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STATE OF OKLAHOMA  
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED  
**UNITED STATES HIGHWAY**  
PROJECT NO. ACNHPP-253N(037)SS  
BRIDGES AND APPROACHES  
UNITED STATES HIGHWAY 169 OVER OPOSSUM CREEK AND OVERFLOW  
**NOWATA COUNTY**

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)	15	1	143
DESCRIPTION		REVISIONS	DATE		

**MANDATORY TIE:**  
THE FOLLOWING PROJECT IS MANDATORILY TIED AND SHALL BE BID ACCORDINGLY:  
1. JP 24750(04), PROJECT No. ACNHPP-253N(036)SS, US-169 OVER HICKORY CREEK, NOWATA COUNTY

CONTROL SECTION 169-53-08  
STATE JOB NO. 27092(04)  
BRIDGE A LOCATION NO. 5308-1722X EXISTING NBI NO. 15558, NEW NBI NO. 30984  
BRIDGE B LOCATION NO. 5308-1729X EXISTING NBI NO. 15531, NEW NBI NO. 30986

**INDEX OF SHEETS**

**ROADWAY DRAWINGS**

1 TITLE SHEET  
2-3 TYPICAL SECTIONS (1) TO (2)  
4 MISCELLANEOUS DETAILS  
5 GENERAL CONSTRUCTION NOTES  
6 ENVIRONMENTAL NOTES  
7 ROADWAY PAY ITEMS & NOTES  
8 TRAFFIC PAY ITEMS & NOTES  
9-10 BRIDGE PAY ITEMS & GENERAL NOTES  
11-12 SUMMARIES (1) TO (2)  
13 STORM WATER MANAGEMENT PLAN  
14 DRAINAGE MAP  
15-16 GEOMETRIC DATA (1) TO (2)  
17-21 PLAN & PROFILE SHEETS - US 169 (1) TO (5)  
22-23 PLAN & PROFILE SHEETS - SOUTH DETOUR (6) TO (7)  
24-25 PLAN & PROFILE SHEETS - NORTH DETOUR (8) TO (9)  
26 GUARDRAIL LAYOUT  
27 REMOVALS  
28 EROSION CONTROL  
29-31 SUGGESTED CONSTRUCTION SEQUENCE  
32-34 SUGGESTED TRAFFIC CONTROL  
35-36 MASS DIAGRAM (1) TO (2)  
37-38 SIGNING & STRIPING (1) TO (2)  
39-49 SURVEY DATA SHEETS (1) TO (11)

**BRIDGE A DRAWINGS**

50 GENERAL PLAN AND ELEVATION  
51-52 FOUNDATION REPORT  
53 STAKING DIAGRAM  
54 TYPICAL SECTION  
55-58 ABUTMENT DETAILS  
59-60 PIER DETAILS  
61-64 SUPERSTRUCTURE DETAILS  
65 LONGITUDINAL SECTION  
66-67 APPROACH SLAB DETAILS

**BRIDGE B DRAWINGS**

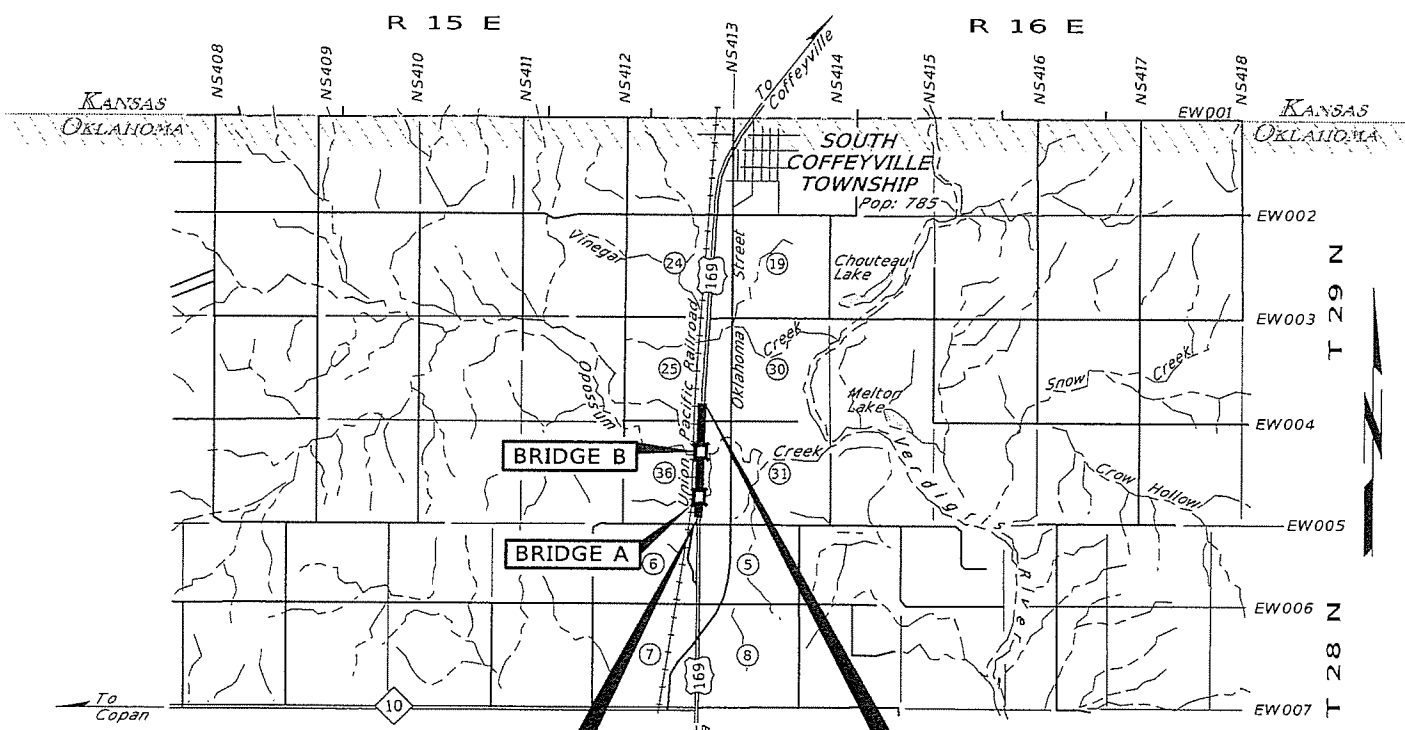
68 GENERAL PLAN AND ELEVATION  
69-70 FOUNDATION REPORT  
71 STAKING DIAGRAM  
72 TYPICAL SECTION  
73-76 ABUTMENT DETAILS  
77-78 PIER DETAILS  
79-82 SUPERSTRUCTURE DETAILS  
83 LONGITUDINAL SECTION  
84-85 APPROACH SLAB DETAILS  
86-91 7x6 RC6 DETAILS

**CROSS SECTIONS**

X1 -X29 CROSS SECTIONS - US 169  
X30 -X41 CROSS SECTIONS - SOUTH DETOUR  
X42 -X52 CROSS SECTIONS - NORTH DETOUR

**DESIGN DATA**

AADT 2016	5,700
AADT 2036	8,000
K (DHV / ADT-TWO WAY)	10 %
D (DIRECTIONAL DIST.)	55 %
T (% OF DHV)	25 %
T (% OF AADT)	29 %
T <sup>3</sup> OVERLOADS (AXLES)	.21 %
20 YR FLEX ESALS	14.71 MIL
US 169	V=65 MPH
DETOUR	V=45 MPH

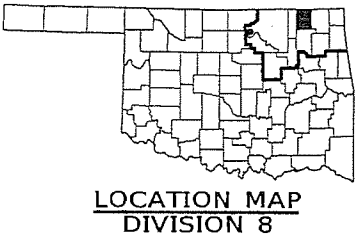


**SCALES**

PLAN	1" = 50'
PROFILE HOR.	1" = 50'
VER.	1" = 5'
LAYOUT MAP	1" = 5,280'

**CONVENTIONAL SYMBOLS**

PROPOSED ROAD	TELEPHONE UNDERGROUND
RAILROADS	SANITARY SEWER
RANGE & TOWNSHIP	GAS LINE
SECTION LINES	WATER LINE
QUARTER SECTION LINES	FIBER OPTIC LINE
FENCES	
GROUND LINE	
EXISTING ROADS	
BASE LINE	
GRADE LINES	
TELEPHONE & TELEGRAPH	
POWER LINES	
BUILDINGS	
OILWELL	
DRAINAGE STRUCTURES - IN PLACE	
DRAINAGE STRUCTURES - NEW	
RIGHT-OF-WAY LINES - EXISTING	
RIGHT-OF-WAY LINES - NEW	
RIGHT-OF-WAY MARKERS - IN PLACE	
RIGHT-OF-WAY MARKERS - REMOVE & REPLACE	
RIGHT-OF-WAY MARKERS - NEW	
CONTROLLED ACCESS	
RIGHT-OF-WAY FENCE	
N/C	NOT IN CONTRACT



**CONTROL SUB-SECTION No. 17.5**

STA. 834+94.51 (Q US 169) BEGIN INCIDENTAL CONSTRUCTION  
STA. 838+99.66 END INCIDENTAL CONSTRUCTION  
BEGIN US 169 CONSTRUCTION

BR A STA. 859+75.29  
BR LENGTH= 165.50'  
STA. 861+40.79

BR B STA. 863+26.50  
BR LENGTH= 145.50'  
STA. 864+72.00

STA. 884+44.51 END US 169 CONSTRUCTION  
BEGIN INCIDENTAL CONSTRUCTION  
STA. 888+57.05 (Q US 169) END INCIDENTAL CONSTRUCTION

**PROJECT LENGTH BASED ON US 169 C.R.L.**

ROADWAY LENGTH	4,233.85 FT.	0.801 MI.
BRIDGE LENGTH	311.00 FT.	0.058 MI.
PROJECT LENGTH		0.859 MI.
EQUATIONS:	NONE	
EXCEPTIONS:	NONE	

**THE FOLLOWING ODOT STANDARDS WILL BE REQUIRED**

ROADWAY	TRAFFIC CONTROL	TRAFFIC SIGNING	TRAFFIC SAFETY	BRIDGE
SSS-1-1	TCS1-1-01	PM3-1-02	TRFI-1-02	FSHP-42-2-00E
TSC2-3-2	TCS2-1-00	DU2-1-00	SKT-1-00	HP1-2-00E
TSD-2-0	TCS3-1-01	RS01-1-00	GHW1-1-00	B40-I-ABUT-MISC-01E
ASCD-5-2	TCS4-1-01	WSD3-1-00	GHW2-1-00	B40-I-BRG-RB-02E
LECS-4-1	TCS5-1-00	MSD1-1-00	RS1-1-00	
PSE-1-0	TCS6-1-02	MSD2-1-00		
FCES-4-1	TCS7-1-02	MSD3-1-01		
SPI-4-1	TCS8-1-00	MSD4-1-00		
FPI-3-3	TCS9-1-01	MSD5-1-00		
SPB-1-4	TCS11-1-01	SBS1-1-00		
FHTMPP-1-0	TCS14-1-00	SBS2-1-00		
FHTCP-3-1	TCS16-1-00	SBS3-1-00		
SBI-4-2	TCS19-1-01	SBS4-1-00		
PUD-3-2	TCS20-1-00	SBS5-1-00		
RDI-3-1	TCS21-1-02	GMS1-1-00		
PDT-1-3	TCS23-1-00	GMS2-1-00		
RWF1-2-2	TCS24-1-02	SSP1-1-02		
RWF2-2-1	TCS25-1-00	SSA1-1-00		
RWF3-2-2		FGS1-1-00		
SUEL1-3-2				
SUEL4-3-2				

CERTIFICATE OF AUTHORIZATION NO. 7569 P.E., L.S. RENEWAL DATE 6-30-18

**BENHAM**  
a Haskell Company

Benham Design, LLC  
One West Third Street, Suite 200  
Tulsa, Oklahoma 74103  
(918) 492-1600

REGISTERED PROFESSIONAL ENGINEER  
SHANNON A. KOENINGER  
20481  
OK P.E. NO. 20481  
PROJECT ENGINEER  
DATE: 7/11/16

OKLAHOMA  
DEPARTMENT OF TRANSPORTATION

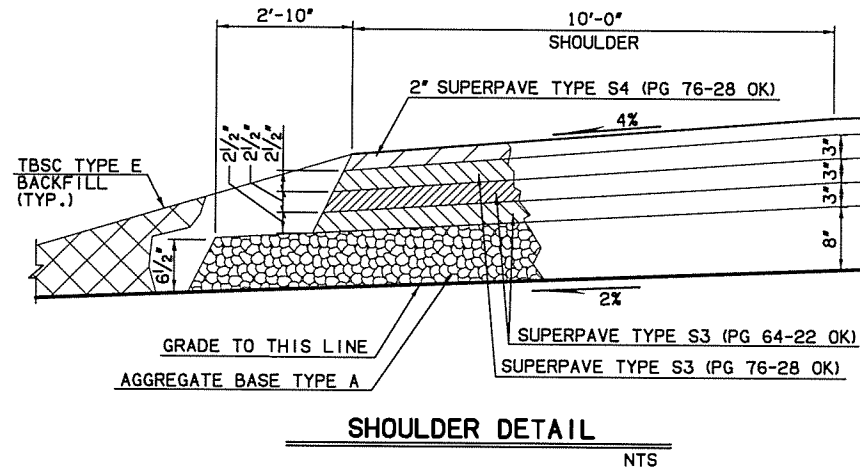
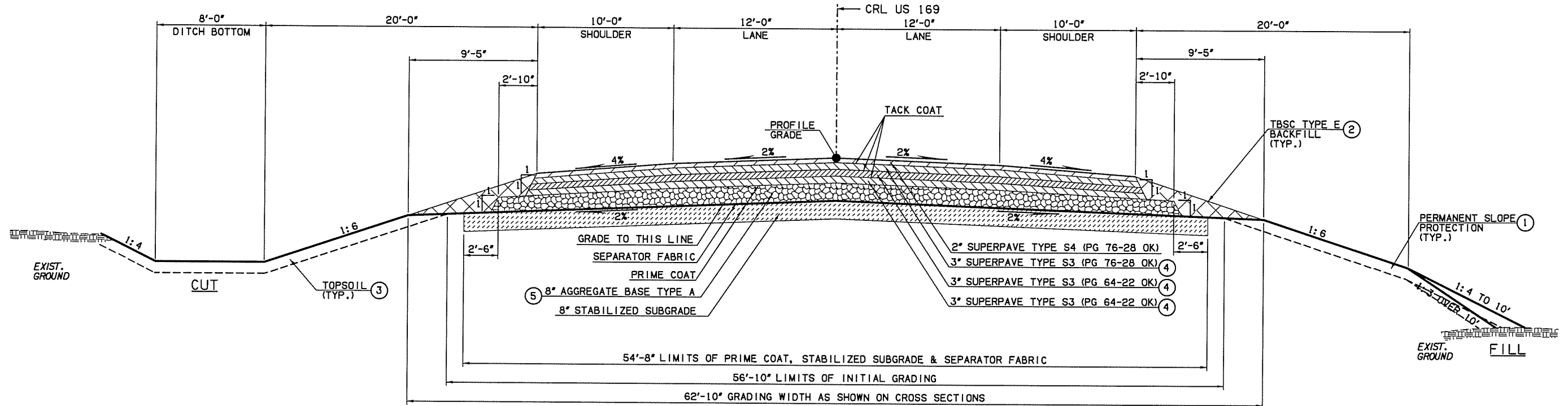
DATE APPROVED \_\_\_\_\_  
BY \_\_\_\_\_  
CHIEF ENGINEER

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

DATE APPROVED \_\_\_\_\_  
BY \_\_\_\_\_  
DIVISION ADMINISTRATOR

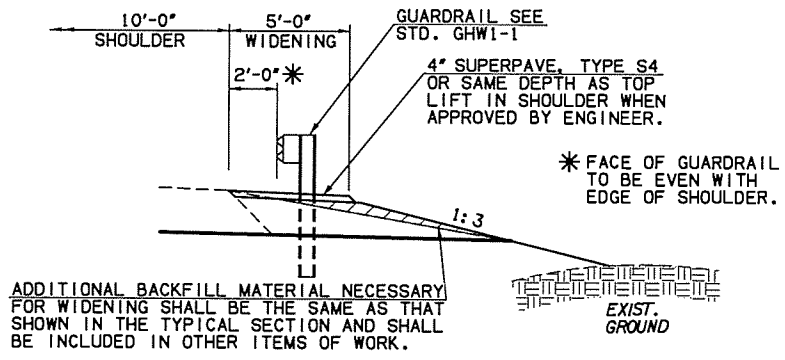
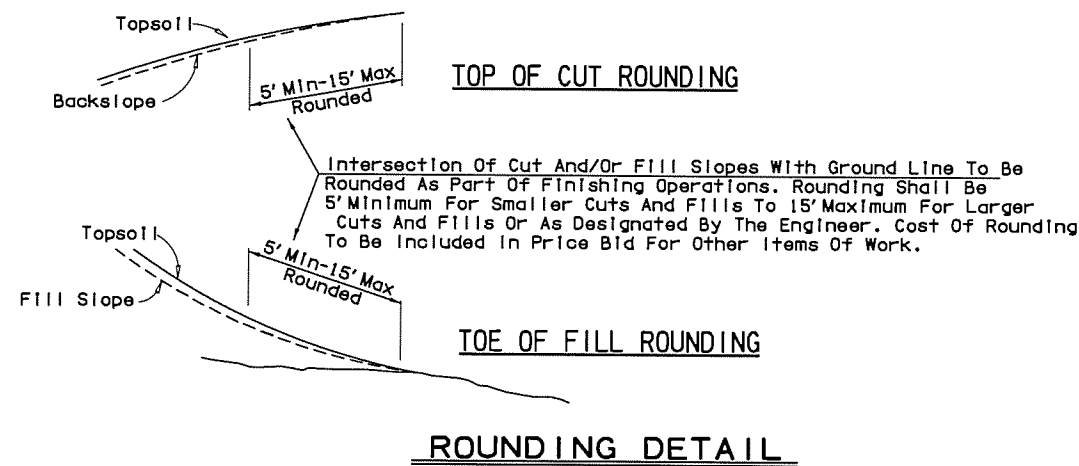
S.W.O. 4744(1) PROJECT NO. ACNHPP-253(037)55 Sheet No. 1

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
OBOT DIVISION	STATE	JOB PIECE No.	FISCAL SHEET YEAR No.	TOTAL SHEETS	
8	OKLA	27092(04)	2	143	
DESCRIPTION		REVISIONS	DATE		



**1** **TYPICAL SECTION**  
**US 169**  
 NTS  
 STA. 838+99.66 TO STA. 859+55.29  
 STA. 861+60.79 TO STA. 863+06.50  
 STA. 864+92.00 TO STA. 884+44.51

- NOTES:**
- PERMANENT SLOPE PROTECTION REFER TO DETAIL SHEET 4.
  - TO BE BACKFILLED & COMPACTED AS PART OF THE FINISHING OPERATIONS. COST TO BE INCLUDED IN TBSC TYPE E.
  - TOPSOIL NOTE :**  
 THE CONTRACTOR SHALL STRIP ALL OF THE AVAILABLE TOPSOIL, STOCKPILE IT AND PLACE IT BACK ON THE SECTION IN ACCORDANCE WITH SECTION 205 OF THE STANDARD SPECIFICATIONS. RESERVED TOPSOIL SHALL BE SPREAD FIRST ON THE COMPLETE SLOPES OF THE CUT SECTIONS AND THE REMAINDER ON COMPLETED FILL SLOPES OR OTHER PRIORITY AREAS LOCATED BY THE ENGINEER. ALL ADDITIONAL COSTS ASSOCIATED WITH OPERATION SHALL BE INCLUDED IN THE PAY ITEMS FOR SALVAGED TOPSOIL, LUMP SUM.  
 THE GRADING LINE AS SHOWN ON THE TYPICAL AND CROSS SECTIONS IS TO TOP OF THE SOIL. EARTHWORK QUANTITIES WERE NOT ADJUSTED FOR SALVAGE AND TOPSOIL QUANTITY IS INCLUDED IN THE SUMMARIZED EARTHWORK.
  - ASPHALT LAYER TO BE TAPERED FROM FULL DEPTH AT SHOULDER TO 2 1/2" AT EDGE OF PAVING. SEE SHOULDER DETAIL THIS SHEET.
  - AGGREGATE BASE LAYER TO BE TAPERED FROM FULL DEPTH AT SHOULDER TO 6 1/2" AT EDGE OF PAVING. SEE SHOULDER DETAIL THIS SHEET.

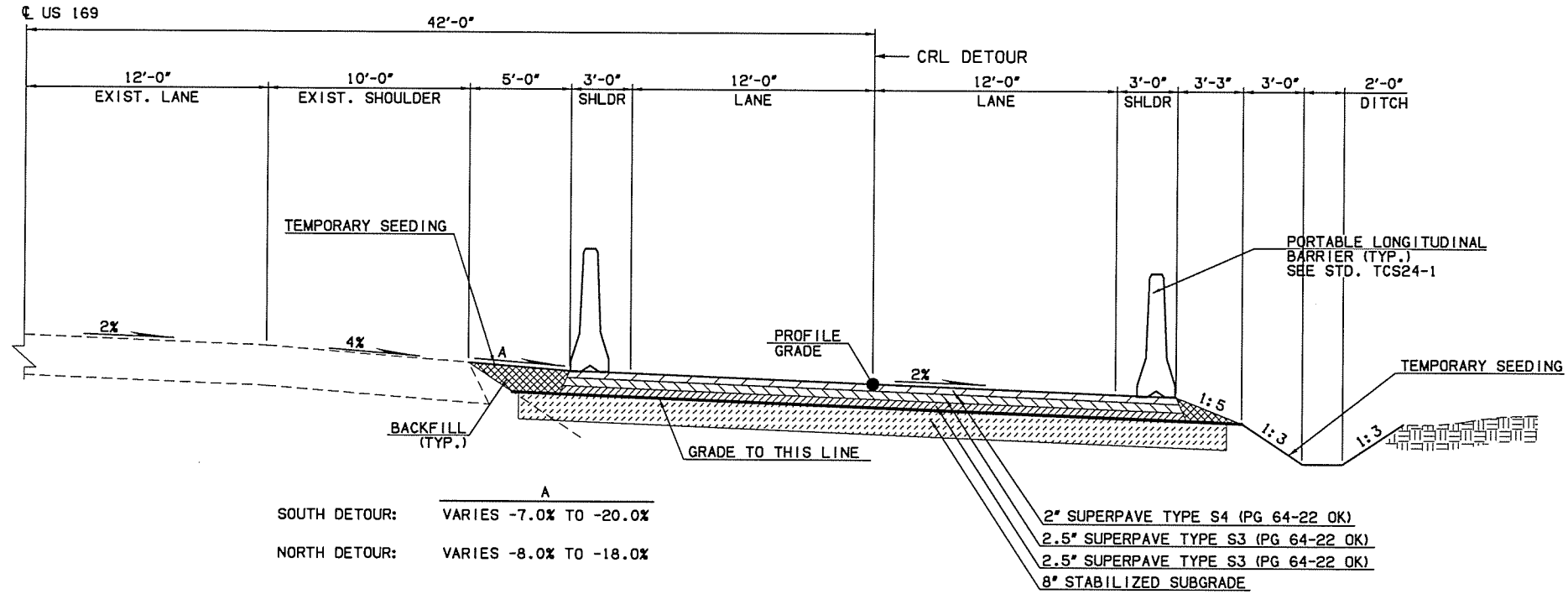


**GUARDRAIL DETAIL**  
 STA. 855+12.15 TO STA. 859+55.90 LT. (OPPOSITE HAND)  
 STA. 857+12.15 TO STA. 859+55.90 RT.  
 STA. 861+60.19 TO STA. 863+07.10 LT. (OPPOSITE HAND) \*  
 STA. 861+60.19 TO STA. 863+07.10 RT. \*  
 STA. 864+91.40 TO STA. 868+10.15 LT. (OPPOSITE HAND)  
 STA. 864+91.40 TO STA. 866+35.15 RT.

Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>TYPICAL SECTION (1)</b>	
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 2

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OKLAHOMA DEPARTMENT OF TRANSPORTATION				
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	TOTAL SHEETS
8	OKLA	27092(04)		143
DESCRIPTION		REVISIONS	DATE	



**2** **TYPICAL SECTION - DETOUR**  
 NTS  
 STA. 2837+14.45 TO STA. 2852+57.74 (SOUTH DETOUR)  
 STA. 4869+49.70 TO STA. 4884+91.21 (NORTH DETOUR)

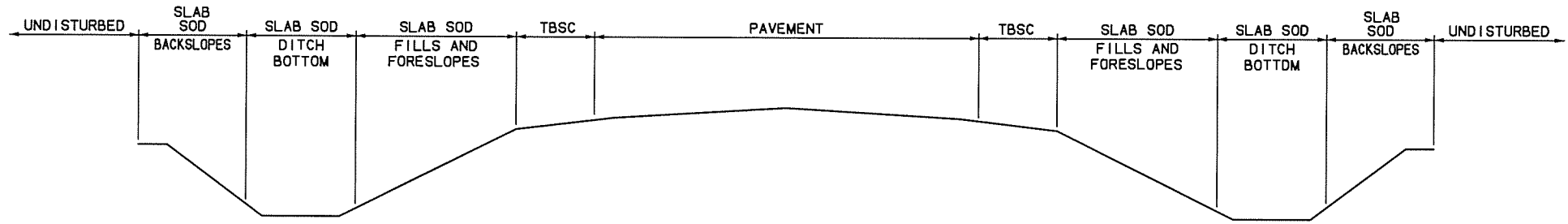
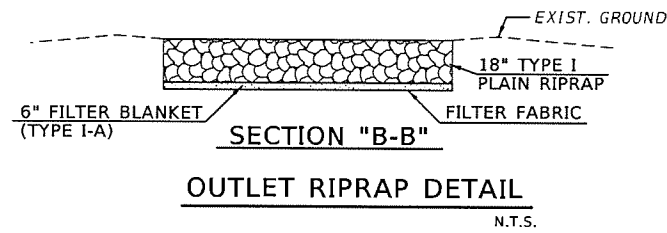
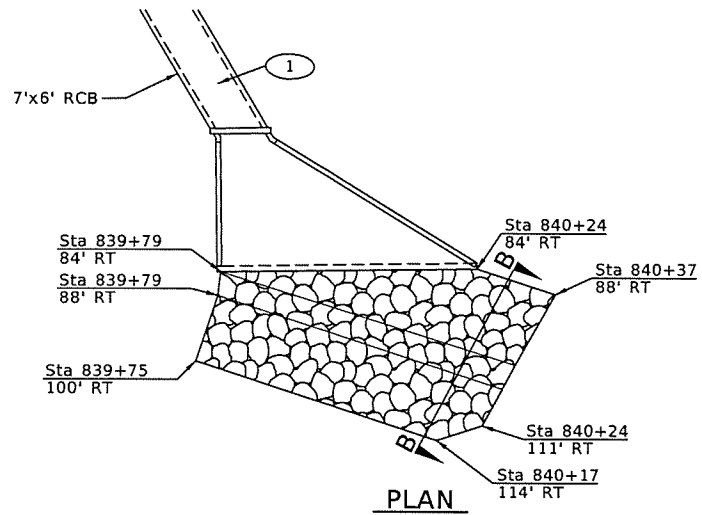
**BACKFILLING NOTE:**  To be Backfilled and Compacted as a part of the Finishing Operations. Cost to be included in price bid for other items of work.

Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>TYPICAL SECTION (2)</b>	
Checked			
Approved			
Squad			
		Job Piece No. <b>27092(04)</b>	Sheet No. <b>3</b>

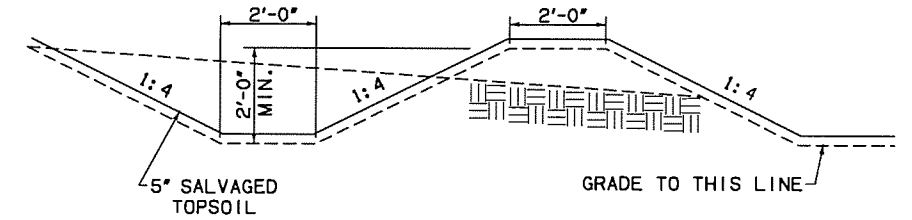
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OKLAHOMA DEPARTMENT OF TRANSPORTATION					
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		4	143
DESCRIPTION		REVISIONS	DATE		

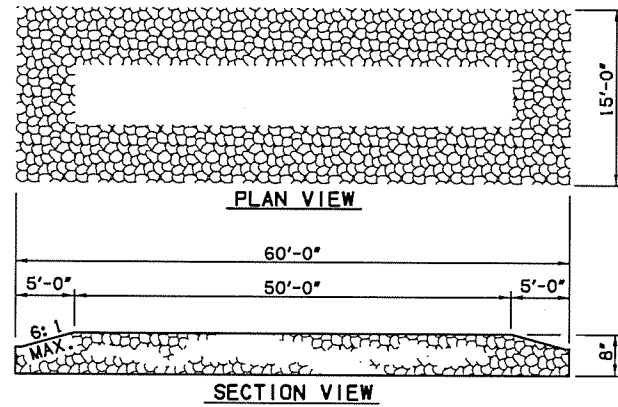


**PERMANENT SLOPE PROTECTION**



**INTERCEPTOR DIKE**

NOTE: INTERCEPTOR DIKES SHALL BE USED AS DIRECTED BY THE ENGINEER FOR EROSION CONTROL OF CUT SLOPES GREATER THAN 15 FEET OR IN LOCATIONS DEEMED NECESSARY TO RELIEVE SLOPE EROSION.

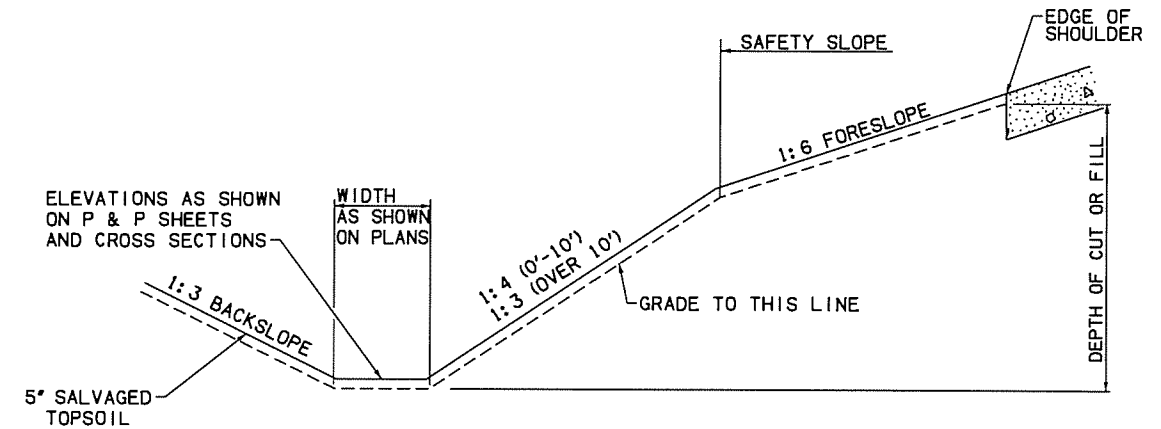


**STABILIZED CONSTRUCTION EXIT (TYPE 1)**

N.T.S.

**NOTES :**

- MATERIALS FOR THE ROCK BASE SHALL BE IN ACCORDANCE WITH 2009 STANDARD SPECIFICATIONS SEC. 713.03 STONE FILL FOR GABIONS, REVETMENT MATTRESSES, AND ROCK FILTER DAMS.
- LOCATION OF STABILIZED CONSTRUCTION EXIT TO BE AS APPROVED BY THE ENGINEER.



**SPECIAL ROADWAY DITCH**

(FILL)

Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>MISCELLANEOUS DETAILS</b>	
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 4

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OKLAHOMA DEPARTMENT OF TRANSPORTATION					
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		5	143
DESCRIPTION			REVISIONS	DATE	

**ROADWAY GENERAL CONSTRUCTION NOTES**

THIS PROJECT SHALL BE CONSTRUCTED WITHOUT CLOSING THE EXISTING ROAD TO LOCAL AND THROUGH TRAFFIC. SEE STANDARD SPECIFICATIONS FOR MAINTENANCE OF LOCAL AND THROUGH TRAFFIC.

MAINTENANCE OF THROUGH TRAFFIC INCLUDES THE MAINTENANCE OF THE EXISTING ROAD IN CLOSE PROXIMITY TO THE NEW CONSTRUCTION AS SHOWN ON THE PLANS.

THIS PROJECT SHALL BE CONSTRUCTED WITHOUT CLOSING THE EXISTING SECTION LINE ROADS TO LOCAL AND THROUGH TRAFFIC. SEE STANDARD SPECIFICATIONS FOR MAINTENANCE OF LOCAL AND THROUGH TRAFFIC.

ALL TREES, BRUSH, AND OTHER DEBRIS THAT MIGHT INTERFERE WITH THE FLOW OF WATER SHALL BE CLEANED OUT TO THE RIGHT-OF-WAY LINE, AT EACH STRUCTURE AND BRIDGE, IN A MANNER APPROVED BY THE ENGINEER. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

ALL FLOWLINES THAT ARE TO BE FILLED SHALL BE THOROUGHLY TAMPED BEFORE CONSTRUCTION OR EXTENSION OF DRAINAGE STRUCTURES. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

IN ORDER TO ALLEVIATE DUST CONDITIONS DURING GRADING OPERATIONS AND BEFORE PAVEMENT WORK IS COMPLETED, THE CONTRACTOR SHALL SPRINKLE GRADING AT INTERVALS APPROVED BY THE ENGINEER. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

THE CONTRACTOR SHALL NOT WASTE ANY EXCESS EXCAVATION UNTIL ALL PLANNED EMBANKMENTS AND BACKFILLS ARE COMPLETED. EXCESS UNCLASSIFIED EXCAVATION MATERIAL DETERMINED BY THE ENGINEER TO BE SUITABLE FOR BACKFILL SHALL BE USED TO REDUCE ANY UNCLASSIFIED BORROW NEEDED. COST OF SECOND HANDLING SHALL BE INCLUDED IN OTHER ITEMS OF WORK. ANY REMAINING EXCESS EXCAVATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER.

THE CONTRACTOR SHALL KEEP THE OPEN TRENCH DRAINED. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

TEMPORARY SEEDING MIX SHALL BE AS FOLLOWS:

KINDS OF SEED TO BE FURNISHED	QUANTITY PER ACRE
WHEAT (TRITICUM AESTIVUM)	120 LBS. OF SEED
RYE WITH CLOVER	120 LBS. OF SEED

VEGETATIVE MULCHING: THE VEGETATIVE MULCH SHALL BE ANCHORED IN ACCORDANCE WITH THE "MULCHING-TILLER METHOD", AS SPECIFIED IN 233.04B(1) OF THE STANDARD SPECIFICATIONS.

THE PLANTING OF TEMPORARY SEEDS SHALL BE RESTRICTED TO THE PERIOD FROM SEPTEMBER 1 TO NOVEMBER 15.

THE PLANTING OF PERMANENT SEEDS SHALL BE RESTRICTED TO THE PERIOD FROM MARCH 15 TO JUNE 1.

AREAS ON WHICH SALVAGED TOPSOIL IS TO BE REPLACED SHALL HAVE (18-46-0) FERTILIZER APPLIED, AT THE RATE OF 150 POUNDS PER ACRE, JUST PRIOR TO THE REPLACEMENT OF SALVAGED TOPSOIL.

AT THE BEGINNING OF TURFING OPERATIONS, ANY AREAS INCLUDED IN PLANNED QUANTITIES THAT HAVE GROWN A SATISFACTORY VOLUNTEER TURF OF PERENNIAL GRASS, AS DETERMINED BY THE ENGINEER, SHALL BE FERTILIZED AND WATERED AS CALLED FOR ON THE PLANS, BUT SHALL NOT BE SEEDED, SODDED, OR SPRIGGED.

SURFACING OF RETURNS, UNLESS OTHERWISE SHOWN ON THE PLANS, SHALL BE OF THE SAME MATERIAL (BASE AND SURFACE) AS THAT OF THE ADJUTING SHOULDER OF THE MAINLINE. BASE AND SURFACE THICKNESS SHALL BE THE THICKNESS SHOWN ON THE PLANS.

T.B.S.C. SURFACES SHALL BE SPRINKLED WITH WATER AND ROLLED WITH A PNEUMATIC ROLLER IN A MANNER APPROVED BY THE ENGINEER.

IN ACCORDANCE WITH THE OKLAHOMA UNDERGROUND FACILITIES DAMAGE PREVENTION ACT THE CONTRACTOR SHALL NOTIFY THE OKLAHOMA ONE-CALL SYSTEM, INC. 48 HOURS PRIOR TO BEGINNING EXCAVATION. OKLAHOMA ONE-CALL SYSTEM, INC. "CALL OKIE" 1-800-522-6543 OR 811.

**ROADWAY GENERAL CONSTRUCTION NOTES**

NO PAYMENT WILL BE MADE FOR THE REMOVAL OF ABANDONED UTILITY PIPE LINES THAT INTERFERE WITH CONSTRUCTION. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

ALL WORK AND/OR MATERIALS NOT CLASSIFIED AS A "CONTRACT PAY ITEM" SHALL BE CONSIDERED INCIDENTAL AND THE COST THEREOF SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS WHICH ARE CLASSIFIED FOR PAYMENT.

TREES OUTSIDE THE TOE OF FILL SLOPES AND THE TOP OF CUT SLOPES SHALL NOT BE DISTURBED EXCEPT WITH THE APPROVAL OF THE ENGINEER. REMOVAL OF TREES SHALL BE LIMITED TO ONLY THOSE NECESSARY FOR THE CONSTRUCTION OF RIGHT-OF-WAY FENCE.

(CAUTION) THE LOCATION AND DEPTH OF ALL UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE HE MAY INFLICT TO THE EXISTING UNDERGROUND UTILITIES WITHIN THE PROJECT AREA AS A RESULT OF HIS DIGGING, TRENCHING, BORING, ETC. PRIOR TO DIGGING NEAR THE UTILITIES, THE CONTRACTOR SHALL CALL FOR A LIST OF ALL UNDERGROUND FACILITIES REGISTERED WITH THE FOLLOWING AGENCIES:  
THE LOCAL COUNTY CLERK'S OFFICE  
THE LOCAL CITY GOVERNMENT'S OFFICE  
THE "OKIE" NOTIFICATION CENTER: (405) 840-5032 OR (800) 522-6543  
(SEE UTILITY DATA ON SHEET FOR KNOWN UTILITIES IN THE AREA)

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE HE MAY INFLICT TO THE EXISTING DRAINAGE STRUCTURES TO REMAIN IN PLACE, AND SHALL REPAIR SUCH DAMAGES AT NO ADDITIONAL COST TO ODOT.

ALL MATERIAL REMOVED, INCLUDING BUT NOT LIMITED TO DRAINAGE STRUCTURES, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER, UNLESS OTHERWISE SPECIFIED.

**GEOTECHNICAL GENERAL CONSTRUCTION NOTES**

THE FOLLOWING GEOTECHNICAL REPORTS HAVE BEEN PREPARED BY GW<sup>2</sup> ENGINEERING, INC. (NOW ROCA ENGINEERING, INC.):

Date	Description
January 6, 2014	SH169 over Opossum Creek & Overflow Roadway Construction to Bridge "1" & Bridge "2"
January 7, 2014	SH169 over Opossum Creek & Overflow Bridge "1" & Bridge "2"

LOCATIONS OF SOIL BORINGS AND BORING LOGS ARE INCLUDED IN THE PLANS. THE GEOTECHNICAL REPORTS ARE AVAILABLE FOR REVIEW AT THE OFFICE ENGINEER DIVISION, ODOT, 200 N.E. 21ST STREET, OKLAHOMA CITY OK 73105. ANY INFORMATION CONTAINED IN THE GEOTECHNICAL REPORT SHOULD NOT BE CONSIDERED AS REPRESENTATIVE OF ALL FIELD CONDITIONS.

Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>GENERAL CONSTRUCTION NOTES</b>	
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 5

OKLAHOMA DEPARTMENT OF TRANSPORTATION				
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	TOTAL SHEETS
8	OKLA	27092(04)	6	143
DESCRIPTION		REVISIONS	DATE	
▲ UPDATED ENVIRONMENTAL NOTES			07/24/2016	

**ENVIRONMENTAL MITIGATION NOTES**

- 1 AMERICAN BURYING BEETLE**  
 THE AMERICAN BURYING BEETLE IS A LARGE CARRION BURYING BEETLE THAT IS LISTED AS ENDANGERED UNDER THE ENDANGERED SPECIES ACT. IN ORDER TO AVOID ADVERSE IMPACTS, NO ARTIFICIAL LIGHTING SHALL BE USED DURING CONSTRUCTION. CARCASSES AND ALL FOOD TRASH SHALL BE REMOVED FROM THE PERMANENT AND TEMPORARY RIGHT-OF-WAY THROUGHOUT PROJECT ACTIVITIES.
- 1 BAT BRIDGE REMOVAL/MODIFICATION**  
 THE NORTHERN LONG EARED BAT IS A MIGRATORY, INSECT EATING BAT PROTECTED BY THE ENDANGERED SPECIES ACT. THIS SPECIES CAN USE BRIDGES AND CULVERTS AS SUMMER ROOSTING SITES. IF THE BRIDGE REMOVAL OR MODIFICATION IS TO OCCUR BETWEEN APRIL 1 AND NOVEMBER 15, THE RESIDENT ENGINEER SHALL CONTACT THE ODOT BIOLOGIST AT 405-521-2515 TO CONDUCT A BAT SURVEY. THE SURVEY CAN BE CONDUCTED ONLY BETWEEN MAY 15 AND AUGUST 15. IF LISTED BAT SPECIES ARE DETECTED, THE ODOT BIOLOGICAL RESOURCES PROGRAM WILL CONSULT WITH US FISH AND WILDLIFE SERVICE. WORK ON THE BRIDGE WILL BE RESTRICTED AND MAY BE PROHIBITED FOR ALL OR PART OF THE DURATION OF THE BAT'S MATERNITY ROOSTING SEASON. ANY DELAY DUE TO THIS WILL NOT BE COMPENSATED.
- 1 KARST**  
 KARST ECOSYSTEMS, THAT PROVIDE HABITAT FOR SEVERAL ENDANGERED SPECIES INCLUDING FOR THE OZARK BIG-EARED BAT AND NORTHERN LONG-EARED BAT, OCCUR WITHIN THE ACTION AREA. IF CAVES, SINKHOLES OR SPRINGS ARE ENCOUNTERED WITHIN THE PROJECT LIMITS AT ANY POINT BEFORE OR DURING THE PROJECT, A NO-WORK ZONE EXTENDING 300 FEET IN ALL DIRECTIONS SHALL BE ESTABLISHED AROUND THE NEWLY DISCOVERED FEATURE, AND THE RESIDENT ENGINEER SHALL IMMEDIATELY CONTACT THE ODOT ENVIRONMENTAL PROGRAMS DIVISION AT (405) 521-2515.
- 1 RIPARIAN VEGETATION REMOVAL RESTRICTION**  
 THE REMOVAL OF TREES AND SHRUBS SHALL BE RESTRICTED TO AREAS WITHIN THE ACTUAL LIMITS OF CONSTRUCTION (TOE OF SLOPE/TOP OF CUT).
- 1 MIGRATORY BIRDS**  
 MIGRATORY BIRDS ARE PROTECTED BY THE FEDERAL MIGRATORY BIRD TREATY ACT. THESE BIRDS COMMONLY USE BRIDGES AND CULVERTS FOR NESTING. THE NESTING SEASON FOR THE BIRDS RUNS FROM APRIL 1 TO AUGUST 31. ANY ACTIVITIES WHICH WOULD DESTROY ACTIVE NESTS OR HARM EGGS OR BIRDS WOULD VIOLATE THE MIGRATORY BIRD TREATY ACT. MIGRATORY BIRD USE OF ALL BRIDGES AND CULVERTS HAS BEEN OBSERVED DURING THE INITIAL SURVEY CONDUCTED AS PART OF THE BIOLOGICAL STUDIES IN 2012. THE RESIDENT ENGINEER WILL EVALUATE THE CONTRACTOR'S PROPOSED WORK METHODS AND CONCLUDE WHETHER THE PROPOSED WORK WOULD POSE DISRUPTION TO ANY NESTING BIRDS BEFORE WORK NEAR THE STRUCTURE IS AUTHORIZED. IF THE PROPOSED WORK WILL HARM ANY NESTING BIRDS, THE BRIDGE MAY BE NETTED PRIOR TO APRIL 1 OR THE WORK DELAYED UNTIL THE NESTING SEASON IS COMPLETE. METHODS OTHER THAN NETTING MUST BE PRE-APPROVED BY THE ODOT BIOLOGIST.

Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>ENVIRONMENTAL NOTES</b>	
Checked			
Approved			
Squad			
		Job Piece No. <u>27092(04)</u>	Sheet No. <u>6</u>

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		7	143
DESCRIPTION		REVISIONS	DATE		

**0100 ROADWAY**

ITEM NO.	CODE NO.	DESCRIPTION	NOTES	UNIT	QUANTITY
201(A)	0102	CLEARING AND GRUBBING		LSUM	1
202(A)	0183	UNCLASSIFIED EXCAVATION	(R-1)	CY	76,409
202(D)	0184	UNCLASSIFIED BORROW	(7) (R-1)	CY	46,914
205(A)	4229	TYPE A-SALVAGED TOPSOIL	(1) (R-5,7)	LSUM	1
221(C)	2801	TEMPORARY SILT FENCE	(5)	LF	6,925
221(F)	0100	TEMPORARY SILT DIKE	(5)	LF	1,330
221(G)	0153	TEMPORARY ROCK FILTER DAM TYPE 4	(5)	CY	1
230(A)	2806	SOLID SLAB SODDING	(3) (R-7,8)	SY	54,401
232(A)	2813	SEEDING METHOD A	(1,2) (R-7,8)	AC	13.62
233(A)	2817	VEGETATIVE MULCHING	(1,2) (R-11)	AC	13.62
241	2832	MOWING	(R-16)	AC	27.24
242	0400	(PL) STABILIZED CONSTRUCTION EXIT	(4)	EA	6
303(A)	2100	AGGREGATE BASE TYPE A		CY	5,232
307(K)	4300	STABILIZED SUBGRADE	(9,15)	SY	37,932
325	5271	SEPARATOR FABRIC		SY	25,912
402(E)	0225	TRAFFIC BOUND SURFACE COURSE TYPE E	(8) (R-25)	TON	2,247
408	5774	PRIME COAT	(11) (R-28)	GAL	19,488
411(B)	5935	SUPERPAVE, TYPE S3 (PG 76-28 OK)	(R-30,32)	TON	3,363
411(B)	5945	SUPERPAVE, TYPE S3 (PG 64-22 OK)	(10) (R-30,32)	TON	9,597
411(C)	5950	SUPERPAVE, TYPE S4 (PG 76-28 OK)	(12) (R-30,32)	TON	2,537
411(C)	5960	SUPERPAVE, TYPE S4 (PG 64-22 OK)	(R-30,32)	TON	1,151
411(I)	6310	SUPERPAVE, TYPE S4 (PATCH) (PG 64-22 OK)	(4) (R-32)	TON	100
413(B)	4863	RUMBLE STRIP-METHOD HMA-CYC		LF	8,171
509(A)	0319	CLASS AA CONCRETE		CY	85
511(A)	0322	REINFORCING STEEL		LB	12,780
601(A)	0297	TYPE I PLAIN R/RAP		TON	148
601(C)	0538	TYPE I-A FILTER BLANKET		TON	39
602(C)	4155	FILTER FABRIC		SY	145
613(A)	0491	18" R.C. PIPE CLASS III	(13,14)	LF	56
613(B)	0689	18" CORR. GALV. STEEL PIPE	(R-46)	LF	56
613(L)	5726	18" PREFAB. CULVERT END SECTION, ROUND	(R-46)	EA	2
613(P)	0760	18" GALV. STEEL CULVERT END SECTION ROUND		EA	2
619(A)	0920	REMOVAL OF STRUCTURES & OBSTRUCTIONS	(6) (R-48,49)	LSUM	1
619(B)	4728	REMOVAL OF ASPHALT PAVEMENT	(6) (R-49,50)	SY	31,830
619(B)	4780	REMOVAL OF GUARDRAIL	(6) (R-49)	LF	1,235
619(C)	0924	SAWING PAVEMENT		LF	523
623(A)	0932	BEAM GUARDRAIL W-BEAM SINGLE		LF	1,100
623(G)	8590	GUARDRAIL END TREATMENT (31")		EA	4
623(I)	8700	GUARDRAIL BRIDGE CONN - THRIE BEAM (31")		EA	8
624(A)	4281	FENCE - STYLE WWF	(16) (R-52)	LF	1,573

**ROADWAY PAY ITEM NOTES**

- (R-1) PAYMENT FOR THIS ITEM WILL BE BASED ON PLAN QUANTITY ONLY. SEE SECTION 109.01B OF THE STANDARD SPECIFICATIONS.
- (R-5) AN ESTIMATED QUANTITY OF 7,556 C.Y. TOPSOIL TO BE RESERVED FOR REPLACEMENT OF APPROXIMATELY 5" ON COMPLETED FORESLOPES, DITCHES, AND BACKSLOPES. THIS QUANTITY IS INCLUDED IN THE EARTHWORK BALANCE. ANY ADDITIONAL EXCAVATION REQUIRED IN CUT SECTIONS TO ALLOW FOR PLACEMENT OF TOPSOIL TO FINAL GRADE, SHALL BE INCLUDED IN THE PRICE BID.
- (R-7) FOR 205(A) PRICE BID TO INCLUDE COST OF (18-46-0) FERTILIZER. ESTIMATED AT 150 POUNDS PER ACRE.  
FOR 230(A) AND 232(A) PRICE BID TO INCLUDE COST OF (10-20-10) FERTILIZER, ESTIMATED AT 200 POUNDS PER 1000 SQUARE YARDS.
- (R-8) FOR 230(A) & 232(A) PRICE BID TO INCLUDE COST OF WATERING, ESTIMATED AT 60 GALLONS PER SQUARE YARD.
- (R-11) THE QUANTITIES ESTIMATED FOR TEMPORARY EROSION AND SEDIMENT CONTROL IS 13.62 ACRES.
- (R-16) QUANTITY BASED ON TWO APPLICATIONS.
- (R-25) ESTIMATED AT 120 LBS. PER CU. FT.
- (R-28) PRIME COAT SHALL BE APPLIED AT AN ESTIMATED RATE OF 0.35 GAL. PER SQ. YD. WHEN APPLIED TO SUBGRADE, AND 0.25 GAL. PER SQ. YD. WHEN APPLIED TO AGGREGATE BASE. THE ACTUAL EMULSIFIED PRIME COAT REQUIRED FOR PLACEMENT OPERATIONS WILL BE DETERMINED BY THE CONTRACTOR, AND SHALL CONSIDER THE RESIDUE FROM DISTILLATION PERCENTAGE SHOWN IN SECTION 708.03 OF THE STANDARD SPECIFICATIONS.
- (R-30) PRICE BID TO INCLUDE COST OF 4,143 GALLONS OF TACK COAT, MEETING THE REQUIREMENTS OF SECTION 407 OF THE STANDARD SPECIFICATIONS.
- (R-32) ESTIMATED AT 112 LBS. PER SQ. YD. PER 1" THICK.
- (R-46) ANY DRAINAGE STRUCTURE DESCRIBED AS TEMPORARY, SHALL AFTER COMPLETION OF THE PROJECT, BE REMOVED BY AND BECOME THE PROPERTY OF THE CONTRACTOR.
- (R-48) INCLUDES REMOVAL OF ALL EXISTING ROADWAY DRAINAGE STRUCTURES, HEADWALLS (UNLESS OTHERWISE SPECIFIED), INLETS, FENCES, AND OTHER STRUCTURES WITHIN THE RIGHT OF WAY.
- (R-49) TO BECOME THE PROPERTY OF AND BE DISPOSED OF BY THE CONTRACTOR IN A MANNER APPROVED BY THE ENGINEER.
- (R-50) MATERIALS REMOVED SHALL NOT BE MEASURED FOR PAYMENT UNDER SECTION 202.06 UNCLASSIFIED EXCAVATION.
- (R-52) INCLUDES 2% FOR GROUND MEASUREMENT.

- 1 TOPSOIL STOCKPILES AND DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR AT LEAST 21 DAYS ARE TO BE STABILIZED WITH TEMPORARY SEEDING AND MULCH NO LATER THAN 14 DAYS FROM THE LAST CONSTRUCTION ACTIVITY IN THE AREA. PRIOR TO SEEDING, (10-20-10) FERTILIZER OR APPROVED EQUAL SHALL BE APPLIED TO ALL AREAS TO BE STABILIZED.
- 2 SEEDING QUANTITIES - ONE APPLICATION OF SEEDING METHOD A FOR TEMPORARY EROSION CONTROL, IF NEEDED.  
MULCHING QUANTITIES - ONE APPLICATION OF VEGETATIVE MULCHING FOR TEMPORARY EROSION CONTROL, IF NEEDED, ESTIMATED AT 4,000 LBS PER ACRE.
- 3 SOLID SLAB SODDING SHALL BE PLACED IN THE BOTTOM OF ALL UNPAVED DITCHES AND ALL OTHER DISTURBED AREAS PER PLANS. PERMANENT SLOPE PROTECTION SHALL BE SOLID SLAB SOD PER MISCELLANEOUS DETAILS, SHEET 4.
- 4 ESTIMATED QUANTITY TO BE USED AT THE DISCRETION OF THE ENGINEER.
- 5 PRICE BID SHALL INCLUDE SEDIMENT REMOVAL.
- 6 ITEMS TO BE REMOVED MAY OR MAY NOT BE PRESENT IN ANY SPECIFIED CONDITION.
- 7 INCLUDES 20% COMPACTION.
- 8 INCLUDES 2,224 TONS FOR SURFACING AND 23 TONS FOR DETOUR SURFACING AS SHOWN ON SUMMARY SHEET.
- 9 INCLUDES 25,912 S.Y. FOR SURFACING AND 12,020 S.Y. FOR DETOUR SURFACING AS SHOWN ON SUMMARY SHEET.
- 10 INCLUDES 6,722 TONS FOR SURFACING AND 2,875 TONS FOR DETOUR SURFACING AS SHOWN ON SUMMARY SHEET.
- 11 INCLUDES 14,954 GALLONS FOR SURFACING AND 4,208 GALLONS FOR DETOUR SURFACING AND 326 GALLONS FOR GUARDRAIL WIDENING AS SHOWN ON SUMMARY SHEET.
- 12 INCLUDES 2,327 TONS FOR SURFACING AND 210 TONS FOR GUARDRAIL WIDENING AS SHOWN ON SUMMARY SHEET.
- 13 INCLUDES THE PRICE OF A TONGUE AND GROOVE GASKET JOINT.
- 14 PRICE BID SHALL INCLUDE COST OF TRENCH EXCAVATION AND STANDARD BEDDING MATERIAL.
- 15 PRICE BID TO INCLUDE THE CHEMICAL ADDITIVE(S) TO ACHIEVE THE RATE SPECIFIED FOR THE APPROPRIATE SOIL CLASSIFICATION AS SPECIFIED IN THE MOST CURRENT ODOT MATERIALS DIVISION OHDL-50. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CLASSIFY THE SOIL AND DETERMINE THE APPROPRIATE ADDITIVE(S).
- 16 USE 3-1/2" DIAMETER X 8'-0" LONG GALVANIZED STEEL (SCHEDULE 40) PIPE FOR CORNER, STRETCHER & END POST AND 2" DIAMETER GALVANIZED STEEL PIPES (SCHEDULE 40) AS BRACING. ATTACH BRACE POST USING STANDARD CHAIN LINK FENCE HARDWARE MEETING THE REQUIREMENTS OF AASHTO M 181 AND ASTM A53. SEE CHAIN LINK FENCE DETAILS ON ROADWAY STANDARD RWF3-2. USE CORNER & STRETCHER POSTS DETAIL, NOT THE CORNER & STRETCHER POSTS DETAIL ALTERNATE SHOWN ON STANDARD RWF2-2 TO CONSTRUCT. PLACE CLASS A CONCRETE FOOTING AS PER ALTERNATE POST OPTION. OMIT TENSION WRES. GATE POST WILL BE 5-9/16" DIAMETER X 8'-0" LONG AND MEET THE REQUIREMENTS OF STANDARD RWF3-2 POST AND FRAMEWORK SCHEDULE GATE POST OVER 12' TO 18' WIDE. NO WOODEN POST WILL BE ALLOWED.

Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>ROADWAY PAY ITEMS &amp; NOTES</b>	
Checked			
Approved			
Squad			
		Job Piece No. <b>27092(04)</b>	Sheet No. <b>7</b>



OKLAHOMA DEPARTMENT OF TRANSPORTATION					
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		8	143
DESCRIPTION			REVISIONS	DATE	
TRAFFIC CONTROL PAY QUANTITIES & NOTES				8/19/16	

0310 TRAFFIC SIGNING & STRIPING					
ITEM NO.	CODE NO.	DESCRIPTION	NOTES	UNIT	QUANTITY
805(D)	8756	(PL) REMOVE & RESET EXISTING SIGNS	(TS-1)	EA	2
850(A)	8110	SHEET ALUMINUM SIGNS		SF	85
851(C)	8330	2 1/2" SQUARE TUBE POST	(TS-33)	LF	145
853	9069	GUARDRAIL DELINEATORS (TYPE 2, CODE 1)		EA	30
856(A)	8530	TRAFFIC STRIPE (MULTI-POLYMER) (4" WDE)	(TS-24)	LF	12,102

0340 TRAFFIC CONTROL					
ITEM NO.	CODE NO.	DESCRIPTION	NOTES	UNIT	QUANTITY
857(A)	8839	CONSTRUCTION TRAFFIC STRIPE (PAINT) (4" WDE)	(TC-17, 20, 70, 75)	LF	14,080
857(C)	8851	REMOVABLE PAVEMENT MARKING TAPE (4" WDE)	(TC-19, 70, 75)	LF	1,320
857(F)	8006	PAVEMENT MARKING REMOVAL (TRAFFIC STRIPE)	(TC-22, 70)	LF	3,330
871(A)	8325	(SP) IMPACT ATTENUATOR	(SP-3, 4) (TC-44, 52, 70)	EA	12
877(B)	8484	DELIVER PORTABLE LONGITUDINAL BARRIER	(SP-2) (TC-1, 2, 70)	LF	7,900
877(C)	8486	RELOCATION OF PORTABLE LONGITUDINAL BARRIER	(SP-2) (TC-1, 2, 70)	LF	3,900
880(B)	8818	CONSTRUCTION SIGNS 0 TO 6.25 SF	(TC-28, 28, 33, 84)	SD	5,110
880(B)	8821	CONSTRUCTION SIGNS 6.26 TO 15.99 SF	(TC-26, 29, 33, 84)	SD	2,920
880(B)	8824	CONSTRUCTION SIGNS 16.0 TO 32.99 SF	(TC-28, 30, 33, 84)	SD	3,220
880(C)	8848	WING BARRICADES	(TC-26, 84)	SD	1,460
880(E)	8860	WARNING LIGHTS (TYPE A)	(TC-26, 84)	SD	3,220
880(F)	8878	DRUMS	(SP-1) (TC-33, 84)	SD	17,360
882(A)	8306	PORT. CHANGEABLE MESSAGE SIGN	(TC-52, 84, 85)	SD	730

**TRAFFIC CONTROL PAY ITEM NOTES CONTINUED**

(TC-30) INCLUDED IN THIS ITEM ARE ALL S.C.S. (SPECIAL CONSTRUCTION SIGNING) SIGNS WHICH ARE BETWEEN 16.00 S.F. AND 32.99 S.F. ALSO INCLUDED IN THIS ITEM SHALL BE THE COST OF INSTALLATION, MAINTENANCE, AND REMOVAL OF THESE SIGNS.

(TC-33) ALL CONSTRUCTION WORK ZONE SIGNS SHALL HAVE FLUORESCENT SHEETING. THE FLUORESCENT SHEETING SHALL MEET THE REQUIREMENTS OF ASTM D4956 (LATEST REVISION).

THE MANUFACTURER SHALL FURNISH A TYPE 'D' CERTIFICATION IN ACCORDANCE WITH O.D.O.T. STANDARD SPECIFICATIONS (CURRENT EDITION) SUBSECTION 106.04. THE CERTIFICATION SHALL INCLUDE TEST RESULTS ON MATERIAL SUBMITTED FOR APPROVAL.

(TC-44) PRICE BID FOR THIS ITEM SHALL INCLUDE ATTENUATOR MODULES, SAND, WOODEN PALLETS (IF REQUIRED), RELOCATION, AND MAINTENANCE.

(TC-52) ANY USED CONSTRUCTION ZONE IMPACT ATTENUATOR TO BE PLACED ON THIS PROJECT SHALL BE SUBJECT TO INSPECTION AND APPROVAL, BY THE OKLAHOMA DEPARTMENT OF TRANSPORTATION, TO ASSURE THAT THEY ARE IN GOOD WORKING CONDITION, PRIOR TO PLACEMENT ON THE PROJECT.

(TC-70) THIS ITEM IS AN ESTIMATED QUANTITY TO BE USED AS DEEMED NECESSARY BY THE ENGINEER.

(TC-75) TEMPORARY PAVEMENT MARKINGS SHALL BE IN PLACE THE SAME DAY THAT EXISTING PAVEMENT MARKERS ARE REMOVED FROM ANY ROADWAY OPEN TO TRAFFIC. ALSO, ALL TEMPORARY PAVEMENT MARKINGS SHALL BE REMOVED PRIOR TO THE INSTALLATION OF FINAL STRIPING.

1 (TC-84) 365 CONSTRUCTION CALENDAR DAYS WERE USED TO COMPUTE THE SIGN DAY PAY ITEMS. THE AMOUNT OF CALENDAR DAYS USED TO COMPUTE THE SIGN DAY PAY ITEMS IS AN ESTIMATED QUANTITY ONLY, BASED ON THE CURRENT O.D.O.T. STANDARDS AND SUGGESTED CONSTRUCTION SEQUENCE FOR THIS PROJECT. THESE ESTIMATED SIGN DAY QUANTITIES MAY CHANGE AS THE PROJECT'S CONSTRUCTION TRAFFIC CONTROL IS MODIFIED DURING CONSTRUCTION.

(TC-85) THESE SIGNS MUST BE ON THE OKLAHOMA DEPARTMENT OF TRANSPORTATION LIST OF APPROVED CHANGEABLE MESSAGE SIGNS. FOR A LIST OF APPROVED SIGNS GO TO THE OKLAHOMA DEPARTMENT OF TRANSPORTATION WEBSITE AT: <http://www.okladot.state.ok.us/traffic/qpl/index.php>

(SP-1) THIS DIVISION DOES NOT REQUIRE TYPE C WARNING LIGHTS.

(SP-2) PRICE BID FOR THIS ITEM SHALL INCLUDE THE INSTALLATION AND MAINTENANCE OF THE REFLECTORS ON THE BARRIER WALL.

(SP-3) PRICE BID FOR THIS ITEM SHALL INCLUDE SLOPE WORK TO FLATTEN GROUND WHERE THE MODULES WILL BE PLACED.

(SP-4) CONSTRUCTION ZONE IMPACT ATTENUATOR TO BE PLACED ON THIS PROJECT SHALL BE SUBJECT TO INSPECTION AND APPROVAL, BY THE OKLAHOMA DEPARTMENT OF TRANSPORTATION, TO ASSURE THAT THEY ARE IN GOOD WORKING CONDITION, PRIOR TO PLACEMENT ON THE PROJECT.

**TRAFFIC SIGNING & STRIPING PAY ITEM NOTES**

(TS-1) "REMOVAL OF SIGN FOOTINGS" SHALL MEAN THE REMOVAL OF AN EXISTING FOOTING WITH OR WITHOUT STUBS AND SHALL BE DISPOSED OF AS NOTED IN GENERAL CONSTRUCTION NOTES

(TS-24) QUANTITY SHOWN INCLUDES 10,733 L.F. TRAFFIC STRIPE (MULTI-POLYMER)(WHITE) AND 1,369 L.F. TRAFFIC STRIPE (MULTI-POLYMER)(YELLOW). TRAFFIC STRIPE (MULTI-POLYMER) WILL BE MEASURED BY THE LINEAR FOOT OF FOUR INCH (4") WDE TRAFFIC STRIPE.

(TS-33) INCLUDED IN THIS PAY ITEM IS ALL HARDWARE ASSOCIATED WITH PROPERLY ANCHORING AND MOUNTING THE HIGHWAY SIGN IN ACCORDANCE WITH O.D.O.T. PLANS AND STANDARD DRAWINGS SSA-1-1 AND SSP-1-1-(LATEST REVISION).

**TRAFFIC CONTROL GENERAL CONSTRUCTION NOTES**

ANY SIGNS AND/OR DELINEATORS WHICH ARE TO BE REMOVED DURING THIS PROJECT WILL BE STORED IN A PROTECTED AREA DESIGNATED BY THE RESIDENT ENGINEER, UNTIL SUCH A TIME THAT THEY ARE TO BE RESET BY THE CONTRACTOR. COST OF THIS WORK TO BE INCLUDED IN OTHER ITEMS OF WORK.

EXISTING ROADWAY SHALL REMAIN OPEN DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER BARRICADES, LIGHTS, AND SIGNING WITHIN THE LIMITS OF CONSTRUCTION. ALL CONSTRUCTION SIGNING WILL BE IMPLEMENTED ACCORDING TO CONSTRUCTION PLANS. CONSTRUCTION TRAFFIC CONTROL WILL BE INSTALLED IN A MANNER APPROVED BY THE ENGINEER, IN ACCORDANCE WITH CHAPTER VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (CURRENT EDITION), AND COMPLIANT WITH APPLICABLE O.D.O.T. STANDARD DRAWINGS.

THIS PROJECT SHALL BE CONSTRUCTED WITHOUT CLOSING TRAFFIC ON CROSS STREETS. A MINIMUM OF ONE LANE IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES.

**TRAFFIC SIGNING GENERAL CONSTRUCTION NOTES**

ANY DAMAGE CAUSED BY THE CONTRACTOR TO ANY STRUCTURES, ROADWAY SURFACES, STRIPING, RAISED PAVEMENT MARKERS, GUARDRAIL, SLOPES, AND SIGNS SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE RESIDENT ENGINEER.

ALL REGULATORY SIGNS SHALL HAVE HIGH INTENSITY SHEETING. THE HIGH INTENSITY SHEETING SHALL MEET THE REQUIREMENTS OF ASTM D4956-(LATEST REVISION) FOR TYPE II SHEETING.

ALL WARNING SIGNS SHALL HAVE FLUORESCENT YELLOW SHEETING. THE FLUORESCENT YELLOW SHEETING SHALL MEET THE REQUIREMENTS OF ASTM D4956-(LATEST REVISION) REQUIREMENTS FOR TYPE VII SHEETING.

ALL GREEN AND BLUE SIGNS ON CONVENTIONAL HIGHWAYS SHALL HAVE HIGH INTENSITY SHEETING. THE HIGH INTENSITY SHEETING SHALL MEET THE REQUIREMENTS OF ASTM D4956-(LATEST REVISION) REQUIREMENTS FOR TYPE II SHEETING.

ALL PANEL AND OVERHEAD SIGNS SHALL HAVE TYPE III HIGH INTENSITY BACKGROUND WITH TYPE VII LEGENDS AND BORDERS. THE TYPE III BACKGROUND AND THE TYPE VII LEGENDS AND BORDERS SHALL MEET THE REQUIREMENTS OF ASTM D4956-(LATEST REVISION).

THE MANUFACTURER SHALL FURNISH A TYPE 'A' CERTIFICATION IN ACCORDANCE WITH ODOT STANDARD SPECIFICATIONS, LATEST EDITION, AND SUBSECTION 106.04. THE CERTIFICATION SHALL INCLUDE TEST RESULTS ON THE MATERIAL SUBMITTED FOR APPROVAL.

ALL BROKEN CONCRETE INCLUDING OLD SIGN FOOTINGS WITH STUBS, WASTE MATERIAL AND DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE LIMITS OF THE PROJECT AND DISPOSED OF IN AN AREA APPROVED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THE DISPOSAL OF THIS MATERIAL. ANY PIPE POST OR WDE FLANGE POST ABOVE THE OLD SIGN FOOTING SHALL BE CUT AND HANDLED AS PROPERTY OF THE STATE AND SHALL BE NEATLY STACKED ON THE JOB SITE, AS DESIGNATED BY THE ENGINEER UNTIL SUCH TIME AS DIVISION PERSONNEL CAN REMOVE THE MATERIAL FROM THE JOB SITE.

NO SPLICES SHALL BE PERMITTED IN ANY PIPE OR WDE FLANGE SIGN POSTS.

ALL ANCHOR BOLTS SHALL BE GRADE A-36 STEEL.

THE STATIONS AND LOCATIONS OF THE SIGN PLACEMENT, AS SHOWN ON THE PLAN SHEETS, ARE APPROXIMATE. EXACT STATIONS AND LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR SO THAT THE SIGN IS INSTALLED IN ACCORDANCE WITH DEPARTMENT STANDARDS AND THE MUTCD IN ORDER TO PROVIDE OPTIMUM VISIBILITY TO THE ONCOMING/APPROACHING MOTORIST. IF A PROPOSED LOCATION CONFLICTS WITH OTHER SIGNS, UTILITIES OR OTHER ROADWAY FEATURES, THE ENGINEER SHALL BE NOTIFIED.

POST LENGTHS SHOWN ON THE SIGN SUMMARY ARE APPROXIMATE, EXACT LENGTH SHALL BE DETERMINED BY FIELD SURVEY BY THE CONTRACTOR.

AFTER REMOVAL OF ANY SIGN FOOTINGS, THE HOLES SHALL BE FILLED WITH SOIL AND TAMPED AND SHAPED IN A MANNER APPROVED BY THE ENGINEER.

FOR NEW OR EXISTING GROUND MOUNTED SIGNS, MAXIMUM STUB POST PROJECTION ABOVE FOOTING/GROUND LINE SHALL BE 1-3/4" +/- 1/4". MAXIMUM FOOTING PROJECTION ABOVE GROUND LINE SHALL BE NO MORE THAN 2". SHOULD ADDITIONAL SOIL BE REQUIRED, THE ENGINEER WILL DESIGNATE AN AREA TO OBTAIN ADDITIONAL SOIL. ALL ASSOCIATED COSTS SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

**TRAFFIC CONTROL PAY ITEM NOTES**

(TC-1) THE CONTRACTOR SHALL FURNISH AND INSTALL SUCH LIGHTS, SIGNS, BARRICADES, AND PROVIDE FLAGGERS NECESSARY FOR THE CONTROL, SAFETY, AND MAINTENANCE OF TRAFFIC WHEN INSTALLING, RELOCATING OR DELIVERING PORTABLE LONGITUDINAL BARRIER.

(TC-2) QUANTITY INCLUDES SUFFICIENT LENGTH OF PORTABLE LONGITUDINAL BARRIER TO PROVIDE FOR THE LONGEST SECTION SHOWN ON THE PLANS. THIS SAME BARRIER WILL BE USED ON OTHER DETOUR PHASES.

(TC-17) INCLUDES AN ESTIMATED 7,036 L.F. (PAINT)(4" WDE) WHITE AND 7,044 L.F. (PAINT) (4" WDE) YELLOW STRIPE.

(TC-19) THIS ITEM INCLUDES AN ESTIMATED 884 L.F. (4" WDE) WHITE AND 436 L.F. (4" WDE) YELLOW STRIPE. THE CONTRACTOR SHALL PROVIDE AND INSTALL AN O.D.O.T. APPROVED REMOVABLE PAVEMENT MARKING TAPE. COST FOR REMOVAL OF THIS TAPE SHALL BE INCLUDED IN THE PRICE BID FOR THIS ITEM. NON-REMOVABLE MARKING TAPE (FOIL BACK) SHALL NOT BE CONSIDERED AN APPROVED EQUAL FOR THIS ITEM.

(TC-20) ALL STRIPING TO BE PLACED ON TEMPORARY SURFACES OR ON SURFACES SCHEDULED TO BE REMOVED SHALL BE DONE WITH PAINT UNLESS OTHERWISE NOTED ON THE PLANS OR STANDARD DRAWINGS. TEMPORARY PAVEMENT MARKINGS PLACED ON FINISHED PAVEMENT OR EXISTING PAVEMENT TO REMAIN IN PLACE SHALL USE ONE OF THE FOLLOWING METHODS:  
- REMOVABLE PAVEMENT MARKING TAPE  
- CLASS A PAVEMENT MARKERS

(TC-22) AMOUNT SHOWN IS AN APPROXIMATION AND THE ACTUAL AMOUNT OF REMOVAL, IF NECESSARY, SHALL BE DETERMINED BY THE ENGINEER. PRICE BID FOR PAVEMENT MARKING REMOVAL SHALL INCLUDE THE COST OF REMOVING STRIPE, ARROWS, WORDS AND SYMBOLS, AS SHOWN IN THE PLANS. THESE ITEMS MAY CONSIST OF PLASTIC, PAINT OR NON-REMOVABLE MARKING TAPE.

(TC-26) ALL CONSTRUCTION TRAFFIC CONTROL WILL BE IMPLEMENTED ACCORDING TO CONSTRUCTION PLANS, AND INSTALLED IN A MANNER APPROVED BY THE ENGINEER, IN ACCORDANCE WITH CHAPTER VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (CURRENT EDITION), AND COMPLIANT WITH APPLICABLE O.D.O.T. STANDARD DRAWINGS. PRICE BID FOR THIS ITEM SHALL BE PAYMENT IN FULL FOR THE INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF ALL NECESSARY CONSTRUCTION TRAFFIC CONTROL DEVICES REQUIRED FOR COMPLETION OF THE PROJECT.

ALL SIGNS AND BARRICADES WHICH ARE SHOWN WITH TYPE 'A' LIGHTS IN THE STANDARD DRAWINGS SHALL HAVE THE CORRESPONDING LIGHT ATTACHED DURING NON-DAYLIGHT HOURS.

(TC-28) INCLUDED IN THIS ITEM ARE ALL S.C.S. (SPECIAL CONSTRUCTION SIGNING) SIGNS WHICH ARE BETWEEN 0.00 S.F. AND 6.25 S.F. ALSO INCLUDED IN THIS ITEM SHALL BE THE COST OF INSTALLATION, MAINTENANCE, AND REMOVAL OF THESE SIGNS.

(TC-29) INCLUDED IN THIS ITEM ARE ALL S.C.S. (SPECIAL CONSTRUCTION SIGNING) SIGNS WHICH ARE BETWEEN 6.26 S.F. AND 15.99 S.F. ALSO INCLUDED IN THIS ITEM SHALL BE THE COST OF INSTALLATION, MAINTENANCE, AND REMOVAL OF THESE SIGNS.

Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn			
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 8

**TRAFFIC PAY ITEMS & NOTES**

ROOT DIVISION	STATE	JWP PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		9	143
DESCRIPTION					DATE
Δ UPDATED PAY ITEMS					07/25/16

JP NO. 27092(04)		NBI NO. 30984			
0200 BRIDGE "A"					
BRIDGE "A" PAY ITEMS					
CONST. INTEGRAL 45'-75'-45' STEEL BEAM SPANS WITH F-SHAPED PARAPET WITH 44'-0" CLEAR ROADWAY, SKEW 0° AT C.L. STA. 860+58.04 CRL US 169					
ITEM NO.	CODE NO.	DESCRIPTION	NOTES	UNIT	TOTAL
501(B)	1307	SUBSTRUCTURE EXCAVATION COMMON	(1)	CY	90
501(G)	6309	CLSM BACKFILL	(1)	CY	128.0
504(A)	1304	APPROACH SLAB	(1,6,7)	SY	209.0
504(B)	1305	SAW-CUT GROOVING	(1)	SY	1004.8
504(E)	6190	42" F-SHAPED PARAPET	(1)	LF	411.0
506(A)	1322	STRUCTURAL STEEL	(1)	LB	175440
507(A)	6172	WEATHERING STEEL FIXED BEARING ASSEMBLY		EA	10
507(B)	6174	STAINLESS STEEL EXPANSION BEARING ASSEMBLY		EA	20
507(C)	6282	ELASTOMERIC BEARING PADS		EA	20
509	6152	SPECIAL CONCRETE FINISH	(1,8)	SY	77
509(A)	1326	CLASS AA CONCRETE	(1,2)	CY	229.6
509(B)	1328	CLASS A CONCRETE	(1)	CY	130.0
511(B)	6010	EPOXY COATED REINFORCING STEEL	(1)	LB	99990
513(C)	6020	CLASS C BRIDGE DECK REPAIR	(10)	SY	50
514(A)	6010	PILES, FURNISHED (HP10X42)		LF	364
514(B)	6292	PILES, DRIVEN (HP10X42)		LF	364
514(G)	6310	METAL PILE SHOES		EA	14
514(L)	6220	PILE SPLICE, H-PILE (NON-BIDDABLE)		EA	1
515(A)	6013	WATER REPELLENT (VISUALLY INSPECTED)	(1)	SY	654
516(A)	6094	DRILLED SHAFTS 48" DIAMETER	(4)	LF	143
516(C)	6200	CROSSHOLE SONIC LOGGING	(9)	EA	1
523(A)	6550	SEALER CRACK PREPARATION	(1)	LF	188
523(B)	6560	SEALER RESIN	(1)	GAL	1.3
601(B)	1353	TYPE 1-A PLAIN RIPRAP		TON	780
601(C)	1355	TYPE 1-A FILTER BLANKET		TON	115
601(I)	6312	FILTER FABRIC (RIPRAP)		SY	460
613(H)	6204	6" PERFORATED PIPE UNDERDRAIN ROUND	(1)	LF	100
613(I)	6207	6" NON-PERF. PIPE UNDERDRAIN RND.		LF	80
619(B)	2500	REMOVAL OF BRIDGE ITEMS		LSUM	1

JP NO. 27092(04)		NBI NO. 30986			
0201 BRIDGE "B"					
BRIDGE "B" PAY ITEMS					
CONST. INTEGRAL 45'-55'-45' STEEL BEAM SPANS WITH F-SHAPED PARAPET WITH 44'-0" CLEAR ROADWAY, SKEW 0° AT C.L. STA. 863+99.25 CRL US 169					
ITEM NO.	CODE NO.	DESCRIPTION	NOTES	UNIT	TOTAL
501(B)	1307	SUBSTRUCTURE EXCAVATION COMMON	(1)	CY	90
501(G)	6309	CLSM BACKFILL	(1)	CY	128.0
504(A)	1304	APPROACH SLAB	(1,6,7)	SY	209.0
504(B)	1305	SAW-CUT GROOVING	(1)	SY	907.0
504(E)	6190	42" F-SHAPED PARAPET	(1)	LF	371.0
506(A)	1322	STRUCTURAL STEEL	(1)	LB	149170
507(A)	6172	WEATHERING STEEL FIXED BEARING ASSEMBLY		EA	10
507(B)	6174	STAINLESS STEEL EXPANSION BEARING ASSEMBLY		EA	20
507(C)	6282	ELASTOMERIC BEARING PADS		EA	20
509	6152	SPECIAL CONCRETE FINISH	(1,8)	SY	66
509(A)	1326	CLASS AA CONCRETE	(1,3)	CY	205.2
509(B)	1328	CLASS A CONCRETE	(1)	CY	147.0
511(A)	1332	REINFORCING STEEL	(1)	LB	1220
511(B)	6010	EPOXY COATED REINFORCING STEEL	(1)	LB	94960
513(C)	6020	CLASS C BRIDGE DECK REPAIR	(10)	SY	50
514(A)	6010	PILES, FURNISHED (HP10X42)		LF	406
514(B)	6292	PILES, DRIVEN (HP10X42)		LF	406
514(G)	6310	METAL PILE SHOES		EA	14
514(L)	6220	PILE SPLICE, H-PILE (NON-BIDDABLE)		EA	1
515(A)	6013	WATER REPELLENT (VISUALLY INSPECTED)	(1)	SY	608
516(A)	6096	DRILLED SHAFTS 60" DIAMETER	(5)	LF	107
516(C)	6200	CROSSHOLE SONIC LOGGING	(9)	EA	1
523(A)	6550	SEALER CRACK PREPARATION	(1)	LF	188
523(B)	6560	SEALER RESIN	(1)	GAL	1.3
601(B)	1353	TYPE 1-A PLAIN RIPRAP		TON	1250
601(C)	1355	TYPE 1-A FILTER BLANKET		TON	200
601(I)	6312	FILTER FABRIC (RIPRAP)		SY	822
613(H)	6204	6" PERFORATED PIPE UNDERDRAIN ROUND	(1)	LF	100
613(I)	6207	6" NON-PERF. PIPE UNDERDRAIN RND.		LF	80
619(B)	2500	REMOVAL OF BRIDGE ITEMS		LSUM	1

BRIDGE PAY ITEM NOTES	
<p>(1) PAY PLAN QUANTITY PER SECTION 109.01(B) OF THE STANDARD SPECIFICATIONS.</p> <p>(2) PLAN QUANTITY FOR CLASS AA CONCRETE INCLUDES 5.9 C.Y. FOR HAUNCHES OVER GIRDERS. THIS QUANTITY IS CALCULATED ASSUMING A 2" HAUNCH ALONG THE FULL LENGTH OF THE GIRDERS. THE FINAL HAUNCH HEIGHTS WILL BE SET AFTER ERECTION OF GIRDERS AND DIAPHRAGMS TO PROVIDE FOR DEAD LOAD DEFLECTION AND GRADE ADJUSTMENT.</p> <p>(3) PLAN QUANTITY FOR CLASS AA CONCRETE INCLUDES 4.8 C.Y. FOR HAUNCHES OVER GIRDERS. THIS QUANTITY IS CALCULATED ASSUMING A 2" HAUNCH ALONG THE FULL LENGTH OF THE GIRDERS. THE FINAL HAUNCH HEIGHTS WILL BE SET AFTER ERECTION OF GIRDERS AND DIAPHRAGMS TO PROVIDE FOR DEAD LOAD DEFLECTION AND GRADE ADJUSTMENT.</p> <p>(4) CROSSHOLE SONIC ACCESS TUBES SHALL BE PLACED IN ALL DRILLED SHAFTS. INCLUDE ALL COSTS FOR CROSSHOLE SONIC LOGGING ACCESS TUBES IN THE PRICE BID FOR L.F. OF "DRILLED SHAFTS 48" DIAMETER".</p> <p>(5) CROSSHOLE SONIC ACCESS TUBES SHALL BE PLACED IN ALL DRILLED SHAFTS. INCLUDE ALL COSTS FOR CROSSHOLE SONIC LOGGING ACCESS TUBES IN THE PRICE BID FOR L.F. OF "DRILLED SHAFTS 60" DIAMETER".</p> <p>(6) THERE IS AN ESTIMATED 75.5 C.Y. OF CLASS AA CONCRETE FOR BOTH APPROACH SLABS.</p> <p>(7) THERE IS AN ESTIMATED 14,010 LBS. OF EPOXY COATED REINFORCING STEEL FOR BOTH APPROACH SLABS.</p> <p>(8) ITEM "SPECIAL CONCRETE FINISH" IS A LIQUID APPLIED URETHANE COATING (CIM 1000) TO BE APPLIED TO THE PIER CAPS AS SHOWN IN THE PLANS.</p> <p>(9) A MINIMUM OF 1 DRILLED SHAFT PER BRIDGE SHALL BE TESTED AND LOGGED WITH CROSSHOLE SONIC LOGGING. ADDITIONAL TESTING MAY BE REQUIRED, AT THE DISCRETION OF THE ENGINEER.</p> <p>(10) TO BE USED TO MAINTAIN TRAFFIC DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER.</p>	

JP NO. 27092(04)		NBI NO. 30986			
0640 CONSTRUCTION					
CONSTRUCTION PAY ITEMS					
ITEM NO.	CODE NO.	DESCRIPTION	NOTES	UNIT	TOTAL
220	2800	SWPPP DOCUMENTATION AND MANAGEMENT		LSUM	1

**MANDATORY TIE:**

THE COST OF THE FOLLOWING PAY ITEMS FOR JP 27092(04), NOWATA COUNTY SHALL BE INCLUDED IN THE PRICE BID FOR THOSE PAY ITEMS IN JP 24750(04), NOWATA COUNTY:

- 642(B) CONSTRUCTION STAKING LEVEL II
- 640(A) FIELD OFFICE
- 641 MOBILIZATION

Design	MKR	6/16	NOWATA COUNTY
Drawn	RAH	6/16	
Checked	DAS	6/16	
Approved	SAK	6/16	
Squad	BENHAM		
BRIDGE PAY ITEMS AND GENERAL NOTES (SHEET 1 OF 2)			
Job Piece No. 27092(04)			Sheet No. 9

DOT DIVISION	STATE	JOB PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
B	OKLA	27092(04)		10	143

BRIDGE GENERAL NOTES

SPECIFICATIONS:

COMPLY WITH THE REQUIREMENTS OF THE 2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EXCEPT AS MODIFIED BY THE PLANS AND SPECIAL PROVISIONS.

EXISTING PLANS:

PLANS OF THE EXISTING BRIDGES MAY BE OBTAINED FROM THE ODOT REPRODUCTION DEPARTMENT, 200 N.E. 21ST ST., OKLAHOMA CITY, OK. 73105.

PILE DRIVING EQUIPMENT:

USE A PILE DRIVING HAMMER OF THE SIZE AND TYPE CAPABLE OF CONSISTENTLY DELIVERING THE EFFECTIVE DYNAMIC ENERGY SUFFICIENT TO DRIVE THE PILES TO THE REQUIRED TIP ELEVATION AND TO ACHIEVE THE AXIAL LOAD RESISTANCES WITHOUT EXCEEDING THE LIMITATIONS SET ON THE ALLOWABLE DRIVING STRESSES IN ACCORDANCE WITH SECTION 514.03(A)2.

ABUTMENT PILING CAPACITY:

THE FACTORED REACTION FOR EACH HP 10X42 PILE AT EACH ABUTMENT FOR BOTH BRIDGE "A" AND BRIDGE "B" IS 57.62 TONS.

THE FOLLOWING FORMULA (GATES EQUATION) SHALL BE USED TO DETERMINE THE AXIAL LOAD RESISTANCE OF THE DRIVEN FOUNDATION PILES.

AXIAL LOAD RESISTANCE =  $\phi [(0.875 \sqrt{E} \log_{10} (10N)) - 50]$

WHERE:

$\phi$  = RESISTANCE FACTOR OF 0.4

E = ENERGY PRODUCED BY THE HAMMER PER BLOW IN FOOT-POUNDS. FOR GRAVITY AND SINGLE ACTING DIESEL HAMMERS, THE VALUE IS BASED ON THE ACTUAL RAM STROKE OBSERVED IN THE FIELD AND MEASURED IN FEET MULTIPLIED BY THE RAM WEIGHT IN POUNDS.

N = AVERAGE NUMBER OF HAMMER BLOWS PER INCH OF PILE PENETRATION FOR THE LAST 10 TO 20 BLOWS DELIVERED TO THE PILE HEAD.

THE ABOVE FORMULA IS ONLY APPLICABLE WHEN:

- 1) THE PILE DRIVING HAMMER HAS A FREE FALL (GRAVITY & SINGLE ACTING HAMMERS ONLY).
- 2) THE HEAD OF THE PILE IS NOT BROOMED, CRUSHED OR OTHERWISE DAMAGED.
- 3) THE PENETRATION IS QUICK AND UNIFORM.
- 4) THERE IS NO APPRECIABLE REBOUND OF THE HAMMER.
- 5) A FOLLOWER IS NOT USED.

THE NUMBER OF BLOWS PER INCH OF PILE PENETRATION MAY BE MEASURED EITHER DURING INITIAL DRIVING OR BY RE-DRIVING WITH A WARM HAMMER OPERATED AT FULL ENERGY AFTER A PILE SET PERIOD, AS DETERMINED BY THE ENGINEER.

IF WATER JETS ARE USED IN CONNECTION WITH THE DRIVING, DETERMINE THE AXIAL LOAD RESISTANCE BY THE FORMULA SHOWN ONLY AFTER THE JETS HAVE BEEN WITHDRAWN.

ALL ABUTMENT PILING SHALL BE DRIVEN THROUGH THE COMPACTED FILL. PILING SHALL BE DRIVEN TO POINT BEARING ON SOLID FOUNDATION MATERIAL AT THE APPROXIMATE ELEVATION SHOWN ON THE PLANS. IF THE AXIAL LOAD RESISTANCE IS NOT OBTAINED AT THIS ELEVATION, DRIVING SHALL CONTINUE UNTIL THE AXIAL LOAD RESISTANCE IS OBTAINED. THE LENGTH OF STEEL PILING SHOWN ON THE PLANS IS FOR ESTIMATING PURPOSES ONLY.

TEMPORARY SHORING:

TEMPORARY SHORING MAY BE REQUIRED TO CONSTRUCT THE ABUTMENTS AND WINGWALLS OF BRIDGES "A" AND "B" ADJACENT TO THE EXISTING BRIDGES. THE DESIGN SHALL BE BASED ON AASHTO LRFD BRIDGE SPECIFICATION, 7TH EDITION. CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF ALL TEMPORARY SHORING IN ACCORDANCE WITH ODOT STANDARD SPECIFICATIONS. CONTRACTOR SHALL SUBMIT CALCULATIONS AND DRAWINGS THAT HAVE BEEN SIGNED AND SEALED BY AN ENGINEER REGISTERED IN THE STATE OF OKLAHOMA TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING WORK. ALL COSTS OF TEMPORARY SHORING SHALL BE INCLUDED IN THE PRICE BID PER CUBIC YARD OF "SUBSTRUCTURE EXCAVATION COMMON".

STAY-IN-PLACE FORMS:

THE CONTRACTOR MAY NOT USE STAY-IN-PLACE STEEL DECK FORMS.

WATER REPELLENT:

A PENETRATING WATER REPELLENT SURFACE TREATMENT SHALL BE APPLIED TO THE CONCRETE SURFACES OF THE BRIDGE AS SHOWN ON THE PLANS. PIER CAP SHALL BE TREATED ON ALL VERTICAL FACES EXCEPT WHERE SPECIAL CONCRETE FINISH IS APPLIED.

APPROACH SLAB:

CLASS AA CONCRETE SHALL BE USED IN THE APPROACH SLABS. THE QUANTITY GIVEN IS BASED ON THE ACTUAL SQUARE YARDS OF THE APPROACH SLABS. THE CONTRACT UNIT PRICE FOR APPROACH SLAB SHALL BE FULL COMPENSATION FOR CONCRETE, REINFORCING STEEL (INCLUDING FS2 BARS IN PARAPET), BACKER RODS, RAPID CURE JOINT SEALANT, POLYSTYRENE, POLYETHYLENE SHEETING, LABOR, EQUIPMENT, AND INCIDENTALS NEEDED TO COMPLETE THE WORK AS SPECIFIED IN THE PLANS.

BRIDGE GENERAL NOTES CONT'D.

CLSM BACKFILL:

THE CLSM BACKFILL MUST BE PLACED IN TWO LIFTS OF EQUAL HEIGHTS AT BOTH ABUTMENT 1 AND ABUTMENT 2. SEE STANDARD SPECIFICATIONS REGARDING CURING CLSM.

STRUCTURAL STEEL:

ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270 (ASTM A709) GRADE 50W, UNLESS SHOWN OR NOTED OTHERWISE. HIGH STRENGTH FASTENERS SHALL CONFORM TO ASTM M164 (ASTM A325), TYPE 3. NUTS, WASHERS, AND WELDING SHALL HAVE WEATHERING CHARACTERISTICS.

ERECTED GIRDERS SHALL HAVE ALL DIAPHRAGM CONNECTIONS COMPLETED PRIOR TO LEAVING JOBSITE AT THE END OF EACH DAY.

ELASTOMERIC BEARING PADS:

PROVIDE AND INSTALL ELASTOMERIC BEARING PADS BETWEEN THE TOP SURFACE OF STEEL BEAMS AND THE BOTTOM SURFACE OF THE BRIDGE SLAB. THE ELASTOMERIC PADS ARE TO BE THE SIZE AND THE SHAPE AS DETAILED IN THE PLANS AND LOCATED AT EACH BEAM END ABOVE THE PIERS. INCLUDE ALL COSTS ASSOCIATED WITH PROVIDING AND INSTALLING THE ELASTOMERIC PADS ABOVE THE BEAMS, INCLUDING ALL MATERIALS, LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN IN THE PLANS IN THE PRICE BID PER "ELASTOMERIC BEARING PADS".

PERFORATED PIPE UNDERDRAIN ROUND:

ITEM "6" PERFORATED PIPE UNDERDRAIN - ROUND" INCLUDES ALL COSTS OF PERFORATED PIPE AND OF UNDERDRAIN COVER MATERIAL, BOTH COARSE AND FINE, FOR EACH ABUTMENT. THE INSTALLATION OF THE PERFORATED PIPE AND PIPE UNDERDRAIN COVER MATERIAL SHALL BE AS SHOWN ON THE PLANS AND ON STANDARD PUD-3.

ALL COSTS OF THE PERFORATED PIPE UNDERDRAIN INSTALLATION INCLUDING LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAR FOOT OF "6" PERFORATED PIPE UNDERDRAIN ROUND".

NON-PERFORATED PIPE UNDERDRAIN ROUND:

ITEM "6" NON-PERF. PIPE UNDERDRAIN - RND." INCLUDES ALL COSTS OF NON-PERFORATED PIPE, TRENCH EXCAVATION AND STANDARD BEDDING MATERIAL FOR EACH ABUTMENT. THE INSTALLATION OF THE NON-PERFORATED PIPE SHALL BE AS SHOWN ON THE PLANS AND ON STANDARD PUD-3.

ALL COSTS OF THE NON-PERFORATED PIPE UNDERDRAIN INSTALLATION INCLUDING BACKFILLING, LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAR FOOT OF "6" NON-PERF. PIPE UNDERDRAIN RND.".

REMOVAL OF EXISTING BRIDGE STRUCTURES:

REMOVE PIERS IN THEIR ENTIRETY, INCLUDING SPREAD FOOTINGS. REMOVE ABUTMENTS PER STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURAL STEEL IS PAINTED WITH LEAD-BASED PAINT. THE CONTRACTOR MUST TAKE ALL NECESSARY PRECAUTIONS AND FOLLOW ALL NECESSARY REGULATIONS IN HANDLING AND TRANSPORTING ANY STRUCTURAL STEEL CONTAINING LEAD-BASED PAINT.

ALL THE EXISTING STRUCTURE AND CONCRETE RUBBLE MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR. ALL COSTS ASSOCIATED WITH THE REMOVAL, TRANSIT, AND DISPOSAL OF THE EXISTING BRIDGE STRUCTURE AS DESCRIBED ABOVE AND AS DIRECTED BY THE ENGINEER, INCLUDING LABOR, EQUIPMENT, AND INCIDENTALS, SHALL BE INCLUDED IN THE PRICE BID PER LUMP SUM OF "REMOVAL OF BRIDGE ITEMS".

CONTRACTOR SHALL NOT ALLOW CONCRETE OR STEEL RUBBLE TO FALL INTO, OR REMAIN IN, THE CREEK. ALL REMOVED MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE RIGHT-OF-WAY.

THE BRIDGE BEAMS SHALL BECOME THE PROPERTY OF NOWATA COUNTY. THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE THE BEAMS AND WILL STORE THE BEAMS ON THE PROJECT FOR THE COUNTY TO PICK UP. ONCE THE BEAMS ARE STORED THE CONTRACTOR SHALL GIVE WRITTEN NOTIFICATION TO THE COUNTY TO REMOVE THE BEAMS FROM THE PROJECT. THE COUNTY WILL BE RESPONSIBLE FOR LOADING AND TRANSPORTING THE BEAMS. THE COUNTY WILL HAVE THIRTY (30) DAYS FROM THE TIME WRITTEN NOTIFICATION IS GIVEN TO REMOVE THE BEAMS. AFTER 30 DAYS, ANY BEAMS NOT REMOVED FROM THE PROJECT WILL BECOME THE PROPERTY OF THE CONTRACTOR.

THE BEARINGS SHALL REMAIN THE PROPERTY OF ODOT AND WILL BE STOCKPILED WITHIN THE RW AS DIRECTED BY THE ENGINEER. AFTER 30 DAYS ANY BEARINGS NOT REMOVED FROM THE PROJECT WILL BECOME THE PROPERTY OF THE CONTRACTOR. ITEMS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO ODOT OR THE COUNTY. ALL OTHER MATERIALS OTHER THAN BEAMS AND BEARINGS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER.

BRIDGE "A" GENERAL NOTES

WEATHERING STEEL FIXED BEARING ASSEMBLY:

PROVIDE AND INSTALL FIXED BEARING ASSEMBLIES OF THE SIZE AND SHAPE DETAILED IN THE PLANS AT THE ABUTMENTS. THERE IS AN ESTIMATED TOTAL WEIGHT OF 860 LBS. OF STRUCTURAL STEEL FOR 10 FIXED BEARINGS.

INCLUDE ALL COSTS ASSOCIATED WITH PROVIDING AND INSTALLING THE ANCHOR PLATES AND ANCHOR BOLTS, INCLUDING ALL MATERIAL, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN ON THE PLANS IN THE PRICE BID PER EACH OF "WEATHERING STEEL FIXED BEARING ASSEMBLY".

STAINLESS STEEL EXPANSION BEARING ASSEMBLY:

PROVIDE AND INSTALL EXPANSION BEARING ASSEMBLIES OF THE SIZE AND SHAPE DETAILED IN THE PLANS. THERE IS AN ESTIMATED TOTAL WEIGHT OF 3,510 LBS. OF STRUCTURAL STEEL FOR 20 EXPANSION BEARINGS.

INCLUDE ALL COSTS ASSOCIATED WITH PROVIDING AND INSTALLING THE ANCHOR PLATES, CONTACT ANGLES, ANCHOR BOLTS, NUTS AND WASHERS, INCLUDING ALL MATERIAL, LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN ON THE PLANS IN THE PRICE BID PER EACH OF "STAINLESS STEEL EXPANSION BEARING ASSEMBLY".

REMOVAL OF EXISTING BRIDGE STRUCTURES:

REMOVAL CONSISTS OF A 30'-30'-30' I-BEAM SPAN BRIDGE WITH A 28' CLEAR ROADWAY, CURBS AND CONCRETE TRAFFIC RAILS, NO SKEW.

BRIDGE "B" GENERAL NOTES

WEATHERING STEEL FIXED BEARING ASSEMBLY:

PROVIDE AND INSTALL FIXED BEARING ASSEMBLIES OF THE SIZE AND SHAPE DETAILED IN THE PLANS AT THE ABUTMENTS. THERE IS AN ESTIMATED TOTAL WEIGHT OF 860 LBS. OF STRUCTURAL STEEL FOR 10 FIXED BEARINGS.

INCLUDE ALL COSTS ASSOCIATED WITH PROVIDING AND INSTALLING THE ANCHOR PLATES AND ANCHOR BOLTS, INCLUDING ALL MATERIAL, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN ON THE PLANS IN THE PRICE BID PER EACH OF "WEATHERING STEEL FIXED BEARING ASSEMBLY".

STAINLESS STEEL EXPANSION BEARING ASSEMBLY:

PROVIDE AND INSTALL EXPANSION BEARING ASSEMBLIES OF THE SIZE AND SHAPE DETAILED IN THE PLANS. THERE IS AN ESTIMATED TOTAL WEIGHT OF 3,570 LBS. OF STRUCTURAL STEEL FOR 20 EXPANSION BEARINGS. 55' SPAN BEARINGS SHALL BE USED FOR ALL SPANS.

INCLUDE ALL COSTS ASSOCIATED WITH PROVIDING AND INSTALLING THE ANCHOR PLATES, CONTACT ANGLES, ANCHOR BOLTS, NUTS AND WASHERS, INCLUDING ALL MATERIAL, LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN ON THE PLANS IN THE PRICE BID PER EACH OF "STAINLESS STEEL EXPANSION BEARING ASSEMBLY".

REMOVAL OF EXISTING BRIDGE STRUCTURES:

REMOVAL CONSISTS OF A 45'-40'-45' I-BEAM SPAN BRIDGE WITH A 28' CLEAR ROADWAY, CURBS AND CONCRETE TRAFFIC RAILS, NO SKEW.

Design	STF	6/16
Drawn	JT	6/16
Checked	STF	6/16
Approved	SAK	6/16
Squad	BENHAM	

NOWATA COUNTY

BRIDGE PAY ITEMS AND GENERAL NOTES (SHEET 2 OF 2)

Job Piece No. 27092(04) Sheet No. 10

7/12/2016

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OKLAHOMA DEPARTMENT OF TRANSPORTATION						
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS	
8	OKLA	27092(04)		11	143	
DESCRIPTION			REVISIONS		DATE	

0100 ROADWAY

SUMMARY OF SURFACING - US 169											
P&P NO.	STATION TO STATION	AGGREGATE BASE	STABILIZED SUBGRADE	SEPARATOR FABRIC	TBSC TYPE E	TACK COAT	PRIME COAT	SUPERPAVE, TYPE S3 (PG 76-28 OK)	SUPERPAVE, TYPE S3 (PG 64-22 OK)	SUPERPAVE, TYPE S4 (PG 76-28 OK)	RUMBLE STRIP-METHOD HMA-CYC
		303(A)	307(K)	325	402(E)	**	408	411(B)	411(B)	411(C)	413(B)
		CY	SY	SY	TON	GAL	GAL	TON	TON	TON	LF
1	838+99.66 - 840+00.00	124	612	612	54	74	354	80	159	55	201
2	840+00.00 - 855+00.00	1,846	9,139	9,139	803	1,100	5,275	1,186	2,371	822	3,000
3	855+00.00 - 870+00.00	1,365	6,757	6,757	594	814	3,900	877	1,753	608	2,218
4	870+00.00 - 884+44.51	1,897	9,404	9,404	773	1,128	5,425	1,220	2,439	842	2,752
<b>TOTALS</b>		<b>5,232</b>	<b>25,912</b>	<b>25,912</b>	<b>2,224</b>	<b>3,116</b>	<b>14,954</b>	<b>3,363</b>	<b>6,722</b>	<b>2,327</b>	<b>8,171</b>

\*\* FOR INFORMATION ONLY

0100 ROADWAY

SUMMARY OF EROSION CONTROL					
STATION TO STATION	TYPE A SALVAGED TOPSOIL	SOLID SLAB SODDING	SEEDING METHOD A	VEGETATIVE MULCHING	MOWING
	**	230(A)	232(A)	233(A)	241
	CY	SY	AC	AC	AC
836+99.66 TO 884+44.51	7,556	54,401	13.62	13.62	27.24
<b>TOTALS :</b>	<b>7,556</b>	<b>54,401</b>	<b>13.62</b>	<b>13.62</b>	<b>27.24</b>

\*\* FOR INFORMATION ONLY

0100 ROADWAY

SUMMARY OF SURFACING - DETOURS							
P&P NO.	STATION TO STATION	STABILIZED SUBGRADE	TBSC TYPE E	TACK COAT	PRIME COAT	SUPERPAVE, TYPE S3 (PG 64-22 OK)	SUPERPAVE, TYPE S4 (PG 64-22 OK)
		307(K)	402(E)	**	408	411(B)	411(C)
		SY	TON	GAL	GAL	TON	TON
<b>South Detour</b>							
5	2837+14.45 - 2845+00.00	3,063	0	262	1,072	732	293
6	2845+00.00 - 2852+57.74	2,951	0	252	1,033	706	283
<b>North Detour</b>							
7	4869+49.70 - 4878+00.00	3,313	23	283	1,160	793	317
8	4878+00.00 - 4884+91.21	2,693	0	230	943	644	258
<b>TOTALS</b>		<b>12,020</b>	<b>23</b>	<b>1,027</b>	<b>4,208</b>	<b>2,875</b>	<b>1,151</b>

\*\* FOR INFORMATION ONLY

0100 ROADWAY

SUMMARY OF FENCING				
LOCATION	STATION TO STATION	SIDE	FENCE - STYLE	
			WWF	624(A)
			LF	
US 169	837+13.03 - 852+51.28	RT	1,542	
ADDED 2% FOR GROUND MEASUREMENT			31	
<b>TOTAL</b>			<b>1,573</b>	

0100 ROADWAY

SUMMARY OF TEMPORARY SEDIMENT CONTROL				
STATION TO STATION	TEMPORARY SILT FENCE	TEMPORARY SILT DIKE	TEMPORARY ROCK FILTER DAM TYPE 4	
			221(C)	221(F)
			LF	LF
<b>US 169</b>				
838+99.66 TO 884+44.51	4,933	1,330		1
<b>DETOUR</b>				
2837+14.45 TO 2852+57.74	1,388	0		0
4869+49.70 TO 4884+91.21	604	0		0
<b>TOTALS</b>	<b>6,925</b>	<b>1,330</b>		<b>1</b>

0100 ROADWAYS

SUMMARY OF REMOVALS			
STATION TO STATION	ASPHALT PAVEMENT	GUARDRAIL	SAWING PAVEMENT
	619(B)	619(B)	619(C)
	SY	LF	LF
<b>US 169</b>			
836+99.66 - 884+44.51	21,567	1,235	130
<b>South Detour</b>			
2837+14.45 - 2852+57.74	5,134	0	198
<b>North Detour</b>			
4869+49.70 - 4884+91.21	5,129	0	195
<b>TOTALS</b>	<b>31,830</b>	<b>1,235</b>	<b>523</b>

0100 ROADWAY

REMOVAL OF STRUCTURES & OBSTRUCTIONS 619(A)				
STATION TO STATION	REMOVAL OF HEADWALL	REMOVAL OF EXISTING SIGN	REMOVAL OF DRAINAGE PIPE	REMOVAL OF FENCE
	EA	EA	LF	LF
838+99.66 - 884+44.51	1	12	57	1,541
<b>TOTALS</b>	<b>1</b>	<b>12</b>	<b>57</b>	<b>1,541</b>

THIS SUMMARY IS INTENDED TO PROVIDE FOR THE REMOVAL OF ALL OBSTRUCTIONS. HOWEVER, IF OBSTRUCTIONS ARE ENCOUNTERED THEY SHALL BE REMOVED. THE COST OF REMOVING THE ADDITIONAL OBSTRUCTIONS SHALL BE PAID FOR UNDER STRUCTURES AND OBSTRUCTIONS, ITEM 619(A)

SUMMARY OF SIGN REMOVAL (FOR INFORMATION ONLY)

ALIGNMENT	APPROX. STATION	SIDE	REMOVAL OF EXISTING SIGN EA.
US 169	859+43	RT	1
US 169	859+50	RT	1
US 169	859+50	LT	1
US 169	864+67	LT	1
US 169	864+67	RT	1
US 169	864+73	LT	1
US 169	870+75	RT	1
US 169	870+80	LT	1
US 169	876+12	LT	1
US 169	878+24	LT	1
US 169	878+59	LT	1
US 169	878+72	RT	1
<b>TOTAL</b>			<b>12</b>

0100 ROADWAY

SUMMARY OF GUARDRAIL								
LOCATION	STATION TO STATION	PRIME COAT	SUPERPAVE, TYPE S4 (PG 76-28 OK)	BEAM GUARDRAIL W-BEAM SINGLE	GUARDRAIL END TREATMENT (31")	GUARDRAIL BRIDGE CONN. - THRIE BEAM (31")	LENGTH INCLUDING ANCHOR UNITS	GUARDRAIL DELINEATORS (TYPE 2, CODE 1)
		408	411(B)	623(A)	623(G)	623(I)	**	853
		GAL	TON	LF	EA	EA	LF	EA
US 169	855+12.15 LT. TO 859+55.90 LT.	97	62	375.0	1	1	443.75	9
US 169	857+12.15 RT. TO 859+55.90 RT.	59	38	175.0	1	1	243.75	5
US 169	861+60.19 LT. TO 863+07.10 LT.	29	19	112.5		2	150.00	3
US 169	861+60.19 RT. TO 863+07.10 RT.	29	19	112.5		2	150.00	3
US 169	864+91.40 LT. TO 868+10.15 LT.	73	47	250.0	1	1	318.75	7
US 169	864+91.40 RT. TO 866+35.15 RT.	39	25	75.0	1	1	143.75	3
<b>TOTALS:</b>		<b>326</b>	<b>210</b>	<b>1100.0</b>	<b>4</b>	<b>8</b>		<b>30</b>

\*\* FOR INFORMATION ONLY

SUMMARY OF DITCH TREATMENT

ALIGN.	LOCATION		DESCRIPTION	RIP RAP		
	STATION	STA TO STA		TYPE I PLAIN RIPRAP	TYPE I-A FILTER BLANKET	FILTER FABRIC
				601(A)	601(C)	602(C)
US 169	839+75.00 - 840+37.00	RT	18" RIPRAP	146	39	145
<b>TOTALS</b>				<b>146</b>	<b>39</b>	<b>145</b>

Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>SUMMARIES (1)</b>	
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 11

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		12	143
DESCRIPTION		REVISIONS		DATE	

0100 ROADWAY

DRAINAGE STRUCTURE SUMMARY																				
STR. NO.	ALIGNMENT	STATION	DESCRIPTION	DESIGN	ELEV. TOP MANHOLE OR GRATE	FLOWLINE IN	FLOWLINE OUT	STRUCTURAL INSTALLATION				PIPES				STR. NO.				
								UNCLASSIFIED EXCAVATION*	STRUCTURAL EXCAVATION UNCLASSIFIED*	TRENCH EXCAVATION*	STD. BEDDING MATERIAL*	CLASS AA CONCRETE	REINFORCING STEEL	18" RCP CLASS III	18" CORR. GALV. STEEL PIPE		18" PREFAB. CULVERT END SECTION, ROUND	18" GALV. STEEL CULVERT END SECTION, ROUND		
								FT	FT	FT	CY	CY	CY	CY	509(A) CY		511(A) LB	613(A) LF	613(B) LF	613(L) EA
1	US 169	839+47.77	CONST 7' X 6' X 37.54' LG RCB XD 27.80' RT & 60.20' RT	SBI-4, RCB DETAILS (1, 2, 3, 4, 5, & 6)	--	705.00	704.64	E	337	28			85	12780						1
2	US 169	878+57.45	CONST 18' X 56' LG RCP SD 78.66' RT	PCES-4, SPI-4, SPB-1, FHTCP-3	--	705.46	704.67	S			42	22			56		2			2
T-1	NORTH DETOUR	4876+93.28	CONST TEMP 18' X 56' LG CGSP SD 37.75' RT	PCES-4, SPI-4, SPB-1, FHTMPP-1	--	706.39	705.15	S			43	22			56		2		2	T-1
<b>TOTALS</b>									337	28	42	22	85	12780	56	56	2	2		

\*FOR INFORMATION ONLY

0310 TRAFFIC SIGNING & STRIPING

SUMMARY OF STRIPING		
TYPE		LF
<b>TOTAL WHITE (MULTI-POLYMER)</b>		
4" SOLID		10,733
<b>TOTAL YELLOW (MULTI-POLYMER)</b>		
4" DASHED		1,369
856(A) TRAFFIC STRIPE (MULTI-POLYMER) (4" WIDE)	LF	12,102

0310 TRAFFIC SIGNING & STRIPING

SUMMARY OF SIGNING							
SIGN NO.	LOCATION		SIGN TYPE	SHEET ALUM. SIGNS		REMARKS	
				850(A)	851(C)		
				SF	LF		
<b>US 169</b>							
1	853+50	32' RT	W8-13	9.00	17.00		
2	859+51	36' RT	SP. SIGN NO. 1 (OPOSSUM CREEK)	16.50	16.00		
3	865+05	36' LT	SP. SIGN NO. 1 (OPOSSUM CREEK)	16.50	16.00		
4	871+00	32' LT	W8-13	9.00	17.00		
5	871+00	32' RT	W10-2L	9.00	17.00		
6	878+00	32' LT	RTE. ASS. NO. 1	7.00	17.00		
7	878+24	47' LT	R1-1	5.18	15.00		
8	878+57	64' LT	W10-1	7.07	15.00		
9	878+70	48' RT	R1-1	5.18	15.00		
10	885+60	32' LT	W10-2R	9.00	17.00		
11	878+27	49' RT	D-3	-	-	(HWY 169, EW04 - REMOVE AND RESET)	
12	878+60	49' LT	D-3	-	-	(HWY 169, EW04 - REMOVE AND RESET)	
<b>TOTALS</b>				<b>85.00</b>	<b>145</b>		

0100 ROADWAY

SUMMARY OF EARTHWORK				
BY CONSTRUCTION SEQUENCE				
	UNCL. EXCAVATION	Fill	UNCL. BORROW	Waste
	202(A) C.Y.	(+20%) CY	202(D) C.Y.	
Phase 1 (Detour)	3764	50678	46,914	0
Phase 2	19829	10441	0	9388
Phase 3	52816	509	0	52307
<b>TOTALS:</b>	<b>76409</b>	<b>61628</b>	<b>46914</b>	<b>61695</b>

Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>SUMMARIES (2)</b>	
Checked			
Approved			
Squad			
		Job Piece No. <b>27092(04)</b>	Sheet No. <b>12</b>



# STORM WATER MANAGEMENT PLAN

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		13	143
DESCRIPTION			REVISIONS	DATE	

## SITE DESCRIPTION

## EROSION AND SEDIMENT CONTROLS

**PROJECT LIMITS:** THE EXTENTS OF IMPROVEMENTS TO US 169 FROM 1428' WEST OF SECTION LINE NS 413 FROM THE INTERSECTION SECTION LINE EW005 WITH US 169 1439' TO THE NORTH TO SECTION LINE EW 004 INTERSECTION WITH US 169 493' NORTH.

**PROJECT DESCRIPTION:** GRADING, DRAINAGE, PAVING, STRIPING, CONSTRUCTION TRAFFIC CONTROL AND BRIDGE PLANS FOR THE CONSTRUCTION OF US 169 AND THE BRIDGES OVER OPOSSUM CREEK

- SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:**
- 1) PLACE TEMPORARY SEDIMENT CONTROL DEVICES AT ALL OFF SITE DRAINAGE LOCATIONS.
  - 2) PERFORM CLEARING & GRUBBING OPERATIONS, PRESERVING ANY EXISTING VEGETATION NOT IMPEDING CONSTRUCTION.
  - 3) SALVAGE ALL AVAILABLE TOPSOIL IN THE AREA OF OPERATION AND STABILIZE THE STOCKPILED AREA.
  - 4) AS GRADING OPERATIONS PROCEED, INSTALL TEMPORARY SEDIMENT CONTROL DEVICES AS SHOWN ON THE PLANS, AND AS DIRECTED BY THE ENGINEER. THESE DEVICES SHALL BE MAINTAINED AS REQUIRED BY THE O.D.O.T. STANDARD SPECIFICATIONS AND THE WEEKLY INSPECTION REPORTS.
  - 5) PLACE TEMPORARY SEEDING AND/OR MULCHING OR PERMANENT GRASSING DEPENDING ON ULTIMATE SLOPES.
  - 6) THE PERMANENT SEDIMENT CONTROL DEVICES SHALL BE MAINTAINED AS DESCRIBED IN SECTIONS 230, 232, 233, & 234 OF THE O.D.O.T. STANDARD SPECIFICATIONS OR AS DIRECTED BY THE ENGINEER.
  - 7) IN AREAS WHERE PERMANENT SEDIMENT CONTROL DEVICES HAVE BEEN INSTALLED, THE TEMPORARY SEDIMENT CONTROL DEVICES SHALL BE REMOVED AS DIRECTED BY THE ENGINEER.

**SOIL TYPE:** BROWN SANDY LEAN CLAY

**AREA TO BE DISTURBED:** 13.62 AC

**OFFSITE AREA TO BE DISTURBED: (FOR CONTRACTOR USE)**

**MAXIMUM ACRES TO BE DISTURBED AT ANY ONE TIME: (FOR CONTRACTOR USE)**

**LATITUDE & LONGITUDE OF CENTER OF PROJECT:** 36°57'08" N ; 95°37'44" W

**NAME OF RECEIVING WATERS:** OPOSSUM CREEK

SENSITIVE WATERS OR WATERSHEDS: YES  NO

303(d) IMPAIRED WATERS: YES  NO

**NOTE:** THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT ILLUSTRATES THE DRAINAGE PATTERNS / PATHWAYS AND RECEIVING WATERS FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS AND NOTES.

**SOIL STABILIZATION PRACTICES:**

- TEMPORARY SEEDING
- PERMANENT SODDING, SPRIGGING OR SEEDING
- VEGETATIVE MULCHING
- SOIL RETENTION BLANKET
- PRESERVATION OF EXISTING VEGETATION

**NOTE:** TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

**STRUCTURAL PRACTICES:**

- STABILIZED CONSTRUCTION EXIT
- TEMPORARY SILT FENCE
- TEMPORARY SILT DIKES
- TEMPORARY FIBER LOG
- DIVERSION, INTERCEPTOR OR PERIMETER DIKES
- DIVERSION, INTERCEPTOR OR PERIMETER SWALES
- ROCK FILTER DAMS
- TEMPORARY SLOPE DRAIN
- PAVED DITCH W/ DITCH LINER PROTECTION
- TEMPORARY DIVERSION CHANNELS
- TEMPORARY SEDIMENT BASINS
- TEMPORARY SEDIMENT TRAPS
- TEMPORARY SEDIMENT FILTERS
- TEMPORARY SEDIMENT REMOVAL
- RIP RAP
- INLET SEDIMENT FILTER
- TEMPORARY BRUSH SEDIMENT BARRIERS
- SANDBAG BERMS
- TEMPORARY STREAM CROSSINGS

**OFFSITE VEHICLE TRACKING:**

- HAUL ROADS DAMPENED FOR DUST CONTROL
- LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
- EXCESS DIRT ON ROAD REMOVED DAILY

**NOTES:**

NO DISTURBED AREA TO ONE PROJECT OUTFALL EXCEEDS 5 ACRES.

**THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:**

**MAINTENANCE AND INSPECTION:** ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ESTABLISHED. INSPECTION BY THE CONTRACTOR AND ANY NECESSARY REPAIRS SHALL BE PERFORMED ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH AS RECORDED BY A NON-FREEZING RAIN GAUGE TO BE LOCATED ON SITE. POTENTIALLY ERODIBLE AREAS, DRAINAGEWAYS, MATERIAL STORAGE, STRUCTURAL DEVICES, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

**WASTE MATERIALS:** PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILES, SURPLUS, DEBRIS AND ALL OTHER BY-PRODUCTS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIALS HANDLING, SPILL PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

**HAZARDOUS MATERIALS:** PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURER'S RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXAMPLES INCLUDE BUT ARE NOT LIMITED TO: PAINTS, ACIDS, CLEANING SOLVENTS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOILS.

**GENERAL NOTES:** A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED TO COMPLY WITH THE OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. THIS PLAN IS INITIATED DURING THE DESIGN PHASE, CONFIRMED IN THE PRE-WORK MEETINGS AND AVAILABLE ON THE JOB SITE ALONG WITH COPIES OF THE NOTICE OF INTENT (NOI) FORM AND PERMIT CERTIFICATE THAT HAVE BEEN FILED WITH THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ). THE PLAN MUST BE KEPT CURRENT WITH UP-TO-DATE AMENDMENTS DURING THE PROGRESSION OF THE PROJECT. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP, I.E., BORROW PITS, WORK ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER MANAGEMENT IS TO IMPROVE WATER QUALITY BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES. RUNOFF FROM CONSTRUCTION SITES HAS A POTENTIAL FOR POLLUTION DUE TO EXPOSED SOILS AND THE PRESENCE OF HAZARDOUS MATERIALS USED IN THE CONSTRUCTION PROCESS. THE PREVENTION OF SOIL EROSION, CONTAINMENT OF HAZARDOUS MATERIALS AND/OR THE INTERCEPTION OF THESE POLLUTANTS BEFORE LEAVING THE CONSTRUCTION SITE ARE THE BEST PRACTICES FOR CONTROLLING STORM WATER POLLUTION.

**THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:**

- 103.05 BONDING REQUIREMENTS
- 104.10 FINAL CLEANING UP
- 104.12 CONTRACTOR'S RESPONSIBILITY FOR WORK
- 104.13 ENVIRONMENTAL PROTECTION
- 106.08 STORAGE AND HANDLING MATERIALS
- 107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
- 107.20 STORM WATER MANAGEMENT
  - 220 MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION PREVENTION AND CONTROL
  - 221 TEMPORARY SEDIMENT CONTROL

**IN ADDITION:**

"ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA." ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2012.

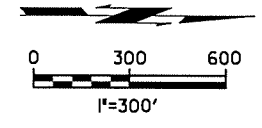
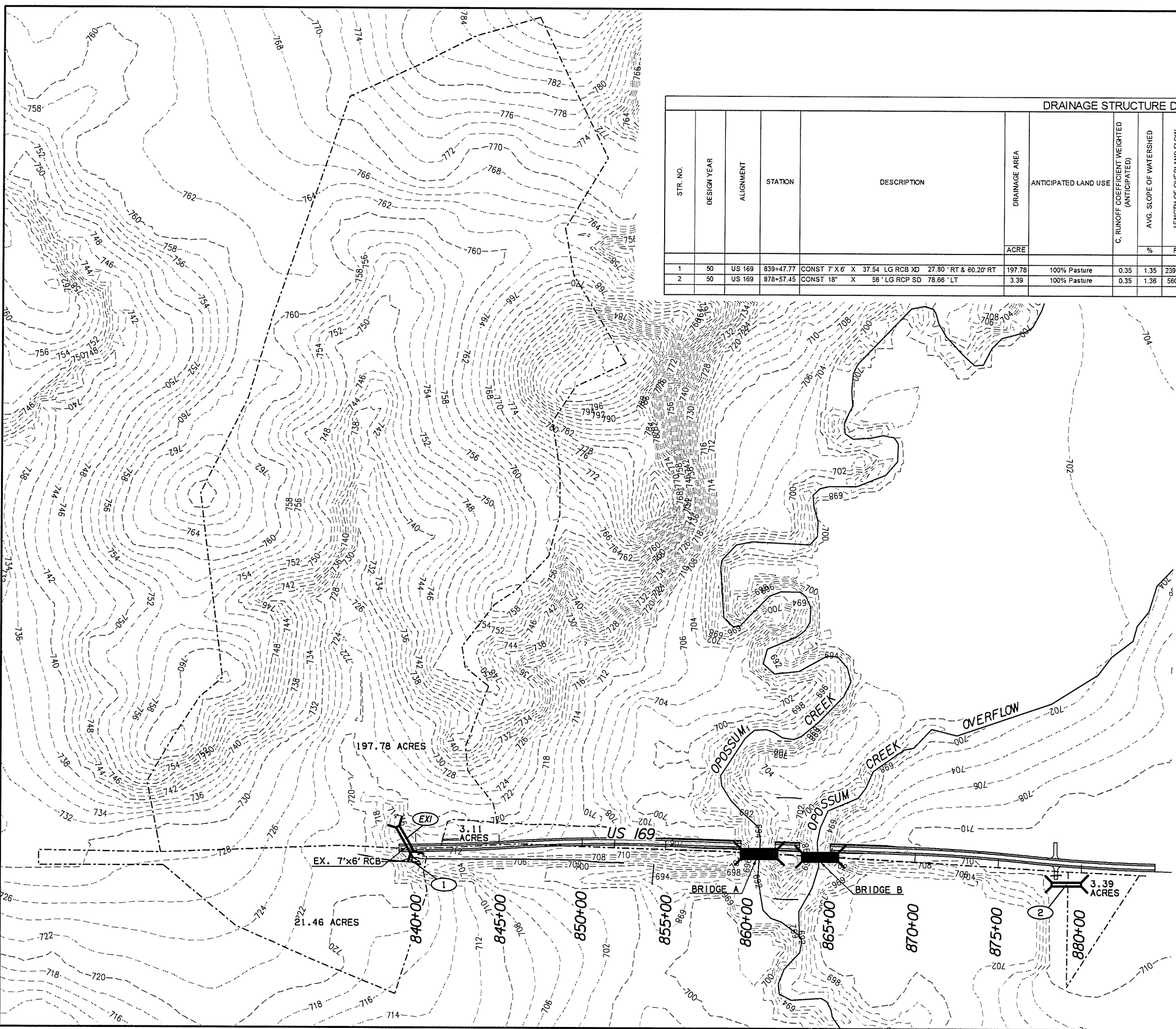
Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>STORM WATER MANAGEMENT PLAN</b>	
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 13

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OKLAHOMA DEPARTMENT OF TRANSPORTATION					
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		14	143
DESCRIPTION		REVISIONS		DATE	

STR. NO.	DESIGN YEAR	ALIGNMENT	STATION	DESCRIPTION	DRAINAGE AREA ACRE	ANTICIPATED LAND USE	C. RUNOFF COEFFICIENT WEIGHTED (ANTICIPATED)		AVG. SLOPE OF WATERSHED		LENGTH OF OVERLAND FLOW		SLOPE OF OVERLAND FLOW		LENGTH OF CHANNEL FLOW		SLOPE OF CHANNEL		Tc, TIME OF CONCENTRATION		INTENSITY OF DESIGN YEAR RAINFALL		DESIGN YEAR DISCHARGE		T <sub>w</sub> , DESIGN TAILWATER		TOP OF GRATE/JUNCTION BOX		FL INLET		FL OUTLET		STRUCTURE SLOPE		MAX ALLOWABLE HEADWATER		FLOW VELOCITY	
							%	%	FT	FT	%	FT	%	FT	MN	IN/HR	10	50	10	50	FT	ELEV	ELEV	ELEV	ELEV	FT/FT	ELEV	10	50	10	50	10	50	10	50			
1	50	US 169	839+47.77	CONST 7' X 6' X 37.54 LG RCB XD 27.80' RT & 80.20' RT	197.78	100% Pasture	0.35	1.35	2398.18	1.67	3573.77	1.13	67.50	2.40	3.16	166.25	218.97	2.34	-	705.00	704.64	0.0104	714.15	12.44	13.37													
2	50	US 169	878+57.45	CONST 18" X 56" LG RCP SD 78.66' LT	3.39	100% Pasture	0.35	1.36	560.55	1.36	-	-	25.50	4.24	5.59	5.03	6.63	0.78	-	705.46	704.67	0.0141	709.79	6.65	7.10													



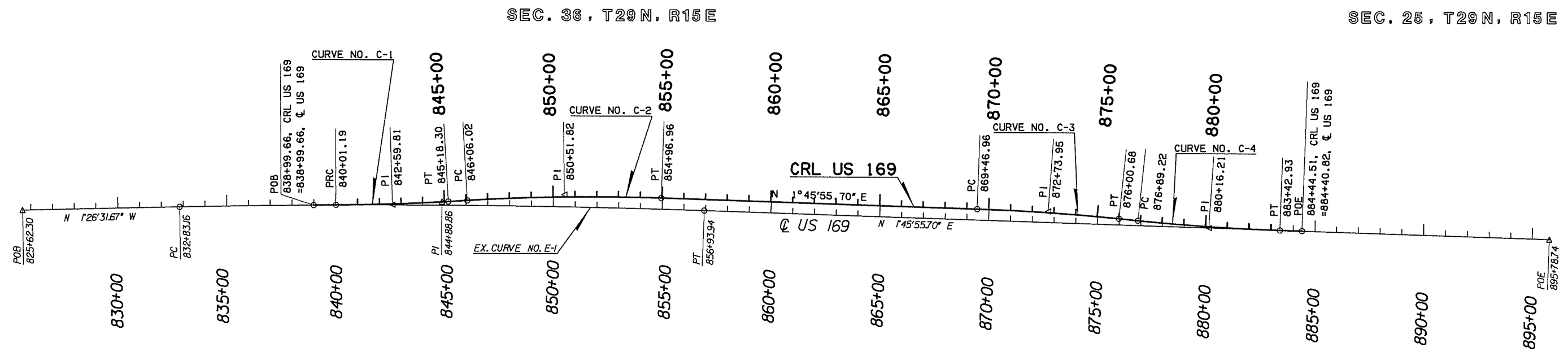
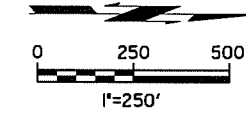
- LEGEND**
- DRAINAGE AREA BOUNDARY
  - XX.XX ACRES DRAINAGE AREA
  - (XXX) DRAINAGE STRUCTURE NUMBER

Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn			
Checked			
Approved			
Squad			

**DRAINAGE MAP**

Job Piece No. 27092(04) Sheet No. 14

OKLAHOMA DEPARTMENT OF TRANSPORTATION				
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	TOTAL SHEETS
8	OKLA	27092(04)	15	143
DESCRIPTION		REVISIONS	DATE	



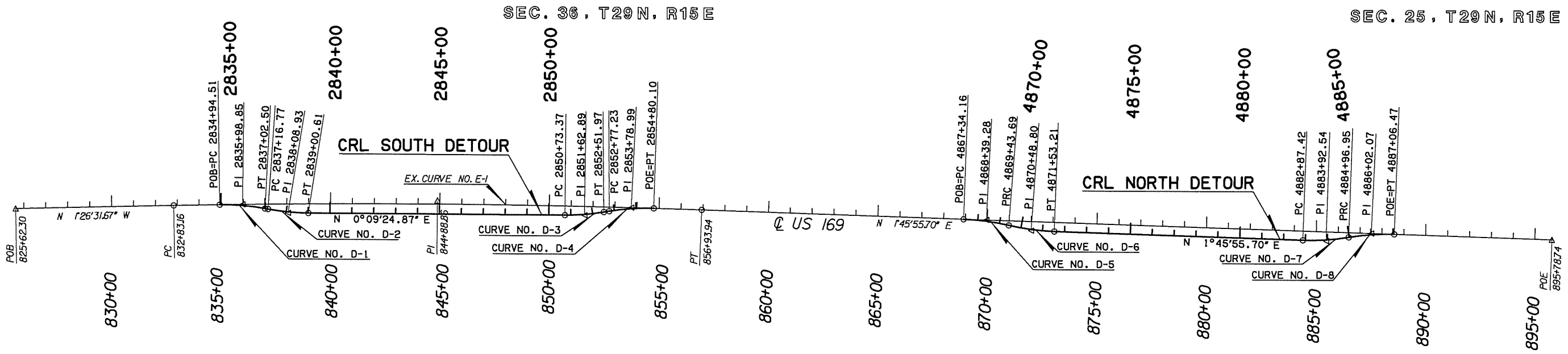
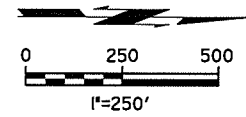
CRL US 169												
CURVE NO.	STATION	CARDINAL POINTS		DELTA	DEGREE	CURVE DATA				SUPER ELEVATION		
		NORTHING (FEET)	EASTING (FEET)			RADIUS (FEET)	TANGENT (FEET)	ARC LENGTH (FEET)	EXTERNAL (FEET)	(MPH)	(FT/FT)	(FT/FT)
C-1	POB 838+99.66	716853.2404	2661255.2629									
	PRC 840+01.19	716954.8164	2661254.2801									
	PI 842+59.81	717213.4272	2661252.0829	3°06'55.79" LT	0°36'08.93"	9510.000	258.620	517.113	3.516	65	8%	-2.00%
	PT 845+18.30	717471.5364	2661235.8338									
C-2	PC 846+06.02	717559.0798	2661230.3226									
	PI 850+51.82	718003.9960	2661202.3131	5°22'03.86" RT	0°36'08.93"	9510.000	445.797	890.942	10.443	65	8%	2.00%
	PT 854+96.96	718449.5814	2661216.0474									
	PC 869+46.96	719898.8946	2661260.7197									
C-3	PI 872+73.95	720225.7253	2661270.7936	3°56'18.58" RT	0°36'08.93"	9510.000	326.986	653.714	5.620	65	8%	2.00%
	PT 876+00.68	720551.0923	2661303.2923									
	PC 876+89.22	720639.1960	2661312.0924									
	PI 880+16.21	720964.5630	2661344.5911	3°56'18.58" LT	0°36'08.93"	9510.000	326.986	653.714	5.620	65	8%	-2.00%
C-4	PT 883+42.93	721291.3938	2661354.6650									
	POE 884+44.51	721392.9224	2661357.7944									

Q US 169												
CURVE NO.	STATION	CARDINAL POINTS		DELTA	DEGREE	CURVE DATA				SUPER ELEVATION		
		NORTHING (FEET)	EASTING (FEET)			RADIUS (FEET)	TANGENT (FEET)	ARC LENGTH (FEET)	EXTERNAL (FEET)	(MPH)	(FT/FT)	(FT/FT)
E-1	POB 825+62.30	715516.2640	2661284.5079									
	PC 832+83.16	716236.8947	2661266.3659	3°12'27.37" LT	0°07'58.99"	43062.520	1205.704	2410.778	16.876	NA	NA	NA
E-1	PI 844+88.86	717442.2169	2661236.0216									
	PT 856+93.94	718647.3486	2661273.1675									
E-1	POE 895+78.74	722530.3045	2661392.8520									

Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn			
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 15

**GEOMETRIC DATA (1)**

OKLAHOMA DEPARTMENT OF TRANSPORTATION				
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	TOTAL SHEETS
8	OKLA	27092(04)	16	143
DESCRIPTION		REVISIONS	DATE	



CRL SOUTH DETOUR												
CURVE NO.	STATION	CARDINAL POINTS		DELTA	DEGREE	CURVE DATA				SUPER ELEVATION		
		NORTHING (FEET)	EASTING (FEET)			RADIUS (FEET)	TANGENT (FEET)	ARC LENGTH (FEET)	EXTERNAL (FEET)	V (MPH)	E (FT/FT)	S (FT/FT)
D-1	PC 2834+94.51	716448.1930	2661261.5645	11°26'22.68" RT	5°30'00.00"	1041.741	104.344	207.993	5.213	45	NA	NA
	PI 2835+98.85	716552.5147	2661259.4318									
	PT 2837+02.50	716655.1870	2661278.0322									
D-2	PC 2837+16.77	716669.2207	2661280.5745	10°06'41.62" LT	5°30'00.00"	1041.741	92.163	183.847	4.069	45	NA	NA
	PI 2838+08.93	716759.9072	2661297.0035									
	PT 2839+00.61	716852.0694	2661297.2559									
D-3	PC 2850+73.37	718024.8264	2661300.4676	9°49'22.39" LT	5°30'00.00"	1041.741	89.518	178.598	3.839	45	NA	NA
	PI 2851+62.89	718114.3444	2661300.7127									
	PT 2852+51.97	718202.5919	2661285.6822									
D-4	PC 2852+77.23	718227.4919	2661281.4412	11°09'29.18" RT	5°30'00.00"	1041.741	101.759	202.875	4.958	45	NA	NA
	PI 2853+78.99	718327.8063	2661264.3555									
	PT 2854+80.10	718429.5310	2661267.0052									

CRL NORTH DETOUR												
CURVE NO.	STATION	CARDINAL POINTS		DELTA	DEGREE	CURVE DATA				SUPER ELEVATION		
		NORTHING (FEET)	EASTING (FEET)			RADIUS (FEET)	TANGENT (FEET)	ARC LENGTH (FEET)	EXTERNAL (FEET)	V (MPH)	E (FT/FT)	S (FT/FT)
D-5	PC 4867+34.16	719843.2151	2661313.0277	11°31'26.05" RT	5°30'00.00"	1041.741	105.117	209.526	5.290	45	NA	NA
	PI 4868+39.28	719948.2826	2661313.2662									
	PT 4869+43.69	720050.5850	2661337.4295									
D-6	PC 4869+43.69	720050.5850	2661337.4295	11°31'26.05" LT	5°30'00.00"	1041.741	105.117	209.526	5.290	45	NA	NA
	PI 4870+48.80	720152.8875	2661361.5927									
	PT 4871+53.21	720257.9550	2661364.8312									
D-7	PC 4882+87.42	721391.6284	2661399.7745	11°31'26.05" LT	5°30'00.00"	1041.741	105.117	209.526	5.290	45	NA	NA
	PI 4883+92.54	721496.6959	2661403.0130									
	PT 4884+96.95	721600.2923	2661385.1962									
D-8	PC 4884+96.95	721600.2923	2661385.1962	11°31'26.05" RT	5°30'00.00"	1041.741	105.117	209.526	5.290	45	NA	NA
	PI 4886+02.07	721703.8887	2661367.3794									
	PT 4887+06.47	721808.9562	2661370.6179									

Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>GEOMETRIC DATA (2)</b>	
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 16

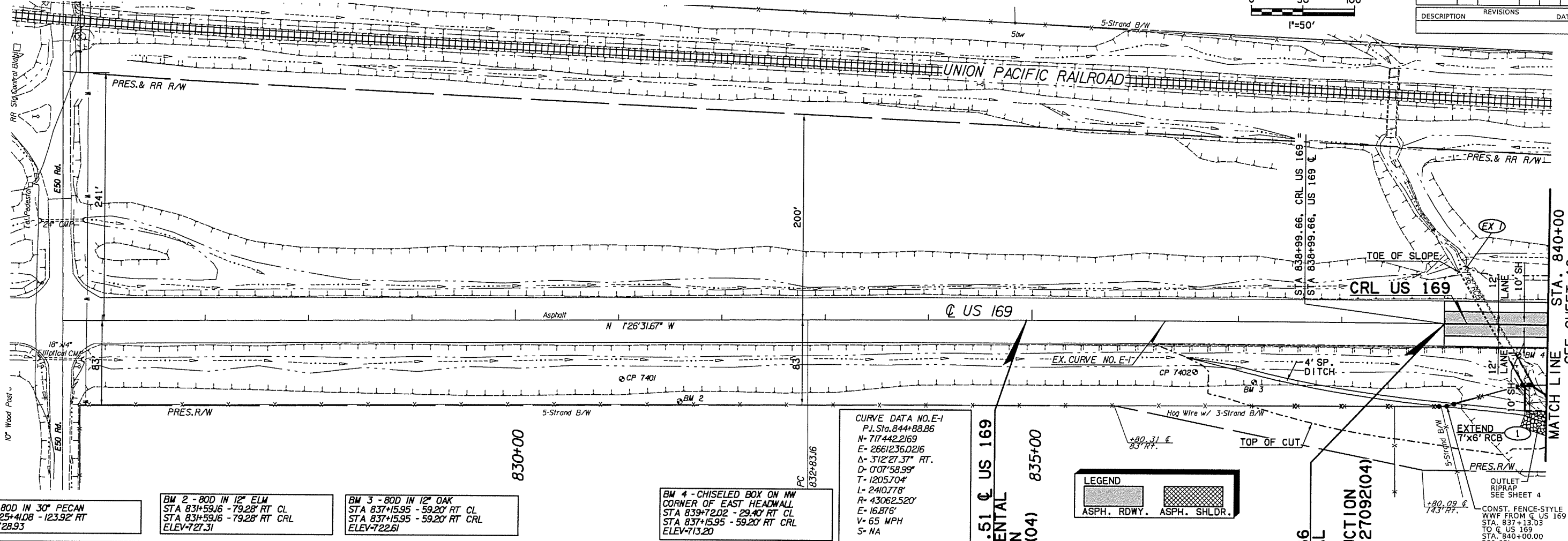
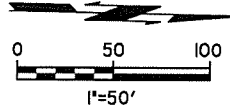
7/12/2016

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SEC. 36, T29N, R15E

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		17	143
DESCRIPTION		REVISIONS		DATE	



BM 1 - 80D IN 30" PECAN  
STA 825+41.08 - 123.92' RT  
ELEV=728.93

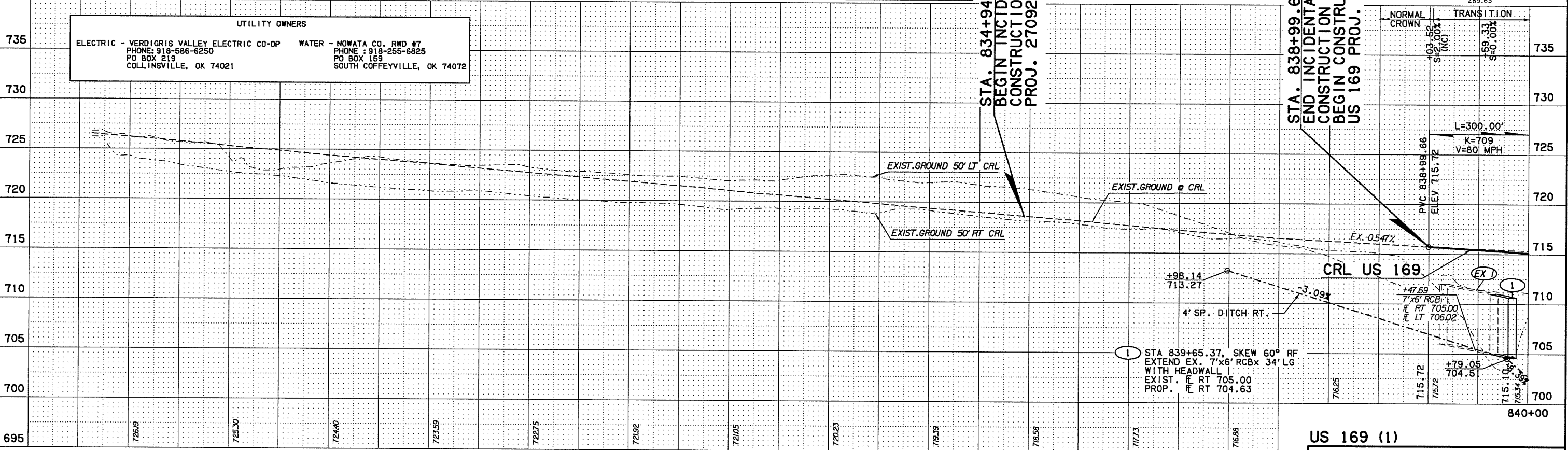
BM 2 - 80D IN 12" ELM  
STA 831+59.16 - 79.28' RT CL  
STA 831+59.16 - 79.28' RT CRL  
ELEV=721.31

BM 3 - 80D IN 12" OAK  
STA 837+15.95 - 59.20' RT CL  
STA 837+15.95 - 59.20' RT CRL  
ELEV=722.61

BM 4 - CHISELED BOX ON NW  
CORNER OF EAST HEADWALL  
STA 839+12.02 - 29.40' RT CL  
STA 837+15.95 - 59.20' RT CRL  
ELEV=713.20

LEGEND	
[Pattern]	ASPH. ROWY.
[Pattern]	ASPH. SHLDR.

UTILITY OWNERS	
735	ELECTRIC - VERDIGRIS VALLEY ELECTRIC CO-OP PHONE: 918-586-6250 PO BOX 219 COLLINSVILLE, OK 74021
735	WATER - NOWATA CO. RWD #7 PHONE: 918-255-6825 PO BOX 159 SOUTH COFFEYVILLE, OK 74072



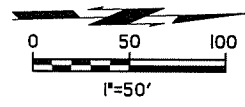


7/12/2016

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SEC. 36, T29N, R15E



OKLAHOMA DEPARTMENT OF TRANSPORTATION				
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL SHEET YEAR No.	TOTAL SHEETS
8	OKLA	27092(04)	18	143
DESCRIPTION		REVISIONS	DATE	

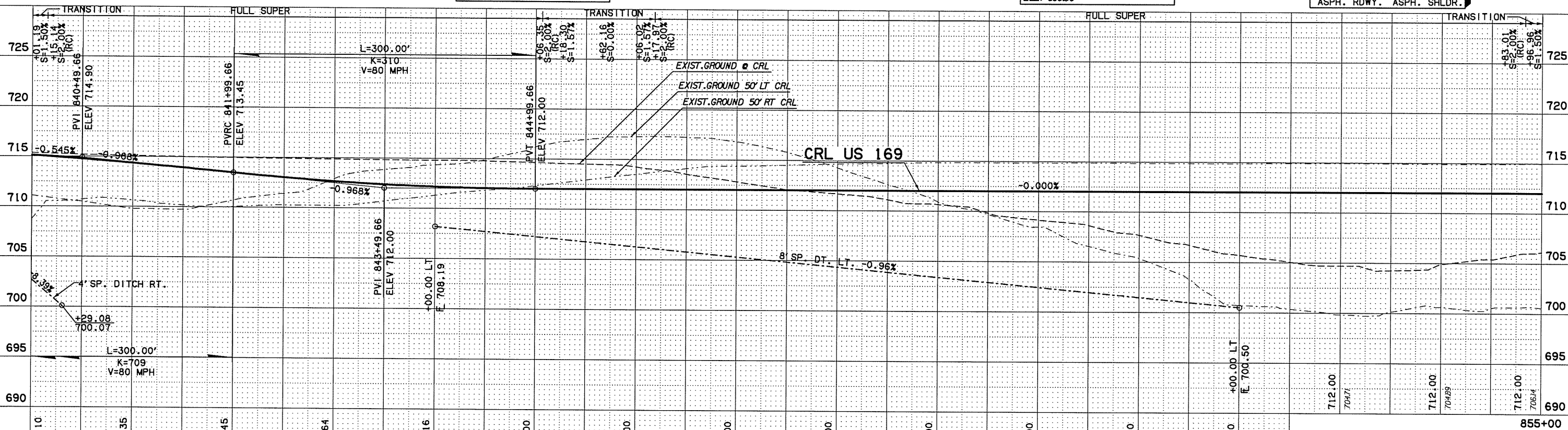
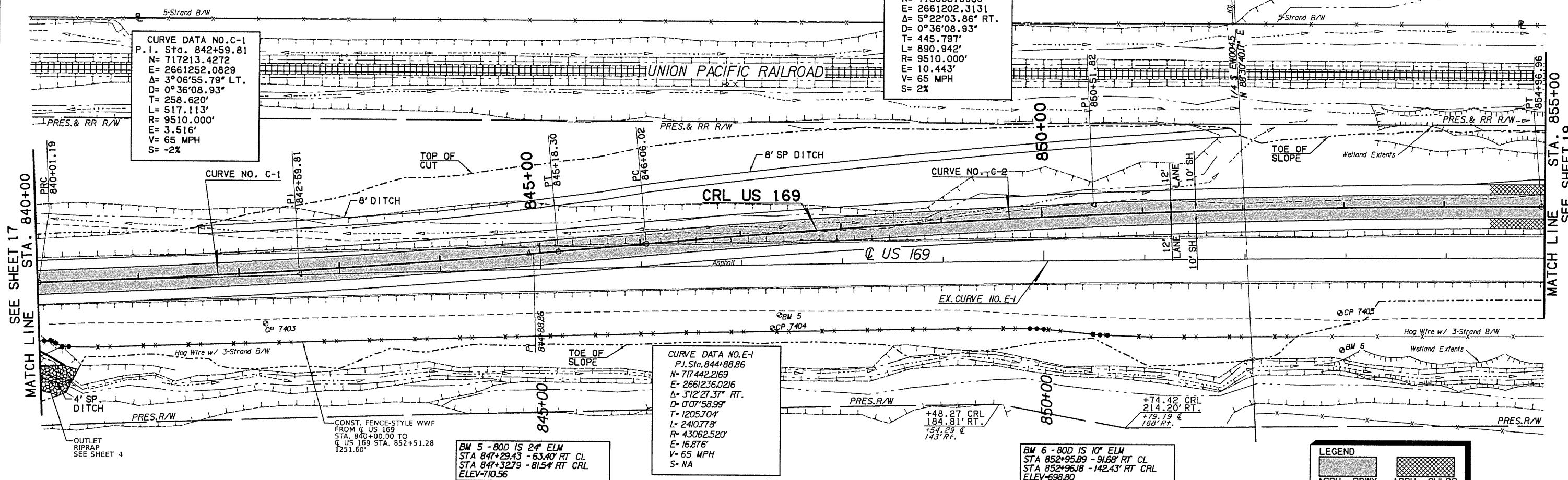
**CURVE DATA NO. C-1**  
 P.I. Sta. 842+59.81  
 N= 717213.4272  
 E= 2661252.0829  
 Δ= 3°06'55.79" LT.  
 D= 0°36'08.93"  
 T= 258.620'  
 L= 517.113'  
 R= 9510.000'  
 E= 3.516'  
 V= 65 MPH  
 S= -2%

**CURVE DATA NO. C-2**  
 P.I. Sta. 850+51.82  
 N= 718003.9960  
 E= 2661202.3131  
 Δ= 5°22'03.86" RT.  
 D= 0°36'08.93"  
 T= 445.797'  
 L= 890.942'  
 R= 9510.000'  
 E= 10.443'  
 V= 65 MPH  
 S= 2%

**CURVE DATA NO. E-1**  
 P.I. Sta. 844+88.86  
 N= 717442.2169  
 E= 2661236.0216  
 Δ= 3°12'27.37" RT.  
 D= 0°07'58.99"  
 T= 1205.704'  
 L= 2410.778'  
 R= 43062.520'  
 E= 16.876'  
 V= 65 MPH  
 S= NA

**BM 5 - 800 IS 2" ELM**  
 STA 847+29.43 - 63.40' RT CL  
 STA 847+32.79 - 81.54' RT CRL  
 ELEV=710.56

**BM 6 - 800 IS 10" ELM**  
 STA 852+95.89 - 91.68' RT CL  
 STA 852+96.18 - 142.43' RT CRL  
 ELEV=698.80



**LEGEND**

ASPH. RDWY.

ASPH. SHLDR.

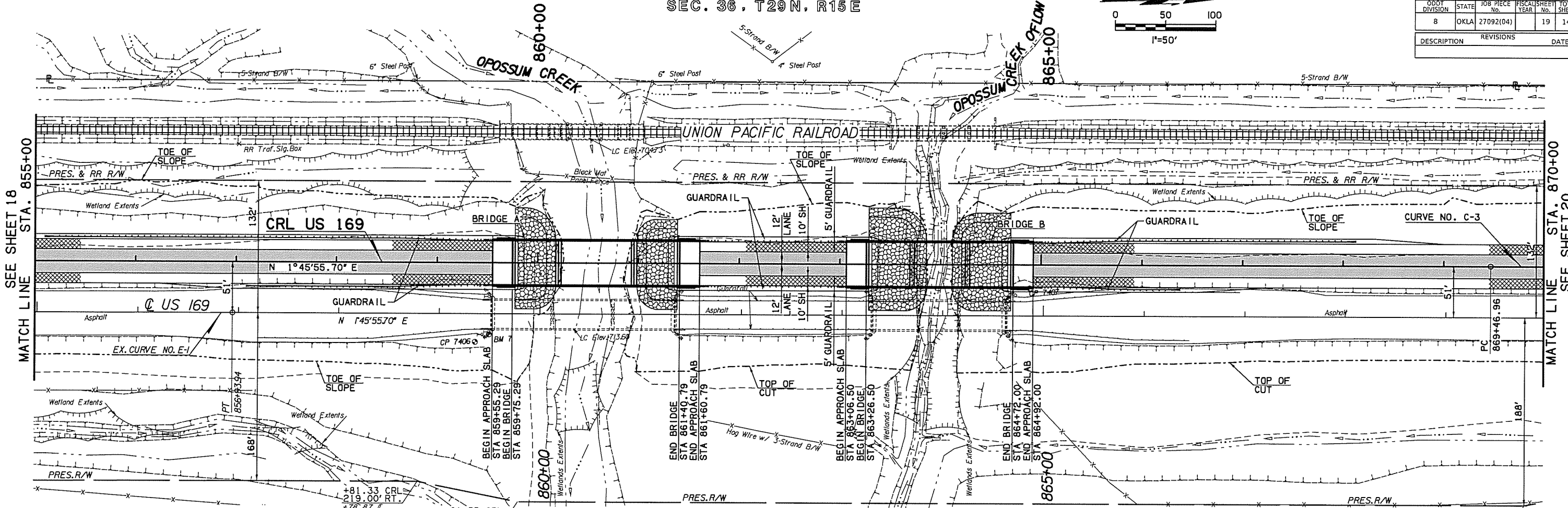
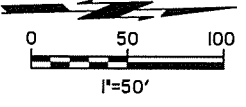
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SEC. 36, T29N, R15E

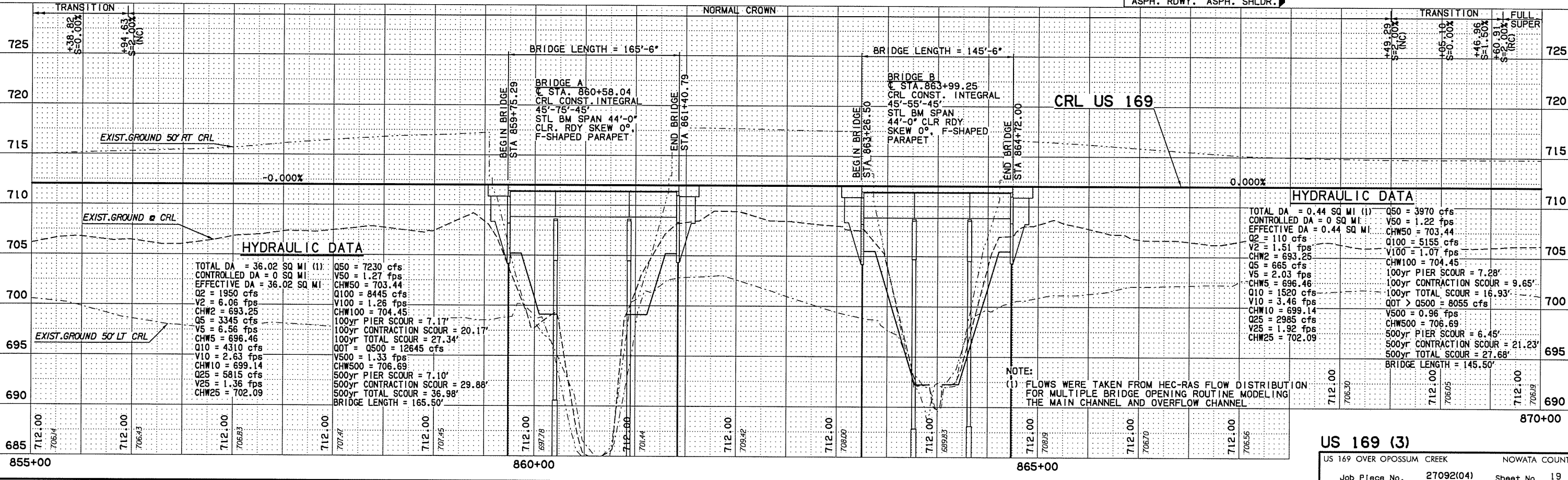
OKLAHOMA DEPARTMENT OF TRANSPORTATION						
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS	
8	OKLA	27092(04)		19	143	
DESCRIPTION		REVISIONS		DATE		



BM 7 - CHISELED \*X\* ON SE WINGWALL  
 STA 859+49.26 - 20.77' RT CL  
 STA 859+51.72 - 71.77' RT CRL  
 ELEV=717.95

**LEGEND**

ASPH. RDWY.    ASPH. SHLDR.



7/12/2016

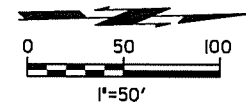
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SEC. 36, T29N, R15E

SEC. 25, T29N, R15E

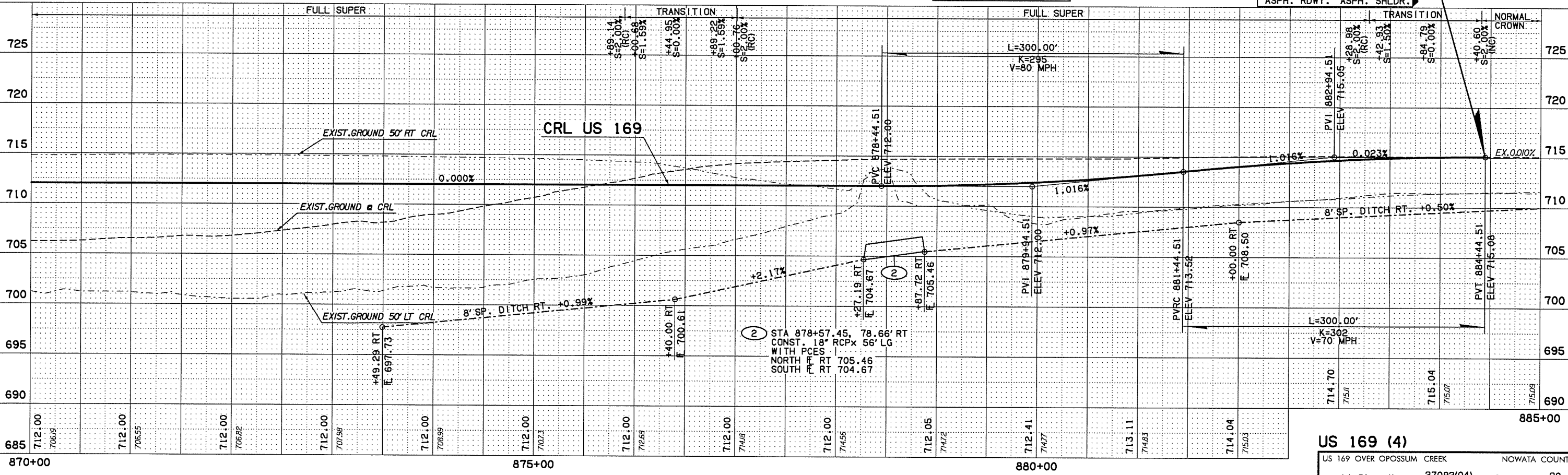
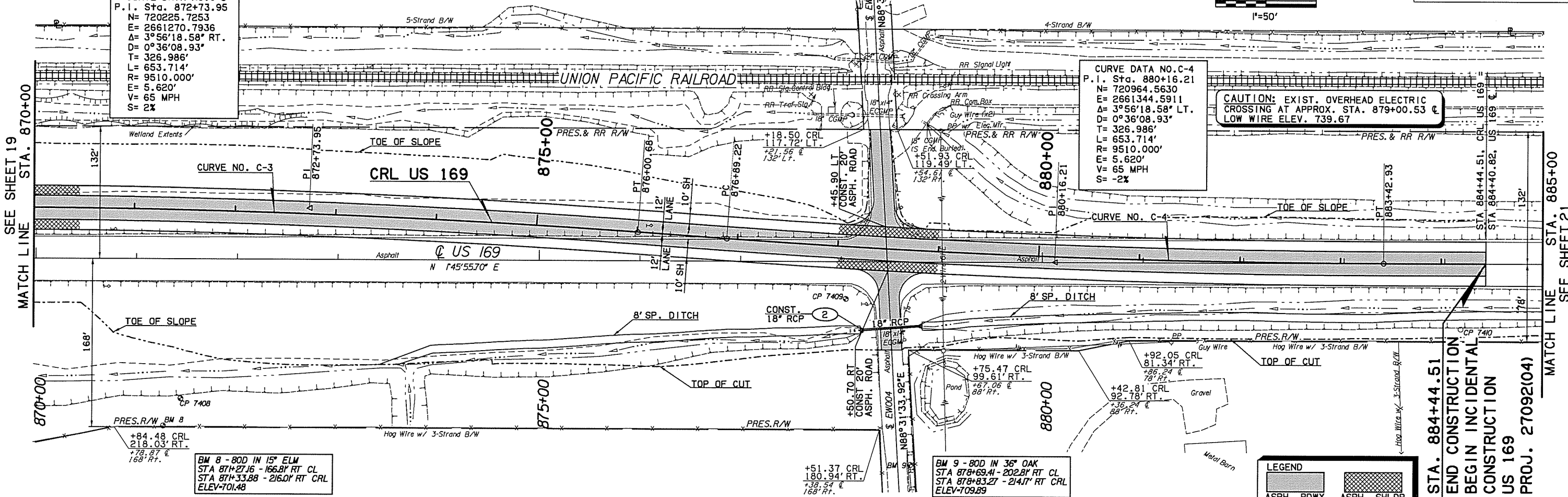
OKLAHOMA DEPARTMENT OF TRANSPORTATION					
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		20	143
DESCRIPTION			REVISIONS		DATE



**CURVE DATA NO. C-3**  
 P.I. Sta. 872+73.95  
 N= 720225.7253  
 E= 2661270.7936  
 Δ= 3°56'18.58" RT.  
 D= 0°36'08.93"  
 T= 326.986'  
 L= 653.714'  
 R= 9510.000'  
 E= 5.620'  
 V= 65 MPH  
 S= -2%

**CURVE DATA NO. C-4**  
 P.I. Sta. 880+16.21  
 N= 720964.5630  
 E= 2661344.5911  
 Δ= 3°56'18.58" LT.  
 D= 0°36'08.93"  
 T= 326.986'  
 L= 653.714'  
 R= 9510.000'  
 E= 5.620'  
 V= 65 MPH  
 S= -2%

**CAUTION: EXIST. OVERHEAD ELECTRIC CROSSING AT APPROX. STA. 879+00.53 @ LOW WIRE ELEV. 739.67**



**STA. 884+44.51  
 END CONSTRUCTION  
 BEGIN INCIDENTAL  
 CONSTRUCTION  
 US 169  
 PROJ. 27092(04)**

**LEGEND**

[Hatched Box]	ASPH. RDWY.
[Dotted Box]	ASPH. SHLDR.

**US 169 (4)**  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. 20



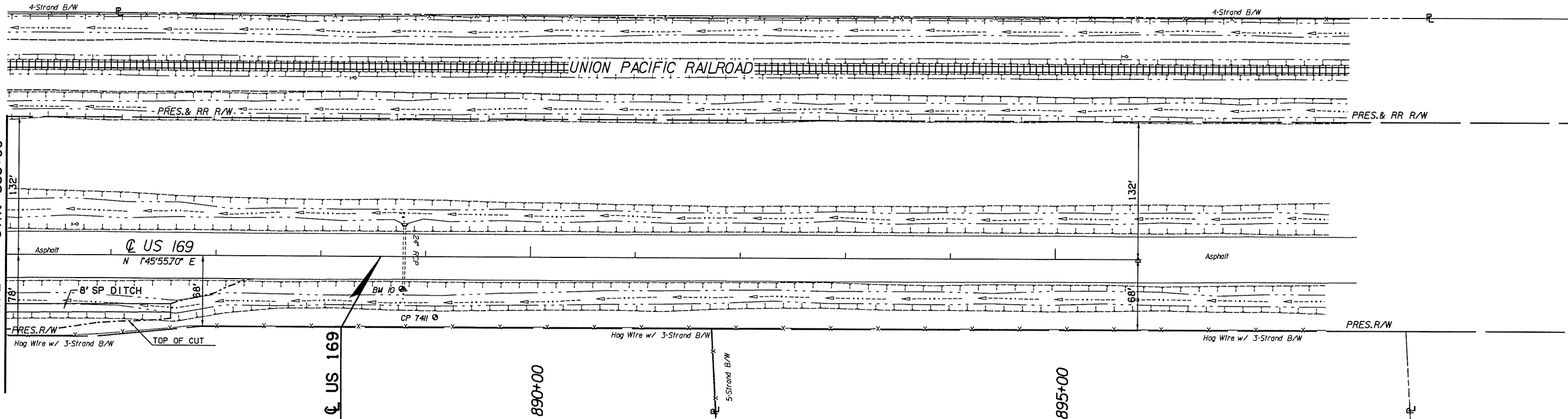
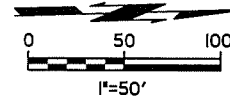
7/12/2016

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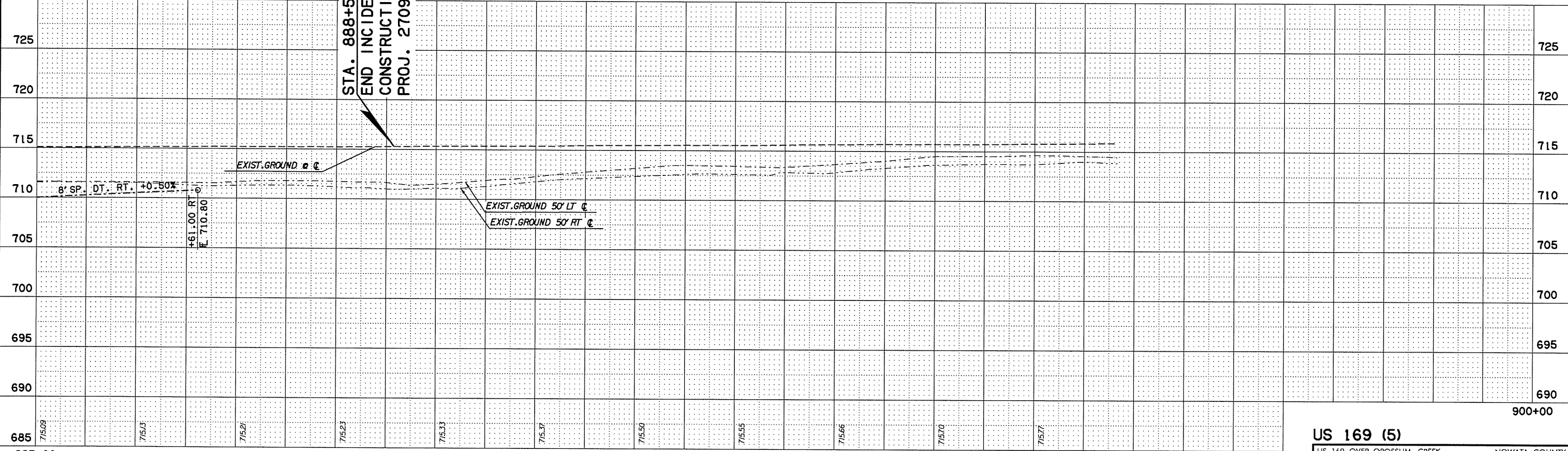
SEC. 23, T29N, R15E

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		21	143



BM 10 - CHISELED BOX ON SE CORNER OF EAST HEADWALL  
 STA. 888+77.26, 31.07' RT.  
 ELEV. 713.24

STA. 888+57.05  $\phi$  US 169  
 END INCIDENTAL  
 CONSTRUCTION  
 PROJ. 27092(04)



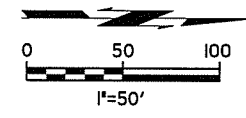
**US 169 (5)**  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. 21

7/12/2016

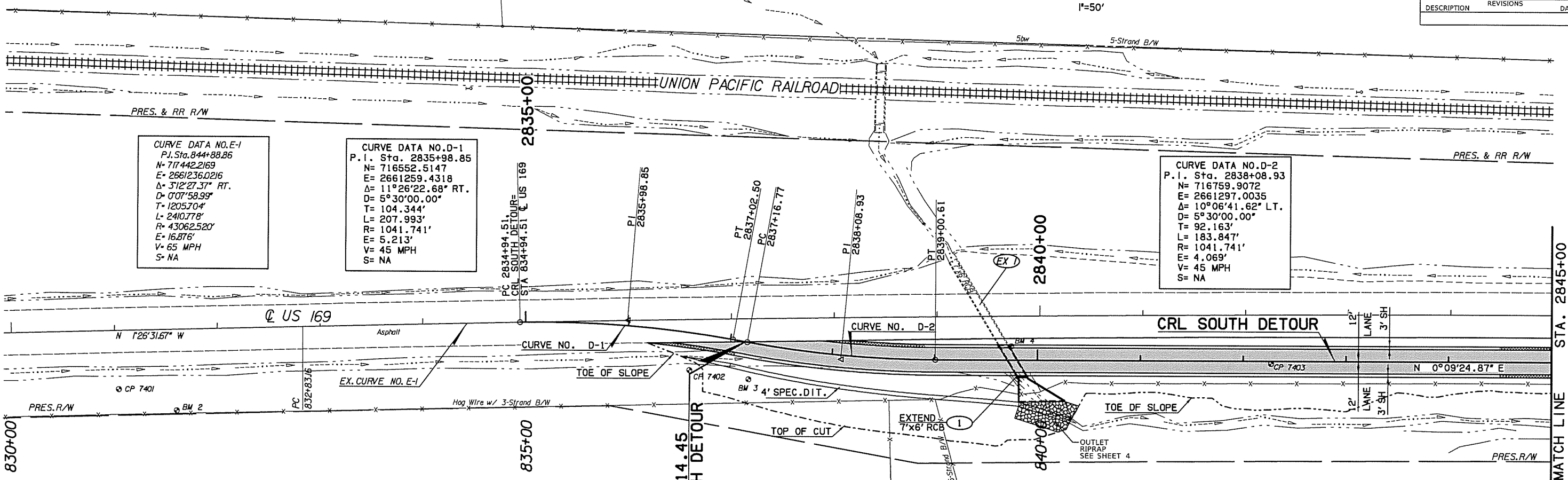
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SEC. 36, T29N, R15E



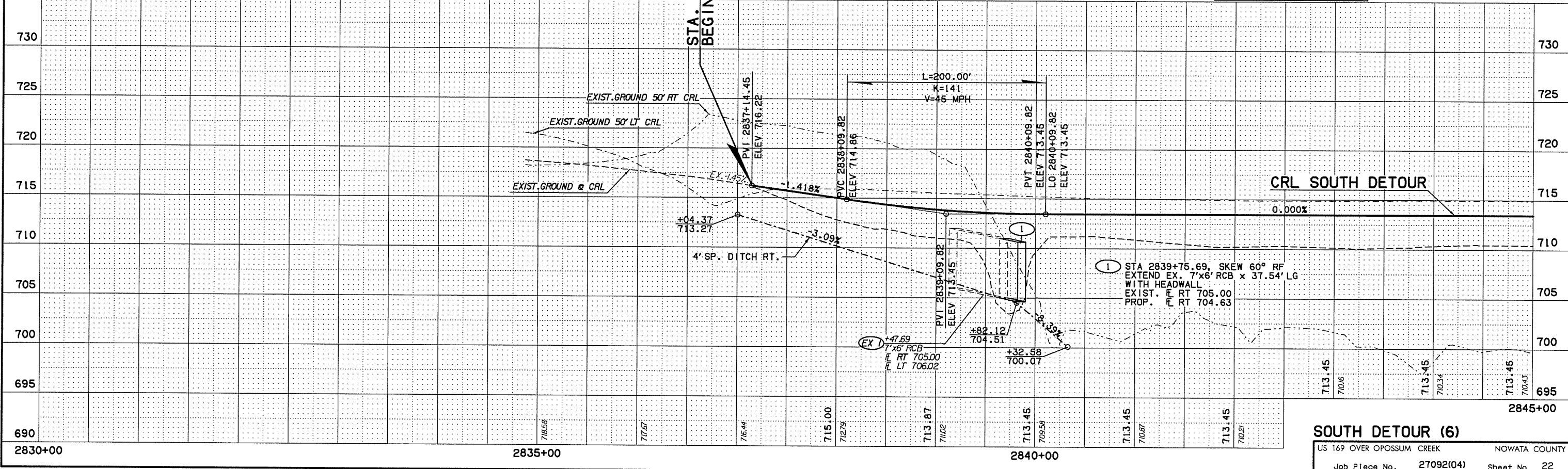
OKLAHOMA DEPARTMENT OF TRANSPORTATION					
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		22	143
DESCRIPTION		REVISIONS		DATE	



**NOTE :**  
FOR R/W LINE STATION OFFSETS AND DIMENSIONS REFER TO THE US 169 PLAN AND PROFILE SHEETS

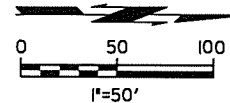
**LEGEND**

ASPH. ROWY.    ASPH. SHLDR.

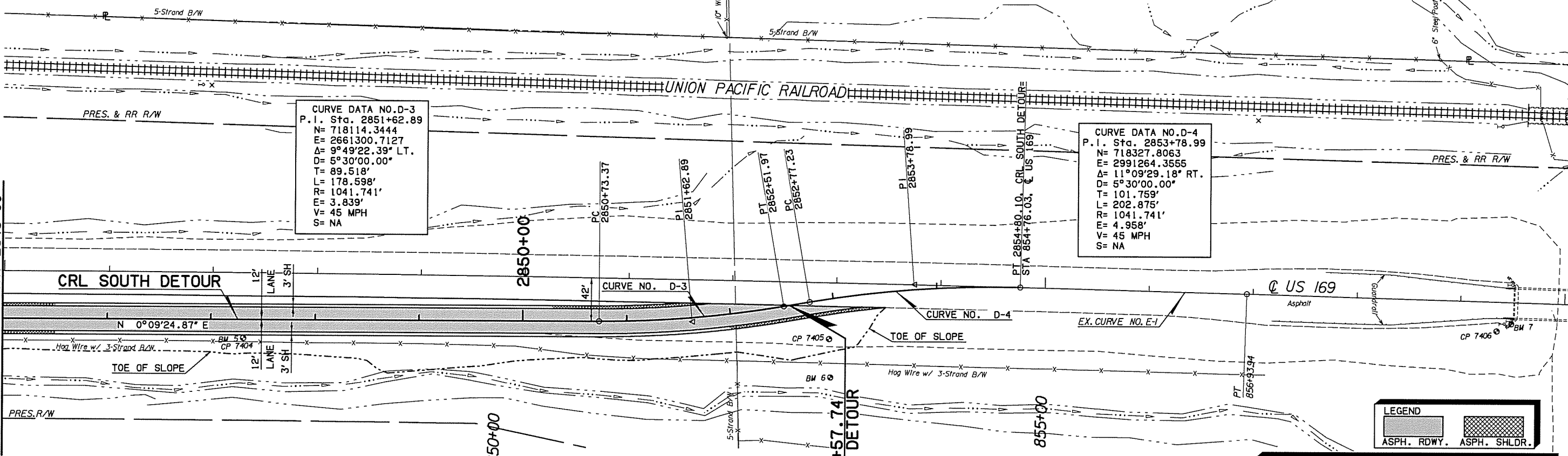


**SOUTH DETOUR (6)**  
US 169 OVER OPOSSUM CREEK    NOWATA COUNTY  
Job Piece No. 27092(04)    Sheet No. 22

SEC. 36, T29N, R15E



OKLAHOMA DEPARTMENT OF TRANSPORTATION				
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	TOTAL SHEETS
8	OKLA	27092(04)		143
DESCRIPTION		REVISIONS	DATE	

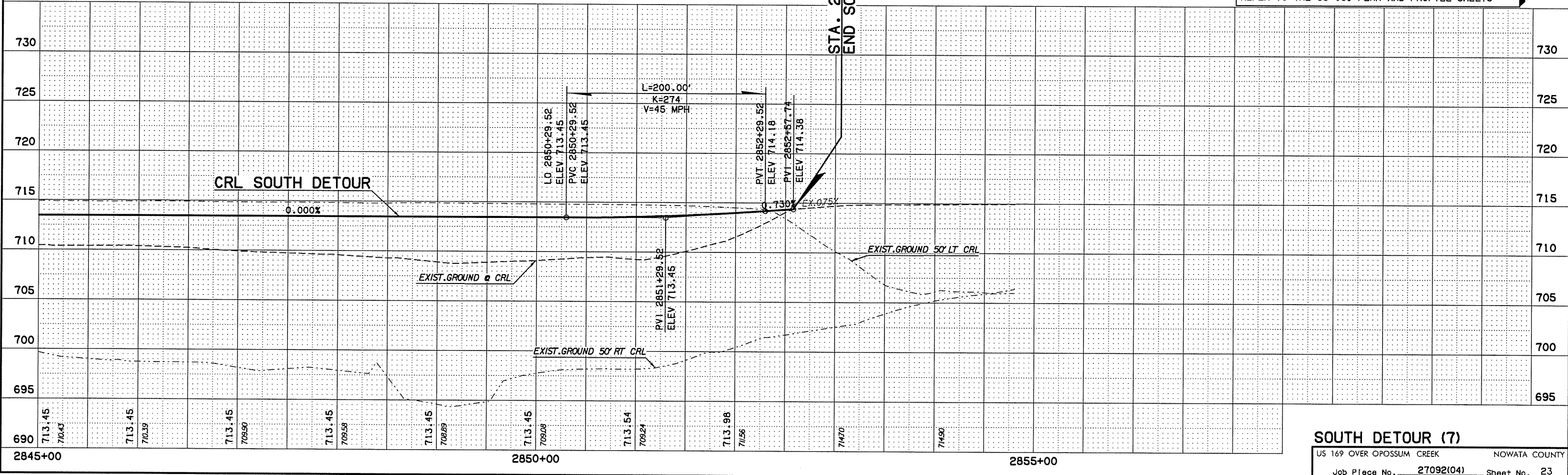


**CURVE DATA NO. D-3**  
 P.I. Sta. 2851+62.89  
 N= 718114.3444  
 E= 2661300.7127  
 Δ= 9°49'22.39" LT.  
 D= 5°30'00.00"  
 T= 89.518'  
 L= 178.598'  
 R= 1041.741'  
 E= 3.839'  
 V= 45 MPH  
 S= NA

**CURVE DATA NO. D-4**  
 P.I. Sta. 2853+78.99  
 N= 718327.8063  
 E= 2991264.3555  
 Δ= 11°09'29.18" RT.  
 D= 5°30'00.00"  
 T= 101.759'  
 L= 202.875'  
 R= 1041.741'  
 E= 4.958'  
 V= 45 MPH  
 S= NA

LEGEND	
	ASPH. RDWY.
	ASPH. SHLDR.

**NOTE :**  
 FOR R/W LINE STATION OFFSETS AND DIMENSIONS REFER TO THE US 169 PLAN AND PROFILE SHEETS

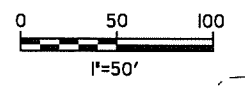


7/12/2016

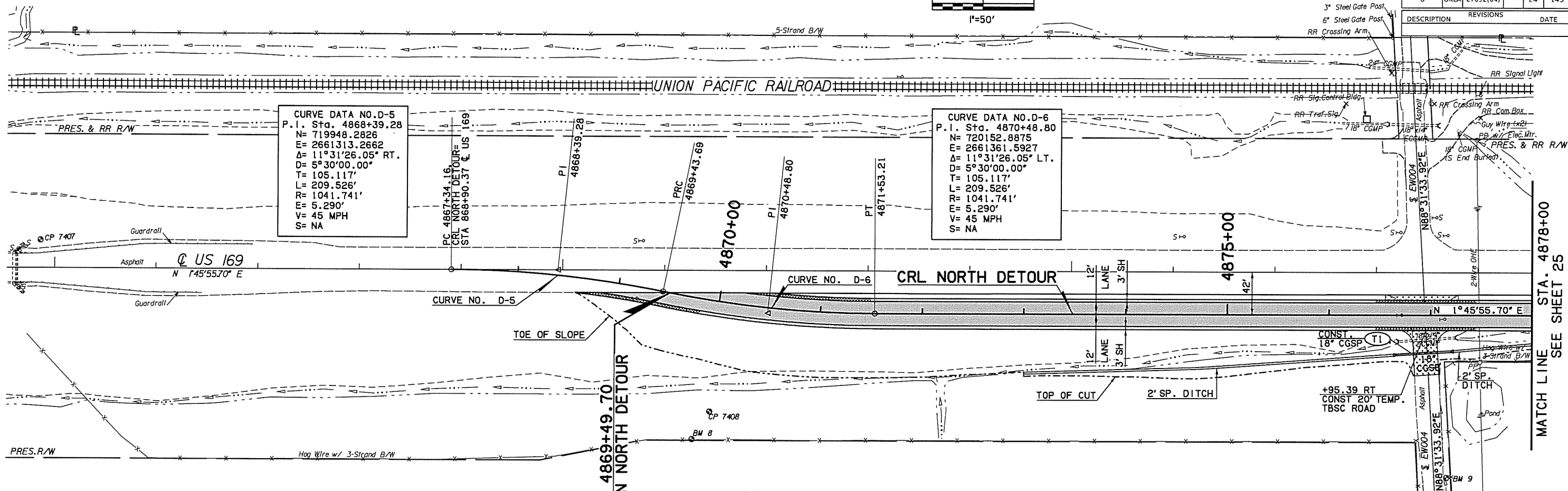
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# SEC. 36, T29N, R15E



OKLAHOMA DEPARTMENT OF TRANSPORTATION				
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	TOTAL SHEETS
8	OKLA	27092(04)	24	143

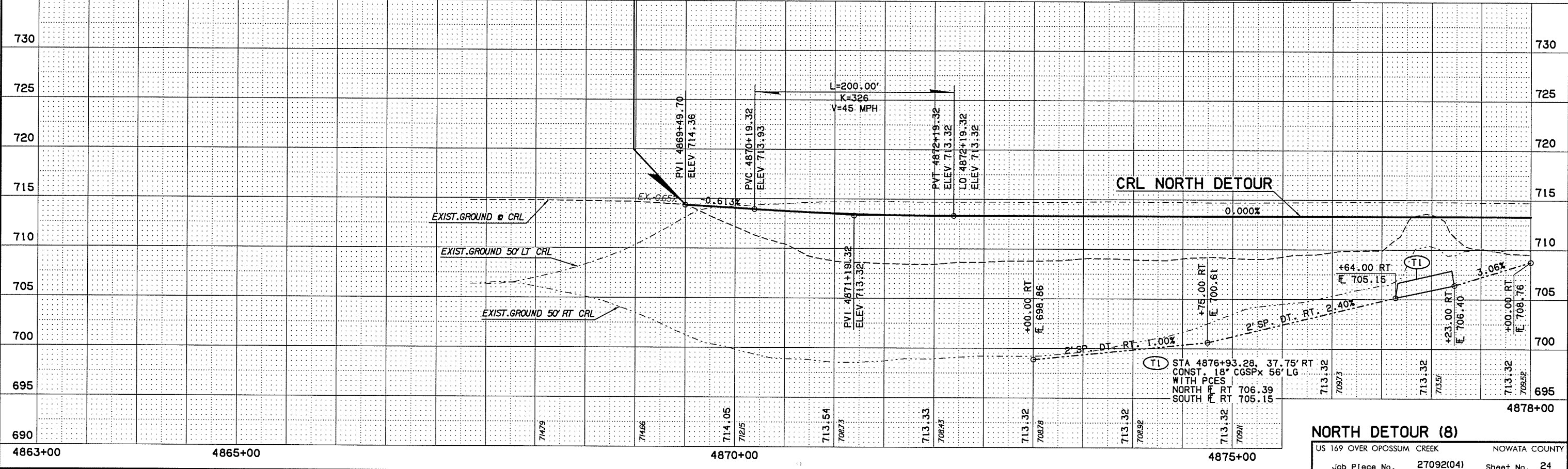


STA. 4869+49.70  
BEGIN NORTH DETOUR

MATCH LINE STA. 4878+00  
SEE SHEET 25

**NOTE :**  
FOR R/W LINE STATION OFFSETS AND DIMENSIONS REFER TO THE US 169 PLAN AND PROFILE SHEETS

LEGEND		
	ASPH. RDWY.	
	ASPH. SHLDR.	
	TBSC ROAD	



**NORTH DETOUR (8)**  
US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
Job Piece No. 27092(04) Sheet No. 24

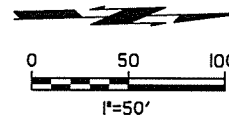


7/12/2016

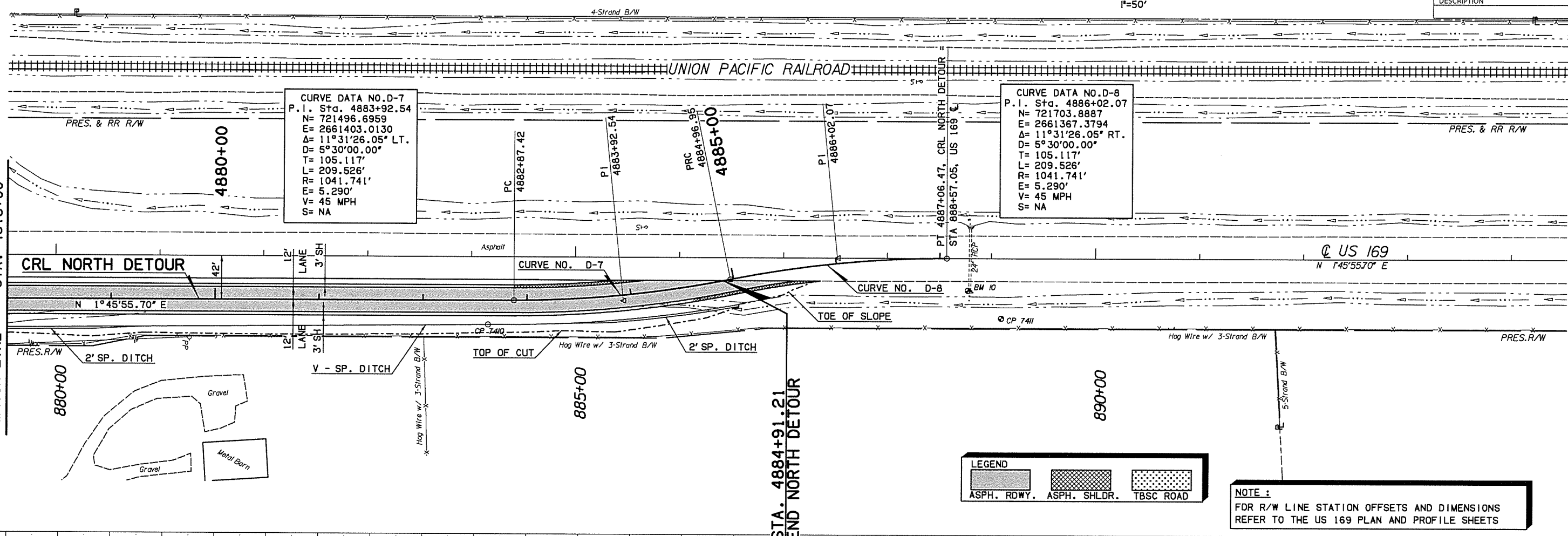
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SEC. 36, T29N, R15E



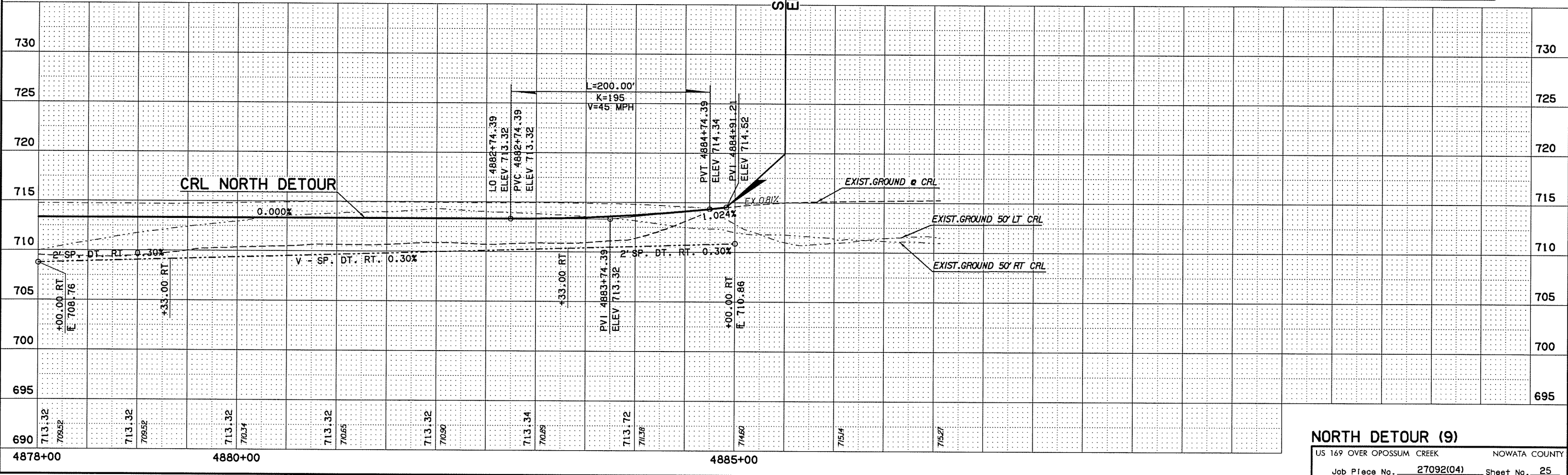
OKLAHOMA DEPARTMENT OF TRANSPORTATION					
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		25	143
DESCRIPTION		REVISIONS	DATE		



LEGEND		
	ASPH. ROWY.	
	ASPH. SHLDR.	
	TBSC ROAD	

**NOTE :**  
 FOR R/W LINE STATION OFFSETS AND DIMENSIONS REFER TO THE US 169 PLAN AND PROFILE SHEETS

STA. 4884+91.21  
END NORTH DETOUR

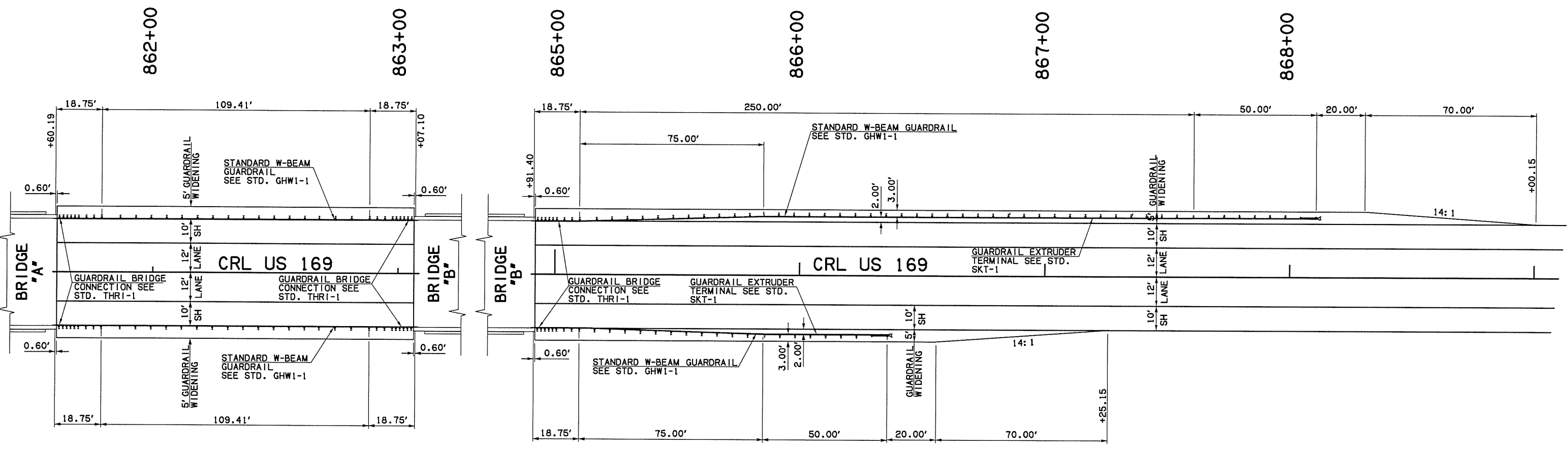
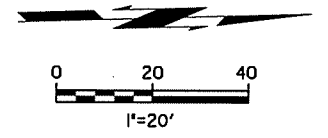
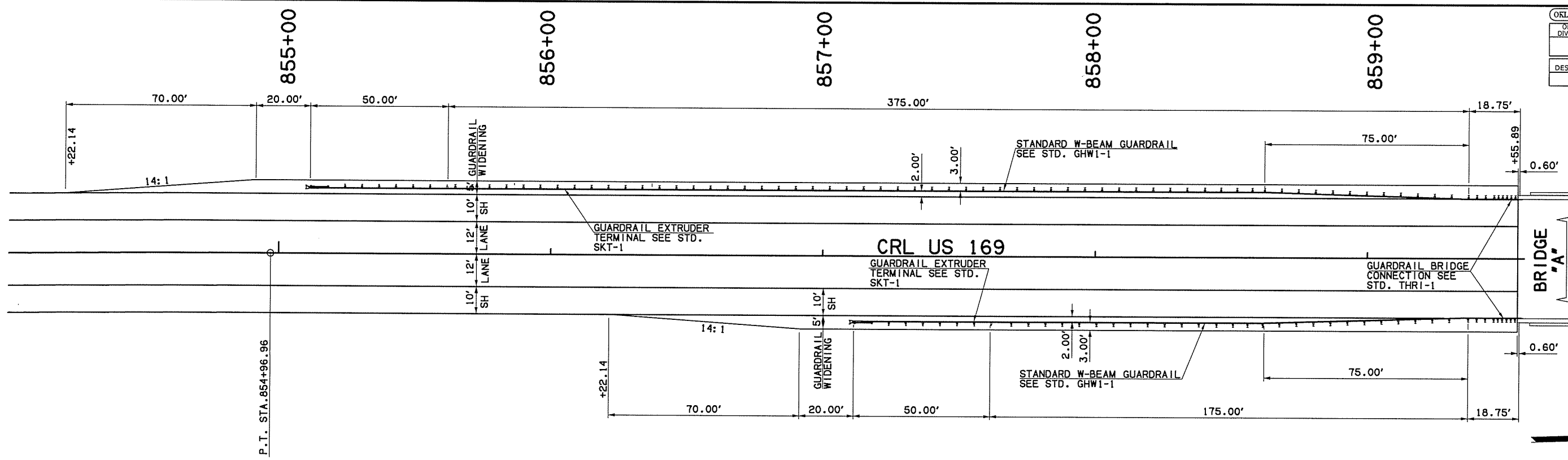


7/12/2016

7:47:09 AM

P:\ECI\650-TUL\CI\255231000\_000T\_US169BR.dgn 20\_DESGN\40\_CAD\_Opossum\00N\C\27092(04)\_C\_Plan\_Cur.dwg

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		26	143
DESCRIPTION		REVISIONS	DATE		



Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>GUARDRAIL LAYOUT</b>	
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 26

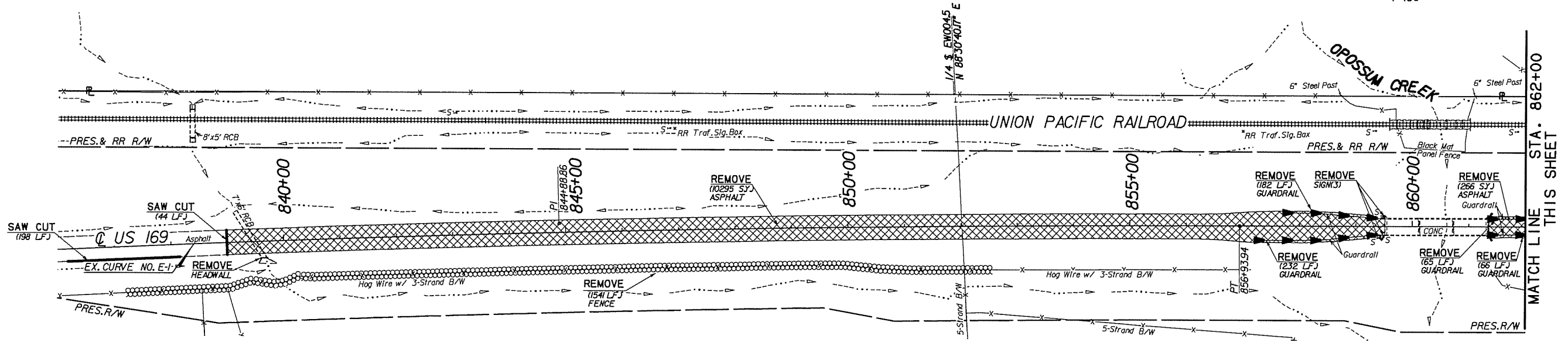
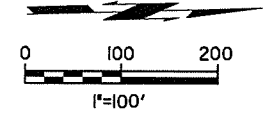
7/12/2016

7:47:10 AM

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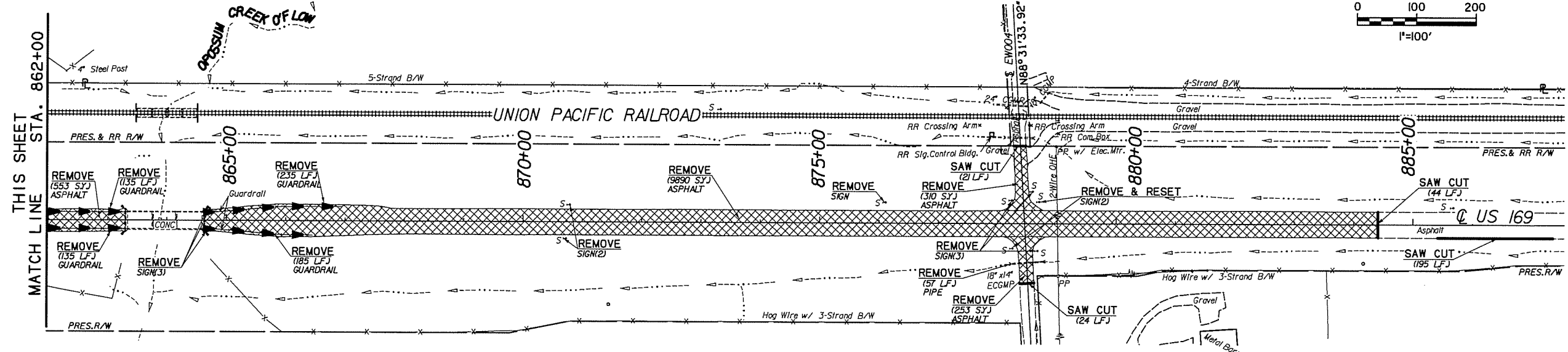
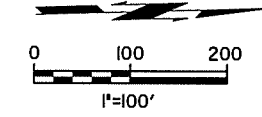
OKLAHOMA DEPARTMENT OF TRANSPORTATION					
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		27	143
DESCRIPTION		REVISIONS	DATE		

SEC. 36, T29N, R15E



SEC. 36, T29N, R15E

SEC. 23, T29N, R15E



REMOVAL LEGEND

- ASPHALT
- CONCRETE
- PIPE
- FENCE
- GUARDRAIL
- SAWCUT

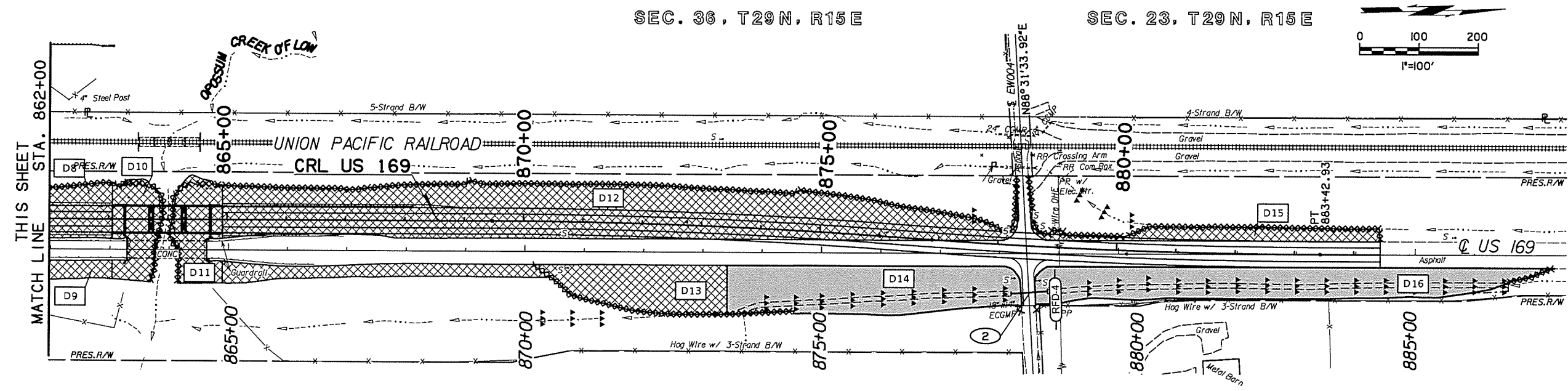
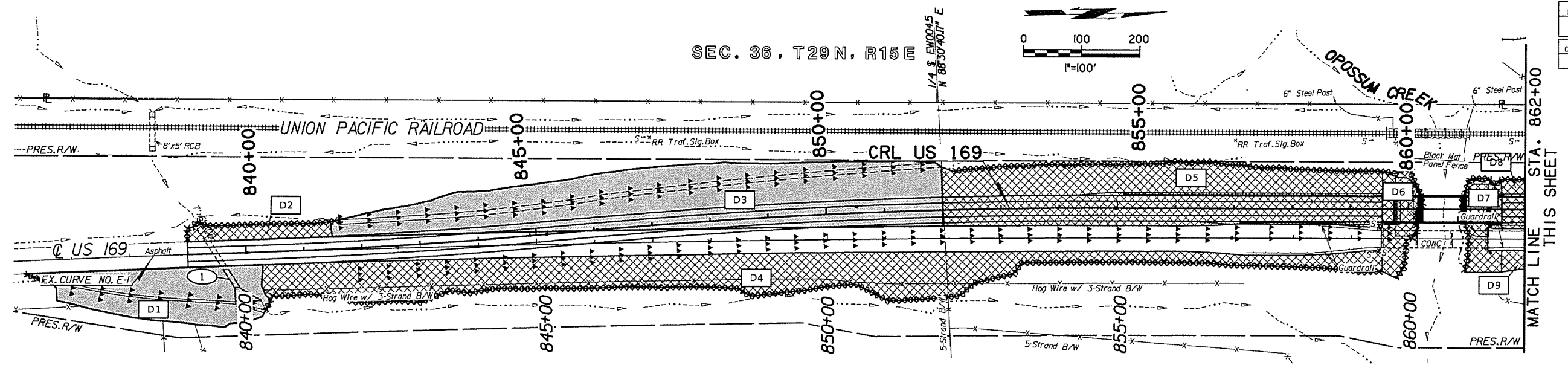
Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>REMOVALS</b>	
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 27

7/12/2016

7:47:11 AM

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OKLAHOMA DEPARTMENT OF TRANSPORTATION				
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	TOTAL SHEETS
8	OKLA	27092(04)		28
DESCRIPTION		REVISIONS	DATE	



SUMMARY OF DISTURBED AREAS					
DRAINAGE AREA NUMBER	ALIGNMENT	STATION	AREA		OUTFALL TREATMENT
			CHANNEL FLOW	SHEET FLOW	
			ACRE		
D1	US 169	840+28.94	0.71		NORMAL EROSION CONTROL
D2	US 169	N/A		0.15	NORMAL EROSION CONTROL
D3	US 169	851+94.77	2.19		NORMAL EROSION CONTROL
D4	US 169	N/A		2.13	NORMAL EROSION CONTROL
D5	US 169	N/A		1.76	NORMAL EROSION CONTROL
D6	US 169	N/A		0.22	NORMAL EROSION CONTROL
D7	US 169	N/A		0.20	NORMAL EROSION CONTROL
D8	US 169	N/A		0.30	NORMAL EROSION CONTROL
D9	US 169	N/A		0.11	NORMAL EROSION CONTROL
D10	US 169	N/A		0.27	NORMAL EROSION CONTROL
D11	US 169	N/A		0.30	NORMAL EROSION CONTROL
D12	US 169	N/A		2.40	NORMAL EROSION CONTROL
D13	US 169	N/A		0.77	NORMAL EROSION CONTROL
D14	US 169	873+49.84	0.88		NORMAL EROSION CONTROL
D15	US 169	N/A		0.26	NORMAL EROSION CONTROL
D16	US 169	878+83.87	0.97		NORMAL EROSION CONTROL
SUBTOTALS			4.75	8.87	
TOTALS				13.62	

**LEGEND**

(xxx)	DRAINAGE STRUCTURE NUMBER	[Cross-hatched box]	SHEET FLOW
[X-X-X-X-X]	TEMPORARY SILT FENCE	[Solid grey box]	CHANNEL FLOW
[▲▲▲]	TEMPORARY SILT DIKE	[Box with DX]	DISTURBED AREA NUMBER
[RFD-4]	ROCK FILTER DAM (TYPE 4)		

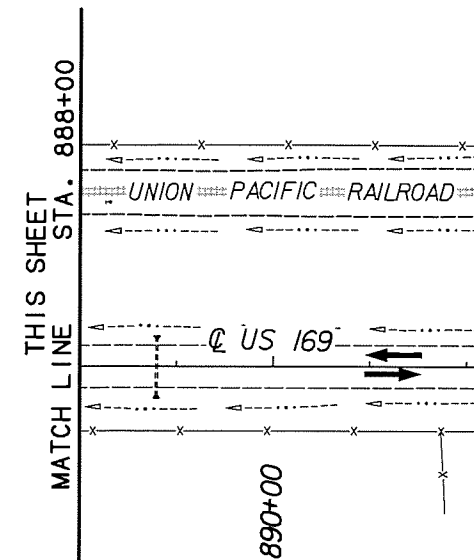
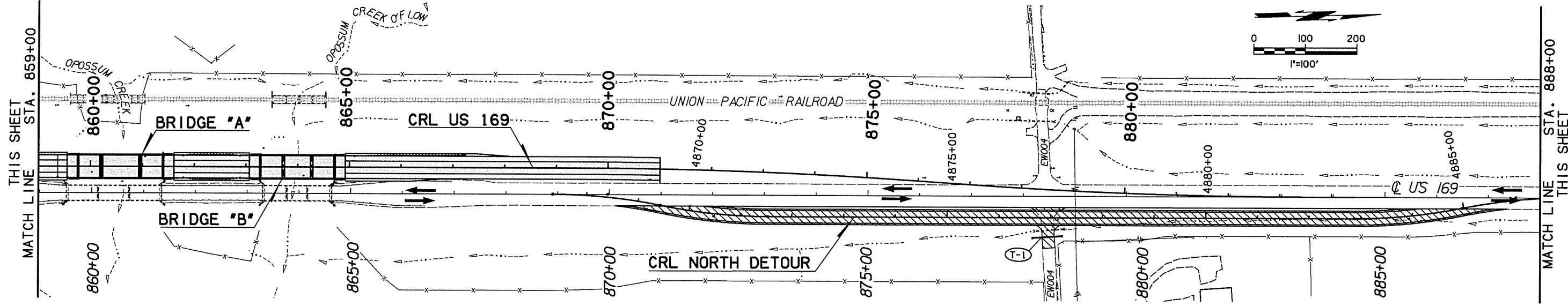
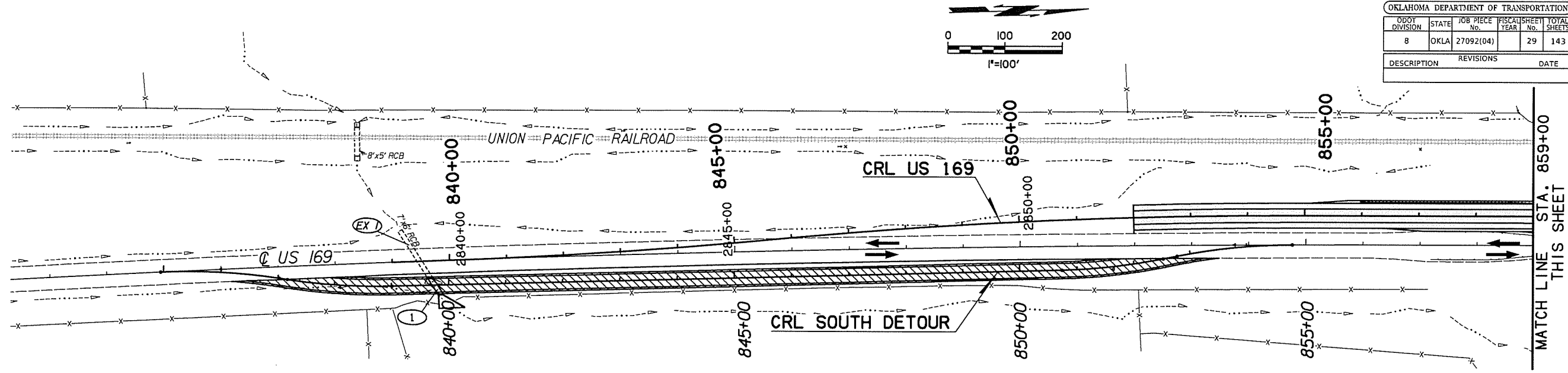
Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn			
Checked			
Approved			
Squad			

**EROSION CONTROL**

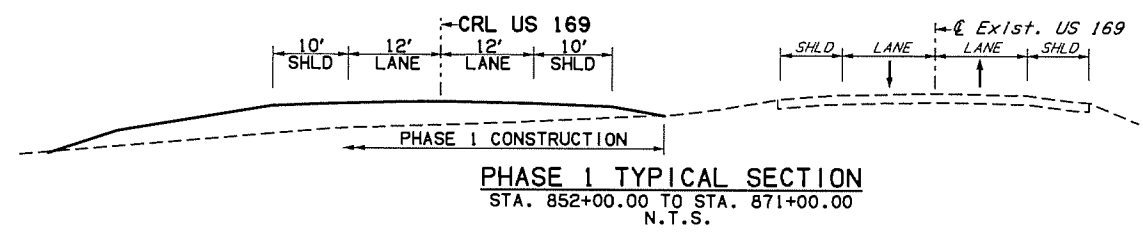
Job Piece No. 27092(04) Sheet No. 28



OKLAHOMA DEPARTMENT OF TRANSPORTATION					
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		29	143
DESCRIPTION		REVISIONS	DATE		



PHASE 1		
ITEM	CONSTRUCTION	TRAFFIC
US 169	Sta. 852+00 to Sta. 871+00 except east foreslope / ditch	On Existing US 169
South Detour	Construct	
North Detour	Construct	
Bridge A	Construct	
Bridge B	Construct	



**LEGEND**

- CONSTRUCTION
- TEMPORARY CONSTRUCTION
- COMPLETED CONSTRUCTION
- COMPLETED TEMPORARY CONSTRUCTION

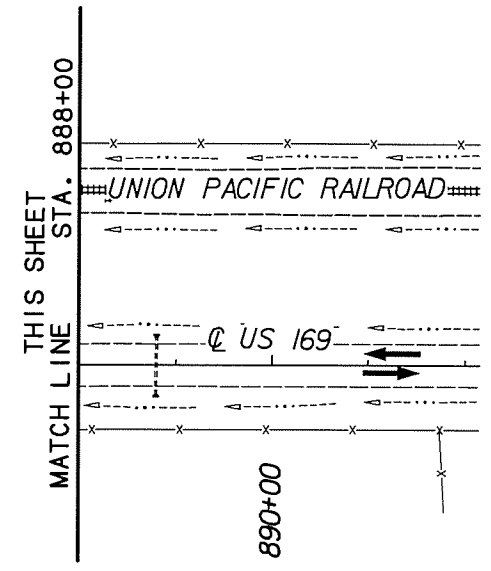
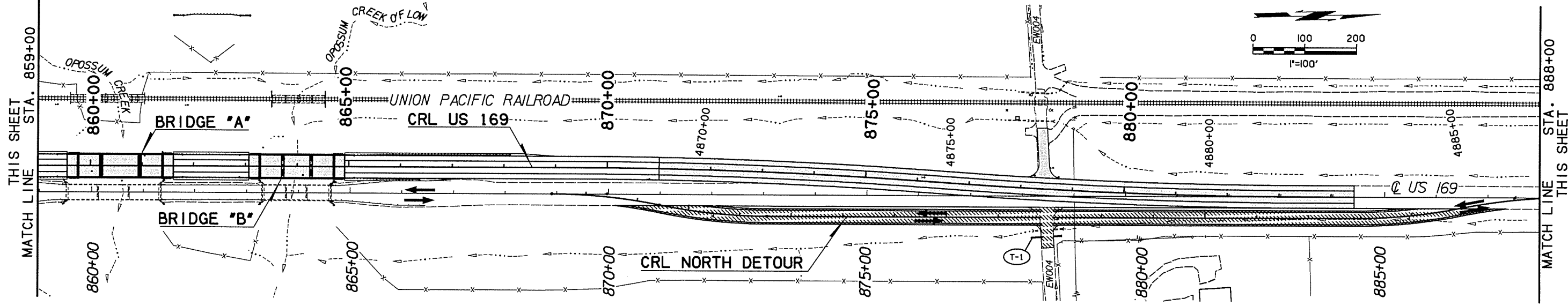
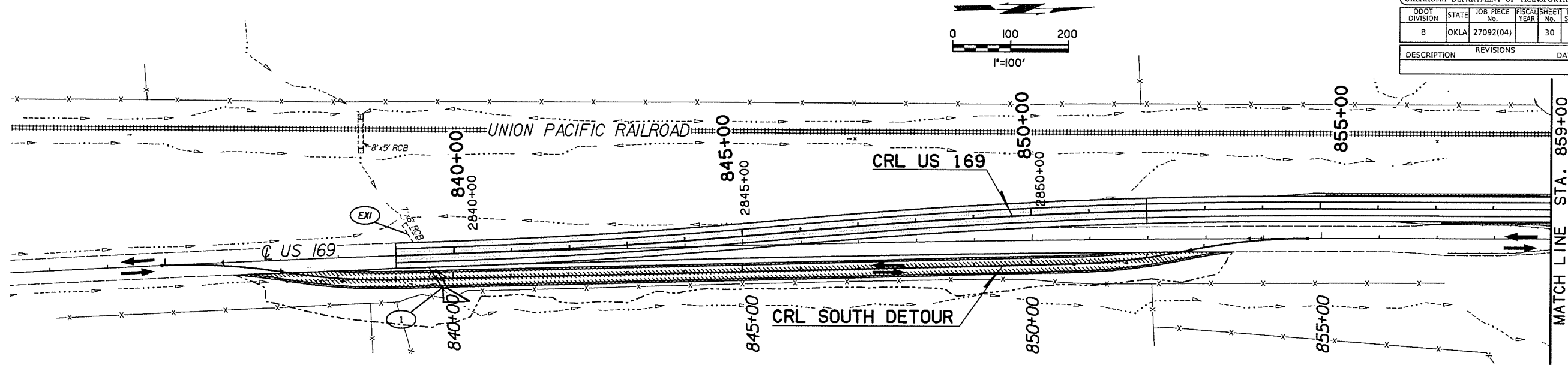
Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>SUGGESTED CONSTRUCTION SEQUENCE PHASE 1</b>	
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 29

7/12/2016

7:47:14 AM

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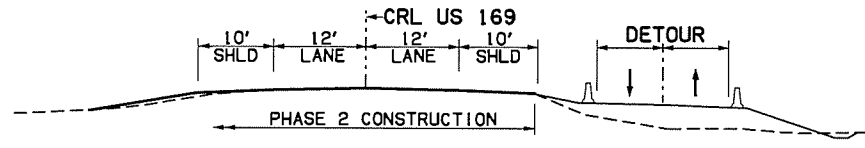
OKLAHOMA DEPARTMENT OF TRANSPORTATION					
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		30	143
DESCRIPTION		REVISIONS	DATE		



PHASE 2		
ITEM	CONSTRUCTION	TRAFFIC
US 169	Sta. 838+99.66 to Sta. 852+00 except east foreslope / ditch Sta. 871+00 to Sta. 884+44.51 except east foreslope / ditch	On South Detour, Existing US 169, North Detour
South Detour	No construction	
North Detour	No construction	
Bridge A	Construct	
Bridge B	Construct	

**LEGEND**

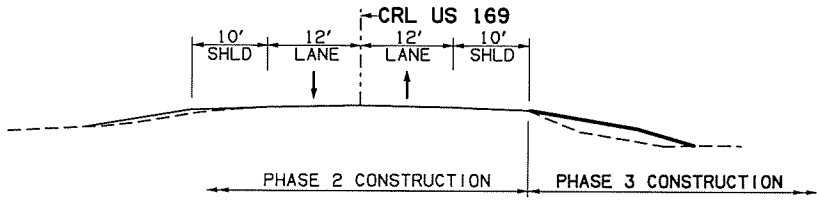
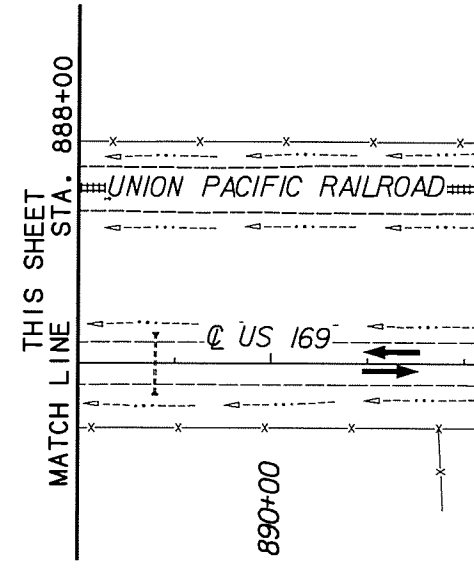
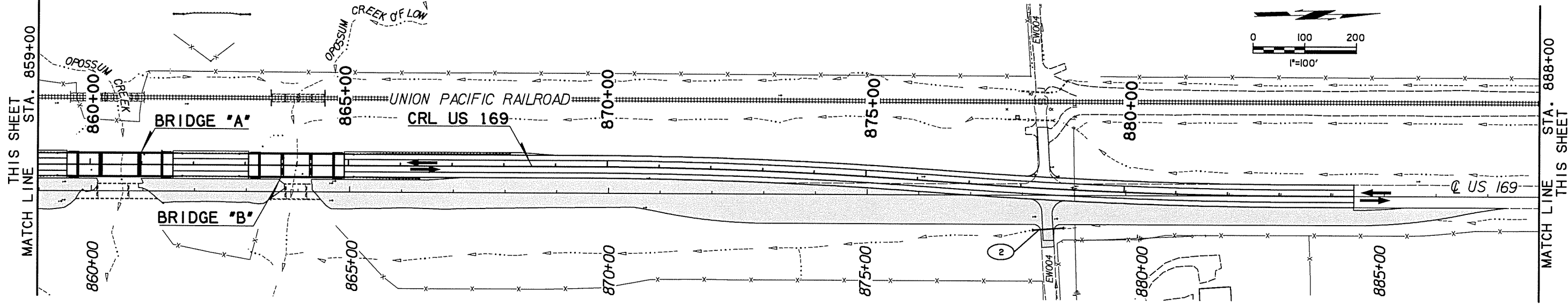
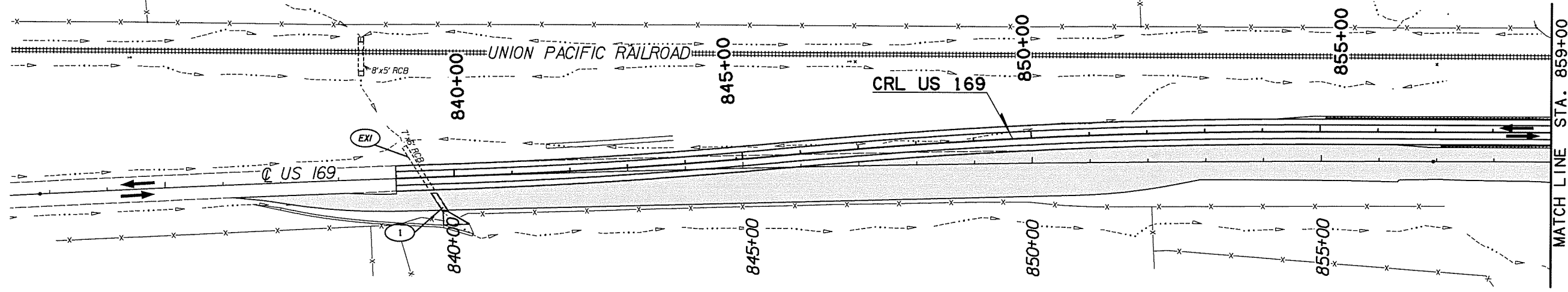
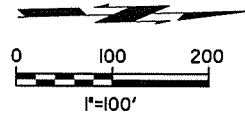
	CONSTRUCTION
	TEMPORARY CONSTRUCTION
	COMPLETED CONSTRUCTION
	COMPLETED TEMPORARY CONSTRUCTION



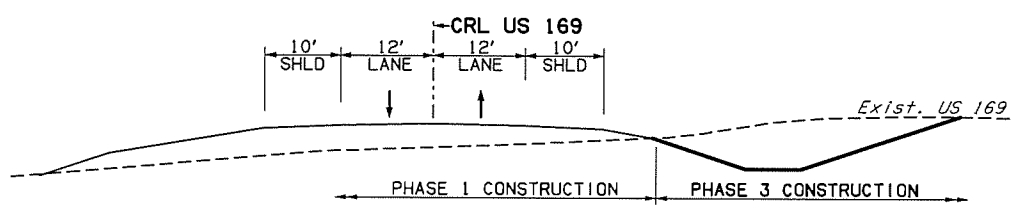
**PHASE 2 TYPICAL SECTION**  
 STA. 838+99.66 TO STA. 852+00.00  
 STA. 871+00.00 TO STA. 884+44.51  
 N.T.S.

Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>SUGGESTED CONSTRUCTION SEQUENCE PHASE 2</b>	
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 30

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
B	OKLA	27092(04)		31	143
DESCRIPTION			REVISIONS	DATE	



**PHASE 3 TYPICAL SECTION**  
 STA. 838+99.66 TO STA. 852+00.00  
 STA. 871+00.00 TO STA. 884+44.51  
 N.T.S.



**PHASE 3 TYPICAL SECTION**  
 STA. 852+00.00 TO STA. 871+00.00  
 N.T.S.

PHASE 3		
ITEM	CONSTRUCTION	TRAFFIC
US 169	Sta. 838+99.66 to Sta. 884+44.51 east foreslope / ditch	On Proposed US 169
South Detour	Remove	
North Detour	Remove	
Bridge A	No construction	
Bridge B	No construction	

**LEGEND**

	CONSTRUCTION
	TEMPORARY CONSTRUCTION
	COMPLETED CONSTRUCTION
	COMPLETED TEMPORARY CONSTRUCTION

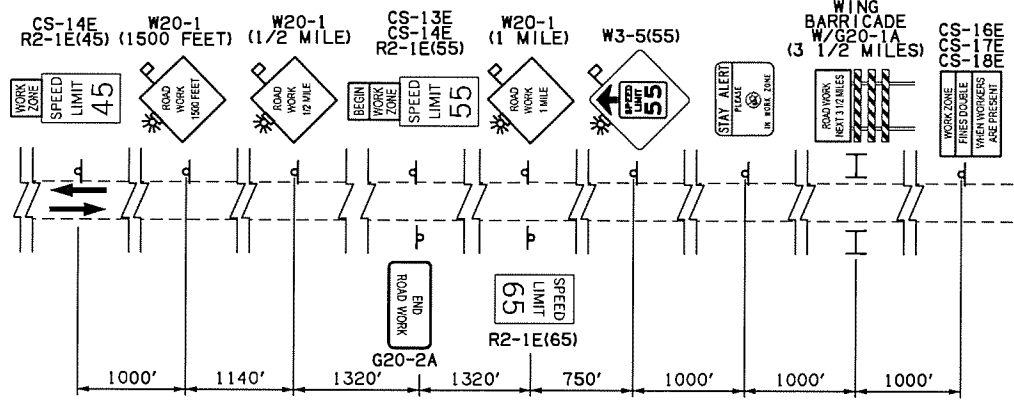
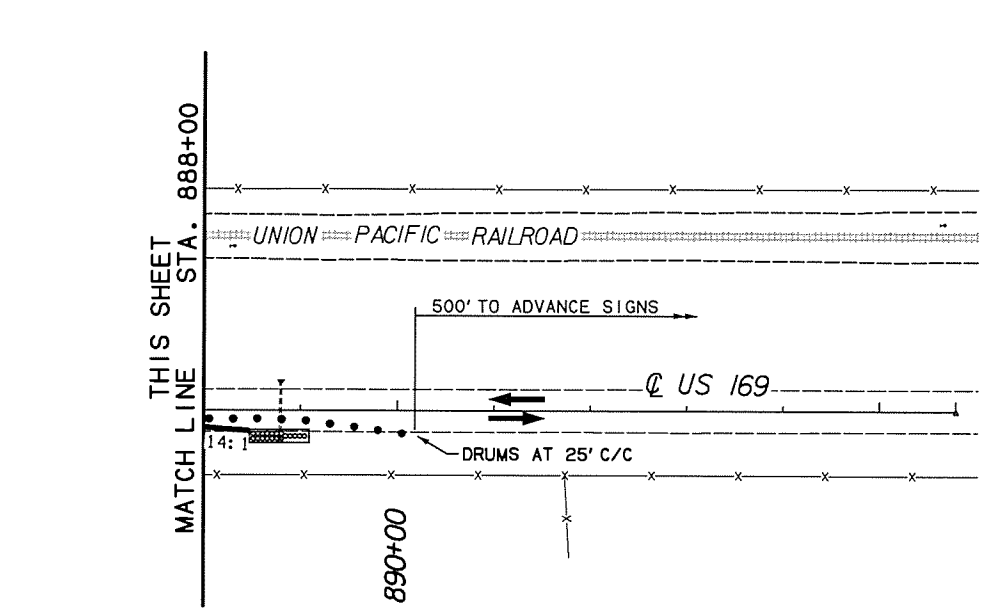
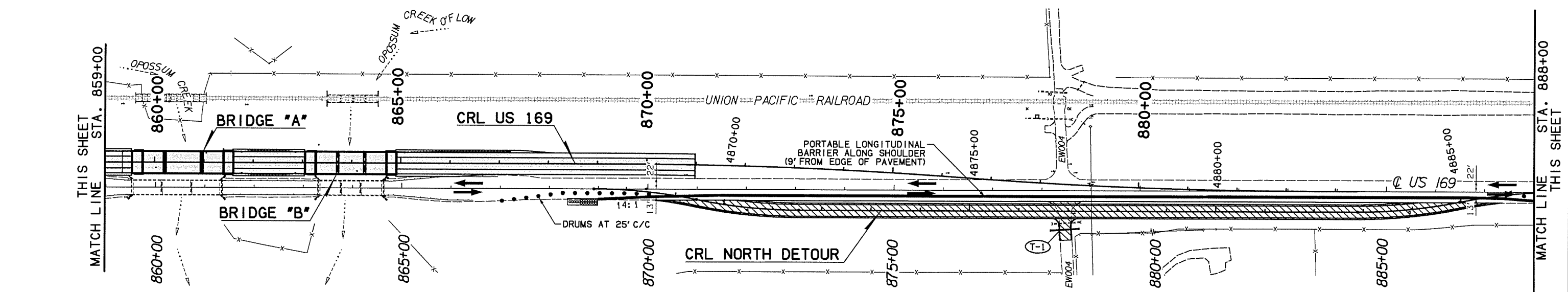
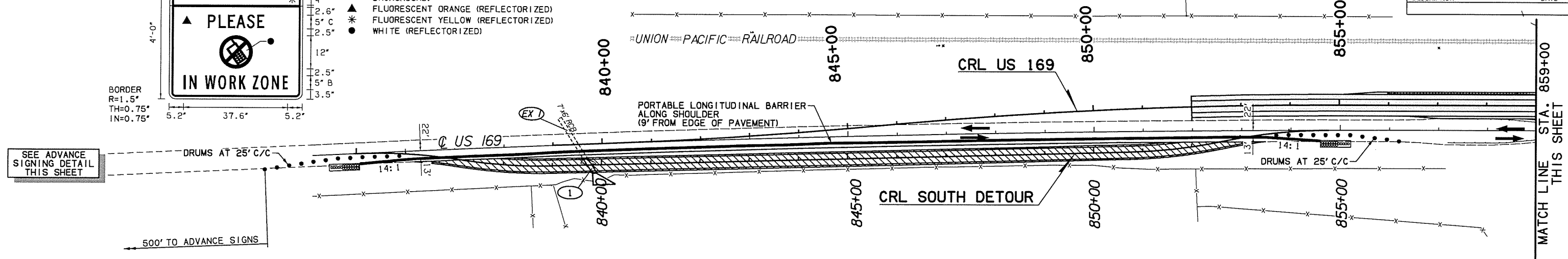
Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>SUGGESTED CONSTRUCTION SEQUENCE PHASE 3</b>	
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 31

OKLAHOMA DEPARTMENT OF TRANSPORTATION				
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	TOTAL SHEETS
8	OKLA	27092(04)	32	143
DESCRIPTION		REVISIONS	DATE	

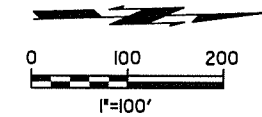


**COLOR:**  
LEGEND, SYMBOL AND BORDER:  
BLACK (NON-REFLECTORIZED)  
BACKGROUND:  
FLUORESCENT ORANGE (REFLECTORIZED)  
FLUORESCENT YELLOW (REFLECTORIZED)  
WHITE (REFLECTORIZED)

▲  
\*  
●



**ADVANCE SIGNING DETAIL**  
TO BE PLACED AT EACH END OF THE APPROACH TO THE PROJECT



**LEGEND**

[Pattern]	CONSTRUCTION
[Pattern]	TEMPORARY CONSTRUCTION
[Pattern]	COMPLETED CONSTRUCTION
[Pattern]	COMPLETED TEMPORARY CONSTRUCTION
[Symbol]	SIGN
[Symbol]	DRUMS
[Symbol]	WING BARRICADE
[Symbol]	TRAFFIC FLOW DIRECTION
[Symbol]	PORTABLE LONGITUDINAL BARRIER
[Symbol]	IMPACT ATTENUATOR

Design	
Drawn	
Checked	
Approved	
Squad	

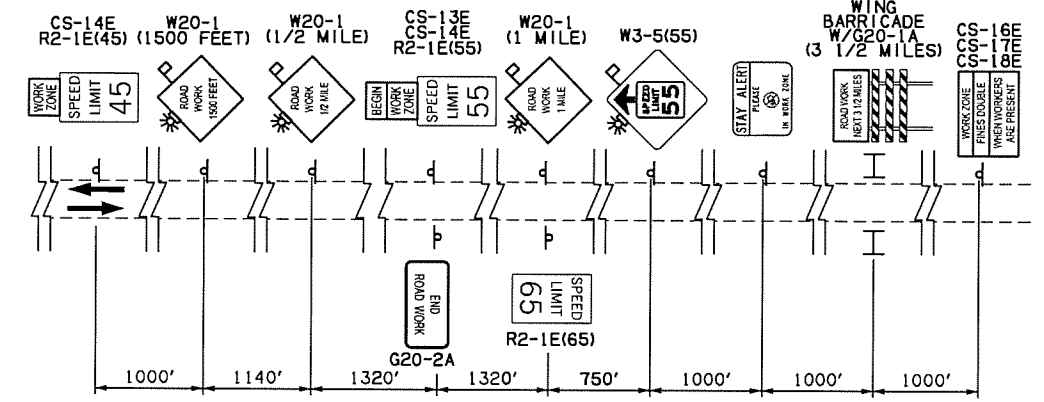
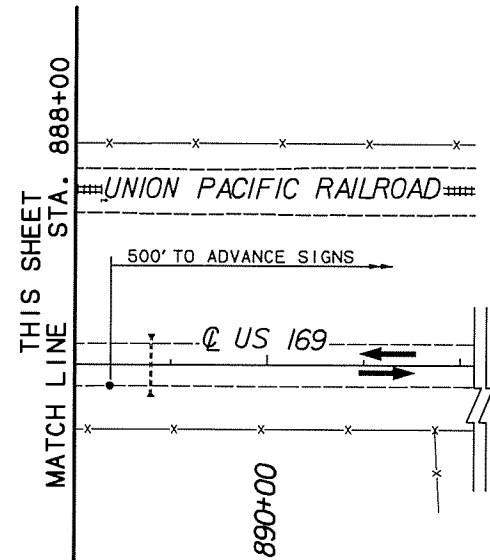
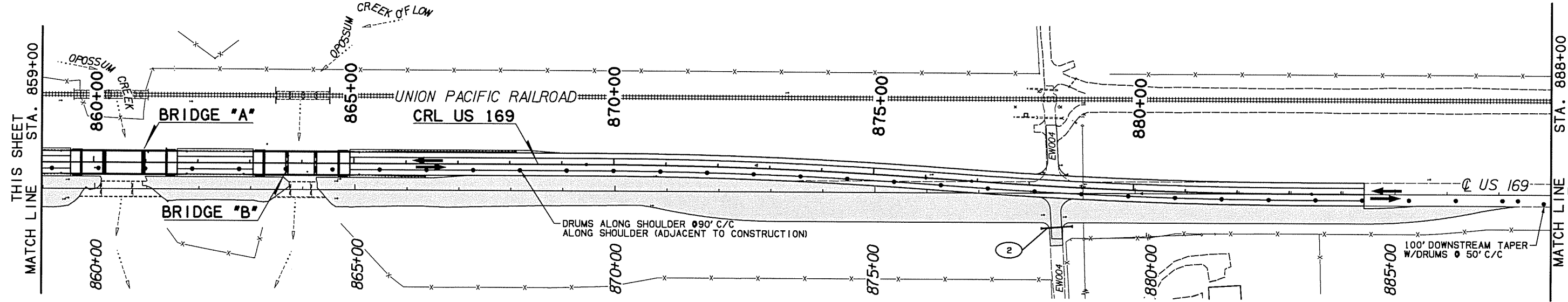
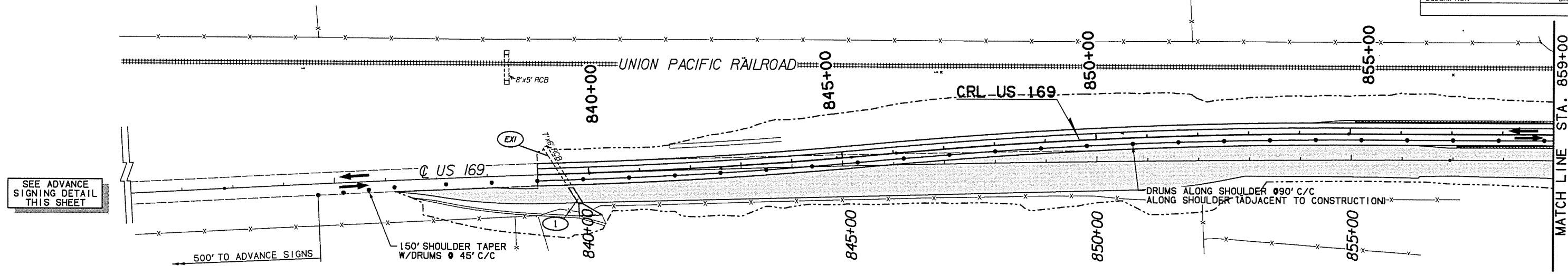
US 169 OVER OPOSSUM CREEK NOWATA COUNTY

**SUGGESTED TRAFFIC CONTROL PHASE 1**

Job Piece No. 27092(04) Sheet No. 32



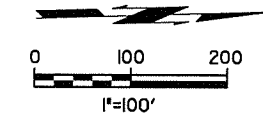
OKLAHOMA DEPARTMENT OF TRANSPORTATION				
DDOT DIVISION	STATE	JOB PIECE No.	REVISIONS	TOTAL SHEETS
8	OKLA	27092(04)	34	143
DESCRIPTION		REVISIONS	DATE	



**LEGEND**

- CONSTRUCTION
- TEMPORARY CONSTRUCTION
- COMPLETED CONSTRUCTION
- COMPLETED TEMPORARY CONSTRUCTION
- SIGN
- DRUMS
- WING BARRICADE
- TRAFFIC FLOW DIRECTION
- PORTABLE LONGITUDINAL BARRIER
- TYPE III BARRICADE

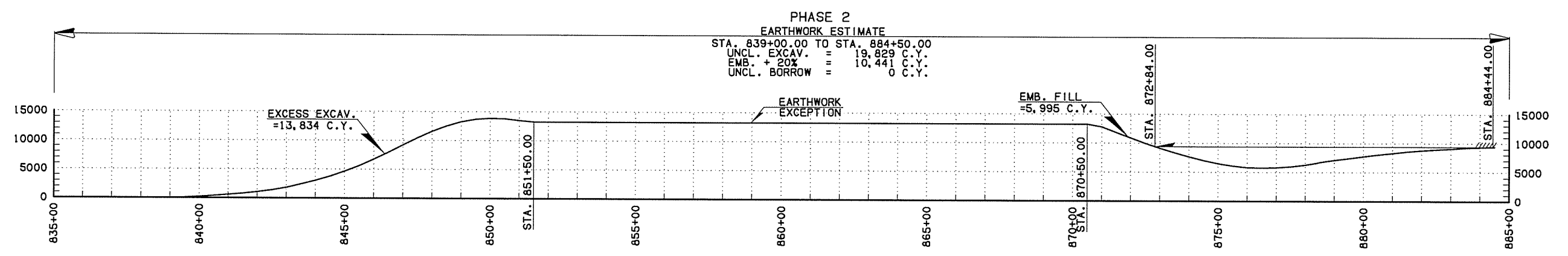
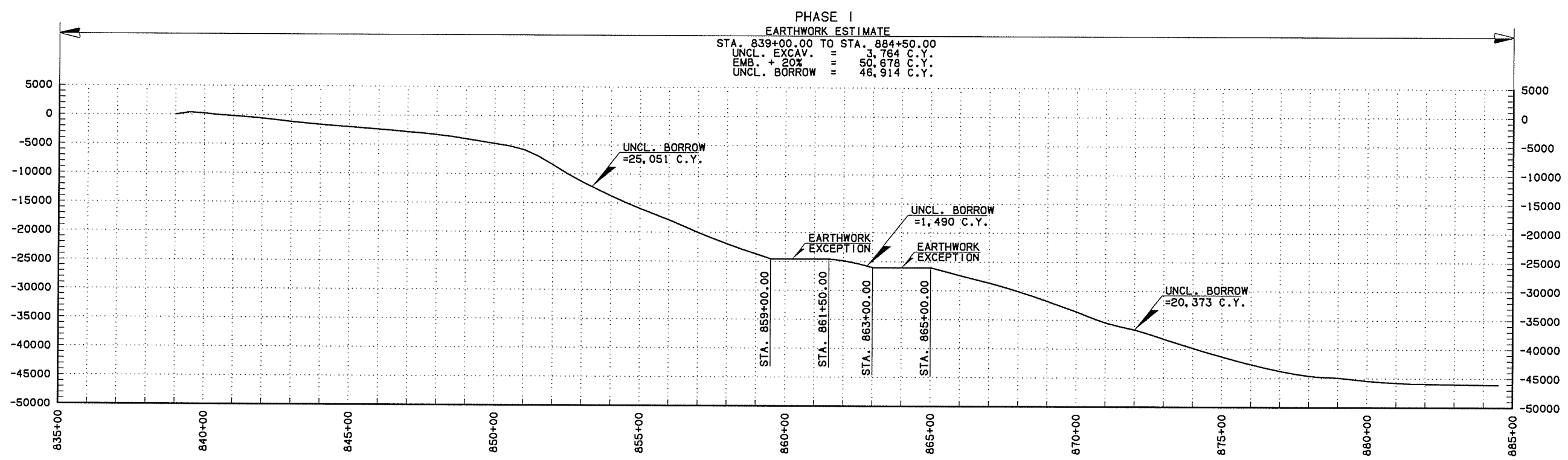
**ADVANCE SIGNING DETAIL**  
TO BE PLACED AT EACH END OF THE APPROACH TO THE PROJECT



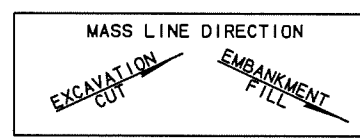
Design	
Drawn	
Checked	
Approved	
Squad	

US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
**SUGGESTED TRAFFIC CONTROL PHASE 3**  
 Job Piece No. 27092(04) Sheet No. 34

OKLAHOMA DEPARTMENT OF TRANSPORTATION				
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No. TOTAL SHEETS
8	OKLA	27092(04)		35 143
DESCRIPTION		REVISIONS	DATE	



MASS DIAGRAM PROVIDED FOR BIDDING PURPOSES ONLY. ACTUAL BALANCE POINTS TO BE DETERMINED BY CONTRACTOR AND VOLUME OF MATERIAL ENCOUNTERED DURING GRADING OPERATIONS. WHENEVER POSSIBLE, THE CONTRACTOR SHALL SEQUENCE EARTHWORK OPERATIONS IN ORDER TO OBTAIN THE MATERIAL FROM THE CUT SECTION FOR USE AS FILL RATHER THAN OBTAINING UNCLASSIFIED BORROW. MATERIAL DEPICTED AS WASTE SHALL ONLY BE CONSIDERED WASTE ONCE ALL EARTHWORK OPERATIONS HAVE BEEN COMPLETED. THIS MATERIAL SHALL BE USED TO REDUCE THE NEED FOR UNCLASSIFIED BORROW AT ANY LOCATION AND TIME THROUGH THE DURATION OF THE PROJECT.



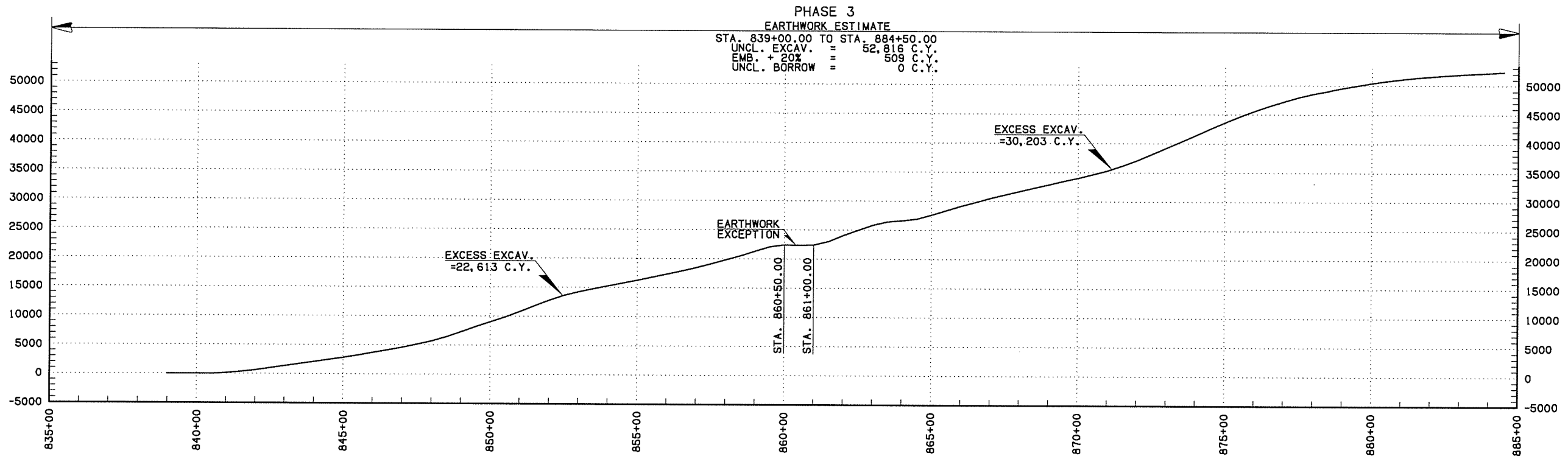
Design	
Drawn	
Checked	
Approved	
Squad	

US 169 OVER OPOSSUM CREEK      NOWATA COUNTY

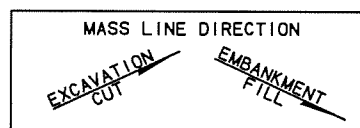
**MASS DIAGRAM (1)**



OKLAHOMA DEPARTMENT OF TRANSPORTATION				
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	TOTAL SHEETS
8	OKLA	27092(04)		143
REVISIONS				
DESCRIPTION	REVISIONS	DATE		



MASS DIAGRAM PROVIDED FOR BIDDING PURPOSES ONLY. ACTUAL BALANCE POINTS TO BE DETERMINED BY CONTRACTOR AND VOLUME OF MATERIAL ENCOUNTERED DURING GRADING OPERATIONS. WHENEVER POSSIBLE, THE CONTRACTOR SHALL SEQUENCE EARTHWORK OPERATIONS IN ORDER TO OBTAIN THE MATERIAL FROM THE CUT SECTION FOR USE AS FILL RATHER THAN OBTAINING UNCLASSIFIED BORROW. MATERIAL DEPICTED AS WASTE SHALL ONLY BE CONSIDERED WASTE ONCE ALL EARTHWORK OPERATIONS HAVE BEEN COMPLETED. THIS MATERIAL SHALL BE USED TO REDUCE THE NEED FOR UNCLASSIFIED BORROW AT ANY LOCATION AND TIME THROUGH THE DURATION OF THE PROJECT.



Design	
Drawn	
Checked	
Approved	
Squad	

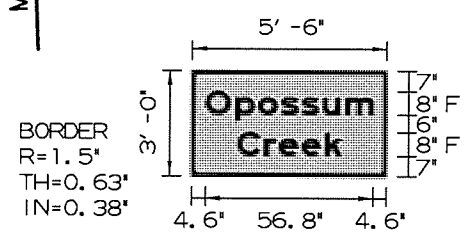
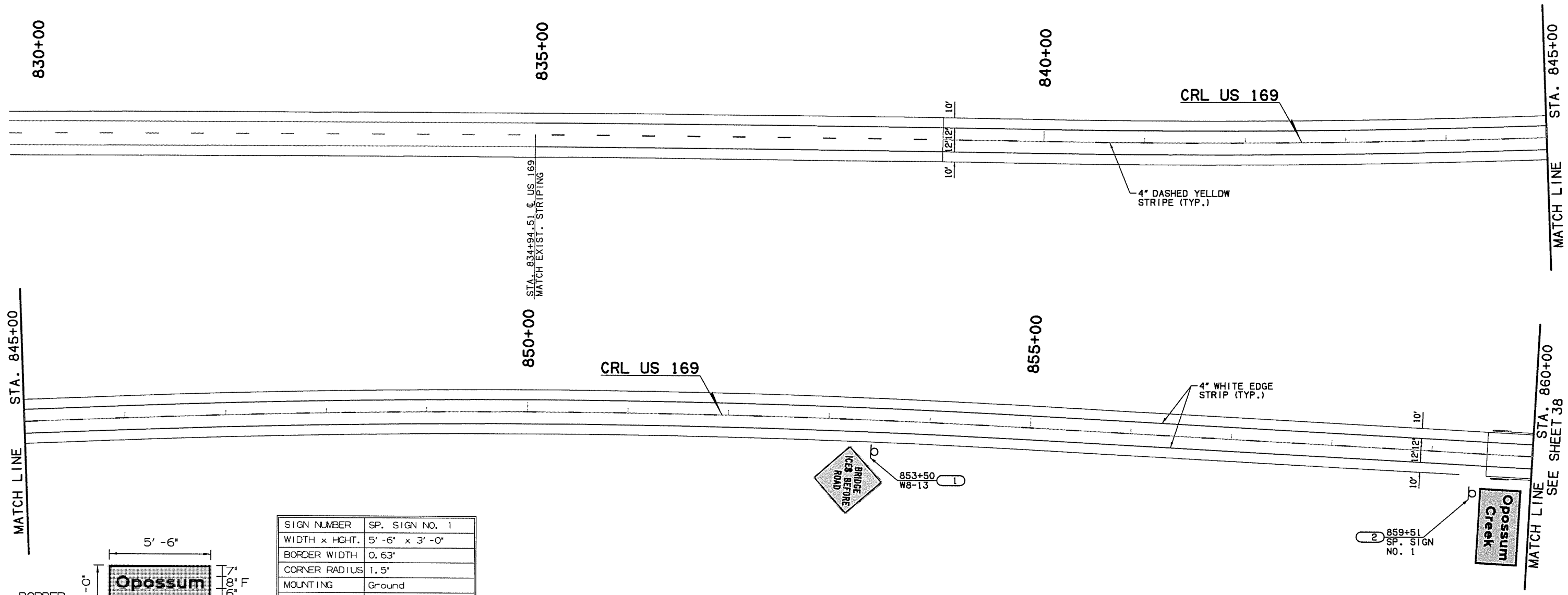
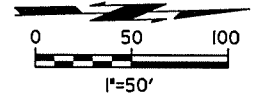
US 169 OVER OPOSSUM CREEK  
NOWATA COUNTY

**MASS DIAGRAM (2)**

Job Piece No. 27092(04) Sheet No. 36



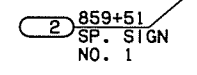
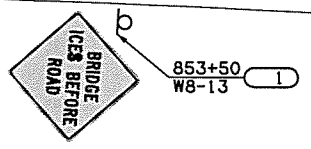
DESCRIPTION	CHANGE IN PLAN	DATE
OKLAHOMA DEPARTMENT OF TRANSPORTATION		
DDOT DIVISION	STATE	JOB PIECE No.
8	OKLA	27092(04)
FISCAL YEAR	SHEET No.	TOTAL SHEETS
	37	143
REVISIONS		
DESCRIPTION	REVISIONS	DATE



SIGN NUMBER	SP. SIGN NO. 1
WIDTH x HGHT.	5' -6" x 3' -0"
BORDER WIDTH	0.63'
CORNER RADIUS	1.5'
MOUNTING	Ground
BACKGROUND	TYPE: Reflective COLOR: Green
LEGEND/BORDER	TYPE: Reflective COLOR: White/White

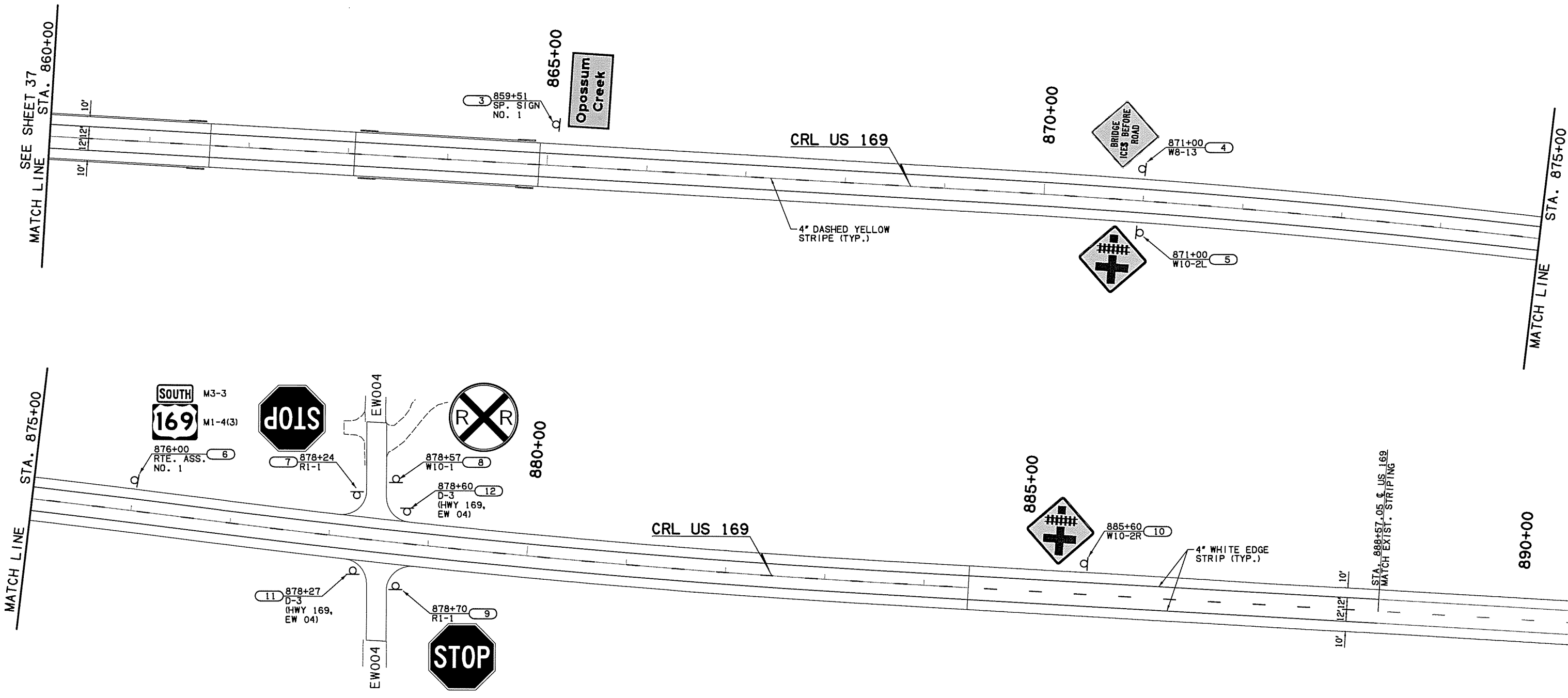
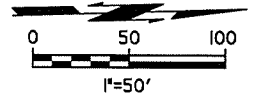
Dimensions are inches, tenths  
Letter locations are panel edge to lower left corner

LETTER POSITIONS (X)	LENGTH	SERIES/SIZE
O p o s s u m	56.8	F 2000
4.6 14.8 22.4 30 36.9 44.3 52		8/6
C r e e k	35.2	F 2000
15.4 24.4 29.3 37 45		8/6



Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>SIGNING &amp; STRIPING (1)</b>	
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 37

DESCRIPTION	CHANGE IN PLAN	DATE
OKLAHOMA DEPARTMENT OF TRANSPORTATION		
DDOT DIVISION	STATE	JOB PIECE No.
8	OKLA	27092(04)
FISCAL YEAR	SHEET No.	TOTAL SHEETS
	38	143
REVISIONS		
DESCRIPTION	REVISIONS	DATE



Design		US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn		<b>SIGNING &amp; STRIPING (2)</b>	
Checked			
Approved			
Squad			
		Job Piece No. 27092(04)	Sheet No. 38



OKLAHOMA DEPARTMENT OF TRANSPORTATION				
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	TOTAL SHEETS
8	OKLA	27092(04)		143

State of Oklahoma  
Department of Transportation

Guy Engineering Services, Inc.  
Dustin M. McNally, PLS 1636  
10759 East Admiral Place Tulsa, Oklahoma 74116  
Phone (918) 437-0282 Fax (918) 437-0455 C.A. 1427, Expires 6/2014

To: Mr. Larry Reser, Chief of Surveys  
From: Dustin M. McNally, Professional Land Surveyor  
Subject: SWO 4744(1), J/P No. 27092(04), U.S. 169, Bridge over Opossum Creek, 17 miles north of U.S. 60 at Nowata.

NOWATA COUNTY  
Historical Letter and Written Report

1. General:  
Survey began: February 20, 2013  
Survey completed: April 10, 2013  
Personnel on this survey:  
Dustin M. McNally, PLS  
Chris A. Cauthon, PLS  
Jason Mock, Survey Technician  
Jason Lilly, Survey Technician  
Ryan Harrison, LSIT  
Tim DeArmon, Survey Technician  
Stevfen Miller, Survey Technician  
Brandon Travers, Survey Technician

Amanda Reid, Survey Technician  
Vincent Miller, Survey Technician  
Benjamin Marts, Engineer Intern

Previous Surveys and Plans relevant to this project:  
SWO 2137(1) Survey  
FAP No. F-193 (12) Plans

2. Assignment:  
Assignment of this survey originated by ODOT Project Management Division Task Order No. EC-1412D dated August 13, 2011 from Mr. Larry Reser, PLS, Chief of Surveys. This survey was assigned to me under Engineering Contract No. EC-1365, J/P No. 27092(04).  
The Assignment of the survey included:  
SWO 4744(1) Survey Special Provisions  
Attachment No. 1- Location Map  
Attachment No. 2-Land Surveyor's Certification Form  
Attachment No. 3-SD Form #7  
Attachment No. 4-Specifications for surveys for Primary and Secondary Highways dated January 2011.  
Attachment No. 5-Suggested sequence of survey  
Attachment No. 6-Project Completion Percentages  
Attachment No. 7-Standard CADD files, issued March 5, 2004

3. Purpose:  
The purpose of this survey is to furnish sufficient data to develop plans to construct a new bridge over Opossum Creek north of Nowata.

4. Survey Limits:

This survey begins at Station 889+49.10 (EW-5 Section Line) and extends north to Station 925+00 as shown on SWO 2137(1) survey and FAP No. F-193 (12) plans.  
There is a station equation shown on SWO 2137(1) survey and FAP No. F-193 (12) plans as Sta. 895+00 Bk. = Sta. 860+31.15 Fwd. This equation has been eliminated.

5. Alignment:  
A001 – Centerline of present U.S. 169  
The Centerline of Survey is 32.00 feet east and parallel to the centerline of survey as established under SWO 2137(1) survey and shown on FAP No. F-193 (12) plans.

6. Stationing:  
A station value of Sta. 825+62.30 has been assigned to the point of intersection with EW-5 Section Line as the Beginning of Survey. Stationing increases north from this point to the End of Survey without equation, except with other surveys and plans.

7. Horizontal Control:  
Horizontal control for this survey is N.G.S. Oklahoma State Plane Coordinate System NAD 83 Lambert Projection North Zone (Zone 3501). The distances, coordinates, and elevations shown in this survey are U.S. Survey Feet. All angles and bearings are shown are in degrees, minutes, and seconds.

8. Vertical Control:  
A. Datum:  
Level datum for this survey is N.G.S. N.A.V.D. 88.  
B. Source:  
Recovered NGS First Class II order benchmark P.I.D. GG0455, designation RV 2, a standard monel-metal rivet in top of concrete headwall.  
C. Method:  
A double line of differential levels was run through the site using Sokkia model 300 and B21 automatic levels.  
D. Accuracy:

PLS	DMM	OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION <b>SURVEY DATA SHEET (2)</b> SWO 4744(1) PROJECT NO. 27092(04) SHEET NO. 40
DRAWN	ARR	
CHECKED	VKM	
APPROVED	DMM	
CREW	GES, INC.	

OKLAHOMA DEPARTMENT OF TRANSPORTATION				
ODOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	TOTAL SHEETS
8	OKLA	27092(04)	41	143

These benchmarks exceed the requirements for N.G.S. 3<sup>rd</sup> order leveling.

E. Results:

The results of these level runs have been placed in a list in the project design file showing the BM number, elevation, run 1 and run 2 differences, description of each benchmark, and position by station and offset from the CLS.

9. Measurement Units:

The distances, coordinates, and elevations shown on this survey are in US SURVEY FEET. All angles and bearings shown are in degrees, minutes, and seconds.

10. Topography/Digital Terrain Model:

Topography on this project was obtained from conventional field level topography using Trimble S-8 Robotic Total Stations, Trimble R8 GPS receivers with Trimble TSC-2 data collectors, and using Carlson RTK GPS receivers with Carlson Surveyor+ data collectors. All paving, structures, and finished floor elevations were obtained with the total stations. GPS RTK surveying was used for land ties and miscellaneous topography. As a minimum, the coverage bandwidths for topographic and/or surface features data obtained on this survey are as follows:

- 100 feet right and 250 feet left of the Centerline of Survey from the Beginning of Survey to Station 854+52.07, thence;
- 250 feet right and left of Centerline of Survey from 854+52.07 to Station 869+62.09, thence;
- 100 feet right and 250 feet left of the Centerline of Survey from Station 869+62.09 to the End of Survey.

11. Land Ties:

Complete land tie information was obtained by a combination of conventional field methods and real-time kinematic (RTK) GPS as needed to purchase new right-of-way, including the bounding out of all sections through which the survey centerline passes.

West Quarter Corner of Section 25, T-29-N, R-15-E, I.M.

I set a 3/8" iron pin with a cap stamped "CA-1427" at a position established by using parcel evidence. Mr. Brown, who resides in the southeast quarter of Section 26, T-29-N, R-15-E stated on February 22<sup>nd</sup>, 2013, that he recalled a survey

marker in the road bed directly east of a fence corner post. The location of this fence post suggests that the survey marker that Mr. Brown recalls was in the position of the obliterated quarter corner. This fence post has a fence line running west along the north side of Mr. Brown's drive and appears to be constructed along the east/west quarter line of Section 26. This fence post also has a fence line running north from it and it appears to be constructed along the statutory right-of-way west of the section line road. Also when measuring across the road from the post, 33' generally lines up with fence and tree lines that appear to be constructed and perpetuated on the right-of-way east of the section line road. This field evidence and testimony compelled me to re-establish the position of the obliterated quarter corner 16.5' east of the post.

12. Right-of-Way:

The existing rights-of-way shown on this survey are established by the direct relationship between field observation and descriptions found in a combination of easements and deeds found on file in the County Clerk's offices at the Nowata County Courthouse in Nowata, Oklahoma, along with the right-of-way depicted on FAP No. F-193 (12) plans. In addition, we requested and received plans for the St. Louis - Iron Mountain & Southern Railroad from Carla Hutchings, ODOT Survey Division, to identify and establish the railroad right-of-way which defines the western right-of-way line of the survey. These plans graphically depict a curve that begins somewhere south of the intersection of EW-5 section line and continues north beyond said intersection some distance. These plans do not provide any geometric definition to this curve. A "best fit" curve was applied to field measurements of the railroad and offset to best reflect the right-of-way in this area. All property divisions adjacent to the present rights-of-way throughout the project limits have been properly established. This includes, as a minimum, the complete mathematical bounding of all parcels that fall partially or completely within the survey coverage limits. "Property division" includes present rights-of-way. The present rights-of-way have been tied to the centerline of survey and shown on the submitted survey notes.

13. Utilities:

Note: All utilities are shown as flagged by the utilities contacted or their representatives. All utilities serving the project area were contacted through OKIE One-Call. All utility locations are approximate, and depths and types are unknown. The utility locations shown on this survey are based on the flagged locations as performed by the utility owners or their contractors. Any inaccuracies or omissions are the responsibility of the utility owners and/or their contractors, and Guy Engineering Services accepts no responsibility for their failure to respond to the OKIE survey requests. Contact CALL OKIE at 1-800-522-OKIE.

14. Drainage:

Drainage areas for all drains crossing the Survey Centerline were taken from USGS quad maps scanned into a Microstation Design File.

15. Data Submitted:

Computer files:

1. SWO4744\_1\_v1.dgn -Survey Data Sheets
2. SWO4744\_1\_v1\_TOPO.dgn -Topographic/Planimetric Data
3. SWO4744\_1\_v1\_sff.dgn -Surface Feature File
4. SWO4744\_1\_v1\_TRI.dgn -DTM Triangle Drawing
5. SWO4744\_1\_v1\_dra.dgn -Drainage Area Map
6. SWO4744.txt -Cogo Points
7. PDF versions of all hard copied documents.

PLS	DMM	OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION <b>SURVEY DATA SHEET (3)</b> SWO_4744(1) PROJECT NO. 27092(04) SHEET NO. 41
DRAWN	ARR	
CHECKED	VKM	
APPROVED	DMM	
CREW	GES, INC.	



DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		42	143

BM NO.	RUN 1	RUN 2	MEAN DIFF.	ADJ. MEAN	ADJ. ELEV.	PUBLISHED ELEV.	BENCHMARK DESCRIPTION
7499					761.22	7499	3/8" Iron Pin with Plastic Cap N-53-290
7400	-33.66	-33.66	-33.66	-33.66	727.66	7400	1/2" Iron Pin with Aluminum Cap N-53-287
BM 1	1.37	1.36	1.37	1.37	728.93	BM 1	80d in 30' Pecan Sta. 825+41.08, 123.92' Rt.
7401	-7.55	-7.54	-7.55	-7.54	721.39	7401	3/8" Iron Pin with Plastic Cap Sta. 831+03.16, 57.43' Rt.
BM 2	5.92	5.92	5.92	5.92	727.31	BM 2	80d in 12" Elm Sta. 831+59.16, 79.23' Rt.
7402	-10.60	-10.59	-10.60	-10.59	716.72	7402	3/8" Iron Pin with Plastic Cap Sta. 836+58.35, 49.52' Rt.
BM 3	5.89	5.88	5.89	5.89	722.61	BM 3	80d in 12" Oak Sta. 837+15.95, 59.20' Rt.
BM 4	-9.41	-9.41	-9.41	-9.41	713.20	BM 4	Chiseled box on NW corner of East Headwall Sta. 839+72.02, 29.40' Rt.
RV 2	4.15	4.15	4.15	4.15	717.35	RV 2	NGS BM - Monu-Metal Rivet in Headwall HAVD '88
7403	-7.30	-7.29	-7.30	-7.29	710.06	7403	3/8" Iron Pin with Plastic Cap Sta. 842+24.78, 47.86' Rt.
7404	-0.59	-0.59	-0.59	-0.59	709.47	7404	3/8" Iron Pin with Plastic Cap Sta. 847+36.50, 50.33' Rt.
BM 5	1.08	1.09	1.09	1.09	710.56	BM 5	80d in 24" Elm Sta. 847+29.43, 63.40' Rt.
7405	-5.80	-5.80	-5.80	-5.80	704.76	7405	3/8" Iron Pin with Plastic Cap Sta. 852+93.91, 54.54' Rt.
BM 6	-5.96	-5.97	-5.97	-5.96	698.80	BM 6	80d in 10" Elm Sta. 852+95.89, 91.68' Rt.
7406	16.97	16.97	16.97	16.97	715.77	7406	3/8" Iron Pin with Plastic Cap Sta. 859+35.52, 28.26' Rt.
BM 7	2.18	2.18	2.18	2.18	717.95	BM 7	Chiseled "x" on SE wingwall Sta. 859+49.26, 20.77' Rt.
7407	-2.09	-2.10	-2.10	-2.09	715.86	7407	3/8" Iron Pin with Plastic Cap Sta. 864+86.03, 27.51' Lt.
7408	-15.95	-15.96	-15.95	-15.95	699.91	7408	3/8" Iron Pin with Plastic Cap Sta. 871+44.31, 139.44' Rt.
BM 8	1.57	1.57	1.57	1.57	701.48	BM 8	80d in 15" Elm Sta. 871+27.16, 166.81' Rt.
BM 9	8.40	8.41	8.41	8.41	709.89	BM 9	80d in 36" Oak Sta. 878+69.41, 202.81' Rt.
7409	1.07	1.06	1.07	1.07	710.96	7409	3/8" Iron Pin with Plastic Cap Sta. 878+04.68, 37.27' Rt.
7410	3.29	3.29	3.29	3.29	714.25	7410	3/8" Iron Pin with Plastic Cap Sta. 884+16.00, 65.54' Rt.
BM 10	-1.02	-1.01	-1.02	-1.01	713.24	BM 10	Chiseled box on SE corner of East Headwall Sta. 888+77.26, 31.07' Rt.
7411	-1.72	-1.72	-1.72	-1.72	711.52	7411	3/8" Iron Pin with Plastic Cap Sta. 889+09.42, 58.07' Rt.
7412	2.59	2.58	2.59	2.59	714.11	7412	1/2" Iron Pin with Aluminum Cap N-53-288
BM 11	0.34	0.34	0.34	0.34	714.45	BM 11	Top of Sucker Rod
7413	-1.39	-1.39	-1.39	-1.39	713.06	7413	3/8" Iron Pin with Plastic Cap N-53-289

PLS	DMM	OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION <b>SURVEY DATA SHEET (4)</b> SWO 4744(1) PROJECT NO. 27092(04) SHEET NO. 42
DRAWN	ARR	
CHECKED	VKM	
APPROVED	DMM	
CREW	GES, INC.	

OKLAHOMA DEPARTMENT OF TRANSPORTATION					
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		43	143

SWO 4744(1) COORDINATE POINT LIST JOB PIECE 27092(04)

PT. NO.	NORTHING	EASTING	PT. NO.	NORTHING	EASTING
1	715498.166610000	2661408.927130000	7606	720779.431171300	2659978.336227800
2	716114.934210000	2661348.743370000	7607	720811.065521500	2661207.797188500
3	716670.490310000	2661316.841200000	7609	723439.973731100	2661268.828188700
4	716925.913440000	2661283.939350000	7610	715534.896955500	2661367.065157600
5	717632.516270000	2661317.650430000	7611	716238.983609500	2661349.339616900
6	718247.458190000	2661354.406160000	7612	717320.659983400	2704315.244630000
7	718901.907060000	2661301.793400000	7613	716535.490462600	2661342.996566500
8	720074.751360000	2661434.053540000	7614	716803.558866400	2661393.507584300
9	720815.537150000	2661542.907670000	7615	716835.334932800	2661398.470115300
10	721828.204590000	2661402.292390000	7616	717905.938918100	2661399.718660700
11	722735.676670000	2661468.338200000	7617	718030.005364500	2661426.591662700
1000	715516.164000000	2661284.507900000	7618	718159.986183900	2661428.938473500
1001	716236.894722900	2661266.365858600	7619	718642.172740800	2661441.087749100
1002	716853.630366800	2661255.258694100	7620	718827.017131800	2661446.785219000
1003	717442.169237500	2661252.897433100	7621	718925.353494000	2661469.856568100
1004	717442.218566100	2661236.021661400	7622	719925.878301600	2661500.664997800
1005	718155.616848700	2661260.821419800	7623	720025.447501000	2661483.755334600
1006	718647.348552200	2661273.167448300	7624	720735.757270700	2661507.159599100
1007	718855.389077600	2661279.579802700	7625	720814.167603100	2662611.319867500
1008	719185.249568100	2661289.747205200	7626	723444.722137600	2661489.059482900
1009	719465.113510700	2661298.379468600	7627	722783.521988800	2661468.589261100
1010	720152.696351500	2661319.566876500	7628	722122.284512900	2661448.307907200
1011	720797.947683100	2661339.455497100	7629	721636.134746300	2661433.323283200
1012	721651.984313000	2661365.779521000	7630	721535.874131300	2661440.237693300
1013	722530.304467400	2661392.852036800	7631	721036.111288100	2661424.839471100
7401	716058.396900000	2661328.306000000	7632	720905.826649000	2661433.288295400
7402	716612.822500000	2661308.068000000	7633	720815.733360900	2661428.076322500
7403	717173.560200000	2661300.820000000	7634	720847.156307700	2662610.475828000
7404	717689.683500000	2661304.643000000	7635	715523.962969600	2660942.768662900
7405	718246.289700000	2661317.227000000	7636	720775.452107100	2661106.851982200
7406	718837.943200000	2661308.856000000	7637	720803.489230300	2661107.670287500
7407	719439.907920000	2661270.072800000	8000	715507.432457400	2660941.797192000
7408	720092.739800000	2661457.229120000	8001	715676.209239000	2660949.477707700
7409	720755.939500000	2661375.450500000	8002	718149.505920400	2661025.712282500
7410	721366.101280000	2661422.540360000	8003	715510.017940900	2661042.127629800
7411	721859.512990000	2661430.269970000	8004	716943.915573800	2662724.090445000
7412	715523.962969600	2660942.768662900	8005	721150.280345000	2662580.838270000
7413	720775.452107100	2661106.651982200	8006	723454.234839900	2661890.227194700
7600	715502.783924000	2660120.912307300	8007	721794.108680000	2661905.878396000
7601	715526.547834900	2661043.075109300	8008	720791.970668700	2661107.161134900
7602	715673.123396100	2661049.430238500	8009	723437.599617900	2661183.707517600
7603	718152.103342500	2661125.839988900	9000	725981.230290000	2657218.966110000
7604	720773.023958300	2661206.778883200	9001	726049.824410000	2659838.135050000
7605	720746.443006800	2659979.220692700	9002	726119.744000000	2662496.508000000

Page 1 of 2

SWO 4744(1) COORDINATE POINT LIST JOB PIECE 27092(04)

PT. NO.	NORTHING	EASTING	PT. NO.	NORTHING	EASTING
9003	723344.777460000	2657274.328300000			
9004	723407.240289800	2659908.432158600			
9005	723469.896990000	2662550.825540000			
9006	720681.461620000	2657341.908830000			
9007	720762.937000000	2659978.775000000			
9008	720830.661000000	2662610.851000000			
9009	718055.731290000	2657417.750810000			
9010	718124.148209600	2660050.079072900			
9011	718192.654430000	2662685.843170000			
9012	715413.312050000	2657484.145140000			
9013	715486.290000000	2660121.358000000			
9014	715554.304000000	2662760.661000000			

Page 2 of 2

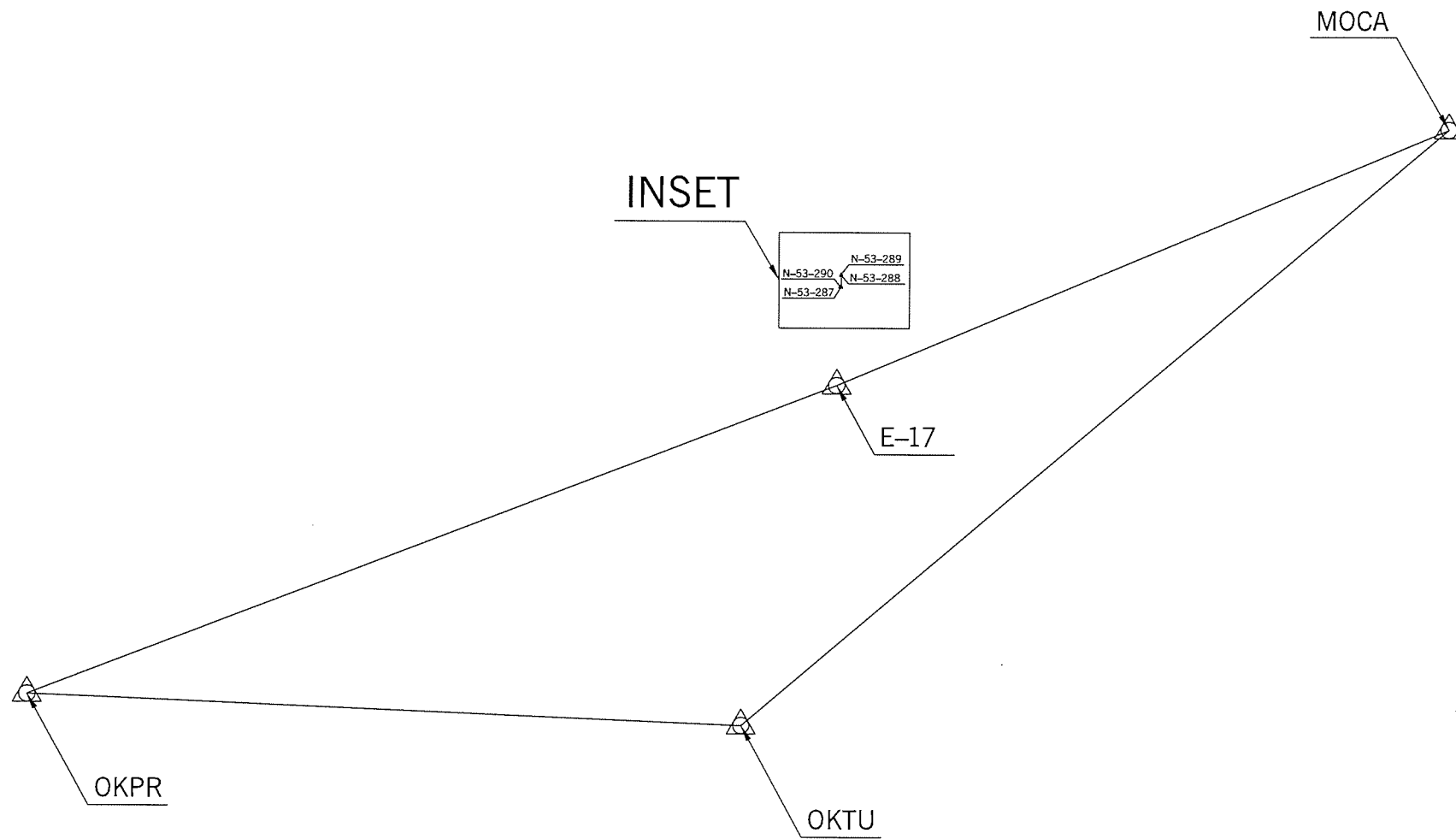
### Alignment Report

Project Name: SWO4744\_1\_V1  
Description: Opossum Creek  
Horizontal Alignment Name: A001  
Description: Centerline of Survey  
Style: Centerline

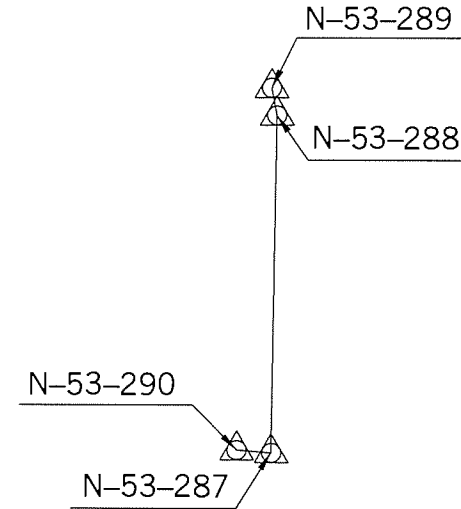
	STATION	NORTHING	EASTING
Element: Linear			
POB ( 1000 )	825+62.30	715516.2640	2661284.5079
PC ( 1001 )	832+83.16	716236.8947	2661266.3659
Tangent Direction:	N 1°26'31.67" W		
Tangent Length:	720.86		
Element: Circular			
PC ( 1001 )	832+83.16	716236.8947	2661266.3659
PI ( 1003 )	844+88.85	717442.2169	2661236.0216
CC ( 1004 )		717320.6600	2704315.2446
PT ( 1006 )	856+93.94	718647.3486	2661273.1674
Radius:	43062.52		
Delta:	3°12'27.37" Right		
Degree of Curvature (Arc):	0°07'58.99"		
Length:	2410.78		
Tangent:	1205.70		
Chord:	2410.46		
Middle Ordinate:	16.87		
External:	16.88		
Tangent Direction:	N 1°26'31.67" W		
Radial Direction:	N 88°33'28.33" E		
Chord Direction:	N 0°09'42.02" E		
Radial Direction:	S 88°14'04.30" E		
Tangent Direction:	N 1°45'55.70" E		
Element: Linear			
PT ( 1006 )	856+93.94	718647.3486	2661273.1674
POE ( 1013 )	895+78.74	722530.3045	2661392.8520
Tangent Direction:	N 1°45'55.70" E		
Tangent Length:	3884.80		

PLS	DMM	OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION
DRAWN	ARR	
CHECKED	VKM	
APPROVED	DMM	
CREW	GES, INC.	
<b>SURVEY DATA SHEET (5)</b>		
SWO 4744(1) PROJECT NO. 27092(04) SHEET NO. 43		

OKLAHOMA DEPARTMENT OF TRANSPORTATION				
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	TOTAL SHEETS
8	OKLA	27092(04)	44	143



INSET

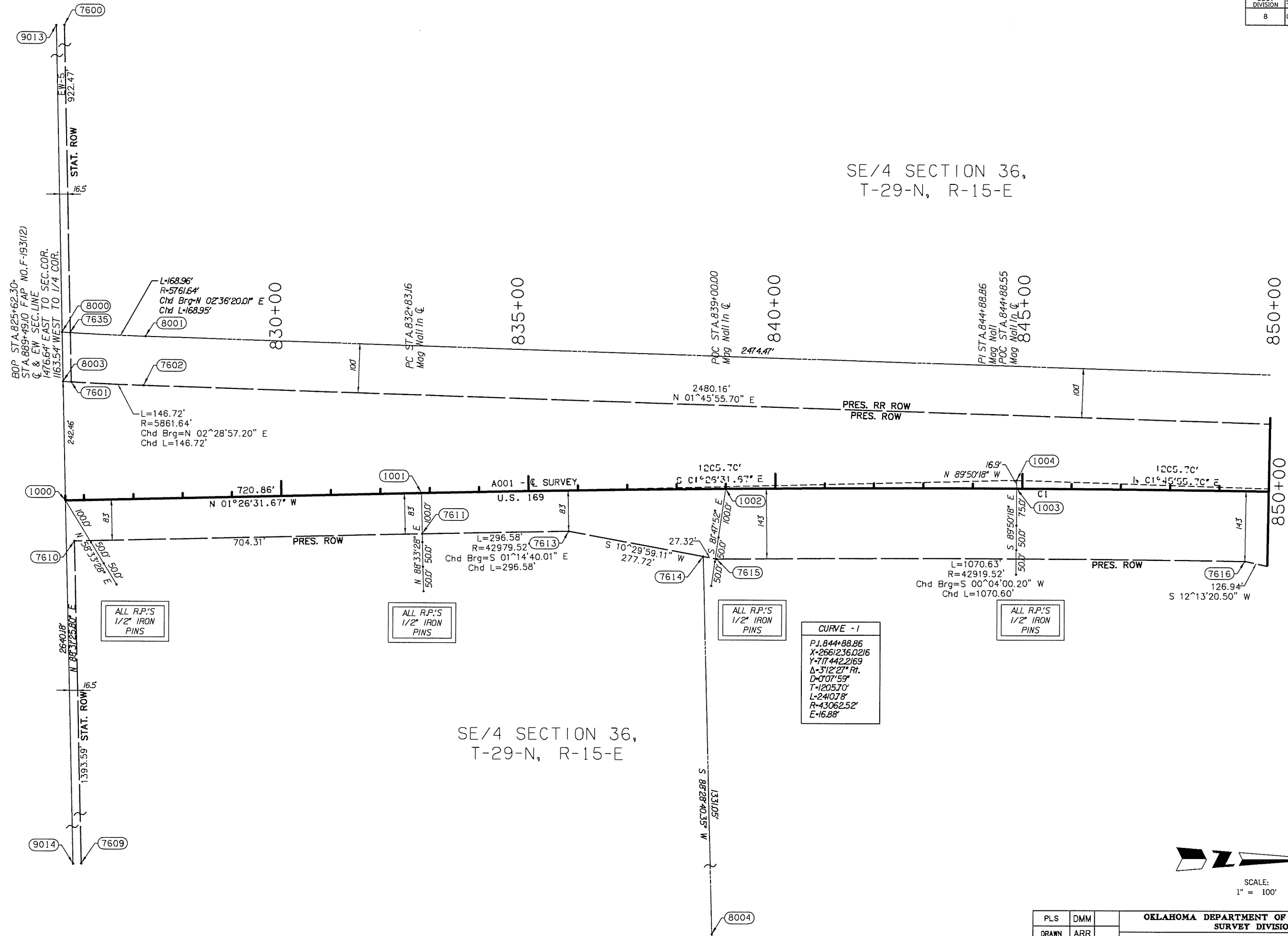


Note: Control Network Adjustment utilizing CORS Stations "MOCA", "OKPR", "OKTU", HARN Stations "E-17".

PLS	DMM	OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION <b>SURVEY DATA SHEET (6)</b> SWO 4744(1) PROJECT NO. 27092(04) SHEET NO. 44
DRAWN	ARR	
CHECKED	VKM	
APPROVED	DMM	
CREW	GES, INC.	

OKLAHOMA DEPARTMENT OF TRANSPORTATION				
DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No. TOTAL SHEETS
8	OKLA	27092(04)		45 143

SE/4 SECTION 36,  
T-29-N, R-15-E



SE/4 SECTION 36,  
T-29-N, R-15-E



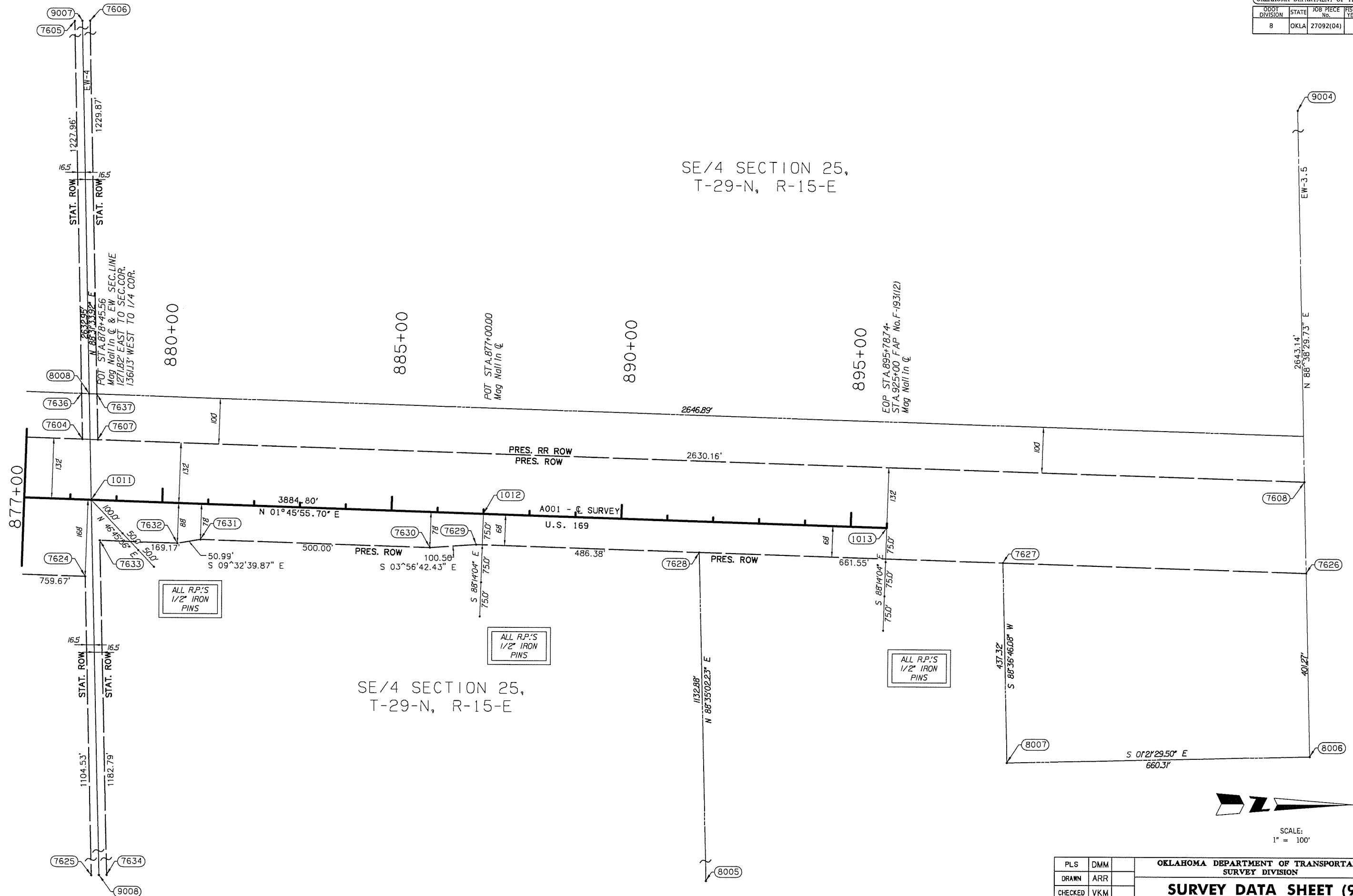
SCALE:  
1" = 100'

PLS	DMM	OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION <b>SURVEY DATA SHEET (7)</b> SWO 4744(1) PROJECT NO. 27092(04) SHEET NO. 45
DRAWN	ARR	
CHECKED	VKM	
APPROVED	DMM	
CREW	GES, INC.	





DDOT DIVISION	STATE	JOB PIECE No.	DRAWING SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)	47	143



SE/4 SECTION 25,  
T-29-N, R-15-E

SE/4 SECTION 25,  
T-29-N, R-15-E



SCALE:  
1" = 100'

PLS	DMM	OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION
DRAWN	ARR	
CHECKED	VKM	
APPROVED	DMM	
CREW	GES, INC.	

**SURVEY DATA SHEET (9)**

SWO 4744(1) PROJECT NO. 27092(04) SHEET NO. 47

DDOT DIVISION	STATE	JOB PIECE No.	FISCAL SHEET YEAR No.	TOTAL SHEETS
8	OKLA	27092(04)	48	143

NORTHWEST CORNER OF SECTION 36, T-29-N, R-16-E, I.M. FOUND AND ACCEPTED A 1/2" IRON ROD AND 2 REFERENCES AS LISTED IN CORNER RECORD FILED BY GUY R. BUCKLAND, LS 1323 DATED AUGUST 1997. SET ONE REFERENCE.

NORTH QUARTER CORNER OF SECTION 36, T-29-N, R-16-E, I.M. FOUND 1" IRON PIPE AND THREE REFERENCES LISTED ON A CERTIFIED CORNER RECORD FILED ON MARCH 9, 2012.

NORTHEAST CORNER OF SECTION 36, T-29-N, R-16-E, I.M. FOUND AND ACCEPTED A 1/2" IRON ROD WITH CAP MARKED "CORNERSTONE SURVEYING, OK-CALS 3212" SET ON TOP OF ORIGINAL STONE AND THREE REFERENCES LISTED ON A CERTIFIED CORNER RECORD FILED BY CORNERSTONE SURVEYING OF KS & OK, LLC ON MARCH 28, 2001.

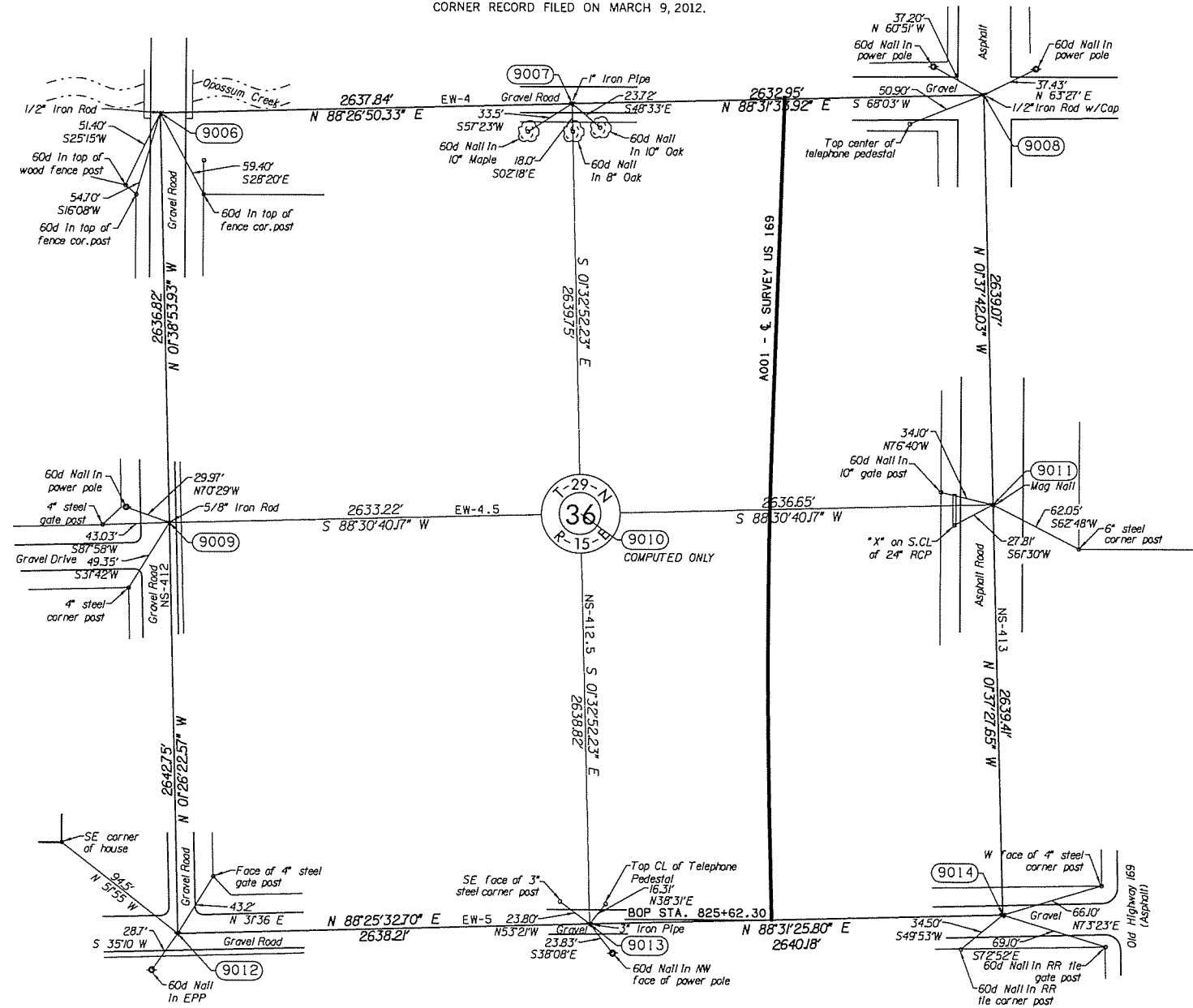
WEST QUARTER CORNER OF SECTION 36, T-29-N, R-16-E, I.M., FOUND AND ACCEPTED A 5/8" IRON ROD AND THREE REFERENCES LISTED ON A CERTIFIED CORNER RECORD FILED ON MARCH 9, 2012.

EAST QUARTER CORNER OF SECTION 36, T-29-N, R-15-E, I.M., FOUND AND ACCEPTED A MAG NAIL AND THREE REFERENCES LISTED ON A CERTIFIED CORNER RECORD FILED ON MARCH 9, 2012.

SOUTHWEST CORNER OF SECTION 36, T-29-N, R-16-E, I.M. FOUND AND ACCEPTED A 1/2" IRON PIN AND 1 REFERENCE LISTED ON A CERTIFIED CORNER RECORD FILED BY GUY R. BUCKLAND OF BUCKLAND SURVEYING COMPANY ON AUGUST 11, 1997. FOUND ONE REFERENCE SET BY PERSONS UNKNOWN. FOUND AND REJECTED A 5/8" IRON PIN SET BY PERSONS UNKNOWN. SET ONE REFERENCE TO FOUND MONUMENT.

SOUTH QUARTER CORNER OF SECTION 36, T-29-N, R-16-E, I.M. FOUND AND ACCEPTED A 3" IRON PIPE AND THREE REFERENCES LISTED ON A CERTIFIED CORNER RECORD FILED ON MARCH 9, 2012.

SOUTHEAST CORNER OF SECTION 36, T-29-N, R-15-E, I.M., FOUND AND ACCEPTED A 1/2" IRON PIN WITH YELLOW CAP AND THREE REFERENCES LISTED ON A CERTIFIED CORNER RECORD FILED ON MARCH 9, 2012.



SCALE: 1" = 500'

NOTE: REFERENCE'S SHOWN ARE NOT TO SCALE

PLS	DMM	OKLAHOMA DEPARTMENT OF TRANSPORTATION SURVEY DIVISION <b>SURVEY DATA SHEET (10)</b> SWO 4744(1) PROJECT NO. 27092(04) SHEET NO. 48
DRAWN	ARR	
CHECKED	VKM	
APPROVED	DMM	
CREW	GES, INC.	

DDOT DIVISION	STATE	JOB PIECE No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
8	OKLA	27092(04)		49	143

NORTHWEST CORNER OF SECTION 25, T-29-N, R-15-E, I.M., FOUND AND ACCEPTED A 5/8" IRON PIN AND THREE REFERENCE LISTED ON A CERTIFIED CORNER RECORD FILED BY GUY R. BUCKLAND OF BUCKLAND SURVEYING ON AUGUST 11, 1997.

WEST QUARTER CORNER OF SECTION 25, T-29-N, R-15-E, I.M., I SET A 3/8" IRON PIN WITH A CAP STAMPED "CA-1427" AT A POSITION ESTABLISHED BY USING PAROL EVIDENCE. MR. BROWN, WHO RESIDES IN THE SOUTHEAST QUARTER OF SECTION 26, T-29-N, R-15-E STATED ON FEBRUARY 22ND, 2013, THAT HE RECALLED A SURVEY MARKER IN THE ROAD BED DIRECTLY EAST OF A FENCE CORNER POST. THE LOCATION OF THIS FENCE POST SUGGESTS THAT THE SURVEY MARKER THAT MR. BROWN RECALLS WAS IN THE POSITION OF THE OBLITERATED QUARTER CORNER. THIS FENCE POST HAS A FENCE LINE RUNNING WEST ALONG THE NORTH SIDE OF MR. BROWN'S DRIVE AND APPEARS TO BE CONSTRUCTED ALONG THE EASTWEST QUARTER LINE OF SECTION 26. THIS FENCE POST ALSO HAS A FENCE LINE RUNNING NORTH FROM IT AND IT APPEARS TO BE CONSTRUCTED ALONG THE STATUTORY RIGHT-OF-WAY WEST OF THE SECTION LINE ROAD. ALSO WHEN MEASURING ACROSS THE ROAD FROM THE POST, 33' GENERALLY LINES UP WITH FENCE AND TREE LINES THAT APPEAR TO BE CONSTRUCTED AND PERPETUATED ON THE RIGHT-OF-WAY EAST OF THE SECTION LINE ROAD. THIS FIELD EVIDENCE AND TESTIMONY COMPELLED ME TO RE-ESTABLISH THE POSITION OF THE OBLITERATED QUARTER CORNER 16.5' EAST OF THE POST.

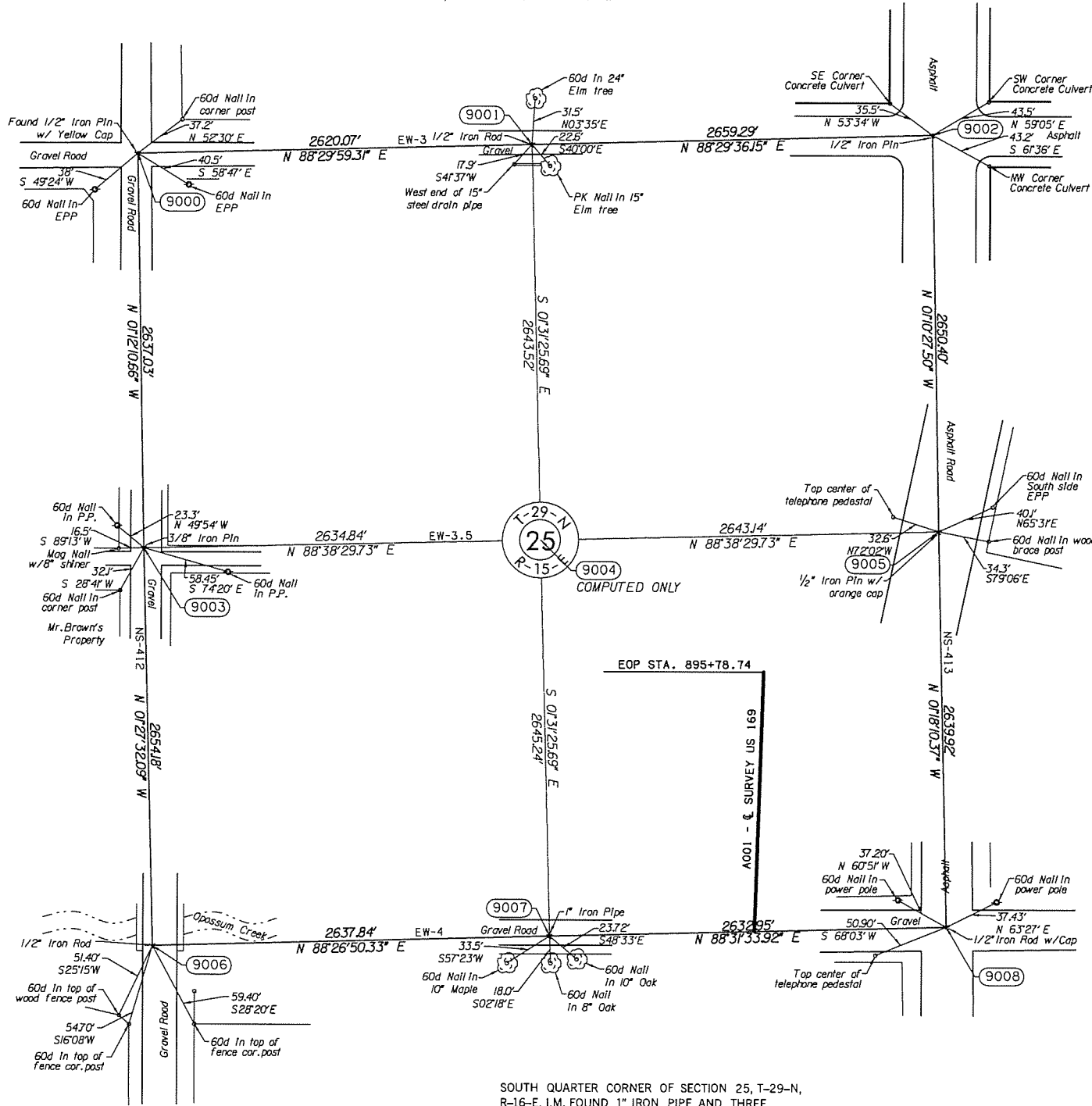
SOUTHWEST CORNER OF SECTION 25, T-29-N, R-16-E, I.M. FOUND AND ACCEPTED A 1/2" IRON ROD AND 2 REFERENCES AS LISTED IN CORNER RECORD FILED BY GUY R. BUCKLAND, LS 1323 DATED AUGUST 1997. SET ONE REFERENCE.

NORTH QUARTER CORNER OF SECTION 25, T-29-N, R-15-E, I.M., FOUND AND ACCEPTED A 1/2" IRON ROD AND TWO REFERENCES LISTED ON A CERTIFIED CORNER RECORD FILED BY CORNERSTONE SURVEYING OF KS & OK, LLC ON MARCH 28, 2001. SET ONE REFERENCE.

NORTHEAST CORNER OF SECTION 25, T-29-N, R-15-E, I.M., FOUND AND ACCEPTED A 1/2" IRON PIN AND THREE REFERENCES LISTED ON A CERTIFIED CORNER RECORD FILED BY NORMAN R. BENNETT, LS 1022, OF CENTRAL STATES CONSULTANTS, INC. ON MARCH 21, 1984.

EAST QUARTER CORNER OF SECTION 25, T-29-N, R-15-E, I.M., FOUND AND ACCEPTED A 1/2" IRON PIN WITH CAP MARKED "CORNERSTONE SURVEYING, OK-CALS 3212" AND TWO REFERENCES LISTED ON A CERTIFIED CORNER RECORD FILED BY CORNERSTONE SURVEYING OF KS & OK, LLC ON MARCH 28, 2001. FOUND 1 REFERENCES SET BY PERSONS UNKNOWN.

SOUTHEAST CORNER OF SECTION 25, T-29-N, R-16-E, I.M. FOUND AND ACCEPTED A 1/2" IRON ROD WITH CAP MARKED "CORNERSTONE SURVEYING, OK-CALS 3212" SET ON TOP OF ORIGINAL STONE AND THREE REFERENCES LISTED ON A CERTIFIED CORNER RECORD FILED BY CORNERSTONE SURVEYING OF KS & OK, LLC ON MARCH 28, 2001.



SOUTH QUARTER CORNER OF SECTION 25, T-29-N, R-16-E, I.M. FOUND 1" IRON PIPE AND THREE REFERENCES LISTED ON A CERTIFIED CORNER RECORD FILED ON MARCH 9, 2012.

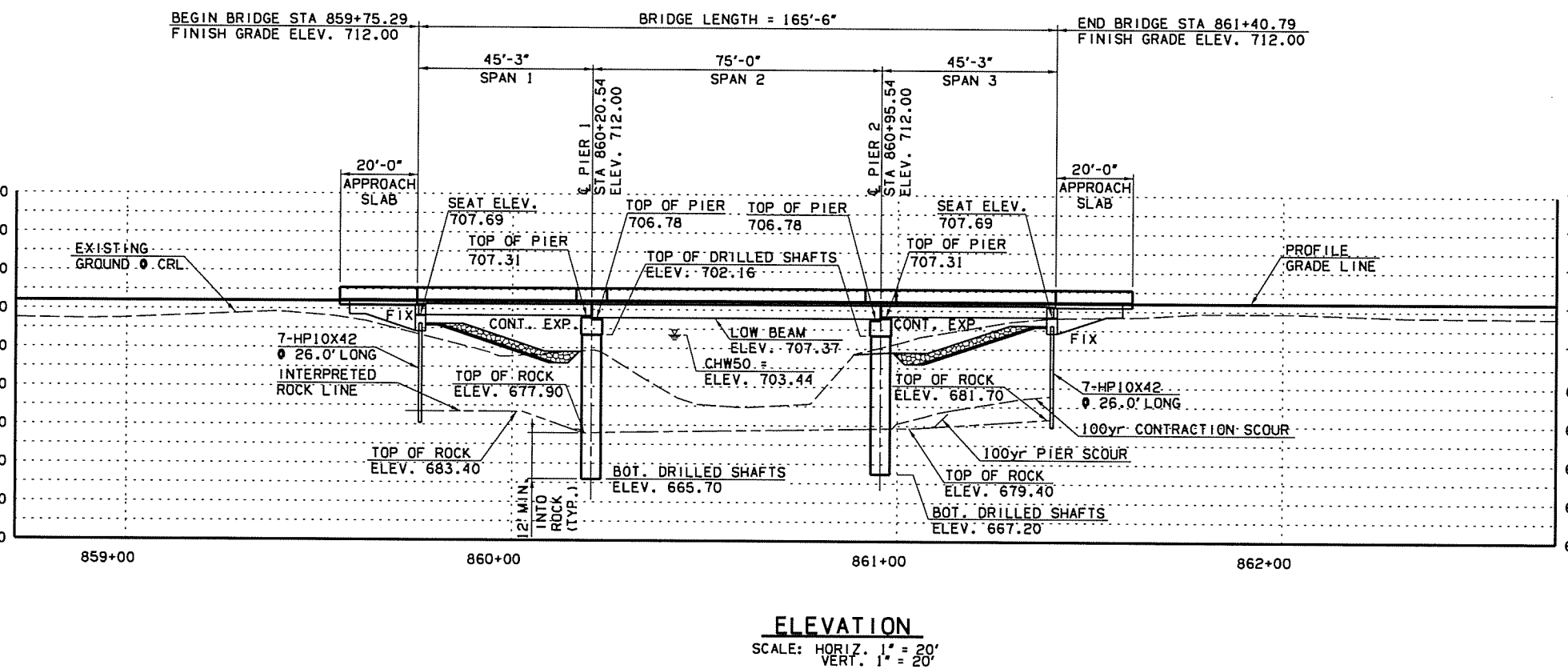
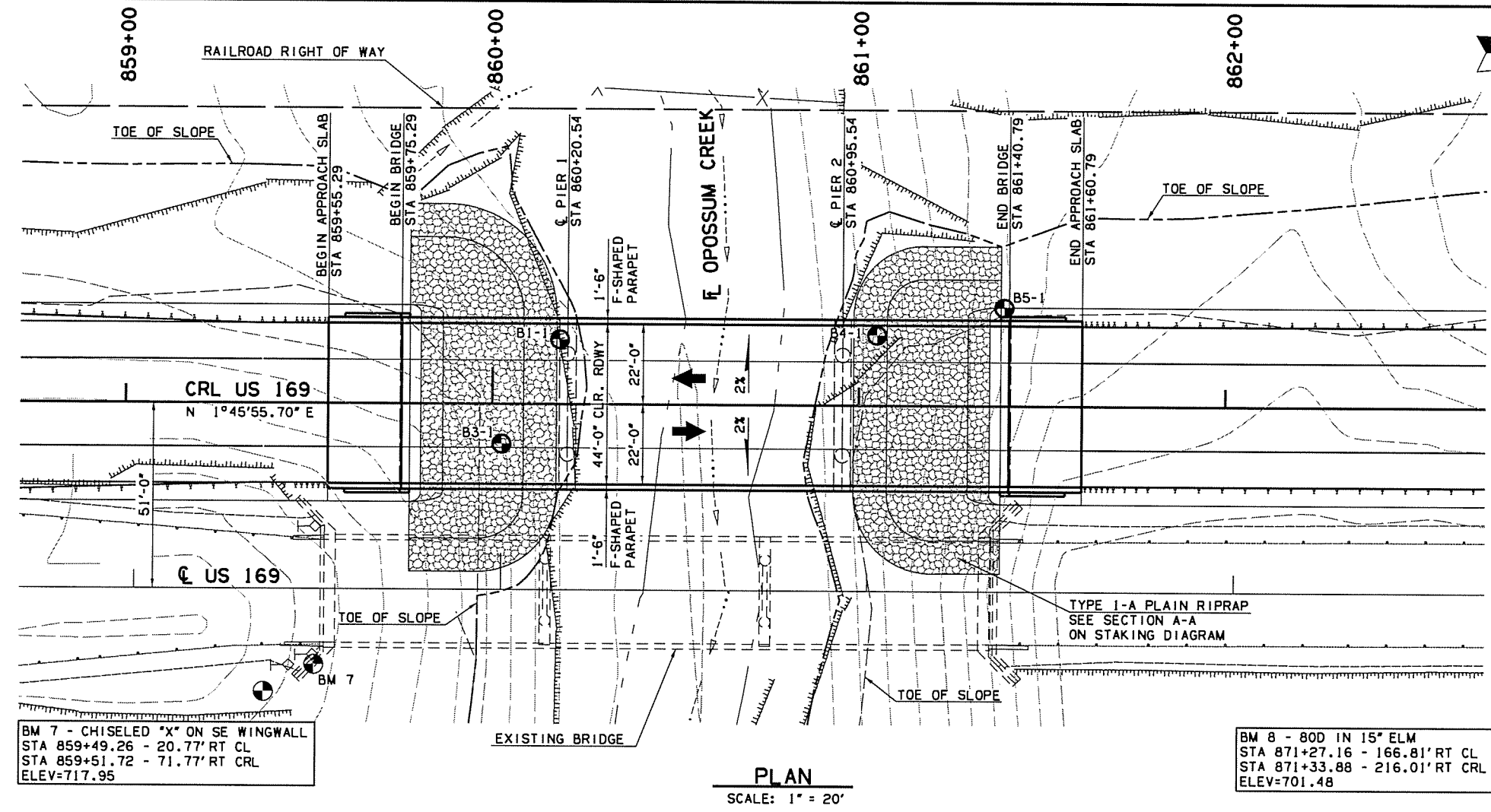


SCALE: 1" = 500'

NOTE: REFERENCE'S SHOWN ARE NOT TO SCALE

PLS	DMM	<b>OKLAHOMA DEPARTMENT OF TRANSPORTATION</b> <b>SURVEY DIVISION</b> <b>SURVEY DATA SHEET (11)</b> SWO 4744(1), PROJECT NO. 27092(04) SHEET NO. 49
DRAWN	ARR	
CHECKED	VKM	
APPROVED	DMM	
CREW	GES, INC.	

NO.	DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA		270921041		50	143



**DESIGN DATA**

**LOADING**  
HL-93, OKLAHOMA OVERLOAD TRUCK OR 315 OVERLOAD TRUCK  
20 PSF FUTURE WEARING SURFACE.  
LRFR OPERATING RATING = 2.09

**DESIGN**  
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION,  
EXCEPT FOR PILES WHICH SATISFY AASHTO STANDARD  
SPECIFICATIONS FOR HIGHWAY BRIDGES, 16TH EDITION WITH NO  
INTERIMS.  
ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE  
ANSI/AWS D1.6 STRUCTURAL WELDING CODE - STAINLESS STEEL

**MATERIAL**  
CONCRETE:  
CLASS AA f'c = 4,000 PSI  
CLASS A f'c = 3,000 PSI  
REINFORCING STEEL: Fy = 60,000 PSI  
STRUCTURAL STEEL M270 (GRADE 50W) Fy = 50,000 PSI  
STAINLESS STEEL A240 (TYPE 316) Fy = 30,000 PSI  
STAINLESS STEEL A320, CLASS 2, (GRADE B8M) Fy = 58,000 PSI

**FOUNDATION DESIGN**  
ABUTMENTS (HP 10X42 PILING)  
FACTORED PILE REACTION = 57.62 TONS/PILE

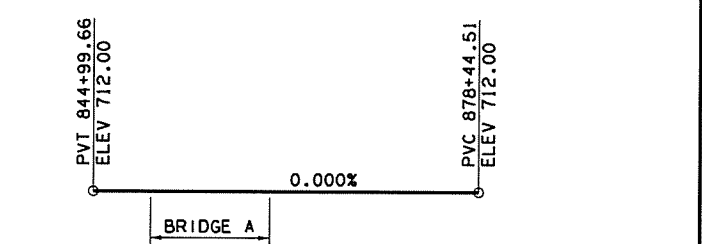
**PIER 1 AND 2 (48" DIA. DRILLED SHAFTS)**  
MAX. FACTORED REACTION = 445.28 T/SHAFT  
FACTORED FRICTION RESISTANCE (9 TSF) = 357.20 T/SHAFT  
FACTORED BEARING RESISTANCE (160 TSF) = 529.20 T/SHAFT  
TOTAL FACTORED RESISTANCE = 886.40 T/SHAFT  
BEARING RESISTANCE FACTOR = 0.7  
FRICTION RESISTANCE FACTOR = 0.45  
FRICTION DEPTH OF ROCK NEGLECTED (FEET) = 5

**HYDRAULIC DATA**

TOTAL DA = 36.02 SQ MI (1) Q50 = 7230 cfs  
CONTROLLED DA = 0 SQ MI V50 = 1.27 fps  
EFFECTIVE DA = 36.02 SQ MI CHW50 = 703.44  
Q2 = 1950 cfs Q100 = 8445 cfs  
V2 = 6.06 fps V100 = 1.26 fps  
CHW2 = 693.25 CHW100 = 704.45  
Q5 = 3345 cfs \*100yr PIER SCOUR = 7.17'  
V5 = 6.56 fps 100yr CONTRACTION SCOUR = 20.17'  
CHW5 = 696.46 \*100yr TOTAL SCOUR = 27.34'  
Q10 = 4310 cfs QOT > Q500 = 12645 cfs  
V10 = 2.63 fps V500 = 1.33 fps  
CHW10 = 699.14 CHW500 = 706.69  
Q25 = 5815 cfs \*500yr PIER SCOUR = 7.10'  
V25 = 1.36 fps 500yr CONTRACTION SCOUR = 29.88'  
CHW25 = 702.09 \*500yr TOTAL SCOUR = 36.98'  
BRIDGE LENGTH = 165.50'

\* NOT APPLICABLE DUE TO ROCK ELEVATION

NOTE:  
(1) FLOWS WERE TAKEN FROM HEC-RAS FLOW DISTRIBUTION  
FOR MULTIPLE BRIDGE OPENING ROUTINE MODELING  
THE MAIN CHANNEL AND OVERFLOW CHANNEL



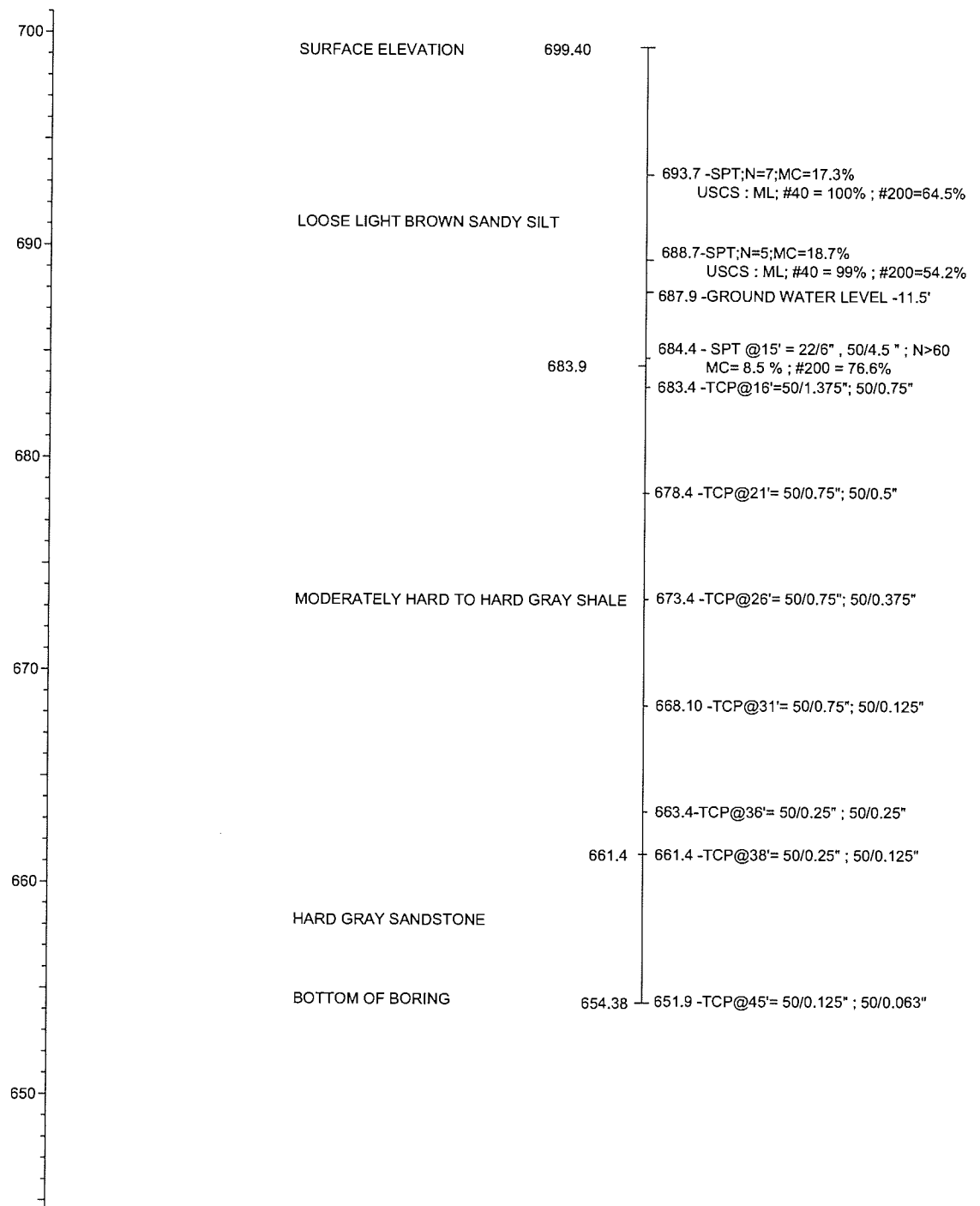
BRIDGE A @ STA. 860+58.04 CRL CONST.  
INTEGRAL 45'-75'-45' STEEL BEAM SPANS  
44'-0" CLR. RDY. SKEW 0°, F-SHAPED PARAPET

TO BE REMOVED EXISTING BRIDGE  
@ STA. 889+64.00 3-60' I-BEAM SPANS  
28' CLR. RDY W/ 2-18" S.C. SKEW 0°

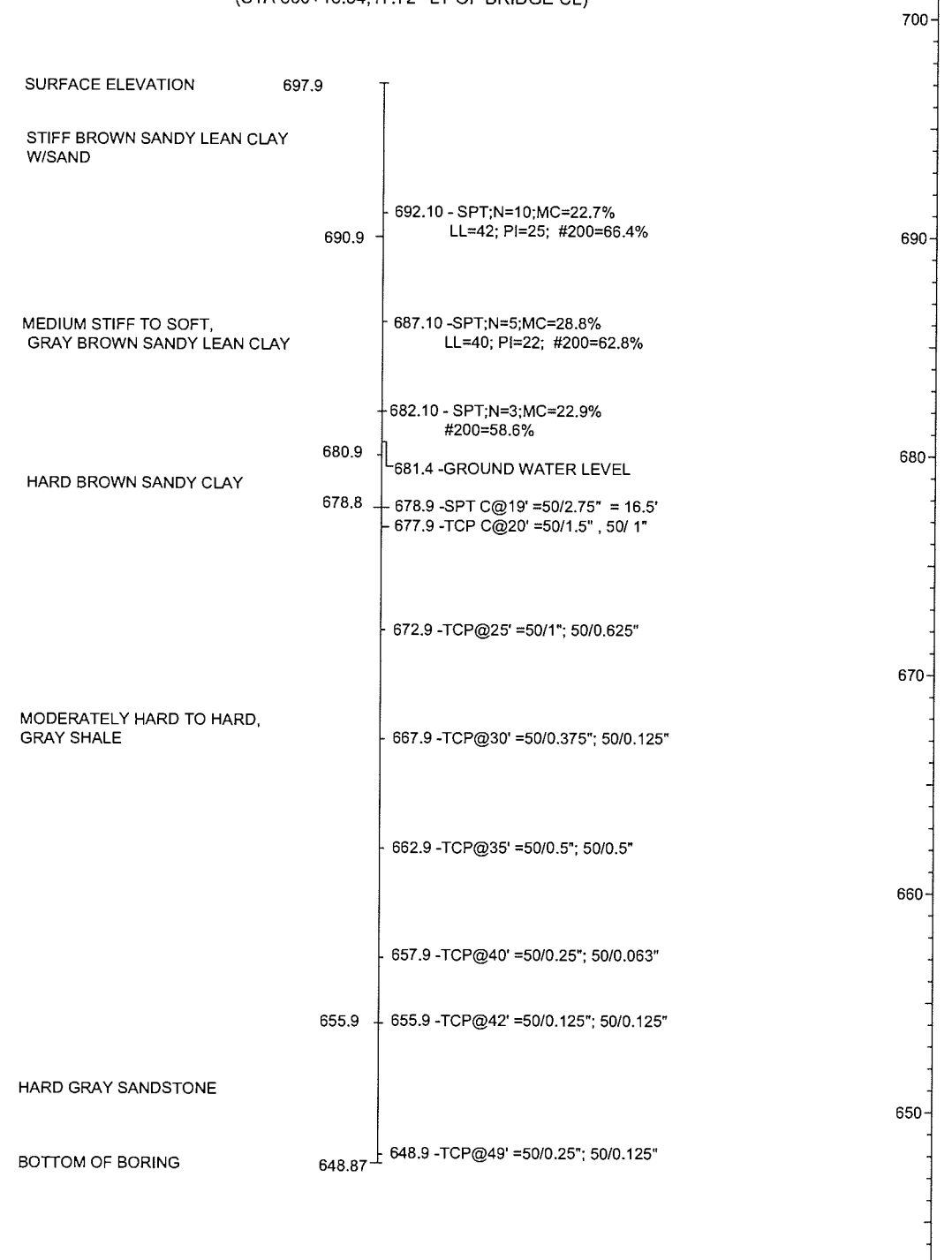
Design	SAK	6/16	US 169 OVER OPOSSUM CREEK BRIDGE A <b>GENERAL PLAN AND ELEVATION</b> Job Piece No. 270921041 Sheet No. 50	NOWATA COUNTY
Drawn	WZB	6/16		
Checked	STF	6/16		
Approved	SAK	6/16		
Squad	BENHAM			

DOT DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		51	143

**BORING NO. B3-1**  
(STA 860+02.49', 10.96' RT OF BRIDGE CL)



**BORING NO. B1-1**  
(STA 860+18.34,17.72' LT OF BRIDGE CL)



**GEO-TECHNICAL REPORT**

ALL GEOTECHNICAL INFORMATION CONTAINED ON THIS SHEET IS COVERED BY THE ENGINEERING SEAL AFFIXED TO AN ORIGINAL GEOTECHNICAL ENGINEERING REPORT THAT HAS BEEN STAMPED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN OKLAHOMA.

TO OBTAIN A COPY OF THE COMPLETE REPORT, CONTACT THE ODOT OFFICE ENGINEER AT (405) 522-0972. THE CONTRACTOR SHOULD BE FULLY AWARE OF THE SITE CONDITIONS PRIOR TO BEGINNING WORK. ANY ADDITIONAL GEOTECHNICAL INFORMATION WHICH MAY BE DESIRED IS THE RESPONSIBILITY OF THE CONTRACTOR.

**SITE GEOLOGY**

THE SUBJECT PROJECT IS LOCATED AND BOUNDED BY PENNSYLVANIAN PERIOD, COFFEYVILLE FORMATION (IPCC), CHEVKERBOARD FORMATION (IPCC), SEMINOLE FORMATION (IPSL), AND LENAPAH FORMATION (IPLB) WITH ALLUVIUM (QAL). THESE FORMATIONS ARE DESCRIBED AS FOLLOWS:

- IPCC - COFFEYVILLE FORMATION: SHALE AND THIN-BEDDED SANDSTONE.
- IPCC - CHECKERBOARD FORMATION: LIMESTONE AND SOME SHALE.
- IPSL - SEMINOLE FORMATION: SHALE, SANDSTONE, AND THIN COAL BEDS.
- IPLB - LENAPAH FORMATION: LIMESTONE AND SHALE.
- QAL - ALLUVIUM: GRAVEL, SAND SILT, AND CLAY.

IN OUR FIELD EXPLORATION WE ENCOUNTERED ALLUVIUM OVERBURDEN SOILS OVER SHALE, SANDSTONE AND LIMESTONE FORMATIONS.

**NOTES:**

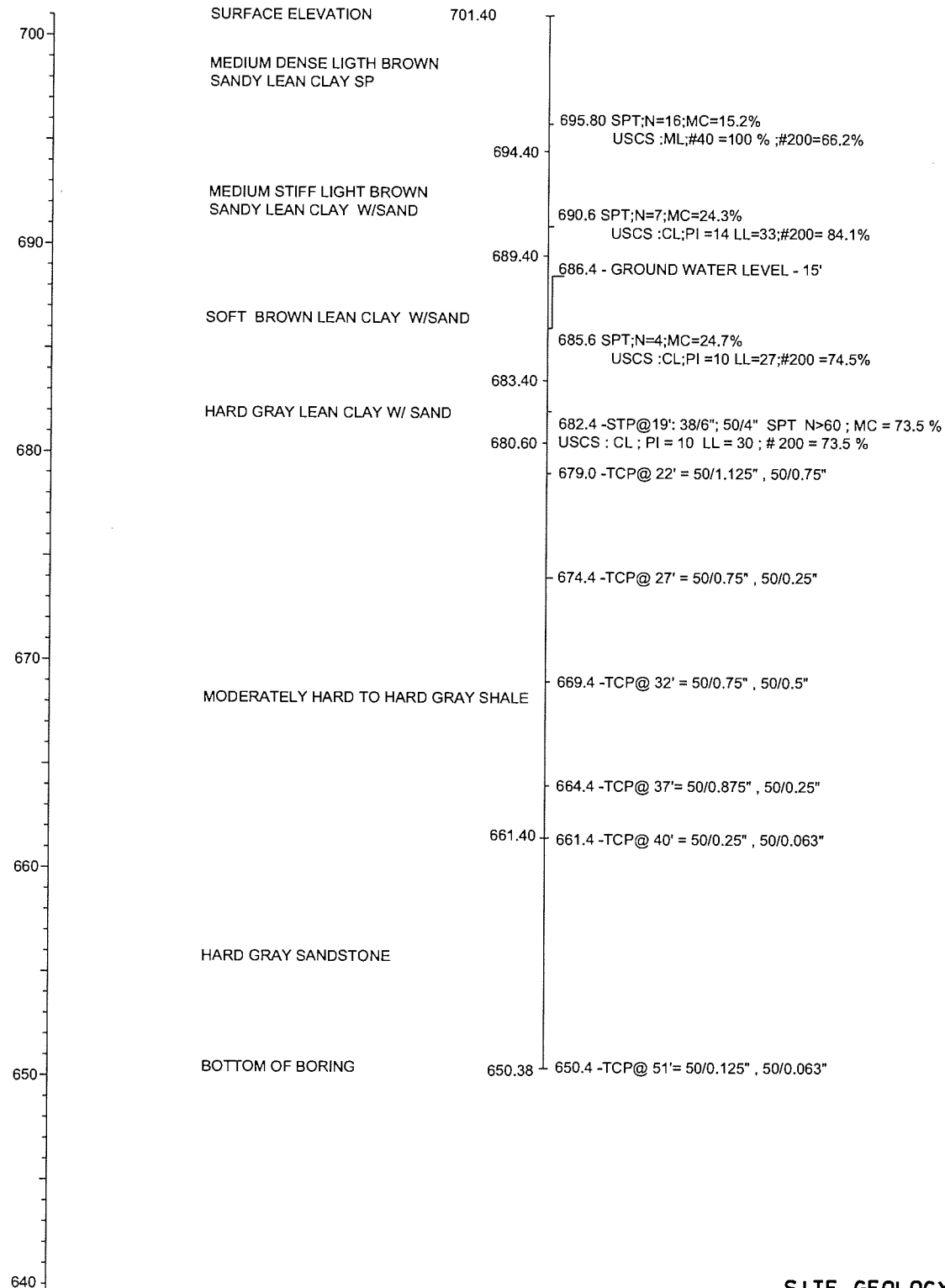
- GROUNDWATER LEVELS WERE OBTAINED DURING THE DRILLING OPERATIONS AND MAY FLUCTUATE THROUGHOUT THE YEAR. BORING DATA IS PROVIDED BY GW<sup>2</sup>.

Design	GW2	6/16	US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn	RAH	6/16	BRIDGE A	
Checked	MKR	6/16	<b>FOUNDATION REPORT</b>	
Approved	SAK	6/16	<b>(SHEET 1 OF 2)</b>	
Squad	BENHAM		Job Piece No. 27092(04)	Sheet No. 51

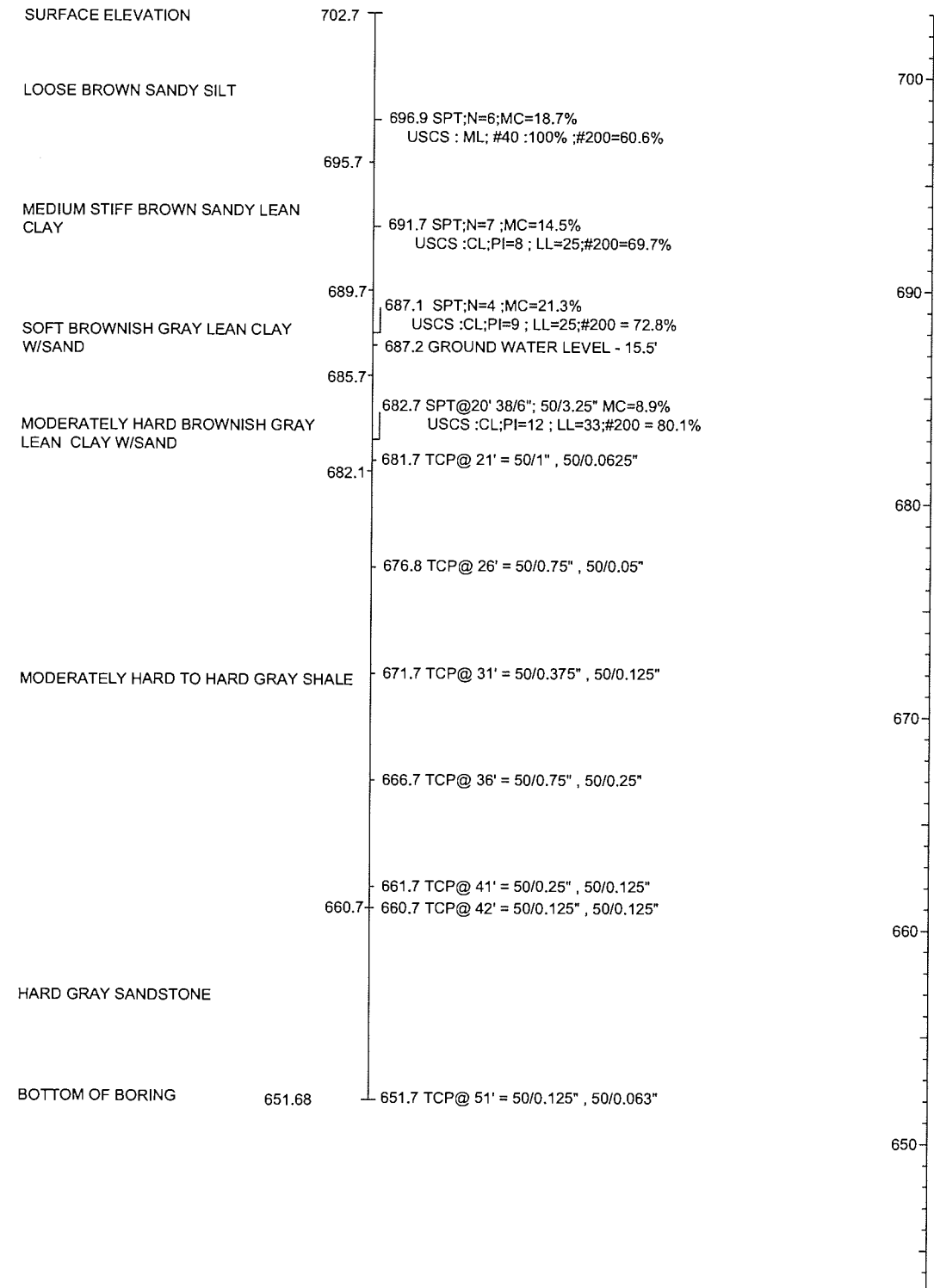


DOT DISTRICT	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		52	143

**BORING NO. B4-1**  
(STA 861+04.84, 19.21' LT OF BRIDGE CL)



**BORING NO. B5-1**  
(STA 861+39.40, 26.87' LT OF BRIDGE CL)



**GEO-TECHNICAL REPORT**

ALL GEOTECHNICAL INFORMATION CONTAINED ON THIS SHEET IS COVERED BY THE ENGINEERING SEAL AFFIXED TO AN ORIGINAL GEOTECHNICAL ENGINEERING REPORT THAT HAS BEEN STAMPED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN OKLAHOMA.  
TO OBTAIN A COPY OF THE COMPLETE REPORT, CONTACT THE ODOT OFFICE ENGINEER AT (405) 522-0972. THE CONTRACTOR SHOULD BE FULLY AWARE OF THE SITE CONDITIONS PRIOR TO BEGINNING WORK. ANY ADDITIONAL GEOTECHNICAL INFORMATION WHICH MAY BE DESIRED IS THE RESPONSIBILITY OF THE CONTRACTOR.

**SITE GEOLOGY**

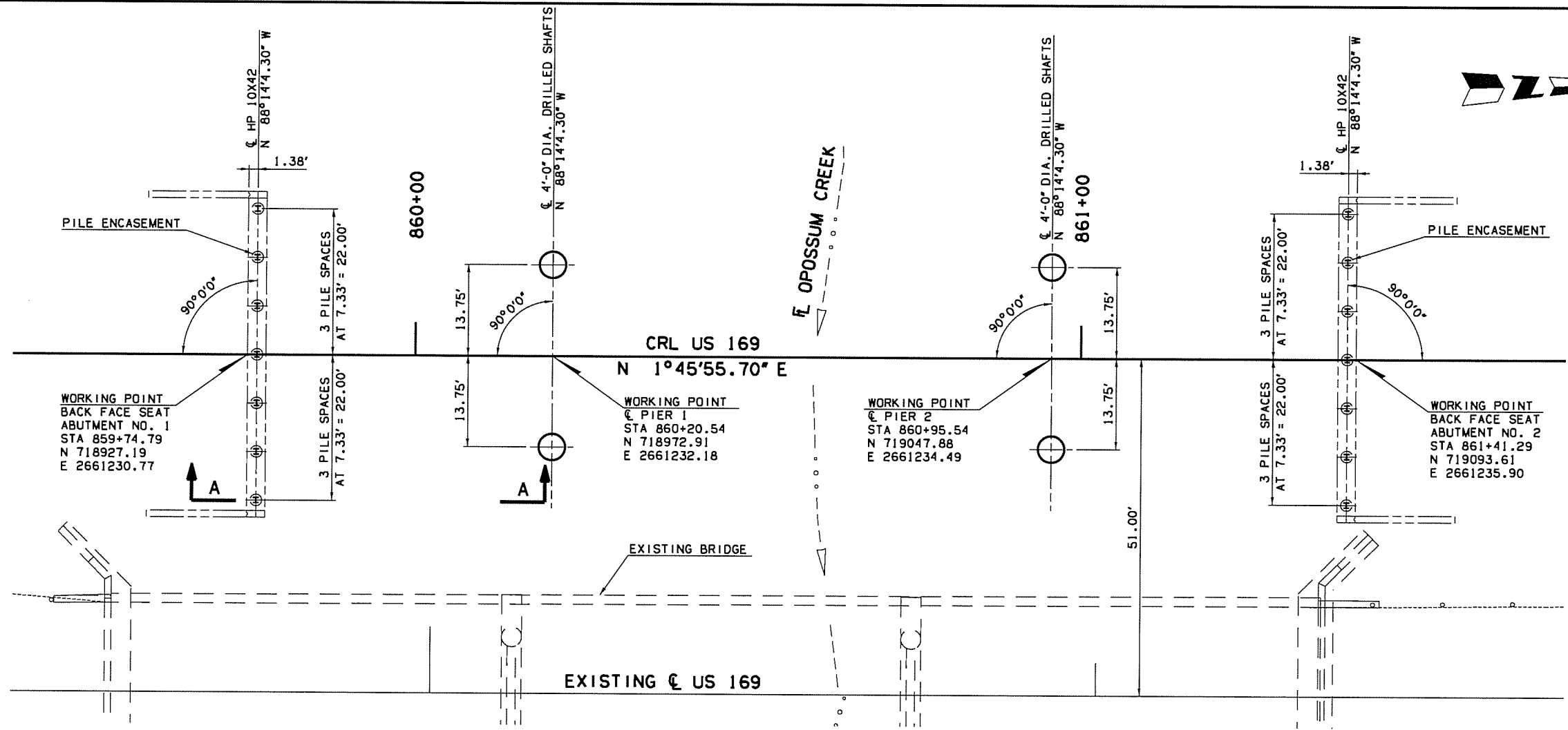
THE SUBJECT PROJECT IS LOCATED AND BOUNDED BY PENNSYLVANIAN PERIOD, COFFEYVILLE FORMATION (IPCC), CHEVKERBOARD FORMATION (IPCC), SEMINOLE FORMATION (IPSL), AND LENAPAH FORMATION (IPLB) WITH ALLUVIUM (QAL). THESE FORMATIONS ARE DESCRIBED AS FOLLOWS:  
IPCC - COFFEYVILLE FORMATION: SHALE AND THIN-BEDDED SANDSTONE.  
IPCC - CHECKERBOARD FORMATION: LIMESTONE AND SOME SHALE.  
IPSL - SEMINOLE FORMATION: SHALE, SANDSTONE, AND THIN COAL BEDS.  
IPLB - LENAPAH FORMATION: LIMESTONE AND SHALE.  
QAL - ALLUVIUM: GRAVEL, SAND SILT, AND CLAY.  
IN OUR FIELD EXPLORATION WE ENCOUNTERED ALLUVIUM OVERBURDEN SOILS OVER SHALE, SANDSTONE AND LIMESTONE FORMATIONS.

**NOTES:**

- GROUNDWATER LEVELS WERE OBTAINED DURING THE DRILLING OPERATIONS AND MAY FLUCTUATE THROUGHOUT THE YEAR. BORING DATA IS PROVIDED BY GW<sup>2</sup>.

Design	GW2	6/16	US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn	RAH	6/16	BRIDGE A	
Checked	MKR	6/16	<b>FOUNDATION REPORT</b>	
Approved	SAK	6/16	<b>(SHEET 2 OF 2)</b>	
Squad	BENHAM		Job Piece No. 27092(04)	Sheet No. 52

COAST DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		53	143



TOP OF PILE ELEVATIONS	
ABUTMENT NO. 1	705.69
ABUTMENT NO. 2	705.69

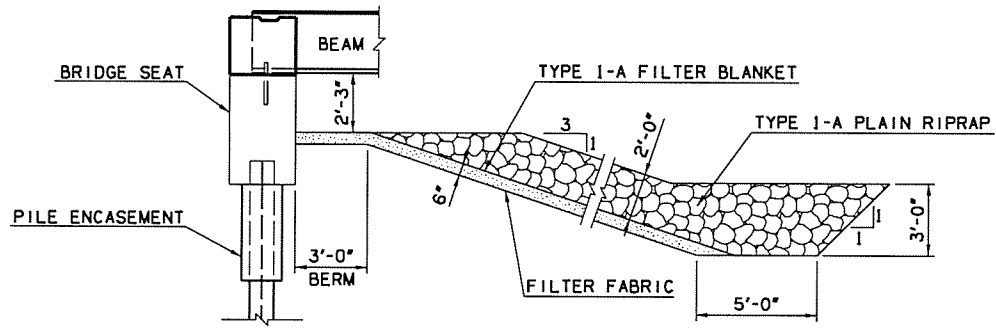
**INDEX OF BRIDGE SHEETS**

SHEET NO.	TITLE
50	GENERAL PLAN AND ELEVATION
51 - 52	FOUNDATION REPORT
53	STAKING DIAGRAM
54	TYPICAL SECTION
55 - 58	ABUTMENT DETAILS
59 - 60	PIER DETAILS
61 - 64	SUPERSTRUCTURE DETAILS
65	LONGITUDINAL SECTION
66 - 67	APPROACH SLAB DETAILS

**STANDARDS**  
 FSHP-42-2-00E  
 HPI-2-00E  
 B40-1-ABUT-MISC-01E  
 B40-1-BRG-RB-02E

SUMMARY OF QUANTITIES - BRIDGE A						
DESCRIPTION	UNIT	ABUTMENT	PIER	SUPERSTR.	APPROACH	TOTAL
SUBSTRUCTURE EXCAVATION COMMON	CY	90				90
CLSM BACKFILL	CY	128.0				128.0
APPROACH SLAB	SY				209.0	209.0
SAW-CUT GROOVING	SY			809.2	195.6	1004.8
42" F-SHAPED PARAPET	LF			331.0	80.0	411.0
STRUCTURAL STEEL	LB			175440		175440
WEATHERING STEEL FIXED BEARING ASSEMBLY	EA			10		10
STAINLESS STEEL EXPANSION BEARING ASSEMBLY	EA			20		20
ELASTOMERIC BEARING PADS	EA			20		20
SPECIAL CONCRETE FINISH	SY		77			77
CLASS AA CONCRETE	CY			229.6		229.6
CLASS A CONCRETE	CY	51.4	78.6			130.0
EPOXY COATED REINFORCING STEEL	LB	9360	14480	76150		99990
CLASS C BRIDGE DECK REPAIR	SY					50
PILES, FURNISHED (HP10X42)	LF	364				364
PILES, DRIVEN (HP10X42)	LF	364				364
METAL PILE SHOES	EA	14				14
PILE SPLICE, H-PILE (NON-BIDDABLE)	EA	1				1
WATER REPELLENT (VISUALLY INSPECTED)	SY	50	92	440	72	654
DRILLED SHAFTS 48" DIAMETER	LF		143			143
CROSSHOLE SONIC LOGGING	EA		1			1
SEALER CRACK PREPARATION	LF			188		188
SEALER RESIN	GAL			1.3		1.3
TYPE 1-A PLAIN RIPRAP	TON	780				780
TYPE 1-A FILTER BLANKET	TON	115				115
FILTER FABRIC (RIPRAP)	SY	460				460
6" PERFORATED PIPE UNDERDRAIN ROUND	LF	100				100
6" NON-PERF. PIPE UNDERDRAIN RND.	LF	80				80
REMOVAL OF BRIDGE ITEMS	LSUM					1

**PLAN - BRIDGE A**  
SCALE: 1" = 10'



**SECTION A-A**  
SCALE: NONE

**NOTE:**

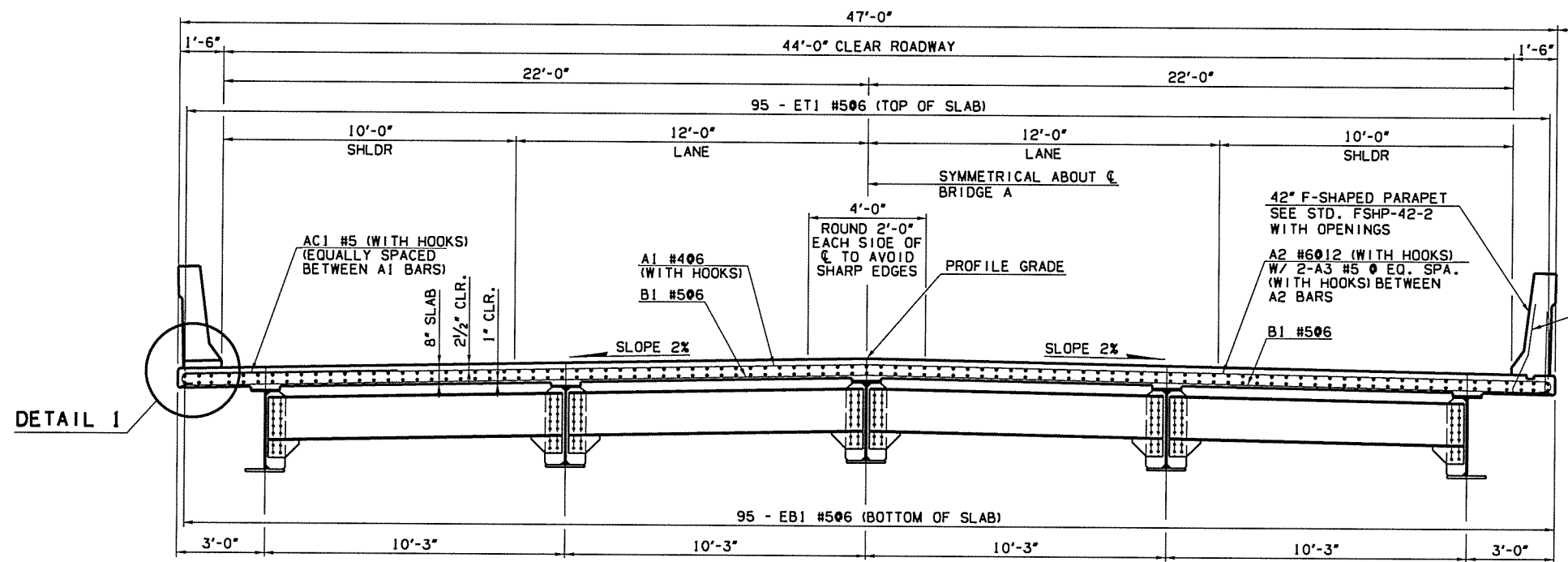
1. ABUTMENT PILES SHALL BE ORIENTED SUCH THAT THE FACE OF THE PILE WEB IS PARALLEL WITH THE FACE OF THE BRIDGE SEAT.
2. CONTRACTOR SHALL VERIFY LOCATION AND STATUS (I.E. "ABANDONED") OF ALL UTILITIES PRIOR TO BEGINNING EXCAVATION OR DRIVING PILES.
3. HARD ROCK WAS ENCOUNTERED AT THIS SITE. EXCAVATION FOR THE FOUNDATIONS MAY REQUIRE SPECIALTY HEAVY-DUTY DRILLING EQUIPMENT. THE CONTRACTOR IS RESPONSIBLE FOR BEING FULLY AWARE OF THE FOUNDATION MATERIAL CONDITIONS AND THE DRILLING PROCESS PRIOR TO BEGINNING WORK.
4. IF BEDROCK IS ENCOUNTERED AT A DEPTH SHALLOWER THAN ANTICIPATED, PILOT HOLES SHALL BE DRILLED FOR PILES SUCH THAT EACH PILE HAS A MINIMUM LENGTH OF 15 FEET.

Design	KSJ	6/16	US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn	WZB	6/16	BRIDGE A	
Checked	MKR	6/16		
Approved	SAK	6/16		
Squad	BENHAM			

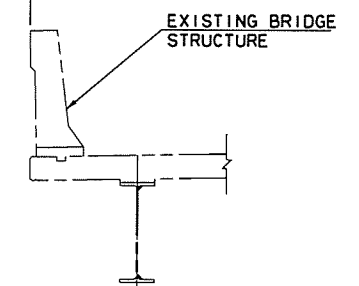
**STAKING DIAGRAM**

Job Piece No. 27092(04) Sheet No. 53

DOT	STATE	J/P	PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA		27092(04)		54	143



**NOTE:**  
FOR BAR BENDS AND BAR LIST, SEE SUPERSTRUCTURE BAR LIST. ROTATE HOOKS ON A AND AC BARS TO MAINTAIN MINIMUM CLEARANCES.

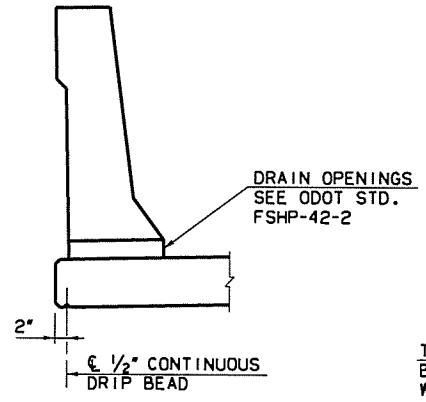
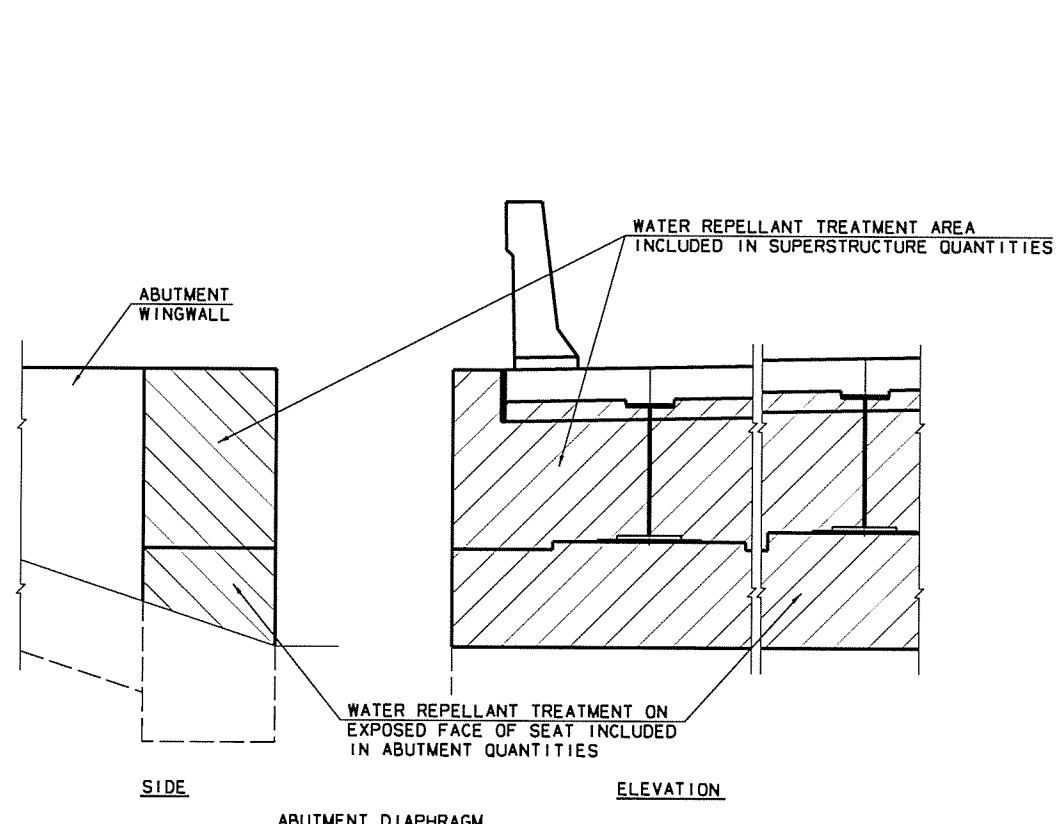


HALF SECTION AT INTERMEDIATE DIAPHRAGMS

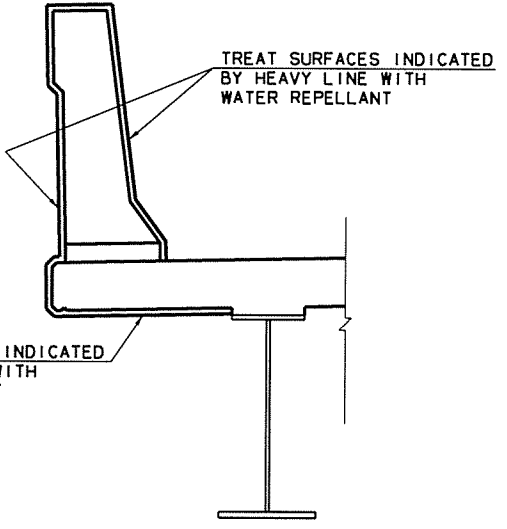
HALF SECTION AT PIER DIAPHRAGMS

**TYPICAL SECTION THRU SUPERSTRUCTURE**

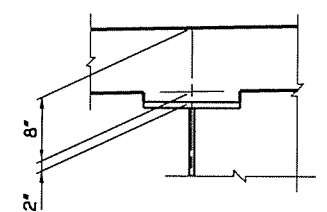
SCALE: 1/2" = 1'-0"



**DETAIL 1**  
SCALE: 3/4" = 1'-0"



**WATER REPELLANT TREATMENT DETAILS**  
SCALE: 3/4" = 1'-0"

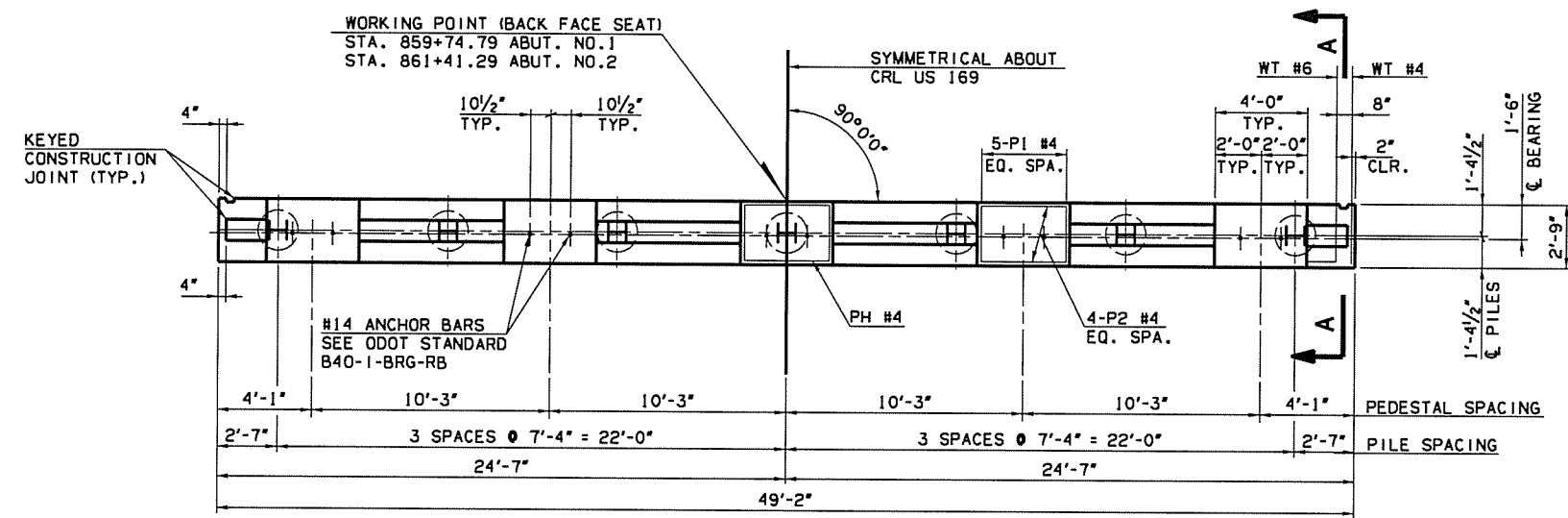


**NOTE:**  
PLAN QUANTITIES FOR CLASS AA CONCRETE INCLUDE BEAM HAUNCHES. THE HAUNCH HEIGHT SHOWN IS THE THEORETICAL HAUNCH HEIGHT AT THE CENTERLINE BEARING ONLY, MEASURED FROM THE BOTTOM OF THE DECK SLAB TO THE TOP OF THE BEAM, AND VARIES ACROSS THE SPAN. DETERMINE THE ACTUAL HAUNCH HEIGHT (ACCOUNTING FOR BEAM CAMBER, DEAD LOAD DEFLECTION AND ROADWAY GRADE) AFTER ERECTION OF THE BEAMS AND SUBMIT TO THE ENGINEER FOR APPROVAL. THE ENGINEER WILL NOT MEASURE DIFFERENCES BETWEEN THE THEORETICAL AND THE ACTUAL HAUNCH HEIGHT FOR PAYMENT.

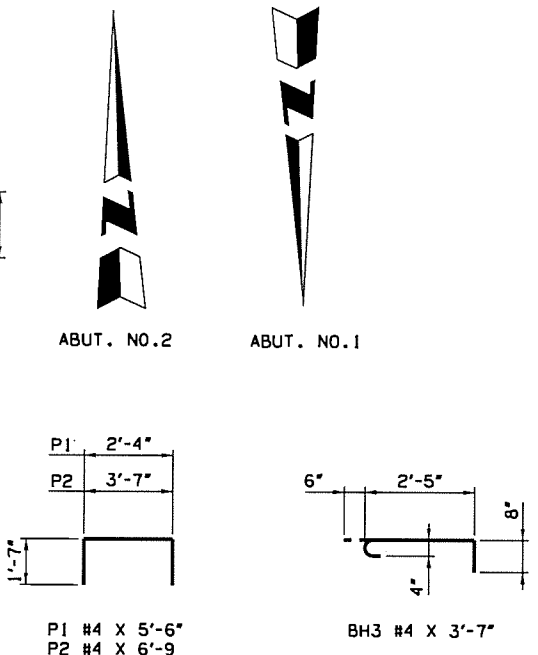
**BEAM HAUNCH DETAIL**  
SCALE: 1" = 1'-0"

Design	SAK	6/16	US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn	WZB	6/16	BRIDGE A	
Checked	STF	6/16	<b>TYPICAL SECTION</b>	
Approved	SAK	6/16		
Squad	BENHAM		Job Piece No. 27092(04)	Sheet No. 54

COORD. DIVISION	STATE	J/P PROJ NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	OKLA	27092(04)		55	143

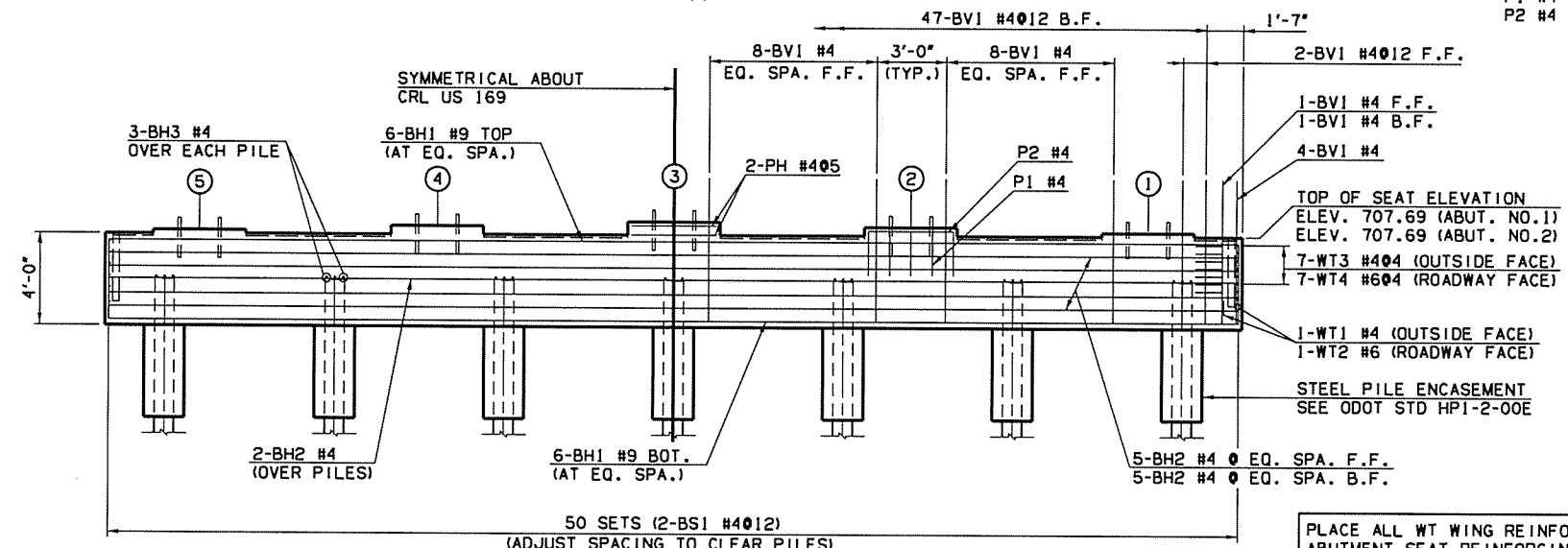


ABUTMENT NO. 2 LOOKING UP STATION  
ABUTMENT NO. 1 LOOKING DOWN STATION OPP. HAND  
**PLAN - ABUTMENT NO.1 AND NO.2**  
SCALE: 1/4" = 1'-0"



ABUTMENT BAR LIST (ONE ABUTMENT SHOWN, TWO REQUIRED)					
EPOXY COATED REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
BV1	#4	95	STR	6'-3"	
BH1	#9	12	STR	48'-10"	
BH2	#4	12	STR	48'-10"	
BH3	#4	21	BNT	3'-7"	
BS1	#4	100	BNT	11'-5"	
WT1	#4	2	BNT	5'-2"	
WT2	#6	2	BNT	7'-5"	
WT3	#4	14	STR	6'-10" (AVG.)	4'-0" TO 9'-8" SEE NOTE 1
WT4	#6	14	BNT	7'-10" (AVG.)	5'-0" TO 10'-8" SEE NOTE 1
P1	#4	15	BNT	5'-6"	SEE NOTE 2
P2	#4	12	BNT	6'-9"	SEE NOTE 2
PH	#4	2	BNT	12'-11"	

- NOTES:**
- (2) SETS OF 7
  - OMIT REINFORCING IN 2" PEDESTALS.

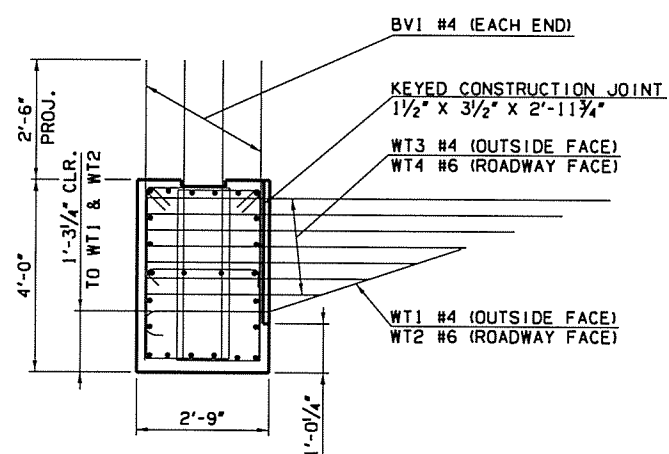


ABUTMENT NO. 2 LOOKING UP STATION  
ABUTMENT NO. 1 LOOKING DOWN STATION OPP. HAND  
**ELEVATION**  
SCALE: 1/4" = 1'-0"

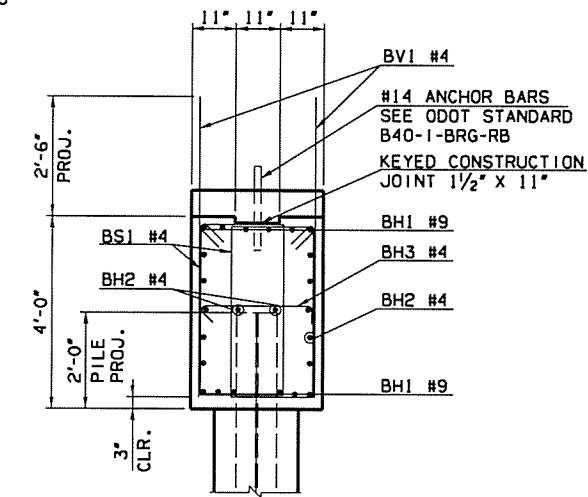
PLACE ALL WT WING REINFORCING TIED TO ABUTMENT SEAT REINFORCING BEFORE PLACING ABUTMENT SEAT CONCRETE. DO NOT PLACE ABUTMENT WING CONCRETE UNTIL CONCRETE FOR THE ABUTMENT DIAPHRAGM AND DECK SLAB HAVE ATTAINED A STRENGTH OF 3000 P.S.I.

PEDESTAL	ELEVATIONS	
	ABUT. NO.1	ABUT. NO.2
1	707.86	707.86
2	708.07	708.07
3	708.27	708.27
4	708.07	708.07
5	707.86	707.86

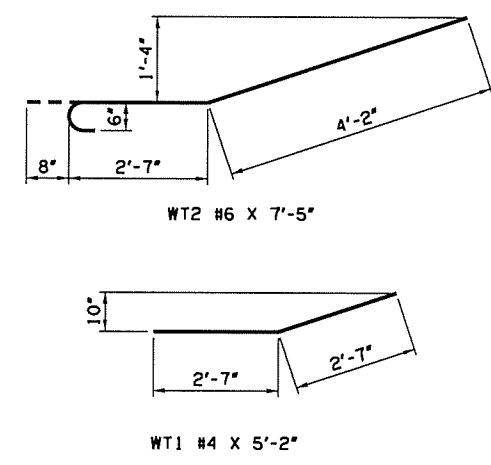
ABUTMENT QUANTITIES				
ITEM	UNIT	ABUT NO.1	ABUT NO. 2	TOTAL
SUBSTRUCTURE EXCAVATION COMMON	CY	45	45	90
CLSM BACKFILL	CY	64.0	64.0	128.0
CLASS A CONCRETE	CY	25.7	25.7	51.4
EPOXY COATED REINFORCING STEEL	LB	4680	4680	9360
PILES, FURNISHED (HP10X42)	LF	182	182	364
PILES, DRIVEN (HP10X42)	LF	182	182	364
METAL PILE SHOES	EA	7	7	14
WATER REPELLENT (VISUALLY INSPECTED)	SY	25	25	50
TYPE 1-A PLAIN RIPRAP	TON	410	370	780
TYPE 1-A FILTER BLANKET	TON	60	55	115
FILTER FABRIC (RIPRAP)	SY	245	215	460
6" PERFORATED PIPE UNDERDRAIN ROUND	LF	50	50	100
6" NON-PERF. PIPE UNDERDRAIN RND.	LF	40	40	80



**SECTION A-A**  
SCALE: 1/2" = 1'-0"



**TYPICAL SECTION THRU SEAT**  
SCALE: 1/2" = 1'-0"



F.F. = FRONT FACE  
B.F. = BACK FACE

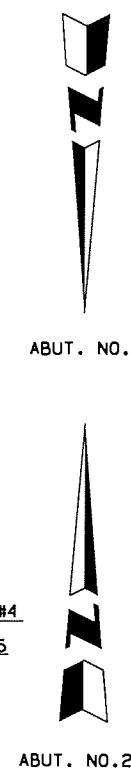
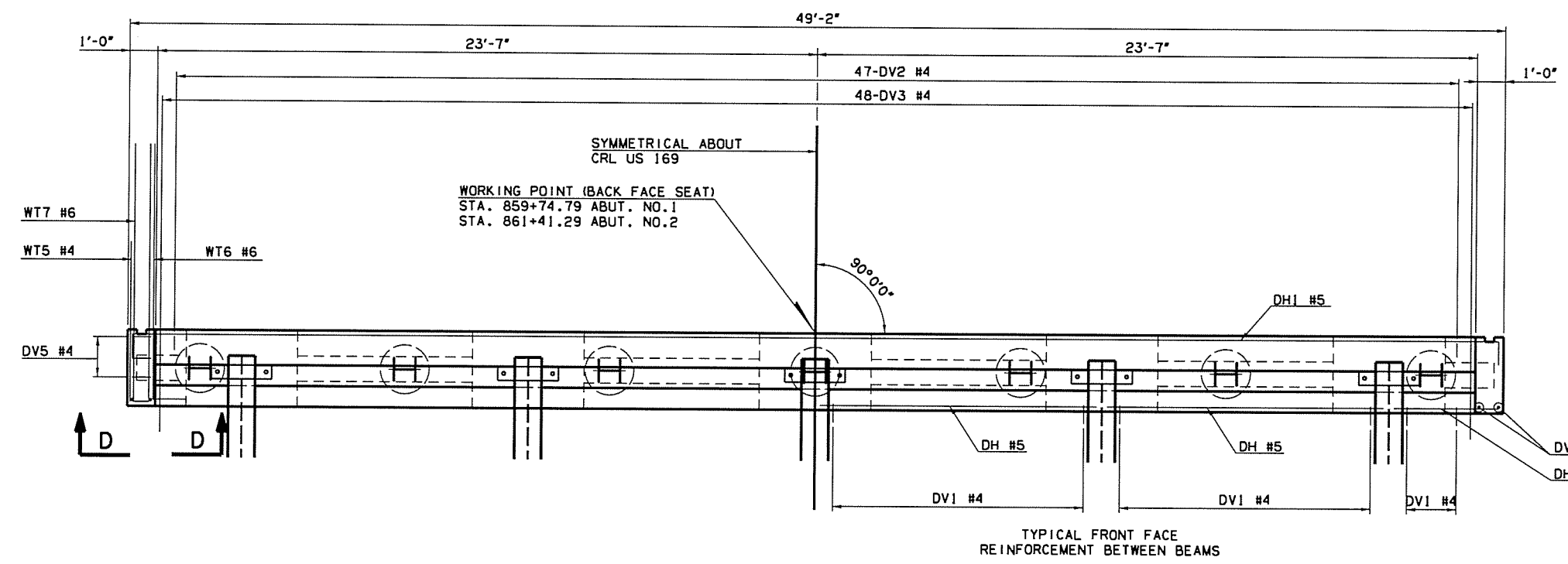
Design	STF	6/16	US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn	RAH	6/16	BRIDGE A	
Checked	DAS	6/16	<b>ABUTMENT DETAILS</b>	
Approved	SAK	6/16	<b>(SHEET 1 OF 4)</b>	
Squad	BENHAM		Job Piece No. 27092(04)	Sheet No. 55

7/12/2016

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P:\EG\1650-TUL\ACIV\255231000-000T-US169BR-dg\20\_DESGN\40\_CAD\_Opossum\DDNS\BR1\lge\127092\041.S.L.Adic.L2.0.dgn

DOT DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		56	143

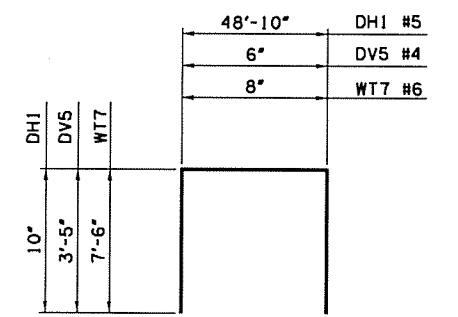


### ABUTMENT DIAPHRAGM BAR LIST

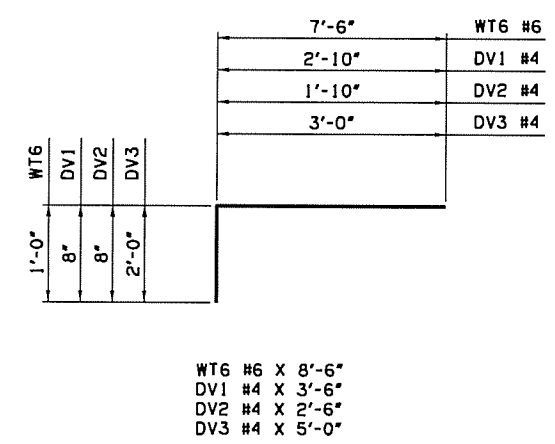
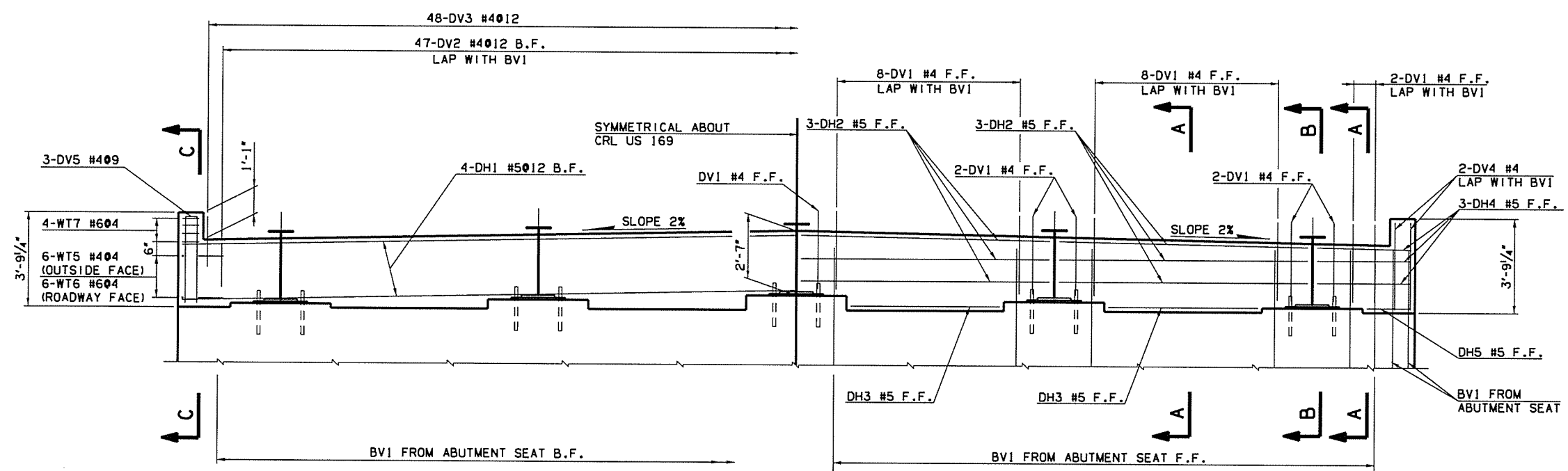
(ONE DIAPHRAGM SHOWN, TWO REQUIRED)

EPOXY COATED REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
DV1	#4	46	BNT	3'-6"	
DV2	#4	47	BNT	2'-6"	
DV3	#4	48	BNT	5'-0"	
DV4	#4	4	STR	3'-5"	
DV5	#4	6	BNT	7'-4"	
DH1	#5	4	BNT	50'-6"	
DH2	#5	12	STR	9'-11"	
DH3	#5	4	STR	5'-11"	
DH4	#5	6	STR	3'-9"	
DH5	#5	2	STR	1'-9"	
WT5	#4	12	STR	5'-9"	
WT6	#6	12	BNT	8'-6"	
WT7	#6	8	BNT	15'-8"	

ABUTMENT NO. 2 LOOKING UP STATION  
 ABUTMENT NO. 1 LOOKING DOWN STATION OPP. HAND  
**PLAN - ABUTMENT DIAPHRAGM**  
 SCALE: 3/8" = 1'-0"



DH1 #5 X 50'-6"  
 DV5 #4 X 7'-4"  
 WT7 #6 X 15'-8"



WT6 #6 X 8'-6"  
 DV1 #4 X 3'-6"  
 DV2 #4 X 2'-6"  
 DV3 #4 X 5'-0"

ABUTMENT NO. 2 LOOKING UP STATION  
 ABUTMENT NO. 1 LOOKING DOWN STATION OPP. HAND  
**ELEVATION**  
 SCALE: 3/8" = 1'-0"

F.F. = FRONT FACE  
 B.F. = BACK FACE

Design	STF	6/16	US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn	RAH	6/16	BRIDGE A	
Checked	DAS	6/16	<b>ABUTMENT DETAILS</b>	
Approved	SAK	6/16	<b>(SHEET 2 OF 4)</b>	
Squad	BENHAM		Job Piece No. 27092(04)	Sheet No. 56



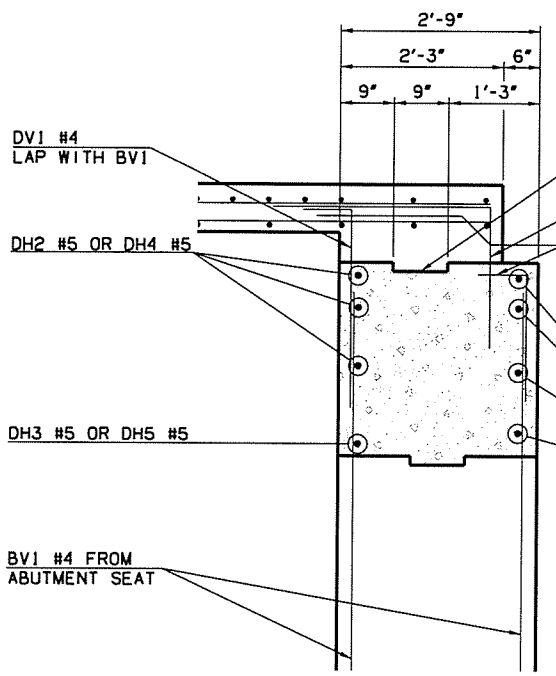
7/12/2016

11/26/13 AM

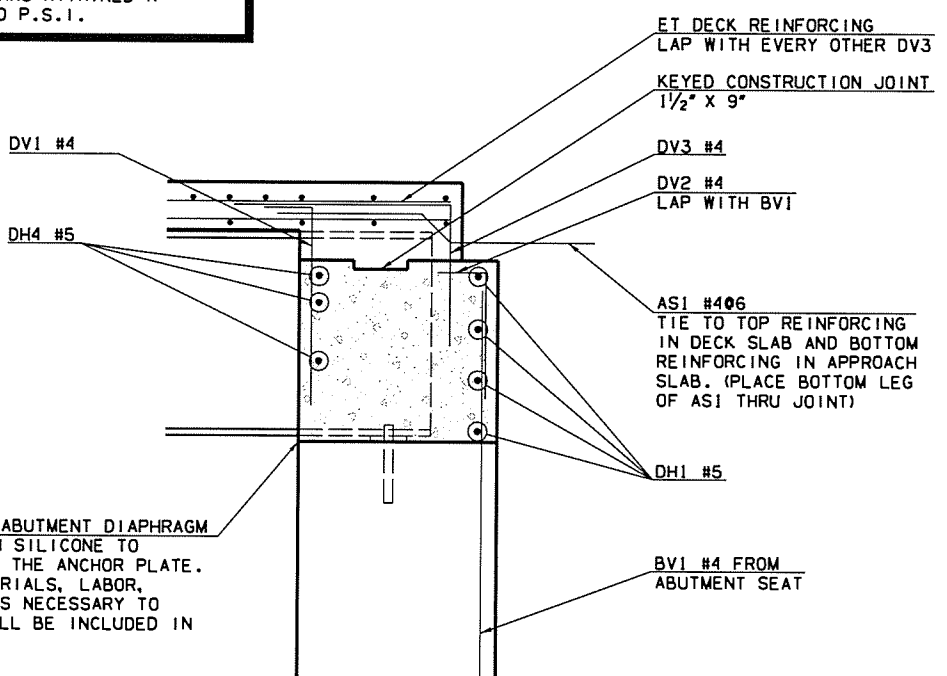
P:\EN\650-TUL\CON\255231000-000T-US169B-dg v20.DESIGN\40-CAD-Opossum\00\NS\B1-1dgs\27092(04).S.L-Abut.1.2-Def-01.dgn

ODOT DIVISION	STATE	J.P. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	OKLA	27092(04)		57	143

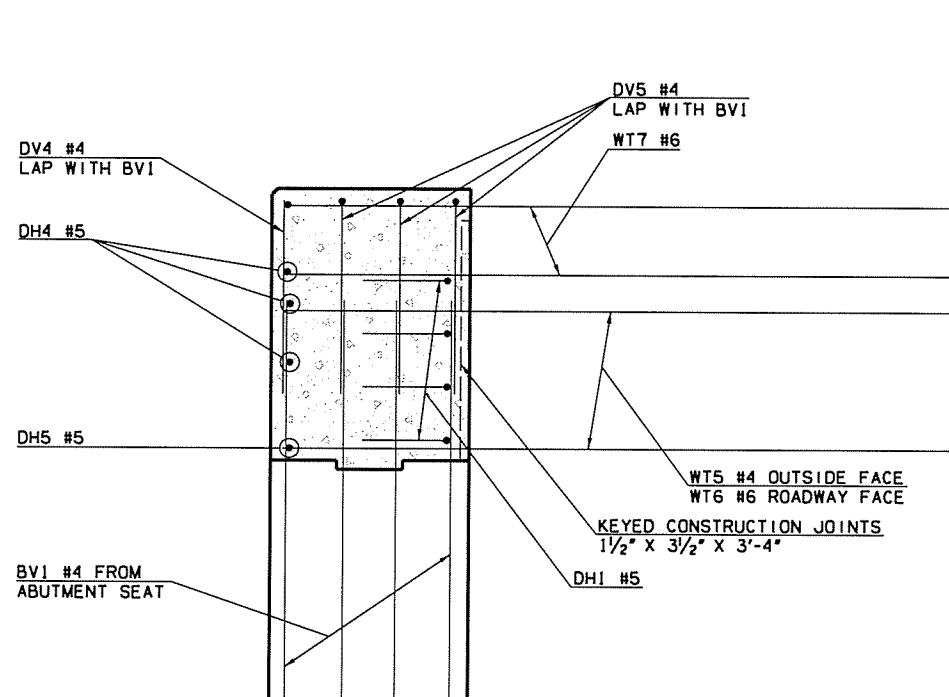
DECK SLAB SHOWN FOR INFORMATIONAL PURPOSES ONLY. DO NOT PLACE DECK SLAB CONCRETE UNTIL THE ABUTMENT DIAPHRAGM CONCRETE HAS ATTAINED A COMPRESSIVE STRENGTH OF 3,000 P.S.I.



**SECTION A-A**  
SCALE: 3/4" = 1'-0"

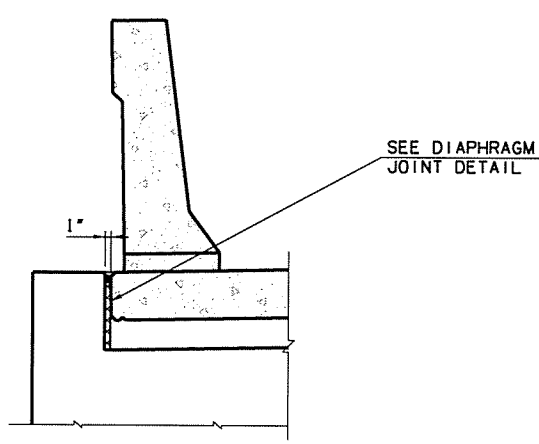


**SECTION B-B**  
SCALE: 3/4" = 1'-0"

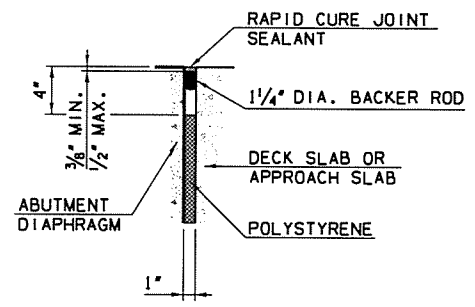


**SECTION C-C**  
SCALE: 3/4" = 1'-0"

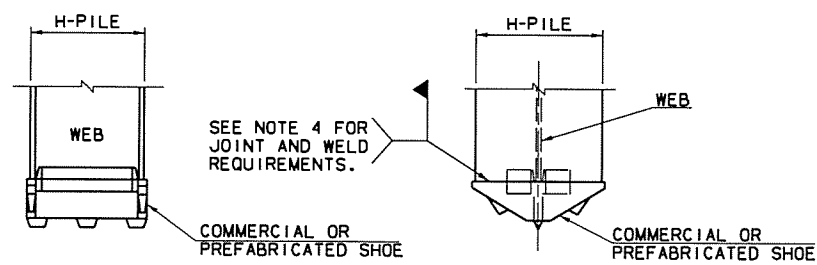
COMPLETELY FILL VOID IN ABUTMENT DIAPHRAGM DIRECTLY UNDER BEAM WITH SILICONE TO SEAL THE EXPOSED EDGE OF THE ANCHOR PLATE. ALL COSTS INCLUDING MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO INSTALL THE SILICONE SHALL BE INCLUDED IN OTHER ITEMS OF WORK.



**SECTION D-D**  
SCALE: 3/4" = 1'-0"



**DIAPHRAGM JOINT DETAIL**  
SCALE: 1/2" = 1'-0"

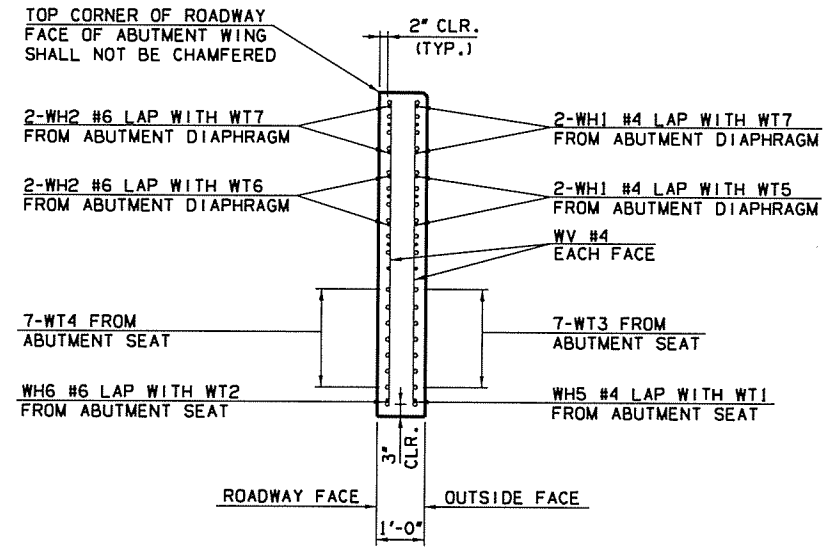


- NOTES:**
1. COMMERCIAL OR PREFABRICATED SHOES ARE SUBJECT TO THE APPROVAL OF THE ENGINEER.
  2. THE SHOE SHALL BE ATTACHED BY AN ODOT CERTIFIED WELDER.
  3. THE SHOE WELD JOINT DESIGN SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION, AND AS APPROVED BY THE ENGINEER.
  4. IF SHOES ARE WELDED AT A LOCATION OTHER THAN THE PROJECT SITE, ALL OF THE ABOVE PROVISIONS SHALL APPLY TO THE OFFSITE FABRICATOR. THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR OF THE ACTUAL LOCATION WHERE THE WELDING WILL BE PERFORMED A MINIMUM OF 5 WORKING DAYS BEFORE WORK COMMENCES.
  5. ALL WELDING SHALL BE PERFORMED BY A CERTIFIED WELDER IN CONFORMANCE WITH REQUIREMENTS FOR WELDING AS SPECIFIED IN THE STANDARD SPECIFICATIONS.
  6. INCLUDE ALL COSTS OF MATERIAL, LABOR AND INCIDENTALS ASSOCIATED WITH FABRICATION AND INSTALLATION OF SHOES IN THE PRICE BID FOR EACH OF "METAL PILE SHOES".

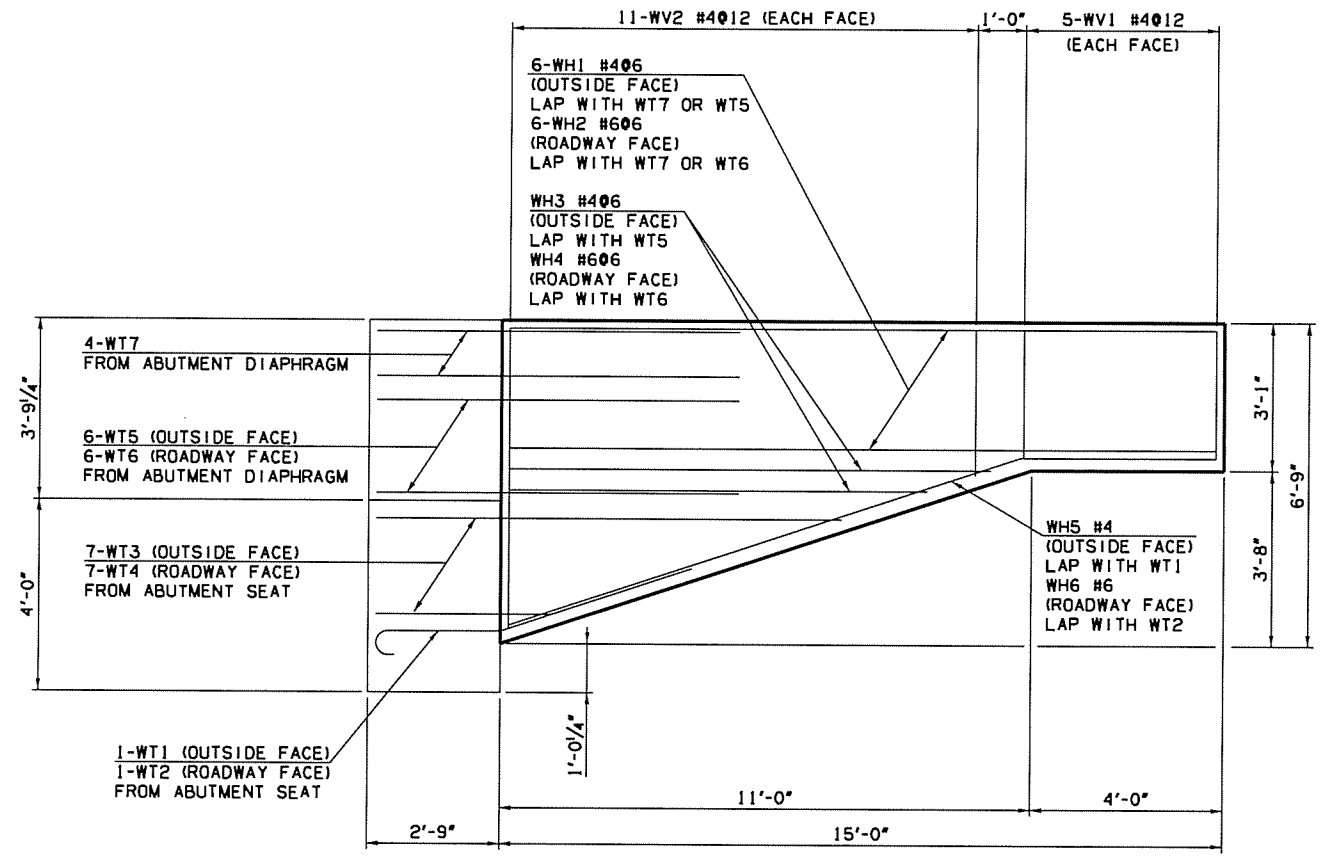
**METAL PILE SHOE DETAIL**  
NOT TO SCALE

Design	STF	6/16	US 169 OVER OPOSSUM CREEK BRIDGE A <b>ABUTMENT DETAILS</b> (SHEET 3 OF 4)	NOWATA COUNTY
Drawn	RAH	6/16		
Checked	DAS	6/16		
Approved	SAK	6/16		
Squad	BENHAM			
Job Piece No. 27092(04) Sheet No. 57				

COUNT	STATE	JOB PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		58	143



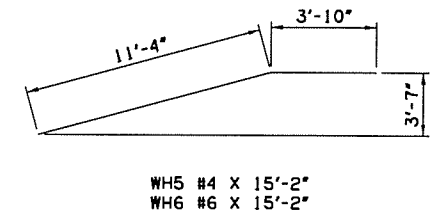
**SECTION THRU WINGWALL AT  
BACK FACE OF ABUTMENT SEAT**  
SCALE: 1/2" = 1'-0"



**WINGWALL RIGHT ELEVATION**  
SCALE: 1/2" = 1'-0"

ABUTMENT WINGWALL BAR LIST (ONE WINGWALL SHOWN, FOUR REQUIRED)					
EPOXY COATED REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
WH1	#4	6	STR.	14'-8"	
WH2	#6	6	STR.	14'-8"	
WH3	#4	2	STR.	9'-2" (AVG.)	8'-5" TO 9'-11"
WH4	#6	2	STR.	9'-2" (AVG.)	8'-5" TO 9'-11"
WH5	#4	1	BNT.	15'-2"	
WH6	#6	1	BNT.	15'-2"	
WV1	#4	10	STR.	2'-8"	
WV2	#4	22	STR.	4'-7" (AVG.)	2'-11" TO 6'-3"

**NOTE:**  
1. (2) SETS OF 11

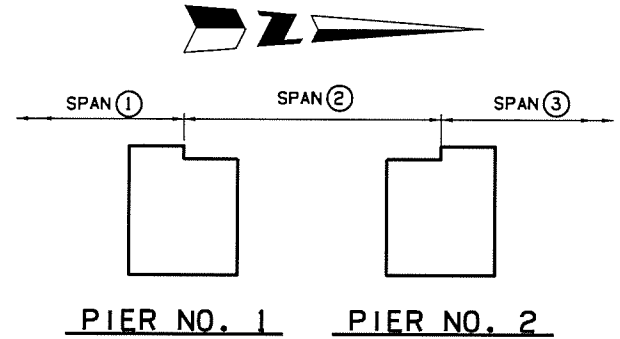
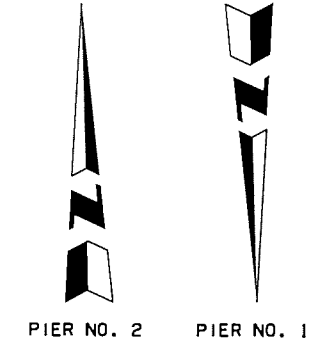
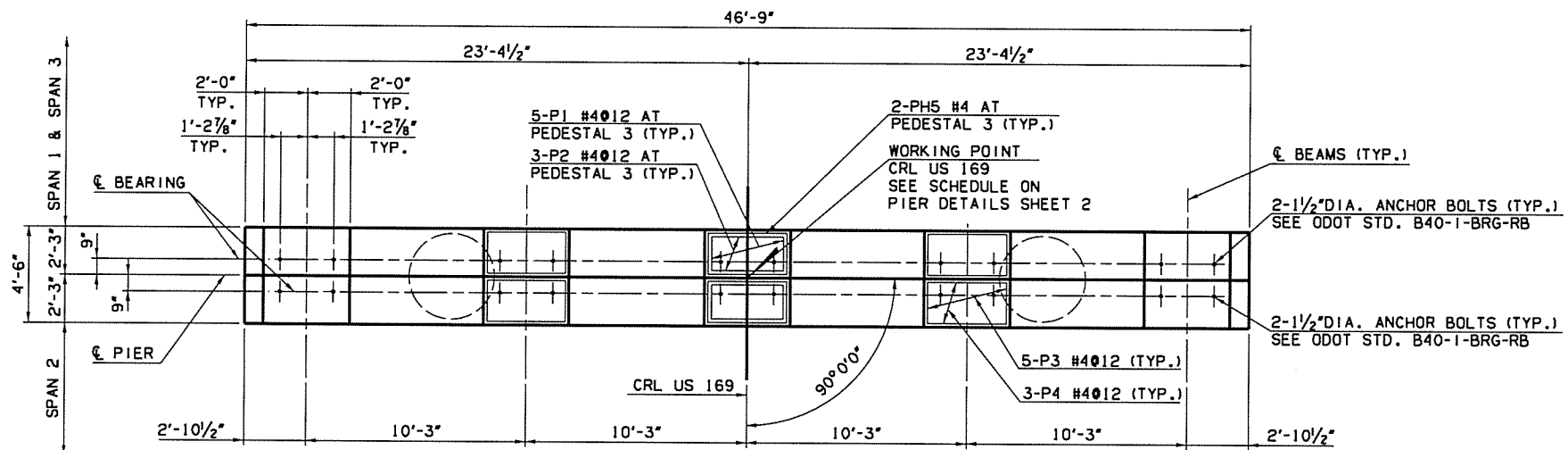


PLACE ALL WT WING REINFORCING TIED TO ABUTMENT SEAT REINFORCING BEFORE PLACING ABUTMENT SEAT CONCRETE. DO NOT PLACE ABUTMENT WING CONCRETE UNTIL CONCRETE FOR THE ABUTMENT DIAPHRAGM AND DECK SLAB HAVE ATTAINED A STRENGTH OF 3000 P.S.I.

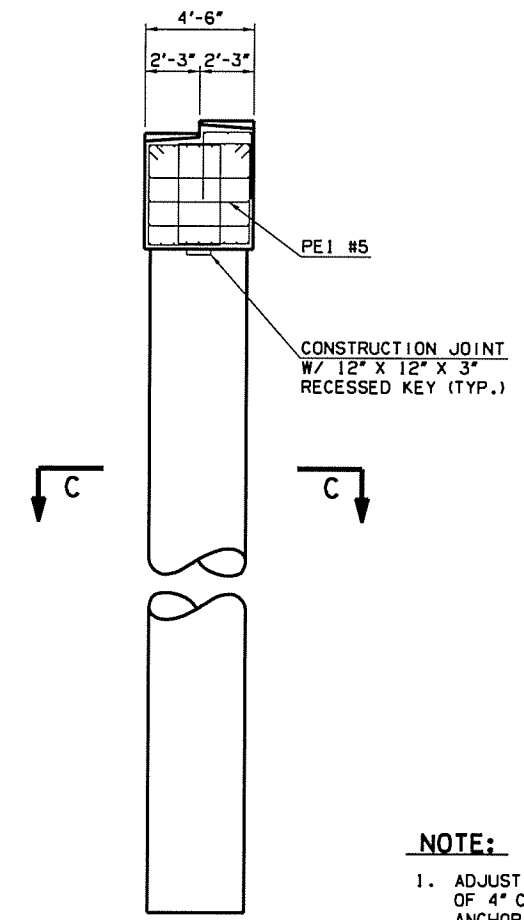
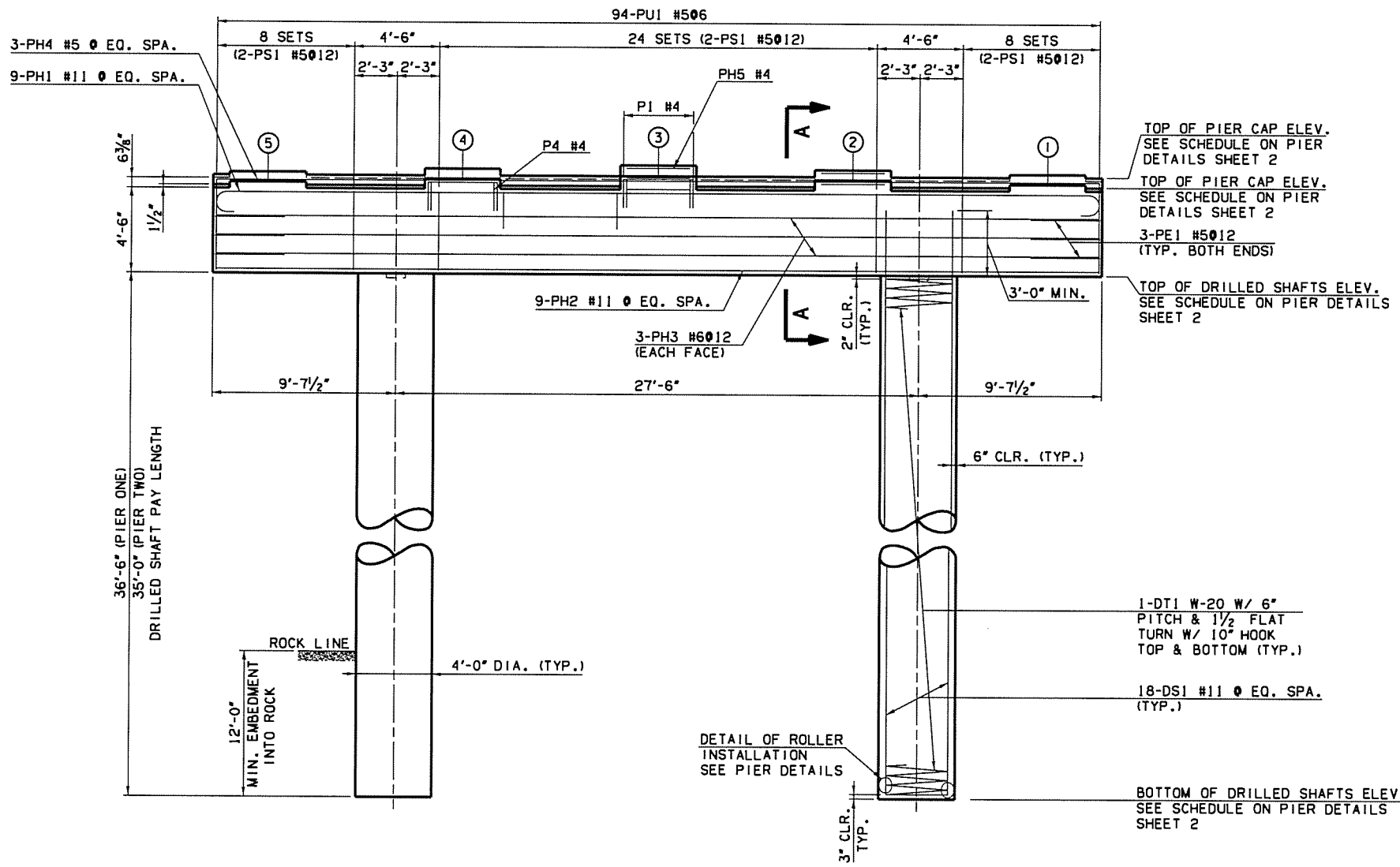
Design	STF	6/16	US 169 OVER OPOSSUM CREEK BRIDGE A <b>ABUTMENT DETAILS</b> (SHEET 4 OF 4)	NOWATA COUNTY
Drawn	RAH	6/16		
Checked	DAS	6/16		
Approved	SAK	6/16		
Squad	BENHAM			

Job Piece No. 27092(04) Sheet No. 58

ODOT DIVISION	STATE	JWP PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		59	143



PIER NO. 2 LOOKING UP STATION  
PIER NO. 1 LOOKING DOWN STATION OPP. HAND  
**PLAN PIER NO. 1 AND NO. 2**  
SCALE: 1/4" = 1'-0"



**ELEVATION**  
SCALE: 1/4" = 1'-0"

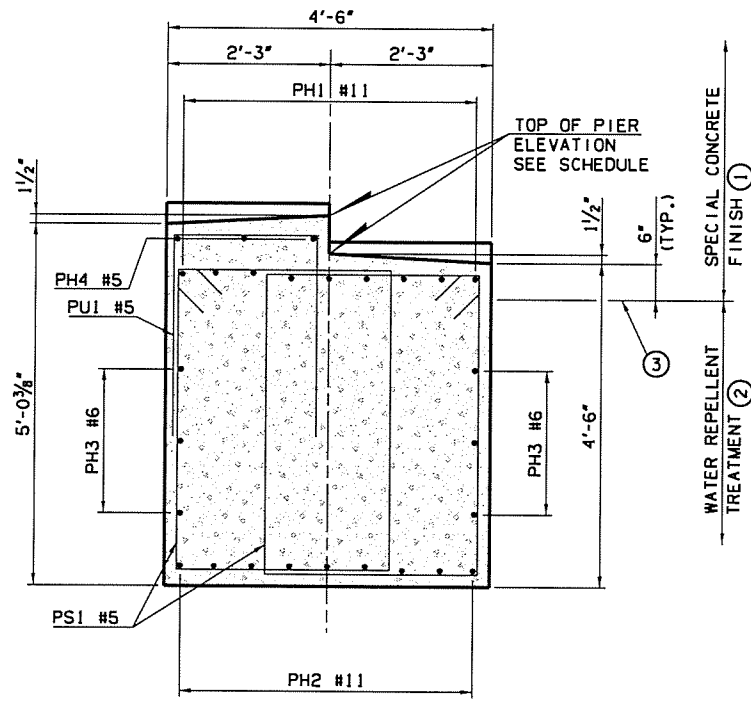
**END VIEW**  
SCALE: 1/4" = 1'-0"

- NOTE:**
- ADJUST PH BARS AS NEEDED TO PROVIDE A MINIMUM OF 4" CLEARANCE FOR TREMIE AND CLEARANCE FOR ANCHOR BOLTS.
  - FOR BEARINGS SEE ODOT STD. B40-1-BRG-RB

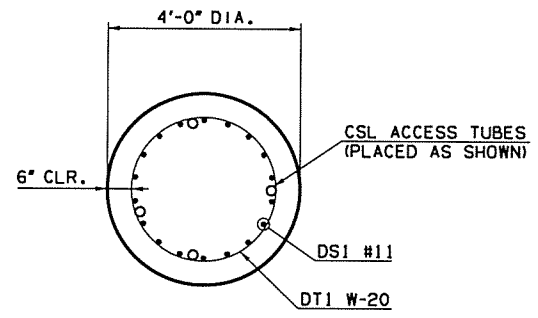
Design	MKR	6/16	US 169 OVER OPOSSUM CREEK BRIDGE A <b>PIER DETAILS</b> (SHEET 1 OF 2)	NOWATA COUNTY
Drawn	RAH	6/16		
Checked	DAS	6/16		
Approved	SAK	6/16		
Squad	BENHAM			

Job Piece No. 27092(04) Sheet No. 59

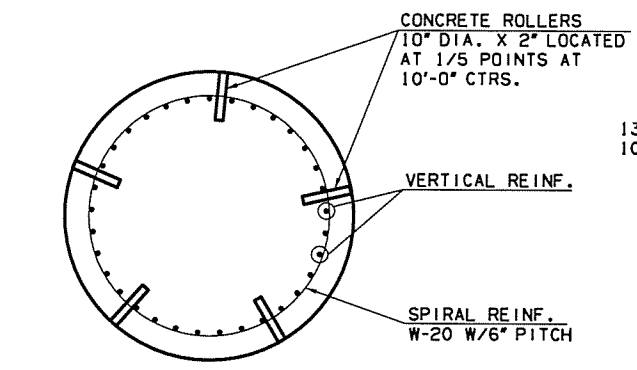
DIST	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		60	143



**SECTION A-A**  
SCALE: 3/4" = 1'-0"



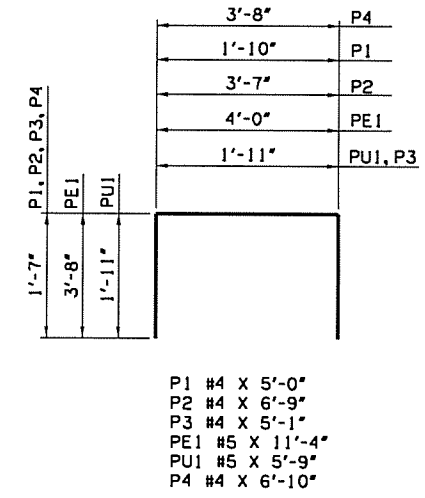
**SECTION C-C**  
SCALE: 1/2" = 1'-0"



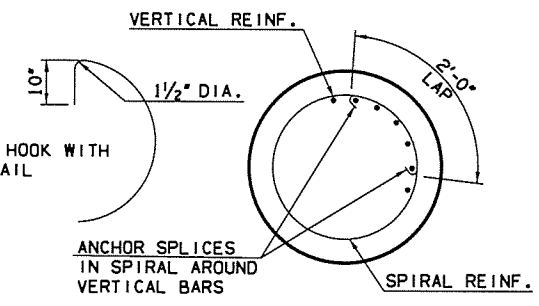
**DETAIL OF DRILLED SHAFT ROLLER PLACEMENT**

1. APPLY CIM 1000 "SPECIAL CONCRETE FINISH", TO SURFACES INDICATED, INCLUDING TOP OF PIER CAP, ALL SURFACES OF THE PEDESTALS, AND DOWN 6" BELOW THE EDGE OF THE CAP ON THE SIDES AND END FACES.
2. TREAT ALL EXTERIOR VERTICAL SURFACES OF THE PIER CAPS WITH A PENETRATING WATER REPELLENT SURFACE TREATMENT. (CIM 1000 WILL OVERLAP WATER REPELLENT NEAR TOP OF CAP.)
3. MASK SIDES AND ENDS OF PIER CAP ALONG THIS LINE TO PROVIDE A CLEAN STRAIGHT FINISH AT BOTTOM OF CIM 1000 APPLICATION.

NOTE:  
APPLY URETHANE COATING BEFORE ANY OTHER SURFACE TREATMENTS.



**SPIRAL SPLICE**  
NOTE:  
SPIRAL BARS SHALL CONFORM TO AASHTO M32. SPIRAL BAR LENGTH INCLUDE LAPS.

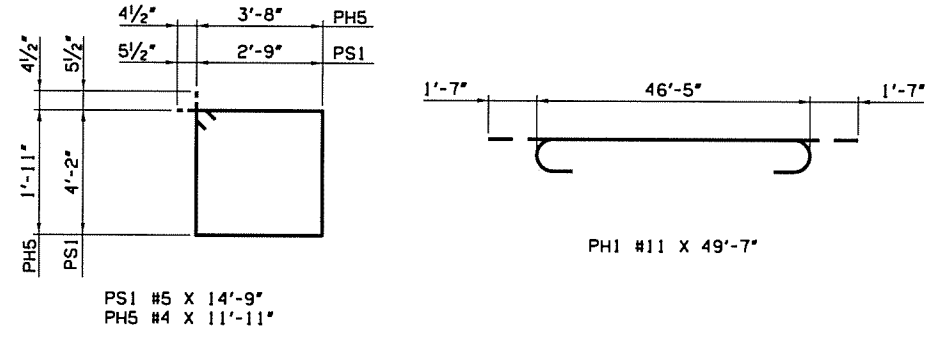


ITEM	UNIT	PIER NO. 1	PIER NO. 2	TOTAL
SPECIAL CONCRETE FINISH	SY	38	38	77
CLASS A CONCRETE	CY	39.3	39.3	78.6
EPOXY COATED REINFORCING STEEL	LB	7240	7240	14480
WATER REPELLENT (VISUALLY INSPECTED)	SY	46	46	92
DRILLED SHAFTS 48" DIAMETER	LF	73	70	143
CROSSHOLE SONIC LOGGING	EA			1

PIER NO. 1				
PEDESTAL NO.	ELEV. DOWN STA.	ELEV. UP STA.	WORKING POINT STATION	ELEVATION
1	707.48	706.94	860+20.54	-
2	707.68	707.15	TOP OF PIER DOWN STA.	707.31
3	707.89	707.35	TOP OF PIER UP STA.	706.78
4	707.68	707.15	TOP OF DRILLED SHAFTS	702.16
5	707.48	706.94	BOT. OF DRILLED SHAFTS	665.70

PIER NO. 2				
PEDESTAL NO.	ELEV. DOWN STA.	ELEV. UP STA.	WORKING POINT STATION	ELEVATION
1	706.94	707.48	860+95.54	-
2	707.15	707.68	TOP OF PIER DOWN STA.	706.78
3	707.35	707.89	TOP OF PIER UP STA.	707.31
4	707.15	707.68	TOP OF DRILLED SHAFTS	702.16
5	706.94	707.48	BOT. OF DRILLED SHAFTS	667.20



**DETAIL OF DRILLED SHAFT ROLLER INSTALLATION**

NOTE:  
CONCRETE USED IN CONCRETE ROLLERS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 P.S.I.. SLAB BOLSTERS, HIGH CHAIRS AND PLASTIC ROLLERS SHALL NOT BE SUBSTITUTED FOR THE CONCRETE ROLLERS.

EPOXY COATED REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
P1	#4	10	BNT	5'-0"	SEE NOTE 6
P2	#4	6	BNT	6'-9"	SEE NOTE 6
P3	#4	20	BNT	5'-1"	SEE NOTE 6
P4	#4	12	BNT	6'-10"	SEE NOTE 6
PE1	#5	6	BNT	11'-4"	
PUI	#5	94	BNT	5'-9"	
PH1	#11	9	BNT	49'-7"	
PH2	#11	9	STR	46'-5"	
PH3	#6	6	STR	46'-5"	
PH4	#5	3	STR	46'-5"	
PH5	#4	4	BNT	11'-11"	
PS1	#5	80	BNT	14'-9"	

DRILLED SHAFT PLAIN REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
DS1	#11	36	STR	39'-3"	SEE NOTE 1,3
DT1	W20	2	BNT	715'-0"	SEE NOTE 1,4

EPOXY COATED REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
P1	#4	10	BNT	5'-0"	SEE NOTE 6
P2	#4	6	BNT	6'-9"	SEE NOTE 6
P3	#4	20	BNT	5'-1"	SEE NOTE 6
P4	#4	12	BNT	6'-10"	SEE NOTE 6
PE1	#5	6	BNT	11'-4"	
PUI	#5	94	BNT	5'-9"	
PH1	#11	9	BNT	49'-7"	
PH2	#11	9	STR	46'-5"	
PH3	#6	6	STR	46'-5"	
PH4	#5	3	STR	46'-5"	
PH5	#4	4	BNT	11'-11"	
PS1	#5	80	BNT	14'-9"	

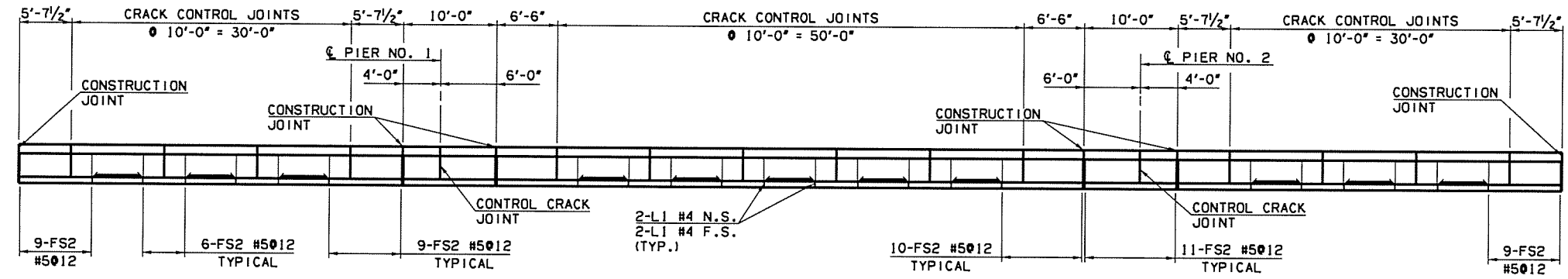
  

DRILLED SHAFT PLAIN REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
DS1	#11	36	STR	37'-9"	SEE NOTE 1,3
DT1	W20	2	BNT	686'-0"	SEE NOTE 1,4

- NOTE:**
1. DRILLED SHAFT BARS ARE FOR INFORMATION PURPOSES ONLY. THE BARS ARE NOT INCLUDED IN THE QUANTITIES, BUT ARE INCLUDED IN THE PRICE BID FOR L.F. OF DRILLED SHAFTS.
  2. INCLUDE COST FOR CROSSHOLE SONIC LOGGING ACCESS TUBES IN THE PRICE BID FOR L.F. OF DRILLED SHAFTS.
  3. DS1 BARS SHALL BE EPOXY COATED FOR THE FULL LENGTH.
  4. DT1 BARS SHALL BE PLAIN REINFORCING FOR THE FULL LENGTH.
  5. ALL EDGES OF PIER CAP SHALL HAVE A 1/2" CHAMFER EXCEPT FOR PEDESTAL EDGES WHICH SHALL HAVE A 3/4" CHAMFER.
  6. PEDESTAL REINFORCING NOT REQUIRED AT PEDESTALS 1 AND 5.

Design	MKR	6/16	US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn	RAH	6/16	BRIDGE A	
Checked	DAS	6/16	<b>PIER DETAILS</b>	
Approved	SAK	6/16	<b>(SHEET 2 OF 2)</b>	
Squad	BENHAM		Job Piece No. 27092(04)	Sheet No. 60

DOT DIVISION	STATE	JOB PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		61	143

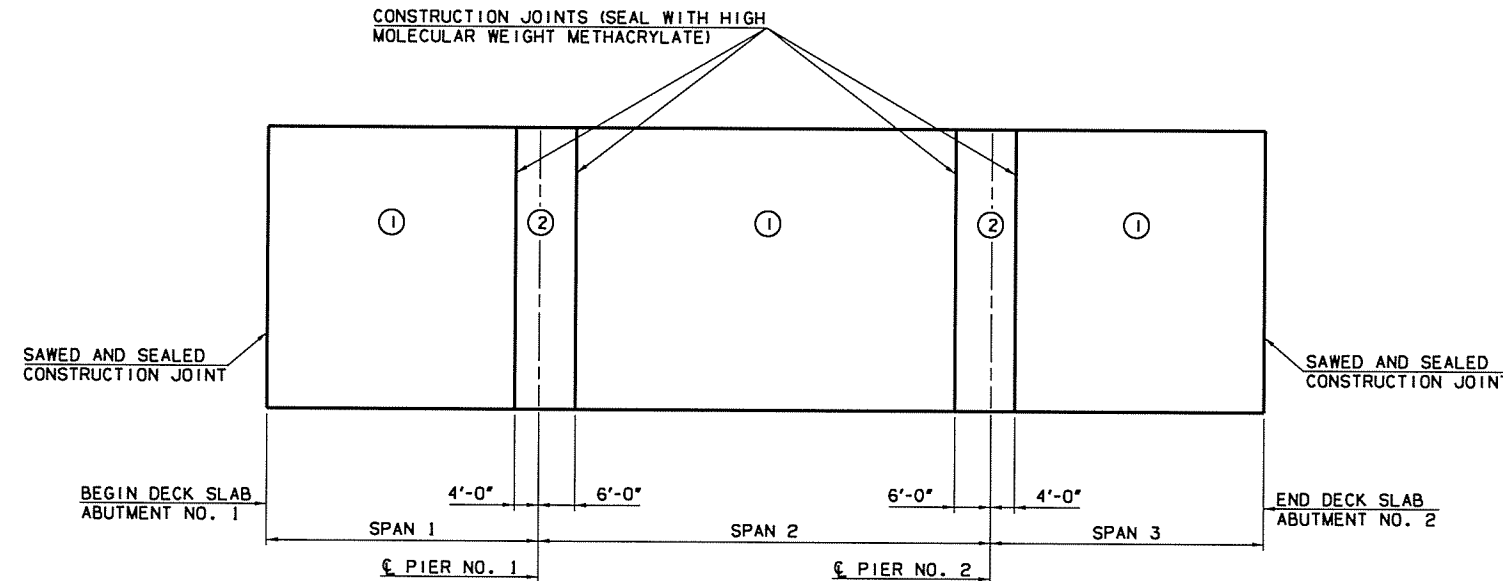


**F-SHAPED PARAPET ELEVATION**  
SCALE: 1/8" = 1'-0"

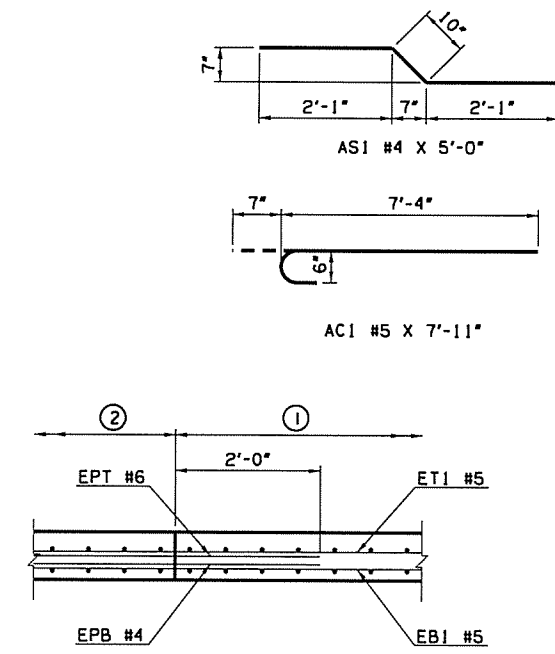
SUPERSTRUCTURE BAR LIST (ONE REQUIRED)					
EPOXY COATED REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
ET1	#5	95	STR.	172'-11"	SEE NOTE 1
EB1	#5	95	STR.	174'-11"	SEE NOTE 2
EPT	#6	95	STR.	14'-0"	LAPS WITH ET1
EPB	#4	95	STR.	14'-0"	LAPS WITH EB1
A1	#4	292	BNT.	47'-8"	
A2	#6	22	BNT.	48'-0"	
A3	#5	40	BNT.	47'-10"	
AC1	#5	582	BNT.	7'-11"	
B1	#5	332	STR.	46'-8"	
AS1	#4	190	BNT.	5'-0"	LAPS WITH ET1
FS2	#5	252	BNT.	7'-4"	SEE NOTE 3
L1	#4	88	BNT.	1'-3"	SEE NOTE 3

**NOTES:**

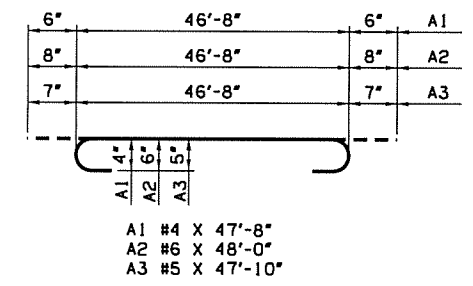
1. INCLUDES 3 - 2'-7" MIN. LAPS.
2. INCLUDES 3 - 3'-3" MIN. LAPS.
3. SEE ODOT STD. FSHP-42-2.



**DECK SLAB POURING SEQUENCE DIAGRAM**



**CONSTRUCTION JOINT DETAIL**  
SCALE: 3/4" = 1'-0"



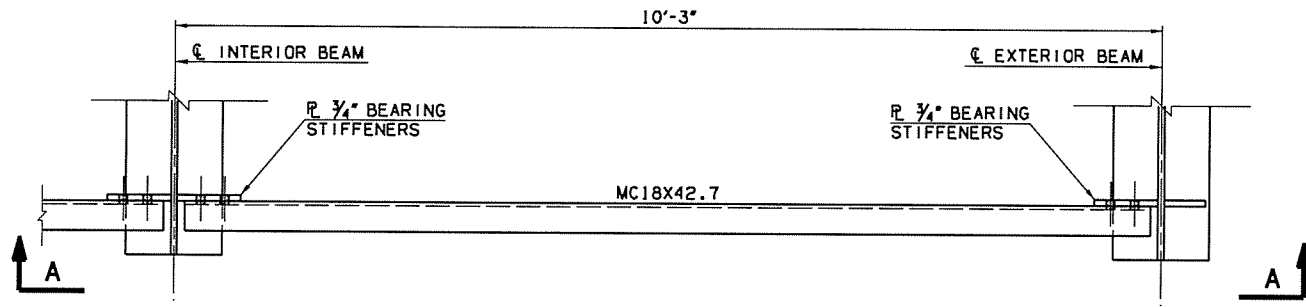
**NOTES:**

1. EPOXY-COAT OR GALVANIZE STEEL ITEMS USED TO FACILITATE CONSTRUCTION, SUCH AS DECK FORM HANGERS, TY-BAR CLIPS, INSERT WELD ANCHORS, OR OTHER APPURTENANCES, THAT WILL REMAIN IN PLACE IN THE DECK SLAB. EPOXY-COAT IN ACCORDANCE WITH AASHTO M284 OR GALVANIZE IN ACCORDANCE WITH AASHTO M111.
2. PLACE DECK SLAB CONCRETE ONE SECTION AT A TIME CONSISTENT WITH THE DECK SLAB POURING SEQUENCE DIAGRAM. IN THE EVENT OF AN EMERGENCY, HALT THE PLACEMENT OF CONCRETE BY FORMING A CONSTRUCTION JOINT MADE PERPENDICULAR TO THE DIRECTION OF THE TRAFFIC OR AS DIRECTED BY THE ENGINEER. DO NOT PLACE ANY HEAVY EQUIPMENT ON THE FINISHED DECK SLAB WITHIN 5 FEET OF ANY CONSTRUCTION JOINT UNTIL THE CONCRETE IS IN PLACE ON BOTH SIDES OF THE RESPECTIVE JOINT AND AT LEAST 48 HOURS HAS ELAPSED SINCE CONCRETE PLACEMENT. CONSTRUCTION JOINTS AT THE CLOSURE POURS IN THE DECK SLAB SHALL NOT BE KEYED.
3. BARS SHALL BE CONTINUOUS THRU CONSTRUCTION JOINTS AT FIXED PIERS. DO NOT LAP WITHIN 10 FEET OF CENTERLINE OF FIXED PIER. ADDITIONAL LONGITUDINAL REINFORCING WITHIN CLOSURE POURS SHALL BE CONTINUOUS THROUGH EMERGENCY CONSTRUCTION JOINTS.
4. SEAL ALL DECK SLAB CONSTRUCTION JOINTS WITH HIGH MOLECULAR WEIGHT METHACRYLATE IN ACCORDANCE WITH SECTION 523 OF THE SPECIFICATIONS. INCLUDE ALL COST OF EQUIPMENT AND LABOR FOR THE INSTALLATION OF THE HIGH MOLECULAR WEIGHT METHACRYLATE SEALER IN THE CONTRACT UNIT PRICE OF "SEALER CRACK PREPARATION". INCLUDE ALL COSTS OF THE HIGH MOLECULAR WEIGHT METHACRYLATE SEALER IN THE CONTRACT UNIT PRICE OF "SEALER RESIN". THE DEPARTMENT WILL NOT MEASURE THE PREPARATION AND SEALER OF EMERGENCY CONSTRUCTION JOINTS FOR PAYMENT.
5. DECK SLAB POURING SEQUENCE: THE DECK SLAB IS DIVIDED INTO SECTIONS BETWEEN CONSTRUCTION JOINTS AS SHOWN. PLACE THE DECK SLAB CONCRETE OF EACH SECTION IN THE NUMERICAL SEQUENCE INDICATED. SECTIONS OF THE DECK SLAB WITH THE SAME NUMBER MAY BE PLACED IN ANY ORDER. SECTIONS IN SEQUENCE 2 MAY BE PLACED BEFORE ALL OF SEQUENCE 1 ARE COMPLETED IF SEQUENCE 1 AT THE COMMON CONSTRUCTION JOINT IS COMPLETE. BUT UNDER NO CIRCUMSTANCES WILL A SECTION OF SEQUENCE 2 BE Poured BEFORE THE ADJACENT SECTIONS HAVE BEEN IN PLACE FOR AT LEAST 48 HOURS.

SUPERSTRUCTURE QUANTITIES		
ITEM	UNIT	TOTAL
SAW-CUT GROOVING	SY	809.2
42" F-SHAPED PARAPET	LF	331.0
STRUCTURAL STEEL	LB	175440
WEATHERING STEEL FIXED BEARING ASSEMBLY	EA	10
STAINLESS STEEL EXPANSION BEARING ASSEMBLY	EA	20
ELASTOMERIC BEARING PADS	EA	20
CLASS AA CONCRETE	CY	229.6
EPOXY COATED REINFORCING STEEL	LB	76150
WATER REPELLENT (VISUALLY INSPECTED)	SY	440
SEALER CRACK PREPARATION	LF	188
SEALER RESIN	GAL	1.3

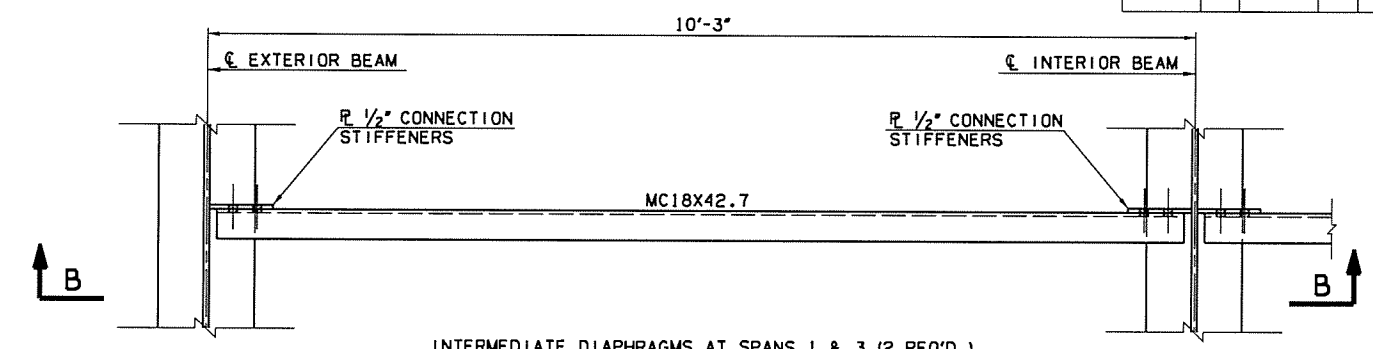
Design	MKR	6/16	US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn	JT	6/16	BRIDGE A	
Checked	KSJ	6/16	<b>SUPERSTRUCTURE DETAILS</b>	
Approved	SAK	6/16	<b>(SHEET 1 OF 4)</b>	
Squad	BENHAM		Job Piece No. 27092(04)	Sheet No. 61

DOT DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		62	143



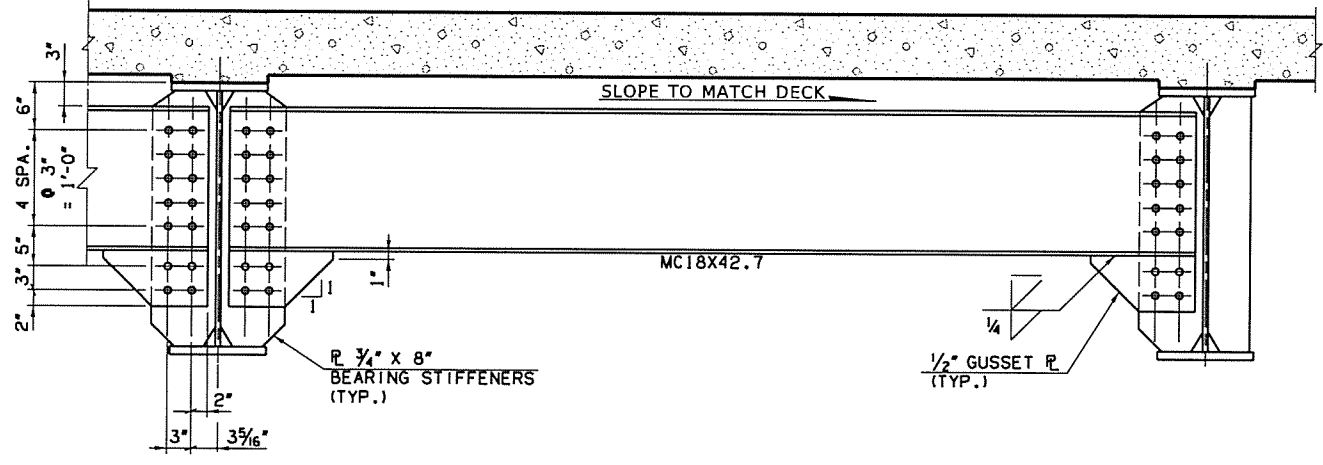
END DIAPHRAGMS AT PIERS NO. 1 AND 2 SHOWN.  
CHANNEL DIAPHRAGMS AND BOLT HOLES IN BEARING  
DIAPHRAGMS NOT REQUIRED AT ABUTMENTS

**PLAN - END DIAPHRAGMS**  
SCALE: 1" = 1'-0"

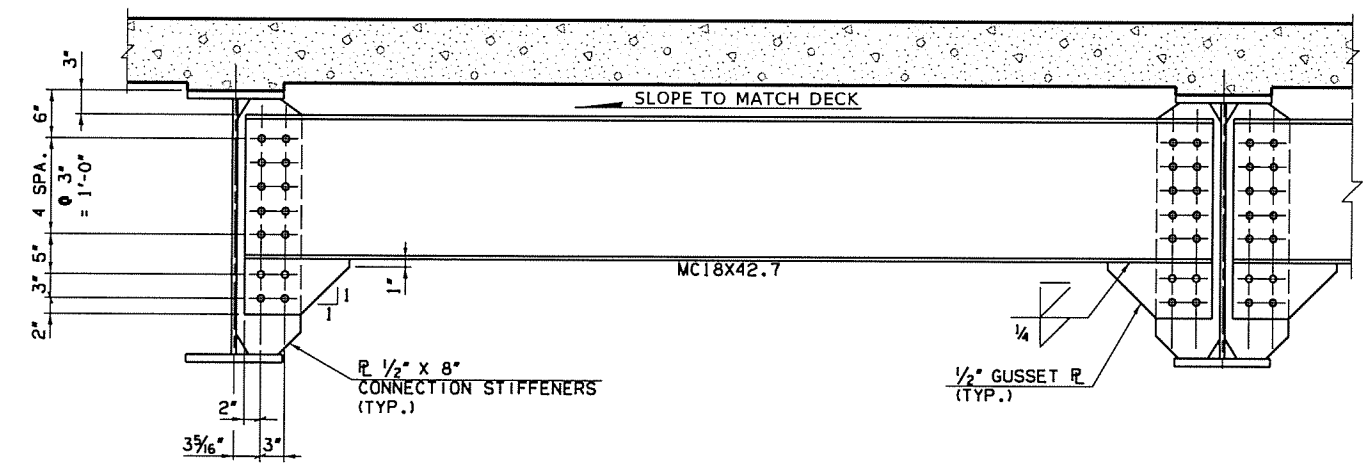


INTERMEDIATE DIAPHRAGMS AT SPANS 1 & 3 (2 REQ'D.)  
INTERMEDIATE DIAPHRAGMS AT SPANS 2 (3 REQ'D.)

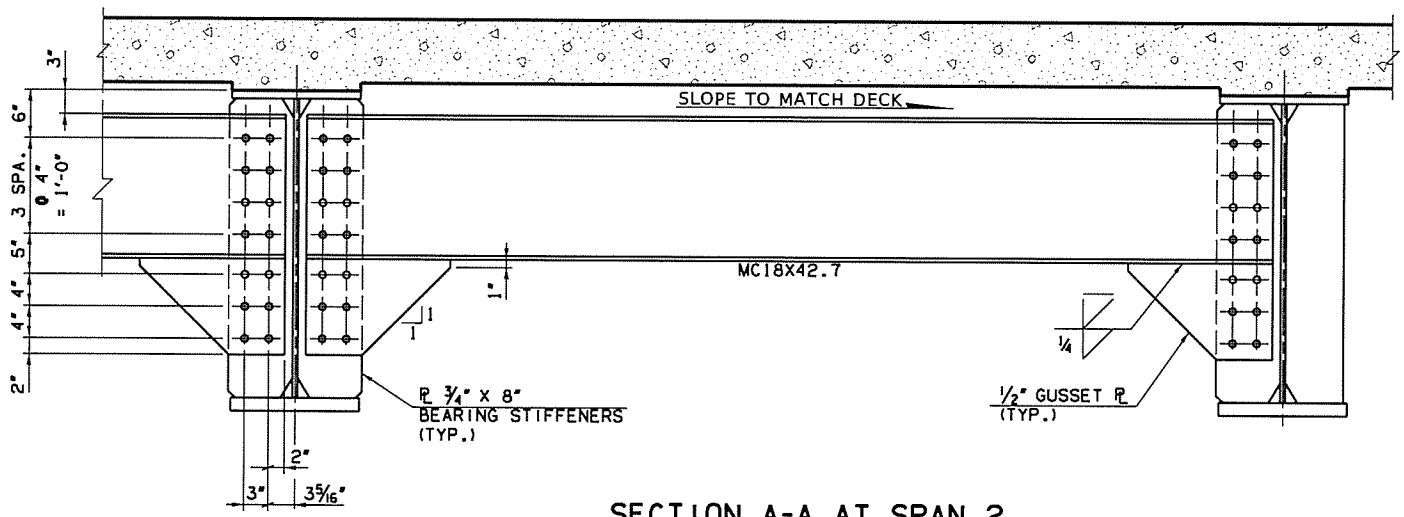
**PLAN - INTERMEDIATE DIAPHRAGMS**  
SCALE: 1" = 1'-0"



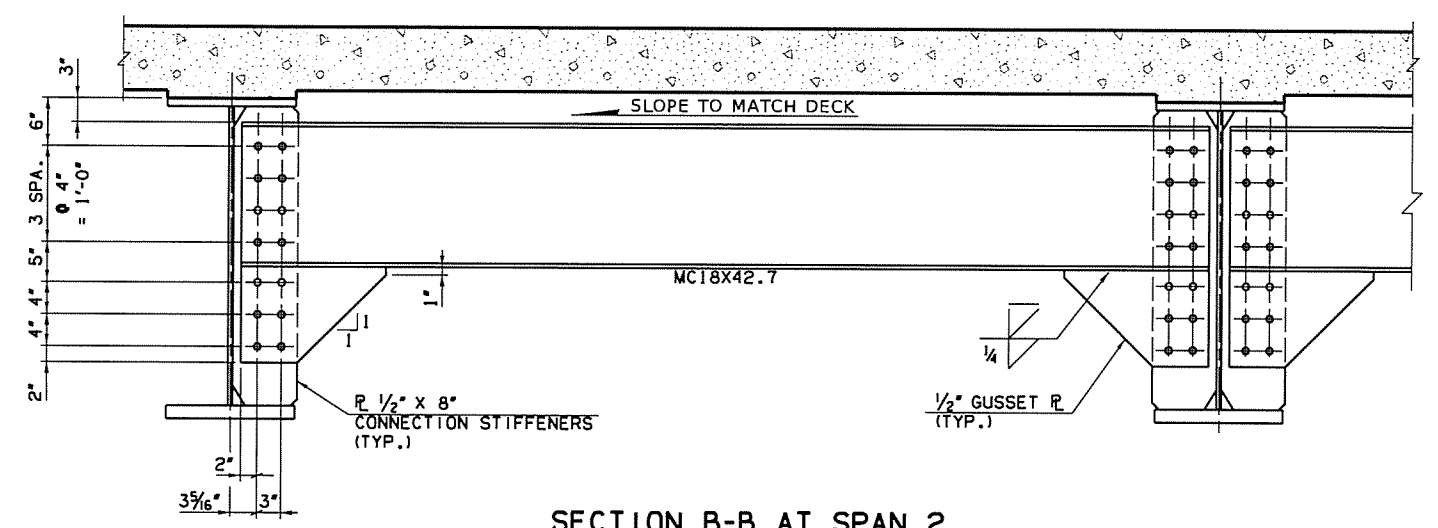
**SECTION A-A AT SPAN 1 & 3**  
SCALE: 1" = 1'-0"



**SECTION B-B AT SPAN 1 & 3**  
SCALE: 1" = 1'-0"



**SECTION A-A AT SPAN 2**  
SCALE: 1" = 1'-0"



**SECTION B-B AT SPAN 2**  
SCALE: 1" = 1'-0"

INSTALL ALL DIAPHRAGMS AND TIGHTEN ALL BOLTS BEFORE PLACING CONCRETE FOR THE DECK SLAB OR APPLYING OTHER MASSIVE LOADS TO THE BEAMS.

**NOTES:**

- ALL BOLTED CONNECTIONS SHALL USE 7/8" DIA. HIGH STRENGTH BOLTS (A325) WITH DIRECT TENSION INDICATORS AS SPECIFIED IN SECTION 506 OF THE STANDARD SPECIFICATIONS. THE "CALIBRATED WRENCH" METHOD SHALL NOT BE USED. ALL BOLT HOLES SHALL BE 15/16" DIA. WITH A MIN. 2" EDGE DISTANCE UNLESS NOTED OTHERWISE.

Design	MKR	6/16	US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn	RAH	6/16	BRIDGE A	
Checked	DAS	6/16	<b>SUPERSTRUCTURE DETAILS</b>	
Approved	SAK	6/16	<b>(SHEET 2 OF 4)</b>	
Squad	BENHAM		Job Piece No. 27092(04)	Sheet No. 62

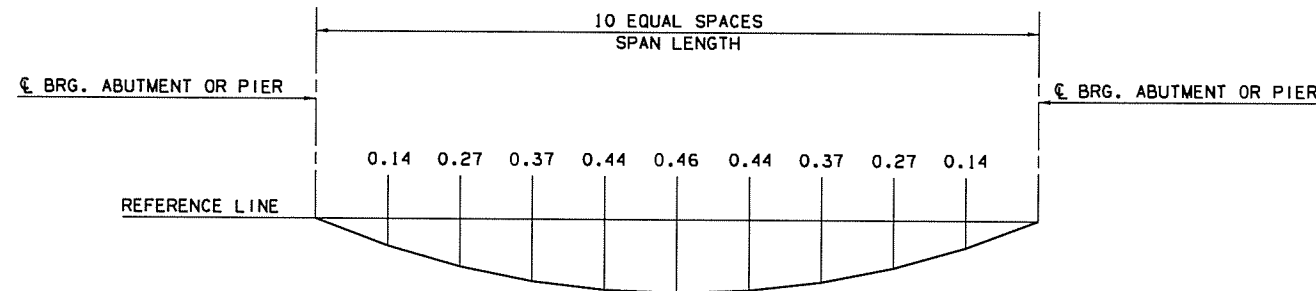
7/12/2016 11:26:45 AM P:\EIN\650-TUL\ACIV\255231000-000T-US169BRIDGE\20\_DESGN\40\_CAD\_Opossum\DDRNS\Brdge\27092(04).S.L.CF\_Det\_01.dgn



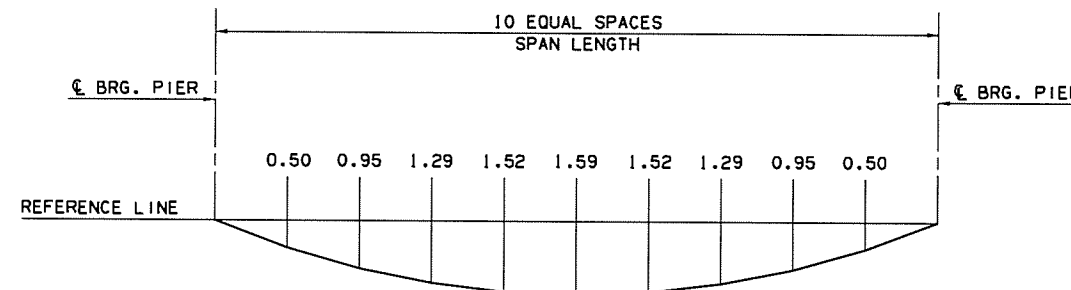


GIRDER DETAIL SCHEDULE FOR SPAN NO. 1																										
GIRDER	GIRDER GEOMETRY							LOCATION A	PL. "a" THK. IN.	PL. "b" WIDTH IN.	BEARING STIFFENERS LOCATION	PL. "a" THK. IN.	PL. "b" WIDTH IN.	SHEAR CONNECTOR LOCATION	DIA. "f" IN.	NUMBER OF SPACES	SPACING IN.	STUDS/ROW "e"	TRANS. SPACING "d" IN.	SHEAR CONNECTOR LOCATION	DIA. "f" IN.	NUMBER OF SPACES	SPACING IN.	STUDS/ROW "e"	TRANS. SPACING "d" IN.	
	1-5	A	B	C	D	E	F																			
44'-8"	44'-8"								TOP FLANGE	A	3/4	12	H	3/4	8	M	-	-	-	-	R	7/8	21	10	3	4
									WEB	A+B+C	5/8	32	K	3/4	8	N	7/8	21	10	3	4	S	-	-	-	-
									BOTTOM FLANGE	D	1	12	-	-	-	P	7/8	9	6	3	4	-	-	-	-	-
GIRDER DETAIL SCHEDULE FOR SPAN NO. 2																										
GIRDER	GIRDER GEOMETRY							LOCATION A	PL. "a" THK. IN.	PL. "b" WIDTH IN.	BEARING STIFFENERS LOCATION	PL. "a" THK. IN.	PL. "b" WIDTH IN.	SHEAR CONNECTOR LOCATION	DIA. "f" IN.	NUMBER OF SPACES	SPACING IN.	STUDS/ROW "e"	TRANS. SPACING "d" IN.	SHEAR CONNECTOR LOCATION	DIA. "f" IN.	NUMBER OF SPACES	SPACING IN.	STUDS/ROW "e"	TRANS. SPACING "d" IN.	
	1-5	A	B	C	D	E	F																			
74'-8"	74'-8"								TOP FLANGE	A	1	16	H	3/4	8	M	-	-	-	-	R	7/8	36	10	3	6
									WEB	A+B+C	5/8	38	K	3/4	8	N	7/8	36	10	3	6	S	-	-	-	-
									BOTTOM FLANGE	D	1 5/8	16	-	-	-	P	7/8	3	6	3	6	-	-	-	-	-
GIRDER DETAIL SCHEDULE FOR SPAN NO. 3																										
GIRDER	GIRDER GEOMETRY							LOCATION A	PL. "a" THK. IN.	PL. "b" WIDTH IN.	BEARING STIFFENERS LOCATION	PL. "a" THK. IN.	PL. "b" WIDTH IN.	SHEAR CONNECTOR LOCATION	DIA. "f" IN.	NUMBER OF SPACES	SPACING IN.	STUDS/ROW "e"	TRANS. SPACING "d" IN.	SHEAR CONNECTOR LOCATION	DIA. "f" IN.	NUMBER OF SPACES	SPACING IN.	STUDS/ROW "e"	TRANS. SPACING "d" IN.	
	1-5	A	B	C	D	E	F																			
44'-8"	44'-8"								TOP FLANGE	A	3/4	12	H	3/4	8	M	-	-	-	-	R	7/8	21	10	3	4
									WEB	A+B+C	5/8	32	K	3/4	8	N	7/8	21	10	3	4	S	-	-	-	-
									BOTTOM FLANGE	D	1	12	-	-	-	P	7/8	9	6	3	4	-	-	-	-	-

ORDINATES	Tenth Pt.	-	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	-
SPANS 1,3	Average Steel	0.00	0.02	0.04	0.06	0.07	0.07	0.07	0.06	0.04	0.02	0.00
	Average Concrete	0.00	0.12	0.23	0.32	0.37	0.39	0.37	0.32	0.23	0.12	0.00
	Average Total	0.00	0.14	0.27	0.37	0.44	0.46	0.44	0.37	0.27	0.14	0.00



ORDINATES	Tenth Pt.	-	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	-
SPAN 2	Average Steel	0.00	0.10	0.19	0.26	0.30	0.32	0.30	0.26	0.19	0.10	0.00
	Average Concrete	0.00	0.40	0.76	1.04	1.22	1.28	1.22	1.04	0.76	0.40	0.00
	Average Total	0.00	0.50	0.95	1.29	1.52	1.59	1.52	1.29	0.95	0.50	0.00



**DEAD LOAD DEFLECTION DIAGRAMS**  
SCALE: NONE

**NOTES:**

1. DEFLECTION IS IN INCHES.
2. POSITIVE VALUE INDICATES DEFLECTION IS DOWNWARD.
3. CONCRETE LOAD INCLUDES SLAB AND PARAPETS.

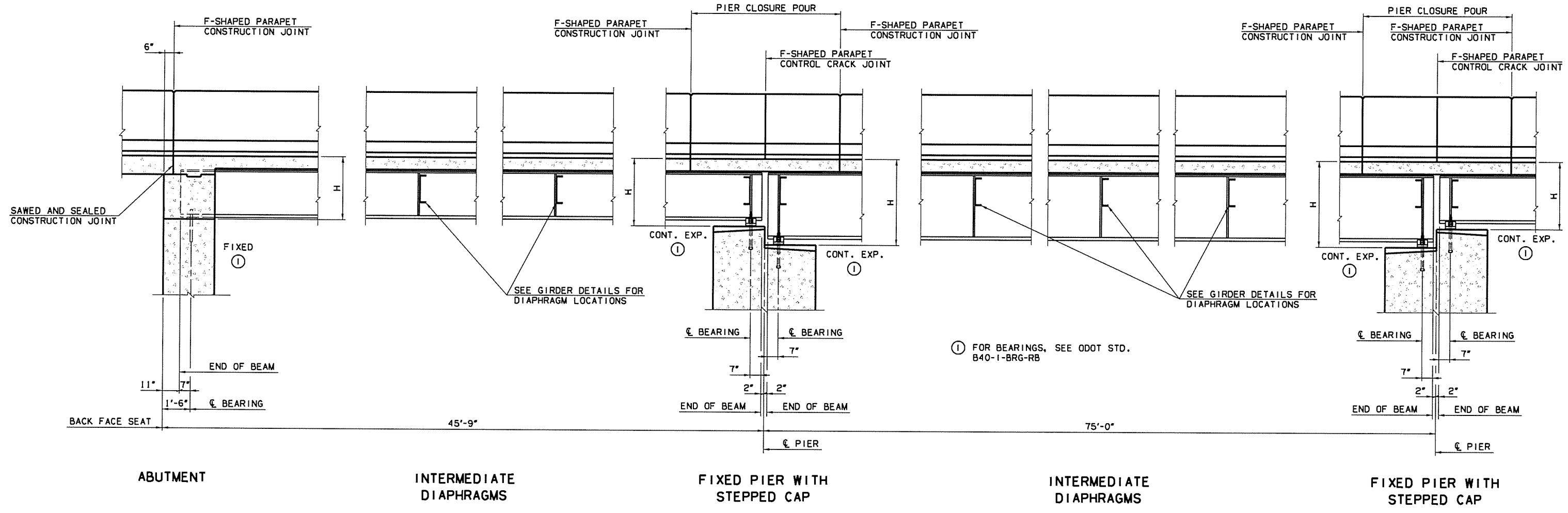
Design	MKR	6/16	US 169 OVER OPOSSUM CREEK BRIDGE A <b>SUPERSTRUCTURE DETAILS</b> (SHEET 4 OF 4)	NOWATA COUNTY
Drawn	RAH	6/16		
Checked	DAS	6/16		
Approved	SAK	6/16		
Squad	BENHAM			
Job Piece No. 27092(04)			Sheet No. 64	

7/12/2016

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DOT DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		65	143



**LONGITUDINAL SECTION**  
SCALE: 3/8" = 1'-0"

LOCATION	H
ABUTMENT NO. 1	3'-8 3/4"
PIER NO. 1 DWN STA	4'-1 3/8"
PIER NO. 1 UP STA	4'-7 3/4"
PIER NO. 2 DWN STA	4'-7 3/4"
PIER NO. 2 UP STA	4'-1 3/8"
ABUTMENT NO. 2	3'-8 3/4"

INSTALL ALL DIAPHRAGMS AND TIGHTEN ALL BOLTS BEFORE PLACING CONCRETE FOR THE DECK SLAB OR APPLYING OTHER MASSIVE LOADS TO THE BEAMS.

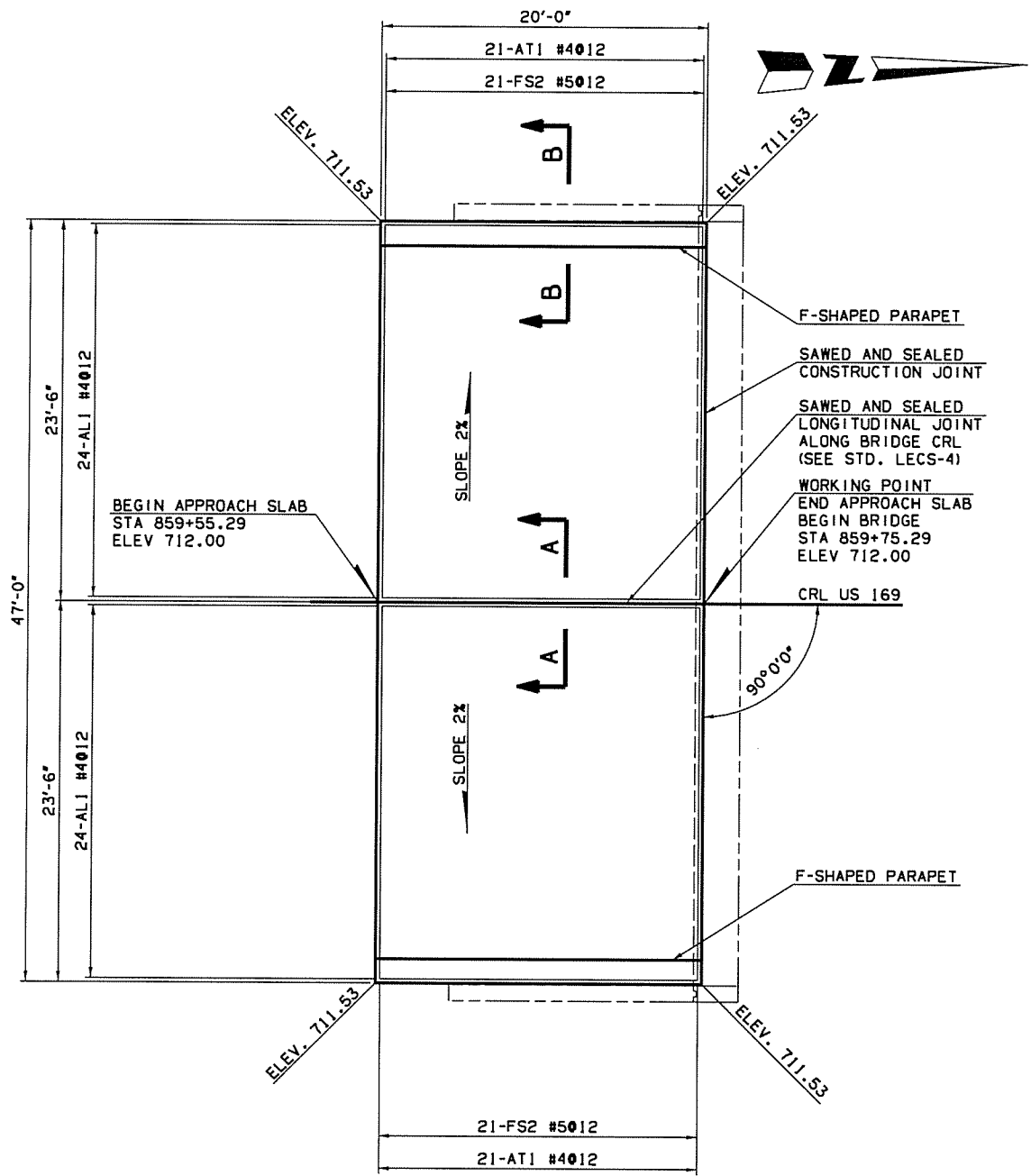
**NOTES:**  
1. H DIMENSION IS FROM TOP OF DECK SLAB TO BOTTOM OF BEARING ASSEMBLY AT  $\phi$  BEARING.

Design	MKR	6/16	US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn	WZB	6/16	BRIDGE A	
Checked	KSJ	6/16		
Approved	SAK	6/16		
Squad	BENHAM			

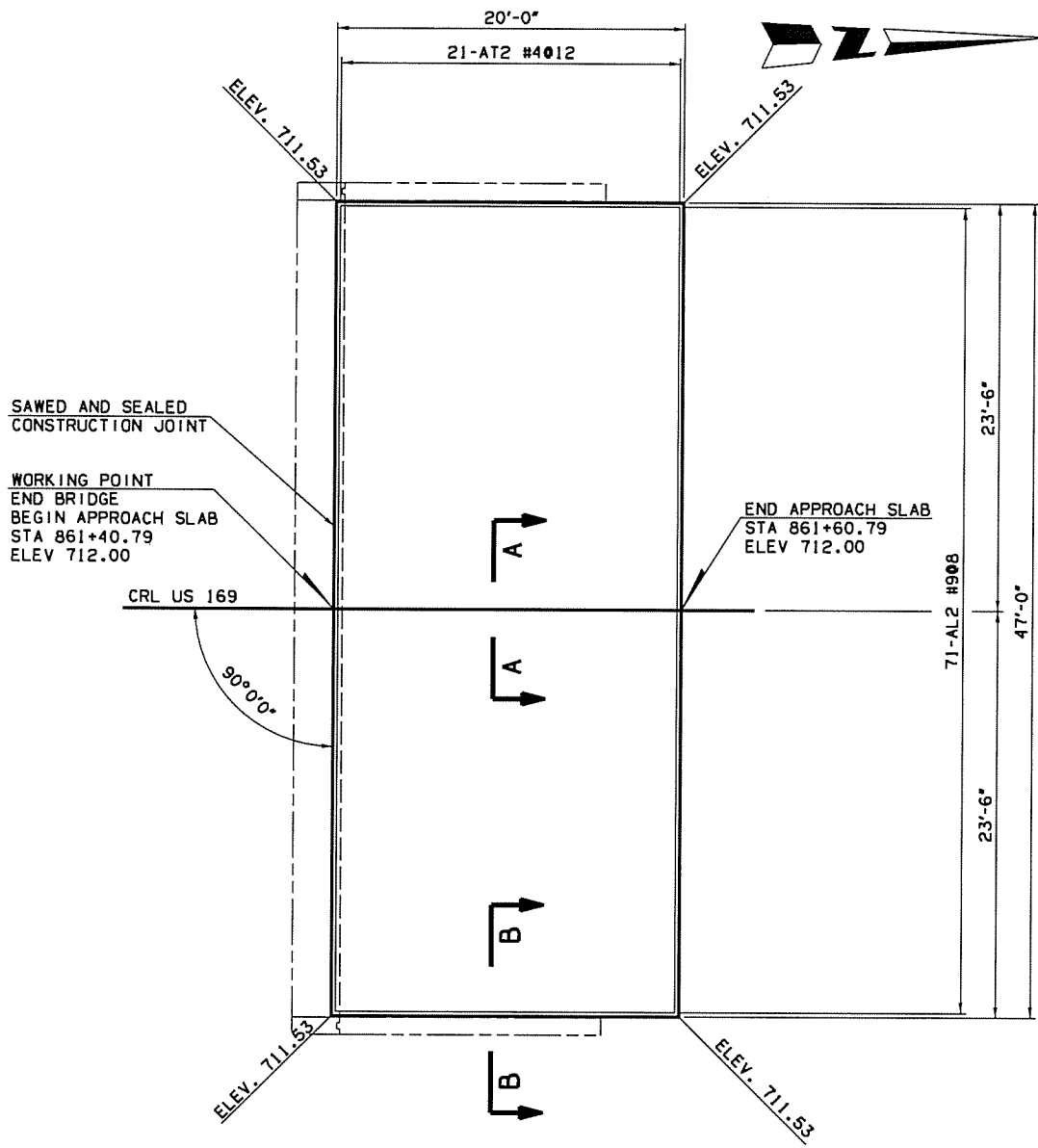
**LONGITUDINAL SECTION**

Job Piece No. 27092(04) Sheet No. 65

DOT DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		66	143



TOP REINFORCING MAT DETAIL  
**APPROACH SLAB NO. 1**  
 SCALE: 1/4" = 1'-0"



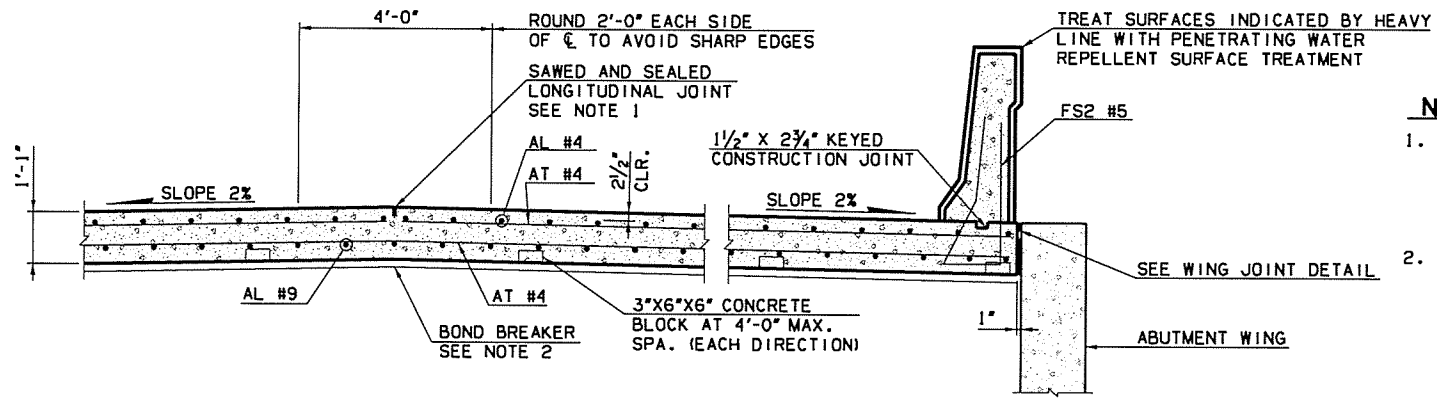
BOTTOM REINFORCING MAT DETAIL  
**APPROACH SLAB NO. 2**  
 SCALE: 1/4" = 1'-0"

ITEM	UNIT	SLAB 1	SLAB 2	TOTAL
APPROACH SLAB	SY	104.5	104.5	209.0
SAW-CUT GROOVING	SY	97.8	97.8	195.6
42" F-SHAPED PARAPET	LF	40.0	40.0	80.0
WATER REPELLENT (VISUALLY INSPECTED)	SY	36	36	72

① THE DEPARTMENT CONSIDERS THE COST OF CLASS AA CONCRETE, REINFORCING STEEL (INCLUDING FS2 BARS), BACKER ROD, RAPID CURE JOINT SEALANT, POLYSTYRENE AND POLYETHYLENE SHEETING TO BE INCLUDED IN THE CONTRACT UNIT PRICE OF APPROACH SLAB.

Design	STF	6/16	US 169 OVER OPOSSUM CREEK	NOWATA COUNTY
Drawn	WZB	6/16	BRIDGE A	
Checked	DAS	6/16	<b>APPROACH SLAB DETAILS</b>	
Approved	SAK	6/16	<b>(SHEET 1 OF 2)</b>	
Squad	BENHAM		Job Piece No. 27092(04)	Sheet No. 66

0001	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		67	143



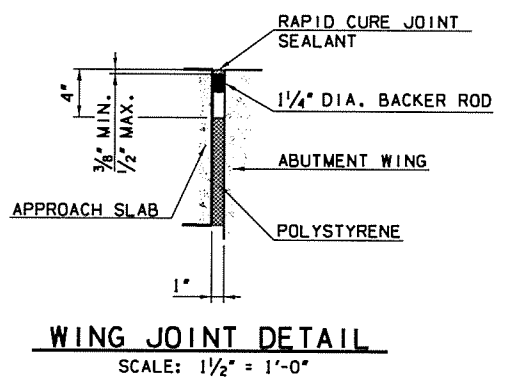
- NOTES:**
1. PLACE REINFORCING IN THE TOP OF THE APPROACH SLAB 2" FROM EITHER SIDE OF SAWED AND SEALED LONGITUDINAL JOINT. FOR ADDITIONAL DETAILS OF LONGITUDINAL JOINT, SEE STD. LECS-4.
  2. BOND BREAKER SHALL BE ONE 6 MIL OR TWO 4 MIL POLYETHYLENE SHEETS. BOND BREAKER SHALL EXTEND FULL WIDTH OF APPROACH SLAB AND FULL LENGTH UP TO THE BACK FACE OF THE ABUTMENT DIAPHRAGM. BOND BREAKER SHALL NOT BE PLACED IN NOTCH OF THE ABUTMENT DIAPHRAGM.
  3. FOR ADDITIONAL DETAIL OF 42" F-SHAPED CONCRETE PARAPET, SEE STD. FSHP-42-2.

**APPROACH SLAB 1 BAR LIST**  
(ONE SHOWN, TWO REQUIRED)

EPOXY COATED REINFORCING

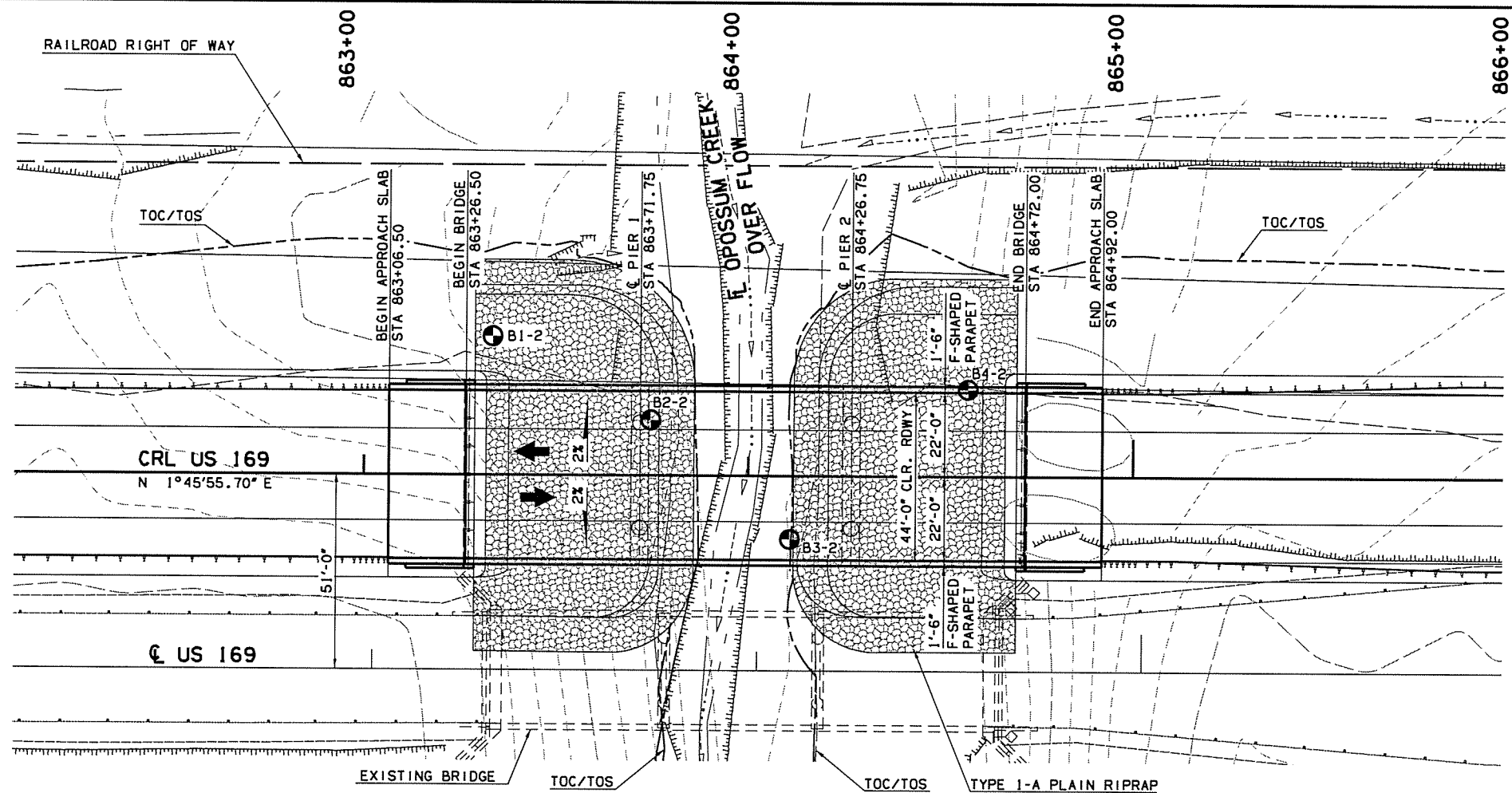
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
AT1	#4	42	STR.	23'-2"	
AT2	#4	21	STR.	46'-8"	
AL1	#4	48	STR.	19'-8"	
AL2	#9	71	STR.	19'-8"	
FS2	#5	42	BNT.	7'-4"	NOTE 1

- NOTES:**
1. FOR FS2 #5 BEND DETAIL SEE STD. FSHP-42-2



Design	STF	6/16	US 169 OVER OPOSSUM CREEK BRIDGE A <b>APPROACH SLAB DETAILS</b> (SHEET 2 OF 2) Job Piece No. 27092(04) Sheet No. 67
Drawn	WZB	6/16	
Checked	DAS	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

COUNTY	STATE	J.P. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	OKLA	270921041		68	143



BM 7 - CHISELED "X" ON SE WINGWALL  
 STA 859+49.26 - 20.77' RT CL  
 STA 859+51.72 - 71.77' RT CRL  
 ELEV=717.95

**PLAN**  
 SCALE: 1:20

TYPE 1-A PLAIN RIPRAP  
 SEE SECTION A-A ON  
 STAKING DIAGRAM

BM 8 - 80D IN 15' ELM  
 STA 871+27.16 - 166.81' RT CL  
 STA 871+33.88 - 216.01' RT CRL  
 ELEV=701.48

**DESIGN DATA**

**LOADING**  
 HL-93, OKLAHOMA OVERLOAD TRUCK OR 315 OVERLOAD TRUCK  
 20 PSF FUTURE WEARING SURFACE.  
 LRFR OPERATING RATING = 1.83

**DESIGN**  
 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION,  
 EXCEPT FOR PILES WHICH SATISFY AASHTO STANDARD  
 SPECIFICATIONS FOR HIGHWAY BRIDGES, 16TH EDITION WITH NO  
 INTERIMS.

ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE  
 ANSI/AWS D1.6 STRUCTURAL WELDING CODE - STAINLESS STEEL

**MATERIAL**  
 CONCRETE:  
 CLASS AA f'c = 4,000 PSI  
 CLASS A f'c = 3,000 PSI  
 REINFORCING STEEL: Fy = 60,000 PSI  
 STRUCTURAL STEEL M270 (GRADE 50W) Fy = 50,000 PSI  
 STAINLESS STEEL A240 (TYPE 316) Fy = 30,000 PSI  
 STAINLESS STEEL A320, CLASS 2, (GRADE B8M) Fy = 58,000 PSI

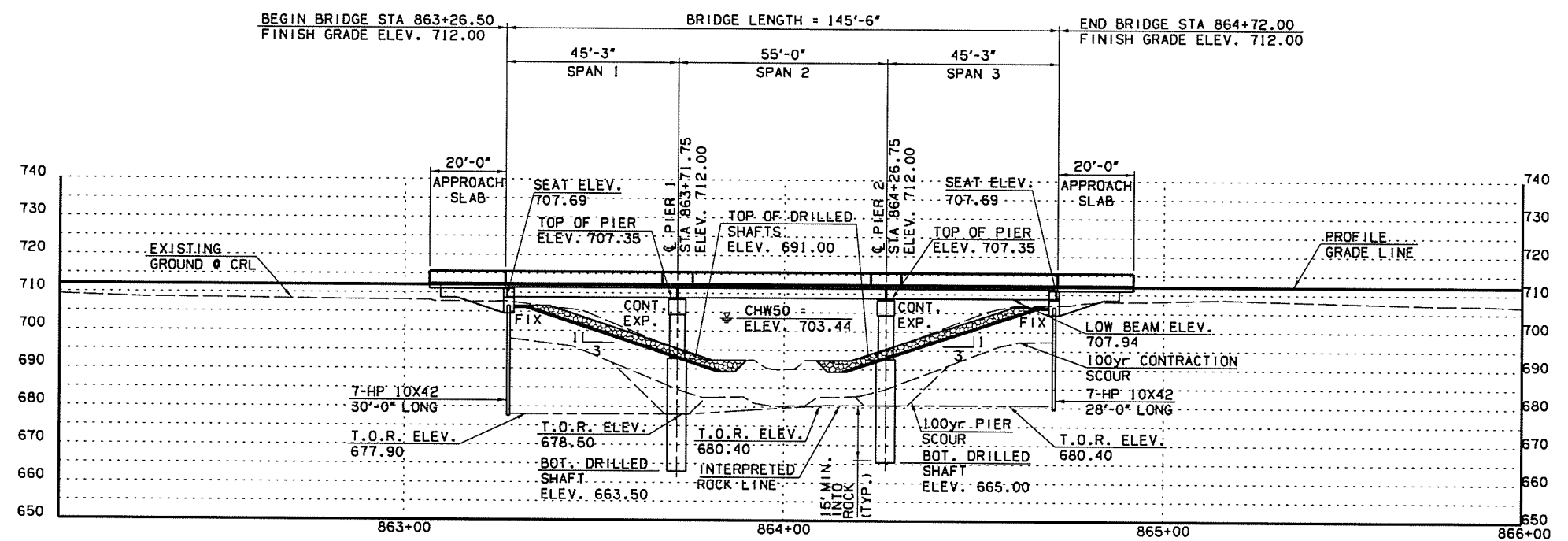
**FOUNDATION DESIGN**  
 ABUTMENTS (HP 10X42 PILING)  
 FACTORED PILE REACTION = 57.62 TONS/PILE  
 PIER 1 AND 2 (60" DIA. DRILLED SHAFTS)  
 MAX. FACTORED REACTION = 413.20 T/SHAFT  
 FACTORED FRICTION RESISTANCE (9 TSF) = 635.90 T/SHAFT  
 FACTORED BEARING RESISTANCE (60 TSF) = 823.20 T/SHAFT  
 TOTAL FACTORED RESISTANCE = 1459.10 T/SHAFT  
 BEARING RESISTANCE FACTOR = 0.7  
 FRICTION RESISTANCE FACTOR = 0.45  
 FRICTION DEPTH OF ROCK NEGLECTED (FEET) = 5

**HYDRAULIC DATA**

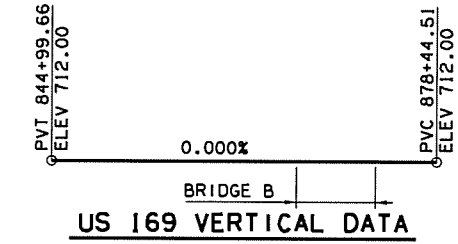
TOTAL DA = 0.44 SQ MI (1) Q50 = 3970 cfs  
 CONTROLLED DA = 0 SQ MI V50 = 1.22 fps  
 EFFECTIVE DA = 0.44 SQ MI CHW50 = 703.44  
 Q2 = 110 cfs Q100 = 5155 cfs  
 V2 = 1.51 fps V100 = 1.07 fps  
 CHW2 = 693.25 CHW100 = 704.45  
 Q5 = 665 cfs \*100yr PIER SCOUR = 7.28'  
 V5 = 2.03 fps 100yr CONTRACTION SCOUR = 9.65'  
 CHW5 = 696.46 \*100yr TOTAL SCOUR = 16.93'  
 Q10 = 1520 cfs Q-OT > Q500 = 8055 cfs  
 V10 = 3.46 fps V500 = 0.96 fps  
 CHW10 = 699.14 CHW500 = 706.69  
 Q25 = 2985 cfs \*500yr PIER SCOUR = 7.28'  
 V25 = 1.92 fps 500yr CONTRACTION SCOUR = 21.23'  
 CHW25 = 702.09 \*500yr TOTAL SCOUR = 28.51'  
 BRIDGE LENGTH = 145.50'

\* NOT APPLICABLE DUE TO ROCK ELEVATION

NOTE:  
 (1) FLOWS WERE TAKEN FROM HEC-RAS FLOW DISTRIBUTION FOR  
 MULTIPLE BRIDGE OPENING ROUTINE MODELING THE MAIN  
 CHANNEL AND OVERFLOW CHANNEL



**ELEVATION**  
 SCALE: HORIZ. 1" = 20'  
 VERT. 1" = 20'



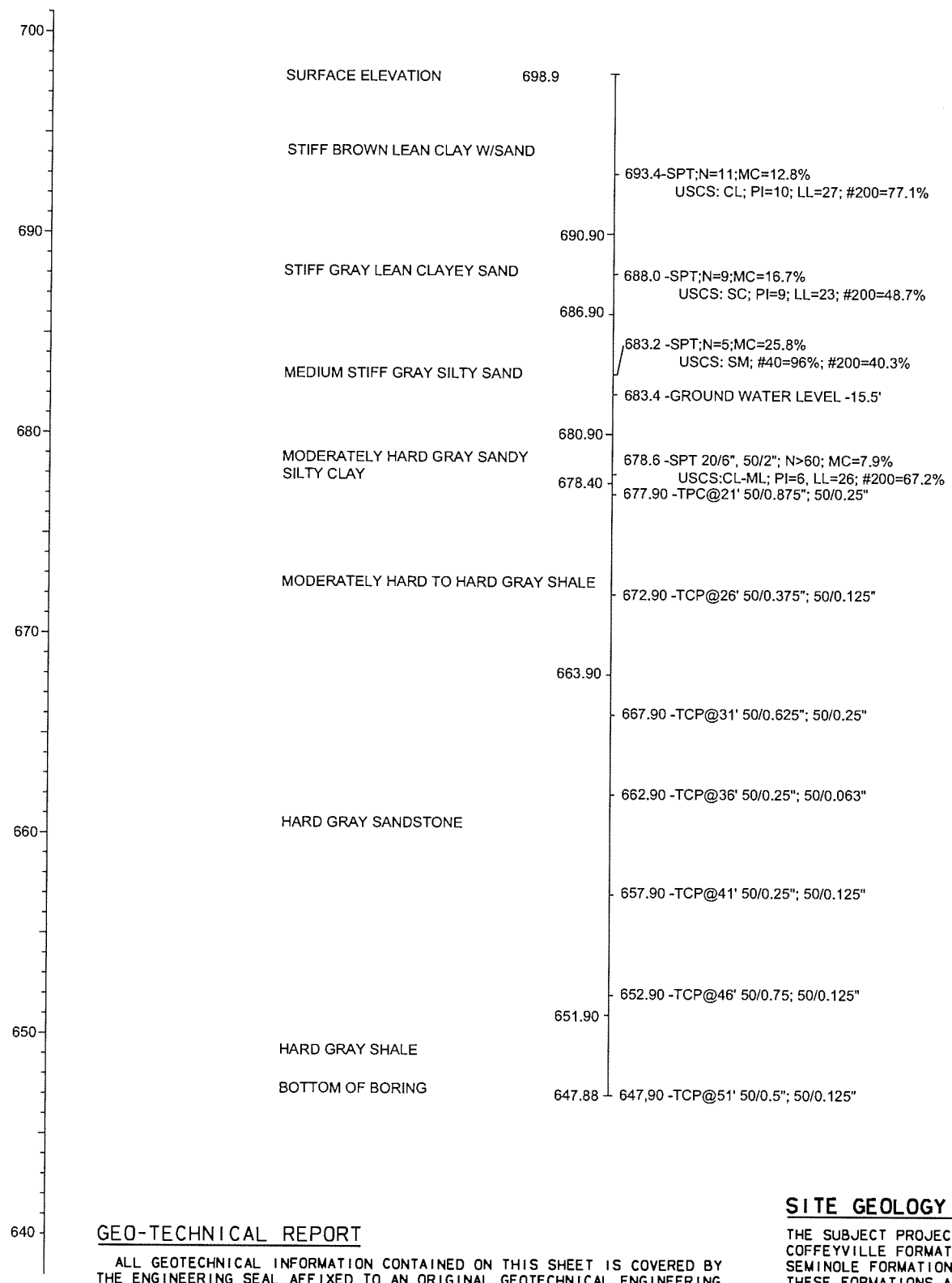
BRIDGE B, C. STA. 863+99.25 CRL CONST. INTEGRAL 45'-55'-45' STEEL  
 BEAM SPANS, 44'-0" CLR. RDY., SKEW 0°, F-SHAPED PARAPET

TO BE REMOVED EXISTING BRIDGE C. STA. 893+18.00, 45'-40'-45'  
 1-BM SPANS, 28' CLR. RDY W/2 18" S.C. SKEW 0°

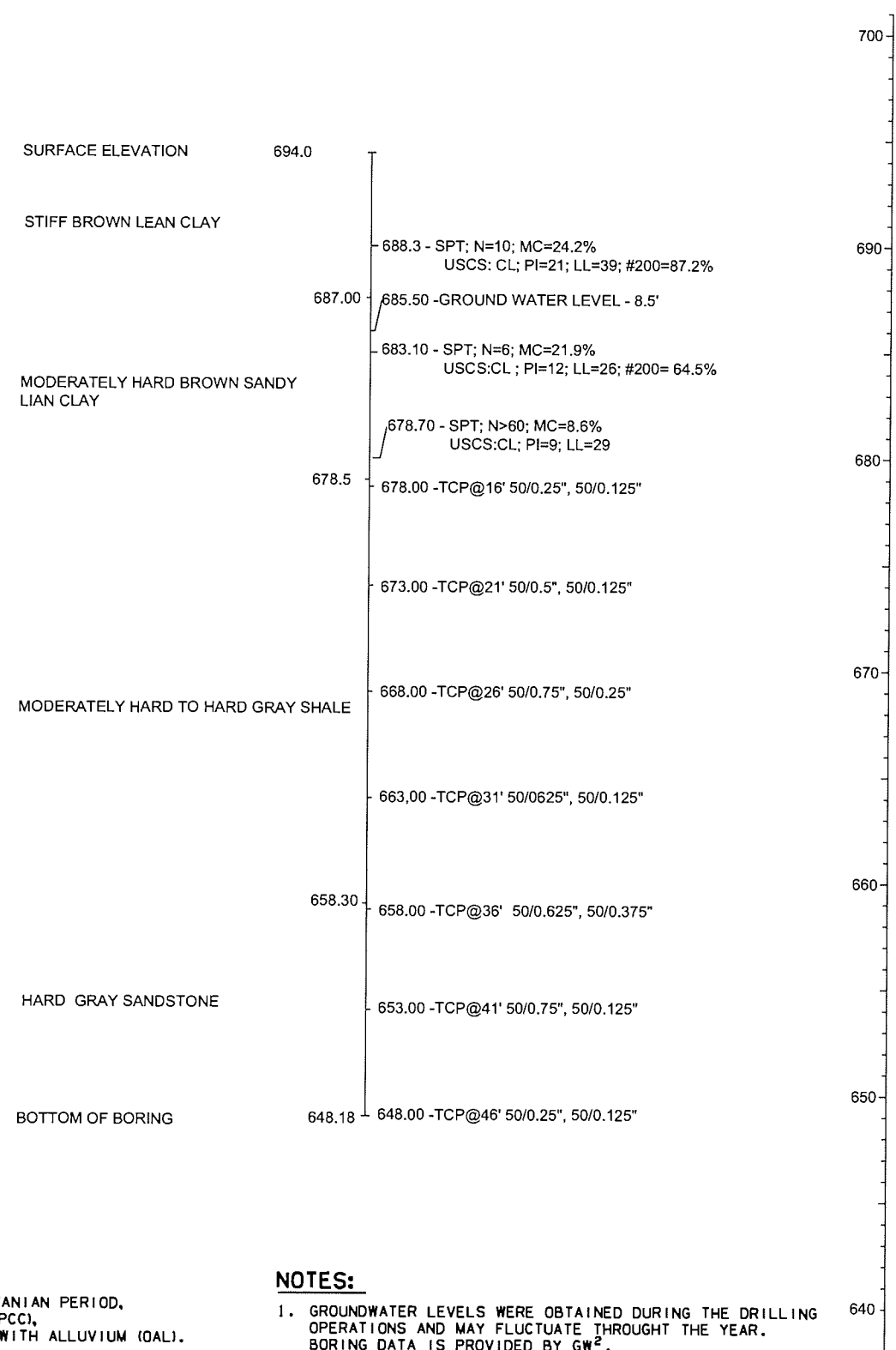
Design	SAK	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B <b>GENERAL PLAN AND ELEVATION</b> Job Piece No. 270921041 Sheet No. 68
Drawn	WZB	6/16	
Checked	STF	6/16	
Approved	SAK	6/16	
Squad	BENHAM		



**BORING NO. B1-2**  
(STA 863+33.38, 36.49' LT OF BRIDGE CL)



**BORING NO. B2-2**  
(STA 863+74.46, 14.45' LT OF BRIDGE CL)



**GEO-TECHNICAL REPORT**

ALL GEOTECHNICAL INFORMATION CONTAINED ON THIS SHEET IS COVERED BY THE ENGINEERING SEAL AFFIXED TO AN ORIGINAL GEOTECHNICAL ENGINEERING REPORT THAT HAS BEEN STAMPED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN OKLAHOMA.

TO OBTAIN A COPY OF THE COMPLETE REPORT, CONTACT THE ODOT OFFICE ENGINEER AT (405) 522-0972. THE CONTRACTOR SHOULD BE FULLY AWARE OF THE SITE CONDITIONS PRIOR TO BEGINNING WORK. ANY ADDITIONAL GEOTECHNICAL INFORMATION WHICH MAY BE DESIRED IS THE RESPONSIBILITY OF THE CONTRACTOR.

**SITE GEOLOGY**

THE SUBJECT PROJECT IS LOCATED AND BOUNDED BY PENNSYLVANIAN PERIOD, COFFEYVILLE FORMATION (IPCC), CHEVKERBOARD FORMATION (IPCC), SEMINOLE FORMATION (IPSL), AND LENAPAH FORMATION (IPLB) WITH ALLUVIUM (QAL). THESE FORMATIONS ARE DESCRIBED AS FOLLOWS:

- IPCC - COFFEYVILLE FORMATION: SHALE AND THIN-BEDDED SANDSTONE.
- IPCC - CHECKERBOARD FORMATION: LIMESTONE AND SOME SHALE.
- IPSL - SEMINOLE FORMATION: SHALE, SANDSTONE, AND THIN COAL BEDS.
- IPLB - LENAPAH FORMATION: LIMESTONE AND SHALE.
- QAL - ALLUVIUM: GRAVEL, SAND SILT, AND CLAY.

IN OUR FIELD EXPLORATION WE ENCOUNTERED ALLUVIUM OVERBURDEN SDILS OVER SHALE, SANDSTONE AND LIMESTONE FORMATIONS.

**NOTES:**

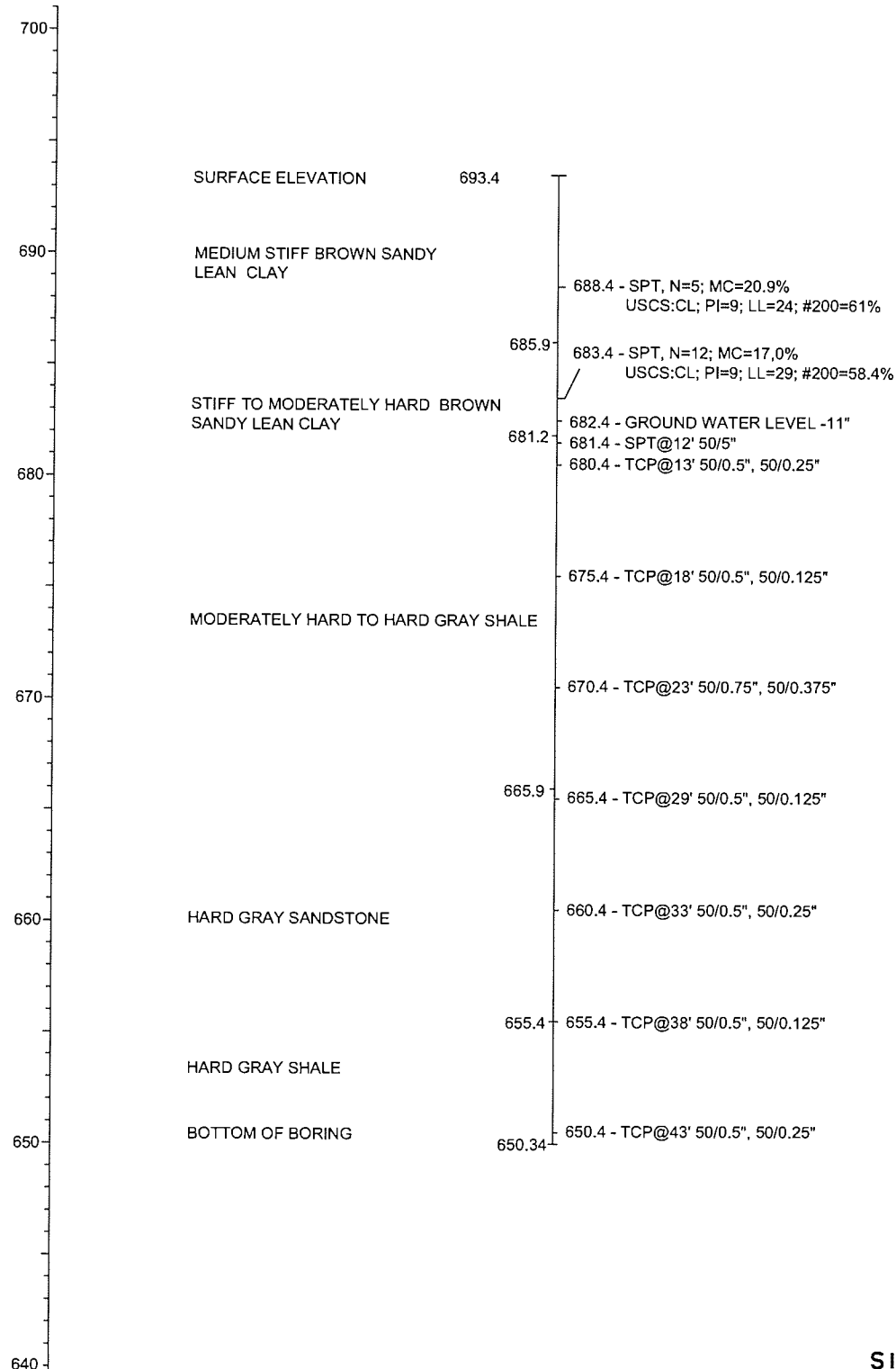
- GROUNDWATER LEVELS WERE OBTAINED DURING THE DRILLING OPERATIONS AND MAY FLUCTUATE THROUGH THE YEAR. BORING DATA IS PROVIDED BY GW<sup>2</sup>.

Design	GW2	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B <b>FOUNDATION REPORT</b> <b>(SHEET 1 OF 2)</b> Job Piece No. 27092(04) Sheet No. 69
Drawn	RAH	6/16	
Checked	STF	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

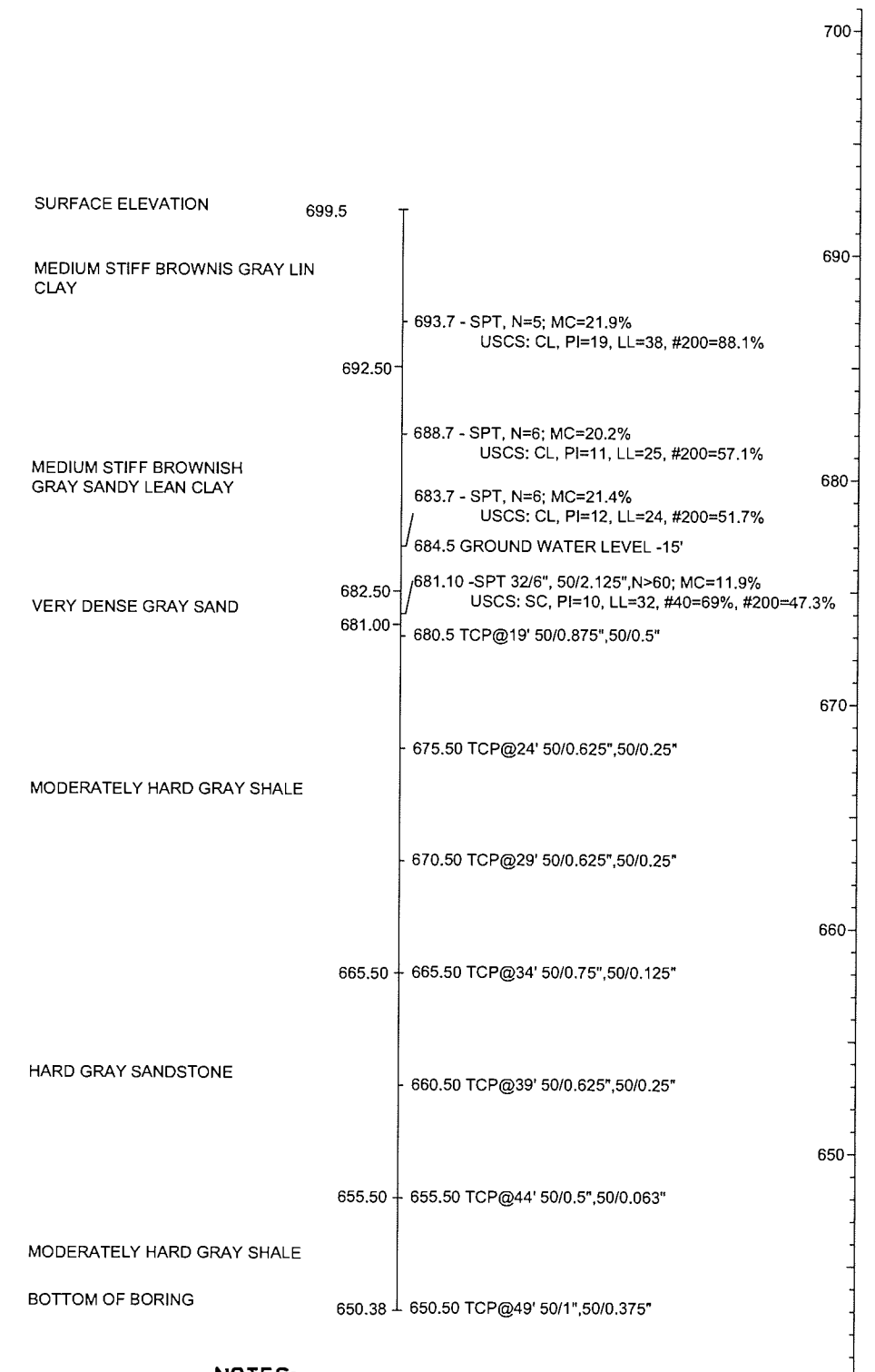
7/12/2016 11:26:53 AM P:\ECL\1650-TUL\CHV\255231000\_000T\_US169Brdg\20\_DESGN\40\_CAD\_Opossum\DKNS\Brdge 2\27092(04)\_S-2\_Found\_Rpt\_0.dgn

DOT DIVISION	STATE	JOB PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		70	143

**BORING NO. B3-2**  
(STA 864+10.80, 16.64' RT OF BRIDGE CL)



**BORING NO. B4-2**  
(STA 864+56.98, 22.68' LT OF BRIDGE CL)



**GEO-TECHNICAL REPORT**

ALL GEOTECHNICAL INFORMATION CONTAINED ON THIS SHEET IS COVERED BY THE ENGINEERING SEAL AFFIXED TO AN ORIGINAL GEOTECHNICAL ENGINEERING REPORT THAT HAS BEEN STAMPED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN OKLAHOMA. TO OBTAIN A COPY OF THE COMPLETE REPORT, CONTACT THE ODOT OFFICE ENGINEER AT (405) 522-0972. THE CONTRACTOR SHOULD BE FULLY AWARE OF THE SITE CONDITIONS PRIOR TO BEGINNING WORK. ANY ADDITIONAL GEOTECHNICAL INFORMATION WHICH MAY BE DESIRED IS THE RESPONSIBILITY OF THE CONTRACTOR.

**SITE GEOLOGY**

THE SUBJECT PROJECT IS LOCATED AND BOUNDED BY PENNSYLVANIAN PERIOD, COFFEYVILLE FORMATION (IPCC), CHEVKERBOARD FORMATION (IPCC), SEMINOLE FORMATION (IPSL), AND LENAPAH FORMATION (IPLB) WITH ALLUVIUM (QAL). THESE FORMATIONS ARE DESCRIBED AS FOLLOWS:  
 IPCC - COFFEYVILLE FORMATION: SHALE AND THIN-BEDDED SANDSTONE.  
 IPCC - CHECKERBOARD FORMATION: LIMESTONE AND SOME SHALE.  
 IPSL - SEMINOLE FORMATION: SHALE, SANDSTONE, AND THIN COAL BEDS.  
 IPLB - LENAPAH FORMATION: LIMESTONE AND SHALE.  
 QAL - ALLUVIUM: GRAVEL, SAND SILT, AND CLAY.  
 IN OUR FIELD EXPLORATION WE ENCOUNTERED ALLUVIUM OVERBURDEN SOILS OVER SHALE, SANDSTONE AND LIMESTONE FORMATIONS.

**NOTES:**

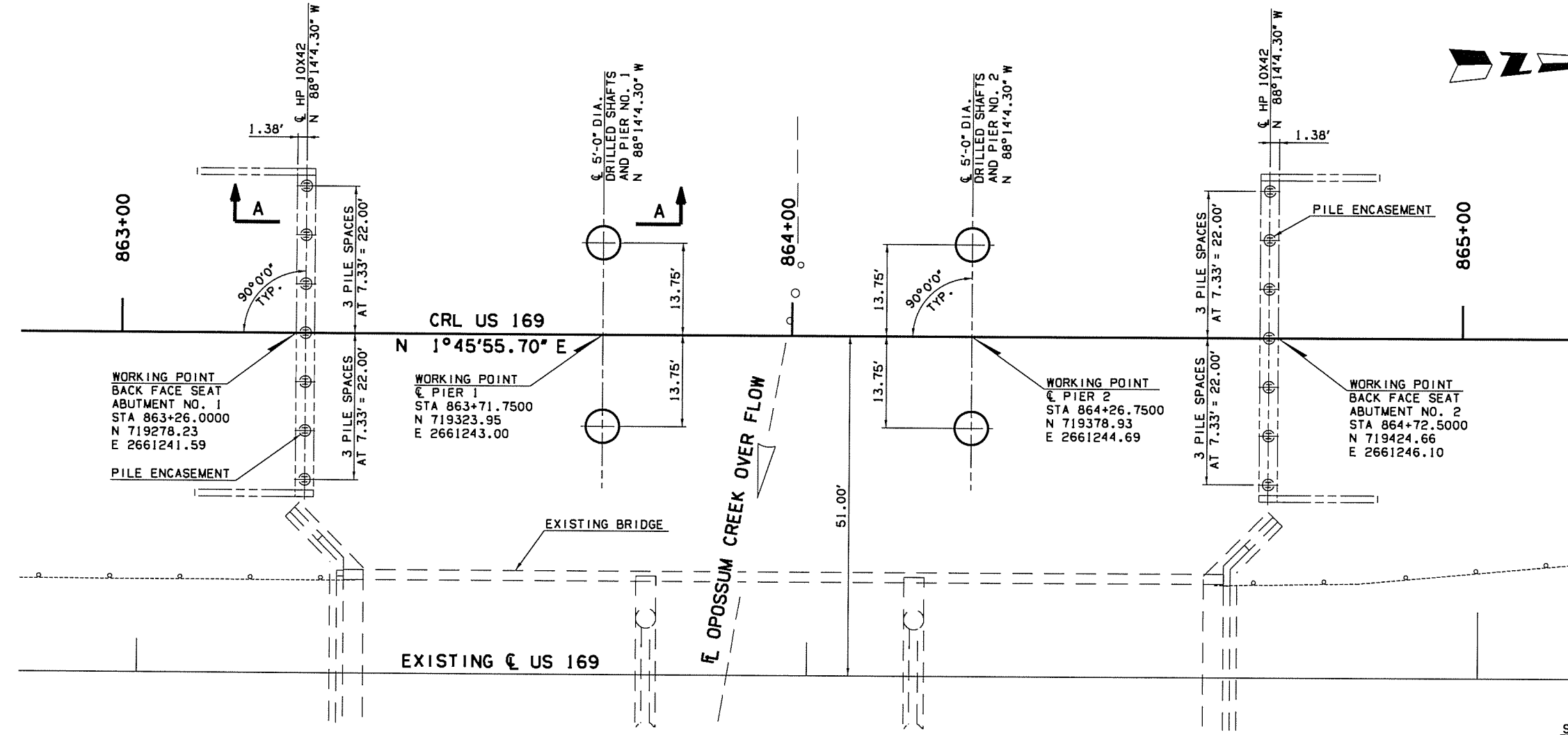
- GROUNDWATER LEVELS WERE OBTAINED DURING THE DRILLING OPERATIONS AND MAY FLUCTUATE THROUGHOUT THE YEAR. BORING DATA IS PROVIDED BY GW<sup>2</sup>.

Design	GW2	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B
Drawn	RAH	6/16	
Checked	STF	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

**FOUNDATION REPORT**  
(SHEET 2 OF 2)

Job Piece No. 27092(04) Sheet No. 70

BOOK	DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
	8	OKLA	27092(04)		71	143



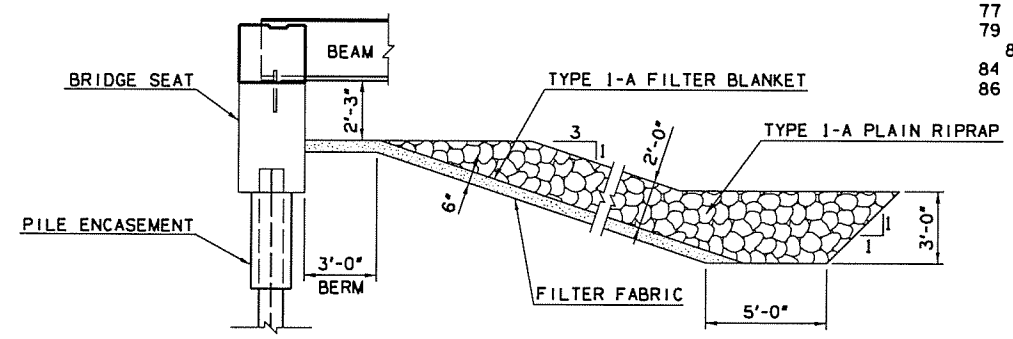
TOP OF PILE ELEVATIONS	
ABUTMENT NO. 1	705.69
ABUTMENT NO. 2	705.69

**INDEX OF BRIDGE SHEETS**

SHEET NO.	TITLE
68	GENERAL PLAN AND ELEVATION
69 - 70	FOUNDATION REPORT
71	STAKING DIAGRAM
72	TYPICAL SECTION
73 - 76	ABUTMENT DETAILS
77 - 78	PIER DETAILS
79 - 82	SUPERSTRUCTURE DETAILS
83	LONGITUDINAL SECTION
84 - 85	APPROACH SLAB DETAILS
86 - 91	7'x6' RCB DETAILS

**STANDARDS**  
 FSHP-42-2-00E  
 HPI-2-00E  
 B40-1-ABUT-MISC-01E  
 B40-1-BRG-RB-02E

SUMMARY OF QUANTITIES - BRIDGE B						
DESCRIPTION	UNIT	ABUTMENT	PIER	SUPERSTR.	APPROACH	TOTAL
SUBSTRUCTURE EXCAVATION COMMON	CY	90				90
CLSM BACKFILL	CY	128.0				128.0
APPROACH SLAB	SY				209.0	209.0
SAW-CUT GROOVING	SY			711.4	195.6	907.0
42" F-SHAPED PARAPET	LF			291.0	80.0	371.0
STRUCTURAL STEEL	LB			149170		149170
WEATHERING STEEL FIXED BEARING ASSEMBLY	EA			10		10
STAINLESS STEEL EXPANSION BEARING ASSEMBLY	EA			20		20
ELASTOMERIC BEARING PADS	EA			20		20
SPECIAL CONCRETE FINISH	SY		66			66
CLASS AA CONCRETE	CY			205.2		205.2
CLASS A CONCRETE	CY	51.4	95.6			147.0
REINFORCING STEEL	LB		1220			1220
EPOXY COATED REINFORCING STEEL	LB	9360	18220	67380		94960
CLASS C BRIDGE DECK REPAIR	SY					50
PILES, FURNISHED (HP10X42)	LF	406				406
PILES, DRIVEN (HP10X42)	LF	406				406
METAL PILE SHOES	EA	14				14
PILE SPLICE, H-PILE (NON-BIDDABLE)	EA	1				1
WATER REPELLENT (VISUALLY INSPECTED)	SY	50	92	394	72	608
DRILLED SHAFTS 60" DIAMETER	LF		107			107
CROSSHOLE SONIC LOGGING	EA		1			1
SEALER CRACK PREPARATION	LF			188		188
SEALER RESIN	GAL			1.3		1.3
TYPE 1-A PLAIN RIPRAP	TON	1250				1250
TYPE 1-A FILTER BLANKET	TON	200				200
FILTER FABRIC (RIPRAP)	SY	822				822
6" PERFORATED PIPE UNDERDRAIN ROUND	LF	100				100
6" NON-PERF. PIPE UNDERDRAIN RND.	LF	80				80
REMOVAL OF BRIDGE ITEMS	LSUM					1



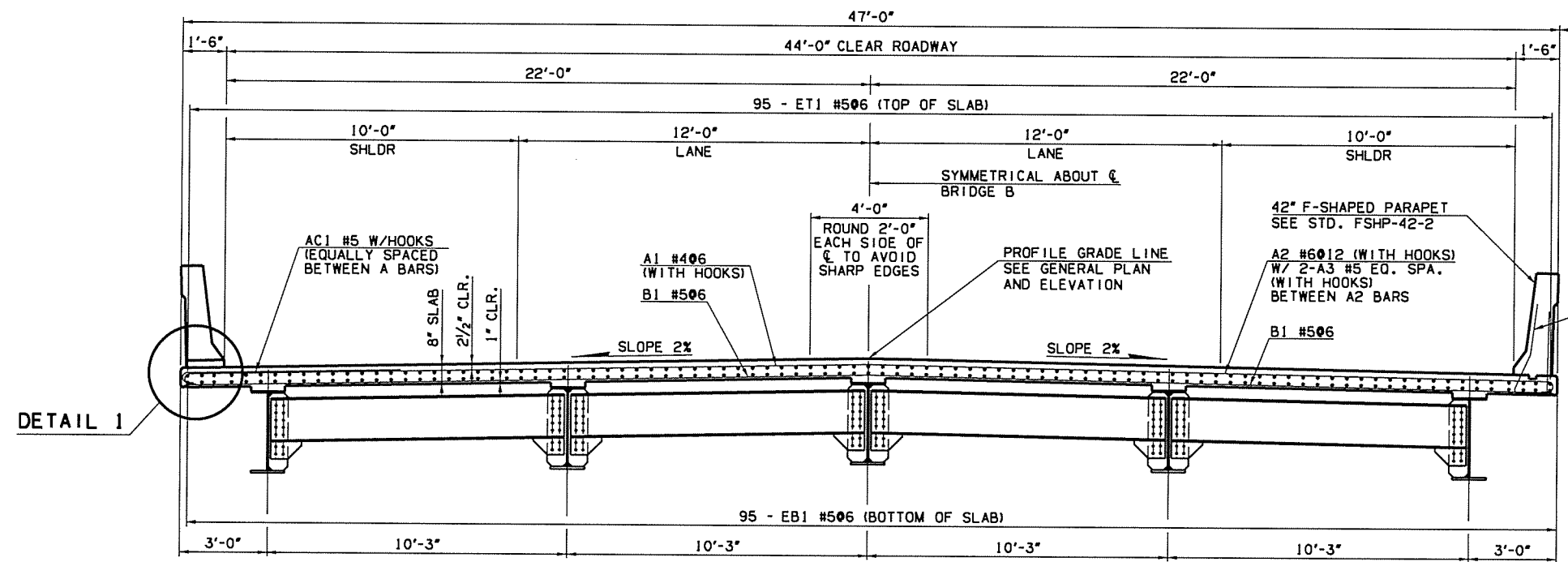
**NOTES:**

- ABUTMENT PILES SHALL BE ORIENTED SUCH THAT THE FACE OF THE PILE WEB IS PARALLEL WITH THE FACE OF THE BRIDGE SEAT.
- CONTRACTOR SHALL VERIFY LOCATION AND STATUS (I.E. "ABANDONED") OF ALL UTILITIES PRIOR TO BEGINNING EXCAVATION OR DRIVING PILES.
- HARD ROCK WAS ENCOUNTERED AT THIS SITE. EXCAVATION FOR THE FOUNDATIONS MAY REQUIRE SPECIALTY HEAVY-DUTY DRILLING EQUIPMENT. THE CONTRACTOR IS RESPONSIBLE FOR BEING FULLY AWARE OF THE FOUNDATION MATERIAL CONDITIONS AND THE DRILLING PROCESS PRIOR TO BEGINNING WORK.

Design	STF	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B
Drawn	RAH	6/16	
Checked	STF	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

**STAKING DIAGRAM**

Job Piece No. 27092(04) Sheet No. 71

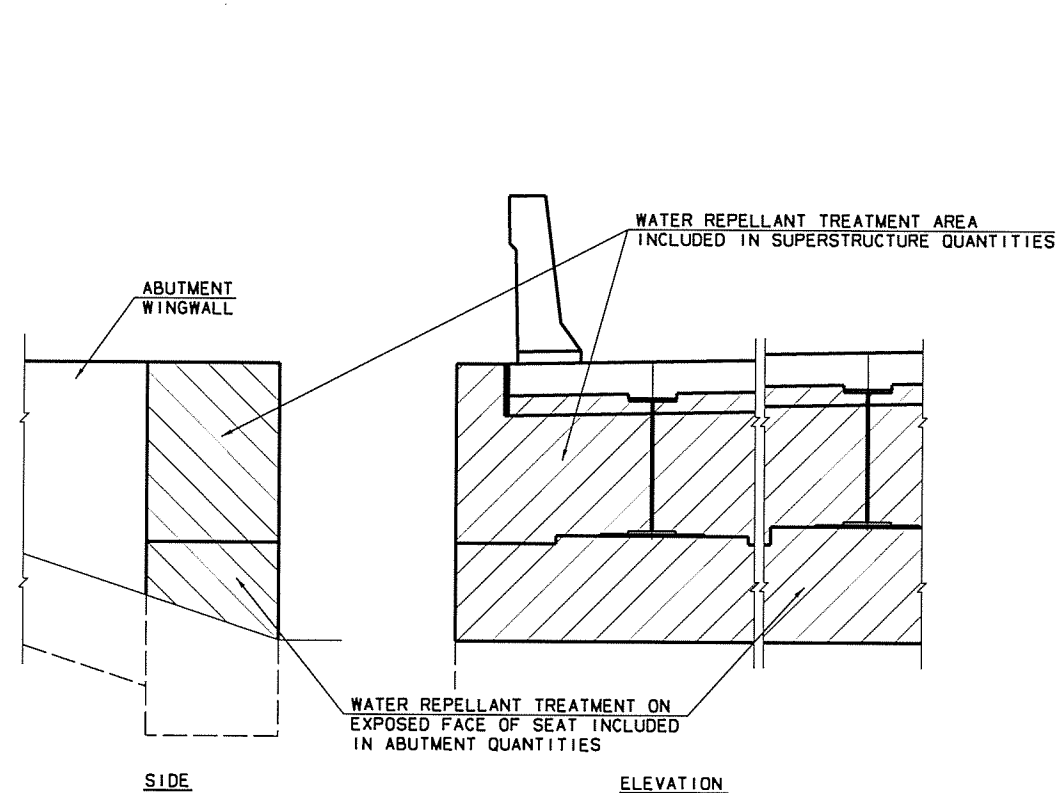


HALF SECTION AT INTERMEDIATE DIAPHRAGMS

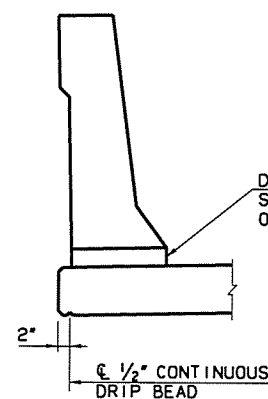
HALF SECTION AT PIER DIAPHRAGMS

TYPICAL SECTION THRU SUPERSTRUCTURE

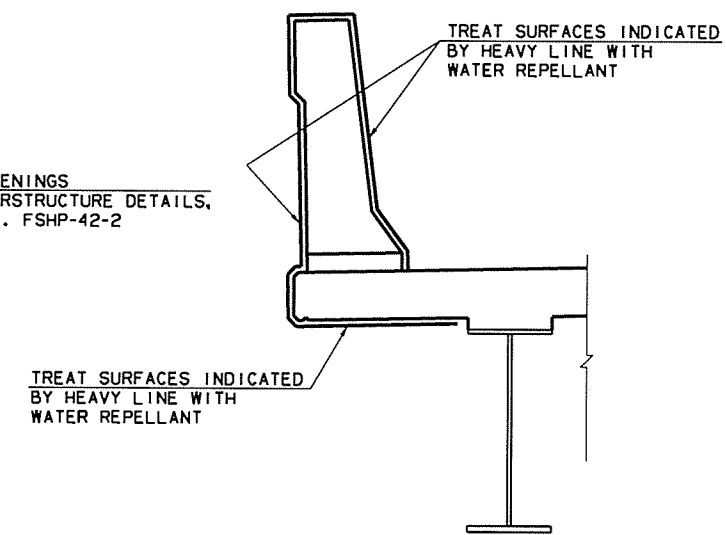
SCALE: 1/2" = 1'-0"



ABUTMENT DIAPHRAGM

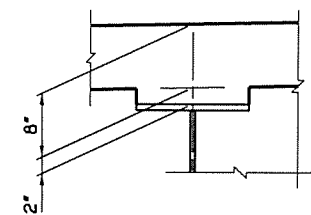


DETAIL 1  
SCALE: 3/4" = 1'-0"



WATER REPELLANT TREATMENT DETAILS

SCALE: 3/4" = 1'-0"



NOTE:

PLAN QUANTITIES FOR CLASS AA CONCRETE INCLUDE BEAM HAUNCHES. THE HAUNCH HEIGHT SHOWN IS THE THEORETICAL HAUNCH HEIGHT AT THE CENTERLINE BEARING ONLY, MEASURED FROM THE BOTTOM OF THE DECK SLAB TO THE TOP OF THE BEAM, AND VARIES ACROSS THE SPAN. DETERMINE THE ACTUAL HAUNCH HEIGHT (ACCOUNTING FOR BEAM CAMBER, DEAD LOAD DEFLECTION AND ROADWAY GRADE) AFTER ERECTION OF THE BEAMS AND SUBMIT TO THE ENGINEER FOR APPROVAL. THE ENGINEER WILL NOT MEASURE DIFFERENCES BETWEEN THE THEORETICAL AND THE ACTUAL HAUNCH HEIGHT FOR PAYMENT.

BEAM HAUNCH DETAIL

SCALE: 1" = 1'-0"

Design	SAK	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B
Drawn	WZB	6/16	
Checked	STF	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

TYPICAL SECTION

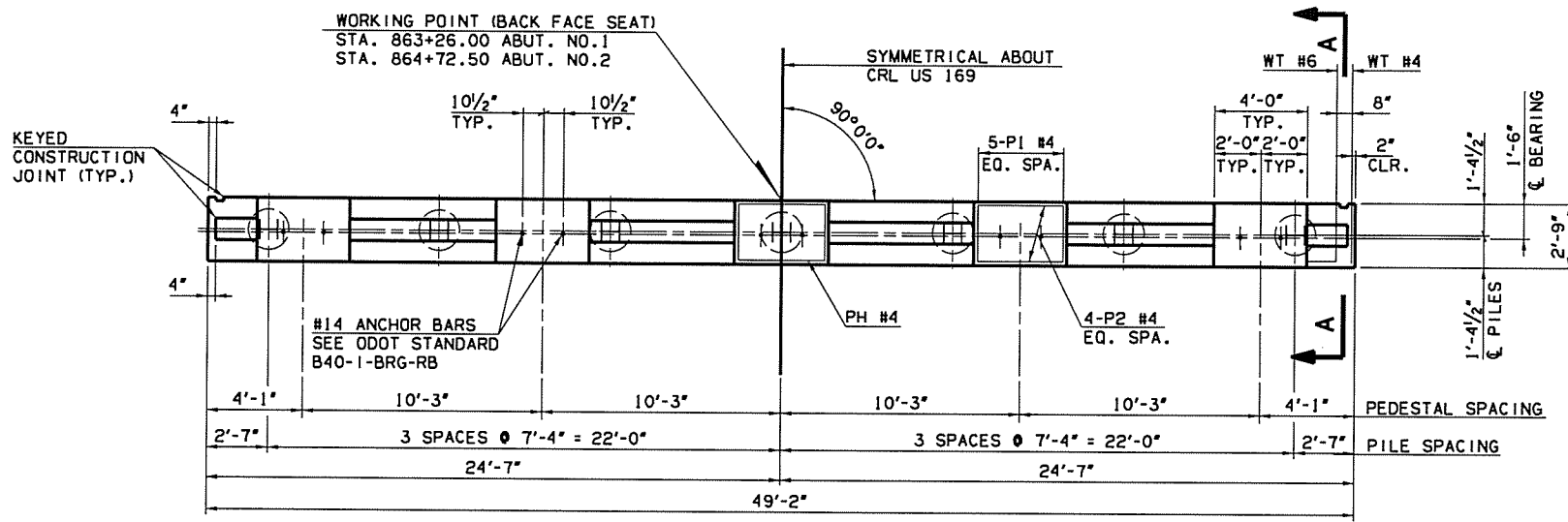
Job Piece No. 27092(04) Sheet No. 72

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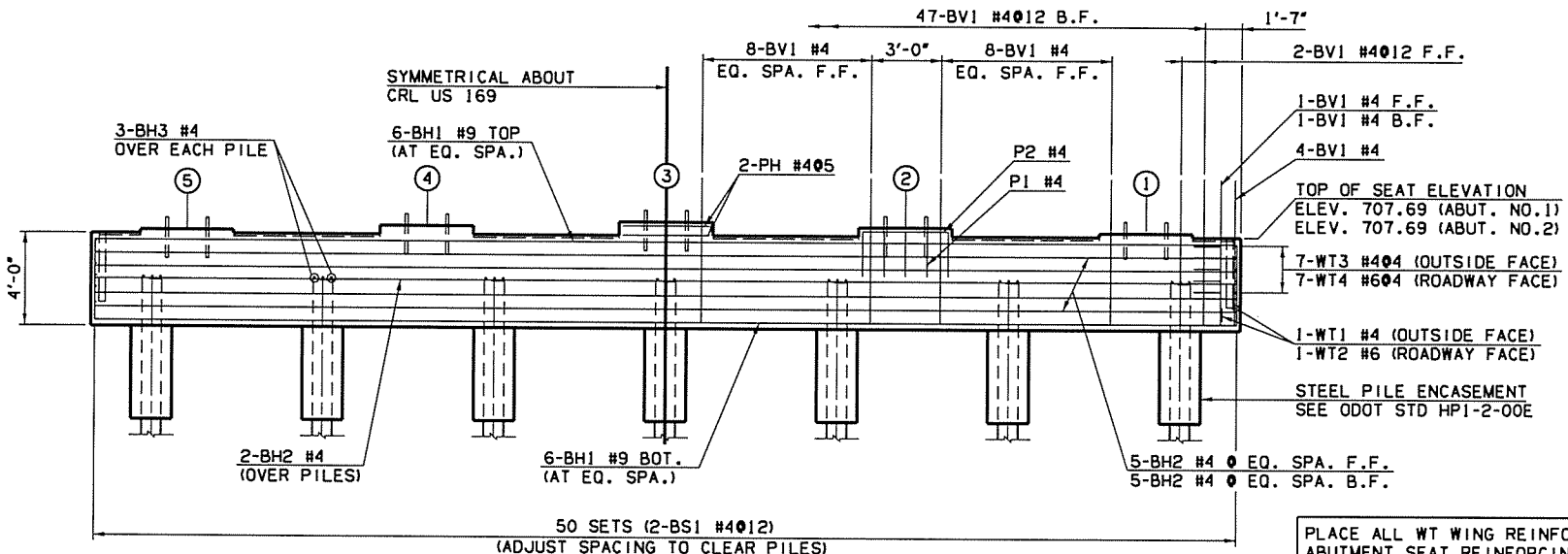
DOT DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		73	143



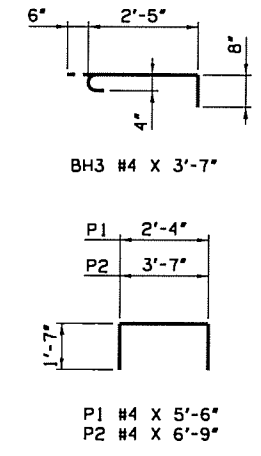
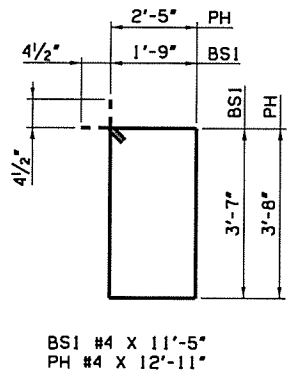
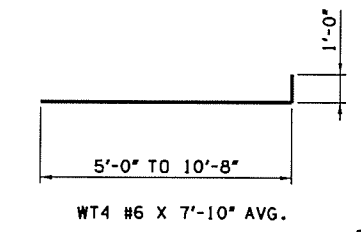
ABUTMENT NO. 2 LOOKING UP STATION  
ABUTMENT NO. 1 LOOKING DOWN STATION OPP. HAND  
**PLAN - ABUTMENT NO.1 AND NO.2**  
SCALE: 1/4" = 1'-0"

ABUTMENT BAR LIST (ONE ABUTMENT SHOWN, TWO REQUIRED)				
EPOXY COATED REINFORCING				
MARK	SIZE	QTY.	FORM	LENGTH
BV1	#4	95	STR	6'-3"
BH1	#9	12	STR	48'-10"
BH2	#4	12	STR	48'-10"
BH3	#4	21	BNT	3'-7"
BS1	#4	100	BNT	11'-5"
WT1	#4	2	BNT	5'-2"
WT2	#6	2	BNT	7'-5"
WT3	#4	14	STR	6'-10" (AVG.)
WT4	#6	14	STR	7'-10" (AVG.)
P1	#4	15	BNT	5'-6"
P2	#4	12	BNT	6'-9"
PH	#4	2	BNY	12'-11"

- NOTES:**
- (2) SETS OF 7
  - OMIT REINFORCING IN 2" PEDESTALS.



PLACE ALL WT WING REINFORCING TIED TO ABUTMENT SEAT REINFORCING BEFORE PLACING ABUTMENT SEAT CONCRETE. DO NOT PLACE ABUTMENT WING CONCRETE UNTIL CONCRETE FOR THE ABUTMENT DIAPHRAGM AND DECK SLAB HAVE ATTAINED A STRENGTH OF 3000 P.S.I.



PEDESTAL	ELEVATIONS	
	ABUT. NO.1	ABUT. NO.2
1	707.86	707.86
2	708.07	708.07
3	708.27	708.27
4	708.07	708.07
5	707.86	707.86

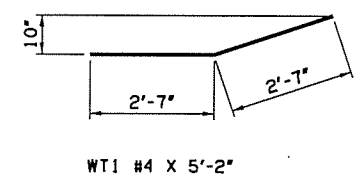
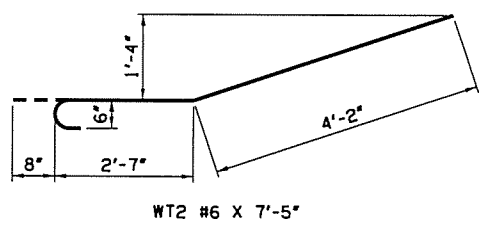
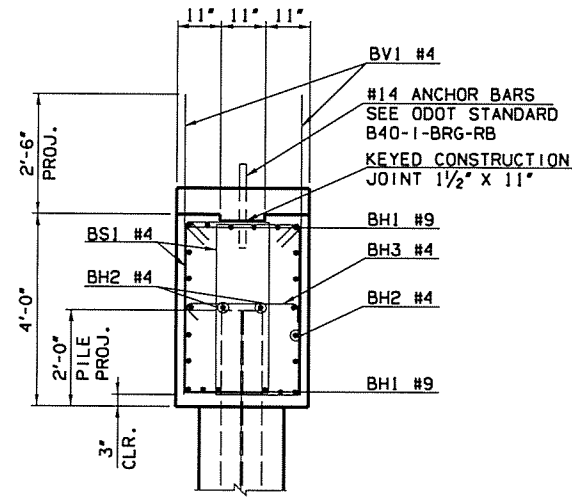
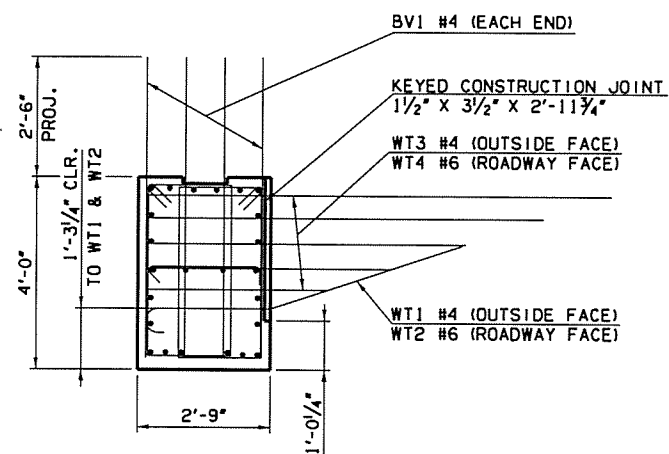
ABUTMENT QUANTITIES				
ITEM	UNIT	ABUT NO.1	ABUT NO. 2	TOTAL
SUBSTRUCTURE EXCAVATION COMMON	CY	45	45	90
CLSM BACKFILL	CY	64.0	64.0	128.0
CLASS A CONCRETE	CY	25.7	25.7	51.4
EPOXY COATED REINFORCING STEEL	LB	4680	4680	9360
PILES, FURNISHED (HPI0X42)	LF	210	196	406
PILES, DRIVEN (HPI0X42)	LF	210	196	406
METAL PILE SHOES	EA	7	7	14
WATER REPELLENT (VISUALLY INSPECTED)	SY	25	25	50
TYPE 1-A PLAIN RIPRAP	TON	630	620	1250
TYPE 1-A FILTER BLANKET	TON	100	100	200
FILTER FABRIC (RIPRAP)	SY	417	405	822
6" PERFORATED PIPE UNDERDRAIN ROUND	LF	50	50	100
6" NON-PERF. PIPE UNDERDRAIN RND.	LF	40	40	80

- NOTES:**
- SEE ODOT STD. B40-1-BRG-RB FOR BEARING DETAILS. USE 55' SPAN BEARING FOR ALL SPANS.

F.F. = FRONT FACE  
B.F. = BACK FACE

Design	STF	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B <b>ABUTMENT DETAILS</b> (SHEET 1 OF 4)
Drawn	RAH	6/16	
Checked	DAS	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

Job Piece No. 27092(04) Sheet No. 73

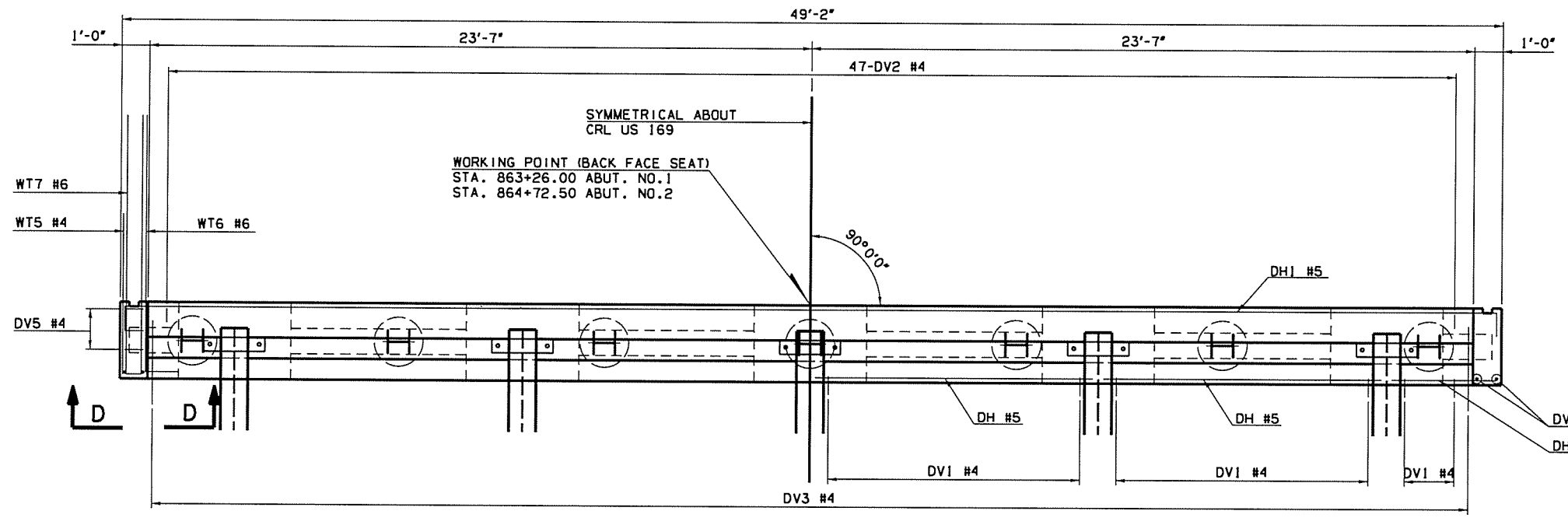


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0001	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		74	143
DESCRIPTION		REVISIONS		DATE	



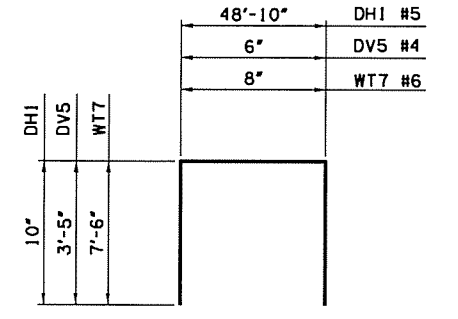
TYPICAL FRONT FACE REINFORCEMENT BETWEEN BEAMS

ABUTMENT NO. 2 LOOKING UP STATION  
 ABUTMENT NO. 1 LOOKING DOWN STATION OPP. HAND  
**PLAN - ABUTMENT DIAPHRAGM**  
 SCALE: 3/8" = 1'-0"

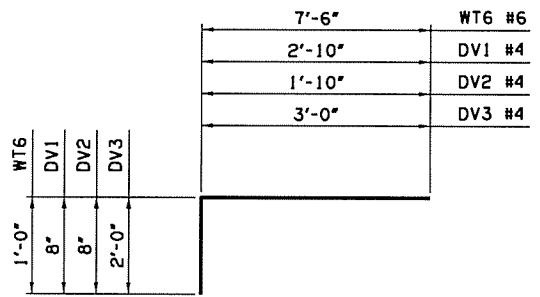
ABUTMENT DIAPHRAGM BAR LIST					
(ONE DIAPHRAGM SHOWN, TWO REQUIRED)					
EPOXY COATED REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
DV1	#4	46	BNT	3'-6"	
DV2	#4	47	BNT	2'-6"	
DV3	#4	48	BNT	5'-0"	
DV4	#4	4	STR	3'-5"	
DV5	#4	6	BNT	7'-4"	
DH1	#5	4	BNT	50'-6"	
DH2	#5	12	STR	9'-11"	
DH3	#5	4	STR	5'-11"	
DH4	#5	6	STR	3'-9"	
DH5	#5	2	STR	1'-9"	
WT5	#4	12	STR	5'-9"	
WT6	#6	12	BNT	8'-6"	
WT7	#6	8	BNT	15'-8"	

ABUT. NO.1

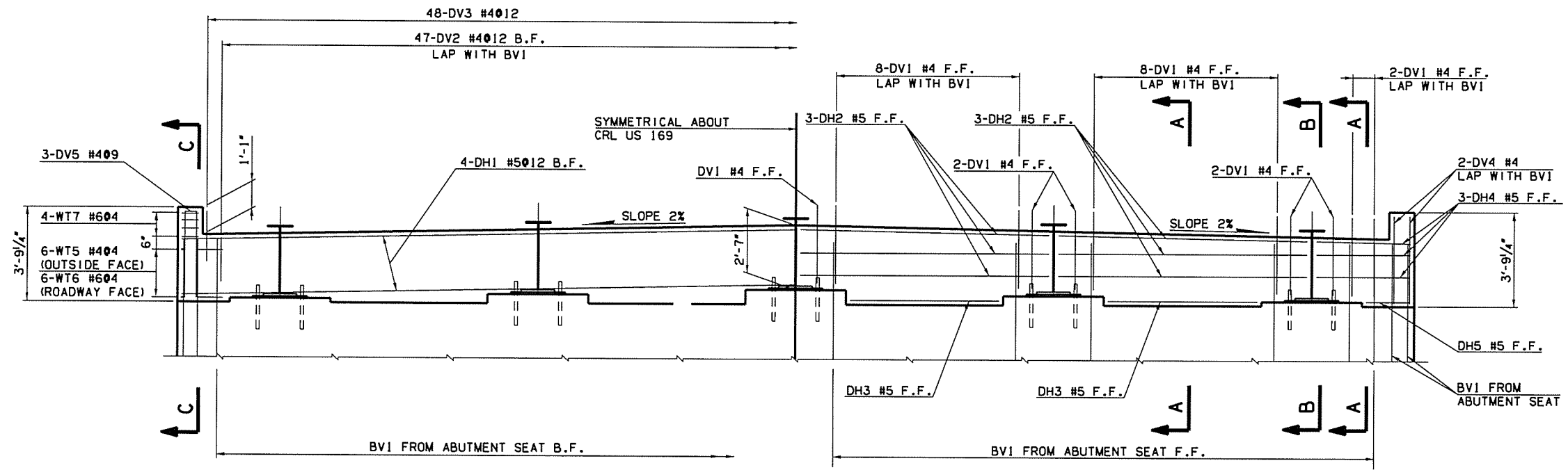
ABUT. NO.2



DH1 #5 X 50'-6"  
 DV5 #4 X 7'-4"  
 WT7 #6 X 15'-8"



WT6 #6 X 8'-6"  
 DV1 #4 X 3'-6"  
 DV2 #4 X 2'-6"  
 DV3 #4 X 5'-0"



TYPICAL FRONT FACE REINFORCEMENT BETWEEN BEAMS

ABUTMENT NO. 2 LOOKING UP STATION  
 ABUTMENT NO. 1 LOOKING DOWN STATION OPP. HAND  
**ELEVATION**  
 SCALE: 3/8" = 1'-0"

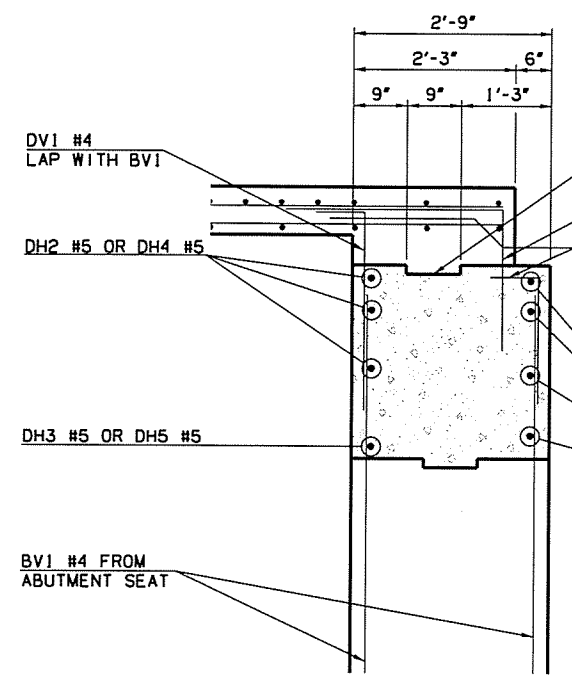
F.F. = FRONT FACE  
 B.F. = BACK FACE

Design	STF	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY
Drawn	RAH	6/16	BRIDGE B
Checked	DAS	6/16	<b>ABUTMENT DETAILS</b>
Approved	SAK	6/16	(SHEET 2 OF 4)
Squad	BENHAM		Job Piece No. 27092(04) Sheet No. 74

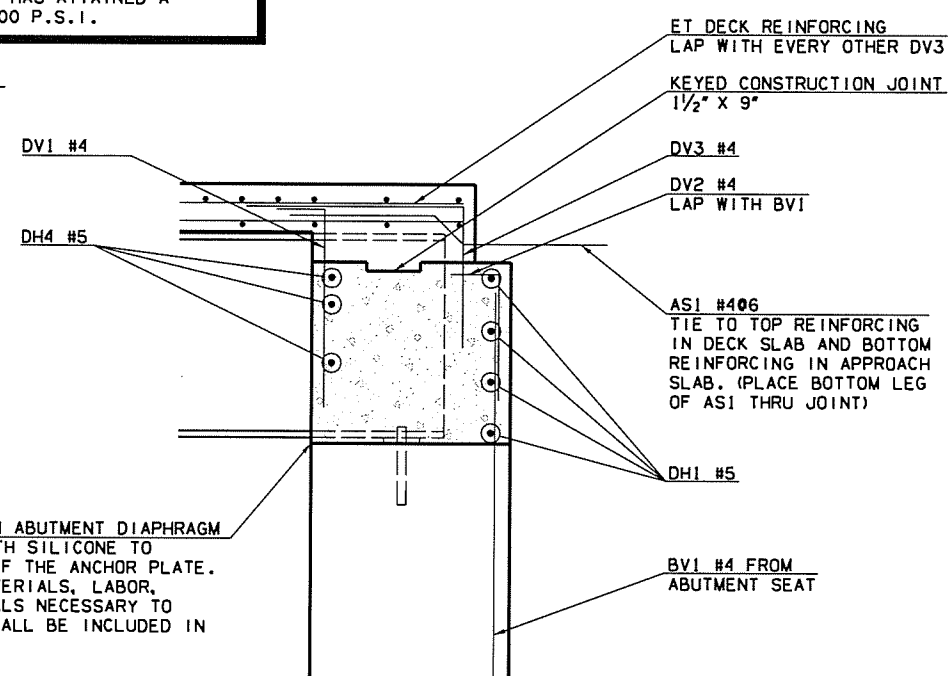


ODOT DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		75	143

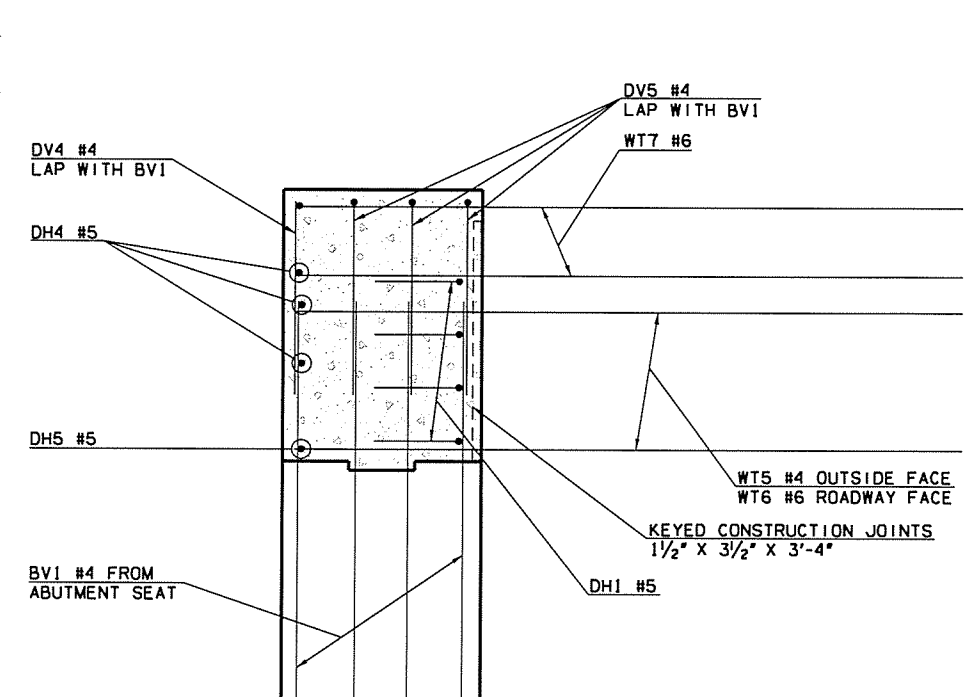
DECK SLAB SHOWN FOR INFORMATIONAL PURPOSES ONLY. DO NOT PLACE DECK SLAB CONCRETE UNTIL THE ABUTMENT DIAPHRAGM CONCRETE HAS ATTAINED A COMPRESSIVE STRENGTH OF 3,000 P.S.I.



**SECTION A-A**  
SCALE: 3/4" = 1'-0"

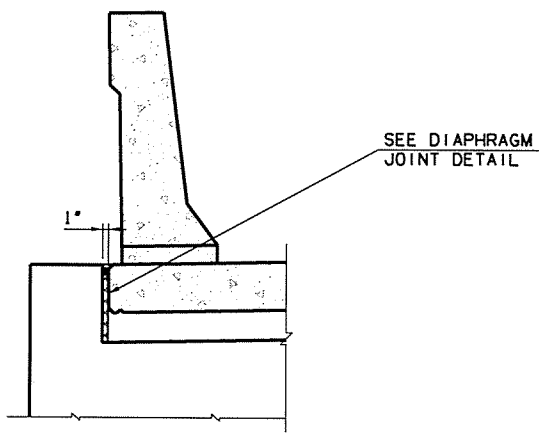


**SECTION B-B**  
SCALE: 3/4" = 1'-0"

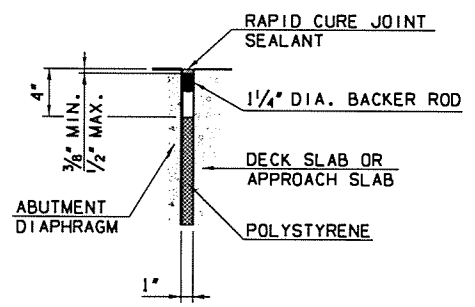


**SECTION C-C**  
SCALE: 3/4" = 1'-0"

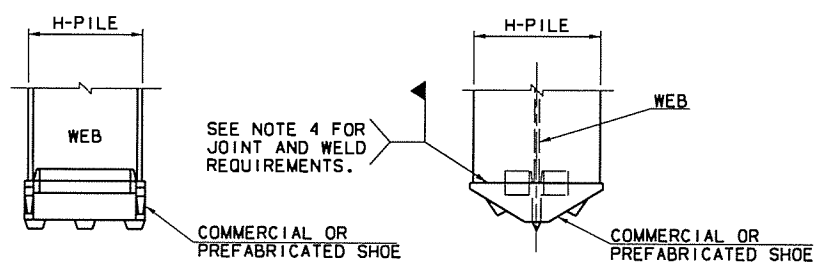
COMPLETELY FILL VOID IN ABUTMENT DIAPHRAGM DIRECTLY UNDER BEAM WITH SILICONE TO SEAL THE EXPOSED EDGE OF THE ANCHOR PLATE. ALL COSTS INCLUDING MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO INSTALL THE SILICONE SHALL BE INCLUDED IN OTHER ITEMS OF WORK.



**SECTION D-D**  
SCALE: 3/4" = 1'-0"



**DIAPHRAGM JOINT DETAIL**  
SCALE: 1/2" = 1'-0"



- NOTES:**
1. COMMERCIAL OR PREFABRICATED SHOES ARE SUBJECT TO THE APPROVAL OF THE ENGINEER.
  2. THE SHOE SHALL BE ATTACHED BY AN ODOT CERTIFIED WELDER.
  3. THE SHOE WELD JOINT DESIGN SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION, AND AS APPROVED BY THE ENGINEER.
  4. IF SHOES ARE WELDED AT A LOCATION OTHER THAN THE PROJECT SITE, ALL OF THE ABOVE PROVISIONS SHALL APPLY TO THE OFFSITE FABRICATOR. THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR OF THE ACTUAL LOCATION WHERE THE WELDING WILL BE PERFORMED A MINIMUM OF 5 WORKING DAYS BEFORE WORK COMMENCES.
  5. ALL WELDING SHALL BE PERFORMED BY A CERTIFIED WELDER IN CONFORMANCE WITH REQUIREMENTS FOR WELDING AS SPECIFIED IN THE STANDARD SPECIFICATIONS.
  6. INCLUDE ALL COSTS OF MATERIAL, LABOR AND INCIDENTALS ASSOCIATED WITH FABRICATION AND INSTALLATION OF SHOES IN THE PRICE BID FOR EACH OF "METAL PILE SHOES".

**METAL PILE SHOE DETAIL**  
NOT TO SCALE

Design	STF	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B <b>ABUTMENT DETAILS</b> <b>(SHEET 3 OF 4)</b> Job Piece No. 27092(04) Sheet No. 75
Drawn	RAH	6/16	
Checked	DAS	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

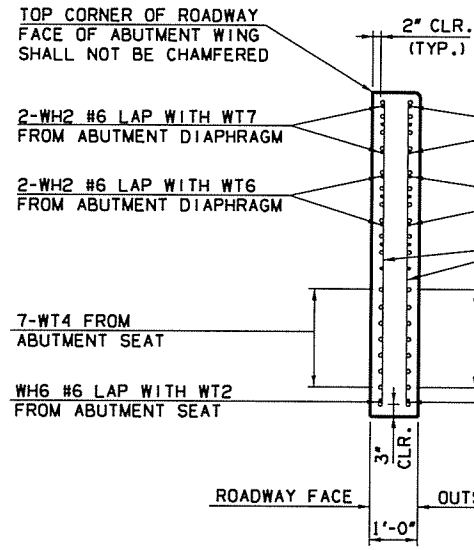
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7/12/2016

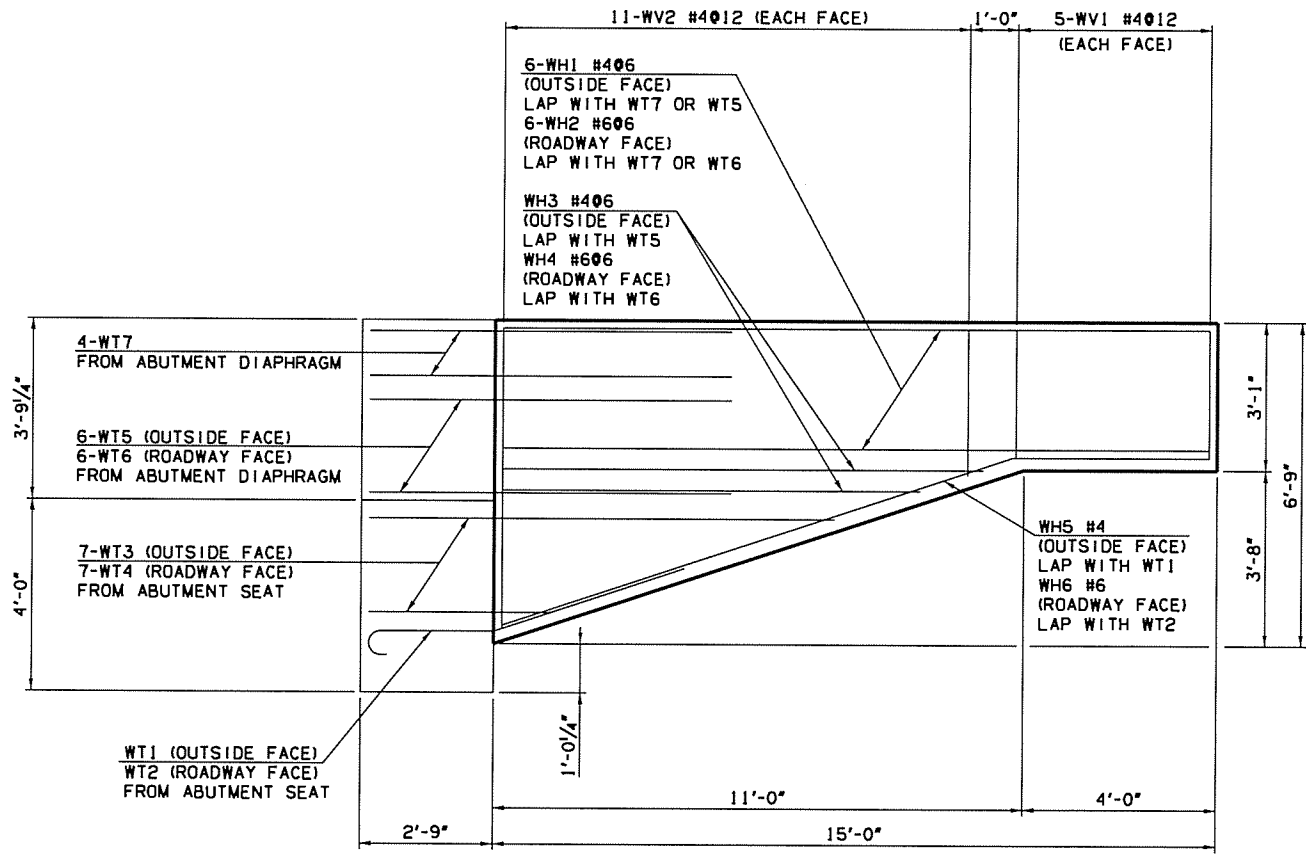
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P:\E\1650-TUL\CIV\255231000.000T\_US169BR.dg 20.DESIGN\40-CAD\_Opossum\DRGN\SUB\169e 2\270921041.S.2.Abut\_1.2.Det\_02.dgn

DOT DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	270921041		76	143



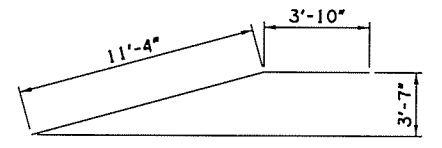
**SECTION THRU WINGWALL AT  
BACK FACE OF ABUTMENT SEAT**  
SCALE: 1/2" = 1'-0"



**WINGWALL RIGHT ELEVATION**  
SCALE: 1/2" = 1'-0"

ABUTMENT WINGWALL BAR LIST (ONE WINGWALL SHOWN, FOUR REQUIRED)					
EPOXY COATED REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
WH1	#4	6	STR.	14'-8"	
WH2	#6	6	STR.	14'-8"	
WH3	#4	2	STR.	9'-2" (AVG.)	8'-5" TO 9'-11"
WH4	#6	2	STR.	9'-2" (AVG.)	8'-5" TO 9'-11"
WH5	#4	1	BNT.	15'-2"	
WH6	#6	1	BNT.	15'-2"	
WV1	#4	10	STR.	2'-8"	
WV2	#4	22	STR.	4'-7" (AVG.)	2'-11" TO 6'-3"

**NOTES:**  
1. (2) SETS OF 11

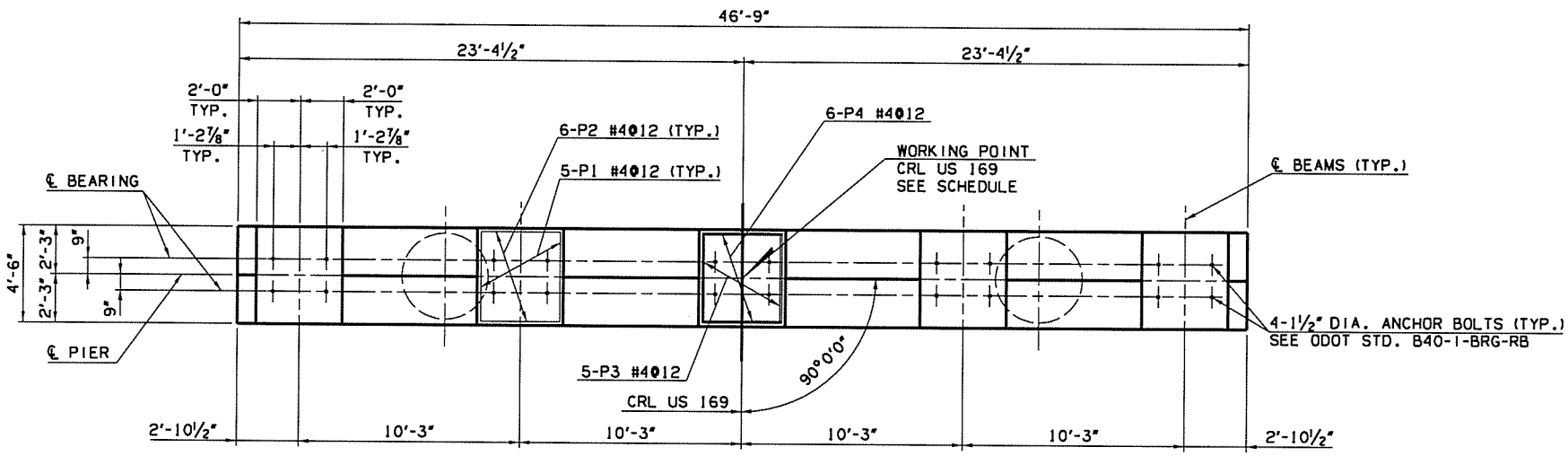


WH5 #4 X 15'-2"  
WH6 #6 X 15'-2"

PLACE ALL WT WING REINFORCING TIED TO ABUTMENT SEAT REINFORCING BEFORE PLACING ABUTMENT SEAT CONCRETE. DO NOT PLACE ABUTMENT WING CONCRETE UNTIL CONCRETE FOR THE ABUTMENT DIAPHRAGM AND DECK SLAB HAVE ATTAINED A STRENGTH OF 3000 P.S.I.

Design	STF	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B <b>ABUTMENT DETAILS</b> (SHEET 4 OF 4) Job Piece No. 270921041 Sheet No. 76
Drawn	RAH	6/16	
Checked	DAS	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

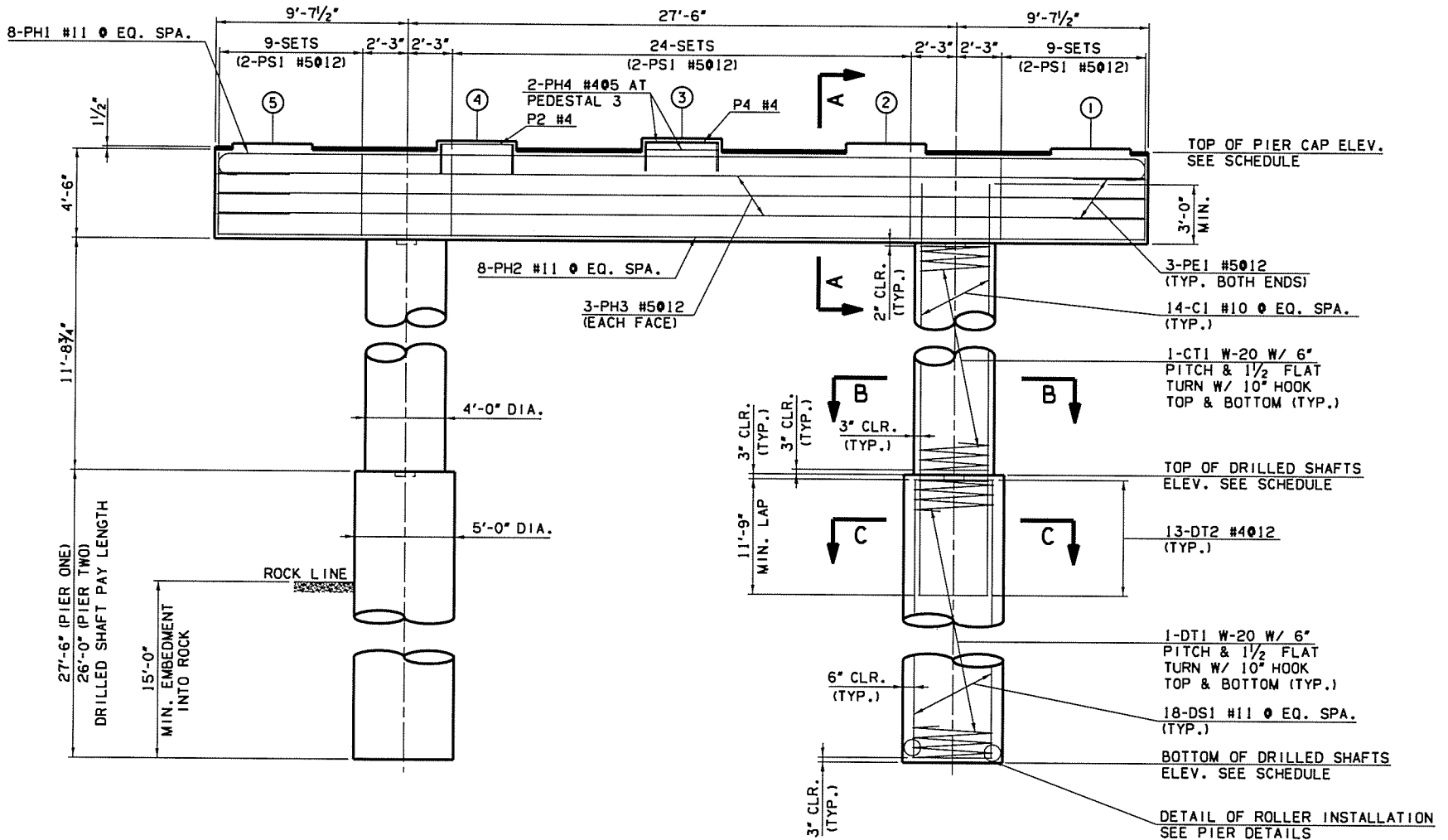
DOT DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		77	143



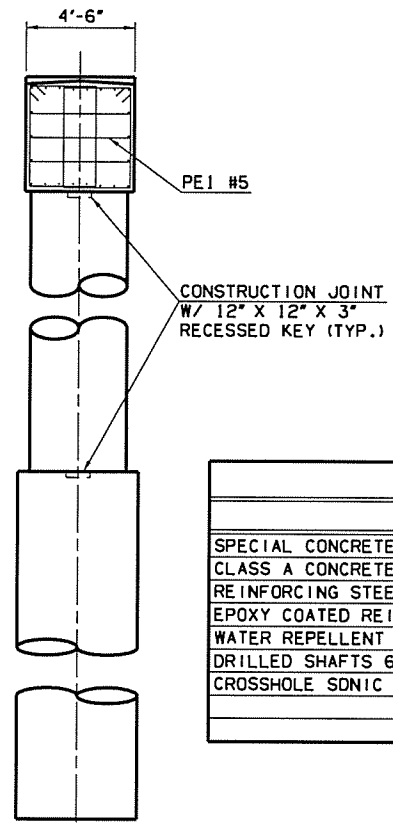
**PLAN PIER NO. 1 AND NO. 2**  
SCALE: 1/4" = 1'-0"



PIER STATIONS AND ELEVATIONS SCHEDULE			
PIER NO. 1			
PEDESTAL NO.	ELEVATION	WORKING POINT STATION	ELEVATION
1	707.52	863+71.7500	---
2	707.72	TOP OF PIER	707.35
3	707.93	TOP OF DRILLED SHAFTS	691.00
4	707.72	BOT. OF DRILLED SHAFTS	663.50
5	707.52		
PIER NO. 2			
PEDESTAL NO.	ELEVATION	WORKING POINT STATION	ELEVATION
1	707.52	864+26.7500	---
2	707.72	TOP OF PIER	707.35
3	707.93	TOP OF DRILLED SHAFTS	691.00
4	707.72	BOT. OF DRILLED SHAFTS	665.00
5	707.52		



**ELEVATION**  
SCALE: 1/4" = 1'-0"



**END VIEW**  
SCALE: 1/4" = 1'-0"

PIER QUANTITIES				
ITEM	UNIT	PIER NO. 1	PIER NO. 2	TOTAL
SPECIAL CONCRETE FINISH	SY	33	33	66
CLASS A CONCRETE	CY	47.8	47.8	95.6
REINFORCING STEEL	LB	610	610	1220
EPOXY COATED REINFORCING STEEL	LB	9110	9110	18220
WATER REPELLENT (VISUALLY INSPECTED)	SY	46	46	92
DRILLED SHAFTS 60" DIAMETER	LF	55	52	107
CROSSHOLE SONIC LOGGING	EA			1

- NOTE:**
- ADJUST PH BARS AS NEEDED TO PROVIDE A MINIMUM OF 4" CLEARANCE FOR TREMIE AND CLEARANCE FOR ANCHOR BOLTS.
  - SEE ODOT STD. B40-1-BRG-RB FOR BEARING. USE 55' SPAN BEARING FOR ALL SPANS.

Design	STF	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B <b>PIER DETAILS</b> (SHEET 1 OF 2)
Drawn	JT	6/16	
Checked	DAS	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

Job Piece No. 27092(04) Sheet No. 77

### PIER NO. 1 BAR LIST (ONE REQUIRED)

EPOXY COATED REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
C1	#10	28	STR	26'-6"	
PH1	#11	8	BNT	49'-7"	
PH2	#11	8	STR	46'-5"	
PH3	#5	6	STR	46'-5"	
PH4	#4	2	BNT	16'-5"	
PE1	#5	6	BNT	11'-2"	
PS1	#5	84	BNT	14'-9"	
P1	#4	10	BNT	7'-4"	SEE NOTE 2
P2	#4	12	BNT	6'-10"	SEE NOTE 2
P3	#4	5	BNT	7'-3"	SEE NOTE 2
P4	#4	6	BNT	6'-9"	SEE NOTE 2

PLAIN REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
CT1	W20	2	BNT	284'-2"	
DT2	#4	26	BNT	12'-6"	

DRILLED SHAFT PLAIN REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
DS1	#11	36	STR	27'-0"	SEE NOTE 1
DT1	W20	2	BNT	722'-0"	SEE NOTE 1

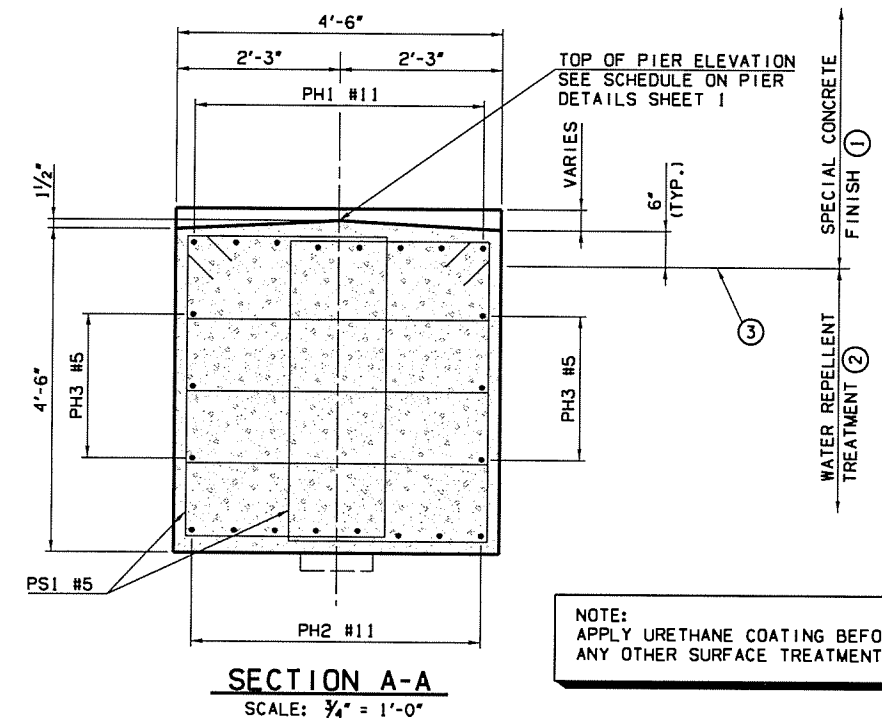
### PIER NO. 2 BAR LIST (ONE REQUIRED)

EPOXY COATED REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
C1	#10	28	STR	26'-6"	
PH1	#11	8	BNT	49'-7"	
PH2	#11	8	STR	46'-5"	
PH3	#5	6	STR	46'-5"	
PH4	#4	2	BNT	16'-5"	
PE1	#5	6	BNT	11'-2"	
PS1	#5	84	BNT	14'-9"	
P1	#4	10	BNT	7'-4"	SEE NOTE 2
P2	#4	12	BNT	6'-10"	SEE NOTE 2
P3	#4	5	BNT	7'-3"	SEE NOTE 2
P4	#4	6	BNT	6'-9"	SEE NOTE 2

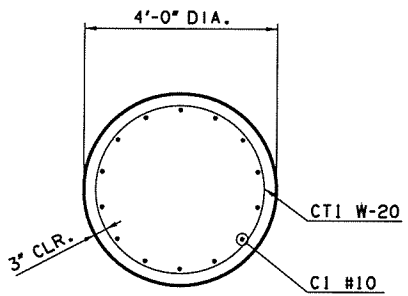
PLAIN REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
CT1	W20	2	BNT	284'-0"	
DT2	#4	26	BNT	12'-6"	

DRILLED SHAFT PLAIN REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
DS1	#11	36	STR	25'-6"	SEE NOTE 1
DT1	W20	2	BNT	684'-0"	SEE NOTE 1

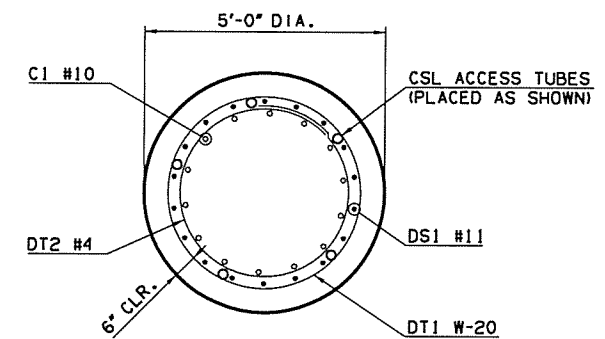
- NOTE:**
- DRILLED SHAFT BARS ARE FOR INFORMATION PURPOSES ONLY. THE BARS ARE NOT INCLUDED IN THE QUANTITIES, BUT ARE INCLUDED IN THE PRICE BID FOR L.F. OF DRILLED SHAFTS.
  - PEDESTAL REINFORCING NOT REQUIRED AT PEDESTALS 1 AND 5.
  - INCLUDE COST FOR CROSSHOLE SONIC LOGGING ACCESS TUBES IN THE PRICE BID FOR L.F. OF DRILLED SHAFTS.
  - ALL EDGES OF PIER CAP SHALL HAVE A 1/2" CHAMFER EXCEPT FOR PEDESTAL EDGES WHICH SHALL HAVE A 3/4" CHAMFER.



**SECTION A-A**  
SCALE: 3/4" = 1'-0"

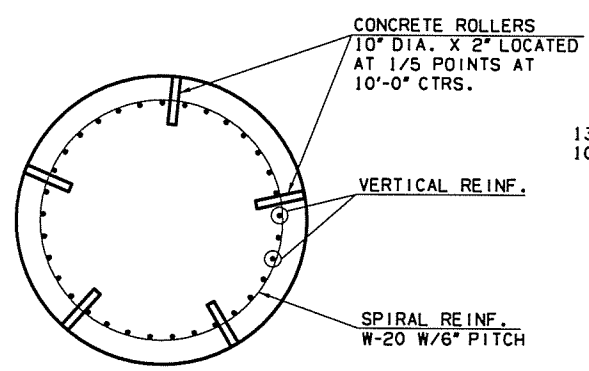
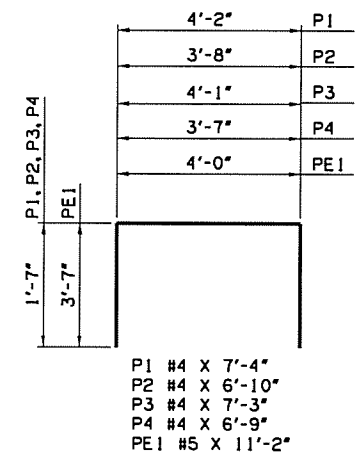
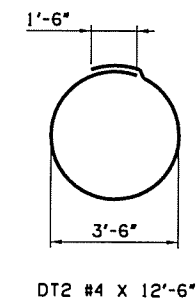
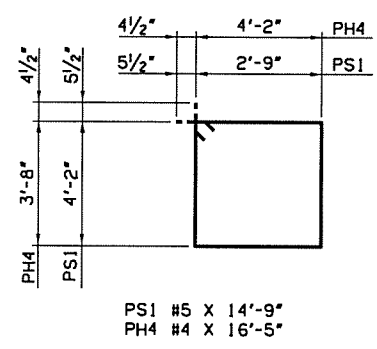
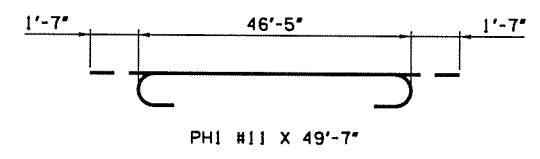


**SECTION B-B**  
SCALE: 1/2" = 1'-0"

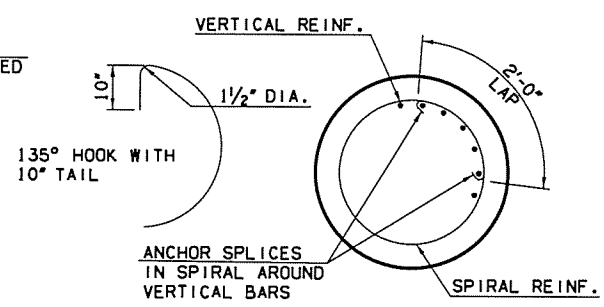


**SECTION C-C**  
SCALE: 1/2" = 1'-0"

- APPLY CIM 1000 "SPECIAL CONCRETE FINISH", TO SURFACES INDICATED, INCLUDING TOP OF PIER CAP, ALL SURFACES OF THE PEDESTALS, AND DOWN 6" BELOW THE EDGE OF THE CAP ON THE SIDES AND END FACES.
- TREAT ALL EXTERIOR VERTICAL SURFACES OF THE PIER CAPS WITH A PENETRATING WATER REPELLENT SURFACE TREATMENT. (CIM 1000 WILL OVERLAP WATER REPELLENT NEAR TOP OF CAP.)
- MASK SIDES AND ENDS OF PIER CAP ALONG THIS LINE TO PROVIDE A CLEAN STRAIGHT FINISH AT BOTTOM OF CIM 1000 APPLICATION.

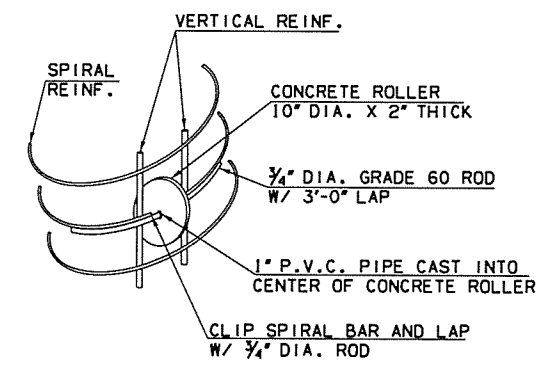


**DETAIL OF DRILLED SHAFT ROLLER PLACEMENT**



**SPIRAL SPLICE**

NOTE:  
SPIRAL BARS SHALL CONFORM TO AASHTO M32. SPIRAL BAR LENGTH INCLUDE LAPS.



**DETAIL OF DRILLED SHAFT ROLLER INSTALLATION**

NOTE:  
CONCRETE USED IN CONCRETE ROLLERS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 P.S.I.. SLAB BOLSTERS, HIGH CHAIRS AND PLASTIC ROLLERS SHALL NOT BE SUBSTITUTED FOR THE CONCRETE ROLLERS.

Design	STF	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B <b>PIER DETAILS</b> (SHEET 2 OF 2)
Drawn	JT	6/16	
Checked	DAS	6/16	
Approved	SAK	6/16	
Squad	BENHAM		
Job Piece No. 27092(04) Sheet No. 70			

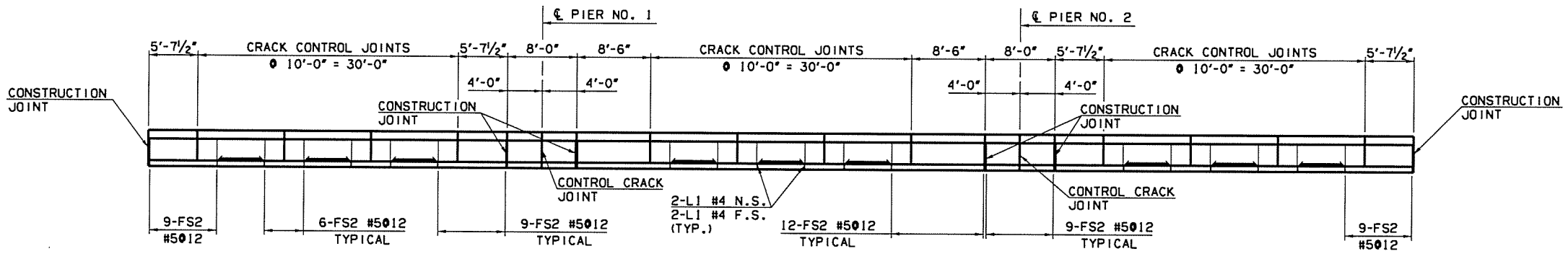
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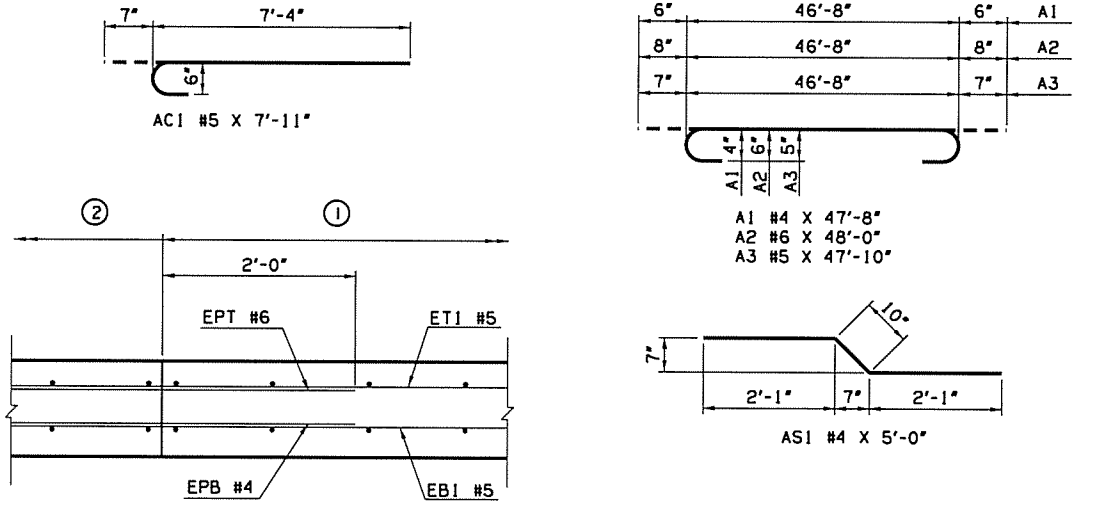
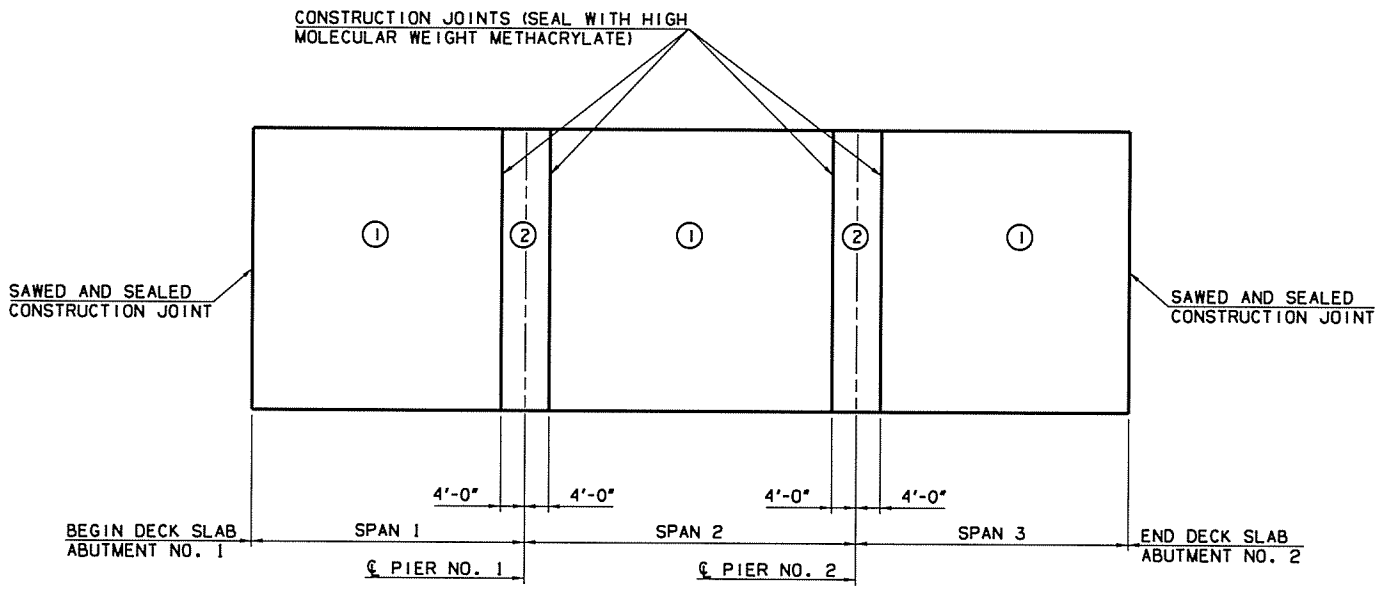
ODOT DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		79	143



SUPERSTRUCTURE BAR LIST (ONE REQUIRED)					
EPOXY COATED REINFORCING					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
ET1	#5	95	STR.	152'-11"	SEE NOTE 1
EB1	#5	95	STR.	155'-1"	SEE NOTE 2
EPT	#6	95	STR.	12'-0"	LAPS WITH ET1
EPB	#4	95	STR.	12'-0"	LAPS WITH EB1
A1	#4	260	BNT.	47'-8"	
A2	#6	18	BNT.	48'-0"	
A3	#5	32	BNT.	47'-10"	
AC1	#5	514	BNT.	7'-11"	
B1	#5	292	STR.	46'-8"	
AS1	#4	190	BNT.	5'-0"	LAPS WITH ET1
FS2	#5	228	BNT.	7'-4"	SEE NOTE 3
L1	#4	72	BNT.	1'-3"	SEE NOTE 3

**NOTES:**

1. INCLUDES 3 - 2'-7" MIN. LAPS.
2. INCLUDES 3 - 3'-3" MIN. LAPS.
3. SEE ODOT STD. FSHP-42-2.



**NOTES:**

1. EPOXY-COAT OR GALVANIZE STEEL ITEMS USED TO FACILITATE CONSTRUCTION, SUCH AS DECK FORM HANGERS, TY-BAR CLIPS, INSERT WELD ANCHORS, OR OTHER APPURTENANCES, THAT WILL REMAIN IN PLACE IN THE DECK SLAB. EPOXY-COAT IN ACCORDANCE WITH AASHTO M284 OR GALVANIZE IN ACCORDANCE WITH AASHTO M111.
2. PLACE DECK SLAB CONCRETE ONE SECTION AT A TIME CONSISTENT WITH THE DECK SLAB POURING SEQUENCE DIAGRAM. IN THE EVENT OF AN EMERGENCY, HALT THE PLACEMENT OF CONCRETE BY FORMING A CONSTRUCTION JOINT MADE PERPENDICULAR TO THE DIRECTION OF THE TRAFFIC OR AS DIRECTED BY THE ENGINEER. DO NOT PLACE ANY HEAVY EQUIPMENT ON THE FINISHED DECK SLAB WITHIN 5 FEET OF ANY CONSTRUCTION JOINT UNTIL THE CONCRETE IS IN PLACE ON BOTH SIDES OF THE RESPECTIVE JOINT AND AT LEAST 48 HOURS HAS ELAPSED SINCE CONCRETE PLACEMENT. CONSTRUCTION JOINTS AT THE CLOSURE POURS IN THE DECK SLAB SHALL NOT BE KEYED.
3. BARS SHALL BE CONTINUOUS THRU CONSTRUCTION JOINTS AT FIXED PIERS. DO NOT LAP WITHIN 10 FEET OF CENTERLINE OF FIXED PIER. ADDITIONAL LONGITUDINAL REINFORCING WITHIN CLOSURE POURS SHALL BE CONTINUOUS THROUGH EMERGENCY CONSTRUCTION JOINTS.
4. SEAL ALL DECK SLAB CONSTRUCTION JOINTS WITH HIGH MOLECULAR WEIGHT METHACRYLATE IN ACCORDANCE WITH SECTION 523 OF THE SPECIFICATIONS. INCLUDE ALL COST OF EQUIPMENT AND LABOR FOR THE INSTALLATION OF THE HIGH MOLECULAR WEIGHT METHACRYLATE SEALER IN THE CONTRACT UNIT PRICE OF "SEALER CRACK PREPARATION". INCLUDE ALL COSTS OF THE HIGH MOLECULAR WEIGHT METHACRYLATE SEALER IN THE CONTRACT UNIT PRICE OF "SEALER RESIN". THE DEPARTMENT WILL NOT MEASURE THE PREPARATION AND SEALER OF EMERGENCY CONSTRUCTION JOINTS FOR PAYMENT.
5. DECK SLAB POURING SEQUENCE: THE DECK SLAB IS DIVIDED INTO SECTIONS BETWEEN CONSTRUCTION JOINTS AS SHOWN. PLACE THE DECK SLAB CONCRETE OF EACH SECTION IN THE NUMERICAL SEQUENCE INDICATED. SECTIONS OF THE DECK SLAB WITH THE SAME NUMBER MAY BE PLACED IN ANY ORDER. SECTIONS IN SEQUENCE 2 MAY BE PLACED BEFORE ALL OF SEQUENCE 1 ARE COMPLETED IF SEQUENCE 1 AT THE COMMON CONSTRUCTION JOINT IS COMPLETE. BUT UNDER NO CIRCUMSTANCES WILL A SECTION OF SEQUENCE 2 BE Poured BEFORE THE ADJACENT SECTIONS HAVE BEEN IN PLACE FOR AT LEAST 48 HOURS.

SUPERSTRUCTURE QUANTITIES		
ITEM	UNIT	TOTAL
SAW-CUT GROOVING	SY	711.4
42" F-SHAPED PARAPET	LF	291.0
STRUCTURAL STEEL	LB	149170
WEATHERING STEEL FIXED BEARING ASSEMBLY	EA	10
STAINLESS STEEL EXPANSION BEARING ASSEMBLY	EA	20
ELASTOMERIC BEARING PADS	EA	20
CLASS AA CONCRETE	CY	205.2
EPOXY COATED REINFORCING STEEL	LB	67380
WATER REPELLENT (VISUALLY INSPECTED)	SY	394
SEALER CRACK PREPARATION	LF	188
SEALER RESIN	GAL	1.3

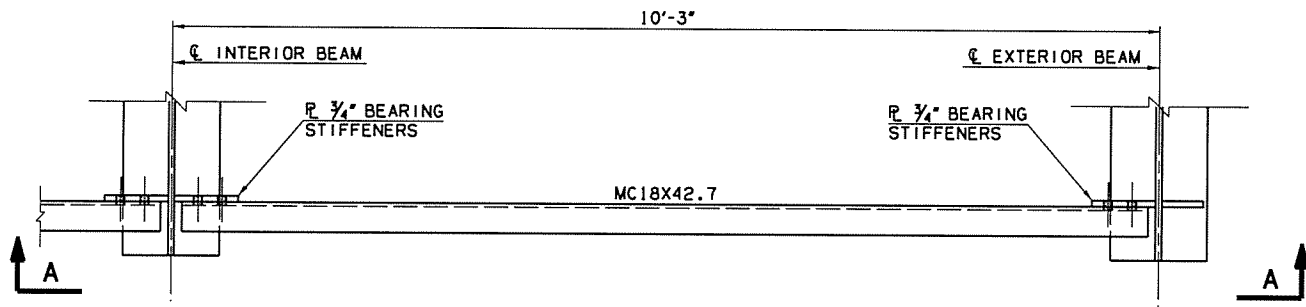
Design	SF	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B <b>SUPERSTRUCTURE DETAILS</b> (SHEET 1 OF 4) Job Piece No. 27092(04) Sheet No. 79
Drawn	JT	6/16	
Checked	DAS	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

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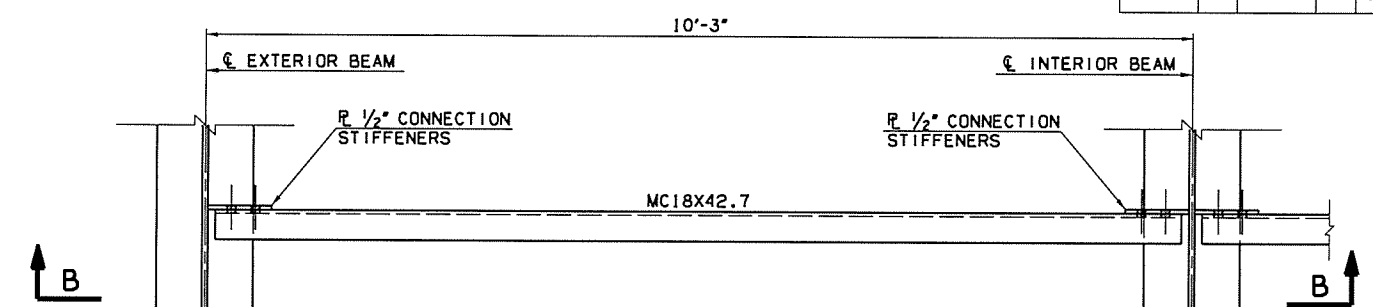
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COO1	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
B	OKLA	27092(04)		80	143



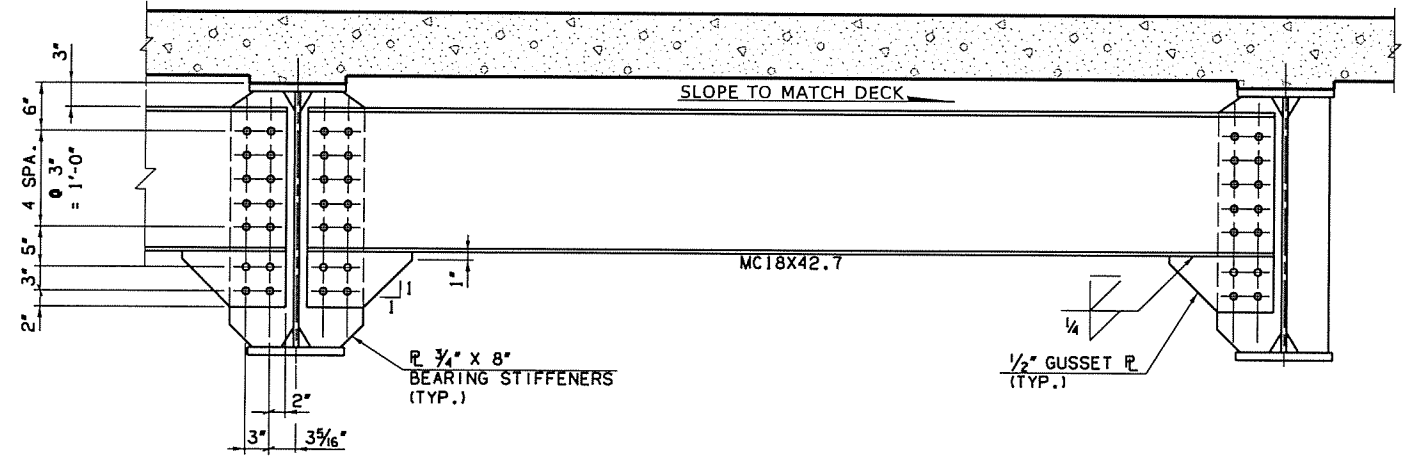
END DIAPHRAGMS AT PIERS NO. 1 AND 2 SHOWN.  
CHANNEL DIAPHRAGMS AND BOLT HOLES IN BEARING  
DIAPHRAGMS NOT REQUIRED AT ABUTMENTS

**PLAN - END DIAPHRAGMS**  
SCALE: 1" = 1'-0"

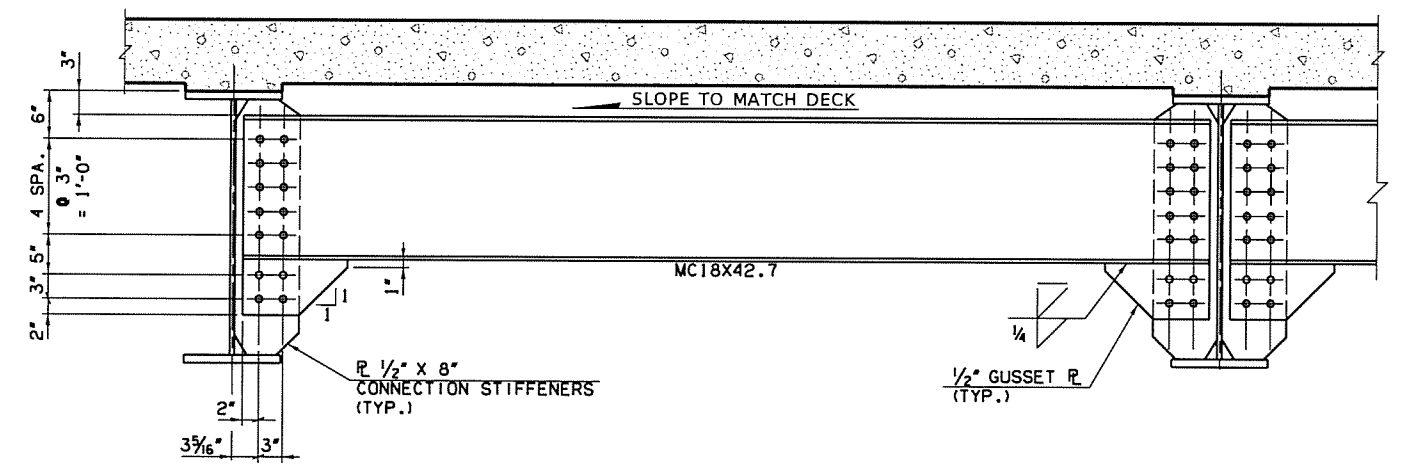


INTERMEDIATE DIAPHRAGMS AT SPANS 1, 2 & 3 (2 REQ'D.)

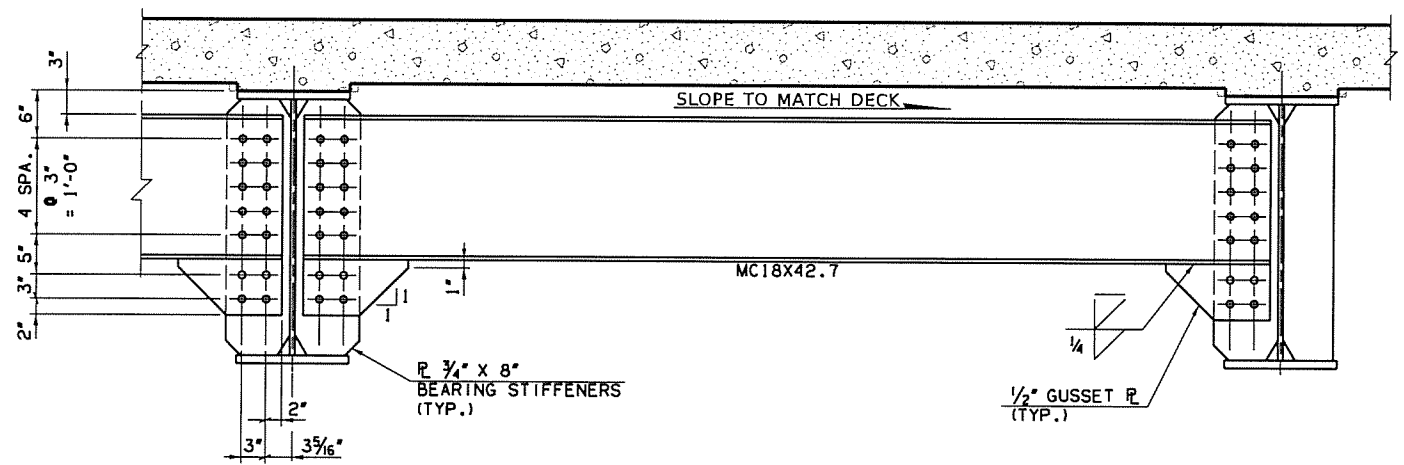
**PLAN - INTERMEDIATE DIAPHRAGMS**  
SCALE: 1" = 1'-0"



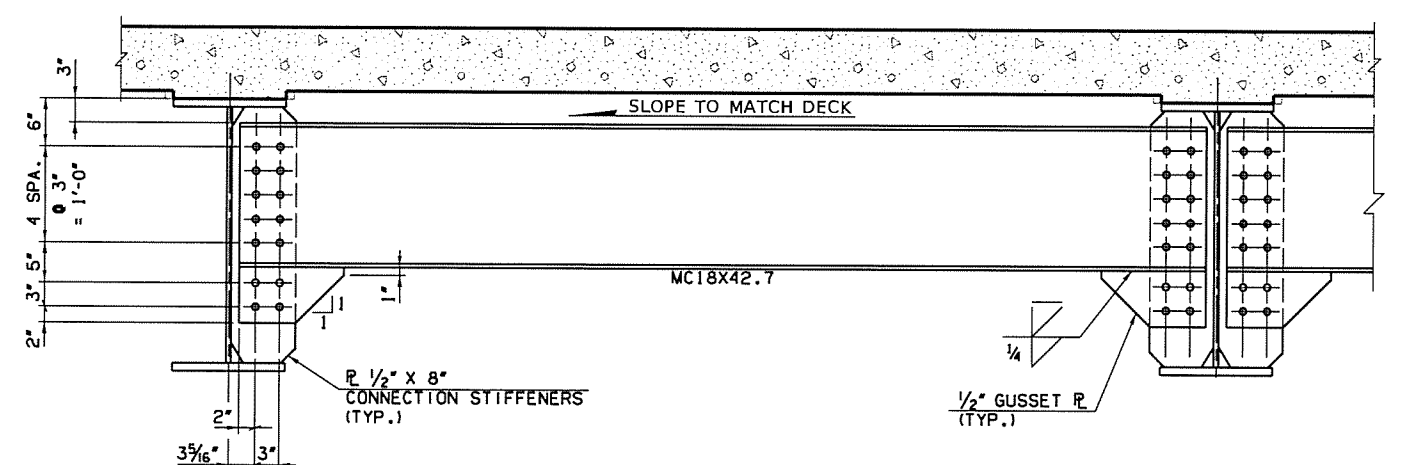
**SECTION A-A AT SPAN 1 & 3**  
SCALE: 1" = 1'-0"



**SECTION B-B AT SPAN 1 & 3**  
SCALE: 1" = 1'-0"



**SECTION A-A AT SPAN 2**  
SCALE: 1" = 1'-0"



**SECTION B-B AT SPAN 2**  
SCALE: 1" = 1'-0"

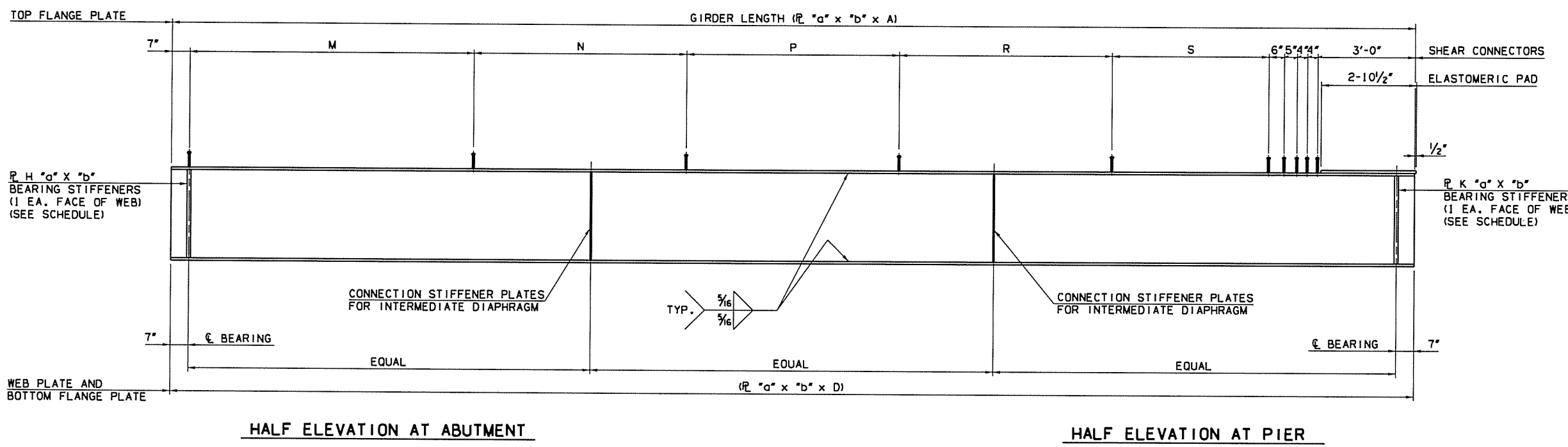
INSTALL ALL DIAPHRAGMS AND TIGHTEN ALL BOLTS BEFORE PLACING CONCRETE FOR THE DECK SLAB OR APPLYING OTHER MASSIVE LOADS TO THE BEAMS.

**NOTES:**

- ALL BOLTED CONNECTIONS SHALL USE 7/8" DIA. HIGH STRENGTH BOLTS (A325) WITH DIRECT TENSION INDICATORS AS SPECIFIED IN SECTION 506 OF THE STANDARD SPECIFICATIONS. THE "CALIBRATED WRENCH" METHOD SHALL NOT BE USED. ALL BOLT HOLES SHALL BE 15/16" DIA. WITH A MIN. 2" EDGE DISTANCE UNLESS NOTED OTHERWISE.

Design	MKR	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B <b>SUPERSTRUCTURE DETAILS</b> (SHEET 2 OF 4) Job Piece No. 27092(04) Sheet No. 80
Drawn	RAH	6/16	
Checked	DAS	6/16	
Approved	SAK	6/16	
Squad	BENHAM		





HALF ELEVATION AT ABUTMENT

HALF ELEVATION AT PIER

**GIRDER ELEVATION (GIRDERS NO. 1 THRU 5 @ SPAN 1, 2 & 3)**

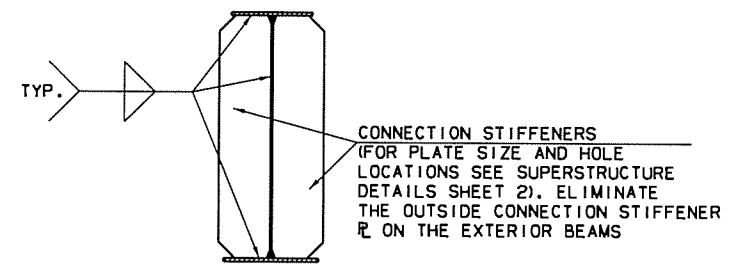
SCALE: NONE

**ELASTOMERIC PADS:**

PROVIDE ELASTOMERIC PAD WITH A 50 DUROMETER HARDNESS AND CONSISTING OF A SINGLE LAYER. EXTEND PAD 1/2" BEYOND THE END OF THE BEAM. AT SPANS 1 AND 3 ELASTOMERIC PAD IS 3/4" X 12" X 2'-10 1/2". AT SPAN 2 ELASTOMERIC PAD IS 1/8" X 1'-2" X 2'-10 1/2".

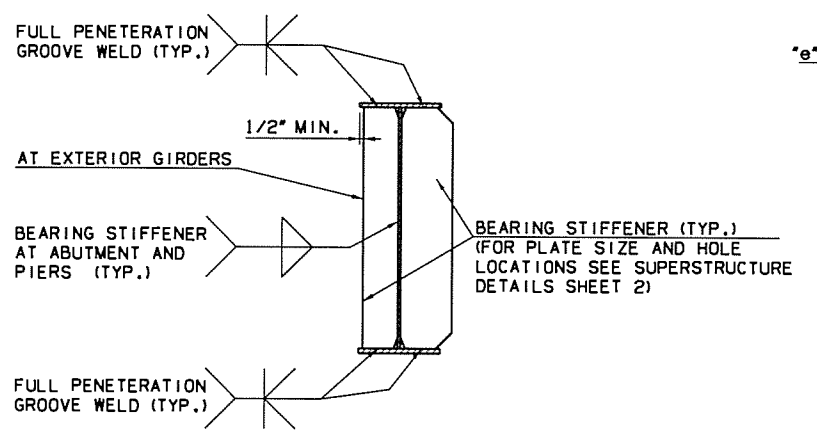
**NOTES:**

- FOR BRIDGE GEOMETRIC DATA SEE GENERAL PLAN AND ELEVATION.
- ALL FLANGE PLATES, WEB PLATES AND STIFFENER PLATES SHALL CONFORM TO THE CHARPY V-NOTCH REQUIREMENTS FOR ZONE 2. CHANNEL DIAPHRAGMS AND GUSSET PLATES DO NOT REQUIRE CHARPY V-NOTCH TESTING.
- PLATE GIRDERS, DIAPHRAGMS, STIFFENER PLATES AND CONNECTIONS PLATES SHALL BE FABRICATED FOR TOTAL DEAD LOAD FIT CONDITION.
- ALL STRUCTURAL STEEL SHALL BE M270 GRADE 50W STEEL.
- BEARING TO BEARING LENGTH IS TAKEN ALONG THE GIRDER WEB AND TOP FLANGE WITH DIAPHRAGMS PLACED AS SHOWN IN THE GIRDER ELEVATION.
- GIRDERS ARE DRAWN AND DIMENSIONS SHOWN AS IF THE TOP FLANGE OF GIRDERS WERE IN A TRULY HORIZONTAL POSITION. SHOP DRAWINGS SHALL INCLUDE ADJUSTMENTS AS NECESSARY TO ACCOUNT FOR VERTICAL CURVE AND DEAD LOAD DEFLECTIONS.
- ALL FILLET WELDS SHALL BE TERMINATED 3/8" +/- 1/8" FROM EDGES OF STIFFENERS AS PER AWS D1.5 SECT 9.15.
- DRIP PLATES SHALL BE PLACED ON THE OUTSIDE OF THE EXTERIOR GIRDERS ON EACH END OF BEAM.
- ALL COST OF DRIP PLATE, WELD, CAULK AND LABOR NEEDED FOR INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE BID PER LB. FOR "STRUCTURAL STEEL".



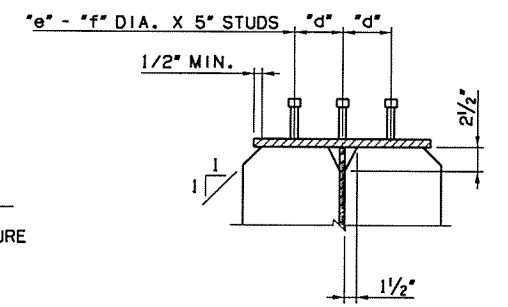
**CONNECTION STIFFENER PLATE**

SCALE: NONE



**BEARING STIFFENERS**

SCALE: NONE

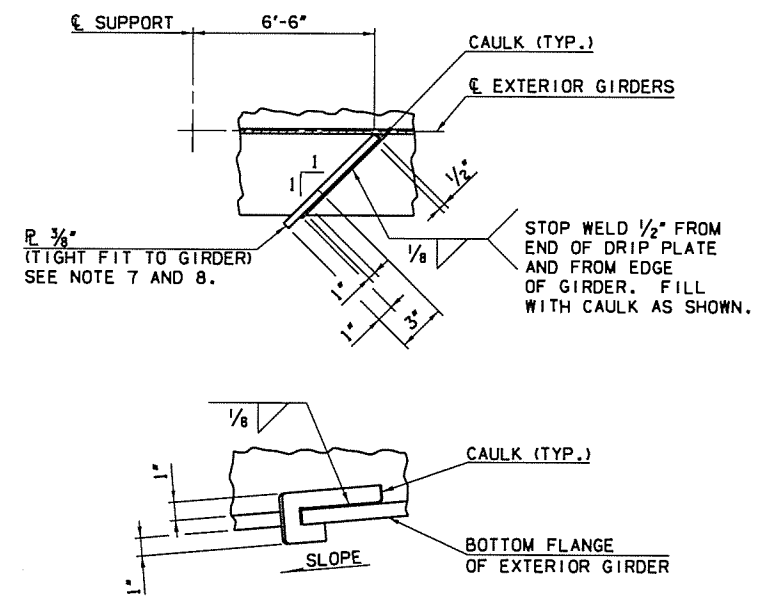


**NOTE:**

"d" IS FOR DISTANCE BETWEEN STUDS IN INCHES.  
 "e" IS FOR NUMBER OF STUDS IN A ROW.  
 "f" IS THE DIAMETER OF STUDS IN INCHES.

**STIFFENER CLIP AND SHEAR STUDS**

SCALE: NONE



**TYPICAL DRIP PLATE DETAIL FOR EXTERIOR GIRDERS**

SCALE: NONE

Design	STF	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B <b>SUPERSTRUCTURE DETAILS</b> (SHEET 3 OF 4) Job Piece No. 27092(04) Sheet No. 81
Drawn	WZB	6/16	
Checked	DAS	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

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COUNT	STATE	J/P	PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA		27092(04)		82	143

GIRDER DETAIL SCHEDULE FOR SPAN NO. 1																								
GIRDER	GIRDER GEOMETRY						LOCATION A	PL. "a" THK. IN.	PL. "b" WIDTH IN.	BEARING STIFFENERS LOCATION	PL. "a" THK. IN.	PL. "b" WIDTH IN.	SHEAR CONNECTOR LOCATION	DIA. "T" IN.	NUMBER OF SPACES	SPACING IN.	STUDS/ROW "e"	TRANS. SPACING "d" IN.	SHEAR CONNECTOR LOCATION	DIA. "T" IN.	NUMBER OF SPACES	SPACING IN.	STUDS/ROW "e"	TRANS. SPACING "d" IN.
	A	B	C	D	E	F																		
1-5	44'-8"			44'-8"			TOP FLANGE A	3/4	12	H	3/4	8	M	7/8	21	10	3	3 1/2	R	-	-	-	-	-
							WEB A+B+C	5/8	32	K	3/4	8	N	-	-	-	-	-	S	7/8	21	10	3	3 1/2
							BOTTOM FLANGE D	1	12	-	-	-	P	7/8	9	6	3	3 1/2	-	-	-	-	-	-

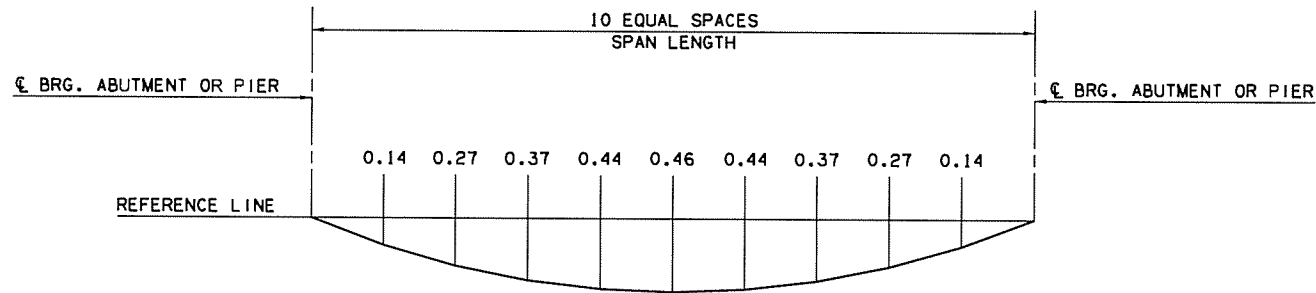
  

GIRDER DETAIL SCHEDULE FOR SPAN NO. 2																								
GIRDER	GIRDER GEOMETRY						LOCATION A	PL. "a" THK. IN.	PL. "b" WIDTH IN.	BEARING STIFFENERS LOCATION	PL. "a" THK. IN.	PL. "b" WIDTH IN.	SHEAR CONNECTOR LOCATION	DIA. "T" IN.	NUMBER OF SPACES	SPACING IN.	STUDS/ROW "e"	TRANS. SPACING "d" IN.	SHEAR CONNECTOR LOCATION	DIA. "T" IN.	NUMBER OF SPACES	SPACING IN.	STUDS/ROW "e"	TRANS. SPACING "d" IN.
	A	B	C	D	E	F																		
1-5	54'-8"			54'-8"			TOP FLANGE A	3/4	14	H	3/4	8	M	7/8	22	10	3	3 1/2	R	7/8	1	11	3	3 1/2
							WEB A+B+C	5/8	32	K	3/4	8	N	7/8	1	11	3	3 1/2	S	7/8	22	10	3	3 1/2
							BOTTOM FLANGE D	1	14	-	-	-	P	7/8	7	12	3	3 1/2	-	-	-	-	-	-

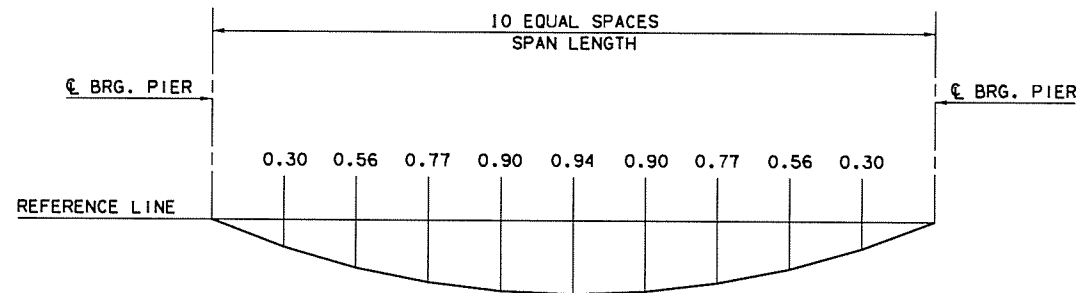
  

GIRDER DETAIL SCHEDULE FOR SPAN NO. 3																								
GIRDER	GIRDER GEOMETRY						LOCATION A	PL. "a" THK. IN.	PL. "b" WIDTH IN.	BEARING STIFFENERS LOCATION	PL. "a" THK. IN.	PL. "b" WIDTH IN.	SHEAR CONNECTOR LOCATION	DIA. "T" IN.	NUMBER OF SPACES	SPACING IN.	STUDS/ROW "e"	TRANS. SPACING "d" IN.	SHEAR CONNECTOR LOCATION	DIA. "T" IN.	NUMBER OF SPACES	SPACING IN.	STUDS/ROW "e"	TRANS. SPACING "d" IN.
	A	B	C	D	E	F																		
1-5	44'-8"			44'-8"			TOP FLANGE A	3/4	12	H	3/4	8	M	7/8	21	10	3	3 1/2	R	-	-	-	-	-
							WEB A+B+C	5/8	32	K	3/4	8	N	-	-	-	-	-	S	7/8	21	10	3	3 1/2
							BOTTOM FLANGE D	1	12	-	-	-	P	7/8	9	6	3	3 1/2	-	-	-	-	-	-

ORDINATES	Tenth Pt.	-	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	-
SPANS 1,3	Average Steel	0.00	0.02	0.04	0.06	0.07	0.07	0.07	0.06	0.04	0.02	0.00
	Average Concrete	0.00	0.12	0.23	0.32	0.37	0.39	0.37	0.32	0.23	0.12	0.00
	Average Total	0.00	0.14	0.27	0.37	0.44	0.46	0.44	0.37	0.27	0.14	0.00



ORDINATES	Tenth Pt.	-	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	-
SPAN 2	Average Steel	0.00	0.05	0.09	0.12	0.14	0.15	0.14	0.12	0.09	0.05	0.00
	Average Concrete	0.00	0.25	0.47	0.64	0.75	0.79	0.75	0.64	0.47	0.25	0.00
	Average Total	0.00	0.30	0.56	0.77	0.90	0.94	0.90	0.77	0.56	0.30	0.00



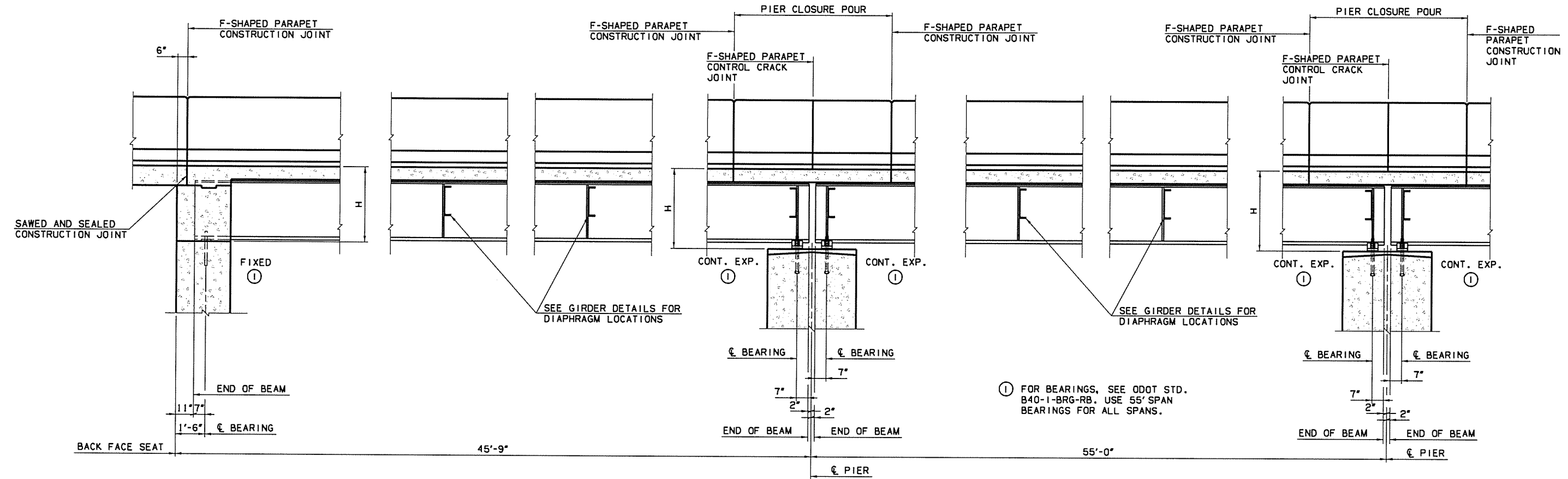
**DEAD LOAD DEFLECTION DIAGRAMS**

SCALE: NONE

**NOTES:**

- DEFLECTION IS IN INCHES.
- POSITIVE VALUE INDICATES DEFLECTION IS DOWNWARD.
- CONCRETE LOAD INCLUDES SLAB AND PARAPETS.

Design	STF	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B <b>SUPERSTRUCTURE DETAILS</b> (SHEET 4 OF 4) Job Piece No. 27092(04) Sheet No. 82
Drawn	WZB	6/16	
Checked	DAS	6/16	
Approved	SAK	6/16	
Squad	BENHAM		



① FOR BEARINGS, SEE ODOT STD. B40-1-BRG-RB. USE 55' SPAN BEARINGS FOR ALL SPANS.

**LONGITUDINAL SECTION**  
SCALE: 3/8" = 1'-0"

SCHEDULE FOR DIMENSION H	
LOCATION	H
ABUTMENT NO. 1	3'-8 3/4"
PIER NO. 1	4'-0 7/8"
PIER NO. 2	4'-0 7/8"
ABUTMENT NO. 2	3'-8 3/4"

INSTALL ALL DIAPHRAGMS AND TIGHTEN ALL BOLTS BEFORE PLACING CONCRETE FOR THE DECK SLAB OR APPLYING OTHER MASSIVE LOADS TO THE BEAMS.

**NOTES:**  
1. H DIMENSION IS FROM TOP OF DECK SLAB TO BOTTOM OF BEARING ASSEMBLY AT  $\epsilon$  BEARING.

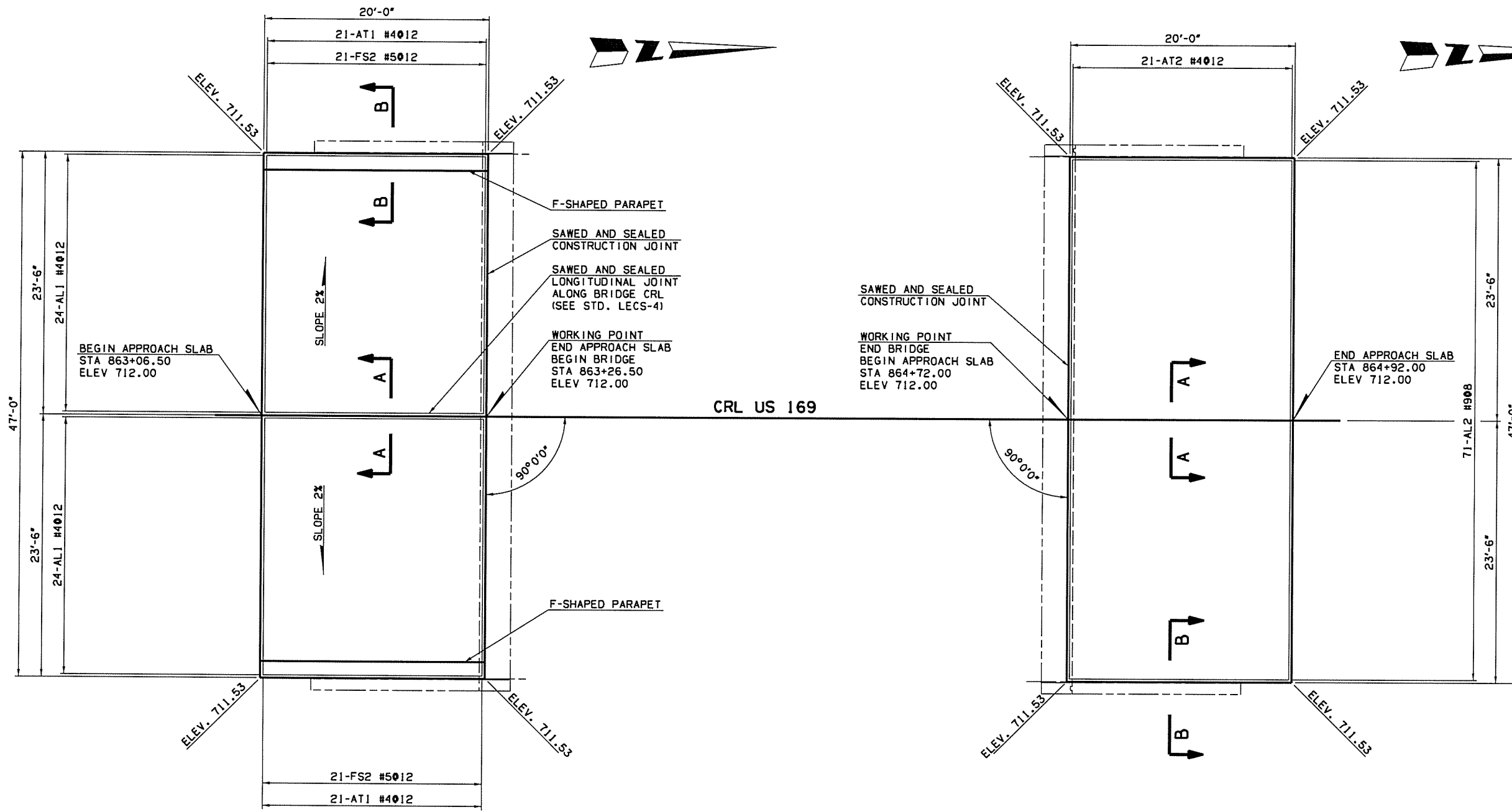
Design	SF	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B
Drawn	WZB	6/16	
Checked	DAS	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

**LONGITUDINAL SECTION**

Job Piece No. 27092(04) Sheet No. 83

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0001	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		84	143



TOP REINFORCING MAT DETAIL  
**APPROACH SLAB NO. 1**  
 SCALE: 1/4" = 1'-0"

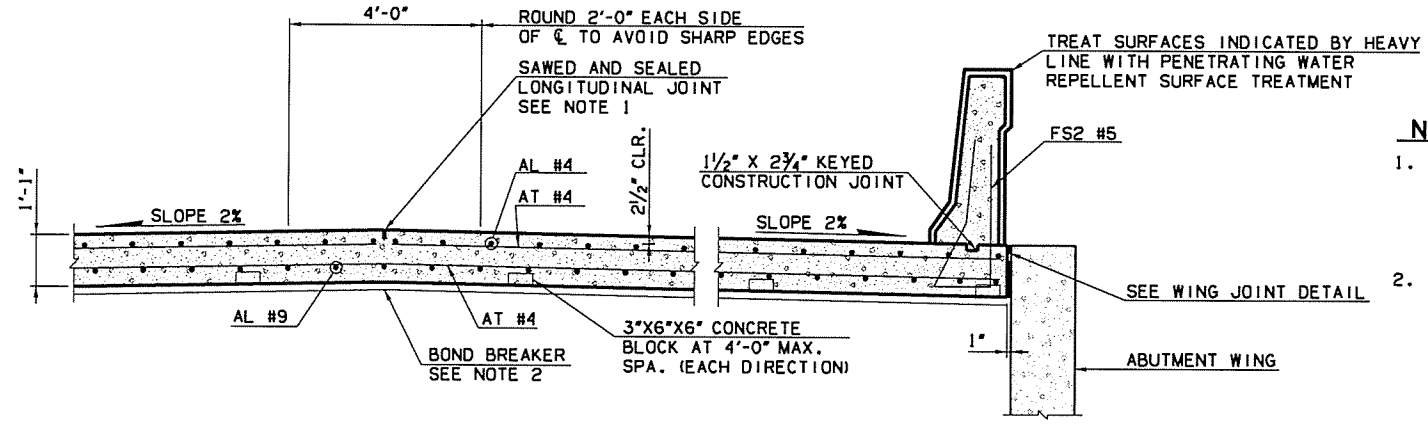
BOTTOM REINFORCING MAT DETAIL  
**APPROACH SLAB NO. 2**  
 SCALE: 1/4" = 1'-0"

APPROACH SLAB QUANTITIES				
ITEM	UNIT	SLAB 1	SLAB 2	TOTAL
① APPROACH SLAB	SY	104.5	104.5	209.0
SAW-CUT GROOVING	SY	97.8	97.8	195.6
42" F-SHAPED PARAPET	LF	40.0	40.0	80.0
WATER REPELLENT (VISUALLY INSPECTED)	SY	36	36	72

① THE DEPARTMENT CONSIDERS THE COST OF CLASS AA CONCRETE, REINFORCING STEEL (INCLUDING FS2 BARS), BACKER ROD, RAPID CURE JOINT SEALANT, POLYSTYRENE AND POLYETHYLENE SHEETING TO BE INCLUDED IN THE CONTRACT UNIT PRICE OF APPROACH SLAB.

Design	STF	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B <b>APPROACH SLAB DETAILS</b> (SHEET 1 OF 2) Job Piece No. 27092(04) Sheet No. 84
Drawn	WZB	6/16	
Checked	DAS	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

FOOT DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		85	143



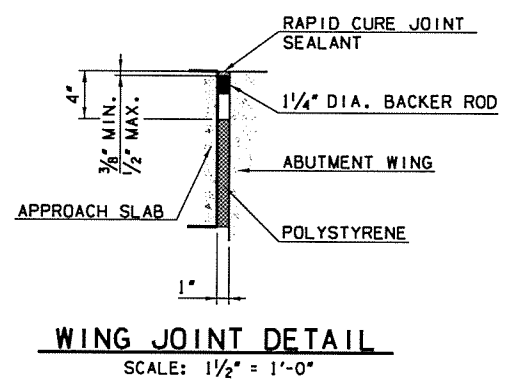
- NOTES:**
1. PLACE REINFORCING IN THE TOP OF THE APPROACH SLAB 2" FROM EITHER SIDE OF SAWED AND SEALED LONGITUDINAL JOINT. FOR ADDITIONAL DETAILS OF LONGITUDINAL JOINT, SEE STD. LECS-4.
  2. BOND BREAKER SHALL BE ONE 6 MIL OR TWO 4 MIL POLYETHYLENE SHEETS. BOND BREAKER SHALL EXTEND FULL WIDTH OF APPROACH SLAB AND FULL LENGTH UP TO THE BACK FACE OF THE ABUTMENT DIAPHRAGM. BOND BREAKER SHALL NOT BE PLACED IN NOTCH OF THE ABUTMENT DIAPHRAGM.
  3. FOR ADDITIONAL DETAIL OF 42" F-SHAPED CONCRETE PARAPET, SEE STD. FSHP-42-2.

**APPROACH SLAB BAR LIST**  
(ONE SHOWN, TWO REQUIRED)

EPOXY COATED REINFORCING

MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
AT1	#4	42	STR.	23'-2"	
AT2	#4	21	STR.	46'-8"	
AL1	#4	48	STR.	19'-8"	
AL2	#9	71	STR.	19'-8"	
FS2	#5	42	BNT.	7'-4"	NOTE 1

- NOTES:**
1. FOR FS2 #5 BEND DETAIL SEE STD. FSHP-42-2

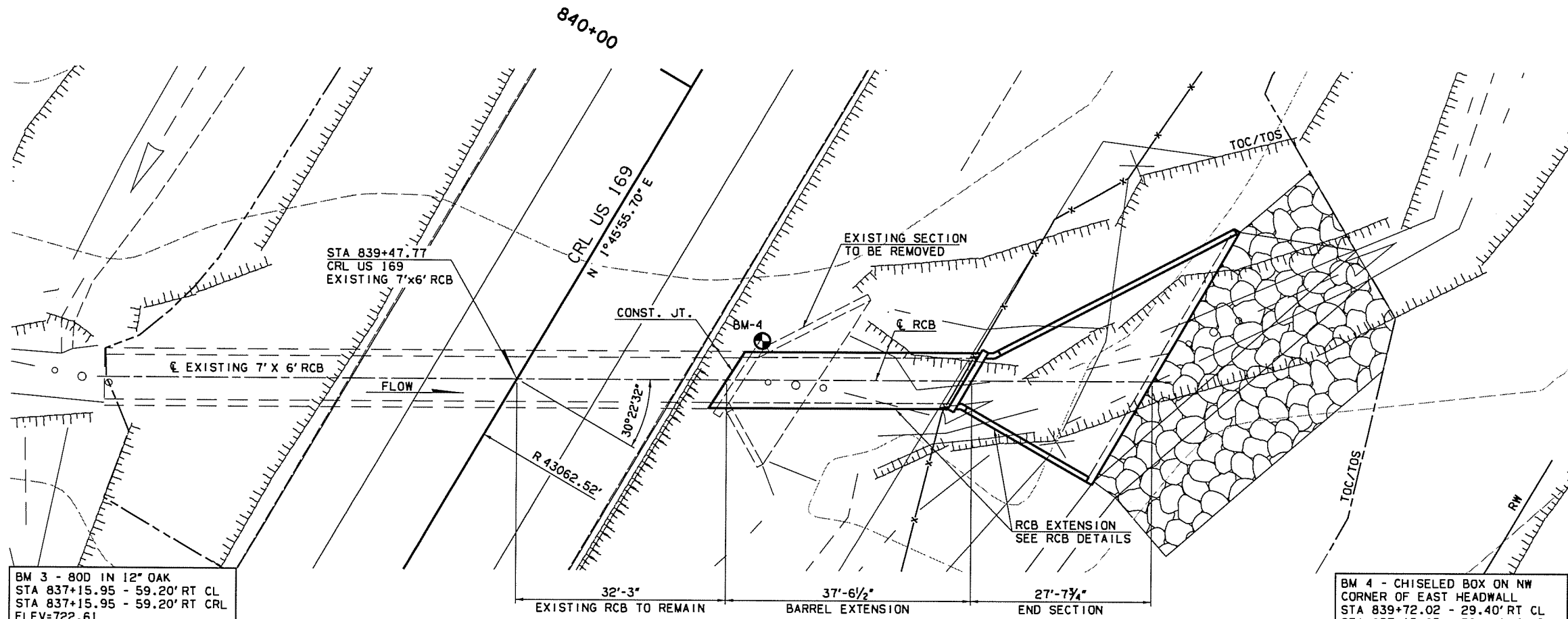


Design	STF	6/16	US 169 OVER OPOSSUM CREEK OVER FLOW NOWATA COUNTY BRIDGE B
Drawn	WZB	6/16	
Checked	DAS	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

**APPROACH SLAB DETAILS**  
(SHEET 2 OF 2)

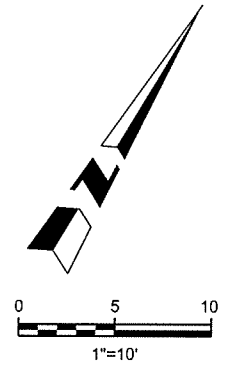
Job Piece No. 27092(04) Sheet No. 85

DOT DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		86	143

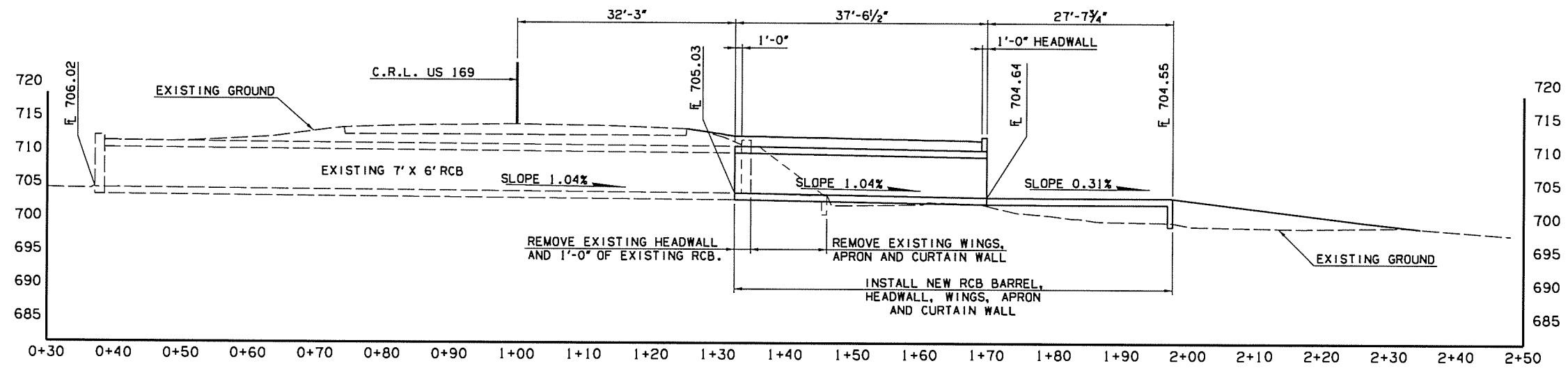


BM 3 - 80D IN 12" OAK  
STA 837+15.95 - 59.20' RT CL  
STA 837+15.95 - 59.20' RT CRL  
ELEV=722.61

BM 4 - CHISELED BOX ON NW CORNER OF EAST HEADWALL  
STA 839+72.02 - 29.40' RT CL  
STA 837+15.95 - 59.20' RT CRL  
ELEV=713.20



**PLAN**  
SCALE: 1" = 10'



**ELEVATION**  
SCALE: HORIZ. 1" = 10'  
VERT. 1" = 10'

Design	KSJ	6/16	US 169	NOWATA COUNTY
Drawn	WZB	6/16		
Checked	RAH	6/16		
Approved	SAK	6/16		
Squad	BENHAM			

**RCB EXTENSION  
7'X6' RCB DETAILS  
(SHEET 1 OF 6)**

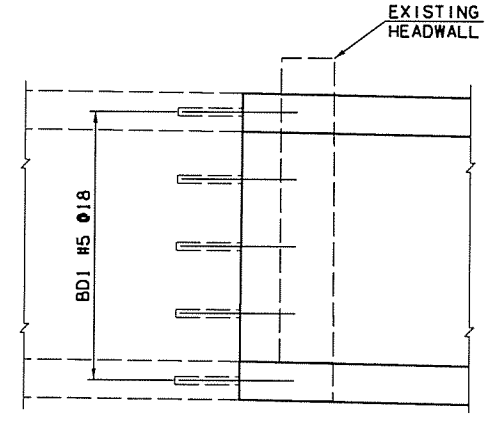
Job Piece No. 27092(04) Sheet No. 86

SECTION DIMENSIONS					BARREL REINFORCING STEEL																					
					A1-BARS				B1-BARS				B2-BARS				E1-BARS AT 12" MAX.			E2-BARS AT 12" MAX.						
S	H	T	U	W	SIZE	SPA.	LENGTH	WEIGHT PER FT.	SIZE	SPA.	"X"	"Y"	LENGTH	WEIGHT PER FT.	SIZE	SPA.	"X"	"Y"	LENGTH	WEIGHT PER FT.	QTY.	SIZE	WEIGHT PER FT.	QTY.	SIZE	WEIGHT PER FT.
7'	6'	11"	12"	10"	#7	6"	8'-4"	68.2	#5	6"	0'-10"	2'-5"	3'-3"	13.6	#5	6"	0'-10"	6'-9"	7'-7"	31.6	28	#5	29.2	12	#4	8.0

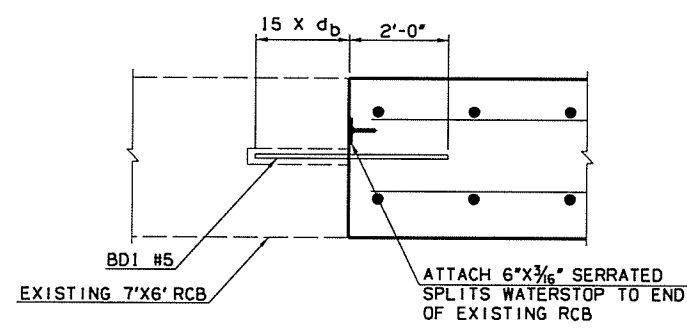
**NOTE:**

- CONTRACTOR SHALL FIELD VERIFY EXISTING BOX DIMENSIONS PRIOR TO CONSTRUCTION. IF THE EXISTING BOX DIMENSIONS DO NOT MATCH THE NEW BOX DIMENSIONS, THEN THE CONTRACTOR SHALL ALIGN THE INTERIOR WALLS OF THE NEW BOX WITH THE EXISTING STRUCTURE AND TAPER BOTH SIDES OF THE NEW BOX EQUALLY TO MATCH THE EXISTING STRUCTURE.
- CONTRACTOR SHALL PROVIDE A WATERSTOP ALONG THE BOTTOM, BOTH SIDES AND TOP OF THE EXISTING STRUCTURE AND THE NEW BOX STRUCTURE. COST OF WATERSTOP MATERIALS AND LABOR SHALL BE INCLUDED IN THE BID PRICE PER CY OF "CLASS AA CONCRETE".
- CONTRACTOR SHALL DRILL AND EPOXY GROUT A MINIMUM OF (15x $d_b$ ) OR AS PER MANUFACTURER'S SPECIFICATIONS. ALL COST FOR DRILL AND EPOXY GROUT SHALL BE INCLUDED IN THE BID PRICE PER CY OF "CLASS AA CONCRETE".
- ALIGN DOWELS VERTICALLY IN CENTER OF EXISTING RCB WALLS.
- COST OF REMOVAL OF EXISTING RCB HEADWALL AND 1'-0" OF BARREL SHALL BE INCLUDED IN THE BID PRICE PER CY OF "CLASS AA CONCRETE".

SECTION DIMENSIONS		BARREL QUANTITIES	
S	H	PER FOOT OF BARREL	
		CONCRETE (C.Y.)	REINFORCING (LBS.)
7'	6'	0.99	150.6



**ELEVATION VIEW RCB WALL**  
SCALE: NONE



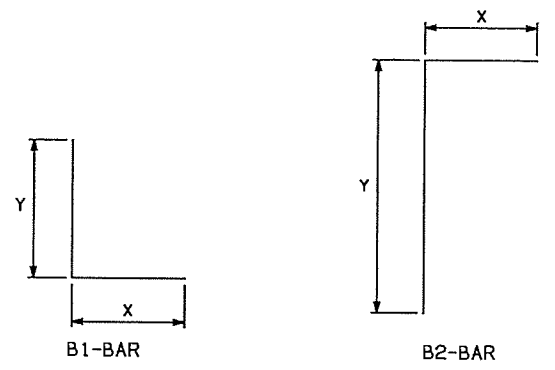
**PLAN VIEW RCB WALL**  
SCALE: NONE

**DESIGN DATA:**

- DESIGNED IN ACCORDANCE WITH 2007 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND INTERIM SPECIFICATIONS FROM 2008.
- DESIGNED FOR HL-93 LOADING AND ODOT OVERLOAD TRUCK.
- MATERIALS:  
CONCRETE (CLASS AA)  $f'_c = 4$  KSI  
REINFORCING STEEL  $f_y = 60$  KSI

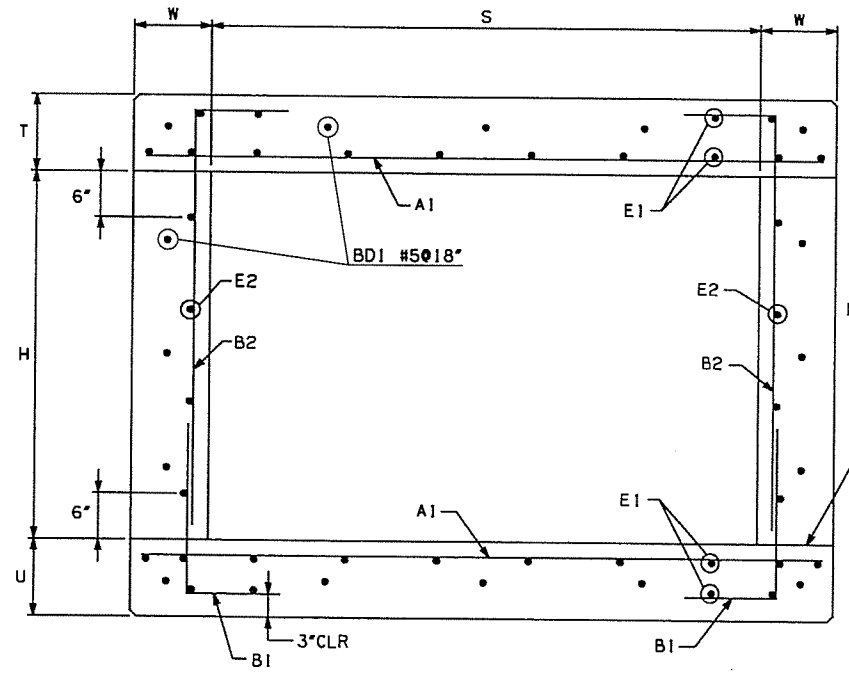
**GENERAL NOTES:**

- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- ALL CONCRETE EDGES SHALL HAVE A 1/2" CHAMFER UNLESS OTHERWISE SHOWN OR NOTED. ALL CHAMFER STRIPS SHALL BE SIZED LUMBER.
- ALL REINFORCING STEEL SHALL HAVE A 2" MINIMUM CLEAR COVER UNLESS OTHERWISE SHOWN.
- THE QUANTITY FOR REINFORCING STEEL DOES NOT INCLUDE LAP SPLICES OF E1-BARS OR E2-BARS IN THE LENGTH OF THE BARREL OR AT TRANSVERSE CONSTRUCTION JOINTS. THE SPLICE LENGTH FOR E-BARS SHALL BE 24" MINIMUM. THE NUMBER OF SPLICES USED IS TO BE APPROVED BY THE ENGINEER. REINFORCING STEEL FOR SPLICES SHALL NOT BE MEASURED FOR PAYMENT, AND ALL COSTS WILL BE INCLUDED IN THE UNIT BID PRICE FOR REINFORCING STEEL.
- TRANSVERSE CONSTRUCTION JOINTS SHALL BE PLACED IN ALL CULVERTS 100 FT. OR MORE IN LENGTH. JOINTS SHALL BE SPACED AT 60 FT. MAX.
- REINFORCING STEEL SHALL BE CONTINUOUS THROUGH THE TRANSVERSE CONSTRUCTION JOINT AND EXTEND A MIN. OF 24" INTO ADJACENT SECTION.



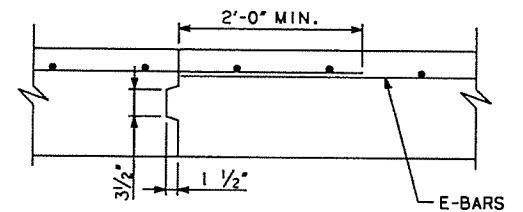
**BAR BEND DIAGRAMS**

NOTE: ALL "X" DIMENSIONS ARE HORIZONTAL IN BARREL SECTION. ALL "Y" DIMENSIONS ARE VERTICAL IN BARREL SECTION.



**BARREL SECTION**

NOTE: NUMBER AND SPACING OF E-BARS SHOWN MAY NOT BE REPRESENTATIVE OF ACTUAL CULVERT SECTIONS, SEE SCHEDULE ABOVE FOR NUMBER AND SPACING OF E-BARS.



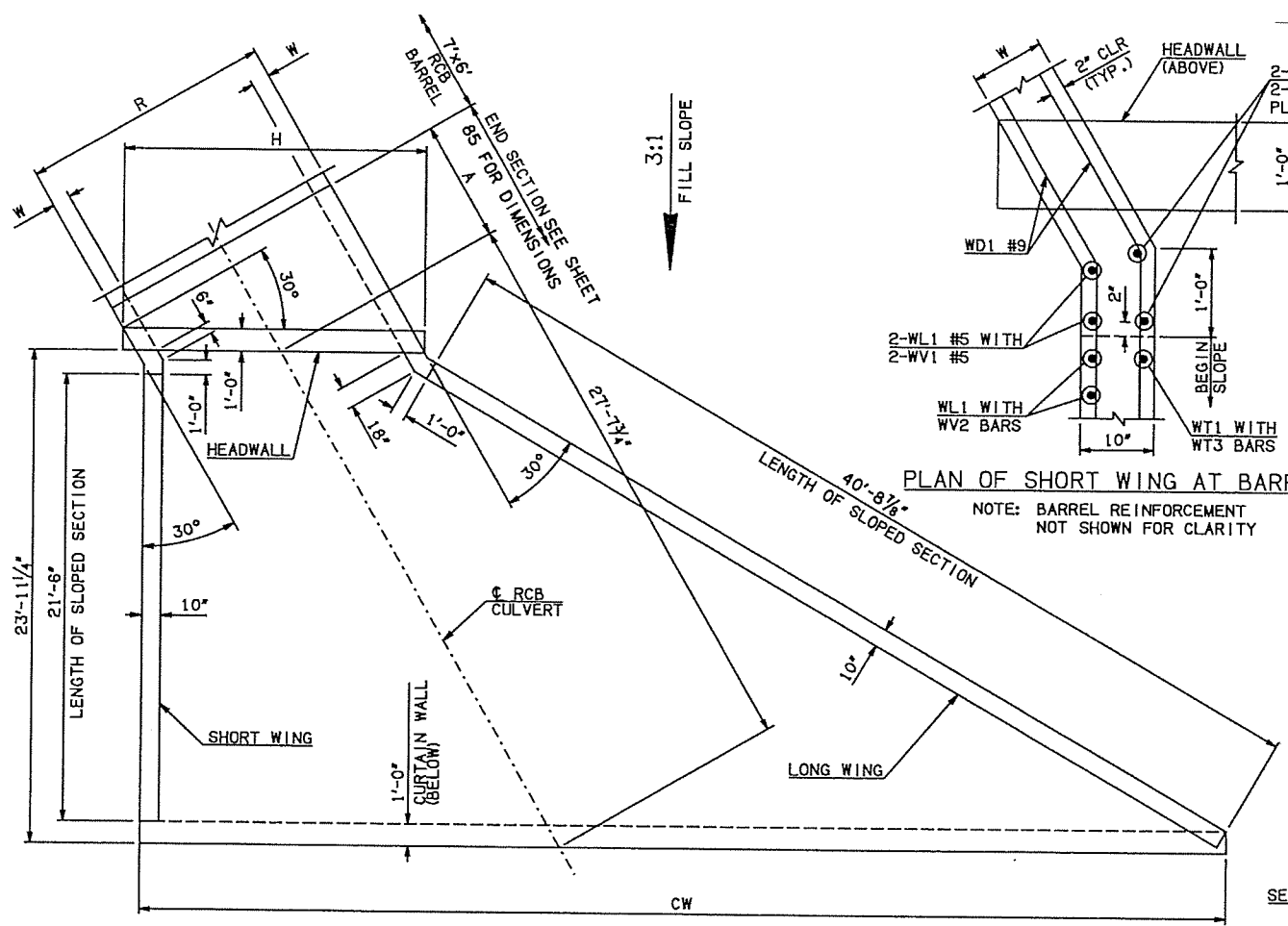
**TRANSV. CONSTR. JOINT**

Design	KSJ	6/16	US 169
Drawn	WZB	6/16	
Checked	RAH	6/16	
Approved	SAK	6/16	
Squad	BENHAM		

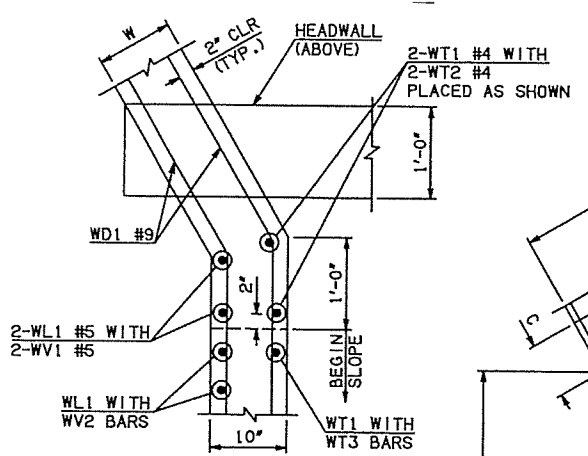
RCB EXTENSION  
**7'X6' RCB DETAILS**  
(SHEET 2 OF 6)

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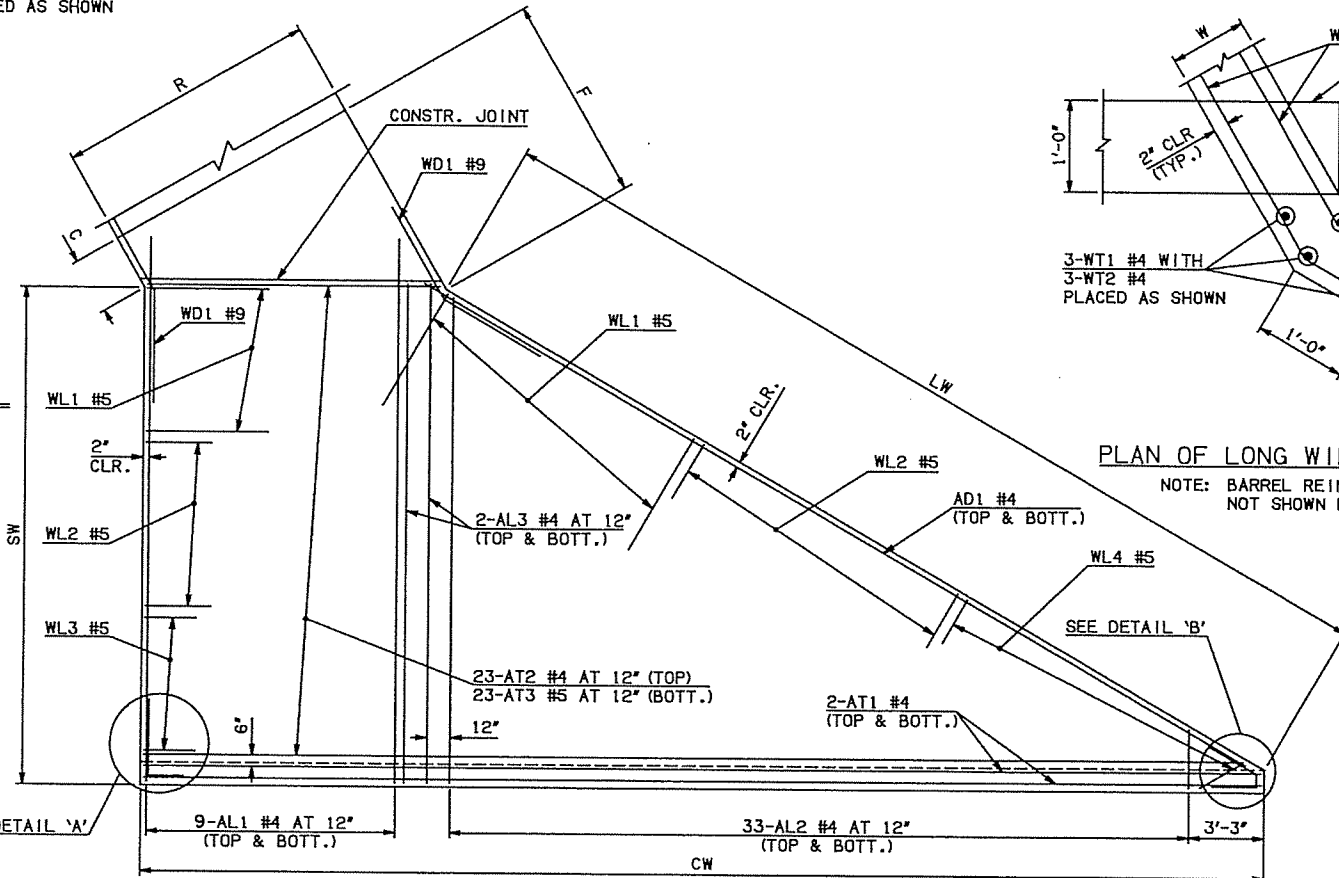




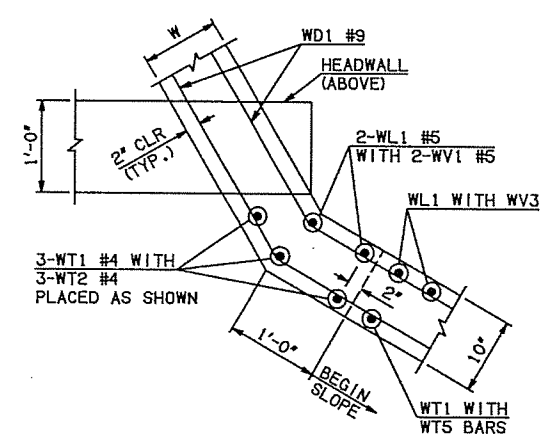
END SECTION PLAN



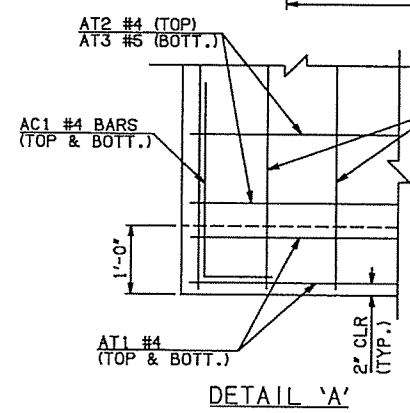
PLAN OF SHORT WING AT BARREL  
NOTE: BARREL REINFORCEMENT NOT SHOWN FOR CLARITY



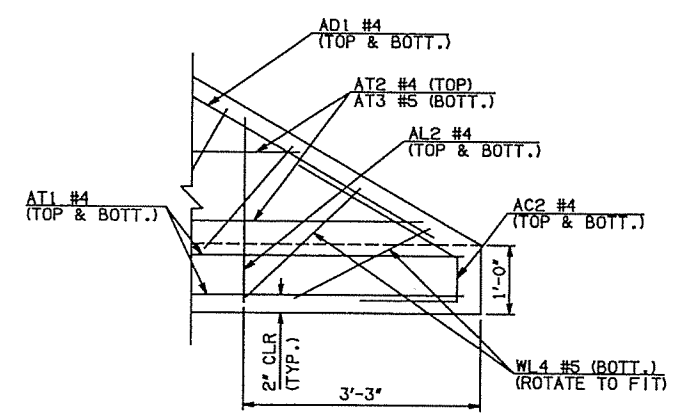
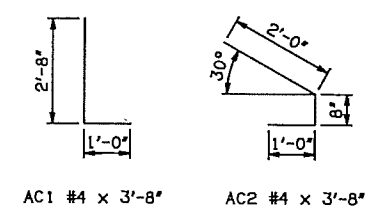
APRON REINFORCING



PLAN OF LONG WING AT BARREL  
NOTE: BARREL REINFORCEMENT NOT SHOWN FOR CLARITY



DETAIL 'A'



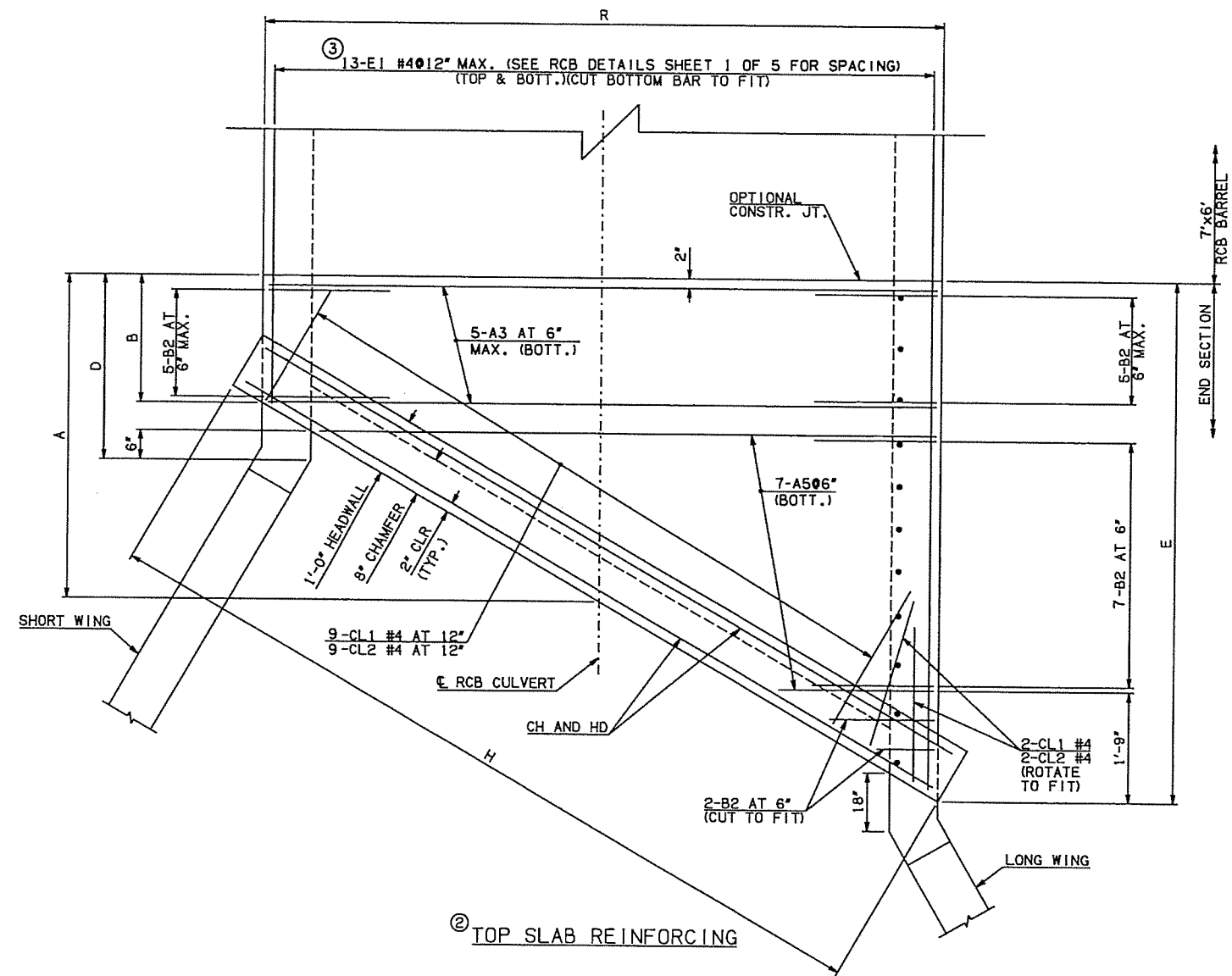
DETAIL 'B'

APRON BAR LIST					
ONE APRON SHOWN					
MARK	SIZE	FORM	QTY.	LENGTH	REMARKS
AC1	#4	BNT.	2	3'-8"	
AC2	#4	BNT.	2	3'-8"	
AD1	#4	STR.	2	40'-11"	
AL1	#4	STR.	18	25'-9"	
AL2	#4	STR.	66	12'-10" (AVG.)	2'-8" TO 23'-0"
AL3	#4	STR.	4	23'-9"	
AT1	#4	STR.	4	44'-9"	
AT2	#4	STR.	23	26'-9" (AVG.)	9'-5" TO 44'-1"
AT3	#5	STR.	23	26'-9" (AVG.)	9'-5" TO 44'-1"

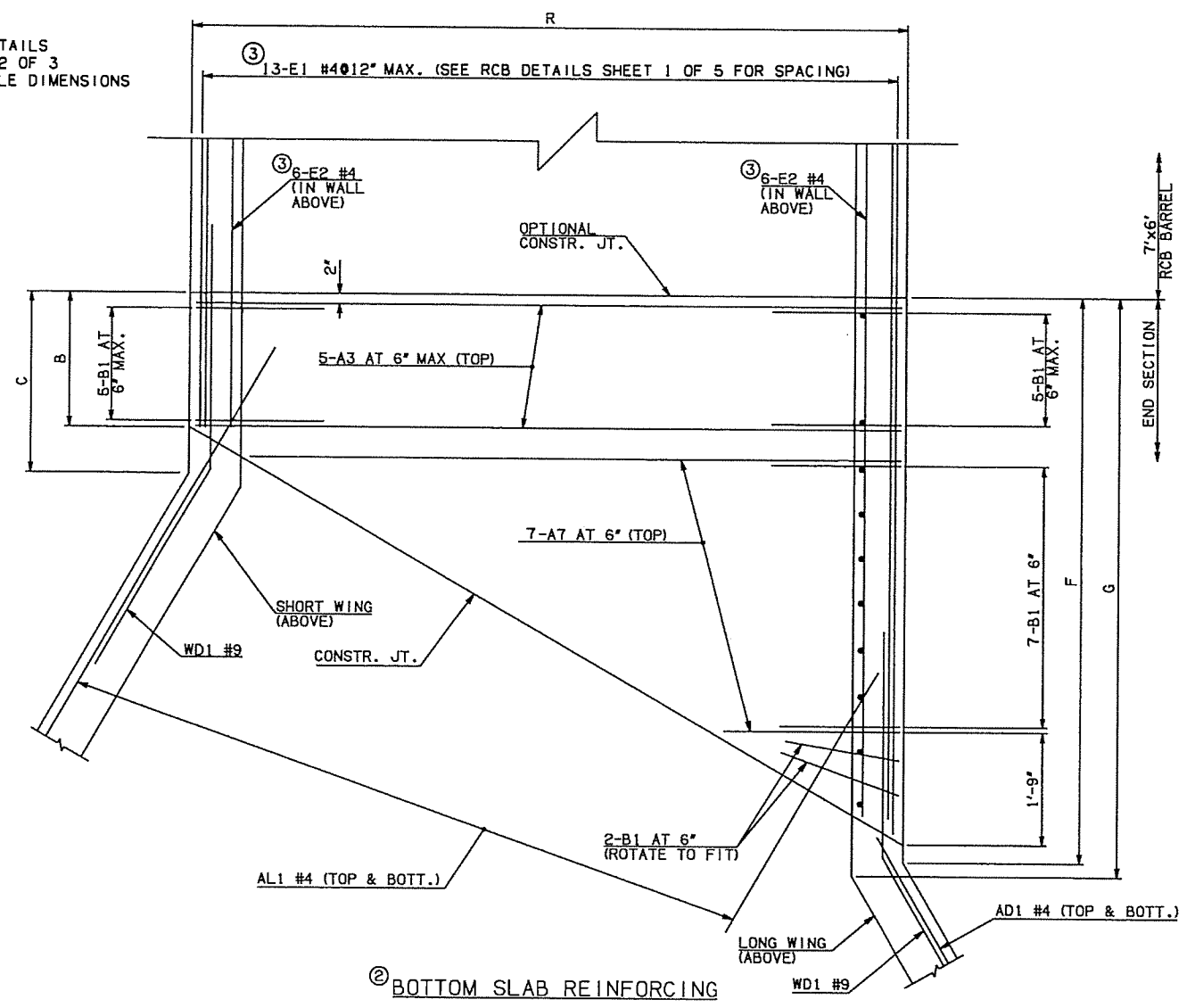
① QUANTITY SHOWN REPRESENTS TWO SETS.

Design	KSJ	6/16	US 169	NOWATA COUNTY RCB EXTENSION <b>7'X6' RCB DETAILS</b> (SHEET 3 OF 6) Job Piece No. 27092(04) Sheet No. 88
Drawn	WZB	6/16		
Checked	RAH	6/16		
Approved	SAK	6/16		
Squad	BENHAM			

7/12/2016 11:27:120 AM P:\E\1650-TUL\CVI\255231000-000T\_US1659B-dg\20\_DESGN\40\_CAD\_Opossum\DCN\Box\27092(04)\_RCB\_Det\_02.dgn



SEE RCB DETAILS SHEET NO. 2 OF 3 FOR VARIABLE DIMENSIONS



END SECTION VARIABLE DIMENSIONS												
W	A	B	C	CW	D	E	F	G	H	LW	R	SW
10"	5'-0"	2'-6"	3'-3"	45'-1 3/8"	3'-5 3/4"	7'-6"	8'-3 3/4"	8'-6 1/4"	10'-7"	41'-6 3/8"	8'-8"	23'-3 1/4"

END SECTION QUANTITIES		
ITEM	UNIT	7' SPAN
CLASS AA CONCRETE	CY.	37.80
REINFORCING STEEL	LBS.	5500.00

**NOTE:**  
 QUANTITIES ABOVE ARE FOR ONE END SECTION, WHICH IS COMPRISED OF ONE END CONNECTION, ONE HEADWALL, ONE APRON, AND TWO WINGWALLS.

END CONNECTION BAR LIST					
ONE SHOWN, ONE REQUIRED					
MARK	SIZE	FORM	QTY.	LENGTH	REMARKS
A3	#7	STR.	10	8'-4"	
A5	#7	STR.	7	5'-2" (AVG.)	2'-6" TO 7'-9"
A7	#7	STR.	7	5'-0" (AVG.)	2'-6" TO 7'-6"
B1	#5	BNT.	19	3'-3"	
B2	#5	BNT.	19	7'-7"	
E1	#4	STR.	26	4'-10" (AVG.)	2'-1" TO 7'-6"
E2	#4	STR.	12	4'-8" (AVG.)	2'-1" TO 7'-2"

- NOTES:**
- QUANTITY SHOWN REPRESENTS TWO SETS.
  - FOR FURTHER INFORMATION REGARDING END SECTION BARS A, B, C, E1, AND E2, REFER TO RCB DETAILS SHEET 1 OF 5.
  - LENGTHS OF E1 AND E2 BARS SHOWN ARE ADDITIONAL LENGTHS REQUIRED FOR THE END SECTION. LAP SPLICES, AS REQUIRED, SHALL BE IN ACCORDANCE WITH RCB BARREL STANDARD NOTES.
  - 2-SETS OF 13-E1#4 BARS REQUIRED.
  - QUANTITY SHOW REPRESENTS 2-SETS OF E2 BARS WITH LENGTHS AS SHOWN CORRESPONDING TO SHORT EXTERIOR WALL AND LONG EXTERIOR WALL.

Design	KSJ	6/16	US 169	NOWATA COUNTY
Drawn	WZB	6/16		
Checked	RAH	6/16		
Approved	SAK	6/16		
Squad	BENHAM			

**RCB EXTENSION  
 7'X6' RCB DETAILS  
 (SHEET 4 OF 6)**

Job Piece No. 27092(04) Sheet No. 89

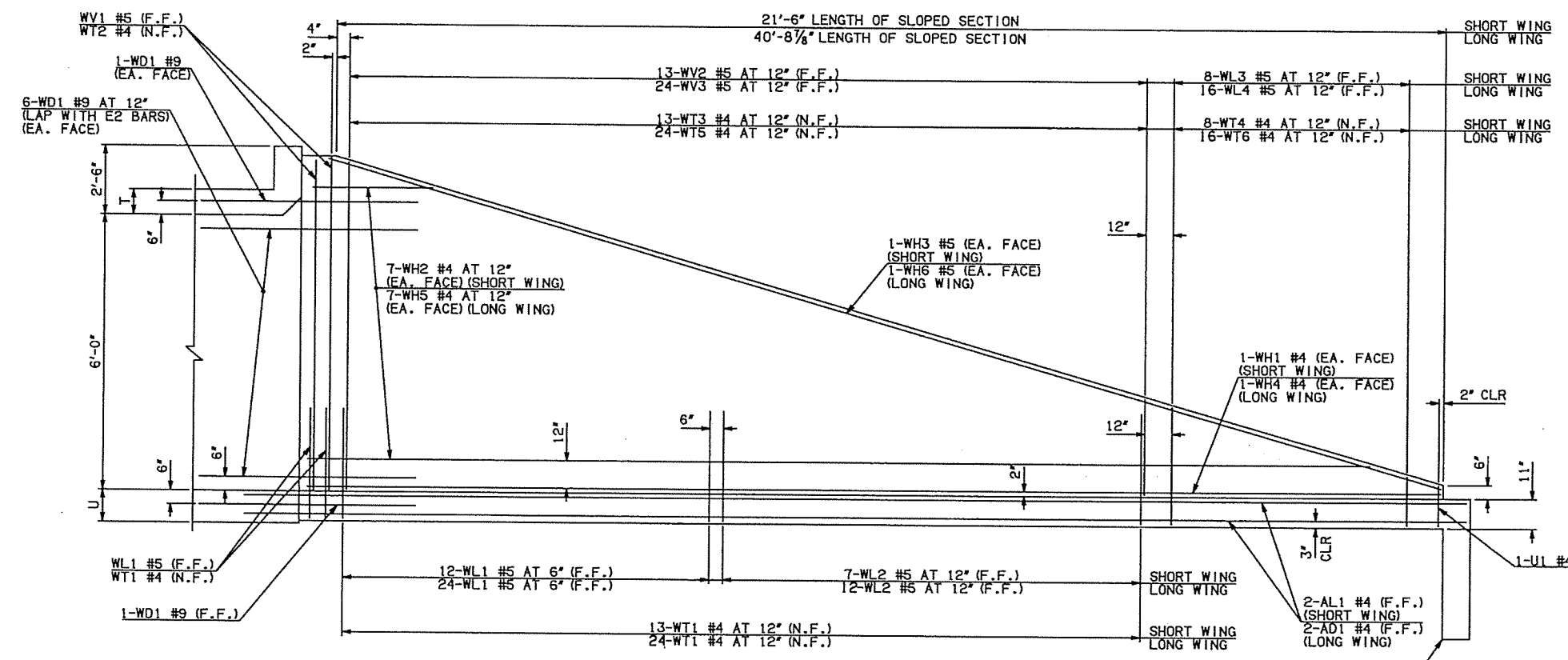
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7/12/2016

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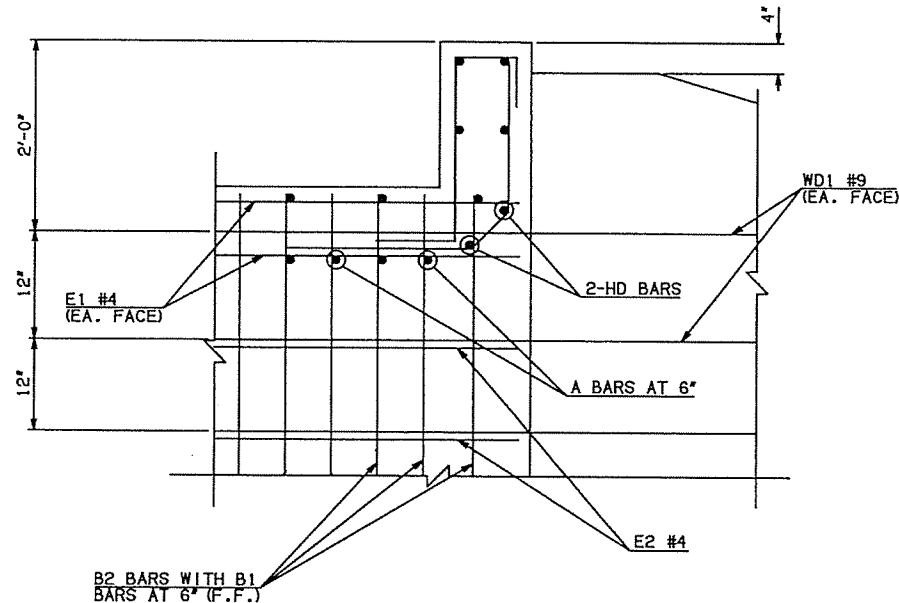
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COORD.	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		90	143

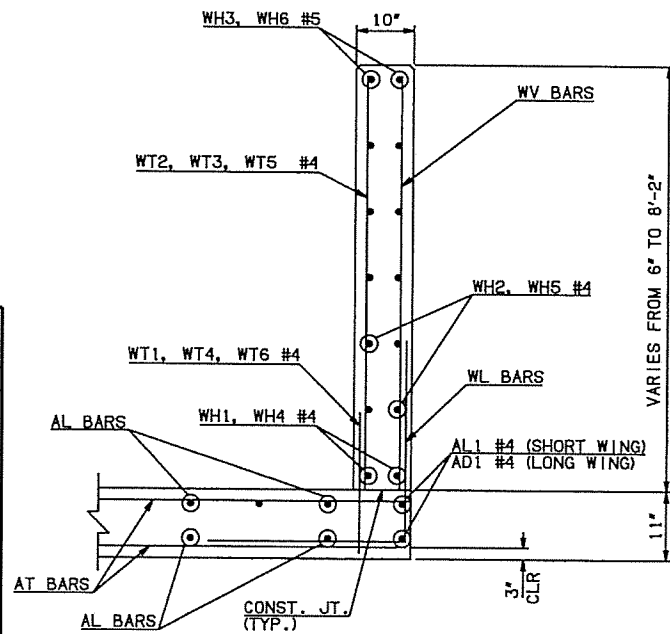


NOTE: F.F. = FAR FACE  
N.F. = NEAR FACE

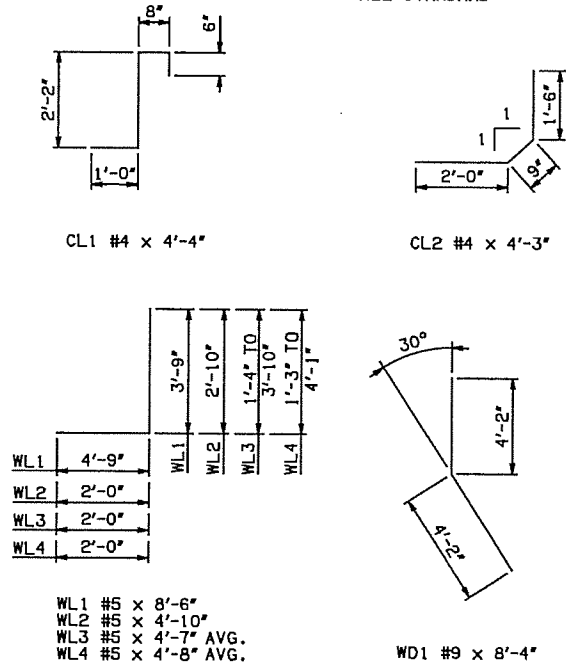
WING ELEVATION



② HEADWALL DETAIL AT EXTERIOR WALL

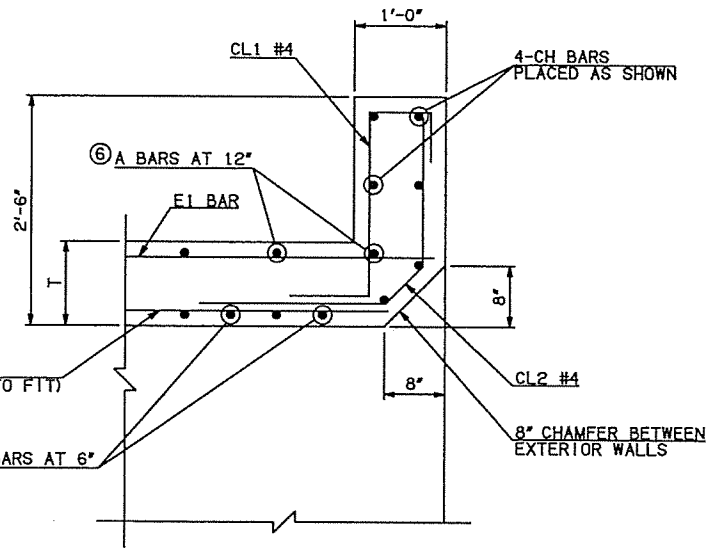


TYPICAL SECTION THRU WING



WINGWALL BAR LIST					
(LONG AND SHORT WING INCLUDED)					
MARK	SIZE	FORM	QTY.	LENGTH	REMARKS
WD1	#9	BNT.	30	8'-4"	
WH1	#4	STR.	2	22'-4"	
WH2	#4	STR.	14	11'-8" (AVG.)	3'-3" TO 20'-1"
WH3	#5	STR.	2	22'-7"	
WH4	#4	STR.	2	44'-6"	
WH5	#4	STR.	14	22'-10" (AVG.)	5'-8" TO 39'-11"
WH6	#5	STR.	2	44'-2"	
WL1	#5	BNT.	40	8'-6"	
WL2	#5	BNT.	21	4'-10"	
WL3	#5	BNT.	8	4'-7" (AVG.)	3'-4" TO 5'-10"
WL4	#5	BNT.	16	4'-8" (AVG.)	3'-3" TO 6'-1"
WT1	#4	STR.	41	2'-10"	
WT2	#4	STR.	5	8'-0"	
WT3	#4	STR.	13	5'-9" (AVG.)	3'-7" TO 7'-10"
WT4	#4	STR.	8	2'-7" (AVG.)	1'-4" TO 3'-10"
WT5	#4	STR.	24	5'-9" (AVG.)	3'-6" TO 7'-11"
WT6	#4	STR.	16	2'-8" (AVG.)	1'-3" TO 4'-1"
WV1	#5	STR.	4	8'-0"	
WV2	#5	STR.	13	5'-9" (AVG.)	3'-7" TO 7'-10"
WV3	#5	STR.	24	5'-9" (AVG.)	3'-6" TO 7'-11"
U1	#4	BNT.	2	2'-6"	

HEADWALL BAR LIST					
ONE HEADWALL SHOWN					
MARK	SIZE	FORM	QTY.	LENGTH	REMARKS
CH	#4	STR.	4	10'-3"	
CL1	#4	BNT.	11	4'-4"	
CL2	#4	BNT.	11	4'-3"	
HD	#6	STR.	2	10'-3"	



② HEADWALL DETAIL AT MIDSPAN  
DIMENSION SHOWN NORMAL TO HEADWALL

- NOTES:**
- ① QUANTITY SHOWN REPRESENTS TWO SETS.
  - ② FOR FURTHER INFORMATION REGARDING END SECTION BARS A, B, C, E1, AND E2, REFER TO RCB DETAILS SHEET 1 OF 5.

Design	KSJ	6/16	US 169	NOWATA COUNTY
Drawn	WZB	6/16		
Checked	RAH	6/16		
Approved	SAK	6/16		
Squad	BENHAM			

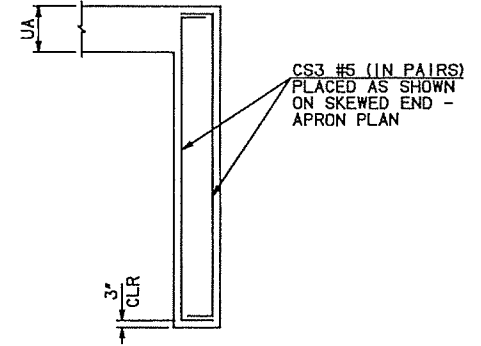
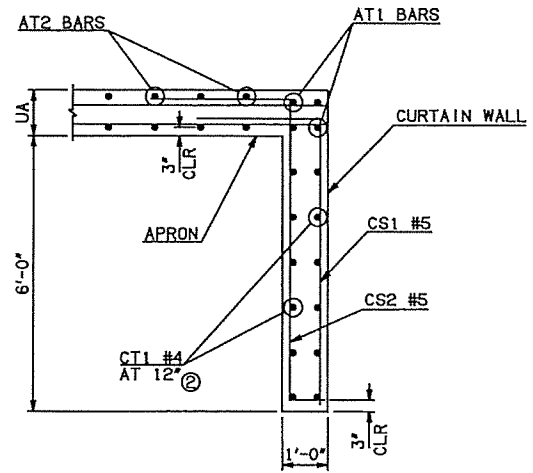
RCB EXTENSION  
**7'X6' RCB DETAILS**  
(SHEET 5 OF 6)

Job Piece No. 27092(04) Sheet No. 90

0001 DIVISION	STATE	J/P PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
8	OKLA	27092(04)		91	143

SECTION ① DIMENSIONS			CURTAIN WALL REINFORCING STEEL									
S	H	UA	CS1-#5 AT 6" MAX		CS2-#5 AT 6" MAX		CS3-#5 BARS			CT1-#4 AT 12"		
QTY	LENGTH	QTY	*M*	LENGTH	QTY	*M*	LENGTH	QTY	*M*	LENGTH	QTY	LENGTH
84	7'-9"	84	6'-3"	8'-8"	4	6'-3"	7'-7"	12	44'-9"			

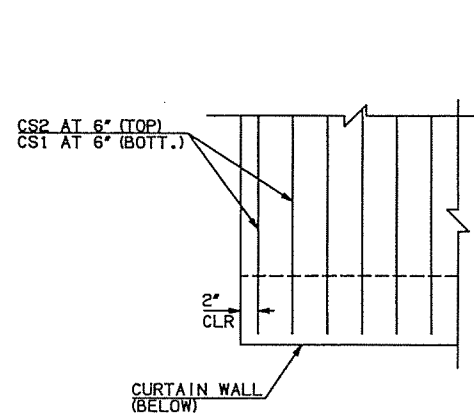
CURTAIN WALL QUANTITIES	
CONC. (C.Y.)	REINF. (LB.)
10.10	1620.00



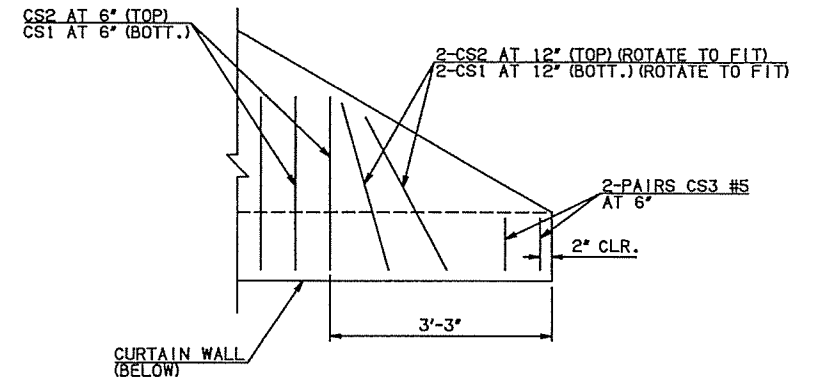
CURTAIN WALL DETAIL

CURTAIN WALL END DETAIL

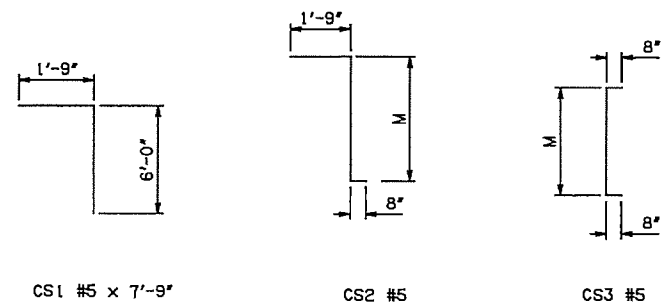
- NOTE: ① SEE RCB DETAILS SHEET 1 OF 5 FOR ADDITIONAL INFORMATION  
 ② NUMBER & SPACING OF CT1 BARS SHOWN IN DETAIL MAY NOT BE REPRESENTATIVE OF ACTUAL CURTAIN WALL SECTION. SEE SCHEDULE FOR NUMBER AND SPACING OF CT1 BARS.  
 ③ INCLUDES 2'-6" LAPS  
 ④ INCLUDES TWO 2'-6" LAPS



CURTAIN WALL AT STRAIGHT END-APRON PLAN



CURTAIN WALL AT SKEWED END-APRON PLAN



Design	KSJ	6/16	US 169	NOWATA COUNTY
Drawn	WZB	6/16		
Checked	RAH	6/16		
Approved	SAK	6/16		
Squad	BENHAM			

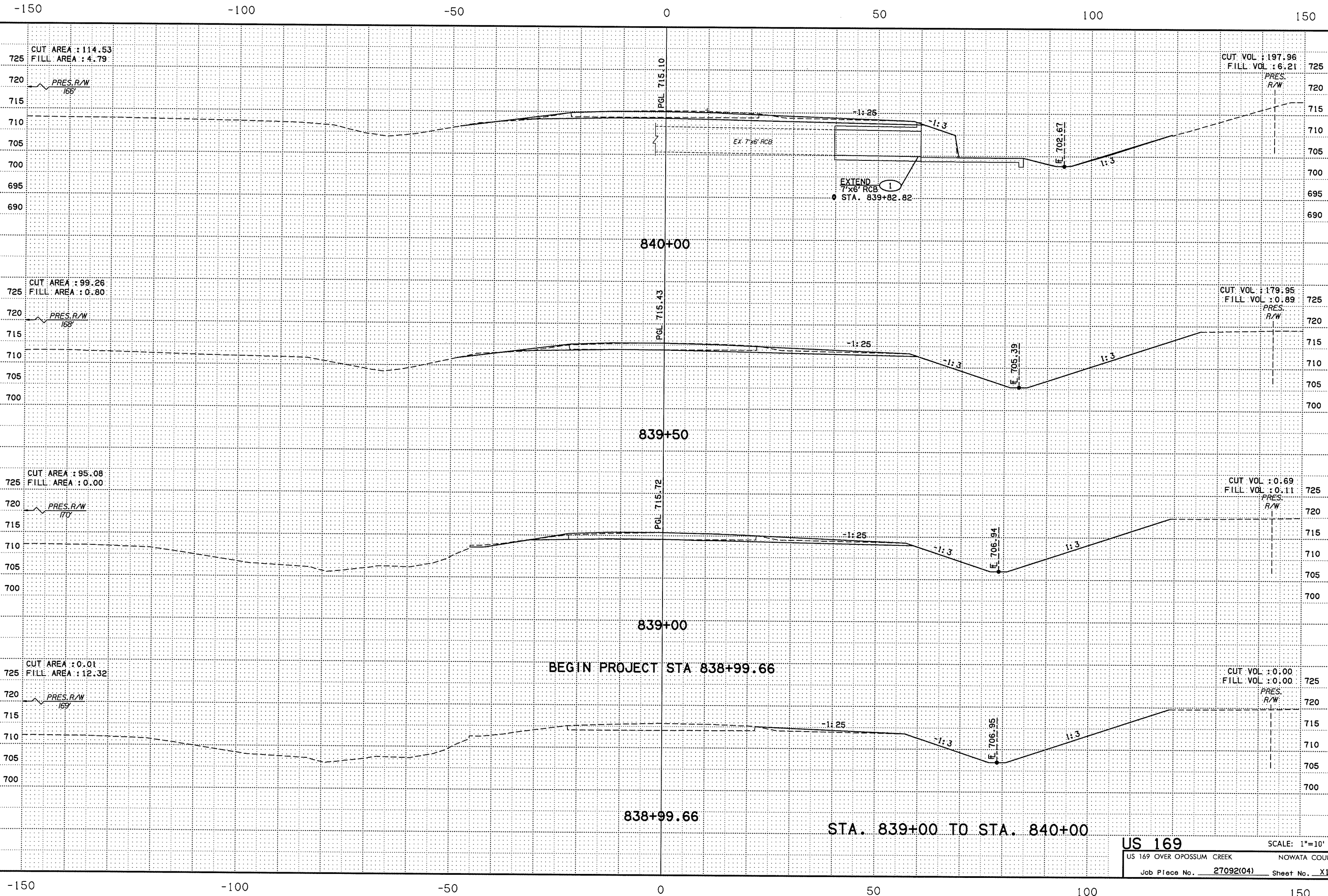
**RCB EXTENSION  
7'X6' RCB DETAILS  
(SHEET 6 OF 6)**

Job Piece No. 27092(04) Sheet No. 91

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7/12/2016



BEGIN PROJECT STA 838+99.66

STA. 839+00 TO STA. 840+00

**US 169**  
 US 169 OVER OPOSSUM CREEK  
 NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X1

SCALE: 1"=10'

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7/12/2016

-150 -100 -50 0 50 100 150

CUT AREA : 253.73  
FILL AREA : 0.60

PRES. R/W  
15'

CUT VOL : 438.50  
FILL VOL : 1.14

PRES. R/W

CUT AREA : 219.84  
FILL AREA : 0.43

PRES. R/W  
16'

CUT VOL : 342.63  
FILL VOL : 0.86

PRES. R/W

CUT AREA : 150.20  
FILL AREA : 0.34

PRES. R/W  
16'

CUT VOL : 245.12  
FILL VOL : 5.70

PRES. R/W

841+50

841+00

840+50

STA. 840+50 TO STA. 841+50

**US 169** SCALE: 1"=10'

US 169 OVER OPOSSUM CREEK NOWATA COUNTY

Job Piece No. 27092(04) Sheet No. X2

-150 -100 -50 0 50 100 150



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7/12/2016  
8:32:29 AM

-150                      -100                      -50                      0                      50                      100                      150

PRES. & RR  
R/W  
CUT AREA : 521.94  
FILL AREA : 0.00

CUT VOL : 884.40  
FILL VOL : 0.00

CUT AREA : 433.21  
FILL AREA : 0.00

CUT VOL : 750.31  
FILL VOL : 0.00

CUT AREA : 377.13  
FILL AREA : 0.00

CUT VOL : 584.13  
FILL VOL : 0.67

E 708.67

E 709.03

E 709.47

PGL 712.64

PGL 713.01

PGL 713.45

843+00

842+50

842+00

STA. 842+00 TO STA. 843+00

**US 169**  
US 169 OVER OPOSSUM CREEK                      NOWATA COUNTY  
Job Piece No. 27092(04)                      Sheet No. X3

SCALE: 1"=10'

-150                      -100                      -50                      0                      50                      100                      150



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-150 -100 -50 0 50 100 150

CUT AREA : 693.83  
FILL AREA : 0.00  
PRES. & RR  
R/W

CUT VOL : 1216.48  
FILL VOL : 0.00  
PRES. R/W  
156'

CUT AREA : 619.97  
FILL AREA : 0.00  
PRES. & RR  
R/W

CUT VOL : 1083.92  
FILL VOL : 0.00  
PRES. R/W  
153'

CUT AREA : 550.66  
FILL AREA : 0.00  
PRES. & RR  
R/W

CUT VOL : 993.15  
FILL VOL : 0.00  
PRES. R/W

844+50

844+00

843+50

STA. 843+50 TO STA. 844+50

<b>US 169</b>		SCALE: 1"=10'
US 169 OVER OPOSSUM CREEK		NOWATA COUNTY
Job Piece No. 27092(04)	Sheet No. X4	

-150 -100 -50 0 50 100 150

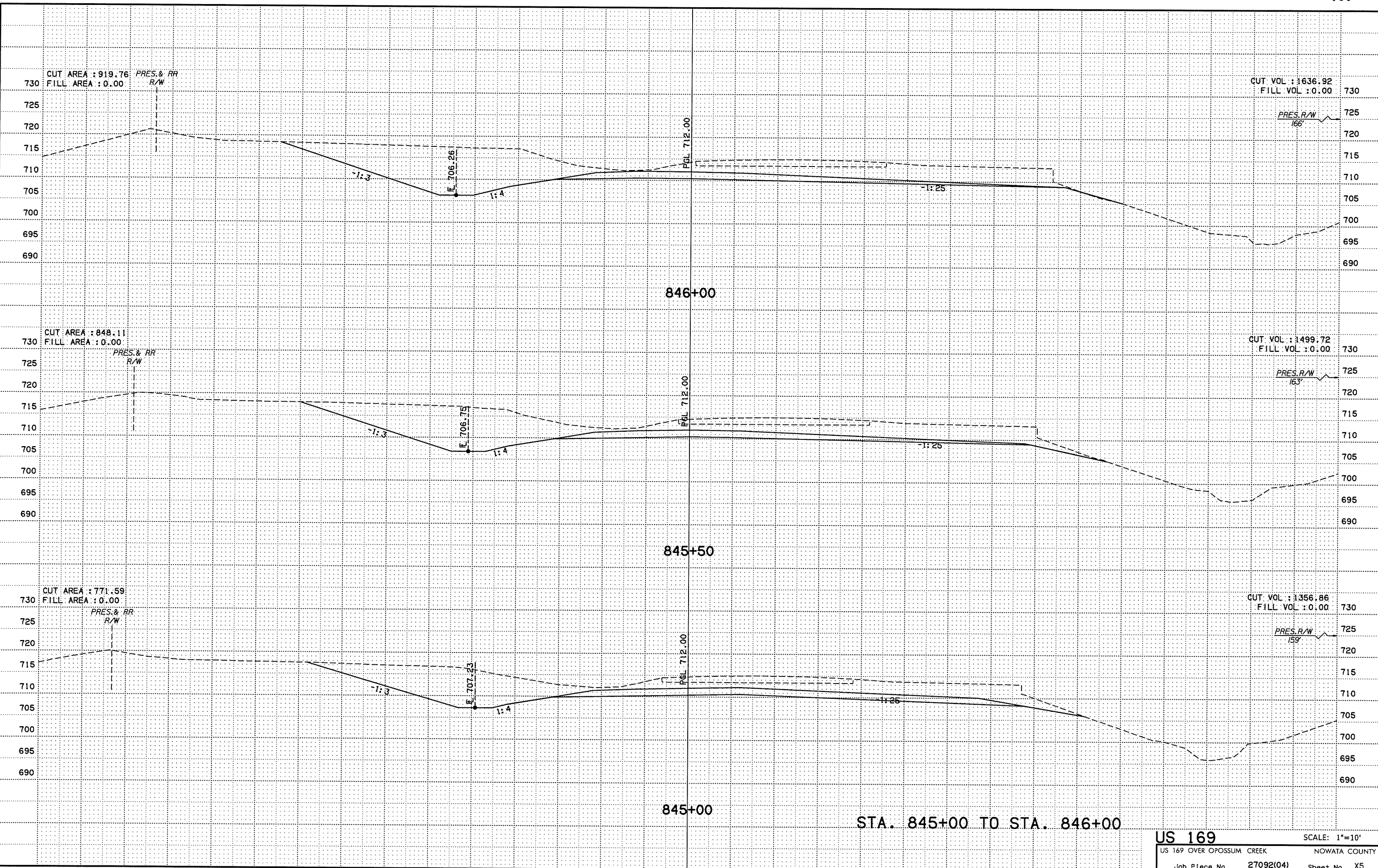
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7/12/2016

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-150 -100 -50 0 50 100 150



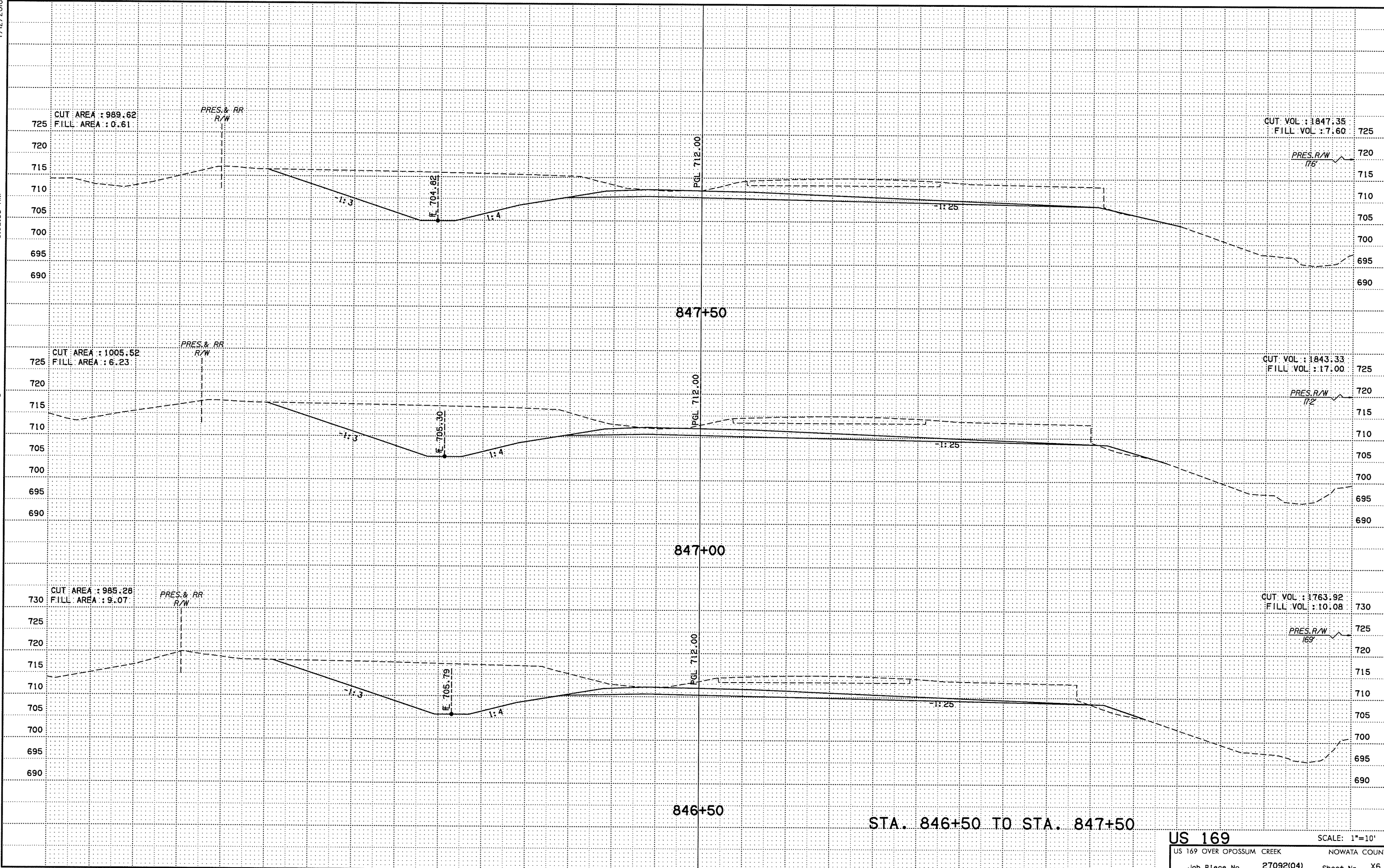
STA. 845+00 TO STA. 846+00

**US 169** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X5

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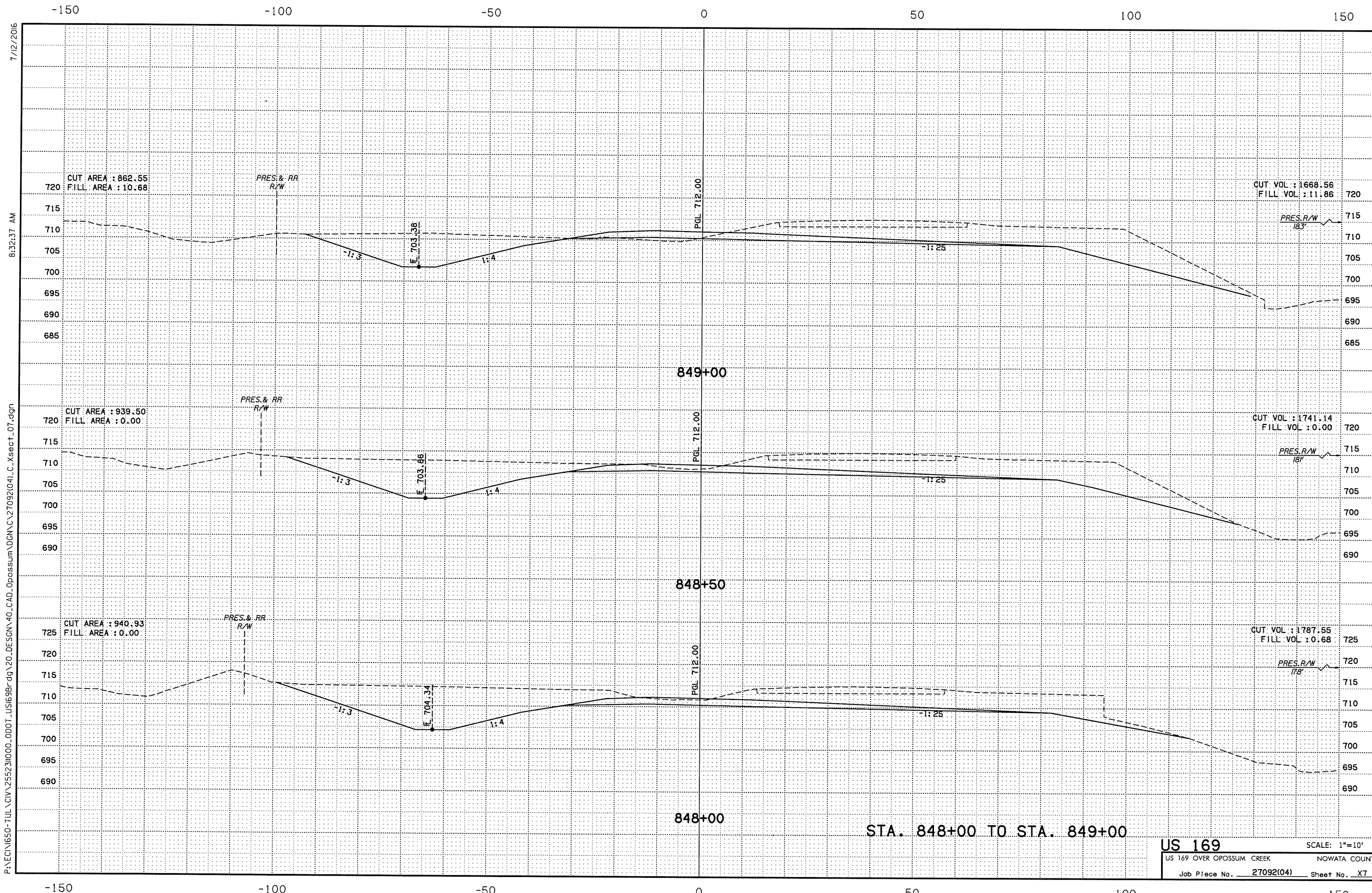
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-150                      -100                      -50                      0                      50                      100                      150

STA. 846+50 TO STA. 847+50

**US 169** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X6



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STA. 848+00 TO STA. 849+00

<b>US 169</b>		SCALE: 1"=10'
US 169 OVER OPOSSUM CREEK		NOWATA COUNTY
Job Piece No. 27092(04)	Sheet No. XT	

CUT AREA : 862.55  
FILL AREA : 10.68

CUT VOL : 1668.56  
FILL VOL : 11.86

CUT AREA : 939.50  
FILL AREA : 0.00

CUT VOL : 1741.14  
FILL VOL : 0.00

CUT AREA : 940.93  
FILL AREA : 0.00

CUT VOL : 1787.55  
FILL VOL : 0.68

E 703.98

E 703.86

E 704.34

PGL 712.00

PGL 712.00

PGL 712.00

PRES. & RR  
R/W

PRES. & RR  
R/W

PRES. & RR  
R/W

PRES. R/W  
18.3'

PRES. R/W  
18.3'

PRES. R/W  
17.8'

1:3

1:4

1:25

1:3

1:4

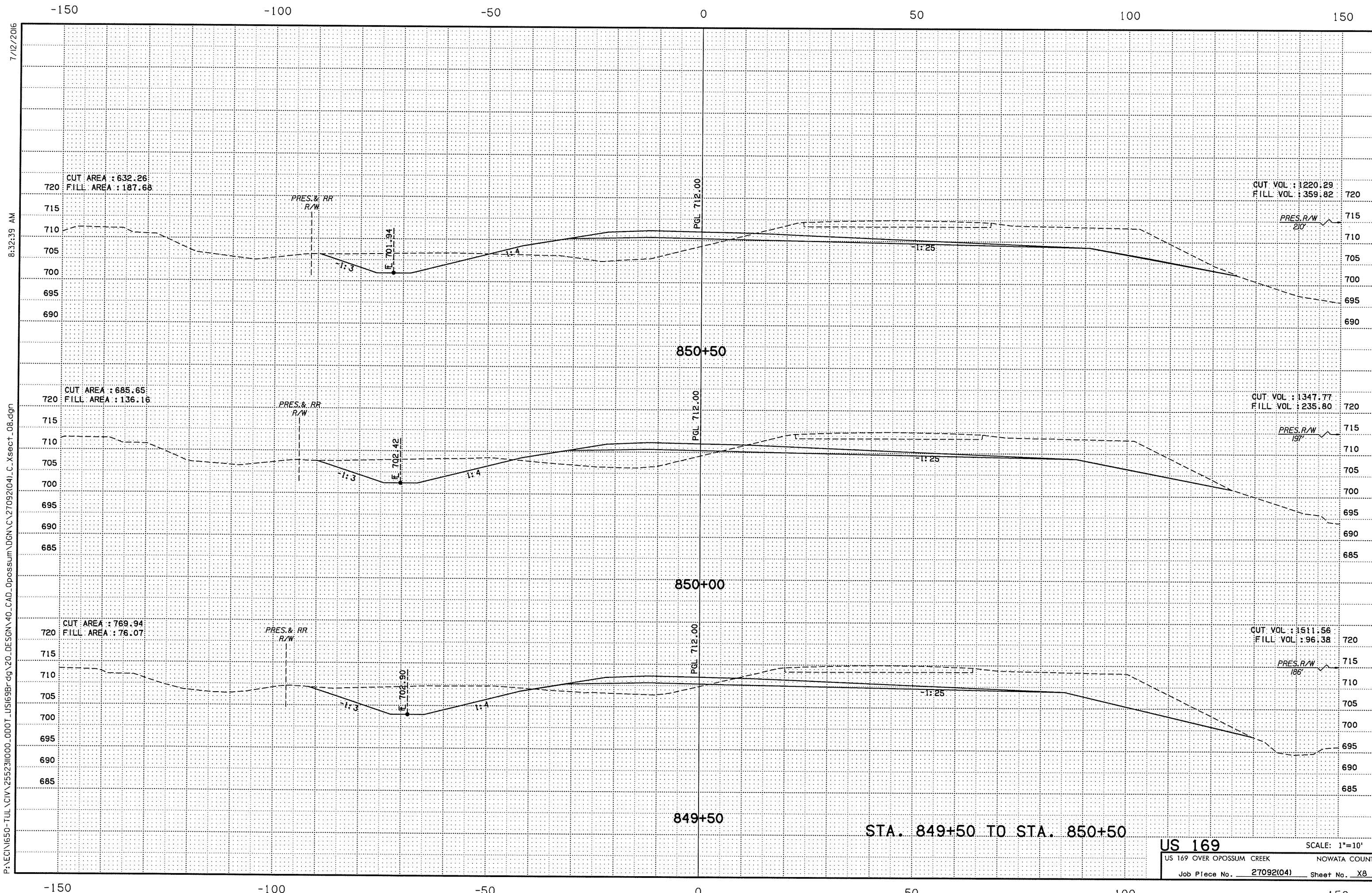
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1:3

1:4

1:25





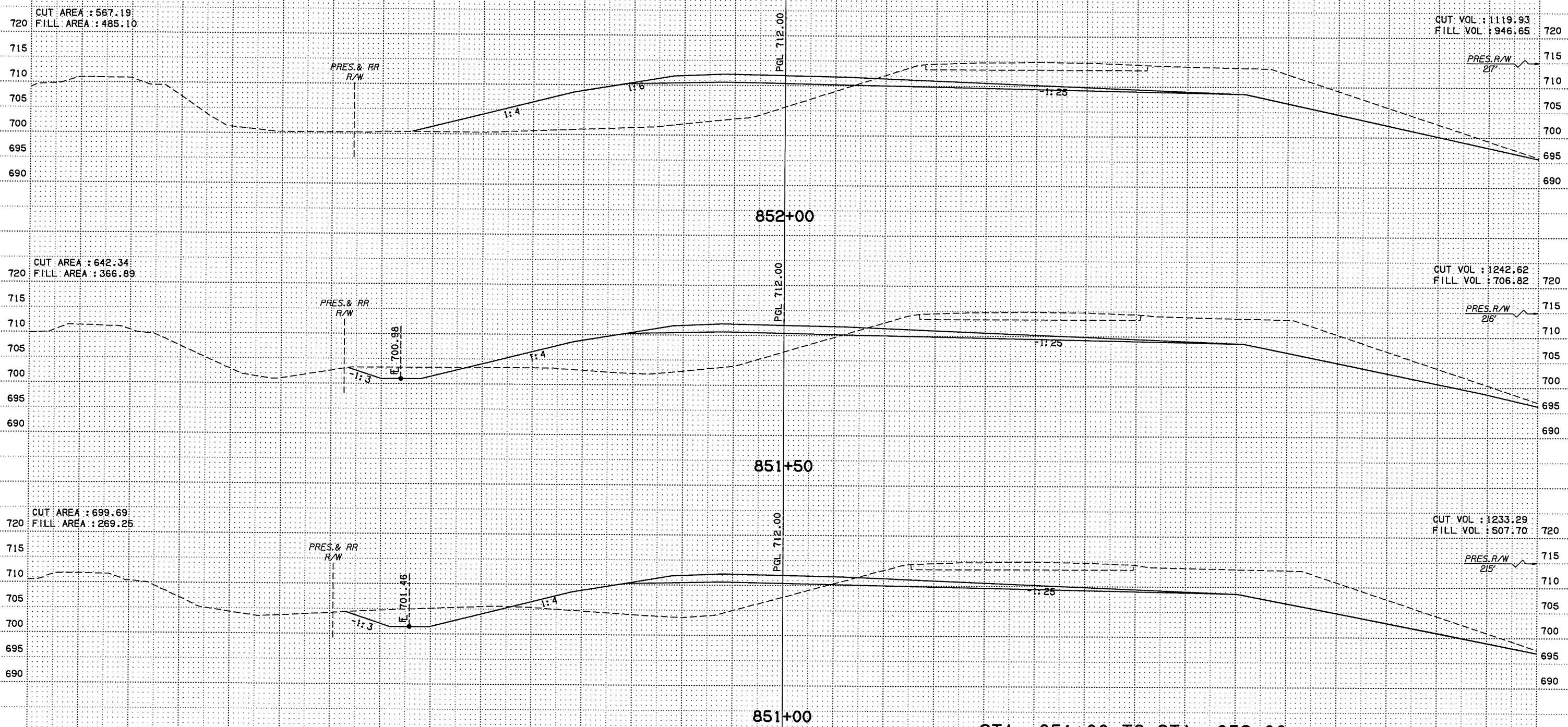
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STA. 849+50 TO STA. 850+50

<b>US 169</b>		SCALE: 1"=10'
US 169 OVER OPOSSUM CREEK		NOWATA COUNTY
Job Piece No. 27092(04)	Sheet No. X8	

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-150 -100 -50 0 50 100 150



STA. 851+00 TO STA. 852+00

**US 169** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X9

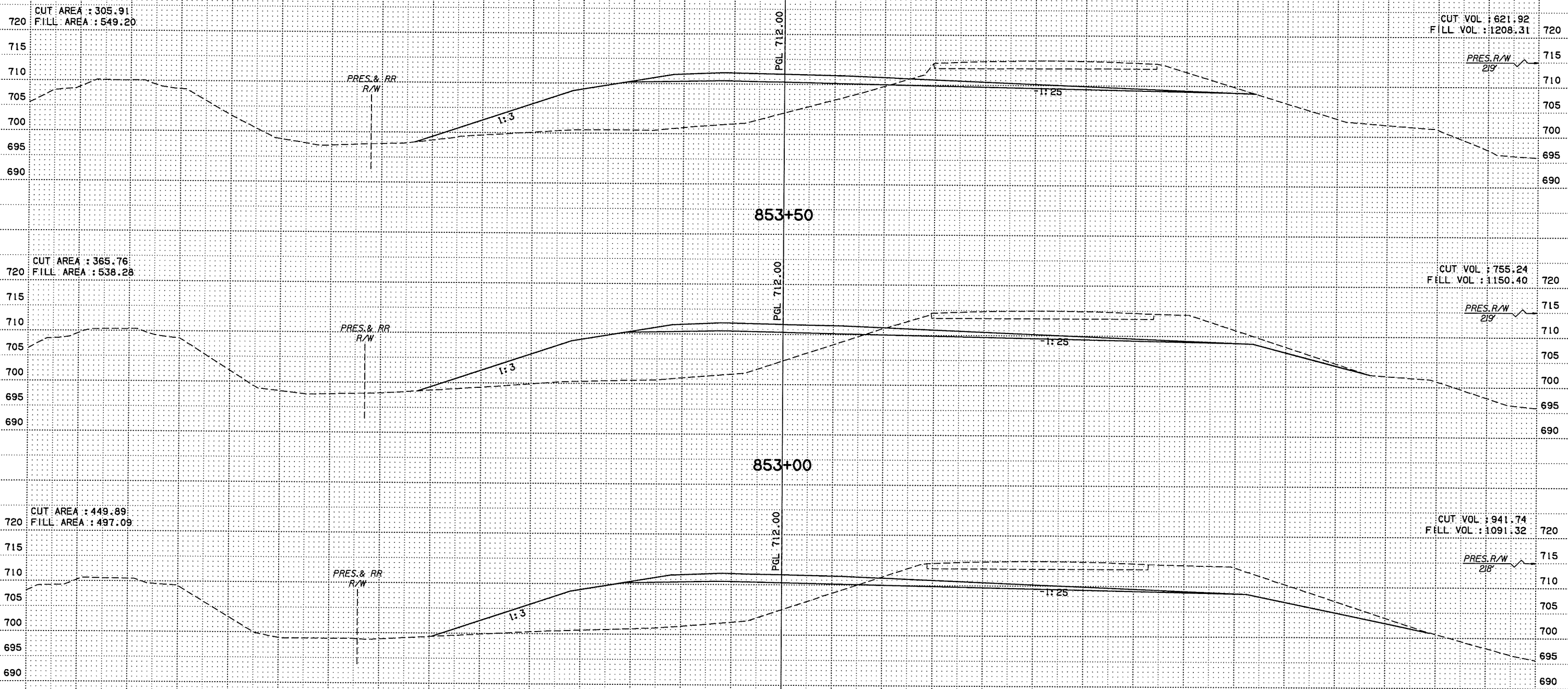
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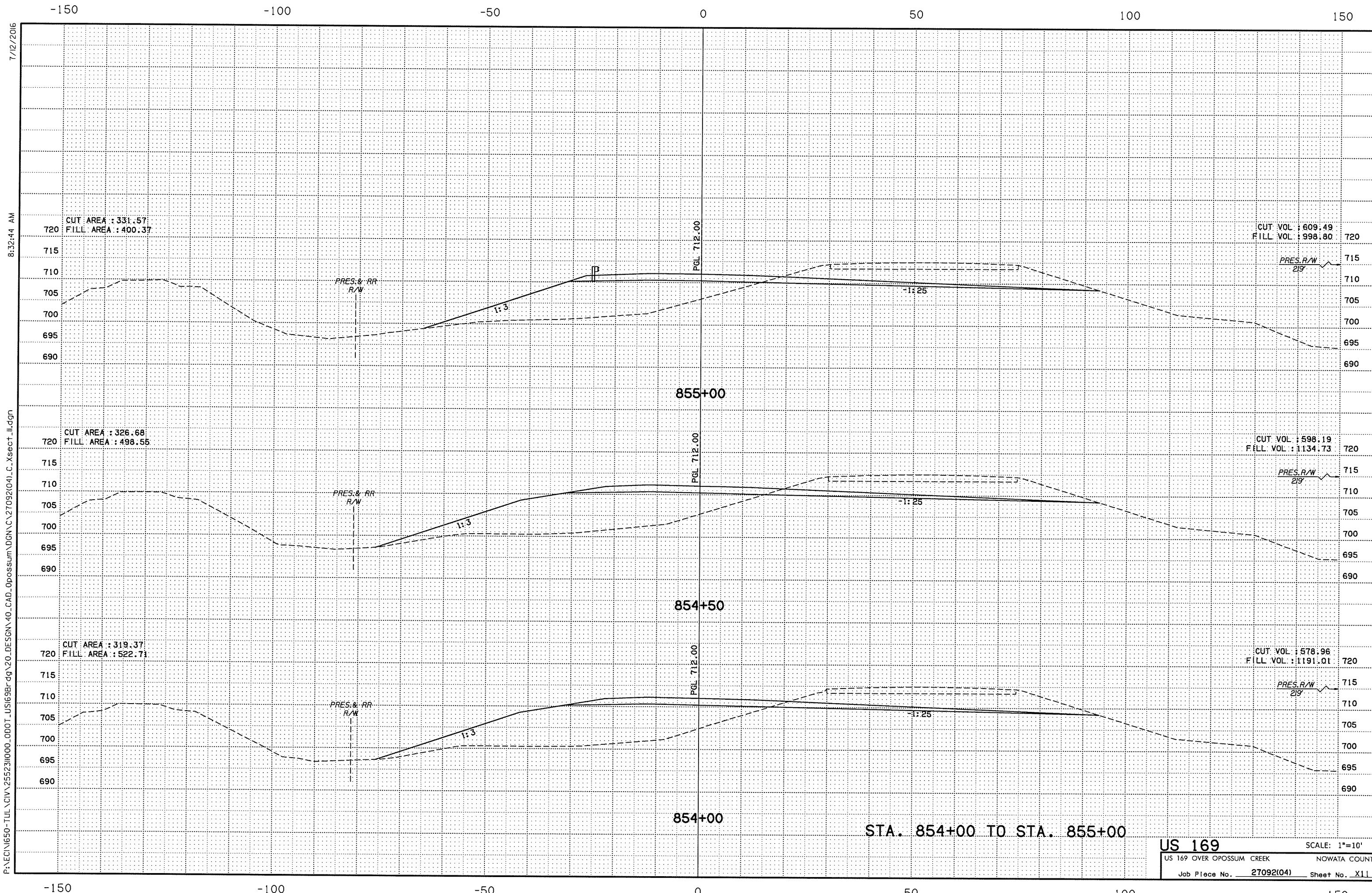


STA. 852+50 TO STA. 853+50

**US 169** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X10

-150 -100 -50 0 50 100 150





-150                      -100                      -50                      0                      50                      100                      150

7/12/2016  
8:32:44 AM

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CUT AREA : 331.57  
FILL AREA : 400.37

CUT VOL : 609.49  
FILL VOL : 998.80

CUT AREA : 326.68  
FILL AREA : 498.55

CUT VOL : 598.19  
FILL VOL : 1134.73

CUT AREA : 319.37  
FILL AREA : 522.71

CUT VOL : 578.96  
FILL VOL : 1191.01

855+00

854+50

854+00

STA. 854+00 TO STA. 855+00

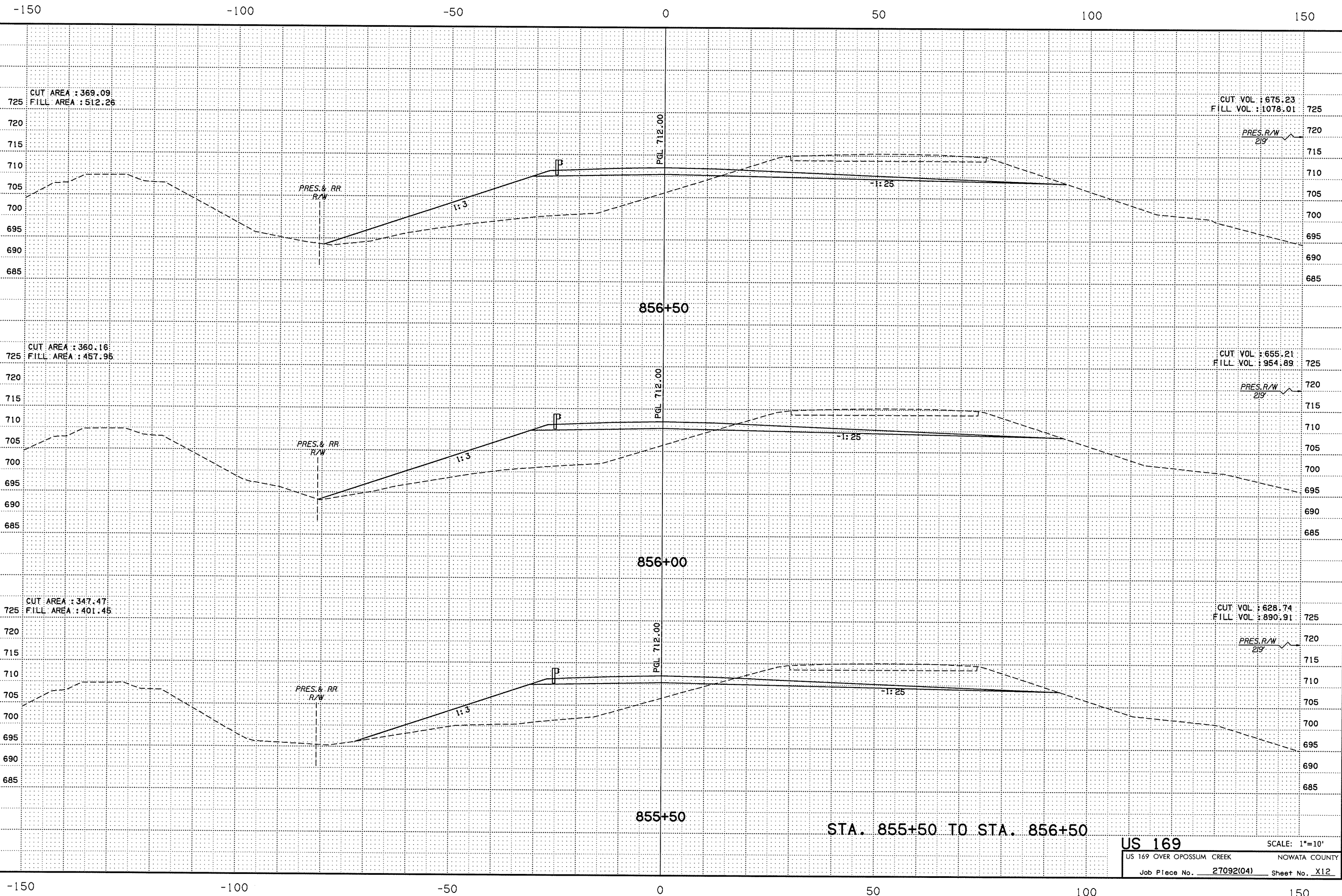
<b>US 169</b>		SCALE: 1"=10'
US 169 OVER OPOSSUM CREEK		NOWATA COUNTY
Job Piece No. 27092(04)	Sheet No. X11	

-150                      -100                      -50                      0                      50                      100                      150

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7/12/2016



CUT AREA : 369.09  
FILL AREA : 512.26

CUT VOL : 675.23  
FILL VOL : 1078.01

CUT AREA : 360.16  
FILL AREA : 457.95

CUT VOL : 655.21  
FILL VOL : 954.89

CUT AREA : 347.47  
FILL AREA : 401.45

CUT VOL : 628.74  
FILL VOL : 890.91

856+50

856+00

855+50

STA. 855+50 TO STA. 856+50

**US 169** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X12

P:\E\1650-TUL\GIV\25523\1000-0001\_US169Br-dg-20\_DESGN\40\_CAD\_Opossum\DGN\C\27092(04)\_C\_Xsect\_13.dgn

8:32:48 AM

7/12/2016

-150 -100 -50 0 50 100 150

CUT AREA : 493.47  
FILL AREA : 450.67

CUT VOL : 879.40  
FILL VOL : 1003.76

CUT AREA : 456.28  
FILL AREA : 452.72

CUT VOL : 805.57  
FILL VOL : 1050.90

CUT AREA : 413.74  
FILL AREA : 493.10

CUT VOL : 724.84  
FILL VOL : 1117.06

858+00

857+50

857+00

STA. 857+00 TO STA. 858+00

PRES. & RR  
R/W

PRES. & RR  
R/W

PRES. & RR  
R/W

1:3

1:3

1:3

-1:25

-1:25

-1:25

PGL 712.00

PGL 712.00

PGL 712.00

PRES. R/W  
219'

PRES. R/W  
219'

PRES. R/W  
219'

US 169  
US 169 OVER OPOSSUM CREEK  
NOWATA COUNTY  
Job Piece No. 27092(04) Sheet No. X13

SCALE: 1"=10'

-150 -100 -50 0 50 100 150

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7/12/2016 8:32:50 AM

-150

-100

-50

0

50

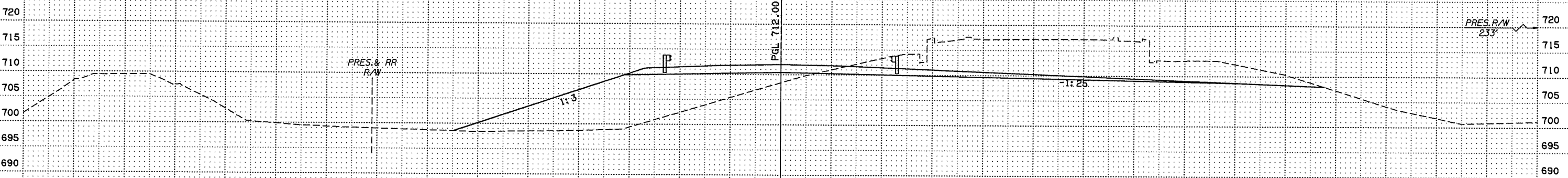
100

150

CUT AREA : 503.37  
FILL AREA : 392.37

BEGIN BRIDGE A STA 859+75.29

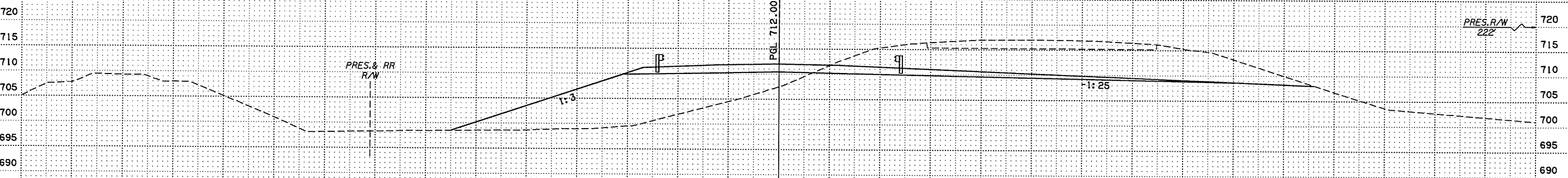
CUT VOL : 983.21  
FILL VOL : 891.22



859+50

CUT AREA : 558.50  
FILL AREA : 409.72

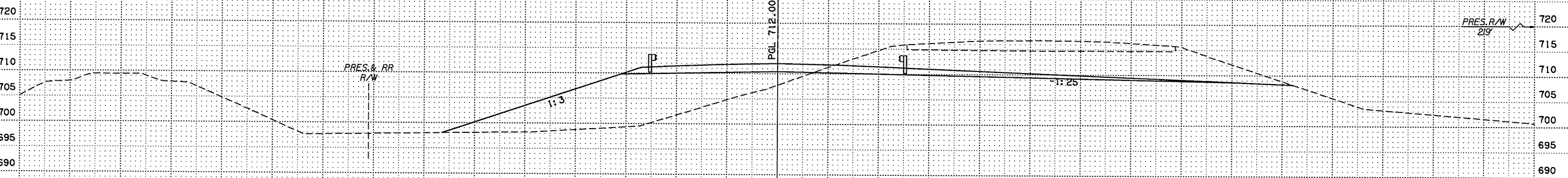
CUT VOL : 997.15  
FILL VOL : 921.49



859+00

CUT AREA : 518.43  
FILL AREA : 419.62

CUT VOL : 936.94  
FILL VOL : 966.98



858+50

STA. 858+50 TO STA. 859+50

**US 169** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X14

-150

-100

-50

0

50

100

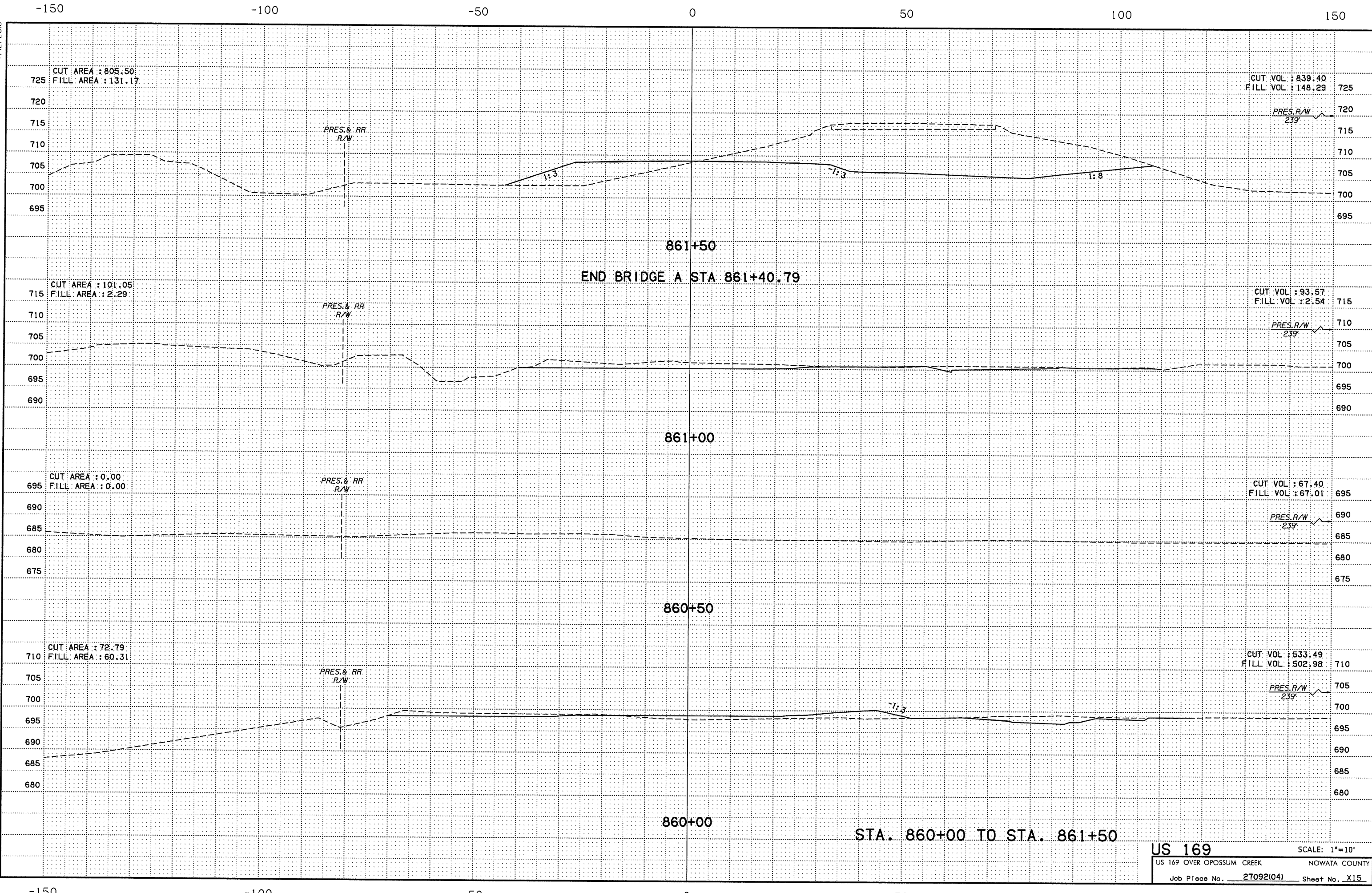
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7/12/2016

8:32:52 AM



-150                      -100                      -50                      0                      50                      100                      150

-150                      -100                      -50                      0                      50                      100                      150

STA. 860+00 TO STA. 861+50

**US 169**                      SCALE: 1"=10'

US 169 OVER OPOSSUM CREEK                      NOWATA COUNTY

Job Piece No. 27092(04)                      Sheet No. X15

P:\NEON1650-TUL\CIV\255231000\_0001\_US169Br-dg\20\_DESGN\40\_CAD\_Opossum\DCN\C\27092(04)\_C\_Xsect\_16.dgn

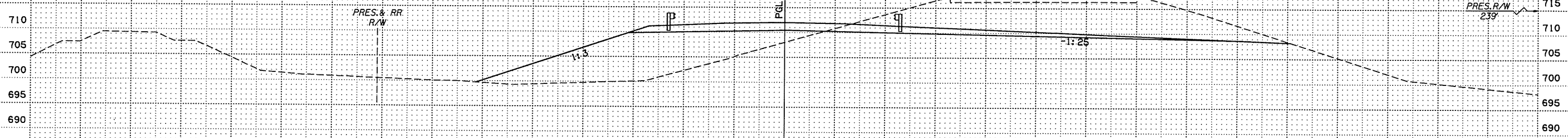
7/12/2016  
8:32:54 AM

-150                      -100                      -50                      0                      50                      100                      150

CUT AREA : 524.48  
FILL AREA : 366.64

BEGIN BRIDGE B STA 863+26.50

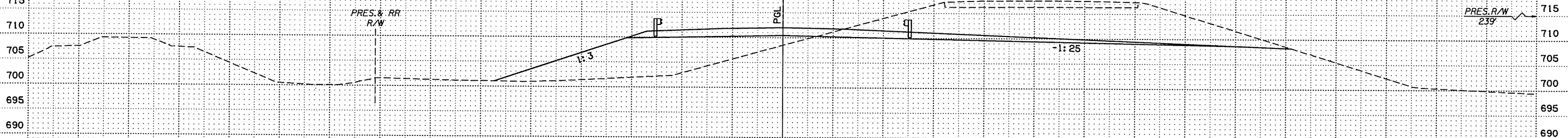
CUT VOL : 982.59  
FILL VOL : 732.29



863+00

CUT AREA : 536.72  
FILL AREA : 292.42

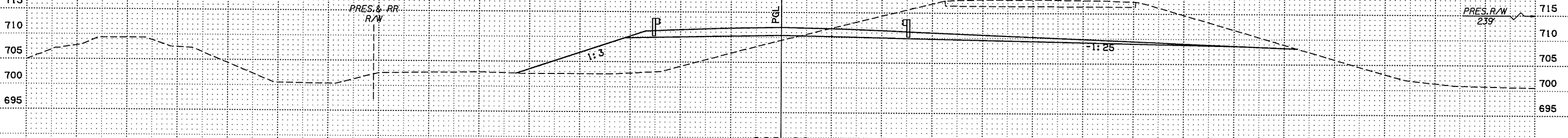
CUT VOL : 1012.71  
FILL VOL : 572.59



862+50

CUT AREA : 557.01  
FILL AREA : 222.91

CUT VOL : 1261.59  
FILL VOL : 393.43



862+00

STA. 862+00 TO STA. 863+00

**US 169**  
 US 169 OVER OPOSSUM CREEK                      NOWATA COUNTY  
 Job Piece No. 27092(04)                      Sheet No. X16

SCALE: 1"=10'

-150                      -100                      -50                      0                      50                      100                      150

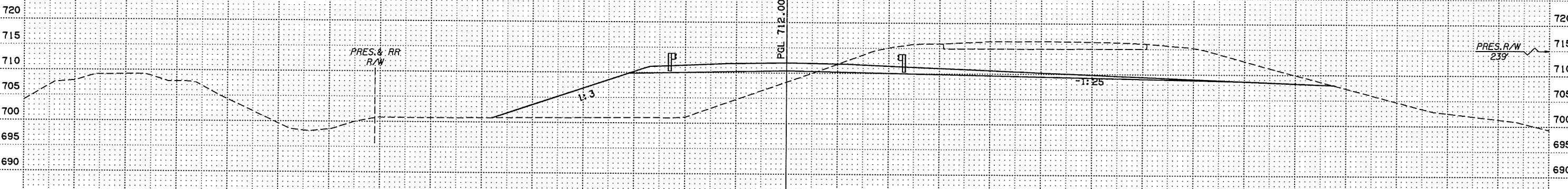
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8:32:56 AM

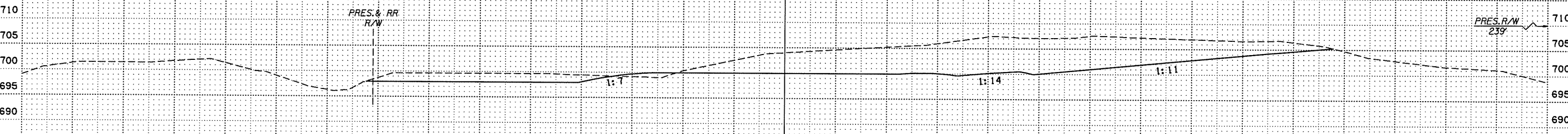
7/12/2016

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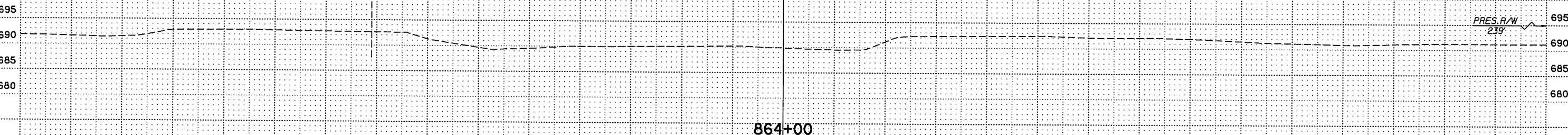
CUT AREA : 525.79  
FILL AREA : 333.95  
CUT VOL : 1085.03  
FILL VOL : 378.73



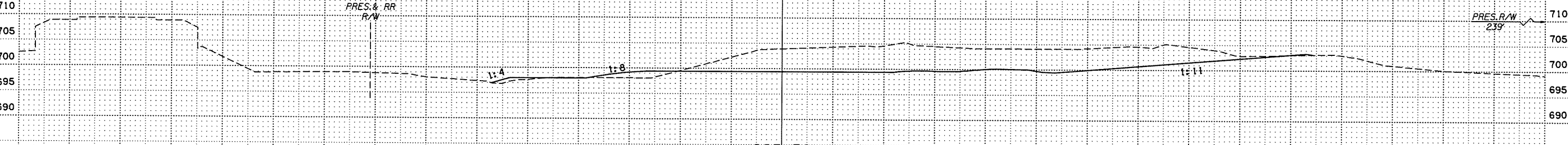
CUT AREA : 646.04  
FILL AREA : 6.91  
CUT VOL : 598.19  
FILL VOL : 7.68



CUT AREA : 0.00  
FILL AREA : 0.00  
CUT VOL : 401.66  
FILL VOL : 20.87



CUT AREA : 433.79  
FILL AREA : 18.79  
CUT VOL : 887.28  
FILL VOL : 428.25



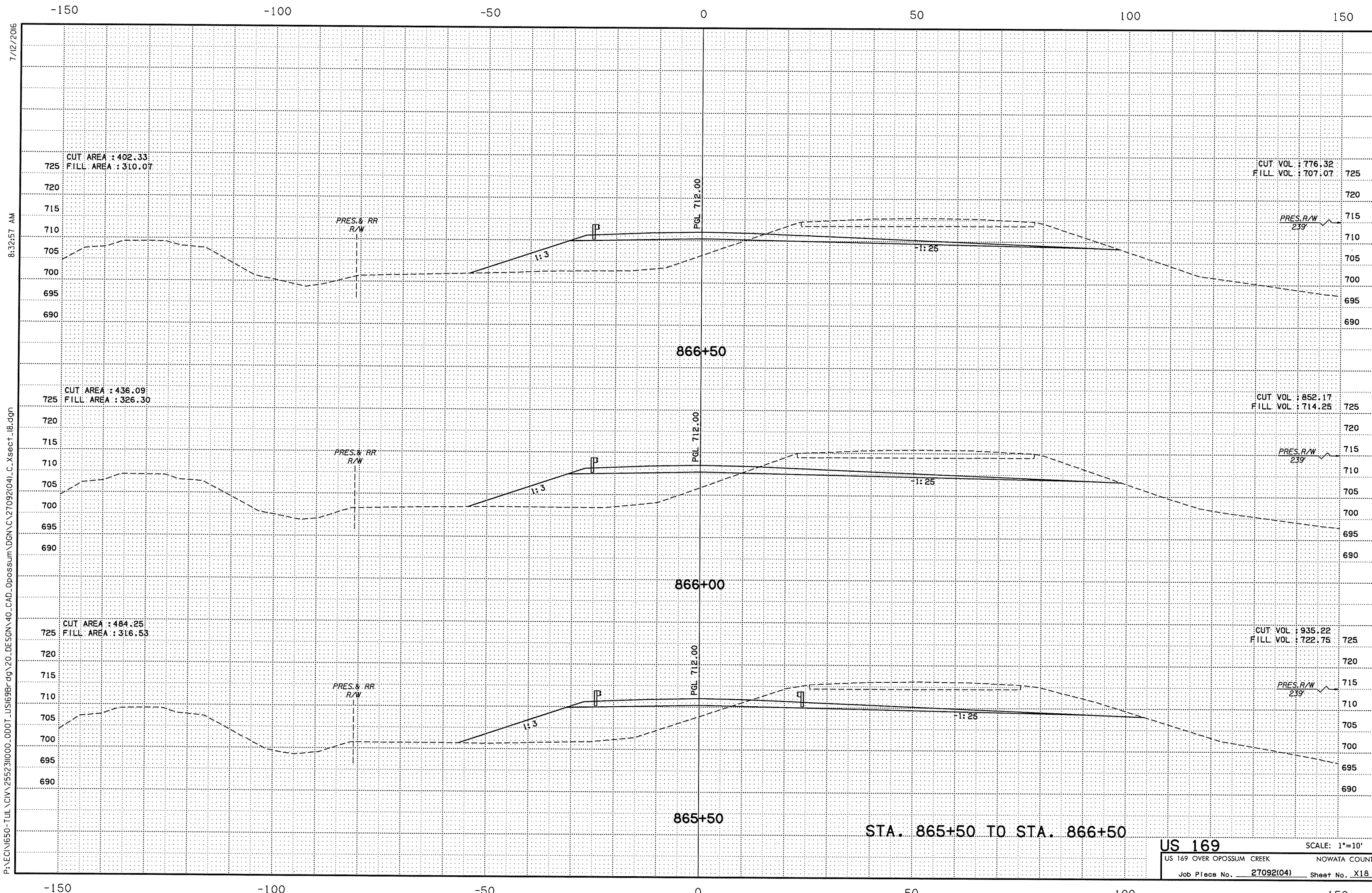
STA. 863+50 TO STA. 865+00

**US 169**  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Place No. 27092(04) Sheet No. X17

SCALE: 1"=10'

-150 -100 -50 0 50 100 150





7/12/2016  
 8:32:57 AM  
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STA. 865+50 TO STA. 866+50

<b>US 169</b>		SCALE: 1"=10'
US 169 OVER OPOSSUM CREEK		NOWATA COUNTY
Job Piece No. 27092(04)	Sheet No. X18	

P:\ECl\1650-TUL\CIW\255231000\_0001\_US169BR.dgn\20\_DESIGN\40\_CAD\_Opossum\DCN\C\27092(04)\_C\_Xsect\_19.dgn

7/12/2016

8:32:59 AM

-150 -100 -50 0 50 100 150

CUT AREA : 332.42  
FILL AREA : 335.62

CUT VOL : 627.69  
FILL VOL : 746.20

CUT AREA : 345.49  
FILL AREA : 335.96

CUT VOL : 657.97  
FILL VOL : 710.04

CUT AREA : 365.12  
FILL AREA : 303.08

CUT VOL : 710.61  
FILL VOL : 681.28

PRES. & RR  
R/W

PRES. & RR  
R/W

PRES. & RR  
R/W

1:3

1:3

1:3

1:25

1:25

1:25

PGL 712.00

PGL 712.00

PGL 712.00

868+00

867+50

867+00

STA. 867+00 TO STA. 868+00

**US 169** SCALE: 1"=10'

US 169 OVER OPOSSUM CREEK NOWATA COUNTY

Job Piece No. 27092(04) Sheet No. X19

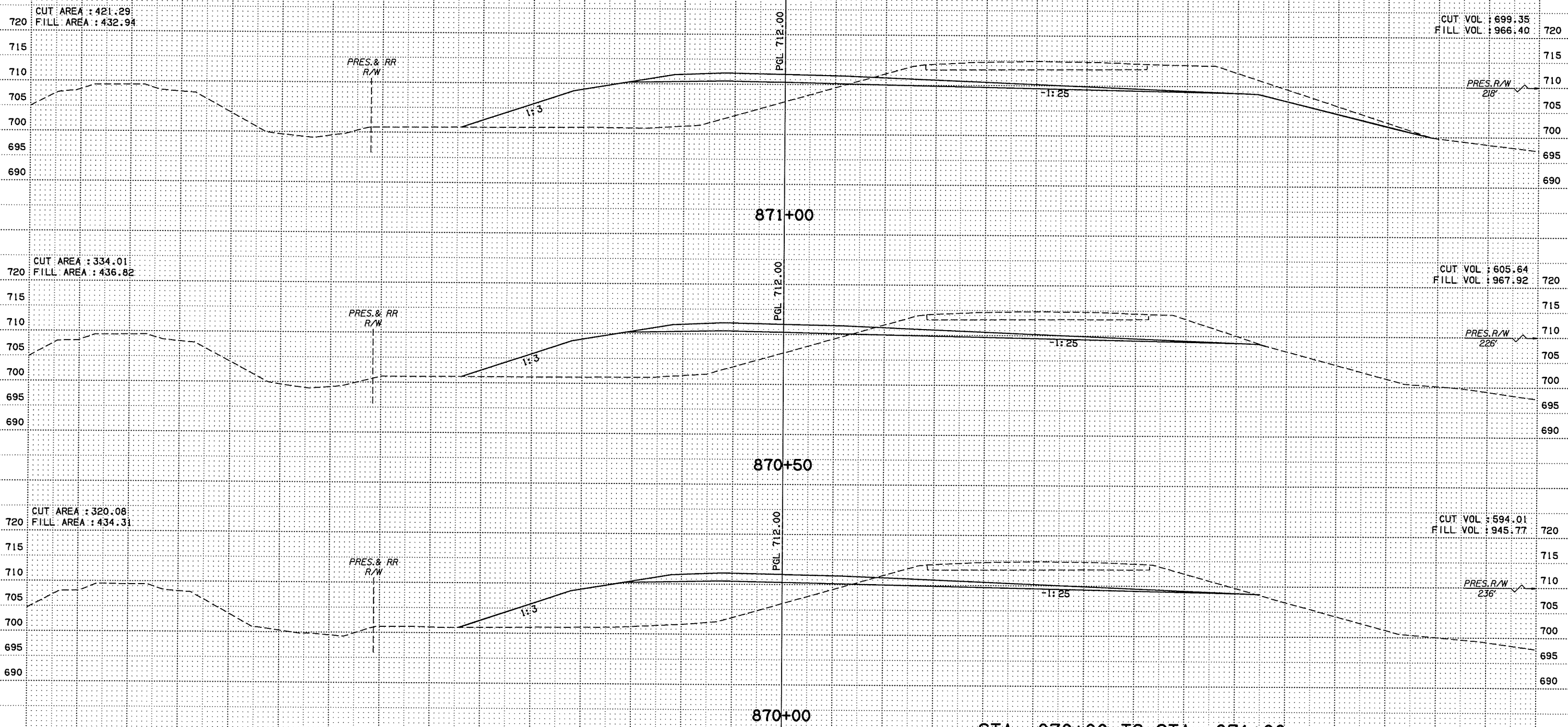
-150 -100 -50 0 50 100 150



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7/12/2016  
8:33:03 AM

-150                      -100                      -50                      0                      50                      100                      150



STA. 870+00 TO STA. 871+00

**US 169**  
 US 169 OVER OPOSSUM CREEK      NOWATA COUNTY  
 Job Piece No. 27092(04)      Sheet No. X21

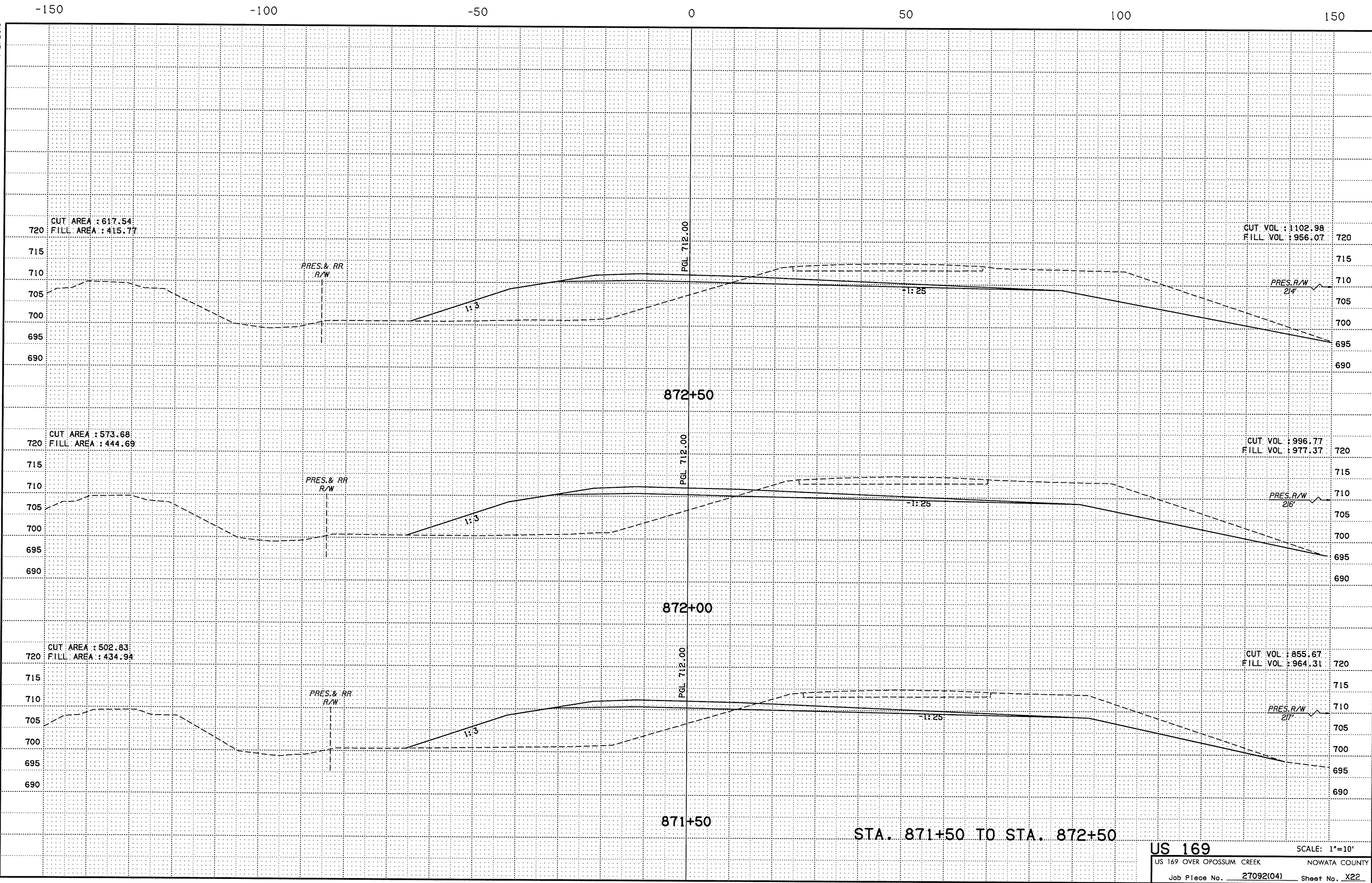
SCALE: 1"=10'

-150                      -100                      -50                      0                      50                      100                      150



P:\ECON\650-TUL\CIV\255231000\_0001\_US169Br.dgn 20\_DESGN\40\_CAD\_Opossum\DCN\C\27092(04)\_C\_Xsect\_22.dgn

7/12/2016  
8:33:05 AM



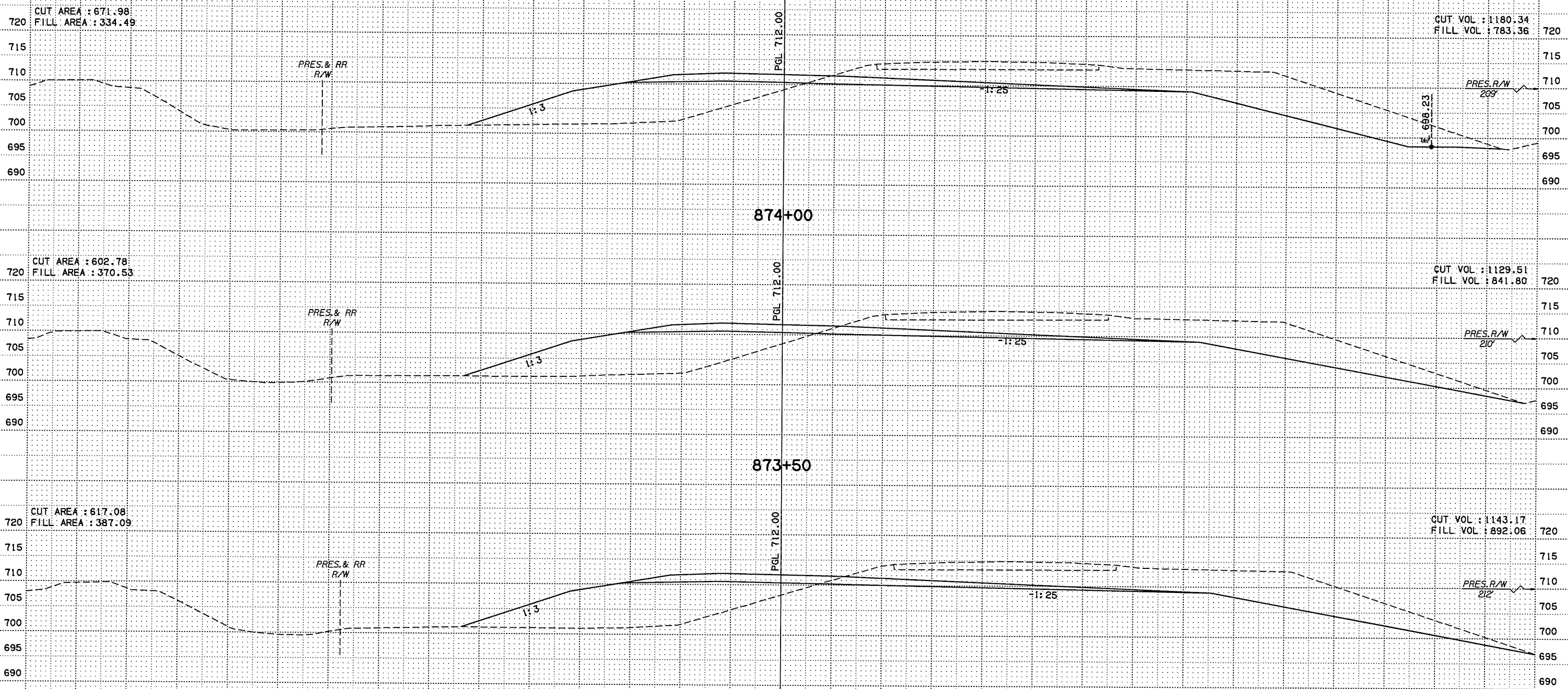
STA. 871+50 TO STA. 872+50

**US 169** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X22

P:\NECIN1650-TUL\CVI\255231000\_0001\_US169Br-dg\20\_DESGN\40\_CAD\_Opossum\DCN\CVI\27092(04)\_C\_Xsect\_23.dgn

7/12/2016  
8:33:07 AM

-150                      -100                      -50                      0                      50                      100                      150



STA. 873+00 TO STA. 874+00

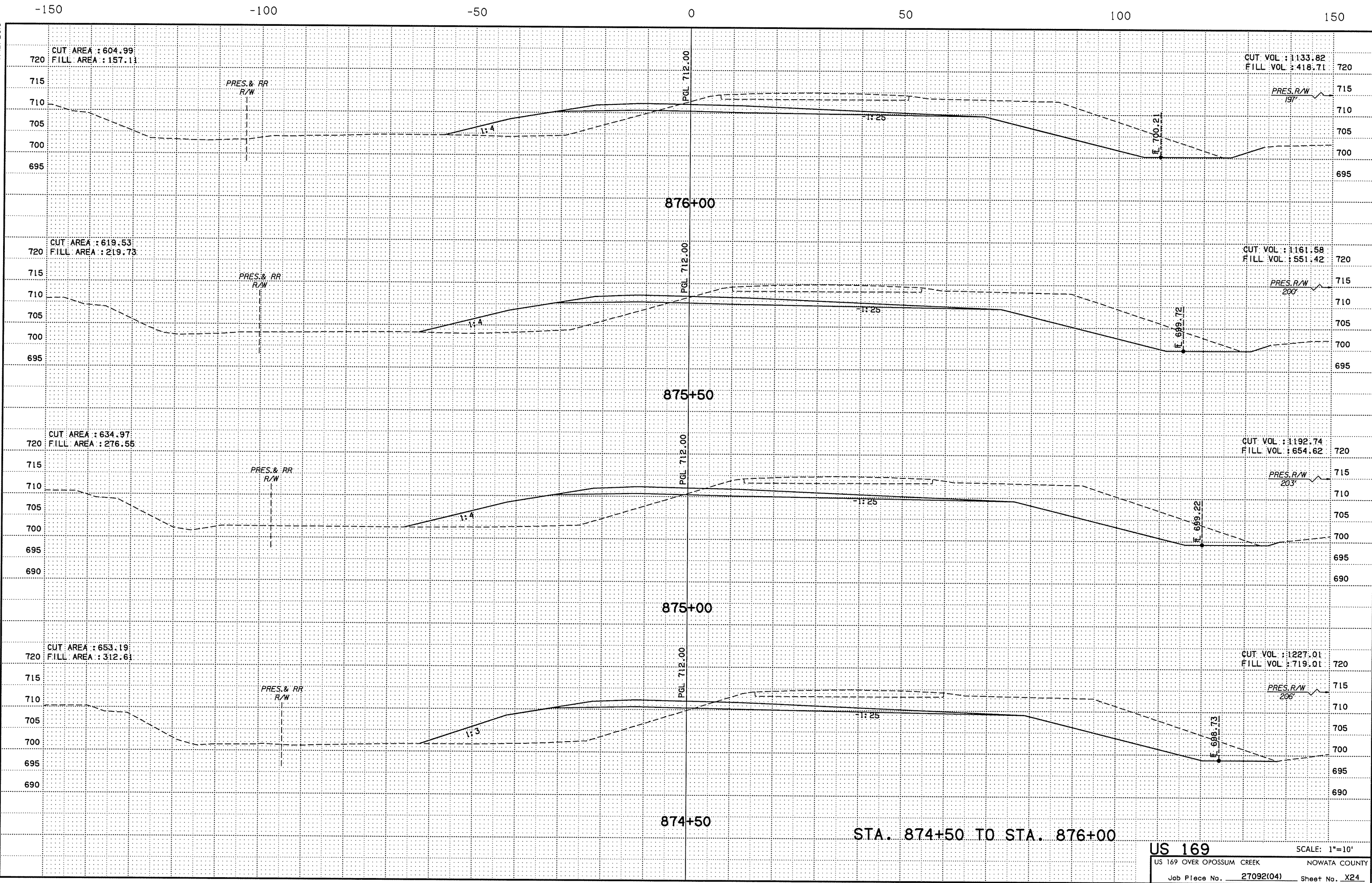
**US 169**                      SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK                      NOWATA COUNTY  
 Job Piece No. 27092(04)                      Sheet No. X23

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8:33:09 AM

7/12/2016



STA. 874+50 TO STA. 876+00

**US 169** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X24

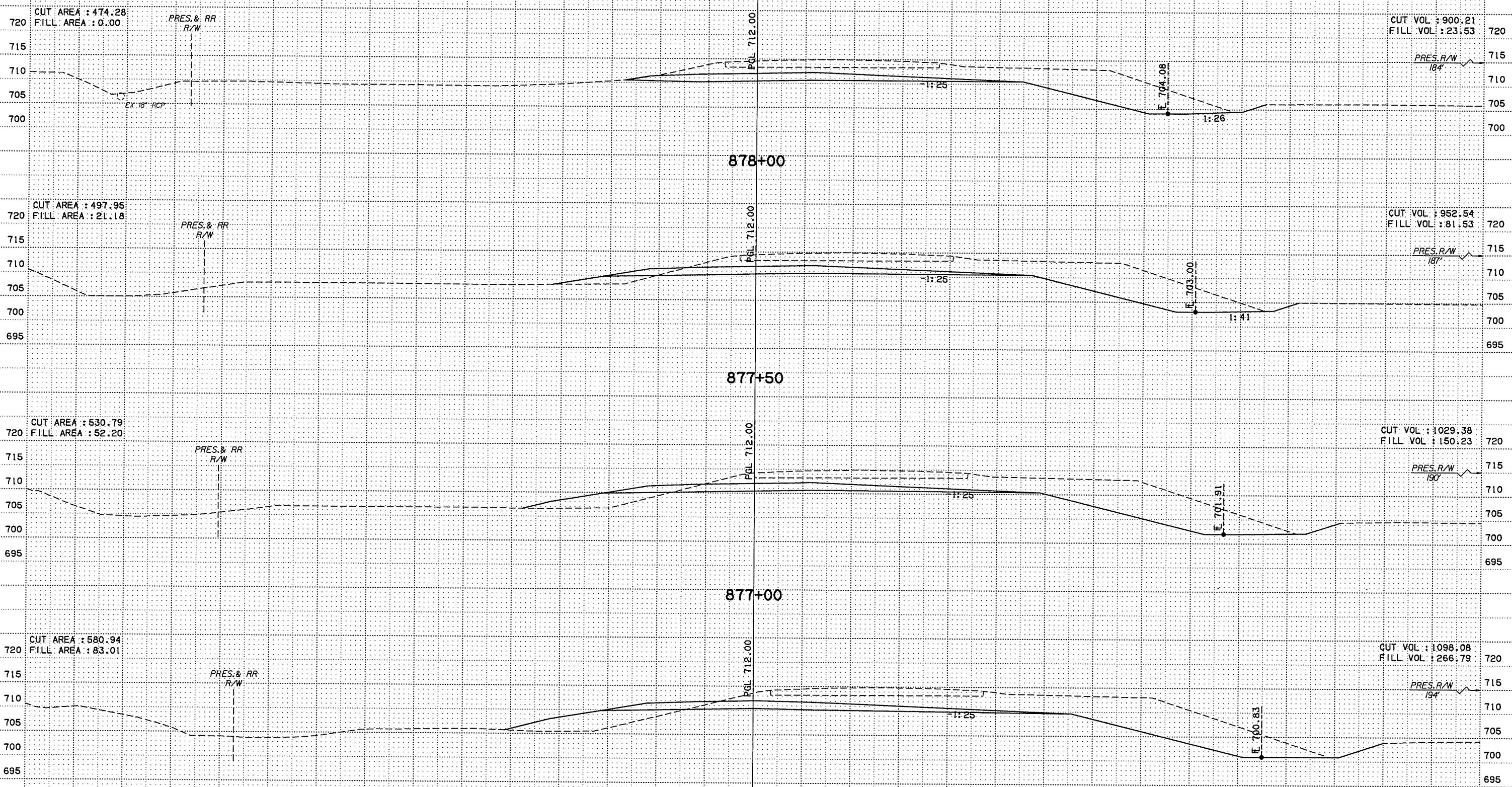


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8:33:11 AM

7/12/2016

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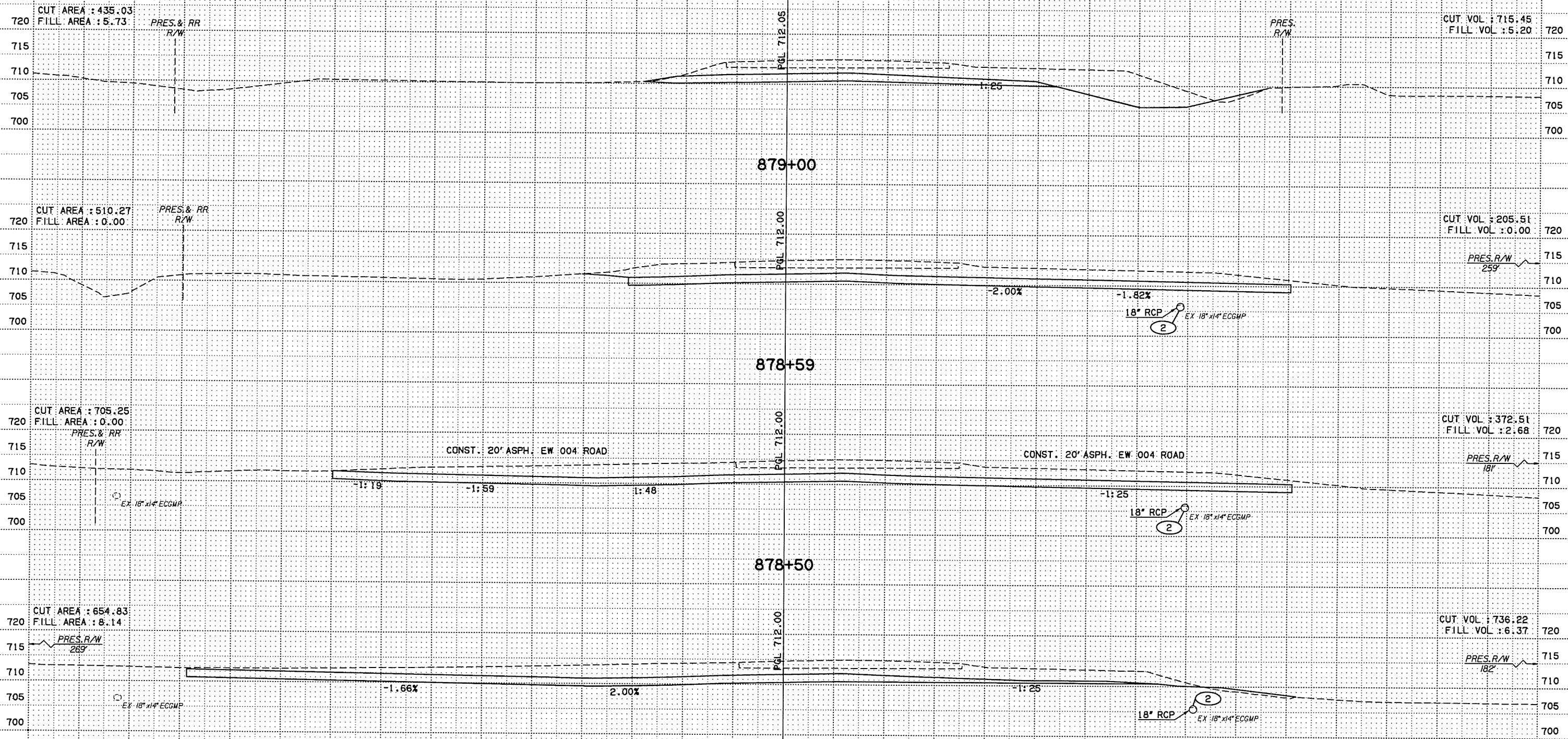
STA. 876+50 TO STA. 878+00

**US 169** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X25

-150 -100 -50 0 50 100 150

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-150 -100 -50 0 50 100 150



STA. 878+35 TO STA. 879+00

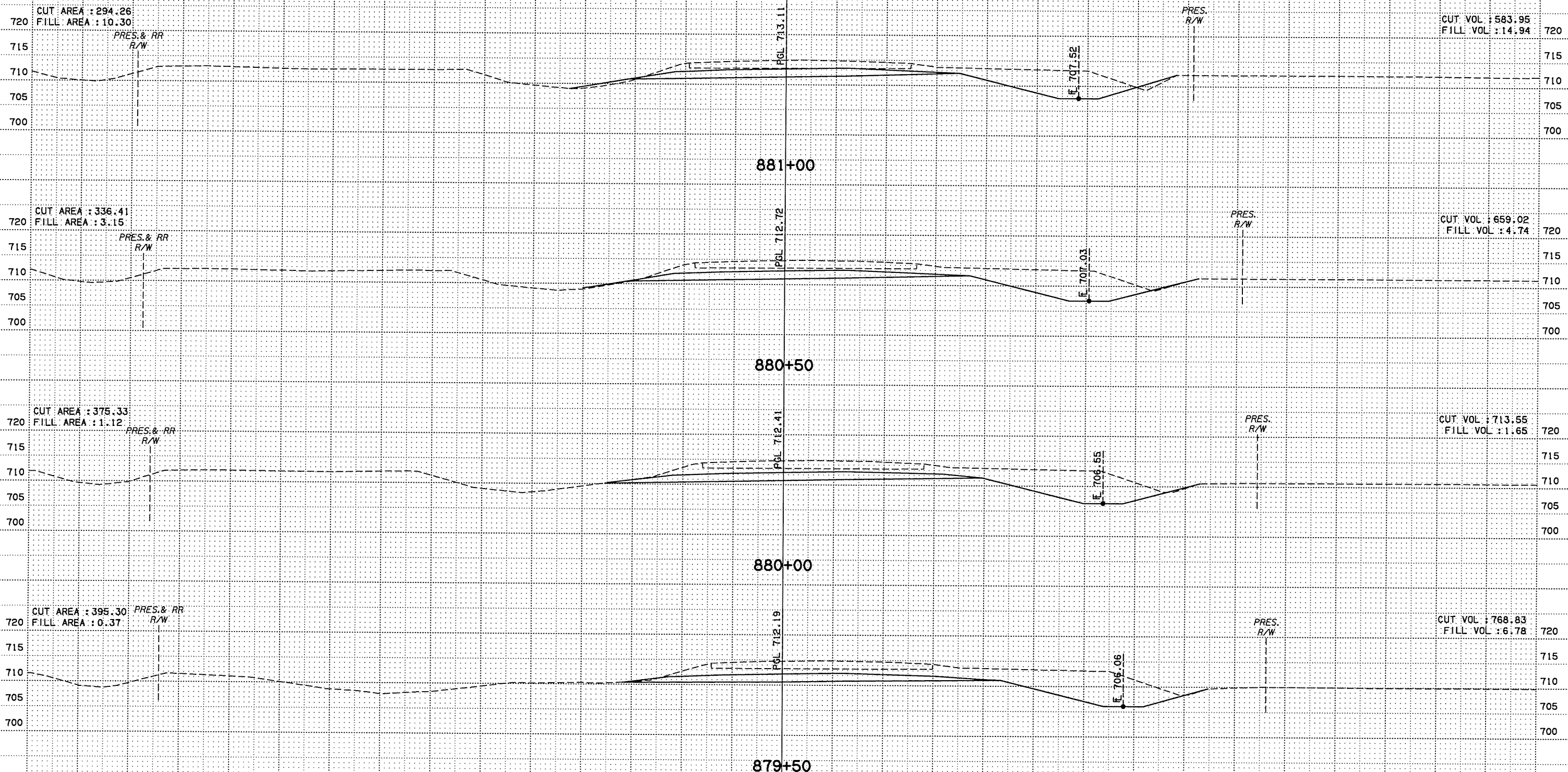
**US 169** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X26

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7/12/2016  
8:33:14 AM

-150                      -100                      -50                      0                      50                      100                      150



STA. 879+50 TO STA. 881+00

**US 169**                      SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK                      NOWATA COUNTY  
 Job Piece No. 27092(04)                      Sheet No. X27

-150                      -100                      -50                      0                      50                      100                      150

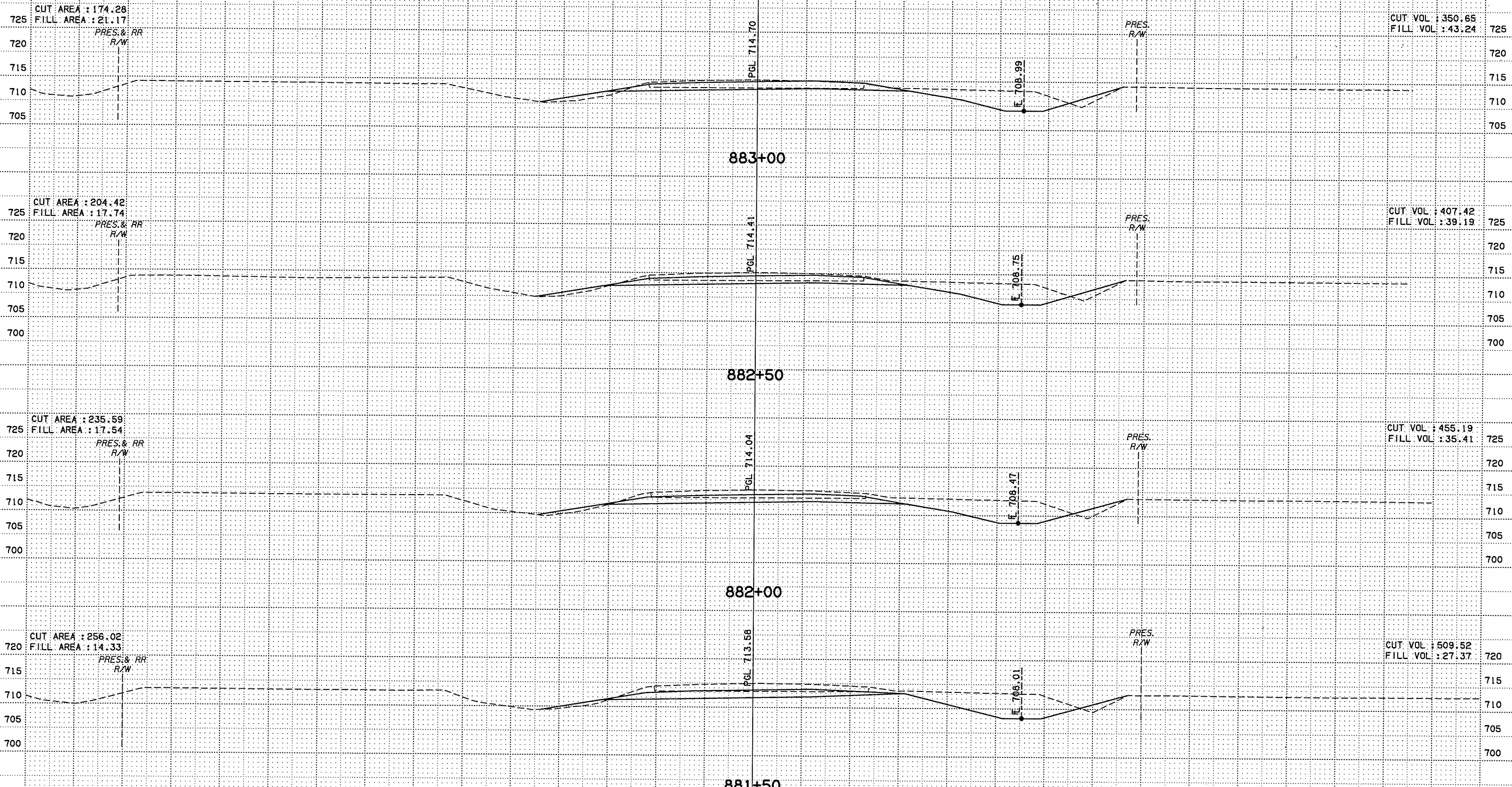


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8:33:16 AM

7/12/2016

-150 -100 -50 0 50 100 150



STA. 881+50 TO STA. 883+00

**US 169** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X28

-150 -100 -50 0 50 100 150

P:\NECIV\650-TUL\CIV\255231000\_000T\_LJ1619Br.dgn\20\_DESGN\40\_CAD\_Opossum\DGN\C\27092(04)\_C\_Xsect\_29.dgn

7/12/2016

8:33:18 AM

-150 -100 -50 0 50 100 150

CUT AREA : 0.00  
FILL AREA : 0.00

CUT VOL : 7.35  
FILL VOL : 2.78

CUT AREA : 72.35  
FILL AREA : 22.76

CUT VOL : 189.76  
FILL VOL : 43.28

CUT AREA : 157.85  
FILL AREA : 20.99

CUT VOL : 294.69  
FILL VOL : 46.08

CUT AREA : 160.41  
FILL AREA : 20.48

CUT VOL : 309.91  
FILL VOL : 46.29

884+50

END PROJECT STA 884+44.51

884+44.51

884+00

883+50

STA. 883+50 TO STA. 884+50

PGL 715.08

PGL 715.04

PGL 714.91

E 709.74

E 709.72

E 709.49

E 709.24

PRES.  
R/W

PRES.  
R/W

PRES.  
R/W

PRES.  
R/W

**US 169** SCALE: 1"=10'

US 169 OVER OPOSSUM CREEK NOWATA COUNTY

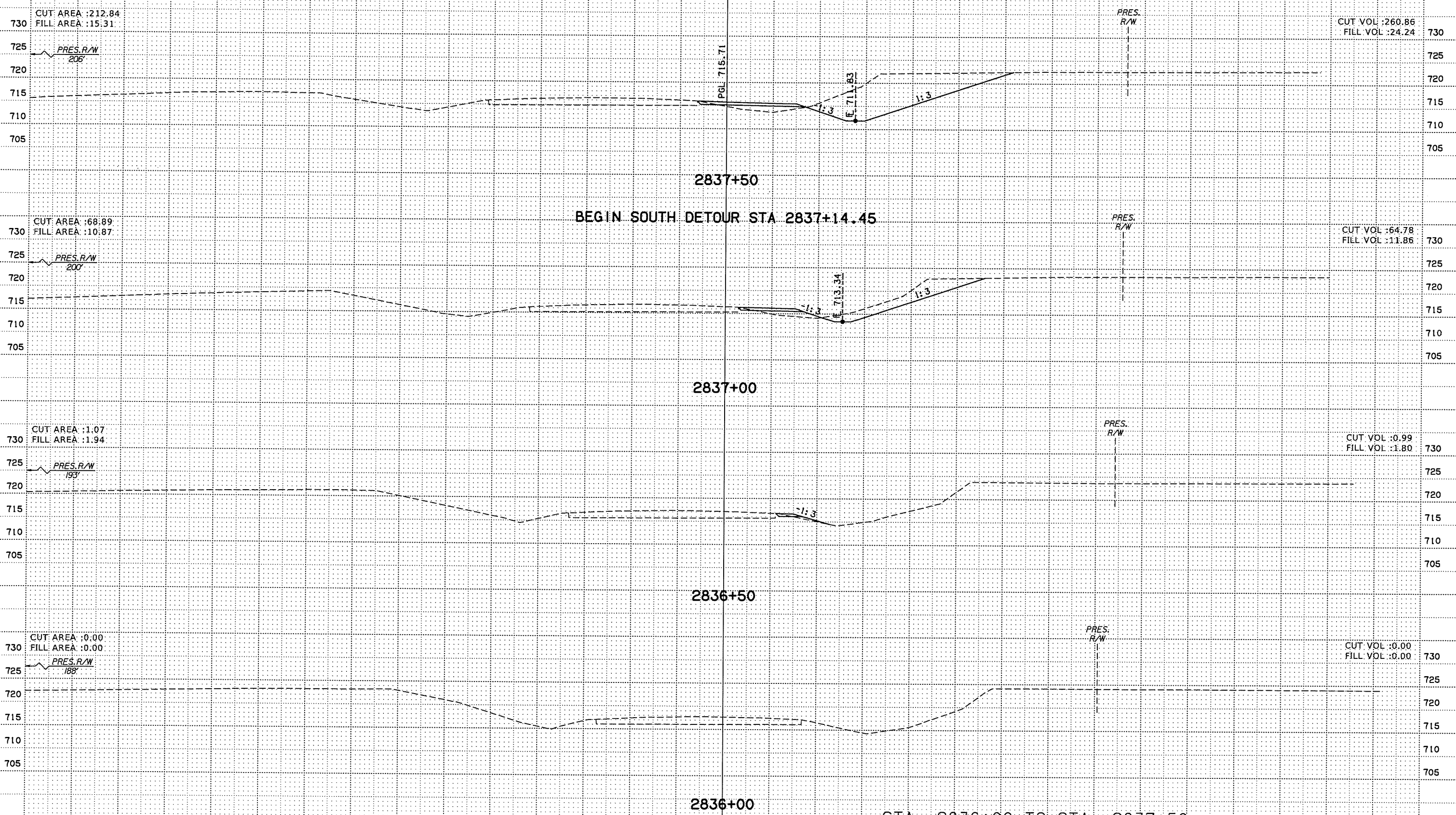
Job Piece No. 27092(04) Sheet No. X29

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7/12/2016

8:33:20 AM

-150 -100 -50 0 50 100 150



**SOUTH DETOUR** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X30

-150 -100 -50 0 50 100 150

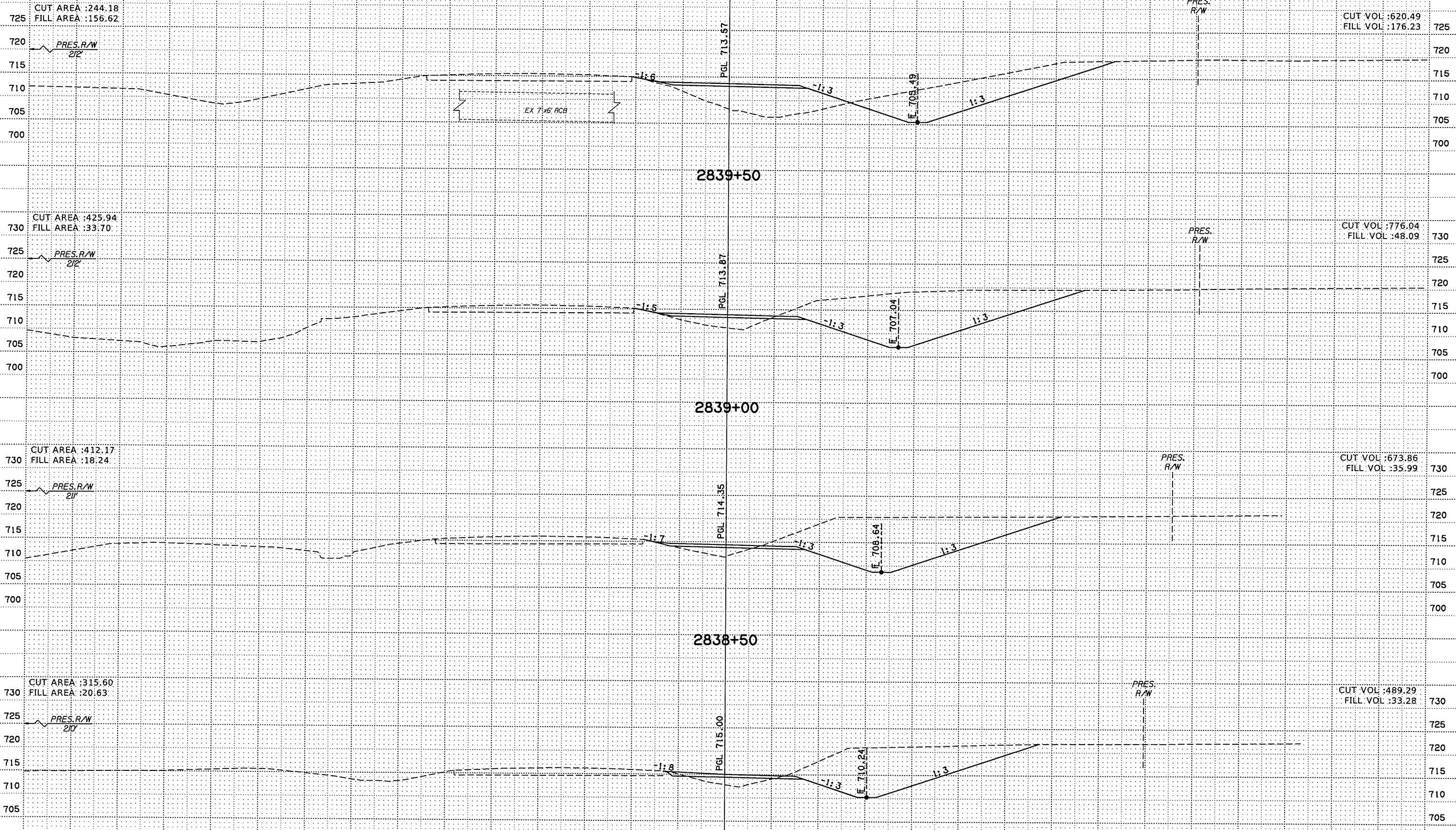


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7/12/2016

8:33:22 AM

-150 -100 -50 0 50 100 150



STA. 2838+00 TO STA. 2839+50

**SOUTH DETOUR** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X31

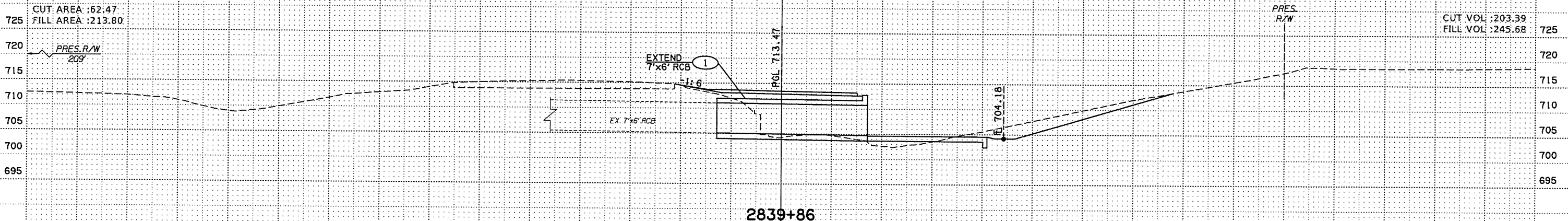
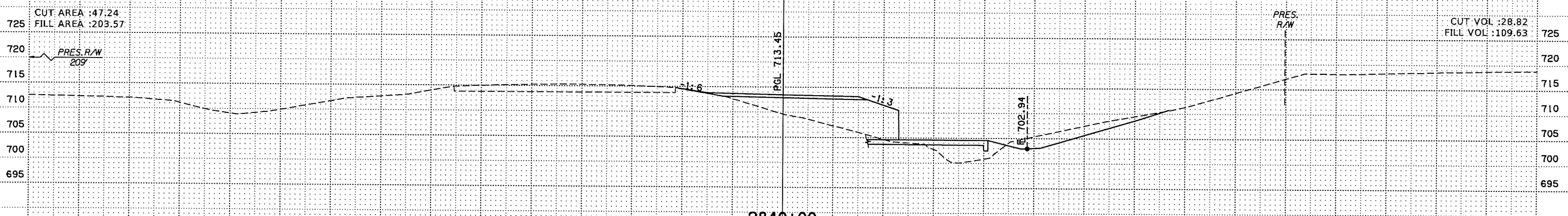
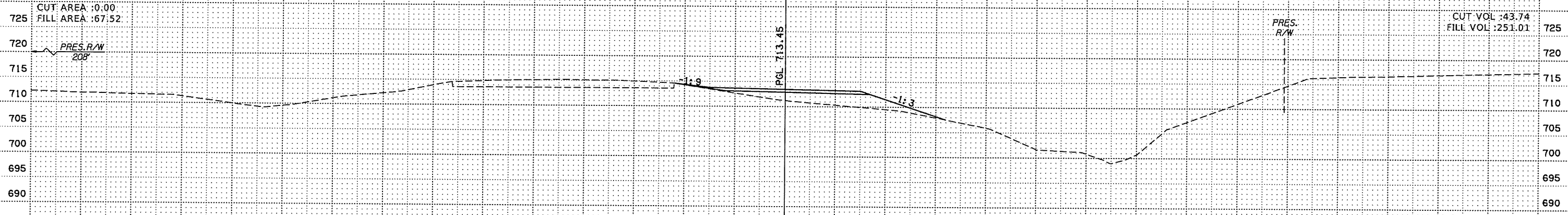
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7/12/2016

8:33:24 AM

-150 -100 -50 0 50 100 150



-150 -100 -50 0 50 100 150

STA. 2839+86 TO STA. 2840+50

**SOUTH DETOUR** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X32

P:\ECN\650-TUL\CIV\25523\1000\_000T\_US169BR.dwg\20\_DESGN\40\_CAD\_Opossum\DGN\C\27092(04)\_C\_SDetour\_Xsect\_04.dgn 7/12/2016 8:33:26 AM

-150 -100 -50 0 50 100 150

CUT AREA :0.00  
FILL AREA :122.86

PRES. R/W  
203'

CUT VOL :0.00  
FILL VOL :200.56

CUT AREA :0.00  
FILL AREA :115.35

PRES. R/W  
205'

CUT VOL :0.00  
FILL VOL :168.56

CUT AREA :0.00  
FILL AREA :66.70

PRES. R/W  
206'

CUT VOL :0.00  
FILL VOL :124.28

2842+00

2841+50

2841+00

PGL 713.45

PGL 713.45

PGL 713.45

PRES.  
R/W

PRES.  
R/W

PRES.  
R/W

-1:13

-1:3

-1:12

-1:3

-1:10

-1:3

STA. 2841+00 TO STA. 2842+00

**SOUTH DETOUR** SCALE: 1"=10'  
US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
Job Piece No. 27092(04) Sheet No. X33

-150 -100 -50 0 50 100 150

P:\ECON\650-TUL\CIV\25523\1000\_000T\_US169BR.dg\20\_DESGN\40\_CAD\_Opossum\DGN\C\27092\041\_C\_SDetour\_Xsect\_05.dgn

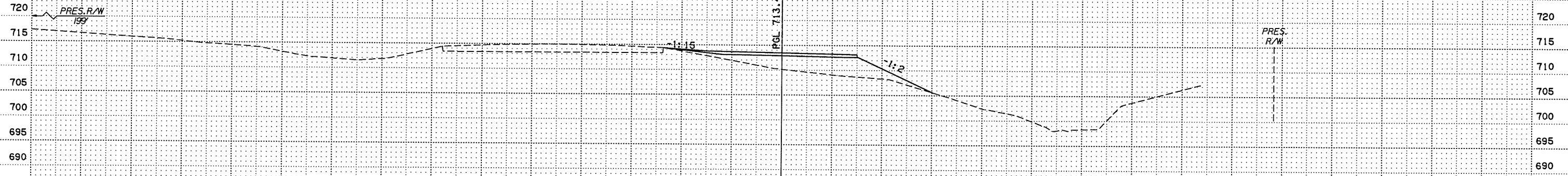
7/12/2016

8:33:28 AM

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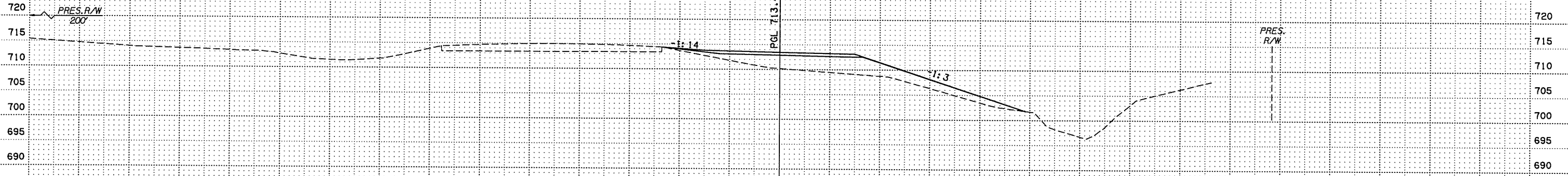
CUT AREA :0.00  
FILL AREA :101.39

CUT VOL :0.00  
FILL VOL :219.57



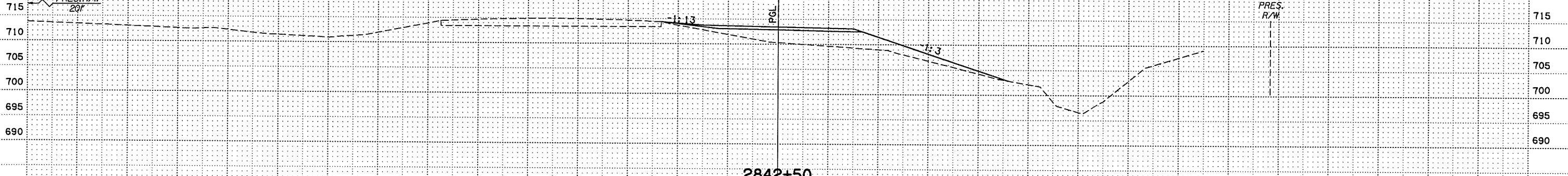
CUT AREA :0.00  
FILL AREA :135.74

CUT VOL :0.00  
FILL VOL :233.09



CUT AREA :0.00  
FILL AREA :116.00

CUT VOL :0.00  
FILL VOL :221.16



2843+50

2843+00

2842+50

STA. 2842+50 TO STA. 2843+50

**SOUTH DETOUR** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X34

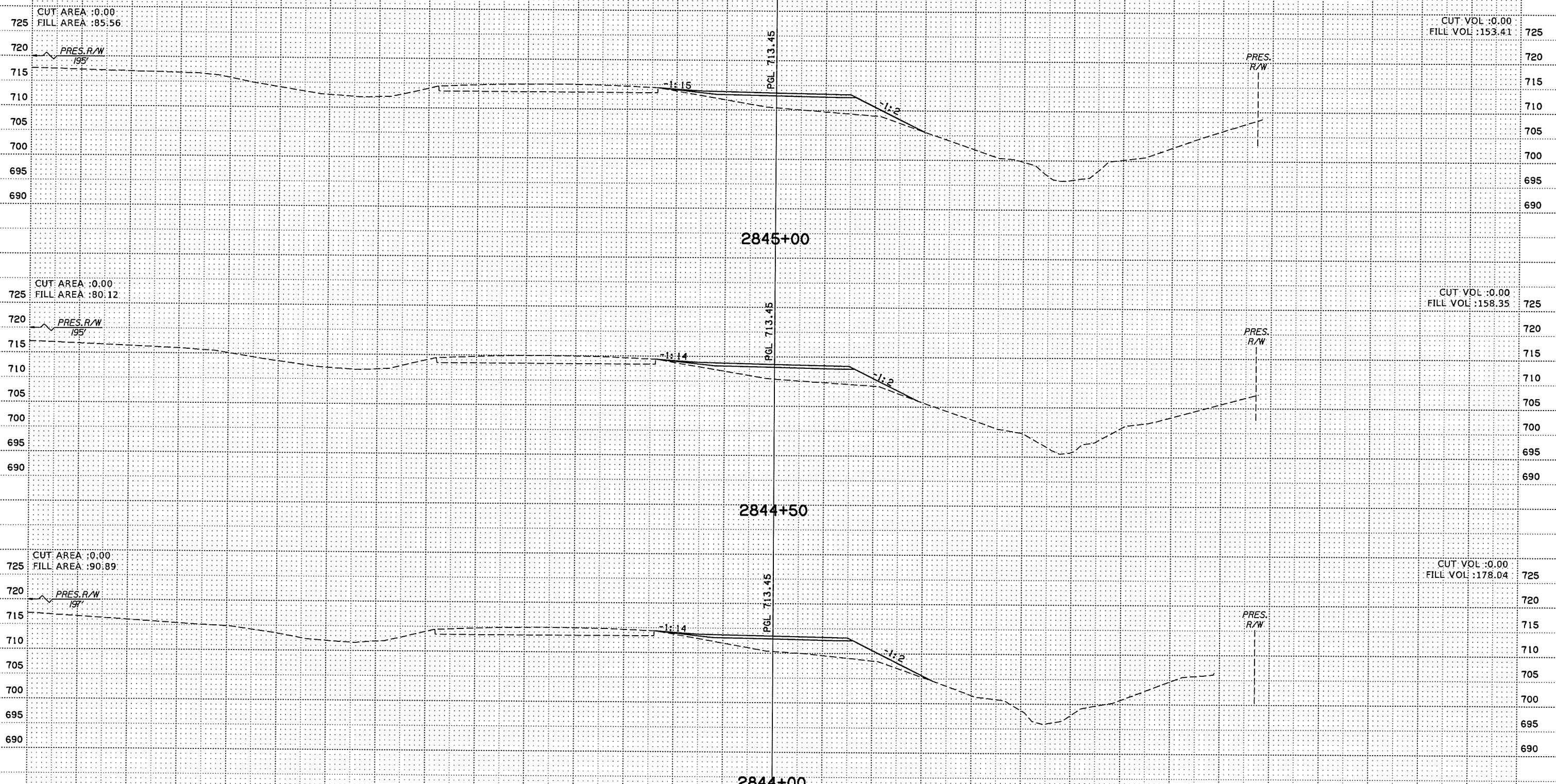
-150 -100 -50 0 50 100 150



P:\E\1650-TUL\CIV\25523\1000\_000T\_US169Br-dg\20\_DESGN\40\_CAD\_Opossum\DCN\C\27092\041\_C\_50Detour\_Xsect\_06.dgn

7/12/2016  
8:33:30 AM

-150                      -100                      -50                      0                      50                      100                      150



-150                      -100                      -50                      0                      50                      100                      150

STA. 2844+00 TO STA. 2845+00

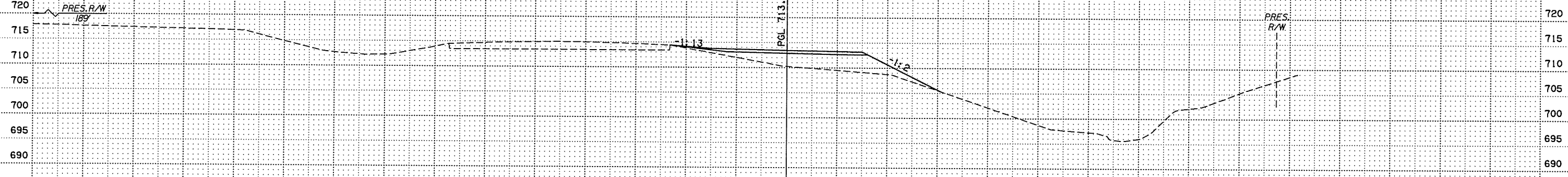
**SOUTH DETOUR**      SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK      NOWATA COUNTY  
 Job Piece No. 27092(04)      Sheet No. X35

P:\ECI\650-TUL\CIV\25523\000-000T\_US169B-dg\20\_DESGN\40\_CAD\_Opossum\DGN\C\27092\041\_C\_SDetour\_Xsect\_07.dgn 7/12/2016 8:33:32 AM

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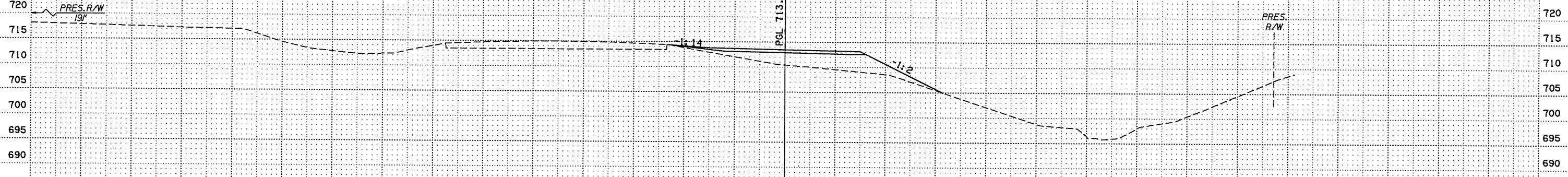
CUT AREA :0.00  
FILL AREA :90.48

CUT VOL :0.00  
FILL VOL :167.63



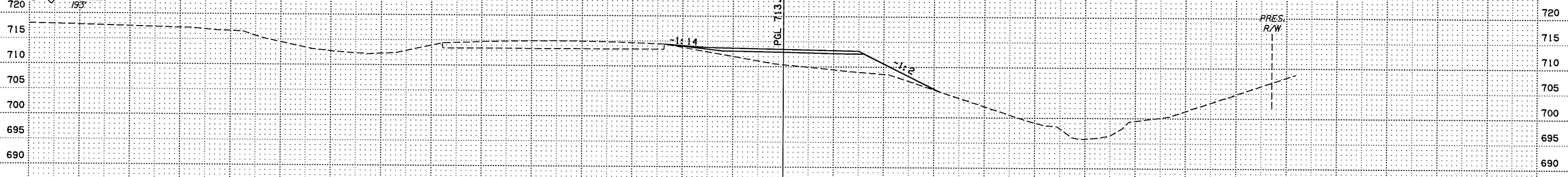
CUT AREA :0.00  
FILL AREA :90.57

CUT VOL :0.00  
FILL VOL :168.37



CUT AREA :0.00  
FILL AREA :91.28

CUT VOL :0.00  
FILL VOL :163.73



2846+50

2846+00

2845+50

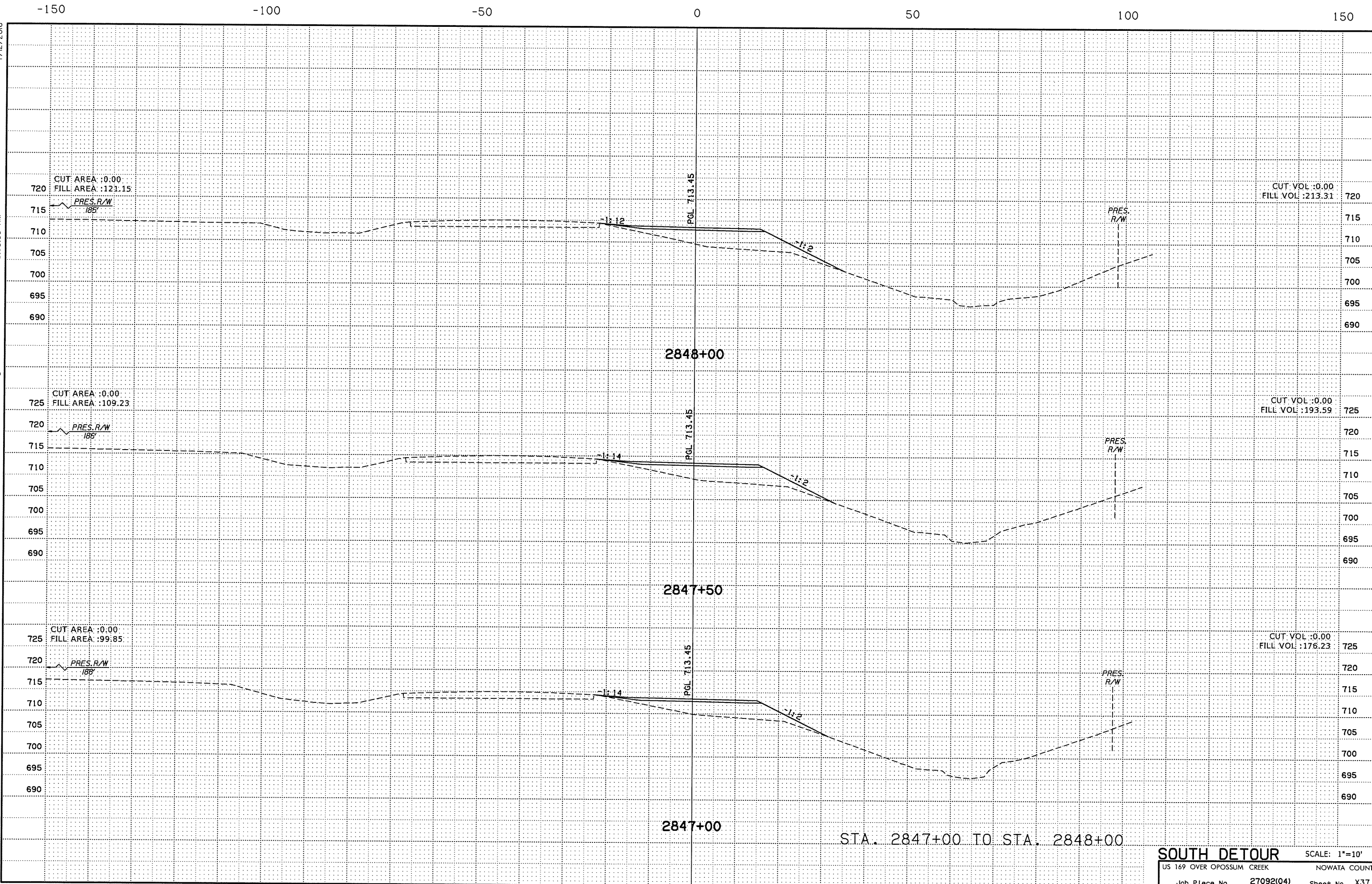
STA. 2845+50 TO STA. 2846+50

**SOUTH DETOUR** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X36

-150 -100 -50 0 50 100 150



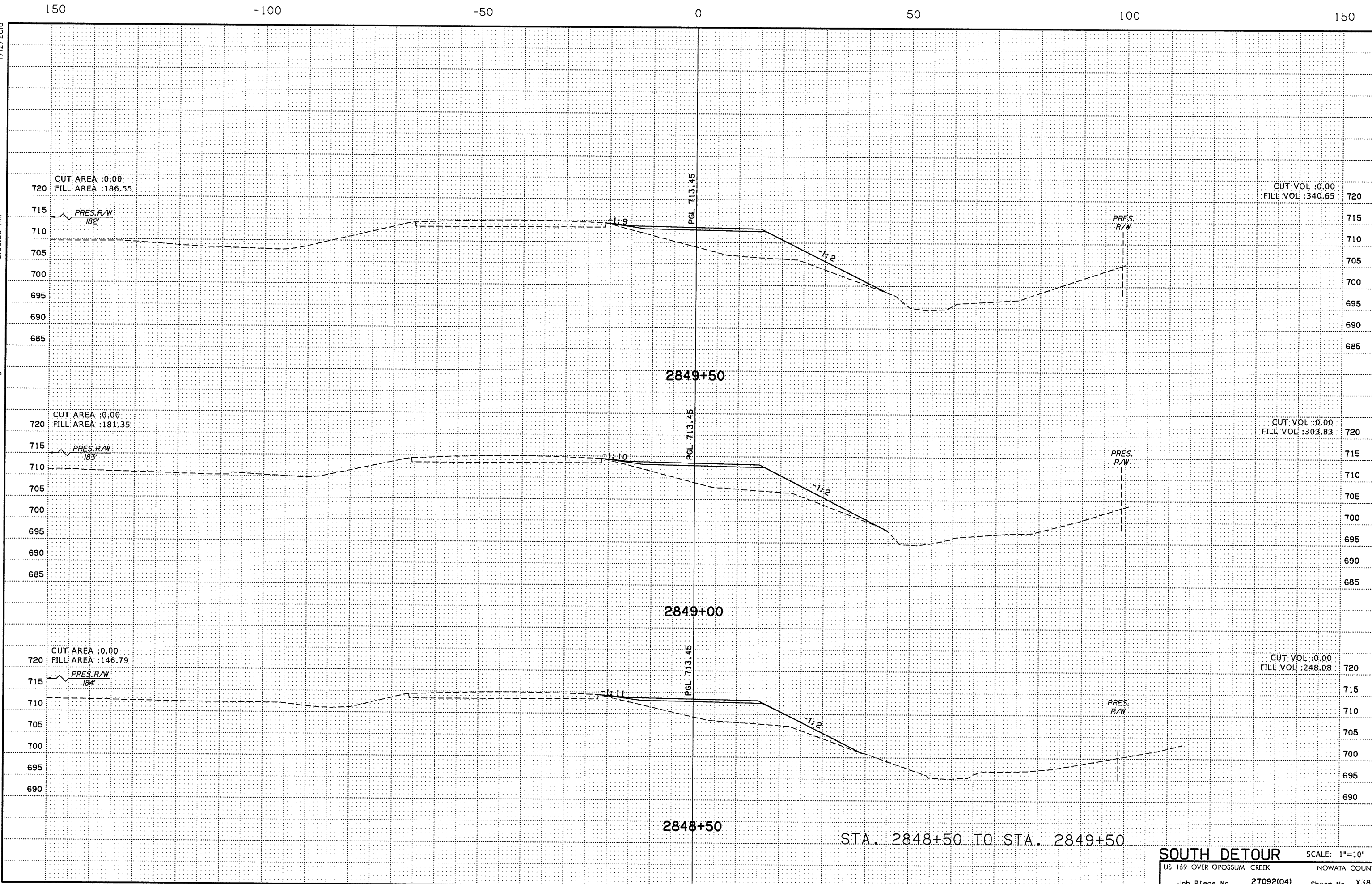
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7/12/2016 8:33:33 AM



STA. 2847+00 TO STA. 2848+00

**SOUTH DETOUR** SCALE: 1"=10'  
US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
Job Piece No. 27092(04) Sheet No. X37

P:\ECIV\650-TUL\CIV\25523\1000\_000T\_US169BR.dg\20\_DESGN\40\_CAD\_Opossum\DGN\C\27092\041\_C\_SDetour\_Xsect\_09.dgn  
7/12/2016 8:33:35 AM



STA. 2848+50 TO STA. 2849+50

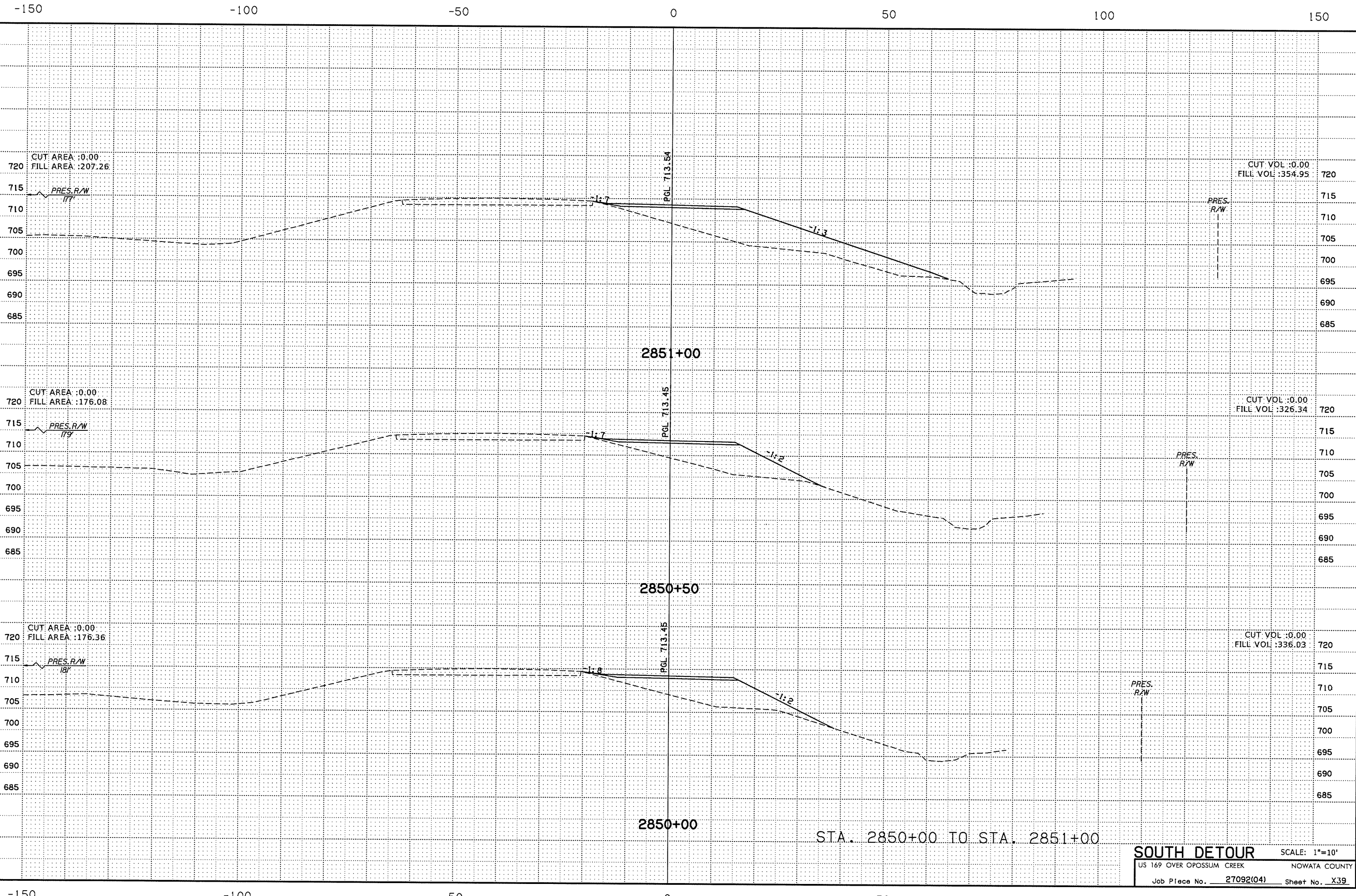
**SOUTH DETOUR** SCALE: 1"=10'  
US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
Job Piece No. 27092(04) Sheet No. X38

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7/12/2016

8:33:37 AM



STA. 2850+00 TO STA. 2851+00

**SOUTH DETOUR** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X39

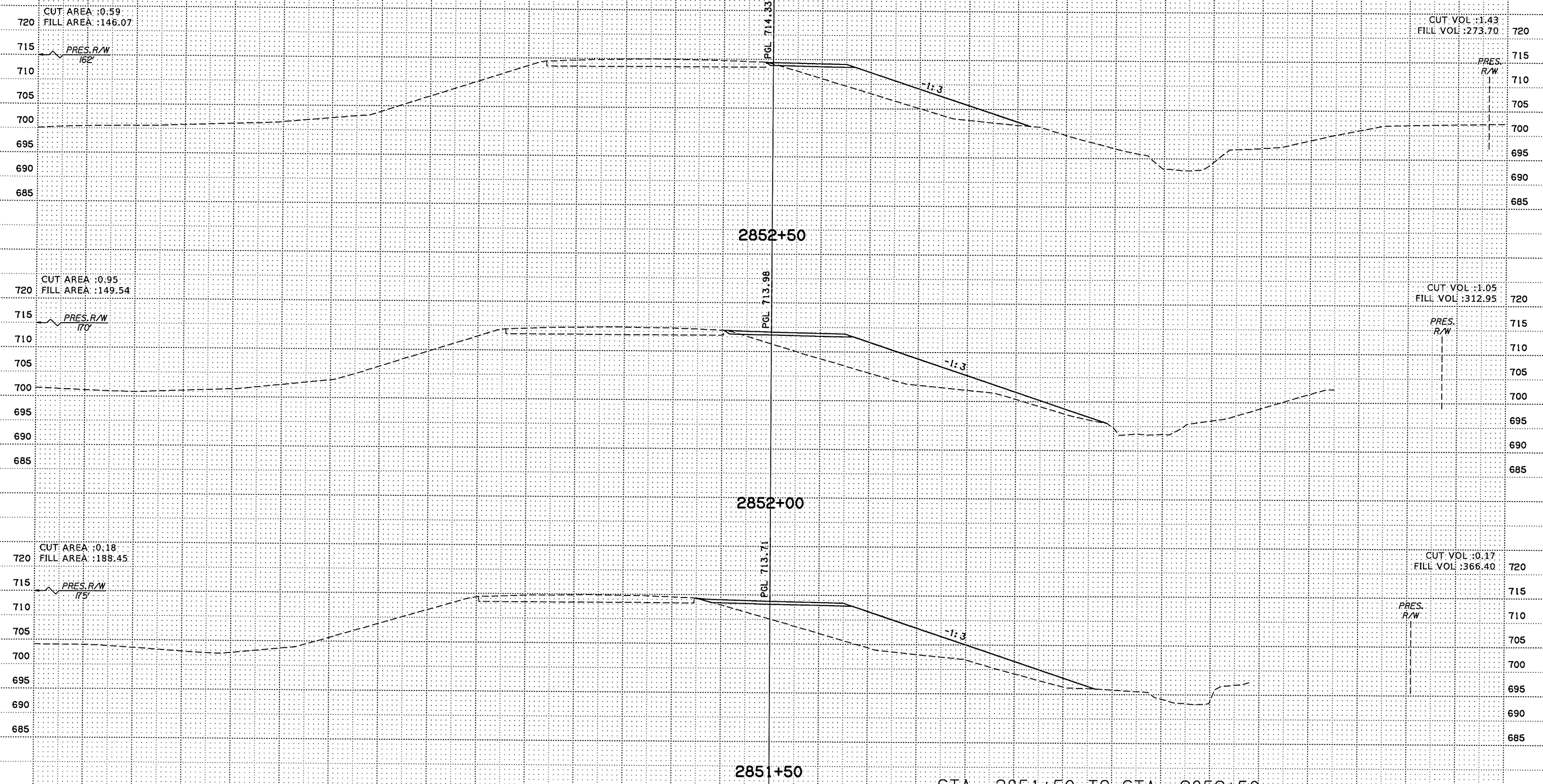
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8:33:39 AM

7/12/2016

-150 -100 -50 0 50 100 150

### END SOUTH DETOUR STA 2852+57.74



-150 -100 -50 0 50 100 150

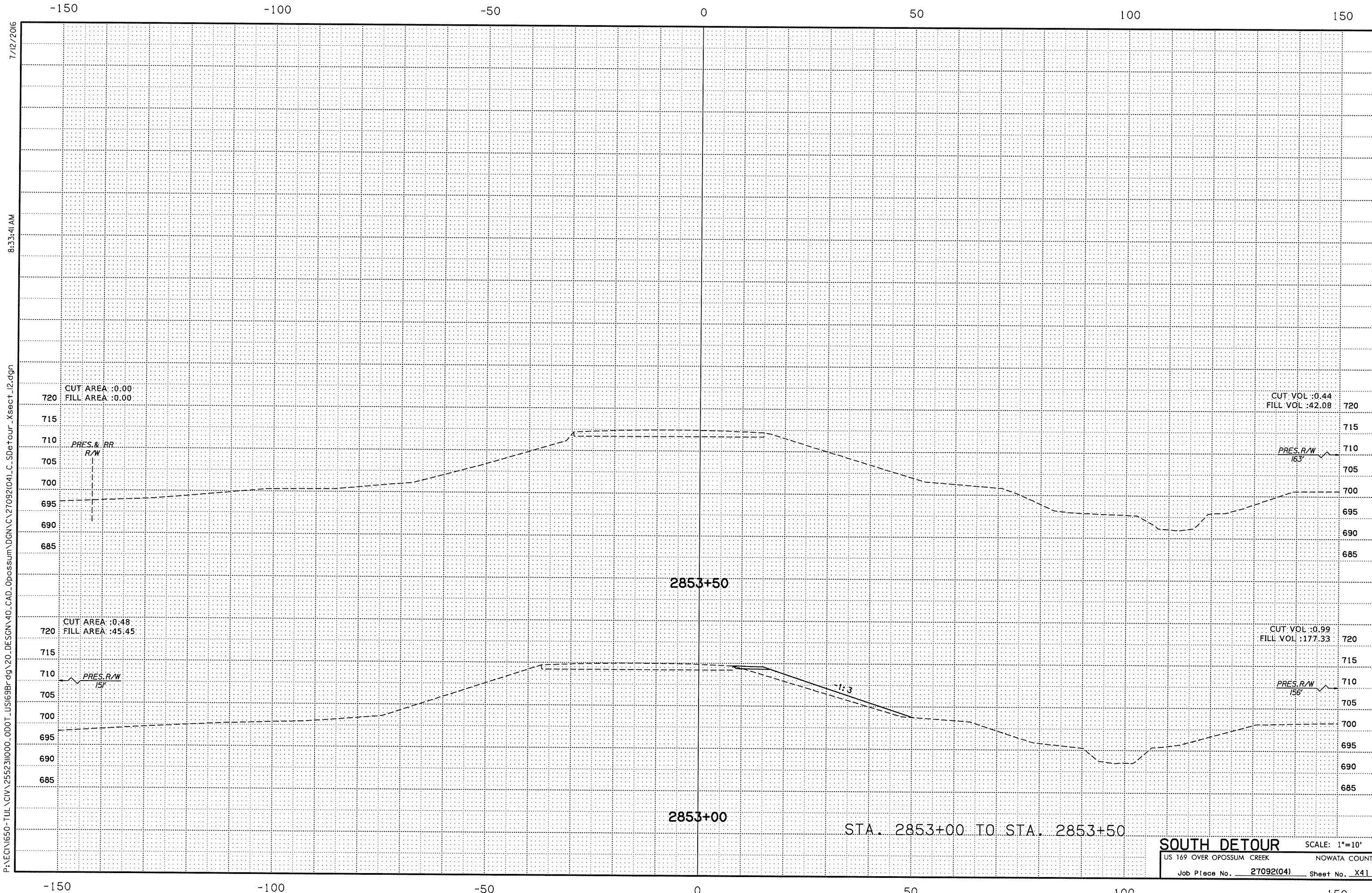
STA. 2851+50 TO STA. 2852+50

**SOUTH DETOUR** SCALE: 1"=10'

US 169 OVER OPOSSUM CREEK NOWATA COUNTY

Job Place No. 27092(04) Sheet No. X40





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 7/12/2016 8:33:41 AM

**SOUTH DETOUR** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X41

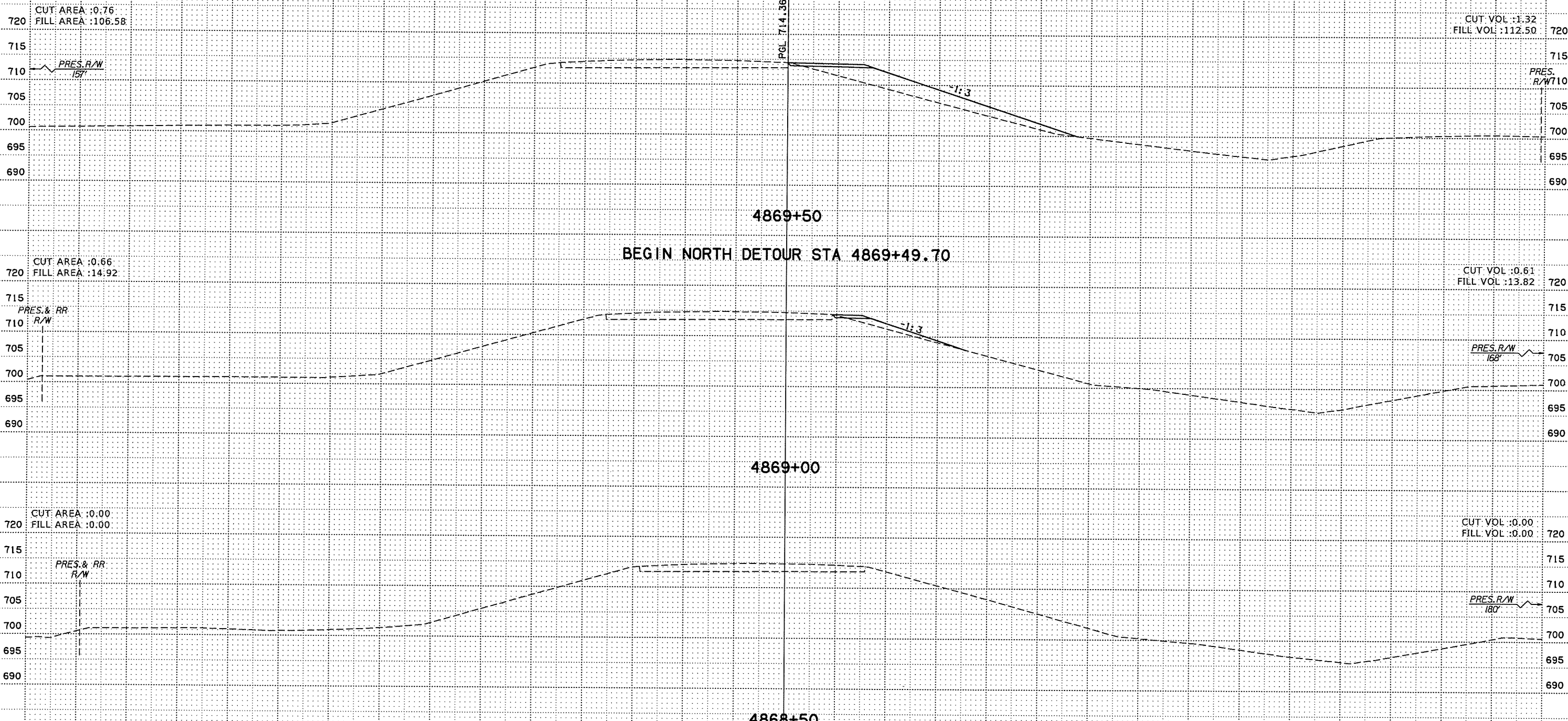


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7/12/2016

8:33:43 AM

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-150 -100 -50 0 50 100 150

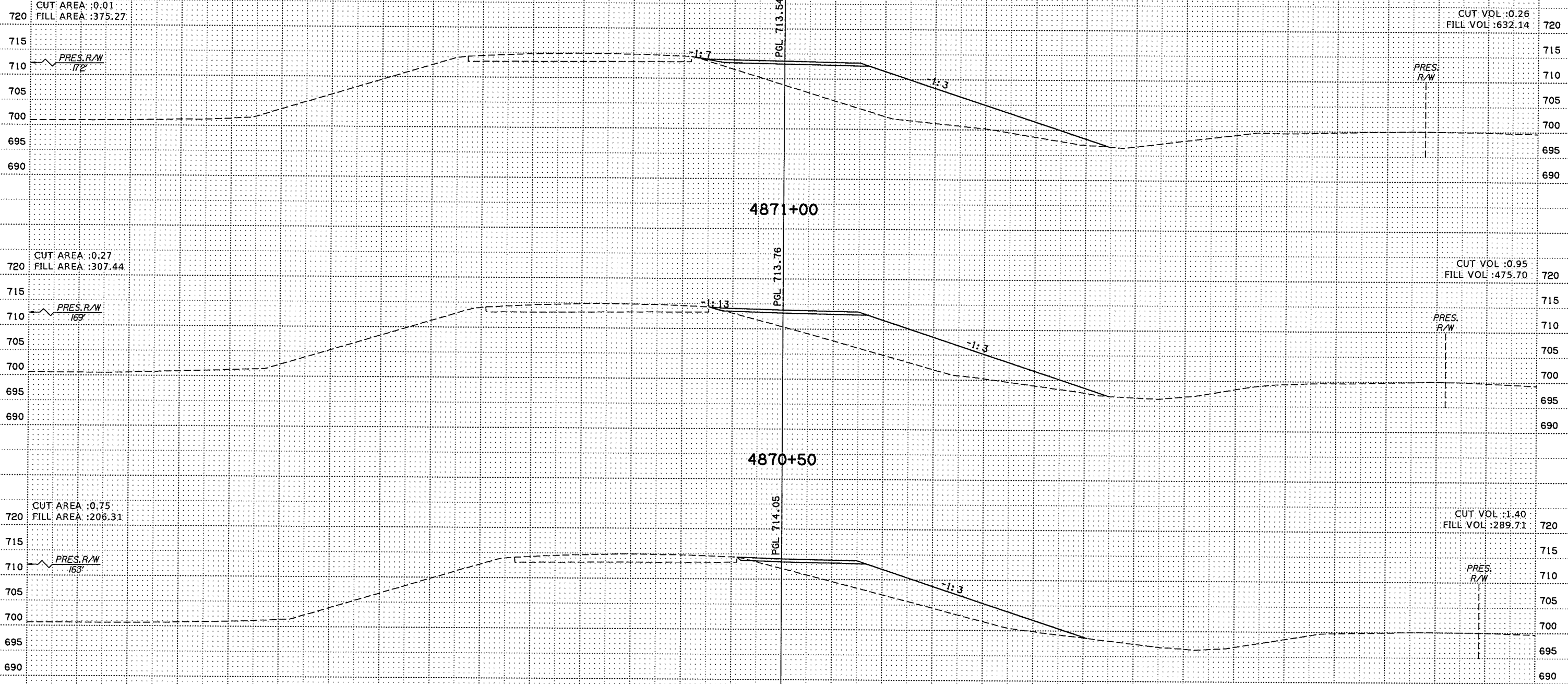
**NORTH DETOUR** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X42

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7/12/2016

8:33:44 AM

-150 -100 -50 0 50 100 150



-150 -100 -50 0 50 100 150

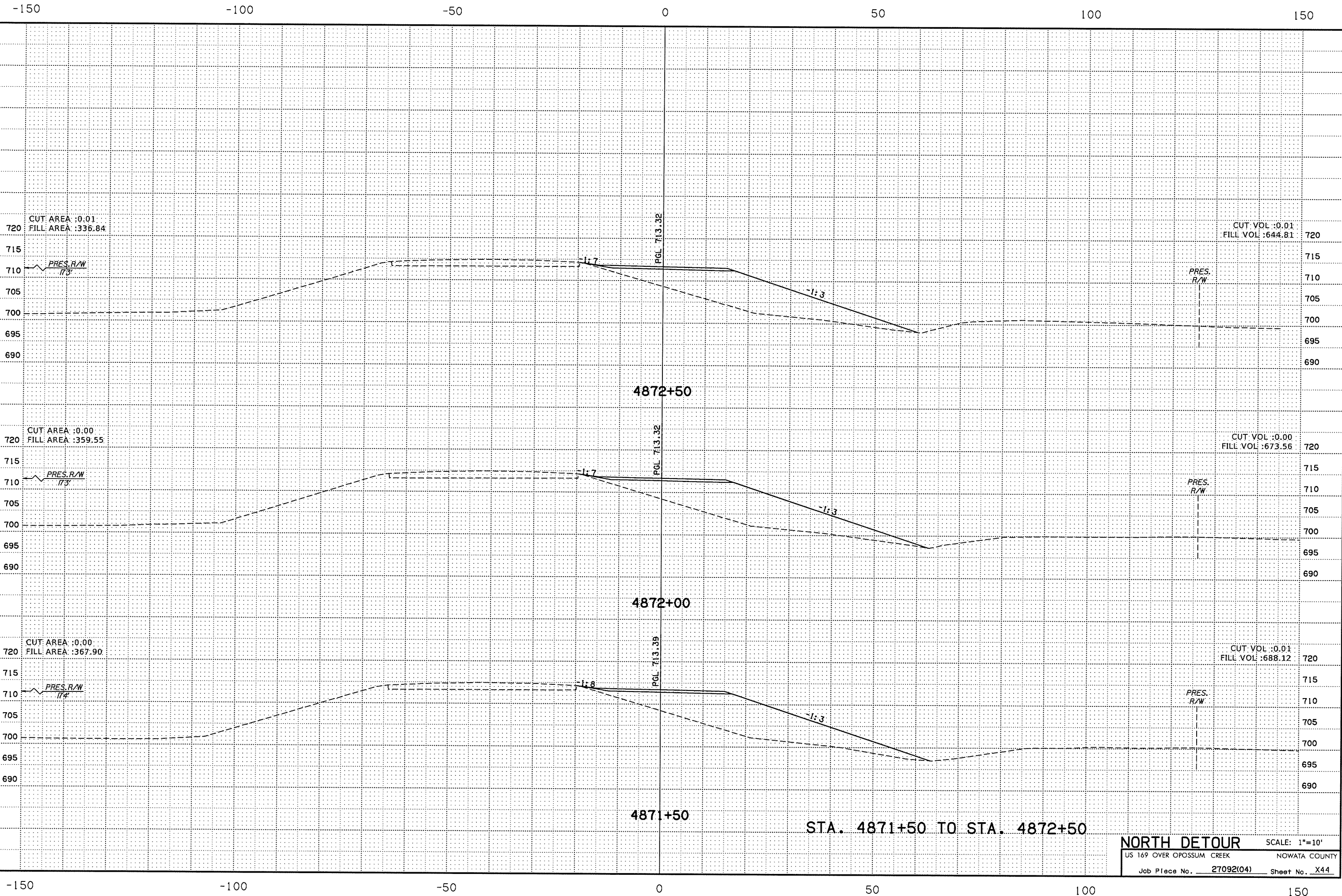
STA. 4870+00 TO STA. 4871+00

**NORTH DETOUR** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X43

P:\E\1650-TUL\CIV\25523\1000-0DOT\_US169Br-dg\20\_DESGN\40\_CAD\_Opossum\DGN\C\27092\041\_C\_NDetour\_Xsect\_03.dgn

7/12/2016

8:33:46 AM



STA. 4871+50 TO STA. 4872+50

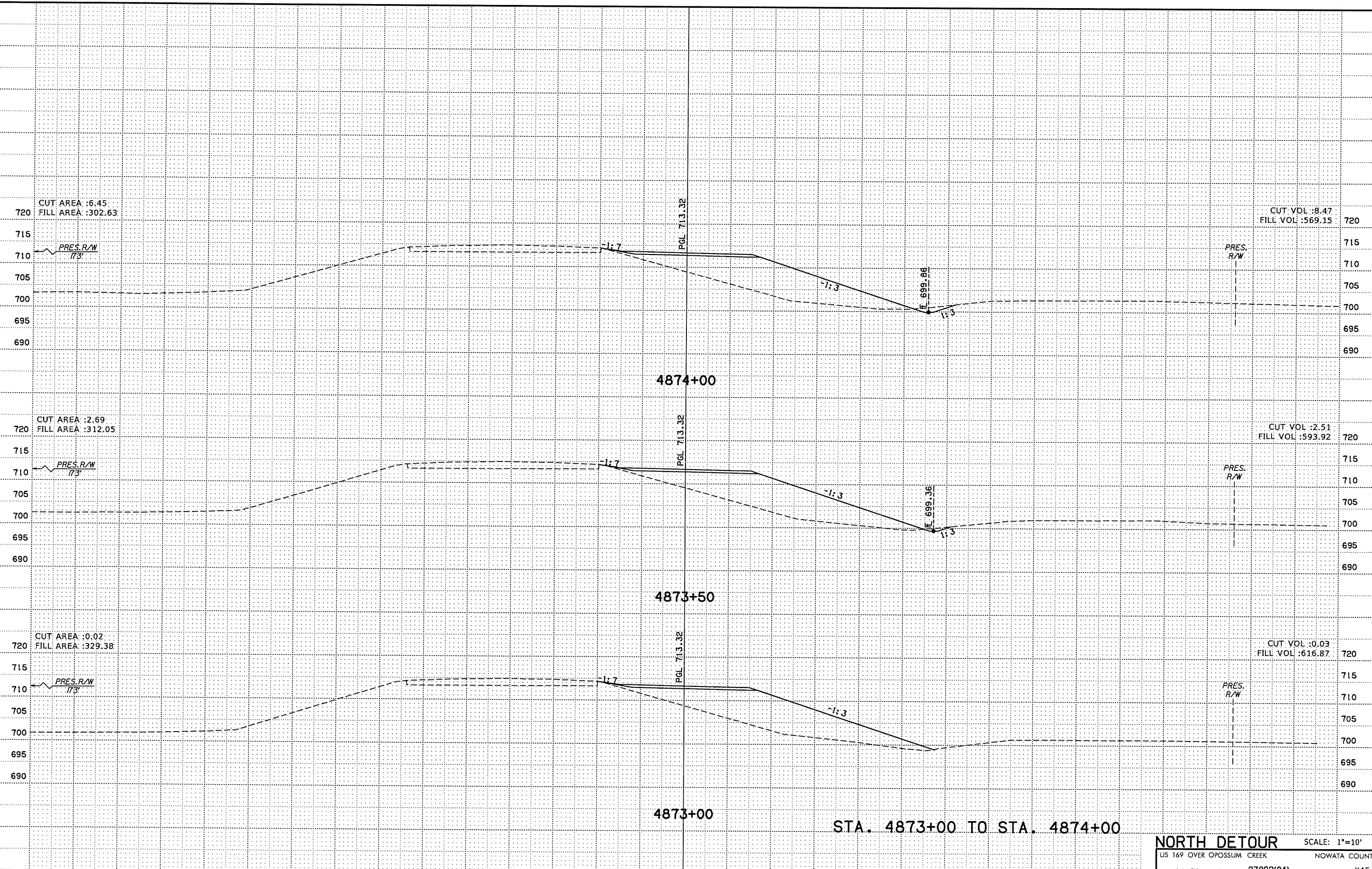
**NORTH DETOUR** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X44

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7/12/2016

8:33:48 AM

-150 -100 -50 0 50 100 150



-150 -100 -50 0 50 100 150

STA. 4873+00 TO STA. 4874+00

**NORTH DETOUR** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X45



P:\ECI\650-TUL\CIV\255231000\_000T\_US169Br.dwg 20\_DESGN 40\_CAD\_Opossum\DCN\C\27092(04)\_C\_NDetour\_Xsect\_05.dgn 7/12/2016 8:33:50 AM

-150 -100 -50 0 50 100 150

CUT AREA :9.94  
FILL AREA :184.45

PRES. R/W  
17.3'

CUT AREA :15.40  
FILL AREA :228.85

PRES. R/W  
17.3'

CUT AREA :22.28  
FILL AREA :261.40

PRES. R/W  
17.3'

CUT AREA :14.31  
FILL AREA :280.19

PRES. R/W  
17.3'

CUT VOL :23.47  
FILL VOL :382.69

PRES. R/W

CUT VOL :34.89  
FILL VOL :453.94

PRES. R/W

CUT VOL :33.88  
FILL VOL :501.47

PRES. R/W

CUT VOL :19.23  
FILL VOL :539.65

PRES. R/W

PGL 713.32

PGL 713.32

PGL 713.32

PGL 713.32

4876+00

4875+50

4875+00

4874+50

STA. 4874+50 TO STA. 4876+00

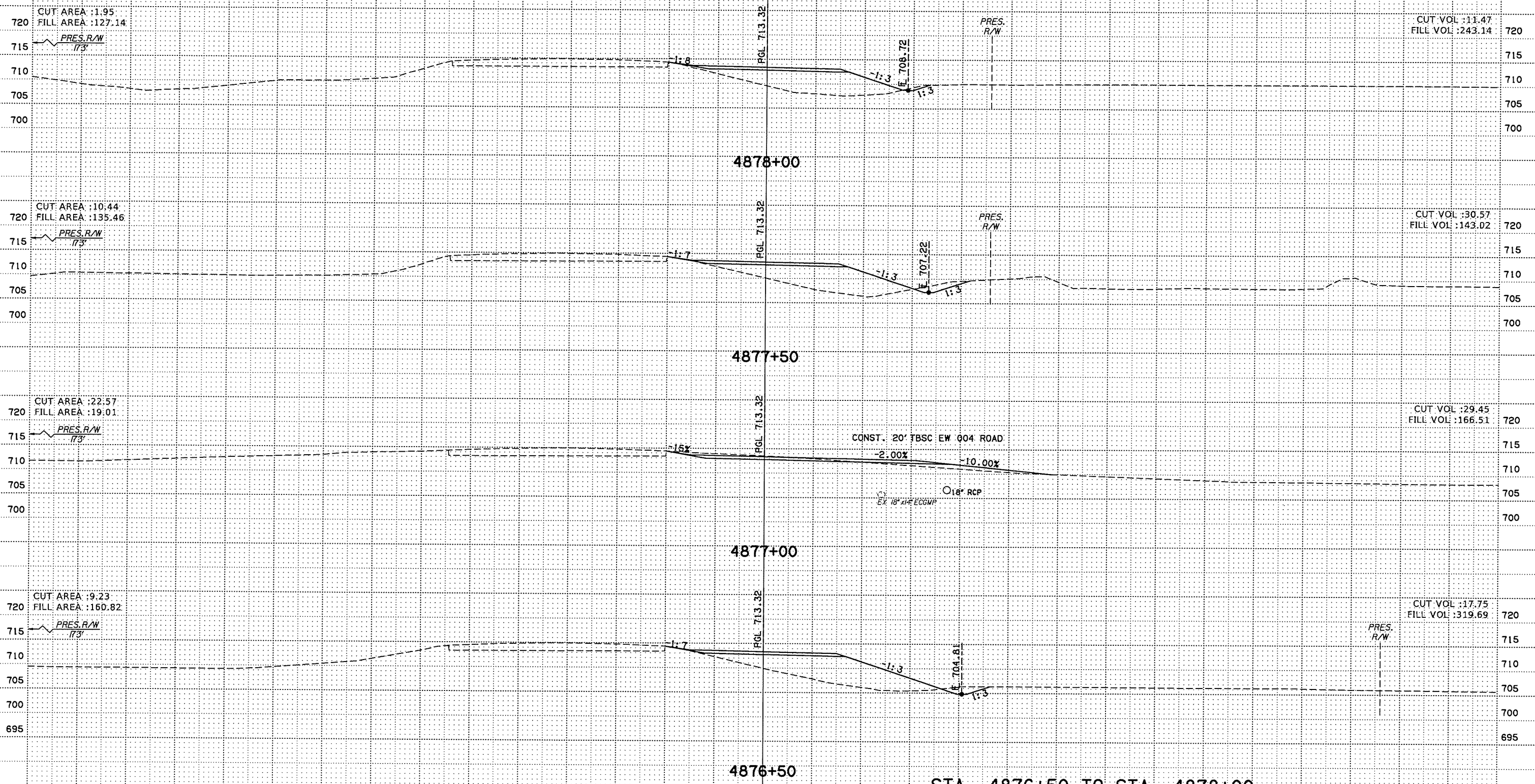
**NORTH DETOUR** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X46

-150 -100 -50 0 50 100 150



P:\ECN\650-TUL\CIV\25523\1000\_000T\_US169BR\dg\20\_DESGN\40\_CAD\_Opossum\DCN\C\27092(04)\_C\_NDetour\_Xsect\_06.dgn 7/12/2016 8:33:52 AM

-150 -100 -50 0 50 100 150



-150 -100 -50 0 50 100 150

STA. 4876+50 TO STA. 4878+00

**NORTH DETOUR** SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
 Job Piece No. 27092(04) Sheet No. X47

P:\ECl\650-TUL\CIV\25523\1000\_000T\_US169Br.dgn\20\_DESGN\40\_CAD\_Opossum\DGN\C\27092\041\_C\_NDetour-Xsect\_07.dgn

7/12/2016

8:33:54 AM

-150 -100 -50 0 50 100 150

CUT AREA :21.20  
FILL AREA :67.13

CUT VOL :37.31  
FILL VOL :145.43

CUT AREA :19.09  
FILL AREA :89.93

CUT VOL :27.46  
FILL VOL :174.39

CUT AREA :12.19  
FILL AREA :108.72

CUT VOL :1.14  
FILL VOL :10.50

CUT AREA :11.53  
FILL AREA :109.77

CUT VOL :12.48  
FILL VOL :219.36

4879+50

4879+00

4878+53

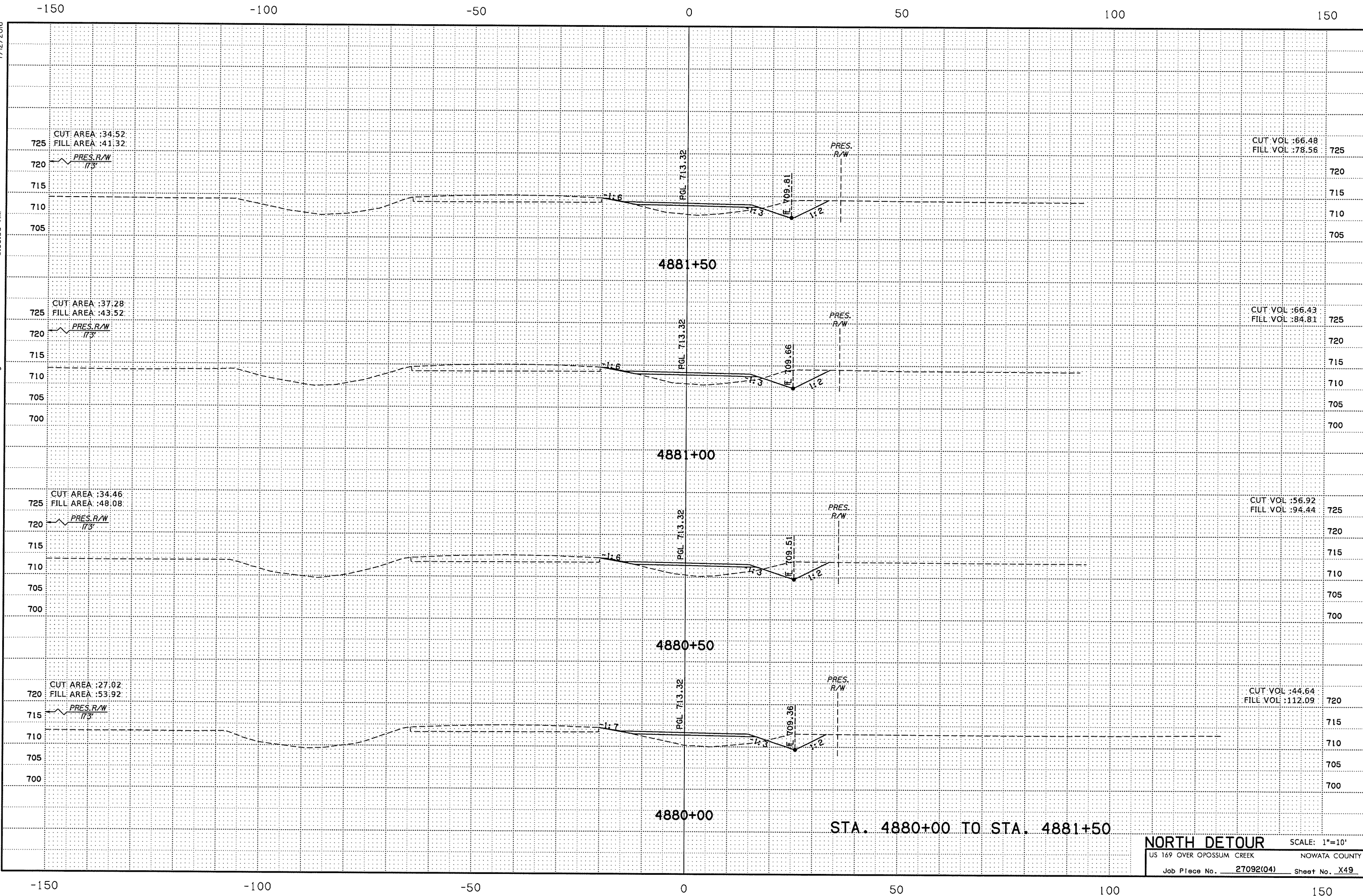
4878+50

STA. 4878+50 TO STA. 4879+50

**NORTH DETOUR** SCALE: 1"=10'  
US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
Job Piece No. 27092(04) Sheet No. X48

-150 -100 -50 0 50 100 150

P:\ECN\650-TUL\CIV\25523\1000\_000T\_US169Br.dgn\20\_DESGN\40\_CAD\_Opossum\DCN\C\27092\041\_C\_NDetour\_Xsect\_08.dgn  
7/12/2016 8:33:56 AM



-150                      -100                      -50                      0                      50                      100                      150

CUT AREA :34.52  
FILL AREA :41.32

CUT VOL :66.48  
FILL VOL :78.56

CUT AREA :37.28  
FILL AREA :43.52

CUT VOL :66.43  
FILL VOL :84.81

CUT AREA :34.46  
FILL AREA :48.08

CUT VOL :56.92  
FILL VOL :94.44

CUT AREA :27.02  
FILL AREA :53.92

CUT VOL :44.64  
FILL VOL :112.09

-150                      -100                      -50                      0                      50                      100                      150

STA. 4880+00 TO STA. 4881+50

**NORTH DETOUR**      SCALE: 1"=10'  
US 169 OVER OPOSSUM CREEK      NOWATA COUNTY  
Job Piece No. 27092(04)      Sheet No. X49

P:\ECL\650-TUL\CIV\25523\000\_ODOT\_US169BR.dgn\20\_DESCN\40\_CAD\_Opossum\DCN\C\27092(04)\_C\_NDetour\_Xsect\_09.dgn 7/12/2016 8:33:57 AM

-150 -100 -50 0 50 100 150

CUT AREA :31.53  
FILL AREA :32.79

CUT VOL :56.40  
FILL VOL :61.89

CUT AREA :29.38  
FILL AREA :34.05

CUT VOL :57.64  
FILL VOL :63.69

CUT AREA :32.87  
FILL AREA :34.74

CUT VOL :65.64  
FILL VOL :65.02

CUT AREA :38.02  
FILL AREA :35.49

CUT VOL :67.17  
FILL VOL :71.12

4883+50

4883+00

4882+50

4882+00

STA. 4882+00 TO STA. 4883+50

**NORTH DETOUR** SCALE: 1"=10'  
US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
Job Piece No. 27092(04) Sheet No. X50

-150 -100 -50 0 50 100 150



P:\ECI\650-TUL\CIV\255231000\_000T\_US169Br.dgn\20\_DESCN\40\_CAD\_Opossum\DCN\C\27092(04)\_C\_NDetour\_Xsect\_ID.dgn 7/12/2016 8:33:59 AM

-150 -100 -50 0 50 100 150

CUT AREA :1.98  
FILL AREA :1.70  
PRES. & RR  
R/W

CUT VOL :2.54  
FILL VOL :24.36

CUT AREA :1.37  
FILL AREA :24.61  
PRES. R/W  
155'

CUT VOL :13.03  
FILL VOL :58.25

CUT AREA :12.71  
FILL AREA :38.30  
PRES. R/W  
162'

CUT VOL :36.70  
FILL VOL :71.18

CUT AREA :26.93  
FILL AREA :38.57  
PRES. R/W  
170'

CUT VOL :54.13  
FILL VOL :66.07

4885+50

4885+00

END NORTH DETOUR STA 4884+91.21

4884+50

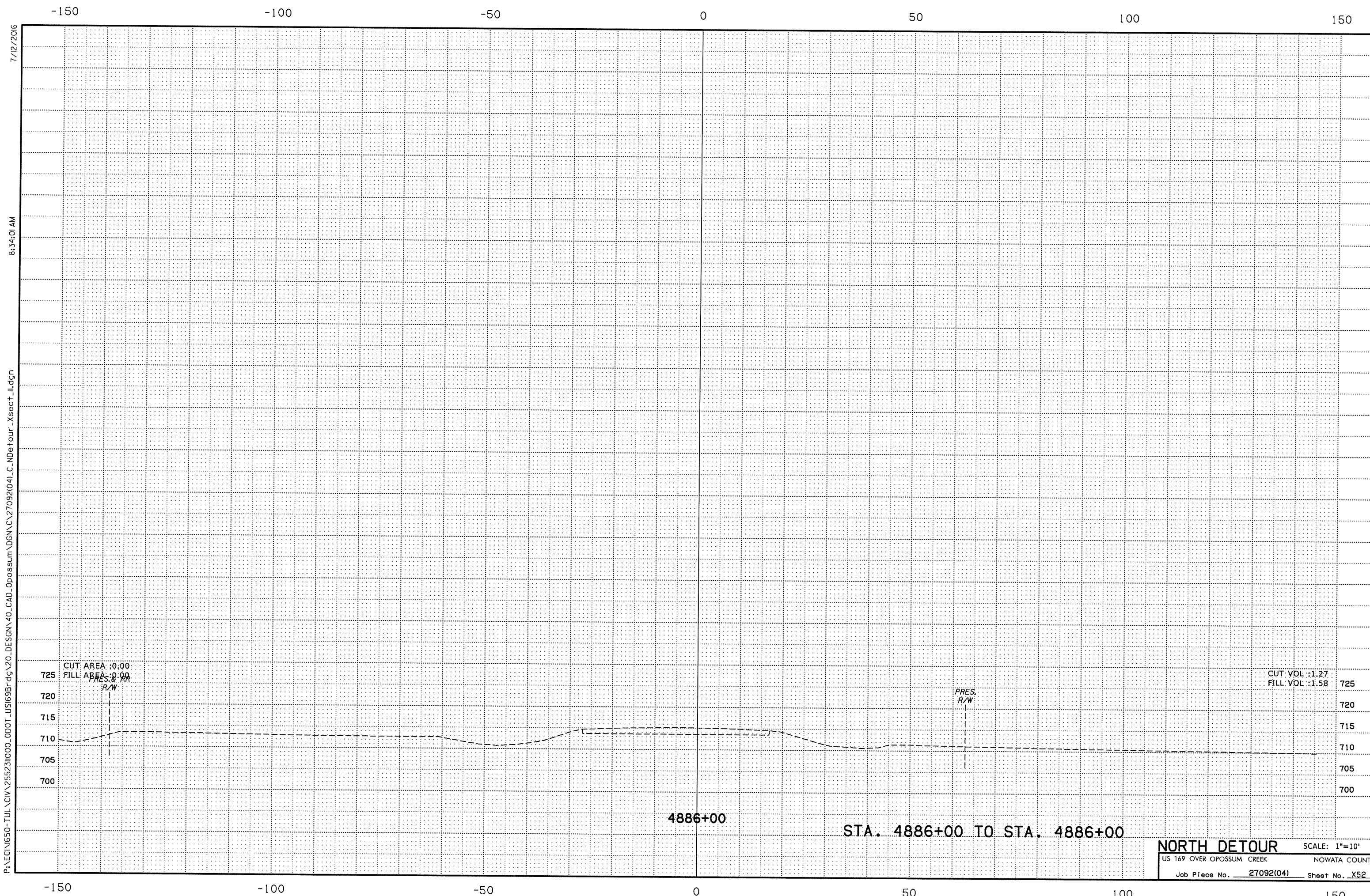
4884+00

STA. 4884+00 TO STA. 4885+50

**NORTH DETOUR** SCALE: 1"=10'  
US 169 OVER OPOSSUM CREEK NOWATA COUNTY  
Job Piece No. 27092(04) Sheet No. X51

-150 -100 -50 0 50 100 150





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 8:34:01 AM

-150                      -100                      -50                      0                      50                      100                      150

725  
 720  
 715  
 710  
 705  
 700

CUT VOL : 1.27  
 FILL VOL : 1.58  
 725  
 720  
 715  
 710  
 705  
 700

4886+00

STA. 4886+00 TO STA. 4886+00

**NORTH DETOUR**      SCALE: 1"=10'  
 US 169 OVER OPOSSUM CREEK      NOWATA COUNTY  
 Job Piece No. 27092(04)      Sheet No. X52

-150                      -100                      -50                      0                      50                      100                      150