Clay County, Missouri

Purchasing Department

16 W. Franklin, Suite 16-B ~ Liberty, MO 64068

PURCHASING DEPARTMENT
IFB 19-20

BRIDGE REPLACEMENT ON NE 148TH STREET OVER CARROLL CREEK. BRO-B024 (27) BRIDGE DEMOLITION, BRIDGE RECONSTRUCTION AND ROAD GRADING

ADDENDUM No. 1

Dear Vendor,

The original IFB remains in effect except as revised by the following changes, which shall take precedence over anything to the contrary in the specifications.

Except as amended by this Addendum, all terms and conditions of the IFB remain unchanged.

Please Note: The format for this addendum will detail questions asked, answers given and clarifications and statements made. Q = Question, A = Answer, C = Clarification and S = Statement.

Q: Are there Plans included with this Project?

A: See Attachment No. 1; BRO B024(27) - 148th St Bridge Replacement Sealed Plans 12-30-19.pdf

ACKNOWLEDGEMENT

Each bidder shall acknowledge receipt of this Addendum No. 1 of IFB 19-20, Bridge Replacement on NE 148th Street over Carroll Creek. Bro-B024 (27) Bridge Demolition, Bridge Reconstruction and Road Grading by their signature affixed hereto, and shall attach this Addendum to the original IFB.

CERTIFICATION BY BIDDER

SIGNATURE _____

TITLE _____

COMPANY _____

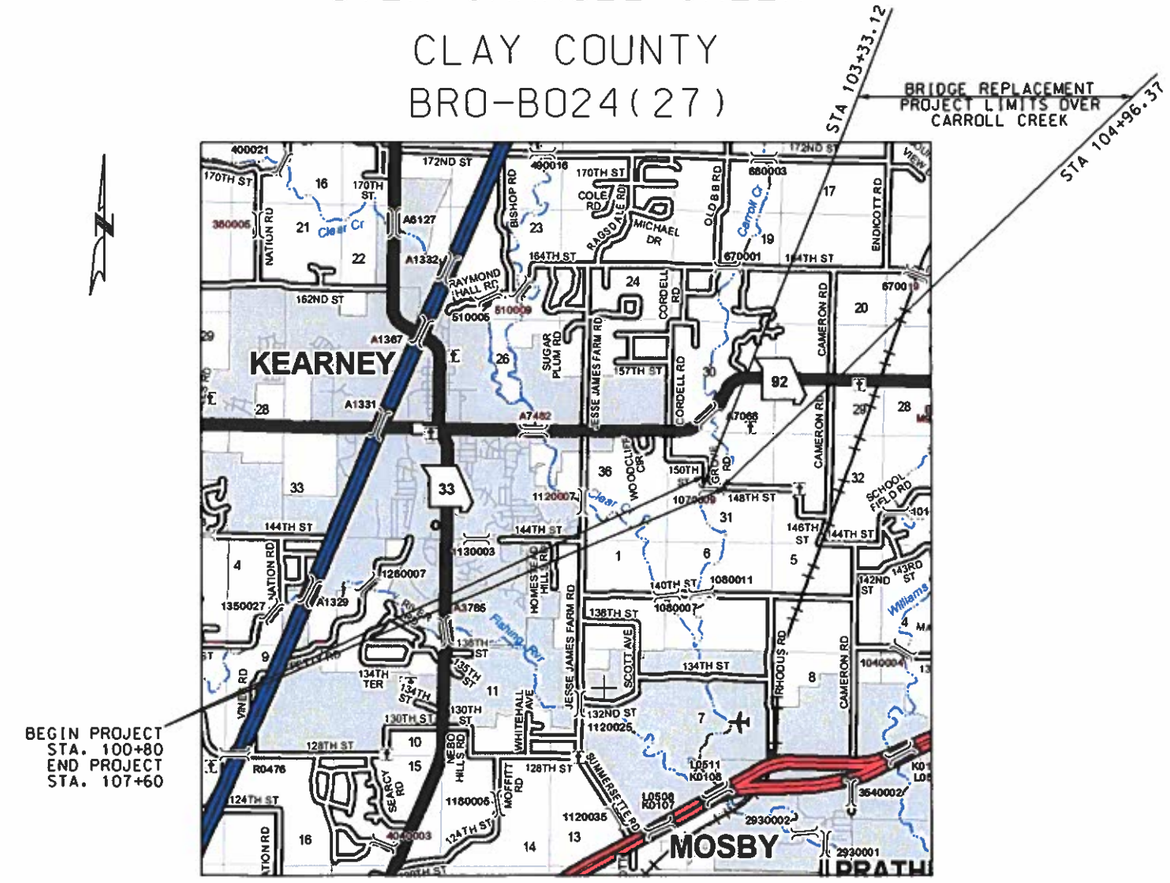
DATE _____

Cordially,

Clay County Purchasing Department

CLAY COUNTY, MISSOURI HIGHWAY DEPARTMENT

PLANS FOR PROPOSED
148TH STREET BRIDGE
OVER CARROLL CREEK
CLAY COUNTY
BRO-B024(27)



LOCATION MAP NOT TO SCALE

DESIGN DESIGNATION

A.A.D.T. - 2018 = LESS THAN 250 VPD
A.A.D.T. - 2038 = LESS THAN 250 VPD
D.H.V. = N/A
T = N/A
V = 35 M.P.H.
D = N/A

FUNCTIONAL CLASSIFICATION-RURAL LOCAL

THE ROUTE, 148TH STREET, IS CURRENTLY CLOSED BY THE COUNTY AND WILL REMAIN CLOSED DURING CONSTRUCTION. THE COUNTY SHALL MAINTAIN THE ROAD CLOSURE SIGNAGE. THE CONTRACTOR SHALL CHECK THESE DEVICES DAILY TO MAINTAIN THE CLOSURE OF THE ROAD.

CONVENTIONAL SYMBOLS
(USED IN PLANS)

	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
RIGHT-OF-WAY		
UTILITIES		
FIBER OPTICS	-FO-	-FO-
OVERHEAD TELEPHONE		
UNDERGROUND TELEPHONE	-T-	-T-
OVERHEAD POWER		
UNDERGROUND POWER	-P-	-P-
GAS	-G-	-G-
WATER	-W-	-W-
CONSTRUCTION LIMITS		
PROPERTY LINE		
TEMPORARY CONSTRUCTION EASEMENT		
MANHOLE		
FIRE HYDRANT		
WATER VALVE		
WATER METER		
DROP INLET		
DITCH BLOCK		
GROUND MOUNTED SIGN		
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL		
FENCE		
CHAIN LINK		
WOVEN WIRE		
GATE POST		
BENCHMARK		

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

ELECTRICAL UTILITY CONTACT
FRED HOOVER, CENTURYLINK
816-724-1171

WATER UTILITY CONTACT
CLAY COUNTY PUBLIC WATER SUPPLY DISTRICT 8
903 JESSE JAMES FARM ROAD
KEARNEY, MISSOURI 64060

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LENGTH OF PROJECT

BEGINNING OF PROJECT	STA.	100+80.00
END OF PROJECT	STA.	107+60.00
APPARENT LENGTH		680.00 FEET
EQUATIONS AND EXCEPTIONS:		
TOTAL CORRECTIONS		0.00 FEET
NET LENGTH OF PROJECT		680.00 FEET
STATE LENGTH		0.129 MILES

STATE OF MISSOURI
LAWRENCE TODENDO
12-18-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

DATE: 09/23/2019
DATE PREPARED: 09/23/2019
ROUTE: 148TH | STATE: MO
DISTRICT: KC | SHEET NO.: 1
COUNTY: CLAY
JOB NO.: 36201A
CONTRACT ID.:
PROJECT NO.: BRO-B024(27)
BRIDGE NO.: 10700091

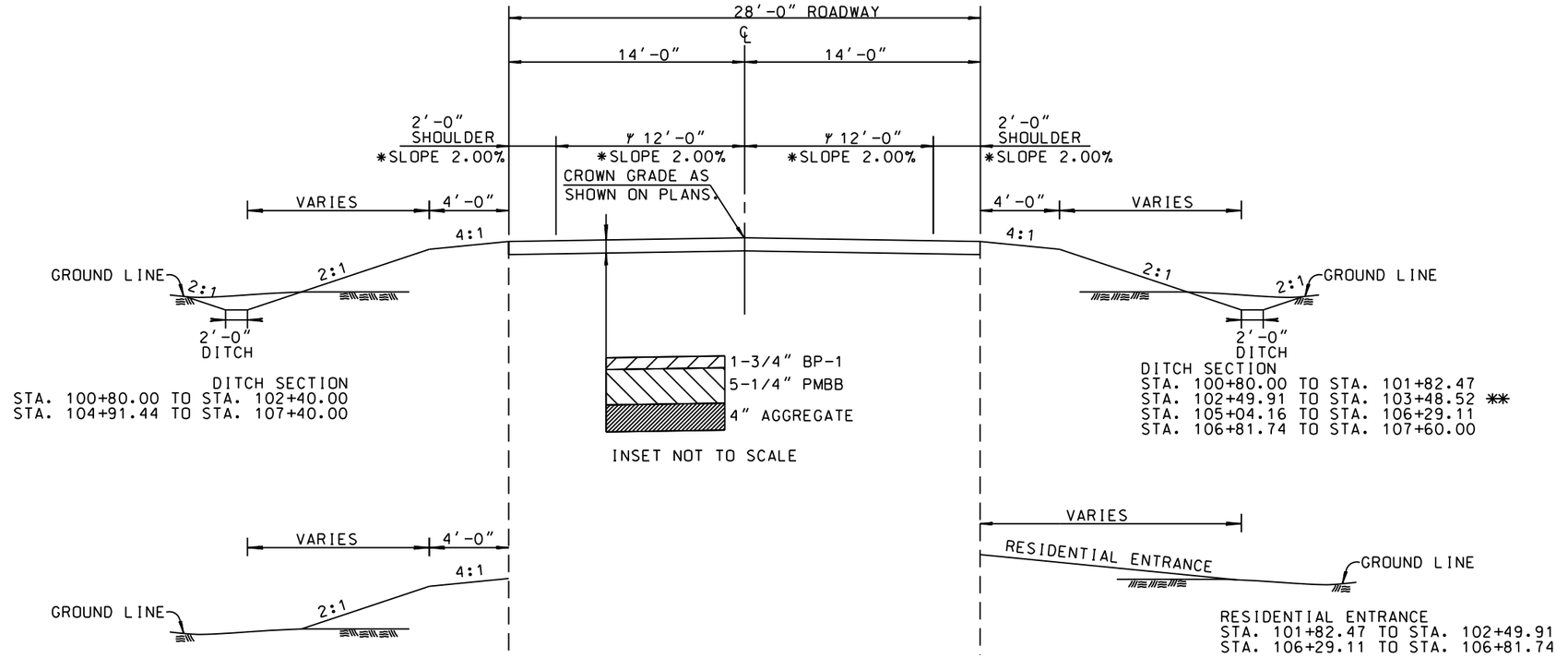
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DESCRIPTION	DATE

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Byandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

TITLE SHEET



* SEE SUPER ELEVATION PROFILE FOR CROSS SLOPE INFORMATION

** DITCH BACKSLOPE VARIATION FROM STA. 102+49.91 TO STA. 103+48.52
6:1 FROM STA. 102+49.91 TO STA. 103+00.00
TRANSITION FROM 6:1 TO 4:1 FROM STA. 103+00.00 TO STA. 103+10.00
4:1 FROM STA. 103+10.00 TO STA. 103+48.52

12'-0" LANE WIDTH IS TYPICAL. SEE BASE FILE FOR LANE WIDENING LIMITS.

STATE OF MISSOURI
LAWRENCE O. ODUENDO
10-31-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

DATE
09/23/2019
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STATE MO
DISTRICT KC
SHEET NO.
COUNTY CLAY
JOB NO. 36201A
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HIGHWAY DEPARTMENT

16616 NE 116TH STREET
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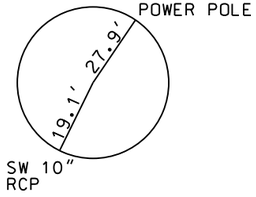
PHONE: (816) 407-3300

SEAL OF CLAY COUNTY MISSOURI

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

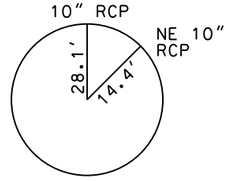
TYPICAL SHEET



CONTROL PT #100

X-E = 2840883.3070 STA 100+46.35
Y-N = 1163347.8410 OFF 6.98' RT
Z = 790.22

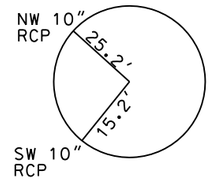
CP #100 - 3/8"
REBAR, NO CAP



CONTROL PT #101

X-E = 2840881.2490 STA 100+86.39
Y-N = 1163299.0570 OFF 29.10 RT
Z = 788.89

CP #101 - 1/2"
REBAR & CAP "LS
174D M&M LAND"



CONTROL PT #102

X-E = 2840904.7210 STA 100+81.91
Y-N = 1163317.8370 OFF 0.57 LT
Z = 790.03

CP #102 - 1/2"
REBAR CAP ILL.

HORIZONTAL DATUM: (US SURVEY FEET)
PID DK7492 CL 45 MISSOURI STATE PLANE (WEST ZONE)
NORTHING: 355,811.181 METERS
EASTING: 872,875.069 METERS
CAF = 0.9999118823

SCALED AROUND 0,0
1 METER = 3.28083333 U.S. SURVEY FEET

MAPPING IS IN GROUND COORDINATES.

VERTICAL DATUM: (US SURVEY FEET)
CL 45 (NGS PID DK7492) (NAVD88).
ALUMINUM DISK IN CONCRETE STAMPED "MODNR CL-45 1990", 34.5 FEET WEST OF THE CENTERLINE OF MISSOURI HIGHWAY 69, 0.15 MILE NORTH OF THE INTERSECTION WITH MISSOURI HIGHWAY 92.

NAVD88 DATUM ELEVATION: 964.6 FEET

148th P1 Curve 1			
P.C. Station	100+00.00	N 1,163,395.3079	E 2,840,880.3062
P.I. Station	100+49.09	N 1,163,346.4323	E 2,840,884.9061
P.T. Station	100+96.28	N 1,163,305.2365	E 2,840,911.5943

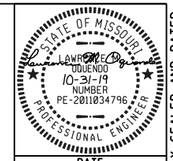
148TH P1 Curve 2			
P.C. Station	101+13.71	N 1,163,290.6111	E 2,840,921.0728
P.I. Station	101+63.32	N 1,163,248.9789	E 2,840,948.0538
P.T. Station	102+12.07	N 1,163,218.0440	E 2,840,986.8384

148TH P1 Curve 3			
P.C. Station	102+12.07	N 1,163,218.0440	E 2,840,986.8384
P.I. Station	103+74.94	N 1,163,116.4827	E 2,841,114.1709
P.T. Station	105+19.81	N 1,163,138.6595	E 2,841,275.5289

148TH P1 Curve 4			
P.C. Station	105+85.72	N 1,163,147.6328	E 2,841,340.8191
P.I. Station	106+59.28	N 1,163,157.6484	E 2,841,413.6924
P.T. Station	107+32.65	N 1,163,158.6884	E 2,841,487.2434

EAST ENTRANCE			
P.C. Station	10+29.30	N 1,163,126.2461	E 2,841,416.8616
P.I. Station	10+31.99	N 1,163,123.5752	E 2,841,417.0622
P.T. Station	10+34.62	N 1,163,120.9816	E 2,841,416.3193

WEST ENTRANCE			
P.C. Station	10+46.12	N 1,163,181.9904	E 2,840,958.0818
P.I. Station	10+56.47	N 1,163,173.8931	E 2,840,951.6234
P.T. Station	10+66.76	N 1,163,167.2914	E 2,840,943.6425



DATE
09/23/2019
DATE PREPARED
09/23/2019
ROUTE 148TH
STATE MO
DISTRICT KC
SHEET NO.
COUNTY CLAY
JOB NO. 36201A
CONTRACT ID.
PROJECT NO. BRO-B024(27)
BRIDGE NO. 10700091

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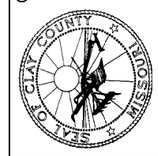
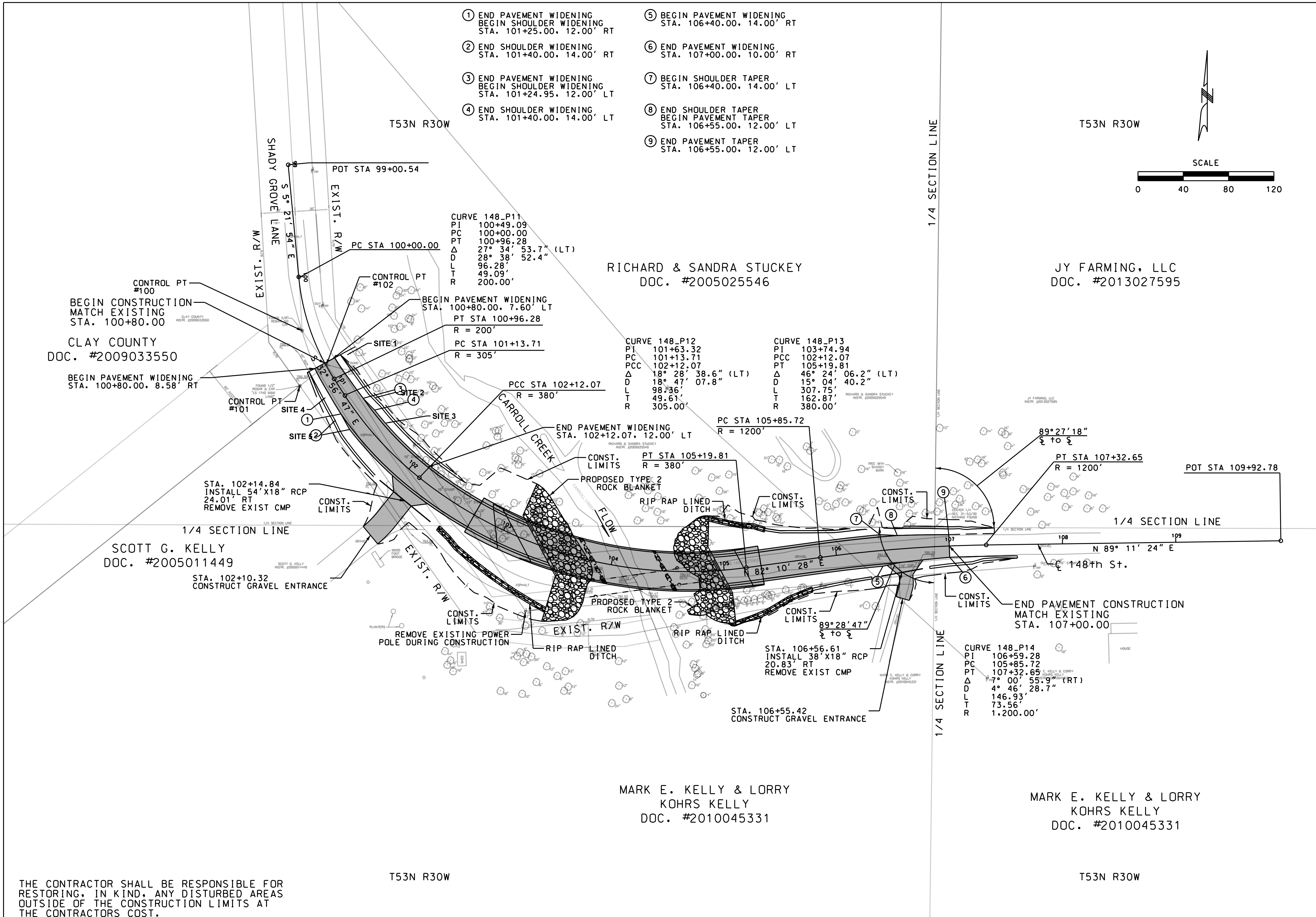
DESCRIPTION | DATE

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300



WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

REFERENCE AND COORDINATES SHEET



① END PAVEMENT WIDENING BEGIN SHOULDER WIDENING STA. 101+25.00, 12.00' RT
② END SHOULDER WIDENING STA. 101+40.00, 14.00' RT
③ END PAVEMENT WIDENING BEGIN SHOULDER WIDENING STA. 101+24.95, 12.00' LT
④ END SHOULDER WIDENING STA. 101+40.00, 14.00' LT
⑤ BEGIN PAVEMENT WIDENING STA. 106+40.00, 14.00' RT
⑥ END PAVEMENT WIDENING STA. 107+00.00, 10.00' RT
⑦ BEGIN SHOULDER TAPER STA. 106+40.00, 14.00' LT
⑧ END SHOULDER TAPER BEGIN PAVEMENT TAPER STA. 106+55.00, 12.00' LT
⑨ END PAVEMENT TAPER STA. 106+55.00, 12.00' LT
T53N R30W
SHADY GROVE LANE
S 5° 21' 54" E
EXIST. R/W
POT STA 99+00.54
PC STA 100+00.00
CURVE 148_P11
PI 100+49.09
PC 100+00.00
PT 100+96.28
Δ 27° 34' 53.7" (LT)
D 28° 38' 52.4"
L 96.28'
T 49.09'
R 200.00'
RICHARD & SANDRA STUCKEY
DOC. #2005025546
JY FARMING, LLC
DOC. #2013027595
1/4 SECTION LINE
SCALE
0 40 80 120
CONTROL PT #100
BEGIN CONSTRUCTION MATCH EXISTING STA. 100+80.00
CONTROL PT #102
BEGIN PAVEMENT WIDENING STA. 100+80.00, 7.60' LT
PT STA 100+96.28
R = 200'
PC STA 101+13.71
R = 305'
CLAY COUNTY
DOC. #2009033550
BEGIN PAVEMENT WIDENING STA. 100+80.00, 8.58' RT
CONTROL PT #101
SITE 1
SITE 2
SITE 3
SITE 4
SITE 5
S 82° 56' 47" E
PCC STA 102+12.07
R = 380'
CURVE 148_P12
PI 101+63.32
PC 101+13.71
PCC 102+12.07
Δ 18° 28' 38.6" (LT)
D 18° 47' 07.8"
L 98.36'
T 49.61'
R 305.00'
CURVE 148_P13
PI 103+74.94
PCC 102+12.07
PT 105+19.81
Δ 46° 24' 06.2" (LT)
D 15° 04' 40.2"
L 307.75'
T 162.87'
R 380.00'
CARROLL CREEK
END PAVEMENT WIDENING STA. 102+12.07, 12.00' LT
PC STA 105+85.72
R = 1200'
CONST. LIMITS
PT STA 105+19.81
R = 380'
PROPOSED TYPE 2 ROCK BLANKET
RIP RAP LINED DITCH
FLOW
89°27'18" ℄ to ℄
PT STA 107+32.65
R = 1200'
POT STA 109+92.78
STA. 102+14.84 INSTALL 54"X18" RCP 24.01' RT REMOVE EXIST CMP
SCOTT G. KELLY
DOC. #2005011449
STA. 102+10.32 CONSTRUCT GRAVEL ENTRANCE
N 82° 10' 28" E
N 89° 11' 24" E
℄ 148th St.
END PAVEMENT CONSTRUCTION MATCH EXISTING STA. 107+00.00
REMOVE EXISTING POWER POLE DURING CONSTRUCTION
89°28'47" ℄ to ℄
STA. 106+56.61 INSTALL 38"X18" RCP 20.83' RT REMOVE EXIST CMP
CURVE 148_P14
PI 106+59.28
PC 105+85.72
PT 107+32.65
Δ 7° 00' 55.9" (RT)
D 4° 46' 28.7"
L 146.93'
T 73.56'
R 1,200.00'
STA. 106+55.42 CONSTRUCT GRAVEL ENTRANCE
MARK E. KELLY & LORRY KOHRS KELLY
DOC. #2010045331
THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING, IN KIND, ANY DISTURBED AREAS OUTSIDE OF THE CONSTRUCTION LIMITS AT THE CONTRACTORS COST.

STATE OF MISSOURI
LAWRENCE OBUENDO
10-31-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DATE	09/23/2019
DATE PREPARED	09/23/2019
ROUTE 148TH	STATE MO
DISTRICT KC	SHEET NO.
COUNTY	CLAY
JOB NO.	36201A
CONTRACT ID.	
PROJECT NO.	BRO-B024(27)
BRIDGE NO.	10700091

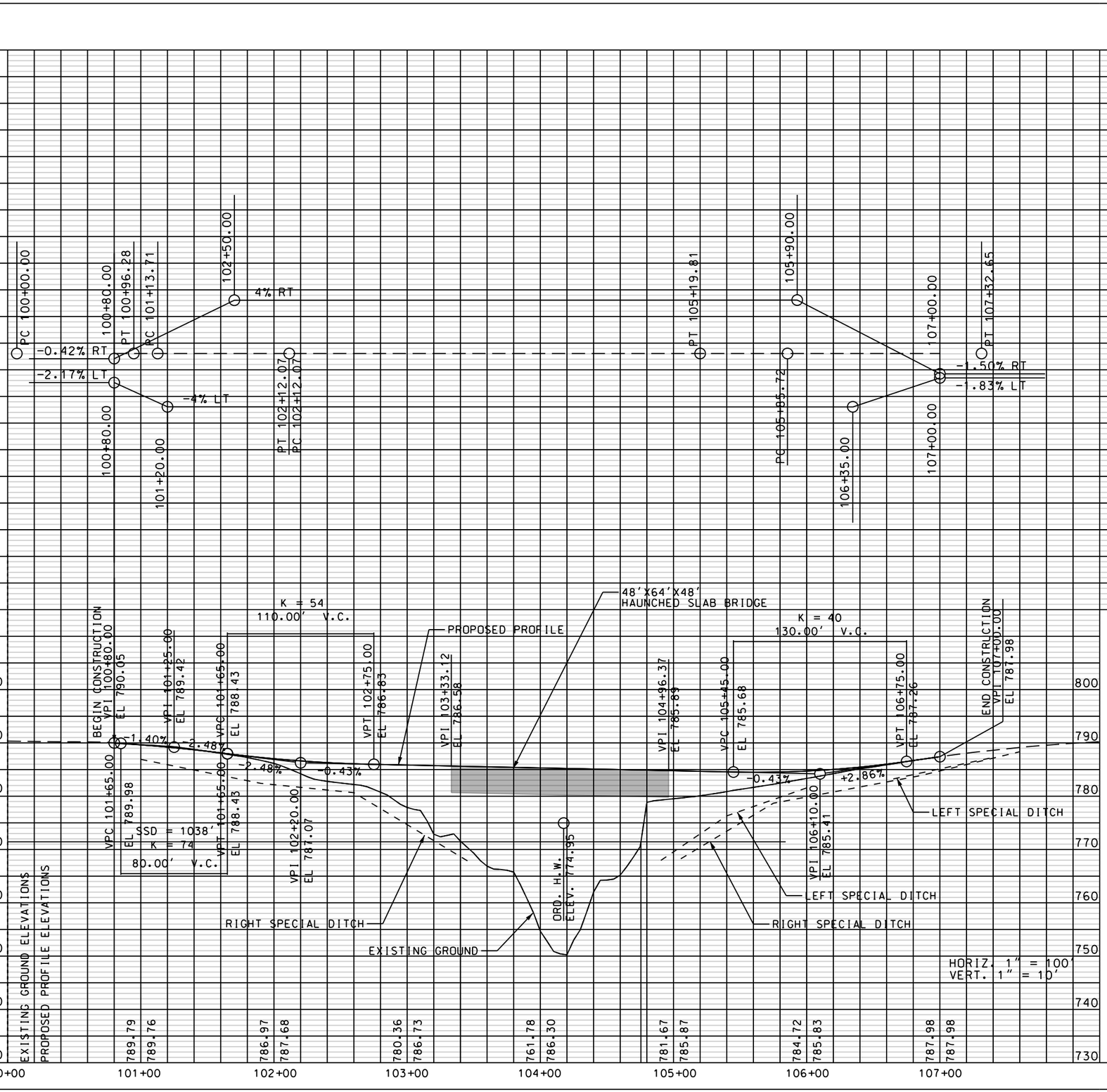
DATE | DESCRIPTION

CLAY COUNTY, MISSOURI HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

SEAL OF CLAY COUNTY MISSOURI

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

PLAN SHEET



LEFT DITCH PROFILE DATA				
		STATION	ELEV	GRADE%
VPI	1	104+88.88	772.20	
VPI	2	105+40.00	779.10	13.50%
VPI	3	106+00.00	783.30	7.00%
VPI	1	106+65.00	784.65	
VPI	2	107+40.00	787.87	4.30%

RIGHT DITCH PROFILE DATA				
		STATION	ELEV	GRADE%
VPI	1	101+00.00	787.58	
VPI	2	101+90.00	783.98	-4.00%
VPI	3	102+60.00	782.58	-2.00%
VPI	4	103+55.60	771.11	-12.00%
VPI	1	105+05.48	772.66	
VPI	2	105+75.00	781.00	12.00%
VPI	3	106+85.00	785.13	3.75%
VPI	4	107+60.00	788.73	4.80%

STATE OF MISSOURI
LAWRENCE D. QUENDO
10-31-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

DATE
09/23/2019

DATE PREPARED
09/23/2019

ROUTE	STATE
148TH	MO
DISTRICT	SHEET NO.
KC	

COUNTY
CLAY

JOB NO.
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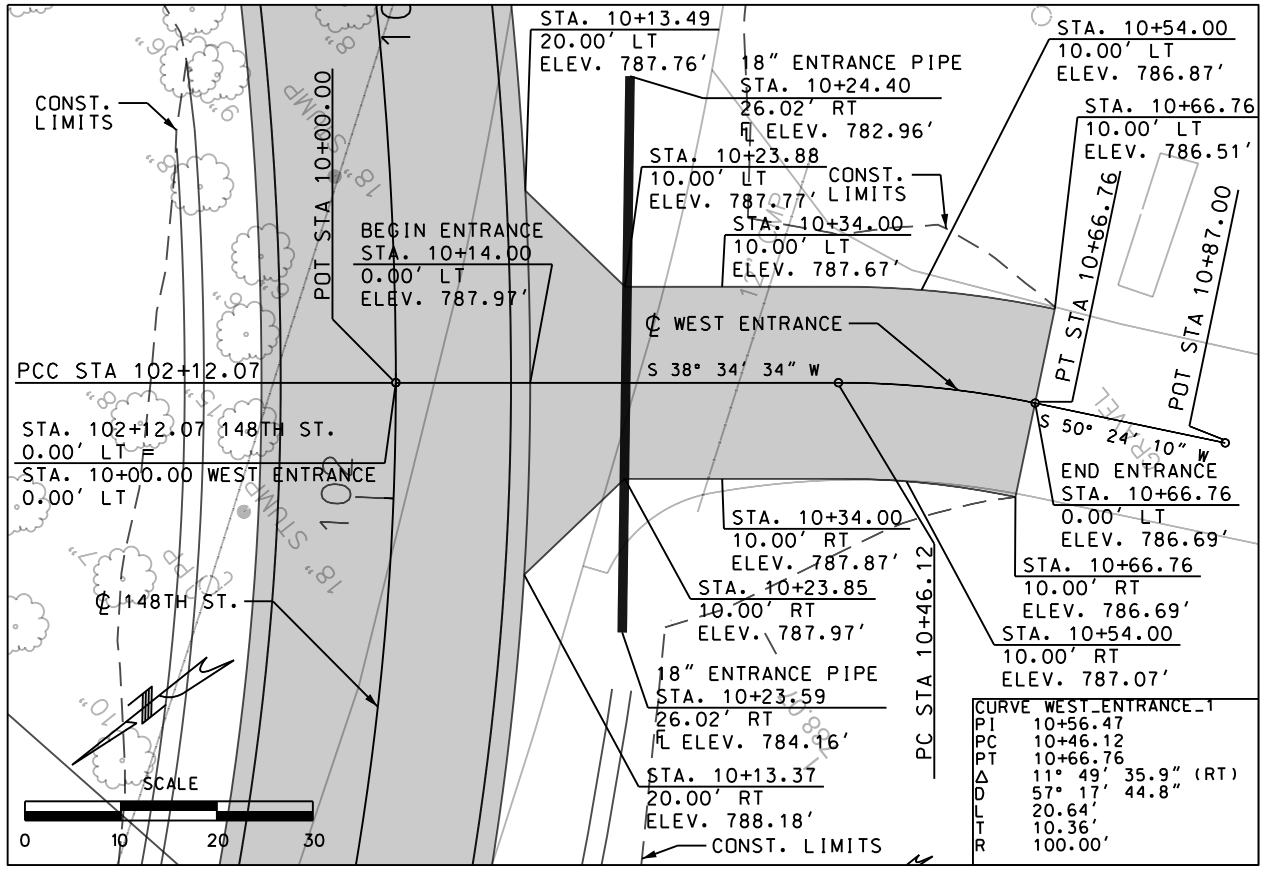
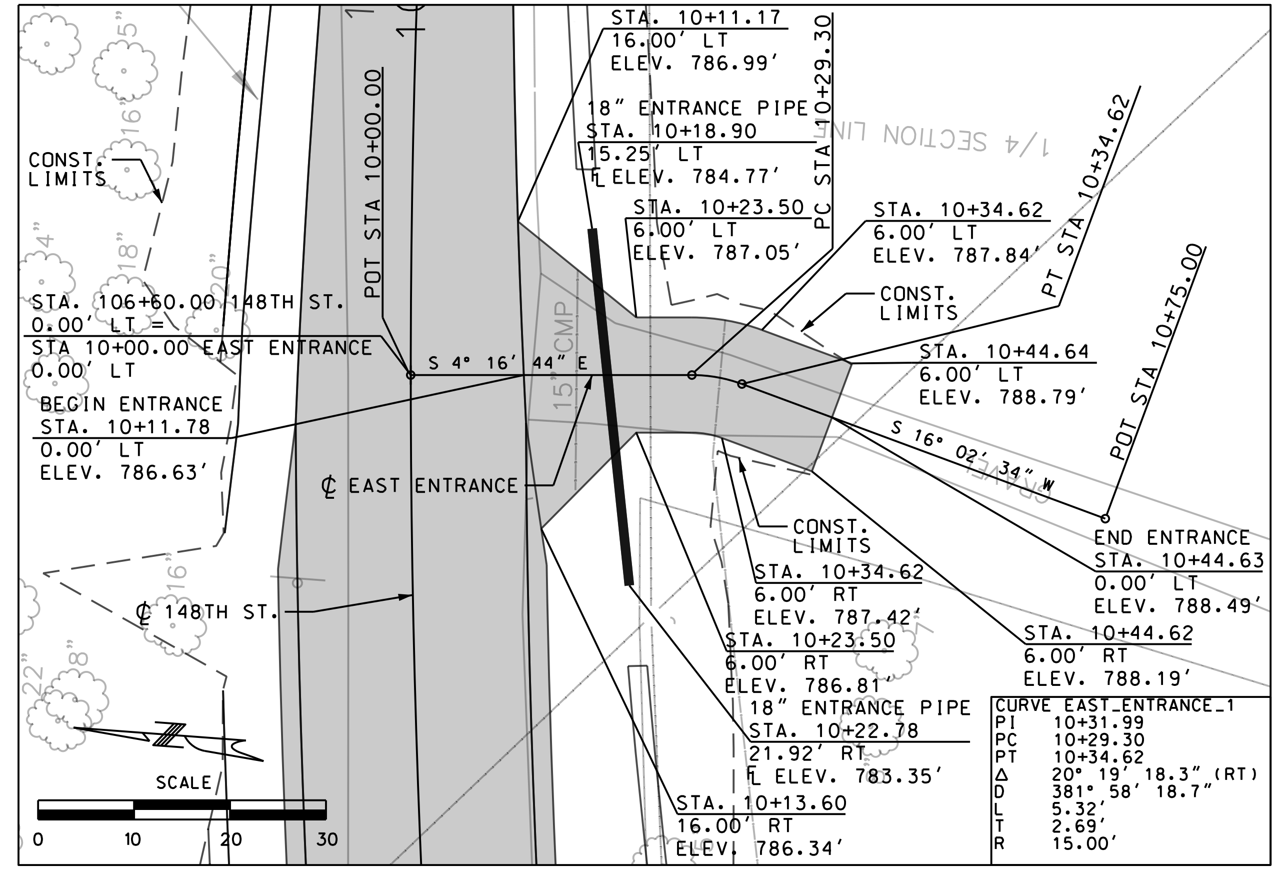
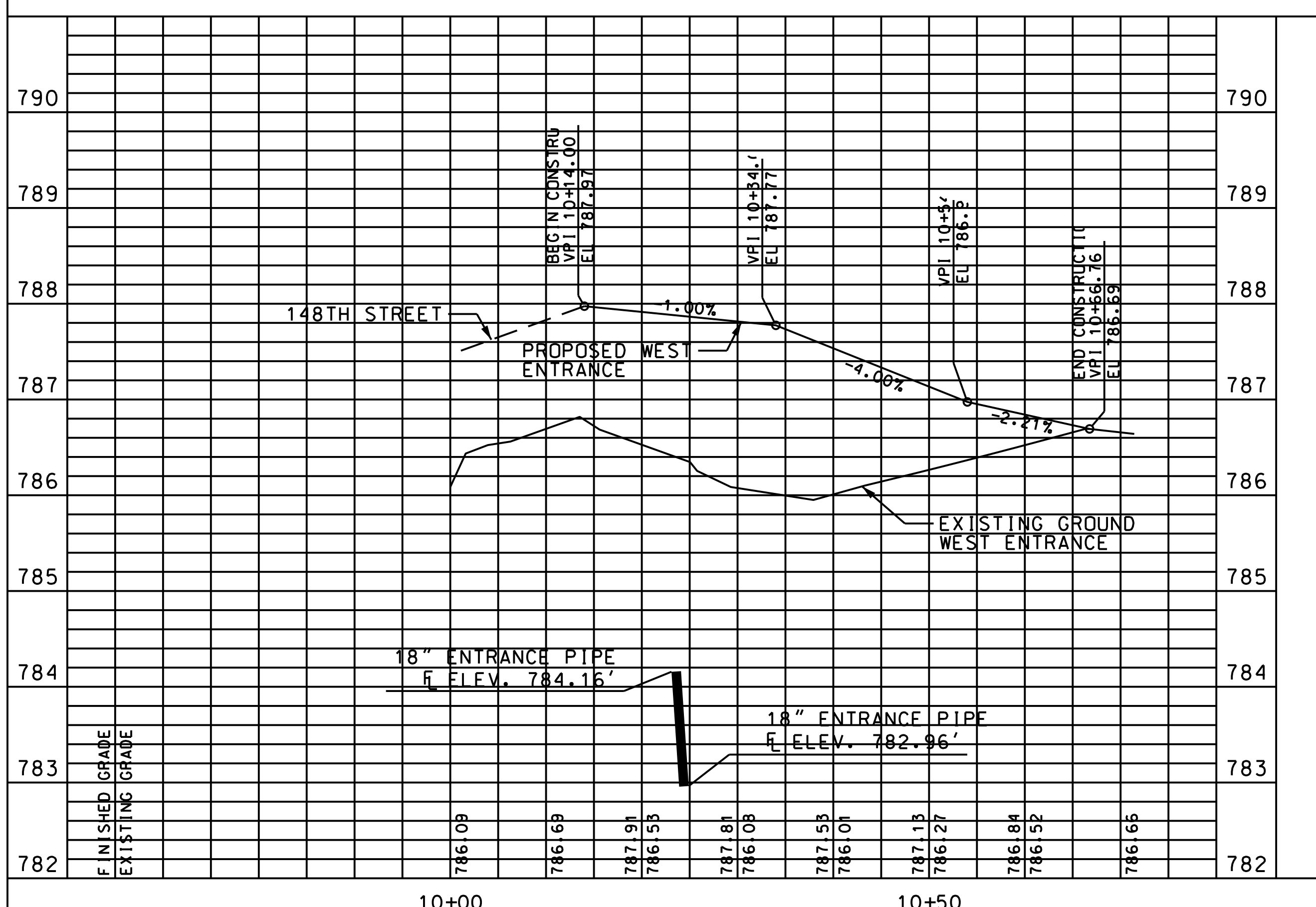
KEARNEY, MO 64060
PHONE: (816) 407-3300

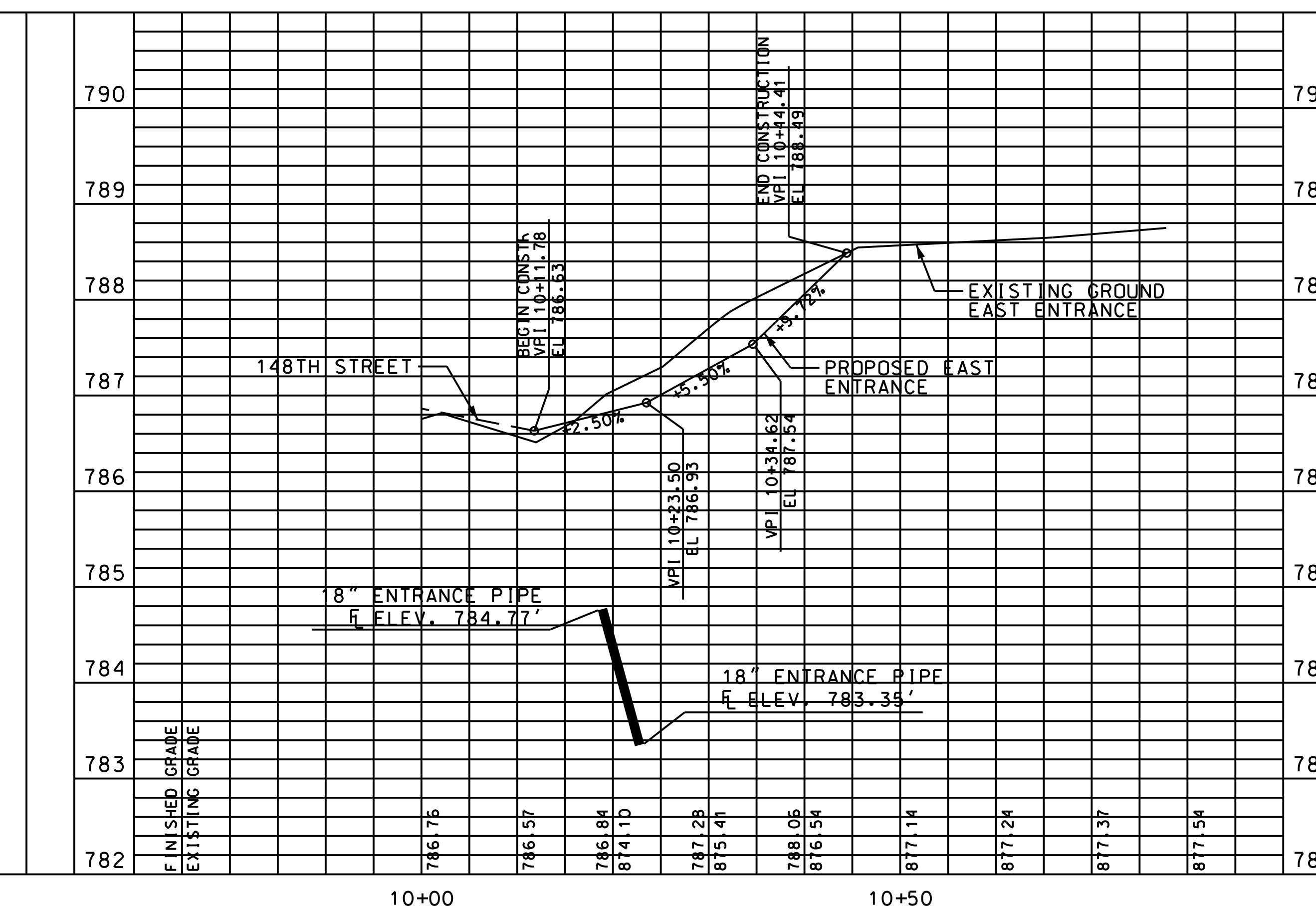
WSP USA Inc.
301 Wyandotte Street
Suite 700
Kansas City, MO 64105
913.310.9943

PROFILE SHEET









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LAWRENCE OQUENDO
10-31-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

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CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT

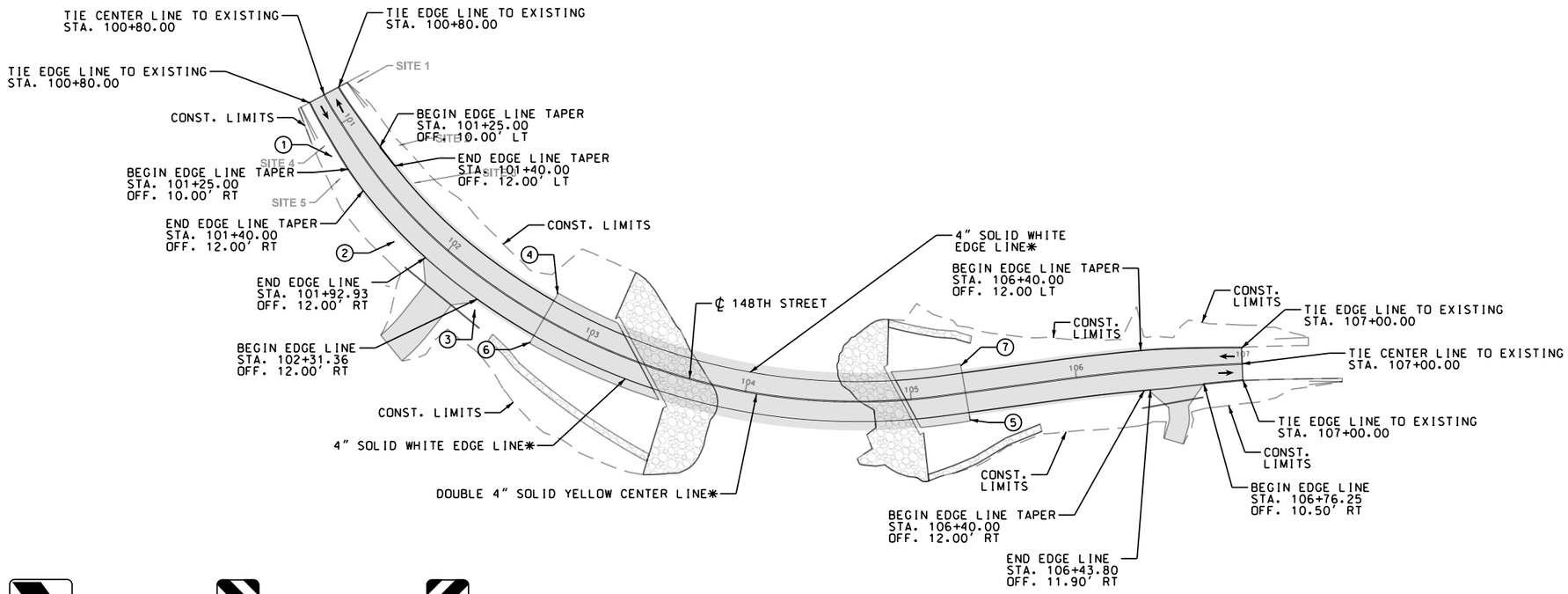
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

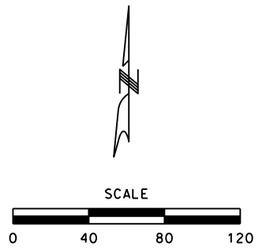
SEAL OF CLAY COUNTY MISSOURI

WSP

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

ENTRANCE PROFILES





STATE OF MISSOURI
LAWRENCE D. QUDENDO
10-31-19
NUMBER
PE-2011034796
PROFESSIONAL ENGINEER

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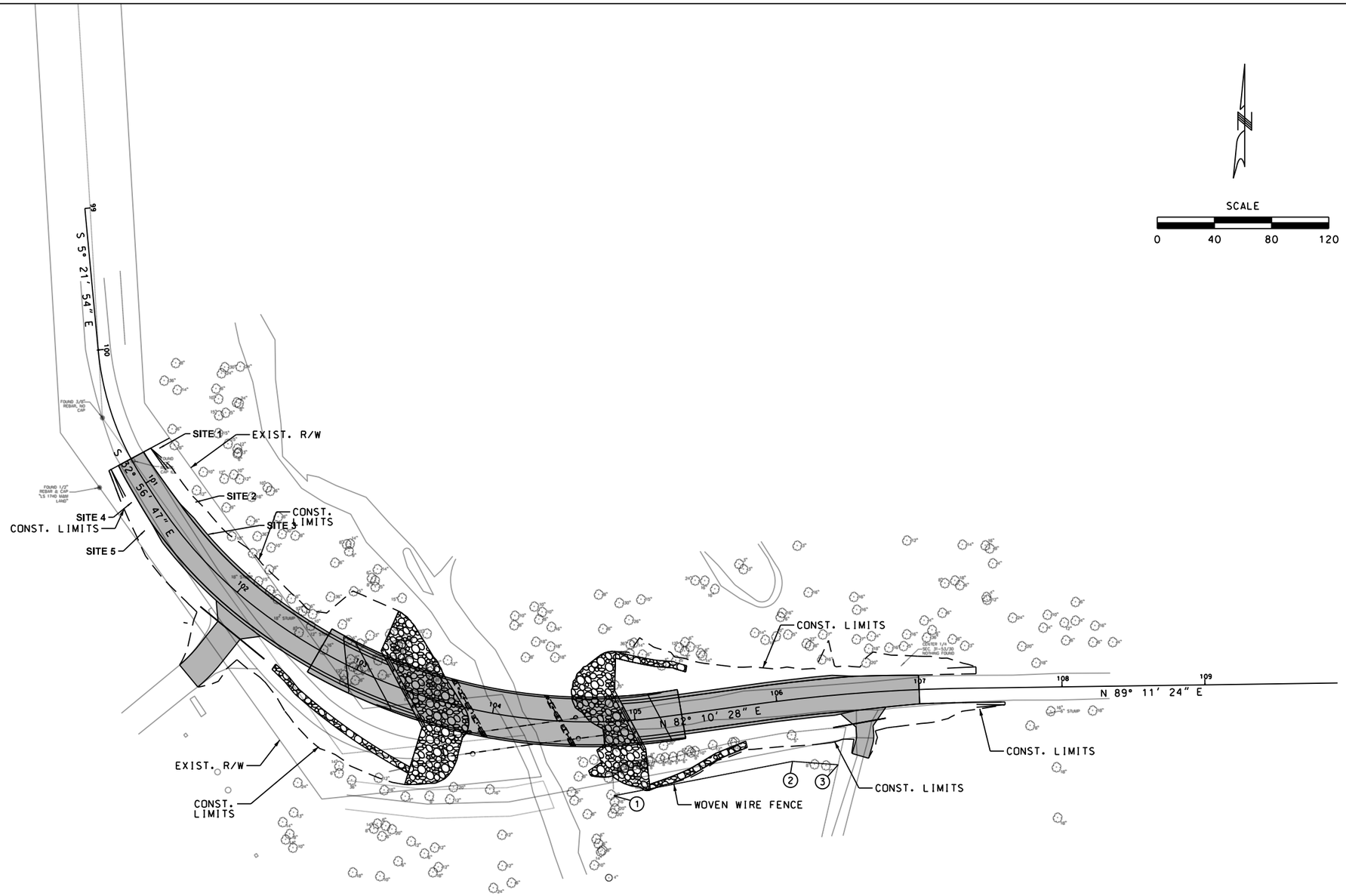
913.310.9943

SIGNING AND STRIPING SHEET



SCALE

0 40 80 120

① WOVEN WIRE FENCE
STA./OFF. 104+83.00 / 52.00' RT

② WOVEN WIRE FENCE
STA./OFF. 106+06.00 / 43.00' RT

③ WOVEN WIRE FENCE
STA./OFF. 106+38.75 / 48.75' RT

— — CONSTRUCTION LIMITS

——— WOVEN WIRE FENCE

STATE OF MISSOURI
LAWRENCE D. DUDENDO
10-31-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

DATE
09/23/2019

DATE PREPARED
09/23/2019

ROUTE	STATE
148TH	MO

DISTRICT	SHEET NO.
KC	

COUNTY
CLAY

JOB NO.
36201A

CONTRACT ID.

PROJECT NO.
BRO-B024(27)

BRIDGE NO.
10700091

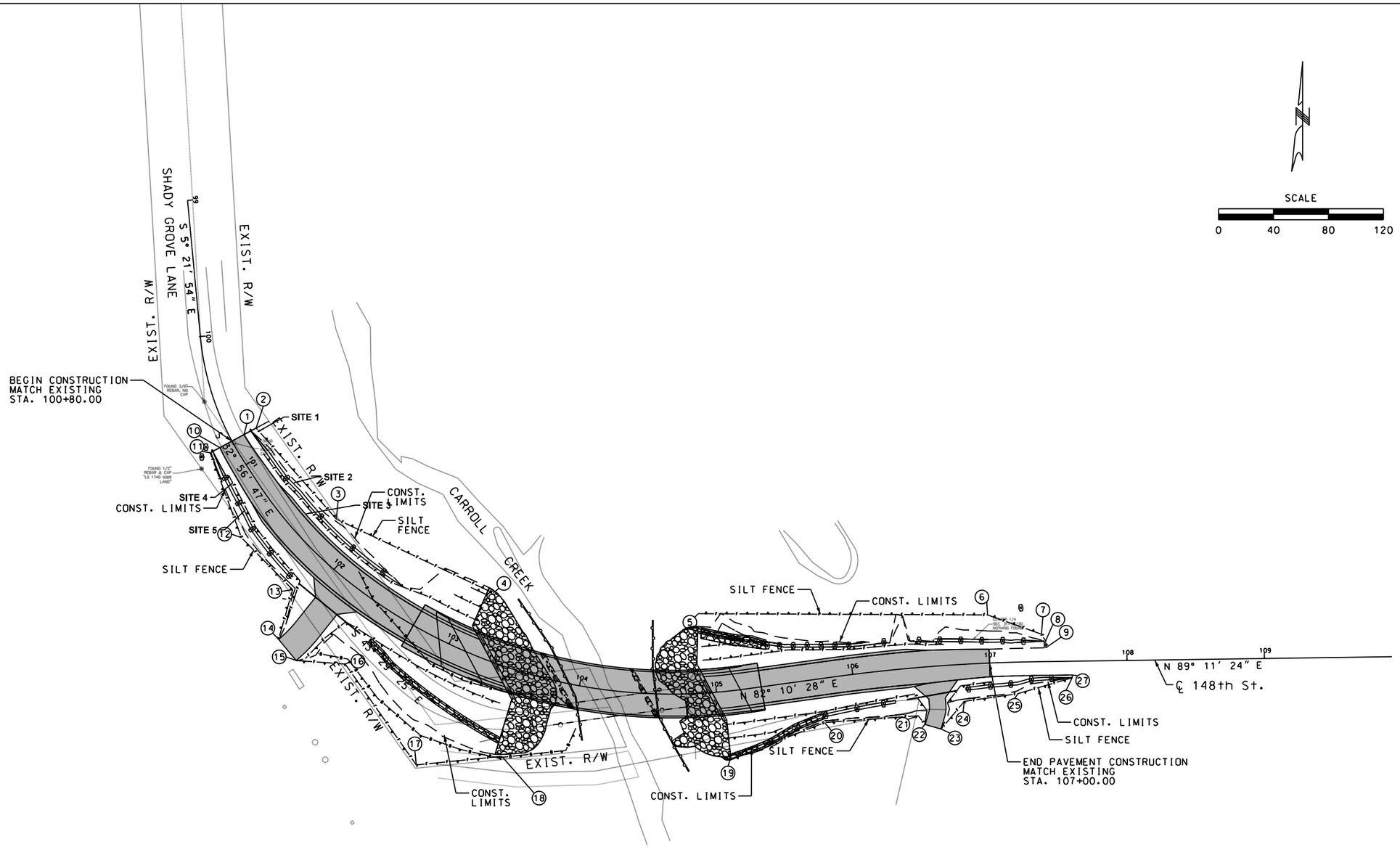
DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

PROPOSED FENCE SHEET



① SILT FENCE STA./OFF. 100+80.00 / 10.00' LT
② SILT FENCE STA./OFF. 100+80.00 / 20.00' LT
③ SILT FENCE STA./OFF. 101+75.00 / 28.00' LT
④ SILT FENCE STA./OFF. 103+15.00 / 47.00' LT
⑤ SILT FENCE STA./OFF. 104+90.00 / 58.00' LT
⑥ SILT FENCE STA./OFF. 107+00.00 / 35.00' LT
⑦ SILT FENCE STA./OFF. 107+38.00 / 20.00' LT
⑧ SILT FENCE STA./OFF. 107+41.00 / 15.00' LT
⑨ SILT FENCE STA./OFF. 107+41.00 / 10.00' LT
⑩ SILT FENCE STA./OFF. 100+80.00 / 10.00' RT
⑪ SILT FENCE STA./OFF. 100+80.00 / 18.00' RT
⑫ SILT FENCE STA./OFF. 101+40.00 / 33.00' RT
⑬ SILT FENCE STA./OFF. 101+88.00 / 31.00' RT
⑭ SILT FENCE STA./OFF. 102+02.00 / 65.00' RT
⑮ SILT FENCE STA./OFF. 102+19.00 / 69.00' RT
⑯ SILT FENCE STA./OFF. 102+45.00 / 50.00' RT
⑰ SILT FENCE STA./OFF. 103+13.00 / 90.00' RT
⑱ SILT FENCE STA./OFF. 103+60.00 / 63.00' RT
⑲ SILT FENCE STA./OFF. 105+05.00 / 50.00' RT
⑳ SILT FENCE STA./OFF. 105+75.00 / 32.00' RT
㉑ SILT FENCE STA./OFF. 106+45.00 / 35.00' RT
㉒ SILT FENCE STA./OFF. 106+50.00 / 42.00' RT
㉓ SILT FENCE STA./OFF. 106+61.00 / 46.00' RT
㉔ SILT FENCE STA./OFF. 106+80.00 / 27.00' RT
㉕ SILT FENCE STA./OFF. 107+20.00 / 23.00' RT
㉖ SILT FENCE STA./OFF. 107+60.00 / 12.00' RT
㉗ SILT FENCE STA./OFF. 107+60.00 / 10.00' RT

TEMPORARY DITCH CHECK (A A A A)
SILT FENCE DURING DEMOLITION
SILT FENCE DURING CONSTRUCTION
TEMPORARY BERM
ROCK LINED DITCH(*)
ROCK BLANKET TYPE 2

(*) INSTALL PERMANENT ROCK DITCH LINING DURING CONSTRUCTION

STATE OF MISSOURI
LAWRENCE O. DUDENDO
10-31-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

DATE
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ROUTE: 148TH
STATE: MO
DISTRICT: KC
SHEET NO.:
COUNTY: CLAY
JOB NO.: 36201A
CONTRACT ID.:
PROJECT NO.: BRO-B024(27)
BRIDGE NO.: 10700091

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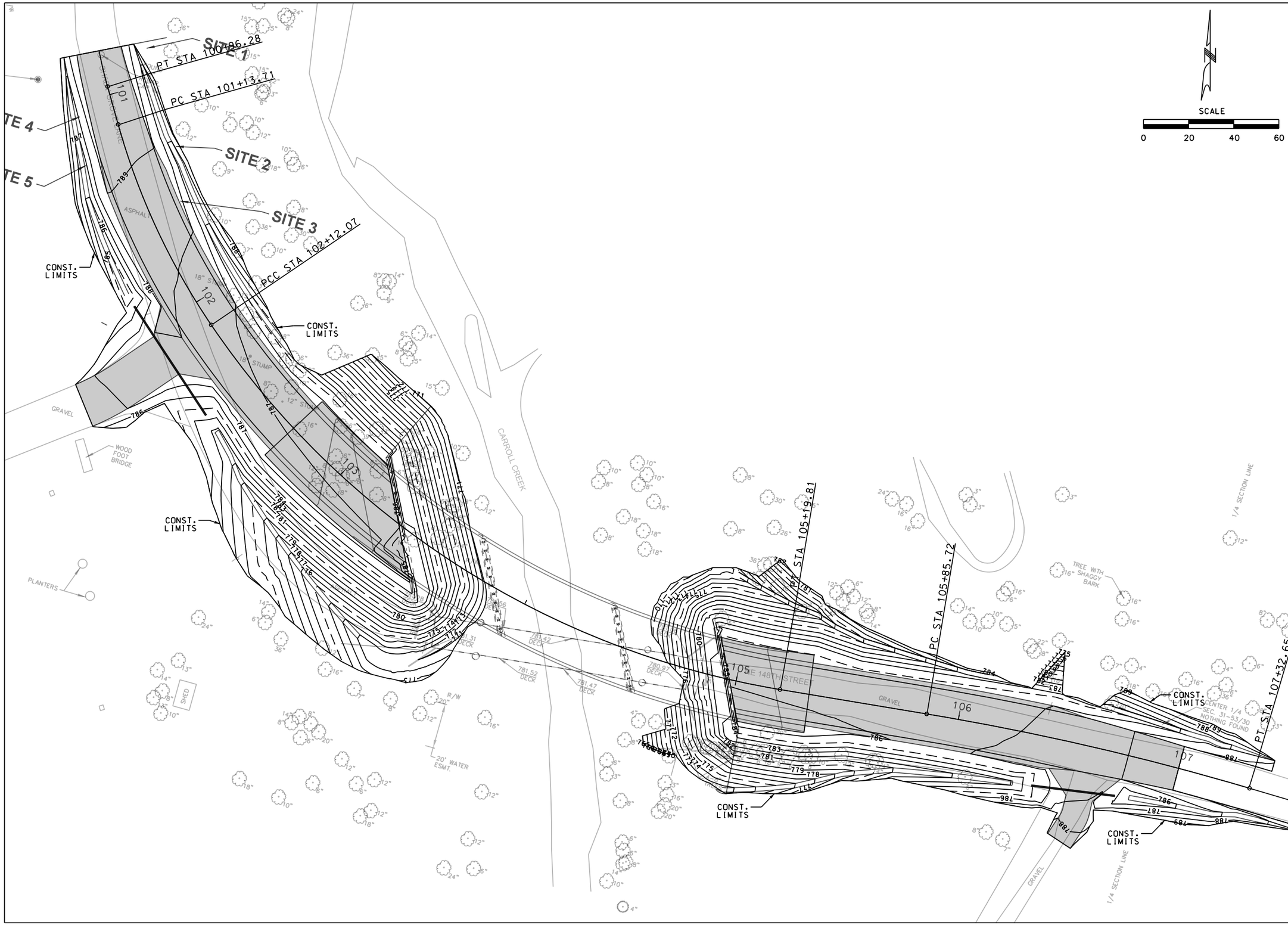
DESCRIPTION | DATE

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

SEAL OF CLAY COUNTY MISSOURI

WSP
WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

TEMPORARY EROSION CONTROL SHEET



STATE OF MISSOURI
LAWRENCE D. QUIDENDO
10-31-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

DATE	09/23/2019
DATE PREPARED	09/23/2019
ROUTE	148TH
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DISTRICT	KC
SHEET NO.	
COUNTY	CLAY
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CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT

16616 NE 116TH STREET
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300 Wyandotte Street
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913.310.9943

GRADING CONTOUR SHEET

(1) ELECTRIC POWER POLE
EXIST. STA./OFF. 99+07.12 / 20.94' LT
PROP. STA./OFF. 99+00.54 / 20.94' LT

(2) ELECTRIC POWER POLE
EXIST. STA./OFF. 100+29.40 / 16.70' LT
PROP. STA./OFF. 100+29.40 / 16.70' LT

(3) ELECTRIC POWER POLE
EXIST. STA./OFF. 101+84.44 / 27.46' LT
PROP. STA./OFF. 101+89.26 / 18.82' LT

(4) ELECTRIC POWER POLE
EXIST. STA./OFF. 103+56.49 / 18.33' RT
PROP. STA./OFF. 103+41.56 / 58.90' RT

(5) ELECTRIC POWER POLE
EXIST. STA./OFF. 105+01.68 / 166.44' LT
PROP. STA./OFF. 104+36.03 / 161.14' LT

(6) ELECTRIC POWER POLE
EXIST. STA./OFF. 106+12.71 / 24.02' RT
PROP. STA./OFF. 105+82.98 / 24.02' RT

(7) ELECTRIC POWER POLE
EXIST. STA./OFF. 106+63.89 / 24.07' RT
PROP. STA./OFF. 106+34.16 / 24.07' RT

(8) ELECTRIC POWER POLE
EXIST. STA./OFF. 108+04.81 / 19.20' RT
PROP. STA./OFF. 107+75.08 / 19.20' RT

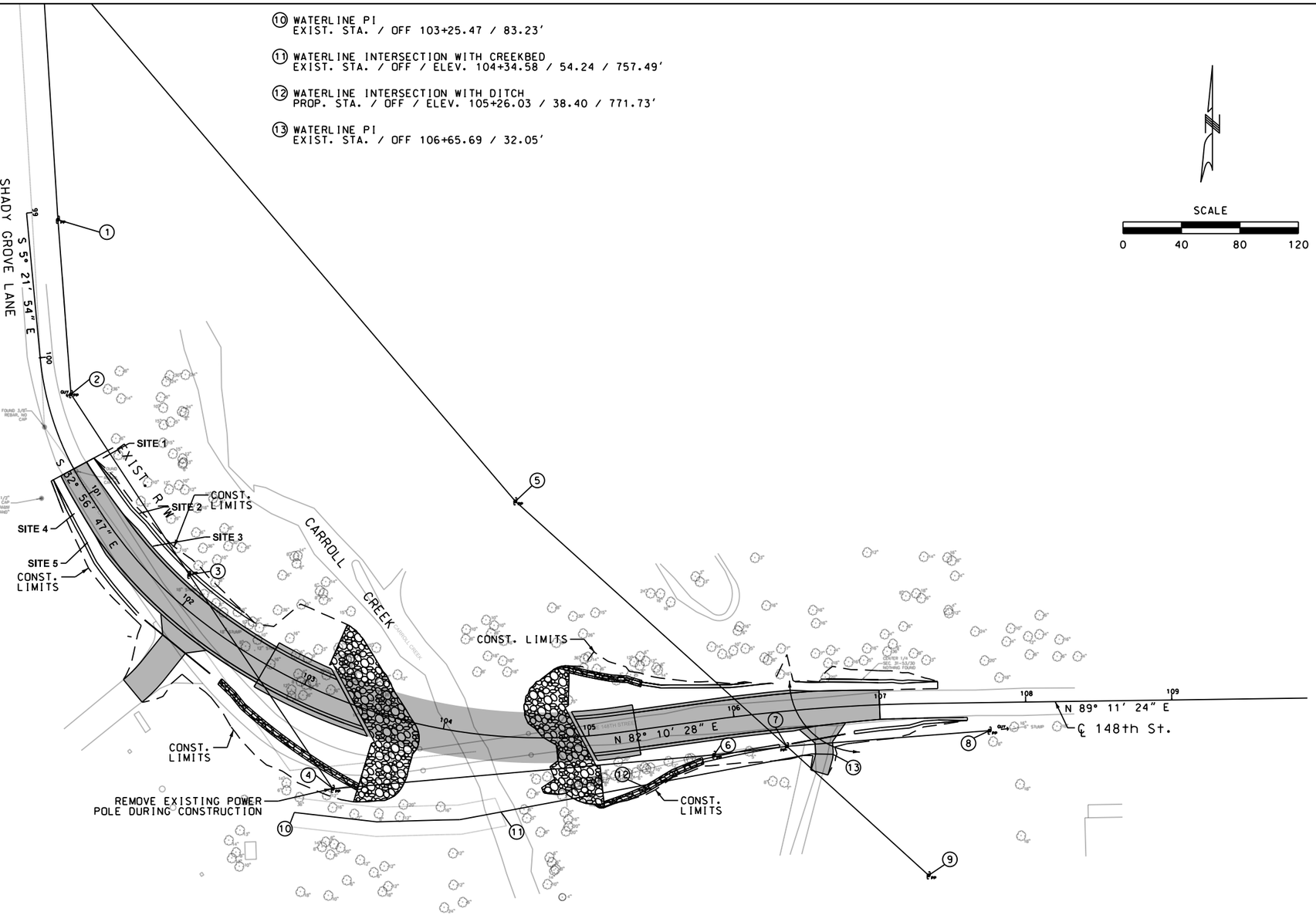
(9) ELECTRIC POWER POLE
EXIST. STA./OFF. 107+61.64 / 117.65' RT
PROP. STA./OFF. 107+31.91 / 117.65' RT

(10) WATERLINE PI
EXIST. STA. / OFF 103+25.47 / 83.23'

(11) WATERLINE INTERSECTION WITH CREEKBED
EXIST. STA. / OFF / ELEV. 104+34.58 / 54.24 / 757.49'

(12) WATERLINE INTERSECTION WITH DITCH
PROP. STA. / OFF / ELEV. 105+26.03 / 38.40 / 771.73'

(13) WATERLINE PI
EXIST. STA. / OFF 106+65.69 / 32.05'



ELECTRICAL UTILITY CONTACT
FRED HOOVER, CENTURYLINK
816-724-1171

WATER UTILITY CONTACT
CLAY COUNTY PUBLIC WATER SUPPLY DISTRICT 8
903 JESSE JAMES FARM ROAD
KEARNEY, MISSOURI 64060

STATE OF MISSOURI
LAWRENCE D. ODUENDO
10-31-19
NUMBER PE-2011034796
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SEAL OF CLAY COUNTY MISSOURI

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

EXISTING UTILITY LOCATIONS SHEET

① PROP R/W = EXIST R/W
STA. 101+75.00
OFF. 29.46' LT

② PROP R/W
STA. 103+20.00
OFF. 55.00' LT

③ PROP R/W
STA. 105+00.00
OFF. 60.00' LT

④ PROP R/W
STA. 106+95.00
OFF. 36.00' LT

⑤ PROP R/W = ¼ SEC LINE
STA. 107+60.00
OFF. 14.87' LT

⑥ PROP R/W = CL
STA. 107+60.00
OFF. 0.00' LT

⑦ T.C.E. = EXIST R/W
STA. 100+86.43
OFF. 29.09' RT

⑧ T.C.E.
STA. 100+87.08
OFF. 34.04' RT
(5' RT OFFSET FROM EXIST R/W)

⑨ T.C.E.
STA. 101+89.23
OFF. 39.24' RT
(5' RT OFFSET FROM EXIST R/W)

⑩ T.C.E.
STA. 101+85.07
OFF. 63.76' RT
(30' RT OFFSET FROM EXIST R/W)

⑪ T.C.E.
STA. 102+31.46
OFF. 78.88' RT
(30' RT OFFSET FROM EXIST R/W)

⑫ T.C.E.
STA. 102+40.00
OFF. 50.59' RT
(5' RT OFFSET FROM EXIST R/W)

⑬ PROP R/W = EXIST R/W
STA. 104+15.00
OFF. 45.04' RT

⑭ PROP R/W =
EXIST WATER LINE EASEMENT
STA. 104+20.92
OFF. 69.43' RT

⑮ PROP R/W
STA. 106+00.00
OFF. 45.00' RT

⑯ PROP R/W
STA. 106+60.00
OFF. 51.00' RT

⑰ PROP R/W
STA. 107+60.00
OFF. 15.00' RT

T53N R30W

T53N R30W

SCALE
0 40 80 120

CLAY COUNTY

SHADY GROVE LANE

EXIST. R/W

S 5° 21' 54" E

EXIST. R/W

BEGIN PAVEMENT WIDENING
STA. 100+80.00, 7.60' LT

RICHARD & SANDRA STUCKEY
STUCKEY, TRUSTEES
DOC. #2005025546

1/4 SECTION LINE

PROPERTY LINE

JY FARMING, LLC
DOC. #2013027595

SITE 1

CONST. LIMITS

S 82° 56' 47" E

SITE 2

SITE 3

SITE 4

T.C.E.

SITE 5

PROP R/W

CARROL CREEK

CONST. LIMITS

PROP R/W

1/4 SECTION LINE

T.C.E.

EXIST. R/W

N 82° 10' 28" E

N 89° 11' 24" E

PROPERTY LINE

END PAVEMENT CONSTRUCTION
MATCH EXISTING
STA. 107+00.00

SCOTT G. KELLY
DOC. #2005011449

EXIST. R/W

PROP R/W

CONST. LIMITS

1/4 SECTION LINE

MARK E. KELLY & CORRY
KOHRS KELLY

MARK E. KELLY & LORRY
KOHRS KELLY
DOC. #2010045331

NOTES:
- T.C.E. = TEMPORARY CONSTRUCTION EASEMENT
- R/W FROM POINTS 14 TO 15 PARALLEL AN EXISTING WATER LINE EASEMENT

T53N R30W

T53N R30W

STATE OF MISSOURI
LAWRENCE D. QUENDO
10-31-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

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ROUTE 148TH
STATE MO
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SEAL OF CLAY COUNTY MISSOURI

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

RIGHT OF WAY PLAN

ROADWAY QUANTITIES

ITEM	TOTAL	UNITS
CONTRACTOR FURNISHED SURVEYING AND STAKING	1	LUMP SUM
MOBILIZATION	1	LUMP SUM
BITUMINOUS PAVEMENT MIXTURE PG64-22 (BP-1)	109	TONS
BITUMINOUS PAVEMENT MIXTURE PG64-22 (BASE)	337	TONS
TYPE 1 AGGREGATE FOR BASE (4 IN. THICK)	1281	SOYD
TYPE 1 AGGREGATE FOR BASE (6 IN. THICK)	57	SOYD
CLEARING AND GRUBBING	0.67	ACRE
4 IN. WHITE STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS	1168	LF
4 IN. YELLOW STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS	1240	LF
FLAT SHEET	21	SF
ALTERNATE DITCH CHECK	186	LF
TYPE C BERM	231	LF
SEDIMENT REMOVAL	32	CUYD
18 IN. CORRUGATED OR SPECIFIED EQUIVALENT SMOOTH INTERIOR PIPE GROUP C	92	LF
18 IN. (450 MM) OR ALLOWED SUBSTITUTE GROUP C FLARED END SECTION	4	EA
WOVEN WIRE FENCE	159	LF
SILT FENCE	2521	LF
PLACING TYPE 3 ROCK DITCH LINER	40	CUYD
PLACING TYPE 2 ROCK BLANKET	442	CUYD
UNCLASSIFIED EXCAVATION	728.25	CUYD
COMPACTING EMBANKMENT	2495.63	CUYD
WOOD POST, 4 IN. BY 4 IN.	30	LF
SEEDING - COOL SEASON MIXTURES	0.40	ACRE

EROSION CONTROL (* For Information Only)

SHEET NO.	LOCATION STATION	LOCATION OFFSET	STATION	OFFSET	METHODS SILT FENCE LF	DITCH CHECK ROCK LF	DITCH CHECK LOG/SOCK LF	TYPE C BERM LF	SEDIMENT REMOVAL CUYD	REMARKS
	DEMOLITION EROSION CONTROL									
9	102+26.00	55.00' RT	104+02.00	32.00' RT	225.00				2.3	
9	102+15.00	10.50' RT	104+00.00	16.00' RT	225.00				2.3	
	CONSTRUCTION EROSION CONTROL									
	WEST END OF BRIDGE									
9	100+80.00	10.00' RT	102+02.00	65.00' RT	164.43					General Site limits
9	102+19.00	69.00' RT	103+60.00	63.00' RT	188.11					General Site limits
9	100+80.00	10.00' LT	103+15.00	47.00' LT	224.40					General Site limits
9	101+00.00	15.00' RT	101+90.00	22.50' RT	90.00				0.9	
9	101+90.00	22.00' RT	102+00.00	53.00' RT	34.00				0.3	
9	102+23.00	63.00' RT	102+30.00	24.00' RT	40.00				0.4	
9	102+30.00	24.00' RT	103+50.00	25.00' RT	120.00				1.2	
9	101+00.00	15.00' RT	102+40.00	18.00' LT	140.00				1.4	
9	102+40.00	18.00' RT	103+12.60	24.00' LT	72.60				0.7	
9	102+86.00	34.00' RT	103+12.60	34.00' RT	26.60				0.3	
9	102+96.00	44.00' RT	103+12.60	44.00' RT	16.60				0.2	
9	101+00.00	17.80' RT					6		0.5	
9	101+20.00	19.70' RT					6		0.5	
9	101+40.00	23.00' RT					7		0.5	
9	101+60.00	24.00' RT					7		0.5	
9	101+80.00	25.00' RT					6		0.5	
9	101+25.00	19.00' RT					6		0.5	
9	101+65.00	21.00' RT					6		0.5	
9	102+00.00	21.00' RT					6		0.5	
9	102+30.00	21.00' RT					6		0.5	
9	103+36.00	50.00' LT	104+08.00	40.00' RT				115.00	1.2	
	EAST END OF BRIDGE									
9	105+05.00	50.00' RT	106+50.00	42.00' RT	150.28					General Site limits
9	106+61.00	46.00' RT	107+60.00	10.00' RT	108.92					General Site limits
9	104+90.00	58.00' LT	107+41.00	10.00' LT	263.07					General Site limits
9	104+50.00	54.00' RT	104+78.00	56.00' RT				116.00	1.2	
9	105+05.00	34.00' RT	105+44.00	32.00' RT	41.00				0.41	
9	105+05.00	24.00' RT	106+44.00	19.00' RT	139.00				1.39	
9	106+44.00	19.00' RT	106+51.90	32.00' RT	15.00				0.15	
9	106+67.50	27.00' RT	106+78.00	15.50' RT	15.00				0.15	
9	106+78.00	15.50' RT	107+01.00	13.70' RT	23.00				0.23	
9	104+95.00	34.00' LT	105+20.00	32.00' LT	26.00				0.26	
9	104+95.00	24.00' LT	106+68.00	15.50' LT	173.00				1.73	
9	105+80.00	27.00' RT					7		0.5	
9	106+00.00	25.00' RT					7		0.5	
9	106+20.00	24.00' RT					7		0.5	
9	106+85.00	18.00' RT					6		0.5	
9	107+00.00	16.70' RT					6		0.5	
9	107+15.00	15.85' RT					6		0.5	
9	107+30.00	13.00' RT					6		0.5	
9	107+45.00	12.50' RT					5		0.5	
9	105+40.00	29.00' LT					6		0.5	
9	105+50.00	27.80' LT					6		0.5	
9	105+60.00	26.50' LT					6		0.5	
9	105+70.00	25.00' LT					6		0.5	
9	105+80.00	23.80' LT					6		0.5	
9	106+00.00	21.50' LT					6		0.5	
9	106+25.00	21.00' LT					6		0.5	
9	106+50.00	19.75' LT					6		0.5	
9	106+65.00	18.60' LT					6		0.5	
9	106+80.00	17.50' LT					7		0.5	
9	106+95.00	16.50' LT					7		0.5	
9	107+10.00	15.90' LT					6		0.5	
9	107+25.00	15.00' LT					6		0.5	
				TOTAL	2521.01		186.00	231.00	31.53	
				BID TOTAL	2521		186	231	32	

NOTE: Type C Berm is intended to be used for both the Demolition and Proposed Construction Phases

* The erosion Control quantities and placement shown in the plans are representative for the project and are not meant to supersede actual field application and judgement needed to ensure the proper erosion control measures are implemented. The Contractor is responsible for ensuring the proper erosion control measures and methods are used for the project per MoDOT Specifications Section 806

PAVEMENT MARKING

SHEET NO.	FROM STATION	TO STATION	LOC	4 IN. YELLOW WATERBORNE PAVMT MARKING PAINT TYPE P BEADS (LF)	4 IN. WHITE WATERBORNE PAVMT MARKING PAINT TYPE P BEADS (LF)	REMARKS
7	100+80.00	107+00.00	CL	1240.00		DOUBLE SOLID YELLOW
7	100+80.00	101+92.93	RT		117.02	EDGE LINE
7	102+31.36	106+43.80	RT		420.96	EDGE LINE
7	106+76.25	107+00.00	RT		23.56	EDGE LINE
7	100+80.00	107+00.00	LT		606.79	EDGE LINE
			TOTAL	1240.00	1168.33	
			PAY TOTAL	1240	1168	

APPROACH PAVEMENT

SHEET NO.	FROM STATION	TO STATION	LOC	BITUMINOUS PAVEMENT MIXTURE PG64-22 (BP-1) (TONS)	BITUMINOUS PAVEMENT MIXTURE PG64-22 (BASE) (TONS)	TYPE 1 AGGREGATE FOR BASE (4 IN. THICK) (SOYD)	TYPE 1 AGGREGATE FOR BASE (6 IN. THICK) (SOYD)
2	100+80.00	102+70.13	MAINLINE	63.69	196.40	745.59	
2	106+32.33	107+00.00	MAINLINE	45.10	139.89	534.93	
2	106+43.80	106+76.25	DRIVEWAY				56.76
			TOTAL	108.79	336.29	1280.52	56.76
			PAY TOTAL	109	337	1281	57

DRAINAGE STRUCTURES

SHEET NO.	FROM STATION	TO STATION	LOC	18 IN. CORRUGATED METAL PIPE (LF)	METAL PIPE END (EA)
4	101+87.97	102+42.00	RT	54	2
4	106+37.66	106+75.50	RT	38	2
			TOTAL	92	4
			PAY TOTAL	92	4

WIRE FENCE

SHEET NO.	FROM STATION	TO STATION	LOC	WOVEN WIRE FENCE (LF)
8	104+83.00	106+38.75	RT	159.44
			TOTAL	159.44
			PAY TOTAL	159

REMOVAL OF IMPROVEMENTS

SHEET NO.	FROM STATION	TO STATION	LOC	DESCRIPTION	AMOUNT	REMARKS
4	100+80.00	103+71.24	CL	EXISTING PAVEMENT/SHOULDER	658.39 SOYD	MAIN ALIGNMENT
4	104+78.89	107+00.00	CL	EXISTING PAVEMENT/SHOULDER	431.88 SOYD	MAIN ALIGNMENT
4	101+93.85	102+41.75	19.94' RT	EXISTING PAVEMENT/SHOULDER	131.44 SOYD	DRIVEWAY
4	106+55.09	106+70.47	11.55' RT	EXISTING PAVEMENT/SHOULDER	31.11 SOYD	DRIVEWAY
4	101+99.62	102+33.83	31.58' RT	EXISTING 12" CMP PIPE	39.89 LF	
4	106+47.61	106+70.88	16.40' RT	EXISTING 15" CMP PIPE	29.95 LF	
4	102+92.31	-	58.17' RT	SIGN	1	
4	103+65.73	-	33.63' RT	SIGN	1	"ROAD CLOSED" SIGN
4	103+67.21	-	24.95' RT	SIGN	1	OBJECT MARKER
4	103+72.19	-	38.70' RT	SIGN	1	OBJECT MARKER
4	104+83.32	-	5.77' LT	SIGN	1	OBJECT MARKER
4	104+84.08	-	9.50' RT	SIGN	1	OBJECT MARKER
4	104+86.45	-	1.08' RT	SIGN	1	"ROAD CLOSED" SIGN
4	106+38.82	-	12.67' LT	SIGN	1	

CLEARING AND GRUBBING

SHEET NO.	FROM STATION	TO STATION	CLEARING & GRUBBING (LUMP SUM)	REMARKS
4	100+90.00	108+50.00	1	AREA ENCOMPASSED BY FILL LIMITS
		TOTAL	1	
		PAY TOTAL	1	

EARTHWORK

SHEET NO.	LOCATION	STA. 100+80.00 TO BRIDGE	BRIDGE TO STA.107+00.00
51, 56	TOTAL CUT	550.85 CUYD	177.40 CUYD
51, 56	TOTAL FILL	1393.90 CUYD	1101.73 CUYD
	BALANCE	-843.05 CUYD	-924.33 CUYD

ROCK BLANKET TYPE 2

SHEET NO.	LOCATION	AMOUNT	REMARKS
4	WEST ABUTMENT	256 CUYD	
4	EAST ABUTMENT	187 CUYD	
	TOTAL	442 CUYD	
	PAY TOTAL	442 CUYD	

STATE OF MISSOURI
LAWRENCE D. DUDENDO
12-30-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

DATE: 09/23/2019
DATE PREPARED: 09/23/2019
ROUTE: 148TH | STATE: MO
DISTRICT: KC | SHEET NO.: 13
COUNTY: CLAY
JOB NO.: 36201A
CONTRACT ID.:
PROJECT NO.: BRO-B024(27)
BRIDGE NO.: 10700091

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

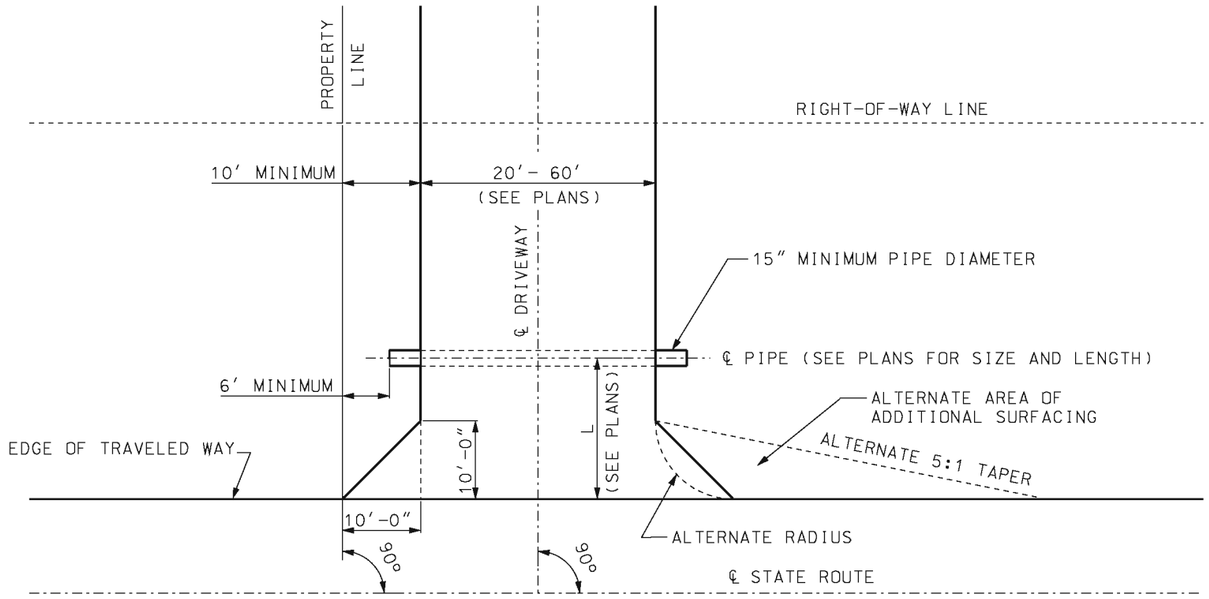
DESCRIPTION | DATE

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT

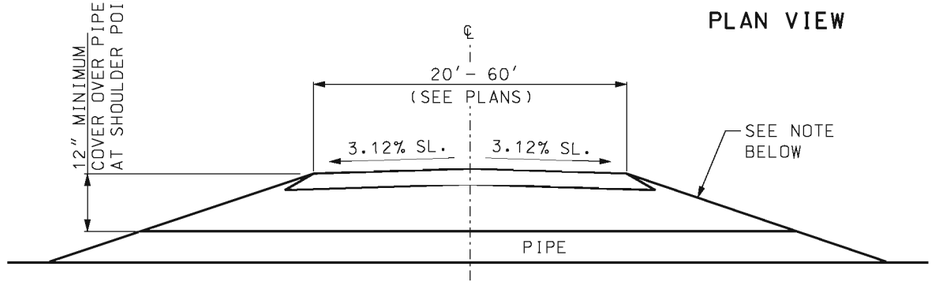
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

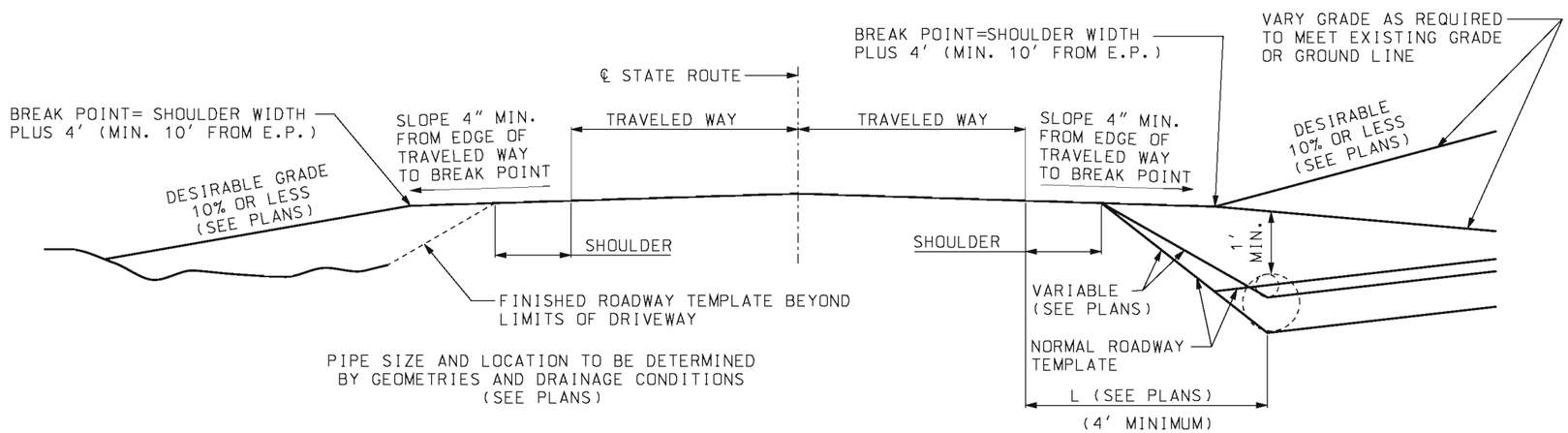
QUANTITIES SHEET



PLAN VIEW



DRIVEWAY TYPICAL SECTION



PROFILE VIEW

DRIVEWAY SIDE SLOPES: ✳

1 TO 1700 VEHICLES PER DAY ON STATE ROUTE USE 3:1 SLOPE (OR 6:1 SLOPE WHERE PRACTICABLE).

OVER 1700 VEHICLES PER DAY ON STATE ROUTE USE 6:1 SLOPE (OR FLATTER WHERE PRACTICABLE).

NOTE: RECOMMENDED WIDTH OF DRIVEWAY – 20′

✳ IN ORDER TO MINIMIZE THE USE OF 6:1 SLOPED END PIPE SECTIONS ON NEW CONSTRUCTION AND WHERE POSSIBLE ON EXISTING ROUTES. THE LOCATION OF DRAINAGE PIPE SHOULD BE BEYOND THE CLEAR ZONE DISTANCE AS SHOWN IN TABLE 3.1 OF THE 1988 EDITION OF "ROADSIDE DESIGN GUIDE".

GENERAL NOTES:

NO PART OF THE DRIVEWAY EXCLUDING TAPERS SHALL BE CONSTRUCTED BEYOND THE PROPERTY FRONTAGE.

SURFACING SHALL BE AS SHOWN ON THE PLANS OR PERMIT.

LENGTH OF PIPE SHALL BE DETERMINED BY DEPTH AND LOCATION OF DITCH. (MINIMUM 32′ LENGTH OF MINIMUM 15″ DIAMETER PIPE), SEE PLANS.

THIS DRAWING ILLUSTRATES DRIVEWAY DETAILS FOR MINIMUM SITUATIONS. TRAFFIC VOLUMES, SAFETY CONSIDERATIONS, LOCAL REQUIREMENTS, ETC., MAY DICTATE MORE EXTENSIVE IMPROVEMENTS THAN ILLUSTRATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

STATE OF MISSOURI
KATHRYN PHILLIPS HARVEY
NUMBER PE-23751
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DRIVEWAY

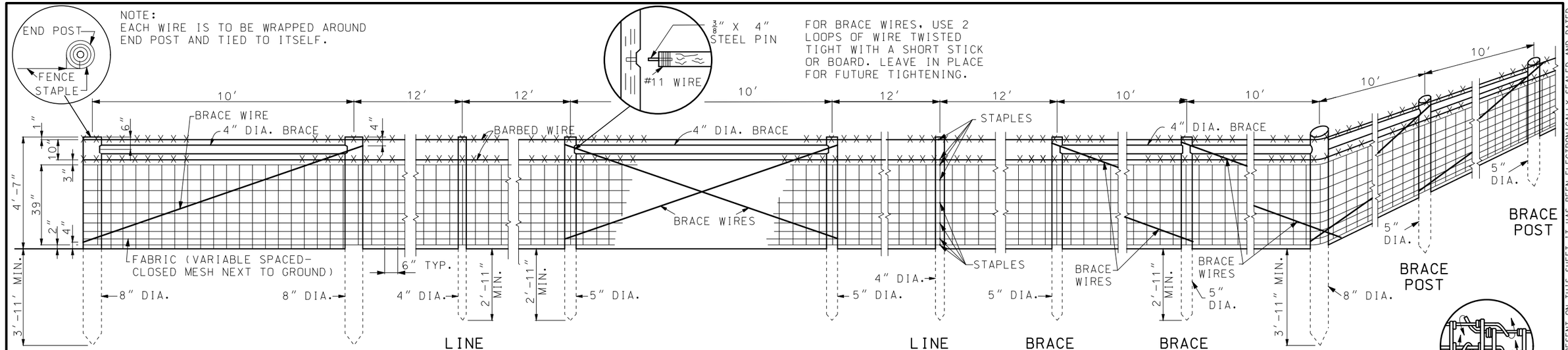
TYPE I

DATE EFFECTIVE: 07/01/2004
DATE PREPARED: 8/21/2009

203.61A

SHEET NO. 1 OF 1

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



TYPICAL FENCE LOCATION

GATE OPENING	GATE POST SIZE	#/FT.
≤ 6'	2" DIA.	3.65
≤13'	2½" DIA.	5.79
≤18'	3½" DIA.	9.10
>18'	6" DIA.	18.97
GATE FRAME	1½" DIA.	2.72

1. BRACES
2. WIRE TIES
3. 3.8" ADJUSTABLE TRUSS RODS.

GENERAL NOTES:

STEEL LINE POSTS SHALL BE OF AN APPROVED "U", "Y", "T" OR CHANNEL SECTION, NOTCHED OR STUDDED WITH AN ANCHOR PLATE. POST PUNCHED WITH HOLES OR SELF FASTENING LUGS WILL NOT BE PERMITTED.

STAPLES SHALL BE SCREW SHANK TYPE OR EQUIVALENT (1¼" MINIMUM LENGTH).

STRETCHED FABRIC AND BARBED WIRE ON OUTSIDE OF POST ON CORNERS AND CURVES.

ATTACHMENT OF FABRIC TO STEEL LINE POSTS IN ACCORDANCE WITH MANUFACTURE'S RECOMMENDATION.

GATES FOR WOVEN WIRE FENCE SHALL BE IN ACCORDANCE WITH SEC 607.20 AND 1043.3.6 OF THE STANDARD SPECIFICATIONS. EXCEPT THE FILLER SHALL BE WOVEN WIRE FABRIC OF THE SAME KIND AS USED FOR THE FENCE.

SINGLE LEAF GATES REQUIRE UP TO 12" OPENING. DOUBLE LEAF GATES REQUIRE OVER 12" OPENING. DIRECTION OF SWING OF GATES SHALL BE AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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1-888-ASK-MODOT (1-888-275-6636)

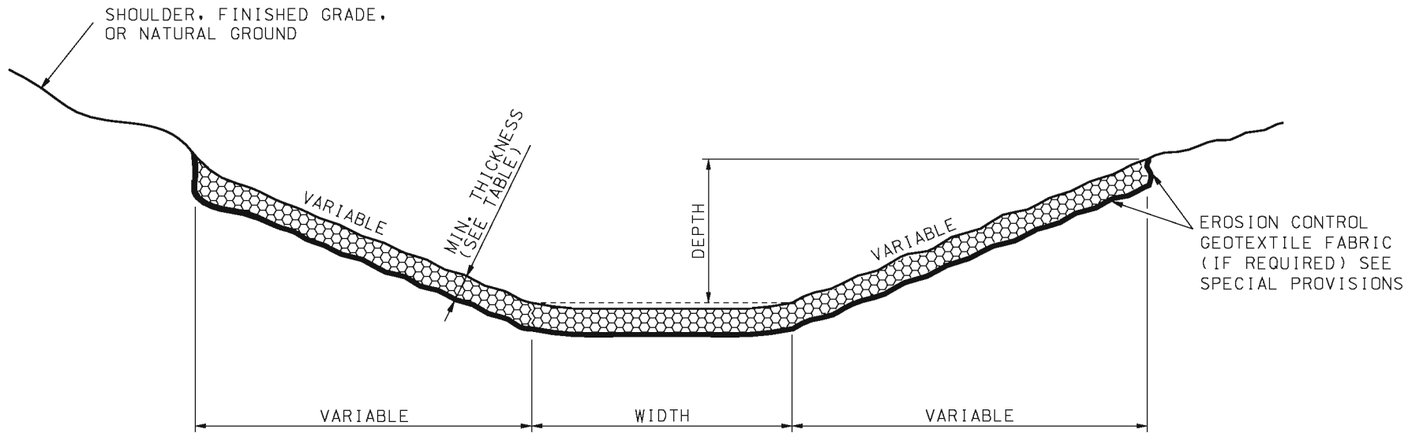
STATE OF MISSOURI
ERIC E. SCHROETER
NUMBER PE-28411
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

WOVEN WIRE FENCE

DATE EFFECTIVE: 07/01/2016
DATE PREPARED: 5/13/2016

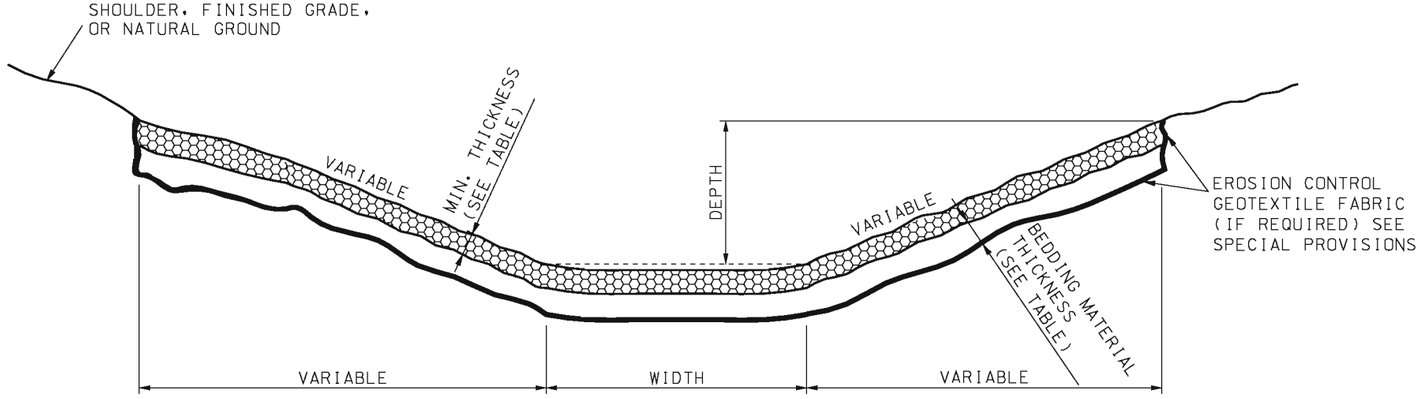
607.20G

SHEET NO. 1 OF 2



FLAT BOTTOM DITCH
WITHOUT BEDDING MATERIAL

TYPE	ROCK DITCH LINER MIN. THICKNESS	BEDDING MATERIAL MIN. THICKNESS
1	8″	--
2	12″	--
3	22″	8″
4	30″	12″



FLAT BOTTOM DITCH
WITH BEDDING MATERIAL

TYPICAL DITCH LINER DETAILS

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

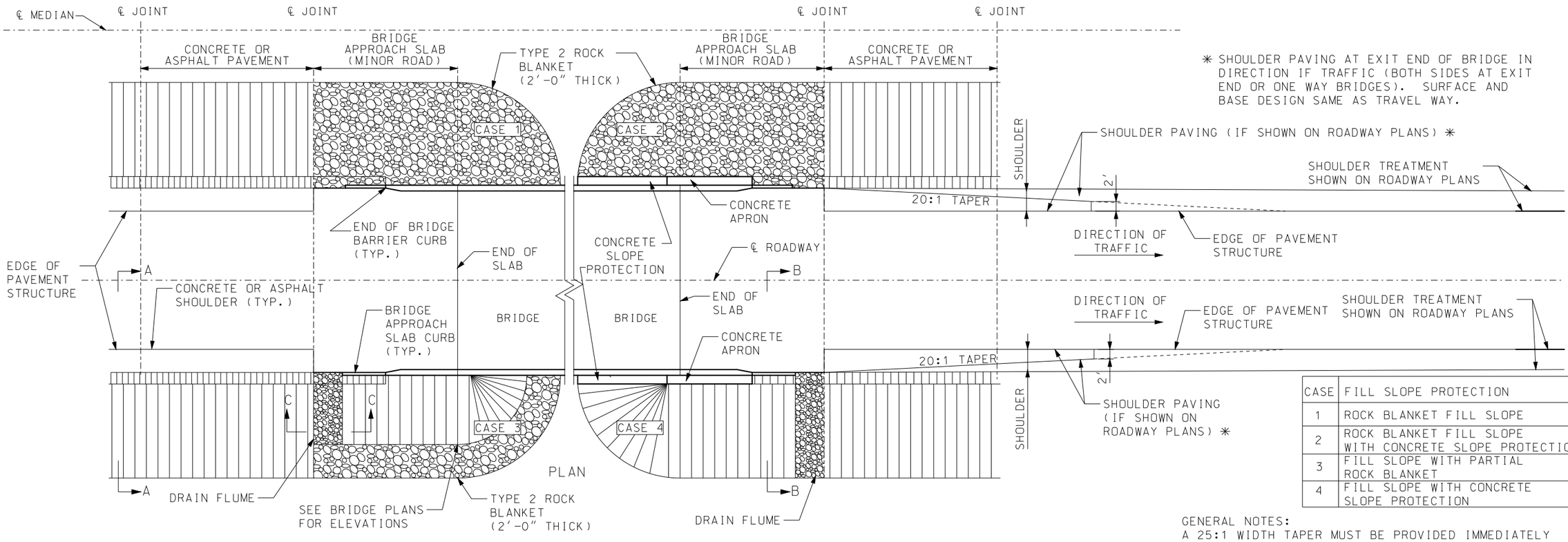
STATE OF MISSOURI
KATHRYN PHILLIPS HARVEY
NUMBER PE-23751
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

ROCK DITCH LINER

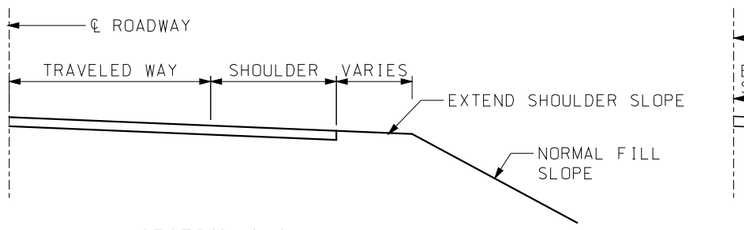
DATE EFFECTIVE: 03/01/1993
DATE PREPARED: 8/21/2009

609.60C

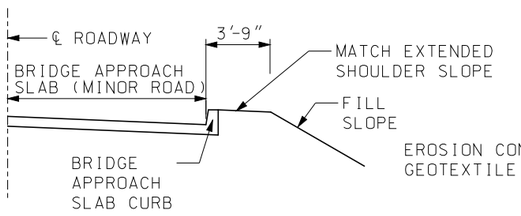
SHEET NO. 1 OF 1



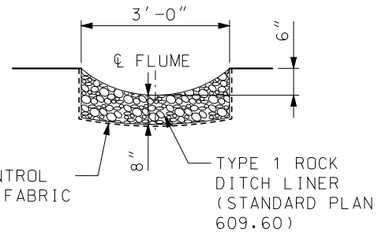
CASE	FILL SLOPE PROTECTION
1	ROCK BLANKET FILL SLOPE
2	ROCK BLANKET FILL SLOPE WITH CONCRETE SLOPE PROTECTION
3	FILL SLOPE WITH PARTIAL ROCK BLANKET
4	FILL SLOPE WITH CONCRETE SLOPE PROTECTION



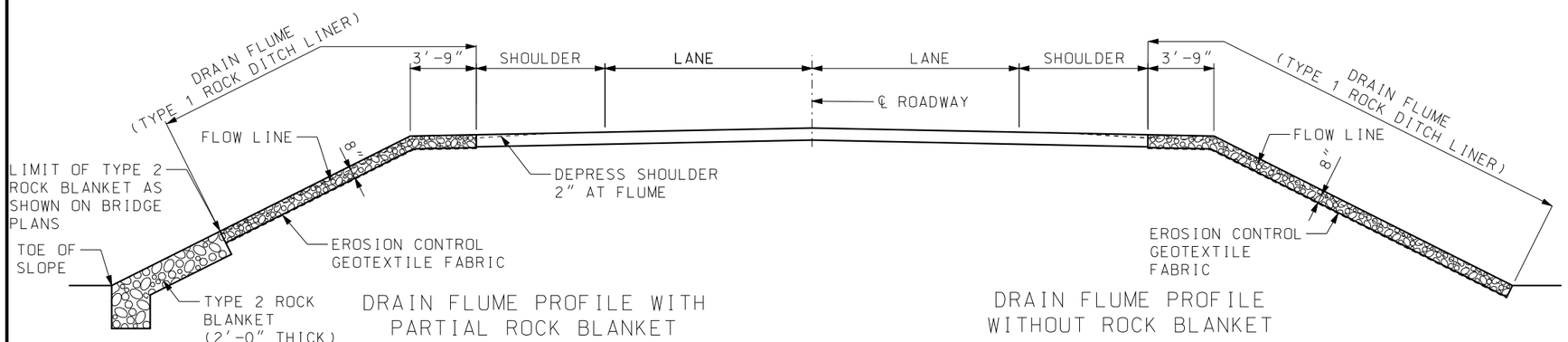
SECTION A-A



SECTION B-B



SECTION C-C



DRAIN FLUME PROFILE WITH PARTIAL ROCK BLANKET

DRAIN FLUME PROFILE WITHOUT ROCK BLANKET

GENERAL NOTES:
A 25:1 WIDTH TAPER MUST BE PROVIDED IMMEDIATELY BEYOND THE LIMITS OF CURB AS SHOWN IN ORDER TO TRANSITION ROADWAY WIDTH TO WIDTH BETWEEN GUARDRAIL FACES ON PAVEMENT.

SEE STANDARD PLANS 606.00, 606.22, 606.23, 606.30, 606.50, 606.60, 606.70 AND 606.80 FOR DETAILS OF GUARDRAILS AND BRIDGE ANCHOR SECTIONS.

FOR DETAILS OF BRIDGE APPROACH SLAB (MINOR ROAD), SEE BRIDGE PLANS.

CONSTRUCT DRAIN FLUMES AND OR FILL SLOPE PROTECTION WHEN SHOWN ON ROADWAY PLANS.

PAYMENT FOR FURNISHING ALL MATERIALS, LABOR AND EXCAVATION NECESSARY TO CONSTRUCT THE DRAIN FLUMES, INCLUDING THE PERMANENT EROSION CONTROL GEOTEXTILE, COMPLETE-IN-PLACE, WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR TYPE 1 ROCK DITCH LINER.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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STATE OF MISSOURI
ERIC E. SCHROETER
NUMBER PE-28411
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

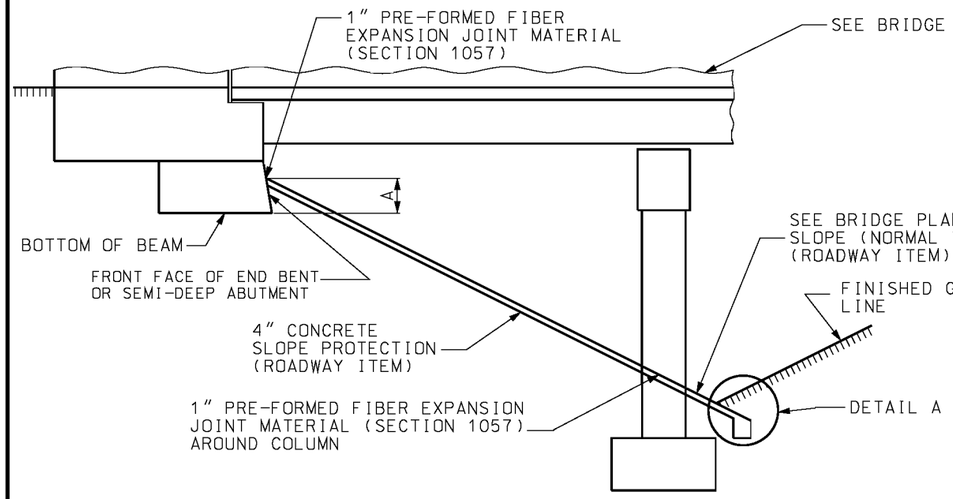
DRAIN FLUME, SHOULDER PAVING AND FILL SLOPES AT BRIDGE ENDS (MINOR ROAD)

DATE EFFECTIVE: 01/01/2017
DATE PREPARED: 11/2/2016

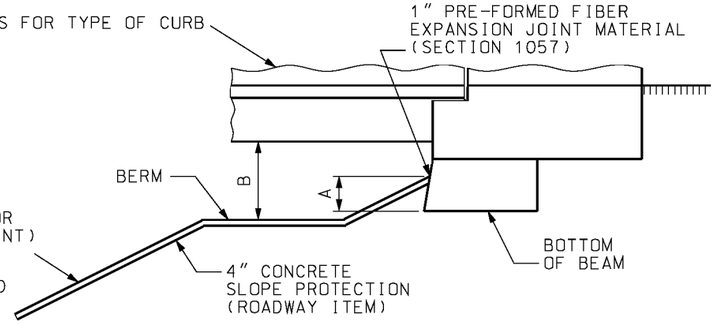
609.40S

SHEET NO. 3 OF 3

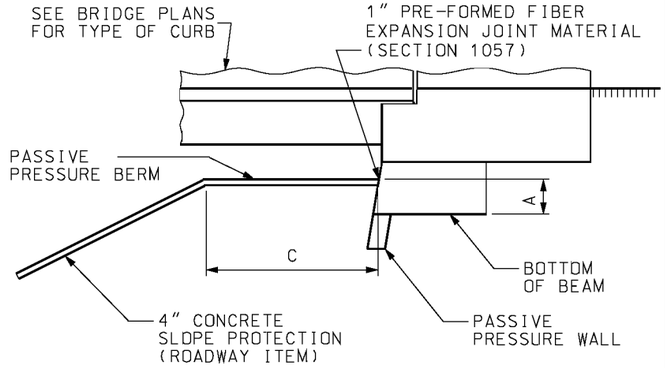
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



ELEVATION
(STRAIGHT SLOPE TYPE)



ELEVATION
(USE ON STRUCTURES WITHOUT PASSIVE PRESSURE BERM)



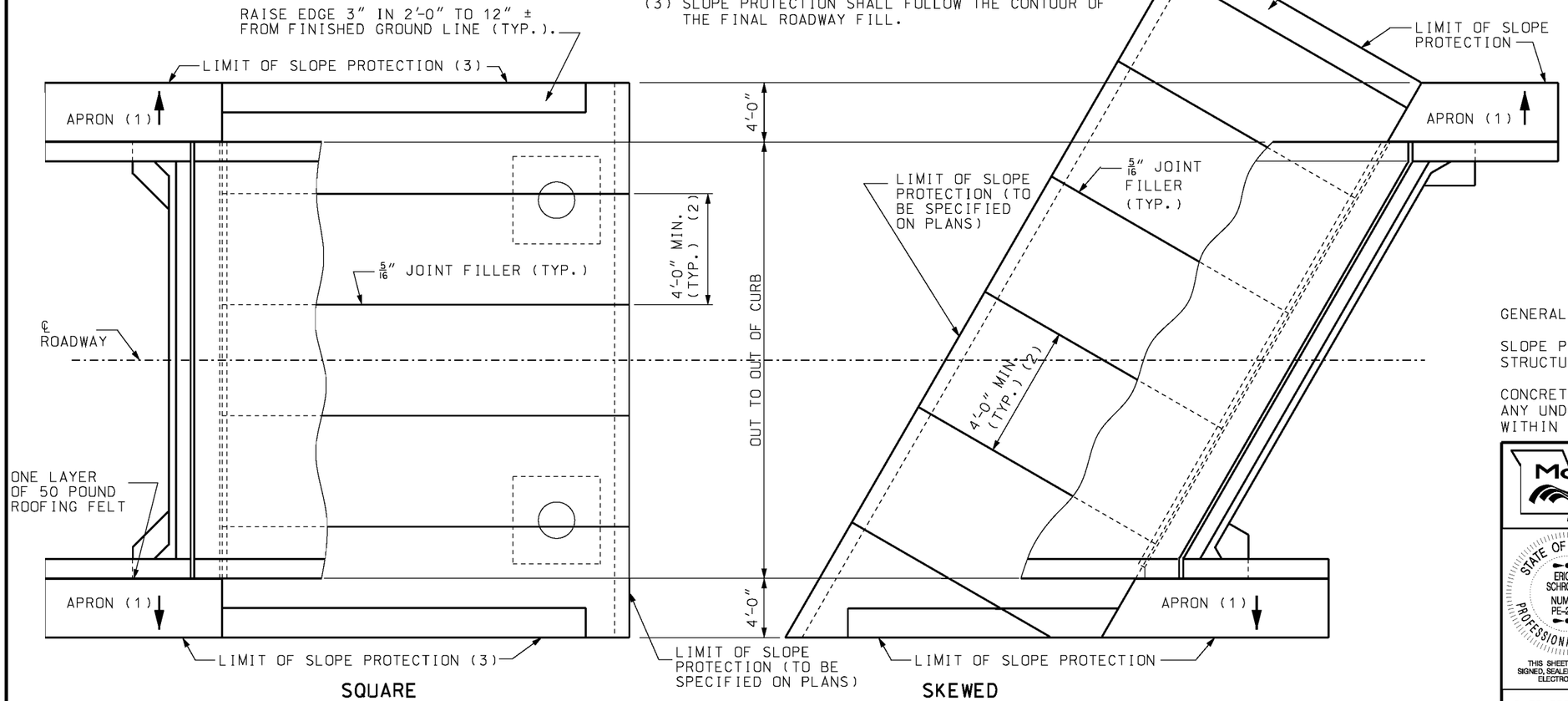
ELEVATION
(USE ON STRUCTURES WITH PASSIVE PRESSURE BERM)

A – SEE BRIDGE PLANS

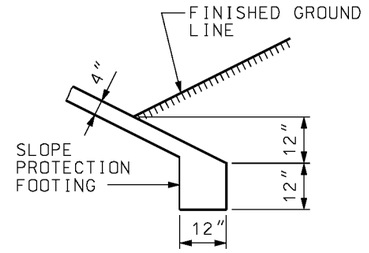
B – BERM SHALL BE CONSTRUCTED TO ELEVATION SHOWN ON PLANS WITH A MINIMUM OF 4'-0" BELOW BOTTOM OF SUPERSTRUCTURE.

C – DIMENSION OF BERM (SEE BRIDGE PLANS).

(1) SLOPE $\frac{1}{4}$" PER FOOT MINIMUM.
(2) PROTECTION SHALL BE PLACED IN CONTINUOUS PANELS FROM TOE OF THE SLOPE TO THE TOP OF THE SLOPE.
(3) SLOPE PROTECTION SHALL FOLLOW THE CONTOUR OF THE FINAL ROADWAY FILL.



PART PLAN



DETAIL A

NOTE:
IF SLOPE PROTECTION FOOTING FALLS ON OR AROUND OTHER FOOTINGS, ONE LAYER OF 50# ROOFING FELT SHALLBE PLACED BETWEEN CONTACT SURFACES OF FOOTINGS.

GENERAL NOTES:

SLOPE PROTECTION SHALL BE MADE CONTINUOUS BETWEEN STRUCTURES WHEN MEDIAN IS 60' OR LESS.

CONCRETE SLOPE PROTECTION SHALL BE FORMED AROUND ANY UNDISTURBED ROCK THAT IS PERMITTED TO REMAIN WITHIN THE SLOPE PROTECTION AREA.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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STATE OF MISSOURI
ERIC E. SCHROETER
NUMBER PE-28411
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

CONCRETE SLOPE PROTECTION

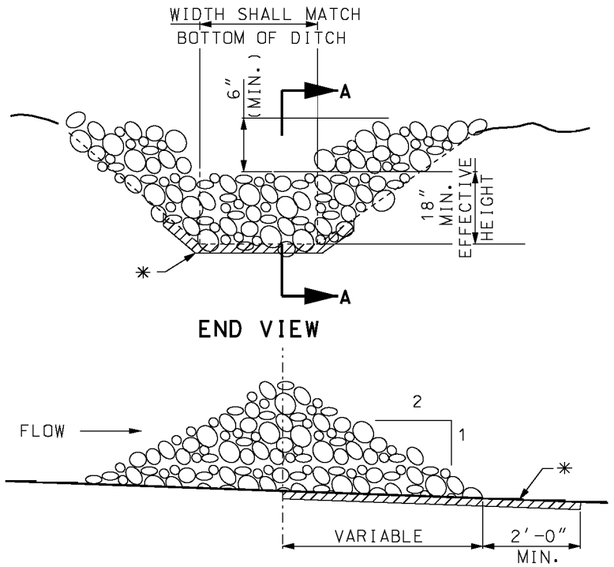
DATE EFFECTIVE: 07/01/2015
DATE PREPARED: 5/29/2015

611.60R

SHEET NO. 1 OF 1

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

ROCK DITCH CHECK

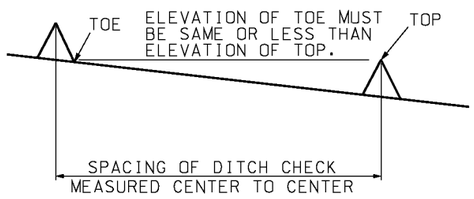


* GEOTEXTILE LINING MAY BE INSTALLED AS REQUIRED BY THE ENGINEER.

NOTE:

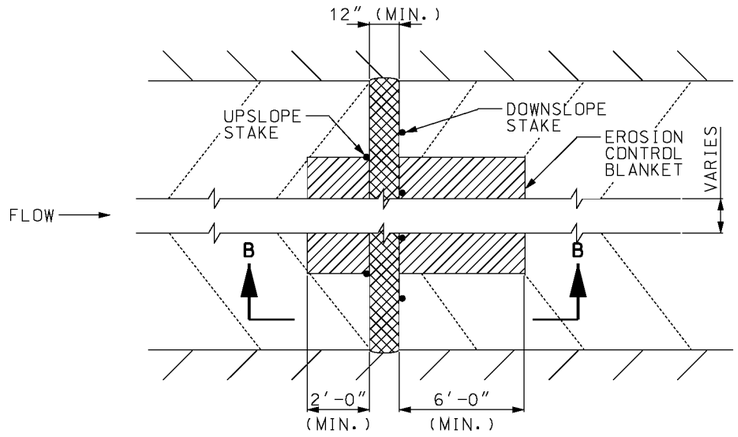
ROCK DITCH CHECK IN THE CLEAR ZONE SHALL BE REMOVED OR LEVELED (IF ALLOWABLE) AFTER THE VEGETATION HAS SUFFICIENTLY MATURED TO PROTECT THE DITCH OR SWALE.

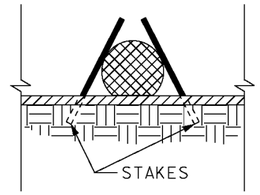
EXAMPLE DITCH CHECK SPACING FOR STANDARD HEIGHTS (FT.)		
DITCH ℄ SLOPE %	SPACING FOR 9" EFF. HEIGHT	SPACING FOR 18" EFF. HEIGHT
0.5	150	300
1.0	75	150
1.5	50	100
2.0	37	75
2.5	30	60
3.0	25	50
3.5	21	43
4.0	19	38
4.5	16	33
5.0	15	30
5.5	13	27
6.0	12	25
6.5	11	23
7.0	10	21
7.5	10	20
8.0	9	19
8.5	9	18
9.0	8	17
9.5	8	16
10.0	7	15

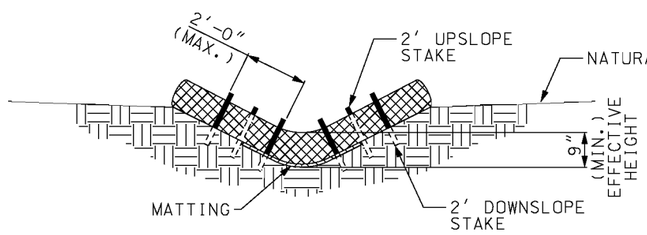


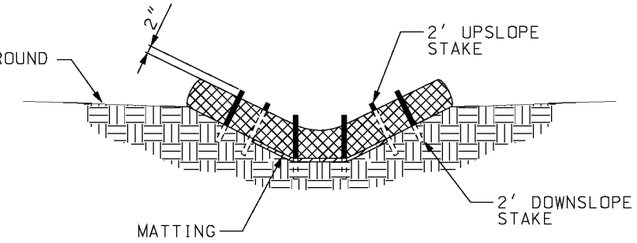
MINIMUM DITCH CHECK SPACING

ALTERNATE DITCH CHECK









NOTES:

USE MINIMUM 12 IN. DIAMETER LOG/SOCK.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL LOG/SOCK TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND LOG/SOCK AND SCOUR DITCH SLOPES OR AS DIRECTED BY ENGINEER.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE LOG/SOCK TO BOTTOM OF DITCH.

EROSION CONTROL BLANKET SHALL BE ANCHORED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

GENERAL NOTES:

OTHER PROPRIETARY DITCH CHECKS MAY BE SUBSTITUTED IN ACCORDANCE WITH SEC 806 OR AS DIRECTED BY THE ENGINEER.

INSTALLATION OF PROPRIETARY DITCH CHECKS SHALL BE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

STATE OF MISSOURI
ERIC E. SCHROETER
NUMBER PE-28411
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

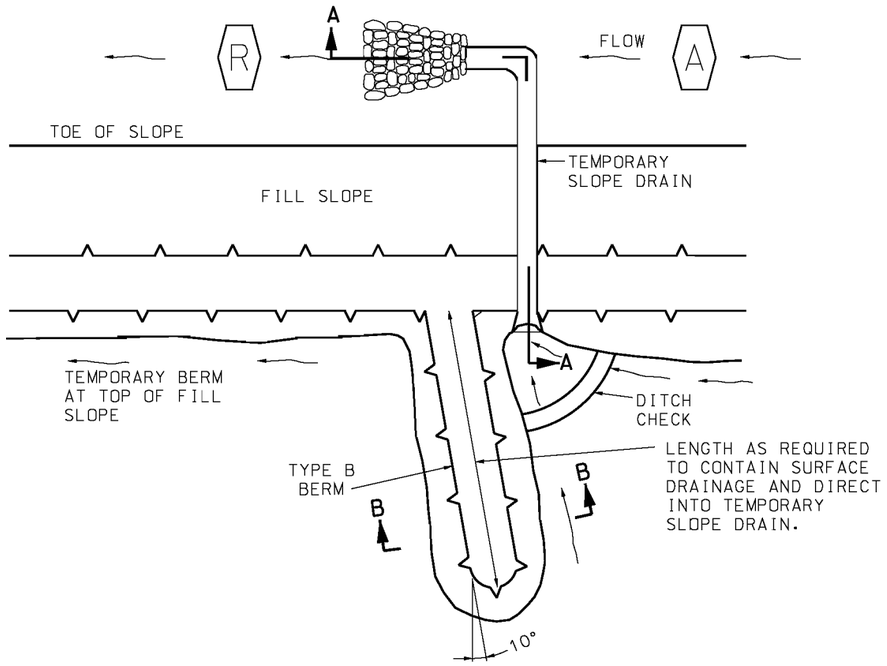
TEMPORARY EROSION CONTROL MEASURES

TEMPORARY DITCH CHECKS

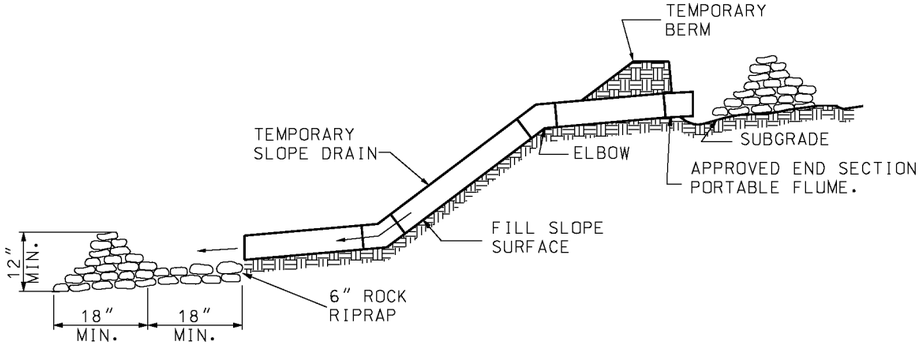
DATE EFFECTIVE: 04/01/2015
DATE PREPARED: 2/20/2015

806.10J

SHEET NO. 1 OF 6



PLAN VIEW



NOTE:

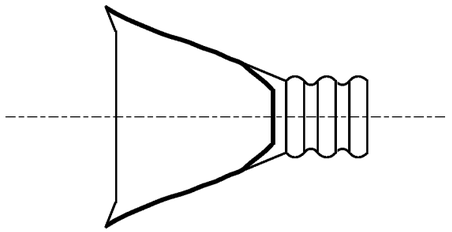
IN SOME CASES IT MAY BE NECESSARY TO EMBED METAL OR PLASTIC PIPE INTO THE FILL SLOPE TO SECURE PROPER ANCHORAGE.

SECTION A-A

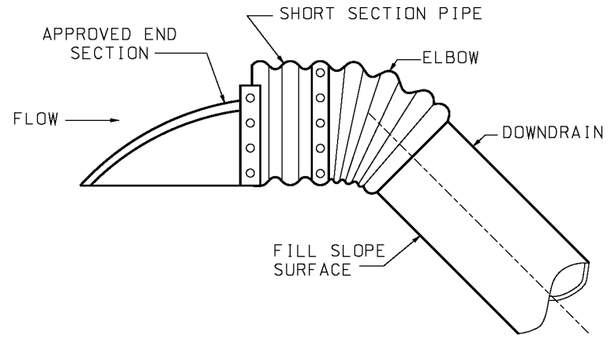
TEMPORARY BERM

(METAL, FLEXIBLE RUBBER OR PLASTIC PIPE)

NOTE:
MAXIMUM LENGTH BETWEEN SLOPE DRAINS SHALL BE APPROXIMATELY 500 FEET.

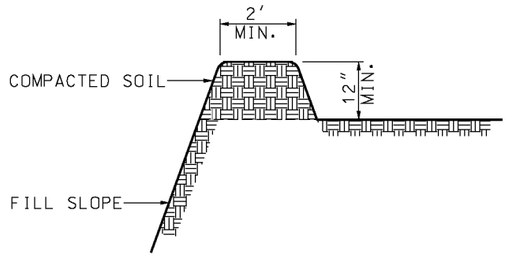


PLAN VIEW



SECTION VIEW

TEMPORARY SLOPE DRAIN INLET TREATMENT



SECTION B-B
TYPE B BERM

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

STATE OF MISSOURI
ERIC E. SCHROETER
NUMBER PE-28411
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

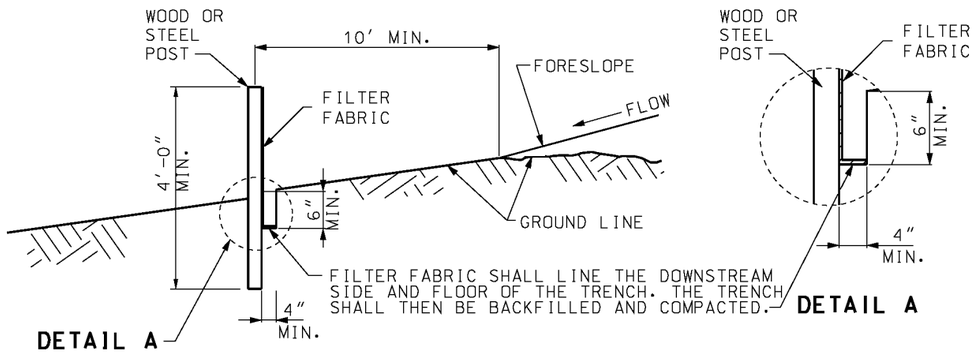
TEMPORARY EROSION CONTROL MEASURES

SLOPE DRAINS

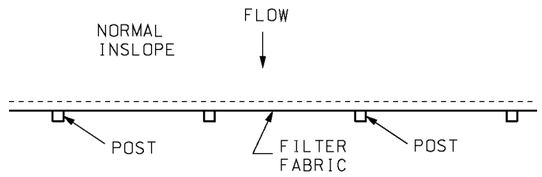
DATE EFFECTIVE: 04/01/2015
DATE PREPARED: 2/20/2015

806.10J

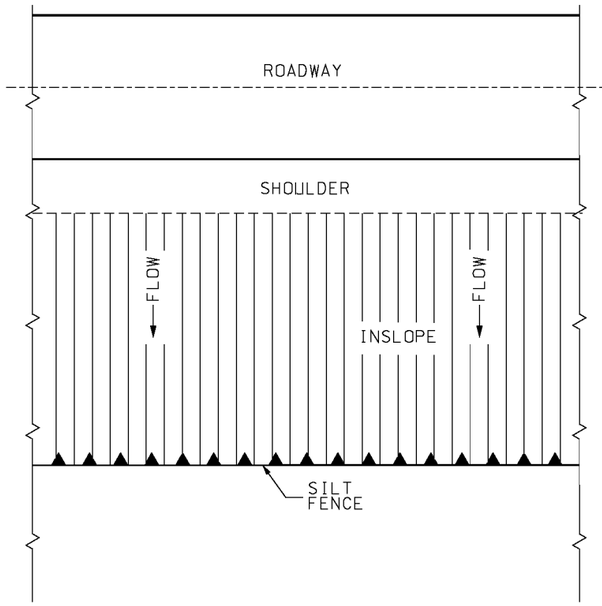
SHEET NO. 4 OF 6



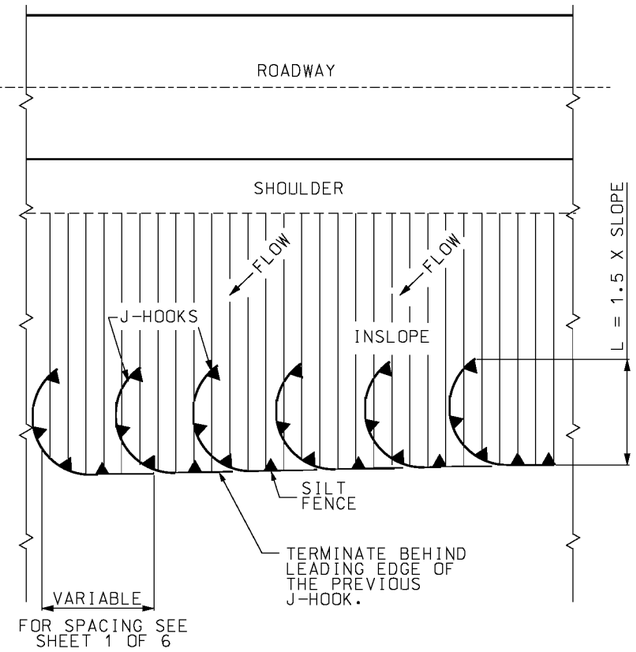
TYPICAL B-B



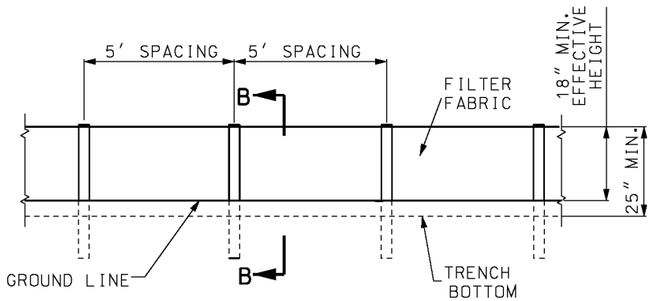
PLAN VIEW



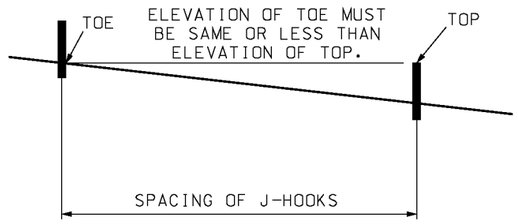
PERIMETER SILT FENCE
FOR TRANSVERSE FLOW



PERIMETER SILT FENCE
FOR ANGULAR FLOW



ELEVATION DETAIL
FABRIC SILT FENCE



MINIMUM J-HOOK SPACING

GENERAL NOTES:

USE SILT FENCE FOR FILL HEIGHTS GREATER OR EQUAL TO 10 FEET. ON ALL FILLS GREATER THAN 10 FEET HIGH, MID-SLOPE RUNS OF SILT FENCE SHOULD BE CONSIDERED.

FOR FABRIC SILT FENCE:

MINIMUM LONGITUDINAL SPLICE OVERLAP SHALL BE 2' WITH A POST AT EACH END.

SECURE FABRIC TO POSTS.

INSTEAD OF SILT FENCE ACROSS DRAINAGE DITCHES AND DRAINS, DITCH CHECKS SHALL BE USED AS SHOWN ON PLANS OR AS DIRECTED BY ENGINEER.

AT CULVERTS, PLACE SEDIMENT BARRIERS OVER THE TOP OF THE CULVERTS (NOT IN THE STREAM CHANNEL).

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

STATE OF MISSOURI
ERIC E. SCHROETER
NUMBER PE-28411
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

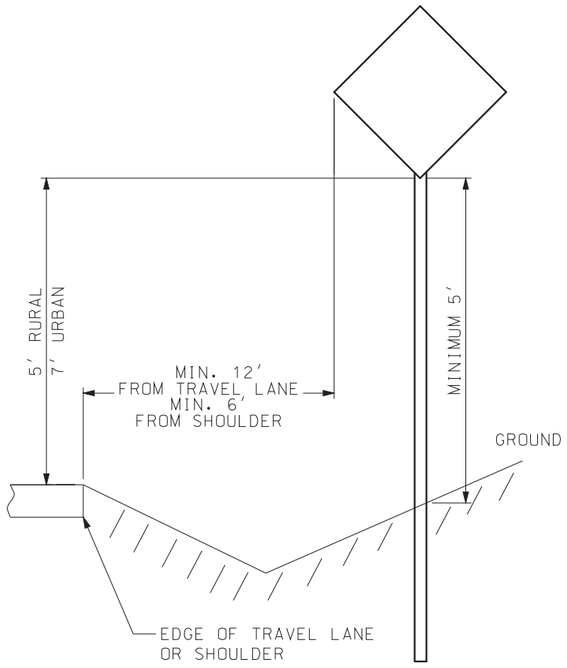
TEMPORARY EROSION CONTROL MEASURES

SILT FENCE

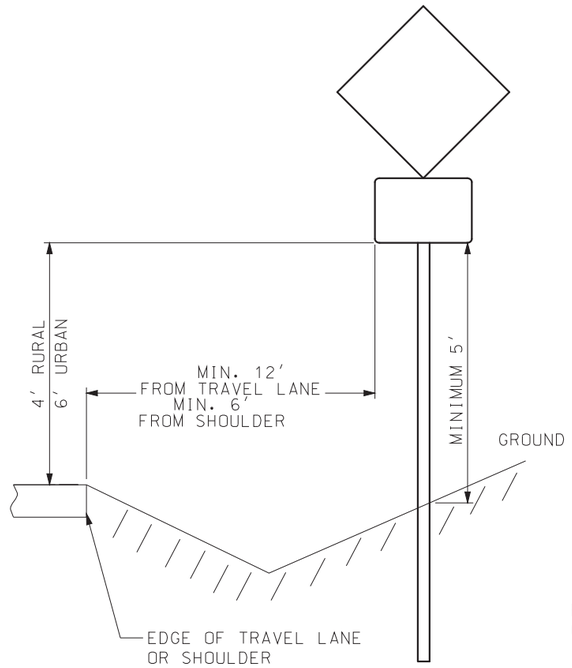
DATE EFFECTIVE: 04/01/2015
DATE PREPARED: 2/20/2015

806.10J

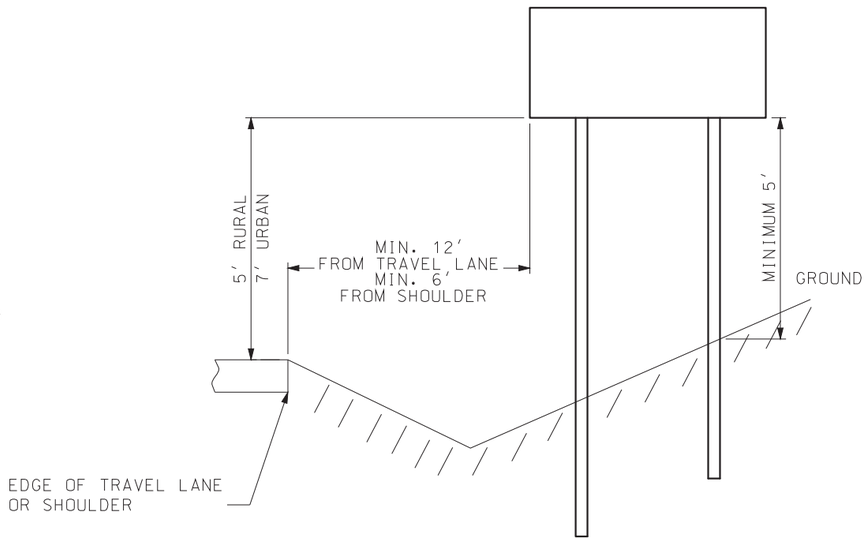
SHEET NO. 5 OF 6



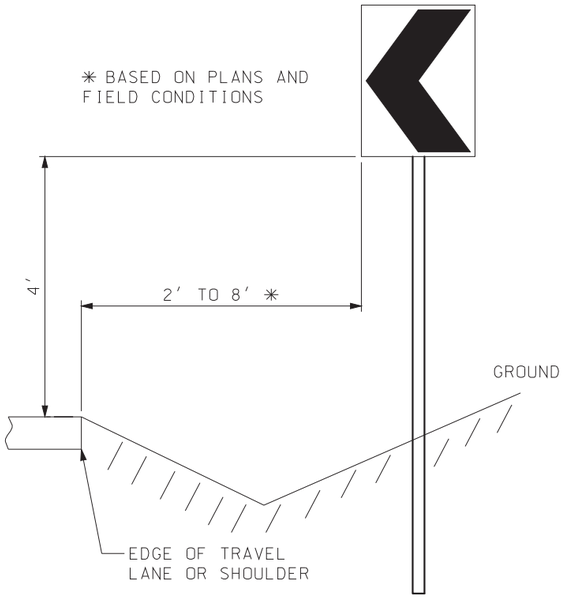
ONE POST – SINGLE SIGN



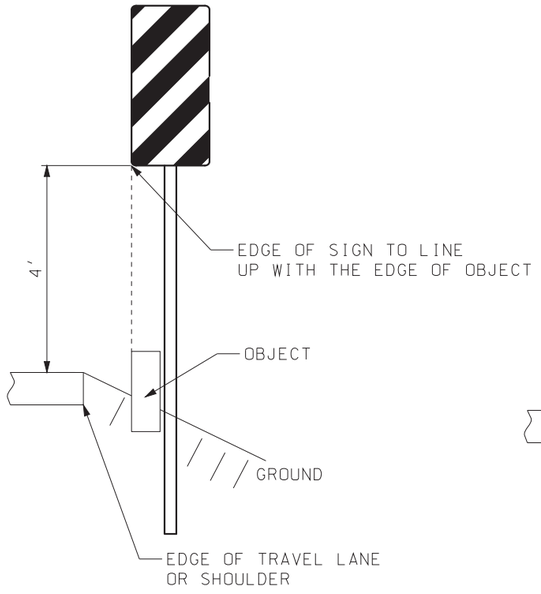
ONE POST – SINGLE SIGN WITH SUPPLEMENTAL PLAGUE



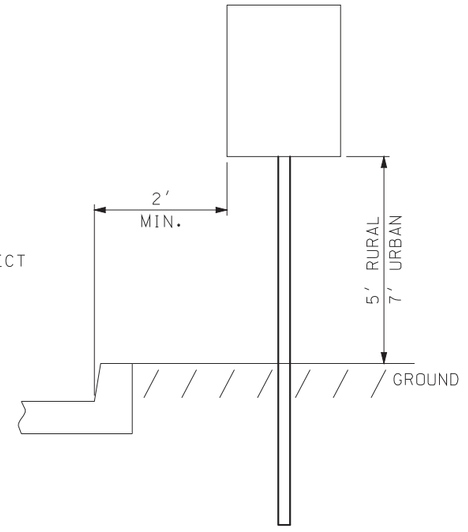
TWO POST



CHEVRON SIGN



TYPE III OBJECT MARKER



ADJACENT TO CURB

MOUNTING HEIGHT DETAILS

GENERAL NOTES:

SIGN MOUNTING BOLTS SHALL BE INSTALLED WITH A NYLON WASHER AGAINST THE SIGN FACE WITH A STEEL WASHER BETWEEN THE NYLON WASHER AND BOLT HEAD.

A LOCKNUT SHALL BE USED TO FASTEN THE SIGN TO THE POST.

VERTICAL CLEARANCE FROM THE ROADWAY SHALL BE MET AND INCREASED ONLY TO MEET THE 5′ MINIMUM VERTICAL CLEARANCE FROM THE GROUND.

HORIZONTAL OFFSET MAY BE ADJUSTED BASED ON FIELD CONDITIONS.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

STATE OF MISSOURI
ERIC E. SCHROETER
NUMBER PE-28411
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

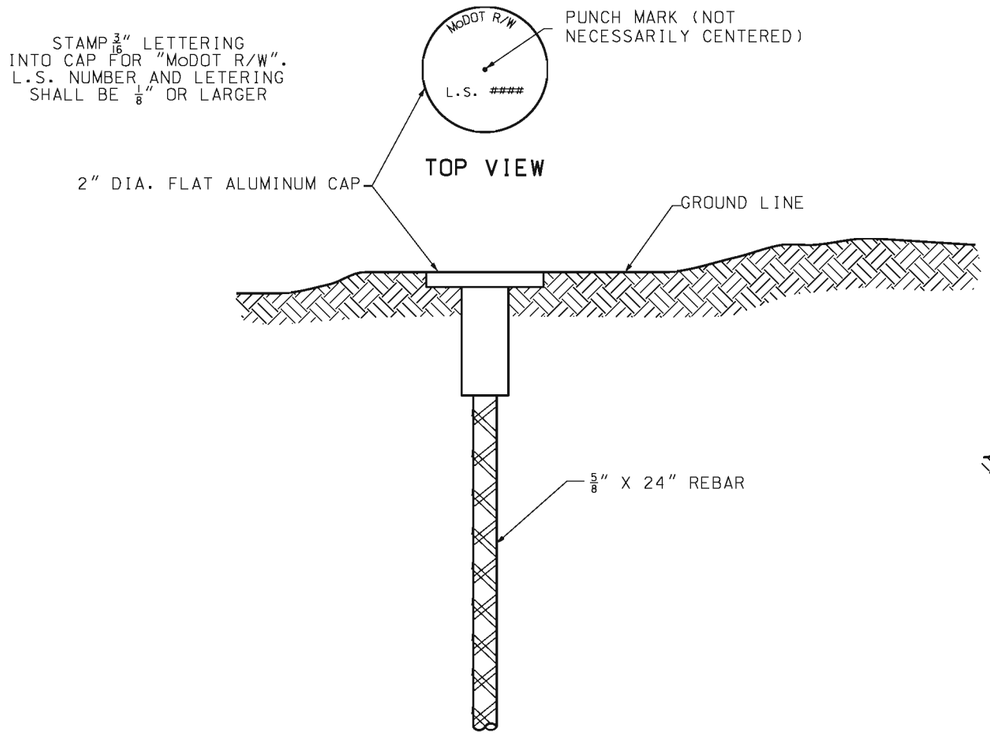
SIGN MOUNTING DETAILS
MOUNTING HEIGHT & OFFSET PIPE POSTS, PSST, WOOD & U-CHANNEL POSTS

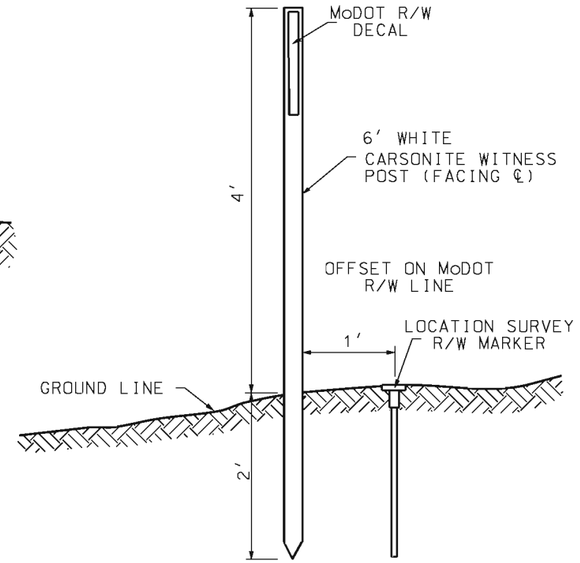
DATE EFFECTIVE: 07/01/2017
DATE PREPARED: 5/1/2017

903.03BL

SHEET NO. 10 OF 16

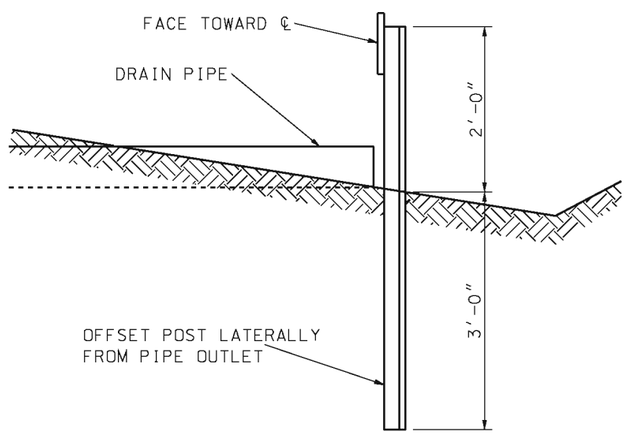
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



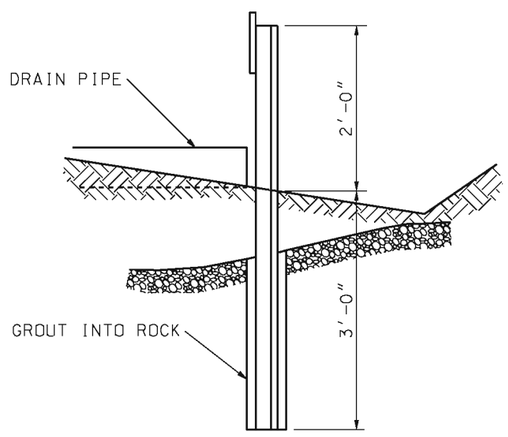


WITNESS POST

LOCATION SURVEY RIGHT-OF-WAY MARKER



IN EARTH



IN ROCK

DRAIN MARKER

GENERAL NOTES:

WHEN STEEL AND LOCATION SURVEY R/W MARKERS ARE NOT SUITABLE DUE TO NATURAL GROUND FEATURES OR MAN-MADE STRUCTURES, ALTERNATIVE MONUMENTATION (IN COMPLIANCE WITH THE APPROVED MONUMENTATION, AS SPECIFIED BY THE MISSOURI MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS) MAY BE SET.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

STATE OF MISSOURI
KATHRYN PHILLIPS HARVEY
NUMBER PE-23751
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

RIGHT-OF-WAY AND DRAIN MARKERS

DATE EFFECTIVE: 01/01/2003
DATE PREPARED: 8/21/2009

602.00D

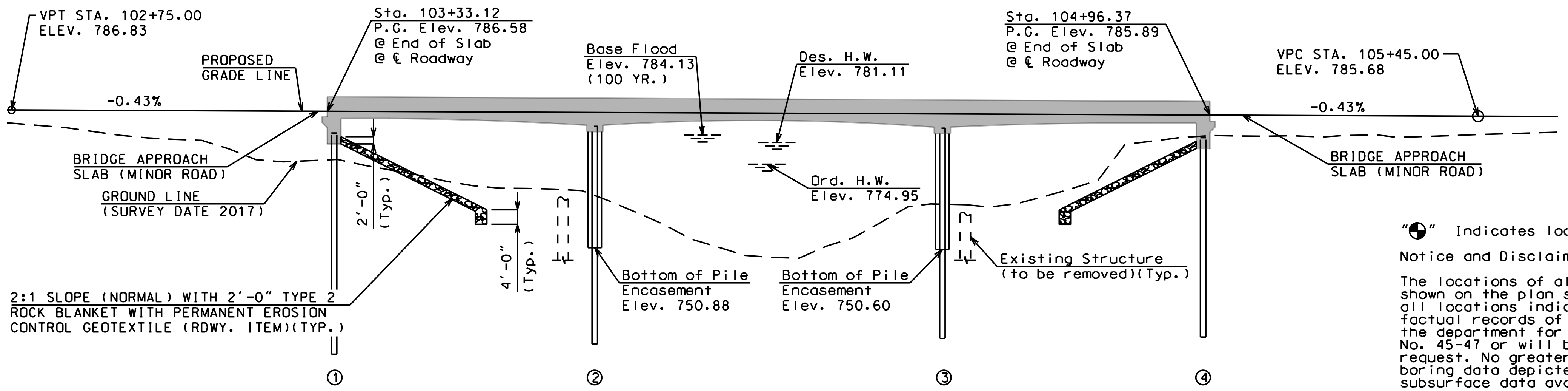
SHEET NO. 1 OF 2

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

SEC/SUR 31 TWP 53N RGE 30W

(48'-64'-48') CONTINUOUS CONCRETE SOLID HAUNCHED SLAB SPANS

Hydrologic Data
Drainage Area = 14.0 mi²
Design Flood Frequency = 25 years
Design Flood Discharge = 3,553 cfs
Design Flood (D.F.) Elevation = 781.11 ft
Base Flood (100-year)
Base Flood Elevation = 784.13 ft
Base Flood Discharge = 4,911 cfs
Estimated Backwater = -0.83 ft
Average Velocity thru Opening = 3.29 ft/s
Freeboard (50-year)
Freeboard = 0.2 ft
Roadway Overtopping
Overtopping Flood Discharge = 5,300 cfs
Overtopping Flood Frequency = > 100 years
Overtopping Flood Elevation = 784.94 ft



GENERAL ELEVATION

For General Notes, Estimated Quantities, Estimated Quantities for Haunched Slab, Foundation Data, and Location Sketch, see Sheet No. 23.

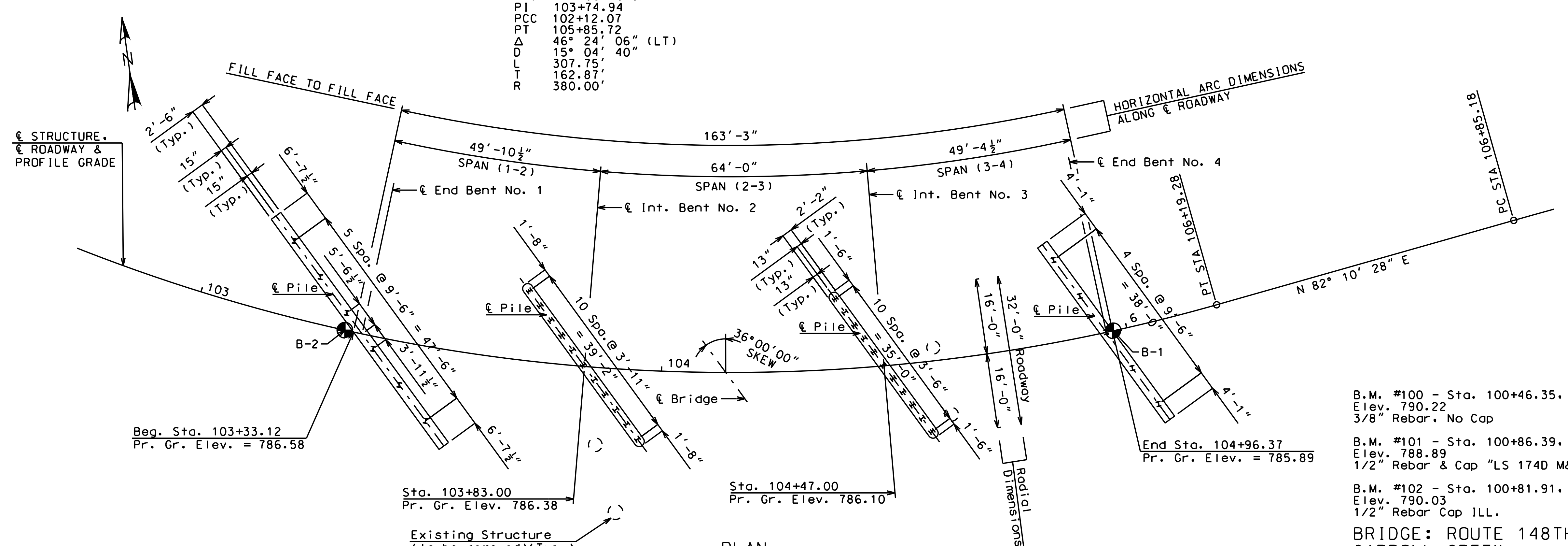
"⊕" Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheet(s) No. 45-47 or will be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the Commission.

148th P1 Curve 3
PI 103+74.94
PCC 102+12.07
PT 105+85.72
Δ 46° 24' 06" (LT)
D 15° 04' 40"
L 307.75'
T 162.87'
R 380.00'



PLAN

B.M. #100 - Sta. 100+46.35, 6.98' RT.
Elev. 790.22
3/8" Rebar, No Cap

B.M. #101 - Sta. 100+86.39, 29.10' RT.
Elev. 788.89
1/2" Rebar & Cap "LS 174D M&M Land"

B.M. #102 - Sta. 100+81.91, 0.57' LT.
Elev. 790.03
1/2" Rebar Cap ILL.

BRIDGE: ROUTE 148TH OVER CARROLL CREEK
STA. 103+33.12

STD. 609.00
STD. 617.10
STD. 706.35
STD.

Designed Nov. 2018
Detailed Nov. 2018
Checked Feb. 2019

GENERAL ELEVATION AND PLAN

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI — NICHOLE WITUSZYNSKI — 10-31-19 — NUMBER PE-2018037127 — PROFESSIONAL ENGINEER

DATE	09/23/2019
DATE PREPARED	09/23/2019
ROUTE 148TH	STATE MO
DISTRICT KC	SHEET NO.
COUNTY	CLAY
JOB NO.	36201A
CONTRACT ID.	
PROJECT NO.	BRO-B024(27)
BRIDGE NO.	10700091

DESCRIPTION | DATE

CLAY COUNTY, MISSOURI HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

SEAL OF CLAY COUNTY MISSOURI

WSP
WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

GENERAL ELEVATION AND PLAN

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

ESTIMATED QUANTITES

	Item		Substr.	Superstr.	Total
	Class 1 Excavation	Cu. Yd.	308.0	-	308.0
	Removal of Bridges	Lump Sum	-	-	1
	Bridge Approach Slab (Minor Road)	Sq. Yd.	-	380	380
	Galvanized Structural Steel Piles (12 in.)	Lin. Ft.	1,934	-	1,934
	Dynamic Pile Testing	Each	4	-	4
	Pile Point Reinforcement	Each	33	-	33
	Class B Concrete (Substructure)	Cu. Yd.	204.3	-	204.3
	Class B-2 Concrete (Haunched Slab)	Sq. Yd.	-	629	629
	Reinforcing Steel (Bridges)	Lbs.	8,580	-	8,580
	Reinforcing Steel (Epoxy Coated)	Lbs.	-	129,060	129,060
	Vertical Drain at End Bents	Each	-	-	2
*	Safety Barrier Curb	Lin. Ft.	-	330	330
**	Safety Barrier Transition	Lin. Ft.	-	120	120

* Safety Barrier Curb on the bridge shall be Cast-in-Place option or Slip-Form option.
** Safety Barrier Transition on the approach slab shall be Cast-in-Place.

FOUNDATION DATA

Type	Design Data	Unit	Bent Number 1	2	3	4
Load Bearing Pile	Pile Type and Size		HP 12x53	HP 12x53	HP 12x53	HP 12x53
	Number	each	6	11	11	5
	Approximate Length Per Each	ft.	61	60	58	55
	Pile Point Reinforcement	each	All	All	All	All
	Min. Galvanized Penetration (Elev.)	ft.	Full Length	Full Length	Full Length	Full Length
	Est. Max Scour Depth 100 (Elev.)	ft.	-	751.62	751.62	-
	Min. Tip Penetration (Elev.)	ft.	Min. Embed	Min. Embed	Min. Embed	Min. Embed
	Criteria for Min Tip Penetration		Lateral Stability	Lateral Stability	Lateral Stability	Lateral Stability
	Pile Driving Verification Method		DT	DT	DT	DT
	Minimum Nominal Axial Compressive Resistance	kip	110	160	160	110

DT = Dynamic Testing
Load Bearing Pile:
Minimum Nominal Axial Compressive Resistance =
Maximum Factored Loads / Resistance Factor
Manufactured pile point reinforcement shall be used on all piles in this structure at all Bents.

GENERAL NOTES:

DESIGN SPECIFICATIONS:
2017-AASHTO LRFD Bridge Design Specifications (8th Ed.)
Seismic Design Category A.

CONSTRUCTION SPECIFICATIONS:
2019-Missouri Standard Specifications for Highway Construction

DESIGN LOADING:
HL-93 (LRFD Superstructure. LRFD Substructure)
35 lb/sf. Future Wearing Surface.
Earth 120 lb/cf. Equivalent Fluid Pressure 45 lb/cf.
Superstructure: Simply-supported. non-composite for dead loads.
Continuous composite for live load.

DESIGN UNIT STRESSES:

Class B Concrete (Substructure)	f'c = 3,000 psi
Class B-1 Concrete (Safety Barrier Curb)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi
Steel Pile (ASTM A709 Grade 50)	fy = 50,000 psi

EMBANKMENT:
Complete embankment as shown on the plans prior to driving the End Bent piling or commencing with the End Bent footing excavation.

DRIVEN PILES:
This work shall consist of furnishing and driving steel load-bearing piles to the minimum nominal axial compressive resistance and penetration required per Sec 702. at the location shown on the plans. Dynamic Pile Testing shall be performed during pile installation to ensure pile integrity and capacity (See Special Provisions).

A minimum of one Dynamic Pile Test shall be done at each bent. No re-strike is required.

All piles shall be galvanized. in accordance with Sec. 702. the full length of pile or to the minimum galvanization penetration (elevation). Pile point reinforcing need not be galvanized. Shop drawings will not be required for pile point reinforcement.

FALSEWORK PLANS:
A licensed Professional Engineer shall design the falsework details. Details shall bear the seal of a licensed Professional Engineer. Submit electronic plans with details in compliance with MoDOT Specifications Sec 703 to the Field Engineer to review.

FALSEWORK PLANS AND SHOP DRAWINGS:
Use the U.S. Customary system of units on falsework plans and shop drawing details.

FALSEWORK:
Leave the falsework in place for the entire unit until 15 days after the last concrete pour for the unit or until the concrete has attained the required compressive strength as stated in Sec 703. whichever is longer as directed by the Engineer.

FORMWORK:
Slab shall be cast-in-place with conventional forms. Precast prestressed panels and stay-in-place corrugated steel forms will not be permitted.

Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness Class SC4 and a finish Type I. II or III.

JOINT FILLER:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler. except as noted.

ESTIMATED QUANTITIES:

ESTIMATED QUANTITIES FOR HAUNCHED SLAB

Item	Unit	Total
Class B-2 Concrete (Haunched Slab)	Cu. Yd.	445

All concrete above the construction joint in the end bents is included in the Estimated Quantities for Haunched Slab.

All concrete above the intermediate beam cap is included in the Estimated Quantites for Haunched Slab.

The table for Estimated Quantities for Haunched Slab represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard longitudinally from end to end of slab and transversely from out to out of bridge slab (or with the horizontal dimensions as shown on the plan of slab. Payment for all formwork. falsework. and superstructure concrete shall be considered completely covered by the contract unit price for the slab. Epoxy coated reinforcing steel is a separate bid item. Variations may be encountered in the estimated quantities. but the variations cannot be used for an adjustment in the contract unit price.

GENERAL NOTES CONT'D:

CONCRETE:
Bevel all exposed edges of all concrete with 3/4 inch triangular molding, except as otherwise noted on the plans. per Sec 703. Construction joints are optional with the Contractor. but if used. place only at locations shown. or at locations approved by the Engineer.

SLAB ELEVATIONS:
The Contractor shall record elevation readings on the "Slab Elevations" sheet in the table at locations designated by a "(2)".The Contractor shall submit the table on a half-sized sheet to the Engineer.

PIER BEAM CONSTRUCTION:
Cure the Int. Bent walls as required by MoDOT before beginning the pier beam construction (placing resteel or formwork). Do not drill and grout bolts or other devices into the Int. Bent walls used for falsework support unless approved by the Engineer. Cure Int. Bent walls as required by the MoDOT Specs. before beginning to place superstructure concrete.

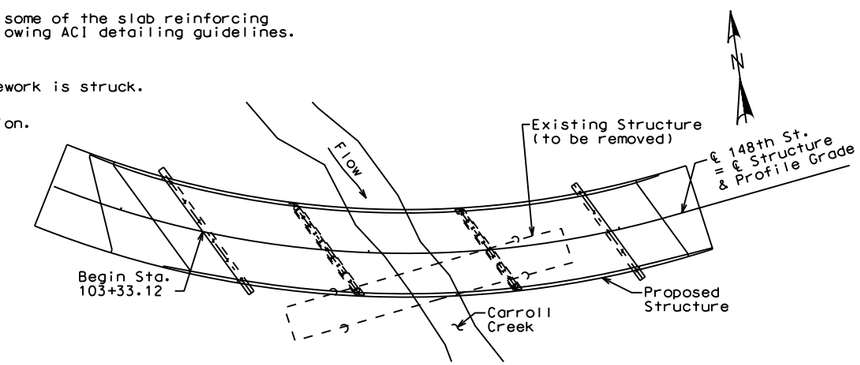
REINFORCING STEEL:
Minimum clearance to reinforcing steel shall be 2". unless otherwise shown. Epoxy coat all reinforcing steel in the End Bents. deck slab. and barriers. Where non-coated bars come in contact with epoxy coated bars. they need not be coated.

Due to curvature requirements from ACI. some of the slab reinforcing steel will need to be prefabricated following ACI detailing guidelines. See Sh. #43 for details.

BARRIER:
Build the bridge barrier after the falsework is struck.

TRAFFIC HANDLING:
Route 148 to be closed during construction.

BACKFILL COMPACTION:
Compact backfill at the End Bents.



LOCATION SKETCH

GENERAL NOTES AND SUMMARY OF ESTIMATED QUANTITIES

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
WILLIAM WITUSHOSKY
12-30-19
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

DATE: 09/23/2019
DATE PREPARED: 09/23/2019
ROUTE: 148TH | STATE: MO
DISTRICT: KC | SHEET NO.:
COUNTY: CLAY
JOB NO.: 36201A
CONTRACT ID.:
PROJECT NO.: BRO-B024(27)
BRIDGE NO.: 10700091

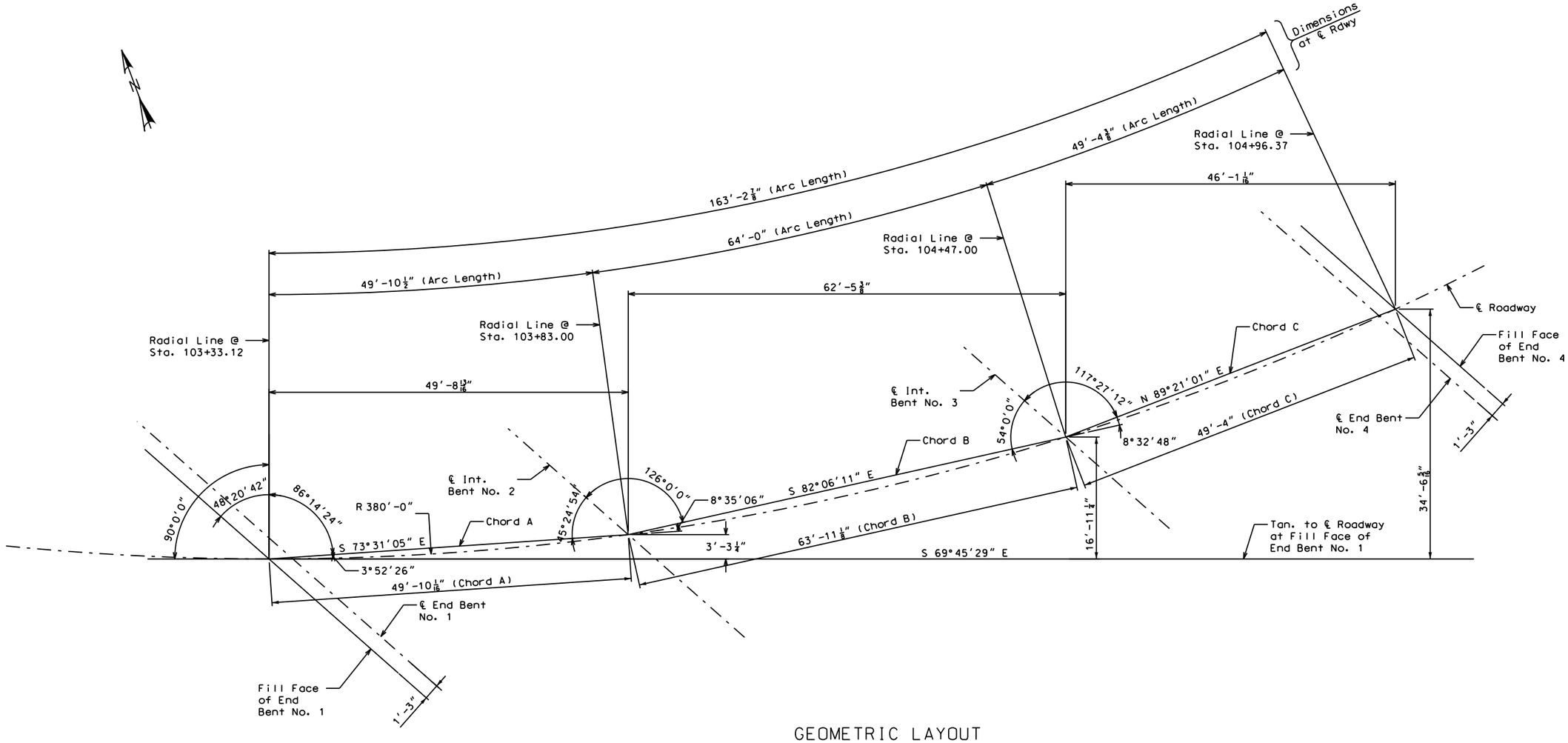
DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

GENERAL NOTES & SUMMARY OF QUANTITIES



GEOMETRIC LAYOUT

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
NICHOLE C. WITUSINSKY
10-31-19
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

DATE
09/23/2019

DATE PREPARED
09/23/2019

ROUTE	STATE
148TH	MO
DISTRICT	SHEET NO.
KC	

COUNTY
CLAY

JOB NO.
36201A

CONTRACT ID.

PROJECT NO.
BRO-B024(27)

BRIDGE NO.
10700091

DESCRIPTION	DATE

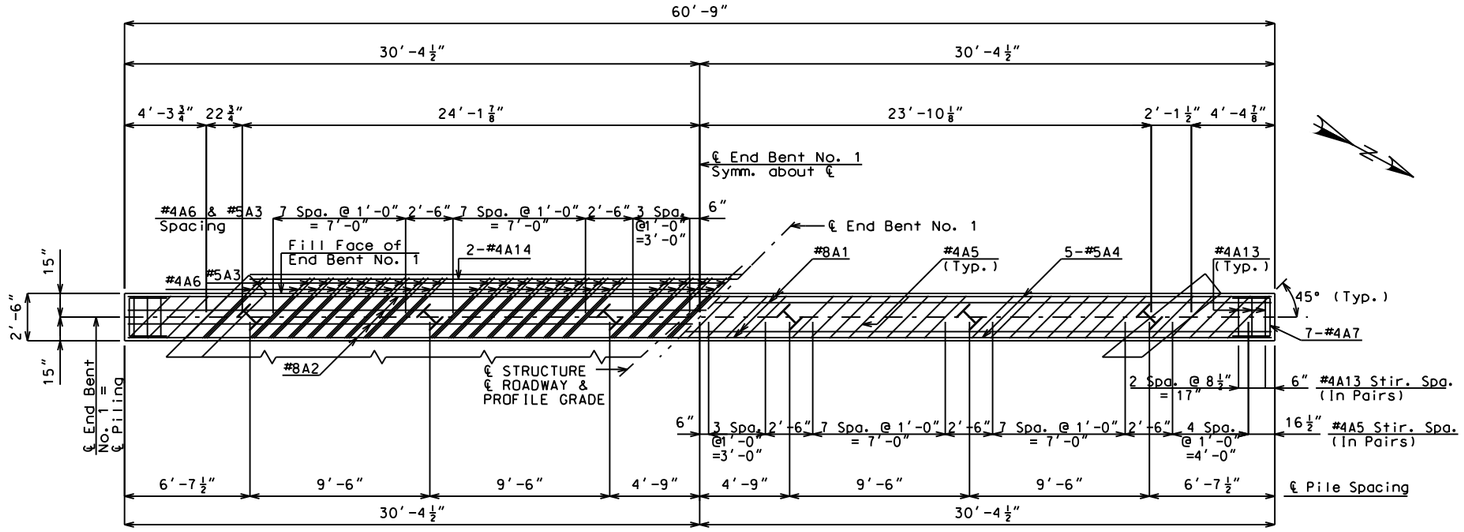
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

SEAL OF CLAY COUNTY MISSOURI

WSP
WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

SUPERSTR. GEOMETRIC LAYOUT



Reinforcing Steel
in Top of Abutment

Reinforcing Steel
in Bottom of Abutment

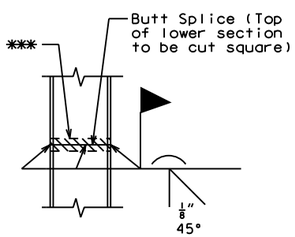
PLAN
(Looking Back Station at End Bent No. 1)
(Dimensions along ℄ Bent)

** Top of Pile Elevations			
End Bent No. 1	P1	P2	P3
Top of Pile EL	782.52	782.73	782.95
Pile Length (ft)	60.0	60.0	60.0
End Bent No. 1	P4	P5	P6
Top of Pile EL	783.17	783.40	783.64
Pile Length (ft)	61.0	61.0	61.0

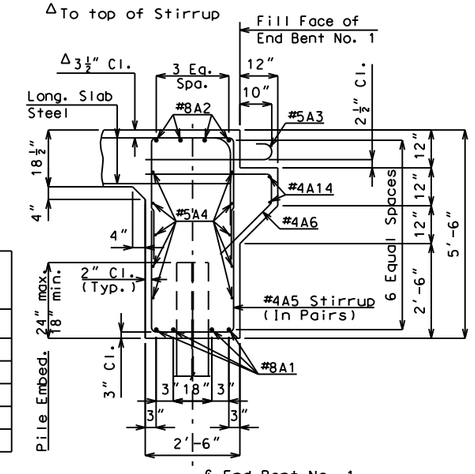
See "As-built Pile Data" sheet for pile number designations

Item	Unit	Total
Class 1 Excavation	Cu. Yd.	-
Galvanized Structural Steel Piles (12in)	Lin. Ft.	363
Dynamic Pile Testing	Each	1
Pile Point Reinforcement	Each	6
Class B Concrete (Substructure)	Cu. Yd.	-

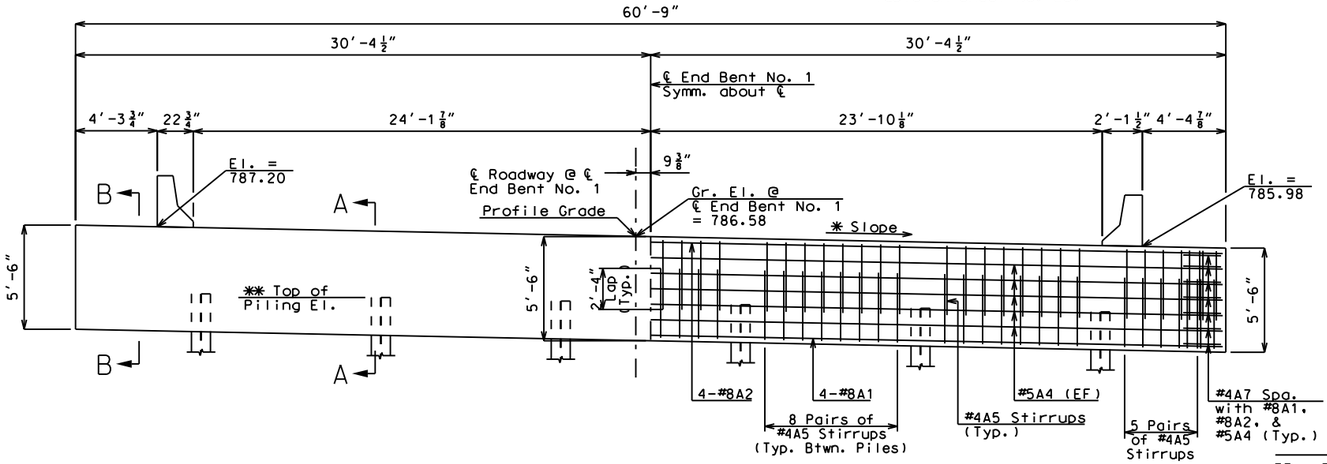
These quantities are included in the Estimated Quantities table on Sheet No. 23.



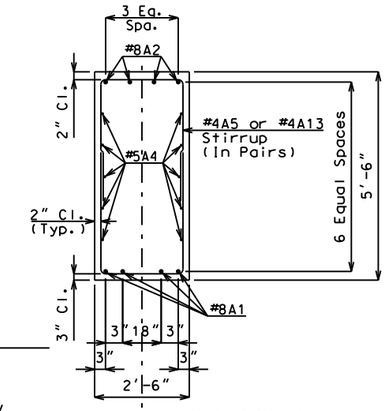
STEEL PILE SPLICE
(If required)



Section A-A



ELEVATION
(Looking Back Station at End Bent No. 1)
(Dimensions along ℄ Bent)



Section B-B

LEGEND

EF = Each Face
FF = Far Face
NF = Near Face
* Slope 4.0% Normal to ℄ Roadway
** See this sheet for Top of Pile Elevations table
*** Galvanizing material shall be omitted or removed 1 inch clear of weld locations in accordance with Sec. 702.

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
NICHOLE M. WITUSINSKY
10-3-19
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

DATE: 09/23/2019
DATE PREPARED: 09/23/2019
ROUTE: 148TH | STATE: MO
DISTRICT: KC | SHEET NO.:
COUNTY: CLAY
JOB NO.: 36201A
CONTRACT ID.:
PROJECT NO.: BRO-B024(27)
BRIDGE NO.: 10700091

DESCRIPTION | DATE

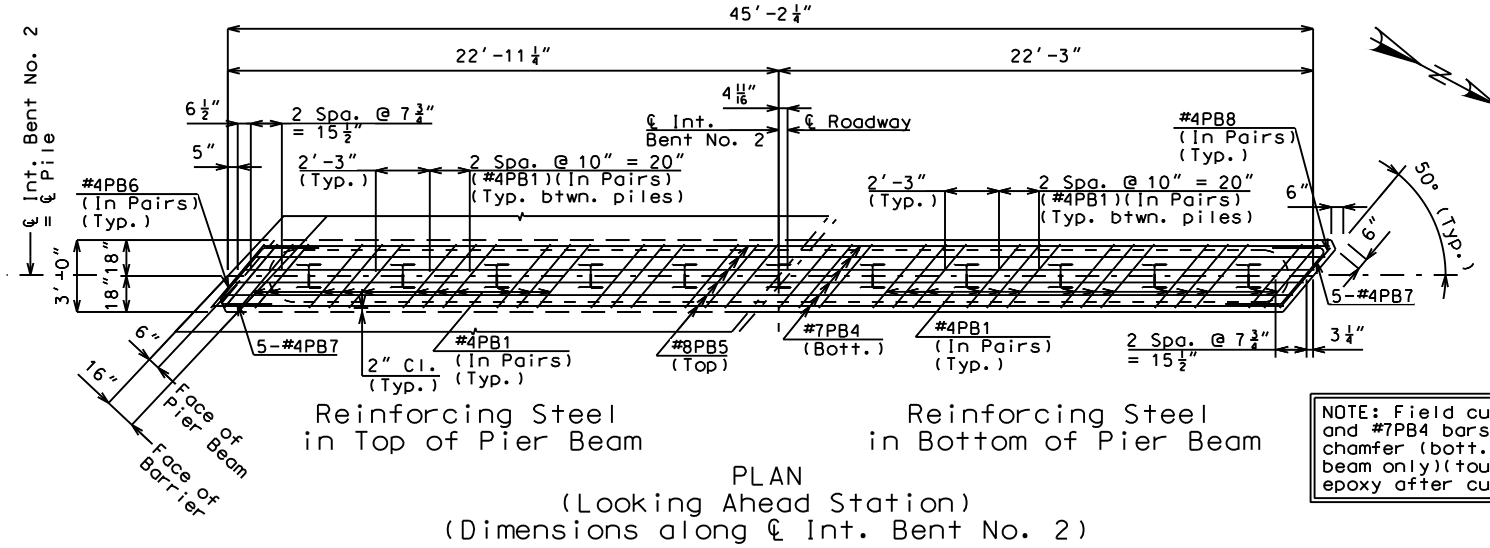
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

SEAL OF CLAY COUNTY MISSOURI

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

END BENT NO. 1

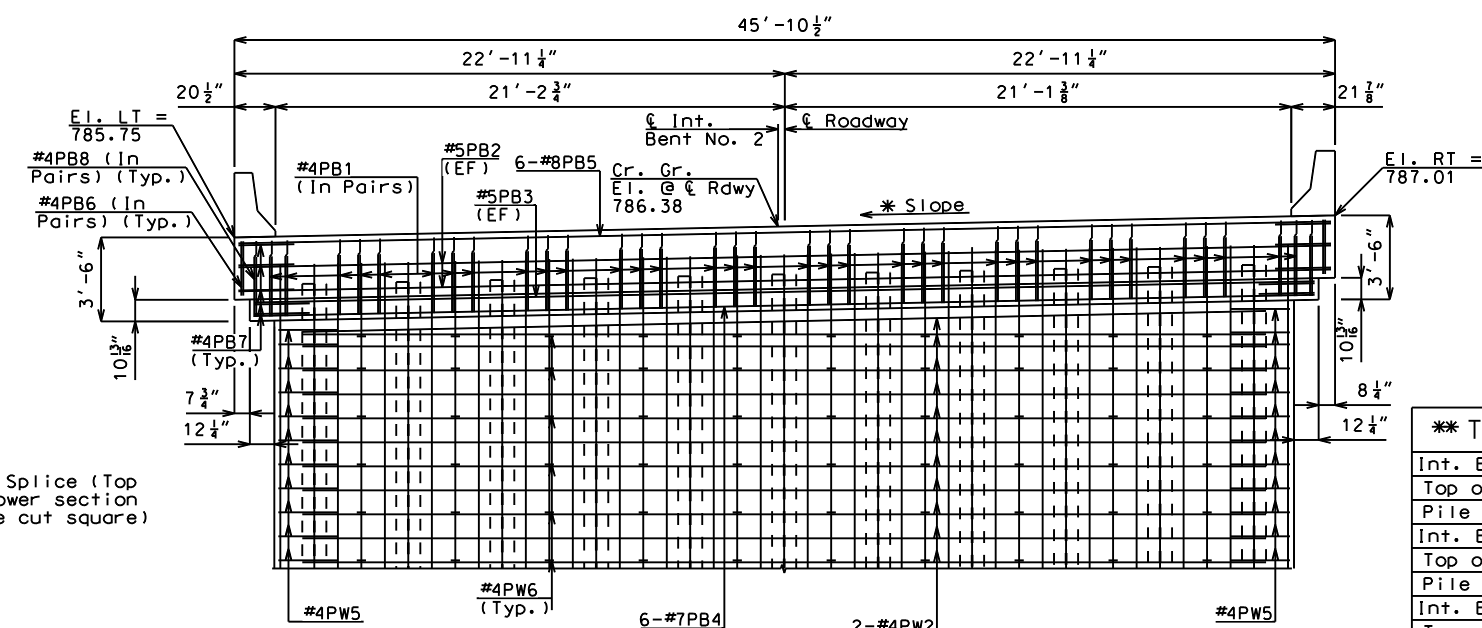


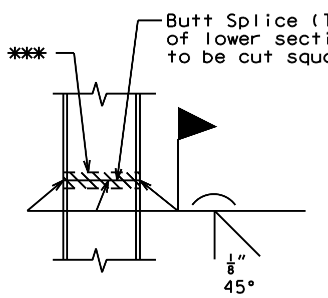
Reinforcing Steel in Top of Pier Beam

Reinforcing Steel in Bottom of Pier Beam

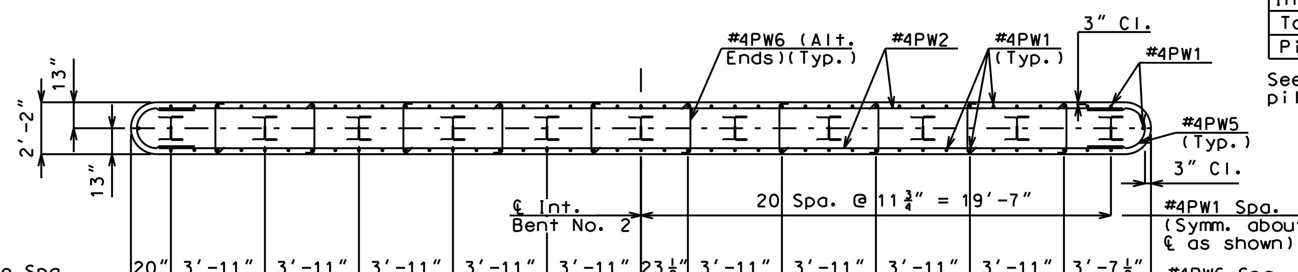
PLAN
(Looking Ahead Station)
(Dimensions along ℄ Int. Bent No. 2)

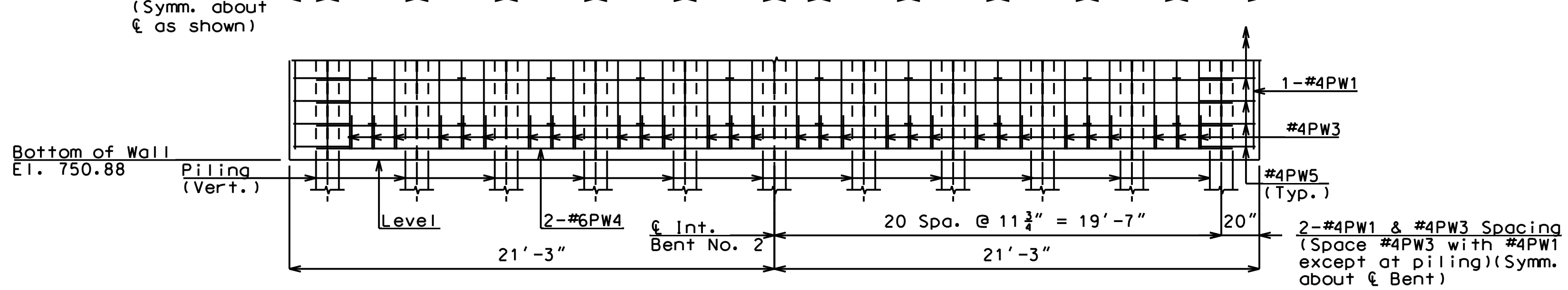
NOTE: Field cut #8PB5 and #7PB4 bars at 6" chamfer (bott. pier beam only)(touch with epoxy after cutting)





STEEL PILE SPLICE
(If required)

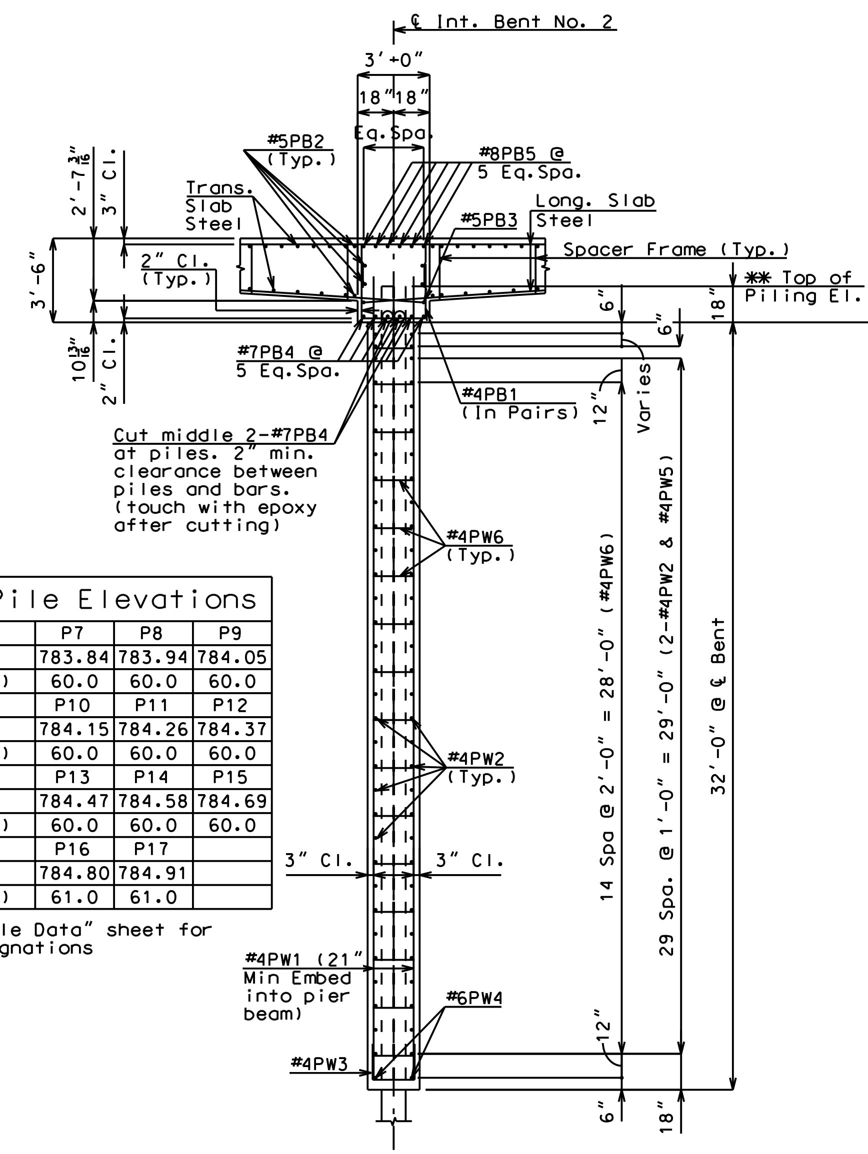




ELEVATION

Item	Unit	Total
Class 1 Excavation	Cu. Yd.	164.3
Galvanized Structural Steel Piles (12in)	Lin. Ft.	662
Dynamic Pile Testing	Each	1
Pile Point Reinforcement	Each	11
Class B Concrete (Substructure)	Cu. Yd.	107.9

These quantities are included in the Estimated Quantities table on Sheet No. 23.



SECTION THRU BENT
(Dimensions at ℄ Bent)

✱✱ Top of Pile Elevations

Int. Bent No. 2	P7	P8	P9
Top of Pile EL	783.84	783.94	784.05
Pile Length (ft)	60.0	60.0	60.0
Int. Bent No. 2	P10	P11	P12
Top of Pile EL	784.15	784.26	784.37
Pile Length (ft)	60.0	60.0	60.0
Int. Bent No. 2	P13	P14	P15
Top of Pile EL	784.47	784.58	784.69
Pile Length (ft)	60.0	60.0	60.0
Int. Bent No. 2	P16	P17	
Top of Pile EL	784.80	784.91	
Pile Length (ft)	61.0	61.0	

See "As-built Pile Data" sheet for pile number designations

LEGEND

EF = Each Face
FF = Far Face
NF = Near Face
✱ Slope 4.0% Normal to ℄ Roadway
✱✱ See this sheet for Top of Pile Elevations table
✱✱✱ Galvanizing material shall be omitted or removed 1 inch clear of weld locations in accordance with Sec. 702.

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

DATE	09/23/2019
DATE PREPARED	09/23/2019
ROUTE	148TH
STATE	MO
DISTRICT	KC
SHEET NO.	
COUNTY	CLAY
JOB NO.	36201A
CONTRACT ID.	
PROJECT NO.	BRO-B024(27)
BRIDGE NO.	10700091

State of Missouri — Nichole Witusky — Number PE-2018037127 — Professional Engineer — 10-31-19

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

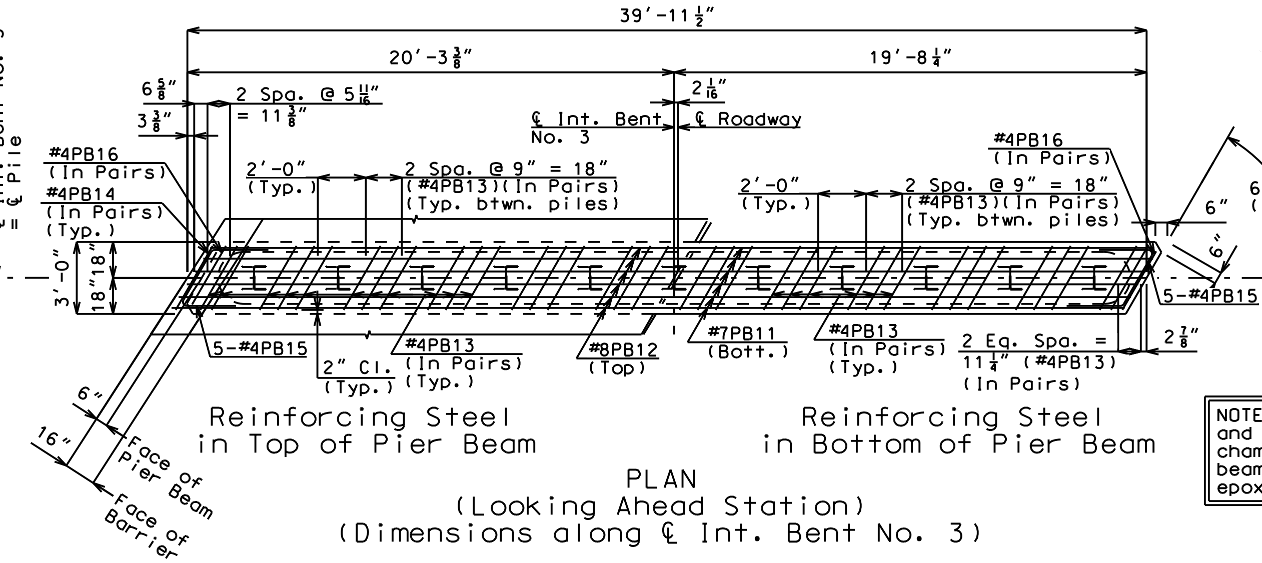
DESCRIPTION | DATE

CLAY COUNTY, MISSOURI HIGHWAY DEPARTMENT
16616 NE 116TH STREET KEARNEY, MO 64060 PHONE: (816) 407-3300

Seal of Clay County Missouri

WSP USA Inc. 300 Wyandotte Street Suite 200 Kansas City, MO 64105 913.310.9943

INTERMEDIATE BENT NO. 2

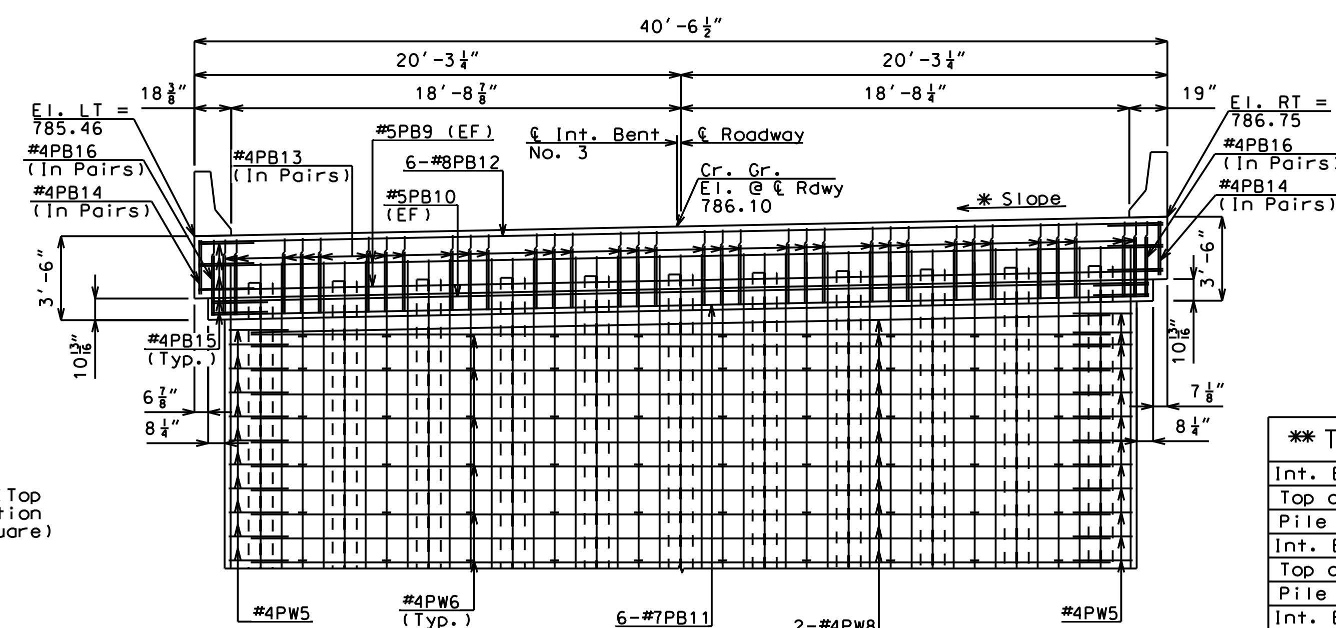


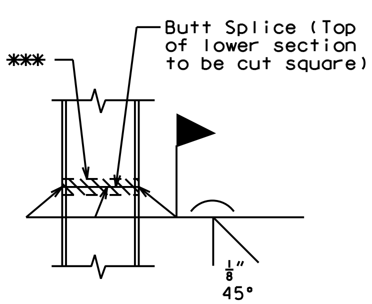
PLAN
(Looking Ahead Station)
(Dimensions along ℄ Int. Bent No. 3)

NOTE: Field cut #8PB12 and #7PB11 bars at 6" chamfer (bott. pier beam only)(touch with epoxy after cutting)

Item	Unit	Total
Class 1 Excavation	Cu. Yd.	143.7
Galvanized Structural Steel Piles (12in)	Lin. Ft.	636
Dynamic Pile Testing	Each	1
Pile Point Reinforcement	Each	11
Class B Concrete (Substructure)	Cu. Yd.	96.4

These quantities are included in the Estimated Quantities table on Sheet No. 23.

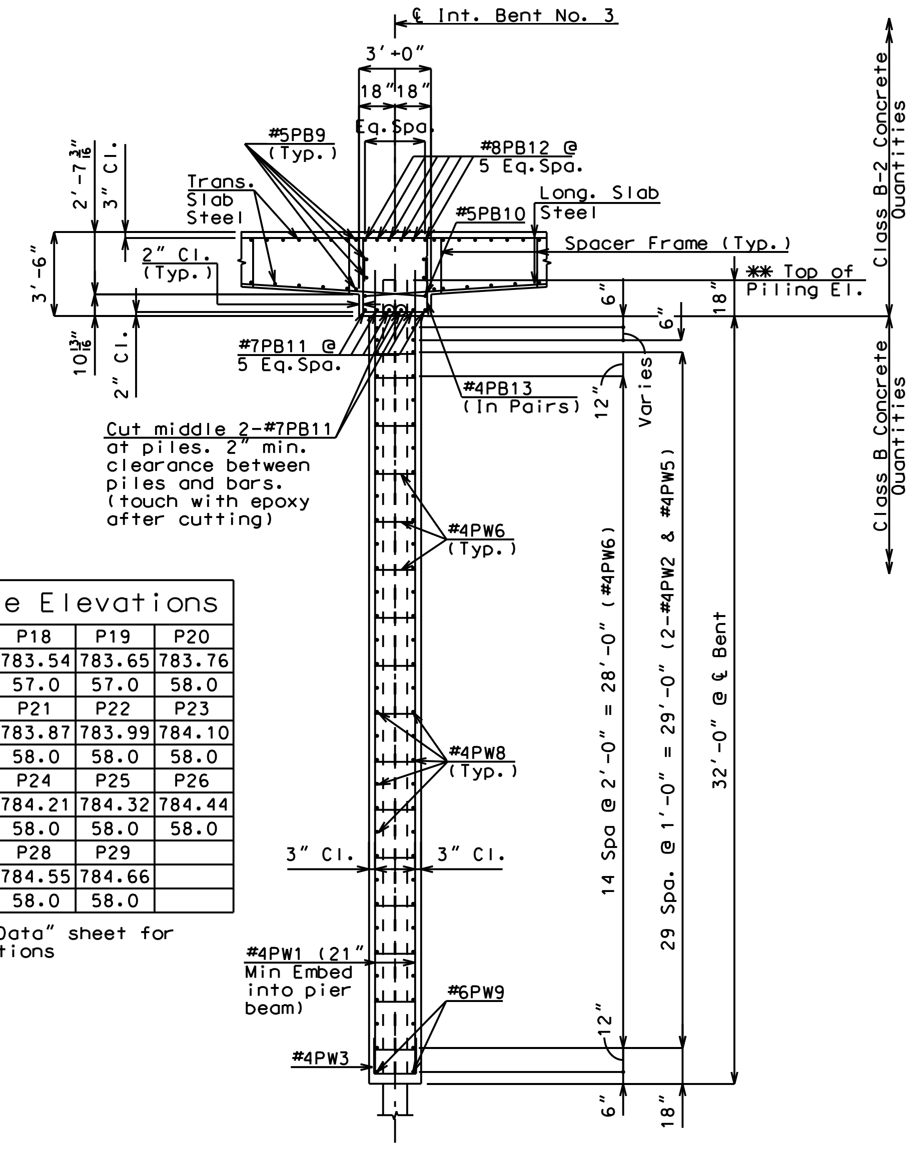




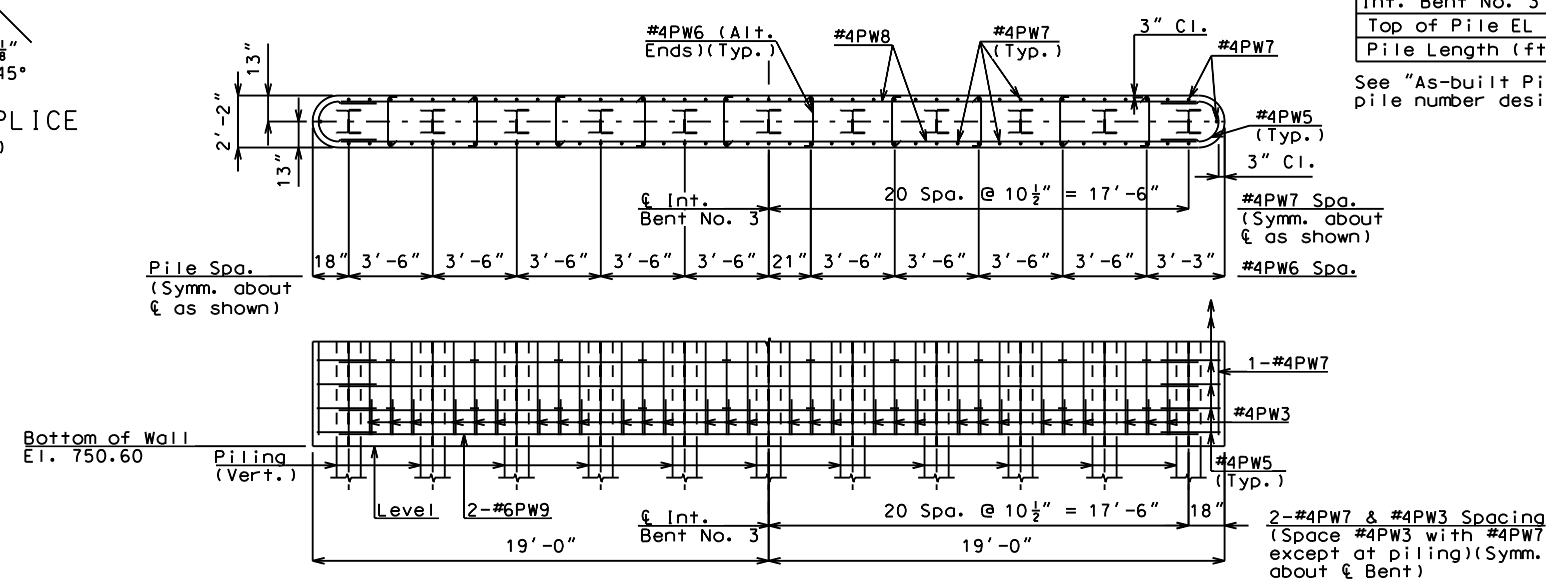
STEEL PILE SPLICE
(If required)

** Top of Pile Elevations			
Int. Bent No. 3	P18	P19	P20
Top of Pile EL	783.54	783.65	783.76
Pile Length (ft)	57.0	57.0	58.0
Int. Bent No. 3	P21	P22	P23
Top of Pile EL	783.87	783.99	784.10
Pile Length (ft)	58.0	58.0	58.0
Int. Bent No. 3	P24	P25	P26
Top of Pile EL	784.21	784.32	784.44
Pile Length (ft)	58.0	58.0	58.0
Int. Bent No. 3	P28	P29	
Top of Pile EL	784.55	784.66	
Pile Length (ft)	58.0	58.0	

See "As-built Pile Data" sheet for pile number designations



SECTION THRU BENT
(Dimensions at ℄ Bent)



ELEVATION

LEGEND

EF = Each Face
FF = Far Face
NF = Near Face
* Slope 4.0% Normal to ℄ Roadway
** See this sheet for Top of Pile Elevations table
*** Galvanizing material shall be omitted or removed 1 inch clear of weld locations in accordance with Sec. 702.

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

State of Missouri, Nichole Witushynsky, Number PE-2018037127, Professional Engineer, 10-31-19

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

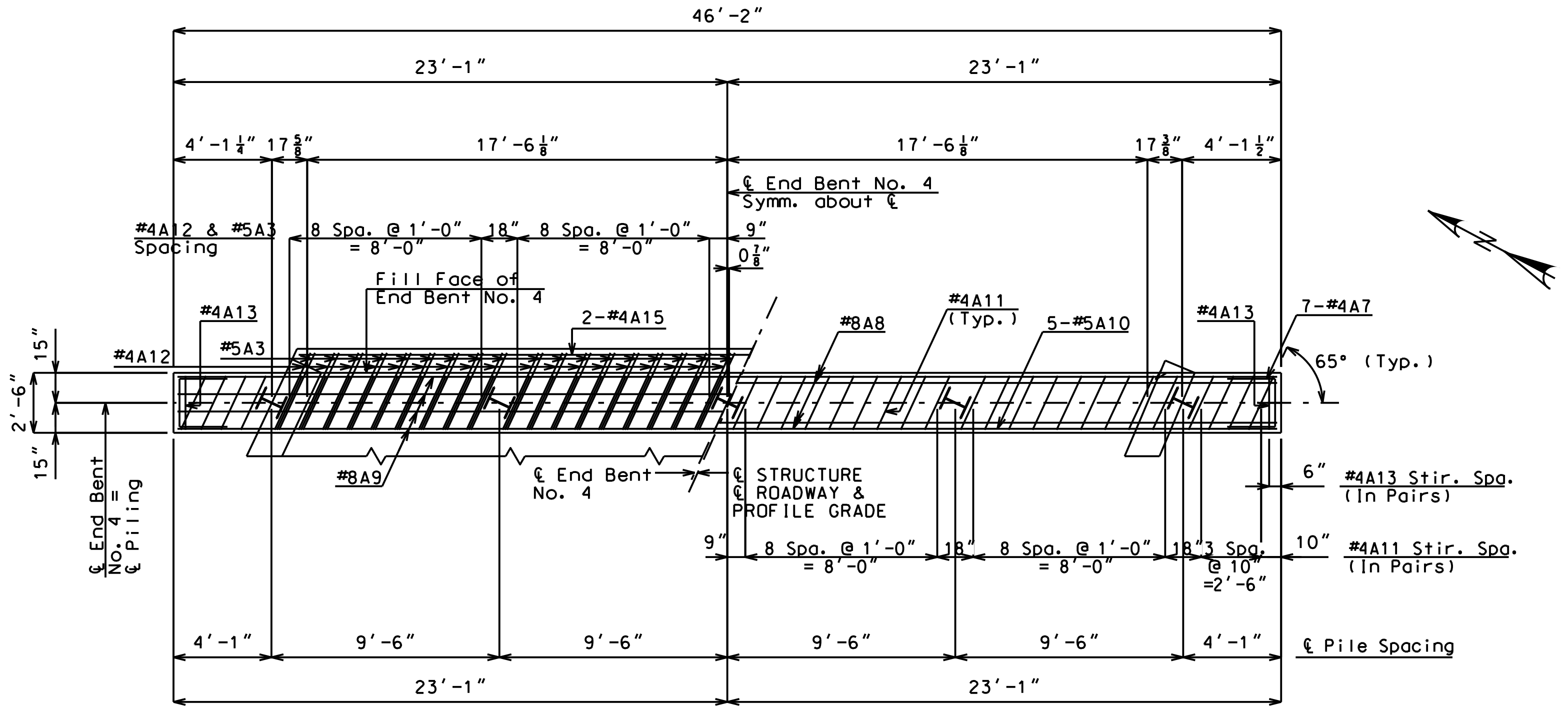
DATE	09/23/2019
DATE PREPARED	09/23/2019
ROUTE	148TH
STATE	MO
DISTRICT	KC
SHEET NO.	
COUNTY	CLAY
JOB NO.	36201A
CONTRACT ID.	
PROJECT NO.	BRO-B024(27)
BRIDGE NO.	10700091

DESCRIPTION | DATE

CLAY COUNTY, MISSOURI HIGHWAY DEPARTMENT
16616 NE 116TH STREET KEARNEY, MO 64060 PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

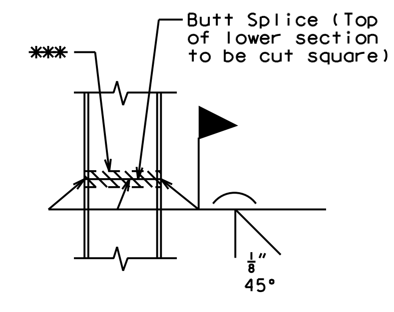
INTERMEDIATE BENT NO. 3



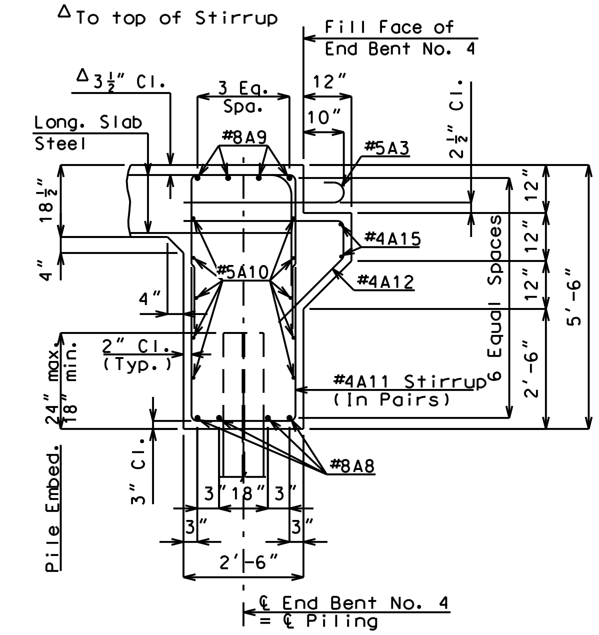
Reinforcing Steel in Top of Abutment

Reinforcing Steel in Bottom of Abutment

PLAN
(Looking Ahead Station at End Bent No. 4)
(Dimensions along ℄ Bent)



STEEL PILE SPLICE
(If required)



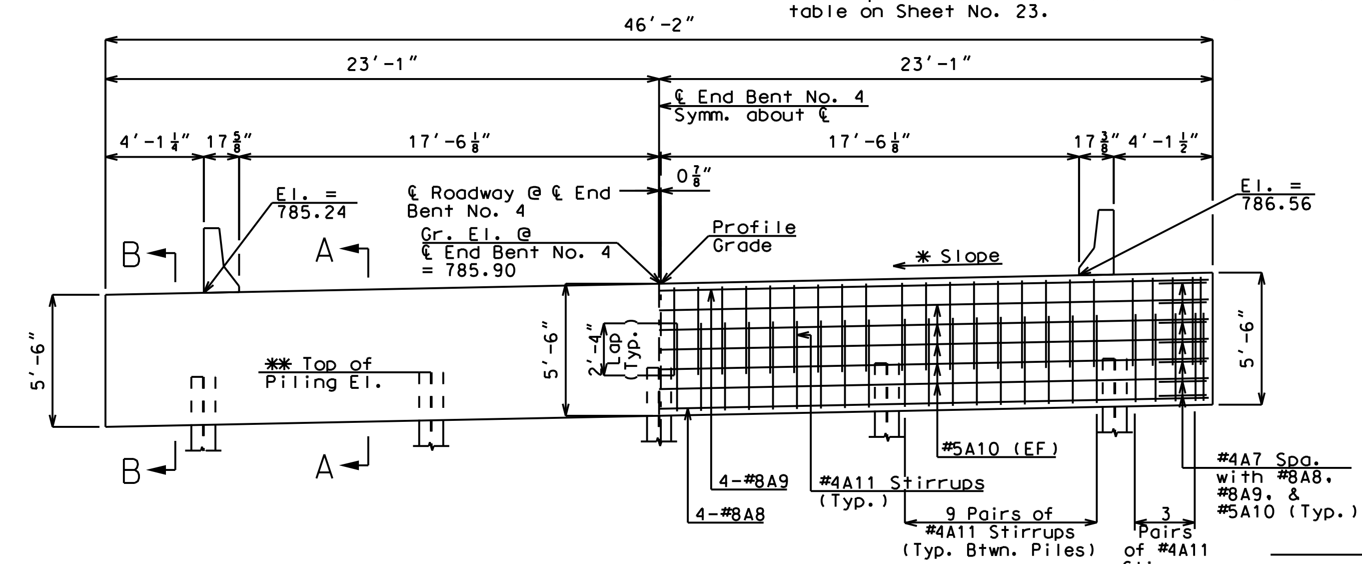
Section A-A

** Top of Pile Elevations			
End Bent No. 4	P29	P30	P31
Top of Pile EL	781.74	782.07	782.40
Pile Length (ft)	54.0	54.0	55.0
End Bent No. 4	P32	P33	
Top of Pile EL	782.70	783.06	
Pile Length (ft)	55.0	55.0	

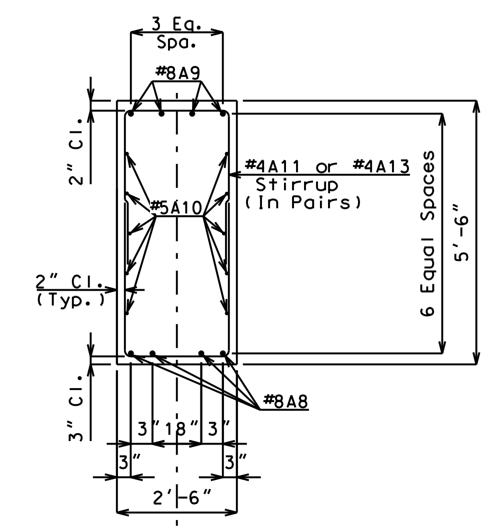
See "As-built Pile Data" sheet for pile number designations

Item	Unit	Total
Class 1 Excavation	Cu. Yd.	-
Galvanized Structural Steel Piles (12in)	Lin. Ft.	273
Dynamic Pile Testing	Each	1
Pile Point Reinforcement	Each	5
Class B Concrete (Substructure)	Cu. Yd.	-

These quantities are included in the Estimated Quantities table on Sheet No. 23.



ELEVATION
(Looking Ahead Station at End Bent No. 4)
(Dimensions along ℄ Bent)



Section B-B

LEGEND

EF = Each Face
FF = Far Face
NF = Near Face
* Slope 4.0% Normal to ℄ Roadway
** See this sheet for Top of Pile Elevations table
*** Galvanizing material shall be omitted or removed 1 inch clear of weld locations in accordance with Sec. 702.

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

DATE 09/23/2019
DATE PREPARED 09/23/2019
ROUTE 148TH | STATE MO
DISTRICT KC | SHEET NO.
COUNTY CLAY
JOB NO. 36201A
CONTRACT ID.
PROJECT NO. BRO-B024(27)
BRIDGE NO. 10700091

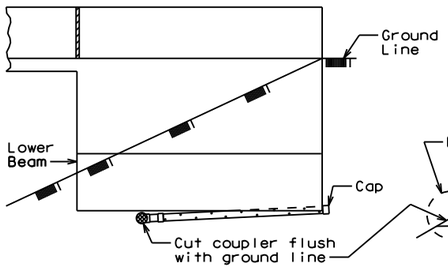
DESCRIPTION | DATE

CLAY COUNTY, MISSOURI HIGHWAY DEPARTMENT
16616 NE 116TH STREET KEARNEY, MO 64060 PHONE: (816) 407-3300

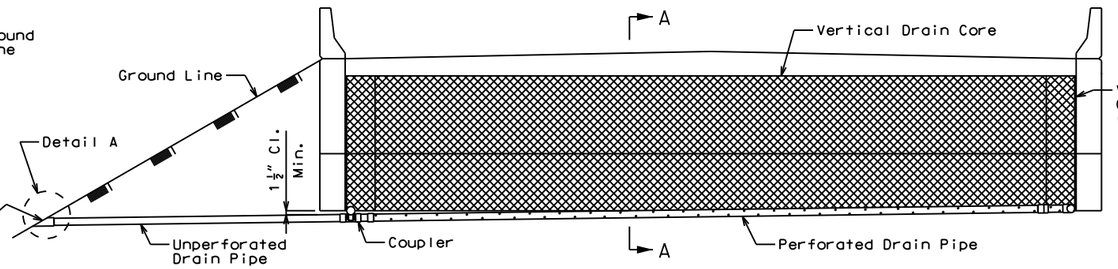
WSP USA Inc. 300 Wyandotte Street Suite 200 Kansas City, MO 64105 913.310.9943

END BENT NO. 4

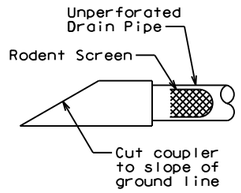
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



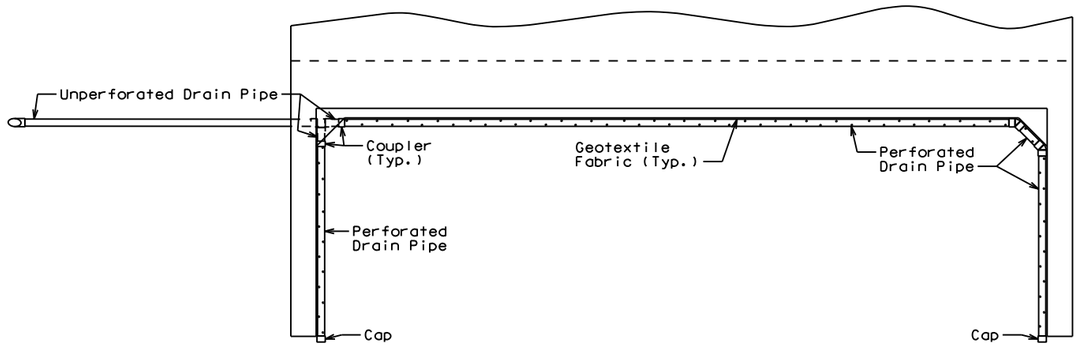
ELEVATION OF WING



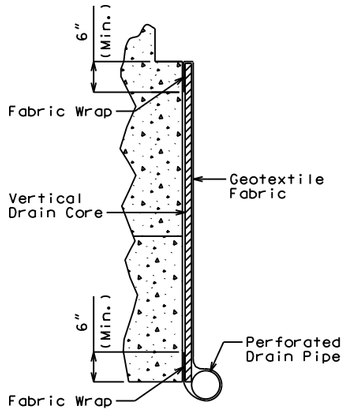
ELEVATION OF END BENT



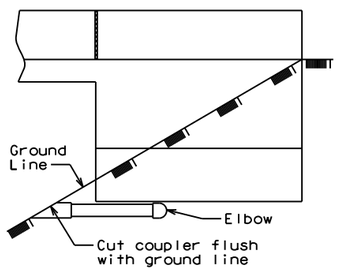
DETAIL A



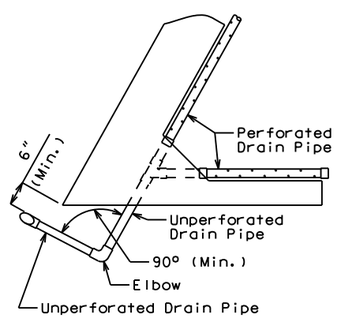
PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



ELEVATION OF WING



PART PLAN

OPTIONAL TURNED DRAIN
(Only if rock is encountered outside of wing)

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

Drain pipe may be either 6-inch diameter corrugated metallic-coated steel pipe underdrain, 4-inch diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4-inch diameter corrugated polyethylene (PE) drain pipe.

Drain pipe shall be placed at fill face of end bent and inside face of wings. The pipe shall slope to lowest grade of ground line, also missing the lower beam of end bent by a minimum of 1 1/2 inches.

Perforated pipe shall be placed at fill face side and inside face of wings at the bottom of end bent and plain pipe shall be used where the vertical drain ends to the exit at ground line.

VERTICAL DRAIN AT END BENTS

(Squared end bent shown, skewed end bent similar)

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
NICHOLE M. WITUSINSKY
10-31-19
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

DATE: 09/23/2019
DATE PREPARED: 09/23/2019
ROUTE: 148TH | STATE: MO
DISTRICT: KC | SHEET NO.:
COUNTY: CLAY
JOB NO.: 36201A
CONTRACT ID.:
PROJECT NO.: BRO-B024(27)
BRIDGE NO.: 10700091

DATE	DESCRIPTION

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CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

VERTICAL DRAIN

SLAB ELEVATIONS

				Formwork				Screed			Thickness			Deck Profile	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Survey	Station	†Location	Transverse Location	Estimated Falsework Crush	Target Elevation TOF	Actual Elevation TOF	TOF Variance (OA/OC)	Target Screed El. = TOC El.	Actual Bottom of Screed Elevation Prior to Pour	Screed Variance (OA/OC)	Plan Deck Thickness	Measured Deck Thickness	Deck Thickness Variance (OA/OC)	Plan TOC El.	Actual TOC El. Optional Survey
	(1)(16)	(13)	(13)	(inch) (1)(4)	(1)(6)	(2)	(±inch) (2)(5)	(1)(6)	(2)	(±inch) (2)(7)	(1)	(inch) (2)(8)	(±inch) (2)(9)	(1)	Date: (3)
A	103+14.14	℄ Brg.	Left Fascia					785.98						785.98	
	103+35.00	of	Crown Gr. ℄					786.58						786.58	
	103+52.98	End Bent #1	Right Fascia					787.20						787.20	
B	103+16.22	Interior	Left Fascia		784.43						18.50			785.97	
	103+36.87	Face of	Crown Gr. ℄		785.03						18.50			786.57	
	103+54.68	End Bent #1	Right Fascia		785.65						18.50			787.19	
C	103+35.46	4/10 Point	Left Fascia	0.25	784.41			785.96			18.64			785.88	
	103+54.20	from	Crown Gr. ℄	0.25	785.02			786.58			18.64			786.50	
	103+70.53	End Bent #1	Right Fascia	0.25	785.65			787.20			18.64			787.12	
D	103+64.85	Span #1	Left Fascia	0.25	783.21						30.82			785.76	
	103+81.01	Face of	Crown Gr. ℄	0.25	783.84						30.82			786.38	
	103+95.26	Pier Beam	Right Fascia	0.25	784.47						30.82			787.02	
E	103+67.01	℄ Brg.	Left Fascia					785.75						785.75	
	103+83.00	of	Crown Gr. ℄					786.38						786.38	
	103+97.10	Int. Bent #2	Right Fascia					787.01						787.01	
F	103+69.17	Span #2	Left Fascia	0.25	783.19						30.82			785.74	
	103+84.98	Face of	Crown Gr. ℄	0.25	783.82						30.82			786.37	
	103+98.93	Pier Beam	Right Fascia	0.25	784.45						30.82			787.00	
G	104+01.63	Midpoint	Left Fascia	0.25	784.16			785.70			18.50			785.60	
	104+15.00	of	Crown Gr. ℄	0.25	784.79			786.33			18.50			786.24	
	104+26.91	Span #2	Right Fascia	0.25	785.43			786.98			18.50			786.88	
H	104+34.04	Span #2	Left Fascia	0.25	782.90						31.01			785.47	
	104+45.24	Face of	Crown Gr. ℄	0.25	783.55						31.01			786.11	
	104+55.30	Pier Beam	Right Fascia	0.25	784.20						31.01			786.76	
I	104+35.91	℄ Brg.	Left Fascia					785.46						785.46	
	104+47.00	of	Crown Gr. ℄					786.10						786.10	
	104+56.95	Int. Bent #3	Right Fascia					786.75						786.75	
J	104+37.78	Span #3	Left Fascia	0.25	782.89						31.01			785.45	
	104+48.75	Face of	Crown Gr. ℄	0.25	783.53						31.01			786.10	
	104+58.60	Pier Beam	Right Fascia	0.25	784.18						31.01			786.75	
K	104+66.56	4/10 Point	Left Fascia	0.25	783.85			785.41			18.64			785.33	
	104+75.80	from	Crown Gr. ℄	0.25	784.51			786.06			18.64			785.98	
	104+84.14	End Bent #4	Right Fascia	0.25	785.16			786.72			18.64			786.64	
L	104+85.45	Interior	Left Fascia		783.70						18.50			785.25	
	104+93.63	Face of	Crown Gr. ℄		784.36						18.50			785.90	
	105+01.03	End Bent #4	Right Fascia		785.02						18.50			786.57	
M	104+86.90	℄ Brg.	Left Fascia					785.24						785.24	
	104+95.00	of	Crown Gr. ℄					785.90						785.90	
	105+02.33	End Bent #4	Right Fascia					786.56						786.56	

†Stationing shown increasing from west to east.

NOTE: The Contractor will turn in a completed copy of this table to the Engineer.

ɣ It is assumed that piling have been driven to design bearing and checked by ENR formula (OA/OC). No allowance for pile settlement is included in crush.

Pour Dates (2)	
	Deck
	Left Rail (13)
	Right Rail (13)

Survey Data (1)(11)	
Bench Mark No.	Elevation
100	790.22
101	788.89
102	790.03

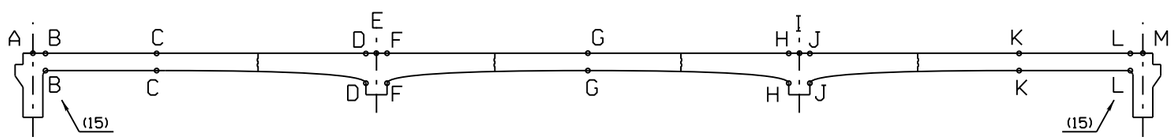
Crown Grade Profile (1)(12)	
104+15	VPI Station
786.24	VPI Elevation
-0.43	G1%
-0.43	G2%
3+90	L in Stations

Slab Thickness (1)		Span Data (1)	
18 1/2	Uniform Depth (inch)	HL-93	Design Loading
12 7/16	Haunch Depth @ Face of PB (inch)	48	Span #1 (ft)
		64	Span #2 (ft)
1/8	Haunch Depth @ 0.4 Point (inch)	3	Clear Cover (inch)

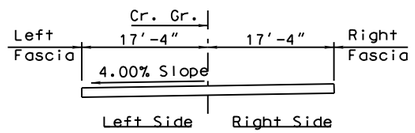
Roadway Data (1)(10)(13)	
34'-8"	Deck Width (ft) (14)
-4.00	% Slope Left (±)
+4.00	% Slope Right (±)
36:00:00	Skew (dd:mm:ss)

Camber (1)(17)	
0.058	Span #1 0.4 Point (ft)
0.073	Span #2 Midspan (ft)

(1) By the Design Engineer
(2) By the Contractor
(3) By Request
ɣ(4) Based on hardwood shims, assume 6 joints with 1/8" crush (Take Up) per joint. Revise estimate if/when more accurate information becomes available. Ref: "Formwork for Concrete" Fifth Edition, by M.K. Hurd, Chapter 6
(5) (col 7 - col 6)x12
(6) Crush (Take Up) and camber must be included
(7) (col 10 - col 9)x12
(8) (col 10 - col 7)x12
(9) (col 13 - col 12)
(10) If transition falls on the bridge, then enter "Varies" for the % Slope
(11) From "General Elevation and Plan" sheet
(12) If bridge is not on the vertical curve, enter Abutment #1 ℄ bearing elevation from the "General Elevation and Plan" sheet. Represent a change in grade with G1 only.
(13) Looking Up-Station
(14) Out-to-Out
(15) Ignore Fillet
(16) Non-skewed bridges only require ℄ stations.
(17) Ignore theoretical camber at face of pier beams.



ELEVATION OF SLAB



TYPICAL SECTION
(Looking Up-Station)

Legend
TOF = Top of Formwork
TOC = Top of Concete
QA = Quality Assurance
QC = Quality Control

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
NICHOLE L. WITUSIKSKY
10-31-19
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

DATE 09/23/2019
DATE PREPARED 09/23/2019
ROUTE 148TH | STATE MO
DISTRICT KC | SHEET NO.
COUNTY CLAY
JOB NO. 36201A
CONTRACT ID.
PROJECT NO. BRO-B024(27)
BRIDGE NO. 10700091

DESCRIPTION | DATE

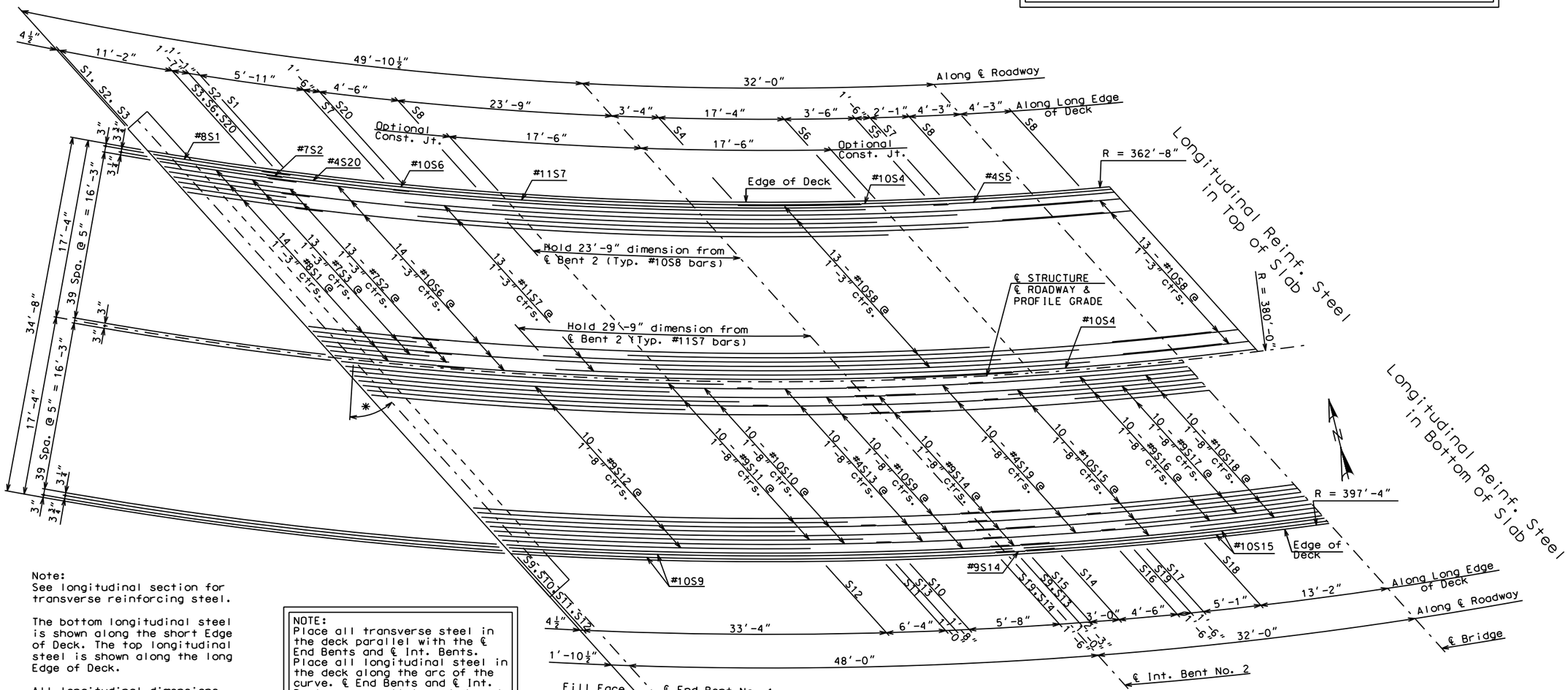
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

SLAB ELEVATIONS

NOTE:
Due to the curvature of the bridge, the length of the Edge of Deck is longer on one side and shorter on the other side; compared to the dimensions that are shown along the centerline of roadway. The Contractor shall lay out the longitudinal steel starting from the center of the middle span in a manner to provide the minimum lap lengths shown for the top and bottom reinforcing mats.



Note:
See longitudinal section for transverse reinforcing steel.

The bottom longitudinal steel is shown along the short Edge of Deck. The top longitudinal steel is shown along the long Edge of Deck.

All longitudinal dimensions are along ℄ Roadway = Profile Grade unless otherwise noted.

* See "Geometric Layout" sheet for more information.

NOTE:
Place all transverse steel in the deck parallel with the ℄ End Bents and ℄ Int. Bents. Place all longitudinal steel in the deck along the arc of the curve. ℄ End Bents and ℄ Int. Bents are parallel, and skewed 36°0'0" to a radial line @ Sta. 104+15.00 and the ℄ Roadway = Profile Grade.

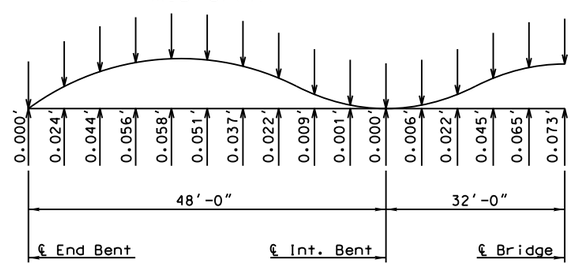
Note: 1.0 & 4.0 pts. are taken at ℄ of abutments
2.0 & 3.0 pts. are taken at ℄ of piers
1.0, 2.0, 3.0 & 4.0 are at theoretical bottom of slab (no account for depth of abutment or pier beam).

Top of Form Elevation at 10th Points, including camber and crush (ft.)															
1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
785.04	785.06	785.06	785.05	785.02	784.93	784.79	784.59	784.33	784.03	783.67	784.09	784.40	784.63	784.76	784.79
2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	
784.71	784.52	784.24	783.87	783.39	783.72	783.98	784.19	784.35	784.46	784.51	784.49	784.46	784.42	784.36	

Note: Elevations are taken at Crown Grade.

The change in elevation from Crown Grade to the Edge of Slab is -0.693' Lt. & 0.693' Rt.

MID-SPAN



DEAD LOAD CAMBER DIAGRAM AT TENTH POINTS
Long Term Deflections = Initial Deflections x 3.5
(Initial Deflections Based on E_C = 3.644 x 10^6 p.s.i.)
(camber values in feet)
(Values shown are reduced for skew = 36%)

PLAN OF SLAB SHOWING REINFORCEMENT

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
MICHELLE WITUSIEWSKY
12-18-19
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

DATE
09/23/2019
DATE PREPARED
09/23/2019
ROUTE 148TH | STATE MO
DISTRICT KC | SHEET NO.
COUNTY CLAY
JOB NO. 36201A
CONTRACT ID.
PROJECT NO. BRO-B024(27)
BRIDGE NO. 10700091

DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP
WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

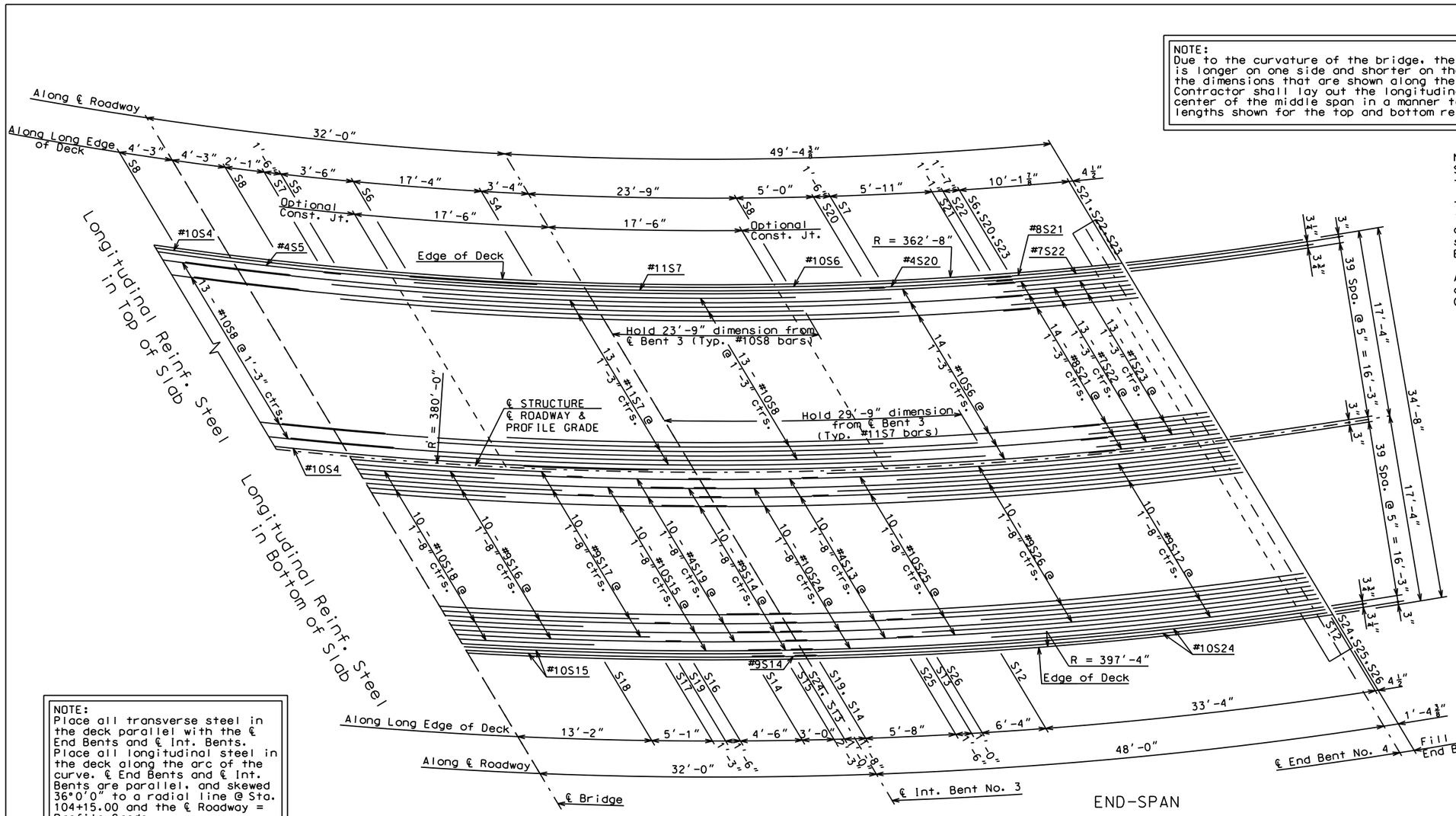
SUPERSTR. DETAILS I

NOTE:
Due to the curvature of the bridge, the length of the Edge of Deck is longer on one side and shorter on the other side: compared to the dimensions that are shown along the centerline of roadway. The Contractor shall lay out the longitudinal steel starting from the center of the middle span in a manner to provide the minimum lap lengths shown for the top and bottom reinforcing mats.

Note:
See longitudinal section for transverse reinforcing steel.

The bottom longitudinal steel is shown along the short Edge of Deck. The top longitudinal steel is shown along the long Edge of Deck.

All longitudinal dimensions are along ℄ Roadway = Profile Grade unless otherwise noted.

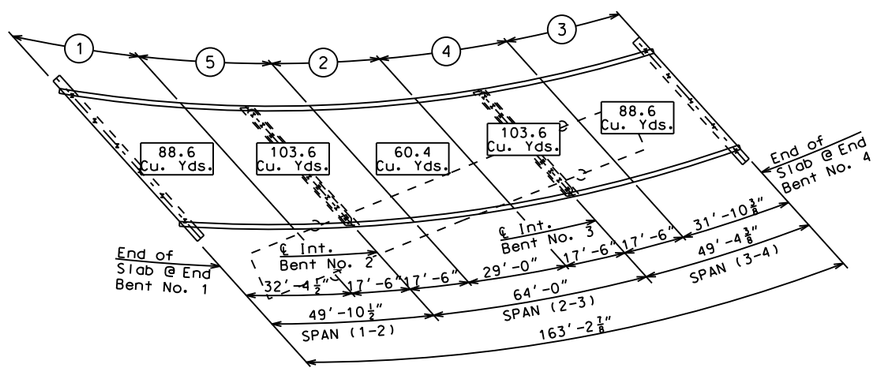


NOTE:
Place all transverse steel in the deck parallel with the ℄ End Bents and ℄ Int. Bents. Place all longitudinal steel in the deck along the arc of the curve. ℄ End Bents and ℄ Int. Bents are parallel, and skewed 36°0'0" to a radial line @ Sta. 104+15.00 and the ℄ Roadway = Profile Grade.

	Sequence of Pours					Min. Rate of Pour Cu. Yds./Hr.	
	Direction					With Retarder	No Retarder
Basic Sequence	1	2	3	4	5	25	25
	Either Direction						
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.							
Alternate A Pours	1		5 + 2		4 + 3	51	51
	End to 5		1 to 4		2 to End		
Alternate B Pours	1 + 5 + 2			4 + 3		51	51
	End to 4			2 to End			
Alternate C Pours	1 + 5 + 2 + 4 + 3					51	51
	End to End						

The contractor shall pour and satisfactorily finish the slab pours at the rate given. Retarder, if used, shall be an approved type and retard the set of concrete to 2.5 hours.

SLAB POURING SEQUENCE



CONCRETE PLACING SEQUENCE DIAGRAM

PLAN OF SLAB SHOWING REINFORCEMENT

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
MICHAEL WITUSZYNSKY
12-18-19
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

DATE: 09/23/2019
DATE PREPARED: 09/23/2019
ROUTE: 148TH
STATE: MO
DISTRICT: KC
SHEET NO.:
COUNTY: CLAY
JOB NO.: 36201A
CONTRACT ID.:
PROJECT NO.: BRO-B024(27)
BRIDGE NO.: 10700091

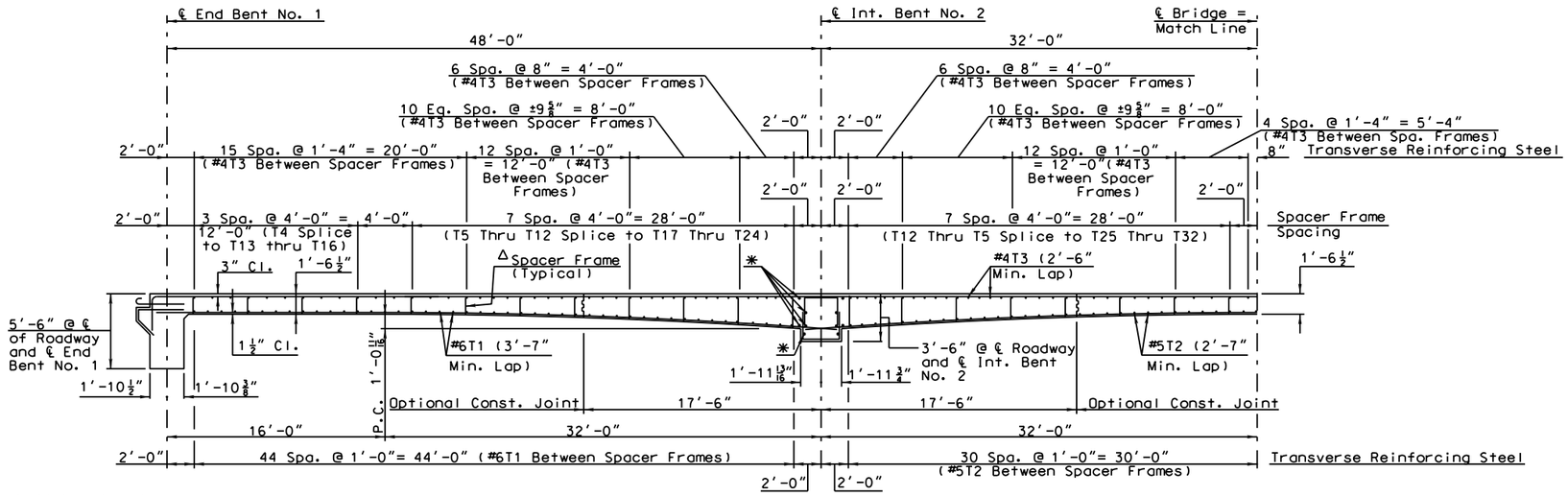
DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP
WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

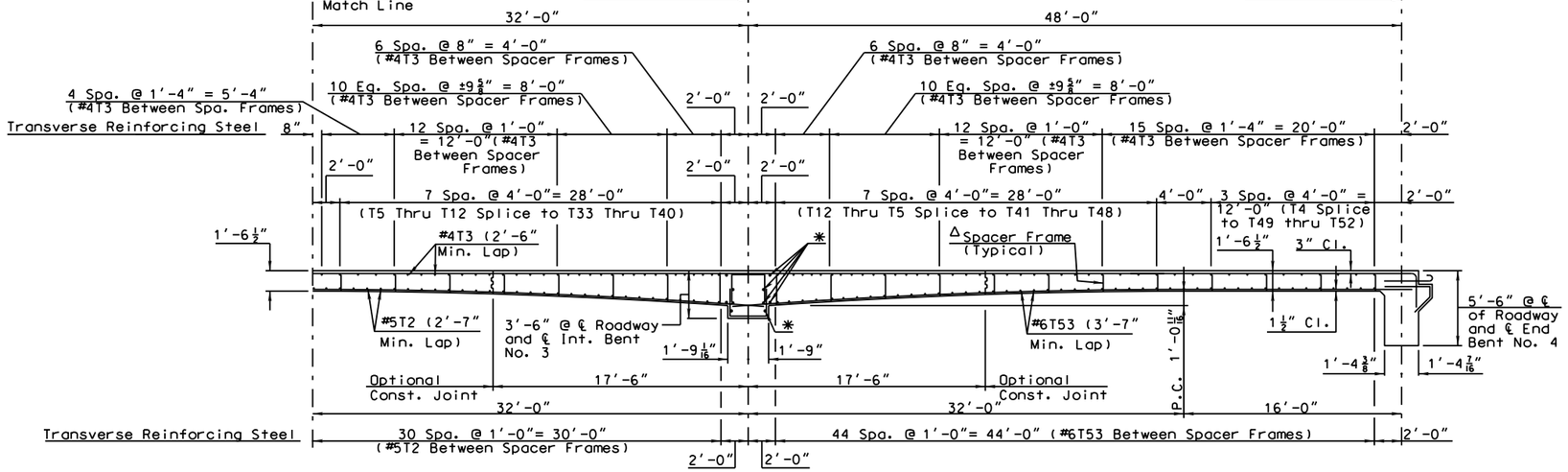
SUPERSTR. DETAILS II



△Spacer Frames shall be placed parallel to ℄ Int. Bents and End Bents.

*See "Intermediate Bent No. 2" or "Intermediate Bent No. 3" sheet.

HALF LONGITUDINAL SECTION ALONG ℄ STRUCTURE



HALF LONGITUDINAL SECTION ALONG ℄ STRUCTURE

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI — JEROME WITUSIEWICZ — 12-18-19 — NUMBER PE-2018037127 — PROFESSIONAL ENGINEER

DATE: 09/23/2019
DATE PREPARED: 09/23/2019
ROUTE: 148TH | STATE: MO
DISTRICT: KC | SHEET NO.:
COUNTY: CLAY
JOB NO.: 36201A
CONTRACT ID.:
PROJECT NO.: BRO-B024(27)
BRIDGE NO.: 10700091

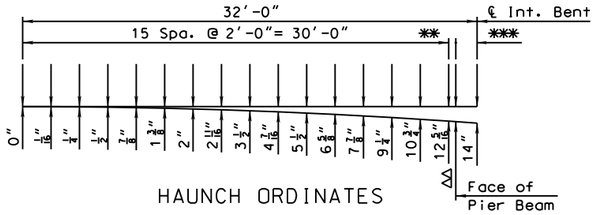
DESCRIPTION | DATE

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

SUPERSTR. DETAILS III

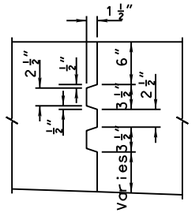


HAUNCH ORDINATES

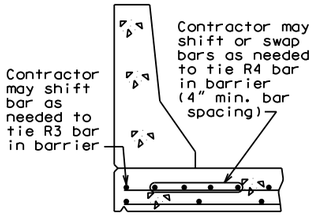
** $0\frac{3}{16}$" for Int. Bent No. 2
$2\frac{15}{16}$" for Int. Bent No. 3

*** $23\frac{13}{16}$" for Int. Bent No. 2
$21\frac{1}{16}$" for Int. Bent No. 3

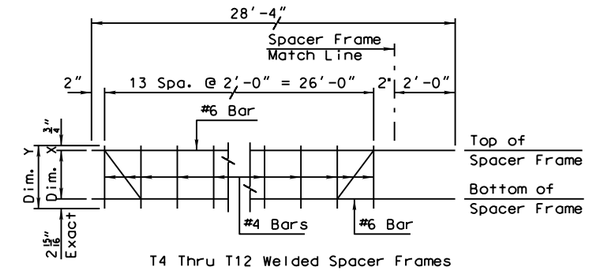
ΔΔ $12\frac{5}{16}$" for Int. Bent No. 2
$12\frac{1}{2}$" for Int. Bent No. 3



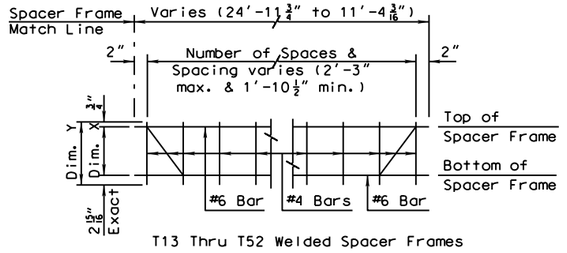
TRANSVERSE SLAB CONSTRUCTION JOINT
(Optional)



OPTIONAL SHIFTING TOP BARS AT BARRIER



T4 Thru T12 Welded Spacer Frames



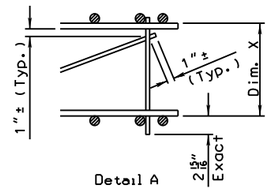
T13 Thru T52 Welded Spacer Frames

NOTE: Shop Drawings must be submitted to the Engineer for Spacer Frames prior to construction.

SPACER FRAMES (Epoxy Coated)			
Mark	No. Ea.	Dim. X	Dim. Y
T4	8	0'-10 15/16"	1'-2 5/16"
T13, T14, T15, T16	1	0'-10 15/16"	1'-2 5/16"
T49, T50, T51, T52	1	0'-10 15/16"	1'-2 5/16"
T5	4	0'-11"	1'-2 1/16"
T17, T32, T33 & T48	1	0'-11"	1'-2 1/16"
T6	4	0'-11 7/16"	1'-3 1/16"
T18, T31, T34 & T47	1	0'-11 7/16"	1'-3 1/16"
T7	4	1'-0 3/16"	1'-4"
T19, T30, T35 & T46	1	1'-0 3/16"	1'-4"
T8	4	1'-1 5/16"	1'-5 5/16"
T20, T29, T36 & T45	1	1'-1 5/16"	1'-5 5/16"
T9	4	1'-3 3/16"	1'-7 1/16"
T21, T28, T37 & T44	1	1'-3 3/16"	1'-7 1/16"
T10	4	1'-5 5/16"	1'-9 1/16"
T22, T27, T38 & T43	1	1'-5 5/16"	1'-9 1/16"
T11	4	1'-8 1/16"	1'-11 1/16"
T23, T26, T39 & T42	1	1'-8 1/16"	1'-11 1/16"
T12	4	1'-11 1/4"	2'-2 15/16"
T24, T25, T40 & T41	1	1'-11 1/4"	2'-2 15/16"

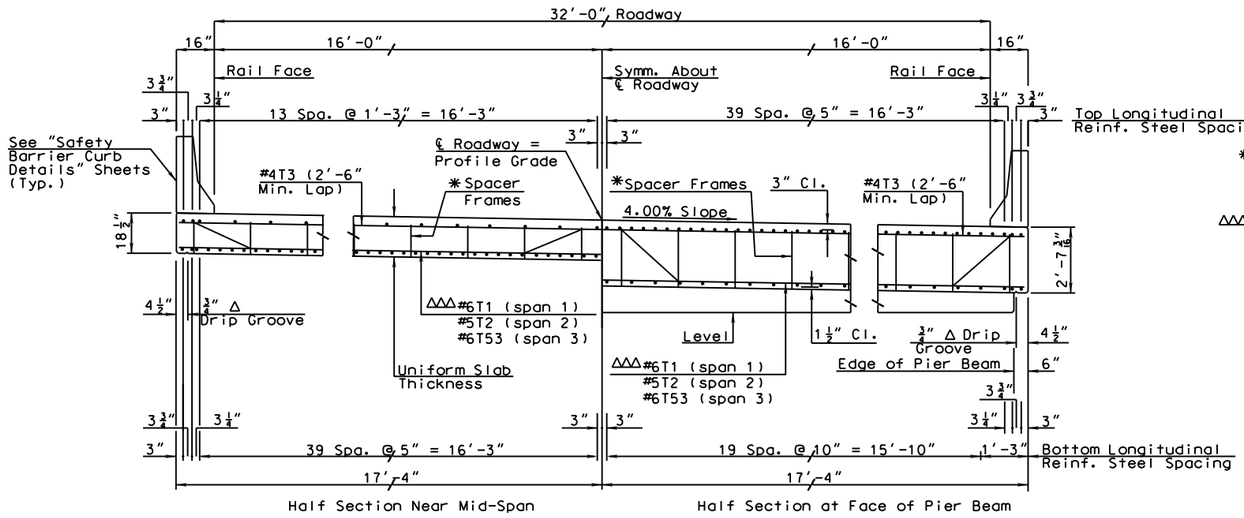
Weight of spacer frames included in the weight of reinforcing steel.

Note:
Dim. X is out to out and is an exact dim. See Detail A.



Detail A

SPACER FRAME INFORMATION



TYPICAL SECTION OF SLAB
(Radial Section)

*Spacer Frames shall be placed parallel to ℄ Int. Bents and End Bents.

ΔΔΔ 3'-7" Min. Lap for #6T1 and #6T53
2'-7" Min. Lap for #5T2

General Notes:
For details and reinforcement Safety Barrier Curb, see Sh. No. 38 thru 40.

For Plan of Slab Showing Reinforcement, see Sh. No. 31 thru 32.

For Theoretical Slab Haunching Diagram and Theoretical Bottom of Slab Elevations, see Sh. No. 30.

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
MONROE WITUSIEWICZ
12-18-19
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

DATE
09/23/2019
DATE PREPARED
09/23/2019
ROUTE 148TH | STATE MO
DISTRICT KC | SHEET NO.
COUNTY CLAY
JOB NO. 36201A
CONTRACT ID.
PROJECT NO. BRO-B024(27)
BRIDGE NO. 10700091

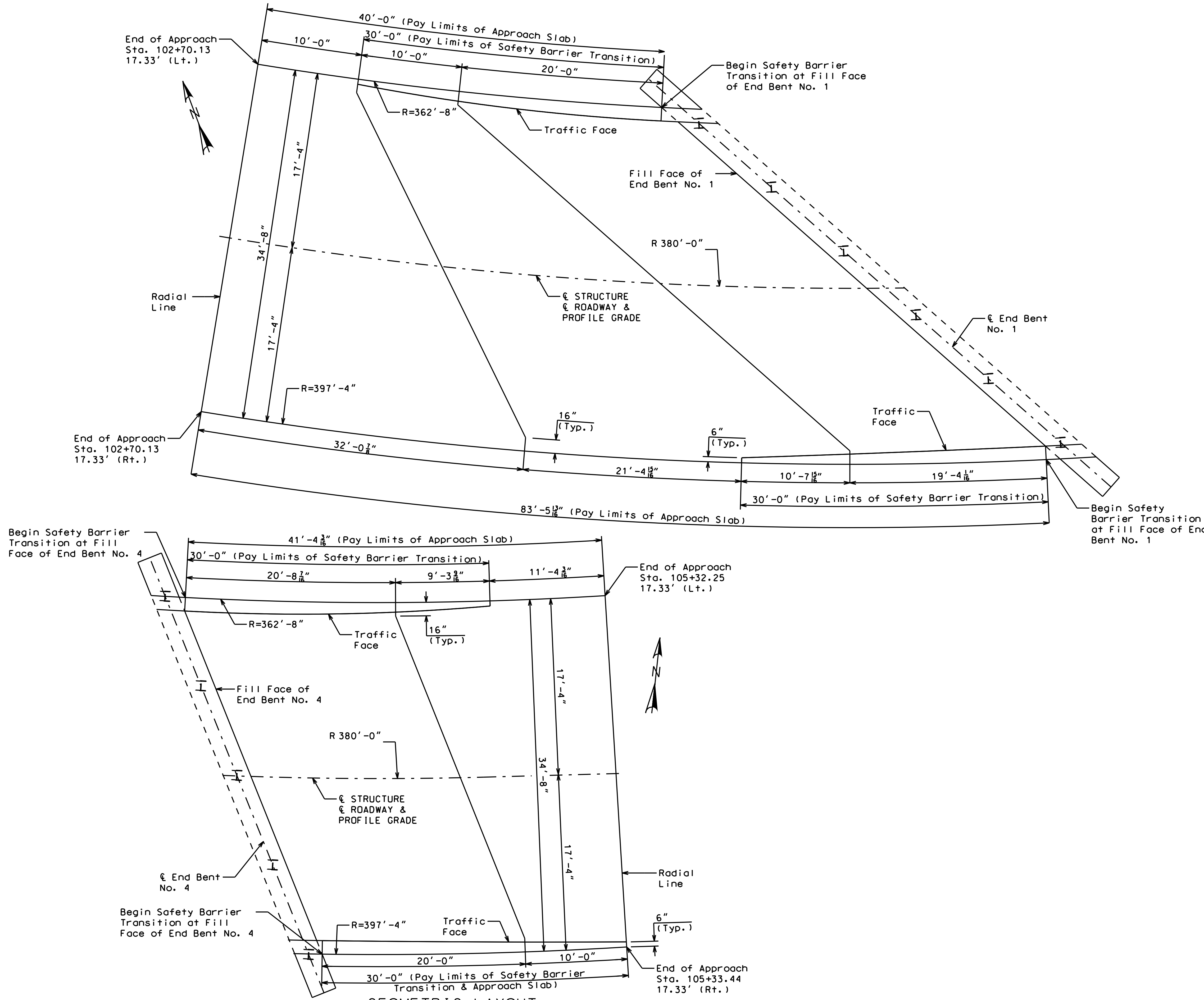
DESCRIPTION | DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

SUPERSTR. DETAILS IV



GEOMETRIC LAYOUT

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER
10-31-19

DATE	09/23/2019
DATE PREPARED	09/23/2019
ROUTE 148TH	STATE MO
DISTRICT KC	SHEET NO.
COUNTY	CLAY
JOB NO.	36201A
CONTRACT ID.	
PROJECT NO.	BRO-B024(27)
BRIDGE NO.	10700091

DESCRIPTION

DATE

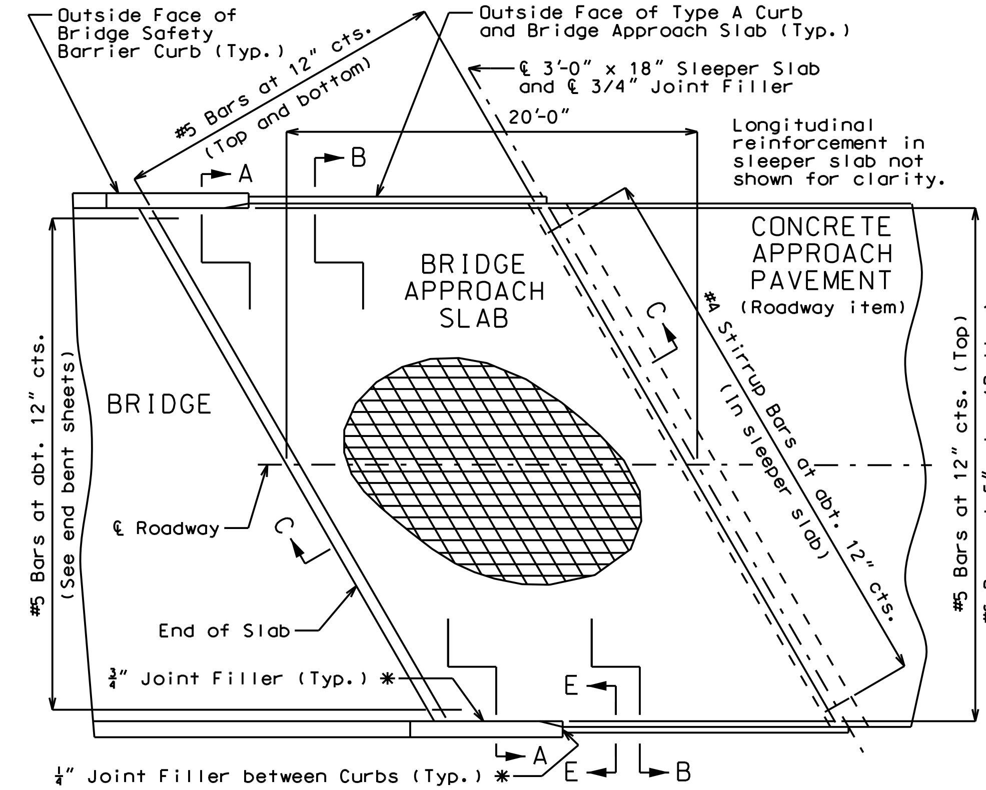
CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

SEAL OF CLAY COUNTY MISSOURI

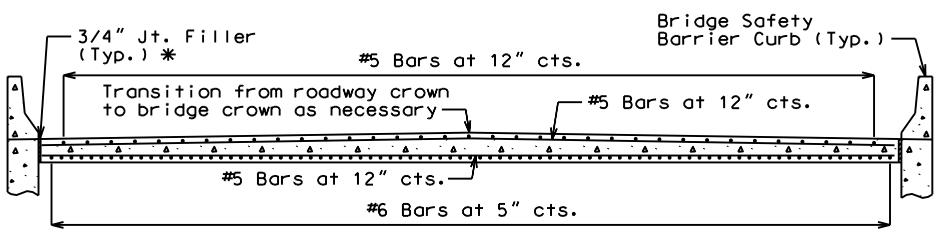
WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

APPROACH SLAB & TRANSITION BARRIER GEOMETRIC LAYOUT

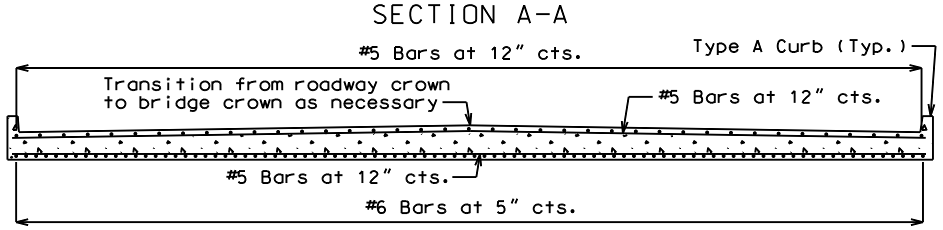
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



PART PLAN SHOWING REINFORCEMENT

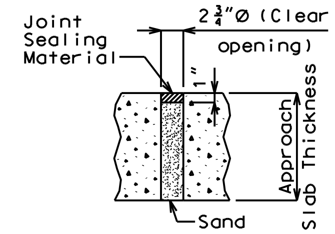


SECTION A-A

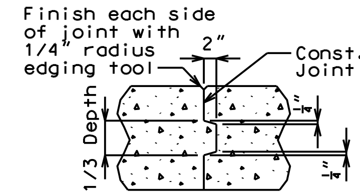


SECTION B-B

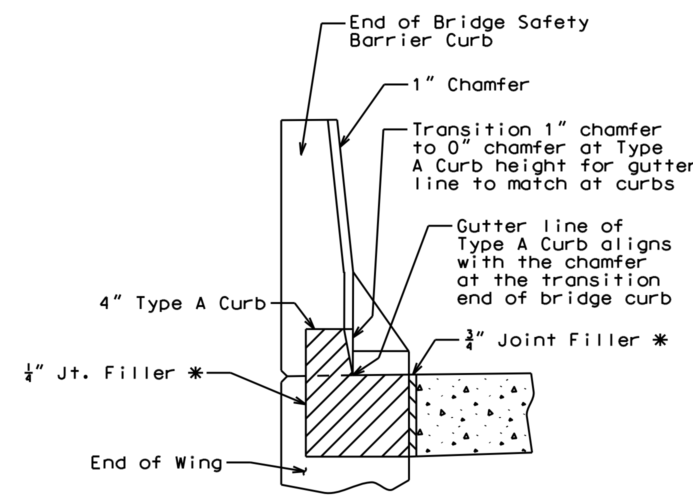
With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.



UNDERSEAL ACCESS HOLE DETAIL
(If required)



CONST. JOINT DETAIL



SECTION E-E
(Between curbs)

General Notes:

All concrete for the bridge approach slab and sleeper slab shall be in accordance with Sec 503 (f'c = 4,000 psi).

The reinforcing steel in the bridge approach slab and the sleeper slab shall be epoxy coated Grade 60 with fy = 60,000 psi.

Drain pipe may be either 6" diameter corrugated metallic-coated pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.

Minimum clearance to reinforcing steel shall be 1½", unless otherwise shown.

The reinforcing steel in the bridge approach slab and the sleeper slab shall be continuous. The transverse reinforcing steel may be made continuous by lap splicing the #5 bars 29".

All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler except as noted.

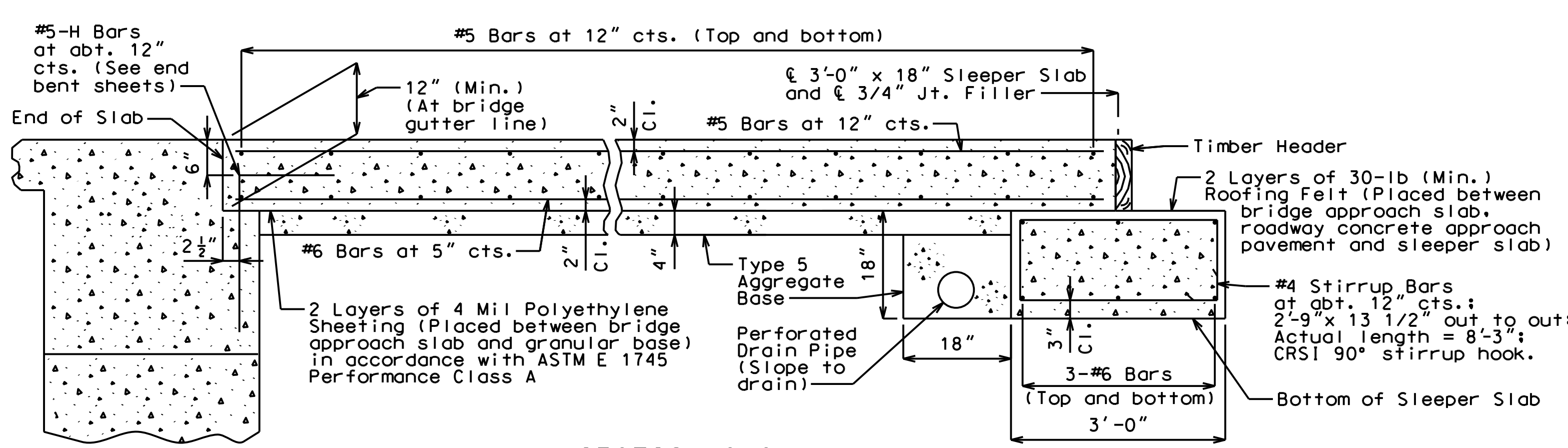
The contractor shall pour and satisfactorily finish the bridge before pouring the bridge approach slab.

For Concrete Approach Pavement details, see roadway plans.

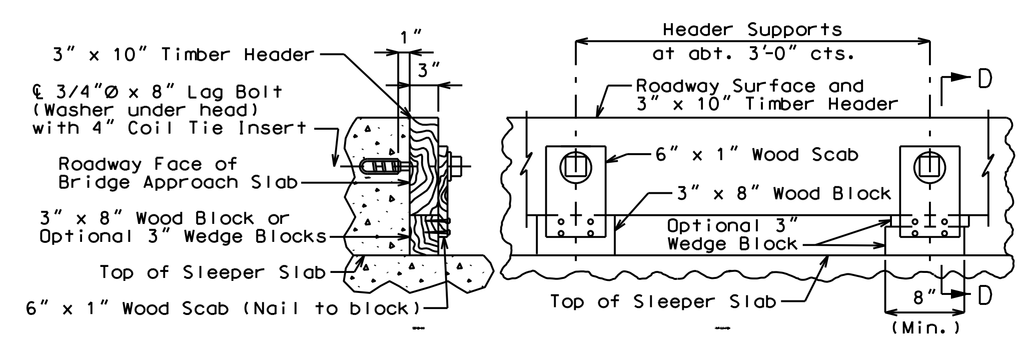
See Missouri Standard Plans Drawing 609.00 for details of Type A Curb.

Payment for furnishing all materials, labor and excavation necessary to construct the approach slab, including the timber header, sleeper slab, underdrain, Type 5 aggregate base, joint filler and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Major Road) per square yard.

✱ Seal joint between vertical face of approach slab and wing with "Silicone Joint Sealant for Saw Cut and Formed Joints" in accordance with Sec 717.



SECTION C-C



DETAILS OF TIMBER HEADER
Remove timber header when concrete pavement is placed.

DETAILS OF BRIDGE APPROACH SLAB (MAJOR ROAD)

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

DATE	09/23/2019
DATE PREPARED	09/23/2019
ROUTE	148TH
STATE	MO
DISTRICT	KC
SHEET NO.	
COUNTY	CLAY
JOB NO.	36201A
CONTRACT ID.	
PROJECT NO.	BRO-B024(27)
BRIDGE NO.	10700091

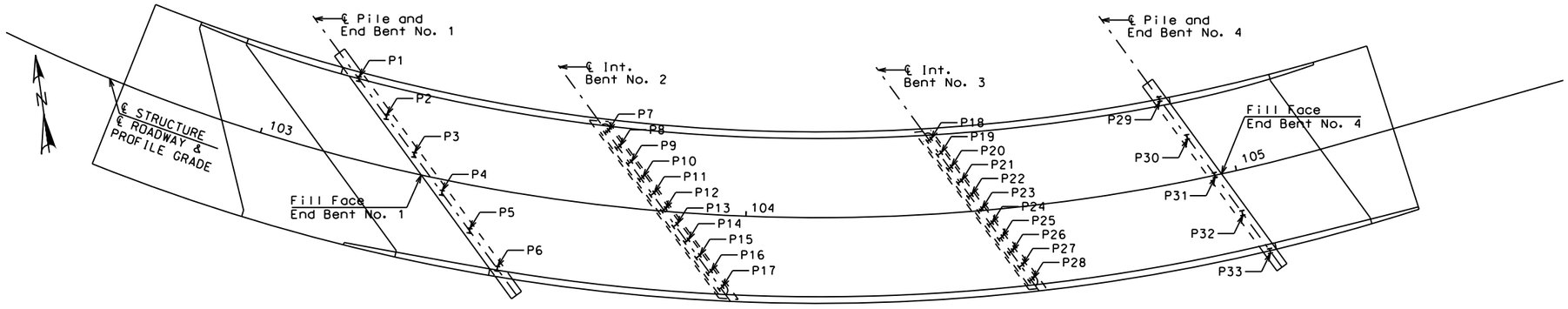
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DESCRIPTION | DATE

CLAY COUNTY, MISSOURI HIGHWAY DEPARTMENT
16616 NE 116TH STREET KEARNEY, MO 64060 PHONE: (816) 407-3300

WSP USA Inc. 300 Wyandotte Street Suite 200 Kansas City, MO 64105 913.310.9943

APPROACH SLAB DETAILS



PART PLAN SHOWING PILE NUMBERING
FOR RECORDING AS-BUILT PILE DATA

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					End Bent No. 1
P1					
P2					
P3					
P4					
P5					
P6					

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					Int. Bent No. 2
P7					
P8					
P9					
P10					
P11					
P12					
P13					
P14					
P15					
P16					
P17					

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					Int. Bent No. 3
P18					
P19					
P20					
P21					
P22					
P23					
P24					
P25					
P26					
P27					
P28					

As-Built Pile Data					
Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
					End Bent No. 4
P29					
P30					
P31					
P32					
P33					

This sheet to be completed by MoDOT construction personnel

Notes:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal
D. PDA test pile
E. Minimum tip elevation controlled
(Use when actual blow count is less than PDA blow count due to minimum tip elevation requirement. A plus sign (+) shall be placed after the PDA nominal axial compressive resistance value indicating the acutal value is higher than PDA value.)

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
NICHOLE M. WITUSINSKY
10-31-19
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

DATE: 09/23/2019
DATE PREPARED: 09/23/2019
ROUTE: 148TH | STATE: MO
DISTRICT: KC | SHEET NO.:
COUNTY: CLAY
JOB NO.: 36201A
CONTRACT ID.:
PROJECT NO.: BRO-B024(27)
BRIDGE NO.: 10700091

DESCRIPTION | DATE

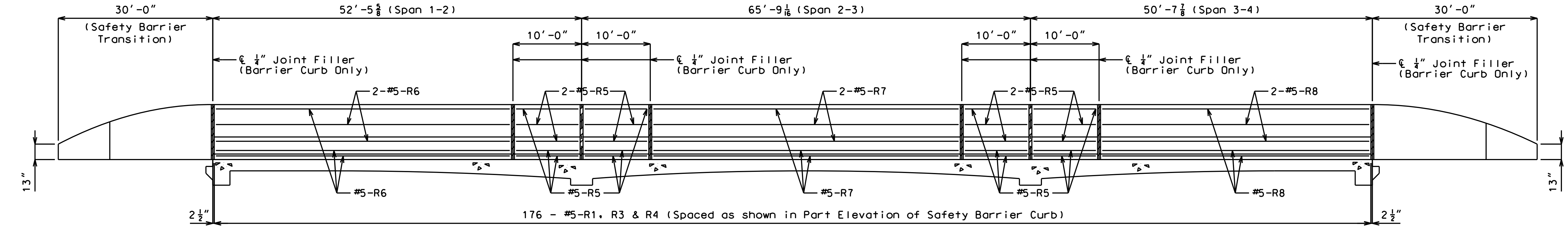
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

CLAY COUNTY SEAL OF MISSOURI

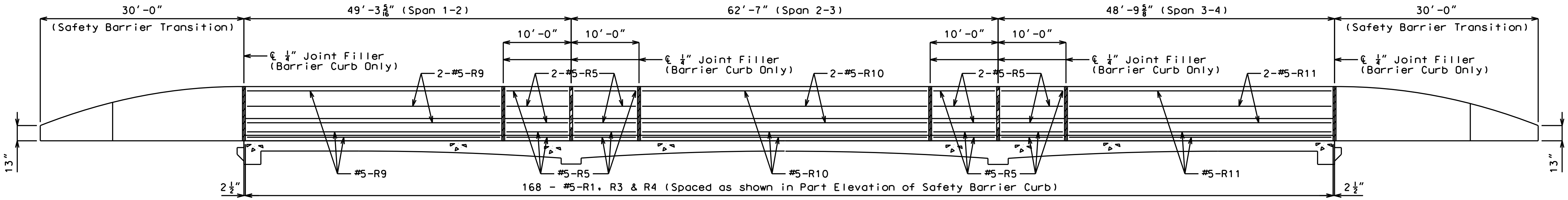
WSP
WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

AS BUILT PILE DATA



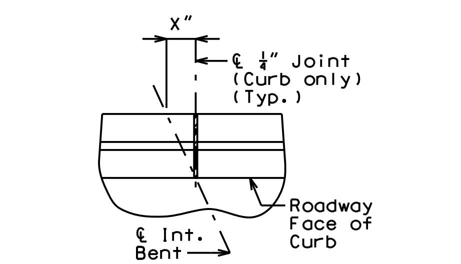
ELEVATION OF LEFT SAFETY BARRIER CURB

Longitudinal dimensions are horizontal arc dimensions along outside face of curb.

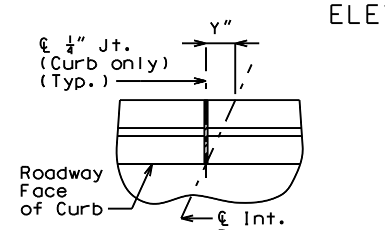


ELEVATION OF RIGHT SAFETY BARRIER CURB

Longitudinal dimensions are horizontal arc dimensions along outside face of curb.

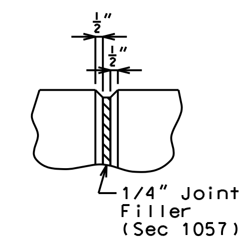


PART PLAN SHOWING LEFT SAFETY BARRIER CURB JOINT

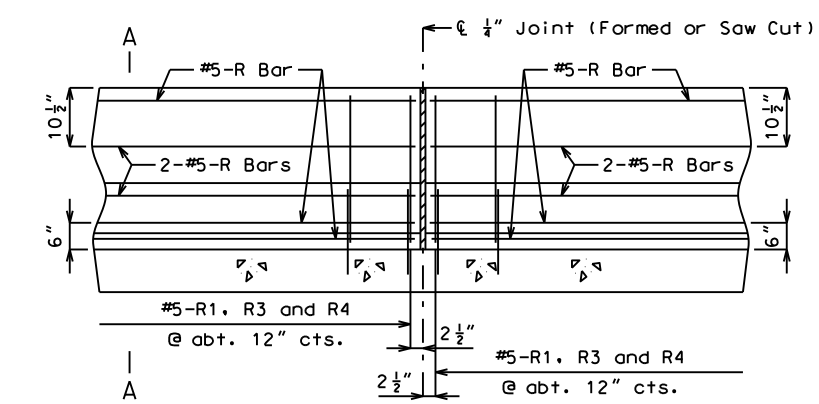


PART PLAN SHOWING RIGHT SAFETY BARRIER CURB JOINT

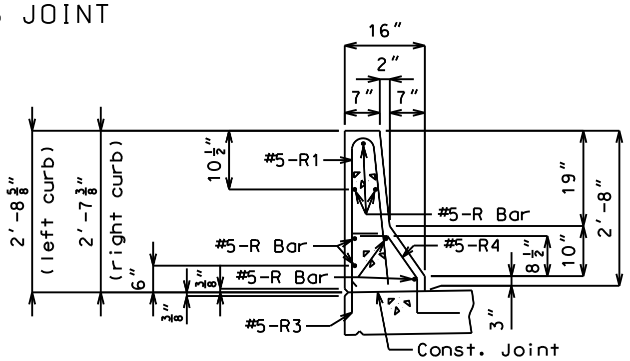
Int. Bent No.	Dim. X	Dim. Y
2	1'-3"	1'-0 1/8"
3	10 1/4"	9 1/8"



PART ELEVATION AT FORMED JOINT



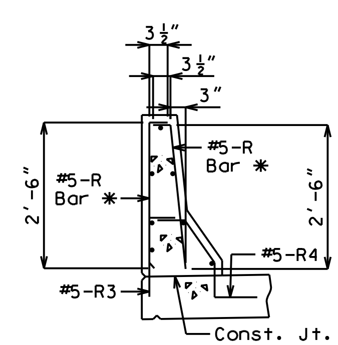
PART ELEVATION OF SAFETY BARRIER CURB



SECTION A-A

Use a minimum lap of 3'-1" for #5 horizontal safety barrier curb bars.

The cross-sectional area above the slab = 2.27 sq. ft.



R-BAR PERMISSIBLE ALTERNATE SHAPE

✱ The R1 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is not used. (All dimensions are out to out.)

CONVENTIONAL-FORMED SAFETY BARRIER CURB

General Notes

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.

Joint sealant and backer rods shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with saw cut joints.

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

State of Missouri – Nichole Witusky – Number PE-2018037127 – Professional Engineer – 10-31-19

DATE	09/23/2019
DATE PREPARED	09/23/2019
ROUTE	148TH
STATE	MO
DISTRICT	KC
SHEET NO.	
COUNTY	CLAY
JOB NO.	36201A
CONTRACT ID.	
PROJECT NO.	BRO-B024(27)
BRIDGE NO.	10700091

DESCRIPTION

DATE

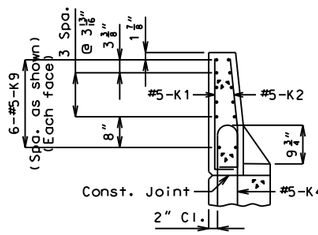
CLAY COUNTY, MISSOURI HIGHWAY DEPARTMENT
16616 NE 116TH STREET KEARNEY, MO 64060 PHONE: (816) 407-3300

Seal of Clay County Missouri

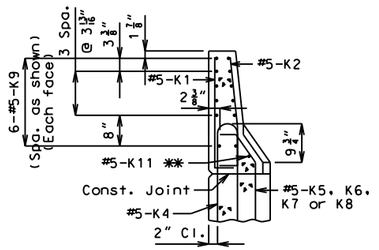
WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

SAFETY BARRIER CURB DETAILS I

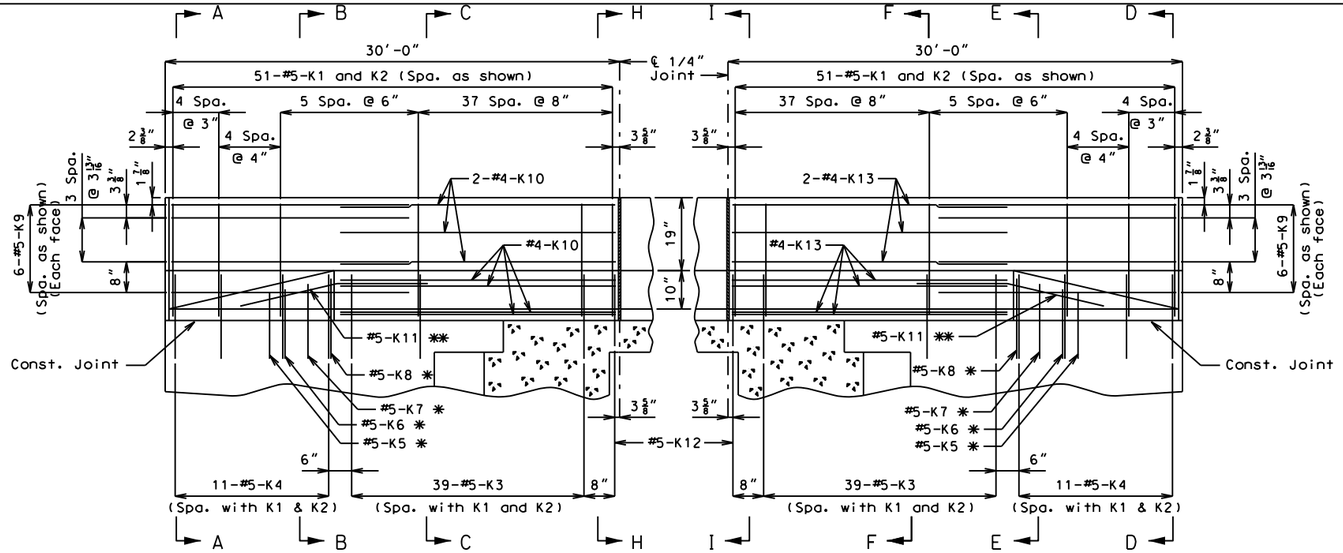
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



SECTION A-A



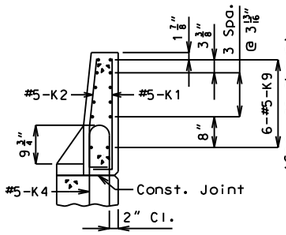
SECTION B-B



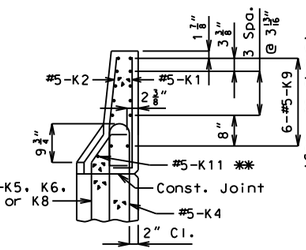
ELEVATION ELEVATION

* Spaced with #5-K4 bars and embed 27" into end bent.

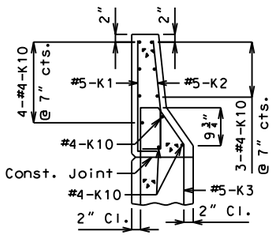
** Fit bar to follow transition face of curb.



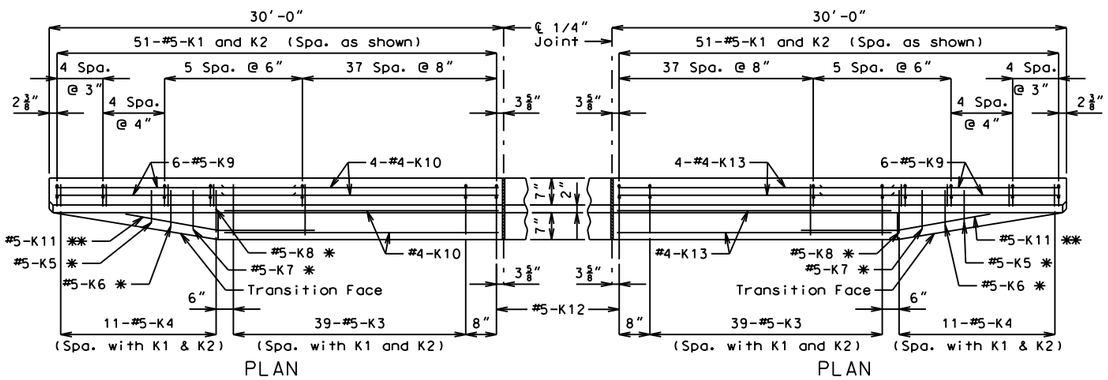
SECTION D-D



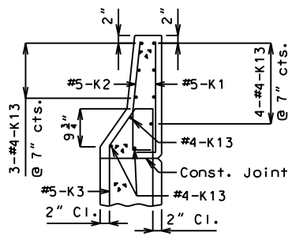
SECTION E-E



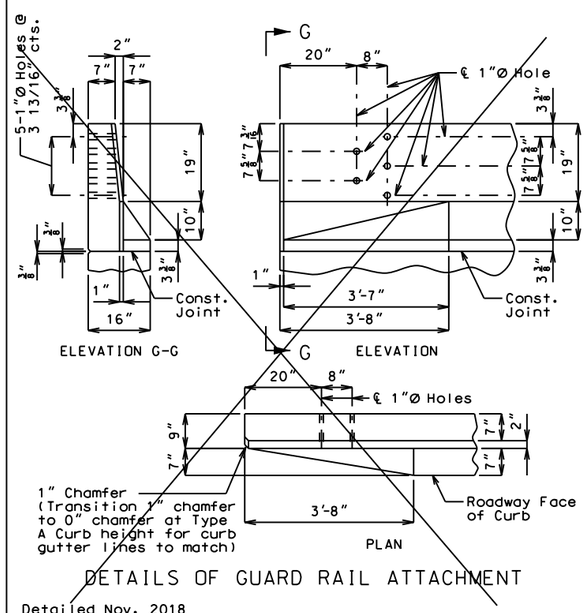
SECTION C-C



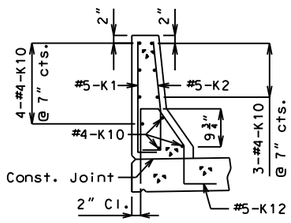
PLAN PLAN



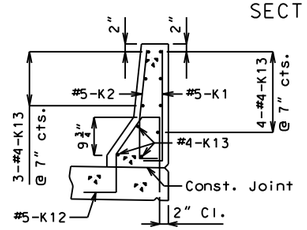
SECTION F-F



DETAILS OF GUARD RAIL ATTACHMENT



SECTION H-H



SECTION I-I

NOTE: Information shown on this sheet is for Information Only. Shop drawings shall be submitted detailing the actual Conventional - Formed Safety Barrier Curb at the End Bents. The information shown shall contain, but is not limited to, concrete dimensions, transition details and reinforcing details. Shop Drawings shall be approved by the Engineer prior to construction.

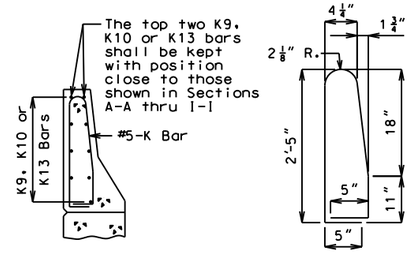
General Notes

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1 1/2" except as shown for bars embedded into end bent.

Use a minimum lap of 2'-7" between K9 and K10 or K13 bars.



K1-K2 BAR PERMISSIBLE ALTERNATE SHAPE

(K3 or K4 thru K8 bars not shown for clarity)

The K1 and K2 bar combination may be furnished as one bar as shown, at the contractor's option.

CONVENTIONAL-FORMED SAFETY BARRIER CURB AT END BENTS

(Left barrier curb shown, right barrier curb similar)

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
NICHOLE M. WITUSINSKY
10-31-19
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

DATE: 09/23/2019
DATE PREPARED: 09/23/2019
ROUTE: 148TH
STATE: MO
DISTRICT: KC
SHEET NO.:
COUNTY: CLAY
JOB NO.: 36201A
CONTRACT ID.:
PROJECT NO.: BRO-B024(27)
BRIDGE NO.: 10700091

DESCRIPTION | DATE

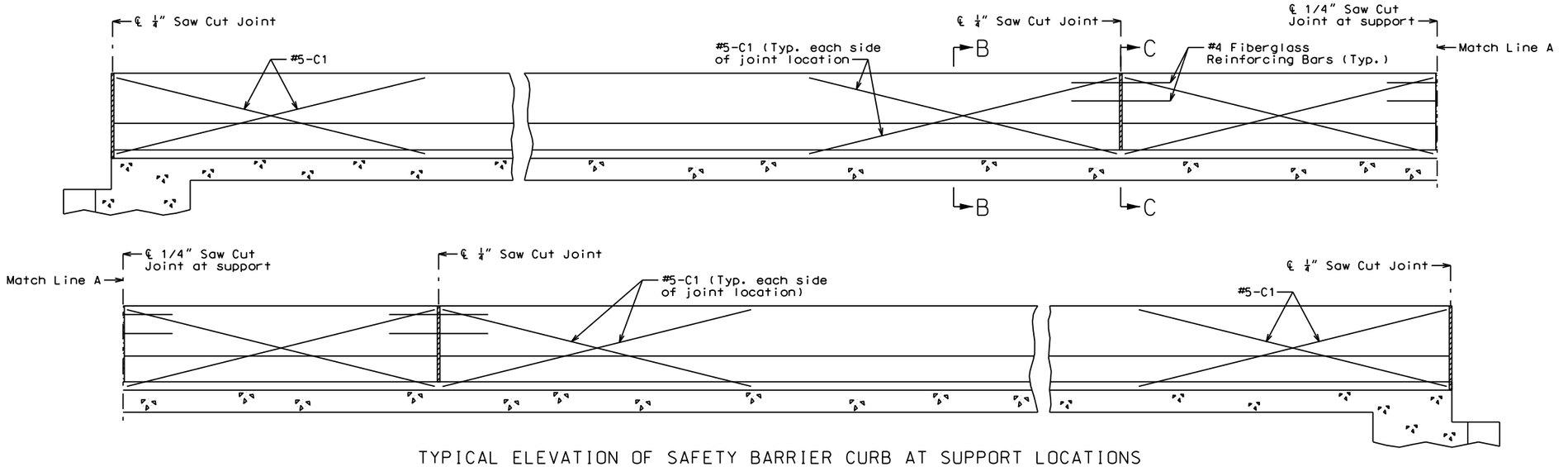
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

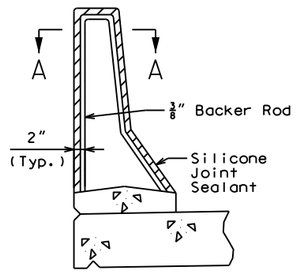
CLAY COUNTY MISSOURI

WSP
WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

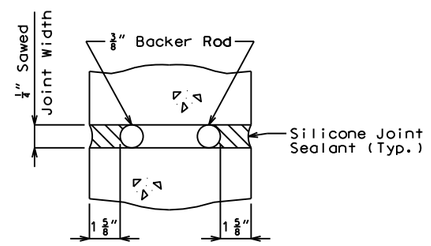
SAFETY BARRIER CURB DETAILS II



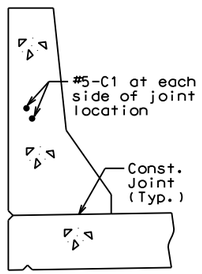
TYPICAL ELEVATION OF SAFETY BARRIER CURB AT SUPPORT LOCATIONS



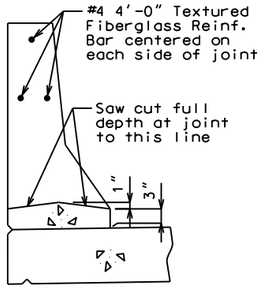
SECTION THRU SAW CUT JOINT



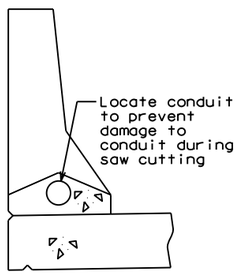
SECTION A-A



SECTION B-B



SECTION C-C



SECTION C-C
(Use when conduit is required)

OPTIONAL SLIP-FORMED SAFETY BARRIER CURB

Use R bars and K bars similarly as shown for conventional-formed safety barrier curb.

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

General Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.

Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Safety Barrier Curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Safety Barrier Curb.

Joint sealant and backer rods shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with saw cut joints.

For slip-formed option, all sides of the safety barrier curb shall have a vertically broomed finish and the curb top shall have a transversely broomed finish.

STATE OF MISSOURI
NICHOLE C. WITUSINSKY
10-3-19
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

DATE: 09/23/2019
DATE PREPARED: 09/23/2019
ROUTE: 148TH | STATE: MO
DISTRICT: KC | SHEET NO.:
COUNTY: CLAY
JOB NO.: 36201A
CONTRACT ID.:
PROJECT NO.: BRO-B024(27)
BRIDGE NO.: 10700091

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DESCRIPTION	DATE

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

SEAL OF CLAY COUNTY, MISSOURI

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

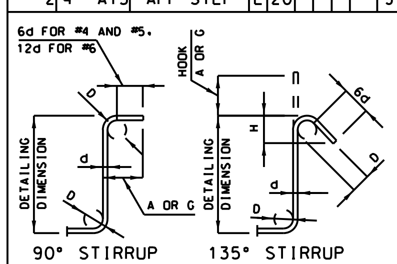
SAFETY BARRIER CURB DETAILS III

BILL OF REINFORCING STEEL

NO. REQ'D	SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
			END BENT 1																
4	8	A1	BOTT BEAM	E	20					60 5.000							60 5	60 5	645
4	8	A2	TOP BEAM	E	20					60 5.000							60 5	60 5	645
42	5	A3	APP SLAB	E	17					4 8.000							5 3	5 3	229
10	5	A4	SIDE BEAM	E	20					60 5.000							60 5	60 5	630
100	4	A5	STIRRUP	E	10	S					3 7.000	3 0.000					10 2	10 1	674
42	4	A6	APP STEP	E	14					4 8.000	0 8.000	2 1.000			1 8.500	1 2.500	7 5	7 4	206
14	4	A7	BEAM ENDS	E	10	S					2 0.000	2 2.000					6 2	6 1	57
12	4	A13	STIRRUP	E	10	S					3 7.000	2 2.000					9 4	9 3	74
4	4	A14	APP STEP	E	20					27 2.000							27 2	27 2	73
			INT BENT 2																
68	4	PB1	STIRRUP	E	10	S					2 7.000	3 5.000					8 7	8 6	386
8	5	PB2	SIDE BEAM	E	20					45 6.000							45 6	45 6	380
2	5	PB3	SIDE BEAM	E	20					44 2.000							44 2	44 2	92
6	7	PB4	BOTT BEAM	E	20					44 2.000							44 2	44 2	542
6	8	PB5	TOP BEAM	E	20					45 6.000							45 6	45 6	729
4	4	PB6	STIRRUP	E	10	S					2 2.000	3 5.000					7 9	7 8	20
10	4	PB7	BEAM ENDS	E	21					3 5.000	2 0.000	2 0.000			2 8.000	2 1.632	7 5	7 4	49
4	4	PB8	STIRRUP	E	10	S					2 7.000	3 3.000					8 5	8 4	22
84	4	PW1	VERT WALL		20		X			34 6.000							34 6	34 6	1936
64	4	PW2	HORIZ WALL		20		X			40 2.000							40 2	40 2	1717
30	4	PW3	BOTT WALL		10	S	X				1 6.000	1 10.000					4 10	4 9	95
2	6	PW4	HORIZ WALL		20		X			40 2.000							40 2	40 2	121
65	4	PW5	WALL ENDS		7		X			2 4.500	1 6.500						5 8	5 7	241
160	4	PW6	WALL TIES		18		X			1 9.000							2 9	2 8	283
			INT BENT 3																
8	5	PB9	SIDE BEAM	E	20					40 2.000							40 2	40 2	335
2	5	PB10	SIDE BEAM	E	20					39 0.000							39 0	39 0	81
6	7	PB11	BOTT BEAM	E	20					39 0.000							39 0	39 0	478
6	8	PB12	TOP BEAM	E	20					40 2000							40 2	40 2	643
68	4	PB13	STIRRUP	E	10	S					2 7.000	3 0.000					8 2	8 1	367
4	4	PB14	STIRRUP	E	10	S					2 2.000	3 0.000					7 4	7 3	19
10	4	PB15	BEAM ENDS	E	21					3 0.000	2 0.000	2 0.000			2 8.000	1 4.492	7 0	6 11	46
4	4	PB16	STIRRUP	E	10	S					2 7.000	2 9.000					7 11	7 10	21
30	4	PW3	BOTT WALL		10	S	X				1 6.000	1 10.000					4 10	4 9	95
65	4	PW5	WALL ENDS		7		X			2 4.500	1 6.500						5 8	5 7	241
160	4	PW6	WALL TIES		18		X			1 9.000							2 9	2 8	283
84	4	PW7	VERT WALL		20		X			34 6.000							34 6	34 6	1936
64	4	PW8	HORIZ WALL		20		X			35 8.000							35 8	35 8	1525
2	6	PW9	HORIZ WALL		20		X			35 8.000							35 8	35 8	107
			END BENT 4																
36	5	A3	APP SLAB	E	17					4 8.000							5 3	5 3	196
14	4	A7	BEAM ENDS	E	10	S					2 0.000	2 2.000					6 2	6 1	57
4	8	A8	BOTT BEAM	E	20					45 10.000							45 10	45 10	490
4	8	A9	TOP BEAM	E	20					45 10.000							45 10	45 10	490
10	5	A10	SIDE BEAM	E	20					45 10.000							45 10	45 10	478
88	4	A11	STIRRUP	E	10	S					3 7.000	2 4.000					9 6	9 5	554
36	4	A12	APP STEP	E	14					3 8.000	0 8.000	2 1.000			1 7.000	1 4.250	6 5	6 4	152
4	4	A13	STIRRUP	E	10	S					3 7.000	2 2.000					9 4	9 3	25
2	4	A15	APP STEP	E	20					37 5.000							37 5	37 5	50

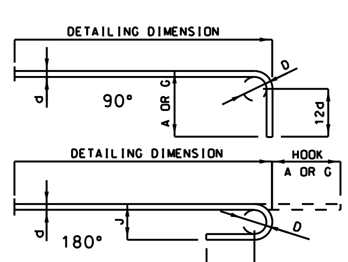
BILL OF REINFORCING STEEL

NO. REQ'D	SIZE	MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
			SLAB																
30	8	S1	* SLAB	E	19					2 6.000	13 10.000						16 4	16 3	1302
28	7	S2	SLAB	E	19					2 6.000	12 9.000						15 3	15 2	869
26	7	S3	SLAB	E	19					2 6.000	11 2.000						13 8	13 7	722
4	10	S4	SLAB	E	20					57 8.000							57 8	57 8	993
2	4	S5	SLAB	E	20					15 8.000							15 8	15 8	21
60	10	S6	SLAB	E	20					57 4.000							57 4	57 4	14802
56	11	S7	SLAB	E	20					55 11.000							55 11	55 11	16637
52	10	S8	SLAB	E	20					60 0.000							60 0	60 0	13425
24	10	S9	SLAB	E	20					53 5.000							53 5	53 5	5516
20	10	S10	SLAB	E	20					42 4.000							42 4	42 4	3643
20	9	S11	SLAB	E	20					39 8.000							39 8	39 8	2697
40	9	S12	* SLAB	E	20					33 3.000							33 3	33 3	4522
40	4	S13	SLAB	E	20					12 8.000							12 8	12 8	338
44	9	S14	* SLAB	E	20					7 3.000							7 3	7 3	1085
24	10	S15	SLAB	E	20					59 10.000							59 10	59 10	6179
20	9	S16	SLAB	E	20					43 9.000							43 9	43 9	2975
20	9	S17	SLAB	E	20					38 0.000							38 0	38 0	2584
20	10	S18	* SLAB	E	20					26 4.000							26 4	26 4	2266
40	4	S19	SLAB	E	20					13 11.000							13 11	13 11	372
4	4	S20	SLAB	E	20					10 1.000							10 1	10 1	27
30	8	S21	* SLAB	E	19					2 6.000	12 10.000						15 4	15 3	1222
28	7	S22	SLAB	E	19					2 6.000	11 9.000						14 3	14 2	811
26	7	S23	SLAB	E	19					2 6.000	10 2.000						12 8	12 7	669
24	10	S24	SLAB	E	20					50 9.000							50 9	50 9	5241
20	10	S25	SLAB	E	20					40 3.000							40 3	40 3	3464
20	9	S26	SLAB	E	20					37 7.000							37 7	37 7	2556
66	6	T1	SLAB	E	20					27 5.000							27 5	27 5	2718
90	5	T2	SLAB	E	20					23 11.000							23 11	23 11	2245
228	4	T3	SLAB	E	20					26 11.000							26 11	26 11	4100
		T4-T52	SPACER FRAME	E				V											6623
66	6	T53	SLAB	E	20					21 10.000							21 10	21 10	2164
			BARRIER																
344	5	R1	BARRIER CURB	E	26					2 6.000	0 4.250	2 6.125			2 6.000	0 3.000	5 3	5 2	1861
344	5	R3	BARRIER CURB	E	19	S				1 5.000	0 6.000						1 11	1 10	669
344	5	R4	BARRIER CURB	E	27	S					0 6.000	0 11.250	0 7.000	1 0.000	0 9.250	0 6.375	3 0	2 10	1028
56	5	R5	BARRIER CURB	E	20					9 7.000							9 7	9 7	560
7	5	R6	BARRIER CURB	E	20					43 3.000							43 3	43 3	316
7	5	R7	BARRIER CURB	E	20					44 11.000							44 11	44 11	328
7	5	R8	BARRIER CURB	E	20					39 4.000							39 4	39 4	287
7	5	R9	BARRIER CURB	E	20					37 9.000							37 9	37 9	276
7	5	R10	BARRIER CURB	E	20					42 5.000							42 5	42 5	310
7	5	R11	BARRIER CURB	E	20					39 1.000							39 1	39 1	285
			SLIP FORM																
40	5	C1	SLIP FORM	E	20					10 0.000							10 0	10 0	417



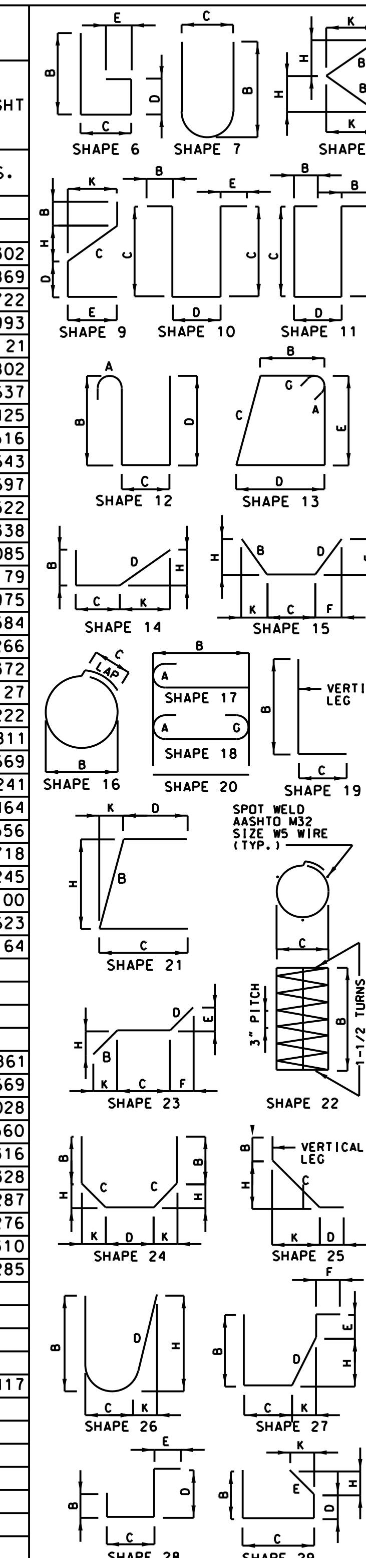
STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK: HOOK A OR G	135° HOOK: HOOK A OR G	135° HOOK: APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

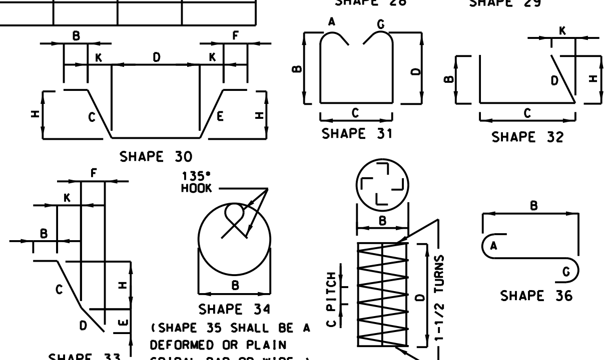
NOTE: UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
		ALL GRADES		
BAR SIZE	D (IN.)	180° HOOKS: A OR G	180° HOOKS: J	90° HOOKS: A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	2'-0"
#14	18 1/4"	2'-3"	21 3/4"	2'-7"

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.
REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.
* THESE BARS WILL NEED TO BE PREFABRICATED FOLLOWING ACI PRACTICE FOR BAR CURVATURE.





BENDING DIAGRAMS

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI NICHOLE WITUSHYNSKY NUMBER PE-2018037127 PROFESSIONAL ENGINEER 12-18-19

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DATE	
09/23/2019	
DATE PREPARED	
09/23/2019	
ROUTE	STATE
148TH	MO
DISTRICT	SHEET NO.
KC	
COUNTY	
CLAY	
JOB NO.	
36201A	
CONTRACT ID.	
PROJECT NO.	
BRO-B024(27)	
BRIDGE NO.	
10700091	

DESCRIPTION

DATE

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

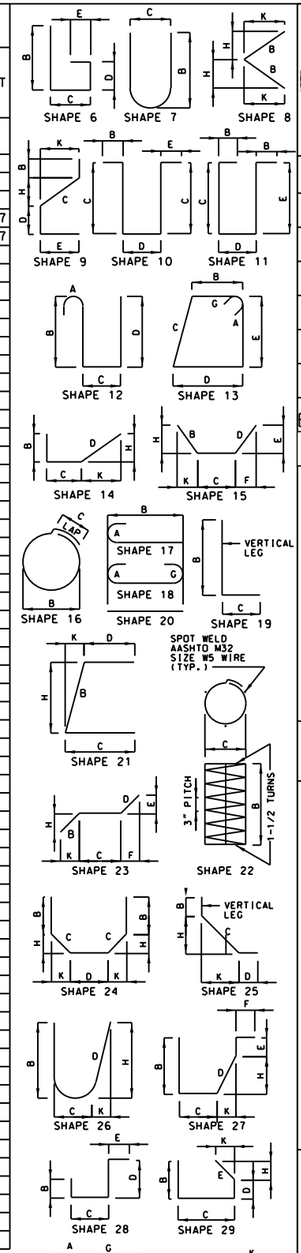
BAR LIST & BENDING DIAGRAMS I

BILL OF REINFORCING STEEL

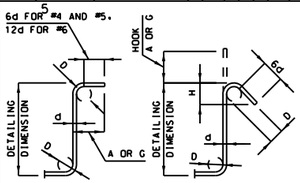
NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			TOTALS																									
	4																											8352
	4			E																								8642
	5			E																								11003
	6																											228
	6			E																								10573
	7			E																								4092
	8			E																								6165
	9			E																								16419
	10			E																								55530
	11			E																								16637
			TOTAL																									8580
			TOTAL	E																								129060
			END BENTS																									
	4			E																								1920
	5			E																								1533
	8			E																								2270
			TOTAL																									5723
			INT BENTS																									
	4			E																								932
	5			E																								888
	7			E																								1020
	8			E																								1372
			TOTAL																									4212
			SLAB																									
	4			E																								5790
	5			E																								2245
	6			E																								10573
	7			E																								3072
	8			E																								2523
	9			E																								16419
	10			E																								55530
	11			E																								16637
			TOTAL																									112789
			Reinforcing Steel (Bridges)																									
	4																											8352
	6																											228
			TOTAL																									8580
			Safety Barrier Curb																									
	5			E																								5919
			TOTAL																									5919
	5																											417

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE	MARK NO. MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT.	B IN.	C FT.	C IN.	D FT.	D IN.	E FT.	E IN.	F FT.	F IN.	H FT.	H IN.	K FT.	K IN.	NOMINAL LENGTH FT.	NOMINAL LENGTH IN.	ACTUAL LENGTH FT.	ACTUAL LENGTH IN.	WEIGHT LBS.
			Slip Form Option																									
	5			E																								417
			TOTAL																									417



BENDING DIAGRAMS

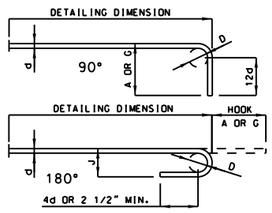


STIRRUP HOOK DIMENSIONS

GRADES 40 - 50 - 60 KSI

BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	135° HOOK APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS

BAR SIZE	D (IN.)	ALL GRADES 180° HOOKS A OR G	180° HOOKS J	90° HOOKS A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	2'-0"
#14	18 1/4"	2'-3"	21 3/4"	2'-7"

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.
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S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.
REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
MICHELLE WITUSIEWICZ
12-18-19
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

DATE: 09/23/2019
DATE PREPARED: 09/23/2019
ROUTE: 148TH
STATE: MO
DISTRICT: KC
SHEET NO.:
COUNTY: CLAY
JOB NO.: 36201A
CONTRACT ID.:
PROJECT NO.: BRO-B024(27)
BRIDGE NO.: 10700091

DESCRIPTION	DATE

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

SEAL OF CLAY COUNTY MISSOURI

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

BAR LIST & BENDING DIAGRAMS II

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

LOG OF BORING NO. B-1 (Page 1 of 3)

BOREHOLE INFORMATION — Page 1 of 3

STATION 104+00 OFFSET C.L.
NORTHING EASTING
DRILLING COMPANY GeoSource, LLC
METHOD 4-inch Flight Augers HAMMER Auto

PROJECT NAME NE 148th Street over Carroll Creek
SITE LOCATION SE ¼, NW ¼ of Section 31, T53N, R30W Kearney, Clay County, Missouri
OWNER / ENGINEER MDOT / WSP USA

Boring offset to existing road, due to overhead power line

MATERIAL DESCRIPTION

Approx. Surface Elevation: 93.0

SAMPLE NO.	SAMPLE TYPE	RECOVERY	STANDARD PENETRATION BLOWS/FT.	UNCONFINED STRENGTH PSF	DRY DENSITY PCF	MOISTURE CONTENT, %	UNIFIED SOIL SYMBOL
	HS						
1	ST	18					
	HS						
2	SS	18	8			20.1	CL
	HS						
3	SS	18	12			20.0	CL
	HS						
4	SS	18	2			30.5	CL

Depth, Feet	Material Description	Elevation
0.8	Asphaltic Concrete	92.3
6.0	FILL, clayey silt, medium stiff, brown and gray brown mixed, trace sand	87.0
18.0	SILTY LEAN CLAY, stiff, dark gray brown to gray brown, trace fine sand	75.0
	LEAN CLAY, very soft, brown, trace fine sand ▽	

Depth scale: 5, 10, 15, 20

** compressive strength in psi * Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil and rock types. In-situ the transition may be more gradational in nature.

WATER LEVEL OBSERVATIONS	
▽	20.0 feet W.D.
▼	22.0 feet A.B.
	Backfilled @ Completion

GEOSOURCE — Your Source for Geotechnical and Materials Engineering

BORING STARTED	12-4-18		
BORING COMPLETED	12-4-18		
RIG	CME-55	DRILLER	LS
APPROVED	JJZ	JOB #	LM17G2012

LOG OF BORING NO. B-1 (Page 2 of 3)

BOREHOLE INFORMATION — Page 2 of 3

STATION 104+00 OFFSET C.L.
NORTHING EASTING
DRILLING COMPANY GeoSource, LLC
METHOD 4-inch Flight Augers HAMMER Auto

PROJECT NAME NE 148th Street over Carroll Creek
SITE LOCATION SE ¼, NW ¼ of Section 31, T53N, R30W Kearney, Clay County, Missouri
OWNER / ENGINEER MDOT / WSP USA

MATERIAL DESCRIPTION

SAMPLE NO.	SAMPLE TYPE	RECOVERY	STANDARD PENETRATION BLOWS/FT.	UNCONFINED STRENGTH PSF	DRY DENSITY PCF	MOISTURE CONTENT, %	UNIFIED SOIL SYMBOL
	HS						
5	SS	18	1			32.3	CL
	HS						
6	SS	18	2			29.3	CL ML
	HS						
7	SS	18	3			28.6	ML
	HS						
8	SS	18	WOH			20.8	SP SM

Depth, Feet	Material Description	Elevation
23.0	LEAN CLAY, very soft, brown, trace fine sand ▼	70.0
28.0	SILTY LEAN CLAY, very soft, saturated, light gray brown, trace fine sand	65.0
33.0	CLAYEY SILT, very soft, gray, trace fine sand	60.0
38.5	SANDY SILT, very loose, fine grained, saturated, gray, with interbedded sand seams	54.5
	SAND, very loose, fine to medium grained, poorly graded, gray, with some silt	

Depth scale: 25, 30, 35, 40

** compressive strength in psi * Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil and rock types. In-situ the transition may be more gradational in nature.

WATER LEVEL OBSERVATIONS	
▽	20.0 feet W.D.
▼	22.0 feet A.B.
	Backfilled @ Completion

GEOSOURCE — Your Source for Geotechnical and Materials Engineering

BORING STARTED	12-4-18		
BORING COMPLETED	12-4-18		
RIG	CME-55	DRILLER	LS
APPROVED	JJZ	JOB #	LM17G2012

BORING DATA

Note: For locations of borings, see "General Elevation and Plan"

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI — NICHOLE WITUSHYNSKY — NUMBER PE-2018037127 — PROFESSIONAL ENGINEER — 10-31-19

DATE	09/23/2019
DATE PREPARED	09/23/2019
ROUTE	148TH
STATE	MO
DISTRICT	KC
SHEET NO.	
COUNTY	CLAY
JOB NO.	36201A
CONTRACT ID.	
PROJECT NO.	BRO-B024(27)
BRIDGE NO.	10700091

DESCRIPTION | DATE

CLAY COUNTY, MISSOURI HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

BORING LOG DETAILS I

BOREHOLE INFORMATION Page 3 of 3

STATION **104+00** OFFSET **C.L.**

NORTHING EASTING

DRILLING COMPANY **GeoSource, LLC**

METHOD **4-inch Flight Augers** HAMMER **Auto**

LOG OF BORING NO. B-1

PROJECT NAME **NE 148th Street over Carroll Creek**

SITE LOCATION **SE ¼, NW ¼ of Section 31, T53N, R30W Kearney, Clay County, Missouri**

OWNER / ENGINEER **MDOT / WSP USA**

SAMPLE NO.	SAMPLE TYPE	RECOVERY	STANDARD PENETRATION BLOWS/FT.	UNCONFINED STRENGTH PSF	DRY DENSITY PCF	MOISTURE CONTENT, %	UNIFIED SOIL SYMBOL	GRAPHIC LOG	DEPTH, Feet.	MATERIAL DESCRIPTION
	HS								45	**SAND**, very loose, fine to medium grained, poorly graded, gray, with some silt
No sample due to heaving sand in augers										
	HS									48.5 44.5
10	SS	5	50/5"			14.4			50	****SHALE**, hard, light gray
	HS									
11	SS	3	50/3"			13.9			55	55.0 38.0
										BOTTOM OF BORING

** compressive strength in psi * Calibrated Penetrometer

****Rock classification is based on drilling characteristics and visual observation of disturbed samples. Core samples may reveal other rock types.**

The stratification lines represent the approximate boundary lines between soil and rock types. In-situ the transition may be more gradational in nature.

WATER LEVEL OBSERVATIONS		BORING STARTED	12-4-18	
▽ 20.0 feet W.D.	GeoSource Your Source for Geotechnical and Materials Engineering	BORING COMPLETED	12-4-18	
▼ 22.0 feet A.B.		RIG CME-55	DRILLER LS	
Backfilled @ Completion		APPROVED JJZ	JOB # LM17G2012	

BOREHOLE INFORMATION Page 1 of 3

STATION **105+30** OFFSET **C.L.**

NORTHING EASTING

DRILLING COMPANY **GeoSource, LLC**

METHOD **4-inch Flight Augers** HAMMER **Auto**

LOG OF BORING NO. B-2

PROJECT NAME **NE 148th Street over Carroll Creek**

SITE LOCATION **SE ¼, NW ¼ of Section 31, T53N, R30W Kearney, Clay County, Missouri**

OWNER / ENGINEER **MDOT / WSP USA**

SAMPLE NO.	SAMPLE TYPE	RECOVERY	STANDARD PENETRATION BLOWS/FT.	UNCONFINED STRENGTH PSF	DRY DENSITY PCF	MOISTURE CONTENT, %	UNIFIED SOIL SYMBOL	GRAPHIC LOG	DEPTH, Feet.	MATERIAL DESCRIPTION
										Approx. Surface Elevation: 92.8
	HS									**Gravel (6")**
1	ST	18							5	**FILL**, silty lean clay, medium stiff, brown and gray brown mixed, trace sand and gravel
	HS									9.7 83.1
2	ST	24							10	**SILTY LEAN CLAY**, medium stiff, brown, trace fine sand
	HS									
3	ST	10							15	
	HS									17.0 75.8
4	SS	18	4			27.5	CL		20	**LEAN CLAY**, very soft, brown, trace fine sand
										21.0 ▼ 71.8

** compressive strength in psi * Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil and rock types. In-situ the transition may be more gradational in nature.

WATER LEVEL OBSERVATIONS		BORING STARTED	12-3-18	
▽ 26.5 feet W.D.	GeoSource Your Source for Geotechnical and Materials Engineering	BORING COMPLETED	12-3-18	
▼ 21.0 feet A.B.		RIG CME-55	DRILLER LS	
Backfilled @ Completion		APPROVED JJZ	JOB # LM17G2012	

STATE OF MISSOURI
NICHOLE M. WITUSINSKY
10-31-19
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

DATE 09/23/2019
DATE PREPARED 09/23/2019
ROUTE 148TH STATE MO
DISTRICT KC SHEET NO.
COUNTY CLAY
JOB NO. 36201A
CONTRACT ID.
PROJECT NO. BRO-B024(27)
BRIDGE NO. 10700091

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DESCRIPTION | DATE

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT

16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

SEAL OF CLAY COUNTY MISSOURI

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

BORING LOG DETAILS II

BORING DATA

Note: For locations of borings, see "General Elevation and Plan"

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

BOREHOLE INFORMATION Page 2 of 3

STATION **105+30** OFFSET **C.L.**

NORTHING EASTING

DRILLING COMPANY **GeoSource, LLC**

METHOD **4-inch Flight Augers** HAMMER **Auto**

LOG OF BORING NO. B-2

PROJECT NAME **NE 148th Street over Carroll Creek**

SITE LOCATION **SE ¼, NW ¼ of Section 31, T53N, R30W Kearney, Clay County, Missouri**

OWNER / ENGINEER **MDOT / WSP USA**

SAMPLE NO.	SAMPLE TYPE	RECOVERY	STANDARD PENETRATION BLOWS/FT.	UNCONFINED STRENGTH PSF	DRY DENSITY PCF	MOISTURE CONTENT, %	UNIFIED SOIL SYMBOL	GRAPHIC LOG	DEPTH, Feet.	MATERIAL DESCRIPTION
	HS								25	**SILTY LEAN CLAY**, very soft, brown, trace fine sand
5	SS	18	1			30.4	CL			
	HS								26.5 ▽ 66.3	**LEAN CLAY**, soft to very soft, saturated, gray, trace fine sand
6	SS	18	3			32.3	CL		30	
	HS								33.5 59.3	
7	SS	18	1			30.2	CL SC			**SANDY CLAY**, very soft, gray, with interbedded sand seams
	HS								35	
8	SS	18	1			26.9	CL SC		40.0 52.8	
	HS									**CLAYEY SAND**, loose, medium to coarse grained, gray, with some gravel

** compressive strength in psi * Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil and rock types. In-situ the transition may be more gradational in nature.

WATER LEVEL OBSERVATIONS		BORING STARTED	12-3-18	
▽ 26.5 feet W.D.	GeoSource Your Source for Geotechnical and Materials Engineering	BORING COMPLETED	12-3-18	
▼ 21.0 feet A.B.		RIG CME-55	DRILLER LS	
Backfilled @ Completion		APPROVED JJZ	JOB # LM17G2012	

BOREHOLE INFORMATION Page 3 of 3

STATION **105+30** OFFSET **C.L.**

NORTHING EASTING

DRILLING COMPANY **GeoSource, LLC**

METHOD **4-inch Flight Augers** HAMMER **Auto**

LOG OF BORING NO. B-2

PROJECT NAME **NE 148th Street over Carroll Creek**

SITE LOCATION **SE ¼, NW ¼ of Section 31, T53N, R30W Kearney, Clay County, Missouri**

OWNER / ENGINEER **MDOT / WSP USA**

SAMPLE NO.	SAMPLE TYPE	RECOVERY	STANDARD PENETRATION BLOWS/FT.	UNCONFINED STRENGTH PSF	DRY DENSITY PCF	MOISTURE CONTENT, %	UNIFIED SOIL SYMBOL	GRAPHIC LOG	DEPTH, Feet.	MATERIAL DESCRIPTION
9	SS	18	8			16.7	SC		45	**CLAYEY SAND**, loose, medium to coarse grained, gray, with some gravel
	HS								47.5 45.3	
10	SS	10	67/10"			11.5				**SHALE**, hard, light gray
	HS								50	
11	SS	4	50/4"			9.6			54.0 38.8	

BOTTOM OF BORING

**Rock classification is based on drilling characteristics and visual observation of disturbed samples. Core samples may reveal other rock types.

** compressive strength in psi * Calibrated Penetrometer

The stratification lines represent the approximate boundary lines between soil and rock types. In-situ the transition may be more gradational in nature.

WATER LEVEL OBSERVATIONS		BORING STARTED	12-3-18	
▽ 26.5 feet W.D.	GeoSource Your Source for Geotechnical and Materials Engineering	BORING COMPLETED	12-3-18	
▼ 21.0 feet A.B.		RIG CME-55	DRILLER LS	
Backfilled @ Completion		APPROVED JJZ	JOB # LM17G2012	

BORING DATA

Note: For locations of borings, see "General Elevation and Plan"

Detailed Nov. 2018
Checked Feb. 2019

Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
NICHOLE C. WITUSINSKY
10-31-19
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

DATE 09/23/2019
DATE PREPARED 09/23/2019
ROUTE 148TH | STATE MO
DISTRICT KC | SHEET NO.
COUNTY CLAY
JOB NO. 36201A
CONTRACT ID.
PROJECT NO. BRO-B024(27)
BRIDGE NO. 10700091

DESCRIPTION	DATE

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

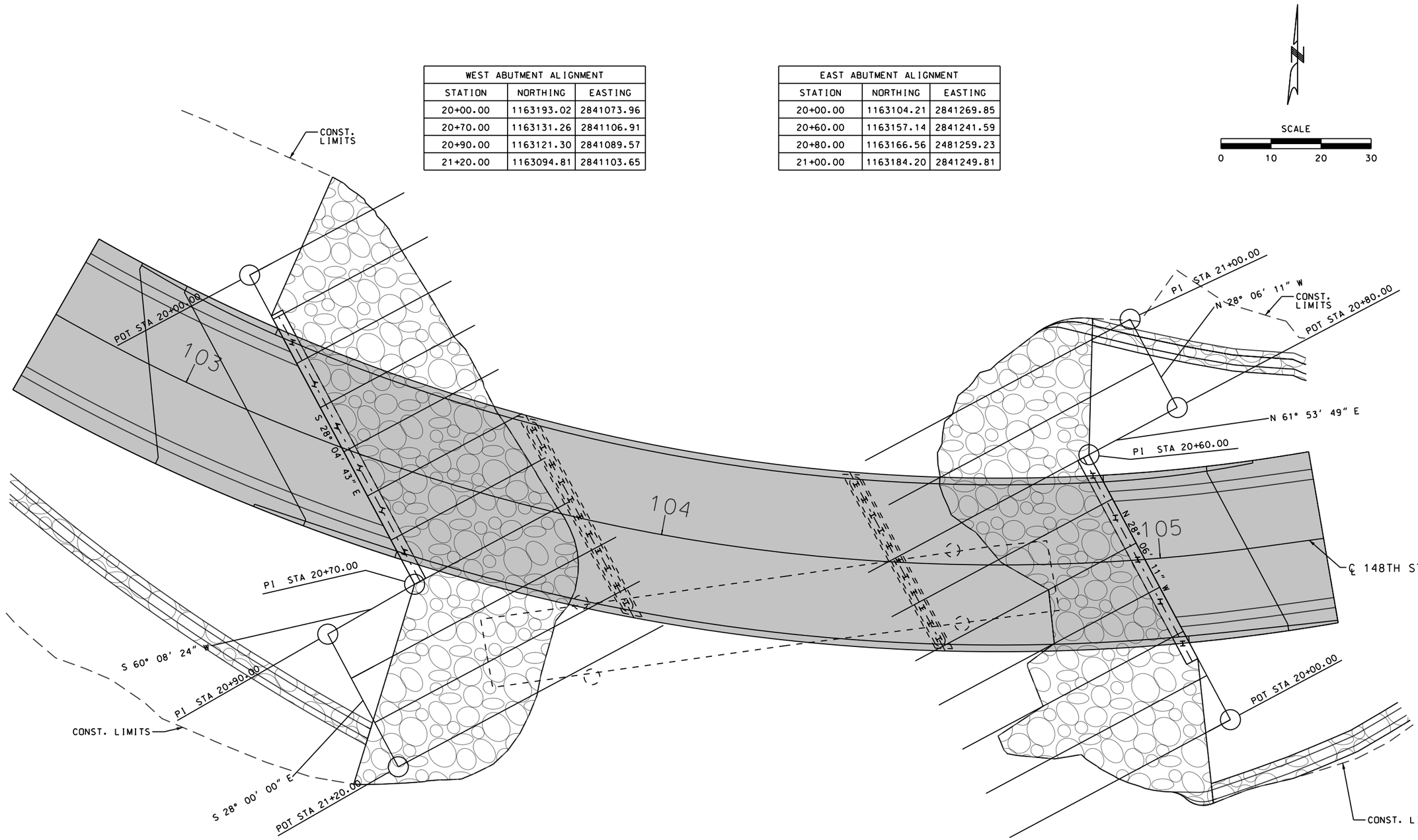
CLAY COUNTY SEAL OF MISSOURI

WSP
WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

BORING LOG DETAILS III

WEST ABUTMENT ALIGNMENT		
STATION	NORTHING	EASTING
20+00.00	1163193.02	2841073.96
20+70.00	1163131.26	2841106.91
20+90.00	1163121.30	2841089.57
21+20.00	1163094.81	2841103.65

EAST ABUTMENT ALIGNMENT		
STATION	NORTHING	EASTING
20+00.00	1163104.21	2841269.85
20+60.00	1163157.14	2841241.59
20+80.00	1163166.56	2481259.23
21+00.00	1163184.20	2841249.81



STATE OF MISSOURI
LAWRENCE O. DUDENDO
10-31-19
NUMBER
PE-2011034796
PROFESSIONAL ENGINEER

DATE
09/23/2019
DATE PREPARED
09/23/2019
ROUTE 148TH | STATE MO
DISTRICT KC | SHEET NO.
COUNTY
CLAY
JOB NO.
36201A
CONTRACT ID.
PROJECT NO.
BRO-B024(27)
BRIDGE NO.
10700091

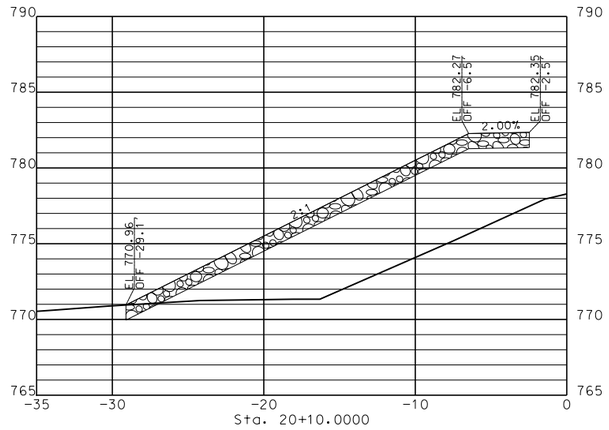
DATE	DESCRIPTION

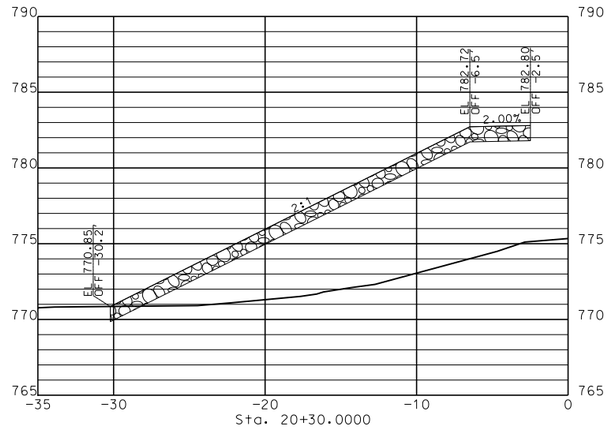
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

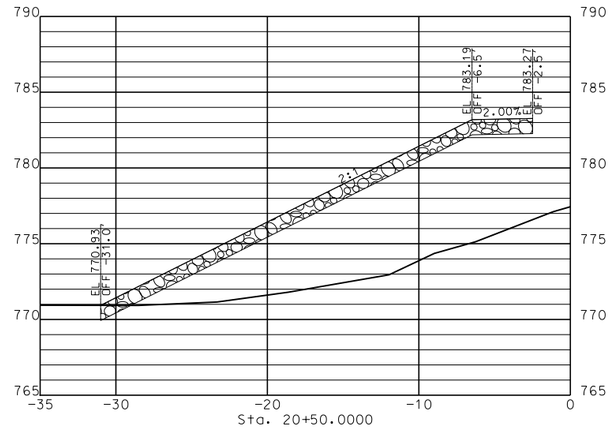
CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

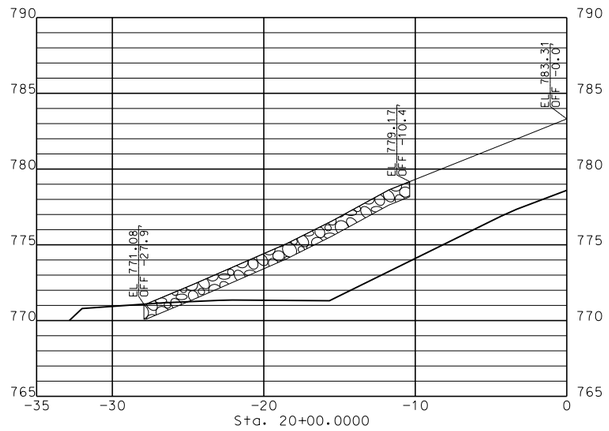
WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

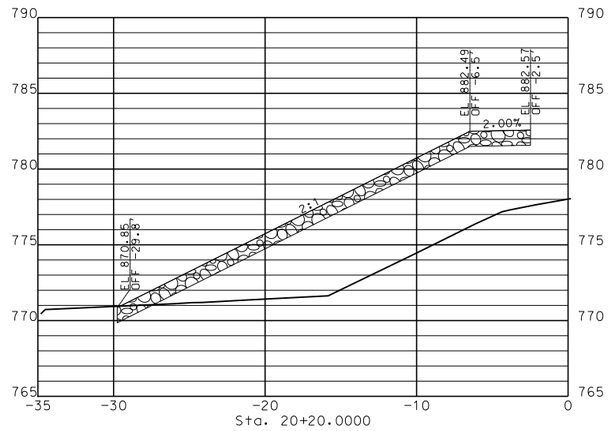
ABUTMENT SECTION KEY MAP

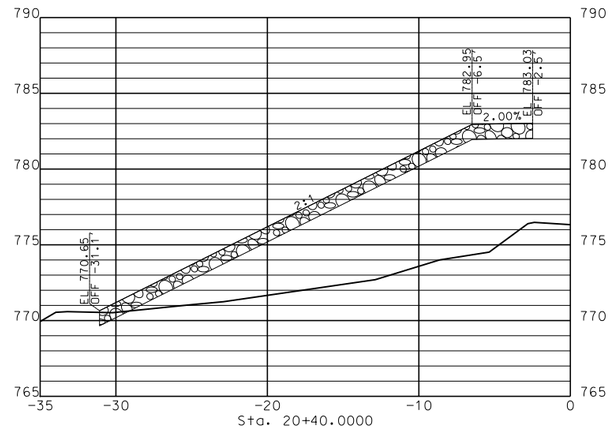












WEST ABUTMENT STA. 20+00.0000 TO STA. 20+50.0000

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

STATE OF MISSOURI
LAWRENCE O. ODUENDO
10-31-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

DATE

DATE PREPARED

ROUTE	STATE
148TH	MO
DISTRICT	SHEET NO.
KC	

COUNTY
CLAY

JOB NO.
36201A

CONTRACT ID.

PROJECT NO.
BRO-B024(27)

BRIDGE NO.
10700091

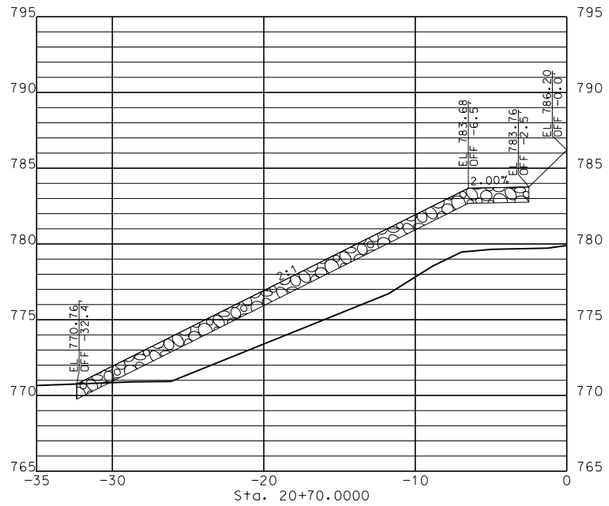
DESCRIPTION	DATE

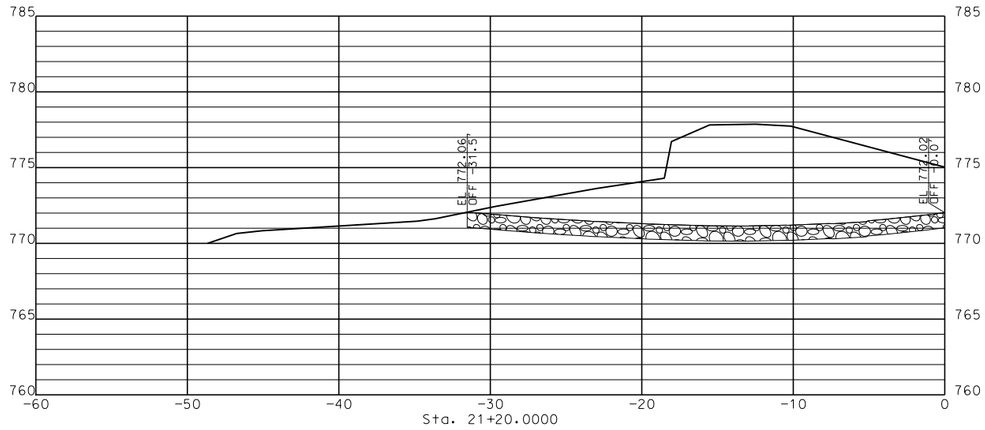
CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT

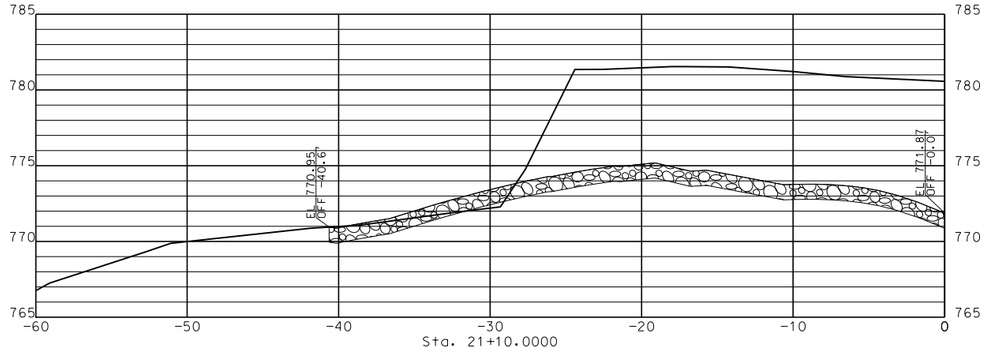
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

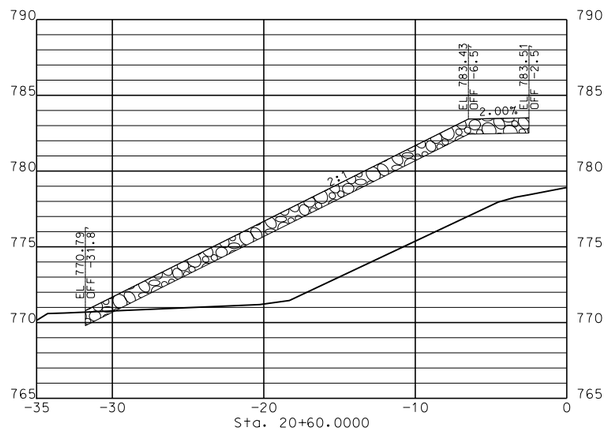
WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

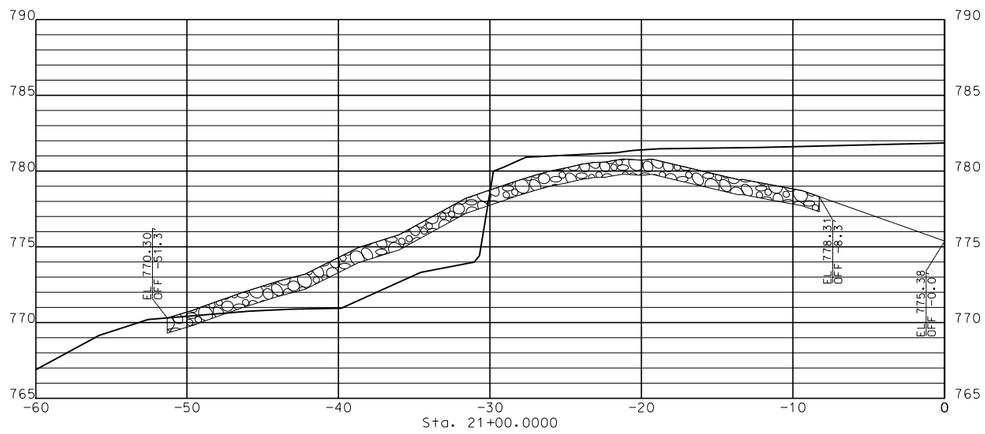
WEST ABUTMENT CROSS SECTION SHEET











WEST ABUTMENT STA. 20+60.0000 TO STA. 21+20.0000

STATE OF MISSOURI
LAWRENCE D. QUENDO
10-31-19
NUMBER
PE-2011034796
PROFESSIONAL ENGINEER

DATE
09/23/2019

DATE PREPARED
09/23/2019

ROUTE	STATE
148TH	MO
DISTRICT	SHEET NO.
KC	

COUNTY
CLAY

JOB NO.
36201A

CONTRACT ID.

PROJECT NO.
BRO-B024(27)

BRIDGE NO.
10700091

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

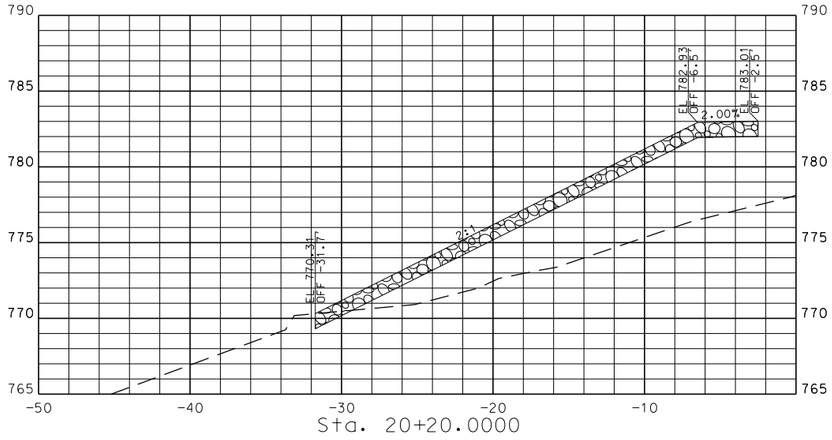
DATE	DESCRIPTION

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT

16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

WEST ABUTMENT CROSS SECTION SHEET



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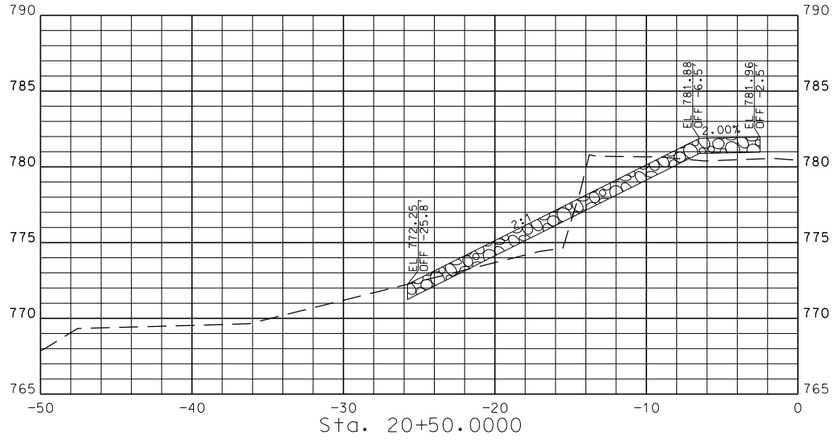

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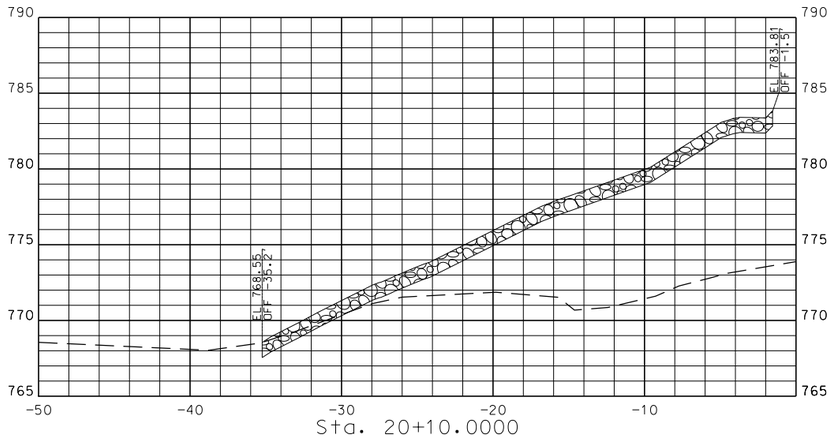

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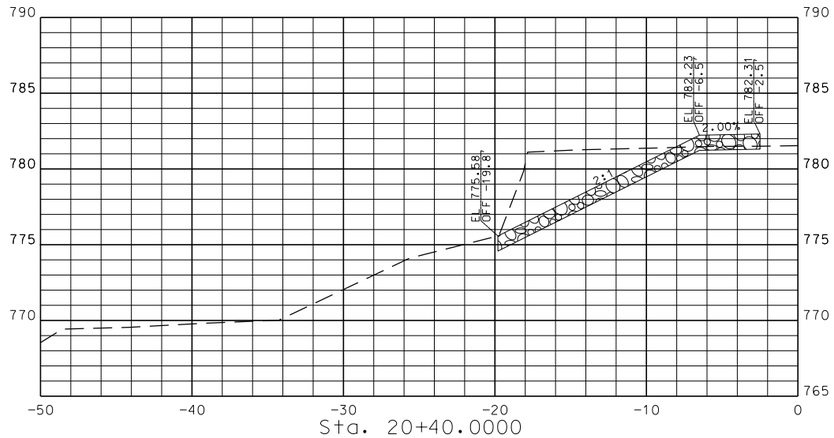

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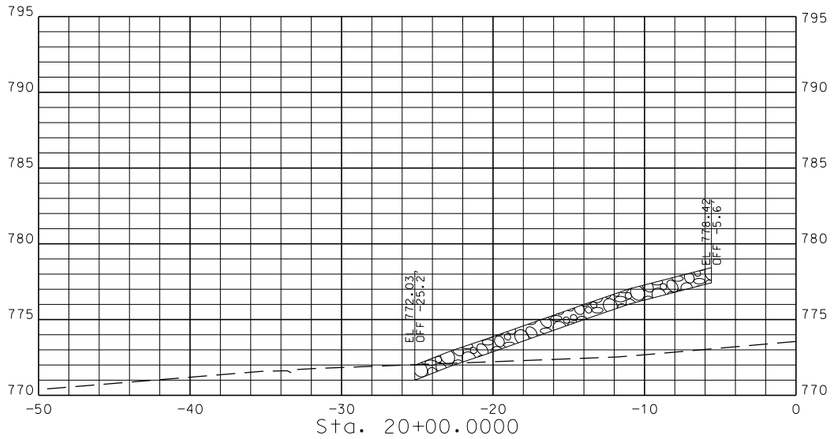

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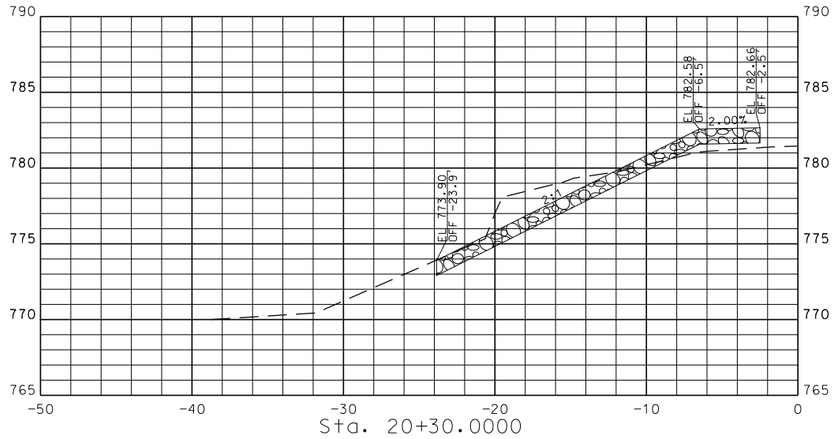


Sta. 20+30.0000

EAST ABUTMENT STA. 20+00.0000 TO STA. 20+50.0000

STATE OF MISSOURI
LAWRENCE O. QUENDO
10-31-19
NUMBER
PE-2011034796
PROFESSIONAL ENGINEER

DATE
09/23/2019

DATE PREPARED
09/23/2019

ROUTE	STATE
148TH	MO
DISTRICT	SHEET NO.
KC	

COUNTY
CLAY

JOB NO.
36201A

CONTRACT ID.

PROJECT NO.
BRO-B024(27)

BRIDGE NO.
10700091

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DATE	DESCRIPTION

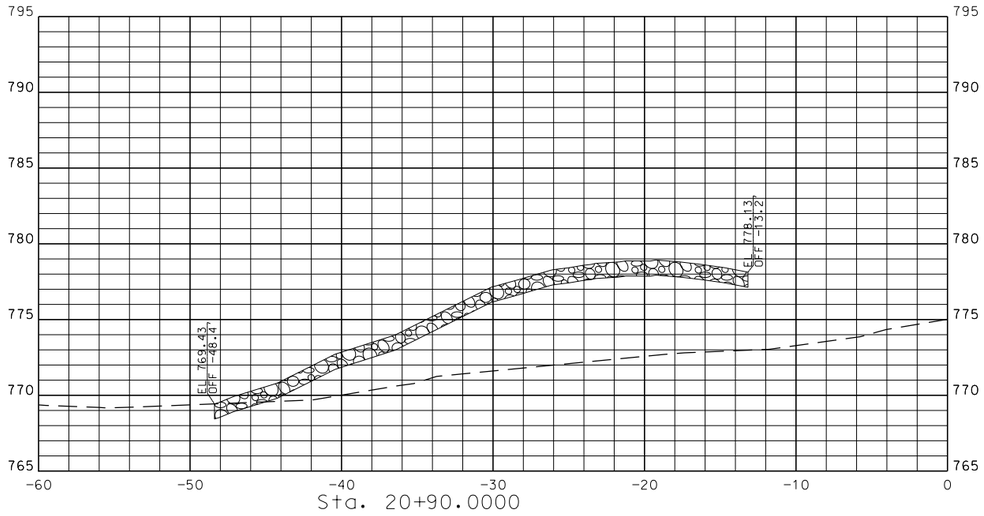
CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT

16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

CLAY COUNTY MISSOURI

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

EAST ABUTMENT CROSS SECTION SHEET



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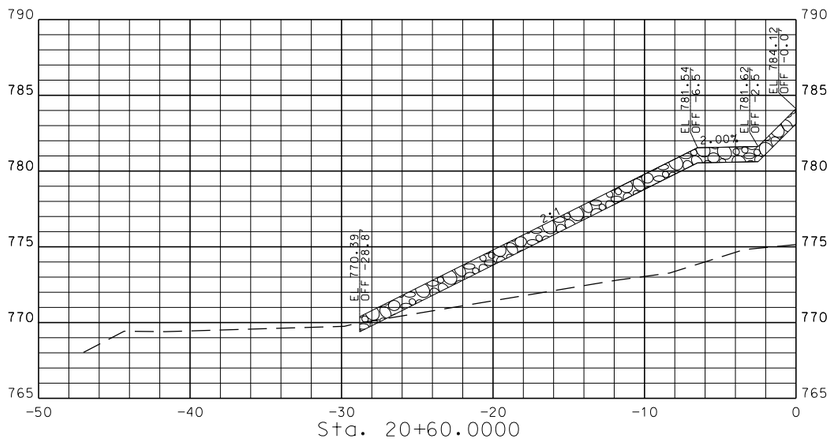

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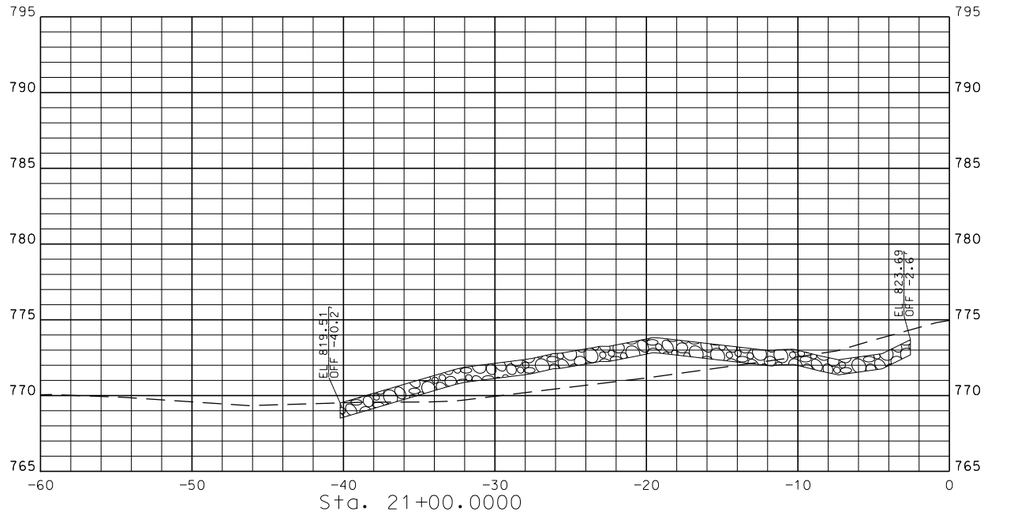


Sta. 21+00.0000

EAST ABUTMENT STA. 20+60.0000 TO STA. 21+20.0000

STATE OF MISSOURI
LAWRENCE E. DODENDO
10-31-19
NUMBER
PE-2011034796
PROFESSIONAL ENGINEER

DATE
09/23/2019

DATE PREPARED
09/23/2019

ROUTE	STATE
148TH	MO
DISTRICT	SHEET NO.
KC	

COUNTY
CLAY

JOB NO.
36201A

CONTRACT ID.

PROJECT NO.
BRO-B024(27)

BRIDGE NO.
10700091

DESCRIPTION	DATE

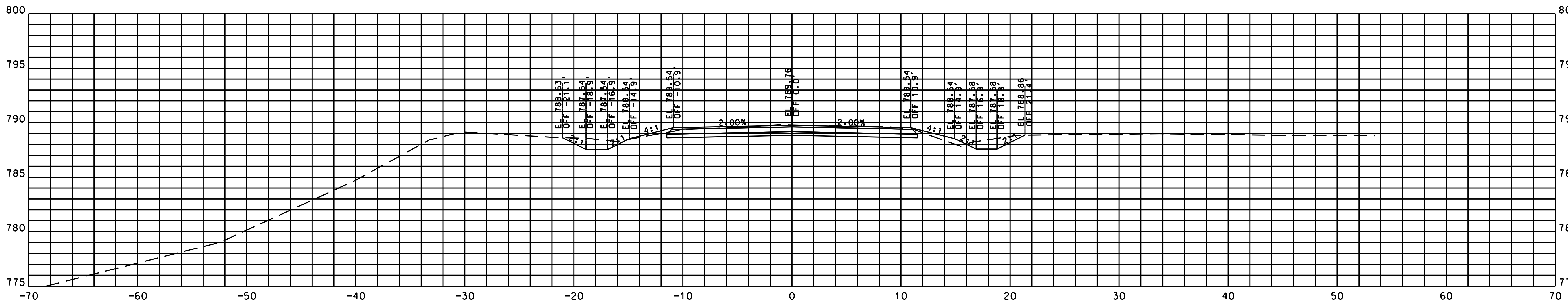
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT

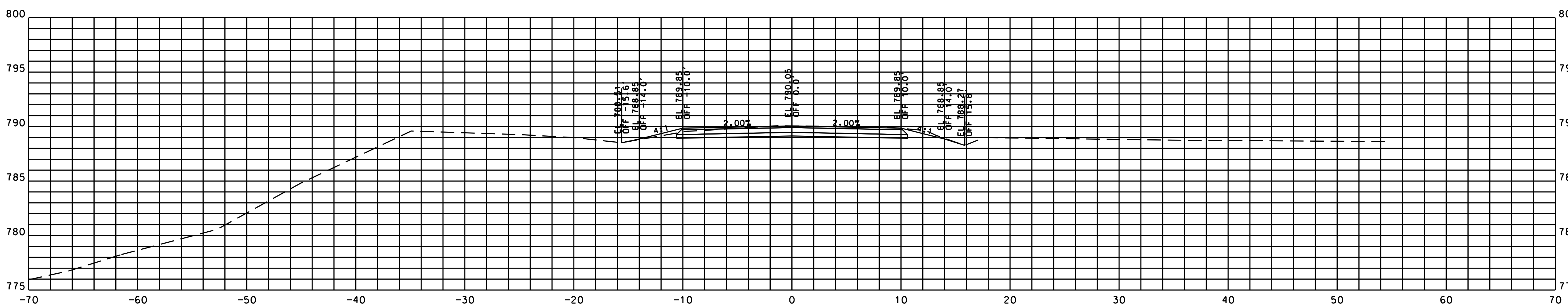
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

EAST ABUTMENT CROSS SECTION SHEET



Sta. 101+00.0000 R1



Sta. 100+80.0000 R1

WEST SIDE STA. 100+80.0000 R1 TO STA. 101+00.0000 R1

WEST SIDE EARTHWORK

TOTAL CUT: 771.19 CY / 1.4 VMF = 550.85 CY

TOTAL FILL: 995.64 CY X 1.4 VMF = 1393.90 CY

BALANCE: -843.05 CY

STATE OF MISSOURI
LAWRENCE OQUENDO
10-31-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

DATE	09/23/2019
DATE PREPARED	09/23/2019
ROUTE	148TH
STATE	MO
DISTRICT	KC
SHEET NO.	
COUNTY	CLAY
JOB NO.	36201A
CONTRACT ID.	
PROJECT NO.	BRO-B024(27)
BRIDGE NO.	10700091

DESCRIPTION

DATE

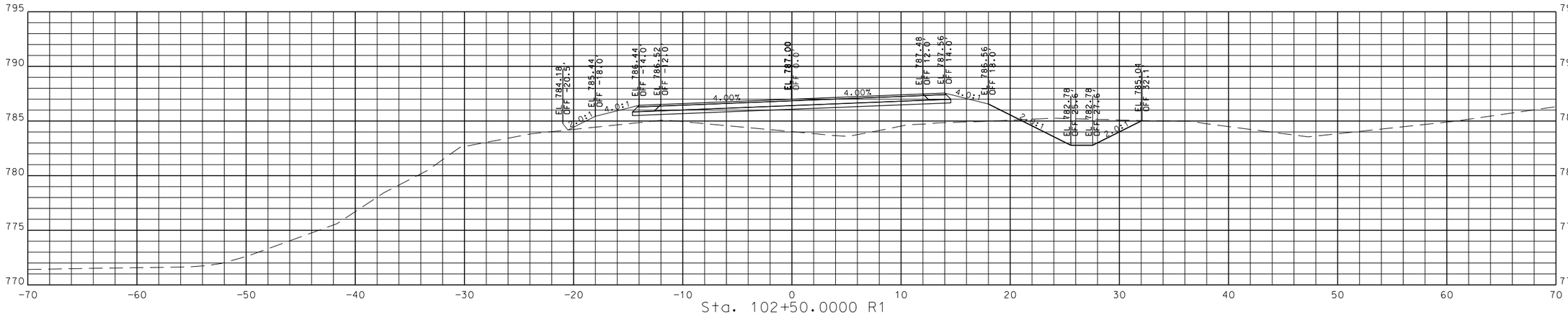
CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT

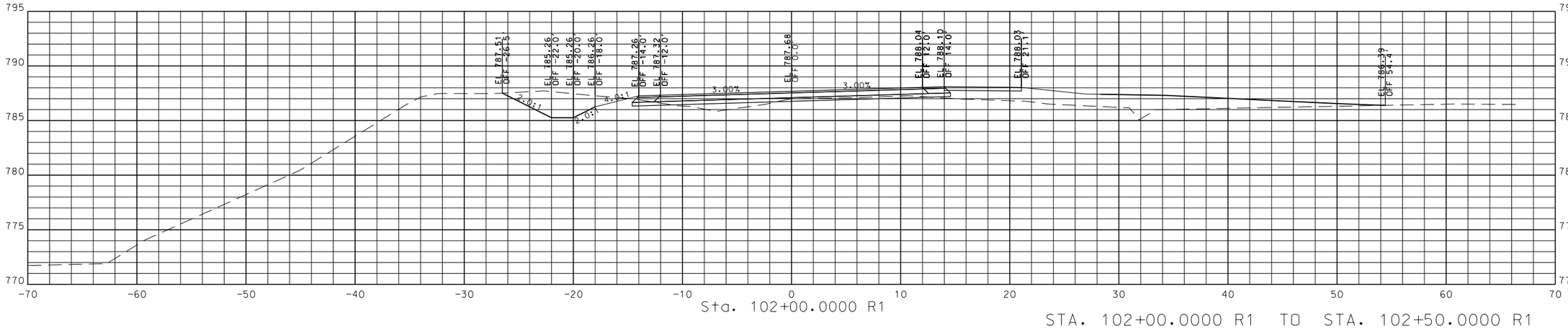
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

SEAL OF CLAY COUNTY MISSOURI

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

CROSS SECTIONS





STA. 102+00.0000 R1 TO STA. 102+50.0000 R1

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

STATE OF MISSOURI
LAWRENCE DOUGLAS DUDENDO
10-31-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

DATE
09/23/2019

DATE PREPARED
09/23/2019

ROUTE	STATE
148TH	MO
DISTRICT	SHEET NO.
KC	

COUNTY
CLAY

JOB NO.
36201A

CONTRACT ID.

PROJECT NO.
BRO-B024(27)

BRIDGE NO.
10700091

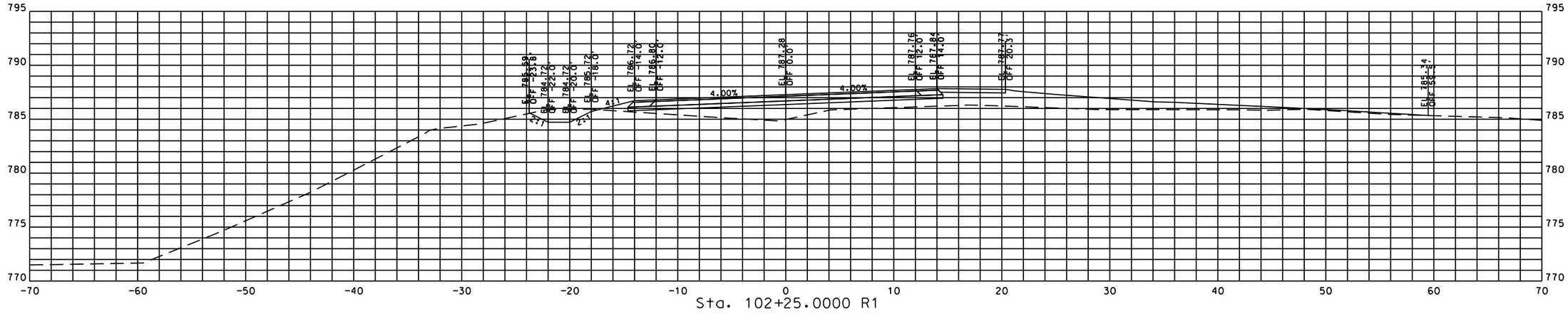
DESCRIPTION	DATE

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT

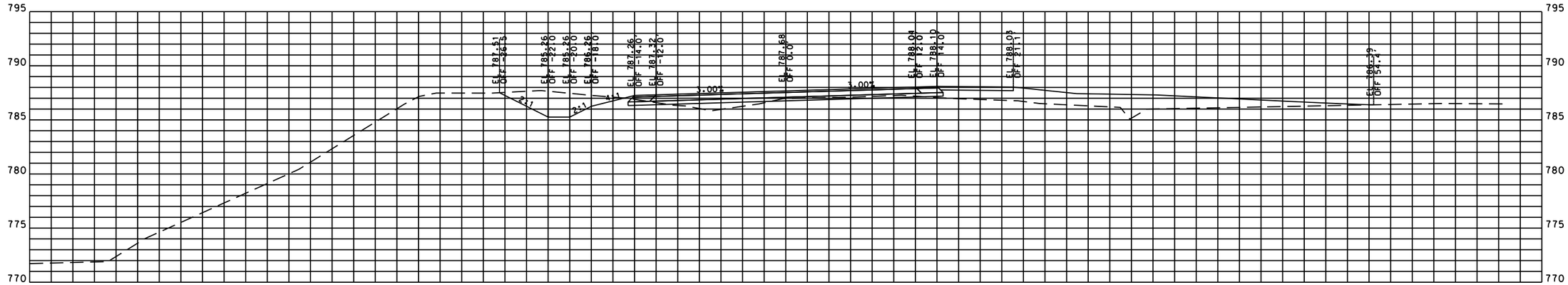
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

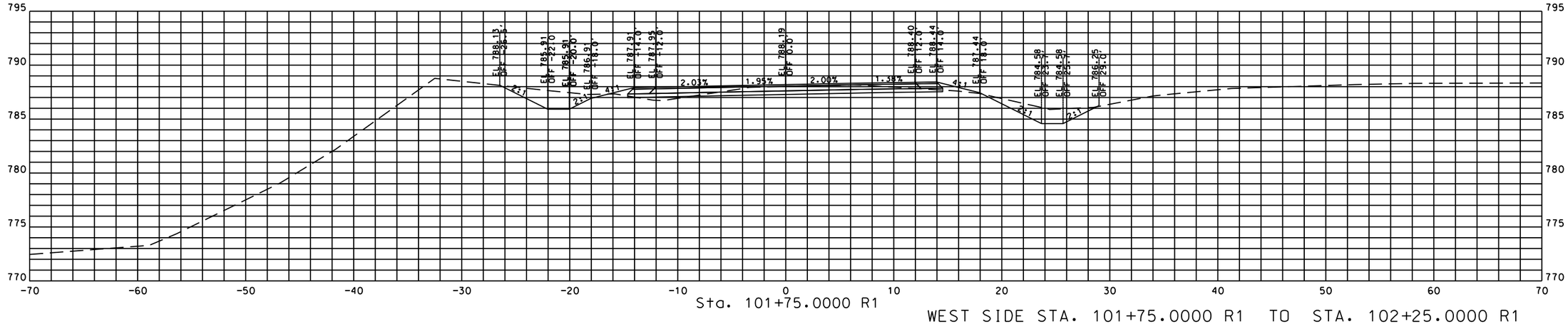
CROSS SECTIONS



Sta. 102+25.0000 R1



Sta. 102+00.0000 R1



Sta. 101+75.0000 R1

WEST SIDE STA. 101+75.0000 R1 TO STA. 102+25.0000 R1

STATE OF MISSOURI
LAWRENCE DOUENDO
10-31-19
NUMBER
PE-2011034796
PROFESSIONAL ENGINEER

DATE
09/23/2019
DATE PREPARED
09/23/2019

ROUTE	STATE
148TH	MO
DISTRICT	SHEET NO.
KC	

COUNTY
CLAY
JOB NO.
36201A
CONTRACT ID.
PROJECT NO.
BRO-B024(27)
BRIDGE NO.
10700091

DESCRIPTION	DATE

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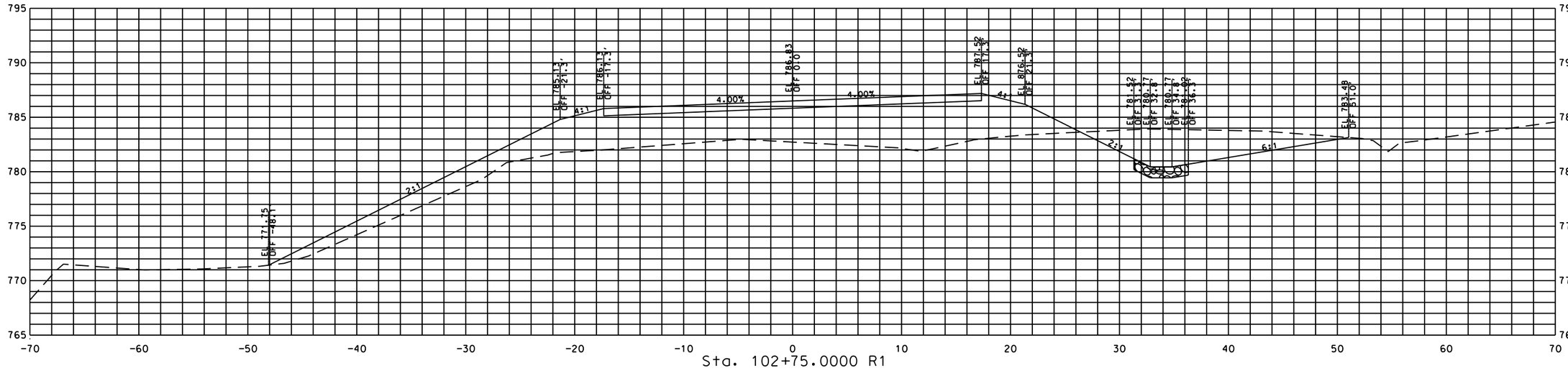
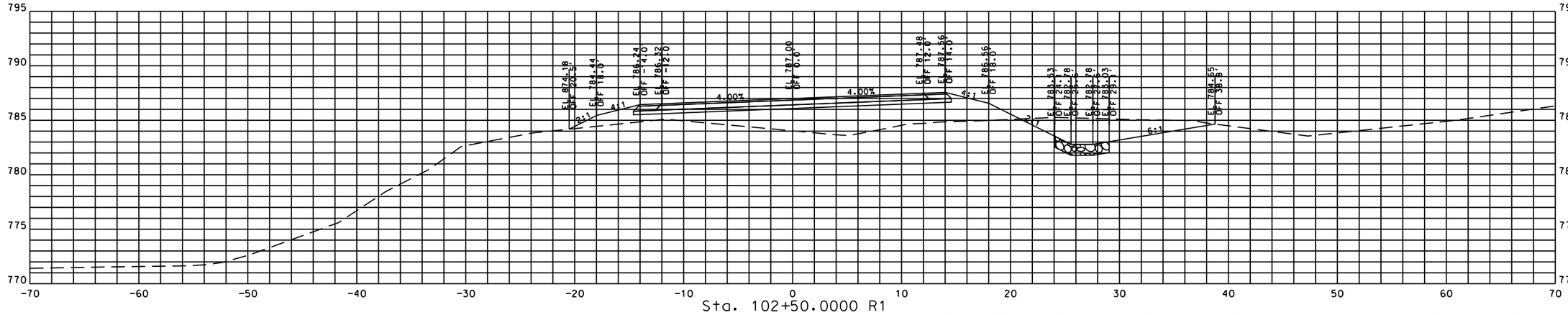
CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

CROSS SECTIONS



Sta. 102+75.0000 R1



Sta. 102+50.0000 R1

WEST SIDE STA. 102+50.0000 R1 TO STA. 102+75.0000 R1

STATE OF MISSOURI
LAWRENCE D. DUDENDO
10-31-19
NUMBER
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PROFESSIONAL ENGINEER

DATE
09/23/2019

DATE PREPARED
09/23/2019

ROUTE	STATE
148TH	MO
DISTRICT	SHEET NO.
KC	

COUNTY
CLAY

JOB NO.
36201A

CONTRACT ID.

PROJECT NO.
BRO-B024(27)

BRIDGE NO.
10700091

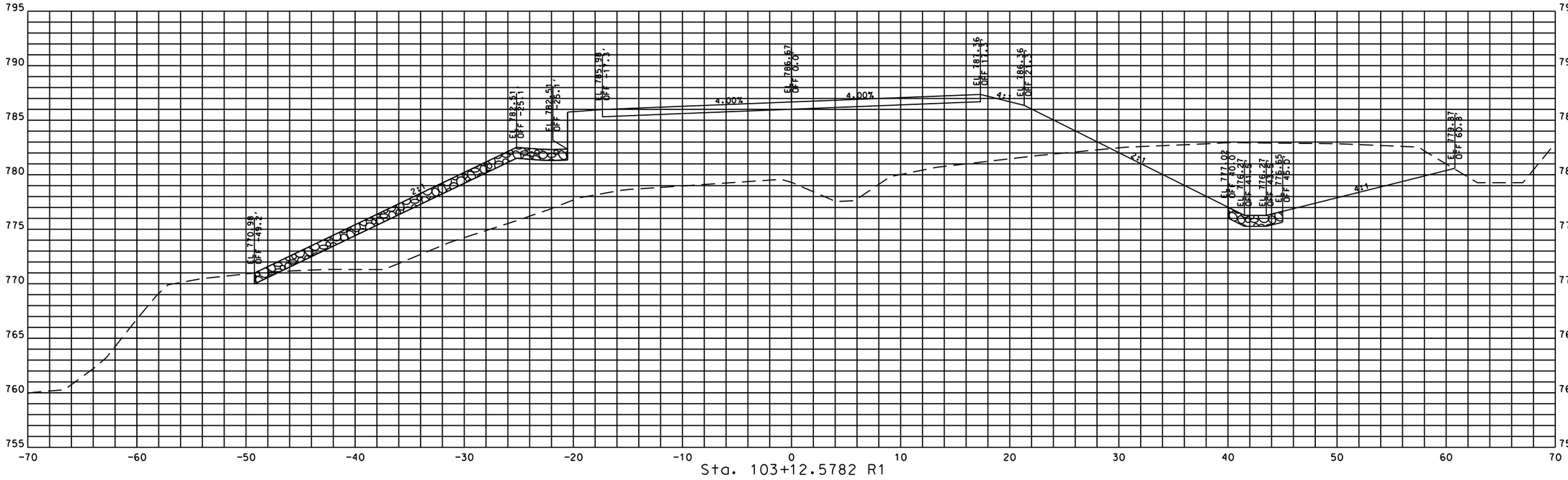
DESCRIPTION	DATE

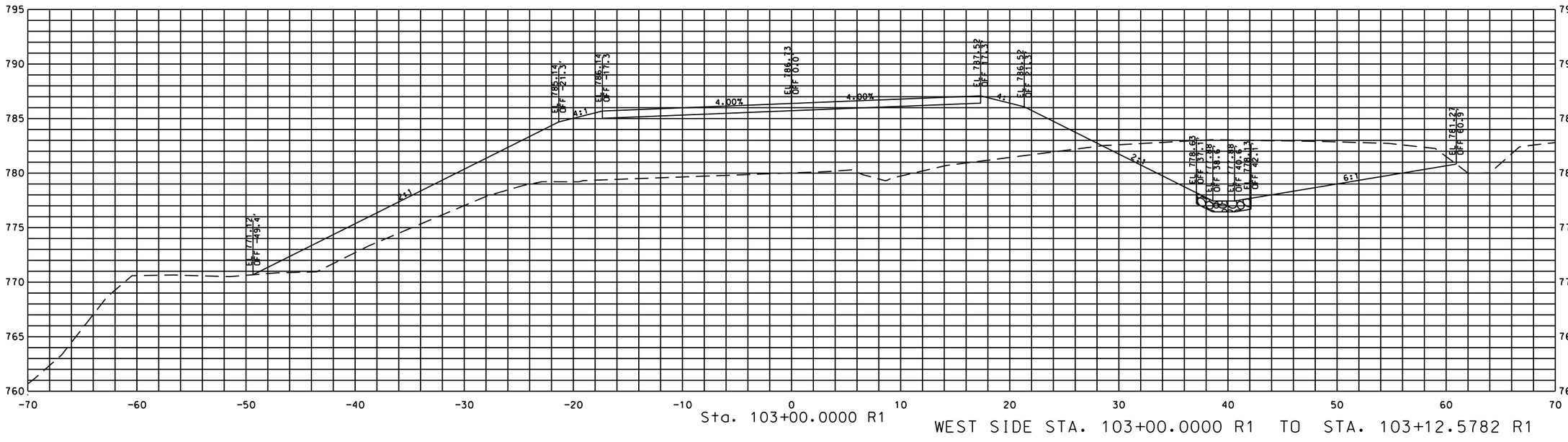
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT
16616 NE 116TH STREET
KEARNEY, MO 64060
PHONE: (816) 407-3300

WSP USA Inc.
300 Wyandotte Street
Suite 200
Kansas City, MO 64105
913.310.9943

CROSS SECTIONS





WEST SIDE STA. 103+00.0000 R1 TO STA. 103+12.5782 R1

STATE OF MISSOURI
LAWRENCE D. QUENDO
10-31-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

DATE
09/23/2019

DATE PREPARED
09/23/2019

ROUTE	STATE
148TH	MO
DISTRICT	SHEET NO.
KC	

COUNTY
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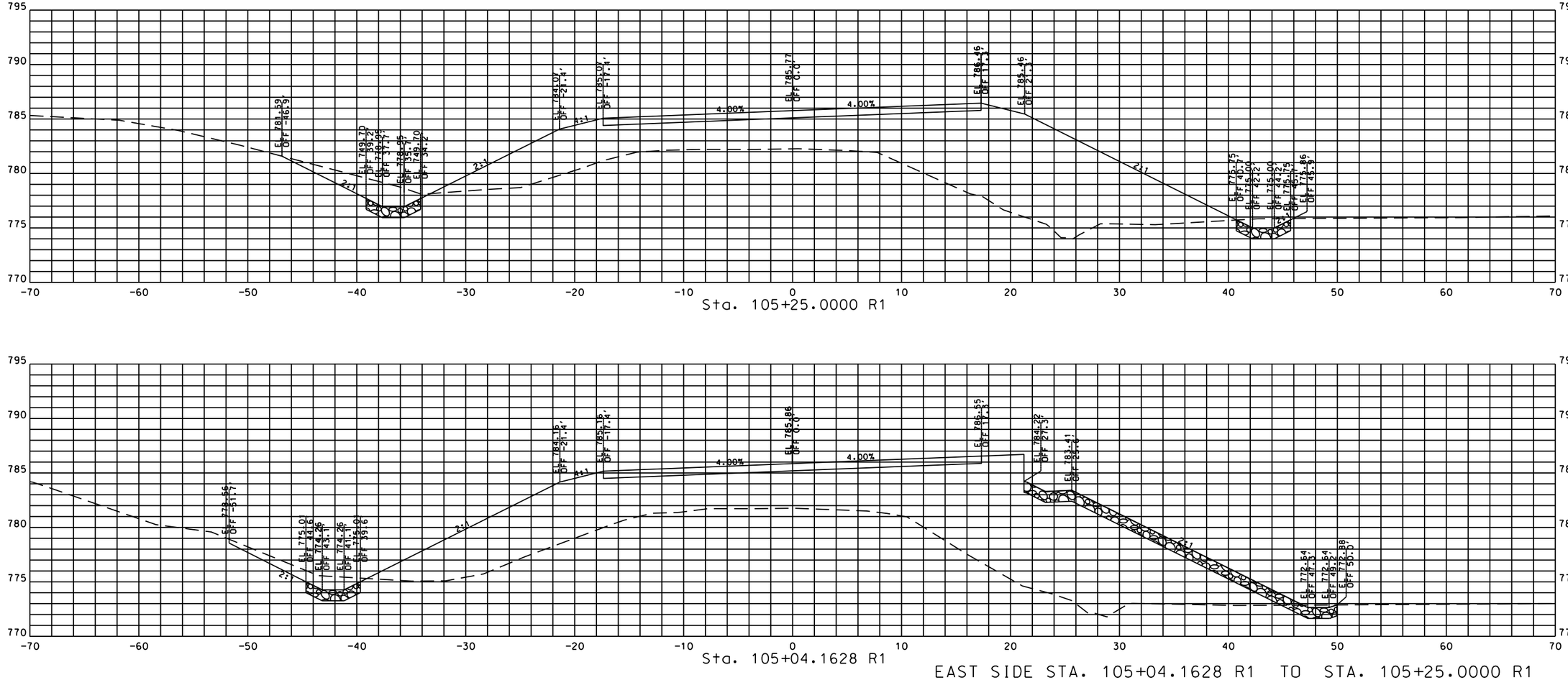

EAST SIDE STA. 105+04.1628 R1 TO STA. 105+25.0000 R1

EAST SIDE EARTHWORK

TOTAL CUT: 248.36 CY / 1.4 VMF = 177.40 CY
TOTAL FILL: 786.95 CY X 1.4 VMF = 1101.73 CY
BALANCE: -924.33 CY

STATE OF MISSOURI
LAWRENCE D. ODUENDO
10-31-19
NUMBER
PE-2011034796
PROFESSIONAL ENGINEER

DATE
09/23/2019

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ROUTE	STATE
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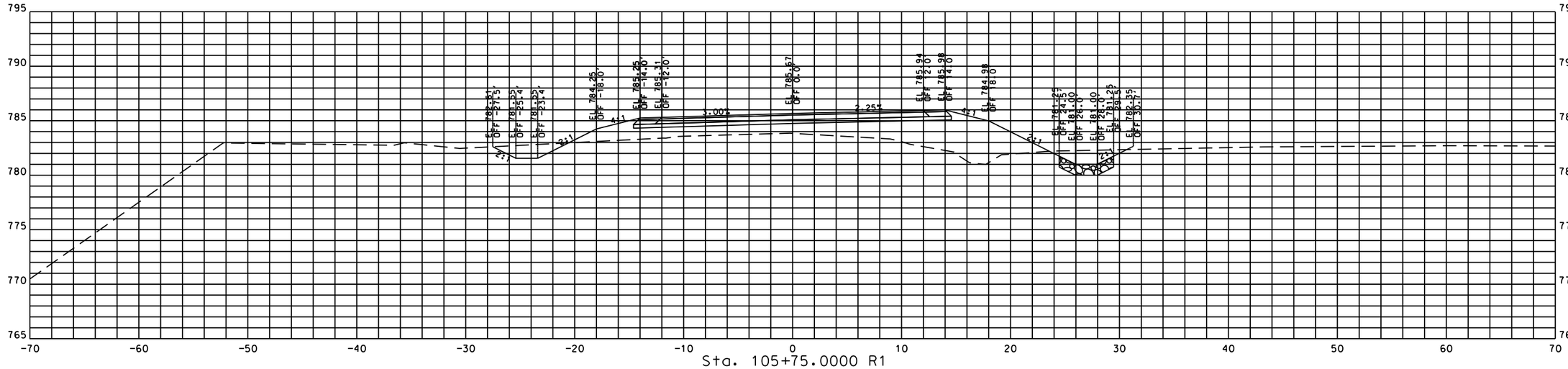

STATE OF MISSOURI
LAWRENCE DOUENDO
10-31-19
NUMBER
PE-2011034796
PROFESSIONAL ENGINEER

DATE
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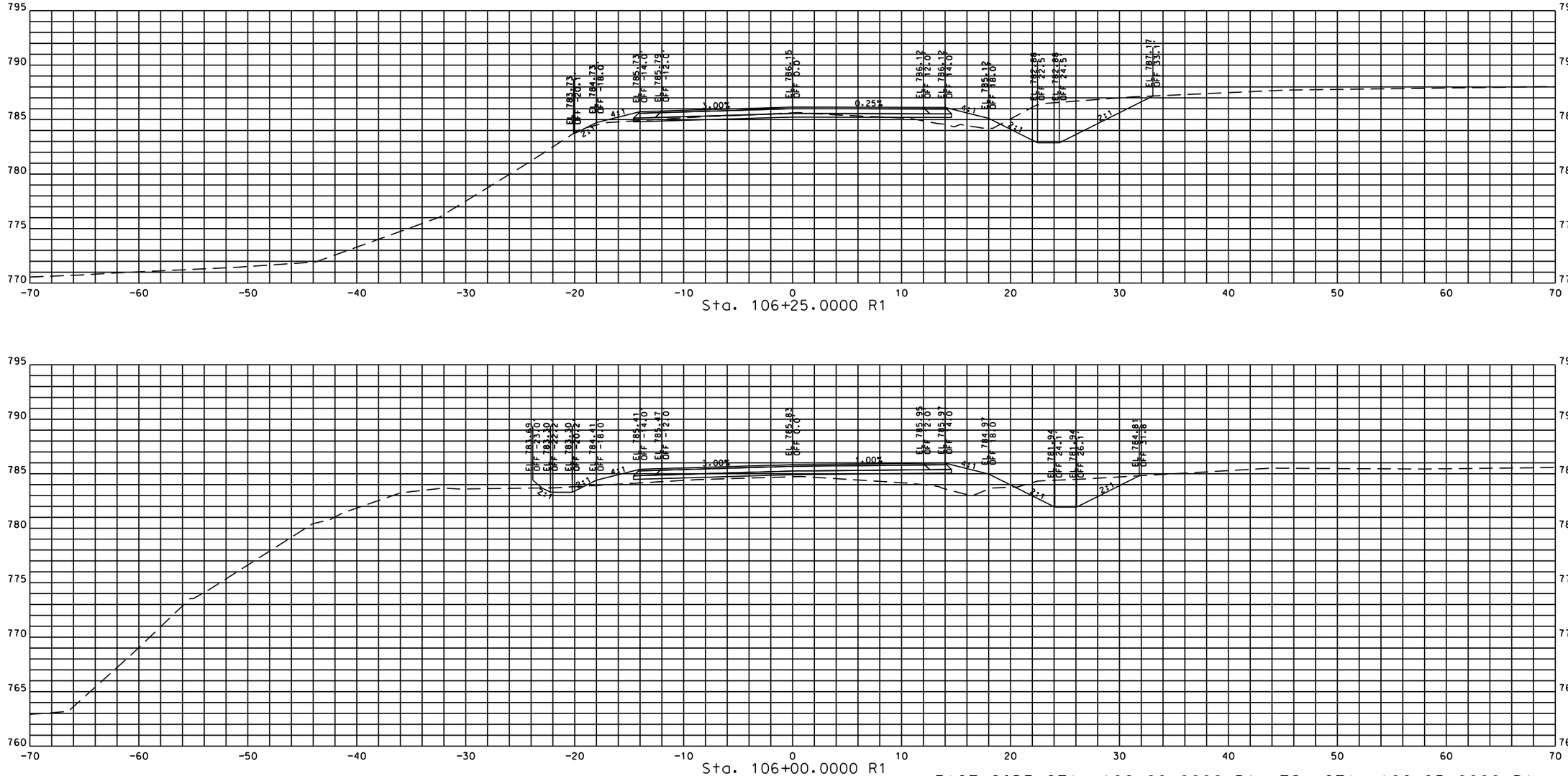

EAST SIDE STA. 106+00.0000 R1 TO STA. 106+25.0000 R1

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STATE OF MISSOURI
LAWRENCE D. QUDENDO
10-31-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

DATE
09/23/2019

DATE PREPARED
09/23/2019

ROUTE	STATE
148TH	MO
DISTRICT	SHEET NO.
KC	

COUNTY
CLAY

JOB NO.
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BRIDGE NO.
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DESCRIPTION	DATE

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT

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PHONE: (816) 407-3300

WSP USA Inc.
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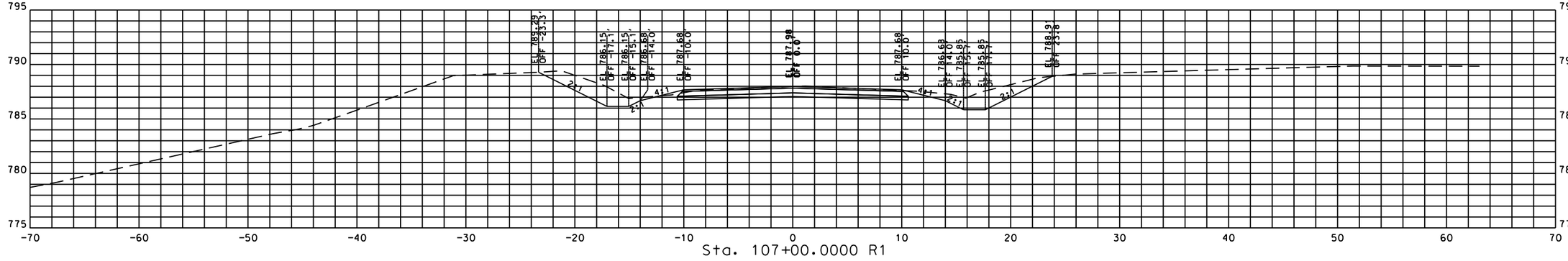
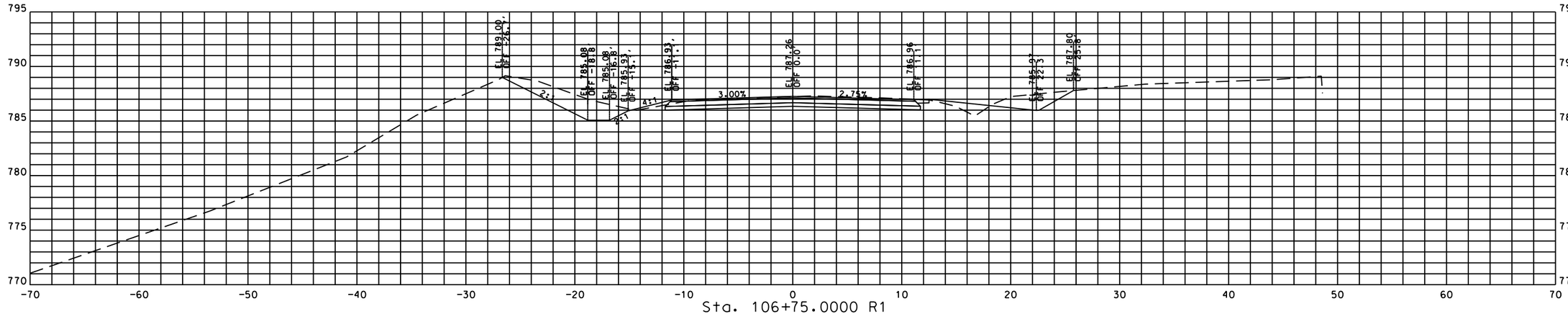
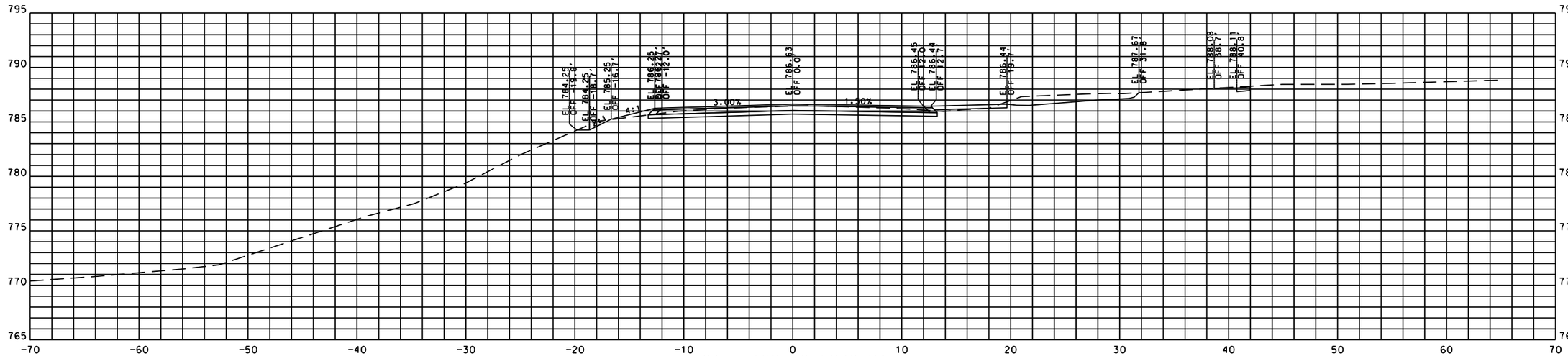


Sta. 107+00.0000 R1



Sta. 106+75.0000 R1



Sta. 106+50.0000 R1

EAST SIDE STA. 106+50.0000 R1 TO STA. 107+00.0000 R1

STATE OF MISSOURI
LAWRENCE D. QUENDO
10-31-19
NUMBER PE-2011034796
PROFESSIONAL ENGINEER

DATE
09/23/2019
DATE PREPARED
09/23/2019
ROUTE 148TH
STATE MO
DISTRICT KC
SHEET NO.
COUNTY CLAY
JOB NO. 36201A
CONTRACT ID.
PROJECT NO. BRO-B024(27)
BRIDGE NO. 10700091

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DESCRIPTION	DATE

CLAY COUNTY, MISSOURI
HIGHWAY DEPARTMENT

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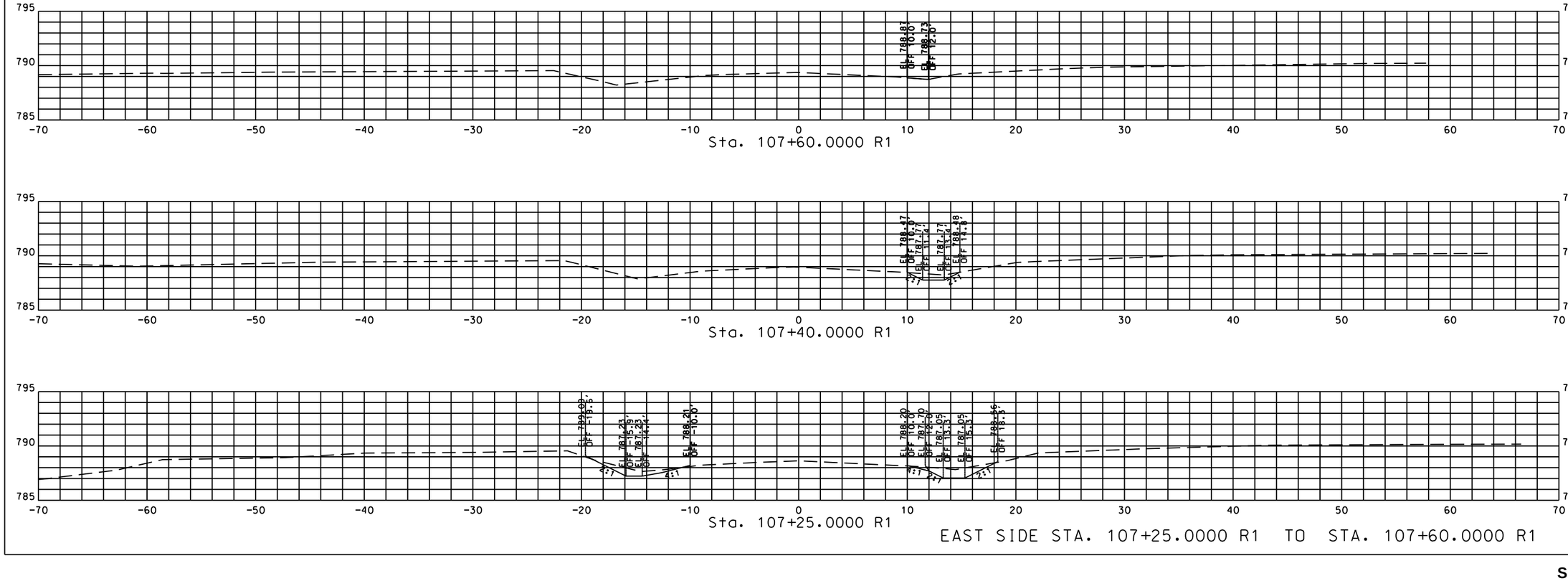

EAST SIDE STA. 107+25.0000 R1 TO STA. 107+60.0000 R1

STATE OF MISSOURI
LAWRENCE D. ODUENDO
10-31-19
NUMBER
PE-2011034796
PROFESSIONAL ENGINEER

DATE
09/23/2019

DATE PREPARED
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ROUTE	STATE
148TH	MO
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COUNTY
CLAY

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BRIDGE NO.
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DATE	DESCRIPTION

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WSP USA Inc.
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CROSS SECTIONS

Invitation for Bid No. 19-20

CLAY COUNTY BRIDGE REPLACEMENT BRO-B024(27)

Bids for the Proposal for the construction of Clay County Bridge No. 10700091 are due on the 26th day of March, 2020 at 2:00 P.M. (prevailing Local Time). Bids can be submitted by either: 1) delivery of sealed hard-copy bid to Clay County Highway Department, 16616 NE 116th Street, Kearney, MO 64060; OR 2) electronic upload of the bid in pdf form through Public Purchase website (www.publicpurchase.com).

After the time noted above, the bids will be opened and read.

The proposed work includes: Demolition of the existing NE 148th Street Bridge spanning Carroll Creek and the construction of a new three-span solid superstructure slab bridge, approach roadway work, and incidental work in accordance with the plans and specifications.

A digital copy of the plans and specifications, as well as bid package, may be downloaded through the Clay County Purchasing web site's link to Public Purchase (publicpurchase.com). Specific questions on the documents can be directed to the Engineer of Record, Lawrence Oquendo PE at WSP USA Inc., 816-702-4241.

All labor used in the construction of this public improvement shall be paid a wage no less than the prevailing hourly rate of wages of work of a similar character in this locality as established by the United States Department of Labor (Federal Wage Rate), or by the Missouri Department of Labor and Industrial Relations (State Wage Rate), whichever is higher.

The Clay County Commission hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, businesses owned and controlled by socially and economically disadvantaged individuals will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, religion, creed, sex, age, ancestry, or national origin In consideration for an award.

All bidders must be on MoDOT's Qualified Contractor List per Section 102.2 of the Missouri Standard Specifications for Highway Construction, 2019 Edition including all revisions. The contractor questionnaire must be on file seven (7) days prior to bid opening.

Contractors and sub-contractors who sign a contract to work on public works projects shall provide a 10-Hour OSHA construction safety program, or similar program approved by the Department of Labor and Industrial Relations, to be completed by their on-site employees within sixty (60) days of beginning work on the construction project.

The DBE Goal for this project is 8%.

No second tier subcontracting will be allowed on this project.

A certified cashier's check or a bid bond in the amount of 5% shall be submitted with each proposal.

The Clay County Purchasing reserves the right to reject any or all bids.

The project will be awarded to the lowest, responsive, responsible bidder.

Clay County Purchasing