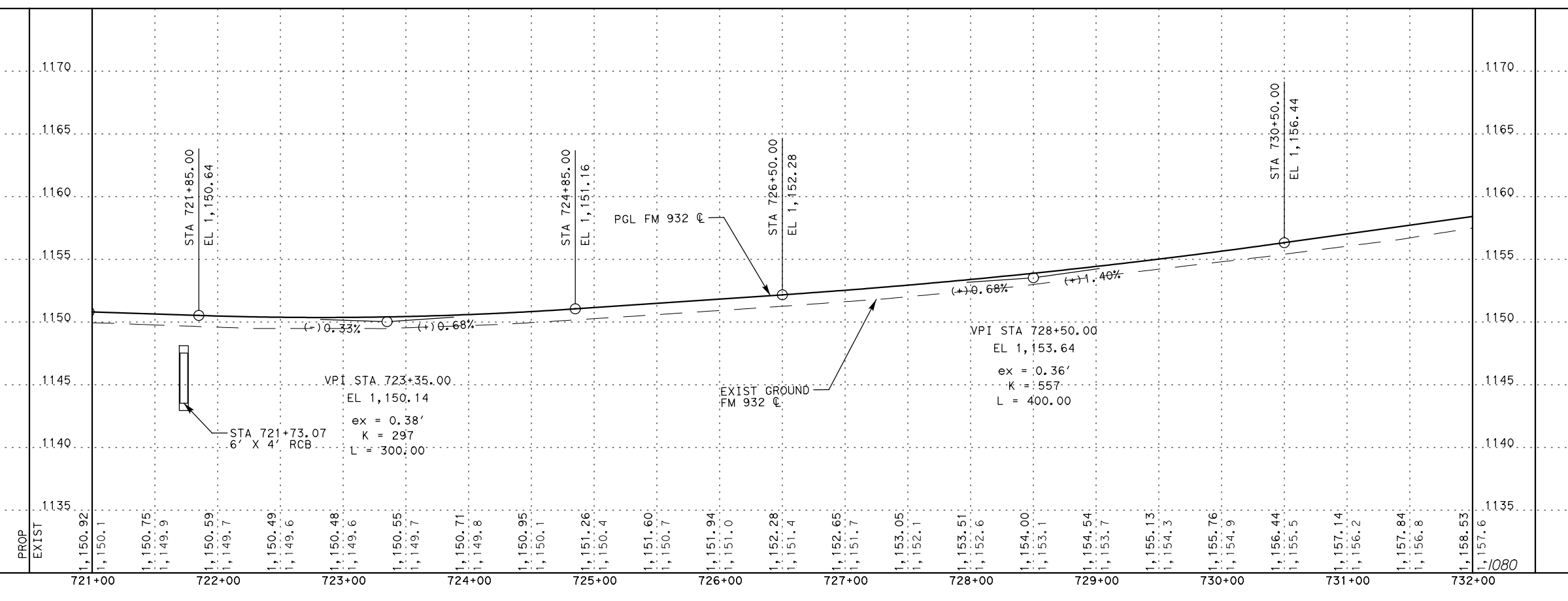
LEGEND

- PAVEMENT REHAB
- DRIVEWAYS



PI Station = 721+07.79
Delta = 0° 41' 39.74" (RT)
Degree of Curve = 0° 34' 22.65"
Tangent = 60.59
Length = 121.19
Radius = 10000.00
PC Station = 720+47.20
PT Station = 721+68.39

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP34.dgn
DATE: 9/1/2021 11:04:23 AM fRange1



tnp FIRM REGISTRATION NO. F-230

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FM 932

PLAN AND PROFILE LAYOUT
STA 721+00.00 TO STA 732+00.00

(SHEET 34 OF 74)

| | | | | |
|---------------|---------------------|---|----------|--------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 127 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

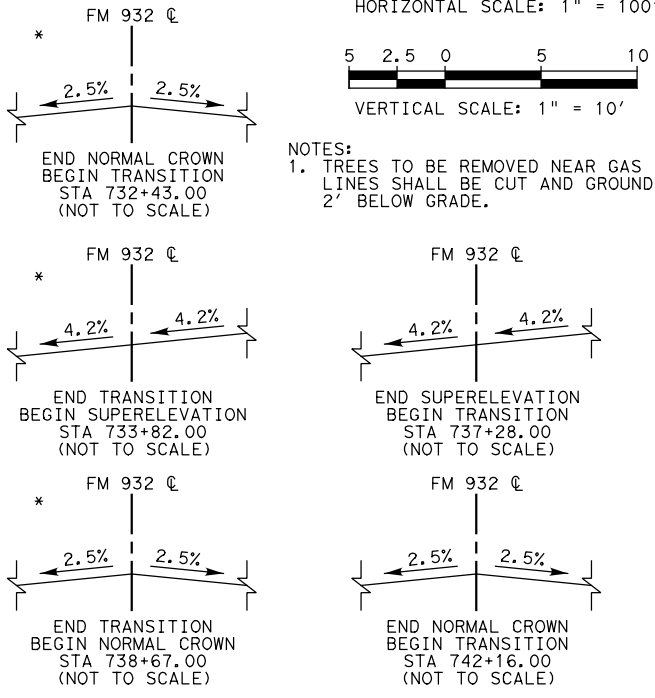
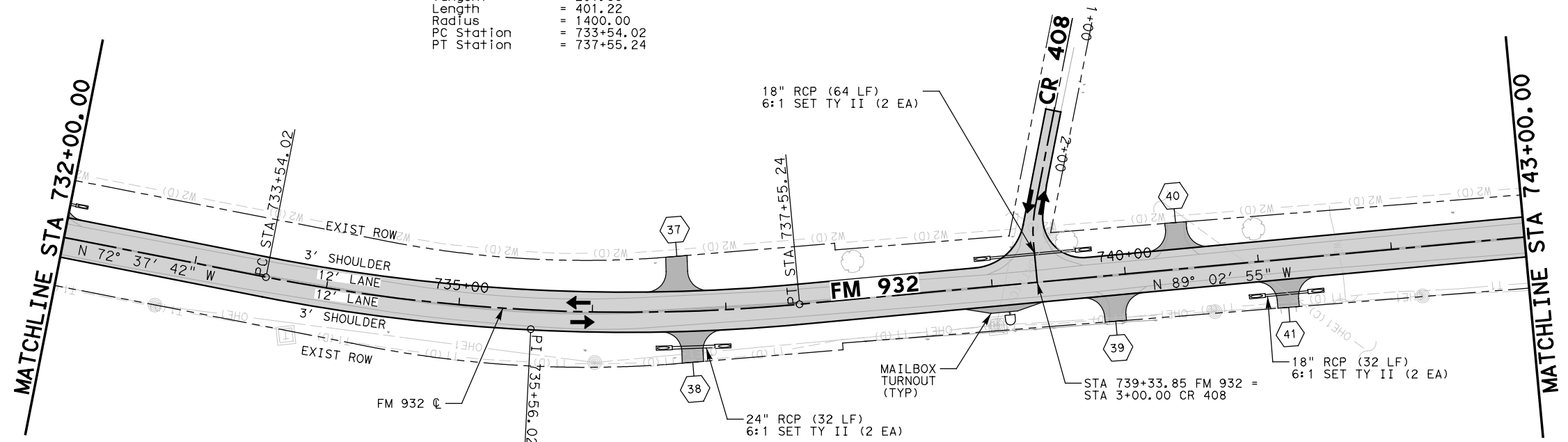
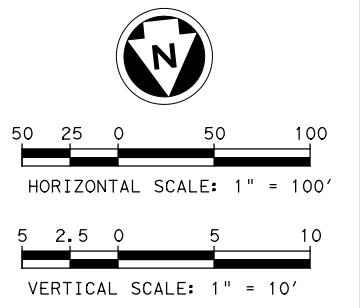
PI Station = 735+56.02
 Delta = 16° 25' 13.33" (LT)
 Degree of Curve = 4° 05' 33.20"
 Tangent = 201.99
 Length = 401.22
 Radius = 1400.00
 PC Station = 733+54.02
 PT Station = 737+55.24

LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

LEGEND

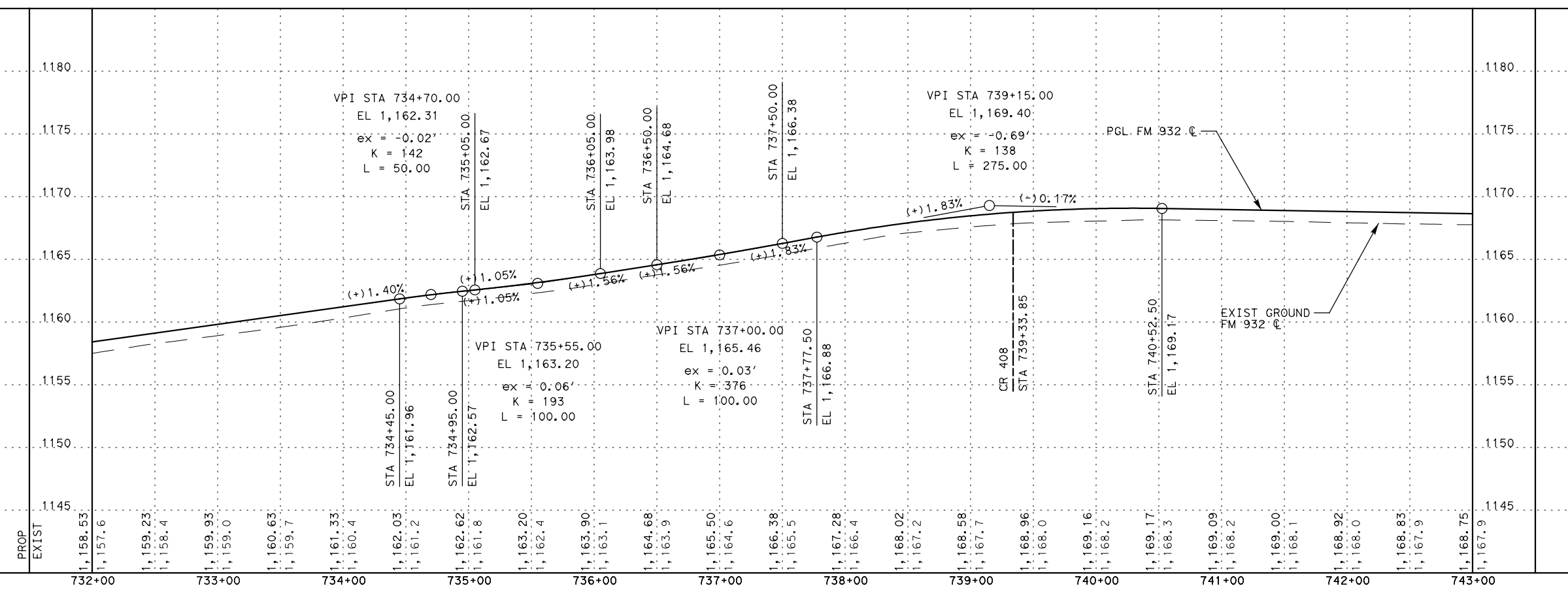
- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



| STA 732+00.00 to | STA 733+00.00 to | STA 734+00.00 to | STA 735+00.00 to | STA 736+00.00 to | STA 737+00.00 to | STA 738+00.00 to | STA 739+00.00 to | STA 740+00.00 to | STA 741+00.00 to | STA 742+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| 9 | 8 | 5 | 1 | 8 | 16 | 25 | 22 | 17 | 7 | 2 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 48 | 78 | 82 | 68 | 64 | 59 | 22 | 11 | 16 | 35 | 72 | 120 | 555 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | CY | FLEXBASE |

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

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DATE: 9/1/2021 11:04:27 AM f_rangel

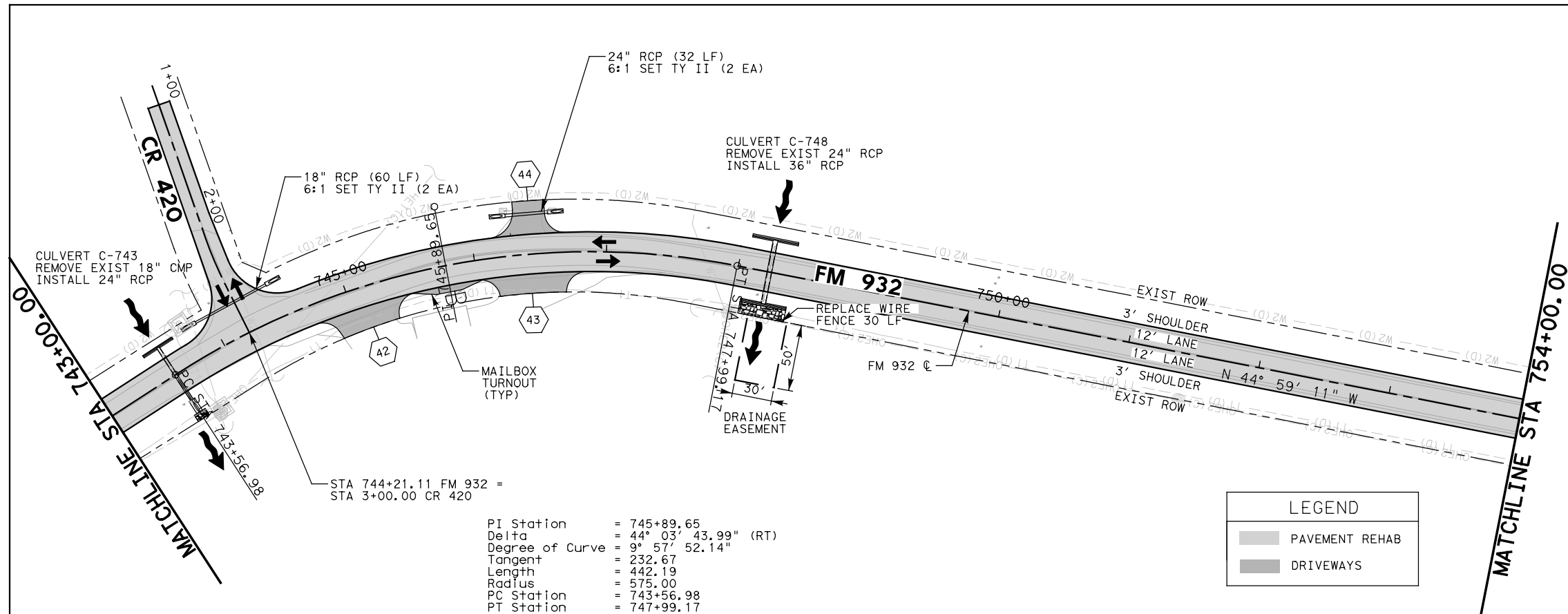


FIRM REGISTRATION NO. F-230
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FM 932
PLAN AND PROFILE LAYOUT
 STA 732+00.00 TO STA 743+00.00

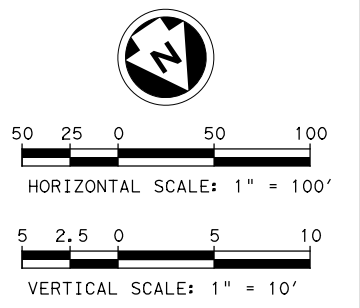
(SHEET 35 OF 74)

| | | | | | | | |
|------------|----|-------------------|------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | 0867 | SECTION | 01 | JOB | 017 |
| GRPH CHECK | RJ | | | | | | 128 |



LEGEND

- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



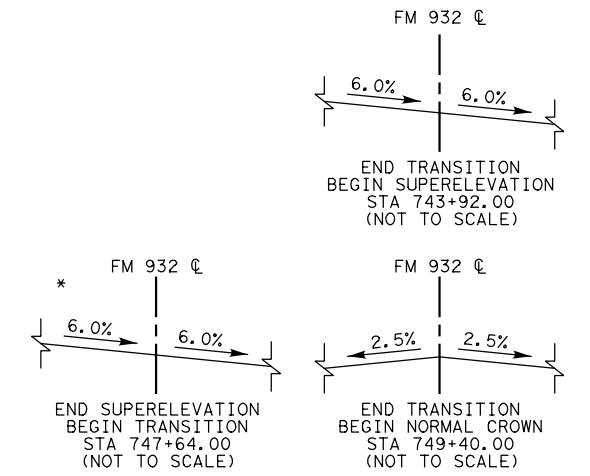
- NOTES:**
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.

PI Station = 745+89.65
 Delta = 44° 03' 43.99" (RT)
 Degree of Curve = 9° 57' 52.14"
 Tangent = 232.67
 Length = 442.19
 Radius = 575.00
 PC Station = 743+56.98
 PT Station = 747+99.17

LEGEND

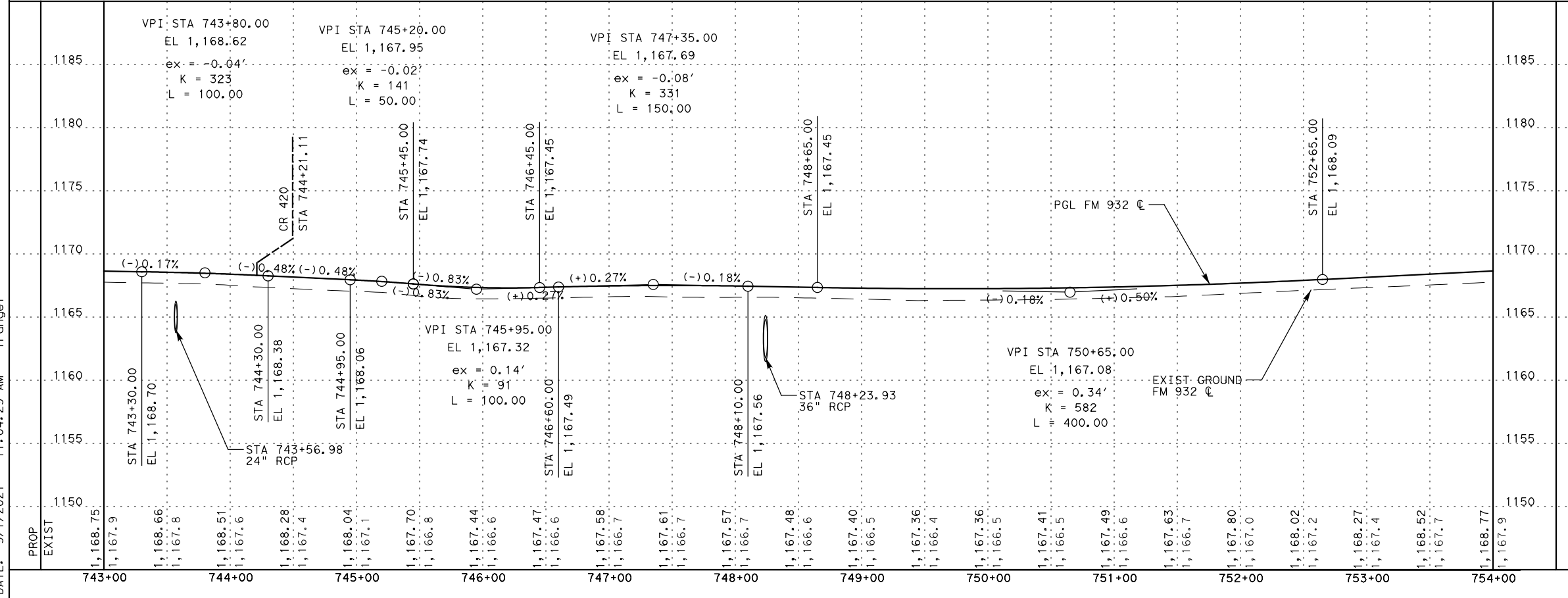
- PAVEMENT REHAB
- DRIVEWAYS

| SECTION TOTALS | | | | | | | | | | | ESTIMATED | FINAL | UNIT | DESCRIPTION |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-----------|-------|------|-------------------|
| STA 743+00.00 to STA 744+00.00 | STA 744+00.00 to STA 745+00.00 | STA 745+00.00 to STA 746+00.00 | STA 746+00.00 to STA 747+00.00 | STA 747+00.00 to STA 748+00.00 | STA 748+00.00 to STA 749+00.00 | STA 749+00.00 to STA 750+00.00 | STA 750+00.00 to STA 751+00.00 | STA 751+00.00 to STA 752+00.00 | STA 752+00.00 to STA 753+00.00 | STA 753+00.00 to STA 754+00.00 | 46 | 702 | CY | EXCAVATION (RDWY) |
| 10 | 2 | 1 | 3 | 0 | 0 | 2 | 4 | 9 | 10 | 40 | 40 | 40 | CY | EMBANKMENT |
| 124 | 39 | 29 | 31 | 101 | 137 | 74 | 47 | 40 | 40 | 40 | 11 | 11 | STA | PREPARING R.O.W. |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | CY | FLEXBASE |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | | |



*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

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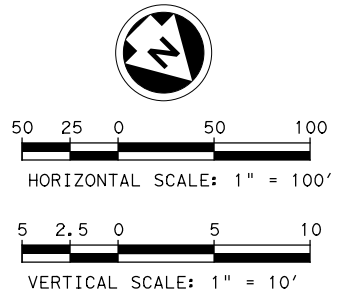


FM 932
PLAN AND PROFILE LAYOUT
 STA 743+00.00 TO STA 754+00.00

(SHEET 36 OF 74)

| | | | | |
|---------------|---------------------|---|----------|--------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 129 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |

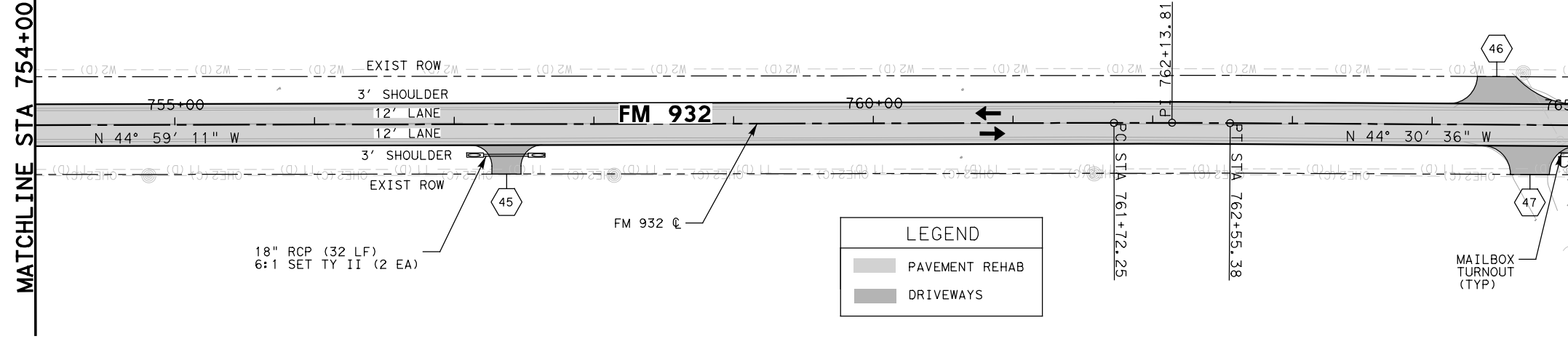


PI Station = 762+13.81
 Delta = 0° 28' 34.74" (RT)
 Degree of Curve = 0° 34' 22.65"
 Tangent = 41.56
 Length = 83.13
 Radius = 10000.00
 PC Station = 761+72.25
 PT Station = 762+55.38

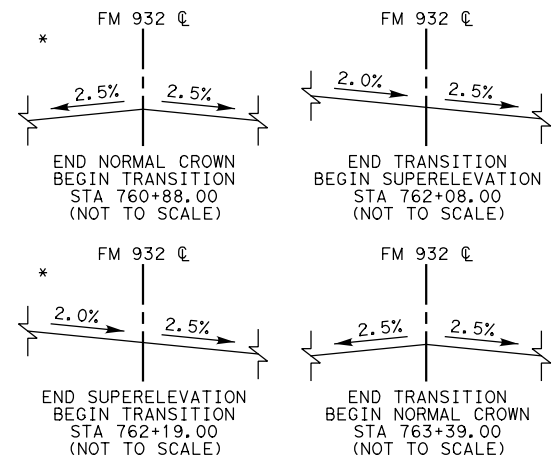
- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.

MATCHLINE STA 754+00.00

MATCHLINE STA 765+00.00



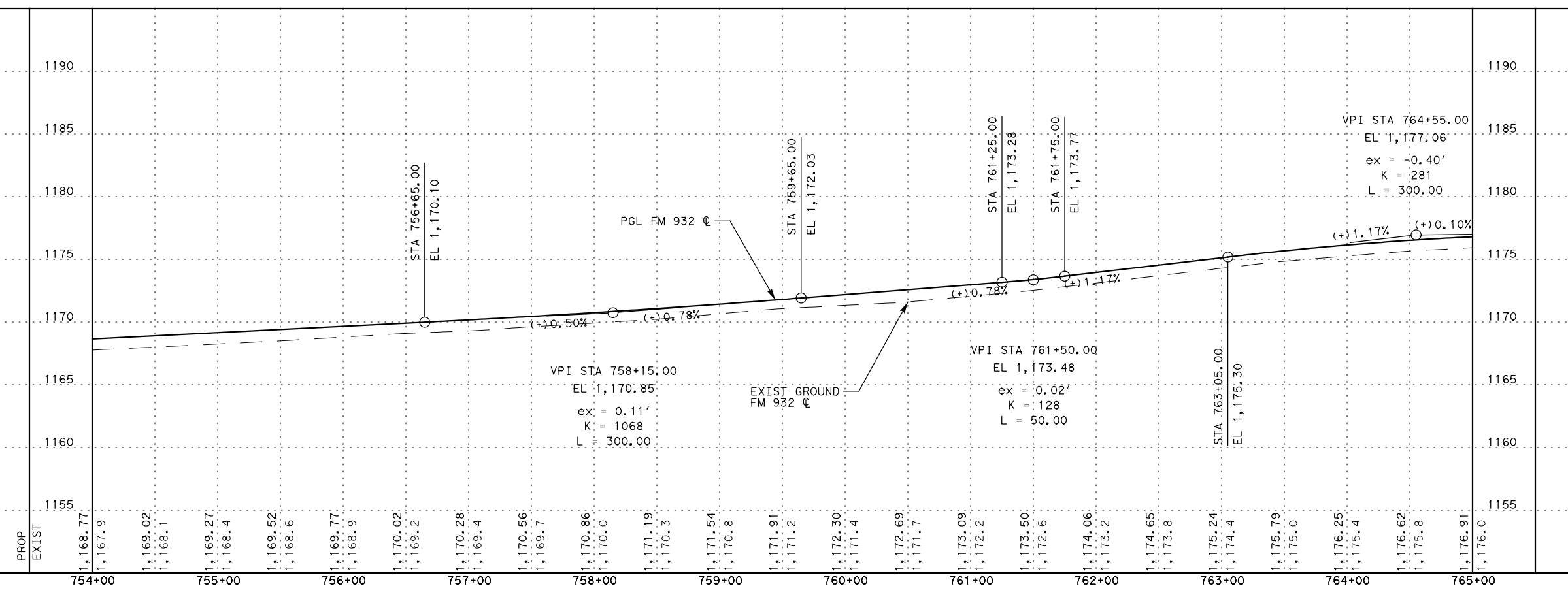
| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |



| STA 754+00.00 to | STA 755+00.00 to | STA 756+00.00 to | STA 757+00.00 to | STA 758+00.00 to | STA 759+00.00 to | STA 760+00.00 to | STA 761+00.00 to | STA 762+00.00 to | STA 763+00.00 to | STA 764+00.00 to | SECTION TOTALS | ESTIMATED | FINAL | UNIT | DESCRIPTION |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-----------|-------|------|-------------------|
| 7 | 13 | 14 | 9 | 9 | 17 | 13 | 12 | 6 | 6 | 21 | 127 | | | CY | EXCAVATION (RDWY) |
| 36 | 31 | 33 | 30 | 36 | 29 | 21 | 26 | 29 | 29 | 16 | 316 | | | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | | CY | FLEXBASE |

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

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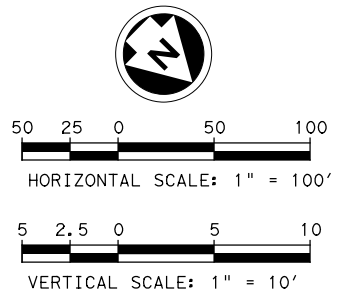


FM 932
PLAN AND PROFILE LAYOUT
 STA 754+00.00 TO STA 765+00.00

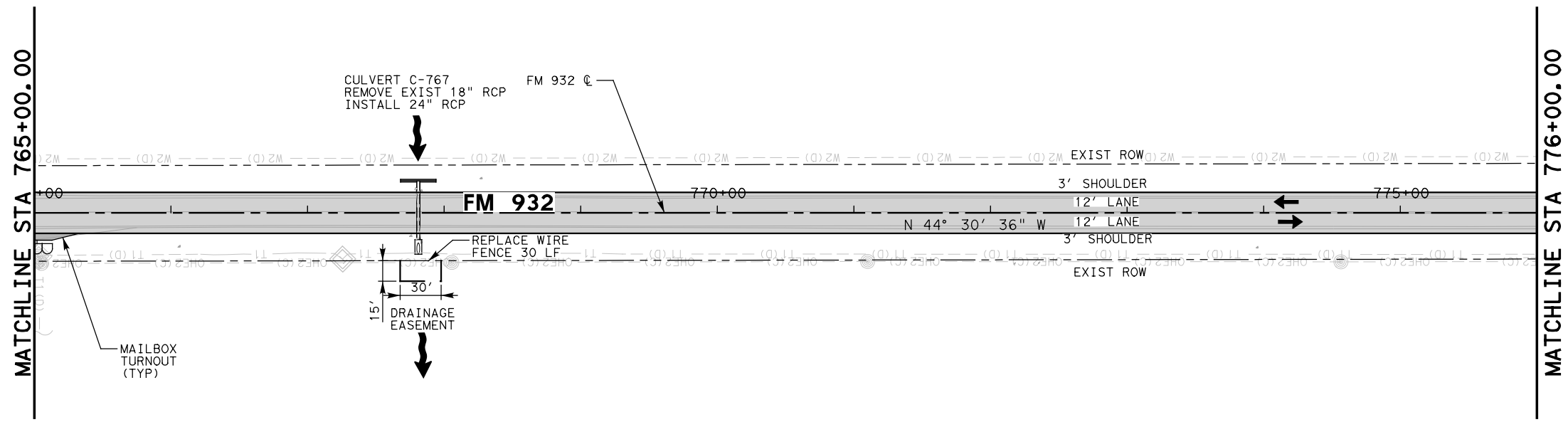
(SHEET 37 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 130 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |



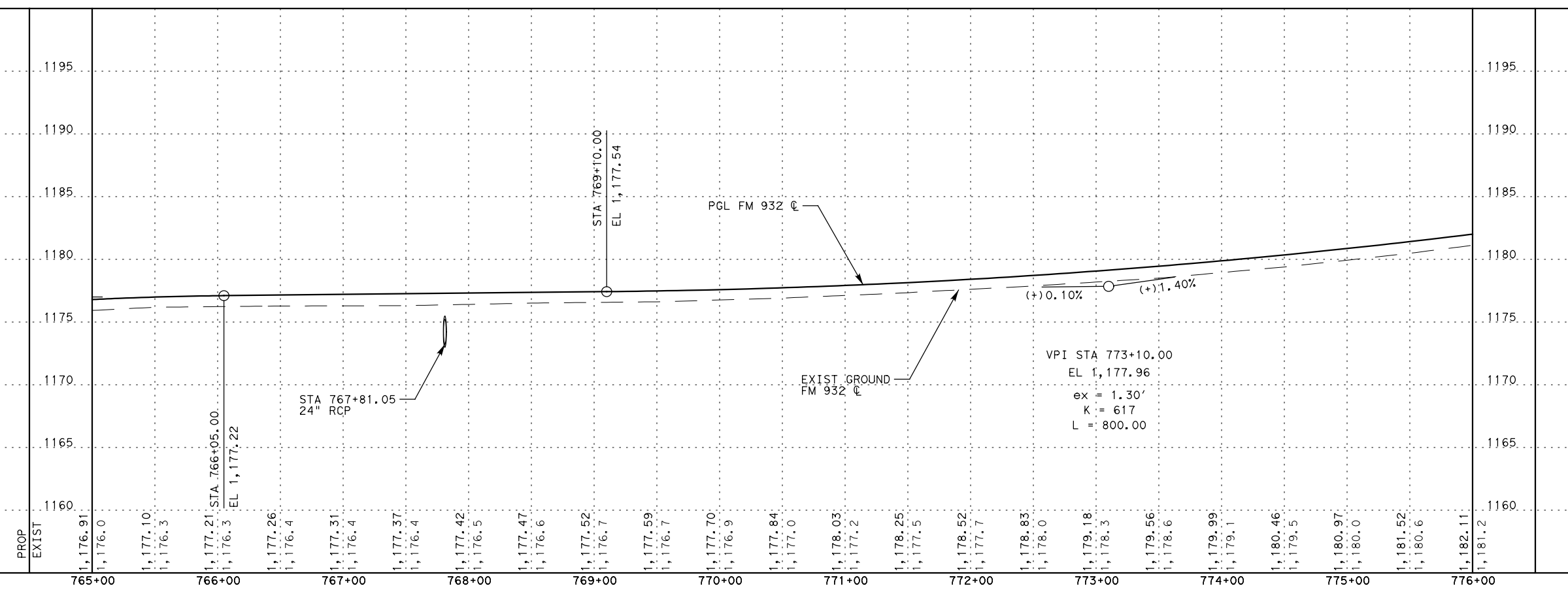
- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.



| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

| STA 765+00.00 to | STA 766+00.00 to | STA 767+00.00 to | STA 768+00.00 to | STA 769+00.00 to | STA 770+00.00 to | STA 771+00.00 to | STA 772+00.00 to | STA 773+00.00 to | STA 774+00.00 to | STA 775+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| 13 | 10 | 7 | 10 | 15 | 16 | 14 | 17 | 15 | 13 | 16 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 30 | 36 | 44 | 39 | 26 | 28 | 25 | 27 | 23 | 26 | 13 | 146 | 317 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

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FM 932

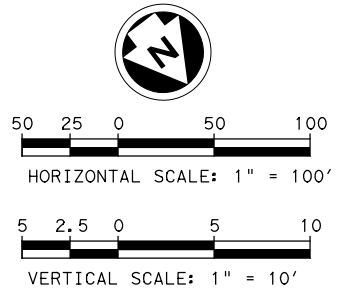
PLAN AND PROFILE LAYOUT

STA 765+00.00 TO STA 776+00.00

(SHEET 38 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 131 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

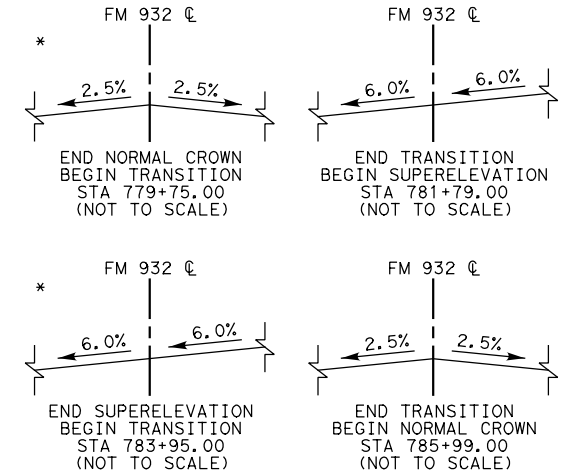
| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |



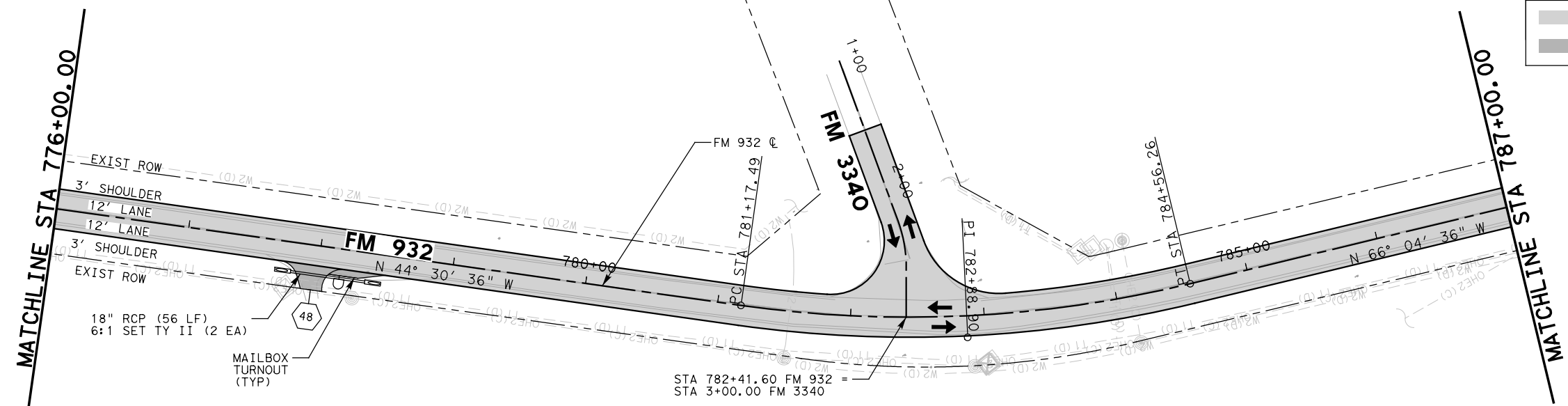
PI Station = 782+88.90
 Delta = 21° 33' 59.35" (LT)
 Degree of Curve = 6° 21' 58.31"
 Tangent = 171.41
 Length = 338.76
 Radius = 900.00
 PC Station = 781+17.49
 PT Station = 784+56.26

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

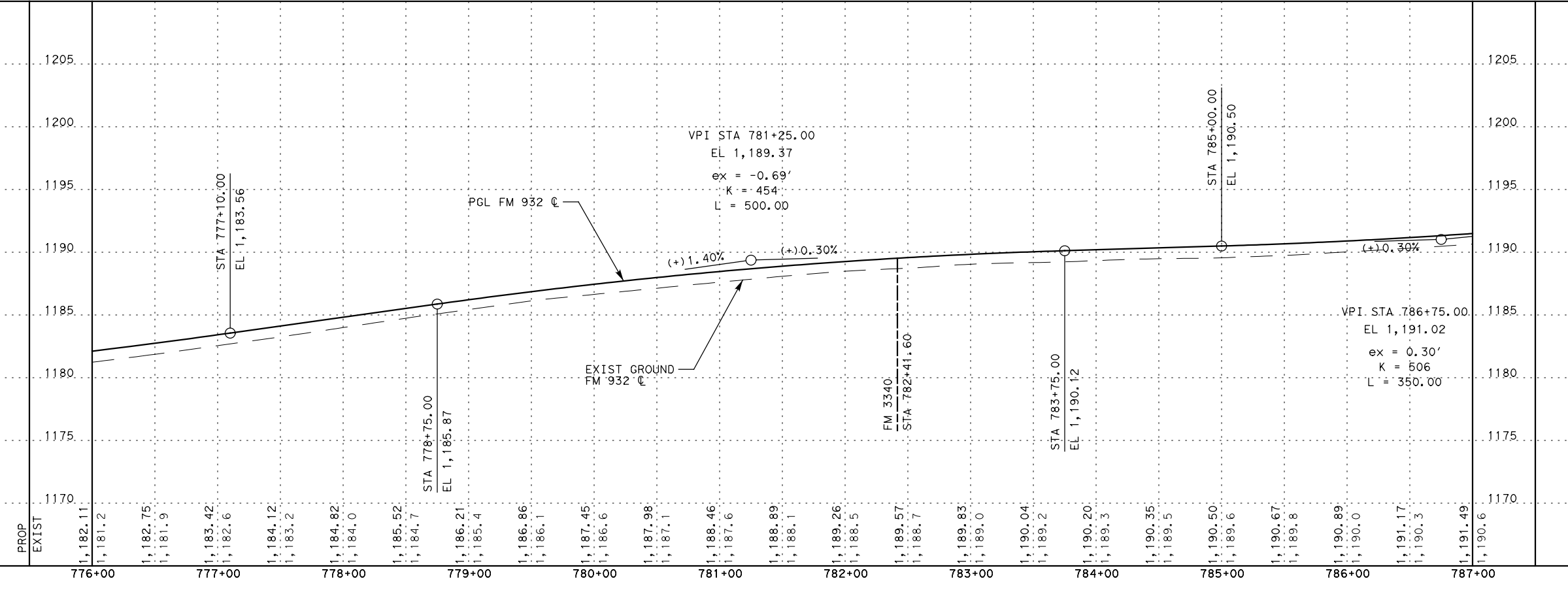


*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.



| | | | | | | | | | | | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| STA 776+00.00 to | STA 777+00.00 to | STA 778+00.00 to | STA 779+00.00 to | STA 780+00.00 to | STA 781+00.00 to | STA 782+00.00 to | STA 783+00.00 to | STA 784+00.00 to | STA 785+00.00 to | STA 786+00.00 to | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 17 | 22 | 21 | 10 | 2 | 5 | 23 | 6 | 10 | 7 | 8 | 131 | 131 | CY | EXCAVATION (RDWY) |
| 17 | 14 | 20 | 30 | 46 | 46 | 17 | 42 | 60 | 33 | 18 | 343 | 343 | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | CY | FLEXBASE |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP39.dgn
 DATE: 9/1/2021 11:04:35 AM fRange1



FIRM REGISTRATION NO. F-230

Texas Department of Transportation
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FM 932

PLAN AND PROFILE LAYOUT
 STA 776+00.00 TO STA 787+00.00

(SHEET 39 OF 74)

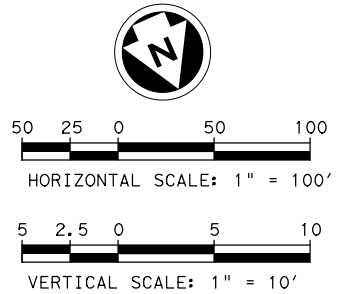
| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | 017 | | | |

132

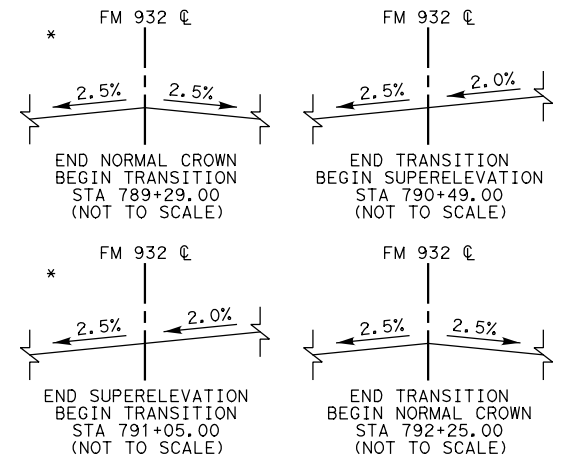
PI Station = 790+76.65
 Delta = 0° 44' 01.21" (LT)
 Degree of Curve = 0° 34' 22.65"
 Tangent = 64.02
 Length = 128.04
 Radius = 10000.00
 PC Station = 790+12.63
 PT Station = 791+40.68

LEGEND

- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)

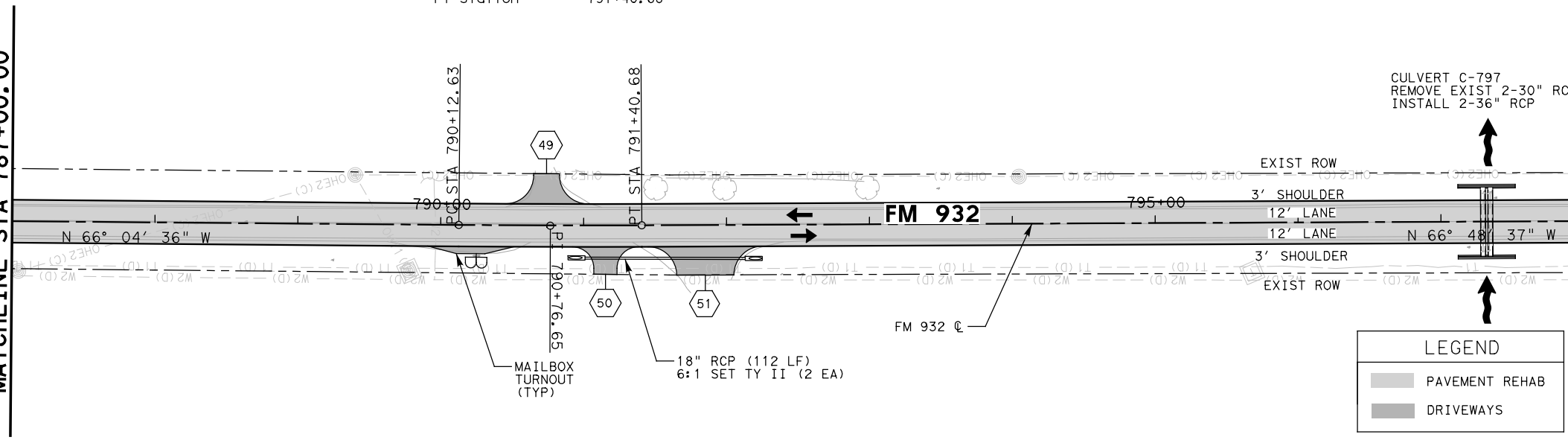


NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



MATCHLINE STA 787+00.00

MATCHLINE STA 798+00.00



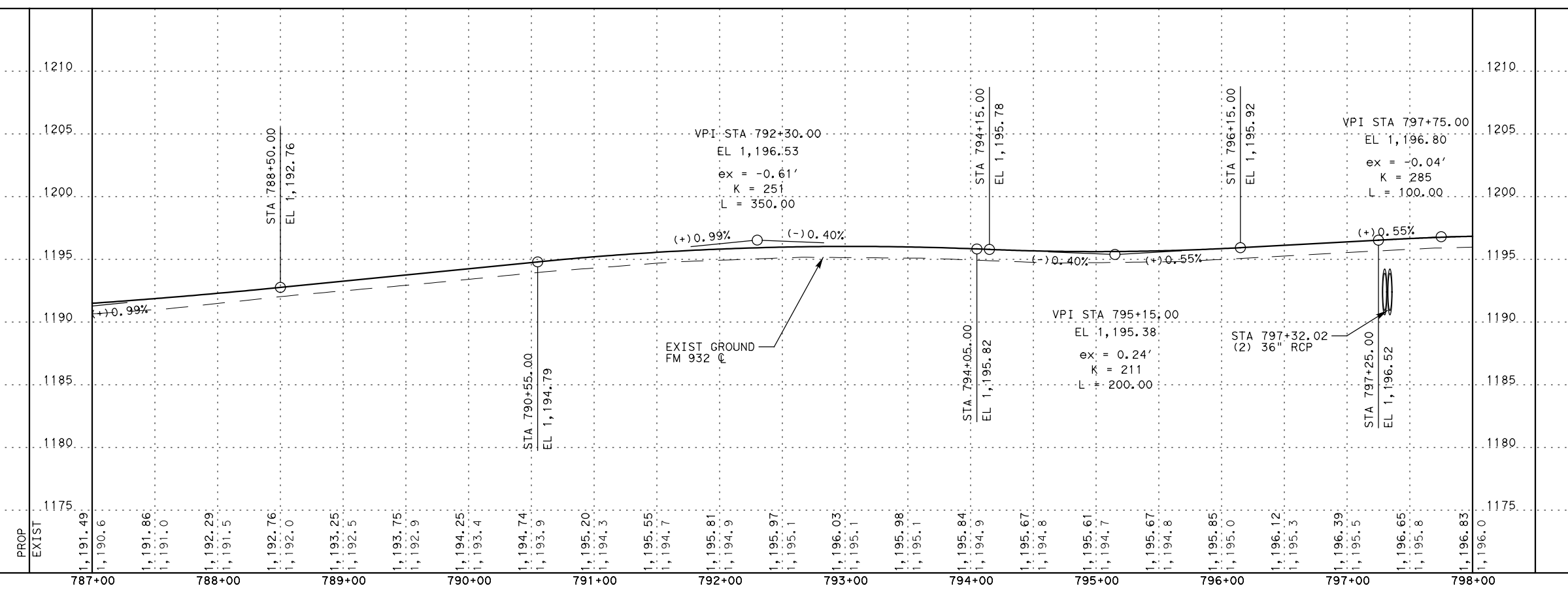
LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

| SECTION TOTALS | | | | | | | | | | | ESTIMATED | FINAL | UNIT | DESCRIPTION | |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-----------|-------|------|-------------------|------------------|
| STA 787+00.00 to STA 788+00.00 | STA 788+00.00 to STA 789+00.00 | STA 789+00.00 to STA 790+00.00 | STA 790+00.00 to STA 791+00.00 | STA 791+00.00 to STA 792+00.00 | STA 792+00.00 to STA 793+00.00 | STA 793+00.00 to STA 794+00.00 | STA 794+00.00 to STA 795+00.00 | STA 795+00.00 to STA 796+00.00 | STA 796+00.00 to STA 797+00.00 | STA 797+00.00 to STA 798+00.00 | 82 | 508 | CY | EXCAVATION (RDWY) | |
| 11 | 13 | 13 | 9 | 10 | 10 | 5 | 4 | 4 | 2 | 1 | 155 | 11 | 1 | STA | PREPARING R.O.W. |
| 19 | 22 | 27 | 34 | 22 | 33 | 30 | 40 | 44 | 82 | 1 | 508 | 11 | 1 | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 611 | | | CY | FLEXBASE |

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

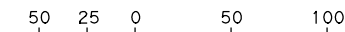
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 DATE: 9/1/2021 11:04:38 AM fRange1



FM 932
PLAN AND PROFILE LAYOUT
 STA 787+00.00 TO STA 798+00.00

(SHEET 40 OF 74)

| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | | | | 133 |

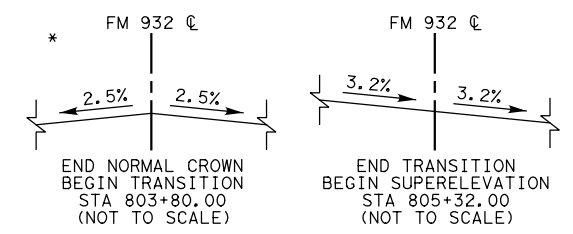


HORIZONTAL SCALE: 1" = 100'



VERTICAL SCALE: 1" = 10'

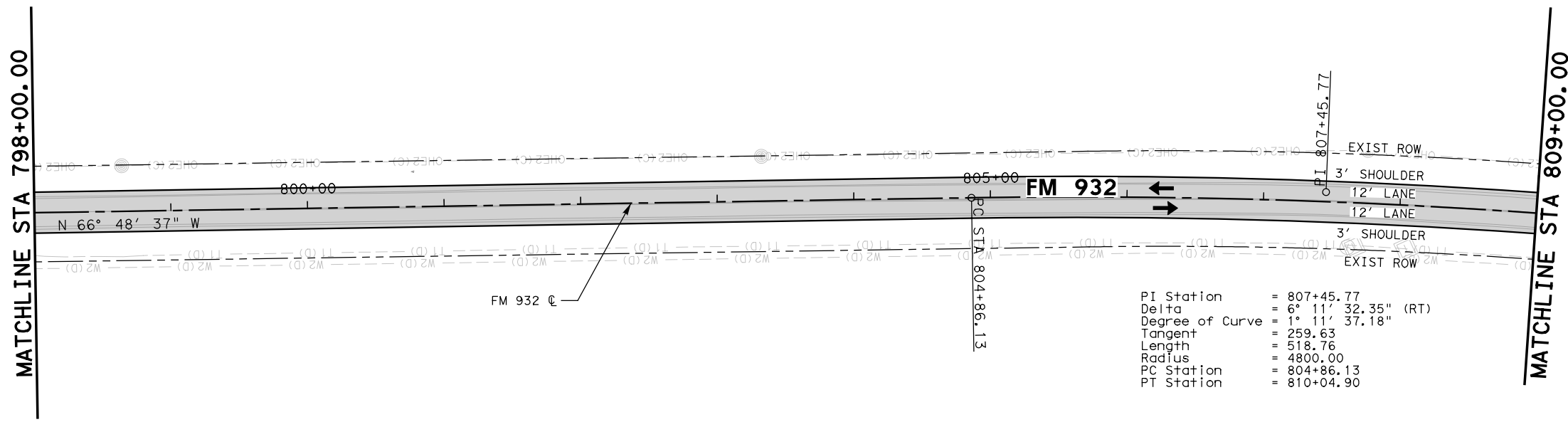
NOTES:
1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

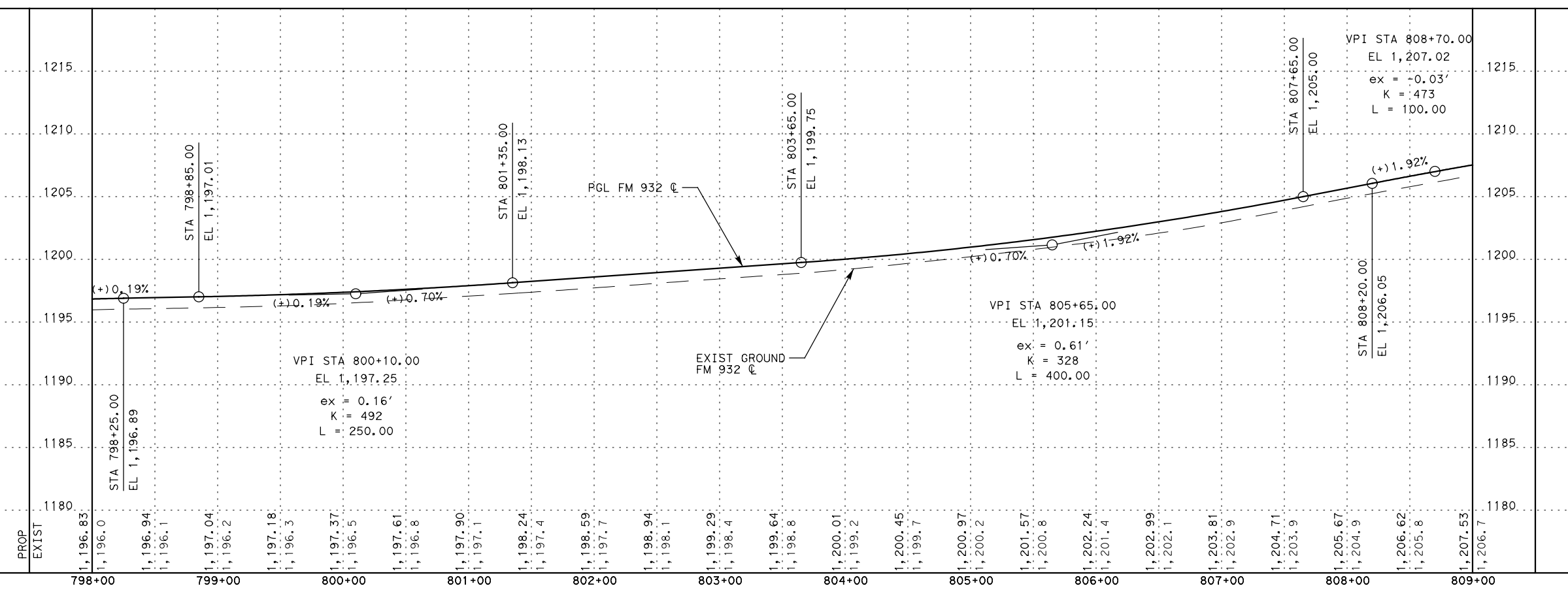
| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

PI Station = 807+45.77
 Delta = 6° 11' 32.35" (RT)
 Degree of Curve = 1° 11' 37.18"
 Tangent = 259.63
 Length = 518.76
 Radius = 4800.00
 PC Station = 804+86.13
 PT Station = 810+04.90



| | | | | | | | | | | | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| STA 798+00.00 to | STA 799+00.00 to | STA 800+00.00 to | STA 801+00.00 to | STA 802+00.00 to | STA 803+00.00 to | STA 804+00.00 to | STA 805+00.00 to | STA 806+00.00 to | STA 807+00.00 to | STA 808+00.00 to | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 4 | 4 | 6 | 9 | 11 | 13 | 17 | 14 | 3 | 2 | 0 | 83 | | CY | EXCAVATION (RDWY) |
| 100 | 78 | 55 | 61 | 59 | 49 | 61 | 79 | 85 | 98 | 75 | 800 | | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP41.dgn
 DATE: 9/1/2021 11:04:40 AM fRange1



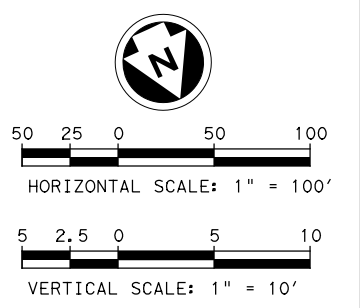
FM 932

PLAN AND PROFILE LAYOUT
 STA 798+00.00 TO STA 809+00.00

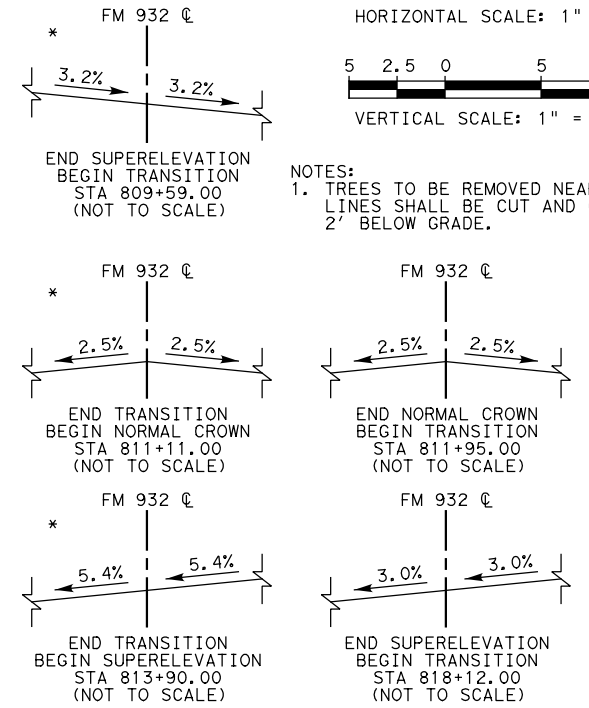
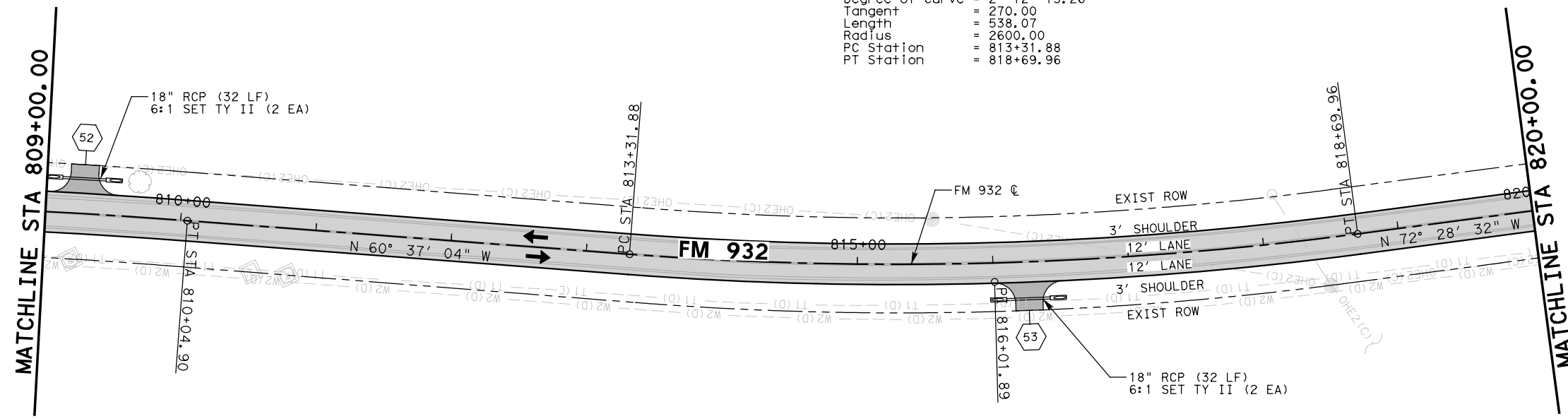
(SHEET 41 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 134 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |



PI Station = 816+01.89
 Delta = 11° 51' 27.17" (LT)
 Degree of Curve = 2° 12' 13.26"
 Tangent = 270.00
 Length = 538.07
 Radius = 2600.00
 PC Station = 813+31.88
 PT Station = 818+69.96

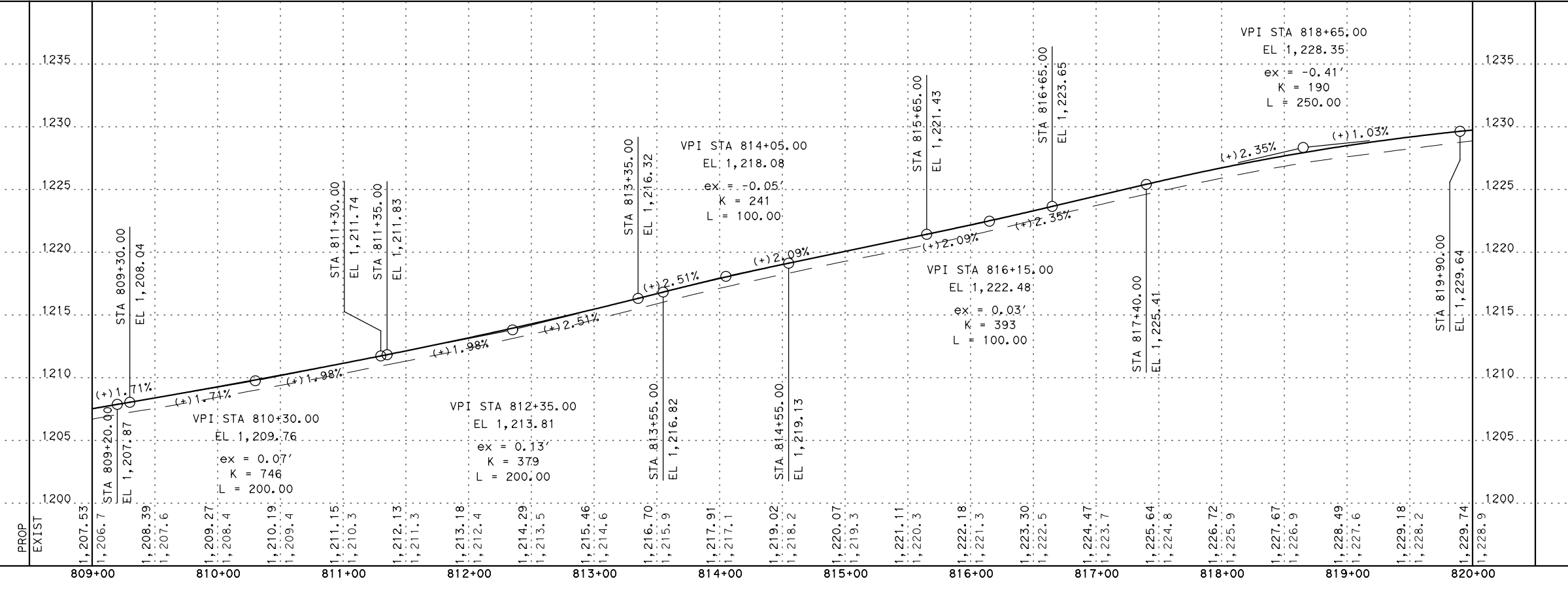


NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

| STA 809+00.00 to STA 810+00.00 | STA 810+00.00 to STA 811+00.00 | STA 811+00.00 to STA 812+00.00 | STA 812+00.00 to STA 813+00.00 | STA 813+00.00 to STA 814+00.00 | STA 814+00.00 to STA 815+00.00 | STA 815+00.00 to STA 816+00.00 | STA 816+00.00 to STA 817+00.00 | STA 817+00.00 to STA 818+00.00 | STA 818+00.00 to STA 819+00.00 | STA 819+00.00 to STA 820+00.00 | SECTION TOTALS | | |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|-----|-------------------|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | |
| 0 | 3 | 4 | 4 | 4 | 5 | 5 | 10 | 11 | 11 | 7 | 64 | CY | EXCAVATION (RDWY) |
| 66 | 58 | 68 | 79 | 88 | 69 | 51 | 59 | 66 | 52 | 32 | 688 | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE |

FILE: P:\MSGP\TXD18248\05-FM932\PROD\SHEETS\RP42.dgn
 DATE: 9/1/2021 11:04:42 AM frrange1



Texas Department of Transportation
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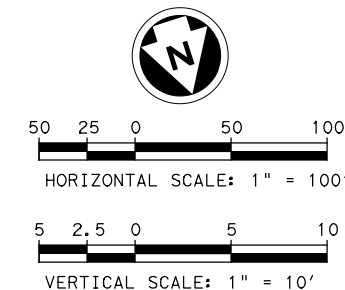
FM 932

PLAN AND PROFILE LAYOUT
 STA 809+00.00 TO STA 820+00.00

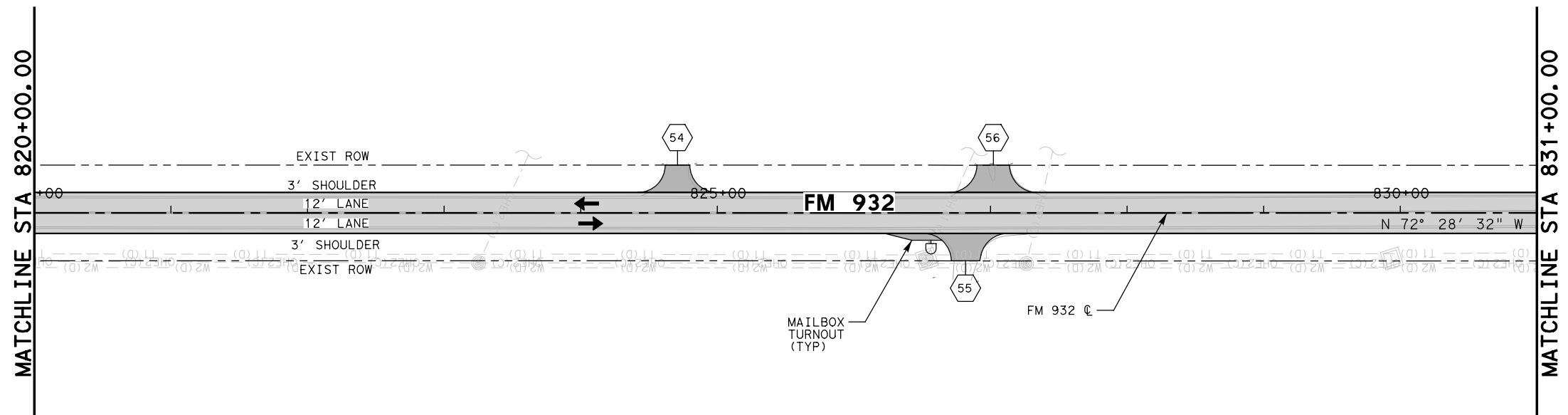
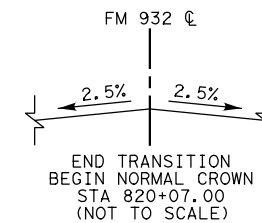
(SHEET 42 OF 74)

| | | | | |
|-----------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. |
| RJ | TX | WACO | HAMILTON | 135 |
| GRAPHICS | CONTROL | SECTION | JOB | |
| JP | RJ | 0867 | 01 | 017 |

| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |



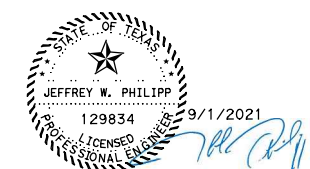
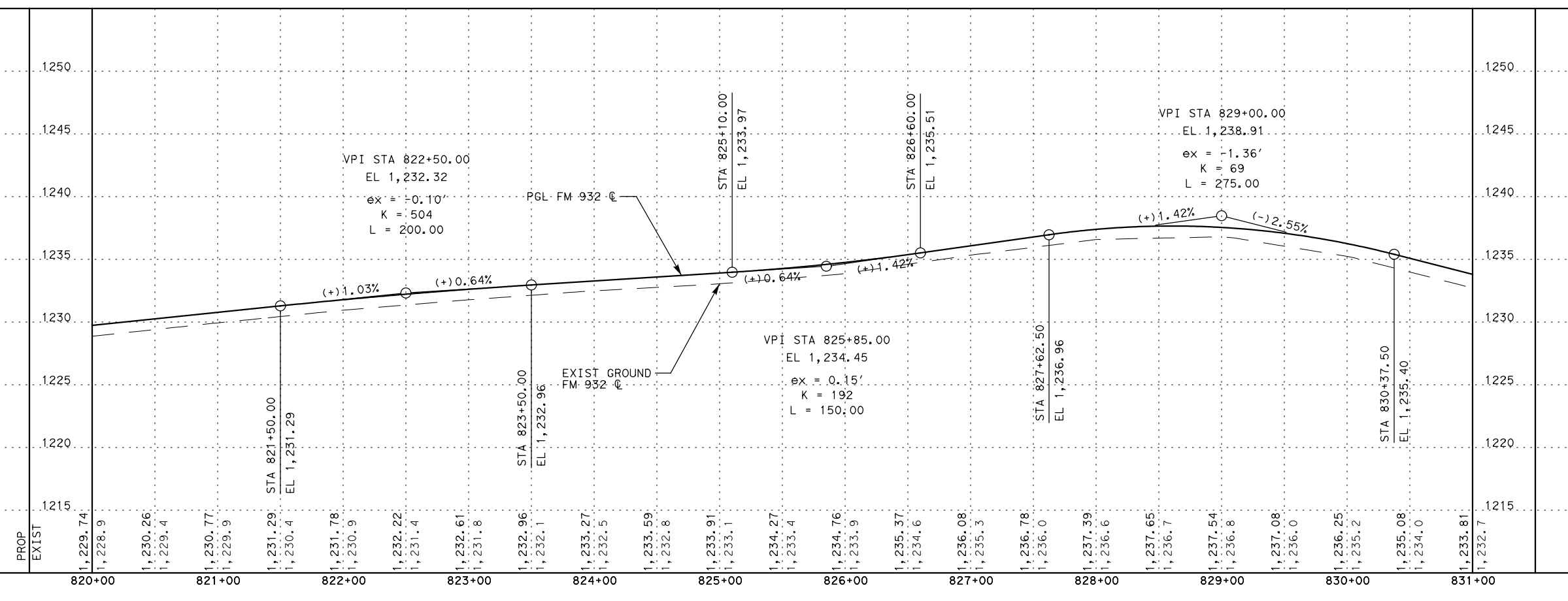
NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

| STA 820+00.00 to | STA 821+00.00 to | STA 822+00.00 to | STA 823+00.00 to | STA 824+00.00 to | STA 825+00.00 to | STA 826+00.00 to | STA 827+00.00 to | STA 828+00.00 to | STA 829+00.00 to | STA 830+00.00 to | STA 831+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| 10 | 9 | 9 | 10 | 7 | 10 | 25 | 21 | 11 | 6 | 0 | 0 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 21 | 32 | 25 | 24 | 20 | 22 | 30 | 34 | 35 | 53 | 49 | 118 | 345 | | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | | CY | FLEXBASE |

FILE: P:\MSGP\TXD18248\05-FM932\PROD\SHEETS\RP43.dgn
 DATE: 9/1/2021 11:04:44 AM fRange1



FIRM REGISTRATION NO. F-230



FM 932

PLAN AND PROFILE LAYOUT
 STA 820+00.00 TO STA 831+00.00

(SHEET 43 OF 74)

| | | | | |
|------------------|------------------------|--|----------|-----------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 136 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



50 25 0 50 100

HORIZONTAL SCALE: 1" = 100'

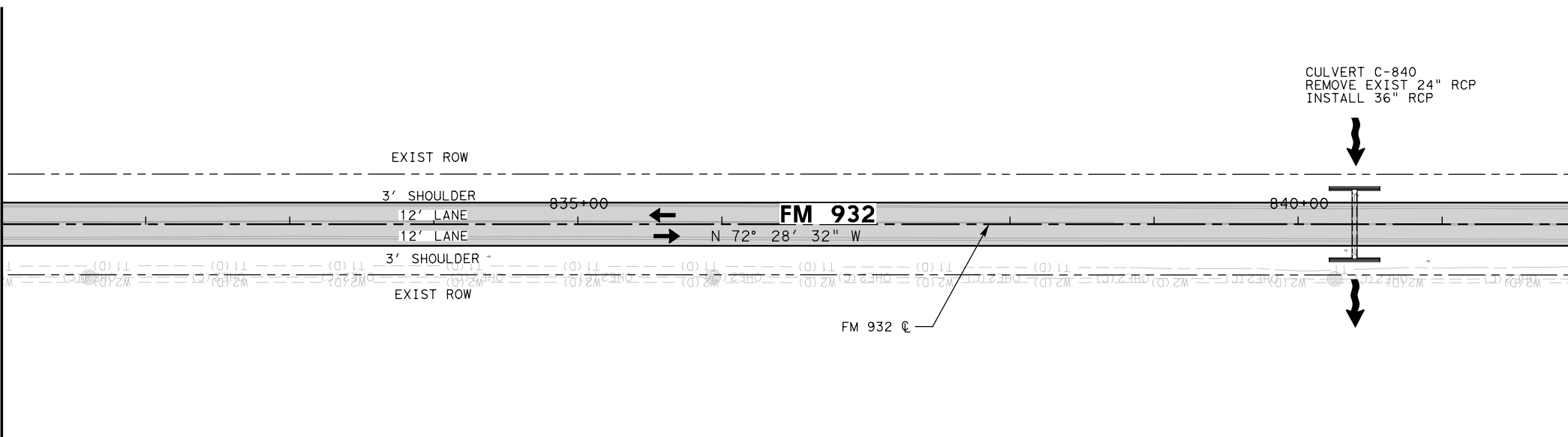
5 2.5 0 5 10

VERTICAL SCALE: 1" = 10'

NOTES:
1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

MATCHLINE STA 831+00.00

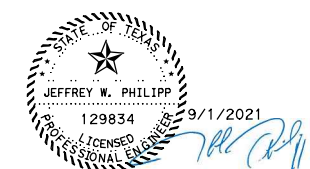
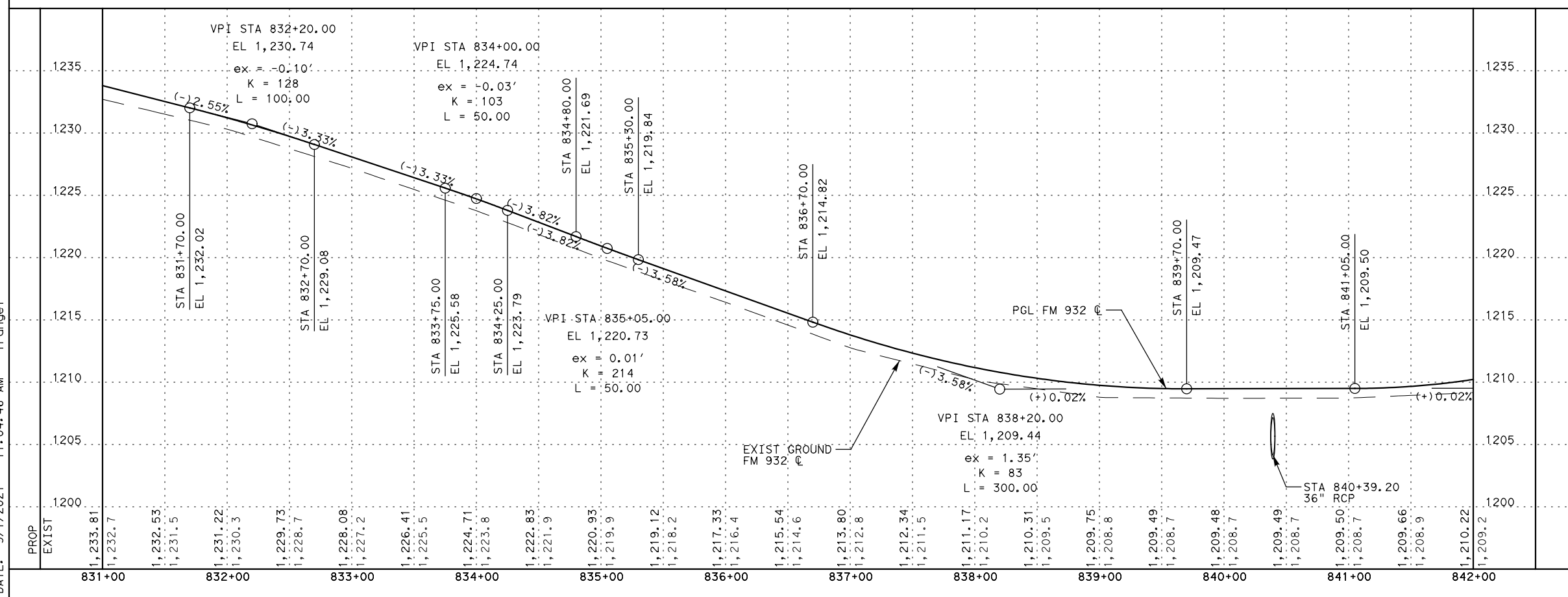
MATCHLINE STA 842+00.00



| STA 831+00.00 to STA 832+00.00 | STA 832+00.00 to STA 833+00.00 | STA 833+00.00 to STA 834+00.00 | STA 834+00.00 to STA 835+00.00 | STA 835+00.00 to STA 836+00.00 | STA 836+00.00 to STA 837+00.00 | STA 837+00.00 to STA 838+00.00 | STA 838+00.00 to STA 839+00.00 | STA 839+00.00 to STA 840+00.00 | STA 840+00.00 to STA 841+00.00 | STA 841+00.00 to STA 842+00.00 | SECTION TOTALS | | |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|--------------------|--|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | |
| 1 | 2 | 2 | 2 | 2 | 1 | 3 | 2 | 2 | 4 | 23 | CY | EXCAVATION (RDWY) | |
| 43 | 43 | 45 | 36 | 45 | 47 | 31 | 51 | 79 | 52 | 524 | CY | EMBANKMENT | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R. O. W. | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE | |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP44.dgn
DATE: 9/1/2021 11:04:46 AM fRange1



FIRM REGISTRATION NO. F-230

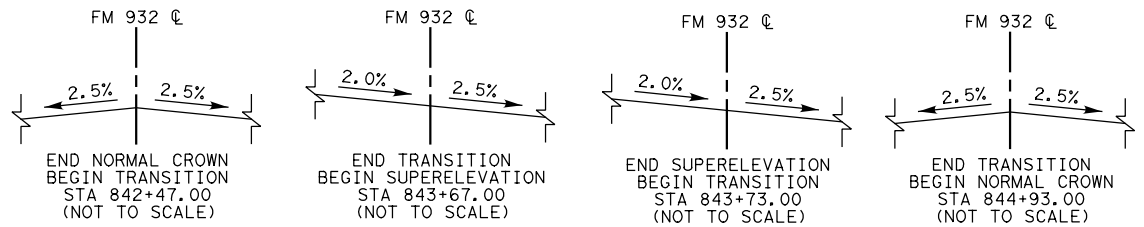
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FM 932

PLAN AND PROFILE LAYOUT
STA 831+00.00 TO STA 842+00.00

(SHEET 44 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 137 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

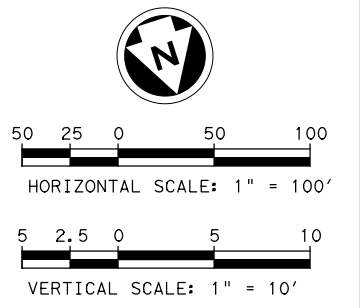


PI Station = 850+74.26
 Delta = 0° 47' 28.13" (LT)
 Degree of Curve = 0° 34' 22.65"
 Tangent = 69.04
 Length = 138.08
 Radius = 10000.00
 PC Station = 850+05.22
 PT Station = 851+43.30

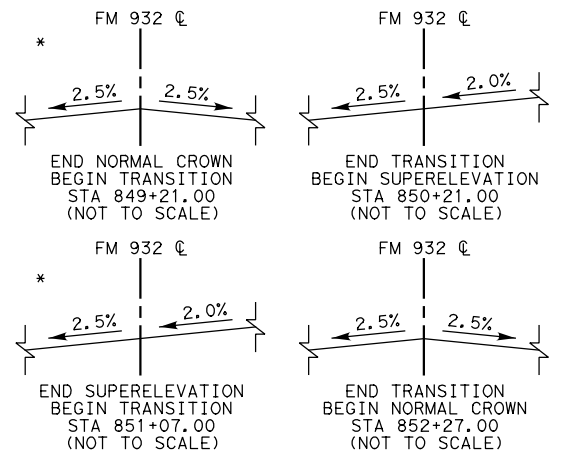
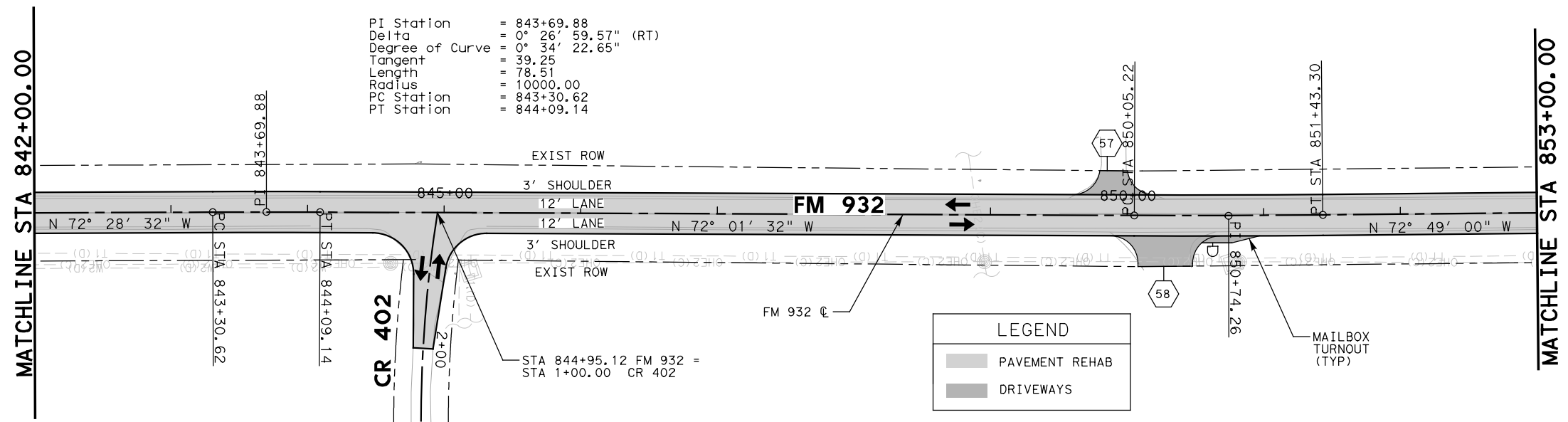
PI Station = 843+69.88
 Delta = 0° 26' 59.57" (RT)
 Degree of Curve = 0° 34' 22.65"
 Tangent = 39.25
 Length = 78.51
 Radius = 10000.00
 PC Station = 843+30.62
 PT Station = 844+09.14

LEGEND

- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



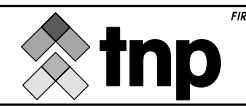
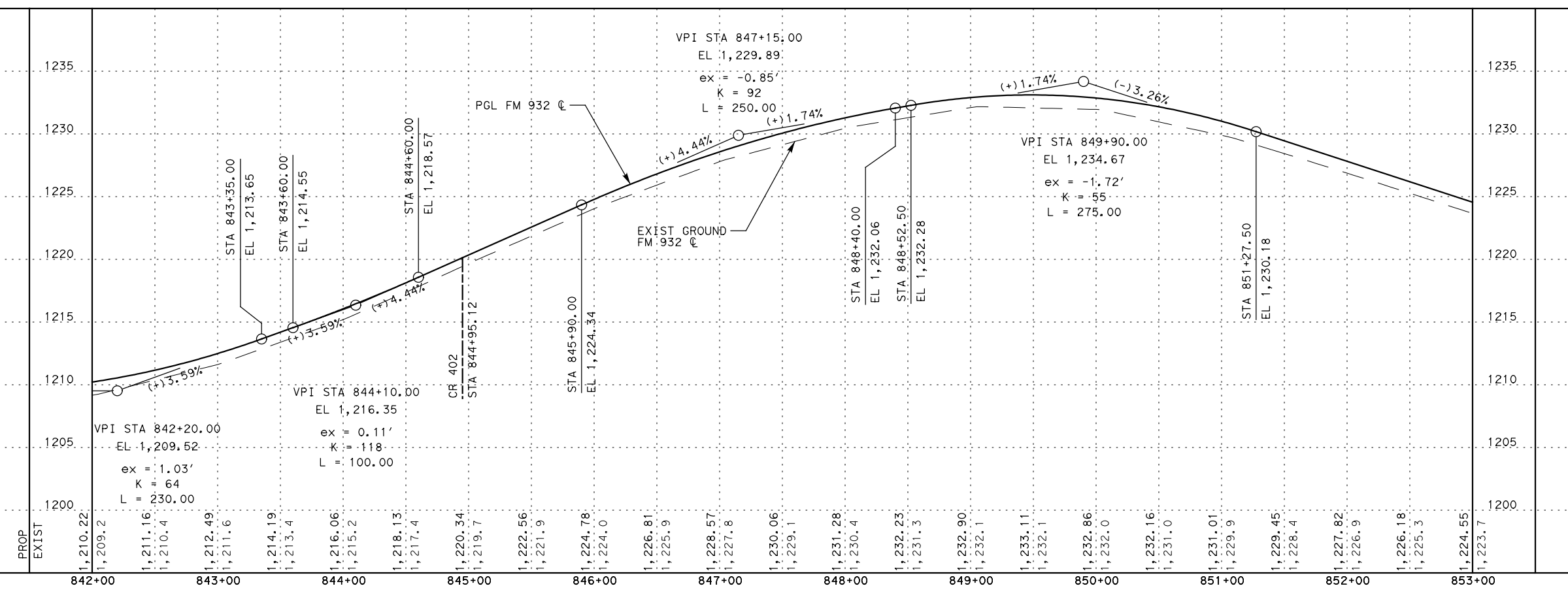
NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



| STA 842+00.00 to STA 843+00.00 | STA 843+00.00 to STA 844+00.00 | STA 844+00.00 to STA 845+00.00 | STA 845+00.00 to STA 846+00.00 | STA 846+00.00 to STA 847+00.00 | STA 847+00.00 to STA 848+00.00 | STA 848+00.00 to STA 849+00.00 | STA 849+00.00 to STA 850+00.00 | STA 850+00.00 to STA 851+00.00 | STA 851+00.00 to STA 852+00.00 | STA 852+00.00 to STA 853+00.00 | SECTION TOTALS | | | |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|-----|-------------------|--|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | |
| 5 | 0 | 6 | 16 | 10 | 9 | 6 | 12 | 2 | 1 | 8 | 75 | | | |
| 38 | 51 | 27 | 25 | 30 | 36 | 26 | 24 | 34 | 49 | 41 | 381 | CY | EXCAVATION (RDWY) | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R.O.W. | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE | |

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

FILE: P:\MSGP\TXD18248\05-FM932\PROD\SHEETS\RP45.dgn
 DATE: 9/1/2021 11:04:48 AM fRange1



Texas Department of Transportation
 © 2022

FM 932
PLAN AND PROFILE LAYOUT
 STA 842+00.00 TO STA 853+00.00

(SHEET 45 OF 74)

| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | 017 | | | 138 |



HORIZONTAL SCALE: 1" = 100'

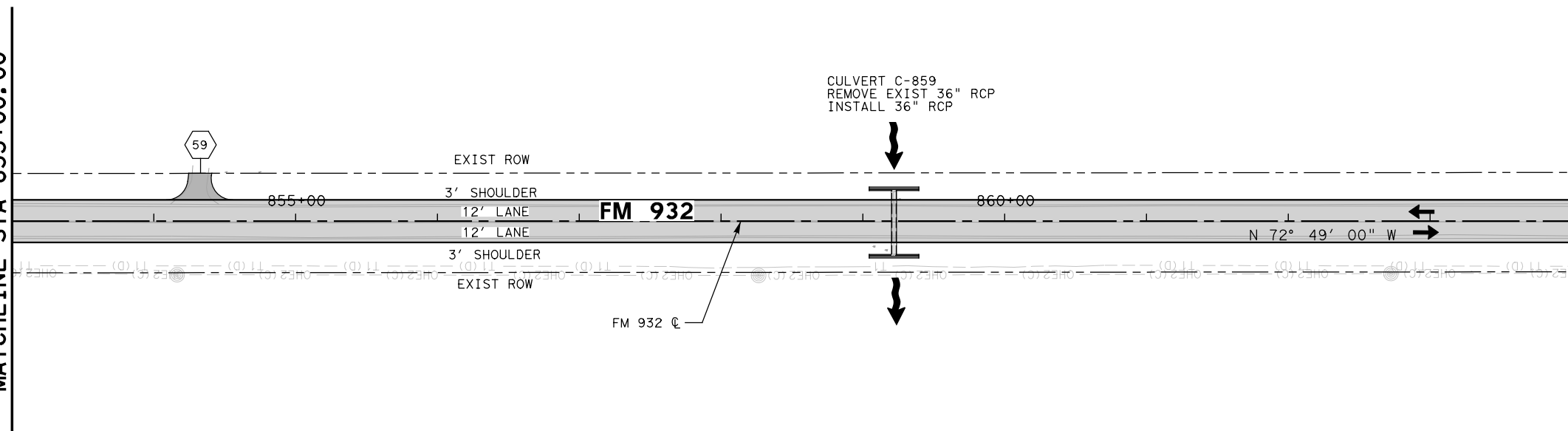


VERTICAL SCALE: 1" = 10'

- NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

MATCHLINE STA 853+00.00

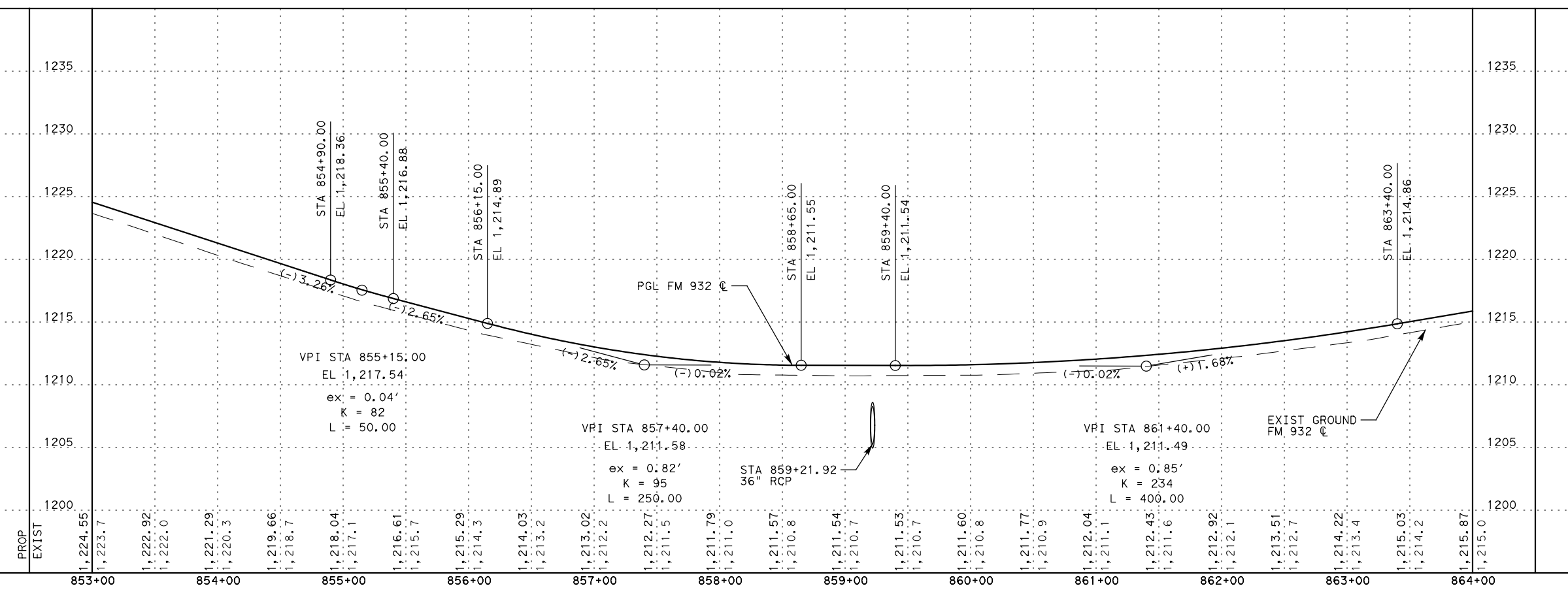
MATCHLINE STA 864+00.00



| STA 853+00.00 to | STA 854+00.00 to | STA 855+00.00 to | STA 856+00.00 to | STA 857+00.00 to | STA 858+00.00 to | STA 859+00.00 to | STA 860+00.00 to | STA 861+00.00 to | STA 862+00.00 to | STA 863+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|--------------------|
| 12 | 13 | 9 | 13 | 19 | 5 | 4 | 16 | 20 | 18 | 9 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 29 | 24 | 36 | 32 | 27 | 62 | 109 | 37 | 20 | 16 | 31 | 138 | 423 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R. O. W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | CY | FLEXBASE |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP46.dgn
 DATE: 9/1/2021 11:04:50 AM fRange1

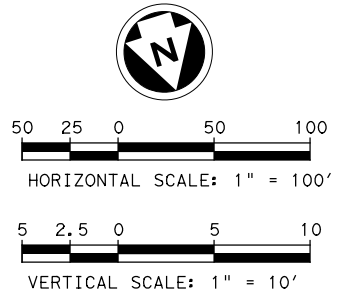


FM 932
PLAN AND PROFILE LAYOUT
 STA 853+00.00 TO STA 864+00.00

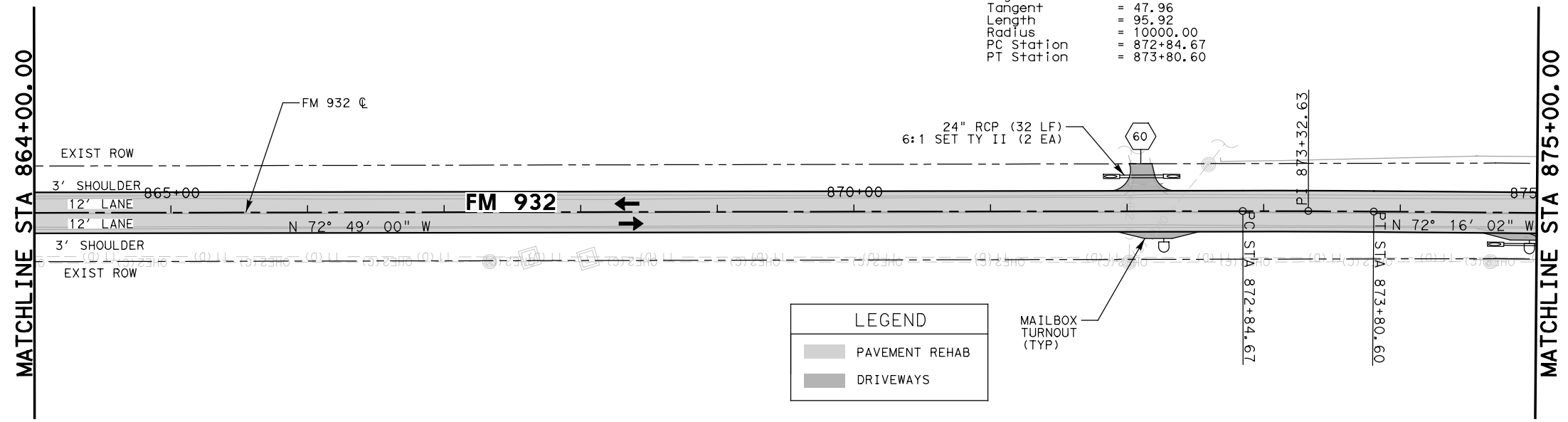
(SHEET 46 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 139 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

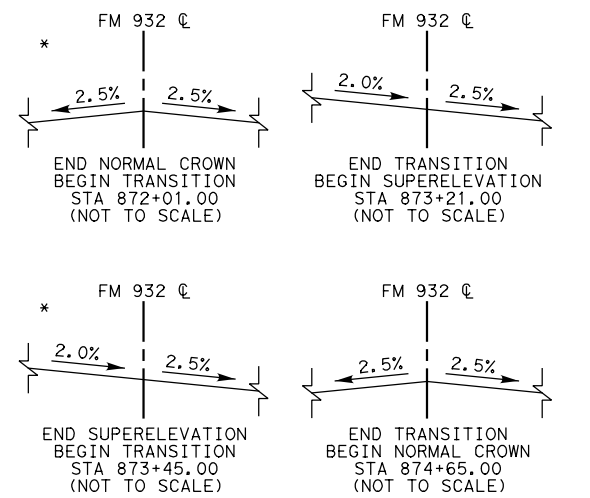
| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |



PI Station = 873+32.63
 Delta = 0° 32' 58.63" (RT)
 Degree of Curve = 0° 34' 22.65"
 Tangent = 47.96
 Length = 95.92
 Radius = 10000.00
 PC Station = 872+84.67
 PT Station = 873+80.60



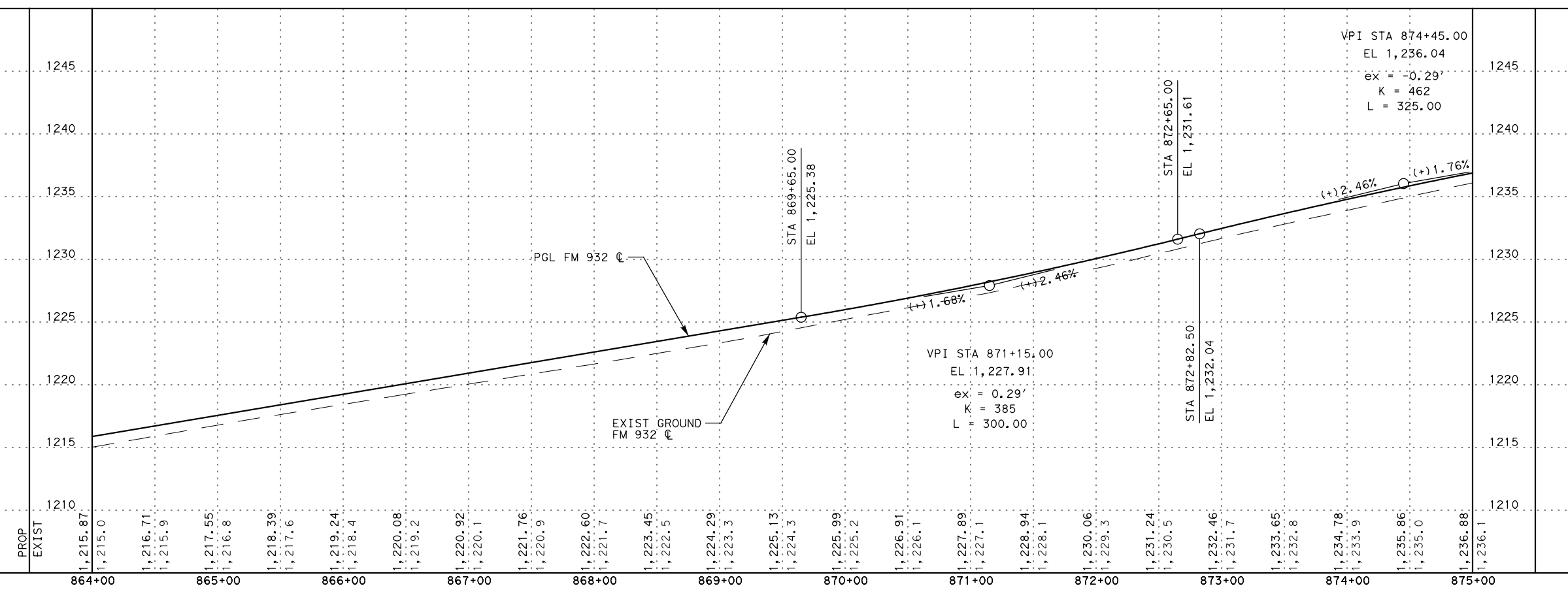
NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

| SECTION TOTALS | | | | | | | | | | | ESTIMATED | FINAL | UNIT | DESCRIPTION |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-----------|-------|------|-------------------|
| STA 864+00.00 to STA 865+00.00 | STA 865+00.00 to STA 866+00.00 | STA 866+00.00 to STA 867+00.00 | STA 867+00.00 to STA 868+00.00 | STA 868+00.00 to STA 869+00.00 | STA 869+00.00 to STA 870+00.00 | STA 870+00.00 to STA 871+00.00 | STA 871+00.00 to STA 872+00.00 | STA 872+00.00 to STA 873+00.00 | STA 873+00.00 to STA 874+00.00 | STA 874+00.00 to STA 875+00.00 | 154 | 396 | CY | EXCAVATION (RDWY) |
| 11 | 16 | 13 | 8 | 10 | 13 | 20 | 23 | 17 | 5 | 18 | 396 | 11 | CY | EMBANKMENT |
| 37 | 45 | 34 | 40 | 39 | 38 | 38 | 33 | 31 | 41 | 20 | 611 | 11 | STA | PREPARING R.O.W. |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | CY | FLEXBASE |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | | | | |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP47.dgn
 DATE: 9/1/2021 11:04:52 AM fRange1

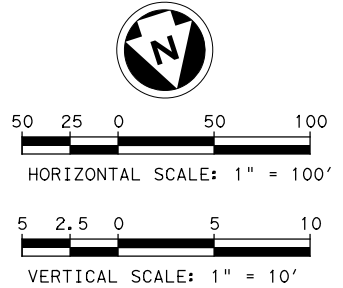


FM 932
PLAN AND PROFILE LAYOUT
 STA 864+00.00 TO STA 875+00.00

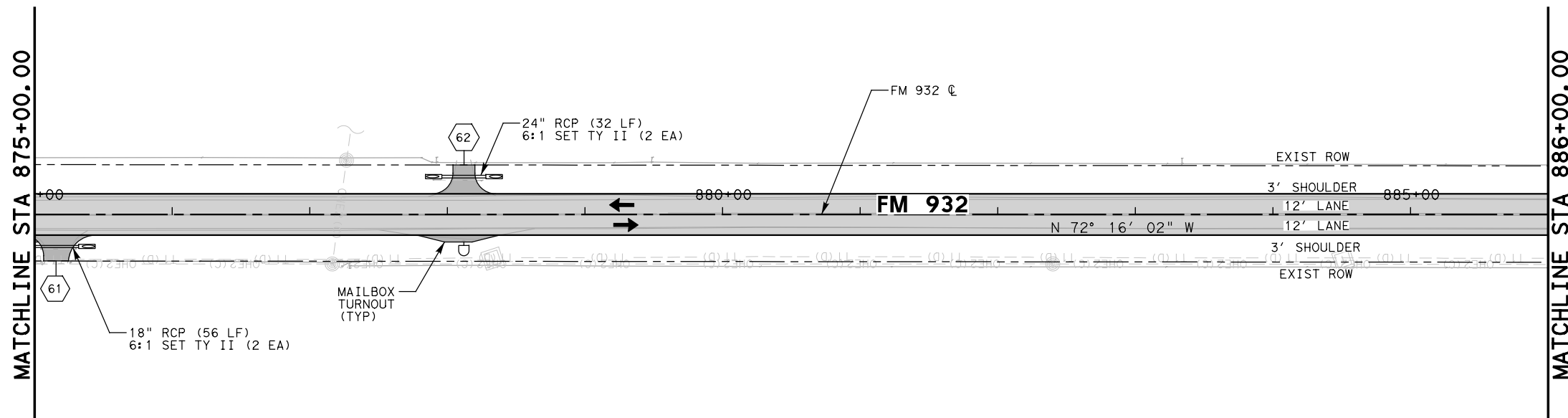
(SHEET 47 OF 74)

| | | | | |
|------------------|------------------------|--|----------|-----------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 140 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |



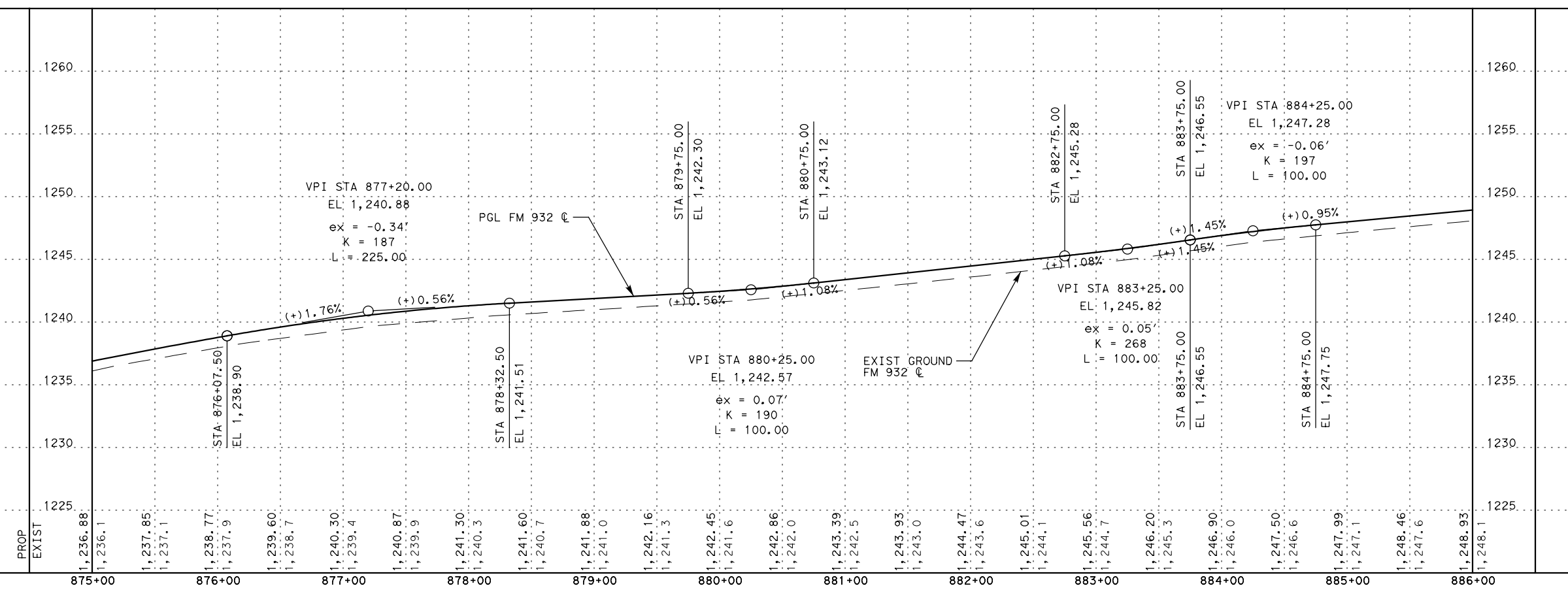
NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



| STA 875+00.00 to STA 876+00.00 | STA 876+00.00 to STA 877+00.00 | STA 877+00.00 to STA 878+00.00 | STA 878+00.00 to STA 879+00.00 | STA 879+00.00 to STA 880+00.00 | STA 880+00.00 to STA 881+00.00 | STA 881+00.00 to STA 882+00.00 | STA 882+00.00 to STA 883+00.00 | STA 883+00.00 to STA 884+00.00 | STA 884+00.00 to STA 885+00.00 | STA 885+00.00 to STA 886+00.00 | SECTION TOTALS | | | |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|----------------|-------|------|-------------------|
| 20 | 6 | 5 | 6 | 9 | 14 | 9 | 7 | 8 | 4 | 4 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 14 | 26 | 37 | 35 | 28 | 28 | 27 | 28 | 34 | 34 | 34 | 92 | 318 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP48.dgn
 DATE: 9/1/2021 11:04:55 AM fRange1

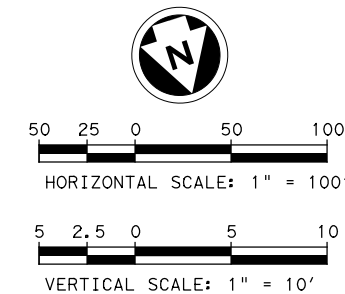


FM 932
PLAN AND PROFILE LAYOUT
 STA 875+00.00 TO STA 886+00.00

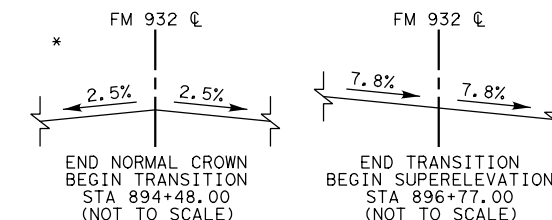
(SHEET 48 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 141 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |

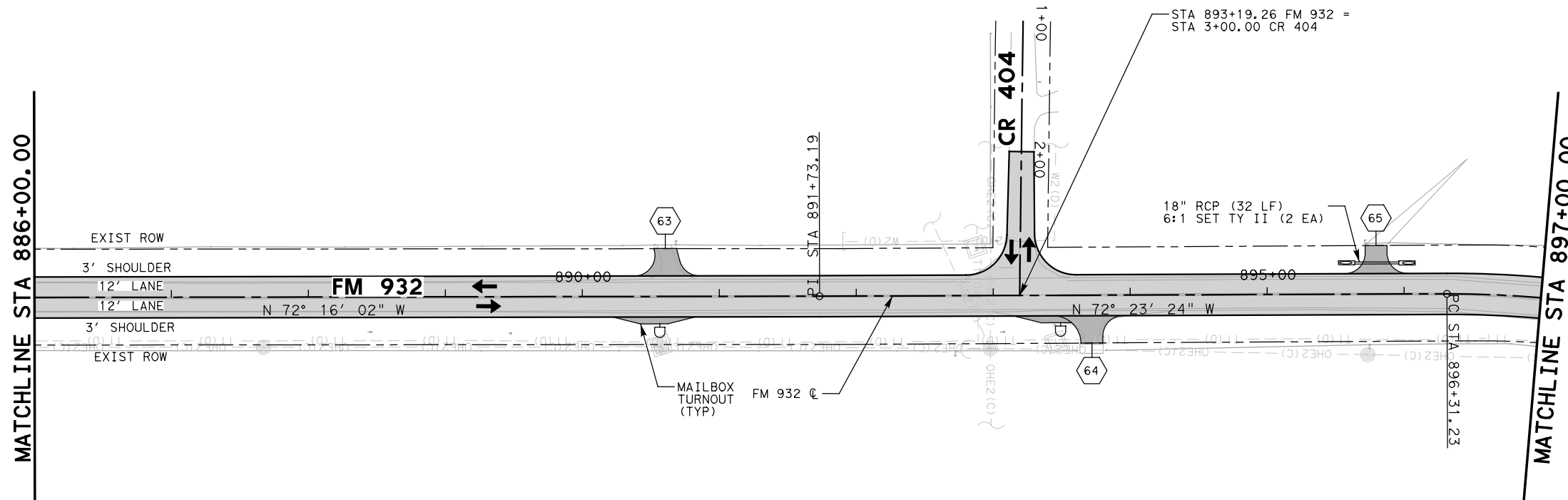


NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



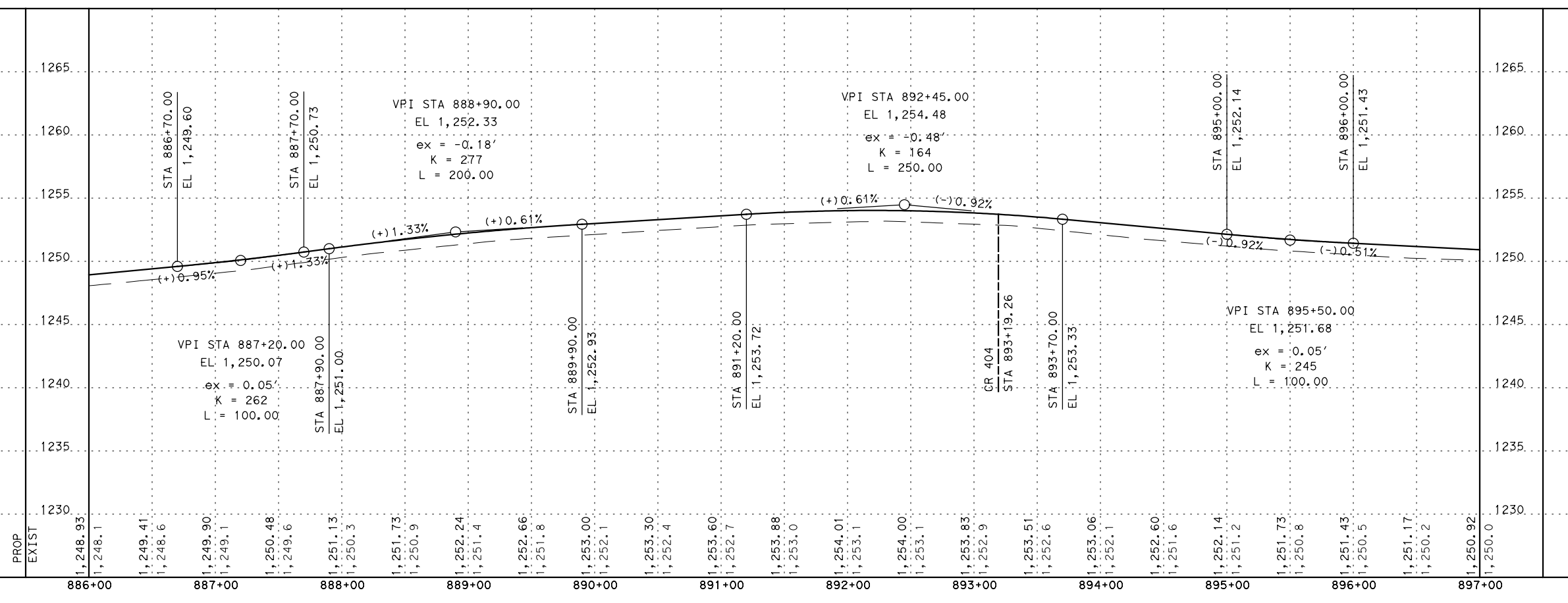
*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

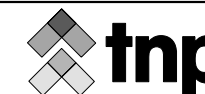


| STA 886+00.00 to | STA 887+00.00 to | STA 888+00.00 to | STA 889+00.00 to | STA 890+00.00 to | STA 891+00.00 to | STA 892+00.00 to | STA 893+00.00 to | STA 894+00.00 to | STA 895+00.00 to | STA 896+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| 6 | 11 | 9 | 8 | 16 | 10 | 11 | 9 | 6 | 7 | 6 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 32 | 28 | 32 | 24 | 19 | 19 | 19 | 9 | 24 | 32 | 54 | 99 | 292 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP49.dgn
 DATE: 9/1/2021 11:04:57 AM fRange1



FIRM REGISTRATION NO. F-230



Texas Department of Transportation
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FM 932

PLAN AND PROFILE LAYOUT
 STA 886+00.00 TO STA 897+00.00

(SHEET 49 OF 74)

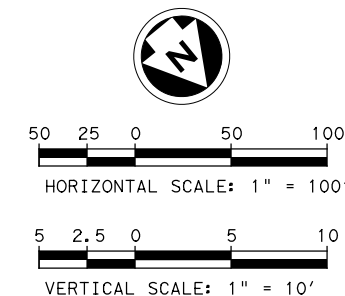
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
|------------|-------------------|-------------------------|----------|-------------|
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | RJ | STATE | DISTRICT | COUNTY |
| GRAPHICS | JP | TX | WACO | HAMILTON |
| GRPH CHECK | RJ | CONTROL | SECTION | JOB |
| | | 0867 | 01 | 017 |

142

PI Station = 897+90.16
 Delta = 23° 55' 39.61" (RT)
 Degree of Curve = 7° 38' 21.97"
 Tangent = 158.92
 Length = 313.21
 Radius = 750.00
 PC Station = 896+31.23
 PT Station = 899+44.45

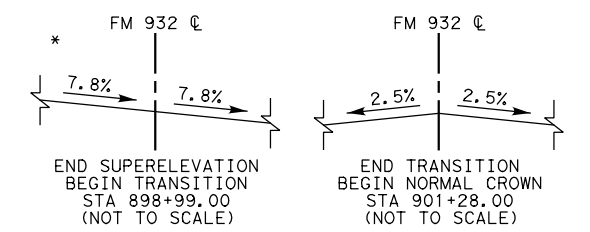
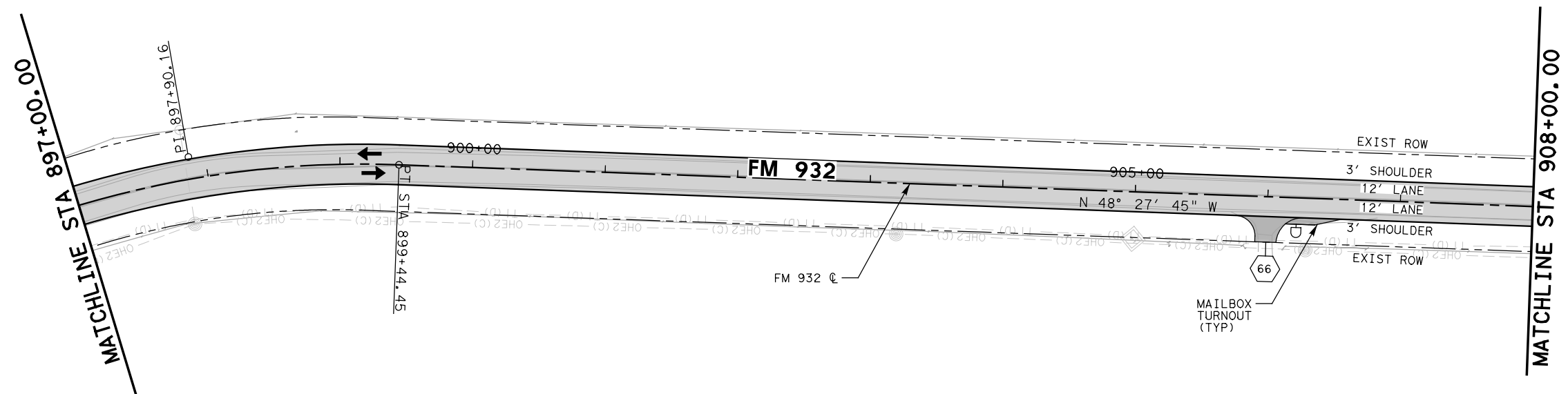
LEGEND

- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



NOTES:

- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



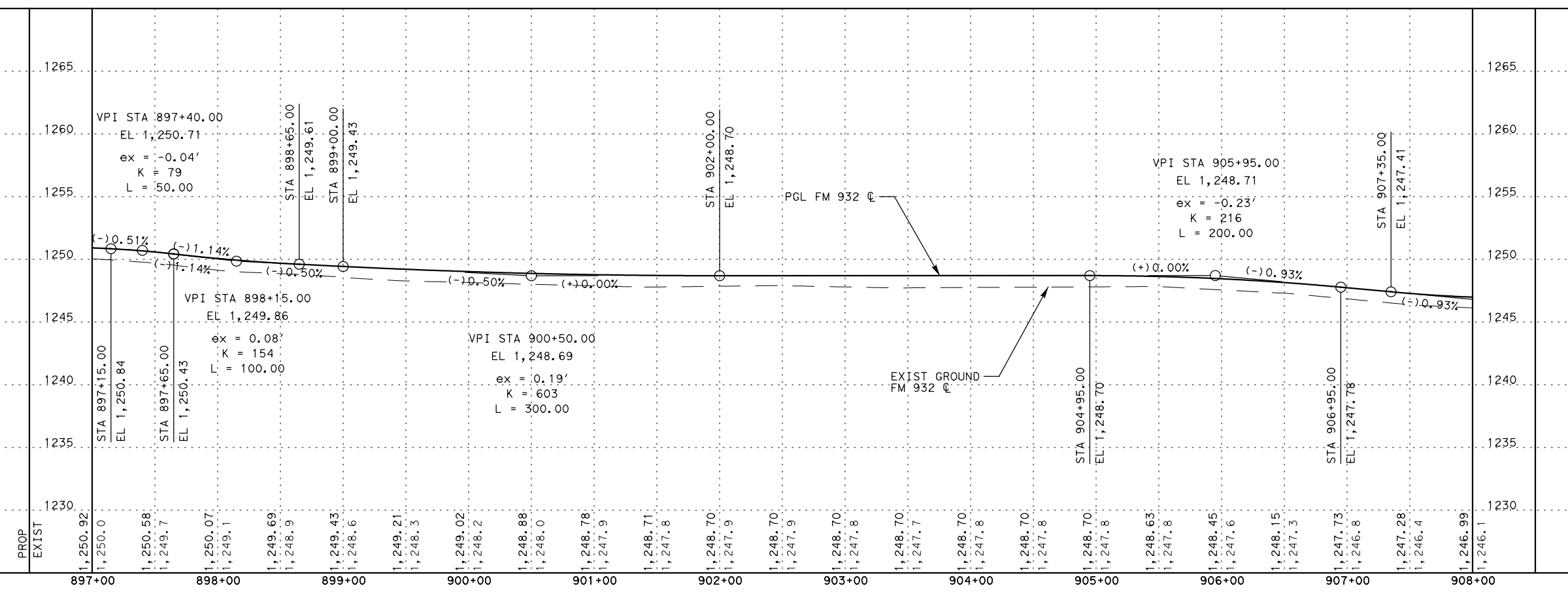
*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

| STA 897+00.00 to | STA 898+00.00 to | STA 899+00.00 to | STA 900+00.00 to | STA 901+00.00 to | STA 902+00.00 to | STA 903+00.00 to | STA 904+00.00 to | STA 905+00.00 to | STA 906+00.00 to | STA 907+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| 0 | 4 | 7 | 5 | 10 | 9 | 6 | 7 | 12 | 11 | 11 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 54 | 52 | 62 | 33 | 32 | 29 | 31 | 23 | 33 | 37 | 29 | 82 | 415 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

FILE: P:\MSGP\TXD18248\05-FM932\PROJ\SHEETS\RPMS0.dgn
 DATE: 9/1/2021 11:04:59 AM fRange1



FM 932

PLAN AND PROFILE LAYOUT

STA 897+00.00 TO STA 908+00.00

(SHEET 50 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 143 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



50 25 0 50 100

HORIZONTAL SCALE: 1" = 100'

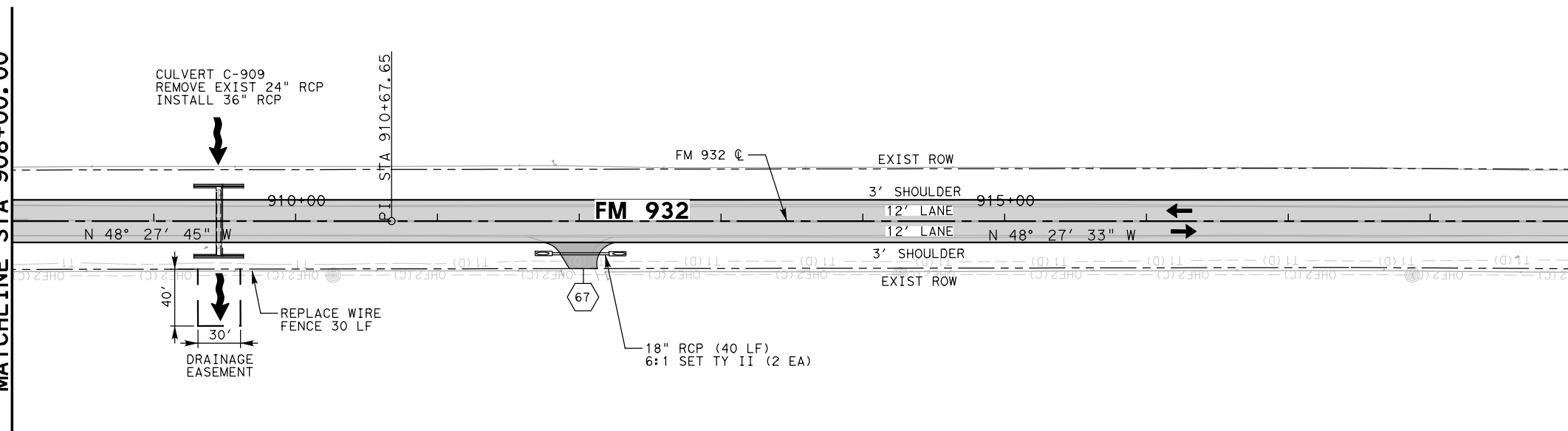
5 2.5 0 5 10

VERTICAL SCALE: 1" = 10'

- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.

MATCHLINE STA 908+00.00

MATCHLINE STA 919+00.00

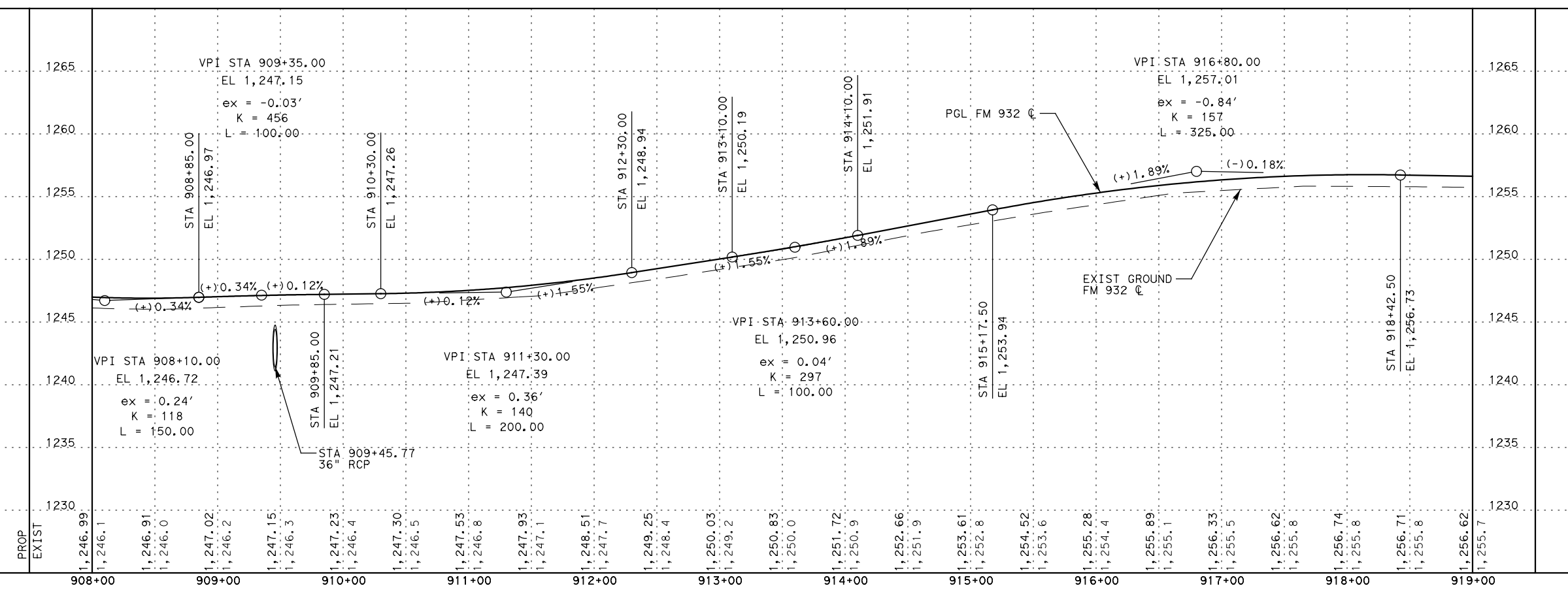


| STA 908+00.00 to | STA 909+00.00 to | STA 910+00.00 to | STA 911+00.00 to | STA 912+00.00 to | STA 913+00.00 to | STA 914+00.00 to | STA 915+00.00 to | STA 916+00.00 to | STA 917+00.00 to | STA 918+00.00 to | STA 919+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| 9 | 8 | 17 | 18 | 15 | 14 | 19 | 11 | 11 | 8 | 11 | 11 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 65 | 149 | 49 | 21 | 20 | 27 | 26 | 31 | 33 | 33 | 34 | 34 | 141 | 488 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

LEGEND

| | |
|--|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM932\PROD\SHEETS\RPMS1.dgn
DATE: 9/1/2021 11:05:01 AM fRange1



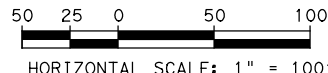
FM 932
PLAN AND PROFILE LAYOUT
STA 908+00.00 TO STA 919+00.00

(SHEET 51 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 144 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| STA 919+00.00 to | STA 920+00.00 to | STA 921+00.00 to | STA 922+00.00 to | STA 923+00.00 to | STA 924+00.00 to | STA 925+00.00 to | STA 926+00.00 to | STA 927+00.00 to | STA 928+00.00 to | STA 929+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-----|-------------------|--|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | |
| 12 | 4 | 4 | 11 | 15 | 18 | 22 | 24 | 11 | 18 | 15 | 154 | CY | EXCAVATION (RDWY) | |
| 28 | 56 | 49 | 24 | 22 | 23 | 40 | 73 | 48 | 34 | 46 | 443 | CY | EMBANKMENT | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R.O.W. | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE | |

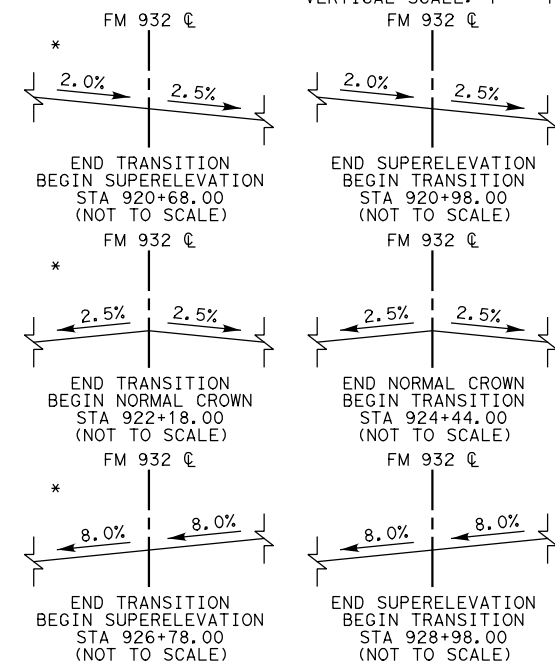
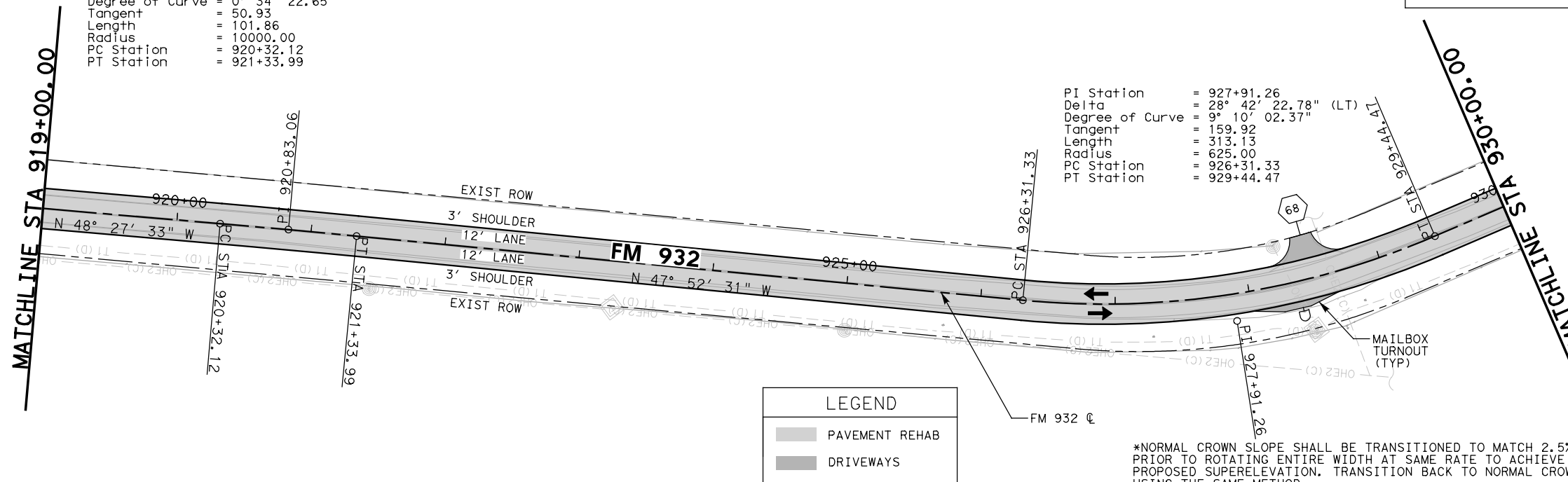
NOTES:
1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |

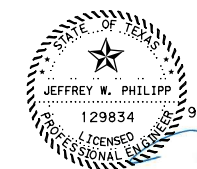
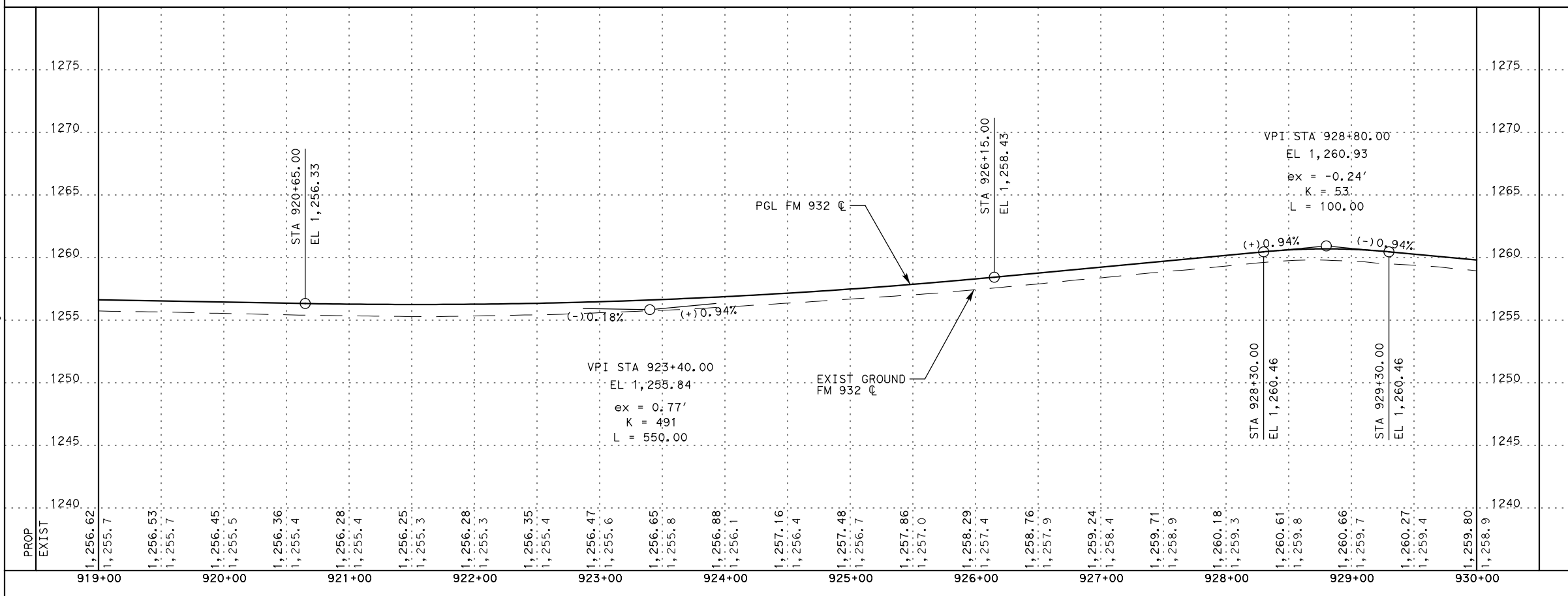
PI Station = 920+83.06
Delta = 0° 35' 01.19" (RT)
Degree of Curve = 0° 34' 22.65"
Tangent = 50.93
Length = 101.86
Radius = 10000.00
PC Station = 920+32.12
PT Station = 921+33.99

PI Station = 927+91.26
Delta = 28° 42' 22.78" (LT)
Degree of Curve = 9° 10' 02.37"
Tangent = 159.92
Length = 313.13
Radius = 625.00
PC Station = 926+31.33
PT Station = 929+44.47



*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RPMS2.dgn
DATE: 9/1/2021 11:05:03 AM frrange1



FIRM REGISTRATION NO. F-230



FM 932

PLAN AND PROFILE LAYOUT

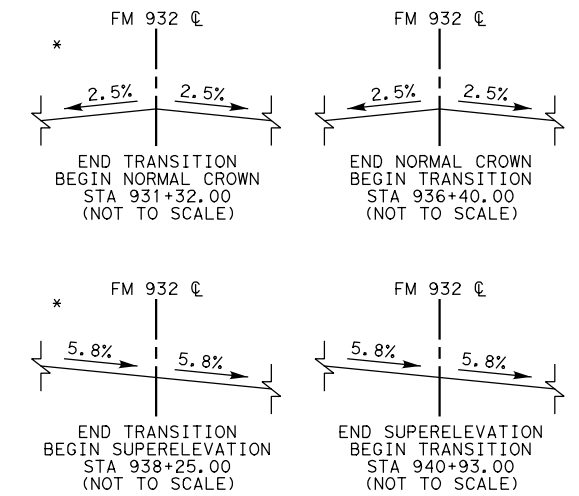
STA 919+00.00 TO STA 930+00.00

(SHEET 52 OF 74)

| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
|-----------|-------------------|-------------------------|----------|-------------|
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. |
| RJ | TX | WACO | HAMILTON | 145 |
| GRAPHICS | CONTROL | SECTION | JOB | |
| JP | RJ | 0867 | 01 | 017 |



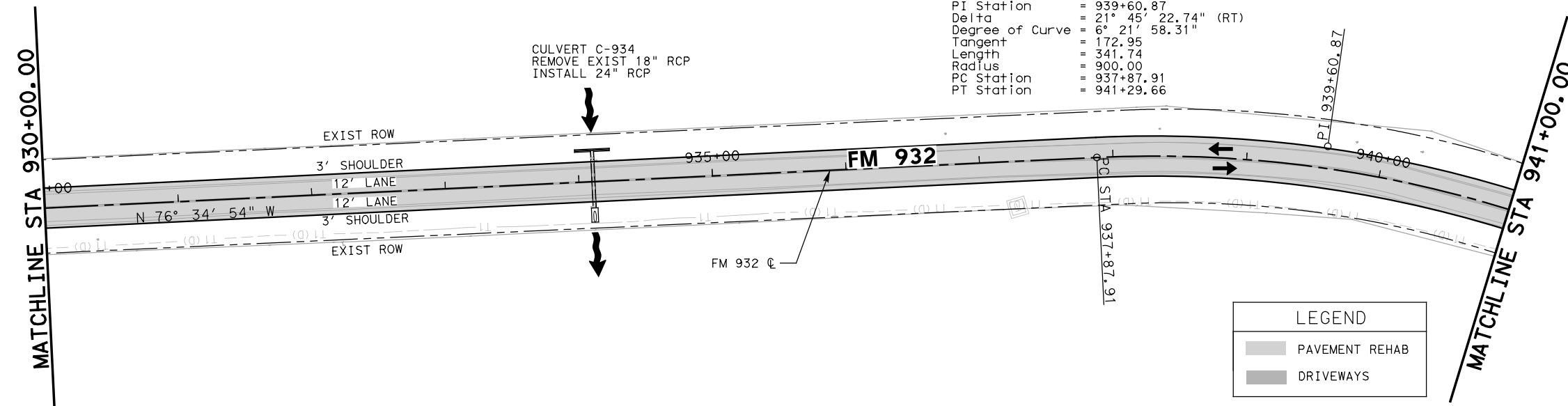
NOTES:
1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

PI Station = 939+60.87
Delta = 21° 45' 22.74" (RT)
Degree of Curve = 6° 21' 58.31"
Tangent = 172.95
Length = 341.74
Radius = 900.00
PC Station = 937+87.91
PT Station = 941+29.66

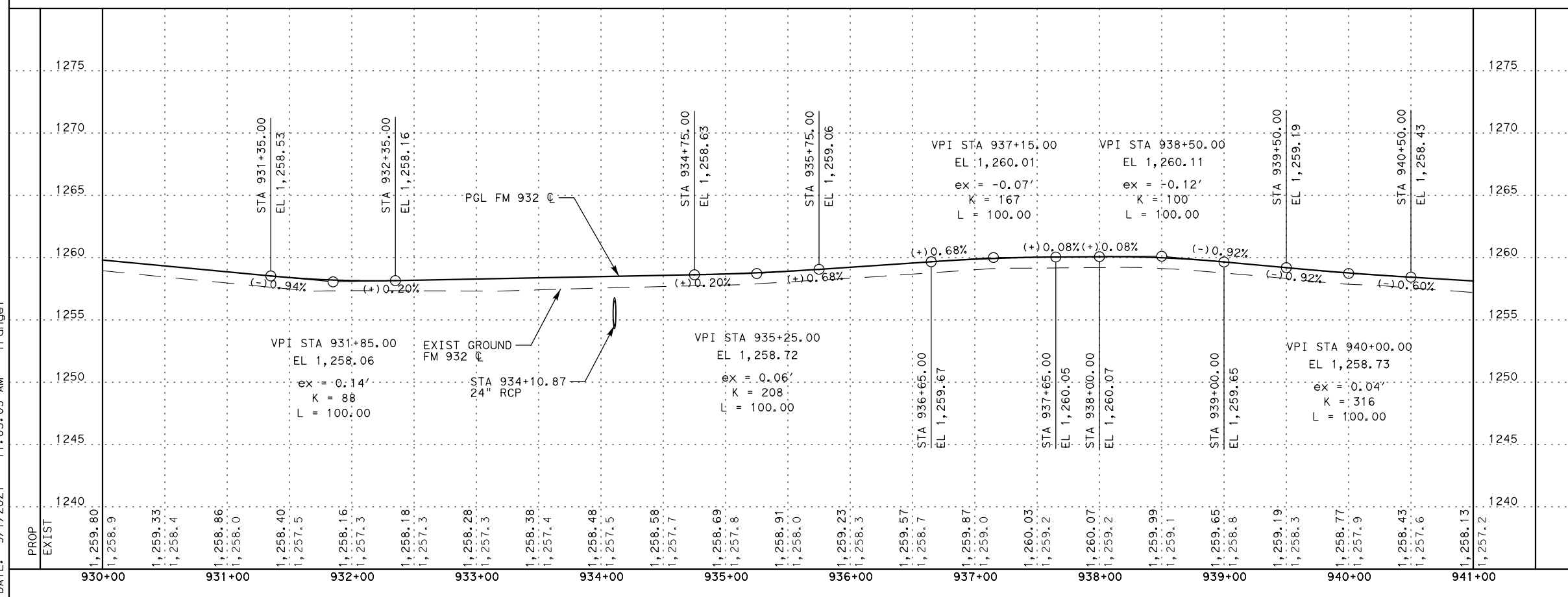
CULVERT C-934
REMOVE EXIST 18" RCP
INSTALL 24" RCP



| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

| STA 930+00.00 to | STA 931+00.00 to | STA 932+00.00 to | STA 933+00.00 to | STA 934+00.00 to | STA 935+00.00 to | STA 936+00.00 to | STA 937+00.00 to | STA 938+00.00 to | STA 939+00.00 to | STA 940+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| 9 | 8 | 4 | 1 | 4 | 7 | 9 | 15 | 16 | 4 | 2 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 26 | 23 | 32 | 61 | 56 | 36 | 24 | 29 | 38 | 44 | 51 | 79 | 420 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | CY | FLEXBASE |

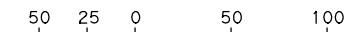
FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RPMS3.dgn
DATE: 9/1/2021 11:05:05 AM fRange1



FM 932
PLAN AND PROFILE LAYOUT
STA 930+00.00 TO STA 941+00.00

(SHEET 53 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 146 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

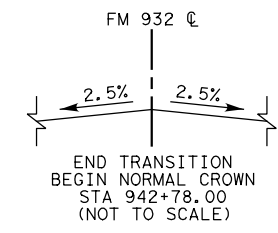


HORIZONTAL SCALE: 1" = 100'

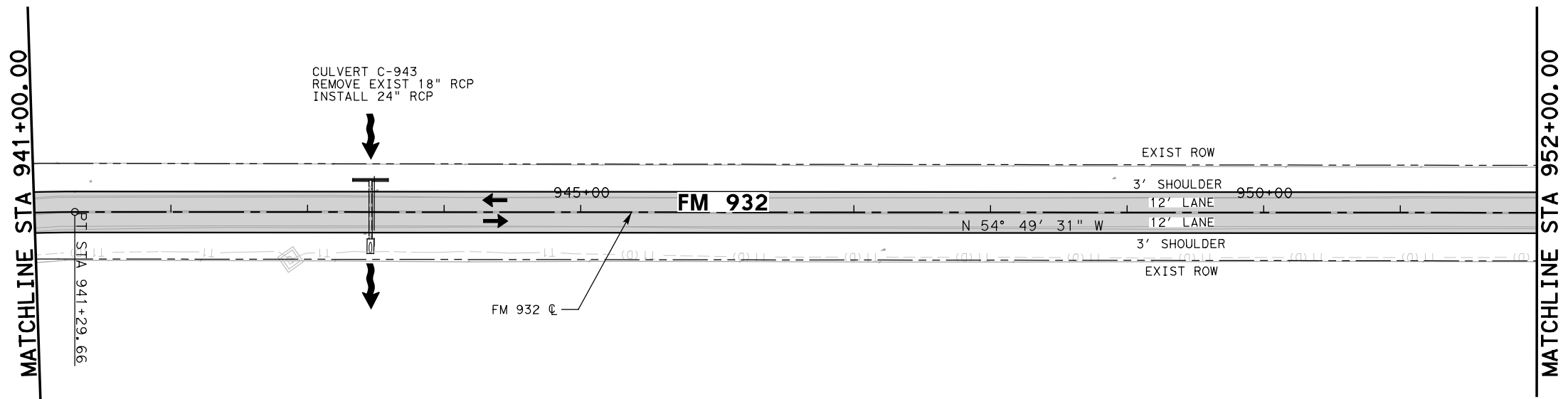


VERTICAL SCALE: 1" = 10'

- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

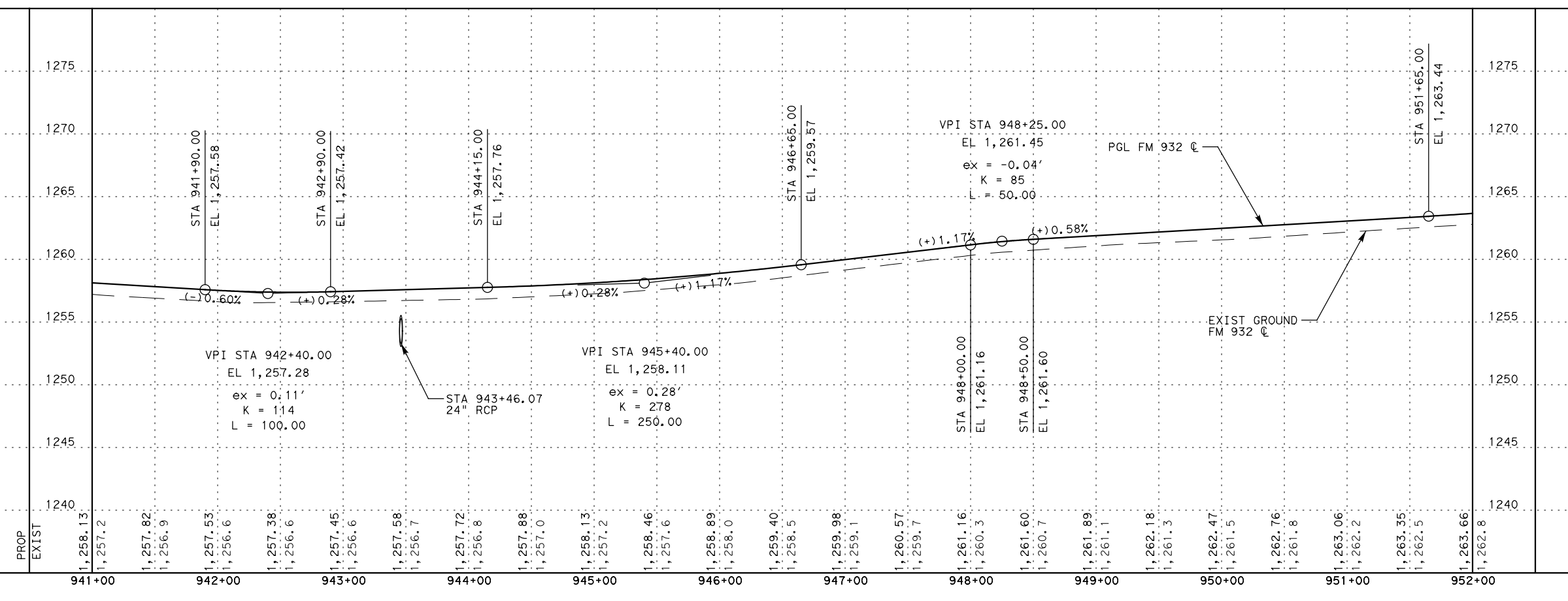


| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |



| STA 941+00.00 to | STA 942+00.00 to | STA 943+00.00 to | STA 944+00.00 to | STA 945+00.00 to | STA 946+00.00 to | STA 947+00.00 to | STA 948+00.00 to | STA 949+00.00 to | STA 950+00.00 to | STA 951+00.00 to | SECTION TOTALS | | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|--|--|--|-------------------|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | | |
| 2 | 11 | 11 | 14 | 15 | 13 | 9 | 5 | 5 | 5 | 10 | 100 | | | | EXCAVATION (RDWY) |
| 45 | 34 | 66 | 30 | 29 | 34 | 38 | 39 | 36 | 36 | 28 | 415 | | | | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | | | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | | | FLEXBASE |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RPMS4.dgn
DATE: 9/1/2021 11:05:07 AM fRange1



FM 932
PLAN AND PROFILE LAYOUT
STA 941+00.00 TO STA 952+00.00

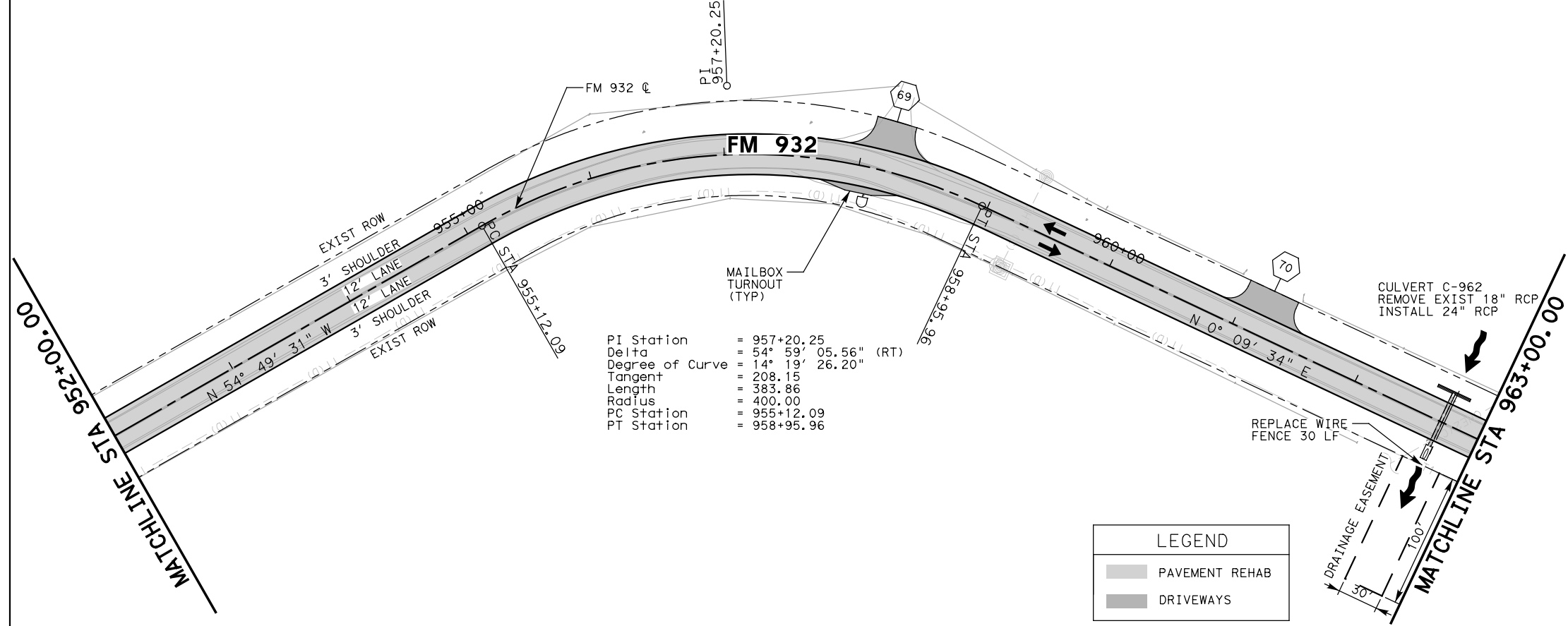
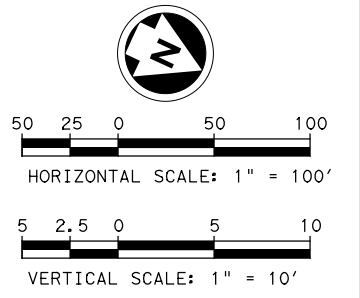
(SHEET 54 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 147 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| STA 952+00.00 to | STA 953+00.00 to | STA 954+00.00 to | STA 955+00.00 to | STA 956+00.00 to | STA 957+00.00 to | STA 958+00.00 to | STA 959+00.00 to | STA 960+00.00 to | STA 961+00.00 to | STA 962+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-----|-------------------|--|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | |
| 18 | 19 | 22 | 17 | 3 | 6 | 13 | 5 | 2 | 2 | 4 | 111 | CY | EXCAVATION (RDWY) | |
| 21 | 28 | 39 | 47 | 47 | 33 | 37 | 63 | 45 | 44 | 54 | 458 | CY | EMBANKMENT | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R.O.W. | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE | |

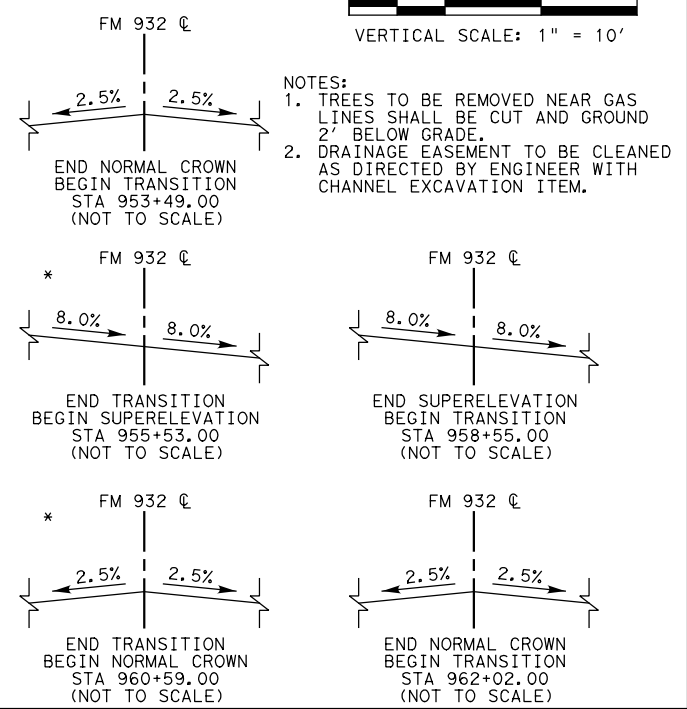
LEGEND

- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



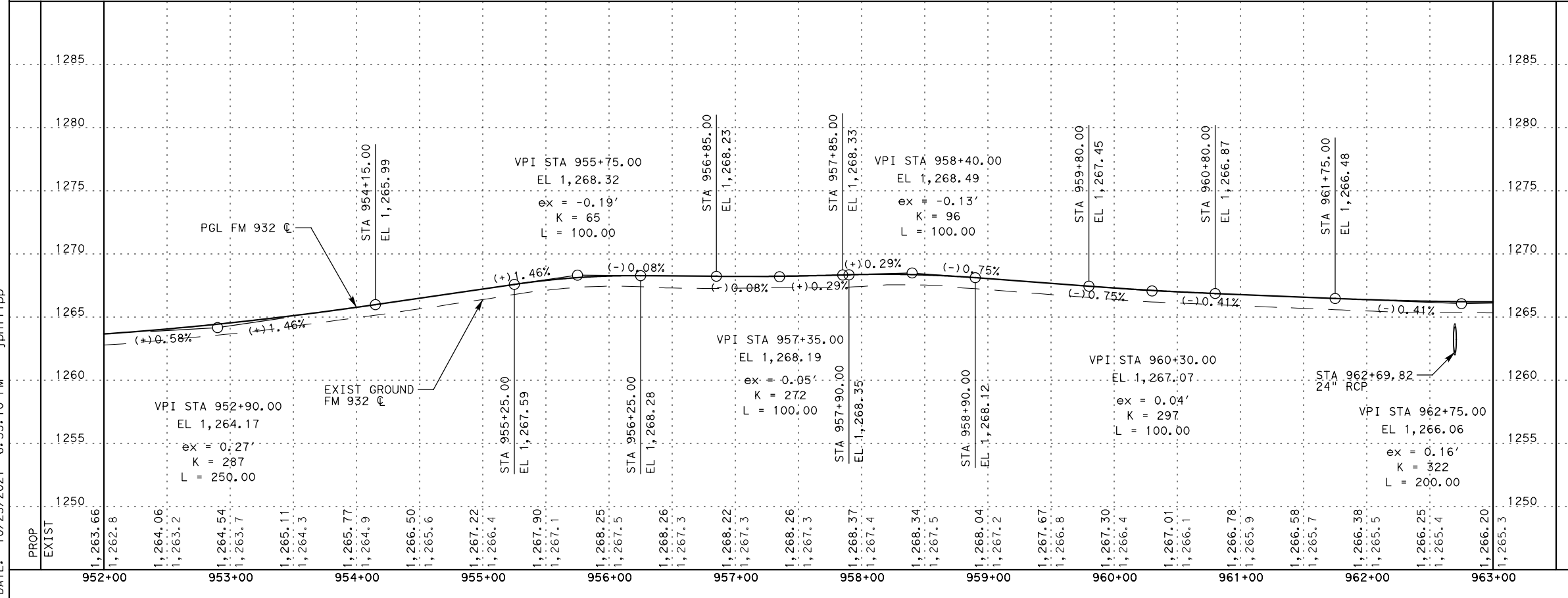
LEGEND

- PAVEMENT REHAB
- DRIVEWAYS



*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RPMS5.dgn
DATE: 10/25/2021 6:55:10 PM jphilipp



tnp
 Texas Department of Transportation
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FM 932
PLAN AND PROFILE LAYOUT
 STA 952+00.00 TO STA 963+00.00

(SHEET 55 OF 74)

| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | | | | 148 |

PI Station = 965+08.82
 Delta = 21° 49' 06.08" (LT)
 Degree of Curve = 6° 44' 26.45"
 Tangent = 163.82
 Length = 323.68
 Radius = 850.00
 PC Station = 963+44.99
 PT Station = 966+68.68

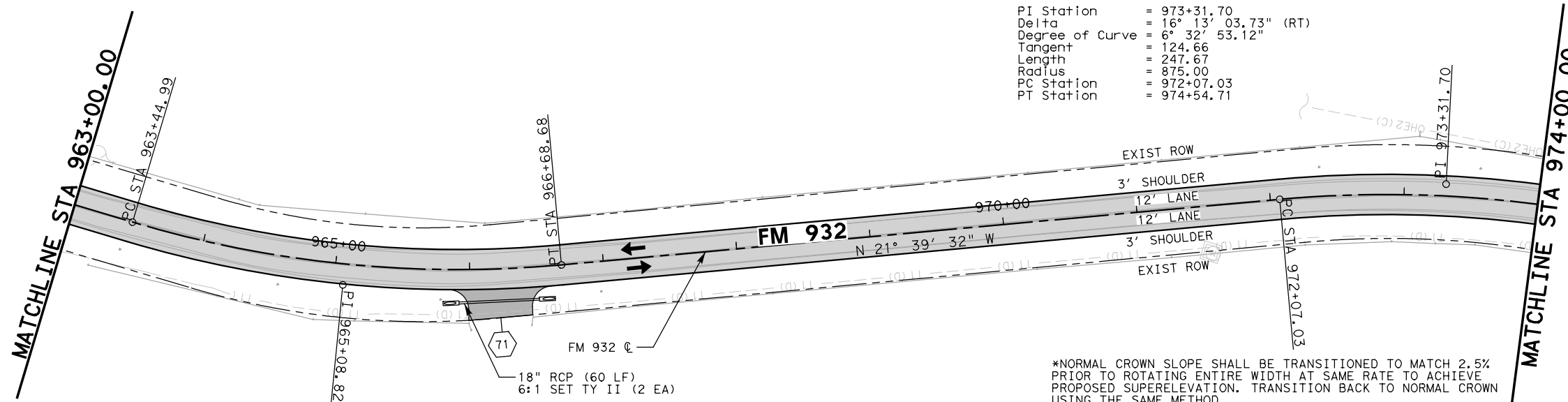
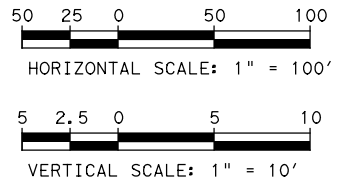
PI Station = 973+31.70
 Delta = 16° 13' 03.73" (RT)
 Degree of Curve = 6° 32' 53.12"
 Tangent = 124.66
 Length = 247.67
 Radius = 875.00
 PC Station = 972+07.03
 PT Station = 974+54.71

NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

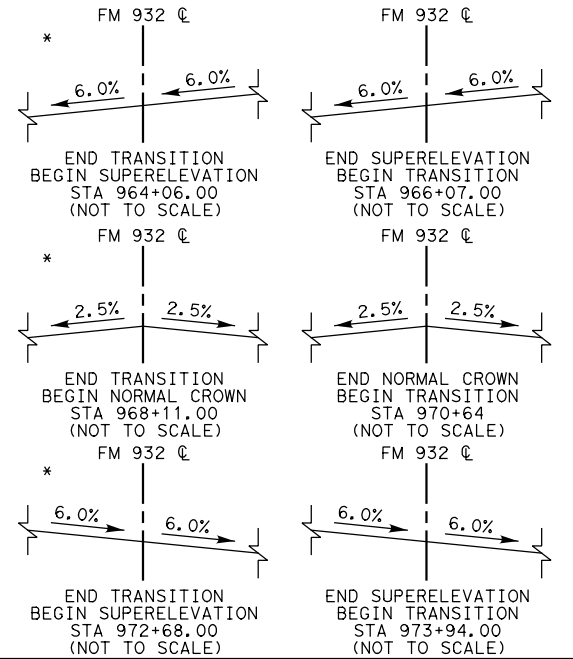


LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

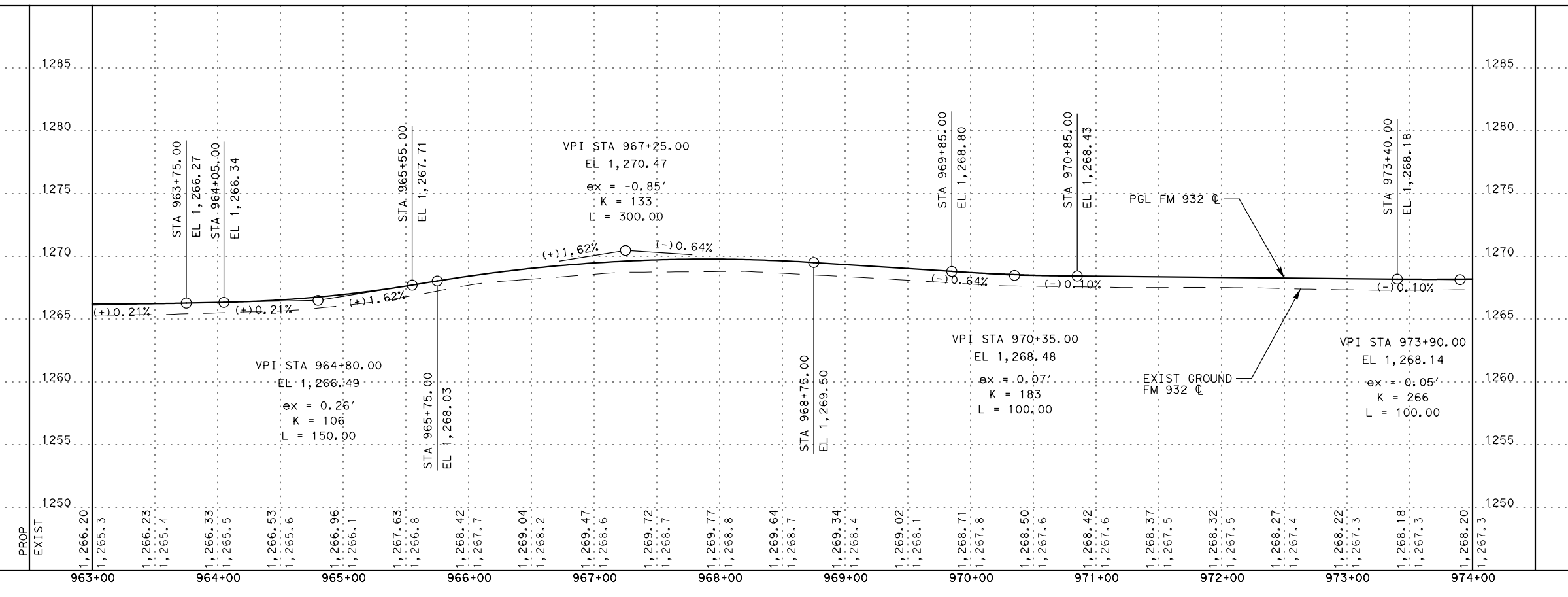


*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.



| | | | | | | | | | | | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| STA 963+00.00 to | STA 964+00.00 to | STA 965+00.00 to | STA 966+00.00 to | STA 967+00.00 to | STA 968+00.00 to | STA 969+00.00 to | STA 970+00.00 to | STA 971+00.00 to | STA 972+00.00 to | STA 973+00.00 to | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 8 | 5 | 4 | 6 | 7 | 9 | 14 | 16 | 8 | 2 | 3 | 82 | 82 | CY | EXCAVATION (RDWY) |
| 71 | 35 | 39 | 58 | 37 | 29 | 32 | 32 | 36 | 57 | 54 | 480 | 480 | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | CY | FLEXBASE |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RPMS6.dgn
 DATE: 9/1/2021 11:05:12 AM fRange1



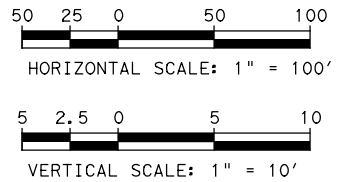
FIRM REGISTRATION NO. F-230



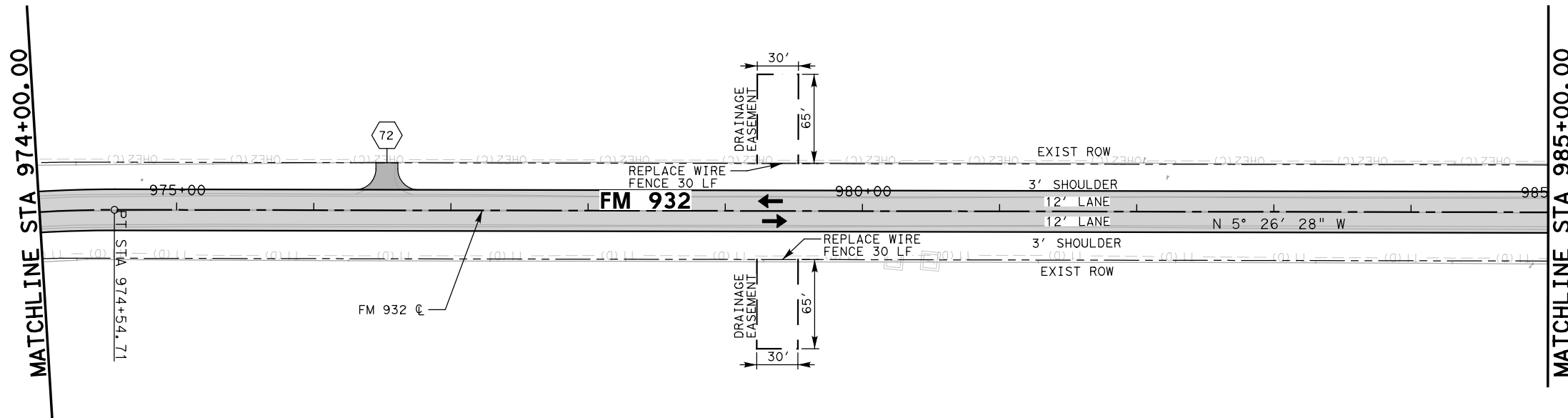
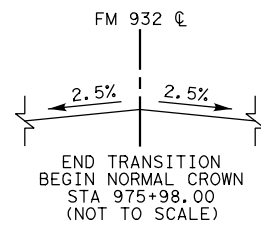
FM 932
PLAN AND PROFILE LAYOUT
 STA 963+00.00 TO STA 974+00.00

(SHEET 56 OF 74)

| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | | | | 149 |



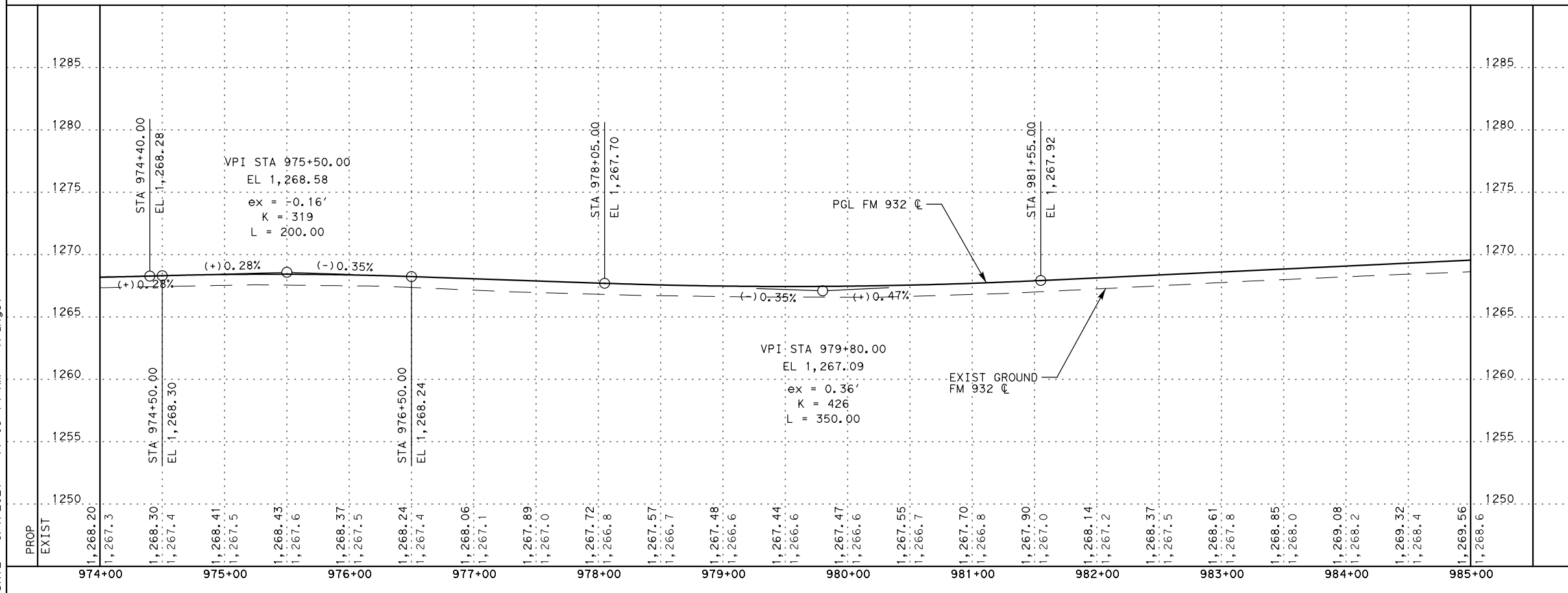
- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.



| STA 974+00.00 to | STA 975+00.00 to | STA 976+00.00 to | STA 977+00.00 to | STA 978+00.00 to | STA 979+00.00 to | STA 980+00.00 to | STA 981+00.00 to | STA 982+00.00 to | STA 983+00.00 to | STA 984+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|-------------------|
| 8 | 13 | 23 | 12 | 6 | 2 | 4 | 10 | 15 | 18 | 16 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 40 | 27 | 25 | 30 | 35 | 47 | 38 | 33 | 27 | 24 | 20 | 127 | 346 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | FLEXBASE |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RPMS7.dgn
DATE: 9/1/2021 11:05:14 AM fRange1



FM 932

PLAN AND PROFILE LAYOUT
STA 974+00.00 TO STA 985+00.00

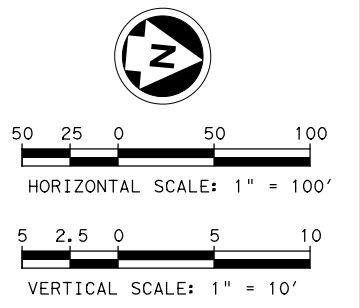
(SHEET 57 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 150 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

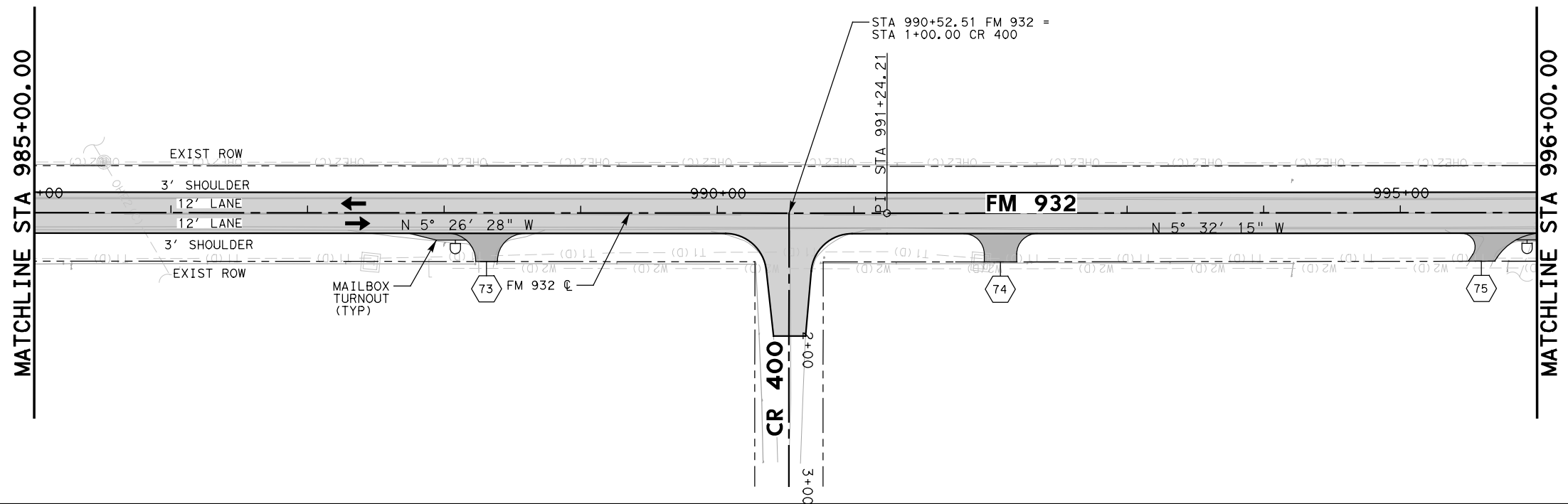
| STA 985+00.00 to | STA 986+00.00 to | STA 987+00.00 to | STA 988+00.00 to | STA 989+00.00 to | STA 990+00.00 to | STA 991+00.00 to | STA 992+00.00 to | STA 993+00.00 to | STA 994+00.00 to | STA 995+00.00 to | SECTION TOTALS | | | | |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|-------|------|--------------------|----------|
| 15 | 17 | 18 | 16 | 11 | 16 | 13 | 16 | 21 | 13 | 15 | ESTIMATED | FINAL | UNIT | DESCRIPTION | |
| 18 | 17 | 19 | 18 | 25 | 20 | 28 | 29 | 26 | 25 | 19 | 171 | | CY | EXCAVATION (RDWY) | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 244 | | CY | EMBANKMENT | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | PREPARING R. O. W. | |
| | | | | | | | | | | | | | | CY | FLEXBASE |

LEGEND

- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



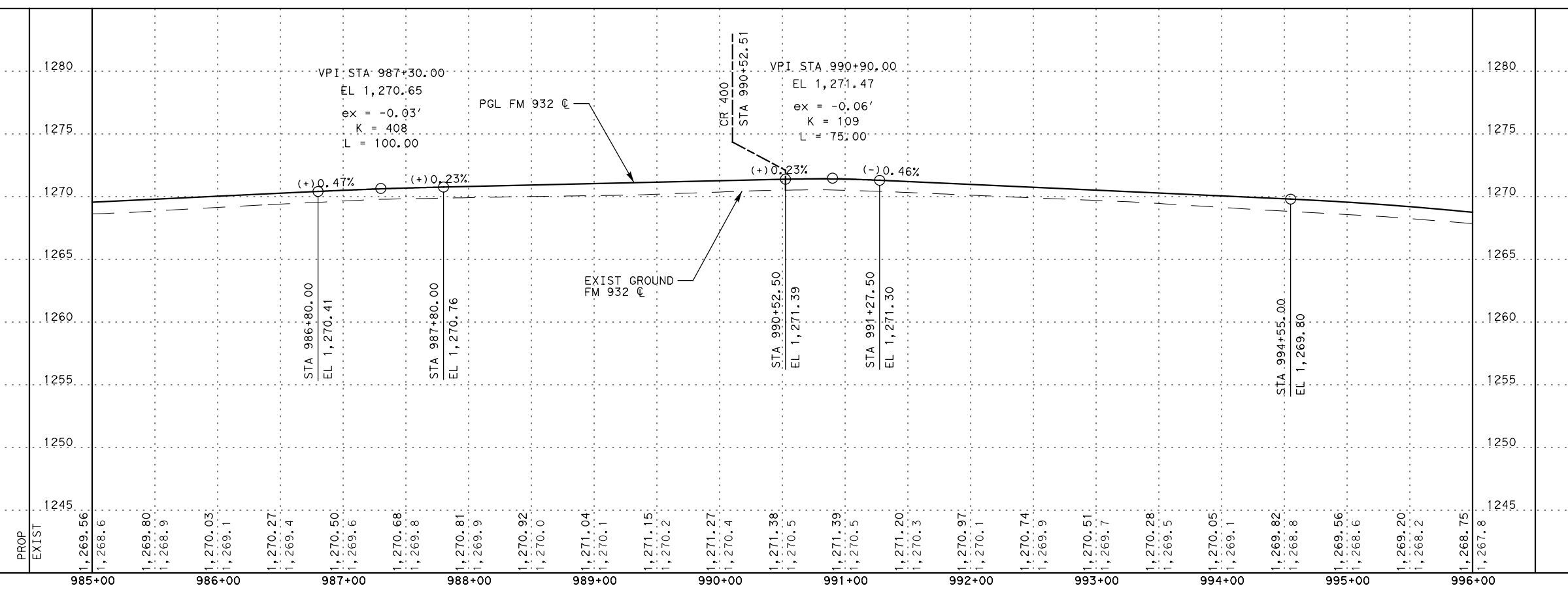
NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RPMS8.dgn
 DATE: 9/1/2021 11:05:17 AM fRange1



tnp FIRM REGISTRATION NO. F-230

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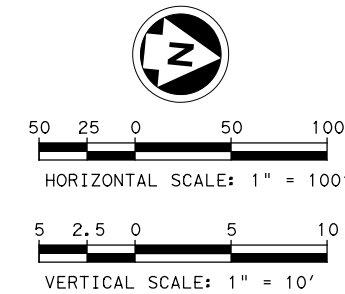
FM 932

PLAN AND PROFILE LAYOUT
 STA 985+00.00 TO STA 996+00.00

(SHEET 58 OF 74)

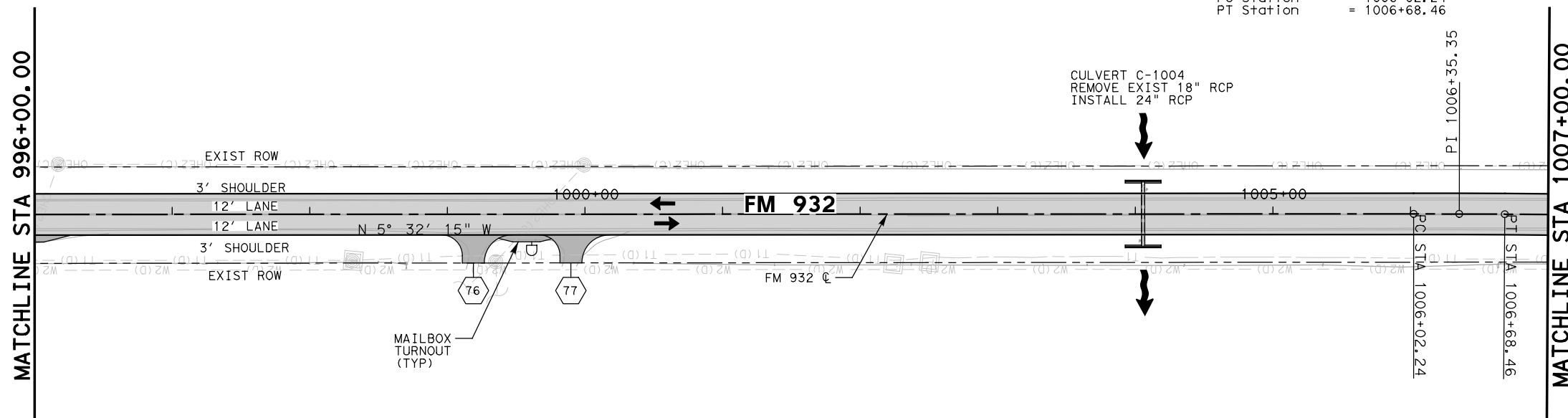
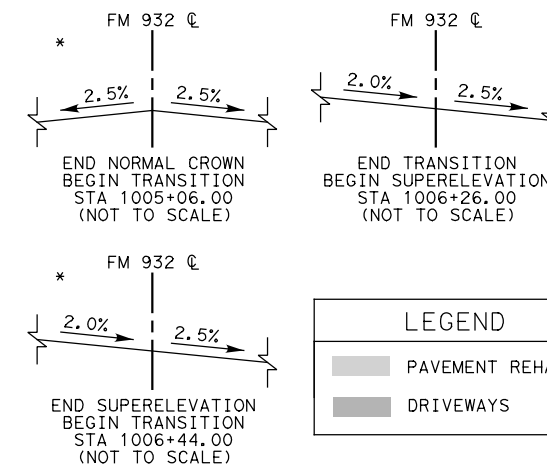
| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 151 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |



PI Station = 1006+35.35
 Delta = 0° 22' 45.98" (RT)
 Degree of Curve = 0° 34' 22.65"
 Tangent = 33.11
 Length = 66.22
 Radius = 10000.00
 PC Station = 1006+02.24
 PT Station = 1006+68.46

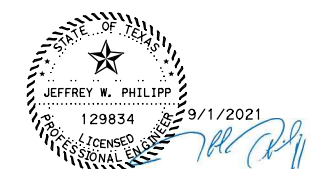
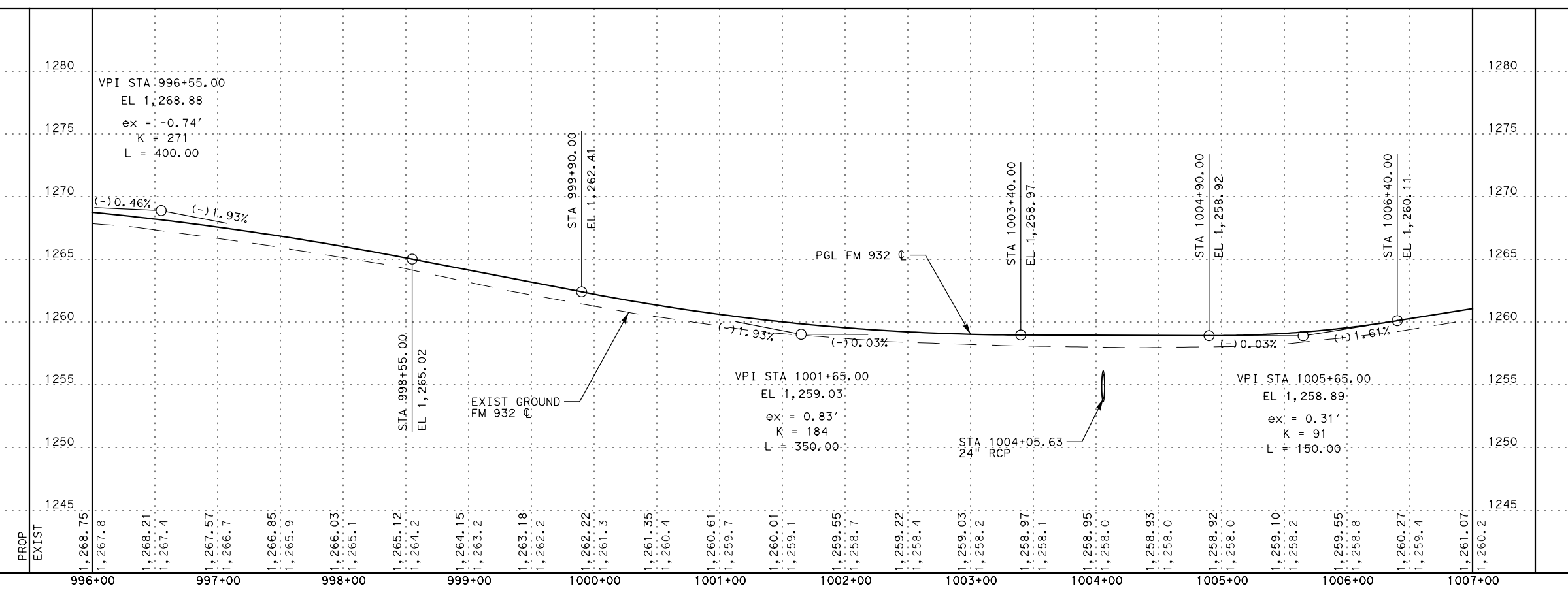
NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



| STA 996+00.00 to | STA 997+00.00 to | STA 998+00.00 to | STA 999+00.00 to | STA 1000+00.00 to | STA 1001+00.00 to | STA 1002+00.00 to | STA 1003+00.00 to | STA 1004+00.00 to | STA 1005+00.00 to | STA 1006+00.00 to | STA 1007+00.00 to | SECTION TOTALS | | | |
|------------------|------------------|------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------|-------|------|------------------------------|
| 15 | 10 | 12 | 8 | 12 | 7 | 4 | 3 | 3 | 6 | 5 | 5 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 35 | 41 | 26 | 22 | 22 | 31 | 50 | 109 | 94 | 40 | 31 | 31 | 85 | 501 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | STA | EMBANKMENT |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | PREPARING R.O.W. FLEXBASE |

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RPMS9.dgn
 DATE: 9/1/2021 11:05:19 AM fRange1



FM 932
PLAN AND PROFILE LAYOUT
 STA 996+00.00 TO STA 1007+00.00

(SHEET 59 OF 74)

| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | | | | 152 |

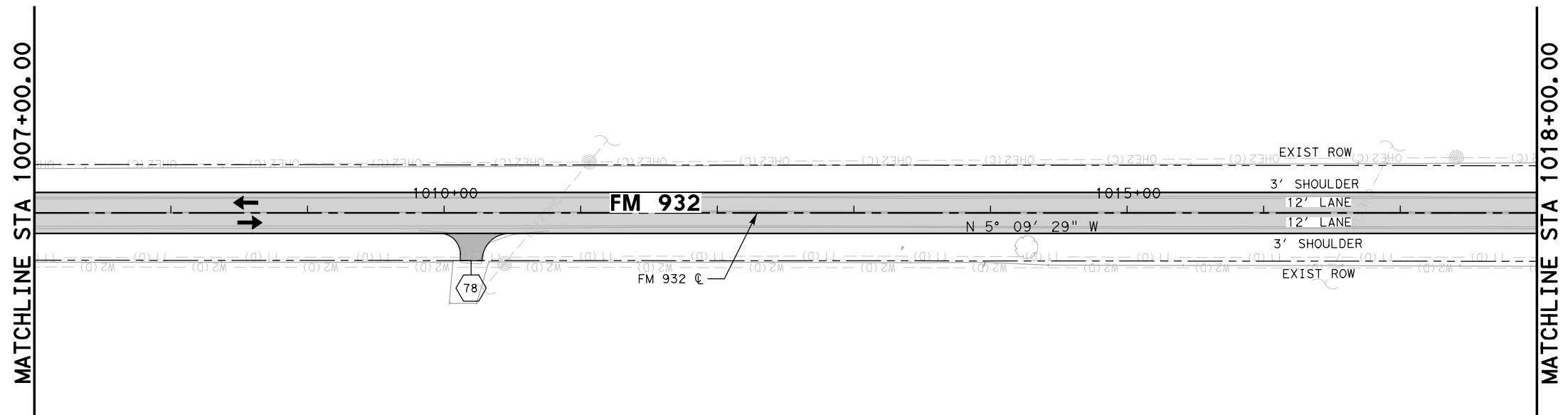
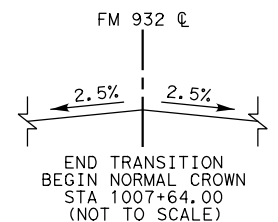


HORIZONTAL SCALE: 1" = 100'



VERTICAL SCALE: 1" = 10'

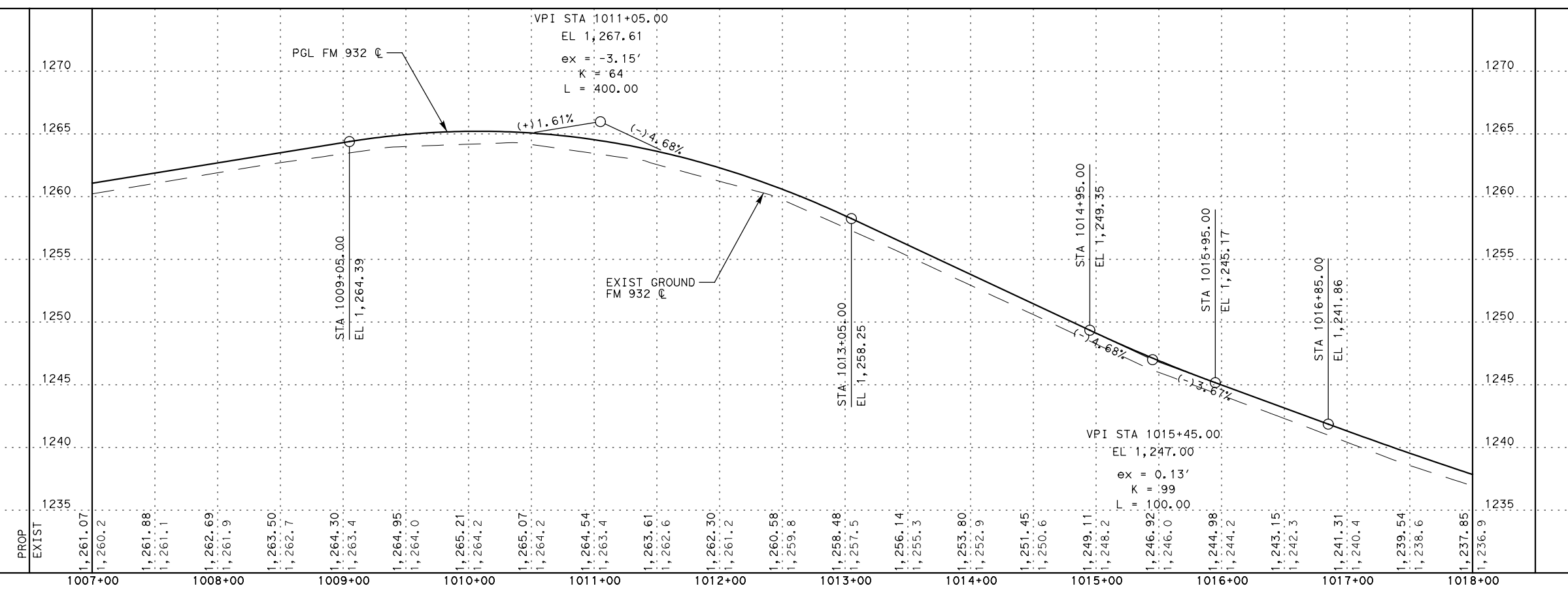
- NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



| STA 1007+00.00 | STA 1008+00.00 | STA 1009+00.00 | STA 1010+00.00 | STA 1011+00.00 | STA 1012+00.00 | STA 1013+00.00 | STA 1014+00.00 | STA 1015+00.00 | STA 1016+00.00 | STA 1017+00.00 | STA 1018+00.00 | SECTION TOTALS | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|------|-------------------|
| 24 | 24 | 7 | 5 | 6 | 6 | 4 | 3 | 4 | 4 | 3 | 3 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 16 | 21 | 21 | 32 | 39 | 38 | 34 | 29 | 27 | 28 | 28 | 28 | 90 | 313 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | CY | FLEXBASE |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP60.dgn
 DATE: 9/1/2021 11:05:21 AM fRange1



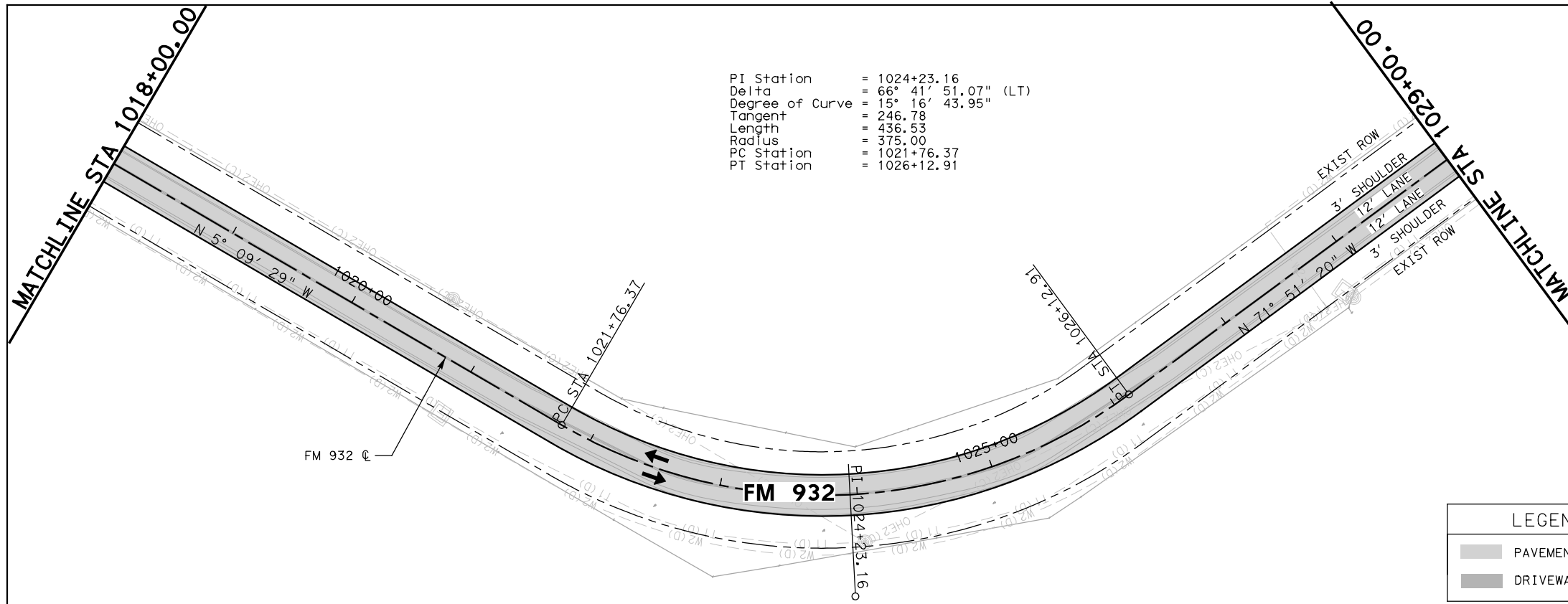
FM 932

PLAN AND PROFILE LAYOUT

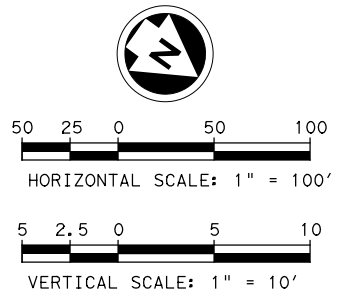
STA 1007+00.00 TO STA 1018+00.00

(SHEET 60 OF 74)

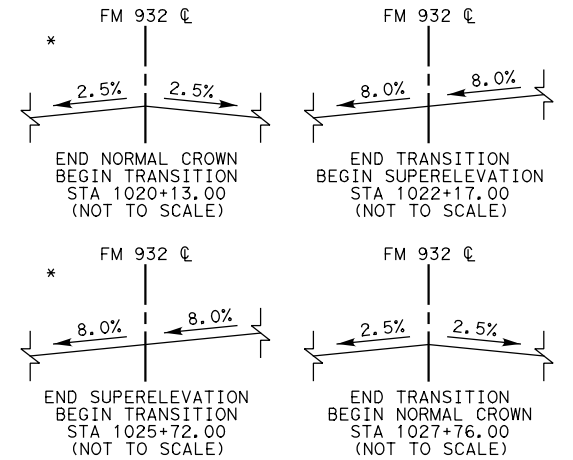
| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 153 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



PI Station = 1024+23.16
 Delta = 66° 41' 51.07" (LT)
 Degree of Curve = 15° 16' 43.95"
 Tangent = 246.78
 Length = 436.53
 Radius = 375.00
 PC Station = 1021+76.37
 PT Station = 1026+12.91



NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



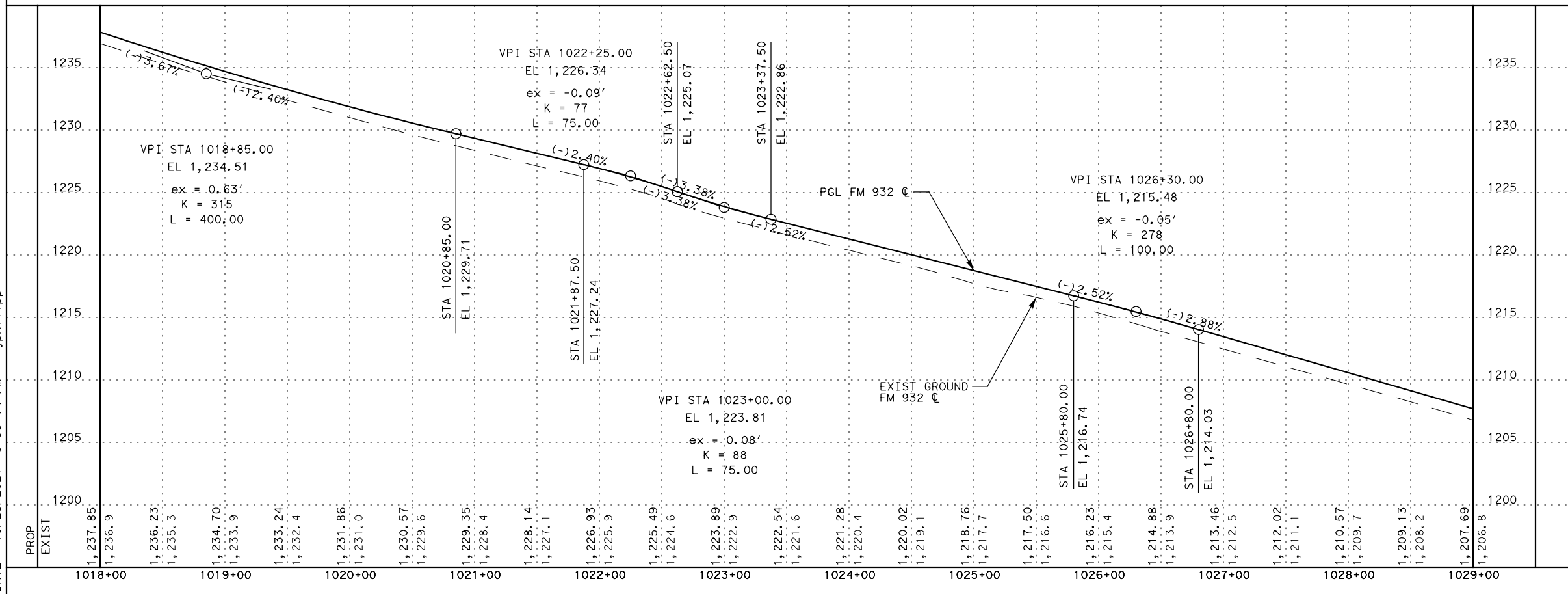
LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

| STA 1018+00.00 | STA 1019+00.00 | STA 1020+00.00 | STA 1021+00.00 | STA 1022+00.00 | STA 1023+00.00 | STA 1024+00.00 | STA 1025+00.00 | STA 1026+00.00 | STA 1027+00.00 | STA 1028+00.00 | STA 1029+00.00 | SECTION TOTALS | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------------|--|--|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | | |
| 3 | 3 | 4 | 7 | 6 | 1 | 2 | 1 | 3 | 6 | 3 | 39 | CY | EXCAVATION (RDWY) | | |
| 34 | 32 | 30 | 66 | 58 | 34 | 43 | 56 | 73 | 50 | 39 | 515 | CY | EMBANKMENT | | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R.O.W. | | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE | | |

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP61.dgn
 DATE: 10/25/2021 6:55:14 PM jphilipp



FM 932

PLAN AND PROFILE LAYOUT
 STA 1018+00.00 TO STA 1029+00.00

(SHEET 61 OF 74)

| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | | | | 154 |

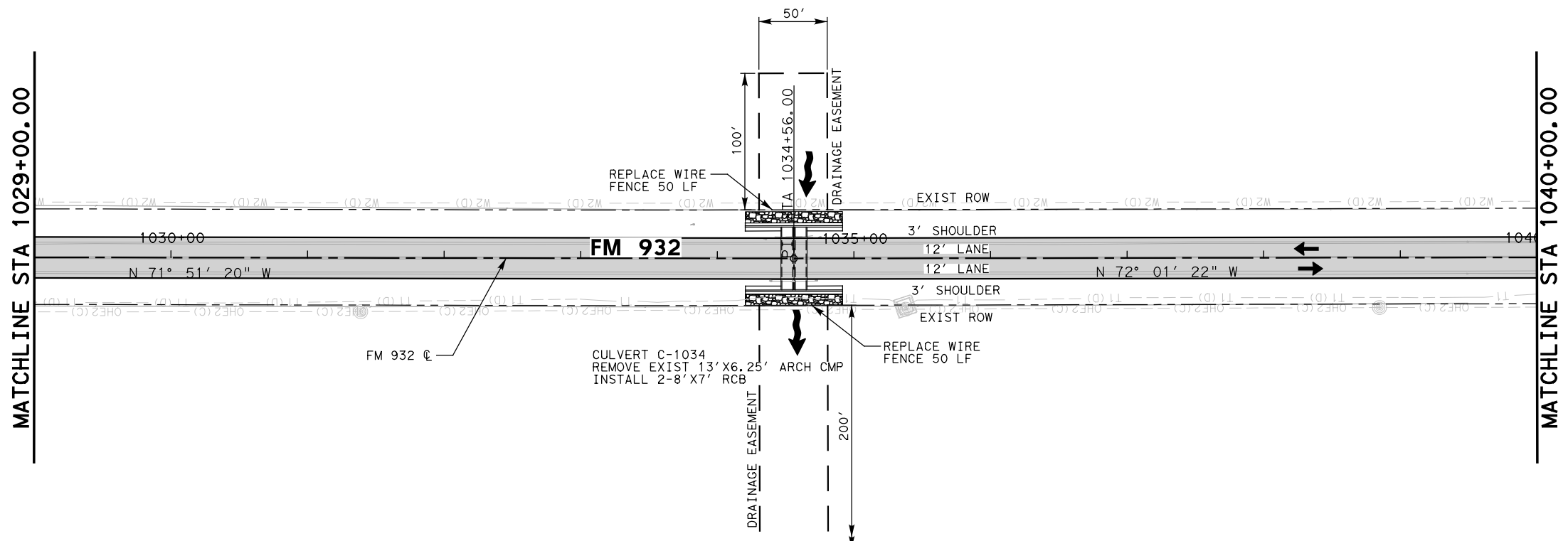
| STA 1029+00.00 | STA 1030+00.00 | STA 1031+00.00 | STA 1032+00.00 | STA 1033+00.00 | STA 1034+00.00 | STA 1035+00.00 | STA 1036+00.00 | STA 1037+00.00 | STA 1038+00.00 | STA 1039+00.00 | SECTION TOTALS | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----|-------------------|--|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | |
| 2 | 5 | 7 | 8 | 17 | 14 | 22 | 14 | 10 | 19 | 3 | 121 | CY | EXCAVATION (RDWY) | |
| 44 | 43 | 45 | 42 | 40 | 78 | 33 | 30 | 25 | 26 | 48 | 454 | CY | EMBANKMENT | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R.O.W. | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE | |



50 25 0 50 100
HORIZONTAL SCALE: 1" = 100'

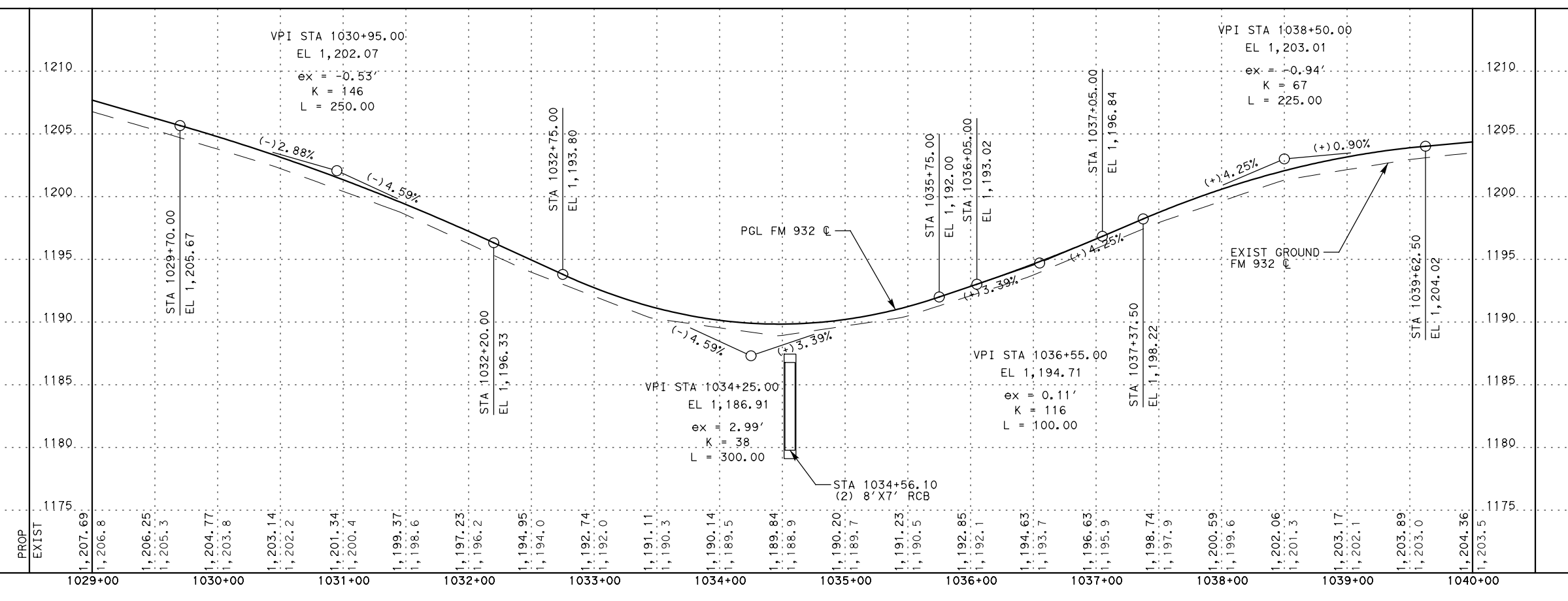
5 2.5 0 5 10
VERTICAL SCALE: 1" = 10'

- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.



| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP62.dgn
DATE: 9/1/2021 11:05:26 AM fRange1



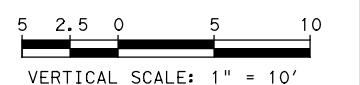
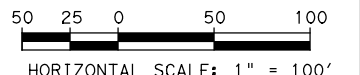
FM 932

PLAN AND PROFILE LAYOUT
STA 1029+00.00 TO STA 1040+00.00

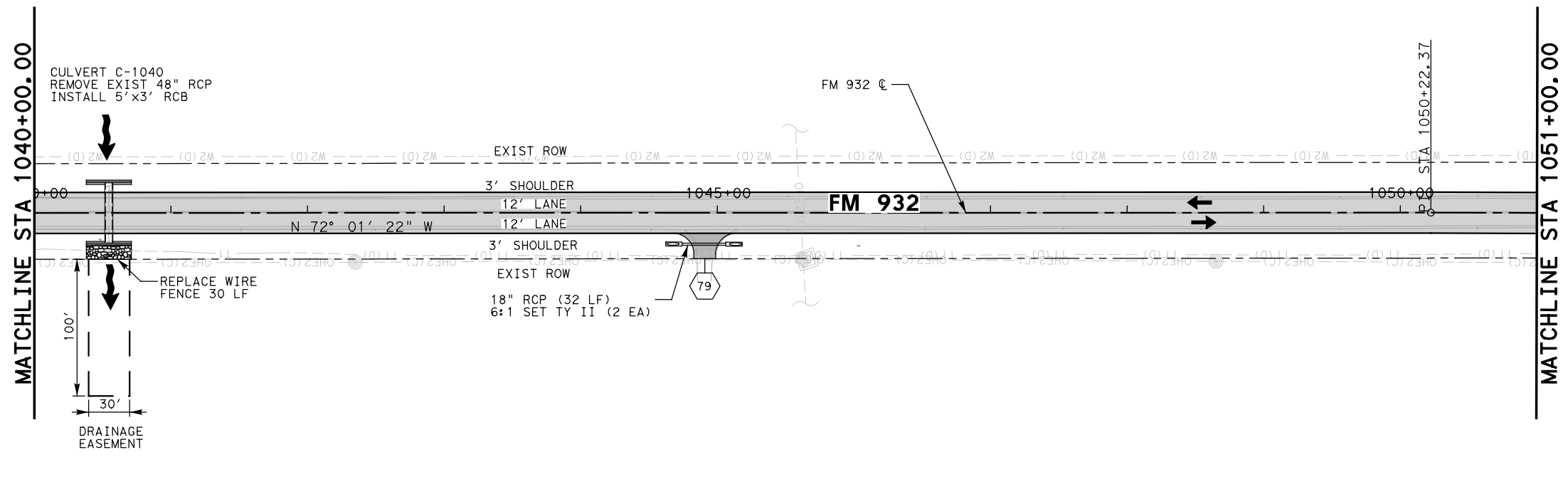
(SHEET 62 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 155 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| STA 1040+00.00 | STA 1041+00.00 | STA 1042+00.00 | STA 1043+00.00 | STA 1044+00.00 | STA 1045+00.00 | STA 1046+00.00 | STA 1047+00.00 | STA 1048+00.00 | STA 1049+00.00 | STA 1050+00.00 | SECTION TOTALS | | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|------|-------------------|----------|
| 5 | 10 | 10 | 15 | 12 | 18 | 18 | 15 | 14 | 20 | 28 | ESTIMATED | FINAL | UNIT | DESCRIPTION | |
| 70 | 42 | 30 | 28 | 20 | 24 | 32 | 26 | 37 | 29 | 14 | 165 | | CY | EXCAVATION (RDWY) | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 352 | | CY | EMBANKMENT | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | CY | PREPARING R.O.W. | |
| | | | | | | | | | | | | | | CY | FLEXBASE |

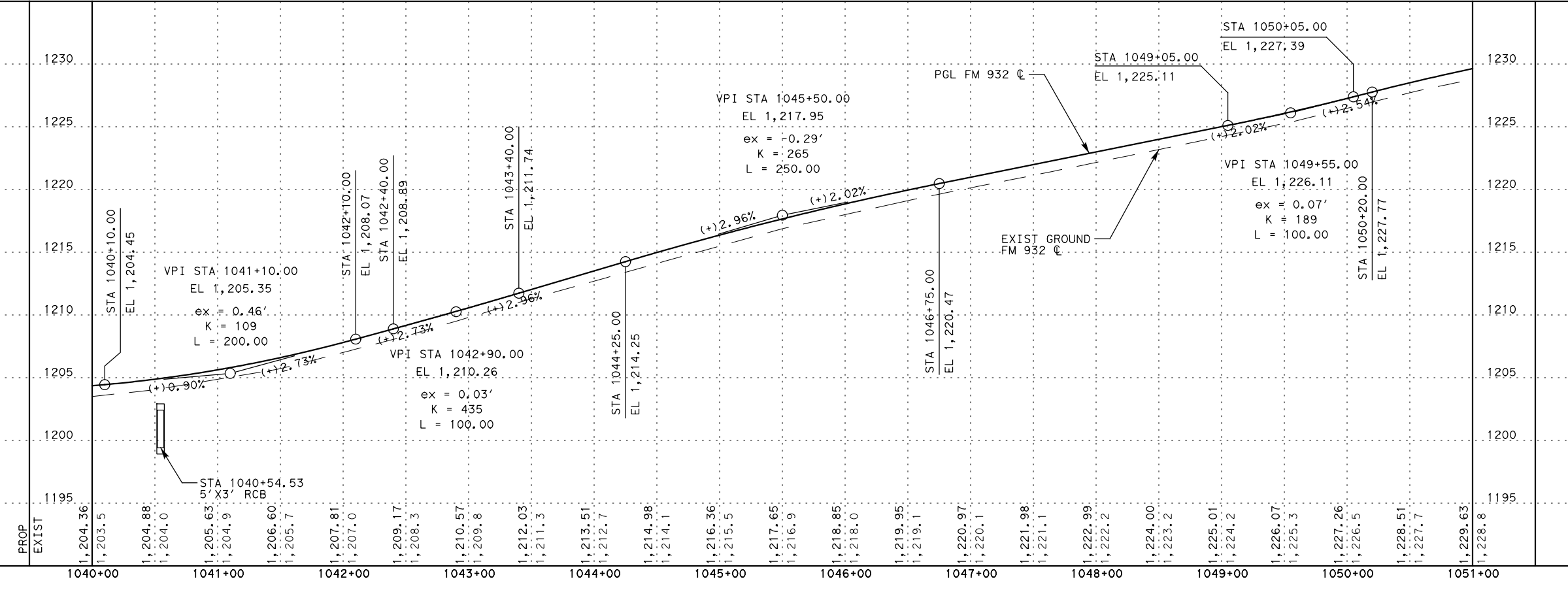


- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.
 - DRAINAGE EASEMENT TO BE CLEANED AS DIRECTED BY ENGINEER WITH CHANNEL EXCAVATION ITEM.



| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM932\PROD\SHEETS\RP63.dgn
DATE: 9/1/2021 11:05:28 AM fRange1



FIRM REGISTRATION NO. F-230



FM 932

PLAN AND PROFILE LAYOUT
STA 1040+00.00 TO STA 1051+00.00

(SHEET 63 OF 74)

| | | | | |
|---------------|---------------------|---|----------|--------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 156 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



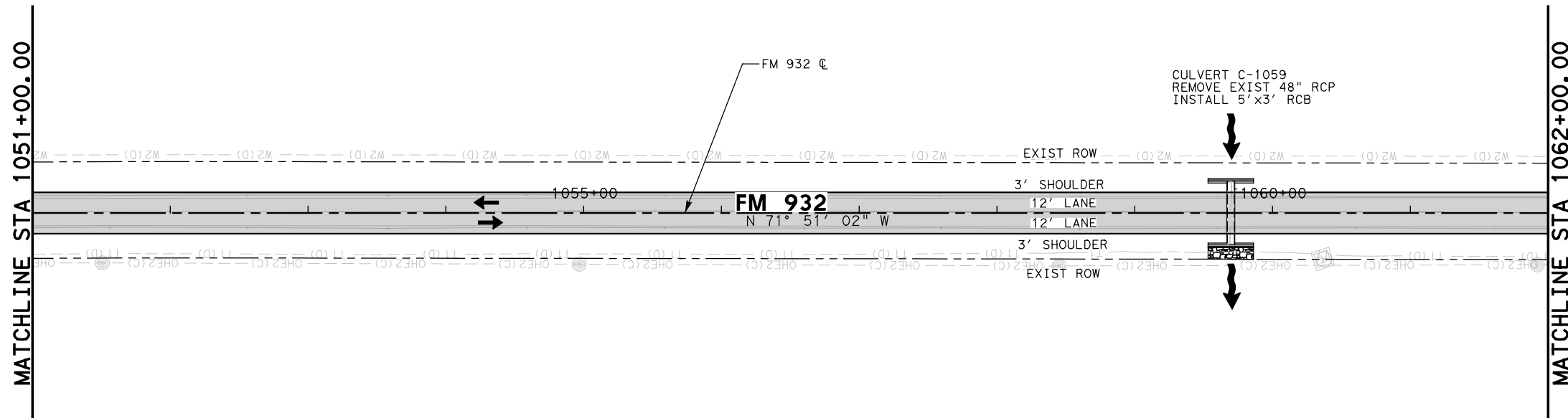
50 25 0 50 100

HORIZONTAL SCALE: 1" = 100'

5 2.5 0 5 10

VERTICAL SCALE: 1" = 10'

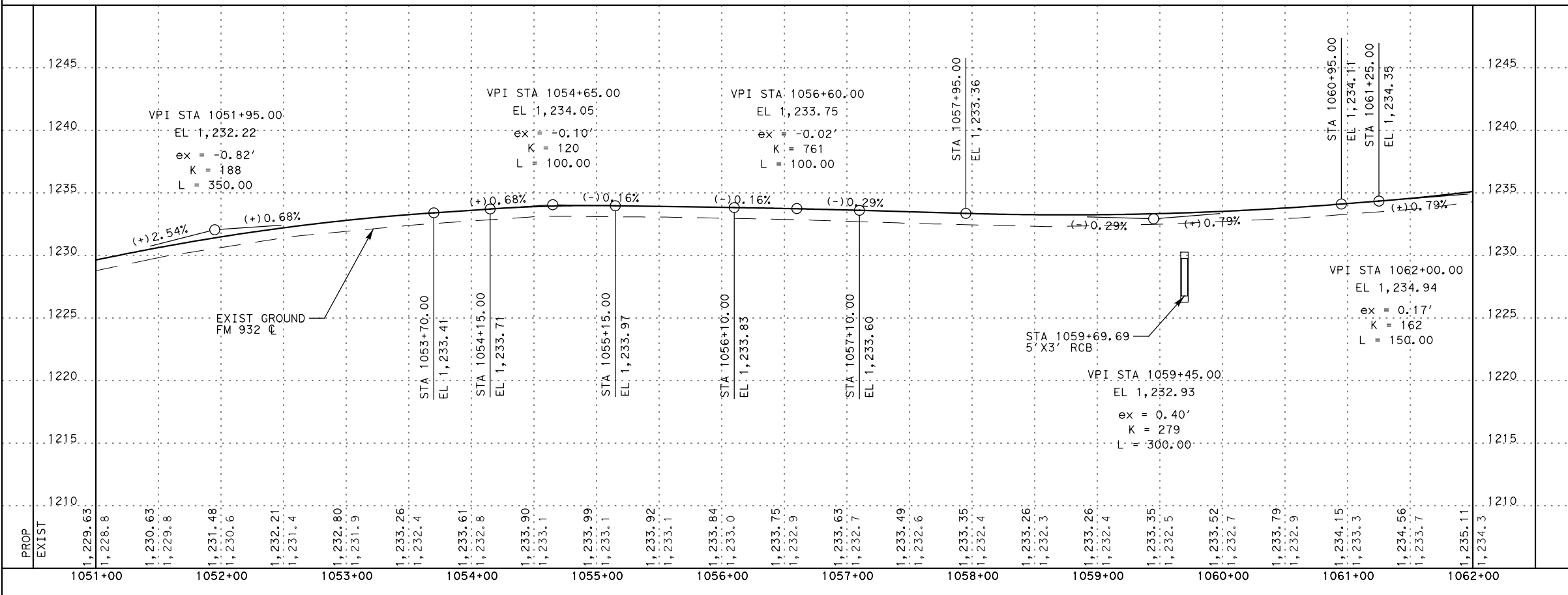
NOTES:
1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



| STA 1051+00.00 | STA 1052+00.00 | STA 1053+00.00 | STA 1054+00.00 | STA 1055+00.00 | STA 1056+00.00 | STA 1057+00.00 | STA 1058+00.00 | STA 1059+00.00 | STA 1060+00.00 | STA 1061+00.00 | STA 1062+00.00 | SECTION TOTALS | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------------|--|--|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | | |
| 31 | 31 | 21 | 19 | 15 | 7 | 3 | 2 | 2 | 4 | 10 | 145 | CY | EXCAVATION (RDWY) | | |
| 14 | 16 | 23 | 25 | 25 | 48 | 55 | 66 | 101 | 74 | 29 | 476 | CY | EMBANKMENT | | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R.O.W. | | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE | | |

| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | DRIVEWAYS |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP64.dgn
DATE: 9/1/2021 11:05:30 AM fRange1



FM 932

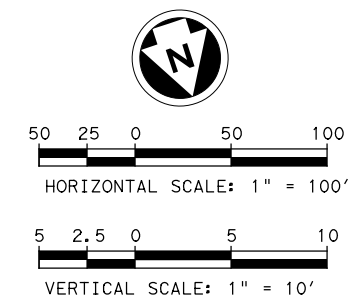
PLAN AND PROFILE LAYOUT
STA 1051+00.00 TO STA 1062+00.00

(SHEET 64 OF 74)

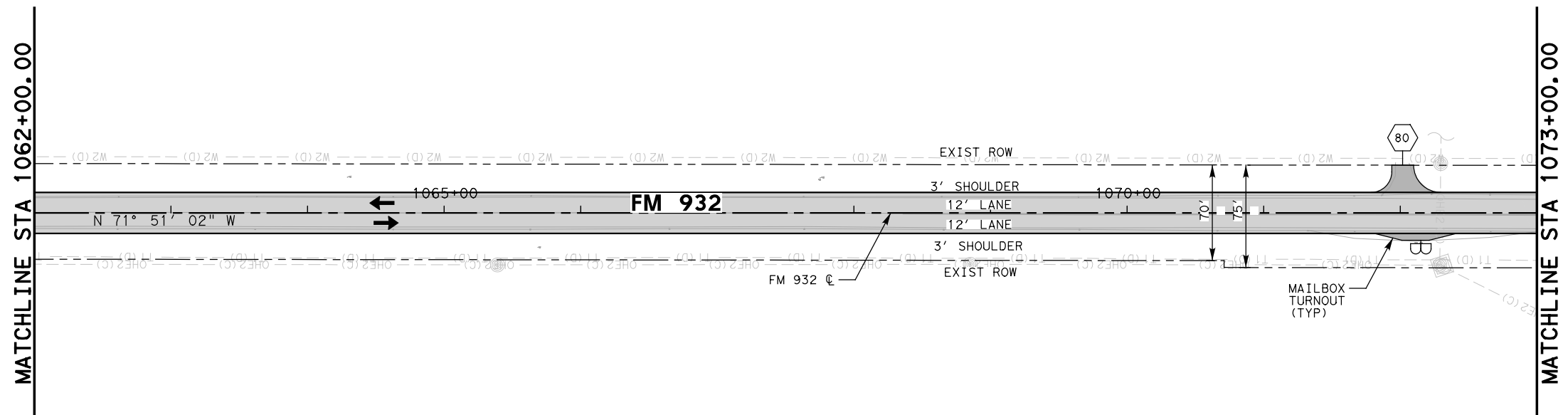
| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 157 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

LEGEND

- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

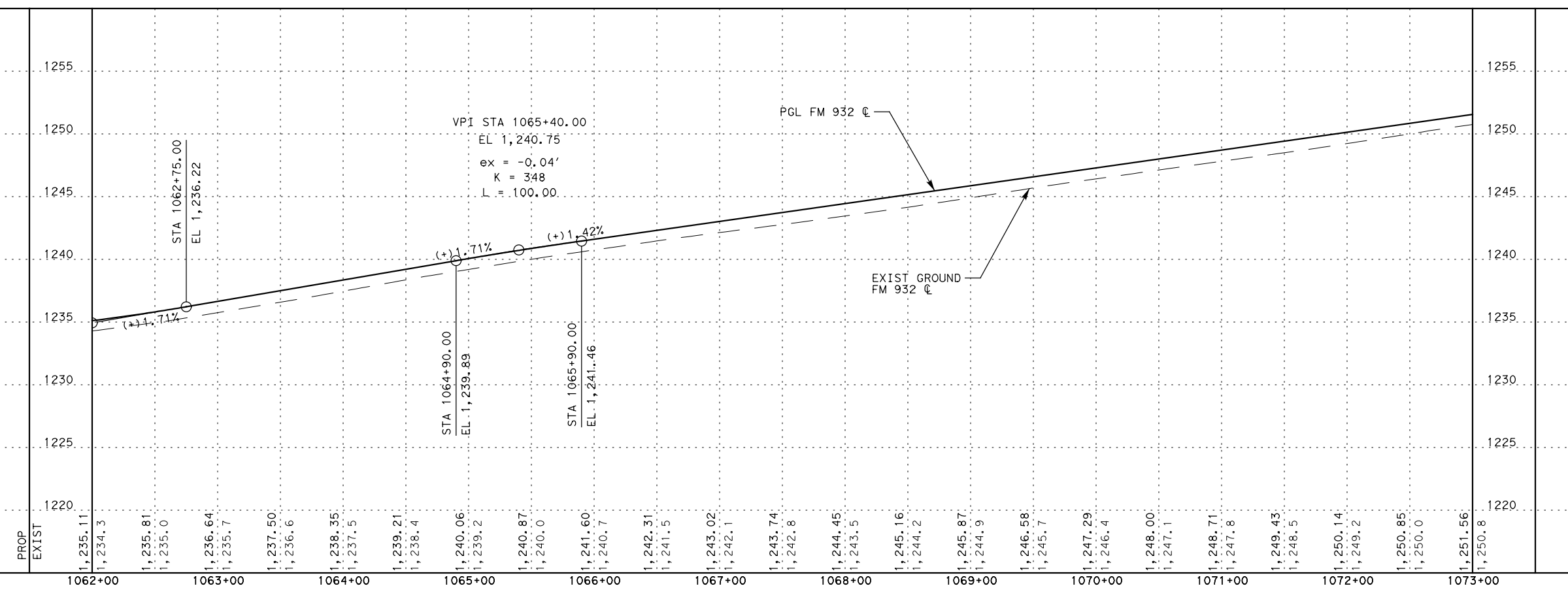


LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

| STA 1062+00.00 | STA 1063+00.00 | STA 1064+00.00 | STA 1065+00.00 | STA 1066+00.00 | STA 1067+00.00 | STA 1068+00.00 | STA 1069+00.00 | STA 1070+00.00 | STA 1071+00.00 | STA 1072+00.00 | SECTION TOTALS | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|------|-------------------|
| 12 | 5 | 7 | 10 | 15 | 11 | 6 | 5 | 7 | 12 | 16 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 28 | 37 | 28 | 19 | 20 | 31 | 35 | 35 | 28 | 24 | 20 | 106 | 305 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | CY | FLEXBASE |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP65.dgn
 DATE: 9/1/2021 11:05:33 AM fRange1



FM 932

PLAN AND PROFILE LAYOUT
 STA 1062+00.00 TO STA 1073+00.00

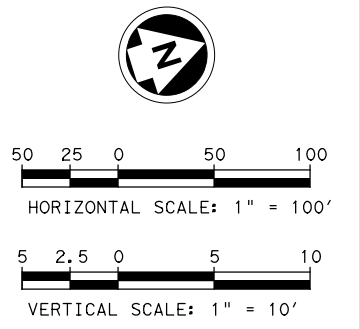
(SHEET 65 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 158 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

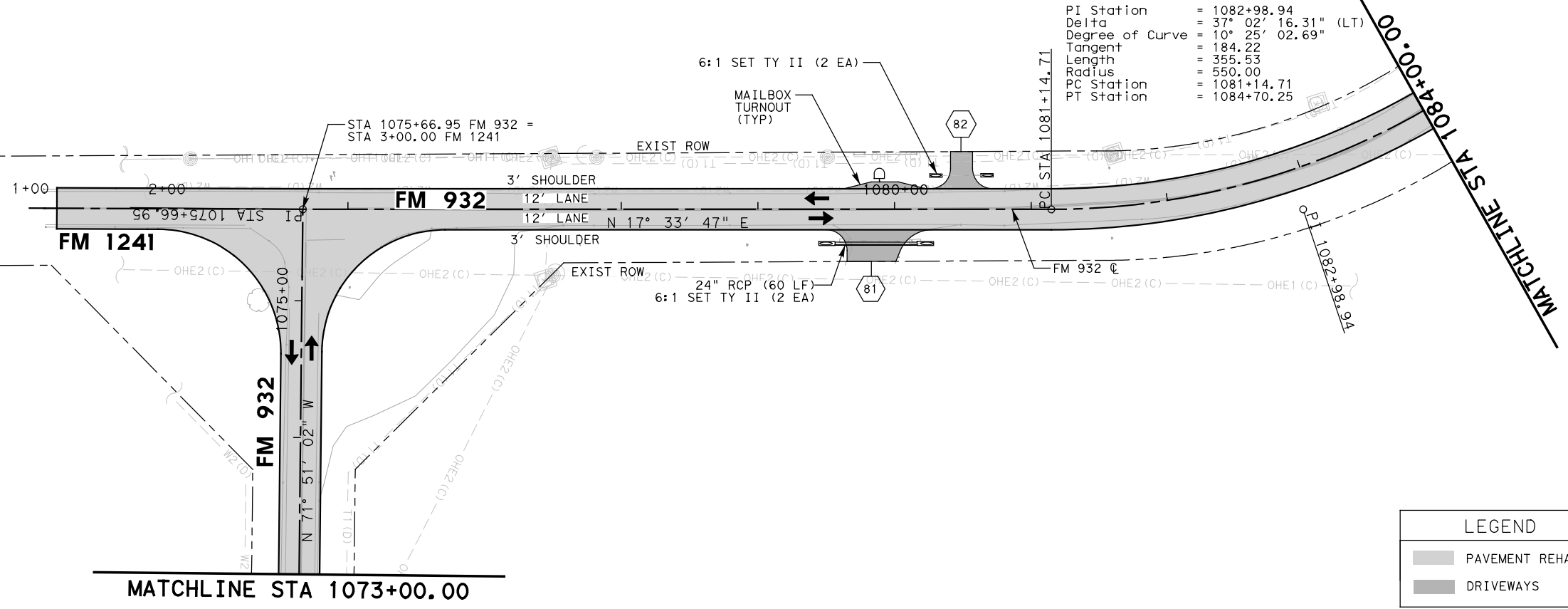
| STA 1073+00.00 | STA 1074+00.00 | STA 1075+00.00 | STA 1076+00.00 | STA 1077+00.00 | STA 1078+00.00 | STA 1079+00.00 | STA 1080+00.00 | STA 1081+00.00 | STA 1082+00.00 | STA 1083+00.00 | SECTION TOTALS | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--|--|--|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | |
| 16 | 11 | 21 | 8 | 7 | 9 | 10 | 15 | 22 | 9 | 3 | 131 | | | |
| 24 | 22 | 102 | 29 | 31 | 27 | 23 | 39 | 38 | 21 | 24 | 380 | | | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | | | |
| | | | | | | | | | | | | | | |

LEGEND

- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



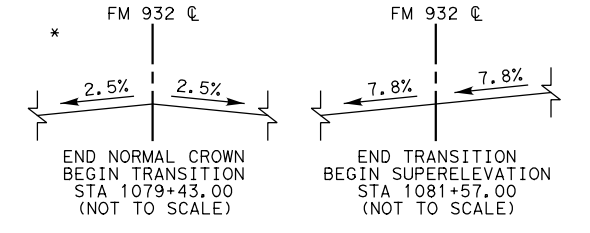
PI Station = 1082+98.94
 Delta = 37° 02' 16.31" (LT)
 Degree of Curve = 10° 25' 02.69"
 Tangent = 184.22
 Length = 355.53
 Radius = 550.00
 PC Station = 1081+14.71
 PT Station = 1084+70.25



LEGEND

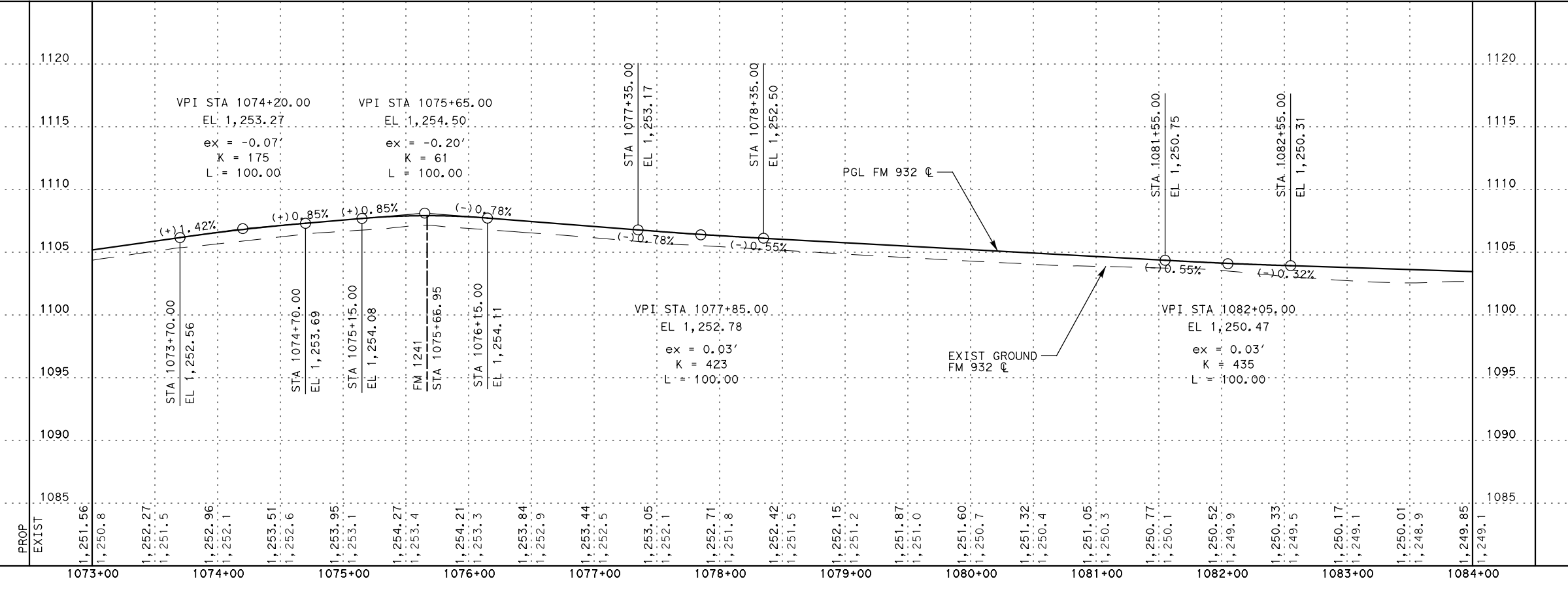
- PAVEMENT REHAB
- DRIVEWAYS

NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP66.dgn
 DATE: 9/1/2021 11:05:35 AM fRange1



tnp FIRM REGISTRATION NO. F-230
 Texas Department of Transportation
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FM 932
PLAN AND PROFILE LAYOUT
 STA 1073+00.00 TO STA 1084+00.00

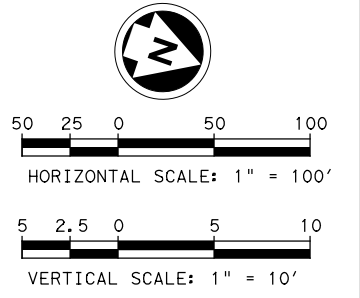
(SHEET 66 OF 74)

| | | | | |
|---------------|---------------------|---|-----------------|--------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 159 |
| GRAPHICS JP | CONTROL 0867 | SECTION 01 | JOB 017 | |
| GRPH CHECK RJ | | | | |

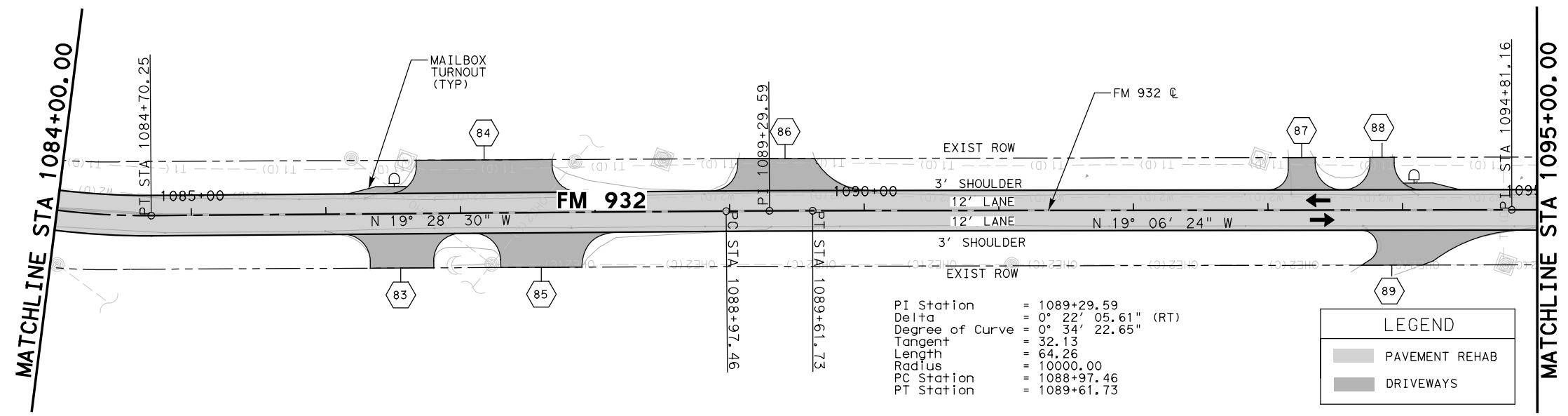
| STA 1084+00.00 | STA 1085+00.00 | STA 1086+00.00 | STA 1087+00.00 | STA 1088+00.00 | STA 1089+00.00 | STA 1090+00.00 | STA 1091+00.00 | STA 1092+00.00 | STA 1093+00.00 | STA 1094+00.00 | STA 1095+00.00 | SECTION TOTALS | | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------------|--|--|--|
| ESTIMATED | FINAL | UNIT | DESCRIPTION | | | | | | | | | | | | | |
| 18 | 14 | 35 | 39 | 14 | 10 | 12 | 11 | 10 | 19 | 26 | 208 | CY | EXCAVATION (RDWY) | | | |
| 38 | 24 | 14 | 49 | 20 | 39 | 21 | 28 | 22 | 15 | 11 | 281 | CY | EMBANKMENT | | | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | STA | PREPARING R.O.W. | | | |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | CY | FLEXBASE | | | |

LEGEND

- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



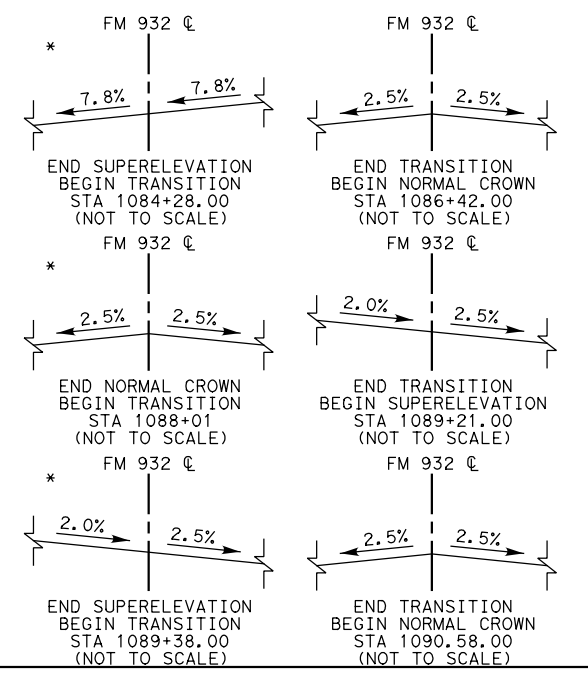
NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



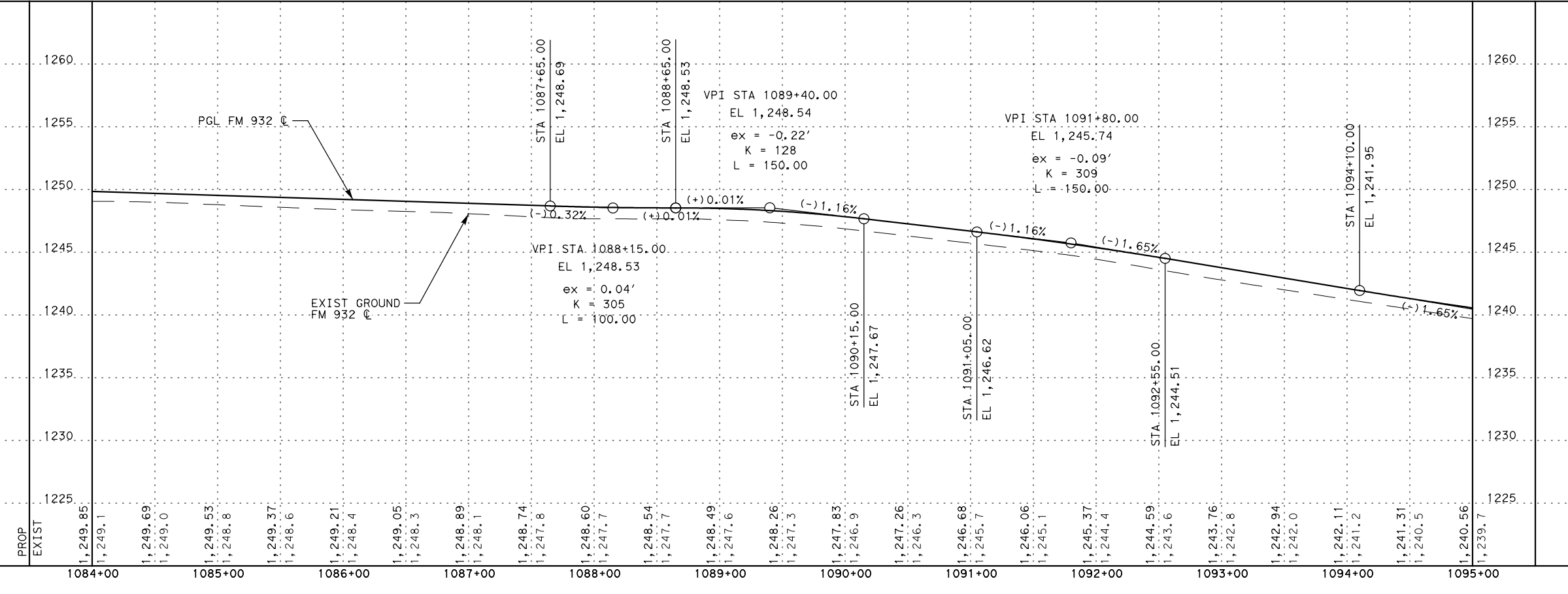
LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.



FILE: P:\MSGP\TXD18248\05-FM932\PROD\SHEETS\RP67.dgn
 DATE: 9/1/2021 11:05:37 AM fRange1



tnp FIRM REGISTRATION NO. F-230

Texas Department of Transportation
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FM 932

PLAN AND PROFILE LAYOUT
 STA 1084+00.00 TO STA 1095+00.00

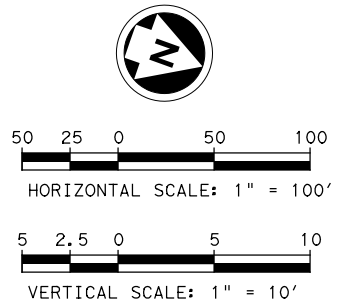
(SHEET 67 OF 74)

| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | | | | 160 |

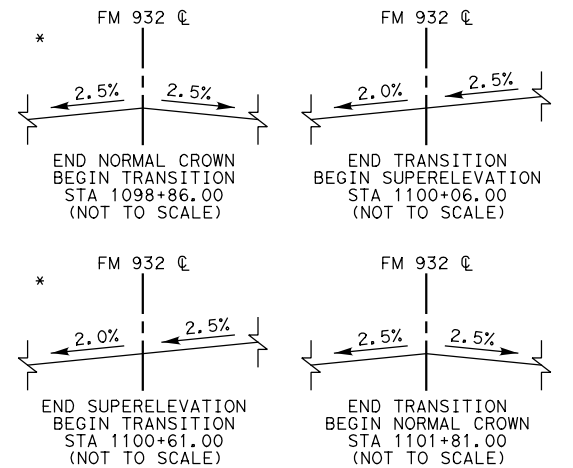
PI Station = 1100+33.70
 Delta = 0° 35' 26.43" (LT)
 Degree of Curve = 0° 34' 22.65"
 Tangent = 51.54
 Length = 103.09
 Radius = 10000.00
 PC Station = 1099+82.15
 PT Station = 1100+85.24

LEGEND

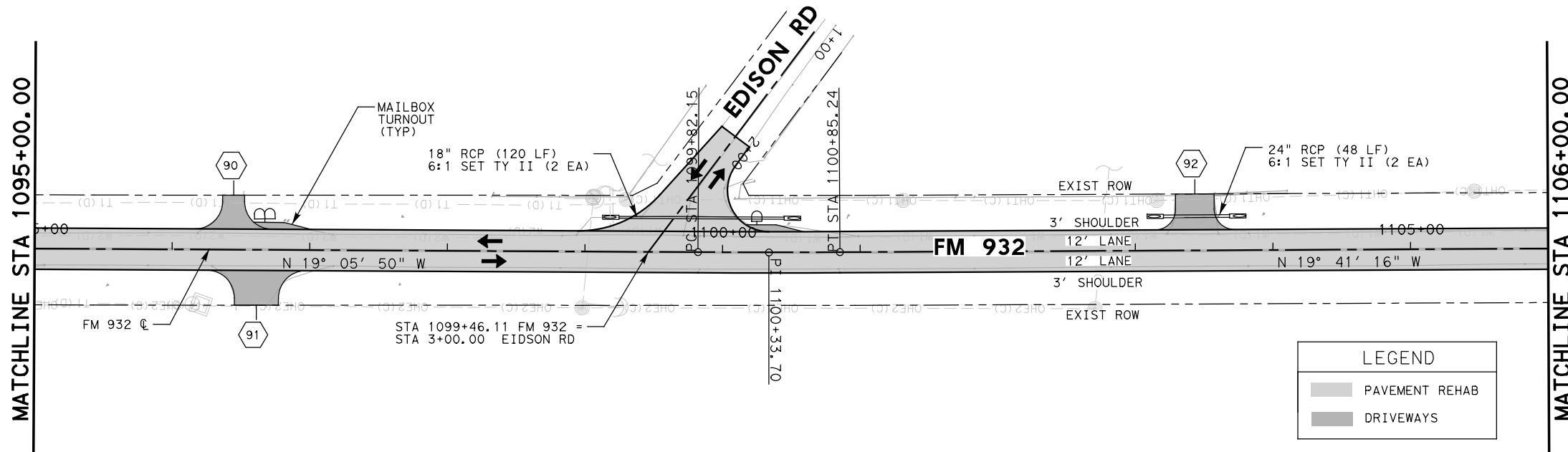
- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

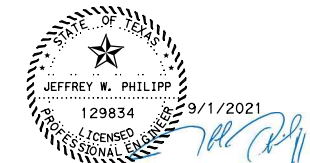
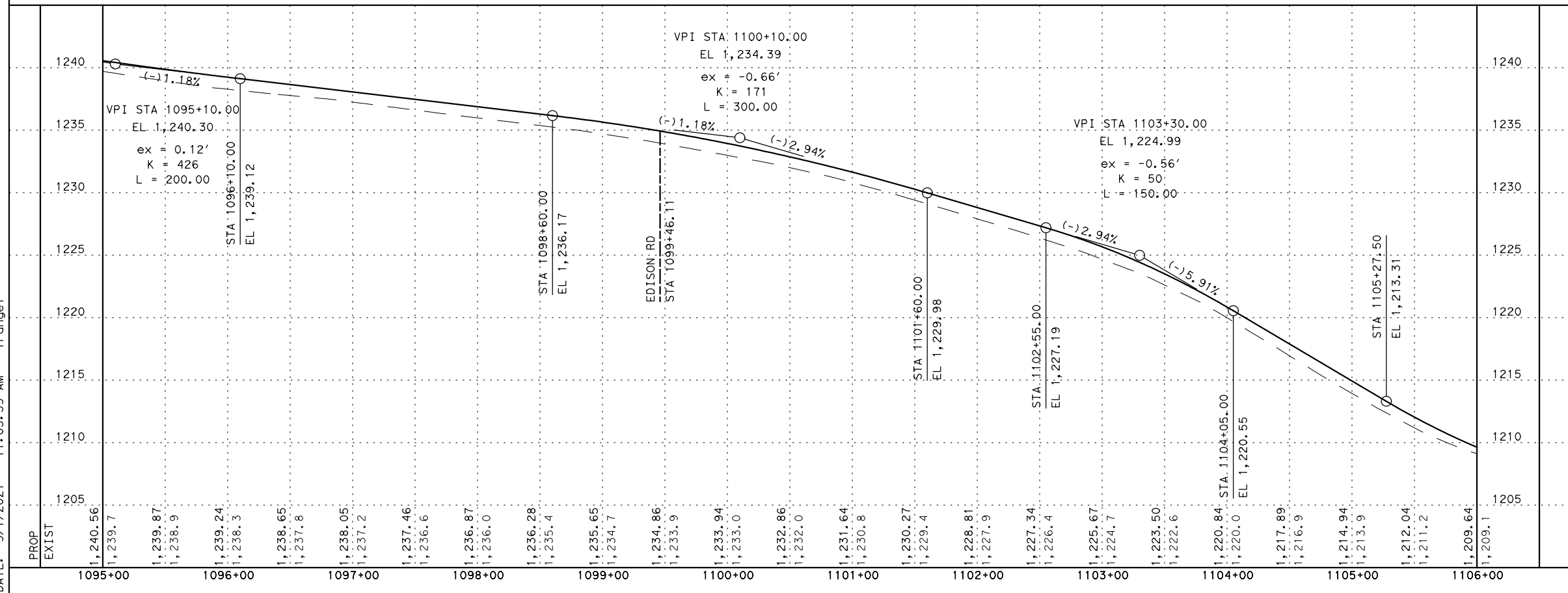


LEGEND

- PAVEMENT REHAB
- DRIVEWAYS

| STA 1095+00.00 | STA 1096+00.00 | STA 1097+00.00 | STA 1098+00.00 | STA 1099+00.00 | STA 1100+00.00 | STA 1101+00.00 | STA 1102+00.00 | STA 1103+00.00 | STA 1104+00.00 | STA 1105+00.00 | SECTION TOTALS | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|------|-------------------|
| 20 | 27 | 17 | 11 | 4 | 8 | 10 | 10 | 13 | 3 | 15 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 18 | 14 | 21 | 17 | 21 | 43 | 30 | 25 | 36 | 41 | 34 | 138 | 300 | CY | EXCAVATION (RDWY) |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 11 | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 611 | 611 | CY | FLEXBASE |

FILE: P:\MSGP\TXD18248\05-FM932\PROD\SHEETS\RP68.dgn
 DATE: 9/1/2021 11:05:39 AM fRange1



FM 932
PLAN AND PROFILE LAYOUT
 STA 1095+00.00 TO STA 1106+00.00

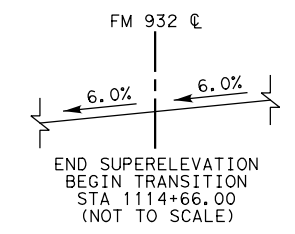
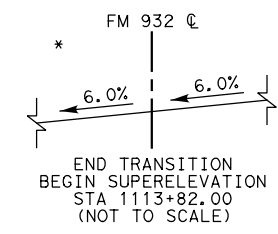
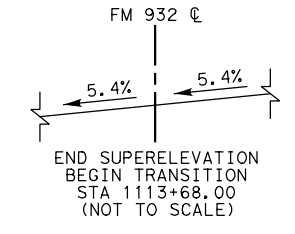
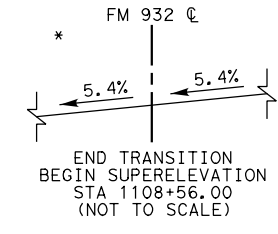
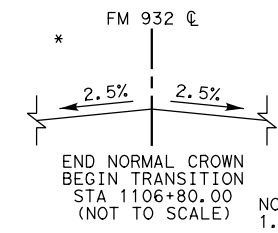
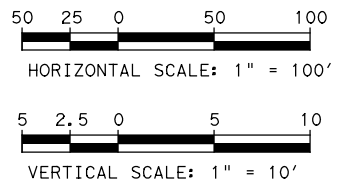
(SHEET 68 OF 74)

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 161 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| STA 1106+00.00 | STA 1107+00.00 | STA 1108+00.00 | STA 1109+00.00 | STA 1110+00.00 | STA 1111+00.00 | STA 1112+00.00 | STA 1113+00.00 | STA 1114+00.00 | STA 1115+00.00 | SECTION TOTALS | ESTIMATED | FINAL | UNIT | DESCRIPTION |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------|-------|------|-------------------|
| 38 | 21 | 13 | 3 | 4 | 10 | 10 | 7 | 15 | 27 | | 148 | | CY | EXCAVATION (RDWY) |
| 32 | 30 | 31 | 55 | 54 | 44 | 38 | 18 | 25 | 19 | | 346 | | CY | EMBANKMENT |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 10 | | STA | PREPARING R.O.W. |
| 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | 55.5 | | 555 | | CY | FLEXBASE |

LEGEND

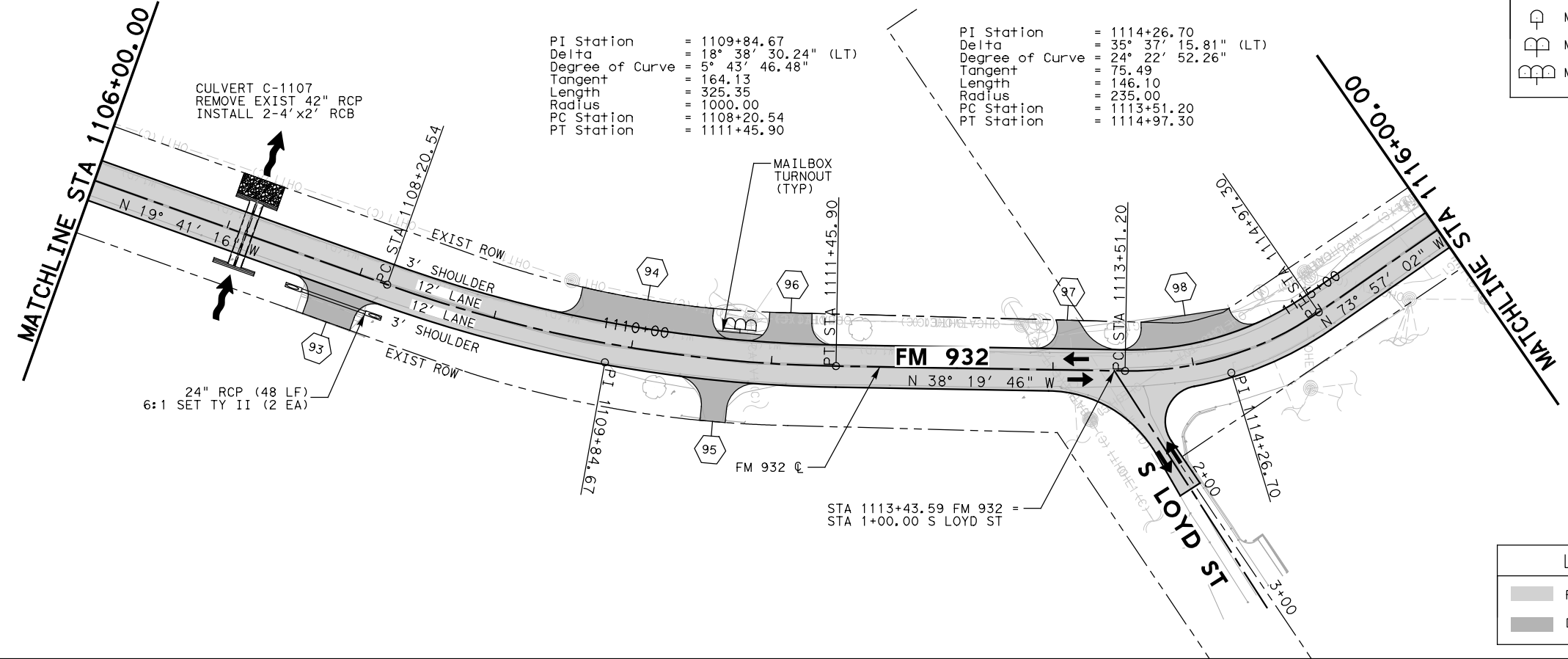
- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



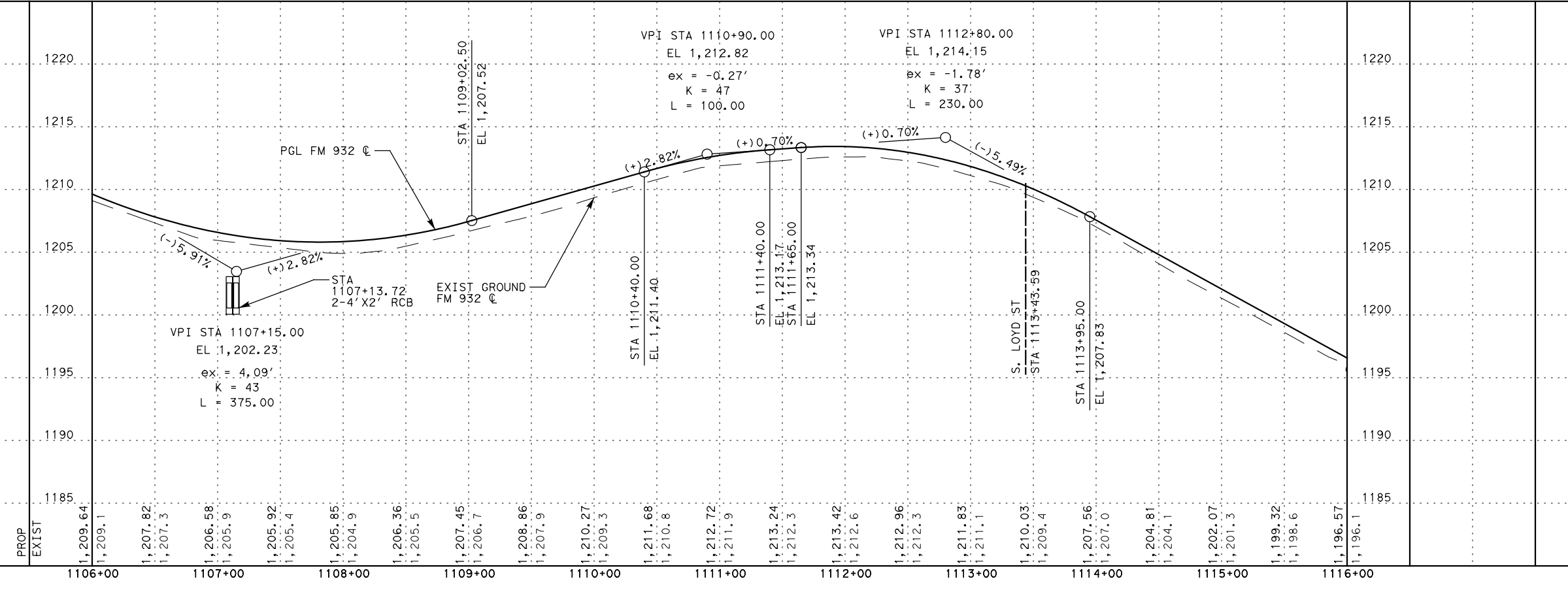
*NORMAL CROWN SLOPE SHALL BE TRANSITIONED TO MATCH 2.5% PRIOR TO ROTATING ENTIRE WIDTH AT SAME RATE TO ACHIEVE PROPOSED SUPERELEVATION. TRANSITION BACK TO NORMAL CROWN USING THE SAME METHOD.

LEGEND

- PAVEMENT REHAB
- DRIVEWAYS



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DATE: 9/1/2021 11:05:41 AM fRange1



FIRM REGISTRATION NO. F-230



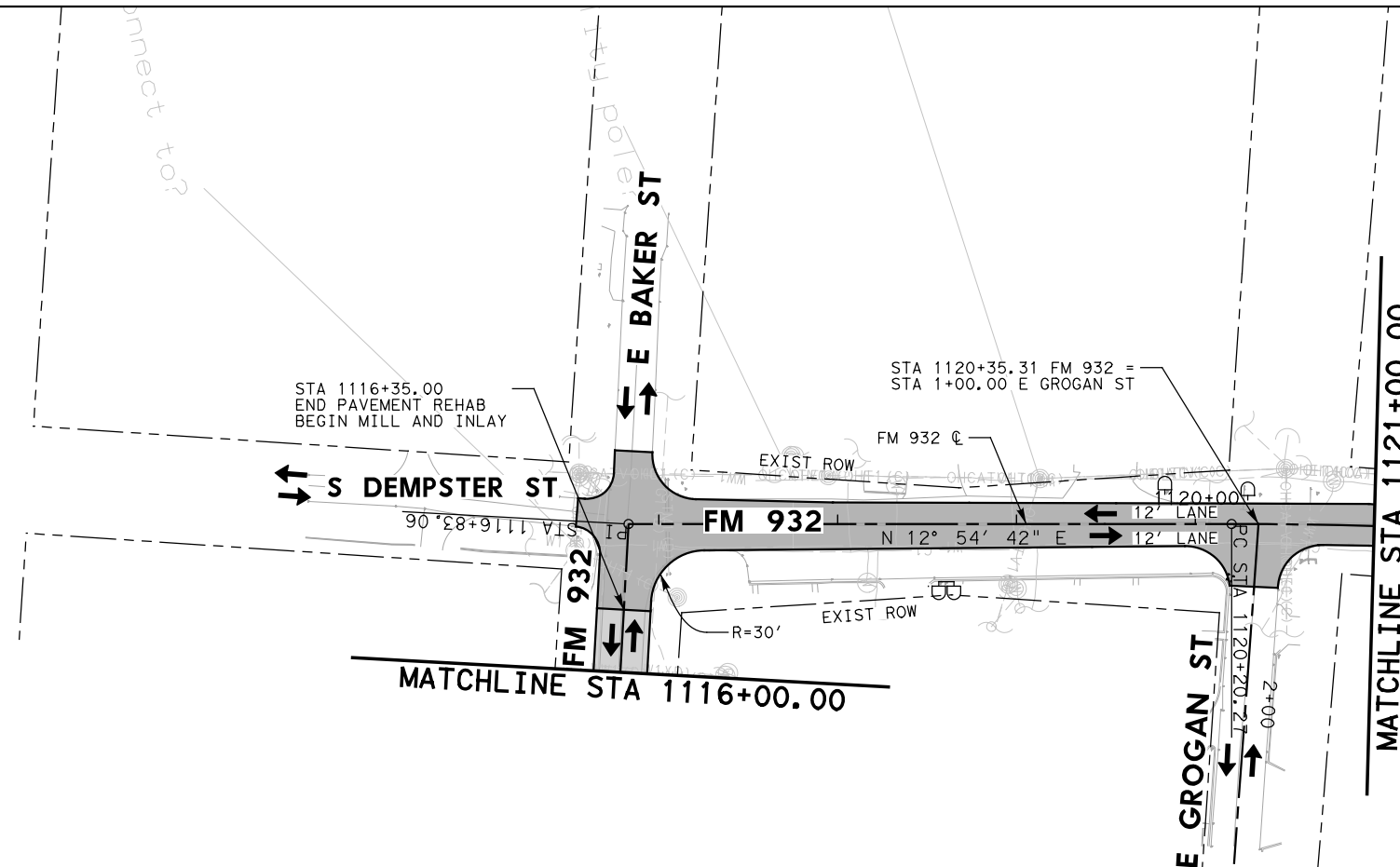
FM 932

PLAN AND PROFILE LAYOUT

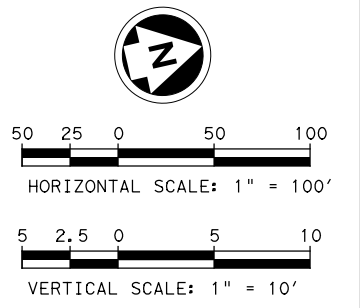
STA 1106+00.00 TO STA 1116+00.00

(SHEET 69 OF 74)

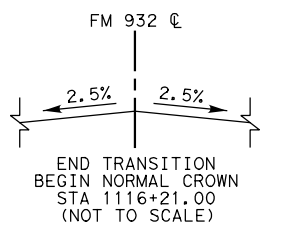
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|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | | | | 162 |



| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |



NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



| LEGEND | |
|--------|----------------|
| | PAVEMENT REHAB |
| | MILL AND INLAY |

| STA 1116+00.00 to | STA 1117+00.00 to | STA 1118+00.00 to | STA 1119+00.00 to | STA 1120+00.00 to | SECTION TOTALS | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|----------------|-------|------|------------------|
| STA 1117+00.00 | STA 1118+00.00 | STA 1119+00.00 | STA 1120+00.00 | STA 1121+00.00 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 1 | 1 | 1 | 1 | 1 | 5 | | STA | PREPARING R.O.W. |

NOTES:
 PROFILE FOR REFERENCE PURPOSES ONLY IN MILL AND INLAY AREAS.

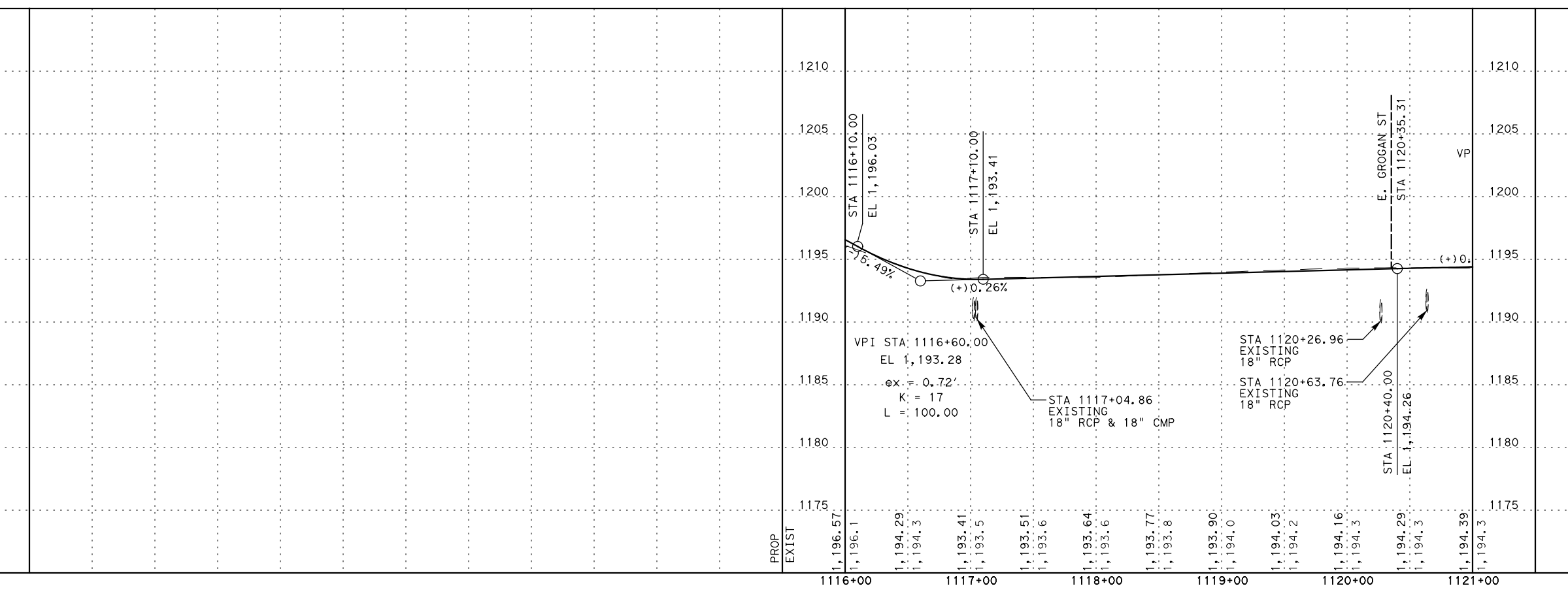


FM 932
PLAN AND PROFILE LAYOUT
 STA 1116+00.00 TO STA 1121+00.00

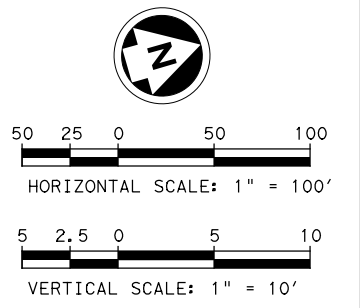
(SHEET 70 OF 74)

| | | | | |
|-----------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. |
| RJ | TX | WACO | HAMILTON | 163 |
| GRAPHICS | CONTROL | SECTION | JOB | |
| JP | RJ | 0867 | 017 | |

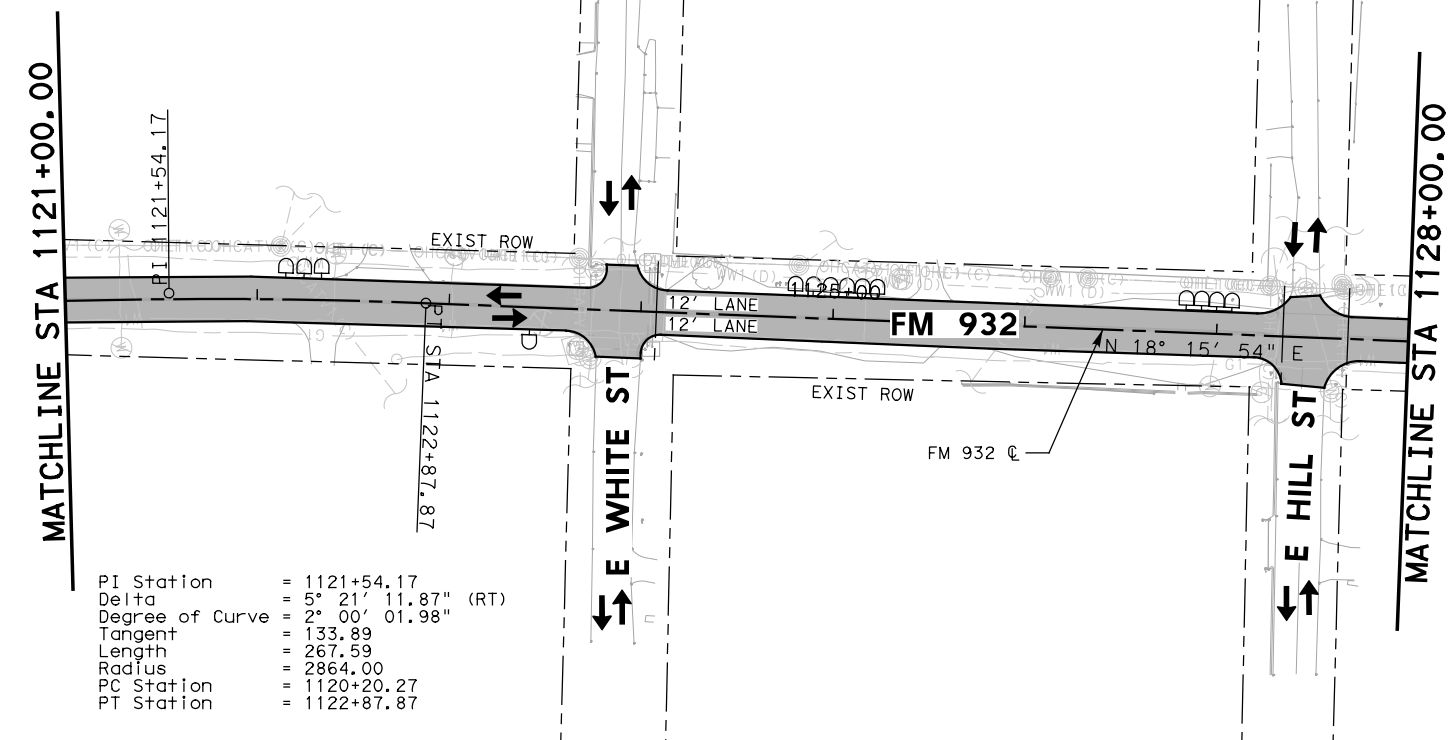
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 DATE: 9/1/2021 11:05:44 AM fRange1



| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |



- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.



| | | |
|-----------------|---|--------------------|
| PI Station | = | 1121+54.17 |
| Delta | = | 5° 21' 11.87" (RT) |
| Degree of Curve | = | 2° 00' 01.98" |
| Tangent | = | 133.89 |
| Length | = | 267.59 |
| Radius | = | 2864.00 |
| PC Station | = | 1120+20.27 |
| PT Station | = | 1122+87.87 |

| LEGEND | |
|--------|----------------|
| | MILL AND INLAY |

| STA 1121+00.00 to | STA 1122+00.00 to | STA 1123+00.00 to | STA 1124+00.00 to | STA 1125+00.00 to | STA 1126+00.00 to | STA 1127+00.00 to | SECTION TOTALS | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------|-------|------|------------------|
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 7 | | STA | PREPARING R.O.W. |

NOTES:
PROFILE FOR REFERENCE PURPOSES ONLY IN MILL AND INLAY AREAS.



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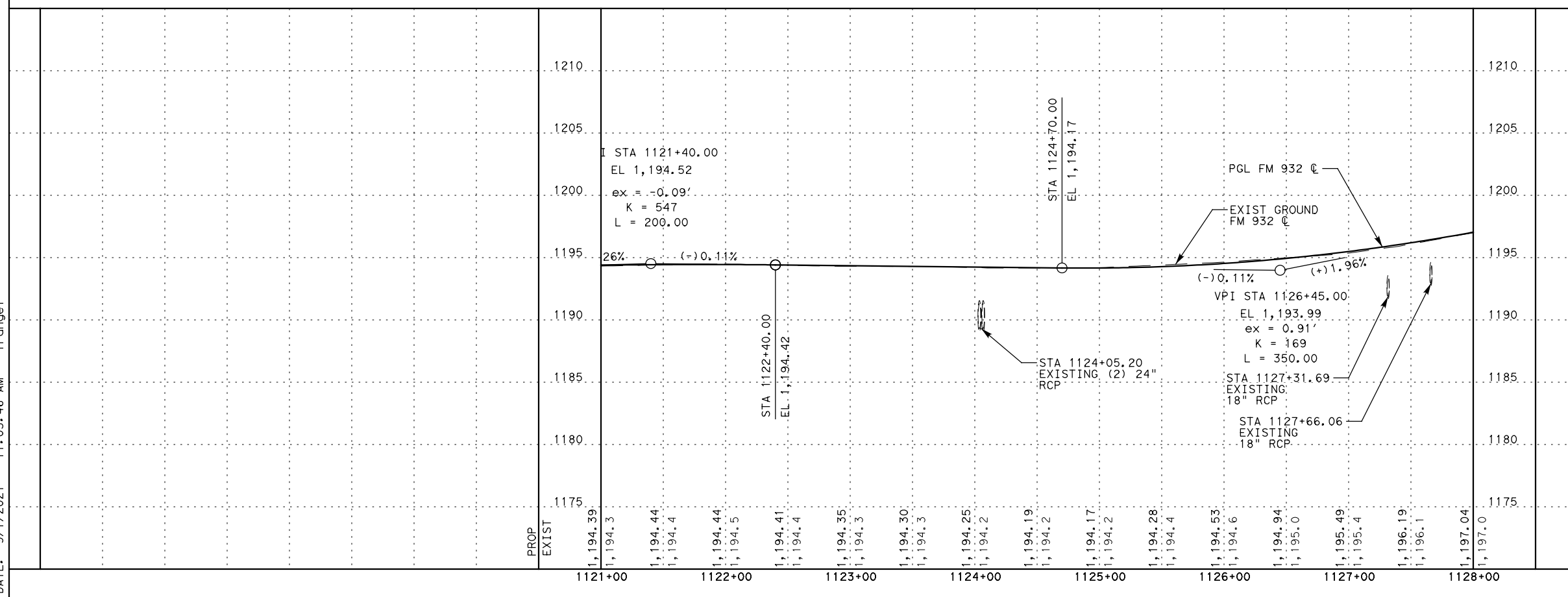
FM 932

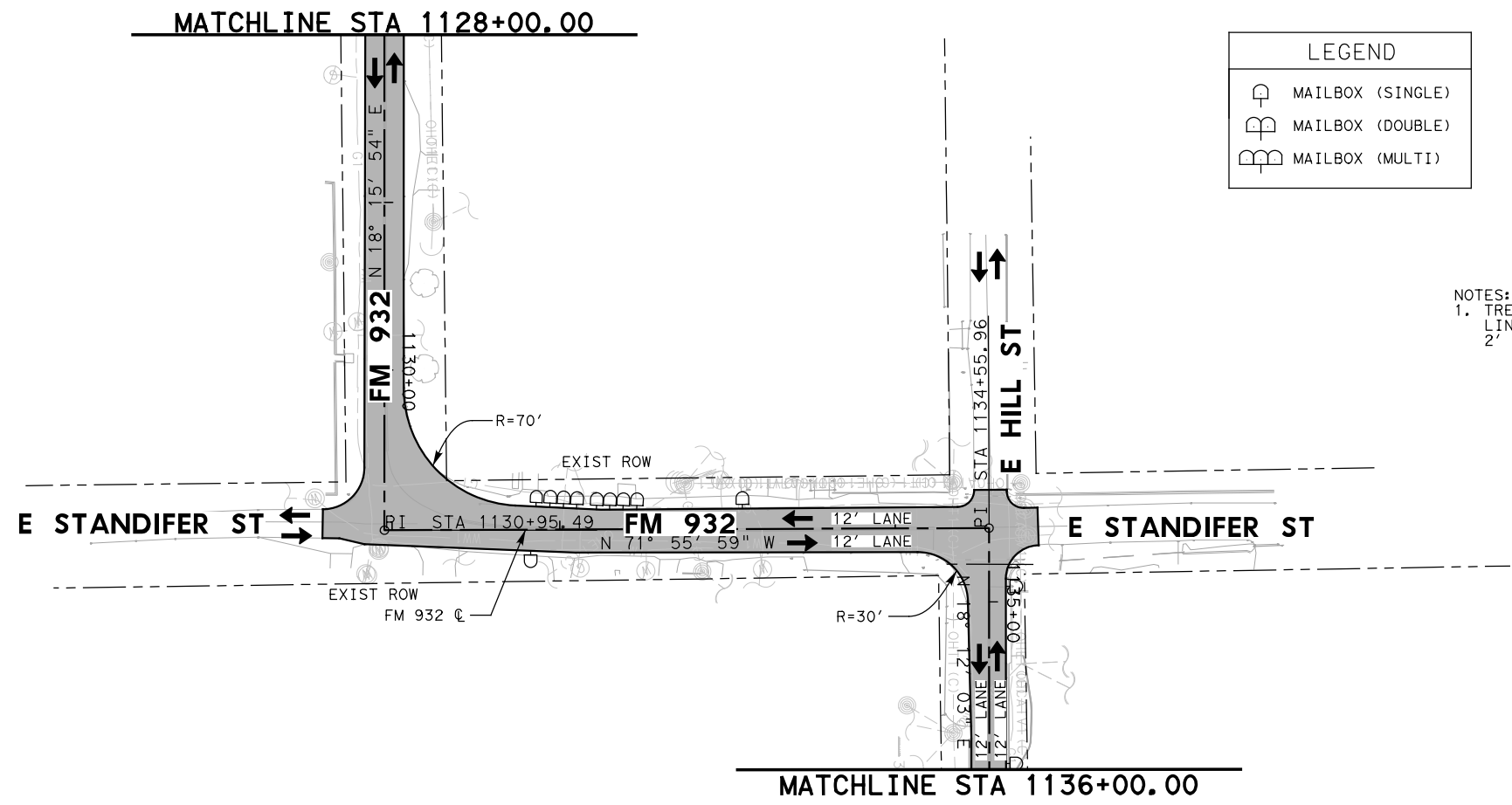
PLAN AND PROFILE LAYOUT
STA 1121+00.00 TO STA 1128+00.00

(SHEET 71 OF 74)

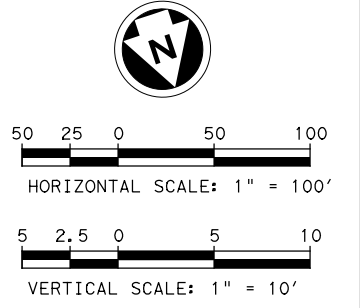
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|---------------|---------------------|---|----------|--------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 164 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RPW71.dgn
DATE: 9/1/2021 11:05:46 AM fRange1





| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |



NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

| LEGEND | |
|--------|----------------|
| | MILL AND INLAY |

| STA 1128+00.00 to | STA 1129+00.00 to | STA 1130+00.00 to | STA 1131+00.00 to | STA 1132+00.00 to | STA 1133+00.00 to | STA 1134+00.00 to | STA 1135+00.00 to | SECTION TOTALS | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------|-------|------|------------------|
| STA 1129+00.00 | STA 1130+00.00 | STA 1131+00.00 | STA 1132+00.00 | STA 1133+00.00 | STA 1134+00.00 | STA 1135+00.00 | STA 1136+00.00 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 8 | | STA | PREPARING R.O.W. |

NOTES:
 PROFILE FOR REFERENCE PURPOSES ONLY IN MILL AND INLAY AREAS.

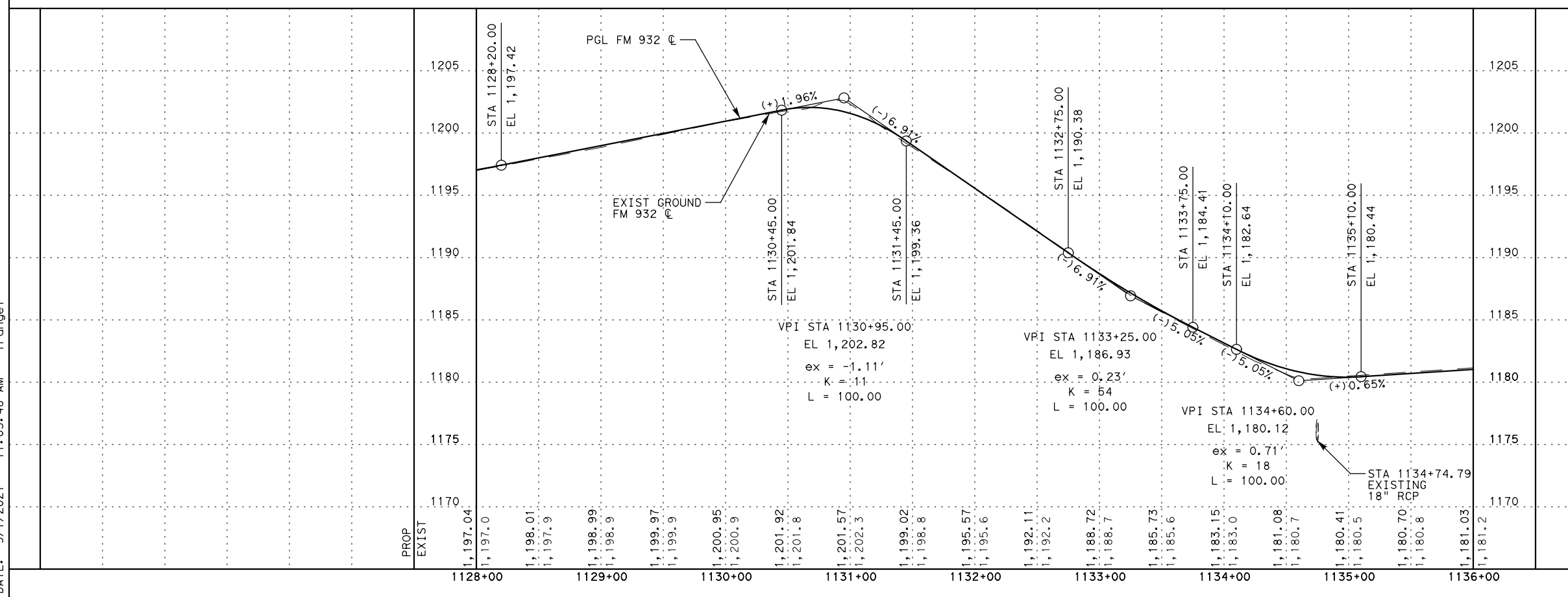


FM 932

PLAN AND PROFILE LAYOUT
 STA 1128+00.00 TO STA 1136+00.00

(SHEET 72 OF 74)

| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | | | | 165 |



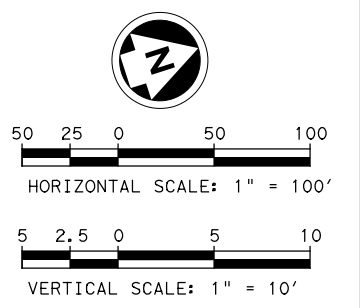
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PI Station = 1138+00.38
 Delta = 0° 35' 49.03" (LT)
 Degree of Curve = 0° 34' 22.65"
 Tangent = 52.09
 Length = 104.18
 Radius = 10000.00
 PC Station = 1137+48.29
 PT Station = 1138+52.47

PI Station = 1141+89.85
 Delta = 0° 21' 18.01" (LT)
 Degree of Curve = 0° 34' 22.65"
 Tangent = 30.98
 Length = 61.95
 Radius = 10000.00
 PC Station = 1141+58.87
 PT Station = 1142+20.83

LEGEND

- MAILBOX (SINGLE)
- MAILBOX (DOUBLE)
- MAILBOX (MULTI)



NOTES:
 1. TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

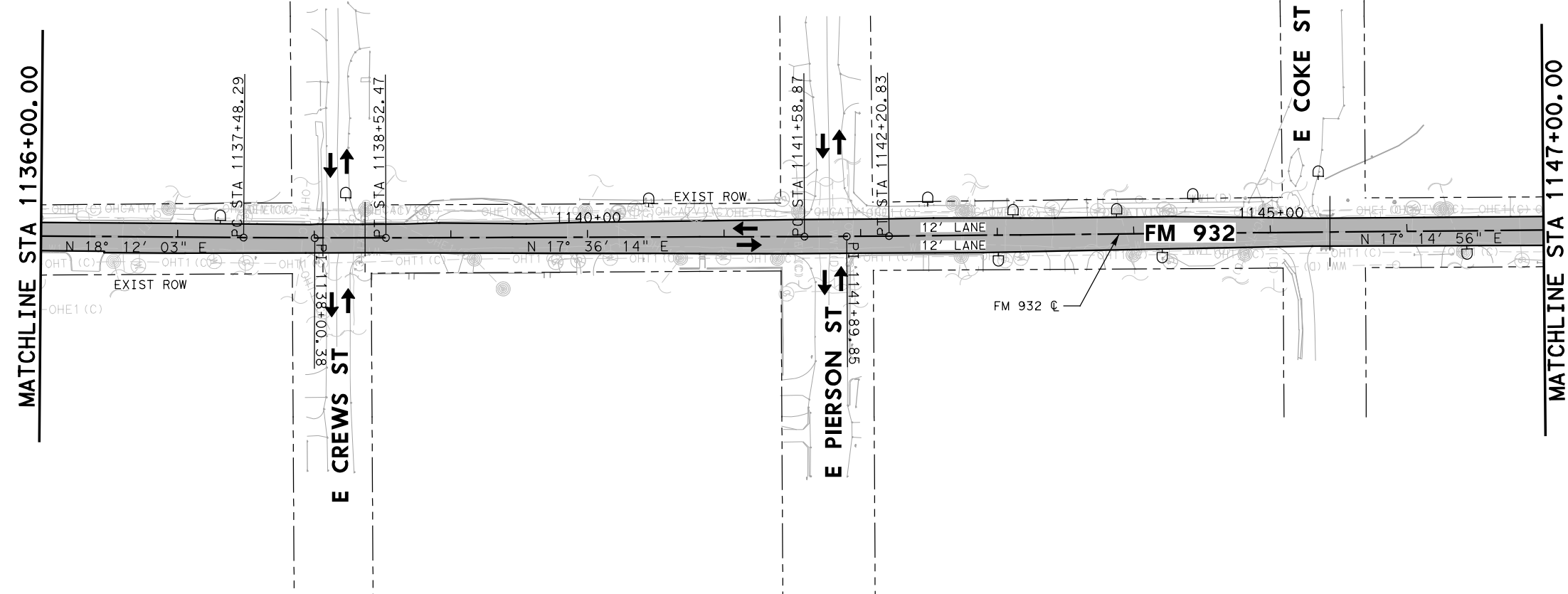
NOTES:
 PROFILE FOR REFERENCE PURPOSES ONLY IN MILL AND INLAY AREAS.

LEGEND

- MILL AND INLAY

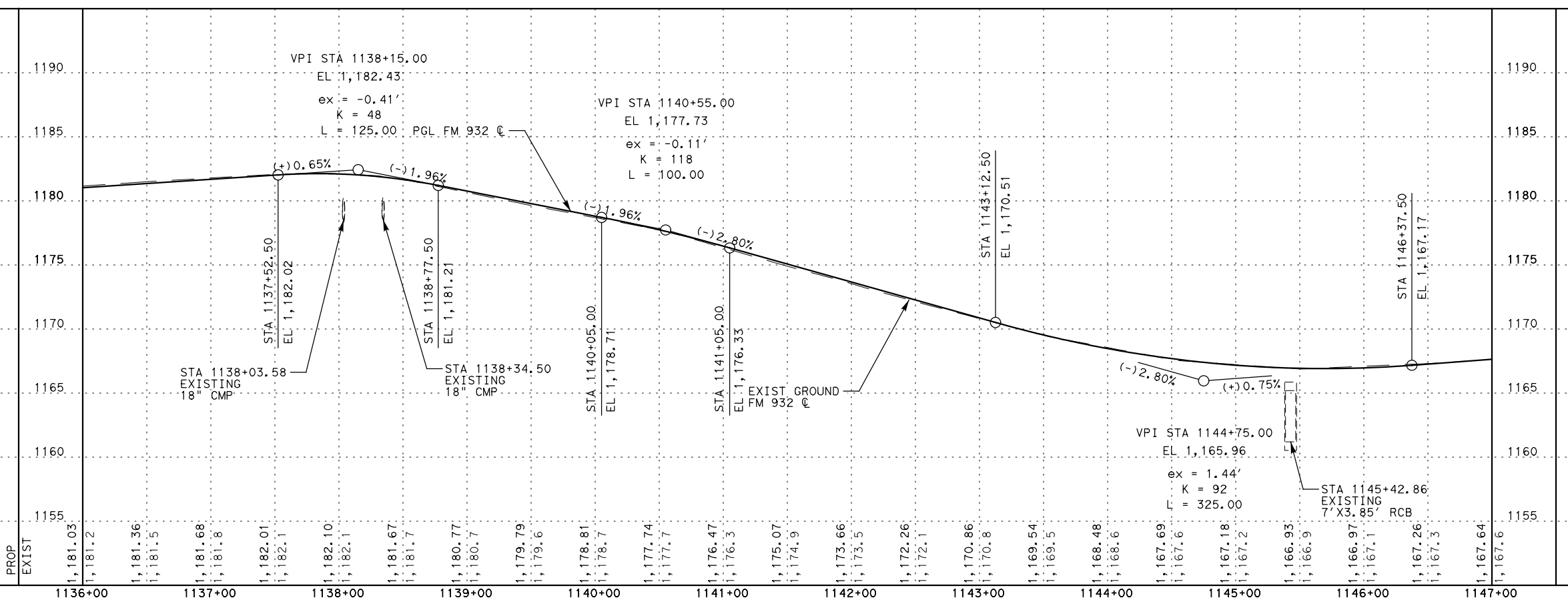
MATCHLINE STA 1136+00.00

MATCHLINE STA 1147+00.00



| STA 1136+00.00 to | STA 1137+00.00 to | STA 1138+00.00 to | STA 1139+00.00 to | STA 1140+00.00 to | STA 1141+00.00 to | STA 1142+00.00 to | STA 1143+00.00 to | STA 1144+00.00 to | STA 1145+00.00 to | STA 1146+00.00 to | SECTION TOTALS | | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------|-------|------|-------------|------------------|
| STA 1137+00.00 | STA 1138+00.00 | STA 1139+00.00 | STA 1140+00.00 | STA 1141+00.00 | STA 1142+00.00 | STA 1143+00.00 | STA 1144+00.00 | STA 1145+00.00 | STA 1146+00.00 | STA 1147+00.00 | ESTIMATED | FINAL | UNIT | DESCRIPTION | |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | | | STA | PREPARING R.O.W. |

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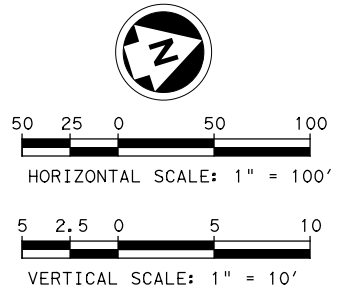
FM 932

PLAN AND PROFILE LAYOUT
 STA 1136+00.00 TO STA 1147+00.00

(SHEET 73 OF 74)

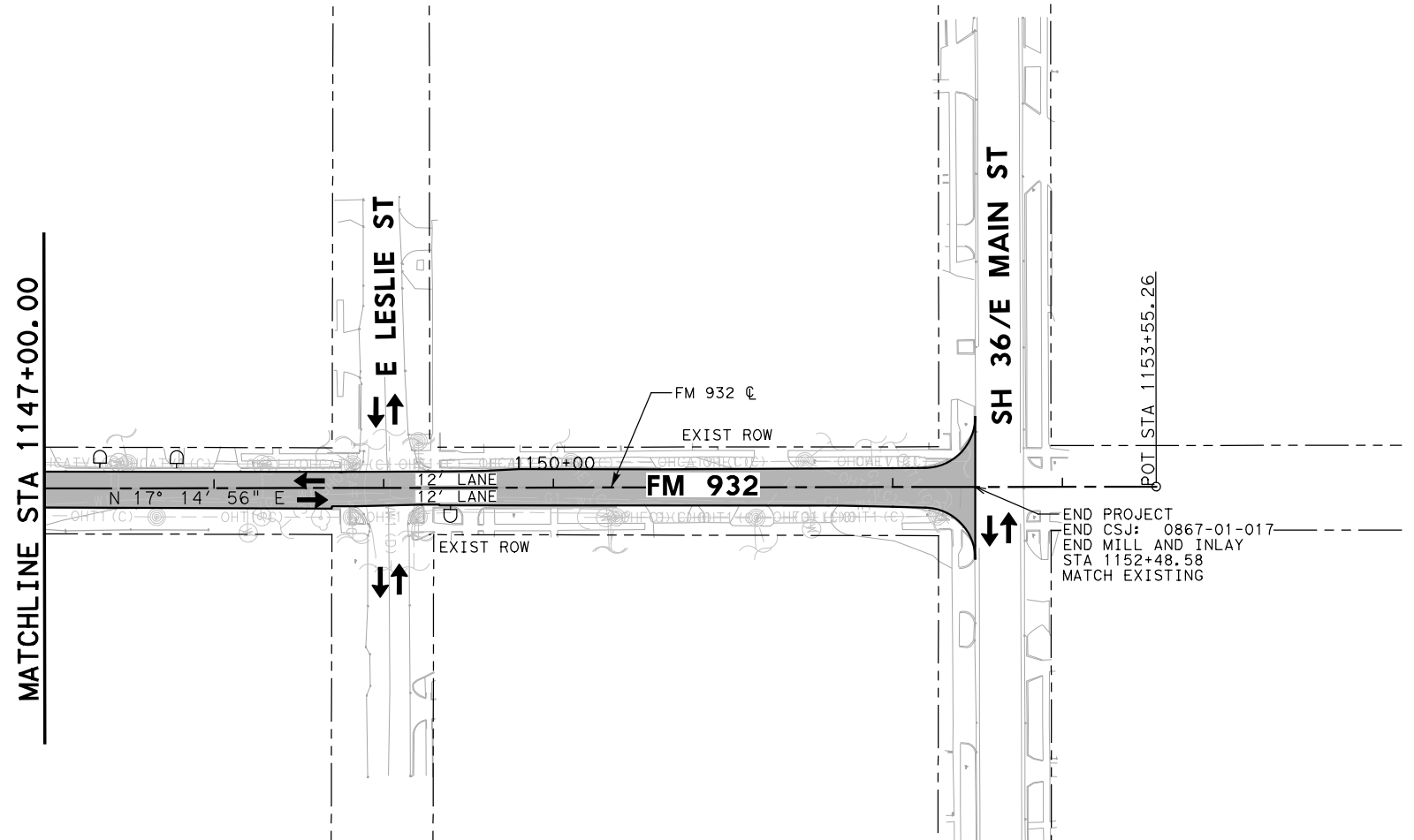
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|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 166 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

| LEGEND | |
|--------|------------------|
| | MAILBOX (SINGLE) |
| | MAILBOX (DOUBLE) |
| | MAILBOX (MULTI) |



- NOTES:
- TREES TO BE REMOVED NEAR GAS LINES SHALL BE CUT AND GROUND 2' BELOW GRADE.

| LEGEND | |
|--------|----------------|
| | MILL AND INLAY |



| STA 1147+00.00 to | STA 1148+00.00 to | STA 1149+00.00 to | STA 1150+00.00 to | STA 1151+00.00 to | STA 1152+00.00 | SECTION TOTALS | | | |
|-------------------|-------------------|-------------------|-------------------|-------------------|----------------|----------------|-------|------|------------------|
| STA 1148+00.00 | STA 1149+00.00 | STA 1150+00.00 | STA 1151+00.00 | STA 1152+00.00 | STA 1152+48.58 | ESTIMATED | FINAL | UNIT | DESCRIPTION |
| 1 | 1 | 1 | 1 | 1 | 0.5 | 5.5 | | STA | PREPARING R.O.W. |

- NOTES:
- PROFILE FOR REFERENCE PURPOSES ONLY IN MILL AND INLAY AREAS.



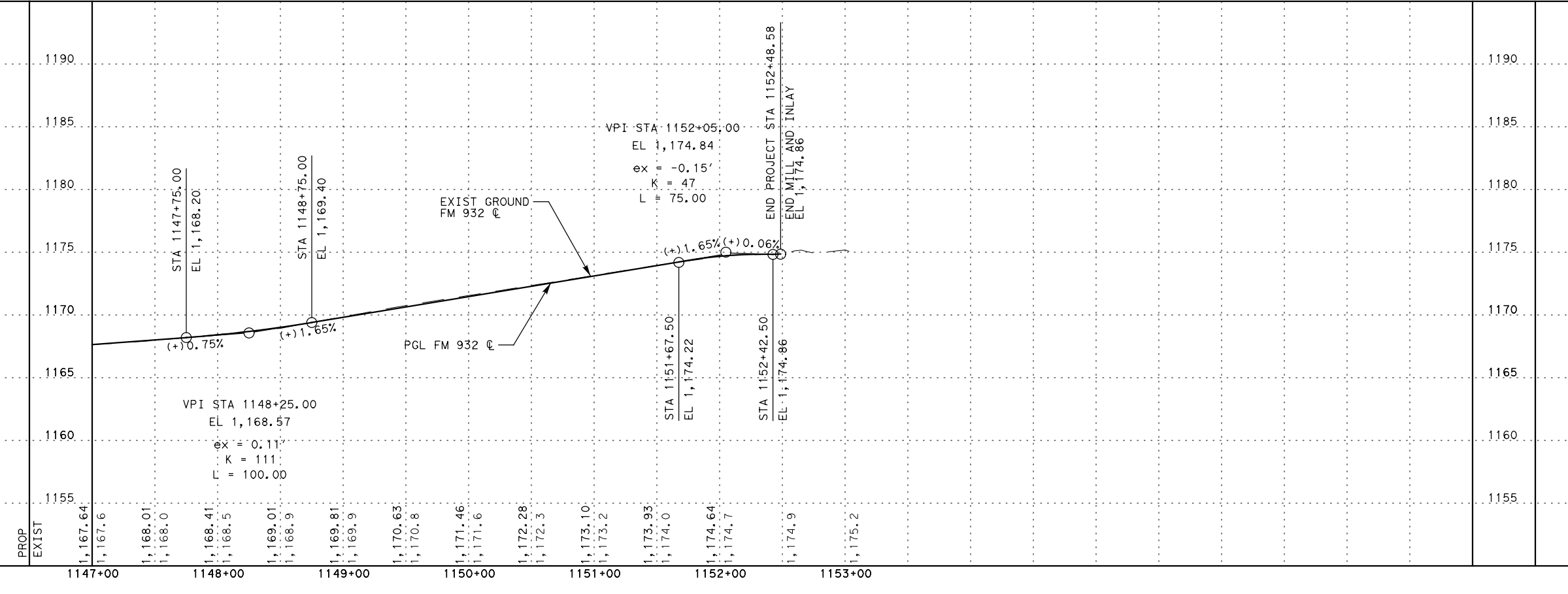
FM 932

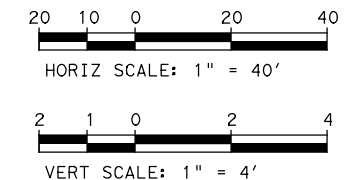
PLAN AND PROFILE LAYOUT
STA 1147+00.00 TO STA 1152+48.58

(SHEET 74 OF 74)

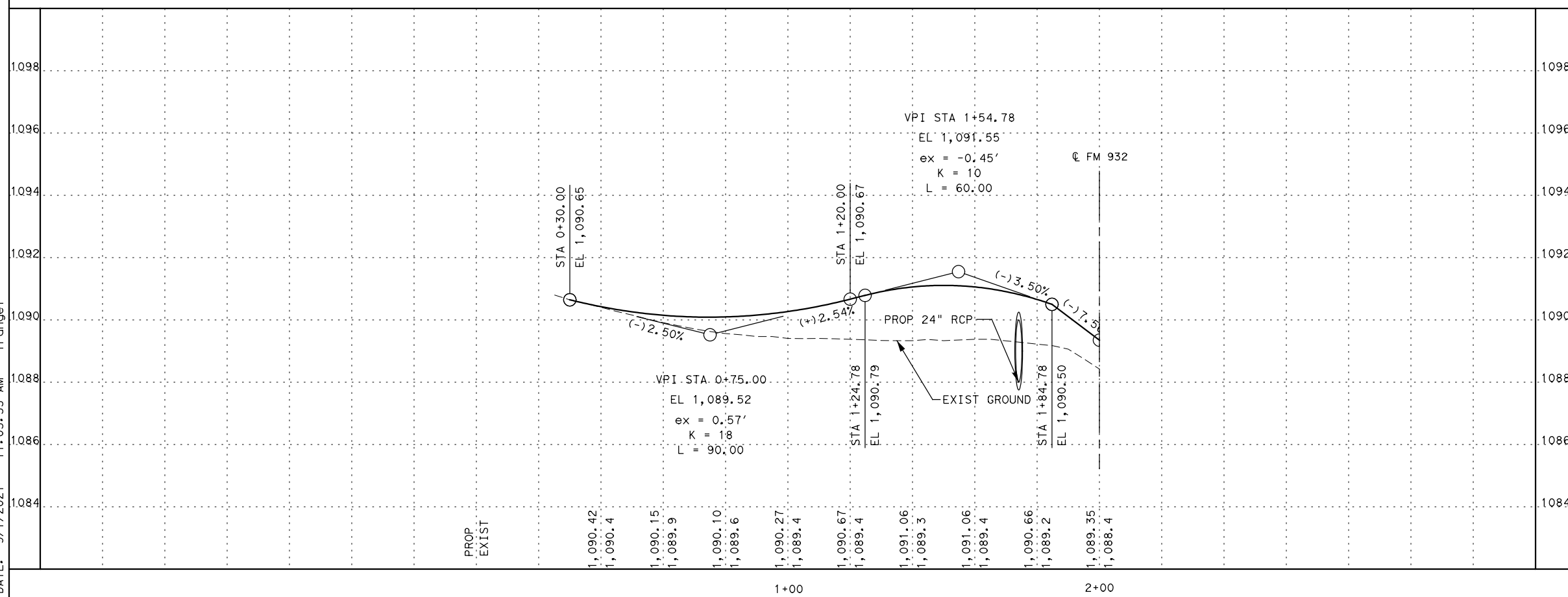
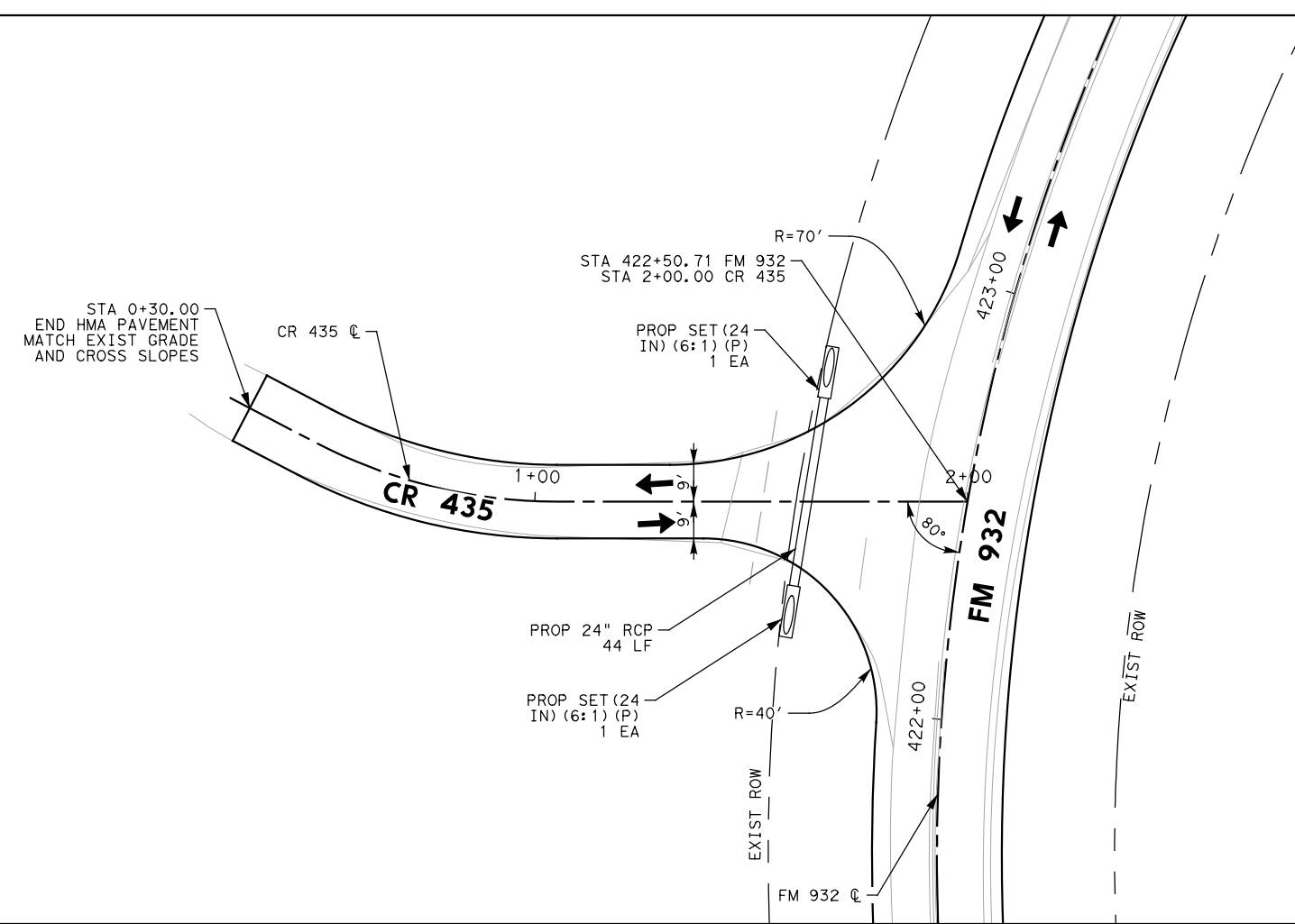
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|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 167 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

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NOTES:
 1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.

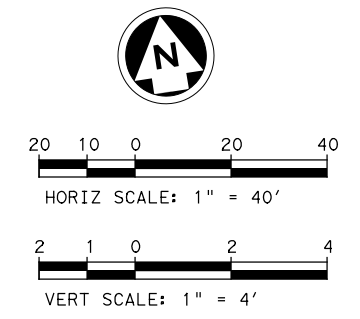
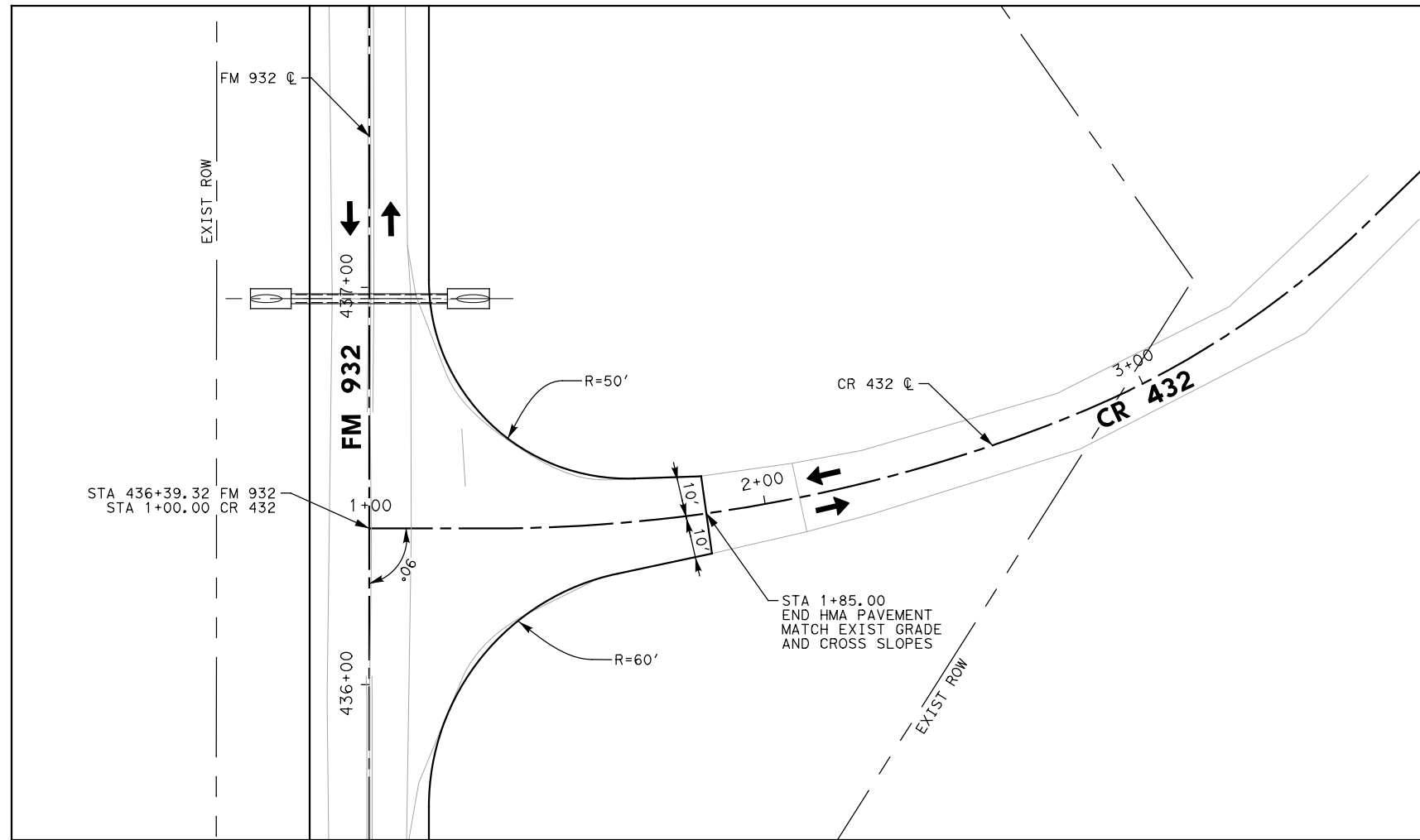


FM 932
CR 435
PLAN AND PROFILE

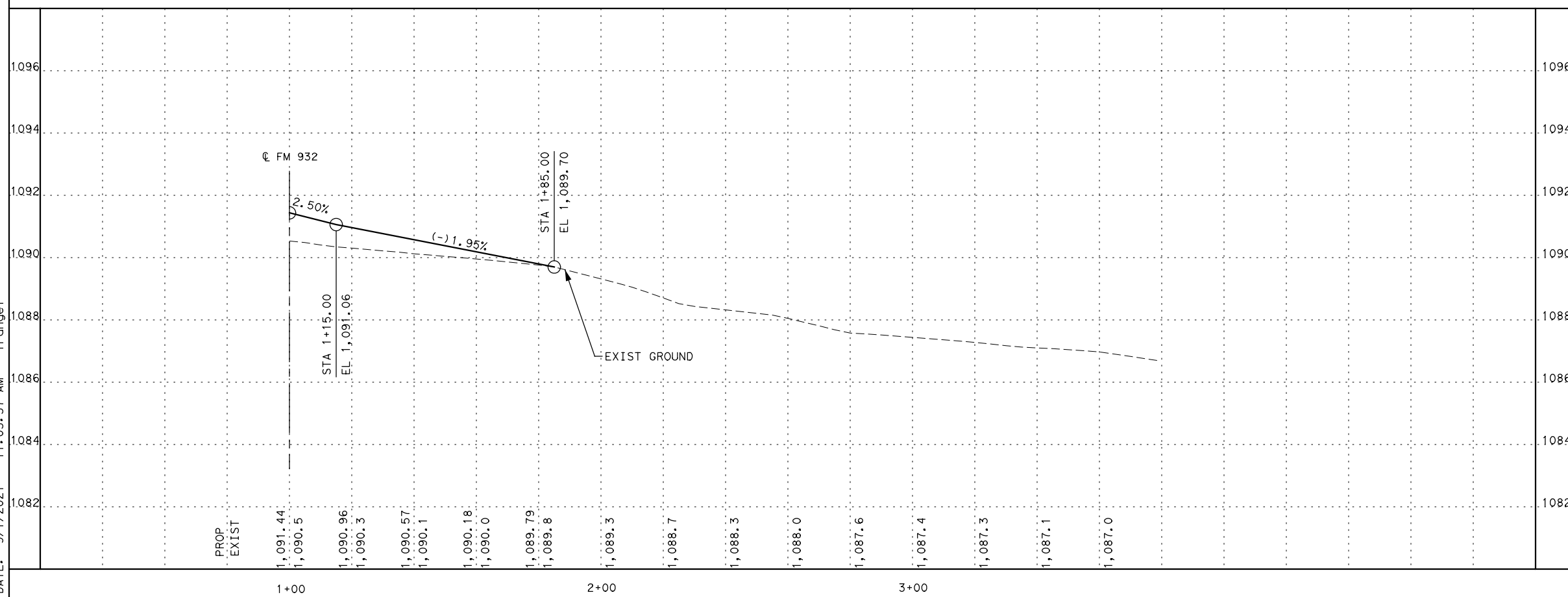
| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | 017 | | | |

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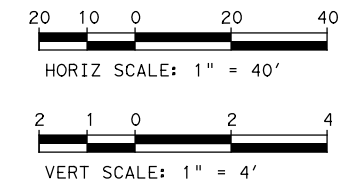


NOTES:
 1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.

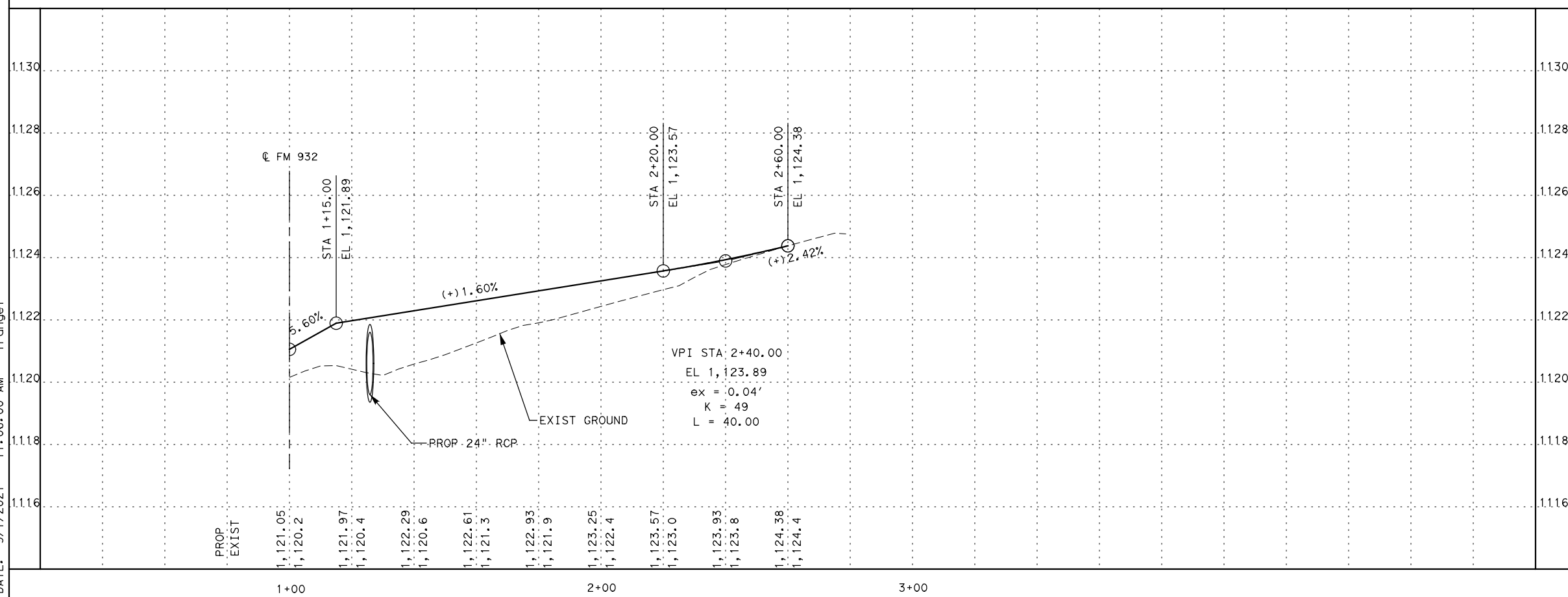
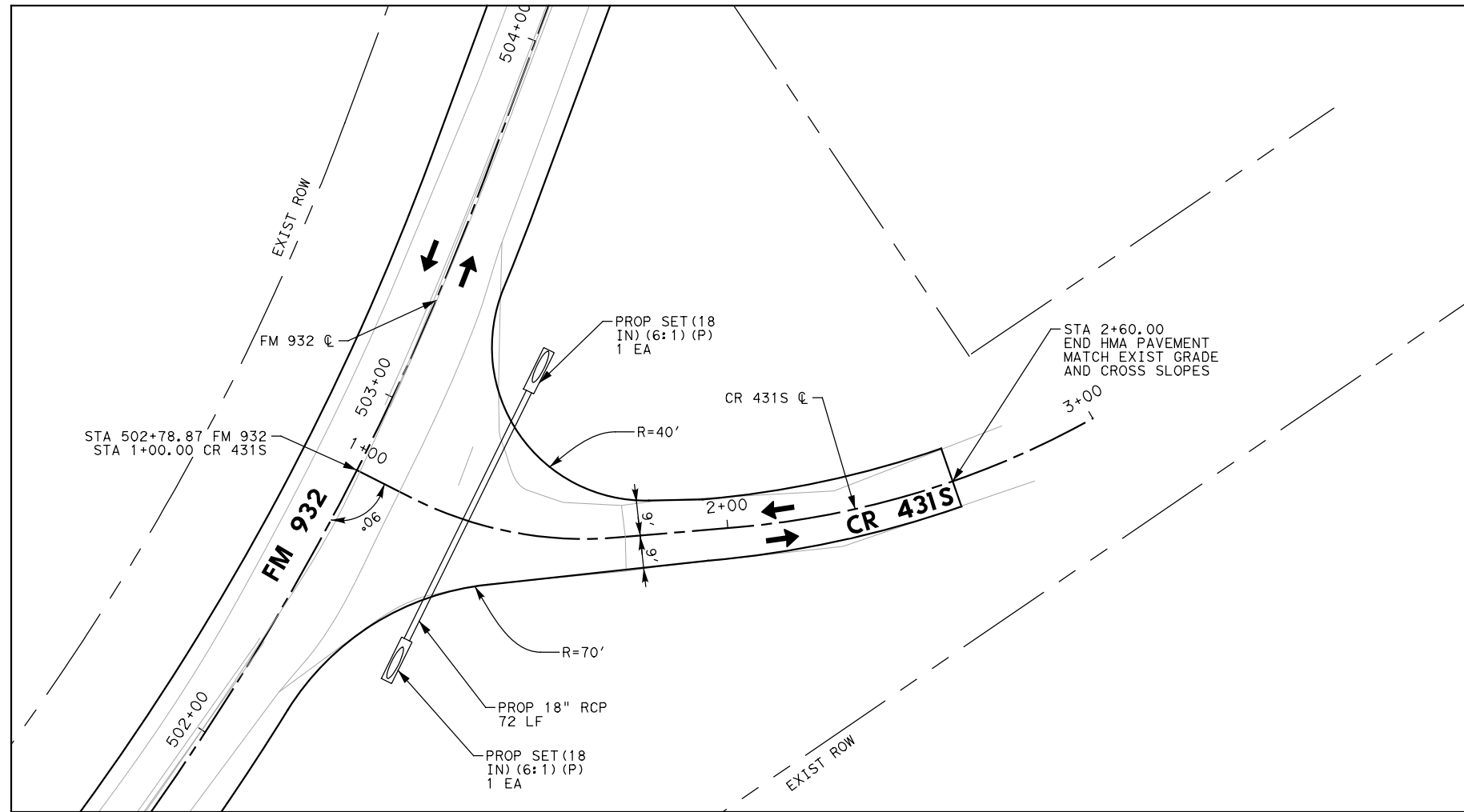


**FM 932
 CR 432
 PLAN AND PROFILE**

| | | | | |
|------------------|---------------------------|--|----------|--------------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 169 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



NOTES:
 1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.



FM 932
CR 431 SOUTH
PLAN AND PROFILE

| | | | | |
|-----------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. |
| RJ | TX | WACO | HAMILTON | 170 |
| GRAPHICS | CONTROL | SECTION | JOB | |
| JP | RJ | 0867 | 01 | 017 |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RP503*CR 431S.dgn
 DATE: 9/1/2021 11:06:00 AM fRangeI



20 10 0 20 40

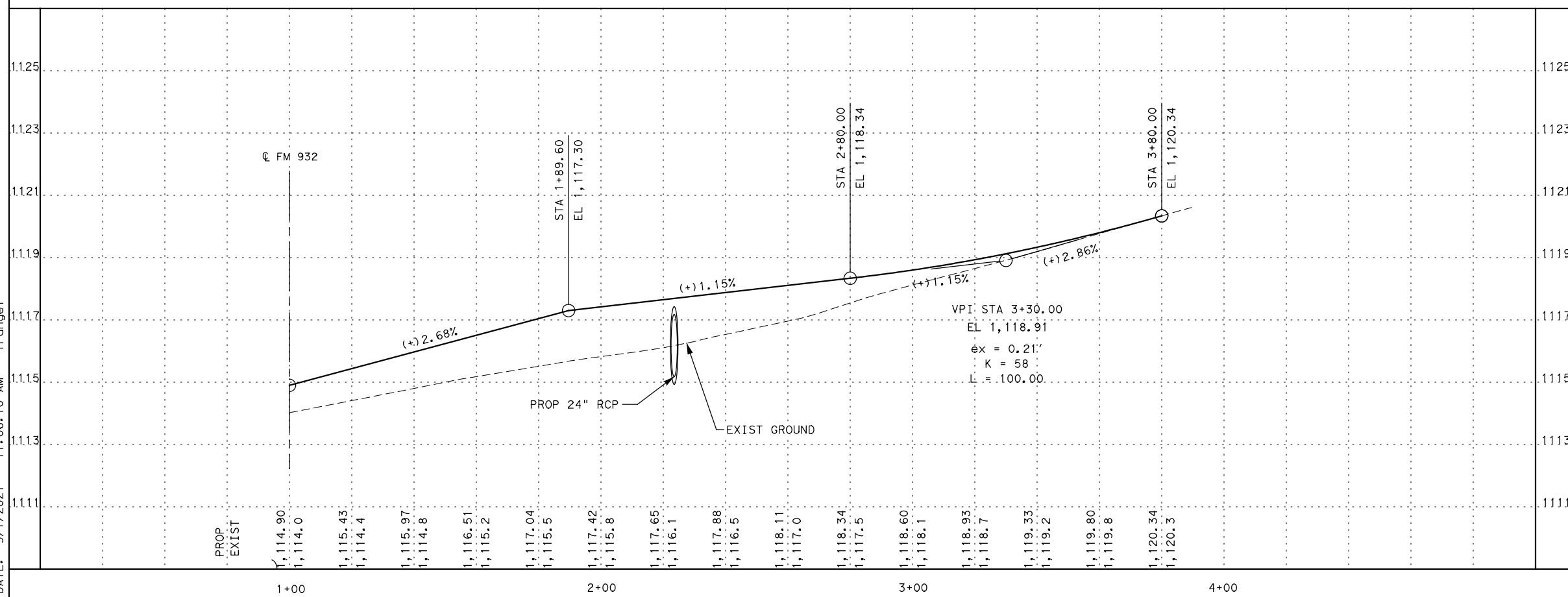
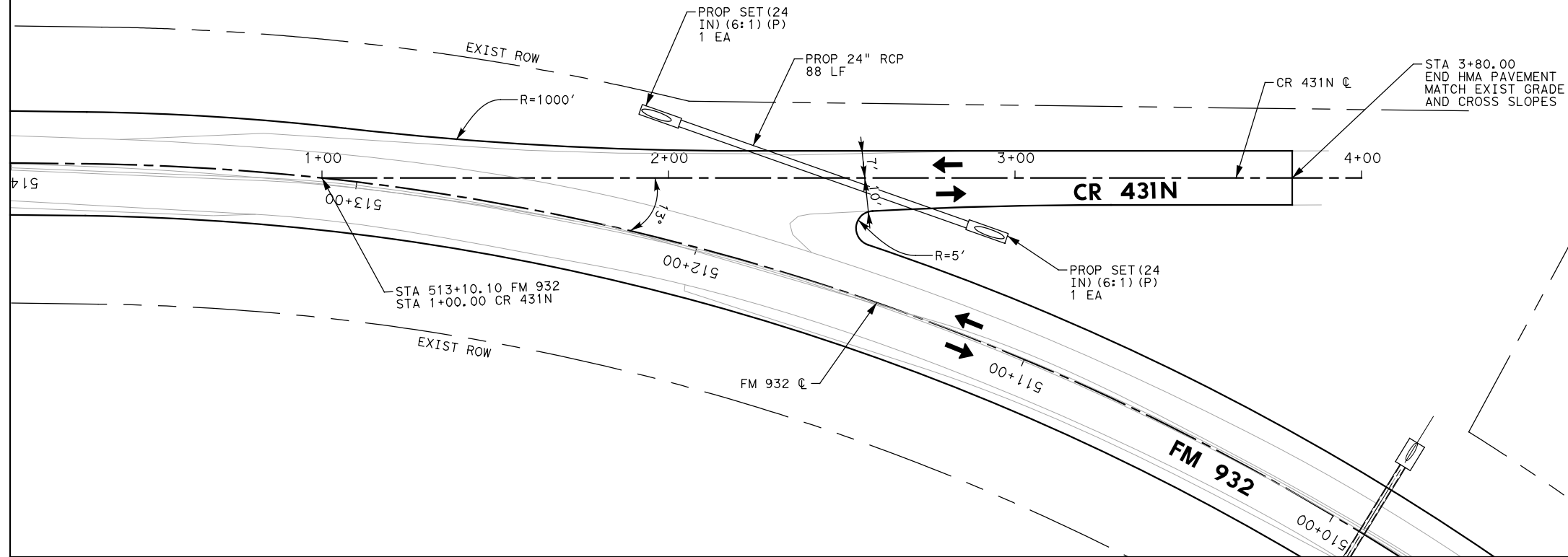
HORIZ SCALE: 1" = 40'

2 1 0 2 4

VERT SCALE: 1" = 4'

NOTES:

1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.



FIRM REGISTRATION NO. F-230



FM 932 CR 431 NORTH PLAN AND PROFILE

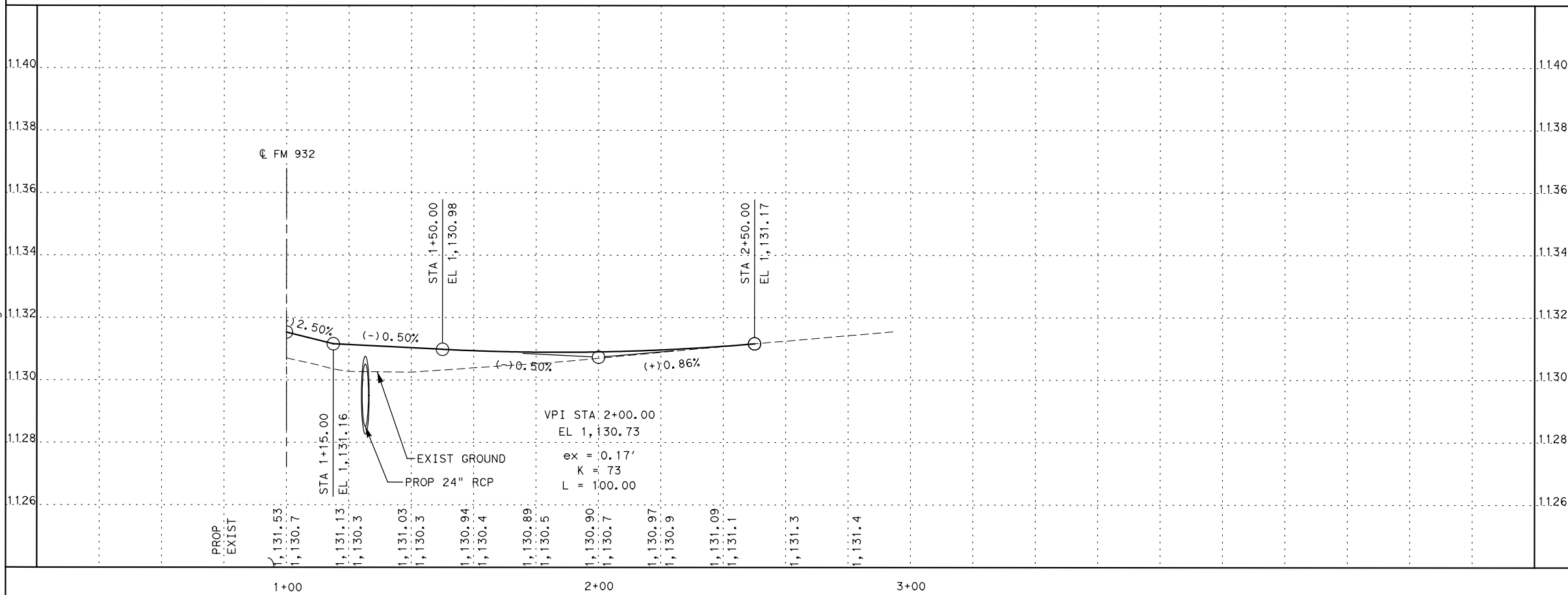
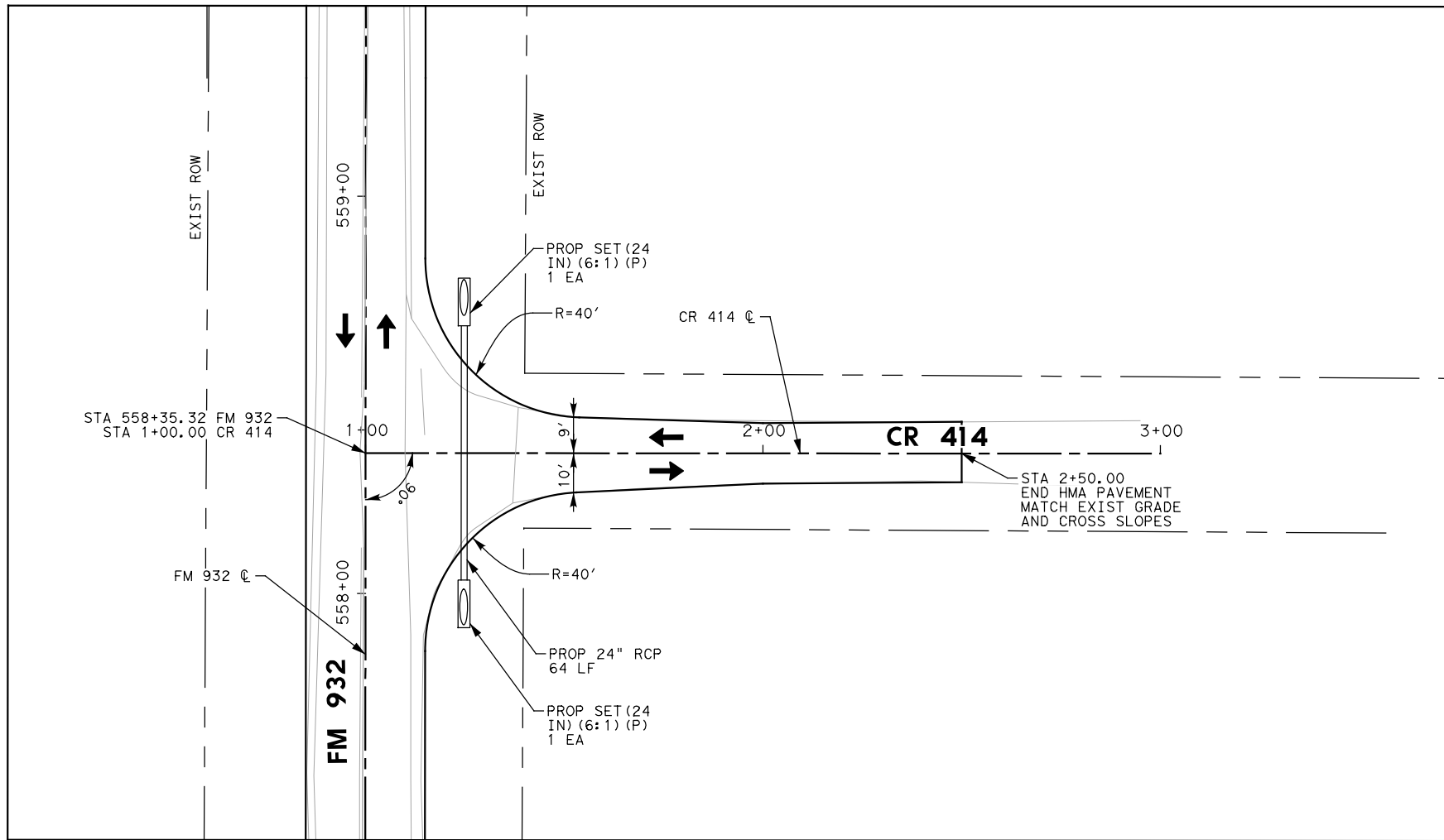
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| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 171 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

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DATE: 9/1/2021 11:06:10 AM fRange1



NOTES:

1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.



FM 932
CR 414
PLAN AND PROFILE

| | | | | |
|-----------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. |
| RJ | TX | WACO | HAMILTON | 172 |
| GRAPHICS | CONTROL | SECTION | JOB | |
| JP | RJ | 0867 | 01 017 | |

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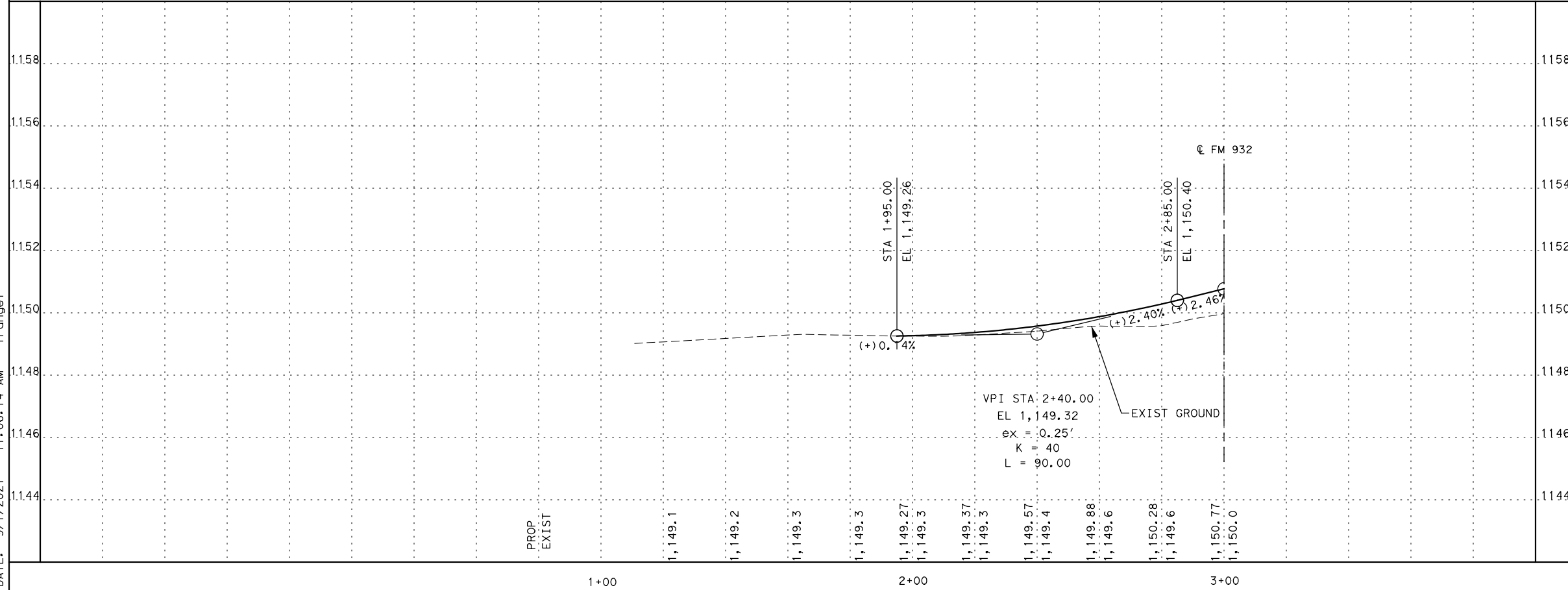
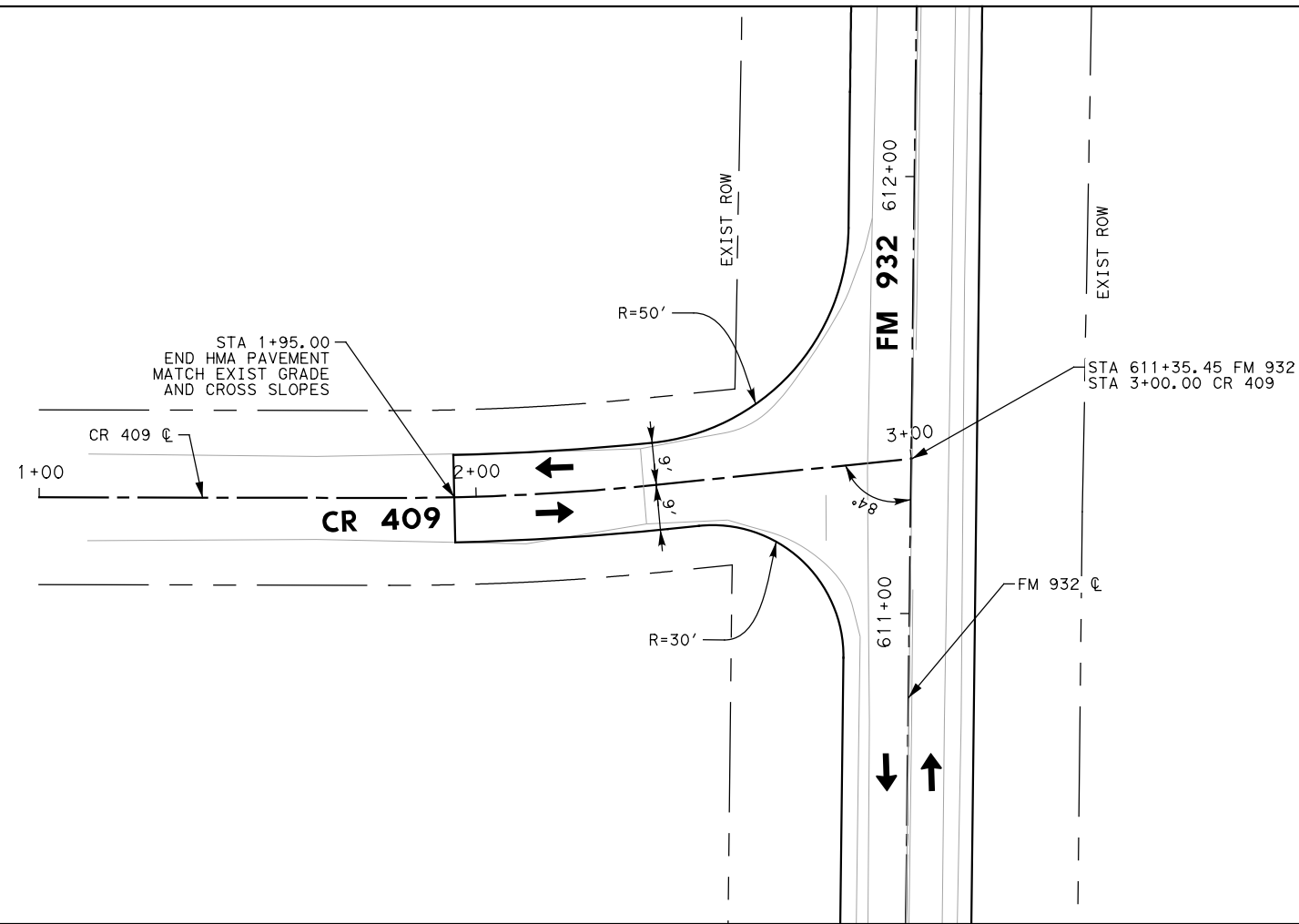


HORIZ SCALE: 1" = 40'



VERT SCALE: 1" = 4'

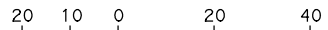
NOTES:
1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.



FM 932
CR 409
PLAN AND PROFILE

| | | | | |
|-----------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. |
| RJ | TX | WACO | HAMILTON | 173 |
| GRAPHICS | CONTROL | SECTION | JOB | |
| JP | RJ | 0867 | 01 017 | |

FILE: P:\MSGP\TXD18248\05-FM*932\PROD\SHEETS\RPS06*CR 409.dgn
DATE: 9/1/2021 11:06:14 AM fRange1



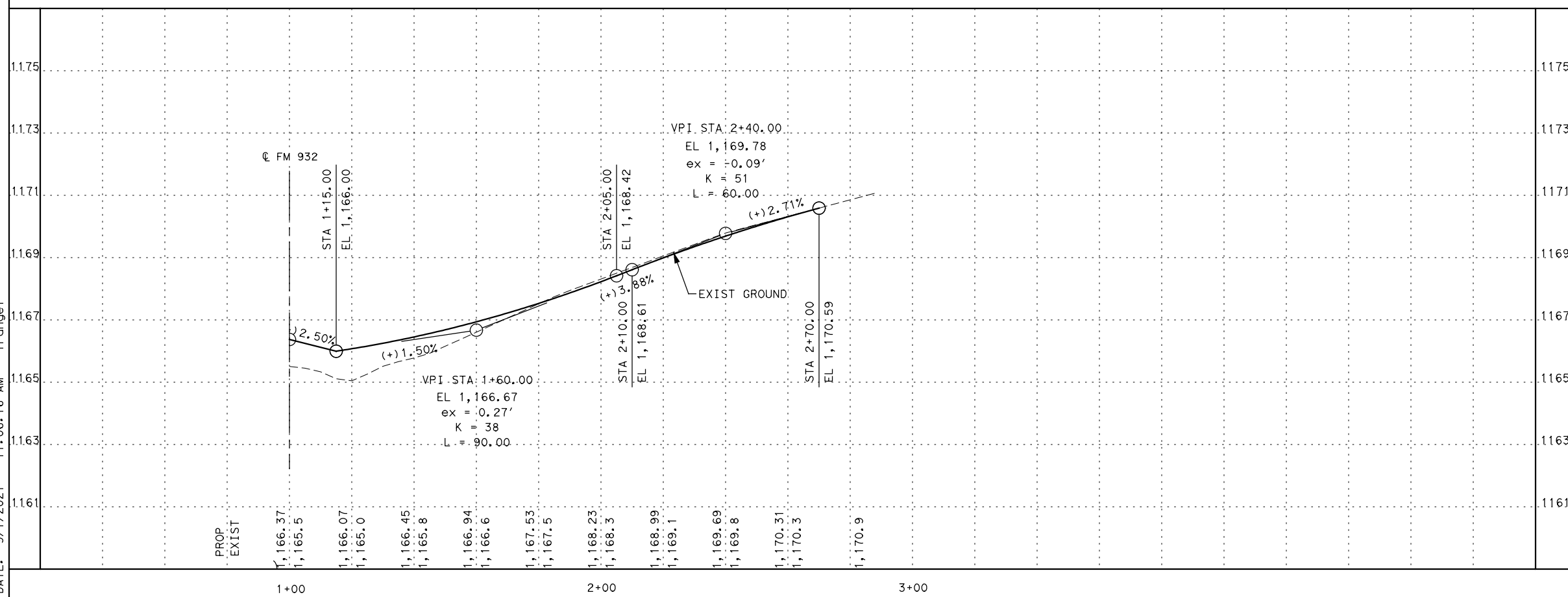
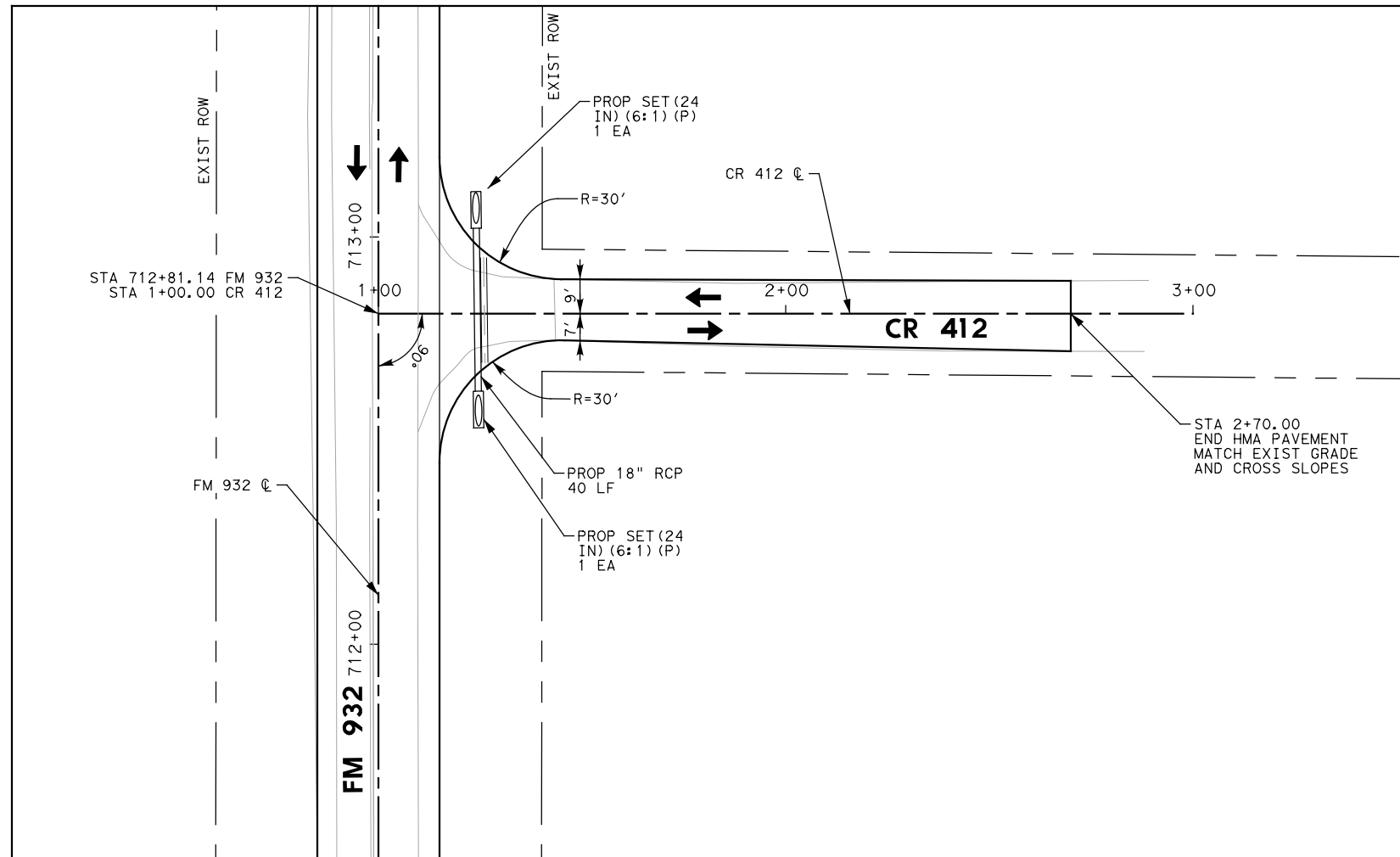
HORIZ SCALE: 1" = 40'



VERT SCALE: 1" = 4'

NOTES:

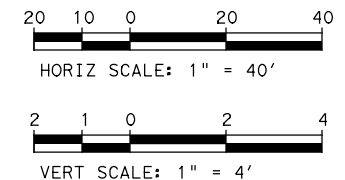
1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.



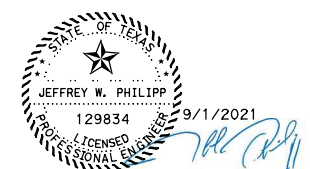
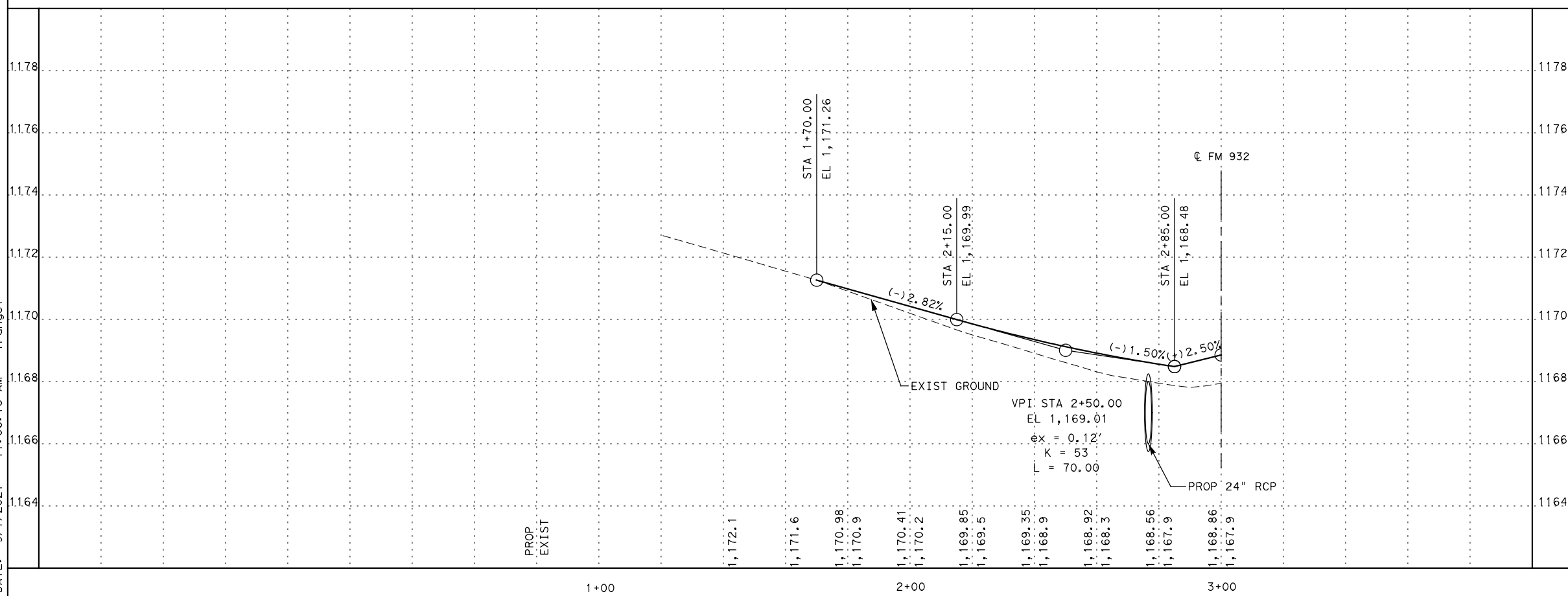
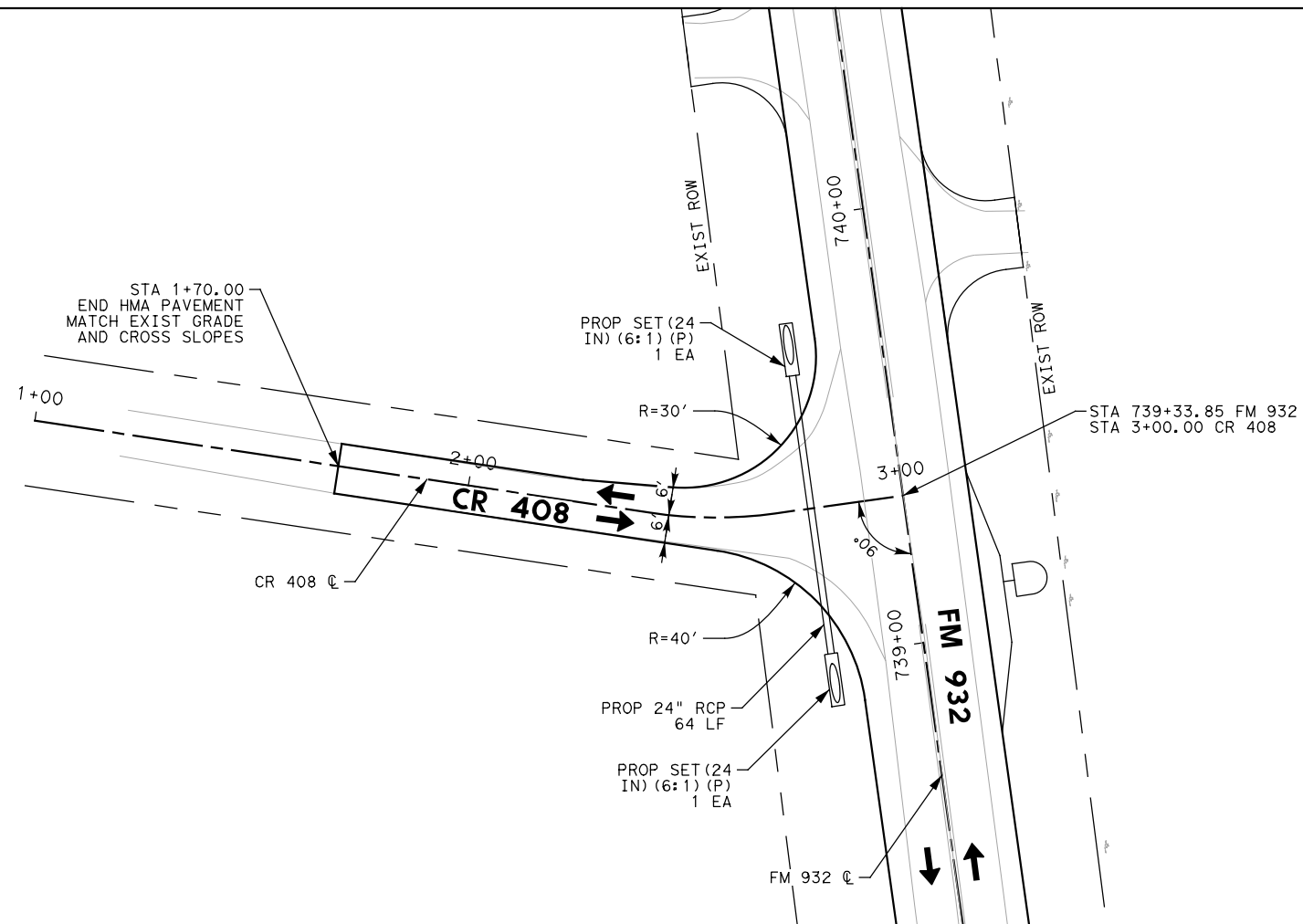
FM 932
CR 412
PLAN AND PROFILE

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|-----------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. |
| RJ | TX | WACO | HAMILTON | |
| GRAPHICS | CONTROL | SECTION | JOB | 174 |
| JP | RJ | 0867 | 017 | |

FILE: P:\MSGP\TXD18248\05-FM932\PROD\SHEETS\RP507*CR 412.dgn
DATE: 9/1/2021 11:06:16 AM fRangeI



NOTES:
 1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.

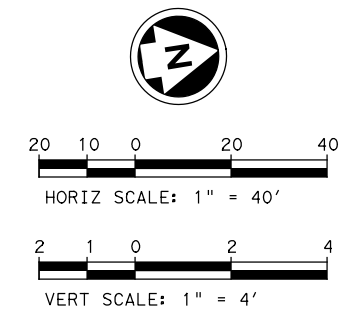
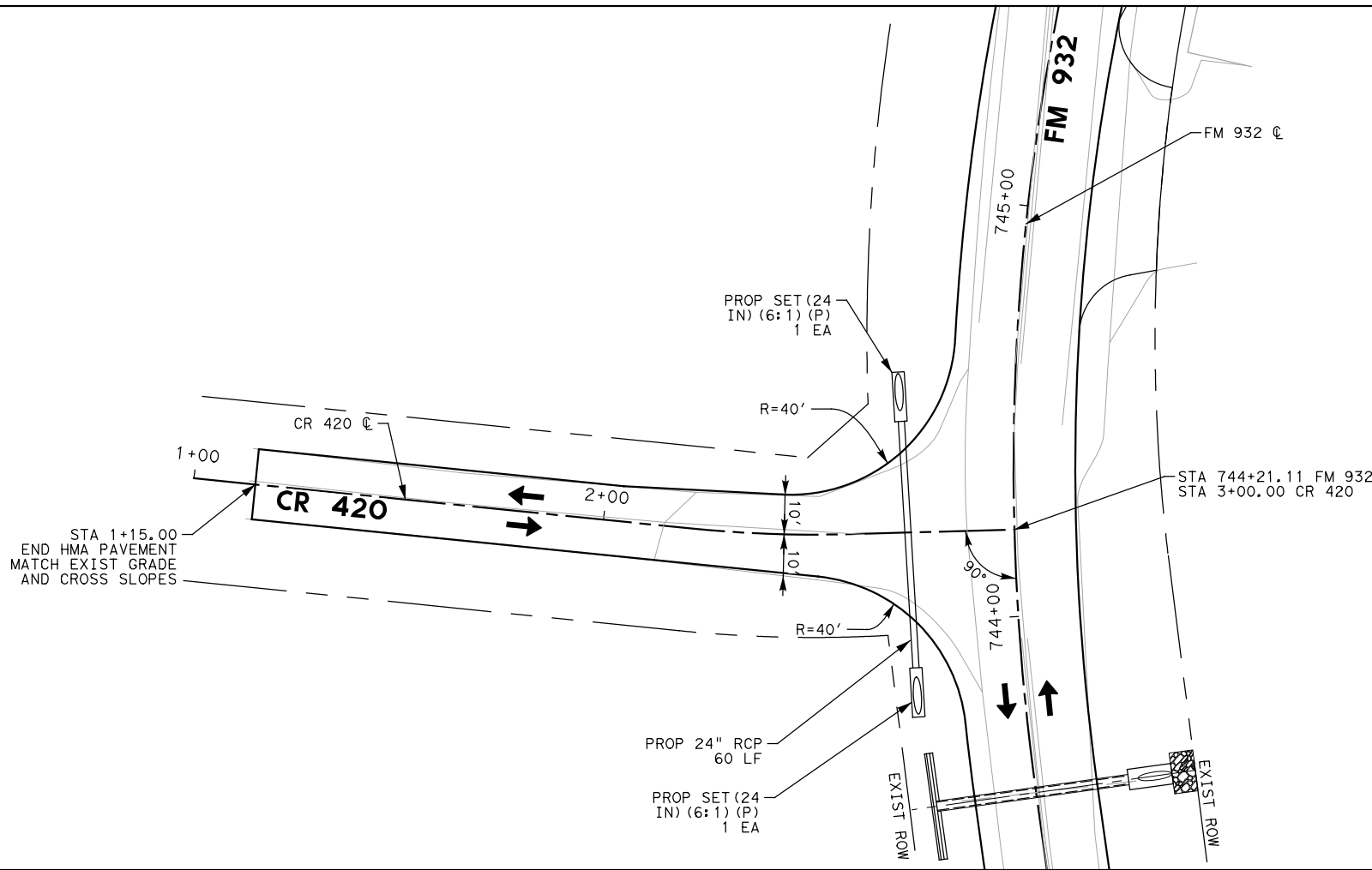


FM 932
CR 408
PLAN AND PROFILE

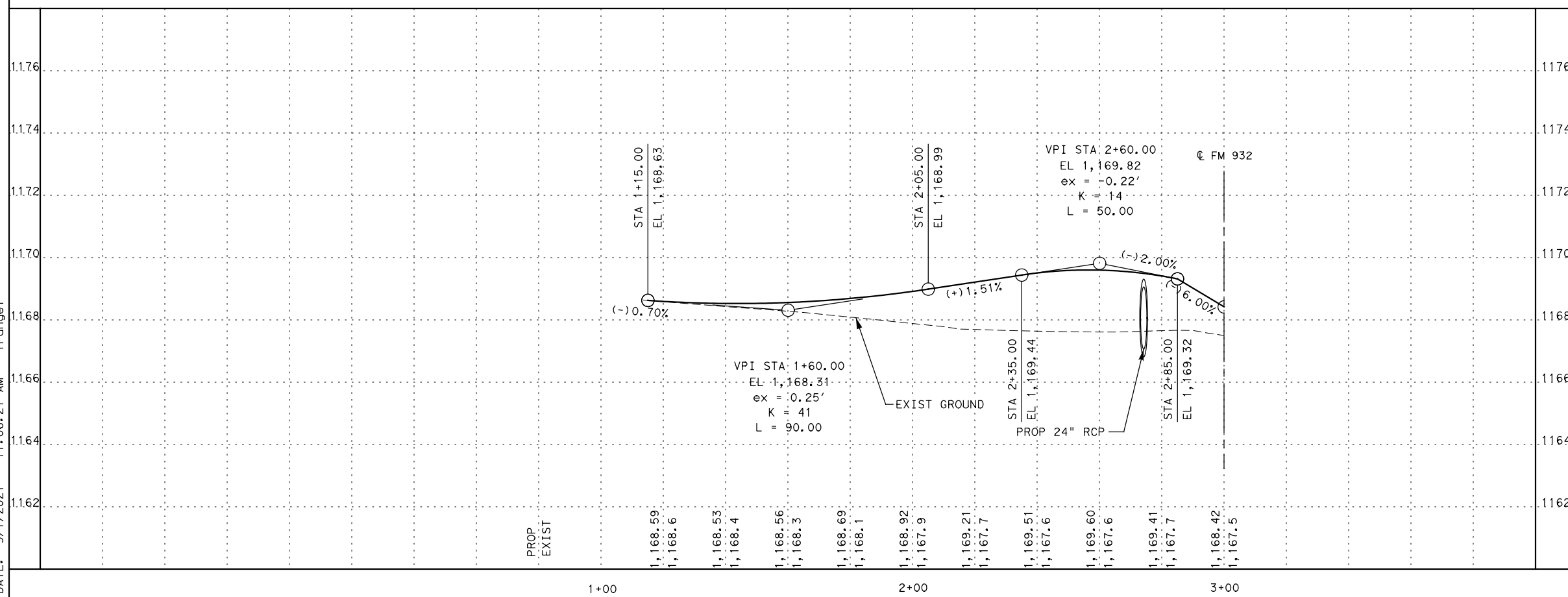
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| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS JP | TX | WACO | HAMILTON | 175 |
| GRPH CHECK RJ | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

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 DATE: 9/1/2021 11:06:21 AM f_rangel



NOTES:
 1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.



FM 932
CR 420
PLAN AND PROFILE

| | | | | |
|------------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| RJ | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS | TX | WACO | HAMILTON | 176 |
| JP | CONTROL | SECTION | JOB | |
| GRPH CHECK | RJ | 0867 | 01 | 017 |



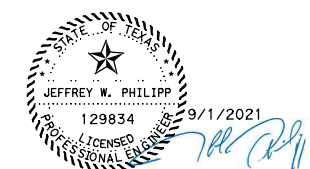
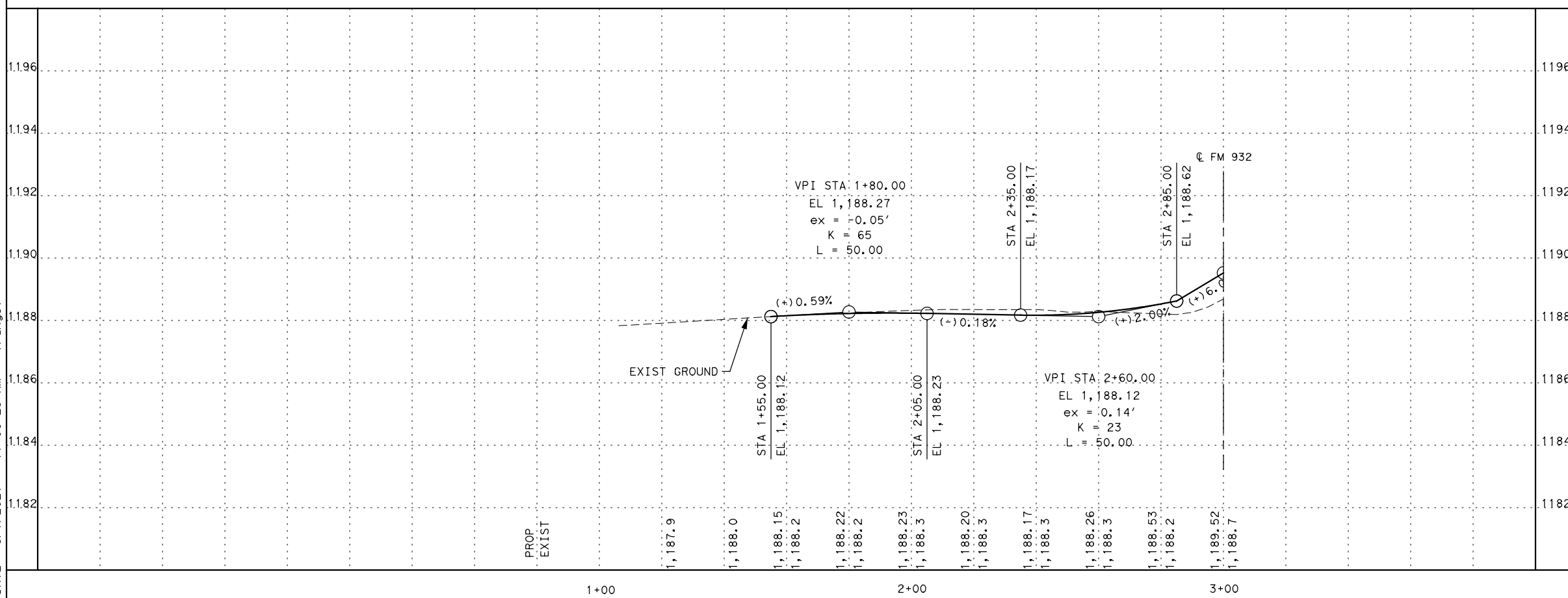
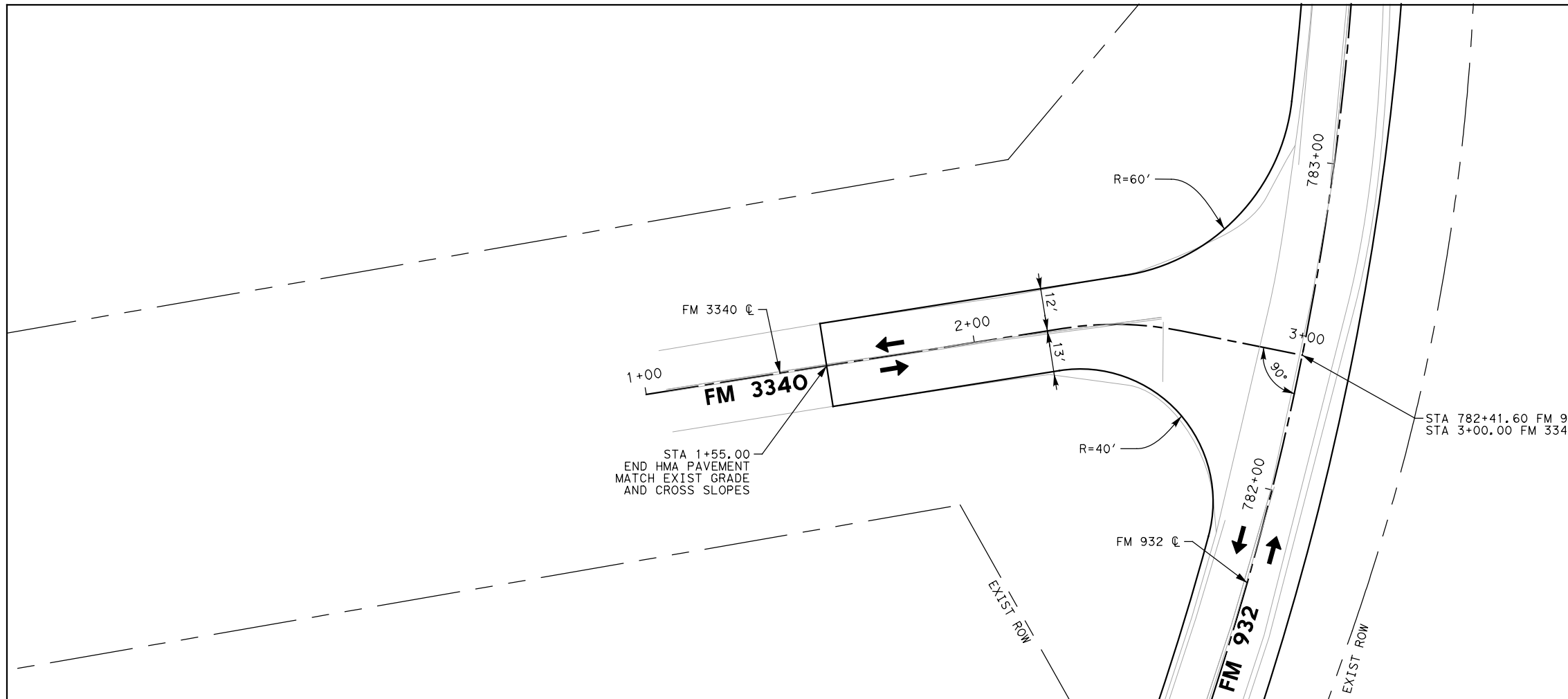
HORIZ SCALE: 1" = 40'



VERT SCALE: 1" = 4'

NOTES:

1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.

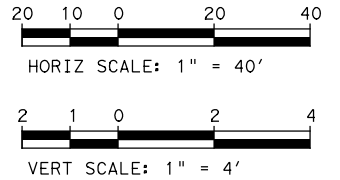
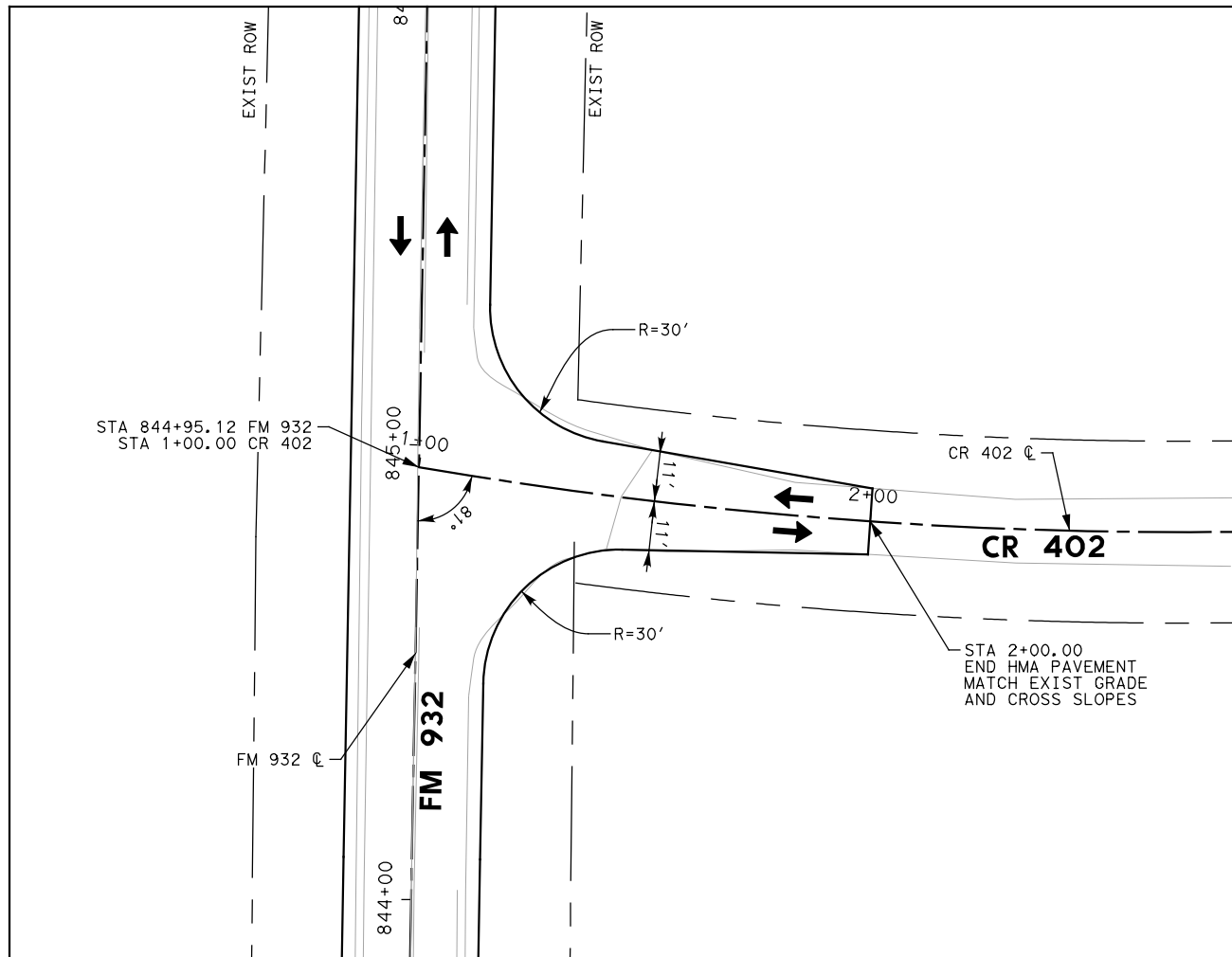


FM 932 FM 3340 PLAN AND PROFILE

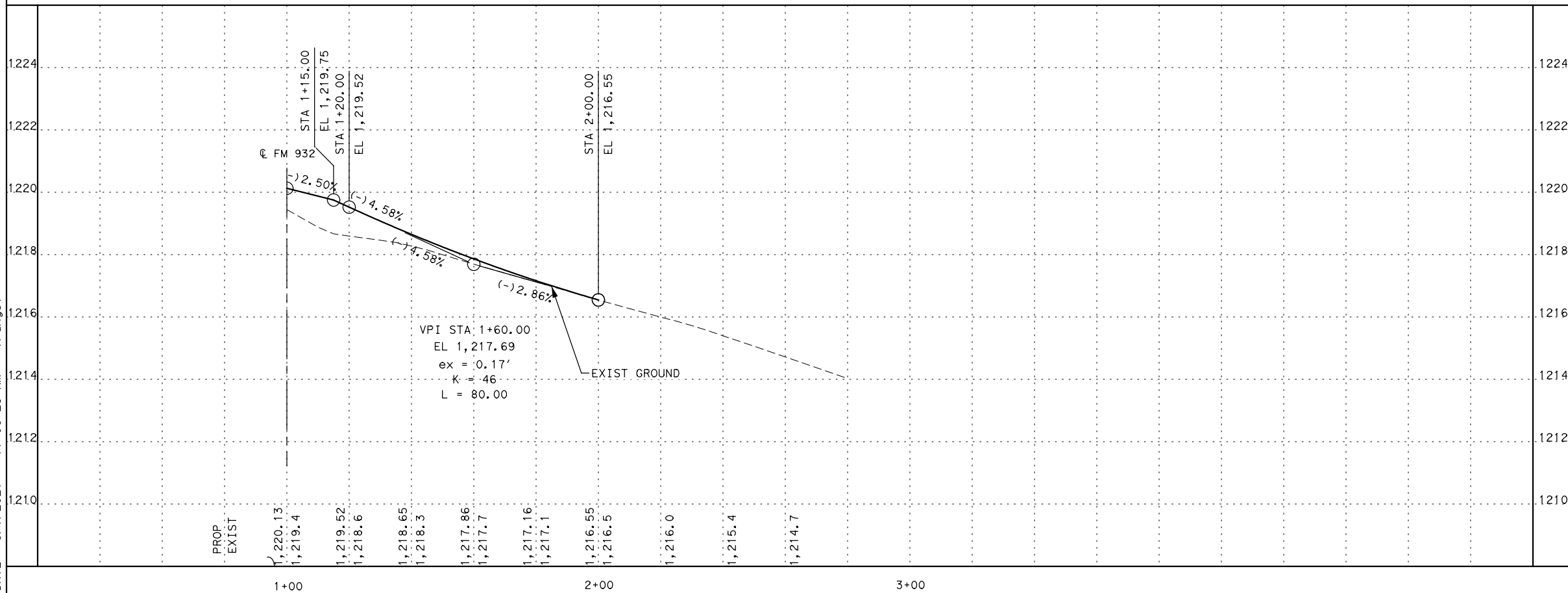
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| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. |
| RJ | TX | WACO | HAMILTON | |
| GRAPHICS | CONTROL | SECTION | JOB | 177 |
| JP | RJ | 0867 | 01 017 | |

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 DATE: 9/1/2021 11:06:25 AM fRange1



NOTES:
 1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.



FIRM REGISTRATION NO. F-230

Texas Department of Transportation
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FM 932
CR 402
PLAN AND PROFILE

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|-----------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. |
| RJ | TX | WACO | HAMILTON | 178 |
| GRAPHICS | CONTROL | SECTION | JOB | |
| JP | RJ | 0867 | 01 017 | |



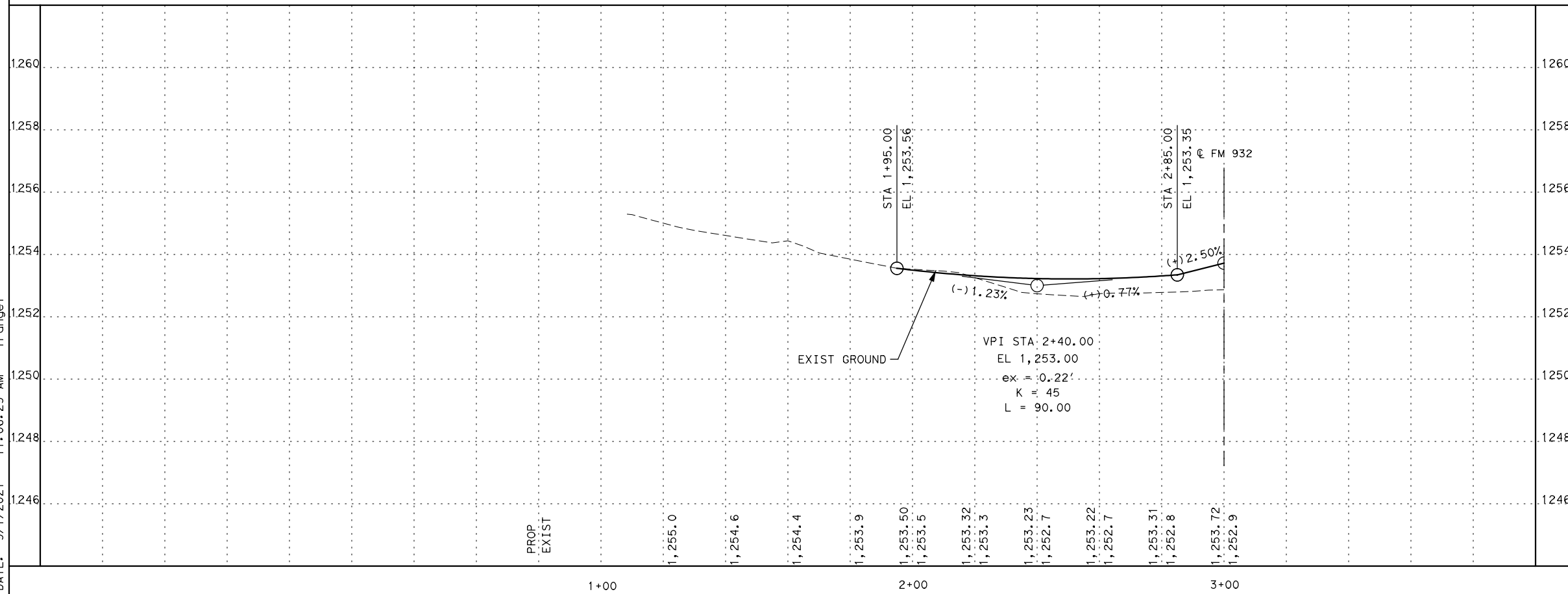
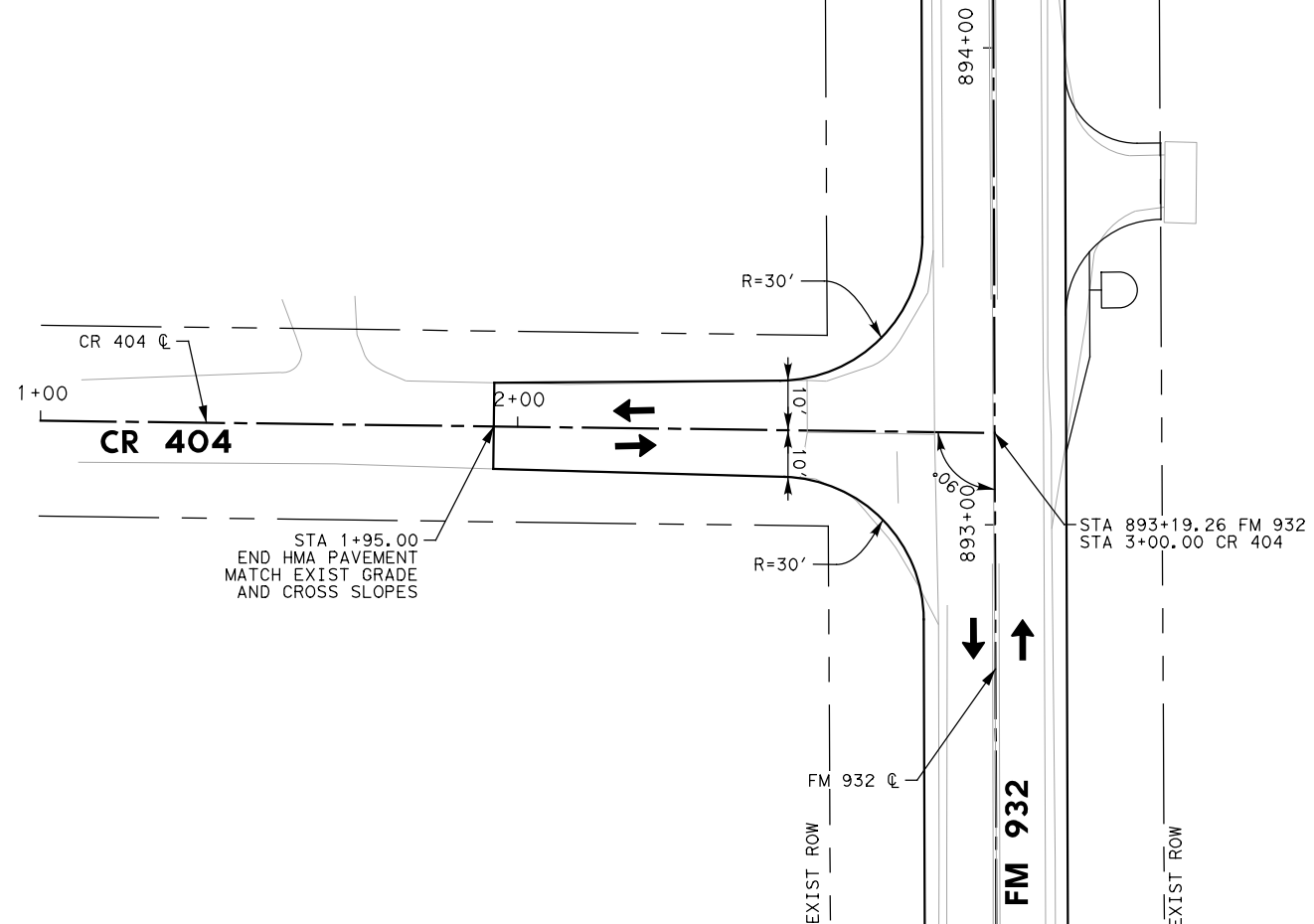
HORIZ SCALE: 1" = 40'



VERT SCALE: 1" = 4'

NOTES:

1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.

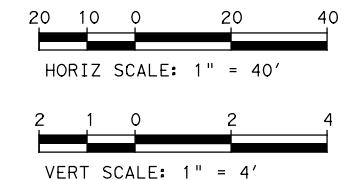


FIRM REGISTRATION NO. F-230

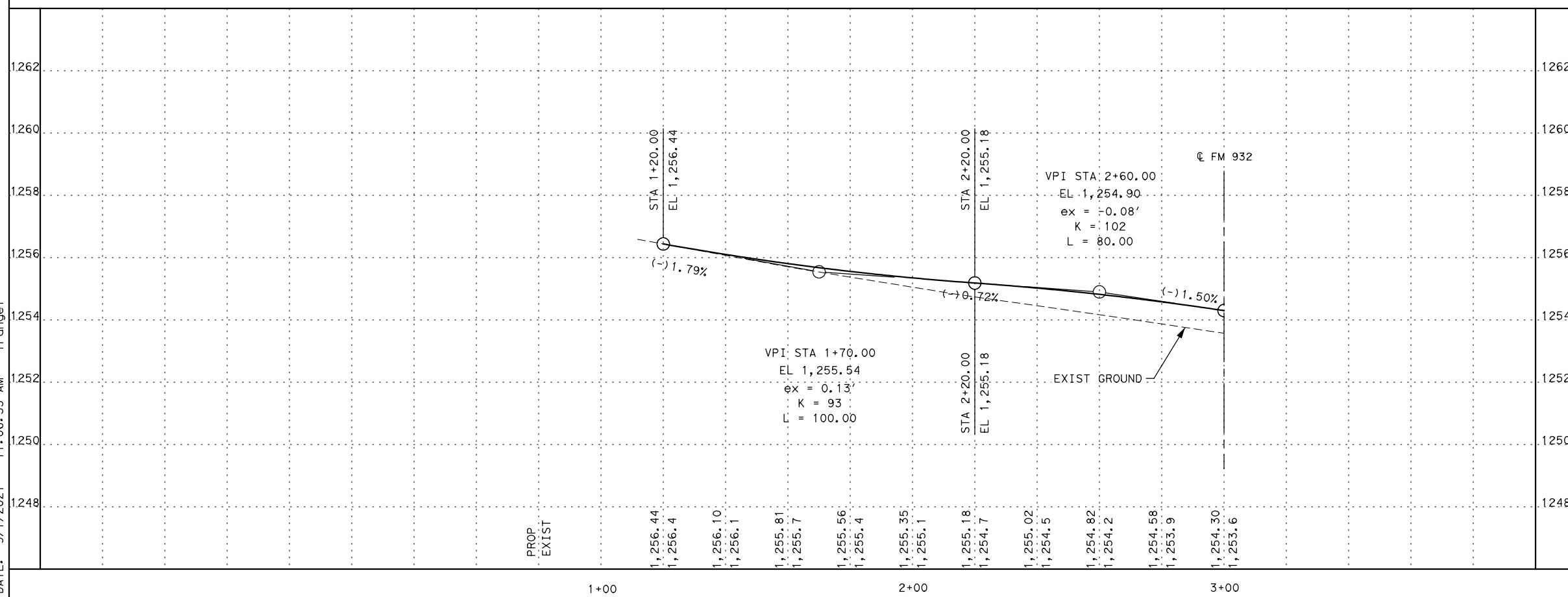
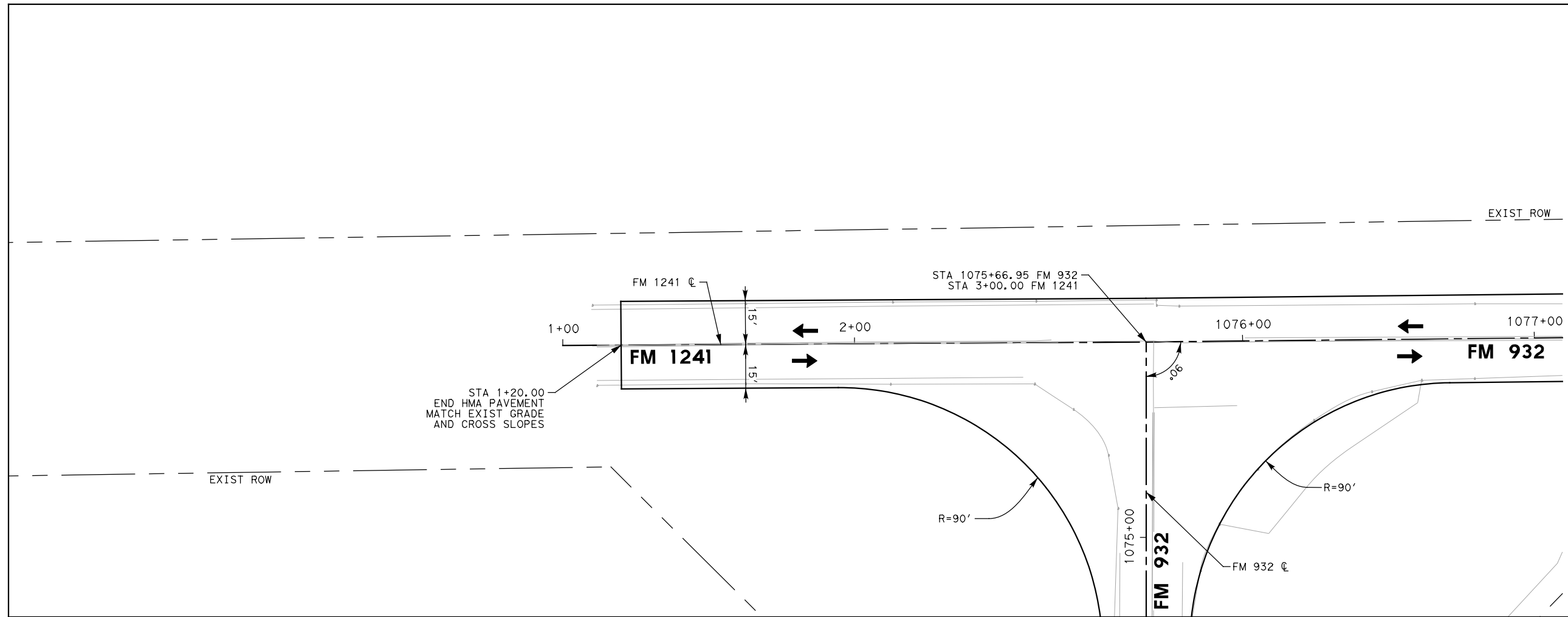


FM 932
CR 404
PLAN AND PROFILE

| | | | | | | | |
|------------|----|-------------------|---------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | SECTION | JOB | 017 | | |
| GRPH CHECK | RJ | 0867 | 01 | 017 | | | 179 |



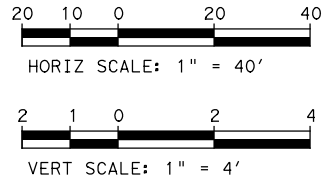
NOTES:
 1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.



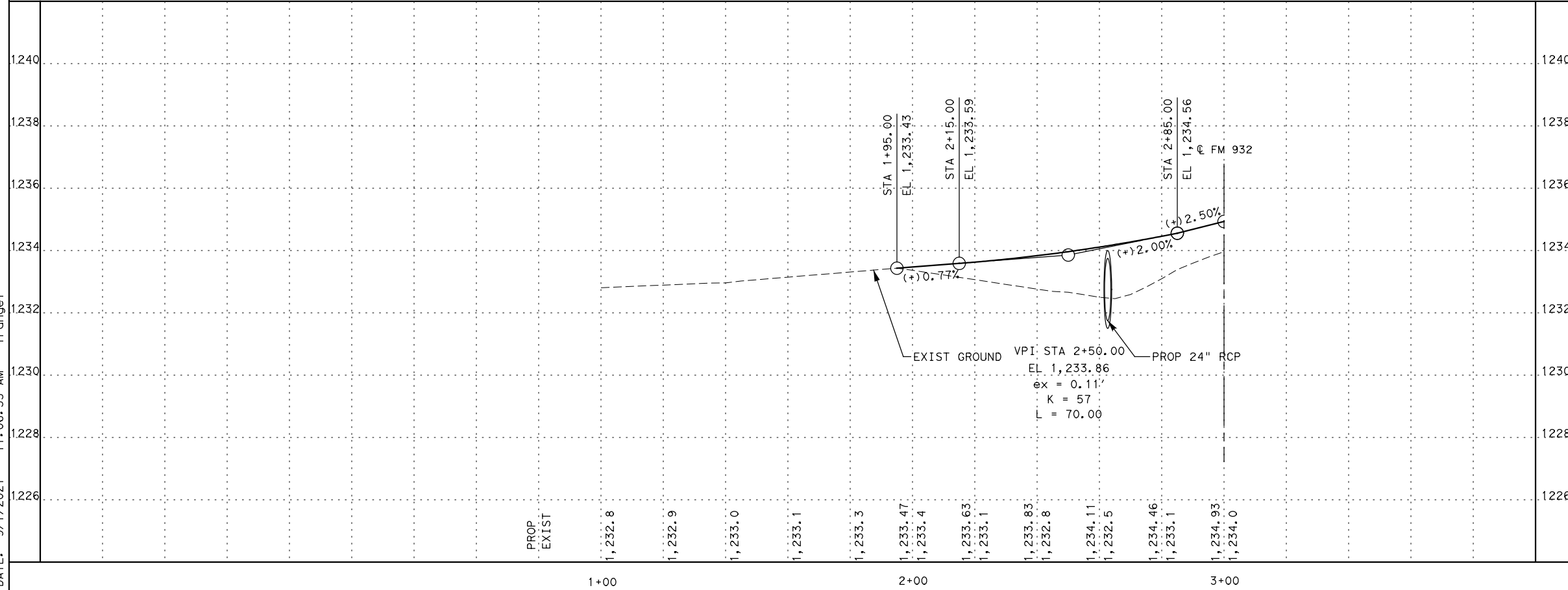
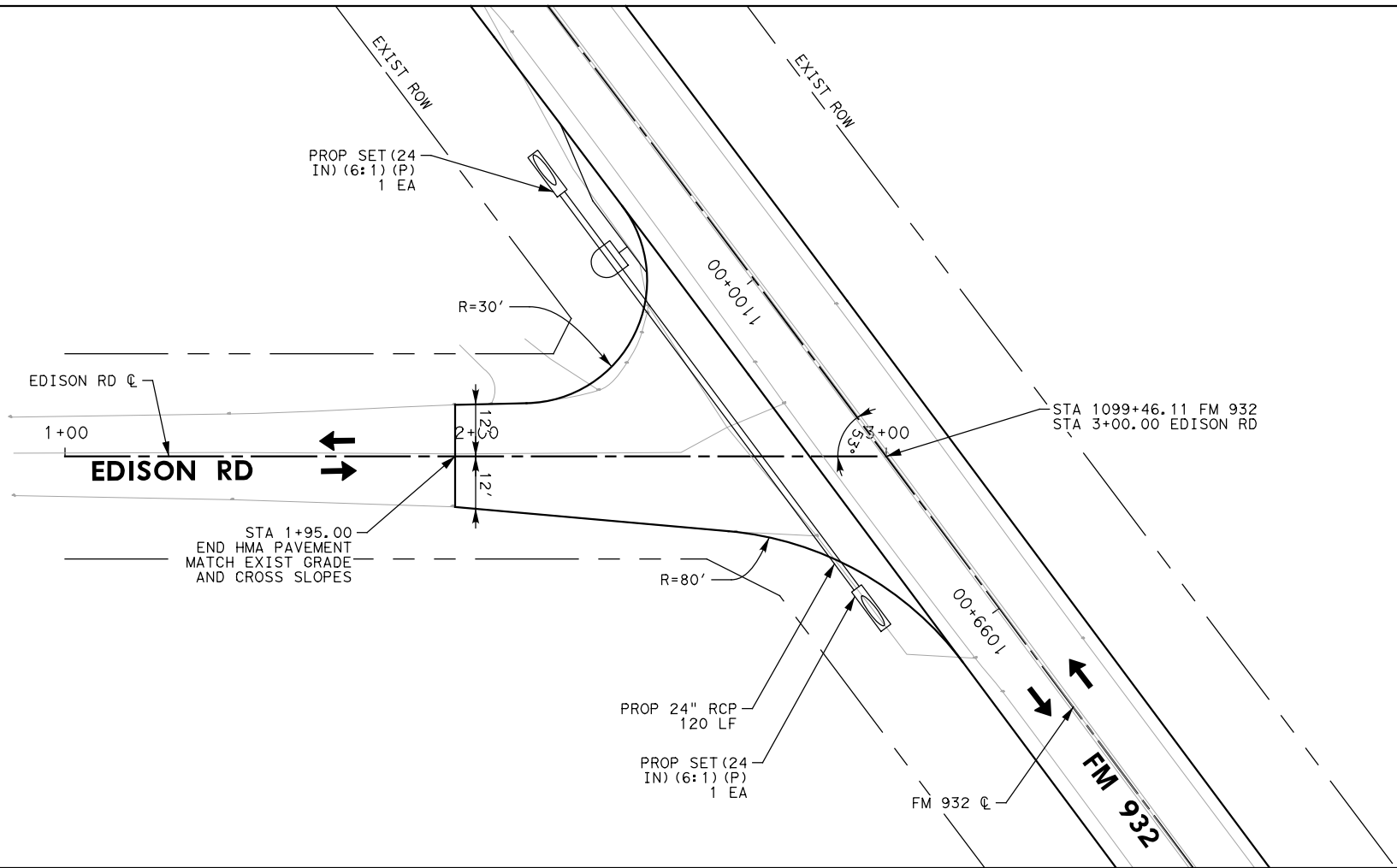
FM 932
FM 1241
PLAN AND PROFILE

| | | | | | | | |
|------------|----|-------------------|------|-------------------------|-------------------|-------------|----------|
| DESIGN | JP | FED. RD. DIV. NO. | 6 | FEDERAL AID PROJECT NO. | (SEE TITLE SHEET) | HIGHWAY NO. | FM 932 |
| DESIGN CK | RJ | STATE | TX | DISTRICT | WACO | COUNTY | HAMILTON |
| GRAPHICS | JP | CONTROL | 0867 | SECTION | 01 | JOB | 017 |
| GRPH CHECK | RJ | | | | | | 181 |

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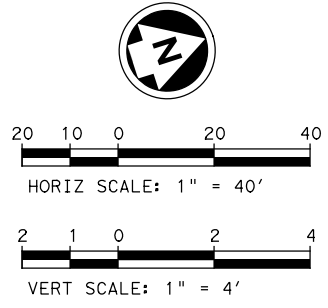
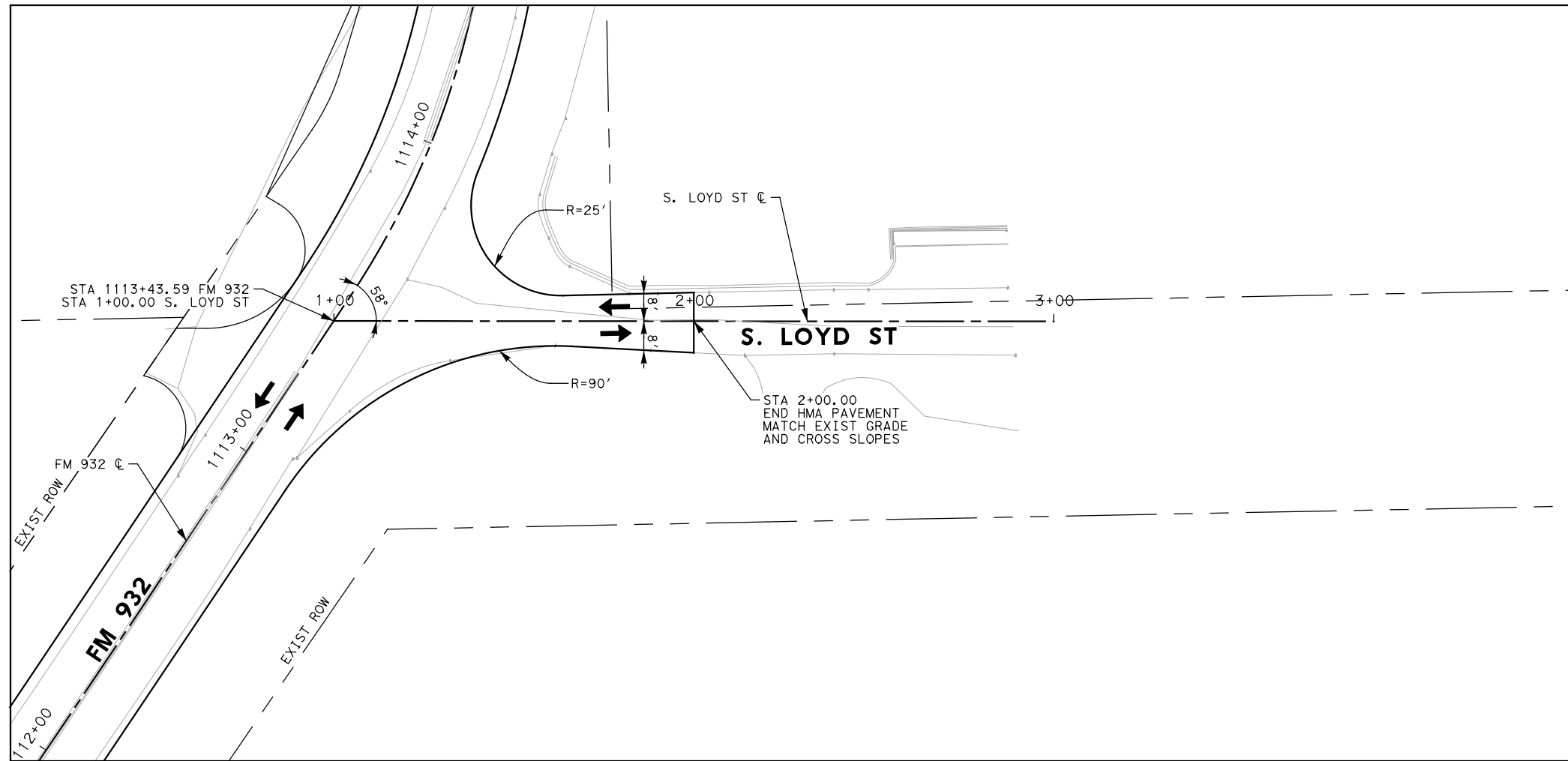
NOTES:
 1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.



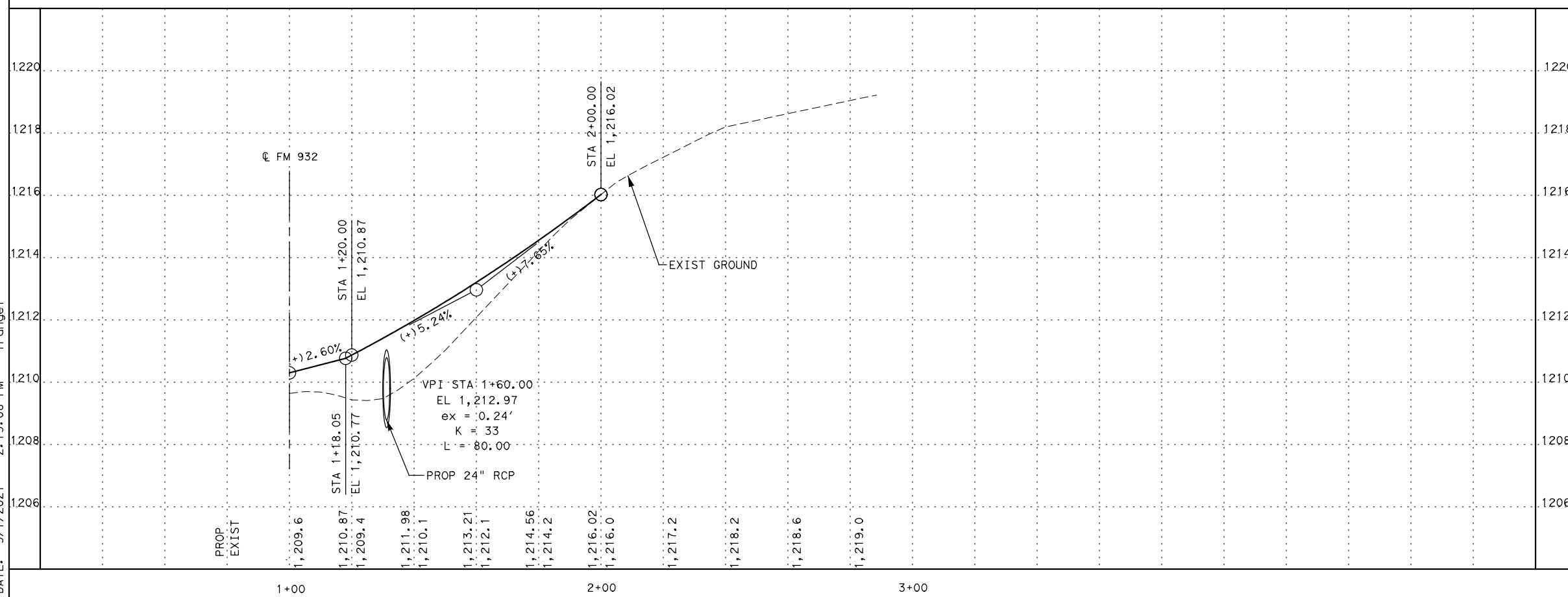
FM 932
EDISON ROAD
PLAN AND PROFILE

| | | | | |
|------------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. |
| RJ | TX | WACO | HAMILTON | 182 |
| GRAPHICS | CONTROL | SECTION | JOB | |
| JP | 0867 | 01 | 017 | |
| GRPH CHECK | | | | |
| RJ | | | | |

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 DATE: 9/1/2021 11:06:35 AM fRangeI



NOTES:
 1) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND SIGNING FOR THE SIDE STREETS AND DRIVEWAYS.

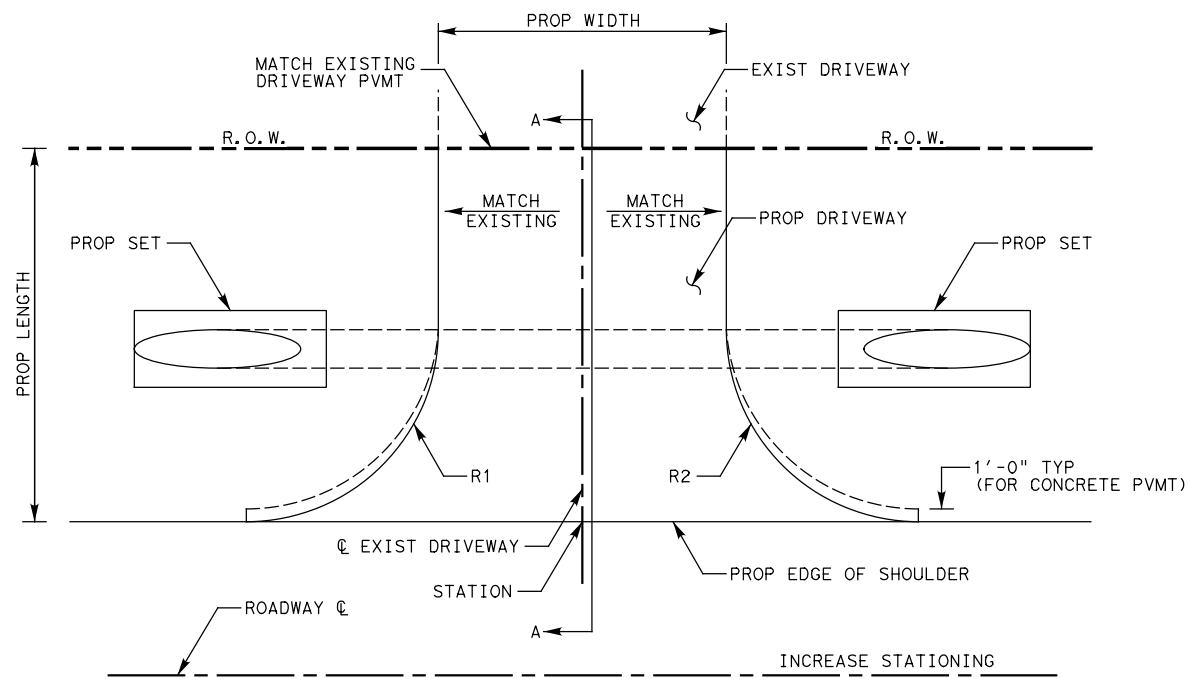


FM 932
SOUTH LOYD STREET
PLAN AND PROFILE

| | | | | |
|-----------|-------------------|-------------------------|----------|-------------|
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JP | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. |
| RJ | TX | WACO | HAMILTON | 183 |
| GRAPHICS | CONTROL | SECTION | JOB | |
| JP | RJ | 0867 | 01 017 | |

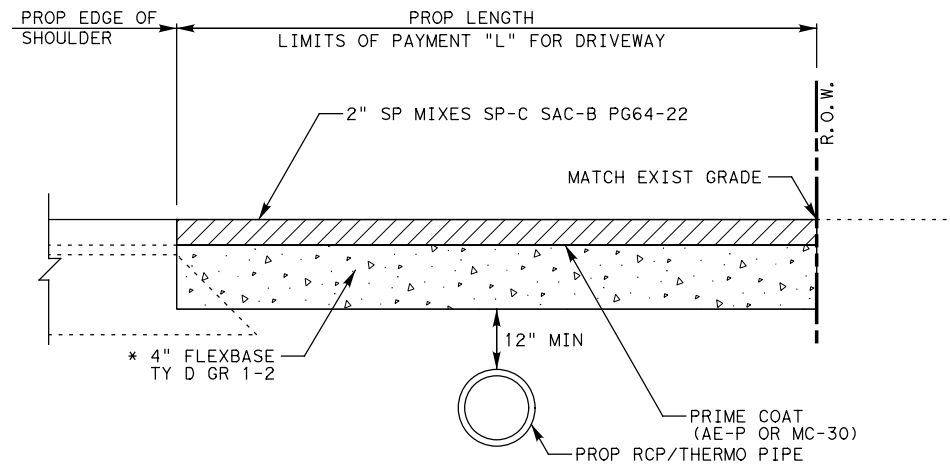
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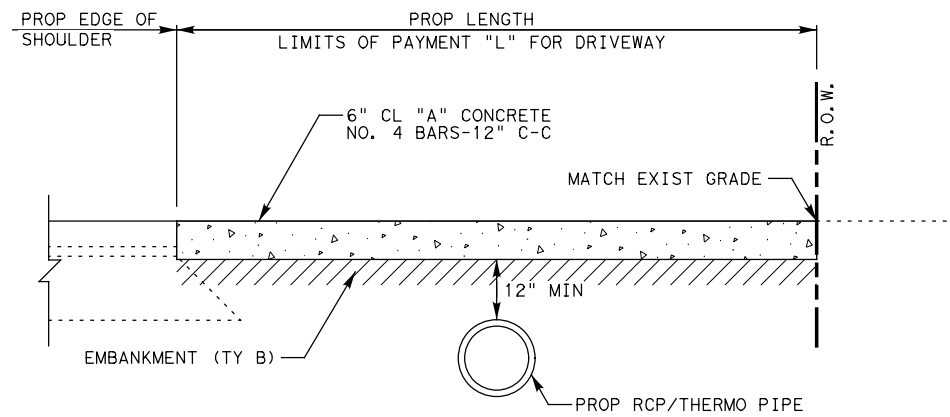


DRIVEWAYS
(NOT TO SCALE)

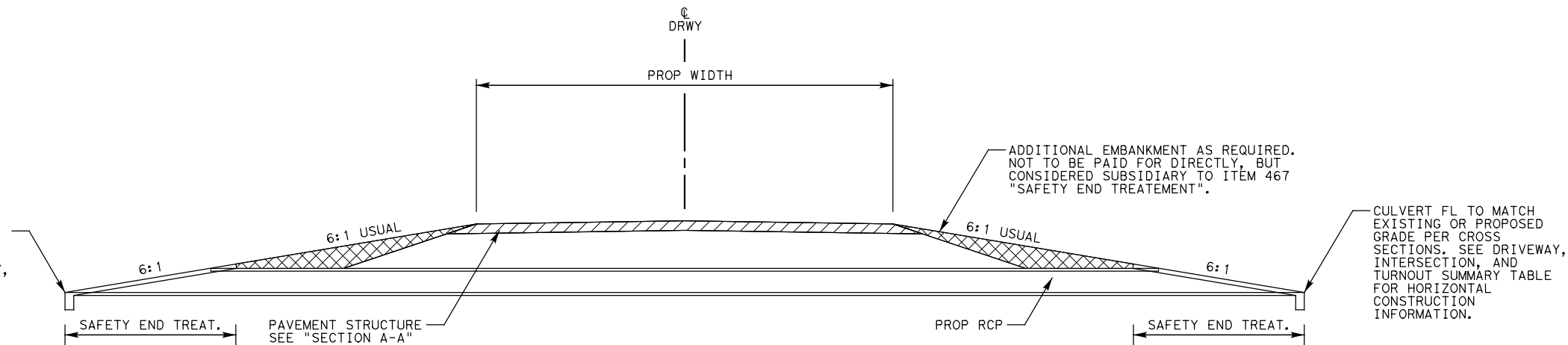
DRIVEWAYS WILL CONSIST OF: BLADING AND RESHAPING THE SUBGRADE, WORKING DITCH SLOPES UPSTREAM AND DOWNSTREAM TO ALLOW POSITIVE DRAINAGE OF ADJACENT DITCHES, PROVIDING ADDITIONAL EMBANKMENT NECESSARY TO ACHIEVE PROPER SUBGRADE WIDTH, PLACEMENT OF 4" FLEX BASE, PRIME, AND 2" SP MIXES SP-C SAC-B PG64-22 OR EMBANKMENT (TY B) AND 6" CL "A" CONCRETE. SEE SECTION A-A FOR DETAILS. ALL WORK IS CONSIDERED SUBSIDIARY TO ITEM 530.



SECTION A-A
(ASPHALT)
(NOT TO SCALE)



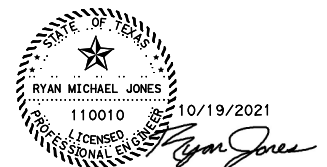
SECTION A-A
(CONCRETE)
(NOT TO SCALE)



DRIVEWAY TYPICAL SECTION
(NOT TO SCALE)

NOTES:

1. SAW CUT JOINT AT LIMIT OF ROW LINE ON DRIVEWAYS WITH AN EXISTING CONCRETE OR ASPHALT SURFACE.
2. SEE PLANS LAYOUTS AND DRIVEWAY QUANTITIES FOR ADDITIONAL DETAILS & DIMENSIONS.
3. MINIMUM DRIVEWAY WIDTH IS 16' FOR DRIVEWAY RECONSTRUCTION.
4. 2" SP MIXES SP-C SAC-B PG64-22 FOR DRIVEWAY WILL BE CONSTRUCTED WITH FINAL ROADWAY SURFACE. ALL WORK WILL BE PAID UNDER ITEM 530.
5. ADDITIONAL GRADING OF DITCHES ADJACENT TO DRIVEWAY PIPE MAY BE REQUIRED TO PLACE PIPE AT PROPER DEPTH BELOW PROPOSED DRIVEWAY AND MAINTAIN POSITIVE DRAINAGE.
6. REMOVAL OF EXISTING ASPHALT AND CONCRETE DRIVEWAY IS SUBSIDIARY TO ITEM 530.
7. COUNTY ROADS (CR) TO BE PAID FOR USING ITEM 530 DRIVEWAYS(ACP).



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FM 932

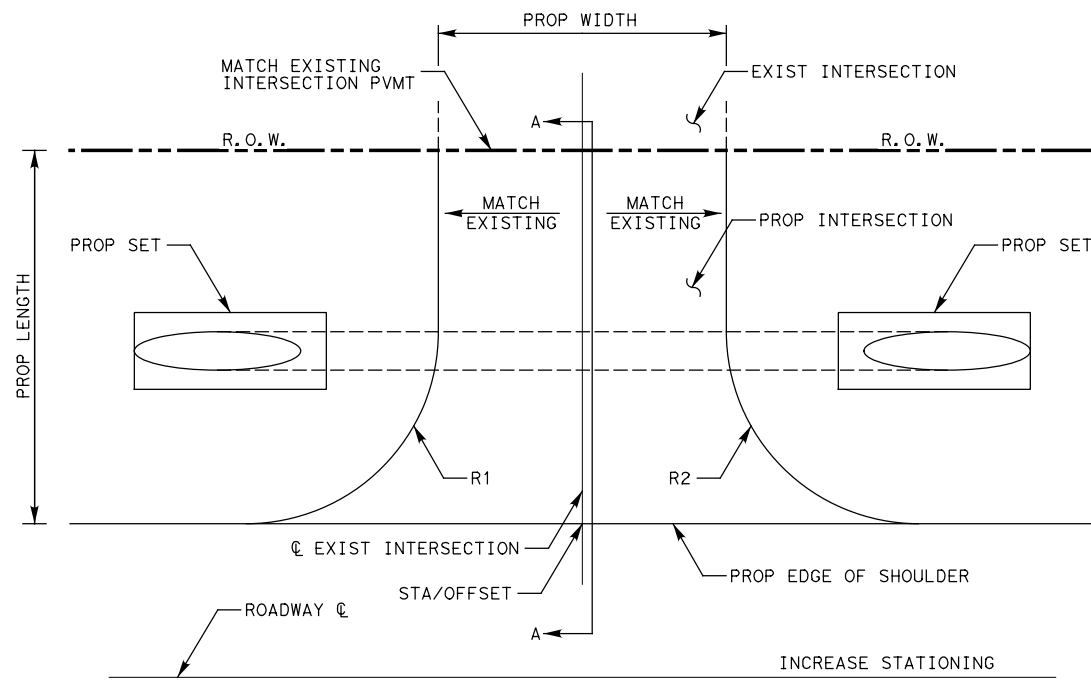
DRIVEWAY DETAILS

(SHEET 1 OF 1)

| | | | | |
|---------------|---------------------|---|-----------------|--------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 184 |
| GRAPHICS JP | CONTROL | SECTION | JOB | |
| GRPH CHECK RJ | 0867 | 01 | 017 | |

NOTES:

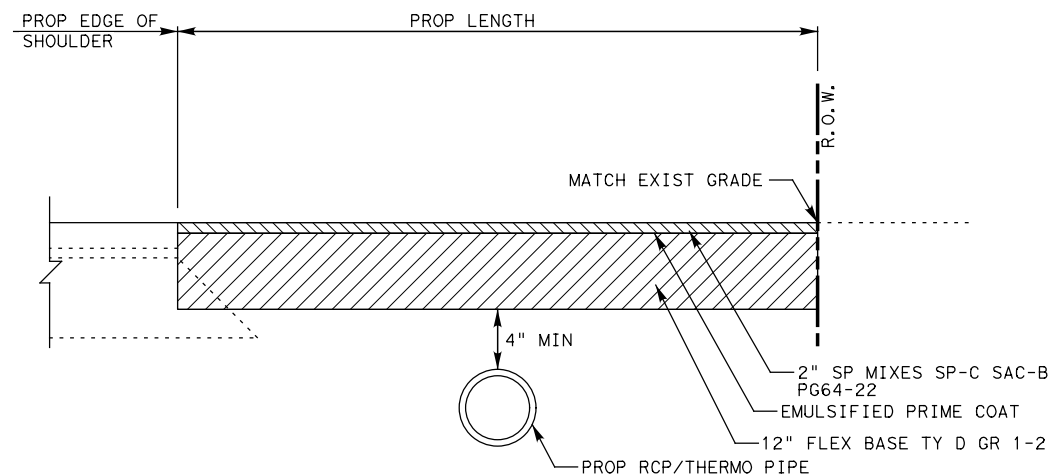
1. SAW CUT JOINT AT LIMIT OF PAY LINE ON INTERSECTION WITH AN EXISTING ASPHALT SURFACE.
2. SEE PLANS LAYOUTS AND INTERSECTION QUANTITIES FOR ADDITIONAL DETAILS & DIMENSIONS.
3. MINIMUM INTERSECTION WIDTH IS 16' FOR INTERSECTION RECONSTRUCTION.
4. 2" SP MIXES SP-C SAC-B PG64-22 FOR INTERSECTION WILL BE CONSTRUCTED WITH FINAL ROADWAY SURFACE. ALL WORK WILL BE PAID UNDER ITEM 530.
5. ADDITIONAL GRADING OF DITCHES ADJACENT TO INTERSECTION PIPE MAY BE REQUIRED TO PLACE PIPE AT PROPER DEPTH BELOW PROPOSED DRIVEWAY AND MAINTAIN POSITIVE DRAINAGE.
6. FARM TO MARKET (FM) SIDESTREETS TO BE PAID FOR USING ITEM 530 INTERSECTIONS (ACP) (TYPE 2)
7. COUNTY ROAD (CR) TO BE PAID FOR USING ITEM 530 DRIVEWAYS (ACP).
8. REMOVAL OF EXISTING ASPHALT INTERSECTION PAVEMENT IS SUBSIDIARY TO ITEM 530.



INTERSECTION

(NOT TO SCALE)

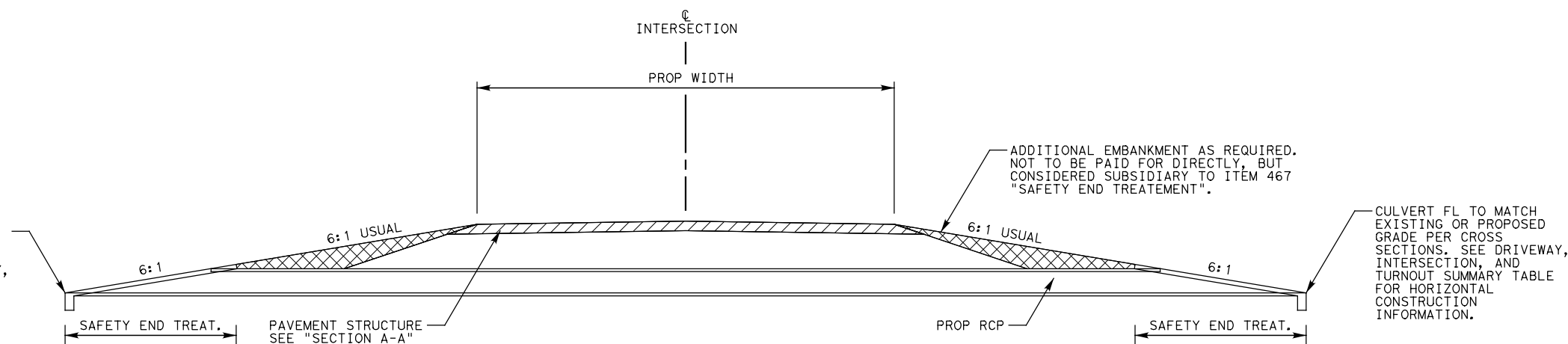
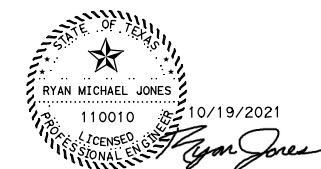
INTERSECTIONS WILL CONSIST OF: BLADING AND RESHAPING THE SUBGRADE, WORKING DITCH SLOPES UPSTREAM AND DOWNSTREAM TO ALLOW POSITIVE DRAINAGE OF ADJACENT DITCHES, PROVIDING ADDITIONAL EMBANKMENT NECESSARY TO ACHIEVE PROPER SUBGRADE WIDTH, 6" FLEX BASE TY D GR 1-2, EMULSIFIED PRIME COAT, AND 2" SP MIXES SP-C SAC-B PG64-22. SEE SECTION A-A FOR DETAILS. ALL WORK IS CONSIDERED SUBSIDIARY TO ITEM 530.



SECTION A-A

(TYPE 2)

(NOT TO SCALE)



INTERSECTION TYPICAL SECTION

(NOT TO SCALE)

CULVERT FL TO MATCH EXISTING OR PROPOSED GRADE PER CROSS SECTIONS. SEE DRIVEWAY, INTERSECTION, AND TURNOUT SUMMARY TABLE FOR HORIZONTAL CONSTRUCTION INFORMATION.

PAVEMENT STRUCTURE SEE "SECTION A-A"

PROP RCP

CULVERT FL TO MATCH EXISTING OR PROPOSED GRADE PER CROSS SECTIONS. SEE DRIVEWAY, INTERSECTION, AND TURNOUT SUMMARY TABLE FOR HORIZONTAL CONSTRUCTION INFORMATION.



FIRM REGISTRATION NO. F-230

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FM 932

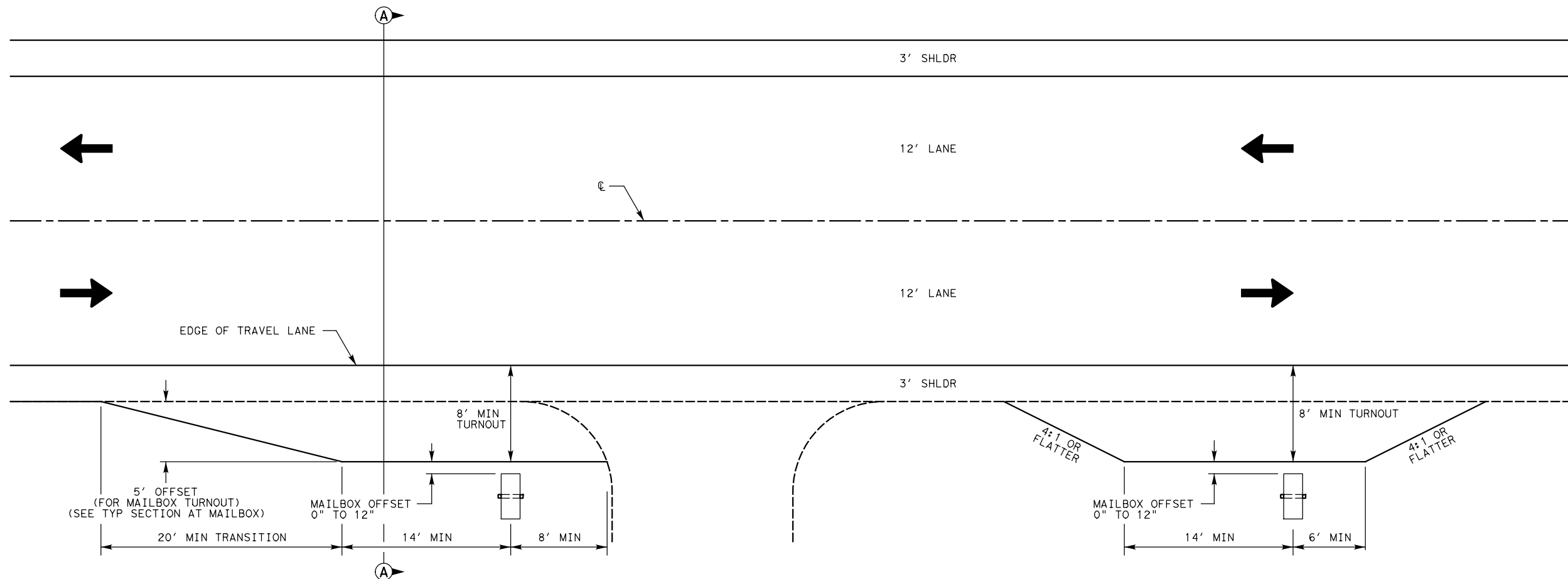
INTERSECTION DETAILS

(SHEET 1 OF 1)

| | | | | |
|---------------|---------------------|---|-----------------|--------------------|
| DESIGN JP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK RJ | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 185 |
| GRAPHICS JP | CONTROL | SECTION | JOB | |
| GRPH CHECK RJ | 0867 | 01 | 017 | |

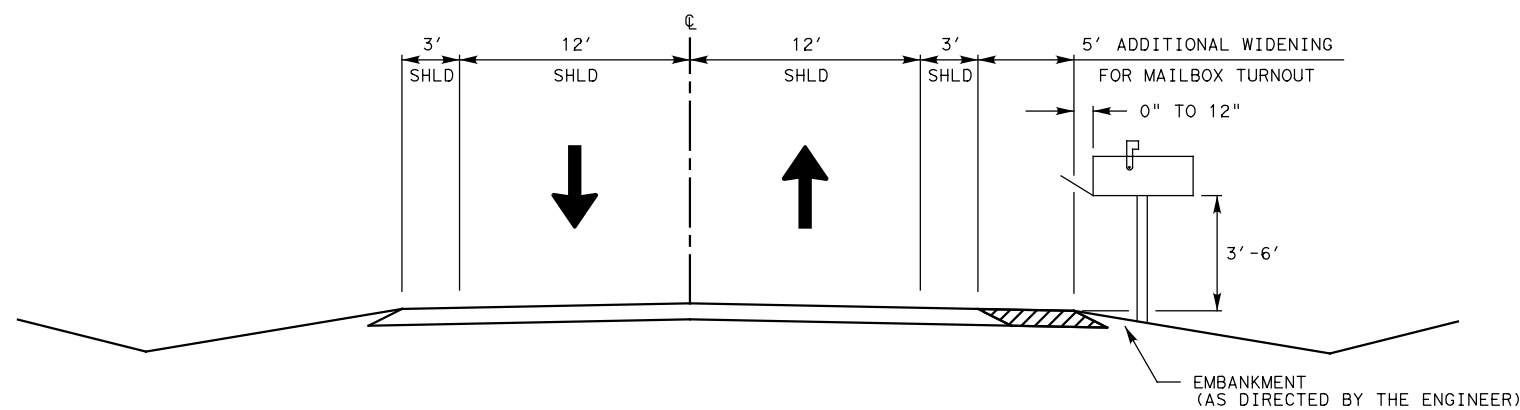
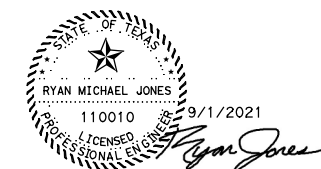
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DATE: 10/19/2021 9:40:17 AM jphili.ipp

FILE: P:\MSGP\TXD18248\05-FM*932\PROD*SHEETS\DETAIL*TURNOUT.dgn
 DATE: 9/1/2021 11:06:44 AM frange1



TYPICAL MAILBOX TURNOUT DETAIL
 NTS

NOTE:
 USE THE FM 932 PROPOSED PAVEMENT STRUCTURE AS SHOWN ON THE PROPOSED TYPICAL SECTIONS FOR ALL PROPOSED MAILBOX TURNOUTS. PROPOSED MAILBOX TURNOUTS WILL BE PAID FOR UNDER ROADWAY ITEMS.



SECTION A-A
 NTS



FIRM REGISTRATION NO. F-230

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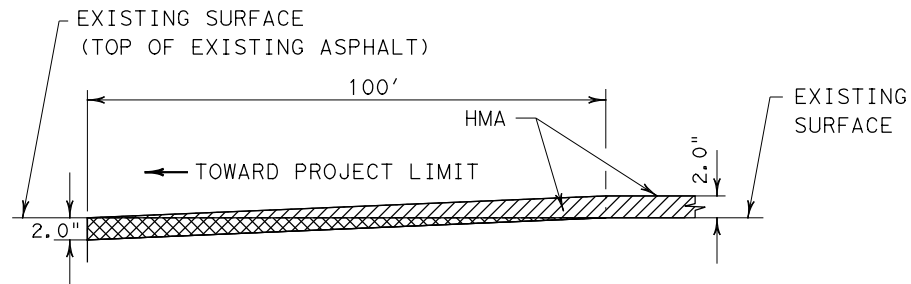
FM 932

MAILBOX TURNOUT DETAILS

(SHEET 1 OF 1)

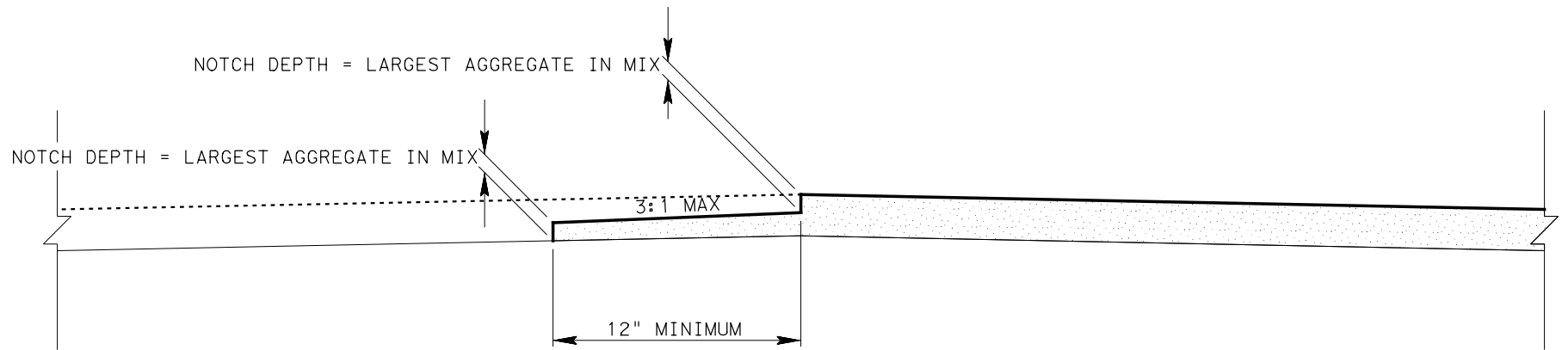
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| DESIGN CK RJ | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 186 |
| GRAPHICS JP | CONTROL | SECTION | JOB | |
| GRPH CHECK RJ | 0867 | 01 | 017 | |

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 DATE: 9/1/2021 11:06:47 AM frange1



**PLANE TRANSITION DETAIL
 (PLANE PAV 0-2.0")**

NOT TO SCALE



TAPERED JOINT DETAIL

NOTES: LONGITUDINAL JOINTS SHALL BE CONSTRUCTED BY TAPERING THE BITUMINOUS MAT. THE TAPERED PORTION SHALL EXTEND BEYOND THE NORMAL LANE WIDTH. THE TAPERED PORTION OF THE MAT SHALL BE CONSTRUCTED BY THE USE OF AN APPROVED STRIKE-OFF DEVICE THAT WILL PROVIDE A UNIFORM SLOPE AND WILL NOT RESTRICT THE MAIN SCREED. TACK COAT SHALL BE APPLIED TO THE IN-PLACE TAPER BEFORE THE ADJACENT MAT IS PLACED. FINAL DENSITY REQUIREMENTS FOR THE ENTIRE PAVEMENT, INCLUDING THE TAPER AREA, WILL REMAIN UNCHANGED. COMPACTION OF THE INITIAL TAPER SECTION WILL BE REQUIRED AS NEAR TO FINAL DENSITY AS POSSIBLE.

NOTCH DEPTH = LARGEST AGGREGATE IN MIX.

HOT MIX LONGITUDINAL JOINT DETAILS



FIRM REGISTRATION NO. F-230



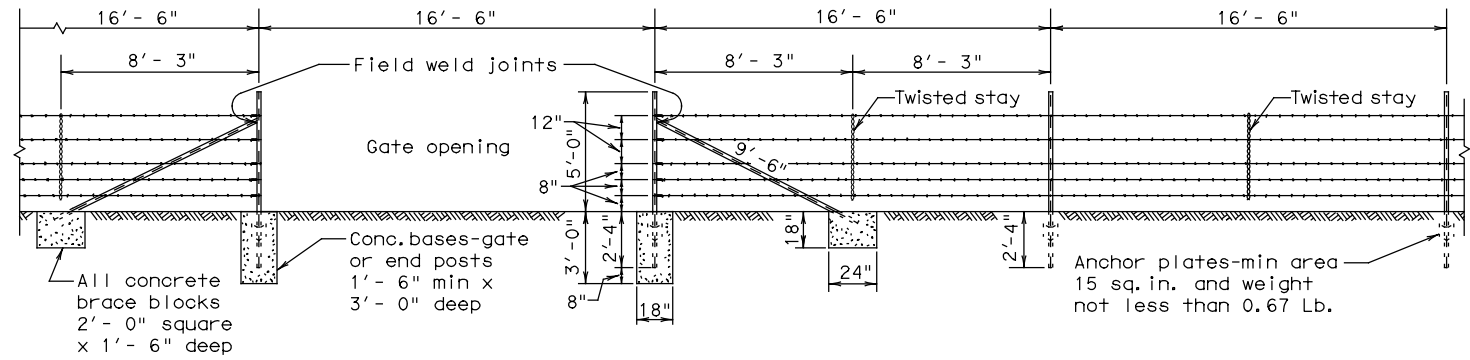
**FM 932
 MISCELLANEOUS
 ROADWAY
 DETAILS**

(SHEET 1 OF 1)

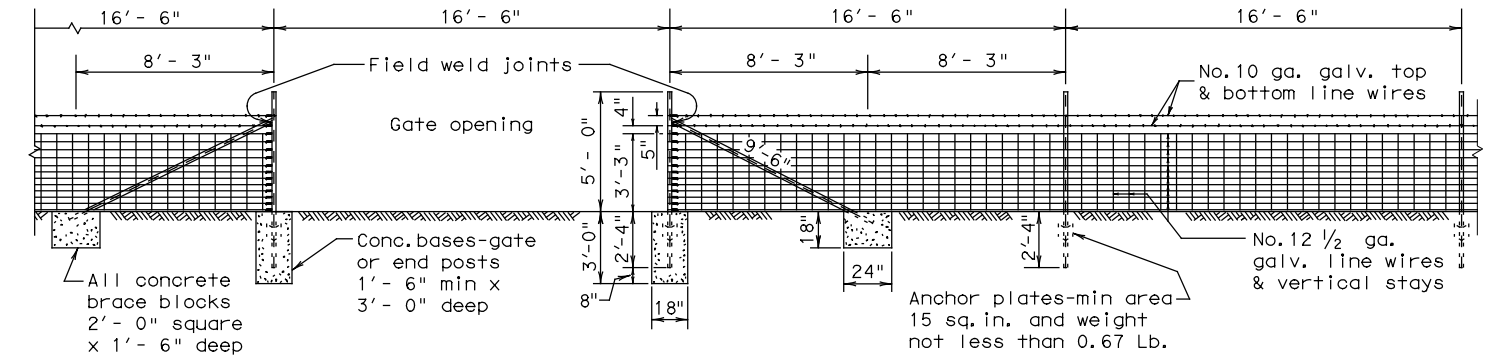
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| DESIGN CK RJ | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 187 |
| GRAPHICS JP | CONTROL 0867 | SECTION 01 | JOB 017 | |
| GRPH CHECK RJ | | | | |

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DATE: 9/11/2021 11:06:49 AM
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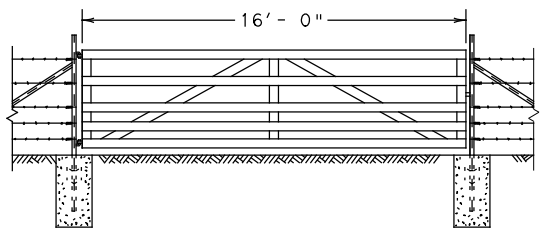
SECTION GALVANIZED BARBED WIRE FENCE WITH METAL POSTS
 BRACING DETAIL USED AT ENDS AND GATES
TYPE "C" FENCE
 (See General Note 8)



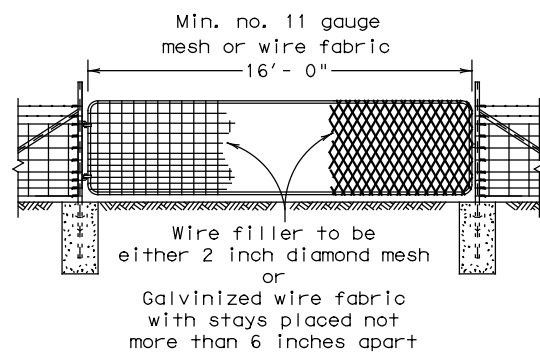
SECTION GALVANIZED WOVEN WIRE FENCE WITH METAL POSTS
 BRACING DETAIL USED AT ENDS AND GATES
TYPE "D" FENCE
 (See General Note 8)

Note:
 For Steel pipe and T-Post requirements.
 (See General Notes 6 & 7)

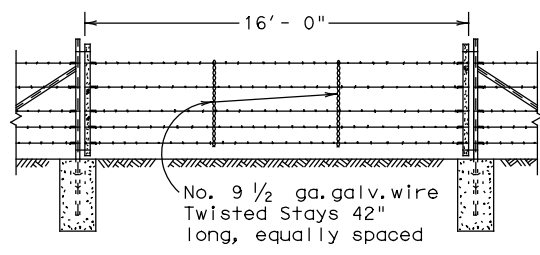
Metal gate shall consist of 5 panels not less than 4'-4" high and shall be aluminum or galvanized metal and of good quality. Gate and hardware shall meet the approval of the engineer.



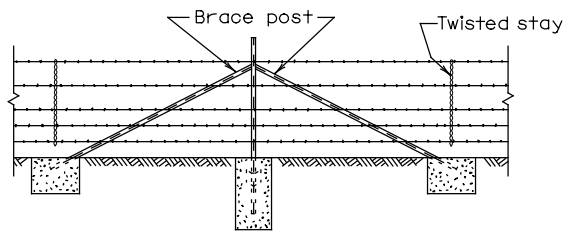
DETAIL TYPE 1 GATE



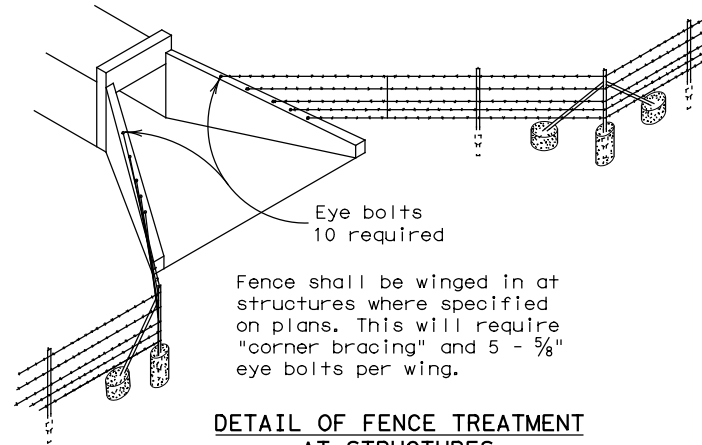
DETAIL TYPE 2 GATE



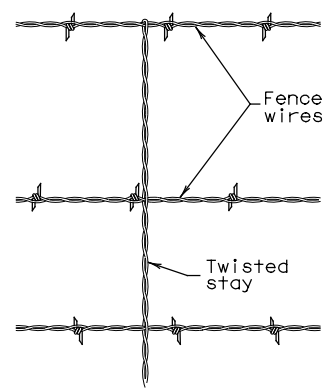
DETAIL TYPE 3 GATE



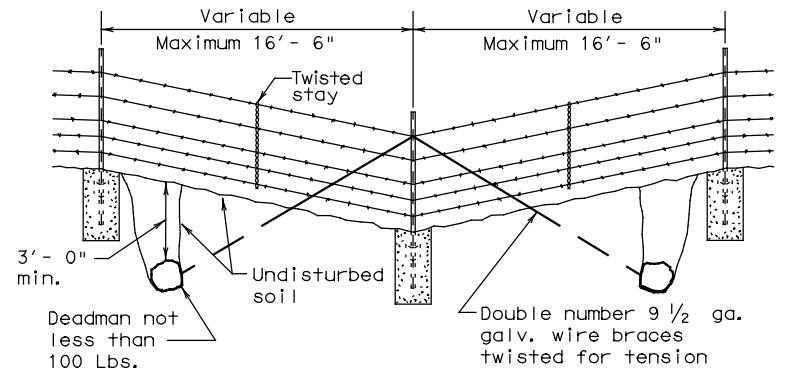
CORNER OR PULL POST ASSEMBLY



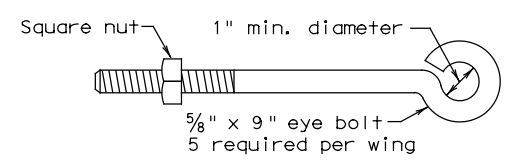
DETAIL OF FENCE TREATMENT AT STRUCTURES



DETAIL OF STAY (Barbed Wire Fence)



DETAIL OF FENCE SAG



DETAIL OF EYE BOLT

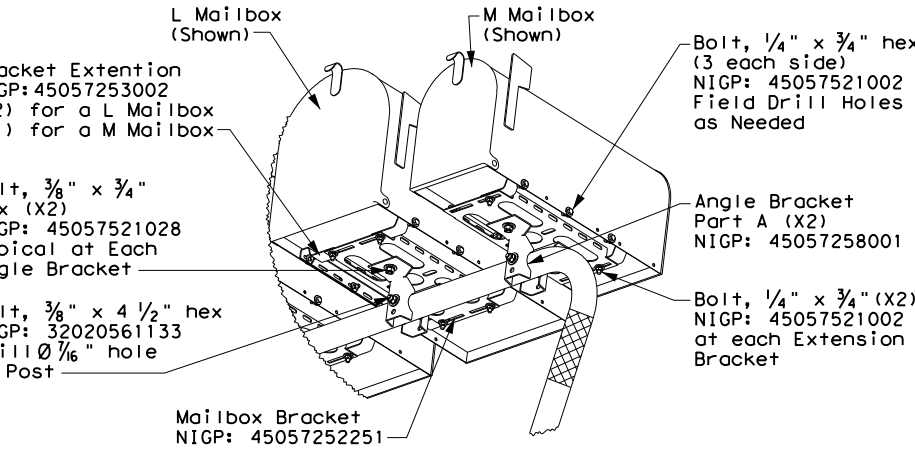
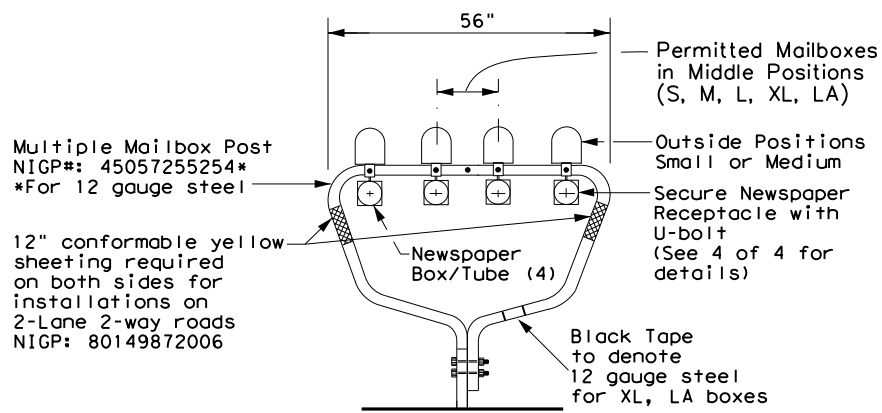
GENERAL NOTES

- Any high point which interferes with the placing of wire mesh shall be excavated to provide a 2 inch clearance.
- Latches for Type 1 and Type 2 gates shall be good commercial quality and design latch of the spring, fork or chain type. All latches shall be suitable to the gate and shall be approved by the Engineer.
- Hinges for Type 2 gates shall be a commercial design approved by the Engineer suitable for post and gate.
- Concrete shall be of the design and consistency approved by the Engineer and shall contain not less than 4 sacks of cement per cubic yard. Concrete footings are to be crowned at the top to shed water.
- Steel anchor plates shall be of a design and thickness sufficient to prevent turning of the post in firm soil.
- Steel pipe end posts, corner and pull posts shall be a minimum of 2" Std. pipe (2.375" O.D., 0.154" wall thickness) with a 1/4" Std. pipe brace (1.660" O.D., 0.140" wall thickness), with a 2"x2"x1/4" angle, or other as approved by the Engineer. Fasteners for securing barbed wire or woven wire fence to metal posts shall be a minimum of 11 gauge galvanized steel wire. Tubular posts shall be fitted with water malleable iron caps.
- If Steel pipe is used for posts and braces, use standard pipe in accordance with ASTM A 53, Class B or A 501. For T-Posts use steel that meets ASTM A 702. Metal line posts shall be not less than 6'-6" in length and shall weigh not less than (1.33 lbs./lin.ft.). These items shall be in accordance with Item 552, "Wire Fence."
- Barbed Wire shall be in accordance with ASTM A 121, Class 1 Design designation 12-2-4-1 4R or 12-2-5-1 4R, or as approved by the Engineer.
- Woven Wire Fence (Type D) shall be in accordance with ASTM A 116, Class 1 No. 12-1/2 Grade 60 (See Table 1 ASTM A 116) to the height and design shown on the plans, or as approved by the Engineer.
- The location of gates and corner posts will be as indicated elsewhere in these plans.

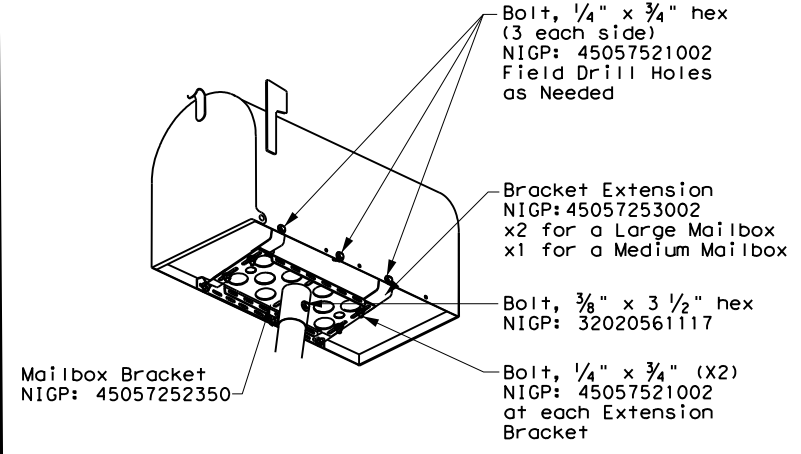
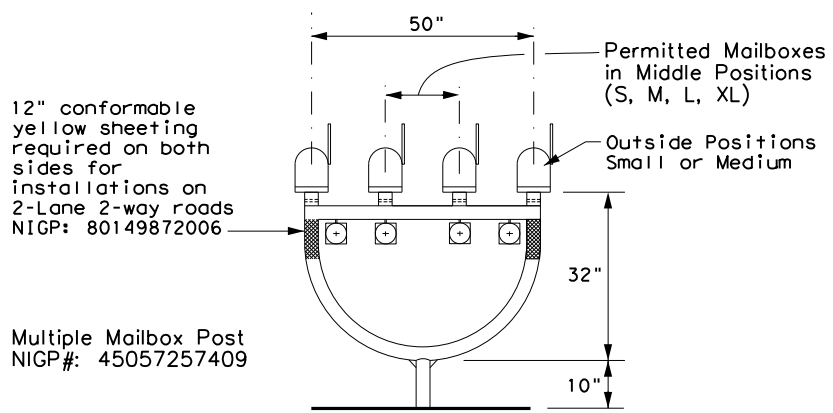
| | | | |
|---|-----------|---------------------------------|-----------|
| | | Design Division Standard | |
| BARBED WIRE AND WOVEN WIRE FENCE (STEEL POSTS) WF (2) - 10 | | | |
| FILE: wf210.dgn | DN: TxDOT | CK: AM | DW: VP |
| © TxDOT 1996 | CONT SECT | JOB | HIGHWAY |
| REVISIONS | 0867 01 | 017 | FM 932 |
| | DIST | COUNTY | SHEET NO. |
| | WACO | HAMILTON | 188 |

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TYPE 1 - MULTIPLE



TYPE 4 - MULTIPLE



MAILBOX SIZES

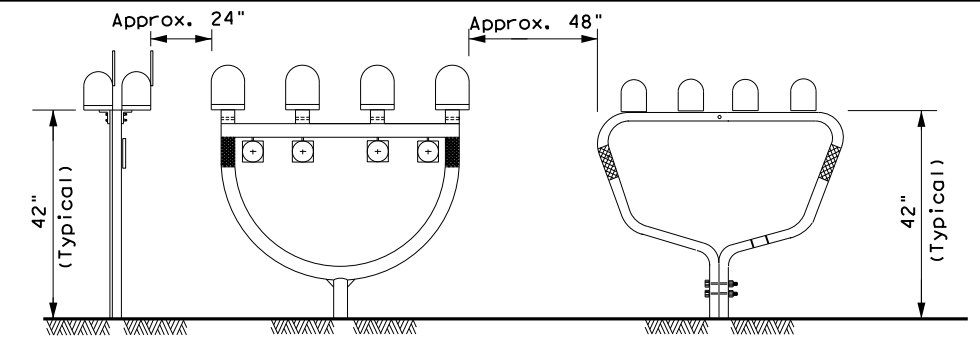
| MAILBOX SIZE | TYPICAL DIMENSIONS | | | MAX ** |
|--------------|--------------------|---------|-----------|--------|
| | LENGTH | WIDTH | HEIGHT | |
| SMALL | 19 1/2" | 6" | 7" | 6 LBS |
| MEDIUM | 22 1/2" * | 8" * | 11 1/2" * | 8 LBS |
| LARGE | 23 1/2" | 11 1/2" | 13 1/2" | 11 LBS |
| EXTRA LARGE | 18" | 14" | 12" | 13 LBS |
| LOCKABLE | 18" | 11 1/2" | 15" | 23 LBS |

GENERAL NOTES:

- 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.
- 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.

* See Note 1.
 ** Excluding Molded Plastic on 4 X 4 Post

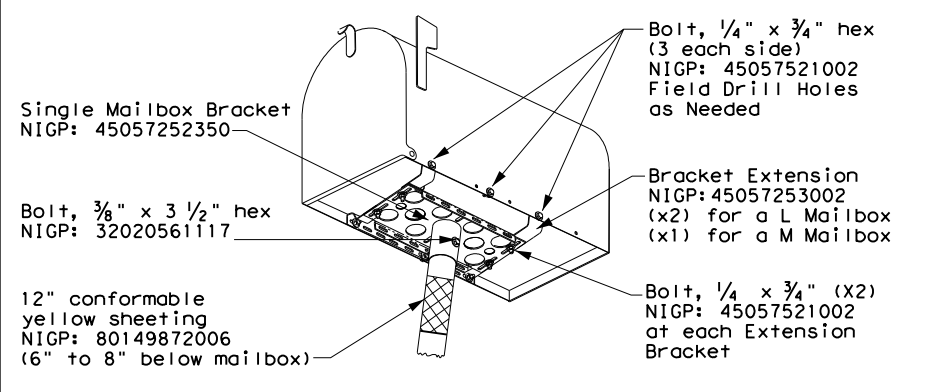
TYPICAL INSTALLATION MEASUREMENTS



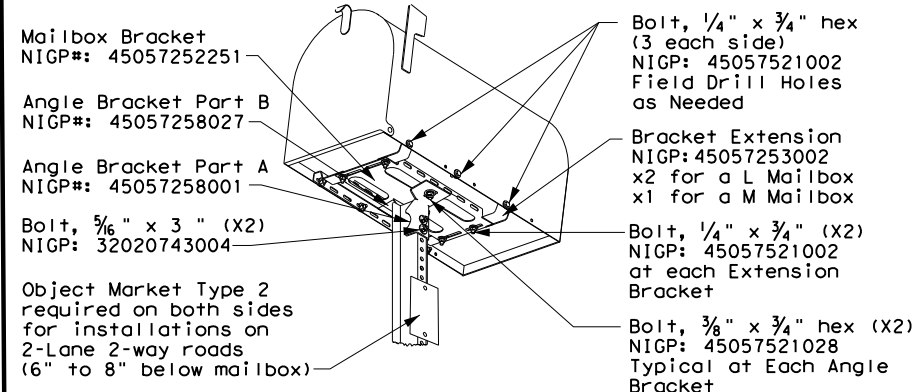
NOTE:

Mailbox installations in sidewalk areas shall be in accordance with the latest TxDOT Design Standard sheets PED-Pedestrian Facilities Curb Ramps.

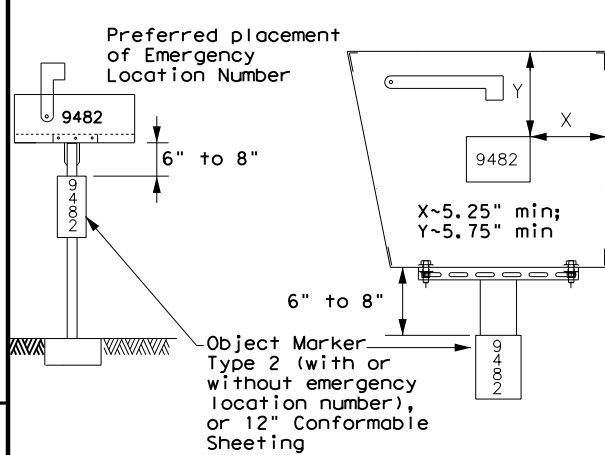
TYPE 2 and 4 - SINGLE/DOUBLE



TYPE 3 - SINGLE/DOUBLE

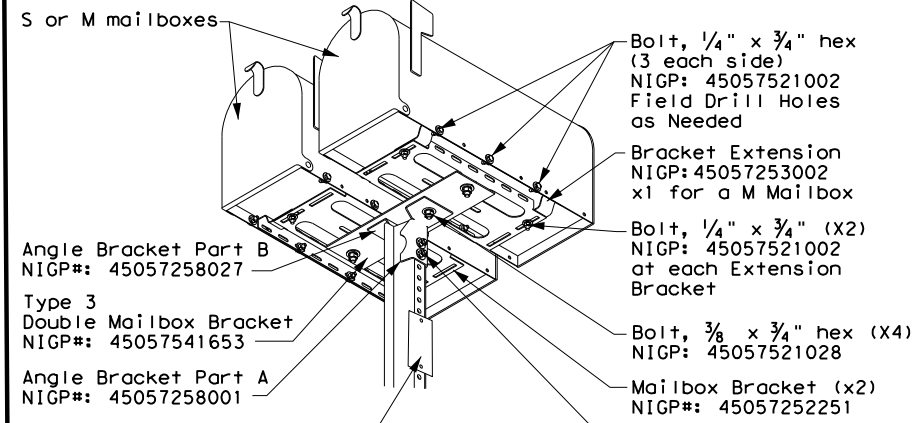
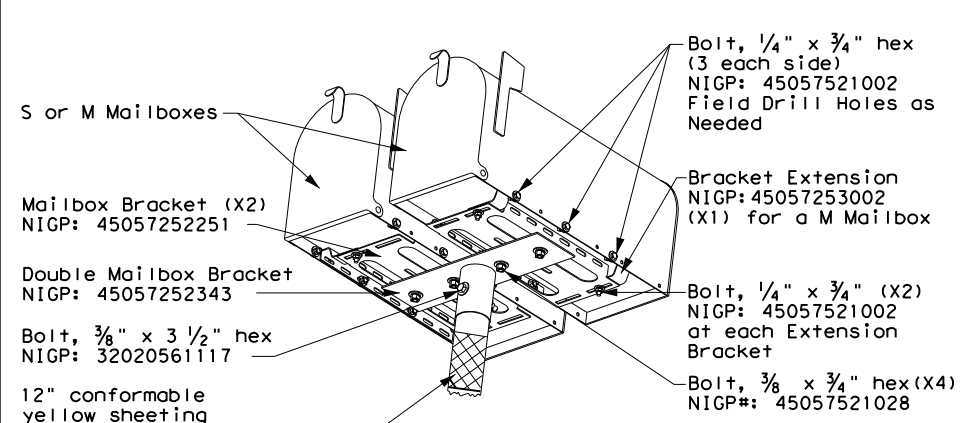


PLACEMENT OF EMERGENCY LOCATION NUMBER

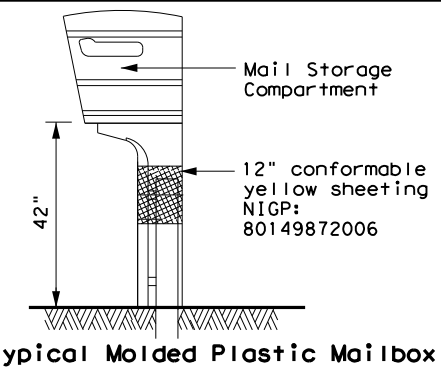


NOTES:

- Location numbers are provided by homeowner. Minimum size 1" height.
- Location number is typically placed on the mailbox in a contrasting color.
- Black numbers may be placed on the Type 2 object marker if the numbers cannot be placed on the mailbox.
- 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.
- See 3 of 4 for Foundation details.
- See 4 of 4 for Hardware details.



TYPE 5



NOTE:

Double mailbox mounts are not allowed with a type 4 multiple mailbox installation

SHEET 1 OF 4



MAILBOX MOUNTING AND ASSEMBLY

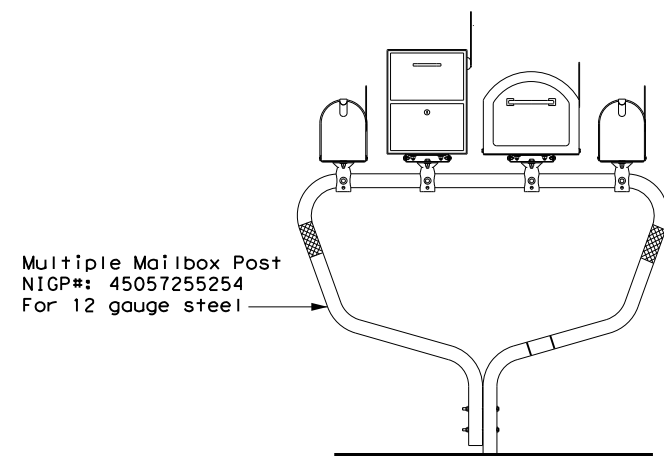
MB(1)-21

| | | | | |
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| © TxDOT March 2004 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 2/2005 | 11/2009 | 4/2015 | | |
| 6/2005 | 1/2011 | | | |
| 11/2006 | 7/2014 | | | |
| | DIST | COUNTY | | SHEET NO. |
| | WAC | HAMILTON | | 189 |

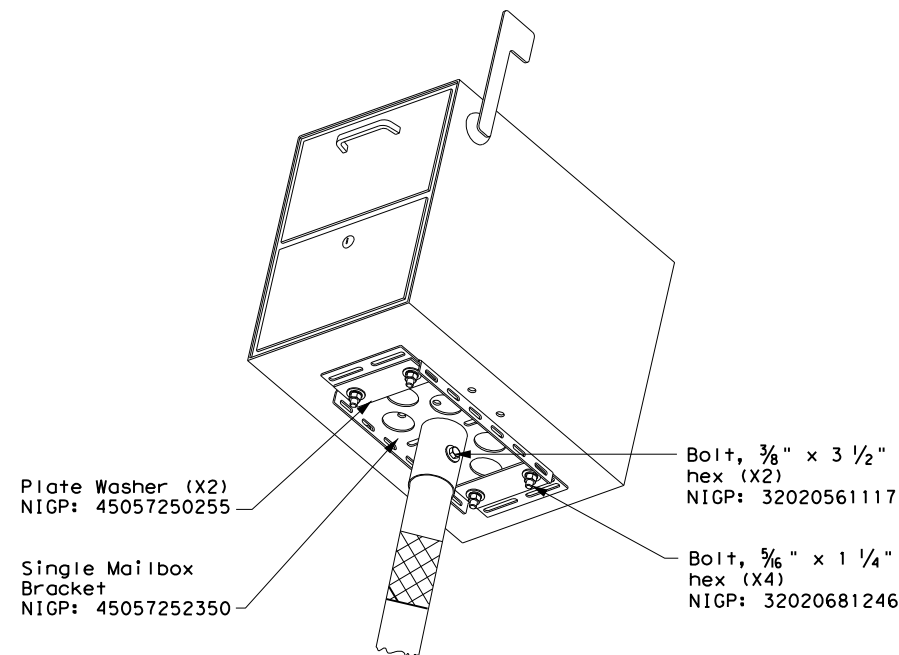
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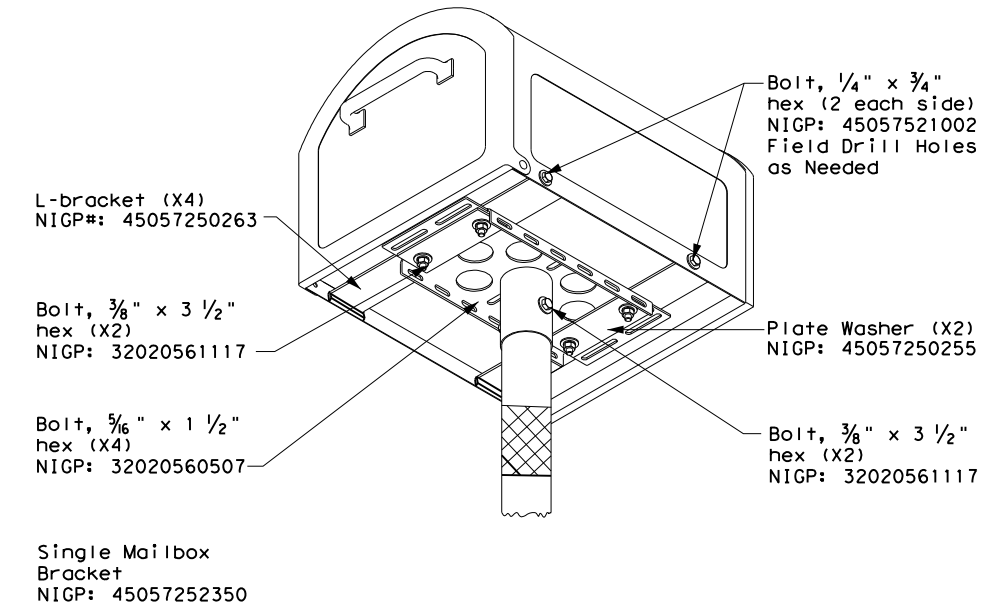
TYPE 1 - MULTI LOCKABLE AND XL MAILBOX



TYPE 2/4 - SINGLE LOCKABLE MAILBOX

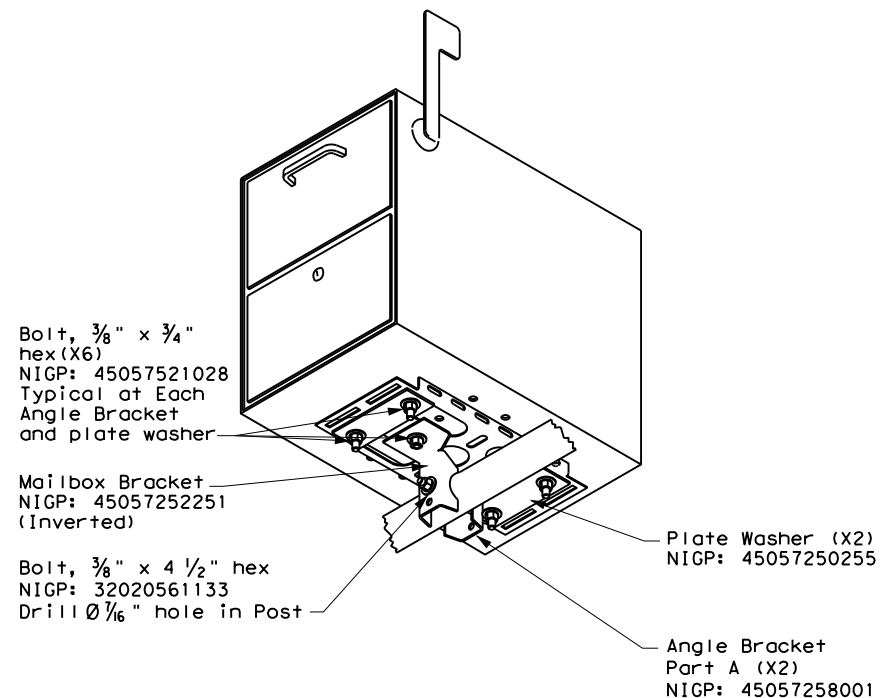


TYPE 2/4 - SINGLE XL MAILBOX

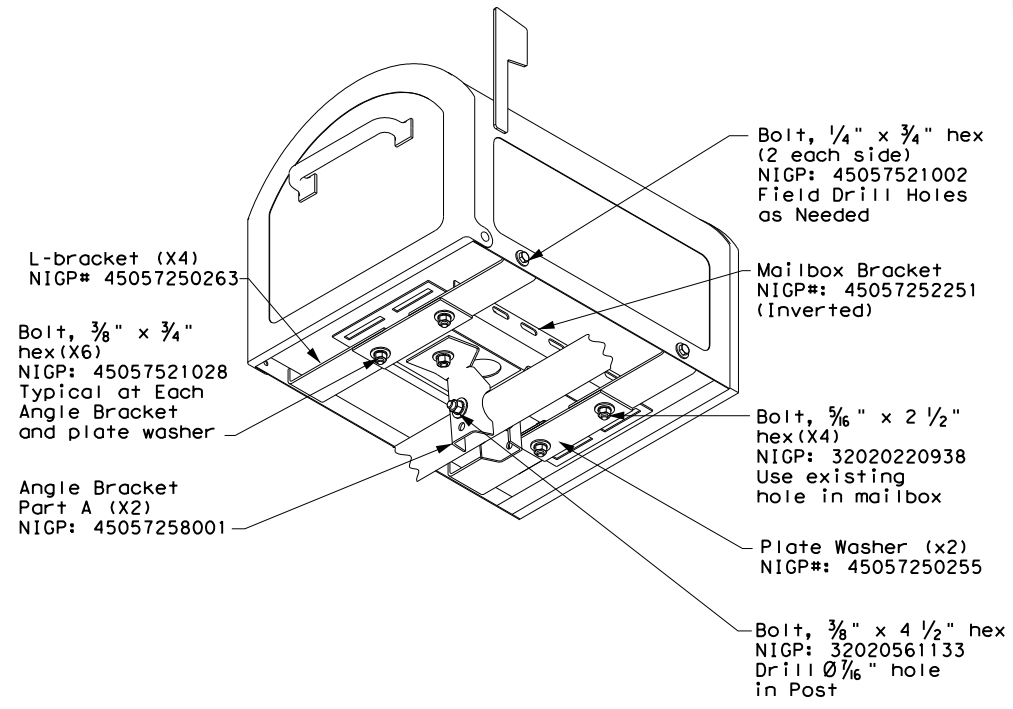


NOTE:
Follow same configuration when mounting an XL mailbox on a Type 4 multi post.

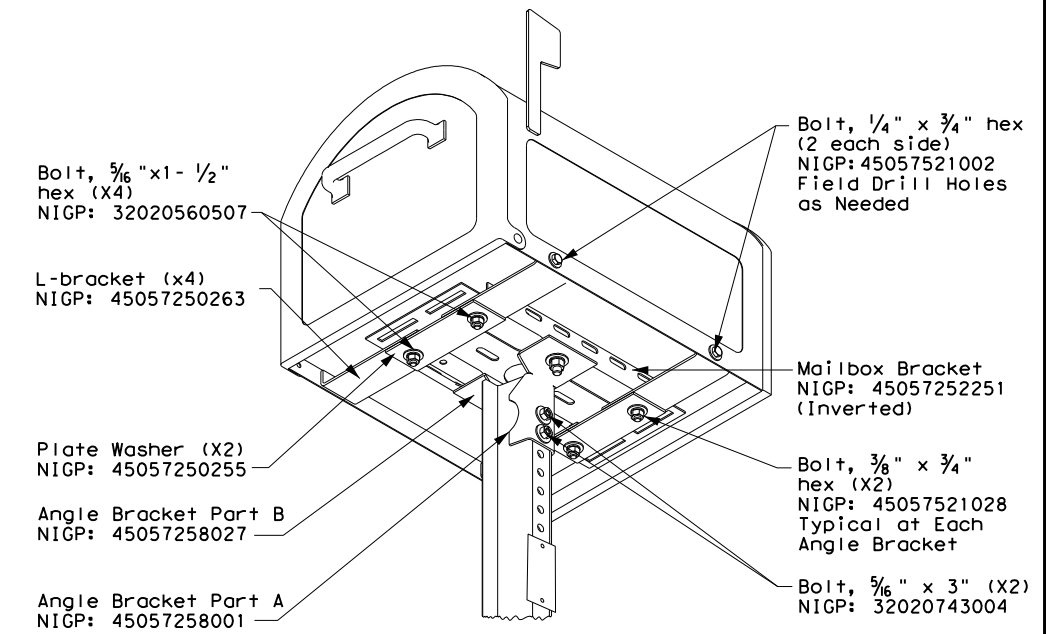
TYPE 1 MULTI - LOCKABLE ARCHITECTURAL (LA)



TYPE 1 MULTI - XL MAILBOX



TYPE 3 - XL MAILBOX MOUNTING



SHEET 2 OF 4

Texas Department of Transportation Maintenance Division Standard

XL AND LOCKABLE ARCHITECTURAL MAILBOX ASSEMBLY MB (2) - 21

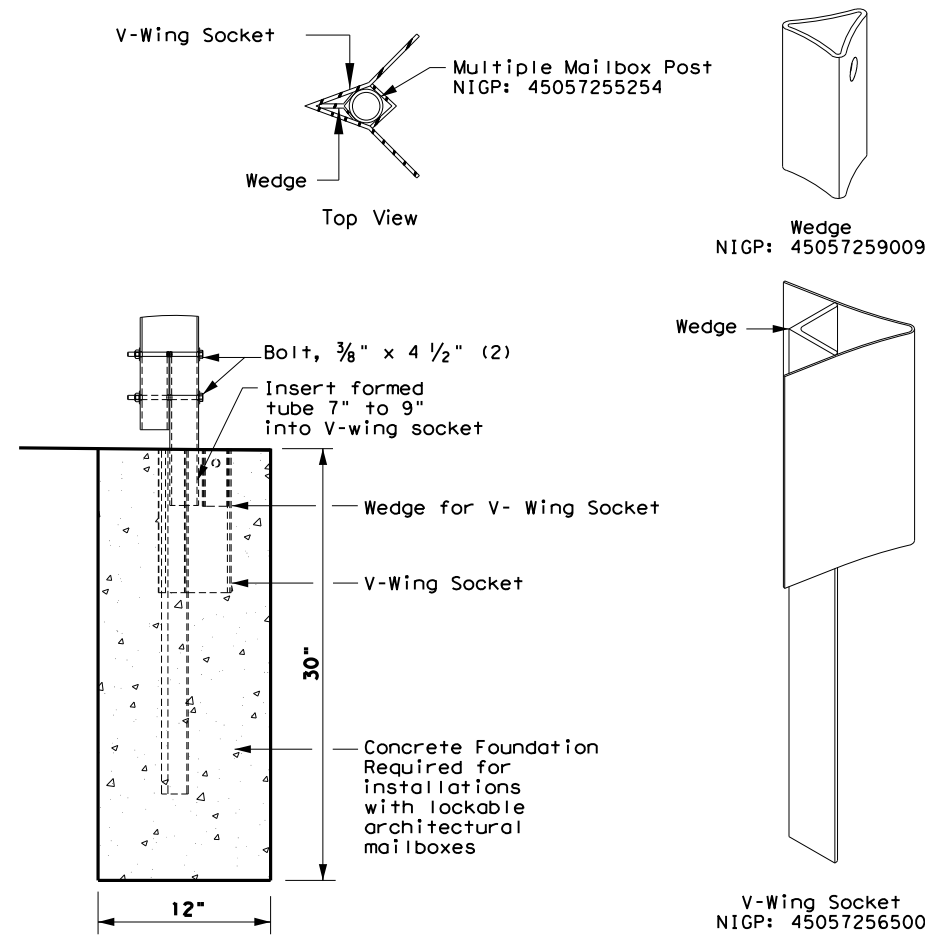
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| © TxDOT March 2004 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 2/2005 | 11/2009 | 4/2015 | | |
| 6/2005 | 1/2011 | | | |
| 11/2006 | 7/2014 | | | |
| | DIST | COUNTY | SHEET NO. | |
| | WAC | HAMILTON | 190 | |

DATE:
FILE:

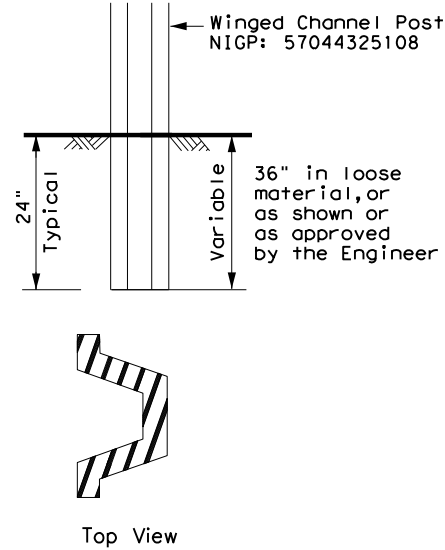
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TYPE 1 - SUPPORT/FOUNDATION

Thin Wall Tube w/ V-LOC Anchorage



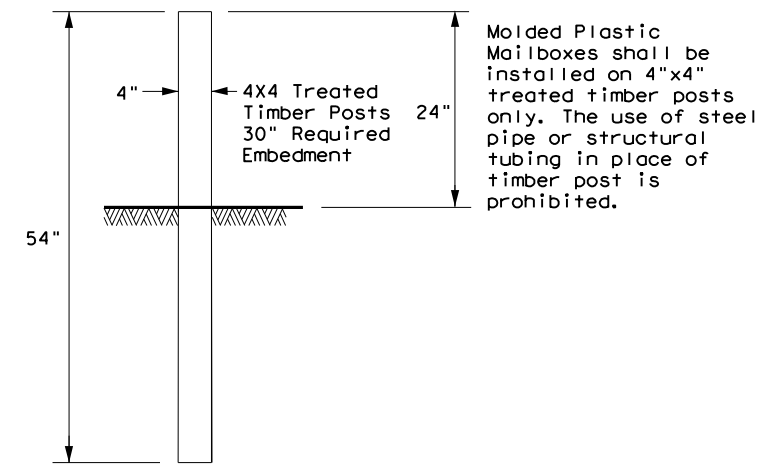
TYPE 3 - SUPPORT/FOUNDATION



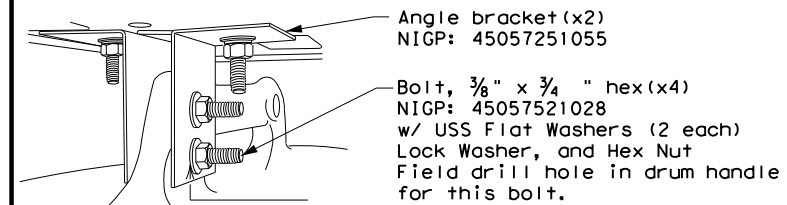
NOTES:

1. Attach Object Marker (OM) facing direction of traffic.
2. OM will also be required on opposite side if installed on a 2-Lane, 2-Way roadway.

TYPE 5 - SUPPORT/FOUNDATION



TYPE 6 - TEMPORARY MAILBOX SUPPORT



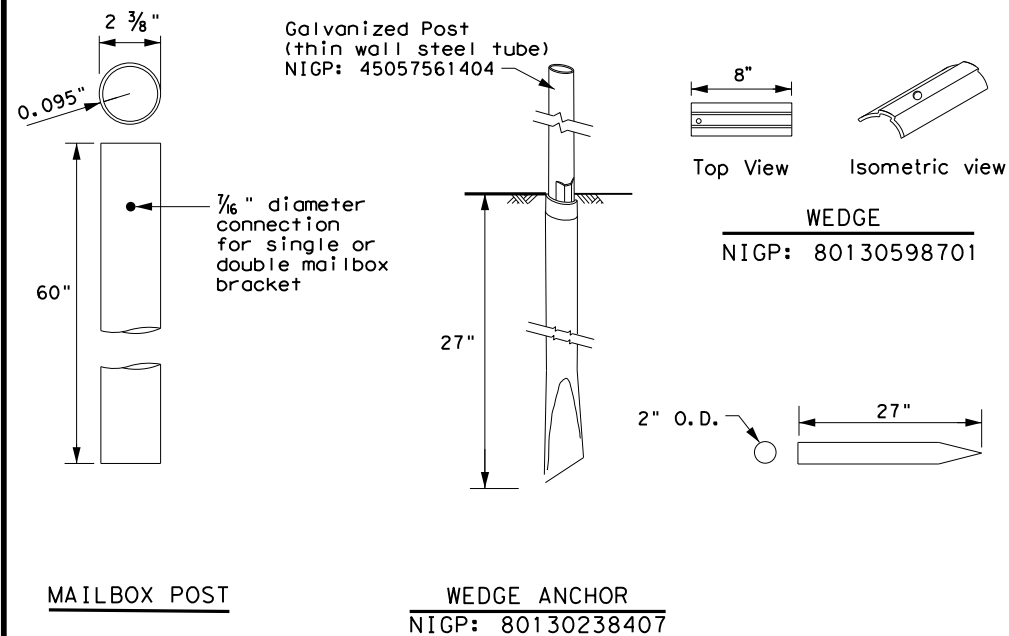
Plastic Drum NIGP: 55093383655
 Rubber Collar NIGP: 55093387102

NOTES:

1. Place on approved plastic drum as shown in the Compliant Work Zone Traffic Control Devices (CWZTCD).
2. Existing attachment hardware shall be used unless damaged. Damaged hardware shall be replaced.

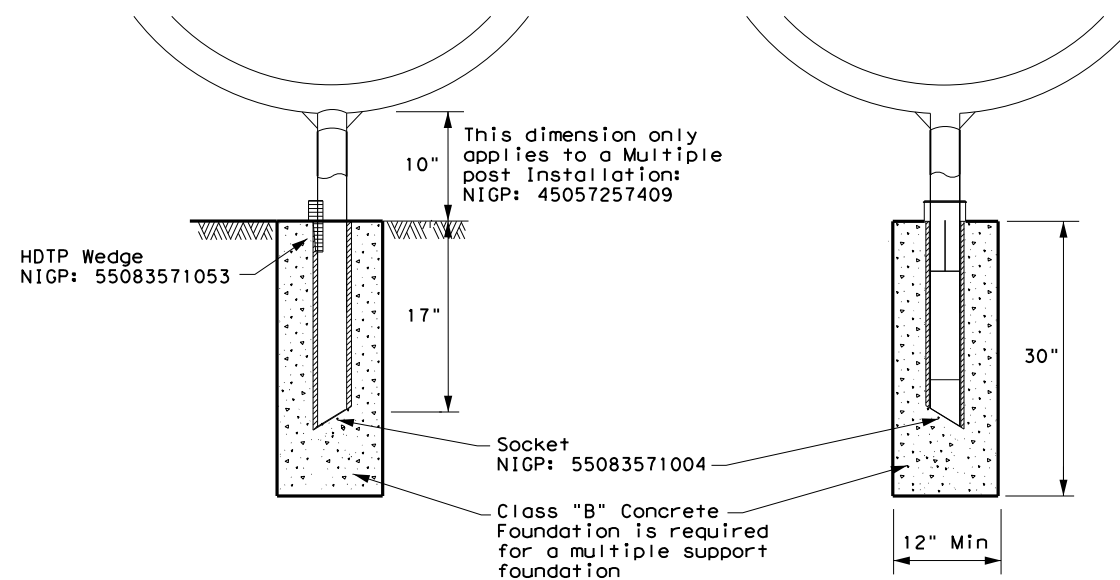
TYPE 2 - SUPPORT/FOUNDATION

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



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

SHEET 3 OF 4



MAILBOX SUPPORT AND FOUNDATION

MB (3) - 21

| | | | | |
|--------------------|---------|--------|------|---------------|
| FILE: MB-21.dgn | DN: | CK: | DW: | CK: |
| © TxDOT March 2004 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 2/2005 | 11/2009 | 4/2015 | DIST | COUNTY |
| 6/2005 | 1/2011 | | WAC | HAMILTON |
| 11/2006 | 7/2014 | | | SHEET NO. 191 |

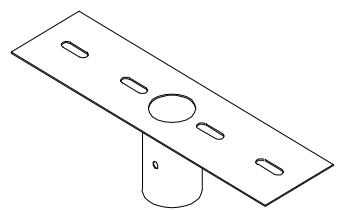
DATE: FILE:

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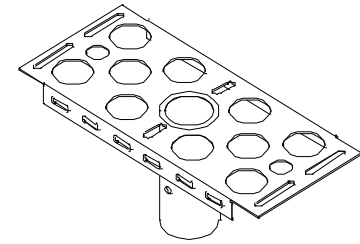
| TYPE | TYPE 1 | TYPE 2 | TYPE 3 | TYPE 4 | TYPE 5 | TYPE 6 |
|----------------------------------|---|--|--|--|--|---|
| Configuration | Multiple | Single or Double | Single or Double | Single | Double | Multiple |
| Mailbox Size NIGP # | Outside Position: S or M Inside Position: S, M, L, XL, or LA | 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 |
| Mailbox Post NIGP # | 45057255254 (Galvanized Multiple) | 45057561404 (Thin Walled Govanize) | 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) |
| 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 for XL 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) 45057252350 (Single Mount Bracket) 45057250255 (Plate Washer for XL x2) 45057252251 (Mailbox Bracket x2) | 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 |



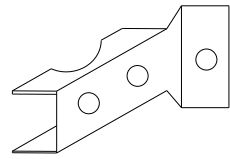
NIGP: 45057250263
L-Bracket x4 for XL sized mailboxes



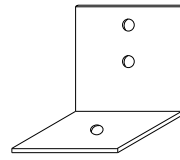
NIGP: 45057252343
Double Mailbox Bracket For Type 2 and Type 4 double mount



NIGP: 45057252350
Single Mailbox Bracket For Type 2 single and for Type 4 single and multi mount



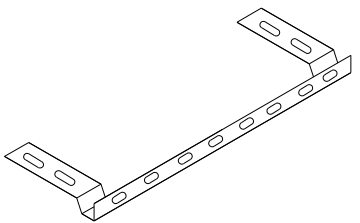
NIGP: 45057258001
Part "A" Angle Bracket For Type 1 multi (2 per mailbox) and Type 3 single and double



NIGP: 45057251055
Type 6 Angle Bracket (2 per mailbox)



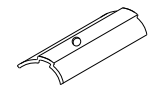
NIGP: 45057252251
Mailbox Bracket For Type 1 multi and any double mount (use 2)




NIGP: 45057253002
Bracket Extension Use 1 for a medium Mailbox Use 2 for a Large Mailbox



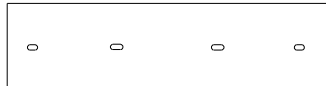
NIGP: 45057258027
Part "B" Angle Bracket For Type 3 single and double



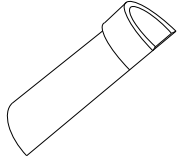
NIGP: 80130598701
Wedge for Type 2



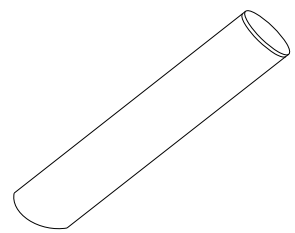
NIGP: 45057250255
Plate Washer for Architecural and XL Mailboxes




NIGP: 45057541653
Type 3 double mailbox bracket



NIGP: 55083571053
Type 4 Mailbox Wedge



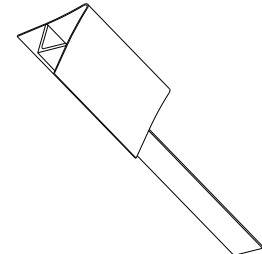
NIGP: 55083571004
Type 4 Mailbox Socket



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:

- Type 2 object marker in accordance with Traffic Engineering Standard Delineators & Object Markers.
- 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

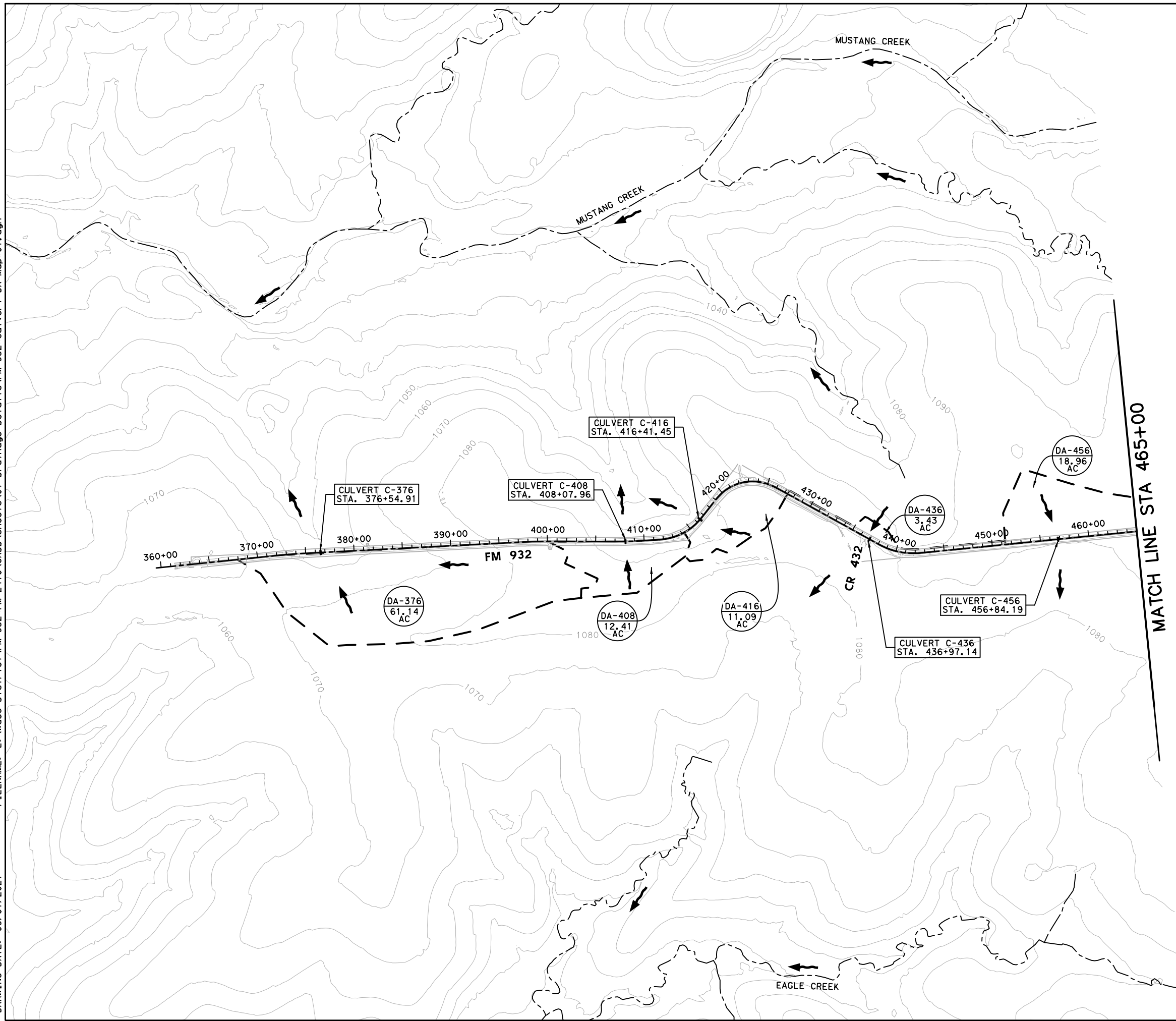
SHEET 4 OF 4

| | | | | | |
|--|-----------|-----------|-----------|-------------------------------|--|
|  Texas Department of Transportation | | | | Maintenance Division Standard | |
| <h2>NIGP PARTS LIST AND COMPATIBILITY</h2> <h3>MB(4)-21</h3> | | | | | |
| FILE: MB-21.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT | CR: TxDOT | |
| © TxDOT March 2004 | CONT | SECT | JOB | HIGHWAY | |
| 2/2005 | 0867 | 01 | 017 | FM 932 | |
| 6/2005 | | | COUNTY | SHEET NO. | |
| 11/2006 | WAC | | HAMILTON | 192 | |

DATE: FILE:

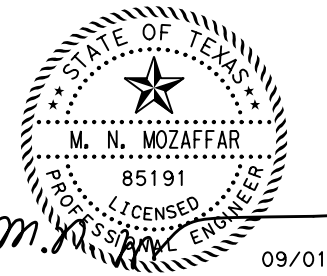
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DRAWING DATE: 09/01/2021



0' 250' 500' 1000'
HORIZONTAL SCALE: 1"=1000'

- LEGEND:**
- DIRECTION OF FLOW
 - STREAM
 - DRAINAGE AREA BOUNDARY
 - 10 FT CONTOURS
 - DRAINAGE AREA ID
ACREAGE



FINAL SUBMITTAL

I.S. ENGINEERS, LLC FIRM REGISTRATION NO. F-11657
7700 SAN FELIPE STREET
SUITE 485
HOUSTON, TEXAS 77063

Texas Department of Transportation
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FM 932
DRAINAGE AREA MAP

(SHEET 1 OF 7)

| | | | | |
|----------------|--------------------|-------------------------|-----------------|---------------|
| DESIGN YH | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO.: |
| DESIGN CK SRS | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS TW | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 193 |
| GRPH CHECK SRS | CONTROL 0867 | SECTION 01 | JOB 017 | |

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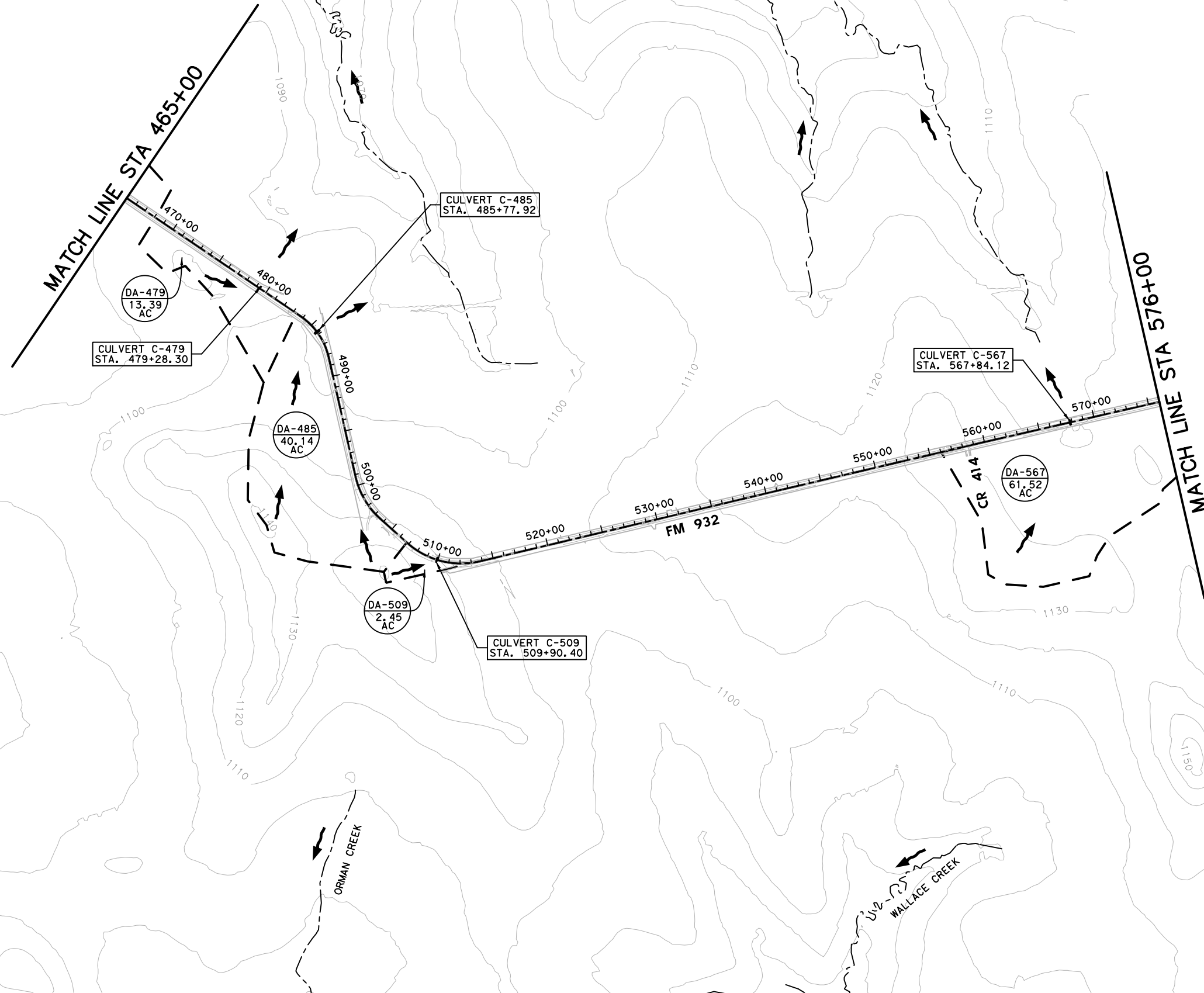
DRAWING DATE: 09/01/2021



0' 250' 500' 1000'
HORIZONTAL SCALE: 1"=1000'

LEGEND:

- DIRECTION OF FLOW
- STREAM
- DRAINAGE AREA BOUNDARY
- 10 FT CONTOURS
- DRAINAGE AREA ID
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SUITE 485
HOUSTON, TEXAS 77063



FM 932

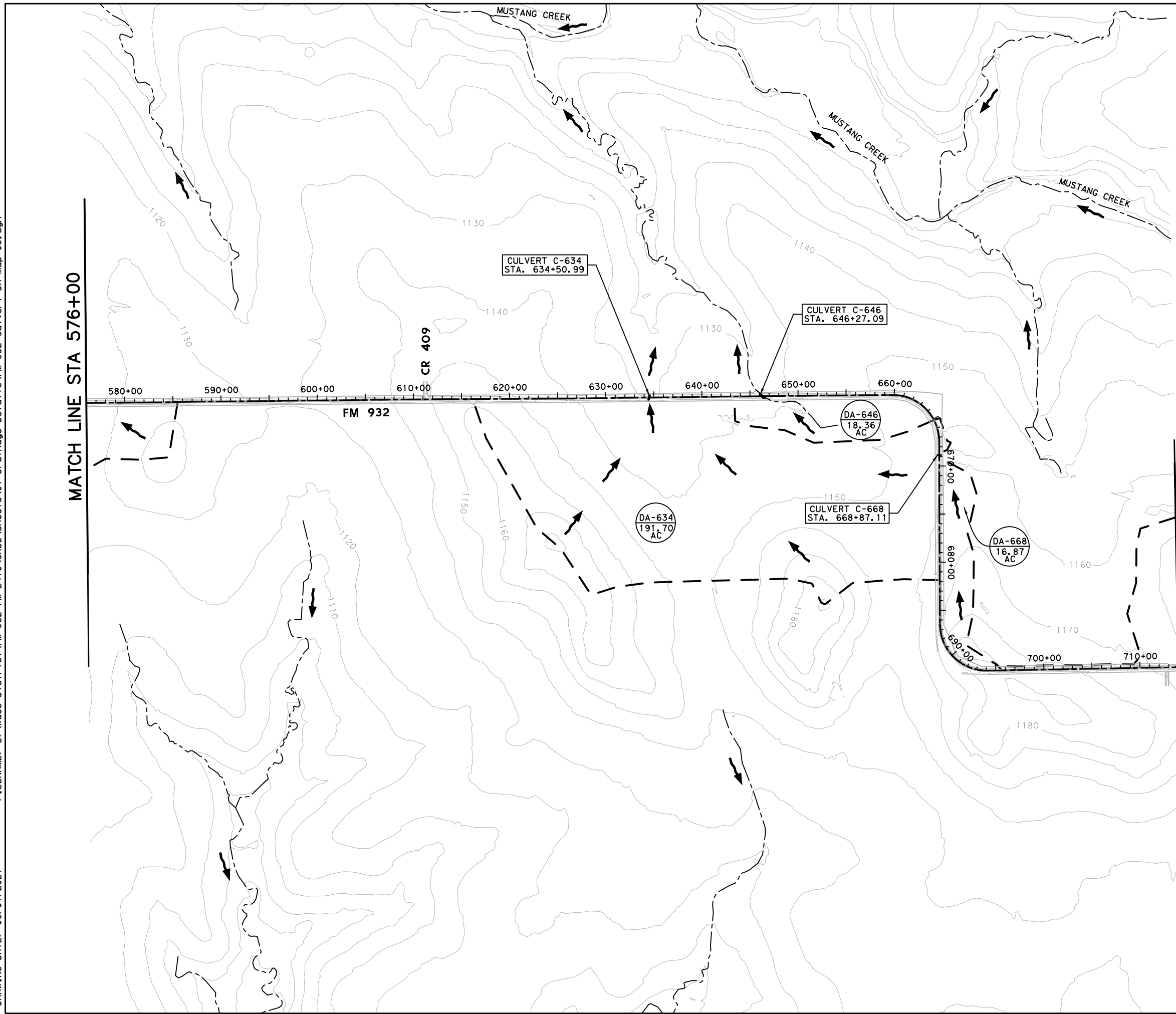
DRAINAGE AREA MAP

(SHEET 2 OF 7)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN YH | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| SRS | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS TW | TX | WACO | HAMILTON | 194 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| SRS | 0867 | 01 | 017 | |

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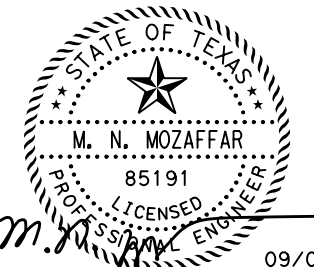
DRAWING DATE: 09/01/2021



0' 250' 500' 1000'
HORIZONTAL SCALE: 1"=1000'

LEGEND:

- DIRECTION OF FLOW
- STREAM
- DRAINAGE AREA BOUNDARY
- 10 FT CONTOURS
- DRAINAGE AREA ID
ACREAGE



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FIRM REGISTRATION NO. F-11657



FM 932

DRAINAGE AREA MAP

(SHEET 3 OF 7)

| | | | | |
|-------------|--------------------|-------------------------|----------|--------------|
| DESIGN YH | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO.: |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| SRS | STATE | DISTRICT | COUNTY | SHEET NO. |
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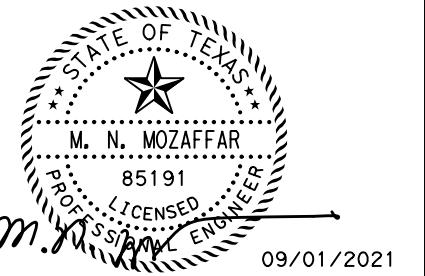
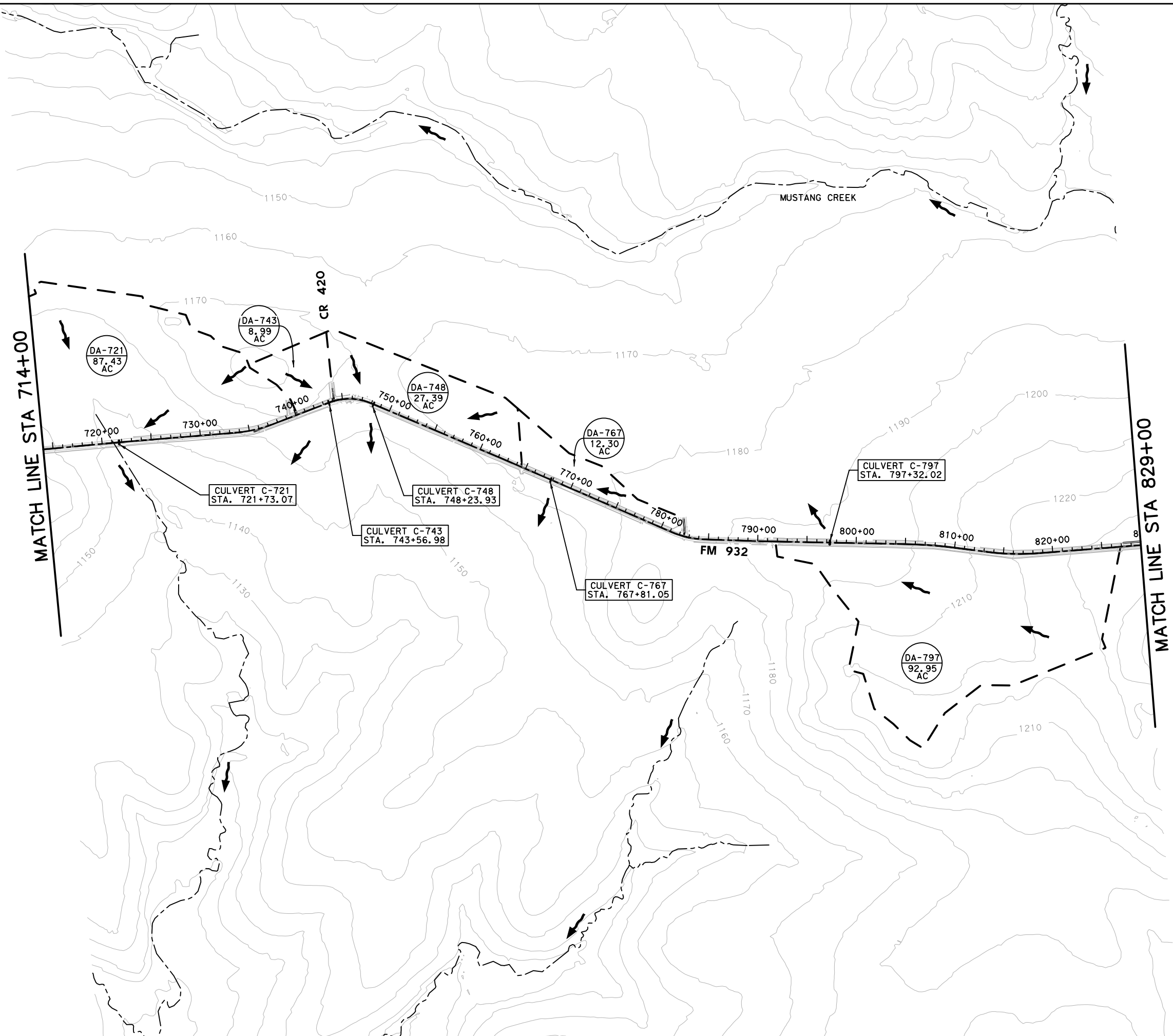
DRAWING DATE: 09/01/2021



0' 250' 500' 1000'
HORIZONTAL SCALE: 1"=1000'

LEGEND:

- DIRECTION OF FLOW
- STREAM
- DRAINAGE AREA BOUNDARY
- 10 FT CONTOURS
- DRAINAGE AREA ID
ACREAGE



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SUITE 485
HOUSTON, TEXAS 77063



FM 932
DRAINAGE AREA MAP

(SHEET 4 OF 7)

| | | | | |
|----------------|--------------------|-------------------------|-----------------|--------------|
| DESIGN YH | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO.: |
| DESIGN CK SRS | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS TW | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. |
| GRPH CHECK SRS | CONTROL 0867 | SECTION 01 | JOB 017 | 196 |

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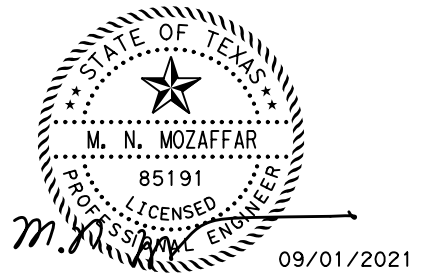
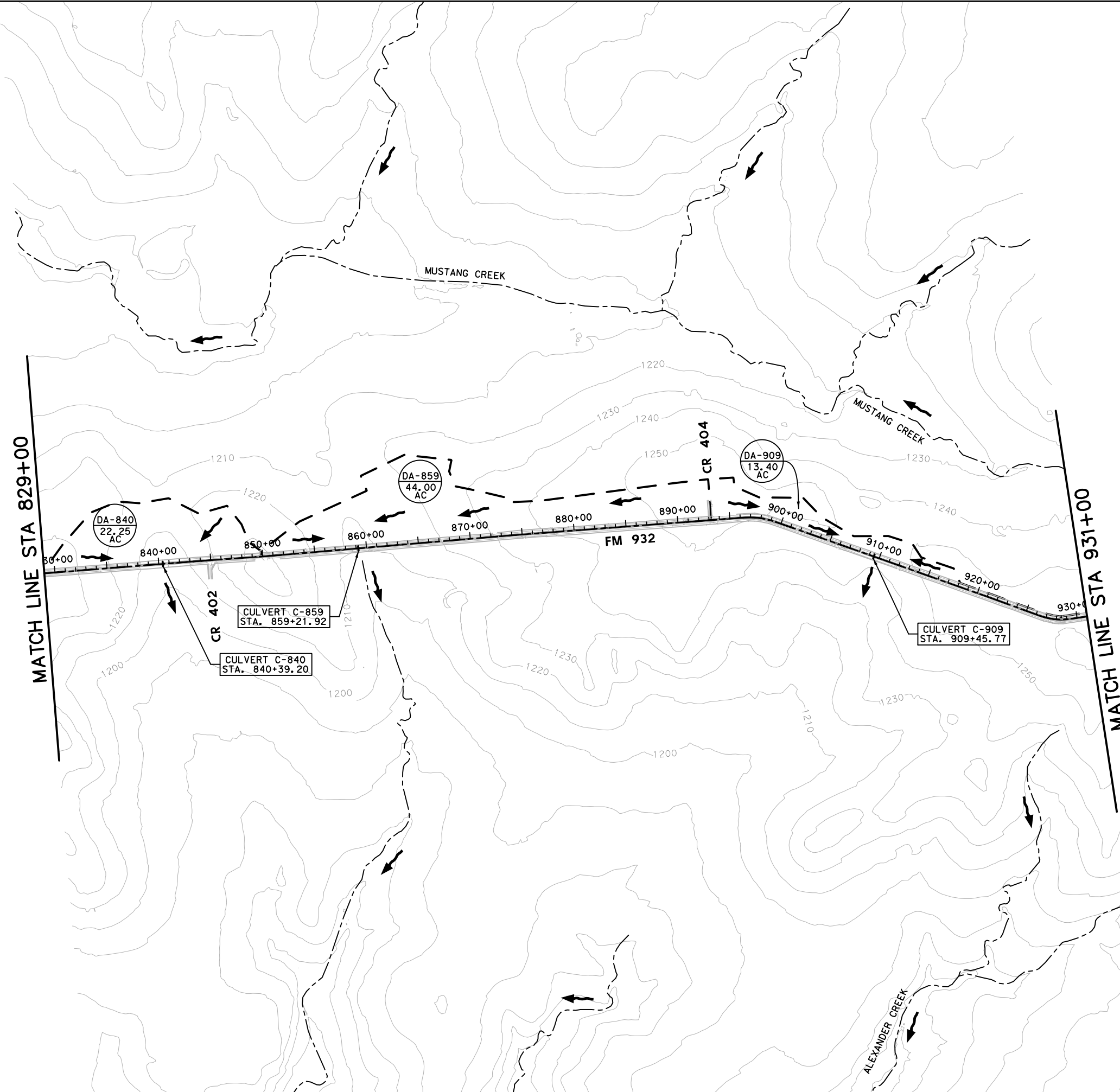
DRAWING DATE: 09/01/2021



0' 250' 500' 1000'
HORIZONTAL SCALE: 1"=1000'

LEGEND:

- DIRECTION OF FLOW
- STREAM
- DRAINAGE AREA BOUNDARY
- 10 FT CONTOURS
- DRAINAGE AREA ID
ACREAGE



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SUITE 485
HOUSTON, TEXAS 77063



FM 932
DRAINAGE AREA MAP

(SHEET 5 OF 7)

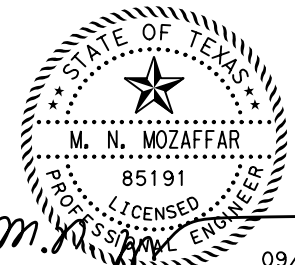
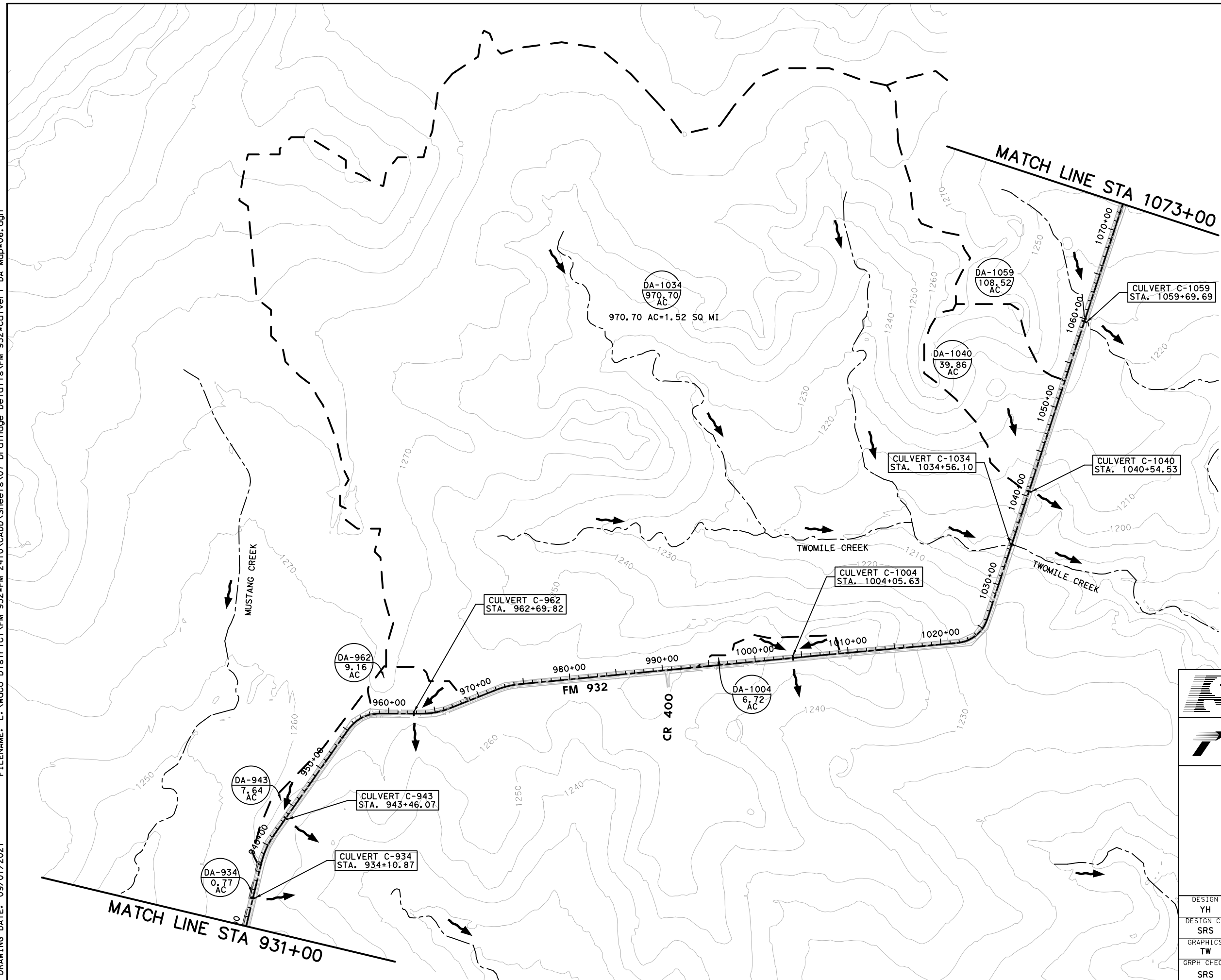
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| DESIGN CK SRS | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 197 |
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 DRAWING DATE: 09/01/2021



0' 250' 500' 1000'
 HORIZONTAL SCALE: 1"=1000'

- LEGEND:**
- DIRECTION OF FLOW
 - STREAM
 - DRAINAGE AREA BOUNDARY
 - 10 FT CONTOURS
 - DRAINAGE AREA ID
 AC ACREAGE



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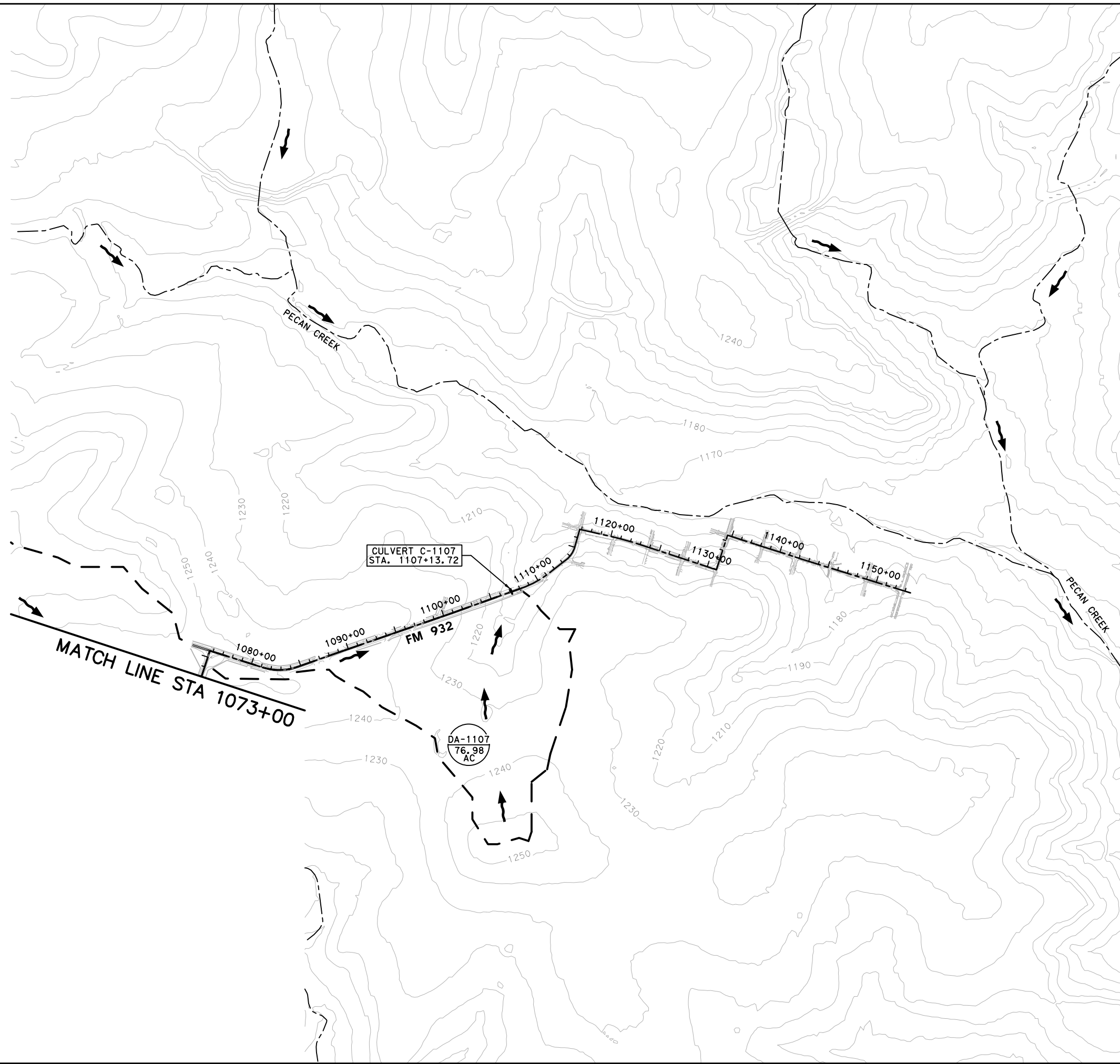
**FM 932
 DRAINAGE AREA MAP**

(SHEET 6 OF 7)

| | | | | |
|----------------|--------------------|-------------------------|-----------------|---------------|
| DESIGN YH | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO.: |
| SRS | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS TW | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 198 |
| GRPH CHECK SRS | CONTROL 0867 | SECTION 01 | JOB 017 | |

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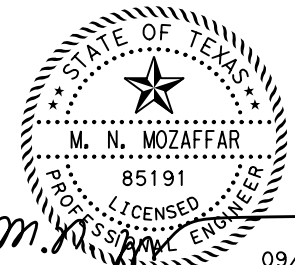
DRAWING DATE: 09/01/2021



0' 250' 500' 1000'
HORIZONTAL SCALE: 1"=1000'

LEGEND:

- DIRECTION OF FLOW
- STREAM
- DRAINAGE AREA BOUNDARY
- 10 FT CONTOURS
- DRAINAGE AREA ID
ACREAGE



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FM 932

DRAINAGE AREA MAP

(SHEET 7 OF 7)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN YH | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| SRS | STATE | DISTRICT | COUNTY | SHEET NO. |
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| GRPH CHECK | CONTROL | SECTION | JOB | |
| SRS | 0867 | 01 | 017 | |

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DRAWING DATE: 09/01/2021

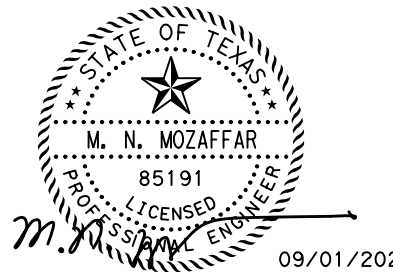
| FM 932 CULVERT CROSSING RUNOFF COMPUTATIONS (RATIONAL METHOD) | | | | | | | | | | | |
|---|-----------------------|--------------------|--------------------|------------|-----------------------|----------------------|---------------------|------------------------------------|-------------------------------------|--------------------------|---------------------------|
| DRAINAGE AREA ID | DRAINAGE STRUCTURE ID | EXISTING STRUCTURE | PROPOSED STRUCTURE | STATION | DRAINAGE AREA (acres) | T ₀ (min) | COMPOSITE 'C' VALUE | INTENSITY _{10-yr} (in/hr) | INTENSITY _{100-yr} (in/hr) | Q _{10-yr} (cfs) | Q _{100-yr} (cfs) |
| DA-376 | C-376 | 2-30" RCP | 2-30" RCP | 376+54.91 | 61.14 | 42 | 0.22 | 3.38 | 4.97 | 45.41 | 66.88 |
| DA-408 | C-408 | 24" RCP | 24" RCP | 408+07.96 | 12.41 | 18 | 0.24 | 5.30 | 7.82 | 15.80 | 23.28 |
| DA-416 | C-416 | 2-24" RCP | 2-24" RCP | 416+41.45 | 11.09 | 25 | 0.24 | 4.50 | 6.62 | 11.97 | 17.61 |
| DA-436 | C-436 | 18" RCP | 24" RCP | 436+97.14 | 3.43 | 28 | 0.40 | 4.15 | 6.10 | 5.69 | 8.37 |
| DA-456 | C-456 | 2-18" RCP | 24" RCP | 456+84.19 | 18.96 | 30 | 0.27 | 3.92 | 5.76 | 20.07 | 29.49 |
| DA-479 | C-479 | 24" RCP | 24" RCP | 479+28.30 | 13.39 | 36 | 0.25 | 3.65 | 5.37 | 12.21 | 17.96 |
| DA-485 | C-485 | 3-24" RCP | 3-24" RCP | 485+77.92 | 40.14 | 27 | 0.24 | 4.27 | 6.27 | 41.10 | 60.44 |
| DA-509 | C-509 | 12" RCP | 24" RCP | 509+90.40 | 2.45 | 12 | 0.27 | 6.35 | 9.39 | 4.20 | 6.21 |
| DA-567 | C-567 | 2-36" RCP | 2-36" RCP | 567+84.12 | 61.52 | 31 | 0.23 | 3.87 | 5.69 | 54.82 | 80.57 |
| DA-634 | C-634 | 2-48" RCP | 7'X4' RCB | 634+50.99 | 191.70 | 62 | 0.22 | 2.53 | 3.74 | 106.60 | 157.93 |
| DA-646 | C-646 | 3-36" RCP | 3-36" RCP | 646+27.09 | 18.36 | 31 | 0.26 | 3.87 | 5.69 | 18.50 | 27.18 |
| DA-668 | C-668 | 18" CMP | 24" RCP | 668+87.11 | 16.87 | 33 | 0.24 | 3.78 | 5.56 | 15.32 | 22.52 |
| DA-721 | C-721 | 2-42" RCP | 6'X4' RCB | 721+73.07 | 87.43 | 37 | 0.24 | 3.60 | 5.30 | 75.60 | 111.22 |
| DA-743 | C-743 | 18" CMP | 24" RCP | 743+56.98 | 8.99 | 16 | 0.35 | 5.53 | 8.16 | 17.41 | 25.67 |
| DA-748 | C-748 | 24" RCP | 36" RCP | 748+23.93 | 27.39 | 26 | 0.26 | 4.38 | 6.45 | 31.20 | 45.90 |
| DA-767 | C-767 | 18" RCP | 24" RCP | 767+81.05 | 12.30 | 29 | 0.28 | 4.04 | 5.93 | 13.90 | 20.43 |
| DA-797 | C-797 | 2-30" RCP | 2-36" RCP | 797+32.02 | 92.95 | 49 | 0.23 | 3.06 | 4.51 | 65.39 | 96.47 |
| DA-840 | C-840 | 24" RCP | 36" RCP | 840+39.20 | 22.25 | 24 | 0.27 | 4.61 | 6.79 | 27.71 | 40.78 |
| DA-859 | C-859 | 36" RCP | 36" RCP | 859+21.92 | 44.00 | 47 | 0.28 | 3.15 | 4.64 | 38.80 | 57.21 |
| DA-909 | C-909 | 24" RCP | 36" RCP | 909+45.77 | 13.40 | 34 | 0.34 | 3.74 | 5.50 | 17.03 | 25.05 |
| DA-934 | C-934 | 18" RCP | 24" RCP | 934+10.87 | 0.77 | 17 | 0.40 | 5.42 | 7.99 | 1.67 | 2.46 |
| DA-943 | C-943 | 18" RCP | 24" RCP | 943+46.07 | 7.64 | 29 | 0.39 | 4.04 | 5.93 | 12.02 | 17.67 |
| DA-962 | C-962 | 18" RCP | 24" RCP | 962+69.82 | 9.16 | 17 | 0.30 | 5.42 | 7.99 | 14.89 | 21.95 |
| DA-1004 | C-1004 | 18" RCP | 24" RCP | 1004+05.63 | 6.72 | 20 | 0.36 | 5.07 | 7.47 | 12.27 | 18.08 |
| DA-1040 | C-1040 | 48" RCP | 5'X3' RCB | 1040+54.53 | 39.86 | 23 | 0.25 | 4.73 | 6.96 | 47.11 | 69.35 |
| DA-1059 | C-1059 | 48" RCP | 5'X3' RCB | 1059+69.69 | 108.52 | 45 | 0.24 | 3.24 | 4.78 | 84.39 | 124.36 |
| DA-1107 | C-1107 | 42" RCP | 2-4'X2' RCB | 1107+13.72 | 76.98 | 31 | 0.22 | 3.87 | 5.69 | 65.62 | 96.44 |

DA-634 INCLUDES DA-668 AS A SUB AREA
C-1145 IS A NON-STANDARD CONCRETE BOX CULVERT WITH AN OPEN BOTTOM

| FM 932 CULVERT CROSSING RUNOFF COMPUTATIONS (NRCS METHOD) | | | | | | | | | | | |
|---|-----------------------|--------------------|--------------------|------------|-----------------------|----------------------|----------------|---------|---------|--------------------------|---------------------------|
| DRAINAGE AREA ID | DRAINAGE STRUCTURE ID | EXISTING STRUCTURE | PROPOSED STRUCTURE | STATION | DRAINAGE AREA (Sq Mi) | T ₀ (min) | LAG TIME (min) | BASE CN | USED CN | Q _{10-yr} (cfs) | Q _{100-yr} (cfs) |
| DA-1034 | C-1034 | 13'X6.25' ARCH CMP | 2-8'X7' RCB | 1034+56.10 | 1.52 | 91 | 55 | 81 | 71 | 1012 | 2039 |

| FREQUENCY STORM PRECIPITATION DEPTH (INCH) | | |
|--|-------|--------|
| DURATION | 10-yr | 100-yr |
| 5 min | 0.708 | 1.05 |
| 15 min | 1.41 | 2.08 |
| 1 hour | 2.56 | 3.78 |
| 2 hour | 3.17 | 4.85 |
| 3 hour | 3.55 | 5.54 |
| 6 hour | 4.22 | 6.75 |
| 12 hour | 4.95 | 7.98 |
| 24 hour | 5.70 | 9.20 |

NRCS METHOD IS MODELED IN HEC-HMS VERSION 4.3
PRECIPITATION DATA IS DERIVED FROM "NOAA ATLAS 14 PRECIPITATION - REQUENCY ATLAS OF THE UNITED STATES VOLUME 11 VERSION 2.0: TEXAS"
SOILS DATA IS OBTAINED FROM NRCS WEB SOIL SURVEY UTILITY
LAND USE DATA IS OBTAINED FROM NLCD DATABASE
CN ADJUSTMENT IS BASED ON THE HAILEY AND MCGILL METHOD AS OUTLINED IN THE TXDOT HYDRAULIC MANUAL, FIGURE 4-22



FINAL SUBMITTAL



FM 932

DRAINAGE CALCULATIONS

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| SRS | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS TW | TX | WACO | HAMILTON | 200 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| SRS | 0867 | 01 | 017 | |

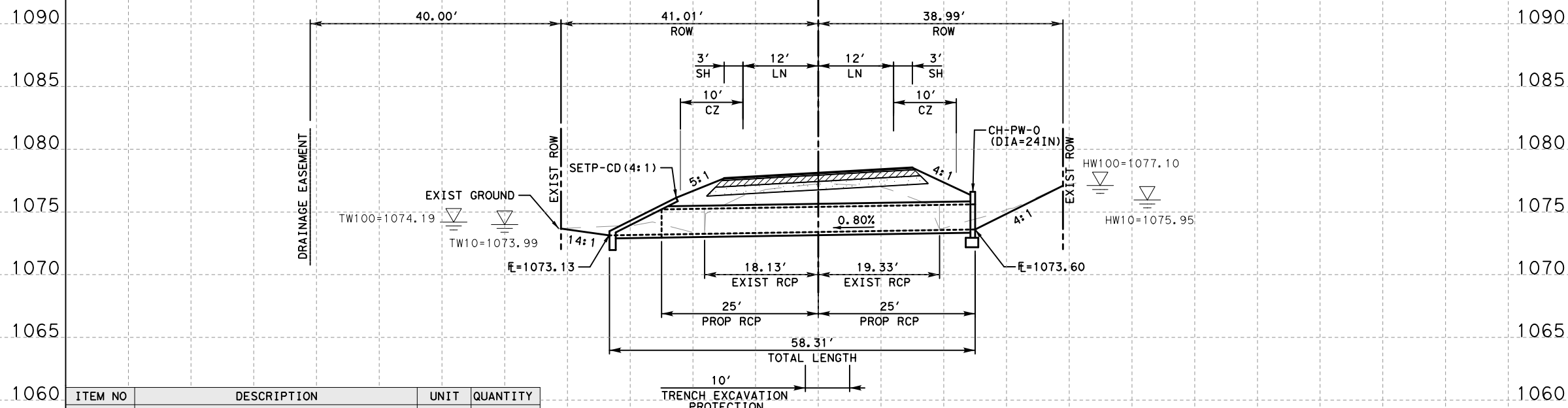
FILENAME: L:\waco District\FM 932\FM 2410\CADD\Sheets\07 Drainage Detail\FM 932\Culvert*Profile*01.dgn

DRAWING DATE: 09/01/2021

100 80 60 40 20 0 20 40 60 80 100

CULVERT C-408 HYDRAULIC DATA

| FREQ | L/ft | $S(ft/ft)$ | $Q(cfs)$ | $V(fps)$ | $HW(ft)$ | $TW(ft)$ |
|--------|--------|------------|----------|----------|----------|----------|
| 10-YR | 58.31 | 0.0080 | 15.80 | 7.61 | 1075.95 | 1073.99 |
| 100-YR | | | 23.28 | 8.36 | 1077.10 | 1074.19 |

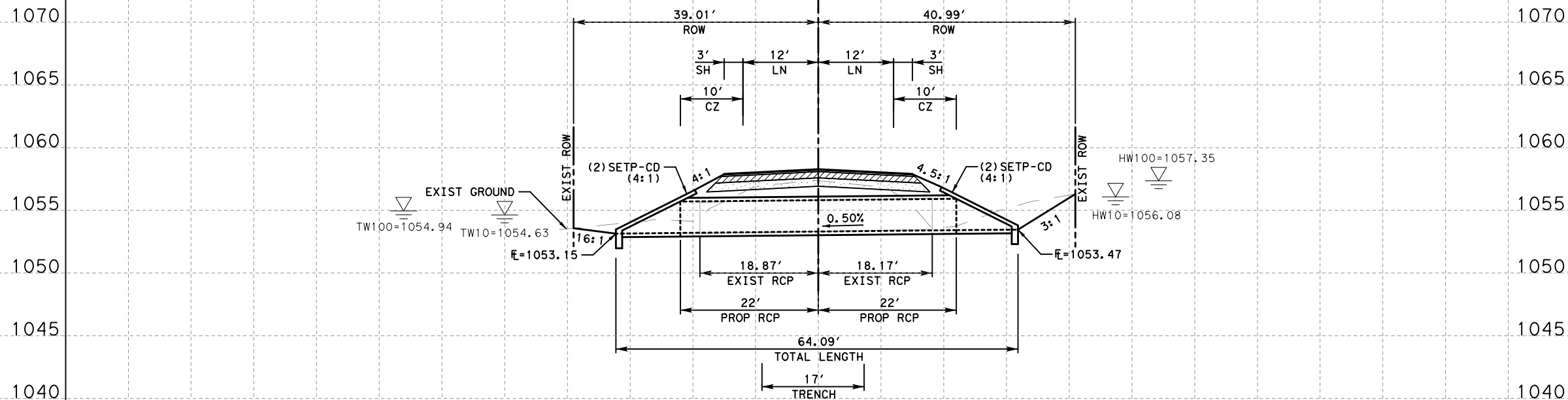


| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|--------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 20 |
| 400 6006 | CUT & RESTORING PAV | SY | 15 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 10 |
| 464 6005 | RC PIPE (CL III) (24 IN) | LF | 50 |
| 466 6097 | HEADWALL (CH - PW - 0) (DIA= 24 IN) | EA | 1 |
| 467 6390 | SET (TY II) (24 IN) (RCP) (4: 1) (C) | EA | 1 |
| 496 6007 | REMOV STR (PIPE) | LF | 38 |

CULVERT C-408
 REMOVE EXIST 24"X37.5' RCP
 INSTALL 24"X50' RCP
 INSTALL SETP-CD (4:1) (LT), CH-PW-0 (DIA=24IN) (RT)
 TOTAL LENGTH=58.31'
 (STANDARDS: SETP-CD, CH-PW-0)

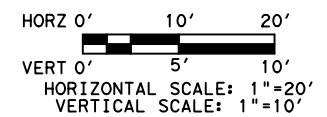
CULVERT C-376 HYDRAULIC DATA

| FREQ | L/ft | $S(ft/ft)$ | $Q(cfs)$ | $V(fps)$ | $HW(ft)$ | $TW(ft)$ |
|--------|--------|------------|----------|----------|----------|----------|
| 10-YR | 64.09 | 0.0050 | 45.41 | 7.56 | 1056.08 | 1054.63 |
| 100-YR | | | 66.88 | 8.39 | 1057.35 | 1054.94 |



| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|--------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 43 |
| 400 6006 | CUT & RESTORING PAV | SY | 31 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 17 |
| 464 6007 | RC PIPE (CL III) (30 IN) | LF | 88 |
| 467 6419 | SET (TY II) (30 IN) (RCP) (4: 1) (C) | EA | 4 |
| 496 6007 | REMOV STR (PIPE) | LF | 74 |

CULVERT C-376
 EXCAVATION PROTECTION
 REMOVE EXIST 2-30"X37' RCP
 INSTALL 2-30"X44' RCP
 INSTALL (2) SETP-CD (4:1) (LT), (2) SETP-CD (4:1) (RT)
 TOTAL LENGTH=64.09'
 (STANDARDS: SETP-CD)

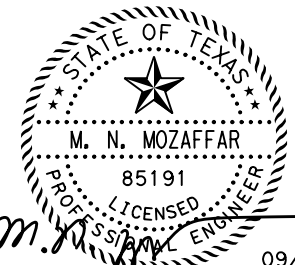


LEGEND:

--- EXIST GROUND

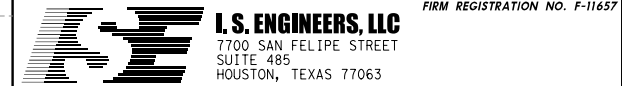
NOTES:

- ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
- REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.



09/01/2021

FINAL SUBMITTAL



FM 932

CULVERT PROFILES
CULVERT C-376 & C-408

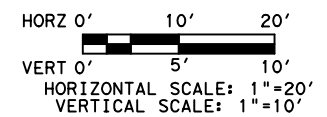
(SHEET 1 OF 16)

| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
|----------------|-------------------|-------------------------|----------|--|-------------|
| SRS | 6 | (SEE TITLE SHEET) | | | FM 932 |
| GRAPHICS TW | TX | WACO | HAMILTON | | 201 |
| GRPH CHECK SRS | CONTROL | SECTION | JOB | | |
| | 0867 | 01 | 017 | | |

FILENAME: L:\waco District\FM 932\FM 2410\CADD\Sheets\07 Drainage Detail\FM 932\Culvert*Profile*02.dgn

DRAWING DATE: 09/01/2021

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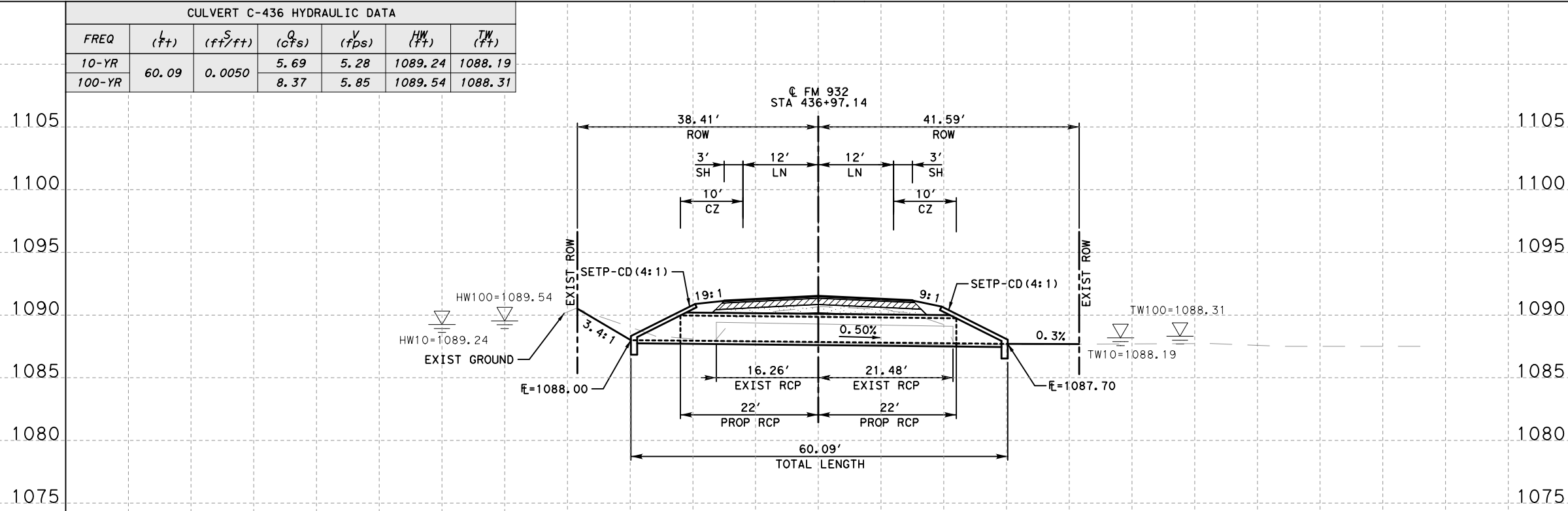


LEGEND:

--- EXIST GROUND

NOTES:

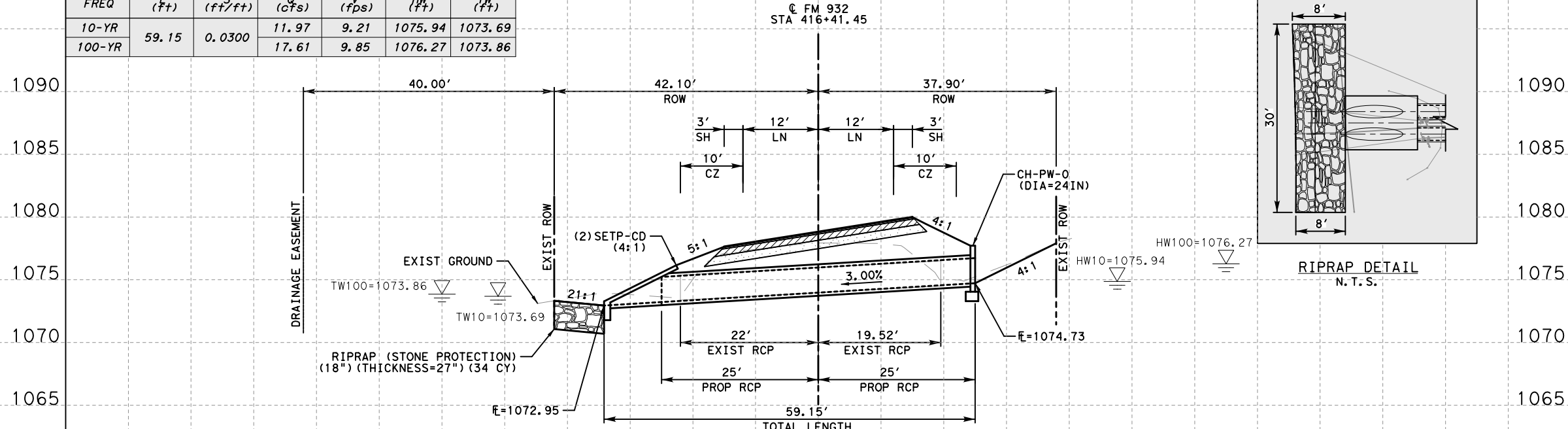
1. ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
2. REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.
3. REFER TO CULVERT MISCELLANEOUS DETAILS SHEET FOR RIPRAP (STONE PROTECTION) (18") TOE DETAIL.



| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|--------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 19 |
| 400 6006 | CUT & RESTORING PAV | SY | 15 |
| 464 6018 | RC PIPE (CL IV) (24 IN) | LF | 44 |
| 467 6390 | SET (TY II) (24 IN) (RCP) (4: 1) (C) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 38 |

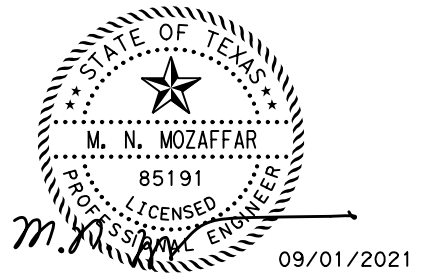
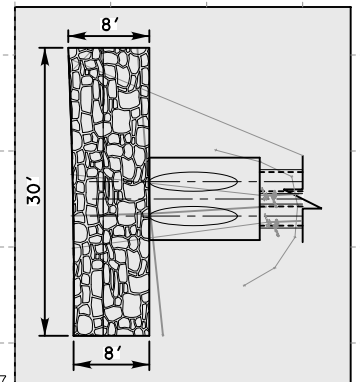
CULVERT C-436
 REMOVE EXIST 18"X37.7' RCP
 INSTALL 24"X44' RCP (CL IV)
 INSTALL SETP-CD (4:1) (LT), SETP-CD (4:1) (RT)
 TOTAL LENGTH=60.09'
 (STANDARDS: SETP-CD)

100 80 60 40 20 0 20 40 60 80 100



| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|--------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 35 |
| 400 6006 | CUT & RESTORING PAV | SY | 27 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 16 |
| 432 6033 | RIPRAP (STONE PROTECTION) (18 IN) | CY | 34 |
| 464 6005 | RC PIPE (CL III) (24 IN) | LF | 100 |
| 466 6097 | HEADWALL (CH - PW - 0) (DIA= 24 IN) | EA | 1 |
| 467 6390 | SET (TY II) (24 IN) (RCP) (4: 1) (C) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 83 |

CULVERT C-416
 REMOVE EXIST 2-24"X41.5' RCP
 INSTALL 2-24"X50' RCP
 INSTALL (2) SETP-CD (4:1) (LT), CH-PW-0 (DIA=24IN) (RT)
 TOTAL LENGTH=59.15'
 (STANDARDS: SETP-CD, CH-PW-0)



FINAL SUBMITTAL
I.S. ENGINEERS, LLC
 7700 SAN FELIPE STREET
 SUITE 485
 HOUSTON, TEXAS 77063
 FIRM REGISTRATION NO. F-11657



FM 932
CULVERT PROFILES
CULVERT C-416 & C-436
 (SHEET 2 OF 16)

| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
|----------------|-------------------|-------------------------|----------|-------------|
| SRS | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS TW | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRPH CHECK SRS | TX | WACO | HAMILTON | 202 |
| | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

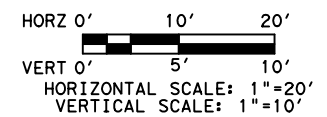
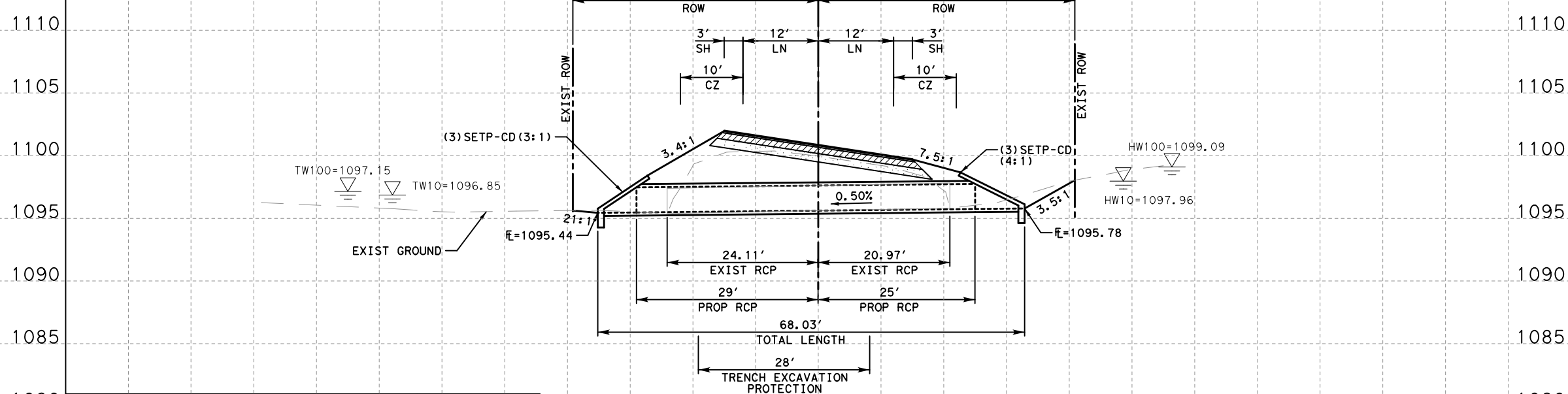
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FILENAME: L:\waco District\FM 932*FM 2410\CADD\Sheets\07 Drainage Detail\FM 932\Culvert*Profile*03.dgn
 DRAWING DATE: 09/01/2021

100 80 60 40 20 0 20 40 60 80 100

CULVERT C-485 HYDRAULIC DATA

| FREQ | L (ft) | S (ft/ft) | Q (cfs) | V (fps) | HW (ft) | TW (ft) |
|--------|--------|-----------|---------|---------|---------|---------|
| 10-YR | 68.03 | 0.0050 | 41.10 | 6.49 | 1097.96 | 1096.85 |
| 100-YR | | | 60.44 | 7.06 | 1099.09 | 1097.15 |



LEGEND:

--- EXIST GROUND

NOTES:

1. ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
2. REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.

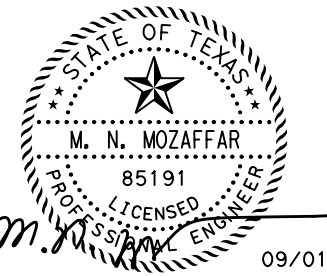
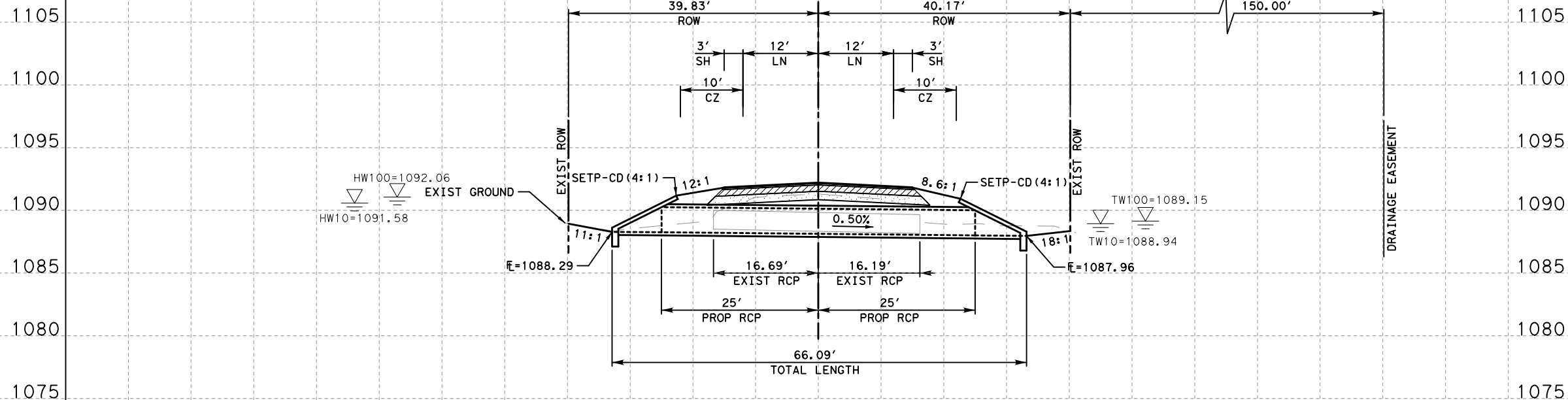
| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|--------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 50 |
| 400 6006 | CUT & RESTORING PAV | SY | 39 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 28 |
| 464 6005 | RC PIPE (CL III) (24 IN) | LF | 162 |
| 467 6388 | SET (TY II) (24 IN) (RCP) (3: 1) (C) | EA | 3 |
| 467 6390 | SET (TY II) (24 IN) (RCP) (4: 1) (C) | EA | 3 |
| 496 6007 | REMOV STR (PIPE) | LF | 135 |

CULVERT C-485

REMOVE EXIST 3-24"X45.1' RCP
 INSTALL 3-24"X54' RCP
 INSTALL (3) SETP-CD (3:1) (LT), (3) SETP-CD (4:1) (RT)
 TOTAL LENGTH=68.03'
 (STANDARDS: SETP-CD)

CULVERT C-456 HYDRAULIC DATA

| FREQ | L (ft) | S (ft/ft) | Q (cfs) | V (fps) | HW (ft) | TW (ft) |
|--------|--------|-----------|---------|---------|---------|---------|
| 10-YR | 66.09 | 0.0050 | 20.07 | 7.42 | 1091.58 | 1088.94 |
| 100-YR | | | 29.49 | 7.88 | 1092.06 | 1089.15 |



FINAL SUBMITTAL



FM 932

CULVERT PROFILES
CULVERT C-456 & C-485

(SHEET 3 OF 16)

| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|--------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 20 |
| 400 6006 | CUT & RESTORING PAV | SY | 15 |
| 464 6005 | RC PIPE (CL III) (24 IN) | LF | 50 |
| 467 6390 | SET (TY II) (24 IN) (RCP) (4: 1) (C) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 66 |

CULVERT C-456

REMOVE EXIST 2-18"X32.9' RCP
 INSTALL 24"X50' RCP
 INSTALL SETP-CD (4:1) (LT), SETP-CD (4:1) (RT)
 TOTAL LENGTH=66.09'
 (STANDARDS: SETP-CD)

| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
|----------------|-------------------|-------------------------|----------|--|-------------|
| SRS | 6 | (SEE TITLE SHEET) | | | FM 932 |
| GRAPHICS TW | TX | WACO | HAMILTON | | 203 |
| GRPH CHECK SRS | CONTROL | SECTION | JOB | | |
| | 0867 | 01 | 017 | | |

100 80 60 40 20 0 20 40 60 80 100

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DRAWING DATE: 09/01/2021



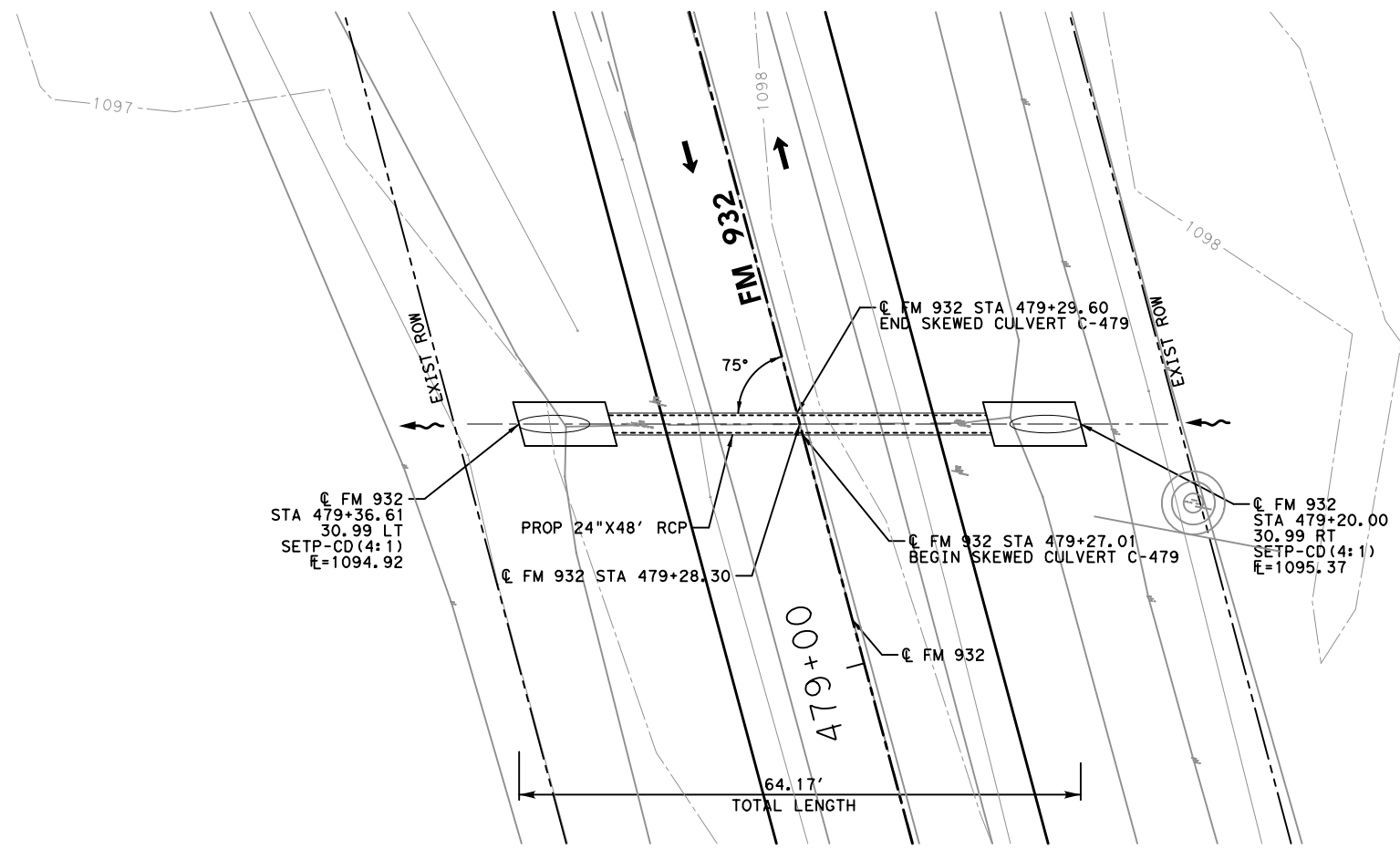
HORZ 0' 10' 20'
 VERT 0' 5' 10'
 HORIZONTAL SCALE: 1"=20'
 VERTICAL SCALE: 1"=10'

LEGEND:

- DIRECTION OF FLOW
- EXIST ROW

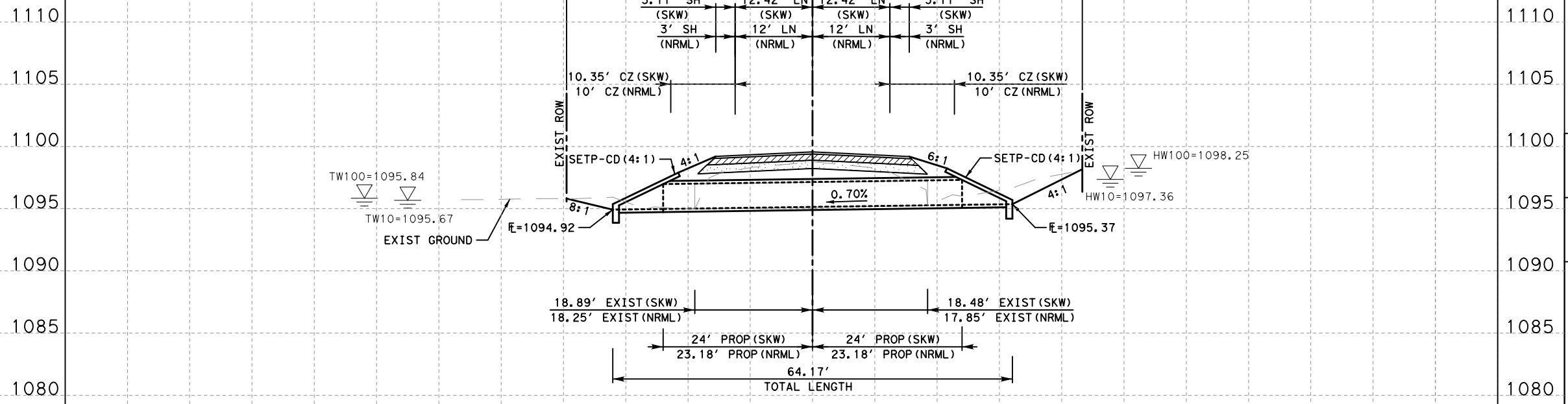
NOTES:

1. ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
2. REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.



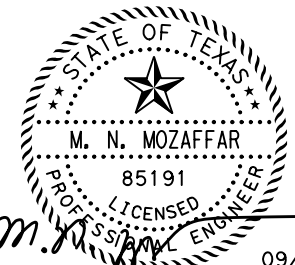
CULVERT C-479 HYDRAULIC DATA

| FREQ | L (ft) | S (ft/ft) | Q (cfs) | V (fps) | HW (ft) | TW (ft) |
|--------|--------|-----------|---------|---------|---------|---------|
| 10-YR | 64.17 | 0.0070 | 12.21 | 7.10 | 1097.36 | 1095.67 |
| 100-YR | | | 17.96 | 7.85 | 1098.25 | 1095.84 |

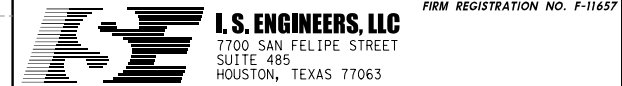


| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|--------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 21 |
| 400 6006 | CUT & RESTORING PAV | SY | 15 |
| 464 6005 | RC PIPE (CL III) (24 IN) | LF | 48 |
| 467 6390 | SET (TY II) (24 IN) (RCP) (4: 1) (C) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 37 |

CULVERT C-479
 REMOVE EXIST 24"X37.4' RCP
 INSTALL 24"X48' RCP
 INSTALL SETP-CD (4:1) (LT), SETP-CD (4:1) (RT)
 TOTAL LENGTH=64.17'
 (STANDARDS: SETP-CD)



FINAL SUBMITTAL



FM 932

**CULVERT PROFILES
 CULVERT C-479**

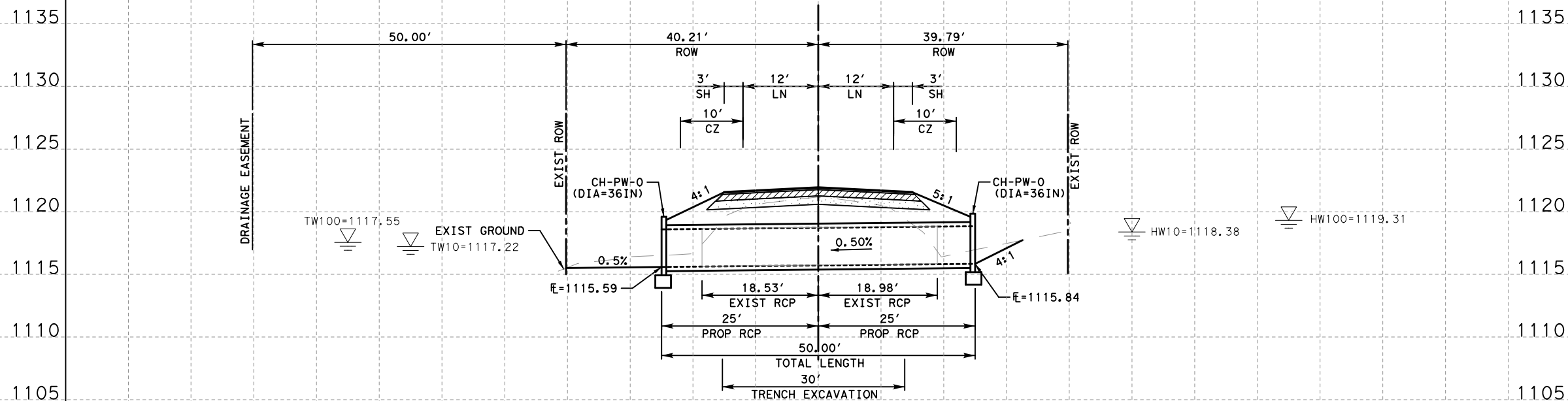
(SHEET 4 OF 16)

| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
|----------------|-------------------|-------------------------|----------|--|-------------|
| SRS | 6 | (SEE TITLE SHEET) | | | FM 932 |
| GRAPHICS TW | TX | WACO | HAMILTON | | 204 |
| GRPH CHECK SRS | CONTROL | SECTION | JOB | | |
| | 0867 | 01 | 017 | | |

FILENAME: L:\waco District\FM 932\FM 2410\CADD\Sheets\07 Drainage Detail\FM 932\Culvert*Profile*05.dgn
 DRAWING DATE: 09/01/2021

CULVERT C-567 HYDRAULIC DATA

| FREQ | (ft) | (ft/ft) | (cfs) | (fps) | (ft) | (ft) |
|--------|-------|---------|-------|-------|---------|---------|
| 10-YR | 50.00 | 0.0050 | 54.82 | 6.70 | 1118.38 | 1117.22 |
| 100-YR | | | 80.57 | 7.77 | 1119.31 | 1117.55 |

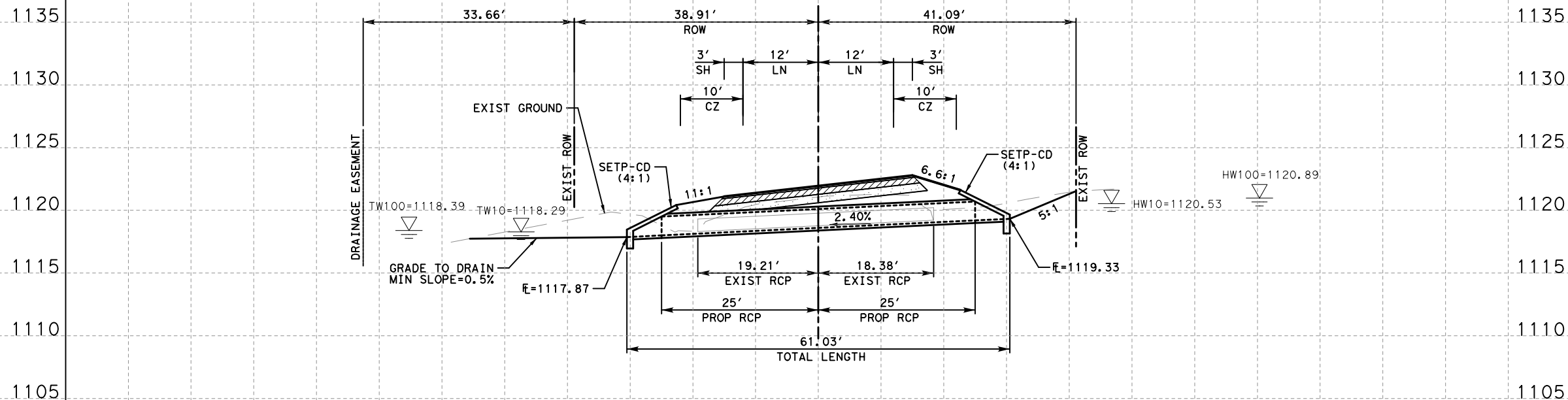


| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|-------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 53 |
| 400 6006 | CUT & RESTORING PAV | SY | 36 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 30 |
| 464 6008 | RC PIPE (CL III) (36 IN) | LF | 100 |
| 466 6101 | HEADWALL (CH - PW - 0) (DIA= 36 IN) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 75 |

CULVERT C-567
 REMOVE EXIST 2-36"X37.5' RCP
 INSTALL 2-36"X50' RCP
 INSTALL CH-PW-0 (DIA=36IN) (LT), CH-PW-0 (DIA=36IN) (RT)
 TOTAL LENGTH=50.00'
 (STANDARDS: CH-PW-0)

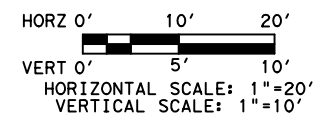
CULVERT C-509 HYDRAULIC DATA

| FREQ | (ft) | (ft/ft) | (cfs) | (fps) | (ft) | (ft) |
|--------|-------|---------|-------|-------|---------|---------|
| 10-YR | 61.03 | 0.0240 | 4.20 | 8.11 | 1120.53 | 1118.29 |
| 100-YR | | | 6.21 | 8.87 | 1120.89 | 1118.39 |



| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|--------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 16 |
| 400 6006 | CUT & RESTORING PAV | SY | 13 |
| 464 6017 | RC PIPE (CL IV) (18 IN) | LF | 50 |
| 467 6358 | SET (TY II) (18 IN) (RCP) (4: 1) (C) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 38 |

CULVERT C-509
 REMOVE EXIST 12"X37.6' RCP
 INSTALL 18"X50' RCP (CL IV)
 INSTALL SETP-CD (4:1) (LT), SETP-CD (4:1) (RT)
 TOTAL LENGTH=61.03'
 (STANDARDS: SETP-CD)

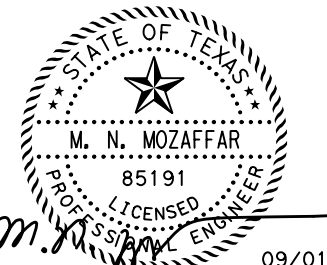


LEGEND:

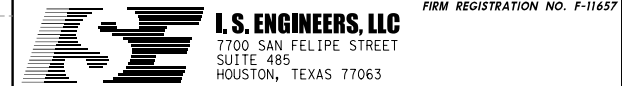
--- EXIST GROUND

NOTES:

1. ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
2. REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.



FINAL SUBMITTAL



FM 932

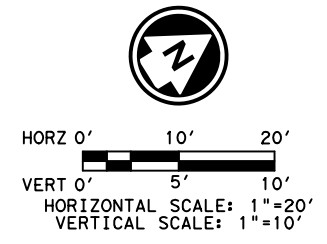
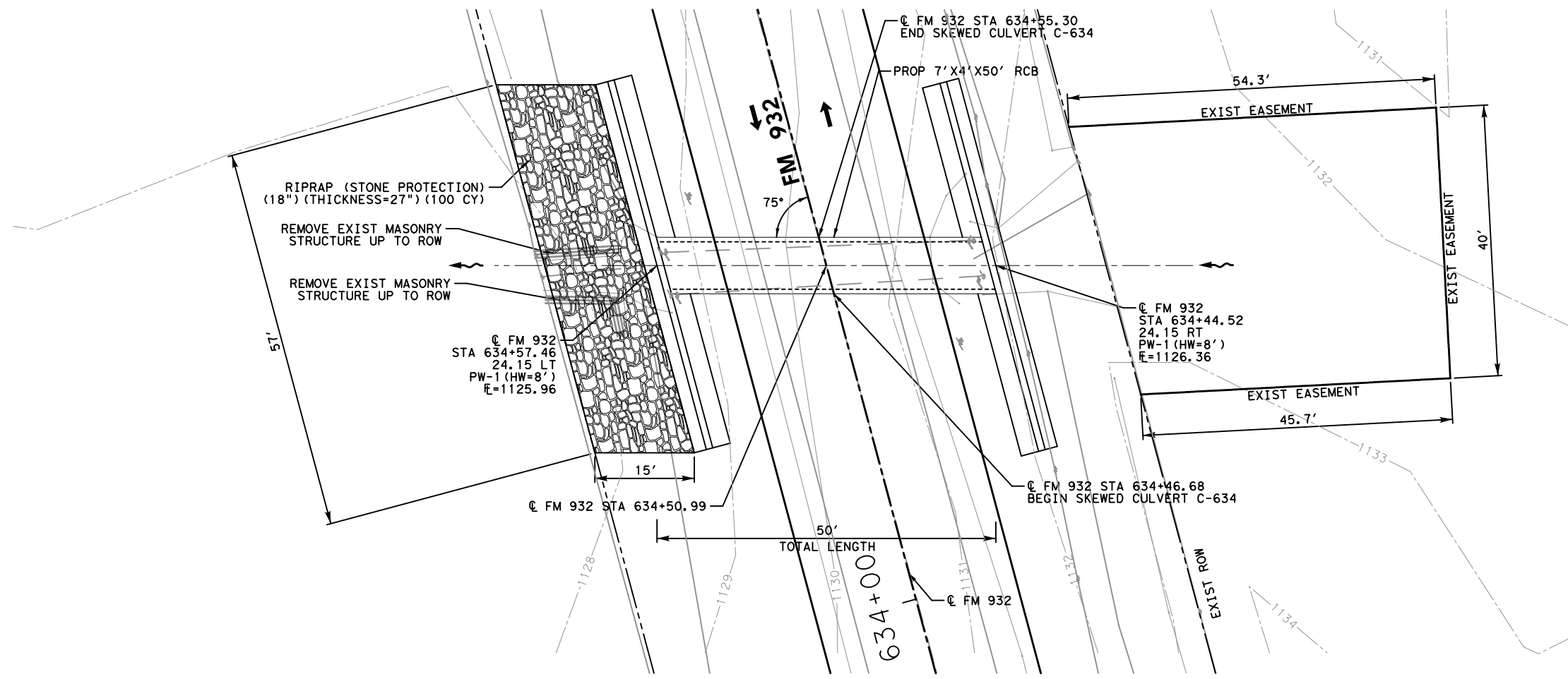
**CULVERT PROFILES
 CULVERT C-509 & C-567**

(SHEET 5 OF 16)

| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
|----------------|-------------------|-------------------------|----------|--|-------------|
| SRS | 6 | (SEE TITLE SHEET) | | | FM 932 |
| GRAPHICS TW | TX | WACO | HAMILTON | | 205 |
| GRPH CHECK SRS | CONTROL | SECTION | JOB | | |
| | 0867 | 01 | 017 | | |

FILENAME: L:\waco District\FM 932\CADD\Sheets\07 Drainage Detail\FM 932\Culvert*PlanProf\le*c-634*06.dgn

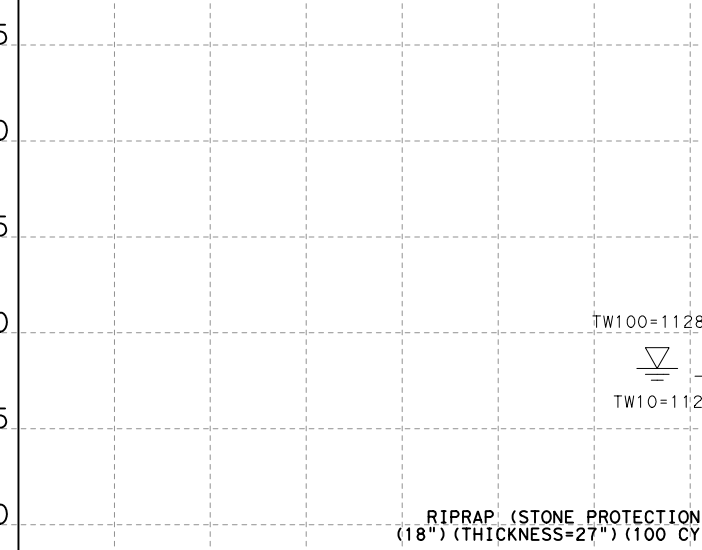
DRAWING DATE: 09/01/2021



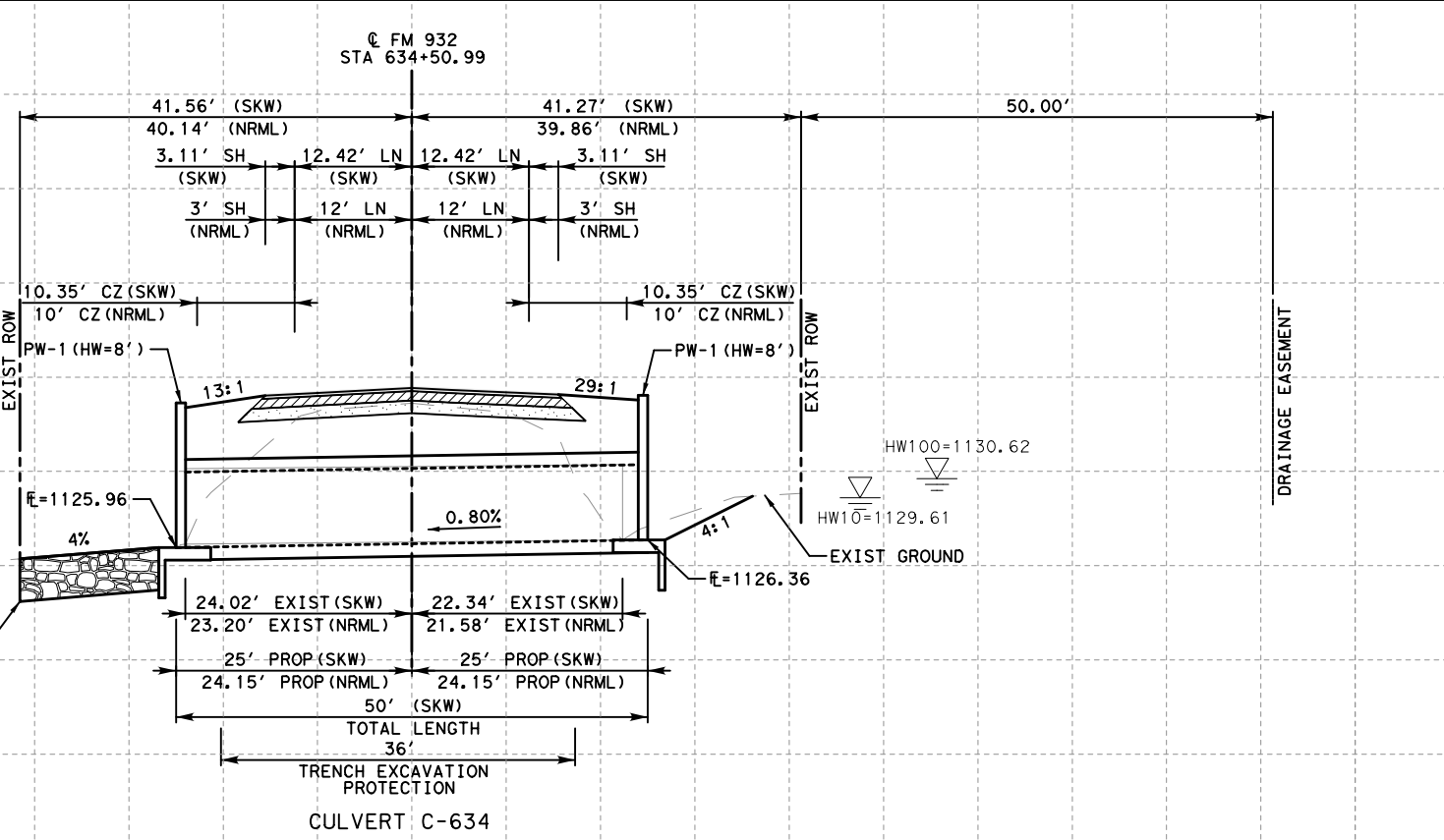
LEGEND:
 DIRECTION OF FLOW
 EXIST ROW

NOTES:
 1. ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
 2. REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.
 3. REFER TO CULVERT MISCELLANEOUS DETAILS SHEET FOR RIPRAP (STONE PROTECTION) (18") TOE DETAIL.

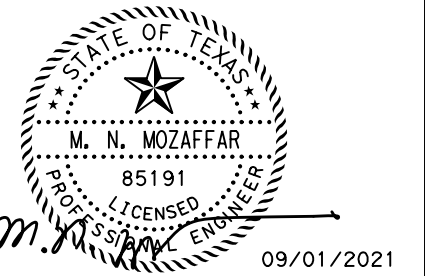
| CULVERT C-634 HYDRAULIC DATA | | | | | | |
|------------------------------|--------|-----------|---------|---------|---------|---------|
| FREQ | L (ft) | S (ft/ft) | Q (cfs) | V (fps) | HW (ft) | TW (ft) |
| 10-YR | 50.00 | 0.0080 | 106.60 | 9.85 | 1129.61 | 1127.74 |
| 100-YR | | | 157.93 | 10.97 | 1130.62 | 1128.15 |



| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|-----------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 43 |
| 400 6006 | CUT & RESTORING PAV | SY | 34 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 36 |
| 432 6033 | RIPRAP (STONE PROTECTION) (18 IN) | CY | 100 |
| 462 6015 | CONC BOX CULV (7 FT X 4 FT) | LF | 50 |
| 466 6183 | WINGWALL (PW - 1) (HW=8 FT) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 93 |
| 496 6450 | REMOV STR (MASONARY) | LF | 29 |



REMOVE EXIST 2-48" X 46.36' RCP
 INSTALL 7' X 4' X 50' RCB
 INSTALL PW-1 (HW=8') (LT), PW-1 (HW=8') (RT)
 TOTAL LENGTH=50'
 (STANDARDS: SCP-7, SCP-MD, PW-1, ECD)



FINAL SUBMITTAL

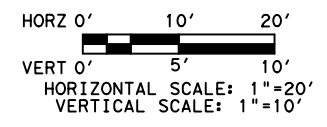


FM 932

**CULVERT PROFILES
 CULVERT C-634**

(SHEET 6 OF 16)

| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
|-----------|-------------------|-------------------------|----------|-----------|-------------|
| 6 | 6 | (SEE TITLE SHEET) | | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. | |
| SRS | TX | WACO | HAMILTON | 206 | |
| GRAPHICS | TW | CONTROL | SECTION | JOB | |
| SRS | 0867 | 01 | 017 | | |

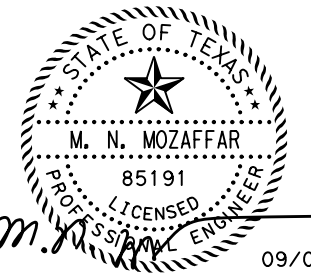
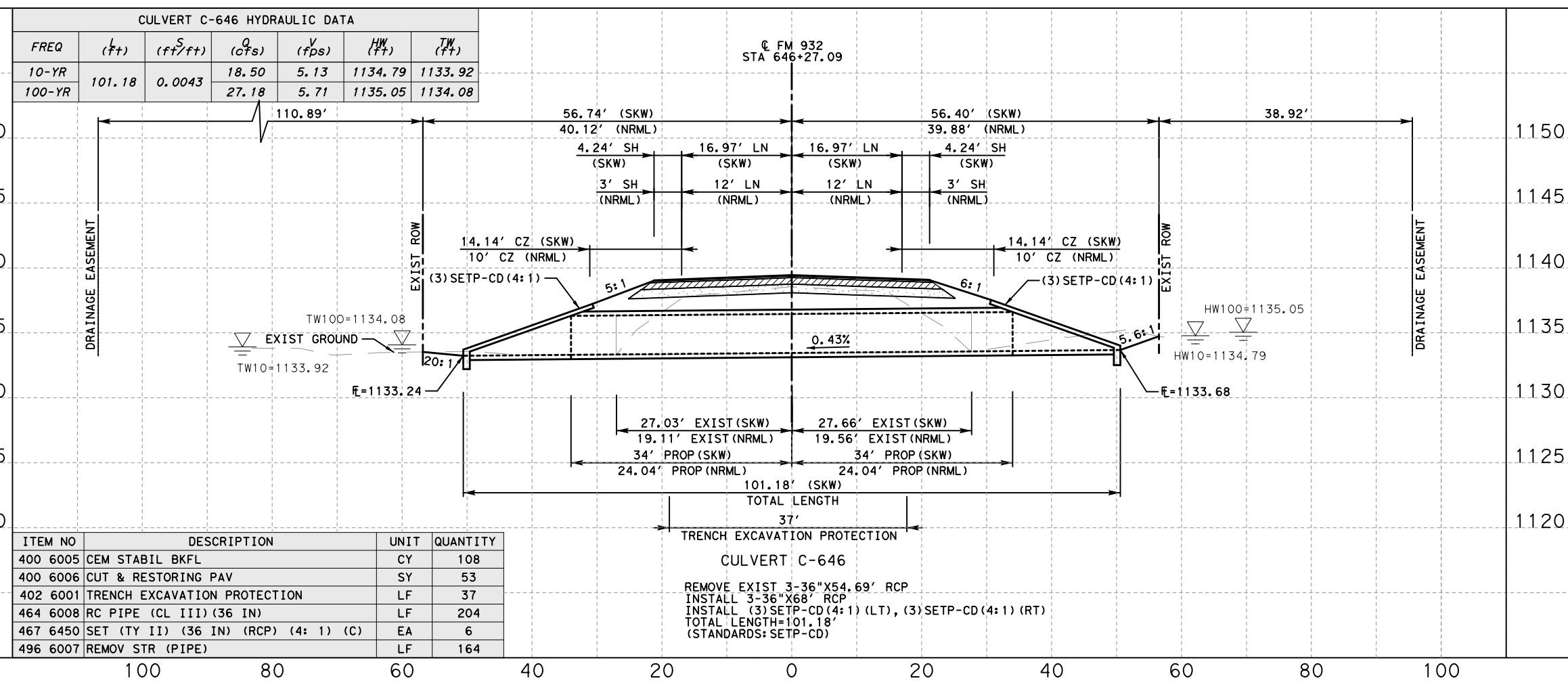
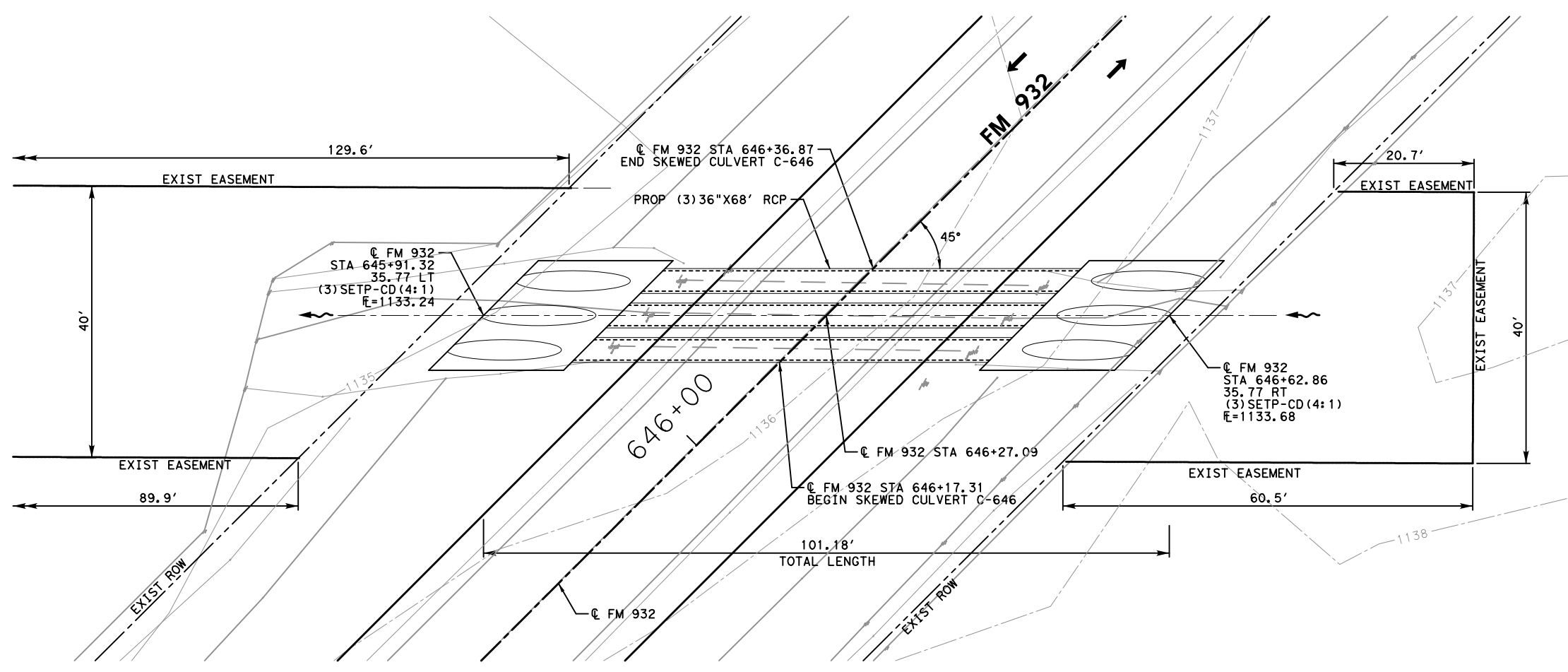


LEGEND:

- DIRECTION OF FLOW
- EXIST ROW

NOTES:

1. ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
2. REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.



FINAL SUBMITTAL



FM 932

**CULVERT PROFILES
CULVERT C-646**

(SHEET 7 OF 16)

| | | | | |
|----------------|---------------------|---|-----------------|--------------------|
| DESIGN YH | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK SRS | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 207 |
| GRAPHICS TW | CONTROL | SECTION | JOB | |
| GRPH CHECK SRS | 0867 | 01 | 017 | |

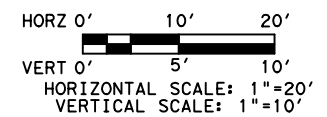
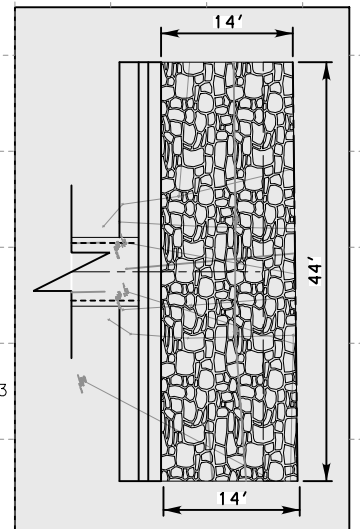
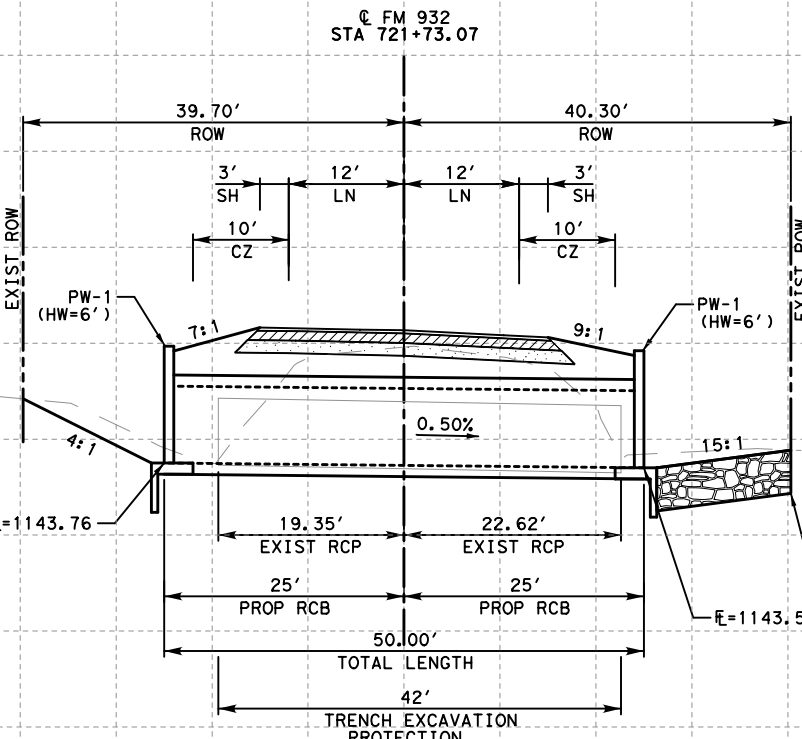
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 DRAWING DATE: 09/01/2021

FILENAME: L:\waco District\FM 932\CADD\Sheets\07 Drainage Detail\FM 932\Culvert*Profile*08.dgn

DRAWING DATE: 09/01/2021

100 80 60 40 20 0 20 40 60 80 100

| CULVERT C-721 HYDRAULIC DATA | | | | | | |
|------------------------------|-------|---------|--------|-------|-----------|-----------|
| FREQ | (ft) | (ft/ft) | (cfs) | (fps) | (HW (ft)) | (TW (ft)) |
| 10-YR | 50.00 | 0.0050 | 75.60 | 8.37 | 1146.64 | 1144.99 |
| 100-YR | | | 111.22 | 9.37 | 1147.48 | 1145.33 |



LEGEND:

--- EXIST GROUND

NOTES:

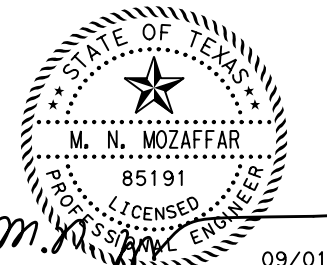
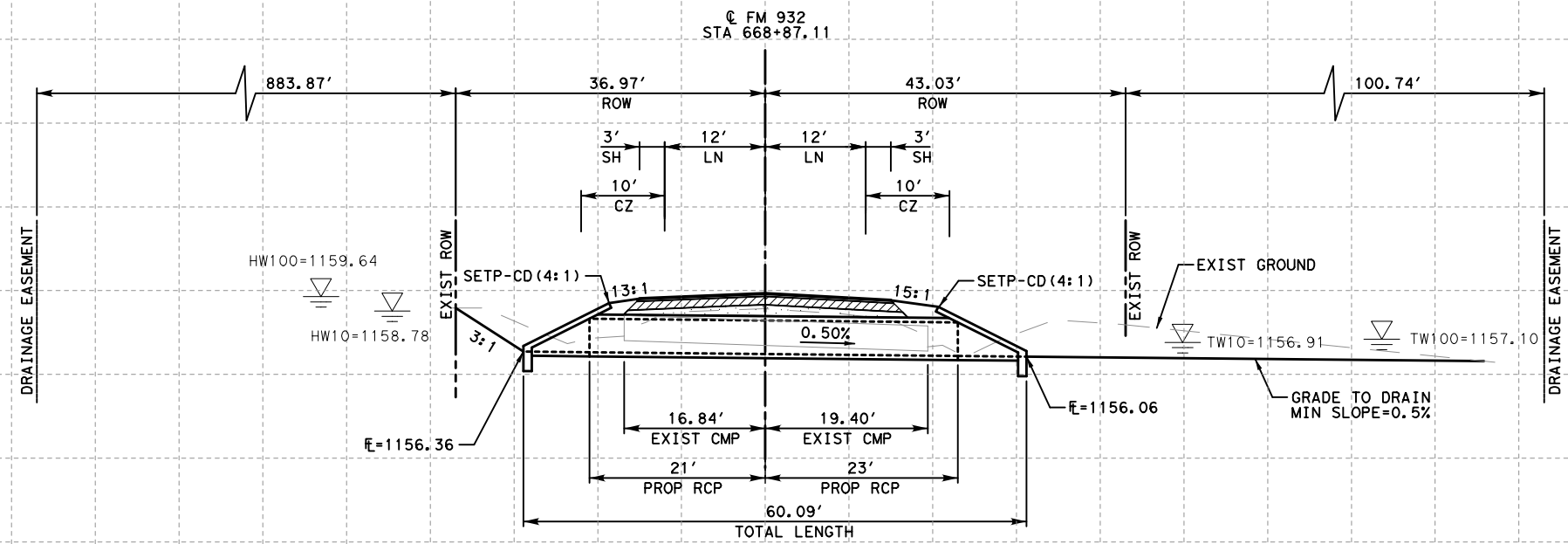
1. ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
2. REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.
3. REFER TO CULVERT MISCELLANEOUS DETAILS SHEET FOR RIPRAP (STONE PROTECTION) (18") TOE DETAIL.

| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|-----------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 38 |
| 400 6006 | CUT & RESTORING PAV | SY | 31 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 42 |
| 432 6033 | RIPRAP (STONE PROTECTION) (18 IN) | CY | 75 |
| 462 6011 | CONC BOX CULV (6 FT X 4 FT) | LF | 50 |
| 466 6181 | WINGWALL (PW - 1) (HW=6 FT) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 84 |

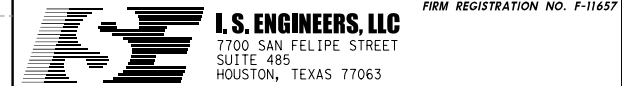
CULVERT C-721
 REMOVE EXIST 2-42"X42.0' RCP
 INSTALL 6'X4'X50' RCB
 INSTALL PW-1 (HW=6') (LT), (PW-1 (HW=6') (RT)
 TOTAL LENGTH=50.00'
 (STANDARDS: SCP-6, SCP-MD, PW-1, ECD)

CULVERT C-668 HYDRAULIC DATA

| FREQ | (ft) | (ft/ft) | (cfs) | (fps) | (HW (ft)) | (TW (ft)) |
|--------|-------|---------|-------|-------|-----------|-----------|
| 10-YR | 60.09 | 0.0050 | 15.32 | 6.83 | 1158.78 | 1156.91 |
| 100-YR | | | 22.52 | 7.35 | 1159.64 | 1157.10 |



FINAL SUBMITTAL



FM 932

CULVERT PROFILES
CULVERT C-668 & C-721

(SHEET 8 OF 16)

| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|--------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 19 |
| 400 6006 | CUT & RESTORING PAV | SY | 15 |
| 464 6018 | RC PIPE (CL IV) (24 IN) | LF | 44 |
| 467 6390 | SET (TY II) (24 IN) (RCP) (4: 1) (C) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 36 |

CULVERT C-668
 REMOVE EXIST 18"X36.2' CMP
 INSTALL 24"X44' RCP (CL IV)
 INSTALL SETP-CD (4:1) (LT), SETP-CD (4:1) (RT)
 TOTAL LENGTH=60.09'
 (STANDARDS: SETP-CD)

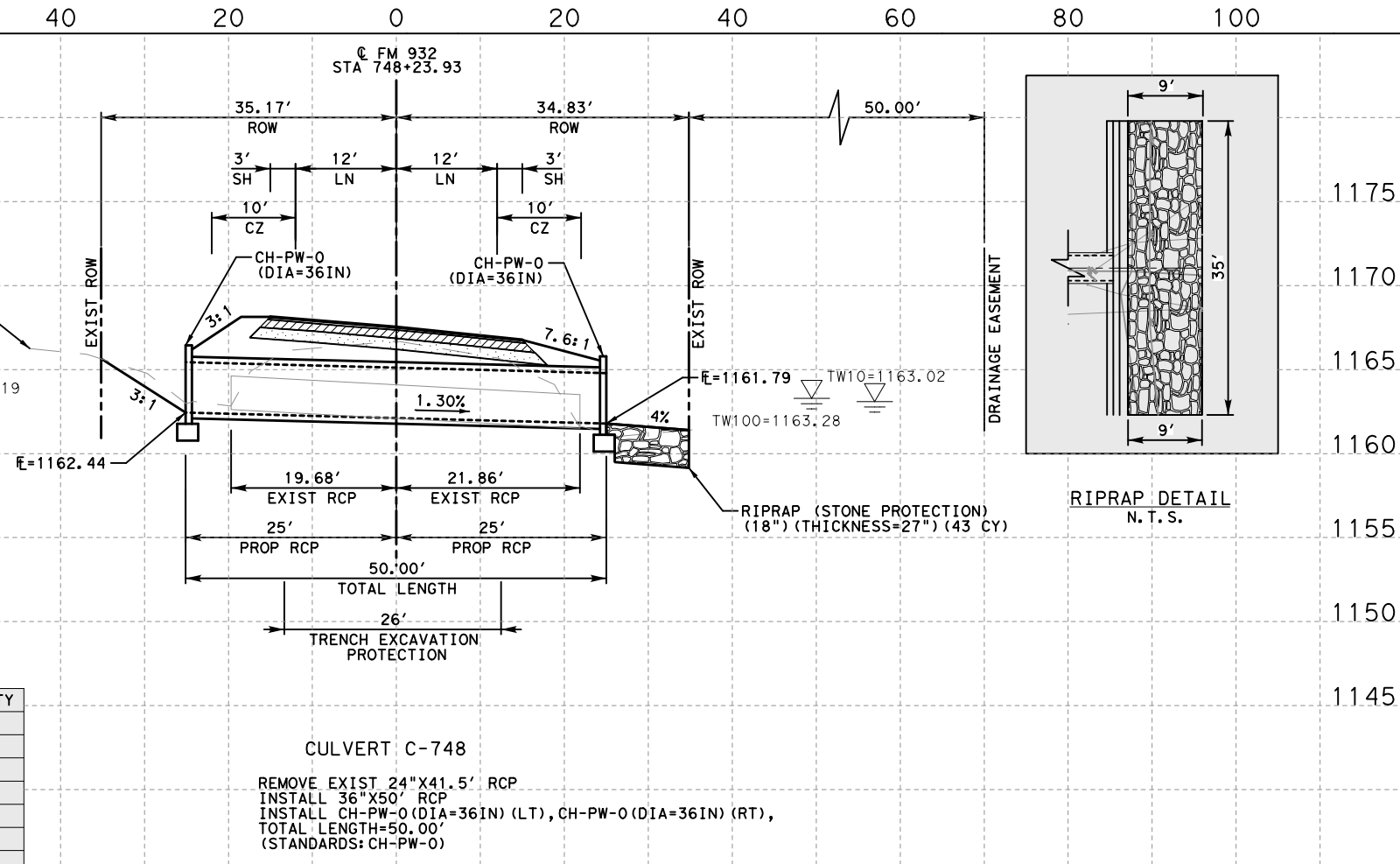
| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
|------------|-------------------|-------------------------|----------|-------------|
| 6 | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS | STATE | DISTRICT | COUNTY | SHEET NO. |
| TW | TX | WACO | HAMILTON | 208 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| SRS | 0867 | 01 | 017 | |

100 80 60 40 20 0 20 40 60 80 100

FILENAME: L:\waco District\FM 932\CADD\Sheets\07 Drainage Detail\FM 932\Culvert*Profile*09.dgn
 DRAWING DATE: 09/01/2021

CULVERT C-748 HYDRAULIC DATA

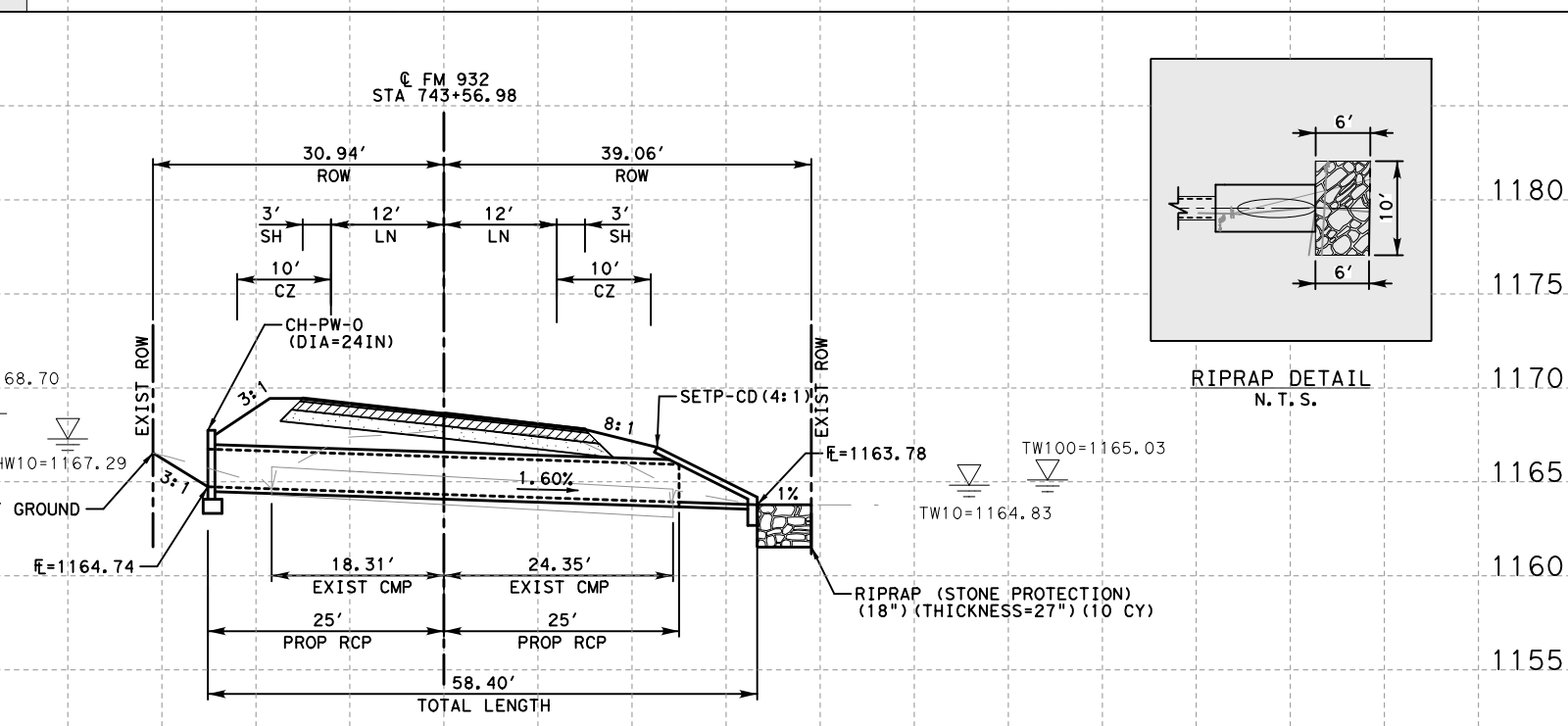
| FREQ | (ft) | (ft/ft) | (cfs) | (fps) | (HW (ft)) | (TW (ft)) |
|--------|-------|---------|-------|-------|-----------|-----------|
| 10-YR | 50.00 | 0.0130 | 31.20 | 9.30 | 1165.19 | 1163.02 |
| 100-YR | | | 45.90 | 10.26 | 1166.12 | 1163.28 |



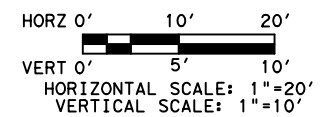
| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|-------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 28 |
| 400 6006 | CUT & RESTORING PAV | SY | 19 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 26 |
| 432 6033 | RIPRAP (STONE PROTECTION) (18 IN) | CY | 43 |
| 464 6008 | RC PIPE (CL III) (36 IN) | LF | 50 |
| 466 6101 | HEADWALL (CH - PW - 0) (DIA= 36 IN) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 42 |

CULVERT C-743 HYDRAULIC DATA

| FREQ | (ft) | (ft/ft) | (cfs) | (fps) | (HW (ft)) | (TW (ft)) |
|--------|-------|---------|-------|-------|-----------|-----------|
| 10-YR | 58.40 | 0.0160 | 17.41 | 9.12 | 1167.29 | 1164.83 |
| 100-YR | | | 25.67 | 10.13 | 1168.70 | 1165.03 |



| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|--------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 20 |
| 400 6006 | CUT & RESTORING PAV | SY | 15 |
| 432 6033 | RIPRAP (STONE PROTECTION) (18 IN) | CY | 10 |
| 464 6005 | RC PIPE (CL III) (24 IN) | LF | 50 |
| 466 6097 | HEADWALL (CH - PW - 0) (DIA= 24 IN) | EA | 1 |
| 467 6390 | SET (TY II) (24 IN) (RCP) (4: 1) (C) | EA | 1 |
| 496 6007 | REMOV STR (PIPE) | LF | 43 |

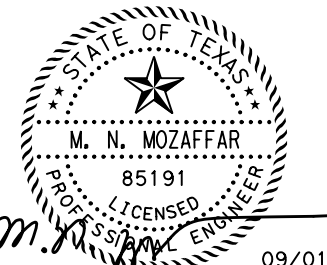


LEGEND:

--- EXIST GROUND

NOTES:

- ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
- REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.
- REFER TO CULVERT MISCELLANEOUS DETAILS SHEET FOR RIPRAP (STONE PROTECTION) (18") TOE DETAIL.



FINAL SUBMITTAL



FM 932

**CULVERT PROFILES
 CULVERT C-743 & C-748**

(SHEET 9 OF 16)

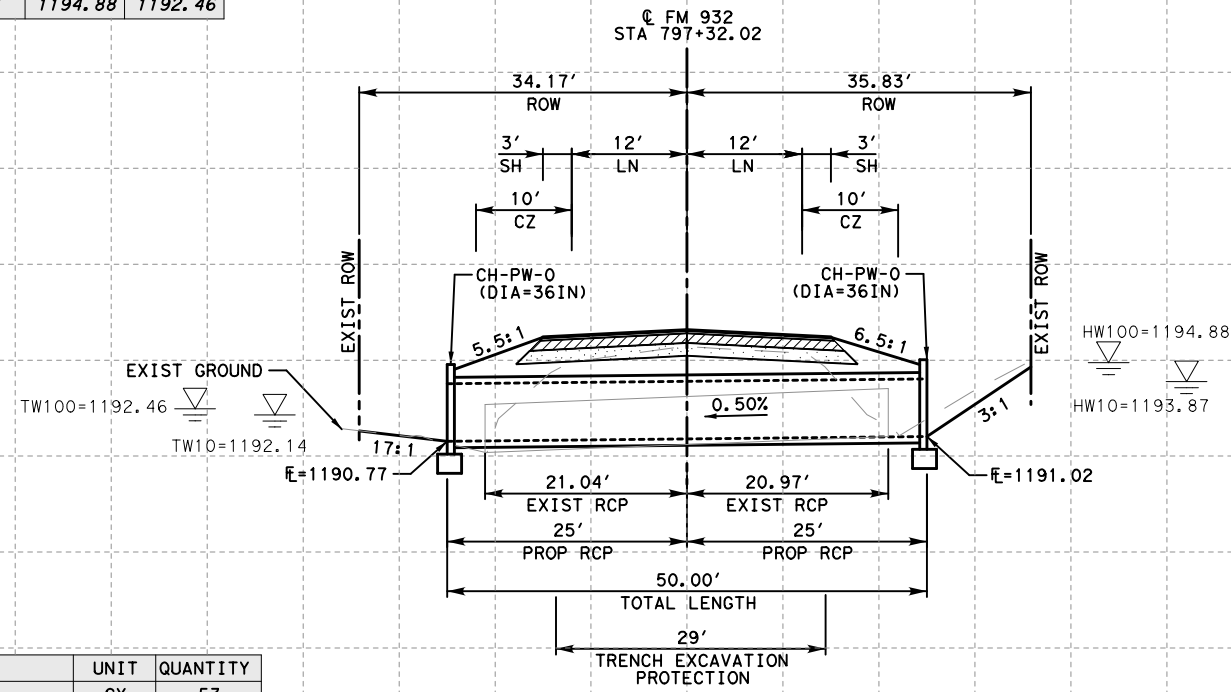
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
|------------|-------------------|-------------------------|----------|-------------|
| YH | 6 | (SEE TITLE SHEET) | | FM 932 |
| DESIGN CK | SRS | STATE | DISTRICT | COUNTY |
| GRAPHICS | TW | TX | WACO | HAMILTON |
| GRPH CHECK | SRS | CONTROL | SECTION | JOB |
| | | 0867 | 01 | 017 |

FILENAME: L:\waco District\FM 932\FM 2410\CADD\Sheets\07 Drainage Detail\FM 932\Culvert*Profile*10.dgn

DRAWING DATE: 09/01/2021

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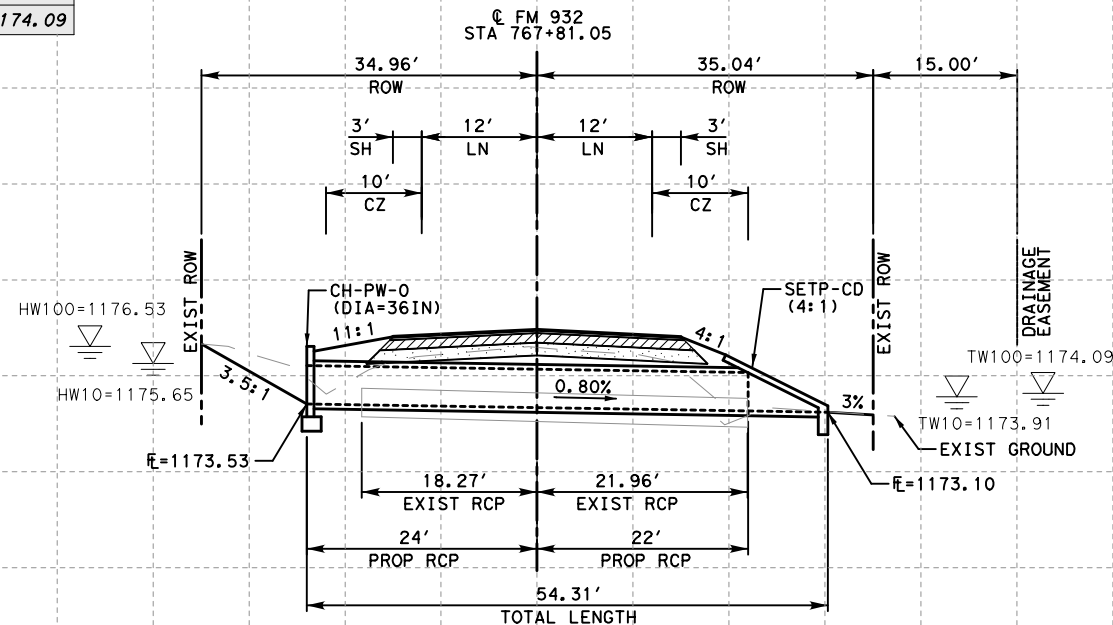
| CULVERT C-797 HYDRAULIC DATA | | | | | | |
|------------------------------|-------|---------|-------|-------|---------|---------|
| FREQ | (ft) | (ft/ft) | (cfs) | (fps) | HW (ft) | TW (ft) |
| 10-YR | 50.00 | 0.0050 | 65.39 | 7.39 | 1193.87 | 1192.14 |
| 100-YR | | | 96.47 | 8.23 | 1194.88 | 1192.46 |



| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|-------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 53 |
| 400 6006 | CUT & RESTORING PAV | SY | 36 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 29 |
| 464 6008 | RC PIPE (CL III) (36 IN) | LF | 100 |
| 466 6101 | HEADWALL (CH - PW - 0) (DIA= 36 IN) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 84 |

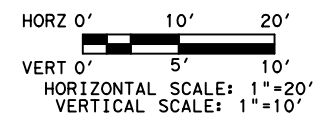
CULVERT C-797
 REMOVE EXIST 2-30"X42' RCP
 INSTALL 2-36"X50' RCP
 INSTALL CH-PW-0 (DIA=36IN) (LT), CH-PW-0 (DIA=36IN) (RT)
 TOTAL LENGTH=50.00'
 (STANDARDS: CH-PW-0)

| CULVERT C-767 HYDRAULIC DATA | | | | | | |
|------------------------------|-------|---------|-------|-------|---------|---------|
| FREQ | (ft) | (ft/ft) | (cfs) | (fps) | HW (ft) | TW (ft) |
| 10-YR | 54.31 | 0.0080 | 13.90 | 7.32 | 1175.65 | 1173.91 |
| 100-YR | | | 20.43 | 8.09 | 1176.53 | 1174.09 |



| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|--------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 20 |
| 400 6006 | CUT & RESTORING PAV | SY | 15 |
| 464 6005 | RC PIPE (CL III) (24 IN) | LF | 46 |
| 466 6097 | HEADWALL (CH - PW - 0) (DIA= 24 IN) | EA | 1 |
| 467 6390 | SET (TY II) (24 IN) (RCP) (4: 1) (C) | EA | 1 |
| 496 6007 | REMOV STR (PIPE) | LF | 40 |

CULVERT C-767
 REMOVE EXIST 18"X40.2' RCP
 INSTALL 24"X46' RCP
 INSTALL CH-PW-0 (DIA=24IN) (LT), SETP-CD (4:1) (RT)
 TOTAL LENGTH=54.31'
 (STANDARDS: SETP-CD, CH-PW-0)

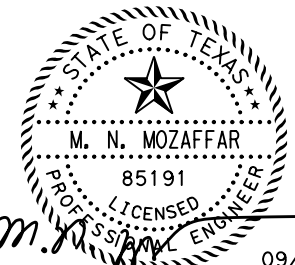


LEGEND:

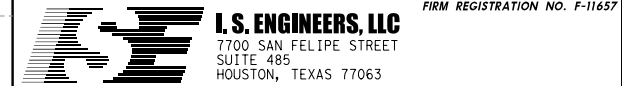
--- EXIST GROUND

NOTES:

1. ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
2. REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.



FINAL SUBMITTAL



FM 932

CULVERT PROFILES
CULVERT C-767 & C-797

(SHEET 10 OF 16)

| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
|----------------|-------------------|-------------------------|----------|--|-------------|
| SRS | 6 | (SEE TITLE SHEET) | | | FM 932 |
| GRAPHICS TW | TX | WACO | HAMILTON | | 210 |
| GRPH CHECK SRS | CONTROL | SECTION | JOB | | |
| | 0867 | 01 | 017 | | |

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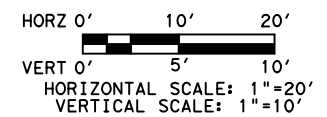
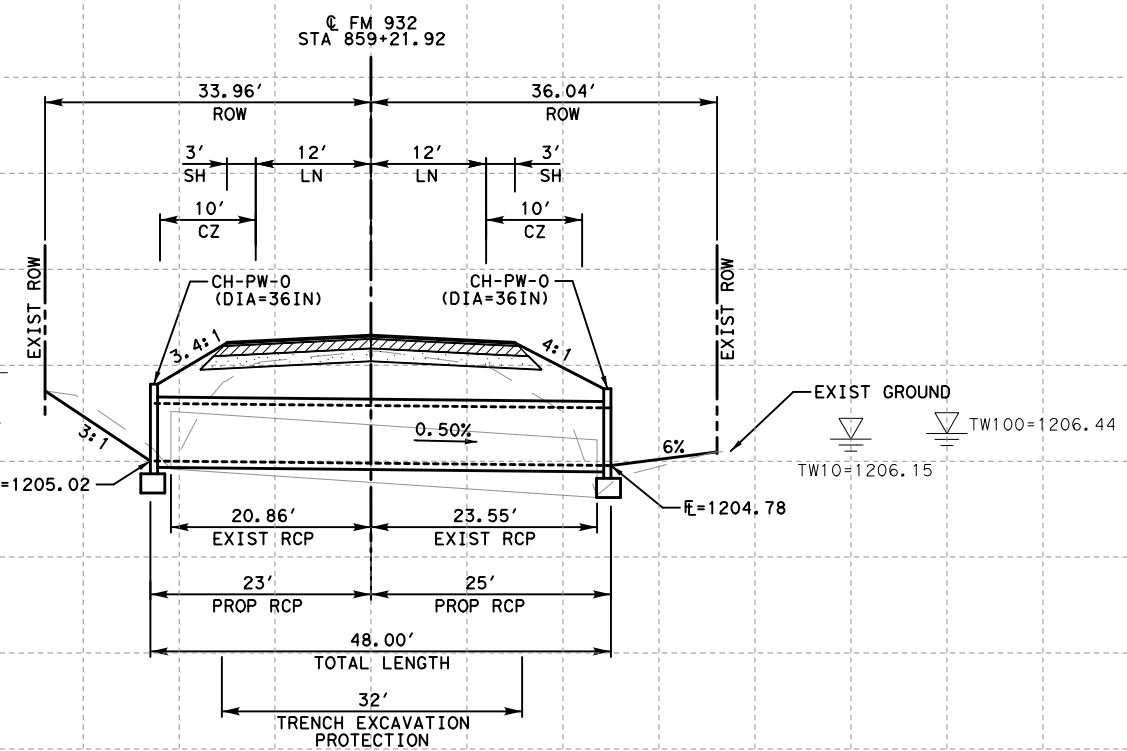
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DRAWING DATE: 09/01/2021

100 80 60 40 20 0 20 40 60 80 100

CULVERT C-859 HYDRAULIC DATA

| FREQ | L/ft | $S(ft/ft)$ | $Q(cfs)$ | $V(fps)$ | $HW(ft)$ | $TW(ft)$ |
|--------|--------|------------|----------|----------|----------|----------|
| 10-YR | 48.00 | 0.0050 | 38.80 | 7.97 | 1208.24 | 1206.15 |
| 100-YR | | | 57.21 | 9.27 | 1209.61 | 1206.44 |



LEGEND:

--- EXIST GROUND

NOTES:

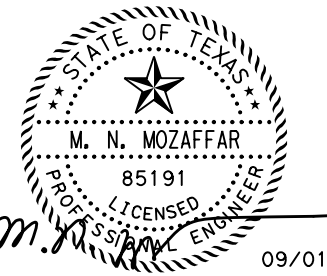
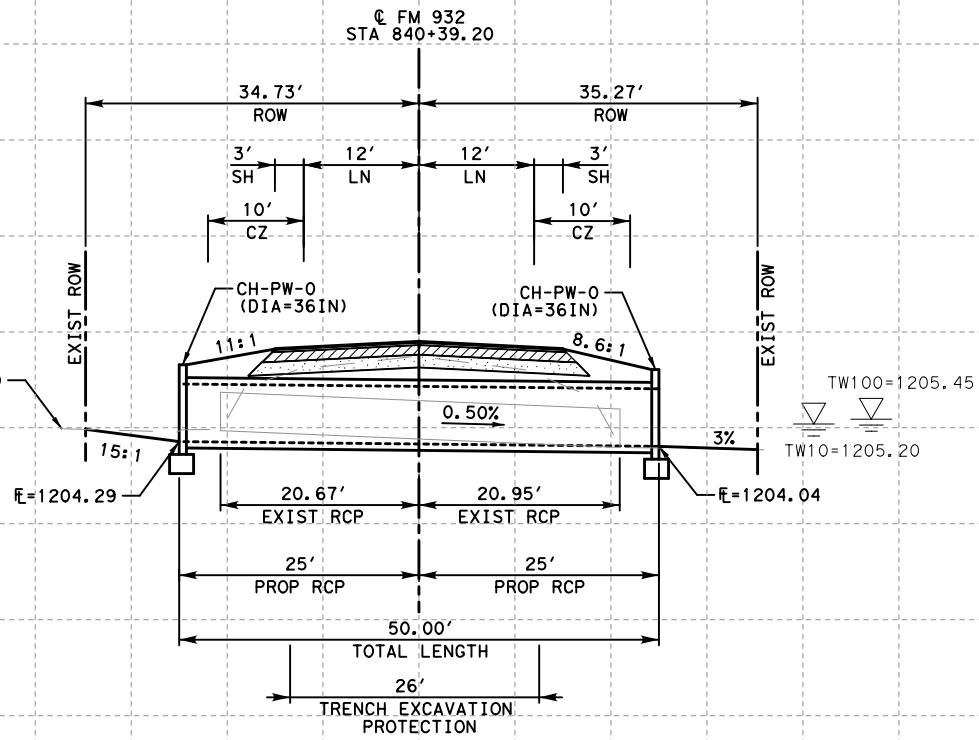
1. ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
2. REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.

| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|-------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 28 |
| 400 6006 | CUT & RESTORING PAV | SY | 19 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 32 |
| 464 6008 | RC PIPE (CL III) (36 IN) | LF | 48 |
| 466 6101 | HEADWALL (CH - PW - 0) (DIA= 36 IN) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 44 |

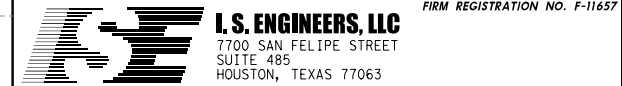
CULVERT C-859
 REMOVE EXIST 36"X44.4' RCP
 INSTALL 36"X48' RCP
 INSTALL CH-PW-0 (DIA=36IN) (LT), CH-PW-0 (DIA=36IN) (RT)
 TOTAL LENGTH=48.00'
 (STANDARDS: CH-PW-0)

CULVERT C-840 HYDRAULIC DATA

| FREQ | L/ft | $S(ft/ft)$ | $Q(cfs)$ | $V(fps)$ | $HW(ft)$ | $TW(ft)$ |
|--------|--------|------------|----------|----------|----------|----------|
| 10-YR | 50.00 | 0.0050 | 27.71 | 7.08 | 1206.85 | 1205.20 |
| 100-YR | | | 40.78 | 7.79 | 1207.63 | 1205.45 |



FINAL SUBMITTAL



FM 932

CULVERT PROFILES
CULVERT C-840 & C-859

(SHEET 11 OF 16)

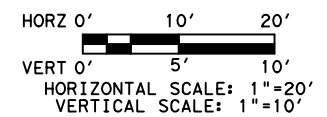
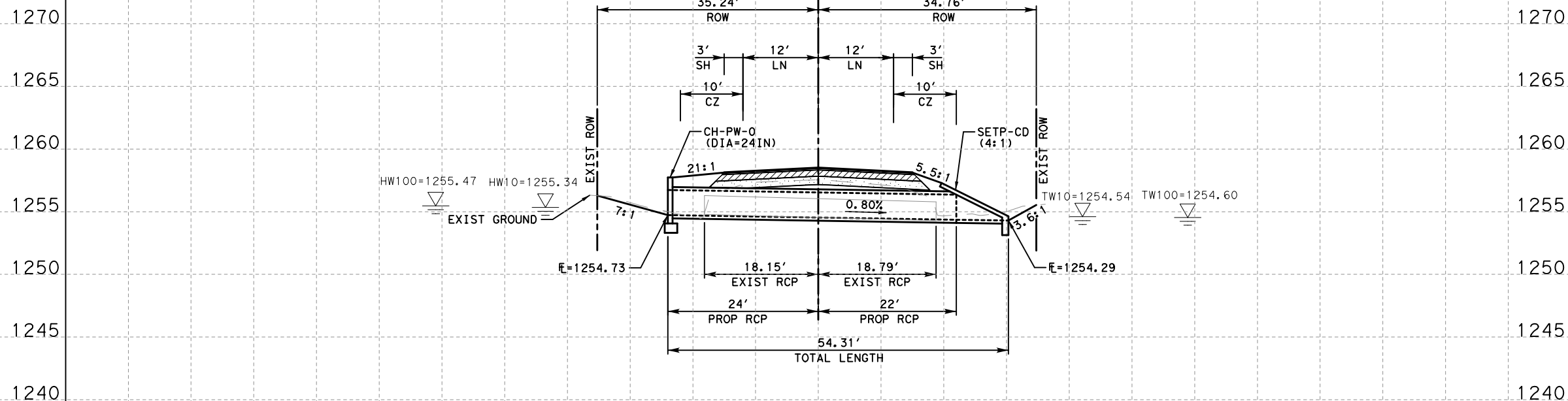
| DESIGN | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
|------------|-------------------|-------------------------|----------|----------|-------------|
| YH | 6 | (SEE TITLE SHEET) | | | FM 932 |
| DESIGN CK | SRS | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS | TW | TX | WACO | HAMILTON | 211 |
| GRPH CHECK | SRS | CONTROL | SECTION | JOB | |
| | | 0867 | 01 | 017 | |

100 80 60 40 20 0 20 40 60 80 100

FILENAME: L:\waco District\FM 932\FM 2410\CADD\Sheets\07 Drainage Detail\FM 932\Culvert*Profile*12.dgn
 DRAWING DATE: 09/01/2021

100 80 60 40 20 0 20 40 60 80 100

| CULVERT C-934 HYDRAULIC DATA | | | | | | |
|------------------------------|--------|-----------|--------------|--------------|--------------|--------------|
| FREQ | L/ft | (ft/ft) | Q (cfs) | V (fps) | HW (ft) | TW (ft) |
| 10-YR | 54.31 | 0.0080 | 1.67 | 4.45 | 1255.34 | 1254.54 |
| 100-YR | | | 2.46 | 4.94 | 1255.47 | 1254.60 |



LEGEND:

--- EXIST GROUND

NOTES:

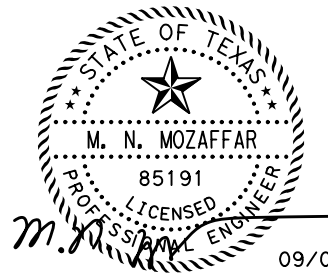
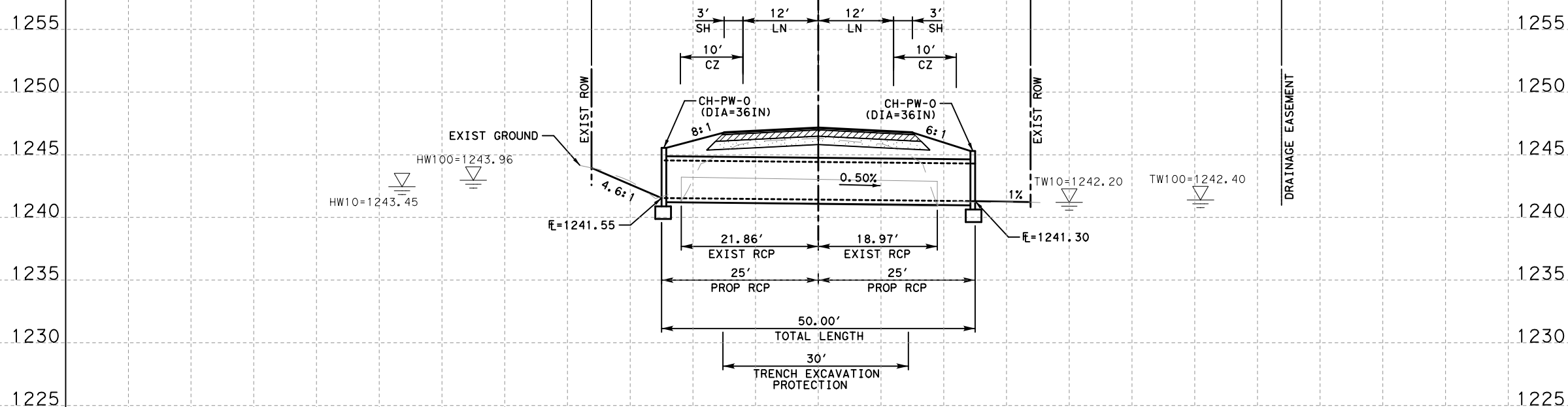
1. ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
2. REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.

| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|--------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 20 |
| 400 6006 | CUT & RESTORING PAV | SY | 15 |
| 464 6018 | RC PIPE (CL IV) (24 IN) | LF | 46 |
| 466 6097 | HEADWALL (CH - PW - O) (DIA= 24 IN) | EA | 1 |
| 467 6390 | SET (TY II) (24 IN) (RCP) (4: 1) (C) | EA | 1 |
| 496 6007 | REMOV STR (PIPE) | LF | 37 |

CULVERT C-934
 REMOVE EXIST 18"X36.9' RCP
 INSTALL 24"X46' RCP (CL IV)
 INSTALL CH-PW-0 (DIA=24IN) (LT), SETP-CD (4:1) (RT)
 TOTAL LENGTH=54.31'
 (STANDARDS: SETP-CD, CH-PW-0)

CULVERT C-909 HYDRAULIC DATA

| FREQ | L/ft | (ft/ft) | Q (cfs) | V (fps) | HW (ft) | TW (ft) |
|--------|--------|-----------|--------------|--------------|--------------|--------------|
| 10-YR | 50.00 | 0.0050 | 17.03 | 6.22 | 1243.45 | 1242.20 |
| 100-YR | | | 25.05 | 6.89 | 1243.96 | 1242.40 |



FINAL SUBMITTAL



FM 932

CULVERT PROFILES
CULVERT C-909 & C-934

(SHEET 12 OF 16)

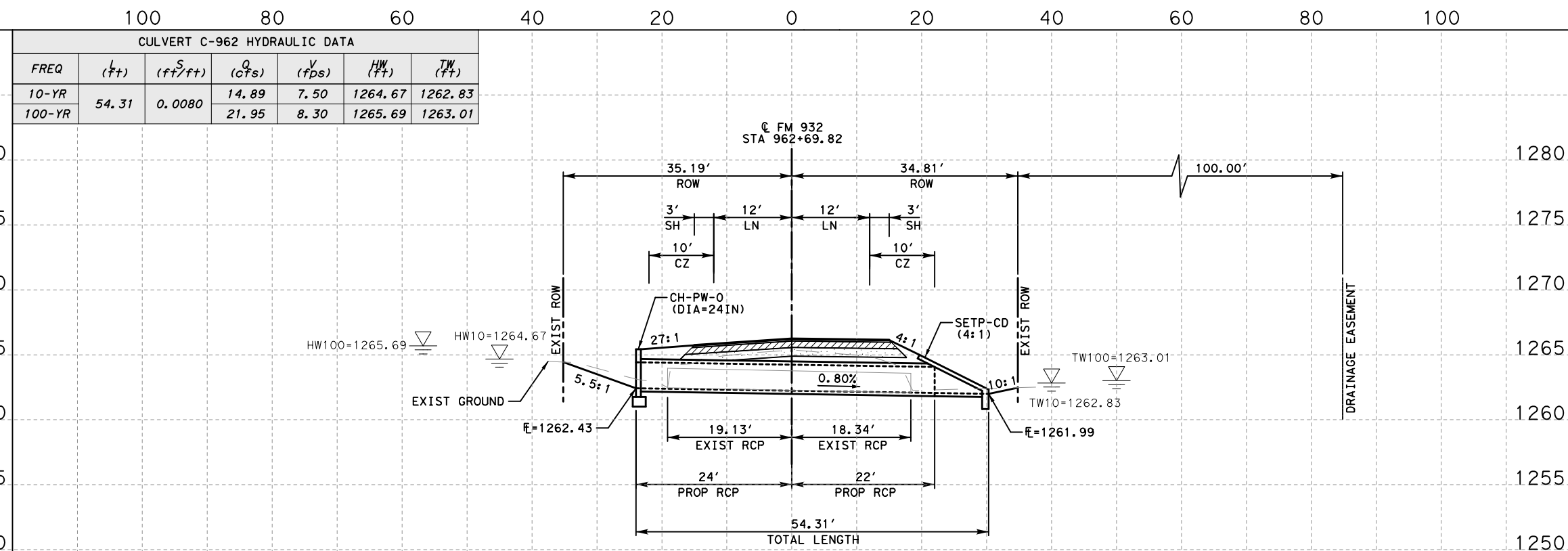
| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
|--------------|-------------------|-------------------------|----------|-----------|-------------|
| 6 | 6 | (SEE TITLE SHEET) | | | FM 932 |
| GRAPHICS SRS | STATE | DISTRICT | COUNTY | SHEET NO. | |
| TW | TX | WACO | HAMILTON | 212 | |
| GRPH CHECK | CONTROL | SECTION | JOB | | |
| SRS | 0867 | 01 | 017 | | |

100 80 60 40 20 0 20 40 60 80 100

| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|-------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 28 |
| 400 6006 | CUT & RESTORING PAV | SY | 19 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 30 |
| 464 6008 | RC PIPE (CL III) (36 IN) | LF | 50 |
| 466 6101 | HEADWALL (CH - PW - O) (DIA= 36 IN) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 41 |

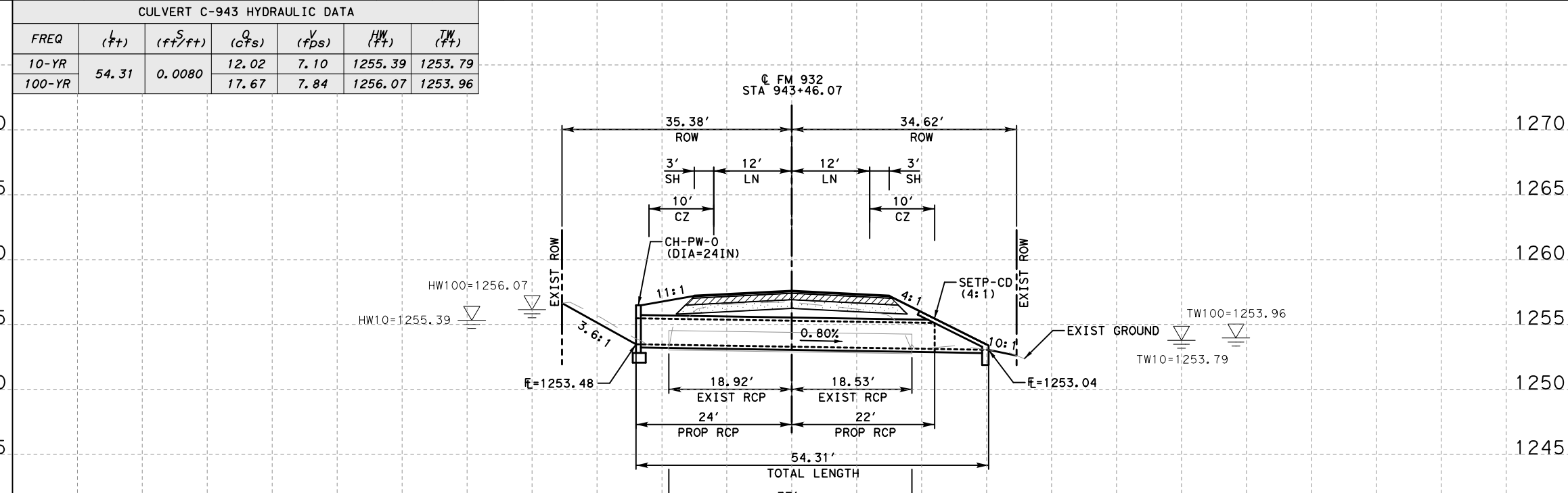
CULVERT C-909
 REMOVE EXIST 24"X40.8' RCP
 INSTALL 36"X50' RCP
 INSTALL CH-PW-0 (DIA=36IN) (LT), CH-PW-0 (DIA=36IN) (RT)
 TOTAL LENGTH=50.00'
 (STANDARDS: CH-PW-0)

DRAWING DATE: 09/01/2021 FILENAME: L:\waco District\FM 932*FM 2410\CADD\Sheets\07 Drainage Detail\FM 932\Culvert*Profile*13.dgn



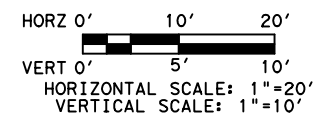
| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|--------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 20 |
| 400 6006 | CUT & RESTORING PAV | SY | 15 |
| 464 6018 | RC PIPE (CL IV) (24 IN) | LF | 46 |
| 466 6097 | HEADWALL (CH - PW - O) (DIA= 24 IN) | EA | 1 |
| 467 6390 | SET (TY II) (24 IN) (RCP) (4: 1) (C) | EA | 1 |
| 496 6007 | REMOV STR (PIPE) | LF | 38 |

CULVERT C-962
 REMOVE EXIST 18"X37.5' RCP
 INSTALL 24"X46' RCP (CL IV)
 INSTALL CH-PW-O (DIA=24IN) (LT), SETP-CD (4:1) (RT)
 TOTAL LENGTH=54.31'
 (STANDARDS: SETP-CD, CH-PW-O)



| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|--------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 20 |
| 400 6006 | CUT & RESTORING PAV | SY | 15 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 37 |
| 464 6005 | RC PIPE (CL III) (24 IN) | LF | 46 |
| 466 6097 | HEADWALL (CH - PW - O) (DIA= 24 IN) | EA | 1 |
| 467 6390 | SET (TY II) (24 IN) (RCP) (4: 1) (C) | EA | 1 |
| 496 6007 | REMOV STR (PIPE) | LF | 37 |

CULVERT C-943
 REMOVE EXIST 18"X37.4' RCP
 INSTALL 24"X46' RCP
 INSTALL CH-PW-O (DIA=24IN) (LT), SETP-CD (4:1) (RT)
 TOTAL LENGTH=54.31'
 (STANDARDS: SETP-CD, CH-PW-O)

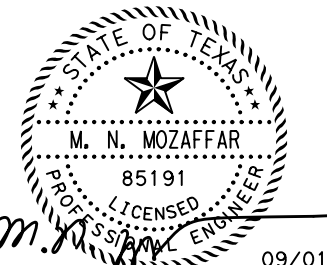


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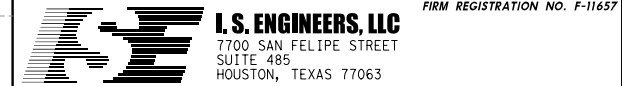
--- EXIST GROUND

NOTES:

1. ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
2. REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.



FINAL SUBMITTAL



FM 932

**CULVERT PROFILES
 CULVERT C-943 & C-962**

(SHEET 13 OF 16)

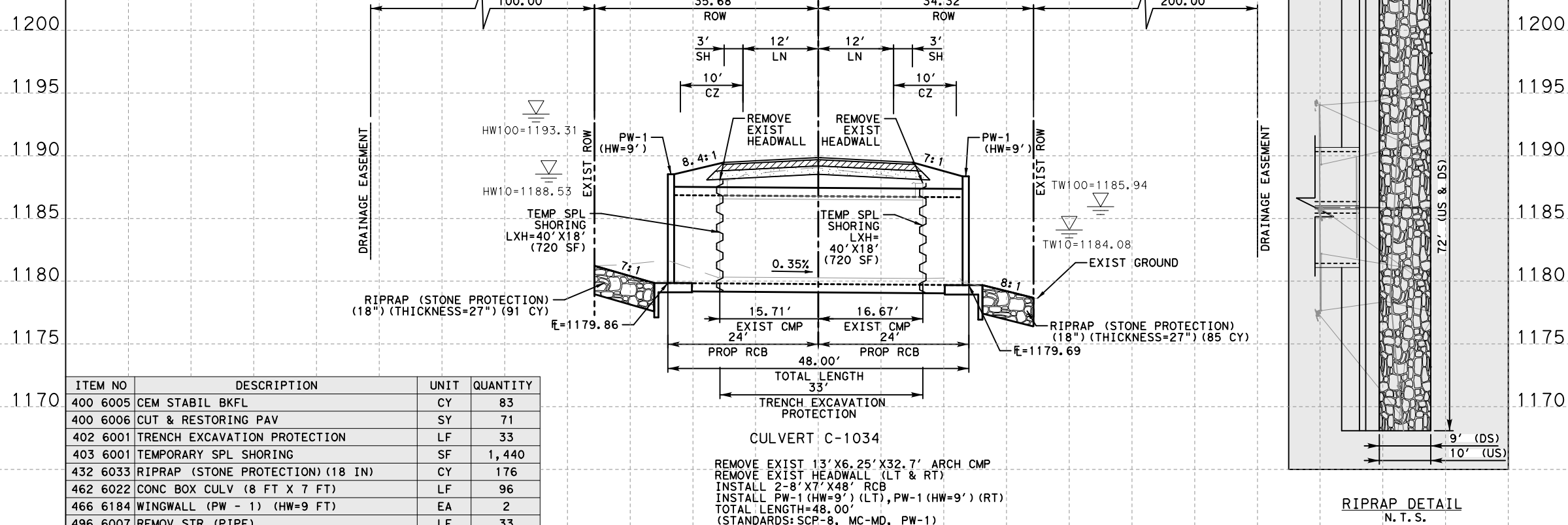
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| DESIGN YH | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK SRS | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 213 |
| GRAPHICS TW | CONTROL | SECTION | JOB | 213 |
| GRPH CHECK SRS | 0867 | 01 | 017 | |

FILENAME: L:\waco District\FM 932\Culvert Detail\FM 932\Culvert*Profile*14.dgn

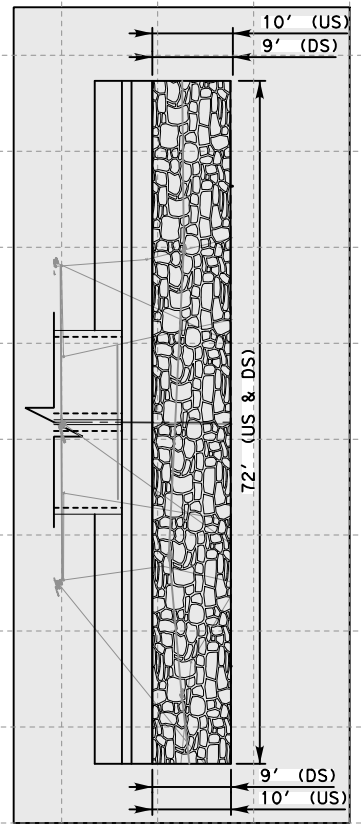
DRAWING DATE: 09/01/2021

CULVERT C-1034 HYDRAULIC DATA

| FREQ | (ft) | (ft/ft) | (cfs) | (fps) | (ft) | (ft) |
|--------|-------|---------|---------|-------|---------|---------|
| 10-YR | 48.00 | 0.0035 | 1012.00 | 12.92 | 1188.53 | 1184.08 |
| 100-YR | | | 2039.00 | 14.70 | 1193.31 | 1185.94 |



| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|-----------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 83 |
| 400 6006 | CUT & RESTORING PAV | SY | 71 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 33 |
| 403 6001 | TEMPORARY SPL SHORING | SF | 1,440 |
| 432 6033 | RIPRAP (STONE PROTECTION) (18 IN) | CY | 176 |
| 462 6022 | CONC BOX CULV (8 FT X 7 FT) | LF | 96 |
| 466 6184 | WINGWALL (PW - 1) (HW=9 FT) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 33 |

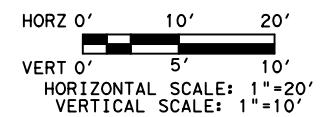


LEGEND:

--- EXIST GROUND

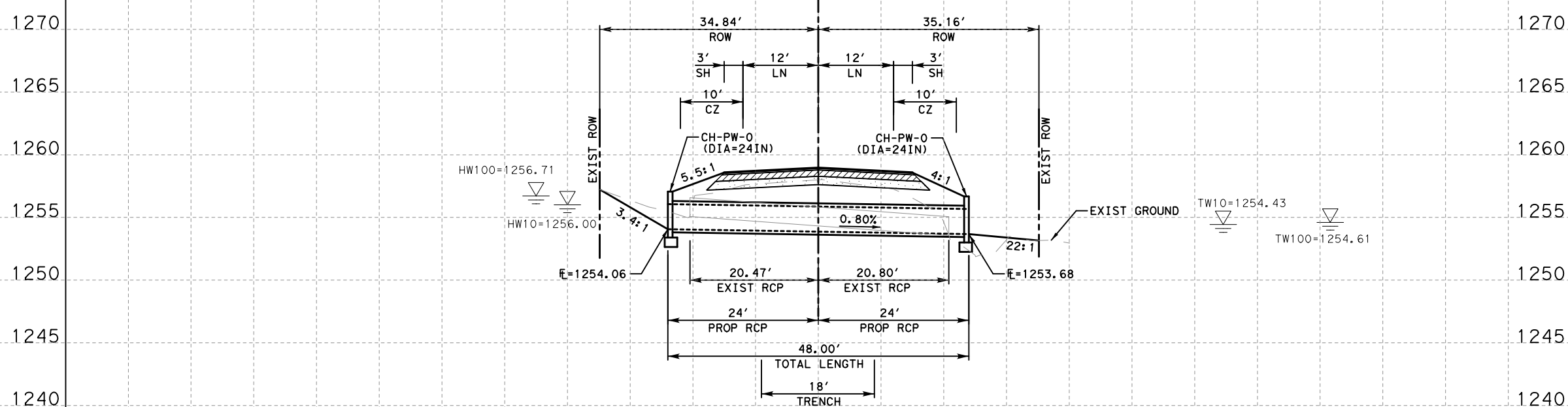
NOTES:

1. ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
2. REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.
3. REFER TO CULVERT MISCELLANEOUS DETAILS SHEET FOR RIPRAP (STONE PROTECTION) (18") TOE DETAIL.

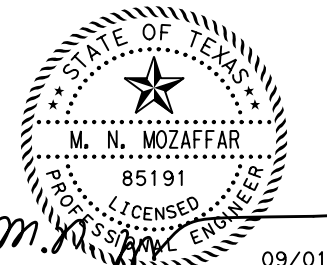


CULVERT C-1004 HYDRAULIC DATA

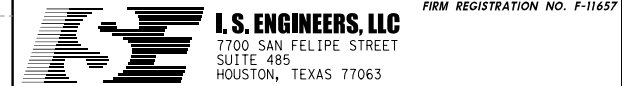
| FREQ | (ft) | (ft/ft) | (cfs) | (fps) | (ft) | (ft) |
|--------|-------|---------|-------|-------|---------|---------|
| 10-YR | 48.00 | 0.0080 | 12.27 | 6.77 | 1256.00 | 1254.43 |
| 100-YR | | | 18.08 | 7.47 | 1256.71 | 1254.61 |



| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|-------------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 20 |
| 400 6006 | CUT & RESTORING PAV | SY | 15 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 18 |
| 464 6005 | RC PIPE (CL III) (24 IN) | LF | 48 |
| 466 6097 | HEADWALL (CH - PW - 0) (DIA= 24 IN) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 41 |



FINAL SUBMITTAL



FM 932

CULVERT PROFILES
CULVERT C-1004 & C-1034

(SHEET 14 OF 16)

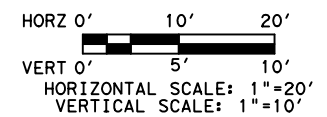
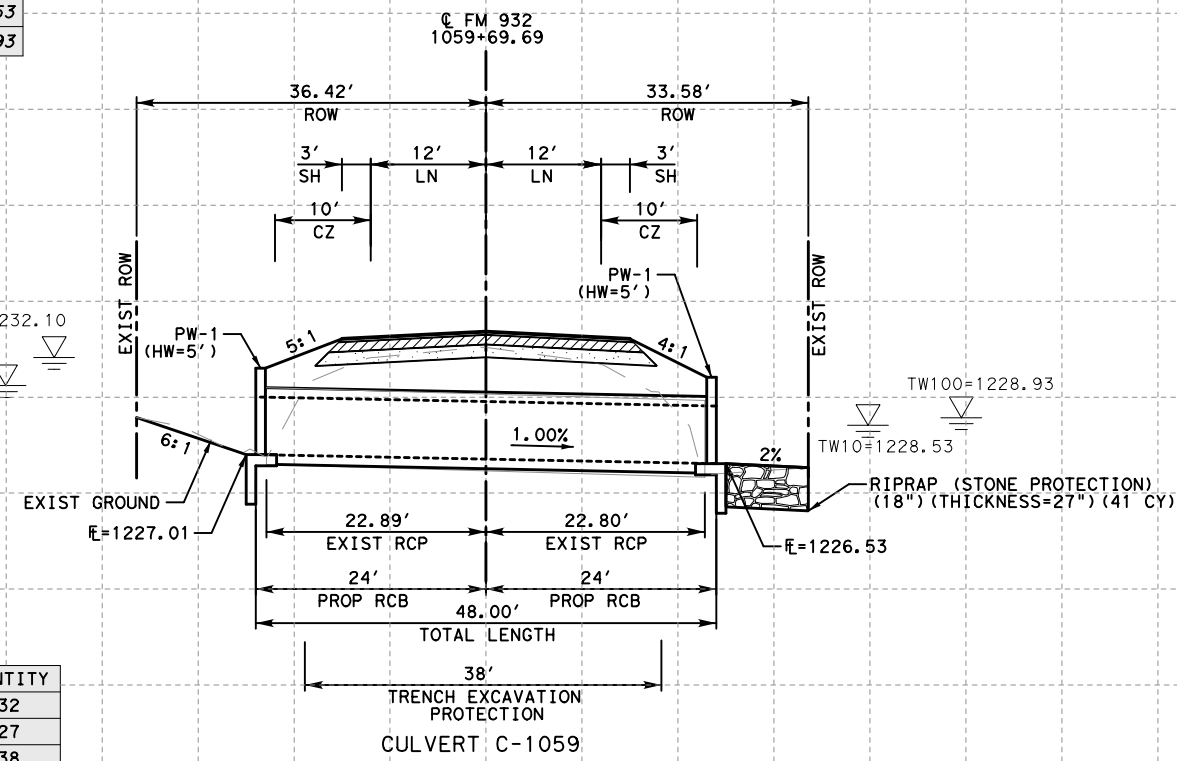
| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
|----------------|-------------------|-------------------------|----------|--|-------------|
| | 6 | (SEE TITLE SHEET) | | | FM 932 |
| DESIGN CK SRS | STATE | DISTRICT | COUNTY | | SHEET NO. |
| | TX | WACO | HAMILTON | | 214 |
| GRAPHICS TW | CONTROL | SECTION | JOB | | |
| GRPH CHECK SRS | 0867 | 01 | 017 | | |

FILENAME: L:\waco District\FM 932\CADD\Sheets\07 Drainage Detail\FM 932\Culvert*Profile*15.dgn
DRAWING DATE: 09/01/2021

100 80 60 40 20 0 20 40 60 80 100

CULVERT C-1059 HYDRAULIC DATA

| FREQ | (ft) | (ft/ft) | (cfs) | (fps) | (ft) | (ft) |
|--------|-------|---------|--------|-------|---------|---------|
| 10-YR | 48.00 | 0.0100 | 84.39 | 10.35 | 1230.57 | 1228.53 |
| 100-YR | | | 124.36 | 11.45 | 1232.10 | 1228.93 |



LEGEND:

--- EXIST GROUND

NOTES:

1. ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
2. REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.
3. REFER TO CULVERT MISCELLANEOUS DETAILS SHEET FOR RIPRAP (STONE PROTECTION) (18") TOE DETAIL.

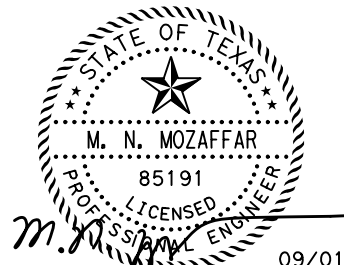
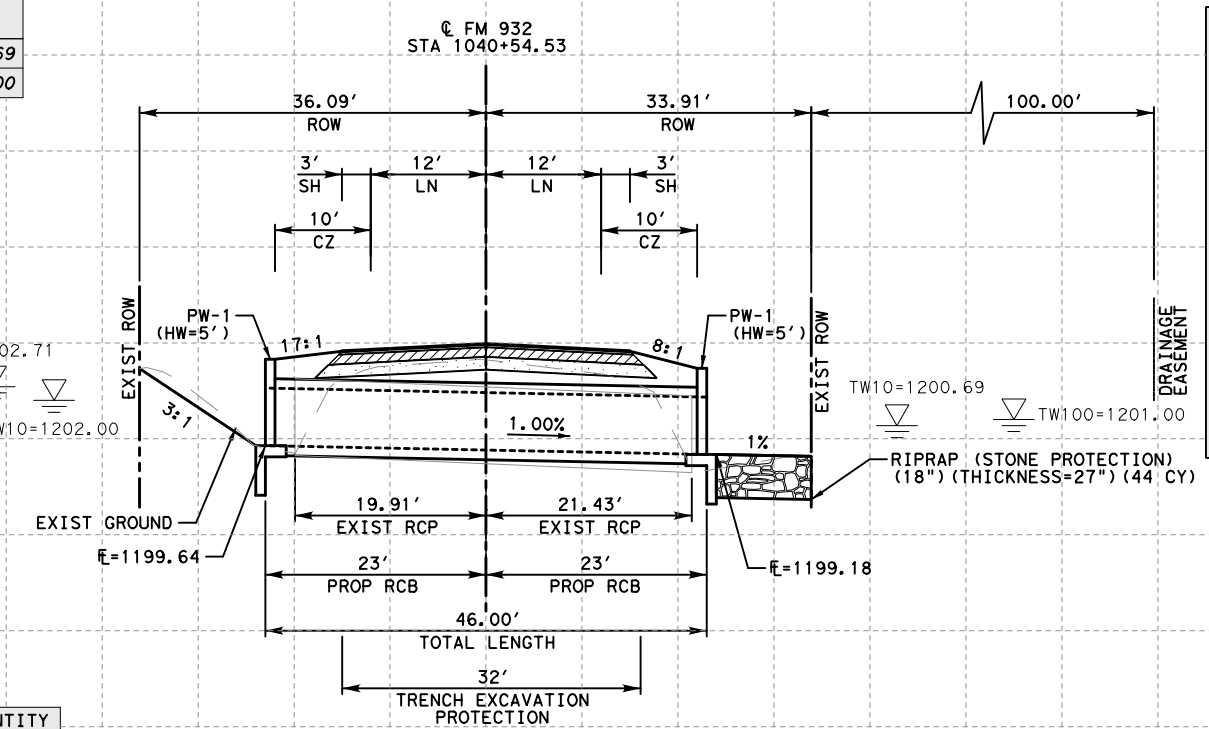
| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|-----------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 32 |
| 400 6006 | CUT & RESTORING PAV | SY | 27 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 38 |
| 432 6033 | RIPRAP (STONE PROTECTION) (18 IN) | CY | 41 |
| 462 6007 | CONC BOX CULV (5 FT X 3 FT) | LF | 48 |
| 466 6180 | WINGWALL (PW - 1) (HW=5 FT) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 46 |

CULVERT C-1059
REMOVE EXIST 48"X45.7' RCP
INSTALL 5'X3'X48' RCB
INSTALL PW-1 (HW=5') (LT), PW-1 (HW=5') (RT)
TOTAL LENGTH=48.00'
(STANDARDS: SCP-5, SCP-MD, PW-1)

100 80 60 40 20 0 20 40 60 80 100

CULVERT C-1040 HYDRAULIC DATA

| FREQ | (ft) | (ft/ft) | (cfs) | (fps) | (ft) | (ft) |
|--------|-------|---------|-------|-------|---------|---------|
| 10-YR | 46.00 | 0.0100 | 47.11 | 8.84 | 1202.00 | 1200.69 |
| 100-YR | | | 69.35 | 9.80 | 1202.71 | 1201.00 |



FINAL SUBMITTAL



FM 932

CULVERT PROFILES
CULVERT C-1040 & C-1059

(SHEET 15 OF 16)

| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
|-----------|-------------------|-------------------------|----------|-----------|-------------|
| | 6 | (SEE TITLE SHEET) | | | FM 932 |
| DESIGN CK | STATE | DISTRICT | COUNTY | SHEET NO. | |
| SRS | TX | WACO | HAMILTON | | |
| GRAPHICS | TW | CONTROL | SECTION | JOB | 215 |
| SRS | 0867 | 01 | 017 | | |

| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|-----------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 32 |
| 400 6006 | CUT & RESTORING PAV | SY | 27 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 32 |
| 432 6033 | RIPRAP (STONE PROTECTION) (18 IN) | CY | 44 |
| 462 6007 | CONC BOX CULV (5 FT X 3 FT) | LF | 46 |
| 466 6180 | WINGWALL (PW - 1) (HW=5 FT) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 41 |

CULVERT C-1040
REMOVE EXIST 48"X41.4' RCP
INSTALL 5'X3'X46' RCB
INSTALL PW-1 (HW=5') (LT), PW-1 (HW=5') (RT)
TOTAL LENGTH=46.00'
(STANDARDS: SCP-5, SCP-MD, PW-1)

FILENAME: L:\waco District\FM 932\FM 2410\CADD\Sheets\07 Drainage Detail\FM 932\Culvert*Profile*16.dgn
 DRAWING DATE: 09/01/2021

100 80 60 40 20 0 20 40 60 80 100

HORZ 0' 10' 20'
 VERT 0' 5' 10'
 HORIZONTAL SCALE: 1"=20'
 VERTICAL SCALE: 1"=10'

LEGEND:

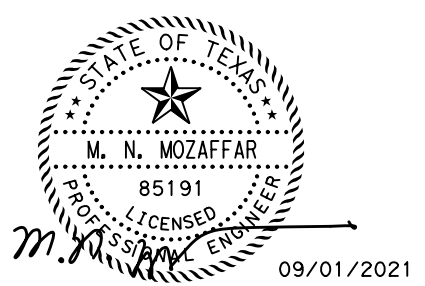
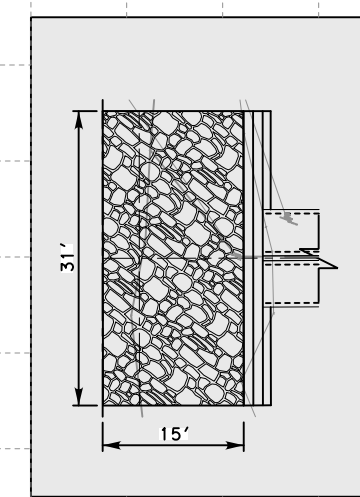
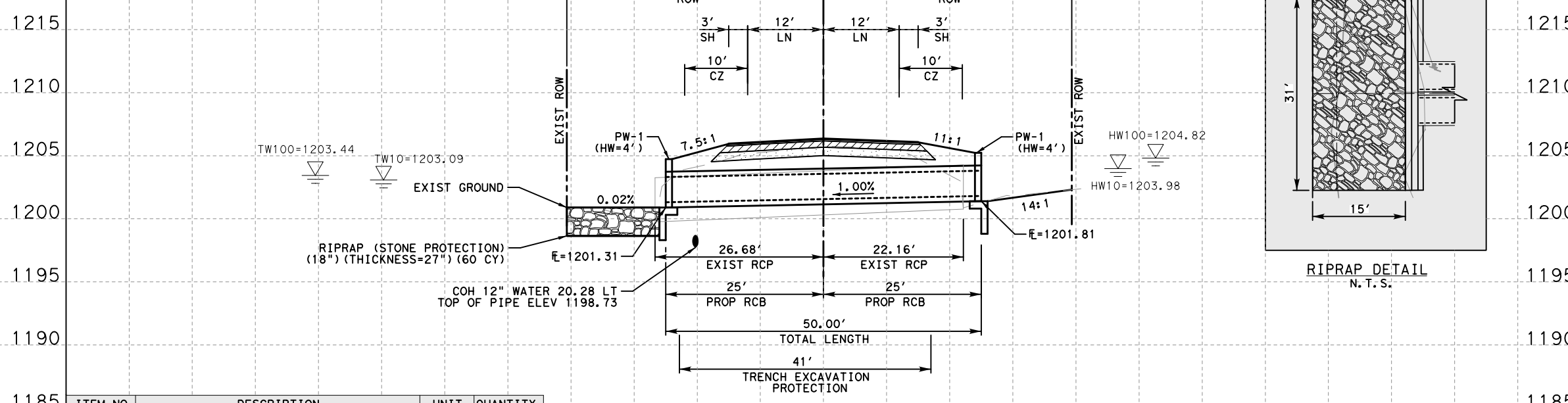
— — — — — EXIST GROUND

NOTES:

1. ALL RCP IS CLASS III, UNLESS OTHERWISE NOTED.
2. REFER TO TYPICAL SECTION SHEETS FOR PAVEMENT TYPE AND CROSS SLOPES.
3. REFER TO CULVERT MISCELLANEOUS DETAILS SHEET FOR RIPRAP (STONE PROTECTION) (18") TOE DETAIL.

CULVERT C-1107 HYDRAULIC DATA

| FREQ | L (ft) | S (ft/ft) | Q (cfs) | V (fps) | HW (ft) | TW (ft) |
|--------|--------|-----------|---------|---------|---------|---------|
| 10-YR | 50.00 | 0.0100 | 65.62 | 4.62 | 1203.98 | 1203.09 |
| 100-YR | | | 96.44 | 6.03 | 1204.82 | 1203.44 |



FINAL SUBMITTAL



FM 932

CULVERT PROFILES

CULVERT C-1107

(SHEET 16 OF 16)

| ITEM NO | DESCRIPTION | UNIT | QUANTITY |
|----------|-----------------------------------|------|----------|
| 400 6005 | CEM STABIL BKFL | CY | 41 |
| 400 6006 | CUT & RESTORING PAV | SY | 41 |
| 402 6001 | TRENCH EXCAVATION PROTECTION | LF | 41 |
| 432 6033 | RIPRAP (STONE PROTECTION) (18 IN) | CY | 60 |
| 462 6003 | CONC BOX CULV (4 FT X 2 FT) | LF | 100 |
| 466 6179 | WINGWALL (PW - 1) (HW=4 FT) | EA | 2 |
| 496 6007 | REMOV STR (PIPE) | LF | 49 |

CULVERT C-1107

REMOVE EXIST 42"X48.8' RCP
 INSTALL 2-4'X2'X50' RCB
 INSTALL PW-1 (HW=4') (LT), PW-1 (HW=4') (RT)
 TOTAL LENGTH=50.00'
 (STANDARDS: SCP-4, SCP-MD, PW-1)

100 80 60 40 20 0 20 40 60 80 100

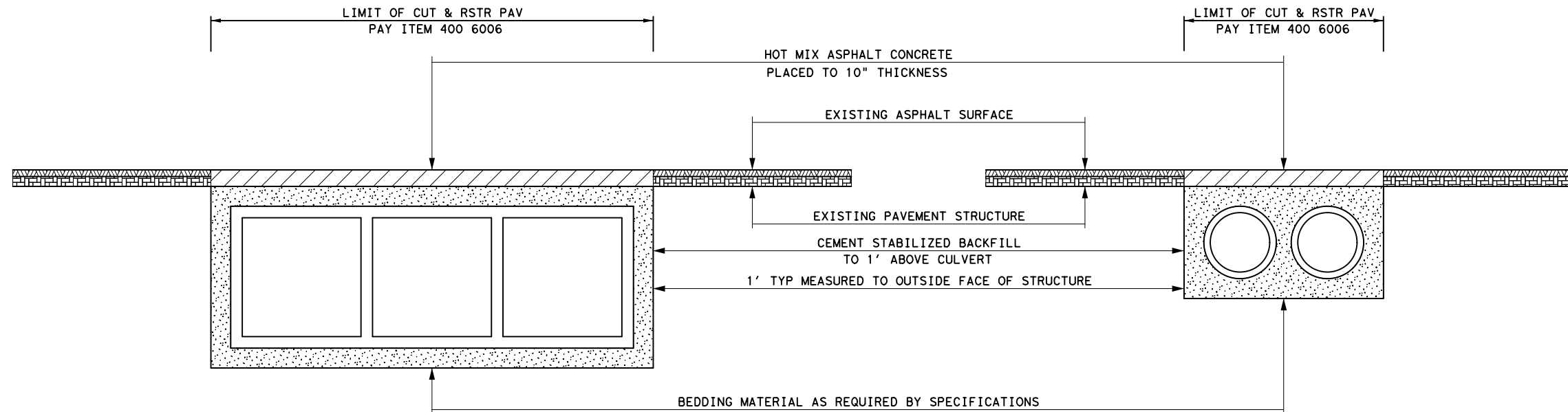
| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
|------------|-------------------|-------------------------|----------|----------|-------------|
| YH | 6 | (SEE TITLE SHEET) | | | FM 932 |
| DESIGN CK | SRS | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS | TW | TX | WACO | HAMILTON | 216 |
| GRPH CHECK | SRS | CONTROL | SECTION | JOB | |
| | | 0867 | 01 | 017 | |

FILENAME: L:\waco District\FM 932*FM 2410\CADD\Sheets\07 Drainage Detail\Is\FM 932*Backfill Detail.s.dgn

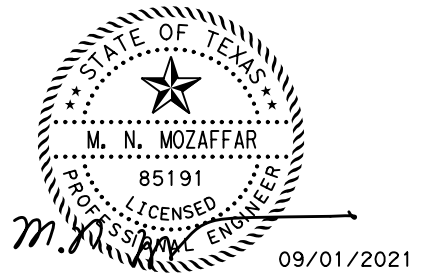
DRAWING DATE: 09/01/2021

NOTES:

1. SAW CUT EXISTING PAVEMENT ON BOTH SIDES OF CULVERT TO PROVIDE A SMOOTH, EVEN EDGE FOR PAVEMENT REPAIR. SAW CUTTING WILL BE SUBSIDIARY TO CULVERT ITEMS.
2. USE CLASS IV RCP FOR AREAS WITH LIMITED DEPTH OF COVER. REFER TO CULVERT PLAN OR PROFILE SHEETS FOR CLASS IV RCP LOCATIONS.
3. USE HOT MIX ASPHALT CONCRETE TY B 64-22.



CULVERT PLACEMENT UNDER TRAFFIC DETAIL



FINAL SUBMITTAL

I.S. ENGINEERS, LLC FIRM REGISTRATION NO. F-11657
 7700 SAN FELIPE STREET
 SUITE 485
 HOUSTON, TEXAS 77063



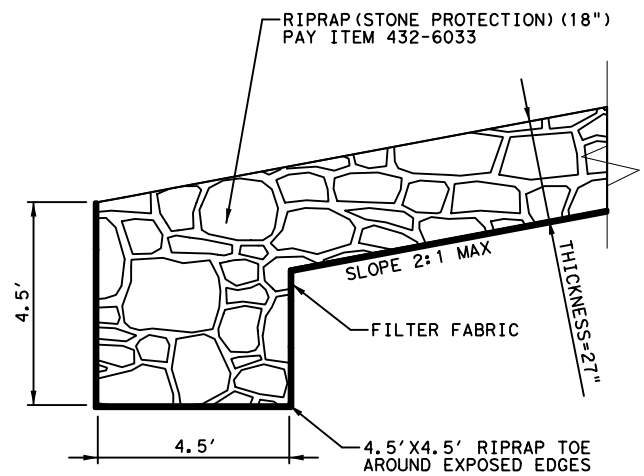
FM 932

BACKFILL DETAILS

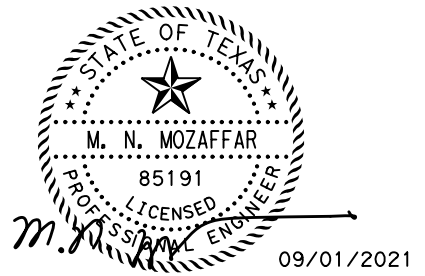
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| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK SRS | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS TW | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. |
| GRPH CHECK SRS | CONTROL 0867 | SECTION 01 | JOB 017 | 217 |

FILENAME: L:\waco District\FM 932\FM 2410\CADD\Sheets\07 Drainage Detail\FM 932\Misc Detail.s.dgn

DRAWING DATE: 09/01/2021



RIPRAP (STONE PROTECTION) (18") TOE DETAIL
NTS



FINAL SUBMITTAL

I.S. ENGINEERS, LLC FIRM REGISTRATION NO. F-11657
 7700 SAN FELIPE STREET
 SUITE 485
 HOUSTON, TEXAS 77063

Texas Department of Transportation
 © 2022

FM 932
CULVERT
MISCELLANEOUS DETAILS

| | | | | |
|----------------|-------------------|-------------------------|-----------------|-------------|
| DESIGN YH | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK SRS | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS TW | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. |
| GRPH CHECK SRS | CONTROL 0867 | SECTION 01 | JOB 017 | 218 |

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DATE: 09/01/2021 11:40:54 AM
 FILE: L:\waco District\FM 932-FM 2410\CADD\Sheets\07 Drainage_Detail\1\TxDOT Standards\0805-932.dgn

| Culvert Station and/or Creek Name followed by applicable end (Lt, Rt or Both) | Description of Box Culvert No. Spans ~ Span X Height | Max Fill Height (Ft) | Applicable Box Culvert Standard (4) | Applicable Wingwall or End Treatment Standard | Skew Angle (0°, 15°, 30° or 45°) | Side Slope or Channel Slope Ratio (SL:1) | T Culvert Top Slab Thickness (In) | U Culvert Wall Thickness (In) | C Estimated Curb Height (Ft) | Hw (1) Height of Wingwall (Ft) | A Curb to End of Wingwall (Ft) | B Offset of End of Wingwall (Ft) | Lw Length of Longest Wingwall (Ft) | Ltw Culvert Toewall Length (Ft) | Atw Anchor Toewall Length (Ft) | Riprap Apron (CY) | Class "C" Conc (Curb) (CY) (2) | Class "C" Conc (Wingwall) (CY) (3) | Total Wingwall Area (SF) |
|---|---|----------------------|-------------------------------------|---|----------------------------------|--|-----------------------------------|-------------------------------|------------------------------|--------------------------------|--------------------------------|----------------------------------|------------------------------------|---------------------------------|--------------------------------|-------------------|--------------------------------|------------------------------------|--------------------------|
| 634+50.99 (Both) | 1 ~ 7' x 4' | 4' | SCP-7 | PW-1 | 15° | 3:1 | 8" | 8" | 3.000' | 7.667' | N/A | N/A | 23.811' | 8.627' | N/A | 0.0 | 2.0 | 47.4 | 730 |
| 721+73.07 (Both) | 1 ~ 6' x 4' | 3' | SCP-6 | PW-1 | 0° | 3:1 | 7" | 7" | 1.500' | 6.083' | N/A | N/A | 18.250' | 7.167' | N/A | 0.0 | 0.8 | 29.2 | 444 |
| 1034+56.10 (Both) | 2 ~ 8' x 7' | 3' | SCP-8 | PW-1 | 0° | 3:1 | 8" | 8" | 1.000' | 8.667' | N/A | N/A | 26.000' | 19.167' | N/A | 0.0 | 1.4 | 63.2 | 902 |
| 1040+54.53 (Both) | 1 ~ 5' x 3' | 3' | SCP-5 | PW-1 | 0° | 3:1 | 6" | 6" | 1.000' | 4.500' | N/A | N/A | 13.500' | 6.000' | N/A | 0.0 | 0.4 | 16.2 | 244 |
| 1059+69.69 (Both) | 1 ~ 5' x 3' | 3' | SCP-5 | PW-1 | 0° | 3:1 | 6" | 6" | 1.000' | 4.500' | N/A | N/A | 13.500' | 6.000' | N/A | 0.0 | 0.4 | 16.2 | 244 |
| 1107+13.72 (Both) | 2 ~ 4' x 2' | 3' | SCP-4 | PW-1 | 0° | 3:1 | 5" | 5" | 1.000' | 3.417' | N/A | N/A | 10.250' | 10.167' | N/A | 0.0 | 0.8 | 11.2 | 140 |

NOTES:

Skew = 0° on SW-0, FW-0, SETB-CD, SETB-SW-0, and SETB-FW-0 standard sheets;
 30° maximum for safety end treatment

SL:1 = Horizontal : 1 Vertical

- Side slope at culvert for flared or straight wingwalls.
- Channel slope for parallel wingwalls.
- Slope must be 3:1 or flatter for safety end treatments.

T = Box culvert top slab thickness. Dimension can be found on the applicable box culvert standard sheet.

U = Box culvert wall thickness. Dimension can be found on the applicable box culvert standard sheet.

C = Curb height

See applicable wing or end treatment standard sheets for calculations of Hw, A, B, Lw, Ltw, Atw, and Total Wingwall Area.

Hw = Height of wingwall

A = Distance from face of curb to end of wingwall (not applicable to parallel or straight wingwalls)

B = Offset of end of wingwall (not applicable to parallel or straight wingwalls)

Lw = Length of longest wingwall.

Ltw = Length of culvert toewall (not applicable when using riprap apron)

Atw = Length of anchor toewall (applicable to safety end treatment only)

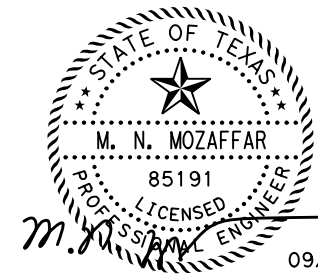
Total Wingwall Area = Wingwall area in sq. ft. for two wingwalls (one structure end) if Lt or Rt.
 Area for four wingwalls (two structure ends) if Both.

① Round the wall heights shown to the nearest foot for bidding purposes.

② Concrete volume shown is for box culvert curb only. For curbs using the Box Culvert Rail Mounting Details (RAC) standard sheet quantities shown must be increased by a factor of 2.25. If Class S concrete is required for the top slab of the culvert, also provide Class S concrete for the curb. Curb concrete is considered part of the Box Culvert for payment.

③ Concrete volume shown is total of wings, footings, culvert toewall (if any), anchor toewalls (if any) and wingwall toewalls. Riprap aprons, culverts, and curb quantities are not included.

④ Regardless of the type of culvert shown on this sheet, the Contractor has the option of furnishing cast-in-place or precast culverts unless otherwise shown elsewhere on the plans. If the Contractor elects to provide culverts of a different type than those shown on this sheet, it is the Contractor's responsibility to make the necessary adjustments to the dimensions and quantities shown.

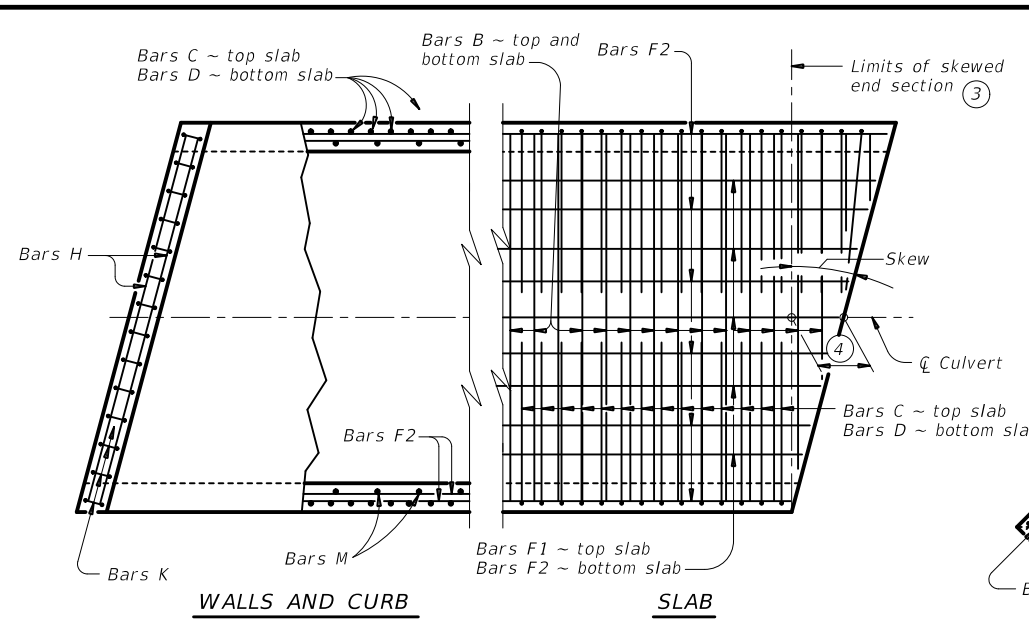


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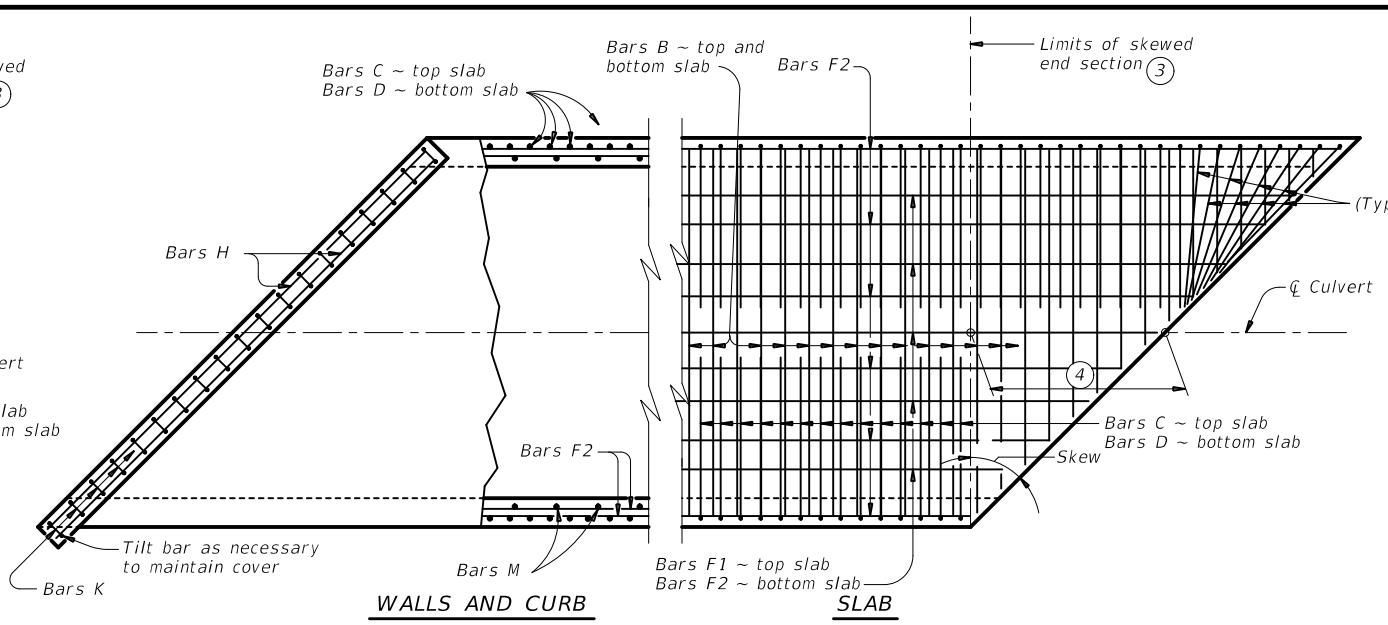
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| | | Bridge Division Standard | |
| <h2>BOX CULVERT SUPPLEMENT</h2> <h3>WINGS AND END TREATMENTS</h3> | | | |
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| CTxDOT | February 2020 | 0867 01 | 017 FM 932 |
| WACO | | HAMILTON | |
| | | 219 | |

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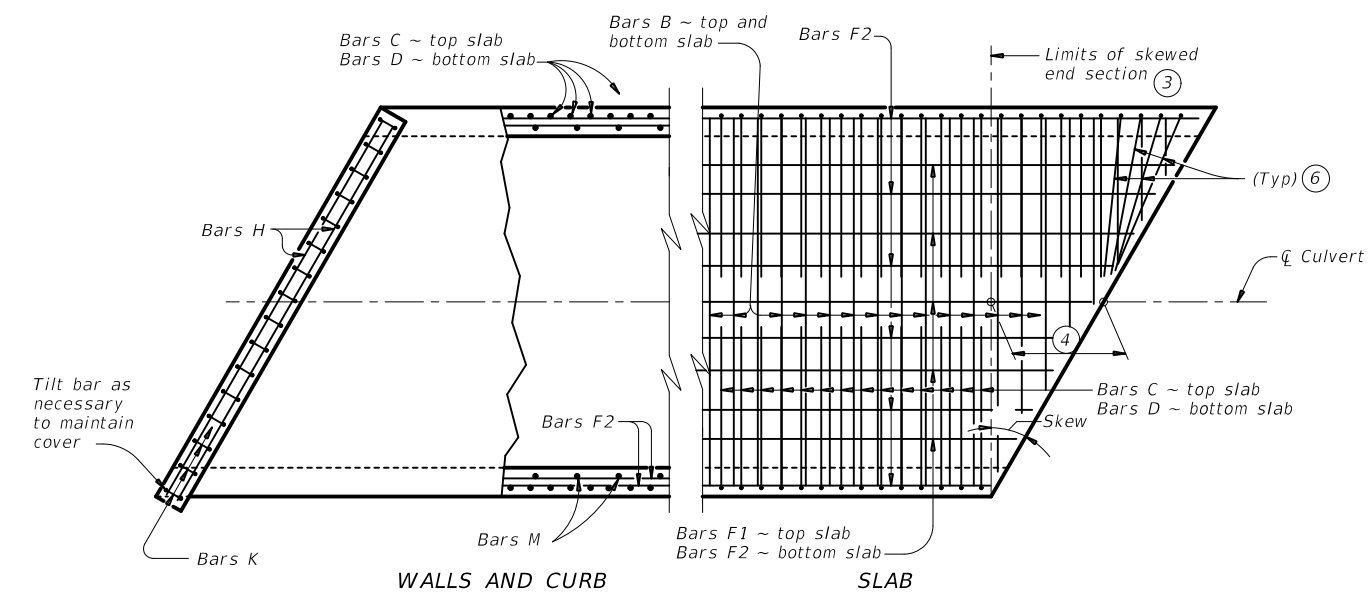
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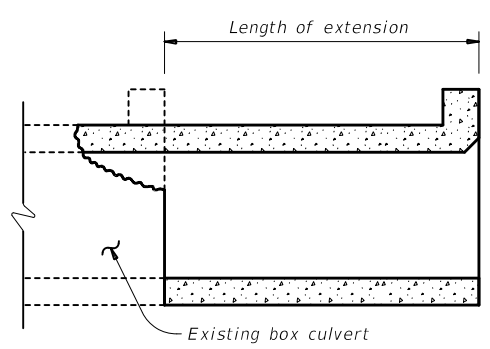
PLAN OF SKEWED ENDS ~ FROM 0° TO 15°



PLAN OF SKEWED ENDS ~ OVER 30° TO 45°



PLAN OF SKEWED ENDS ~ OVER 15° TO 30°



LENGTHENING DETAIL

① For skewed box culverts with less than 2'-0" of fill, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension.
 For non-skewed box culverts with less than 2'-0" of fill and for skewed or non-skewed culverts with a fill depth of 2'-0" or greater, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension. Alternatively, if the box is non-skewed, embed #6 anchor bars with a Type III, C, D, E, or F anchor adhesive into the existing walls, top and bottom slab at 1'-6" center-to-center spacing. Minimum embedment depth is 8". Anchor adhesive chosen must be able to achieve a basic bond strength in tension, Nba, of 26.4 kips. Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing." Test adhesive anchors in accordance with Item 450.3.3, "Tests." Test 3 anchors per 100 anchors installed.
 Break back wings and apron as necessary to install the extension. Clean and extend the exposed wingwall and apron reinforcing into the extension. When lengthening existing box culverts with dimensions different than current standard dimensions, form horizontal and vertical transitions as directed by the Engineer. Match bottom slabs to maintain an uninterrupted flow line. Field bend existing and new reinforcing into transitions and maintain specified cover requirements. For top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface, adjust the "H" dimension to provide a smooth riding surface.

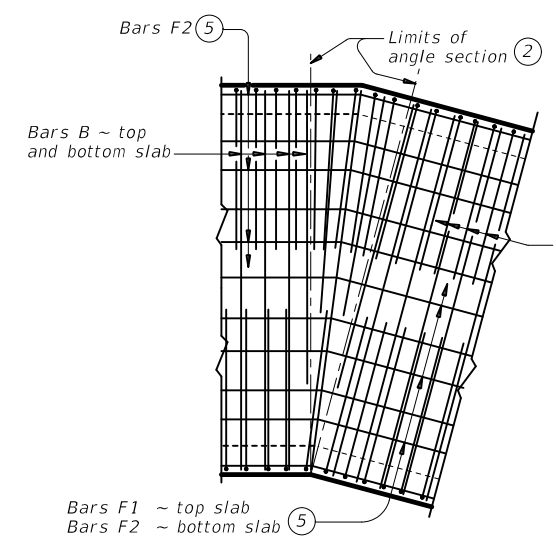
- ② When the spacing between Bars B becomes less than half of the normal spacing, cut bars to avoid conflict.
- ③ The length of Bars B vary in the skewed end sections.
- ④ $[One\ half\ of\ overall\ width] \times [tangent\ of\ the\ skew\ angle]$
- ⑤ Place Bars F1 and F2 continuously through the angle section. Bend Bars F1 and F2 to remain parallel to the walls of the box culvert.
- ⑥ When necessary to avoid conflict in acute corners, shorten the slab extension leg of Bars C and Bars D to a minimum of 1'-6" for skews of 30° thru 45°.
- ⑦ At the Contractor's option, for skews of 15° or less, place Bars B, C, and D parallel to the skewed end while maintaining spacing along centerline of box. Increase lengths of Bars B shown on the Single Box Culverts Cast-In-Place (SCC) standards sheets to accommodate the skew.

CONSTRUCTION NOTES:
 Do not use permanent forms.
 When required, lap Bars H 1'-8" for uncoated or galvanized bars.
 Provide a minimum of 1 1/2" clear cover.

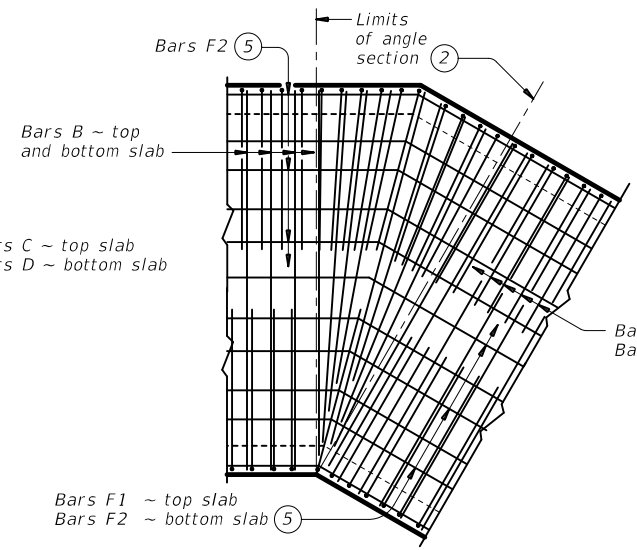
MATERIAL NOTES:
 Provide Grade 60 reinforcing steel.
 Provide galvanized reinforcing steel, if required elsewhere in the plans.
 Provide Class C concrete (f'c = 3,600 psi) with these exceptions:
 provide Class S concrete (f'c = 4,000 psi) for top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface.

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications.
 Refer to Single Box Culverts Cast-in-Place (SCC) standard sheets for details of straight sections of culvert.
 For skewed sections and angle sections, refer to Single Box Culverts Cast-in-Place (SCC) standard sheets for slab and wall dimensions, bar sizes, maximum bar spacing, and any other details not shown.
 For skewed ends with curbs, adjust length of Bars H, number of Bars K, curb concrete volume, and reinforcing steel weight by dividing the values shown on the culvert Single Box Culverts Cast-In-Place (SCC) standard sheets by the cosine of the skew angle.

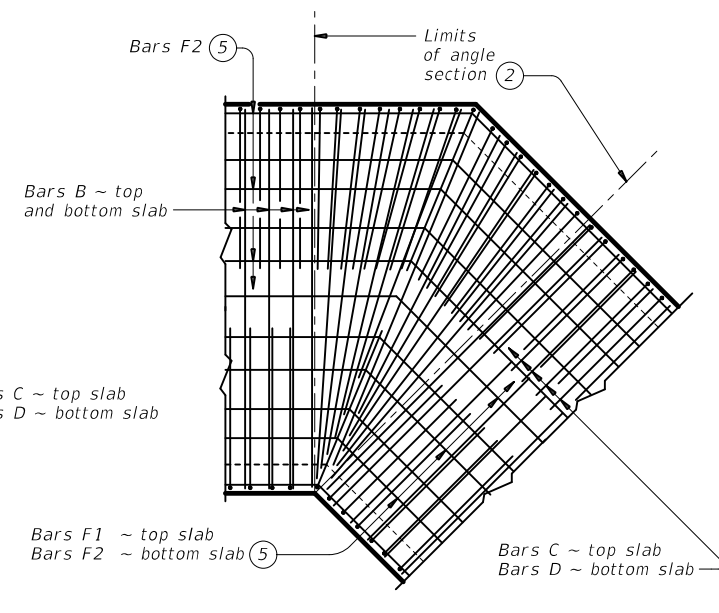
Cover dimensions are clear dimensions, unless noted otherwise.



PLAN OF ANGLE SECTION ~ FROM 0° TO 15°



PLAN OF ANGLE SECTION ~ OVER 15° TO 30°



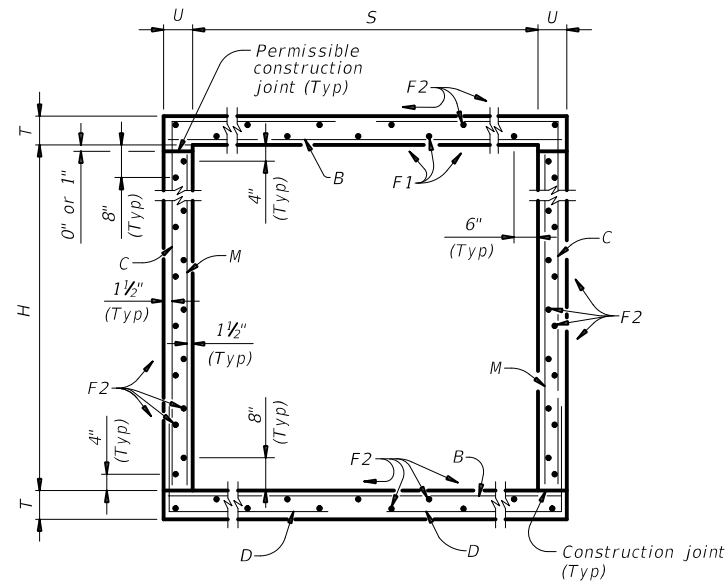
PLAN OF ANGLE SECTION ~ OVER 30° TO 45°

HL93 LOADING

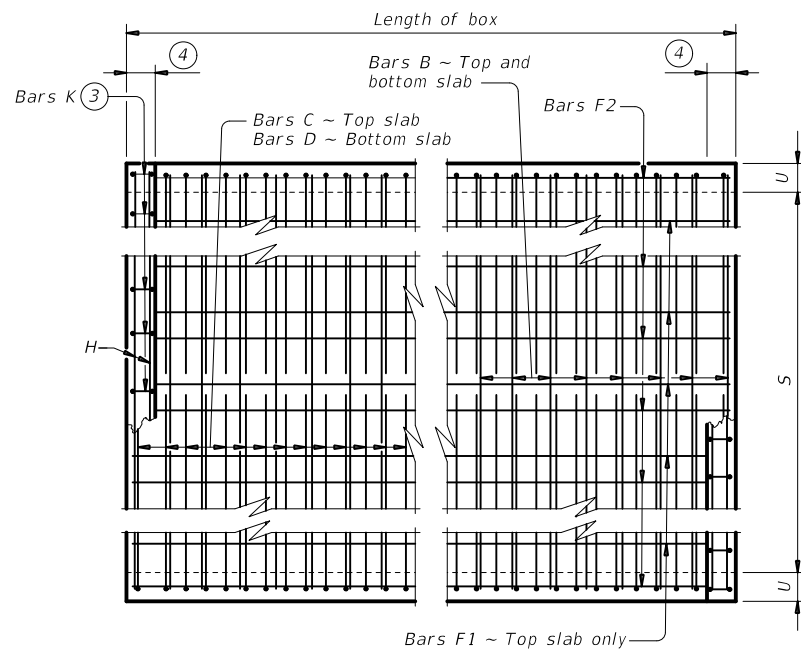
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| | | Bridge Division Standard | |
| SINGLE BOX CULVERTS CAST-IN-PLACE MISCELLANEOUS DETAILS | | | |
| SCC-MD | | | |
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| ©TxDOT February 2020 | CONTRACT: 0867 | SECTION: 01 | JOB: 017 |
| REVISIONS | | | HIGHWAY: FM 932 |
| | DIST: WACO | COUNTY: HAMILTON | SHEET NO: 220 |

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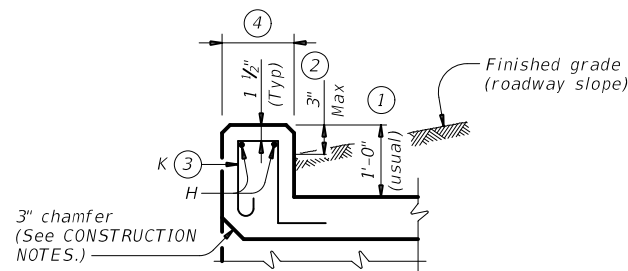
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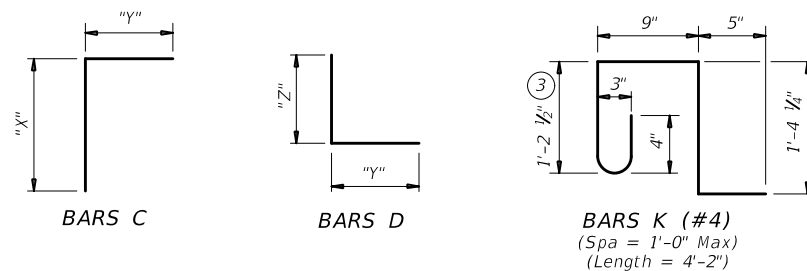
TYPICAL SECTION



PLAN OF REINF STEEL



SECTION THRU CURB



- ① 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
- ② For vehicle safety, the following requirements must be met:
 - For structures without bridge rail, construct curbs no more than 3" above finished grade.
 - For structures with bridge rail, construct curbs flush with finished grade. Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- ③ For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.
- ④ 1'-0" typical. 2'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR.
 Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
 If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'-1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

CONSTRUCTION NOTES:

- Do not use permanent forms.
- Chamfer the bottom edge of the top slab 3" at the entrance.
- Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed.

MATERIAL NOTES:

- Provide Grade 60 reinforcing steel.
- Provide galvanized reinforcing steel if required elsewhere in the plans.
- Provide Class C concrete ($f'c = 3,600$ psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete ($f'c = 4,000$ psi) for top slabs of:
 - culverts with overlay,
 - culverts with 1-to-2 course surface treatment, or
 - culverts with the top slab as the final riding surface.
- Provide bar laps, where required, as follows:
 - Uncoated or galvanized ~ #4 = 1'-8" Min
 - Uncoated or galvanized ~ #5 = 2'-1" Min

GENERAL NOTES:

- Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.
- See the Single Box Culverts Cast-In-Place Miscellaneous Detail (SCC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

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

HL93 LOADING SHEET 1 OF 2

| | | | |
|---|---------|---------------------------------|-----------|
| | | Bridge Division Standard | |
| SINGLE BOX CULVERTS CAST-IN-PLACE 0' TO 30' FILL | | | |
| SCC-3 & 4 | | | |
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| ©TxDOT February 2020 | CONT | SECT | JOB |
| REVISIONS | 0867 01 | 017 | FM 932 |
| 04/2021 Updated X values. | DIST | COUNTY | SHEET NO. |
| | WACO | HAMILTON | 221 |

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 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 standards from its use.

| SECTION DIMENSIONS | | | | FILL HEIGHT ⁵ | BILLS OF REINFORCING STEEL (For Box Length = 40 feet) | | | | | | | | | | | | | | | | | | | | | | | | QUANTITIES | | | | | | | | | | | | | | |
|--------------------|---------|----|----|--------------------------|---|----|----|----------|--------|------|-----|--------|---------|-----|---------|----------|-------------|--------|-------|---------|-------------------------|----------|---------|-------------------------|--------|---------|---------------|-----|------------|--------|--------------------|----------|--------|----------|-------|--------|--------|--------|------|-----|----|-----------|------------|
| | | | | | Bars B | | | | Bars C | | | | Bars D | | | | Bars M ~ #4 | | | | Bars F1 ~ #4 at 18" Spa | | | Bars F2 ~ #4 at 18" Spa | | | Bars H 4 ~ #4 | | Bars K | | Per Foot of Barrel | | Curb | | Total | | | | | | | | |
| | | | | | S | H | T | U | No. | Size | Spa | Length | Weight | No. | Size | Spa | Length | Weight | " X " | " Y " | No. | Size | Spa | Length | Weight | " Y " | " Z " | No. | Spa | Length | Weight | No. | Length | Wt | No. | Length | Weight | Length | Wt | No. | Wt | Conc (CY) | Reinf (Lb) |
| 3' - 0" | 2' - 0" | 8" | 7" | 30' | 108 | #5 | 9" | 3' - 11" | 441 | 108 | #4 | 9" | 5' - 4" | 385 | 2' - 6" | 2' - 10" | 108 | #4 | 9" | 5' - 1" | 367 | 2' - 10" | 2' - 3" | 108 | 9" | 2' - 0" | 144 | 3 | 39' - 9" | 80 | 19 | 39' - 9" | 505 | 3' - 11" | 10 | 10 | 28 | 0.292 | 48.1 | 0.3 | 38 | 12.0 | 1,960 |
| 3' - 0" | 3' - 0" | 8" | 7" | 30' | 108 | #5 | 9" | 3' - 11" | 441 | 108 | #4 | 9" | 6' - 4" | 457 | 3' - 6" | 2' - 10" | 108 | #4 | 9" | 5' - 1" | 367 | 2' - 10" | 2' - 3" | 108 | 9" | 3' - 0" | 216 | 3 | 39' - 9" | 80 | 23 | 39' - 9" | 611 | 3' - 11" | 10 | 10 | 28 | 0.335 | 54.3 | 0.3 | 38 | 13.7 | 2,210 |
| 4' - 0" | 2' - 0" | 8" | 7" | 30' | 108 | #5 | 9" | 4' - 11" | 554 | 162 | #4 | 6" | 5' - 8" | 613 | 2' - 6" | 3' - 2" | 162 | #4 | 6" | 5' - 5" | 586 | 3' - 2" | 2' - 3" | 108 | 9" | 2' - 0" | 144 | 3 | 39' - 9" | 80 | 21 | 39' - 9" | 558 | 4' - 11" | 13 | 12 | 33 | 0.342 | 63.4 | 0.4 | 46 | 14.1 | 2,581 |
| 4' - 0" | 3' - 0" | 8" | 7" | 30' | 108 | #5 | 9" | 4' - 11" | 554 | 162 | #4 | 6" | 6' - 8" | 721 | 3' - 6" | 3' - 2" | 162 | #4 | 6" | 5' - 5" | 586 | 3' - 2" | 2' - 3" | 108 | 9" | 3' - 0" | 216 | 3 | 39' - 9" | 80 | 25 | 39' - 9" | 664 | 4' - 11" | 13 | 12 | 33 | 0.385 | 70.5 | 0.4 | 46 | 15.8 | 2,867 |
| 4' - 0" | 4' - 0" | 8" | 7" | 30' | 108 | #5 | 9" | 4' - 11" | 554 | 162 | #4 | 6" | 7' - 8" | 830 | 4' - 6" | 3' - 2" | 162 | #4 | 6" | 5' - 5" | 586 | 3' - 2" | 2' - 3" | 108 | 9" | 4' - 0" | 289 | 3 | 39' - 9" | 80 | 25 | 39' - 9" | 664 | 4' - 11" | 13 | 12 | 33 | 0.428 | 75.1 | 0.4 | 46 | 17.5 | 3,049 |

⁵ For direct traffic culverts (fill height ≤ 2 ft.), identify the required box size and select the option with the minimum fill height.



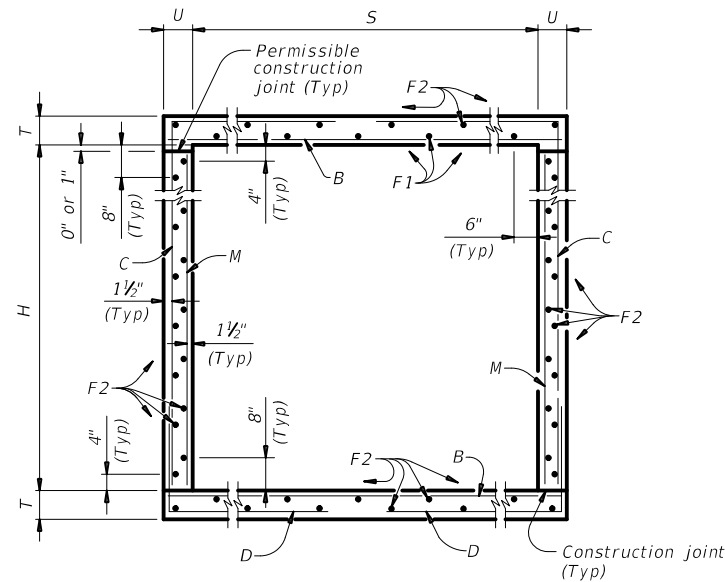
**SINGLE BOX CULVERTS
 CAST-IN-PLACE
 0' TO 30' FILL**

SCC-3 & 4

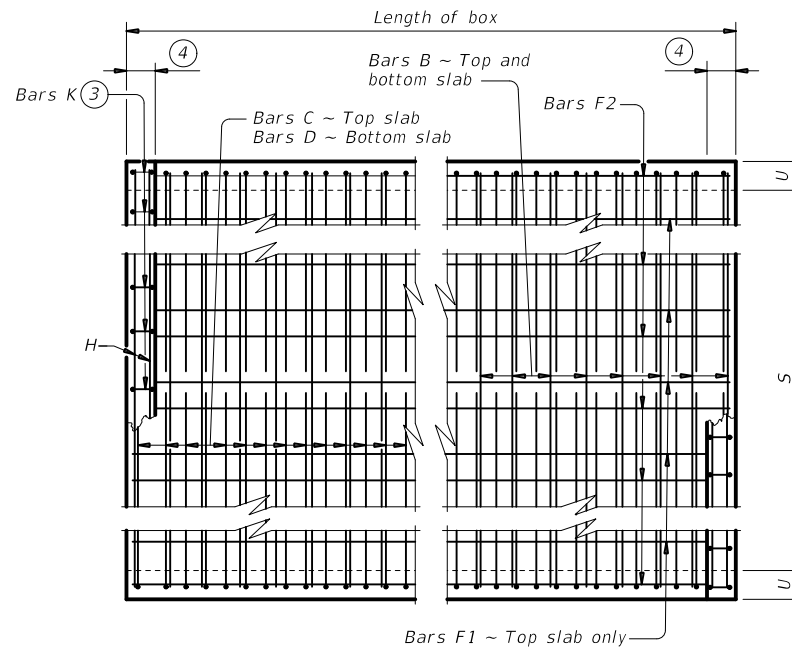
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| ©TxDOT February 2020 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 04/2021 Updated X values. | DIST | COUNTY | SHEET NO. | |
| | WACO | HAMILTON | 222 | |

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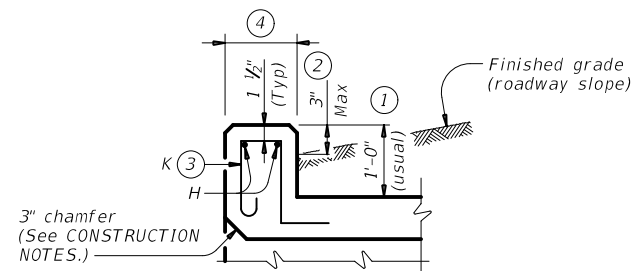
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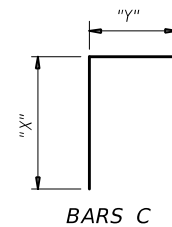
TYPICAL SECTION



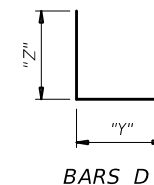
PLAN OF REINF STEEL



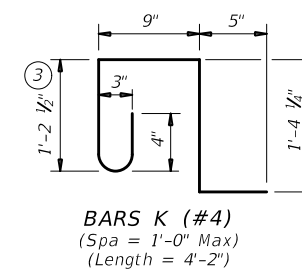
SECTION THRU CURB



BARS C



BARS D



BARS K (#4)
 (Spa = 1'-0" Max)
 (Length = 4'-2")

- ① 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
- ② For vehicle safety, the following requirements must be met:
 - For structures without bridge rail, construct curbs no more than 3" above finished grade.
 - For structures with bridge rail, construct curbs flush with finished grade. Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- ③ For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.
- ④ 1'-0" typical. 2'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR.
 Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
 If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'-1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

CONSTRUCTION NOTES:

- Do not use permanent forms.
- Chamfer the bottom edge of the top slab 3" at the entrance.
- Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed.

MATERIAL NOTES:

- Provide Grade 60 reinforcing steel.
- Provide galvanized reinforcing steel if required elsewhere in the plans.
- Provide Class C concrete (f'c = 3,600 psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete (f'c = 4,000 psi) for top slabs of:
 - culverts with overlay,
 - culverts with 1-to-2 course surface treatment, or
 - culverts with the top slab as the final riding surface.
- Provide bar laps, where required, as follows:
 - Uncoated or galvanized ~ #4 = 1'-8" Min
 - Uncoated or galvanized ~ #5 = 2'-1" Min
 - Uncoated or galvanized ~ #6 = 2'-6" Min

GENERAL NOTES:

- Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.
- See the Single Box Culverts Cast-In-Place Miscellaneous Detail (SCC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

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

HL93 LOADING

SHEET 1 OF 2



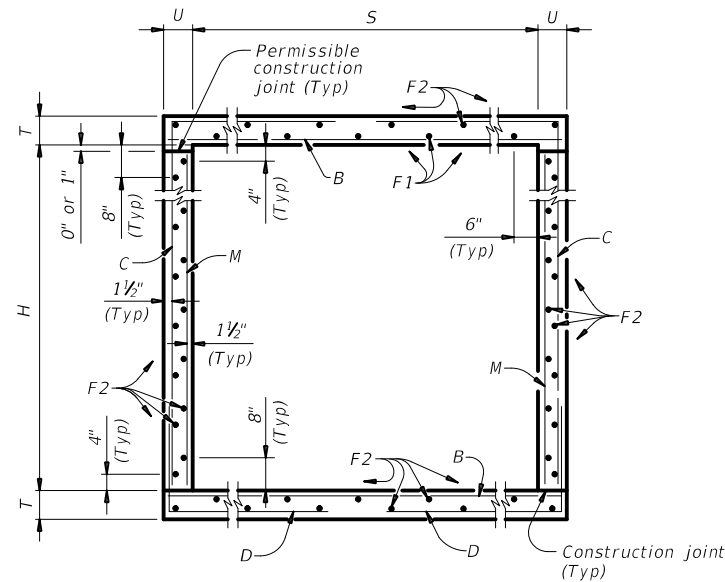
**SINGLE BOX CULVERTS
 CAST-IN-PLACE
 0' TO 30' FILL**

SCC-5 & 6

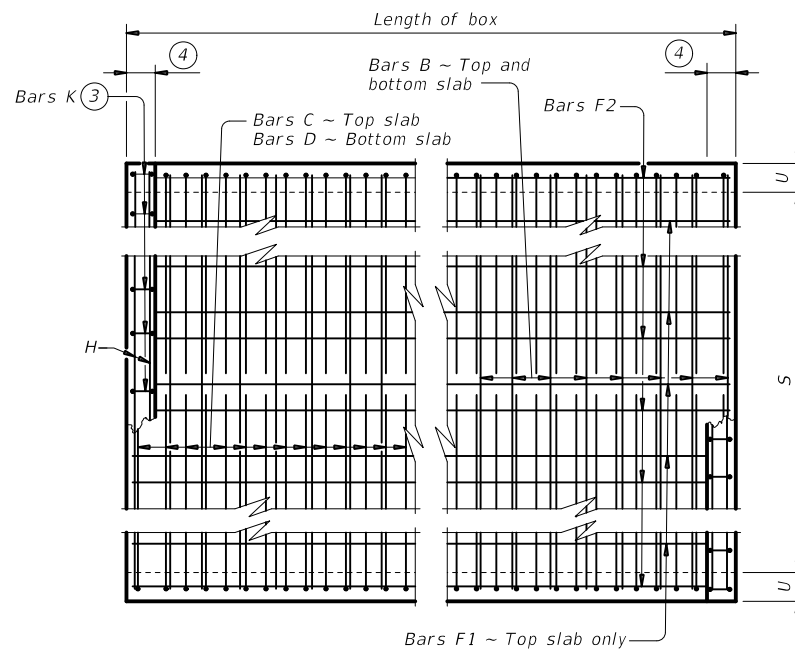
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| ©TxDOT February 2020 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 04/2021 Updated X values. | DIST | COUNTY | SHEET NO. | |
| | WACO | HAMILTON | 223 | |

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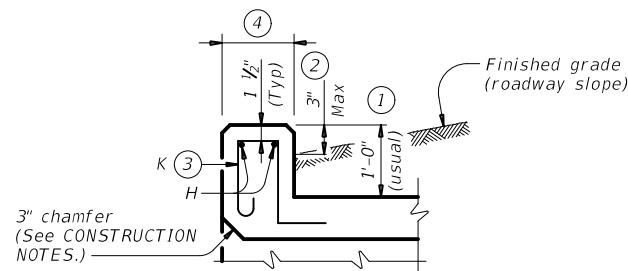
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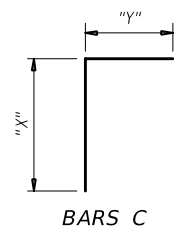
TYPICAL SECTION



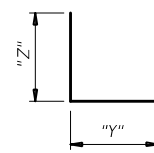
PLAN OF REINF STEEL



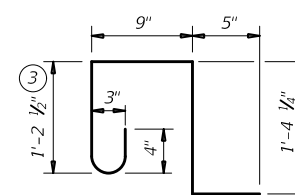
SECTION THRU CURB



BARS C



BARS D



BARS K (#4)
 (Spa = 1'-0" Max)
 (Length = 4'-2")

- ① 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
- ② For vehicle safety, the following requirements must be met:
 - For structures without bridge rail, construct curbs no more than 3" above finished grade.
 - For structures with bridge rail, construct curbs flush with finished grade. Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- ③ For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.
- ④ 1'-0" typical. 2'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR.
 Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
 If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'-1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

CONSTRUCTION NOTES:

- Do not use permanent forms.
- Chamfer the bottom edge of the top slab 3" at the entrance.
- Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed.

MATERIAL NOTES:

- Provide Grade 60 reinforcing steel.
- Provide galvanized reinforcing steel if required elsewhere in the plans.
- Provide Class C concrete ($f'c = 3,600$ psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete ($f'c = 4,000$ psi) for top slabs of:
 - culverts with overlay,
 - culverts with 1-to-2 course surface treatment, or
 - culverts with the top slab as the final riding surface.
- Provide bar laps, where required, as follows:
 - Uncoated or galvanized ~ #4 = 1'-8" Min
 - Uncoated or galvanized ~ #5 = 2'-1" Min
 - Uncoated or galvanized ~ #6 = 2'-6" Min

GENERAL NOTES:

- Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.
- See the Single Box Culverts Cast-In-Place Miscellaneous Detail (SCC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

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

HL93 LOADING

SHEET 1 OF 2



**SINGLE BOX CULVERTS
 CAST-IN-PLACE
 0' TO 30' FILL**

SCC-7

| | | | | |
|---------------------------|---------|----------|-----------|-----------|
| FILE: scc07ste-21.dgn | DN: TBE | CK: BMP | DW: TxDOT | CK: TxDOT |
| ©TxDOT February 2020 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 04/2021 Updated X values. | DIST | COUNTY | SHEET NO. | |
| | WACO | HAMILTON | 225 | |

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DATE: 09/01/2021 11:40:58 AM
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| SECTION DIMENSIONS | | | | FILL HEIGHT ⑤ | BILLS OF REINFORCING STEEL (For Box Length = 40 feet) | | | | | | | | | | | | | | | | | | | | | | | | | QUANTITIES | | | | | | | | | | | | | |
|--------------------|-------|-----|----|---------------|---|------|-----|--------|--------|--------|------|-----|---------|--------|--------|-------|-----|------|-----|-------------|--------|-------|--------|-------------------------|-----|--------|-------------------------|-----|--------|---------------|-----|--------|--------|--------------------|----|------|----|-----------|------------|-----------|------------|-----------|------------|
| | | | | | Bars B | | | | | Bars C | | | | | Bars D | | | | | Bars M ~ #4 | | | | Bars F1 ~ #4 at 18" Spa | | | Bars F2 ~ #4 at 18" Spa | | | Bars H 4 ~ #4 | | Bars K | | Per Foot of Barrel | | Curb | | Total | | | | | |
| S | H | T | U | | No. | Size | Spa | Length | Weight | No. | Size | Spa | Length | Weight | " X " | " Y " | No. | Size | Spa | Length | Weight | " Y " | " Z " | No. | Spa | Length | Weight | No. | Length | Wt | No. | Length | Weight | Length | Wt | No. | Wt | Conc (CY) | Reinf (Lb) | Conc (CY) | Reinf (Lb) | Conc (CY) | Reinf (Lb) |
| 7'-0" | 3'-0" | 8" | 7" | 16' | 108 | #6 | 9" | 7'-11" | 1,284 | 162 | #5 | 6" | 7'-11" | 1,338 | 3'-6" | 4'-5" | 162 | #5 | 6" | 7'-11" | 1,197 | 4'-5" | 2'-8" | 108 | 9" | 3'-0" | 216 | 5 | 39'-9" | 133 | 31 | 39'-9" | 823 | 7'-11" | 21 | 18 | 50 | 0.533 | 124.8 | 0.6 | 71 | 21.9 | 5,062 |
| 7'-0" | 3'-0" | 9" | 7" | 20' | 108 | #6 | 9" | 7'-11" | 1,284 | 162 | #5 | 6" | 8'-0" | 1,352 | 3'-7" | 4'-5" | 162 | #5 | 6" | 7'-2" | 1,211 | 4'-5" | 2'-9" | 108 | 9" | 3'-0" | 216 | 5 | 39'-9" | 133 | 31 | 39'-9" | 823 | 7'-11" | 21 | 18 | 50 | 0.583 | 125.5 | 0.6 | 71 | 23.9 | 5,090 |
| 7'-0" | 3'-0" | 10" | 8" | 23' | 108 | #6 | 9" | 8'-1" | 1,311 | 162 | #5 | 6" | 8'-2" | 1,380 | 3'-8" | 4'-6" | 162 | #5 | 6" | 7'-4" | 1,239 | 4'-6" | 2'-10" | 82 | 12" | 3'-0" | 164 | 5 | 39'-9" | 133 | 31 | 39'-9" | 823 | 8'-1" | 22 | 20 | 56 | 0.663 | 126.3 | 0.6 | 78 | 27.1 | 5,128 |
| 7'-0" | 3'-0" | 11" | 8" | 30' | 108 | #6 | 9" | 8'-1" | 1,311 | 162 | #5 | 6" | 8'-3" | 1,394 | 3'-9" | 4'-6" | 162 | #5 | 6" | 7'-5" | 1,253 | 4'-6" | 2'-11" | 82 | 12" | 3'-0" | 164 | 5 | 39'-9" | 133 | 31 | 39'-9" | 823 | 8'-1" | 22 | 20 | 56 | 0.714 | 127.0 | 0.6 | 78 | 29.2 | 5,156 |
| 7'-0" | 4'-0" | 8" | 7" | 16' | 108 | #6 | 9" | 7'-11" | 1,284 | 162 | #5 | 6" | 8'-11" | 1,507 | 4'-6" | 4'-5" | 162 | #5 | 6" | 7'-11" | 1,197 | 4'-5" | 2'-8" | 108 | 9" | 4'-0" | 289 | 5 | 39'-9" | 133 | 31 | 39'-9" | 823 | 7'-11" | 21 | 18 | 50 | 0.576 | 130.8 | 0.6 | 71 | 23.6 | 5,304 |
| 7'-0" | 4'-0" | 9" | 7" | 20' | 108 | #6 | 9" | 7'-11" | 1,284 | 162 | #5 | 6" | 9'-0" | 1,521 | 4'-7" | 4'-5" | 162 | #5 | 6" | 7'-2" | 1,211 | 4'-5" | 2'-9" | 108 | 9" | 4'-0" | 289 | 5 | 39'-9" | 133 | 31 | 39'-9" | 823 | 7'-11" | 21 | 18 | 50 | 0.627 | 131.5 | 0.6 | 71 | 25.7 | 5,332 |
| 7'-0" | 4'-0" | 10" | 8" | 23' | 108 | #6 | 9" | 8'-1" | 1,311 | 162 | #5 | 6" | 9'-2" | 1,549 | 4'-8" | 4'-6" | 162 | #5 | 6" | 7'-4" | 1,239 | 4'-6" | 2'-10" | 82 | 12" | 4'-0" | 219 | 5 | 39'-9" | 133 | 31 | 39'-9" | 823 | 8'-1" | 22 | 20 | 56 | 0.712 | 131.9 | 0.6 | 78 | 29.1 | 5,352 |
| 7'-0" | 4'-0" | 11" | 8" | 30' | 162 | #6 | 6" | 8'-1" | 1,967 | 162 | #5 | 6" | 9'-3" | 1,563 | 4'-9" | 4'-6" | 162 | #5 | 6" | 7'-5" | 1,253 | 4'-6" | 2'-11" | 82 | 12" | 4'-0" | 219 | 5 | 39'-9" | 133 | 31 | 39'-9" | 823 | 8'-1" | 22 | 20 | 56 | 0.763 | 149.0 | 0.6 | 78 | 31.1 | 6,036 |
| 7'-0" | 5'-0" | 8" | 7" | 16' | 108 | #6 | 9" | 7'-11" | 1,284 | 162 | #5 | 6" | 9'-11" | 1,676 | 5'-6" | 4'-5" | 162 | #5 | 6" | 7'-11" | 1,197 | 4'-5" | 2'-8" | 108 | 9" | 5'-0" | 361 | 5 | 39'-9" | 133 | 35 | 39'-9" | 929 | 7'-11" | 21 | 18 | 50 | 0.619 | 139.5 | 0.6 | 71 | 25.4 | 5,651 |
| 7'-0" | 5'-0" | 9" | 7" | 20' | 108 | #6 | 9" | 7'-11" | 1,284 | 162 | #5 | 6" | 10'-0" | 1,690 | 5'-7" | 4'-5" | 162 | #5 | 6" | 7'-2" | 1,211 | 4'-5" | 2'-9" | 108 | 9" | 5'-0" | 361 | 5 | 39'-9" | 133 | 35 | 39'-9" | 929 | 7'-11" | 21 | 18 | 50 | 0.670 | 140.2 | 0.6 | 71 | 27.4 | 5,679 |
| 7'-0" | 5'-0" | 10" | 8" | 23' | 108 | #6 | 9" | 8'-1" | 1,311 | 162 | #5 | 6" | 10'-2" | 1,718 | 5'-8" | 4'-6" | 162 | #5 | 6" | 7'-4" | 1,239 | 4'-6" | 2'-10" | 82 | 12" | 5'-0" | 274 | 5 | 39'-9" | 133 | 35 | 39'-9" | 929 | 8'-1" | 22 | 20 | 56 | 0.761 | 140.1 | 0.6 | 78 | 31.1 | 5,682 |
| 7'-0" | 5'-0" | 11" | 8" | 30' | 162 | #6 | 6" | 8'-1" | 1,967 | 162 | #5 | 6" | 10'-3" | 1,732 | 5'-9" | 4'-6" | 162 | #5 | 6" | 7'-5" | 1,253 | 4'-6" | 2'-11" | 82 | 12" | 5'-0" | 274 | 5 | 39'-9" | 133 | 35 | 39'-9" | 929 | 8'-1" | 22 | 20 | 56 | 0.813 | 157.2 | 0.6 | 78 | 33.1 | 6,366 |
| 7'-0" | 6'-0" | 8" | 7" | 16' | 108 | #6 | 9" | 7'-11" | 1,284 | 162 | #5 | 6" | 10'-11" | 1,845 | 6'-6" | 4'-5" | 162 | #5 | 6" | 7'-11" | 1,197 | 4'-5" | 2'-8" | 108 | 9" | 6'-0" | 433 | 5 | 39'-9" | 133 | 39 | 39'-9" | 1,036 | 7'-11" | 21 | 18 | 50 | 0.663 | 148.2 | 0.6 | 71 | 27.1 | 5,999 |
| 7'-0" | 6'-0" | 9" | 7" | 20' | 108 | #6 | 9" | 7'-11" | 1,284 | 162 | #5 | 6" | 11'-0" | 1,859 | 6'-7" | 4'-5" | 162 | #5 | 6" | 7'-2" | 1,211 | 4'-5" | 2'-9" | 108 | 9" | 6'-0" | 433 | 5 | 39'-9" | 133 | 39 | 39'-9" | 1,036 | 7'-11" | 21 | 18 | 50 | 0.713 | 148.9 | 0.6 | 71 | 29.1 | 6,027 |
| 7'-0" | 6'-0" | 10" | 8" | 23' | 108 | #6 | 9" | 8'-1" | 1,311 | 162 | #5 | 6" | 11'-2" | 1,887 | 6'-8" | 4'-6" | 162 | #5 | 6" | 7'-4" | 1,239 | 4'-6" | 2'-10" | 82 | 12" | 6'-0" | 329 | 5 | 39'-9" | 133 | 39 | 39'-9" | 1,036 | 8'-1" | 22 | 20 | 56 | 0.811 | 148.4 | 0.6 | 78 | 33.1 | 6,013 |
| 7'-0" | 6'-0" | 11" | 8" | 30' | 162 | #6 | 6" | 8'-1" | 1,967 | 162 | #5 | 6" | 11'-3" | 1,901 | 6'-9" | 4'-6" | 162 | #5 | 6" | 7'-5" | 1,253 | 4'-6" | 2'-11" | 82 | 12" | 6'-0" | 329 | 5 | 39'-9" | 133 | 39 | 39'-9" | 1,036 | 8'-1" | 22 | 20 | 56 | 0.862 | 165.5 | 0.6 | 78 | 35.1 | 6,697 |
| 7'-0" | 7'-0" | 8" | 7" | 16' | 108 | #6 | 9" | 7'-11" | 1,284 | 162 | #5 | 6" | 11'-11" | 2,014 | 7'-6" | 4'-5" | 162 | #5 | 6" | 7'-11" | 1,197 | 4'-5" | 2'-8" | 108 | 9" | 7'-0" | 505 | 5 | 39'-9" | 133 | 39 | 39'-9" | 1,036 | 7'-11" | 21 | 18 | 50 | 0.706 | 154.2 | 0.6 | 71 | 28.8 | 6,240 |
| 7'-0" | 7'-0" | 9" | 7" | 20' | 108 | #6 | 9" | 7'-11" | 1,284 | 162 | #5 | 6" | 12'-0" | 2,028 | 7'-7" | 4'-5" | 162 | #5 | 6" | 7'-2" | 1,211 | 4'-5" | 2'-9" | 108 | 9" | 7'-0" | 505 | 5 | 39'-9" | 133 | 39 | 39'-9" | 1,036 | 7'-11" | 21 | 18 | 50 | 0.756 | 154.9 | 0.6 | 71 | 30.8 | 6,268 |
| 7'-0" | 7'-0" | 10" | 8" | 23' | 108 | #6 | 9" | 8'-1" | 1,311 | 162 | #5 | 6" | 12'-2" | 2,056 | 7'-8" | 4'-6" | 162 | #5 | 6" | 7'-4" | 1,239 | 4'-6" | 2'-10" | 108 | 9" | 7'-0" | 505 | 5 | 39'-9" | 133 | 39 | 39'-9" | 1,036 | 8'-1" | 22 | 20 | 56 | 0.860 | 157.0 | 0.6 | 78 | 35.0 | 6,358 |
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⑤ For direct traffic culverts (fill height ≤ 2 ft.), identify the required box size and select the option with the minimum fill height.

HL93 LOADING SHEET 2 OF 2



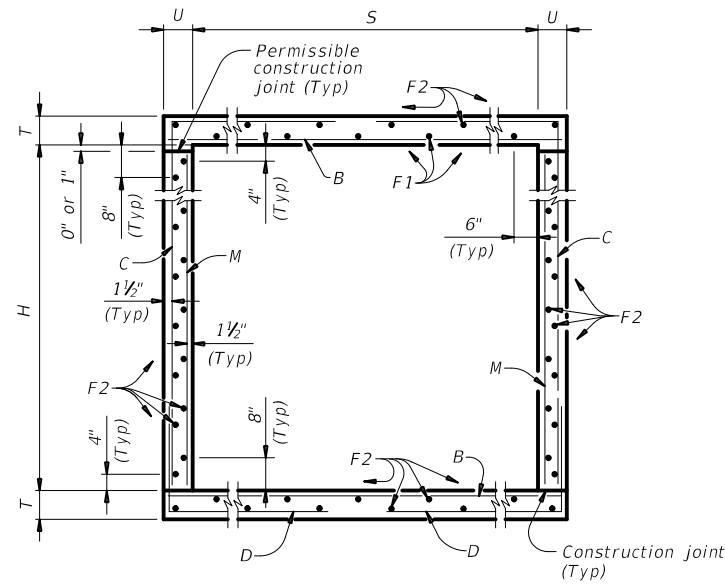
**SINGLE BOX CULVERTS
CAST-IN-PLACE
0' TO 30' FILL**

SCC-7

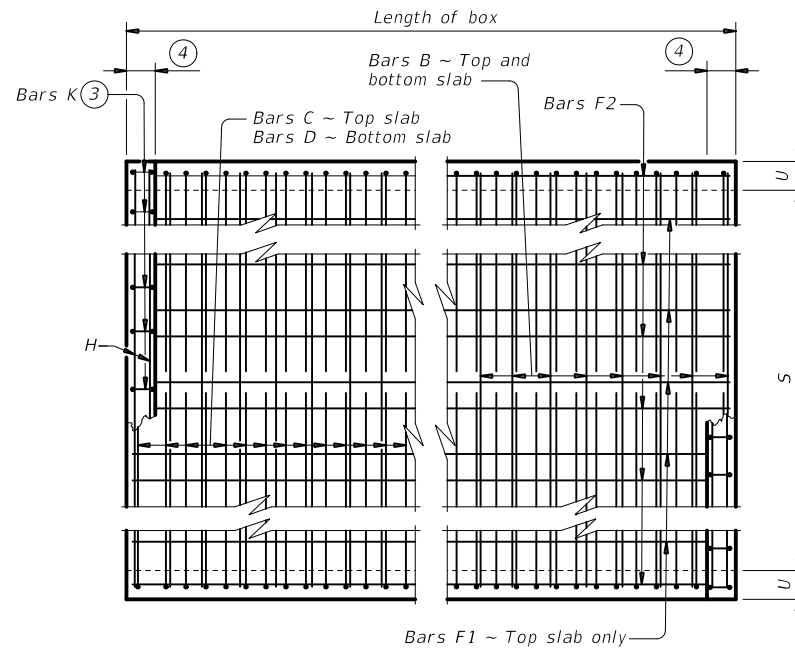
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| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 04/2021 Updated X values. | DIST | COUNTY | SHEET NO. | |
| | WACO | HAMILTON | 226 | |

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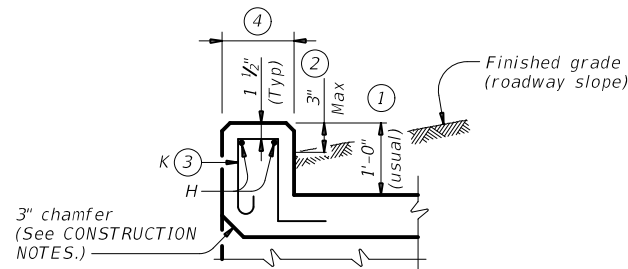
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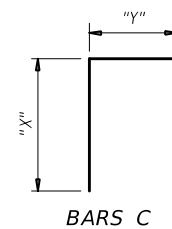
TYPICAL SECTION



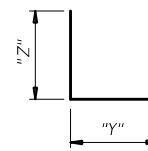
PLAN OF REINF STEEL



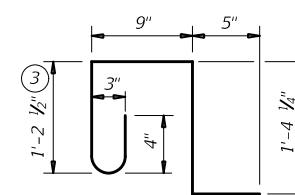
SECTION THRU CURB



BARS C



BARS D



BARS K (#4)
 (Spa = 1'-0" Max)
 (Length = 4'-2")

- ① 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
- ② For vehicle safety, the following requirements must be met:
 - For structures without bridge rail, construct curbs no more than 3" above finished grade.
 - For structures with bridge rail, construct curbs flush with finished grade. Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- ③ For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.
- ④ 1'-0" typical. 2'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR.
 Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
 If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'-1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

CONSTRUCTION NOTES:

- Do not use permanent forms.
- Chamfer the bottom edge of the top slab 3" at the entrance.
- Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed.

MATERIAL NOTES:

- Provide Grade 60 reinforcing steel.
- Provide galvanized reinforcing steel if required elsewhere in the plans.
- Provide Class C concrete ($f'_c = 3,600$ psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete ($f'_c = 4,000$ psi) for top slabs of:
 - culverts with overlay,
 - culverts with 1-to-2 course surface treatment, or
 - culverts with the top slab as the final riding surface.
- Provide bar laps, where required, as follows:
 - Uncoated or galvanized ~ #4 = 1'-8" Min
 - Uncoated or galvanized ~ #5 = 2'-1" Min
 - Uncoated or galvanized ~ #6 = 2'-6" Min

GENERAL NOTES:

- Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.
- See the Single Box Culverts Cast-In-Place Miscellaneous Detail (SCC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

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

HL93 LOADING

SHEET 1 OF 2



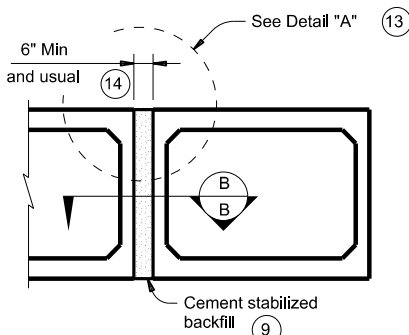
**SINGLE BOX CULVERTS
 CAST-IN-PLACE
 0' TO 30' FILL**

SCC-8

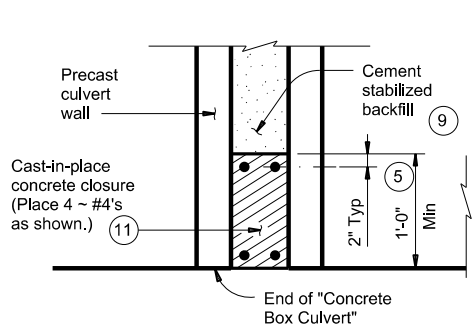
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| ©TxDOT February 2020 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 04/2021 Updated X values. | DIST | COUNTY | SHEET NO. | |
| | WACO | HAMILTON | 227 | |

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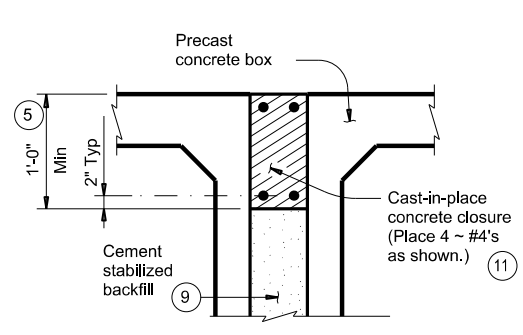
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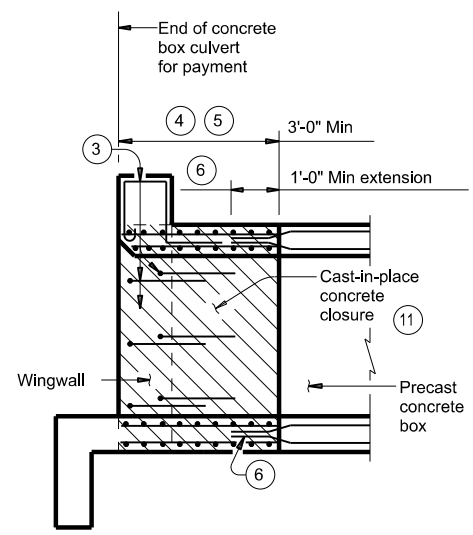
MULTIPLE UNIT PLACEMENT



SECTION B-B

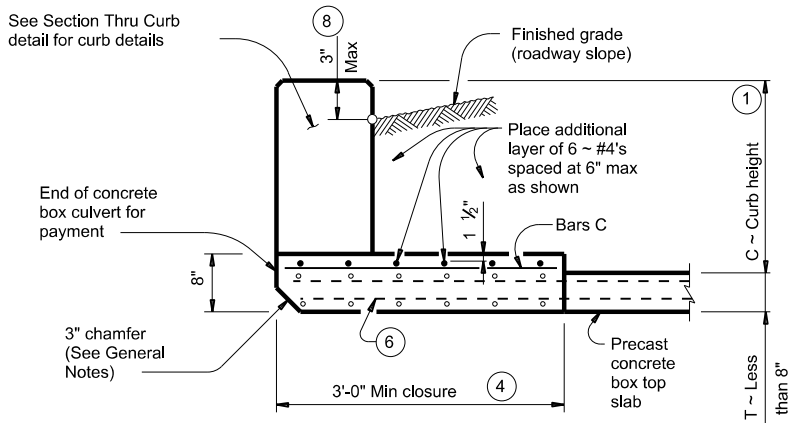


DETAIL "A"

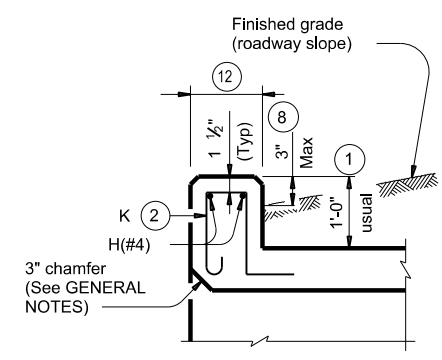


WINGWALL CONNECTION

(Also applies to safety end treatment.)

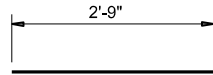


SECTION THRU TOP SLABS LESS THAN 8"

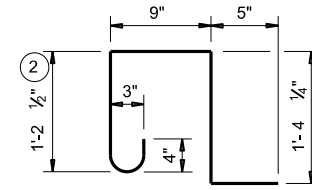


SECTION THRU CURB

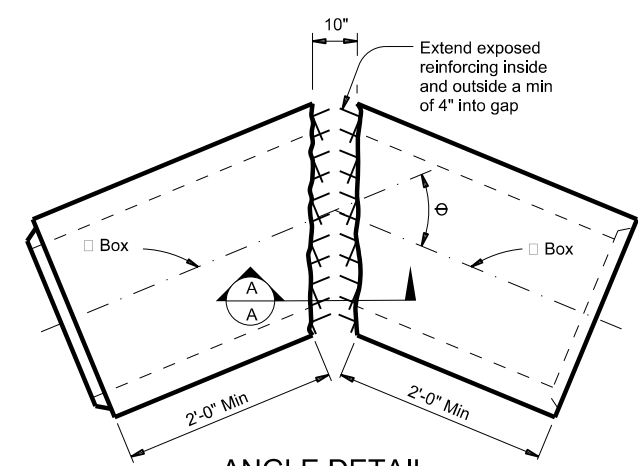
| QUANTITIES PER FOOT OF CURB (10) | |
|----------------------------------|----------|
| Reinforcing Steel | 4.12 Lb |
| Concrete | 0.037 CY |



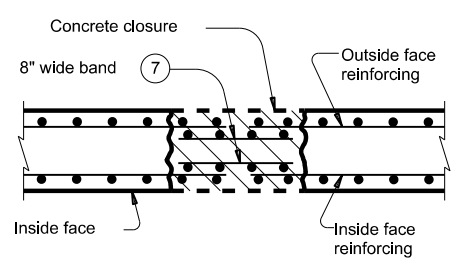
BARS C (#4)
(Spa = 1'-0" Max)



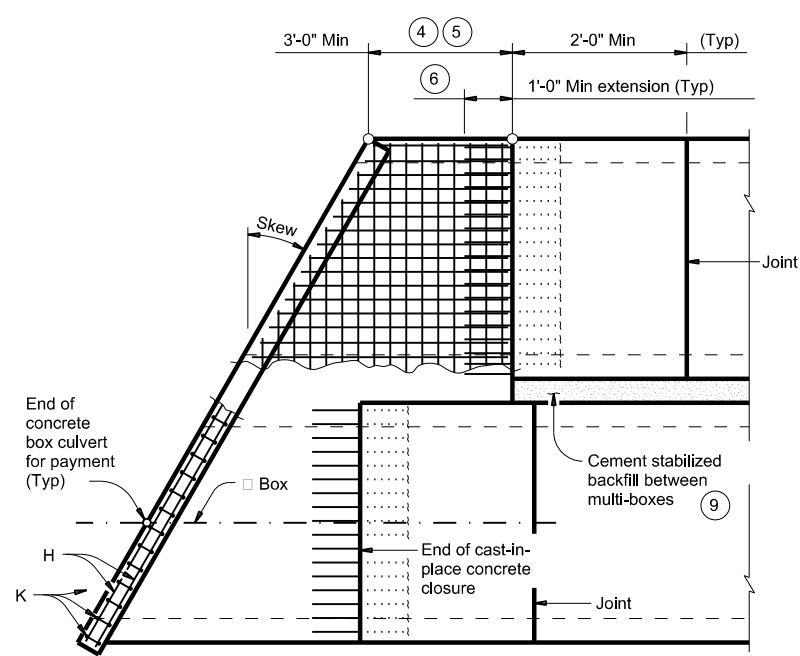
BARS K (#4)
(Spa = 1'-0" Max)
(Length = 4'-2")



ANGLE DETAIL



SECTION A-A



PLAN OF SKEWED ENDS

(Showing multi-box placement.)

- 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail, or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
- For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.
- Extend curb, wingwall, or safety end treatment reinforcing into concrete closure. Bend or trim, as necessary, any reinforcing that does not fit into closure area.
- Provide a 3'-0" Min cast-in-place concrete closure. Break back boxes in the field or cast boxes short. Provide bands of reinforcing in the closure that are the same size and spacing as in the precast box section. Provide #4 longitudinal reinforcement spaced at 12 inches Max within the closure. Except where shown otherwise, construct the cast-in-place closure flush with the inside and outside faces of the precast box section.
- For multiple unit placements, adjust the length of the closure for the interior walls as necessary. Provide a 3'-0" Min cast-in-place closure in the top slab, bottom slab, and exterior wall. See Section B-B detail when interior walls are cast full length.
- Extend precast box reinforcing a minimum of 1'-0" into concrete closure (Typ).
- Place bands of reinforcing matching the inside and outside face reinforcing in the gaps of the top and bottom slabs. Place a band matching the outside face reinforcing of the wall in the gaps of the walls (placed in the outside face only). Tack weld the bands to the exposed reinforcing at each point of contact.
- For vehicle safety, the following requirements must be met:
 - For structures without bridge rail, construct curbs no more than 3" above finished grade.
 - For structures with bridge rail, construct curbs flush with finished grade. Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- Cement stabilized backfill between boxes is considered part of the box culvert for payment.
- All curb concrete and reinforcing is considered part of the box culvert for payment.
- Any additional concrete and reinforcing required for the closures will be considered subsidiary to the box culvert for payment.
- 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.
- For multiple unit placement with overlay, with 1 to 2 course surface treatment, or with the top slab as the final riding surface, provide wall closure as shown in Detail "A".
- This dimension may be increased with approval of the Engineer to allow the precast boxes to be tunneled or jacked in accordance with Item 476, "Jacking, Boring, or Tunneling Pipe or Box". No payment will be made for any additional material in the gap between adjacent boxes.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide ASTM A1064 welded wire reinforcement.
Provide Class C concrete (f_c = 3,600 psi) for the closures.
Provide cement stabilized backfill meeting the requirements of Item 400, "Excavation and Backfill for Structures."
Any additional concrete required for the closures will be considered subsidiary to the box culvert.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to the Single Box Culverts Precast (SCP) standard sheets for details and notes not shown.
Chamfer the bottom edge of the top slab closure 3 inches at culvert closure ends.

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

HL93 LOADING

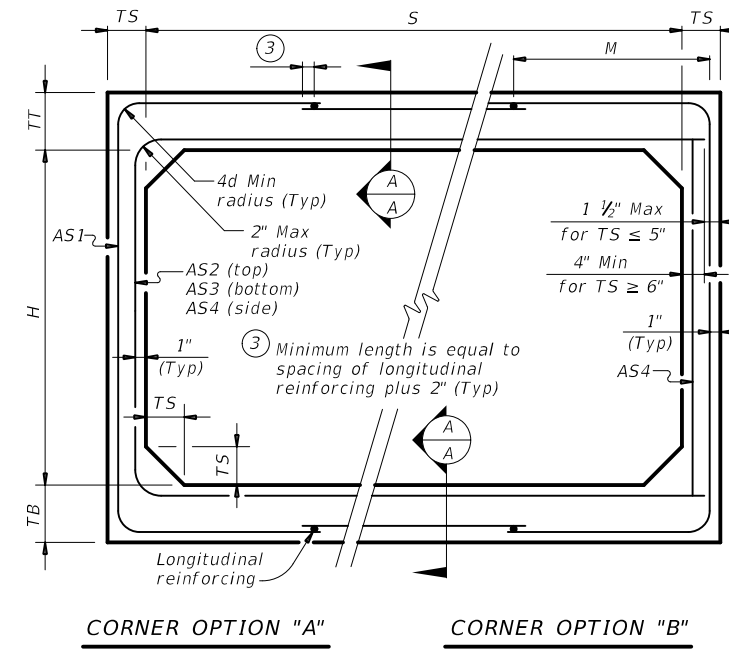
| | | | |
|---|------------------|--------------------------|----------------|
| | | Bridge Division Standard | |
| BOX CULVERTS PRECAST MISCELLANEOUS DETAILS | | | |
| SCP-MD | | | |
| FILE: scpmdsts-20.dgn | DN: GAF | CK: LMW | DWG: BWH/TxDOT |
| ©TxDOT February 2020 | CONT: 0867 | SECT: 01 | JOB: 017 |
| REVISIONS | 017 | FM 932 | HIGHWAY |
| DIST: WAC | COUNTY: HAMILTON | SHEET NO.: 229 | |

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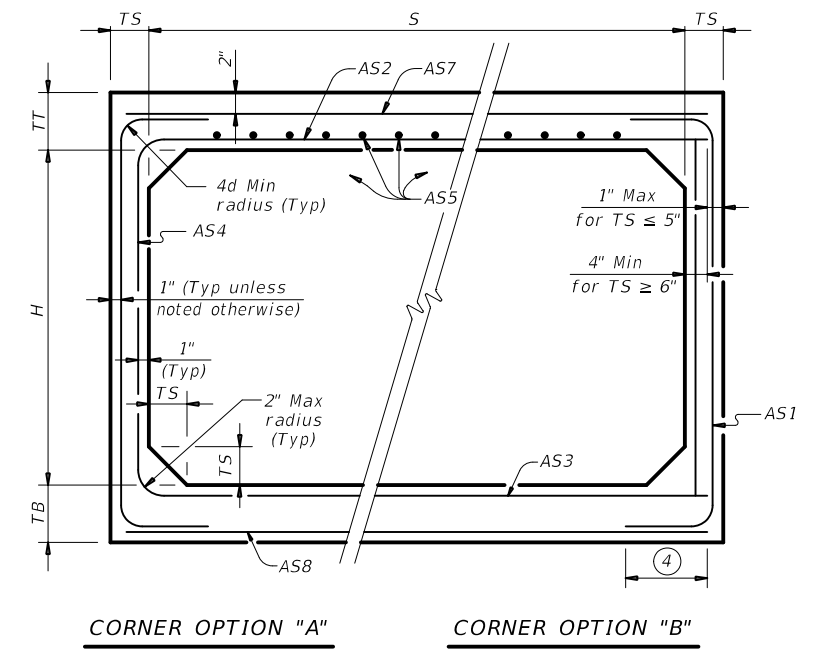
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BOX DATA

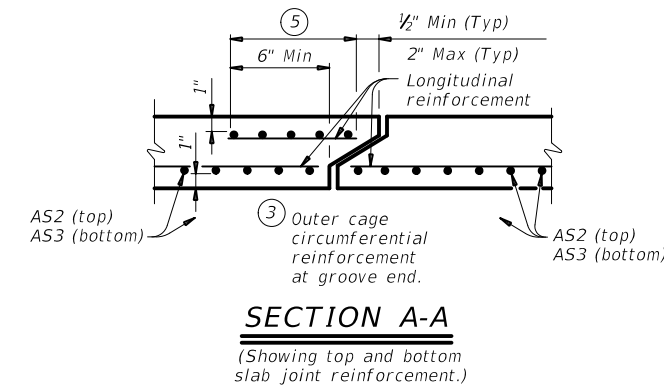
| SECTION DIMENSIONS | | | | | Fill Height (ft.) | M (Min) (in.) | REINFORCING (sq. in. / ft.) ^② | | | | | | ① Lift Weight (tons) | |
|--------------------|---------|----------|----------|----------|-------------------|---------------|--|------|------|------|------|------|----------------------|-----|
| S (ft.) | H (ft.) | TT (in.) | TB (in.) | TS (in.) | | | AS1 | AS2 | AS3 | AS4 | AS5 | AS7 | | AS8 |
| 4 | 2 | 7.5 | 6 | 5 | < 2 | - | 0.18 | 0.27 | 0.15 | 0.12 | 0.18 | 0.18 | 0.14 | 4.5 |
| 4 | 2 | 5 | 5 | 5 | 2 < 3 | 38 | 0.18 | 0.19 | 0.17 | 0.12 | - | - | - | 3.6 |
| 4 | 2 | 5 | 5 | 5 | 3 - 5 | 38 | 0.13 | 0.13 | 0.13 | 0.12 | - | - | - | 3.6 |
| 4 | 2 | 5 | 5 | 5 | 10 | 38 | 0.12 | 0.12 | 0.12 | 0.12 | - | - | - | 3.6 |
| 4 | 2 | 5 | 5 | 5 | 15 | 38 | 0.14 | 0.16 | 0.16 | 0.12 | - | - | - | 3.6 |
| 4 | 2 | 5 | 5 | 5 | 20 | 38 | 0.18 | 0.20 | 0.21 | 0.12 | - | - | - | 3.6 |
| 4 | 2 | 5 | 5 | 5 | 25 | 38 | 0.23 | 0.25 | 0.25 | 0.12 | - | - | - | 3.6 |
| 4 | 2 | 5 | 5 | 5 | 30 | 38 | 0.28 | 0.30 | 0.30 | 0.12 | - | - | - | 3.6 |
| 4 | 3 | 7.5 | 6 | 5 | < 2 | - | 0.18 | 0.31 | 0.18 | 0.12 | 0.18 | 0.18 | 0.14 | 5.0 |
| 4 | 3 | 5 | 5 | 5 | 2 < 3 | 38 | 0.15 | 0.23 | 0.20 | 0.12 | - | - | - | 4.1 |
| 4 | 3 | 5 | 5 | 5 | 3 - 5 | 38 | 0.12 | 0.16 | 0.16 | 0.12 | - | - | - | 4.1 |
| 4 | 3 | 5 | 5 | 5 | 10 | 38 | 0.12 | 0.14 | 0.14 | 0.12 | - | - | - | 4.1 |
| 4 | 3 | 5 | 5 | 5 | 15 | 38 | 0.12 | 0.18 | 0.18 | 0.12 | - | - | - | 4.1 |
| 4 | 3 | 5 | 5 | 5 | 20 | 38 | 0.14 | 0.23 | 0.24 | 0.12 | - | - | - | 4.1 |
| 4 | 3 | 5 | 5 | 5 | 25 | 38 | 0.17 | 0.29 | 0.29 | 0.12 | - | - | - | 4.1 |
| 4 | 3 | 5 | 5 | 5 | 30 | 38 | 0.21 | 0.35 | 0.35 | 0.12 | - | - | - | 4.1 |
| 4 | 4 | 7.5 | 6 | 5 | < 2 | - | 0.18 | 0.33 | 0.20 | 0.12 | 0.18 | 0.18 | 0.14 | 5.5 |
| 4 | 4 | 5 | 5 | 5 | 2 < 3 | 38 | 0.12 | 0.26 | 0.23 | 0.12 | - | - | - | 4.6 |
| 4 | 4 | 5 | 5 | 5 | 3 - 5 | 38 | 0.12 | 0.18 | 0.18 | 0.12 | - | - | - | 4.6 |
| 4 | 4 | 5 | 5 | 5 | 10 | 38 | 0.12 | 0.15 | 0.15 | 0.12 | - | - | - | 4.6 |
| 4 | 4 | 5 | 5 | 5 | 15 | 38 | 0.12 | 0.19 | 0.20 | 0.12 | - | - | - | 4.6 |
| 4 | 4 | 5 | 5 | 5 | 20 | 38 | 0.12 | 0.25 | 0.25 | 0.12 | - | - | - | 4.6 |
| 4 | 4 | 5 | 5 | 5 | 25 | 38 | 0.14 | 0.31 | 0.31 | 0.12 | - | - | - | 4.6 |
| 4 | 4 | 5 | 5 | 5 | 30 | 38 | 0.17 | 0.37 | 0.37 | 0.12 | - | - | - | 4.6 |



FILL HEIGHT 2 FT AND GREATER



FILL HEIGHT LESS THAN 2 FT



SECTION A-A
(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
 Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
 Provide Class H concrete ($f'c = 5,000$ psi).

GENERAL NOTES:
 Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
 See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
 In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)".

① For box length = 8'-0"
 ② AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.

HL93 LOADING

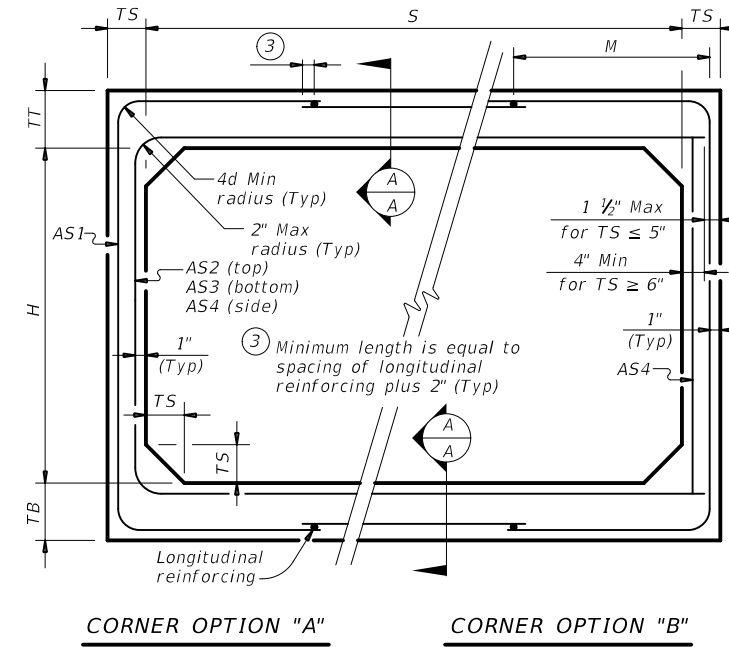
| | | | | |
|--|-----------|-----------|-----------|---------------------------------|
| | | | | Bridge Division Standard |
| <h2 style="margin: 0;">SINGLE BOX CULVERTS PRECAST</h2> <h3 style="margin: 0;">4'-0" SPAN</h3> | | | | |
| <h2 style="margin: 0;">SCP-4</h2> | | | | |
| FILE: scp04sts-20.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT | CR: TxDOT |
| ©TxDOT February 2020 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| | DIST | COUNTY | SHEET NO. | |
| | WACO | HAMILTON | 230 | |

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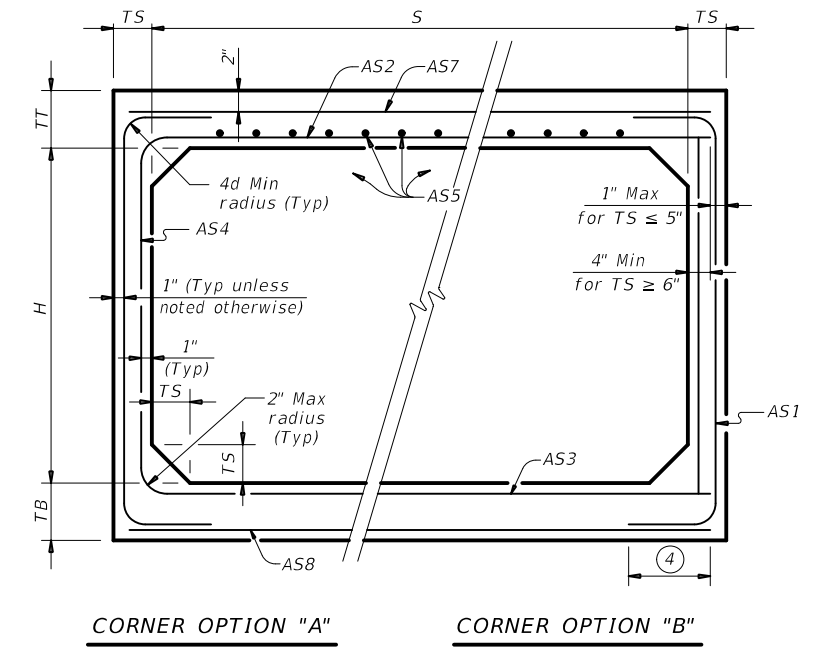
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BOX DATA

| SECTION DIMENSIONS | | | | | Fill Height (ft.) | M (Min) (in.) | REINFORCING (sq. in. / ft.) ⁽²⁾ | | | | | | | | ⁽¹⁾ Lift Weight (tons) |
|--------------------|---------|----------|----------|----------|-------------------|---------------|--|------|------|------|------|------|------|-----|-----------------------------------|
| S (ft.) | H (ft.) | TT (in.) | TB (in.) | TS (in.) | | | AS1 | AS2 | AS3 | AS4 | AS5 | AS7 | AS8 | | |
| 5 | 2 | 8 | 7 | 6 | < 2 | - | 0.19 | 0.27 | 0.18 | 0.14 | 0.19 | 0.19 | 0.17 | 6.0 | |
| 5 | 2 | 6 | 6 | 6 | 2 < 3 | 44 | 0.22 | 0.20 | 0.16 | 0.14 | - | - | - | 5.1 | |
| 5 | 2 | 6 | 6 | 6 | 3 - 5 | 44 | 0.16 | 0.14 | 0.14 | 0.14 | - | - | - | 5.1 | |
| 5 | 2 | 6 | 6 | 6 | 10 | 36 | 0.15 | 0.14 | 0.14 | 0.14 | - | - | - | 5.1 | |
| 5 | 2 | 6 | 6 | 6 | 15 | 36 | 0.20 | 0.18 | 0.18 | 0.14 | - | - | - | 5.1 | |
| 5 | 2 | 6 | 6 | 6 | 20 | 36 | 0.26 | 0.23 | 0.24 | 0.14 | - | - | - | 5.1 | |
| 5 | 2 | 6 | 6 | 6 | 25 | 36 | 0.33 | 0.29 | 0.29 | 0.14 | - | - | - | 5.1 | |
| 5 | 2 | 6 | 6 | 6 | 30 | 36 | 0.39 | 0.34 | 0.35 | 0.14 | - | - | - | 5.1 | |
| 5 | 3 | 8 | 7 | 6 | < 2 | - | 0.19 | 0.31 | 0.21 | 0.14 | 0.19 | 0.19 | 0.17 | 6.6 | |
| 5 | 3 | 6 | 6 | 6 | 2 < 3 | 45 | 0.18 | 0.24 | 0.19 | 0.14 | - | - | - | 5.7 | |
| 5 | 3 | 6 | 6 | 6 | 3 - 5 | 36 | 0.14 | 0.17 | 0.16 | 0.14 | - | - | - | 5.7 | |
| 5 | 3 | 6 | 6 | 6 | 10 | 36 | 0.14 | 0.16 | 0.17 | 0.14 | - | - | - | 5.7 | |
| 5 | 3 | 6 | 6 | 6 | 15 | 35 | 0.16 | 0.21 | 0.22 | 0.14 | - | - | - | 5.7 | |
| 5 | 3 | 6 | 6 | 6 | 20 | 35 | 0.21 | 0.27 | 0.28 | 0.14 | - | - | - | 5.7 | |
| 5 | 3 | 6 | 6 | 6 | 25 | 35 | 0.26 | 0.34 | 0.34 | 0.14 | - | - | - | 5.7 | |
| 5 | 3 | 6 | 6 | 6 | 30 | 35 | 0.31 | 0.41 | 0.41 | 0.14 | - | - | - | 5.7 | |
| 5 | 4 | 8 | 7 | 6 | < 2 | - | 0.19 | 0.33 | 0.24 | 0.14 | 0.19 | 0.19 | 0.17 | 7.2 | |
| 5 | 4 | 6 | 6 | 6 | 2 < 3 | 45 | 0.16 | 0.27 | 0.22 | 0.14 | - | - | - | 6.3 | |
| 5 | 4 | 6 | 6 | 6 | 3 - 5 | 45 | 0.14 | 0.19 | 0.18 | 0.14 | - | - | - | 6.3 | |
| 5 | 4 | 6 | 6 | 6 | 10 | 36 | 0.14 | 0.18 | 0.18 | 0.14 | - | - | - | 6.3 | |
| 5 | 4 | 6 | 6 | 6 | 15 | 35 | 0.14 | 0.23 | 0.24 | 0.14 | - | - | - | 6.3 | |
| 5 | 4 | 6 | 6 | 6 | 20 | 35 | 0.17 | 0.30 | 0.31 | 0.14 | - | - | - | 6.3 | |
| 5 | 4 | 6 | 6 | 6 | 25 | 35 | 0.21 | 0.37 | 0.38 | 0.14 | - | - | - | 6.3 | |
| 5 | 4 | 6 | 6 | 6 | 30 | 35 | 0.25 | 0.44 | 0.45 | 0.14 | - | - | - | 6.3 | |
| 5 | 5 | 8 | 7 | 6 | < 2 | - | 0.19 | 0.35 | 0.26 | 0.14 | 0.19 | 0.19 | 0.17 | 7.8 | |
| 5 | 5 | 6 | 6 | 6 | 2 < 3 | 45 | 0.14 | 0.29 | 0.24 | 0.14 | - | - | - | 6.9 | |
| 5 | 5 | 6 | 6 | 6 | 3 - 5 | 45 | 0.14 | 0.21 | 0.20 | 0.14 | - | - | - | 6.9 | |
| 5 | 5 | 6 | 6 | 6 | 10 | 45 | 0.14 | 0.19 | 0.20 | 0.14 | - | - | - | 6.9 | |
| 5 | 5 | 6 | 6 | 6 | 15 | 36 | 0.14 | 0.24 | 0.25 | 0.14 | - | - | - | 6.9 | |
| 5 | 5 | 6 | 6 | 6 | 20 | 35 | 0.15 | 0.31 | 0.32 | 0.14 | - | - | - | 6.9 | |
| 5 | 5 | 6 | 6 | 6 | 25 | 35 | 0.18 | 0.38 | 0.39 | 0.14 | - | - | - | 6.9 | |
| 5 | 5 | 6 | 6 | 6 | 30 | 35 | 0.21 | 0.46 | 0.47 | 0.14 | - | - | - | 6.9 | |

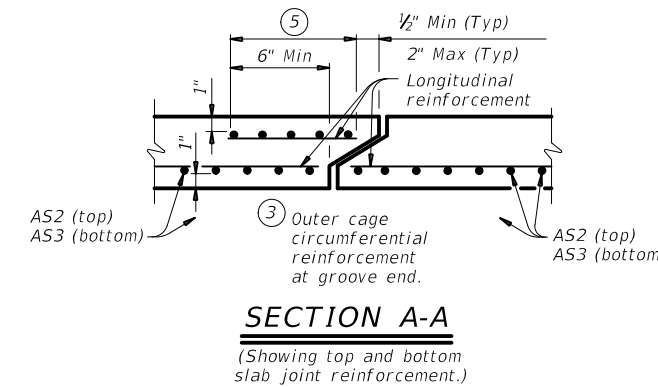


FILL HEIGHT 2 FT AND GREATER



FILL HEIGHT LESS THAN 2 FT

⁽⁴⁾ Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A
(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
 Provide 0.03 sq. in./ft. minimum longitudinal reinforcing at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
 Provide Class H concrete (f'c = 5,000 psi).

GENERAL NOTES:
 Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
 See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
 In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)".

HL93 LOADING

| | | | |
|---|--------------------|---------------------------------|------------------|
| | | Bridge Division Standard | |
| SINGLE BOX CULVERTS PRECAST 5'-0" SPAN | | | |
| SCP-5 | | | |
| FILE: scp05sts-20.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT |
| ©TxDOT | REV: February 2020 | CONT: 0867 | SECT: 01 |
| | | JOB: 017 | HIGHWAY: FM 932 |
| | | DIST: WACO | COUNTY: HAMILTON |
| | | | SHEET NO.: 231 |

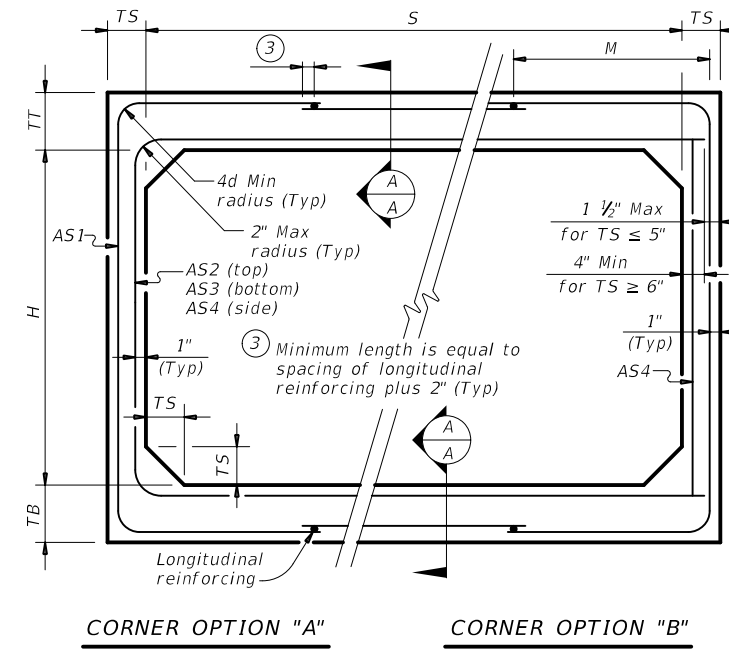
⁽¹⁾ For box length = 8'-0"
⁽²⁾ AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.

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 units or for incorrect results or damages resulting from its use.

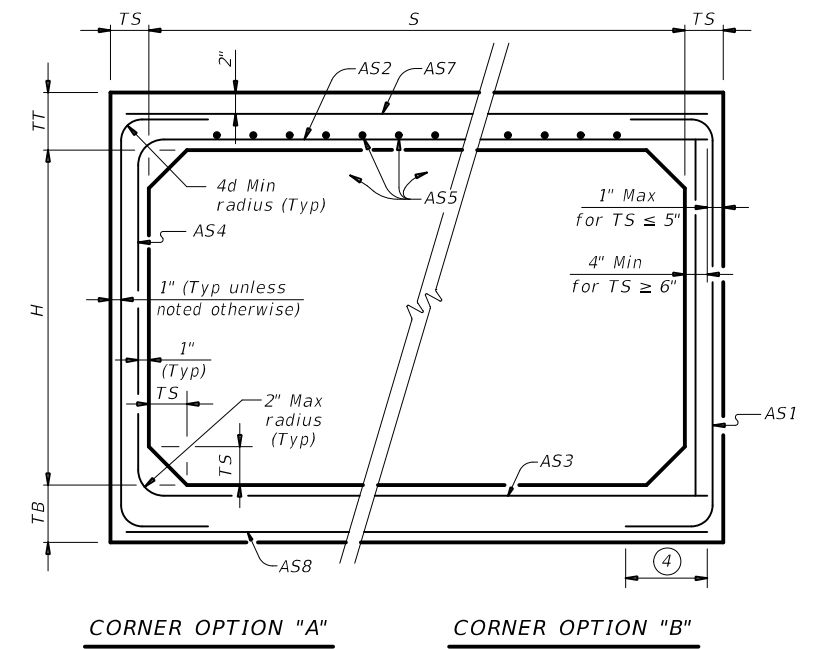
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BOX DATA

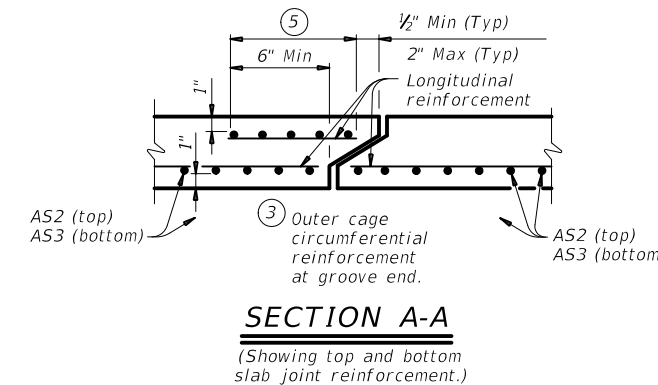
| SECTION DIMENSIONS | | | | | Fill Height (ft.) | M (Min) (in.) | REINFORCING (sq. in. / ft.) ^② | | | | | | | ① Lift Weight (tons) |
|--------------------|---------|----------|----------|----------|-------------------|---------------|--|------|------|------|------|------|-----|----------------------|
| S (ft.) | H (ft.) | TT (in.) | TB (in.) | TS (in.) | | | AS1 | AS2 | AS3 | AS4 | AS5 | AS7 | AS8 | |
| 6 | 2 | 8 | 7 | 7 | < 2 | - | 0.23 | 0.27 | 0.19 | 0.17 | 0.19 | 0.17 | 7.2 | |
| 6 | 2 | 7 | 7 | 7 | 2 < 3 | 43 | 0.25 | 0.21 | 0.17 | 0.17 | - | - | 6.8 | |
| 6 | 2 | 7 | 7 | 7 | 3 - 5 | 43 | 0.20 | 0.17 | 0.17 | 0.17 | - | - | 6.8 | |
| 6 | 2 | 7 | 7 | 7 | 10 | 39 | 0.20 | 0.17 | 0.17 | 0.17 | - | - | 6.8 | |
| 6 | 2 | 7 | 7 | 7 | 15 | 39 | 0.26 | 0.20 | 0.20 | 0.17 | - | - | 6.8 | |
| 6 | 2 | 7 | 7 | 7 | 20 | 39 | 0.34 | 0.26 | 0.26 | 0.17 | - | - | 6.8 | |
| 6 | 2 | 7 | 7 | 7 | 25 | 39 | 0.43 | 0.32 | 0.32 | 0.17 | - | - | 6.8 | |
| 6 | 2 | 7 | 7 | 7 | 30 | 39 | 0.52 | 0.38 | 0.39 | 0.17 | - | - | 6.8 | |
| 6 | 3 | 8 | 7 | 7 | < 2 | - | 0.20 | 0.31 | 0.22 | 0.17 | 0.19 | 0.19 | 7.9 | |
| 6 | 3 | 7 | 7 | 7 | 2 < 3 | 43 | 0.21 | 0.24 | 0.19 | 0.17 | - | - | 7.5 | |
| 6 | 3 | 7 | 7 | 7 | 3 - 5 | 39 | 0.17 | 0.18 | 0.17 | 0.17 | - | - | 7.5 | |
| 6 | 3 | 7 | 7 | 7 | 10 | 39 | 0.17 | 0.18 | 0.19 | 0.17 | - | - | 7.5 | |
| 6 | 3 | 7 | 7 | 7 | 15 | 38 | 0.22 | 0.24 | 0.24 | 0.17 | - | - | 7.5 | |
| 6 | 3 | 7 | 7 | 7 | 20 | 38 | 0.28 | 0.31 | 0.31 | 0.17 | - | - | 7.5 | |
| 6 | 3 | 7 | 7 | 7 | 25 | 38 | 0.35 | 0.38 | 0.39 | 0.17 | - | - | 7.5 | |
| 6 | 3 | 7 | 7 | 7 | 30 | 38 | 0.42 | 0.46 | 0.46 | 0.17 | - | - | 7.5 | |
| 6 | 4 | 8 | 7 | 7 | < 2 | - | 0.19 | 0.34 | 0.25 | 0.17 | 0.19 | 0.19 | 8.6 | |
| 6 | 4 | 7 | 7 | 7 | 2 < 3 | 43 | 0.19 | 0.27 | 0.21 | 0.17 | - | - | 8.2 | |
| 6 | 4 | 7 | 7 | 7 | 3 - 5 | 39 | 0.17 | 0.21 | 0.19 | 0.17 | - | - | 8.2 | |
| 6 | 4 | 7 | 7 | 7 | 10 | 39 | 0.17 | 0.20 | 0.21 | 0.17 | - | - | 8.2 | |
| 6 | 4 | 7 | 7 | 7 | 15 | 38 | 0.18 | 0.27 | 0.27 | 0.17 | - | - | 8.2 | |
| 6 | 4 | 7 | 7 | 7 | 20 | 38 | 0.24 | 0.34 | 0.35 | 0.17 | - | - | 8.2 | |
| 6 | 4 | 7 | 7 | 7 | 25 | 38 | 0.29 | 0.43 | 0.42 | 0.17 | - | - | 8.2 | |
| 6 | 4 | 7 | 7 | 7 | 30 | 38 | 0.35 | 0.51 | 0.52 | 0.17 | - | - | 8.2 | |
| 6 | 5 | 8 | 7 | 7 | < 2 | - | 0.19 | 0.37 | 0.28 | 0.17 | 0.19 | 0.19 | 9.3 | |
| 6 | 5 | 7 | 7 | 7 | 2 < 3 | 43 | 0.17 | 0.30 | 0.24 | 0.17 | - | - | 8.9 | |
| 6 | 5 | 7 | 7 | 7 | 3 - 5 | 43 | 0.17 | 0.23 | 0.21 | 0.17 | - | - | 8.9 | |
| 6 | 5 | 7 | 7 | 7 | 10 | 39 | 0.17 | 0.22 | 0.23 | 0.17 | - | - | 8.9 | |
| 6 | 5 | 7 | 7 | 7 | 15 | 38 | 0.17 | 0.28 | 0.29 | 0.17 | - | - | 8.9 | |
| 6 | 5 | 7 | 7 | 7 | 20 | 38 | 0.20 | 0.37 | 0.38 | 0.17 | - | - | 8.9 | |
| 6 | 5 | 7 | 7 | 7 | 25 | 38 | 0.25 | 0.45 | 0.46 | 0.17 | - | - | 8.9 | |
| 6 | 5 | 7 | 7 | 7 | 30 | 38 | 0.30 | 0.54 | 0.55 | 0.17 | - | - | 8.9 | |
| 6 | 6 | 8 | 7 | 7 | < 2 | - | 0.19 | 0.38 | 0.30 | 0.17 | 0.19 | 0.19 | 10 | |
| 6 | 6 | 7 | 7 | 7 | 2 < 3 | 52 | 0.17 | 0.32 | 0.26 | 0.17 | - | - | 9.6 | |
| 6 | 6 | 7 | 7 | 7 | 3 - 5 | 52 | 0.17 | 0.24 | 0.22 | 0.17 | - | - | 9.6 | |
| 6 | 6 | 7 | 7 | 7 | 10 | 43 | 0.17 | 0.23 | 0.24 | 0.17 | - | - | 9.6 | |
| 6 | 6 | 7 | 7 | 7 | 15 | 39 | 0.17 | 0.29 | 0.31 | 0.17 | - | - | 9.6 | |
| 6 | 6 | 7 | 7 | 7 | 20 | 39 | 0.18 | 0.38 | 0.39 | 0.17 | - | - | 9.6 | |
| 6 | 6 | 7 | 7 | 7 | 25 | 38 | 0.23 | 0.46 | 0.48 | 0.17 | - | - | 9.6 | |
| 6 | 6 | 7 | 7 | 7 | 30 | 38 | 0.27 | 0.55 | 0.57 | 0.17 | - | - | 9.6 | |



FILL HEIGHT 2 FT AND GREATER



FILL HEIGHT LESS THAN 2 FT



SECTION A-A
(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
 Provide 0.03 sq. in./ft. minimum longitudinal reinforcing at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
 Provide Class H concrete ($f'c = 5,000$ psi).

GENERAL NOTES:
 Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
 See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
 In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)".

① For box length = 8'-0"
 ② AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcing per linear foot of box length. AS5 is minimum required area of reinforcing per linear foot of box width.

HL93 LOADING

Bridge Division Standard

SINGLE BOX CULVERTS
PRECAST
6'-0" SPAN

SCP-6

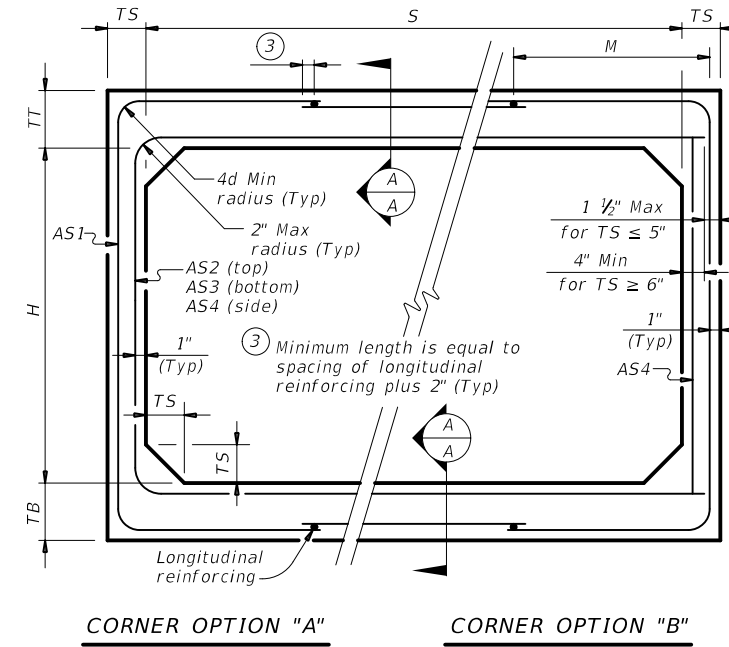
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| ©TxDOT February 2020 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| DIST | COUNTY | | SHEET NO. | |
| WACO | HAMILTON | | 232 | |

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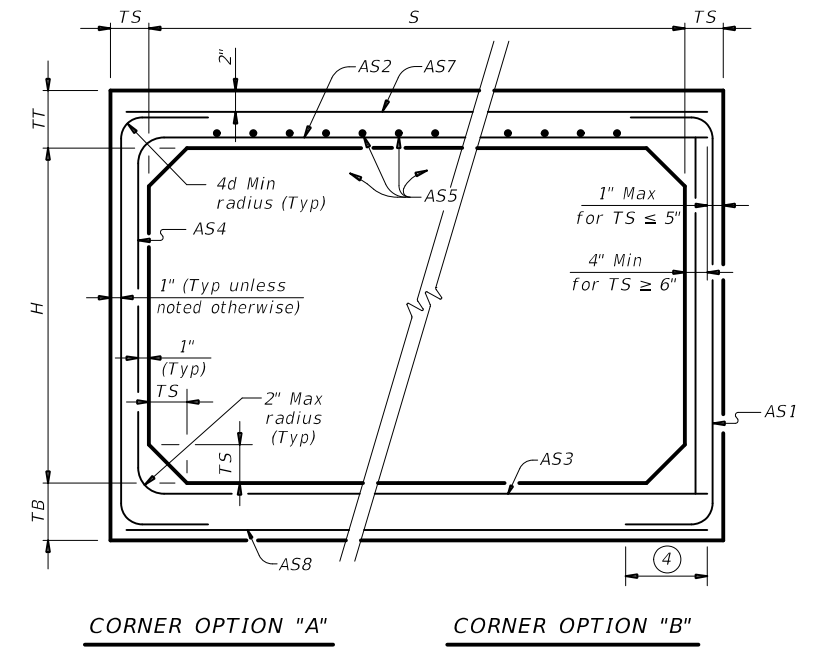
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BOX DATA

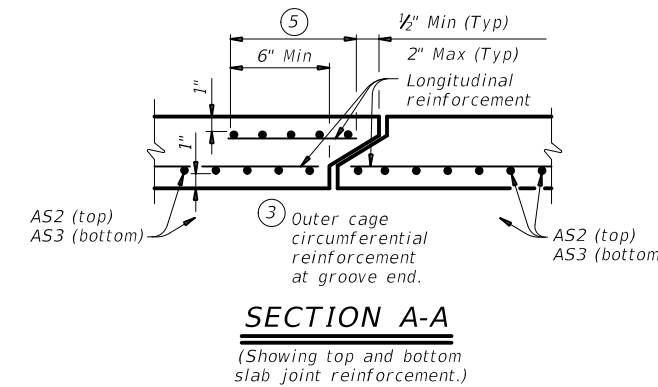
| SECTION DIMENSIONS | | | | | Fill Height (ft.) | M (Min) (in.) | REINFORCING (sq. in. / ft.) ^② | | | | | | | ① Lift Weight (tons) |
|--------------------|---------|----------|----------|----------|-------------------|---------------|--|------|------|------|------|------|------|----------------------|
| S (ft.) | H (ft.) | TT (in.) | TB (in.) | TS (in.) | | | AS1 | AS2 | AS3 | AS4 | AS5 | AS7 | AS8 | |
| 7 | 3 | 8 | 8 | 8 | < 2 | - | 0.23 | 0.31 | 0.22 | 0.19 | 0.19 | 0.19 | 0.19 | 9.6 |
| 7 | 3 | 8 | 8 | 8 | 2 < 3 | 47 | 0.27 | 0.25 | 0.24 | 0.19 | - | - | - | 9.6 |
| 7 | 3 | 8 | 8 | 8 | 3 - 5 | 43 | 0.19 | 0.19 | 0.19 | 0.19 | - | - | - | 9.6 |
| 7 | 3 | 8 | 8 | 8 | 10 | 43 | 0.21 | 0.20 | 0.21 | 0.19 | - | - | - | 9.6 |
| 7 | 3 | 8 | 8 | 8 | 15 | 43 | 0.28 | 0.26 | 0.27 | 0.19 | - | - | - | 9.6 |
| 7 | 3 | 8 | 8 | 8 | 20 | 43 | 0.36 | 0.34 | 0.35 | 0.19 | - | - | - | 9.6 |
| 7 | 3 | 8 | 8 | 8 | 25 | 43 | 0.45 | 0.42 | 0.43 | 0.19 | - | - | - | 9.6 |
| 7 | 3 | 8 | 8 | 8 | 30 | 43 | 0.54 | 0.50 | 0.51 | 0.19 | - | - | - | 9.6 |
| 7 | 4 | 8 | 8 | 8 | < 2 | - | 0.21 | 0.34 | 0.25 | 0.19 | 0.19 | 0.19 | 0.19 | 10.4 |
| 7 | 4 | 8 | 8 | 8 | 2 < 3 | 43 | 0.23 | 0.28 | 0.28 | 0.19 | - | - | - | 10.4 |
| 7 | 4 | 8 | 8 | 8 | 3 - 5 | 43 | 0.19 | 0.22 | 0.19 | 0.19 | - | - | - | 10.4 |
| 7 | 4 | 8 | 8 | 8 | 10 | 43 | 0.19 | 0.23 | 0.23 | 0.19 | - | - | - | 10.4 |
| 7 | 4 | 8 | 8 | 8 | 15 | 41 | 0.24 | 0.30 | 0.30 | 0.19 | - | - | - | 10.4 |
| 7 | 4 | 8 | 8 | 8 | 20 | 41 | 0.31 | 0.38 | 0.39 | 0.19 | - | - | - | 10.4 |
| 7 | 4 | 8 | 8 | 8 | 25 | 41 | 0.38 | 0.47 | 0.48 | 0.19 | - | - | - | 10.4 |
| 7 | 4 | 8 | 8 | 8 | 30 | 41 | 0.46 | 0.57 | 0.57 | 0.19 | - | - | - | 10.4 |
| 7 | 5 | 8 | 8 | 8 | < 2 | - | 0.19 | 0.36 | 0.27 | 0.19 | 0.19 | 0.19 | 0.19 | 11.2 |
| 7 | 5 | 8 | 8 | 8 | 2 < 3 | 47 | 0.21 | 0.31 | 0.31 | 0.19 | - | - | - | 11.2 |
| 7 | 5 | 8 | 8 | 8 | 3 - 5 | 43 | 0.19 | 0.24 | 0.21 | 0.19 | - | - | - | 11.2 |
| 7 | 5 | 8 | 8 | 8 | 10 | 43 | 0.19 | 0.25 | 0.26 | 0.19 | - | - | - | 11.2 |
| 7 | 5 | 8 | 8 | 8 | 15 | 41 | 0.21 | 0.32 | 0.33 | 0.19 | - | - | - | 11.2 |
| 7 | 5 | 8 | 8 | 8 | 20 | 41 | 0.27 | 0.41 | 0.42 | 0.19 | - | - | - | 11.2 |
| 7 | 5 | 8 | 8 | 8 | 25 | 41 | 0.33 | 0.51 | 0.52 | 0.19 | - | - | - | 11.2 |
| 7 | 5 | 8 | 8 | 8 | 30 | 41 | 0.40 | 0.61 | 0.62 | 0.19 | - | - | - | 11.2 |
| 7 | 6 | 8 | 8 | 8 | < 2 | - | 0.19 | 0.38 | 0.30 | 0.19 | 0.19 | 0.19 | 0.19 | 12.0 |
| 7 | 6 | 8 | 8 | 8 | 2 < 3 | 59 | 0.19 | 0.33 | 0.34 | 0.19 | - | - | - | 12.0 |
| 7 | 6 | 8 | 8 | 8 | 3 - 5 | 47 | 0.19 | 0.25 | 0.23 | 0.19 | - | - | - | 12.0 |
| 7 | 6 | 8 | 8 | 8 | 10 | 43 | 0.19 | 0.26 | 0.27 | 0.19 | - | - | - | 12.0 |
| 7 | 6 | 8 | 8 | 8 | 15 | 41 | 0.19 | 0.34 | 0.35 | 0.19 | - | - | - | 12.0 |
| 7 | 6 | 8 | 8 | 8 | 20 | 41 | 0.24 | 0.43 | 0.45 | 0.19 | - | - | - | 12.0 |
| 7 | 6 | 8 | 8 | 8 | 25 | 41 | 0.29 | 0.53 | 0.55 | 0.19 | - | - | - | 12.0 |
| 7 | 6 | 8 | 8 | 8 | 30 | 41 | 0.35 | 0.64 | 0.65 | 0.19 | - | - | - | 12.0 |
| 7 | 7 | 8 | 8 | 8 | < 2 | - | 0.19 | 0.40 | 0.33 | 0.19 | 0.19 | 0.19 | 0.19 | 12.8 |
| 7 | 7 | 8 | 8 | 8 | 2 < 3 | 59 | 0.19 | 0.36 | 0.37 | 0.19 | - | - | - | 12.8 |
| 7 | 7 | 8 | 8 | 8 | 3 - 5 | 59 | 0.19 | 0.27 | 0.25 | 0.19 | - | - | - | 12.8 |
| 7 | 7 | 8 | 8 | 8 | 10 | 47 | 0.19 | 0.27 | 0.29 | 0.19 | - | - | - | 12.8 |
| 7 | 7 | 8 | 8 | 8 | 15 | 43 | 0.19 | 0.35 | 0.37 | 0.19 | - | - | - | 12.8 |
| 7 | 7 | 8 | 8 | 8 | 20 | 43 | 0.22 | 0.44 | 0.46 | 0.19 | - | - | - | 12.8 |
| 7 | 7 | 8 | 8 | 8 | 25 | 43 | 0.27 | 0.54 | 0.57 | 0.19 | - | - | - | 12.8 |
| 7 | 7 | 8 | 8 | 8 | 30 | 41 | 0.32 | 0.65 | 0.67 | 0.19 | - | - | - | 12.8 |



FILL HEIGHT 2 FT AND GREATER



FILL HEIGHT LESS THAN 2 FT



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:

Provide 0.03 sq. in./ft. minimum longitudinal reinforcing at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
 Provide Class H concrete ($f'c = 5,000$ psi).

GENERAL NOTES:

Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
 See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
 In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)".

HL93 LOADING

| | | | | | |
|---|-----------------|-----------|---------------------------------|-----------|-----------|
| | | | Bridge Division Standard | | |
| SINGLE BOX CULVERTS PRECAST 7'-0" SPAN | | | | | |
| SCP-7 | | | | | |
| FILE: | scp07sts-20.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT | CR: TxDOT |
| ©TxDOT | February 2020 | CONT | SECT | JOB | HIGHWAY |
| | REVISIONS | 0867 | 01 | 017 | FM 932 |
| | | DIST | COUNTY | SHEET NO. | |
| | | WACO | HAMILTON | 233 | |

① For box length = 8'-0"

② AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.

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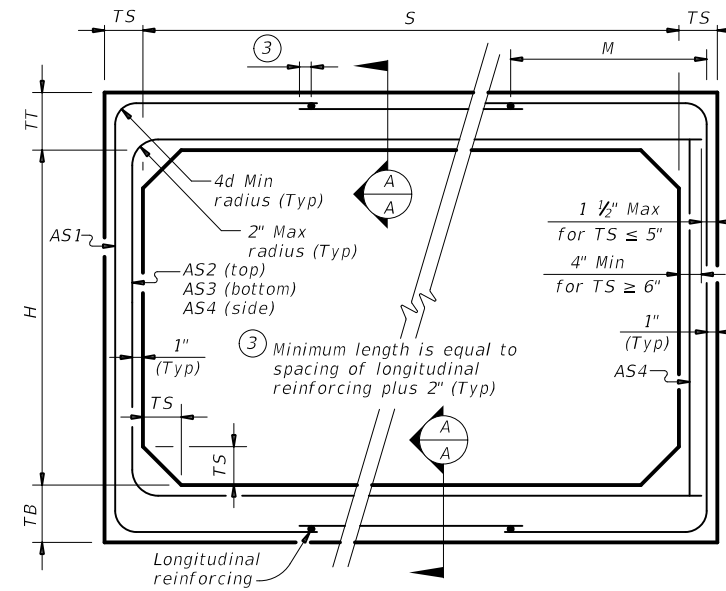
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BOX DATA

| SECTION DIMENSIONS | | | | | Fill Height (ft.) | M (Min) (in.) | REINFORCING (sq. in. / ft.) ⁽²⁾ | | | | | | | ⁽¹⁾ Lift Weight (tons) |
|--------------------|---------|----------|----------|----------|-------------------|---------------|--|------|------|------|------|------|------|-----------------------------------|
| S (ft.) | H (ft.) | TT (in.) | TB (in.) | TS (in.) | | | AS1 | AS2 | AS3 | AS4 | AS5 | AS7 | AS8 | |
| 8 | 3 | 8 | 8 | 8 | < 2 | - | 0.31 | 0.35 | 0.25 | 0.19 | 0.19 | 0.19 | 0.19 | 10.4 |
| 8 | 3 | 8 | 8 | 8 | 2 < 3 | 55 | 0.35 | 0.29 | 0.28 | 0.19 | - | - | - | 10.4 |
| 8 | 3 | 8 | 8 | 8 | 3 - 5 | 50 | 0.28 | 0.23 | 0.24 | 0.19 | - | - | - | 10.4 |
| 8 | 3 | 8 | 8 | 8 | 10 | 45 | 0.29 | 0.25 | 0.26 | 0.19 | - | - | - | 10.4 |
| 8 | 3 | 8 | 8 | 8 | 15 | 45 | 0.39 | 0.33 | 0.34 | 0.19 | - | - | - | 10.4 |
| 8 | 3 | 8 | 8 | 8 | 20 | 45 | 0.51 | 0.43 | 0.44 | 0.19 | - | - | - | 10.4 |
| 8 | 3 | 8 | 8 | 8 | 25 | 45 | 0.63 | 0.53 | 0.54 | 0.19 | - | - | - | 10.4 |
| 8 | 4 | 8 | 8 | 8 | < 2 | - | 0.27 | 0.38 | 0.29 | 0.19 | 0.19 | 0.19 | 0.19 | 11.2 |
| 8 | 4 | 8 | 8 | 8 | 2 < 3 | 50 | 0.31 | 0.34 | 0.32 | 0.19 | - | - | - | 11.2 |
| 8 | 4 | 8 | 8 | 8 | 3 - 5 | 50 | 0.25 | 0.27 | 0.27 | 0.19 | - | - | - | 11.2 |
| 8 | 4 | 8 | 8 | 8 | 10 | 45 | 0.26 | 0.28 | 0.29 | 0.19 | - | - | - | 11.2 |
| 8 | 4 | 8 | 8 | 8 | 15 | 41 | 0.34 | 0.37 | 0.38 | 0.19 | - | - | - | 11.2 |
| 8 | 4 | 8 | 8 | 8 | 20 | 41 | 0.44 | 0.48 | 0.49 | 0.19 | - | - | - | 11.2 |
| 8 | 5 | 8 | 8 | 8 | < 2 | - | 0.24 | 0.40 | 0.32 | 0.19 | 0.19 | 0.19 | 0.19 | 12.0 |
| 8 | 5 | 8 | 8 | 8 | 2 < 3 | 50 | 0.28 | 0.37 | 0.35 | 0.19 | - | - | - | 12.0 |
| 8 | 5 | 8 | 8 | 8 | 3 - 5 | 45 | 0.23 | 0.29 | 0.30 | 0.19 | - | - | - | 12.0 |
| 8 | 5 | 8 | 8 | 8 | 10 | 45 | 0.23 | 0.31 | 0.32 | 0.19 | - | - | - | 12.0 |
| 8 | 5 | 8 | 8 | 8 | 15 | 41 | 0.30 | 0.41 | 0.42 | 0.19 | - | - | - | 12.0 |
| 8 | 5 | 8 | 8 | 8 | 20 | 41 | 0.39 | 0.52 | 0.54 | 0.19 | - | - | - | 12.0 |
| 8 | 6 | 8 | 8 | 8 | < 2 | - | 0.22 | 0.42 | 0.35 | 0.19 | 0.19 | 0.19 | 0.19 | 12.8 |
| 8 | 6 | 8 | 8 | 8 | 2 < 3 | 50 | 0.25 | 0.40 | 0.38 | 0.19 | - | - | - | 12.8 |
| 8 | 6 | 8 | 8 | 8 | 3 - 5 | 50 | 0.21 | 0.32 | 0.33 | 0.19 | - | - | - | 12.8 |
| 8 | 6 | 8 | 8 | 8 | 10 | 45 | 0.22 | 0.33 | 0.34 | 0.19 | - | - | - | 12.8 |
| 8 | 6 | 8 | 8 | 8 | 15 | 41 | 0.28 | 0.43 | 0.45 | 0.19 | - | - | - | 12.8 |
| 8 | 6 | 8 | 8 | 8 | 20 | 41 | 0.36 | 0.55 | 0.57 | 0.19 | - | - | - | 12.8 |
| 8 | 7 | 8 | 8 | 8 | < 2 | - | 0.20 | 0.44 | 0.37 | 0.19 | 0.19 | 0.19 | 0.19 | 13.6 |
| 8 | 7 | 8 | 8 | 8 | 2 < 3 | 55 | 0.23 | 0.43 | 0.41 | 0.19 | - | - | - | 13.6 |
| 8 | 7 | 8 | 8 | 8 | 3 - 5 | 55 | 0.19 | 0.34 | 0.35 | 0.19 | - | - | - | 13.6 |
| 8 | 7 | 8 | 8 | 8 | 10 | 50 | 0.20 | 0.34 | 0.36 | 0.19 | - | - | - | 13.6 |
| 8 | 7 | 8 | 8 | 8 | 15 | 41 | 0.26 | 0.45 | 0.47 | 0.19 | - | - | - | 13.6 |
| 8 | 7 | 8 | 8 | 8 | 20 | 41 | 0.33 | 0.57 | 0.60 | 0.19 | - | - | - | 13.6 |
| 8 | 8 | 8 | 8 | 8 | < 2 | - | 0.20 | 0.45 | 0.40 | 0.19 | 0.19 | 0.19 | 0.19 | 14.4 |
| 8 | 8 | 8 | 8 | 8 | 2 < 3 | 65 | 0.21 | 0.45 | 0.44 | 0.19 | - | - | - | 14.4 |
| 8 | 8 | 8 | 8 | 8 | 3 - 5 | 65 | 0.19 | 0.36 | 0.38 | 0.19 | - | - | - | 14.4 |
| 8 | 8 | 8 | 8 | 8 | 10 | 55 | 0.19 | 0.35 | 0.38 | 0.19 | - | - | - | 14.4 |
| 8 | 8 | 8 | 8 | 8 | 15 | 45 | 0.24 | 0.46 | 0.49 | 0.19 | - | - | - | 14.4 |
| 8 | 8 | 8 | 8 | 8 | 20 | 45 | 0.31 | 0.59 | 0.62 | 0.19 | - | - | - | 14.4 |

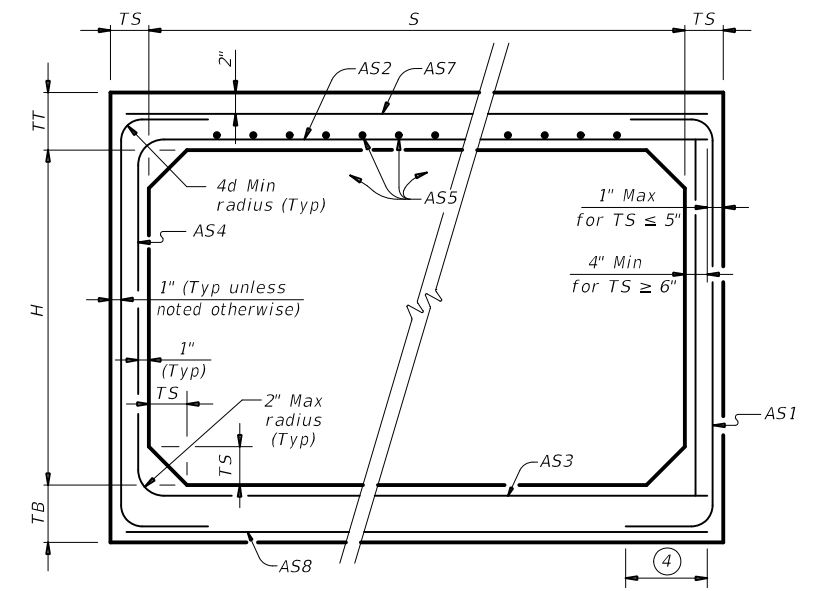
⁽¹⁾ For box length = 8'-0"

⁽²⁾ AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.



CORNER OPTION "A" CORNER OPTION "B"

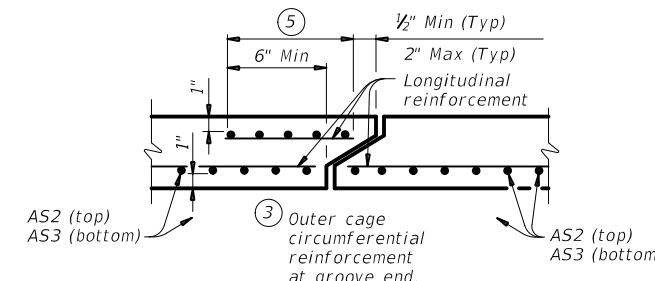
FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

⁽⁴⁾ Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
 Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
 Provide Class H concrete (f'c = 5,000 psi).

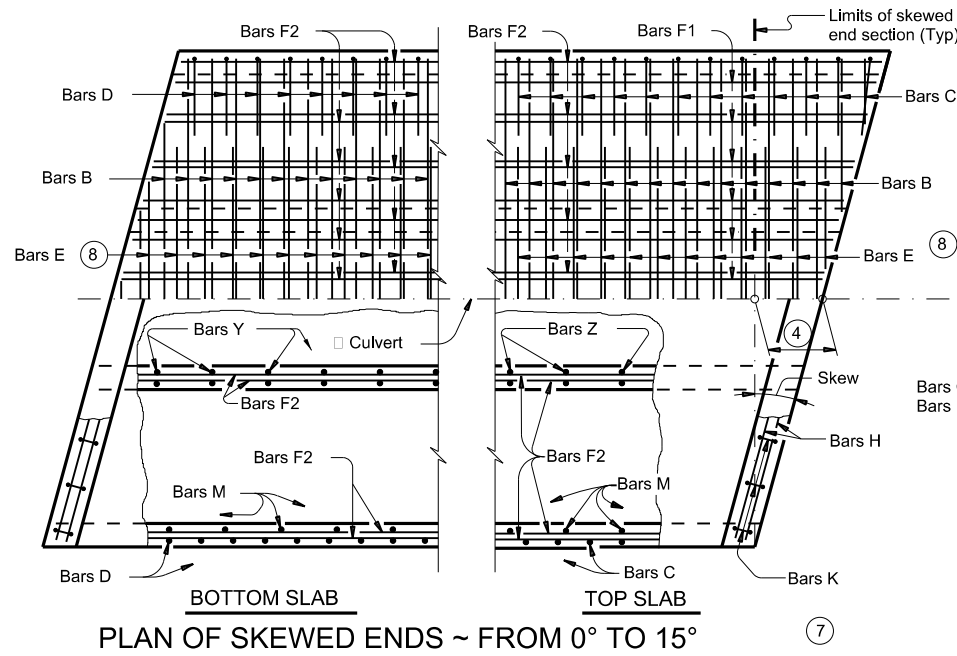
GENERAL NOTES:
 Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
 See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
 In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)".

HL93 LOADING

| | | | |
|---|----------------|--------------------------|------------------|
| | | Bridge Division Standard | |
| SINGLE BOX CULVERTS PRECAST 8'-0" SPAN | | | |
| SCP-8 | | | |
| FILE: scp08sts-20.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT |
| ©TxDOT | CONTRACT: 0867 | SECTION: 01 | JOB: 017 |
| REVISIONS: | DISTRICT: WACO | | COUNTY: HAMILTON |
| | | SHEET NO. 234 | |

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DATE: FILE:

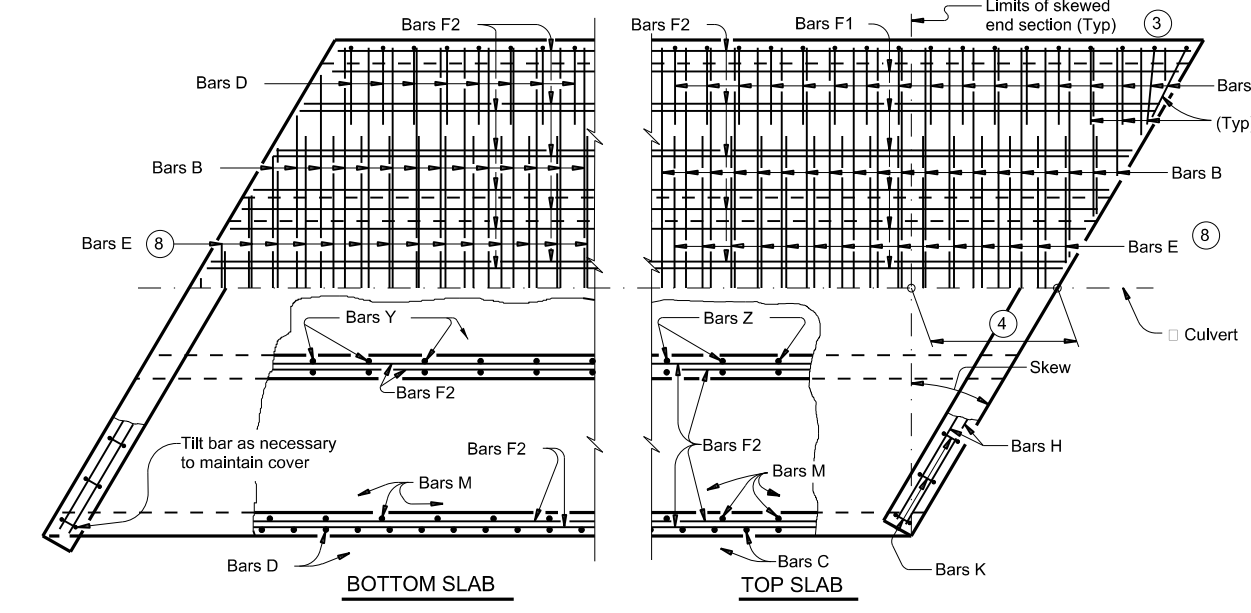


PLAN OF SKEWED ENDS ~ FROM 0° TO 15°

PLAN OF ANGLE SECTION ~ FROM 0° TO 15°

PLAN OF ANGLE SECTION ~ OVER 15° TO 30°

PLAN OF ANGLE SECTION ~ OVER 30° TO 45°



PLAN OF SKEWED ENDS ~ OVER 15° TO 30°

- ① For skewed box culverts with less than 2'-0" of fill, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension.
For non-skewed box culverts with less than 2'-0" of fill and for skewed or non-skewed culverts with a fill depth of 2'-0" or greater, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension. Alternatively, if the box is non-skewed, embed #6 anchor bars with a Type III, Class C, D, E, or F anchor adhesive into the existing walls, top and bottom slab at 1'-6" center-to-center spacing. Minimum embedment depth is 8". Anchor adhesive chosen must be able to achieve a basic bond strength in tension, Nba, of 26.4 kips. Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing." Test adhesive anchors in accordance with Item 450.3.3, "Tests." Test 3 anchors per 100 anchors installed.
Break back wings and apron as necessary to install the extension. Clean and extend the exposed wingwall and apron reinforcing into the extension. When lengthening existing box culverts with dimensions different than current standard dimensions, form horizontal and vertical transitions as directed by the Engineer. Match bottom slabs to maintain an uninterrupted flow line. Field bend existing and new reinforcing into transitions and maintain specified cover requirements. For top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface, adjust the "H" dimension to provide a smooth riding surface.
- ② When the spacing between Bars B or Bars E becomes less than half of the normal spacing, cut bars to avoid conflict.
- ③ The length of Bars B and Bars E will vary in the skewed end sections.
- ④ $[\text{One half of overall width}] \times [\text{tangent of the skew angle}]$

- ⑤ Place Bars F1 and F2 continuously through the angle section. Bend Bars F1 and F2 to remain parallel to the walls of the box culvert.
- ⑥ When necessary to avoid conflict in acute corners, shorten the slab extension leg of Bars C and Bars D to a minimum of 1'-6" for skews of 30° thru 45°.
- ⑦ At the Contractor's option, for skews of 15° or less, place Bars B, C, D, and E parallel to the skewed end while maintaining spacing along centerline of box. Increase lengths of Bars B and Bars E shown on the Multiple Box Culverts Cast-In-Place (MC) standard sheets to accommodate the skew.
- ⑧ Extend Bars E as shown on the MC standard sheet for direct traffic culverts.

CONSTRUCTION NOTES:

Do not use permanent forms.
When required, lap Bars H 1'-8" for uncoated or galvanized bars.
Provide a minimum of 1 1/2" clear cover.

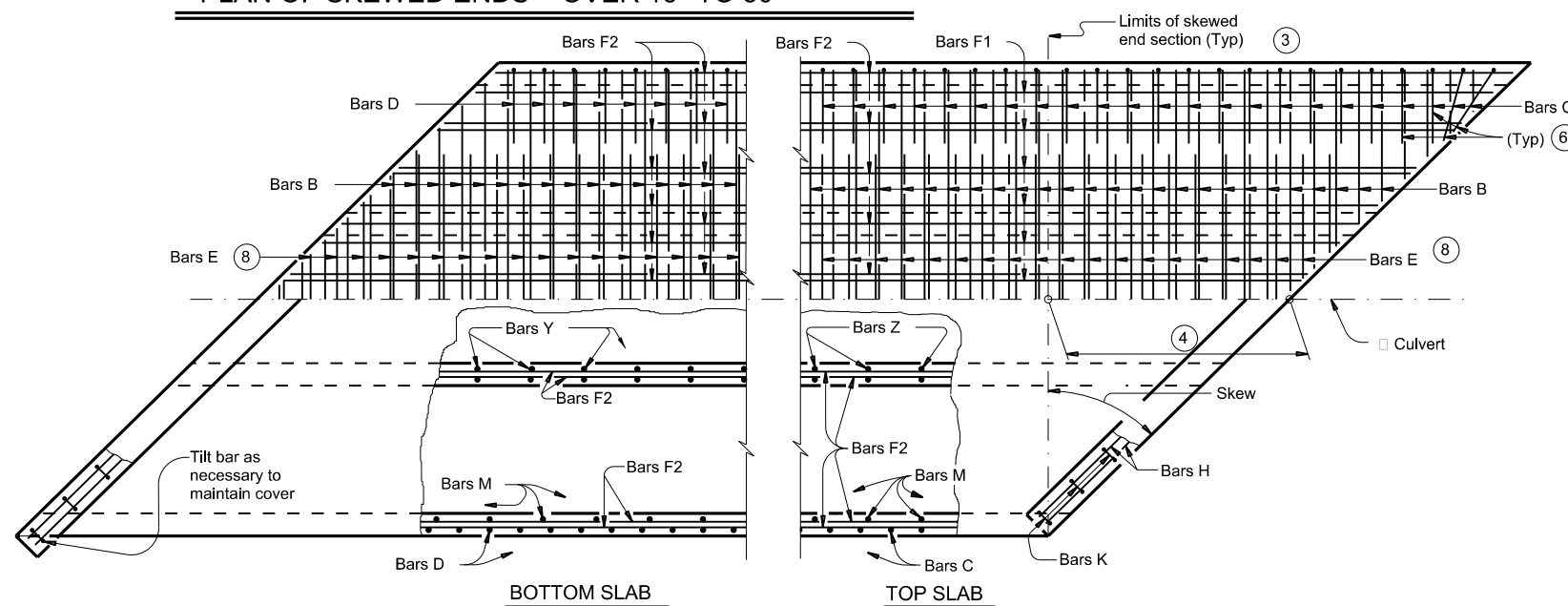
MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel, if required elsewhere in the plans.
Provide Class C concrete ($f_c = 3,600$ psi) with these exceptions:
provide Class S concrete ($f_c = 4,000$ psi) for top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface.

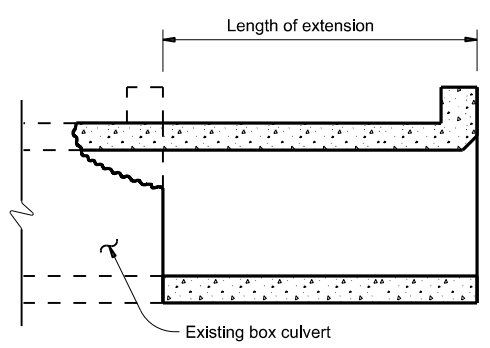
GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to Multiple Box Culverts Cast-In-Place (MC) standard sheets for details of straight sections of culvert.
For skewed sections and angle sections, refer to Multiple Box Culverts Cast-In-Place (MC) standard sheets for slab and wall dimensions, bar sizes, maximum bar spacing, and any other details not shown.
For skewed ends with curbs, adjust length of Bars H, number of Bars K, curb concrete volume, and reinforcing steel weight by dividing the values shown on the Multiple Box Culverts Cast-In-Place (MC) standard sheets by the cosine of the skew angle.

Cover dimensions are clear dimensions, unless noted otherwise.



PLAN OF SKEWED ENDS ~ OVER 30° TO 45°



LENGTHENING DETAIL

HL93 LOADING



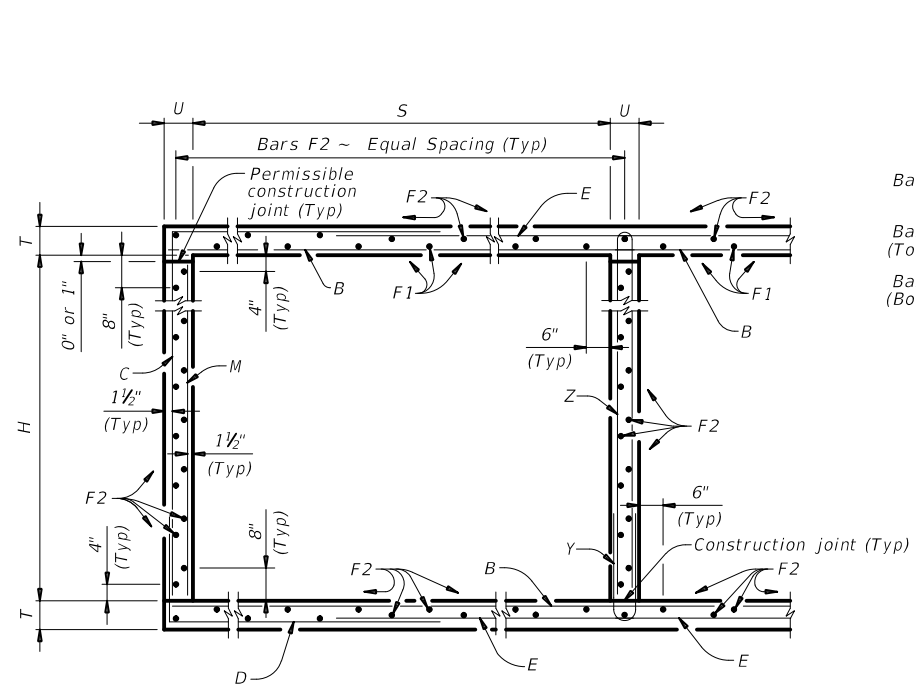
**MULTIPLE BOX CULVERTS
CAST-IN-PLACE
MISCELLANEOUS DETAILS**

MC-MD

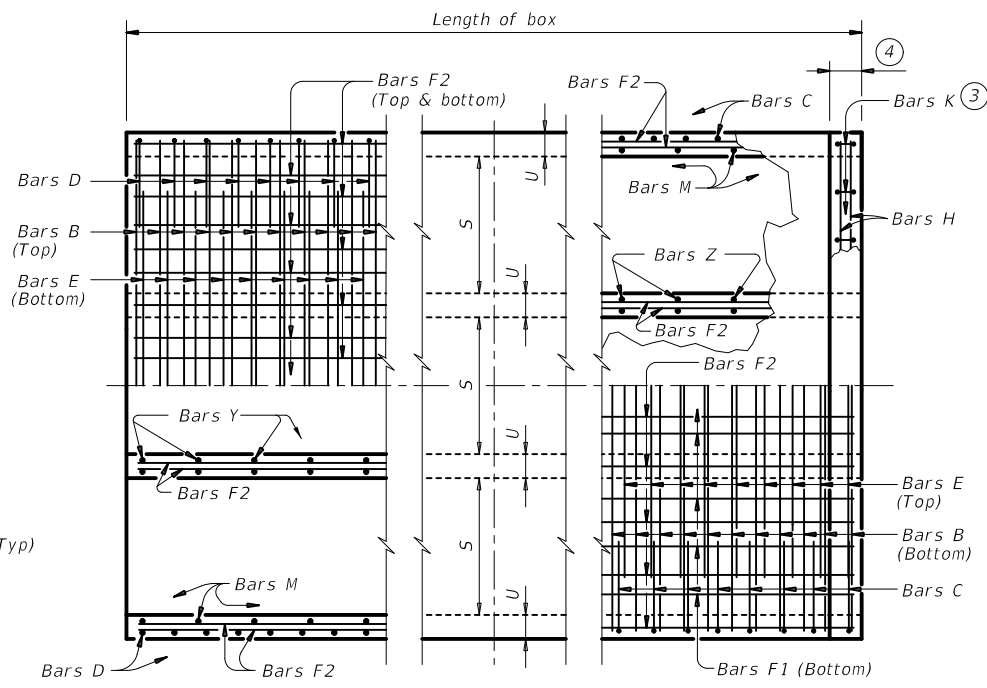
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| ©TxDOT February 2020 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| DIST | COUNTY | | SHEET NO. | |
| WAC | HAMILTON | | 235 | |

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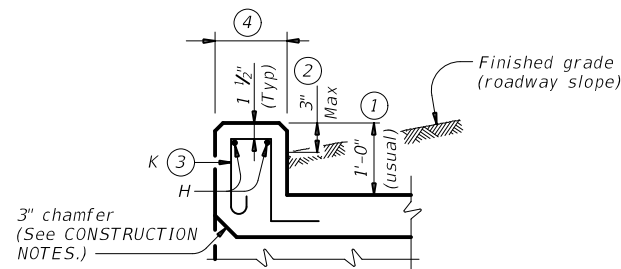
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TYPICAL SECTION

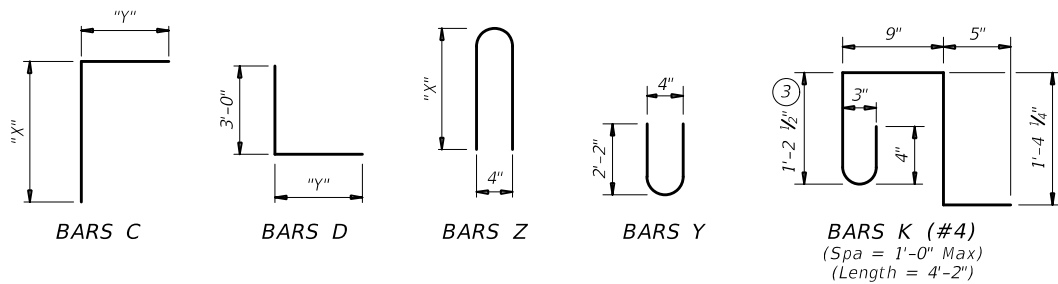


BOTTOM SLAB
PART PLANS
TOP SLAB



SECTION THRU CURB

| TABLE OF BAR DIMENSIONS | | |
|-------------------------|-----------|-------|
| H | "X" | "Y" |
| 3'-0" | 3'-6 1/2" | 5'-1" |
| 4'-0" | 4'-6 1/2" | 5'-1" |
| 5'-0" | 5'-6 1/2" | 5'-1" |
| 6'-0" | 6'-6 1/2" | 5'-1" |
| 7'-0" | 7'-6 1/2" | 5'-1" |
| 8'-0" | 8'-6 1/2" | 5'-1" |



- 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
- For vehicle safety, the following requirements must be met:
 - For structures without bridge rail, construct curbs no more than 3" above finished grade.
 - For structures with bridge rail, construct curbs flush with finished grade. Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.
- 1'-0" typical. 2'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR
 Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
 If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'-1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

CONSTRUCTION NOTES:
 Do not use permanent forms.
 Chamfer the bottom edge of the top slab 3" at the entrance.
 Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed, and Bars Y and Z may be reversed.

MATERIAL NOTES:
 Provide Grade 60 reinforcing steel.
 Provide galvanized reinforcing steel if required elsewhere in the plans.
 Provide Class C concrete (f'c = 3,600 psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete (f'c = 4,000 psi) for top slabs of:
 • culverts with overlay,
 • culverts with 1-to-2 course surface treatment, or
 • culverts with the top slab as the final riding surface.
 Provide bar laps, where required, as follows:
 • Uncoated or galvanized ~ #4 = 1'-8" Min
 • Uncoated or galvanized ~ #5 = 2'-1" Min
 • Uncoated or galvanized ~ #6 = 2'-6" Min

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.
 See the Multiple Box Culverts Cast-In-Place Miscellaneous Detail (MC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

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

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation
 Bridge Division Standard

**MULTIPLE BOX CULVERTS
 CAST-IN-PLACE
 8'-0" SPAN
 0' TO 13' FILL**

MC-8-13

| | | | | |
|-----------------------|----------|---------|-----------|-----------|
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| ©TxDOT February 2020 | CONT | SECT | JOB | HIGHWAY |
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| DIST | COUNTY | | SHEET NO. | |
| WACO | HAMILTON | | 236 | |

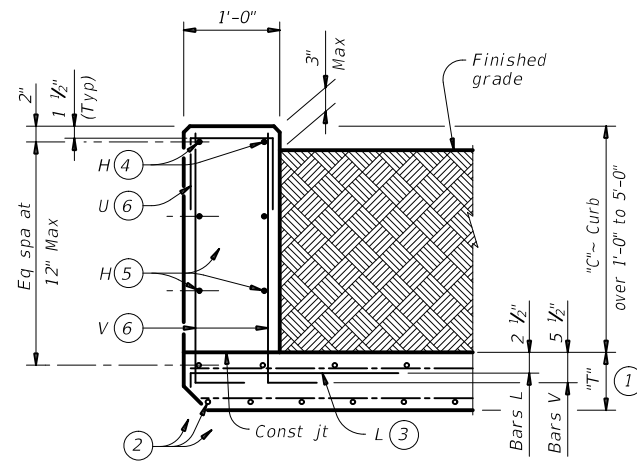
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| NUMBER OF SPANS | SECTION DIMENSIONS | | | | BILLS OF REINFORCING STEEL (For Box Length = 40 feet) | | | | | | | | | | | | | | | | | | | | | | | | | QUANTITIES | | | | | | | | | | | | | | | | | | | | | |
|-----------------|--------------------|-------|----|----|---|------|-----|---------|--------|------------|------|-----|--------|-------|--------|-------|-----|------|-----|--------------|--------|-----|--------------|--------|-----|-------------|-----|--------|-----------------|------------|-----|--------|---------------|-----|--------|--------|--------------------|--------|-------|---------|-------|--------|-----|-------|-------|-----------|----------|-----------|----------|-----------|----------|
| | | | | | Bars B | | | | | Bars C & D | | | | | Bars E | | | | | Bars F1 ~ #4 | | | Bars F2 ~ #4 | | | Bars M ~ #4 | | | Bars Y & Z ~ #4 | | | | Bars H 4 ~ #4 | | Bars K | | Per Foot of Barrel | | Curb | | Total | | | | | | | | | | |
| | S | H | T | U | No. | Size | Spa | Length | Wt | No. | Size | Spa | Bars C | | Bars D | | No. | Size | Spa | Length | Wt | No. | Spa | Length | Wt | No. | Spa | Length | Wt | No. | Spa | Length | Wt | No. | Spa | Length | Wt | Bars Y | | Bars Z | | Length | Wt | No. | Wt | Conc (CY) | Ref (Lb) | Conc (CY) | Ref (Lb) | Conc (CY) | Ref (Lb) |
| | | | | | | | | | | | | | Length | Wt | Length | Wt | | | | | | | | | | | | | | | | | | | | | | Length | Wt | Length | Wt | | | | | | | | | | |
| 2 | 8'-0" | 3'-0" | 8" | 7" | 162 | #6 | 6" | 17'-6" | 4,258 | 108 | #6 | 9" | 8'-8" | 1,406 | 8'-2" | 1,325 | 162 | #6 | 6" | 12'-9" | 3,102 | 12 | 18" | 39'-9" | 319 | 56 | 18" | 39'-9" | 1,487 | 108 | 9" | 3'-0" | 216 | 54 | 9" | 4'-7" | 165 | 7'-3" | 262 | 17'-6" | 47 | 38 | 106 | 1.071 | 313.5 | 1.3 | 153 | 44.2 | 12,693 | | |
| 3 | 8'-0" | 3'-0" | 8" | 7" | 162 | #6 | 6" | 26'-1" | 6,347 | 108 | #6 | 9" | 8'-8" | 1,406 | 8'-2" | 1,325 | 162 | #6 | 6" | 21'-4" | 5,191 | 18 | 18" | 39'-9" | 478 | 80 | 18" | 39'-9" | 2,124 | 108 | 9" | 3'-0" | 216 | 108 | 9" | 4'-7" | 331 | 7'-3" | 523 | 26'-1" | 70 | 56 | 156 | 1.560 | 448.5 | 1.9 | 226 | 64.3 | 18,167 | | |
| 4 | 8'-0" | 3'-0" | 8" | 7" | 162 | #6 | 6" | 34'-8" | 8,435 | 108 | #6 | 9" | 8'-8" | 1,406 | 8'-2" | 1,325 | 162 | #6 | 6" | 29'-11" | 7,279 | 24 | 18" | 39'-9" | 637 | 104 | 18" | 39'-9" | 2,762 | 108 | 9" | 3'-0" | 216 | 162 | 9" | 4'-7" | 496 | 7'-3" | 785 | 34'-8" | 93 | 72 | 200 | 2.048 | 583.5 | 2.6 | 293 | 84.5 | 23,634 | | |
| 5 | 8'-0" | 3'-0" | 8" | 7" | 162 | #6 | 6" | 43'-3" | 10,524 | 108 | #6 | 9" | 8'-8" | 1,406 | 8'-2" | 1,325 | 162 | #6 | 6" | 38'-6" | 9,368 | 30 | 18" | 39'-9" | 797 | 128 | 18" | 39'-9" | 3,399 | 108 | 9" | 3'-0" | 216 | 216 | 9" | 4'-7" | 661 | 7'-3" | 1,046 | 43'-3" | 116 | 90 | 251 | 2.537 | 718.6 | 3.2 | 367 | 104.7 | 29,109 | | |
| 6 | 8'-0" | 3'-0" | 8" | 7" | 162 | #6 | 6" | 51'-10" | 12,612 | 108 | #6 | 9" | 8'-8" | 1,406 | 8'-2" | 1,325 | 162 | #6 | 6" | 47'-1" | 11,457 | 36 | 18" | 39'-9" | 956 | 152 | 18" | 39'-9" | 4,036 | 108 | 9" | 3'-0" | 216 | 270 | 9" | 4'-7" | 827 | 7'-3" | 1,308 | 51'-10" | 138 | 106 | 295 | 3.026 | 853.6 | 3.8 | 433 | 124.9 | 34,576 | | |
| 2 | 8'-0" | 4'-0" | 8" | 7" | 162 | #6 | 6" | 17'-6" | 4,258 | 108 | #6 | 9" | 9'-8" | 1,568 | 8'-2" | 1,325 | 162 | #6 | 6" | 12'-9" | 3,102 | 12 | 18" | 39'-9" | 319 | 56 | 18" | 39'-9" | 1,487 | 108 | 9" | 4'-0" | 289 | 54 | 9" | 4'-7" | 165 | 9'-3" | 334 | 17'-6" | 47 | 38 | 106 | 1.136 | 321.2 | 1.3 | 153 | 46.8 | 13,000 | | |
| 3 | 8'-0" | 4'-0" | 8" | 7" | 162 | #6 | 6" | 26'-1" | 6,347 | 108 | #6 | 9" | 9'-8" | 1,568 | 8'-2" | 1,325 | 162 | #6 | 6" | 21'-4" | 5,191 | 18 | 18" | 39'-9" | 478 | 80 | 18" | 39'-9" | 2,124 | 108 | 9" | 4'-0" | 289 | 108 | 9" | 4'-7" | 331 | 9'-3" | 667 | 26'-1" | 70 | 56 | 156 | 1.646 | 458.0 | 1.9 | 226 | 67.8 | 18,546 | | |
| 4 | 8'-0" | 4'-0" | 8" | 7" | 162 | #6 | 6" | 34'-8" | 8,435 | 108 | #6 | 9" | 9'-8" | 1,568 | 8'-2" | 1,325 | 162 | #6 | 6" | 29'-11" | 7,279 | 24 | 18" | 39'-9" | 637 | 104 | 18" | 39'-9" | 2,762 | 108 | 9" | 4'-0" | 289 | 162 | 9" | 4'-7" | 496 | 9'-3" | 1,001 | 34'-8" | 93 | 72 | 200 | 2.156 | 594.8 | 2.6 | 293 | 88.8 | 24,085 | | |
| 5 | 8'-0" | 4'-0" | 8" | 7" | 162 | #6 | 6" | 43'-3" | 10,524 | 108 | #6 | 9" | 9'-8" | 1,568 | 8'-2" | 1,325 | 162 | #6 | 6" | 38'-6" | 9,368 | 30 | 18" | 39'-9" | 797 | 128 | 18" | 39'-9" | 3,399 | 108 | 9" | 4'-0" | 289 | 216 | 9" | 4'-7" | 661 | 9'-3" | 1,335 | 43'-3" | 116 | 90 | 251 | 2.667 | 731.7 | 3.2 | 367 | 109.9 | 29,633 | | |
| 6 | 8'-0" | 4'-0" | 8" | 7" | 162 | #6 | 6" | 51'-10" | 12,612 | 108 | #6 | 9" | 9'-8" | 1,568 | 8'-2" | 1,325 | 162 | #6 | 6" | 47'-1" | 11,457 | 36 | 18" | 39'-9" | 956 | 152 | 18" | 39'-9" | 4,036 | 108 | 9" | 4'-0" | 289 | 270 | 9" | 4'-7" | 827 | 9'-3" | 1,668 | 51'-10" | 138 | 106 | 295 | 3.177 | 868.5 | 3.8 | 433 | 130.9 | 35,171 | | |
| 2 | 8'-0" | 5'-0" | 8" | 7" | 162 | #6 | 6" | 17'-6" | 4,258 | 108 | #6 | 9" | 10'-8" | 1,730 | 8'-2" | 1,325 | 162 | #6 | 6" | 12'-9" | 3,102 | 12 | 18" | 39'-9" | 319 | 62 | 18" | 39'-9" | 1,646 | 108 | 9" | 5'-0" | 361 | 54 | 9" | 4'-7" | 165 | 11'-3" | 406 | 17'-6" | 47 | 38 | 106 | 1.201 | 332.8 | 1.3 | 153 | 49.4 | 13,465 | | |
| 3 | 8'-0" | 5'-0" | 8" | 7" | 162 | #6 | 6" | 26'-1" | 6,347 | 108 | #6 | 9" | 10'-8" | 1,730 | 8'-2" | 1,325 | 162 | #6 | 6" | 21'-4" | 5,191 | 18 | 18" | 39'-9" | 478 | 88 | 18" | 39'-9" | 2,337 | 108 | 9" | 5'-0" | 361 | 108 | 9" | 4'-7" | 331 | 11'-3" | 812 | 26'-1" | 70 | 56 | 156 | 1.733 | 472.8 | 1.9 | 226 | 71.3 | 19,138 | | |
| 4 | 8'-0" | 5'-0" | 8" | 7" | 162 | #6 | 6" | 34'-8" | 8,435 | 108 | #6 | 9" | 10'-8" | 1,730 | 8'-2" | 1,325 | 162 | #6 | 6" | 29'-11" | 7,279 | 24 | 18" | 39'-9" | 637 | 114 | 18" | 39'-9" | 3,027 | 108 | 9" | 5'-0" | 361 | 162 | 9" | 4'-7" | 496 | 11'-3" | 1,217 | 34'-8" | 93 | 72 | 200 | 2.264 | 612.7 | 2.6 | 293 | 93.1 | 24,800 | | |
| 5 | 8'-0" | 5'-0" | 8" | 7" | 162 | #6 | 6" | 43'-3" | 10,524 | 108 | #6 | 9" | 10'-8" | 1,730 | 8'-2" | 1,325 | 162 | #6 | 6" | 38'-6" | 9,368 | 30 | 18" | 39'-9" | 797 | 140 | 18" | 39'-9" | 3,717 | 108 | 9" | 5'-0" | 361 | 216 | 9" | 4'-7" | 661 | 11'-3" | 1,623 | 43'-3" | 116 | 90 | 251 | 2.796 | 752.7 | 3.2 | 367 | 115.1 | 30,473 | | |
| 6 | 8'-0" | 5'-0" | 8" | 7" | 162 | #6 | 6" | 51'-10" | 12,612 | 108 | #6 | 9" | 10'-8" | 1,730 | 8'-2" | 1,325 | 162 | #6 | 6" | 47'-1" | 11,457 | 36 | 18" | 39'-9" | 956 | 166 | 18" | 39'-9" | 4,408 | 108 | 9" | 5'-0" | 361 | 270 | 9" | 4'-7" | 827 | 11'-3" | 2,029 | 51'-10" | 138 | 106 | 295 | 3.328 | 892.6 | 3.8 | 433 | 137.0 | 36,138 | | |
| 2 | 8'-0" | 6'-0" | 8" | 7" | 162 | #6 | 6" | 17'-6" | 4,258 | 108 | #6 | 9" | 11'-8" | 1,893 | 8'-2" | 1,325 | 162 | #6 | 6" | 12'-9" | 3,102 | 12 | 18" | 39'-9" | 319 | 68 | 18" | 39'-9" | 1,806 | 108 | 9" | 6'-0" | 433 | 54 | 9" | 4'-7" | 165 | 13'-3" | 478 | 17'-6" | 47 | 38 | 106 | 1.265 | 344.5 | 1.3 | 153 | 51.9 | 13,932 | | |
| 3 | 8'-0" | 6'-0" | 8" | 7" | 162 | #6 | 6" | 26'-1" | 6,347 | 108 | #6 | 9" | 11'-8" | 1,893 | 8'-2" | 1,325 | 162 | #6 | 6" | 21'-4" | 5,191 | 18 | 18" | 39'-9" | 478 | 96 | 18" | 39'-9" | 2,549 | 108 | 9" | 6'-0" | 433 | 108 | 9" | 4'-7" | 331 | 13'-3" | 956 | 26'-1" | 70 | 56 | 156 | 1.819 | 487.6 | 1.9 | 226 | 74.7 | 19,729 | | |
| 4 | 8'-0" | 6'-0" | 8" | 7" | 162 | #6 | 6" | 34'-8" | 8,435 | 108 | #6 | 9" | 11'-8" | 1,893 | 8'-2" | 1,325 | 162 | #6 | 6" | 29'-11" | 7,279 | 24 | 18" | 39'-9" | 637 | 124 | 18" | 39'-9" | 3,293 | 108 | 9" | 6'-0" | 433 | 162 | 9" | 4'-7" | 496 | 13'-3" | 1,434 | 34'-8" | 93 | 72 | 200 | 2.372 | 630.6 | 2.6 | 293 | 97.5 | 25,518 | | |
| 5 | 8'-0" | 6'-0" | 8" | 7" | 162 | #6 | 6" | 43'-3" | 10,524 | 108 | #6 | 9" | 11'-8" | 1,893 | 8'-2" | 1,325 | 162 | #6 | 6" | 38'-6" | 9,368 | 30 | 18" | 39'-9" | 797 | 152 | 18" | 39'-9" | 4,036 | 108 | 9" | 6'-0" | 433 | 216 | 9" | 4'-7" | 661 | 13'-3" | 1,912 | 43'-3" | 116 | 90 | 251 | 2.926 | 773.7 | 3.2 | 367 | 120.3 | 31,316 | | |
| 6 | 8'-0" | 6'-0" | 8" | 7" | 162 | #6 | 6" | 51'-10" | 12,612 | 108 | #6 | 9" | 11'-8" | 1,893 | 8'-2" | 1,325 | 162 | #6 | 6" | 47'-1" | 11,457 | 36 | 18" | 39'-9" | 956 | 180 | 18" | 39'-9" | 4,780 | 108 | 9" | 6'-0" | 433 | 270 | 9" | 4'-7" | 827 | 13'-3" | 2,390 | 51'-10" | 138 | 106 | 295 | 3.479 | 916.8 | 3.8 | 433 | 143.0 | 37,106 | | |
| 2 | 8'-0" | 7'-0" | 8" | 7" | 162 | #6 | 6" | 17'-6" | 4,258 | 108 | #6 | 9" | 12'-8" | 2,055 | 8'-2" | 1,325 | 162 | #6 | 6" | 12'-9" | 3,102 | 12 | 18" | 39'-9" | 319 | 68 | 18" | 39'-9" | 1,806 | 108 | 9" | 7'-0" | 505 | 54 | 9" | 4'-7" | 165 | 15'-3" | 550 | 17'-6" | 47 | 38 | 106 | 1.330 | 352.1 | 1.3 | 153 | 54.5 | 14,238 | | |
| 3 | 8'-0" | 7'-0" | 8" | 7" | 162 | #6 | 6" | 26'-1" | 6,347 | 108 | #6 | 9" | 12'-8" | 2,055 | 8'-2" | 1,325 | 162 | #6 | 6" | 21'-4" | 5,191 | 18 | 18" | 39'-9" | 478 | 96 | 18" | 39'-9" | 2,549 | 108 | 9" | 7'-0" | 505 | 108 | 9" | 4'-7" | 331 | 15'-3" | 1,100 | 26'-1" | 70 | 56 | 156 | 1.905 | 497.0 | 1.9 | 226 | 78.1 | 20,107 | | |
| 4 | 8'-0" | 7'-0" | 8" | 7" | 162 | #6 | 6" | 34'-8" | 8,435 | 108 | #6 | 9" | 12'-8" | 2,055 | 8'-2" | 1,325 | 162 | #6 | 6" | 29'-11" | 7,279 | 24 | 18" | 39'-9" | 637 | 124 | 18" | 39'-9" | 3,293 | 108 | 9" | 7'-0" | 505 | 162 | 9" | 4'-7" | 496 | 15'-3" | 1,650 | 34'-8" | 93 | 72 | 200 | 2.480 | 641.9 | 2.6 | 293 | 101.8 | 25,968 | | |
| 5 | 8'-0" | 7'-0" | 8" | 7" | 162 | #6 | 6" | 43'-3" | 10,524 | 108 | #6 | 9" | 12'-8" | 2,055 | 8'-2" | 1,325 | 162 | #6 | 6" | 38'-6" | 9,368 | 30 | 18" | 39'-9" | 797 | 152 | 18" | 39'-9" | 4,036 | 108 | 9" | 7'-0" | 505 | 216 | 9" | 4'-7" | 661 | 15'-3" | 2,200 | 43'-3" | 116 | 90 | 251 | 3.056 | 786.8 | 3.2 | 367 | 125.5 | 31,838 | | |
| 6 | 8'-0" | 7'-0" | 8" | 7" | 162 | #6 | 6" | 51'-10" | 12,612 | 108 | #6 | 9" | 12'-8" | 2,055 | 8'-2" | 1,325 | 162 | #6 | 6" | 47'-1" | 11,457 | 36 | 18" | 39'-9" | 956 | 180 | 18" | 39'-9" | 4,780 | 108 | 9" | 7'-0" | 505 | 270 | 9" | 4'-7" | 827 | 15'-3" | 2,750 | 51'-10" | 138 | 106 | 295 | 3.631 | 931.7 | 3.8 | 433 | 149.1 | 37,700 | | |
| 2 | 8'-0" | 8'-0" | 8" | 7" | 162 | #6 | 6" | 17'-6" | 4,258 | 108 | #6 | 9" | 13'-8" | 2,217 | 8'-2" | 1,325 | 162 | #6 | 6" | 12'-9" | 3,102 | 12 | 18" | 39'-9" | 319 | 74 | 18" | 39'-9" | 1,965 | 108 | 9" | 8'-0" | 577 | 54 | 9" | 4'-7" | 165 | 17'-3" | 622 | 17'-6" | 47 | 38 | 106 | 1.395 | 363.8 | 1.3 | 153 | 57.1 | 14,703 | | |
| 3 | 8'-0" | 8'-0" | 8" | 7" | 162 | #6 | 6" | 26'-1" | 6,347 | 108 | #6 | 9" | 13'-8" | 2,217 | 8'-2" | 1,325 | 162 | #6 | 6" | 21'-4" | 5,191 | 18 | 18" | 39'-9" | 478 | 104 | 18" | 39'-9" | 2,762 | 108 | 9" | 8'-0" | 577 | 108 | 9" | 4'-7" | 331 | 17'-3" | 1,244 | 26'-1" | 70 | 56 | 156 | 1.992 | 511.8 | 1.9 | 226 | 81.6 | 20,698 | | |
| 4 | 8'-0" | 8'-0" | 8" | 7" | 162 | #6 | 6" | 34'-8" | 8,435 | 108 | #6 | 9" | 13'-8" | 2,217 | 8'-2" | 1,325 | 162 | #6 | 6" | 29'-11" | 7,279 | 24 | 18" | 39'-9" | 637 | 134 | | | | | | | | | | | | | | | | | | | | | | | | | |

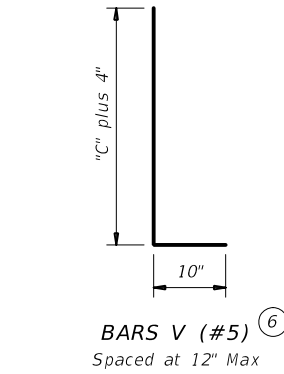
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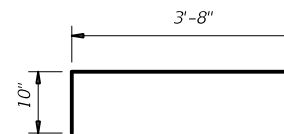


TYPICAL SECTION

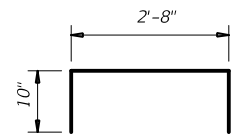
Used for curbs over 1'-0" to 5'-0"



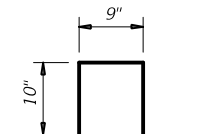
BARS V (#5)
Spaced at 12" Max



BARS L (#5)
Spaced at 12" Max



OPTIONAL BARS L (#5)
Spaced at 12" Max



BARS U (#4)
Spaced at 12" Max

- ① "T" is equal to the culvert top slab thickness. For precast boxes with slabs less than 8" thick, see SCP-MD standard for additional details.
- ② Adjust normal culvert slab bars as necessary to clear obstructions.
- ③ Place bars L as shown. Tilt hook as necessary to maintain cover.
- ④ Place normal culvert curb bars H(#4) as shown. Adjust as necessary to clear obstructions.
- ⑤ Additional bars H(#4) as required to maintain 12" Max spacing.
- ⑥ Replace normal culvert curb bars K with one bar U and two bars V as shown spaced at 12" Max. Adjust length of bars V as necessary to maintain clear cover.
- ⑦ Optional bars L are to be used only for precast box culverts with 3'-0" closure pour.
- ⑧ Quantities shown are for Contractor's information only. Quantities are per linear foot of curb length. The value in table can be interpolated for intermediate values of curb height, "C". Quantity includes bars K (when applicable).

| TABLE OF ESTIMATED CURB QUANTITIES ^⑧ | | |
|---|--------------|---------------------|
| Curb Height "C" | Conc (CY/LF) | Reinf Steel (Lb/LF) |
| 1'-0" | 0.037 | 10.4 |
| 1'-6" | 0.056 | 14.5 |
| 2'-0" | 0.074 | 15.6 |
| 2'-6" | 0.093 | 18.0 |
| 3'-0" | 0.111 | 19.0 |
| 3'-6" | 0.130 | 21.3 |
| 4'-0" | 0.148 | 22.4 |
| 4'-6" | 0.167 | 24.8 |
| 5'-0" | 0.185 | 25.9 |

CONSTRUCTION NOTES:
 Adjust reinforcing steel as necessary to provide 1 1/4" cover.
 For vehicle safety, top of the curb must not project more than 3" above the finished grade.

MATERIAL NOTES:
 Provide Grade 60 reinforcing steel.
 Provide galvanized reinforcing steel if required elsewhere in the plans.
 Provide Class "C" concrete (f'c = 3,600 psi) minimum for curbs.
 Provide bar laps, where required, as follows:
 • Uncoated or galvanized ~ #4 = 1'-8" Min

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications.
 These extended curb details have sufficient strength to allow for future retrofit of Type T631 or T631LS railing. These details are suitable for use with PR11, PR22 and PR3 type rails. These details are not suitable for the mounting of other rail types. For new construction using T631 or T631LS railing, use the T631-CM standard.
 This Curb is considered as part of the Box Culvert for payment.

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

| | | | |
|--|----------------|---------------------------------|-----------------|
| | | Bridge Division Standard | |
| EXTENDED CURB DETAILS FOR BOX CULVERTS WITH CURBS OVER 1'-0" TO 5'-0" TALL | | | |
| ECD | | | |
| FILE: ecdside1-20.dgn | DN: GAF | CK: TxDOT | DW: TxDOT |
| ©TxDOT February 2020 | CONTRACT: 0867 | SECTION: 01 | JOB: 017 |
| REVISIONS | COUNTY: WACO | | HIGHWAY: FM 932 |
| | DIST: WACO | COUNTY: HAMILTON | SHEET NO: 238 |

TABLE OF DIMENSIONS AND REINFORCING STEEL (Wings for one structure end)

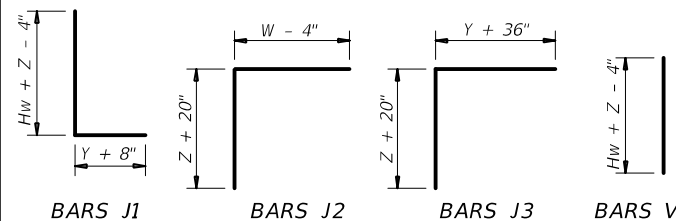
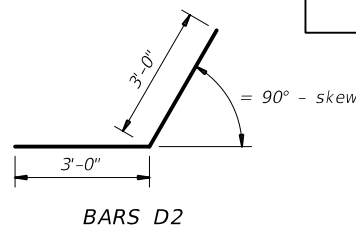
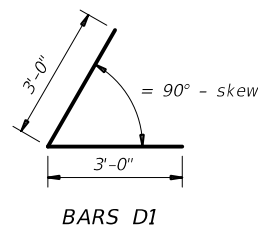
| Maximum Wingwall Height Hw | Dimensions | | | | Variable Reinforcing | | | | Estimated Quantities per ft of wing (2-wings) | | Estimated Quantities per ft of Toewall (1-toewall) | |
|----------------------------|------------|--------|--------|-------|----------------------|-------|---------|-------|---|--------------|--|--------------|
| | W | X | Y | Z | Bars J1 | | Bars J2 | | Reinf (Lb/Ft) | Conc (CY/Ft) | Reinf (Lb/Ft) | Conc (CY/Ft) |
| | | | | | Size | Spa | Size | Spa | | | | |
| 2'-6" | 2'-10" | 10" | 1'-0" | 7" | #4 | 1'-0" | #4 | 1'-0" | 48.64 | 0.406 | 6.85 | 0.071 |
| 2'-9" | 2'-10" | 10" | 1'-0" | 7" | #4 | 1'-0" | #4 | 1'-0" | 49.31 | 0.424 | 6.85 | 0.071 |
| 3'-0" | 2'-10" | 10" | 1'-0" | 7" | #4 | 1'-0" | #4 | 1'-0" | 49.98 | 0.444 | 6.85 | 0.071 |
| 3'-3" | 2'-10" | 10" | 1'-0" | 7" | #4 | 1'-0" | #4 | 1'-0" | 53.32 | 0.462 | 6.85 | 0.071 |
| 3'-6" | 2'-10" | 10" | 1'-0" | 7" | #4 | 1'-0" | #4 | 1'-0" | 53.98 | 0.480 | 6.85 | 0.071 |
| 4'-0" | 3'-2" | 1'-2" | 1'-0" | 7" | #4 | 1'-0" | #4 | 1'-0" | 55.77 | 0.532 | 6.85 | 0.071 |
| 4'-6" | 3'-2" | 1'-2" | 1'-0" | 7" | #4 | 1'-0" | #4 | 1'-0" | 59.77 | 0.568 | 6.85 | 0.071 |
| 5'-0" | 3'-9" | 1'-7" | 1'-2" | 7" | #4 | 1'-0" | #4 | 1'-0" | 63.45 | 0.632 | 6.96 | 0.075 |
| 5'-6" | 3'-9" | 1'-7" | 1'-2" | 7" | #4 | 1'-0" | #4 | 1'-0" | 67.46 | 0.668 | 6.96 | 0.075 |
| 6'-0" | 4'-4" | 2'-0" | 1'-4" | 7" | #5 | 1'-0" | #5 | 1'-0" | 80.67 | 0.730 | 7.07 | 0.078 |
| 6'-6" | 4'-4" | 2'-0" | 1'-4" | 7" | #5 | 1'-0" | #5 | 1'-0" | 85.05 | 0.768 | 7.07 | 0.078 |
| 7'-0" | 5'-0" | 2'-3" | 1'-9" | 8" | #5 | 1'-0" | #5 | 1'-0" | 92.15 | 0.864 | 8.07 | 0.093 |
| 7'-6" | 5'-0" | 2'-3" | 1'-9" | 8" | #5 | 1'-0" | #5 | 1'-0" | 96.54 | 0.902 | 8.07 | 0.093 |
| 8'-0" | 5'-6" | 2'-8" | 1'-10" | 8" | #5 | 6" | #5 | 6" | 139.04 | 0.962 | 8.13 | 0.095 |
| 8'-6" | 5'-6" | 2'-8" | 1'-10" | 8" | #5 | 6" | #5 | 6" | 144.47 | 1.000 | 8.13 | 0.095 |
| 9'-6" | 6'-0" | 2'-10" | 2'-2" | 9" | #5 | 6" | #5 | 6" | 156.93 | 1.136 | 8.41 | 0.110 |
| 10'-6" | 6'-5" | 3'-0" | 2'-5" | 9" | #6 | 6" | #5 | 6" | 196.27 | 1.234 | 8.57 | 0.117 |
| 11'-6" | 7'-2" | 3'-6" | 2'-8" | 11" | #6 | 6" | #6 | 6" | 230.13 | 1.438 | 9.52 | 0.140 |
| 12'-6" | 7'-8" | 3'-9" | 2'-11" | 1'-0" | #7 | 6" | #6 | 6" | 283.41 | 1.592 | 9.74 | 0.157 |
| 13'-6" | 8'-2" | 4'-0" | 3'-2" | 1'-2" | #8 | 6" | #6 | 6" | 348.72 | 1.804 | 10.02 | 0.186 |
| 14'-6" | 8'-10" | 4'-5" | 3'-5" | 1'-4" | #9 | 6" | #6 | 6" | 432.94 | 2.046 | 10.30 | 0.218 |
| 15'-6" | 9'-6" | 4'-10" | 3'-8" | 1'-6" | #9 | 6" | #7 | 6" | 489.52 | 2.302 | 11.24 | 0.253 |
| 16'-0" | 9'-11" | 5'-0" | 3'-11" | 1'-7" | #9 | 6" | #7 | 6" | 505.72 | 2.448 | 11.47 | 0.279 |

TABLE OF WINGWALL REINFORCING (2-wings)

| Bar | Size | No. | Spa |
|-----|------|-----|-------|
| D1 | #6 | ~ | 1'-0" |
| D2 | #6 | ~ | 1'-0" |
| E1 | #4 | ~ | 1'-0" |
| F | #4 | ~ | 1'-0" |
| G | #6 | ~ | 8" |
| M1 | #4 | 4 | ~ |
| P | #4 | ~ | 1'-0" |
| V | #4 | ~ | 1'-0" |

TABLE OF TOEWALL REINFORCING

| Bar | Size | No. | Spa |
|-----|------|-----|-------|
| J3 | #4 | ~ | 1'-0" |
| M2 | #4 | 2 | ~ |
| E2 | #4 | ~ | 1'-0" |



WING DIMENSION FORMULAS:

(All values are in feet.)

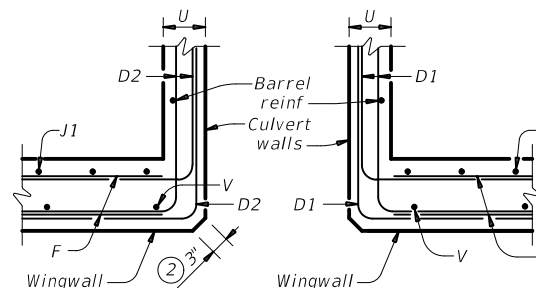
$Hw = H + T + C$
 $Lw = (Hw)(SL) \div \cosine(\theta)$ for Type PW-1
 $Lw = (Hw - 1')(SL) \div \cosine(\theta)$ for Type PW-2 and $Hw \geq 4'$
 $Lw = (Hw - 0.5')(SL) \div \cosine(\theta)$ for Type PW-2 and $Hw < 4'$

For cast-in-place culverts:
 $Ltw = [(N)(S) + (N + 1)(U)] \div \cosine(\theta)$

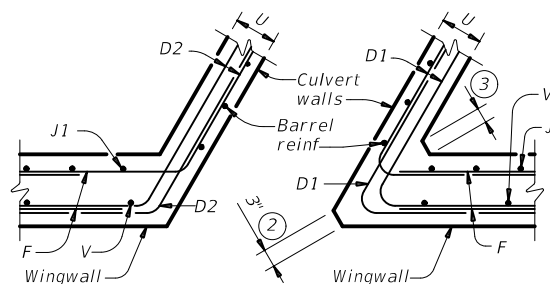
For precast culverts:
 $Ltw = [(N)(2U + S) + (N - 1)(0.5')] \div \cosine(\theta)$
 Total Wingwall Area (two wings ~ SF)
 $= (2)(Hw)(Lw)$ for Type PW-1
 $= (2)(Hw)(Lw) - 6 SF$ for Type PW-2 and $Hw \geq 4'$
 $= (2)(Hw)(Lw) - 1.5 SF$ for Type PW-2 and $Hw < 4'$

Hw = Height of wingwall
 Lw = Length of wingwall
 Ltw = Culvert toewall length
 N = Number of culvert spans
 $SL:1$ = Channel slope ratio, (horizontal: 1 vertical, usual value is 2:1)
 θ = Culvert skew

See applicable box culvert standard sheet for S, H, T, and U values.



SECTION C-C - PW-1



SECTION C-C - PW-2

- ① Skew = 0°
- ② At discharge end, chamfer may be 3/4" minimum.
- ③ For 15° skew ~ 1"
For 30° skew ~ 2"
For 45° skew ~ 3"
- ④ Quantities shown are for two Type PW-1 wings. Adjust concrete volume for Type PW-2 wings. To determine estimated quantities for two wings, multiply the tabulated values by Lw. Quantities shown do not include weight of Bars D.
- ⑤ Provide weepholes for Hw = 5'-0" and greater. Fill around weepholes with coarse gravel.
- ⑥ Extend Bars E2 1'-6" minimum into the wingwall footing.
- ⑦ Lap Bars M1 1'-6" minimum with Bars M2.
- ⑧ Place Bars G as shown, equally spaced at 8" maximum. Provide at least two pairs of Bars G per wing.
- ⑨ 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
- ⑩ For vehicle safety, the following requirements must be met:
 - For structures without bridge rail, construct curbs no more than 3" above finished grade.
 - For structures with bridge rail, construct curbs flush with finished grade.
 Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- ⑪ 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.
- ⑫ 3'-0" for Hw < 4'.
- ⑬ 6" for Hw < 4'.

DESIGNER NOTES:

Type PW-1 can be used for all applications and must be used if railing is to be mounted to the wingwall. Type PW-2 can only be used for applications without a railing mounted to the wingwall.

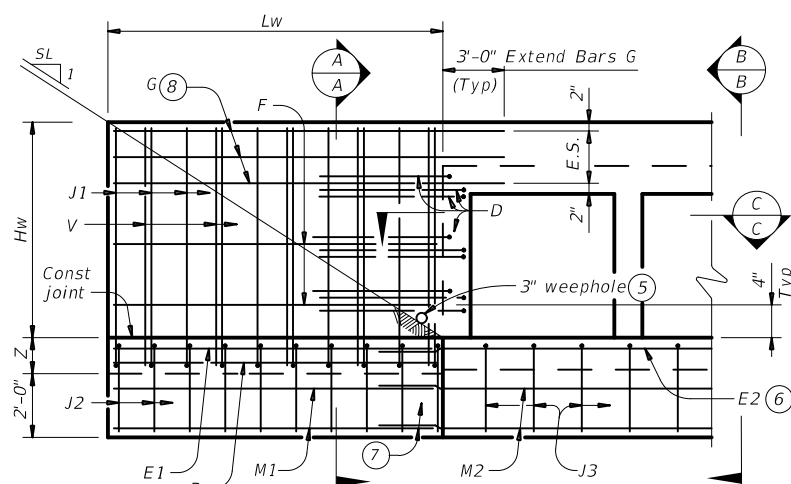
MATERIAL NOTES:

Provide Class C concrete (f'c=3,600 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.

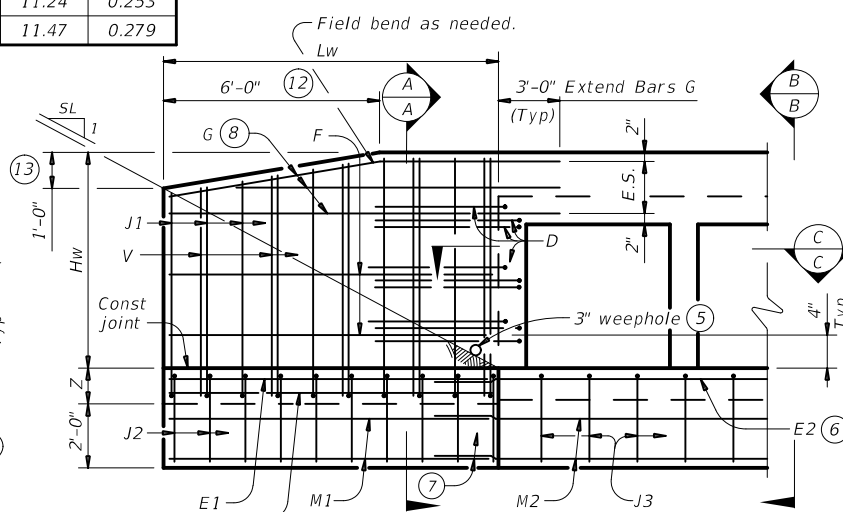
GENERAL NOTES:

Designed in accordance with AASHTO LRFD Bridge Design Specifications.
Depth of toewalls for wingwalls and culverts may be reduced or eliminated when founded on solid rock, when directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for wingwall type and additional dimensions and information.
Quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for the Contractor's information only.

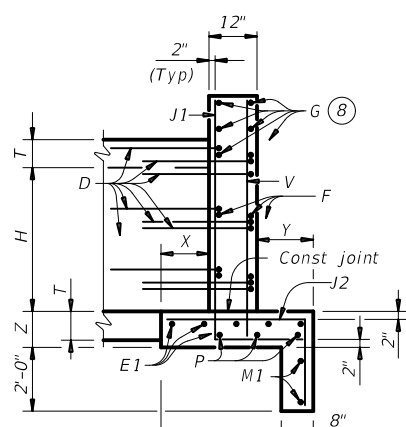
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing dimensions are out-to-out of bars.



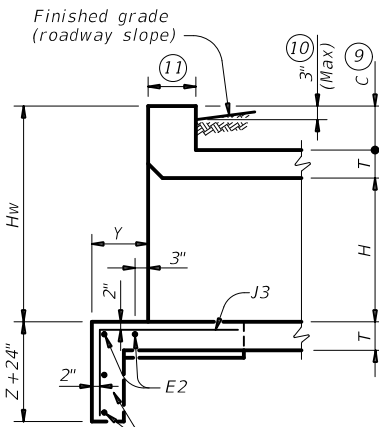
PARTIAL ELEVATION - PW-1



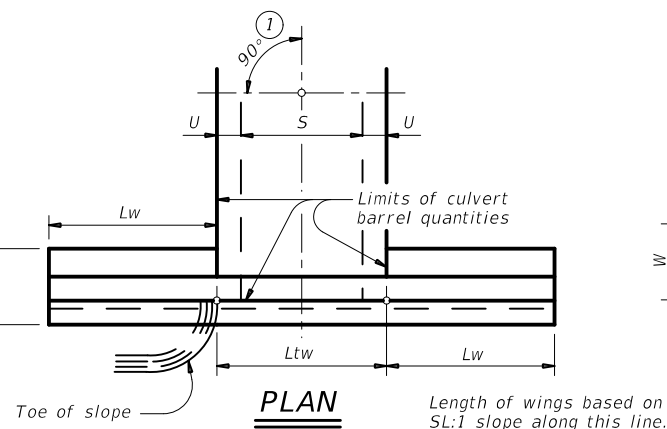
PARTIAL ELEVATION - PW-2



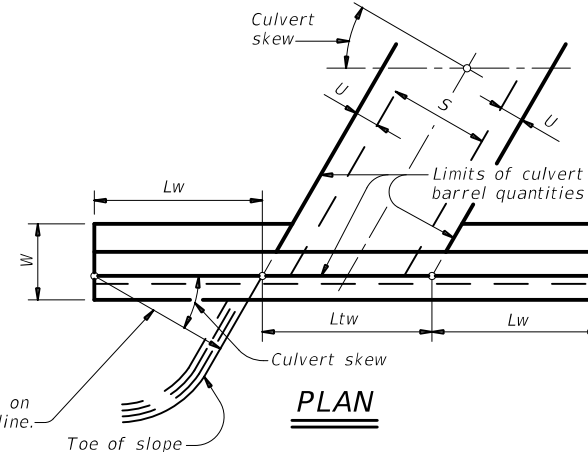
SECTION A-A
(Showing wing reinforcement.)



SECTION B-B
(Showing wing reinforcement.)



DETAILS FOR NON-SKEWED BOX CULVERTS



DETAILS FOR SKEWED BOX CULVERTS
(Showing 30° skew.)

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 units or for incorrect results or damages resulting from its use.

DATE: 09/01/2021 11:41:12 AM
FILE: L:\waco District\FM 932-FM 2410\CADD\Sheets\07 Drainage Detail\TxDOT\Standards\FM 932.dgn



CONCRETE WINGWALLS WITH PARALLEL WINGS FOR BOX CULVERTS TYPES PW-1 AND PW-2

PW

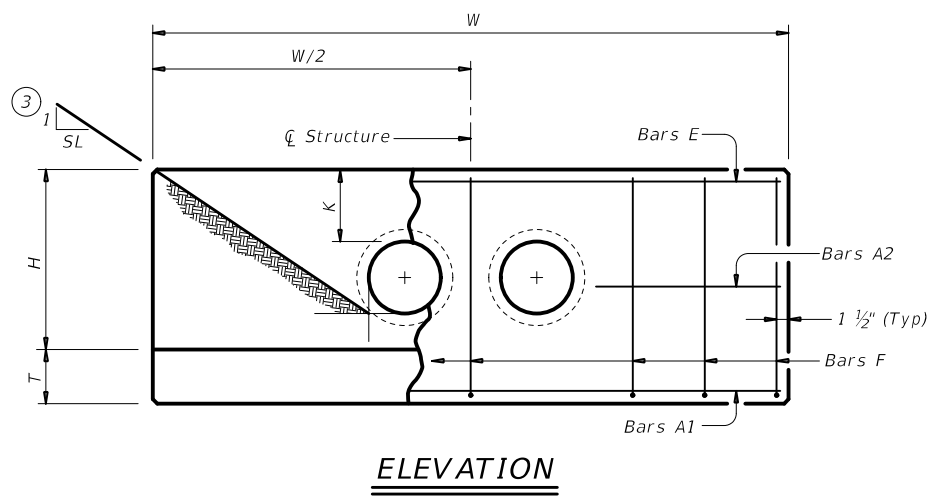
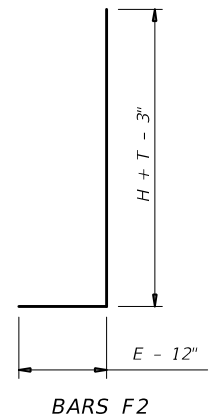
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| FILE: pwstde01-20.dgn | DN: GAF | CK: CAT | DW: TxDOT | CK: TxDOT |
| REVISIONS | CONTRACT | SECTION | JOB | HIGHWAY |
| 0867 | 01 | 017 | FM 932 | |
| DIST | COUNTY | SHEET NO. | | |
| WACO | HAMILTON | 239 | | |

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 or for incorrect results or damages resulting from its use.

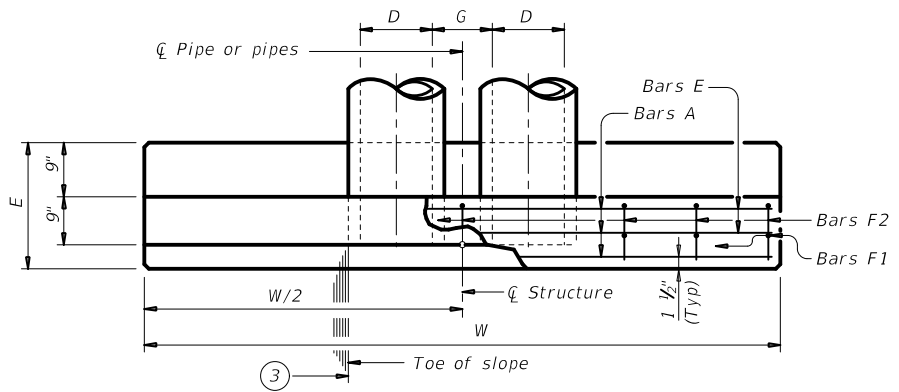
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FILE: L:\waco\District\932_FM_2410\CADD\Sheets\07_Drainage_Detail\std\std\932_fm_2410.dgn

**TABLE OF VARIABLE DIMENSIONS ⁽⁵⁾
AND QUANTITIES FOR ONE HEADWALL**

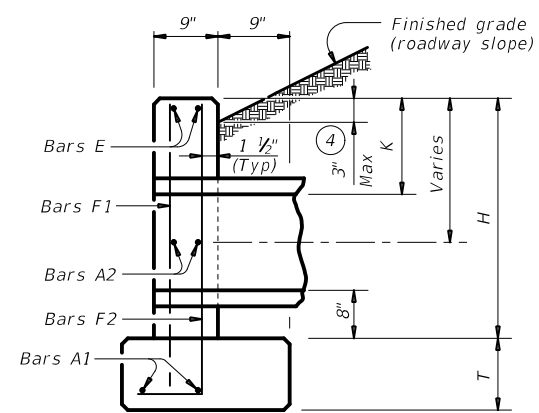
| Slope Dia of Pipe (D) | Values for One Pipe | | | Values To Be Added for Each Add'l Pipe | | | |
|--------------------------|---------------------|-----------------|---------------|--|-----------------|---------------|-----|
| | W | Reinf (Lbs) (1) | Conc (CY) (2) | W | Reinf (Lbs) (1) | Conc (CY) (2) | |
| 2:1 | 12" | 9' - 0" | 122 | 1.1 | 1' - 9" | 15 | 0.2 |
| | 15" | 10' - 3" | 136 | 1.3 | 2' - 2" | 16 | 0.2 |
| | 18" | 11' - 6" | 163 | 1.5 | 2' - 8" | 19 | 0.3 |
| | 21" | 12' - 9" | 200 | 1.8 | 3' - 1" | 31 | 0.4 |
| | 24" | 14' - 0" | 217 | 2.1 | 3' - 7" | 34 | 0.4 |
| | 27" | 15' - 3" | 254 | 2.4 | 3' - 11" | 37 | 0.5 |
| | 30" | 16' - 6" | 272 | 2.7 | 4' - 4" | 40 | 0.6 |
| | 33" | 17' - 9" | 314 | 3.1 | 4' - 8" | 43 | 0.6 |
| | 36" | 19' - 0" | 371 | 3.9 | 5' - 1" | 46 | 0.8 |
| | 42" | 21' - 6" | 442 | 4.9 | 5' - 10" | 52 | 1.0 |
| 48" | 25' - 0" | 569 | 6.4 | 6' - 7" | 59 | 1.3 | |
| 54" | 27' - 6" | 701 | 7.5 | 7' - 6" | 82 | 1.6 | |
| 60" | 30' - 0" | 794 | 8.8 | 8' - 3" | 90 | 1.8 | |
| 66" | 32' - 6" | 894 | 10.2 | 8' - 9" | 96 | 2.0 | |
| 72" | 35' - 0" | 1,055 | 11.7 | 9' - 4" | 103 | 2.3 | |
| 3:1 | 12" | 13' - 0" | 175 | 1.6 | 1' - 9" | 14 | 0.2 |
| | 15" | 14' - 9" | 193 | 1.9 | 2' - 2" | 17 | 0.2 |
| | 18" | 16' - 6" | 228 | 2.2 | 2' - 8" | 19 | 0.3 |
| | 21" | 18' - 3" | 299 | 2.6 | 3' - 1" | 31 | 0.4 |
| | 24" | 20' - 0" | 323 | 3.0 | 3' - 7" | 33 | 0.4 |
| | 27" | 21' - 9" | 371 | 3.5 | 3' - 11" | 37 | 0.5 |
| | 30" | 23' - 6" | 415 | 4.0 | 4' - 4" | 40 | 0.5 |
| | 33" | 25' - 3" | 469 | 4.6 | 4' - 8" | 43 | 0.6 |
| | 36" | 27' - 0" | 556 | 5.7 | 5' - 1" | 46 | 0.8 |
| | 42" | 30' - 6" | 675 | 7.1 | 5' - 10" | 52 | 1.0 |
| 48" | 35' - 6" | 837 | 9.2 | 6' - 7" | 59 | 1.3 | |
| 54" | 39' - 0" | 1,015 | 11.0 | 7' - 6" | 84 | 1.6 | |
| 60" | 42' - 6" | 1,171 | 12.9 | 8' - 3" | 91 | 1.8 | |
| 66" | 46' - 0" | 1,298 | 14.9 | 8' - 9" | 98 | 2.0 | |
| 72" | 49' - 6" | 1,561 | 17.1 | 9' - 4" | 103 | 2.3 | |
| 4:1 | 12" | 17' - 0" | 229 | 2.0 | 1' - 9" | 15 | 0.2 |
| | 15" | 19' - 3" | 266 | 2.4 | 2' - 2" | 17 | 0.2 |
| | 18" | 21' - 6" | 308 | 2.9 | 2' - 8" | 19 | 0.3 |
| | 21" | 23' - 9" | 382 | 3.5 | 3' - 1" | 31 | 0.3 |
| | 24" | 26' - 0" | 430 | 3.9 | 3' - 7" | 34 | 0.4 |
| | 27" | 28' - 3" | 486 | 4.7 | 3' - 11" | 37 | 0.5 |
| | 30" | 30' - 6" | 539 | 5.2 | 4' - 4" | 40 | 0.6 |
| | 33" | 32' - 9" | 603 | 6.0 | 4' - 8" | 42 | 0.6 |
| | 36" | 35' - 0" | 738 | 7.5 | 5' - 1" | 47 | 0.8 |
| | 42" | 39' - 6" | 881 | 9.3 | 5' - 10" | 52 | 1.0 |
| 48" | 46' - 0" | 1,102 | 12.1 | 6' - 7" | 61 | 1.3 | |
| 54" | 50' - 6" | 1,364 | 14.4 | 7' - 6" | 84 | 1.6 | |
| 60" | 55' - 0" | 1,547 | 16.9 | 8' - 3" | 91 | 1.8 | |
| 66" | 59' - 6" | 1,741 | 19.5 | 8' - 9" | 98 | 2.0 | |
| 72" | 64' - 0" | 2,077 | 22.4 | 9' - 4" | 102 | 2.3 | |
| 6:1 | 12" | 25' - 0" | 336 | 3.0 | 1' - 9" | 14 | 0.2 |
| | 15" | 28' - 3" | 384 | 3.6 | 2' - 2" | 17 | 0.2 |
| | 18" | 31' - 6" | 452 | 4.2 | 2' - 8" | 19 | 0.3 |
| | 21" | 34' - 9" | 581 | 5.1 | 3' - 1" | 31 | 0.4 |
| | 24" | 38' - 0" | 644 | 5.8 | 3' - 7" | 34 | 0.4 |
| | 27" | 41' - 3" | 737 | 6.9 | 3' - 11" | 37 | 0.5 |
| | 30" | 44' - 6" | 807 | 7.7 | 4' - 4" | 39 | 0.6 |
| | 33" | 47' - 9" | 912 | 8.9 | 4' - 8" | 44 | 0.6 |
| | 36" | 51' - 0" | 1,108 | 11.0 | 5' - 1" | 48 | 0.8 |
| | 42" | 57' - 6" | 1,318 | 13.7 | 5' - 10" | 54 | 1.0 |
| 48" | 67' - 0" | 1,682 | 17.9 | 6' - 7" | 59 | 1.3 | |
| 54" | 73' - 6" | 2,072 | 21.3 | 7' - 6" | 83 | 1.6 | |
| 60" | 80' - 0" | 2,351 | 24.9 | 8' - 3" | 89 | 1.8 | |
| 66" | 86' - 6" | 2,643 | 28.9 | 8' - 9" | 96 | 2.0 | |
| 72" | 93' - 0" | 3,121 | 33.1 | 9' - 4" | 101 | 2.3 | |



ELEVATION



PLAN OF NON-SKEWED PIPES



SECTION AT CENTER OF PIPE

- ① Total quantities include one 3'-1" lap for bars over 60' in length.
- ② Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.
- ③ Indicated slope is perpendicular to centerline pipe or pipes.
- ④ For vehicle safety, construct curbs no more than 3" above finished grade. Reduce curb heights, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- ⑤ Dimensions shown are usual and maximum.
- ⑥ Quantities shown are for one structure end only (one headwall).

TABLE OF CONSTANT DIMENSIONS

| Dia of Pipe (D) | G | K ⁽⁵⁾ | H | T | E |
|-----------------|----------|------------------|----------|---------|---------|
| 12" | 0' - 9" | 1' - 0" | 2' - 8" | 0' - 9" | 1' - 9" |
| 15" | 0' - 11" | 1' - 0" | 2' - 11" | 0' - 9" | 1' - 9" |
| 18" | 1' - 2" | 1' - 0" | 3' - 2" | 0' - 9" | 1' - 9" |
| 21" | 1' - 4" | 1' - 0" | 3' - 5" | 0' - 9" | 2' - 0" |
| 24" | 1' - 7" | 1' - 0" | 3' - 8" | 0' - 9" | 2' - 0" |
| 27" | 1' - 8" | 1' - 0" | 3' - 11" | 0' - 9" | 2' - 3" |
| 30" | 1' - 10" | 1' - 0" | 4' - 2" | 0' - 9" | 2' - 3" |
| 33" | 1' - 11" | 1' - 0" | 4' - 5" | 0' - 9" | 2' - 6" |
| 36" | 2' - 1" | 1' - 0" | 4' - 8" | 1' - 0" | 2' - 6" |
| 42" | 2' - 4" | 1' - 0" | 5' - 2" | 1' - 0" | 2' - 9" |
| 48" | 2' - 7" | 1' - 3" | 5' - 11" | 1' - 0" | 3' - 0" |
| 54" | 3' - 0" | 1' - 3" | 6' - 5" | 1' - 0" | 3' - 3" |
| 60" | 3' - 3" | 1' - 3" | 6' - 11" | 1' - 0" | 3' - 6" |
| 66" | 3' - 3" | 1' - 3" | 7' - 5" | 1' - 0" | 3' - 9" |
| 72" | 3' - 4" | 1' - 3" | 7' - 11" | 1' - 0" | 4' - 0" |

**TABLE OF ⁽⁶⁾
REINFORCING STEEL**

| Bar | Size | Spa | No. |
|-----|------|---------|-----|
| A1 | #5 | ~ | 2 |
| A2 | #5 | 1' - 6" | ~ |
| E | #5 | ~ | 2 |
| F | #5 | 1' - 0" | ~ |

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide Class C concrete (f'c = 3,600 psi).

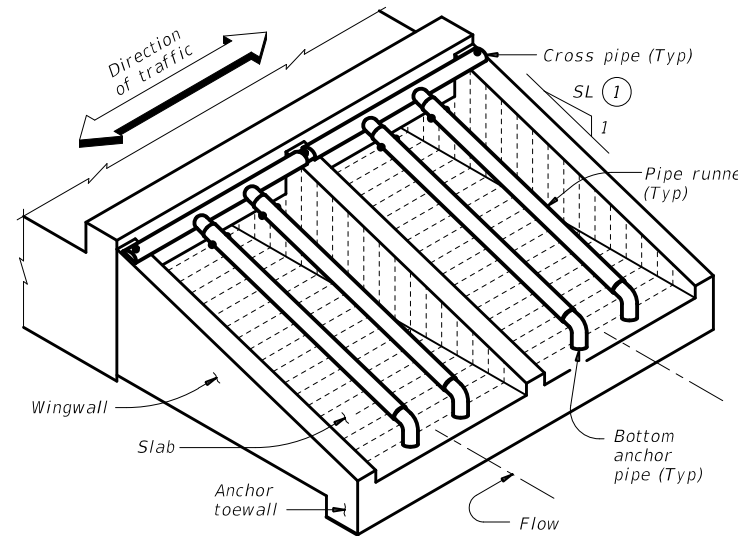
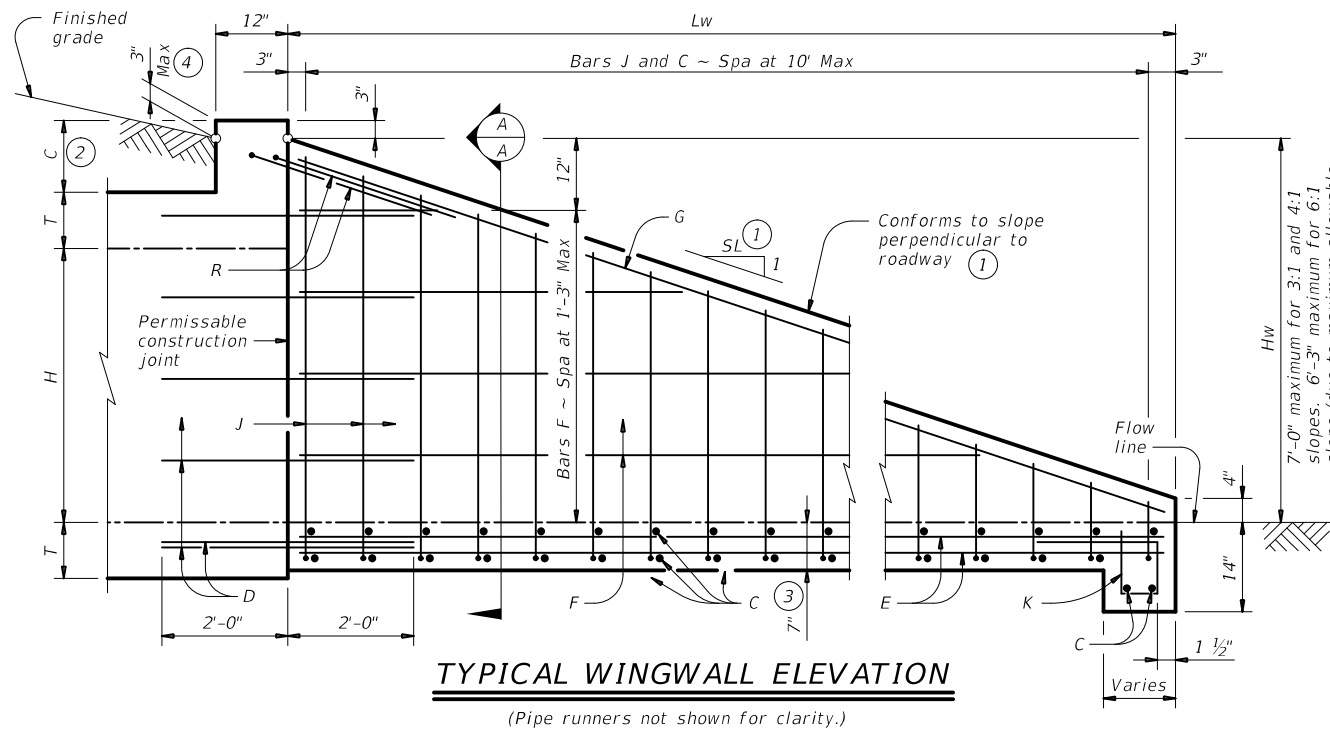
GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Do not mount bridge rails of any type directly to these culvert headwalls.
This standard may not be used for wall heights, H, exceeding the values shown.

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

| | | | |
|--|--------------------------|-----------------|------------|
| | Bridge Division Standard | | |
| CONCRETE HEADWALLS WITH PARALLEL WINGS FOR NON-SKEWED PIPE CULVERTS | | | |
| CH-PW-0 | | | |
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| ©TxDOT February 2020 | CONT | SECT | JOB |
| REVISIONS | 0867 | 01 | 017 |
| | DIST | COUNTY | SHEET NO. |
| | WACO | HAMILTON | 240 |

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WING DIMENSION CALCULATIONS:

$$H_w = H + T + C - 0.250'$$

$$L_w = (H_w - 0.333') (SL)$$

For cast-in-place culverts:
 $Atw = (N)(S) + (N + 1)(U)$

For precast culverts:
 $Atw = (N)(2U + S) + (N - 1)(0.500')$

$$\text{Total Wingwall Area (SF)} = (0.5)(H_w + 0.333')(L_w)(N + 1)$$

$$\text{Total Concrete Volume (CY)} = [(Wingwall Area)(0.583') + (L_w)(Atw)(0.583') + (Atw)(1.167')(1.167' - 0.583')] \div (27)$$

PIPE RUNNER DIMENSION CALCULATIONS:

$$\text{Pipe Runner Length} = (L_w)(K1) - (1.917')$$

$$\text{Total Reinforcing (Lb)} = (1.55)(L_w)(Atw) + (4.43)(Atw) + (K2)(H_w)(N + 1)(\sqrt{L_w})$$

C = Height of curb above top of top slab (feet)
 Hw = Height of wingwall (feet)
 K = Constant value for use in formulas

| Slope SL:1 | K1 | K2 |
|------------|---------|---------|
| 3:1 | ~ 1.054 | ~ 7.45 |
| 4:1 | ~ 1.031 | ~ 8.49 |
| 6:1 | ~ 1.014 | ~ 10.30 |

Atw = Anchor toewall length (feet)
 Lw = Length of wingwall (feet)
 N = Number of culvert barrels
 SL:1 = Side slope ratio (horizontal : 1 vertical)

See applicable box culvert standard for H, S, T, and U values.

MATERIAL NOTES:

- Provide Grade 60 reinforcing steel.
- Provide galvanized reinforcing steel if required elsewhere in the plans.
- Adjust reinforcing as necessary to provide a minimum clear cover of 1 1/2".
- Provide Class "C" concrete (f'c = 3,600 psi).
- Provide pipe runners, cross pipes, and anchor pipes meeting the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5LX52.
- Provide ASTM A307 bolts.
- Galvanize all steel components, except the concrete reinforcing, unless required elsewhere in the plans, after fabrication.
- Repair galvanizing damaged during transport or construction in accordance with the Item 445, "Galvanizing".

GENERAL NOTES:

- Designed according to AASHTO LRFD Bridge Design Specifications.
- The safety end treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.
- Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.
- The quantities for pipe runners, reinforcing steel, and concrete resulting from the formulas given herein are for Contractor's information only.
- See the Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
- Alternate design drawings bearing the seal of a professional engineer will be acceptable for precast construction of the safety end treatments.

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

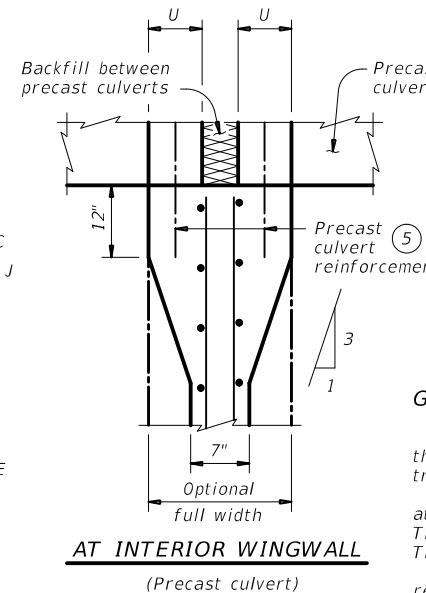
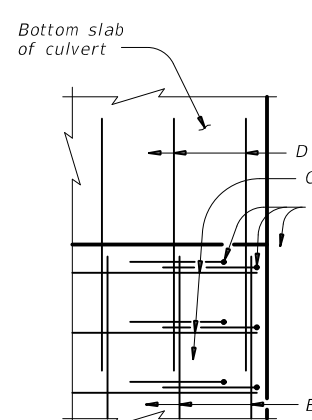
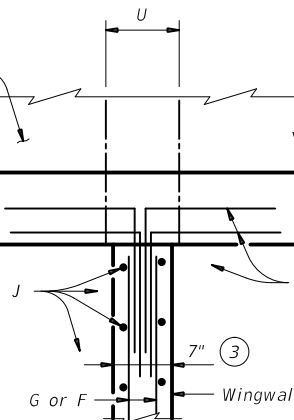
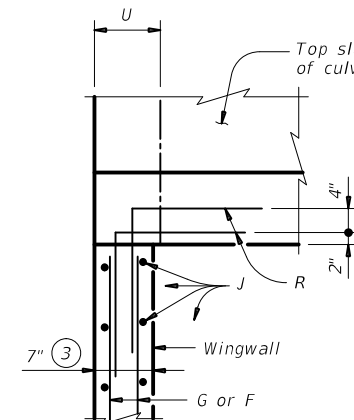
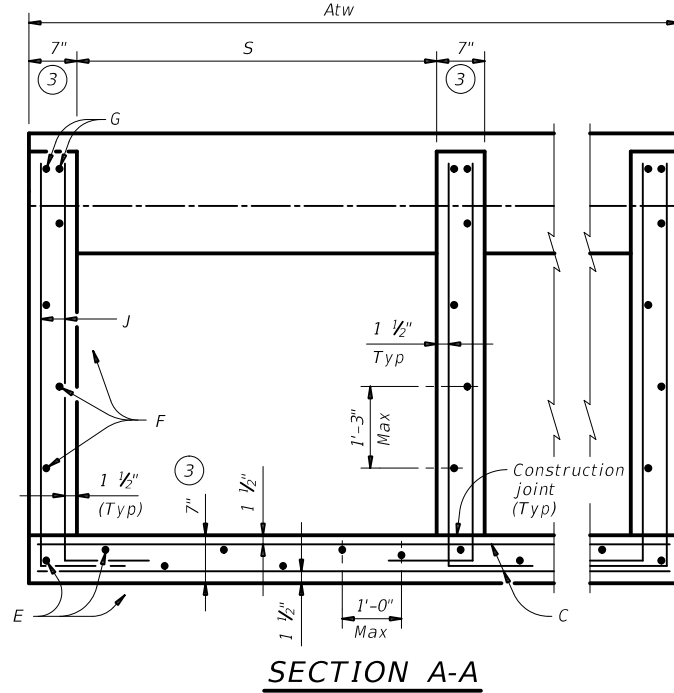
SHEET 1 OF 2



SAFETY END TREATMENT FOR 0° SKEW BOX CULVERTS (MAXIMUM Hw = 7'-0") TYPE I ~ CROSS DRAINAGE

SETB-CD

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| | WACO | HAMILTON | 241 | |

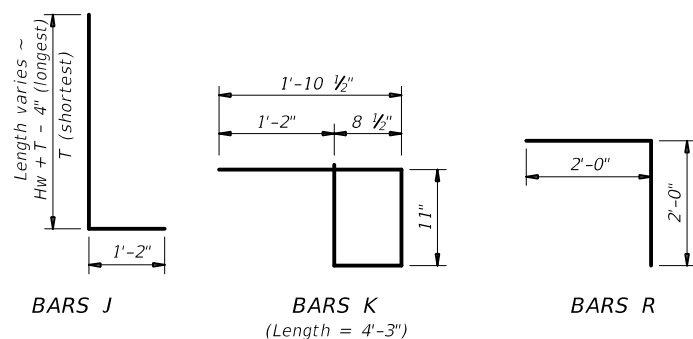


PLAN VIEWS OF CORNER DETAILS

- Recommended values of slope are: 3:1, 4:1, and 6:1. Provide 3:1 or flatter slope.
- 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet.
- Wingwall and slab thicknesses may be the same as the adjacent culvert wall and slab thicknesses (7" minimum). If thicknesses greater than the minimum (7") are used, no changes will be made in quantities and no additional compensation will be allowed.
- For vehicle safety, reduce curb height, if necessary, to provide a maximum 3" projection. No changes will be made in quantities and no additional compensation will be allowed for this work.
- For culverts with C = 0", the precast culvert reinforcing may extend 1'-0" minimum into wingwall. Wingwall Bars D and R may be omitted. Otherwise, refer to the Wingwall Connection detail on the Box Culvert Precast Miscellaneous Details (SCP-MD) standard sheet.

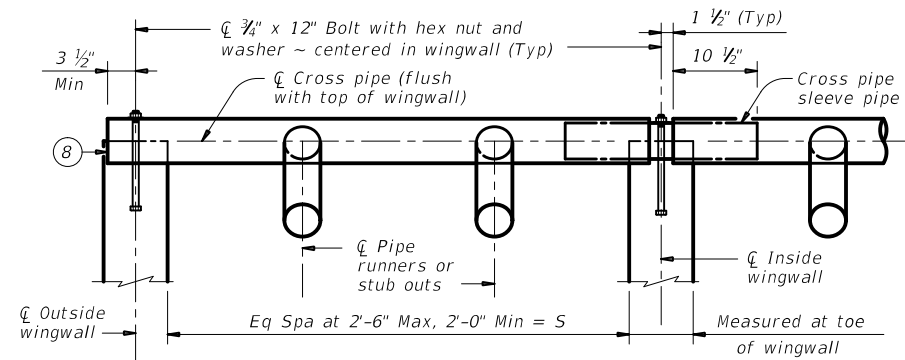
TABLE OF REINFORCING BAR SIZES AND SPACING

| Bar | Size | Spacing |
|-----|------|---------------|
| C | #4 | 10" Max |
| D | #4 | Match F and E |
| E | #4 | 1'-0" Max |
| F | #4 | 1'-3" Max |
| G | #6 | As shown |
| J | #4 | 10" Max |
| K | #4 | 1'-0" Max |
| R | #4 | As shown |



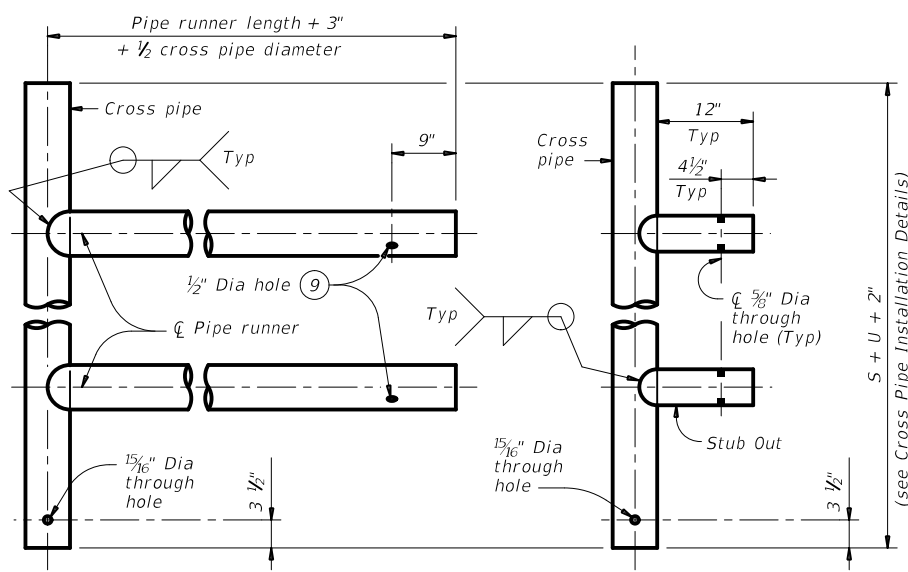
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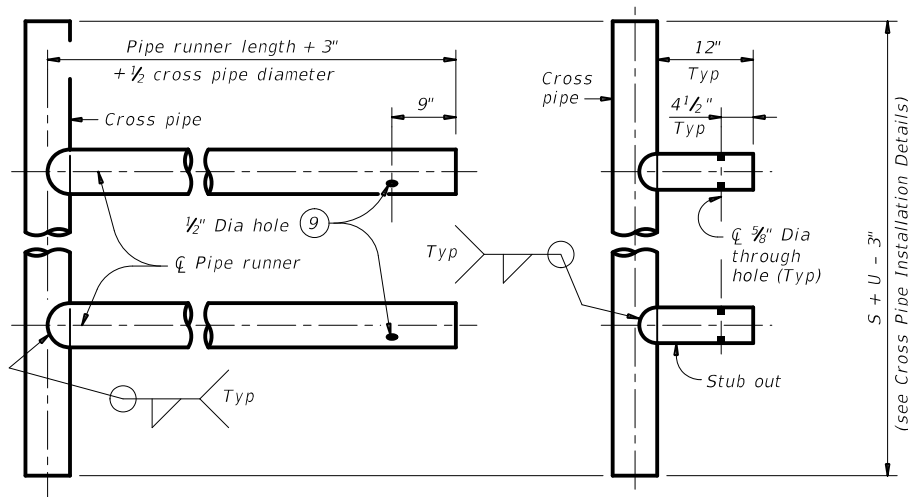


NOTE: At Contractor's option, make the cross pipe continuous across the inside wingwalls. If option is selected, omit the sleeve pipe and make a 1 5/16" diameter through hole in the cross pipe to accept the anchor bolt at the centerline of each inside wingwall.

CROSS PIPE INSTALLATION DETAILS

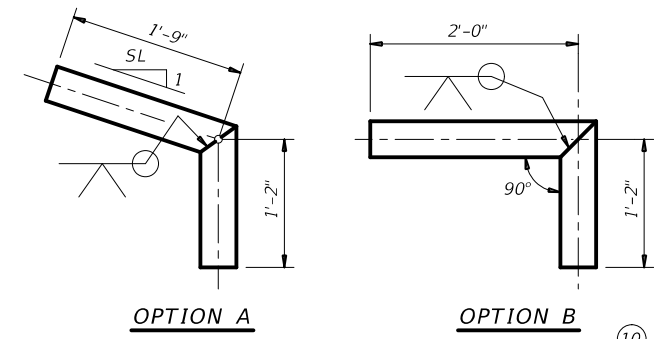


OPTION A2 **OPTION A1**
 FOR USE IN OUTSIDE CULVERT BAY

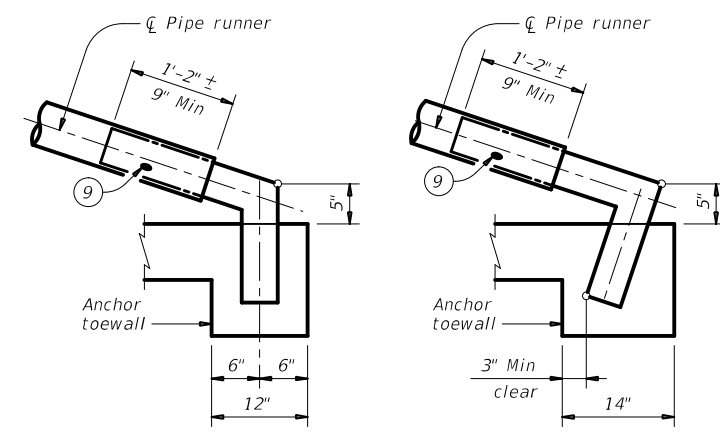


OPTION A2 **OPTION A1**
 FOR USE IN INSIDE CULVERT BAY

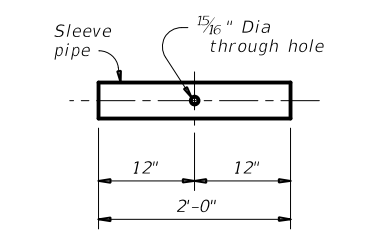
CROSS PIPE AND CONNECTIONS DETAILS



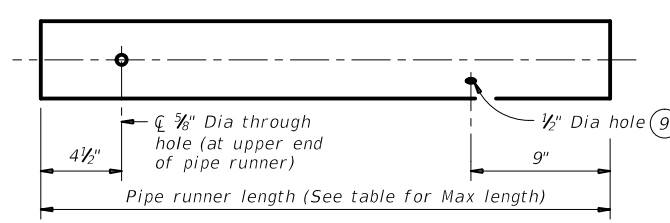
OPTION A **OPTION B**
BOTTOM ANCHOR PIPE DETAILS



OPTION B1 **OPTION B2**
BOTTOM ANCHOR TOEWALL DETAILS
 (Wingwall not shown for clarity.)



CROSS PIPE SLEEVE PIPE DETAILS

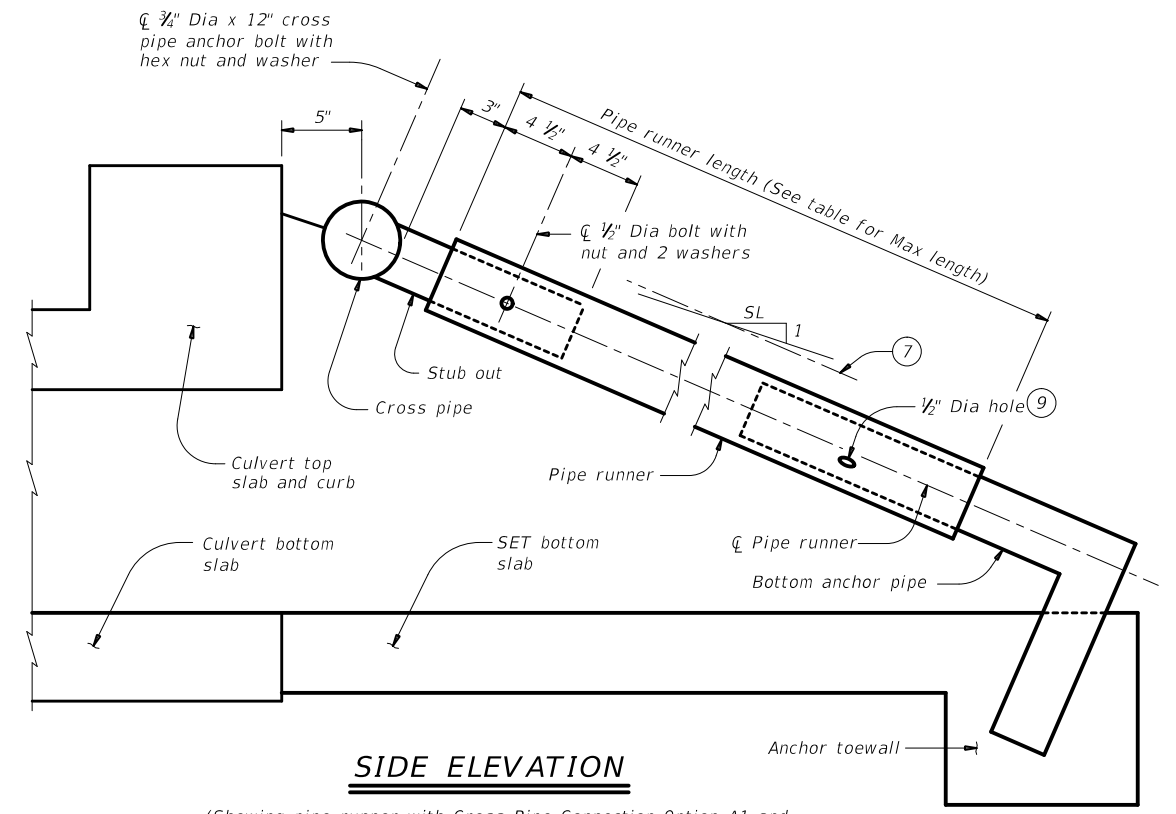


NOTE: The separate pipe runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS

- ⑥ Cross pipe is the same size as the pipe runner. Cross pipe stub out is the same size as the anchor pipe.
- ⑦ Note that actual slope of safety pipe runner may vary slightly from side slope.
- ⑧ Take care to ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access.
- ⑨ After installation, inspect the 1#2" hole to ensure that the lap of the safety pipe runner with the bottom anchor pipe is adequate.
- ⑩ At fabricator's option, a heat bend to a smooth 5" radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.

| Maximum Pipe Runner Length | Required Pipe Runner Size | | | Required Anchor Pipe Size | | |
|----------------------------|---------------------------|-----------|-----------|---------------------------|-----------|-----------|
| | Pipe Size | Pipe O.D. | Pipe I.D. | Pipe Size | Pipe O.D. | Pipe I.D. |
| 10'- 0" | 3" STD | 3.500" | 3.068" | 2" STD | 2.375" | 2.067" |
| 19'- 8" | 4" STD | 4.500" | 4.026" | 3" STD | 3.500" | 3.068" |
| 34'- 2" | 5" STD | 5.563" | 5.047" | 4" STD | 4.500" | 4.026" |



SIDE ELEVATION
 (Showing pipe runner with Cross Pipe Connection Option A1 and Bottom Anchor Toewall Option B2. Wingwall not shown for clarity.)

SHEET 2 OF 2

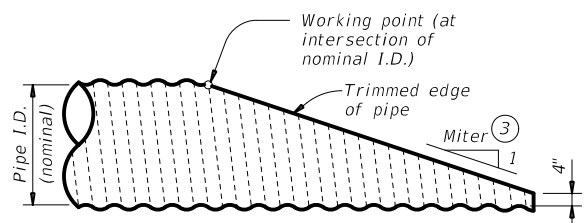
| | | | | | |
|--|----------|----------|-----------|---------------------------------|--|
| | | | | Bridge Division Standard | |
| SAFETY END TREATMENT FOR 0° SKEW BOX CULVERTS (MAXIMUM Hw = 7'-0") TYPE I ~ CROSS DRAINAGE | | | | | |
| SETB-CD | | | | | |
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| ©TxDOT February 2020 | CONTRACT | SECTION | JOB | HIGHWAY | |
| REVISIONS | 0867 | 01 | 017 | FM 932 | |
| | DIST | COUNTY | | SHEET NO. | |
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CROSS PIPE LENGTHS AND PIPE RUNNER LENGTHS ⁽¹⁾ ⁽²⁾

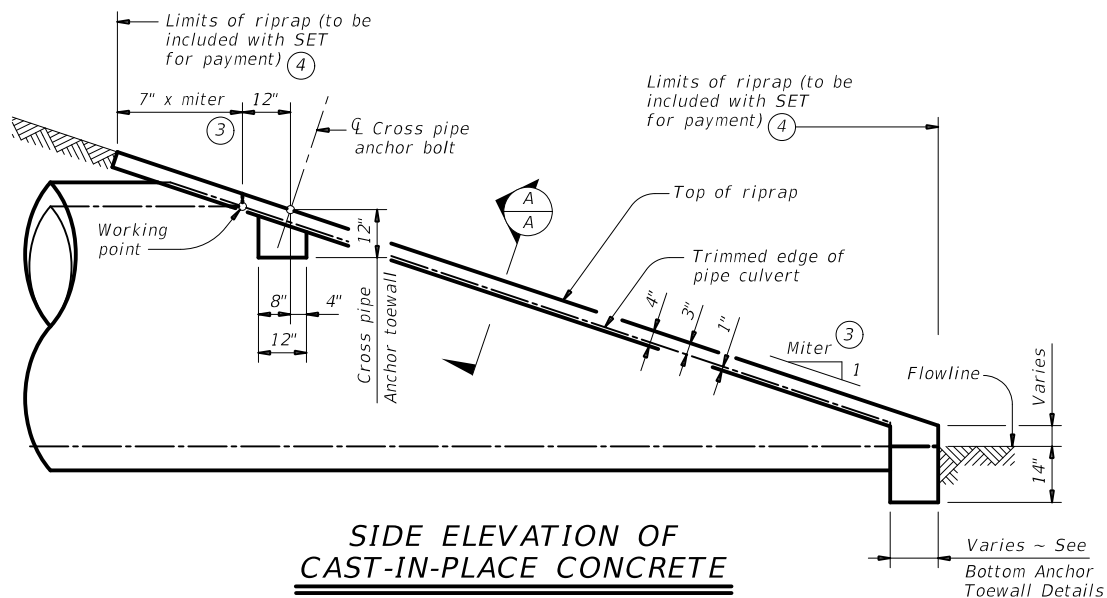
| Nominal Culvert I.D. | Pipe Culvert Spa ~ G | Cross Pipe Length | Pipe Runner Length | | | | | | | | | | | |
|----------------------|----------------------|-------------------|--------------------|----------|----------|----------|----------------|----------|-----------|-----------|----------------|----------|-----------|-----------|
| | | | 3:1 Side Slope | | | | 4:1 Side Slope | | | | 6:1 Side Slope | | | |
| | | | 0° Skew | 15° Skew | 30° Skew | 45° Skew | 0° Skew | 15° Skew | 30° Skew | 45° Skew | 0° Skew | 15° Skew | 30° Skew | 45° Skew |
| 24" | 1' - 7" | 3' - 5" | N/A | N/A | N/A | 5' - 10" | N/A | N/A | N/A | 8' - 1" | N/A | N/A | N/A | 12' - 9" |
| 27" | 1' - 8" | 3' - 8" | N/A | N/A | 5' - 5" | 6' - 11" | N/A | N/A | N/A | 7' - 7" | N/A | N/A | 11' - 11" | 14' - 11" |
| 30" | 1' - 10" | 3' - 11" | N/A | N/A | 6' - 4" | 8' - 0" | N/A | N/A | N/A | 8' - 9" | N/A | N/A | 13' - 8" | 17' - 0" |
| 33" | 1' - 11" | 4' - 2" | 6' - 2" | 6' - 5" | 7' - 3" | 9' - 1" | 8' - 6" | 8' - 10" | 10' - 0" | 12' - 5" | 13' - 3" | 13' - 9" | 15' - 5" | 19' - 2" |
| 36" | 2' - 1" | 4' - 5" | 6' - 11" | 7' - 3" | 8' - 2" | 10' - 2" | 9' - 6" | 9' - 11" | 11' - 2" | 13' - 10" | 14' - 9" | 15' - 3" | 17' - 2" | 21' - 3" |
| 42" | 2' - 4" | 4' - 11" | 8' - 6" | 8' - 10" | 9' - 11" | 12' - 4" | 11' - 7" | 12' - 0" | 13' - 6" | 16' - 8" | 17' - 9" | 18' - 5" | 20' - 8" | 25' - 7" |
| 48" | 2' - 7" | 5' - 5" | 10' - 1" | 10' - 5" | 11' - 9" | N/A | 13' - 7" | 14' - 2" | 15' - 10" | N/A | 20' - 9" | 21' - 6" | 24' - 2" | N/A |
| 54" | 3' - 0" | 5' - 11" | 11' - 8" | 12' - 1" | N/A | N/A | 15' - 8" | 16' - 3" | N/A | N/A | 23' - 10" | 24' - 8" | N/A | N/A |
| 60" | 3' - 3" | 6' - 5" | 13' - 3" | N/A | N/A | N/A | 17' - 9" | N/A | N/A | N/A | 26' - 10" | N/A | N/A | N/A |



NOTE: All pipe runners, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

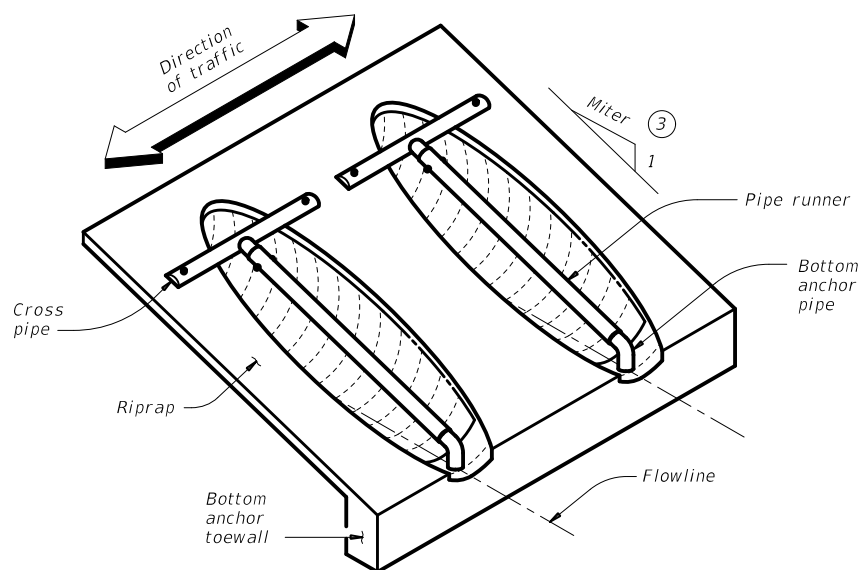
SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing corrugated metal pipe (CMP) culvert. Details of reinforced concrete pipe (RCP) culvert are similar.)



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details of corrugated metal pipe (CMP) culvert are similar. Pipe runners not shown for clarity.)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing installation with no skew.)

TYPICAL PIPE CULVERT MITERS ⁽³⁾

| Side Slope | 0° Skew | 15° Skew | 30° Skew | 45° Skew |
|------------|---------|----------|----------|----------|
| 3:1 | 3:1 | 3.106:1 | 3.464:1 | 4.243:1 |
| 4:1 | 4:1 | 4.141:1 | 4.619:1 | 5.657:1 |
| 6:1 | 6:1 | 6.212:1 | 6.928:1 | 8.485:1 |

CONDITIONS WHERE PIPE RUNNERS ARE NOT REQUIRED ⁽²⁾

| Nominal Culvert I.D. | Single Pipe Culvert | Multiple Pipe Culverts |
|----------------------|---------------------|------------------------|
| 12" thru 21" | Skews thru 45° | Skews thru 45° |
| 24" | Skews thru 45° | Skews thru 30° |
| 27" | Skews thru 30° | Skews thru 15° |
| 30" | Skews thru 15° | Skews thru 15° |
| 33" | Skews thru 15° | Always required |
| 36" | Normal (no skew) | Always required |
| 42" thru 60" | Always required | Always required |

STANDARD PIPE SIZES AND MAX PIPE RUNNER LENGTHS ⁽¹⁾

| Pipe Size | Pipe O.D. | Pipe I.D. | Max Pipe Runner Length |
|-----------|-----------|-----------|------------------------|
| 2" STD | 2.375" | 2.067" | N/A |
| 3" STD | 3.500" | 3.068" | 10' - 0" |
| 4" STD | 4.500" | 4.026" | 19' - 8" |
| 5" STD | 5.563" | 5.047" | 34' - 2" |

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) ⁽⁵⁾

| Nominal Culvert I.D. | 3:1 Side Slope | | | | 4:1 Side Slope | | | | 6:1 Side Slope | | | |
|----------------------|----------------|----------|----------|----------|----------------|----------|----------|----------|----------------|----------|----------|----------|
| | 0° Skew | 15° Skew | 30° Skew | 45° Skew | 0° Skew | 15° Skew | 30° Skew | 45° Skew | 0° Skew | 15° Skew | 30° Skew | 45° Skew |
| 12" | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.7 | 0.7 | 0.7 | 0.8 |
| 15" | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.8 | 0.9 |
| 18" | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.9 | 1.0 |
| 21" | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.8 | 0.9 | 0.9 | 0.9 | 1.0 | 1.2 |
| 24" | 0.6 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 1.0 | 1.0 | 1.0 | 1.1 | 1.3 |
| 27" | 0.7 | 0.7 | 0.8 | 0.9 | 0.8 | 0.9 | 0.9 | 1.1 | 1.1 | 1.1 | 1.2 | 1.4 |
| 30" | 0.8 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 | 1.0 | 1.2 | 1.2 | 1.2 | 1.3 | 1.6 |
| 33" | 0.8 | 0.8 | 0.9 | 1.0 | 1.0 | 1.0 | 1.1 | 1.3 | 1.3 | 1.4 | 1.5 | 1.7 |
| 36" | 0.9 | 0.9 | 0.9 | 1.1 | 1.1 | 1.1 | 1.2 | 1.4 | 1.4 | 1.5 | 1.6 | 1.8 |
| 42" | 1.0 | 1.0 | 1.1 | 1.3 | 1.2 | 1.3 | 1.3 | 1.6 | 1.6 | 1.7 | 1.8 | 2.1 |
| 48" | 1.1 | 1.1 | 1.2 | N/A | 1.4 | 1.4 | 1.5 | N/A | 1.9 | 1.9 | 2.1 | N/A |
| 54" | 1.3 | 1.3 | N/A | N/A | 1.6 | 1.6 | N/A | N/A | 2.1 | 2.1 | N/A | N/A |
| 60" | 1.4 | N/A | N/A | N/A | 1.7 | N/A | N/A | N/A | 2.3 | N/A | N/A | N/A |

⁽¹⁾ Provide pipe runner of the size shown in the tables. Provide cross pipe of the same size as the pipe runner. Provide cross pipe stub out and bottom anchor pipe of the next smaller size pipe as shown in the Standard Pipe Sizes and Max Pipe Runner Lengths table.

⁽²⁾ This standard allows for the placement of only one pipe runner across each culvert pipe opening. In order to limit the clear opening to be traversed by an errant vehicle, the following conditions must be met:

For 60" culvert pipes, the skew must not exceed 0°.
 For 54" culvert pipes, the skew must not exceed 15°.
 For 48" culvert pipes, the skew must not exceed 30°.
 For all culvert pipe sizes 42" and less, the skew must not exceed 45°.

If the above conditions cannot be met, the designer should consider using a safety end treatment with flared wings. For further information, refer to the TxDOT Roadway Design Manual.

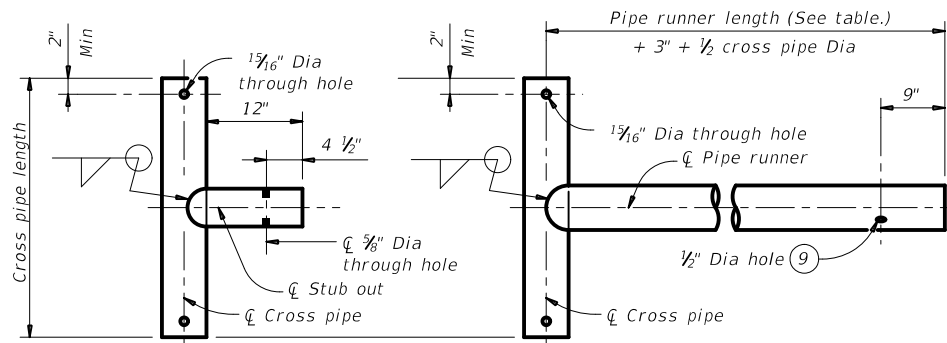
⁽³⁾ Miter = slope of mitered end of pipe culvert.

⁽⁴⁾ Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".

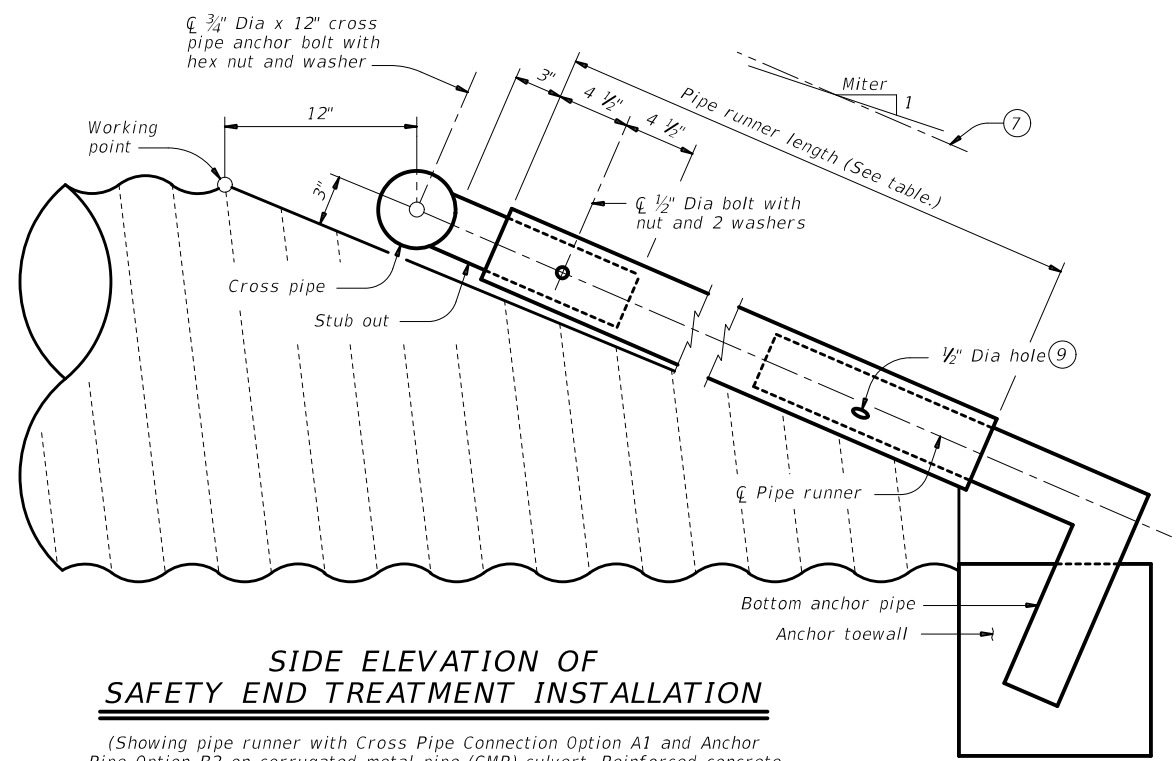
⁽⁵⁾ Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

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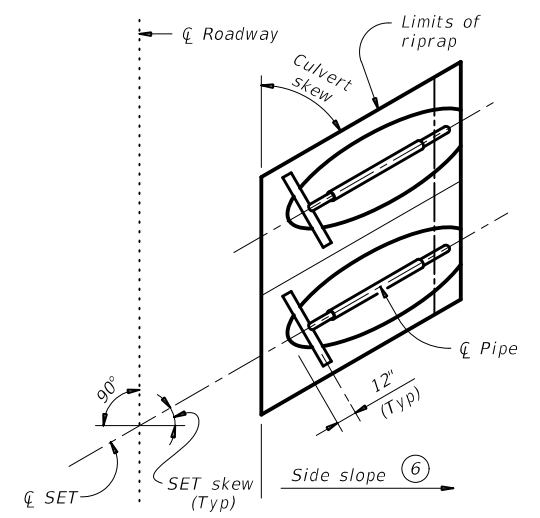


OPTION A1 **OPTION A2**
CROSS PIPE AND CONNECTIONS DETAILS

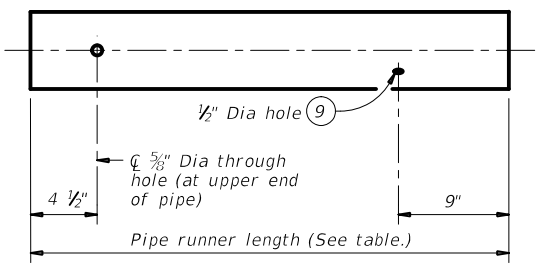


SIDE ELEVATION OF SAFETY END TREATMENT INSTALLATION

(Showing pipe runner with Cross Pipe Connection Option A1 and Anchor Pipe Option B2 on corrugated metal pipe (CMP) culvert. Reinforced concrete pipe culvert (RCP) details are similar. Riprap not shown for clarity.)

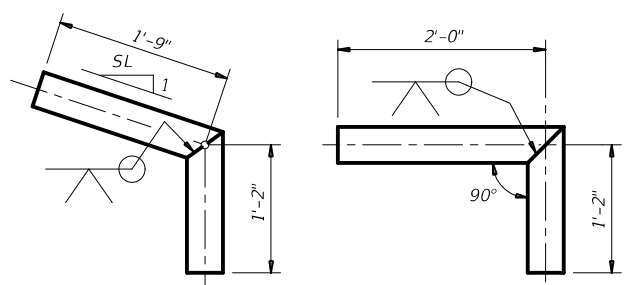


PLAN OF SKEWED INSTALLATION

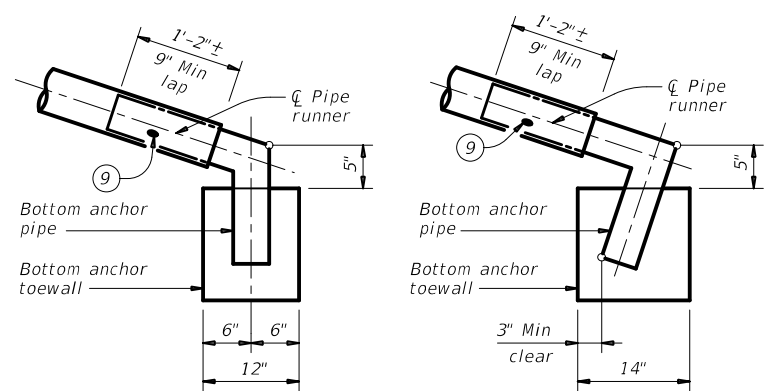


NOTE: The separate pipe runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS

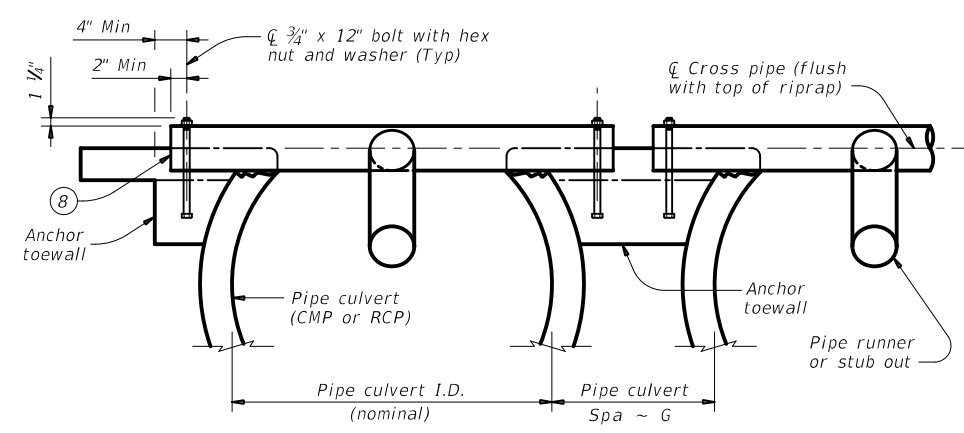


OPTION B1 **OPTION B2**
BOTTOM ANCHOR PIPE DETAILS (10)

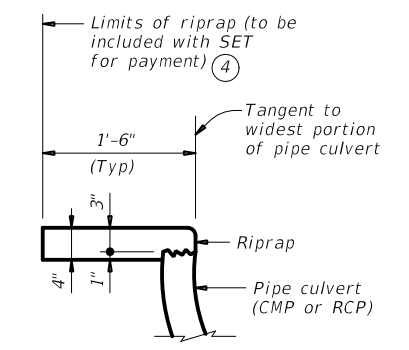


OPTION B1 **OPTION B2**
BOTTOM ANCHOR TOEWALL DETAILS

(Culvert and riprap not shown for clarity.)



SHOWING CROSS PIPE AND ANCHOR TOEWALL



SHOWING TYPICAL PIPE CULVERT AND RIPRAP

SECTION A-A

- (4) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".
- (6) Recommended values of side slope are 3:1, 4:1, and 6:1. All quantities, calculations, and dimensions shown herein are based on these recommended values. Slope of 3:1 or flatter is required for vehicle safety.
- (7) Note that actual slope of pipe runner may vary slightly from side slope of riprap and trimmed culvert pipe edge.
- (8) Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access.
- (9) After installation, inspect the 1/2 inch hole to ensure that the lap of the pipe runner with the bottom anchor pipe is adequate.
- (10) At fabricator's option, a heat bend to a smooth 5 inch radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.

MATERIAL NOTES:
 Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.
 Provide pipe runners, cross pipes, and anchor pipes conforming to the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5LX52.
 Provide ASTM A307 bolts and nuts.
 Galvanize all steel components, except concrete reinforcing, after fabrication.
 Repair galvanizing damaged during transport or construction in accordance with the specifications.

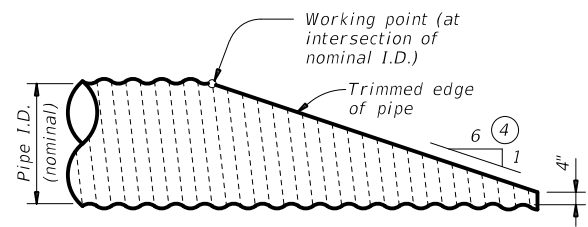
GENERAL NOTES:
 Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.
 Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.
 Payment for riprap and toewall is included in the price bid for each safety end treatment.
 Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap".

SHEET 2 OF 2

| | | | |
|--|----------------|---------------------------------|-----------------|
| | | Bridge Division Standard | |
| SAFETY END TREATMENT FOR 12" DIA TO 60" DIA PIPE CULVERTS TYPE II ~ CROSS DRAINAGE | | | |
| SETP-CD | | | |
| FILE: setpcdse-20.dgn | DN: GAF | CK: CAT | DW: JRP |
| ©TxDOT February 2020 | CONTRACT: 0867 | SECTION: 01 | JOB: 017 |
| REVISIONS | COUNTY: WACO | | HIGHWAY: FM 932 |
| | SHEET NO. 244 | | |

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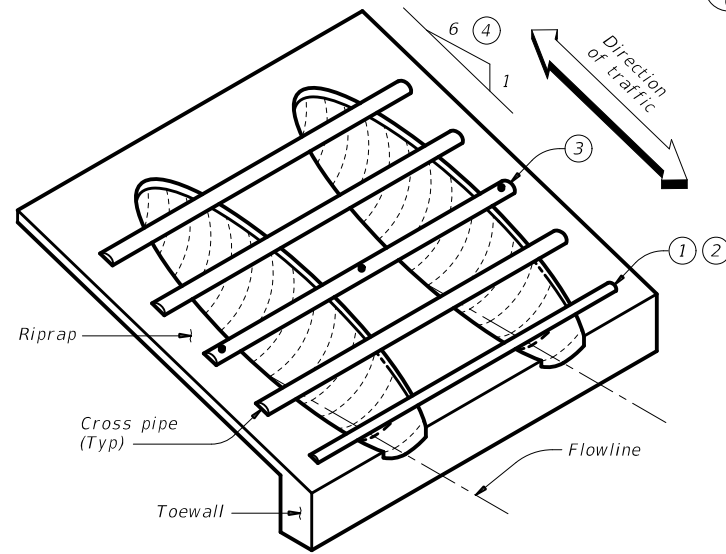
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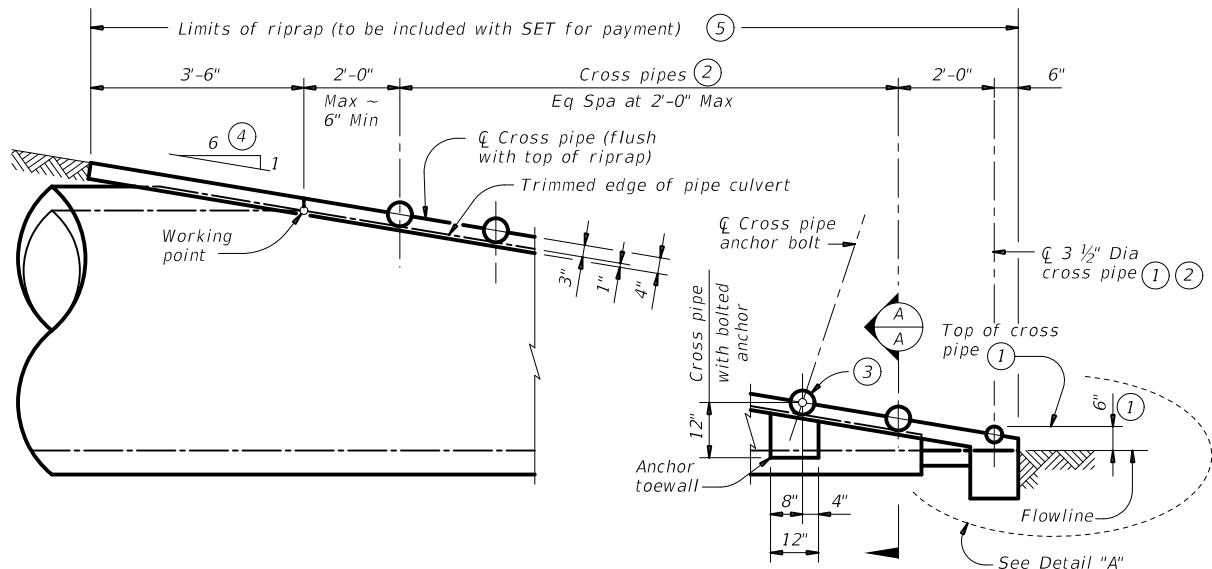
NOTE: All cross pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing corrugated metal pipe (CMP) culvert. Details at reinforced concrete pipe (RCP) culvert are similar.)

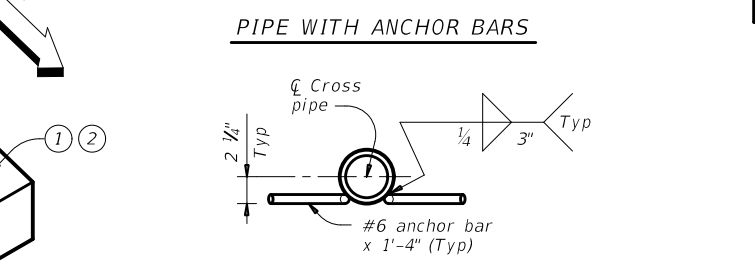
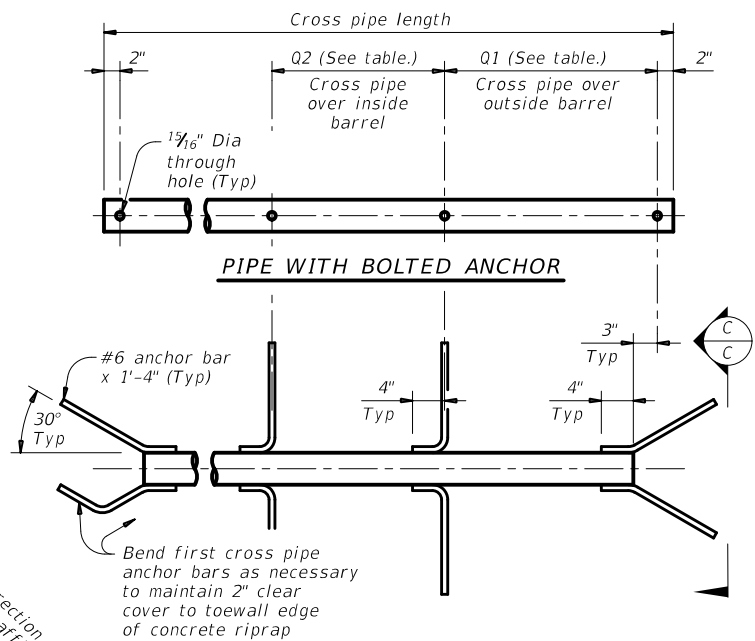


ISOMETRIC VIEW OF TYPICAL INSTALLATION

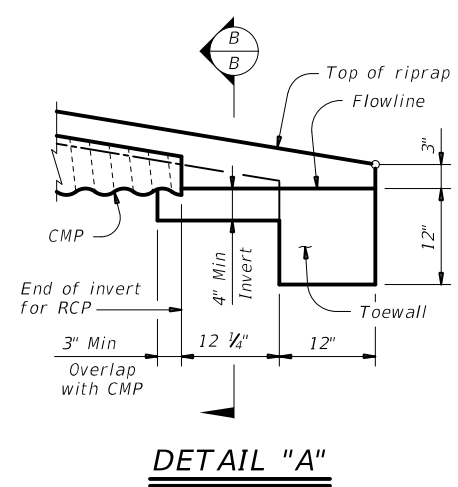


SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details at corrugated metal pipe (CMP) culvert are similar.)

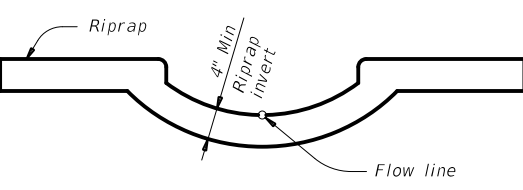


CROSS PIPE DETAILS



DETAIL "A"

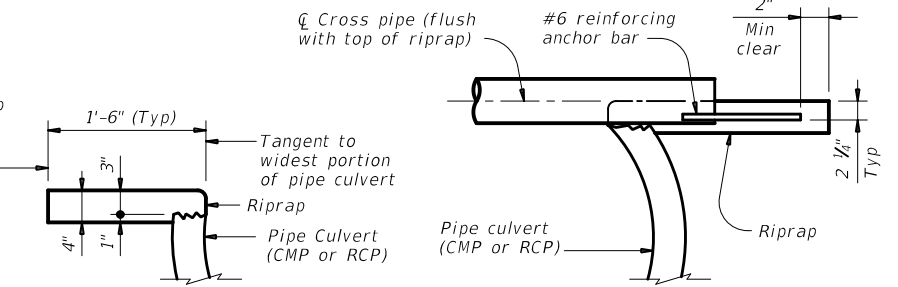
(Showing invert with corrugated metal pipe (CMP) culvert. Reinforced concrete pipe (RCP) culvert details are similar. Cross pipes not shown for clarity.)



SECTION B-B

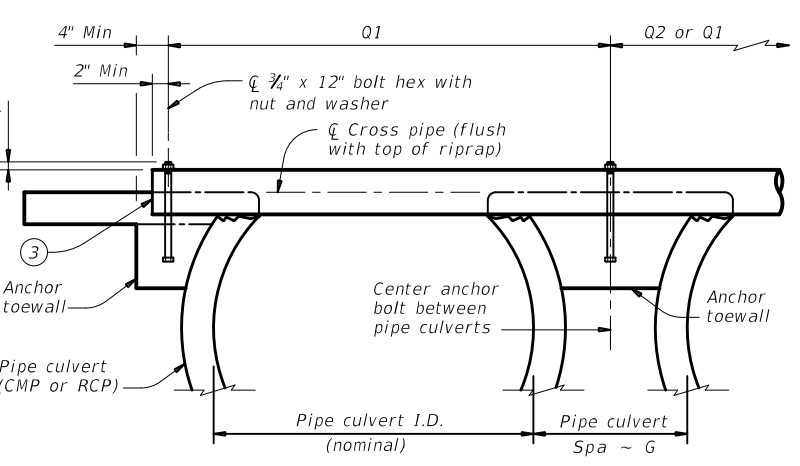
(Cross pipes not shown for clarity.)

Limits of riprap (to be included with SET for payment)



SHOWING TYPICAL PIPE CULVERT AND RIPRAP

SHOWING CROSS PIPE WITH ANCHOR BAR



SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A

CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, AND RIPRAP QUANTITIES

| Nominal Culvert I.D. | Conc Riprap (CY)(6) | Pipe Culvert Spa ~ G | Single Barrel ~ Q1 | Multi-Barrel ~ Q1 | Q2 | Conditions for Use of Cross Pipes | Cross Pipe Sizes |
|----------------------|---------------------|----------------------|--------------------|-------------------|----------|-----------------------------------|--------------------------|
| 12" | 0.6 | 0' - 9" | N/A | 2' - 1" | 1' - 9" | 3 or more pipe culverts | 3" Std (3.500" O.D.) |
| 15" | 0.7 | 0' - 11" | N/A | 2' - 5" | 2' - 2" | | |
| 18" | 0.8 | 1' - 2" | N/A | 2' - 10" | 2' - 8" | | |
| 21" | 0.9 | 1' - 4" | N/A | 3' - 2" | 3' - 1" | | |
| 24" | 0.9 | 1' - 7" | N/A | 3' - 6" | 3' - 7" | 3 or more pipe culverts | 3 1/2" Std (4.000" O.D.) |
| 27" | 1.0 | 1' - 8" | N/A | 3' - 10" | 3' - 11" | | |
| 30" | 1.1 | 1' - 10" | N/A | 4' - 2" | 4' - 4" | | |
| 33" | 1.2 | 1' - 11" | 4' - 2" | 4' - 5" | 4' - 8" | All pipe culverts | 4" Std (4.500" O.D.) |
| 36" | 1.3 | 2' - 1" | 4' - 5" | 4' - 9" | 5' - 1" | All pipe culverts | |
| 42" | 1.5 | 2' - 4" | 4' - 11" | 5' - 5" | 5' - 10" | | |
| 48" | 1.7 | 2' - 7" | 5' - 5" | 6' - 0" | 6' - 7" | All pipe culverts | 5" Std (5.563" O.D.) |
| 54" | 2.0 | 3' - 0" | 5' - 11" | 6' - 9" | 7' - 6" | | |
| 60" | 2.2 | 3' - 3" | 6' - 5" | 7' - 4" | 8' - 3" | | |
| 66" | 2.4 | 3' - 3" | 6' - 11" | 7' - 10" | 8' - 9" | | |
| 72" | 2.7 | 3' - 4" | 7' - 5" | 8' - 5" | 9' - 4" | | |

- (1) The proper installation of the first cross pipe is critical for vehicle safety. Place the top of the first cross pipe no more than 6" above the flowline.
- (2) Provide cross pipes, except the first bottom pipe, of the size shown in the table. Provide a 3 1/2" standard pipe (4" O.D.) for the first bottom pipe.
- (3) Install the third cross pipe from the bottom of the culvert using a bolted connection. Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, install all other cross pipes using the bolted connection details.
- (4) Match cross slope as shown elsewhere in the plans. Cross slope of 6:1 or flatter is required for vehicle safety.
- (5) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".
- (6) Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for contractor's information only.

MATERIAL NOTES:
 Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.
 Provide cross pipes that meet the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 (Gr B), or API 5LX52.
 Provide ASTM A307 bolts and nuts.
 Galvanize all steel components, except concrete reinforcing, after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:
 Cross pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.
 Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the cross pipes.
 Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap".
 Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.

Texas Department of Transportation Bridge Division Standard

SAFETY END TREATMENT FOR 12" DIA TO 72" DIA PIPE CULVERTS TYPE II ~ PARALLEL DRAINAGE

| SETP-PD | | | |
|----------------------|----------------|------------------|---------------|
| FILE: setpdse-20.dgn | DN: GAF | CK: CAT | DW: JRP |
| REVISIONS | CONTRACT: 0867 | SECTION: 01 | JOB: 017 |
| | DIST: WACO | COUNTY: HAMILTON | SHEET NO: 245 |

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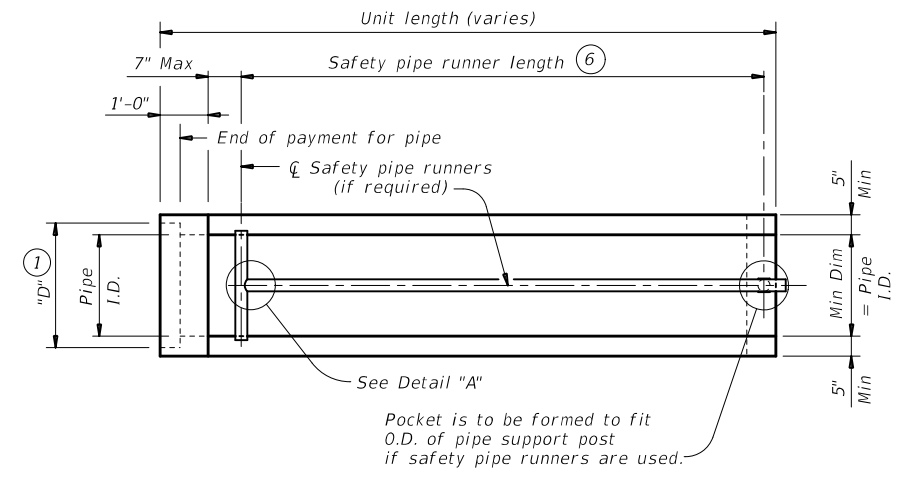
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REQUIREMENTS FOR CULVERT PIPES AND SAFETY PIPE RUNNERS

| Pipe I.D. | RCP Wall "B" Thickness | TP Wall Thickness (8) | "D" (1) | Slope | Min Length of Unit | Single Pipe | | Multiple Pipes | |
|-----------|------------------------|-----------------------|---------|-------|--------------------|-------------|-----------------------|----------------|-----------------------|
| | | | | | | Skew | Pipe Runners Required | Skew | Pipe Runners Required |
| 12" | 2" | 1.15" | 17.00" | 3:1 | 2' - 11" | ≤ 45° | No | ≤ 45° | No |
| | | | | 4:1 | 3' - 6" | | | | |
| | | | | 6:1 | 4' - 9" | | | | |
| 15" | 2 1/4" | 1.30" | 20.50" | 3:1 | 3' - 8" | ≤ 45° | No | ≤ 45° | No |
| | | | | 4:1 | 4' - 7" | | | | |
| | | | | 6:1 | 6' - 5" | | | | |
| 18" | 2 1/2" | 1.60" | 24.00" | 3:1 | 4' - 6" | ≤ 45° | No | ≤ 45° | No |
| | | | | 4:1 | 5' - 8" | | | | |
| | | | | 6:1 | 8' - 0" | | | | |
| 24" | 3" | 1.95" | 31.00" | 3:1 | 6' - 2" | ≤ 45° | No | = 30° | No |
| | | | | 4:1 | 7' - 10" | | | | |
| | | | | 6:1 | 11' - 3" | | | | |
| 30" | 3 1/2" | 2.65" | 38.50" | 3:1 | 7' - 10" | = 15° | No | = 15° | No |
| | | | | 4:1 | 10' - 1" | | | | |
| | | | | 6:1 | 14' - 8" | | | | |
| 36" | 4" | 2.75" | 45.50" | 3:1 | 9' - 5" | = 0° | No | = 0° | Yes |
| | | | | 4:1 | 12' - 3" | | | | |
| | | | | 6:1 | 17' - 11" | | | | |
| 42" | 4 1/2" | N/A | 52.50" | 3:1 | 11' - 1" | = 0° | Yes | = 0° | Yes |
| | | | | 4:1 | 14' - 5" | | | | |
| | | | | 6:1 | 21' - 2" | | | | |

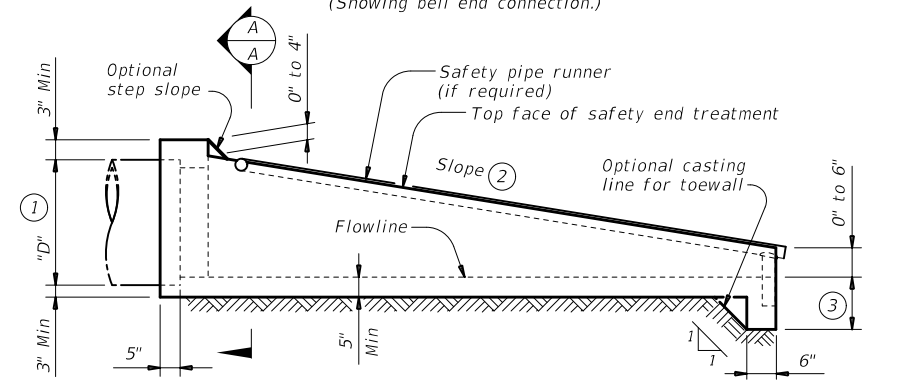
SAFETY PIPE RUNNER DIMENSIONS

| Max Safety Pipe Runner Length | Required Pipe Runner Size | | |
|-------------------------------|---------------------------|-----------|-----------|
| | Pipe Size | Pipe O.D. | Pipe I.D. |
| 11' - 2" | 3" STD | 3.500" | 3.068" |
| 15' - 6" | 3 1/2" STD | 4.000" | 3.548" |
| 20' - 10" | 4" STD | 4.500" | 4.026" |
| 35' - 4" | 5" STD | 5.563" | 5.047" |



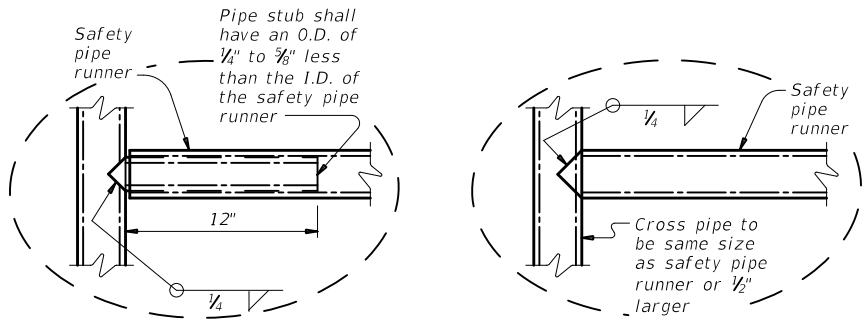
PLAN

(Showing bell end connection.)



LONGITUDINAL ELEVATION

(Showing bell end connection.)

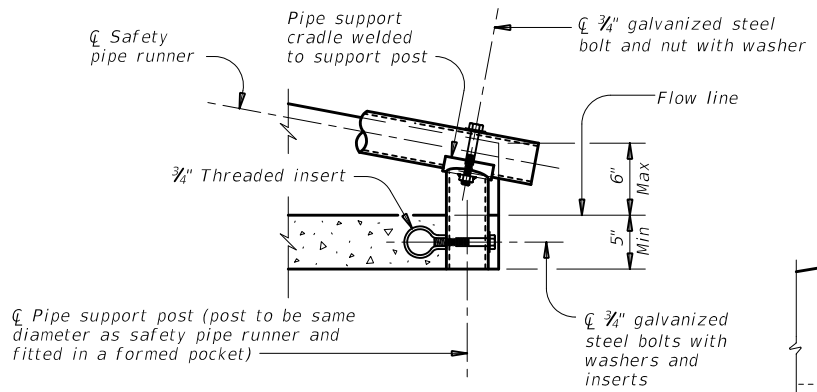


OPTION A

DETAIL A

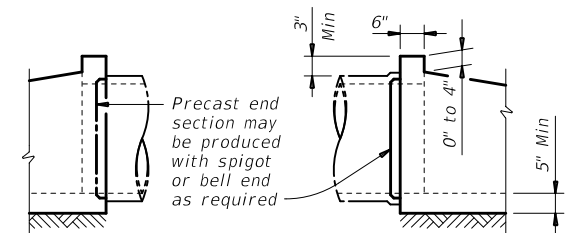
(If required)

OPTION B



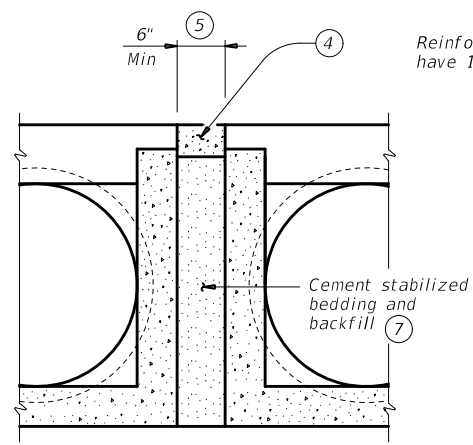
END DETAIL FOR INSTALLATION OF SAFETY PIPE RUNNERS

(If required)

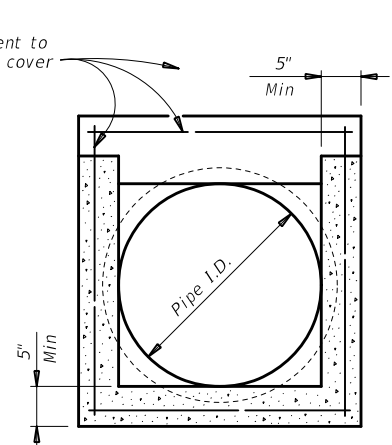


OPTIONAL JOINT FOR RCP

(Showing joint between RCP and precast safety end treatment)

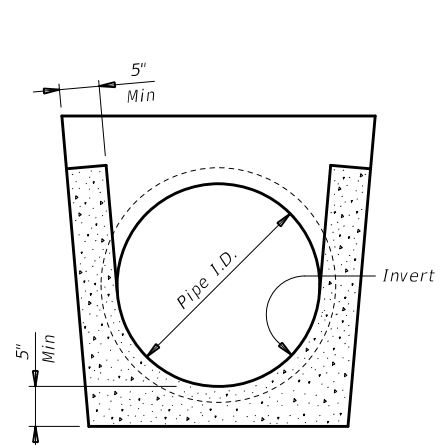


MULTIPLE PIPE INSTALLATION

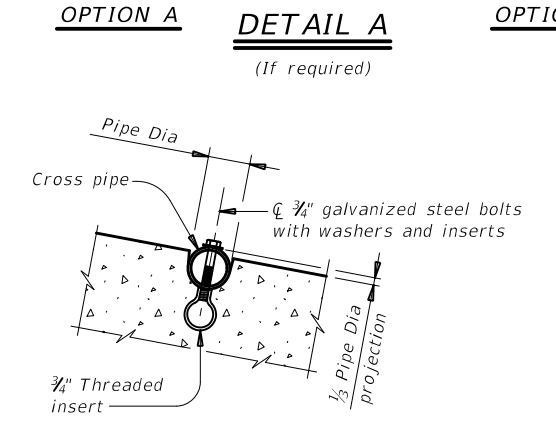


OPTION WITH SQUARE BOTTOM

SECTION A-A



OPTION WITH INVERT BOTTOM



INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)

- 1 Dimension "D" is based on reinforced concrete pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For thermoplastic pipe (TP) take into account the annular space requirements for grouted connections.
- 2 Slope as shown elsewhere in plans. Slope of 3:1 or flatter is required for vehicle safety.
- 3 Toewall to be used only when dimension is shown elsewhere in the plans.
- 4 Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment".
- 5 Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.
- 6 Measured along slope.
- 7 Provide cement stabilized bedding and backfill in accordance with the Item 400, "Excavation and Backfill for Structures". Bedding and backfill is considered subsidiary to the Item 467, "Safety End Treatment". When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer.
- 8 Thermoplastic pipe wall thickness may vary. Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II end treatment as specified in Item "Safety End Treatment".

When precast safety end treatment is used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on the plans.

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Manufacture this product in accordance with Item 467, "Safety End Treatment" except as noted below:

- A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" - D12 x D12 or 5"x5" - D10 x D10 welded wire reinforcement (WWR).
- B. For precast (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).

At the option and expense of the Contractor, the next larger size of safety end treatment may be furnished as long as the "D" dimension cast is that of the required size of pipe.

Pipe runners are designed for a traversing load of 1,800 Lbs at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

Provide safety pipe runners, cross pipes, pipe support posts, and pipe stubs meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

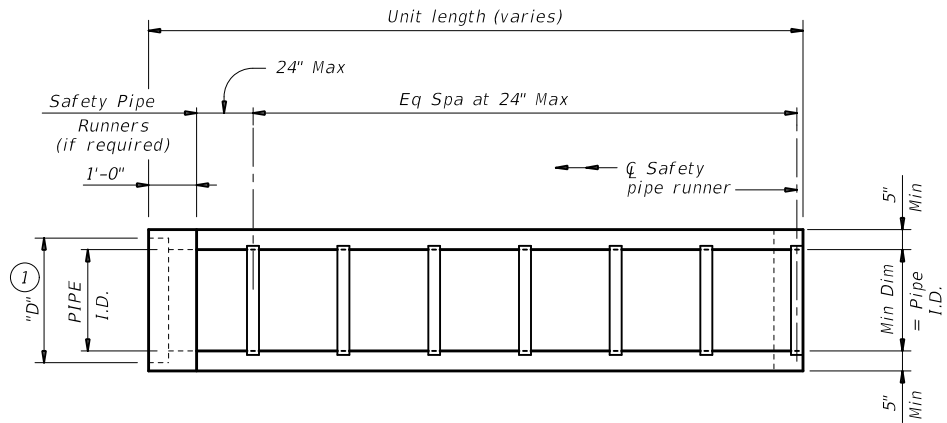
Galvanize all steel components except reinforcing steel after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464 "Reinforced Concrete Pipe". Connect TP by grouting. See PBGC standard for grouted connections with TP and precast safety end treatment.

| | | | |
|-------------------------------------|-------------------|---------------------------------|-----------------|
| | | Bridge Division Standard | |
| PRECAST SAFETY END TREATMENT | | | |
| TYPE II ~ CROSS DRAINAGE | | | |
| PSET-SC | | | |
| FILE: psetscss-20.dgn | DN: RLW | CK: KLR | DW: JTR |
| ©TxDOT February 2020 | CONTRACT: 0867 01 | SECTION: 017 | HIGHWAY: FM 932 |
| REVISIONS | DIST: WACO | COUNTY: HAMILTON | SHEET NO: 246 |

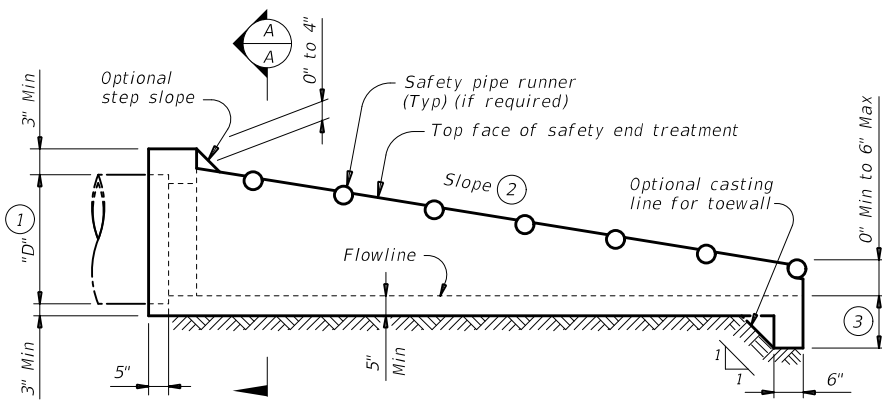
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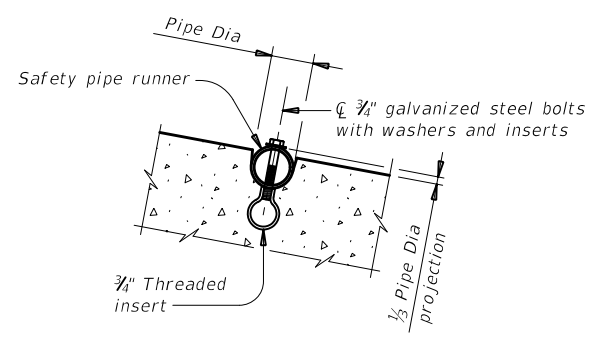
PLAN

(Showing bell end connection.)



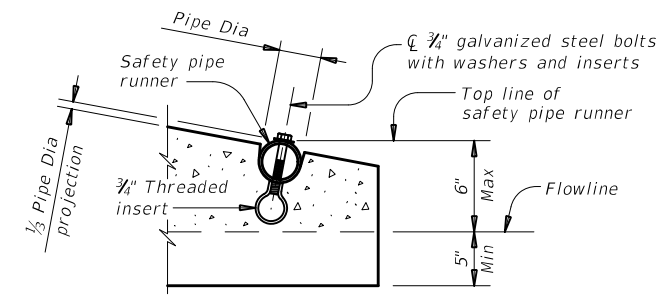
LONGITUDINAL ELEVATION

(Showing bell end connection.)

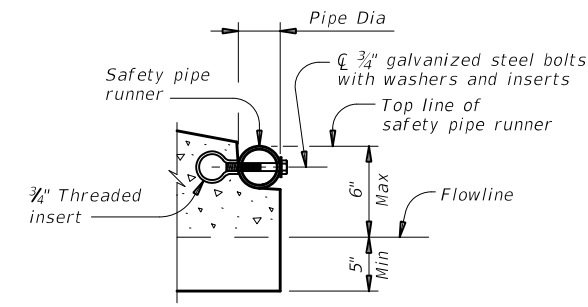


INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)



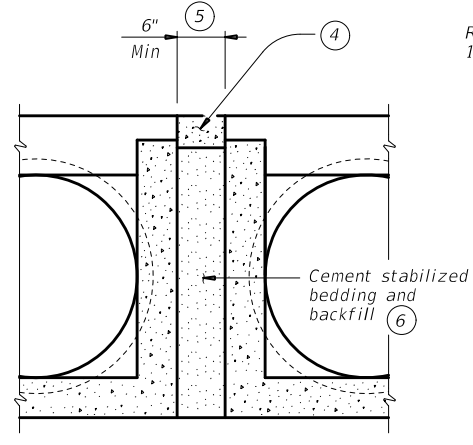
OPTION A



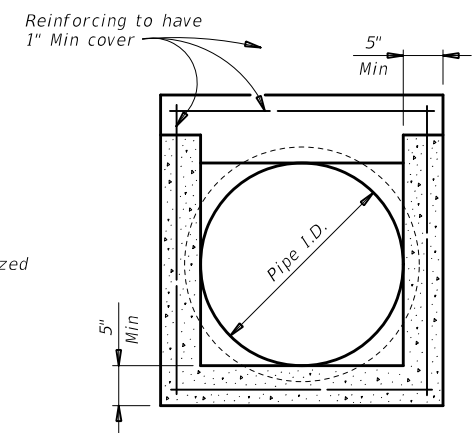
OPTION B

END DETAILS FOR INSTALLATION OF SAFETY PIPE RUNNERS

(If required)

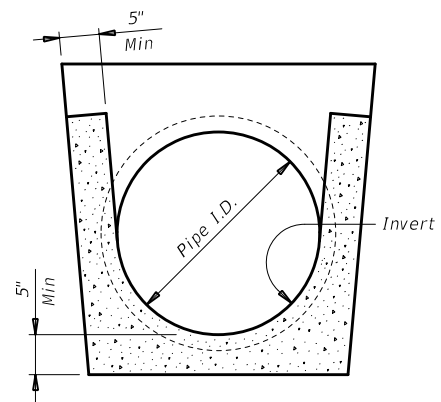


MULTIPLE PIPE INSTALLATION

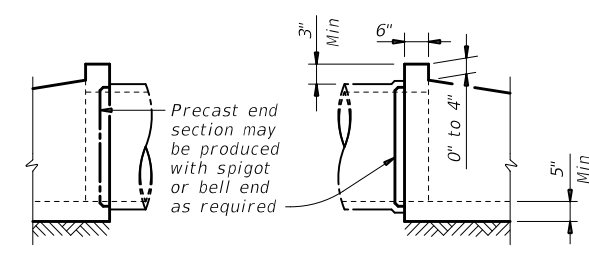


OPTION WITH SQUARE BOTTOM

SECTION A-A



OPTION WITH INVERT BOTTOM



OPTIONAL JOINT FOR RCP

(Showing joint between RCP and precast safety end treatment.)

REQUIREMENTS FOR CULVERT PIPES AND SAFETY PIPE RUNNERS

| Pipe I.D. | RCP Wall "B" Thickness | TP Wall Thickness (7) | "D" (1) | Slope | Min Length | Pipe Runners Required | | Required Pipe Runner Size | | |
|-----------|------------------------|-----------------------|---------|-------|------------|-----------------------|--------------------|---------------------------|--------|--------|
| | | | | | | Single Pipe | Multiple Pipe | Nominal Dia. | O.D. | I.D. |
| 12" | 2" | 1.15" | 17.00" | 6:1 | 4' - 9" | No | Yes, for > 2 pipes | 3" STD | 3.500" | 3.068" |
| 15" | 2 1/4" | 1.30" | 20.50" | 6:1 | 6' - 5" | No | Yes, for > 2 pipes | 3" STD | 3.500" | 3.068" |
| 18" | 2 1/2" | 1.60" | 24.00" | 6:1 | 8' - 0" | No | Yes, for > 2 pipes | 3" STD | 3.500" | 3.068" |
| 24" | 3" | 1.95" | 31.00" | 6:1 | 11' - 3" | No | Yes, for > 2 pipes | 3" STD | 3.500" | 3.068" |
| 30" | 3 1/2" | 2.65" | 38.50" | 6:1 | 14' - 8" | No | Yes | 4" STD | 4.500" | 4.026" |
| 36" | 4" | 2.75" | 45.50" | 6:1 | 17' - 11" | Yes | Yes | 4" STD | 4.500" | 4.026" |
| 42" | 4 1/2" | N/A | 52.50" | 6:1 | 21' - 2" | Yes | Yes | 4" STD | 4.500" | 4.026" |

- Dimension "D" is based on reinforced concrete pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For thermoplastic pipe (TP) take into account the annular space requirements for grouted connections.
- Slope as shown elsewhere in the plans. Slope of 6:1 or flatter is required for vehicle safety.
- Toewall to be used only when dimension is shown elsewhere in the plans.
- Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment".
- Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.
- Provide cement stabilized bedding and backfill in accordance with the Item 400, "Excavation and Backfill for Structures". Bedding and backfill is considered subsidiary to the Item 467, "Safety End Treatment". When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer.
- Thermoplastic pipe wall thickness may vary. Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II end treatment as specified in Item "Safety End Treatment".
 When precast safety end treatment is used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on the plans.
 Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.
 Manufacture this product in accordance with Item 467, "Safety End Treatment" except as noted below:
 A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" - D12 x D12 or 5"x5" - D10 x D10 welded wire reinforcement (WWR).
 B. For precast (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).
 At the option and expense of the Contractor the next larger size of safety end treatment may be furnished; as long as the "D" dimension cast is that of the required size of pipe.
 Pipe runners are designed for a traversing load of 10,000 Lbs at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.
 Provide pipe runners meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.
 Galvanize all steel components except reinforcing steel after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.
 Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464, "Reinforced Concrete Pipe". Connect TP by grouting. See PBGC standard for grouted connections with TP and precast safety end treatment.

Texas Department of Transportation Bridge Division Standard

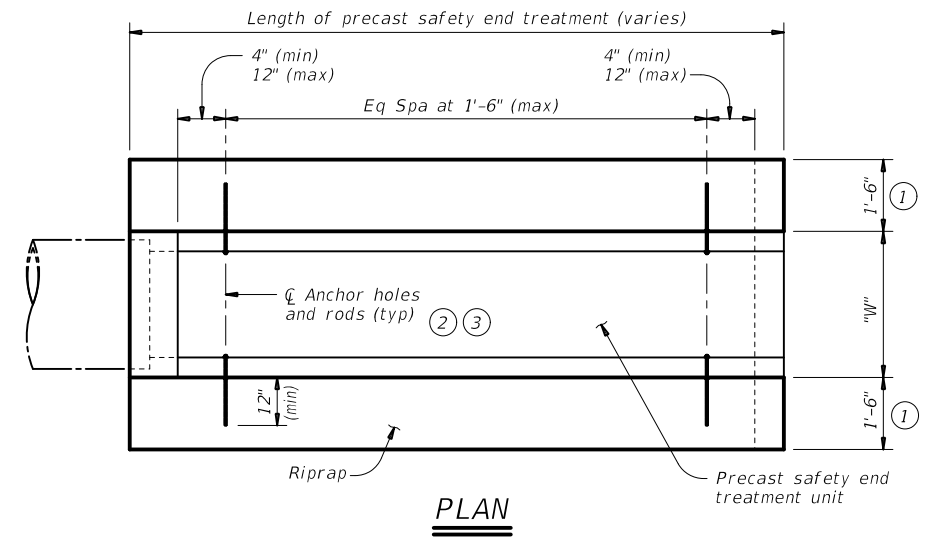
PRECAST SAFETY END TREATMENT TYPE II ~ PARALLEL DRAINAGE

PSET-SP

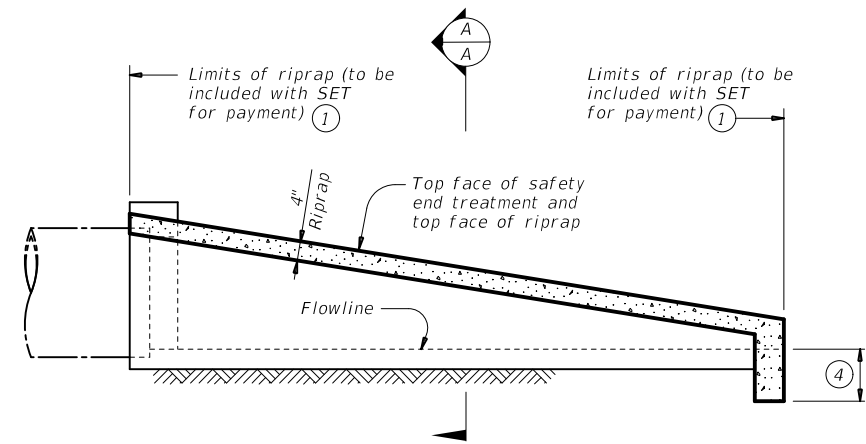
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| REVISIONS | 0867 | 01 | 017 | FM 932 |
| | DIST | COUNTY | SHEET NO. | |
| | WACO | HAMILTON | 247 | |

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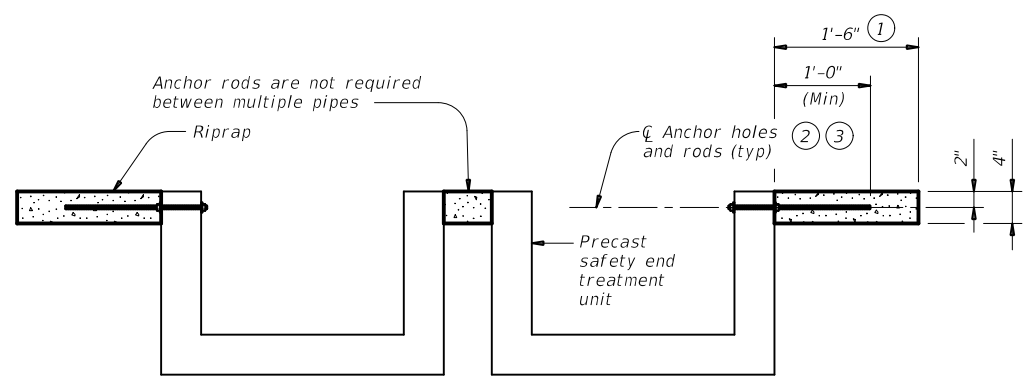
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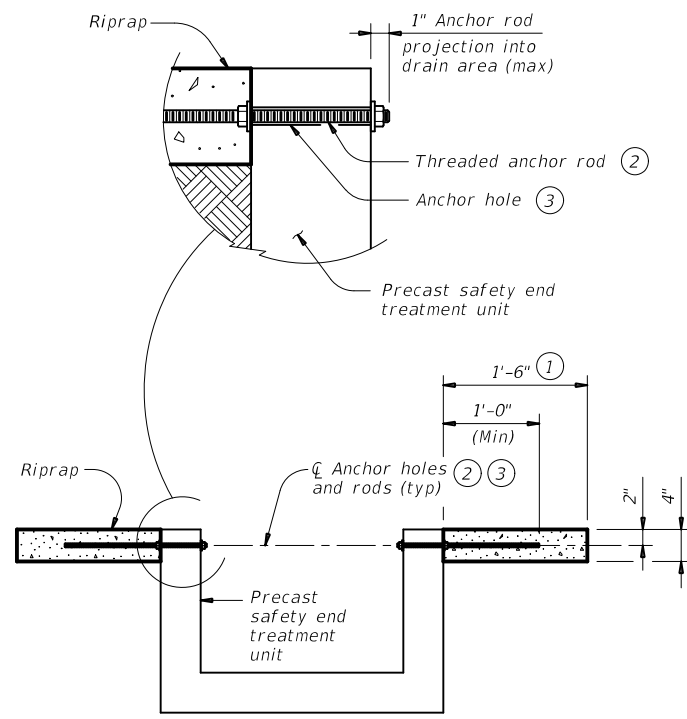
PLAN



LONGITUDINAL ELEVATION



MULTIPLE PIPE INSTALLATION



SINGLE PIPE INSTALLATION

SECTION A-A

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY)

| Nominal Culvert (Pipe) I.D. | PSET-SC and PSET-SP Standards | | | | | PSET-RC and PSET-RP Standards | | |
|-----------------------------|-------------------------------|------------|-----|-----|----------------|-------------------------------|-----|-----|
| | Unit Width "W" | Side Slope | | | Unit Width "W" | Side Slope | | |
| | | 3:1 | 4:1 | 6:1 | | 3:1 | 4:1 | 6:1 |
| 12" | 23.0" | 0.1 | 0.2 | 0.2 | 16.0" | 0.1 | 0.1 | 0.2 |
| 15" | 26.5" | 0.2 | 0.2 | 0.3 | 19.5" | 0.1 | 0.2 | 0.2 |
| 18" | 30.0" | 0.2 | 0.2 | 0.3 | 23.0" | 0.2 | 0.2 | 0.3 |
| 24" | 37.0" | 0.3 | 0.3 | 0.5 | 30.0" | 0.2 | 0.3 | 0.4 |
| 30" | 44.5" | 0.3 | 0.4 | 0.6 | 37.0" | 0.3 | 0.3 | 0.5 |
| 36" | 51.5" | 0.4 | 0.5 | 0.7 | 44.0" | 0.3 | 0.4 | 0.6 |
| 42" | 58.5" | 0.5 | 0.6 | 0.8 | 51.0" | 0.4 | 0.5 | 0.7 |

- ① Riprap placed beyond the limits shown will be paid as concrete riprap in accordance with Item 432, "Riprap". When riprap is cast integrally with the precast safety end treatment, this dimension is 1'-0" minimum.
- ② 1#2" Dia ASTM A307 Gr A threaded anchor rod with 2 nuts and 2 washers. Galvanize all components in accordance with Item 445, "Galvanizing". Repair galvanizing that is damaged during transport or construction in accordance with the specifications.
- ③ 3#4" through holes in walls of safety end treatment for riprap anchor rods may be drilled with rotary (coring or masonry) type drilling equipment or may be formed. Do not use percussive (star) type drilling equipment. If holes are drilled, patch spalls in the inside face of the wall exceeding 1#2" from the holes.
- ④ Provide riprap toe wall when dimension is shown elsewhere in the plans or when field conditions require a toe wall.
- ⑤ Quantities shown are for one end of one reinforced concrete pipe culvert. For multiple pipe culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only. Quantities are based on the minimum unit lengths shown on the Precast Safety End Treatment (SET) standard sheets.

MATERIAL NOTES:

Provide Class "B" riprap in accordance with Item 432, "Riprap".
 Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise. The anchor rods shown are always required.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe may be used for TYPE II end treatment as specified in Item 467, "Safety End Treatment".
 Refer to PSET-SC or PSET-SP standard sheets for details of square safety end treatments not shown. Refer to PSET-RC or PSET-RP standard sheets for details of round safety end treatments not shown.
 For precast units with integrally cast riprap, substitute reinforcing steel in the amount on 0.26 in./ft. minimum for the threaded anchor rods shown. When requested, submit sealed engineering drawings for approval prior to construction. Shop drawings will not be required. Note that a proprietary precast unit with integral riprap is available from L&R Precast Concrete Works, Inc. (956) 583-6293 or www.lrpccast.com.
 Payment for riprap and toewalls is included in the price bid for each safety end treatment.

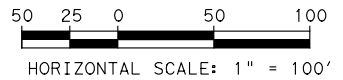
These riprap details are only applicable when notes that require placement of riprap with precast safety end treatments are shown elsewhere in the plans.
 Precast units with integrally cast riprap are permitted unless noted otherwise on the plans.

Texas Department of Transportation Bridge Division Standard

PRECAST SAFETY END TREATMENT TYPE II RIPRAP DETAILS

PSET-RR

| | | | | |
|-----------------------|----------|-----------|-----------|---------|
| FILE: psetrrse-20.dgn | DN: GAF | CK: TxDOT | DW: JRP | CK: GAF |
| ©TxDOT February 2020 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| DIST | COUNTY | | SHEET NO. | |
| WACO | HAMILTON | | 248 | |



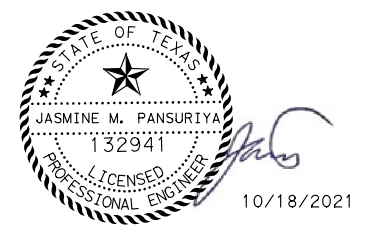
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 3549 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 1500 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 444 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 43 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

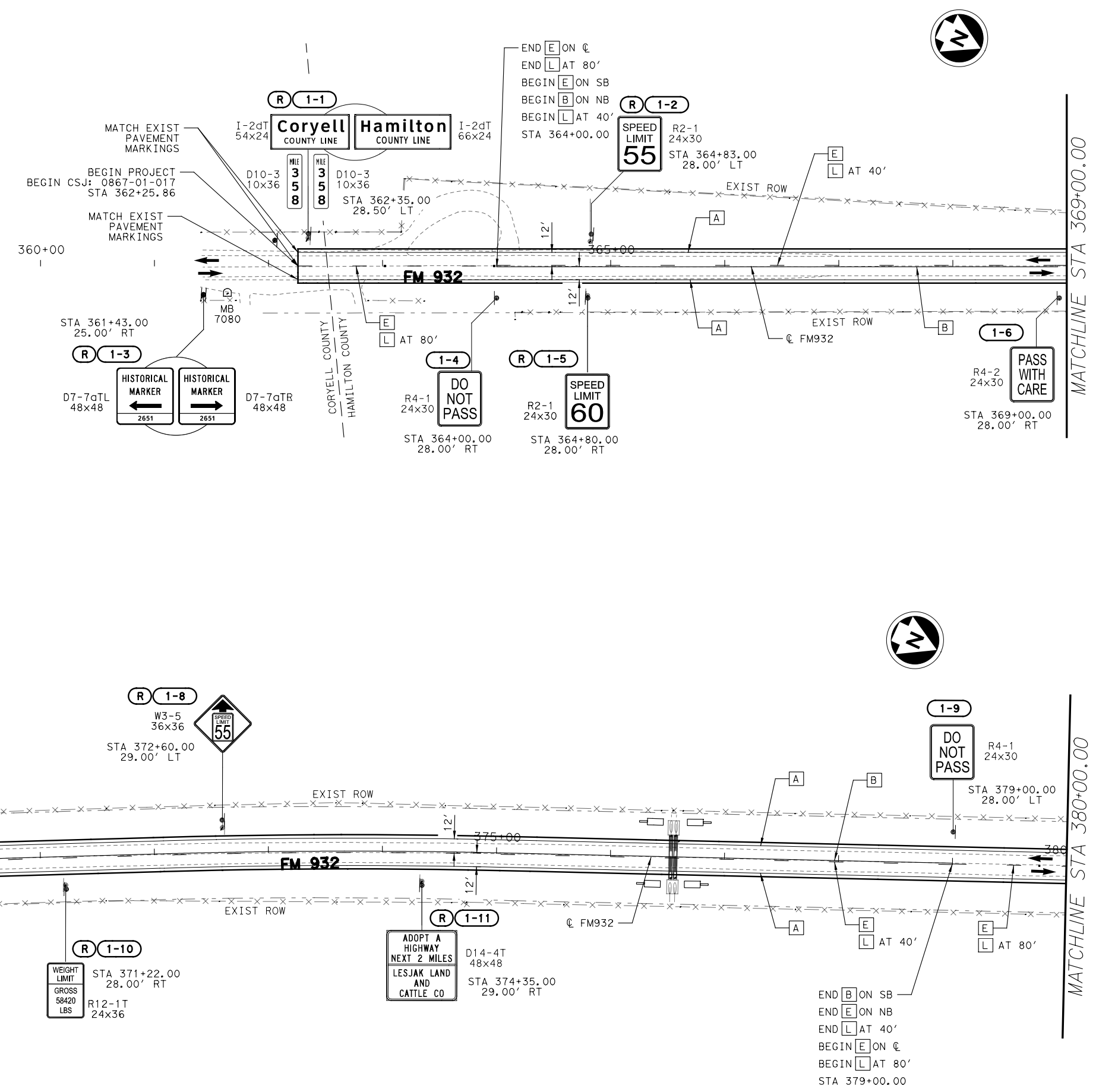


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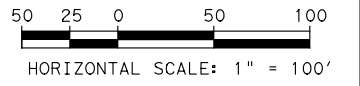
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BEGIN PROJECT TO STA 380+00.00

(SHEET 1 OF 37)

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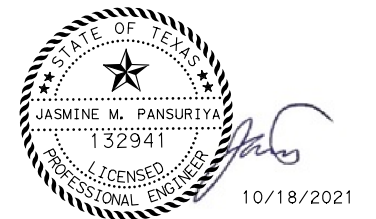
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- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 1200 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 525 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 42 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

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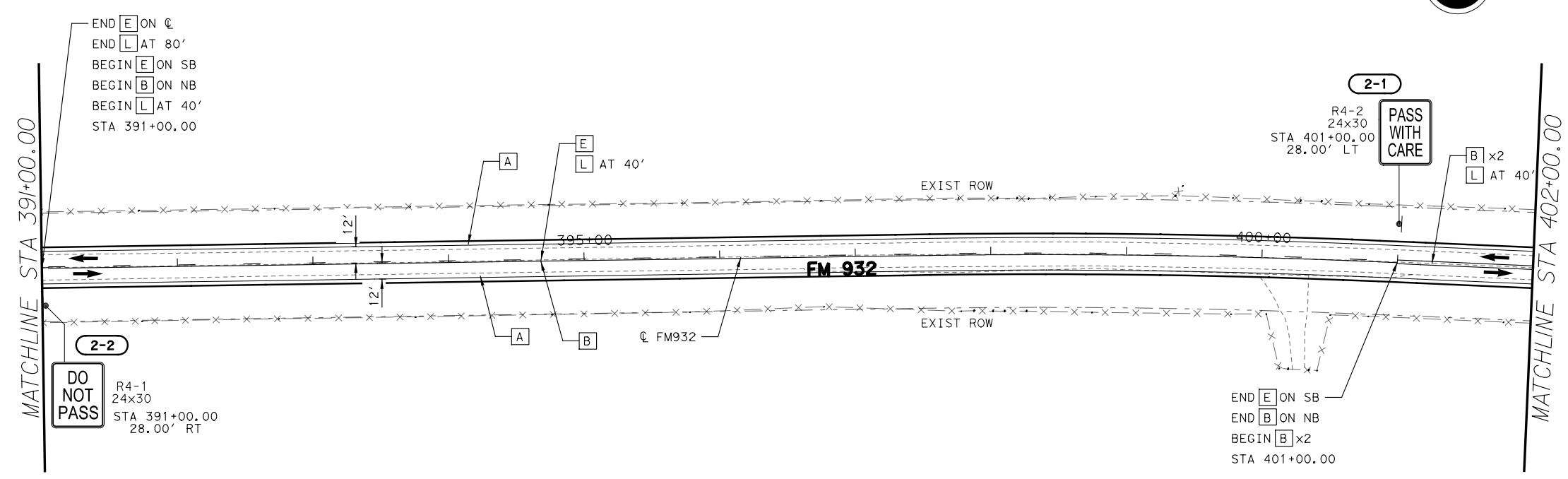
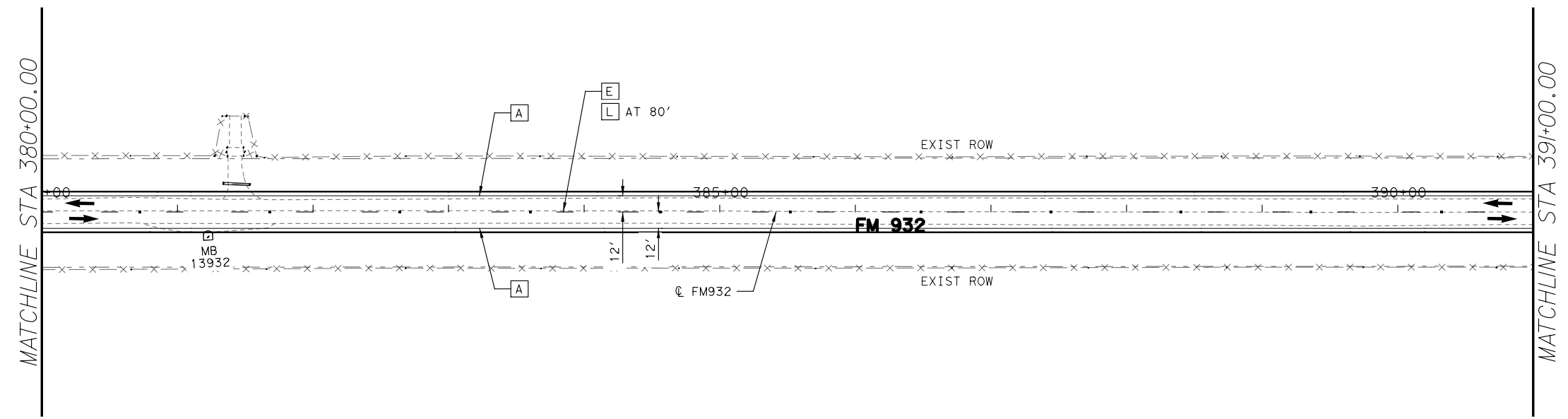


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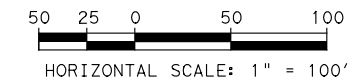
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STA 380+00.00 TO STA 402+00.00

(SHEET 2 OF 37)

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| GRAPHICS RP | TX | WACO | HAMILTON | 250 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
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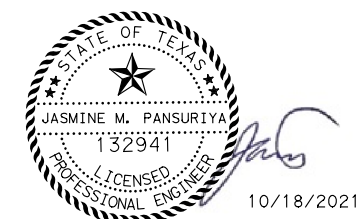
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- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
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| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4347 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 4292 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | 16 |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 55 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

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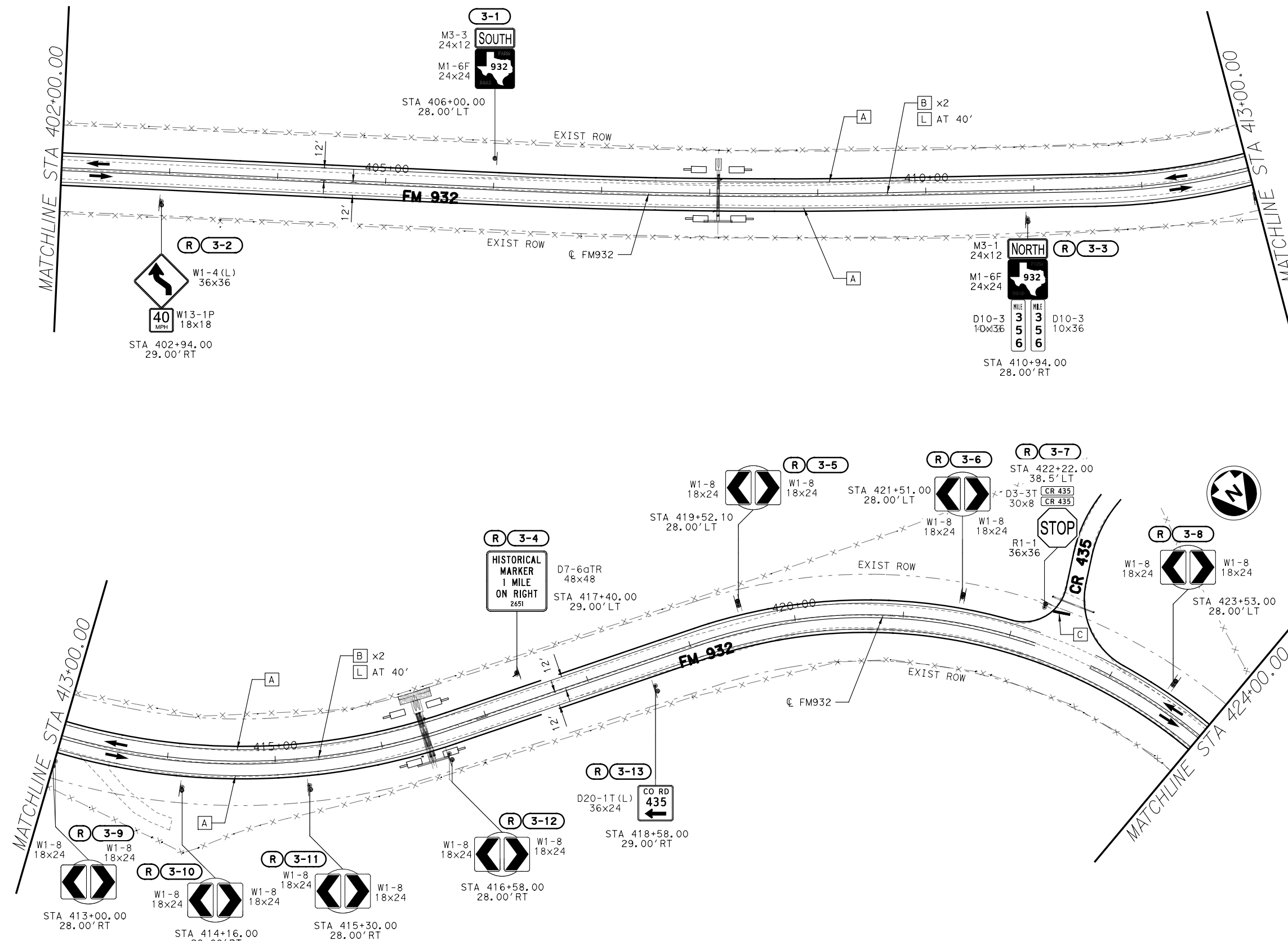
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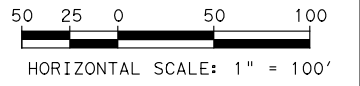
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STA 402+00.00 TO STA 424+00.00

(SHEET 3 OF 37)

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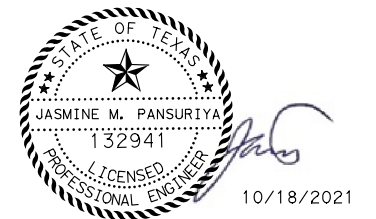
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- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4295 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 3941 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | 14 |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 63 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 53 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

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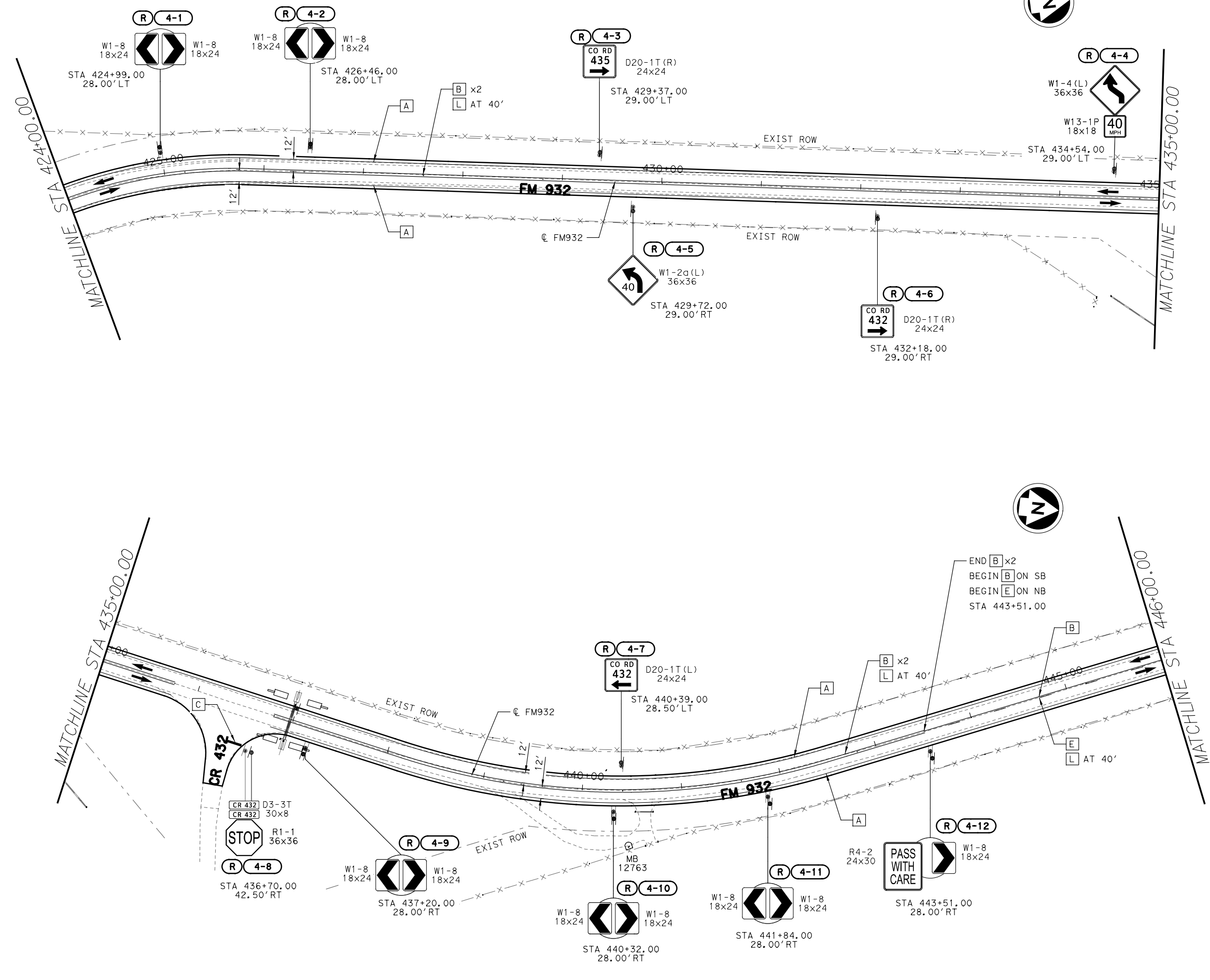
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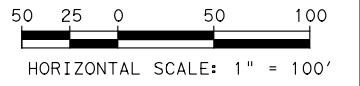
SIGNING AND PAVEMENT MARKINGS
STA 424+00.00 TO STA 446+00.00

(SHEET 4 OF 37)

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| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
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| GRPH CHECK | CONTROL | SECTION | JOB | |
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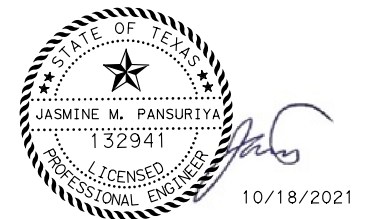
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 700 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 550 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 37 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

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FM 932

SIGNING AND PAVEMENT MARKINGS
STA 446+00.00 TO STA 468+00.00

(SHEET 5 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 253 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

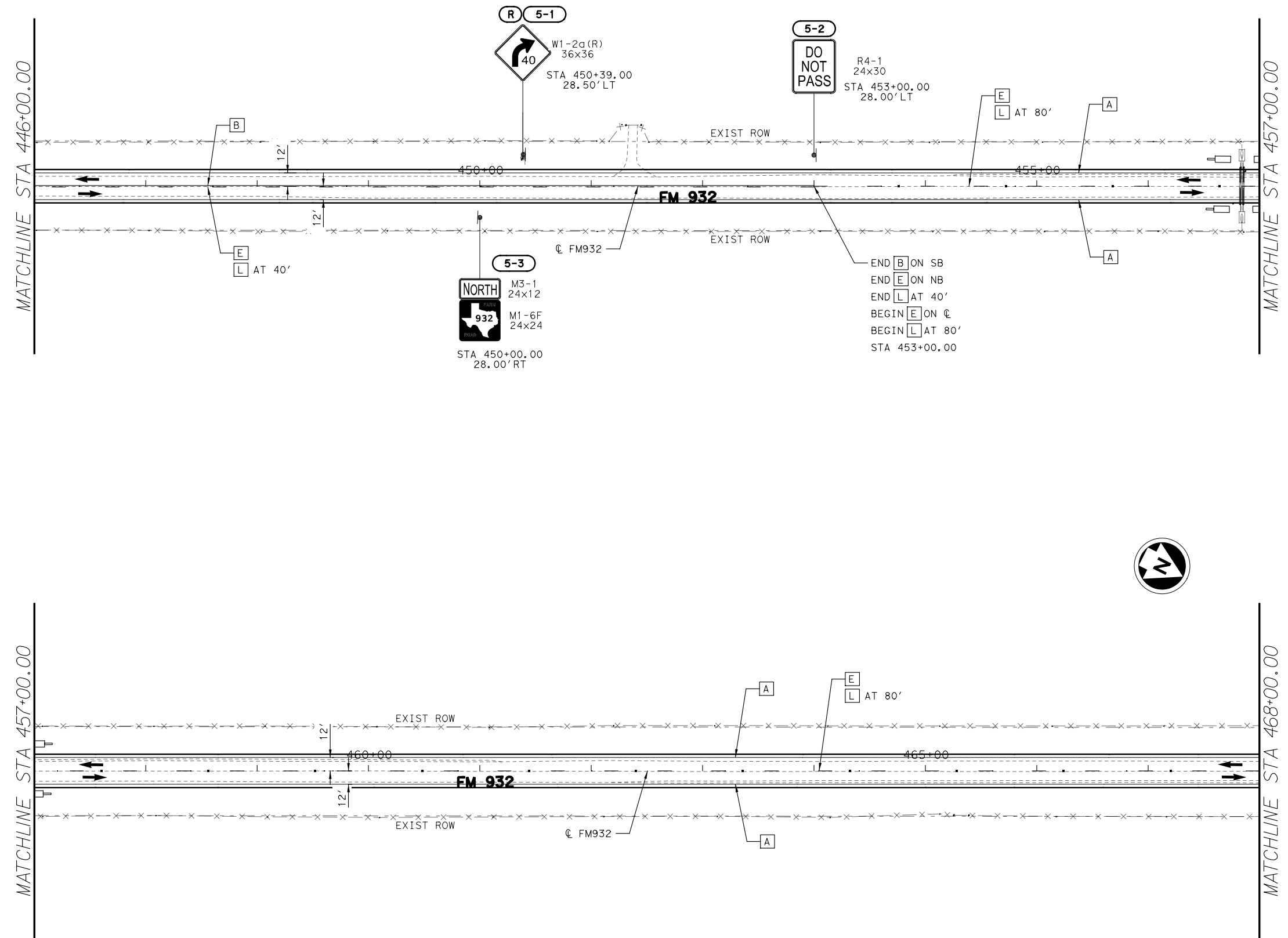
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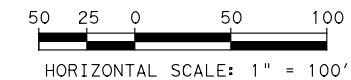
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MATCHLINE STA 457+00.00

MATCHLINE STA 468+00.00

FILE: FM932*OTHON*PVMT&SIGN*05.dgn
DATE: 10/18/2021 2:47:50 PM





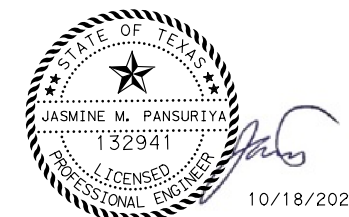
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | 8 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 2474 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 363 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 50 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

- EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
- EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
- ALL STATION AND OFFSETS ARE REFERENCED FROM CL FM932 UNLESS NOTED OTHERWISE.
- WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

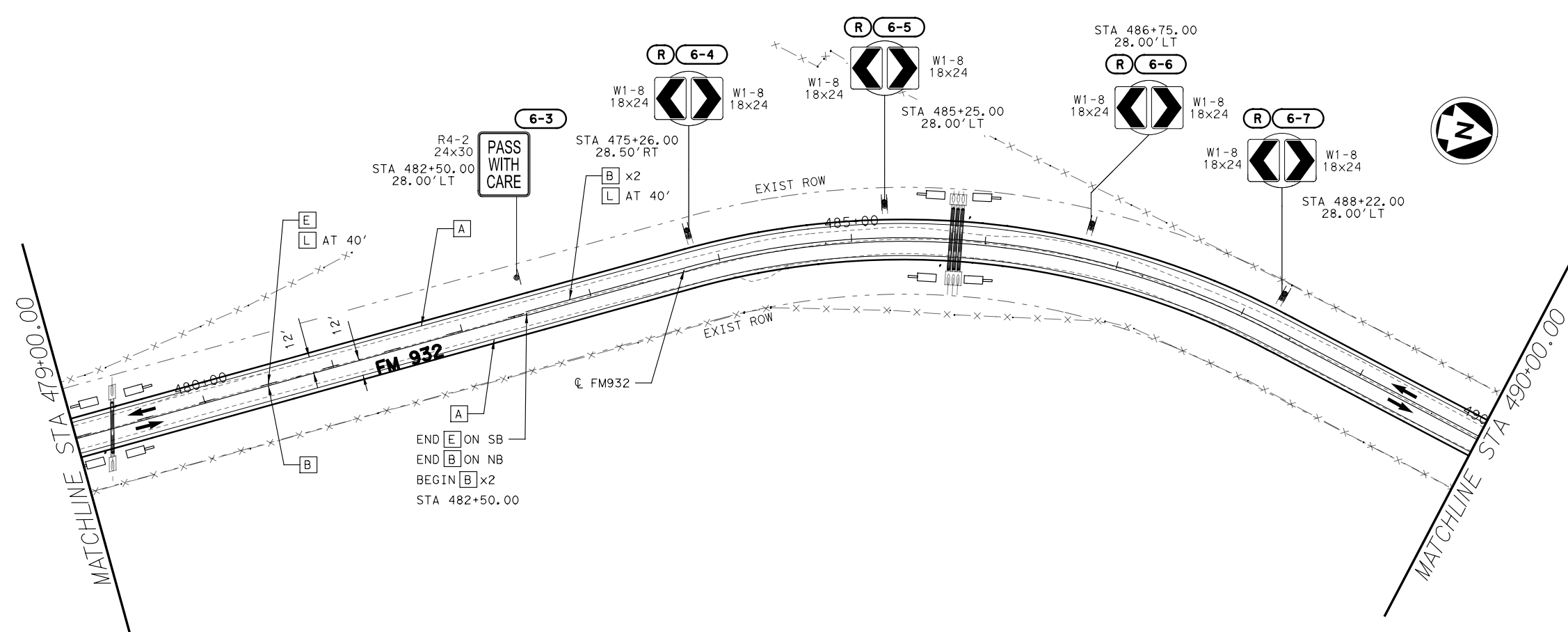
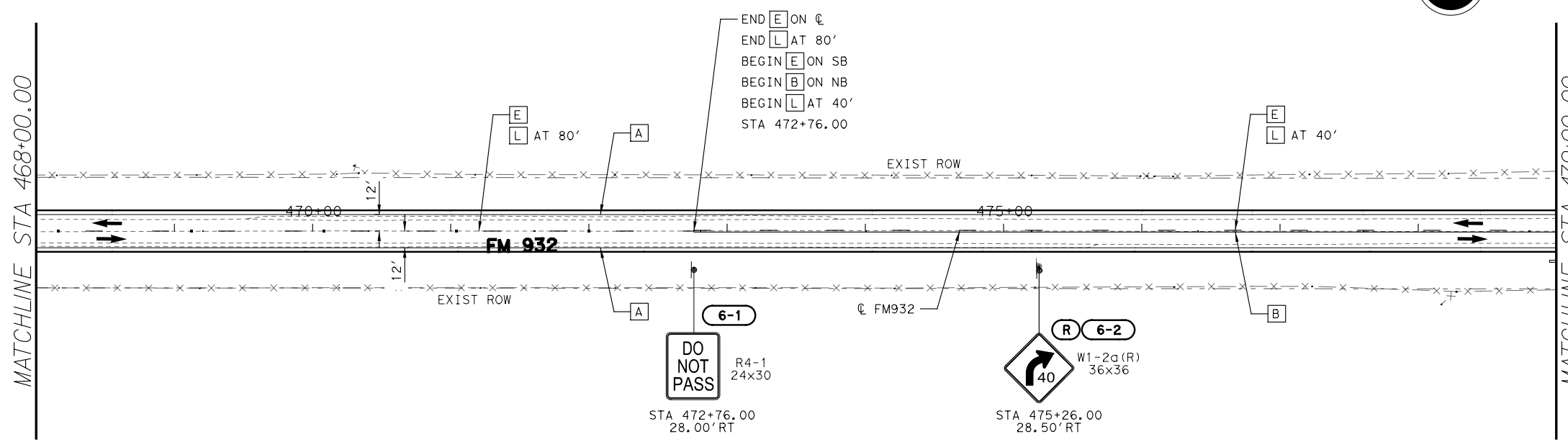


FM 932

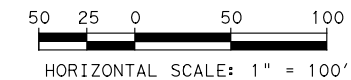
SIGNING AND PAVEMENT MARKINGS
STA 468+00.00 TO STA 490+00.00

(SHEET 6 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 254 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVMT&SIGN*06.dgn
DATE: 10/18/2021 2:47:51 PM



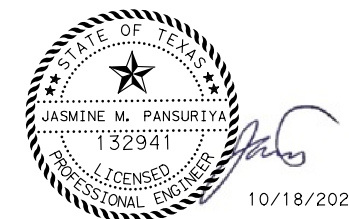
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC)GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4270 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 4140 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | 12 |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 52 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM C FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".



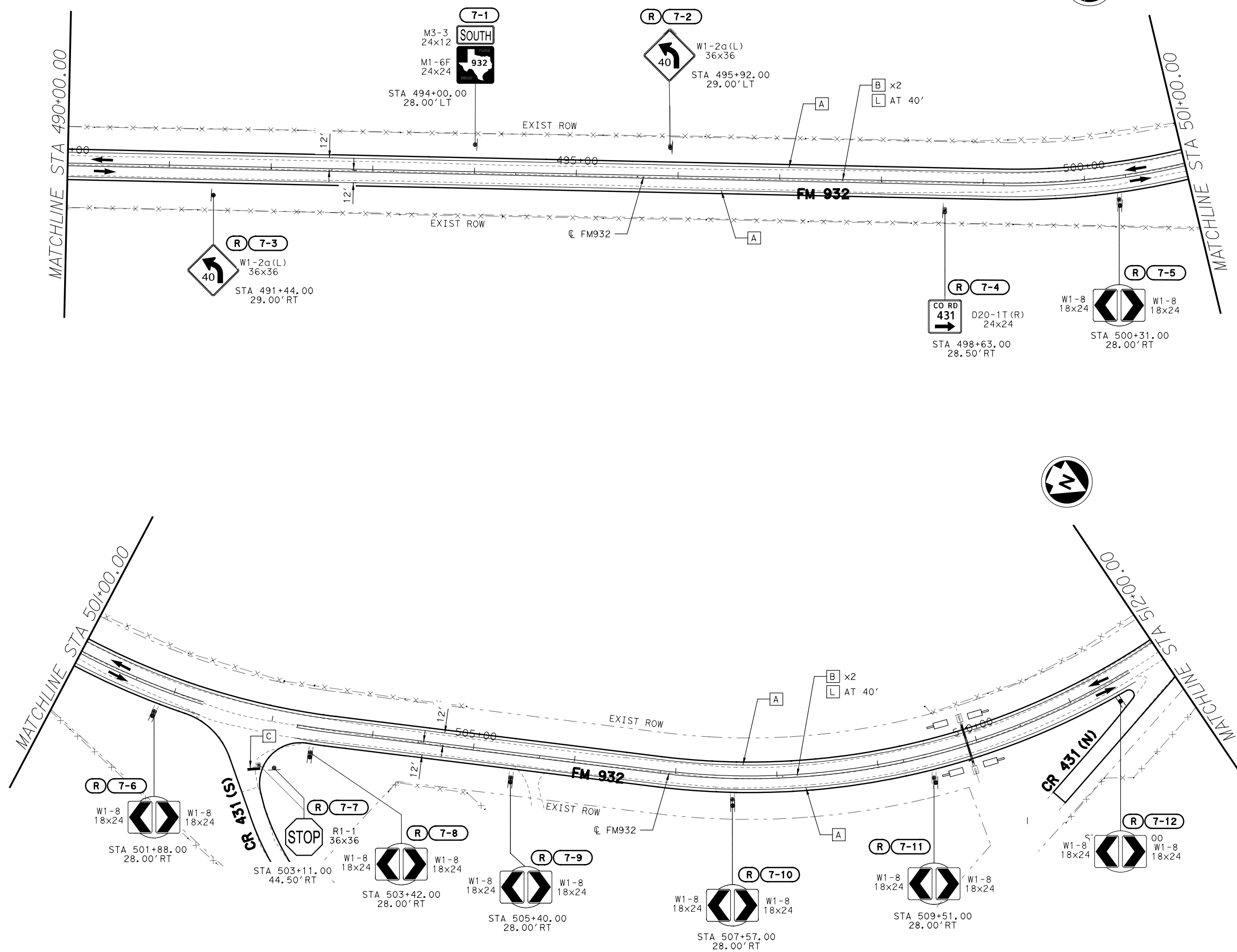
FM 932

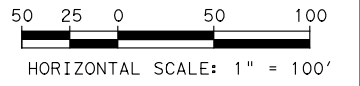
SIGNING AND PAVEMENT MARKINGS
STA 490+00.00 TO STA 512+00.00

(SHEET 7 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 255 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*PVMT&SIGN*07.dgn
DATE: 10/18/2021 2:47:51 PM





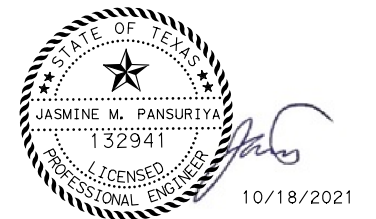
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4330 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 1560 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 488 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 45 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

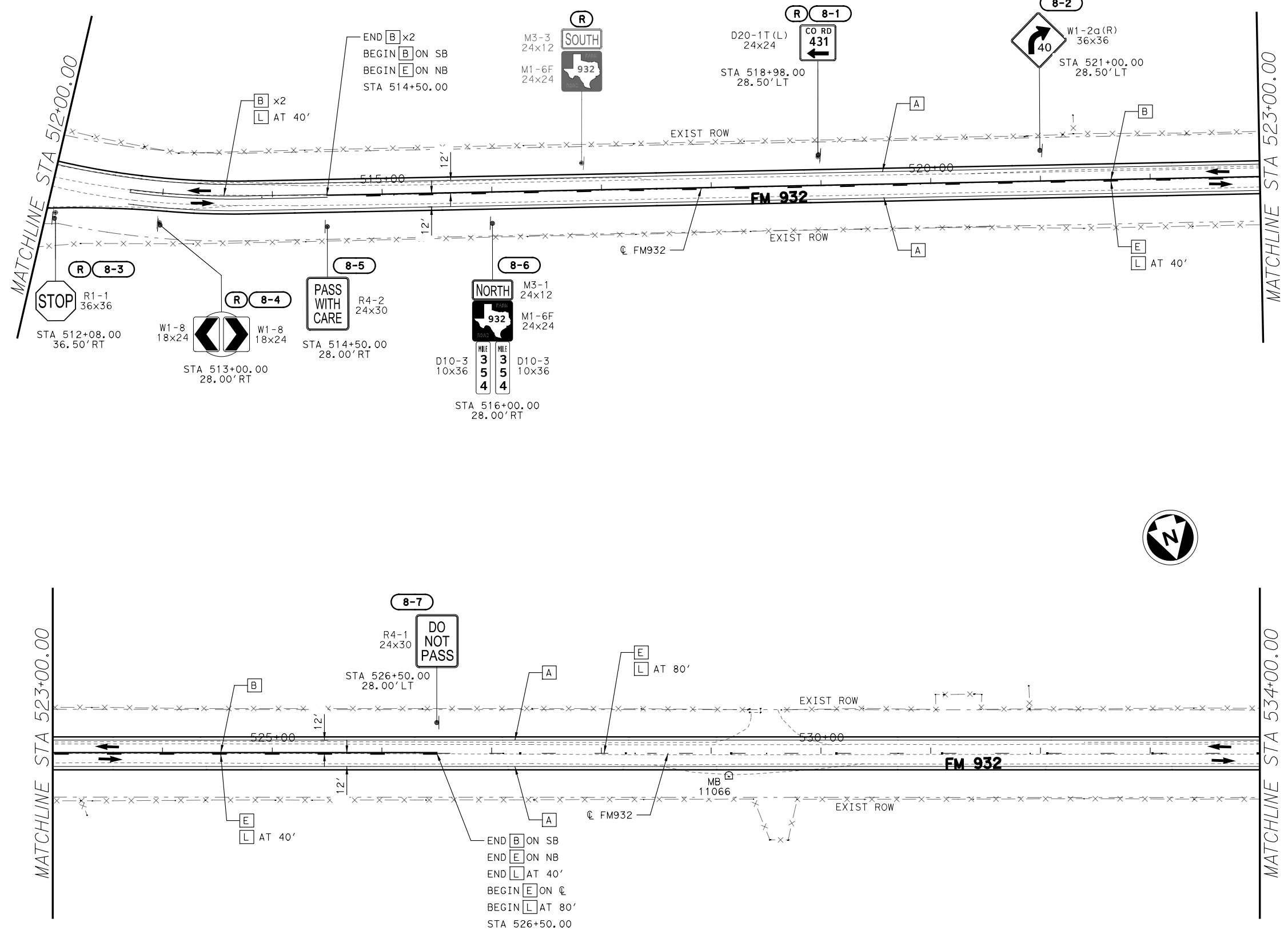


FM 932

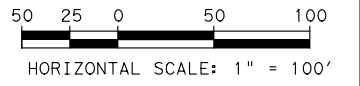
SIGNING AND PAVEMENT MARKINGS
STA 512+00.00 TO STA 534+00.00

(SHEET 8 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 256 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVMT&SIGN*08.dgn
DATE: 10/18/2021 2:47:52 PM



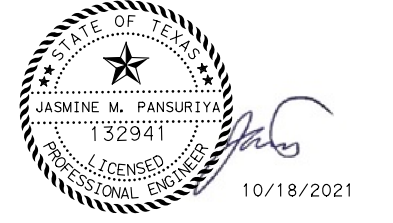
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 1750 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 550 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 50 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM C FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

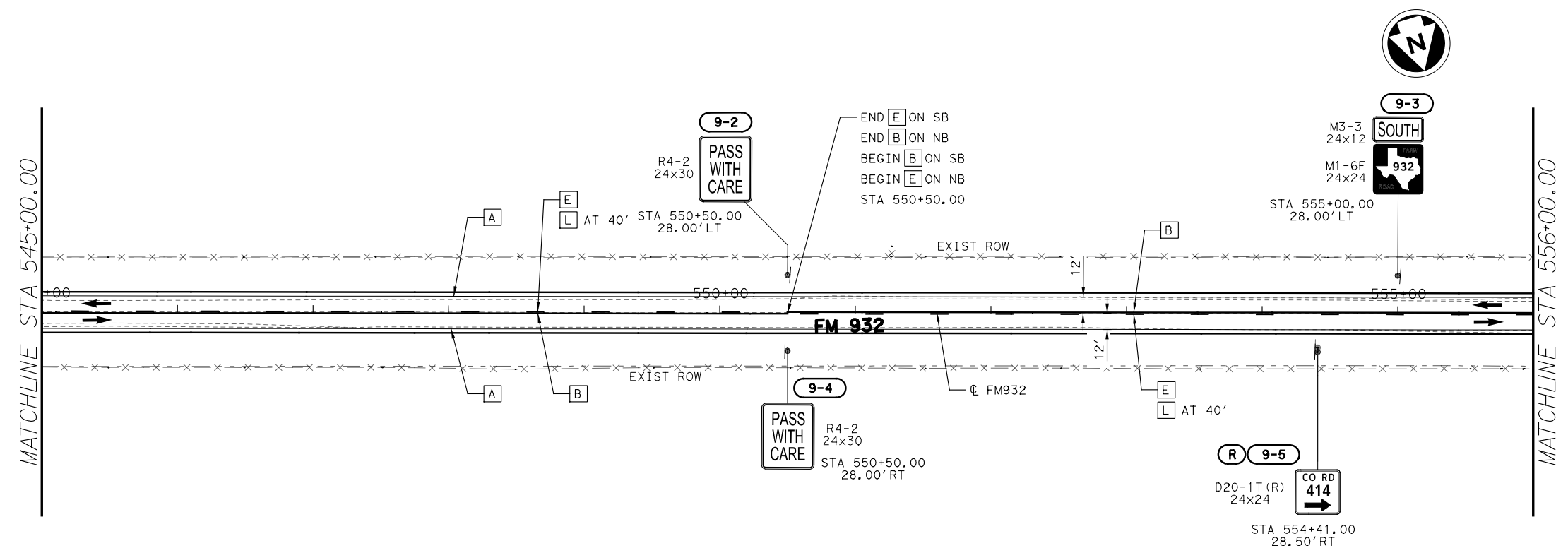
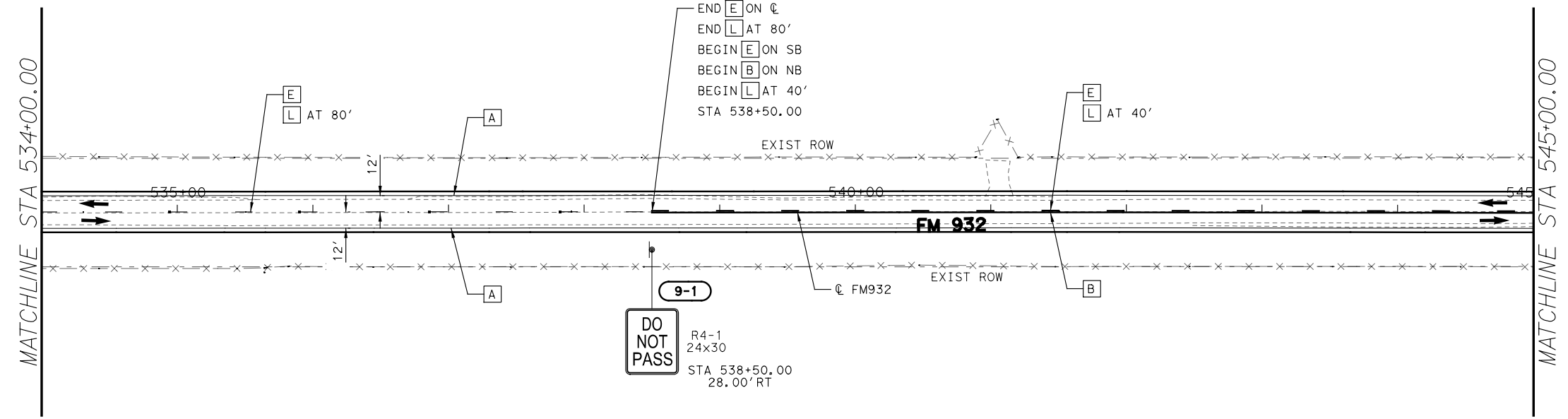


FM 932

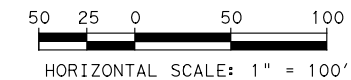
SIGNING AND PAVEMENT MARKINGS
STA 534+00.00 TO STA 556+00.00

(SHEET 9 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 257 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVMT&SIGN*09.dgn
DATE: 10/18/2021 2:47:53 PM



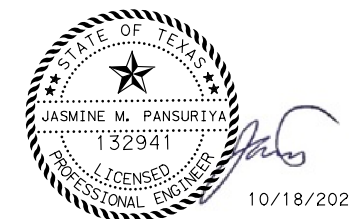
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4310 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 2960 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | 11 |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 315 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 53 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".



FM 932

SIGNING AND PAVEMENT MARKINGS
STA 556+00.00 TO STA 578+00.00

(SHEET 10 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 258 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

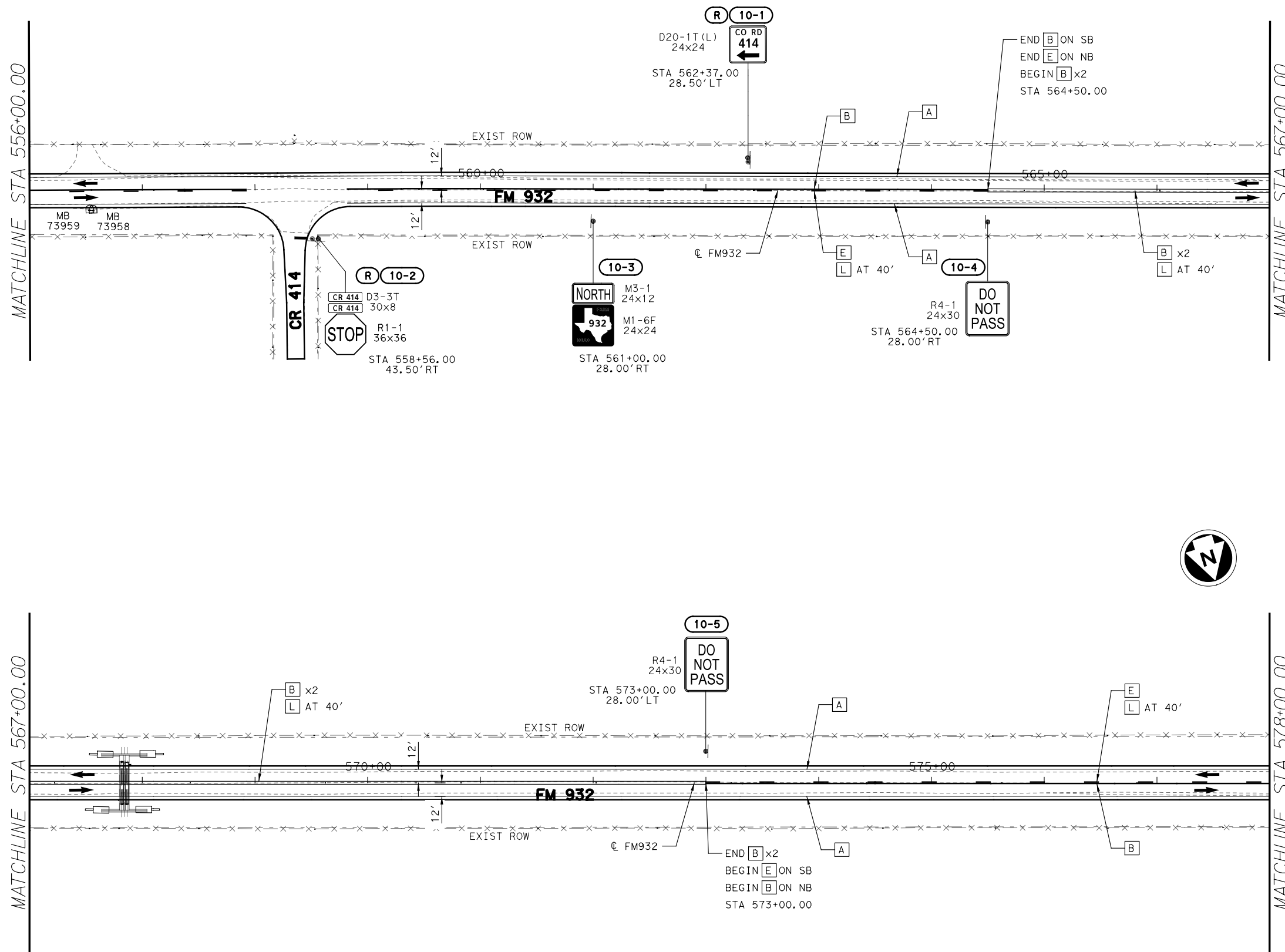
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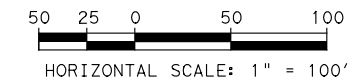
MATCHLINE STA 567+00.00

MATCHLINE STA 567+00.00

MATCHLINE STA 578+00.00

FILE: FM932*OTHON*PVMT&SIGN*10.dgn
DATE: 10/18/2021 2:47:54 PM





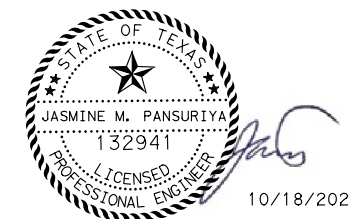
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 2050 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 550 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 54 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM C FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".



FM 932

SIGNING AND PAVEMENT MARKINGS
STA 578+00.00 TO STA 600+00.00

(SHEET 11 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 259 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

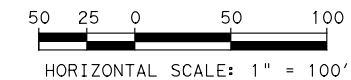
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MATCHLINE STA 589+00.00

MATCHLINE STA 589+00.00

MATCHLINE STA 600+00.00

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DATE: 10/18/2021 2:47:54 PM



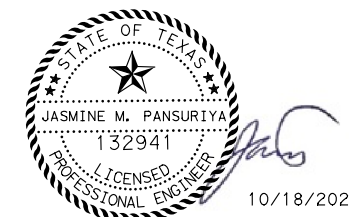
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| NO. | DESCRIPTION | QTY | UNIT | EA |
|-------------|---------------------------------|-----|------|------|
| 0658-6047 | (OM-2Y) (WC) GND | | | |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | | 4322 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | | 1522 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | | 12 |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | | 531 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | | 47 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | | |

NOTES:

- EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
- EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
- ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
- WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

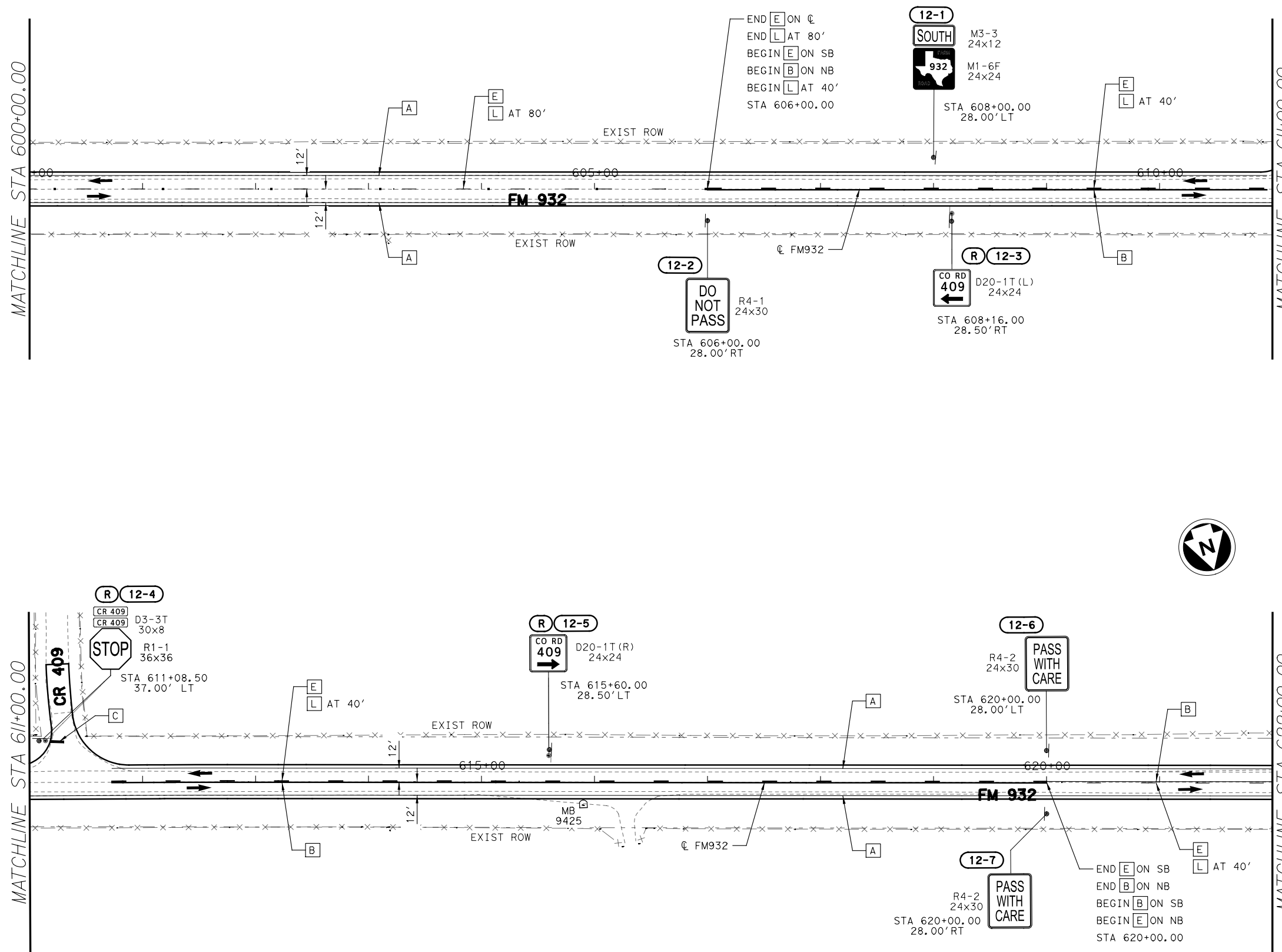


FM 932

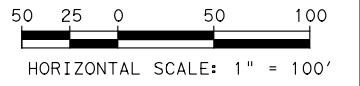
SIGNING AND PAVEMENT MARKINGS
STA 600+00.00 TO STA 622+00.00

(SHEET 12 OF 37)

| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
|-------------|-------------------|-------------------------|----------|--|-------------|
| JMP | 6 | (SEE TITLE SHEET) | | | FM 932 |
| GRAPHICS RP | TX | WACO | HAMILTON | | 260 |
| GRPH CHECK | CONTROL | SECTION | JOB | | |
| JMP | 0867 | 01 | 017 | | |



FILE: FM932*OTHON*PVMT&SIGN*12.dgn
DATE: 10/18/2021 2:47:55 PM



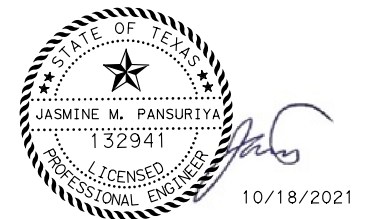
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 2000 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 425 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 47 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

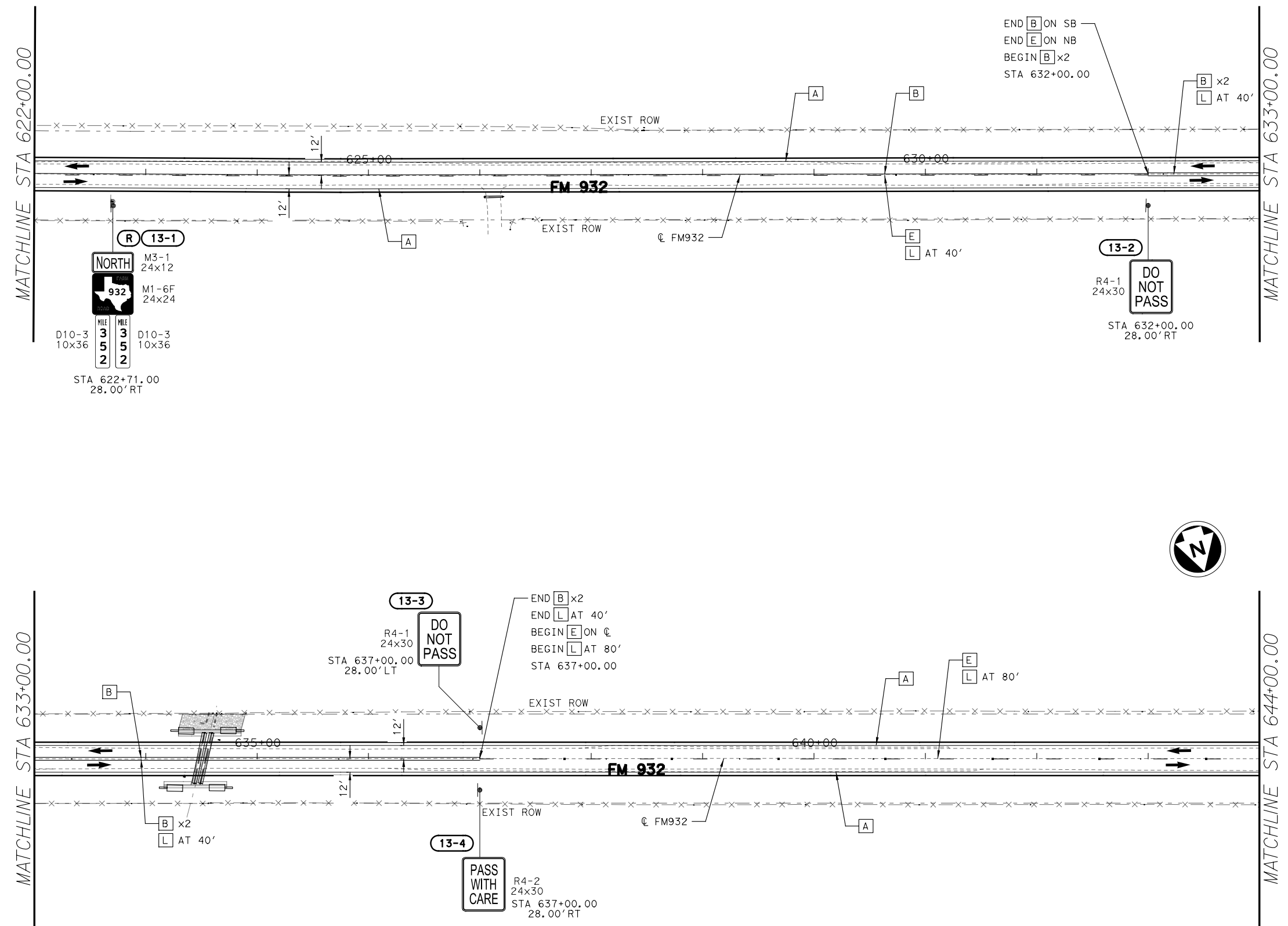


FM 932

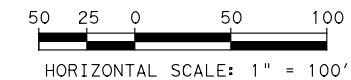
SIGNING AND PAVEMENT MARKINGS
STA 622+00.00 TO STA 644+00.00

(SHEET 13 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 261 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVMT&SIGN*13.dgn
DATE: 10/18/2021 2:47:56 PM



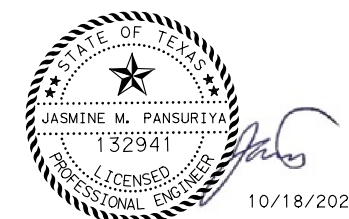
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 2650 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 363 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 52 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

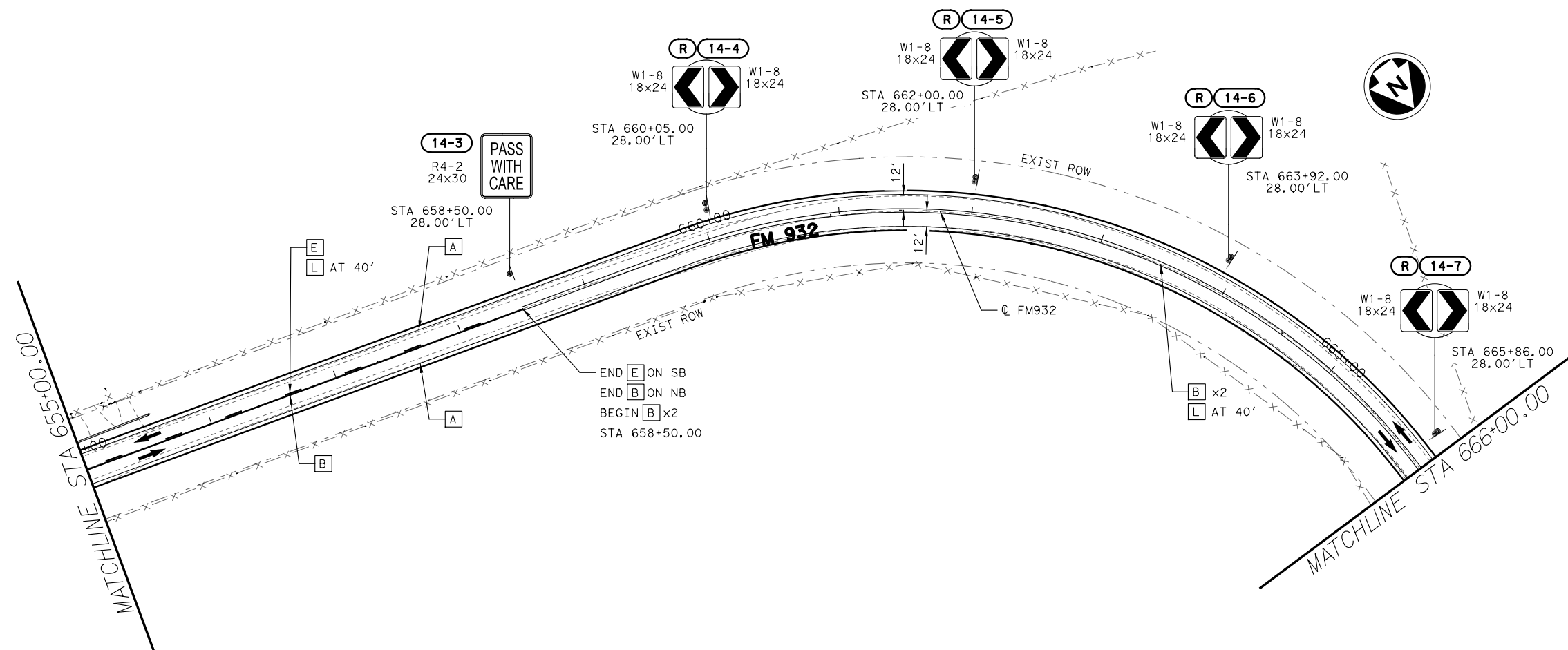
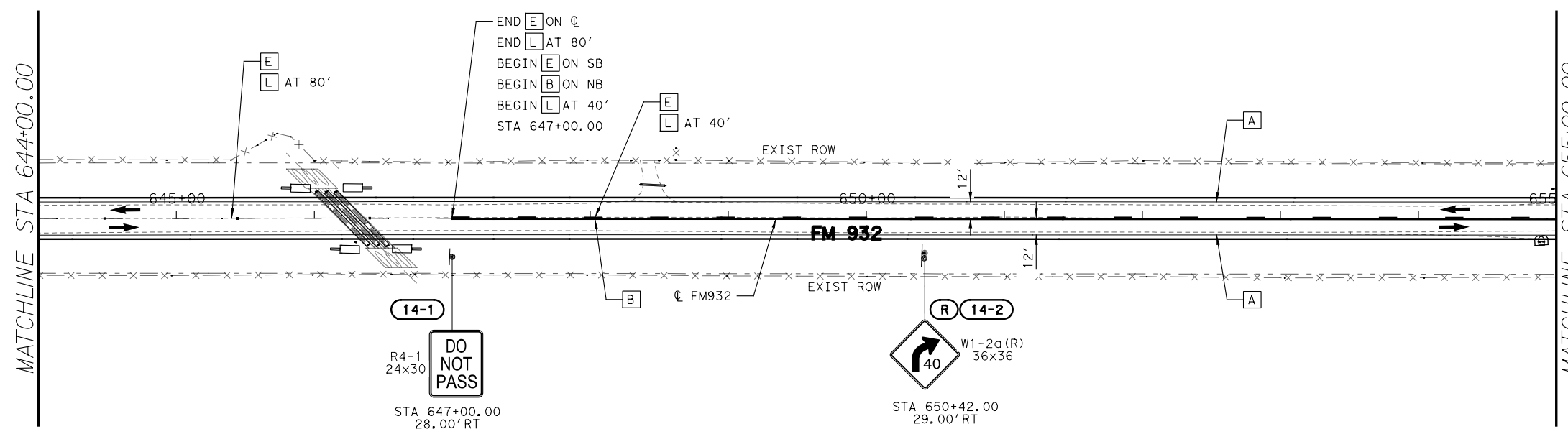


FM 932

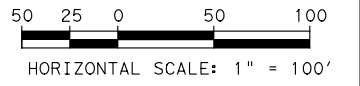
SIGNING AND PAVEMENT MARKINGS
STA 644+00.00 TO STA 666+00.00

(SHEET 14 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|--------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO.: |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 262 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVMT&SIGN*14.dgn
DATE: 10/18/2021 2:47:57 PM



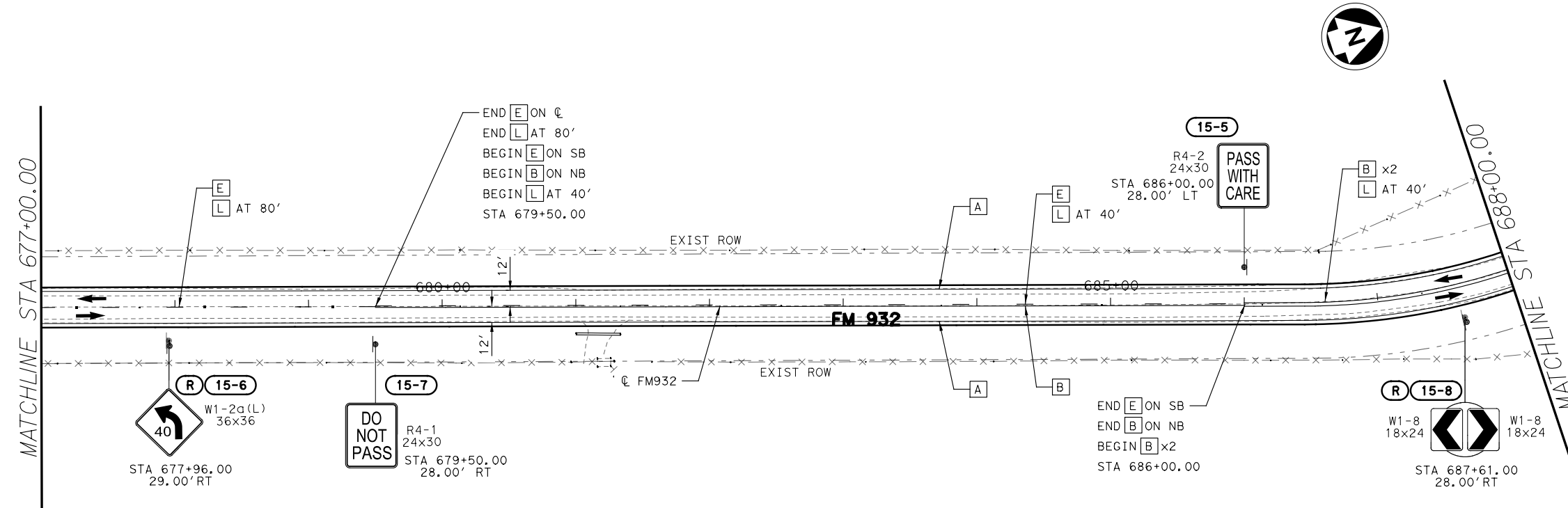
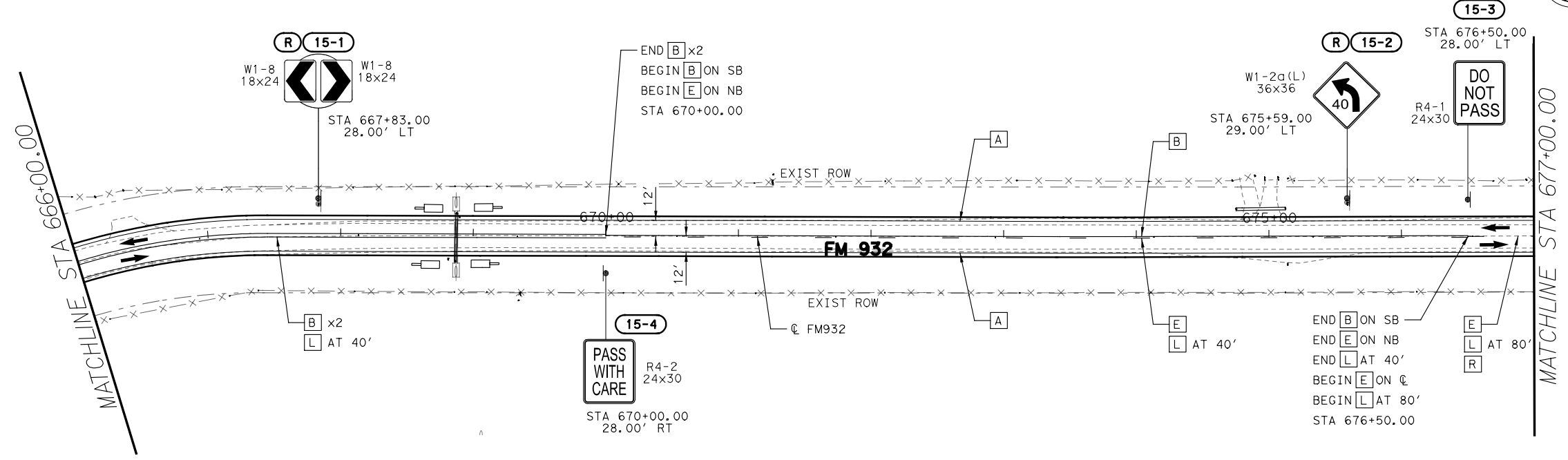
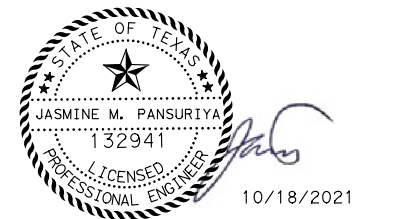
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC)GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 2500 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 400 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 53 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".



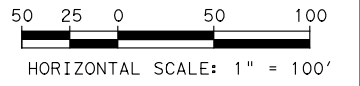
FM 932

SIGNING AND PAVEMENT MARKINGS
STA 666+00.00 TO STA 688+00.00

(SHEET 15 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 263 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*PVMT&SIGN*15.dgn
DATE: 10/18/2021 2:47:57 PM



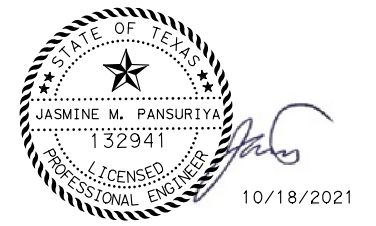
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 4150 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 63 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 55 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM C FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN THE PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".



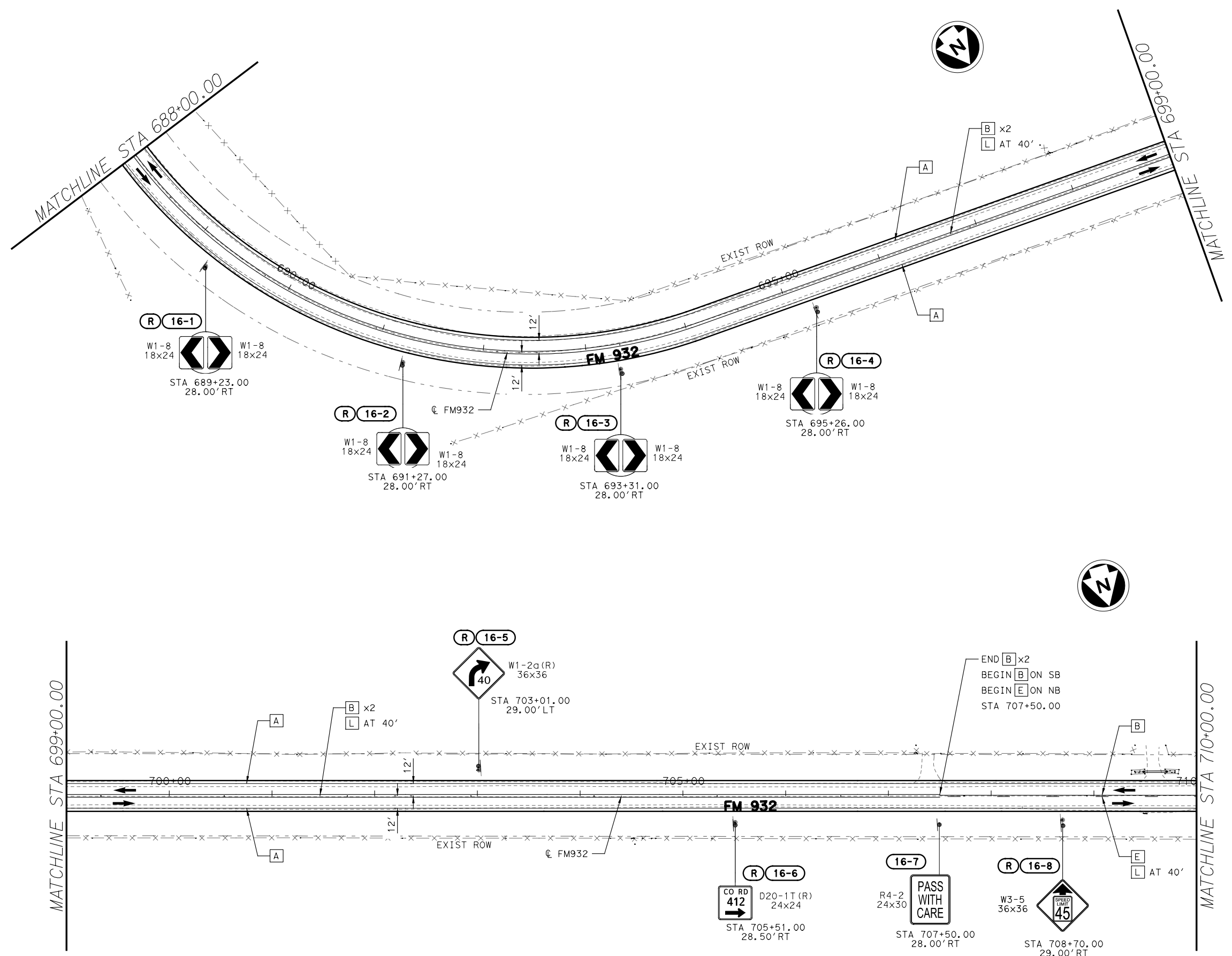
FM 932

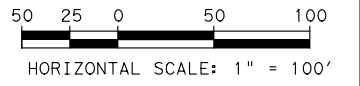
SIGNING AND PAVEMENT MARKINGS
STA 688+00.00 TO STA 710+00.00

(SHEET 16 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 264 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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DATE: 10/18/2021 2:47:58 PM



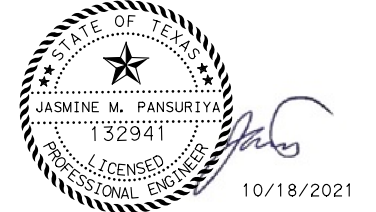


LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4185 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 2730 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | 12 |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 349 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | 150 |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 55 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | 19 |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | 75 |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

- NOTES:
- EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
 - EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
 - ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
 - WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

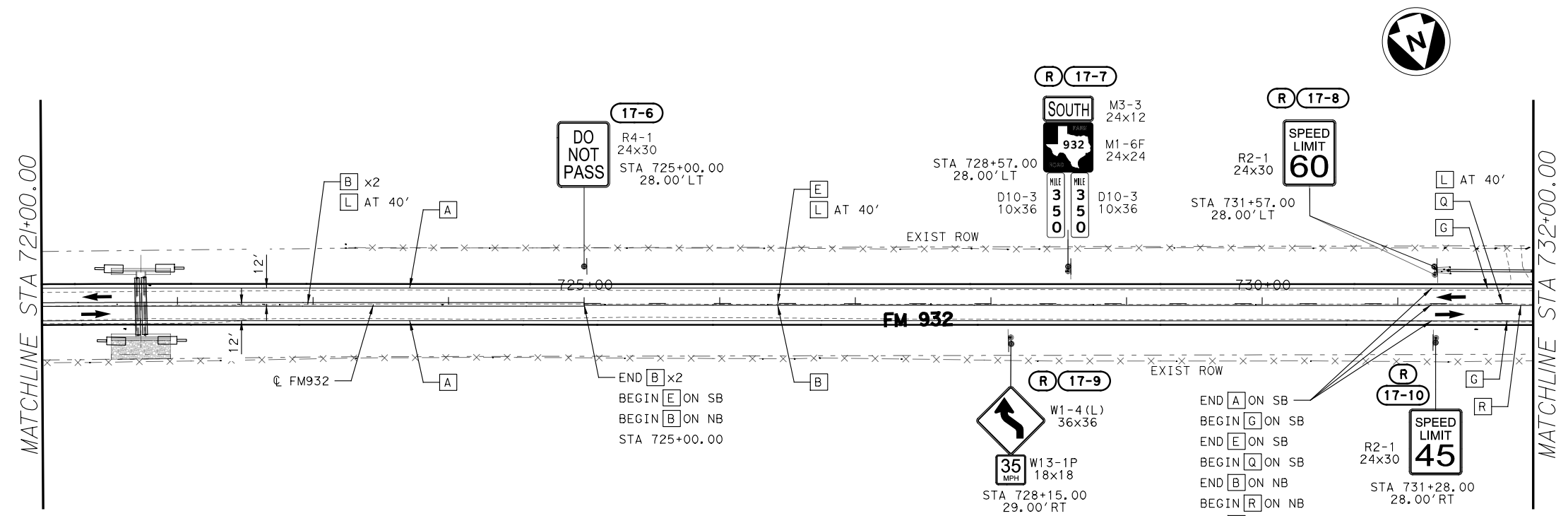
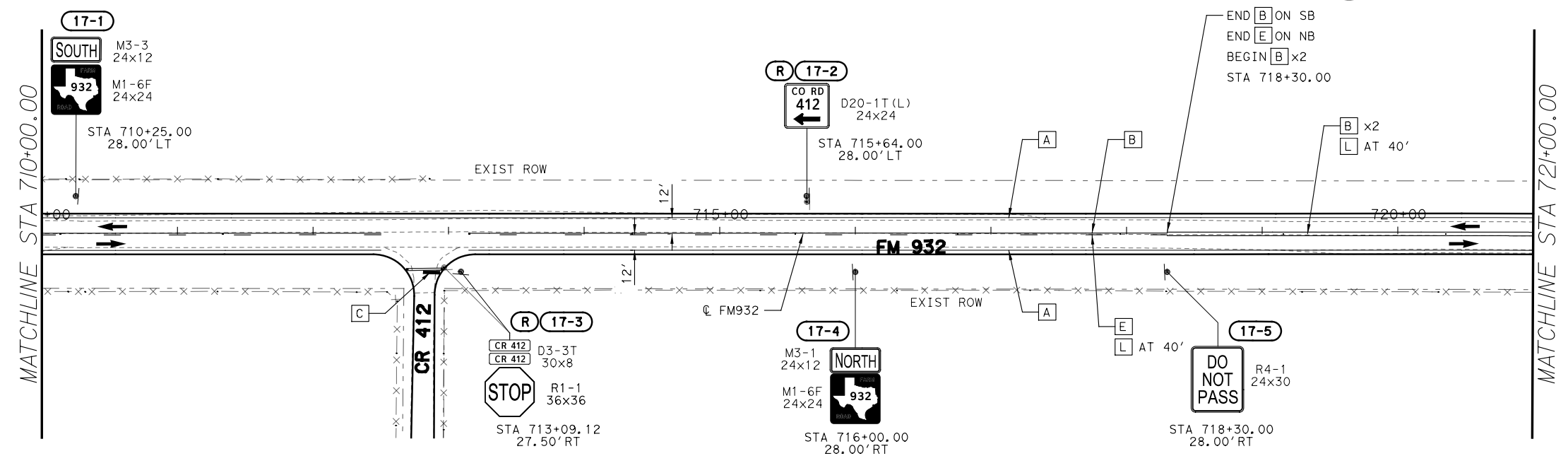


FM 932

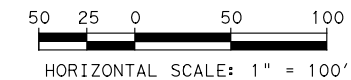
SIGNING AND PAVEMENT MARKINGS
STA 710+00.00 TO STA 732+00.00

(SHEET 17 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 265 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



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DATE: 10/18/2021 6:35:48 PM



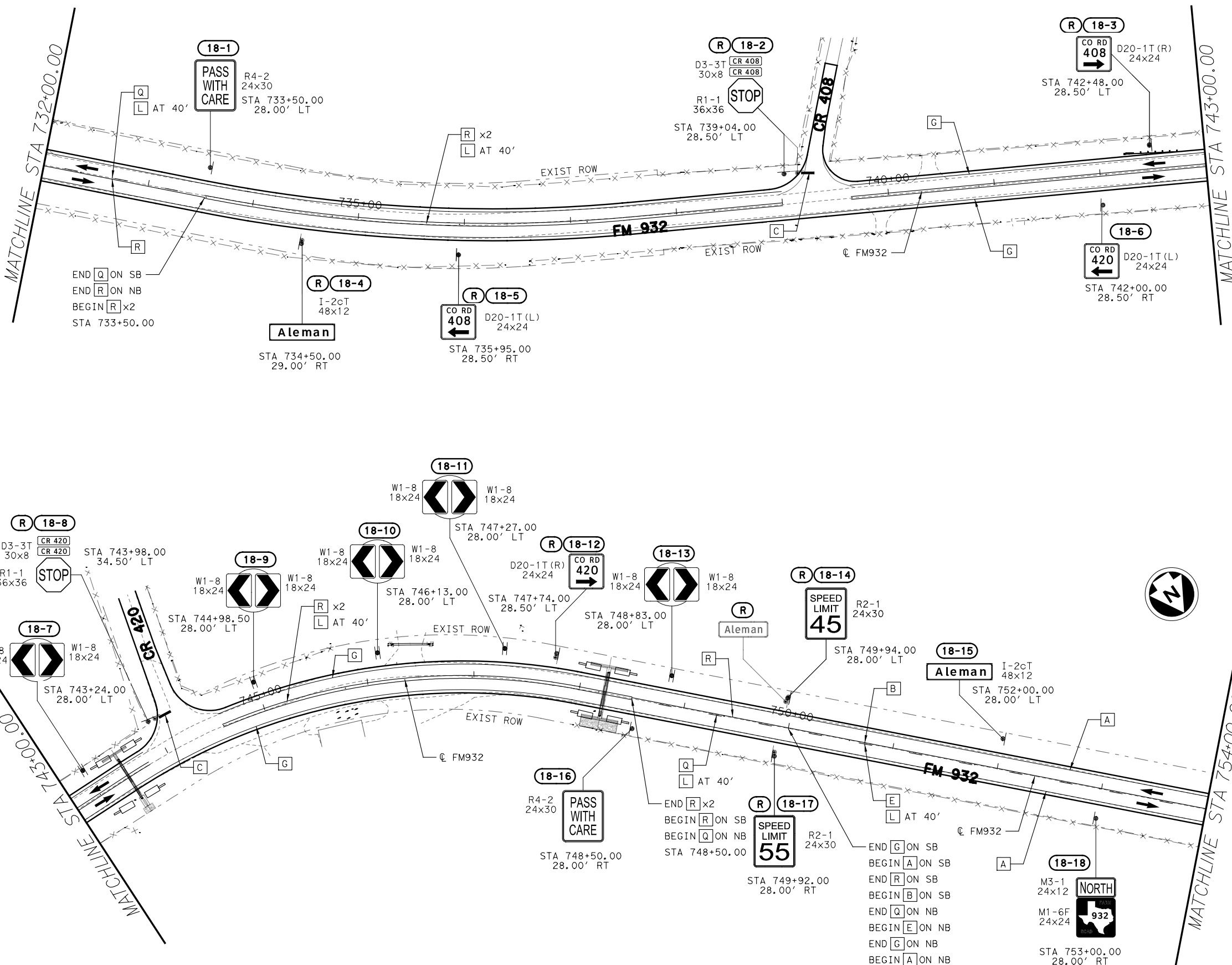
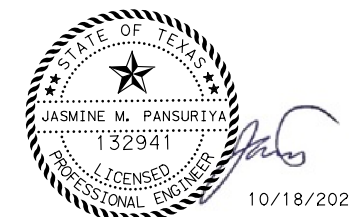
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC)GND | EA | 8 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 800 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 400 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | 24 |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 100 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | 3457 |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 53 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | 76 |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | 3014 |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

- EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
- EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
- ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
- WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN THE PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".



Texas Department of Transportation
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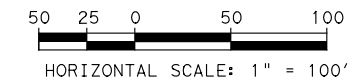
FM 932

SIGNING AND PAVEMENT MARKINGS
STA 732+00.00 TO STA 754+00.00

(SHEET 18 OF 37)

| | | | | |
|----------------|---------------------|---|-----------------|--------------------|
| DESIGN RP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK JMP | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 266 |
| GRAPHICS RP | CONTROL | SECTION | JOB | |
| GRPH CHECK JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*PVMT&SIGN*18.dgn
DATE: 10/18/2021 6:36:06 PM



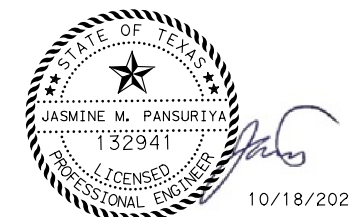
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC)GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 2200 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 375 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 47 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM C FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".



FM 932

SIGNING AND PAVEMENT MARKINGS
STA 754+00.00 TO STA 776+00.00

(SHEET 19 OF 37)

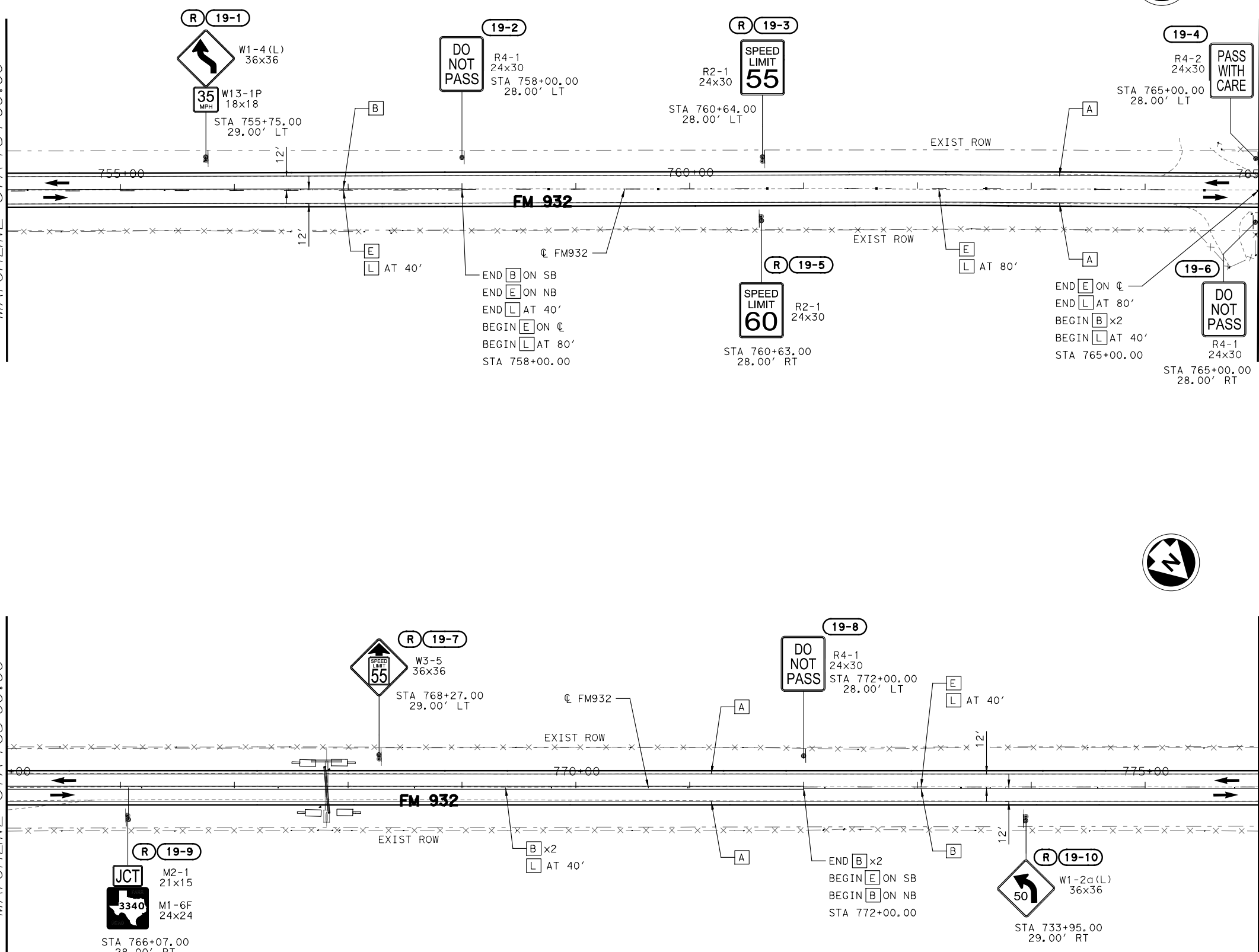
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|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 267 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

MATCHLINE STA 754+00.00

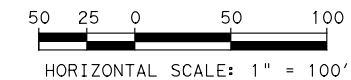
MATCHLINE STA 765+00.00

MATCHLINE STA 765+00.00

MATCHLINE STA 776+00.00



FILE: FM932*OTHON*PVMT&SIGN*19.dgn
DATE: 10/18/2021 2:48:01 PM



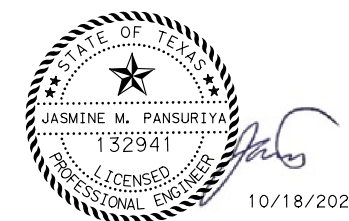
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC)GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4317 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 3104 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | 16 |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 283 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 54 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM C FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

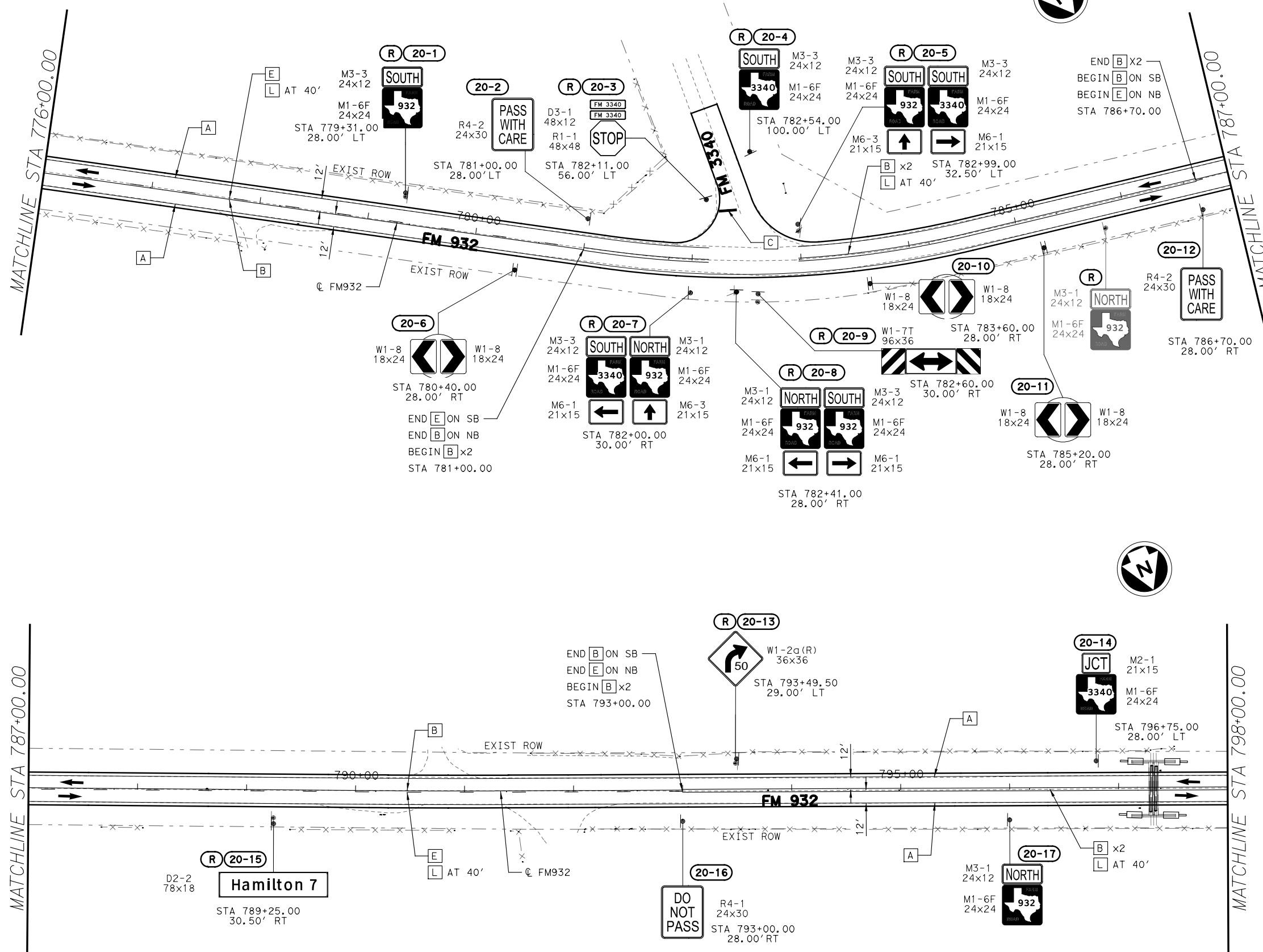


FM 932

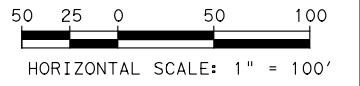
SIGNING AND PAVEMENT MARKINGS
STA 776+00.00 TO STA 798+00.00

(SHEET 20 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 268 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVTM&SIGN*20.dgn
DATE: 10/18/2021 2:48:02 PM



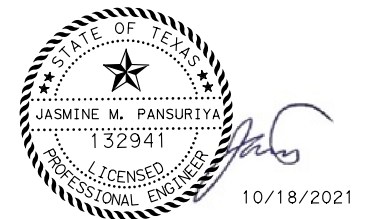
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 3600 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 200 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 55 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM C FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

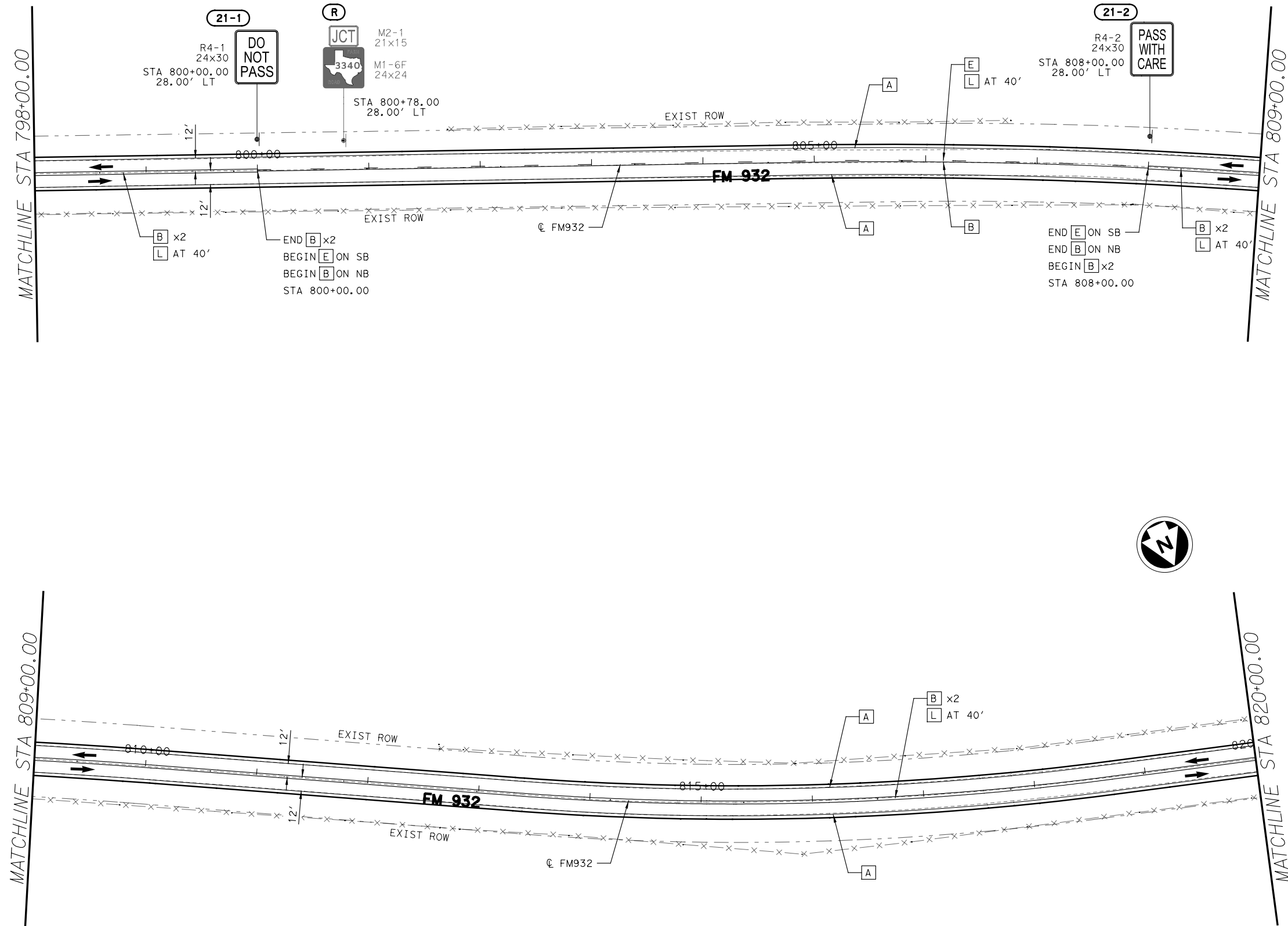


FM 932

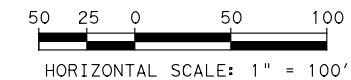
SIGNING AND PAVEMENT MARKINGS
STA 798+00.00 TO STA 820+00.00

(SHEET 21 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 269 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVMT&SIGN*21.dgn
DATE: 10/18/2021 2:48:03 PM



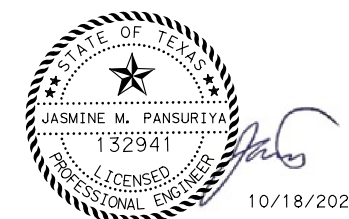
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 3600 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 200 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 55 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".



FM 932

SIGNING AND PAVEMENT MARKINGS
STA 820+00.00 TO STA 842+00.00

(SHEET 22 OF 37)

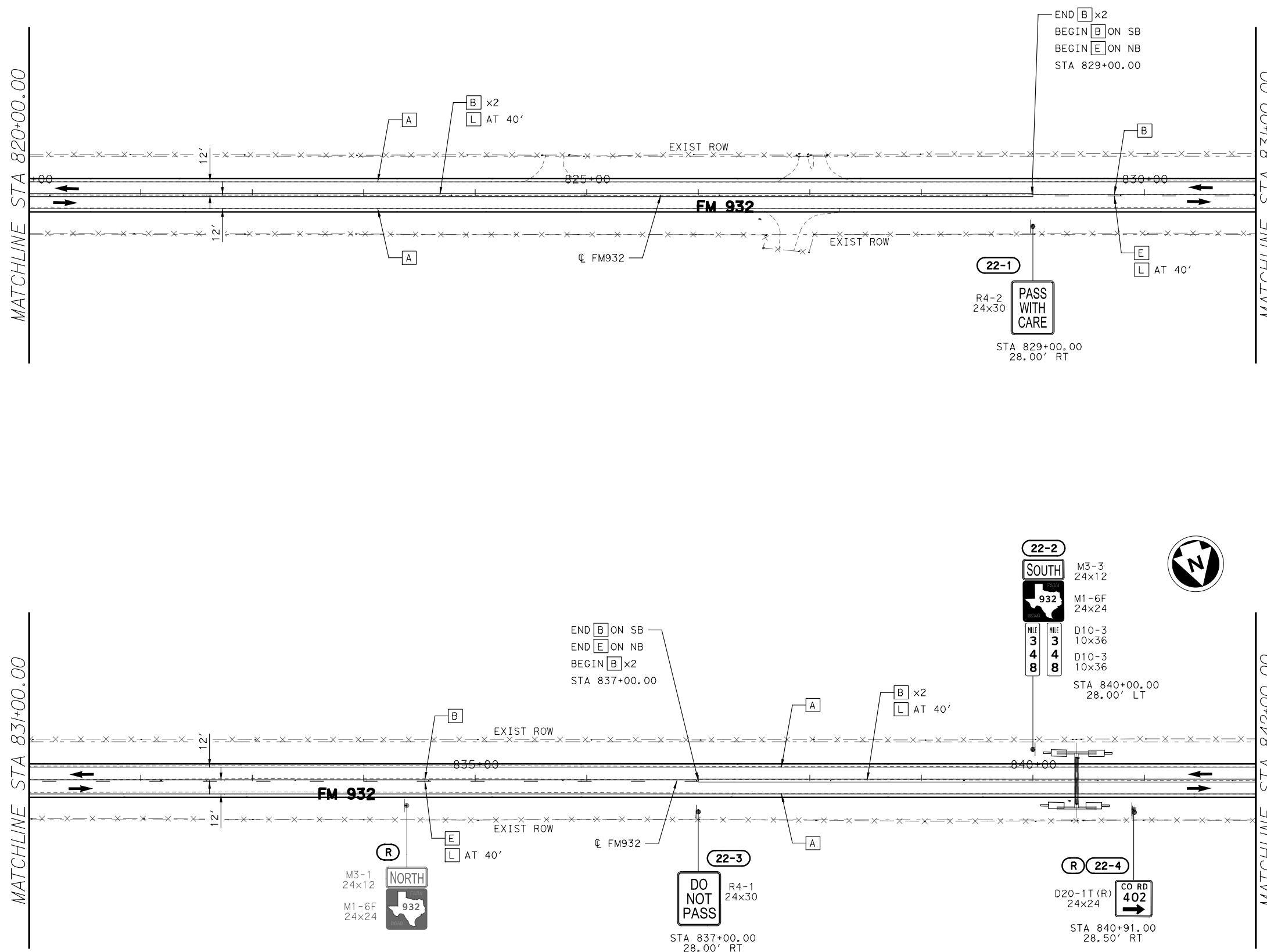
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|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 270 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

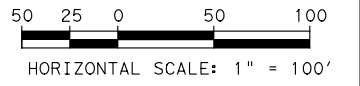
MATCHLINE STA 820+00.00

MATCHLINE STA 831+00.00

MATCHLINE STA 831+00.00

MATCHLINE STA 842+00.00





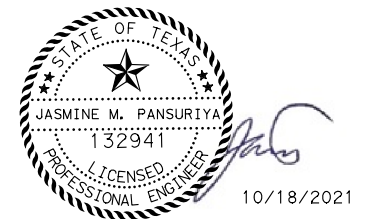
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-----------|------------------|---------------------------------|---------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | 4 |
| A | 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF 4322 |
| B | 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF 2522 |
| C | 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF 11 |
| D | 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF |
| E | 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF 381 |
| F | 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF |
| G | 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF |
| L | 0672-6009 | REFL PAV MRKR TY II-A-A | EA 52 |
| Q | 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF |
| R | 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF |
| S | 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".



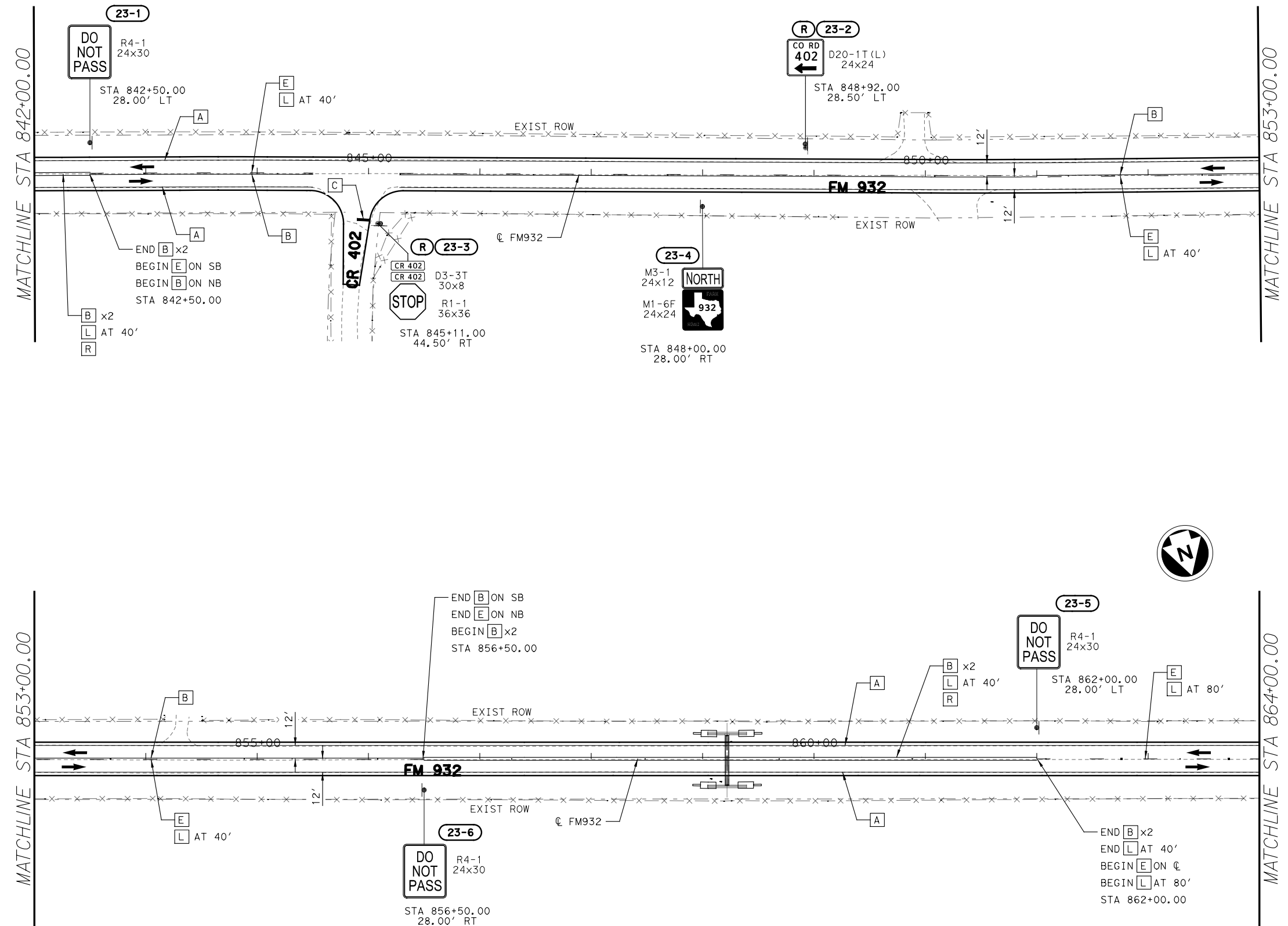
FM 932

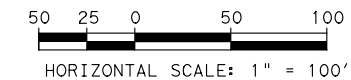
SIGNING AND PAVEMENT MARKINGS
STA 842+00.00 TO STA 864+00.00

(SHEET 23 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|--------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO.: |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 271 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*PVMT&SIGN*23.dgn
DATE: 10/18/2021 2:48:04 PM





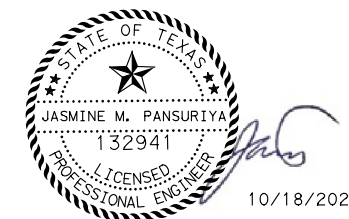
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 2300 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 388 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 49 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM CL FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".



FM 932

SIGNING AND PAVEMENT MARKINGS
STA 864+00.00 TO STA 886+00.00

(SHEET 24 OF 37)

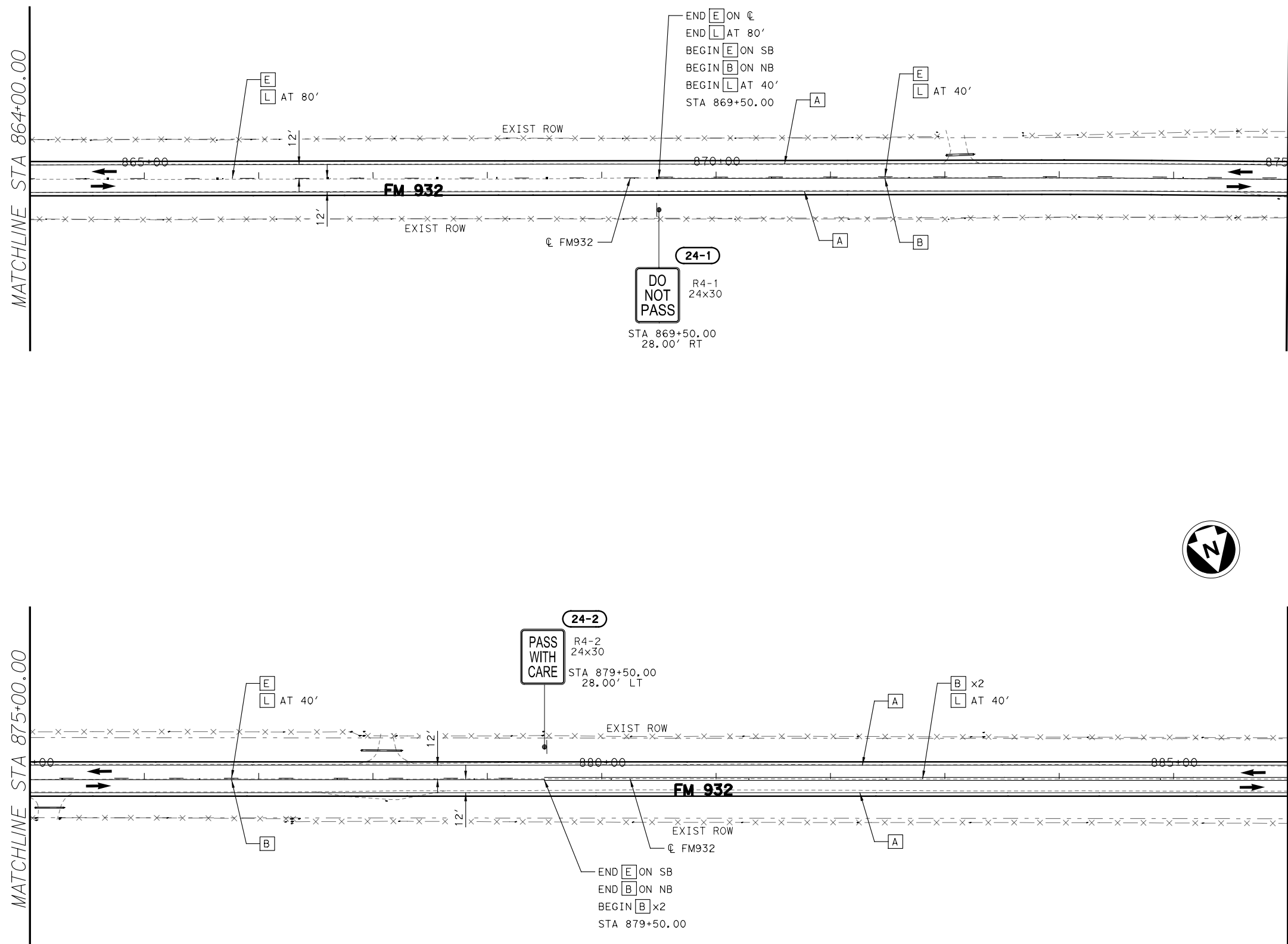
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|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 272 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

MATCHLINE STA 864+00.00

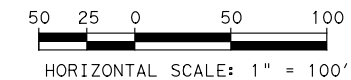
MATCHLINE STA 875+00.00

MATCHLINE STA 875+00.00

MATCHLINE STA 886+00.00



FILE: FM932*OTHON*PVMT&SIGN*24.dgn
DATE: 10/18/2021 2:48:05 PM



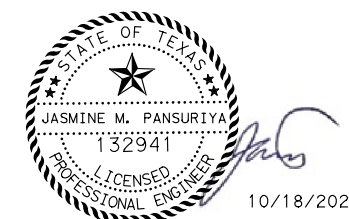
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-----------|-----------------|---------------------------------|---------|
| 0658-6047 | (OM-2Y) (WC)GND | EA | |
| A | 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF 4332 |
| B | 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF 3614 |
| C | 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF 11 |
| D | 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF |
| E | 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF 163 |
| F | 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF |
| G | 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF |
| L | 0672-6009 | REFL PAV MRKR TY II-A-A | EA 56 |
| Q | 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF |
| R | 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF |
| S | 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM C FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".



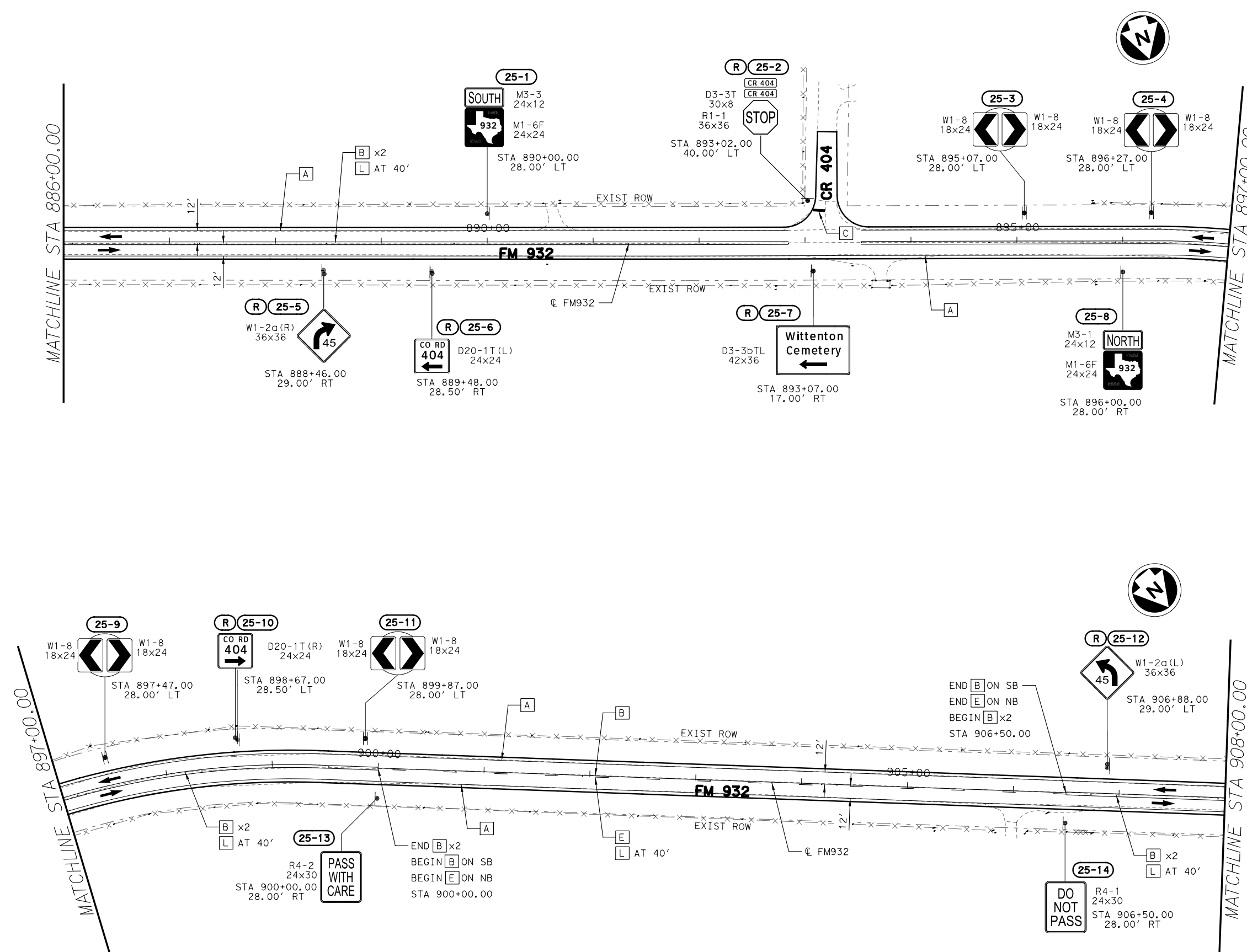
FM 932

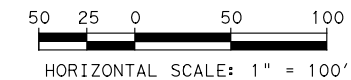
SIGNING AND PAVEMENT MARKINGS
STA 886+00.00 TO STA 908+00.00

(SHEET 25 OF 37)

| | | | | |
|-----------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK JUMP | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRPH CHECK JUMP | TX | WACO | HAMILTON | 273 |
| | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

FILE: FM932*OTHON*PVMT&SIGN*25.dgn
DATE: 10/18/2021 2:48:10 PM





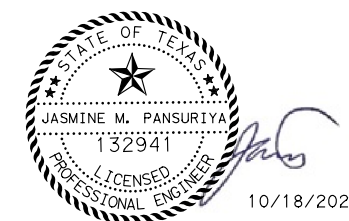
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 3550 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 213 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 57 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

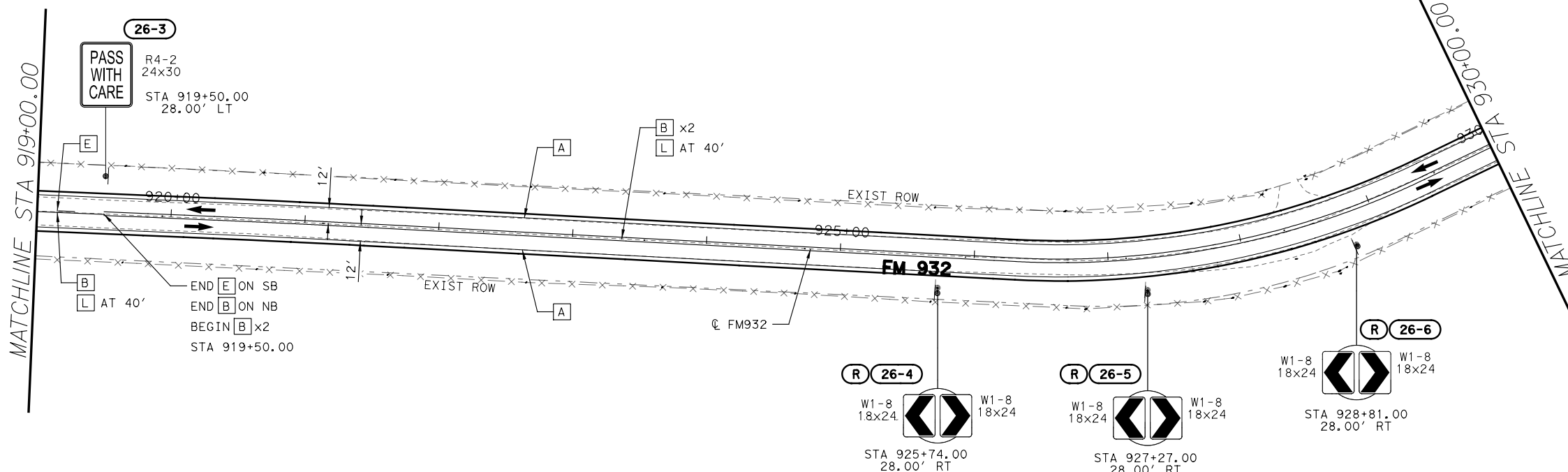
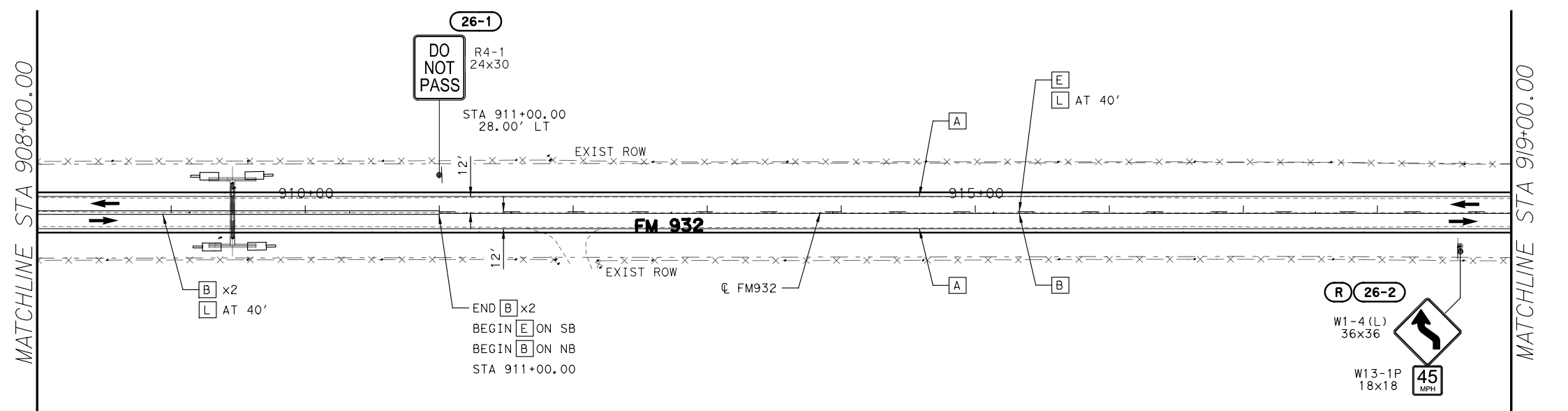


FM 932

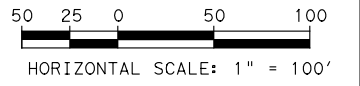
SIGNING AND PAVEMENT MARKINGS
STA 908+00.00 TO STA 930+00.00

(SHEET 26 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|--------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO.: |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 274 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVMT&SIGN*26.dgn
DATE: 10/18/2021 2:48:11 PM



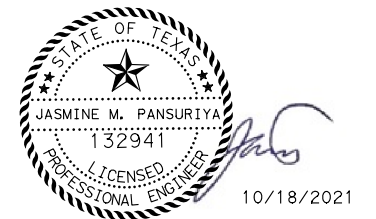
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC)GND | EA | 8 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 4400 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 56 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM C FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

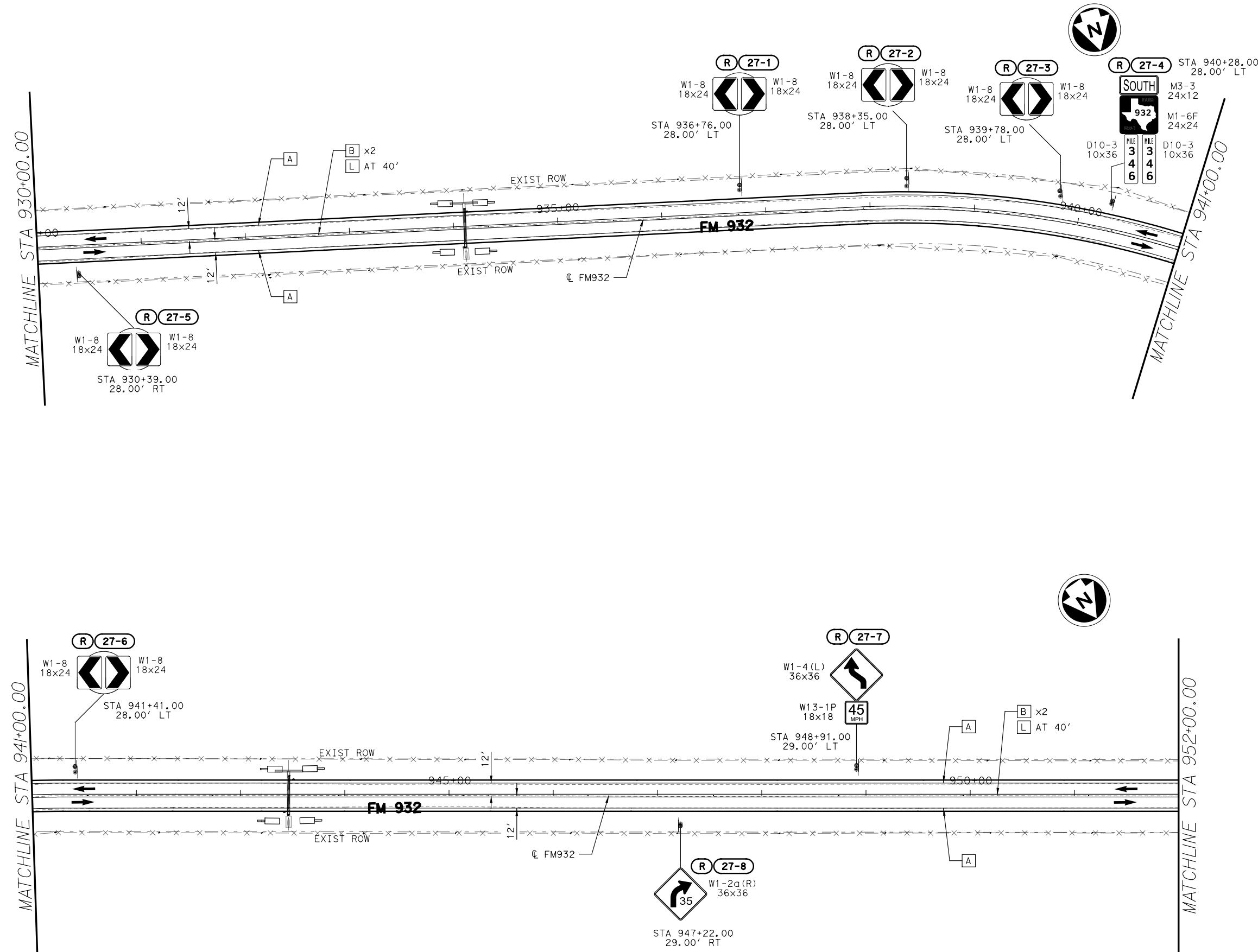


FM 932

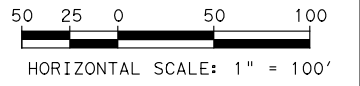
SIGNING AND PAVEMENT MARKINGS
STA 930+00.00 TO STA 952+00.00

(SHEET 27 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|--------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO.: |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 275 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVMT&SIGN*27.dgn
DATE: 10/18/2021 2:48:12 PM



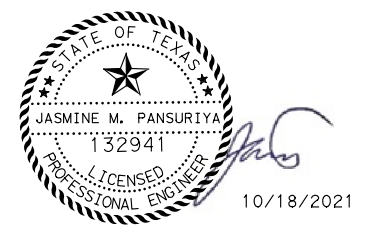
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | | |
|---|-----------|---------------------------------|----|------|
| | 0658-6047 | (OM-2Y) (WC) GND | EA | 4 |
| A | 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B | 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 4400 |
| C | 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D | 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E | 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | |
| F | 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G | 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L | 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 56 |
| Q | 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R | 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S | 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
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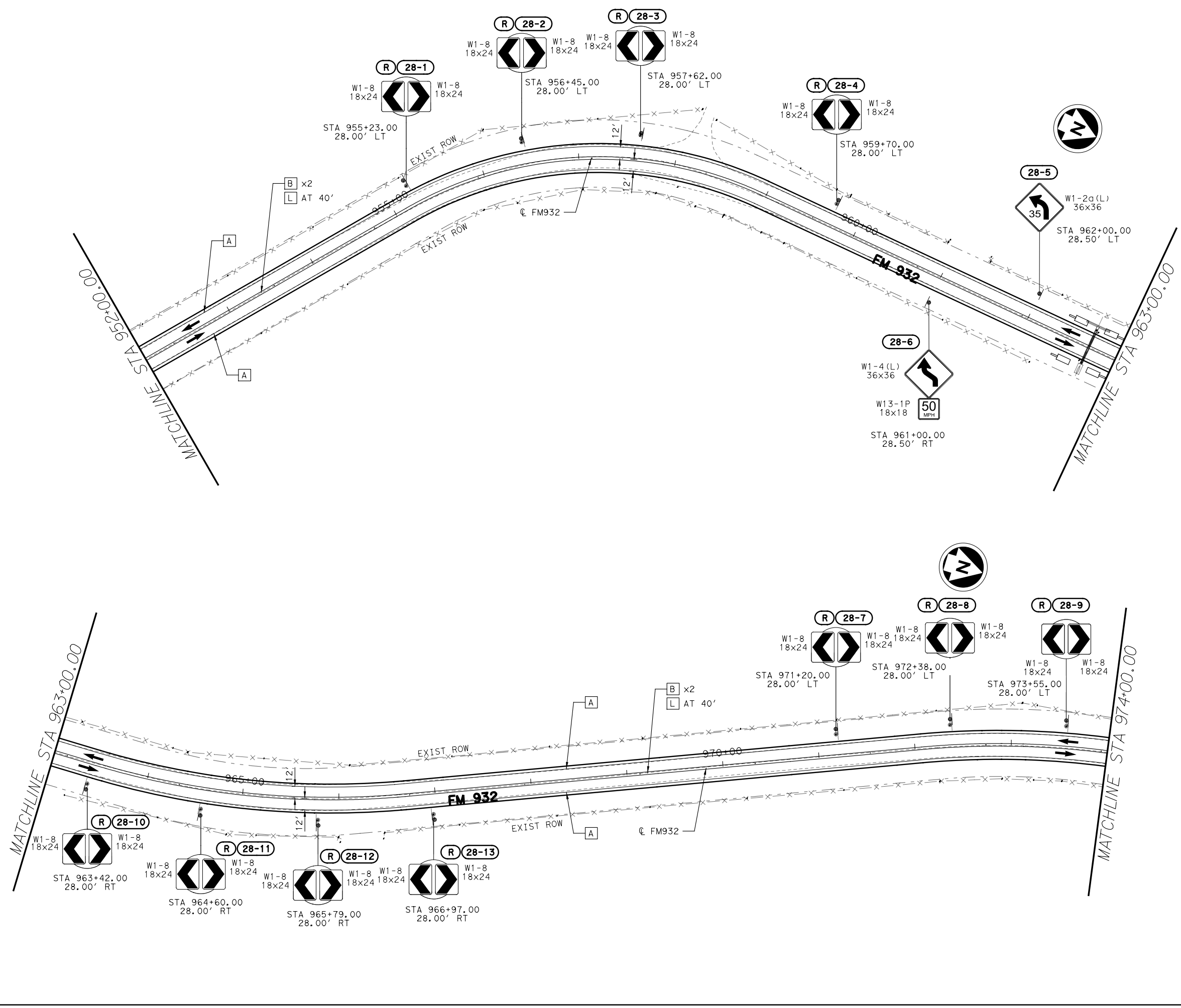
FM 932

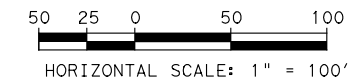
SIGNING AND PAVEMENT MARKINGS
STA 952+00.00 TO STA 974+00.00

(SHEET 28 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 276 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*PVMT&SIGN*28.dgn
DATE: 10/18/2021 2:48:13 PM





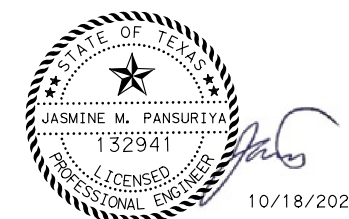
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4313 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 1813 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | 14 |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 504 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 49 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN THE PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

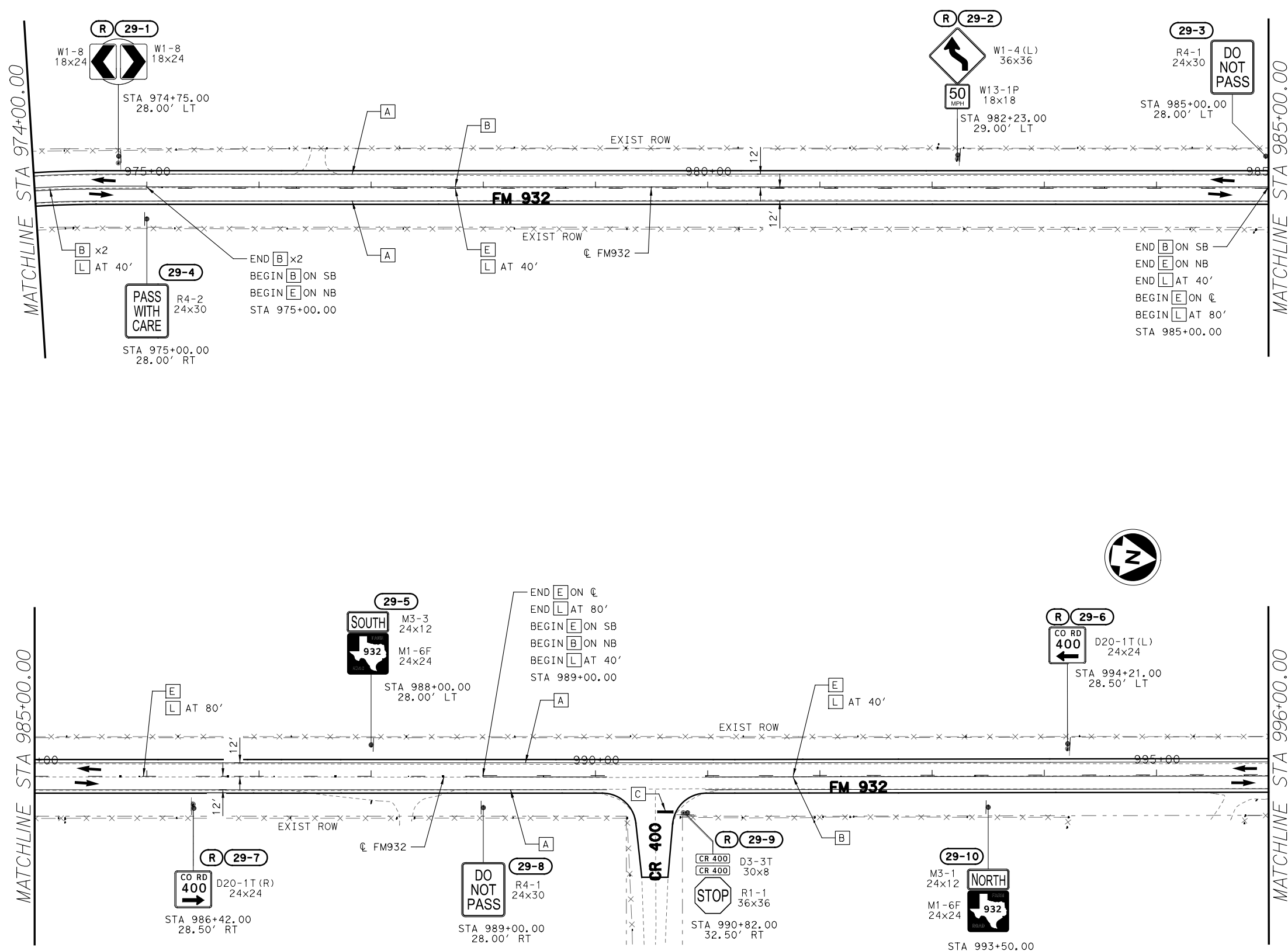


FM 932

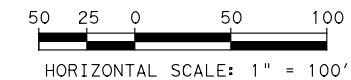
SIGNING AND PAVEMENT MARKINGS
STA 974+00.00 TO STA 996+00.00

(SHEET 29 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|--------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO.: |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 277 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVMT&SIGN*29.dgn
DATE: 10/18/2021 2:48:14 PM



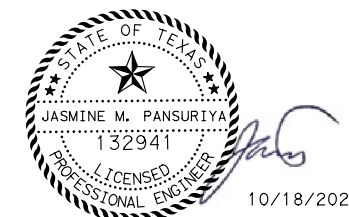
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 3900 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 125 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 56 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM CL FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".



10/18/2021



FM 932

SIGNING AND PAVEMENT MARKINGS
STA 996+00.00 TO STA 1018+00.00

(SHEET 30 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 278 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

MATCHLINE STA 996+00.00

MATCHLINE STA 1007+00.00

MATCHLINE STA 1007+00.00

MATCHLINE STA 1018+00.00

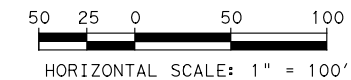
30-1
PASS WITH CARE
R4-2
24x30
STA 1001+00.00
28.00' LT

END **E** ON SB
END **B** ON NB
BEGIN **B** x2
STA 1001+00.00

R 30-2
W1-2a(L)
36x36

STA 1013+36.00
29.00' RT

FILE: FM932*OTHON*PVMT&SIGN*30.dgn
DATE: 10/18/2021 2:48:15 PM



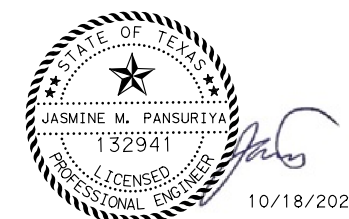
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 4400 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 56 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

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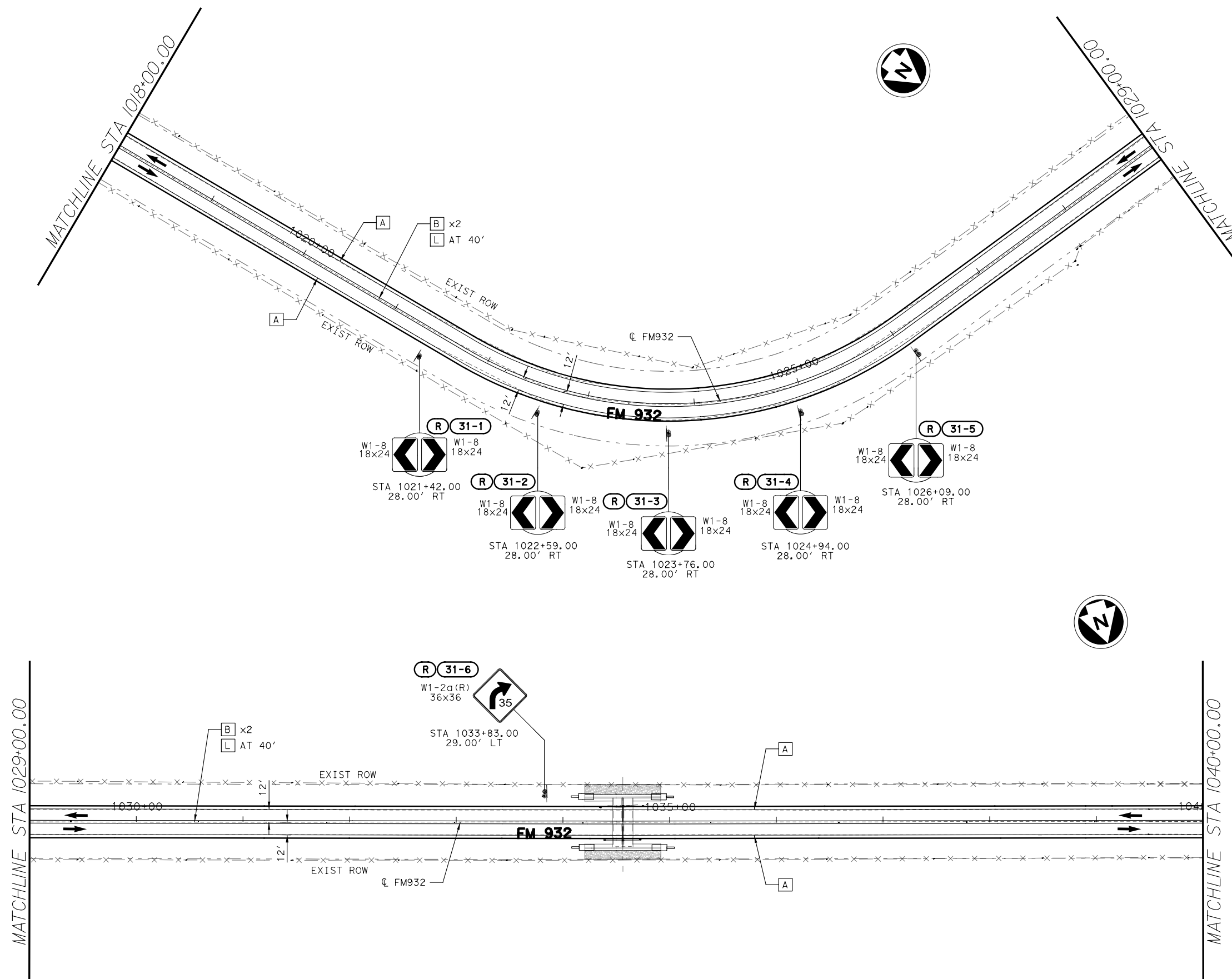
FM 932

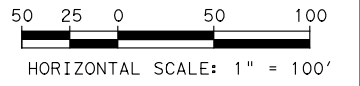
SIGNING AND PAVEMENT MARKINGS
STA 1018+00.00 TO STA 1040+00.00

(SHEET 31 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 279 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*PVMT&SIGN*31.dgn
DATE: 10/18/2021 2:48:15 PM





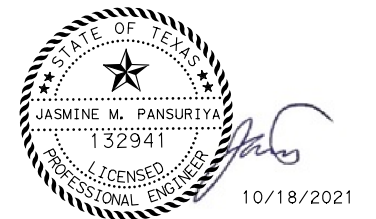
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC)GND | EA | 8 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 4400 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 2200 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 400 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 49 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

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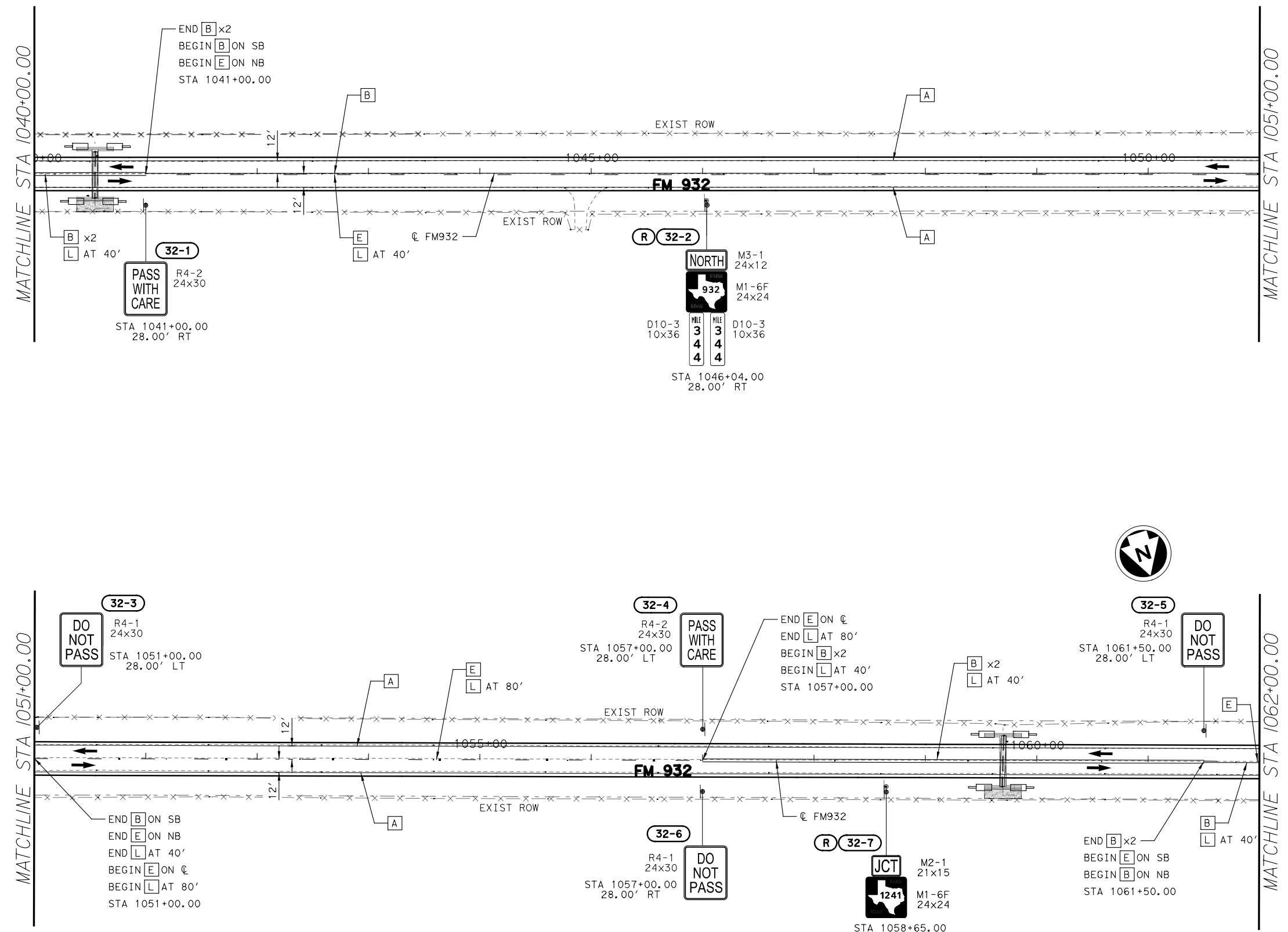


FM 932

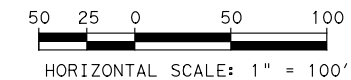
SIGNING AND PAVEMENT MARKINGS
STA 1040+00.00 TO STA 1062+00.00

(SHEET 32 OF 37)

| | | | | |
|----------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK JMP | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRPH CHECK JMP | TX | WACO | HAMILTON | 280 |
| | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVMT&SIGN*32.dgn
DATE: 10/18/2021 2:48:16 PM



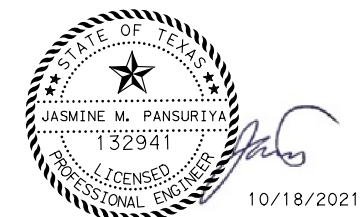
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | 2594 |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | 1695 |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | 80 |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 244 |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | 2036 |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 58 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | 1890 |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | 80 |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

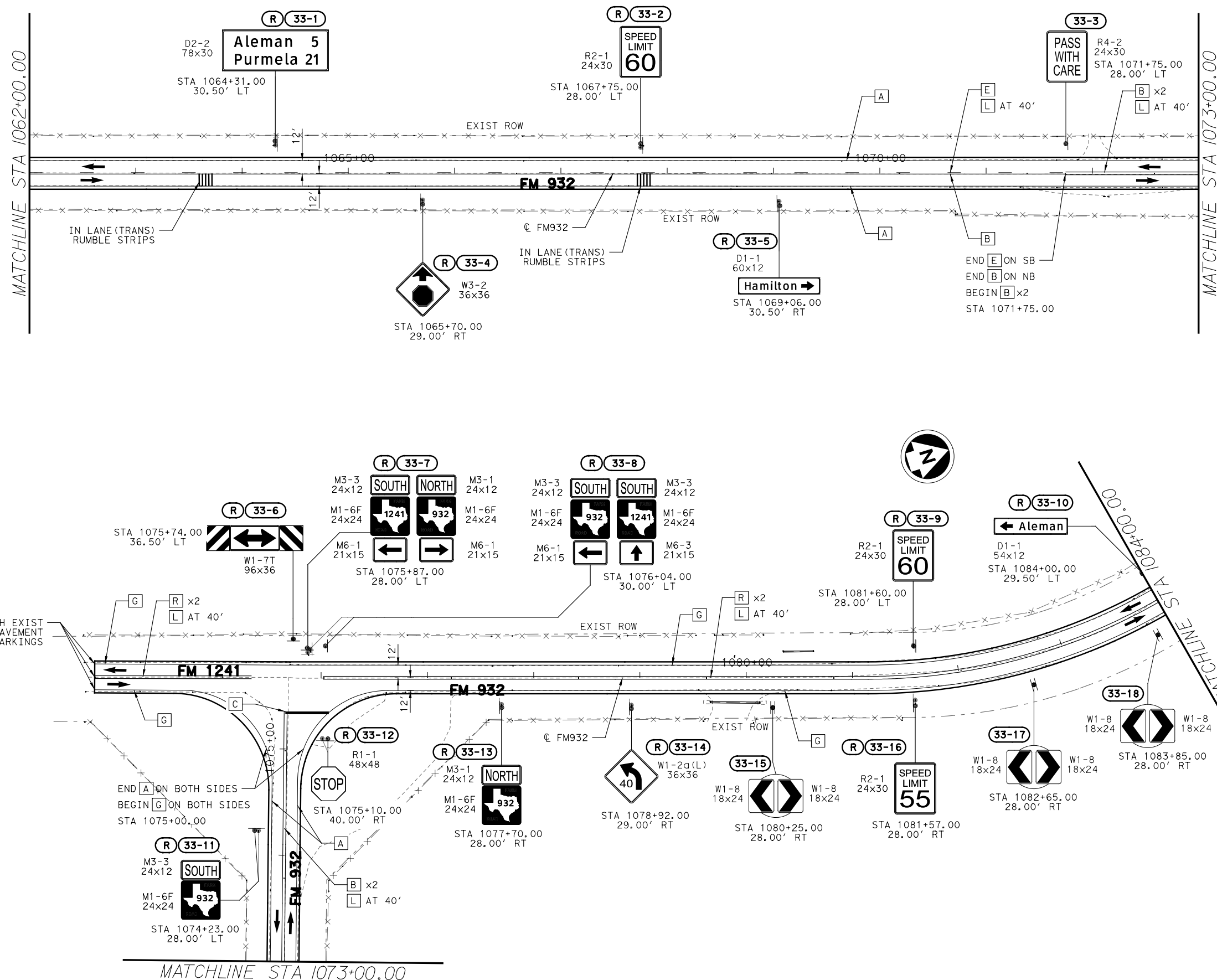


FM 932

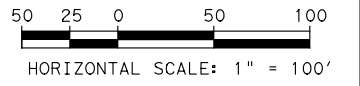
SIGNING AND PAVEMENT MARKINGS
STA 1062+00.00 TO STA 1084+00.00

(SHEET 33 OF 37)

| | | | | |
|----------------|---------------------|---|-----------------|--------------------|
| DESIGN RP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK JMP | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 281 |
| GRAPHICS RP | CONTROL | SECTION | JOB | |
| GRPH CHECK JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVT&SIGN*33.dgn
DATE: 10/18/2021 2:48:17 PM

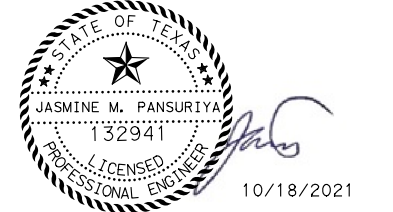


LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | 29 |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | 4313 |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 54 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | 4226 |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

- NOTES:
- EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
 - EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
 - ALL STATION AND OFFSETS ARE REFERENCED FROM C FM932 UNLESS NOTED OTHERWISE.
 - WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

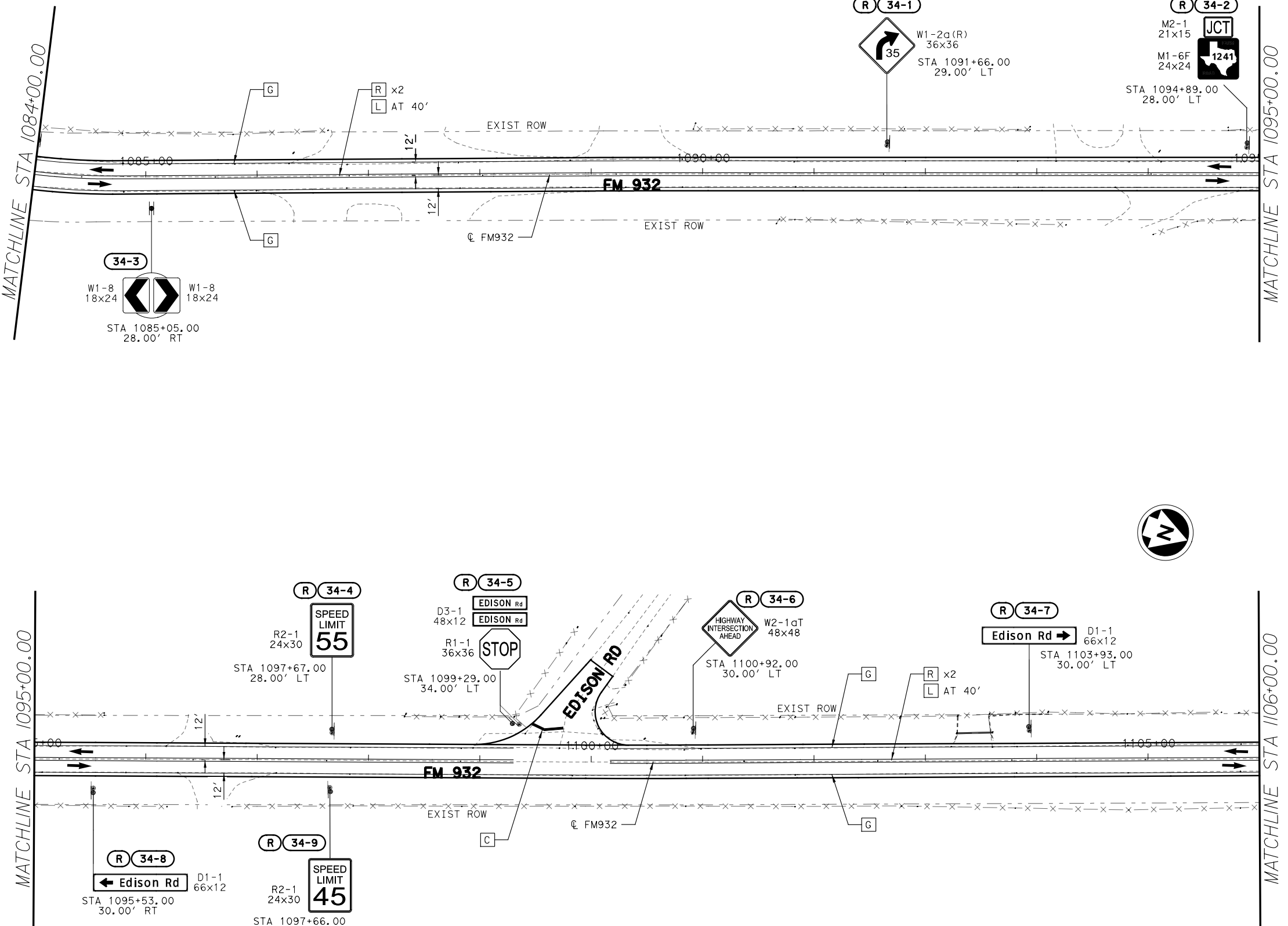


FM 932

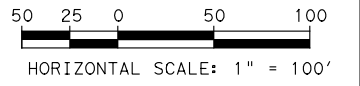
SIGNING AND PAVEMENT MARKINGS
STA 1084+00.00 TO STA 1106+00.00

(SHEET 34 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 282 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVMT&SIGN*34.dgn
DATE: 10/18/2021 2:48:18 PM

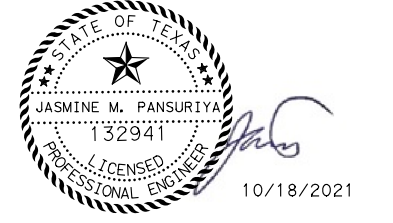


LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | | |
|---|-----------|---------------------------------|----|------|
| A | 0658-6047 | (OM-2Y) (WC) GND | EA | 18 |
| B | 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | |
| C | 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | |
| D | 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | 34 |
| E | 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| F | 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | |
| G | 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| H | 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | 4000 |
| L | 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 50 |
| Q | 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R | 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | 3850 |
| S | 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

- NOTES:
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 - EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
 - ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
 - WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

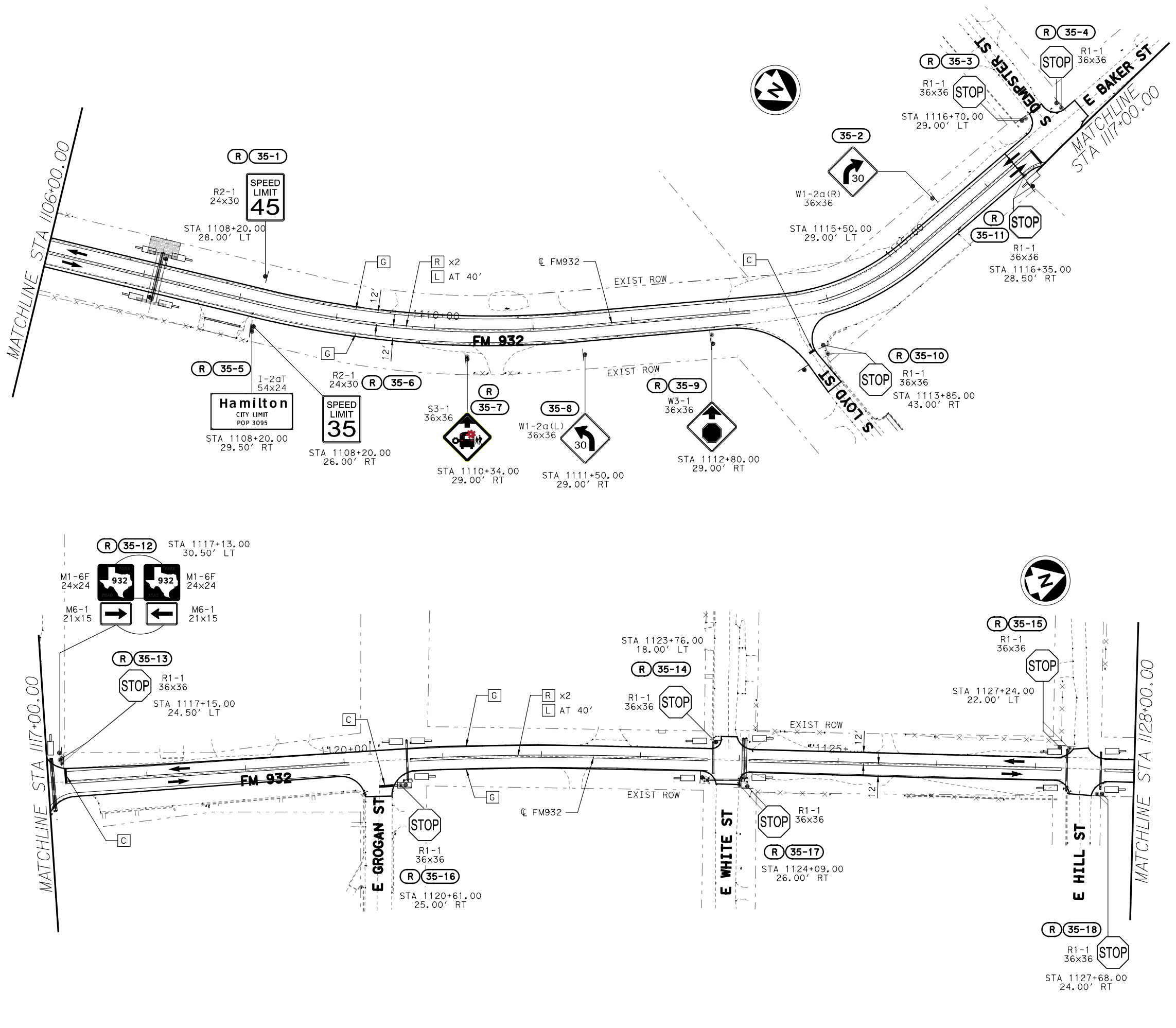


FM 932

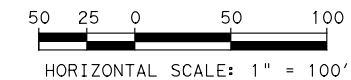
SIGNING AND PAVEMENT MARKINGS
STA 1106+00.00 TO STA 1128+00.00

(SHEET 35 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 283 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVMT&SIGN*35.dgn
DATE: 10/18/2021 2:48:19 PM



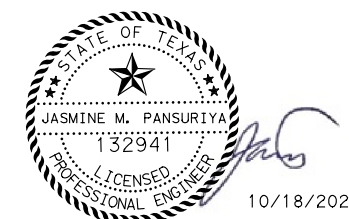
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | | |
|---|-----------|---------------------------------|----|------|
| | 0658-6047 | (OM-2Y) (WC) GND | EA | 8 |
| A | 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | |
| B | 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | |
| C | 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | 35 |
| D | 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | 28 |
| E | 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | 32 |
| F | 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | 28 |
| G | 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | 1070 |
| L | 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 23 |
| Q | 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R | 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | 1746 |
| S | 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

- EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
- EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
- ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
- WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".



10/18/2021

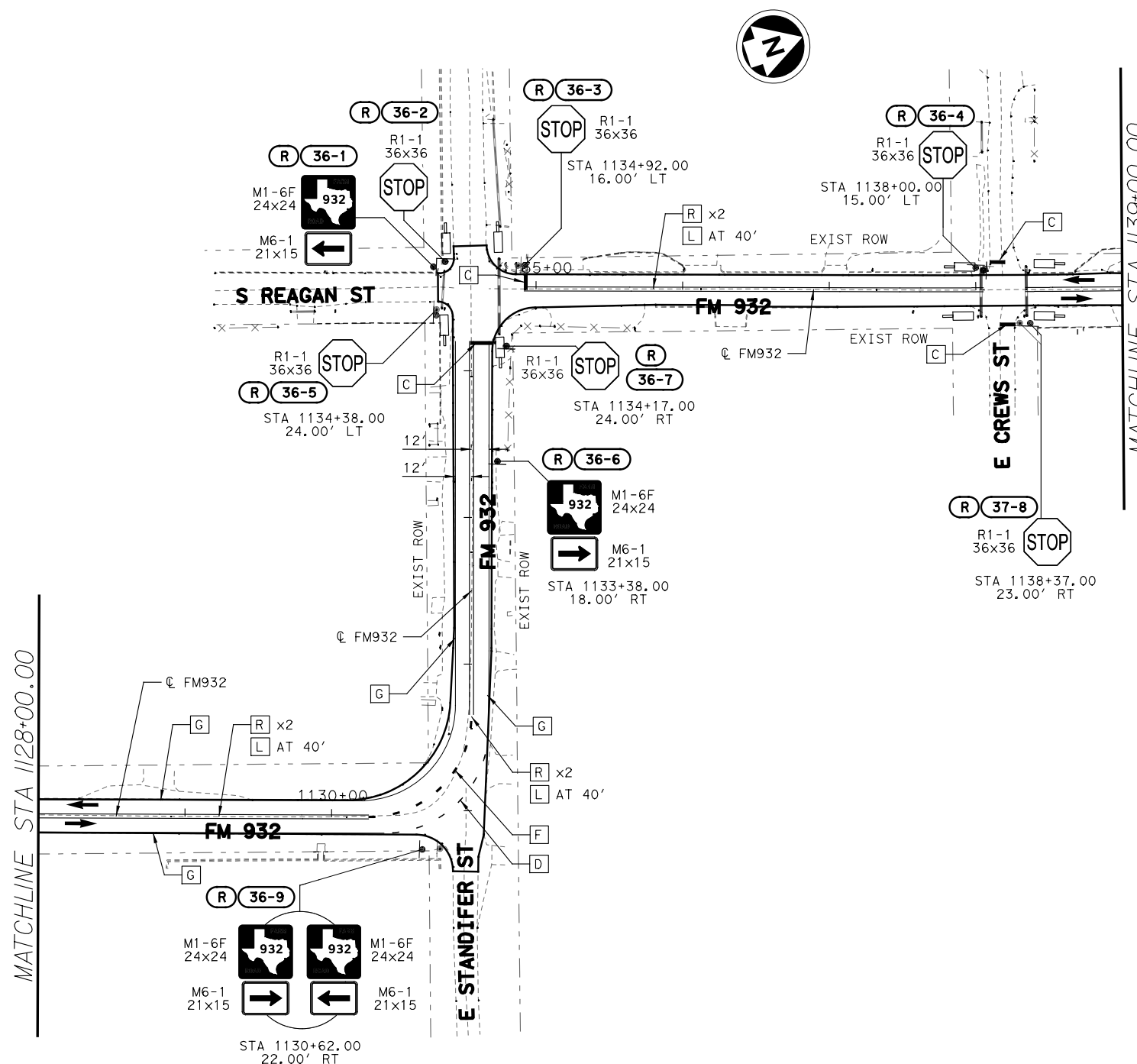


FM 932

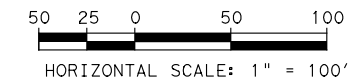
SIGNING AND PAVEMENT MARKINGS
STA 1128+00.00 TO STA 1139+00.00

(SHEET 36 OF 37)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 284 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVMT&SIGN*36.dgn
DATE: 10/18/2021 2:48:20 PM



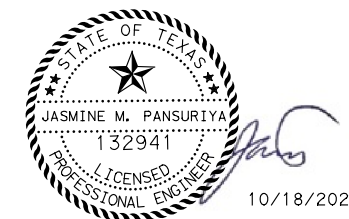
LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- ← DIRECTION OF TRAFFIC
- (R) EXISTING SIGN TO BE REMOVED
- (31-5) PROPOSED SIGN. REFER TO SUMMARY OF SMALL SIGNS (SOSS) AND SIGN DETAILS SHEETS FOR MORE INFORMATION
- OBJECT MARKER (OM-22)

| | | | |
|-------------|---------------------------------|----|------|
| 0658-6047 | (OM-2Y) (WC) GND | EA | 4 |
| A 0666-6342 | TY I (W) 4" (SLD) (100MIL) PROF | LF | |
| B 0666-6345 | TY I (Y) 4" (SLD) (100MIL) PROF | LF | |
| C 0666-6048 | TY I (W) 24" (SLD) (100MIL) | LF | 40 |
| D 0666-6006 | TY I (W) 4" (DOT) (100MIL) | LF | |
| E 0666-6344 | TY I (Y) 4" (BRK) (100MIL) PROF | LF | |
| F 0666-6123 | TY I (Y) 4" (DOT) (100MIL) | LF | |
| G 0666-6303 | TY I (W) 4" (SLD) (100MIL) | LF | |
| L 0672-6009 | REFL PAV MRKR TY II-A-A | EA | 32 |
| Q 0666-6312 | TY I (Y) 4" (BRK) (100MIL) | LF | |
| R 0666-6315 | TY I (Y) 4" (SLD) (100MIL) | LF | 2506 |
| S 6056-6001 | PREF IN-LANE RUMBLE STRIP | LF | |

NOTES:

1. EXISTING SIGNS ARE TO BE REMOVED AND REPLACED UNLESS NOTED OTHERWISE.
2. EXISTING STREET NAME SIGNS ARE TO BE PRESERVED AND RELOCATED TO NEWLY INSTALLED SIGN POSTS.
3. ALL STATION AND OFFSETS ARE REFERENCED FROM ϕ FM932 UNLESS NOTED OTHERWISE.
4. WORK ZONE PAVEMENT MARKINGS MAY BE PLACED PRIOR TO THE PLACEMENT OF THE PROFILE PAVEMENT MARKINGS TO ASSIST IN PLACEMENT. THIS WORK (SPOT STRIPING) WILL BE CONSIDERED SUBSIDIARY TO THE PROFILE PAVEMENT MARKINGS. ALL OTHER APPLICATIONS OF WORK ZONE PAVEMENT MARKERS WILL BE PAID FOR AS SPECIFIED IN ITEM 662, "WORK ZONE PAVEMENT MARKINGS".

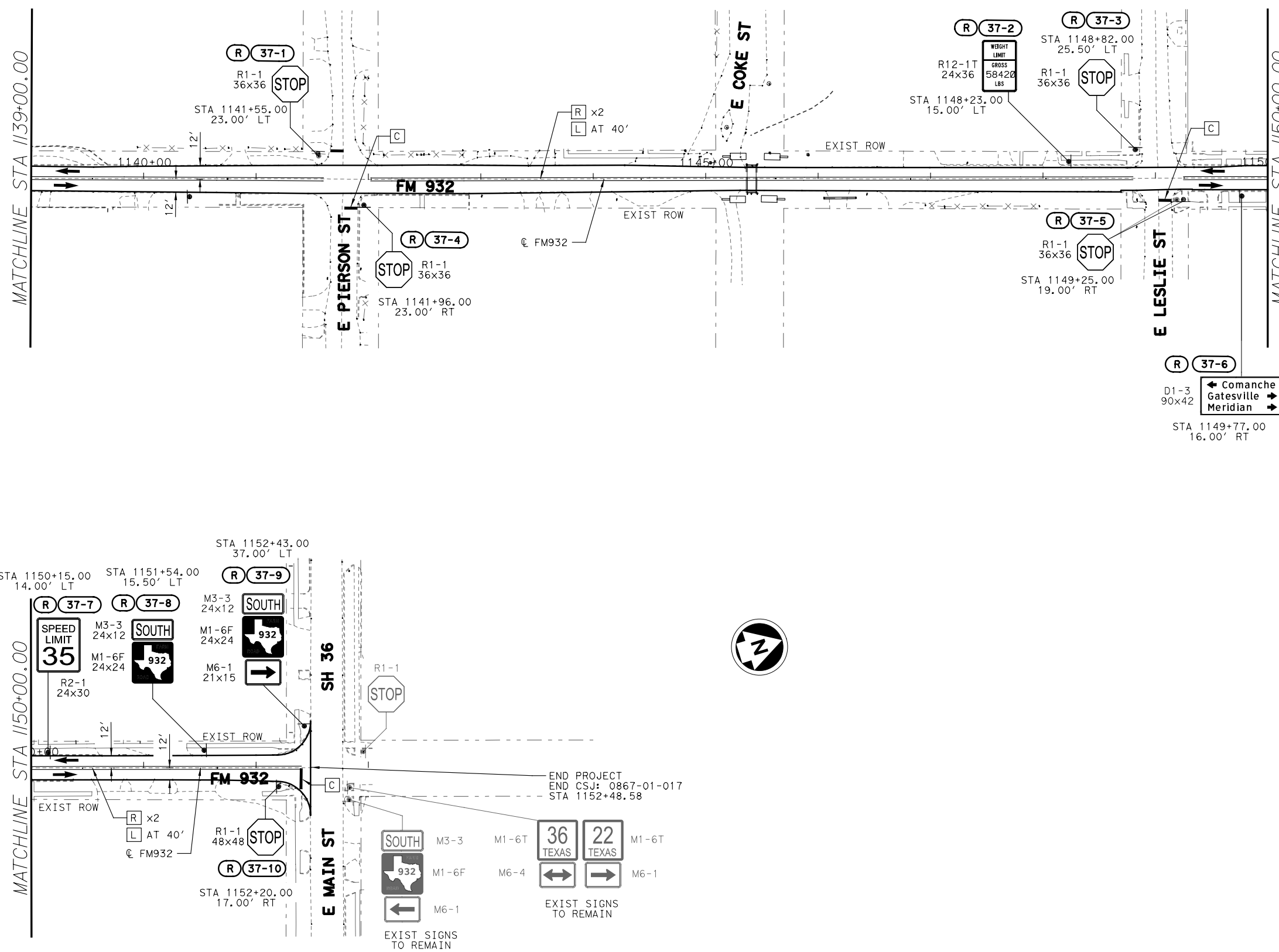


FM 932

SIGNING AND PAVEMENT MARKINGS
STA 1139+00.00 TO END PROJECT













(SHEET 37 OF 37)

| | | | | |
|----------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK JMP | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRPH CHECK JMP | TX | WACO | HAMILTON | 285 |
| | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



FILE: FM932*OTHON*PVT&SIGN*37.dgn
DATE: 10/18/2021 2:48:21 PM

SUMMARY OF SMALL SIGNS

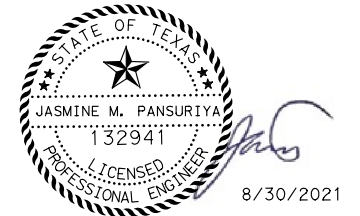
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 1 | 1 | I-2dT |  | 66"x24" | X | | 10BWG | 1 | SA | T | |
| | | I-2dT |  | 54"x24" | X | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | |
| | 2 | R2-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 3 | D7-7aTL |  | 48"x48" | X | | 10BWG | 1 | SA | T | |
| | | D7-7aTR |  | 48"x48" | X | | | | | | |
| | 4 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 5 | R2-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 6 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 7 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 8 | W3-5 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |

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

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
<http://www.txdot.gov/>

NOTE:

- 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.
- For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
- For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



FM 932


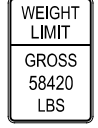







SUMMARY OF SMALL SIGNS

(SHEET 1 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 286 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTH*SOS*01.dgn
DATE: 8/30/2021 3:35:18 PM

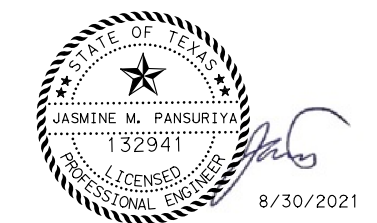
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|--|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels | |
| 1 | 9 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 10 | R12-1T |  | 24"x36" | X | | 10BWG | 1 | SA | P | |
| | 11 | D14-4T |  | 48"x48" | X | | 10BWG | 1 | SA | T | |
| 2 | 1 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 2 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| 3 | 1 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 2 | W1-4(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | | W13-1P |  | 18"x18" | X | | | | | | |

| 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:**
- 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.
 - For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
 - For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



FM 932










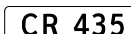


SUMMARY OF SMALL SIGNS

(SHEET 2 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 287 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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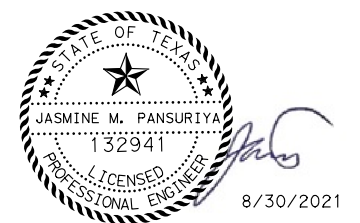
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 3 | 3 | M3-1 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | |
| 4 | | D7-6GTR |  | 48"x48" | X | | 10BWG | 1 | SA | T | |
| 5 | | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| 6 | | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 7 | D3-3T |  | 30"x8" | X | | 10BWG | 1 | SA | P | BM |
| | | D3-3T |  | 30"x8" | X | | | | | | |
| | | R1-1 |  | 36"x36" | X | | | | | | |

| 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:**
- 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.
 - For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
 - For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



FM 932












SUMMARY OF SMALL SIGNS

(SHEET 3 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 288 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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SUMMARY OF SMALL SIGNS

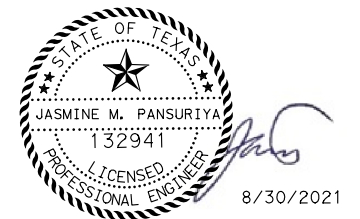
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|--|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels | |
| 3 | 8 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 9 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 10 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 11 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 12 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 13 | D20-1T (L) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |

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

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













FM 932

SUMMARY OF SMALL SIGNS

(SHEET 4 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 289 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

SUMMARY OF SMALL SIGNS

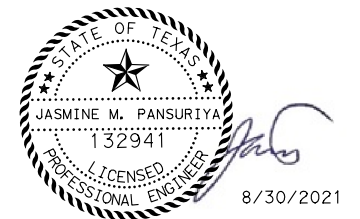
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 4 | 1 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 2 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 3 | D20-1T(R) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| | 4 | W1-4(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | | W13-1P |  | 18"x18" | X | | | | | | |
| | 5 | W1-2a(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 6 | D20-1T(R) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| | 7 | D20-1T(L) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |

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

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



FM 932

SUMMARY OF SMALL SIGNS

(SHEET 5 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 290 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

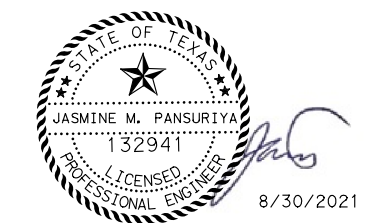
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S | |
|----------------|----------|-------------------|------|------------|------------------------|------------------------|---|--------|--|---|---|--|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | | |
| | | | | | | | 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 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels P = "Plain" T = "T" U = "U" | | |
| 4 | 8 | D3-3T | | 30"x8" | X | | 10BWG | 1 | SA | P | BM | |
| | | D3-3T | | 30"x8" | X | | | | | | | |
| | | R1-1 | | 36"x36" | X | | | | | | | |
| | 9 | W1-8 | | 18"x24" | X | | 10BWG | 1 | SA | P | | |
| | | W1-8 | | 18"x24" | X | | | | | | | |
| | 10 | W1-8 | | 18"x24" | X | | 10BWG | 1 | SA | P | | |
| | | W1-8 | | 18"x24" | X | | | | | | | |
| | 11 | W1-8 | | 18"x24" | X | | 10BWG | 1 | SA | P | | |
| | | W1-8 | | 18"x24" | X | | | | | | | |
| | 12 | R4-2 | | 24"x30" | X | | 10BWG | 1 | SA | P | | |
| | | W1-8 | | 18"x24" | X | | | | | | | |
| 5 | 1 | W1-2a(R) | | 36"x36" | X | | 10BWG | 1 | SA | P | | |

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

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- NOTE:**
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FM 932







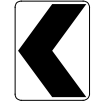





SUMMARY OF SMALL SIGNS

(SHEET 6 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 291 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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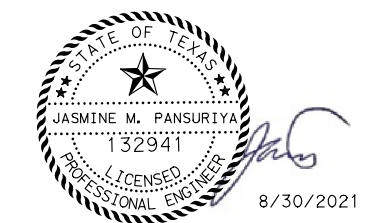
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|--|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels | |
| 5 | 2 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 3 | M3-1 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| 6 | 1 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 2 | W1-2a(R) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 3 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 4 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 5 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 6 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |

| ALUMINUM SIGN BLANKS THICKNESS | |
|--------------------------------|-------------------|
| Square Feet | Minimum Thickness |
| Less than 7.5 | 0.080" |
| 7.5 to 15 | 0.100" |
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The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
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- 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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FM 932













SUMMARY OF SMALL SIGNS

(SHEET 7 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 292 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTH*SOS*07.dgn
DATE: 8/30/2021 3:35:20 PM

SUMMARY OF SMALL SIGNS

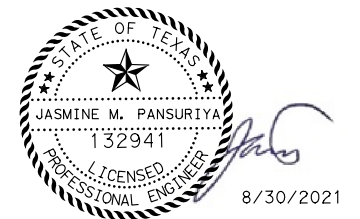
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 6 | 7 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| 7 | 1 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 2 | W1-2a(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 3 | W1-2a(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 4 | D20-1T(R) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| | 5 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 6 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 7 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |

| ALUMINUM SIGN BLANKS THICKNESS | |
|--------------------------------|-------------------|
| Square Feet | Minimum Thickness |
| Less than 7.5 | 0.080" |
| 7.5 to 15 | 0.100" |
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The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
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NOTE:

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FM 932

SUMMARY OF SMALL SIGNS

(SHEET 8 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 293 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

SUMMARY OF SMALL SIGNS

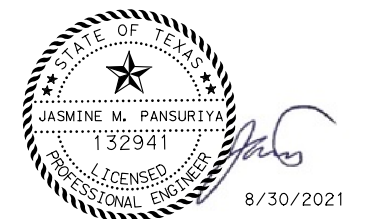
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|--|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels | |
| 7 | 8 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 9 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 10 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 11 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 12 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 8 | 1 |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| | | D20-1T(L) | | | | | | | | | |
| | 2 | W1-2a(R) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |

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

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
<http://www.txdot.gov/>

NOTE:

- 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.
- For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
- For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).









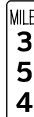
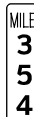



FM 932

SUMMARY OF SMALL SIGNS

(SHEET 9 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 294 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

SUMMARY OF SMALL SIGNS

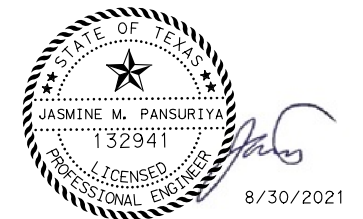
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S | |
|----------------|----------|-------------------|---|------------|---|------------------------|---|--------|--|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | | |
| | | | | | | | 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 |
| 8 | 3 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | | |
| | 4 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | | |
| | | W1-8 |  | 18"x24" | X | | | | | | | |
| | 5 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | | |
| | 6 | M3-1 |  | 24"x12" | X | | 10BWG | 1 | SA | P | | |
| | | M1-6F |  | 24"x24" | X | | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | | |
| | 7 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | | |
| | 9 | 1 | 1 | R4-1 |  | 24"x30" | X | 10BWG | 1 | SA | P | |
| | | 2 | 2 | R4-2 |  | 24"x30" | X | 10BWG | 1 | SA | P | |

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

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
<http://www.txdot.gov/>

NOTE:

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















FM 932

SUMMARY OF SMALL SIGNS

(SHEET 10 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 295 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

SUMMARY OF SMALL SIGNS

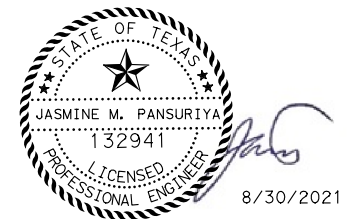
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 9 | 3 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 4 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 5 | D20-1T (R) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| 10 | 1 | D20-1T (L) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| | 2 | D3-3T |  | 30"x8" | X | | 10BWG | 1 | SA | P | BM |
| | | D3-3T |  | 30"x8" | X | | | | | | |
| | | R1-1 |  | 36"x36" | X | | | | | | |
| | 3 | M3-1 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 4 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 5 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |

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

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
<http://www.txdot.gov/>

NOTE:

- 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.
- For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
- For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).











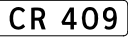



FM 932

SUMMARY OF SMALL SIGNS

(SHEET 11 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 296 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

SUMMARY OF SMALL SIGNS

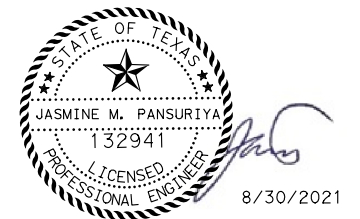
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 11 | 1 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 2 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 3 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| 12 | 1 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 2 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 3 | D20-1T (L) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| | 4 | D3-3T |  | 30"x8" | X | | 10BWG | 1 | SA | P | BM |
| | | D3-3T |  | 30"x8" | X | | | | | | |
| | | R1-1 |  | 36"x36" | X | | | | | | |
| | 5 | D20-1T (R) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| | 6 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |

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

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
<http://www.txdot.gov/>

NOTE:

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



FM 932












SUMMARY OF SMALL SIGNS

(SHEET 12 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 297 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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SUMMARY OF SMALL SIGNS

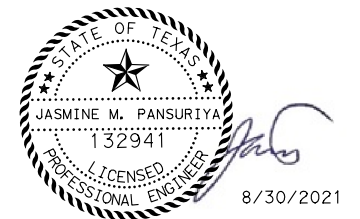
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 12 | 7 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| 13 | 1 | M3-1 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | |
| | 2 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 3 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 4 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| 14 | 1 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 2 | W1-2a(R) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 3 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |

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

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

- 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.
- For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
- For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



FM 932













SUMMARY OF SMALL SIGNS

(SHEET 13 OF 44)

| | | | | |
|----------------|---------------------|---|-----------------|--------------------|
| DESIGN RP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK JMP | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 298 |
| GRAPHICS RP | CONTROL 0867 | SECTION 01 | JOB 017 | |
| GRPH CHECK JMP | | | | |

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SUMMARY OF SMALL SIGNS

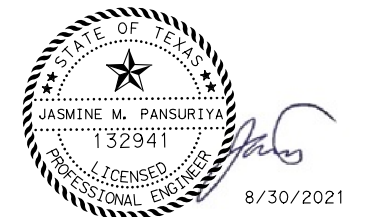
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|--|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels | |
| 14 | 4 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 5 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 6 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 7 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| 15 | 1 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 2 | W1-2a(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 3 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |

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

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

- 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.
- For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
- For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



FM 932

SUMMARY OF SMALL SIGNS

(SHEET 14 OF 44)

| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | | HIGHWAY NO. |
|-------------|-------------------|-------------------------|----------|--|-------------|
| JMP | 6 | (SEE TITLE SHEET) | | | FM 932 |
| GRAPHICS RP | TX | WACO | HAMILTON | | 299 |
| GRPH CHECK | CONTROL | SECTION | JOB | | |
| JMP | 0867 | 01 | 017 | | |

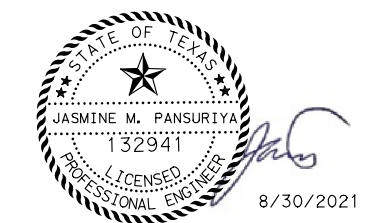
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S |
|----------------|----------|-------------------|------|------------|------------------------|------------------------|---|--------|--|--|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels | |
| 15 | 4 | R4-2 | | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 5 | R4-2 | | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 6 | W1-2a(L) | | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 7 | R4-1 | | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 8 | W1-8 | | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 | | 18"x24" | X | | | | | | |
| 16 | 1 | W1-8 | | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 | | 18"x24" | X | | | | | | |
| | 2 | W1-8 | | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 | | 18"x24" | X | | | | | | |
| | 3 | W1-8 | | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 | | 18"x24" | X | | | | | | |

| 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:**
- 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.
 - For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
 - For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



FM 932











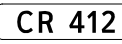

SUMMARY OF SMALL SIGNS

(SHEET 15 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 300 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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DATE: 8/30/2021 3:35:23 PM

SUMMARY OF SMALL SIGNS

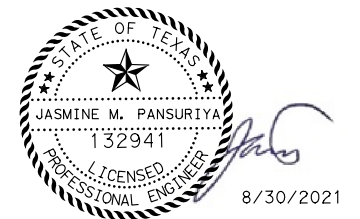
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 16 | 4 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 5 | W1-2a(R) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 6 | D20-1T(R) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| | 7 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 8 | W3-5 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| 17 | 1 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 2 | D20-1T(L) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| | 3 | D3-3T |  | 30"x8" | X | | 10BWG | 1 | SA | P | BM |
| | | D3-3T |  | 30"x8" | X | | | | | | |
| | | R1-1 |  | 36"x36" | X | | | | | | |

| 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:

- 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.
- For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
- For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



FM 932













SUMMARY OF SMALL SIGNS

(SHEET 16 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 301 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTH*SOS*16.dgn
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SUMMARY OF SMALL SIGNS

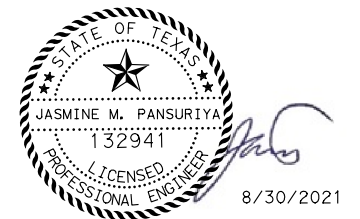
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 17 | 4 | M3-1 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 5 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 6 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 7 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | |
| | 8 | R2-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 9 | W1-4 (L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | | W13-1P |  | 18"x18" | X | | | | | | |
| | 10 | R2-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |

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

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
<http://www.txdot.gov/>

NOTE:

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



FM 932


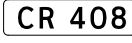



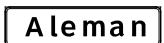




SUMMARY OF SMALL SIGNS

(SHEET 17 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 302 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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DATE: 8/30/2021 3:35:23 PM

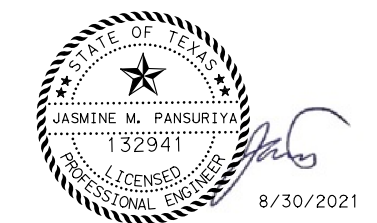
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S | |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|--|---|--|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | | |
| | | | | | | | 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 | | |
| 18 | 1 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | | |
| | 2 | D3-3T |  | 30"x8" | X | | 10BWG | 1 | SA | P | BM | |
| | | D3-3T |  | 30"x8" | X | | | | | | | |
| | | R1-1 |  | 36"x36" | X | | | | | | | |
| | 3 | D20-1T (R) |  | 24"x24" | X | | 10BWG | 1 | SA | P | | |
| | 4 | I-2cT |  | 48"x12" | X | | 10BWG | 1 | SA | T | | |
| | 5 | D20-1T (L) |  | 24"x24" | X | | 10BWG | 1 | SA | P | | |
| | 6 | D20-1T (L) |  | 24"x24" | X | | 10BWG | 1 | SA | P | | |
| | 7 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | | |
| | | W1-8 |  | 18"x24" | X | | | | | | | |

| 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:**
- 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.
 - For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
 - For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



FM 932

SUMMARY OF SMALL SIGNS

(SHEET 18 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 303 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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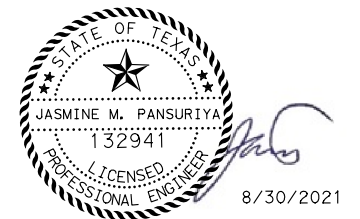
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S | |
|----------------|----------|-------------------|------|------------|------------------------|------------------------|---|--------|--|---|---|--|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | | |
| | | | | | | | 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 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels P = "Plain" T = "T" U = "U" | | |
| 18 | 8 | D3-3T | | 30"x8" | X | | 10BWG | 1 | SA | P | BM | |
| | | D3-3T | | 30"x8" | X | | | | | | | |
| | | R1-1 | | 36"x36" | X | | | | | | | |
| | 9 | W1-8 | | 18"x24" | X | | 10BWG | 1 | SA | P | | |
| | | W1-8 | | 18"x24" | X | | | | | | | |
| | 10 | W1-8 | | 18"x24" | X | | 10BWG | 1 | SA | P | | |
| | | W1-8 | | 18"x24" | X | | | | | | | |
| | 11 | W1-8 | | 18"x24" | X | | 10BWG | 1 | SA | P | | |
| | | W1-8 | | 18"x24" | X | | | | | | | |
| | 12 | D20-1T (R) | | 24"x24" | X | | 10BWG | 1 | SA | P | | |
| | 13 | W1-8 | | 18"x24" | X | | 10BWG | 1 | SA | P | | |
| | | W1-8 | | 18"x24" | X | | | | | | | |

| 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:**
- 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.
 - For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
 - For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



FM 932













SUMMARY OF SMALL SIGNS

(SHEET 19 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 304 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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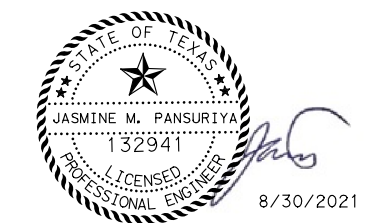
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S | |
|---|----------|--|---|--|------------------------|------------------------|---|-------|-------------|----------------------|---|-------------------------|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | | |
| | | | | | | | | | | PREFABRICATED | | 1EXT or 2EXT = # of Ext |
| 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" | BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels | | | | | | | | |
| 18 | 14 | R2-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | | |
| | 15 | I-2cT |  | 48"x12" | X | | 10BWG | 1 | SA | T | | |
| | 16 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | | |
| | 17 | R2-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | | |
| | 18 | M3-1 |  | 24"x12" | X | | 10BWG | 1 | SA | P | | |
| | | M1-6F |  | 24"x24" | X | | | | | | | |
| 19 | 1 | W1-4(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | | |
| | | W13-1P |  | 18"x18" | X | | | | | | | |
| | 2 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | | |
| | 3 | R2-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | | |
| | 4 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | | |
| | 5 | R2-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | | |

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

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
<http://www.txdot.gov/>

- NOTE:**
- 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.
 - For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
 - For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



FM 932













SUMMARY OF SMALL SIGNS

(SHEET 20 OF 44)

| | | | | |
|----------------|---------------------|---|-----------------|--------------------|
| DESIGN RP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK JMP | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 305 |
| GRAPHICS RP | CONTROL 0867 | SECTION 01 | JOB 017 | |
| GRPH CHECK JMP | | | | |

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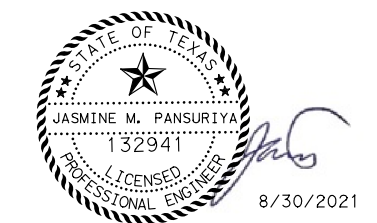
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 19 | 6 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 7 | W3-5 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 8 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 9 | M2-1 |  | 21"x15" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 10 | W1-2a(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| 20 | 1 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 2 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 3 | D3-1 |  | 48"x12" | X | | 10BWG | 1 | SA | P | BM |
| | | D3-1 |  | 48"x12" | X | | | | | | |
| | | R1-1 |  | 48"x48" | X | | | | | | |

| 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:**
- 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.
 - For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
 - For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



FM 932











SUMMARY OF SMALL SIGNS

(SHEET 21 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 306 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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SUMMARY OF SMALL SIGNS

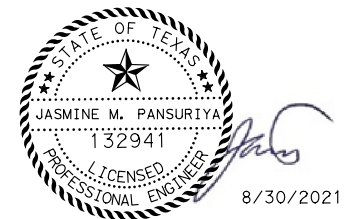
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|--|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels | |
| 20 | 4 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 5 | M3-3 |  | 24"x12" | X | | S80 | 1 | SA | U | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | M6-3 |  | 21"x15" | X | | | | | | |
| | | M3-3 |  | 24"x12" | X | | | | | | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | M6-1 |  | 21"x15" | X | | | | | | |
| | 6 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |

| 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).



FM 932













SUMMARY OF SMALL SIGNS

(SHEET 22 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 307 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTH*SOS*22.dgn
DATE: 8/30/2021 3:35:25 PM

SUMMARY OF SMALL SIGNS

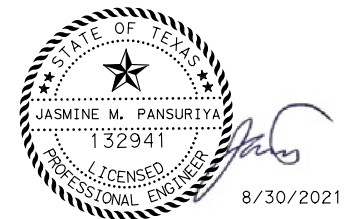
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 20 | 7 | M3-3 |  | 24"x12" | X | | S80 | 1 | SA | U | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | M6-1 |  | 21"x15" | X | | | | | | |
| | | M3-1 |  | 24"x12" | X | | | | | | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | M6-3 |  | 21"x15" | X | | | | | | |
| | 8 | M3-1 |  | 24"x12" | X | | S80 | 1 | SA | U | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | M6-1 |  | 21"x15" | X | | | | | | |
| | | M3-3 |  | 24"x12" | X | | | | | | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | M6-1 |  | 21"x15" | X | | | | | | |

| 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).



FM 932

SUMMARY OF SMALL SIGNS

(SHEET 23 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 308 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

SUMMARY OF SMALL SIGNS

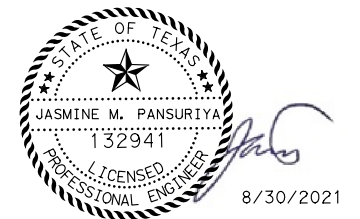
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S | |
|----------------|----------|-------------------|------|------------|------------------------|------------------------|---|--------|--|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | | |
| | | | | | | | 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 |
| 20 | 9 | W1-7T | | 96"x36" | X | | 10BWG | 2 | SA | P | EXAL | |
| | 10 | W1-8 | | 18"x24" | X | | 10BWG | 1 | SA | P | | |
| | | W1-8 | | 18"x24" | X | | | | | | | |
| | 11 | W1-8 | | 18"x24" | X | | 10BWG | 1 | SA | P | | |
| | | W1-8 | | 18"x24" | X | | | | | | | |
| | 12 | R4-2 | | 24"x30" | X | | 10BWG | 1 | SA | P | | |
| | 13 | W1-2a(R) | | 36"x36" | X | | 10BWG | 1 | SA | P | | |
| | 14 | M2-1 | | 21"x15" | X | | 10BWG | 1 | SA | P | | |
| | | M1-6F | | 24"x24" | X | | | | | | | |
| | 15 | D2-2 | | 78"x18" | X | | 10BWG | 1 | SA | T | | |
| | 16 | R4-1 | | 24"x30" | X | | 10BWG | 1 | SA | P | | |

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

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
<http://www.txdot.gov/>

NOTE:

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



FM 932













SUMMARY OF SMALL SIGNS

(SHEET 24 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 309 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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DATE: 8/30/2021 3:35:26 PM

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) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 20 | 17 | M3-1 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| 21 | 1 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 2 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| 22 | 1 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 2 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | |
| | 3 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 4 | D20-1T (R) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| 23 | 1 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |

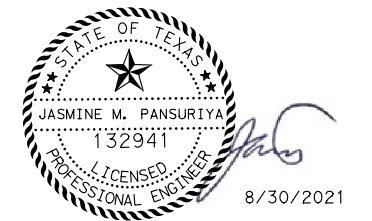
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DATE: 8/30/2021 3:35:26 PM

| 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).




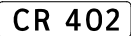










FM 932

SUMMARY OF SMALL SIGNS

(SHEET 25 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 310 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

SUMMARY OF SMALL SIGNS

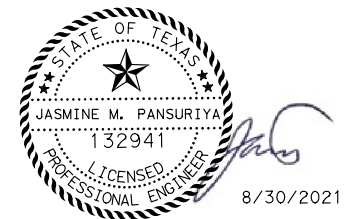
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 23 | 2 | D20-1T(L) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| | 3 | D3-3T |  | 30"x8" | X | | 10BWG | 1 | SA | P | BM |
| | | D3-3T |  | 30"x8" | X | | | | | | |
| | | R1-1 |  | 36"x36" | X | | | | | | |
| | 4 | M3-1 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 5 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 6 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| 24 | 1 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 2 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| 25 | 1 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |

| 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:

- 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.
- For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
- For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



FM 932


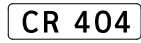







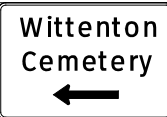


SUMMARY OF SMALL SIGNS

(SHEET 26 OF 44)

| | | | | |
|----------------|---------------------|---|-----------------|--------------------|
| DESIGN RP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK JMP | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 311 |
| GRAPHICS RP | CONTROL 0867 | SECTION 01 | JOB 017 | |
| GRPH CHECK JMP | | | | |

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DATE: 8/30/2021 3:35:27 PM

SUMMARY OF SMALL SIGNS

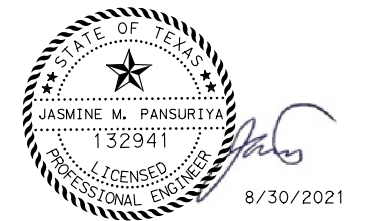
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S | |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | | |
| | | | | | | | 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 |
| 25 | 2 | D3-3T |  | 30"x8" | X | | 10BWG | 1 | SA | P | BM | |
| | | D3-3T |  | 30"x8" | X | | | | | | | |
| | | R1-1 |  | 36"x36" | X | | | | | | | |
| | 3 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | | |
| | | W1-8 |  | 18"x24" | X | | | | | | | |
| | 4 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | | |
| | | W1-8 |  | 18"x24" | X | | | | | | | |
| | 5 | W1-2a(R) |  | 36"x36" | X | | 10BWG | 1 | SA | P | | |
| | 6 | D20-1T(L) |  | 24"x24" | X | | 10BWG | 1 | SA | P | | |
| | 7 | D3-3bTL |  | 42"x36" | X | | 10BWG | 1 | SA | T | | |
| | 8 | M3-1 |  | 24"x12" | X | | 10BWG | 1 | SA | P | | |
| | | M1-6F |  | 24"x24" | X | | | | | | | |

| 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:

- 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.
- For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
- For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).















FM 932

SUMMARY OF SMALL SIGNS

(SHEET 27 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 312 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

SUMMARY OF SMALL SIGNS

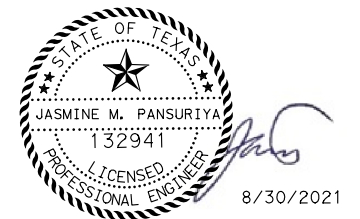
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 25 | 9 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 10 | D20-1T (R) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| | 11 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 12 | W1-2a(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 13 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 14 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| 26 | 1 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 2 | W1-4 (L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | | W13-1P |  | 18"x18" | X | | | | | | |
| | 3 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |

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

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
<http://www.txdot.gov/>

NOTE:

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



FM 932













SUMMARY OF SMALL SIGNS

(SHEET 28 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 313 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTH*SOS*28.dgn
DATE: 8/30/2021 3:35:27 PM

SUMMARY OF SMALL SIGNS

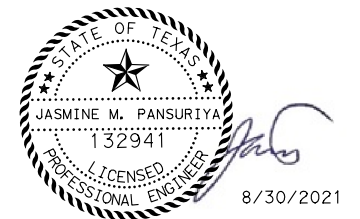
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|--|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels | |
| 26 | 4 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 5 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 6 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| 27 | 1 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 2 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 3 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |

| 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).



FM 932












SUMMARY OF SMALL SIGNS

(SHEET 29 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 314 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTH*SOS*29.dgn
DATE: 8/30/2021 3:35:28 PM

SUMMARY OF SMALL SIGNS

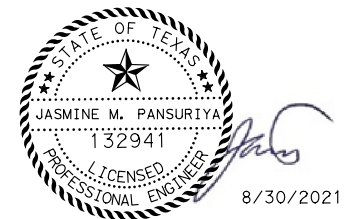
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|--|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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" | |
| 27 | 4 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | |
| | 5 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 6 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 7 | W1-4(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | | W13-1P |  | 18"x18" | X | | | | | | |
| | 8 | W1-2a(R) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |

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

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
<http://www.txdot.gov/>

NOTE:

- 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.
- For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
- For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).














FM 932

SUMMARY OF SMALL SIGNS

(SHEET 30 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 315 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

SUMMARY OF SMALL SIGNS

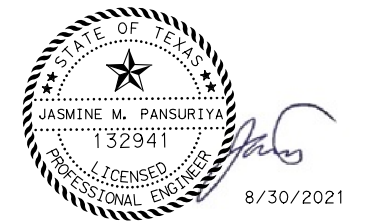
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 28 | 1 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 2 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 3 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 4 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 5 | W1-2a(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 6 | W1-4(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | | W13-1P |  | 18"x18" | X | | | | | | |

| 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).















FM 932

SUMMARY OF SMALL SIGNS

(SHEET 31 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 316 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

SUMMARY OF SMALL SIGNS

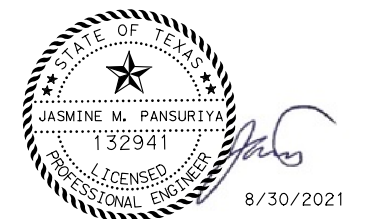
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|--|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels | |
| 28 | 7 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 8 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 9 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 10 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 11 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 12 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |

| 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).















FM 932

SUMMARY OF SMALL SIGNS

(SHEET 32 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 317 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

SUMMARY OF SMALL SIGNS

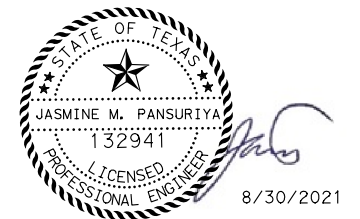
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 28 | 13 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| 29 | 1 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 2 | W1-4 (L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | | W13-1P |  | 18"x18" | X | | | | | | |
| | 3 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 4 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 5 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 6 | D20-1T (L) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| | 7 | D20-1T (R) |  | 24"x24" | X | | 10BWG | 1 | SA | P | |

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

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

- 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.
- For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
- For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



FM 932











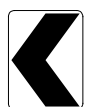

SUMMARY OF SMALL SIGNS

(SHEET 33 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 318 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTH*SOS*33.dgn
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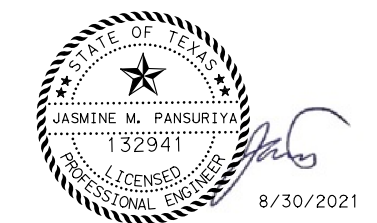
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 29 | 8 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 9 | D3-3T |  | 30"x8" | X | | 10BWG | 1 | SA | P | BM |
| | | D3-3T |  | 30"x8" | X | | | | | | |
| | | R1-1 |  | 36"x36" | X | | | | | | |
| | 10 | M3-1 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| 30 | 1 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 2 | W1-2a(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| 31 | 1 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 2 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |

| 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:**
- 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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FM 932











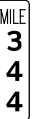
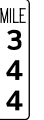
SUMMARY OF SMALL SIGNS

(SHEET 34 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 319 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTH*SOS*34.dgn
DATE: 8/30/2021 3:35:30 PM

SUMMARY OF SMALL SIGNS

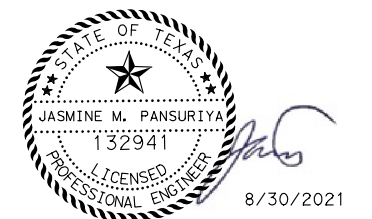
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|--|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels | |
| 31 | 3 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 4 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 5 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 6 | W1-2a(R) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| 32 | 1 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 2 | M3-1 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | |
| | | D10-3 |  | 10"x36" | X | | | | | | |

| 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:

- 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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- For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).














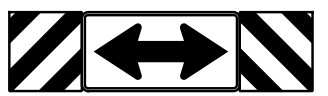
FM 932

SUMMARY OF SMALL SIGNS

(SHEET 35 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 320 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

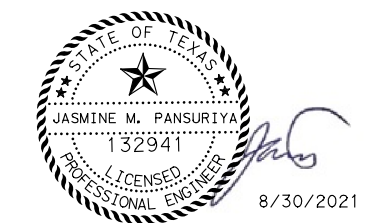
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 32 | 3 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 4 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 5 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 6 | R4-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 7 | M2-1 |  | 21"x15" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| 33 | 1 | D2-2 |  | 78"x30" | X | | S80 | 1 | SA | T | |
| | 2 | R2-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 3 | R4-2 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 4 | W3-2 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 5 | D1-1 |  | 60"x12" | X | | 10BWG | 1 | SA | T | |
| | 6 | W1-7T |  | 96"x36" | X | | 10BWG | 2 | SA | P | EXAL |

| 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:**
- 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.
 - For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
 - For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



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SUMMARY OF SMALL SIGNS

(SHEET 36 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| JMP | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| JMP | TX | WACO | HAMILTON | 321 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTH*SOS*36.dgn
DATE: 8/30/2021 3:35:31 PM

SUMMARY OF SMALL SIGNS

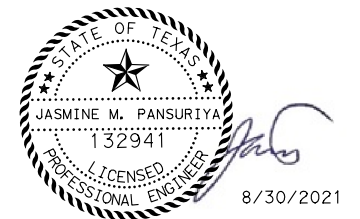
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 33 | 7 | M3-3 |  | 24"x12" | X | | S80 | 1 | SA | U | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | M6-1 |  | 21"x15" | X | | | | | | |
| | | M3-1 |  | 24"x12" | X | | | | | | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | M6-1 |  | 21"x15" | X | | | | | | |
| | 8 | M3-3 |  | 24"x12" | X | | S80 | 1 | SA | U | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | M6-1 |  | 21"x15" | X | | | | | | |
| | | M3-3 |  | 24"x12" | X | | | | | | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | M6-3 |  | 21"x15" | X | | | | | | |

| 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).














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SUMMARY OF SMALL SIGNS

(SHEET 37 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 322 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

SUMMARY OF SMALL SIGNS

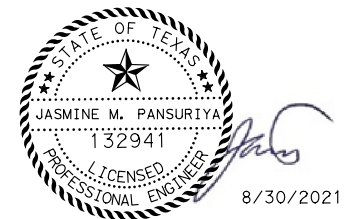
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 33 | 9 | R2-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 10 | D1-1 |  | 54"x12" | X | | 10BWG | 1 | SA | T | |
| | 11 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 12 | R1-1 |  | 48"x48" | X | | 10BWG | 1 | SA | T | |
| | 13 | M3-1 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 14 | W1-2a(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 15 | W1-8 |  | 18"x24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"x24" | X | | | | | | |
| | 16 | R2-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |

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

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



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SUMMARY OF SMALL SIGNS

(SHEET 38 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 323 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTH*SOS*38.dgn
DATE: 8/30/2021 3:35:32 PM

SUMMARY OF SMALL SIGNS

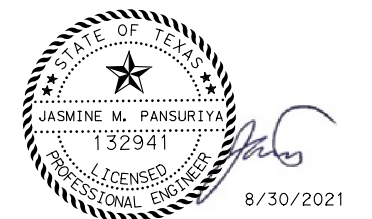
| PLAN SHEET NO. | SIGN NO. | SIGN NOMENCLATURE | SIGN | DIMENSIONS | FLAT ALUMINUM (TYPE A) | EXAL ALUMINUM (TYPE G) | SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) | | | | BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 33 | 17 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 18 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| 34 | 1 | W1-2a (R) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 2 | M2-1 |  | 21"x15" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 3 | W1-8 |  | 18"X24" | X | | 10BWG | 1 | SA | P | |
| | | W1-8 |  | 18"X24" | X | | | | | | |
| | 4 | R2-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |

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

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

- 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.
- For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
- For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



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SUMMARY OF SMALL SIGNS

(SHEET 39 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 324 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

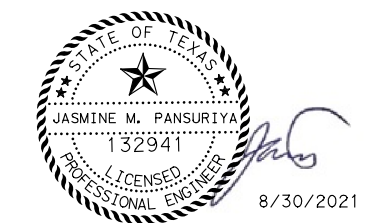
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S | |
|----------------|----------|-------------------|------|------------|------------------------|------------------------|---|--------|--|---|---|--|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | | |
| | | | | | | | 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 | | |
| 34 | 5 | D3-1 | | 48"x12" | X | | 10BWG | 1 | SA | P | BM | |
| | | D3-1 | | 48"x12" | X | | | | | | | |
| | | R1-1 | | 36"x36" | X | | | | | | | |
| | 6 | W2-1aT | | 48"x48" | X | | 10BWG | 1 | SA | T | | |
| | 7 | D1-1 | | 66"x12" | X | | 10BWG | 1 | SA | T | | |
| | 8 | D1-1 | | 66"x12" | X | | 10BWG | 1 | SA | T | | |
| | 9 | R2-1 | | 24"x30" | X | | 10BWG | 1 | SA | P | | |
| 35 | 1 | R2-1 | | 24"x30" | X | | 10BWG | 1 | SA | P | | |
| | 2 | W1-2a(R) | | 36"x36" | X | | 10BWG | 1 | SA | P | | |
| | 3 | R1-1 | | 36"x36" | X | | 10BWG | 1 | SA | P | | |
| | 4 | R1-1 | | 36"x36" | X | | 10BWG | 1 | SA | P | | |
| | 5 | I-2aT | | 54"x24" | X | | 10BWG | 1 | SA | T | | |

| 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:**
- 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.
 - For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
 - For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



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SUMMARY OF SMALL SIGNS

(SHEET 40 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 325 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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DATE: 8/30/2021 3:35:33 PM

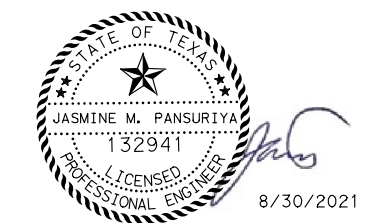
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 35 | 6 | R2-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 7 | S3-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 8 | W1-2a(L) |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 9 | W3-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 10 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 11 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 12 | M1-6F |  | 24"x24" | X | | S80 | 1 | SA | U | |
| | | M6-1 |  | 21"x15" | X | | | | | | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | M6-1 |  | 21"x15" | X | | | | | | |
| | 13 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 14 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |

| ALUMINUM SIGN BLANKS THICKNESS | |
|--------------------------------|-------------------|
| Square Feet | Minimum Thickness |
| Less than 7.5 | 0.080" |
| 7.5 to 15 | 0.100" |
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The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.
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SUMMARY OF SMALL SIGNS

(SHEET 41 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 326 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTH*SOS*41.dgn
DATE: 8/30/2021 3:35:33 PM

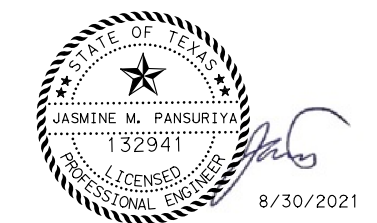
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|---|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 | |
| 35 | 15 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 16 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 17 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 18 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| 36 | 1 | M1-6F |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| | | M6-1 |  | 21"x15" | X | | | | | | |
| | 2 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 3 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 4 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 5 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 6 | M1-6F |  | 24"x24" | X | | 10BWG | 1 | SA | P | |
| | | M6-1 |  | 21"x15" | X | | | | | | |

| ALUMINUM SIGN BLANKS THICKNESS | |
|--------------------------------|-------------------|
| Square Feet | Minimum Thickness |
| Less than 7.5 | 0.080" |
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FM 932








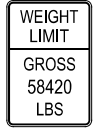




SUMMARY OF SMALL SIGNS

(SHEET 42 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 327 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTH*SOS*42.dgn
DATE: 8/30/2021 3:35:34 PM

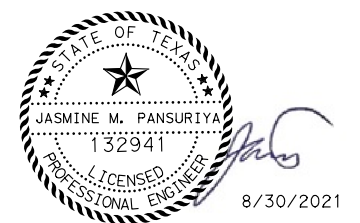
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|--|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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" | |
| 36 | 7 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 8 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 9 | M1-6F |  | 24"x24" | X | | S80 | 1 | SA | U | |
| | | M6-1 |  | 21"x15" | X | | | | | | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | M6-1 |  | 21"x15" | X | | | | | | |
| 37 | 1 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 2 | R12-1T |  | 24"x36" | X | | 10BWG | 1 | SA | P | |
| | 3 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 4 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 5 | R1-1 |  | 36"x36" | X | | 10BWG | 1 | SA | P | |
| | 6 | D1-3 |  | 90"x42" | X | | S80 | 1 | SA | T | |

| 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:**
- 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.
 - For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
 - For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



FM 932








SUMMARY OF SMALL SIGNS

(SHEET 43 OF 44)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 328 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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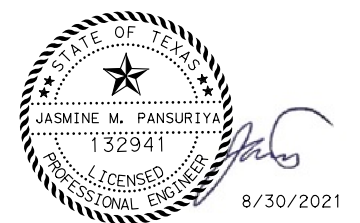
SUMMARY OF SMALL SIGNS

| 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) TY = TYPE TY N TY S |
|----------------|----------|-------------------|---|------------|------------------------|------------------------|---|--------|--|--|---|
| | | | | | | | POST TYPE | POSTS | ANCHOR TYPE | MOUNTING DESIGNATION | |
| | | | | | | | 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 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels | |
| 37 | 7 | R2-1 |  | 24"x30" | X | | 10BWG | 1 | SA | P | |
| | 8 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | 9 | M3-3 |  | 24"x12" | X | | 10BWG | 1 | SA | P | |
| | | M1-6F |  | 24"x24" | X | | | | | | |
| | | M6-1 |  | 21"x15" | X | | | | | | |
| | 10 | R1-1 |  | 48"x48" | X | | 10BWG | 1 | SA | T | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| 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:**
- 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.
 - For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS) Standard Sheet.
 - For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD (GEN).



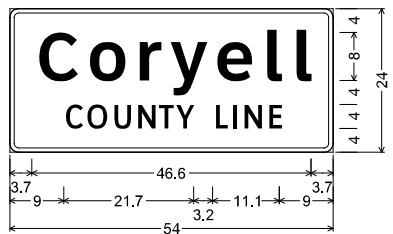
FM 932

SUMMARY OF SMALL SIGNS

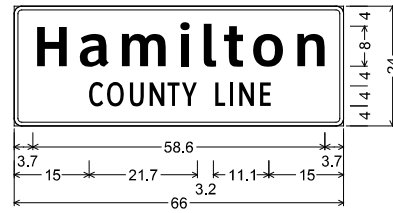
(SHEET 44 OF 44)

| | | | | |
|-------------|-------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 329 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

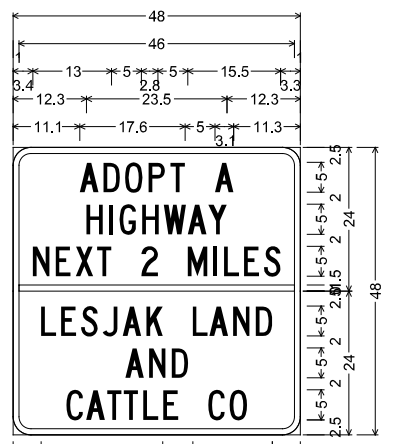
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DATE: 8/30/2021 3:35:35 PM



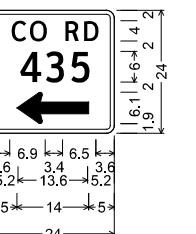
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"COUNTY LINE", ClearviewHwy-3-W;



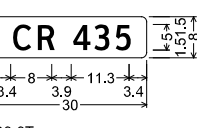
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"Hamilton", ClearviewHwy-5-W;
"COUNTY LINE", ClearviewHwy-3-W;



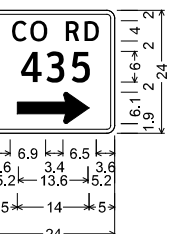
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"ADOPT A", C; "HIGHWAY", C;
"NEXT 2 MILES", C;
3.0" Radius, 1.0" Border, White on, Blue;
"LESJAK LAND", C; "AND", C;
"CATTLE CO", C;



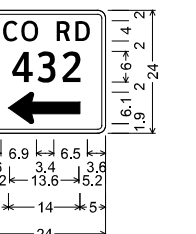
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"435", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180°;



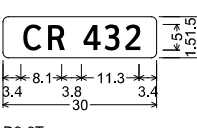
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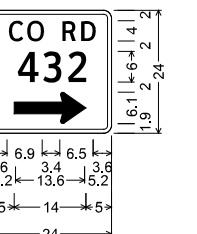
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"435", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 0°;



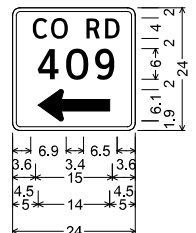
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"432", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180°;



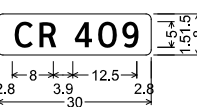
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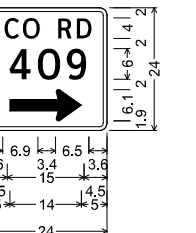
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"CO RD", ClearviewHwy-3-W;
"432", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 0°;



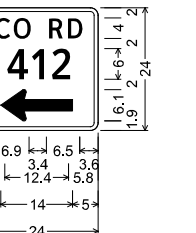
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"409", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180°;



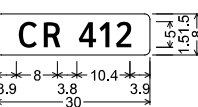
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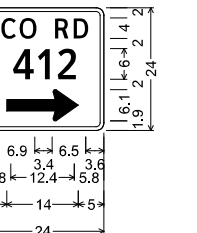
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1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"409", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 0°;



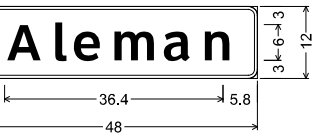
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"412", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180°;



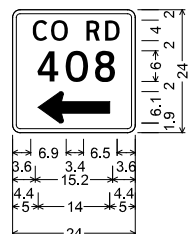
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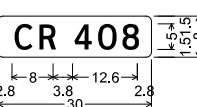
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"412", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 0°;



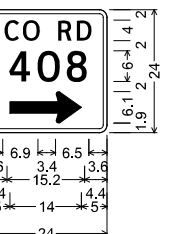
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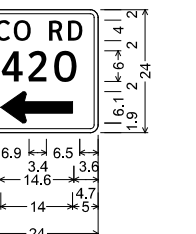
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"408", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180°;



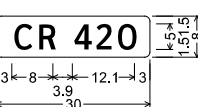
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D20-1TR_24x24;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"408", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 0°;



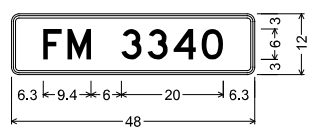
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"420", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180°;



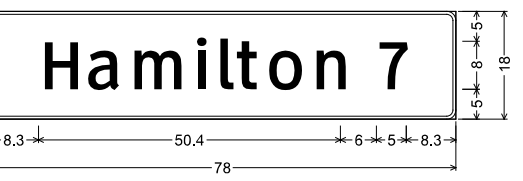
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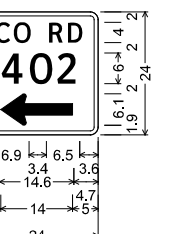
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Standard Arrow Custom 14.0" X 6.1" 0°;



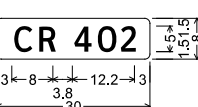
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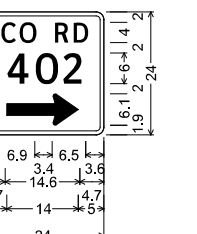
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"Hamilton", ClearviewHwy-3-W; "7", ClearviewHwy-3-W;



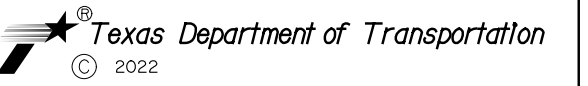
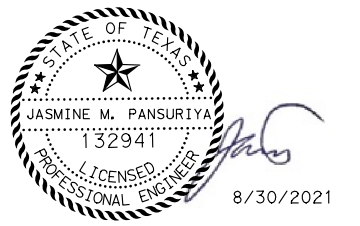
D20-1TL_24x24;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"402", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180°;



D3-3T;
1.0" Radius, No border, Green;
"CR 402" White, ClearviewHwy-3-W specified length;



D20-1TR_24x24;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"402", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 0°;

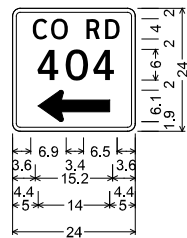


FM 932

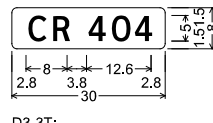
SIGN DETAILS

(SHEET 1 OF 2)

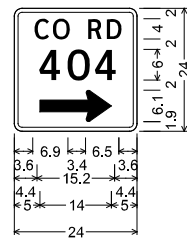
| | | | | |
|----------------|---------------------|---|----------|--------------------|
| DESIGN RP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 330 |
| GRPH CHECK JMP | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



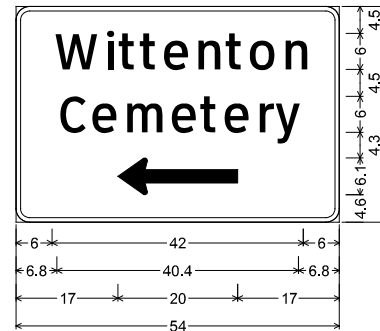
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"404", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180';



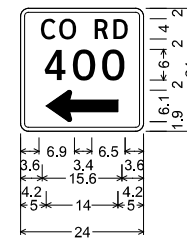
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"CR 404" White, ClearviewHwy-3-W specified length;



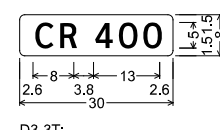
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1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"404", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 0';



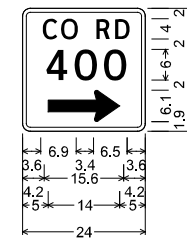
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"Wittenton", ClearviewHwy-3-W;
"Cemetery", ClearviewHwy-3-W;
Standard Arrow Custom 20.0" X 6.1" 180';



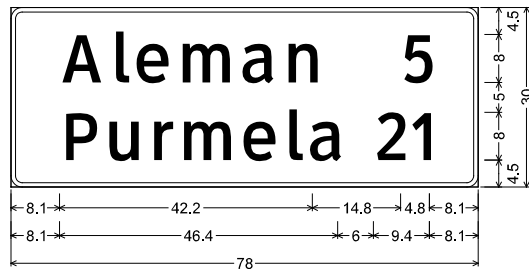
D20-1TL_24x24;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"400", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 180';



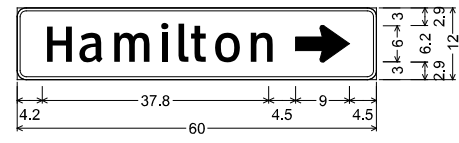
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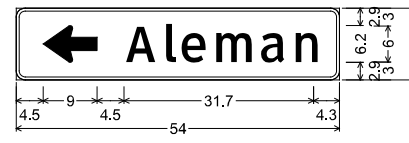
D20-1TR_24x24;
1.5" Radius, 0.8" Border, White on, Green;
"CO RD", ClearviewHwy-3-W;
"400", ClearviewHwy-3-W;
Standard Arrow Custom 14.0" X 6.1" 0';



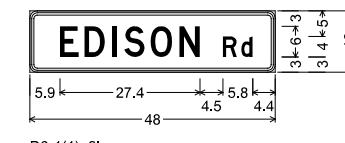
E7-2T_VARx42;
1.9" Radius, 0.8" Border, White on, Green;
"Aleman", ClearviewHwy-3-W; "5", ClearviewHwy-3-W;
"Purmela", ClearviewHwy-3-W; "21", ClearviewHwy-3-W;



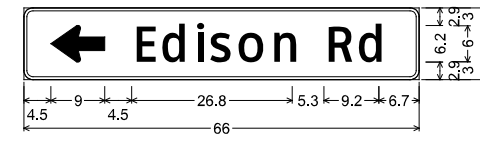
D1-1R_VARx12;
1.5" Radius, 0.5" Border, White on, Green;
"Hamilton", ClearviewHwy-3-W;
Standard Arrow Custom 9.0" X 6.1" 0';



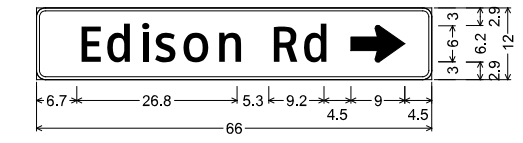
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"Aleman", ClearviewHwy-3-W;



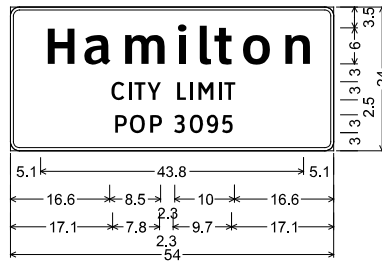
D3-1(1) 6in;
1.5" Radius, 0.4" Border, 0.4" Indent, Black on, White;
"EDISON", D; "Rd", D;



D21-1TL_VARx12;
1.5" Radius, 0.5" Border, White on, Green;
Standard Arrow Custom 9.0" X 6.1" 180';
"Edison Rd", ClearviewHwy-3-W;



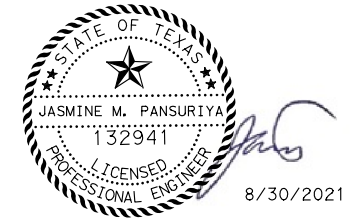
D21-1TR_VARx12;
1.5" Radius, 0.5" Border, White on, Green;
"Edison Rd", ClearviewHwy-3-W;
Standard Arrow Custom 9.0" X 6.1" 0';



I-2aT_54x24;
1.5" Radius, 0.5" Border, White on, Green;
"Hamilton", ClearviewHwy-5-W;
"CITY LIMIT", ClearviewHwy-3-W;
"POP 3095", ClearviewHwy-3-W;



D21-3T(1)_VARx36;
2.3" Radius, 0.8" Border, White on, Green;
Standard Arrow Custom 10.0" X 7.1" 180';
"Comanche", ClearviewHwy-3-W; "Gatesville", ClearviewHwy-3-W;
Standard Arrow Custom 10.0" X 7.1" 0'; "Meridian", ClearviewHwy-3-W;
Standard Arrow Custom 10.0" X 7.1" 0';



FM 932

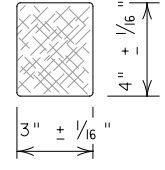
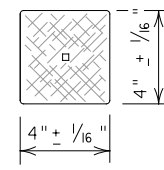
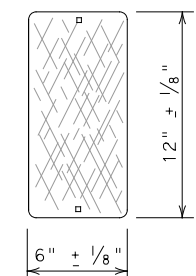
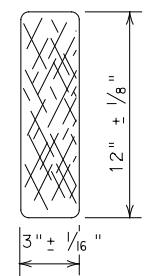
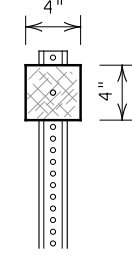
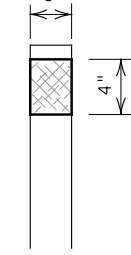
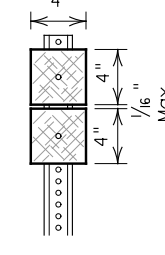
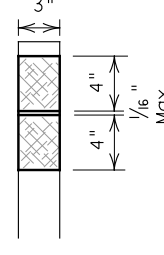
SIGN DETAILS

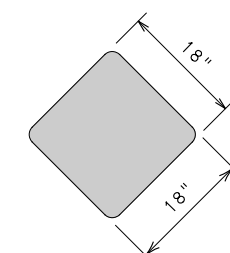
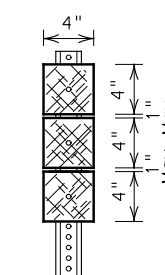
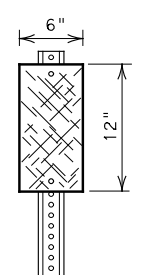
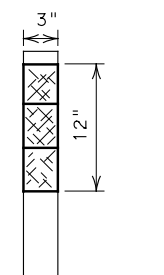
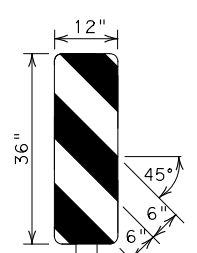
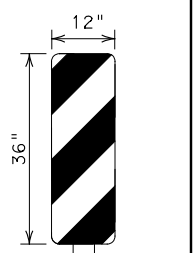
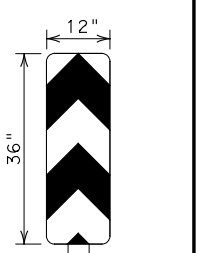
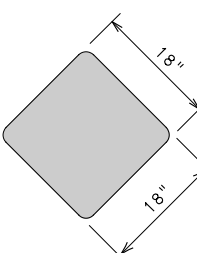
(SHEET 2 OF 2)

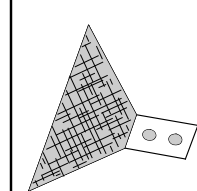

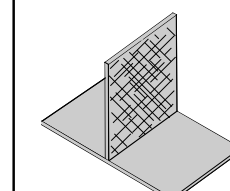
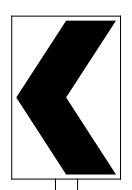
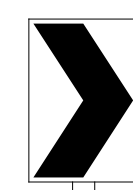
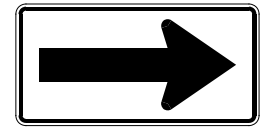
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| DESIGN RP | FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 331 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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| REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS | | | | | DELINEATORS | | | | D & OM DESCRIPTIVE CODES | |
|---|---|---|--|---|---|---|---|---|--|--|
| DEVICE | SIZE 1 | SIZE 2 | SIZE 3 | SIZE 4 | DEVICE | SINGLE | | DOUBLE | | 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 |
| |  |  |  |  | |  |  |  |  | |
| SHEETING Yellow, White or Red Type B or C reflective sheeting | | | | | 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. | | | | | POST TYPE WC YFLX, WFLX WC YFLX, WFLX | | MOUNT TYPE GND GND, SRF GND GND, SRF | | 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 unit (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 | | | | | | | | | |
|--|--|---|--|--|--|---|--|------|---|
| DEVICE | Type 1 (OM-1) | | Type 2 (OM-2) | | | Type 3 (OM-3) | | | Type 4 (OM-4) |
| | OM-1 | OM-2X | OM-2Y | OM-2Z | OM-3L | OM-3R | OM-3C | OM-4 | |
|  |  |  |  |  |  |  |  | | |
| | | 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 retroreflective 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) | | | CHEVRONS | | | | ONE DIRECTION LARGE ARROW | | 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. | | | |
|---|---|---|-----------------|---|--|---|---------------------------|---------------------|--|--------------------------|----------------------------------|--|
| DEVICE | GF1 | GF2 | CTB | W1-8 | | W1-6 | | | | | | |
|  |  |  | |  |  |  | | | | | | |
| 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. | | | SIZE (W x L) | | 18" x 24" (Conventional) | 24" x 30" (Conventional Oversize) | 30" x 36" (Expressway) | 36" x 48" (Freeway) | SIZE (W x L) | 48" x 24" (Conventional) | 60" x 30" (Expressway & Freeway) | |
| | | | MOUNTING HEIGHT | | 4'-0" or 7'-0" | | 7'-0" Only | | MOUNTING HEIGHT | | 7'-0" | |
| SHEETING Yellow, White, Red | | | 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). | | | | | | | |

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

D & OM(1)-20

| | | | | |
|---------------------|-----------|-----------|-----------|-----------|
| FILE: dcm1-20.dgn | DN: TXDOT | CK: TXDOT | OW: TXDOT | CK: TXDOT |
| © TXDOT August 2004 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 10-09 3-15 | DIST | COUNTY | | SHEET NO. |
| 4-10 7-20 | WACO | HAMILTON | | 332 |

20A

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| POST TYPE AND SUPPORT FOUNDATION DETAILS | | | | TYPE OF BARRIER MOUNTS | | |
|--|-----------------------------|--|----------------------|---|------------------------|--|
| WING CHANNEL (WC) | FLEXIBLE POSTS (YFLX, WFLX) | | WEDGE ANCHOR SYSTEMS | | GUARD FENCE ATTACHMENT | |
| GND | GND | SRF | WAS | WAP | GF1 | |
| | | | | | | |
| | EMBEDDED | SURFACE MOUNT | STEEL | PLASTIC | GF2 | |
| 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. | | 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. | | NOTE 1. Install per manufacturer's recommendations. | | |
| TYPES 1,3, AND 4 OBJECT MARKERS AND CHEVRONS | | CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN | | DELINEATORS AND TYPE 2 OBJECT MARKERS | | |
| | | | | | | |
| 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) | | 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. | | See general notes 1, 2 and 3. | | |
| 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. | | | | | | |
| | | | | | | |
| DELINATOR & OBJECT MARKER INSTALLATION | | | | | | |
| D & OM(2)-20 | | | | | | |
| FILE: dom2-20.dgn | | DNE: TxDOT | | CK: TxDOT | | |
| © TxDOT August 2004 | | CONT SECT | | JOB HIGHWAY | | |
| REVISIONS | | 0867 01 | | 017 FM 932 | | |
| 10-09 3-15 | | DIST COUNTY | | SHEET NO. | | |
| 4-10 7-20 | | WACO HAMILTON | | 333 | | |
| 20B | | | | | | |

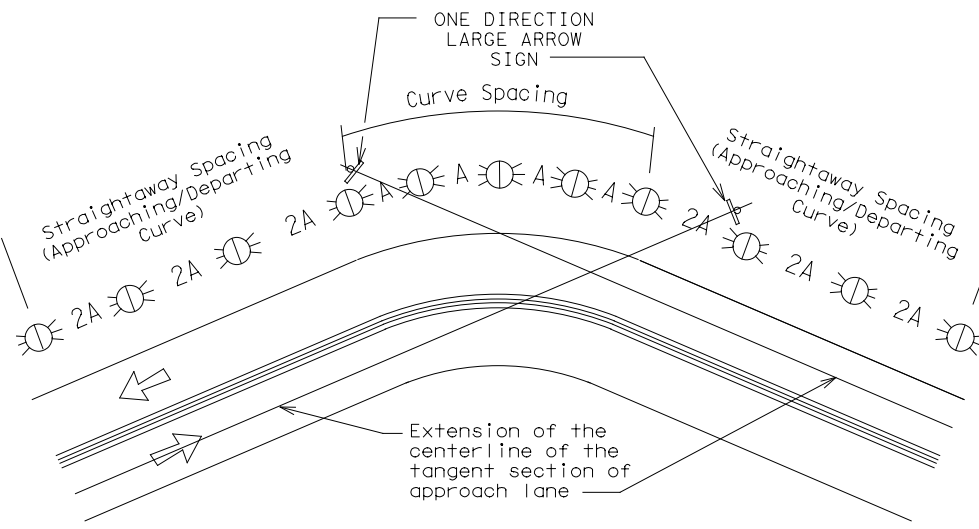
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MINIMUM WARNING DEVICES AT CURVES WITH ADVISORY SPEEDS

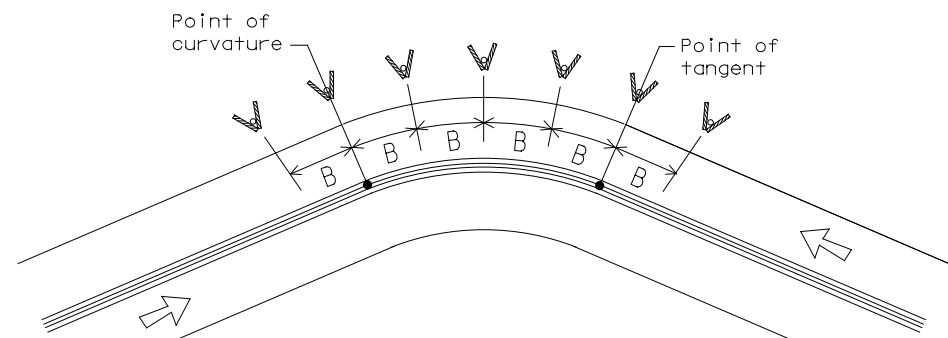
| Amount by which Advisory Speed is less than Posted Speed | Curve Advisory Speed | |
|--|--|---|
| | Turn (30 MPH or less) | Curve (35 MPH or more) |
| 5 MPH & 10 MPH | ● RPMs | ● RPMs |
| 15 MPH & 20 MPH | ● RPMs and One Direction Large Arrow sign | ● RPMs and Chevrons; or ● RPMs and One Direction 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

- 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.
- Barrier reflectors may be used to replace required delineators.
- 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

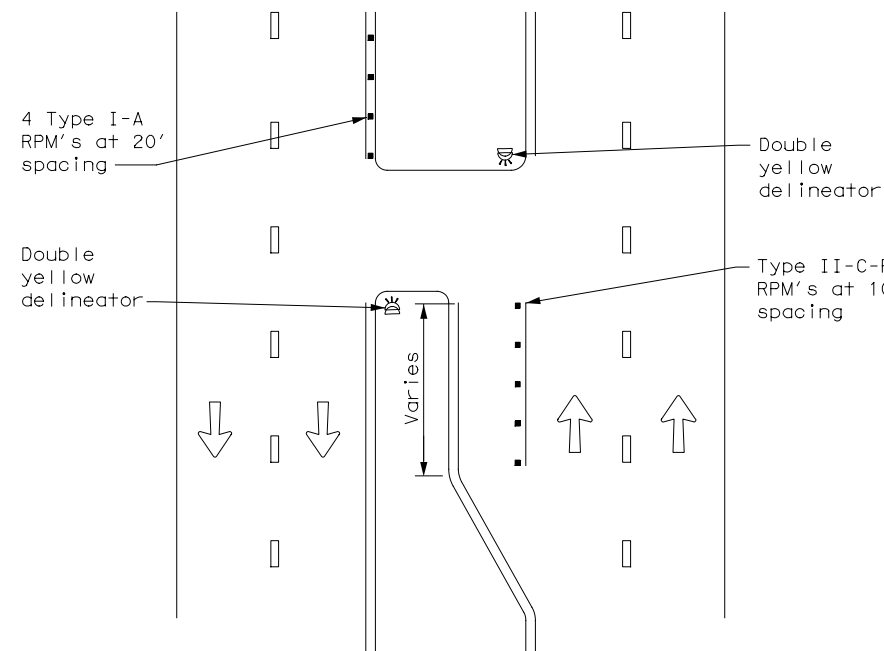
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| FILE: dom3-20.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
| © TxDOT August 2004 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | | 0867 01 | 017 | FM 932 |
| 3-15 8-15 | DIST | COUNTY | | SHEET NO. |
| 8-15 7-20 | WACO | HAMILTON | | 334 |

20C

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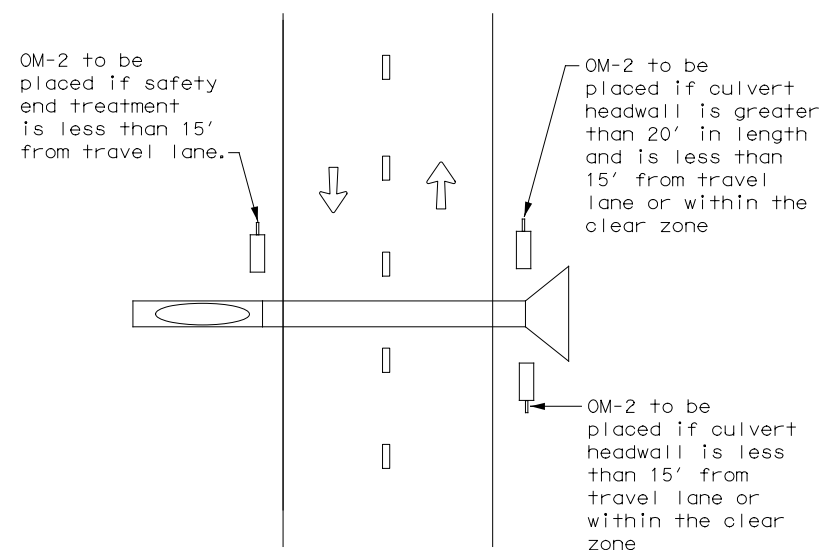
DATE: 8/30/2021 3:35:42 PM
FILE: dom4-20.dgn

CROSSOVERS



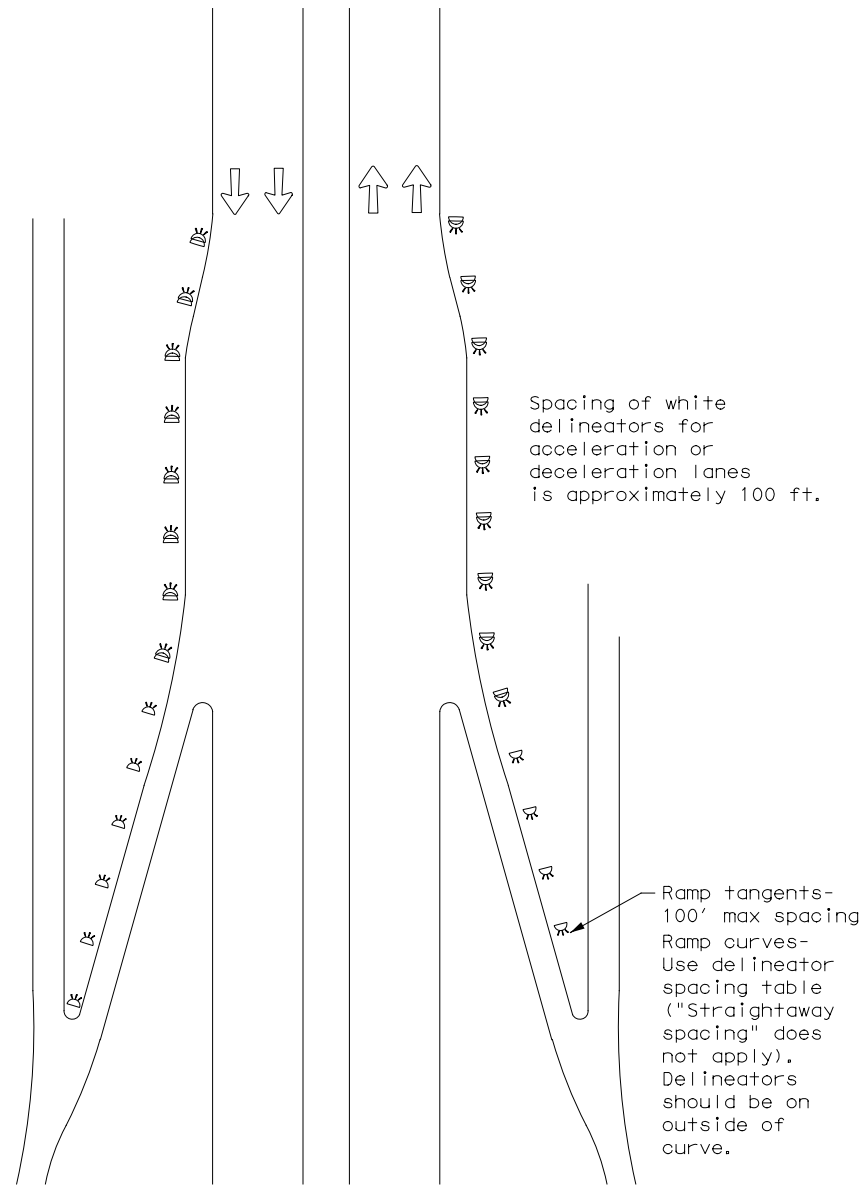
DETAIL 1

FOR CULVERTS WITHOUT MBGF



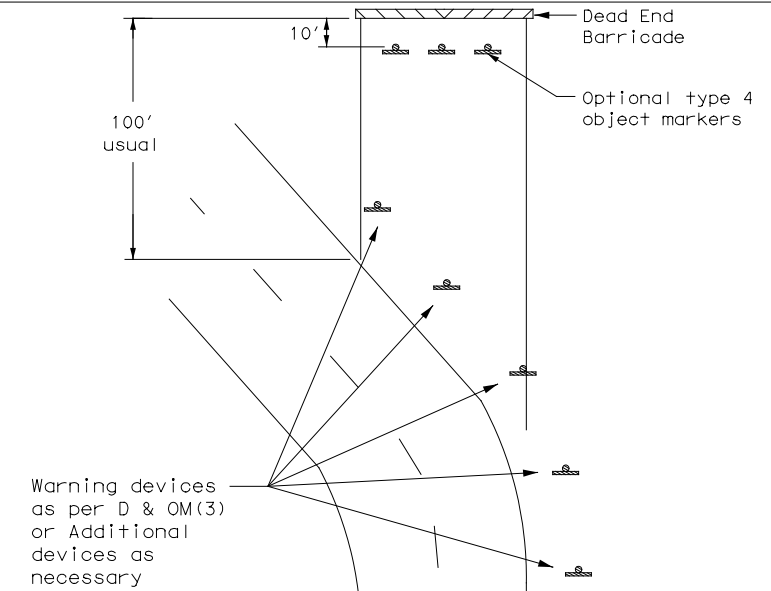
DETAIL 2

FREEWAY DELINEATION FOR RAMPS AND ACCELERATION/DECELERATION LANES



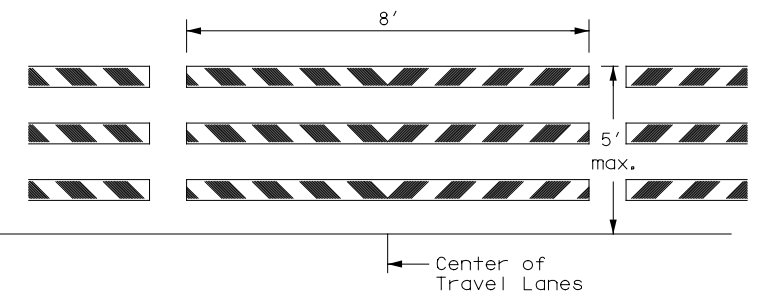
DETAIL 3

TYPICAL APPLICATION OF DEAD END BARRICADE



DETAIL 4

TYPICAL DEAD END BARRICADE INSTALLATION



NOTES

- Barricade striping shall be red and white reflective sheeting for all permanent road closures.
- Barricade striping is red and white sloping toward the center of the roadway.
- 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 |

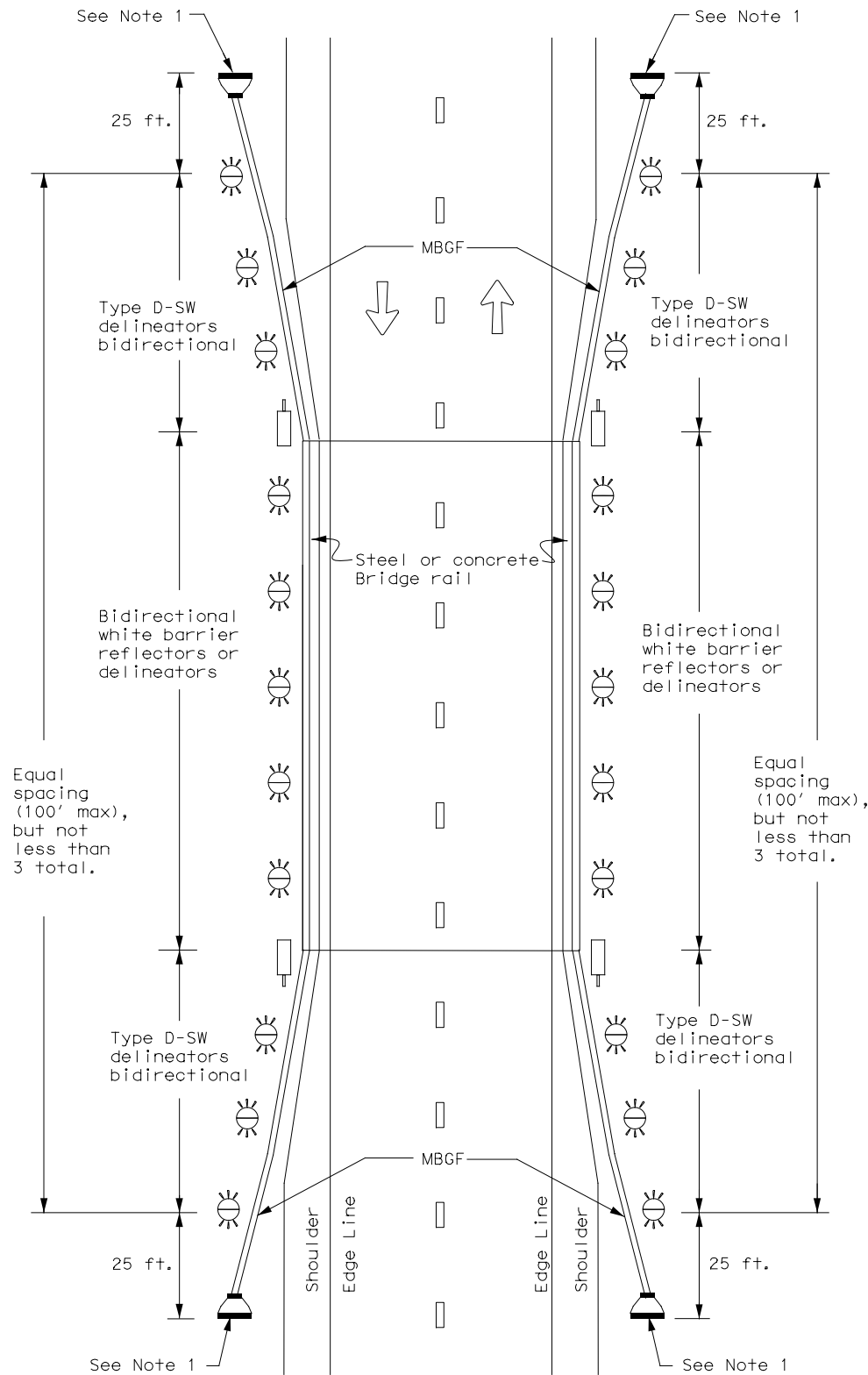


DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(4)-20

| | | | | |
|---------------------|-----------|-----------|------------|-----------|
| FILE: dom4-20.dgn | DN: TxDOT | CK: TxDOT | OW: TxDOT | CK: TxDOT |
| © TxDOT August 2004 | CONT | SECT | JOB | HIGHWAY |
| 3-15 | 0867 | 01 | 017 | FM 932 |
| 7-20 | DIST | COUNTY | SHEET NO. | |
| | WACO | HAMILTON | 335 | |

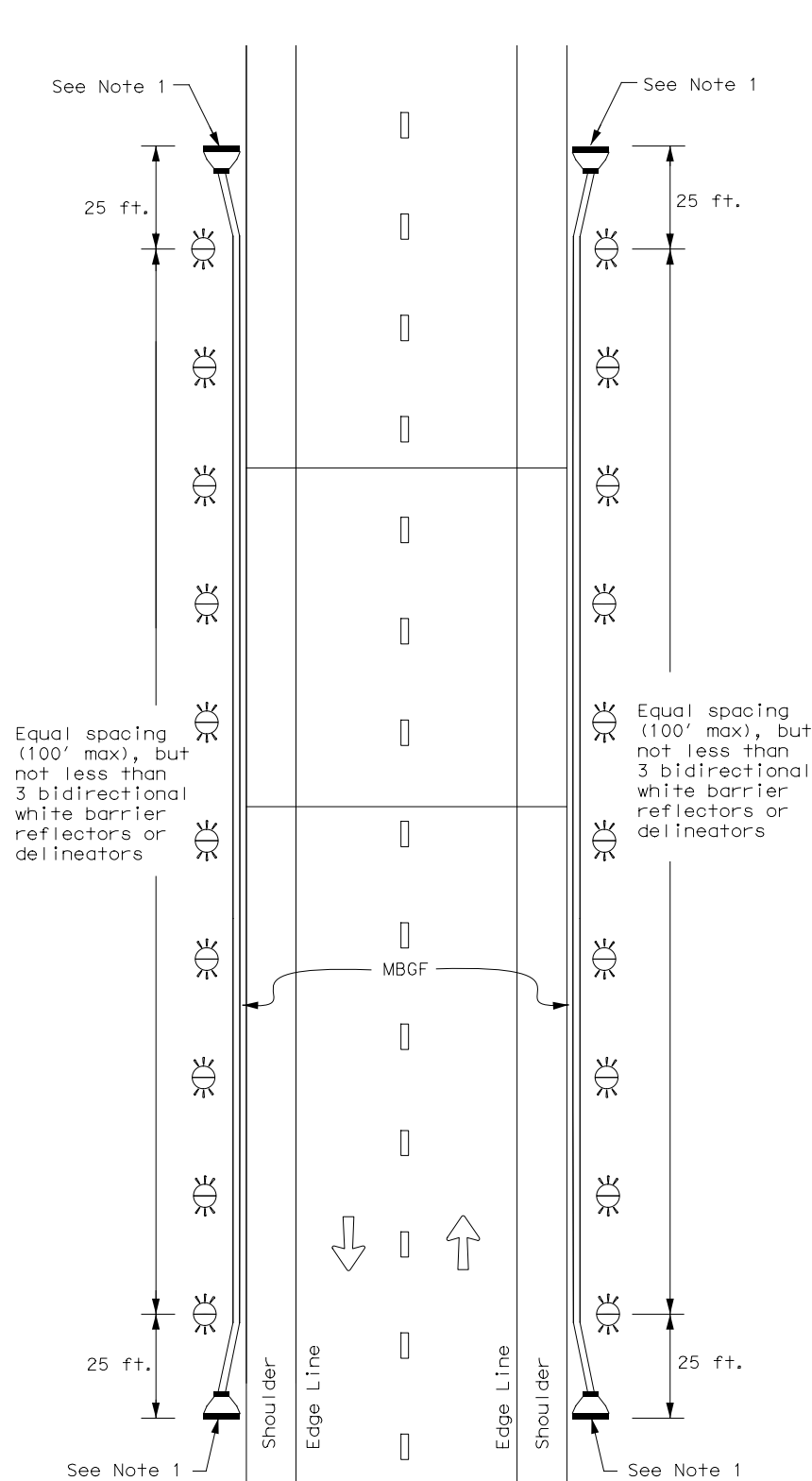
**TWO-WAY, TWO LANE ROADWAY
WITH REDUCED WIDTH APPROACH RAIL**



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.

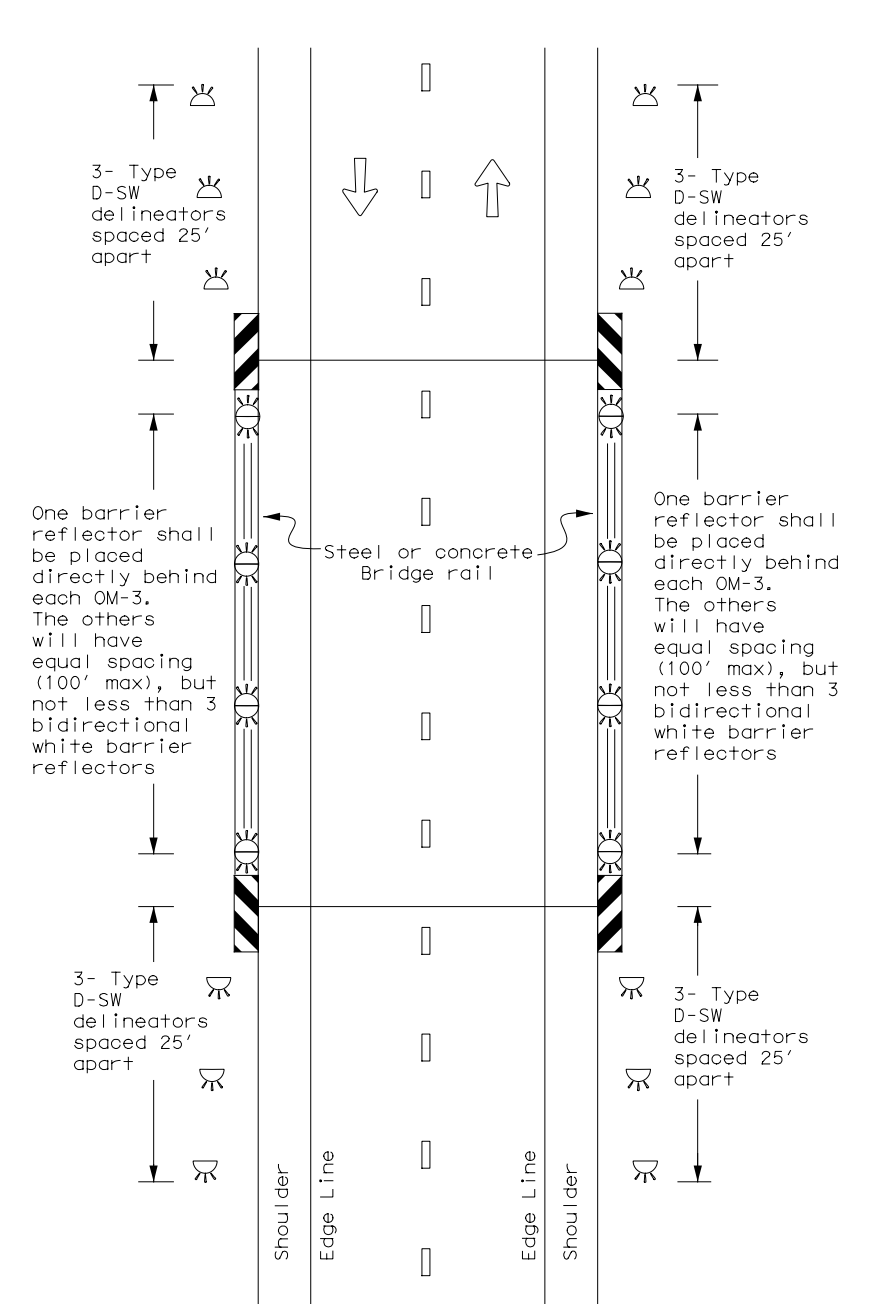
**TWO-WAY, TWO LANE ROADWAY
WITH METAL BEAM GUARD FENCE (MBGF)**



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 |



**DELINEATOR &
OBJECT MARKER
PLACEMENT DETAILS**

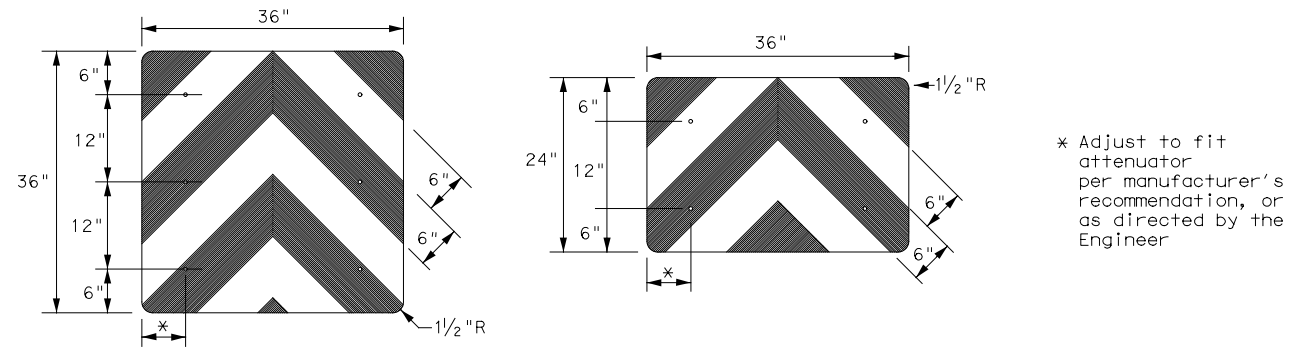
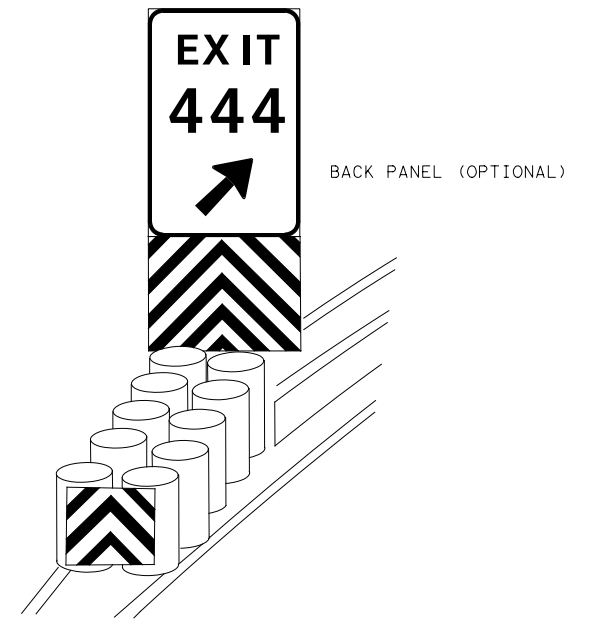
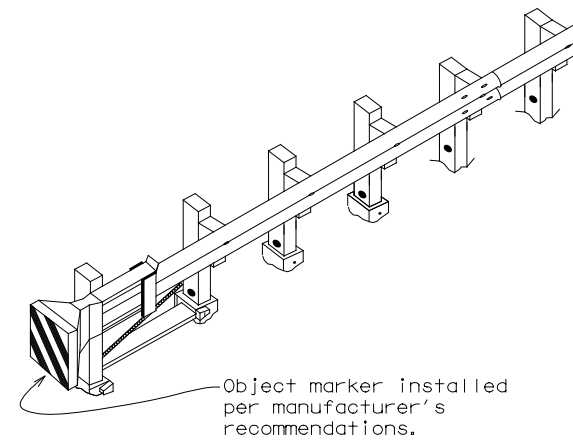
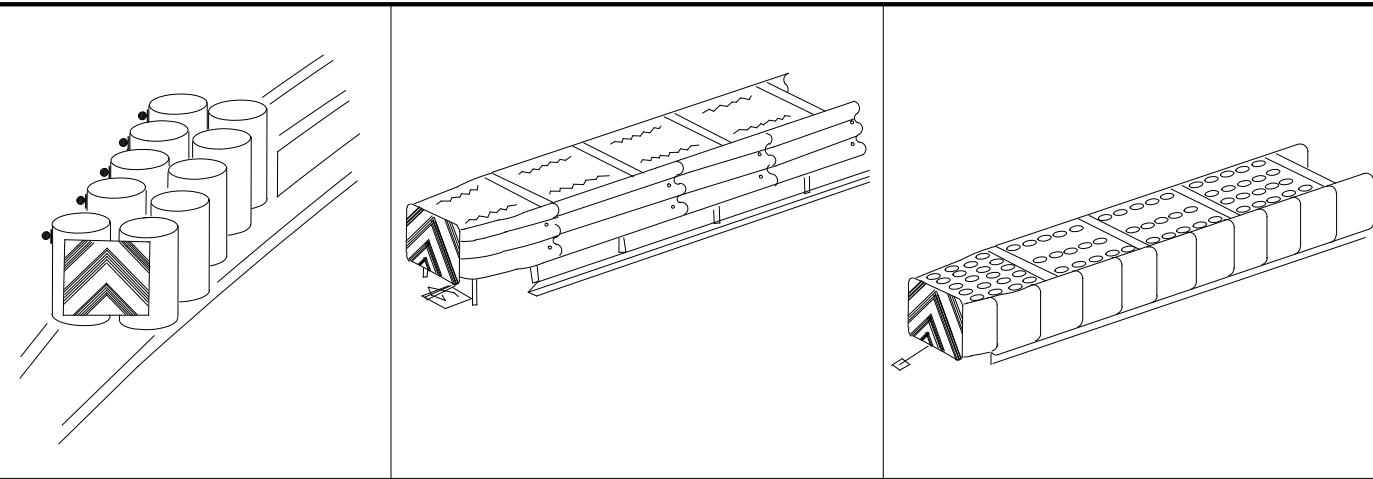
D & OM(5) - 20

| | | | | |
|--------------------|-----------|-----------|------------|-----------|
| FILE: dom5-20.dgn | ON: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
| ©TxDOT August 2015 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 7-20 | DIST | COUNTY | SHEET NO. | |
| | WACO | HAMILTON | 336 | |

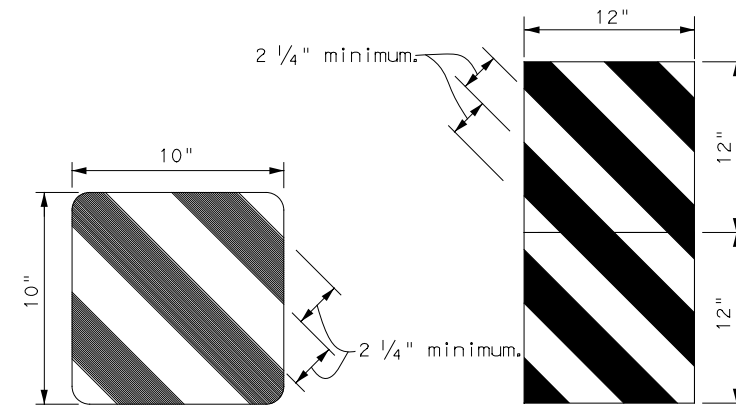
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 8/30/2021 3:35:42 PM
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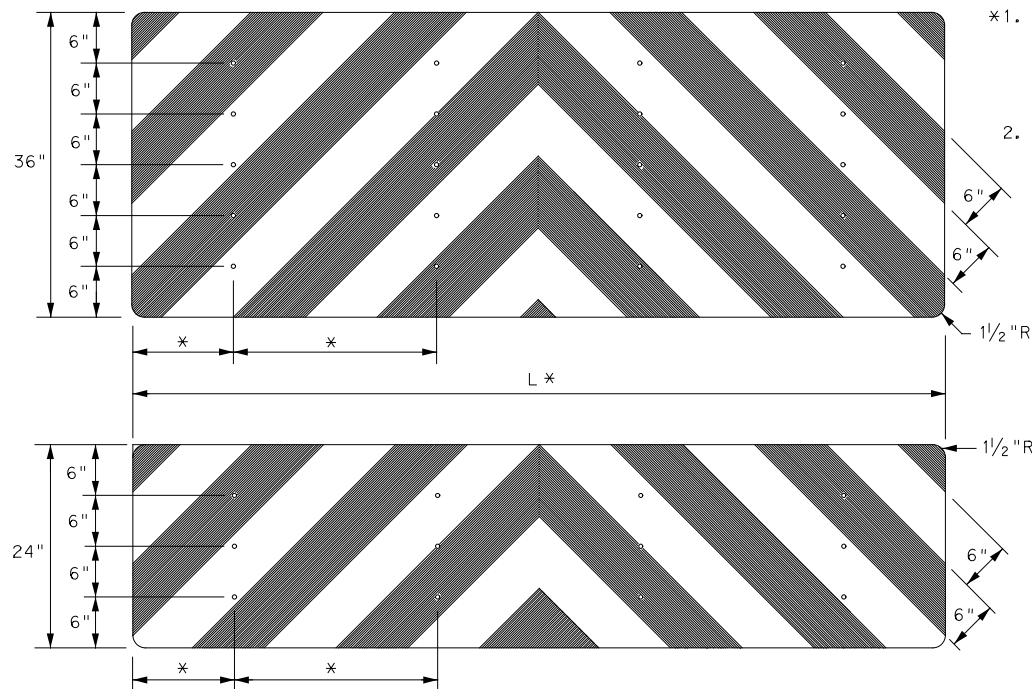
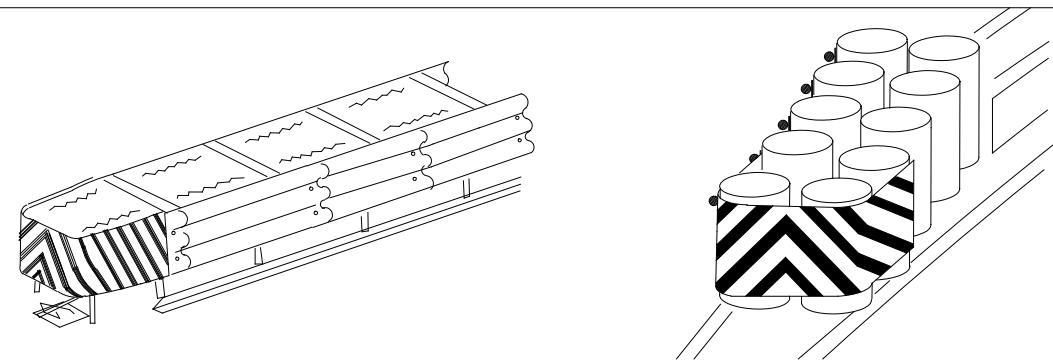
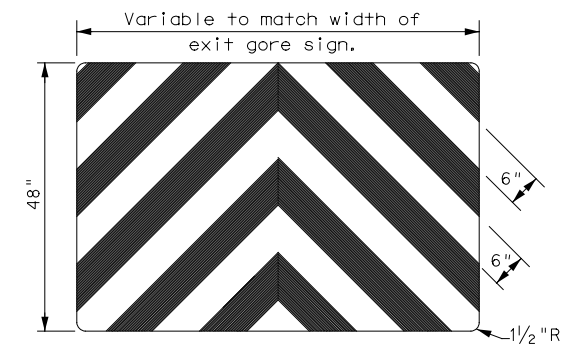
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



* Adjust to fit attenuator per manufacturer's recommendation, or as directed by the Engineer



OBJECT MARKERS SMALLER THAN 3 FT²



NOTES

1. Spacing should be adjusted to attach through centerline of drum, per attenuator manufacturer's 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 1/4".
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.



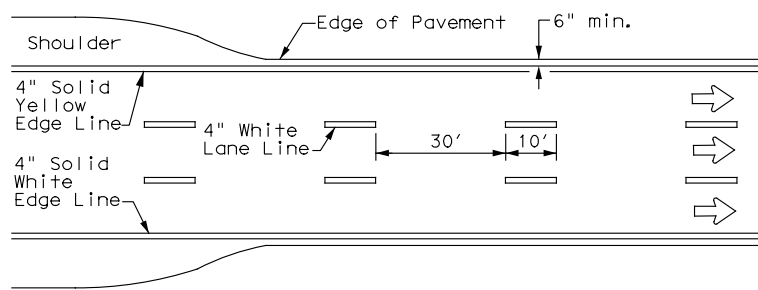
DELINEATOR & OBJECT MARKER FOR VEHICLE IMPACT ATTENUATORS
D & OM(VIA) - 20

| | | | | |
|-----------------------|-----------|-----------|-----------|-----------|
| FILE: domvia20.dgn | DN: TxDOT | CK: TxDOT | OW: TxDOT | CK: TxDOT |
| © TxDOT December 1989 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 4-92 8-04 | DIST | COUNTY | SHEET NO. | |
| 8-95 3-15 | WACO | HAMILTON | 337 | |
| 4-98 7-20 | | | | |

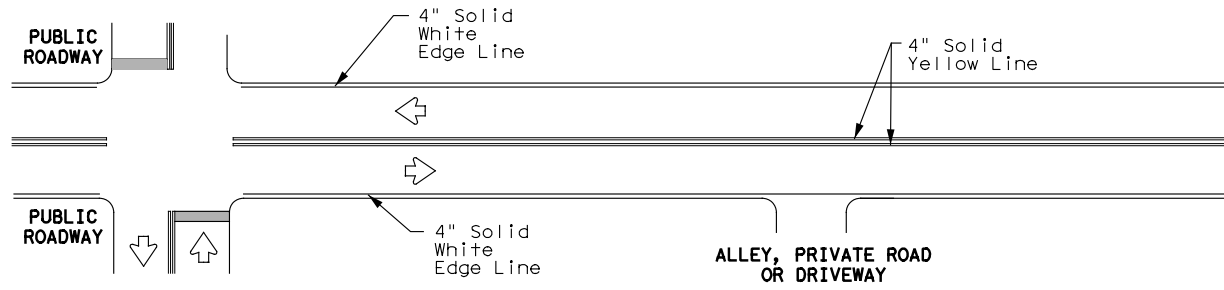
DATE: 8/30/2021 3:35:43 PM
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DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

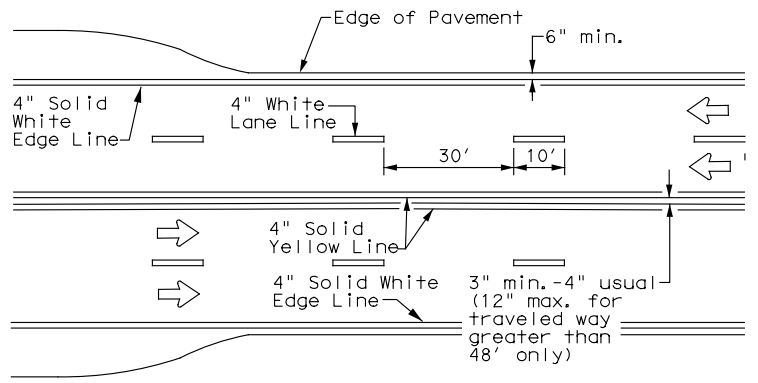
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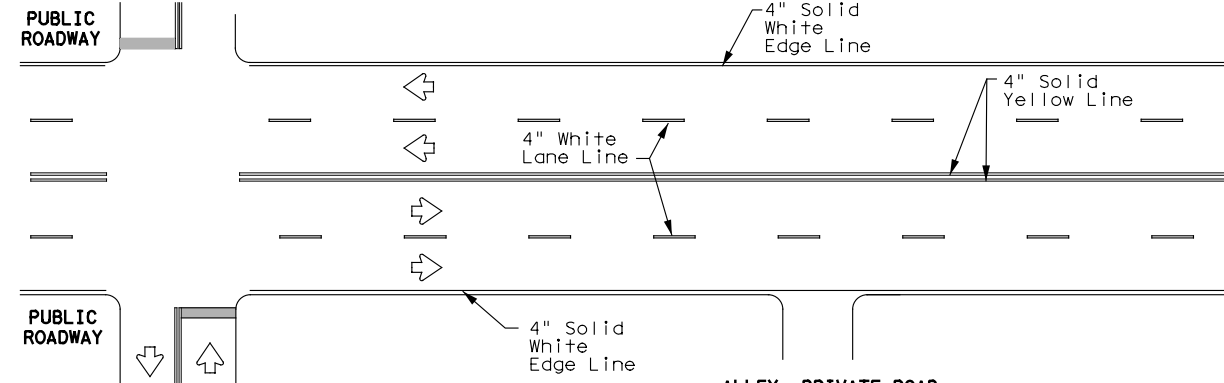
**EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



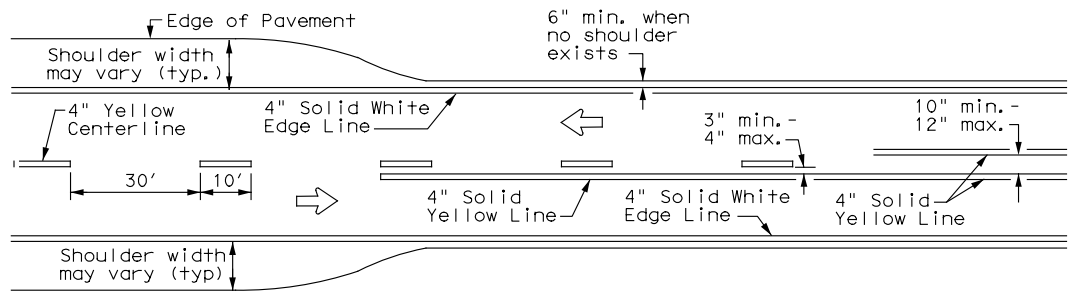
**TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**



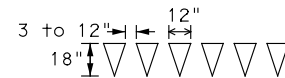
**CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



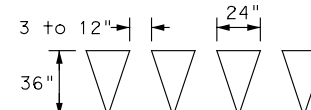
**TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**



**TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**

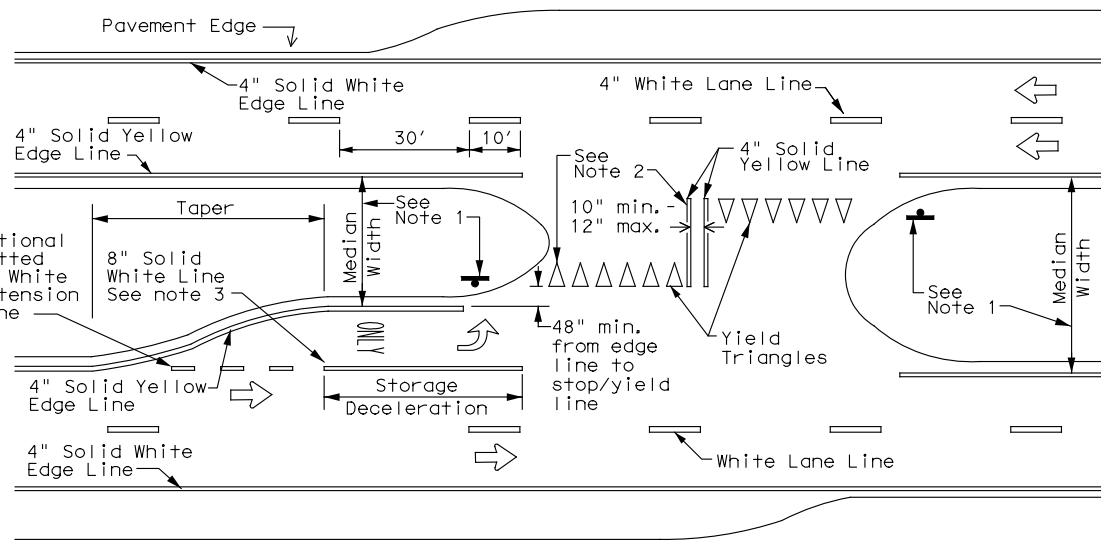


For posted speed on road being marked equal to or less than 40 MPH.



For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

- 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.
- 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 triangles shall only be used with yield signs.
- Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

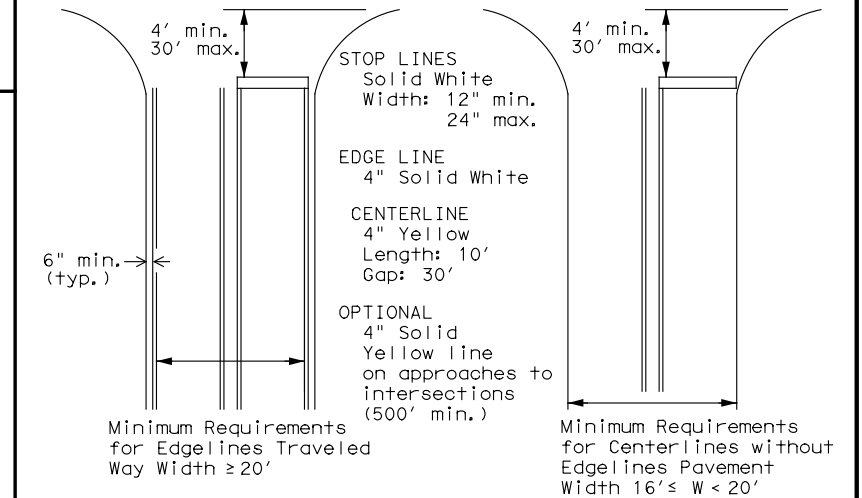
GENERAL NOTES

- Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should not be placed 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.
- 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



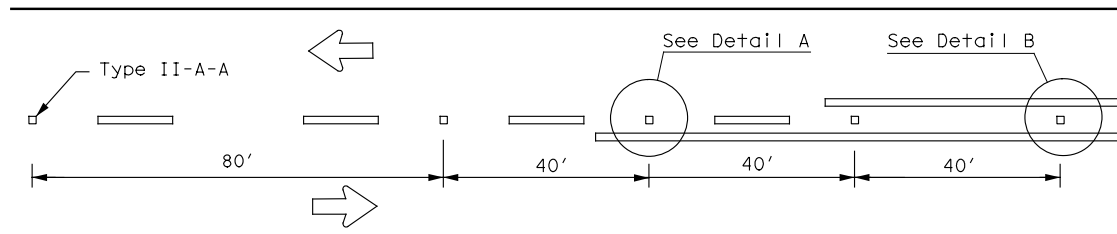
**TYPICAL STANDARD
PAVEMENT MARKINGS**

PM(1)-20

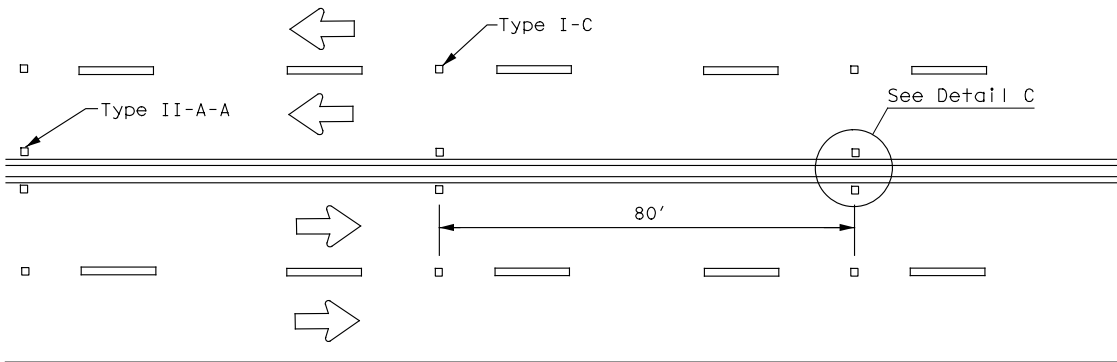
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| © TxDOT | November 1978 | CONT | SECT | JOB | HIGHWAY |
| 8-95 | 3-03 REVISIONS | 0867 | 01 | 017 | FM 932 |
| 5-00 | 2-12 | DIST | COUNTY | | SHEET NO. |
| 8-00 | 6-20 | WACO | HAMILTON | | 338 |

REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

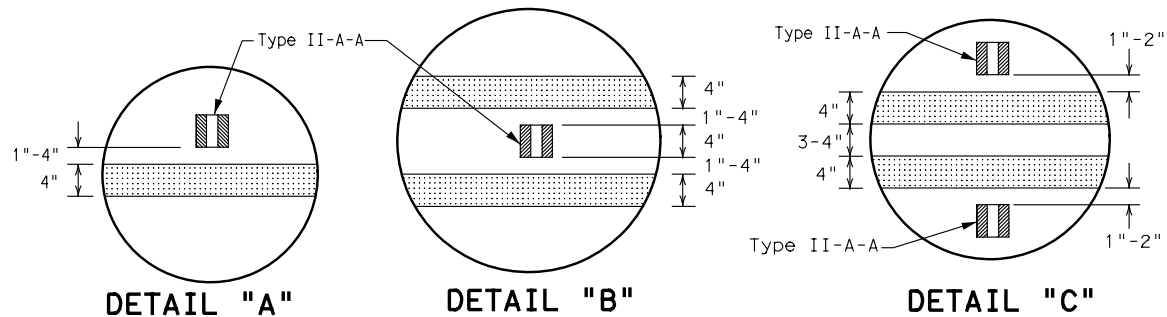
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CENTERLINE FOR ALL TWO LANE ROADWAYS



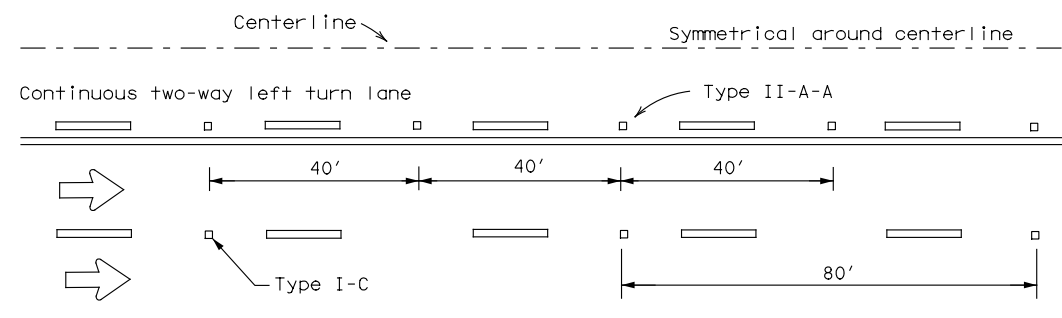
**CENTERLINE & LANE LINES
FOR FOUR LANE TWO-WAY HIGHWAYS**



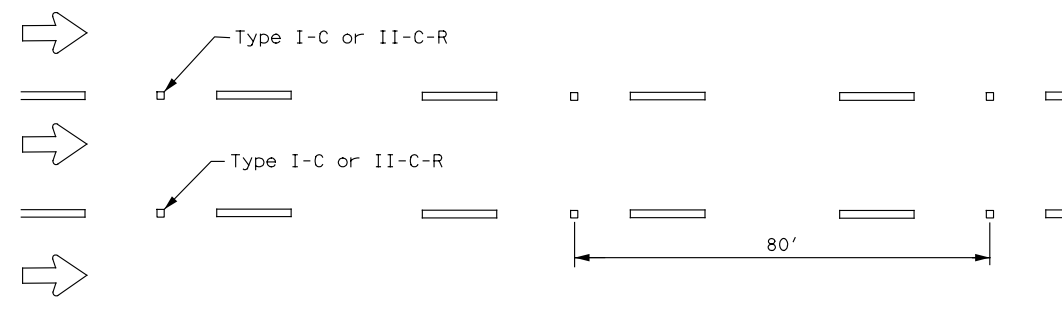
DETAIL "A"

DETAIL "B"

DETAIL "C"



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE

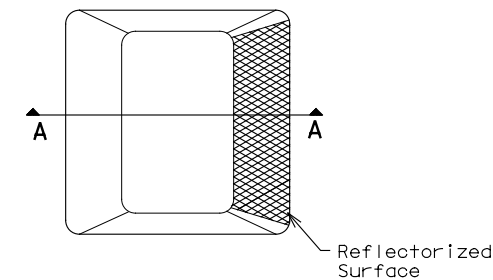


LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

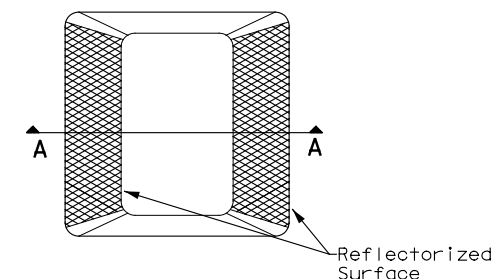
Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

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

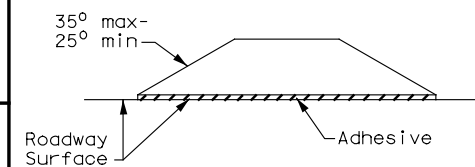
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS



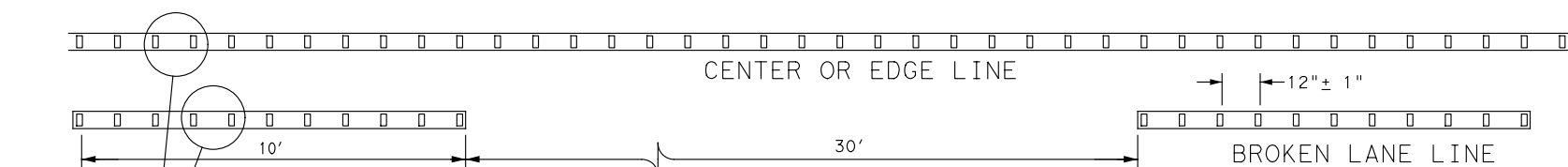
POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS PM(2)-20

| | | | | |
|---------------------|------|----------|-----|------------|
| FILE: pm2-20.dgn | DN: | CK: | DW: | CK: |
| © TxDOT April 1977 | CONT | SECT | JOB | HIGHWAY |
| 4-92 2-10 REVISIONS | 0867 | 01 | 017 | FM 932 |
| 5-00 2-12 | DIST | COUNTY | | SHEET NO. |
| 8-00 6-20 | WACO | HAMILTON | | 339 |

22B

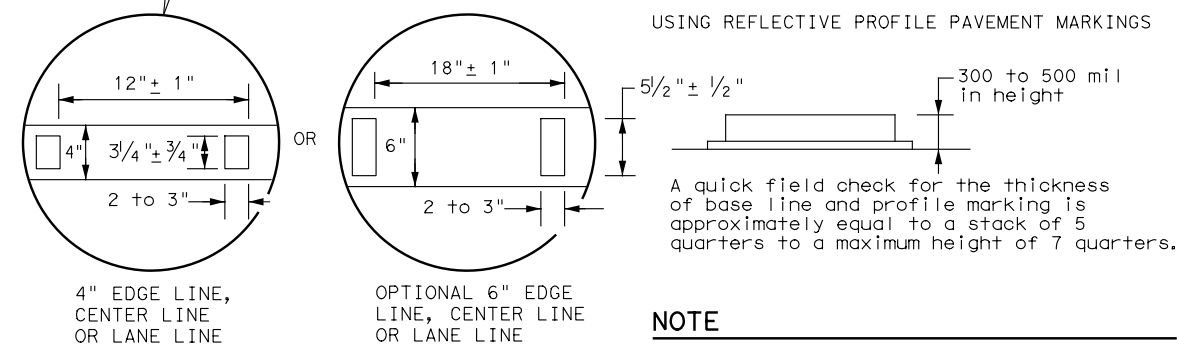
GENERAL NOTES

- All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
- On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS



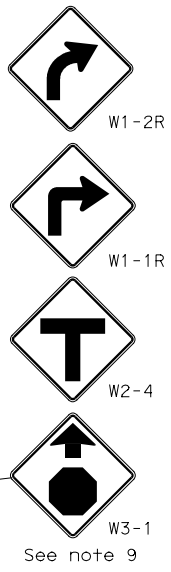
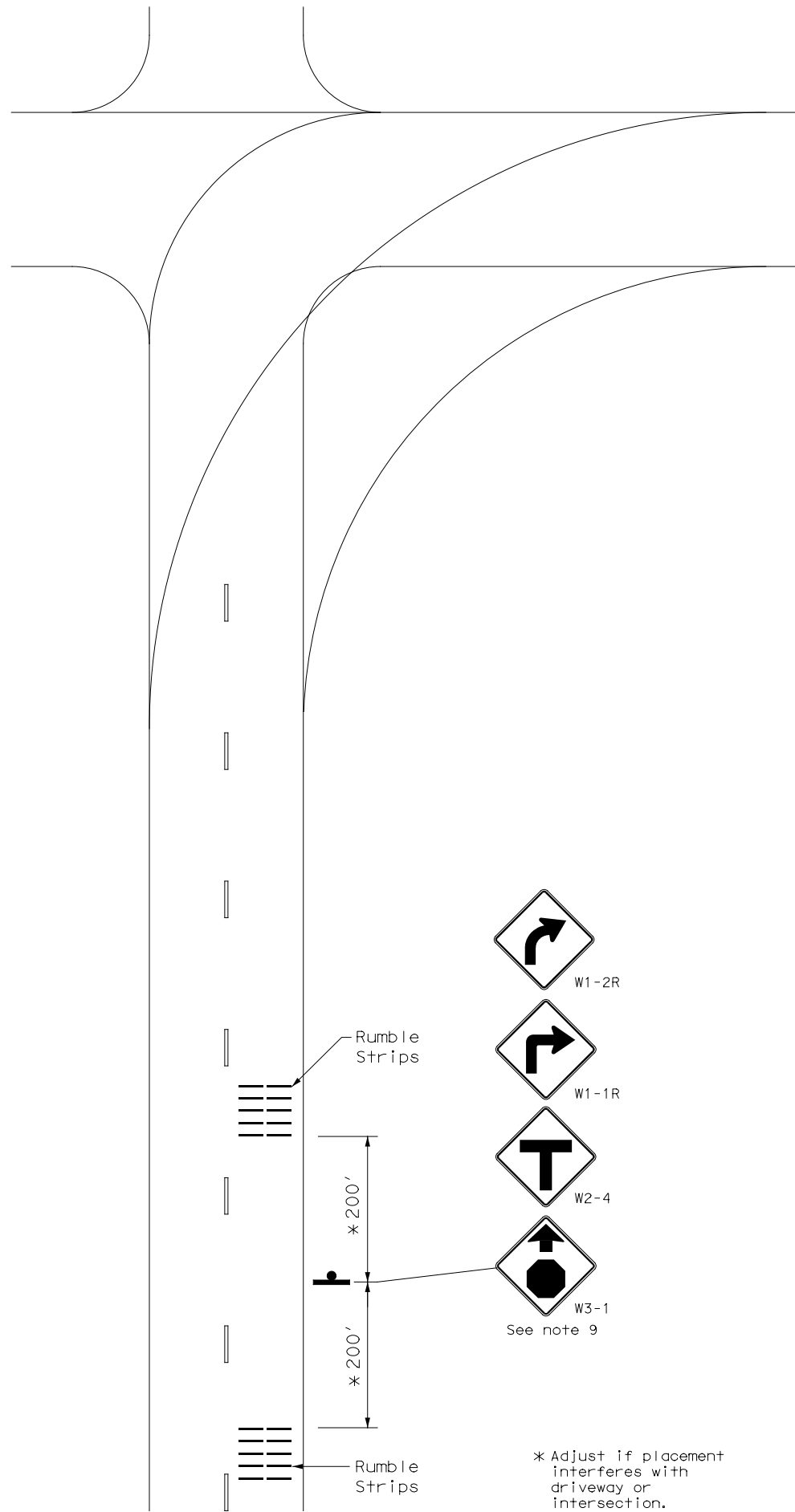
NOTE

Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

DATE: 8/30/2021 3:35:44 PM
FILE: pm2-20.dgn

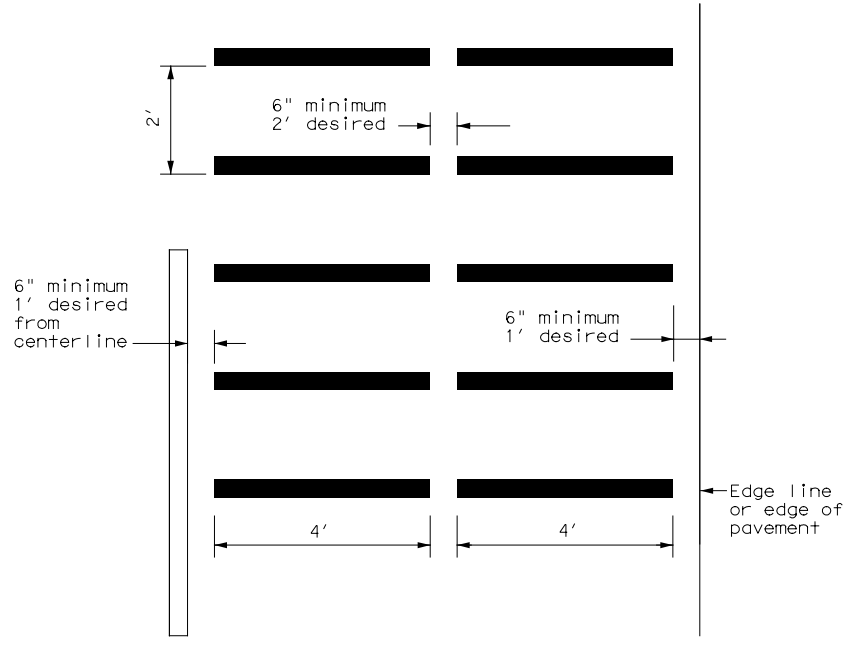
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DATE: 8/30/2021 3:35:44 PM
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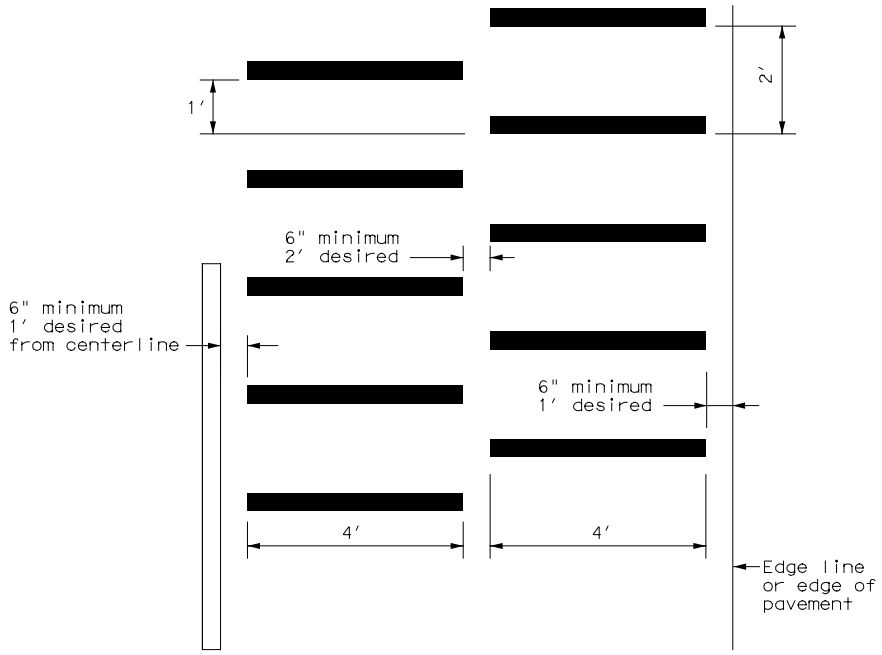


* Adjust if placement interferes with driveway or intersection.

STANDARD PATTERN



ALTERNATIVE PATTERN



GENERAL NOTES

1. Transverse or in-lane rumble strips should only be used at high incident and special geometric locations. These special geometric locations may include: approaches to rural, high speed signalized or Stop-controlled intersections with sight restrictions and/or high crash rates, approaches to unexpected urban intersections, approaches to newly installed Stop or signalized controlled intersections, approaches to toll plazas, approaches to hazardous horizontal curves, and approaches to railroad grade crossings.
2. When used, the rumble strips shall be placed 200 feet prior to and after the placement of the warning device.
3. The use of rumble strips should not be widespread or used indiscriminately.
4. Preformed black raised rumble strips should be used. They should be installed in accordance with the manufacturer's recommendations.
5. A list of approved, preformed raised rumble strips can be obtained from the Traffic Operations Division.
6. Consideration should be given to noise levels when in-lane or transverse rumble strips are installed near residential areas, schools, churches, etc.
7. The use of the "Rumble Strips Ahead" sign may be used in advance of in-lane or transverse rumble strips, based on engineering judgement. This sign is typically not necessary for rumble strip installations built to the guidelines on this standard sheet. When used, this sign should be spaced in advance of the rumble strips based on the guidelines for advance placement of warning sign included in the "Texas Manual on Uniform Traffic Control Devices".



8. Consideration should be given to bicyclists. A 12 inch gap from the edge line may be used to accommodate bicyclists when a usable shoulder is not available. Additional gaps in the in-lane or transverse rumble strips are not recommended since they could cause motorists to swerve to avoid the rumble strips.
9. Other signs can be used as conditions warrant.

| | | | |
|--|------------|---|------------------|
| | | Traffic Operations Division Standard | |
| <h2>TRANSVERSE OR IN-LANE RUMBLE STRIPS</h2> <h3>RS(5)-13</h3> | | | |
| FILE: rs(5)-13.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT |
| © TxDOT April 2006 | CONT: 0867 | SECT: 01 | JOB: 017 |
| REVISIONS | DIST: WACO | | COUNTY: HAMILTON |
| 2-10 | SHEET NO. | | 340 |
| 10-13 | | | |

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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

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

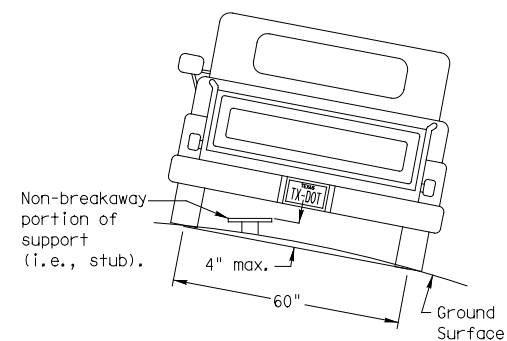
Post Type _____
 FRP = Fiberglass Reinforced Plastic Pipe (see SMD (FRP))
 TWT = Thin-Walled Tubing (see SMD (TWT))
 10BWG = 10 BWG Tubing (see SMD (SLIP-1) to (SLIP-3))
 S80 = Schedule 80 Pipe (see SMD (SLIP-1) to (SLIP-3))

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-3))

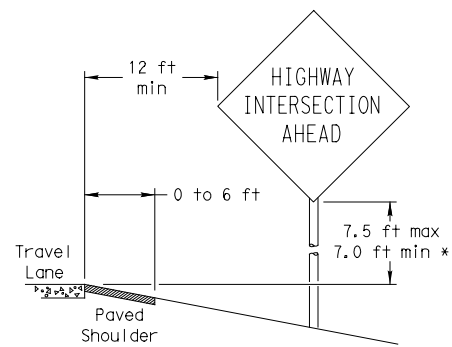
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



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).

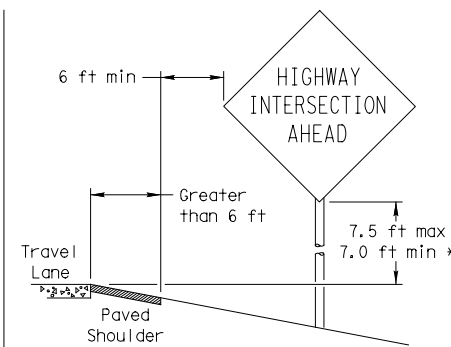
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

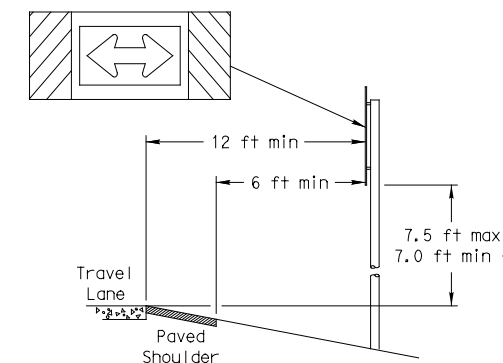
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



GREATER THAN 6 FT. WIDE

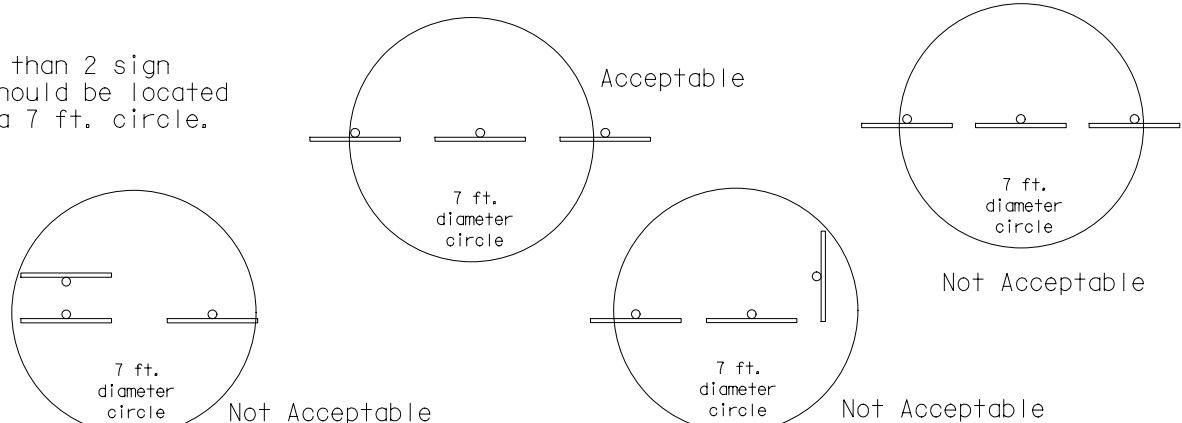
When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

T-INTERSECTION

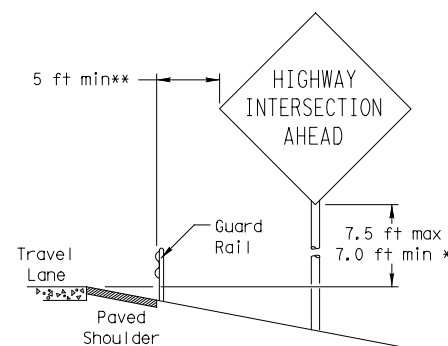


When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.

No more than 2 sign posts should be located within a 7 ft. circle.

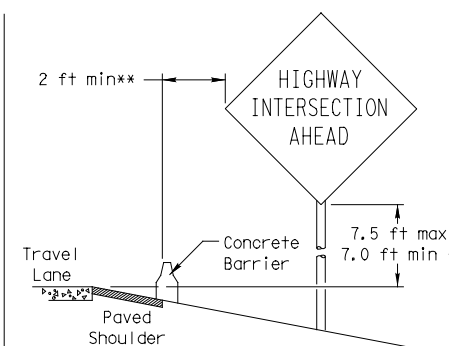


BEHIND BARRIER



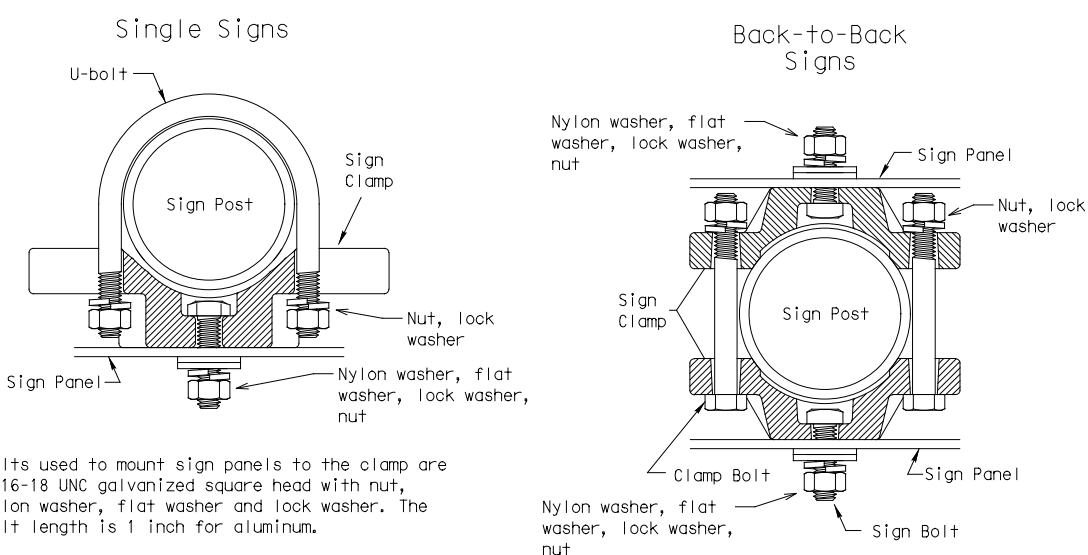
BEHIND GUARDRAIL

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.



BEHIND CONCRETE BARRIER

TYPICAL SIGN ATTACHMENT DETAIL



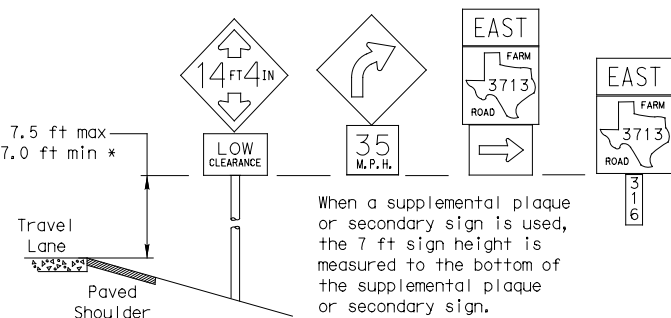
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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.

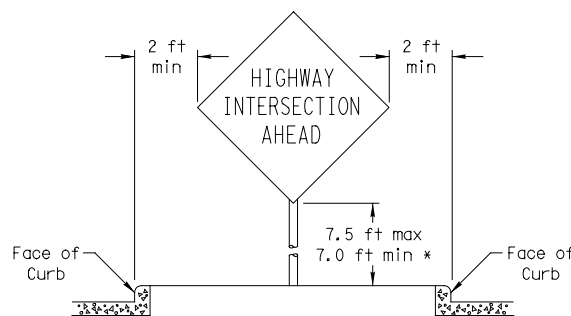
| Pipe Diameter | Approximate Bolt Length | |
|----------------|-------------------------|-----------------|
| | Specific Clamp | Universal Clamp |
| 2" nominal | 3" | 3 or 3 1/2" |
| 2 1/2" nominal | 3 or 3 1/2" | 3 1/2 or 4" |
| 3" nominal | 3 1/2 or 4" | 4 1/2" |

SIGNS WITH PLAQUES

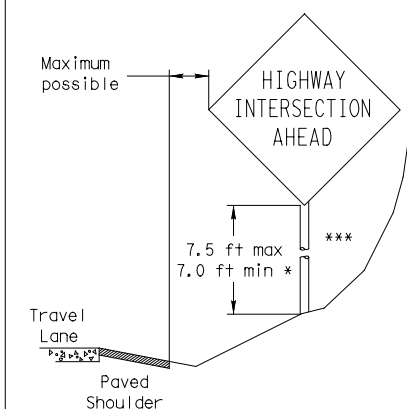


When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

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.

* 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>



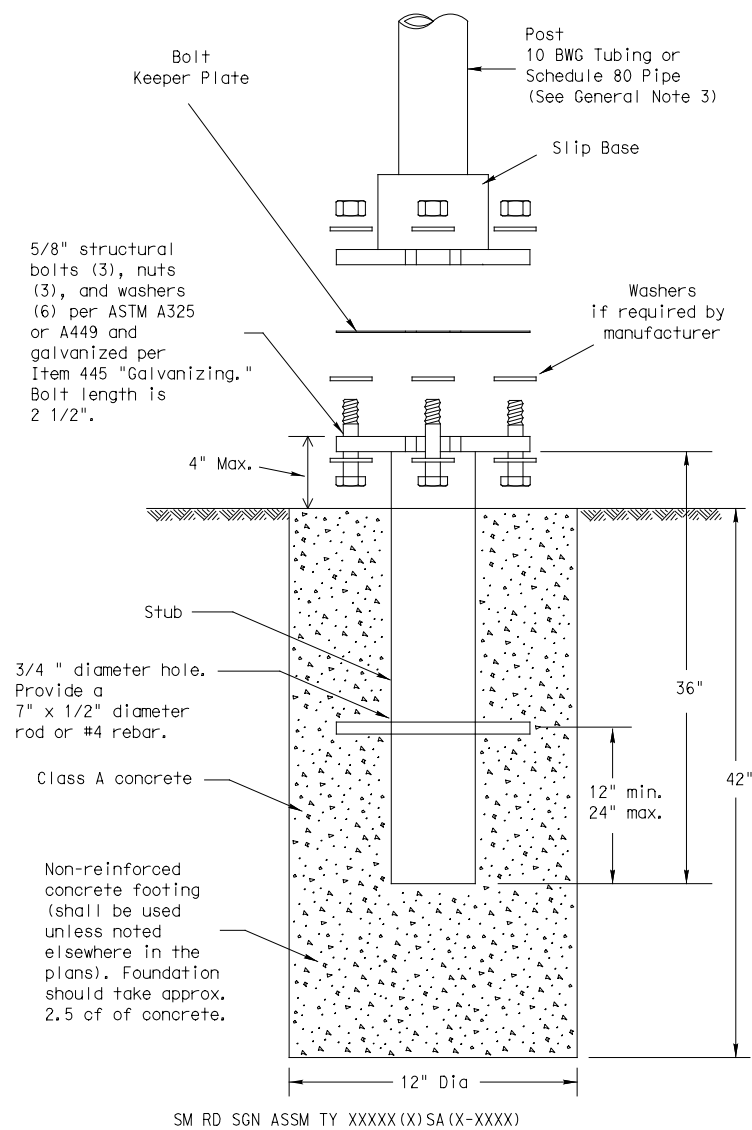
SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD (GEN) -08

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TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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:

- 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.
- 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
- 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>
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

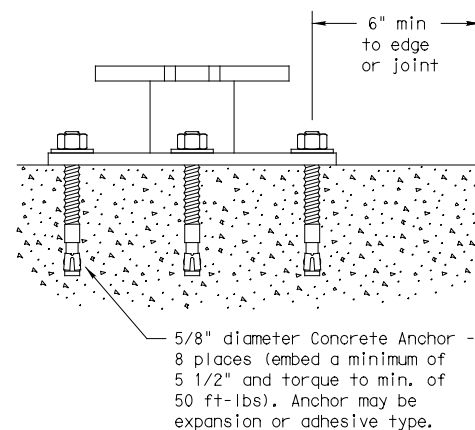
Foundation

- 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.
- 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.
- Push the pipe end of the slip base stub into 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.
- Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
- The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support

- 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.
- 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



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, "Epoxyes 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.

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Texas Department of Transportation
Traffic Operations Division

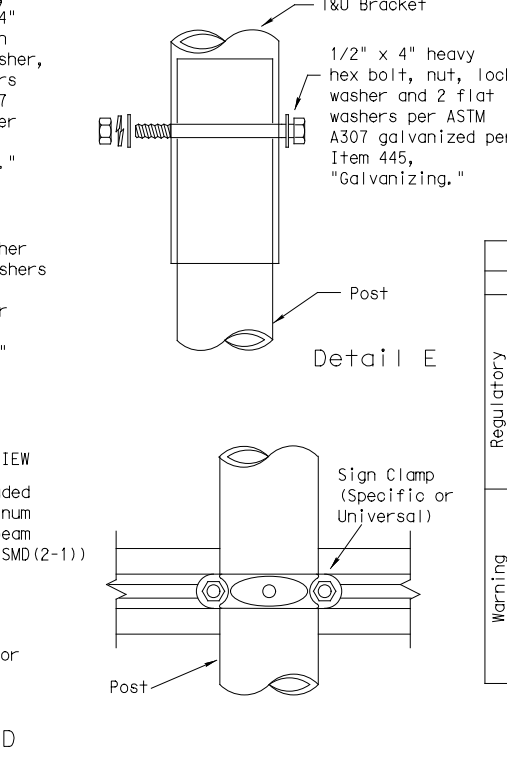
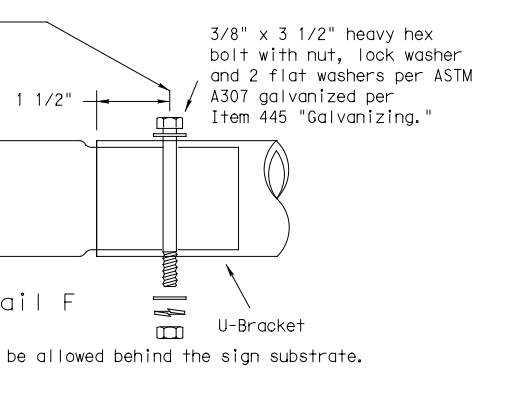
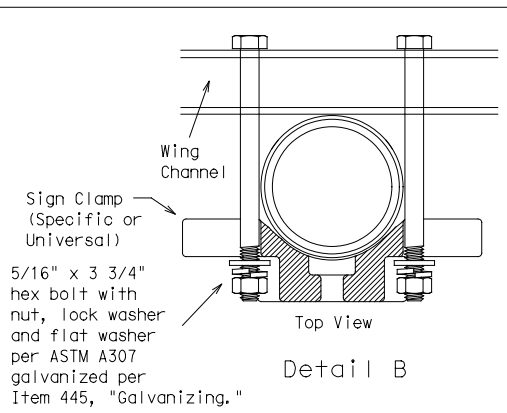
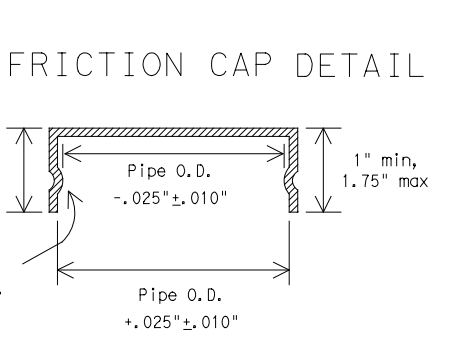
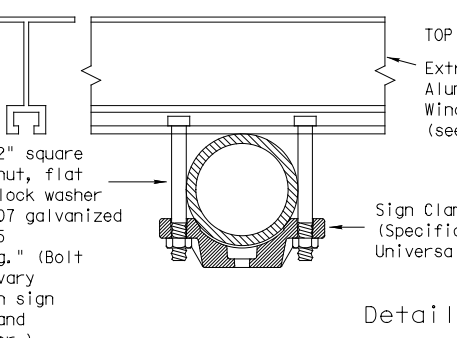
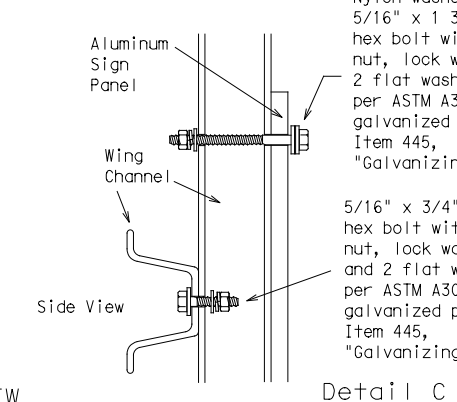
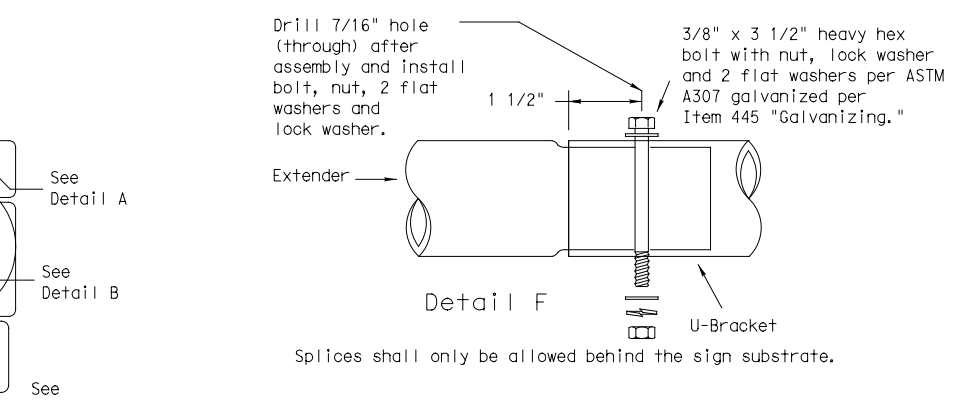
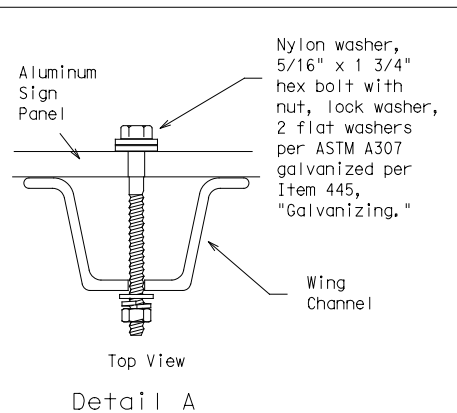
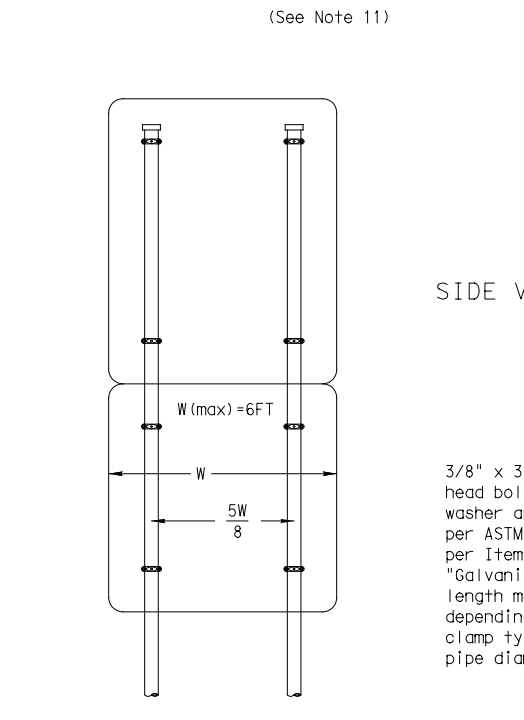
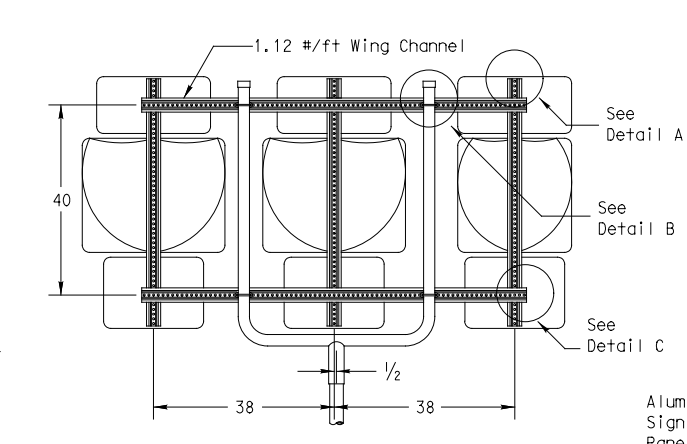
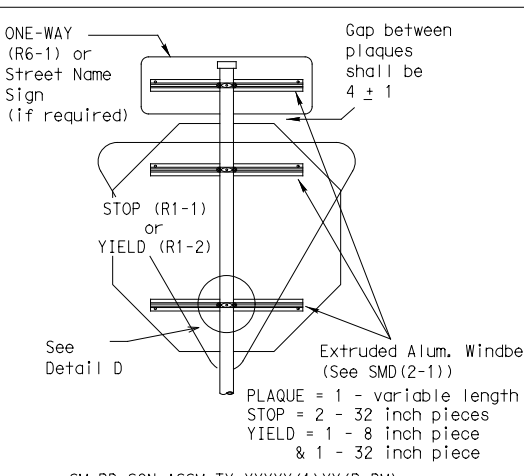
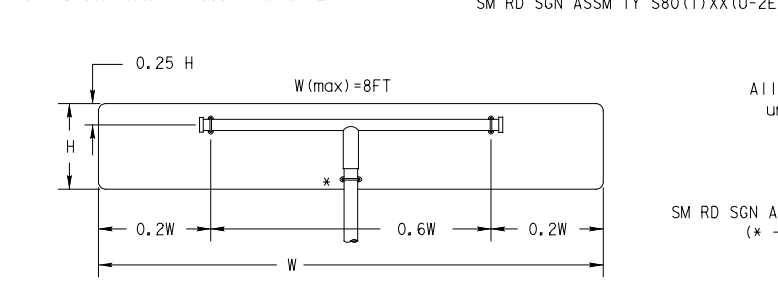
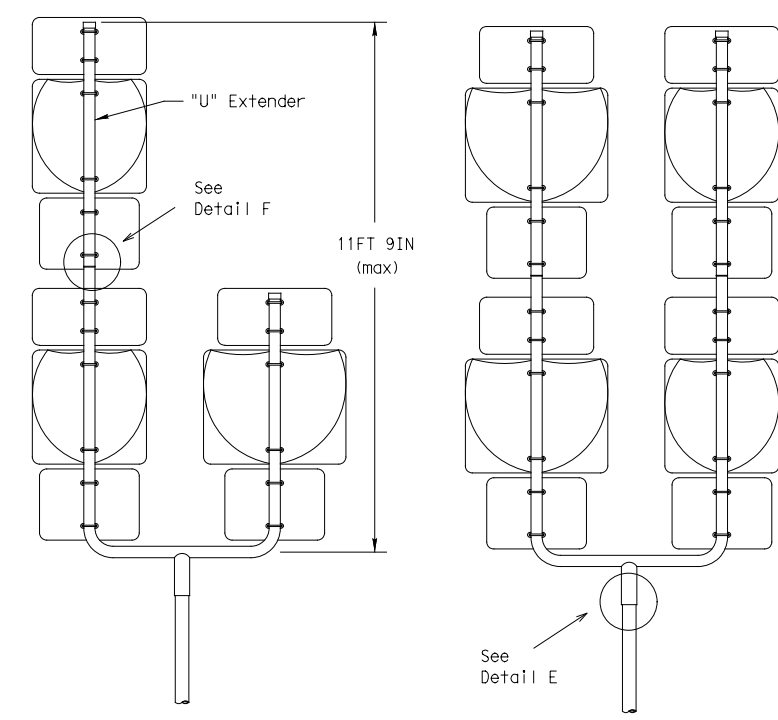
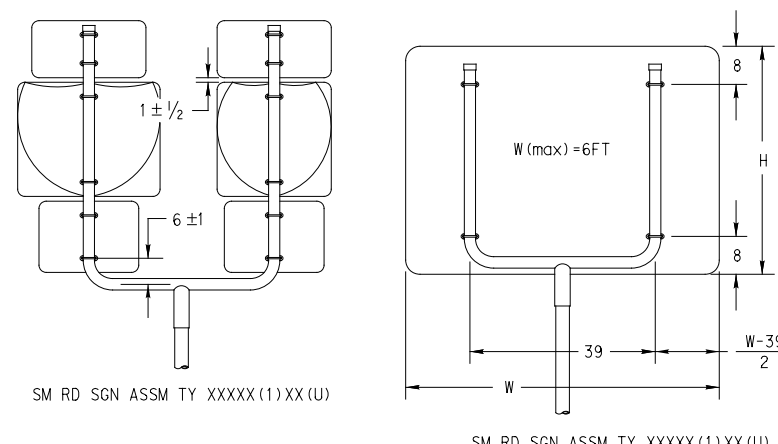
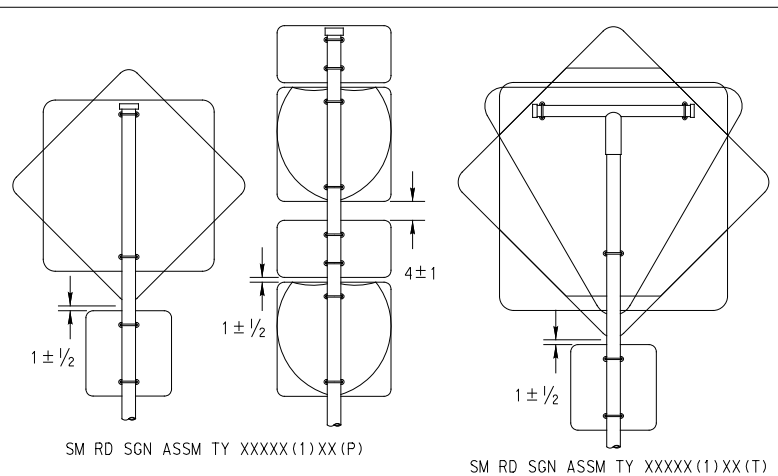
SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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26B

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All dimensions are in english unless detailed otherwise.

SM RD SGN ASSM TY XXXXX(1)XX(T) (* - See Note 12)

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 |
- 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.
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- 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.
- Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
- 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.
- 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.
- Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
- 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."
- Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
- 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.
- Post open ends shall be fitted with Friction Caps.
- 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) |
| Warning | 48x60-inch signs | TY S80(1)XX(T) |
| | 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) | |

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.



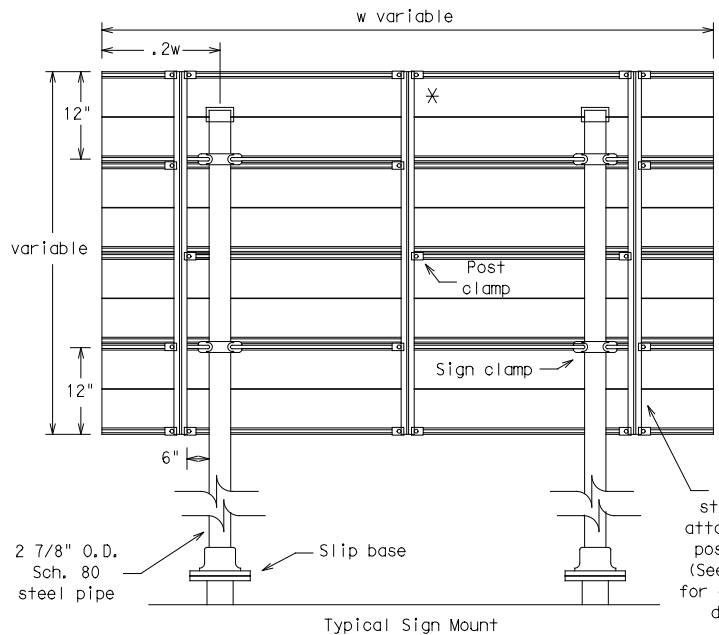
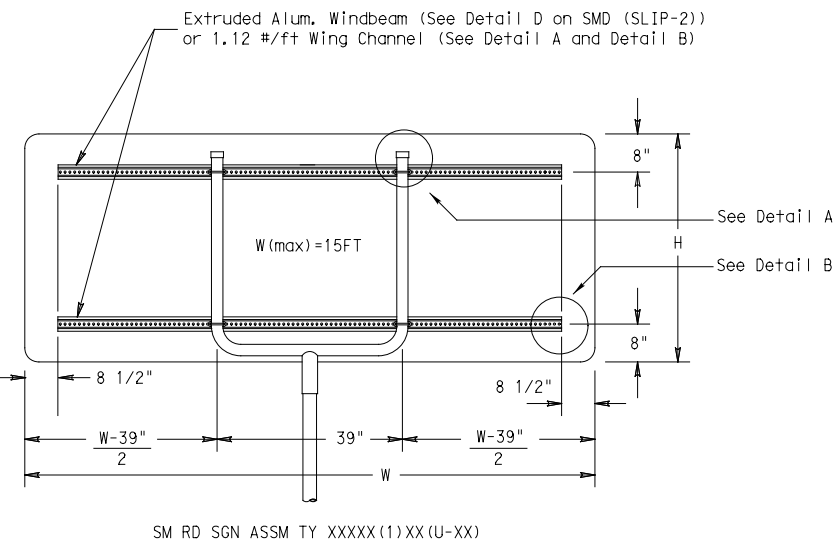
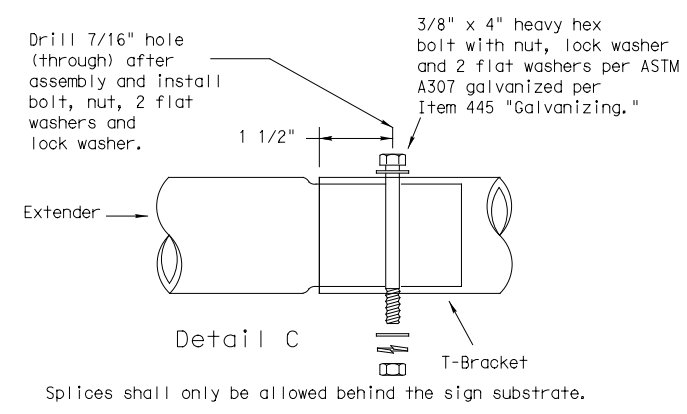
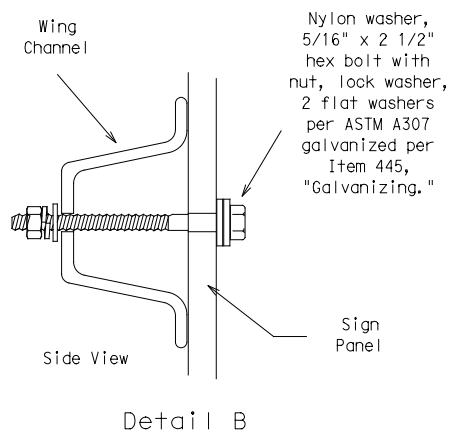
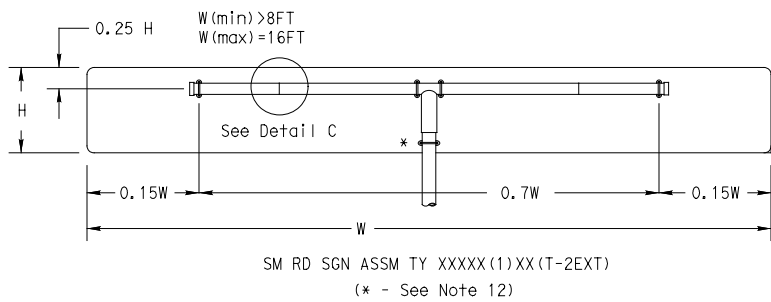
SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM
SMD(SLIP-2)-08

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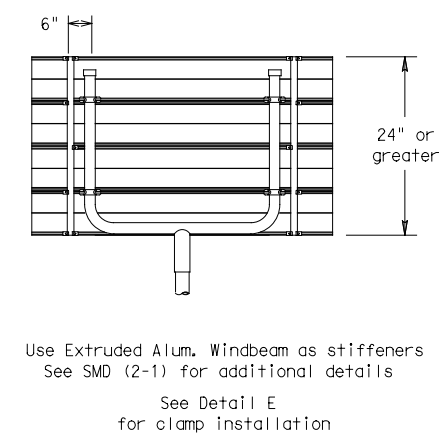
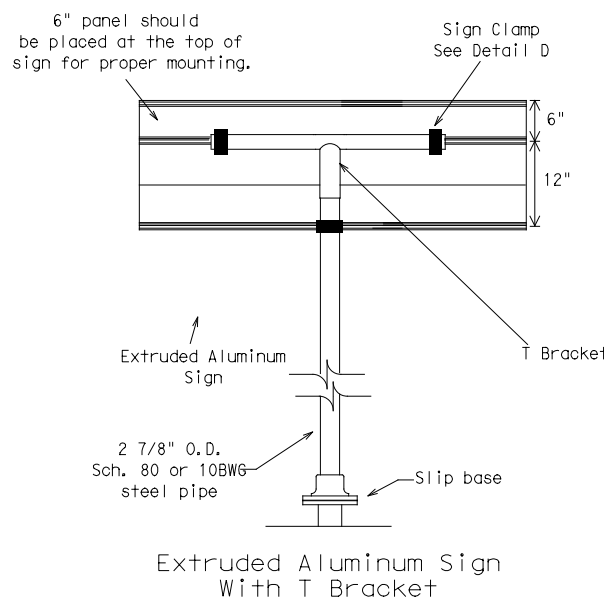
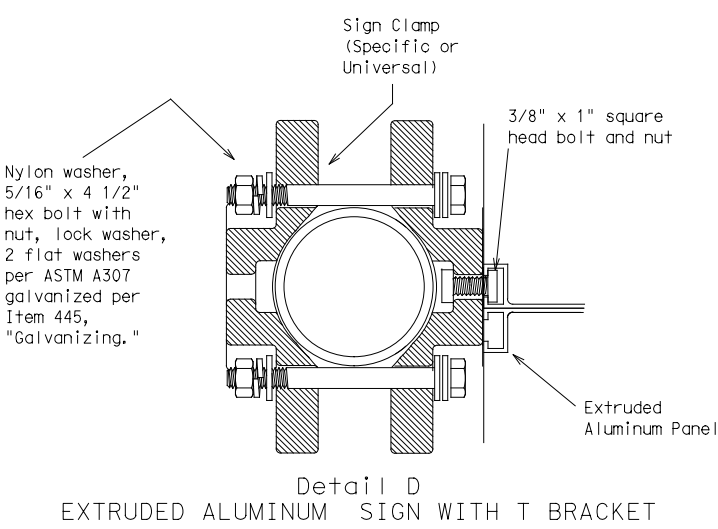
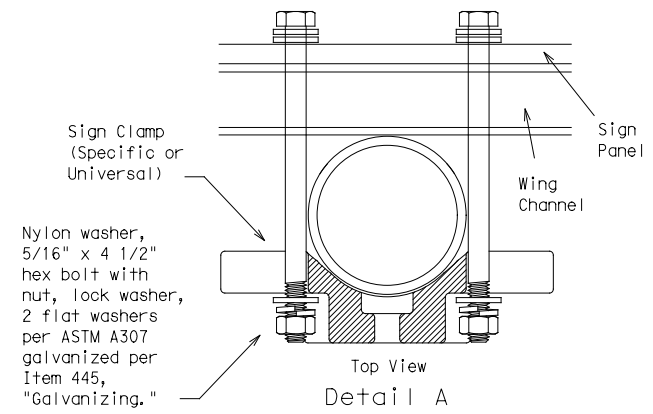
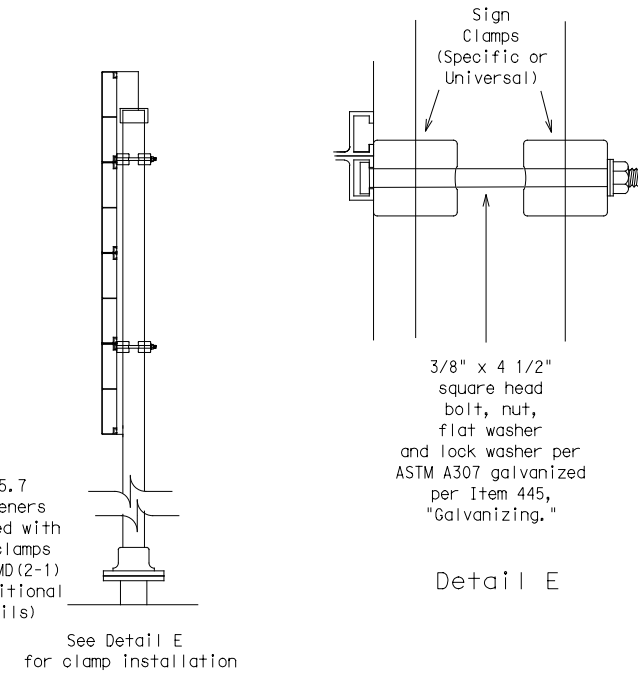
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* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.



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 |
- 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.
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- 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.
- Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
- 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.
- 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.
- Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
- 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."
- Sign blanks shall be the sizes and shapes shown on the plans.
- 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.
- Post open ends shall be fitted with Friction Caps.

| REQUIRED SUPPORT | | |
|------------------|--|---|
| | SIGN DESCRIPTION | SUPPORT |
| Regulatory | 48-inch STOP sign (R1-1) | TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM) |
| | 60-inch YIELD sign (R1-2) | TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM) |
| | 48x16-inch ONE-WAY sign (R6-1) | TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM) |
| | 36x48, 48x36, and 48x48-inch signs | TY 10BWG(1)XX(T) |
| | 48x60-inch signs | TY S80(1)XX(T) |
| Warning | 48x48-inch signs (diamond or square) | TY 10BWG(1)XX(T) |
| | 48x60-inch signs | TY S80(1)XX(T) |
| | 48-inch Advance School X-ing sign (S1-1) | TY 10BWG(1)XX(T) |
| | 48-inch School X-ing sign (S2-1) | TY 10BWG(1)XX(T) |
| | Large Arrow sign (W1-6 & W1-7) | TY 10BWG(1)XX(T) |

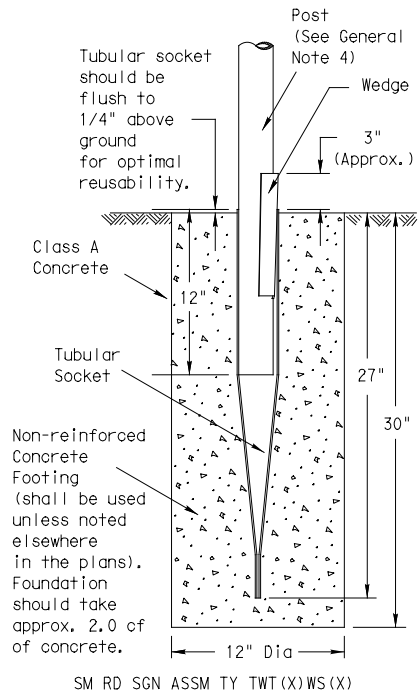


SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM
SMD(SLIP-3)-08

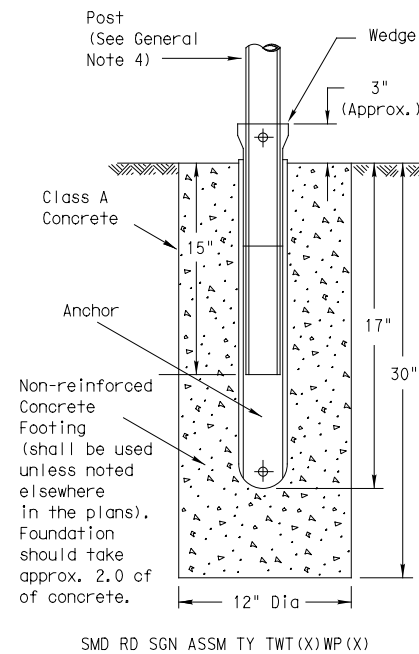
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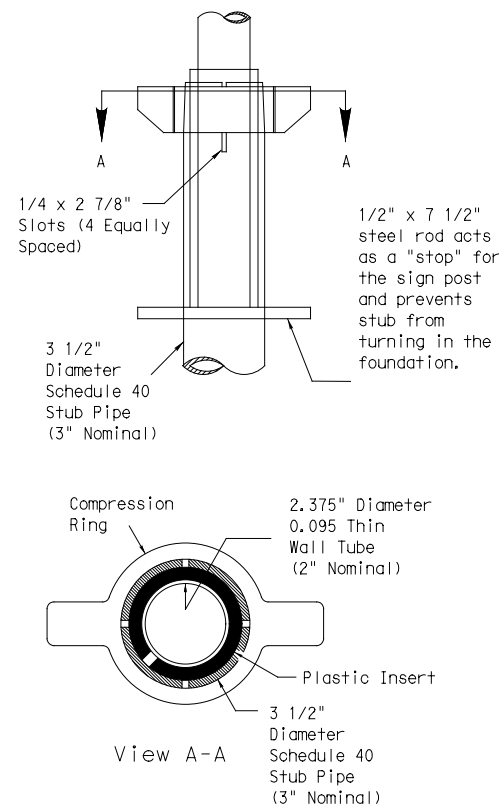
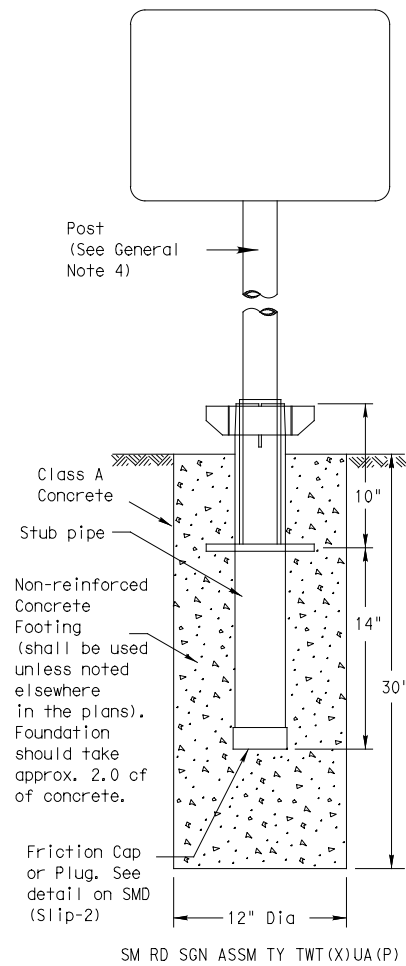
Wedge Anchor Steel System



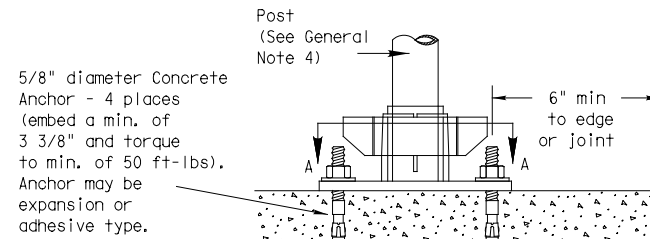
Wedge Anchor High Density Polyethylene (HDPE) System



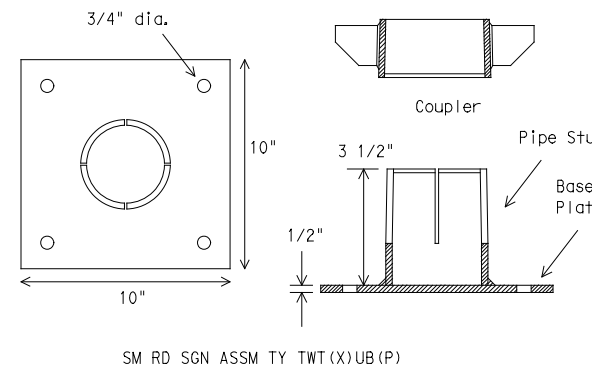
Universal Anchor System with Thin-Walled Tubing Post



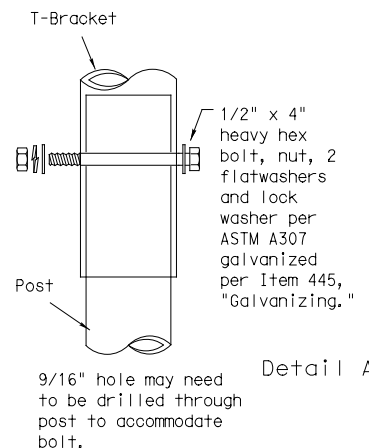
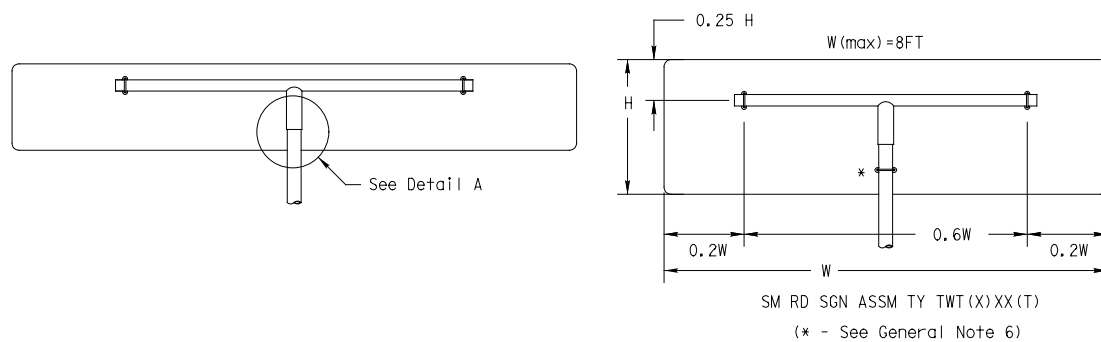
Plastic insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.



Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxyes and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.



Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post



NOTE
The devices shall be installed per manufacturer's recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

- The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
- The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
- Except for posts (13 BWG Tubing), clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: <http://www.txdot.gov/business/producerlist.htm>
- Material used as post with this system shall conform to the following specifications:
13 BWG Tubing (2.375" outside diameter) (TWT)
0.095" nominal wall thickness
Seamless or electric-resistance welded steel tubing
Steel shall be HSLA 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
18% minimum elongation in 2"
Wall thickness (uncoated) shall be within the range of .083" to .099"
Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
Galvanization per ASTM 123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
- Sign blanks shall be the sizes and shapes shown on the plans.
- Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: <http://www.txdot.gov/publications/traffic.htm>

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

- Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
- 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. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
- Insert tubular socket into concrete until top of socket is approximately 1/4" above the concrete footing.
- Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer.
- Attach the sign to the sign post.
- Insert the sign post into socket and align sign face with roadway.
- Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

- Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
- Insert base post in hole to depths shown and backfill hole with concrete.
- Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
- Attach the sign to the sign post.
- Install plastic insert around bottom of post.
- Insert sign post into base post. Lower until the post comes to rest on steel rod.
- Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
- Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

Texas Department of Transportation
Traffic Operations Division

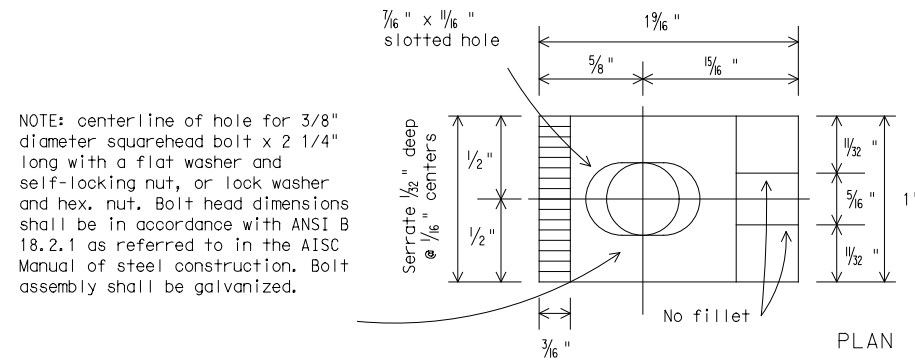
SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
WEDGE & UNIVERSAL ANCHOR
WITH THIN WALL TUBING POST
SMD (TWT) -08

| | | | | | |
|-------------------|-----------|-----------|-----------|-----------|-----------|
| © TxDOT July 2002 | | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
| 9-08 | REVISIONS | CONT | SECT | JOB | HIGHWAY |
| | | 0867 | 01 | 017 | FM 932 |
| | | DIST | COUNTY | SHEET NO. | |
| | | WACO | HAMILTON | 345 | |

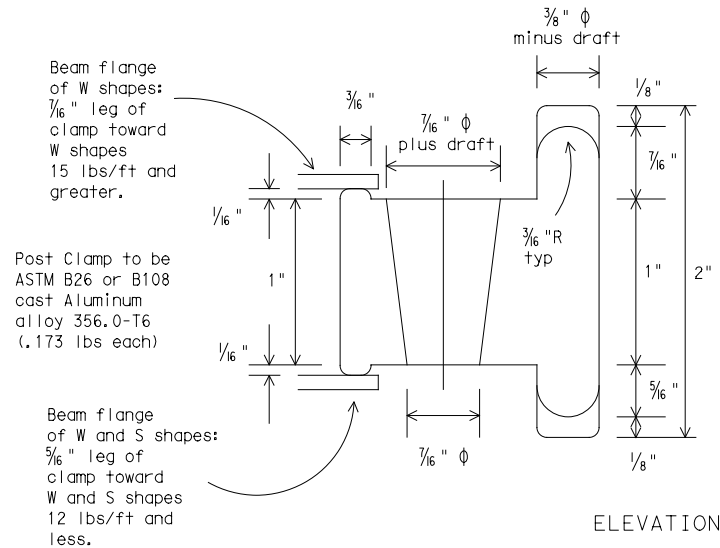
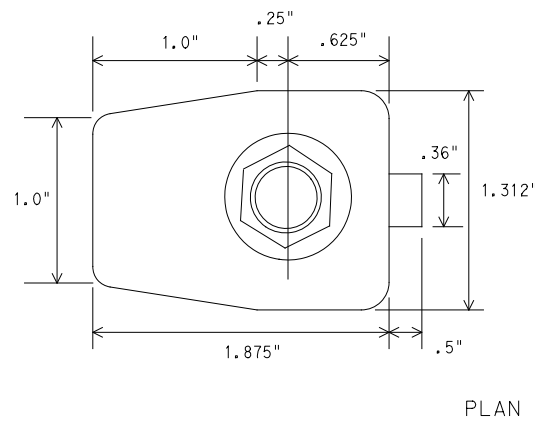
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DISCLAIMER:

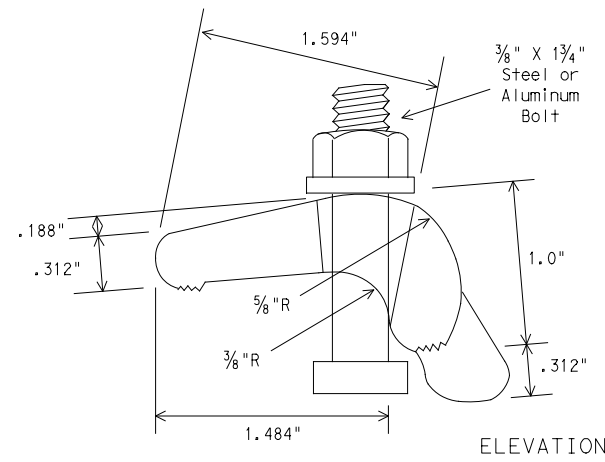
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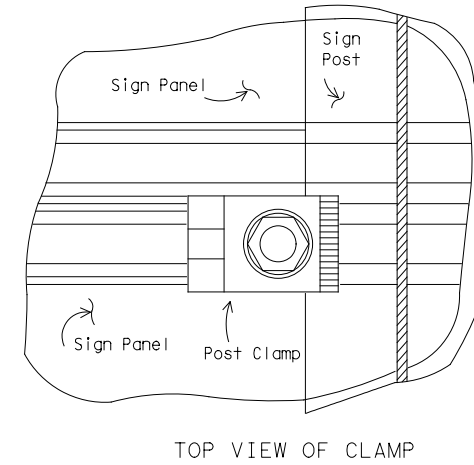
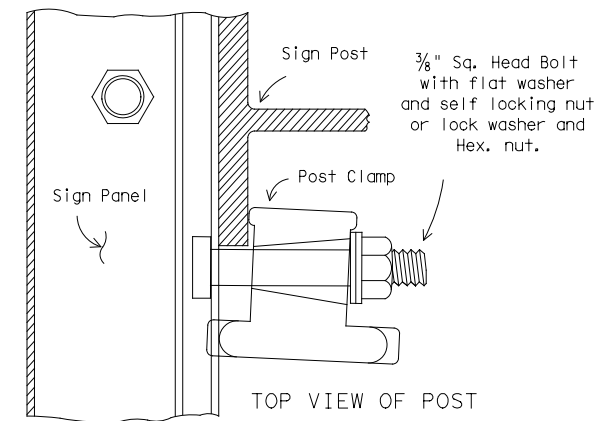
NOTE: centerline of hole for 3/8" diameter squarehead bolt x 2 1/4" long with a flat washer and self-locking nut, or lock washer and hex. nut. Bolt head dimensions shall be in accordance with ANSI B 18.2.1 as referred to in the AISC Manual of steel construction. Bolt assembly shall be galvanized.



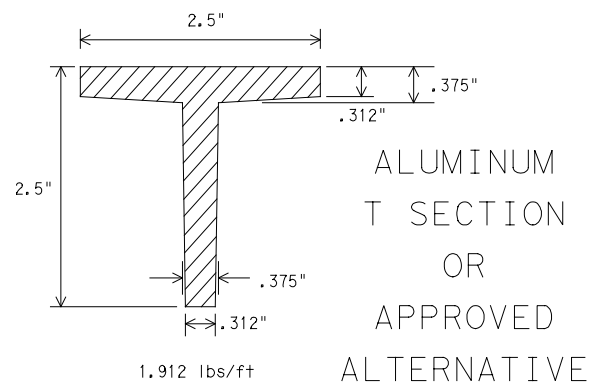
POST CLAMP DETAIL



ALTERNATE POST CLAMP DETAIL

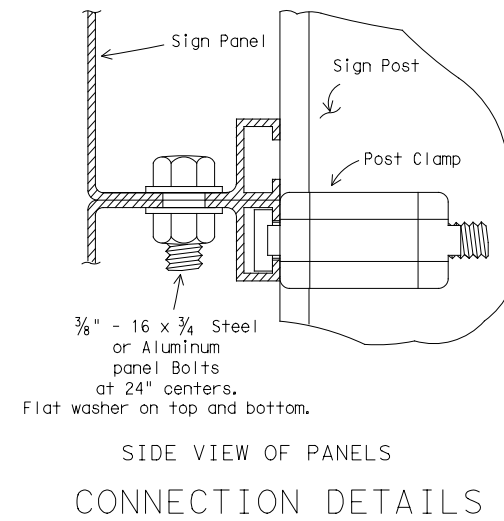
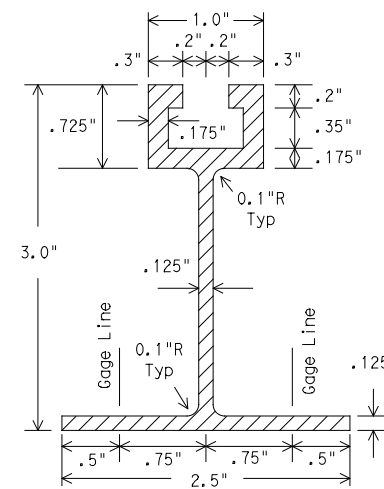


TOP VIEW OF CLAMP

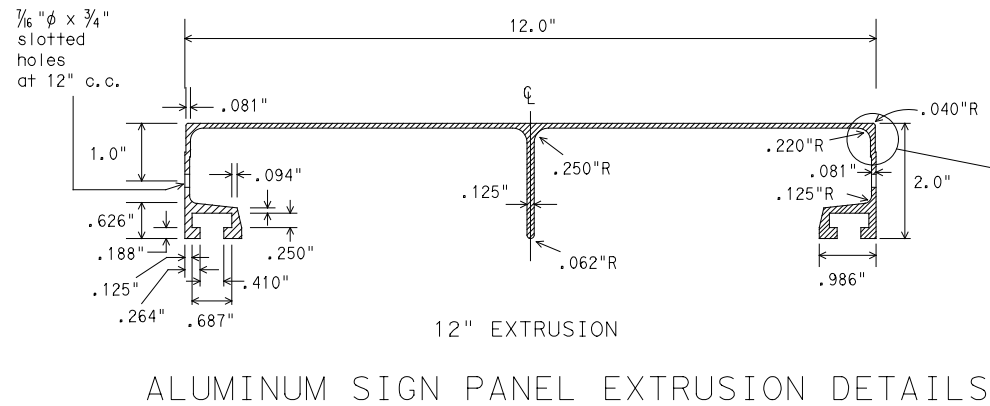


ALUMINUM T SECTION OR APPROVED ALTERNATIVE

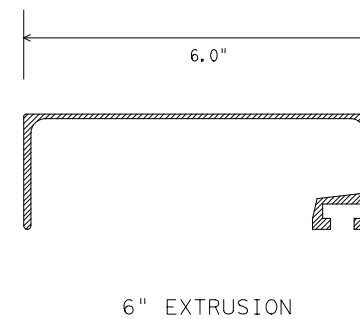
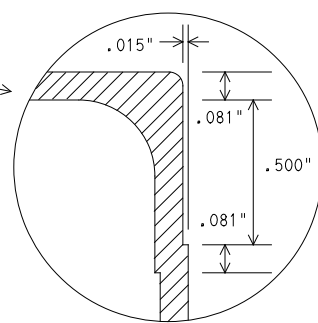
WINDBEAM CROSS SECTION
Windbeam to be extruded aluminum (1.175 lbs/ft) or approved alternative



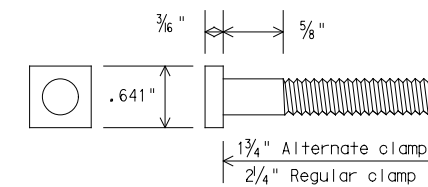
SIDE VIEW OF PANELS CONNECTION DETAILS



ALUMINUM SIGN PANEL EXTRUSION DETAILS



6" EXTRUSION



POST CLAMP BOLT DETAIL

| | |
|--------------------------------------|----------|
| DEPARTMENTAL MATERIAL SPECIFICATIONS | |
| SIGN HARDWARE | DMS-7120 |

- GENERAL NOTES:
- Design conforms with AASHTO Specifications for the design and construction of structural supports for highway signs.
 - Materials and fabrication shall conform to the requirements of the Department material specifications.
 - Structural steel shall be "low-alloy steel" for non-bridge structures per Item 442, "Metal For Structures."
 - For fiberglass substrate connection details, see manufacturer's recommendations.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS-
EXTRUDED ALUMINUM
SIGN PANELS & HARDWARE
SMD(2-1)-08

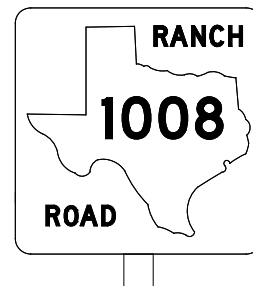
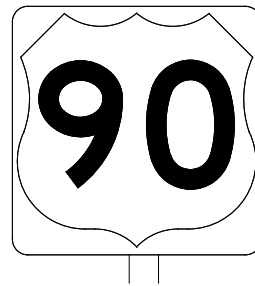
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|--------------|-----------|-----------|-----------|-----------|
| © TxDOT 2001 | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
| 9-08 | REVISIONS | CONT | SECT | JOB |
| | | 0867 | 01 | 017 |
| | | DIST | COUNTY | HIGHWAY |
| | | WACO | HAMILTON | FM 932 |
| | | | | SHEET NO. |
| | | | | 346 |

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REQUIREMENTS FOR INDEPENDENT MOUNTED ROUTE SIGNS

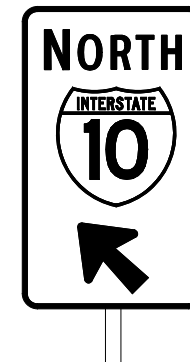
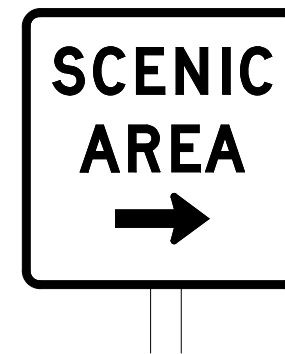
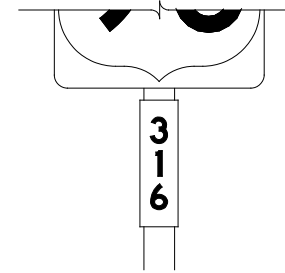
| SHEETING REQUIREMENTS | | |
|-----------------------|------------|-----------------------------|
| USAGE | COLOR | SIGN FACE MATERIAL |
| BACKGROUND | WHITE | TYPE A SHEETING |
| BACKGROUND | ALL OTHERS | TYPE B OR C SHEETING |
| LEGEND & BORDERS | WHITE | TYPE A SHEETING |
| LEGEND & BORDERS | BLACK | 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

- 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).
- 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 |

- 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).
- 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.
- 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.
- 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.
- Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
- 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/>



TYPICAL SIGN REQUIREMENTS

TSR(3) - 13

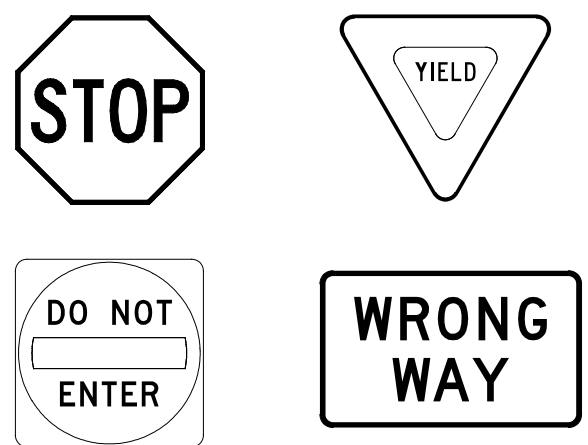
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| ©TxDOT | October 2003 | CONT | SECT | JOB | HIGHWAY | | | | |
| REVISIONS | | 0867 | 01 | 017 | FM 932 | | | | |
| 12-03 | 7-13 | DIST | COUNTY | | SHEET NO. | | | | |
| 9-08 | | WACO | HAMILTON | | 347 | | | | |

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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

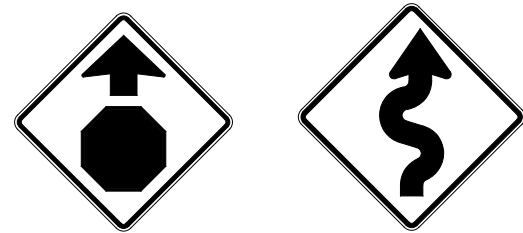
(EXCLUDING STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



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

- 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).
- Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod or F).
- 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.
- Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
- 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.
- 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.
- Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
- 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/>



TYPICAL SIGN REQUIREMENTS

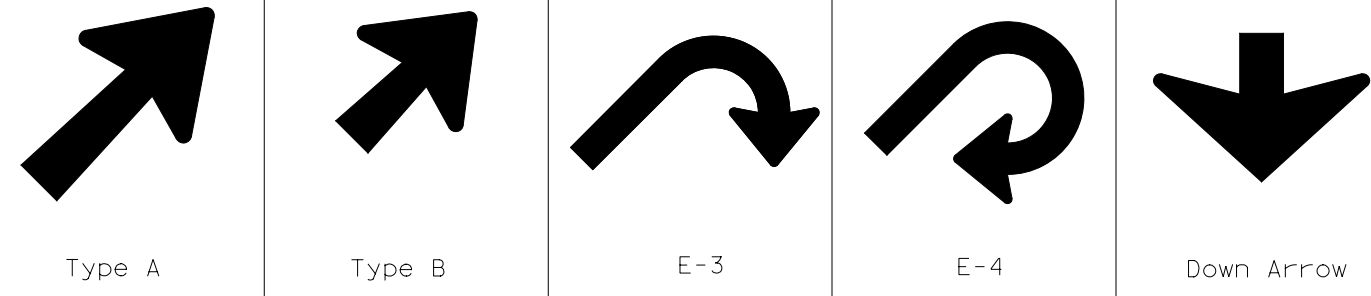
TSR (4) - 13

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| © TxDOT | October 2003 | CONT | SECT | JOB | HIGHWAY | | | | |
| REVISIONS | | 0867 | 01 | 017 | FM 932 | | | | |
| 12-03 | 7-13 | DIST | COUNTY | SHEET NO. | | | | | |
| 9-08 | | WACO | HAMILTON | 348 | | | | | |

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ARROW DETAILS

for Large Ground-Mounted and Overhead Guide Signs



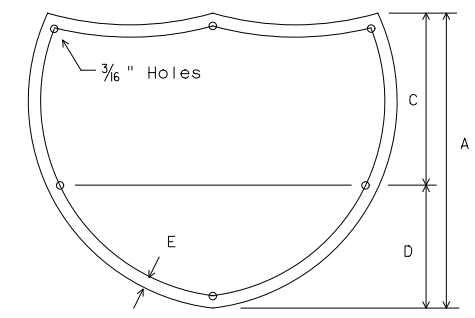
| TYPE | LETTER SIZE | USE |
|------|-------------------------|---------------------|
| A-1 | 10.67" U/L and 10" Caps | Single Lane Exits |
| A-2 | 13.33" U/L and 12" Caps | |
| A-3 | 16" & 20" U/L | |
| B-1 | 10.67" U/L and 10" Caps | Multiple Lane Exits |
| B-2 | 13.33" U/L and 12" Caps | |
| B-3 | 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.

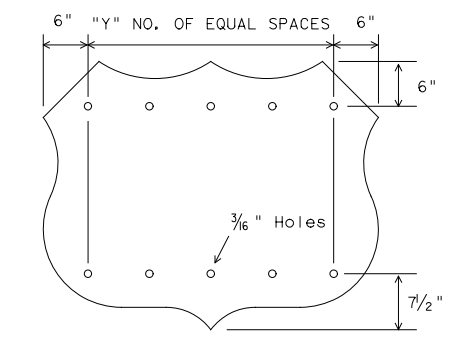
The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website:
<http://www.txdot.gov/>

SIGN BLANK PUNCHING DETAILS FOR ATTACHMENTS WHEN SPECIFIED TO BE TYPE A ALUMINUM SIGNS (FOR MOUNTING TO GUIDE SIGN FACE)



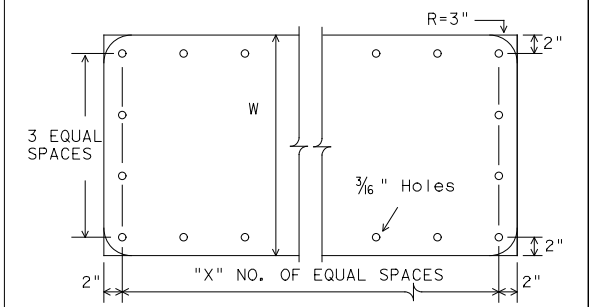
INTERSTATE ROUTE MARKERS

| A | C | D | E |
|----|----|----|-------|
| 36 | 21 | 15 | 1 1/2 |
| 48 | 28 | 20 | 1 3/4 |



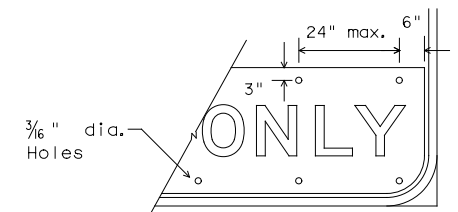
U.S. ROUTE MARKERS

| Sign Size | "Y" |
|-----------|-----|
| 24x24 | 2 |
| 30x24 | 3 |
| 36x36 | 3 |
| 45x36 | 4 |
| 48x48 | 4 |
| 60x48 | 5 |



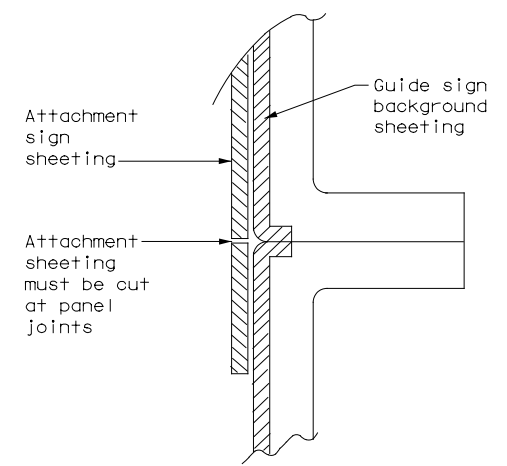
STATE ROUTE MARKERS

| No. of Digits | W | X |
|---------------|----|---|
| 4 | 24 | 4 |
| 4 | 36 | 5 |
| 4 | 48 | 6 |
| 3 | 24 | 3 |
| 3 | 36 | 4 |
| 3 | 48 | 5 |

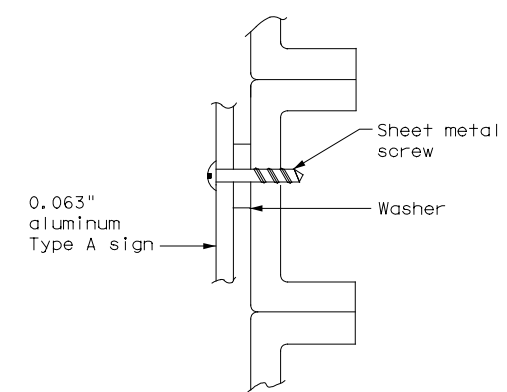


EXIT ONLY PANEL

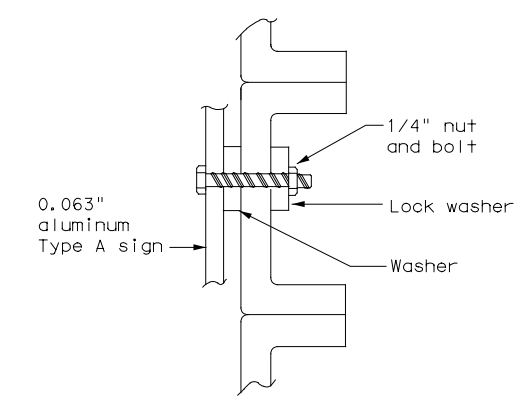
MOUNTING DETAILS OF ATTACHMENTS TO GUIDE SIGN FACE ("EXIT ONLY" AND "LEFT EXIT" PANELS, ROUTE MARKERS AND OTHER ATTACHMENTS)



DIRECT APPLIED ATTACHMENT



SCREW ATTACHMENT

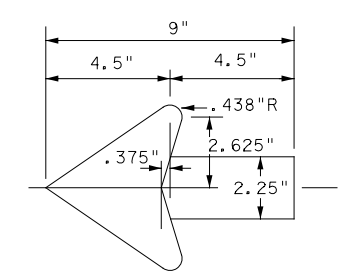


NUT/BOLT ATTACHMENT

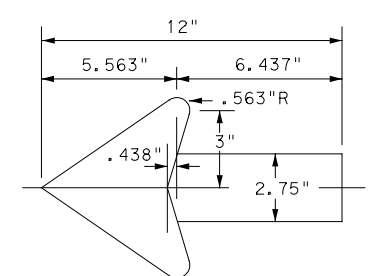
NOTE:
 1. Sheeting for legend, symbols, and borders must be cut at panel joints.
 2. Direct applied attachment signs will be subsidiary to "Aluminum Signs" or "Fiberglass Signs".

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.

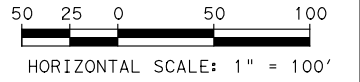


TYPICAL SIGN REQUIREMENTS

TSR (5) - 13

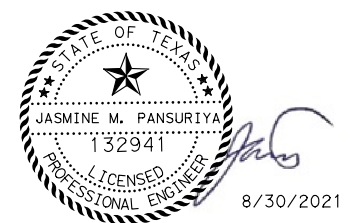
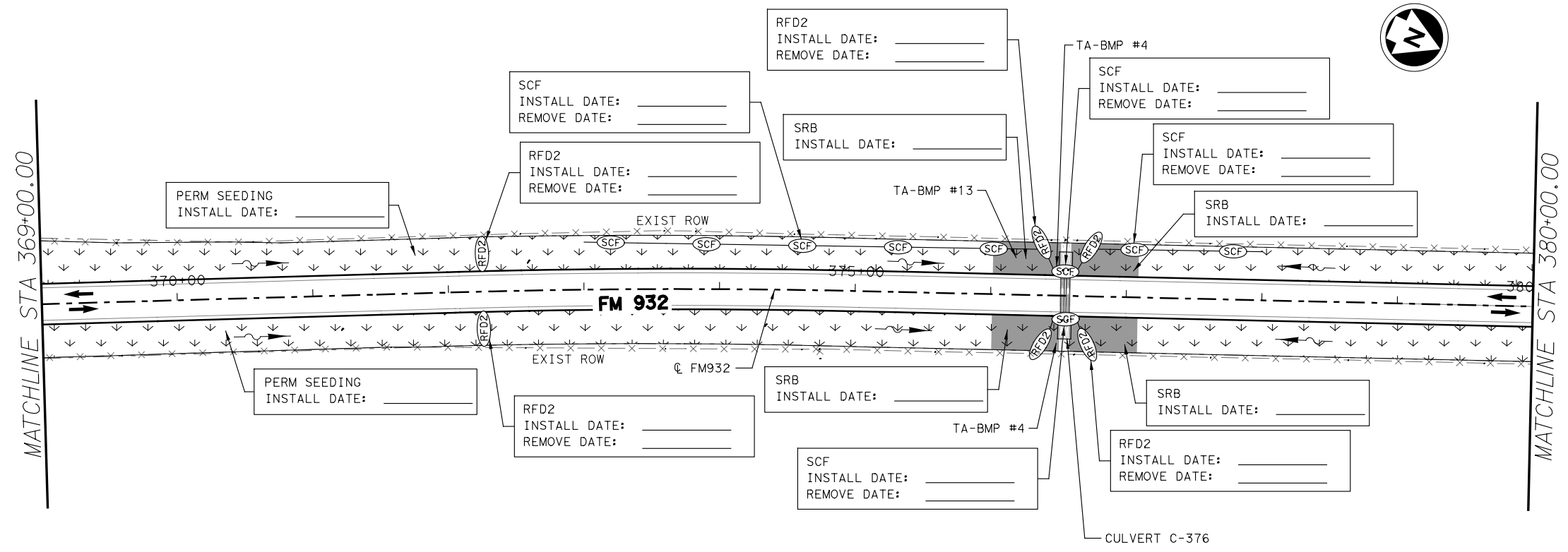
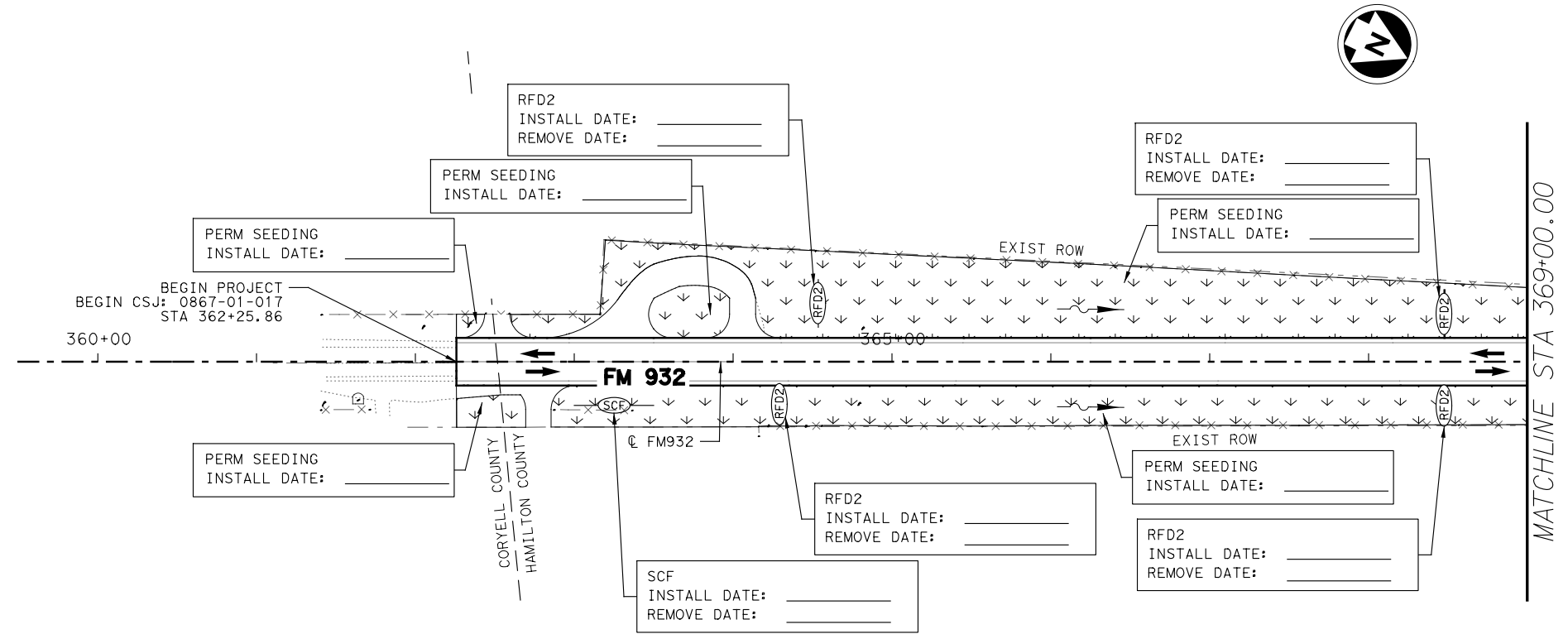
| | | | | |
|---------------------|-----------|-----------|-----------|-----------|
| FILE: tsr5-13.dgn | DN: TxDOT | CK: TxDOT | OW: TxDOT | CK: TxDOT |
| ©TxDOT October 2003 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0867 | 01 | 017 | FM 932 |
| 12-03 7-13 | DIST | COUNTY | SHEET NO. | |
| 9-08 | WACO | HAMILTON | 349 | |

DATE: 8/30/2021 3:35:48 PM
 FILE: tsr5-13.dgn



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~→ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ▨ ▨ ▨ | SOIL RETENTION BLANKET |

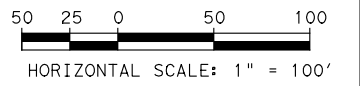


FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
BEGIN PROJECT TO STA 380+00.00

(SHEET 1 OF 37)

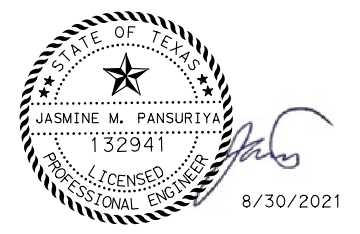
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|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 350 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*01.dgn
 DATE: 8/30/2021 3:35:53 PM



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~→ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ▨ ▨ ▨ | SOIL RETENTION BLANKET |

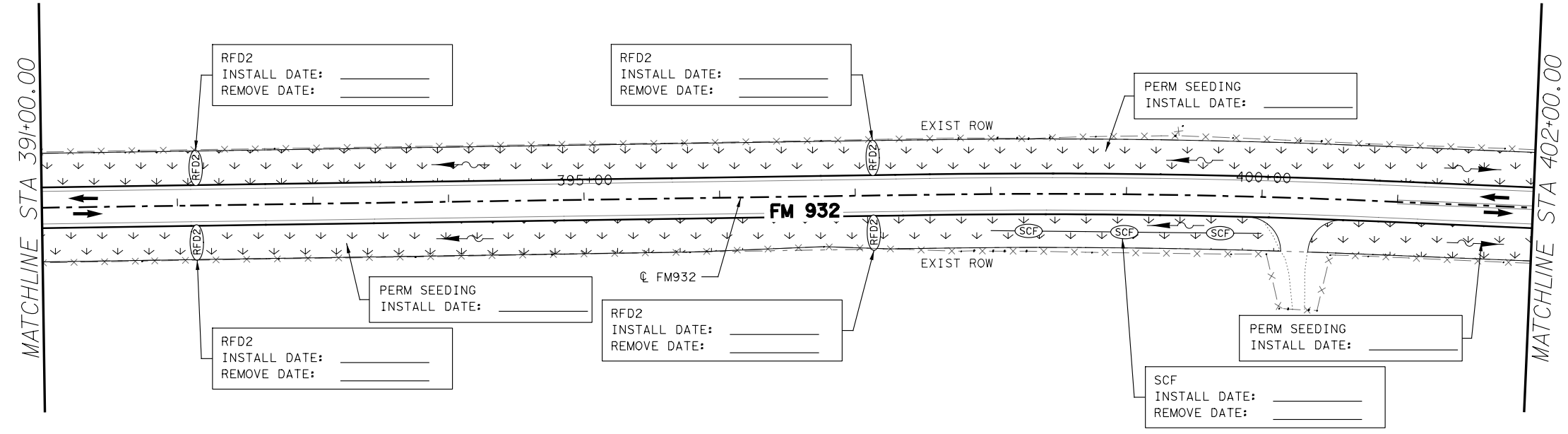
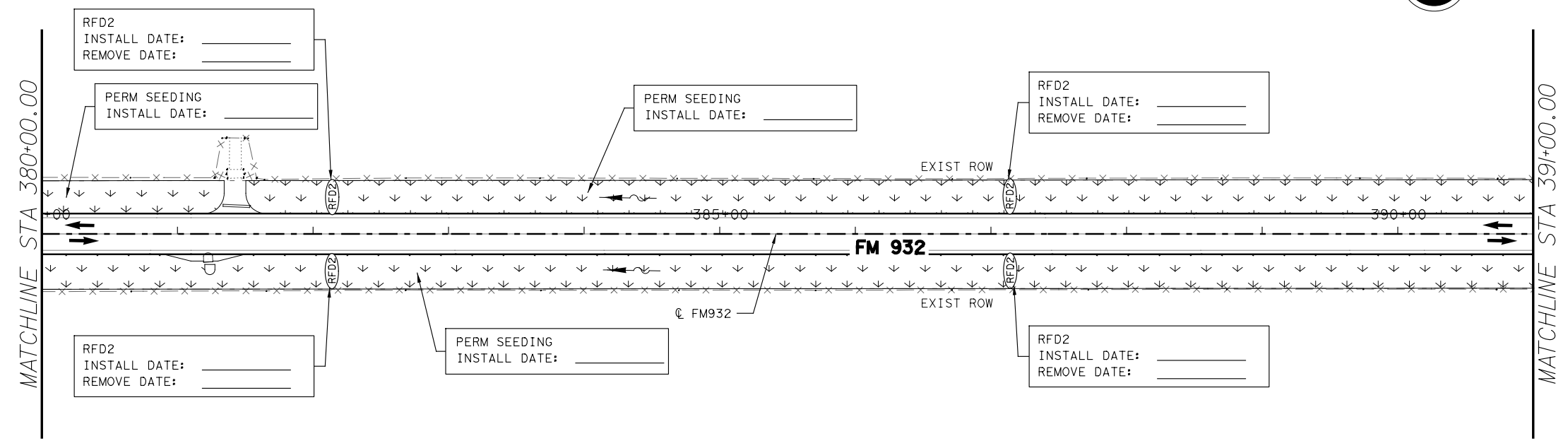


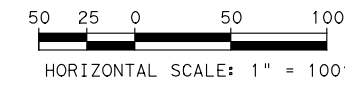
FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 380+00.00 TO STA 402+00.00

(SHEET 2 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 351 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

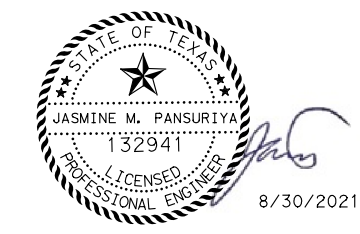
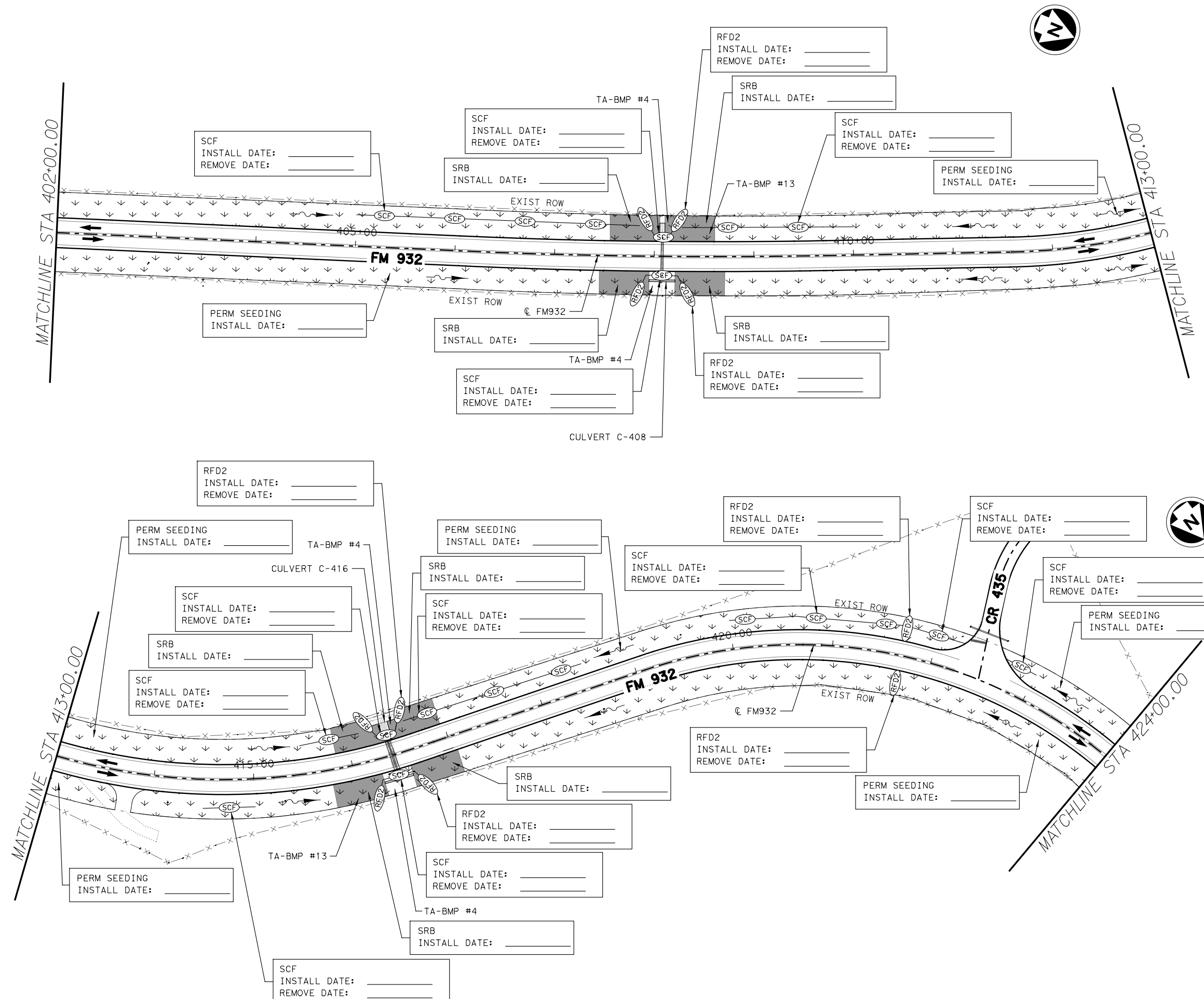
FILE: FM932*OTHON*SW3P*02.dgn
 DATE: 8/30/2021 3:35:54 PM





LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- DIRECTION OF TRAFFIC
- ~ WATER FLOW
- (RFD) ROCK FILTER DAM
- (SCF) SEDIMENT CONTROL FENCE
- ↓↓↓ PERMANENT SEEDING
- ▨ SOIL RETENTION BLANKET

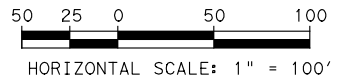


FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 402+00.00 TO STA 424+00.00

(SHEET 3 OF 37)

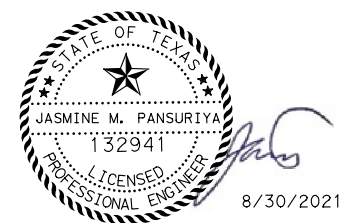
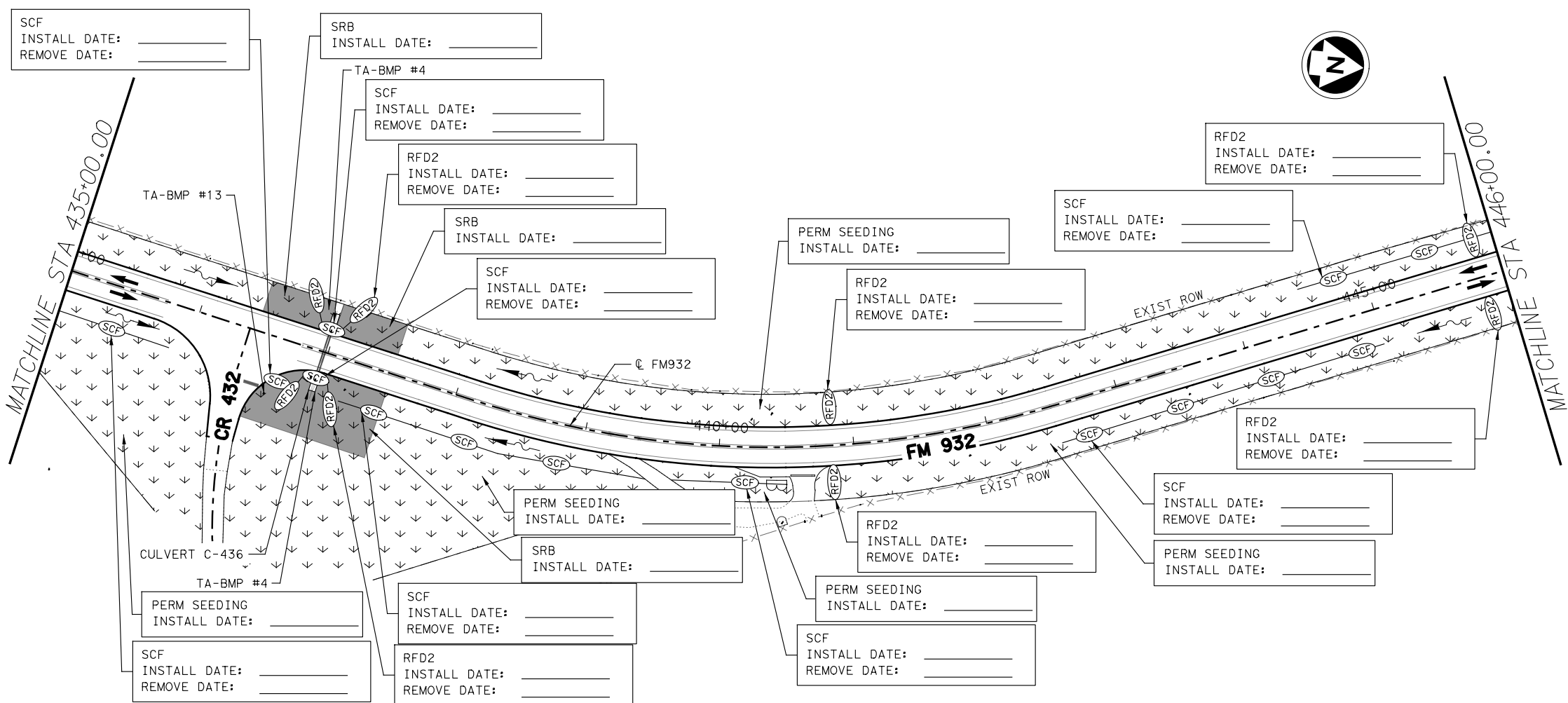
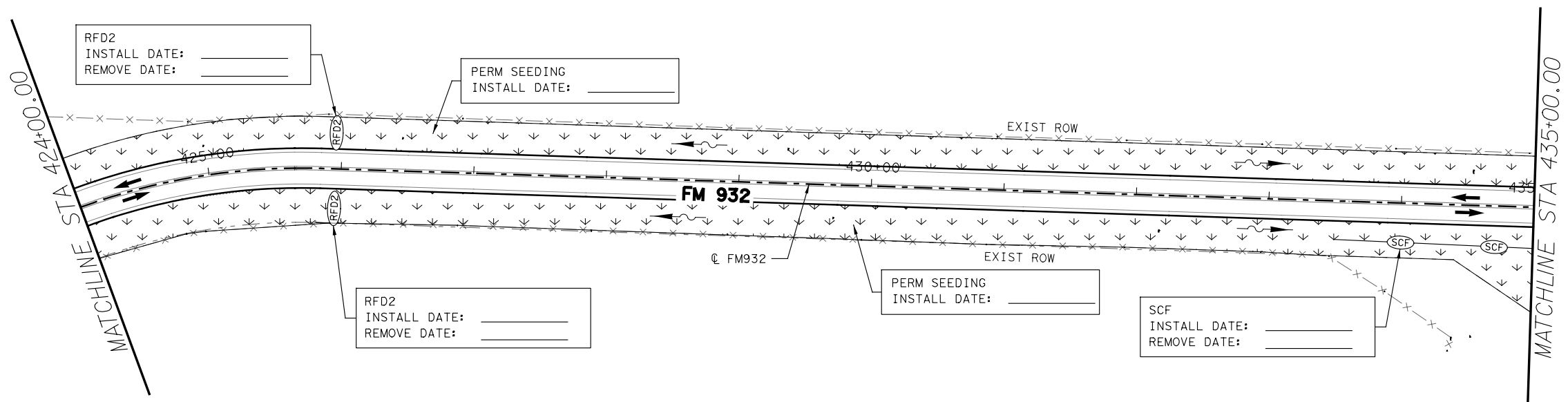
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|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 352 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*03.dgn
 DATE: 8/30/2021 3:35:55 PM



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ▨ ▨ ▨ | SOIL RETENTION BLANKET |



FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 424+00.00 TO STA 446+00.00

(SHEET 4 OF 37)

| | | | | |
|----------------|---------------------|---|----------|--------------------|
| DESIGN RP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 353 |
| GRPH CHECK JMP | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*04.dgn
 DATE: 8/30/2021 3:35:56 PM

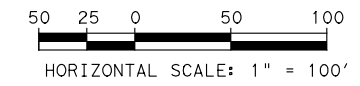
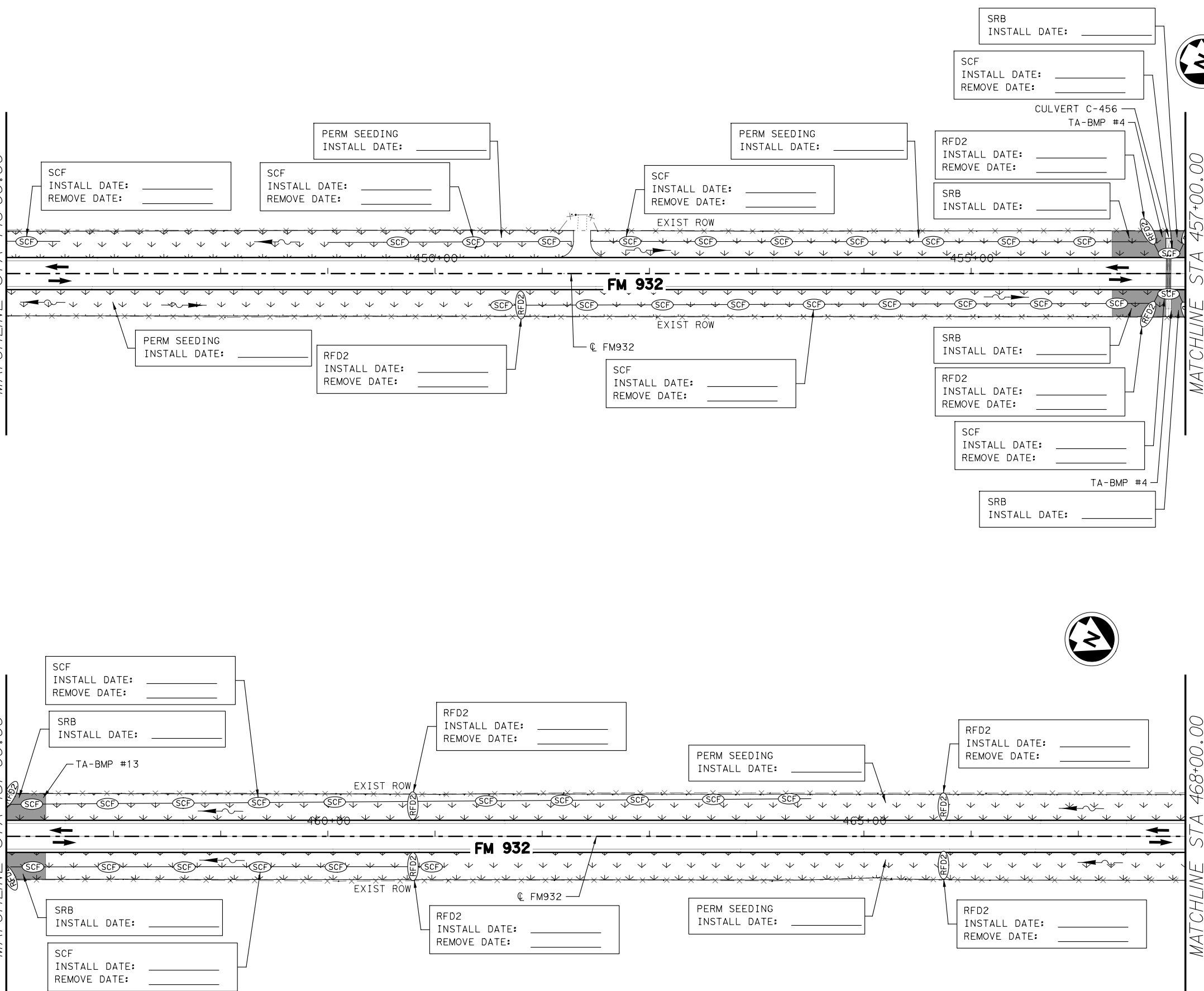
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 DATE: 8/30/2021 3:35:57 PM

MATCHLINE STA 446+00.00

MATCHLINE STA 457+00.00

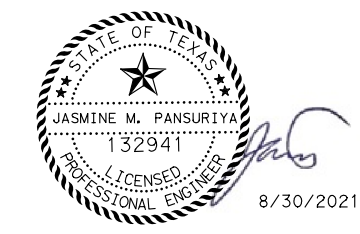
MATCHLINE STA 457+00.00

MATCHLINE STA 468+00.00



LEGEND

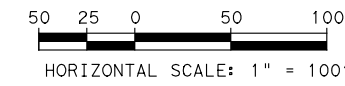
| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ↓ ↓ ↓ | SOIL RETENTION BLANKET |



FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 446+00.00 TO STA 468+00.00

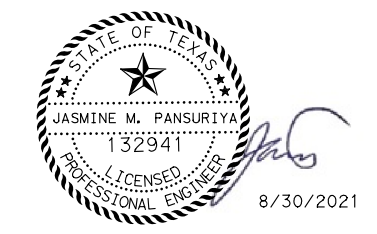
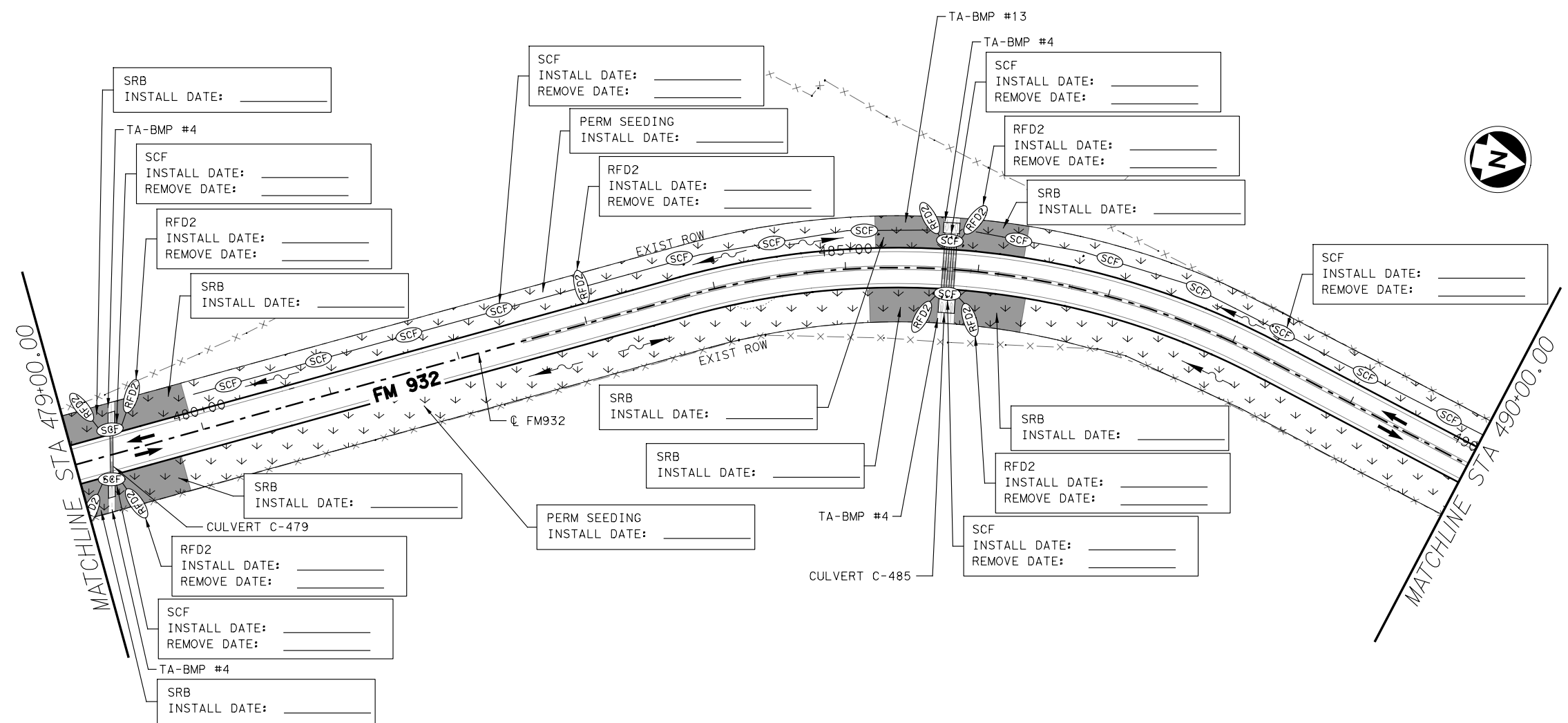
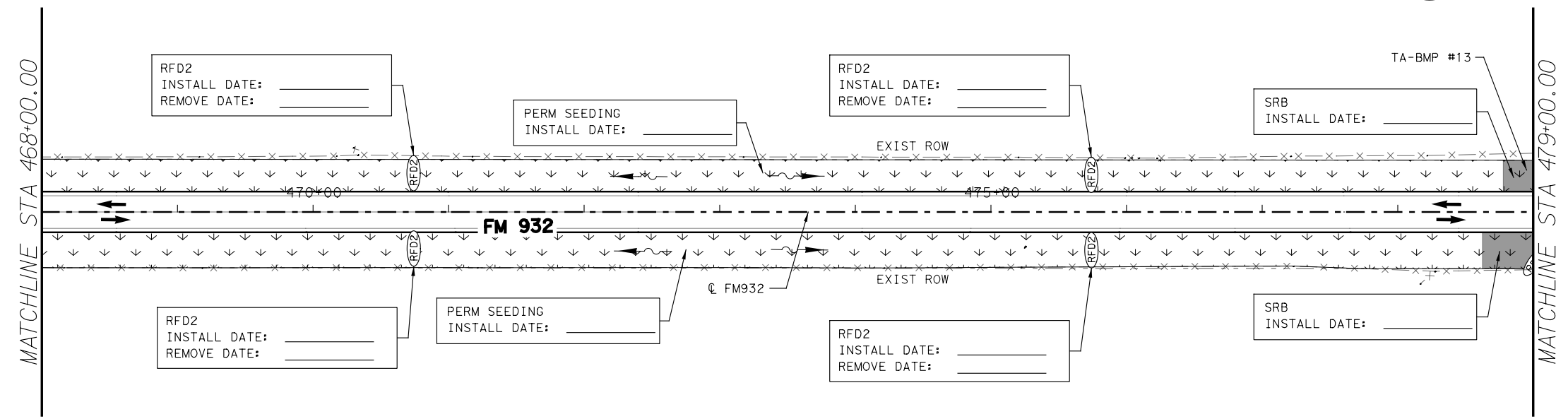
(SHEET 5 OF 37)

| | | | | |
|----------------|---------------------|---|-----------------|--------------------|
| DESIGN RP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK JMP | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. |
| GRAPHICS RP | CONTROL | SECTION | JOB | 354 |
| GRPH CHECK JMP | 0867 | 01 | 017 | |



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~→ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ▨ | SOIL RETENTION BLANKET |

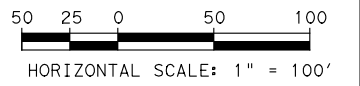


FM 932
STORM WATER POLLUTION
PREVENTION PLAN (SW3P)
STA 468+00.00 TO STA 490+00.00

(SHEET 6 OF 37)

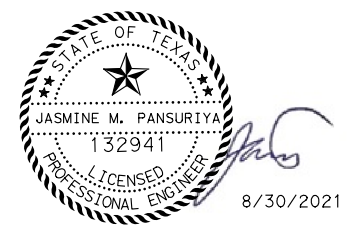
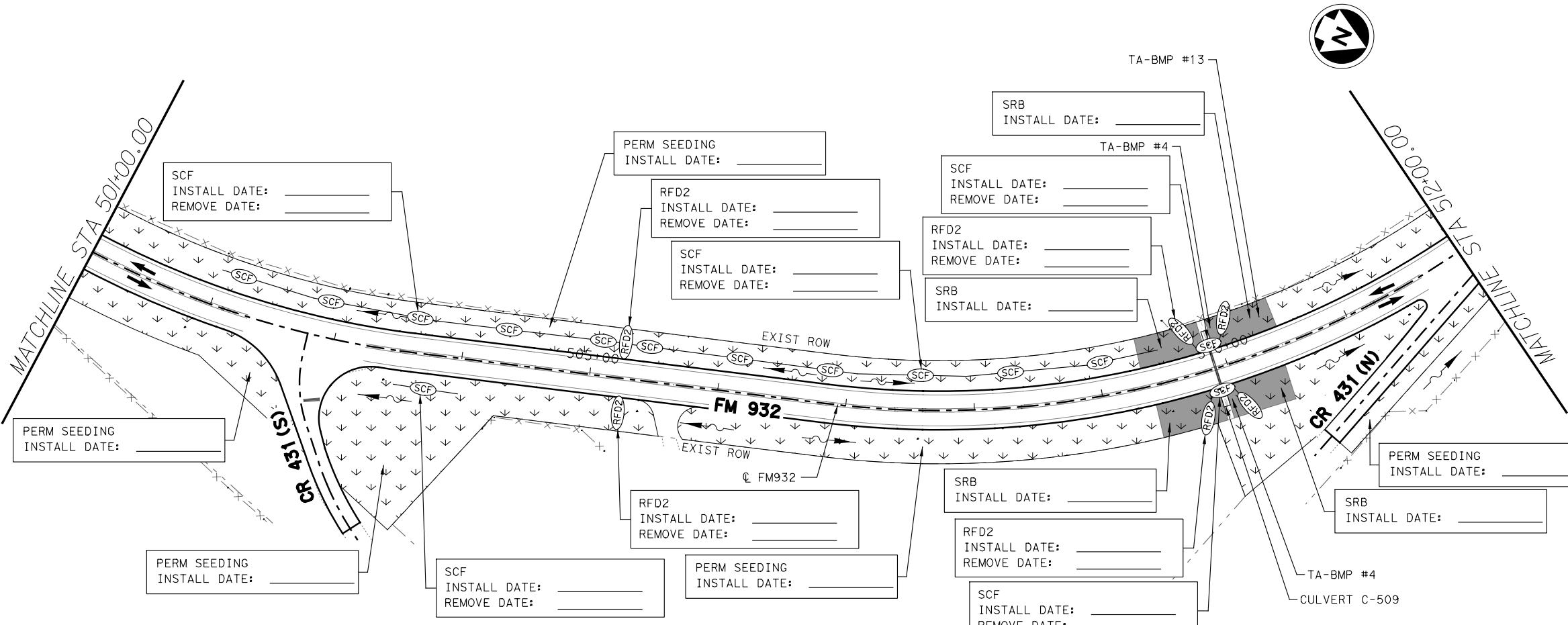
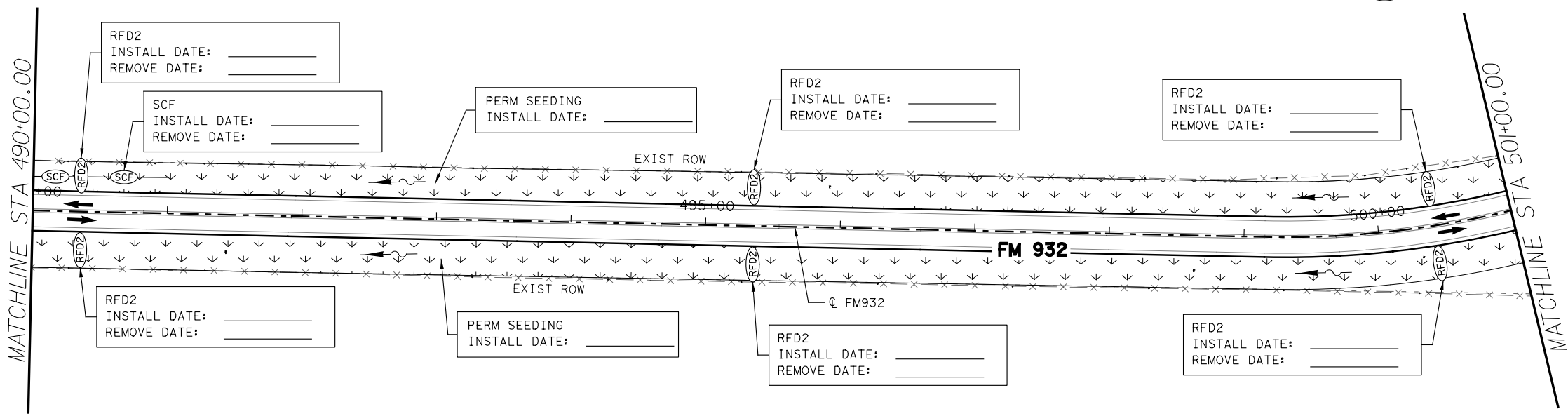
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| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 355 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*06.dgn
 DATE: 8/30/2021 3:35:58 PM



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ↓ ↓ ↓ | SOIL RETENTION BLANKET |



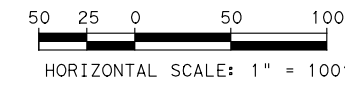
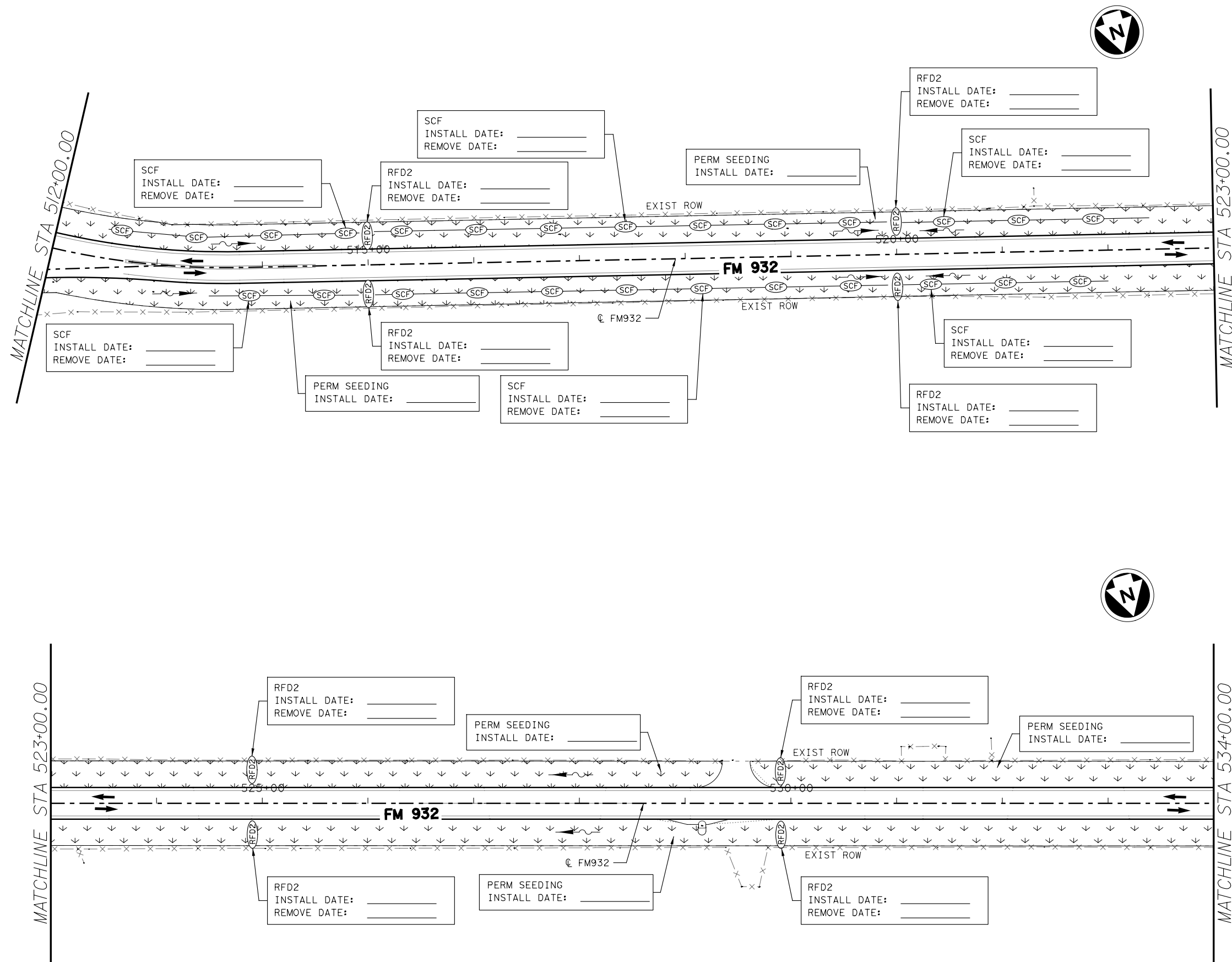
FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 490+00.00 TO STA 512+00.00

(SHEET 7 OF 37)

| | | | | |
|----------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK JMP | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRPH CHECK JMP | TX | WACO | HAMILTON | 356 |
| | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

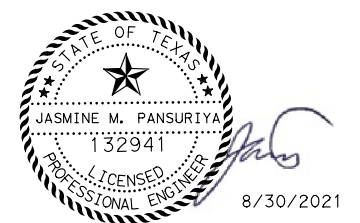
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 DATE: 8/30/2021 3:35:59 PM

FILE: FM932*OTHON*SW3P*08.dgn
 DATE: 8/30/2021 3:36:00 PM



LEGEND

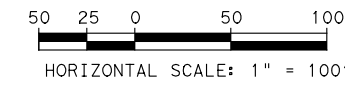
| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ↘ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ↓ ↓ ↓ | SOIL RETENTION BLANKET |



FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 512+00.00 TO STA 534+00.00

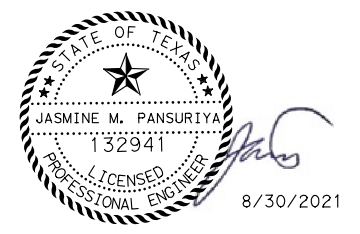
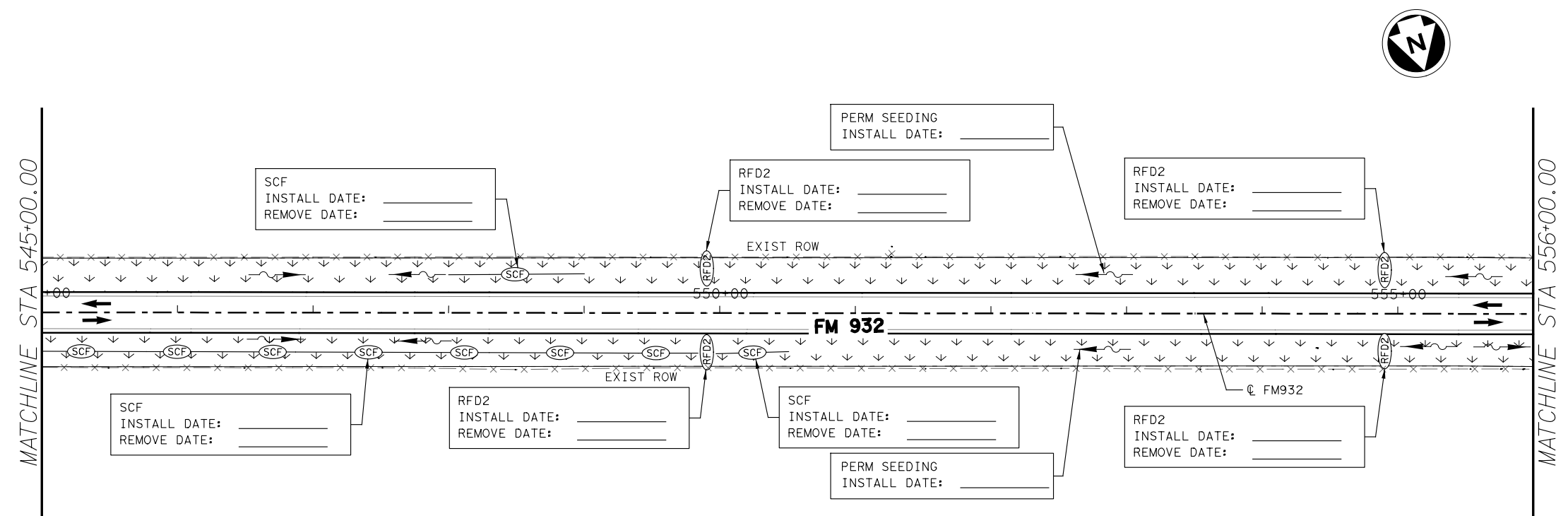
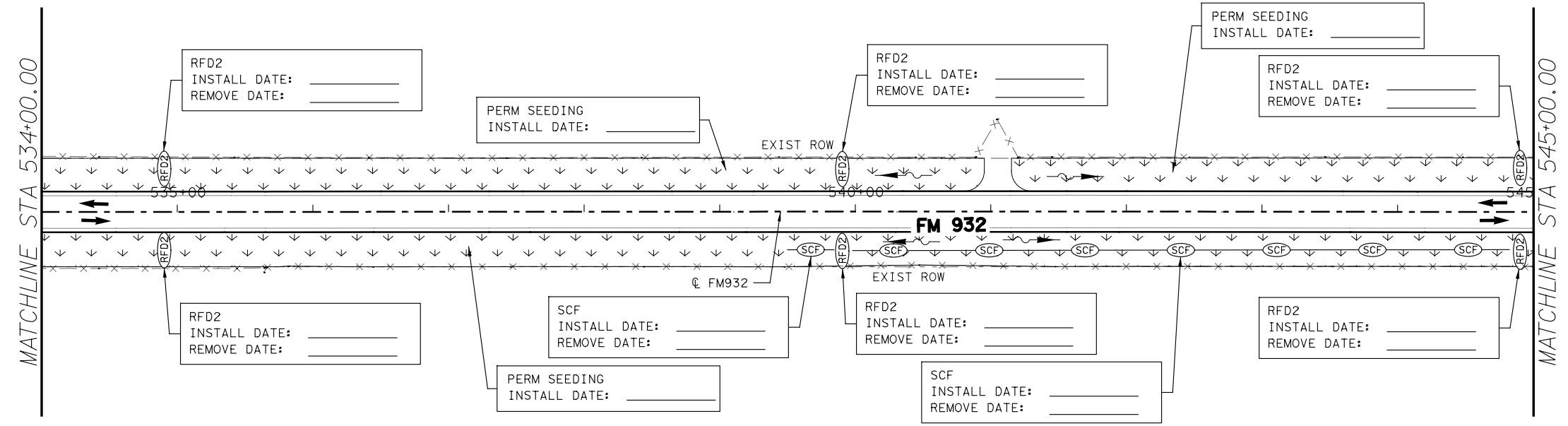
(SHEET 8 OF 37)

| | | | | |
|----------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK JMP | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRPH CHECK JMP | TX | WACO | HAMILTON | 357 |
| | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ↓ ↓ ↓ | SOIL RETENTION BLANKET |

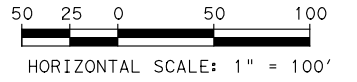


FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 534+00.00 TO STA 556+00.00

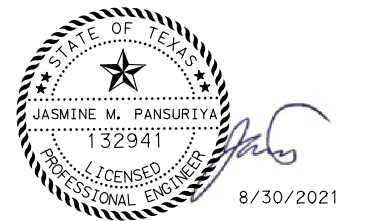
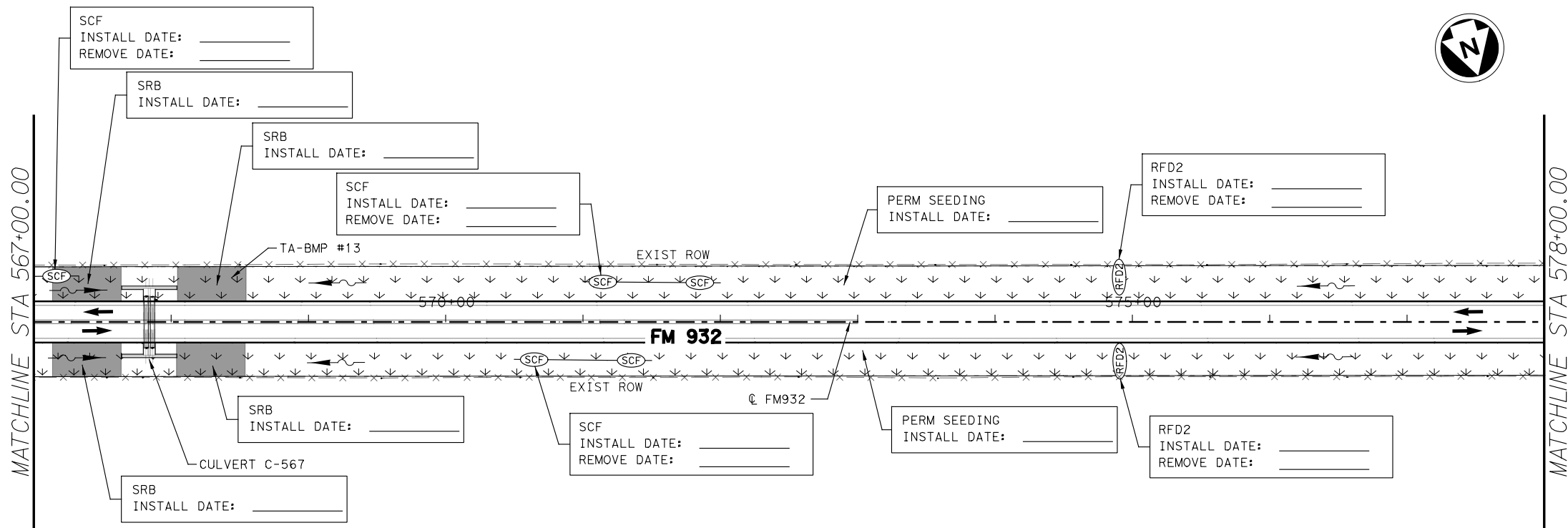
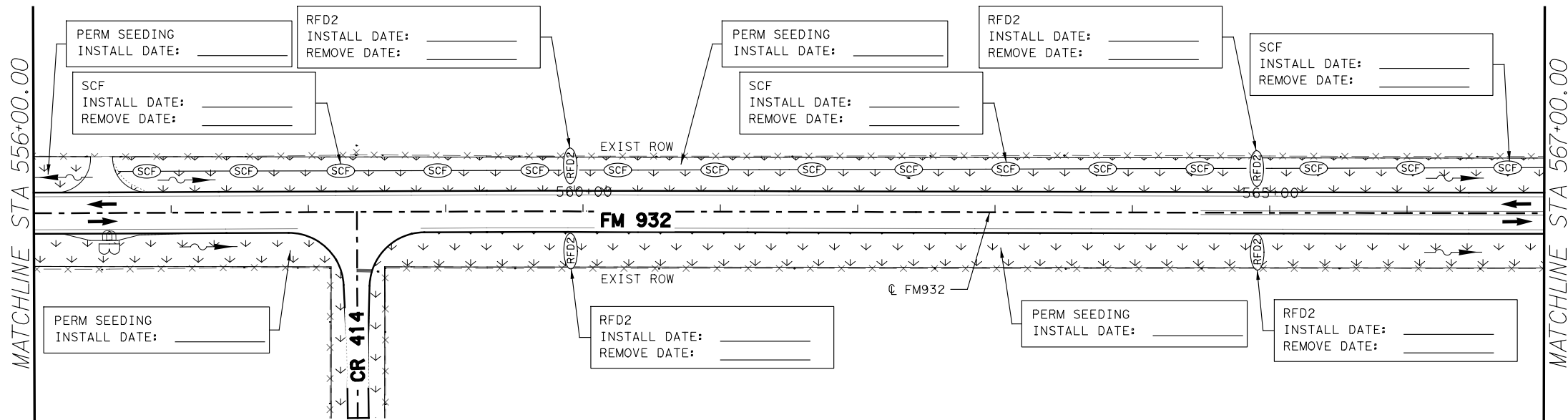
(SHEET 9 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 358 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*09.dgn
DATE: 8/30/2021 3:36:01 PM



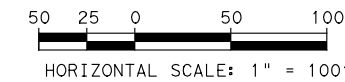
- LEGEND
- EXIST ROW
 - x-x- EXIST FENCE
 - DIRECTION OF TRAFFIC
 - ↪ WATER FLOW
 - RFD
 - SCF
 - ↓ PERMANENT SEEDING
 - ▨ SOIL RETENTION BLANKET



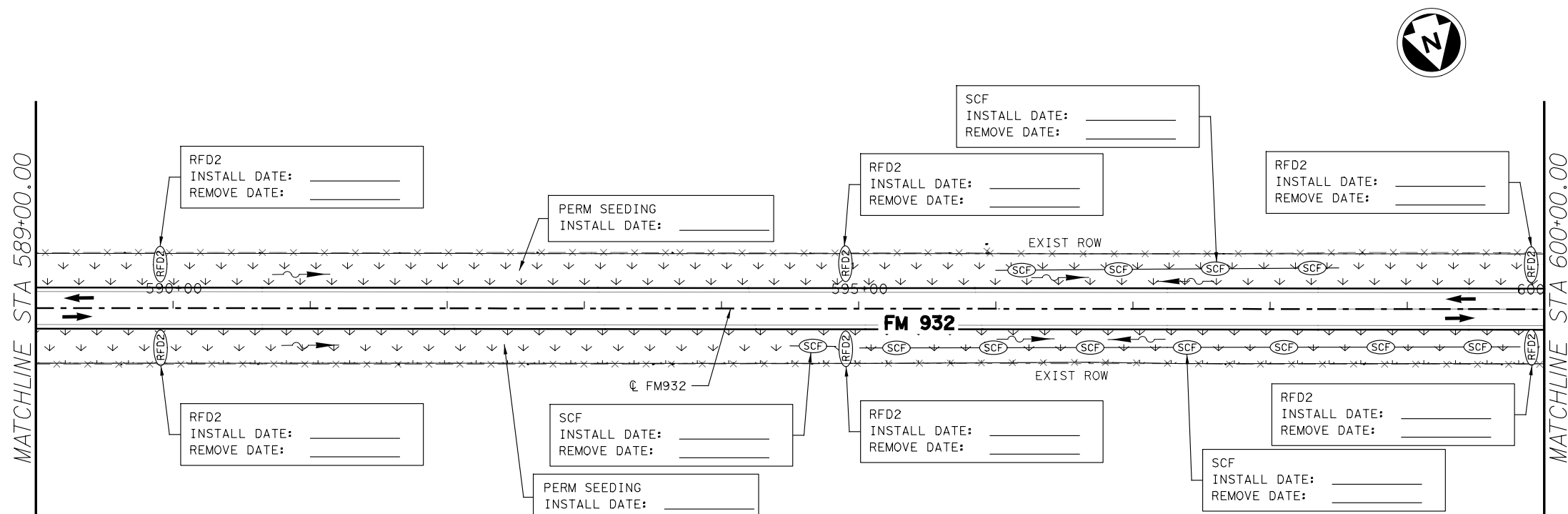
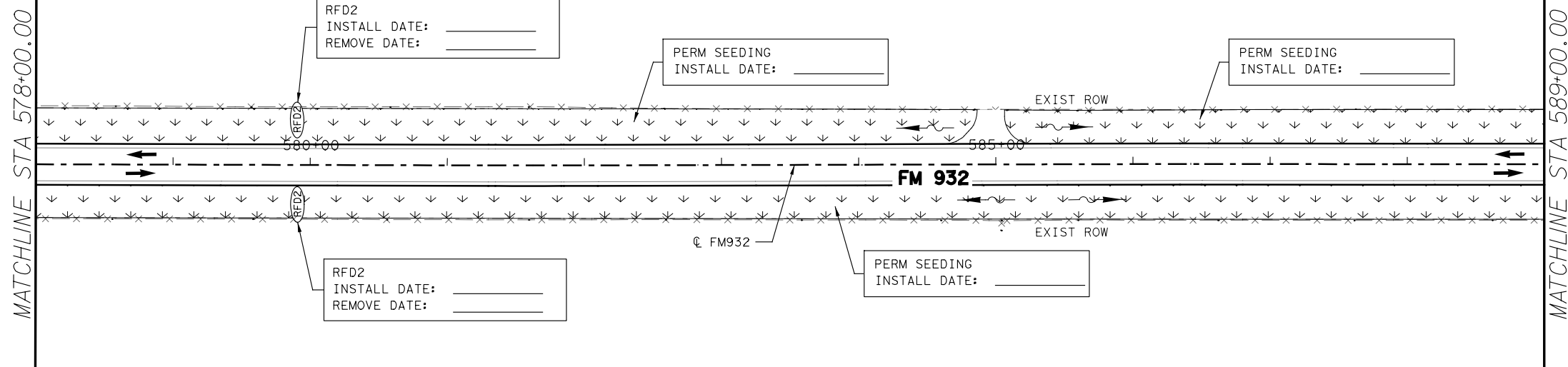
FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 556+00.00 TO STA 578+00.00

(SHEET 10 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 359 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



- LEGEND
- EXIST ROW
 - x-x- EXIST FENCE
 - DIRECTION OF TRAFFIC
 - ~ WATER FLOW
 - (RFD) ROCK FILTER DAM
 - (SCF) SEDIMENT CONTROL FENCE
 - ↓ PERMANENT SEEDING
 - █ SOIL RETENTION BLANKET

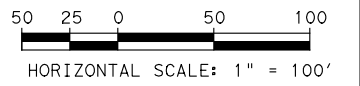


FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 578+00.00 TO STA 600+00.00

(SHEET 11 OF 37)

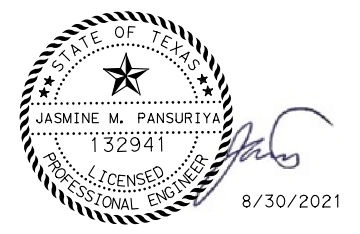
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|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 360 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*11.dgn
 DATE: 8/30/2021 3:36:03 PM



LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- DIRECTION OF TRAFFIC
- ~ WATER FLOW
- (RFD) ROCK FILTER DAM
- (SCF) SEDIMENT CONTROL FENCE
- ↓ PERMANENT SEEDING
- █ SOIL RETENTION BLANKET

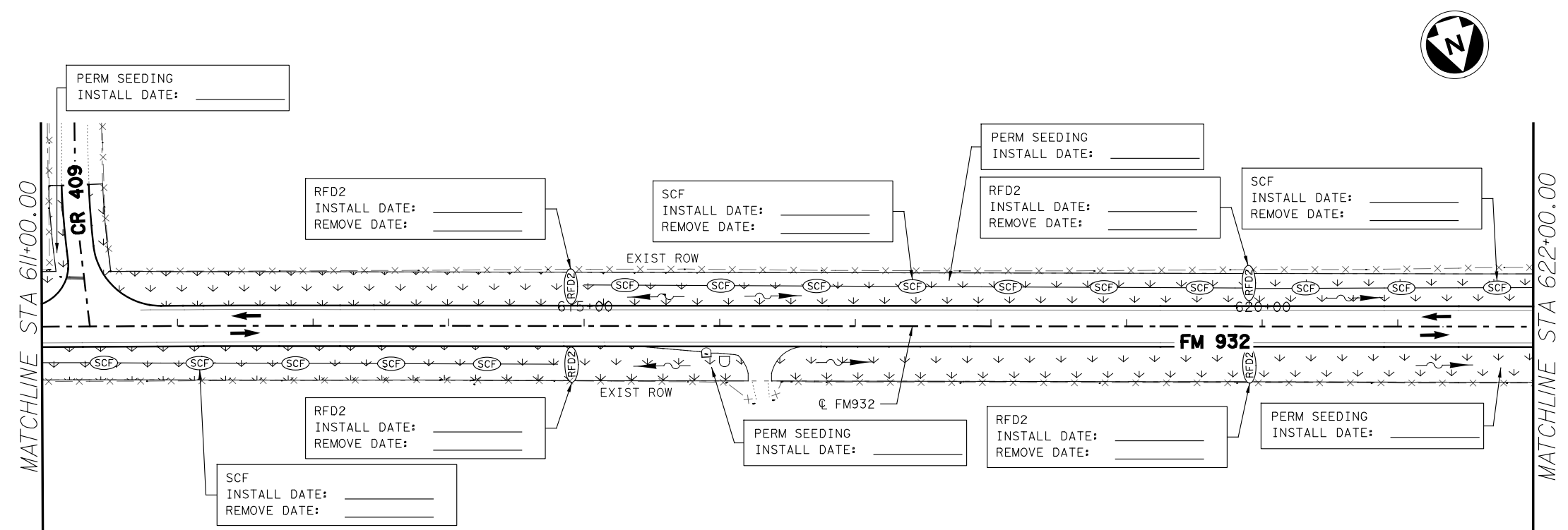
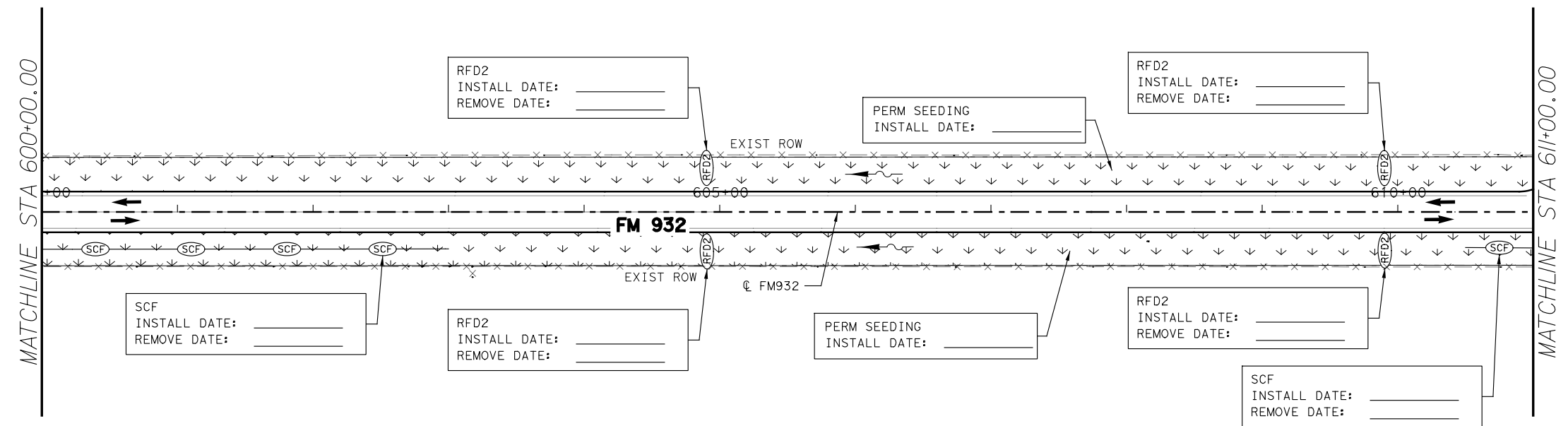


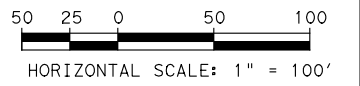
FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 600+00.00 TO STA 622+00.00

(SHEET 12 OF 37)

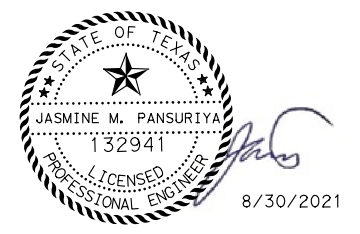
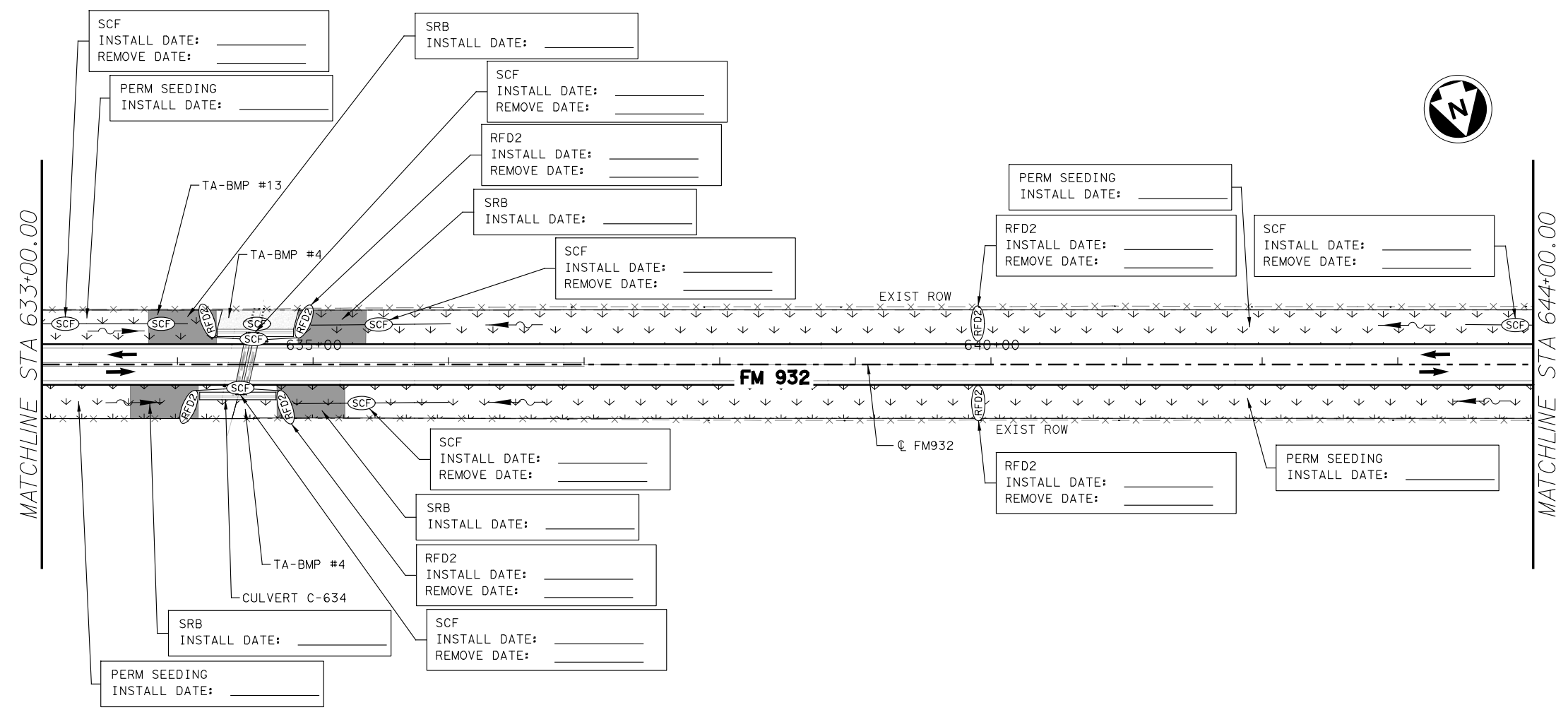
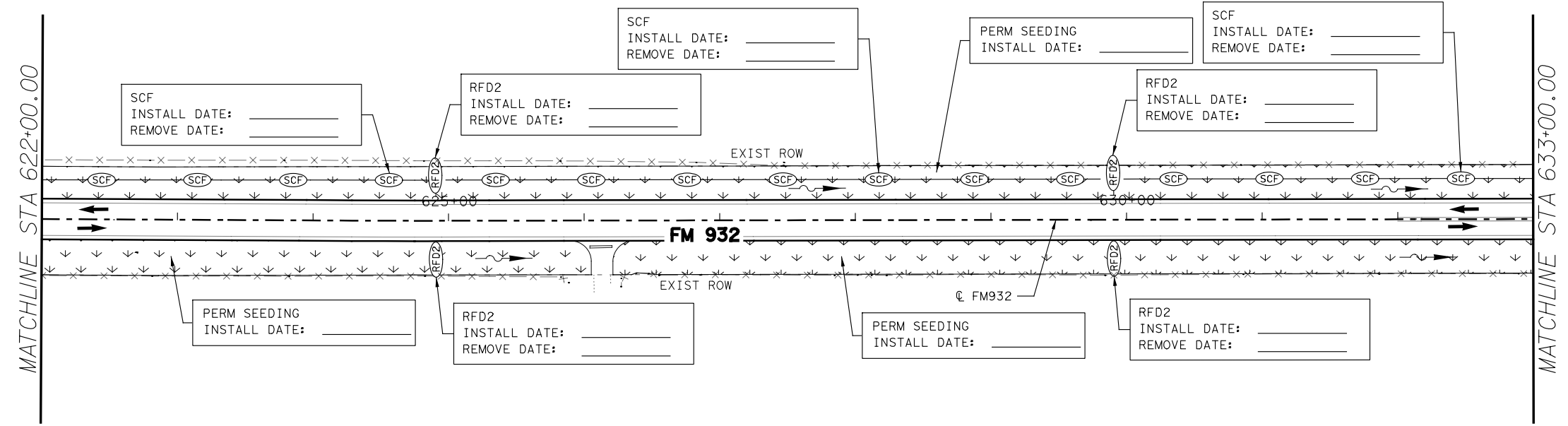
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| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 361 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*12.dgn
 DATE: 8/30/2021 3:36:04 PM





- LEGEND
- EXIST ROW
 - x-x- EXIST FENCE
 - DIRECTION OF TRAFFIC
 - ~ WATER FLOW
 - (RFD) ROCK FILTER DAM
 - (SCF) SEDIMENT CONTROL FENCE
 - ↓ ↓ ↓ PERMANENT SEEDING
 - ▨ SOIL RETENTION BLANKET



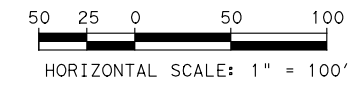
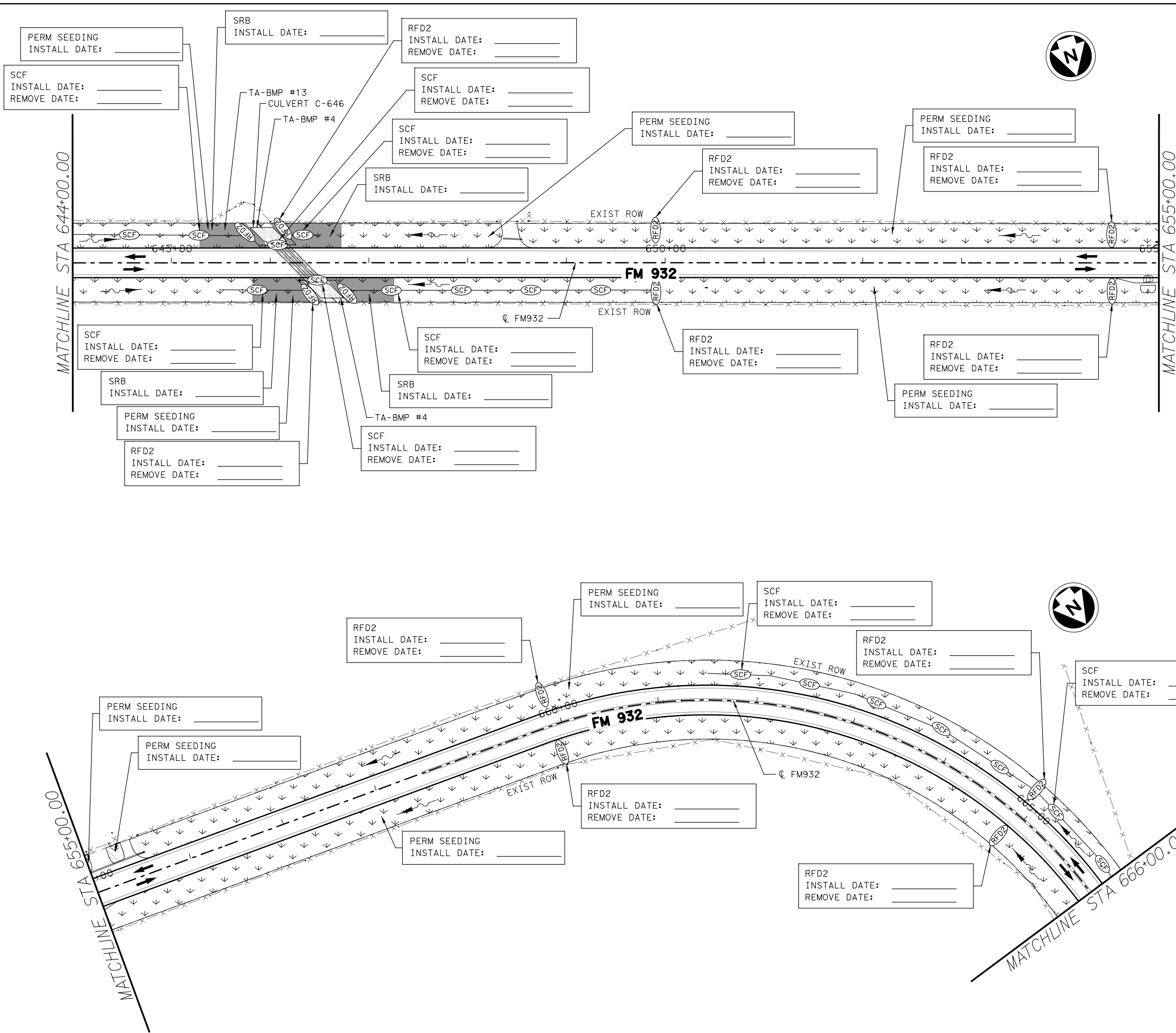
FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 622+00.00 TO STA 644+00.00

(SHEET 13 OF 37)

| | | | | |
|----------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK JMP | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRPH CHECK JMP | TX | WACO | HAMILTON | 362 |
| | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

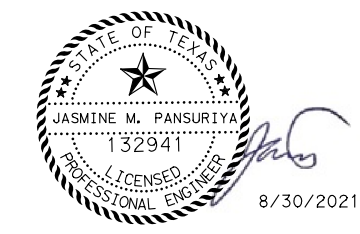
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 DATE: 8/30/2021 3:36:05 PM

FILE: FM932*OTHON*SW3P*14.dgn
 DATE: 8/30/2021 3:36:06 PM



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ↘ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ▨ ▨ ▨ | SOIL RETENTION BLANKET |

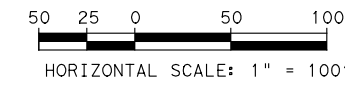
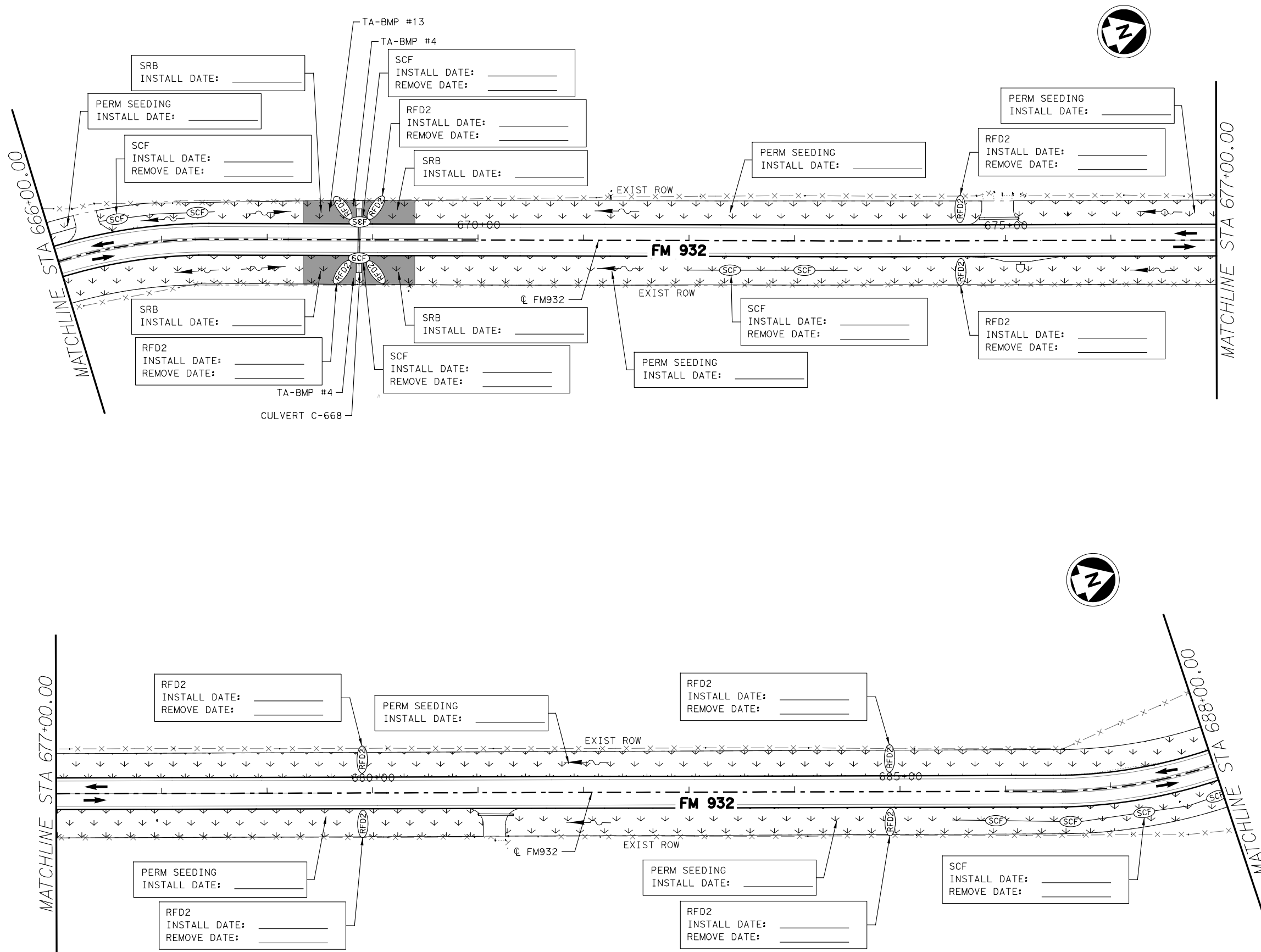


FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 644+00.00 TO STA 666+00.00

(SHEET 14 OF 37)

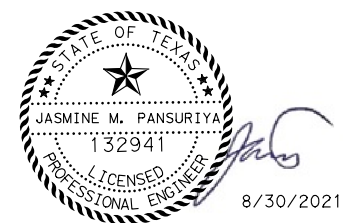
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| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK JMP | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRPH CHECK JMP | TX | WACO | HAMILTON | 363 |
| | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*15.dgn
 DATE: 8/30/2021 3:36:07 PM



LEGEND

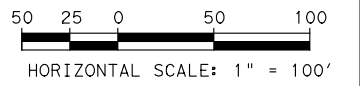
| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| █ | SOIL RETENTION BLANKET |



FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 666+00.00 TO STA 688+00.00

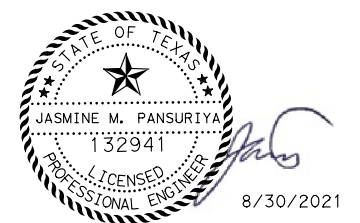
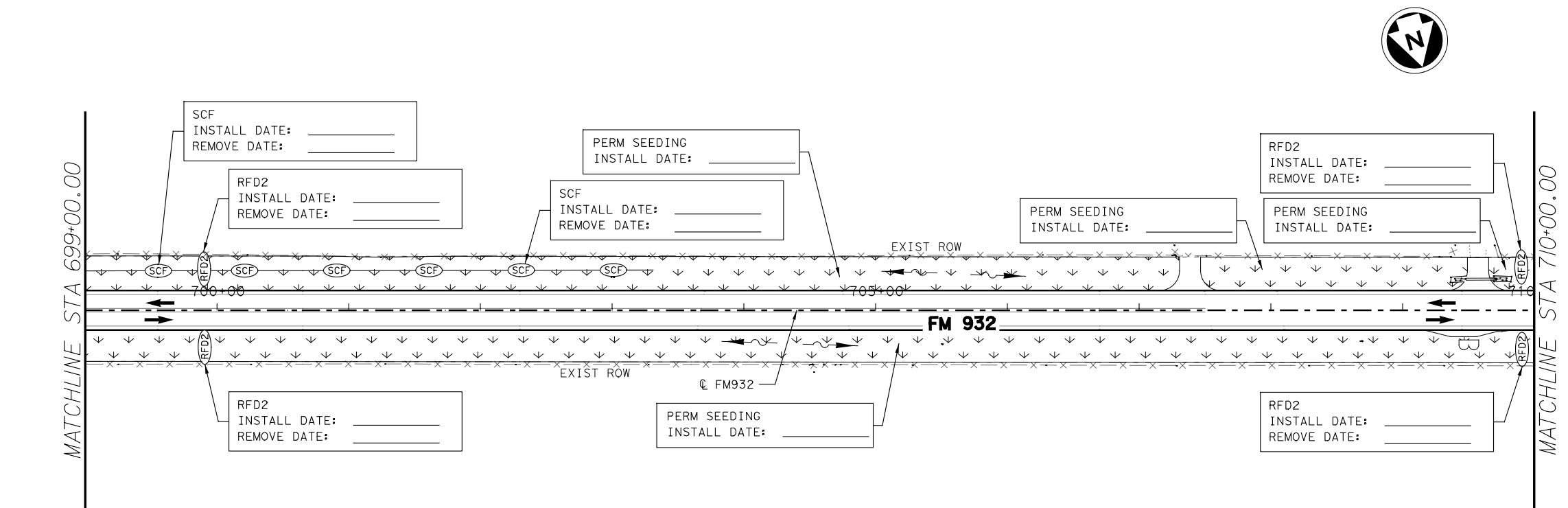
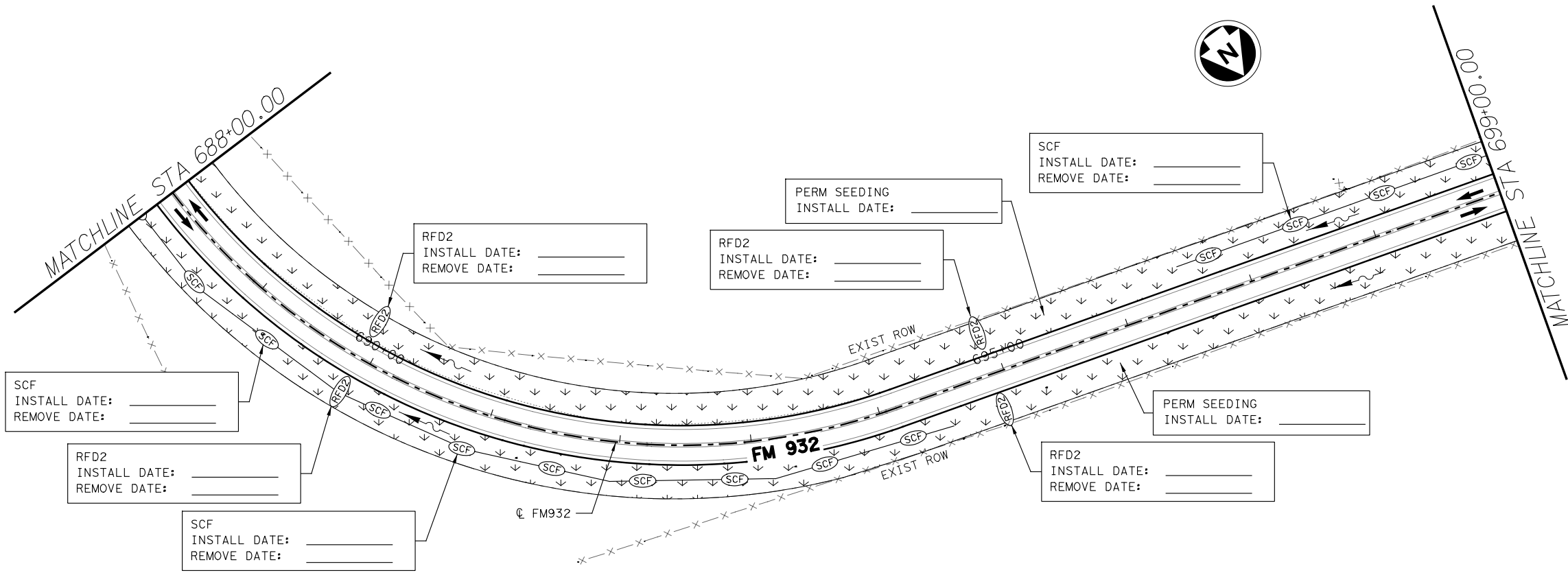
(SHEET 15 OF 37)

| | | | | |
|----------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK JMP | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRPH CHECK JMP | TX | WACO | HAMILTON | 364 |
| | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ▨ ▨ ▨ | SOIL RETENTION BLANKET |

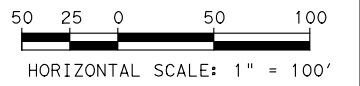


FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 688+00.00 TO STA 710+00.00

(SHEET 16 OF 37)

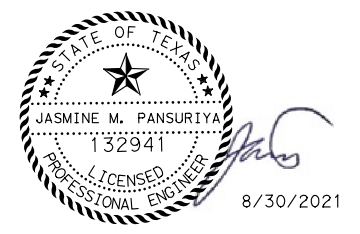
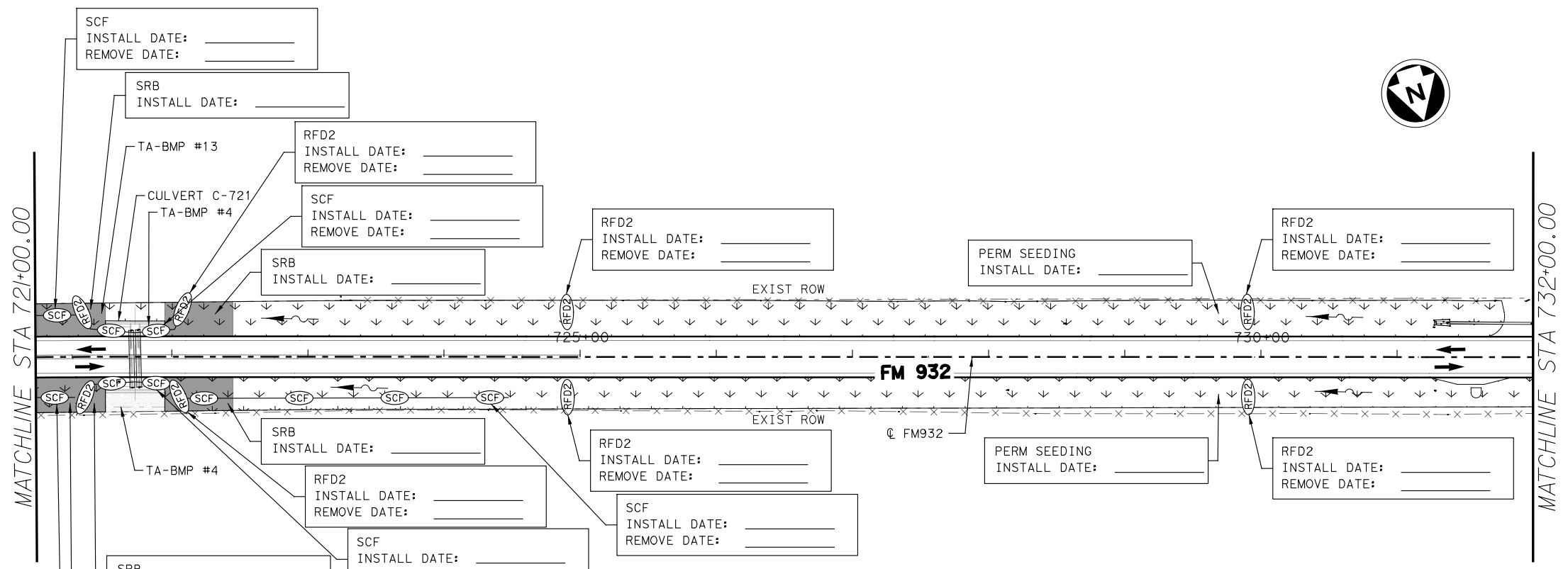
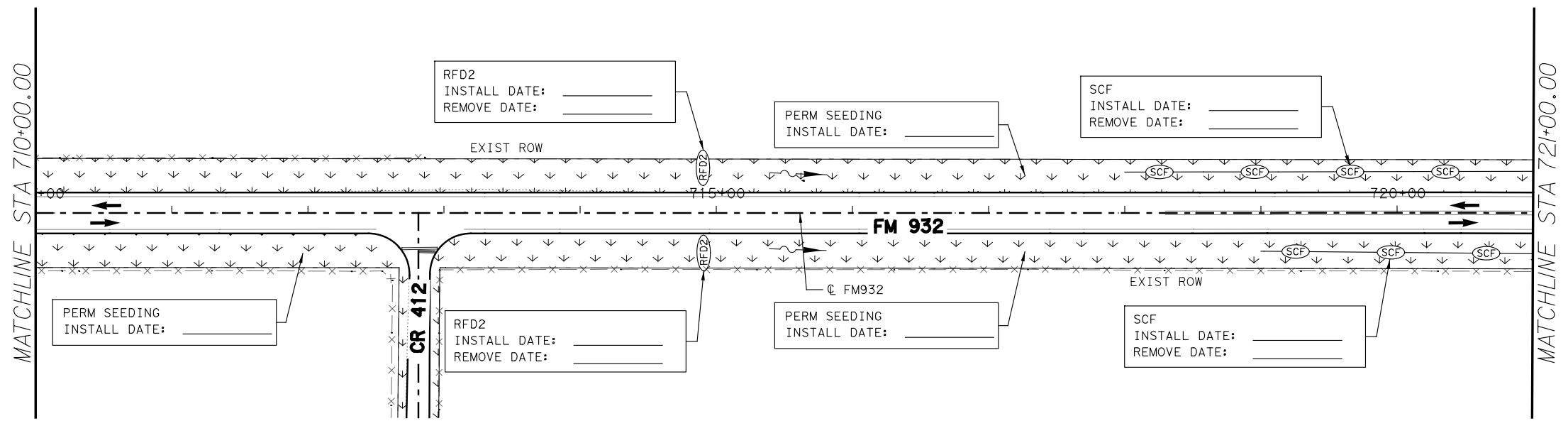
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|-------------|--------------------|-------------------------|----------|--------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO.: |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 365 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*16.dgn
 DATE: 8/30/2021 3:36:09 PM



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ↓ ↓ ↓ | SOIL RETENTION BLANKET |

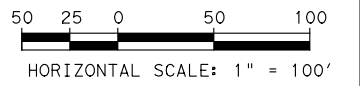


FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 710+00.00 TO STA 732+00.00

(SHEET 17 OF 37)

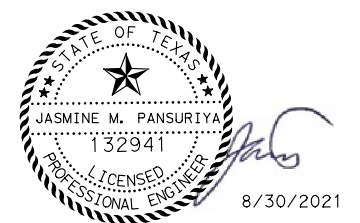
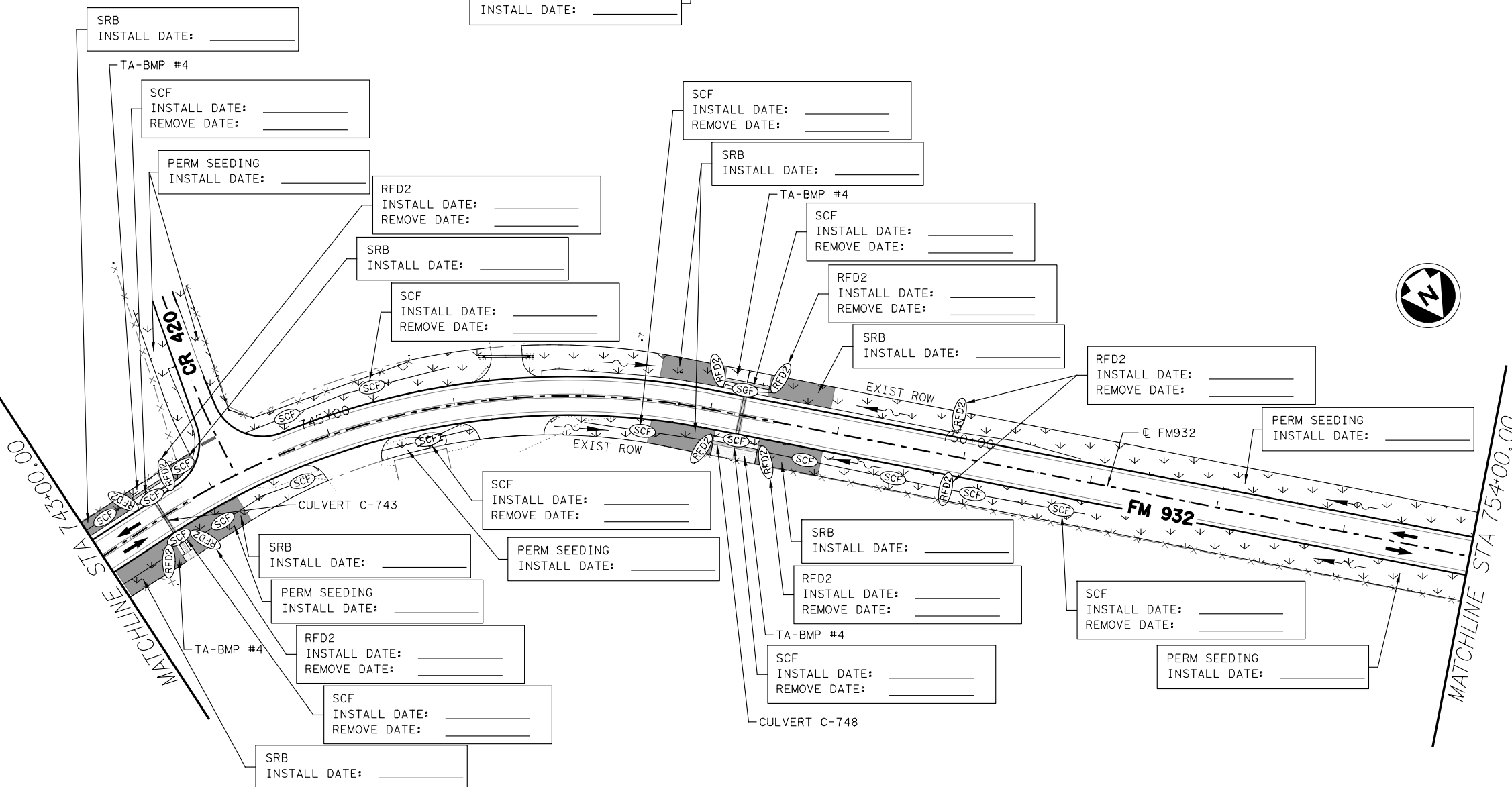
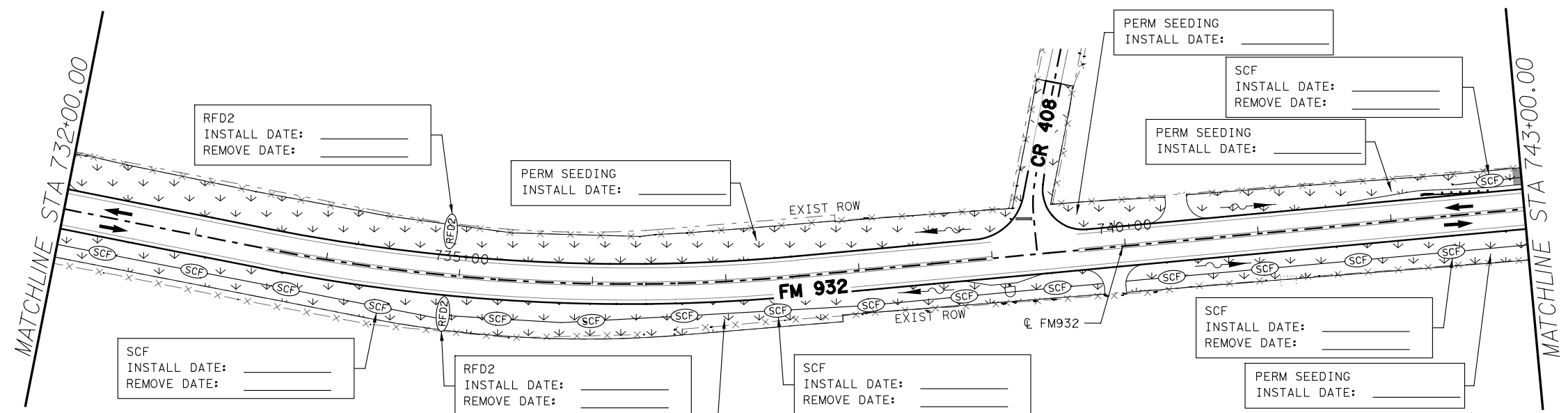
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| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 366 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*17.dgn
 DATE: 8/30/2021 3:36:10 PM



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ▨ | SOIL RETENTION BLANKET |

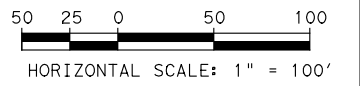


FM 932
STORM WATER POLLUTION
PREVENTION PLAN (SW3P)
STA 732+00.00 TO STA 754+00.00

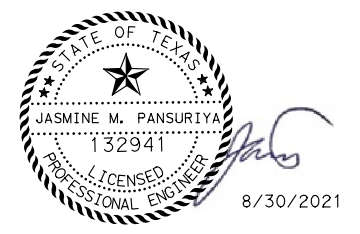
(SHEET 18 OF 37)

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|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 367 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*18.dgn
 DATE: 8/30/2021 3:36:11 PM



- LEGEND
- EXIST ROW
 - x-x- EXIST FENCE
 - DIRECTION OF TRAFFIC
 - ~ WATER FLOW
 - (RFD) ROCK FILTER DAM
 - (SCF) SEDIMENT CONTROL FENCE
 - ↓↓↓ PERMANENT SEEDING
 - ↓↓↓ SOIL RETENTION BLANKET

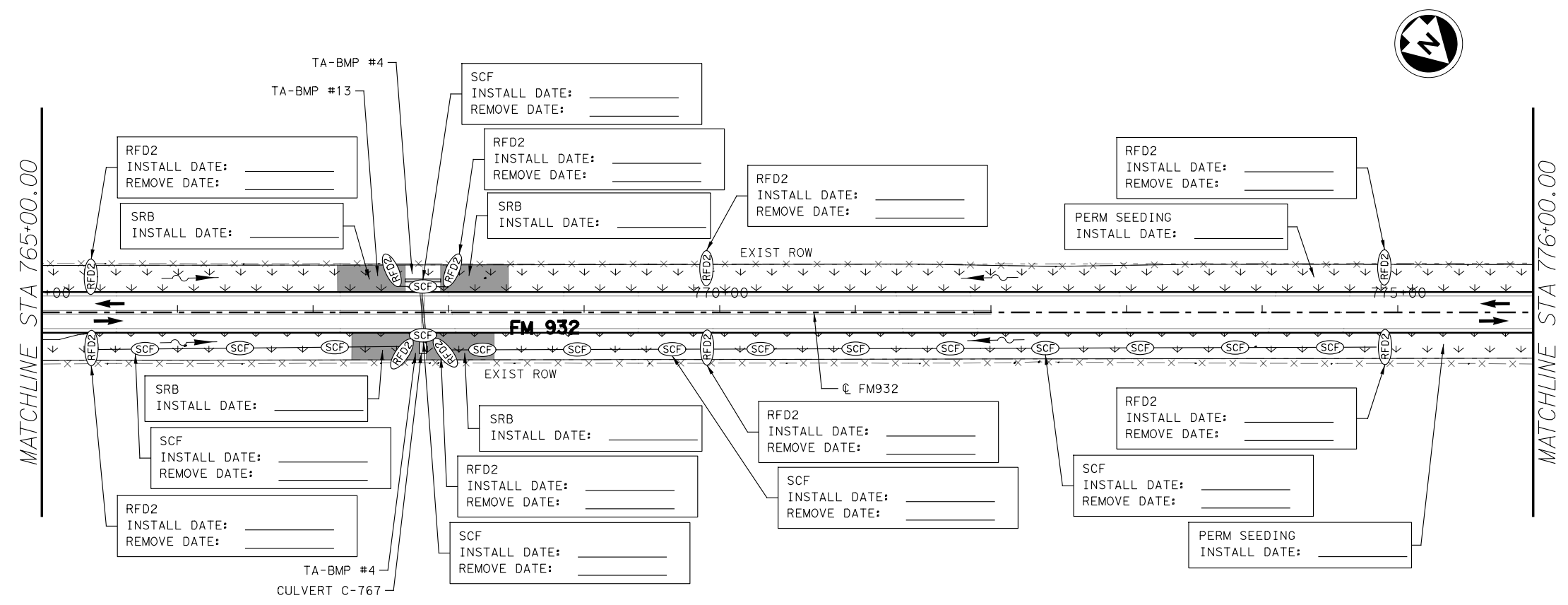
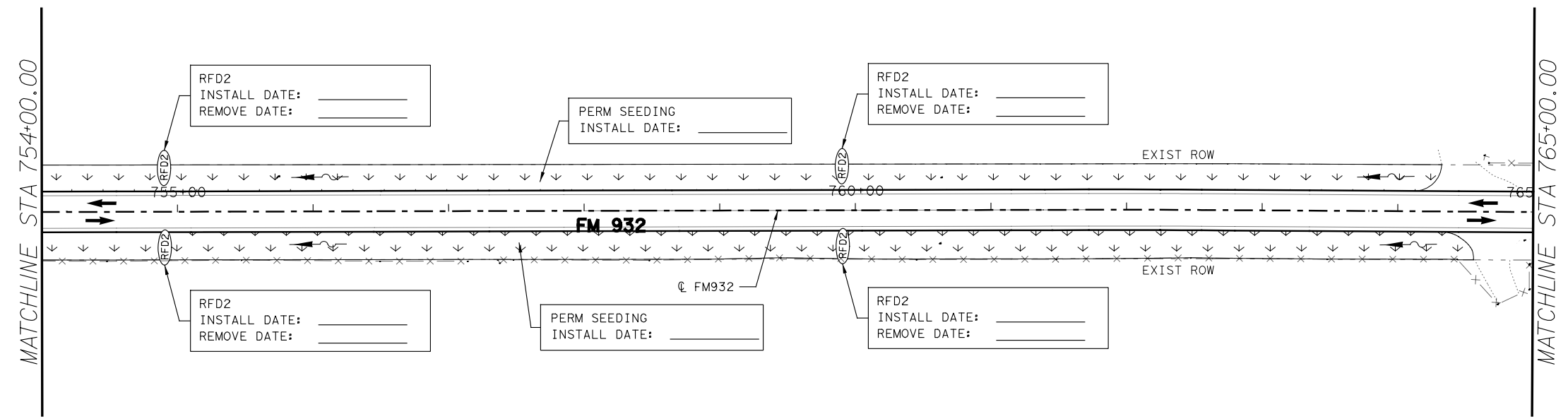


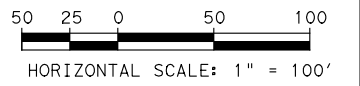
FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 754+00.00 TO STA 776+00.00

(SHEET 19 OF 37)

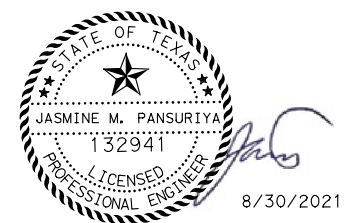
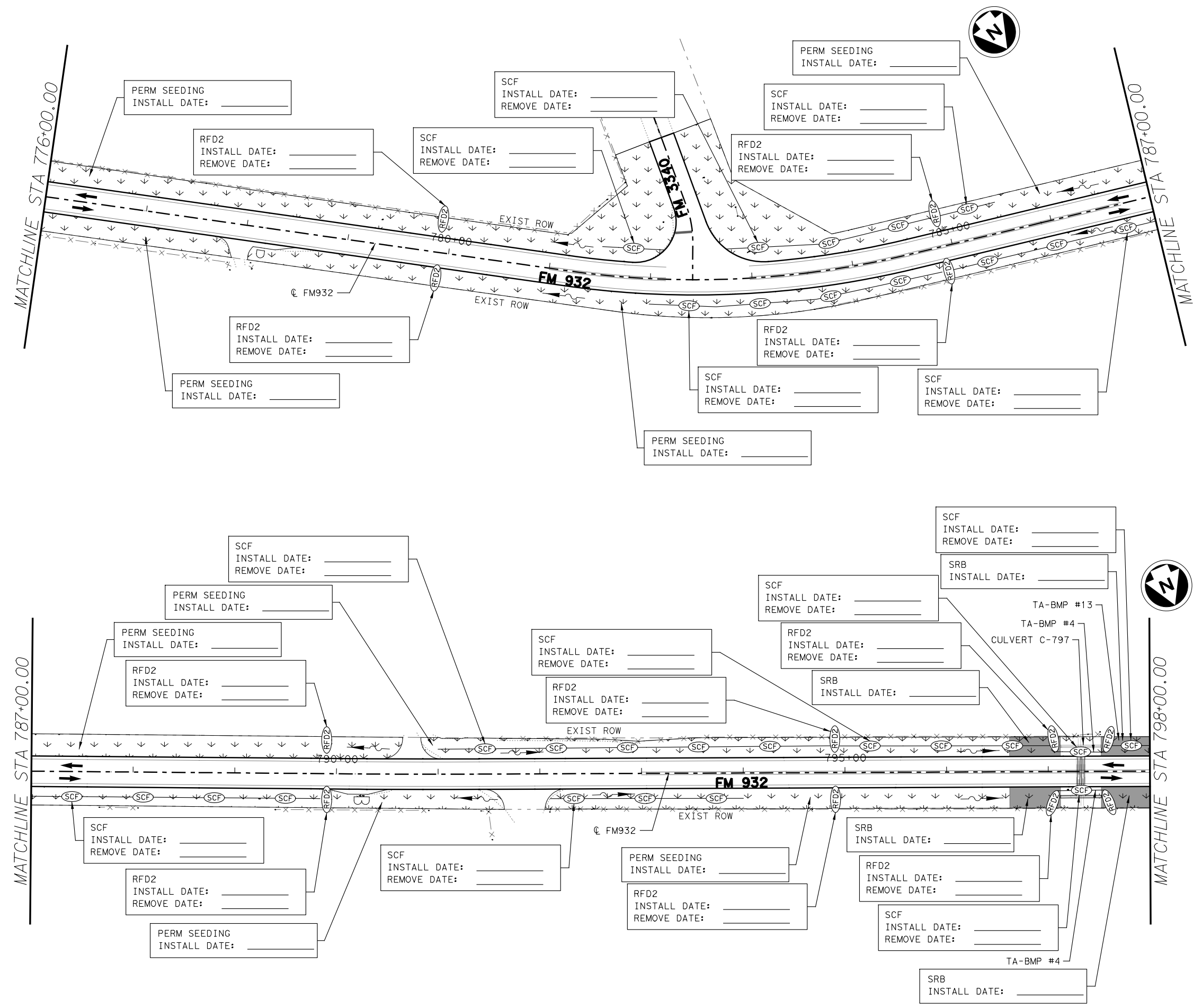
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|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 368 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*19.dgn
 DATE: 8/30/2021 3:36:13 PM





- LEGEND
- EXIST ROW
 - x-x- EXIST FENCE
 - DIRECTION OF TRAFFIC
 - ~ WATER FLOW
 - (RFD) ROCK FILTER DAM
 - (SCF) SEDIMENT CONTROL FENCE
 - ↓ ↓ ↓ PERMANENT SEEDING
 - ↓ ↓ ↓ SOIL RETENTION BLANKET

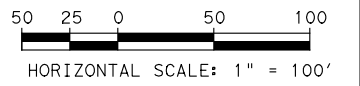


FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 776+00.00 TO STA 798+00.00

(SHEET 20 OF 37)

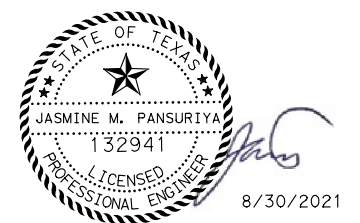
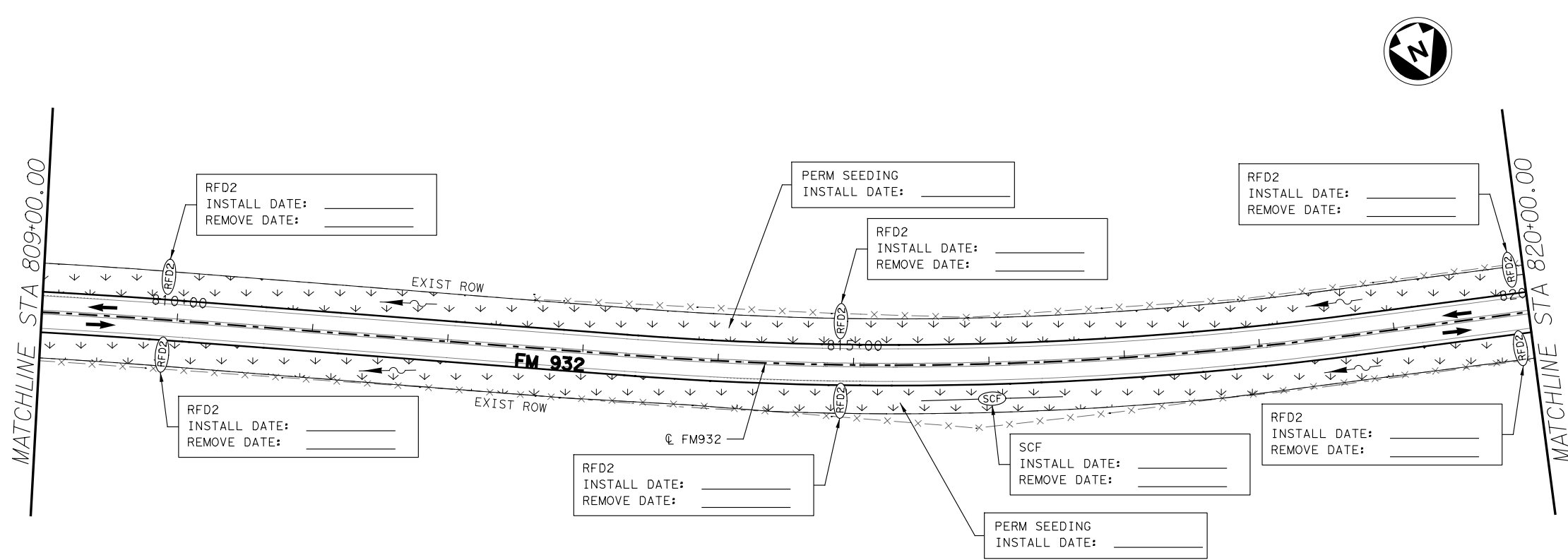
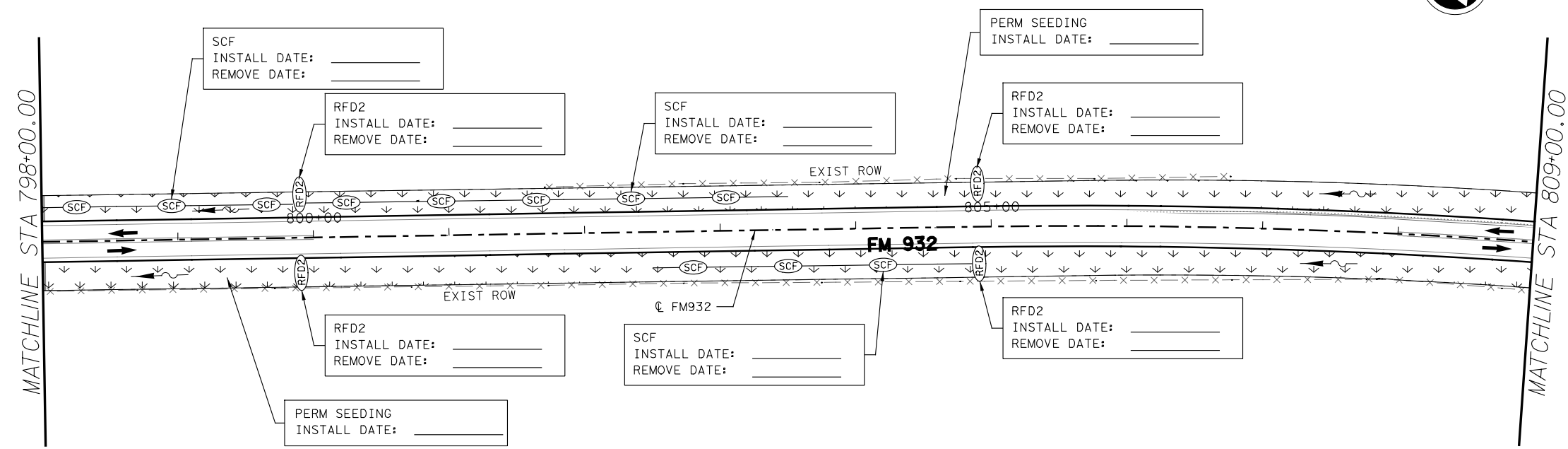
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|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 369 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*20.dgn
 DATE: 8/30/2021 3:36:14 PM



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ↓ ↓ ↓ | SOIL RETENTION BLANKET |



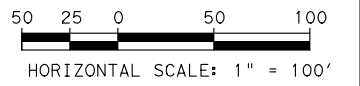
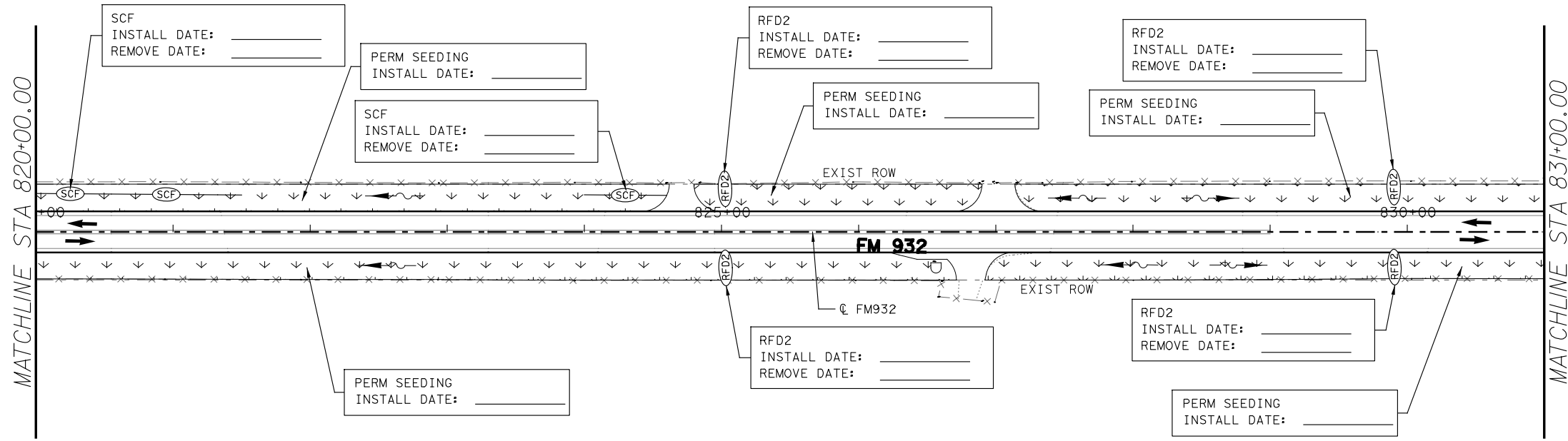
FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 798+00.00 TO STA 820+00.00

(SHEET 21 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 370 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

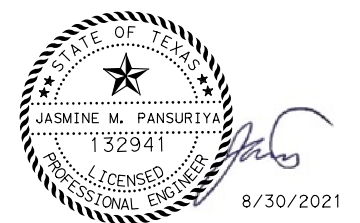
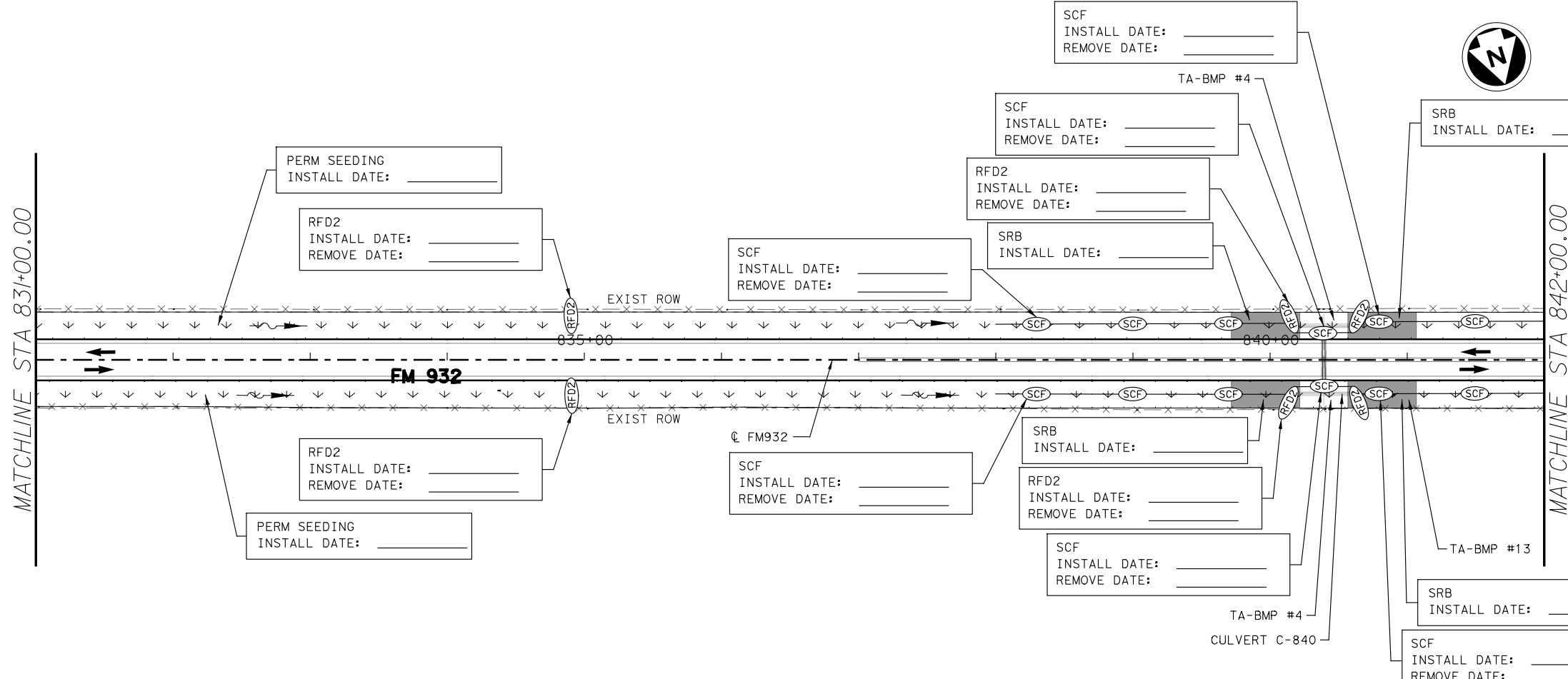
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 DATE: 8/30/2021 3:36:15 PM

FILE: FM932*OTHON*SW3P*22.dgn
 DATE: 8/30/2021 3:36:17 PM



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ▨ | SOIL RETENTION BLANKET |



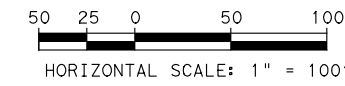
8/30/2021



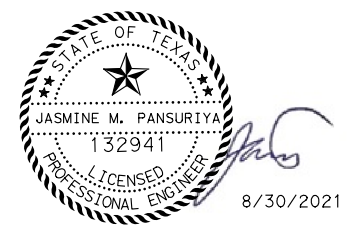
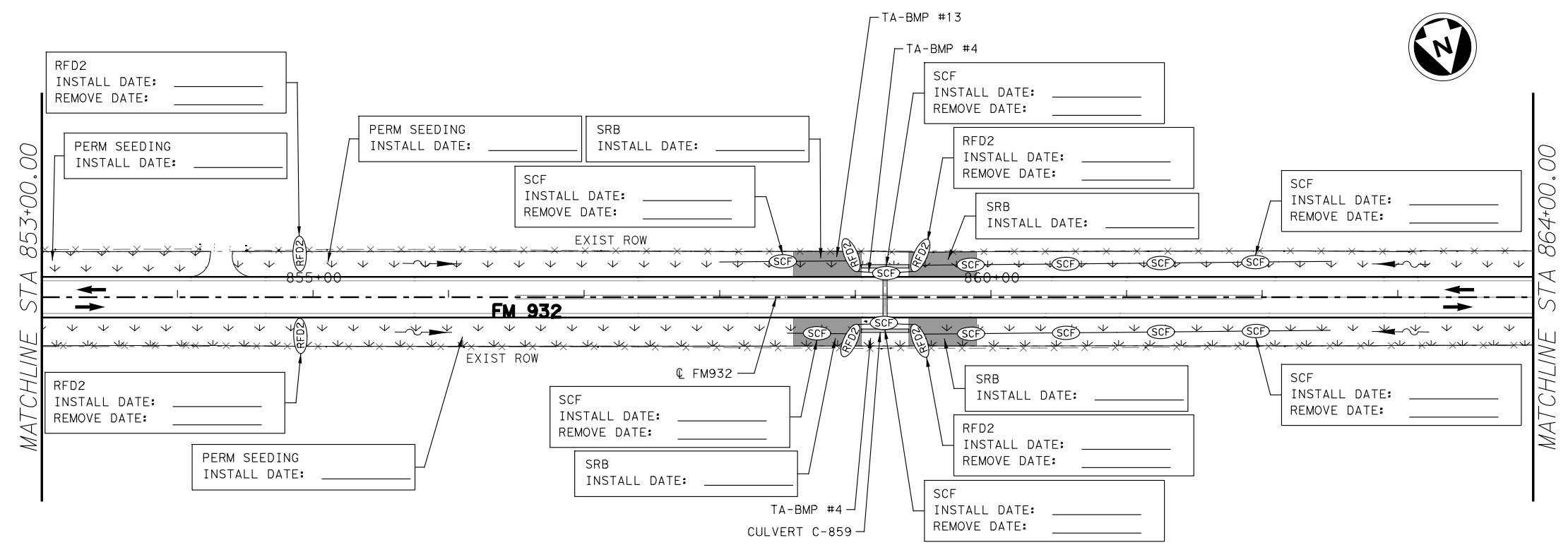
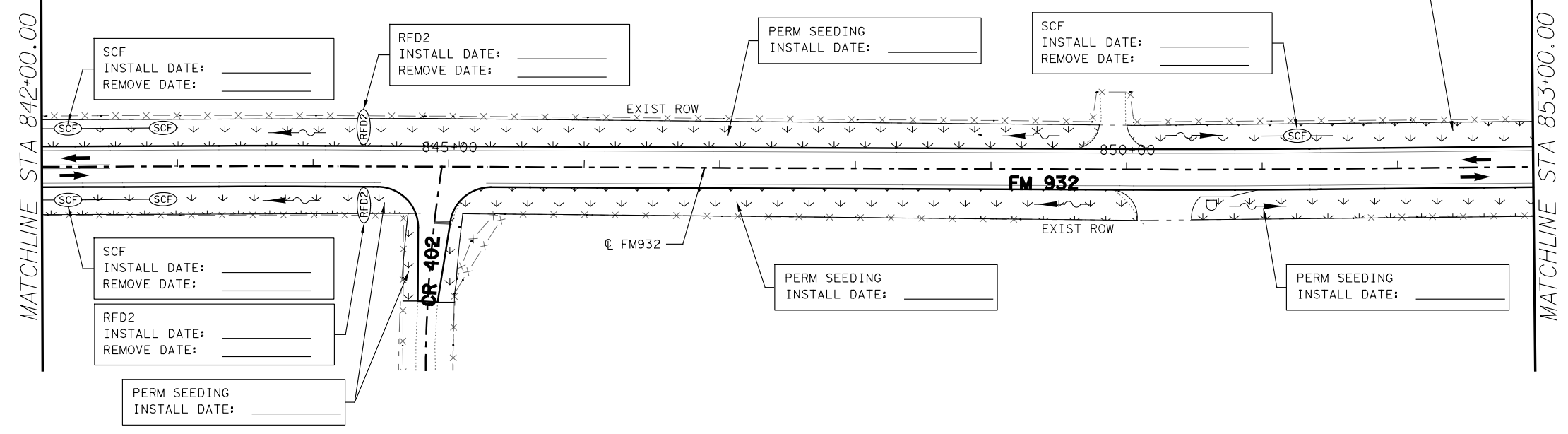
FM 932
STORM WATER POLLUTION
PREVENTION PLAN (SW3P)
STA 820+00.00 TO STA 842+00.00

(SHEET 22 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRPH CHECK | TX | WACO | HAMILTON | 371 |
| JMP | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



- LEGEND
- EXIST ROW
 - x-x- EXIST FENCE
 - DIRECTION OF TRAFFIC
 - ~ WATER FLOW
 - (RFD) ROCK FILTER DAM
 - (SCF) SEDIMENT CONTROL FENCE
 - ↓ ↓ ↓ PERMANENT SEEDING
 - ↓ ↓ ↓ SOIL RETENTION BLANKET

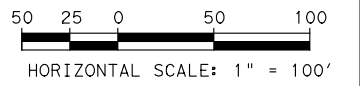


FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 842+00.00 TO STA 864+00.00

(SHEET 23 OF 37)

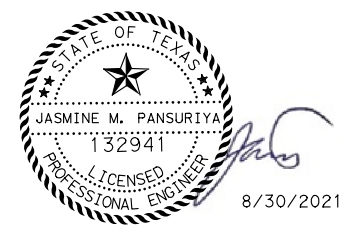
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|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 372 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*23.dgn
 DATE: 8/30/2021 3:36:18 PM



LEGEND

- EXIST ROW
- x-x- EXIST FENCE
- DIRECTION OF TRAFFIC
- ~ WATER FLOW
- (RFD) ROCK FILTER DAM
- (SCF) SEDIMENT CONTROL FENCE
- ↓↓↓ PERMANENT SEEDING
- ↓↓↓ SOIL RETENTION BLANKET

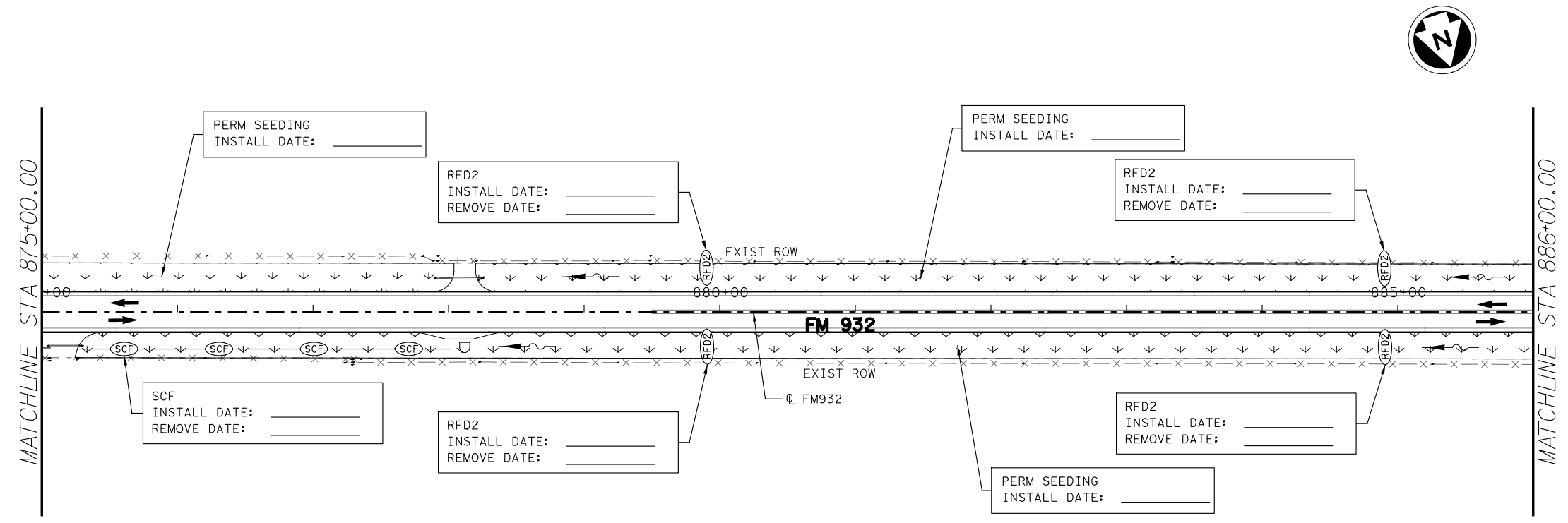
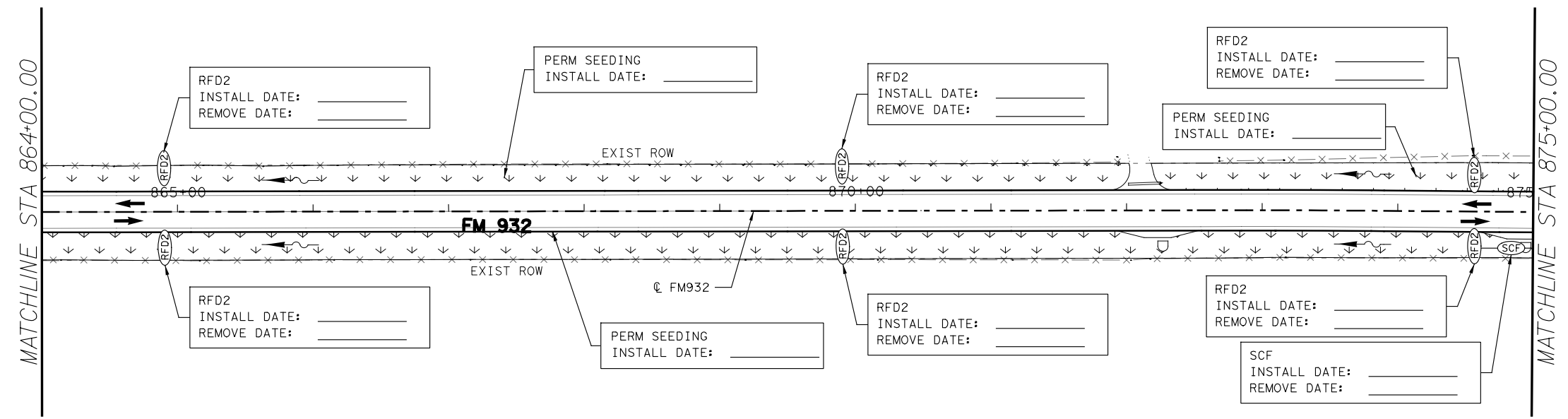


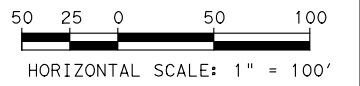
FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 864+00.00 TO STA 886+00.00

(SHEET 24 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 373 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

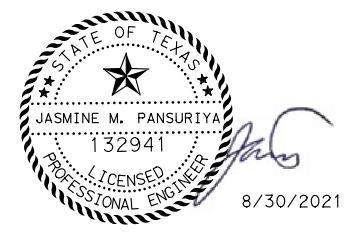
FILE: FM932*OTHON*SW3P*24.dgn
 DATE: 8/30/2021 3:36:19 PM





LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ↓ ↓ ↓ | SOIL RETENTION BLANKET |



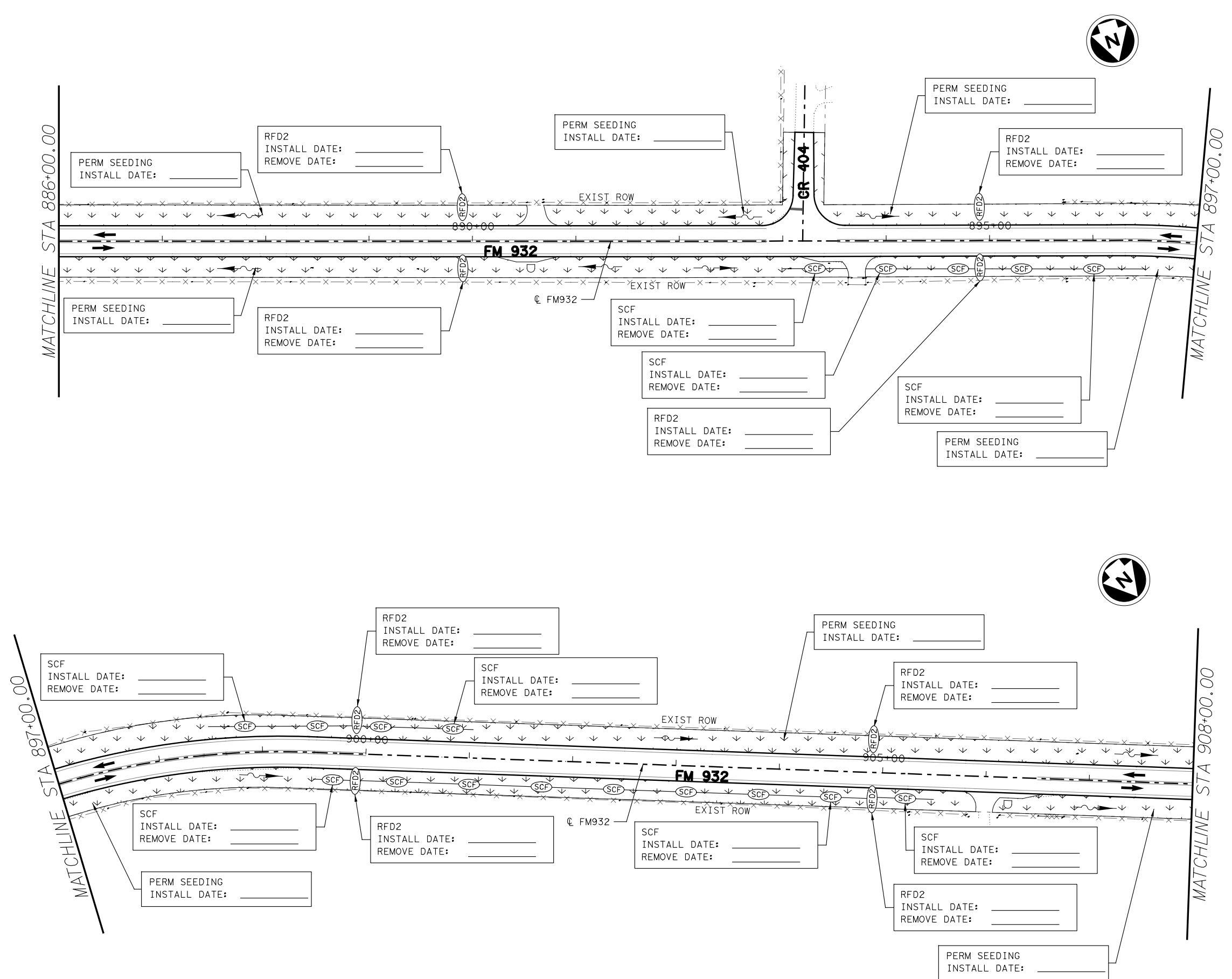
FM 932

STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 886+00.00 TO STA 908+00.00

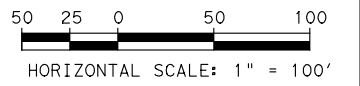
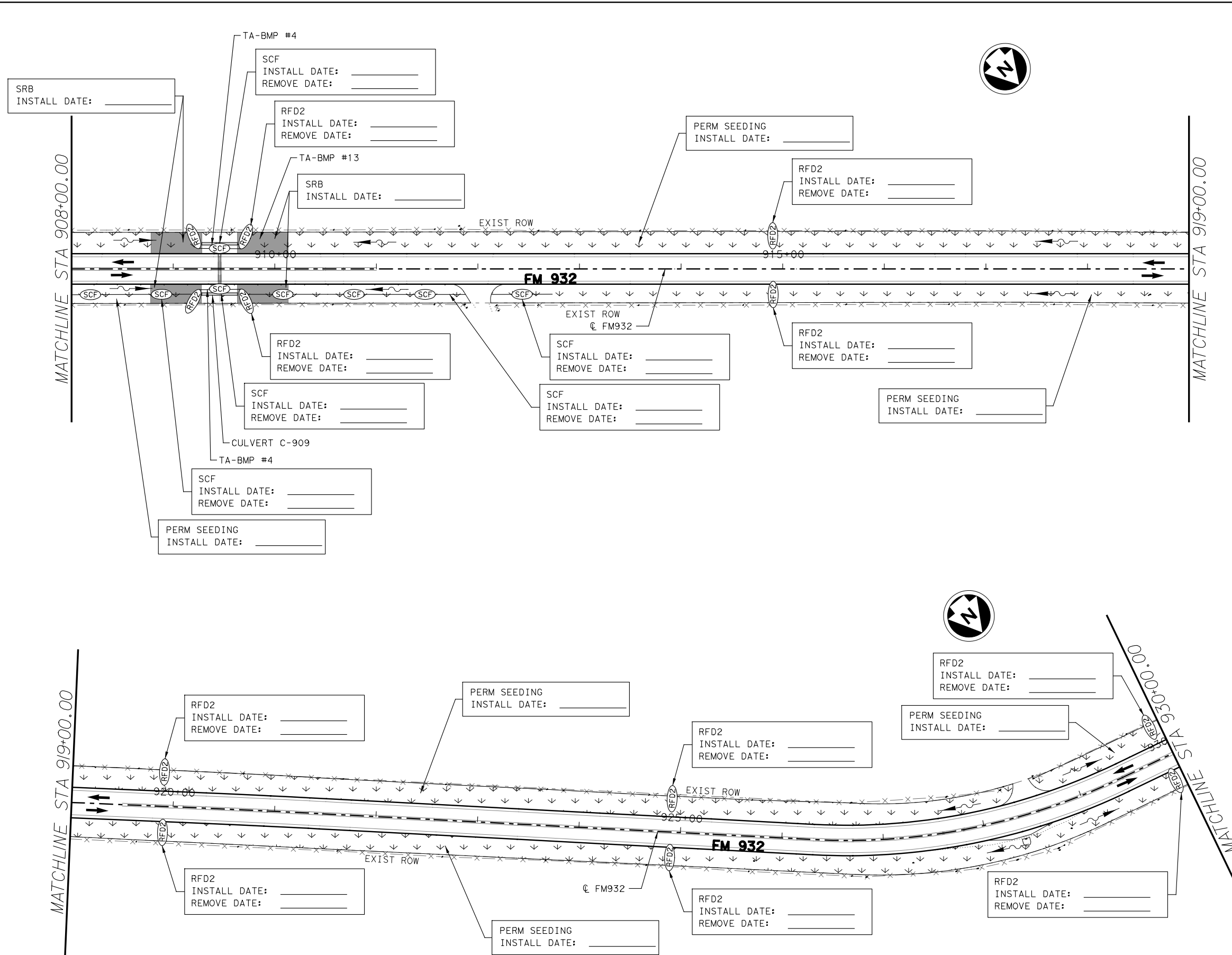
(SHEET 25 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 374 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*25.dgn
 DATE: 8/30/2021 3:36:25 PM

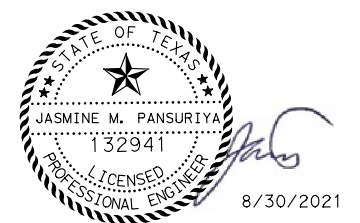


FILE: FM932*OTHON*SW3P*26.dgn
 DATE: 8/30/2021 3:36:26 PM



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ▨ | SOIL RETENTION BLANKET |

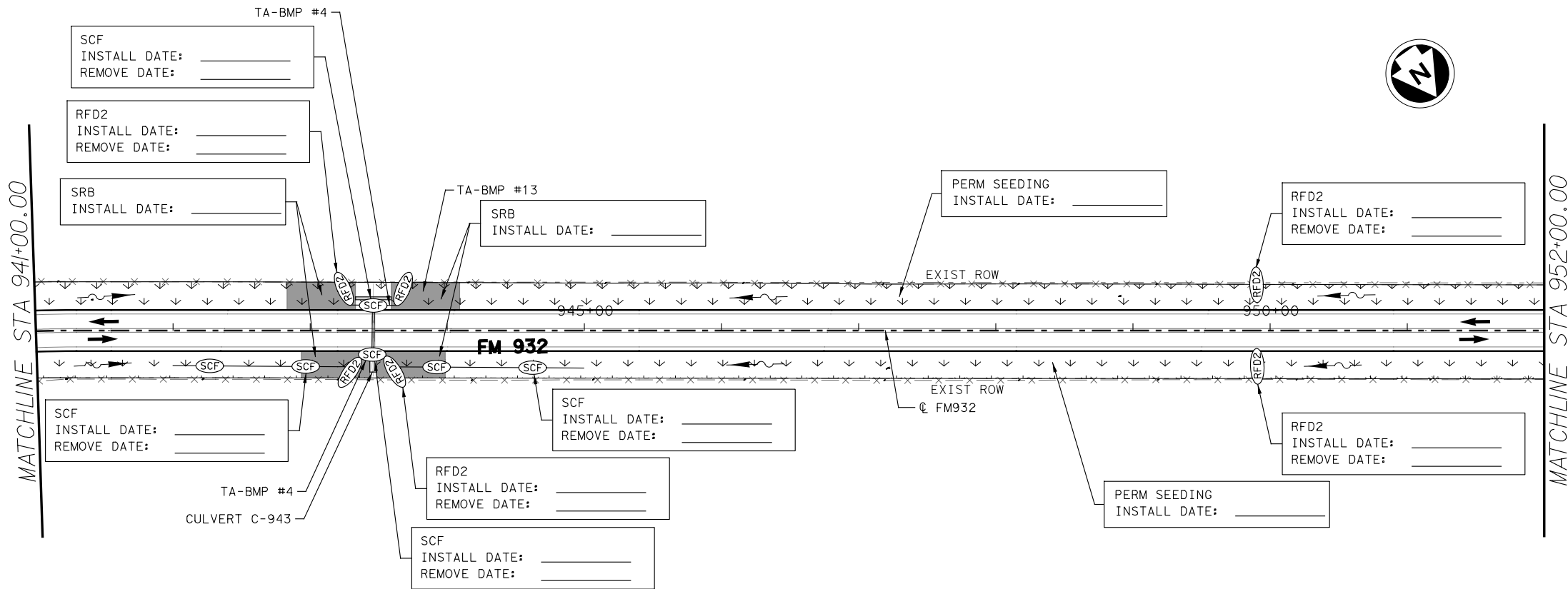
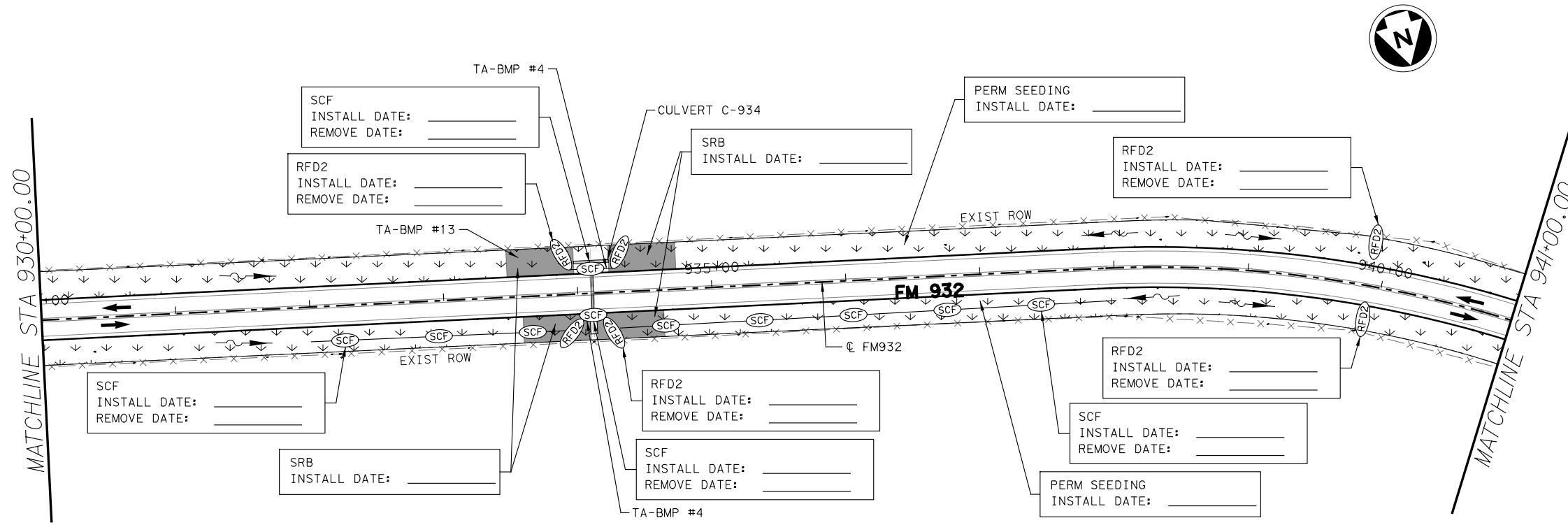


FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 908+00.00 TO STA 930+00.00

(SHEET 26 OF 37)

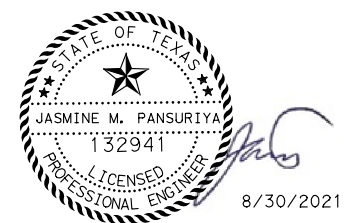
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|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 375 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*27.dgn
 DATE: 8/30/2021 3:36:27 PM



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| █ | SOIL RETENTION BLANKET |

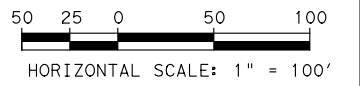
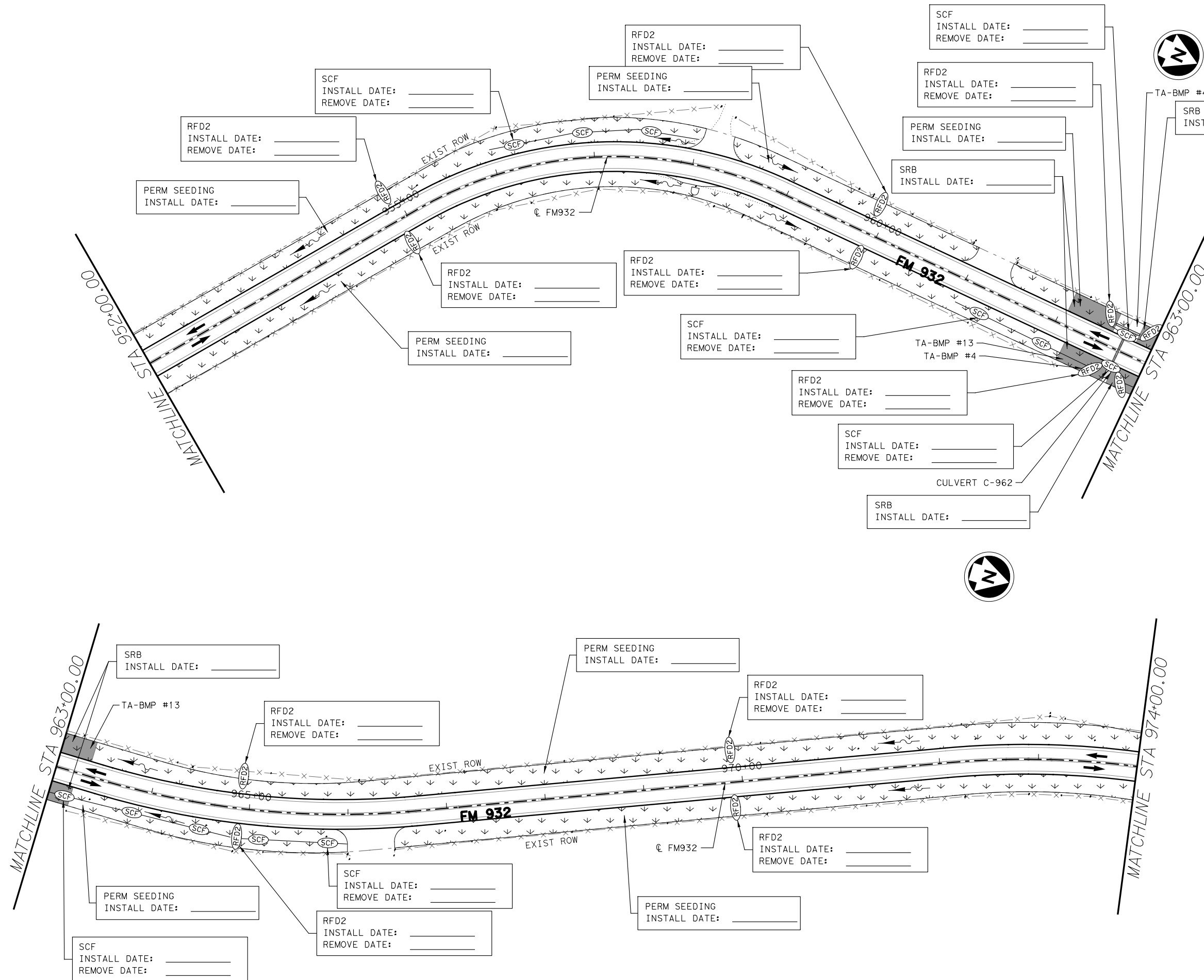


FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 930+00.00 TO STA 952+00.00

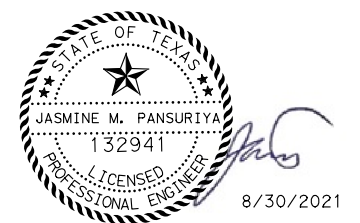
(SHEET 27 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|--------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO.: |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 376 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*28.dgn
 DATE: 8/30/2021 3:36:29 PM



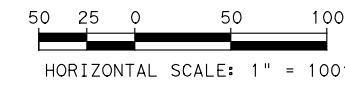
- LEGEND
- EXIST ROW
 - x-x- EXIST FENCE
 - DIRECTION OF TRAFFIC
 - ~ WATER FLOW
 - (RFD) ROCK FILTER DAM
 - (SCF) SEDIMENT CONTROL FENCE
 - ↓↓↓ PERMANENT SEEDING
 - ▨ SOIL RETENTION BLANKET



FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 952+00.00 TO STA 974+00.00

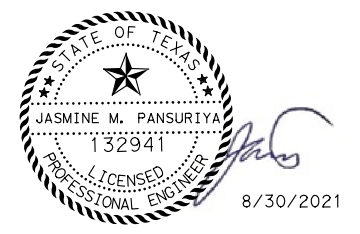
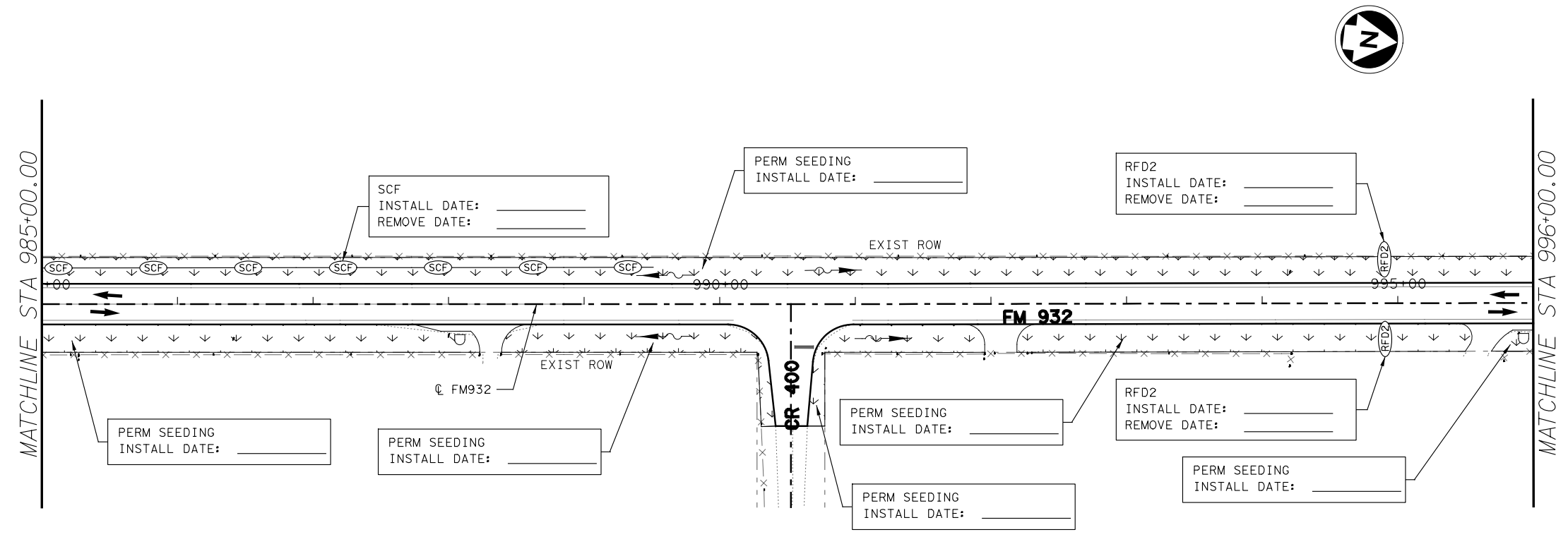
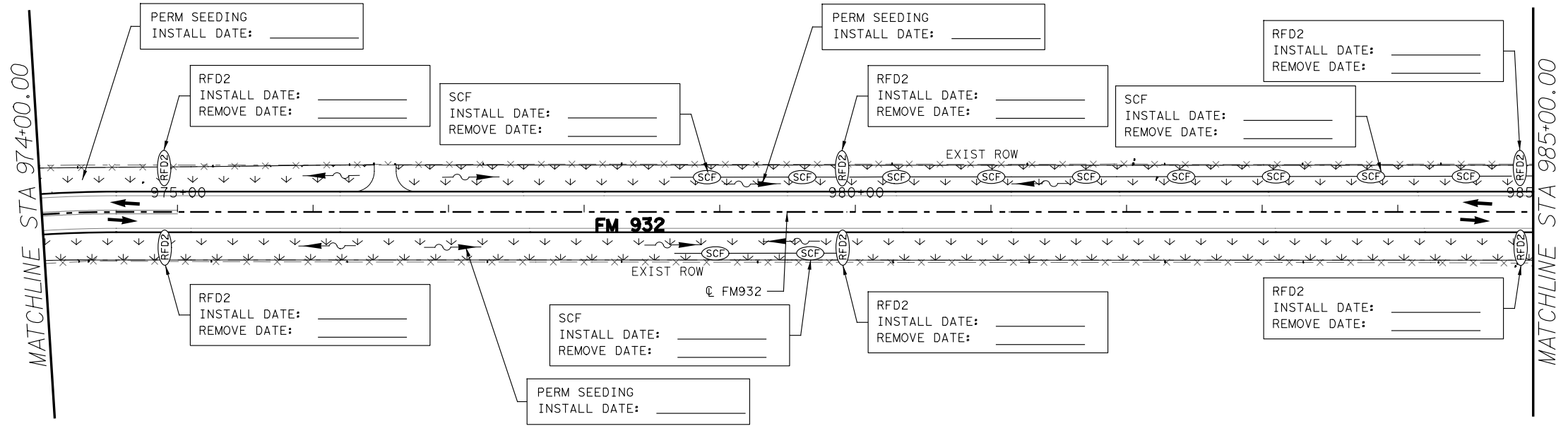
(SHEET 28 OF 37)

| | | | | |
|----------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK JMP | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRPH CHECK JMP | TX | WACO | HAMILTON | 377 |
| | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ↓ ↓ ↓ | SOIL RETENTION BLANKET |



FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 974+00.00 TO STA 996+00.00

(SHEET 29 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 378 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*29.dgn
 DATE: 8/30/2021 3:36:30 PM

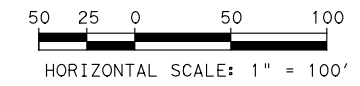
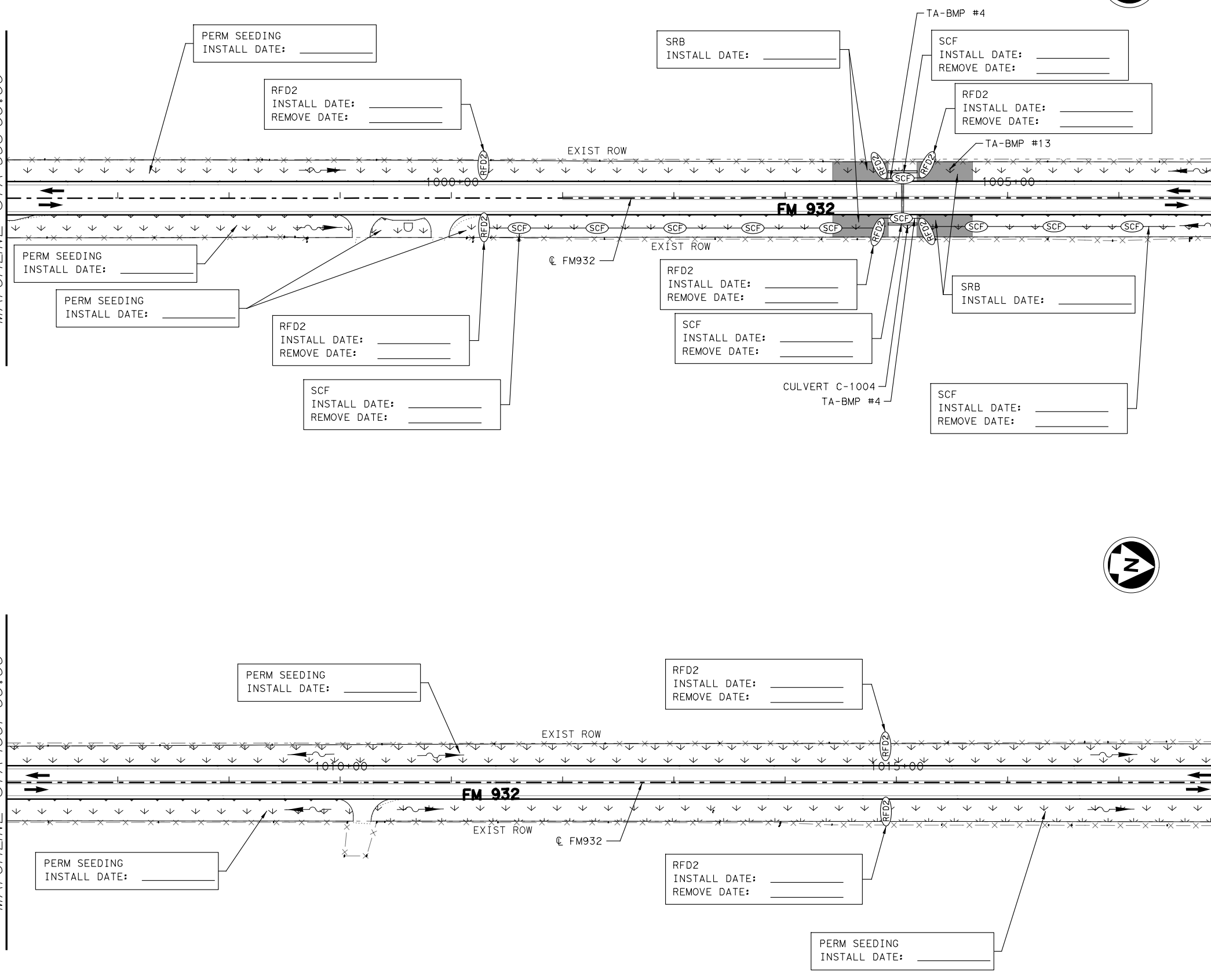
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 DATE: 8/30/2021 3:36:32 PM

MATCHLINE STA 996+00.00

MATCHLINE STA 1007+00.00

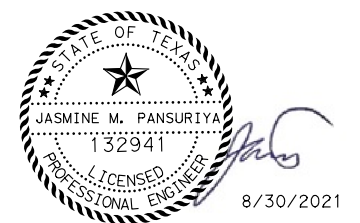
MATCHLINE STA 1007+00.00

MATCHLINE STA 1018+00.00



LEGEND

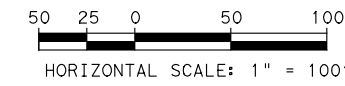
| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| █ | SOIL RETENTION BLANKET |



FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 996+00.00 TO STA 1018+00.00

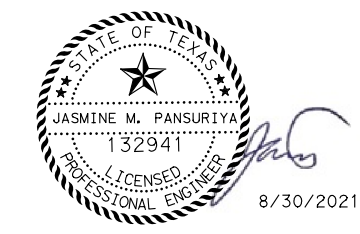
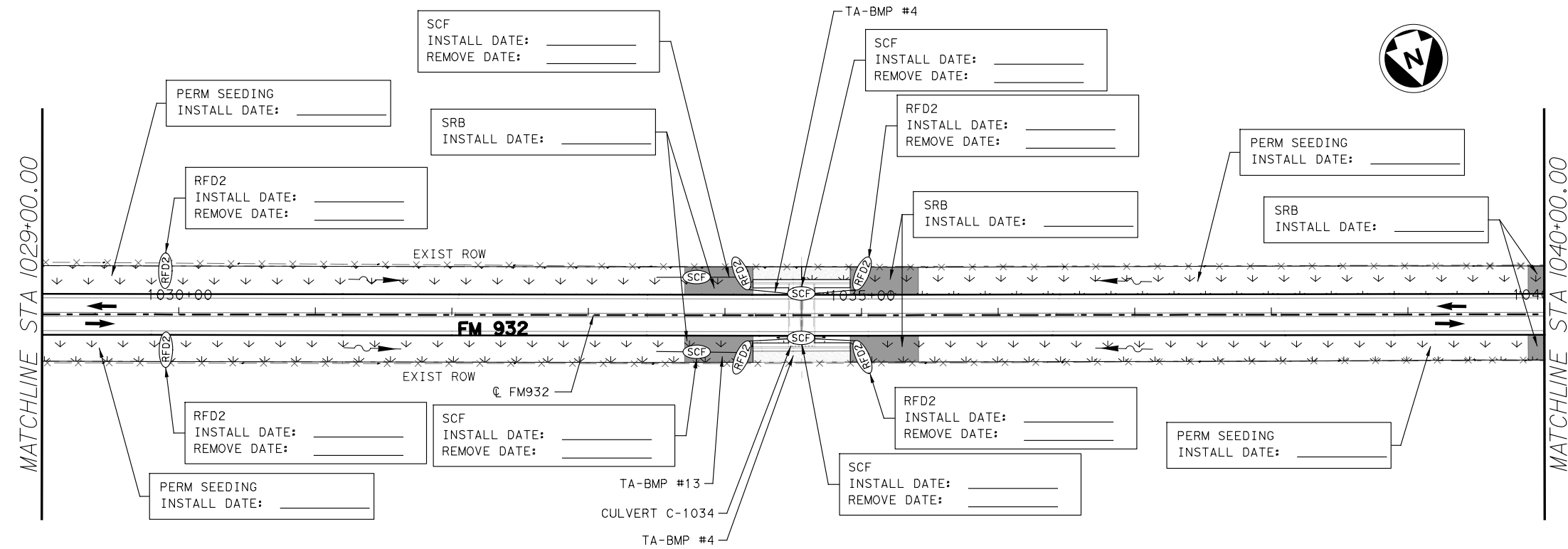
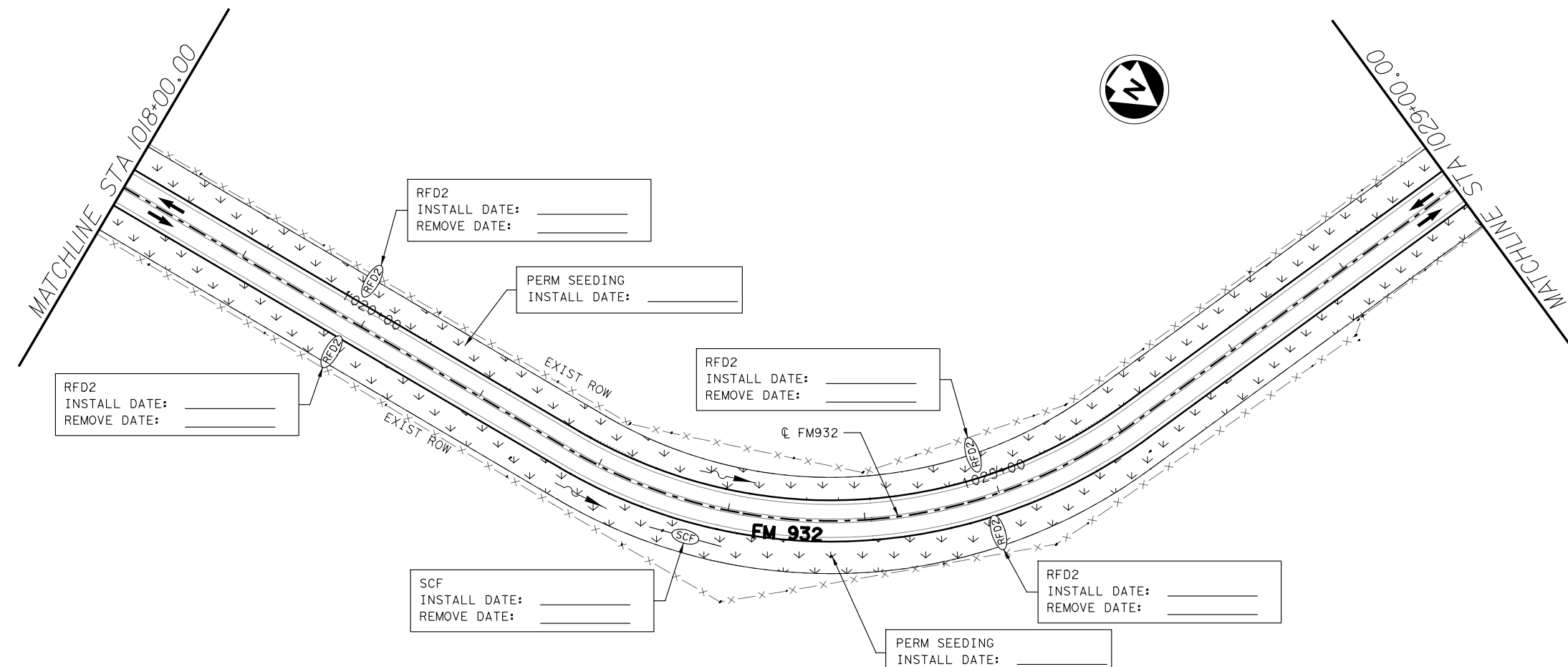
(SHEET 30 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 379 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ▨ | SOIL RETENTION BLANKET |



FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 1018+00.00 TO STA 1040+00.00

(SHEET 31 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 380 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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 DATE: 8/30/2021 3:36:33 PM

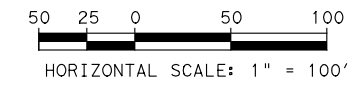
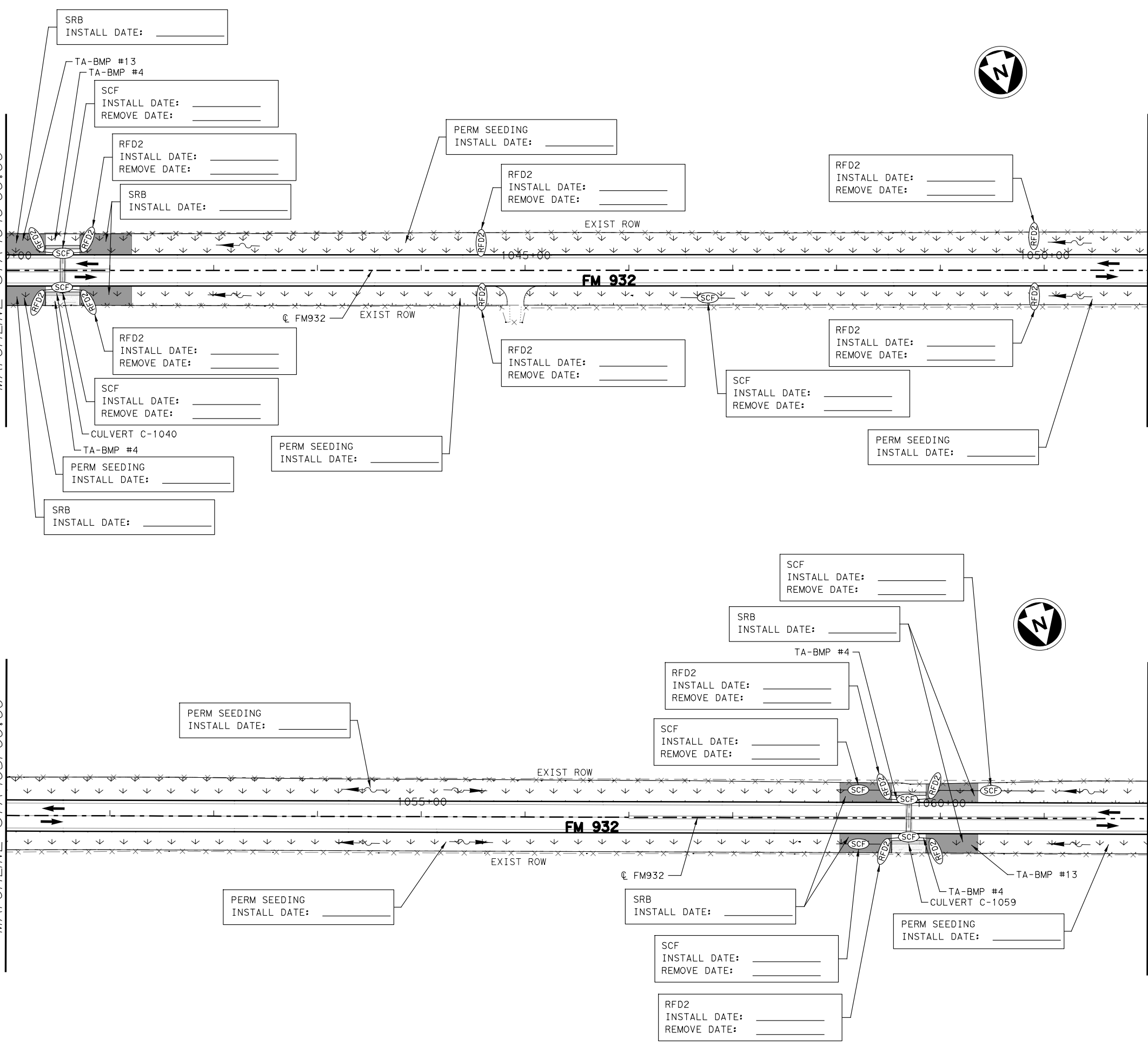
FILE: FM932*OTHON*SW3P*32.dgn
 DATE: 8/30/2021 3:36:34 PM

MATCHLINE STA 1040+00.00

MATCHLINE STA 1051+00.00

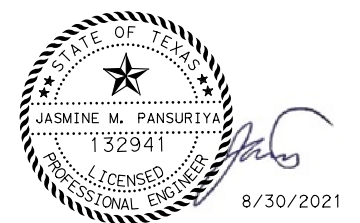
MATCHLINE STA 1051+00.00

MATCHLINE STA 1062+00.00



LEGEND

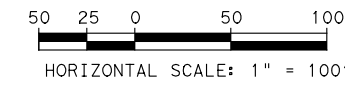
| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~→ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ▨ | SOIL RETENTION BLANKET |



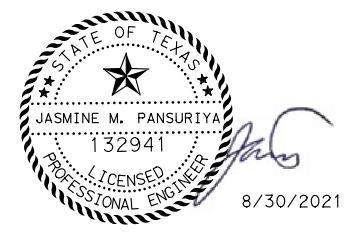
FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 1040+00.00 TO STA 1062+00.00

(SHEET 32 OF 37)

| | | | | |
|----------------|--------------------|-------------------------|----------|--------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO.: |
| DESIGN CK JMP | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRPH CHECK JMP | TX | WACO | HAMILTON | 381 |
| | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |



- LEGEND
- EXIST ROW
 - x-x- EXIST FENCE
 - DIRECTION OF TRAFFIC
 - ↪ WATER FLOW
 - (RFD) ROCK FILTER DAM
 - (SCF) SEDIMENT CONTROL FENCE
 - ↓↓↓ PERMANENT SEEDING
 - ↓↓↓ SOIL RETENTION BLANKET

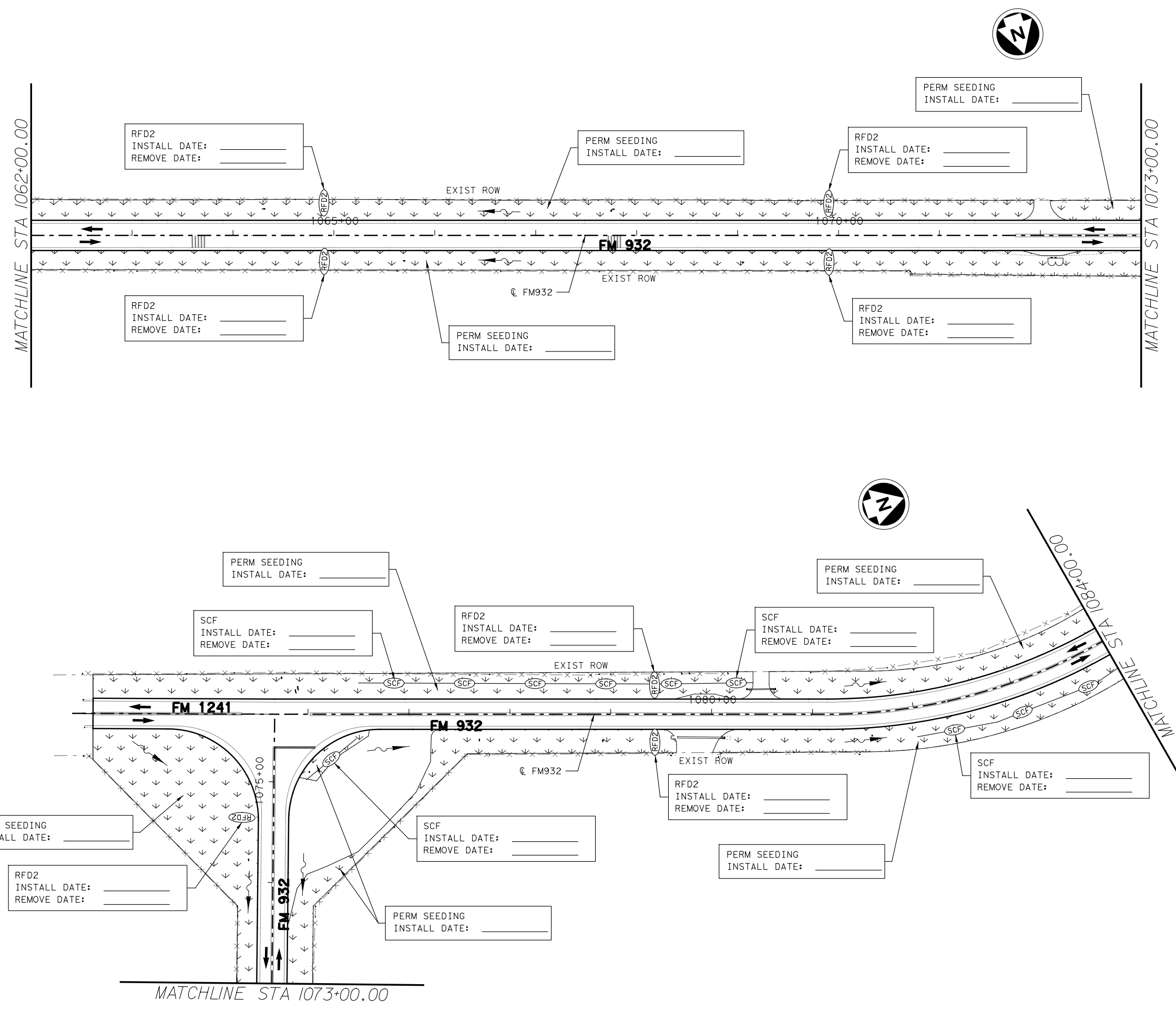


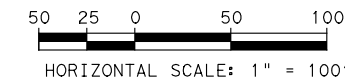
FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 1062+00.00 TO STA 1084+00.00

(SHEET 33 OF 37)

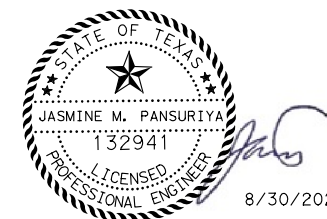
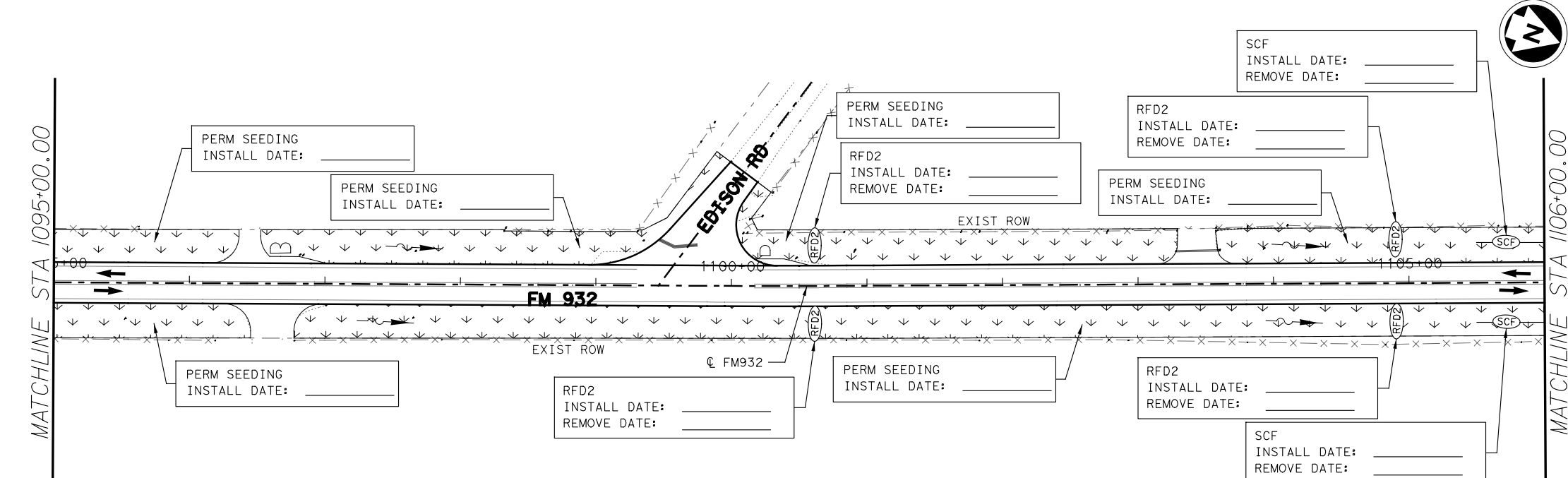
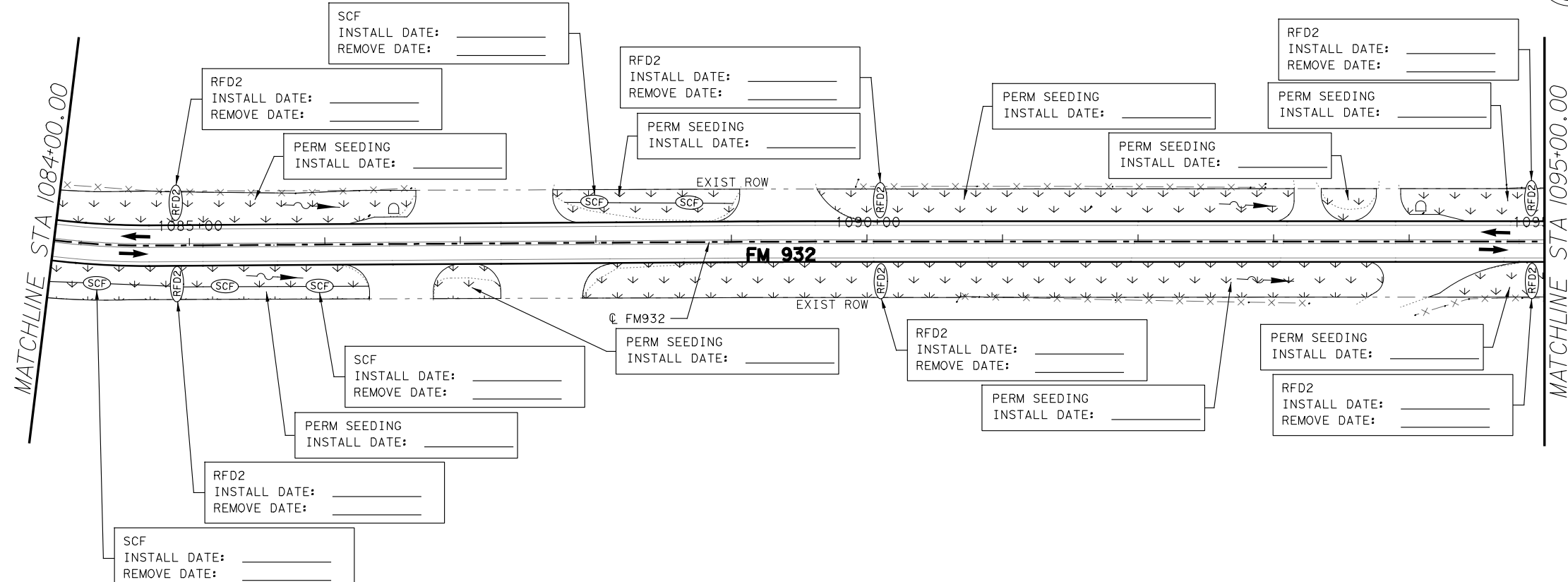
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|----------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK JMP | 6 | (SEE TITLE SHEET) | | FM 932 |
| GRAPHICS RP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRPH CHECK JMP | TX | WACO | HAMILTON | 382 |
| | CONTROL | SECTION | JOB | |
| | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*33.dgn
 DATE: 8/30/2021 3:36:35 PM





- LEGEND
- EXIST ROW
 - x-x- EXIST FENCE
 - DIRECTION OF TRAFFIC
 - ~ WATER FLOW
 - (RFD) ROCK FILTER DAM
 - (SCF) SEDIMENT CONTROL FENCE
 - ↓ PERMANENT SEEDING
 - █ SOIL RETENTION BLANKET



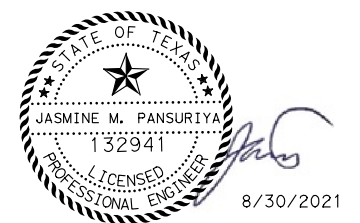
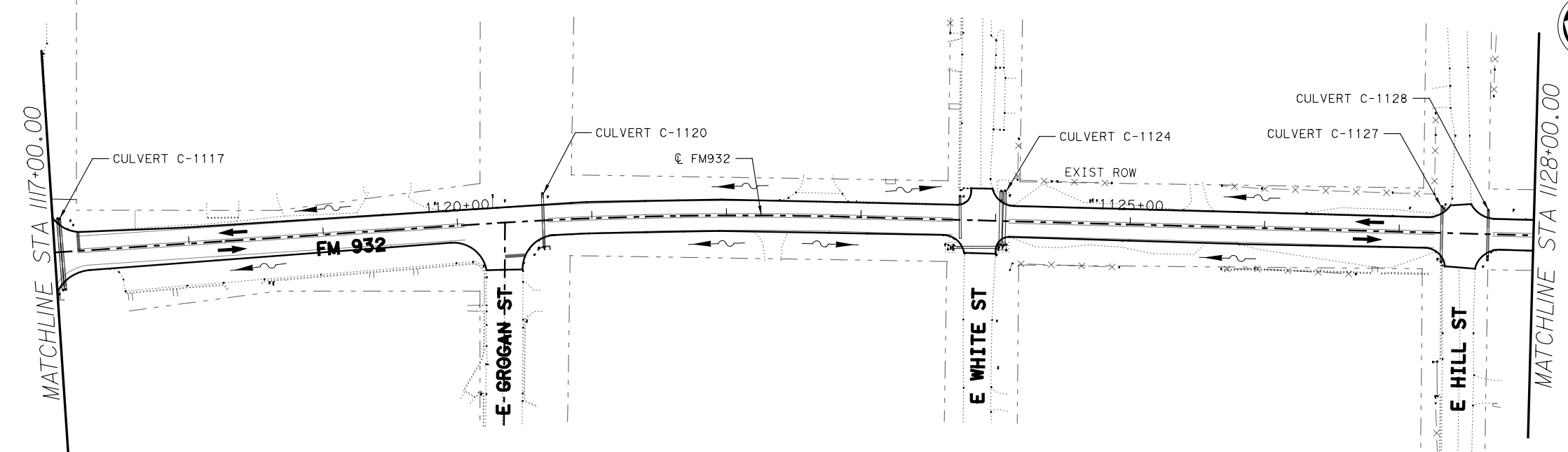
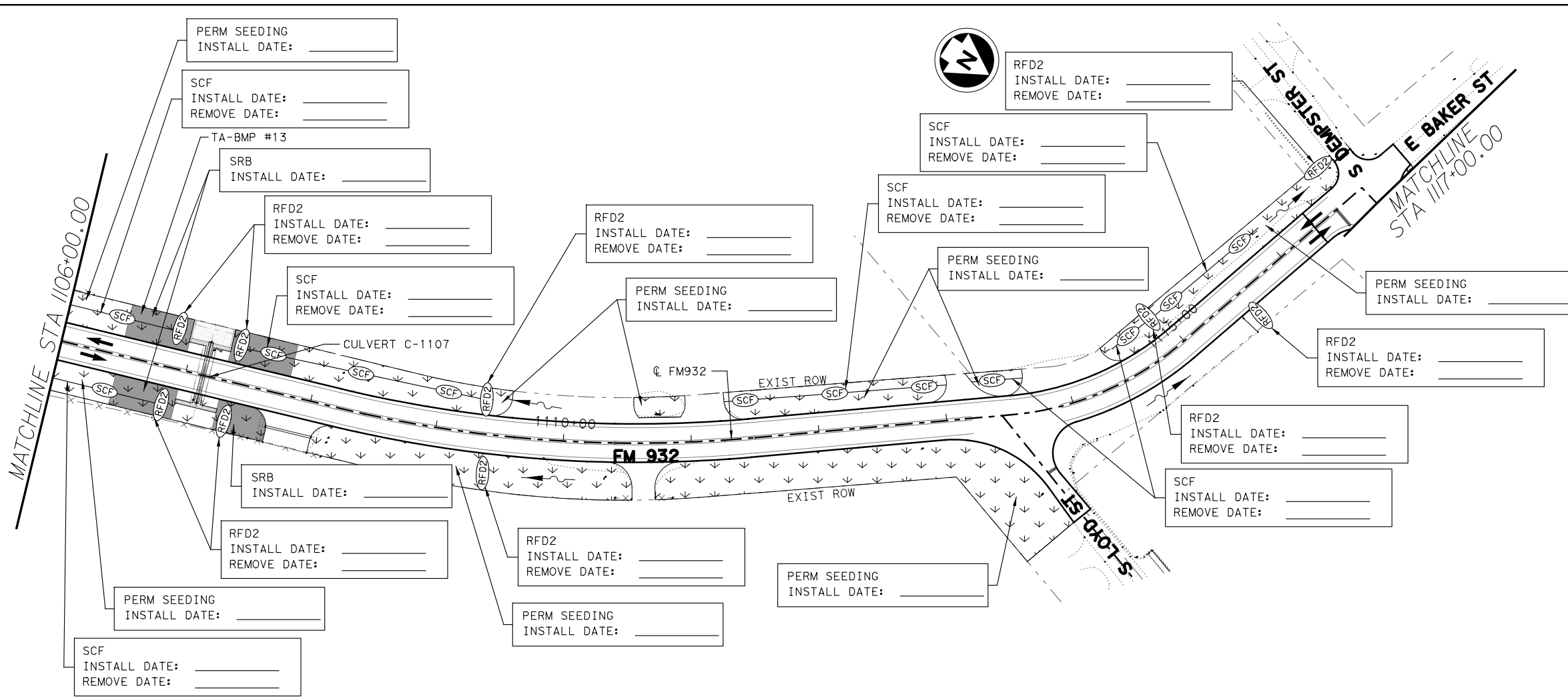
FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 1084+00.00 TO STA 1106+00.00

(SHEET 34 OF 37)

| | | | | |
|-------------|--------------------|-------------------------|----------|-------------|
| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 383 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*34.dgn
 DATE: 8/30/2021 3:36:37 PM

FILE: FM932*OTHON*SW3P*35.dgn
 DATE: 8/30/2021 3:36:38 PM

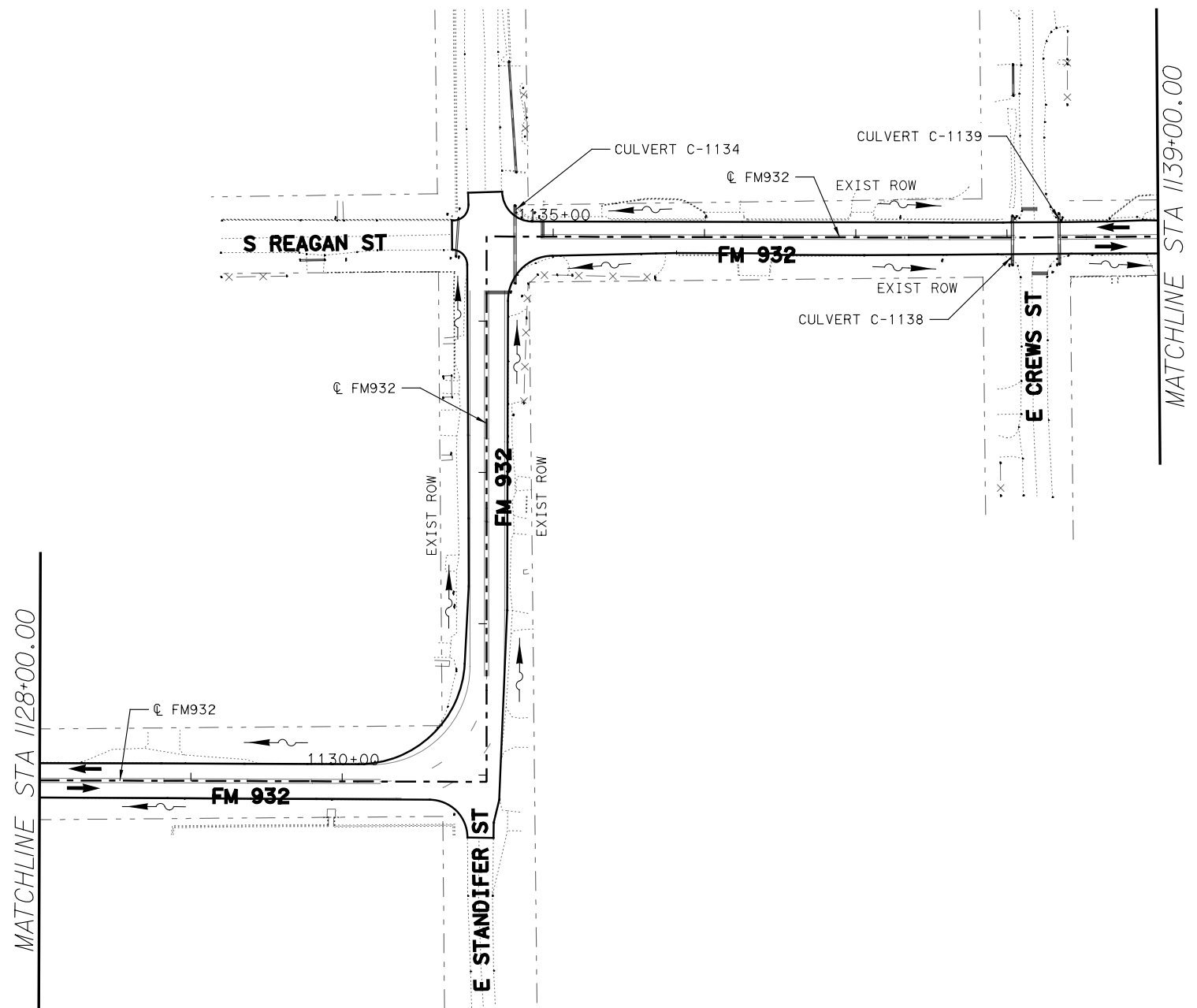
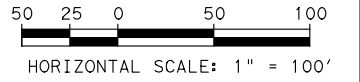


FM 932
STORM WATER POLLUTION PREVENTION PLAN (SW3P)
STA 1106+00.00 TO STA 1128+00.00

(SHEET 35 OF 37)

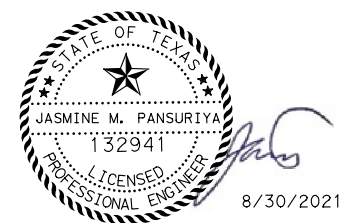
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|----------------|---------------------|---|-----------------|--------------------|
| DESIGN RP | FED. RD. DIV. NO. 6 | FEDERAL AID PROJECT NO. (SEE TITLE SHEET) | | HIGHWAY NO. FM 932 |
| DESIGN CK JMP | STATE TX | DISTRICT WACO | COUNTY HAMILTON | SHEET NO. 384 |
| GRAPHICS RP | CONTROL | SECTION | JOB | 384 |
| GRPH CHECK JMP | 0867 | 01 | 017 | |

FILE: FM932*OTHON*SW3P*36.dgn
 DATE: 8/30/2021 3:36:40 PM



LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ↓ ↓ ↓ | SOIL RETENTION BLANKET |



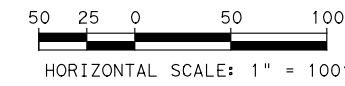
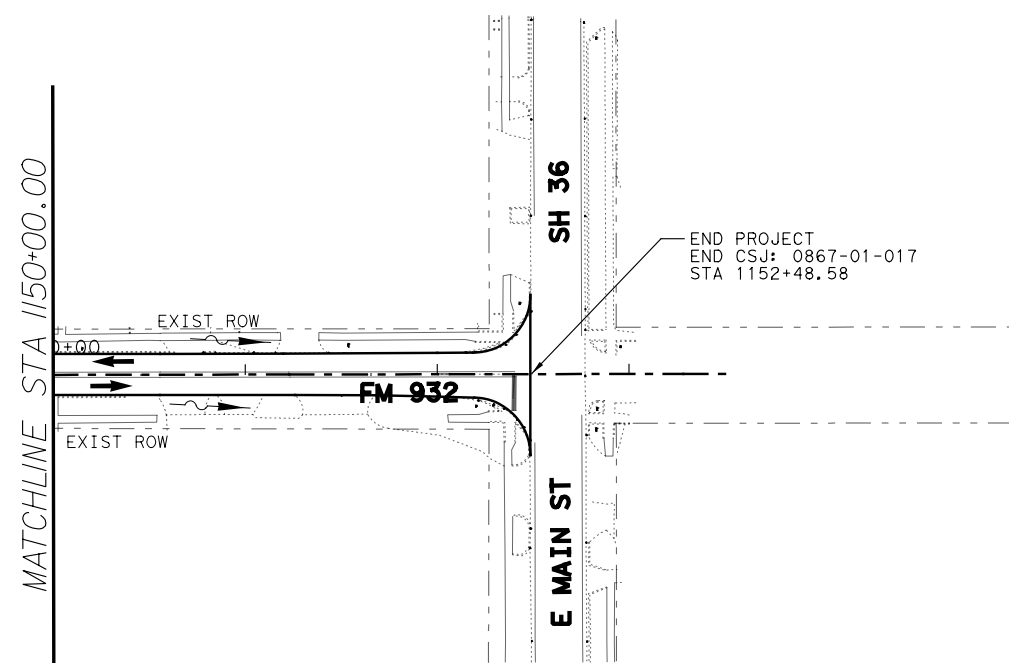
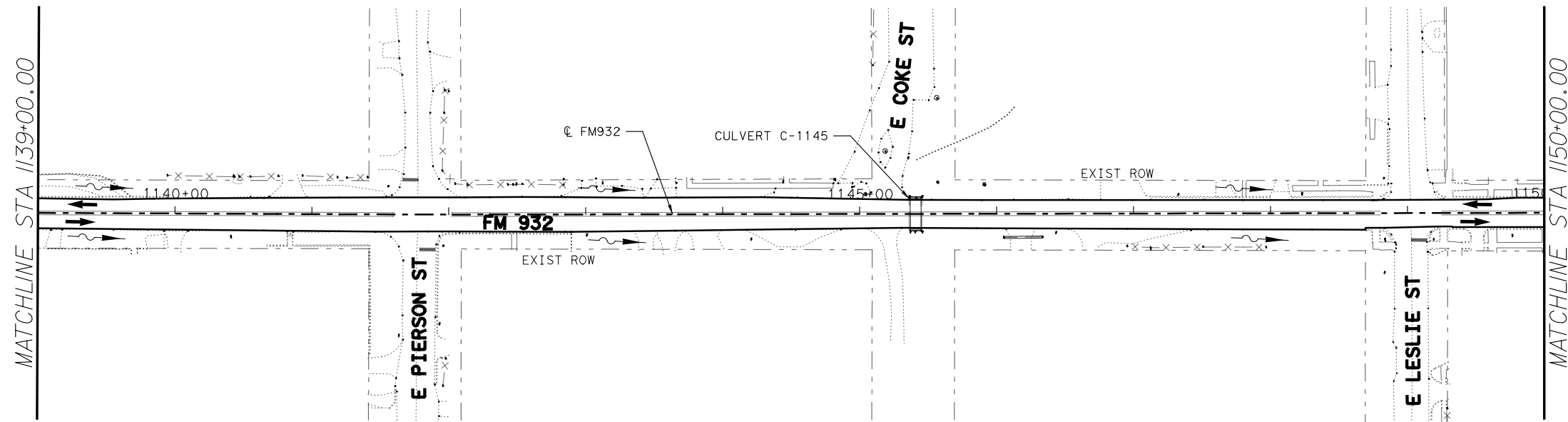
FM 932

**STORM WATER POLLUTION
 PREVENTION PLAN (SW3P)
 STA 1128+00.00 TO STA 1139+00.00**

(SHEET 36 OF 37)

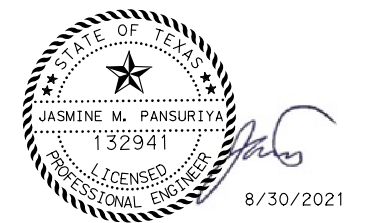
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| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 385 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

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LEGEND

| | |
|-------|------------------------|
| --- | EXIST ROW |
| -x-x- | EXIST FENCE |
| → | DIRECTION OF TRAFFIC |
| ~ | WATER FLOW |
| (RFD) | ROCK FILTER DAM |
| (SCF) | SEDIMENT CONTROL FENCE |
| ↓ ↓ ↓ | PERMANENT SEEDING |
| ↓ ↓ ↓ | SOIL RETENTION BLANKET |



FM 932

**STORM WATER POLLUTION
 PREVENTION PLAN (SW3P)
 STA 1139+00.00 TO END PROJECT**

(SHEET 37 OF 37)

| | | | | |
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| DESIGN RP | FED. RD. DIV. NO.: | FEDERAL AID PROJECT NO. | | HIGHWAY NO. |
| DESIGN CK | 6 | (SEE TITLE SHEET) | | FM 932 |
| JMP | STATE | DISTRICT | COUNTY | SHEET NO. |
| GRAPHICS RP | TX | WACO | HAMILTON | 386 |
| GRPH CHECK | CONTROL | SECTION | JOB | |
| JMP | 0867 | 01 | 017 | |

SITE DESCRIPTION

PROJECT LIMITS:

CSJ 0867-01-017 LIMITS: FROM SH 36 TO CORYELL COUNTY LINE

LOCATION MAPS:

Refer to title sheet for project location map.

PROJECT DESCRIPTION:

CSJ 0867-01-017:
Construction of rehabilitation of existing road
Consisting of provide safety upgrades and resurface

MAJOR SOIL DISTURBING ACTIVITIES:

The major soil disturbing activities for this project will consist of excavation, embankment, grading and construction of proposed culvert and roadway.

| | |
|-----------------------------|-----------|
| TOTAL PROJECT AREA: | 139.71 AC |
| TOTAL AREA TO BE DISTURBED: | 82.16 AC |

EXISTING CONDITION OF SOIL & VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER:

CSJ 0867-01-017:
Predominate soil types
Pidcoke gravelly clay loam, Brackett-Malotierre complex
Brackett-Pidcoke complex and Nuff silty clay loam

NAME OF RECEIVING WATERS:

CSJ 0867-01-017:
Project drains into the Leon River
(Brazos River Segment 1221 - Leon River Below Lake Proctor)

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- TEMPORARY SEEDING
- PERMANENT PLANTING, SODDING, OR SEEDING
- MULCHING
- SOIL RETENTION BLANKET
- NATURAL BARRIERS OR BUFFER ZONES
- PRESERVATION OF NATURAL RESOURCES

OTHER: TXR 150000, Part III, Section G, 2 Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating, or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. Temporary stabilization must be completed no more than 14 calendar days after initiation of soil stabilization measures, and final stabilization must be achieved prior to termination of permit coverage.

STRUCTURAL PRACTICES:

- SILT FENCES
- HAY BALES
- SANDBAG OR ROCK BERMS
- DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- DIVERSION DIKE AND SWALE COMBINATIONS
- PIPE SLOPE DRAINS
- PAVED FLUMES
- ROCK BEDDING AT CONSTRUCTION EXIT
- TIMBER MATTING AT CONSTRUCTION EXIT
- CHANNEL LINERS
- SEDIMENT TRAPS
- SEDIMENT BASINS
- STORM INLET SEDIMENT TRAP
- STONE OUTLET STRUCTURES
- CURBS AND GUTTERS
- STORM SEWERS
- VELOCITY CONTROL DEVICES

OTHER:

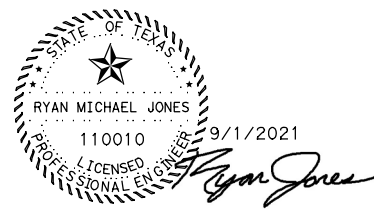
NARRATIVE - SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES:

- The order of activities will be as follows:
1. Preserve existing vegetative cover as much as possible.
 2. Install temporary sediment control fencing, rock berms and other items as shown on plans prior to any soil disturbing activities.
 3. Remove existing bridge, construct proposed culvert and roadway and perform any necessary excavation, embankment and grading.
 4. Place soil retention blankets and temporary/permanent seeding as shown in the plans and as directed.

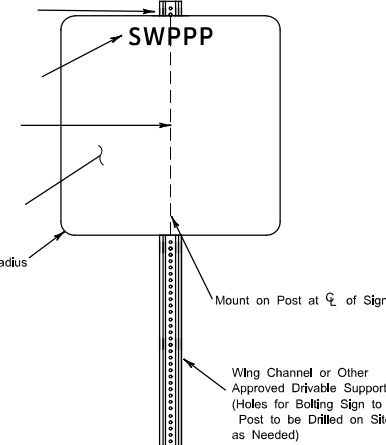
STORM WATER MANAGEMENT:

An integral part of the SWPPP for this project includes the EPIC Sheet, Item 506, Waco District Waters of the US Notes, Waco District Typical Applications for Best Management Practices, Form 2118 TxDOT inspection forms, Contractor daily inspection forms, miscellaneous general notes on environmental requirements, TxDOT EC Standards, 2014 Standard Specifications, TxDOT roadway design drawings, SWPPP design and working BMP drawings, Site Manager Data Base, EMS Stage Gate Inspections and the Waco District environmental folders. The requirements of the TxDOT EMS will be fully implemented including training requirements for Contractors and TxDOT staff.

STORM WATER POLLUTION PREVENTION PLAN PERMIT POSTING



Sign May be Mounted Even with Top of Post (Plus or Minus 2")
2.5" Letter Height ClearviewHwy-3-W Font White
Center of Sign to be Mounted About Eye Level (4'-5")
Type A Aluminum Sign Blank with Blue Engineer Grade Sheeting



Texas Department of Transportation
Waco District Office
Advanced Project Development
100 South Loop Drive
Waco Texas, 76704-2858

No Permanent Installation Allowed.
Sign to be Removed After Project Completion.

OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE: All erosion and sediment best management practices (BMPs) will be maintained in good working order per the environmental notes, details and standards included as part of the project plans and contract documents. BMP repairs will be made at the earliest possible date, but no later than seven calendar days after the inspection report has been completed and immediately after the ground has dried sufficiently to allow equipment access. BMPs damaged by the Contractor will be repaired or replaced immediately. The installation and repair of BMPs at creeks and outfalls will be given priority.

INSPECTION: TxDOT Form 2118 inspections to support TXR150000 and 404 permits will be conducted on a seven day interval on the same day of the week, until permits are terminated. The Contractor will provide daily BMP inspection reports on work days. Stage Gate Inspections and other BMP inspections will be conducted by the District and Area Office Staff based on requirements of the TxDOT Environmental Management System (EMS).

WASTE MATERIALS: Any waste materials generated during construction will be disposed of in accordance with existing federal, state, and local laws.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): At a minimum, any products in the following categories are considered to be hazardous: Fuels, Lubricating products, Asphalt products, or Concrete curing compounds and any additives. In the event of a spill which may be hazardous, clean-up will be done in accordance with federal, state, and local regulations. The Contractor will maintain a list of all chemicals and wastes required for the project; including chemicals used by sub-contractors, and will implement written spill prevention and clean-up plans.

SANITARY WASTE: Sanitary waste from portable units will be collected by a licensed sanitary waste management contractor.

OFF SITE VEHICLE TRACKING:

- HAUL ROADS DAMPENED FOR DUST CONTROL
- LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
- EXCESS DIRT ON ROAD REMOVED DAILY
- STABILIZED CONSTRUCTION ENTRANCE

REMARKS: Disposal areas, stockpiles, and haul roads will be constructed in a manner that will minimize and control the amount of sediment that may enter receiving waters. Disposal areas will not be located in any wetland, waterbody or streambed. Construction staging area and vehicle maintenance area will be constructed by the contractor in a manner to minimize the runoff pollutants.

Furnish one SW3P permit posting sign and sign support as detailed on the SW3P Sheet. Install this sign in a location selected by the Engineer. The sign and support should be removed upon completion of the project and is the property of the Contractor. The purchase of the sign and support, installation, relocation(s) if determined necessary by the Engineer and removal at project end will be subsidiary to Item 506.

Sedimentation Basins - Since the area disturbed is less than 10 acres, per outfall location, a sedimentation basin is not required.

WACO DISTRICT STORM WATER POLLUTION PREVENTION PLAN (SW3P)



| | | |
|-------------------|-------------------------|-------------|
| FED. RD. DIV. NO. | FEDERAL AID PROJECT NO. | SHEET NO. |
| 6 | (SEE TITLE SHEET) | 387 |
| STATE | DIST. | COUNTY |
| TEXAS | WACO | HAMILTON |
| CONT. | SECT. | JOB |
| 0867 | 01 | 017 |
| | | HIGHWAY NO. |
| | | FM 932 |

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I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

- 1.
 - 2.
- No Action Required Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. Project will disturb more than 5 acres, submit NOI to TCEQ and the Engineer.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

- No Permit Required
- Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)
- Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)
- Individual 404 Permit Required
- Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

- | | | |
|-------------------|-------------|----|
| 1. Two Mile Creek | STA:1034+56 | 5. |
| 2. | | 6. |
| 3. | | 7. |
| 4. | | 8. |

The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

| Erosion | Sedimentation | Post-Construction TSS |
|--|--|--|
| <input checked="" type="checkbox"/> Temporary Vegetation | <input checked="" type="checkbox"/> Silt Fence | <input type="checkbox"/> Vegetative Filter Strips |
| <input type="checkbox"/> Blankets/Matting | <input checked="" type="checkbox"/> Rock Berm | <input type="checkbox"/> Retention/Irrigation Systems |
| <input type="checkbox"/> Mulch | <input type="checkbox"/> Triangular Filter Dike | <input type="checkbox"/> Extended Detention Basin |
| <input type="checkbox"/> Sodding | <input type="checkbox"/> Sand Bag Berm | <input type="checkbox"/> Constructed Wetlands |
| <input type="checkbox"/> Interceptor Swale | <input type="checkbox"/> Straw Bale Dike | <input type="checkbox"/> Wet Basin |
| <input type="checkbox"/> Diversion Dike | <input type="checkbox"/> Brush Berms | <input type="checkbox"/> Erosion Control Compost |
| <input type="checkbox"/> Erosion Control Compost | <input type="checkbox"/> Erosion Control Compost | <input type="checkbox"/> Mulch Filter Berm and Socks |
| <input type="checkbox"/> Mulch Filter Berm and Socks | <input type="checkbox"/> Mulch Filter Berm and Socks | <input type="checkbox"/> Compost Filter Berm and Socks |
| <input type="checkbox"/> Compost Filter Berm and Socks | <input type="checkbox"/> Compost Filter Berm and Socks | <input checked="" type="checkbox"/> Vegetation Lined Ditches |
| | <input type="checkbox"/> Stone Outlet Sediment Traps | <input type="checkbox"/> Sand Filter Systems |
| | <input type="checkbox"/> Sediment Basins | <input type="checkbox"/> Grassy Swales |

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

- No Action Required Required Action

Action No.

1. SEE STATEMENT ABOVE
- 2.
- 3.
- 4.

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical. Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

- No Action Required Required Action

Action No.

1. SEE STATEMENT ABOVE
- 2.
- 3.
- 4.

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

- No Action Required Required Action

Action No.

1. Comply with Migratory Bird Treaty Act (MBTA)
2. Plains Spotted Skunk: Contractors 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
3. Texas Horned Lizard: Contractors will be advised of potential occurrence in the project area, and to avoid harming the species if encountered. This should include avoiding harvester ant mounds in the selection of Project Specific Locations (PSL's)
4. SEE STATEMENT BELOW

If any wildlife species are threatened by construction activities, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediate area, and contact the Engineer immediately.

LIST OF ABBREVIATIONS

| | |
|---|---|
| BMP: Best Management Practice | SPCC: Spill Prevention Control and Countermeasure |
| CGP: Construction General Permit | SW3P: Storm Water Pollution Prevention Plan |
| DSHS: Texas Department of State Health Services | PCN: Pre-Construction Notification |
| FHWA: Federal Highway Administration | PSL: Project Specific Location |
| MOA: Memorandum of Agreement | TCEQ: Texas Commission on Environmental Quality |
| MOU: Memorandum of Understanding | TPDES: Texas Pollutant Discharge Elimination System |
| MS4: Municipal Separate Stormwater Sewer System | TPWD: Texas Parks and Wildlife Department |
| MBTA: Migratory Bird Treaty Act | TxDOT: Texas Department of Transportation |
| NOT: Notice of Termination | T&E: Threatened and Endangered Species |
| NWP: Nationwide Permit | USACE: U.S. Army Corps of Engineers |
| NOI: Notice of Intent | USFWS: U.S. Fish and Wildlife Service |

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:

- * Dead or distressed vegetation (not identified as normal)
- * Trash piles, drums, canister, barrels, etc.
- * Undesirable smells or odors
- * Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

- Yes No

If "No", then no further action is required.

If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

- Yes No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

- No Action Required Required Action

Action No.

1. SEE GENERAL STATEMENT ABOVE


VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

- No Action Required Required Action

Action No.

- 1.
- 2.
- 3.

| | | | | | |
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|  | | Design Division Standard | | | |
| ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS EPIC | | | | | |
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| 12-12-2011 (DS) REVISIONS | | 0867 | 01 | 017 | FM 932 |
| 05-07-14 ADDED NOTE SECTION IV. | | DIST | COUNTY | SHEET NO. | |
| 01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES. | | 09 | HAMILTON | | 388 |

BEST MANAGEMENT PRACTICE (BMP) GENERAL NOTES

1. Prior to TxDOT allowing the Contractor to start construction, the Contractor will provide the required storm water and 404 permit documentation and support activities, including but not limited to the following:
 - Provide a list of all chemicals, construction and waste products that will be generated, stored or brought upon TxDOT ROW. The list includes expected construction debris, sanitary wastes, construction chemicals and petroleum products used or generated by the Contractor and sub-contractors. Along with the list, the Contractor will supply a spill prevention plan and clean up procedures that will include each of these chemical products or generated waste.
 - Provide in the construction schedule the necessary line items that will comply with the schedule and planning requirements of the storm water permit.
 - Post the TxDOT storm water permit and any Contractor permits, per permit requirements.
 - Provide copies of storm water permits for Contractor PSL(s). As new PSL(s) may be obtained for the project, provide copies of new or amended permits to TxDOT. The Contractor will not disturb soil without the proper permits.
 - Provide scale drawings of off ROW PSL's within one mile of the project, for field offices, borrow sources, plant sites or other uses.
 - Provide permit information on any Contractor batch plants or concrete crushing plants to be located at a Contractor PSL(s) within one mile of the project limits or boundaries. Copies of the air and water permits are to be provided to TxDOT before materials will be used on the project. No asphalt or concrete batch plants or concrete crushing plants will be located on TxDOT ROW.
 - Provide a letter indicating a Contractor Responsible Person for environmental compliance (CRP) for the project, and maintain a CRP throughout the project duration.
 - Provide all environmental documentation including certification of compliance and EMS training documents/certificates prior to starting work. The Contractor is to provide daily BMP inspection reports that document all field BMPs needing repair or replacement. The Contractor is to clearly document specific BMPs needing repair and location each work day. The Contractor is encouraged to be proactive in fixing BMPs without TxDOT direction.
 - Provide documentation required for Waters of the US, Note #3 and submittals for Item 496 bridge removal. Bridge removal methods submitted will follow all Waters of the US note requirements. The Contractor is not to start construction within the Ordinary High Water Marks of any stream until receiving approval for stream channel construction methods from TxDOT.
 - Provide a written procedure for managing all chemicals and construction items placed in vertical containment structures. Also, provide methods to be used for the treatment, disposal, collection or release of storm water.
 - Provide an estimated date by letter, for the submittal of marked up bridge drawings, indicating out locations for any structural steel requiring cutting or torching of steel, coated with lead containing paints.
2. Place and maintain trash cans and portable sanitary facilities at locations where there is active construction. Worker generated trash and construction debris will be kept from being transported by storm water and will be collected daily from the ground and routinely hauled from the work area.
3. Contractor will provide TxDOT copies of all correspondence with MS4s, TCEQ, EPA, DSHS and Corps of Engineers regarding activities on this project.
4. Contractor to conduct storm water inspections and develop SWPPP documents to support Contractor permits obtained for the project including PSL(s).
5. Contractor will maintain written documentation of locations of all portable sanitary facilities. The Contractor is required to document the location and disposition of all spills and cleanups from portable sanitary facilities.
6. Contractor will not store chemicals on TxDOT ROW, unless chemicals are stored following all environmental and safety regulations. Fuels for construction equipment will not be stored on TxDOT ROW.
7. The Contractor will store fuels and bulk chemicals on Contractor PSL(s) using a secondary containment method, such as double lined tanks and/or free standing containment reservoirs made of plastic or steel designed to hold bulk chemicals or drums.
8. The Contractor will not remove sediment controls without the prior approval of TxDOT, except for a sediment control that may back up water and cause safety or traffic problems.

SCALE = NTS SHEET 1 OF 10



TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

TA-BMP

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| DEC 2013 | DIST | COUNTY | | SHEET NO. |
| FEB 2015 | WACO | HAMILTON | | 389 |

BEST MANAGEMENT PRACTICE (BMP) GENERAL NOTES

9. Any sediment controls removed by the Contractor must be re-installed before the next rainfall event or by the end of day, as approved in advance.
10. Vegetative buffer strips may be used in place of temporary sediment controls such as silt fences and rock filter dams. The amount of disturbed soil area will be limited to 1/3 of an acre or less for a minimum of 50 feet of grassed ditch and 2/3 of an acre of disturbed soil for a minimum of 100 feet of grassed ditch.
11. Construction equipment found to be leaking oil, fuel or coolant will be immediately stopped, the leaking fluid collected and the equipment fixed. Equipment continuing to leak will be removed from the project at no cost to TxDOT. Leaking fluids from equipment will be collected and removed from the project or PSL.
12. Earth berms or mounds typically used to stockpile topsoil and used in place of boundary silt fence will be seeded upon being constructed. Long term use of earth berms or mounds will not be continued without establishing grass on the control.
13. The Contractor will inform TxDOT of new areas where soil will be disturbed to facilitate planning for new sediment controls. Areas of vegetated soil will not be disturbed by the Contractor, unless adequate sediment controls can be installed before the next rainfall event. The Contractor will assist TxDOT in keeping an accurate set of working SWPPP drawings that show the locations of all temporary sediment and erosion controls.
14. The Contractor will maintain an adequate amount of temporary sediment controls on hand at the field office or project staging area for critical SWPPP maintenance, including silt fence (minimum of 200 feet) and rock / fabric for rock filter dams (minimum for 100 feet of Type III dams).

The requirement for BMP rock quantities on hand is waived for small projects for on and off system bridge installations. The Contractor having a BMP Subcontractor does not eliminate the requirement for the Contractor to have the required silt fence and rock on hand, typically stored at the Contractor PSL.
15. Failure of a sub-contractor to complete storm water work on time will require the Contractor to start storm water sediment control work immediately and complete the work with high priority, or be subject to stop work on the entire project.
16. Earth materials on roads as a result of soil tracking will not be allowed to be transported off ROW in storm water. Soil or rock material found on roadways deposited from Contractor equipment will be removed daily.
17. Unless approved, completed concrete curb inlets will not be blocked by sediment controls. The contractor will frequently sweep the completed or partially completed roadway to keep sediment out of drainage pipes.
18. The Contractor will be responsible for proper dust control and will route construction traffic in a manner that minimizes dust generation.
19. Water for dust control will contain no pollutants, but may be non-potable from upland stock ponds. No quantity of water to be used for construction purposes may be taken from a 404 stream, prior to the proper authorizations or permits being obtained by the Contractor.
20. Contractor is to direct workers and sub-contractors to use portable sanitary facilities provided by the Contractor and not to trespass off ROW.
21. Contractor will provide written verification to TxDOT that earth borrow pits and disposal sources meet environmental and regulatory requirements, prior to use. Excavations will meet all OSHA requirements and the current safety guidelines established for TxDOT Quarries and Pits.
22. Boundary silt fences that are terminated down slope, with one end being at the lowest elevation, will be installed with an L - hook to contain sediment. Boundary silt fences that are installed on flat ground will have L-hooks on both ends.
23. Rock filter dams across ditches will be constructed where the rock filter dam ends are embedded within the ditch side slopes and ditch bottom. The top center elevation of the rock filter dam will be at least 6 inches lower than the elevations on the rock filter dam ends.
24. Silt fence will be constructed in a U or V pattern across ditch lines and up the ditch side slope to keep storm water from flowing around the ends of the silt fence. Small silt fences that do not adequately span the ditch and allows storm water around the end(s) will not be used. Where there is adequate space, large U pattern silt fences are preferred to facilitate sediment collection and sediment removal with equipment.
25. Sediment controls (RFDs or silt fences) will be located along road ditches as marked on the SWPPP drawings. Modifications to the sediment control spacing will be adjusted during the project based on sediment control effectiveness. The installation and maintenance of sediment controls at or near outfalls, where storm water leaves TxDOT ROW, takes persistent over ditch line sediment controls.

SCALE = NTS SHEET 2 OF 10



TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

TA-BMP

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| DEC 2013 | DIST | COUNTY | SHEET NO. | |
| FEB 2015 | WACO | HAMILTON | 390 | |

BEST MANAGEMENT PRACTICE (BMP) GENERAL NOTES

26. Storm water draining sheet flow over disturbed soil sloped towards the ROW property line, will be intercepted by a boundary silt fence typically installed with L-shaped ends.
27. For ditch grading and shoulder up work, the Contractor is limited during good weather to remove up to one mile (limited to five acres of disturbed soil) of ditch line sediment controls; on one side of the roadway. Outfall controls cannot be removed during this activity. Ditch line controls must be replaced upon completion of work and before the next rain event.
28. Sediment controls damaged by the Contractor, as defined by permit, must be fixed or replaced immediately upon discovery.
29. Notches in silt fences are not typically allowed. Specific silt fences that back up water onto lanes of traffic may be notched if approved.
30. For silt fence maintenance, the Contractor will leave approximately 4 inches of deposited sediment up stream of silt fences and not over excavate around silt fences or rock filter dams.
31. The Contractor will inform TxDOT of new construction areas and where soil is planned to be disturbed. Sediment controls will be installed at outfalls prior to the Contractor beginning soil disturbing activities up slope from the outfall.
32. Water from concrete saw cutting, concrete grinding and concrete coring activities; or fine materials from concrete chipping and salvage will not be allowed to enter storm drains or enter streams.
33. Storm water containing suspended sediment and turbidity needing to be removed from excavations or low areas will be pumped or gravity drained through vegetated buffer strips (50 foot minimum) or placed in ditches with temporary sediment controls, prior to the water being discharged into a stream.
34. Uncontaminated water from natural groundwater seepage, springs, foundations and drains that does not contain suspended sediment or any pollutants may be discharged without storm water controls.
35. Lime or cement if spilled in ditches or outside the defined limits of application is considered a pollutant and will be excavated and removed the same day, to avoid contaminating streams.
36. If located along the project ROW, RAP stockpiles will be located where there is a minimum 100 feet of vegetative buffer strip before storm water will reach a stream. RAP will not be used as a construction material within the Ordinary High Water Marks of a stream channel of a 404 designated stream.
37. If allowed on the project, concrete truck wash out areas will have adequate volume to allow 12 inch freeboard for rain and will be lined with 6 mils of plastic. No concrete will be stored higher than the 12 inch freeboard. Cleaning of truck chutes and equipment does not constitute concrete truck wash out and this activity may be completed at the concrete placement location. Wash out areas will not be located closer than 50 ft from down slope inlets or stream channels.
38. For outfalls near stock ponds closer than 50 foot from disturbed soil at the ROW line, redundant sediment controls will be provided, typically a combination of rock filter dam and a silt fence constructed in line of the flow.
39. Earth stockpiles will utilize silt fence sediment controls, positioned on the low end of the stockpile drainage area with L-hooks or silt fence installed around the entire stockpile.
40. Sediment controls including rock filter dams and silt fences will not be installed across any 404 streams. Sediment controls at 404 streams will be positioned to limit sediment entering the stream from the banks and around structures/culverts, and will allow free flow of storm water to pass through the ROW without being dammed by any sediment controls. Remove loose materials from stream channels prior to each rain event.
41. Sediment controls for non-404 streams may be constructed across the drainage channel in unlimited locations. It is appropriate to use sediment control details typically used for 404 streams for non-404 streams when flow velocities are high. Remove loose material from stream channels prior to each rain event.
42. Incomplete drainage pipe installation across the roadway does not remove the requirement for having sediment controls around the ends of the pipe. To stay within permit requirements, sediment controls should be installed over and around the terminated end and along each side of the banks as soon as construction on the pipe has been completed. Remove loose material from stream channels prior to each rain event.
43. Safety end / headwall construction temporarily will require the removal of part of the sediment control placed over and around the pipe end. Retain in place as much functioning sediment control as possible. Replace the silt fence over and around the top of the pipe, immediately upon concrete placement and form removal. Do not remove culvert sediment controls that cannot be replaced before the next rain event. Sediment control at the ends of culverts must be in place and available for any rain event until the disturbed soil areas are re-vegetated.

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TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

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BEST MANAGEMENT PRACTICE (BMP) GENERAL NOTES

44. Between the Ordinary High Water Marks of a 404 stream channel, the Contractor will disturb only the minimum amount of stream channel that is necessary to complete the work.
45. Rock riprap for erosion control does not replace the requirements to maintain sediment control until vegetation is re-established. Replace sediment controls immediately after installing erosion rock.
46. At the direction of TxDOT, sediment deposited into existing and new culverts will be removed subsidiary to Item 506. Sediment to be removed is either pre-existing material before construction starts or sediment generated as a part of this project.
47. Provide treated 2X4 cross bracing for rectangular inlet silt fence, subsidiary to Item 506.
48. Loose or granular earth materials will not be used to repair silt fence undercuts. Silt fence undercut repairs will be conducted with well compacted soils or the silt fence will be reset in a nearby location.
49. Silt fence steel T posts of approximately 1.25 pounds per foot are allowed at a spacing of 8 feet or less. Silt fence steel T posts between approximately 1.25 pounds per foot and 0.85 pounds per foot are allowed for T post spacing of 5 feet or less.
50. Silt fence to be used to slow the flow of storm water down slopes will be positioned approximately horizontal (on the contour) with L hooks on the ends and limited to approximately 200 feet in length. Multiple sections and levels of silt fence may be required in addition to temporary / permanent erosion control flumes.
51. Soil retention blankets will be installed rolled down the slope with the small dimension side embedded at the top of slope, unless recommended otherwise by the manufacturer. Excess grass, rocks, trash, debris or clods will be removed before seeding and installing soil retention blankets. All installations will be by the manufacturer recommendations. Contractor equipment, including tractor mowers will be kept off areas with soil retention blankets until the grass is established.

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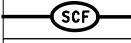





TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

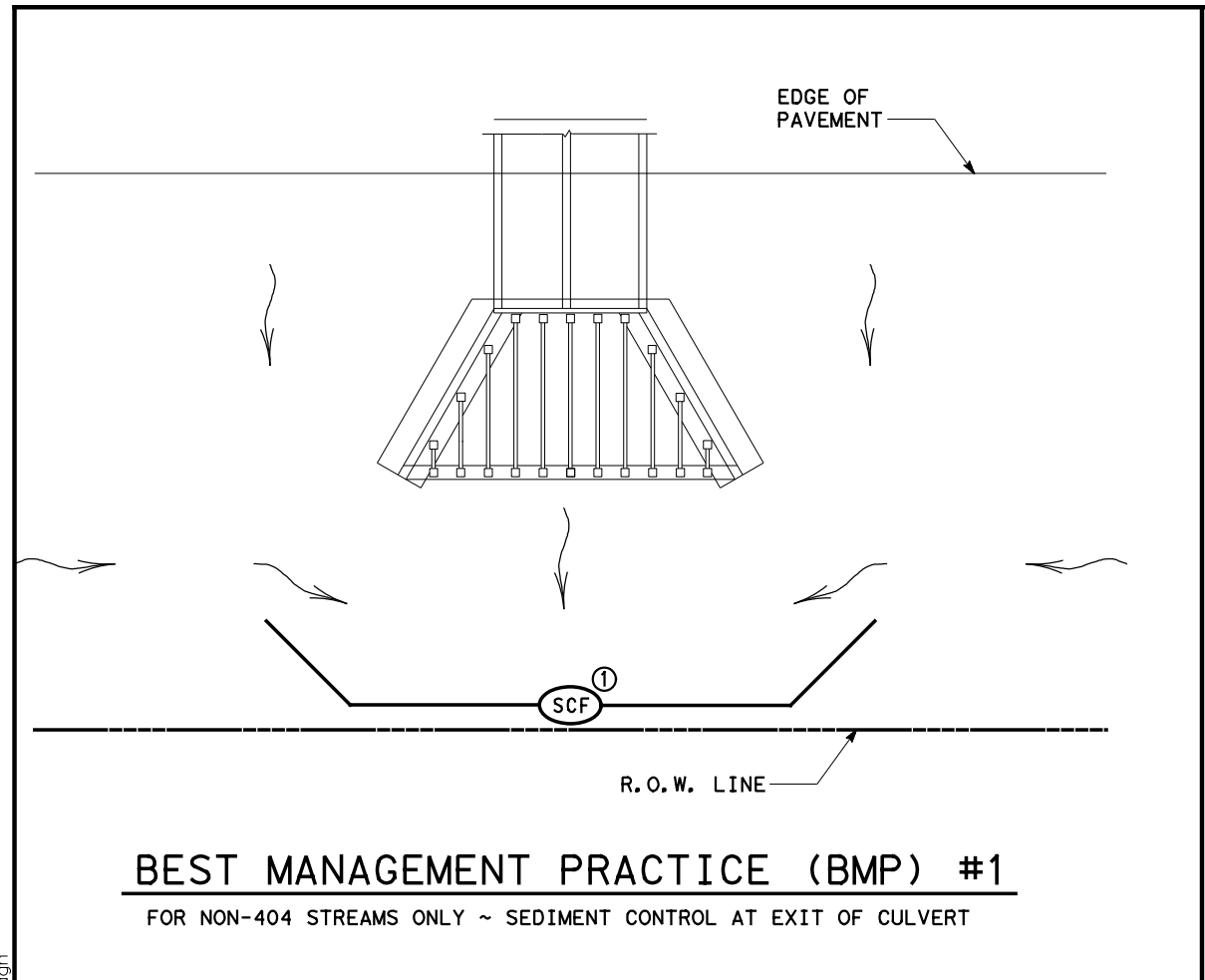
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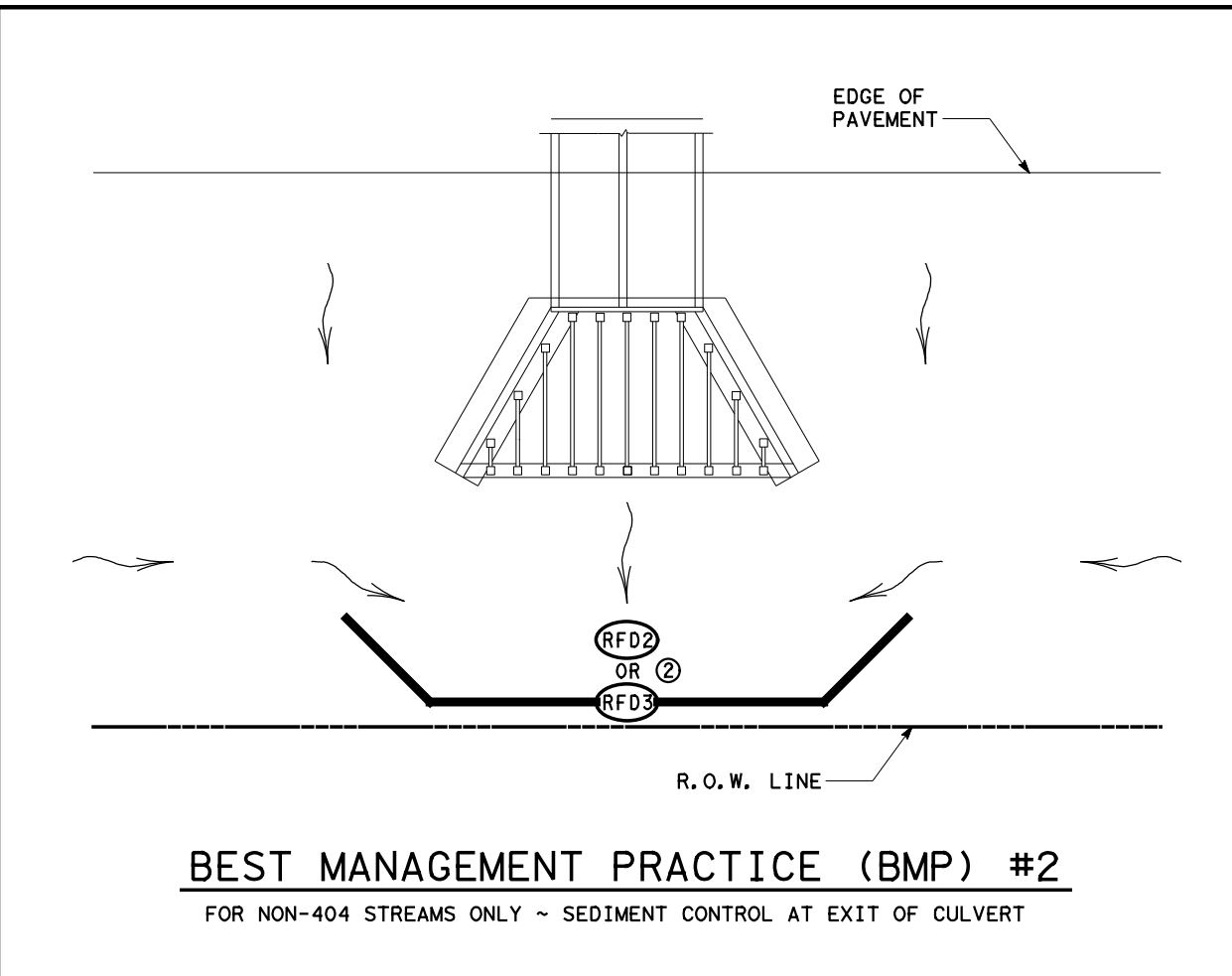
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|  | SEDIMENT CONTROL FENCE |
|  | ROCK FILTER DAM (TY 2) |
|  | ROCK FILTER DAM (TY 3) |
|  | DIRECTION OF FLOW |

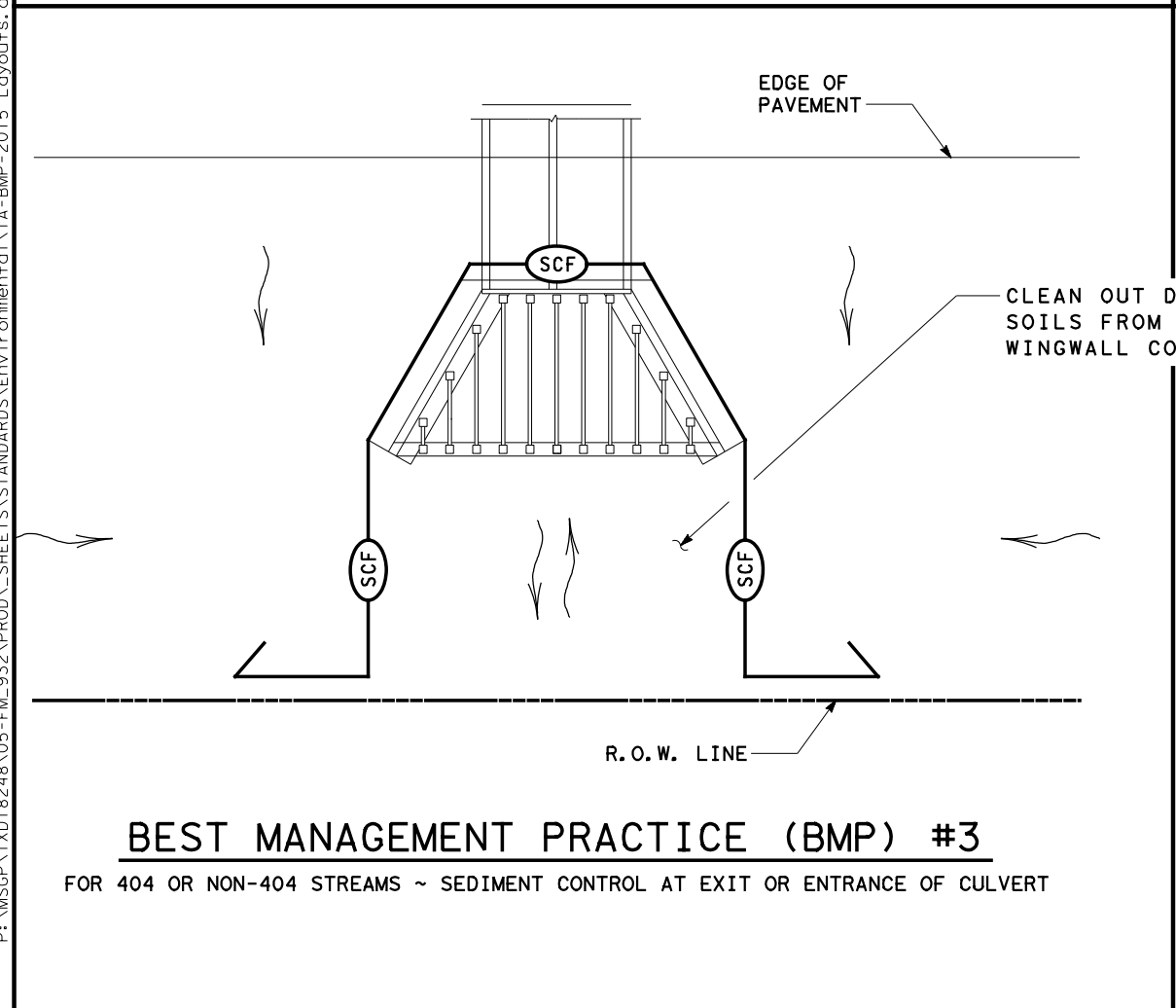
- NOTES:
- ① EXTEND SILT FENCE SO STORM WATER DOES NOT GO AROUND THE ENDS. USE L-HOOKS ON ENDS AS REQUIRED.
 - ② EXTEND ROCK FILTER DAM SO STORM WATER DOES NOT GO AROUND THE ENDS.



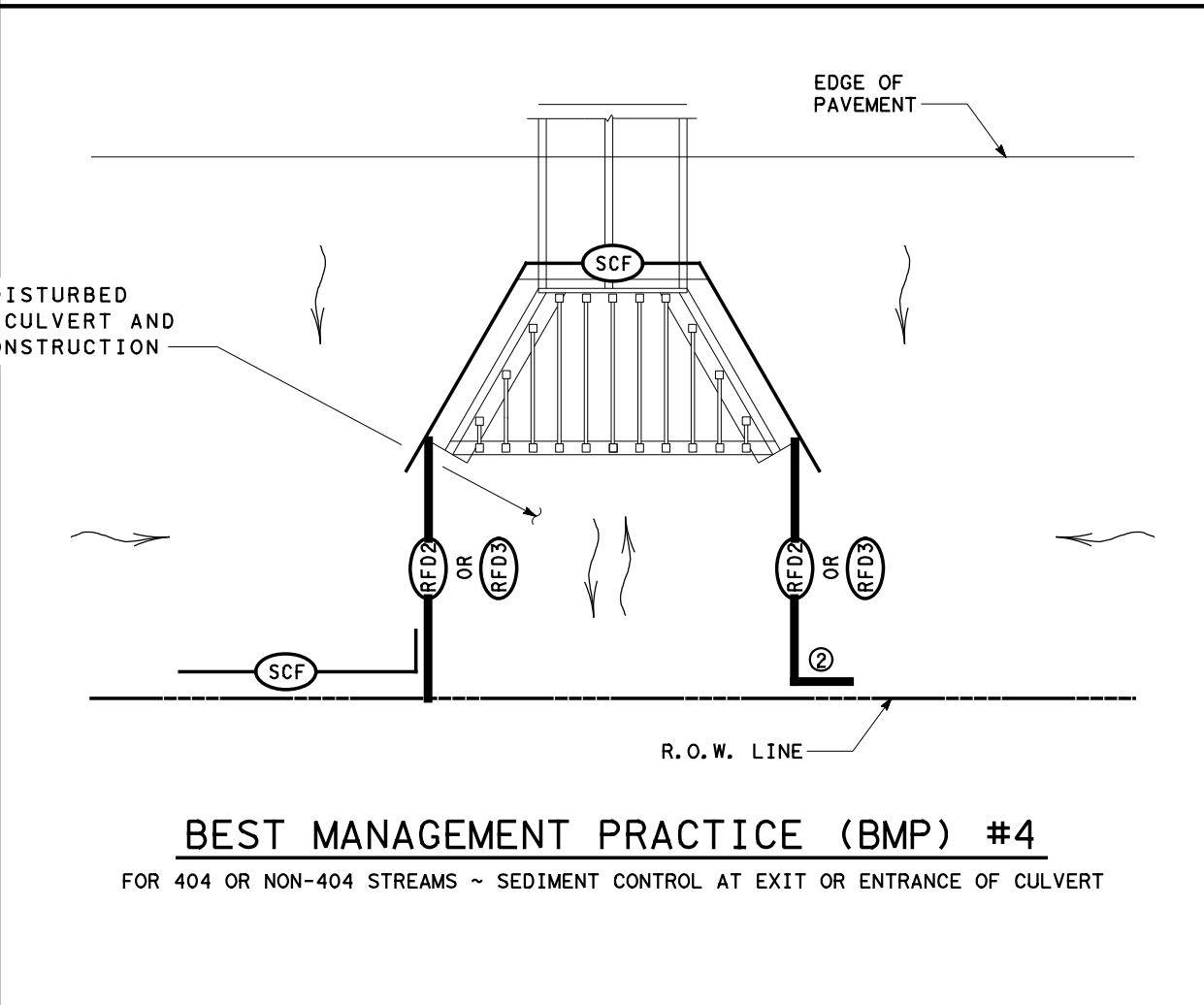
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 FOR NON-404 STREAMS ONLY ~ SEDIMENT CONTROL AT EXIT OF CULVERT



BEST MANAGEMENT PRACTICE (BMP) #2
 FOR NON-404 STREAMS ONLY ~ SEDIMENT CONTROL AT EXIT OF CULVERT



BEST MANAGEMENT PRACTICE (BMP) #3
 FOR 404 OR NON-404 STREAMS ~ SEDIMENT CONTROL AT EXIT OR ENTRANCE OF CULVERT



BEST MANAGEMENT PRACTICE (BMP) #4
 FOR 404 OR NON-404 STREAMS ~ SEDIMENT CONTROL AT EXIT OR ENTRANCE OF CULVERT

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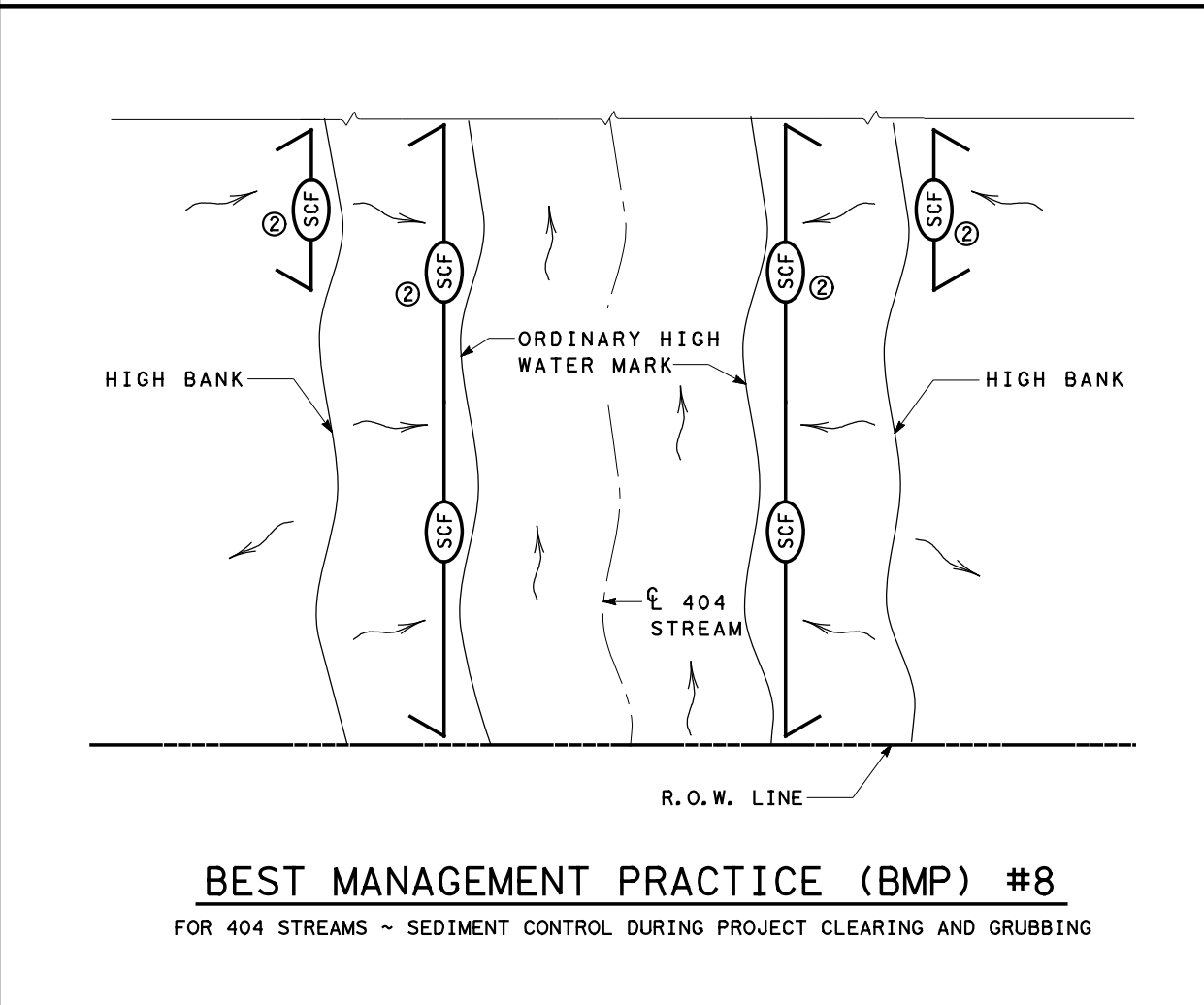
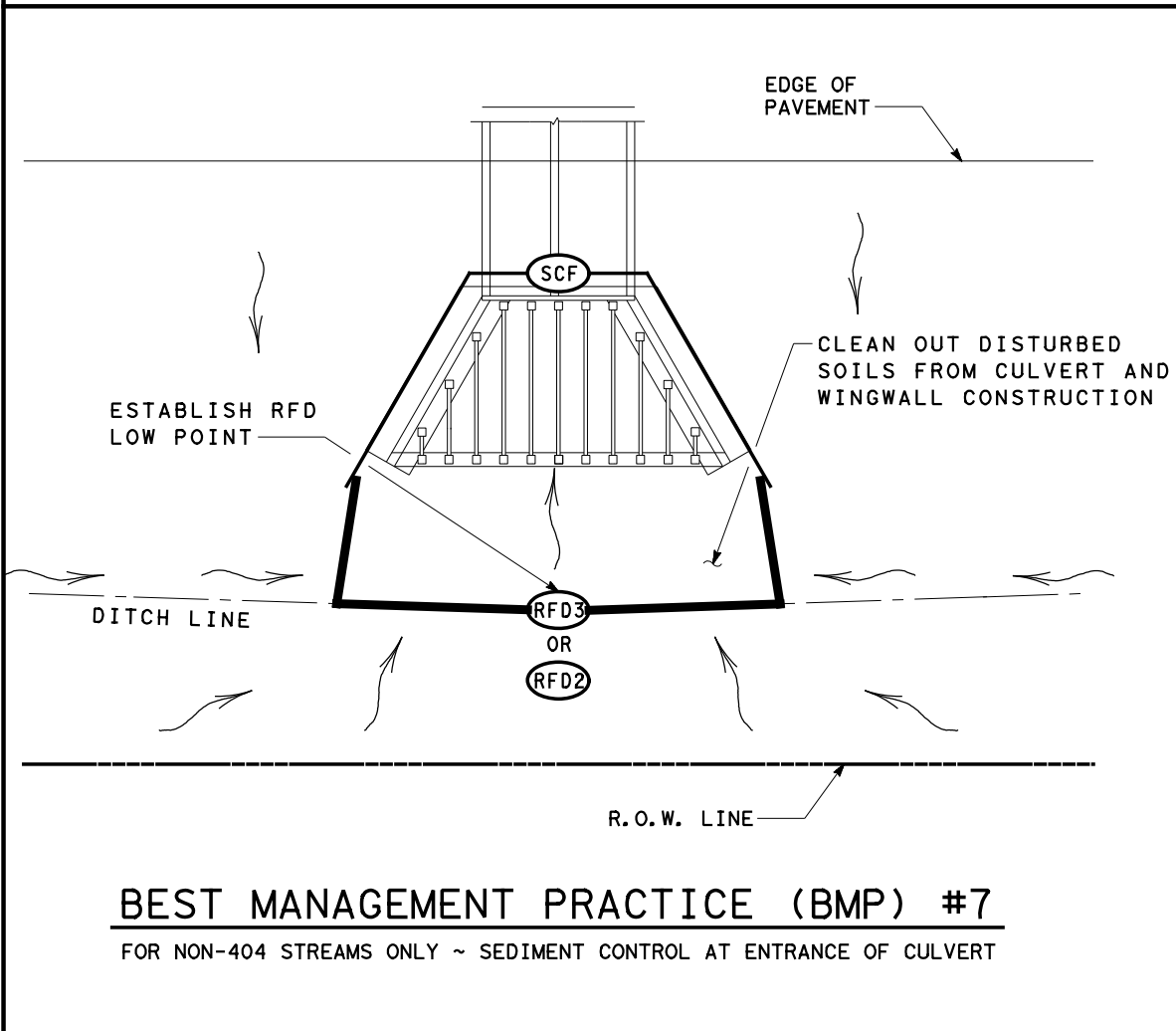
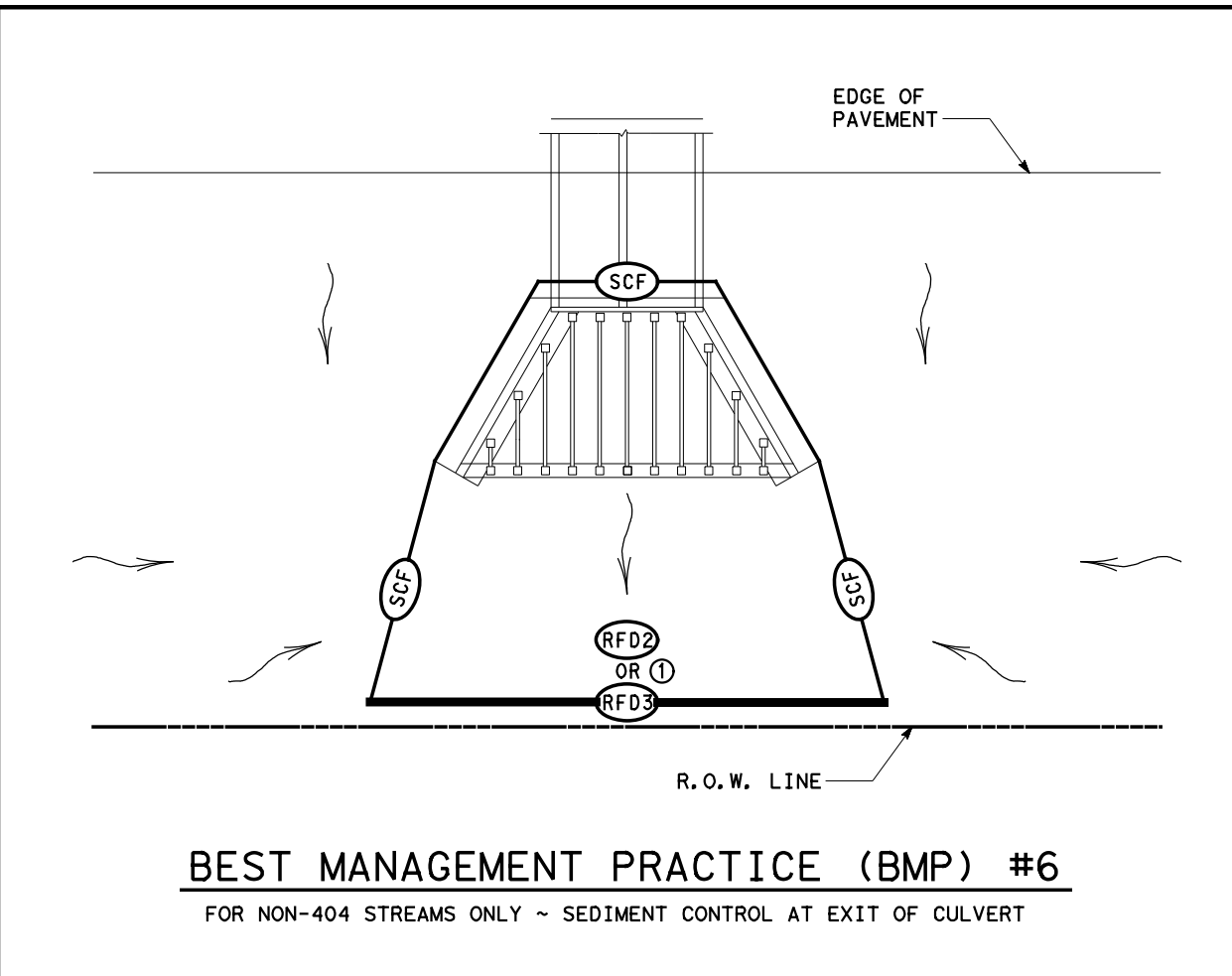
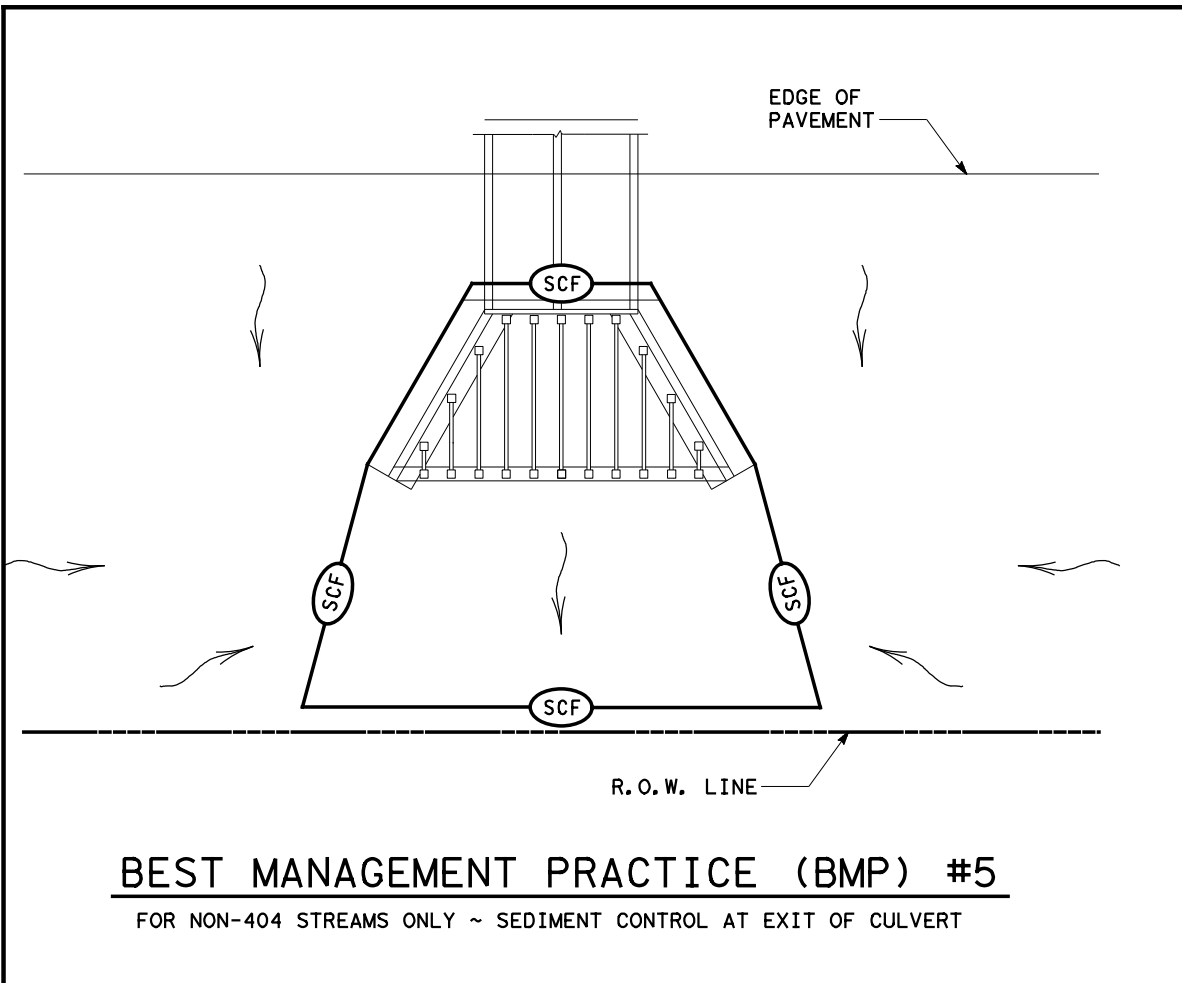
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| | SEDIMENT CONTROL FENCE |
| | ROCK FILTER DAM (TY 2) |
| | ROCK FILTER DAM (TY 3) |
| | DIRECTION OF FLOW |

- NOTES:
- ① PROVIDE OVERLAP OF SILT FENCE WITH ROCK FILTER DAM.
 - ② USE SILT FENCE L-HOOKS ON ENDS TO BLOCK STORM WATER SEDIMENT



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Waco District Standard

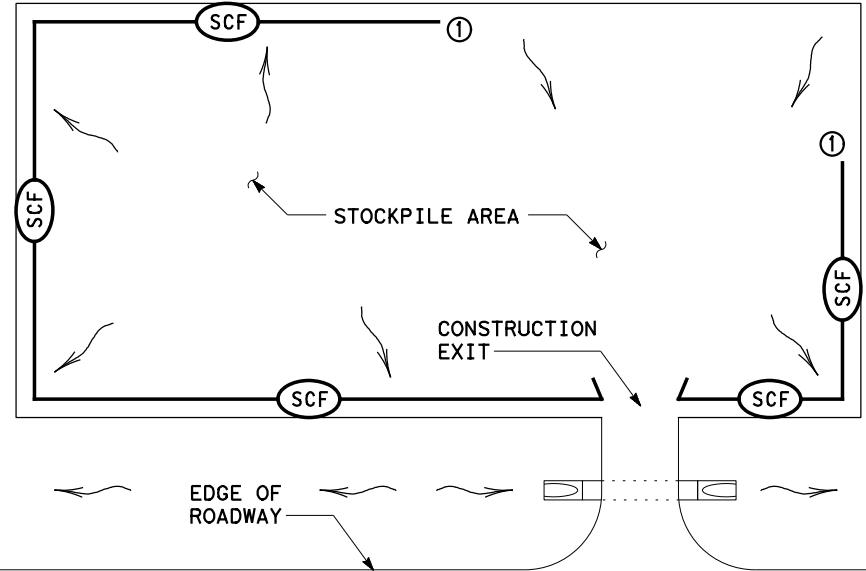
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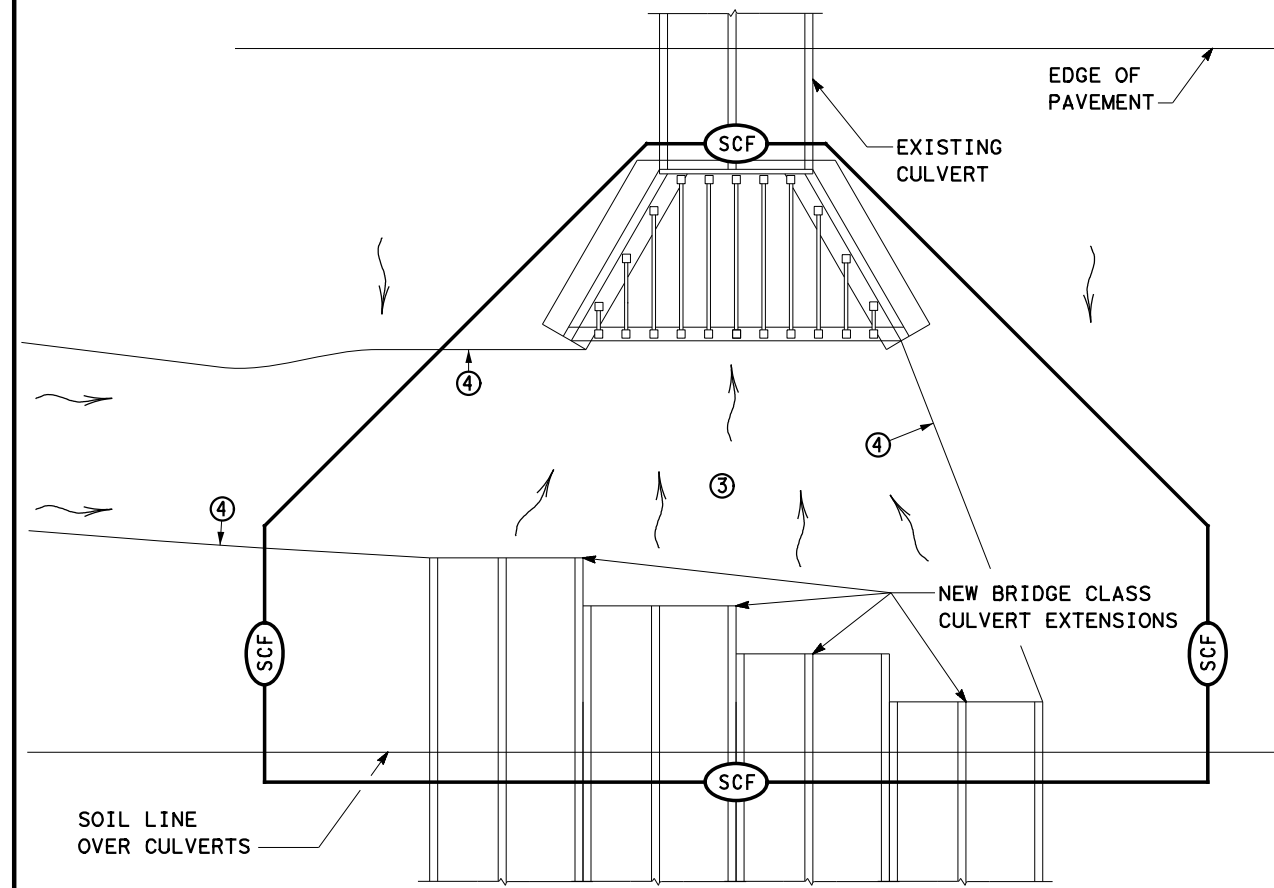
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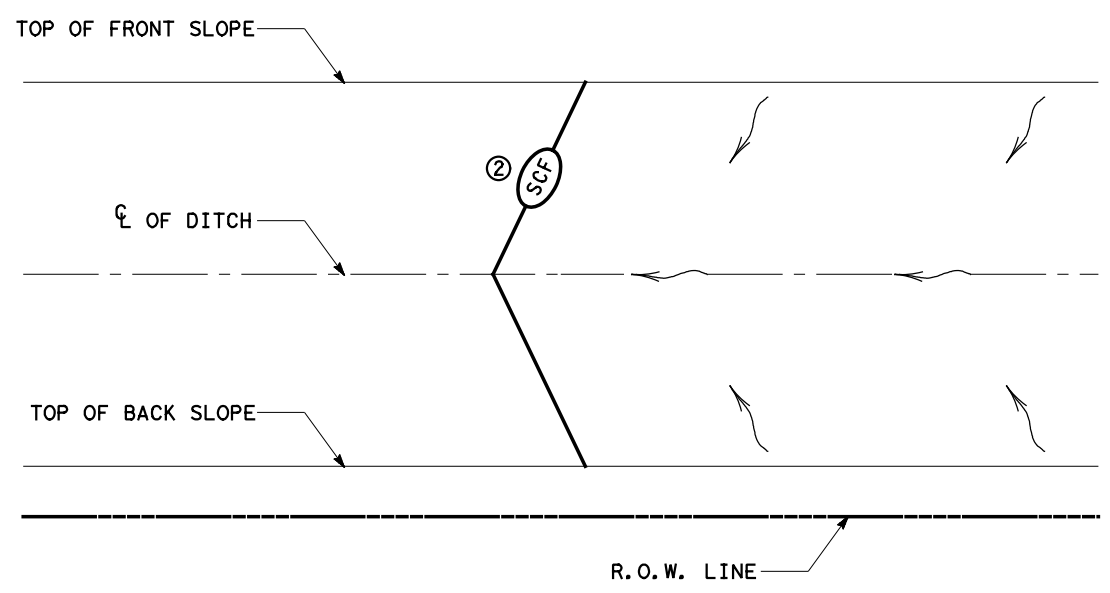
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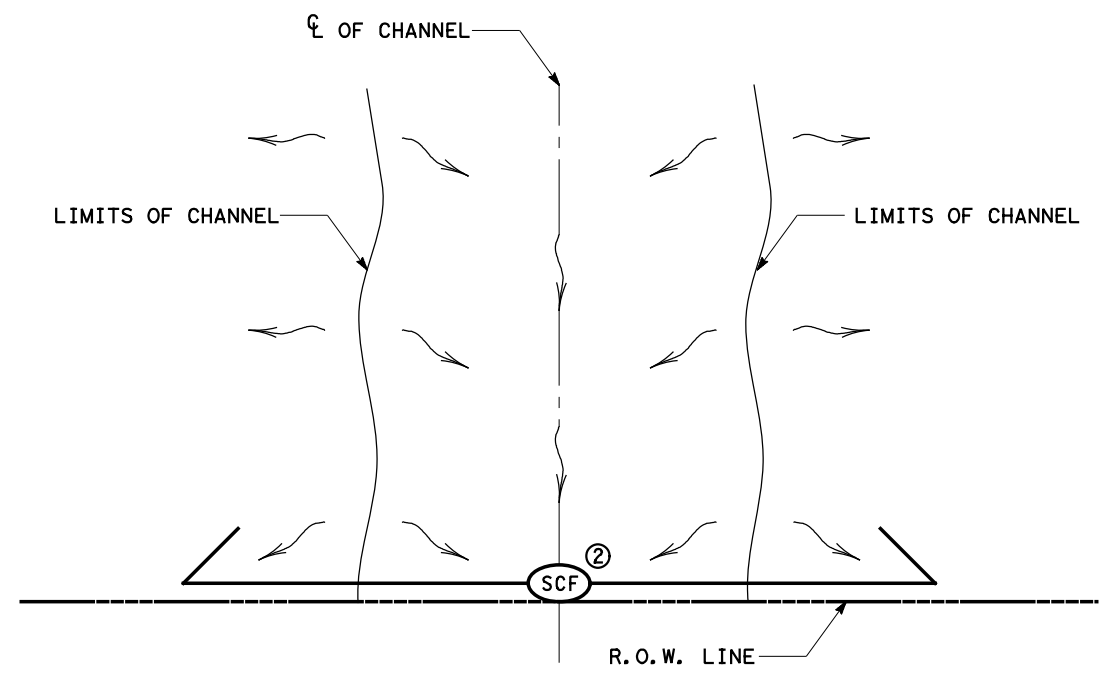
BEST MANAGEMENT PRACTICE (BMP) #9
 STOCKPILE SEDIMENT CONTROL



BEST MANAGEMENT PRACTICE (BMP) #10
 FOR 404 OR NON-404 STREAMS ONLY ~
 SEDIMENT CONTROL AT PHASED CONSTRUCTION OF BRIDGE CLASS CULVERTS



BEST MANAGEMENT PRACTICE (BMP) #11
 BOUNDRY SEDIMENT CONTROL ~ BOTH ENDS OF CONTROL TERMINATED UP SLOPE



BEST MANAGEMENT PRACTICE (BMP) #12
 BOUNDRY SEDIMENT CONTROL ~ BOTH ENDS OF CONTROL TERMINATED DOWN SLOPE

| | |
|--|------------------------|
| | SEDIMENT CONTROL FENCE |
| | ROCK FILTER DAM (TY 2) |
| | ROCK FILTER DAM (TY 3) |
| | DIRECTION OF FLOW |

- NOTES:
- START SEDIMENT CONTROL AT LOCATION SO ALL STORM WATER WITH SEDIMENT IS COLLECTED
 - ROCK FILTER DAMS OR EARTH/GRASSED EMBANKMENTS CAN BE SUBSTITUTED AS DIRECTED.
 - PROVIDE A SMOOTH TRANSITION FROM THE INVERT ELEVATIONS BETWEEN CULVERTS. REMOVE LOOSE SOIL FROM EXCAVATED AREA BETWEEN CULVERTS.
 - PROVIDE AND INSTALL PNEUMATICALLY PLACED CONCRETE ON THE DITCH BOTTOM AND SIDE SLOPES BETWEEN TEMPORARY TERMINATIONS BETWEEN OLD AND NEW CULVERTS. PNEUMATICALLY PLACED CONCRETE WILL BE PLACED TO THE HEIGHT OF THE LARGEST CULVERT ON THE DITCH SIDE SLOPES; AND TO A LIMIT 10 FEET OUTSIDE THE LOCATION OF BMPS ALONG THE DITCH BOTTOM. CEMENT STABILIZED SAND MAY BE SUBSTITUTED FOR PNEUMATICALLY PLACED CONCRETE, IN AREAS WHERE INSTALLATION WORKS AND AT THE OPTION OF TXDOT.

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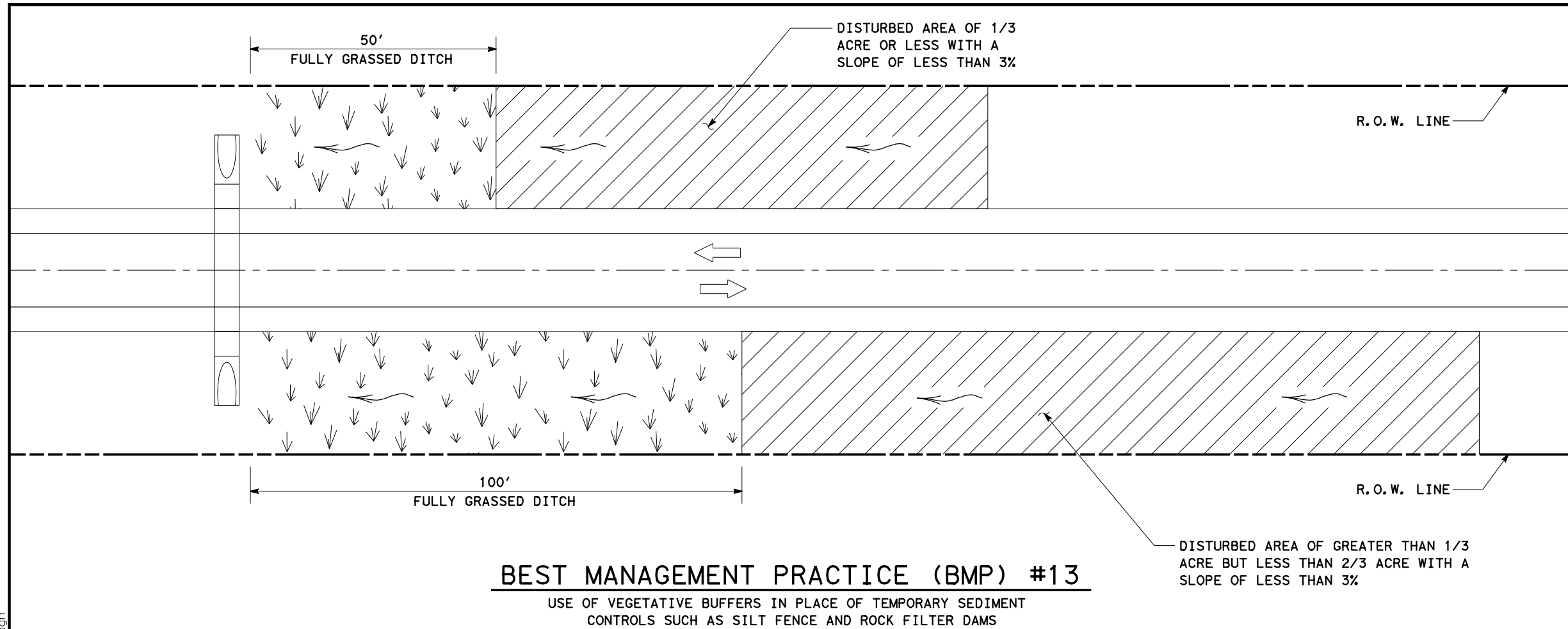


TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

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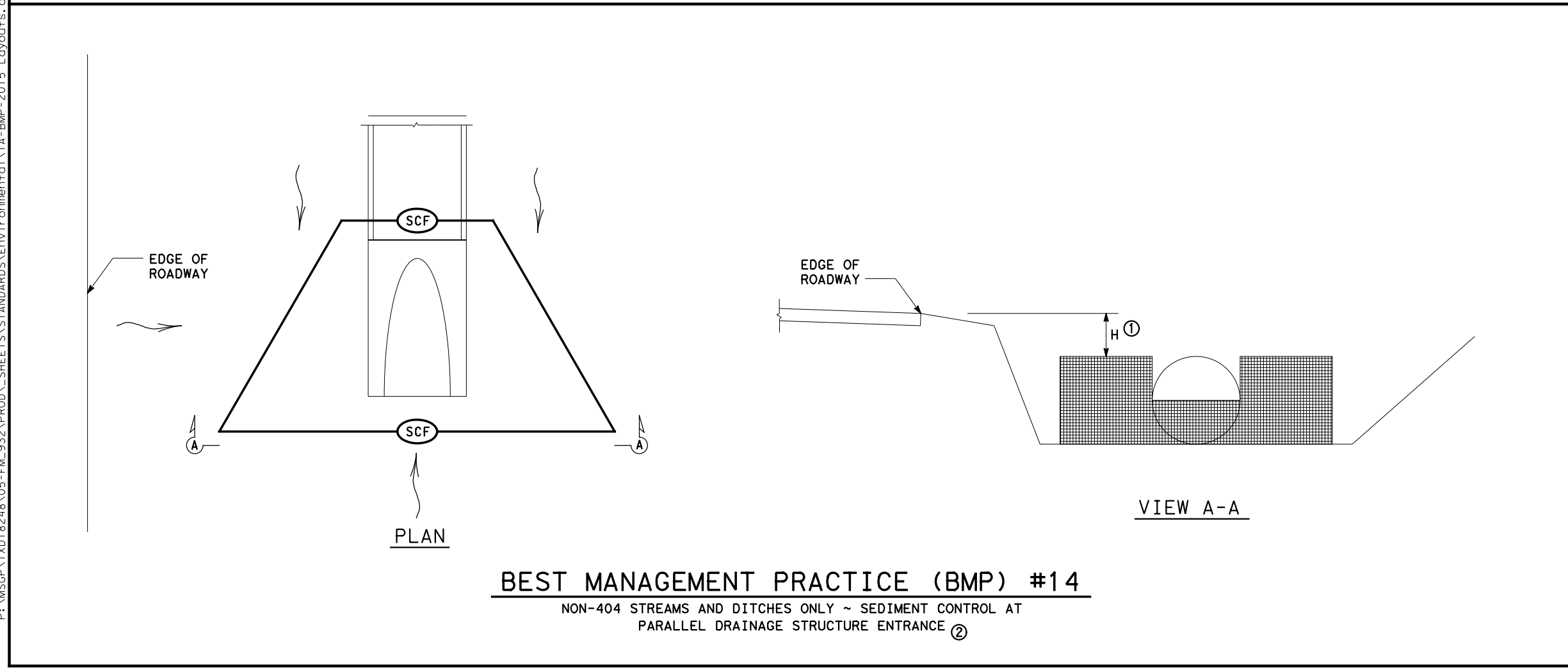


BEST MANAGEMENT PRACTICE (BMP) #13

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

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|--|------------------------|
| | FULLY GRASSED DITCH |
| | DISTURBED AREA |
| | DIRECTION OF FLOW |
| | SEDIMENT CONTROL FENCE |

- ① FOR H DIMENSIONS LESS THAN 1.5' SILT FENCE MAY NEED TO BE NOTCHED AS SHOWN IN VIEW A-A. ADD EXTRA POSTS AT NOTCH.
- ② BMP #14 MAY BE USED AT CROSS DRAINAGE STRUCTURES AS DIRECTED.



BEST MANAGEMENT PRACTICE (BMP) #14

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

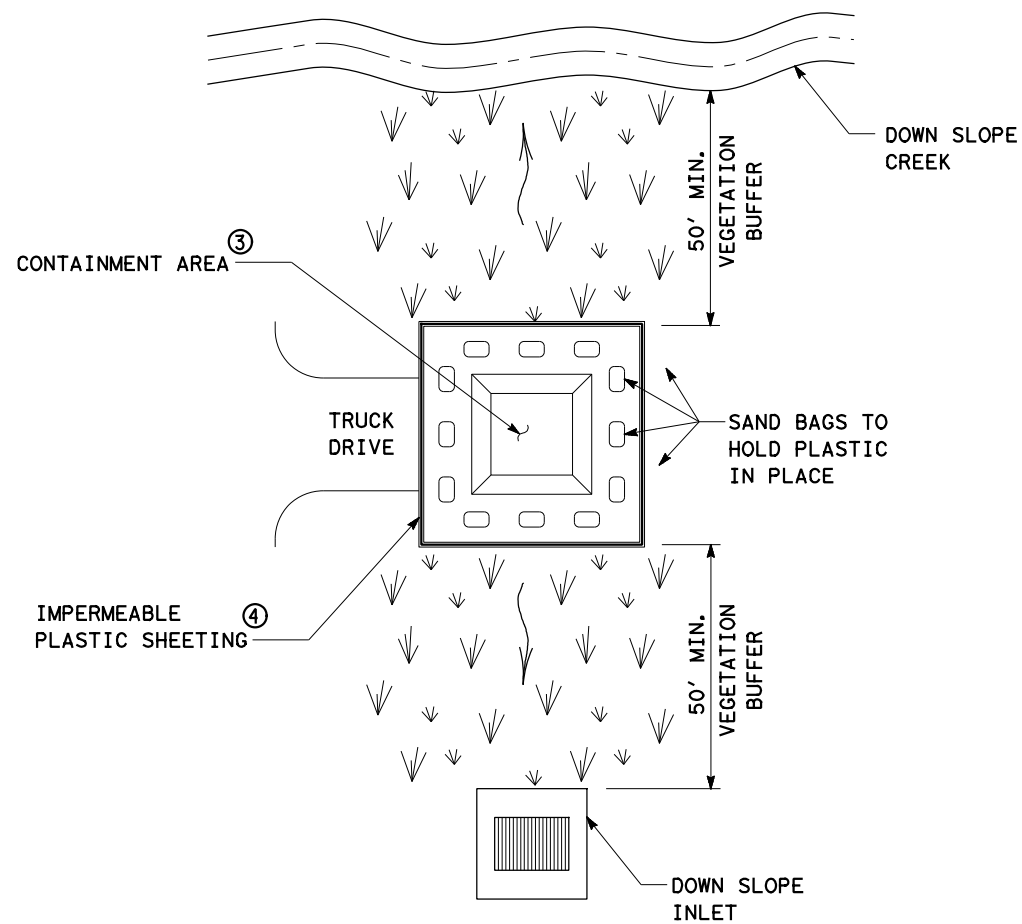
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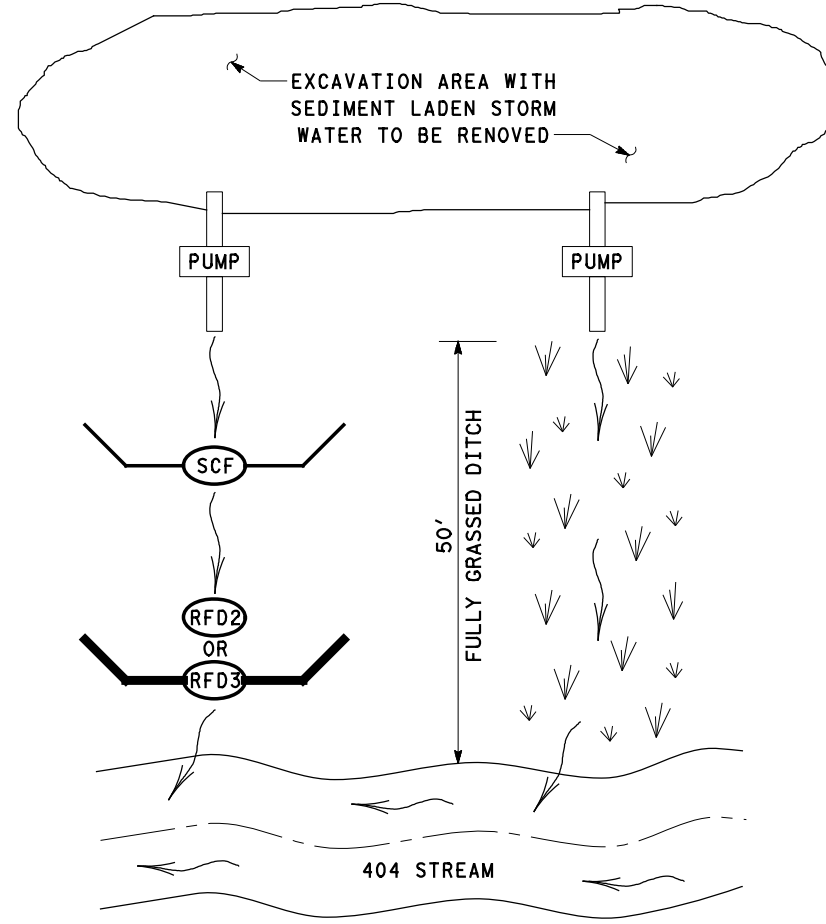
TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

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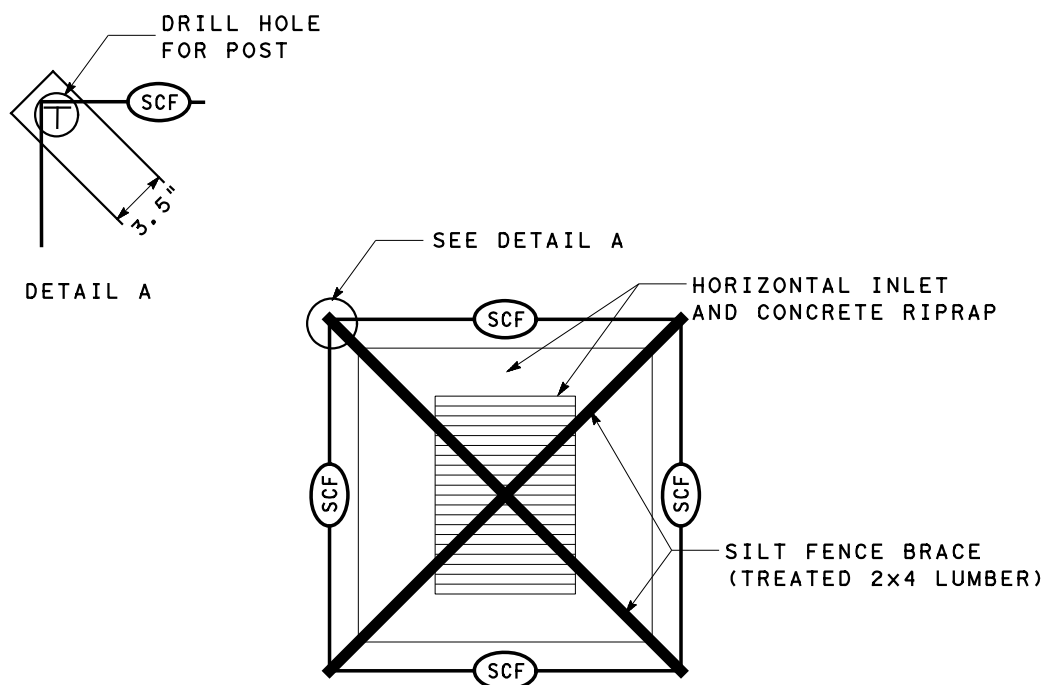
BEST MANAGEMENT PRACTICE (BMP) #15
CONCRETE TRUCK WASHOUT AREA



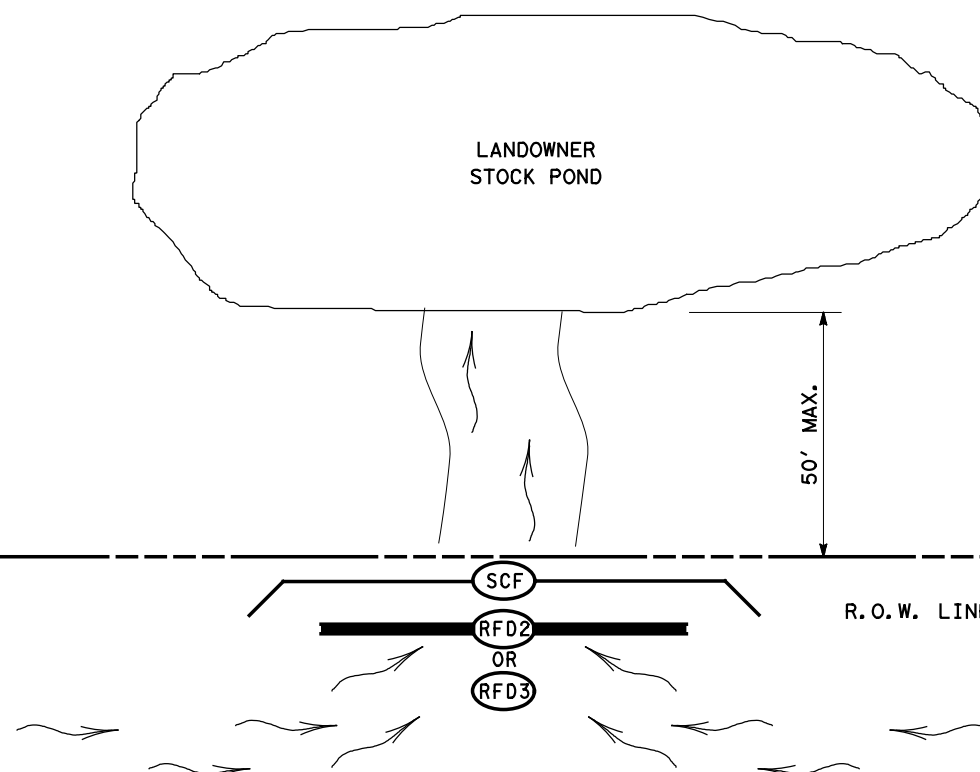
BEST MANAGEMENT PRACTICE (BMP) #16
PUMPED STORM WATER SEDIMENT CONTROLS ①

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

- ① PUMPED STORM WATER FROM AN EXCAVATION AREA SHOULD BE DISCHARGED IN A 50' VEGETATIVE BARRIER OR THROUGH TWO TEMPORARY SEDIMENT CONTROLS BEFORE ENTERING A 404 STREAM.
- ② FOR LANDOWNER STOCKPONDS WITHIN 50' OF THE RIGHT OF WAY LINE, PROVIDE REDUNDANT SEDIMENT CONTROLS AT THE CONVEYANCE OF THE POND. MINIMUM OF TWO SEDIMENT CONTROLS.
- ③ WHEN CONTAINMENT AREA REACHES 1' FREEBOARD, DISCONTINUE WASHOUT PLACEMENT AND REMOVE MATERIAL UPON SOLIDIFICATION.
- ④ EACH TIME SOLIDIFIED MATERIAL IS REMOVED REPLACE PLASTIC SHEETING.



BEST MANAGEMENT PRACTICE (BMP) #17
HORIZONTAL INLET SEDIMENT CONTROL



BEST MANAGEMENT PRACTICE (BMP) #18
LANDOWNER STOCKPOND SEDIMENT CONTROL ②

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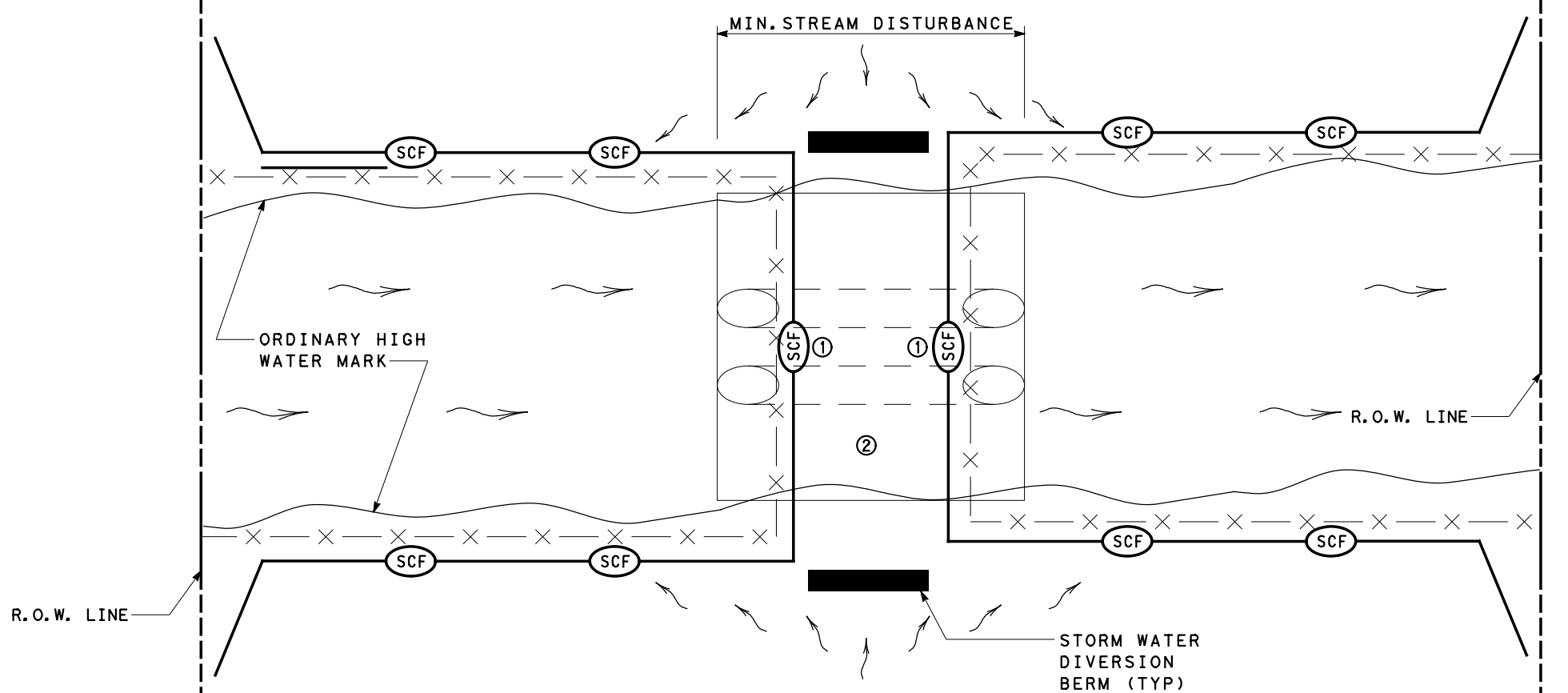
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TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

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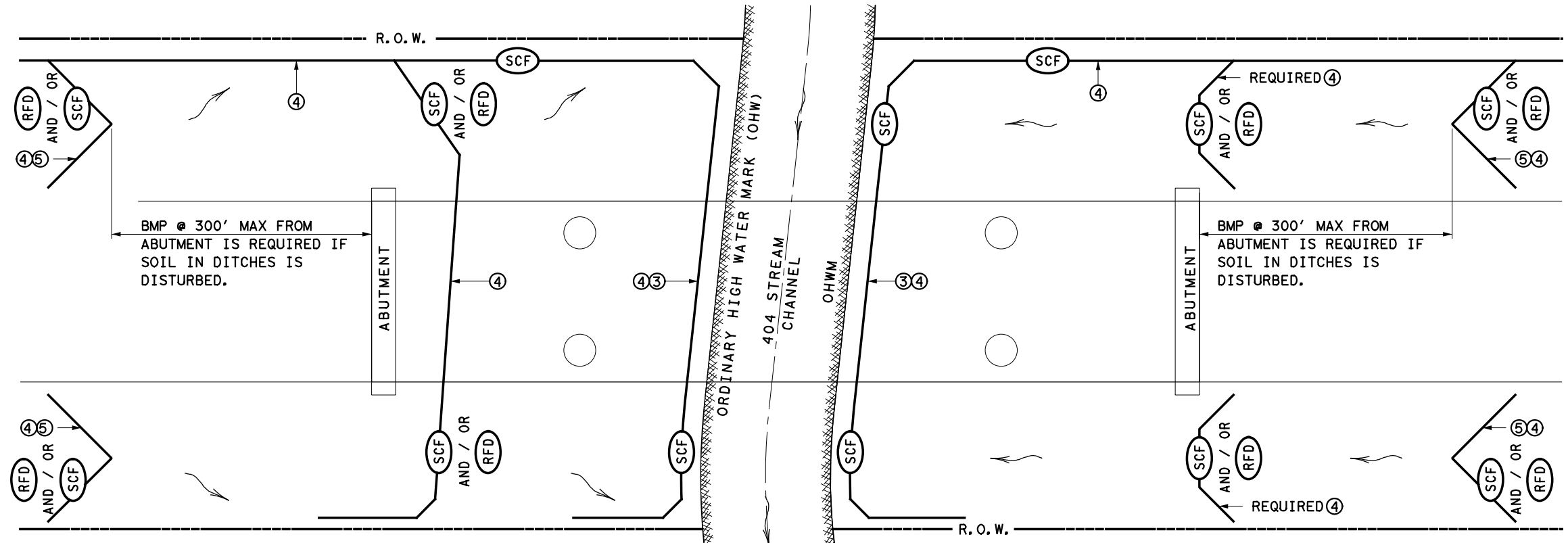
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BEST MANAGEMENT PRACTICE (BMP) #19
 TYPICAL 404 STREAM CROSSING (SEDIMENT CONTROL AT CROSSING)

| | |
|--|------------------------|
| | DIRECTION OF FLOW |
| | SEDIMENT CONTROL FENCE |
| | ROCK FILTER DAM |
| | SECURITY FENCING |

- ① HAY BALES MAY BE SUBSTITUTED FOR SILT FENCE OVER THE STREAM CROSSING.
- ② CROSSING WILL BE AS PER REQUIREMENTS OF THE WATERS OF THE US GENERAL NOTES.
- ③ INSTALL SILT FENCE SLIGHTLY UP FROM OHW MARK FROM R.O.W. TO R.O.W.
- ④ USE SILT FENCE L-HOOKS ON LEVEL OR DOWN SLOPING ENDS TO BLOCK STORM WATER SEDIMENT
- ⑤ INSTALL LARGE V OR U SHAPED BMP'S FROM ABUTMENT AS SHOWN. IF THERE IS STEEP DITCH CONDITIONS DECREASE SPACING AND CONSIDER RFD'S. ADD ADDITIONAL BMP'S IF GRADE IS STEEP OR IF FLOW IS HIGH.



BEST MANAGEMENT PRACTICE (BMP) #20
 FOR 404 STREAMS ~ BMP'S AT BRIDGES

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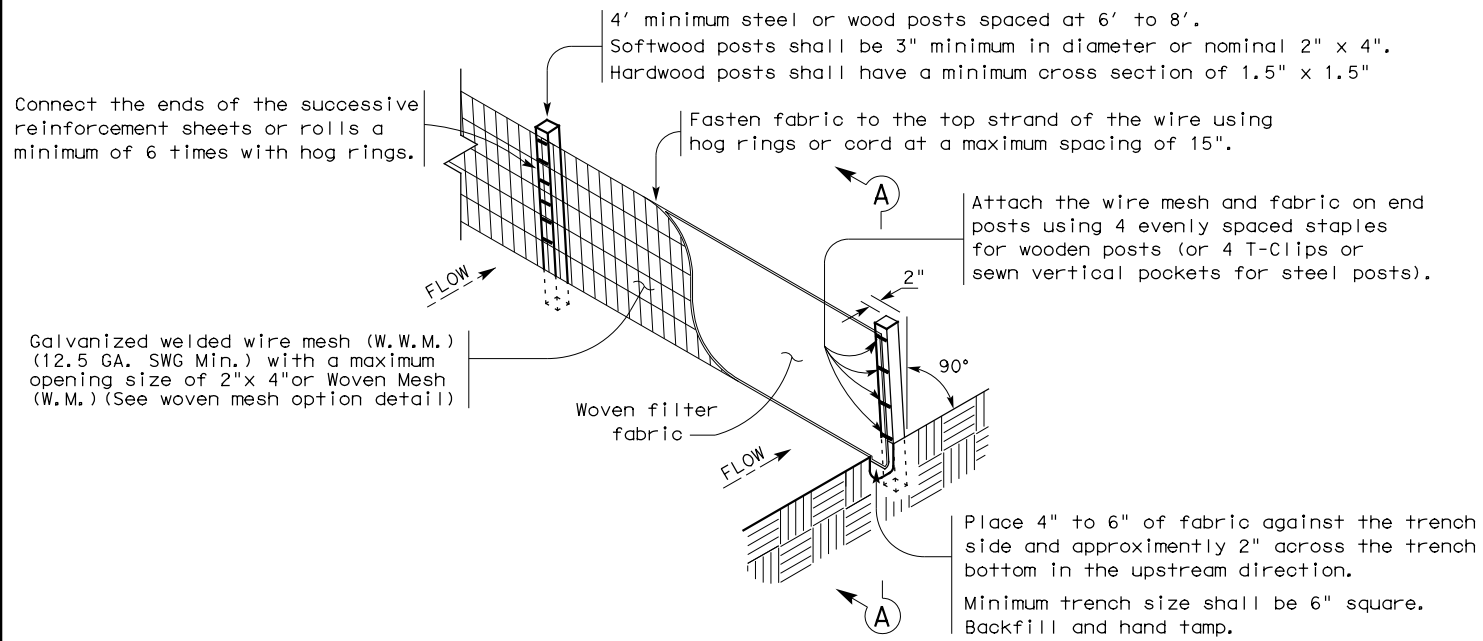
TYPICAL APPLICATIONS FOR BEST MANAGEMENT PRACTICES

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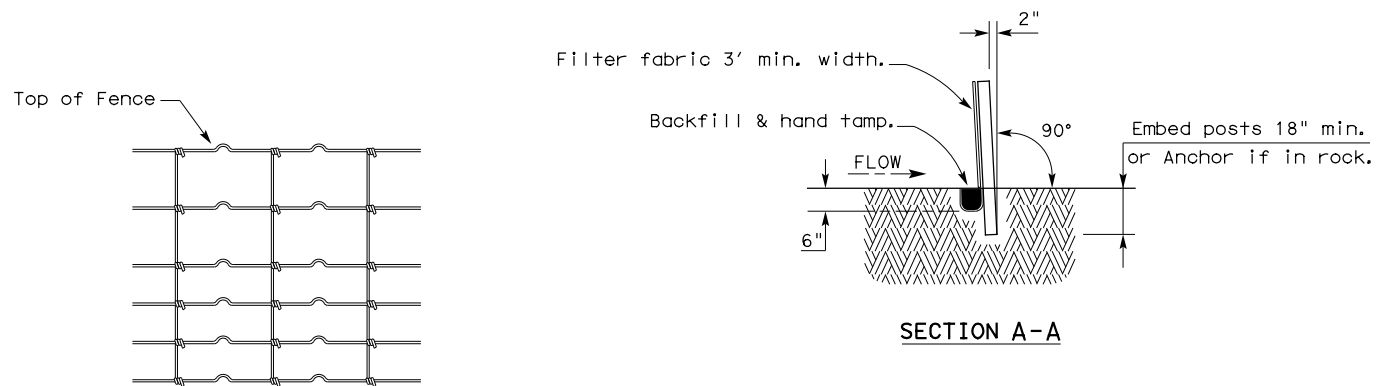
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TEMPORARY SEDIMENT CONTROL FENCE

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.

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.

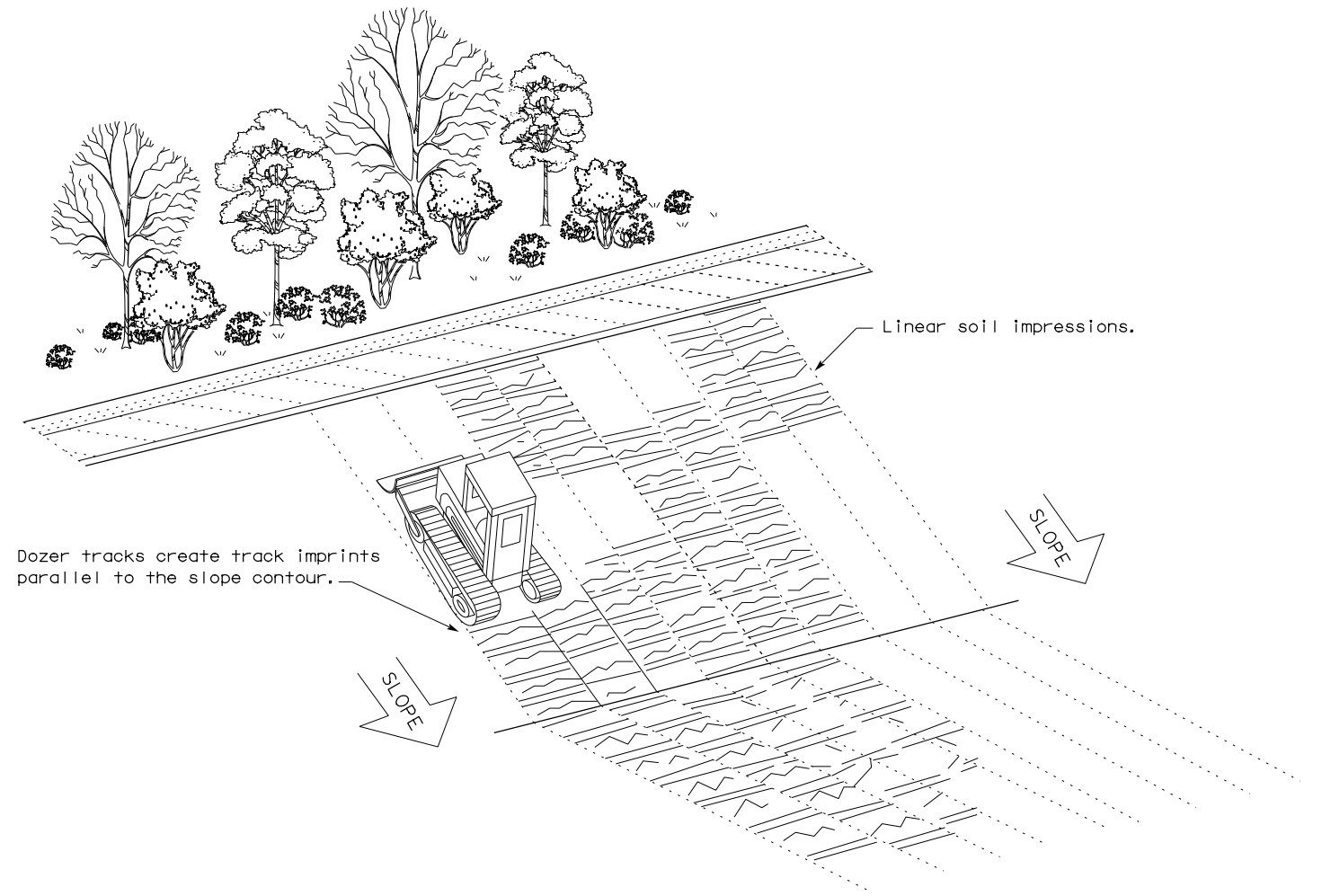
Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT². Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

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 continuous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.

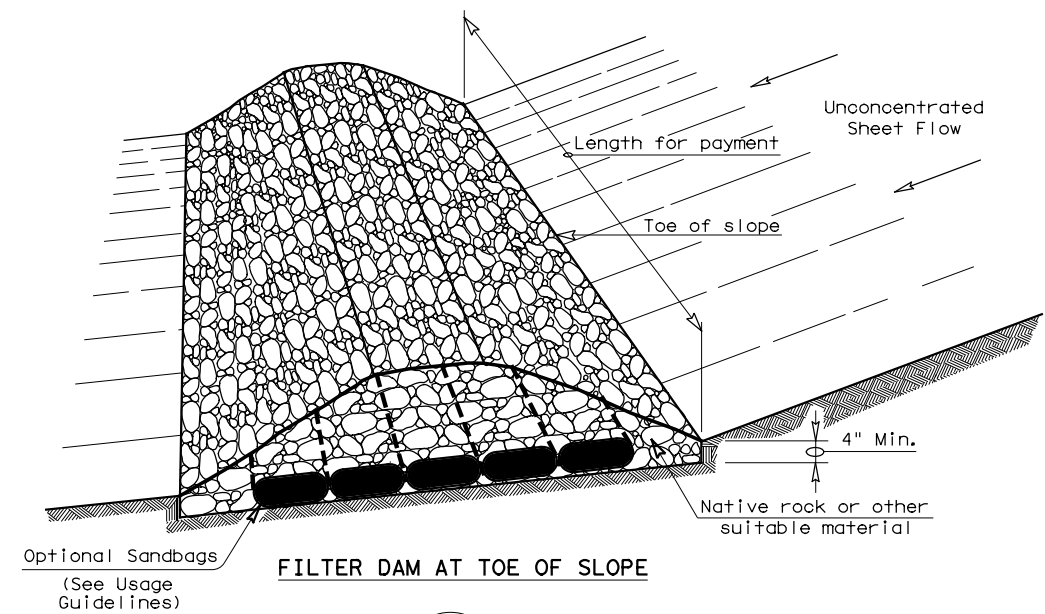


VERTICAL TRACKING

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| | | | | Design Division Standard | |
| TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES FENCE & VERTICAL TRACKING EC(1)-16 | | | | | |
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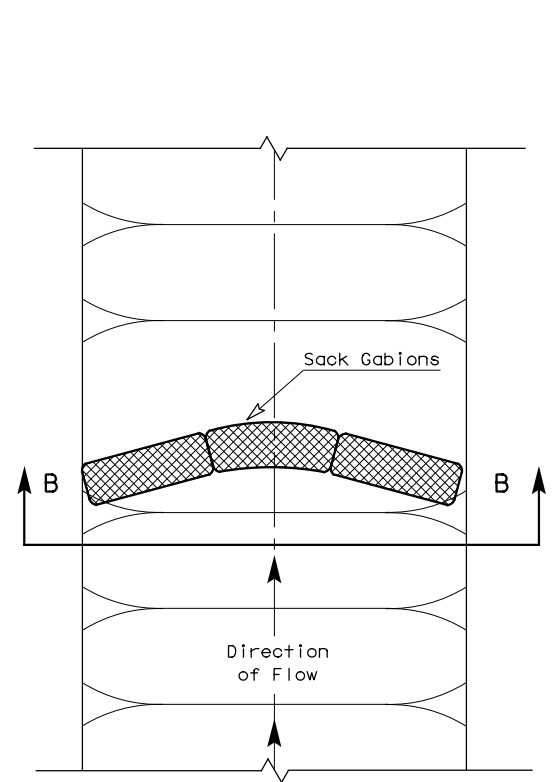
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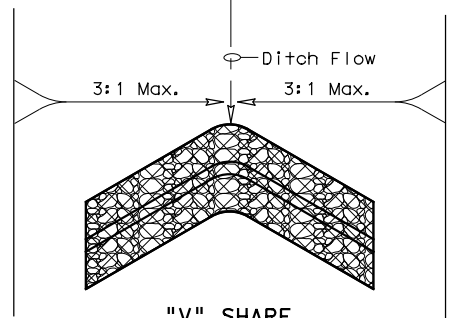


FILTER DAM AT TOE OF SLOPE

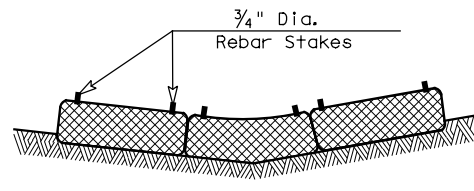
— (RFD1) —



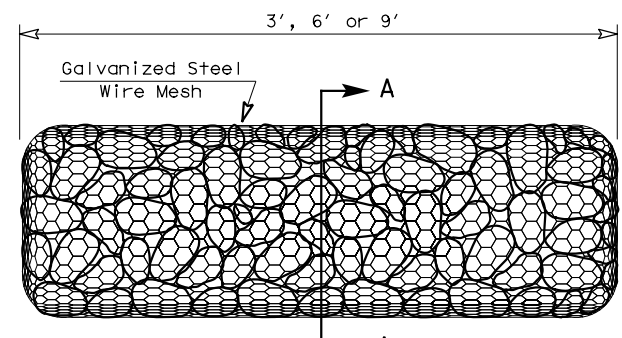
PLAN VIEW



"V" SHAPE PLAN VIEW

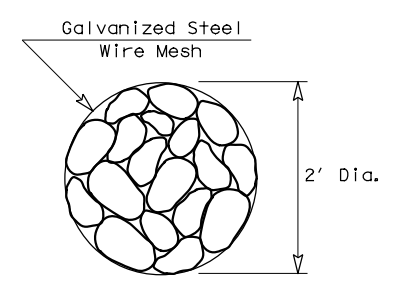


SECTION B-B

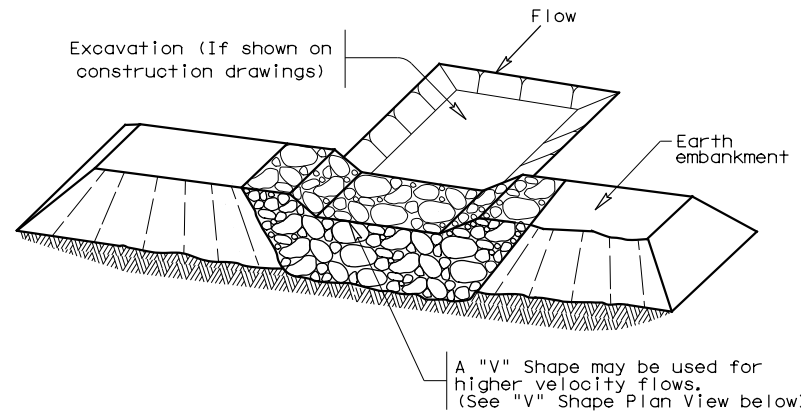


TYPE 4 (SACK GABIONS)

— (RFD4) —

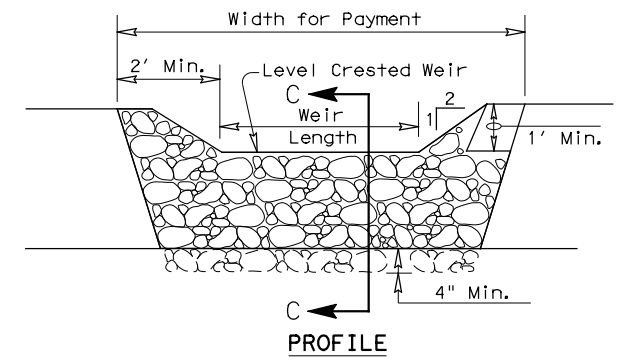


SECTION A-A

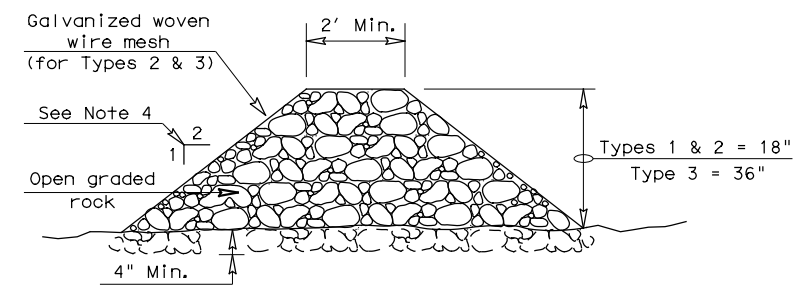


FILTER DAM AT SEDIMENT TRAP

— (RFD1) OR (RFD2) —



PROFILE



SECTION C-C

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/FT² of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

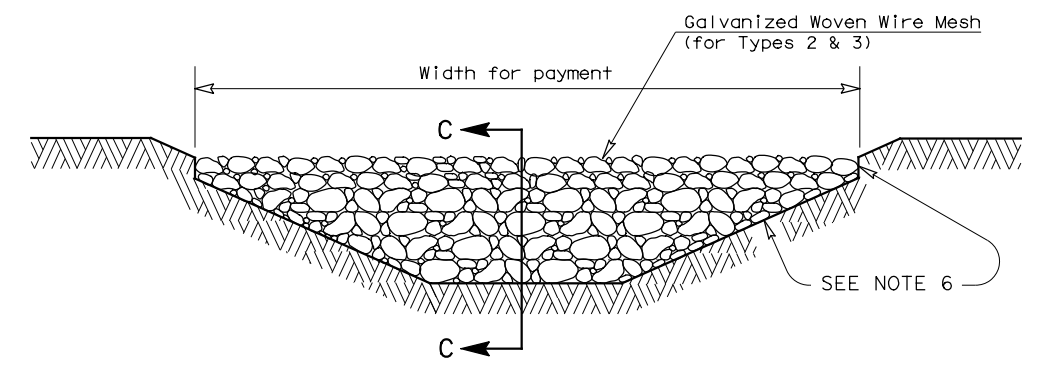
Type 1 (18" high with no wire mesh) (3" to 6" aggregate): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approximately 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.



FILTER DAM AT CHANNEL SECTIONS

— (RFD1) OR (RFD2) OR (RFD3) —

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 3/4" dia. rebar stakes, and have a double-twisted hexagonal weave with a nominal mesh opening of 2 1/2" x 3 1/4".
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) —

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|--|------------------|---------------------------------|----------|
| | | 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 |
| © TxDOT: JULY 2016 | CONT: 0867 | SECT: 01 | JOB: 017 |
| REVISIONS | | HIGHWAY: FM 932 | |
| DIST: WACO | COUNTY: HAMILTON | SHEET NO.: 400 | |