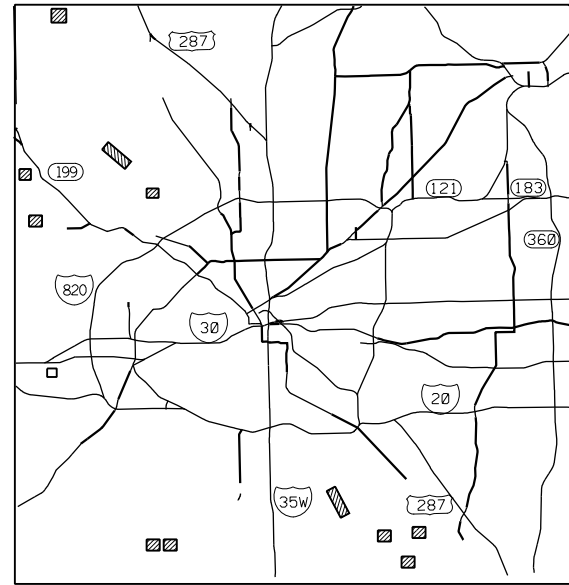


TARRANT COUNTY DEPARTMENT OF TRANSPORTATION SERVICES

COUNTY WIDE OFF-SYSTEM BRIDGE REPAIRS FOR 2015

INDEX OF SHEETS

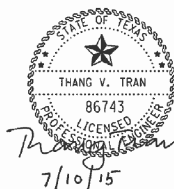
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	LOCATION MAP
3	LOCATION MAP
4	QUANTITIES
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6	DIAMOND BAR TRAIL OVER SOUTH MARY'S CREEK - JOINT DETAILS
7	BENNETT-LAWSON RD OVER WILLOW BRANCH - BRIDGE LAYOUT
8	BENNETT-LAWSON RD OVER WILLOW BRANCH - CULVERT TOP SLAB REPAIR DETAILS
9	TEAGUE ROAD OVER WILLOW BRANCH - BRIDGE LAYOUT
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11	RENDON ROAD OVER TRIBUTARY OF VILLAGE CREEK - BRIDGE LAYOUT 2 OF 2
12	RENDON ROAD OVER TRIBUTARY OF VILLAGE CREEK - TYPICAL SECTIONS
13	RENDON ROAD OVER TRIBUTARY OF VILLAGE CREEK - SLAB & BEAM DETAILS
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15	LEVY COUNTY LINE OVER WALNUT CREEK - BRIDGE LAYOUT
16	CRYSTAL LANE OVER TRIBUTARY OF DEER CREEK - BRIDGE LAYOUT
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19	SILVER CREEK AZLE ROAD OVER MILL CREEK - BRIDGE LAYOUT
20	SILVER CREEK AZLE ROAD OVER MILL CREEK - VOID REPAIR
21	SILVER CREEK AZLE ROAD OVER ASH CREEK - BRIDGE LAYOUT
22	SILVER CREEK AZLE ROAD OVER ASH CREEK - GABION RIPRAP
23	LIBERTY SCHOOL ROAD OVER BRIAR CREEK (SOUTH BRIDGE) - BRIDGE LAYOUT
24	TEN MILE BRIDGE ROAD OVER WEST FORK TRINITY RIVER - BRIDGE LAYOUT
25	TEN MILE BRIDGE ROAD OVER WEST FORK TRINITY RIVER - BRIDGE REPAIR QUANTITIES
26	TEN MILE BRIDGE ROAD OVER WEST FORK TRINITY RIVER - COLUMN REPAIR DETAIL 1 OF 2
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28	TEN MILE BRIDGE ROAD OVER LAKE WORTH TRIBUTARY - BRIDGE LAYOUT
29	TEN MILE BRIDGE ROAD OVER LAKE WORTH TRIBUTARY - WINGWALL REPAIR DETAILS
30	CONCRETE REPAIR DETAILS 1 OF 3
31	CONCRETE REPAIR DETAILS 2 OF 3
32	CONCRETE REPAIR DETAILS 3 OF 3
33	CRACK REPAIR DETAILS
34	TRAFFIC CONTROL PLAN - TCP (1-1) - 12
35	TRAFFIC CONTROL PLAN - TCP (1-2) - 12
36	TRAFFIC CONTROL PLAN - TCP (2-8) - 12
37	METAL BEAM GUARD FENCE - GF (31) - 14
38	METAL BEAM GUARD FENCE TRANSITION (TL-2)
39	BRIDGE END DETAIL - BED - 14
40	SINGLE GUARDRAIL TERMINAL - SGT (7) 31 - 14
41 - 42	TRAFFIC RAIL - TYPE T551



LOCATION MAP
NOT TO SCALE



500 W. 7TH ST., SUITE 1100
FORT WORTH, TX 76102
817-339-8950
817-336-2247
FIRM REG. #: 3557



F-3557

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LIBERTY SCHOOL
ROAD OVER
BRIAR CREEK
(SOUTH BRIDGE)

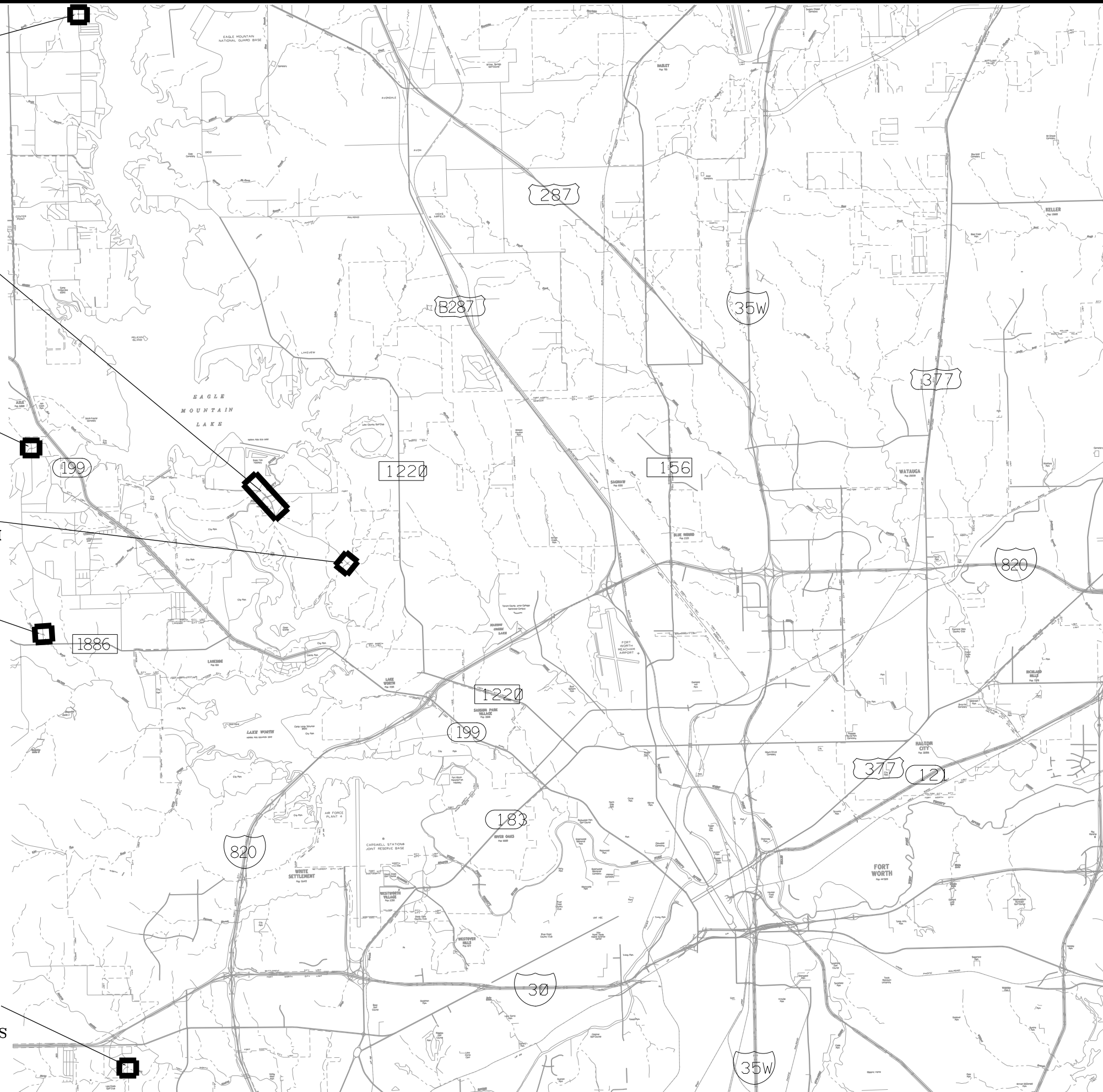
TEN MILE BRIDGE
RD AT WEST FORK
TRINITY RIVER

SILVER CREEK
AZLE RD OVER
TRIBUTARY OF
ASH CREEK

TEN MILE BRIDGE
RD AT LAKE WORTH
TRIBUTARY

SILVER CREEK
AZLE OVER
MILL CREEK

DIAMOND BAR
TRAIL OVER
SOUTH MARY'S
CREEK



500 W. 7TH ST., SUITE 1100
FORT WORTH, TX 76102
817-339-8950
817-336-2247
FIRM REG. #: 3557

CONSULTANTS



BRIDGE REPAIRS

TARRANT COUNTY

MARK	DATE	DESCRIPTION
------	------	-------------

PROJ NO: P202120209

SCALE: NTS

DATE: 9/17/2014

DESIGNED BY: TVT

DRAWN BY: EO

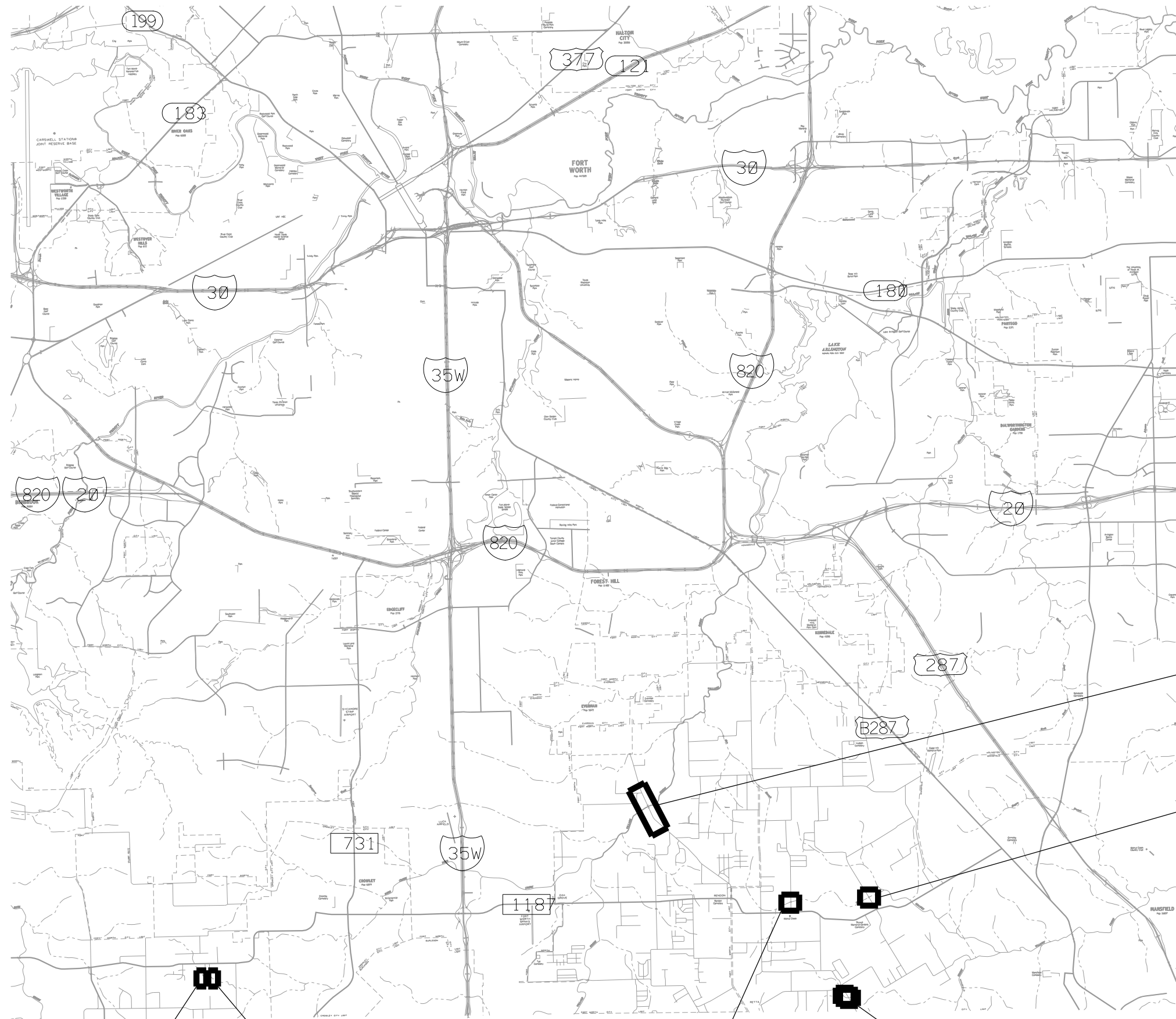
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SHEET TITLE

PRECINCT 4

LOCATION MAP

2



CRYSTAL LANE
AT TRIBUTARY
OF DEER CREEK

STERLING DRIVE
OVER TRIBUTARY
OF DEER CREEK

TEAGUE RD AT
WILLOW CREEK

LEVY COUNTY LINE RD
OVER WALNUT CREEK

RENDON RD OVER
TRIBUTARY OF
VILLAGE CREEK

BENNETT-LAWSON RD
OVER WILLOW BRANCH



500 W. 7TH ST., SUITE 1100
FORT WORTH, TX 76102
817-339-8950
817-336-2247
FIRM REG. #: 3557

CONSULTANTS



BRIDGE REPAIRS
TARRANT COUNTY

MARK	DATE	DESCRIPTION

PROJ NO: P202120209
SCALE: NTS
DATE: 9/17/2014
DESIGNED BY: TVT
DRAWN BY: EO
CHECKED BY: MFB

SHEET TITLE
PRECINCT 1
LOCATION MAP

TABLE OF ESTIMATED QUANTITIES

ITEM NO	DES CODE	DESCRIPTION	UNITS	DIAMOND BAR TRAIL	BENNETT-LAWSON ROAD	TEAGUE ROAD	RENDON ROAD	LEVY COUNTY LINE	CRYSTAL LANE	STERLING DRIVE	SILVER CREEK AZLE OVER MILL CREEK	SILVER CREEK AZLE OVER ASH CREEK	LIBERTY SCHOOL ROAD	TEN MILE BRIDGE ROAD AT WEST FORK	TEN MILE BRIDGE ROAD AT LAKE WORTH	TOTAL
164	2021	CELL FBR MLCH SEED (PERM) (RURAL) (SANDY)	SY		50		50		50	50		50		50	50	350
164	2023	CELL FBR MLCH SEED (PERM) (RURAL) (CLAY)	SY		50		50		50	50		50		50	50	350
401	2001	FLOWABLE BACKFILL	CY								1					1
420	2013	CL C CONC (MISC)	CY				5.0							1.4	0.5	6.9
429	2007	CNC STR REP (HORIZONTAL)	SF											128		128
429	2008	CNC STR REP (VERTICAL OR OVERHEAD)	SF		260	28	192	109	230	122	38	42	193	271	244	1729
438	2002	CLEAN AND SEAL EXIST JOINTS	LF	58												58
450	2143	RAILING (TY T551)	LF				32									32
459	2002	GABIONS (GAL)	CY								14					14
496	2013	REMOVE STR (BRIDGE SLAB)	EA				1									1
502	2001	BARRICADES, SIGNS AND TRAFFIC HANDLING	DAY	2	7		32				10			15	5	71
508	2002	CONSTRUCTING DETOURS	SY				25									25
540	2001	MTL W-BEAM GD FEN (TIM POST)	LF				37.5									37.5
540	2012	MTL BEAM GD FEN TRANS (TL2)	EA				1									1
544	2001	GUARDRAIL END TREATMENT (INSTALL)	EA				1									1
780	2001	EPOXY INJECTION (TY IX)	LF		28		21	8	31	4		6	80	70	8	256
-	-	SEAL DECK	SF		945				1765	4380		1325		5730		14145

NOTE: UNLESS OTHERWISE NOTED, ITEMS SHOWN IN THE TABLE SHALL CONFORM TO THE TXDOT'S 2004 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAY, STREETS AND BRIDGES.

GENERAL CONSTRUCTION NOTES

1. PLAN AND ELEVATION PLAN AND ELEVATION ARE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. THEY ARE INTENDED TO SHOW LOCATION OF DAMAGE AREAS TO BE REPAIRED ONLY. THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS OF THE REPAIR AREAS PRIOR TO COMMENCING WORK.
2. THE CONTRACTOR SHALL UTILIZE TEXAS811 (WWW.TEXAS811.ORG) SERVICES AND LOCATE ALL UNDERGROUND FACILITIES BEFORE ANY EXCAVATION OPERATIONS THAT MAY BE REQUIRED. THE LOCATION OF UNDERGROUND UTILITIES AND MOST EXISTING TOPOGRAPHICAL FEATURES ARE NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL VERIFY THE EXACT SIZE, LOCATION, ELEVATION AND CONFIGURATION OF ALL UTILITIES AND FEATURES PRIOR TO EXCAVATION OR CONSTRUCTION. VERIFICATION SHALL BE CONSIDERED AS SUBSIDIARY TO THE COST OF THE PROJECT. NO SEPARATE PAY ITEM.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING GENERAL SAFETY AT AND ADJACENT TO THE PROJECT AREA. CONTRACTOR SHALL DEVELOP A SAFETY PLAN FOR WORKERS AND TO PROTECT THE GENERAL PUBLIC FROM THE CONSTRUCTION SITE AND ACTIVITIES.
4. CONTRACTOR SHALL SUBMIT WRITTEN REQUEST TO THE COUNTY FOR APPROVAL OF ALL AREAS TO BE USED FOR STAGING MOBILIZATION, EQUIPMENT AND MATERIAL STORAGE AND GENERAL PROJECT CONSTRUCTION MANAGEMENT. REQUEST SHALL BE SUBMITTED TO THE COUNTY WITHIN 5 DAYS OF NOTICE TO PROCEED. CONTRACTOR SHALL RESTORE THESE AREAS AND REMOVE SURPLUS MATERIAL TO THE SATISFACTION OF THE COUNTY FOLLOWING COMPLETION OF CONSTRUCTION AT EACH SITE.
5. NO EQUIPMENT OR MATERIAL SHALL BE DEPOSITED ON PRIVATE PROPERTY WITHOUT WRITTEN PERMISSION FROM THE PROPERTY OWNERS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL DAMAGES AND SHALL REMOVE MATERIAL PLACED WITHOUT PERMISSION AT THE CONTRACTOR'S OWN COST. NO EXCESS EXCAVATED MATERIAL SHALL BE DEPOSITED IN LOW AREAS OR ALONG NATURAL DRAINAGE WAYS WITHOUT THE WRITTEN PERMISSION FROM THE AFFECTED PROPERTY OWNER AND THE COUNTY FLOOD PLAIN ADMINISTRATOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM SUCH FILL AND THE CONTRACTOR SHALL REMOVE THE MATERIAL AT THE CONTRACTOR'S OWN COST. THE CONTRACTOR SHALL NOTIFY THE COUNTY IN WRITING OF ANY MATERIAL DEPOSITED OUTSIDE OF COUNTY LIMITS.
6. CONTRACTOR SHALL VIDEO DOCUMENT EACH SITE PRIOR TO CONSTRUCTION AND PROVIDE THIS DOCUMENTATION TO THE COUNTY. VIDEO SHALL CONTAIN DATE NOTATION AND AUDIO IDENTIFICATION OF EACH CONSTRUCTION SITE. DOCUMENTATION SHALL BE CONSIDERED SUBSIDIARY WITH NO SEPARATE PAY ITEM.
7. THE CONTRACTOR SHALL RESTORE EACH SITE TO ORIGINAL CONDITION FOLLOWING THE COMPLETION OF CONSTRUCTION. THIS SHALL INCLUDE BUT IS NOT LIMITED TO RETAINING WALLS, BUILDINGS, WALKS, TREES, SHRUBS, HEDGES, AND OTHER ENVIRONMENTAL FEATURES DAMAGED BY THE CONTRACTOR'S OPERATIONS. ALL VEGETATED AREAS DAMAGED BY CONSTRUCTION SHALL BE GRADED TO MATCH EXISTING CONDITION AND SEEDED. DAMAGE SHALL BE REPAIRED TO THE SATISFACTION OF THE COUNTY WITHOUT A SEPARATE PAY ITEM.
8. THE CONTRACTOR SHALL UTILIZE BEST MANAGEMENT PRACTICES TO KEEP ADJACENT ROADWAY, SIDEWALKS AND WATERWAYS FREE FROM SEDIMENTATION AND DEBRIS FROM CONSTRUCTION.
9. UNLESS OTHERWISE NOTED, CONTRACTOR SHALL UTILIZE STANDARD TXDOT TEMPORARY TRAFFIC CONTROL TCP (1-1)-12 FOR SHOULDER-ONLY WORK AND TCP (1-2)-12 FOR SHORT TERM, TEMPORARY ONE-LANE, TWO-WAY TRAFFIC CONTROL. A MINIMUM OF 10' LANES SHALL BE MAINTAINED AT ALL TIMES, IN BOTH TWO AND ONE LANE OPERATIONS. MODIFICATIONS TO THE RECOMMENDED TRAFFIC CONTROL PLAN SHALL REQUIRE THE SEAL AND SIGNATURE OF A LICENSED PROFESSIONAL ENGINEER.
10. MOBILIZATION IS NOT A SEPARATE PAY ITEM AND SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER PAY ITEMS.



500 W. 7TH ST., SUITE 1100
FORT WORTH, TX 76102
817-339-8950
817-336-2247
FIRM REG. #: 3557

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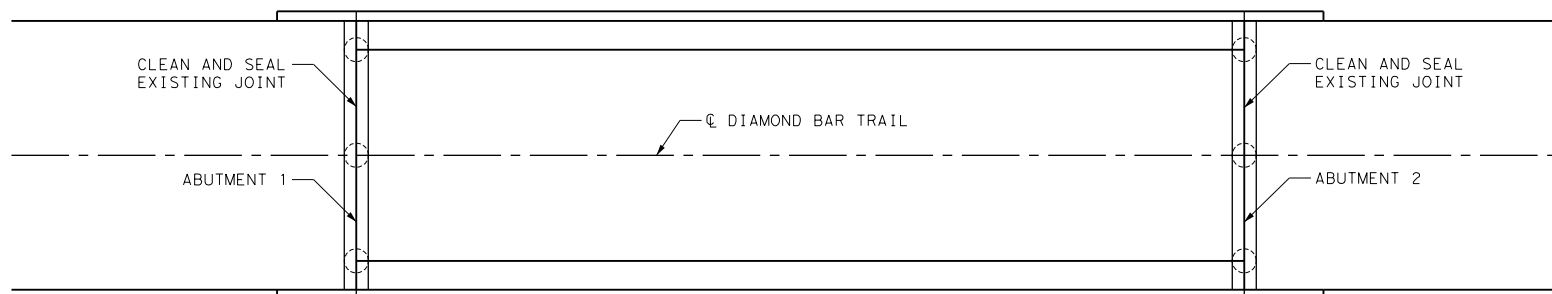
F-3557

BRIDGE REPAIRS
TARRANT COUNTY

MARK	DATE	DESCRIPTION

PROJ NO: P202120209
SCALE: NTS
DATE: 9/17/2014
DESIGNED BY: TVT
DRAWN BY: EO
CHECKED BY: MFB

SHEET TITLE
TARRANT COUNTY
BRIDGE REPAIRS
QUANTITIES



NOTES:

1. DIMENSIONS, PLAN AND ELEVATION REPRESENTATIONS AND LOCATIONS ARE APPROXIMATE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY.
2. CONTRACTOR SHALL DOCUMENT AND RESTORE SITE TO ORIGINAL CONDITION.
3. FOR ADDITIONAL NOTES AND GUIDELINES, SEE GENERAL NOTES, SHEET 4.

Location	Description
	LF
Abut 1	29.00
Abut 2	29.00
TOTAL =	58.00



500 W. 7TH ST., SUITE 1100
 FORT WORTH, TX 76102
 817-339-8950
 817-336-2247
 FIRM REG. #: 3557

CONSULTANTS



Thang V. Tran
 8/29/2014
 F-3557

BRIDGE REPAIRS
 TARRANT COUNTY

MARK	DATE	DESCRIPTION

PROJ NO: P202120209
 SCALE: NTS
 DATE: 9/17/2014
 DESIGNED BY: TVT
 DRAWN BY: EO
 CHECKED BY: MFB

SHEET TITLE
 DIAMOND BAR TRAIL
 OVER SOUTH MARY'S CREEK
 BRIDGE LAYOUT
 1 - 90' SPAN

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 FORT WORTH, TX 76102
 817-339-8950
 817-336-2247
 FIRM REG. #: 3557

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Thang V. Tran
 8/29/2014
 F-3557

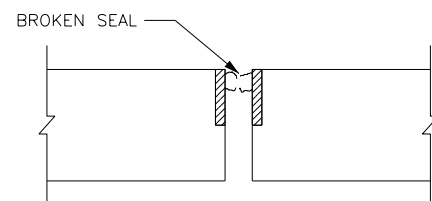
BRIDGE REPAIRS
 TARRANT COUNTY

MARK	DATE	DESCRIPTION

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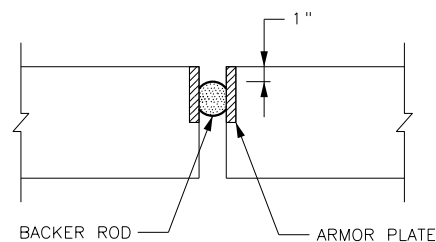
SHEET TITLE

DIAMOND BAR TRAIL
 OVER SOUTH MARY'S CREEK
 JOINT DETAILS



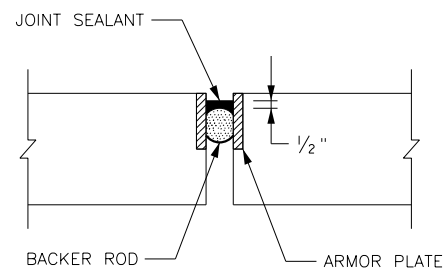
STEP 1

PREPARATION:
 COMPLETELY REMOVE REMAINS OF EXISTING JOINT
 AND ALL SEALANT. THOROUGHLY CLEAN THE
 EXISTING JOINT OPENING OF ALL MATERIAL AND
 DEBRIS BY SANDBLASTING, USING COMPRESSED
 AIR TO REMOVE DUST AND DIRT.



STEP 2

INSTALL BACKER ROD:
 BACKER ROD SHALL BE LARGER THAN JOINT
 OPENING AND SHALL BE COMPATIBLE WITH JOINT
 SEALANT. SET TOP OF BACKER ROD 1" BELOW TOP
 OF ARMOR PLATES. BACKER ROD SHALL BE FULL
 LENGTH ACROSS THE JOINT. USE OF MULTIPLE
 PIECES SHALL NOT BE PERMITTED. TOP OF
 BACKER ROD MUST BE CONVEX AS SHOWN.



STEP 3

INSTALL SEALANT:
 USE CLASS 7 JOINT SEALANT THAT CONFORMS TO
 DMS-6310. PLACE SEALANT WHILE AMBIENT
 TEMPERATURE IS BETWEEN 55°F AND 80°F AND IS
 RISING. PERFORM WORK IN ACCORDANCE WITH TX
 DOT STANDARD SPECIFICATION ITEM 438,
 "CLEANING AND SEALING EXISTING JOINT AND
 CRACKS."

CONSULTANTS



BRIDGE REPAIRS
TARRANT COUNTY

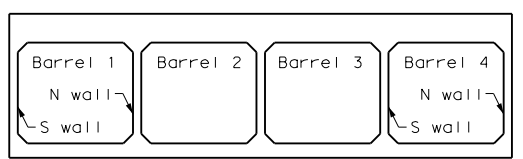
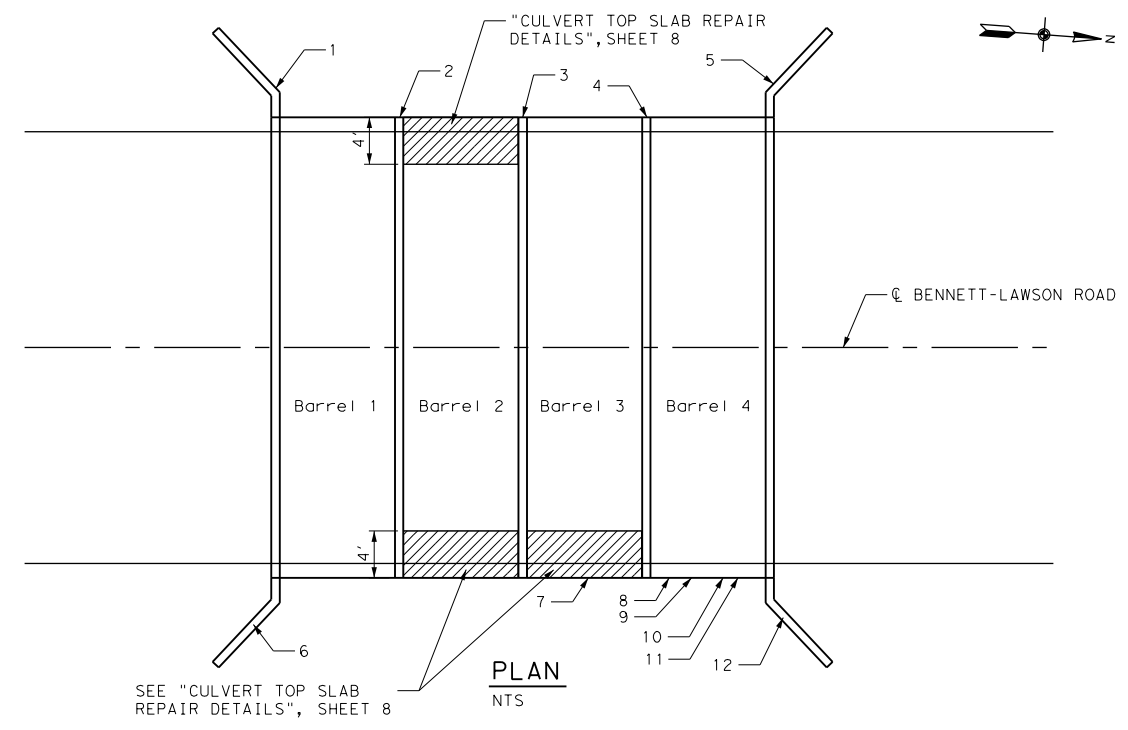
MARK	DATE	DESCRIPTION

PROJ NO: P202120209
SCALE: NTS
DATE: 9/17/2014
DESIGNED BY: TVT
DRAWN BY: EO
CHECKED BY: MFB

SHEET TITLE
BENNETT-LAWSON RD
OVER WILLOW BRANCH
BRIDGE LAYOUT
4 - 8'X7' MBC

NOTES:

- SEE SHEET 30-32, "CONCRETE REPAIR DETAILS" FOR NOTES AND REPAIR DETAILS.
- DIMENSIONS, PLAN AND ELEVATION REPRESENTATIONS AND LOCATIONS ARE APPROXIMATE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY.
 - THE COUNTY SHALL REMOVE EXISTING ASPHALT OVERLAY ON THE BRIDGE DECK.
 - THE CONTRACTOR SHALL SEAL TOP OF DECK WITH EPOXY, SIKADUR 55 SLV, SUPER LOW-VISCOSITY OR APPROVED EQUAL, BY THE ENGINEER. FOLLOW MANUFACTURER'S INSTRUCTION FOR MIXING AND APPLICATION.
 - THE COUNTY SHALL OVERLAY THE DECK WITH ASPHALT CONCRETE AFTER SEALING.
- CONTRACTOR AND COUNTY SHALL PERFORM WORK, AS PART OF THESE REPAIRS, TO SEAL THE TOP OF THE DECK. THE CONTRACTOR SHALL WORK WITH THE COUNTY REPRESENTATIVE TO COORDINATE THESE OPERATIONS.
- CONTRACTOR SHALL DOCUMENT AND RESTORE SITE TO ORIGINAL CONDITION.
- NO WATER WAS PRESENT AT THE TIME OF INSPECTION.
- MODIFICATIONS TO THE RECOMMENDED TRAFFIC CONTROL PLAN SHALL REQUIRE THE SEAL AND SIGNATURE OF A LICENSED PROFESSIONAL ENGINEER.
- FOR ADDITIONAL NOTES AND GUIDELINES, SEE GENERAL NOTES, SHEET 4.



LOOKING WEST
NTS

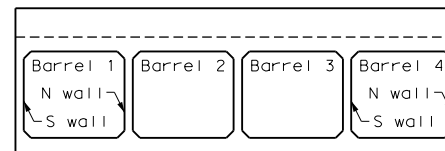
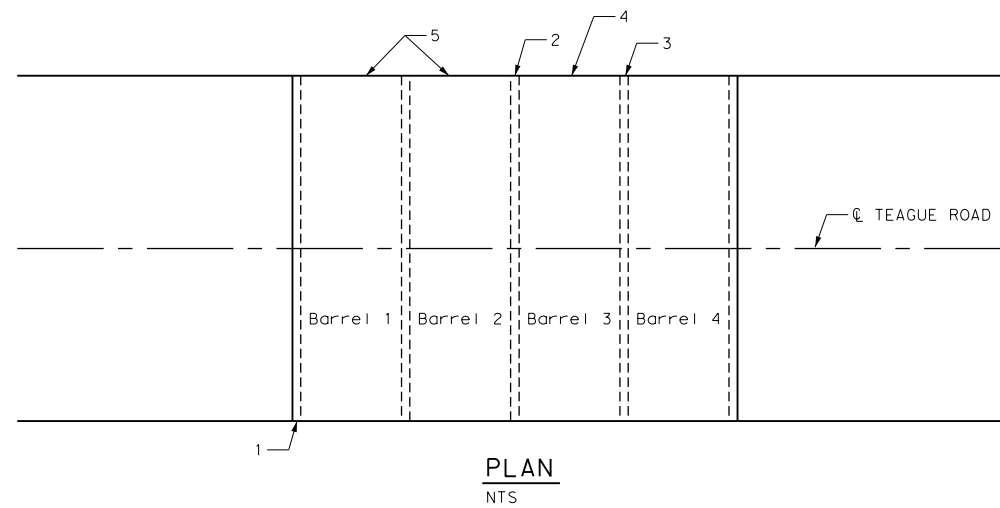
Location		Discription			
		A	B	C	D
		SF	SF	SF	LF
Barrel 1	S Wall		10.00		
	N Wall		4.00	5.00	
Barrel 2	S Wall		2.00		14.00
	N Wall		4.00		
	Top		3.00	68.00	
Barrel 3	S Wall		16.00	5.00	
	N Wall		6.00	3.00	
	Top		28.00	39.00	
Barrel 4	S Wall		2.00		14.00
	N Wall		11.00		
	Top		2.00	18.00	
TOTAL =		0.0	88.0	138.0	28.0

Location	Discription	Area SF
1	B	9.00
2	B	3.00
3*	C	4.00
4	B	4.00
5	B	3.00
6	B	2.00
7	B	1.00
8	B	1.00
9	B	2.00
10	B	1.00
11	B	2.00
12	B	2.00
Total =		34.00

* See CONCRETE REPAIR DETAIL SHEET 32

- Damage Discription
- A : Delamination
 - B : Spalling with no rebar exposed
 - C : Spalling with rebar exposed
 - D : Crack

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NOTES:

1. SEE SHEETS 30-32, "CONCRETE REPAIR DETAILS" FOR NOTES AND REPAIR DETAILS.
2. DIMENSIONS, PLAN AND ELEVATION REPRESENTATIONS AND LOCATIONS ARE APPROXIMATE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY.
3. CONTRACTOR SHALL DOCUMENT AND RESTORE SITE TO ORIGINAL CONDITION.
4. NO WATER WAS PRESENT AT THE TIME OF INSPECTION.
5. FOR ADDITIONAL NOTES AND GUIDELINES, SEE GENERAL NOTES, SHEET 4.



500 W. 7TH ST., SUITE 1100
FORT WORTH, TX 76102
817-339-8950
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CONSULTANTS



BRIDGE REPAIRS
TARRANT COUNTY

Location		Discription			
		A	B	C	D
		SF	SF	SF	LF
Barrel 1	S Wall		7.00		
	N Wall	9.00			
Barrel 2					
Barrel 3	N Wall		1.00		
Barrel 4					
TOTAL =		9.0	8.0	0.0	0.0

Location	Discription	Area SF
1	B	2.00
2	B	2.00
3	B	1.00
4	B	5.00
5	B	1.00
Total =		11.00

Damage Discription

- A : Delamination
- B : Spalling with no rebar exposed
- C : Spalling with rebar exposed
- D : Crack

MARK	DATE	DESCRIPTION

PROJ NO: P202120209
SCALE: NTS
DATE: 9/17/2014
DESIGNED BY: TVT
DRAWN BY: EO
CHECKED BY: MFB

SHEET TITLE
TEAGUE ROAD
OVER WILLOW BRANCH
BRIDGE LAYOUT
4 - 7'X6' MBC

CONSULTANTS



BRIDGE REPAIRS
TARRANT COUNTY

MARK	DATE	DESCRIPTION

PROJ NO: P202120209
SCALE: NTS
DATE: 9/17/2014
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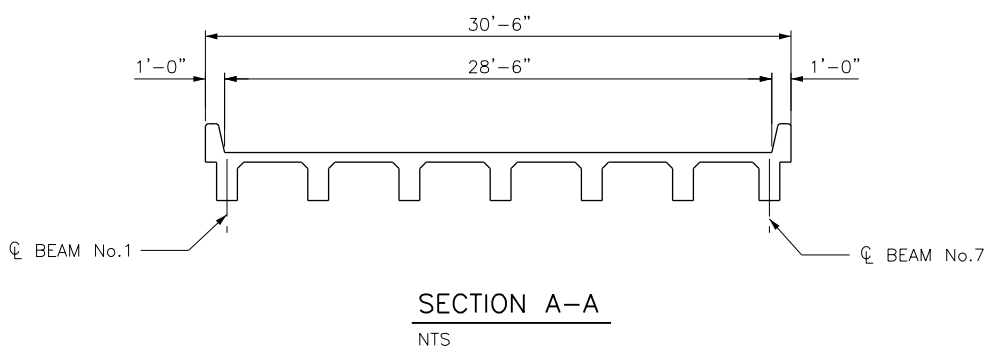
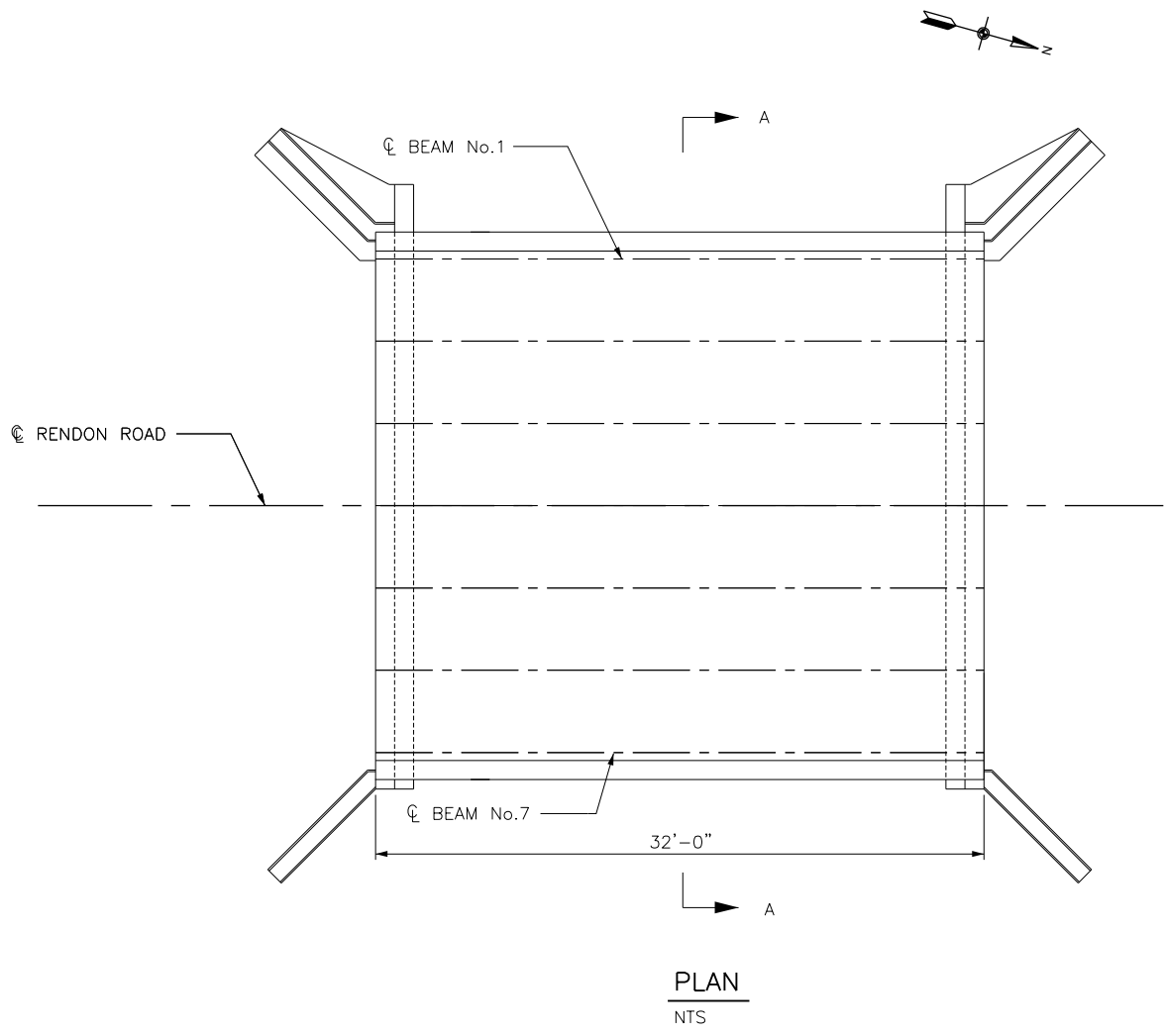
SHEET TITLE
RENDON ROAD OVER
TRIBUTARY OF VILLAGE CREEK
BRIDGE LAYOUT
1 - 32' SPAN
SHEET 1 OF 2

NOTES:

- SEE SHEETS 30-32, "CONCRETE REPAIR DETAILS" FOR NOTES AND REPAIR DETAILS.
- DIMENSIONS, PLAN AND ELEVATION REPRESENTATIONS AND LOCATIONS ARE APPROXIMATE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY.
- THE COUNTY SHALL RESTORE THE ASPHALT OVERLAY TO MATCH THE EXISTING THICKNESS ON THE PORTION OF THE BRIDGE RECONSTRUCTED AS A RESULT OF THESE BEAM REPAIRS. THE CONTRACTOR SHALL NOT BE RESPONSIBLE FOR THIS OVERLAY. NO SEPARATE PAY ITEM.
- CONTRACTOR SHALL DOCUMENT AND RESTORE SITE TO ORIGINAL CONDITION.
- NO WATER WAS PRESENT AT THE TIME OF INSPECTION.
- MODIFICATIONS TO THE RECOMMENDED TRAFFIC CONTROL PLAN SHALL REQUIRE THE SEAL AND SIGNATURE OF A LICENSED PROFESSIONAL ENGINEER.
- FOR ADDITIONAL NOTES AND GUIDELINES, SEE GENERAL NOTES, SHEET 4.

Location	Description			
	A	B	C	D
	SF	SF	SF	LF
North Abutment = Abutment 2				
Abutment		5.00	2.00	6.00
Span I				
West Overhang	See beam replacement details			
Beam 1				
Slab (underside)				
Beam 2		1.00		
Slab (underside)	63.00		3.00	
Beam 3		4.00		
Slab (underside)	17.00		1.00	
Beam 4		5.00		
Slab (underside)	39.00		5.00	
Beam 5		8.00	1.00	3.00
Beam 6		9.00		
Beam 7		5.00		
East Overhang	5.00		1.00	
South Abutment = Abutment I				
Abutment		12.00		12.00
Wingwall				
Southwest corner		3.00		
Northwest corner		3.00		
TOTAL =	124.00	55.00	13.00	21.00

- Damage Description
- A : Delamination
 - B : Spalling with no rebar exposed
 - C : Spalling with rebar exposed
 - D : Crack



CONSULTANTS



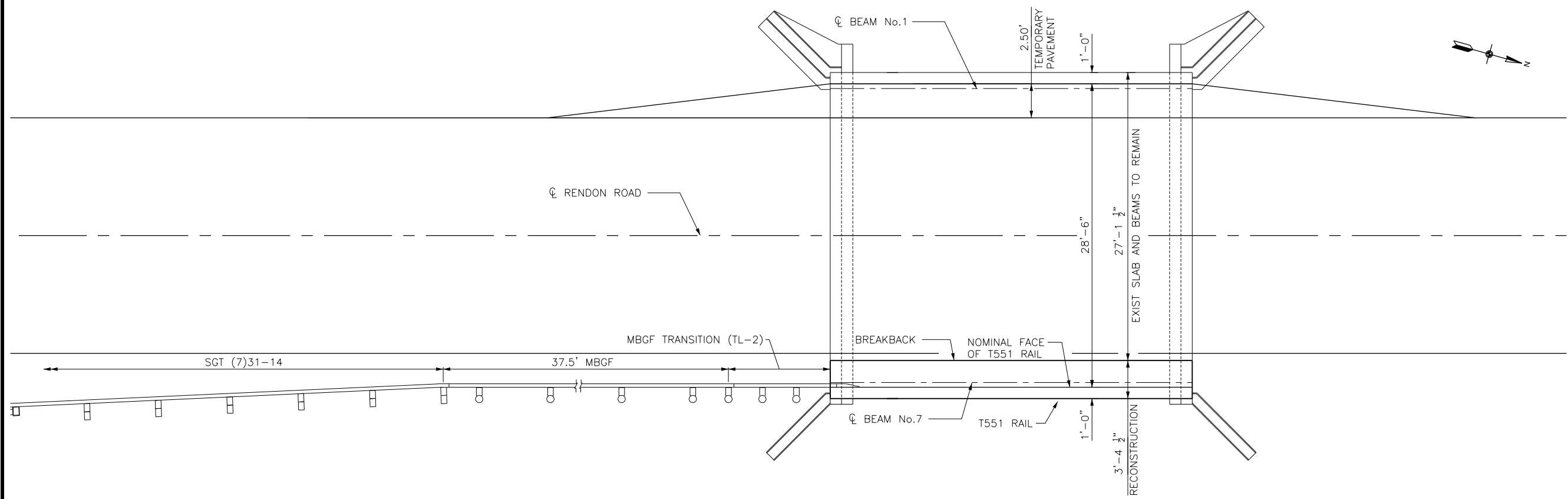
F-3557

BRIDGE REPAIRS
TARRANT COUNTY

MARK	DATE	DESCRIPTION

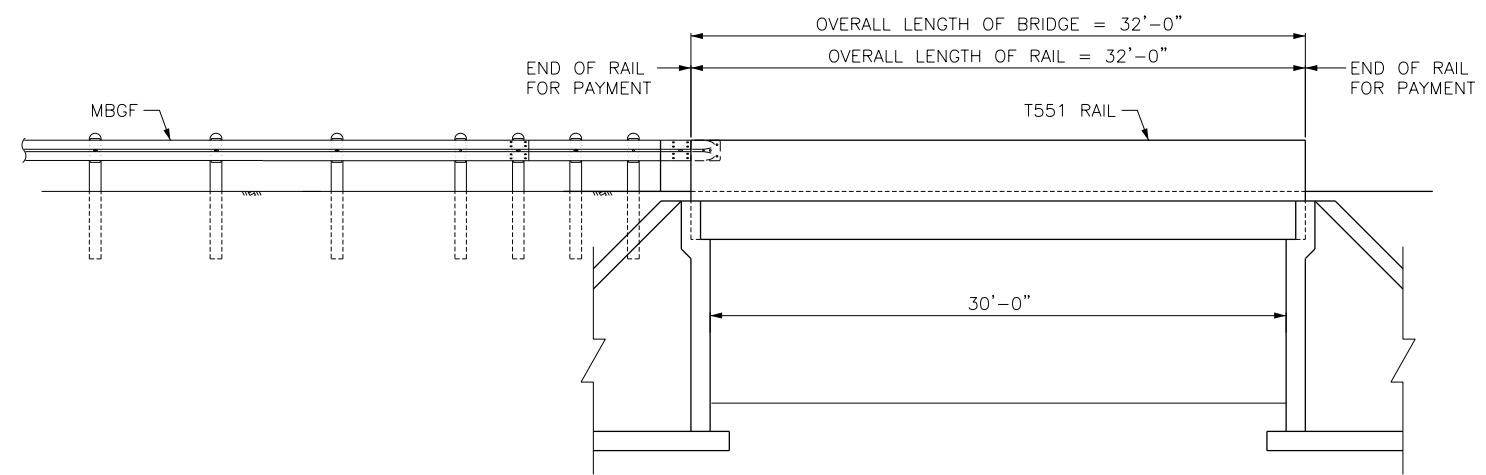
PROJ NO: P202120209
 SCALE: NTS
 DATE: 9/17/2014
 DESIGNED BY: TVT
 DRAWN BY: EO
 CHECKED BY: MFB

SHEET TITLE
 RENDON ROAD OVER
 TRIBUTARY OF VILLAGE CREEK
BRIDGE LAYOUT
 1 - 32' SPAN
 SHEET 2 OF 2



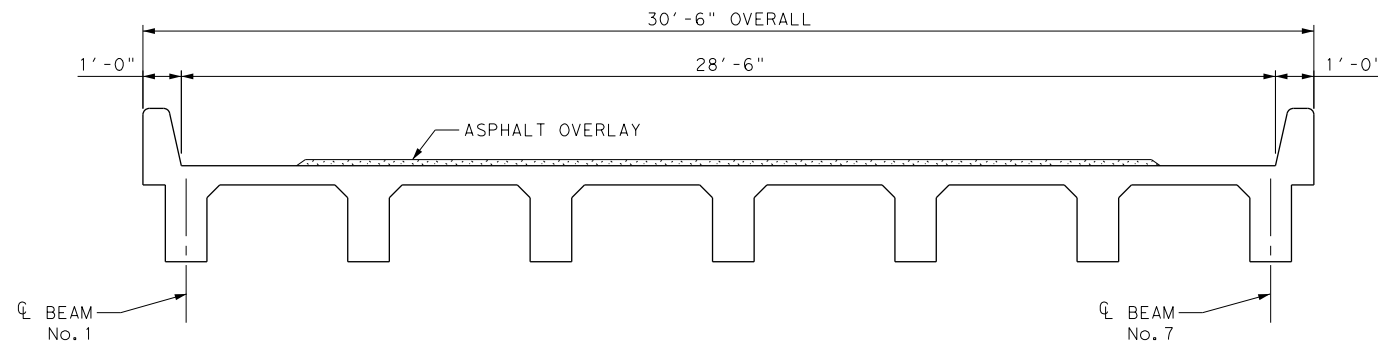
PLAN
 NTS

- NOTES:
1. DIMENSIONS, PLAN AND ELEVATION REPRESENTATIONS AND LOCATIONS ARE APPROXIMATE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY.
 2. THE RE-CONSTRUCTED BRIDGE PORTION IS DESIGNED FOR HS-20 LOADING IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS.
 3. THE RECONSTRUCTED SLAB AND BEAM SHALL NOT BE OPEN TO TRAFFIC UNTIL THE CONCRETE HAS REACHED 3,600 PSI.
 4. SEE SHEET 14 FOR TRAFFIC CONTROL.
 5. FOR ADDITIONAL NOTES AND GUIDELINES, SEE GENERAL NOTES, SHEET 4.



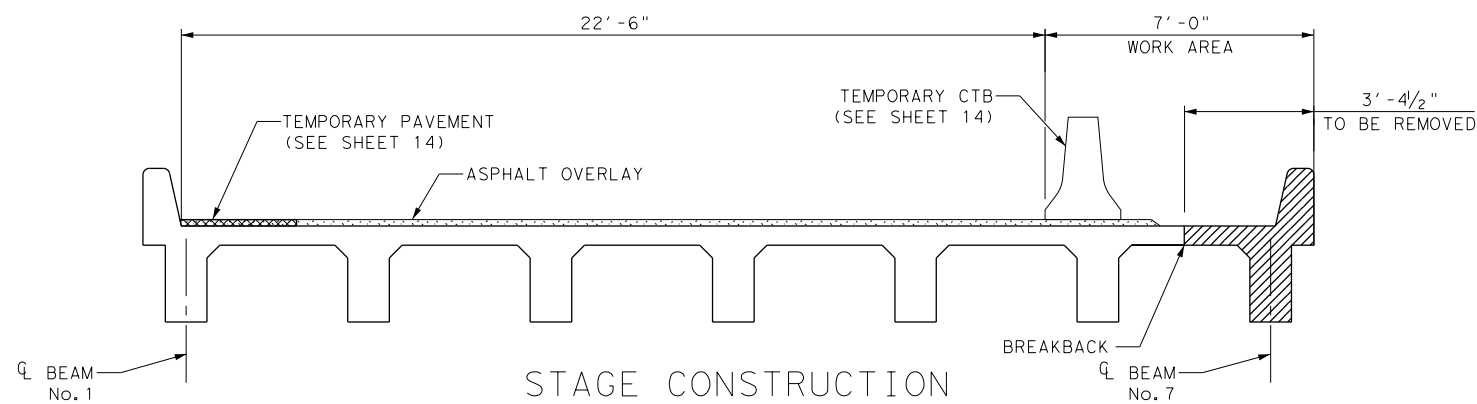
ELEVATION
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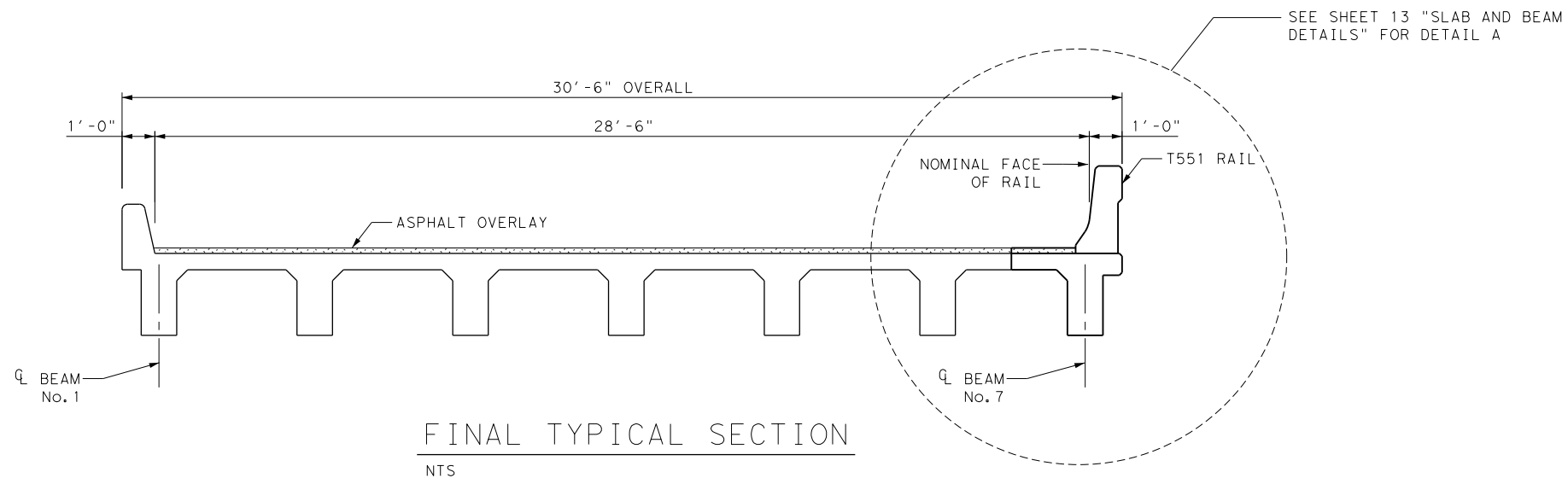
EXISTING TYPICAL SECTION

NTS



STAGE CONSTRUCTION

NTS



FINAL TYPICAL SECTION

NTS



500 W. 7TH ST., SUITE 1100
FORT WORTH, TX 76102
817-339-8950
817-336-2247
FIRM REG. #: 3557

CONSULTANTS



Thang Tran
8/29/2014
F-3557

BRIDGE REPAIRS

TARRANT COUNTY

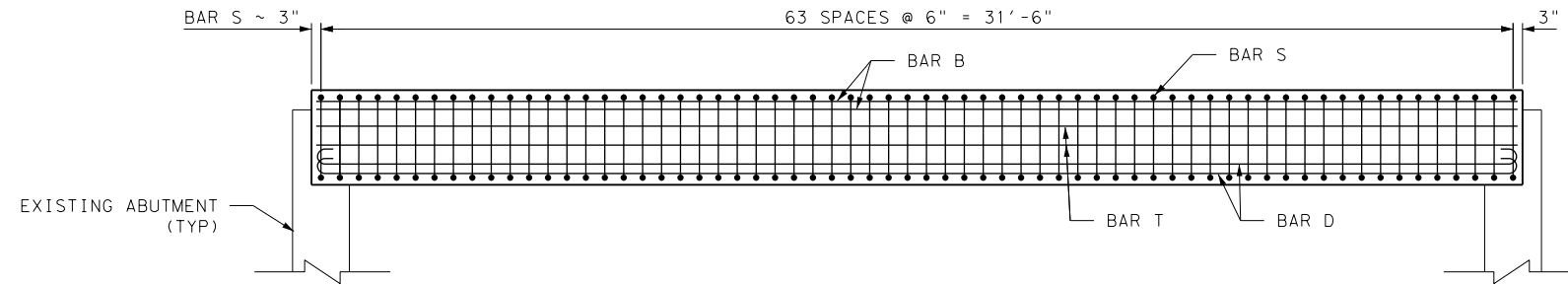
MARK	DATE	DESCRIPTION

PROJ NO: P202120209
SCALE: NTS
DATE: 9/17/2014
DESIGNED BY: TVT
DRAWN BY: EO
CHECKED BY: MFB

SHEET TITLE

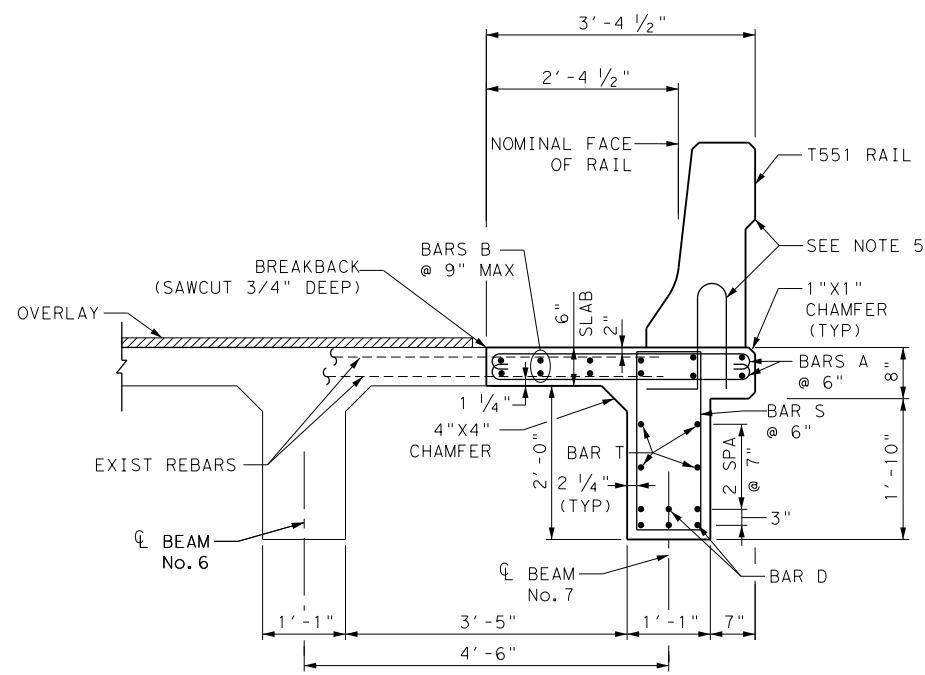
RENDON ROAD OVER
TRIBUTARY OF VILLAGE CREEK
TYPICAL SECTIONS

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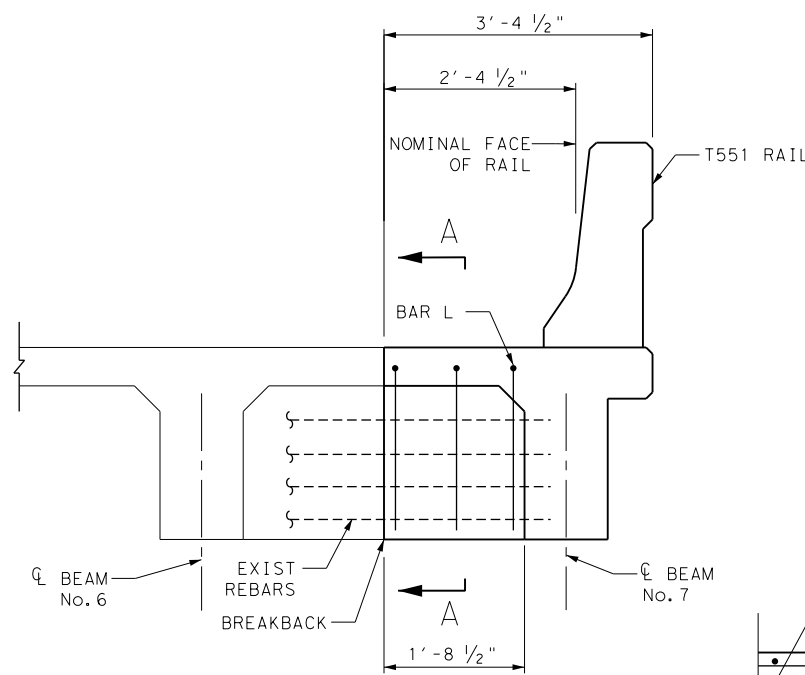
BEAM No. 7

NTS
NOTE: BARS A NOT SHOWN FOR CLARITY



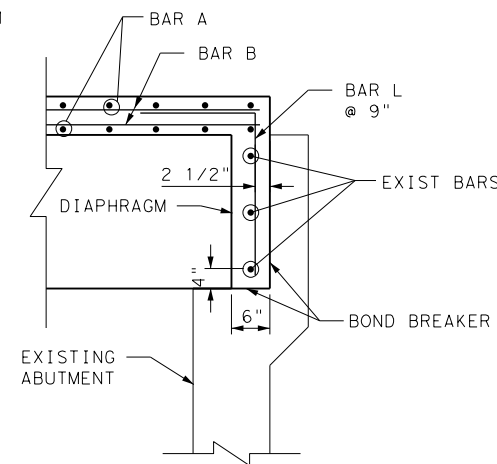
DETAIL A

NTS



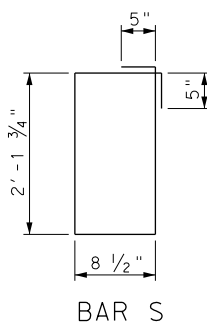
END DIAPHRAGM

NTS

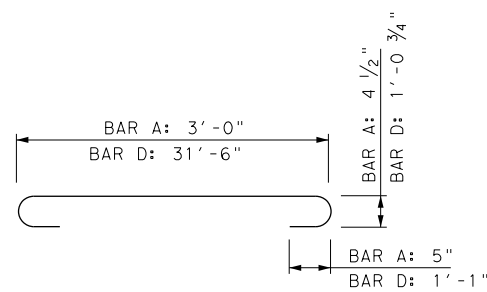


SECTION A-A

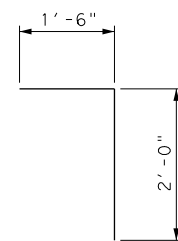
NTS



BAR S



BAR A & D



BAR L

TABLE OF ESTIMATED QUANTITIES				
BAR	NO	SIZE	LENGTH	WEIGHT
A	128	5	5'-2"	690
B	12	4	31'-8"	254
D	6	11	37'-1"	1,182
L	3	5	3'-6"	11
S	64	4	6'-7"	281
T	4	9	31'-8"	431
REINFORCING STEEL			LB	2,849 ①
CL "C" CONCRETE			CY	5.0

① FOR CONTRACTOR'S INFORMATION ONLY

NOTES:

- CONCRETE SHALL BE CLASS "C", COMPRESSIVE STRENGTH = 3,600 PSI.
- ALL REINFORCING STEEL SHALL BE ASTM A-615, GRADE 60.
- CHAMFER ALL EXPOSED CORNERS 3/4" UNLESS OTHERWISE SHOWN OR NOTED.
- CONTRACTOR SHALL VERIFY DIMENSIONS OF EXISTING STRUCTURE PRIOR TO CONSTRUCTION.
- SEE TXDOT TRAFFIC RAIL STANDARD, TYPE T551 FOR RAIL AND REINFORCING DETAILS.
- CLEAN AND EXTEND EXISTING REINFORCING STEEL INTO NEW CONSTRUCTION. CARE SHALL BE TAKEN NOT TO DAMAGE EXISTING CONCRETE AND REINFORCING STEEL.
- PERFORM WORK IN ACCORDANCE WITH ITEM 429, "CONCRETE STRUCTURE REPAIR." USE ONLY HAND TOOLS OR POWER-DRIVEN CHIPPING HAMMERS (15-LB MAXIMUM) TO REMOVE CONCRETE.



500 W. 7TH ST., SUITE 1100
FORT WORTH, TX 76102
817-339-8950
817-336-2247
FIRM REG. #: 3557

CONSULTANTS



F-3557

BRIDGE REPAIRS

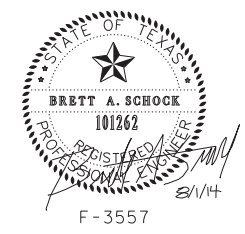
TARRANT COUNTY

MARK	DATE	DESCRIPTION

PROJ NO: P202120209
SCALE: NTS
DATE: 9/17/2014
DESIGNED BY: TVT
DRAWN BY: EO
CHECKED BY: MFB

SHEET TITLE

RENDON ROAD OVER
TRIBUTARY OF VILLAGE CREEK
**SLAB & BEAM
DETAILS**

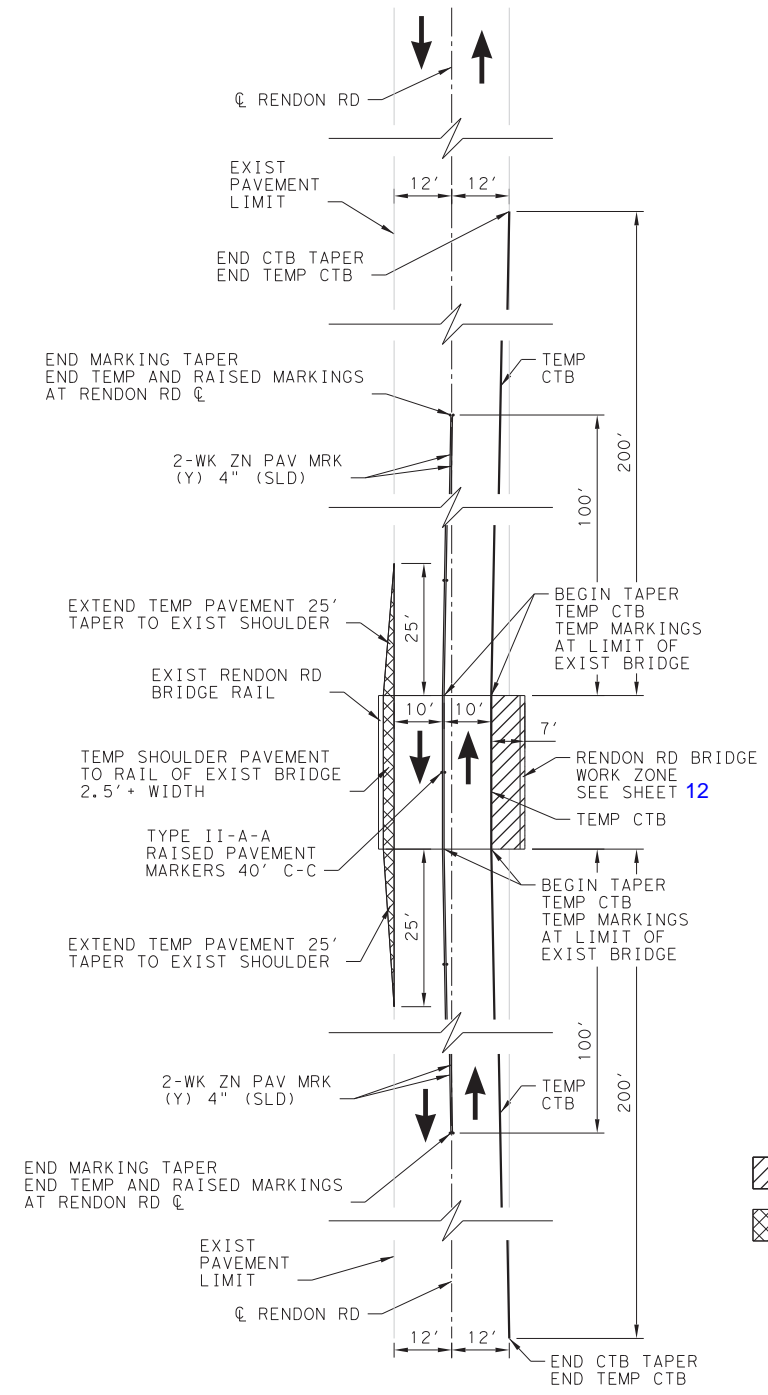


BRIDGE REPAIRS
TARRANT COUNTY

MARK	DATE	DESCRIPTION

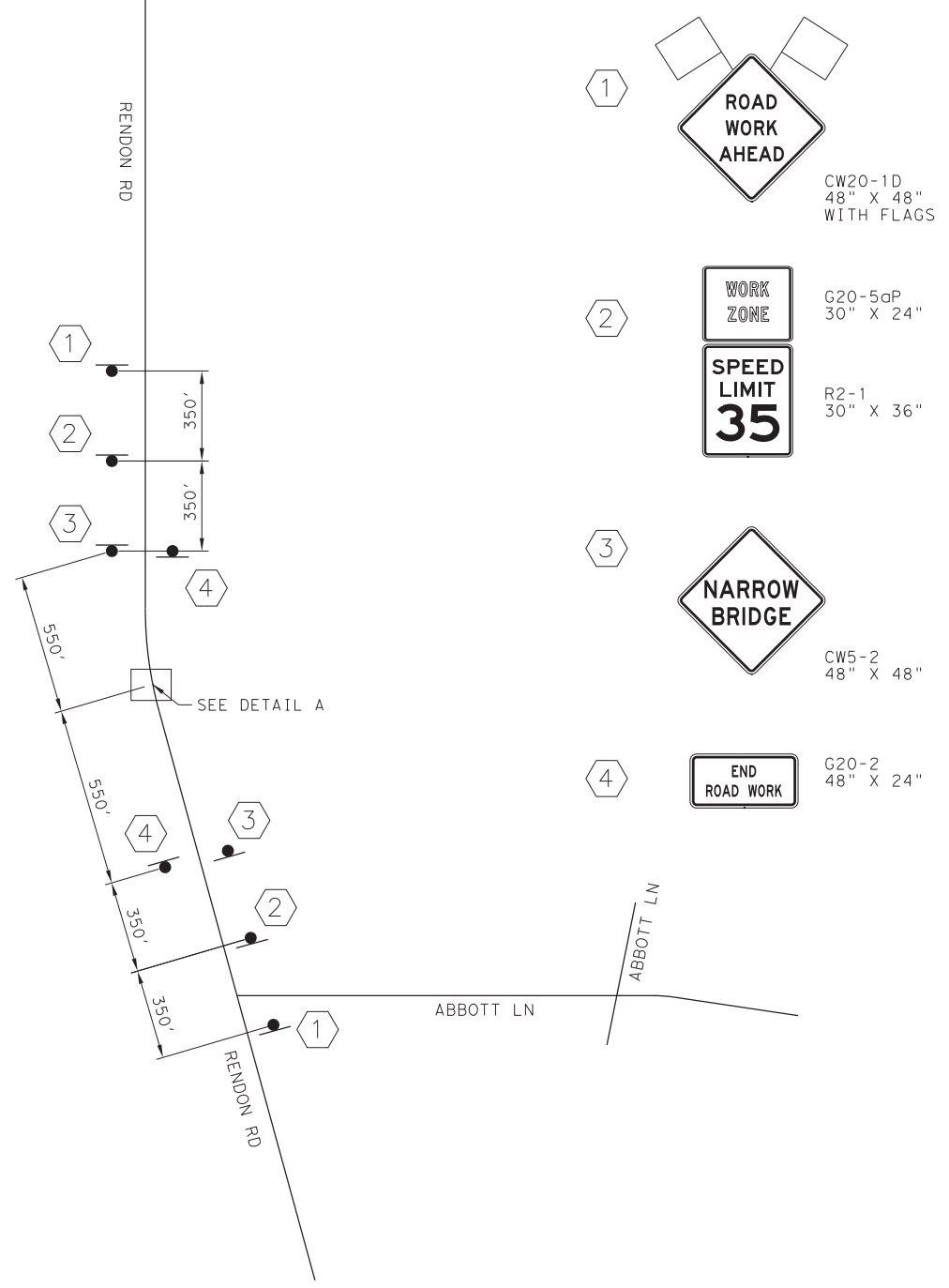
PROJ NO: P202120209
SCALE: NTS
DATE: 8/1/2014
DESIGNED BY: BAS
DRAWN BY: BAS
CHECKED BY: CG

SHEET TITLE
RENDON ROAD OVER
TRIBUTARY OF VILLAGE CREEK
WORK ZONE TRAFFIC
CONTROL PLAN



LEGEND

- WORK ZONE
- TEMPORARY PAVEMENT



DETAIL A

TEMPORARY WORK ZONE MARKING AND BARRIER DETAILS
N. T. S.

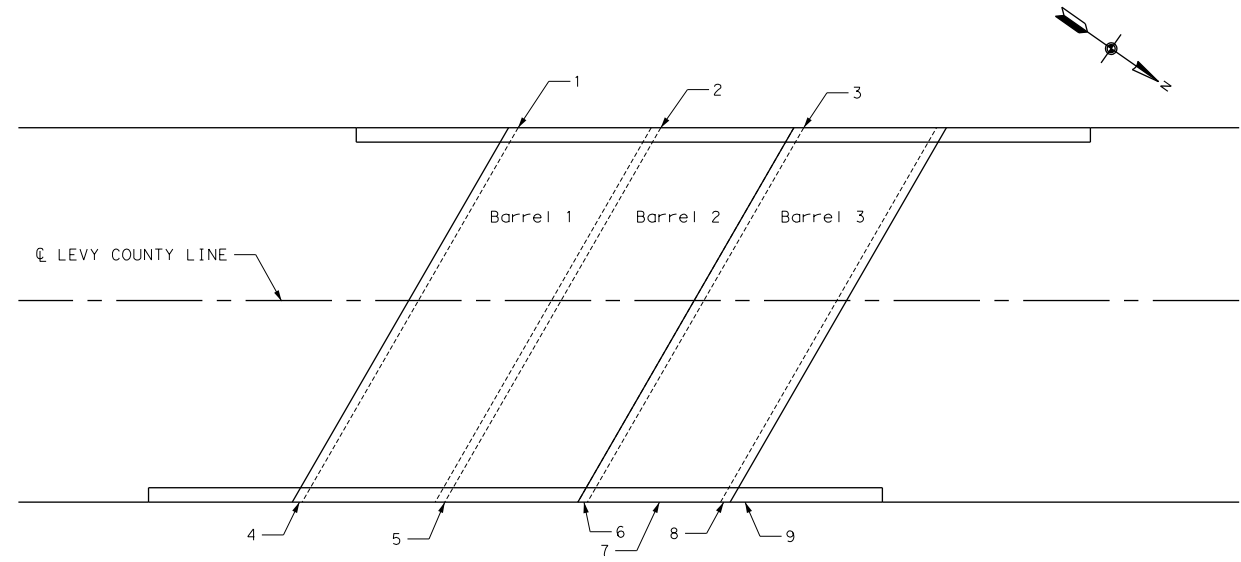
CONSULTANTS



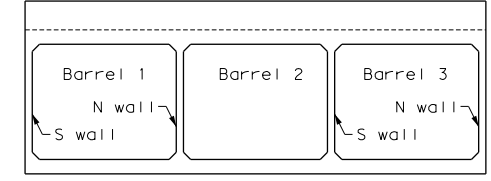
BRIDGE REPAIRS
TARRANT COUNTY

NOTES:

1. SEE SHEETS 30-32, "CONCRETE REPAIR DETAILS" FOR NOTES AND REPAIR DETAILS.
2. DIMENSIONS, PLAN AND ELEVATION REPRESENTATIONS AND LOCATIONS ARE APPROXIMATE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY.
3. CONTRACTOR SHALL DOCUMENT AND RESTORE SITE TO ORIGINAL CONDITION.
4. NO WATER WAS PRESENT AT THE TIME OF INSPECTION.
5. FOR ADDITIONAL NOTES AND GUIDELINES, SEE GENERAL NOTES, SHEET 4.



PLAN
NTS



LOOKING WEST
NTS

Location		Discription			
		A	B	C	D
		SF	SF	SF	LF
Barrel 1	S Wall		15.00		
	N Wall		15.00		
	Top		32.00	1.00	
Barrel 2	S Wall		8.00		
	N Wall		2.00		
	Top		3.00		
Barrel 3	S Wall		3.00	3.00	8.00
	N Wall		2.00		
	Top		1.00	1.00	
TOTAL =		0.0	81.0	5.0	8.0

Location	Discription	Area SF
1	B	2.00
2	B	4.00
3	B	4.00
4	B	2.00
5	B	2.00
6*	C	3.00
7	C	3.00
8	B	1.00
9	B	2.00
Total =		23.00

* See CONCRETE REPAIR DETAIL SHEET 32

- Damage Discription
- A : Delamination
 - B : Spalling with no rebar exposed
 - C : Spalling with rebar exposed
 - D : Crack

MARK	DATE	DESCRIPTION

PROJ NO: P202120209
SCALE: NTS
DATE: 9/17/2014
DESIGNED BY: TVT
DRAWN BY: EO
CHECKED BY: MFB

SHEET TITLE

LEVY COUNTY LINE
OVER WALNUT CREEK
BRIDGE LAYOUT
3 - 10'x8'x26' MBC

CONSULTANTS



BRIDGE REPAIRS
TARRANT COUNTY

MARK	DATE	DESCRIPTION

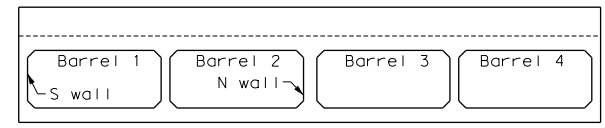
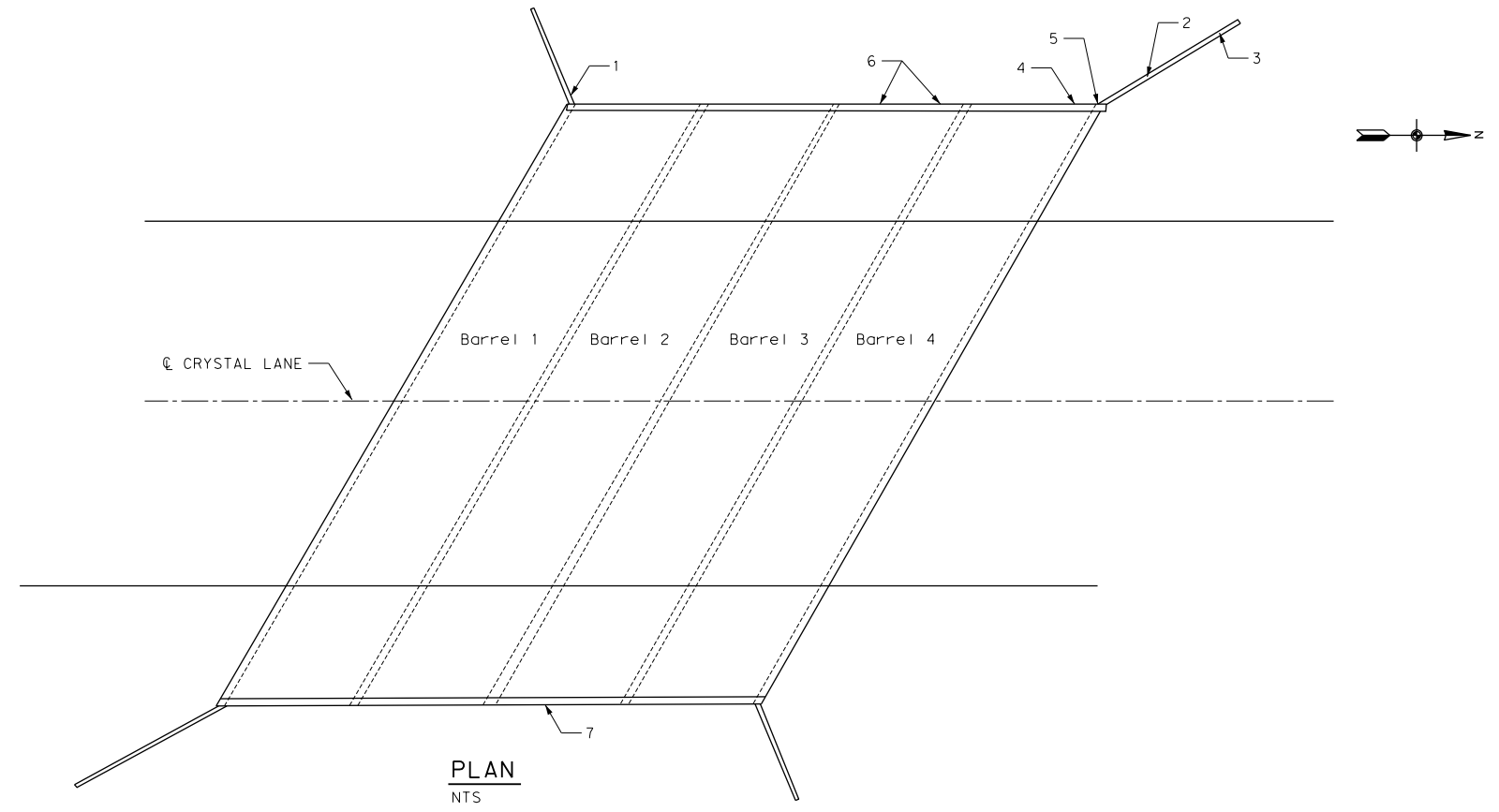
PROJ NO: P202120209
SCALE: NTS
DATE: 9/17/2014
DESIGNED BY: TVT
DRAWN BY: EO
CHECKED BY: MFB

SHEET TITLE

CRYSTAL LANE OVER
TRIBUTARY OF DEER CREEK
BRIDGE LAYOUT
4 - 8'X4"X46' MBC

NOTES:

- SEE SHEETS 30-32, "CONCRETE REPAIR DETAILS" FOR NOTES AND REPAIR DETAILS.
- DIMENSIONS, PLAN AND ELEVATION REPRESENTATIONS AND LOCATIONS ARE APPROXIMATE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY.
 - THE COUNTY SHALL REMOVE EXISTING ASPHALT OVERLAY ON THE BRIDGE DECK.
 - THE CONTRACTOR SHALL SEAL TOP OF DECK WITH EPOXY, SIKADUR 55 SLV, SUPER LOW-VISCOSITY OR APPROVED EQUAL, BY THE ENGINEER. FOLLOW MANUFACTURER'S INSTRUCTION FOR MIXING AND APPLICATION.
 - THE COUNTY SHALL OVERLAY THE DECK WITH ASPHALT CONCRETE AFTER SEALING.
- CONTRACTOR AND COUNTY SHALL PERFORM WORK, AS PART OF THESE REPAIRS, TO SEAL THE TOP OF THE DECK. THE CONTRACTOR SHALL WORK WITH THE COUNTY REPRESENTATIVE TO COORDINATE THESE OPERATIONS.
- CONTRACTOR SHALL DOCUMENT AND RESTORE SITE TO ORIGINAL CONDITION.
- NO WATER WAS PRESENT AT THE TIME OF INSPECTION.
- MODIFICATIONS TO THE RECOMMENDED TRAFFIC CONTROL PLAN SHALL REQUIRE THE SEAL AND SIGNATURE OF A LICENSED PROFESSIONAL ENGINEER.
- FOR ADDITIONAL NOTES AND GUIDELINES, SEE GENERAL NOTES, SHEET 4.



LOOKING WEST
NTS

Location		Discription			
		A SF	B SF	C SF	D LF
Barrel 1	S Wall		5.00		
	N Wall		9.00	3.00	
	Top			1.00	14.00
Barrel 2	S Wall	5.00		4.00	
	N Wall		32.00	4.00	
Barrel 3	S Wall		31.00		
	N Wall		24.00	3.00	
Barrel 4	S Wall		63.00	1.00	
	N Wall		27.00		7.00
	Top		1.00		7.00
5					3.00
TOTAL =		5.0	192.0	16.0	31.0

Location	Discription	Area SF
1	C	3.00
2	C	3.00
3	B	4.00
4	C	3.00
6	B	2.00
7	C	2.00
Total =		17.00

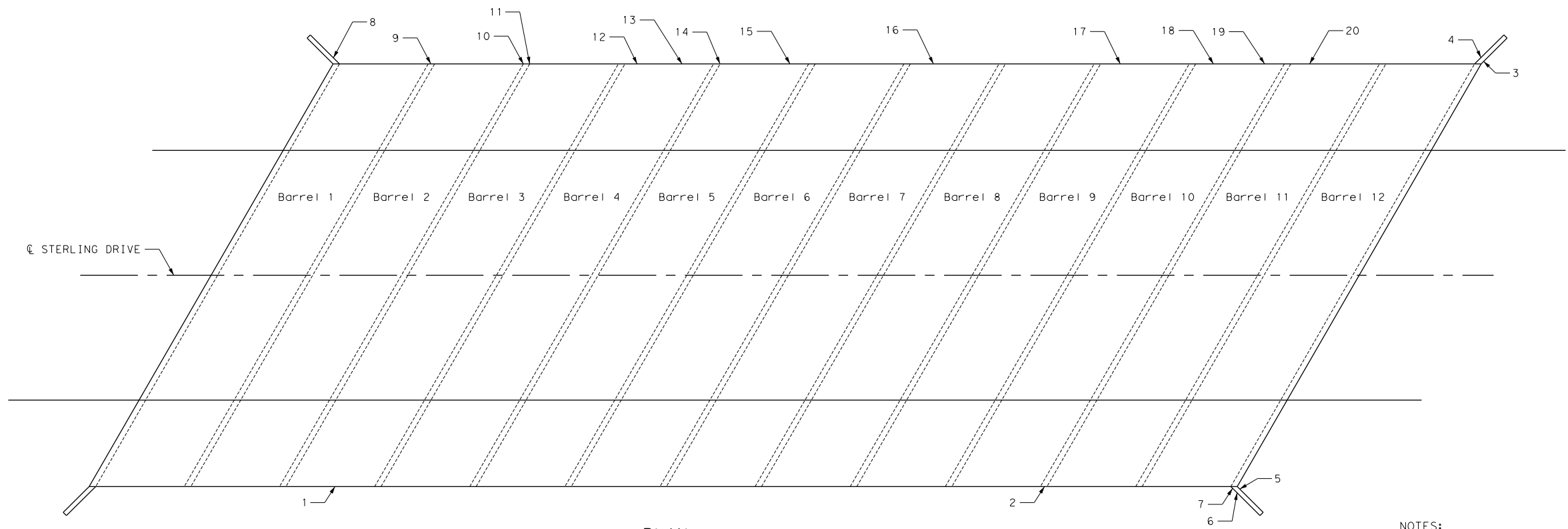
Damage Discription

A : Delamination
B : Spalling with no rebar exposed
C : Spalling with rebar exposed
D : Crack

CONSULTANTS



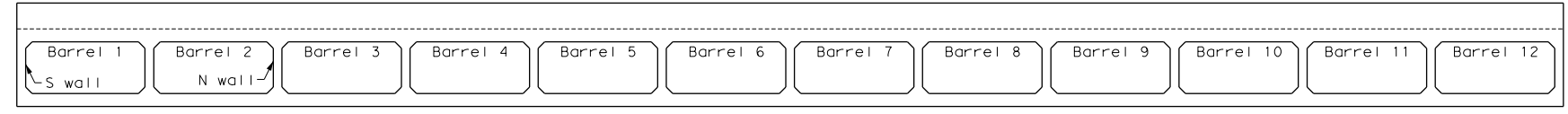
BRIDGE REPAIRS
TARRANT COUNTY



PLAN
 NTS

NOTES:

1. SEE SHEETS 30-32, "CONCRETE REPAIR DETAILS" FOR NOTES AND REPAIR DETAILS.
2. DIMENSIONS, PLAN AND ELEVATION REPRESENTATIONS AND LOCATIONS ARE APPROXIMATE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY.
3. CONTRACTOR SHALL PERFORM WORK, AS PART OF THESE REPAIRS, TO SEAL THE TOP OF THE DECK. THE CONTRACTOR SHALL SEAL TOP OF DECK WITH EPOXY, SIKADUR 55 SLV, SUPER LOW-VISCOSITY OR APPROVED EQUAL, BY THE ENGINEER, AND BROADCAST WITH OVEN-DRIED SAND. FOLLOW MANUFACTURER'S INSTRUCTION FOR MIXING AND APPLICATION.
4. CONTRACTOR SHALL DOCUMENT AND RESTORE SITE TO ORIGINAL CONDITION.
5. NO WATER WAS PRESENT AT THE TIME OF INSPECTION.
6. MODIFICATIONS TO THE RECOMMENDED TRAFFIC CONTROL PLAN SHALL REQUIRE THE SEAL AND SIGNATURE OF A LICENSED PROFESSIONAL ENGINEER.
7. FOR ADDITIONAL NOTES AND GUIDELINES, SEE GENERAL NOTES, SHEET 4.



LOOKING WEST
 NTS

MARK	DATE	DESCRIPTION

PROJ NO: P202120209
 SCALE: NTS
 DATE: 9/17/2014
 DESIGNED BY: TVT
 DRAWN BY: EO
 CHECKED BY: MFB

SHEET TITLE
 STERLING DRIVE OVER
 TRIBUTARY OF DEER CREEK
BRIDGE LAYOUT
 12 - 8'X4'X44' MBC

CONSULTANTS



BRIDGE REPAIRS
 TARRANT COUNTY

Location		Discription			
		A	B	C	D
		SF	SF	SF	LF
Barrel 1	S Wall			5.00	
	Top		6.00		
Barrel 2	S Wall		1.00		
	Top		1.00		
Barrel 3	S Wall		1.00		
	N Wall			3.00	
	Top	2.00	2.00		
Barrel 4	S Wall	5.00	2.00		
	N Wall	5.00			
Barrel 5	S Wall		5.00	3.00	
	Top		2.00		
Barrel 6	S Wall	1.00	2.00	5.00	
	Top		5.00		
Barrel 7	S Wall			1.00	
	Top		3.00		
Barrel 8	S Wall			1.00	
	Top		5.00		
Barrel 9	S Wall		1.00	5.00	
	Top		5.00		
Barrel 10	S Wall			4.00	
	Top		5.00		
Barrel 11					
Barrel 12	N Wall		5.00		
5					2.00
7					2.00
TOTAL =		13	51	27	4

Location	Discription	Area SF
1	C	1.00
2	B	1.00
3	B	2.00
4	B	4.00
6	B	1.00
8	C	2.00
9	B	1.00
10	B	1.00
11	B	2.00
12	B	3.00
13	B	2.00
14	C	1.00
15	B	1.00
16	B	2.00
17	B	2.00
18	B	3.00
19	C	1.00
20	B	1.00
Total =		31.00

Damage Discription

- A : Delamination
- B : Spalling with no rebar exposed
- C : Spalling with rebar exposed
- D : Crack

MARK	DATE	DESCRIPTION

PROJ NO: P202120209
 SCALE: NTS
 DATE: 9/17/2014
 DESIGNED BY: TVT
 DRAWN BY: EO
 CHECKED BY: MFB

SHEET TITLE

STERLING DRIVE OVER
 TRIBUTARY OF DEER CREEK
 BRIDGE REPAIR
 QUANTITIES

CONSULTANTS



Thang Tran
8/29/2014
F-3557

BRIDGE REPAIRS
TARRANT COUNTY

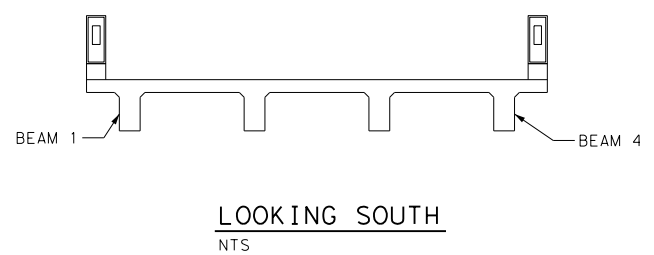
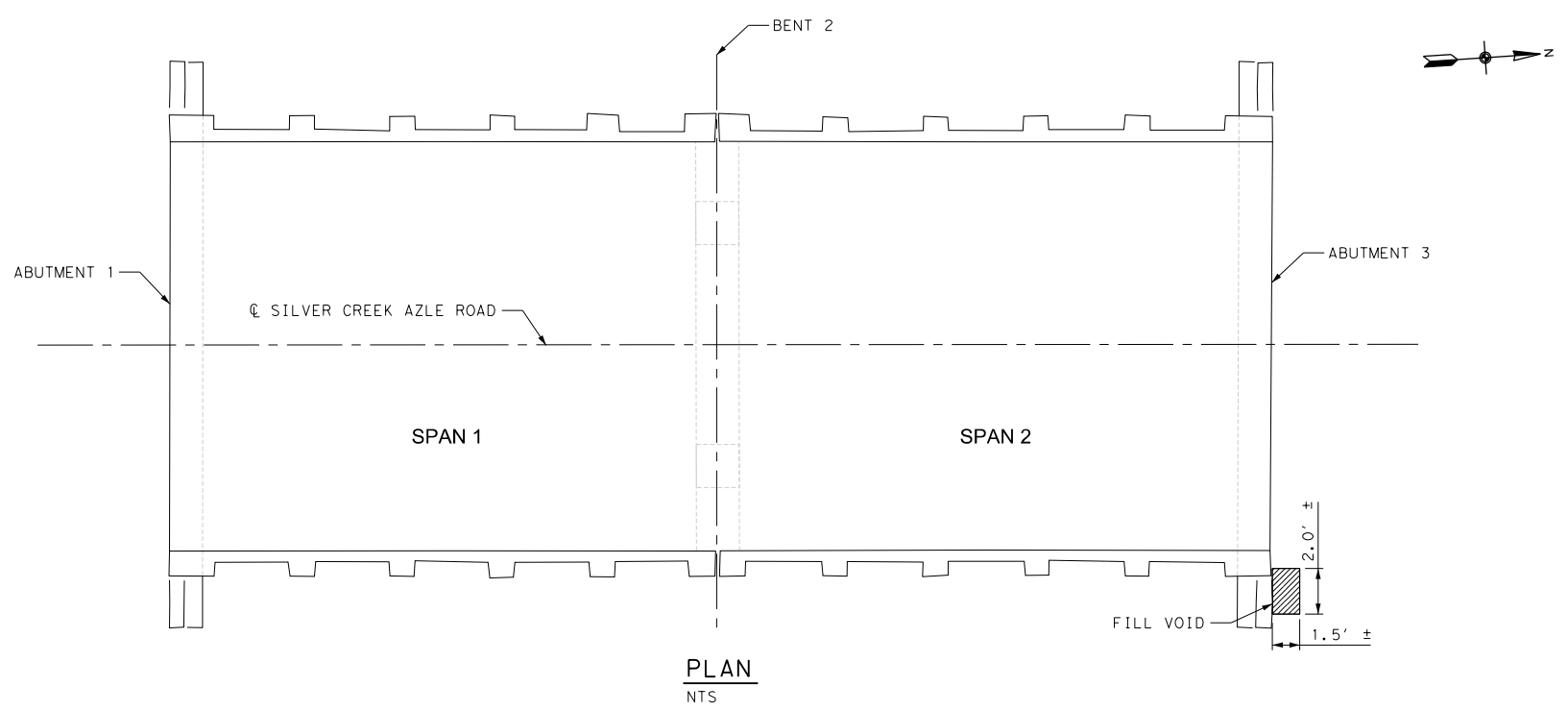
MARK	DATE	DESCRIPTION

PROJ NO: P202120209
SCALE: NTS
DATE: 9/17/2014
DESIGNED BY: TVT
DRAWN BY: EO
CHECKED BY: MFB

SHEET TITLE
SILVER CREEK AZLE ROAD
OVER MILL CREEK
BRIDGE LAYOUT
2 - 35' SPAN

NOTES:

- SEE SHEETS 30-32, "CONCRETE REPAIR DETAILS" FOR NOTES AND REPAIR DETAILS.
- DIMENSIONS, PLAN AND ELEVATION REPRESENTATIONS AND LOCATIONS ARE APPROXIMATE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY.
- CONTRACTOR SHALL DOCUMENT AND RESTORE SITE TO ORIGINAL CONDITION.
- NO WATER WAS PRESENT AT THE TIME OF INSPECTION.
- FOR ADDITIONAL NOTES AND GUIDELINES, SEE GENERAL NOTES, SHEET 4.



Location	Description			
	A	B	C	D
	SF	SF	SF	LF
North Abutment = Abutment 3				
End Diaphragm		4.00		
Span 2				
Beam 4		2.00	1.00	
Beam 1			2.00	
Beam 3		1.00		
Span 1				
Beam 4		2.00		
Bent				
East Side			5.00	
South Side	15.00		2.00	
West Side		2.00		
South Abutment = Abutment 1				
East Column		2.00		
TOTAL =	15.00	13.00	10.00	0.00

- Damage Description
- A : Delamination
 - B : Spalling with no rebar exposed
 - C : Spalling with rebar exposed
 - D : Crack

GENERAL NOTES:

1. SUBMIT DETAILED REPAIR PROCEDURES, INCLUDING PROPOSED PROPRIETARY MATERIALS, FOR APPROVAL PRIOR TO COMMENCING WORK.
2. PERFORM WORK IN ACCORDANCE WITH ITEM 401, "FLOWABLE BACKFILL."

TABLE OF ESTIMATED QUANTITY		
FLOWABLE BACKFILL	CY	1.0



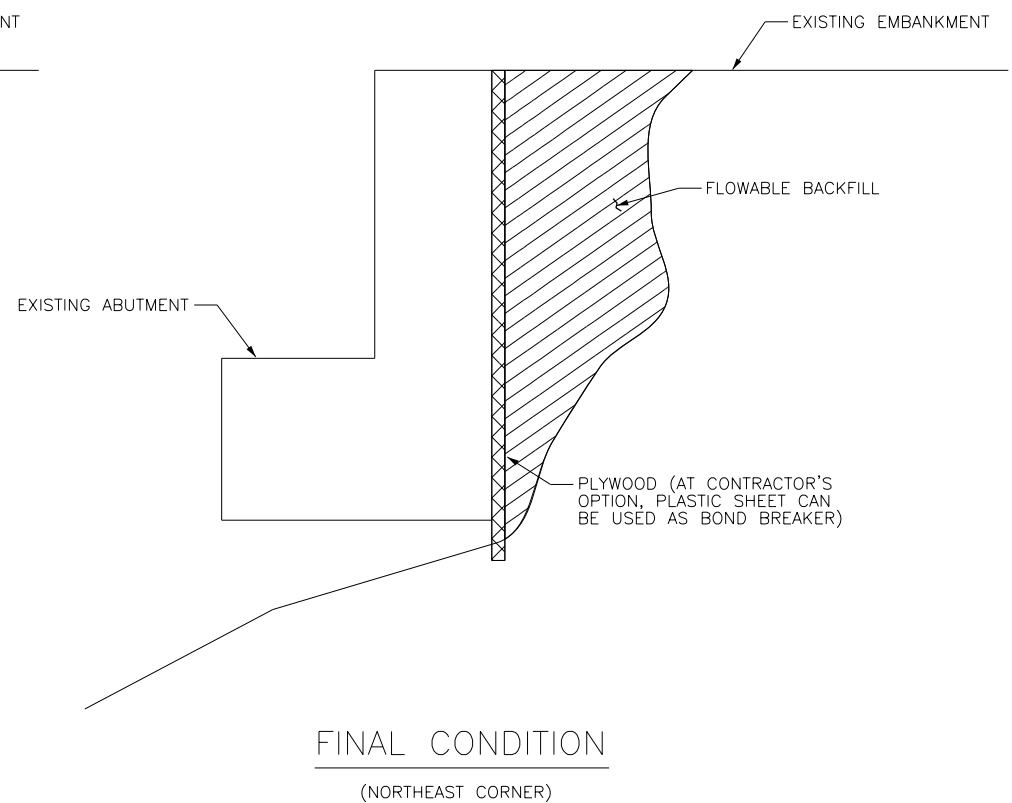
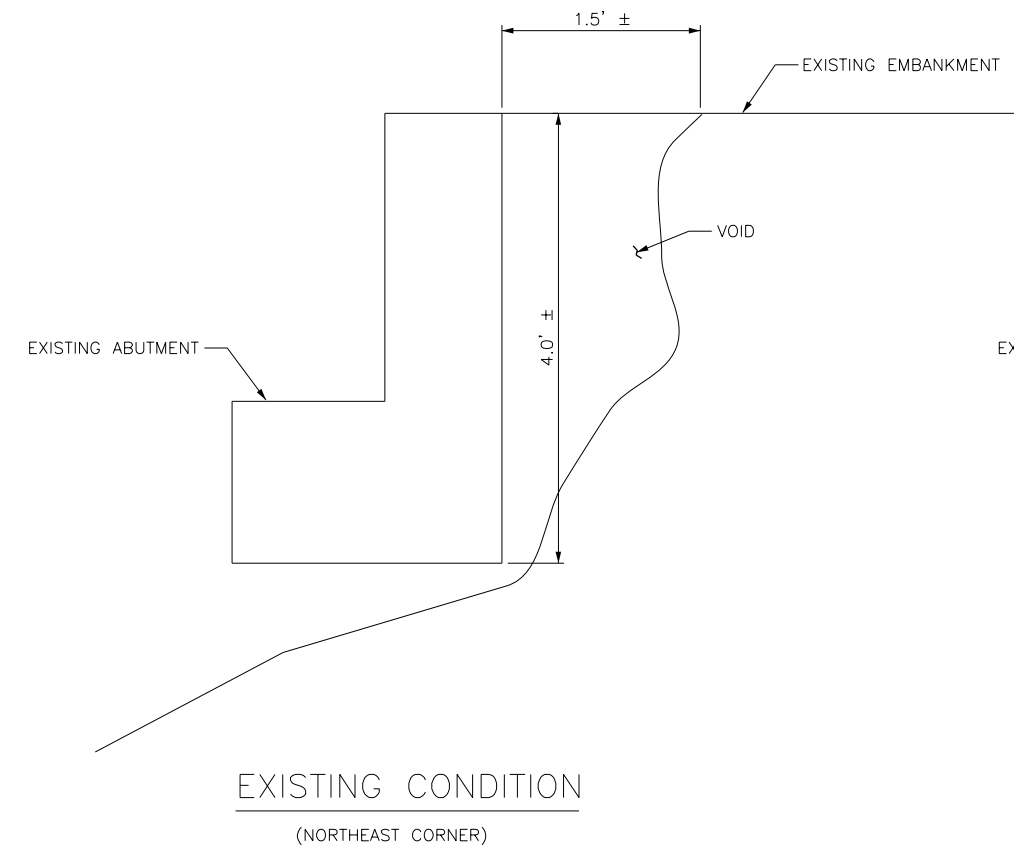
500 W. 7TH ST., SUITE 1100
 FORT WORTH, TX 76102
 817-339-8950
 817-336-2247
 FIRM REG. #: 3557

CONSULTANTS



Thang Tran
 8/29/2014
 F-3557

BRIDGE REPAIRS
 TARRANT COUNTY

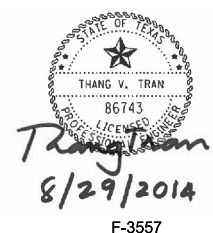


MARK	DATE	DESCRIPTION

PROJ NO: P202120209
 SCALE: NTS
 DATE: 9/17/2014
 DESIGNED BY: TVT
 DRAWN BY: EO
 CHECKED BY: MFB

SHEET TITLE
 SILVER CREEK AZLE ROAD
 OVER MILL CREEK
 VOID REPAIR

CONSULTANTS



BRIDGE REPAIRS
TARRANT COUNTY

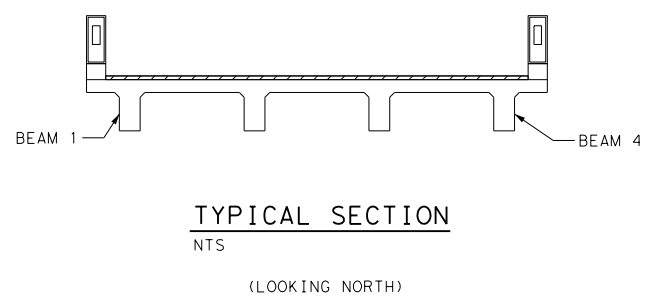
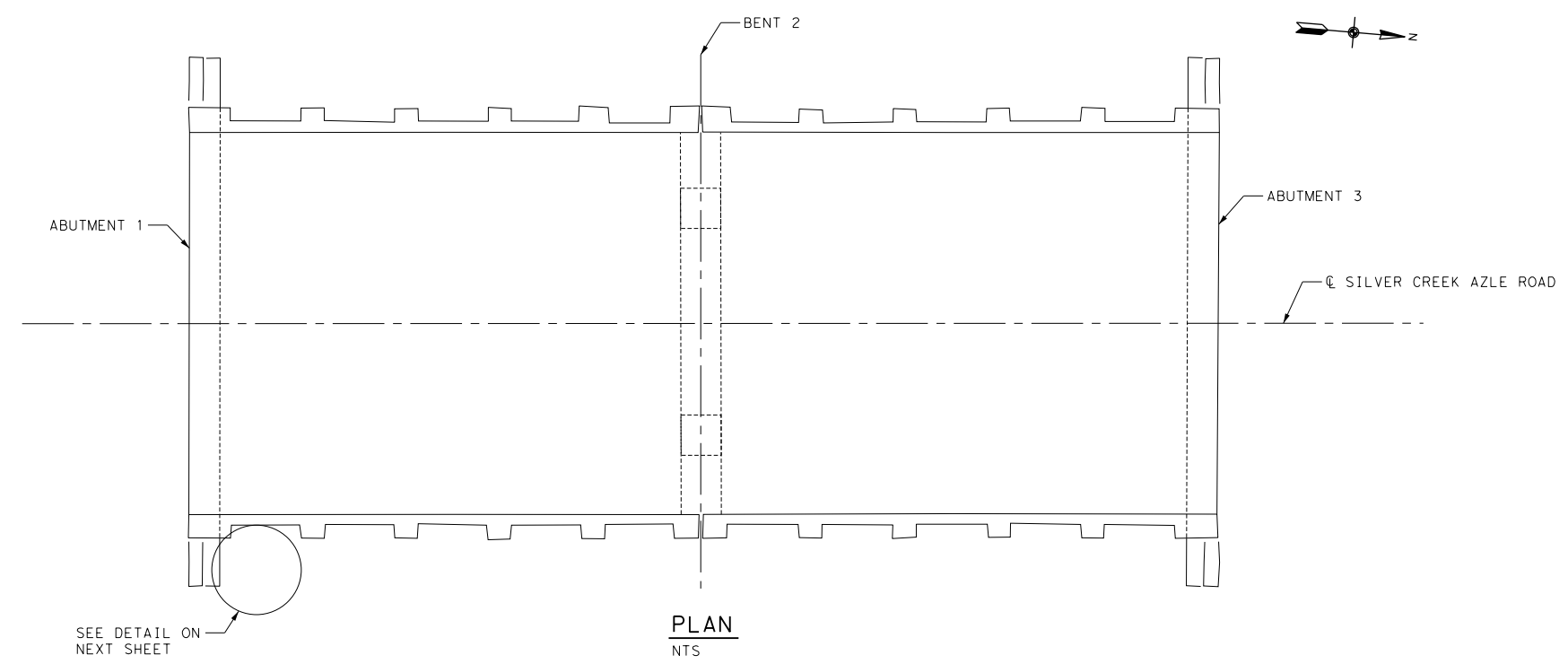
MARK	DATE	DESCRIPTION

PROJ NO: P202120209
SCALE: NTS
DATE: 9/17/2014
DESIGNED BY: TVT
DRAWN BY: EO
CHECKED BY: MFB

SHEET TITLE
SILVER CREEK AZLE ROAD
OVER ASH CREEK
BRIDGE LAYOUT
2 - 30' SPAN

NOTES:

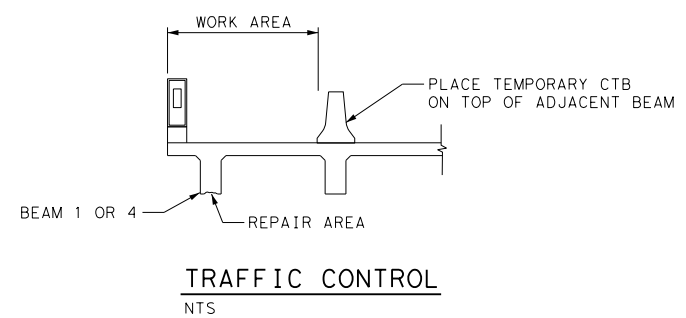
- SEE SHEETS 30-32, "CONCRETE REPAIR DETAILS" FOR NOTES AND REPAIR DETAILS.
- DIMENSIONS, PLAN AND ELEVATION REPRESENTATIONS AND LOCATIONS ARE APPROXIMATE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY.
 - THE COUNTY SHALL REMOVE EXISTING ASPHALT OVERLAY ON THE BRIDGE DECK.
 - THE CONTRACTOR SHALL SEAL TOP OF DECK WITH EPOXY, SIKADUR 55 SLV, SUPER LOW-VISCOSITY OR APPROVED EQUAL, BY THE ENGINEER. FOLLOW MANUFACTURER'S INSTRUCTION FOR MIXING AND APPLICATION.
 - THE COUNTY SHALL OVERLAY THE DECK WITH ASPHALT CONCRETE AFTER SEALING.
- CONTRACTOR SHALL DOCUMENT AND RESTORE SITE TO ORIGINAL CONDITION.
- NO WATER WAS PRESENT AT THE TIME OF INSPECTION.
- FOR TRAFFIC CONTROL, SEE TXDOT STANDARD TCP(2-8B). PLACE CTB IN TAPERED CONFIGURATION AT LIMITS OF BRIDGE TO PROTECT TRAFFIC FROM EXPOSED BARRIER ENDS. MODIFICATIONS TO THE RECOMMENDED TRAFFIC CONTROL PLAN SHALL REQUIRE THE SEAL AND SIGNATURE OF A LICENSED PROFESSIONAL ENGINEER.
- FOR ADDITIONAL NOTES AND GUIDELINES, SEE GENERAL NOTES, SHEET 4.



Location	Description			
	A SF	B SF	C SF	D LF
North Abutment = Abutment 3				
Abutment			2.00	
Span 2				
Beam 1		6.00	1.00	
Beam 4	2.00	1.00	10.00 *	
East Overhang		3.00		
Bent 2				
Column	1.00	6.00	1.00	
North Diaphragm		8.00		
Span 1				
Beam 4				6.00
South Abutment = Abutment 1				
Abutment		1.00		
TOTAL =	3.00	25.00	14.00	6.00

- Damage Description
- A: Delamination
 - B: Spalling with no rebar exposed
 - C: Spalling with rebar exposed
 - D: Crack

* DO NOT EXPOSE THE STEEL AT THE BOTTOM OF THE BEAM MORE THAN 3.0' ALONG THE BEAM. REPAIR IN STAGES. CONTINUE THE REPAIR AFTER THE PREVIOUS PACTH HAS CURED.



CONSULTANTS



BRIDGE REPAIRS
 TARRANT COUNTY

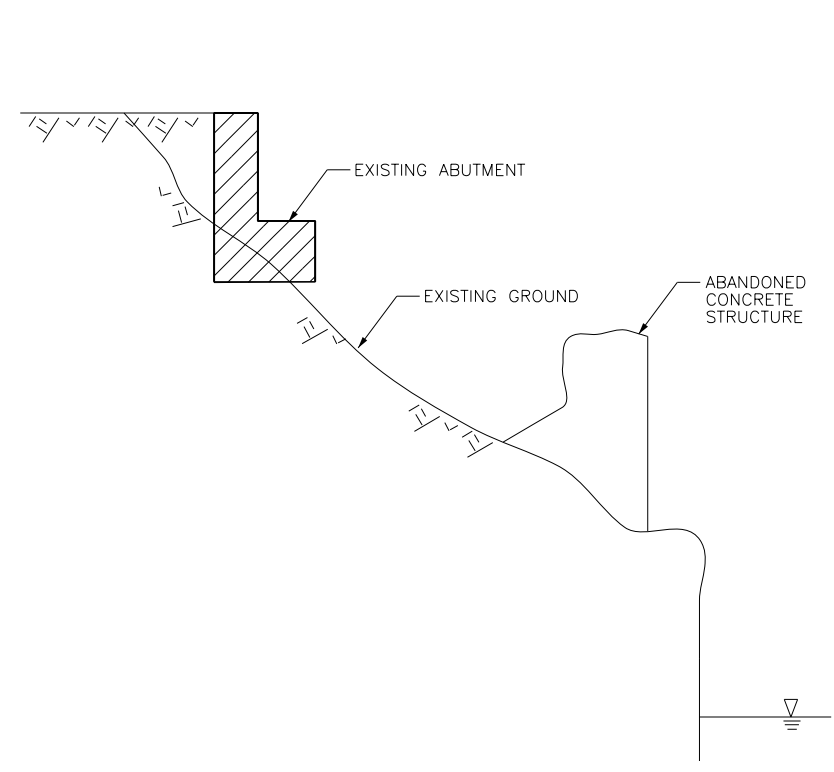
MARK	DATE	DESCRIPTION

PROJ NO: P202120209
 SCALE: NTS
 DATE: 9/17/2014
 DESIGNED BY: TVT
 DRAWN BY: EO
 CHECKED BY: MFB

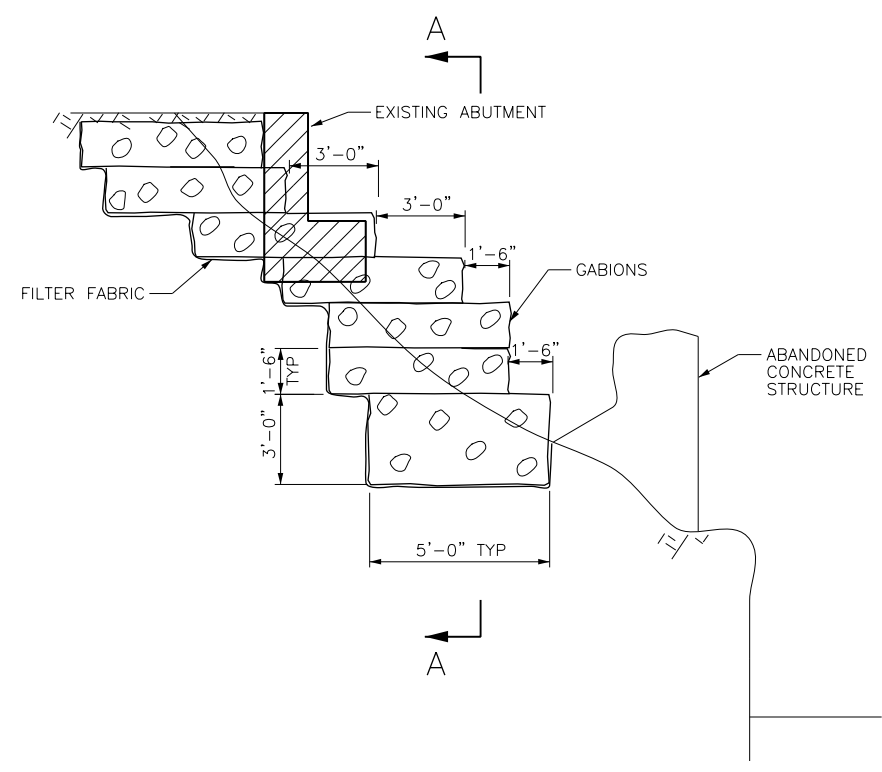
SHEET TITLE
 SILVER CREEK AZLE ROAD
 OVER ASH CREEK
 GABION RIPRAP

NOTES:

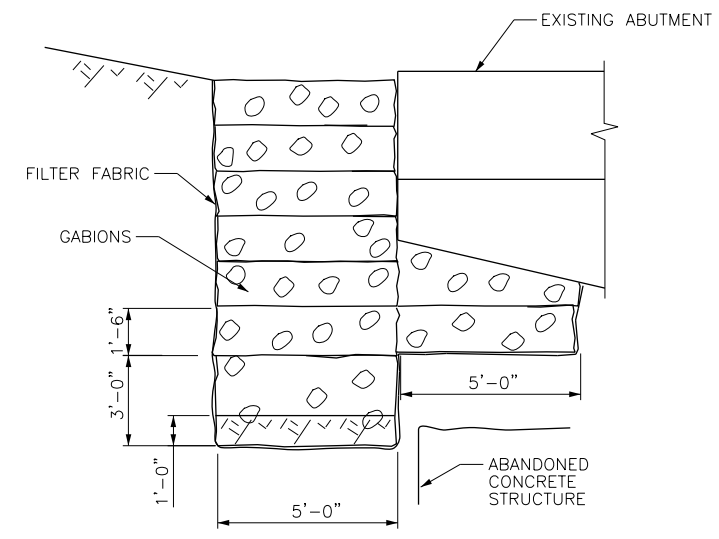
1. DIMENSIONS, PLAN AND ELEVATION REPRESENTATIONS AND LOCATIONS ARE APPROXIMATE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY.
2. PERFORM WORK IN ACCORDANCE WITH ITEM 459, "GABIONS AND GABION MATTRESSES".
3. CONTRACTOR SHALL NOT OVER-EXCAVATE BEYOND THE LIMITS REQUIRED TO PERFORM THE REPAIRS DETAILED ON THIS SHEET. CONTRACTOR SHALL DOCUMENT AND RESTORE SITE TO ORIGINAL CONDITION.
4. FOR ADDITIONAL NOTES AND GUIDELINES, SEE GENERAL NOTES, SHEET 4.



EXISTING CONDITION
 NTS (SOUTHEAST CORNER)

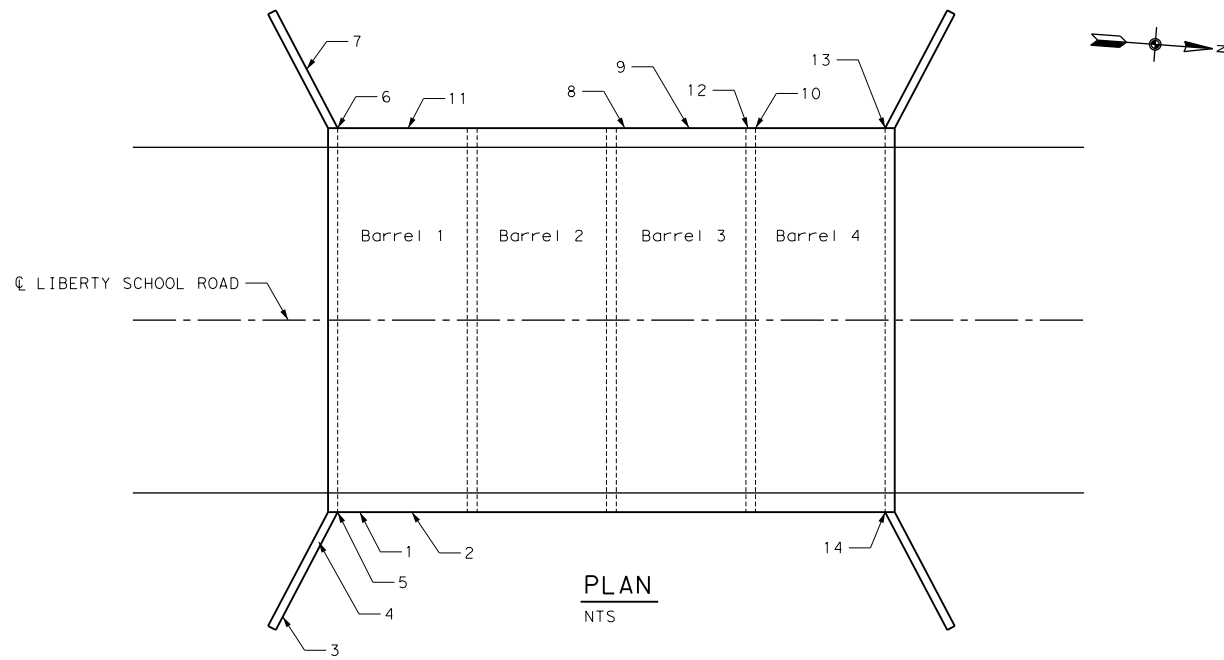


FINAL CONDITION
 NTS (SOUTHEAST CORNER)

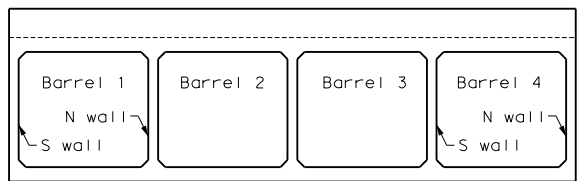


SECTION A-A
 NTS (SOUTHEAST CORNER)

TABLE OF ESTIMATED QUANTITY		
GABIONS (GAL)	CY	14



PLAN
NTS



LOOKING WEST
NTS

NOTES:

1. SEE SHEETS 30-32, "CONCRETE REPAIR DETAILS" FOR NOTES AND REPAIR DETAILS.
2. DIMENSIONS, PLAN AND ELEVATION REPRESENTATIONS AND LOCATIONS ARE APPROXIMATE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY.
3. CONTRACTOR SHALL DOCUMENT AND RESTORE SITE TO ORIGINAL CONDITION.
4. NO WATER WAS PRESENT AT THE TIME OF INSPECTION.
5. FOR ADDITIONAL NOTES AND GUIDELINES, SEE GENERAL NOTES, SHEET 4.

Location		Discription			
		A	B	C	D
		SF	SF	SF	LF
Barrel 1	S Wall		12.00	26.00	
	N Wall		21.00		10.00
	Top		3.00		6.00
Barrel 2	S Wall		9.00	5.00	
	N Wall		13.00		8.00
	Top		3.00		
Barrel 3	S Wall		26.00	1.00	
	N Wall		6.00		8.00
	Top		4.00		
Barrel 4	S Wall		23.00		8.00
	N Wall		16.00		2.00
	Top		1.00		
5					10.00
6					10.00
13					10.00
14					8.00
TOTAL		0.0	137.0	32.0	80.0

Location	Discription	Area SF
1	C	1.00
2	B	1.00
3	B	1.00
4	B	3.00
7	B	2.00
8	B	1.00
9	B	1.00
10	B	3.00
10	C	1.00
11	B	7.00
12*	C	3.00
Total =		24.00

* See CONCRETE REPAIR DETAIL SHEET 3 OF 3

- Damage Discription
- A : Delamination
 - B : Spalling with no rebar exposed
 - C : Spalling with rebar exposed
 - D : Crack



500 W. 7TH ST., SUITE 1100
FORT WORTH, TX 76102
817-339-8950
817-336-2247
FIRM REG. #: 3557

CONSULTANTS



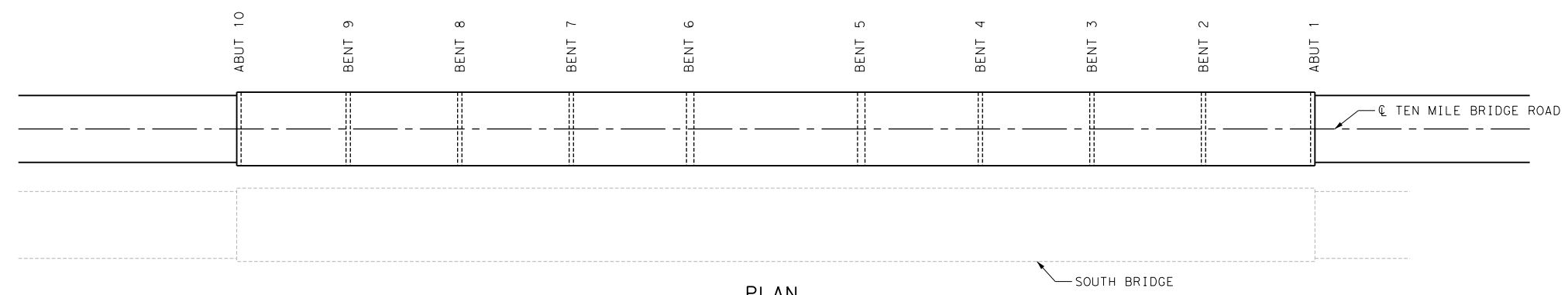
BRIDGE REPAIRS
TARRANT COUNTY

MARK	DATE	DESCRIPTION

PROJ NO: P202120209
SCALE: NTS
DATE: 9/17/2014
DESIGNED BY: TVT
DRAWN BY: EO
CHECKED BY: MFB

SHEET TITLE
LIBERTY SCHOOL ROAD OVER
BRIAR CREEK (SOUTH BRIDGE)
BRIDGE LAYOUT
4 - 9'x8'x26' MBC

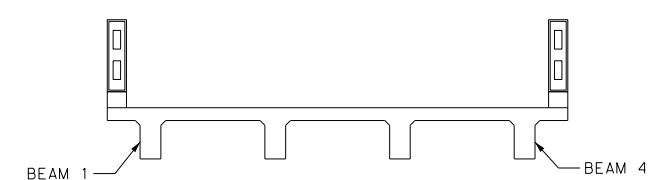
CONSULTANTS



PLAN
NTS

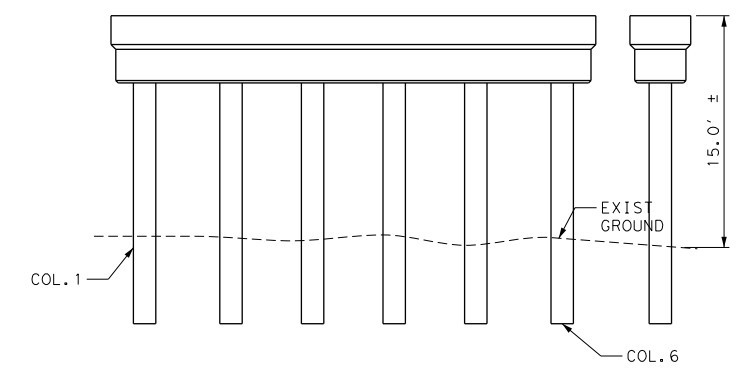
NOTES:

1. SEE SHEETS 30-32, "CONCRETE REPAIR DETAILS" FOR NOTES AND REPAIR DETAILS.
2. DIMENSIONS, PLAN AND ELEVATION REPRESENTATIONS AND LOCATIONS ARE APPROXIMATE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY.
3. CONTRACTOR SHALL PERFORM WORK, AS PART OF THESE REPAIRS, TO SEAL THE TOP OF THE DECK. THE CONTRACTOR SHALL SEAL TOP OF DECK WITH EPOXY, SIKADUR 55 SLV, SUPER LOW-VISCOSITY OR APPROVED EQUAL, BY THE ENGINEER, AND BROADCAST WITH OVEN-DRIED SAND. FOLLOW MANUFACTURER'S INSTRUCTION FOR MIXING AND APPLICATION.
4. CONTRACTOR SHALL DOCUMENT AND RESTORE SITE TO ORIGINAL CONDITION.
5. FOR ADDITIONAL NOTES AND GUIDELINES, SEE GENERAL NOTES, SHEET 4.

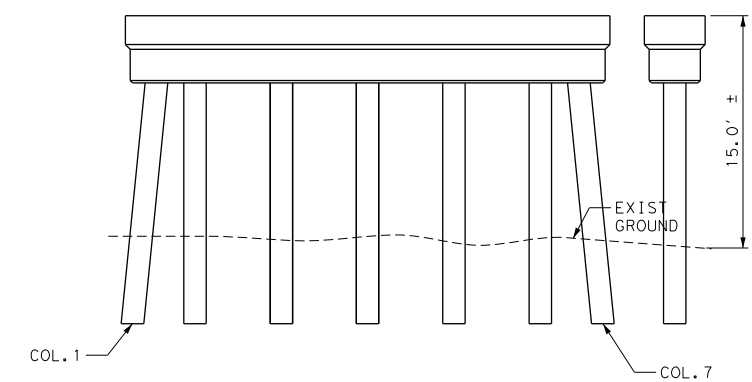


TYPICAL SECTION
NTS

(LOOKING NORTH)

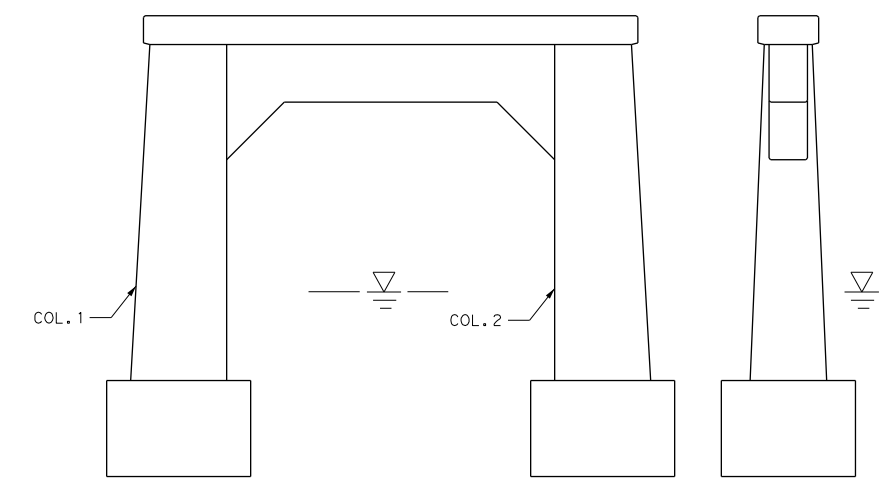


BENT 2, 3, 4, 8, 9
NTS (LOOKING NORTH)



BENT 7
NTS

(LOOKING NORTH)



BENT 5 AND 6
NTS (LOOKING NORTH)

BRIDGE REPAIRS
TARRANT COUNTY

MARK	DATE	DESCRIPTION

PROJ NO: P202120209
 SCALE: NTS
 DATE: 9/17/2014
 DESIGNED BY: TVT
 DRAWN BY: EO
 CHECKED BY: MFB

SHEET TITLE
 TEN MILE BRIDGE ROAD
 OVER WEST FORK TRINITY RIVER
BRIDGE LAYOUT
 290', 9 SPAN T-BEAM

Location	Description			
	A	B	C	D
	SF	SF	SF	LF
North Abutment = Abutment 10				
Span 9				
Beam 1		8.00	2.00	3.00
Beam 3				8.00
Beam 4		2.00		
Bent 9				
Cap (West)		2.00		
Column 2		2.00		
Column 3		1.00		
Span 8				
Beam 1			5.00	
Beam 2				10.00
Slab (underside)	31.00			
Beam 3		1.00		5.00
Beam 4			25.00*	
Bent 8				
Column 1		3.00		
Column 2		2.00		
Column 5		1.00		
Span 7				
Diaphragm		1.00		
Beam 1		7.00		6.00
Beam 3		1.00		6.00
Bent 7				
Cap (North)		1.00	6.00	3.00
Cap (South)			3.00	
Cap (bottom)		3.00		
Column 4		5.00		

* DO NOT EXPOSE THE STEEL AT THE BOTTOM OF THE BEAM OR THE CAP MORE THAN 3.0' ALONG THE BEAM OR CAP. REPAIR IN STAGES. CONTINUE THE REPAIR AFTER THE PREVIOUS PATCH HAS CURED.

Location	Description			
	A	B	C	D
	SF	SF	SF	LF
Span 6				
Beam 3		3.00		
Bent 6				
Column 1		15.00		
Column 2		5.00	15.00	
Span 5				
Bent 5				
Column 2		10.00		
Span 4				
Slab (underside)		2.00		
Beam 3		4.00		
Beam 4		2.00		
Bent 4				
Cap (North)		10.00		
Cap (South)		4.00		
Cap (bottom)			*11.00	
Span 3				
Beam 1				6.00
Beam 4		1.00		
Bent 3				
Cap (North)		2.00		
Cap (South)		1.00		
Span 2				
Beam 1		3.00	1.00	4.00
Beam 2		3.00		6.00
Slab (underside)	53.00			
Beam 3		1.00		
Beam 4		3.00		

NOTE: SEE SHEETS 26 AND 27 FOR REPAIR DETAILS AND CONCRETE QUANTITY FOR COLUMN 2 AT BENT 4 AND COLUMN 2 AT BENT 6. THESE ARE SEPARATE REPAIRS AND ARE IN ADDITION TO THE REPAIR LISTED IN THE TABLES ABOVE.

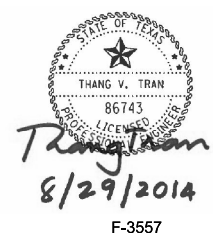
Location	Description			
	A	B	C	D
	SF	SF	SF	LF
Bent 2				
Cap (North)			2.00	
Span 1				
Slab (underside)		1.00	2.00	
Beam 2				10.00
Beam 3				3.00
Slab (underside)			5.00	
South Abutment = Abutment 1				
TOTAL =	84	110	77	70
Deck Top				
		128.00		

Damage Description
A : Delamination
B : Spalling with no rebar exposed
C : Spalling with rebar exposed
D : Crack



500 W. 7TH ST., SUITE 1100
FORT WORTH, TX 76102
817-339-8950
817-336-2247
FIRM REG. #: 3557

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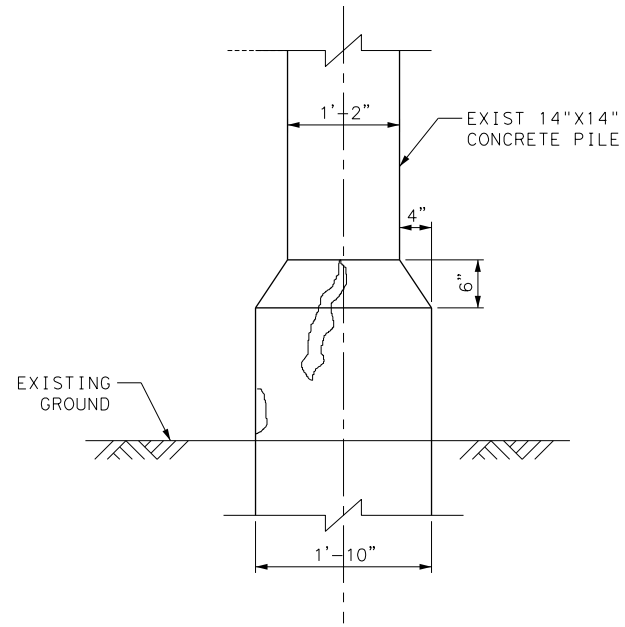


BRIDGE REPAIRS
TARRANT COUNTY

MARK	DATE	DESCRIPTION

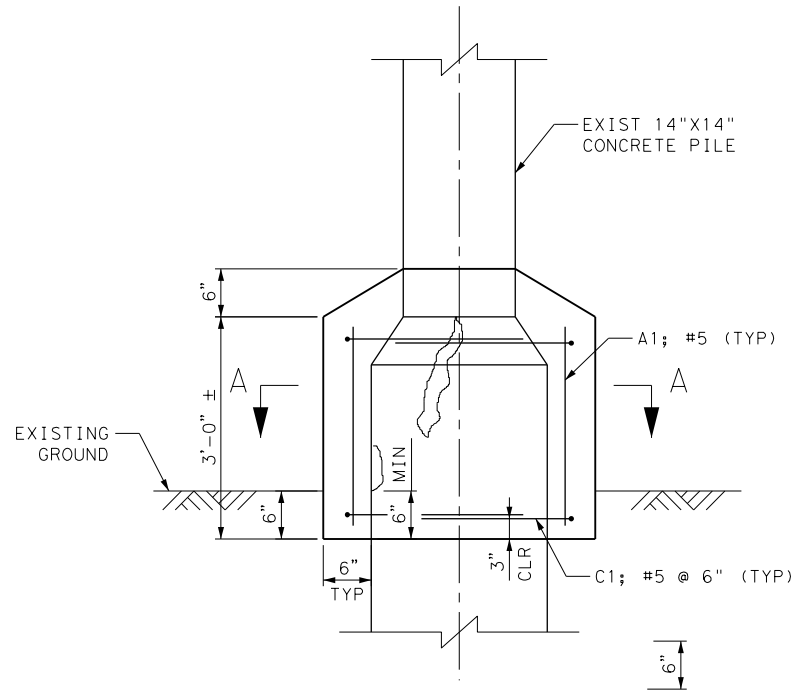
PROJ NO: P202120209
SCALE: NTS
DATE: 9/17/2014
DESIGNED BY: TVT
DRAWN BY: EO
CHECKED BY: MFB

SHEET TITLE
TEN MILE BRIDGE ROAD
OVER WEST FORK TRINITY RIVER
BRIDGE REPAIR
QUANTITIES



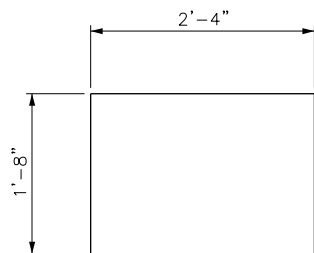
EXISTING CONDITION

NTS BENT No. 4, COLUMN No. 2

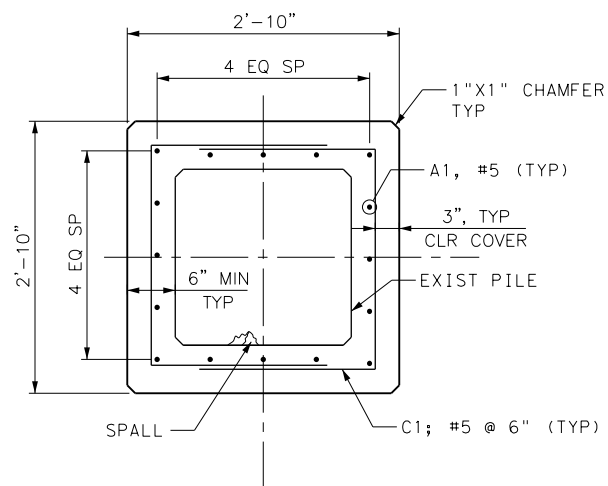


FINAL CONDITION

NTS BENT No. 4, COLUMN No. 2



BAR C1



SECTION A-A

NTS

TABLE OF ESTIMATED QUANTITIES				
BAR	NO	SIZE	LENGTH	WEIGHT
A1	16	5	2'-8"	45
C1	14	4	5'-8"	53
REINFORCING STEEL			LB	98 ①
CL "C" CONCRETE			CY	0.6

① FOR CONTRACTOR'S INFORMATION ONLY

NOTES:

1. CLASS "C" CONCRETE STRENGTH SHALL BE $f_c' = 3,600$ PSI.
2. ALL REINFORCING STEEL SHALL BE ASTM A-615, GRADE 60.
3. CONTRACTOR SHALL VERIFY DIMENSIONS OF EXISTING STRUCTURE PRIOR TO CONSTRUCTION.
4. THE CONCRETE SURFACES SHALL BE PREPARED FOR ENCASING BY USING PRESSURE WATER BLASTING TO REMOVE DIRT, LOOSE CONCRETE, GRIME, MINERAL DEPOSITS AND ALL OTHER DELETERIOUS MATERIAL. RUST SHALL BE REMOVED FROM EXISTING REINFORCING STEEL.



500 W. 7TH ST., SUITE 1100
FORT WORTH, TX 76102
817-339-8950
817-336-2247
FIRM REG. #: 3557

CONSULTANTS



F-3557

BRIDGE REPAIRS

TARRANT COUNTY

MARK	DATE	DESCRIPTION

PROJ NO: P202120209

SCALE: NTS

DATE: 9/17/2014

DESIGNED BY: TVT

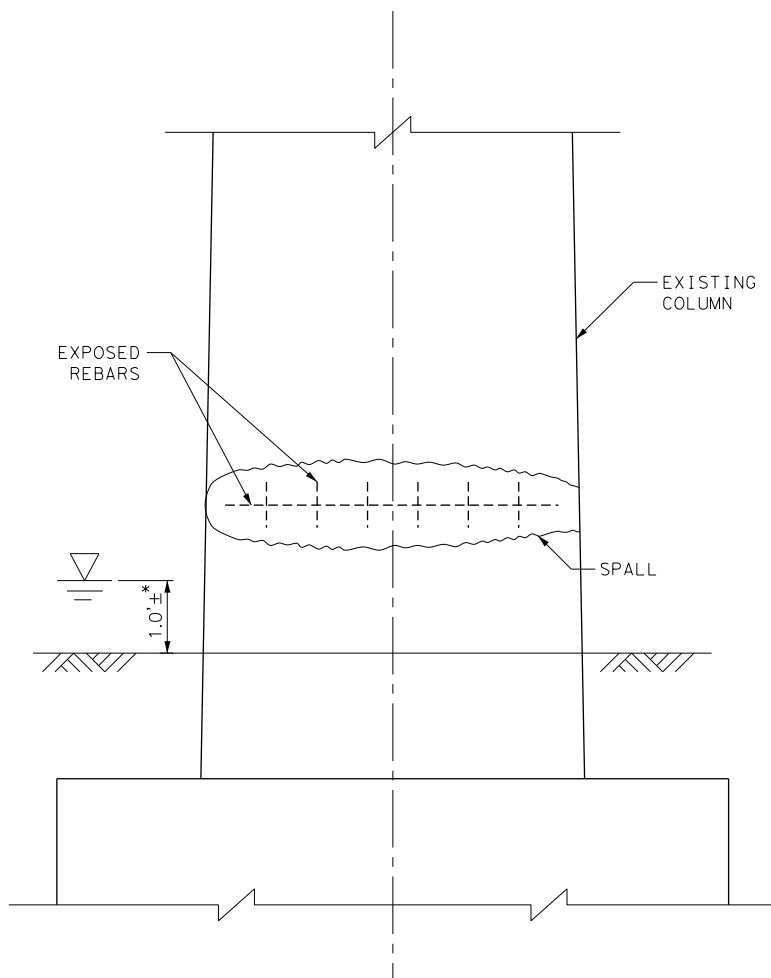
DRAWN BY: EO

CHECKED BY: MFB

SHEET TITLE

TEN MILE BRIDGE ROAD
OVER WEST FORK TRINITY RIVER
COLUMN REPAIR DETAIL
SHEET 1 OF 2

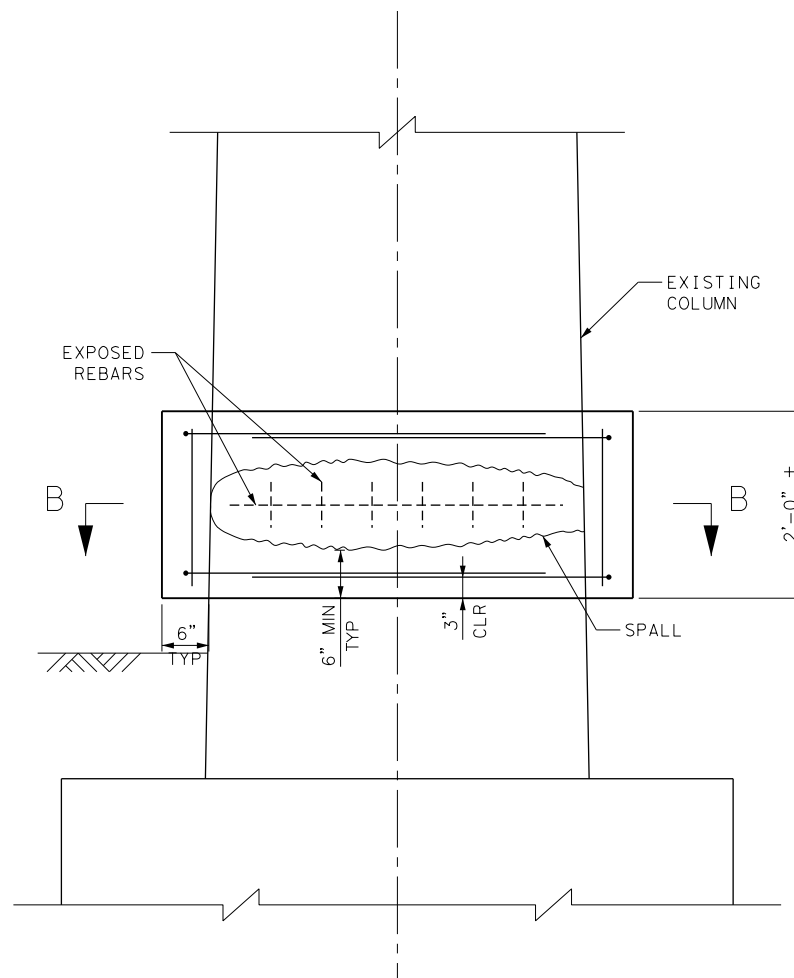
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EXISTING CONDITION

NTS BENT No. 6, COLUMN No. 2

* AT TIME OF INSPECTION



FINAL CONDITION

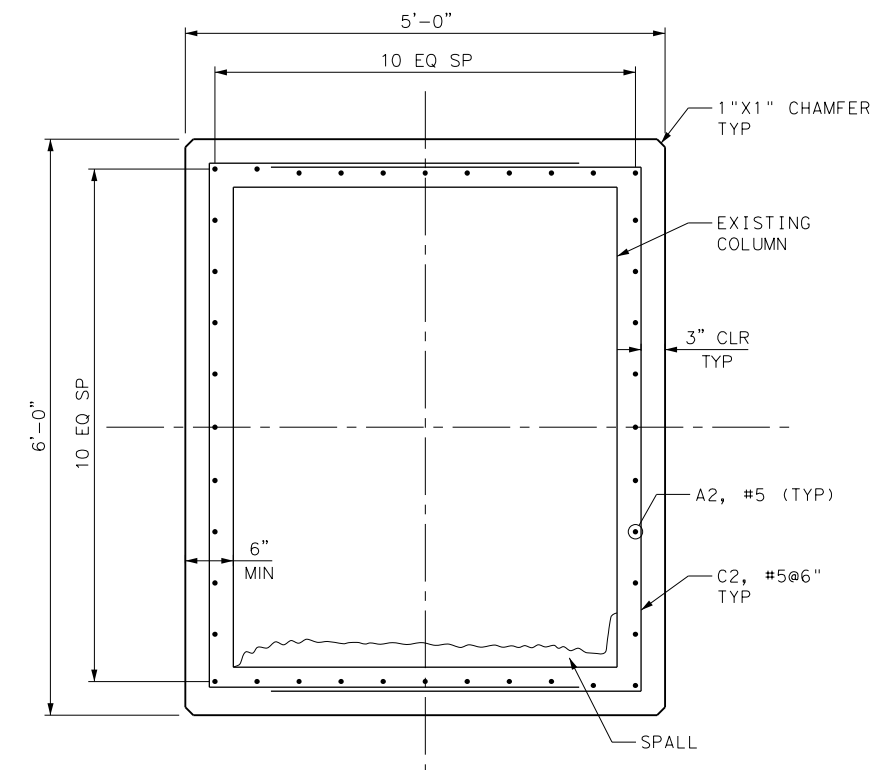
NTS BENT No. 6, COLUMN No. 2

NOTES:

1. CLASS "C" CONCRETE STRENGTH SHALL BE $f_c' = 3,600$ PSI.
2. ALL REINFORCING STEEL SHALL BE ASTM A-615, GRADE 60.
3. CONTRACTOR SHALL VERIFY DIMENSIONS OF EXISTING STRUCTURE PRIOR TO CONSTRUCTION.
4. THE CONCRETE SURFACES SHALL BE PREPARED FOR ENCASING BY USING PRESSURE WATER BLASTING TO REMOVE DIRT, LOOSE CONCRETE, GRIME, MINERAL DEPOSITS AND ALL OTHER DELETERIOUS MATERIAL. RUST SHALL BE REMOVED FROM EXISTING REINFORCING STEEL.

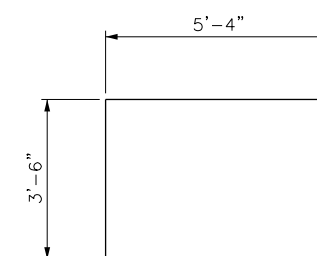
TABLE OF ESTIMATED QUANTITIES				
BAR	NO	SIZE	LENGTH	WEIGHT
A2	40	5	1'-8"	70
C2	10	4	12'-4"	83
REINFORCING STEEL			LB	153 ①
CL "C" CONCRETE			CY	0.8

① FOR CONTRACTOR'S INFORMATION ONLY



SECTION B-B

NTS



BAR C2



500 W. 7TH ST., SUITE 1100
FORT WORTH, TX 76102
817-339-8950
817-336-2247
FIRM REG. #: 3557

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BRIDGE REPAIRS

TARRANT COUNTY

MARK DATE DESCRIPTION

PROJ NO: P202120209
 SCALE: NTS
 DATE: 9/17/2014
 DESIGNED BY: TVT
 DRAWN BY: EO
 CHECKED BY: MFB

SHEET TITLE

TEN MILE BRIDGE ROAD
OVER WEST FORK TRINITY RIVER
COLUMN REPAIR DETAIL

SHEET 2 OF 2

CONSULTANTS



F-3557

BRIDGE REPAIRS
TARRANT COUNTY

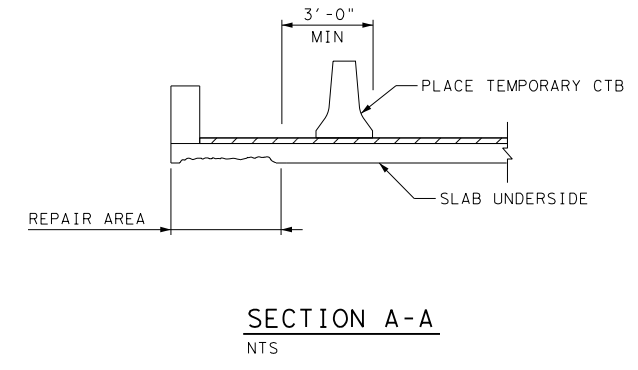
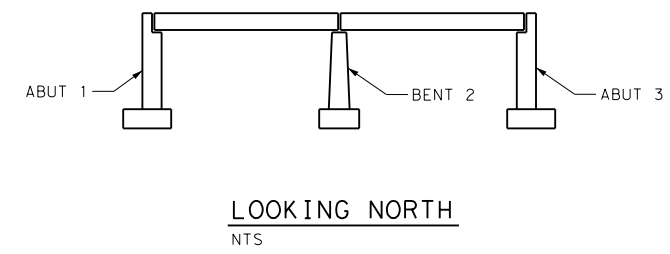
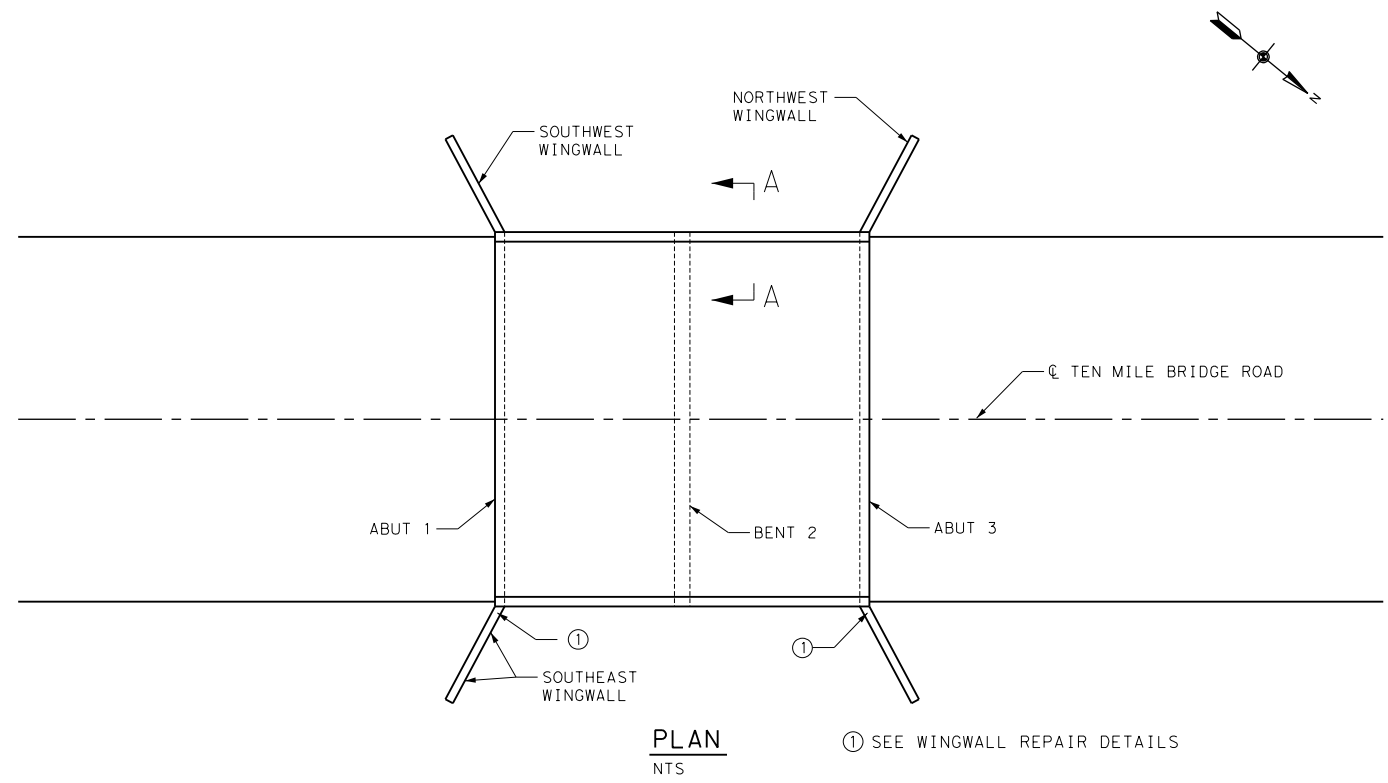
MARK	DATE	DESCRIPTION

PROJ NO: P202120209
SCALE: NTS
DATE: 9/17/2014
DESIGNED BY: TVT
DRAWN BY: EO
CHECKED BY: MFB

SHEET TITLE
TEN MILE BRIDGE ROAD
OVER LAKE WORTH TRIBUTARY
BRIDGE LAYOUT
2 - 19' SPAN CONC SLAB

NOTES:

- SEE SHEETS 30-32, "CONCRETE REPAIR DETAILS" FOR NOTES AND REPAIR DETAILS.
- DIMENSIONS, PLAN AND ELEVATION REPRESENTATIONS AND LOCATIONS ARE APPROXIMATE BASED ON LIMITED INFORMATION AND FIELD MEASUREMENTS. CONTRACTOR SHALL FIELD VERIFY.
- CONTRACTOR SHALL DOCUMENT AND RESTORE SITE TO ORIGINAL CONDITION.
- APPROXIMATELY 1.0 FEET OF WATER WAS PRESENT IN ONE SPAN AT THE TIME OF INSPECTION.
- FOR TRAFFIC CONTROL, SEE TXDOT STANDARD TCP(2-8B). PLACE CTB IN TAPERED CONFIGURATION AT LIMITS OF BRIDGE TO PROTECT TRAFFIC FROM EXPOSED BARRIER ENDS. MODIFICATIONS TO THE RECOMMENDED TRAFFIC CONTROL PLAN SHALL REQUIRE THE SEAL AND SIGNATURE OF A LICENSED PROFESSIONAL ENGINEER.
- FOR ADDITIONAL NOTES AND GUIDELINES, SEE GENERAL NOTES, SHEET 4.



Location	Description			
	A	B	C	D
	SF	SF	SF	LF
North Abutment = Abutment 3				
Abutment				8.00
Span 2				
Slab (west side)		44.00		
Slab (underside)		30.00	33.00	
Bent 2				
Column		31.00		
Span 1				
Slab (west side)		44.00		
South Abutment = Abutment 1				
Abutment		44.00		
Wingwall				
Southeast corner		2.00		
Southwest corner		8.00		
Northwest corner		8.00		
TOTAL =	0	211	33	8

- Damage Description
- A : Delamination
 - B : Spalling with no rebar exposed
 - C : Spalling with rebar exposed
 - D : Crack

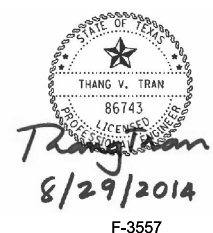
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TABLE OF ESTIMATED QUANTITY		
CL "C" CONCRETE	CY	0.5



500 W. 7TH ST., SUITE 1100
 FORT WORTH, TX 76102
 817-339-8950
 817-336-2247
 FIRM REG. #: 3557

CONSULTANTS

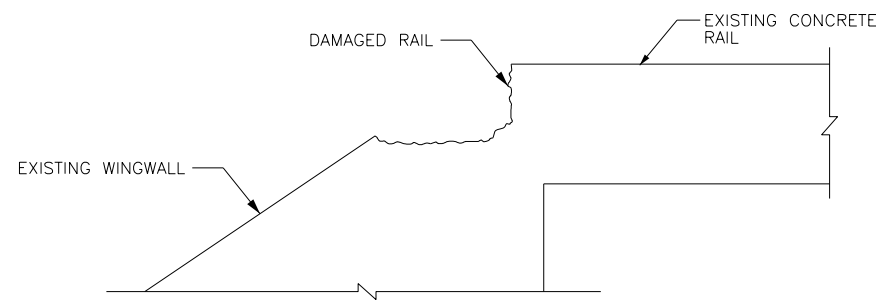


BRIDGE REPAIRS
 TARRANT COUNTY

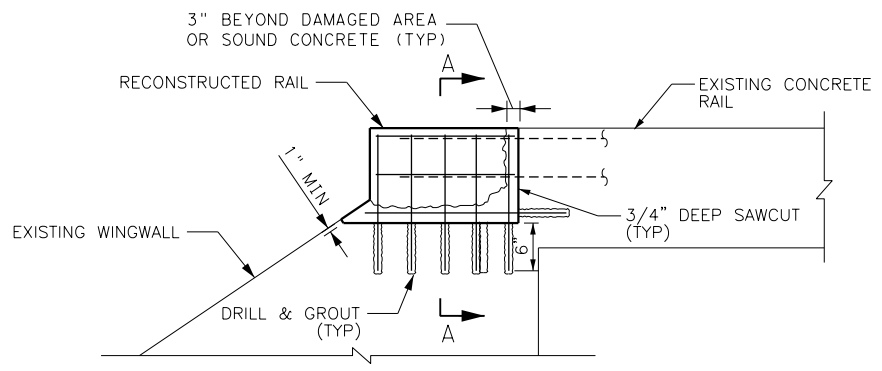
MARK	DATE	DESCRIPTION

PROJ NO: P202120209
 SCALE: NTS
 DATE: 9/17/2014
 DESIGNED BY: TVT
 DRAWN BY: EO
 CHECKED BY: MFB

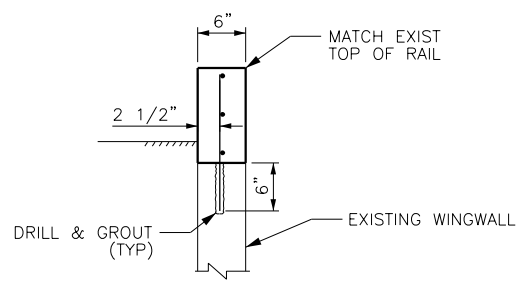
SHEET TITLE
 TEN MILE BRIDGE ROAD
 OVER LAKE WORTH TRIBUTARY
 WINGWALL REPAIR
 DETAILS



EXISTING CONDITION
 (AT NORTHEAST AND SOUTHEAST CORNERS)



FINAL CONDITION



SECTION A-A

GENERAL NOTES:

- PERFORM WORK IN ACCORDANCE WITH TXDOT SPECIFICATION ITEM 429, "CONCRETE STRUCTURE REPAIR." USE ONLY HAND TOOLS OR POWER-DRIVE CHIPPING HAMMERS (15-LB CLASS MAXIMUM) TO REMOVE CONCRETE.
- CLEAN AND EXTEND EXISTING REINFORCING STEEL INTO NEW CONSTRUCTION. CARE SHALL BE TAKEN NOT TO FURTHER DAMAGE EXISTING CONCRETE AND REINFORCING STEEL.
- CONCRETE SHALL BE CLASS "C" WITH MINIMUM COMPRESSIVE STRENGTH, $f'_c = 3,600$ PSI.
- REINFORCING STEEL SHALL BE ASTM A-615, GRADE 60.
- ALL REINFORCING STEEL SHALL BE # 5 SPACED AT 6".
- CHAMFER ALL EXPOSED CORNERS 3/4" OR MATCH THAT OF EXISTING STRUCTURE.
- SEE "CONCRETE REPAIR DETAILS", SHEET 1 FOR ADDITIONAL REPAIR NOTES.
- CONTRACTOR SHALL VERIFY DIMENSIONS OF EXISTING STRUCTURE PRIOR TO CONSTRUCTION.

CONSULTANTS



BRIDGE REPAIRS
 TARRANT COUNTY

MARK	DATE	DESCRIPTION

PROJ NO: P202120209
 SCALE: NTS
 DATE: 9/17/2014
 DESIGNED BY: TVT
 DRAWN BY: EO
 CHECKED BY: MFB

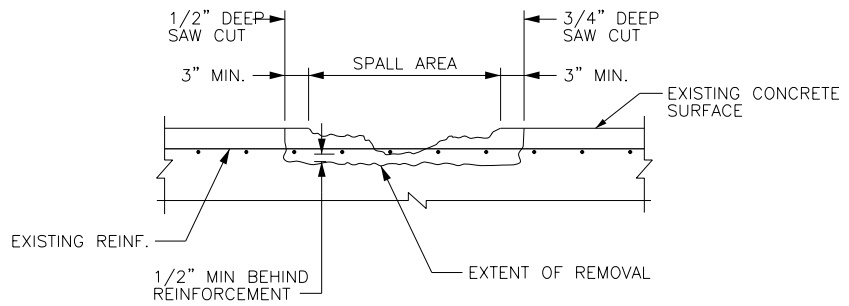
SHEET TITLE
**CONCRETE REPAIR
 DETAILS**

SHEET 1 OF 3

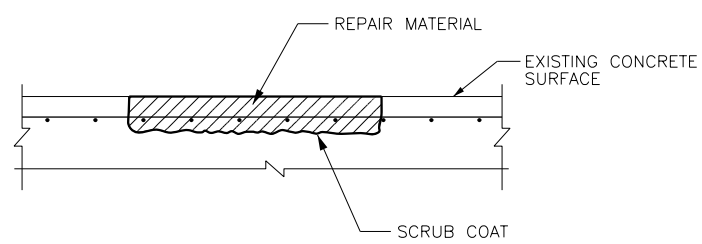
30

GENERAL NOTES:

1. SUBMIT DETAILED REPAIR PROCEDURES, INCLUDING PROPOSED PROPRIETARY MATERIALS, FOR APPROVAL PRIOR TO COMMENCING WORK.
2. PERFORM WORK IN ACCORDANCE WITH ITEM 429, "CONCRETE STRUCTURE REPAIR." USE TYPE B REPAIR MATERIAL PER DMS 4655, "CONCRETE REPAIR MATERIALS." REFER TO THE "CONCRETE REPAIR MATERIALS" MPL FOR A LIST OF PRE-APPROVED TIE B MATERIALS. USE ONLY HAND TOOLS OR POWER-DRIVEN CHIPPING HAMMERS (15-LB MAXIMUM) TO REMOVE CONCRETE.
3. SEE CONCRETE REPAIR DETAILS SHEETS 2 OF 3 AND 3 OF 3 FOR TYPE OF REPAIR.
4. DAMAGED OR CORRODED REINFORCEMENT SHALL BE SPLICED WITH NEW REBAR. REINFORCING BARS SHALL BE THE SAME SIZE AS THE EXISTING SIZE BUT NOT LESS THAN #5. CONCRETE COVER SHALL BE 2" MINIMUM.
5. REINFORCING STEEL SHALL BE ASTM A-615, GRADE 60.



EXISTING CONDITION



FINAL CONDITION

CONSULTANTS



Thang Tran
 8/29/2014
 F-3557

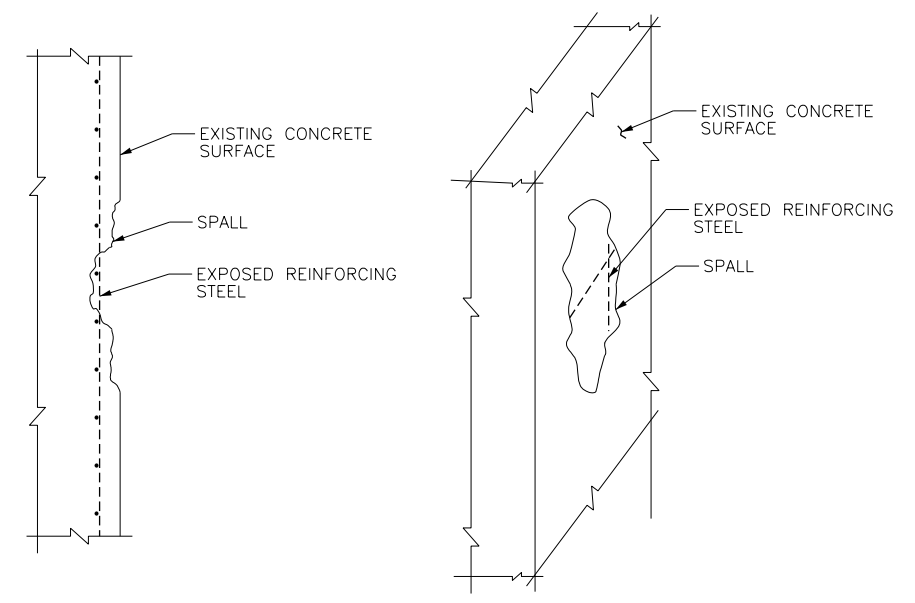
BRIDGE REPAIRS
 TARRANT COUNTY

MARK	DATE	DESCRIPTION

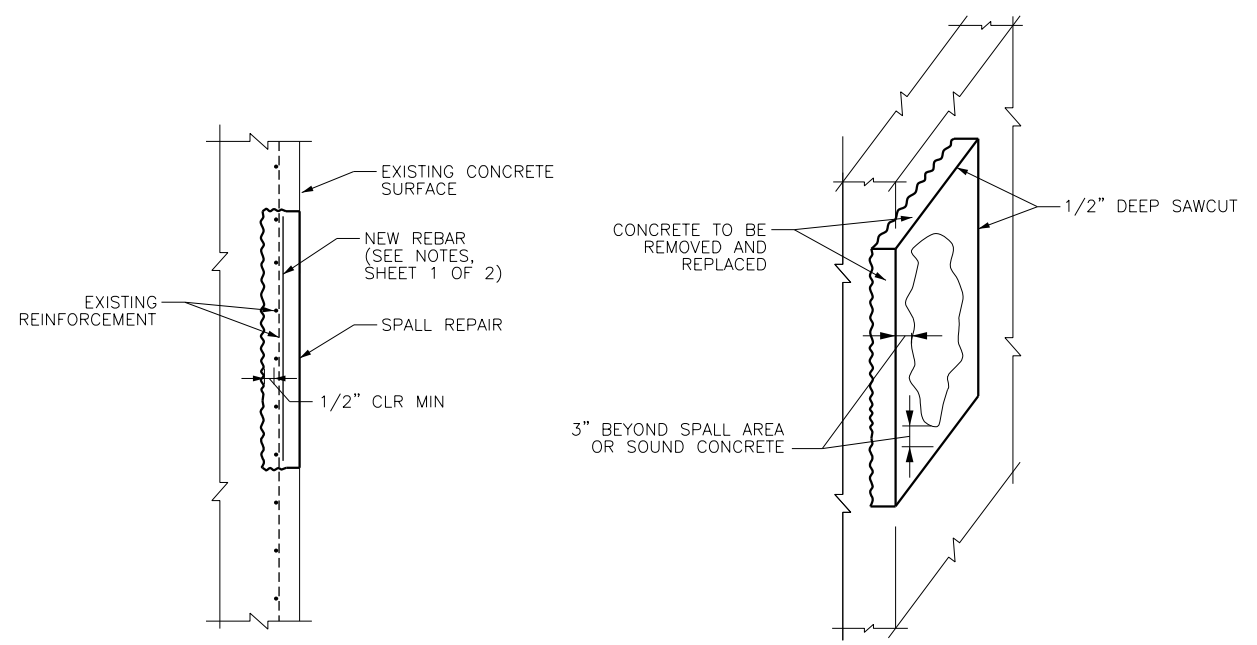
PROJ NO: P202120209
 SCALE: NTS
 DATE: 9/17/2014
 DESIGNED BY: TVT
 DRAWN BY: EO
 CHECKED BY: MFB

SHEET TITLE
**CONCRETE REPAIR
 DETAILS**

SHEET 2 OF 3

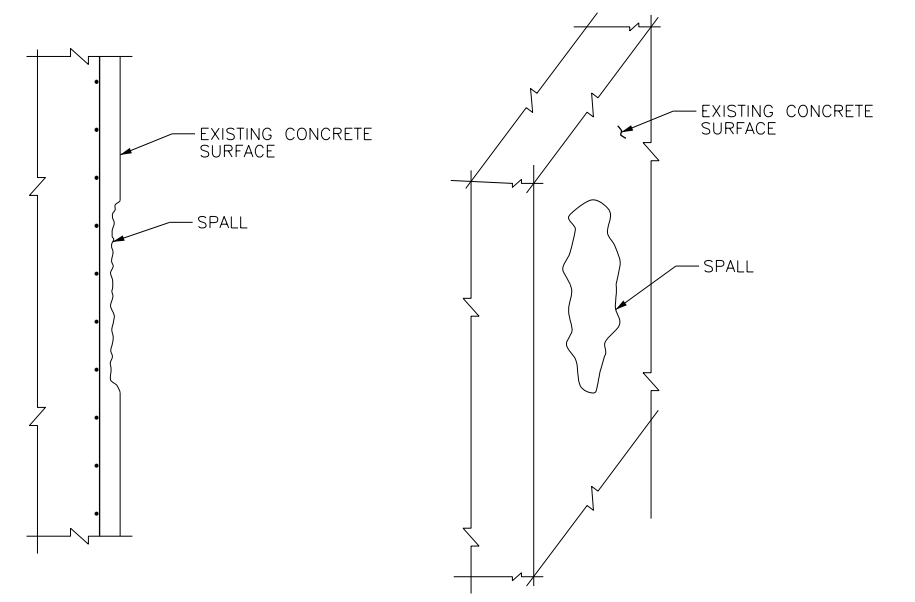


EXISTING CONDITION

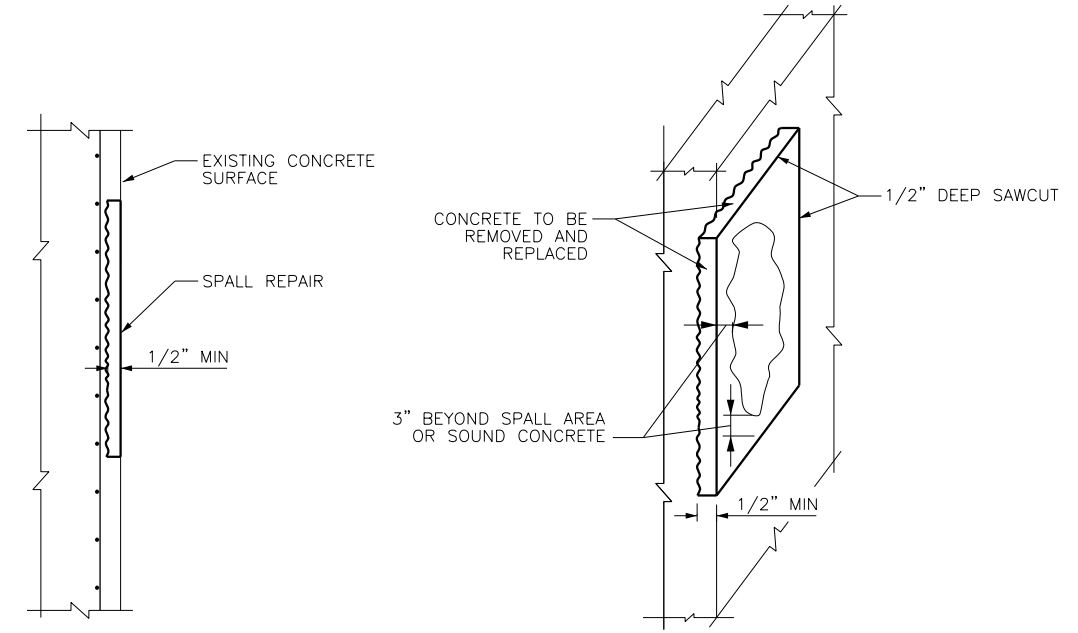


FINAL CONDITION

DEEP REPAIR
 (CONDITION C)



EXISTING CONDITION



FINAL CONDITION

INTERMEDIATE REPAIR
 (CONDITION A & B)

NOTE:
 SEE SHEET 1 OF 3 FOR REPAIR NOTES

CONSULTANTS



BRIDGE REPAIRS
TARRANT COUNTY

MARK	DATE	DESCRIPTION

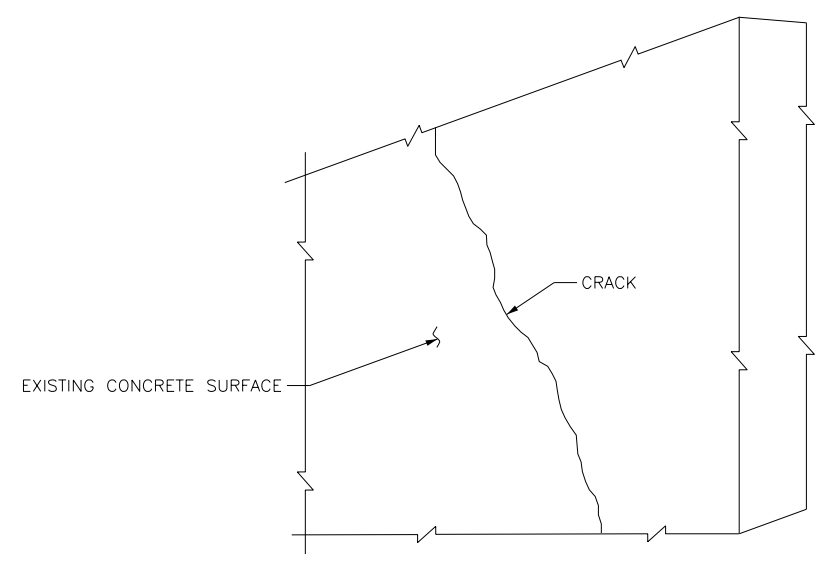
PROJ NO: P202120209
 SCALE: NTS
 DATE: 9/17/2014
 DESIGNED BY: TVT
 DRAWN BY: EO
 CHECKED BY: MFB

SHEET TITLE
CRACK REPAIR DETAILS

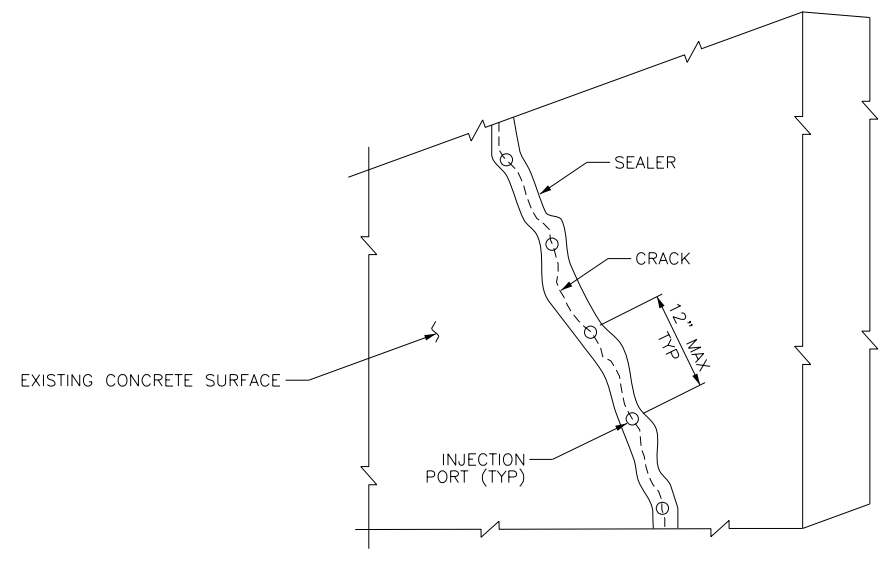
SHEET 1 OF 1

GENERAL NOTES:

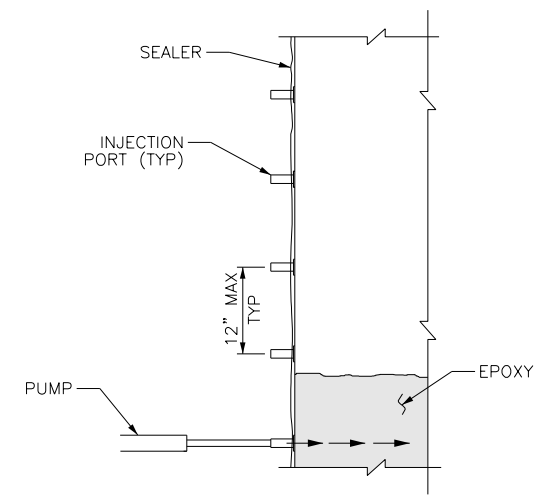
1. SUBMIT DETAILED REPAIR PROCEDURES, INCLUDING PROPOSED PROPETARY MATERIALS, FOR APPROVAL PRIOR TO COMMENCING WORK.
2. PERFORM WORK IN ACCORDANCE WITH ITEM 780, "EPOXY INJECTION." USE TYPE IX. MATERIAL PER DMS 6100, "EPOXY AND ADHESIVES."



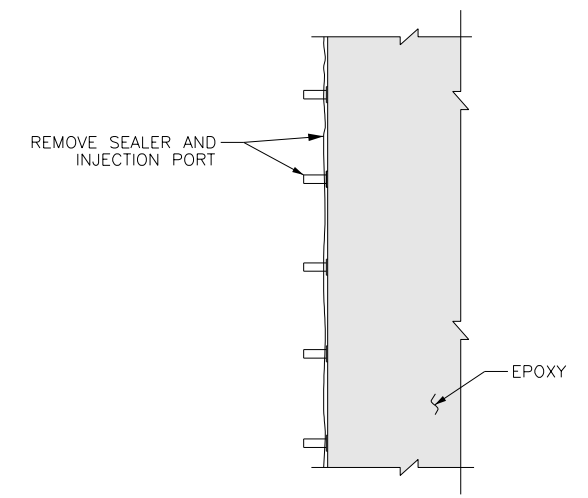
EXISTING CONDITION



PREPARATION



AT START OF INJECTION

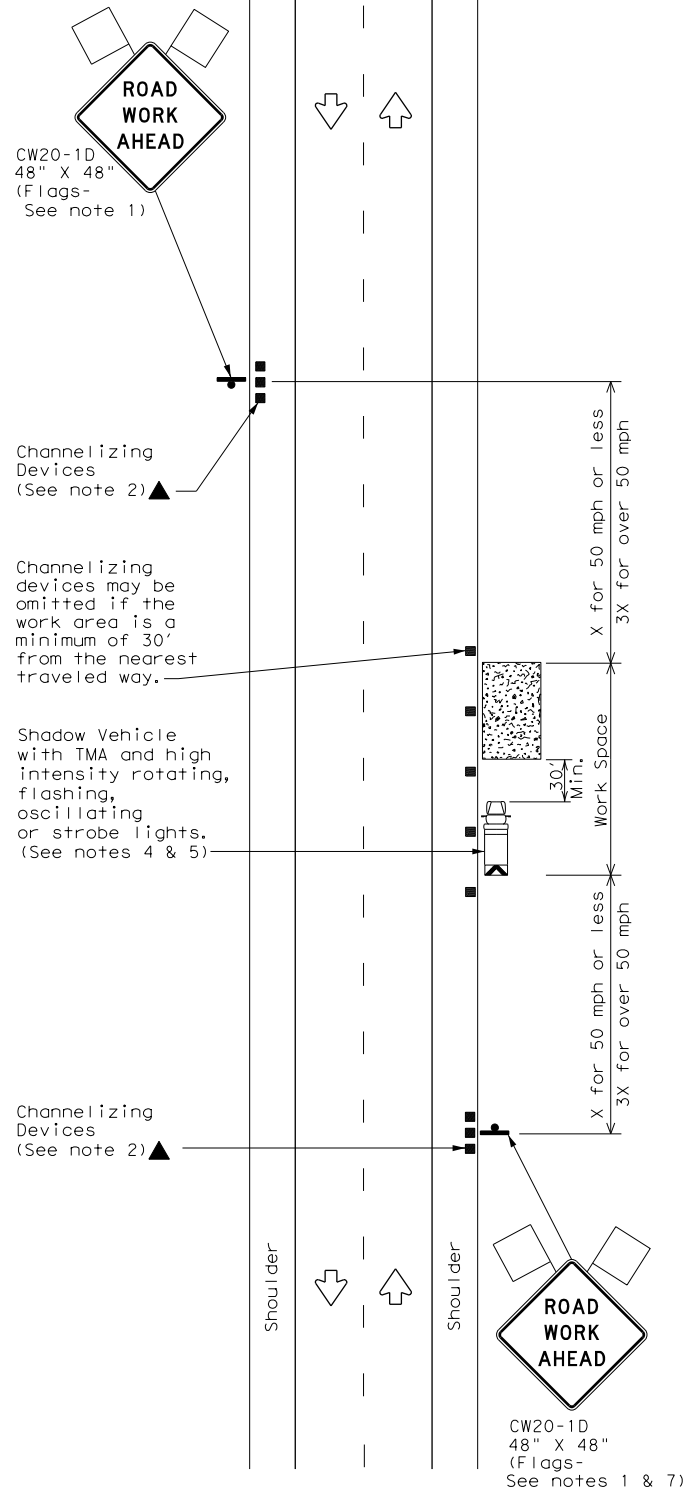


AT FINISH OF INJECTION

SECTION THROUGH CRACK

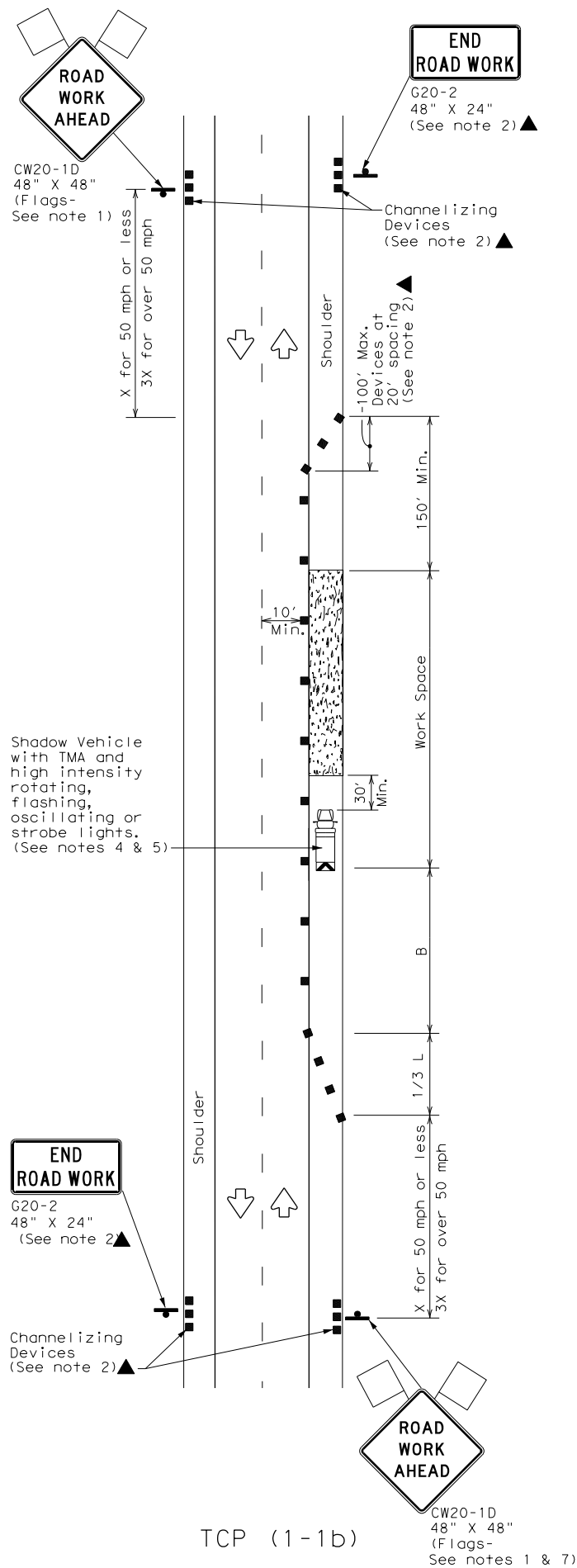
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DATE: FILE:



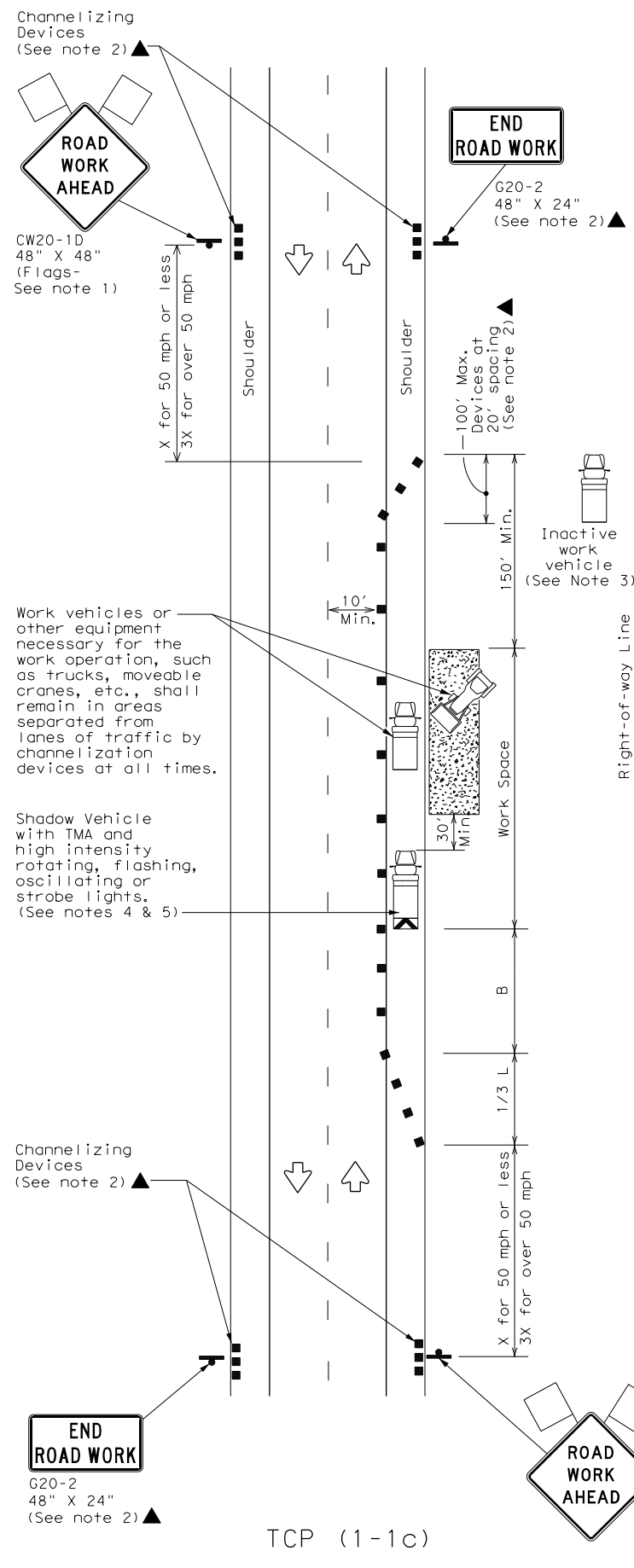
TCP (1-1a)

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 = 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.

For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.

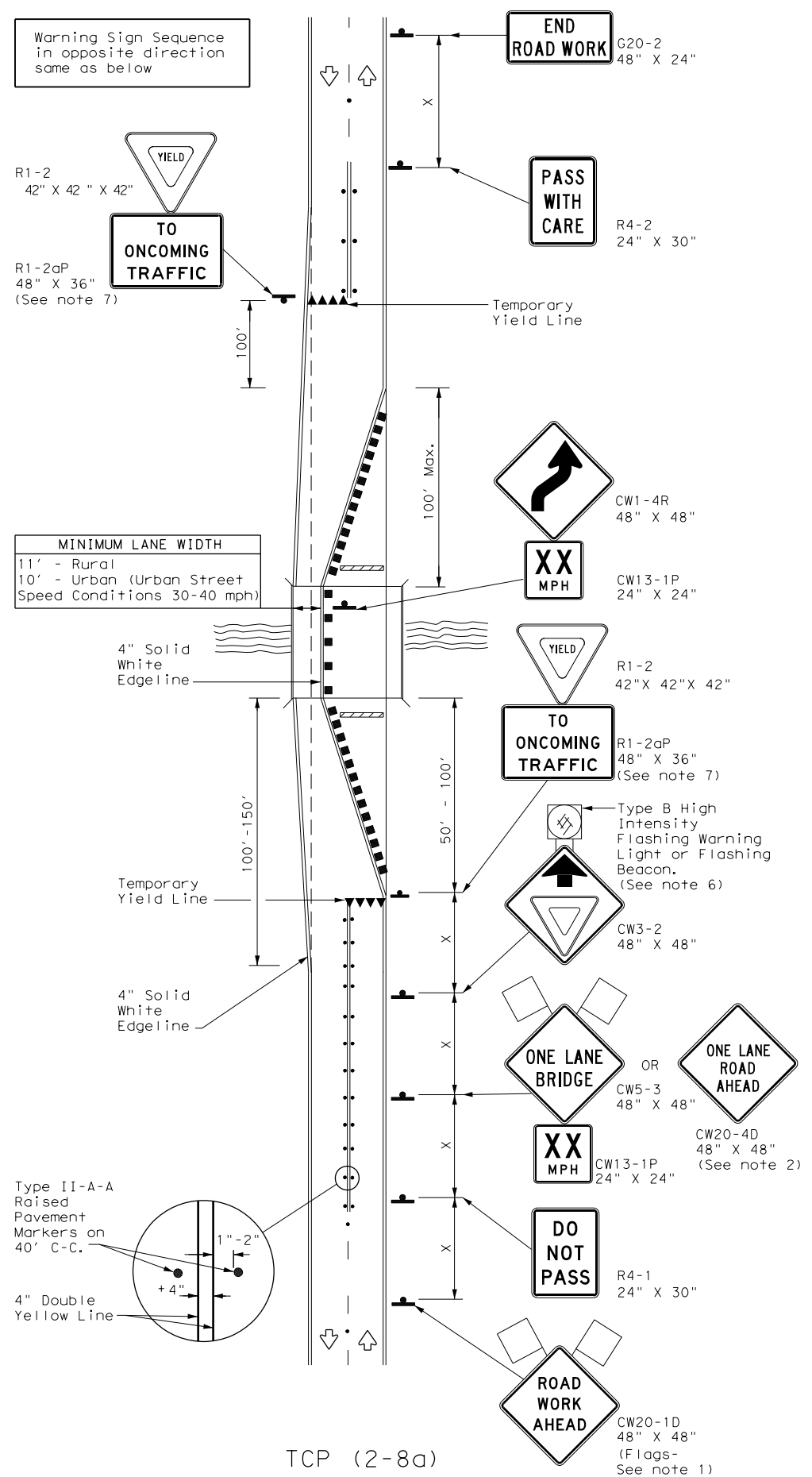
Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP (1-1) - 12

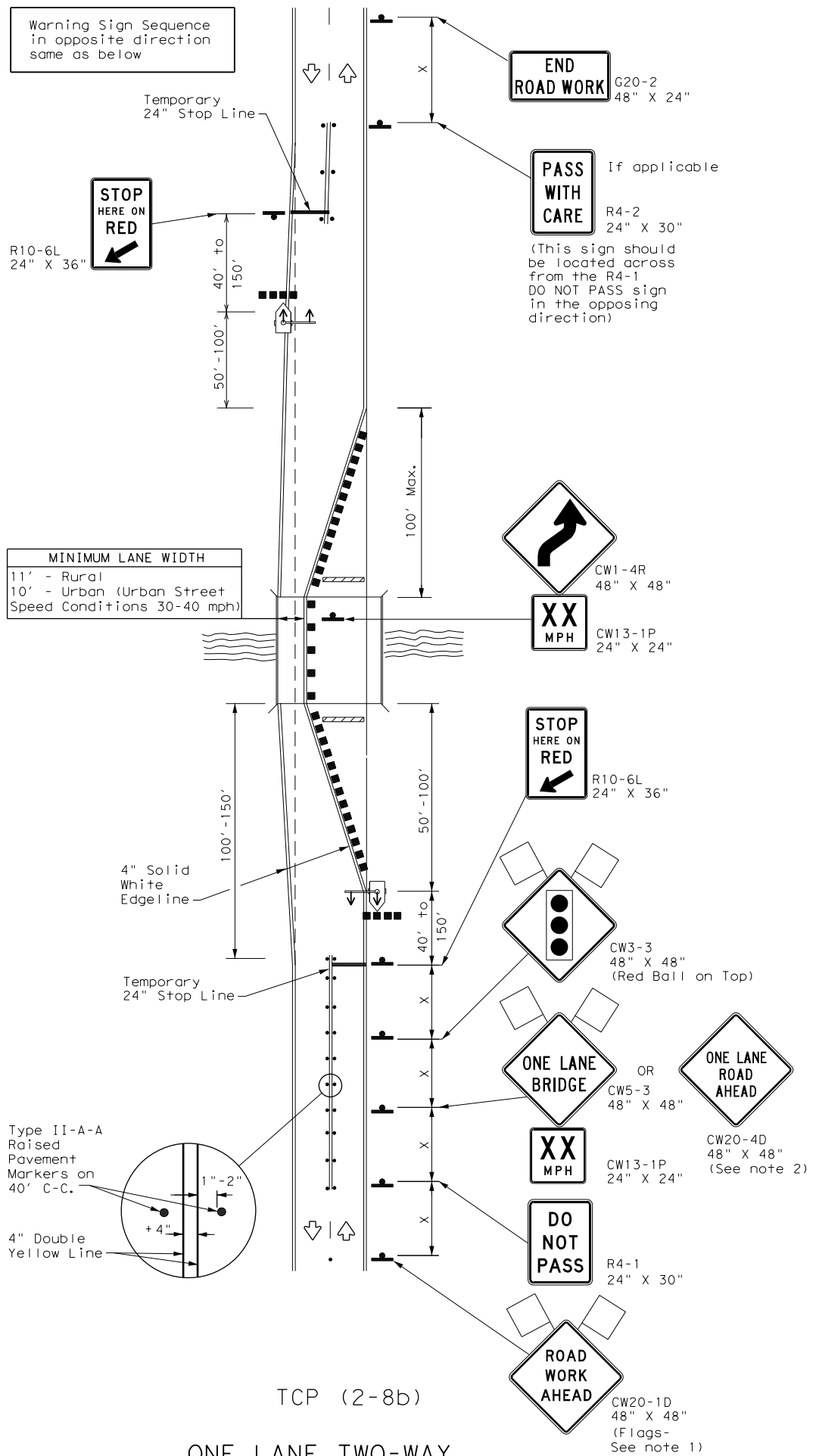
© TxDOT December 1985		DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
REVISONS					
2-94	8-95	1-97	4-98	CONTRACT NO.	JOB NO.
				DIST	COUNTY
				FW	TARRANT
				SHEET NO. 34	

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TCP (2-8a)

ONE LANE TWO-WAY TRAFFIC CONTROL WITH YIELD SIGNS
(Less Than 2000 ADT-See Note 5)



TCP (2-8b)

ONE LANE TWO-WAY TRAFFIC CONTROL WITH TRAFFIC SIGNAL

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).

For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.

Texas Department of Transportation
Traffic Operations Division

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

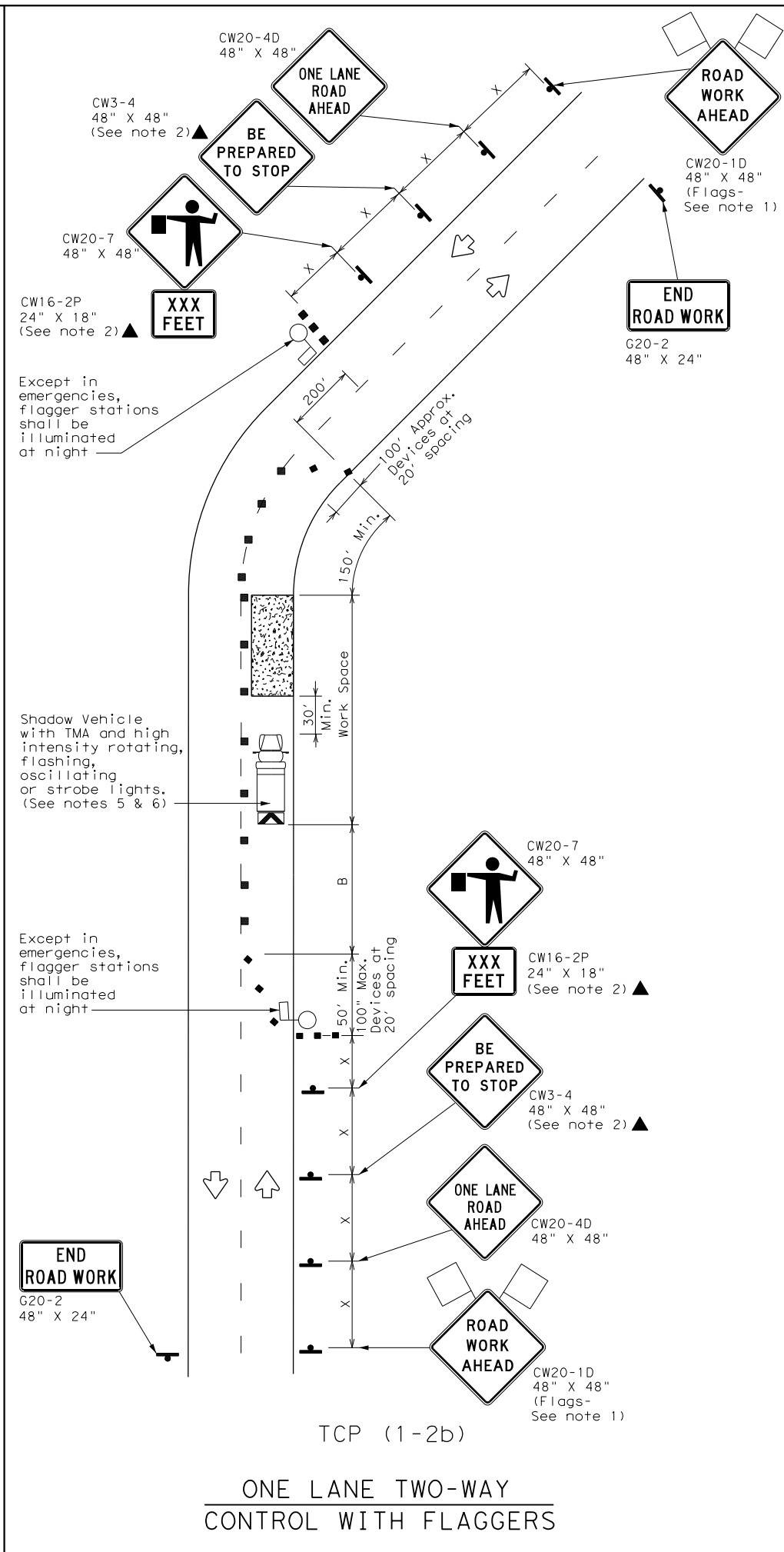
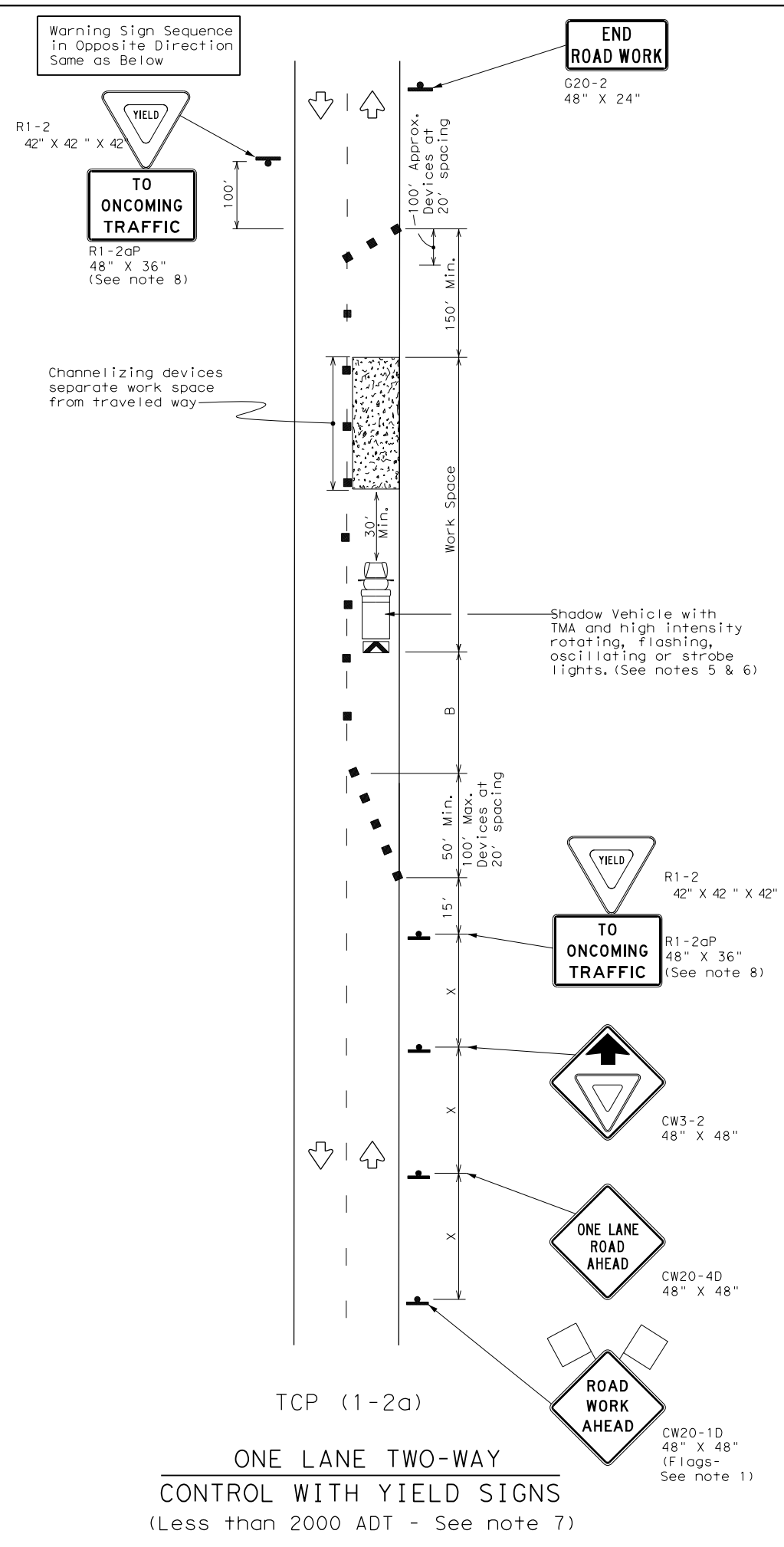
TCP (2-8) - 12

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REVISONS		CONT	SECT	JOB	HIGHWAY
8-95	2-12				
1-97					
4-98					
3-03		DIST	COUNTY	SHEET NO.	
		FW	TARRANT	35	

DATE:
FILE:

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DATE:
FILE:



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 = 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 = 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 150 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.

For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.

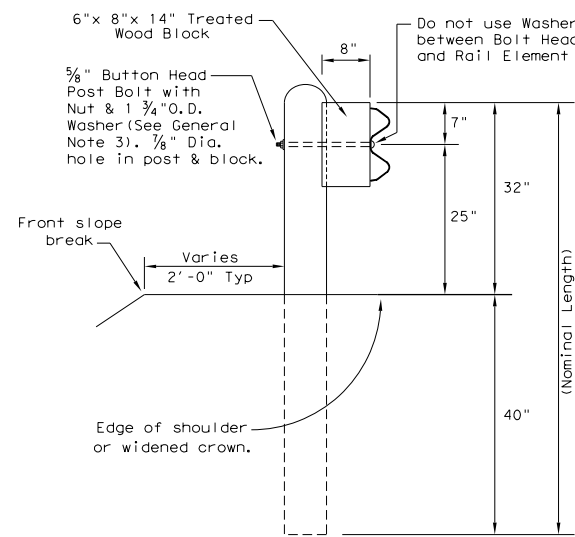


TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

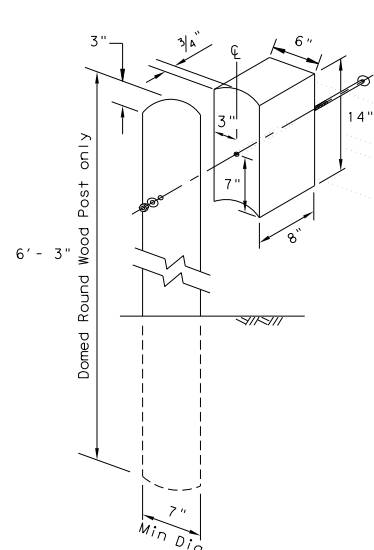
TCP (1-2) - 12

© TxDOT December 1985		DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
REVISONS		CONT	SECT	JOB	HIGHWAY
4-90	2-12				
2-94					
1-97					
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		FW	TARRANT		36

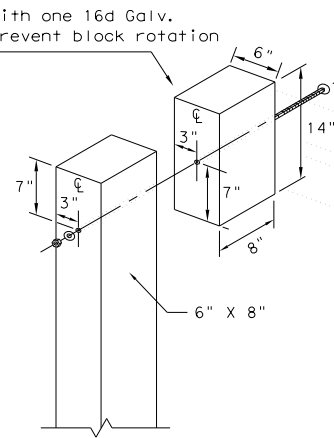
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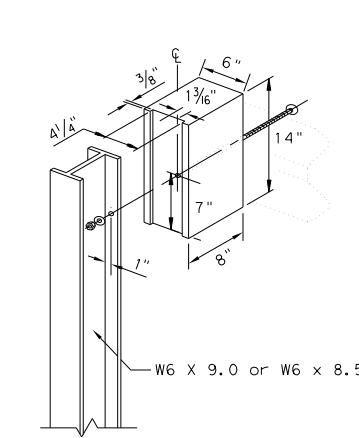
TYPICAL POST



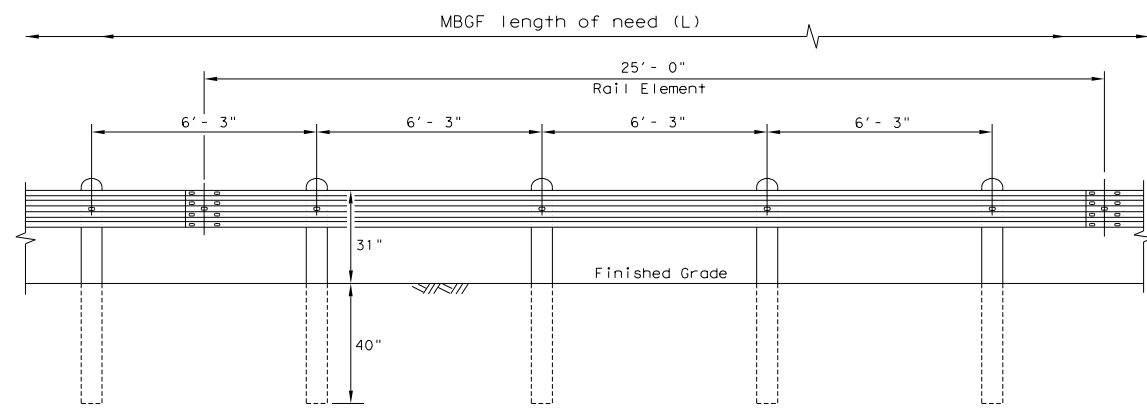
WOOD BLOCK TO ROUND WOOD POST



WOOD BLOCK TO RECTANGULAR WOOD POST



WOOD BLOCK TO STEEL POST

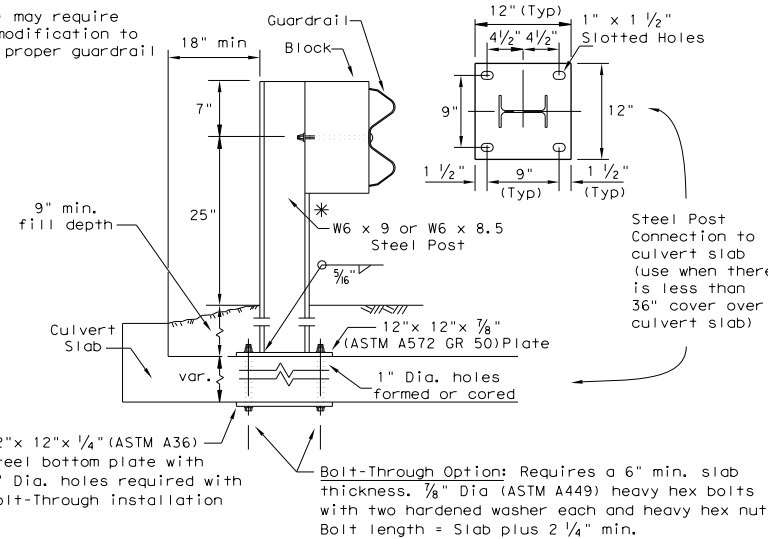


ELEVATION MID-SPAN RAIL SPLICE

Showing a 25' - 0" section of W-Beam rail, 12' - 6" rail sections may also be supplied (See General Note 2)

Direction of Traffic

* Post(s) may require field modification to ensure proper guardrail height.

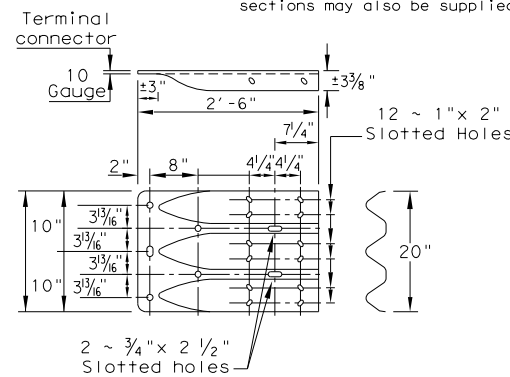


LOW FILL CULVERT POST

Culverts of 25 ft. or less, see GF(31)LS standard for "Long Span" option.

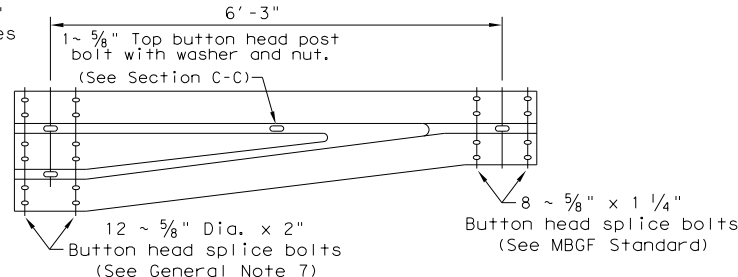
Epoxy Note: Epoxy Anchor Option: This option may only be used if the culvert slab is 8" min. thick. Threaded anchor rods must be 3/8" Dia. ASTM A449 or A193 Grade B7 with heavy hex nut, and one hardened washer each. Embed anchor rods 6" with Hilti HIT RE 500 epoxy adhesive. Other Type III Class C epoxy adhesives meeting the requirements of DMS-6100, "Epoxyes and Adhesives", may be used if it can be demonstrated that they meet or exceed the strength of Hilti HIT RE 500 with the same embedment depth and threaded rod dia. Follow the manufacturer's requirements for installing epoxied threaded rods. Extend rods 1/4" min. beyond nut.

- GENERAL NOTES**
- The type of post (round wood post, rectangular wood post, or steel post) will be as shown in the plans. The exact position of MBSGF shall be shown in the plans or as directed by the Engineer. Steel posts to be galvanized in accordance with Item 445, "Galvanizing."
 - Rail element shall meet the requirements of Item 540, "Metal Beam Guard Fence" except as modified in the plans. The Contractor may furnish rail elements of 25' - 0", or 12' - 6" (nom.) lengths. Rail elements may have slotted holes at 3'-1 1/2" C-C or 6'-3" C-C. A special length of rail may be manufactured to accommodate the downstream anchor terminal (DAT) and the transition sections of guardrail.
 - Button head "post" bolts (ASTM A307) shall be of sufficient length to extend through the full thickness of the nut (ASTM A563) and Type A (1 3/4" O.D.) washer and not more than 1" beyond it. Button head "splice" bolts (ASTM A307) are 3/8" x 1 1/4" (or 2" long at triple rail splices) with a 5/8" double recessed nut (ASTM A563). Thrie beam "connection" 7/8" dia. (ASTM A325) hex bolts shall be of sufficient length to extend through the full thickness of the rail, washers, and nuts.
 - Fittings (bolts, nuts, and washers) shall be galvanized in accordance with Item 445, "Galvanizing." Fittings shall be subsidiary to the bid item.
 - Crown shall be widened to accommodate the Metal Beam Guard Fence.
 - The lateral approach to the guard fence, shall have a maximum slope of 1V:10H.
 - If shown elsewhere in the plans or as directed by the Engineer, the guard fence may be flared at a rate of 25:1 or flatter.
 - Unless otherwise shown in the plans, guard fence placed in the vicinity of curbs shall be positioned so that the face of curb is located directly below or behind the face of the rail. Rail placed over curbs shall be installed so that the post bolt is located approximately 25 inches above the gutter pan or edge of shoulder.
 - If solid rock is encountered within 0 to 18" of the finished grade, drill a 22" dia. hole, or drill two 12" dia. front to back overlapping holes, 24" into the rock. If solid rock is encountered below 18", drill a 12" dia. hole, 12" into the rock or to the standard embedment depth, whichever may be less. Any excess post length, after meeting these depths, may be field cut to ensure proper guardrail mounting height. Backfill with a cohesionless material.
 - Posts shall not be set in concrete, of any depth.
 - Special fabrication will be required at installations having a curvature of less than 150 ft. radius.
 - Unless otherwise shown in the plans, a composite material post and/or block that meets the requirements of DMS-7210, "Composite Material Posts and Blocks for Metal Beam Guard Fence" may be substituted for posts and/or blocks of similar dimensions. The Construction Division, TxDOT maintains a Material Producer List (MPL) for producers of materials conforming to DMS-7210. Only producers on the MPL may furnish composite material posts and/or blocks.
 - For posts located partially or wholly between precast box culvert units, the use of a cast-in-place concrete closure between boxes is required. See Detail "A" on Bridge Standard SCP-MD.

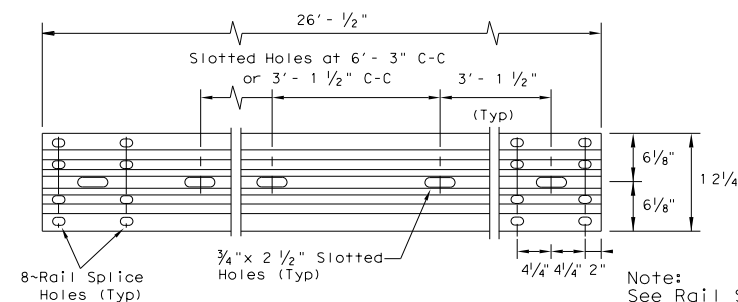


THRIE-BEAM TERMINAL CONNECTION

(See General Notes 6 & 7 for required hardware)

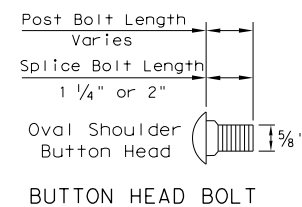


NON-SYMMETRICAL TRANSITION TO W-BEAM (10 Gauge)



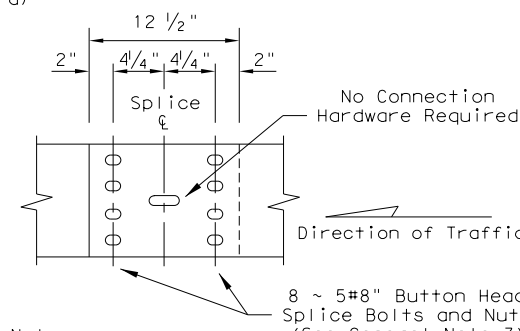
ELEVATION 25' - 0" (NOM.) W-BEAM SECTION

12' - 6" rail sections may also be supplied (See General Note 2)



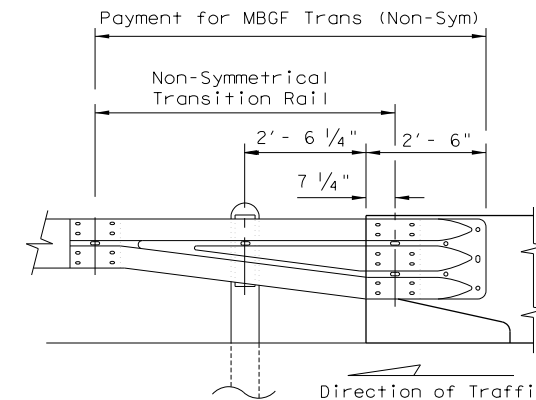
BUTTON HEAD BOLT

Post and Splice Bolts (See General Note 3)



Note: GF(31), Mid-Span rail splices are required with 6'-3" post spacings.

MID-SPAN RAIL SPLICE DETAIL



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

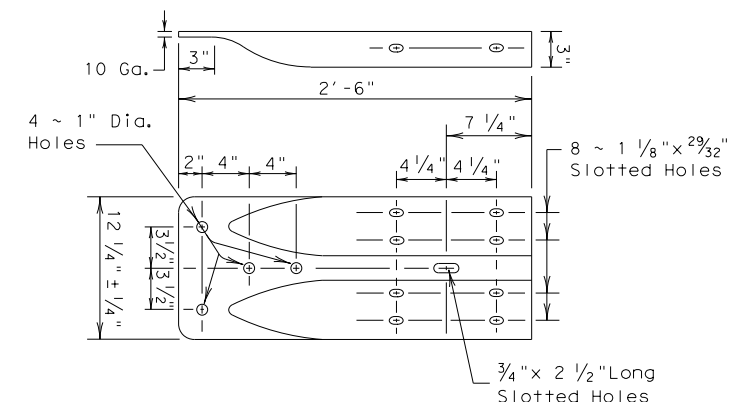
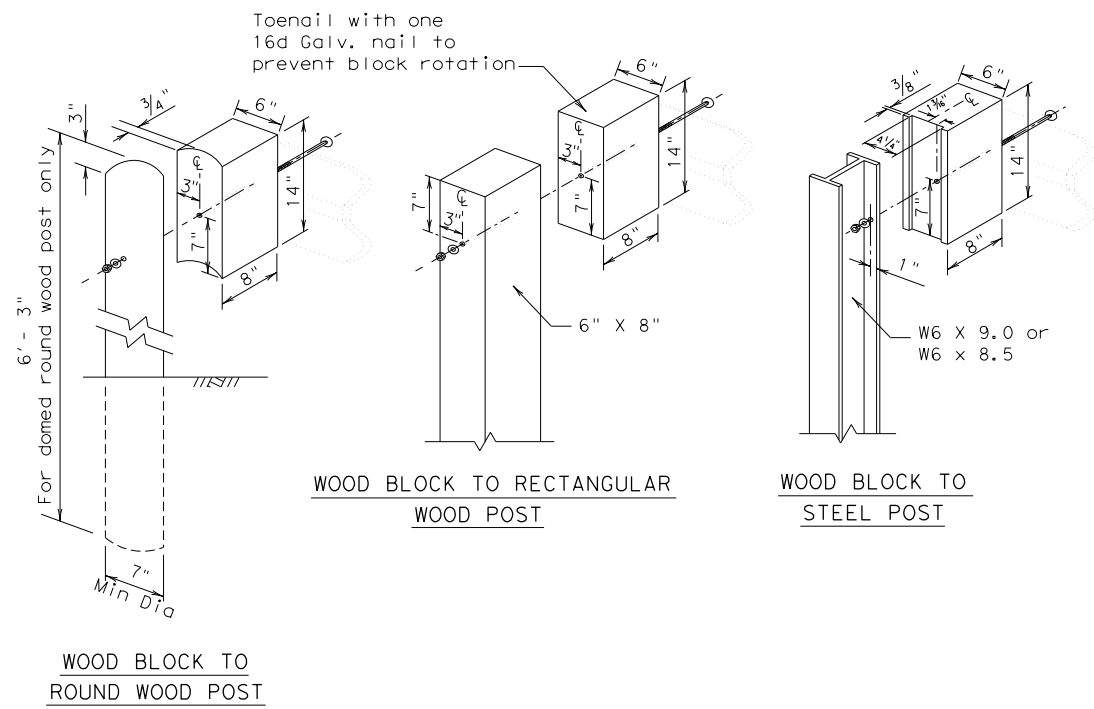
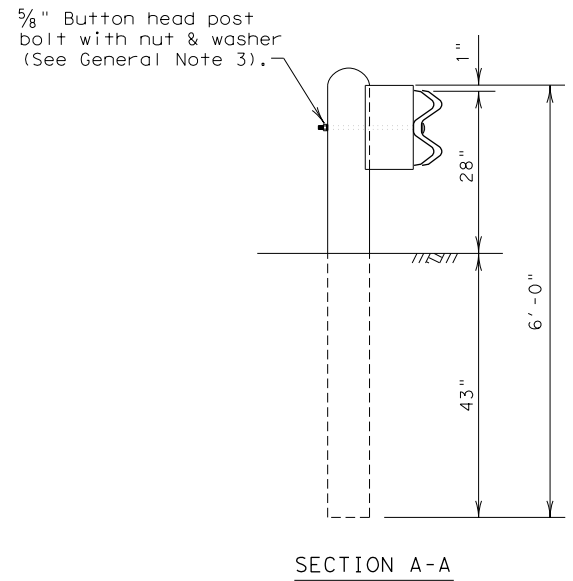
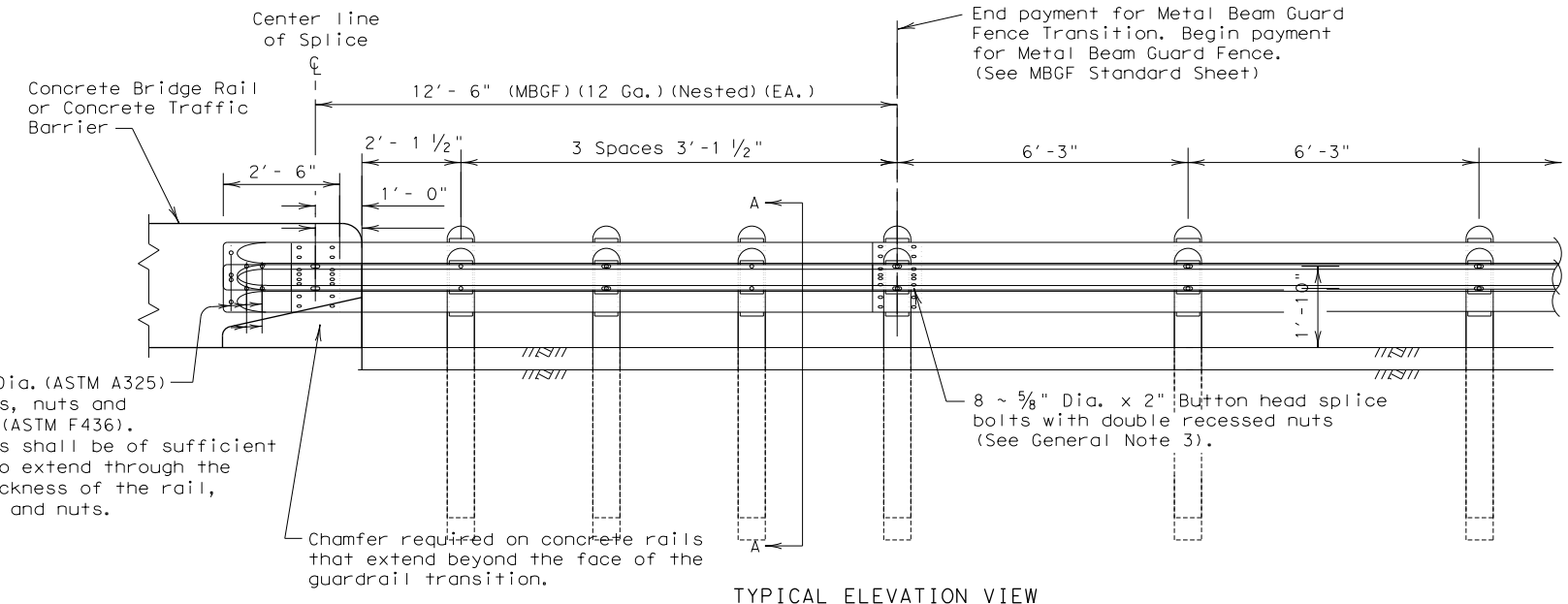
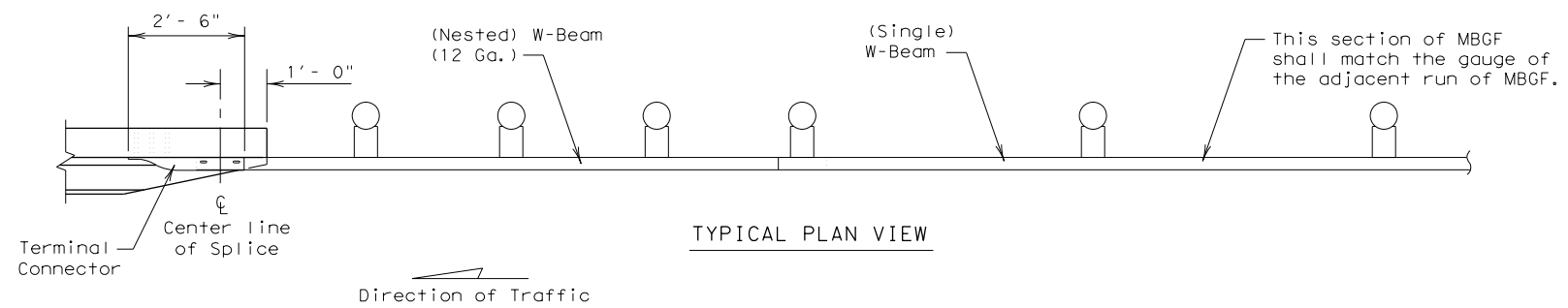
DOWNSTREAM RAIL ATTACHMENT

		Design Division Standard	
<h1>METAL BEAM GUARD FENCE</h1> <h2>GF(31) - 14</h2>			
FILE: gf3114.dgn	DN: TxDOT	CK: AM	DW: VP
© TxDOT: December 2011	CONT	SECT	JOB
REVISIONS			
DIST	COUNTY	SHEET NO.	
FW	TARRANT	37	

DATE: FILE:

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DATE:
FILE:



TERMINAL CONNECTOR
FOR USE WITH MBGF CONNECTIONS TO CONCRETE BRIDGE RAILS AND TRAFFIC BARRIERS

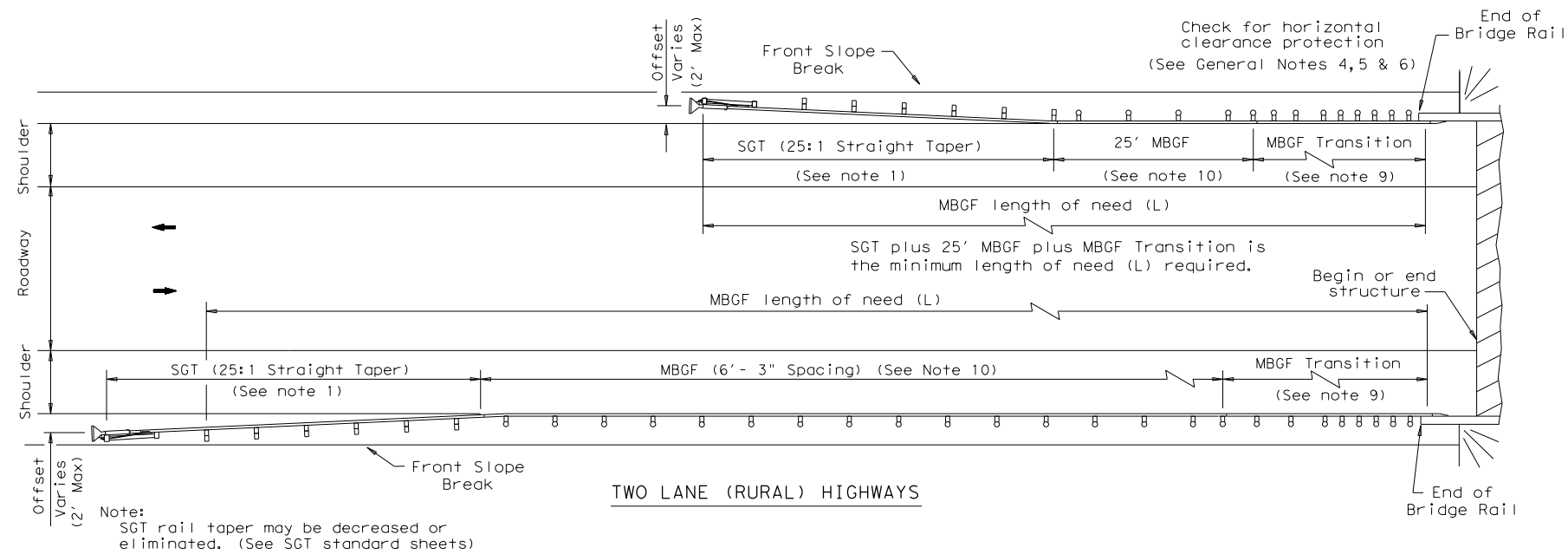
GENERAL NOTES

1. The type of post (round wood post, rectangular wood post, or steel post) will be shown elsewhere in the plans. The exact position of transitions shall be shown elsewhere in the plans or as directed by the Engineer.
2. Rail element shall meet the requirements of Item 540, "Metal Beam Guard Fence" except as modified on the plans.
3. Button head "post" bolts (ASTM A307) shall be of sufficient length to extend through the full thickness of the nut and Type A 1 3/4" O.D. washer and not more than 1" beyond it. Button head "splice" bolts (ASTM A307) are 5/8" x 2" (at triple rail splices) with 5/8" double recessed nuts (ASTM A563).
4. Fittings (bolts, nuts, and washers) shall be galvanized in accordance with Item 445, "Galvanizing." Fittings shall be subsidiary to the bid item requiring construction of the transition.
5. Crown will be widened to accommodate transitions.
6. If solid rock is encountered. See the MBGF standard sheet for the proper installation guidance.
7. Posts shall not be set in concrete.
8. Unless otherwise shown in the plans, a composite material post and/or block that meets the requirements of DMS-7210, "Composite Material Posts and Blocks for Metal Beam Guard Fence" may be substituted for posts and/or blocks of similar dimensions. The Construction Division, TxDOT, maintains a Material Producer List (MPL) for producers of materials conforming to DMS-7210. Only producers on the MPL can furnish composite material posts and/or blocks.
9. Refer to MBGF standard sheet for additional details.

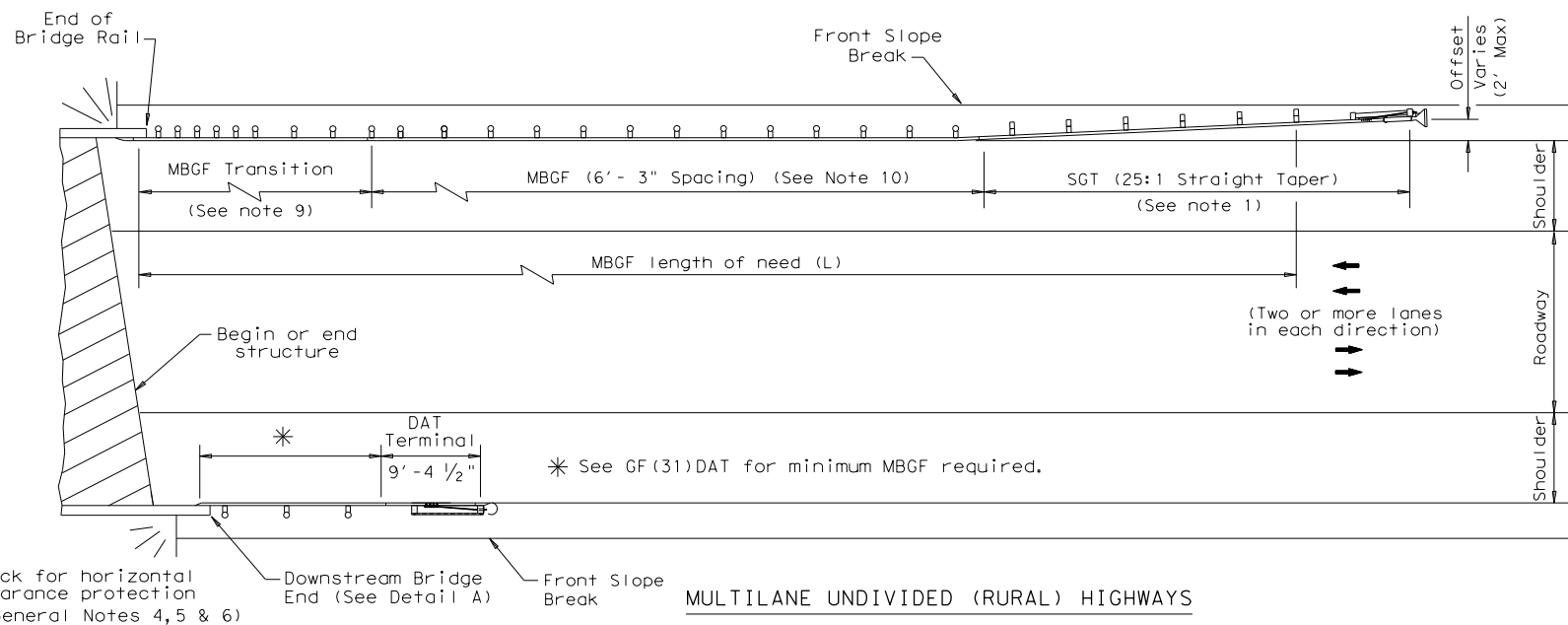
		Design Division Standard	
METAL BEAM GUARD FENCE TRANSITION (TL2) (Low Speed Transition) MBGF (TL2) - 11			
FILE: mgt1211.dgn	DN: TxDOT	CK: AM	DW: BD
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REVISIONS			
12-2011	DIST	COUNTY	SHEET NO.
	FW	TARRANT	38

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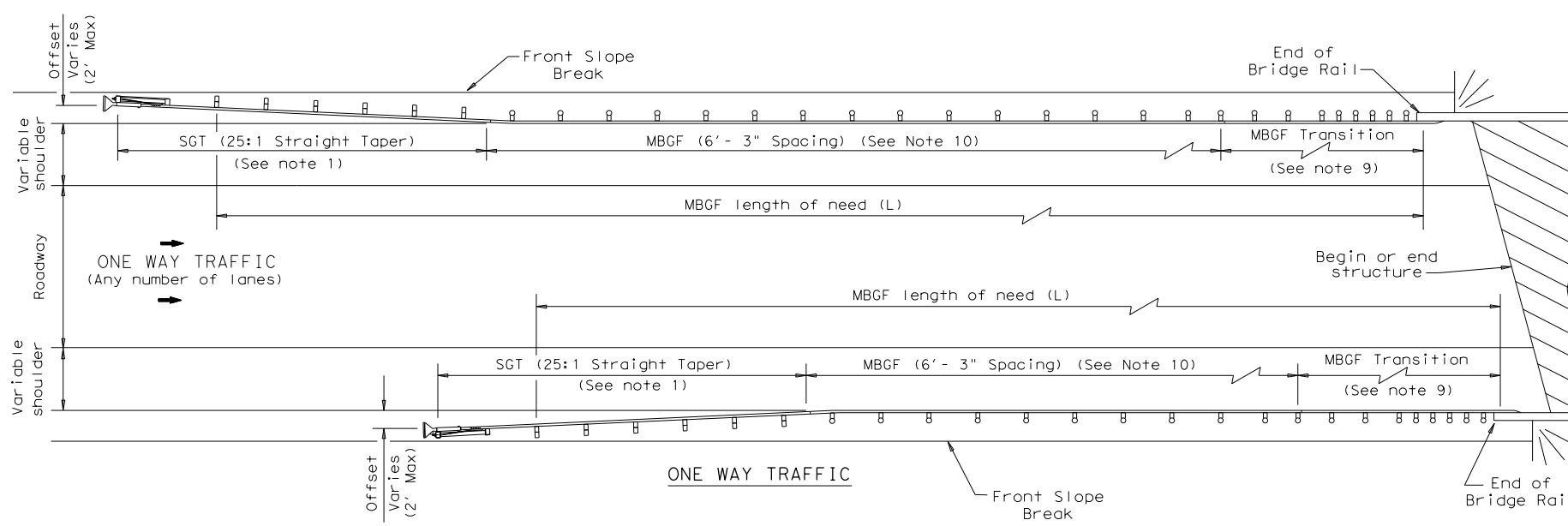
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Note: SGT rail taper may be decreased or eliminated. (See SGT standard sheets)



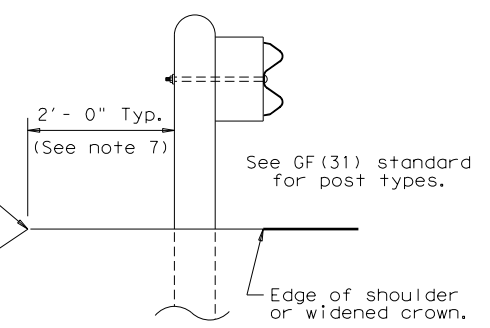
MULTILANE UNDIVIDED (RURAL) HIGHWAYS



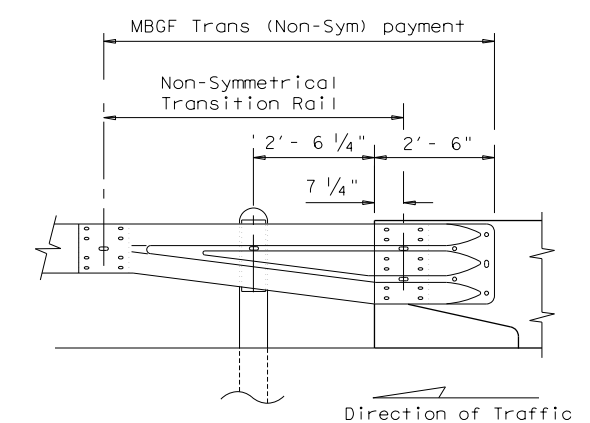
ONE WAY TRAFFIC

GENERAL NOTES

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



TYPICAL CROSS SECTION AT MBGF



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

DETAIL A

Showing Downstream Rail Attachment

Texas Department of Transportation Design Division Standard

BRIDGE END DETAILS (METAL BEAM GUARD FENCE APPLICATIONS TO RIGID RAILS)

BED-14

FILE: bed14.dgn	DN: TxDOT	CK: AM	DW: BD/VP	CK: CGL
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DIST	COUNTY		SHEET NO.	
FW	TARRANT		39	

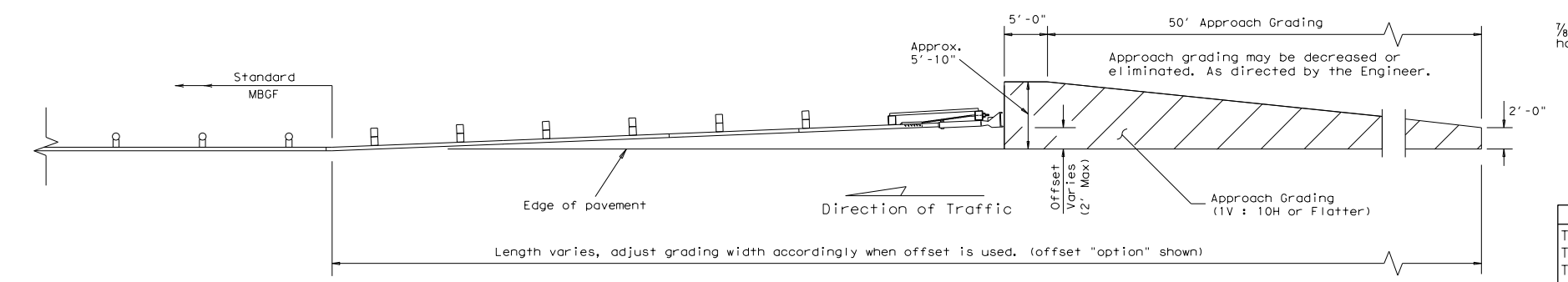
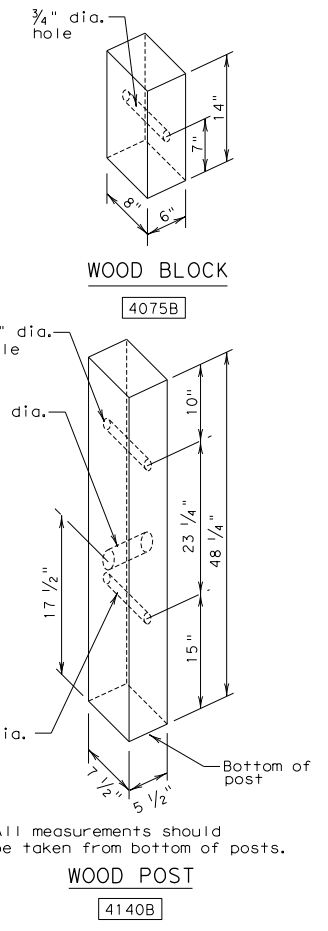
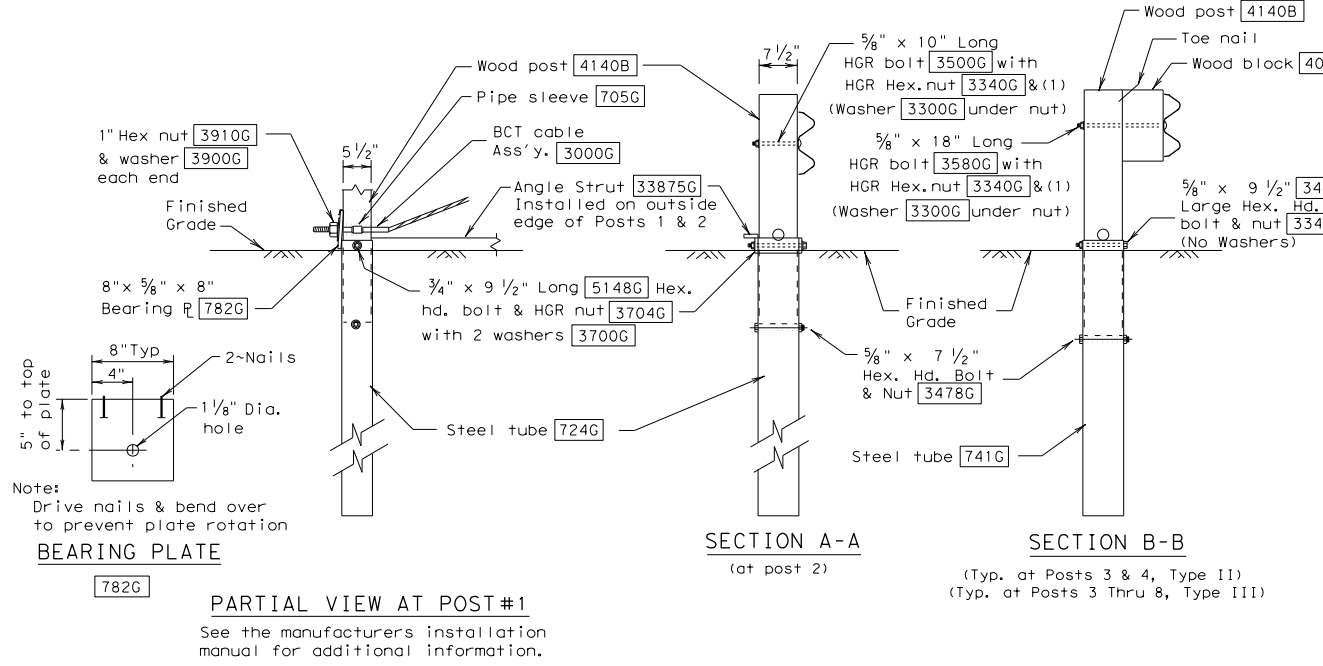
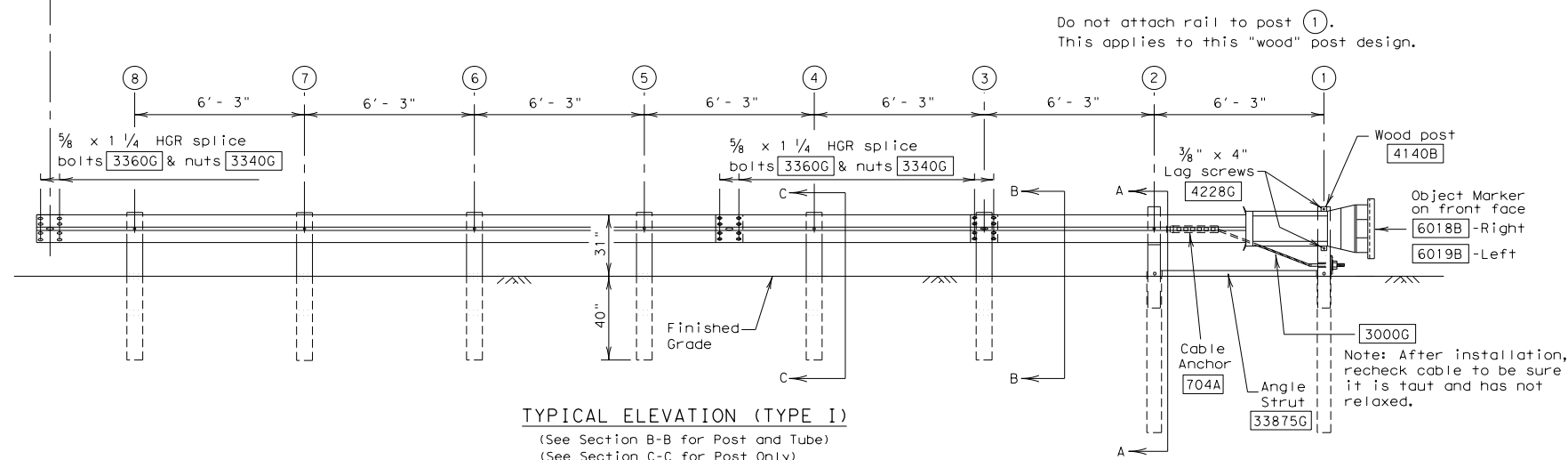
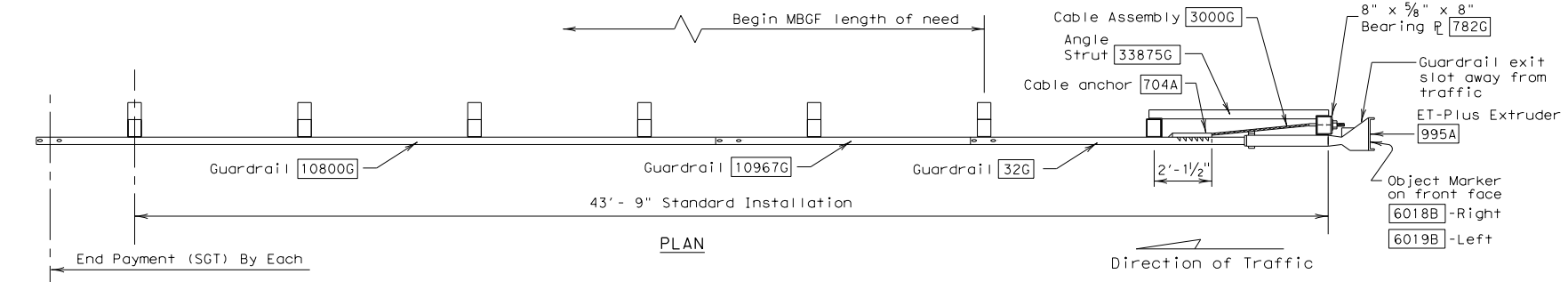
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GENERAL NOTES

- For additional information contact: Trinity Highway Products, 1-800-527-6050.
- The Type of SGT unit will be specified elsewhere in the plans. Numbers in circles indicate post position. The Type of SGT unit chosen is a maintenance consideration and does not affect the systems performance.

Post & Tube Options		Post Only	
Type I Posts	① thru ②	Posts ③ thru ⑧	
Type II Posts	① thru ④	Posts ⑤ thru ⑧	
Type III Posts	① thru ⑧		
- SGT's placed within the "minimum" 150 ft. radius, shall be installed straight. Standard rail elements may be installed within the radius, without special fabrication.
- All bolts, nuts, cable assemblies, cable anchors, steel tubes & bearing plates shall be galvanized.
- A flare rate of 25:1 may be used to prevent the terminal head from encroaching on the shoulder. The flare may be decreased or eliminated for specific installations, if directed by the Engineer.
- The steel tubes shall not protrude more than 4 inches above ground. Site grading may be necessary to meet this requirement.
- The steel tubes may be driven with an approved driving head. They shall not be driven with the wood post in the tube. If the steel tubes are placed in drilled holes, the backfill material must be satisfactorily compacted to prevent tube settlement.
- If solid rock is encountered. See the manufacturer's installation manual for the proper installation guidance.
- The breakaway cable assembly must be taut. A locking device, (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening the nuts.
- The wood blocks shall be "toe nailed" to the rectangular wood posts to prevent them from turning when the wood shrinks.
- For curb installations, the soil tubes and posts shall be installed at the proper ground elevation behind the curb. The posts will then require field drilling new holes to accommodate the rail to post connection bolt to maintain the proper height of the rail above the gutter pan. The excess post length above the rail will be removed as directed by the Engineer.
- An object marker shall be installed on the front of the impact head as detailed on D&M(VIA).
- A special site evaluation should be considered, prior to using this end treatment where there is less than 25 feet between the extrusion side of the end treatment and any adjacent driving lane.



Note: Site Condition(s)
Site conditions may exist where grading is required for the proper installation of metal guard fence and end treatments.

ITEM #	POST & TUBE OPTIONS			DESCRIPTION
	Type I QTY	Type II QTY	Type III QTY	
32G	1	1	1	Guardrail (12 Ga) at 12'- 6" (ANC)
10967G	1	1	1	Guardrail (12 Ga) at 9'- 4 1/2"
10800G	1	1	1	Guardrail (12 Ga) at 25'- 0"
724G	2	2	2	Steel Tube - 6" x 8" x 72" x 1/8" min
741G	0	2	6	Steel Tube - 6" x 8" x 54" x 1/8" min
4140B	2	4	8	Wood Posts - 5 1/2" x 7 1/2" x 48 1/4"
4071B	6	4	0	Wood CRT Posts - 6" x 8" x 72"
4075B	6	6	6	Wood Block - 6" x 8" x 14"
705G	1	1	1	Pipe Sleeve - 2" std. pipe x 5 1/2"
782G	1	1	1	Bearing Plate - 8" x 8" x 3/8"
704A	1	1	1	Cable Anchor Bracket
3000G	1	1	1	Cable Assembly (3/4" x 78")
33875G	1	1	1	Angle Strut
995A	1	1	1	ET Plus Extruder
HARDWARE				
5148G	2	2	2	3/4" x 9 1/2" Hex Hd (Top of tubes 1&2)A325
3300G	7	7	7	5/8" Washers
3478G	2	4	8	5/8" x 7 1/2" Hex Bolt
3500G	1	1	1	5/8" x 10" Post Bolt (Post ②)
3580G	6	6	6	5/8" x 18" Post Bolt (Posts ③ thru ⑧)
3360G	24	24	24	5/8" x 1 1/4" Splice Bolt
3340G	33	37	45	5/8" Hex Nut
4228G	2	2	2	3/8" x 4" Lag Screw
3910G	2	2	2	1" Hex Nut
3900G	2	2	2	1" Washer
6018B	1	1	1	Right - Object Marker
6019B	1	1	1	Left - Object Marker
3700G	4	4	4	3/4" Washer
3704G	2	2	2	3/4" Heavy Hex Nut
3497G	0	2	6	5/8" x 9 1/2" Hex Hd (Top of Tubes 3-8)A307

POST & TUBE OPTIONS	
Type I Posts	① thru ②
Type II Posts	① thru ④
Type III Posts	① thru ⑧

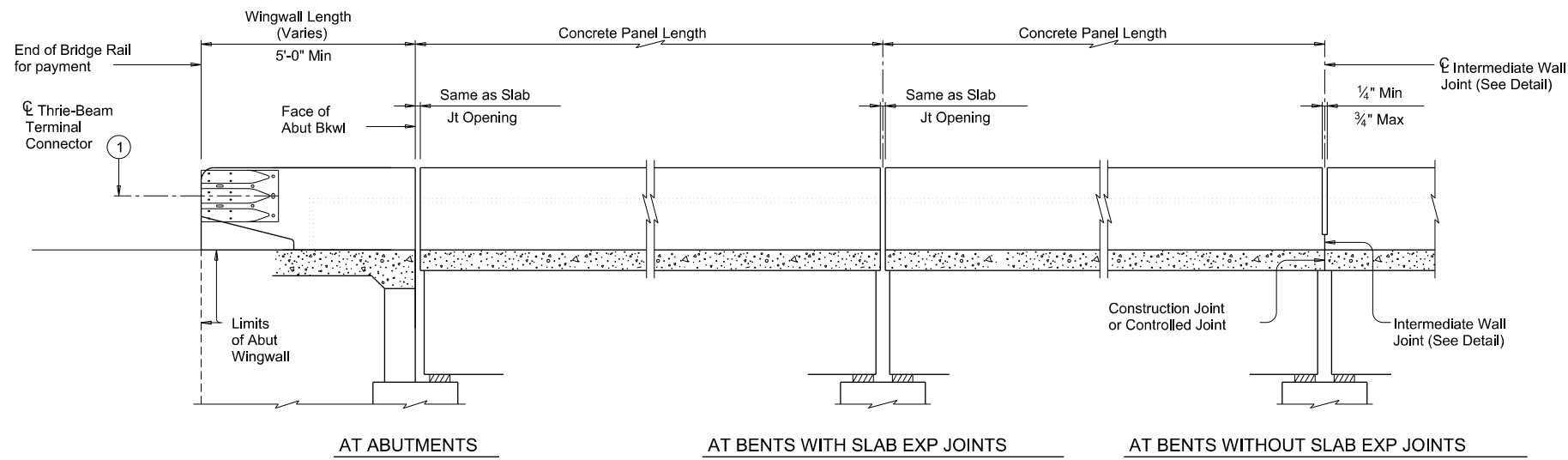
Design Division Standard

SINGLE GUARDRAIL TERMINAL (ET-31) (WOOD POST) SGT(7)31-14

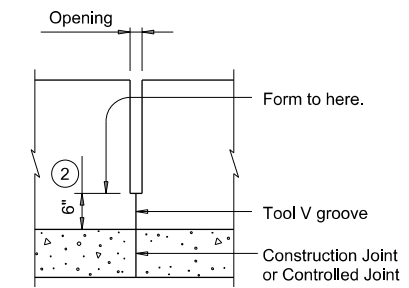
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© TxDOT December 2011	CONT	SECT	JOB	HIGHWAY
REVISIONS				
DIST	COUNTY		SHEET NO.	
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ROADWAY ELEVATION OF RAIL

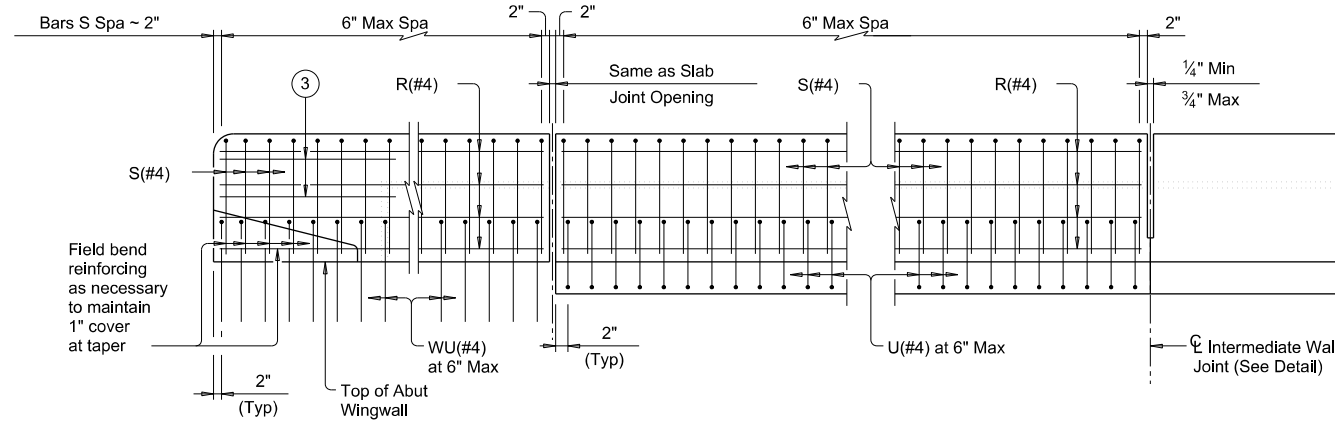


INTERMEDIATE WALL JOINT DETAIL

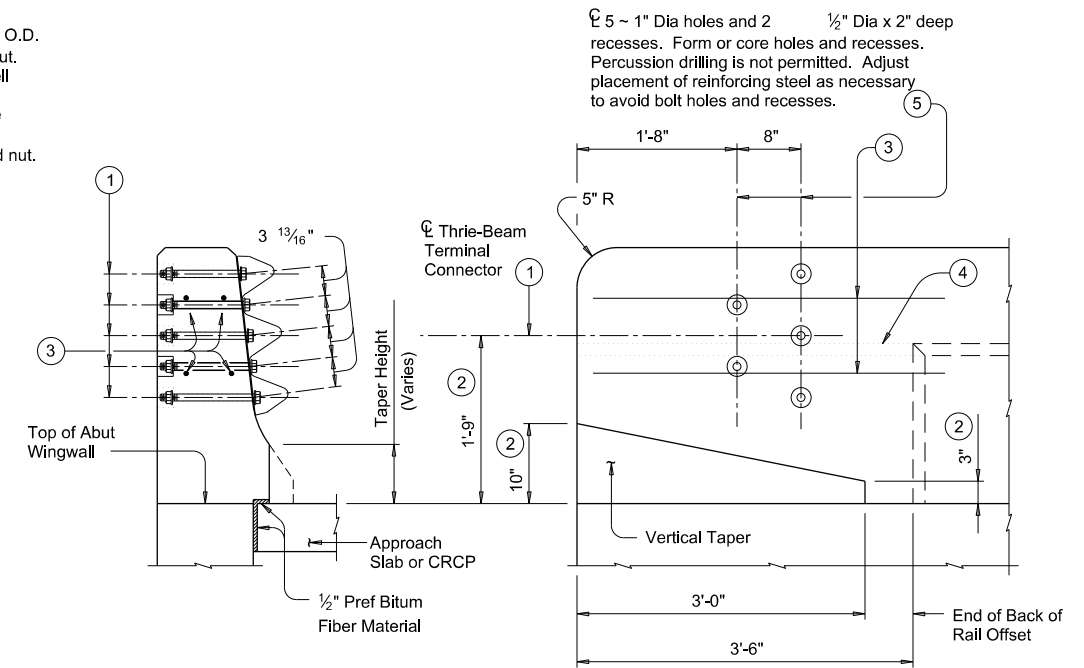
Provide at all interior bents without slab expansion joints.

5 ~ 7/8" Dia A325 Bolts with two 1 3/4" O.D. washers. Place washer under each head and nut. Tighten the 5 Terminal Connection Bolts in a well distributed pattern so to prevent damage or distortion of the Thrie-Beam Connection and the MBGF Transition. Cut bolts off after installation so as to extend no more than 3/4" beyond nut. Paint ends of cut-off bolts with Zinc-rich paint.

5 ~ 1" Dia holes and 2 1/2" Dia x 2" deep recesses. Form or core holes and recesses. Percussion drilling is not permitted. Adjust placement of reinforcing steel as necessary to avoid bolt holes and recesses.



ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT



SECTION

ELEVATION

TERMINAL CONNECTION DETAILS

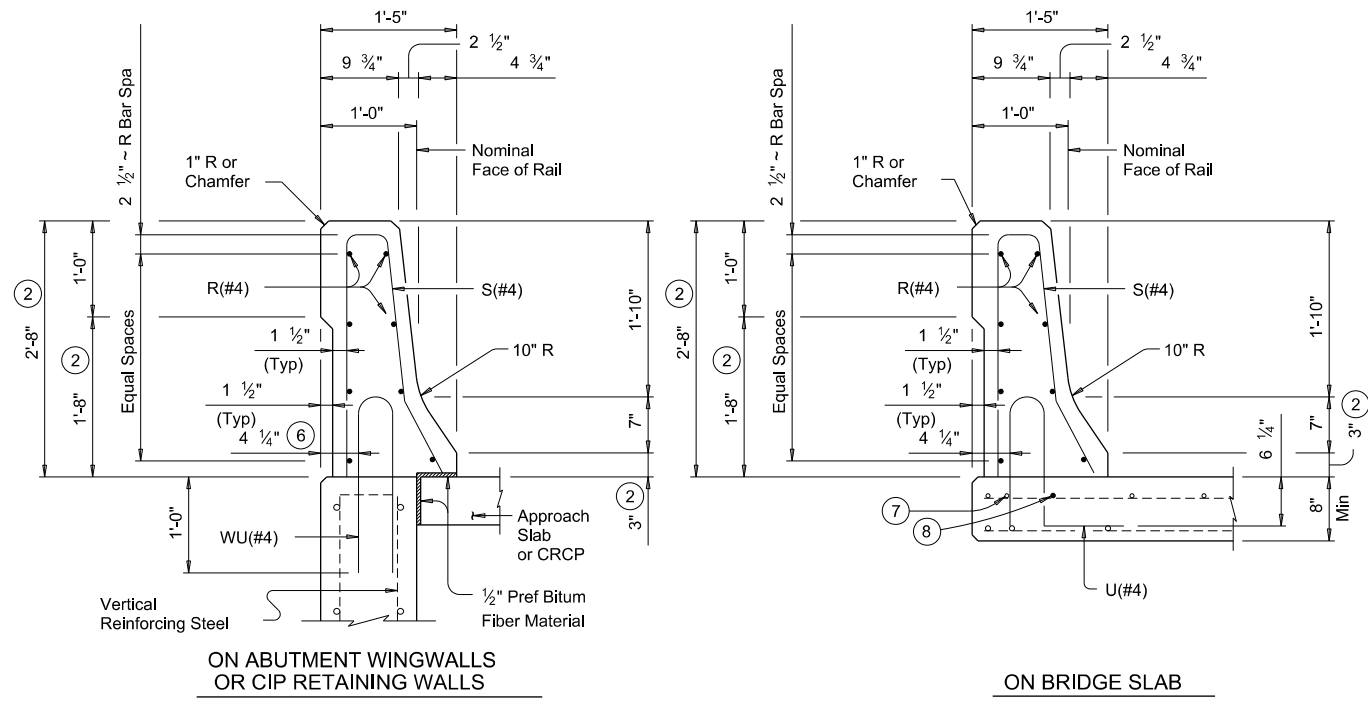
- 1 Terminal Connectors and associated hardware are to be paid for under the Item "Metal Beam Guard Fence". Attach Metal Beam Guard Fence Transitions to the bridge rail and extend along the embankment unless otherwise shown in the plans.
- 2 Increase 2" for structures with ACP Overlay.
- 3 Place 4 additional Bars R(#4) 3'-8" in length inside Bars S(#4) and centered 2'-0" from end of rail when Terminal Connections are required.
- 4 Back of rail offset may, with Engineer's approval, be continued to the end of the railing.
- 5 Bolt recesses are only required when pedestrian sidewalks are adjacent to back of rail.

SHEET 1 OF 2

		Bridge Division Standard	
<h2>TRAFFIC RAIL</h2>			
<h3>TYPE T551</h3>			
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SECTIONS THRU RAIL

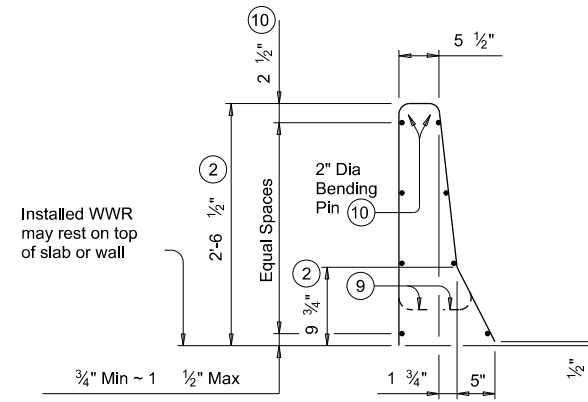
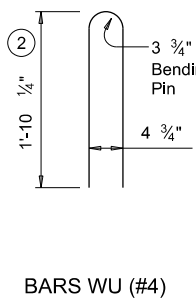
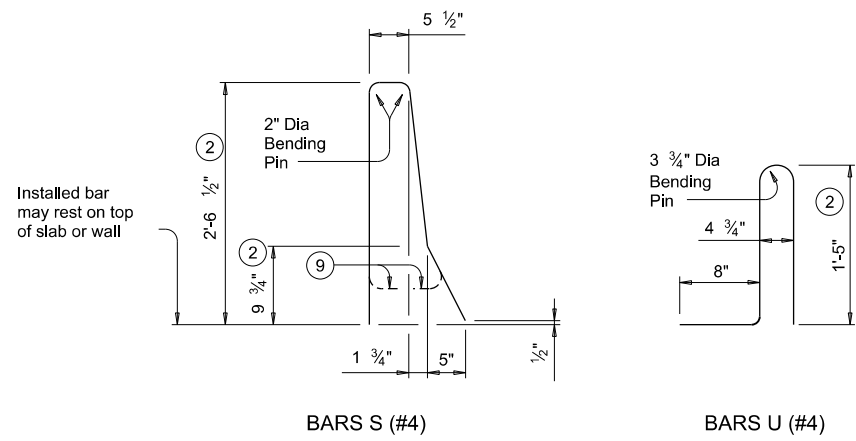
- ② Increase 2" for structures with ACP Overlay.
- ⑥ 5 1/4" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.
- ⑦ As an aid in supporting reinforcement, additional longitudinal bars may be used in the slab with the approval of the Engineer. Such bars will be furnished at the Contractor's expense.
- ⑧ Top longitudinal slab bar may be adjusted laterally 3" plus or minus to tie reinforcing.
- ⑨ Bend or cut as required to clear drain slots.
- ⑩ No longitudinal wires may be in top center of cage.
- ⑪ Space U(#4) bars at 4" Max when end region of panel length is less than 6'-0" to side slot drain. Space U(#4) bars at 6" Max when end region of panel length is 6'-0" and greater to side slot drain.

CONSTRUCTION NOTES:
 This railing may be constructed with slip-forms when approved by the Engineer, with equipment approved by the Engineer. Provide sensor control for both line and grade. Tack welding to provide bracing for slip-form operations is acceptable. Welding can be performed at a minimum spacing of 3 ft between the cage and the anchorage. It is permissible to weld to U, WU and S bars at any location on the cage. If increased bracing is needed, additional anchorage devices must be added and welding must be performed in the upper two thirds of the cage. The back of railing must be vertical unless otherwise shown on the plans or approved by the Engineer.

MATERIAL NOTES:
 Galvanize all steel components except reinforcing steel unless otherwise shown on plans.
 Provide Class "C" concrete. Provide Class "C" (HPC) if required elsewhere.
 Provide Grade 60 reinforcing steel.
 Epoxy coat all rail reinforcement if slab bars are epoxy coated.
 Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars U and WU unless noted otherwise. Deformed WWR (ASTM A1064) may be substituted for Bars R and S, as shown. Combinations of reinforcing steel and WWR or configurations of WWR other than shown are permitted if conditions in the table are satisfied. Provide the same laps as required for reinforcing bars.
 Provide bar laps, where required, as follows:
 Uncoated ~ #4 = 1'-5"
 Epoxy coated ~ #4 = 2'-1"

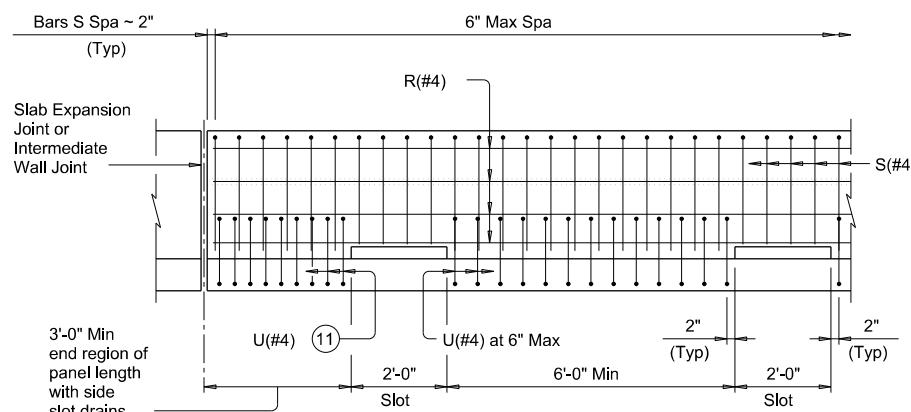
GENERAL NOTES:
 This rail has been evaluated and approved to be of equal strength to railings with like geometry, which have been crash tested to meet NCHRP Report 350 TL-4 criteria. This rail can be used for speeds of 50 mph and greater when a TL-3 rated guard fence transition is used. When a TL-2 rated guard fence transition is used, this rail can only be used for speeds of 45 mph and less.
 Do not use this railing on bridges with expansion joints providing more than 5" movement.
 Rail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.
 Shop drawings will not be required for this rail.
 Average weight of railing with no overlay is 382 plf.

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



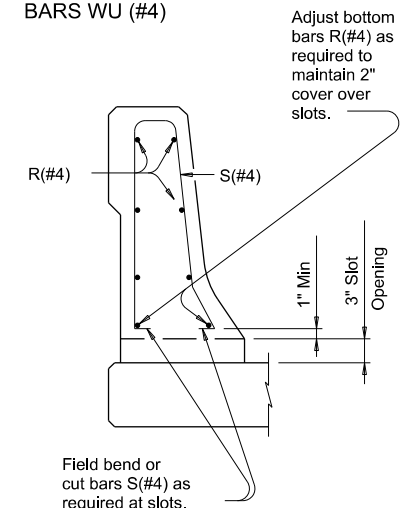
OPTIONAL WELDED WIRE REINFORCEMENT (WWR)

DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
Minimum (Cumulative Total) Wire Area	1.067 Sq In.	0.267 Sq In. per Ft
Minimum	No. of Wires	Spacing
Maximum	8	4"
	10	8"
Maximum Wire Size Differential	The smaller wire must have an area of 40% or more of the larger wire.	



OPTIONAL SIDE SLOT DRAIN DETAIL

Note: Side Slot Drains may be used where shown elsewhere on the plans or as directed by the Engineer. If continuous slots at 8 ft c-c are required, then details as on standard Type T552 should apply. Do not place drains over railroad tracks, lower roadways, or sidewalks. When this rail is used as a separator between a roadway surface and a sidewalk surface, side drain slots will not be permitted.



SECTION THRU OPTIONAL SIDE SLOT DRAIN

Texas Department of Transportation Bridge Division Standard

TRAFFIC RAIL

TYPE T551

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FW	TARRANT	42		