

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY ROUTE 366

ST. LOUIS COUNTY CONSTRUCTION PLANS

TOWNSHIP 44 NORTH
RANGE 5 EAST
SECTION 14

DESIGN DESIGNATION

RAMP 11

A.D.T. - 2018 = 14,283
 A.D.T. - 2038 = 17,429
 D.H.V. = 12%
 T = 4.4% WB
 V = 50 M.P.H.

FUNCTIONAL CLASSIFICATION = INTERSTATE RAMP

RAMP 9

A.D.T. - 2018 = 20,008
 A.D.T. - 2038 = 22,107
 D.H.V. = 12%
 T = 4.4% WB
 V = 50 M.P.H.

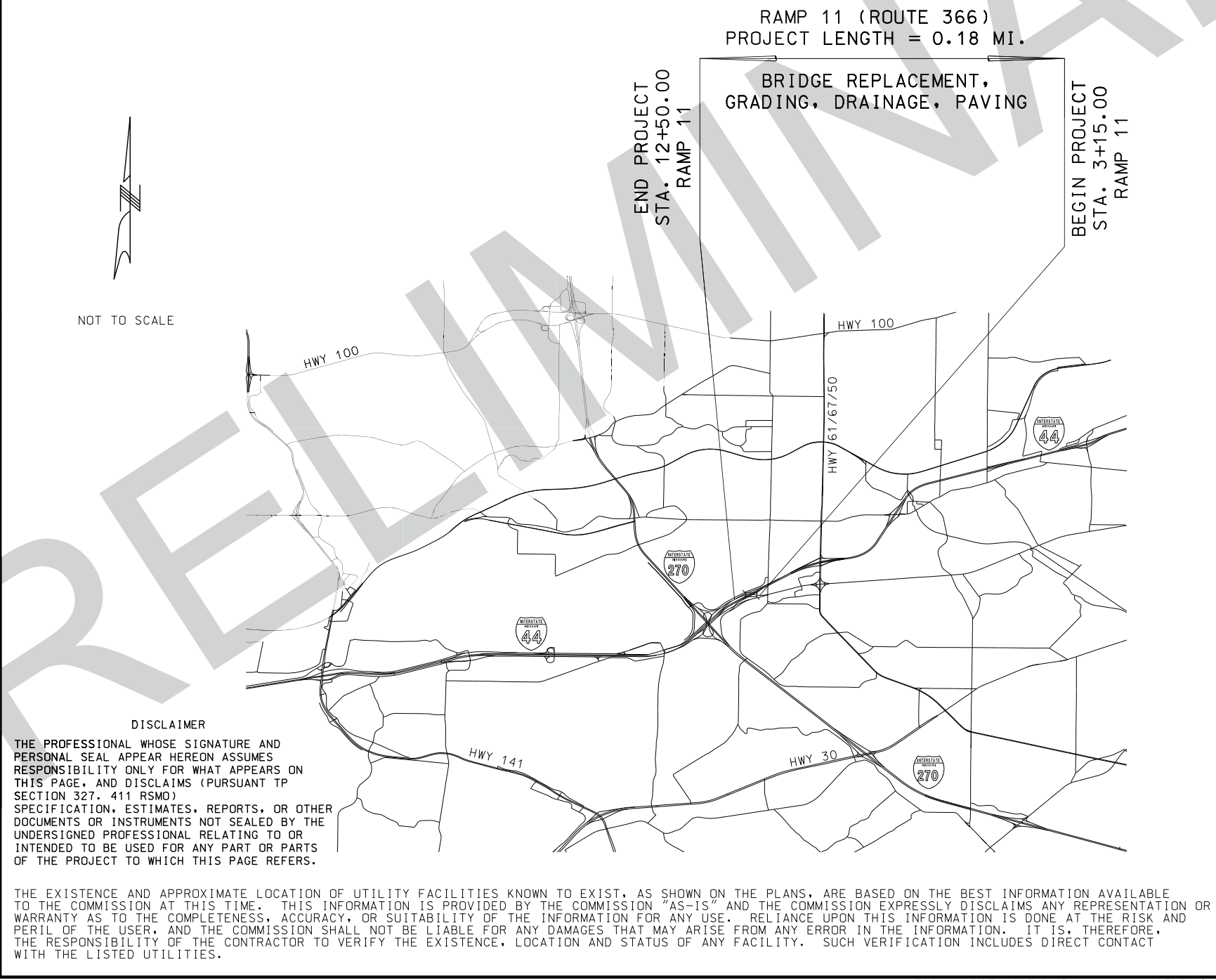
FUNCTIONAL CLASSIFICATION = INTERSTATE RAMP

NO ADDITIONAL R/W

CONVENTIONAL SYMBOLS
(USED IN PLANS)

	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
GUARD CABLE		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
UTILITIES		
FIBER OPTICS	-FO-	-F0-
OVERHEAD CABLE TV	-OTV-	-0TV-
UNDERGROUND CABLE TV	-UTV-	-0TV-
OVERHEAD TELEPHONE	-OT-	-0T-
UNDERGROUND TELEPHONE	-UT-	-0T-
OVERHEAD POWER	-OE-	-0E-
UNDERGROUND POWER	-UE-	-0E-
SANITARY SEWER	-S-	-0-
STORM SEWER	-SS-	-0S-
GAS	-G-	-0-
WATER	-W-	-0-
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



DISCLAIMER

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LENGTH OF PROJECT

RAMP 11	
BEGINNING OF PROJECT	STA. 3+15.00
END OF PROJECT	STA. 12+50.00
APPARENT LENGTH	935.00 FEET
RAMP 9	
BEGINNING OF CONST.	STA. 3+54.00
END OF CONST.	STA. 7+54.51
APPARENT LENGTH	400.51 FEET
I-44	
BEGINNING OF CONST.	STA. 1002+60.00
END OF CONST.	STA. 1009+84.00
APPARENT LENGTH	724.00 FEET
EQUATIONS AND EXCEPTIONS:	
BRIDGE A8656	STA. 6+49.38
	STA. 9+51.70
	302.32 FEET
TOTAL CORRECTIONS	302.32 FEET
NET LENGTH OF PROJECT	1757.19 FEET
STATE LENGTH	0.332 MILES

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DATE PREPARED: 2/13/2018

ROUTE 366	STATE MO
DISTRICT SL	SHEET NO. 1

COUNTY: ST. LOUIS

JOB NO.: J6S3181

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.:

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

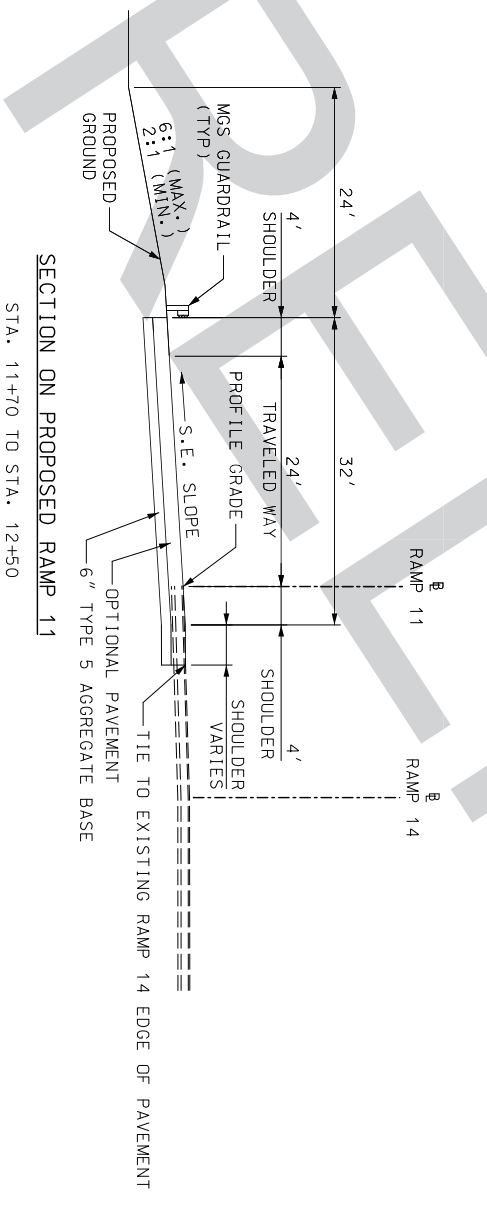
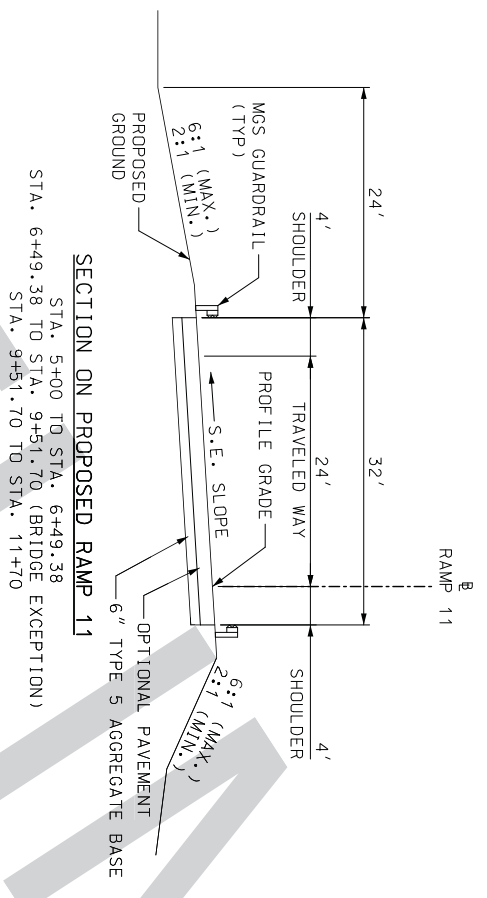
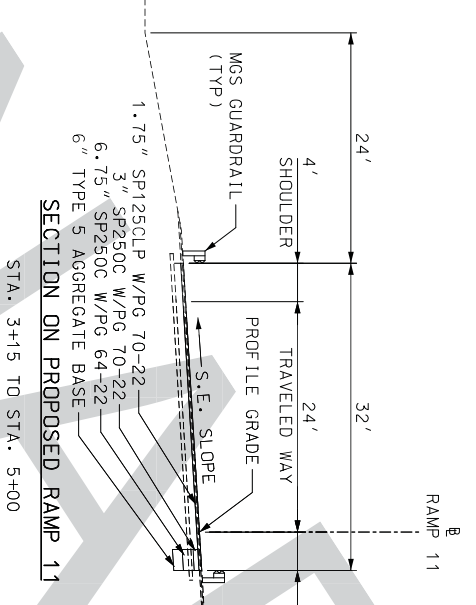
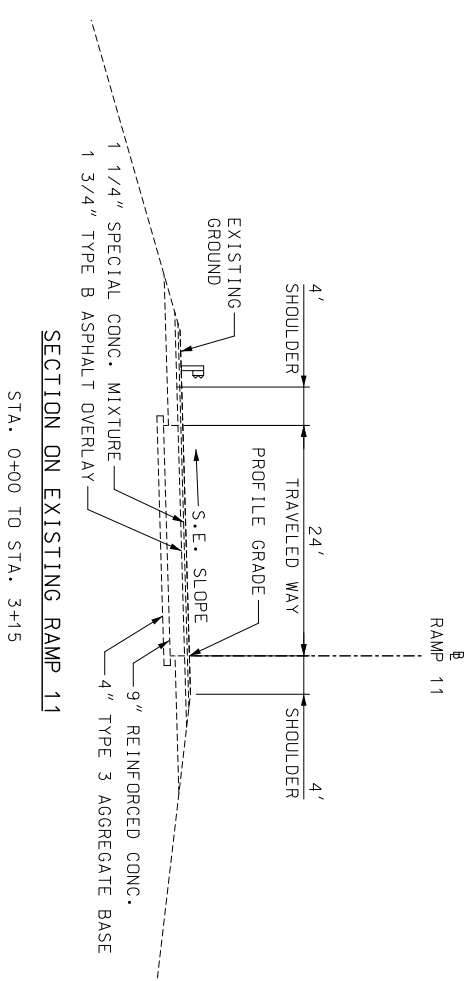
ACCESS ENGINEERING LLC

11820 TESSON FERRY ROAD
SUITE 203
ST. LOUIS, MO 63128
(314) 843-6445

#200172588-RELEASING
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TITLE SHEET

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OPTIONAL PAVEMENT		
LOCATION	BASE TYPE	HMA DESIGN
RAMP 11	6" TYPE 5 AGGREGATE BASE	11.5" SUPERPAVE OVER 3" SP125CLP W/ PG 70-22 OVER 6.75" SP250C W/ PG 64-22
		9" PCCP 15 FT JOINTS AND 1 1/4" DOWELS, WIDENED SLAB

NOTE: THIS PROJECT IS WITHIN EXISTING RIGHT OF WAY LIMITS.

TYPICAL SECTION SHEETS
 SHEET 1 OF 2
 RAMP 11 TYPICAL SECTIONS

NOT TO SCALE

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DATE PREPARED
 2/13/2018

ROUTE
 366

STATE
 MO

DISTRICT
 SL

SHEET NO.
 2

COUNTY
 ST. LOUIS

JOB NO.
 J6S3181

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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 1-888-ASK-MODOT (1-888-275-6636)

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 DISTRICT SL
 COUNTY ST. LOUIS
 JOB NO. J6S3181
 CONTRACT ID.

PROJECT NO.
 BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



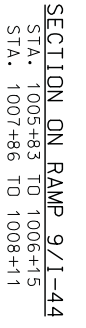
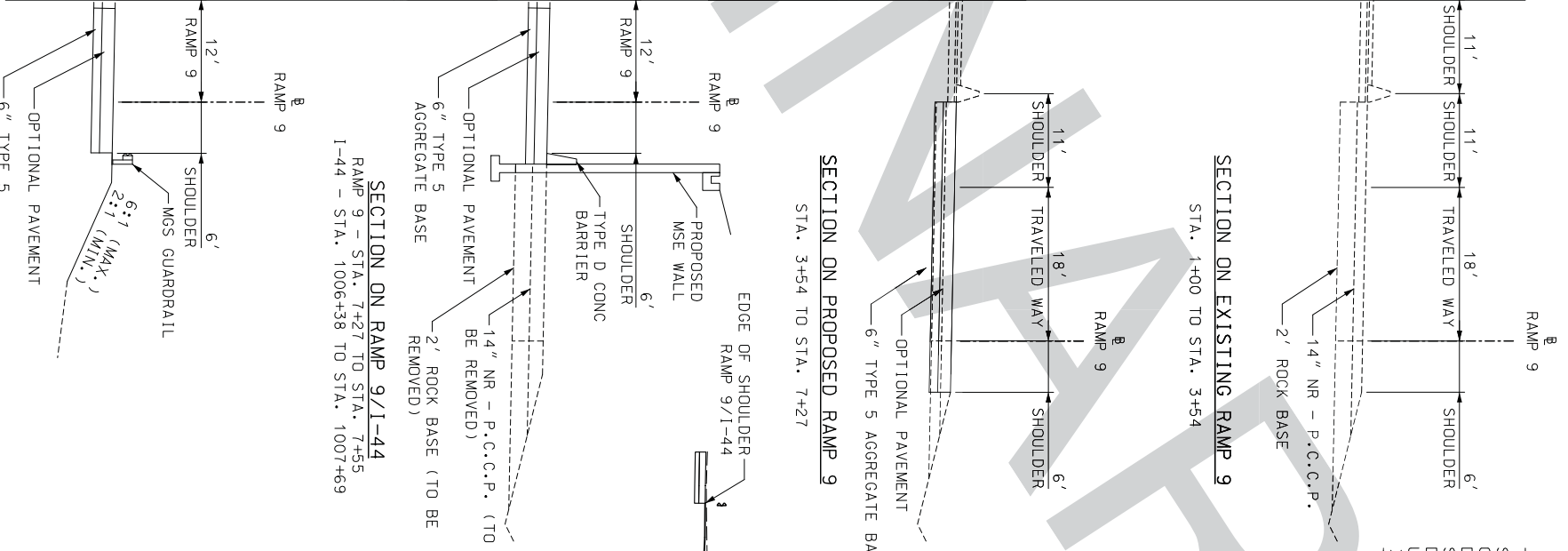
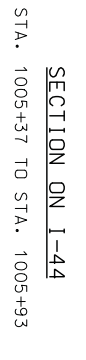
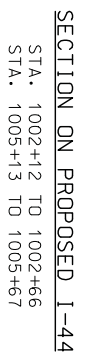
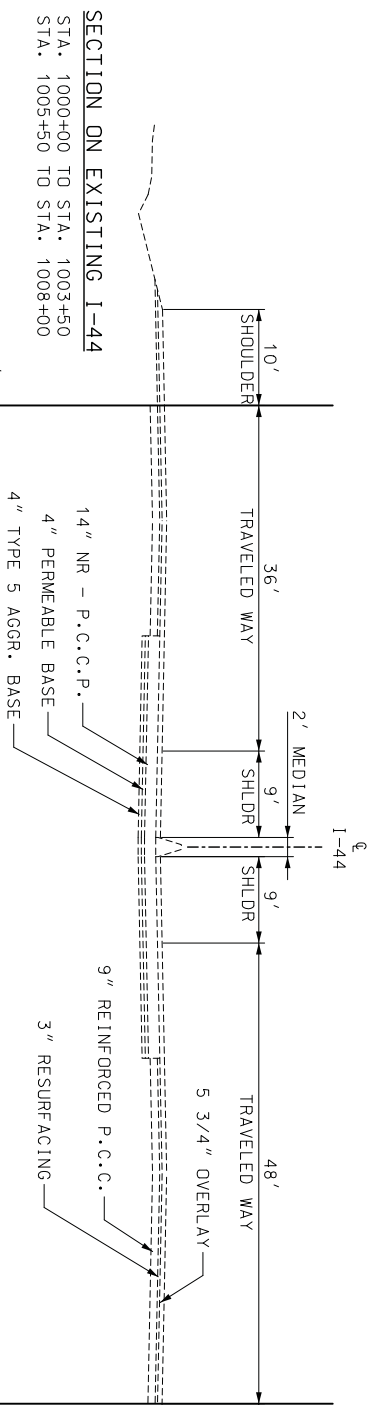
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TYPICAL SECTION SHEETS
 SHEET 2 OF 2
 TYPICAL SECTIONS



TYPE 5 AGGREGATE SHALL BE PLACED TO BRING THE SUBGRADE TO THE PROPER ELEVATION

LOCATION	BASE TYPE	HMA DESIGN	PCCP DESIGN
RAMP 9 I-44	6" TYPE 5 AGGREGATE BASE	11.5" SUPERPAVE OVER 1.75" SP125CLP W/ PG 70-22 OVER 3.00" SP250C W/ PG 64-22 OVER 6.75" SP250C W/ PG 64-22	9.0" PCCP 15 FT JOINTS AND 1 1/4" DOWELS: WIDENED SLAB

NOT TO SCALE

REMOVAL OF IMPROVEMENTS

SHEET	STATION	STATION	LOCATION	DESCRIPTION	QUANTITY
4	5+00.00	6+06.00	RAMP 11	CONCRETE PAVEMENT	2887 SF
4	10+48.00	12+50.00	RAMP 11	CONCRETE PAVEMENT	7260 SF
4	3+12.00	5+93.00	RAMP 11	GUARDRAIL	281 LF
4	4+20.00	5+93.00	RAMP 11	GUARDRAIL	173 LF
4	10+48.00	END	RAMP 11	GUARDRAIL	975 LF
4	3+00.00	END	RAMP 9/144	CONCRETE PAVEMENT	28750 SF
4	7+00.00	END	RAMP 9/144	GUARDRAIL	400 LF
4	998+00.00	1006+50.00	RAMP 9/144	GUARDRAIL	855 LF
4	998+50.00	1006+61.00	H4	CONCRETE BARRIER	811 LF
TOTAL = 1 LUMP SUM					

SHEET	STA TO STA	LOCATION	AREA		REMARKS
			SQ FT	ACRE	
4	5+00	6+50	2,500	0.1	
4	9+00	12+50	3,000	0.1	
TOTAL			1		

LOCATION	STATION	STATION	CLASS A EMBANKMENT		REMARKS
			EXCAVATION CU YD	IN PLACE CU YD	
RAMP 11	5+00.00	12+50.00	729	6,995	
RAMP 9	3+54.00	7+55.00			
H44	1002+60.00	1009+84.00	1,279	27	
TOTALS			1981*	6,722	

* BASED ON PCCP OPTION

SHEET	LOCATION	STATION	STATION	COMPACTING IN CUT		REMARKS
				IN CUT	STA	
4	RAMP 11	5+00.00	5+95.00	1.9		
4	RAMP 11	10+00.00	12+50.00	5.0		
TOTAL				6.9		

SHEET	STA TO STA	LOCATION	GUARDRAIL		MGS END ANCHOR	TRANSITION SECTION	CRASHWORTHY END TERMINAL
			MGS TYPE A LONG POST FT	MGS TYPE A ANCHOR EA			
4	3+15.00	6+29.20	RAMP 11	287.50	1	1	
4	3+75.00	6+61.50	RAMP 11	200.00	1	1	
4	9+92.96	12+50.00	RAMP 11	225.00	1	1	
4	12+50.00	20+16.00	RAMP 11	737.50	1	1	
4	998+03.00	1002+59.00	H44	412.50	1	1	
4	1005+21.00	1006+56.00	H44	50.00	1	1	
4	1005+17.85	1006+14.38	H44	12.50	1	1	
4	1007+72.88	1009+84.14	H44	175.00	1	1	
TOTALS			1,362.50	737.50	3	7	3

SHEET	STA TO STA	LOCATION	TRAFFIC BARRIER		REMARKS
			TYPE C BARRIER FT	TYPE D BARRIER FT	
4	1002+58.00	1005+21.00	H44	283	
4	1004+91.00	1005+37.00	H44	92	
4	1005+37.00	1005+93.00	H44	112	
4	1005+93.00	1006+64.00	H44	142	
4	7+27.00	7+55.00	RAMP 9	28	
4	1006+38.00	1007+61.00	H44	123	
TOTALS			234	526	

MOBILIZATION
TOTAL = 1 LUMP SUM

CONTRACTOR FURNISHED SURVEYING AND STAKING
TOTAL = 1 LUMP SUM

TRAFFIC CONTROL
TOTAL = 1 LUMP SUM

SUMMARY OF QUANTITIES
SHEET 1 OF 3

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DATE PREPARED
2/13/2018
ROUTE STATE
366 MO
DISTRICT SHEET NO.
SL 3

COUNTY
ST. LOUIS

JOB NO.
J6S3181


CONTRACT ID.

PROJECT NO.


BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL
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SHEET	STA TO STA	LOCATION	LENGTH FT	PMT WIDTH FT	PAVEMENT			9" PCCP SQ YD	OPTIONAL PAVEMENT SQ YD	RUMBLE STRIPS STA	TACK COAT GAL	PRIME COAT GAL	6" TYPE 5 AGG. BASE SQ YD	CONC. APPROACH SQ YD
					SP125CLP PMBP (PG 70-22) 1,948 TON/CY	SP250C PMBB (PG 70-22) 1,943 TON/CY	SP250C PMBB (PG 64-22) 1,943 TON/CY							
4	3+15.00	5+00.00	RAMP 11	LT	185.00	32	53.3			1.85	60	40	33.2	
4	3+15.00	5+00.00	RAMP 11	SHOULDER	185.00	4				1.85	10		33.2	
4	5+00.00	6+12.00	RAMP 11	LT/RT	112.00	32		13.5		2.24			396.3	
4	6+12.38	6+30.84	RAMP 11	LT/RT	18.46	35				0.37			107.1	107
4	9+71.70	10+15.00	RAMP 11	LT/RT	43.30	35				0.87			111.9	112
4	10+15.00	12+50.00	RAMP 11	LT/RT	235.00	32				4.70			539.4	
4	3+54.00	7+55.00	RAMP 9	LT/RT	401.00	35				8.02			1,189.4	
4	1006+38.00	1009+84.00	L44	RT	346.00	18				3.46			693.6	
4	1002+60.00	1005+21.00	L44	LT	261.00	10				18			288.9	
4	1004+91.00	1005+37.00	L44	CL	46.00	18				0.46			92.0	
4	1005+37.00	1005+93.00	L44	CL	56.00	18				0.56			92.0	
4	1005+93.00	1006+84.00	L44	CL	71.00	18				0.71			142	
SUBTOTALS					53.3	13.5	30.3	112.0	3,960.6	27.70	70.0	40.0	3,901.8	219
TOTALS					53.3	13.5	30.3	112	3,961	28	70	40	3,902	219

SHEET	STA TO STA	LOCATION	LENGTH FT	PAINT				TAPE				
				6 IN. WHITE SOLID	6 IN. INTER DOTTED	6 IN. YELLOW SOLID	12 IN. WHITE SOLID	6 IN. WHITE SOLID	6 IN. YELLOW SOLID			
25	3+15	11+44	RAMP 11	BL	829.00	829						
25	11+44	12+50	RAMP 11	BL	106.00		212					
25	3+15	12+50	RAMP 11	LT	935.00	240						
25	3+15	12+50	RAMP 11	LT	935.00		935					
25	3+54	4+39	RAMP 9	LT/RT	85.00	85		170				
25	4+39	6+00	RAMP 9	LT/RT	161.00	161		322				
25	6+00	7+55	RAMP 9	RT	155.00	155		310				
25	995+00	1012+17	L44	WB	1,717.00	1,717		10,302	3,434			
25	997+00	1003+17	L44	EB	617.00	617		4,936	1,234			
25	1003+17	1006+28	L44	EB	311.00	311		2,488	822			
25	1006+28	1014+04	L44	EB	776.00	776		6,208	1,552			
25	-	-	L44 (NORTH OF GEYER)	WB	6,000.00	1,500		6,000				
25	-	-	L44 (SOUTH OF I-270)	EB	4,000.00	1,000		4,000				
TOTALS					9,830	3,419	694	34,736	6,842			

PLAN SHEET	UPSTREAM STRUCTURE				DOWNSTREAM STRUCTURE				STORM SEWER PIPES					
	STATION	OFFSET	LOCATION	STATION	OFFSET	LOCATION	GROUP A 15 IN 18 IN	2X2 GRAVED INLET EA	FLARED END SECTIONS 15 IN 18 IN	CLASS 3 EXC. CU YD				
4	1006+15.00	113.00' RT	L44	1007+94.00	93.00' RT	L44	185		2	88				
4	1002+66.00	54.00' LT	L44	1005+15.00	64.00' LT	L44	245		2	174				
TOTALS					TOTALS					185	245	2	2	282

SHEET	STA TO STA	LOCATION	SLOPE AREA SQ FT	SEEDING SQ YD	SEEDING ACRE	TEMPORARY SEEDING & MULCHING ACRE	REMARKS		
								18	3+15.00
18	3+15.00	6+49.38	RAMP 11	LT	4,284.9	476.10	0.10	0.03	
18	9+51.70	10+15.00	RAMP 11	RT	3,678.7	408.74	0.08	0.02	
18	9+51.70	20+16.00	RAMP 11	LT	1,830.9	203.43	0.04	0.01	
18	1002+38.00	1006+40.00	L44	RT	14,206.9	1,578.54	0.33	0.08	
18	998+03.00	1004+15.00	L44	LT	5,504.6	611.62	0.13	0.03	
18	1006+93.00	1009+84.00	L44	RT	6,296.6	699.62	0.14	0.04	
18	1004+55.00	1006+56.00	L44	LT	1,378.5	153.17	0.03	0.01	
TOTALS						1.1	0.3		

SHEET	STA TO STA	LOCATION	SEDIMENT REMOVAL CU YD	SILT FENCE LF	ALTERNATE DITCH CHECK LF	CURB INLET CHECK EA			
							18	3+15	6+62
18	3+15	6+29	RAMP 11	RT	4	314			
18	9+51	12+50	RAMP 11	LT	3	299			
18	9+93	11+33	RAMP 11	RT	2	140			
18	999+91	1002+61	L44	RT	9	270		90	
18	1001+50	1006+10	L44	RT	15	460		150	
18	1005+19	1006+57	L44	LT	5	138		30	
18	1007+92	1009+86	L44	RT	6	194		45	1
TOTALS			48	2,162	315	2			

SEDIMENT REMOVAL: 1 C.Y. PER DITCH / INLET CHECK OR 1 C.Y. PER 100 LF. OF SILT FENCE.
ASSUME 15 LF PER ALTERNATE DITCH CHECK

SUMMARY OF QUANTITIES
SHEET 2 OF 3

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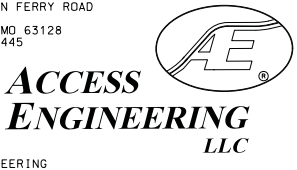
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366
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BRIDGE NO.

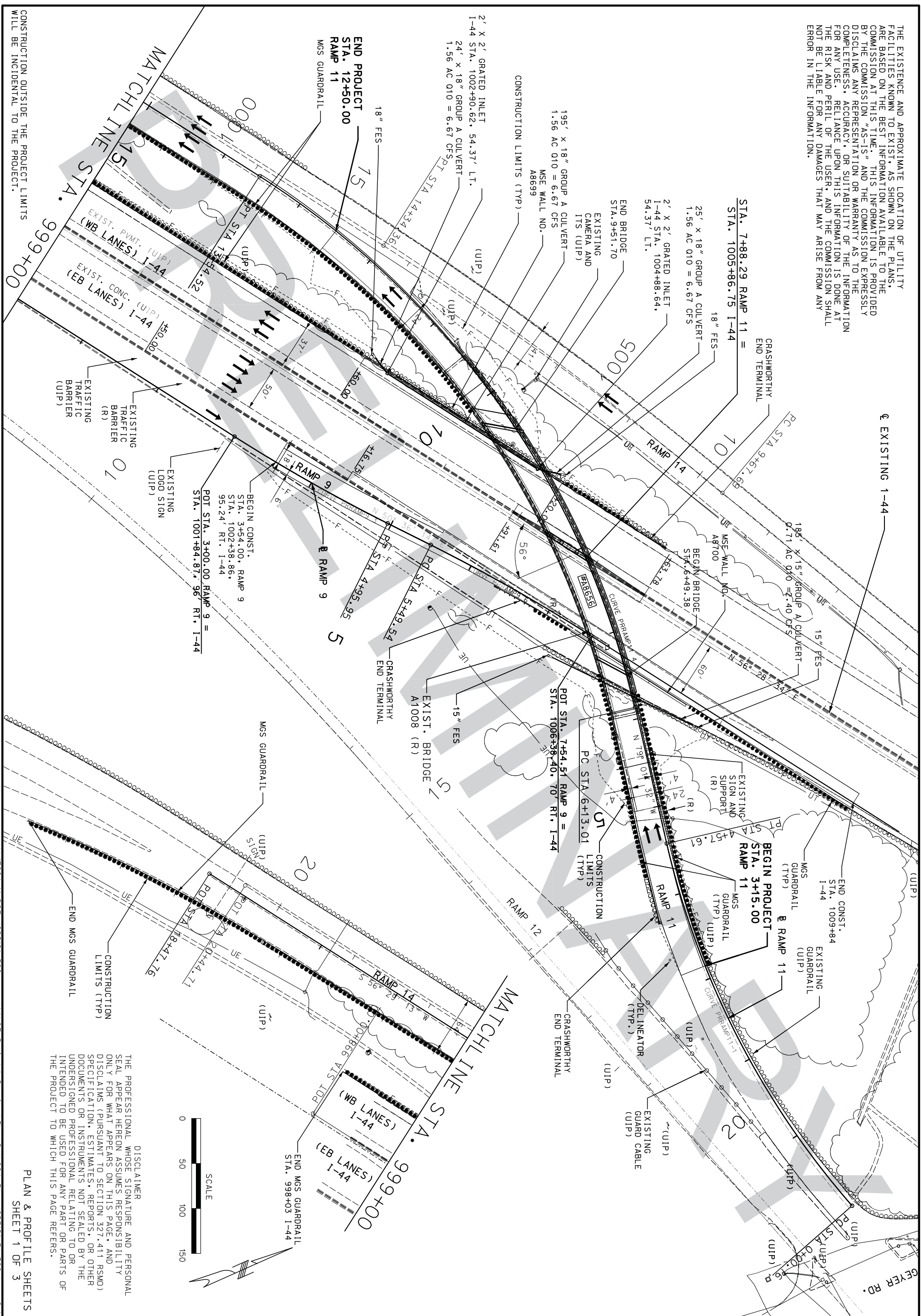
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105 WEST CAPITOL
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1-888-ASK-MODOT (1-888-275-6636)



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PLAN & PROFILE SHEETS
 SHEET 1 OF 3

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DATE		DESCRIPTION	

DATE PREPARED	2/13/2018
ROUTE	366
STATE	MO
DISTRICT	4
SHEET NO.	4
COUNTY	ST. LOUIS
JOB NO.	J653181
CONTRACT ID.	J653181
PROJECT NO.	
BRIDGE NO.	

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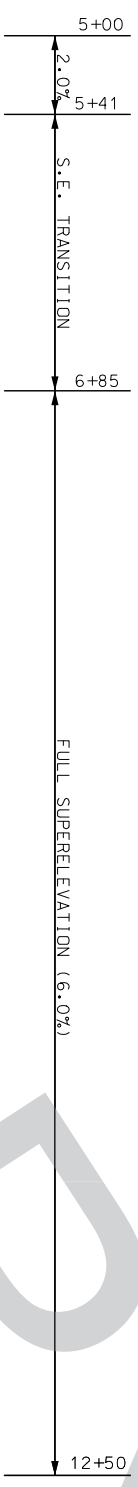
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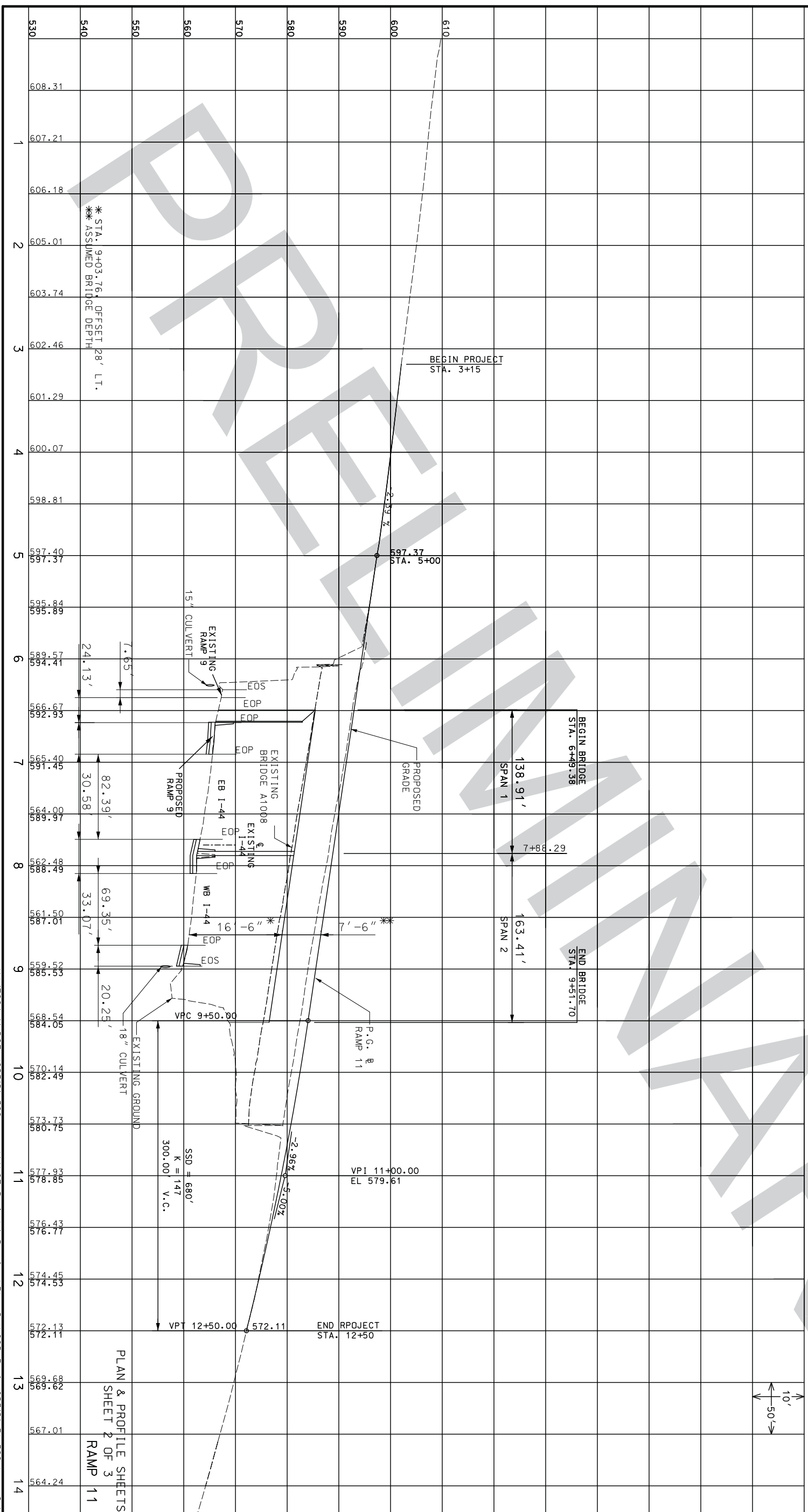
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BENCHMARKS:
 CONTROL POINT 162
 SET 1/2" REBAR W/CAP
 RAMP 11 STA. 5+49.41, 3.20' RT
 ELEV. 596.15
 N: 990433.57
 E: 843505.44
 CONTROL POINT 132
 SET 1/2" REBAR W/CAP
 RAMP 11 STA. 11+23.88, 31.09' LT
 ELEV. 574.50
 N: 990374.98
 E: 842949.52

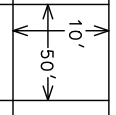


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* STA. 9+03.76, OFFSET 28' LT.
 ** ASSUMED BRIDGE DEPTH

PLAN & PROFILE SHEETS
 SHEET 2 OF 3
 RAMP 11



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 SUITE 203
 ST. LOUIS, MO 63128
 (314) 849-8445

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

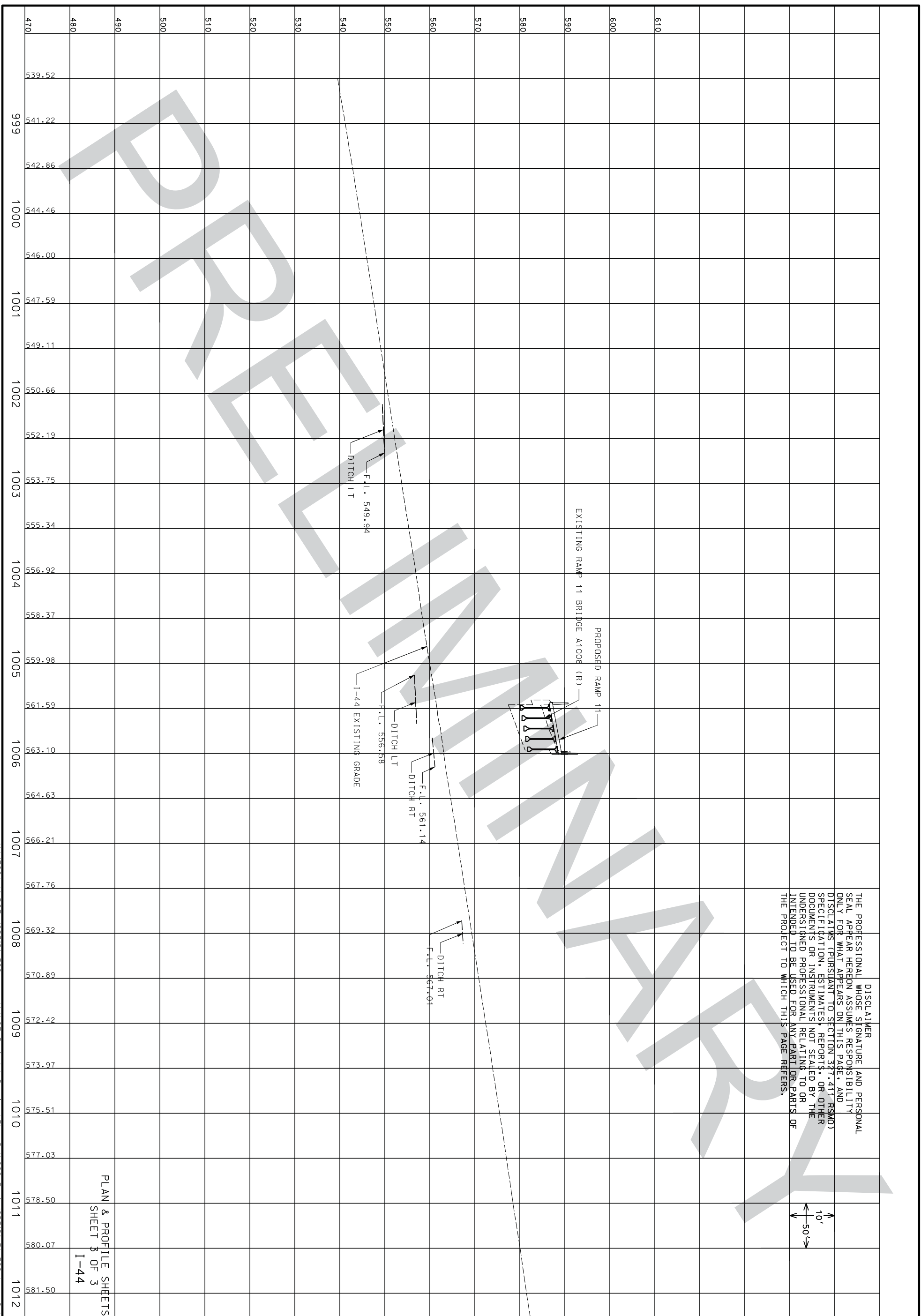
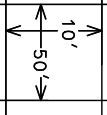
105 WEST CAPITOL
 JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-275-6636)

DATE	DESCRIPTION

DATE PREPARED	2/13/2018
ROUTE	366
STATE	MO
DISTRICT	SL
SHEET NO.	5
COUNTY	ST. LOUIS
JOB NO.	J6S3181
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

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PLAN & PROFILE SHEETS
 SHEET 3 OF 3
 I-44

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DATE PREPARED
 2/13/2018
 ROUTE
 366
 STATE
 MO
 DISTRICT
 SL
 COUNTY
 6
 ST. LOUIS

JOB NO.
 J6S3181
 CONTRACT ID.

PROJECT NO.
 BRIDGE NO.

DATE	DESCRIPTION

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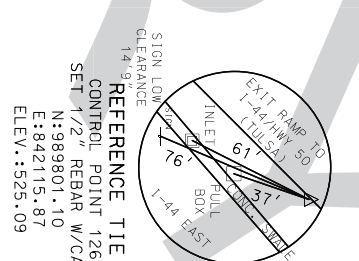
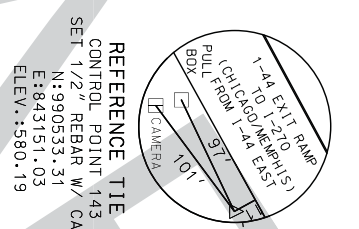
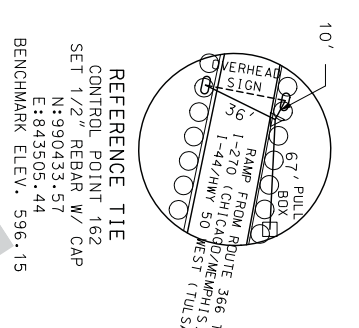
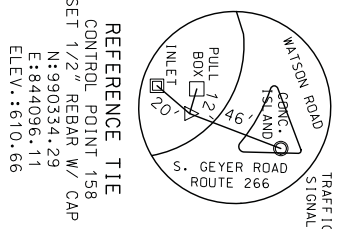
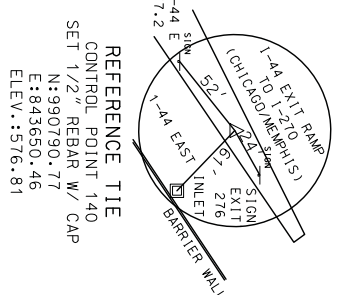
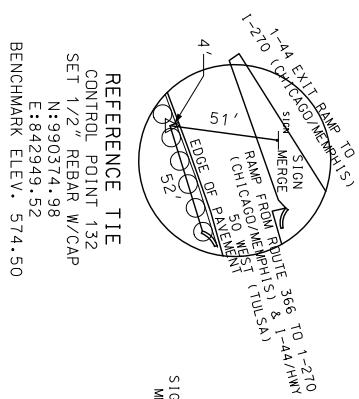
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PLAN & PROFILE

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Reference Points Coordinate Point Listing Modified State Plane Coordinates



REFERENCE POINTS
NOT TO SCALE

Coordinate Point Listing Missouri Coordinate System of 1983 Reciprocal Average Grid Factor :

SHEET NO.	STATION ¹	LOCATION	OFFSET (FEET)	NORTHING (FEET)	EASTING (FEET)	DESCRIPTION	DESIGN PT. ID
8	0+00.76	RAMP 11	0.00	990.437.40	844.046.56	POC	9003
8	2+33.89	RAMP 11	28.78 LT	990.368.58	843.823.83	PI	9005
8	3+15.00	RAMP 11	0.00	990.396.63	843.736.56	BEGIN CONST.	9012
8	4+57.61	RAMP 11	0.00	990.412.96	843.594.96	POT	9006
8	5+00.00	RAMP 11	0.00	990.421.03	843.553.34	BEGIN FULL DEPTH	9001
8	6+13.01	RAMP 11	0.00	990.442.54	843.442.40	PC	9007
8	10+03.58	RAMP 11	76.78 RT	990.516.90	843.058.97	PI	9009
8	12+50.00	RAMP 11	0.00	990.354.08	842.823.44	END CONST.	9002
8	13+54.52	RAMP 11	0.00	990.301.25	842.733.32	PT	9010
8	0+00.00	RAMP 9	0.00	990.047.53	842.819.50	POT	9901
8	3+00.00	RAMP 9	0.00	990.157.99	842.986.23	PC	9902
8	3+98.16	RAMP 9	3.02 RT	990.206.15	843.060.68	PI	9907
8	4+95.95	RAMP 9	0.00	990.274.25	843.143.61	PT	9903
8	5+49.54	RAMP 9	0.00	990.308.26	843.185.02	PC	9904
8	6+52.11	RAMP 9	2.40 LT	990.370.60	843.260.92	PI	9908
8	7+54.51	RAMP 9	0.00	990.430.04	843.349.79	PT	9905
8	998+00.00	I-44	0.00	990.025.47	842.612.36	POT	9800
8	1005+86.75	I-44	0.00	990.459.97	843.268.23	℄ I-44 = RAMP 11 STA 7+88.29	9801
8	1010+00.00	I-44	0.00	990.688.21	843.612.75	POT	9011

1 Ground Distance

NOTE : The reciprocal of the average grid factor is used as a multiplier from state plane distance to ground distance.

COORDINATE POINTS

GEOMETRY SHEETS
SHEET 1 OF 2

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DATE PREPARED	2/13/2018
ROUTE	366
STATE	MO
DISTRICT	SL
SHEET NO.	7
COUNTY	ST. LOUIS
JOB NO.	J6S3181
CONTRACT ID.	J6S3181
PROJECT NO.	
BRIDGE NO.	

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105 WEST CAPITOL
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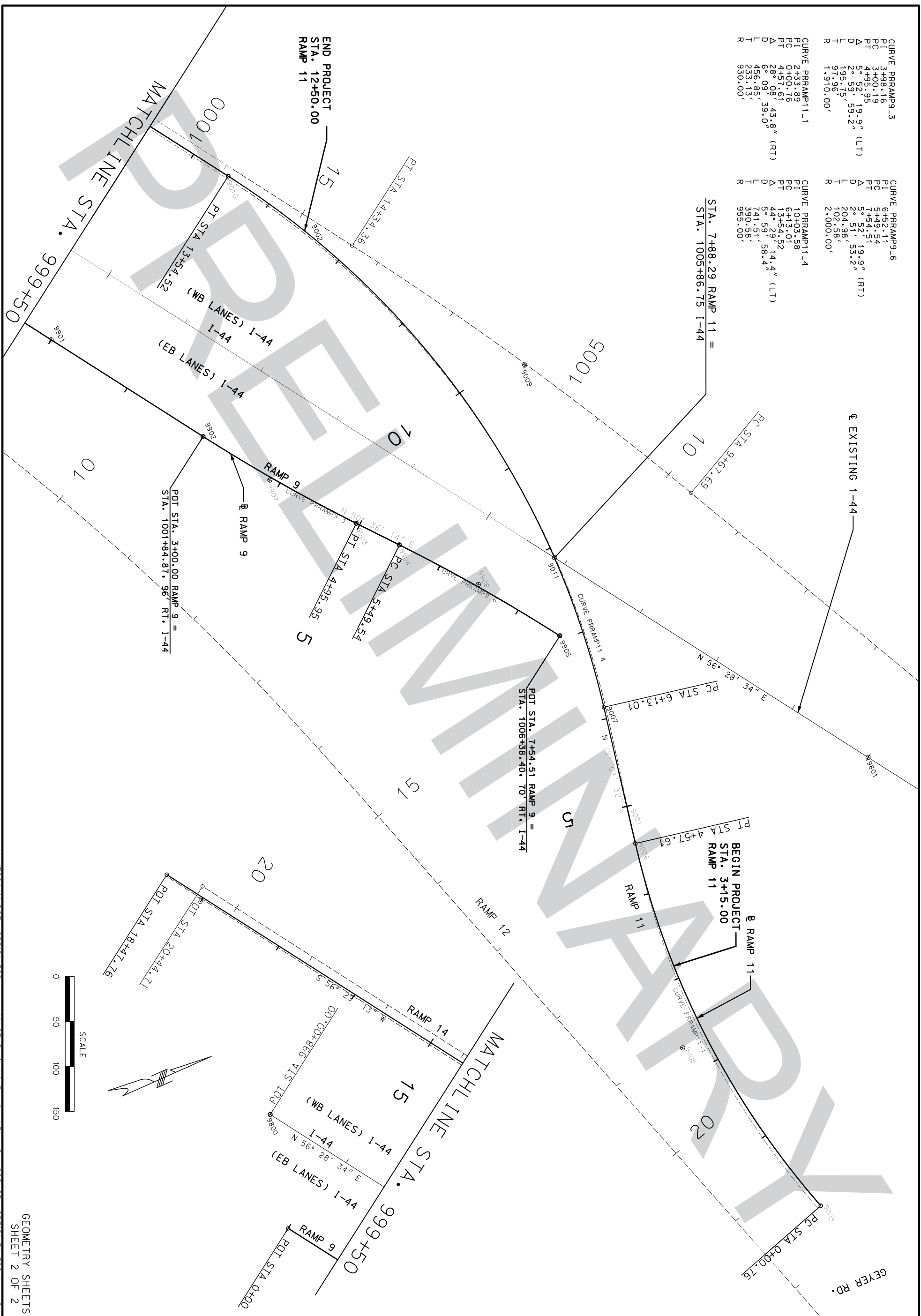
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CURVE: PRRAMP9-3		CURVE: PRRAMP9-6	
PI	3+98.16	PI	6+52.11
PC	3+00.19	PC	7+43.54
PT	4+95.95	PT	5+31.51
Δ	5° 52' 19.9" (LT)	Δ	5° 31' 53.2" (RT)
D	2° 59' 59.2"	D	204.98'
L	195.75'	L	102.58'
T	97.96'	T	2,000.00'
R	1,910.00'	R	

CURVE: PRRAMP11-1		CURVE: PRRAMP11-4	
PI	2+33.89	PI	10+03.58
PC	0+00.76	PC	6+13.01
PT	4+57.61	PT	13+54.52
Δ	28° 08' 43.8" (RT)	Δ	44° 29' 14.4" (LT)
D	6° 09' 39.0"	D	5° 59' 58.4"
L	456.85'	L	741.51'
T	233.13'	T	390.58'
R	930.00'	R	955.00'



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ROUTE
366

STATE
MO

DISTRICT
SL

SHEET NO.
8

COUNTY
ST. LOUIS

JOB NO.
J6S3181

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

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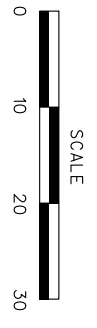
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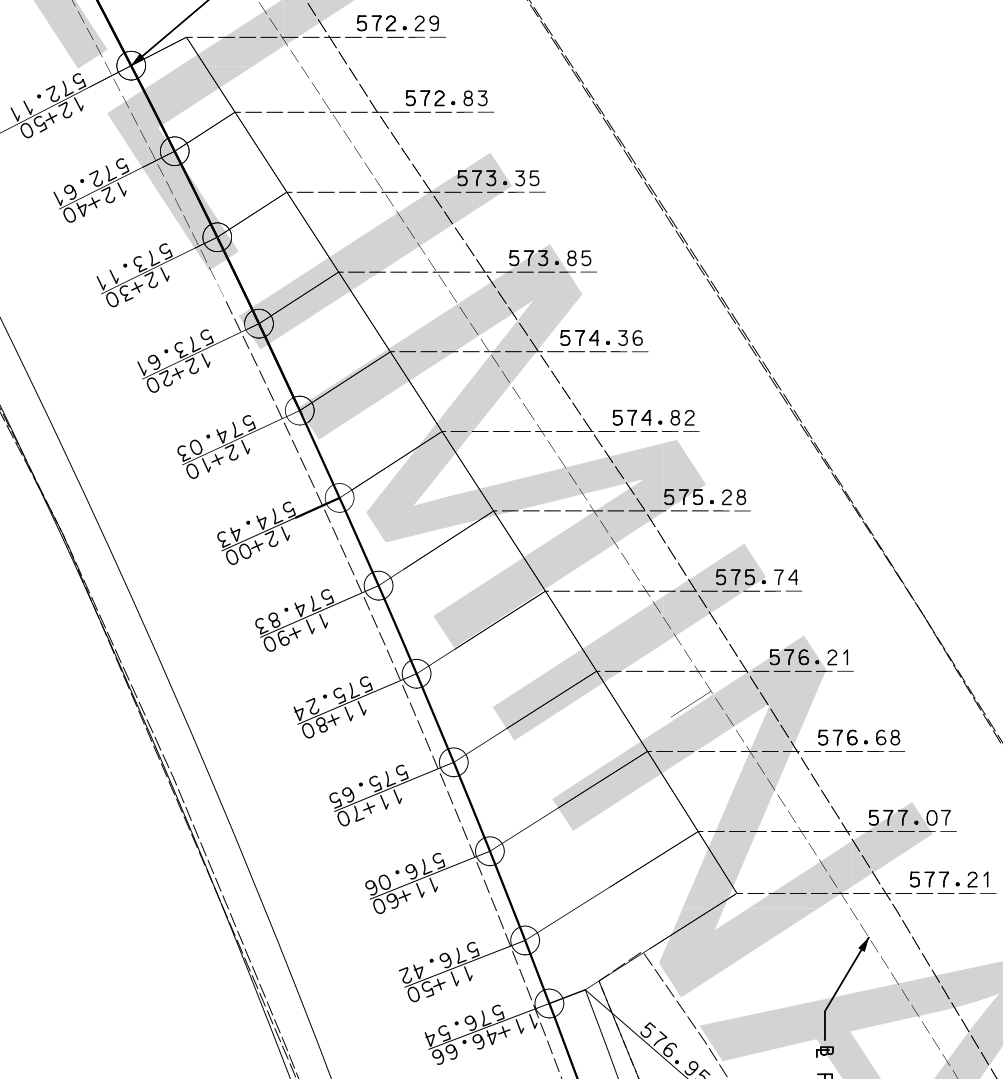
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GEOMETRY SHEETS
SHEET 2 OF 2



ST
N

STA 12+50
END CONSTRUCTION



WARPING SHEET RAMP 11
SHEET 1 OF 2

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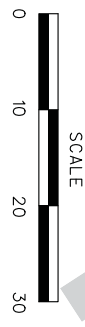
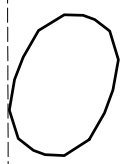
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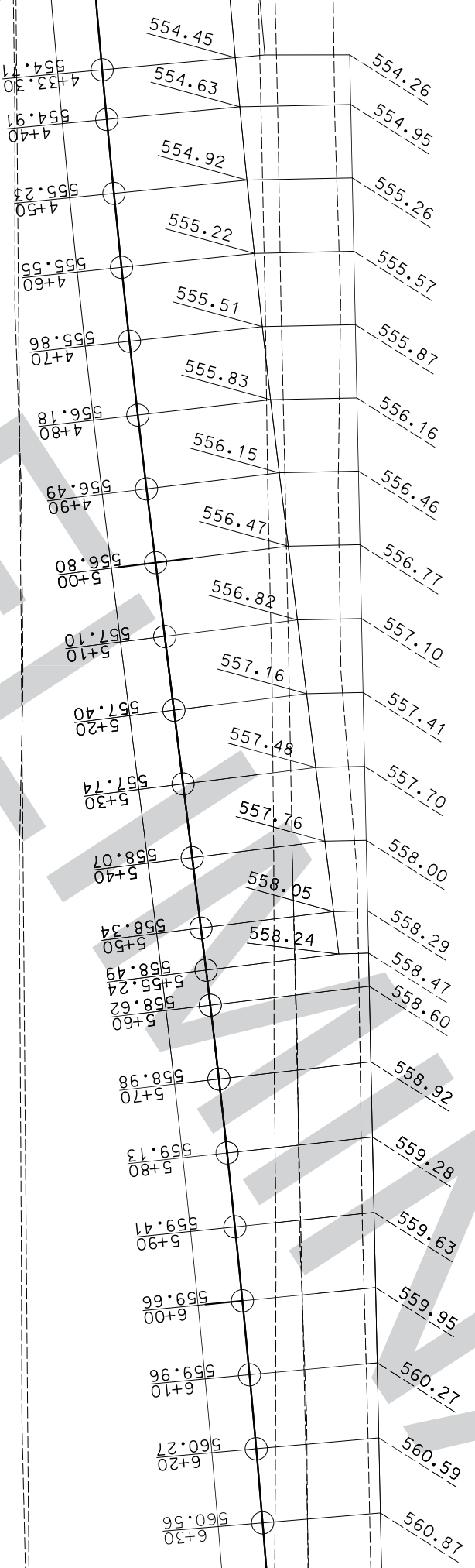
DATE PREPARED 2/13/2018	ROUTE 366	STATE MO
DISTRICT SL	DISTRICT 9	SHEET NO.
COUNTY ST. LOUIS	JOB NO. J6S3181	CONTRACT ID.
PROJECT NO.	BRIDGE NO.	

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B RAMP 9

E 1-44



WARPIING SHEET RAMP 9
SHEET 2 OF 2

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2/13/2018

ROUTE
366
STATE
MO
DISTRICT
10
COUNTY
ST. LOUIS

JOB NO.
J6S3181
CONTRACT ID.

PROJECT NO.
BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

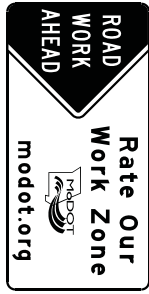
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SPECIAL SHEETS

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CONST-7-12
55

DETOUR WEST	DETOUR WEST	DETOUR WEST	DETOUR WEST	DETOUR WEST	DETOUR WEST	DETOUR WEST	DETOUR WEST
↑	↑	↓	↓	↗	↗	↘	↘
SPECIAL 56	SPECIAL 57	SPECIAL 60	SPECIAL 61	SPECIAL 62	SPECIAL 63	SPECIAL 64	SPECIAL 65
INTERSTATE MISSOURI 44	INTERSTATE MISSOURI 270	INTERSTATE MISSOURI 44	INTERSTATE MISSOURI 270	INTERSTATE MISSOURI 44	INTERSTATE MISSOURI 270	INTERSTATE MISSOURI 44	INTERSTATE MISSOURI 270



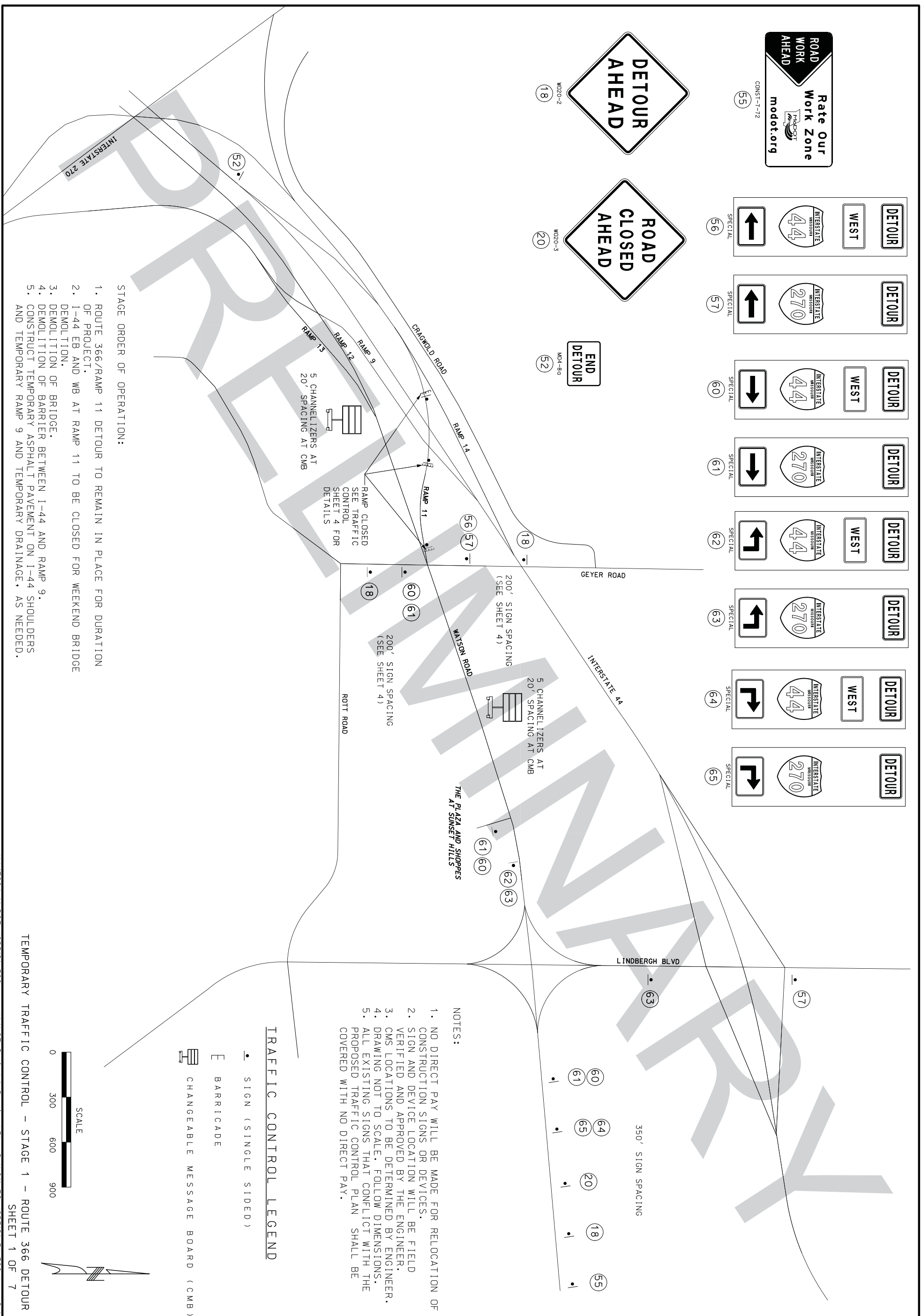
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MO20-3
20



MO4-80
52

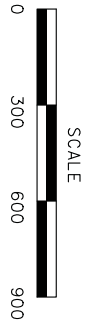


- STAGE ORDER OF OPERATION:
1. ROUTE 366/RAMP 11 DETOUR TO REMAIN IN PLACE FOR DURATION OF PROJECT.
 2. I-44 EB AND WB AT RAMP 11 TO BE CLOSED FOR WEEKEND BRIDGE DEMOLITION.
 3. DEMOLITION OF BRIDGE.
 4. DEMOLITION OF BARRIER ASPHALT PAVEMENT ON I-44 SHOULDERS
 5. CONSTRUCT TEMPORARY ASPHALT PAVEMENT ON I-44 SHOULDERS AND TEMPORARY RAMP 9 AND TEMPORARY DRAINAGE, AS NEEDED.

- NOTES:
1. NO DIRECT PAY WILL BE MADE FOR RELOCATION OF CONSTRUCTION SIGNS OR DEVICES.
 2. SIGN AND DEVICE LOCATION WILL BE FIELD VERIFIED AND APPROVED BY THE ENGINEER.
 3. CMS LOCATIONS TO BE DETERMINED BY ENGINEER.
 4. DRAWING NOT TO SCALE. FOLLOW DIMENSIONS.
 5. ALL EXISTING SIGNS THAT CONFLICT WITH THE PROPOSED TRAFFIC CONTROL PLAN SHALL BE COVERED WITH NO DIRECT PAY.

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- E BARRICADE
- CHANGEABLE MESSAGE BOARD (CMB)



TEMPORARY TRAFFIC CONTROL - STAGE 1 - ROUTE 366 DETOUR SHEET 1 OF 7

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DATE PREPARED
2/13/2018

ROUTE
366 MO

DISTRICT
SL 11

COUNTY
ST. LOUIS

JOB NO.
J6S3181

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

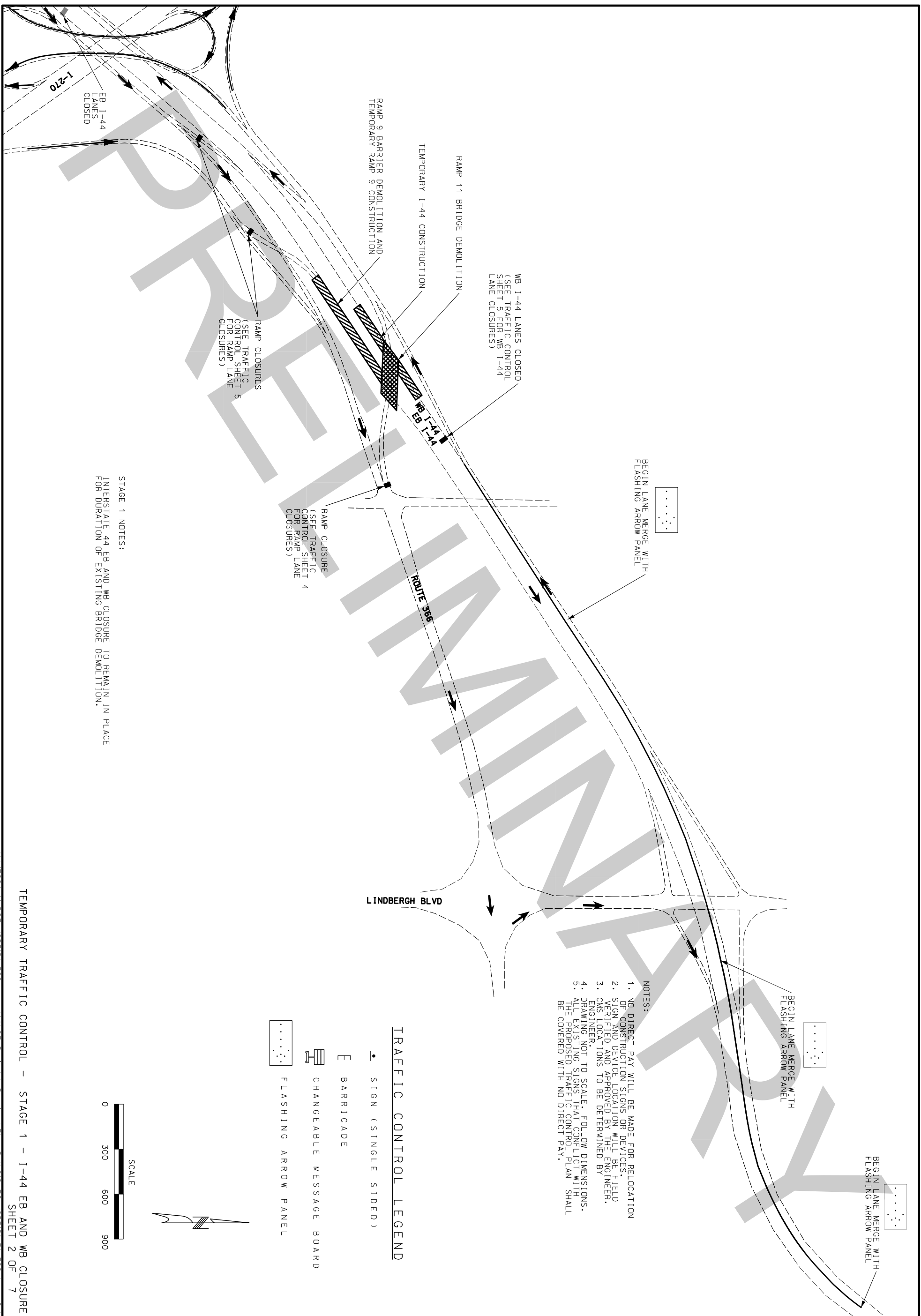
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TRAFFIC CONTROL SHEET



STAGE 1 NOTES:
 INTERSTATE 44 EB AND WB CLOSURE TO REMAIN IN PLACE
 FOR DURATION OF EXISTING BRIDGE DEMOLITION.

BEGIN LANE MERGE WITH
 FLASHING ARROW PANEL

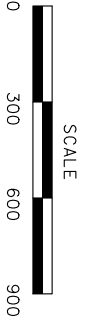
BEGIN LANE MERGE WITH
 FLASHING ARROW PANEL

BEGIN LANE MERGE WITH
 FLASHING ARROW PANEL

- NOTES:
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TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- E BARRICADE
- ▢ CHANGEABLE MESSAGE BOARD
- ⋯ FLASHING ARROW PANEL



TEMPORARY TRAFFIC CONTROL - STAGE 1 - I-44 EB AND WB CLOSURE
 SHEET 2 OF 7

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DATE PREPARED	2/13/2018
ROUTE	366
STATE	MO
DISTRICT	SL
SHEET NO.	12
COUNTY	ST. LOUIS
JOB NO.	J6S3181
CONTRACT ID.	J6S3181
PROJECT NO.	
BRIDGE NO.	

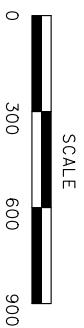
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STAGE 1 NOTES:
 INTERSTATE 44 EB AND WB CLOSURE TO REMAIN IN PLACE FOR DURATION OF EXISTING BRIDGE DEMOLITION.

- NOTES:
1. NO DIRECT PAY WILL BE MADE FOR RELOCATION OF CONSTRUCTION SIGNS OR DEVICES.
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BEGIN LANE MERGE WITH FLASHING ARROW PANEL

WB I-44
 EB I-44

BEGIN LANE MERGE WITH FLASHING ARROW PANEL

EB I-44 LANES CLOSED
 (SEE TRAFFIC CONTROL SHEET 5 FOR EB I-44 LANE CLOSURES)

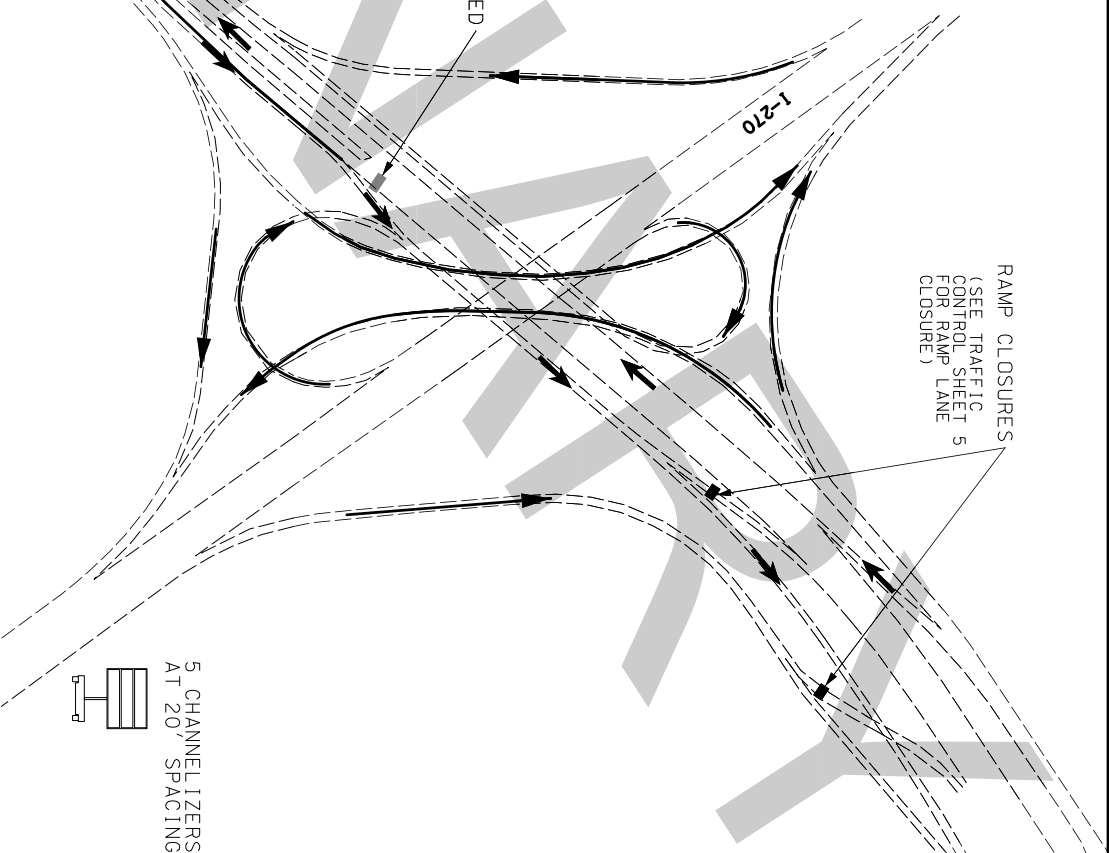
1-44 EB CLOSED
 WATSON OPEN
 5 CHANNELIZERS
 AT 20' SPACING

RAMP CLOSURES
 (SEE TRAFFIC CONTROL SHEET 5 FOR RAMP LANE CLOSURES)

5 CHANNELIZERS
 AT 20' SPACING

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- E BARRICADE
- CHANGEABLE MESSAGE BOARD
- FLASHING ARROW PANEL



TEMPORARY TRAFFIC CONTROL - STAGE 1 - I-44 EB AND WB CLOSURE

SHEET 3 OF 7

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2/13/2018

ROUTE
366 MO

DISTRICT
SL 13

COUNTY
ST. LOUIS

JOB NO.
J6S3181

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION

DATE

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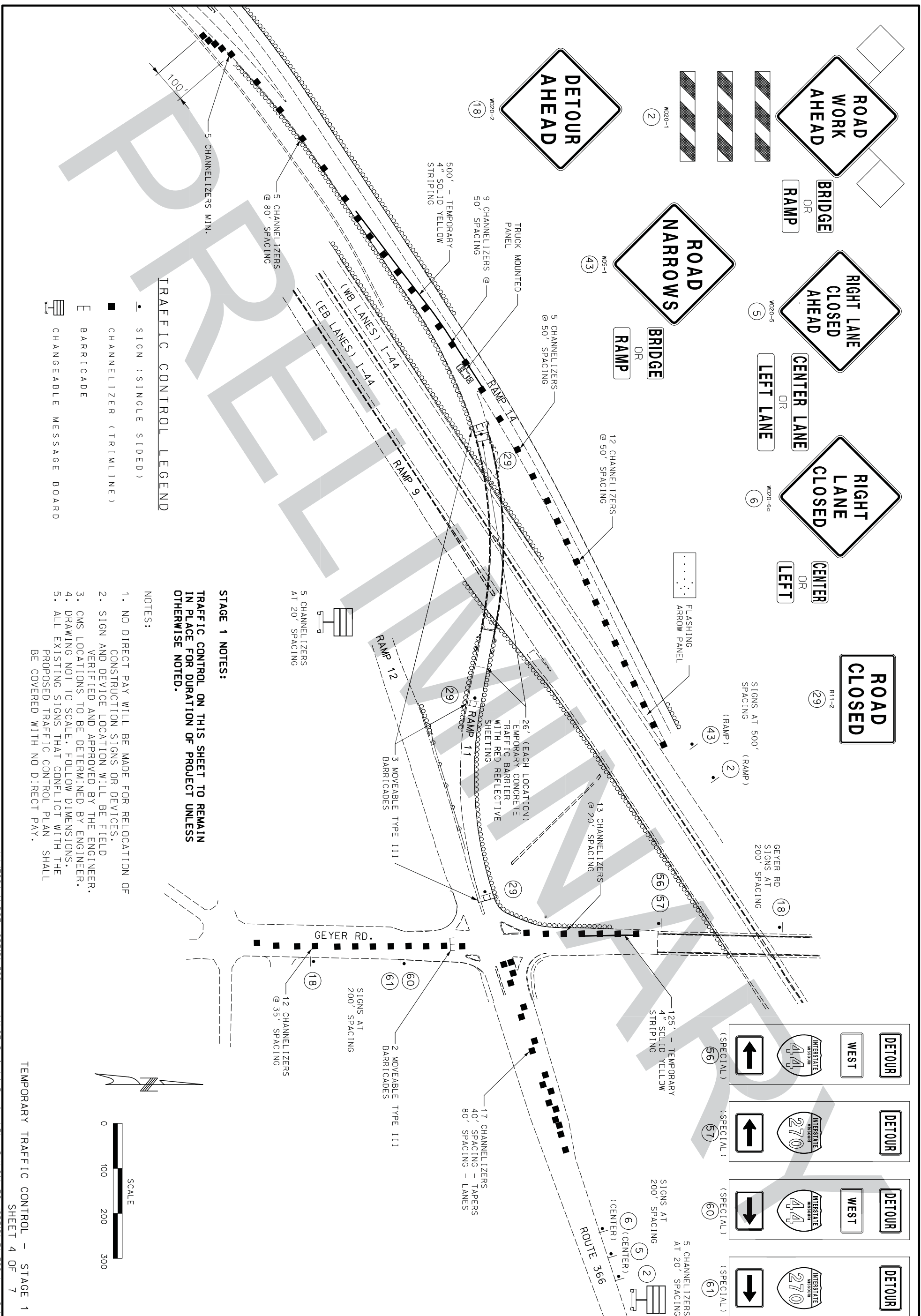
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TRAFFIC CONTROL SHEET

REV.

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DATE PREPARED
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ROUTE
366 MO

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CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

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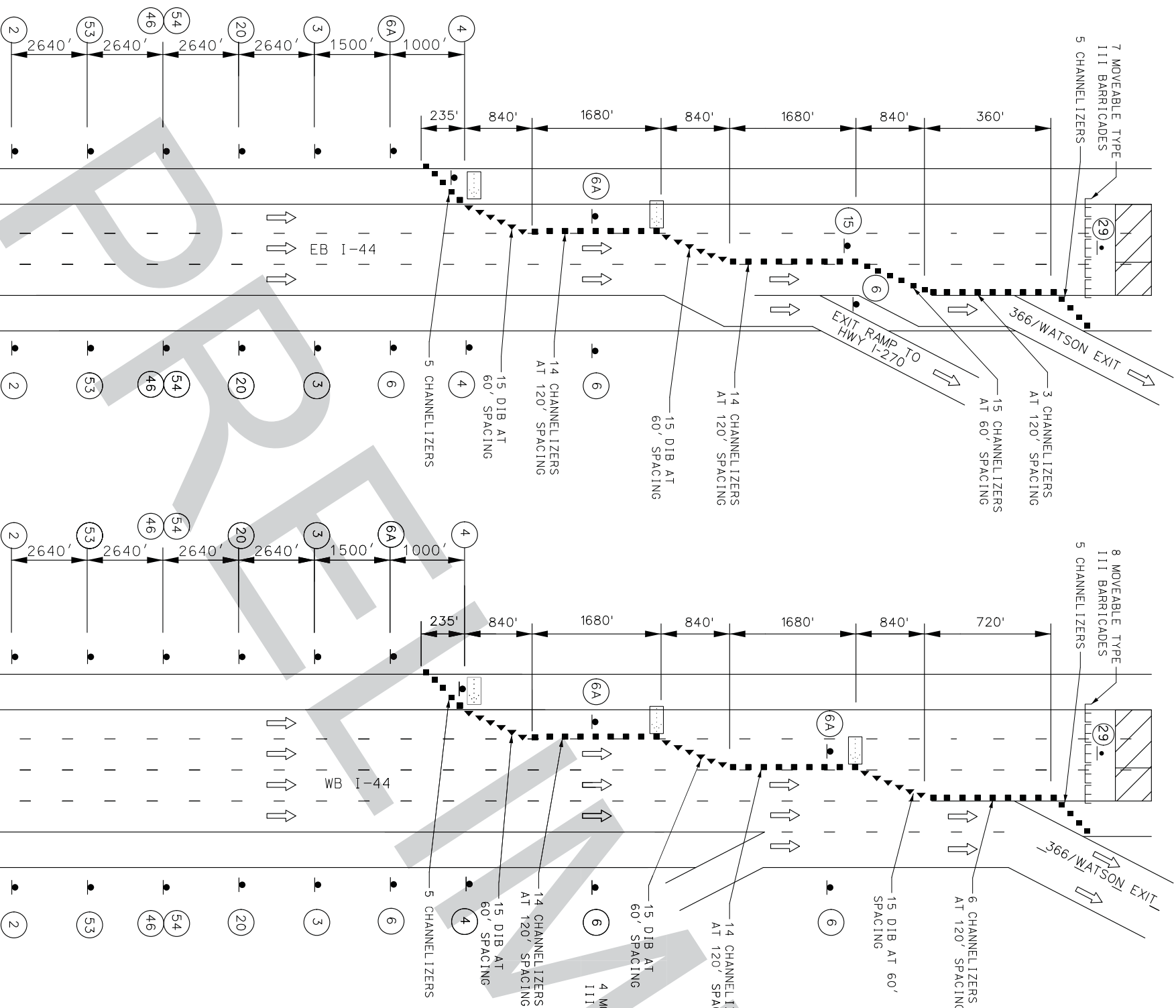
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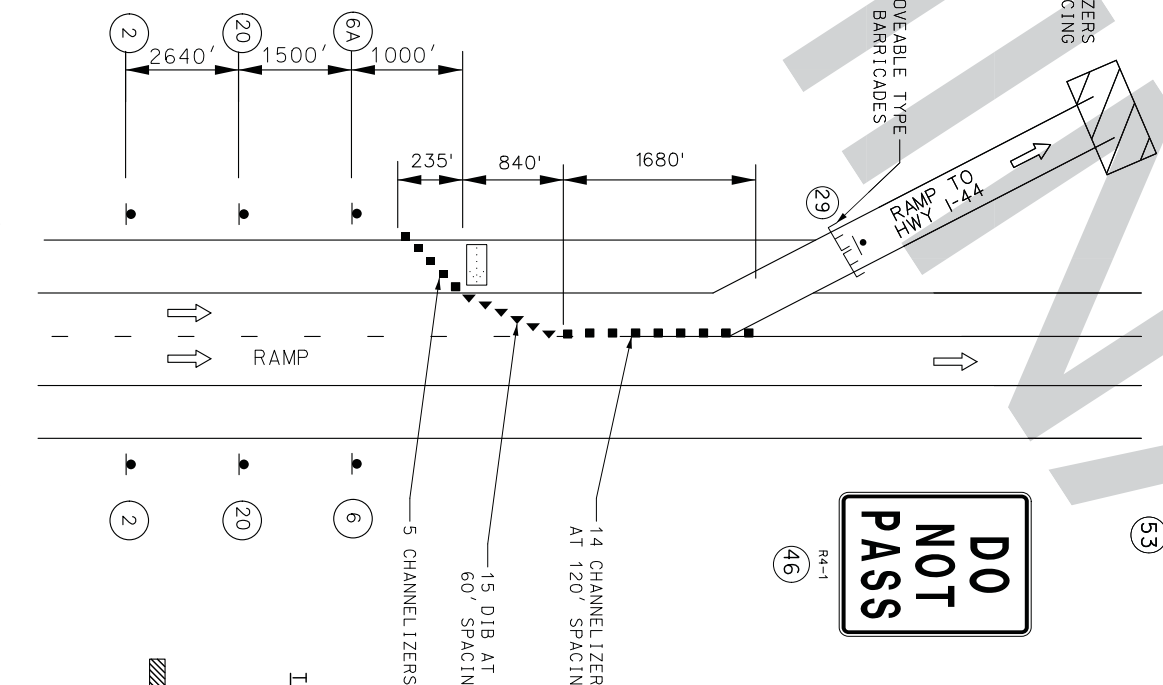
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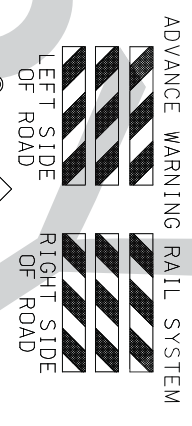
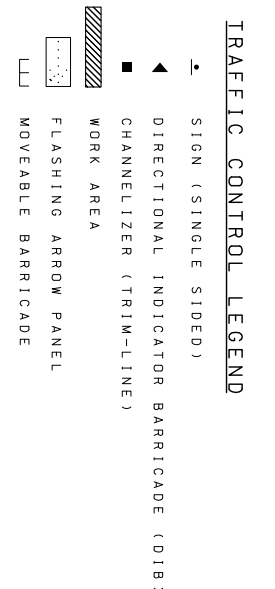
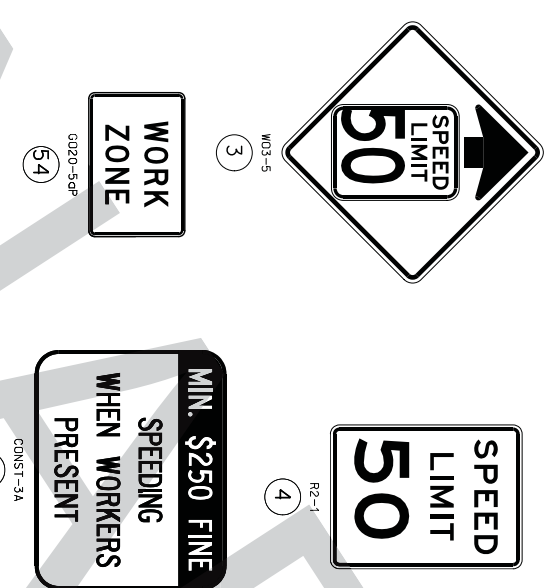


TYPICAL LANE CLOSURES ON EB I-44

TYPICAL LANE CLOSURE ON WB I-44



TYPICAL RAMP LANE CLOSURE



TEMPORARY TRAFFIC CONTROL - I-44 STAGE 1

SHEET 5 OF 7

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE	DESCRIPTION

11820 TESSON FERRY ROAD
SUITE 203
ST. LOUIS, MO 63128
(314) 849-8445

#2000172588
CIVIL ENGINEERING
ENGINEERING CERTIFICATE OF AUTHORITY

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

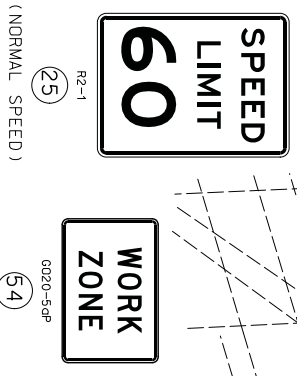
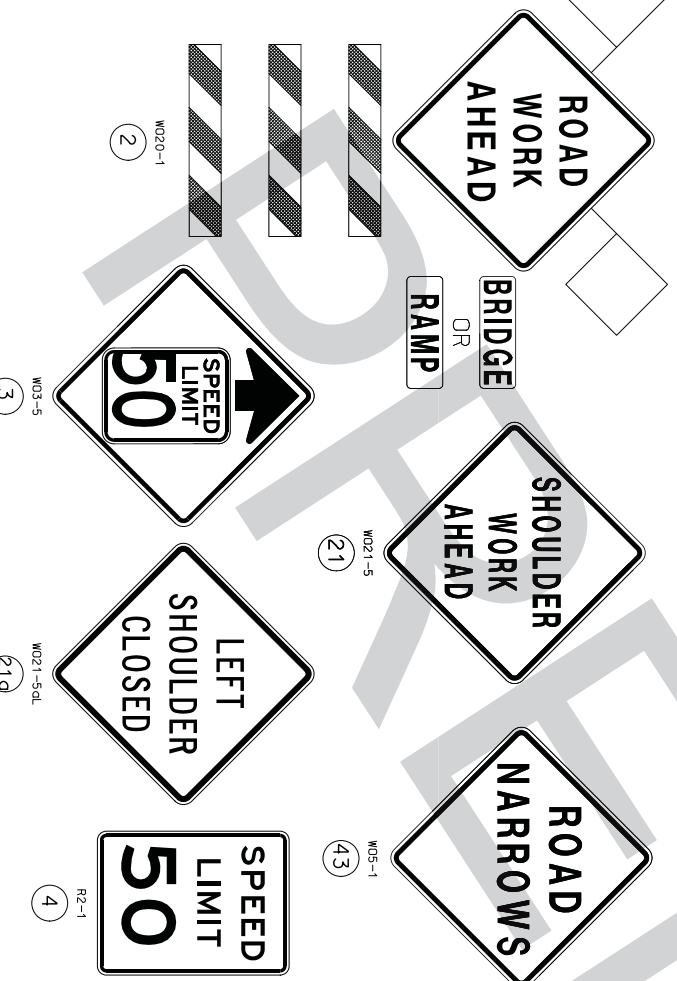
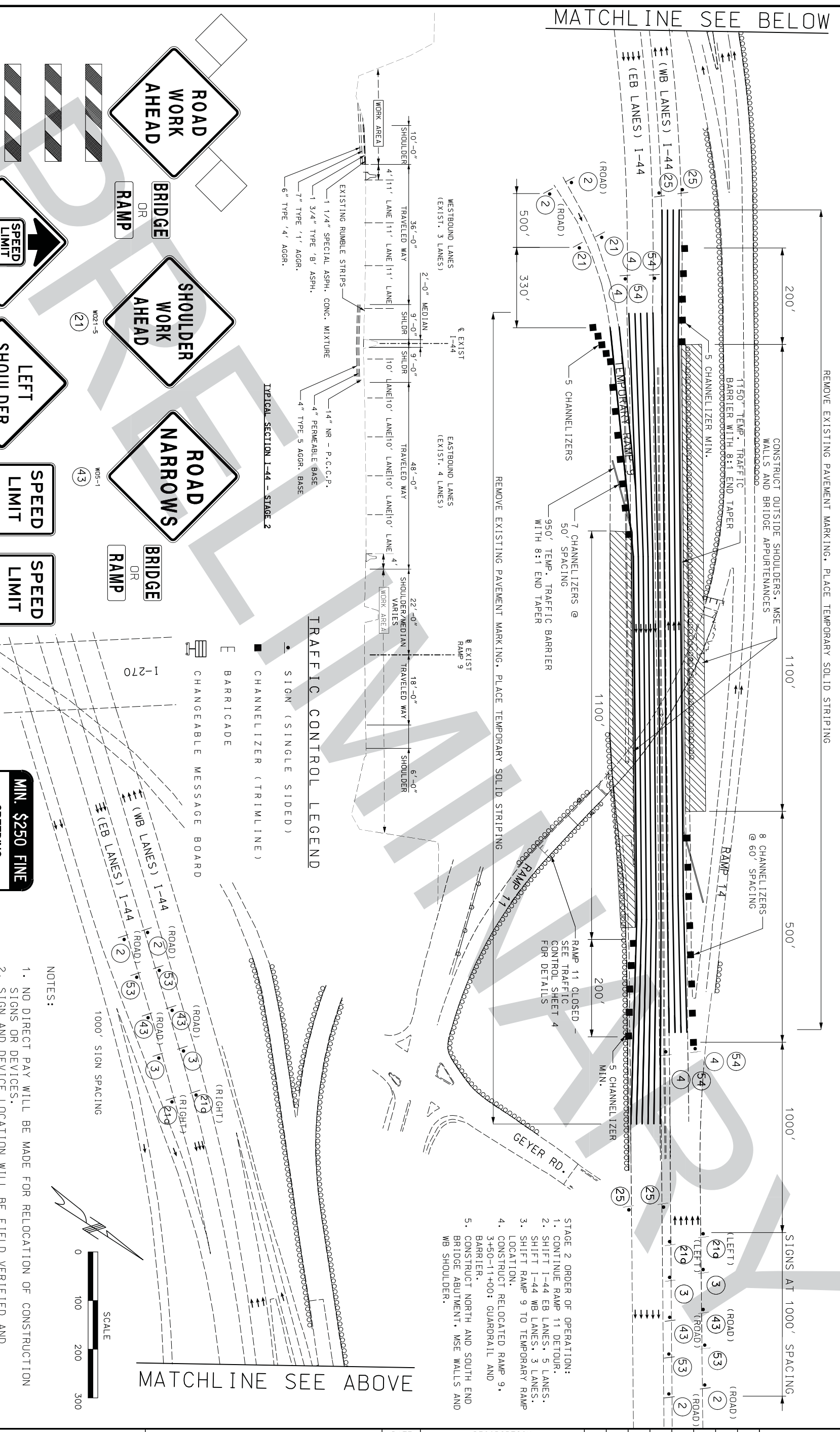
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

TRAFFIC CONTROL SHEET

K:\17004_MoDOT_J653181_366_over_144\07_Design\A_Drawings\Plan_Sett\015_TC_J653181_Rte366.dgn 2:46:05 PM 2/13/2018

REMOVE EXISTING PAVEMENT MARKING, PLACE TEMPORARY SOLID STRIPING

MATCHLINE SEE BELOW

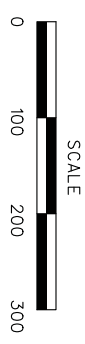


- NOTES:
1. NO DIRECT PAY WILL BE MADE FOR RELOCATION OF CONSTRUCTION SIGNS OR DEVICES.
 2. SIGN AND DEVICE LOCATION WILL BE FIELD VERIFIED AND APPROVED BY THE ENGINEER.
 3. CMS LOCATIONS TO BE DETERMINED BY ENGINEER.
 4. DRAWING NOT TO SCALE. FOLLOW DIMENSIONS.
 5. ALL EXISTING SIGNS THAT CONFLICT WITH THE PROPOSED TRAFFIC CONTROL PLAN SHALL BE COVERED WITH NO DIRECT PAY.

TEMPORARY TRAFFIC CONTROL - I-44 STAGE 2
SHEET 6 OF 7

- STAGE 2 ORDER OF OPERATION:
1. CONTINUE RAMP 11 DETOUR.
 2. SHIFT I-44 EB LANES, 5 LANES.
 3. SHIFT I-44 WB LANES, 3 LANES.
 4. CONSTRUCT RAMP 9 TO TEMPORARY RAMP LOCATION.
 5. CONSTRUCT RELOCATED RAMP 9, 3+50-11+00; GUARDRAIL AND BARRIER.
 6. CONSTRUCT NORTH AND SOUTH END BRIDGE ABUTMENT, MSE WALLS AND WB SHOULDER.

MATCHLINE SEE ABOVE



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DATE PREPARED	2/13/2018
ROUTE	366
STATE	MO
DISTRICT	16
SHEET NO.	16
COUNTY	ST. LOUIS
JOB NO.	J6S3181
CONTRACT ID.	J6S3181
PROJECT NO.	
BRIDGE NO.	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK=MODOT (1-888-275-6636)

ACCESS ENGINEERING LLC

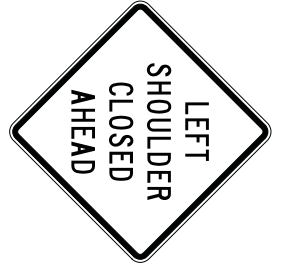
11820 TESSON FERRY ROAD
SUITE 203
ST. LOUIS, MO 63128
(314) 849-8445

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CIVIL ENGINEERING
ENGINEERING CERTIFICATE OF AUTHORITY

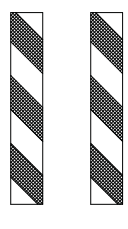
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BRIDGE
OR
RAMP



BRIDGE
OR
RAMP

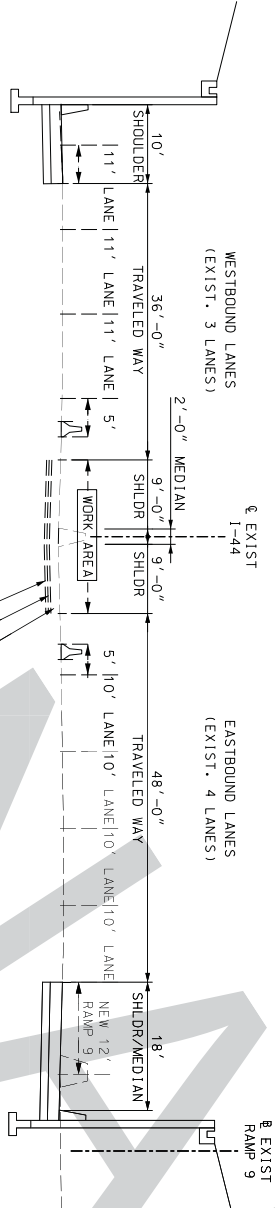
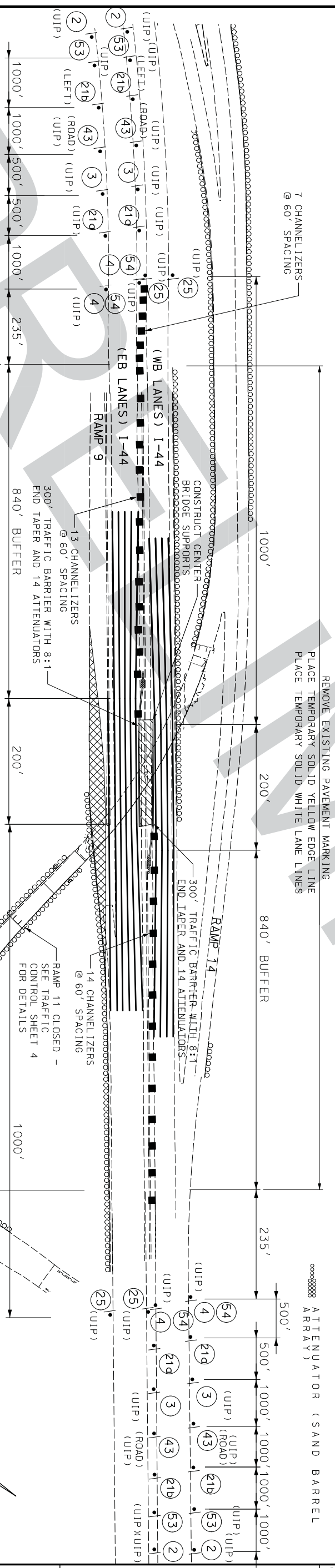


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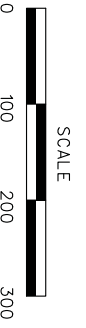
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TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- CHANNELIZER (TRIMLINE)
- E BARRICADE
- ▭ CHANGEABLE MESSAGE BOARD



- STAGE 3 ORDER OF OPERATION:
1. CONTINUE RAMP 11 DETOUR.
 2. SHIFT EB I-44, 5 LANES.
 3. CONSTRUCT MEDIAN PIER, SHOULDERS AND BARRIER.
- STAGE 4 ORDER OF OPERATION:
1. CONTINUE RAMP 11 DETOUR.
 2. REESTABLISH NORMAL LANES ON I-44 RAMP 9.
 3. CONSTRUCT BRIDGE SUPERSTRUCTURE.
 4. CONSTRUCT RAMP 11 ROADWAY APPROACHES, BARRIER, SHOULDER AND SIGNAGE.



TEMPORARY TRAFFIC CONTROL - I-44 STAGES 3 AND 4 SHEET 7 OF 7

K:\17004_MoDOT_J653181_366_over_144\07_Design\A\Drawings\Plan_Set\1017_TC_J653181_Rte366.dgn 2:46:07 PM 2/13/2018

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DATE PREPARED
2/13/2018
ROUTE
366
STATE
MO
DISTRICT
SL
SHEET NO.
17

COUNTY
ST. LOUIS

JOB NO.
J653181

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

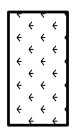



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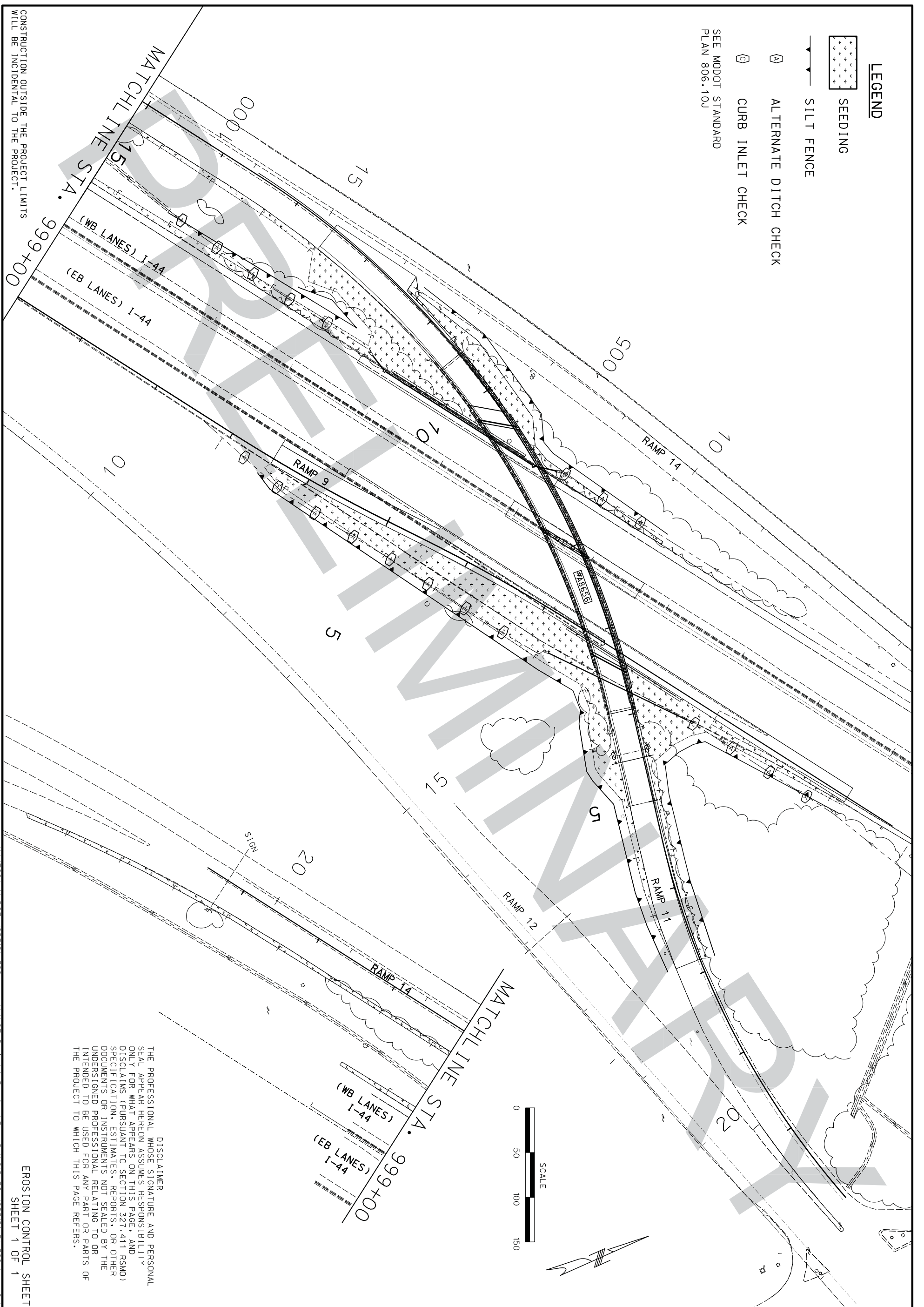
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

ACCESS ENGINEERING LLC

11820 TESSON FERRY ROAD
SUITE 203
ST. LOUIS, MO 63128
(314) 849-8445

TRAFFIC CONTROL SHEET

- LEGEND**
-  SEEDING
 -  SILT FENCE
 -  ALTERNATE DITCH CHECK
 -  CURB INLET CHECK
- SEE MODOT STANDARD
PLAN 806.10J



CONSTRUCTION OUTSIDE THE PROJECT LIMITS
WILL BE INCIDENTAL TO THE PROJECT.

DISCLAIMER
THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL SEAL APPEAR HEREON ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS PAGE, AND DISCLAIMS (PURSUANT TO SECTION 327.411 RSMO) SPECIFICATION, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS PAGE REFERS.

EROSION CONTROL SHEET 1 OF 1

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DATE PREPARED
2/13/2018

ROUTE
366
STATE
MO
DISTRICT
SL
SHEET NO.
18


COUNTY
ST. LOUIS

JOB NO.
J6S3181
CONTRACT ID.

PROJECT NO.
BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

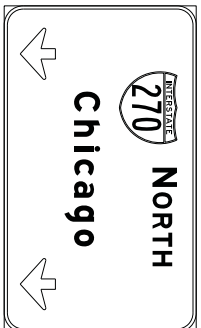
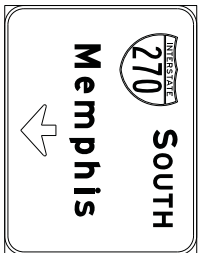


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EROSION CONTROL SHEET 1 OF 1



d) E1-1
15' X 11'

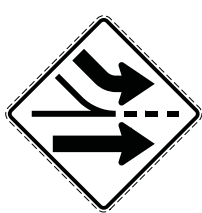
b) E1-1
13' X 10'

c) E1-1
17' X 10'

EXISTING OVERHEAD SIGNS (TBR&R)

14 FT 7 IN
EXISTING
ON BRIDGE
(R)

LEFT
LANE
NO
TRUCKS
LICENSED
OVER
24T
EXISTING COLUMN
R5-32
(REL)



EXISTING (UIP)
48" X 48"

RAMP 11
STA. 18+20

RAMP 11
STA. 11+00

RAMP 9
STA. 7+10

RAMP 11
STA. 5+50

RAMP 11
STA. 4+90

RAMP 11
STA. 3+40

RAMP 9
STA. 0+70

RAMP 9
STA. 3+00

GEYER RD.

EXISTING (UIP)

EXISTING (UIP)

EXISTING OVERHEAD SIGNS (5+60)(TBR&R)

EXISTING W13-2
TO BE REMOVED
AND REPLACED
WITH W13-3

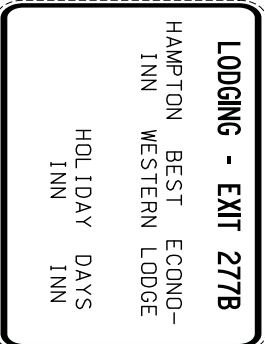
EXISTING (UIP)



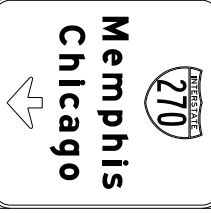
48" X 60"



48" X 48"



d) E1-1
11' X 12'



b) E1-1
11' X 12'



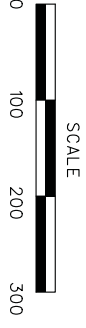
48" X 60"



MI-5



MI-4-6



SCALE



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DATE PREPARED
2/13/2018

ROUTE
366
STATE
MO
DISTRICT
SL
SHEET NO.
19

COUNTY
ST. LOUIS

JOB NO.
J6S3181

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

11820 TESSON FERRY ROAD
SUITE 203
ST. LOUIS, MO 63128
(314) 849-8445

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SIGNING

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STANDARD SIGN ASSEMBLIES

TYPE

SIGN NUMBER	STATION	LOCATION	SIGN DESCRIPTION, SIZES & NUMBER OF EACH	
			W4-3R	W13-3
1	0+70	RAMP 9	1	1
3	4+90	RAMP 11	1	1

SIGN SUMMARY

SIZE, TYPE & SQUARE FEET


STANDARD SIGN OR SPECIAL SIGN NUMBER	SIGN DETAIL SHEET NO. EACH	SIZE	FLAT SHEET SH ITEM NO.	FLAT SHEET FLUORESCENT SHF * ITEM NO.	STRUCTURAL ST ITEM NO.	STRUCTURAL FLUORESCENT STF * ITEM NO.
1 W4-3R	15	48" X 48"	9035004A	16.00	9035011A	9035071A
2a E1-1	18	11' X 12'				
2b E1-1	18	11' X 12'				
3 W13-3	15	48" X 60"		20.00		
4a E1-1	18	15' X 11'				165.00
4b E1-1	18	13' X 10'				130.00
4c E1-1	18	17' X 10'				170.00
TOTAL				36.00		729.00

* ORANGE, YELLOW & YELLOW/GREEN


D-30

DATE PREPARED 2/13/2018	ROUTE 366	STATE MO
DISTRICT SL	SHEET NO. 21	COUNTY ST. LOUIS
JOB NO. J6S3181	CONTRACT ID.	PROJECT NO.
BRIDGE NO.		

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



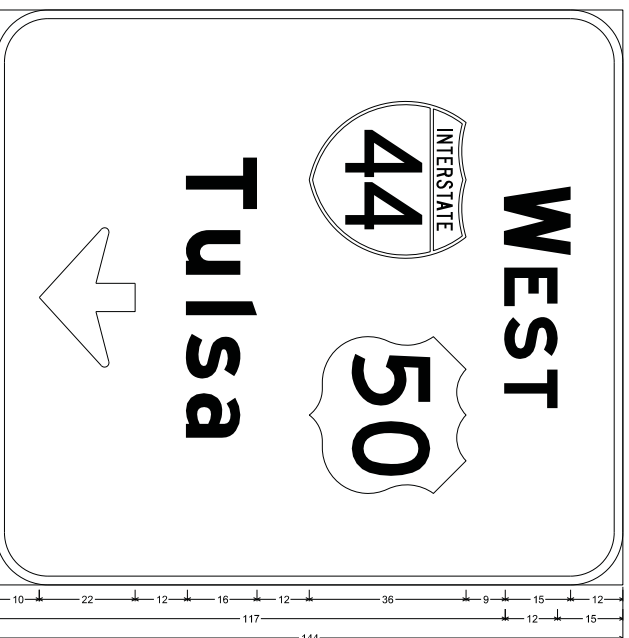
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SUITE 203
ST. LOUIS, MO 63128
(314) 849-8445

#2000172588
CIVIL ENGINEERING
ENGINEERING CERTIFICATE OF AUTHORITY

SIGNING

SIGN NO.	2a
STATION	5+60
ROADWAY	RAMP 11



E1-1 STRUCTURAL: 12.00' Radius, 2.00' Border, White on Green.
 Interstate 44 18.00' C (WEST) E Mod (Tulsa) E Mod Arrow 180 - 50.00' 15'-
 Table of letter and object lists:

W	E	S	T
40.500	59.425	70.500	82.500
21.000	25.000		
33.875	50.500	66.875	74.375
88.000			
50.000			

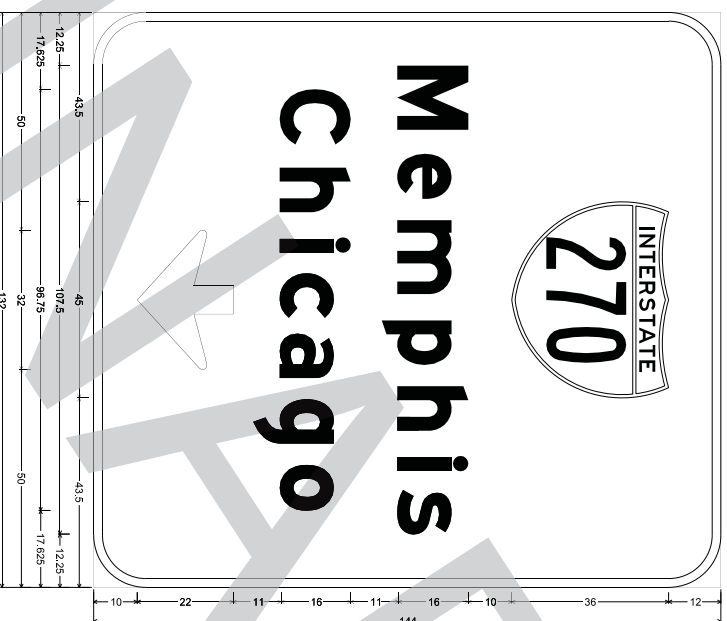
SIGN NO.	4a
STATION	18+20
ROADWAY	RAMP 11



E1-1 STRUCTURAL: 12.00' Radius, 2.00' Border, White on Green.
 Interstate 44 18.00' C (WEST) E Mod (Tulsa) E Mod Arrow 180 - 50.00' 15'-
 Table of letter and object lists:

W	E	S	T
14.250	65.250	114.750	133.375
144.750	144.750	144.750	156.750
57.875	74.500	90.875	98.375
112.000			
70.250			

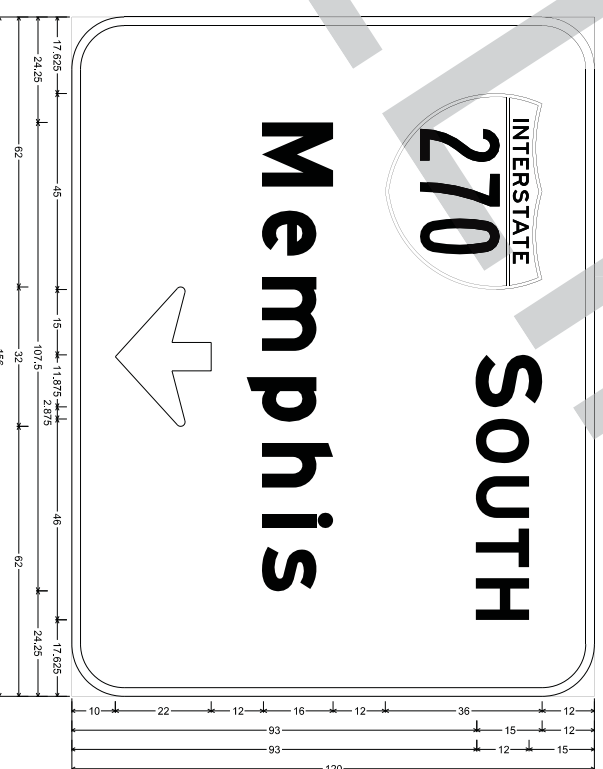
SIGN NO.	2b
STATION	5+60
ROADWAY	RAMP 11



E1-1 STRUCTURAL: 12.00' Radius, 2.00' Border, White on Green.
 Interstate 270 18.00' B (SOUTH) E Mod (Memphis) E Mod (Chicago) E Mod Down Arrow 22.00' 27'-
 Table of letter and object lists:

W	E	S	T
43.500	47.750	102.125	109.625
12.250	32.500	67.750	86.875
174.25	35.625	52.000	59.875
73.750	84.750	103.875	
50.000			

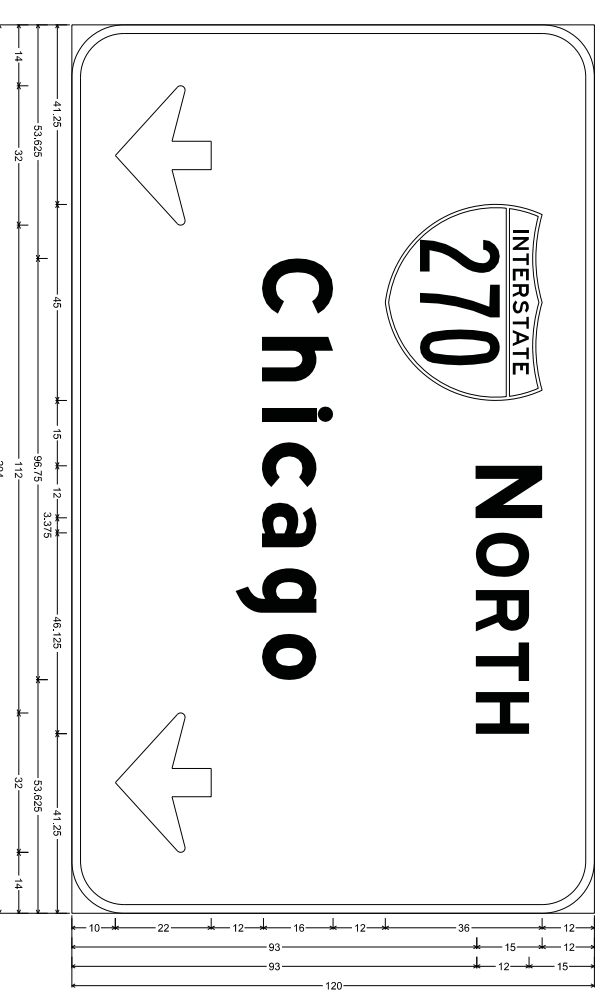
SIGN NO.	4b
STATION	18+20
ROADWAY	RAMP 11



E1-1 STRUCTURAL: 12.00' Radius, 2.00' Border, White on Green.
 Interstate 270 18.00' B (SOUTH) E Mod (Memphis) E Mod Down Arrow 22.00' 27'-
 Table of letter and object lists:

W	E	S	T
17.250	77.625	82.375	106.375
117.500	128.875		
24.250	44.500	59.750	82.750
97.875	114.125	121.625	
62.500			

SIGN NO.	4c
STATION	18+20
ROADWAY	RAMP 11



E1-1 STRUCTURAL: 12.00' Radius, 2.00' Border, White on Green.
 Interstate 270 18.00' B (NORTH) E Mod (Chicago) E Mod Down Arrow 22.00' 27'-
 Table of letter and object lists:

W	E	S	T
41.250	101.250	118.625	128.750
141.750	153.250		
53.625	71.625	88.000	104.750
124.750	139.875		
14.000	158.000		

D-31

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DATE PREPARED
2/13/2018

ROUTE STATE
366 MO
DISTRICT SHEET NO.
SL 22

COUNTY
ST. LOUIS

JOB NO.
J6S3181

CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITAL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

ACCESS ENGINEERING LLC
#2000172588
CIVIL ENGINEERING
ENGINEERING CERTIFICATE OF AUTHORITY

11820 TESSON FERRY ROAD
SUITE 203
ST. LOUIS, MO 63128
(314) 849-8445


SIGNING

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DATE PREPARED	2/13/2018
ROUTE	366
STATE	MO
DISTRICT	SL
SHEET NO.	23
COUNTY	ST. LOUIS
JOB NO.	J6S3181
CONTRACT ID.	J6S3181
PROJECT NO.	
BRIDGE NO.	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



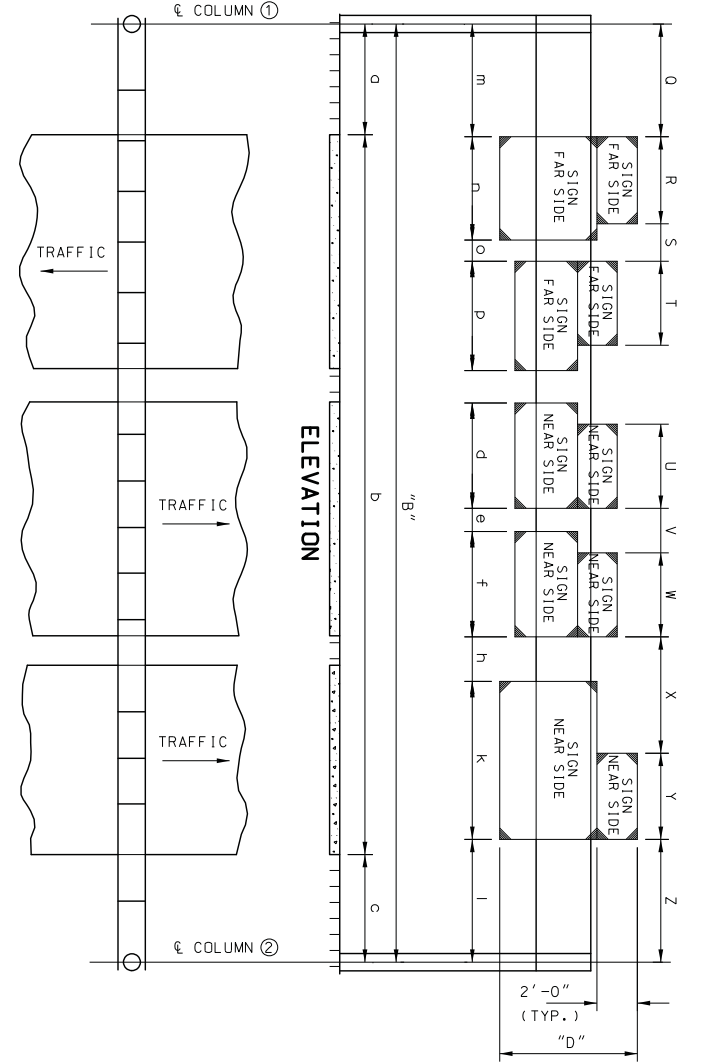
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



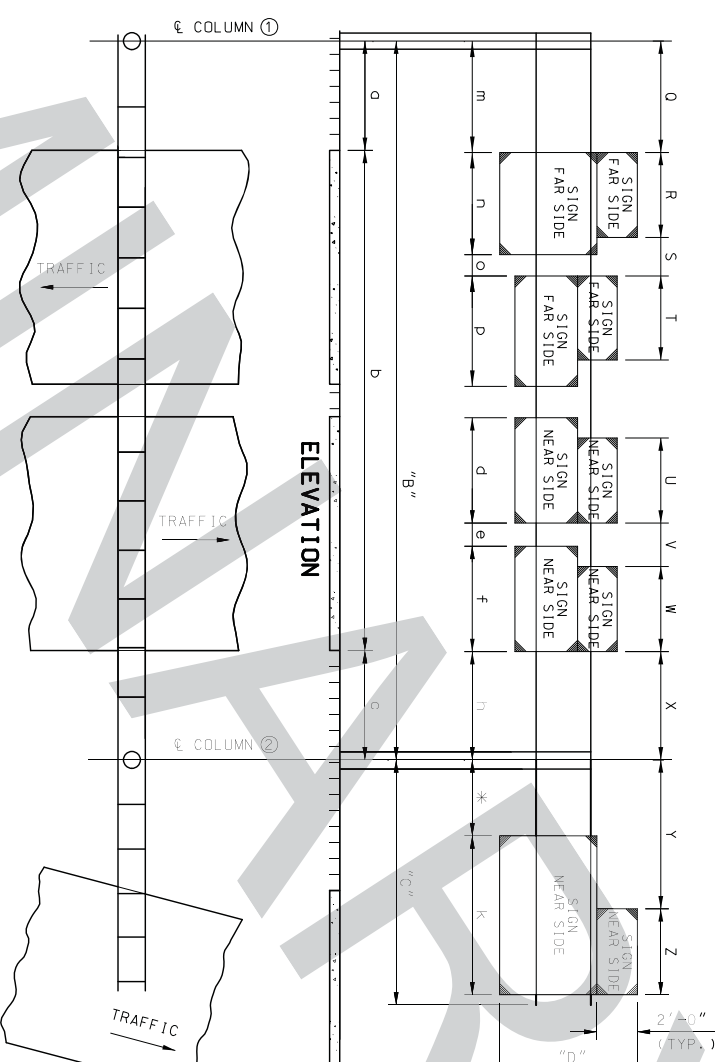
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ST. LOUIS, MO 63128
(314) 849-8445

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DIMENSIONS
TYPE 'B' SIGN BRIDGE



DIMENSIONS
TYPE 'BC' SIGN BRIDGE

SIGN BRIDGE DIMENSIONS

SIGN NO.	STATION NUMBER	TRUSS DESCRIPTION		ROADWAY DESCRIPTION		SIGN SPACING																
		"B"	"C"	"D"	"E"	HH+	e	f	HH+	h	k	HH+	l	m	n	HH+	o	p	HH+	q		
2	5+50 RAMP 11	B	46"	ALUM. STEEL	4"	4x4x1/2	11.0'	24.0'	11.0'	12.0'	11'	12'	1'	11'	12'	11.5'	11.5'	19.5'	11	18.4'	11	26.4

SIGN BRIDGE DIMENSIONS

SIGN NO.	STATION NUMBER	TRUSS DESCRIPTION		ROADWAY DESCRIPTION		SIGN SPACING																
		"B"	"C"	"D"	"E"	HH+	e	f	HH+	h	k	HH+	l	m	n	HH+	o	p	HH+	q		

GENERAL NOTES

DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS - 1985 AND LATEST INTERIM.

BASIC ASSUMPTIONS: WIND VELOCITY = 70 mph. WIND PRESSURE ON SIGN AREA = 27 psf. ICE LOAD = 3 psf.

STRUCTURAL ALUMINUM STEEL = 10,000 psi.

STRUCTURAL CARBON STEEL (ASTM A709 GRADE 36) fs = 20,000 psi.

REINFORCING STEEL (GRADE 40) fs = 20,000 psi.

CLASS B CONCRETE fc = 1,200 psi.

ALLOWABLE SOIL PRESSURE = 2,750 psf.

ALLOWABLE UNIT STRESSES DUE TO WIND LOAD OR WIND LOAD IN COMBINATION WITH OTHER FORCES ARE INCREASED 40%.

MINIMUM CLEARANCE: VERTICAL ROADWAY CLEARANCE = 17'-6".

MINIMUM CLEARANCE TO REINFORCING SHALL BE 2", UNLESS OTHERWISE SHOWN.

TRUSS SHALL BE ALL WELDED CONSTRUCTION. ALL WELDING TO BE CONTINUOUS UNLESS OTHERWISE SHOWN.

QUALIFICATION OF WELDING OPERATORS WILL BE REQUIRED.

* MINIMUM = 6'-0" WHEN ALUMINUM IS USED.

NOTE: ABOVE MINIMUMS ARE RECOMMENDED DIMENSIONS.

OVERHEAD SIGN TRUSSES
STRUCTURAL STEEL OR ALUMINUM

DATA SHEET
(SEE STANDARD 903.10 OR 903.60)

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DATE PREPARED
2/13/2018

ROUTE
366

STATE
MO

DISTRICT
SL

SHEET NO.
24

COUNTY
ST. LOUIS

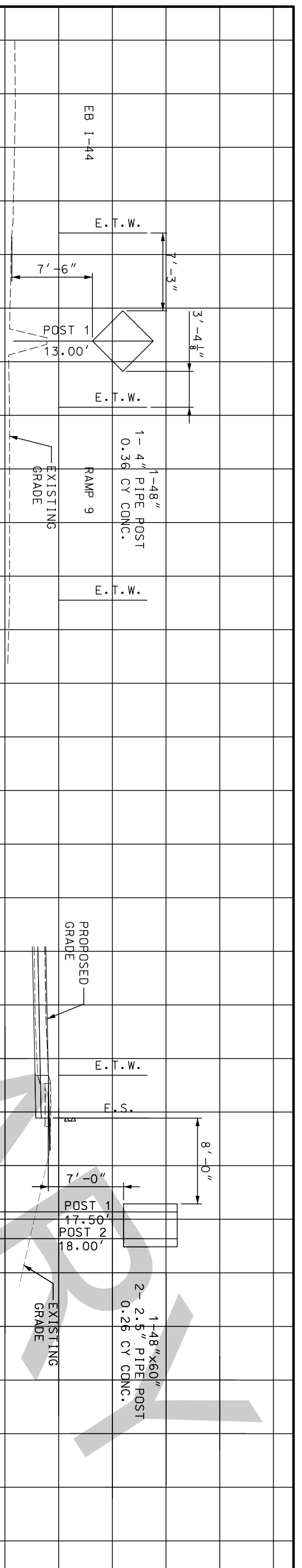
JOB NO.
J6S3181

CONTRACT ID.

PROJECT NO.

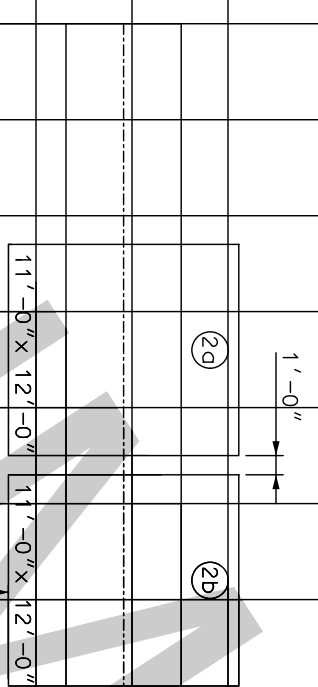
BRIDGE NO.

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



STATION 0+70
RAMP 9

①



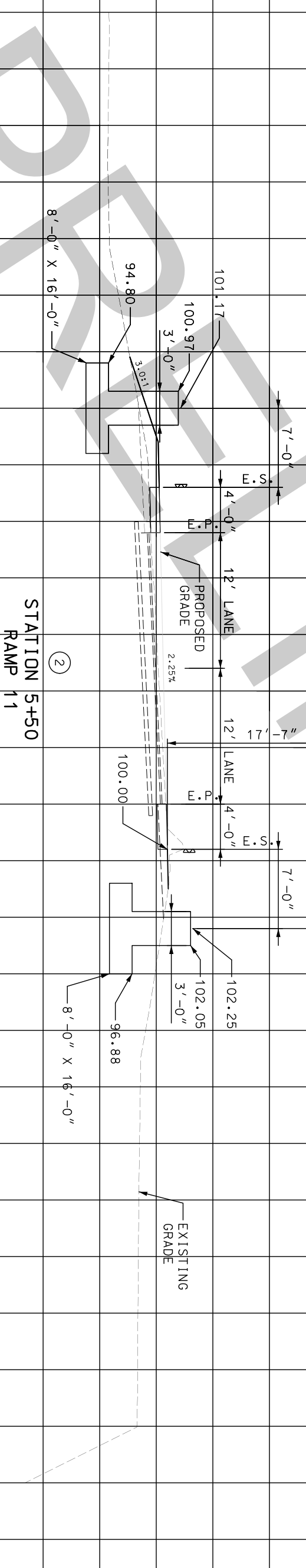
STATION 4+90
RAMP 11

③

COL. 1
TYPE II POST
H = 19'-5"

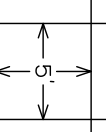
DESIGN AREA = 264.0 SQ. FT.
SPAN = 46'-0"

COL. 2
TYPE II POST
H = 18'-4"



STATION 5+50
RAMP 11

②



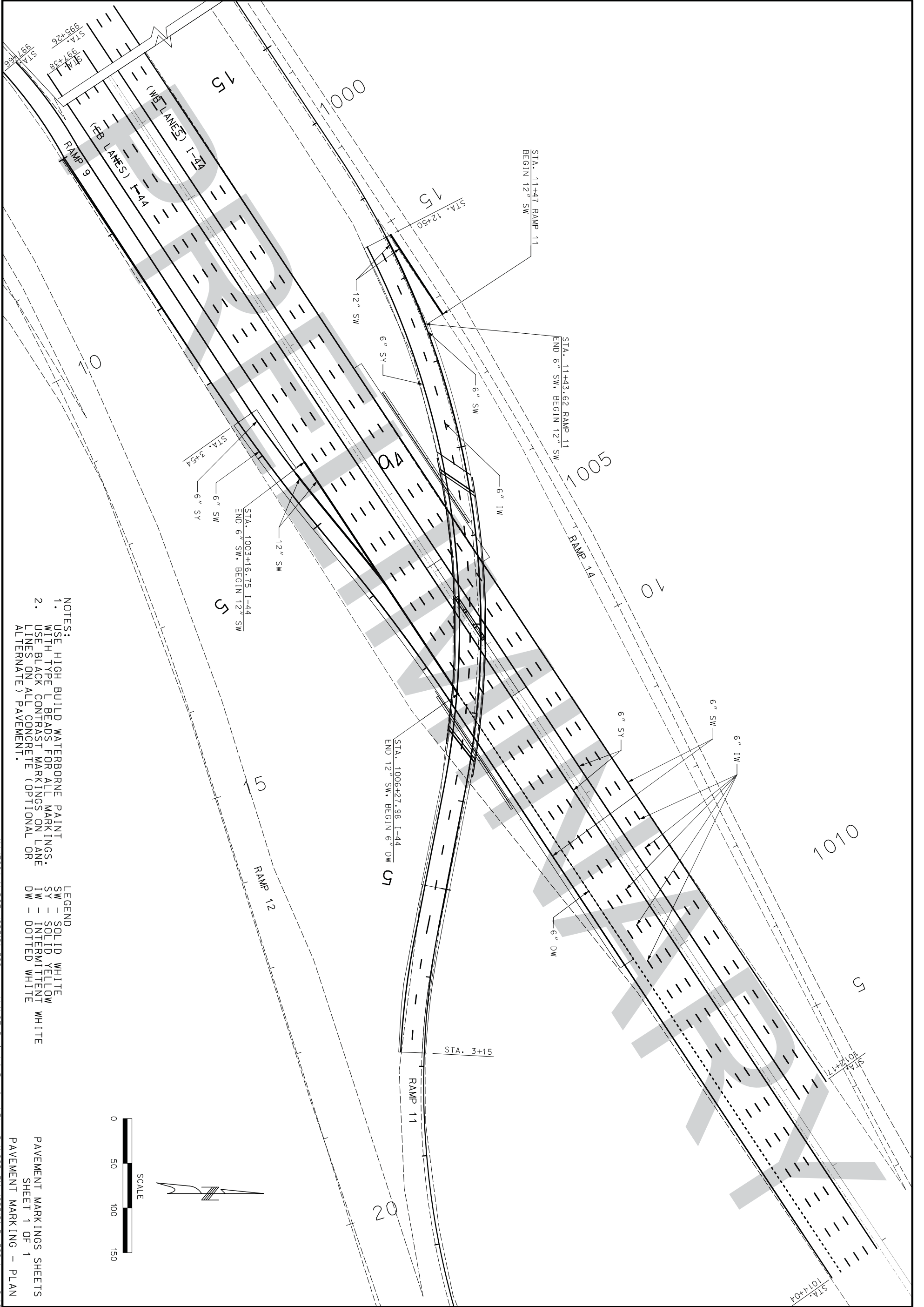
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITAL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

ACCESS ENGINEERING LLC
#2000172588
CIVIL ENGINEERING
ENGINEERING CERTIFICATE OF AUTHORITY

SIGNING

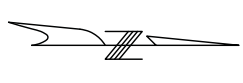
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- NOTES:
1. USE HIGH BUILD WATERBORNE PAINT WITH TYPE L BEADS FOR ALL MARKINGS.
 2. USE BLACK CONTRAST MARKINGS ON LANE LINES ON ALL CONCRETE (OPTIONAL OR ALTERNATE) PAVEMENT.

- LEGEND
- SW - SOLID WHITE
 - SY - SOLID YELLOW
 - IW - INTERMITTENT WHITE
 - DW - DOTTED WHITE

PAVEMENT MARKINGS SHEETS
SHEET 1 OF 1
PAVEMENT MARKING - PLAN



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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

DATE	DESCRIPTION

DATE PREPARED 2/13/2018	ROUTE 366	STATE MO	DISTRICT SL	SHEET NO. 25
COUNTY ST. LOUIS				
JOB NO. J6S3181				
CONTRACT ID.				
PROJECT NO.				
BRIDGE NO.				

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2/13/2018

ROUTE STATE
366 MO
DISTRICT SHEET NO.
SL 26
COUNTY
ST. LOUIS

JOB NO.
J6S3181

CONTRACT ID.

PROJECT NO.


BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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JEFFERSON CITY, MO 65102
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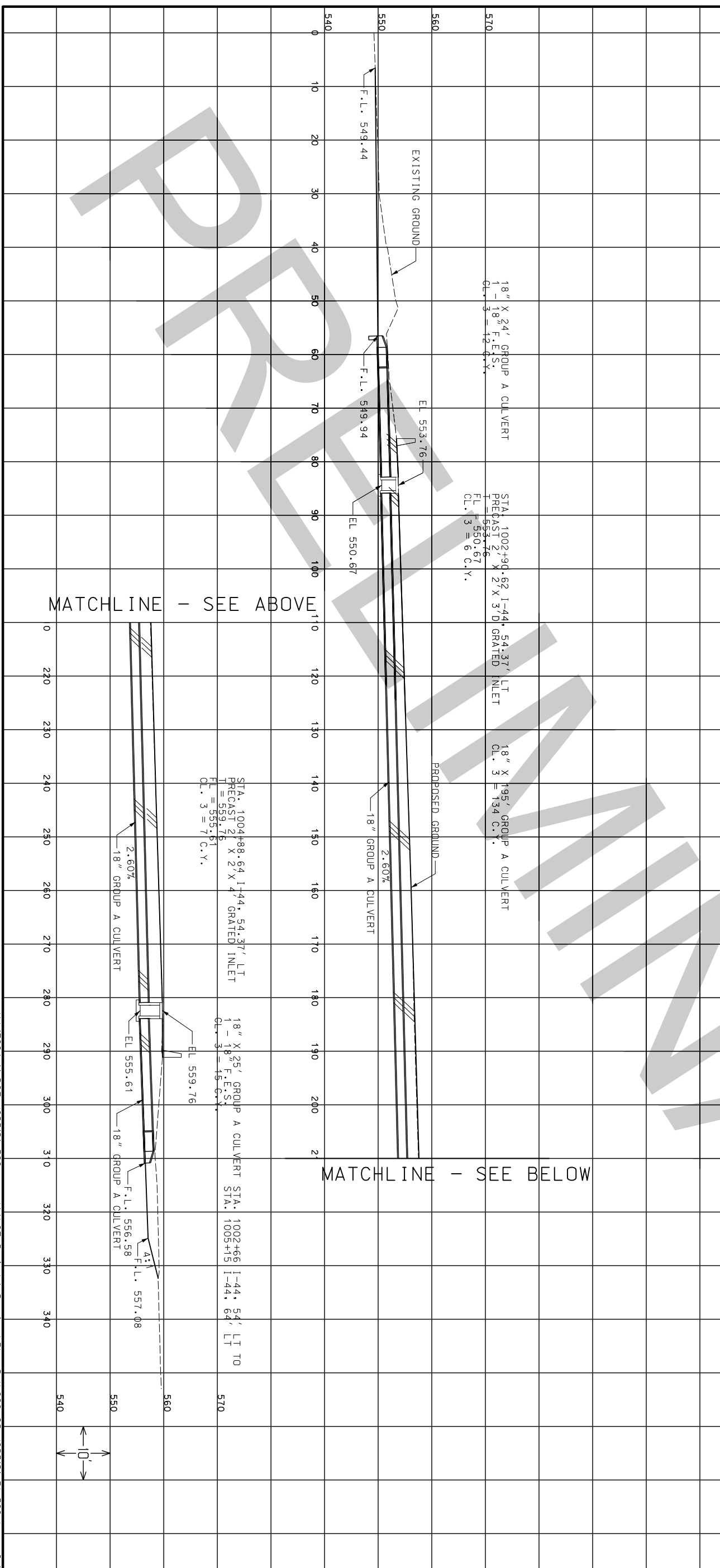
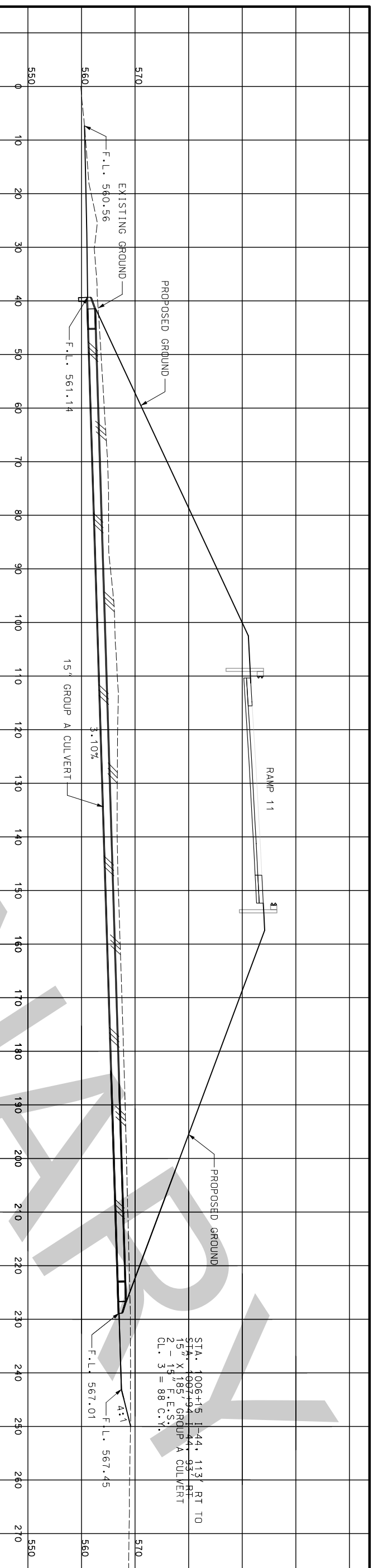


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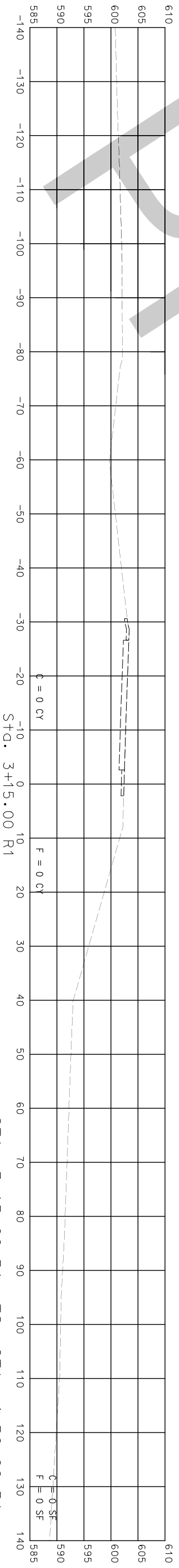
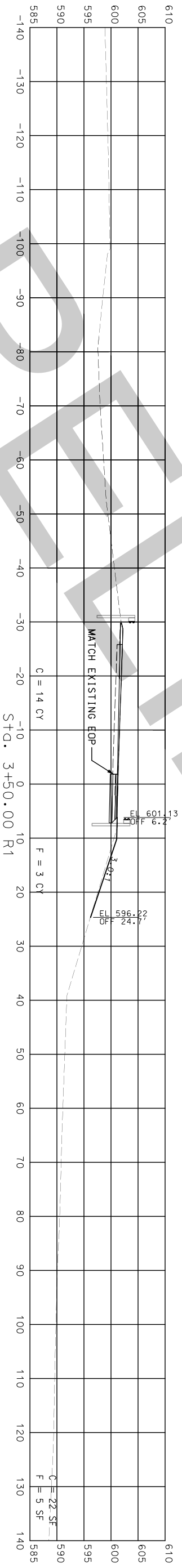
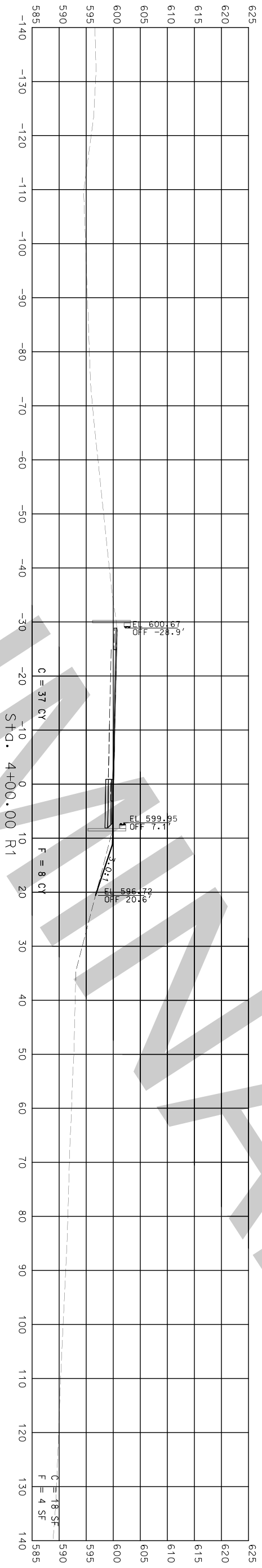
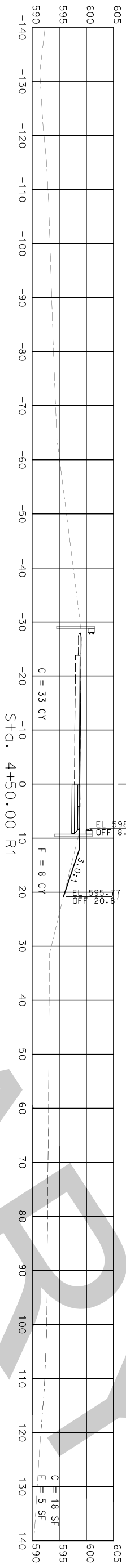
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CROSS SECTIONS
RAMP 11
SHEET 1 OF 14

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SHEET NO.
2

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J6S3181

CONTRACT ID.

PROJECT NO.


BRIDGE NO.

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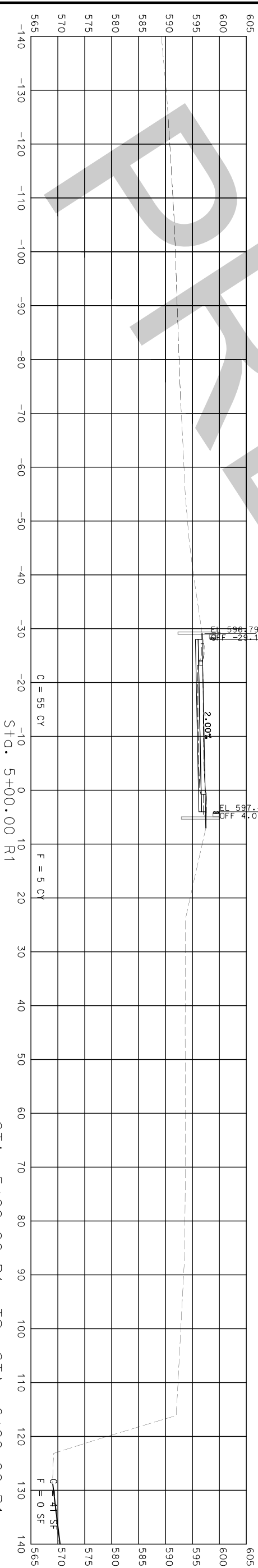
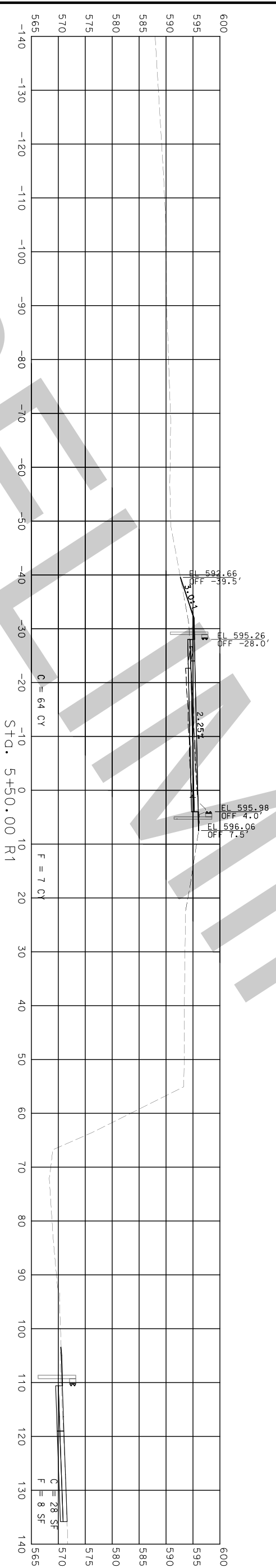
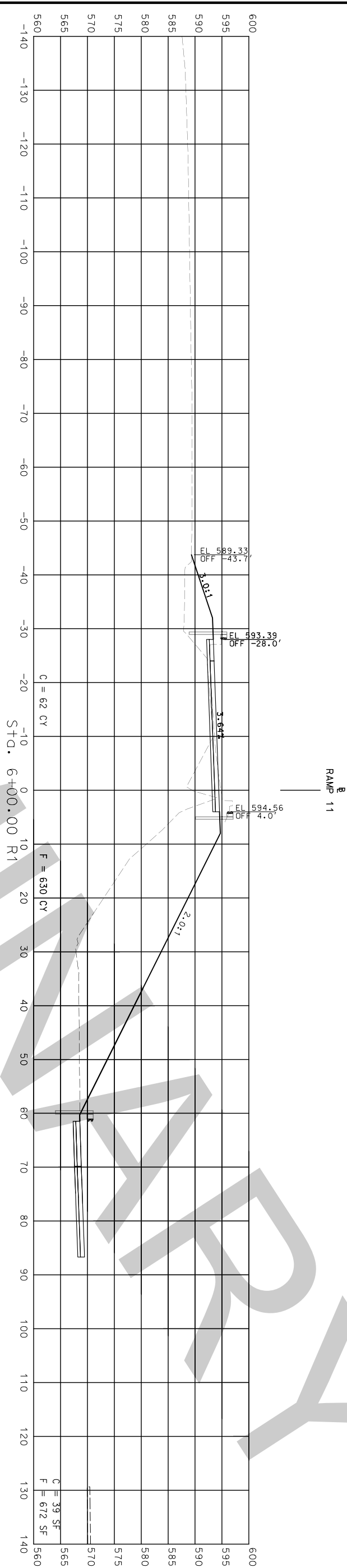
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STA. 5+00.00 R1 TO STA. 6+00.00 R1

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SHEET 2 OF 14

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JOB NO.
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DATE	DESCRIPTION

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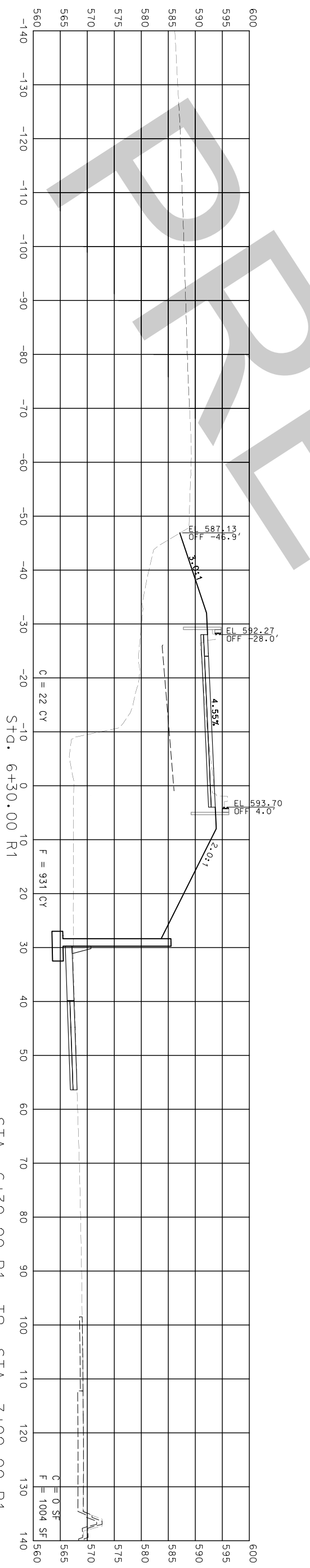
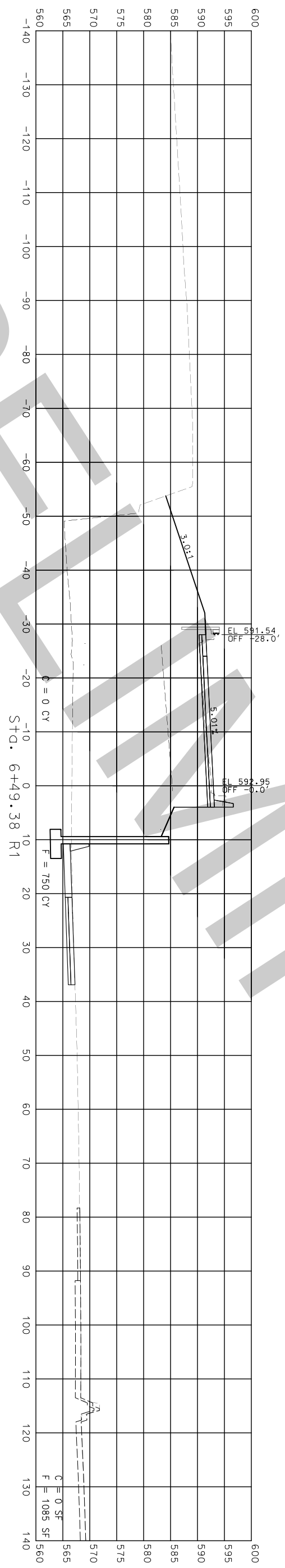
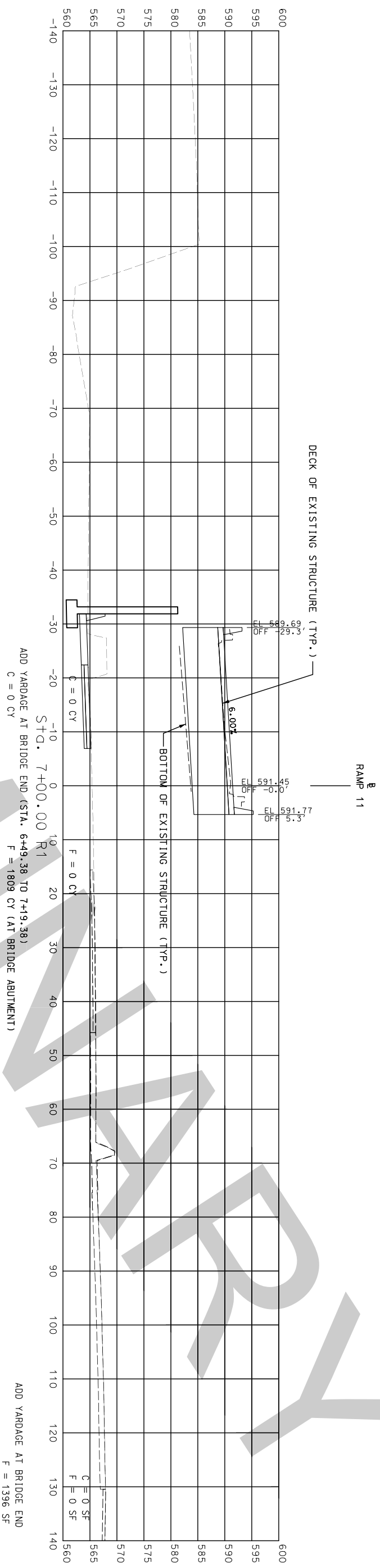


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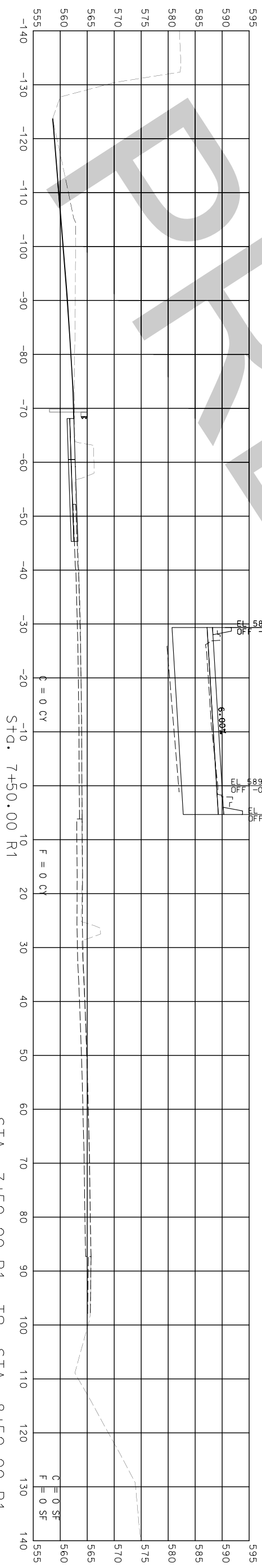
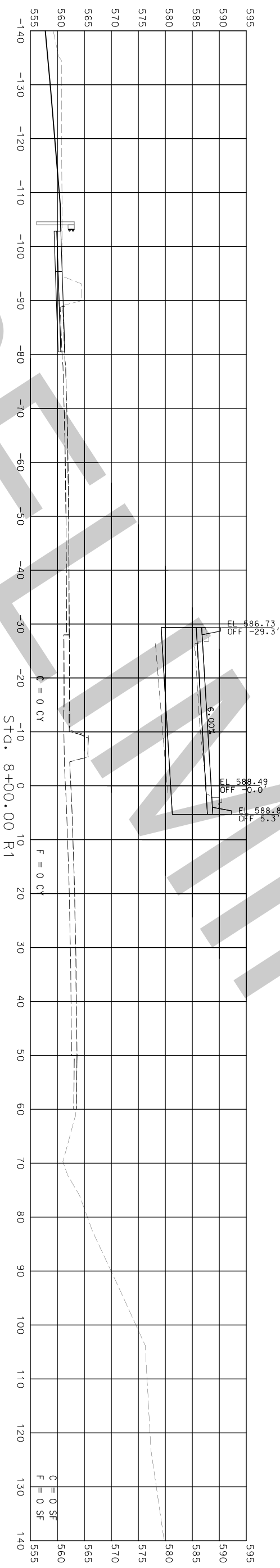
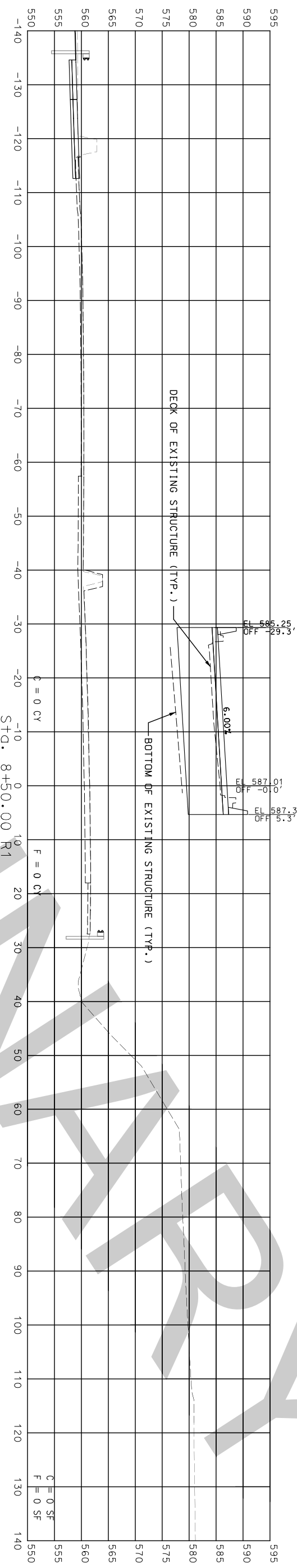
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SHEET 5 OF 14



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BRIDGE NO.

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JOB NO.
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CONTRACT ID.

PROJECT NO.
BRIDGE NO.

DATE	DESCRIPTION

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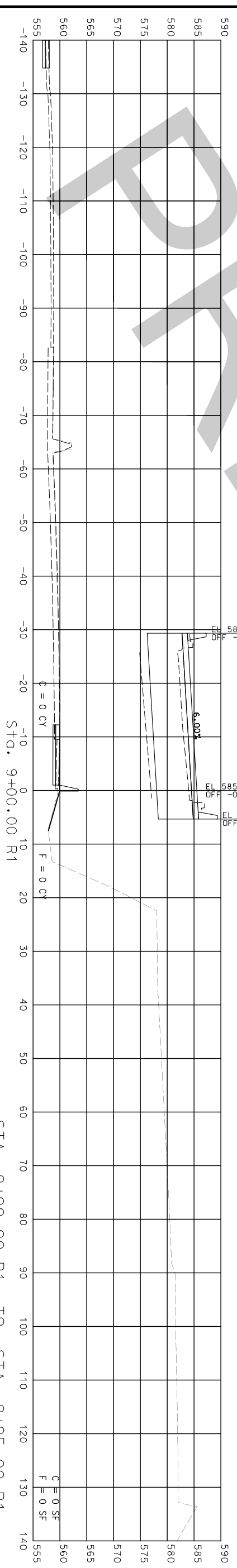
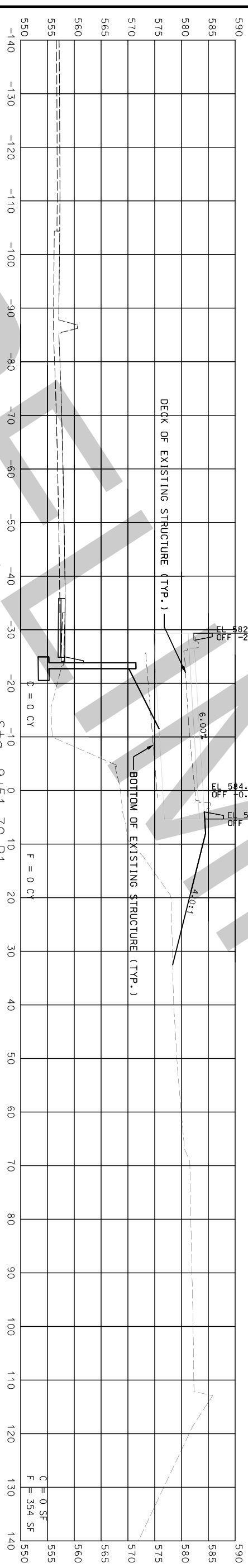
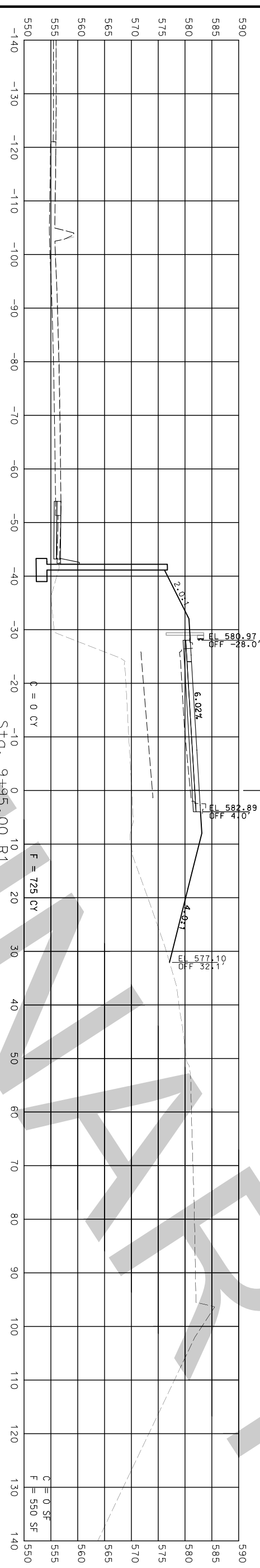
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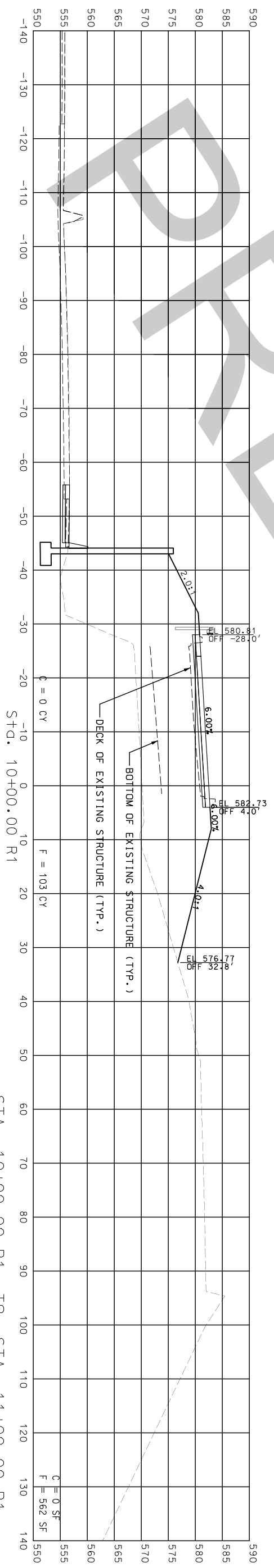
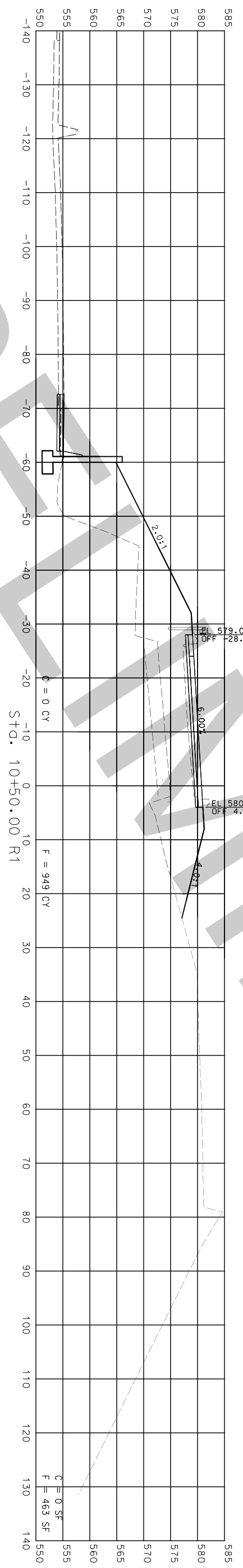
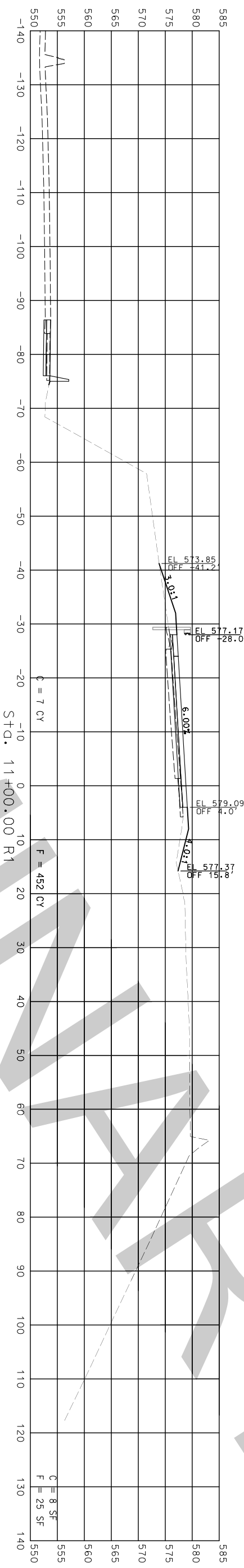
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SHEET 5 OF 14

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ROUTE	366
STATE	MO
DISTRICT	SL
SHEET NO.	6
COUNTY	ST. LOUIS
JOB NO.	J6S3181
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BRIDGE NO.	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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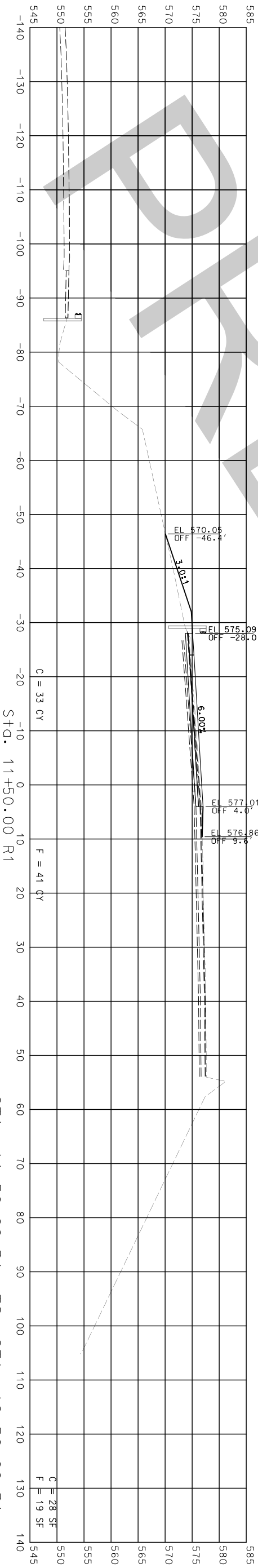
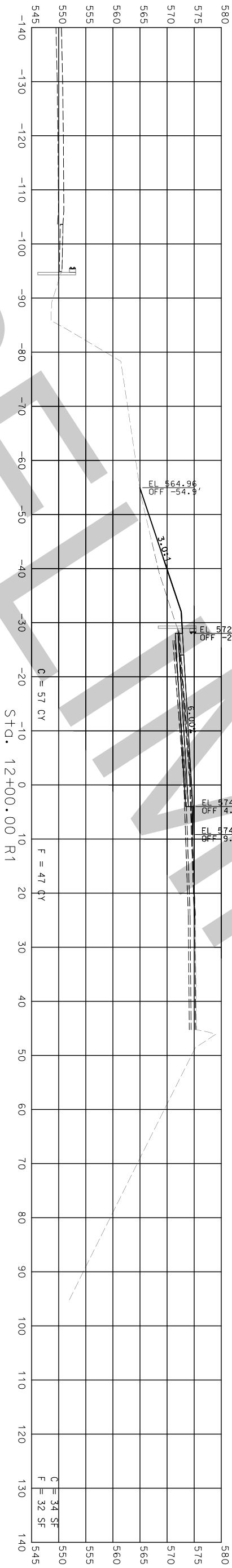
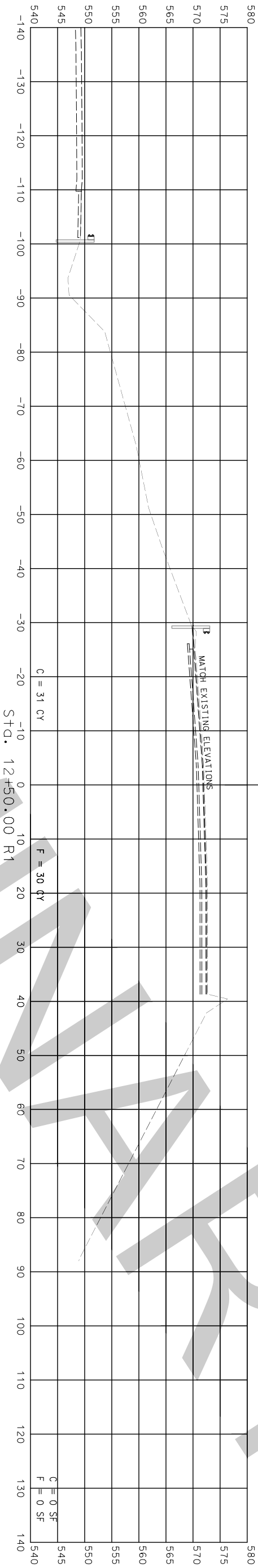
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SHEET 6 OF 14

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ROUTE	366
STATE	MO
DISTRICT	SL
SHEET NO.	7
COUNTY	ST. LOUIS
JOB NO.	J6S3181
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PROJECT NO.	
BRIDGE NO.	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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366

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DISTRICT
SL

SHEET NO.
8

COUNTY
ST. LOUIS

JOB NO.
J6S3181

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

DATE	DESCRIPTION

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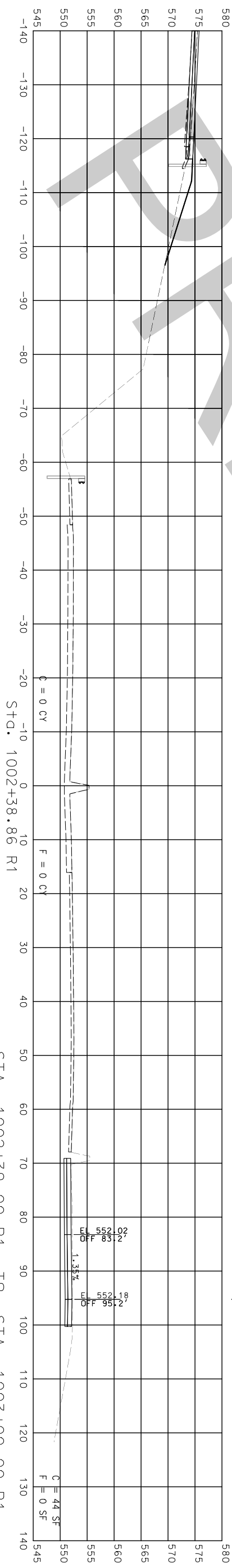
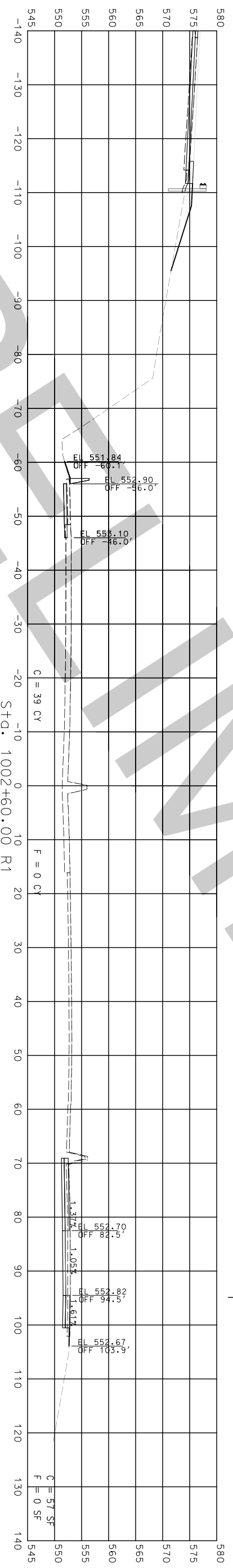
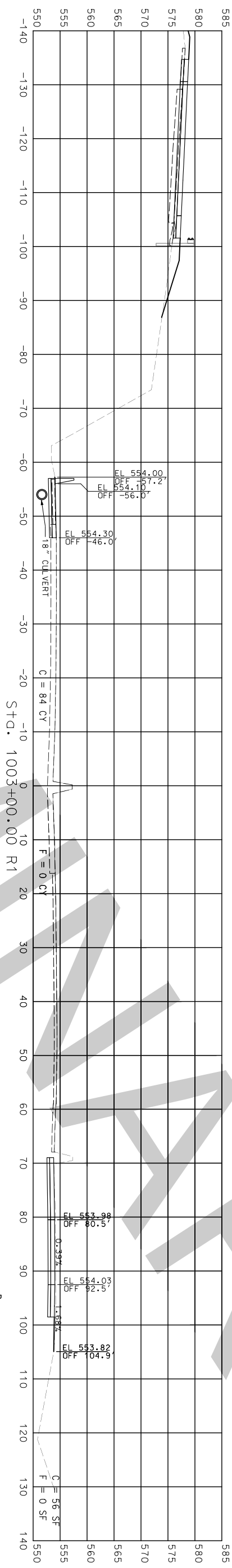
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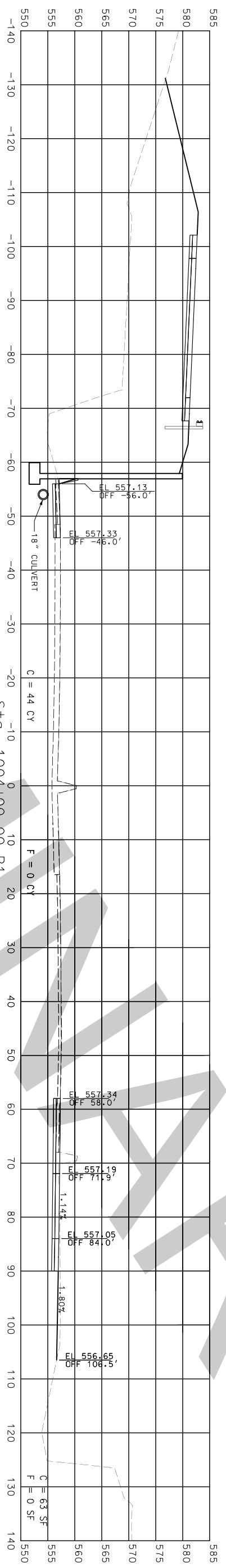


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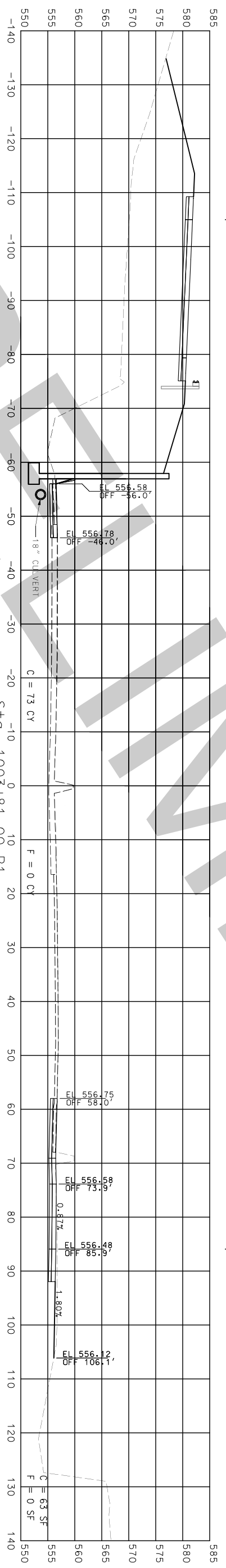
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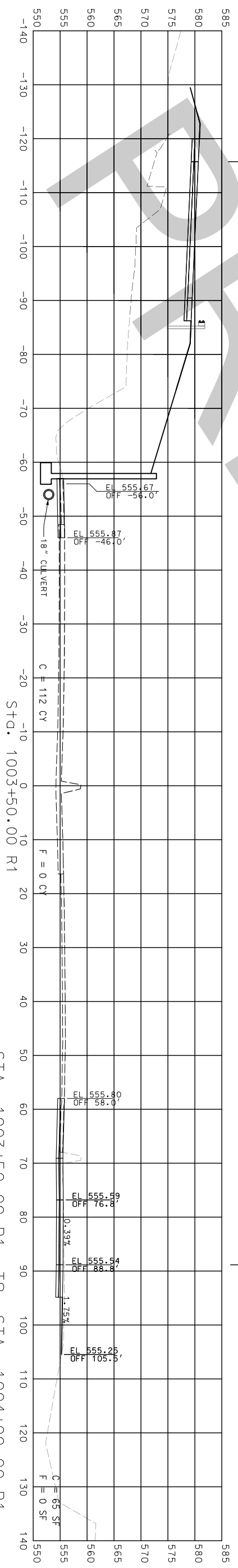
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10

COUNTY

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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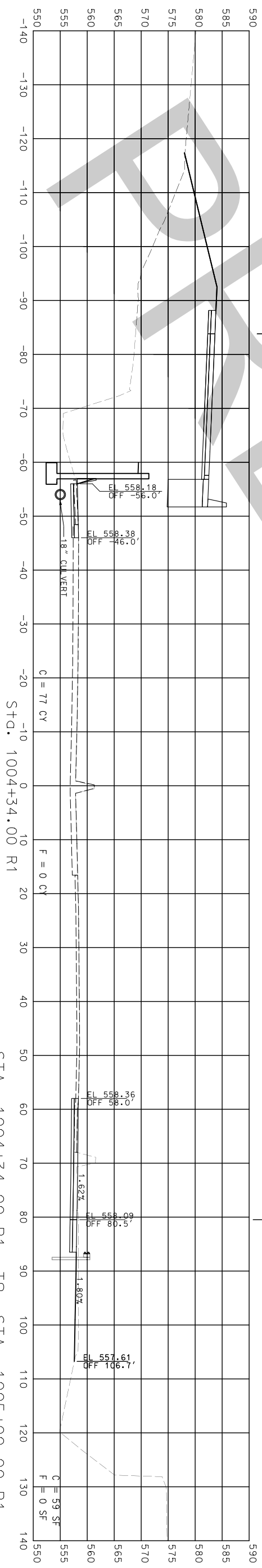
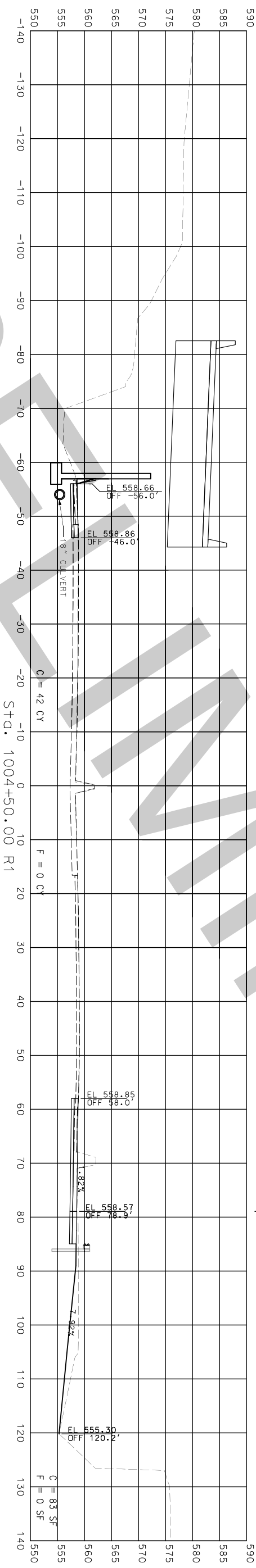
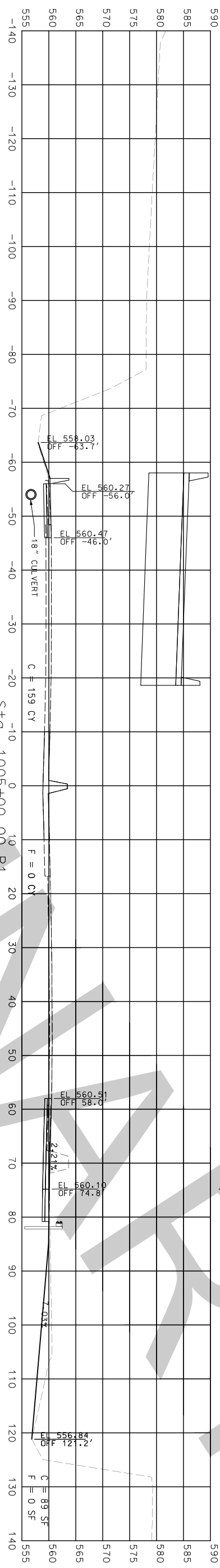
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RAMP 11
SHEET 10 OF 14

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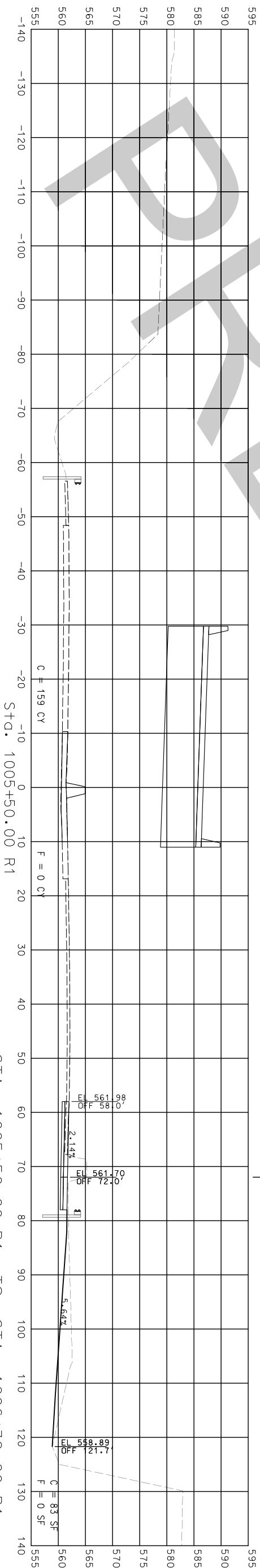
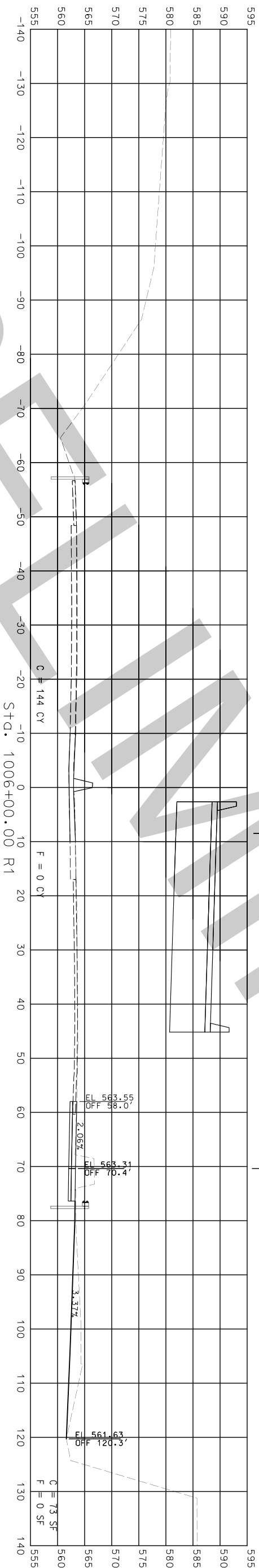
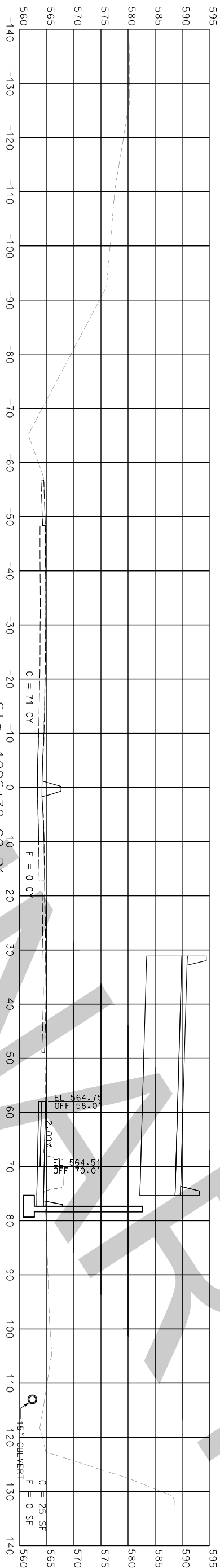
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RAMP 9




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SHEET NO.	11
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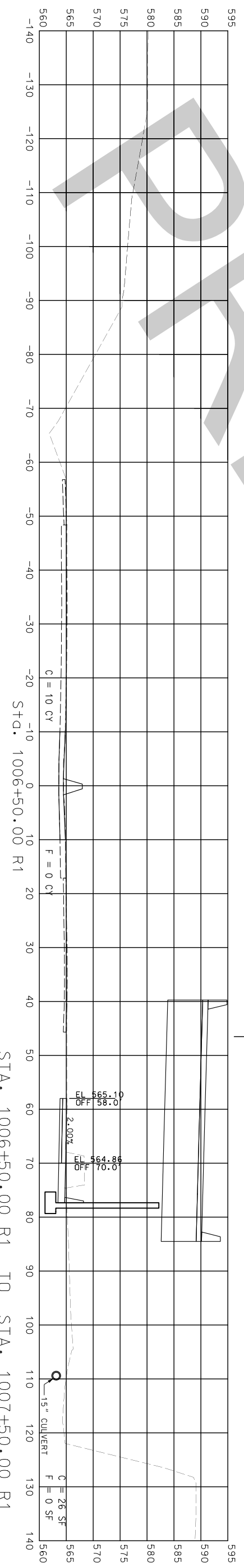
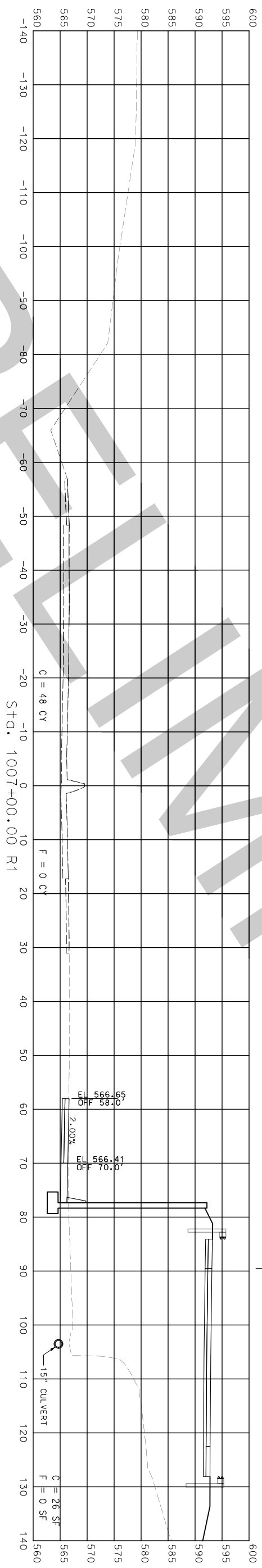
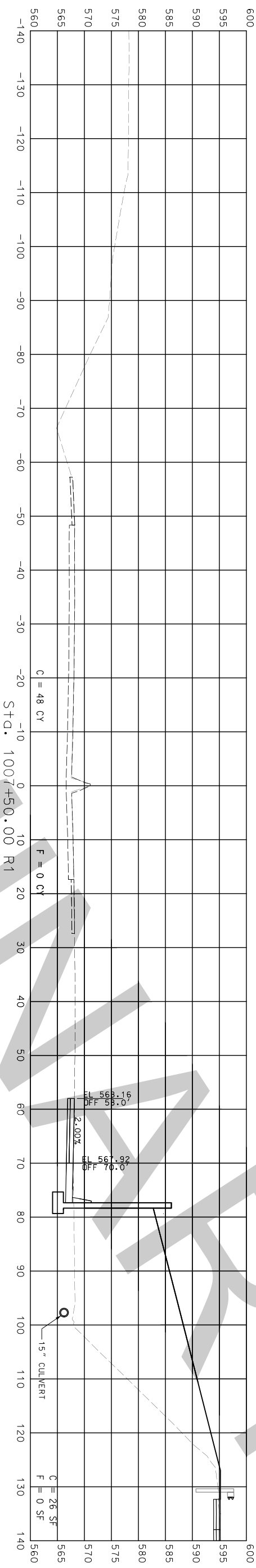
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SHEET 11 OF 14
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SHEET NO.	12
COUNTY	ST. LOUIS
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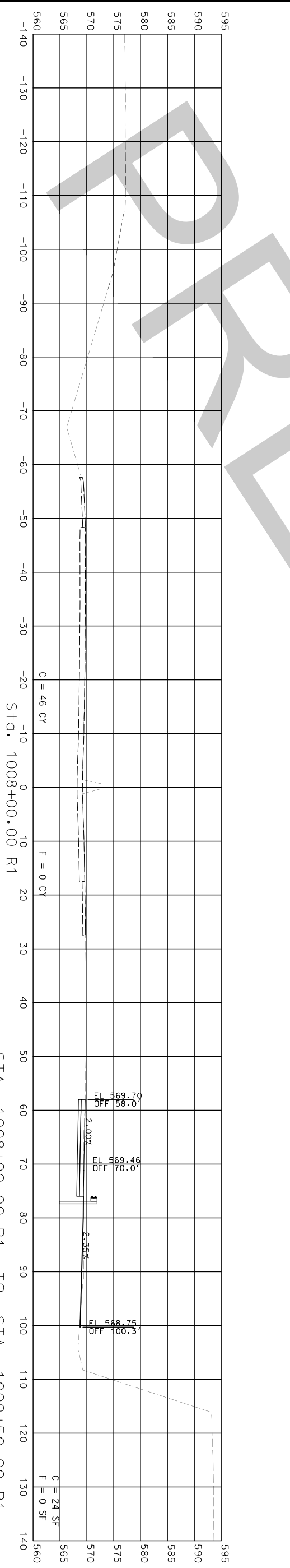
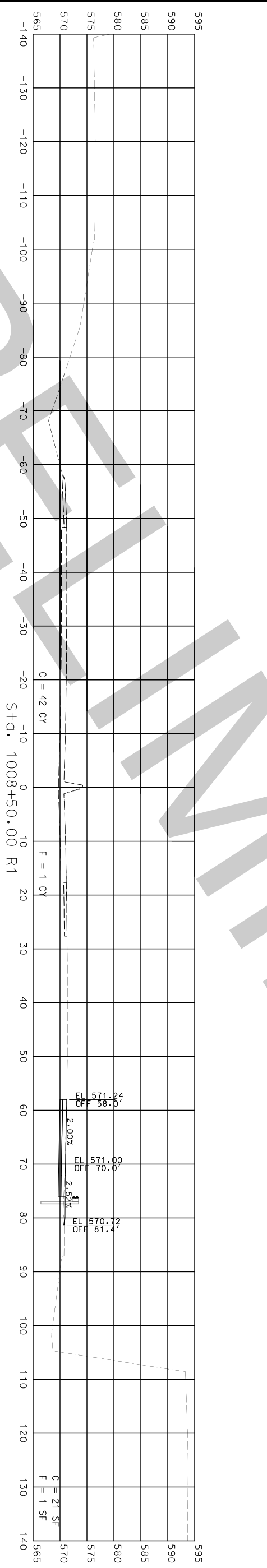
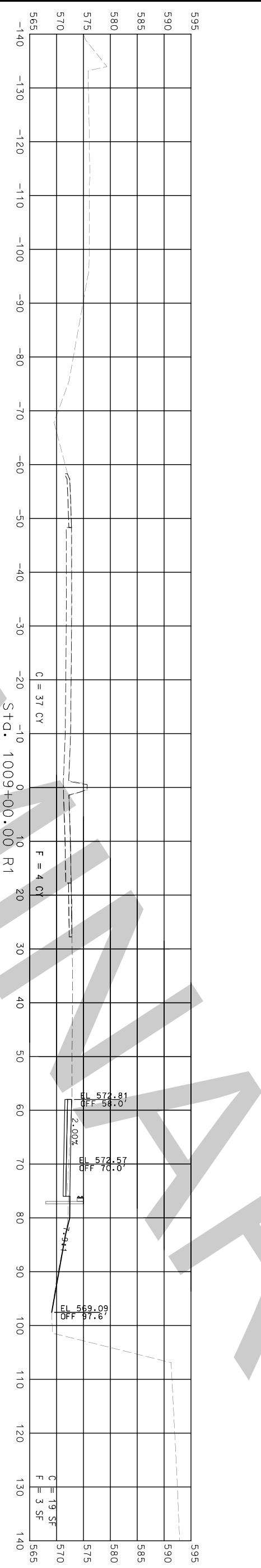
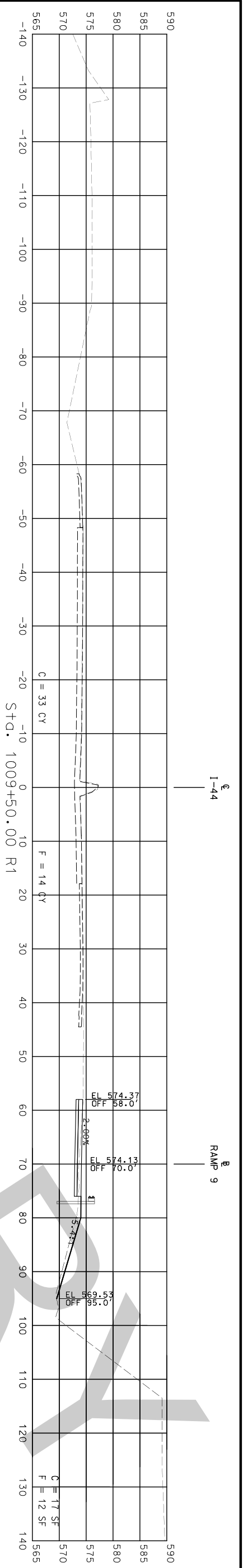
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RAMP 11
SHEET 12 OF 14
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DATE PREPARED

2/13/2018

ROUTE

366

STATE

MO

DISTRICT

SL

SHEET NO.

13

COUNTY

ST. LOUIS

JOB NO.

J6S3181


CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



ACCESS ENGINEERING LLC

#2000172588
CIVIL ENGINEERING
ENGINEERING CERTIFICATE OF AUTHORITY

11820 TESSON FERRY ROAD
SUITE 203
ST. LOUIS, MO 63128
(314) 849-8445

CROSS SECTIONS
RAMP 11 OF 14
SHEET 13 OF 14

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2/13/2018

ROUTE
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SHEET NO.
14

COUNTY
ST. LOUIS

JOB NO.
J6S3181


CONTRACT ID.

PROJECT NO.


BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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JEFFERSON CITY, MO 65102
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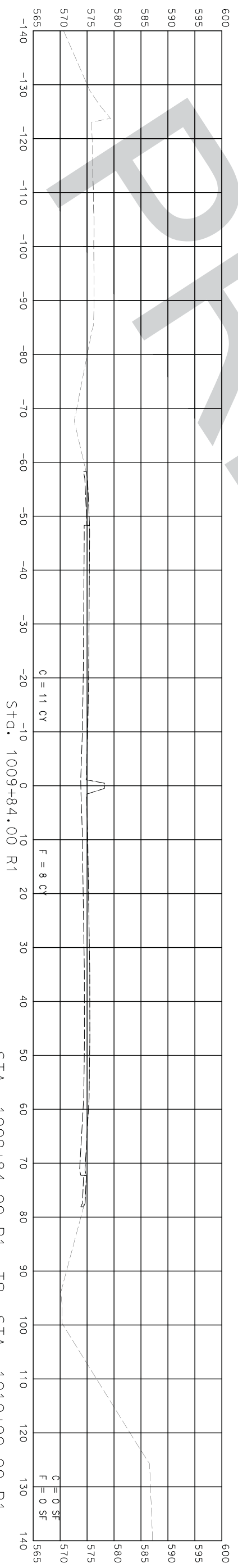
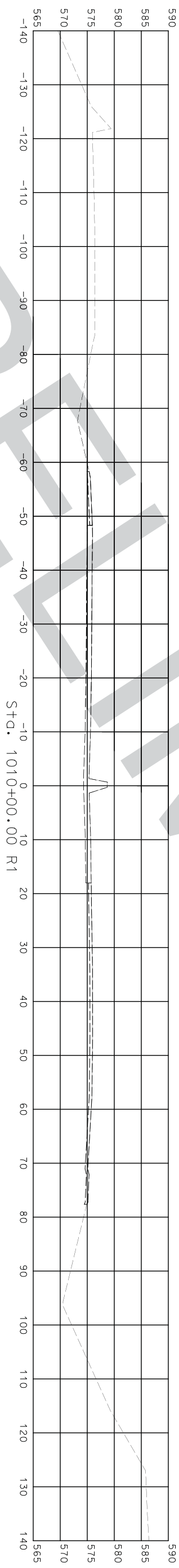


ACCESS ENGINEERING LLC

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ST. LOUIS, MO 63128
(314) 849-8445

#2000172588
CIVIL ENGINEERING
ENGINEERING CERTIFICATE OF AUTHORITY

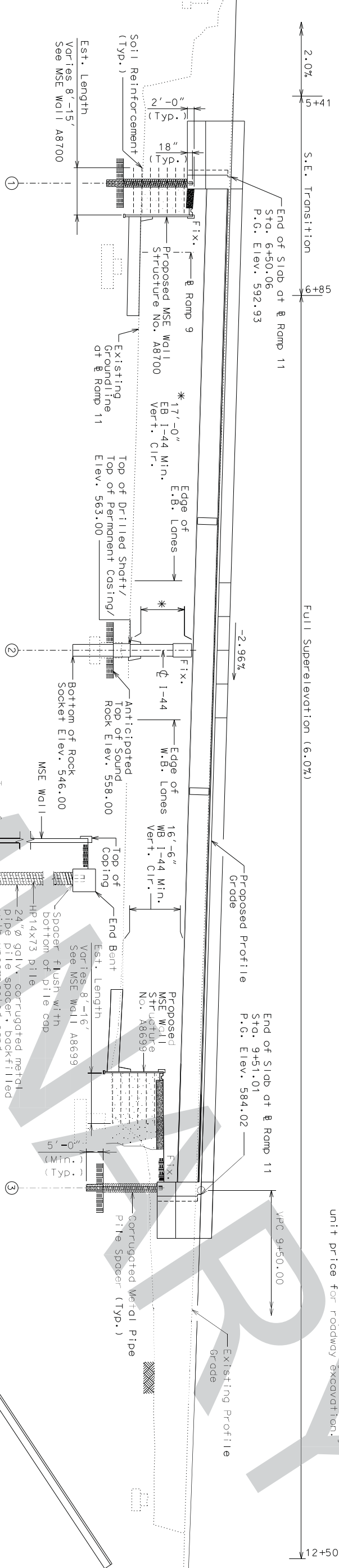
CROSS SECTIONS
RAMP 11
SHEET 14 OF 14



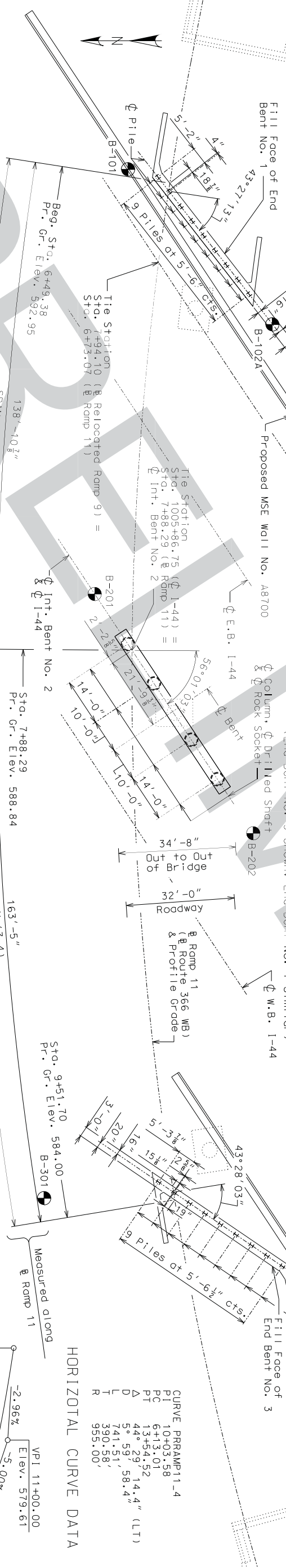
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
 (136.61' - 161.12') CONTINUOUS CURVED COMPOSITE STEEL PLATE GIRDER SPANS

Notes:
 Outline of old work is indicated by light dashed lines.
 Heavy lines indicate new work.
 For General Notes, Location Sketch, Foundation Data, Hydrological Data, Estimated Quantities for Slab on Steel and Estimated Quantities, see Sheet No. 2.
 All longitudinal dimensions are horizontal.



DETAIL OF PREBORE FOR PILING AT END BENTS



Notes:

Underground facilities, structures and utilities have been plotted from available surveys and records. The commission does not warrant the locations of these facilities as precise. It is possible there may be others, the existence of which is presently not known or shown. It is the contractor's responsibility to determine the existence and precise location of all facilities and to avoid damage to them. See the job special provisions (ROADWAY) for a list of utility companies or within the vicinity of the project limits.

Note:

Indicates location of borings. Notice and Disclaimer Regarding Boring Log Data

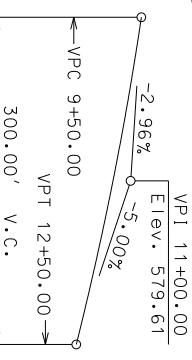
PLAN

The locations of all subsurface borings for this structure are shown on the bridge plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other factual records of subsurface data, and investigations performed by the department for the project, are shown on Sheet Nos. 31 thru 35 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.

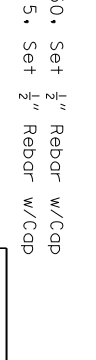
The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those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

Note: This drawing is not to scale. Follow dimensions. Sheet No. 1 of 35

HORIZONTAL CURVE DATA



VERTICAL CURVE DATA



STATION	ELEVATION
ST. 606.22	
ST. 609.00	
ST. 617.10	
ST. 706.35	

Notes:
 Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete deck where the 25 feet in back of the fill face of the end bents before any piles are driven for any bents falling within the embankment section.
 Old roadway fill under the ends of the bridge shall be removed as shown. Removal of old roadway fill will be considered completely covered by the contract unit price for roadway excavation.

SEC/SUR 14 TWP 44N RGE 5E

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 St. Louis, Missouri 63043
 Professional Engineer 001632
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 314.770.0467

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MoDOT
 105 WEST CAPITOL JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-275-6636)

DATE	DESCRIPTION

PROJECT NO.	J6S3181
BRIDGE NO.	A8656
COUNTY	ST. LOUIS
JOB NO.	
CONTRACT ID.	
DATE PREPARED	02/02/18
ROUTE	366
STATE	MO
DISTRICT	1
SHEET NO.	1

Table with 3 columns: Item, Total, and Unit. Rows include Class B-2 Concrete (cu. yrd, 375.0), Reinforcing Steel (Epoxy Coated) (pound, 114,030), and Total.

Table of Estimated Quantities for Slab on Steel. 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 with the horizontal dimensions as shown on the plan of slab.

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 B533 with a thickness of Class 4 and a finish type 1, 11 or 111.

Corrugated steel forms, supports, closure elements and accessories shall be in accordance with grade drawings of the permanent steel deck forms shall be required in accordance with Sec 1080.

Form sheets shall not rest directly on the top of girder flanges. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the flange. Welding on or drilling holes in the girder flanges will not be permitted.

FOUNDATION DATA

Table with 3 columns: Type, Design Data, Bent Number. Rows include Pile Type and Size, Number, Approximate Length per Each, Load Bearing Pile, and Rock Socket.

Drilled Shaft Notes: Rock Socket (Drilled Shafts): Minimum Nominal Axial Compressive Resistance (Side Resistance + Tip Resistance) = Maximum Factored Loads/Resistance Factors. Thickness of permanent steel casing shall be 3/4" in accordance with Sec 701.

Designed: BMC 11/01/17
Detailed: BMC 01/01/18
Checked: HNS 02/02/18

ESTIMATED QUANTITIES

Table with 5 columns: ITEM, SUBSTR., SUPERSTR., TOTAL. Rows include Removal of Bridges, Bridge Approach Slab, Drilled Shaft, Rock Socket, Supplementary Television Camera Inspection, Foundation Inspection Holes, Sonic Logging Testing, Galvanized Structural Steel Piles, Pre-Bore for Piling, Pile Point Reinforcement, Class B Concrete, Safety Barrier Curb, Protective Coating, Piers, Fabricated Structural Low Alloy Steel, Intermediate Field Coat, Finish Field Coat, Vertical Drain of End Bents, Laminated Neoprene Bearing Pod Assembly.

* Safety barrier curb shall be cast-in-place option or slip-form option. All concrete between the upper and lower construction joints in the end bents is included in the Estimated Quantities for Slab on Steel.

All reinforcement in the end bents is included in the Estimated Quantities for Slab on Steel. Cost of HP pile anchors (4x4 (ASTM A709 Grade 36) and 3" dia. H.S. bolts (ASTM F3125 Grade A325) in place will be considered completely covered by the contract unit price for Galvanized Structural Steel Piles (14 in.).

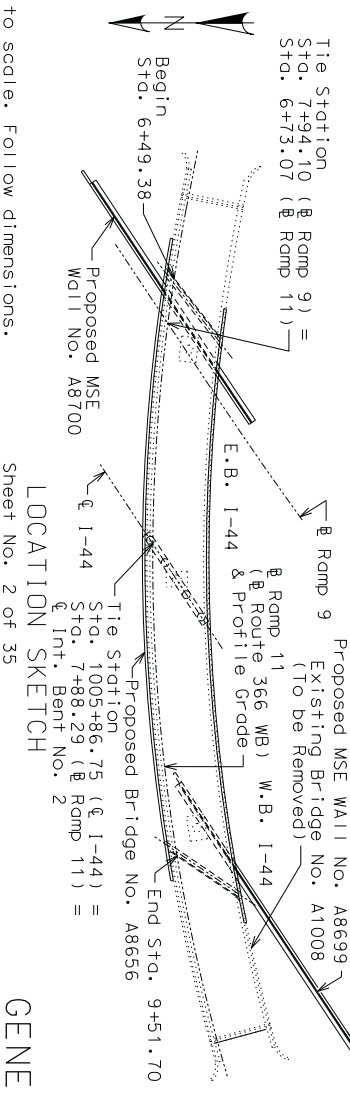
Driven Pile Notes: Minimum Nominal Axial Compressive Resistance = Maximum Factored Loads/Resistance Factor. Minimum energy requirement of hammer is based on pile length and nominal axial compression resistance value of piles.

All piles shall be seated with the pile hammer to the required capacity; if piles are socketed into rock. In all other cases piles shall be driven to refusal. Manufactured pile point reinforcement shall be used on all piles in this structure.

Prebore for piles at End Bent No. 1 to Elevation 562.0 and at End Bent No. 3 to Elevation 554.0. Pipe Pile Spacers shall be used with each pile on this structure. Elimination of pipe pile spacers per Sec 720.4.7.4 will not be permitted.

Corrugated metal pipe pile spacers shall have an inside diameter of at least 24 inches. See Special Provisions. ** All piles shall bear on rock. The piles shall be inserted into the prebore holes and are to be seated on bedrock and not rubble in the bottom of hole.

The cost for material and labor preboring and backfilling with sand or Class B Concrete shall be included in the contract unit price for Pre-Bore for Piling per linear foot. For additional details for Prebore for Piling, see Special Provisions.



GENERAL NOTES:

Design Specifications: 2012 AASHTO LRFD Bridge Design Specification (8th Ed) and 2013 Interim Revisions (Seismic) and 2014 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details) Seismic Design Category = B Design earthquake response spectral acceleration coefficient at 1.0 second period, SDS = 0.09g Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.16g

Design Loading: Vertical = HL-93 Future Wearing Surface = 35#/Sq. Ft. Earth 120 #/Cu. Ft., Equivalent Fluid Pressure 45#/Cu. Ft. Design Unit Stresses: Class B Concrete (Substructure), except Drilled Shafts & Rock Sockets f'c = 3,000 psi

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

Neoprene Pads: Laminated Neoprene Bearing Pads (Tapered) shall be 60 durometer and shall be in accordance with Sec 716. Fabricated Steel Connections: Field connections shall be made with 3/4" diameter high strength bolts and 1/2" diameter holes, except as noted.

Joint Filler: All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted. Reinforcing Steel: Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.

Structural Steel Protective Coatings: Protective Coating: System G in accordance with Sec 1081.

Prime Coat: The cost of the prime coat will be considered completely covered by the contract unit price for the Fabricated Structural Steel. Tint of the prime coat for System G shall be similar to the color of the field coat to be used.

Field Coat: The color of the finish field coat shall be Gray (Federal Standard #6373). The cost of the intermediate field coat will be considered completely covered by the contract unit price per sq. foot for "Intermediate Field Coat (System G)". The cost of the finish field coat will be considered completely covered by the contract unit price per sq. foot for the "Finish Field Coat (System G)".

At the option of the contractor, the intermediate and finish field coats may be applied in the shop. The contractor shall exercise extreme care during all phases of loading, hauling, handling, and pouring of the slab to minimize damage and shall be fully responsible for all repairs and cleaning of the coating systems as required by the engineer.

Structural Removal: The removal of the bridge shall be per the standard specifications. Traffic Handling: Structure to be closed during construction.

Miscellaneous: High strength bolts, nuts and washers will be sampled for quality assurance as specified in Sec 106.

"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise. Vertical clearance for 1-44 traffic during construction shall be 16'-0" minimum over a 33'-0" (WB) & 50'-0" (EB) wide horizontal opening of the roadway in each direction.

The Contractor shall coordinate construction of End Bent No. 1 and End Bent No. 3, including pile pre-bore and installation of piles and corrugated metal diaphragm pile spacers, with the MSE Wall construction. Protective coating for concrete bents and piers (Epoxy) shall be applied as shown on the bridge plans and in accordance with Sec 711.

GENERAL NOTES AND ESTIMATED QUANTITIES

Table with 2 columns: DATE, DESCRIPTION. Includes project details like JOB NO. JCS3181, CONTRACT ID., PROJECT NO., BRIDGE NO. A8656.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION logo and address: 105 WEST CAPITOL JEFFERSON CITY, MO 65102

HANSON Professional Services Inc. logo and address: 13801 Riverport Drive, Suite 300, St. Louis, Missouri 63043

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DATE PREPARED
02/02/18

ROUTE STATE
366 MO
DISTRICT SHEET NO.
BR 3

COUNTY
ST. LOUIS

JOB NO.
J6S3181


CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A8656

DATE	DESCRIPTION

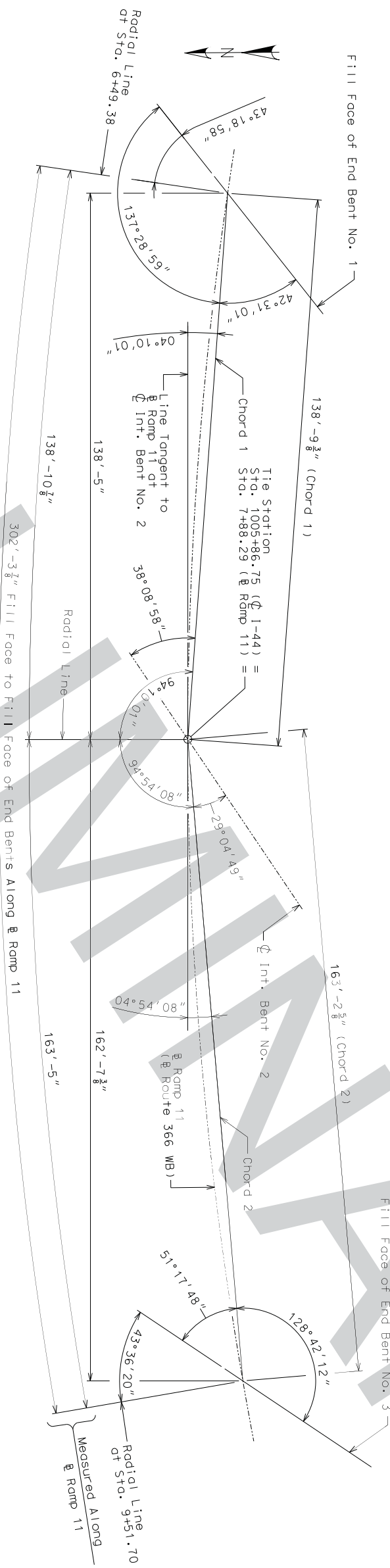
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13801 Riverport Drive, Suite 300
St. Louis, Missouri 63043
Professional Engineer 001632
www.hanson-inc.com
314.770.0467



SUBSTRUCTURE LAYOUT

CURVE DATA - RAMP 11

- P.I. = 10+03.58
- P.C. = 6+13.01
- P.T. = 13+54.52
- Δ = 44°29'14.4" (LT)
- D = 5°59'58.4"
- L = 741.51'
- R = 390.58'
- T = 353.00'
- S.E. = 0.02 Ft/Ft at Sta. 5+41.00
- S.E. Transition = 0.02 Ft/Ft to 0.06 Ft/Ft from Sta. 5+41.00 to 6+85.00
- S.E. = 0.06 Ft/Ft from Sta. 6+85.00 to 12+50.00

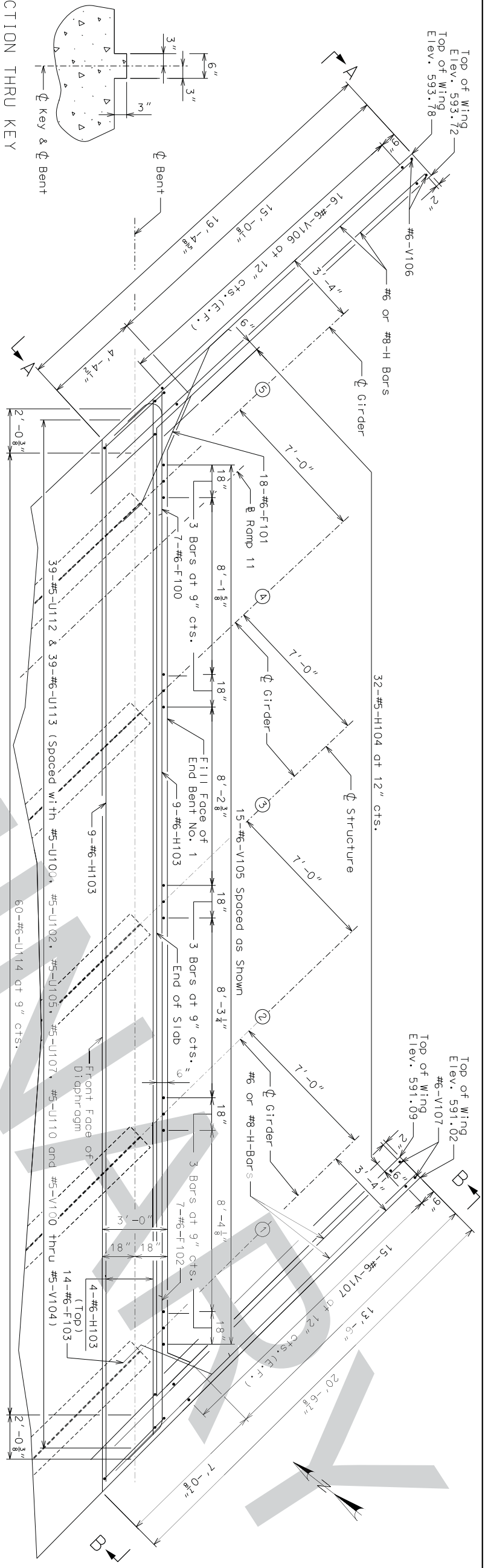
Notes:
All dimensions are horizontal.

Designed: BMC 11/01/17
Detailed: BMC 01/01/18
Checked: HNS 02/02/18

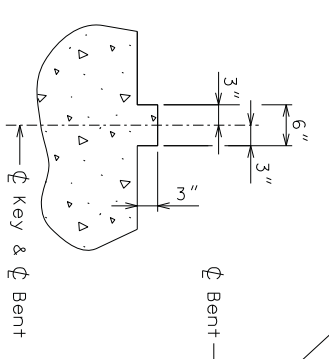
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 35

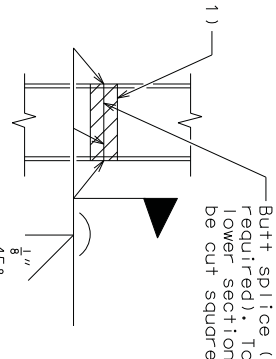
SUBSTRUCTURE LAYOUT



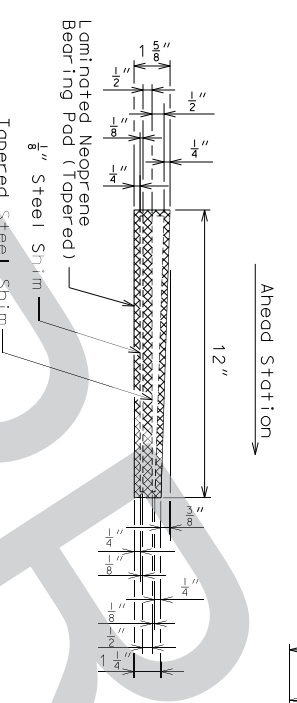
SECTION THRU KEY



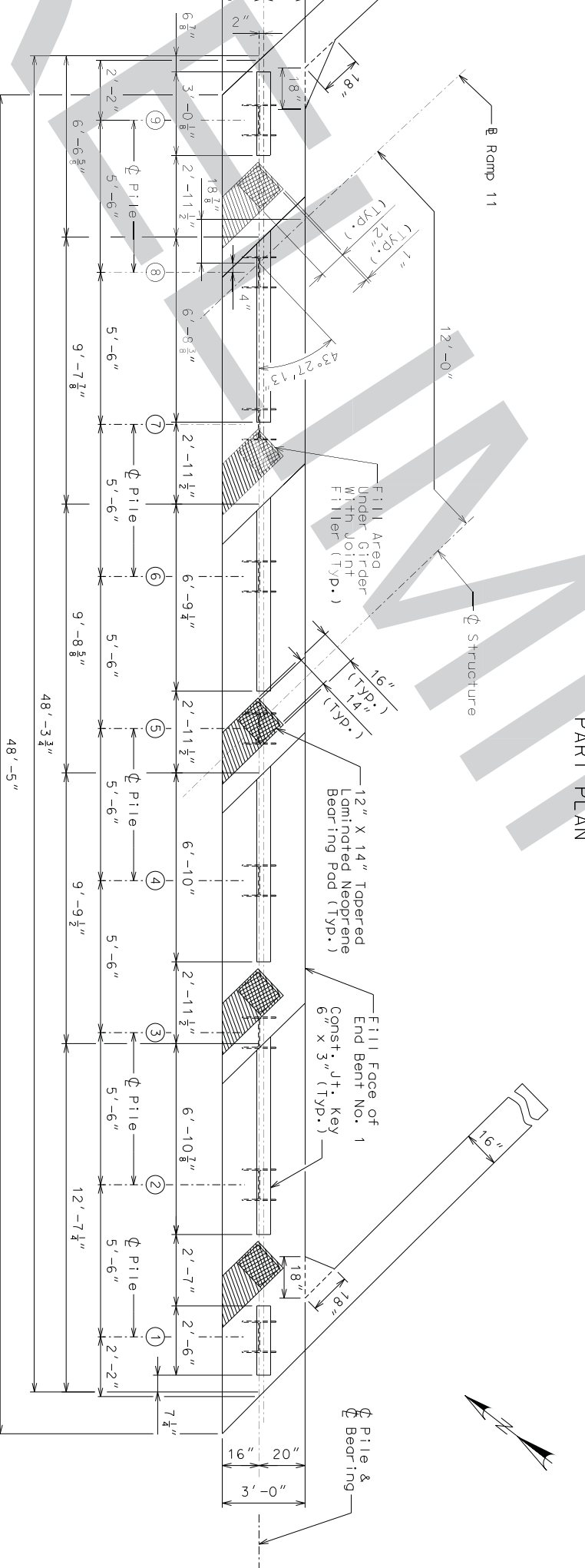
STEEL PILE SPLICE



(1) Galvanization material shall be omitted or removed for a minimum of 2' around weld locations. The method used to omit or remove galvanizing material shall be approved by the engineer.



TAPERED LAMINATED NEOPRENE BEARING PAD AT END BENT NO. 1



PLAN OF BEAM

NOTES:

- For details of End Bent No. 1 not shown, see Sheet Nos. 5 & 6.
- Bend #6-F101 & F103 bars in field to clear beams.
- For details of Vertical Drain at End Bents, see Sheet No. 7.
- All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
- For Elevation A-A & B-B, see Sheet No. 6.
- Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2".
- The U bars, Pairs-V bars and #5-H105 bars shall be placed parallel to E Ramp 11.
- For reinforcement of the Safety Barrier Curb, see Sheet Nos. 23 thru 26.
- For details of Bridge Approach Slab, see Sheet No. 27.

SUBSTRUCTURE QUANTITY TABLE FOR END BENT NO. 1

ITEM	QUANTITY
Galvanized Structural Steel Piles (14 in.)	234
Pre-Bore for Piling	linear foot 45
Pile Point Reinforcement	each 9
Class B Concrete (Substructure)	cu. yard 28.9

Notes: These quantities are included in the Estimated Quantities table on Sheet No. 2.

Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

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

Sheet No. 4 of 35

DETAILS OF END BENT NO. 1

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DATE PREPARED 02/02/18

ROUTE STATE 366 MO
 DISTRICT SHEET NO. 4 BR

COUNTY ST. LOUIS

JOB NO. JCS3181

CONTRACT ID. PROJECT NO.

BRIDGE NO. A8656

DESCRIPTION

DATE	DESCRIPTION

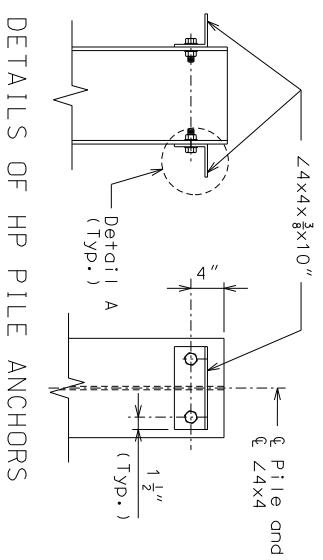
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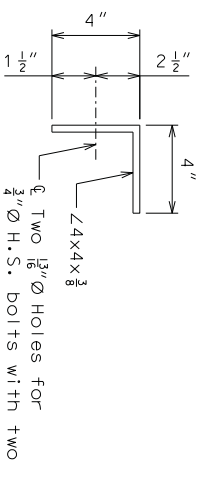
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 Professional Engineer 001632
 www.hanson-inc.com
 314.770.0467

Notes:
 For details of End Bent No. 1 not shown, see Sheets No. 4 & 6.
 For details of Vertical Drain at End Bents, see Sheet No. 7.
 All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
 For Sections C-C, D-D, E-E & F-F, see Sheet No. 6.
 For Substructure Quantity Table, see Sheet No. 4.
 Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2".
 The U bars, Paired-V bars and #5-H104 bars shall be placed parallel to the Ramp 11.
 Concrete diaphragms at the integral end bents shall be poured a minimum of 12 hours before the slab is poured.

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.



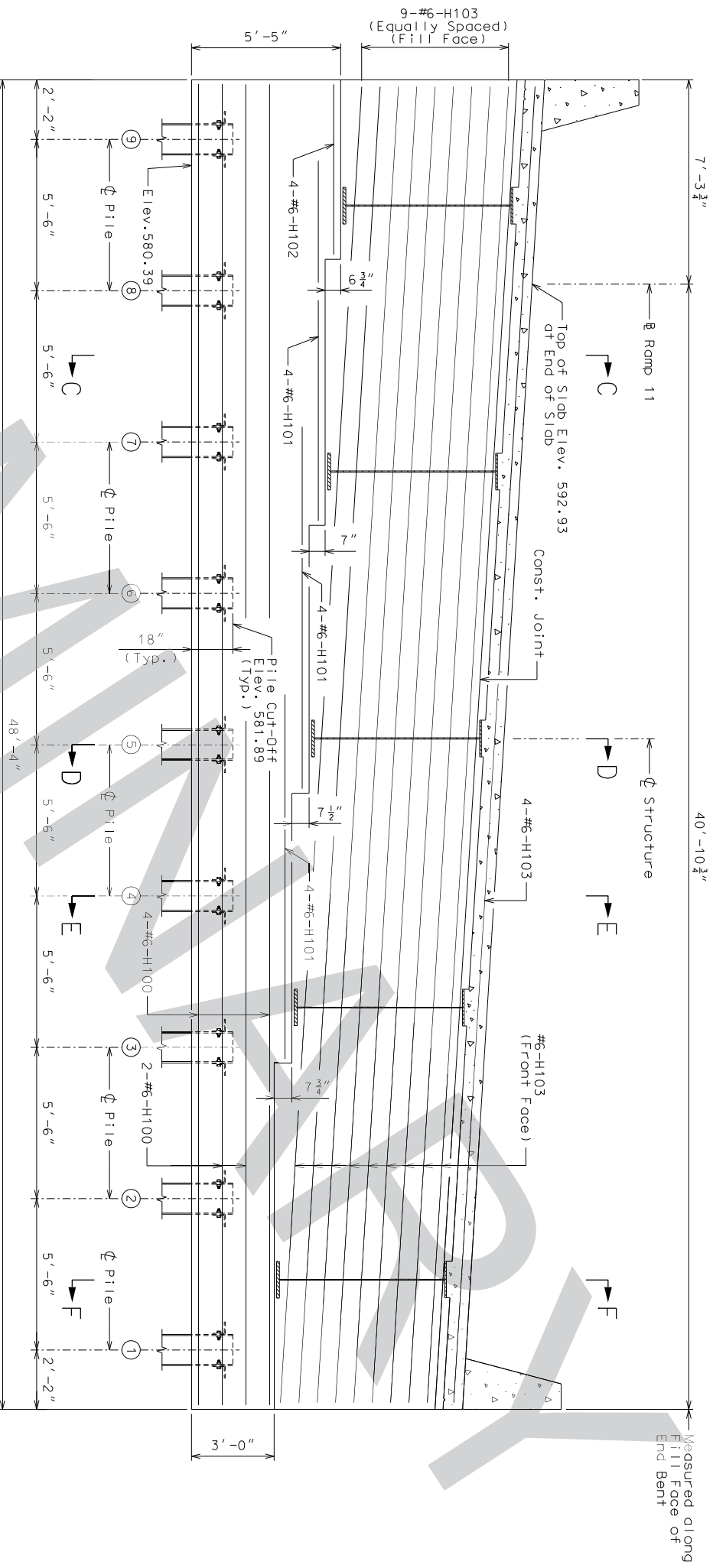
DETAILS OF HP PILE ANCHORS



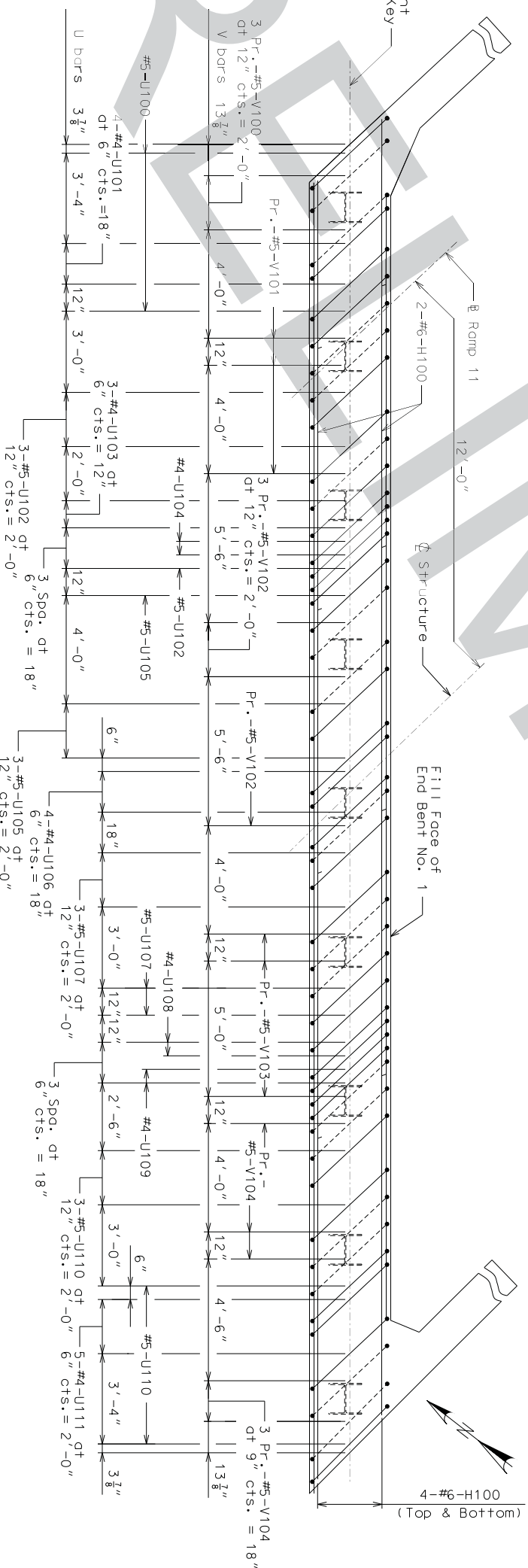
DETAIL A

Galvanizing 24x4, 3/8" diameter high strength bolts, washers and nuts will not be required.

BAR MARK	NO. BARS
#5-V100	6
#5-V101	6
#5-V102	8
#5-V103	6
#5-V104	12
#5-U100	2
#4-U101	4
#4-U102	4
#4-U103	3
#4-U104	2
#4-U105	4
#4-U106	4
#5-U107	5
#4-U108	2
#4-U109	2
#5-U110	5
#4-U111	5



SECTION NEAR END BENT



PLAN OF BEAM SHOWING REINFORCEMENT

(Keys and steps not shown for clarity)

Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

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

Sheet No. 5 of 35

DETAILS OF END BENT NO. 1

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DATE PREPARED 02/02/18

ROUTE STATE 366 MO

DISTRICT BR 5

COUNTY ST. LOUIS

JOB NO. J6S3181

CONTRACT ID.

PROJECT NO. A8656

BRIDGE NO. A8656

DATE

DESCRIPTION

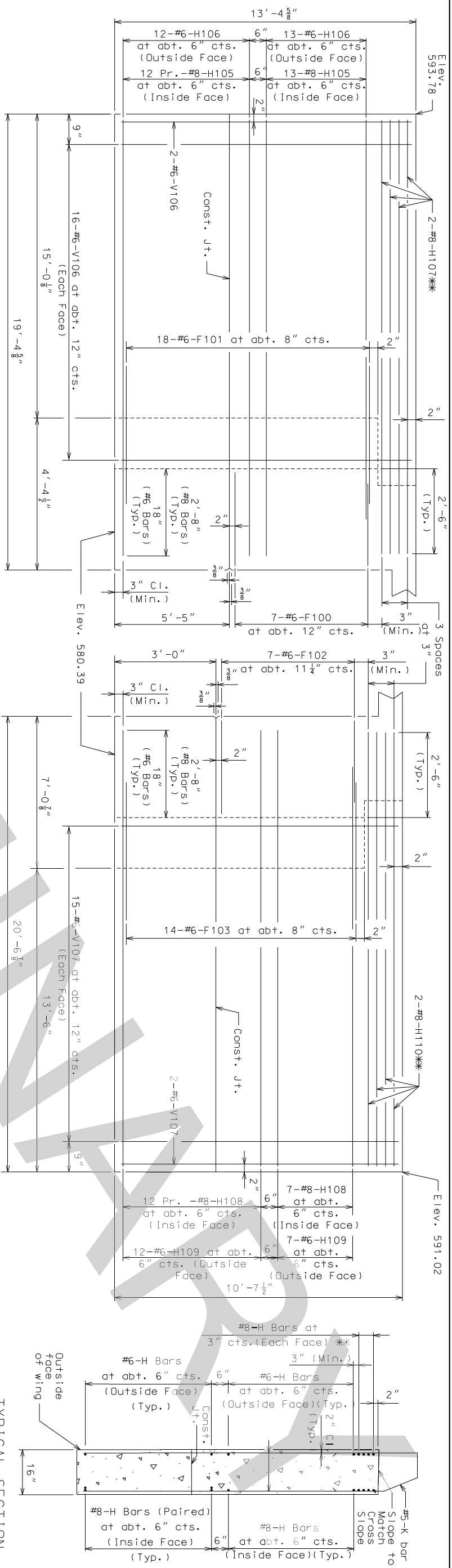
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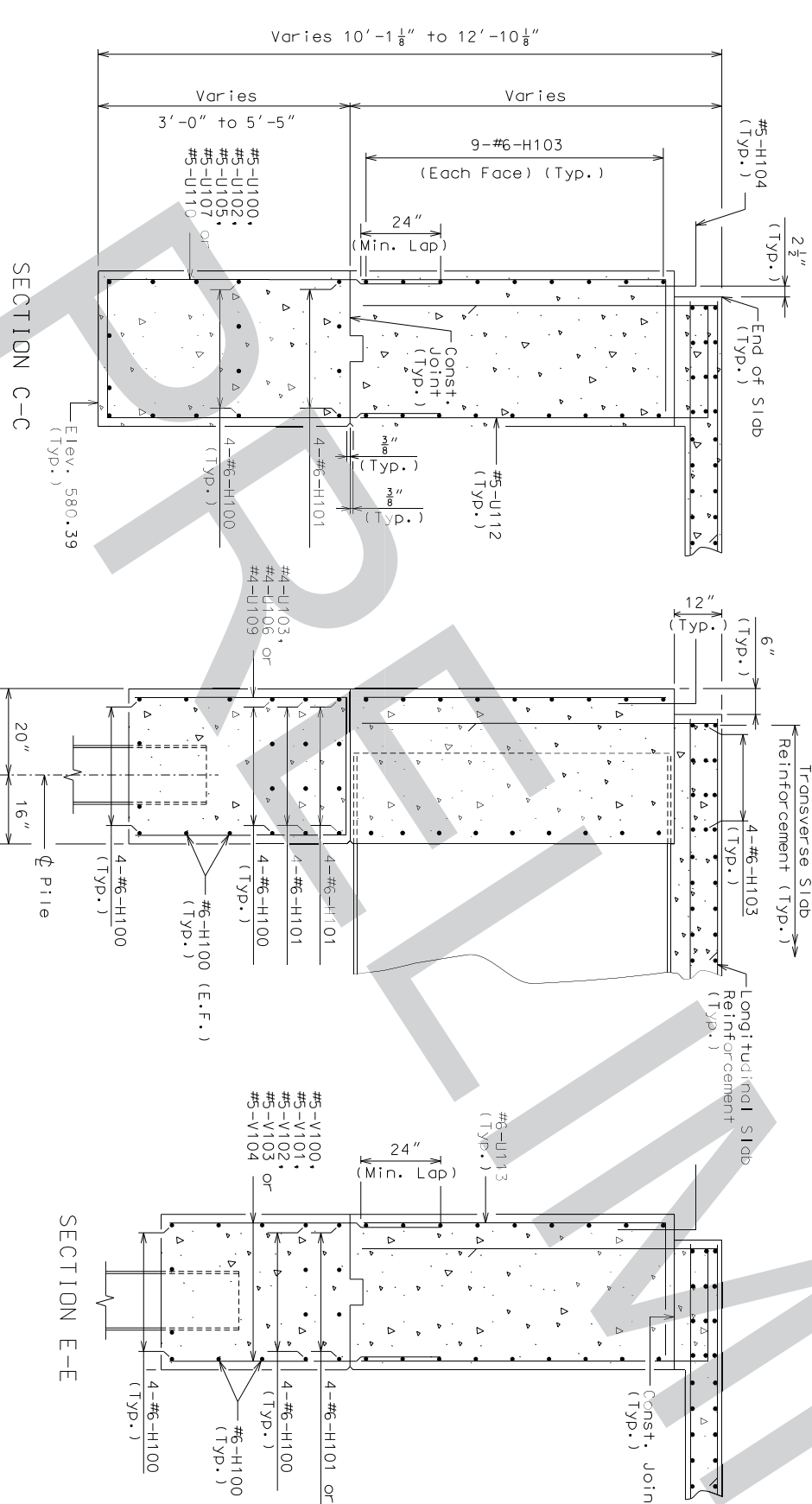


ELEVATION A-A

ELEVATION B-B

TYPICAL SECTION THRU WING

** Note: Place H107 & H110 bars parallel to grade.



SECTION C-C

SECTION D-D

SECTION E-E

SECTION F-F

Notes:

For details and reinforcement of Safety Barrier Curb not shown, see Sheets No. 23 thru 26.

Bend #6-F101 & F103 bars in field to clear girders.

For location of Elevations A-A & B-B and Sections C-C thru F-F, see Sheets No. 4 & 5.

For details of End Bent No. 1 not shown, see Sheets No. 4 & 5.

For details of Vertical Drain at End Bents, see Sheet No. 7.

For details of Bridge Approach Slab, see Sheet No. 27.

Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

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

Sheet No. 6 of 35

DETAILS OF END BENT NO. 1

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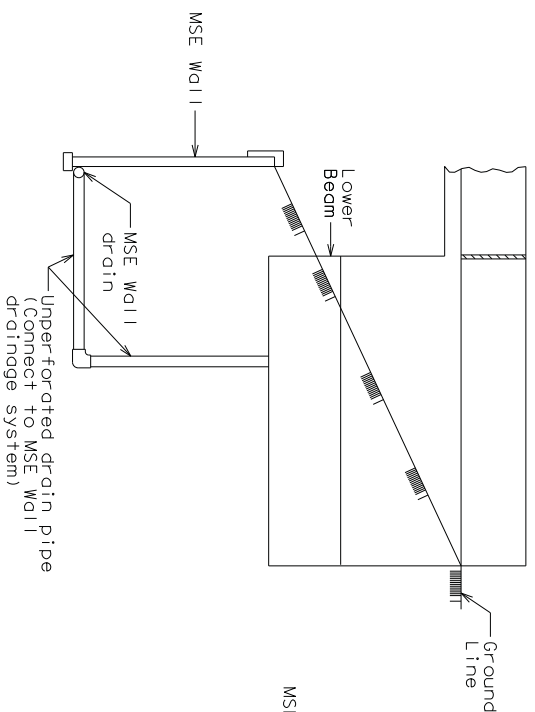
DATE PREPARED	02/02/18
ROUTE	366
STATE	MO
DISTRICT	6
BR	6
COUNTY	ST. LOUIS
JOB NO.	J6S3181
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A8656

DATE	DESCRIPTION

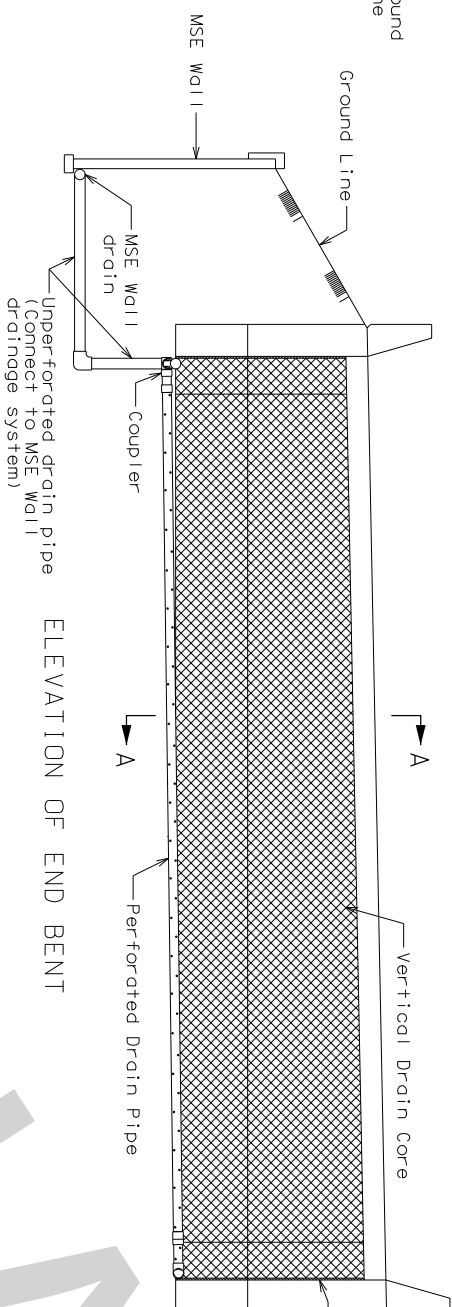
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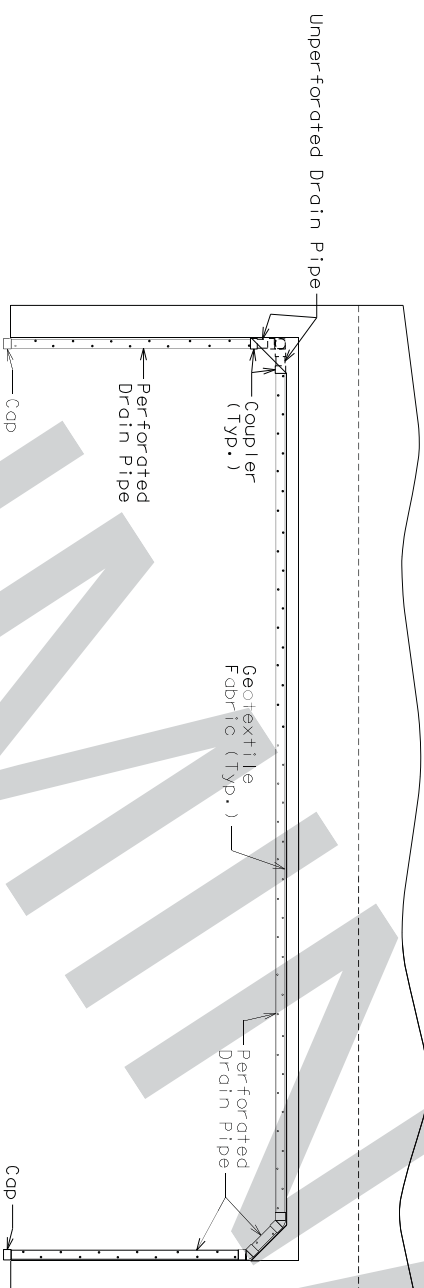
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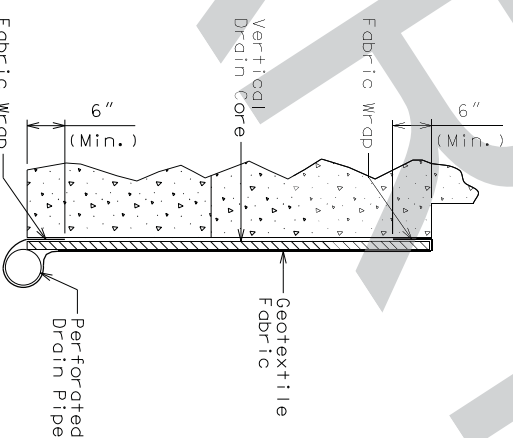
ELEVATION OF WING



ELEVATION OF END BENT



PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)

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, skewed end bent similar)

Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

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

Sheet No. 7 of 35

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DATE PREPARED 02/02/18
 ROUTE 366
 STATE MO
 DISTRICT 7
 BR 7

COUNTY ST. LOUIS

JOB NO. J6S3181


CONTRACT ID.

PROJECT NO.

BRIDGE NO. A8656

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

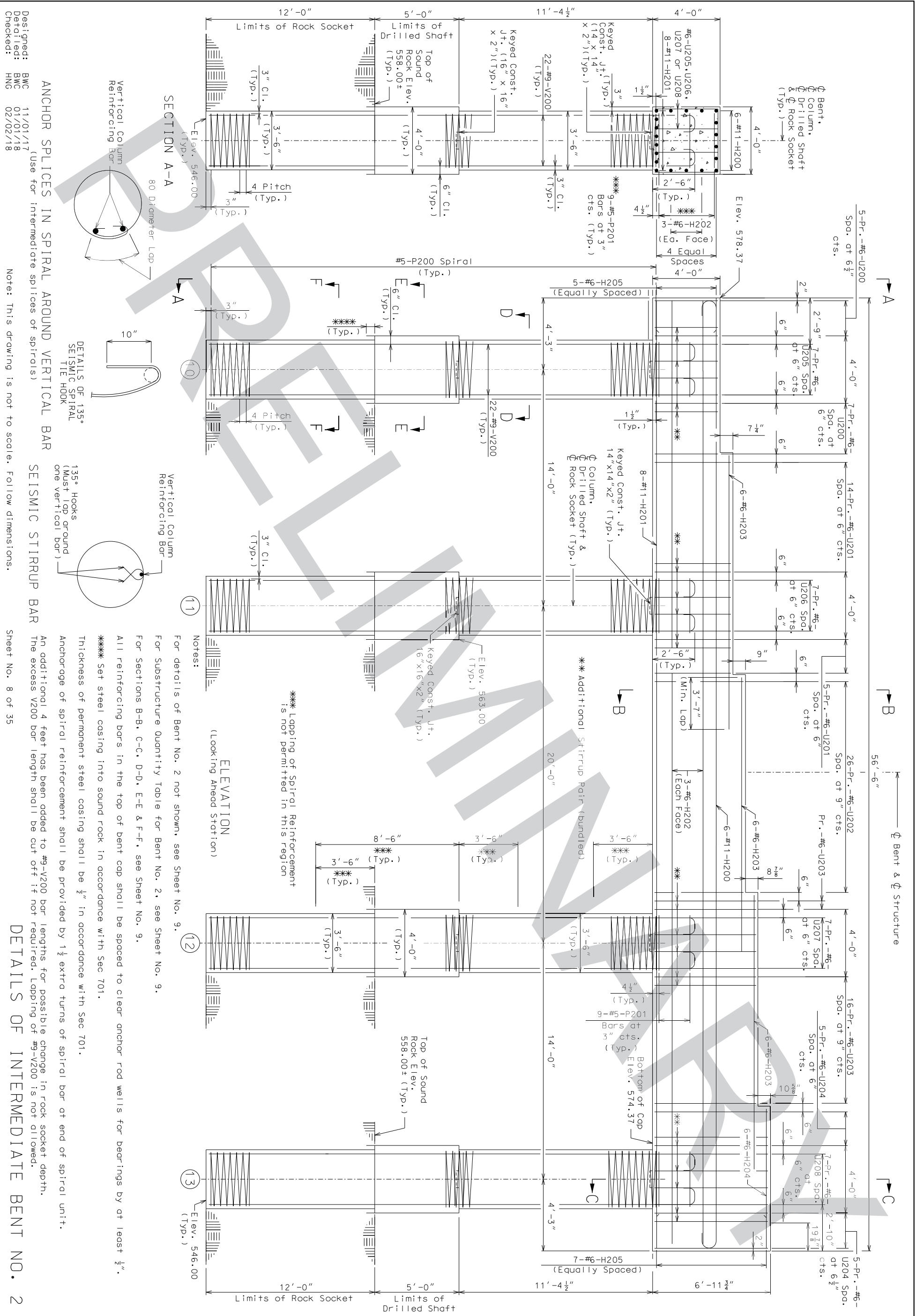


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Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

ANCHOR SPLICES IN SPIRAL AROUND VERTICAL BAR
 SEISMIC STIRRUP BAR

ANCHOR SPLICES IN SPIRAL AROUND VERTICAL BAR
 SEISMIC STIRRUP BAR

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

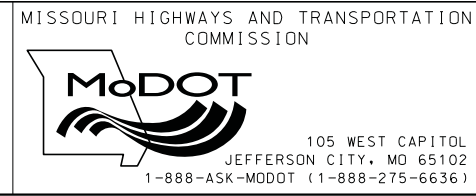
Note: This drawing is not to scale. Follow dimensions.

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

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

- Notes:
- For details of Bent No. 2 not shown, see Sheet No. 9.
 - For Substructure Quantity Table for Bent No. 2, see Sheet No. 9.
 - For Sections B-B, C-C, D-D, E-E & F-F, see Sheet No. 9.
 - All reinforcing bars in the top of bent cap shall be spaced to clear anchor rod wells for bearings by at least $\frac{1}{2}$ ".
 - *** Set steel casing into sound rock in accordance with Sec 701.
 - Thickness of permanent steel casing shall be $\frac{1}{2}$ " in accordance with Sec 701.
 - Anchorage of spiral reinforcement shall be provided by $1\frac{1}{2}$ extra turns of spiral bar at end of spiral unit.
 - An additional 4 feet has been added to #9-V200 bar lengths for possible change in rock socket depth.
 - The excess V200 bar length shall be cut off if not required. Lapping of #9-V200 is not allowed.

*** Lapping of Spiral Reinforcement is not permitted in this region (Looking Ahead Station)

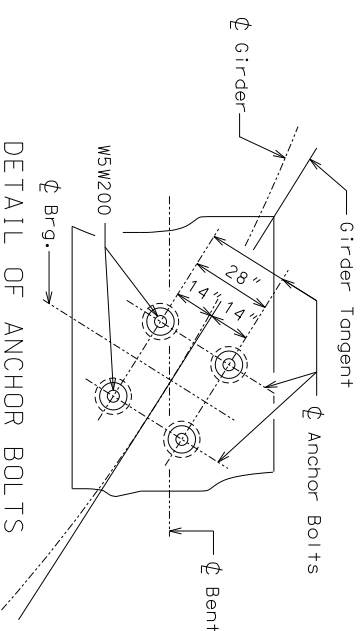
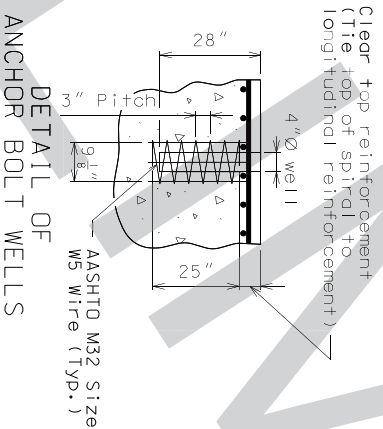
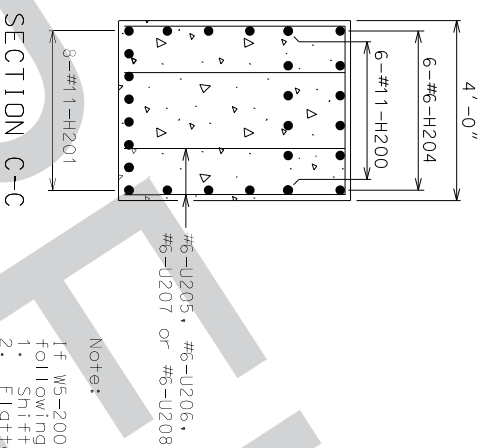
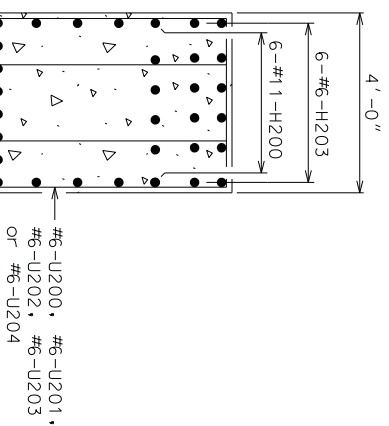
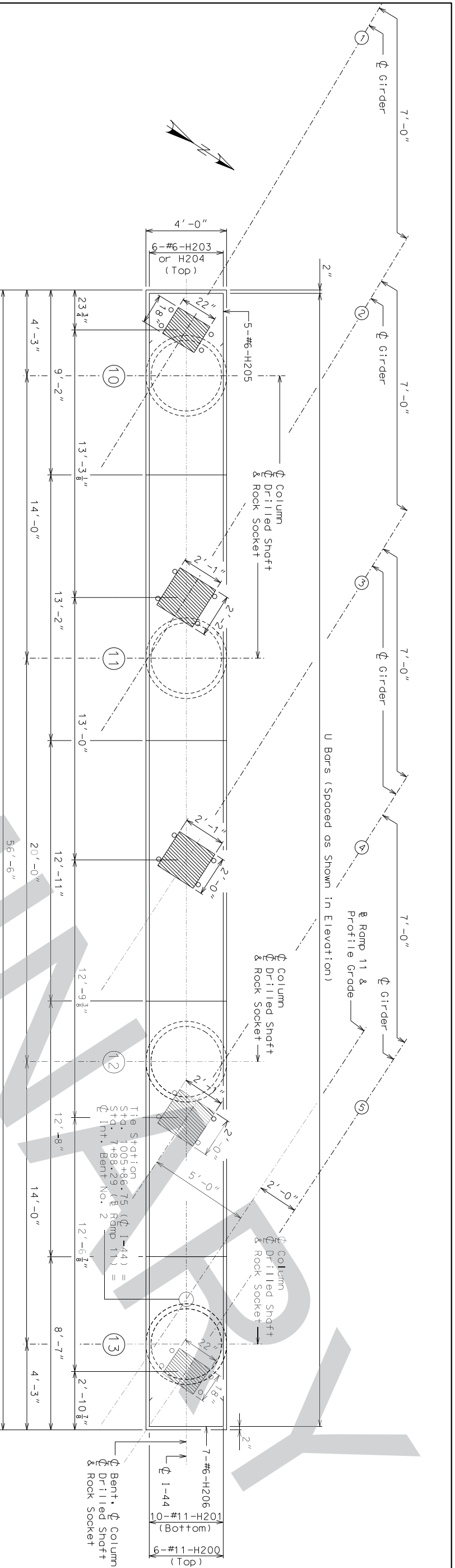


DATE	DESCRIPTION

PROJECT NO.	ST. LOUIS
BRIDGE NO.	JCS3181
CONTRACT ID.	
DATE PREPARED	02/02/18
ROUTE	366
STATE	MO
DISTRICT	8
SHEET NO.	8

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



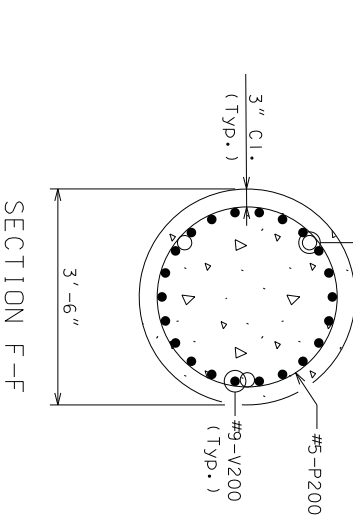
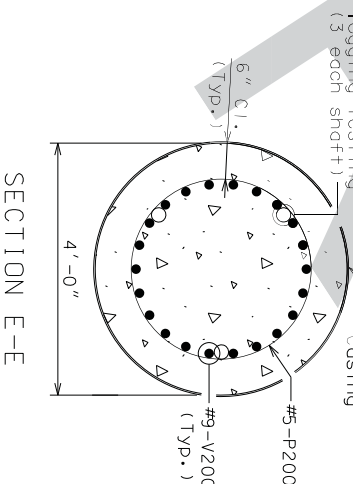
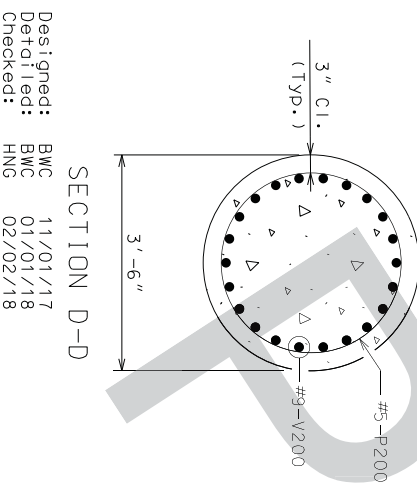
Note:
 If W5-200 cage interferes with column reinforcing, use the following methods to limit the interference:
 1. Shift W5-200 cage to clear the column reinforcing.
 2. Flatten on side of W5-200 cage to clear column reinforcing.
 3. Cut one side of the W5-200 cage and weave through column reinforcing.

Notes:
 For additional details of Int. Bent No. 2, see Sheet No. 8.
 The cost of reinforcing steel for the drilled shafts and rock sockets is included with the contract price for Reinforcing Steel (Bridges).
 Concrete coring shall be performed on one of the drilled shafts and rock sockets per bent in accordance with Sec 701.
 Sonic logging testing shall be performed on all drilled shafts and rock sockets. All reinforcement bars in the tops of substructure beams or caps shall be spaced to clear the anchor bolt wells for bearings by at least 1/2".
 For locations of Sections B-B, C-C, D-D, E-E & F-F, see Sheet No. 8.
 For details of laminated neoprene bearing pads, see Sheet No. 13.
 Thickness of permanent steel casing shall be 1/2" in accordance with Sec 701.

Substructure Quantity Table for Bent No. 2

Item	Quantity
Drilled Shaft (4 ft. 0 in. Dia.)	20.0
Rock Socket (3 ft. 6 in. Dia.)	48.0
Supplementary Television Camera Inspection	4
Foundation Inspection Holes	88.0
Sonic Logging Testing	4
Class B Concrete (Substructure)	61.2 cu. Yrd
Reinforcing Steel (Epoxy Coated)	25.750 pounds

Note: These quantities are included in the Estimated Quantities table on Sheet No. 2.



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

Sheet No. 9 of 35

DETAILS OF INTERMEDIATE BENT NO. 2

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DATE PREPARED
 02/02/18
 ROUTE
 366
 STATE
 MO
 DISTRICT
 BR 9
 SHEET NO.

COUNTY
 ST. LOUIS

JOB NO.
 JCS3181

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
 A8656

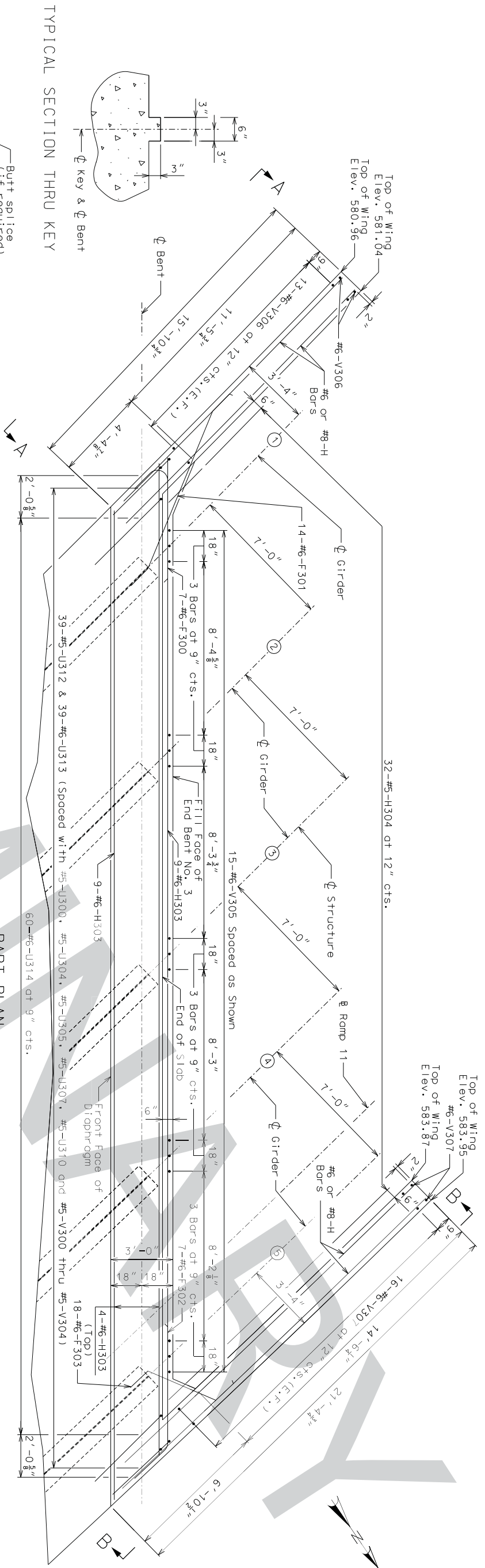
DESCRIPTION

DATE

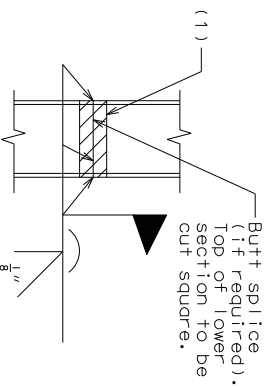
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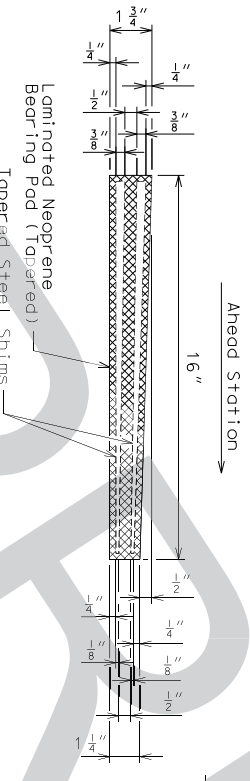


TYPICAL SECTION THRU KEY

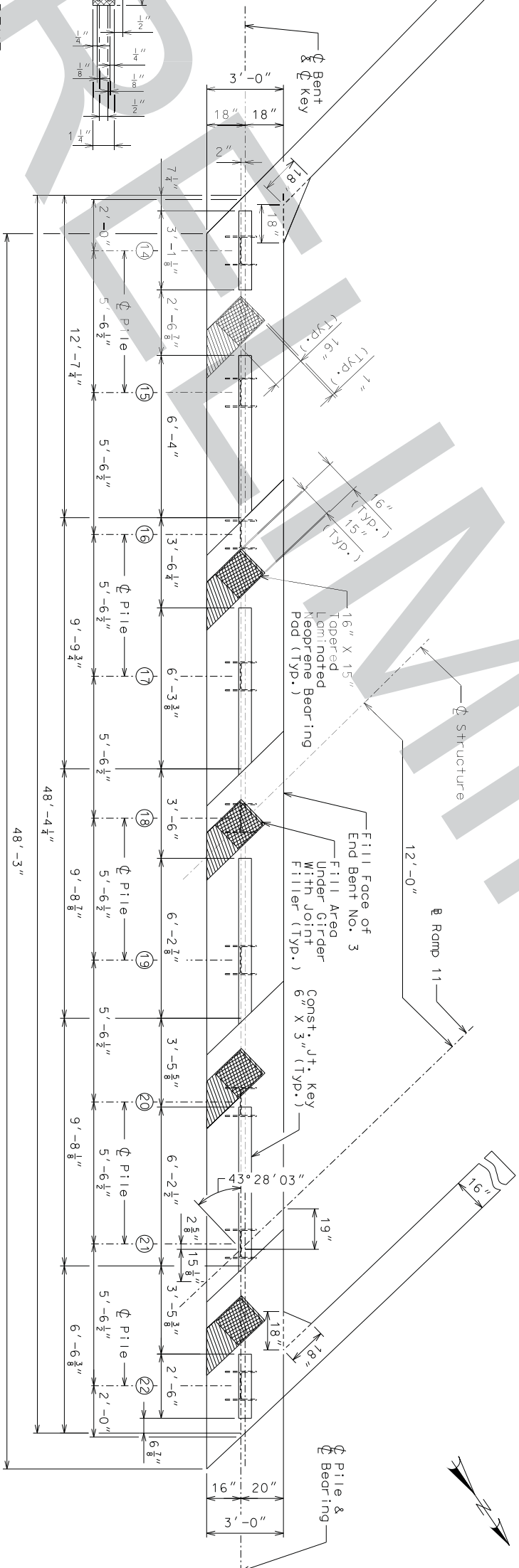


STEEL PILE SPLICE

(1) Galvanization material shall be omitted or removed for a minimum of 2' around weld locations. The method used to omit or remove galvanizing material shall be approved by the engineer.



TAPERED LAMINATED NEOPRENE BEARING PAD AT END BENT NO. 3



PLAN OF BEAM

SUBSTRUCTURE QUANTITY TABLE FOR END BENT NO. 3

ITEM	QUANTITY
Galvanized Structural Steel Piles (14 in.)	252
Pre-Bore for Piling	45
Pile Point Reinforcement	9
Class B Concrete (Substructure)	28.8

Notes:
 For details of End Bent No. 3 not shown, see Sheet Nos. 11 & 12.
 Band #6-F301 & F303 bars in field to clear beams.
 For details of Vertical Drain at End Bents, see Sheet No. 7.
 All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
 For Elevation A-A & B-B, see Sheet No. 12.

Note: These quantities are included in the Estimated Quantities table on Sheet No. 2.

Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

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

Sheet No. 10 of 35

DETAILS OF END BENT NO. 3

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DATE PREPARED	02/02/18
ROUTE	366
STATE	MO
DISTRICT	10
SHEET NO.	10
COUNTY	ST. LOUIS
JOB NO.	J6S3181
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A8656

DATE	DESCRIPTION

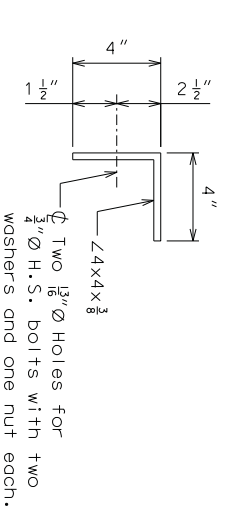
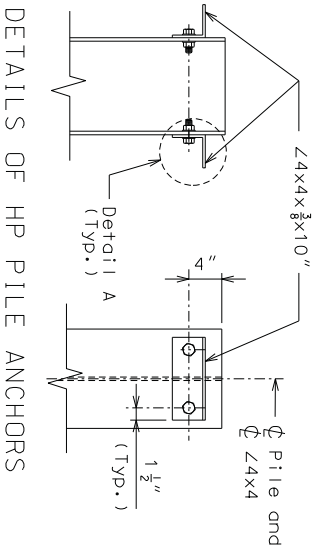
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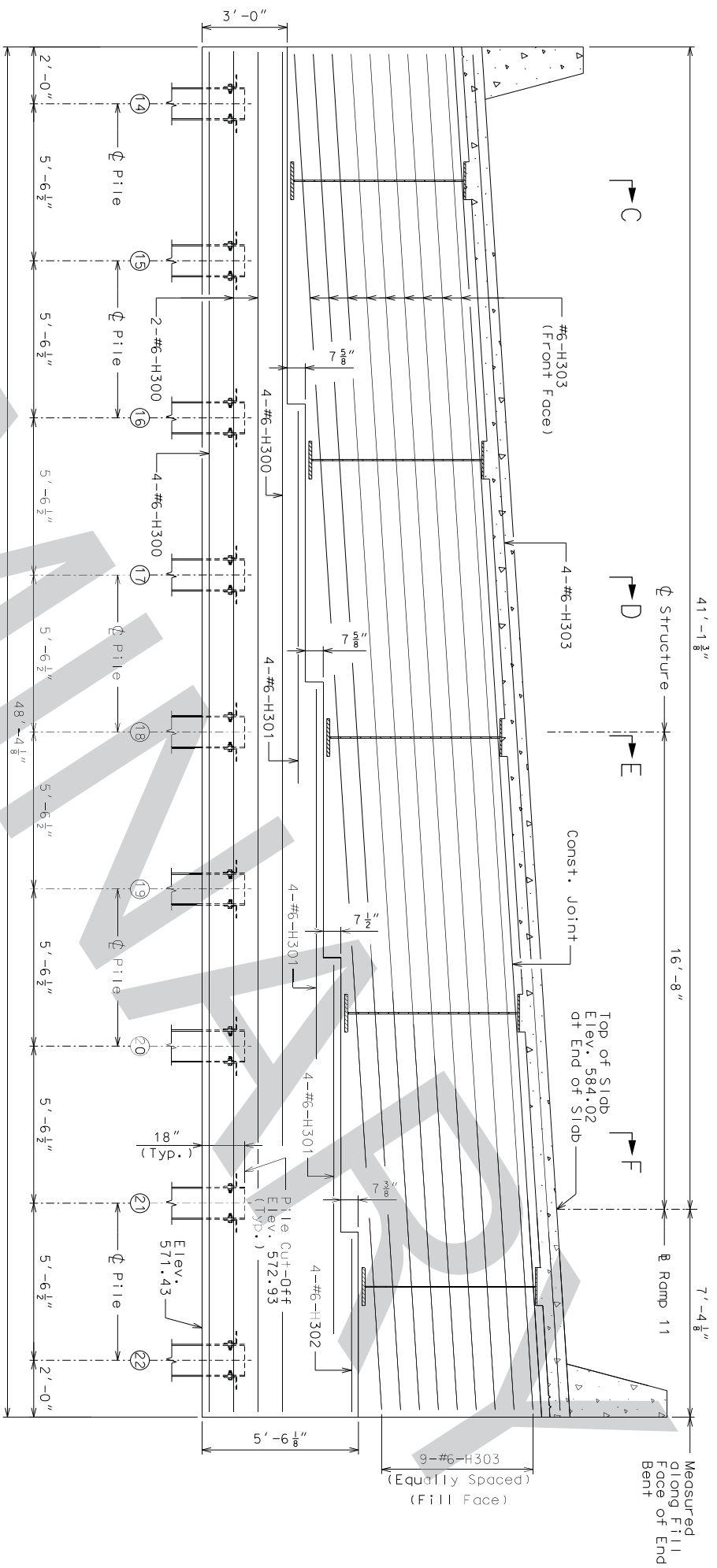
Notes:

For details of End Bent No. 3 not shown, see Sheets No. 10 & 12.
 For details of Vertical Drain at End Bents, see Sheet No. 7.
 All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
 For Sections C-C, D-D, E-E & F-F, see Sheet No. 12.
 For Structure Quantity Table, see Sheet No. 10.
 Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2".
 The U bars, Paired-V bars and #5-H307 bars shall be placed parallel to Ramp 11.
 Concrete diaphragms at the integral end bents shall be poured a minimum of 12 hours before the slab is poured.
 All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

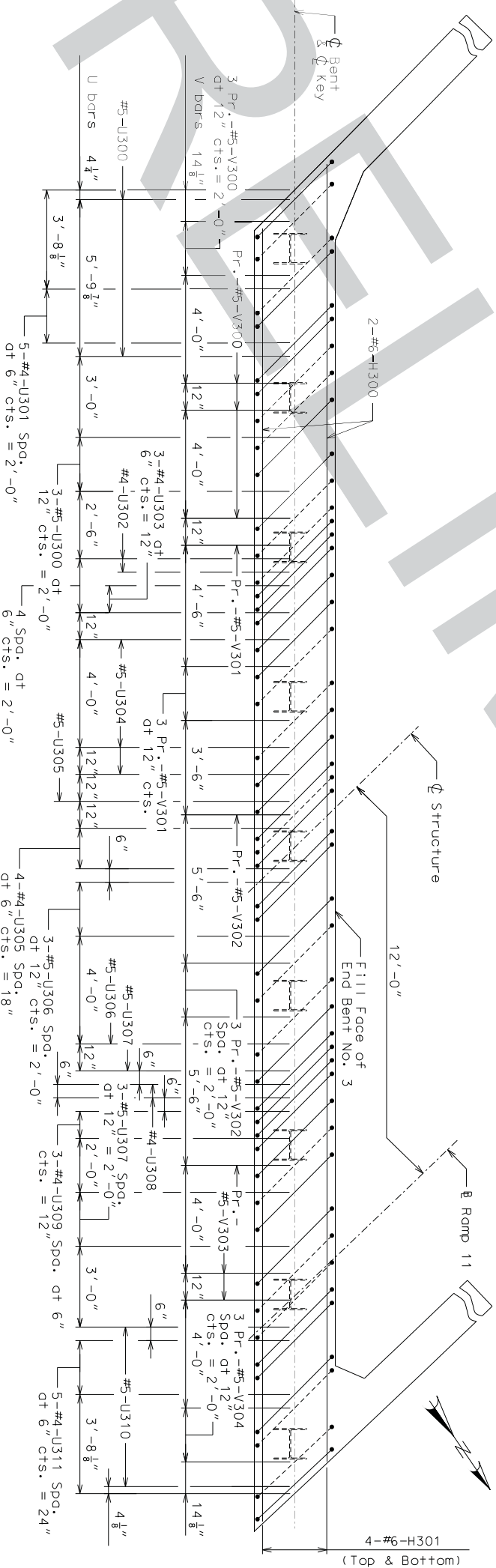


DETAIL A
 Galvanizing 24x4, 3/8" diameter high strength bolts, washers and nuts will not be required.

Bar Mark	No. Bars
#5-V300	12
#5-V301	8
#5-V302	8
#5-V303	6
#5-V304	6
#5-U300	5
#4-U301	5
#4-U302	2
#4-U303	3
#5-U304	3
#4-U305	5
#4-U306	4
#5-U307	4
#4-U308	2
#4-U309	3
#4-U310	2
#4-U311	5



SECTION NEAR END BENT



PLAN OF BEAM SHOWING REINFORCEMENT
 (Keys and steps not shown for clarity)

DETAILS OF END BENT NO. 3

Designed: BWC 11/01/17
 Detailed: BWC 01/01/18
 Checked: HNS 02/02/18

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

Sheet No. 11 of 35

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DATE PREPARED: 02/02/18
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 STATE: MO
 DISTRICT: BR 11
 COUNTY: ST. LOUIS
 JOB NO.: J6S3181
 CONTRACT ID.:

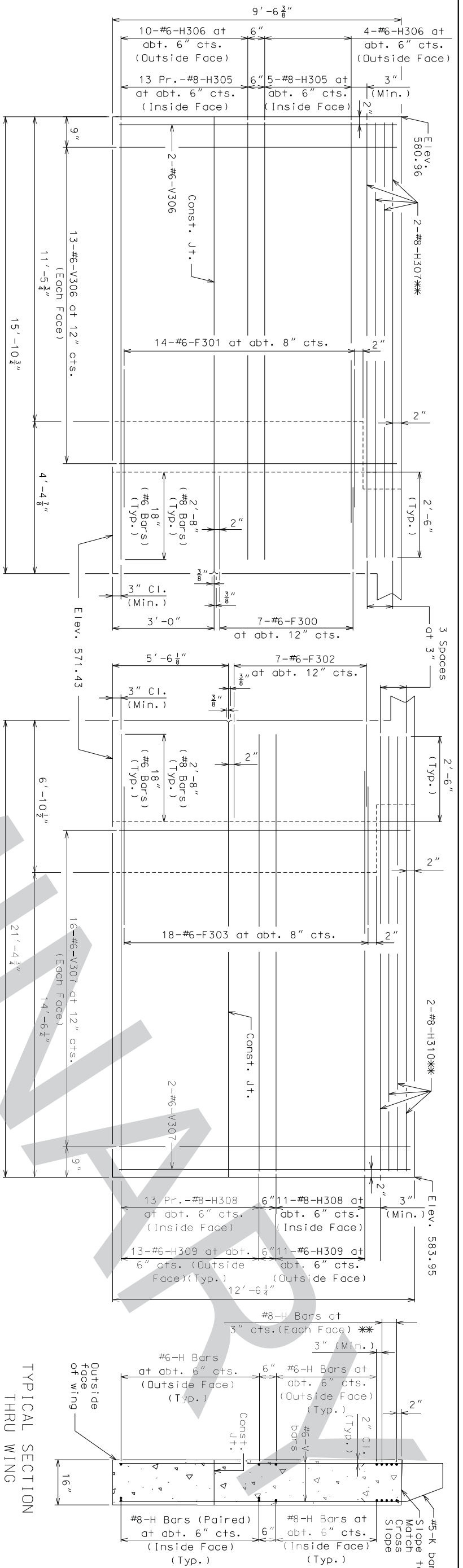
PROJECT NO.:
 BRIDGE NO.: A8656

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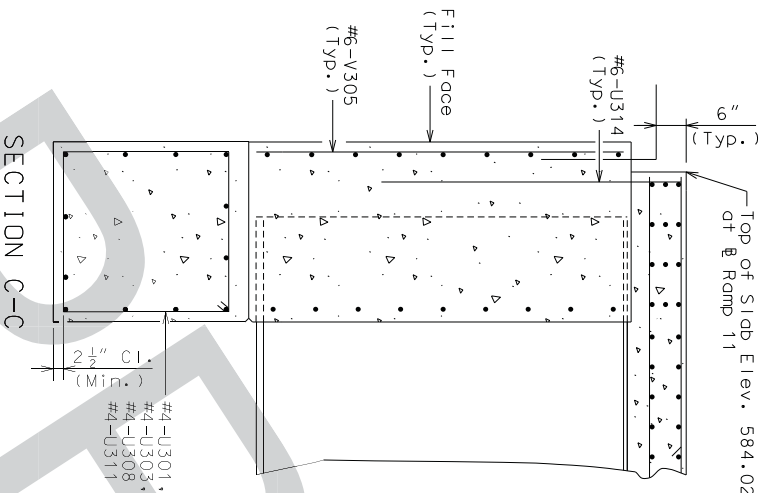
ELEVATION A-A

** Note: Place H307 & H310 bars parallel to grade.

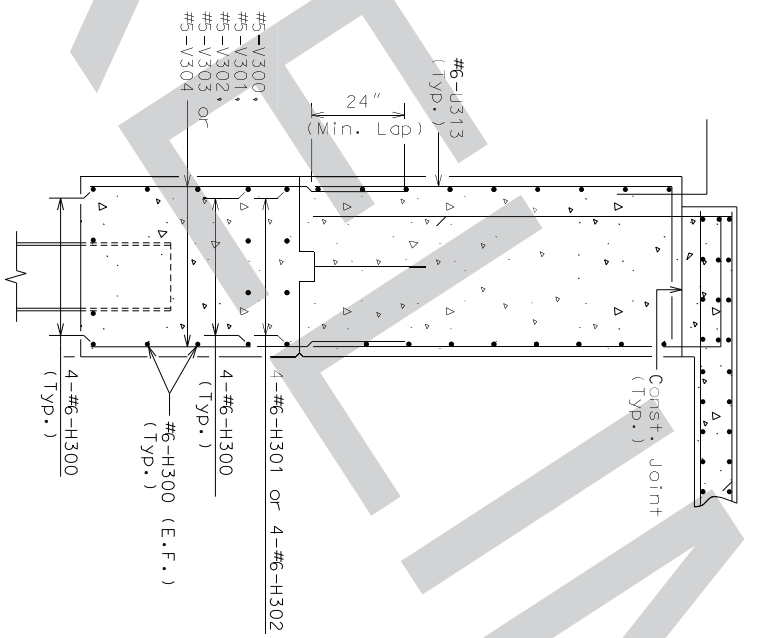
ELEVATION B-B

Transverse Slab Reinforcement (Typ.)

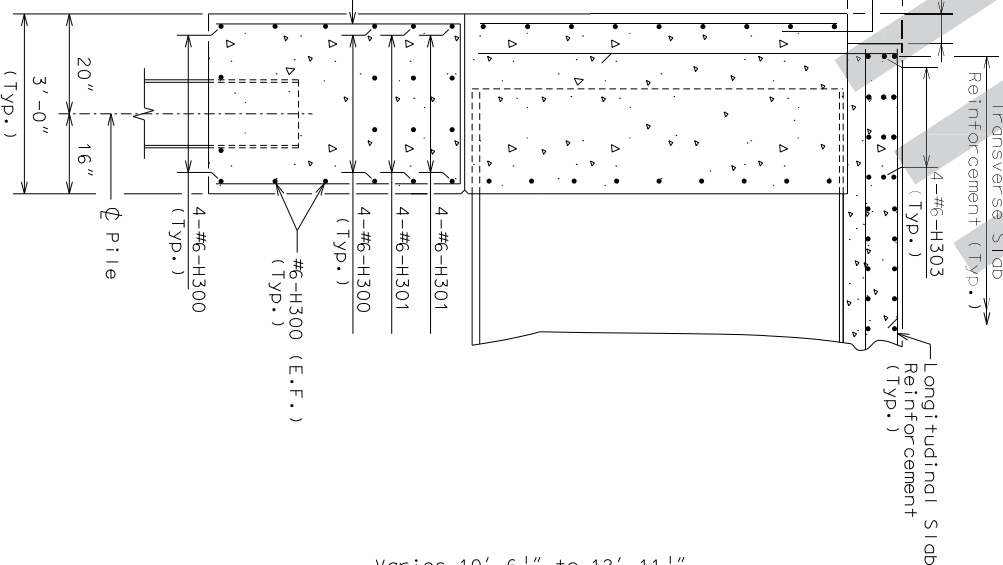
TYPICAL SECTION THRU WING



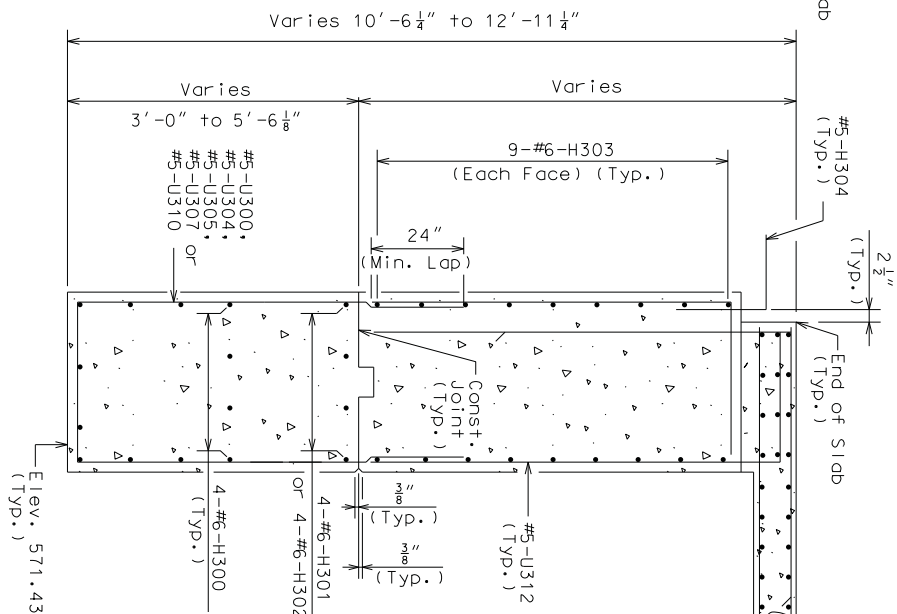
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

Notes:

For details and reinforcement of Safety Barrier Curb not shown, see Sheets No. 23 thru 26.

Bend #6-F301 & F303 bars in field to clear girders.

For location of Elevations A-A & B-B and Sections C-C thru F-F, see Sheets No. 10 & 11.

For details of End Bent No. 3 not shown, see Sheets No. 10 & 11.

For details of Vertical Drain at End Bents, see Sheet No. 7.

For details of Bridge Approach Slab, see Sheet No. 27.

Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

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

Sheet No. 12 of 35

DETAILS OF END BENT NO. 3

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DATE PREPARED 02/02/18

ROUTE STATE 366 MO

DISTRICT SHEET NO. BR 12

COUNTY ST. LOUIS

JOB NO. J6S3181

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A8656

DESCRIPTION

DATE

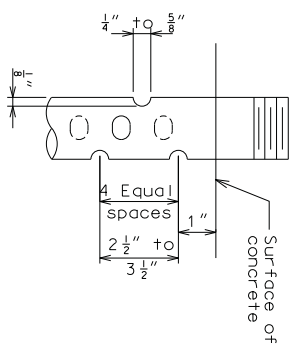
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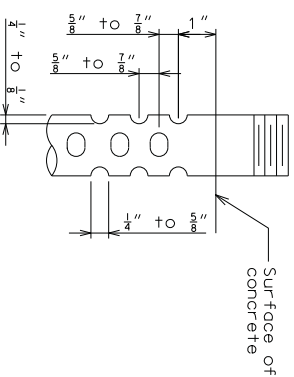
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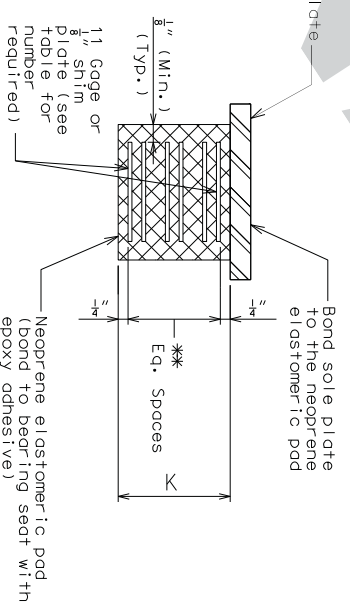
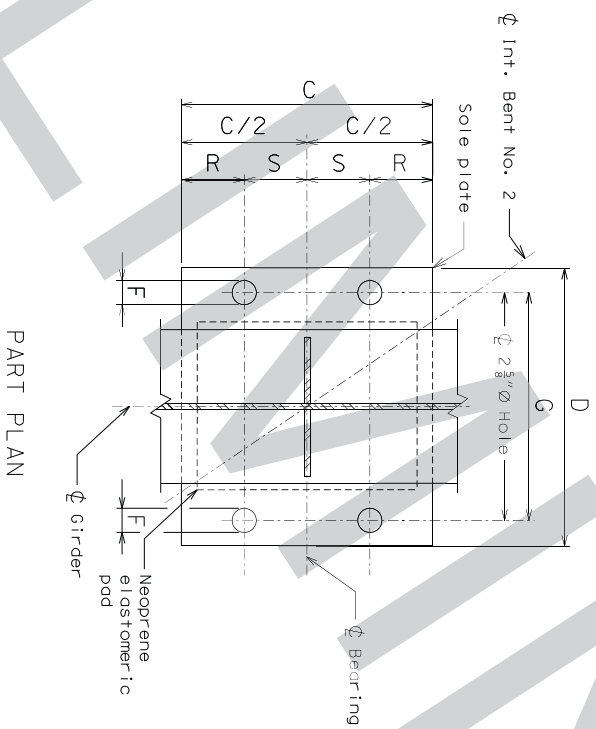
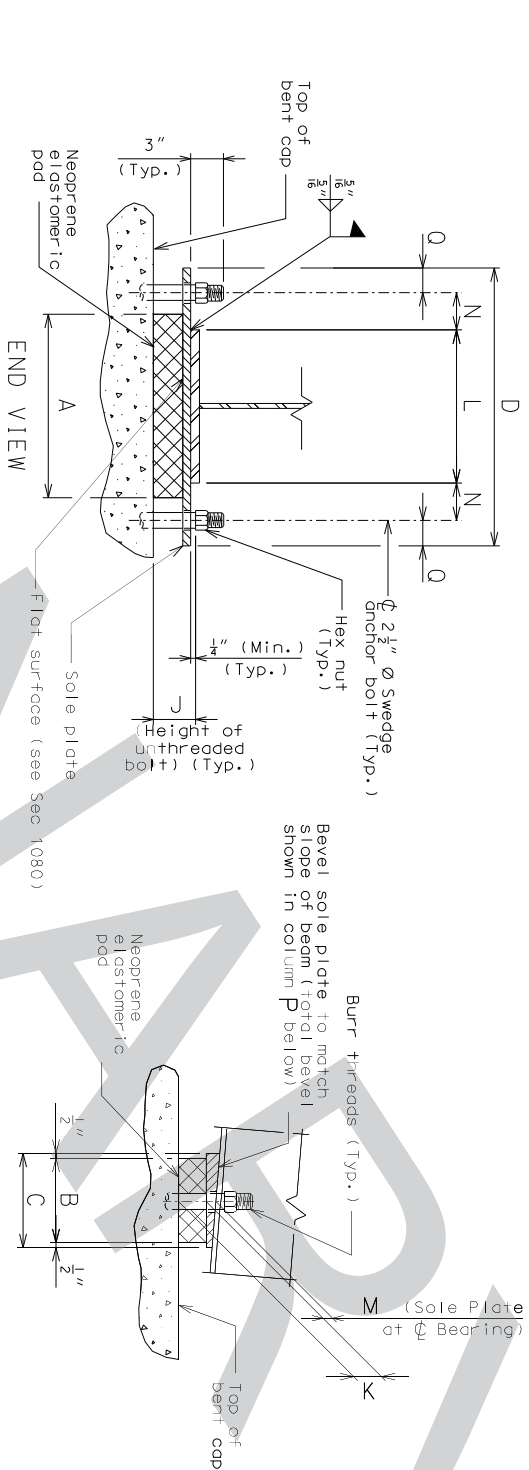


DETAIL FOR $\frac{3}{4}$ " \varnothing THRU
 $2\frac{1}{2}$ " \varnothing ANCHOR BOLTS



OPTIONAL DETAIL FOR $1\frac{3}{8}$ " \varnothing
THRU $2\frac{1}{2}$ " \varnothing ANCHOR BOLTS

SWEDGE ANCHOR BOLT DETAILS



NEOPRENE ELASTOMERIC PAD

FIXED BEARINGS - INT. BENT NO. 2														NUMBER OF SHIM PLATES *	NUMBER REQUIRED		
GIRDER NOS.	A	B	C	D	F	G	J	K	L	M	N	P	Q			R	S
1 & 5	22"	18"	19"	35 1/2"	2 3/8"	28"	6 1/8"	4 3/8"	18"	1 1/2"	5"	1/2"	3 3/4"	4"	5 1/2"	7	3
2	23"	26"	27"	35 3/8"	2 3/8"	28"	8"	6 1/4"	18"	1 1/2"	5"	3/4"	3 3/4"	4"	9 1/2"	10	2
3 & 4	25"	24"	25"	35 3/8"	2 5/8"	28"	8"	6 1/4"	18"	1 1/2"	5"	3/4"	3 3/4"	4"	8 1/2"	10	3
															TOTAL BEARINGS	5	

* The required shim plate shall be placed between layers of elastomer and milled together to form an integral unit.

GENERAL NOTES:

- Anchor bolts shall be $2\frac{1}{2}$ " \varnothing ASTM F1554 Grade 55 swaged bolts and shall extend 25" into the concrete with ASTM A563 Grade A Hex or Heavy Hex nuts. Actual manufacturer's certified mill test reports (chemical and mechanical) shall be provided. Swedging shall be 1" less than extension into the concrete.
- All structural steel for the anchor bolts and heavy hexagon nuts shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum).
- Neoprene Elastomeric Pads shall be 60 Durometer.
- Structural steel for sole plate shall be ASTM A709 Grade 50 and shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum).
- Laminated Neoprene Bearing Pad Assembly shall be in accordance with Sec 716.

Designed: BMC 11/01/17
Detailed: BMC 01/01/18
Checked: HNS 02/02/18

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

Sheet No. 13 of 35

DETAILS OF LAMINATED NEOPRENE BEARING PAD ASSEMBLY

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CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A8656

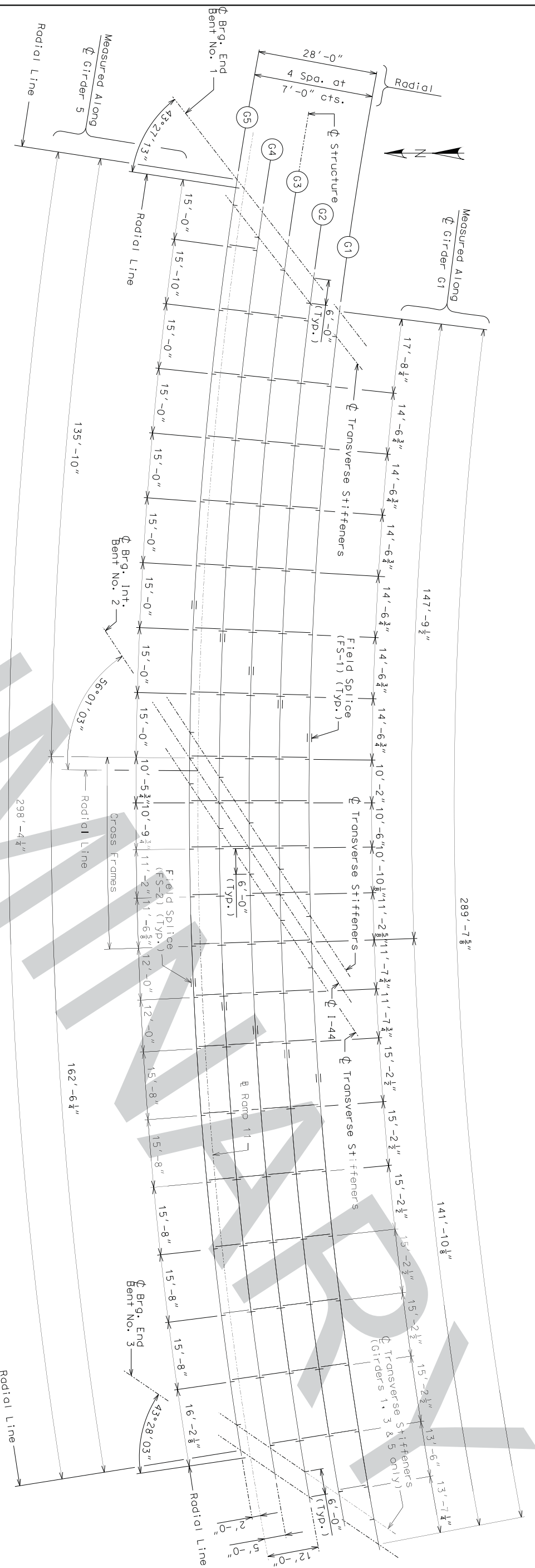
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PLAN OF STRUCTURAL STEEL
See Sheet No. 19 for Tension Flange Locations

Notes:

- Longitudinal dimensions are horizontal arc dimensions from ϕ brg. to ϕ brg. See Part-Longitudinal Section on Sheet No. 18.
- All Intermediate Diaphragms and Cross Frames are radial.
- For details of Bolted Field Splices, see Sheet No. 18.
- For details of Intermediate Diaphragms, Cross Frames, Bearing Stiffeners & Intermediate Diaphragm Connection Plates, see Sheet No. 19.
- All Fabricated Structural Steel shall be ASTM A709, Grade 50.
- For Elevation of Girder, see Sheet No. 15.
- For Spacing of Shear Connectors, see Sheet No. 15.

GIRDER VARIABLES	
GIRDER NO.	RADIUS
G1	929.00'
G2	936.00'
G3	943.00'
G4	950.00'
G5	957.00'

Designed: BWC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

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

Sheet No. 14 of 35

PLAN OF STRUCTURAL STEEL

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DATE PREPARED
02/02/18

ROUTE
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SHEET NO.
14

COUNTY
ST. LOUIS

JOB NO.
J6S3181

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PROJECT ID.

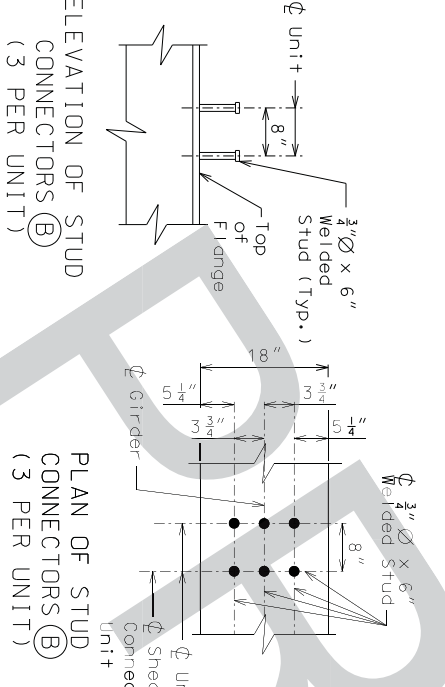
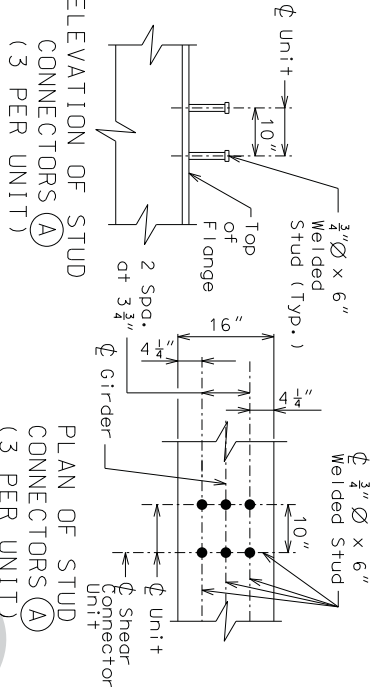
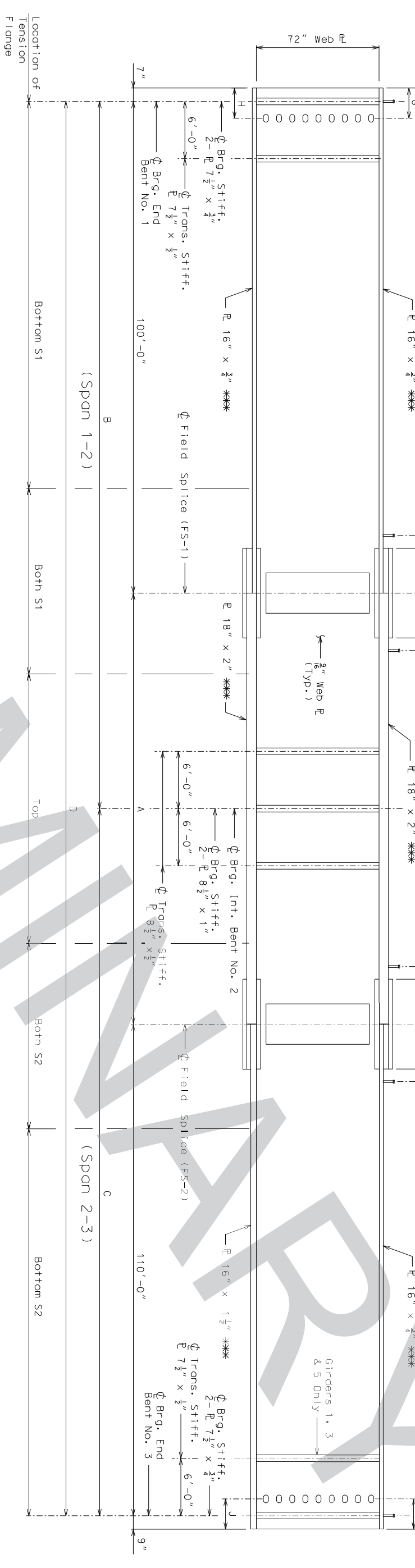
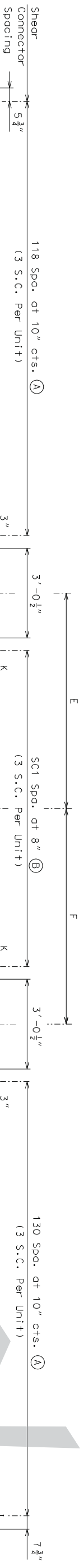
BRIDGE NO.
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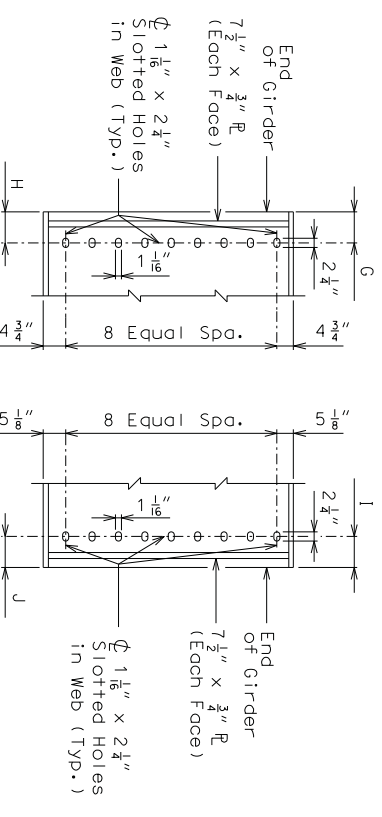
GIRDER VARIABLES

Girder	SC1	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Dim. G	Dim. H	Dim. I	Dim. J	Dim. K	Bottom S1	Both S1	Top	Both S2	Bottom S2
G1	114	79' - 7 3/8"	147' - 9 1/2"	141' - 10 1/8"	289' - 7 5/8"	47' - 9 1/2"	31' - 10 1/8"	22 13/16"	2' - 1"	2' - 0 11/16"	2' - 3"	3 1/2"	61' - 3 1/16"	56' - 4 7/16"	50' - 6 9/16"	42' - 10 3/8"	78' - 7 1/2"
G2	117	81' - 9 3/8"	144' - 7"	147' - 2 7/8"	291' - 9 1/8"	44' - 7"	37' - 2 7/8"	22 11/16"	2' - 0 7/8"	2' - 0 5/8"	2' - 2 1/8"	4 5/8"	58' - 5 29/32"	56' - 9 3/8"	48' - 3 3/8"	49' - 2 1/4"	79' - 1 1/4"
G3	121	83' - 11 1/8"	141' - 6 3/4"	152' - 5 3/8"	293' - 1 1/8"	41' - 6 1/4"	42' - 5 3/8"	22 15/16"	2' - 0 3/4"	2' - 0 1/2"	2' - 2 1/2"	5 3/8"	55' - 0 3/4"	61' - 5"	50' - 3 3/8"	47' - 7 3/8"	79' - 6 15/16"
G4	124	86' - 2 5/8"	138' - 7 3/8"	157' - 6 3/4"	296' - 2 1/8"	38' - 7 3/4"	47' - 6 3/4"	22 7/16"	2' - 0 5/8"	2' - 0 1/2"	2' - 2 5/8"	6 3/4"	60' - 10 15/16"	55' - 5 15/16"	53' - 11 3/4"	47' - 10 3/8"	78' - 0 3/8"
G5	127	88' - 4 1/4"	135' - 10"	162' - 6 1/4"	298' - 4 1/4"	35' - 10"	52' - 6 1/4"	22 5/16"	2' - 0 1/2"	2' - 0 3/8"	2' - 2 1/2"	3 7/8"	61' - 10 1/16"	51' - 3 15/16"	59' - 4 1/16"	46' - 0 7/8"	79' - 9 5/16"

Note: Longitudinal dimensions are horizontal from bearing to bearing.

Notes:
 Plate girders shall be fabricated to be in accordance with the camber diagram shown on Sheet No. 17.
 *** Indicates flange plates subject to notch toughness requirements.
 All web plates shall be subject to notch toughness requirements.
 Fabricated structural steel shall be ASTM A709 Grade 50, except as noted.
 For details of bolted field splice & longitudinal section, see Sheet No. 18.
 For details of intermediate diaphragm connection plates, transverse stiffeners and bearing stiffeners, see Sheet No. 19.
 For details of intermediate diaphragms, see Sheet No. 19.
 For plan of structural steel, see Sheet No. 14.
 For Dead Load Deflection Diagram, see Sheet No. 17.
 Weight of 4910 pounds of shear connectors is included in the weight of fabricated structural low alloy steel.
 Shear connectors shall be in accordance with Sec 712, 1037 and 1080.

Notes:
 Plate girders shall be fabricated to be in accordance with the camber diagram shown on Sheet No. 17.
 *** Indicates flange plates subject to notch toughness requirements.
 All web plates shall be subject to notch toughness requirements.
 Fabricated structural steel shall be ASTM A709 Grade 50, except as noted.
 For details of bolted field splice & longitudinal section, see Sheet No. 18.
 For details of intermediate diaphragm connection plates, transverse stiffeners and bearing stiffeners, see Sheet No. 19.
 For details of intermediate diaphragms, see Sheet No. 19.
 For plan of structural steel, see Sheet No. 14.
 For Dead Load Deflection Diagram, see Sheet No. 17.
 Weight of 4910 pounds of shear connectors is included in the weight of fabricated structural low alloy steel.
 Shear connectors shall be in accordance with Sec 712, 1037 and 1080.



Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HMC 02/02/18

Note: This drawing is not to scale. Follow dimensions. Sheet No. 15 of 35

STEEL PLATE GIRDER DETAILS

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DISTRICT	15
SHEET NO.	15
COUNTY	ST. LOUIS
JOB NO.	J6S3181
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A8656

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366 MO

DISTRICT SHEET NO.
BR 16

COUNTY
ST. LOUIS

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CONTRACT ID.
PROJECT NO.

BRIDGE NO.
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DATE

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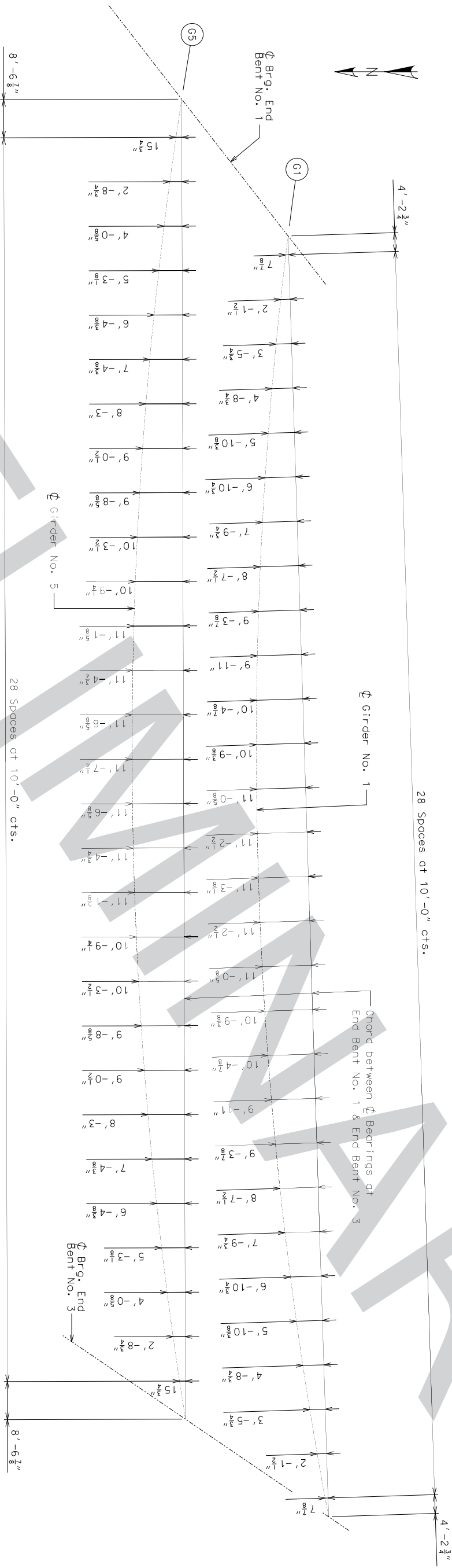
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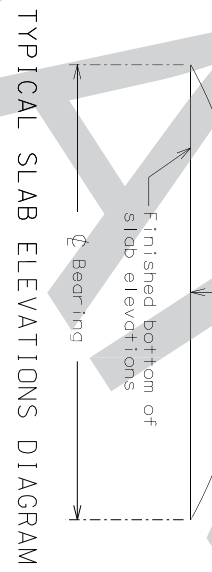
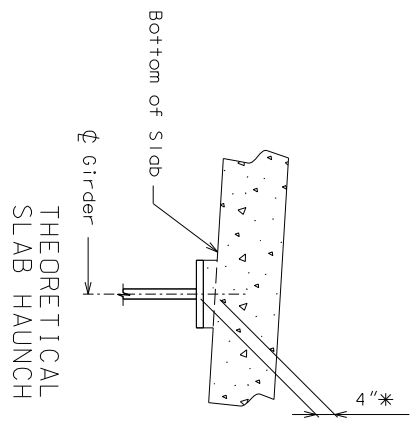
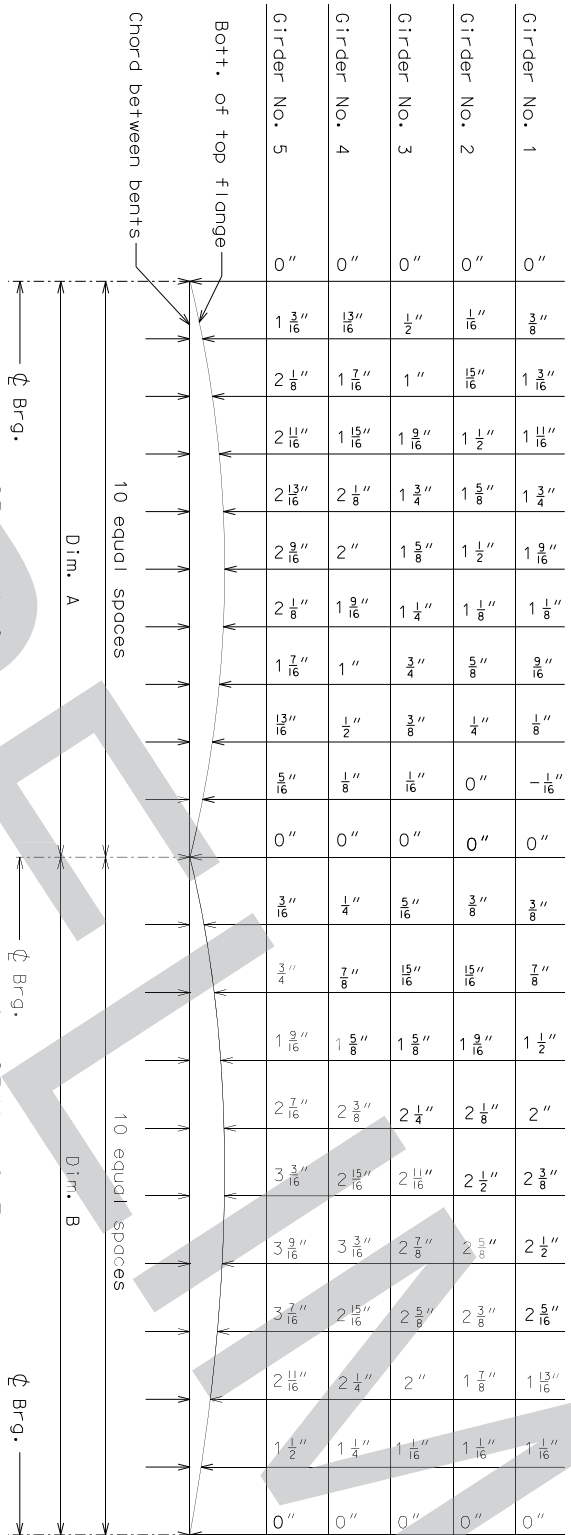
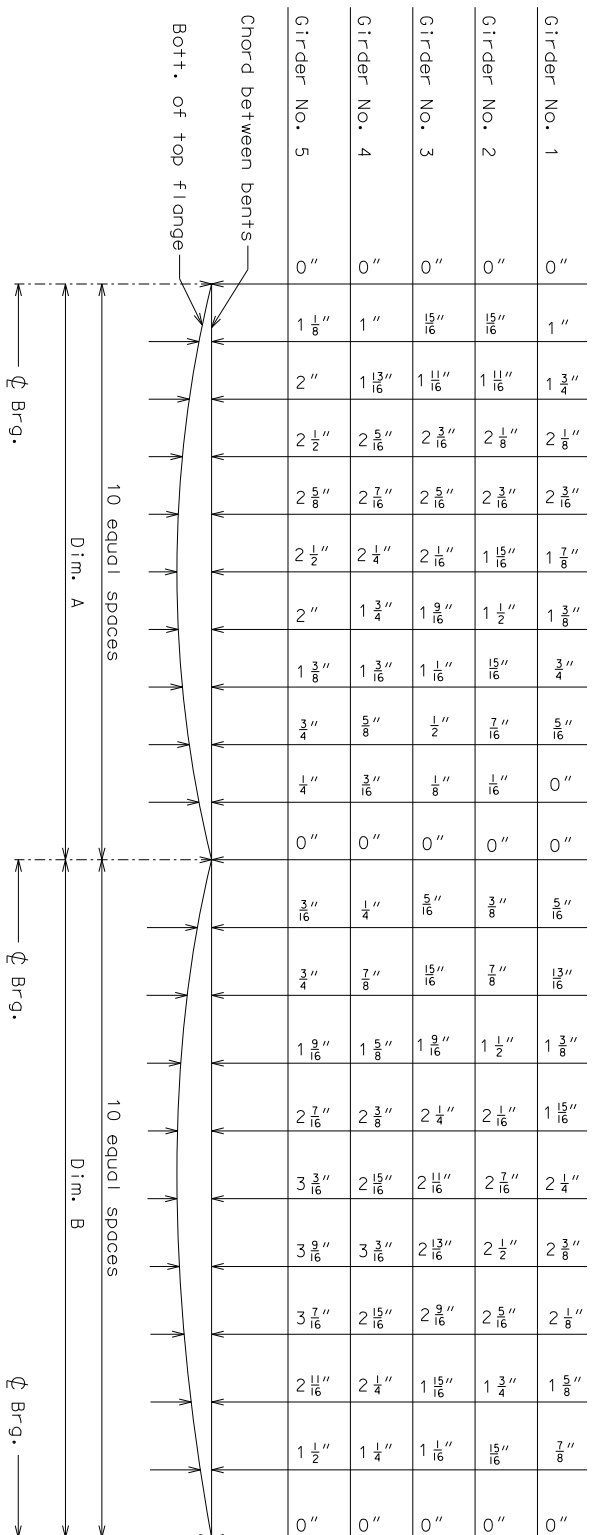
PLAN OF EXTERIOR GIRDERS SHOWING CURVE OFFSETS
 All dimensions are horizontal.

Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

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

Sheet No. 16 of 35

GIRDER CURVE OFFSETS



* Dimension (bottom of slab to top of web) may vary if girder camber after erection differs from plan camber by more than the % of Dead Load Deflection due to weight of structural steel. No payment will be made for additional forming or concrete required for variable haunching.

Girder	Dim. A	Dim. B
G1	147'-9 $\frac{1}{2}$ "	141'-10 $\frac{1}{8}$ "
G2	144'-7"	147'-2 $\frac{1}{8}$ "
G3	141'-6 $\frac{1}{4}$ "	152'-5 $\frac{3}{8}$ "
G4	138'-7 $\frac{3}{8}$ "	157'-6 $\frac{1}{4}$ "
G5	135'-10"	162'-6 $\frac{1}{4}$ "

Girder	% Deflection	
	Span 1	Span 2
G1	18%	27%
G2	18%	27%
G3	18%	28%
G4	18%	29%
G5	18%	31%

Theoretical Bottom of Slab Elevations at CL of Girder (Prior to Forming for Slab) *

Girder No.	Span (1-2) (136'-0" ϕ Brg - ϕ Brg.)										Span (2-3) (161'-0" ϕ Brg - ϕ Brg.)				
	ϕ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	ϕ Brg.	.70	.80	.90	ϕ Brg.
Girder No. 1	589.91	589.48	589.08	588.66	588.22	587.75	587.26	586.77	586.28	585.81	585.36				
Girder No. 2	590.56	590.12	589.73	589.33	588.90	588.45	587.98	587.50	587.02	586.56	586.12				
Girder No. 3	591.18	590.78	590.39	590.00	589.58	589.14	588.69	588.22	587.76	587.30	586.87				
Girder No. 4	591.77	591.41	591.04	590.66	590.26	589.84	589.39	588.93	588.48	588.04	587.61				
Girder No. 5	592.33	592.02	591.69	591.33	590.94	590.53	590.09	589.65	589.20	588.76	588.34				
ϕ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	ϕ Brg.					
Girder No. 1	585.36	584.95	584.55	584.16	583.76	583.35	582.93	582.48	582.01	581.53	581.01				
Girder No. 2	586.12	585.69	585.29	584.88	584.48	584.06	583.62	583.16	582.68	582.18	581.67				
Girder No. 3	586.87	586.43	586.01	585.60	585.19	584.76	584.32	583.84	583.34	582.82	582.30				
Girder No. 4	587.61	587.21	586.84	586.47	586.11	585.74	585.35	584.92	584.46	583.98	583.48				
Girder No. 5	588.34	587.94	587.58	587.23	586.89	586.54	586.17	585.76	585.31	584.82	584.32				

* Elevations are based on a constant slab thickness of 8 $\frac{1}{2}$ " and include allowance for theoretical dead load deflections due to weight of slab and barrier curb.

CAMBER, DEAD LOAD DEFLECTION & BOTTOM OF SLAB ELEVATIONS

Designed: BMC 11/01/17
Detailed: BMC 01/01/18
Checked: HNS 02/02/18

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

Sheet No. 17 of 35

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ROUTE STATE 366 MO
DISTRICT SHEET NO. BR 17

COUNTY ST. LOUIS
JOB NO. J6S3181
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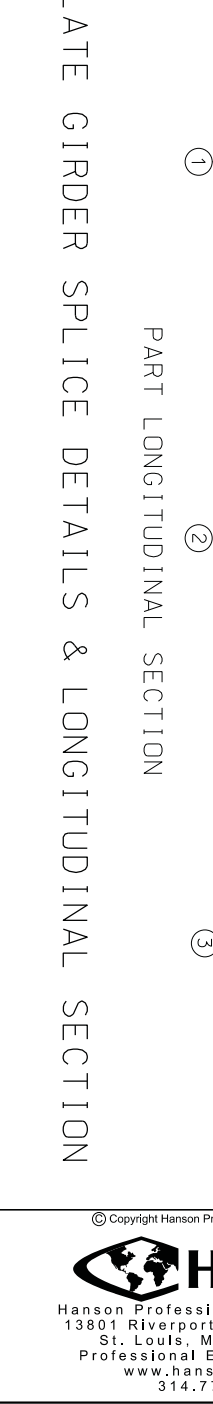
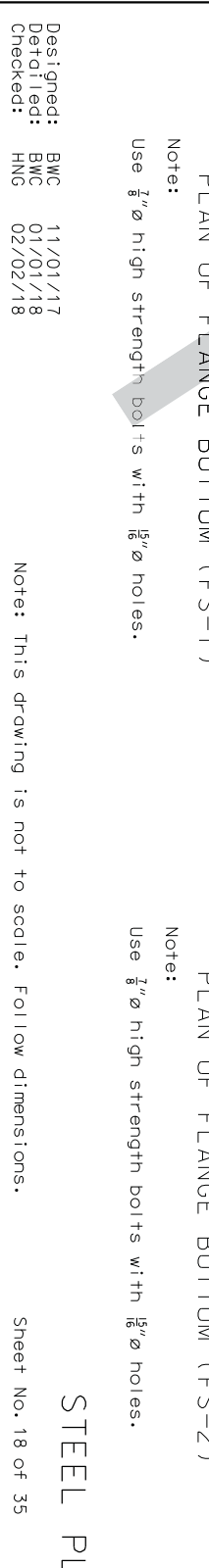
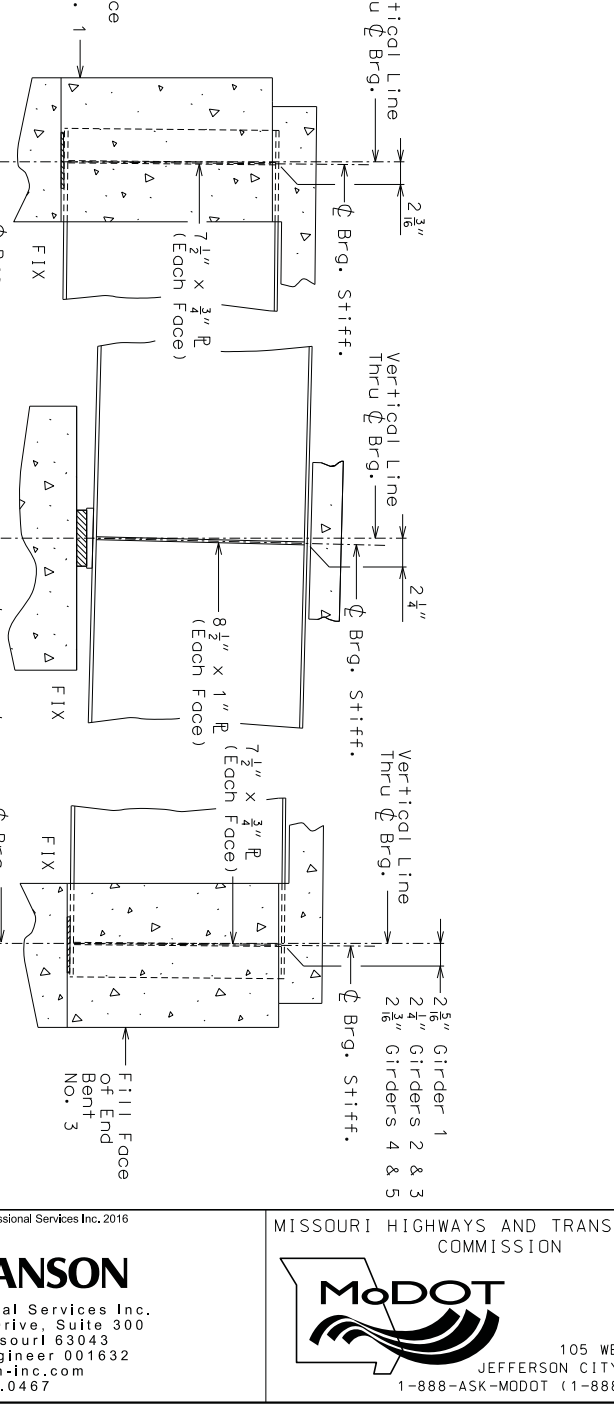
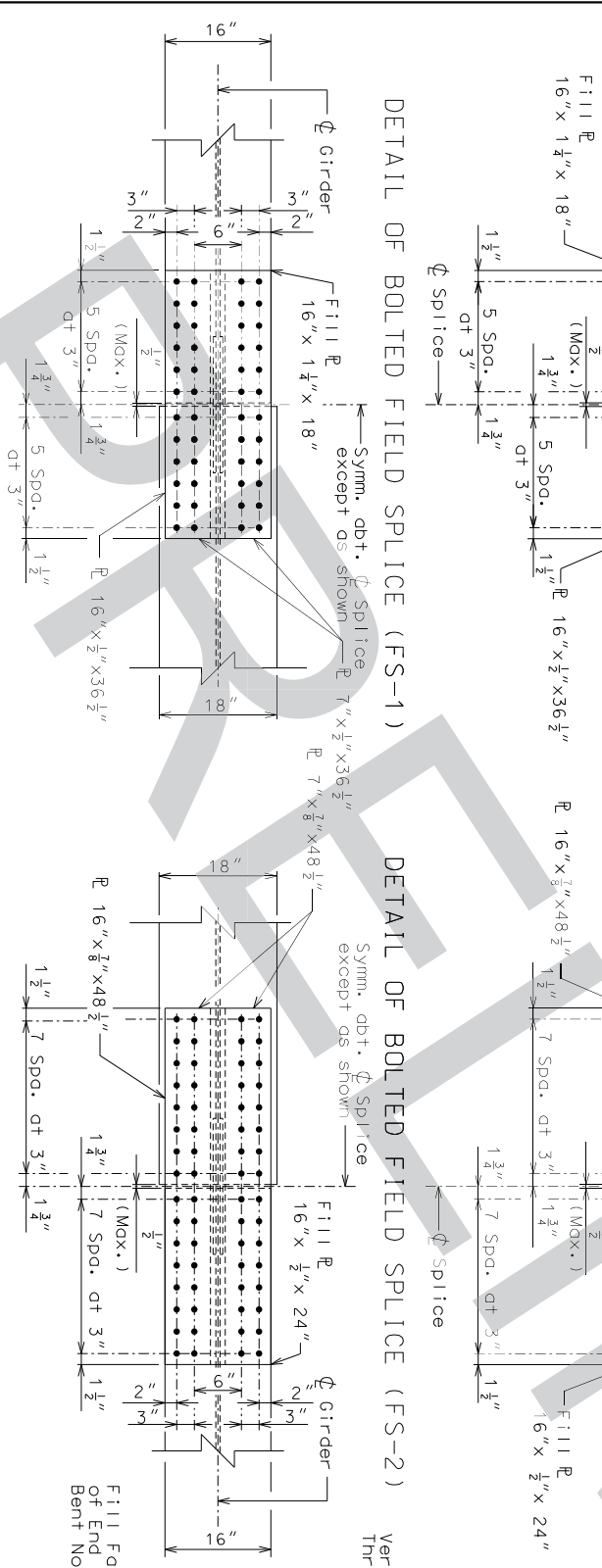
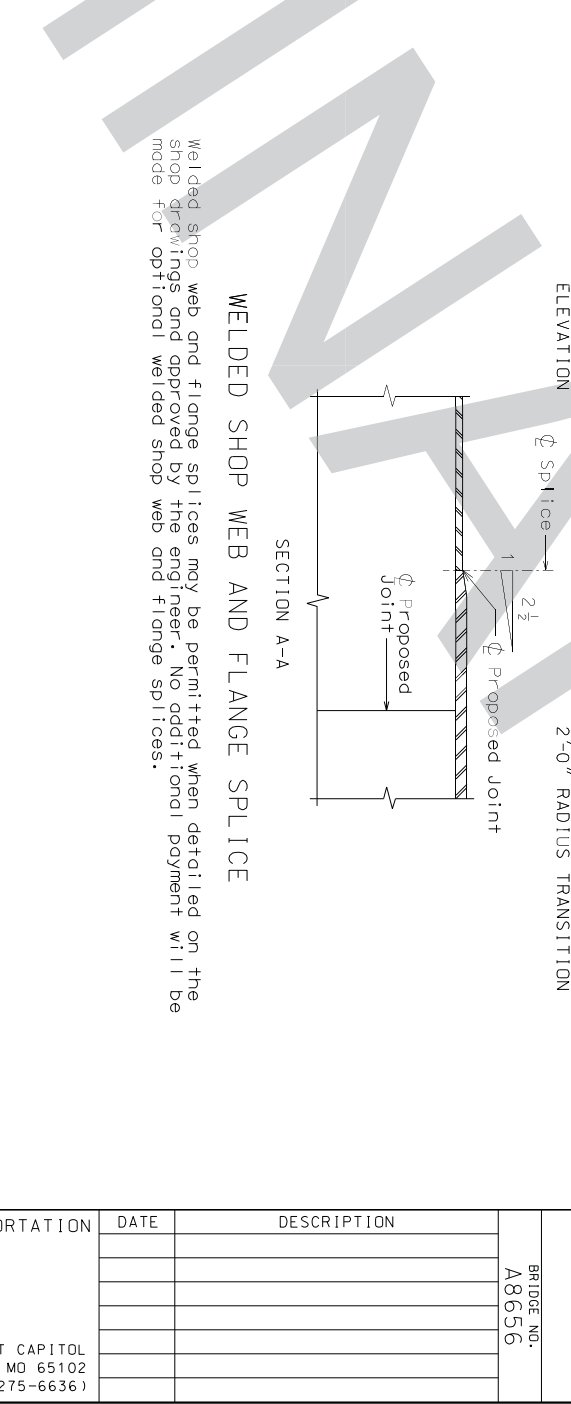
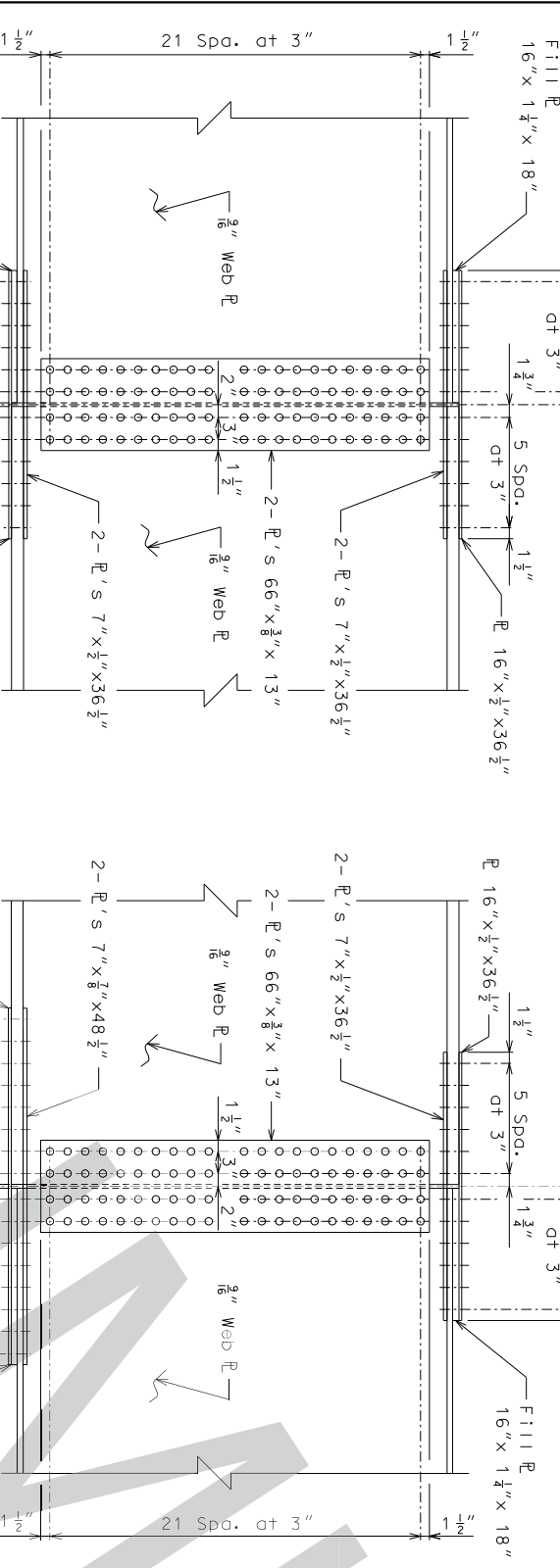
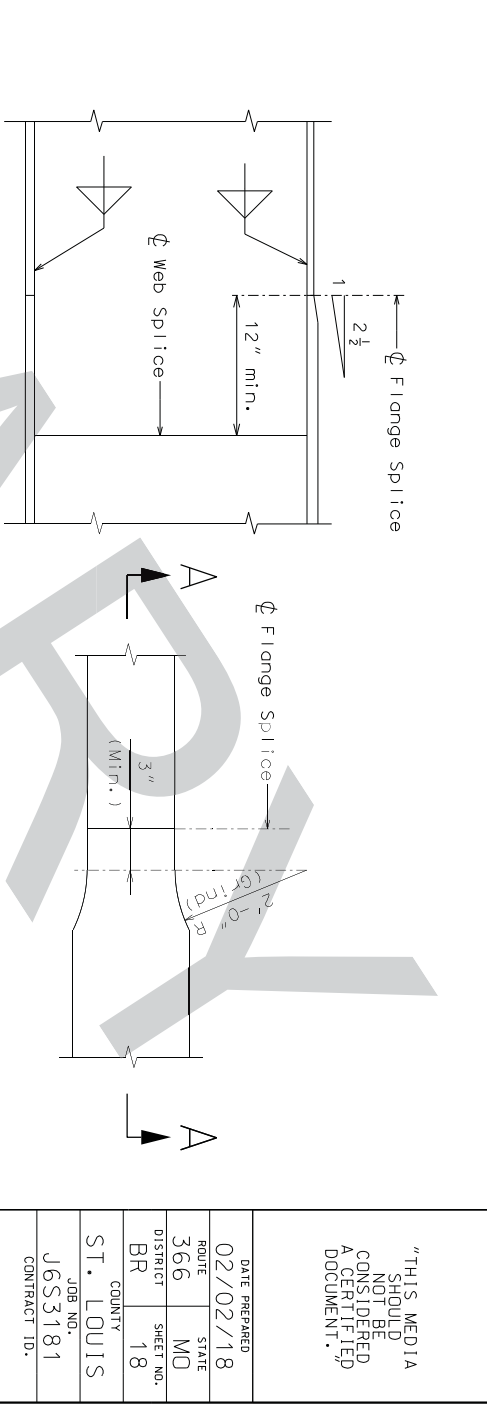
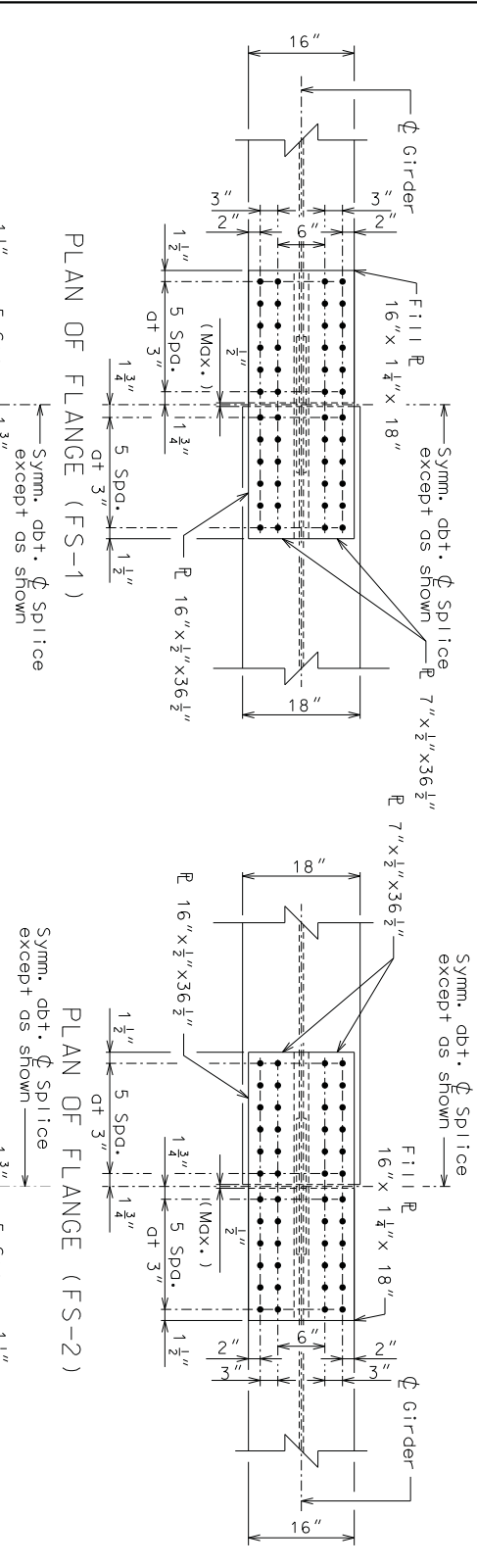
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Symm. abt. ϕ Splice except as shown

Symm. abt. ϕ Splice except as shown

Symm. abt. ϕ Splice except as shown

Symm. abt. ϕ Splice except as shown

PLAN OF FLANGE BOTTOM (FS-1)

Note:
Use $\frac{3}{8}$ " high strength bolts with $\frac{15}{16}$ " holes.

PLAN OF FLANGE BOTTOM (FS-2)

Note:
Use $\frac{3}{8}$ " high strength bolts with $\frac{15}{16}$ " holes.

WELDED SHOP WEB AND FLANGE SPLICE

Welded shop web and flange splices may be permitted when detailed on the shop drawings and approved by the engineer. No additional payment will be made for optional welded shop web and flange splices.

Designed: BWC 11/01/17
Detailed: BWC 01/01/18
Checked: HNS 02/02/18

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

Sheet No. 18 of 35

STEEL PLATE GIRDER SPLICE DETAILS & LONGITUDINAL SECTION

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STATE	MO
DISTRICT	BR
SHEET NO.	18
COUNTY	ST. LOUIS
JOB NO.	J6S3181
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PROJECT NO.	
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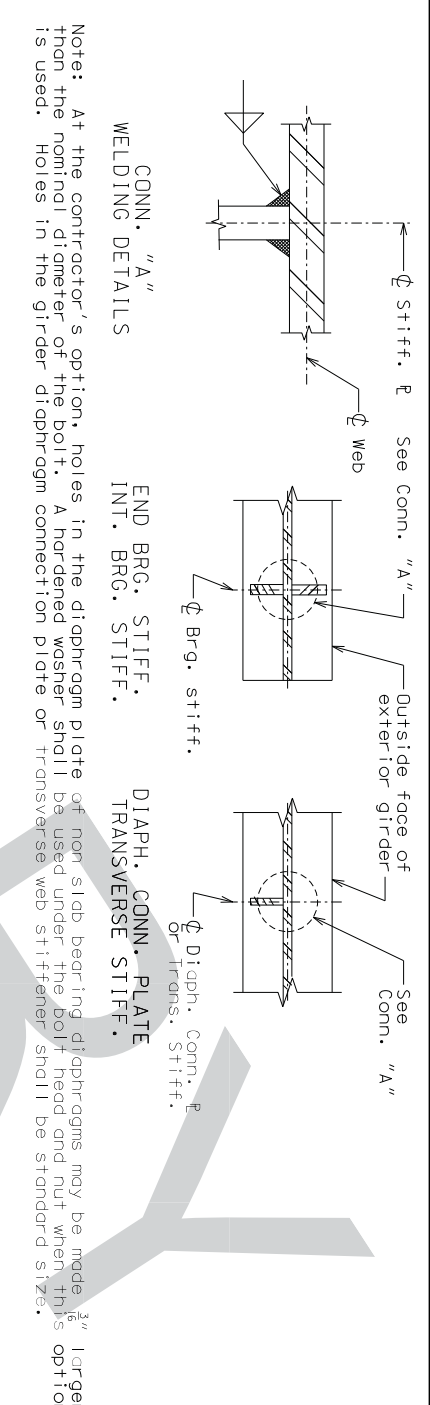
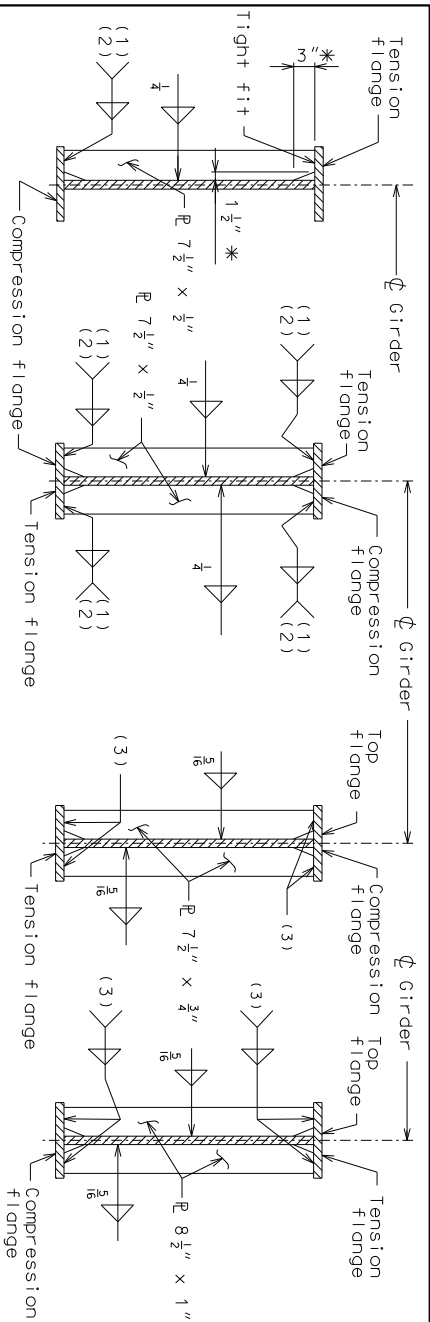
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- Notes:
- (1) Tight fit
 - (2) Weld to flange.
 - (3) Grind or mill to bear.
- * Typical for all transverse stiffener, int. diaph. conn. pl. and brg. stiff.

WELDING DETAILS

Transverse web stiffeners shall be located as shown in the Plan of Structural Steel and Elevation of Girder.

For the Plan of Structural Steel, see Sheet No. 14.

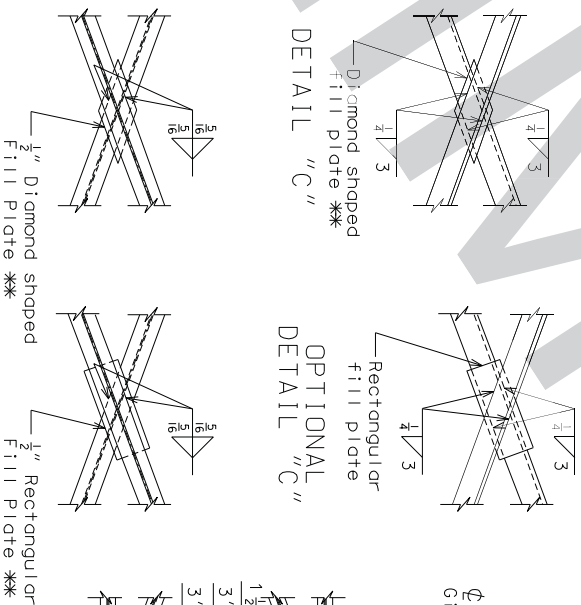
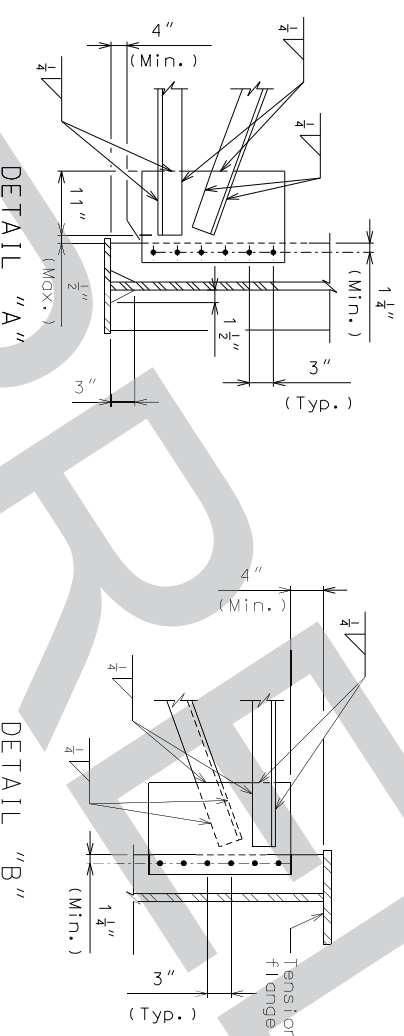
For the Elevation of girder, see Sheet No. 15.

Intermediate web stiffener plate and diaphragm spacing may vary from plan dimensions by a maximum of 3" for diaphragm to connect to the intermediate web stiffener plate. The two 3/4" Ø H.S. bolts that connect the 6 x 6 x 3/8 angle to the top flange shall be placed so the nut is on the inside of flange (toward the web).

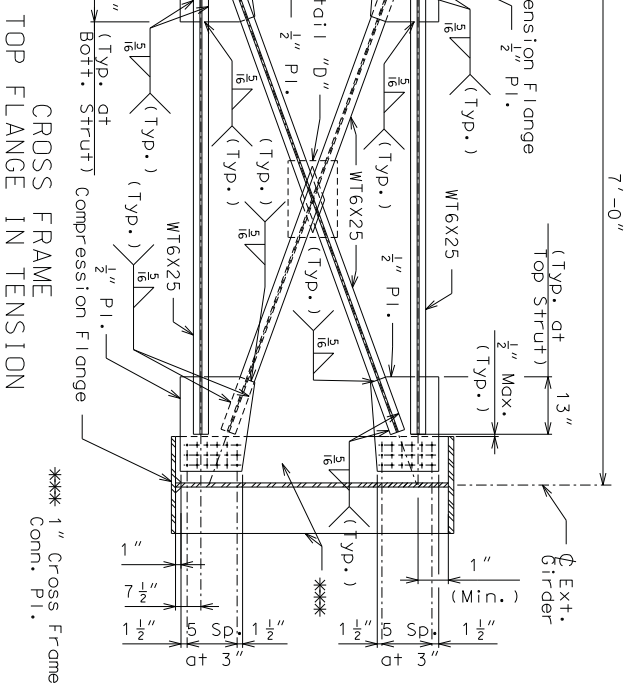
All fabricated structural steel shall be ASTM A709 Grade 50.

TYPICAL PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS BOTTOM FLANGE IN TENSION

TYPICAL PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS TOP FLANGE IN TENSION



** At the contractor's option, rectangular fill plates may be used in lieu of diamond fill plates as shown in Optional Details "C", "D" and "E".



Designed: BMC 11/01/17
Detailed: BMC 01/01/18
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Sheet No. 19 of 35

DIAPHRAGMS, CROSSFRAMES & STIFFENERS

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366	MO
DISTRICT	SHEET NO.
BR 19	
COUNTY	
ST. LOUIS	
JOB NO.	J6S3181
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A8656

DATE	DESCRIPTION

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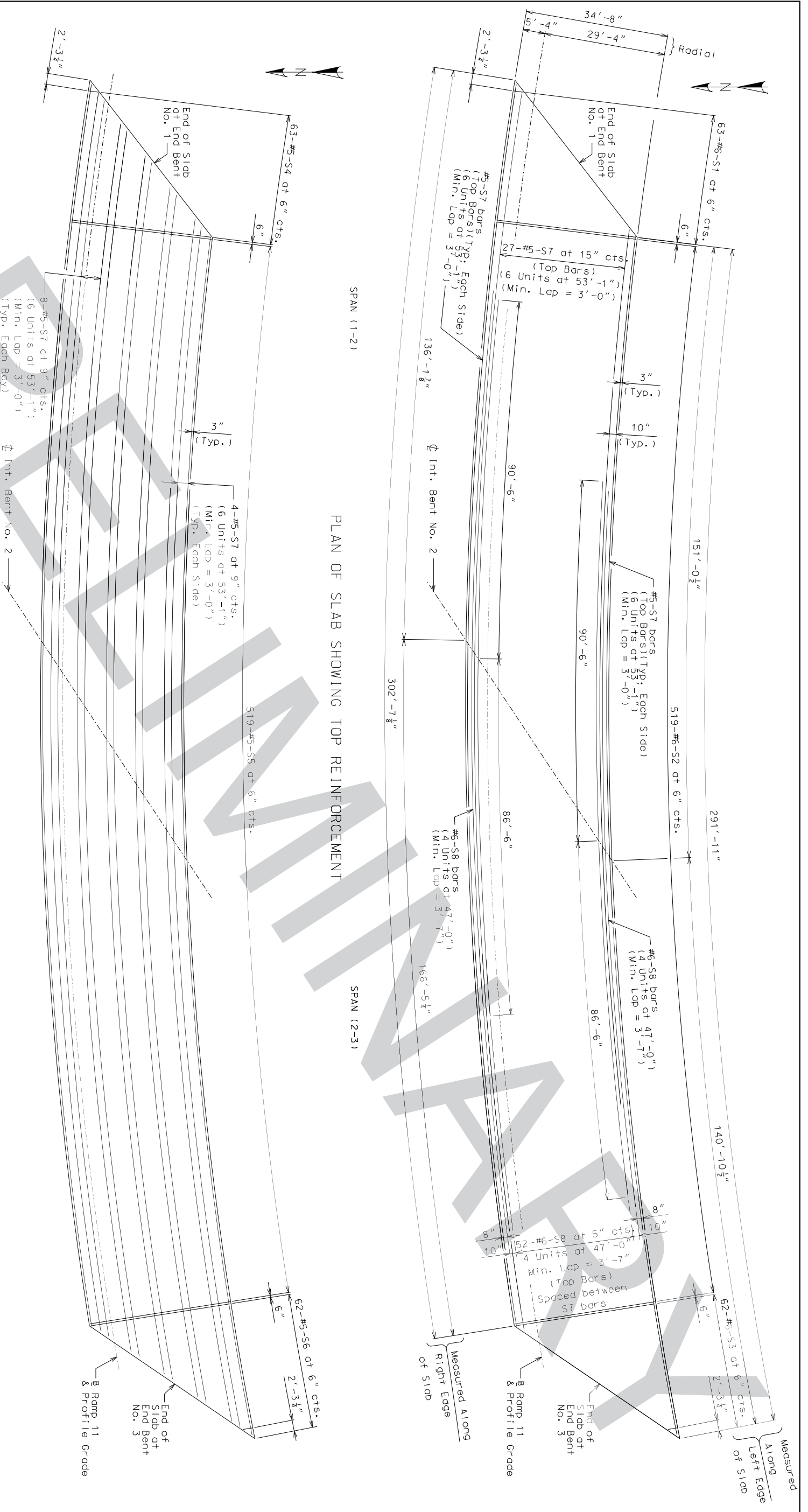
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PLAN OF SLAB SHOWING TOP REINFORCEMENT

PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

DESIGNED BY: BMC
 CHECKED BY: HNS

DATE: 11/01/17
 DATE: 01/01/18
 DATE: 02/02/18

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

Sheet No. 20 of 35

PLAN OF SLAB SHOWING REINFORCEMENT

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ROUTE: 366
 STATE: MO
 DISTRICT: BR 20

COUNTY: ST. LOUIS
 JOB NO.: J6S3181
 CONTRACT ID.:

PROJECT NO.:
 BRIDGE NO.: A8656

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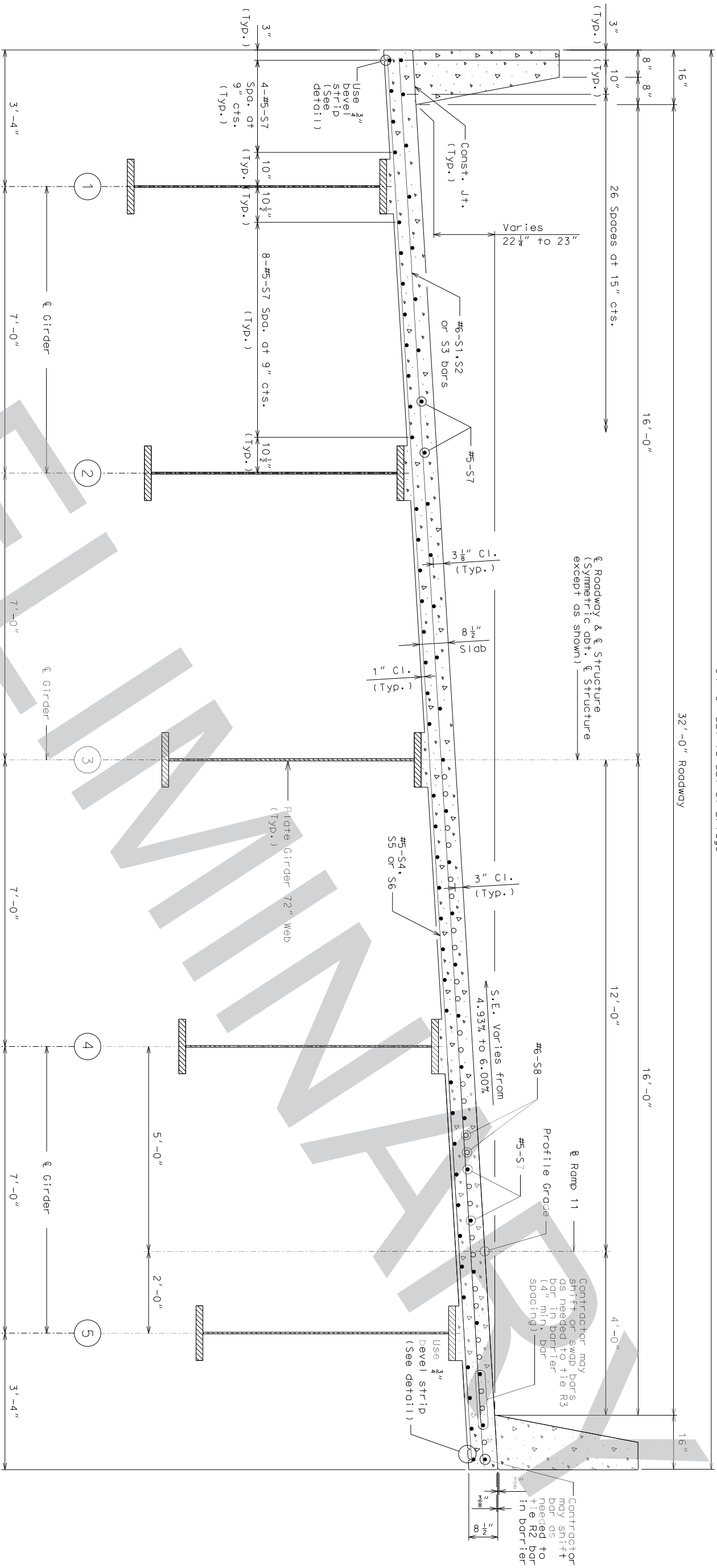


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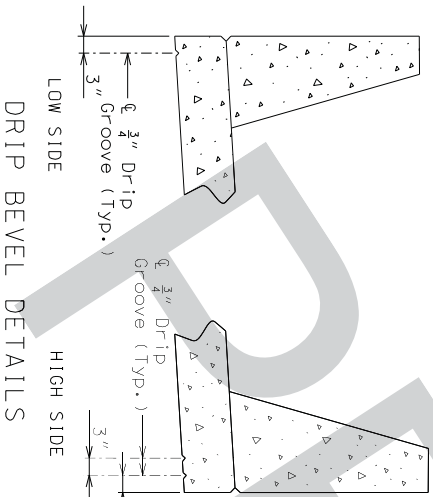
34'-8" Out to Out of Bridge



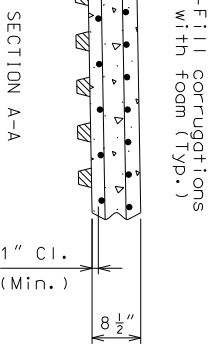
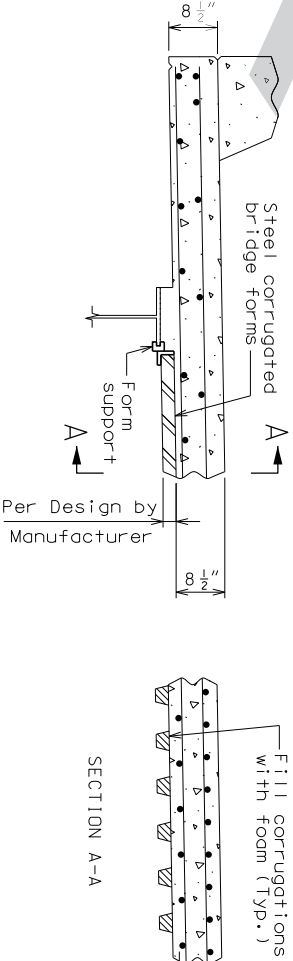
HALF SECTION NEAR ϕ SPAN

TYPICAL CROSS SECTION
(Looking Ahead Station)

HALF SECTION NEAR INTERMEDIATE BENT



OPTIONAL STAY-IN-PLACE FORM DETAILS



- Notes:
- For the Plan of Slab Showing Reinforcement, see Sheet No. 20.
 - For Girder Camber, Theoretical Slab Haunch Details, Dead Load Deflection & Theoretical Bottom of Slab Elevations, see Sheet No. 17.
 - For details of reinforcement of the Barrier Curb, see Sheets No. 23 thru 26.
 - For Slab Curve Ordinates & Slab Pouring Sequence, see Sheet No. 22.
 - For Optional Stay-In-Place Form notes, see Sheet No. 2.

Designed: BMC 11/01/17
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Sheet No. 21 of 35

SLAB CROSS SECTION

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ROUTE STATE
366 MO

DISTRICT BR
21

COUNTY SHEET NO.
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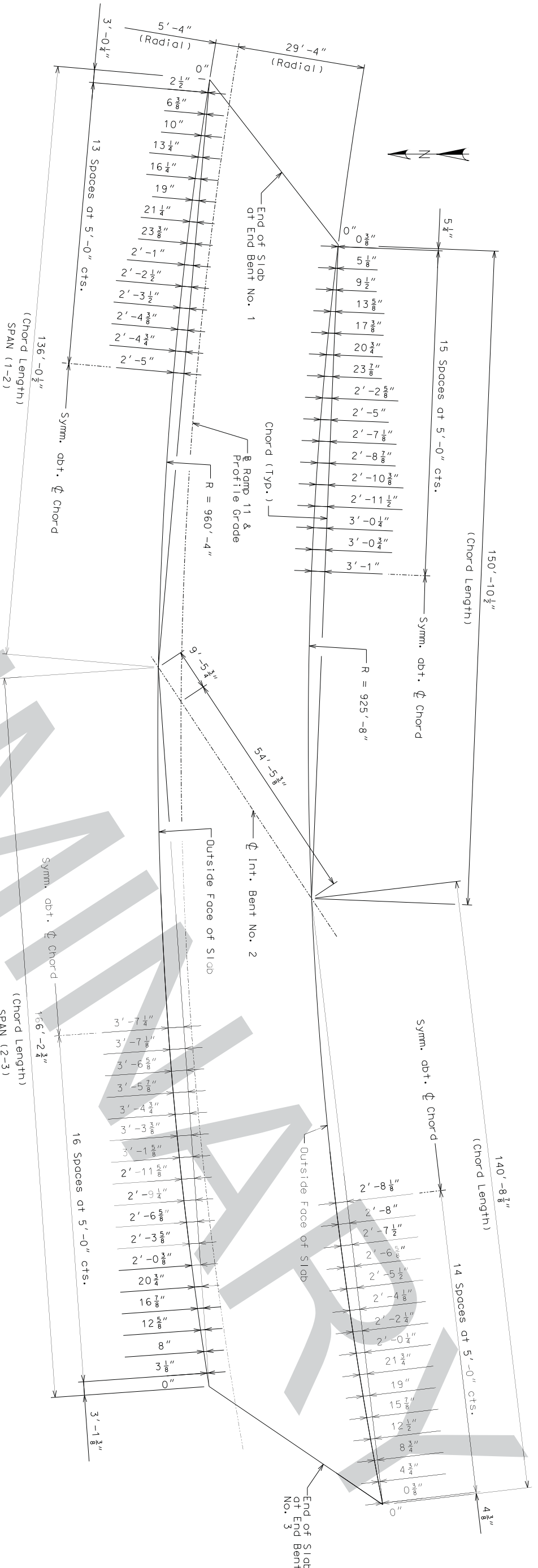
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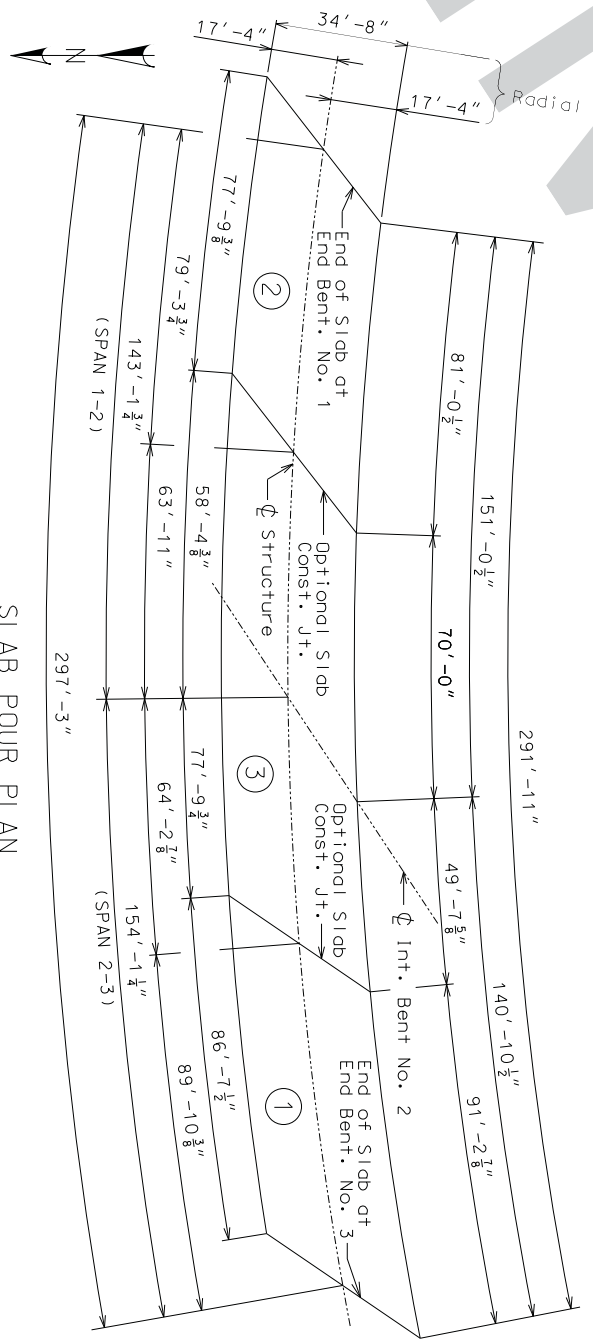
PLAN OF SLAB SHOWING CURVE ORDINATES

OPTIONAL SLAB CONSTRUCTION JOINT DETAILS

Basic sequence	Sequence of Pours		Min. rate of pour cu. yds./hr.	With rebar	No rebar
	Direction	End to End			
1		2			
		3	82		

Note: The contractor shall pour and satisfactorily finish the slab pours at the rate given.

SLAB POURING SEQUENCE



SLAB POUR PLAN (OPTIONAL SLAB CONSTRUCTION JOINTS PARALLEL TO END BENTS)

Note: The contractor shall pour the slab end to end in one pour.

Should issues arise during the slab pouring process, the contractor shall following skip pour plan utilizing the Optional Slab Construction Joint Details and locations as provided above only with the approval of the engineer. Slab pour rates for will be provided to the contractor only after approval of the engineer.

SLAB CURVE ORDINATES & SLAB POURING SEQUENCE

Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

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Sheet No. 22 of 35

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DATE PREPARED 02/02/18
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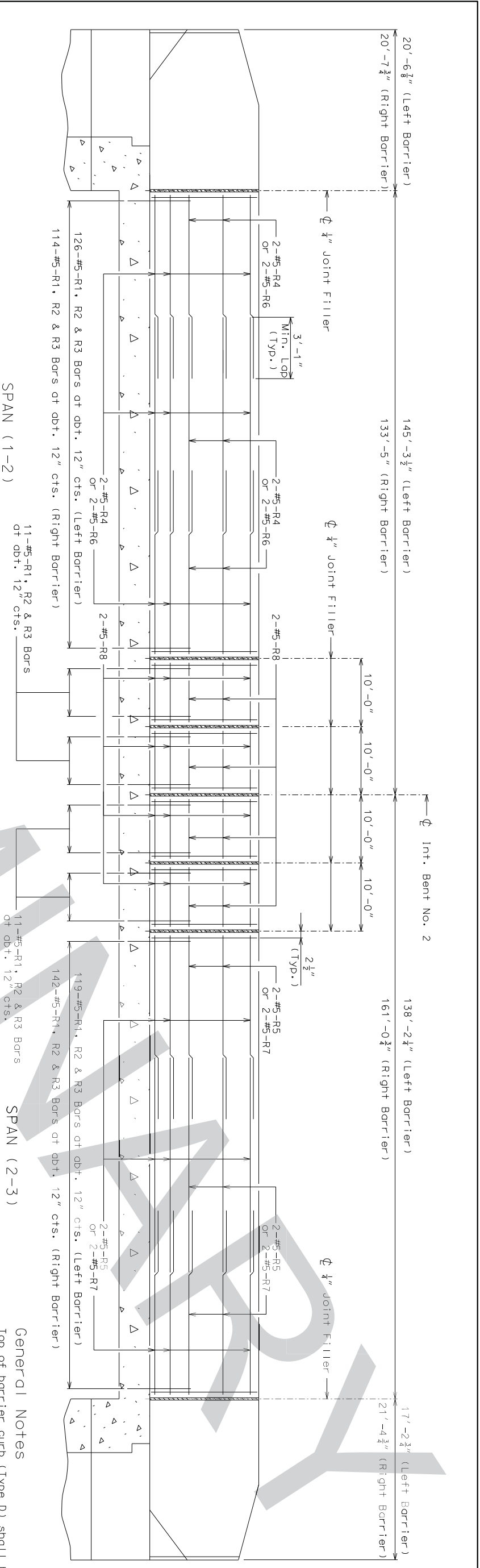
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GENERAL NOTES

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

All exposed edges of barrier curb (Type D) shall have either a 1/2 inch radius or a 1/8 inch bevel, unless otherwise noted.

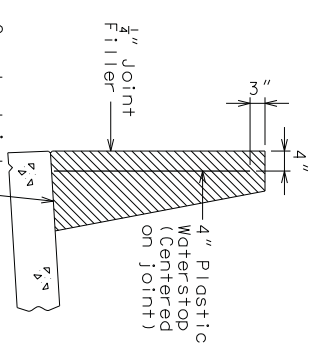
Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Barrier Curb (Type D) per linear foot. Concrete in the barrier curb (Type D) shall be Class B-1.

Measurement of barrier curb (Type D) 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 barrier curb (Type D) 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 barrier curb (Type D).

PLASTIC WATERSTOP DETAIL

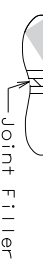
Plastic waterstop shall be placed in all barrier curb (Type D) filled joints, except structures with super-elevation, use on all lower barrier curb (Type D) joints only. Cost of plastic waterstop, complete in place, will be considered completely covered by the contract unit price for Barrier Curb (Type D).



SECTION A-A (LEFT BARRIER)

Use a minimum lap of 3'-1\"/>

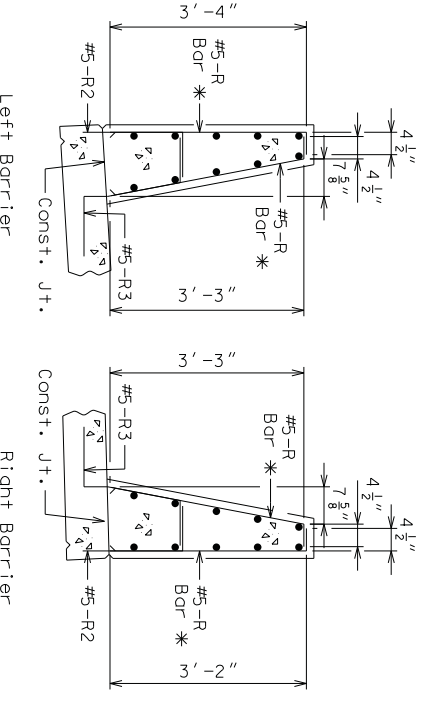
FILLED JOINT DETAIL



ELEVATION OF BARRIER CURB (TYPE D)

(Left barrier curb shown, right barrier curb similar.) Note: Longitudinal dimensions are horizontal, measured along outside top of slab.

PART PLAN SHOWING SAFETY BARRIER CURB JOINT

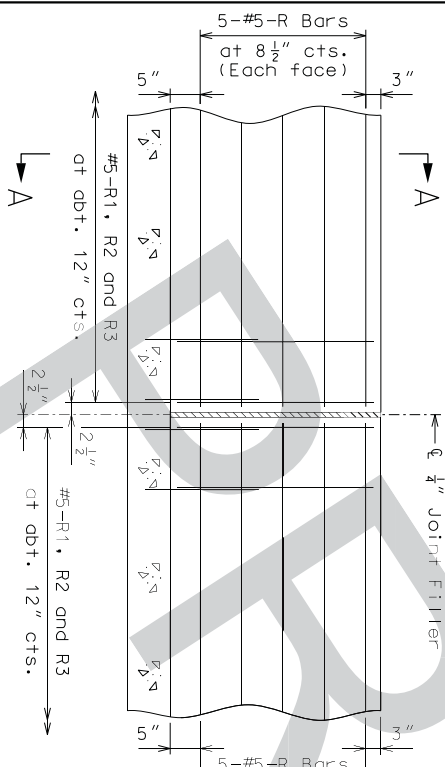


R-BAR PERMISSIBLE ALTERNATE SHAPE

* 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.)

SECTION A-A (RIGHT BARRIER)

Use a minimum lap of 3'-1\"/>



PART ELEVATION OF SAFETY BARRIER CURB (TYPE D)

Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

Note: This drawing is not to scale. Follow dimensions. Sheet No. 23 of 35

CONVENTIONAL-FORMED BARRIER CURB (TYPE D)

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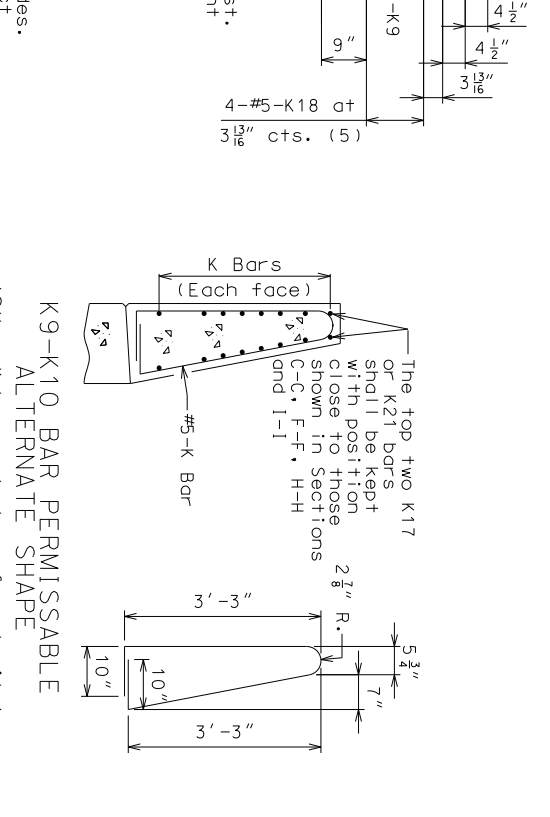
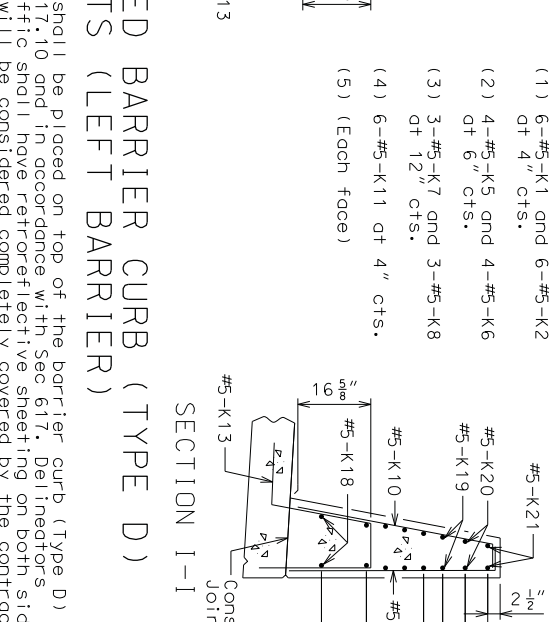
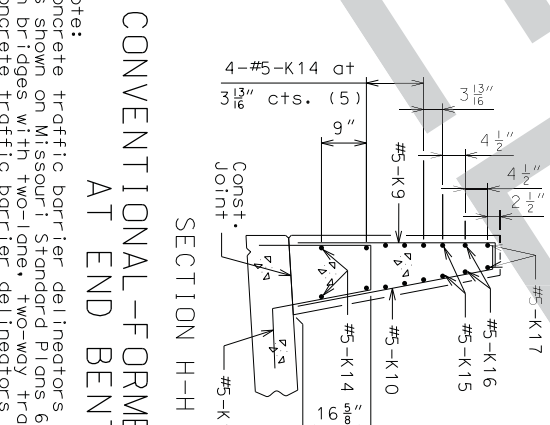
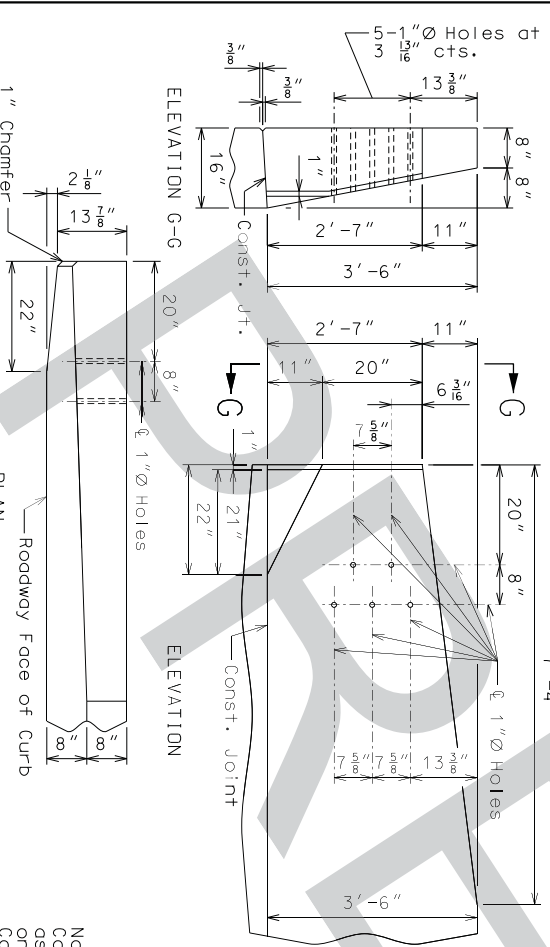
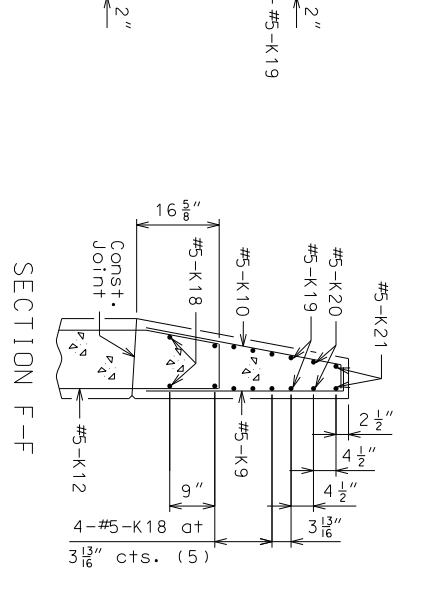
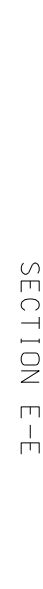
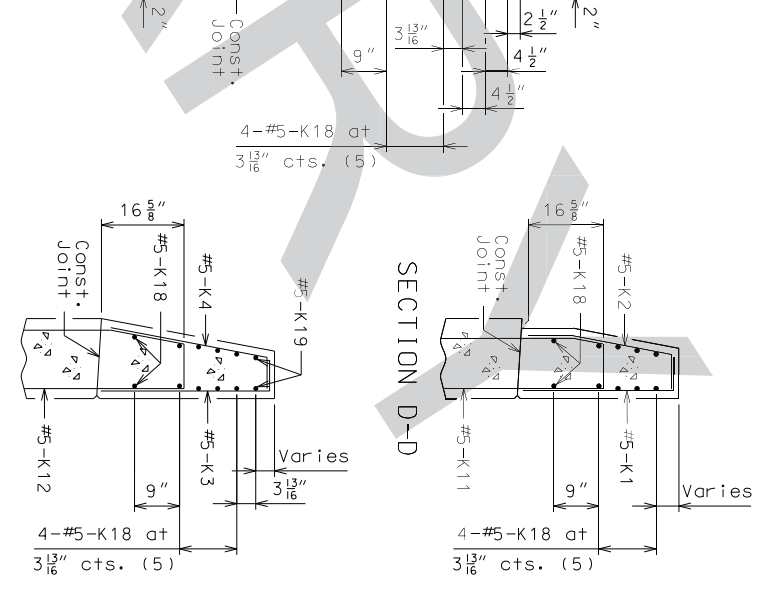
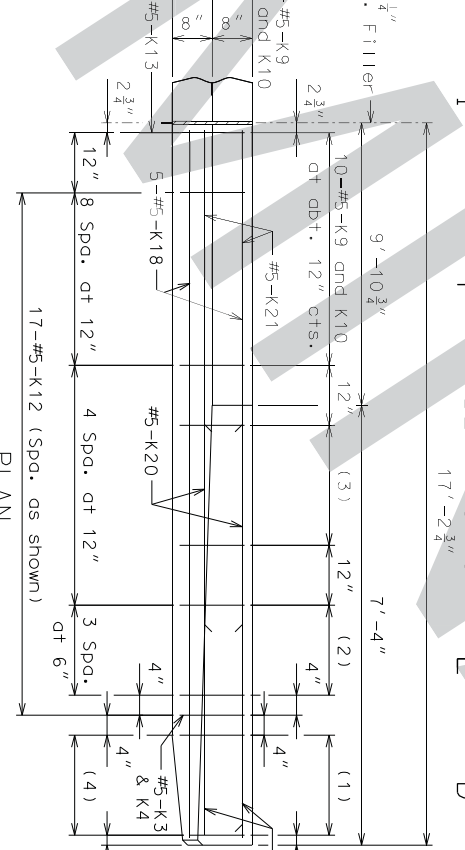
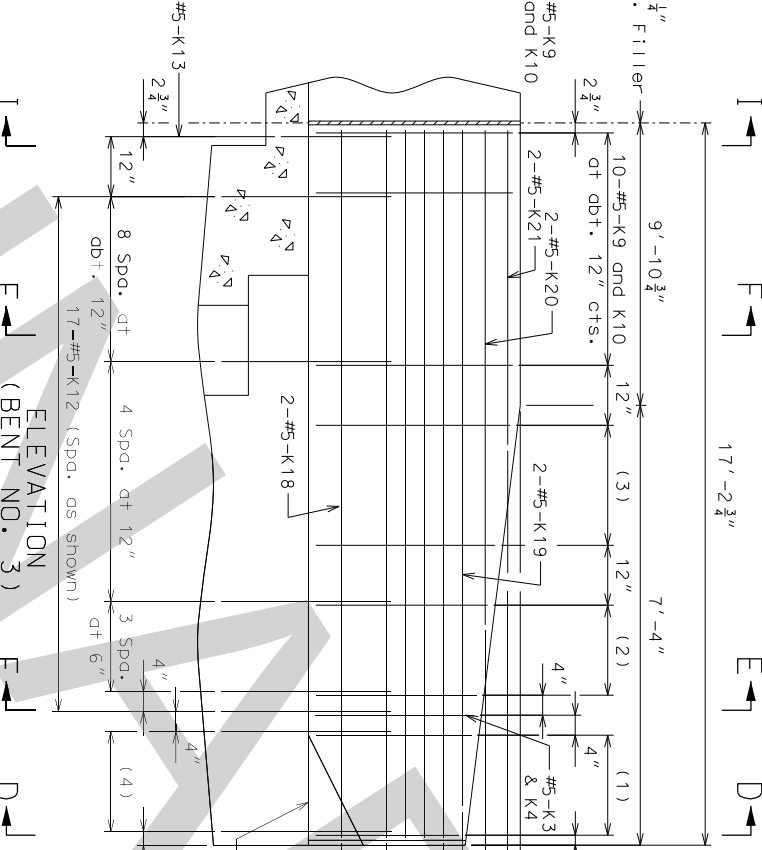
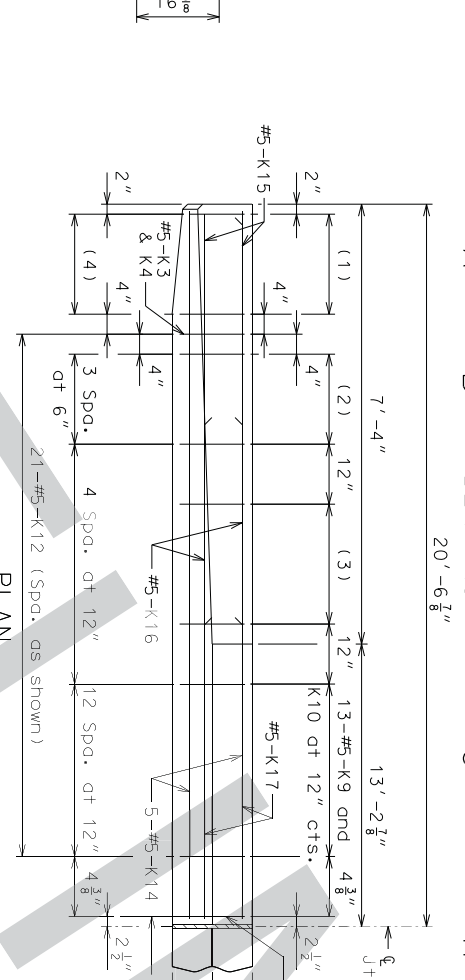
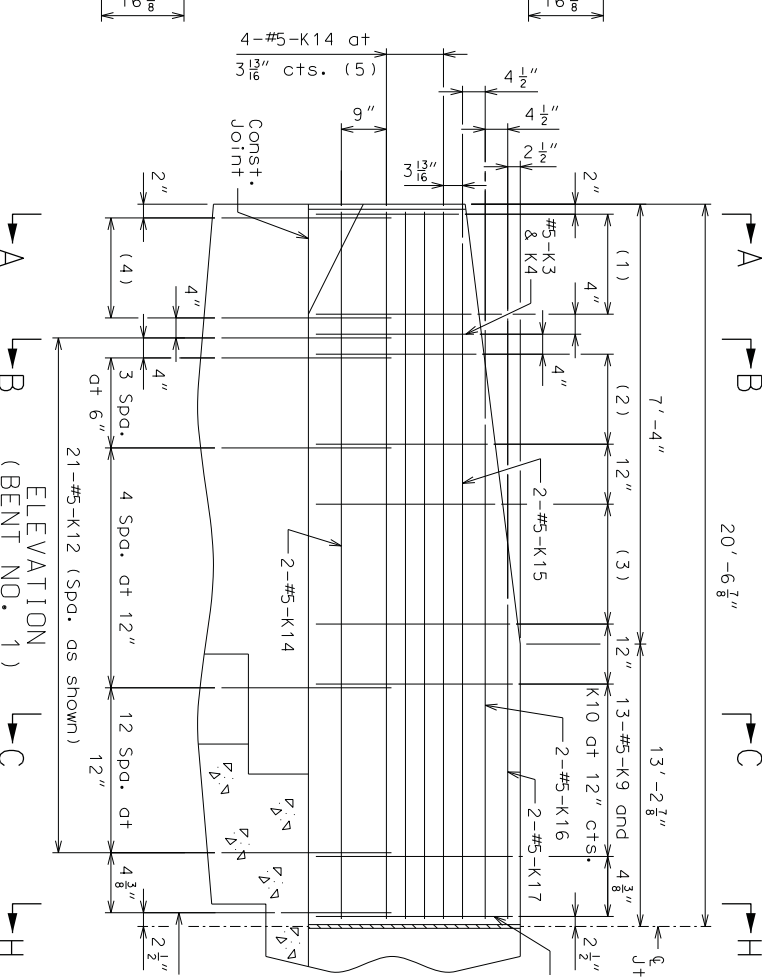
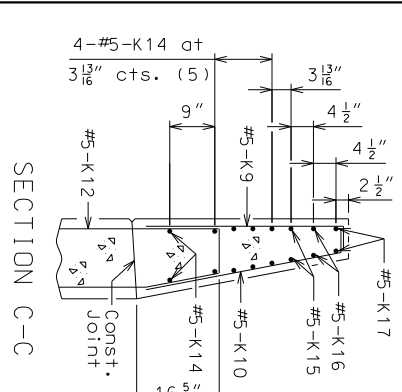
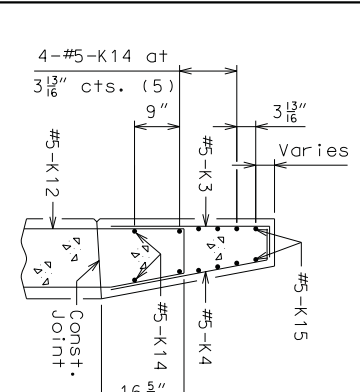
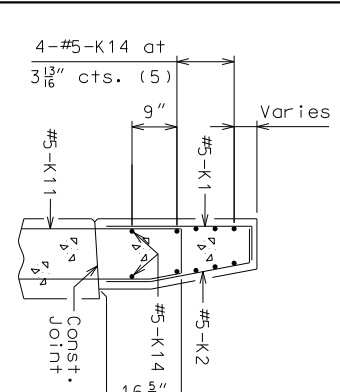
DATE PREPARED	02/02/18
ROUTE	366
STATE	MO
DISTRICT	BR
SHEET NO.	23
COUNTY	ST. LOUIS
JOB NO.	J6S3181
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A8656

DATE	DESCRIPTION

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DETAILS OF GUARD RAIL ATTACHMENT

CONVENTIONAL-FORMED BARRIER CURB (TYPE D) AT END BENTS (LEFT BARRIER)

Notes:
Concrete traffic barrier delineators shall be placed on top of the barrier curb (Type D) 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 retro-reflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the concrete unit prior to barrier curb (Type D).

(1) 6-#5-K1 and 6-#5-K2 at 4" cts.
(2) 4-#5-K5 and 4-#5-K6 at 6" cts.
(3) 3-#5-K7 and 3-#5-K8 at 12" cts.
(4) 6-#5-K11 at 4" cts.
(5) (Each face)

The top two K17 or K21 bars shall be kept with position close to those shown in Sections C-C, F-F, H-H and I-I

K9-K10 BAR PERMISSIBLE ALTERNATE SHAPE (Other k bars not shown for clarity)

The K9 and K10 bar combination may be furnished as one bar as shown, at the contractor's option.

DESIGNED: BWC 11/01/17
CHECKED: BWC 01/01/18
HNS 02/02/18

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

Sheet No. 24 of 35

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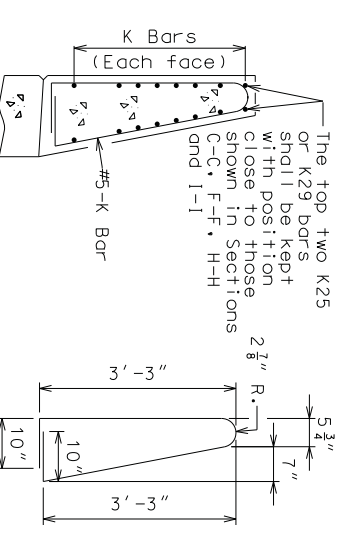
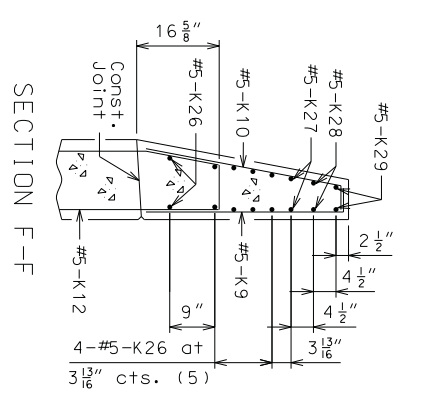
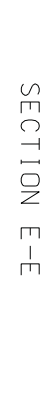
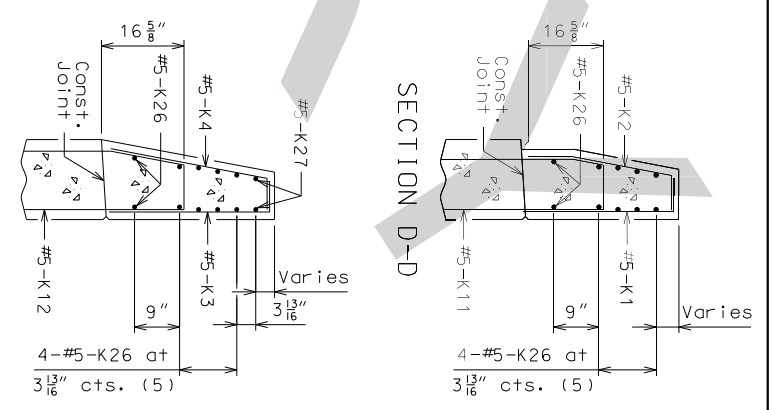
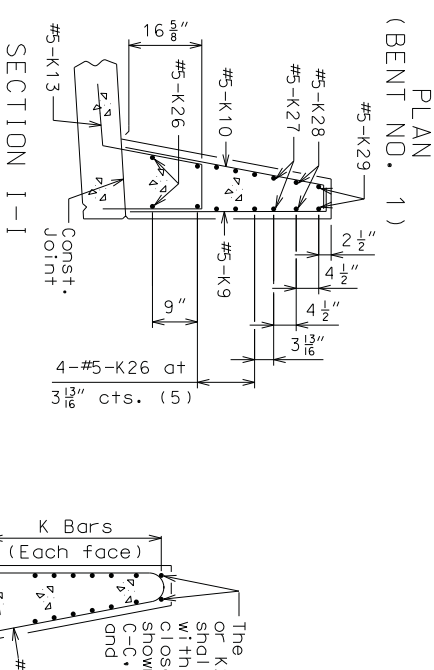
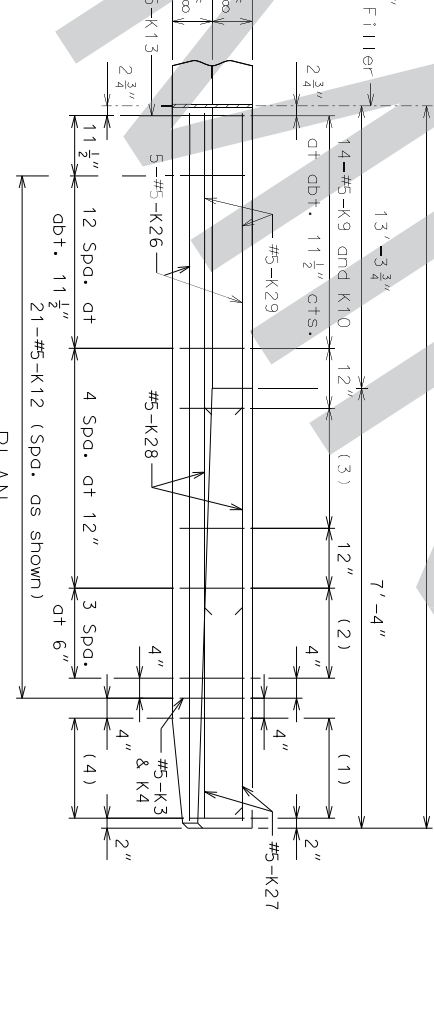
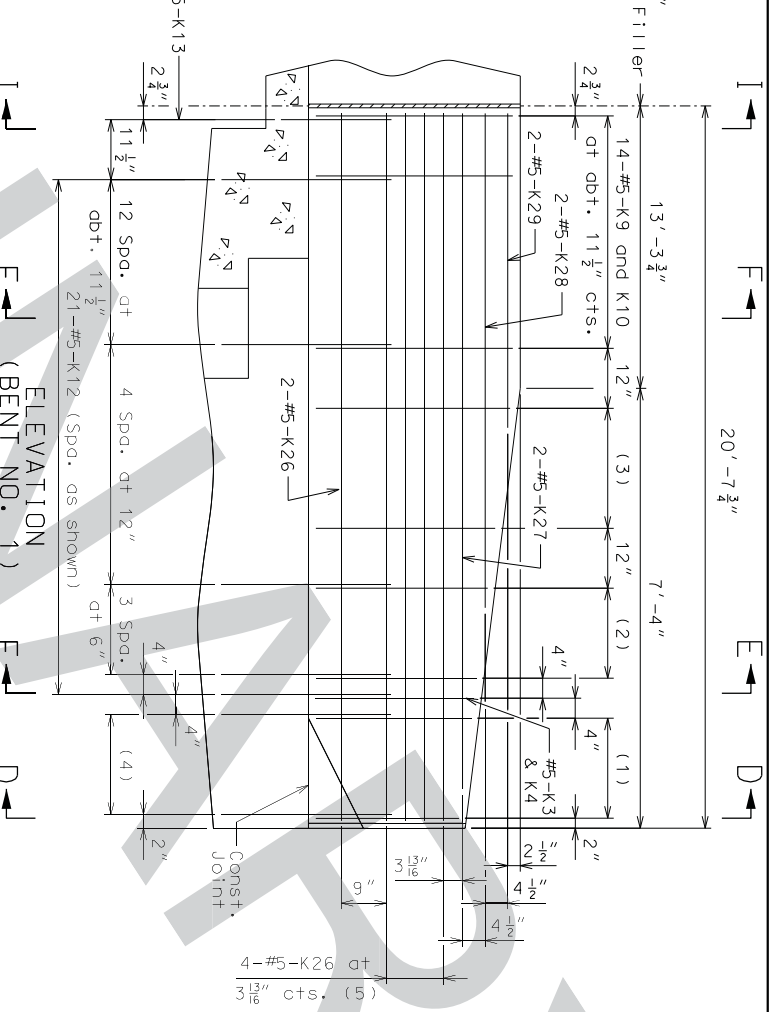
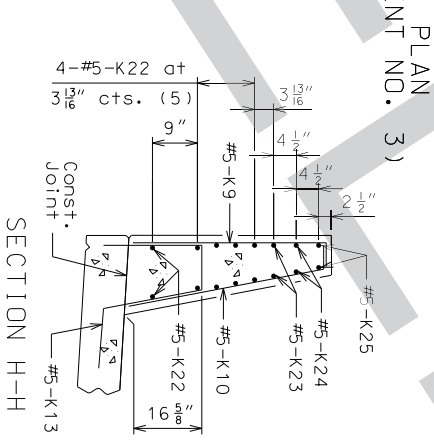
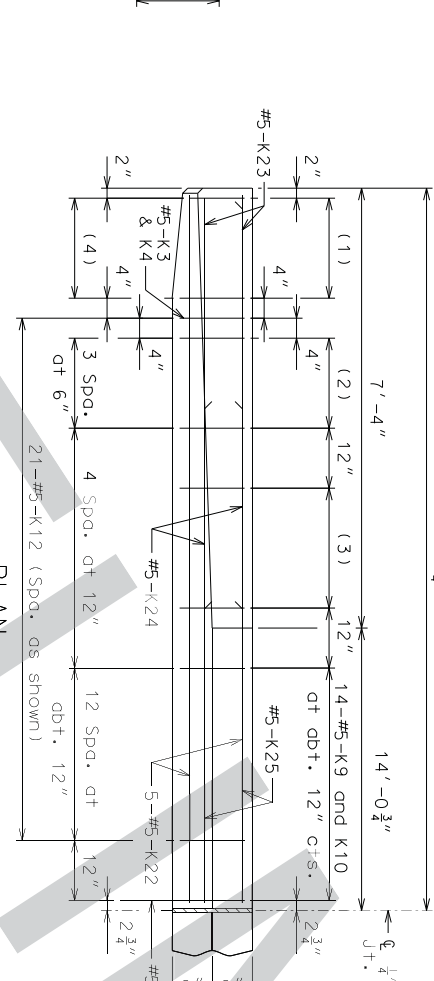
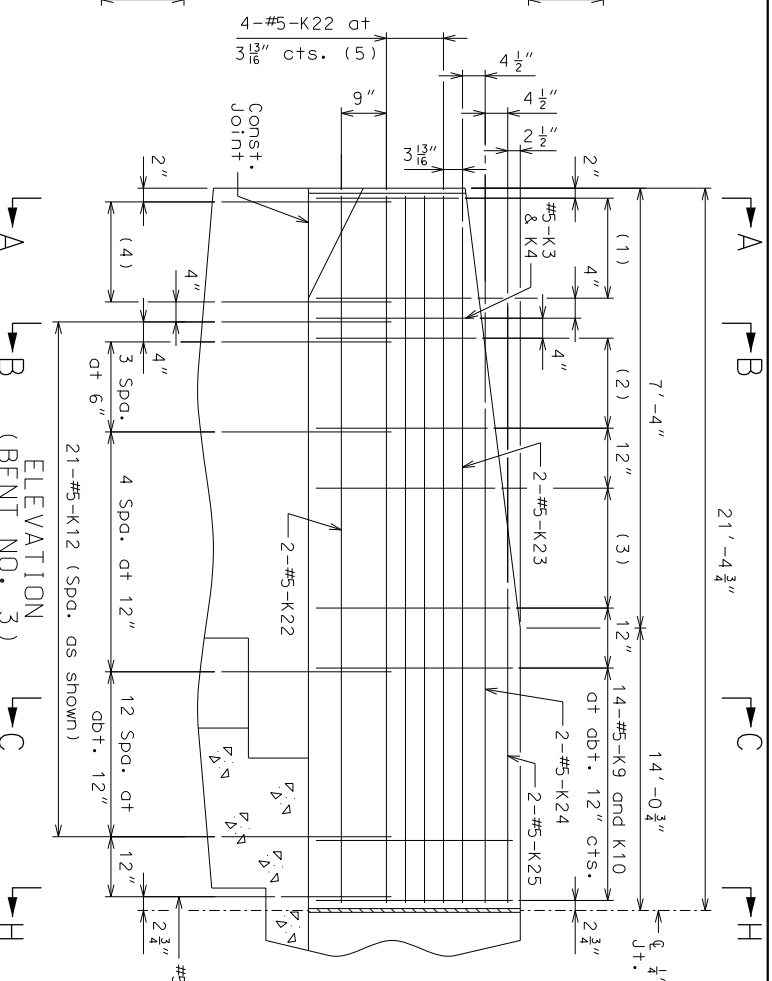
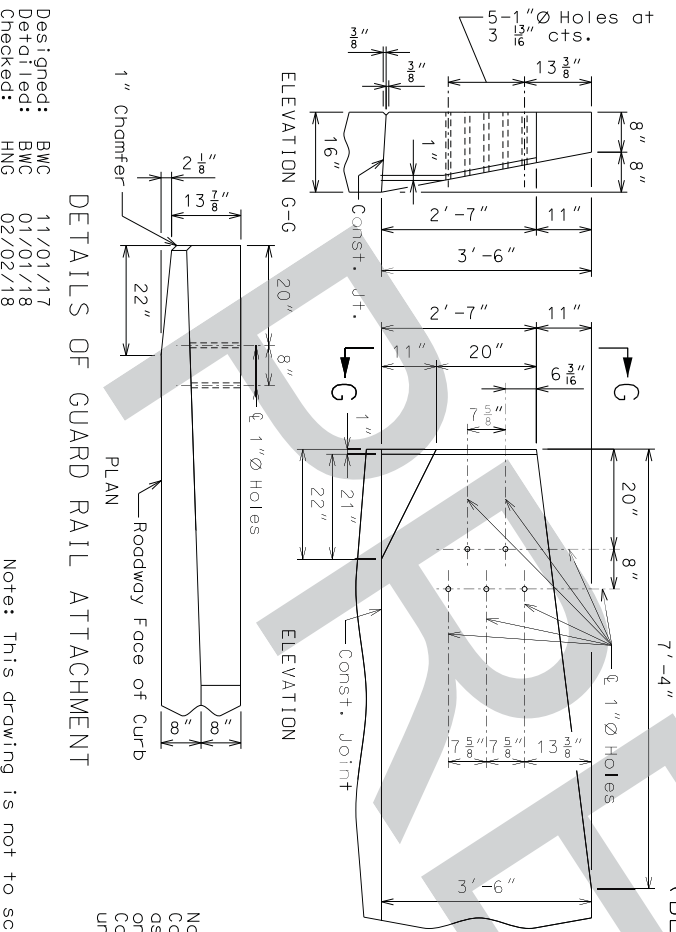
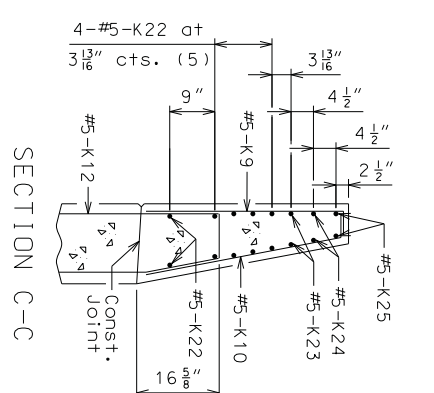
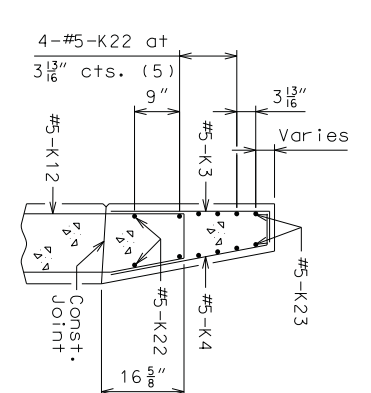
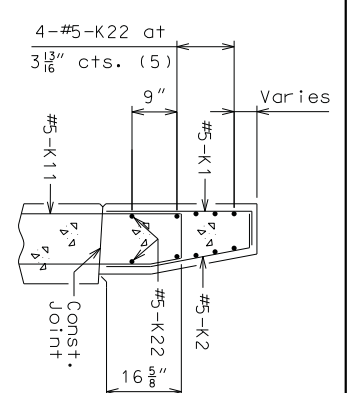
DATE	DESCRIPTION

PROJECT NO. A8656
BRIDGE NO. J6S3181
CONTRACT ID. ST. LOUIS
COUNTY

DATE PREPARED 02/02/18
ROUTE 366
STATE MO
DISTRICT 24
SHEET NO. 24

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



- (1) 6-#5-K1 and 6-#5-K2 at 4" cts.
- (2) 4-#5-K5 and 4-#5-K6 at 6" cts.
- (3) 3-#5-K7 and 3-#5-K8 at 12" cts.
- (4) 6-#5-K11 at 4" cts.
- (5) (Each face)

CONVENTIONAL-FORMED BARRIER CURB (TYPE D)
AT END BENTS (RIGHT BARRIER)

Note: Concrete traffic barrier delineators shall be placed on top of the barrier curb (Type D) 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 retro-reflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the concrete unit price for Barrier Curb (Type D).

Designed: BMC 11/01/17
Detailed: BMC 01/01/18
Checked: HNS 02/02/18

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

Sheet No. 25 of 35

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DATE PREPARED 02/02/18
ROUTE STATE MO
DISTRICT SHEET NO. 366 MO
BR 25

COUNTY ST. LOUIS
JOB NO. J6S3181
CONTRACT ID.

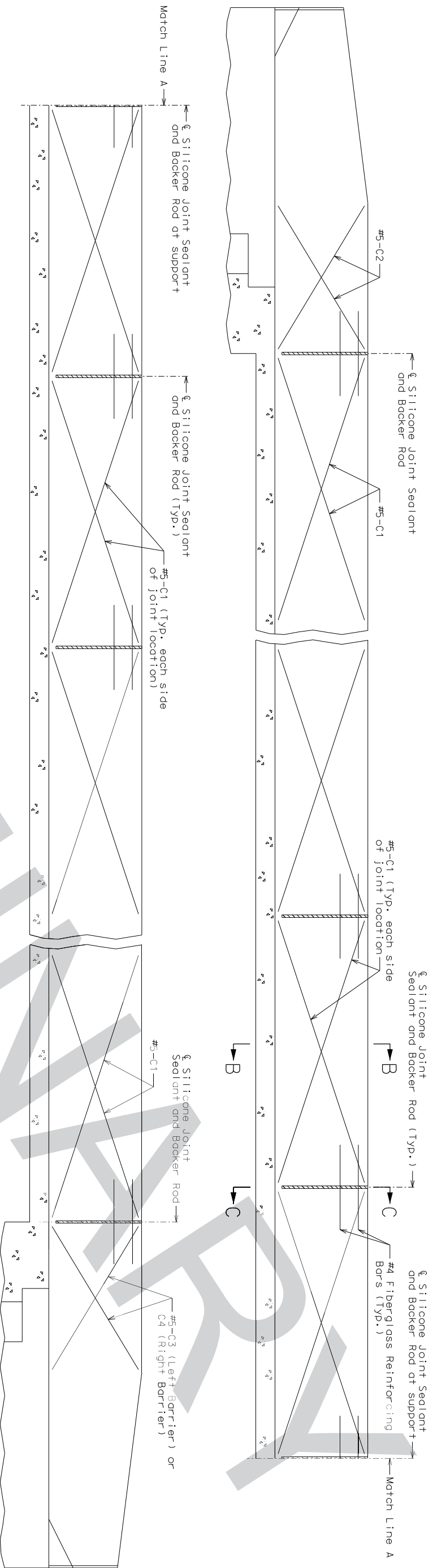
PROJECT NO. A8656
BRIDGE NO. A8656

DATE	DESCRIPTION

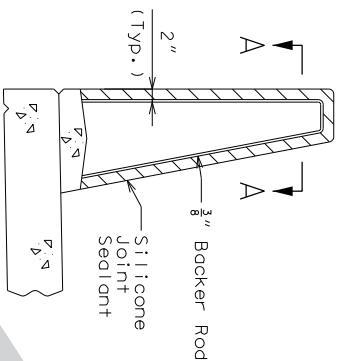
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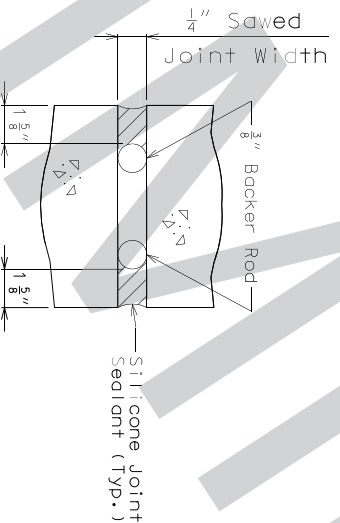
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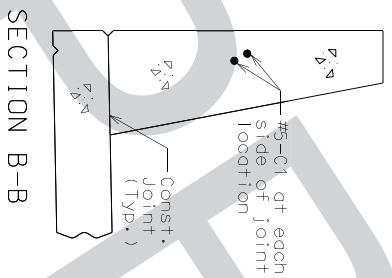
TYPICAL ELEVATION OF BARRIER CURB (TYPE D) AT SUPPORT LOCATIONS



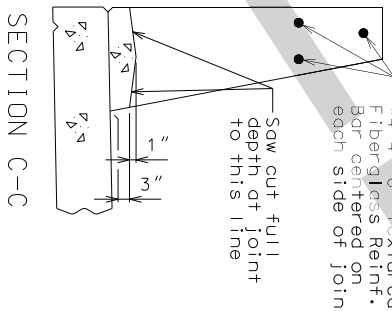
SECTION THRU JOINT



SECTION A-A



SECTION B-B



SECTION C-C

General Notes:

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

All exposed edges of barrier curb (Type D) 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 Barrier Curb (Type D) per linear foot.

Concrete in the barrier curb (Type D) shall be Class B-1.

Measurement of barrier curb (Type D) 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 Barrier Curb (Type D).

Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

Plastic waterstop shall not be used with slip-form option.

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

Cost of silicone joint sealant and backer rod, complete in place, will be considered completely covered by the contract unit price for Barrier Curb (Type D).

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DATE PREPARED		02/02/18
ROUTE	STATE	MO
DISTRICT	SHEET NO.	26
COUNTY		
ST. LOUIS		
JOB NO.	JCS3181	
CONTRACT ID.		
PROJECT NO.		
BRIDGE NO.	A8656	

DATE	DESCRIPTION

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Designed: BMC 11/01/17
Detailed: BMC 01/01/18
Checked: HNS 02/02/18

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

Sheet No. 26 of 35

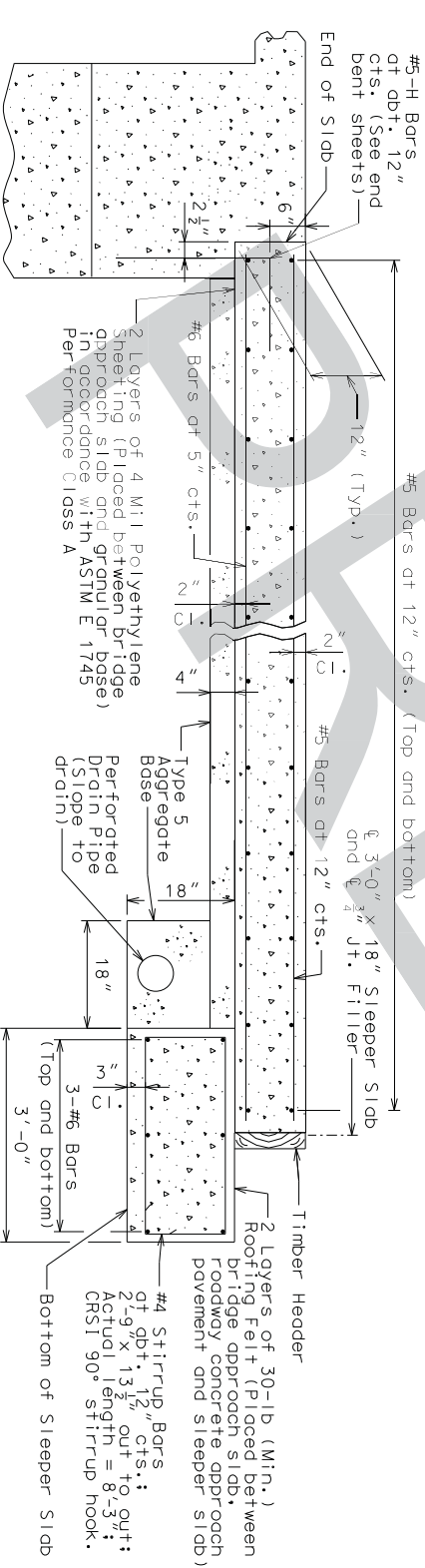
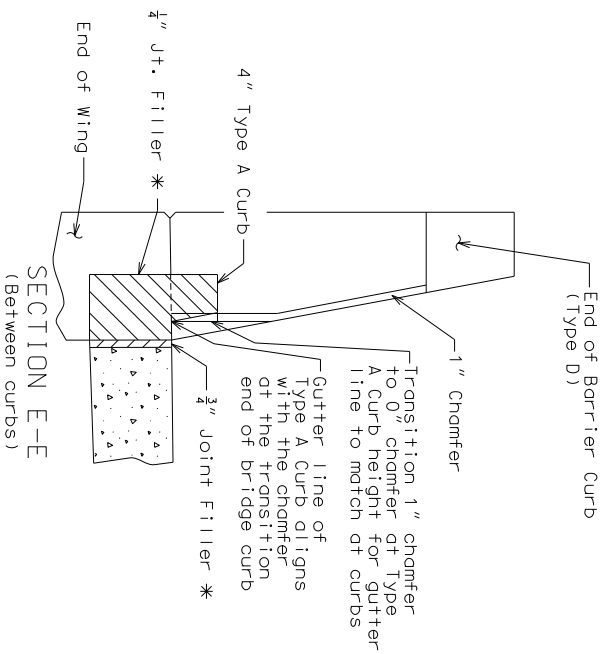
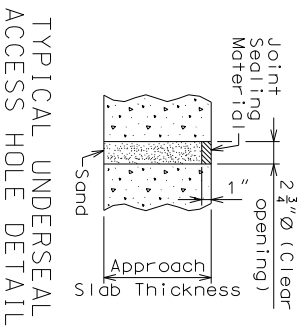
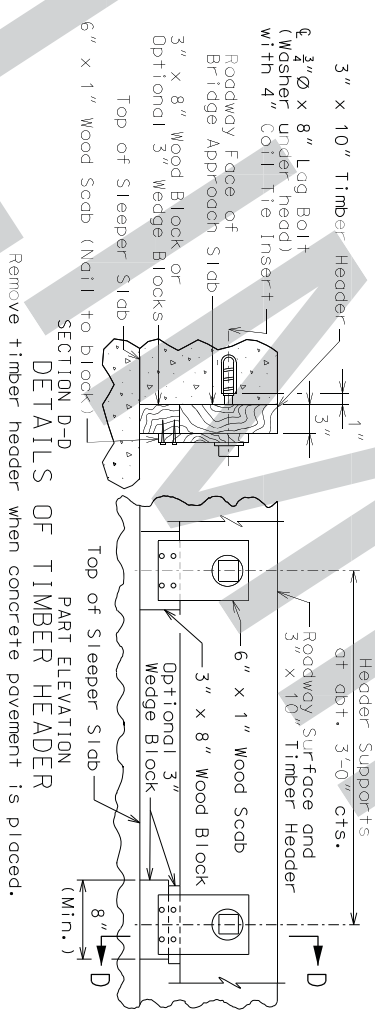
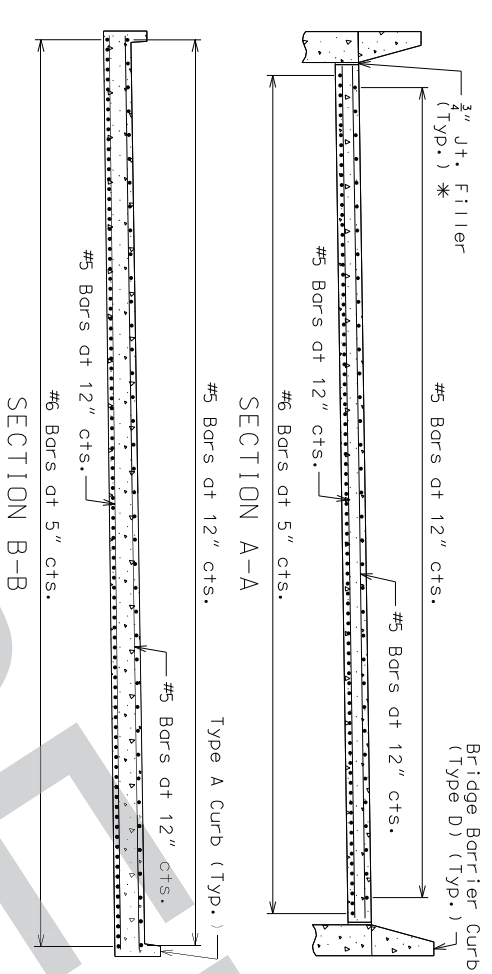
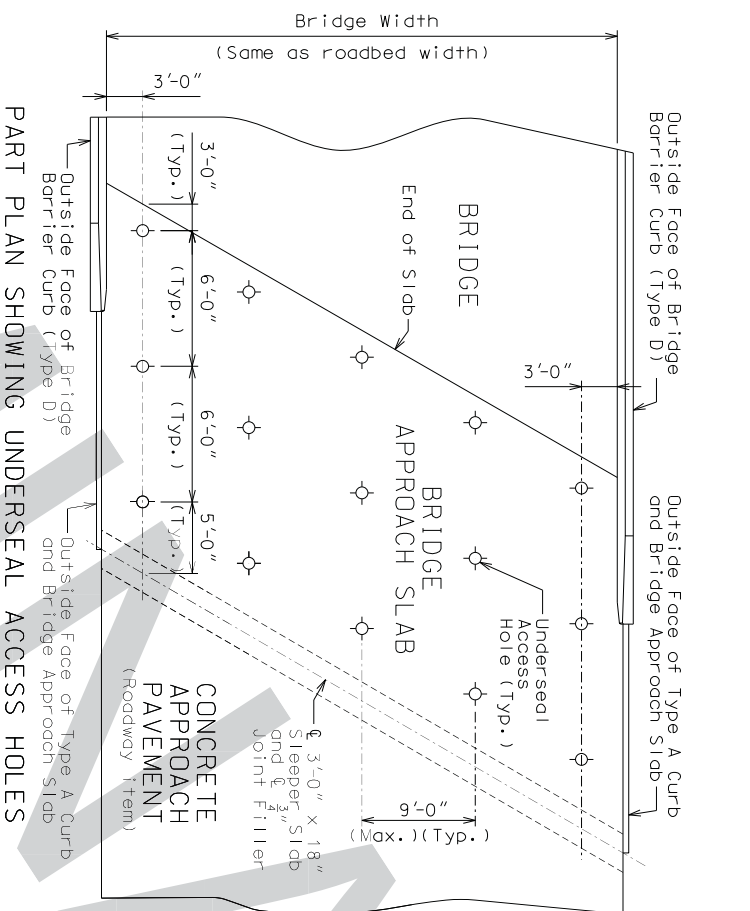
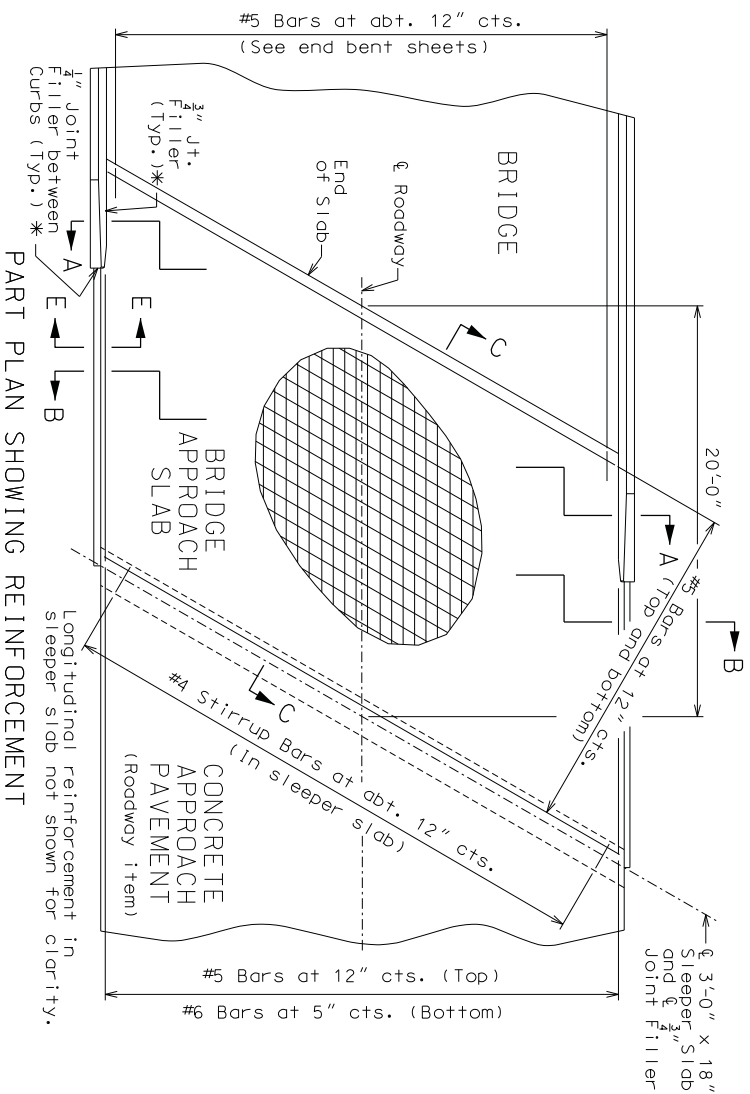
OPTIONAL SLIP-FORMED BARRIER CURB (TYPE D)

Use R bars, K bars and L Bars similarly as shown for conventional-formed barrier curb (Type D).



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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 $f_y = 60,000$ psi.
 Drain pipe may be either 6" diameter corrugated metal (i.e. coated pipe under drain), 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.
 Minimum clearance to reinforcing steel shall be 1 1/2", 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 711.

Designed: BMC 11/01/17
 Detailed: HNS 01/01/18
 Checked: HNS 02/02/18

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

Sheet No. 27 of 35

DETAILS OF BRIDGE APPROACH SLAB (MAJOR ROAD)

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DATE PREPARED
02/02/18

ROUTE
366

STATE
MO

DISTRICT
BR

SHEET NO.
27

COUNTY
ST. LOUIS

JOB NO.
JCS3181

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A8656

DATE	DESCRIPTION

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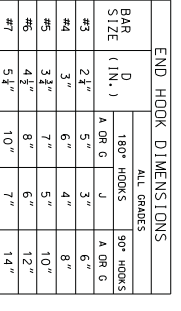
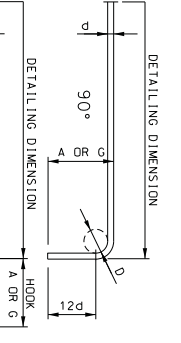
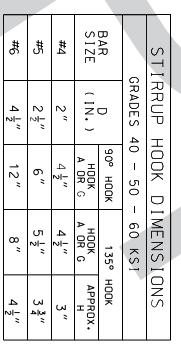
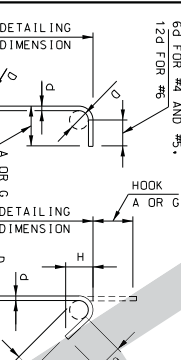
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BILL OF REINFORCING STEEL

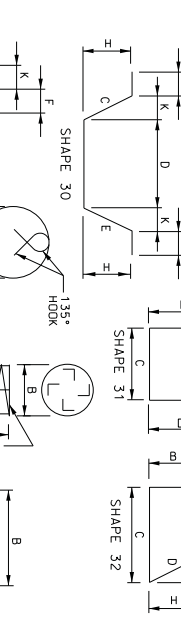
BILL OF REINFORCING STEEL

Table with columns: MARK NO., LOCATION, EPOXY SHAPE NO., STIRRUP SUBSTR., VARIES, NO. EACH, DIMENSIONS (B-K), NOMINAL LENGTH, ACTUAL LENGTH, WEIGHT. Rows include various beam and column items like 6D FOR #4 AND #5, 12 H200 BEAM, 11 H201 BEAM, etc.

Table with columns: MARK NO., LOCATION, EPOXY SHAPE NO., STIRRUP SUBSTR., VARIES, NO. EACH, DIMENSIONS (B-K), NOMINAL LENGTH, ACTUAL LENGTH, WEIGHT. Rows include items like 5 U111 BEAM, 5 U112 DIAPHRAGM, 6 U113 DIAPHRAGM, etc.



NOTE: STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURES AS FOR 90 DEGREE STANDARD HOOKS. HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.



Designed: BMC 11/01/17
Detailed: BMC 01/01/18
Checked: HNS 02/02/18

Note: This drawing is not to scale. FOLLOW DIMENSIONS.
Sheet No. 28 of 35

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PROJECT NO. BRIDGE NO. A8656
ST. LOUIS
JOB NO. J6S3181
CONTRACT ID.
DATE PREPARED 02/02/18
ROUTE 366
STATE MO
DISTRICT 28
SHEET NO. 28

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

BILL OF REINFORCING STEEL

BILL OF REINFORCING STEEL

Main table for Bill of Materials (BOM) for reinforcing steel. Columns include MARK NO., LOCATION, EPOXY SHAPE NO., STIRRUP SUBSTR., VARIES, NO. EACH, DIMENSIONS (B, C, D, E, F, H, K), NOMINAL LENGTH, ACTUAL LENGTH, and WEIGHT (LBS.).

Summary table for Bill of Materials (BOM) for reinforcing steel. Columns include NO. REQ'D., MARK NO., LOCATION, EPOXY SHAPE NO., STIRRUP SUBSTR., VARIES, NO. EACH, DIMENSIONS (B, C, D, E, F, H, K), NOMINAL LENGTH, ACTUAL LENGTH, and WEIGHT (LBS.).

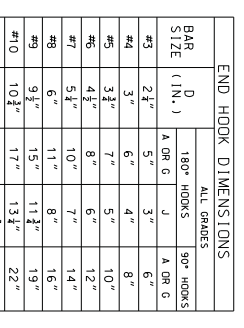
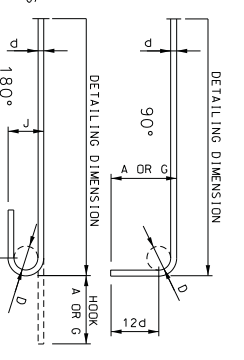
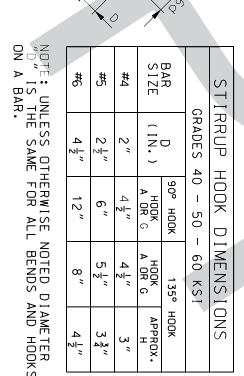
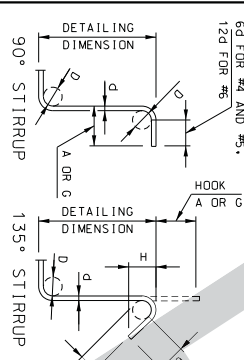


Table titled 'STIRRUP HOOK DIMENSIONS' showing grades, bar sizes, and hook dimensions for various grades (40-60).

Table titled 'END HOOK DIMENSIONS' showing bar sizes, hook angles, and dimensions for various grades (40-60).

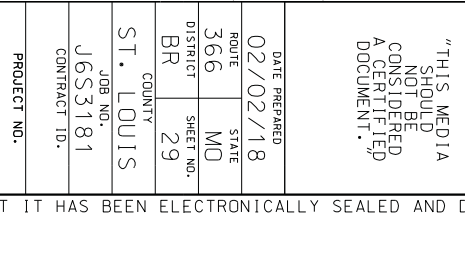
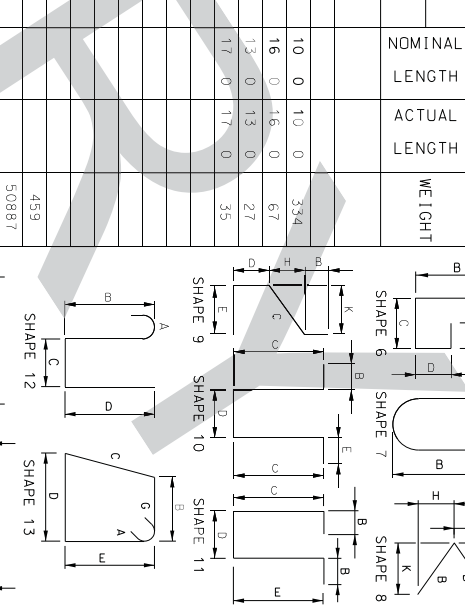
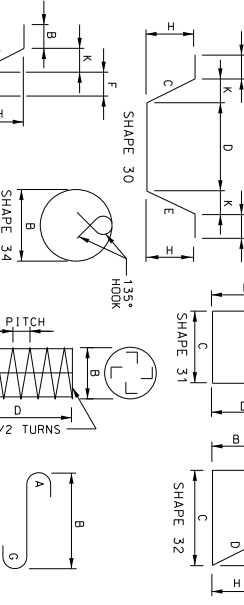
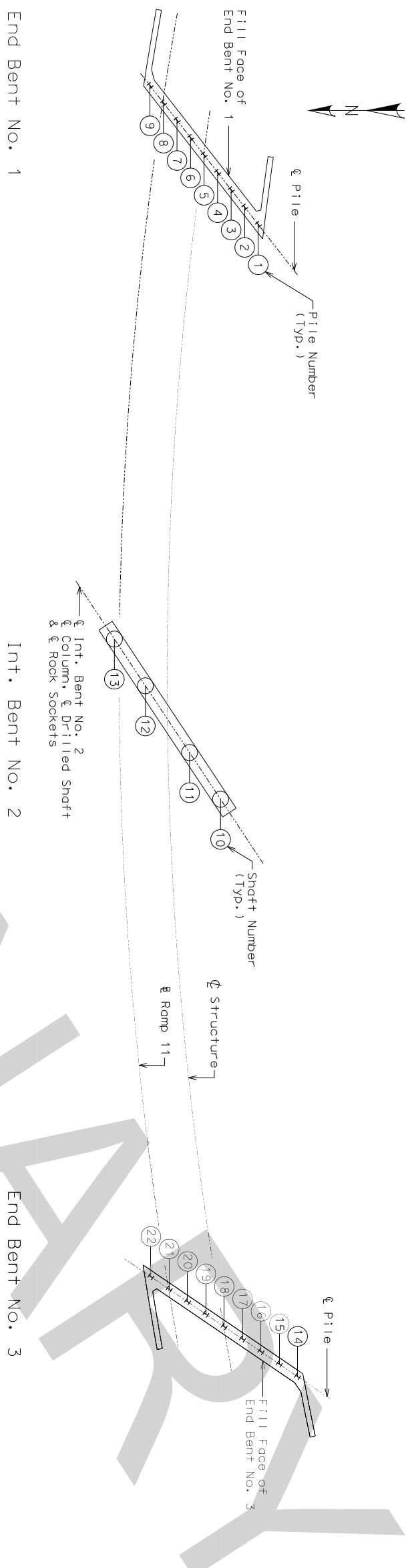


Table with columns for DATE, DESCRIPTION, and PROJECT NO. (BRIDGE NO. A8656).

MOBILE TRANSPORTATION COMMISSION logo and address: 105 WEST CAPITOL JEFFERSON CITY, MO 65102

HANSON Professional Services Inc. logo and address: 13801 Riverport Drive, Suite 300 St. Louis, Missouri 63043

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PLAN SHOWING PILE & DRILLED SHAFT NUMBERING FOR RECORDING AS-BUILT PILE & AS-BUILT DRILLED SHAFT DATA

As-Built Pile Data			
Pile No.	Length in Piece (Ft.)	Computed Nominal Axial Compressive Resistance (Kips)	Remarks
1			End Bent No. 1
2			
3			
4			
5			
6			
7			
8			
9			End Bent No. 3
14			
15			
16			
17			
18			
19			
20			
21			
22			

As-Built Drilled Shaft Data				
Shaft No.	Top of Shaft Rock (Elev.)	Tip of Casting (Elev.)	Bottom of Rock Socket (Elev.)	Remarks
				Int. Bent No. 2

- Notes:
 Indicate remarks in the remarks column:
 A. Pile type and grade.
 B. Batter.
 C. Driven to practical refusal.
 This sheet to be completed by MODOT construction personnel.

Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

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

Sheet No. 30 of 35

AS-BUILT PILE & AS-BUILT DRILLED SHAFT DATA

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DATE PREPARED 02/02/18
 ROUTE 366
 STATE MO
 DISTRICT BR 30
 COUNTY ST. LOUIS
 JOB NO. J6S3181
 CONTRACT ID.

PROJECT NO.
 BRIDGE NO. A8656

DATE	DESCRIPTION

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

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 Hanson Professional Services Inc.
 13801 Riverport Drive, Suite 300
 St. Louis, Missouri 63043
 Professional Engineer 001632
 www.hanson-inc.com
 314.770.0467

Project No. 17H0047 - 3100		LOG OF BOREHOLE NO. B-101		Sheet 1 of 1							
CLIENT	MODOT	ARCHITECT/ENGINEER	Hanson Professional Services Inc.								
SITE	I-44 MP 277.1		PROJECT	366 Over I-44							
N 990461.16 E 843410.65											
Surface Elev.: 566.5 ft Portland Cement Concrete (PCC): 18-inch thick	GRAPHIC LOG	DEPTH (ft)	BLOWS/6in N - VALUE RQD	NUMBER	TYPE	RECOVERED (in) LTH SMPLD (in)	MOISTURE, %	DRY DENSITY (lb/ft ³)	Qu (tsf) FAILURE TYPE	ADDITIONAL DATA REMARKS	
											SAMPLES
1.5 WEATHERED LIMESTONE: dark gray decomposed to highly weathered, limestone pieces, with clay shale	565.0	2	8-9-17 N=26	SS1	SPT	14/18	78%				
3.7 LIMESTONE: Dark gray, fine grained, strong, thinly bedded, slightly weathered, open to close joints	562.9	4		RQD= RUN1 83%	RC	12/12	100%			Qu = 897.5 tsf; Unit Weight = 144.8 pcf	
- dark to light gray, very strong, thick bedded		6		RQD= RUN2 99%	RC	60/60	100%				
		8									
		10		RQD= RUN3 93%	RC	47/48	98%			Qu = 964 tsf; Unit Weight = 145.6 pcf	
13.5 E.O.B.	553.0	12									
WATER LEVEL OBSERVATIONS		STARTED		FINISHED							
WL	NE	11/8/17		11/8/17							
DRILL CO. Geotechnology, Inc. DRILL RIG. CME-550 ATV DRILL		DRILLER		ST ASST DRILLER		LOGGED BY		Behrooz Bajestani APPROVED		Kip Chappok	

BORING B-101

Project No. 17H0047 - 3100		LOG OF BOREHOLE NO. B-102A		Sheet 1 of 1							
CLIENT	MODOT	ARCHITECT/ENGINEER	Hanson Professional Services Inc.								
SITE	I-44 MP 277.1		PROJECT	366 Over I-44							
N 990418.44 E 843364.73											
Surface Elev.: 565.1 ft Portland Cement Concrete (PCC): 18-inch thick	GRAPHIC LOG	DEPTH (ft)	BLOWS/6in N - VALUE RQD	NUMBER	TYPE	RECOVERED (in) LTH SMPLD (in)	MOISTURE, %	DRY DENSITY (lb/ft ³)	Qu (tsf) FAILURE TYPE	ADDITIONAL DATA REMARKS	
											SAMPLES
1.5 FILL: Sandy gravel (GWS) - dark gray trace weathered rock pieces	563.6	2	7-35-21 N=56	SS1	SPT	15/18	83%				
2.5 WEATHERED LIMESTONE: Gray, decomposed to highly weathered rock pieces	562.6	4		RQD= RUN1 29%	RC	20/24	83%			Core samples obtained fragmented	
3.5 LIMESTONE: Light and dark gray, fine grained, very strong, thinly to medium bedded, moderately to slightly weathered, open to close joints	561.6	6		RQD= RUN2 88%	RC	60/60	100%			Qu = 616.5 tsf; Unit Weight = 139.1 pcf	
- dark to light gray, medium bedded		8									
- medium grained		10		RQD= RUN3 89%	RC	36/36	100%				
- fine grained		12									
- medium to thick bedded											
- medium bedded											
13.5 E.O.B.	551.6										
WATER LEVEL OBSERVATIONS		STARTED		FINISHED							
WL	NE	11/7/17		11/7/17							
DRILL CO. Geotechnology, Inc. DRILL RIG. CME-550 ATV DRILL		DRILLER		ST ASST DRILLER		LOGGED BY		Behrooz Bajestani APPROVED		Kip Chappok	

BORING B-102A

BORING DATA

Note: For location of borings, see Sheet No. 1.

Designed: BMC 11/01/17
Detailed: BMC 01/01/18
Checked: HNS 02/02/18

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

Sheet No. 31 of 35

BORINGS

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DATE PREPARED
02/02/18

ROUTE
366
DISTRICT
BR
31

COUNTY
ST. LOUIS

JOB NO.
J6S3181
CONTRACT ID.


PROJECT NO.
BRIDGE NO.
A8656

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Hanson Professional Services Inc.
13801 Riverport Drive, Suite 300
St. Louis, Missouri 63043
Professional Engineer 001632
www.hanson-inc.com
314.770.0467

Project No. 17H0047 - 3100		LOG OF BOREHOLE NO. B-201		Sheet 1 of 2	
CLIENT MODOT		ARCHITECT/ENGINEER Hanson Professional Services Inc.			
SITE I-44 MP 277.1		PROJECT 366 Over I-44		SHEET NO. 32	
N 990471.02 E 843284.91		PROJECT 366 Over I-44			
Surface Elev.: 563.6 ft		GRAPHIC LOG			
Portland Cement Concrete (PCC): 18-inch thick		DEPTH (ft)			
1.5 FILL: Sandy gravel (GWS) - light to dark brown, dense		BLOWS/6in N - VALUE RQD			
3.0 WEATHERED LIMESTONE: Light gray, decomposed to highly weathered rock pieces, with sand		NUMBER			
5.5 LIMESTONE: Dark to light gray, fine grained, very strong, medium bedded, slightly weathered, open to close joints.		TYPE			
		RECOVERED (in) LTH SMPLD (in)			
		MOISTURE, %			
		DRY DENSITY (lb/ft ³)			
		Qu (tsf) FAILURE TYPE			
		ADDITIONAL DATA REMARKS			
		<p>Qu = 626.5 tsf; Unit Weight = 136.2 pcf</p>			
- dark gray, moderate weathered		<p>RQD = RUN2 RC 60/60 100%</p>			
- light gray, fine grained, slightly weathered		<p>RQD = RUN3 RC 57/60 81%</p>			
<p>Continued Next Page</p>		<p>STARTED 11/3/17 FINISHED 11/3/17</p>			
		<p>DRILL CO Geotechnology, Inc. DRILL RIG CME-550 ATV Drill</p>			
<p>LOGGED BY Behrooz Bajestani APPROVED Kip Chappak</p>		<p>DRILLER ST ASST DRILLER</p>			
WATER LEVEL OBSERVATIONS		WATER LEVEL OBSERVATIONS			
WL NE		WL NE			


BORING B-201

BORING DATA

Note: For location of borings, see Sheet No. 1.

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

Sheet No. 32 of 35

Project No. 17H0047 - 3100		LOG OF BOREHOLE NO. B-201		Sheet 2 of 2	
CLIENT MODOT		ARCHITECT/ENGINEER Hanson Professional Services Inc.			
SITE I-44 MP 277.1		PROJECT 366 Over I-44		SHEET NO. 32	
N 990471.02 E 843284.91		PROJECT 366 Over I-44			
(continued)		GRAPHIC LOG			
LIMESTONE: Dark to light gray, fine grained, very strong, medium bedded, slightly weathered, open to close joints. (continued)		DEPTH (ft)			
- dark gray, moderately weathered		BLOWS/6in N - VALUE RQD			
		NUMBER			
		TYPE			
		RECOVERED (in) LTH SMPLD (in)			
		MOISTURE, %			
		DRY DENSITY (lb/ft ³)			
		Qu (tsf) FAILURE TYPE			
		ADDITIONAL DATA REMARKS			
		<p>Qu = 1483.5 tsf; Unit Weight = 150.6 pcf</p>			
Clayey SHALE: Light gray and brown, soft, trace weathered limestone pieces		<p>RQD = RUN4 RC 58/60 97%</p>			
LIMESTONE: Light gray to light brown, fine grained, strong, medium to thinly bedded, slightly weathered, open joints		<p>RQD = RUN5 RC 54/60 90%</p>			
E.O.B.		<p>STARTED 11/3/17 FINISHED 11/3/17</p>			
		<p>DRILL CO Geotechnology, Inc. DRILL RIG CME-550 ATV Drill</p>			
<p>LOGGED BY Behrooz Bajestani APPROVED Kip Chappak</p>		<p>DRILLER ST ASST DRILLER</p>			
WATER LEVEL OBSERVATIONS		WATER LEVEL OBSERVATIONS			
WL NE		WL NE			

BORING B-201

BORINGS

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DATE PREPARED
02/02/18

ROUTE STATE
366 MO

DISTRICT SHEET NO.
BR 32

COUNTY
ST. LOUIS

JOB NO.
JCS3181

CONTRACT ID.

PROJECT NO.
BRIDGE NO.
A8656

DATE

DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



Hanson Professional Services Inc.
13801 Riverport Drive, Suite 300
St. Louis, Missouri 63043
Professional Engineer 001632
www.hanson-inc.com
314.770.0467

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Designed: BMC 11/01/17
Detailed: BMC 01/01/18
Checked: HNS 02/02/18

Project No. 17H0047 - 3100		LOG OF BOREHOLE NO. B-202		Sheet 1 of 2						
CLIENT	MODOT	ARCHITECT/ENGINEER	Hanson Professional Services Inc.							
SITE	I44 MP 277.1		PROJECT	366 Over I44						
N 990424.08 E 843214.05										
Surface Elev.: 561.2 ft Portland Cement Concrete (PCC): 18-inch thick	GRAPHIC LOG	DEPTH (ft)	SAMPLES		TESTS					
			BLOWS/6in N - VALUE RQD	NUMBER		TYPE	RECOVERED (in) LTH SMPLED (in)	MOISTURE, %	DRY DENSITY (lb/ft ³)	Qu (tsf) FAILURE TYPE
1.5	FILL: Sandy gravel (GWS) - light to dark brown, dense	559.7	50/5 RC	SS1 RC	4/5 80%	6/12 50%	60/60 100%			
3.0										
4.0	LIMESTONE: Light gray, fine grained, soft, highly weathered, open to close joints - from 4.75 feet; light and dark gray, strong, medium bedded, moderately weathered,	557.2								Sample obtained fragmented
	- very strong, slightly weathered - medium grained from 8 to 9.5 feet									Qu = 517.5 tsf Unit Weight = 156.8 pcf
	- fine grained, medium to thickly bedded									
	- vertical fractures from 16 to 17 feet									
<i>Continued Next Page</i>										
WATER LEVEL OBSERVATIONS		STARTED		FINISHED						
WL	NE	11/6/17		11/6/17						
DRILL CO. Geotechnology, Inc. DRILL RIG CME-550 ATV DRILL		DRILLER ST ASST DRILLER		LOGGED BY Behrooz Bajestani APPROVED Kip Chappell						

BORING B-202

BORING DATA

Note: For location of borings, see Sheet No. 1.

Designed: BMC 11/01/17
Detailed: BMC 01/01/18
Checked: HNS 02/02/18

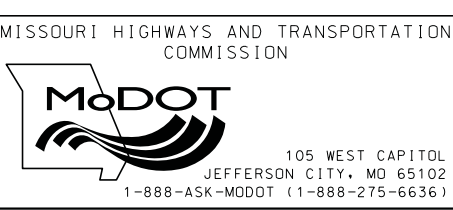
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 33 of 35

BORINGS

Project No. 17H0047 - 3100		LOG OF BOREHOLE NO. B-202		Sheet 2 of 2						
CLIENT	MODOT	ARCHITECT/ENGINEER	Hanson Professional Services Inc.							
SITE	I44 MP 277.1		PROJECT	366 Over I44						
N 990424.08 E 843214.05										
(continued)	LIMESTONE: Light gray, fine grained, soft, highly weathered, open to close joints (continued) - from 20 feet; medium bedded - 1 to 2 inch thick clay shale seams from 21.5 to 22 feet - from 22 feet; slightly weathered	GRAPHIC LOG	DEPTH (ft)	SAMPLES		TESTS				
				BLOWS/6in N - VALUE RQD	NUMBER		TYPE	RECOVERED (in) LTH SMPLED (in)	MOISTURE, %	DRY DENSITY (lb/ft ³)
		22		RQD= RUN5 66%	RUN5 RC	60/60 100%				Qu = 1078 tsf Unit Weight = 168.9 pcf
	- clay shale seam from 27 to 27.75 feet - strong, thinly bedded, highly weathered			RQD= RUN6 38%	RUN6 RC	48/54 89%				Sample obtained fragmented
		29.5								
E.O.B.										
WATER LEVEL OBSERVATIONS		STARTED		FINISHED						
WL	NE	11/6/17		11/6/17						
DRILL CO. Geotechnology, Inc. DRILL RIG CME-550 ATV DRILL		DRILLER ST ASST DRILLER		LOGGED BY Behrooz Bajestani APPROVED Kip Chappell						

BORING B-202



DATE PREPARED	02/02/18
ROUTE	366
STATE	MO
DISTRICT	BR
SHEET NO.	33
COUNTY	ST. LOUIS
JOB NO.	J6S3181
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A8656
DATE	
DESCRIPTION	

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CLIENT ARCHITECT/ENGINEER **Hanson Professional Services Inc.**

MODOT PROJECT **Hanson Professional Services Inc.**

SITE **144 MP 277.1** **366 Over 144**

N 990486.01 E 843106

DEPTH (ft)	BLOWS/6in N - VALUE RQD	NUMBER	TYPE	RECOVERED (in) LTH SMPLD (in)	MOISTURE, %	DRY DENSITY (lb/ft ³)	Qu (tsf) FAILURE TYPE	ADDITIONAL DATA REMARKS
0.2								Surface Elev.: 578.4 ft
0.2								Sandy SILT (ML/S): Black, moist (TOPSOIL) 578.3
2								LIMESTONE: Dark to light gray, medium to fine grained, very strong, medium bedded, moderately to slightly weathered, open to close joints
4								- medium to thickly bedded
6								- light gray, thinly to medium bedded
8								- slightly weathered
10								- thickly bedded
12								
14								
16								
18								
20								
								Qu = 1675 tsf; Unit Weight = 166.8 pcf
								Qu = 314.5 tsf; Unit Weight = 134.6 pcf
								Qu = 1543.5 tsf;

Continued Next Page

WATER LEVEL OBSERVATIONS		STARTED 10/31/17 FINISHED 10/31/17	
WL	NE	DRILL CO. Geotechnology, Inc. DRILL RIG CME-550 ATV Drill	DRILLER ST ASST DRILLER
		LOGGED BY Behrooz Bajestani APPROVED Kip Chappok	

BORING B-301

CLIENT ARCHITECT/ENGINEER **Hanson Professional Services Inc.**

MODOT PROJECT **Hanson Professional Services Inc.**

SITE **144 MP 277.1** **366 Over 144**

N 990486.01 E 843106

DEPTH (ft)	BLOWS/6in N - VALUE RQD	NUMBER	TYPE	RECOVERED (in) LTH SMPLD (in)	MOISTURE, %	DRY DENSITY (lb/ft ³)	Qu (tsf) FAILURE TYPE	ADDITIONAL DATA REMARKS
22								(continued)
24								LIMESTONE: Dark to light gray, medium to fine grained, very strong, medium bedded, moderately to slightly weathered, open to close joints (continued) - from 20 feet, gray, fine grained, medium to thickly bedded
26								- thinly bedded
28								- medium bedded
30								
32								
34								
35.0								E.O.B.
								Unit Weight = 157.9 pcf

WATER LEVEL OBSERVATIONS		STARTED 10/31/17 FINISHED 10/31/17	
WL	NE	DRILL CO. Geotechnology, Inc. DRILL RIG CME-550 ATV Drill	DRILLER ST ASST DRILLER
		LOGGED BY Behrooz Bajestani APPROVED Kip Chappok	

BORING B-301

BORING DATA

Note: For location of borings, see Sheet No. 1.

Designed: BMC 11/01/17
Detailed: BMC 01/01/18
Checked: HNS 02/02/18

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

Sheet No. 34 of 35

BORINGS

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 02/02/18

ROUTE STATE 366 MO

DISTRICT SHEET NO. BR 34

COUNTY ST. LOUIS

JOB NO. J6S3181


CONTRACT ID.

PROJECT NO.

BRIDGE NO. A8656

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



Hanson Professional Services Inc.
13801 Riverport Drive, Suite 300
St. Louis, Missouri 63043
Professional Engineer 001632
www.hanson-inc.com
314.770.0467

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Project No. 17H0047 - 3100 **LOG OF BOREHOLE NO. B-302** Sheet 1 of 1

CLIENT

ARCHITECT/ENGINEER
Hanson Professional Services Inc.

MODOT

PROJECT
366 Over I-44

SITE
I-44 MP 277.1

SAMPLES

TESTS

N 990399.01 E 843084.88

Surface Elev.: **557.2 ft**

GRAPHIC LOG

DEPTH (ft)

BLOWS/6in
N - VALUE
RQD

NUMBER

TYPE

RECOVERED (in)
LTH SMPLD (in)

MOISTURE, %

DRY DENSITY
(lb/ft³)

Qu (tsf)
FAILURE TYPE

ADDITIONAL
DATA
REMARKS

0.3 Asphalt Cement Concrete (ACC) 4-inch thick
556.8
1.0 FILL: Sand, silt and gravel mix
556.2
FILL: Sandy gravel (GWS) - light gray,
medium dense, with silt
555.2
2.0 WEATHERED LIMESTONE: Light to dark
gray, decomposed to highly weathered rock
pieces, trace sand and silt

DEPTH (ft)

BLOWS/6in
N - VALUE
RQD

NUMBER

TYPE

RECOVERED (in)
LTH SMPLD (in)

MOISTURE, %

DRY DENSITY
(lb/ft³)

Qu (tsf)
FAILURE TYPE

ADDITIONAL
DATA
REMARKS

7.5 LIMESTONE: Dark gray to light gray, fine
grained, strong, thinly bedded, moderately
weathered, open to close joints
- slightly weathered
- very strong

DEPTH (ft)

BLOWS/6in
N - VALUE
RQD

NUMBER

TYPE

RECOVERED (in)
LTH SMPLD (in)

MOISTURE, %

DRY DENSITY
(lb/ft³)

Qu (tsf)
FAILURE TYPE

ADDITIONAL
DATA
REMARKS

17.5 - dark gray and black to light gray
E.O.B.
539.7

DEPTH (ft)

BLOWS/6in
N - VALUE
RQD

NUMBER

TYPE

RECOVERED (in)
LTH SMPLD (in)

MOISTURE, %

DRY DENSITY
(lb/ft³)

Qu (tsf)
FAILURE TYPE

ADDITIONAL
DATA
REMARKS

- very strong

DEPTH (ft)

BLOWS/6in
N - VALUE
RQD

NUMBER

TYPE

RECOVERED (in)
LTH SMPLD (in)

MOISTURE, %

DRY DENSITY
(lb/ft³)

Qu (tsf)
FAILURE TYPE

ADDITIONAL
DATA
REMARKS

DEPTH (ft)

BLOWS/6in
N - VALUE
RQD

NUMBER

TYPE

RECOVERED (in)
LTH SMPLD (in)

MOISTURE, %

DRY DENSITY
(lb/ft³)

Qu (tsf)
FAILURE TYPE

ADDITIONAL
DATA
REMARKS

17.5 - dark gray and black to light gray
E.O.B.
539.7

DEPTH (ft)

BLOWS/6in
N - VALUE
RQD

NUMBER

TYPE

RECOVERED (in)
LTH SMPLD (in)

MOISTURE, %

DRY DENSITY
(lb/ft³)

Qu (tsf)
FAILURE TYPE

ADDITIONAL
DATA
REMARKS

WATER LEVEL OBSERVATIONS		STARTED		FINISHED	
WL	NE	DRILL CO.	Geotechnology, Inc.	DRILLING	CHE-550 ATV DRILL
		DRILLER	ST	ASST DRILLER	
		LOGGED BY	Bahrooz Bajestani	APPROVED	Kip Chappack



BORING B-302

BORING DATA

Note: For location of borings, see Sheet No. 1.

Designed: BMC 11/01/17
Detailed: BMC 01/01/18
Checked: HNS 02/02/18

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

Sheet No. 35 of 35

BORINGS

"THIS MEDIA
SHOULD
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DATE PREPARED
02/02/18

ROUTE STATE
366 MO

DISTRICT SHEET NO.
BR 35

COUNTY
ST. LOUIS

JOB NO.
JCS3181

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A8656

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

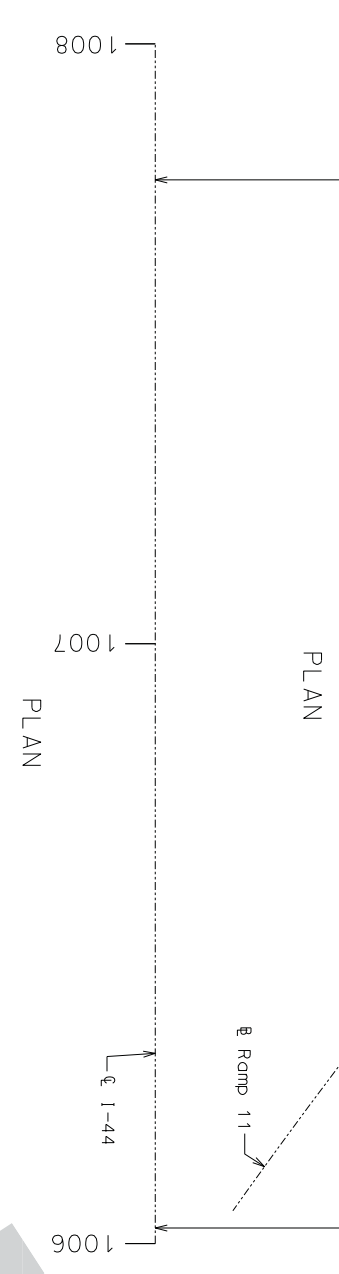
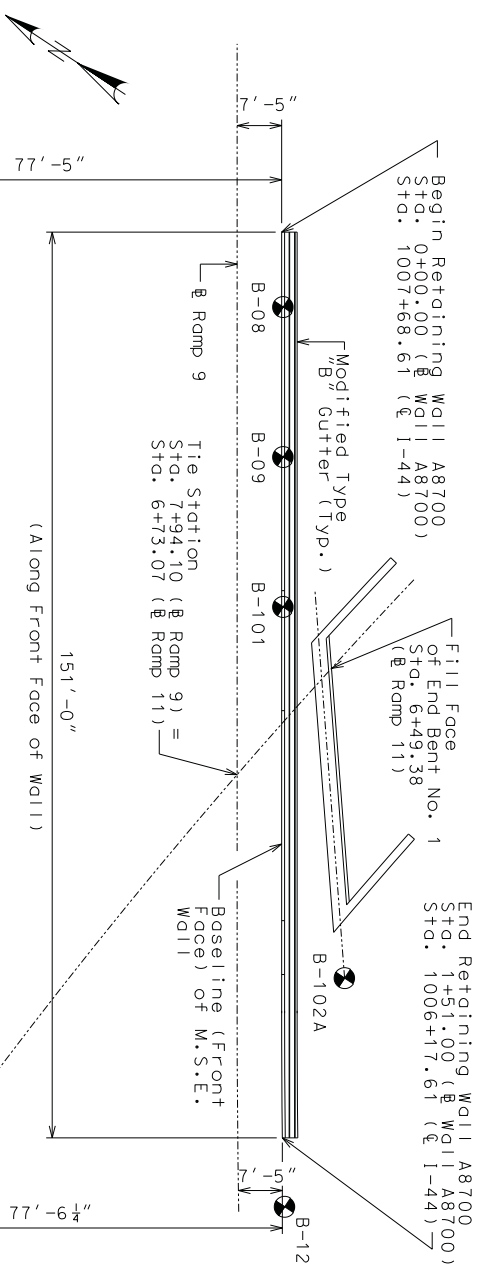
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Hanson Professional Services Inc.
13801 Riverport Drive, Suite 300
St. Louis, Missouri 63043
Professional Engineer 001632
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314.770.0467

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
 151' - 0" MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL SYSTEM

SEC/SUR 14 TWP 44N RGE 5E



Notes: Horizontal dimensions are measured along baseline (front face) of wall. Coping and concrete leveling pad not shown for clarity.

Notes: Horizontal dimensions are measured along baseline (front face) of wall. Concrete leveling pad not shown for clarity. * Wall contractor shall show the following items on the design drawings and/or on the fabricator's shop drawings.

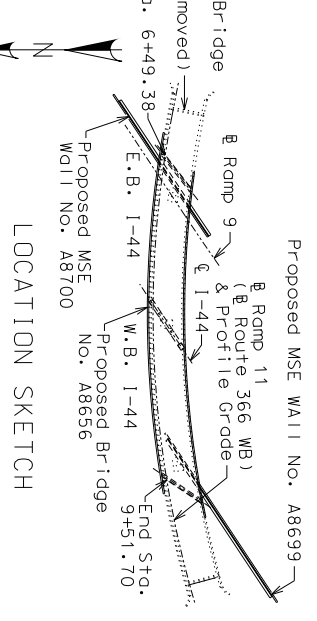
1. Leveling pad horizontal.
2. Leveling pad length and step elevations shall be based on wall manufacturer's recommendation. Top of leveling pad elevations shall not be higher than theoretical top of leveling pad elevations shown on these plans.

Estimated Quantities		
Item	sq. foot	Total
Mechanically Stabilized Earth Wall Systems	2600	
Concrete and Masonry Protection System	1	
Soil/Facial Graffiti Protection System	1	

Control Point 132
 Set 1/4" Rebar w/cap
 N:990374.98
 E:842949.52
 Benchmark Elev. 574.50

Control Point 162
 Set 1/4" Rebar w/cap
 N:990433.57
 E:843505.44
 Benchmark Elev. 596.15

Designed: BMC 11/01/17
 Detailed: BMC 01/02/18
 Checked: HNS 02/02/18



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 for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records performed by Hanson for the design of the project are shown on Sheet Nos. 34 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 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 assuming its bid price, time or schedule performance on the boring data depicted here or those available from the district or any other documentation not expressly warranted, which the Commission may obtain from the Commission.

General Notes:
 Design Specifications:
 2002 AASHTO LFD (17th Ed.) Standard Specifications (Section 5, ASD Design)
 Seismic Performance Category B
 Acceleration Coefficient = 0.16

Design Loading:
 $\Phi = 34^\circ$ and Unit weight, $\gamma = 125$ pcf for retained backfill material to be retained by the mechanically stabilized earth wall system.
 Actual $\Phi = 234^\circ$ for the select granular backfill (reinforced backfill) and wedge area backfill for structural systems.
 Design $\Phi = 34^\circ$ for the select granular backfill (reinforced backfill) only for structural systems.
 Factor of safety shall be 2.0 for overturning and 1.5 for sliding.
 For seismic design the factor of safety shall be 1.5 for overturning and 1.1 for sliding.

Design Unit Stresses:
 All concrete for leveling pad and coping shall be Class B or B-1 with $f'c = 4000$ psi.
 Miscellaneous:
 The MSE wall system shall be built vertical.
 The MSE wall system shall be built in accordance with Sec 720.
 The MSE wall system shall be a large block wall system.
 The MSE wall system shall be a large block wall system.
 The cost of joint filler and joint seal, complete in place, will be considered completely covered by the contractor unit price for Concrete Parapet Barrier (Type D). See Roadway Plans.
 Panel and coping (or capstone) reinforcement shall be epoxy coated.
 Anchor reinforcement shall be spaced to avoid roadway drop inlet behind wall.

A filter cloth meeting the requirements for a Separation Geotextile material shall be placed between the select granular backfill for structural systems and the backfill being retained by the mechanically stabilized earth wall system.
 Coping shall be required on this structure unless a small block system is used. Bond breaker (rooting felt or other approved alternative) between wall panel and coping required if coping is cast in place.
 The top and bottom elevations are given for a vertical wall.

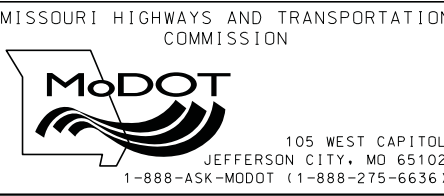
The contractor shall be solely responsible to coordinate construction of the wall with bridge and roadway construction and ensure that the bridge and roadway construction, resulting or existing obstructions, shall not impact the construction or performance of the wall. Soil reinforcement shall be designed and placed to avoid damage by pile driving, guardrail post installation, utility and sign foundations. (See Roadway and Bridge Plans.)
 The sploy angle should be less than 15° and tensile capacity of splayed reinforcement shall be reduced by the cosine of the sploy angle.
 No reinforcement shall be left unconnected to the wall face or orbitarily cut/dent in the field to avoid the obstruction.

Where interference between the vertical obstruction and the soil reinforcement is unavoidable, the design of the wall near the obstruction may be modified using one of the alternatives in FHWA-NHI-10-24, Section 5.4.2. Show detail layout on the drawings. For wall designs with north control obstructions in reinforced soil mass, see FHWA-NHI-10-24, Section 5.4.3.

MSE Wall Systems Data Table			
Proprietary Wall Systems	Combination Wall Systems	Georid	
Manufacturer	Facing Unit	Manufacturer	Manufacturer

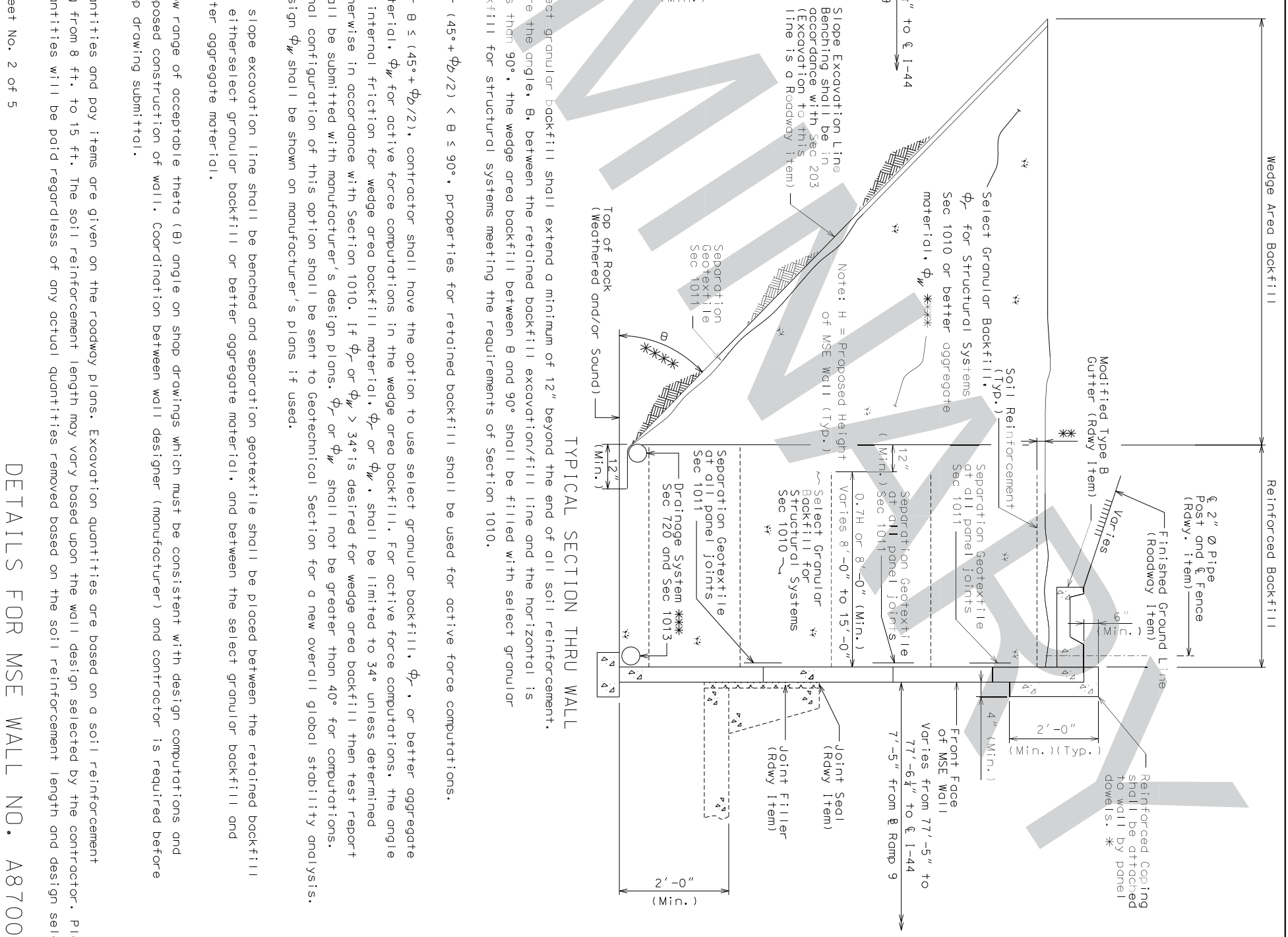
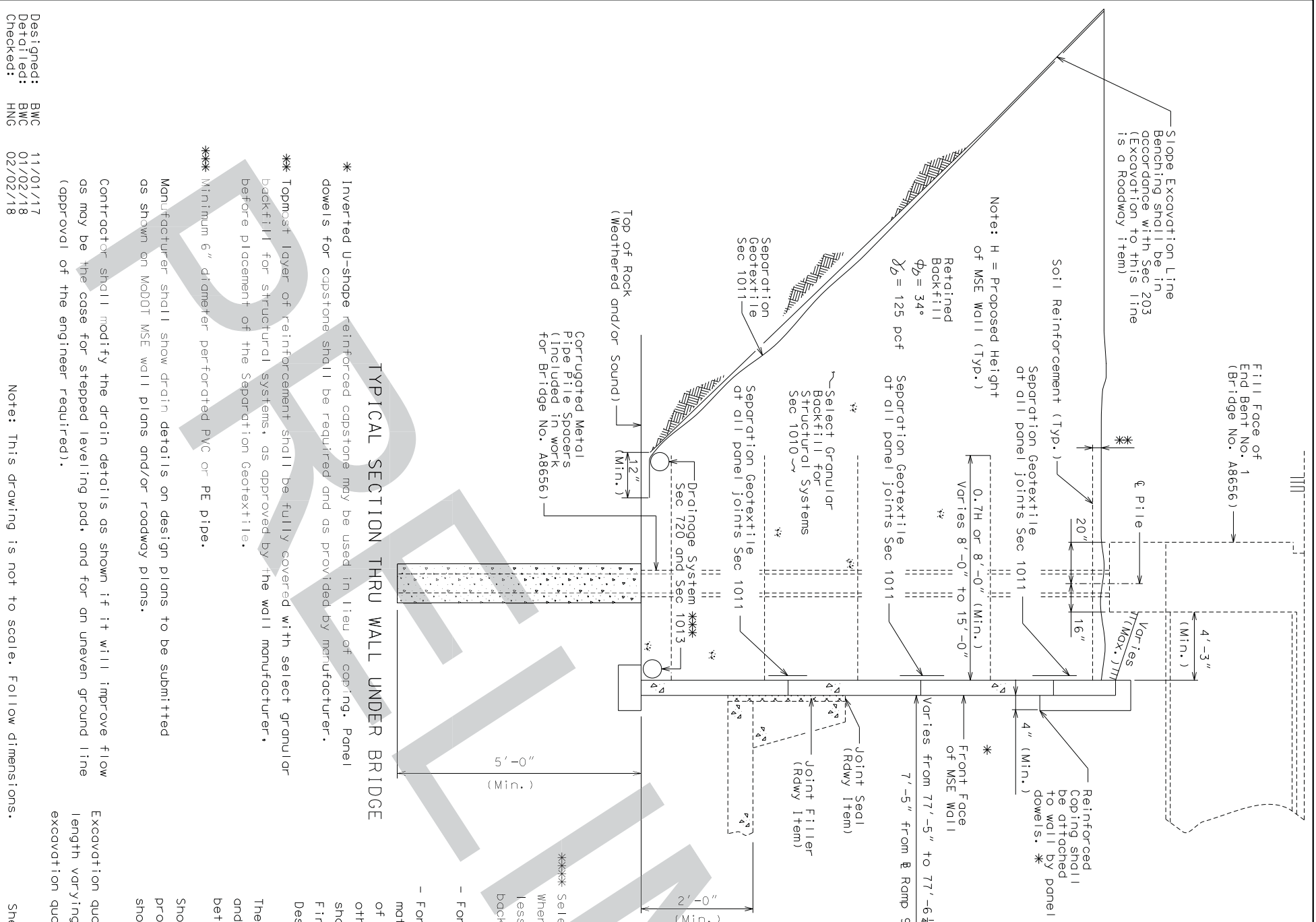
MSE Wall Systems Data Table is to be completed by MODOT construction personnel to record the manufacturer of the proprietary wall system or the manufacturer of the combination wall system that was used for constructing the MSE wall.

RETAINING WALL ALONG E.B. 1-44 & RAMP 9
 STATE ROAD (1-44) ABOUT 3 MILES S.W. OF KIRKWOOD
 PROJECT NO. STA. 1007+68.61 (1-44)
 JOB NO. J6S3181 RTE. 366 OVER 1-44 (Ramp 11) STD. 609.00



DATE	DESCRIPTION

PROJECT NO.	J6S3181
BRIDGE NO.	A8700
COUNTY	ST. LOUIS
JOB NO.	J6S3181
CONTRACT ID.	
DATE PREPARED	02/02/18
ROUTE	366
STATE	MO
DISTRICT	BR
SHEET NO.	1



<p>DATE PREPARED: 02/02/18</p> <p>ROUTE: 366</p> <p>STATE: MO</p> <p>DISTRICT: BR</p> <p>SHEET NO.: 2</p> <p>COUNTY: ST. LOUIS</p> <p>JOB NO.: J6S3181</p> <p>CONTRACT ID.:</p> <p>PROJECT NO.:</p> <p>BRIDGE NO.: A8700</p>		<p>"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."</p>
<p>MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION</p> <p>MoDOT</p> <p>105 WEST CAPITOL JEFFERSON CITY, MO 65102</p> <p>1-888-ASK-MODOT (1-888-275-6636)</p>		
DATE	DESCRIPTION	

Fill Face of End Bent No. 1 (Bridge No. A8656)

Slope Excavation Line Benching shall be in accordance with Sec 203 (Excavation to this line is a Roadway Item)

Soil Reinforcement (Typ.)

Separation Geotextile at all panel joints Sec 1011

Varies 8'-0" to 15'-0" (Min.)

0.7H or 8'-0" (Min.)

Retained Backfill $\phi_p = 34^\circ$

Note: H = Proposed Height of MSE Wall (Typ.)

$\phi_p = 125$ pcf

Separation Geotextile at all panel joints Sec 1011

Select Granular Backfill for Structural Systems Sec 1010

Separation Geotextile at all panel joints Sec 1011

Drainage System *** Sec 720 and Sec 1013

TOP OF ROCK (Weathered and/or Sound)

Corrugated Metal Pipe Spacers (Included in work for Bridge No. A8656)

12" (Min.)

4'-3" (Min.)

4" (Min.)

Reinforced Coping shall be attached to wall by panel dowels. *

Front Face of MSE Wall

Varies from 77'-5" to 77'-6 1/4" to 4'-4"

7'-5" from R Ramp 9

Joint Seal (Rowdy Item)

Joint Filler (Rowdy Item)

2'-0" (Min.)

4" (Min.)

Reinforced Coping shall be attached to wall by panel dowels. *

Front Face of MSE Wall

Varies from 77'-5" to 77'-6 1/4" to 4'-4"

7'-5" from R Ramp 9

Joint Seal (Rowdy Item)

Joint Filler (Rowdy Item)

2'-0" (Min.)

Wedge Area Backfill

Reinforced Backfill

Finished Ground Line (Roadway Item)

Modified Type B Gutter (Rowdy Item)

Varies

2'-0" (Min.) (Typ.)

Reinforced Coping shall be attached to wall by panel dowels. *

Front Face of MSE Wall

Varies from 77'-5" to 77'-6 1/4" to 4'-4"

7'-5" from R Ramp 9

Joint Seal (Rowdy Item)

Joint Filler (Rowdy Item)

2'-0" (Min.)

TYPICAL SECTION THRU WALL UNDER BRIDGE

* Inverted U-shape reinforced capstone may be used in lieu of coping. Panel dowels for capstone shall be required and as provided by manufacturer.

** Topmost layer of reinforcement shall be fully covered with select granular backfill for structural systems, as approved by the wall manufacturer, before placement of the Separation Geotextile.

*** Minimum 6" diameter perforated PVC or PE pipe.

Manufacturer shall show drain details on design plans to be submitted as shown on MODOT MSE wall plans and/or roadway plans.

Contractor shall modify the drain details as shown if it will improve flow as may be the case for stepped leveling pad, and for an uneven ground line (approval of the engineer required).

DESIGNED: BMC 11/01/17
 CHECKED: BMC 01/02/18
 HNS 02/02/18

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

Sheet No. 2 of 5

TYPICAL SECTION THRU WALL

**** Select granular backfill shall extend a minimum of 12" beyond the end of all soil reinforcement. Where the angle, θ , between the retained backfill excavation/fill line and the horizontal is less than 90° , the wedge area backfill between θ and 90° shall be filled with select granular backfill for structural systems meeting the requirements of Section 1010.

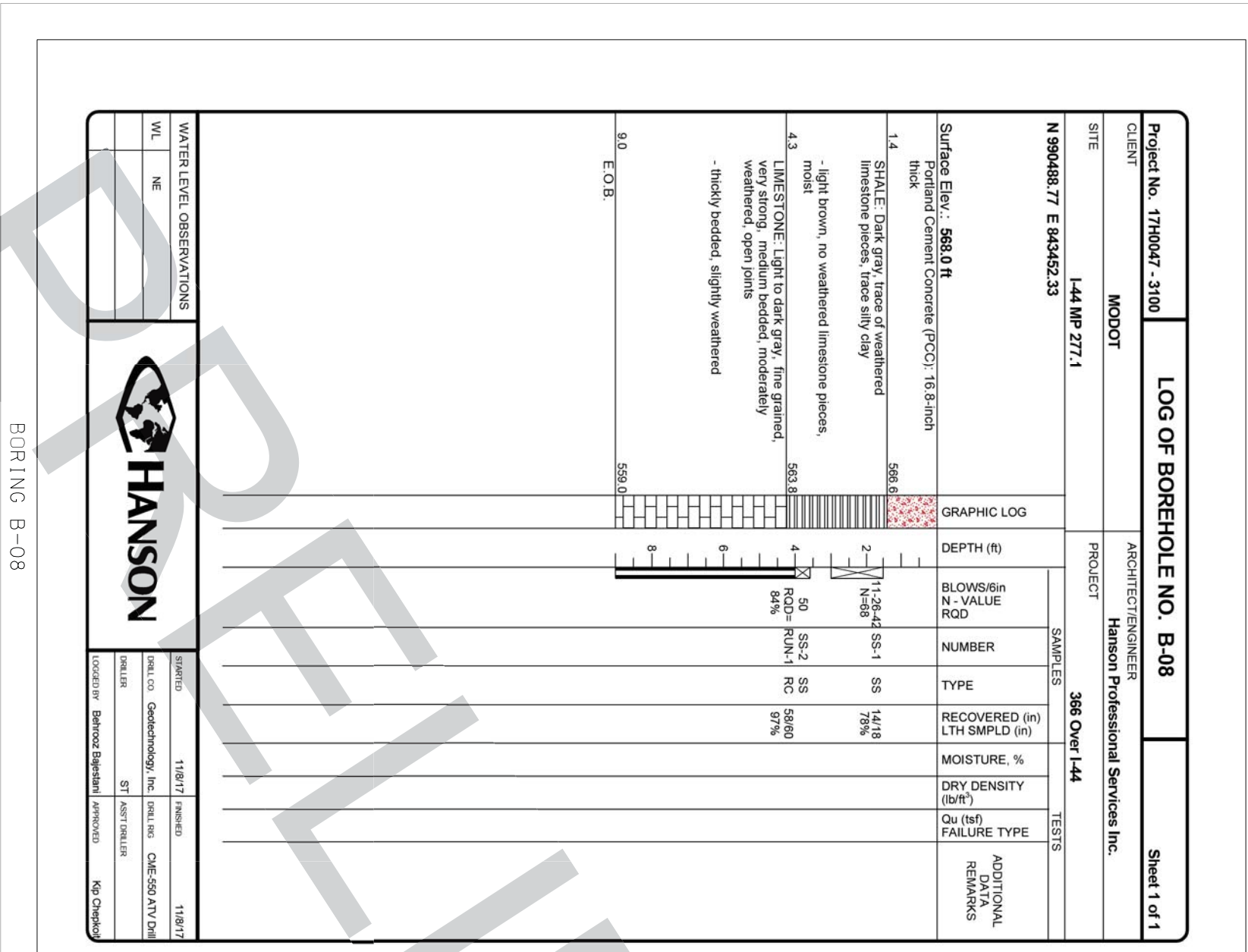
- For $(45^\circ + \phi_p/2) < \theta \leq 90^\circ$, properties for retained backfill shall be used for active force computations.

- For $\theta \leq (45^\circ + \phi_p/2)$, contractor shall have the option to use select granular backfill, ϕ_r or better aggregate material, ϕ_w for active force computations in the wedge area backfill. For active force computations, the angle of internal friction for wedge area backfill material, ϕ_r or ϕ_w , shall be limited to 34° unless determined otherwise in accordance with Section 1010. If ϕ_r or $\phi_w > 34^\circ$ is desired for wedge area backfill then test report shall be submitted with manufacturer's design plans. ϕ_r or ϕ_w shall not be greater than 40° for computations. Final configuration of this option shall be sent to geotechnical Section for a new overall global stability analysis. Design ϕ_w shall be shown on manufacturer's plans if used.

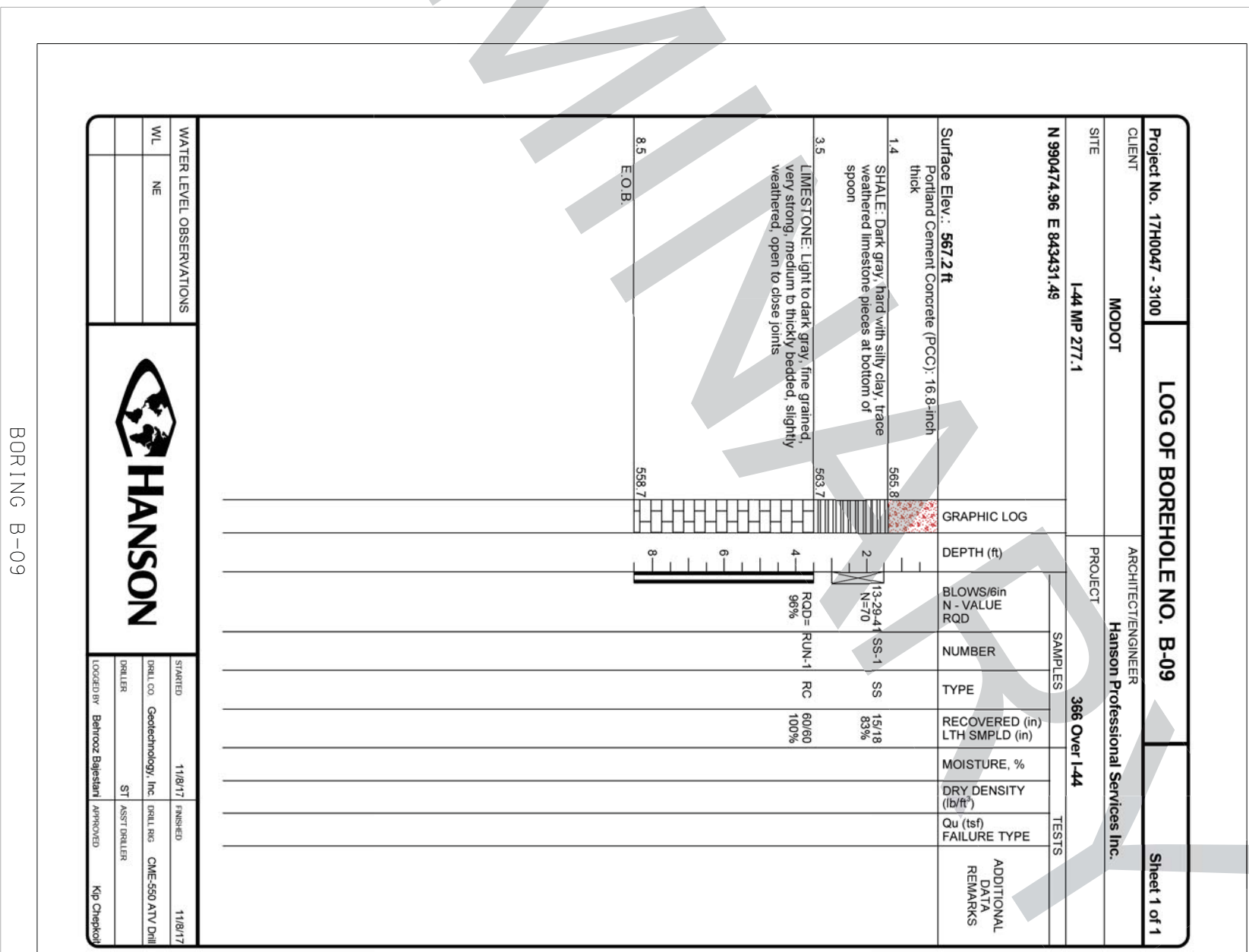
The slope excavation line shall be benching and separation geotextile shall be placed between the retained backfill and either select granular backfill or better aggregate material, and between the select granular backfill and better aggregate material.

Show range of acceptable theta (θ) angle on shop drawings which must be consistent with design computations and proposed construction of wall. Coordination between wall designer (manufacturer) and contractor is required before shop drawing submittal.

Excavation quantities and pay items are given on the roadway plans. Excavation quantities are based on a soil reinforcement length varying from 8 ft. to 15 ft. The soil reinforcement length may vary based upon the wall design selected by the contractor. Plan excavation quantities will be paid regardless of any actual quantities removed based on the soil reinforcement length and design selected.



BORING B-08



BORING B-09

BORING DATA

Note: For location of borings, see Sheet No. 1.

Sheet No. 3 of 5

BORINGS

Designed: BMC 11/01/17
 Detailed: BMC 01/02/18
 Checked: HNS 02/02/18

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

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 02/02/18

ROUTE 366 STATE MO DISTRICT BR 3

COUNTY ST. LOUIS JOB NO. J6S3181 CONTRACT ID.

PROJECT NO. BRIDGE NO. A8700

DATE	DESCRIPTION


MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION




105 WEST CAPITOL JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-275-6636)



Hanson Professional Services Inc.
 13801 Riverport Drive, Suite 300
 St. Louis, Missouri 63043
 Professional Engineer 001632
 www.hanson-inc.com
 314.770.0467

Project No. 17H0047 - 3100		LOG OF BOREHOLE NO. B-101		Sheet 1 of 1	
CLIENT	MODOT	ARCHITECT/ENGINEER	Hanson Professional Services Inc.		
SITE	144 MP 277.1		PROJECT	366 Over I-44	
N 990461.16 E 843410.65					
Surface Elev.: 566.5 ft		GRAPHIC LOG			
Portland Cement Concrete (PCC): 18-inch thick		DEPTH (ft)	BLOWS/6in N - VALUE RQD	NUMBER	TYPE
1.5	WEATHERED LIMESTONE: dark gray decomposed to highly weathered, limestone pieces, with clay shale	565.0	8-9-17 N=26	SS1	SPT
					14/18 78%
3.7	LIMESTONE: Dark gray, fine grained, strong, thinly bedded, slightly weathered, open to close joints	562.9		RUN1	RC
				RUN2	RC
				RUN3	RC
					12/12 100% 60/60 100%
					47/48 98%
13.5	E.O.B.	553.0			
WATER LEVEL OBSERVATIONS					
WL	NE				
		STARTED	11/8/17	FINISHED	11/8/17
		DRILL CO.	Geotechnology, Inc. DRILL RIG CME-550 ATV DRILL		
		DRILLER	ST ASST DRILLER		
		LOGGED BY	Behrooz Bajestani APPROVED Kip Chappok		

BORING B-101

Project No. 17H0047 - 3100		LOG OF BOREHOLE NO. B-102A		Sheet 1 of 1	
CLIENT	MODOT	ARCHITECT/ENGINEER	Hanson Professional Services Inc.		
SITE	144 MP 277.1		PROJECT	366 Over I-44	
N 990418.44 E 843364.73					
Surface Elev.: 565.1 ft		GRAPHIC LOG			
Portland Cement Concrete (PCC): 18-inch thick		DEPTH (ft)	BLOWS/6in N - VALUE RQD	NUMBER	TYPE
1.5	FILL: Sandy gravel (GWS) - dark gray trace	563.6	7-35-21 N=56	SS1	SPT
2.5	WEATHERED LIMESTONE: Gray, decomposed to highly weathered rock pieces	562.6			15/18 83%
3.5	LIMESTONE: Light and dark gray, fine grained, very strong, thinly to medium bedded, moderately to slightly weathered, open to close joints	561.6		RUN1	RC
				RUN2	RC
				RUN3	RC
					20/24 83% 60/60 100%
					36/36 100%
13.5	E.O.B.	551.6			
WATER LEVEL OBSERVATIONS					
WL	NE				
		STARTED	11/7/17	FINISHED	11/7/17
		DRILL CO.	Geotechnology, Inc. DRILL RIG CME-550 ATV DRILL		
		DRILLER	ST ASST DRILLER		
		LOGGED BY	Behrooz Bajestani APPROVED Kip Chappok		

BORING B-102A

BORING DATA

Note: For location of borings, see Sheet No. 1.

Designed: BMC 11/01/17
Detailed: BMC 01/02/18
Checked: HNS 02/02/18

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

Sheet No. 4 of 5

BORINGS

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 02/02/18

ROUTE 366 MO DISTRICT BR 4

COUNTY ST. LOUIS JOB NO. J6S3181 CONTRACT ID.

PROJECT NO. BRIDGE NO. A8700

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



Hanson Professional Services Inc.
13801 Riverport Drive, Suite 300
St. Louis, Missouri 63043
Professional Engineer 001632
www.hanson-inc.com
314.770.0467

Project No. 17H0047 - 3100

LOG OF BOREHOLE NO. B-12

Sheet 1 of 1

CLIENT

MODOT

ARCHITECT/ENGINEER

Hanson Professional Services Inc.

SITE

I-44 MP 277.1

PROJECT

366 Over I-44

N 990405.71 E 843327.43

Surface Elev.: 563.6 ft

Portland Cement Concrete (PCC): 14.4-inch thick

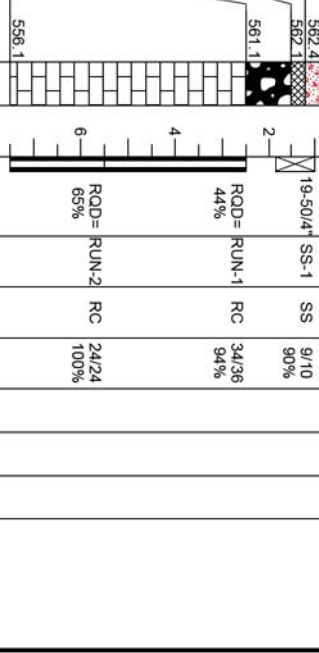
1.2 FILL: Sandy silt (MLS) - dark gray trace gravel

1.5 WEATHERED LIMESTONE: Gray, decomposed to highly weathered rock pieces, with sandy silt and clay shale.

2.5 LIMESTONE: Light to dark gray, fine grained, very strong, thinly bedded, slightly weathered, open to close joints

- dark gray, medium bedded

7.5 E.O.B.



WATER LEVEL OBSERVATIONS		STARTED		FINISHED	
WL	NE		11/7/17		11/7/17
		DRILL CO	Geotechnology, Inc.	DRILLING	CME-550 ATV DRILL
		DRILLER	ST	ASST DRILLER	
		LOGGED BY	Bahroz Bajestani	APPROVED	Kip Chappack

BORING B-12

BORING DATA

Note: For location of borings, see Sheet No. 1.

Designed: BMC 11/01/17
Detailed: BMC 01/02/18
Checked: HNS 02/02/18

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

Sheet No. 5 of 5

BORINGS

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED

02/02/18

ROUTE

366

STATE

MO

DISTRICT

BR

SHEET NO.

5

COUNTY

ST. LOUIS

JOB NO.

J6S3181

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

A8700

DATE

DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



Hanson Professional Services Inc.
13801 Riverport Drive, Suite 300
St. Louis, Missouri 63043
Professional Engineer 001632
www.hanson-inc.com
314.770.0467

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
174'-6" MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL SYSTEM

SEC/SUR 14 TWP 44N RGE 5E

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED
02/02/18

ROUTE STATE
366 MO
DISTRICT SHEET NO.
BR 1

COUNTY
ST. LOUIS

JOB NO.
J6S3181


CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A8699

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



Hanson Professional Services Inc.
13801 Riverport Drive, Suite 300
St. Louis, Missouri 63043
Professional Engineer 001632
www.hanson-inc.com
314.770.0467

General Notes:
Design Specifications: 2002 AASHTO LFD (17th Ed.) Standard Specifications (Section 5, ASD Design)
Seismic Performance Category B
Acceleration Coefficient = 0.16
Design Loading:
 $\phi = 34^\circ$ and Unit weight, $\gamma = 125$ pcf for retained backfill material to be retained by the mechanically stabilized earth wall system.
Actual $\phi = 34^\circ$ for the select granular backfill (reinforced backfill) and wedge area backfill) for structural systems.
Design $\phi = 34^\circ$ for the select granular backfill (reinforced backfill) only for structural systems.
Factor of safety shall be 2.0 for overturning and 1.5 for sliding.
For seismic design the factor of safety shall be 1.5 for overturning and 1.1 for sliding.
Design Unit Stresses:
All concrete for leveling pad and coping shall be Class B or B-1 with $f'c = 4000$ psi.
Miscellaneous:
The MSE wall system shall be built vertical.
The MSE wall system shall be built in accordance with Sec 720.
The MSE wall system shall be a large block wall system.
The MSE wall system shall be a large block wall system.
The cost of joint filler and joint seal, complete in place, will be considered completely covered by the contractor unit price for Concrete Traffic Barrier (Type D). See Roadway Plans.
Panel and coping (or capstone) reinforcement shall be epoxy coated.
Anchor reinforcement shall be spaced to avoid roadway drop inlet behind wall.
A filter cloth meeting the requirements for a Separation Geotextile material shall be placed between the select granular backfill for structural systems and the backfill being retained by the mechanically stabilized earth wall system.
Coping shall be required on this structure unless a small block system is used. Bond breaker (rooting felt or other approved alternate) between wall panel and coping required if coping is cast in place.
The top and bottom elevations are given for a vertical wall.
The baseline of the wall shown is for a vertical wall.
The contractor shall be solely responsible to coordinate construction of the wall with bridge and roadway construction and ensure that the bridge and roadway construction or existing obstructions, shall not impact the construction or performance of the wall. Soil reinforcement shall be designed and placed to avoid damage by pile driving, guardrail post installation, utility and sign foundations. (See Roadway and Bridge Plans.)
The splay angle should be less than 15° and tensile capacity of splayed reinforcement shall be reduced by the cosine of the splay angle.
No reinforcement shall be left unconnected to the wall face or arbitrarily cut/dent in the field to avoid the obstruction.
Where interference between the vertical obstruction and the soil reinforcement is unavoidable, the design of the wall near the obstruction may be modified using one of the alternatives in FHWA-NHI-10-24, Section 5.4.2. Show detail layout on the drawings. For wall designs with horizontal control obstructions in reinforced soil mass, see FHWA-NHI-10-24, Section 5.4.3.

MSE Wall Systems Data Table

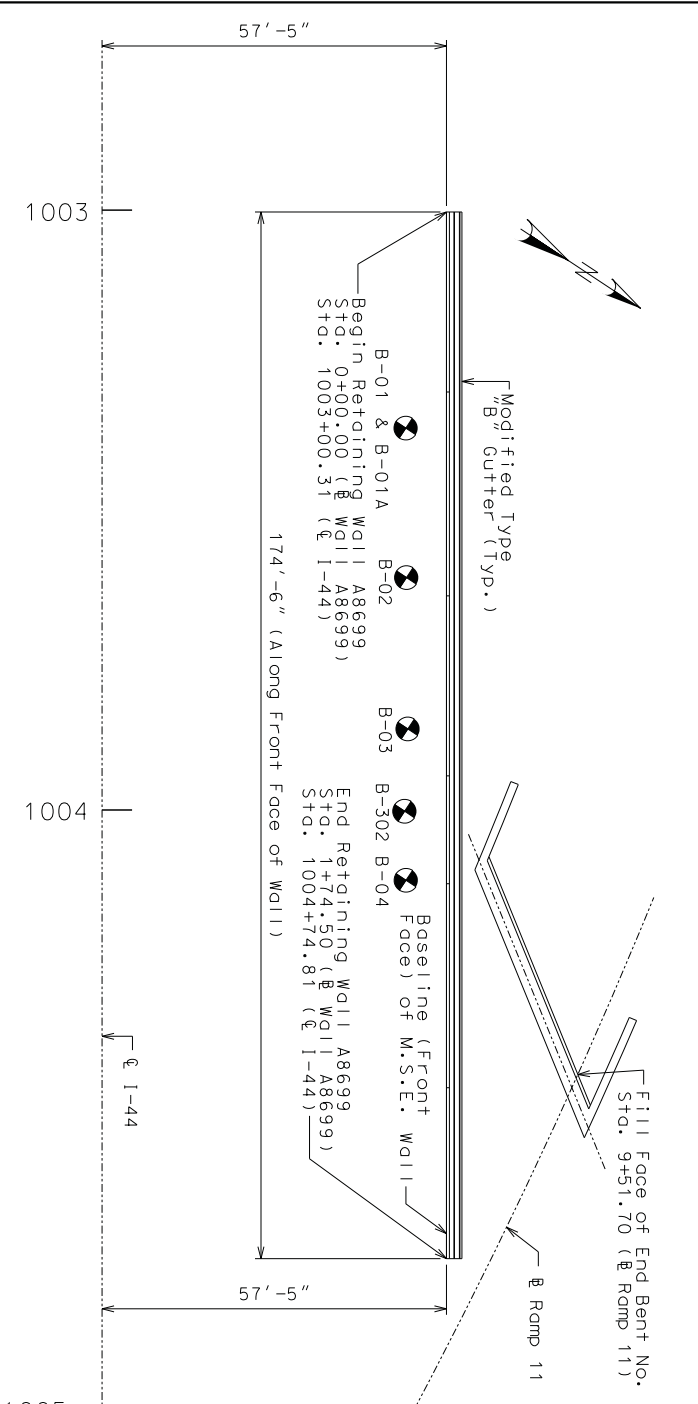
Proprietary Wall Systems		Combination Wall Systems	
Manufacturer	System	Facing Unit	Geotextile Manufacturer

MSE Wall Systems Data Table is to be completed by MODOT construction personnel to record the manufacturer of the proprietary wall system or the manufacturer of the combination wall system that was used for constructing the MSE wall.

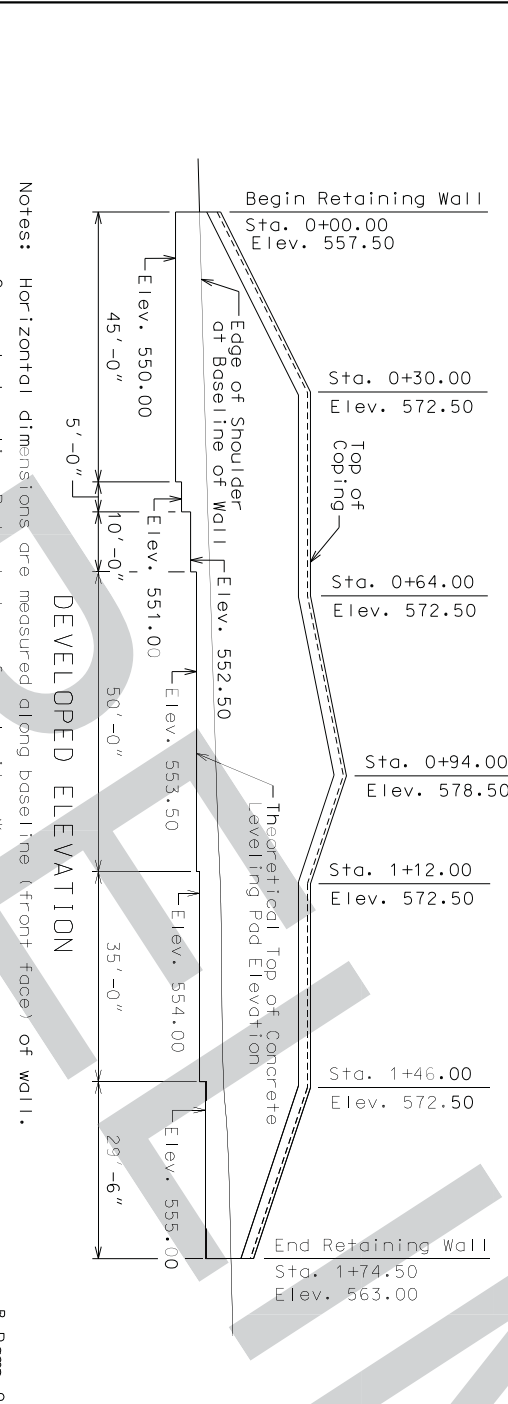
RETAINING WALL ALONG W.B. 1-44
STATE ROAD (1-44) ABOUT 3 MILES S.W. OF KIRKWOOD
PROJECT NO. STA. 1003+00.31 (1-44)
JOB NO. J6S3181 RTE. 366 OVER 1-44 (Ramp 11) STD. 609.00

"B-05" 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 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 Hanson for the design of the project are shown on Sheet Nos. 3-5 or will be available from the Project Contract 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.



Notes: Horizontal dimensions are measured along baseline (front face) of wall. Coping and Concrete Leveling Pad not shown for clarity.



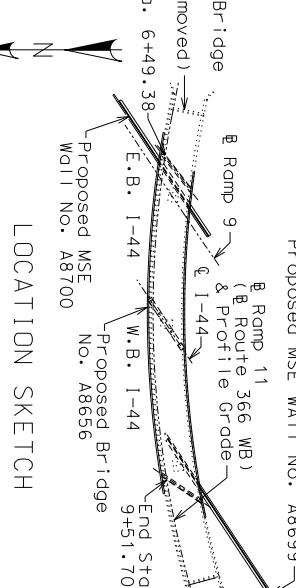
Notes: Horizontal dimensions are measured along baseline (front face) of wall. Concrete Leveling Pad not shown for clarity. * Wall contractor shall show the following items on the design drawings and/or on the fabricator shop drawings:

1. Leveling pad horizontal.
2. Leveling pad length and step elevations shall be based on wall manufacturer's recommendation. Top of leveling pad elevations shall not be higher than theoretical top of leveling pad elevations shown on these plans.

Bench Marks
Control Point 132
Set 1/4" Rebar w/Cop
N:990374.98
E:842949.52
Benchmark Elev. 574.50

Estimated Quantities

Item	Total
Mechanically Stabilized Earth Wall Systems	3218
Concrete and Masonry Protection System	1
Soil Grout Protection System	1
Lump sum	1

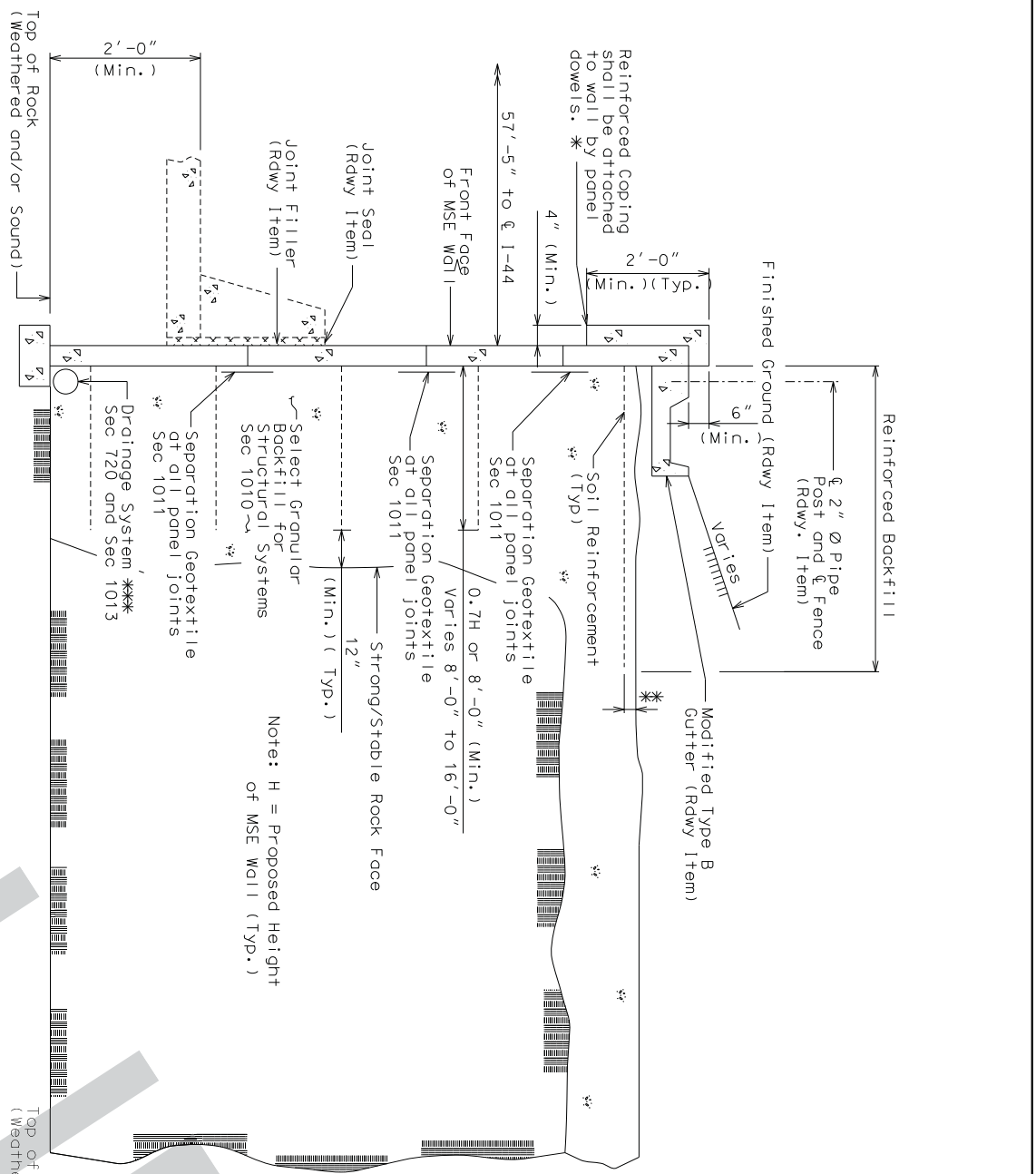


Control Point 162
Set 1/4" Rebar w/ Cop
N:990433.57
E:843505.44
Benchmark Elev. 596.15

Designed: BMC 11/01/17
Detailed: BMC 01/01/18
Checked: HNS 02/02/18

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

Sheet No. 1 of 6

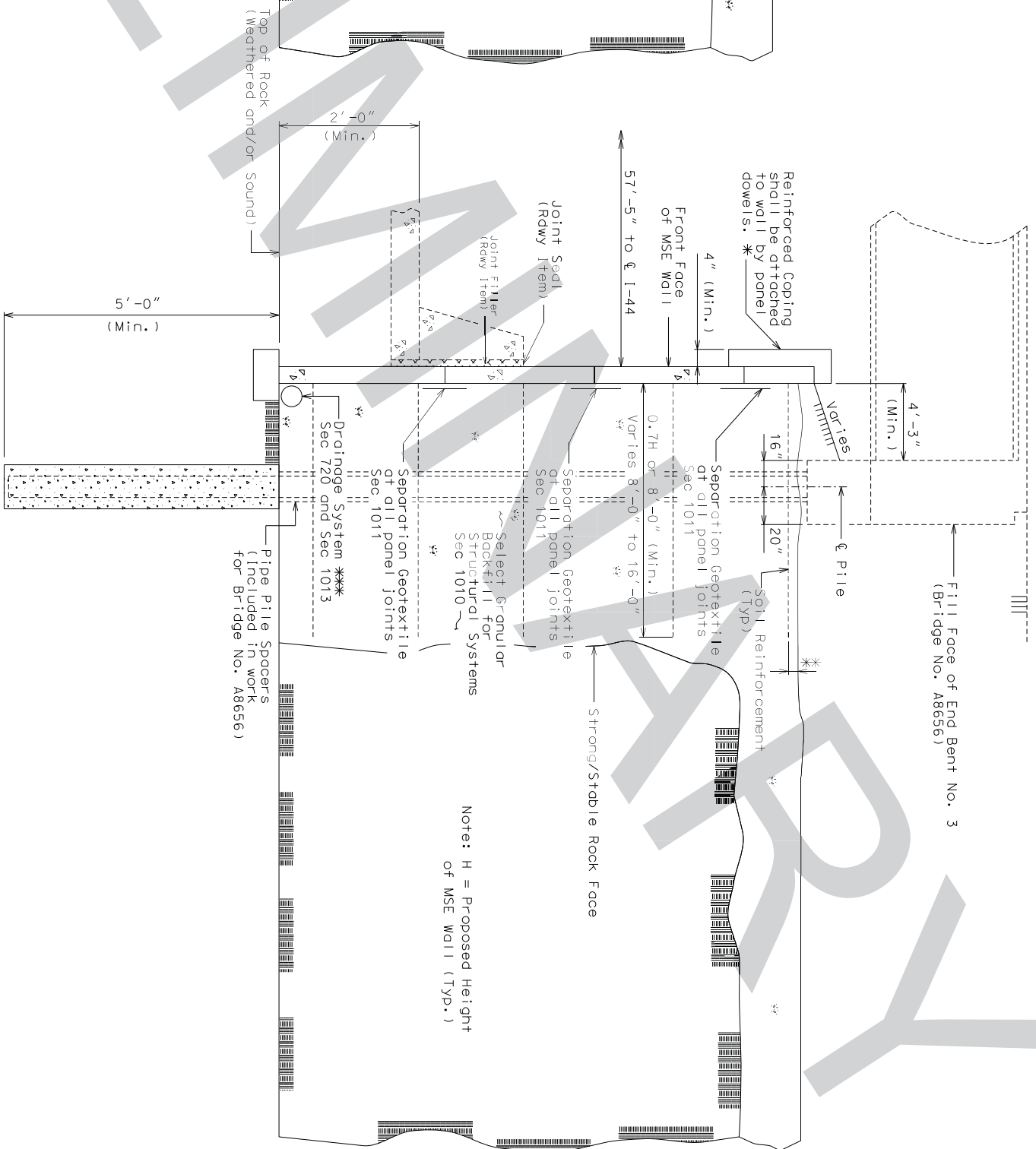


TYPICAL SECTION THRU
MSE WALL AT ROADWAY

- * Inverted U-shape reinforced capstone may be used in lieu of coping. Panel dowels for capstone shall be required and as provided by manufacturer.
- ** Topmost layer of reinforcement shall be fully covered with select granular backfill for structural systems, as approved by the wall manufacturer, before placement of the Separation Geotextile.
- *** Minimum 6" diameter perforated PVC or PE pipe.

Manufacturer shall show drain details on design plans to be submitted as shown on MODOT MSE wall plans and/or roadway plans.

Contractor shall modify the drain details as shown if it will improve flow as may be the case for stepped leveling pad, and for an uneven ground line (approval of the engineer required).



TYPICAL SECTION THRU
MSE WALL UNDER BRIDGE

Excavation quantities and pay items are given on the roadway plans. Excavation quantities are based on a soil reinforcement length varying from 8 ft. to 16 ft. The soil reinforcement length may vary based upon the wall design selected by the contractor. Plan excavation quantities will be paid regardless of any actual quantities removed based on the soil reinforcement length and design selected.

Designed: BWC 11/01/17
Detailed: BWC 01/01/18
Checked: HNS 02/02/18

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

Sheet No. 2 of 6

DETAILS FOR MSE WALL NO. A8699

"THIS MEDIA
SHOULD
NOT BE
CONSIDERED
A CERTIFIED
DOCUMENT."

DATE PREPARED
02/02/18

ROUTE STATE
366 MO

DISTRICT SHEET NO.
BR 2

COUNTY
ST. LOUIS


JOB NO.
J6S3181

CONTRACT ID.
PROJECT ID.

BRIDGE NO.
A8699

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



Hanson Professional Services Inc.
13801 Riverport Drive, Suite 300
St. Louis, Missouri 63043
Professional Engineer 001632
www.hanson-inc.com
314.770.0467

Project No. 17H0047 - 3100		LOG OF BOREHOLE NO. B-01		Sheet 1 of 1	
CLIENT MODOT		ARCHITECT/ENGINEER Hanson Professional Services Inc.			
SITE I-44 MP 277.1		PROJECT 366 Over I-44			
N 990363.9 E 843031.51		PROJECT			
Surface Elev.: 555.3 ft		GRAPHIC LOG			
0.3 Asphalt Cement Concrete (ACC): 4-inch thick		554.9			
1.0 FILL: Sand, silt and gravel mix		554.3			
2.0 FILL: Sandy gravel (GWS) - light gray and brown, medium dense, with silt and trace weathered rock pieces		553.3			
WEATHERED LIMESTONE: Light gray, decomposed to highly weathered		551.8			
3.5 Boring terminated and moved to B-01A E.O.B.					
WATER LEVEL OBSERVATIONS		STARTED		FINISHED	
WL NE		11/1/17		11/1/17	
DRILL CO		Geotechnology, Inc.		DRILL RIG	
DRILLER		ST ASST DRILLER		CME-550 ATV DRILL	
LOGGED BY		Behrooz Bajestani		APPROVED	
		Kip Chappick			

BORING B-01

Project No. 17H0047 - 3100		LOG OF BOREHOLE NO. B-01A		Sheet 1 of 1	
CLIENT MODOT		ARCHITECT/ENGINEER Hanson Professional Services Inc.			
SITE I-44 MP 277.1		PROJECT 366 Over I-44			
N 990363.9 E 843031.51		PROJECT			
Surface Elev.: 555.3 ft		GRAPHIC LOG			
Augered through. See log of boring B-01		551.8			
3.5 WEATHERED LIMESTONE: Light gray, decomposed to highly weathered		550.8			
4.5 SHALE: Dark gray, stiff, clayey		549.8			
5.5 LIMESTONE: Light gray and dark gray, fine grained, very strong, medium bedded, moderately weathered, open to close joints - vertical fragment from 6.5 to 7.0 feet		548.8			
10.5 E.O.B.					
WATER LEVEL OBSERVATIONS		STARTED		FINISHED	
WL NE		11/2/17		11/2/17	
DRILL CO		Geotechnology, Inc.		DRILL RIG	
DRILLER		ST ASST DRILLER		CME-550 ATV DRILL	
LOGGED BY		Behrooz Bajestani		APPROVED	
		Kip Chappick			

BORING B-01A

BORING DATA

Note: For location of borings, see Sheet No. 1.

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

Sheet No. 3 of 6

BORINGS

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DATE PREPARED
02/02/18

ROUTE
366

STATE
MO

DISTRICT
BR

SHEET NO.
3

COUNTY
ST. LOUIS

JOB NO.
J6S3181

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A8699

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



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314.770.0467

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Project No. 17H0047 - 3100 **LOG OF BOREHOLE NO. B-02** **Sheet 1 of 1**

CLIENT: **MODOT** ARCHITECT/ENGINEER: **Hanson Professional Services Inc.**
 SITE: **I-44 MP 277.1** PROJECT: **366 Over I-44**

N 990377.75 E 843052.23

DEPTH (ft)	BLOWS/6in N - VALUE RQD	NUMBER	TYPE	RECOVERED (in) LTH SMPLD (in)	MOISTURE, %	DRY DENSITY (lb/ft ³)	Qu (tsf) FAILURE TYPE	ADDITIONAL DATA REMARKS
0.3								
1.0								
2.5								
7.5								

Surface Elev.: **556.1 ft**
 0.3 Asphalt Cement Concrete (ACC): 4-inch thick
 1.0 FILL: Sand, silt and gravel mix
 WEATHERED LIMESTONE: Light gray, decomposed to highly weathered rock pieces, with sand, trace silty clay
 2.5 LIMESTONE: Light gray, fine grained, very strong, thinly bedded, moderately weathered, open to close joints
 - 3-inch thick layer of soft gray clay shale seam from 5.25 to 5.5 feet
 - medium bedded
 E.O.B.
 548.6

WATER LEVEL OBSERVATIONS	STARTED	FINISHED	LOGGED BY	APPROVED
WL NE	11/1/17	11/1/17	Bahrooz Bajestani	Kip Chappok

BORING B-02

Project No. 17H0047 - 3100 **LOG OF BOREHOLE NO. B-03** **Sheet 1 of 1**

CLIENT: **MODOT** ARCHITECT/ENGINEER: **Hanson Professional Services Inc.**
 SITE: **I-44 MP 277.1** PROJECT: **366 Over I-44**

N 990391.87 E 843073.15

DEPTH (ft)	BLOWS/6in N - VALUE RQD	NUMBER	TYPE	RECOVERED (in) LTH SMPLD (in)	MOISTURE, %	DRY DENSITY (lb/ft ³)	Qu (tsf) FAILURE TYPE	ADDITIONAL DATA REMARKS
0.3								
1.0								
2.0								
3.5								
8.5								

Surface Elev.: **556.9 ft**
 0.3 Asphalt Cement Concrete (ACC): 4-inch thick
 1.0 FILL: Sand, silt and gravel mix
 2.0 FILL: Sandy gravel (GWS) - gray, dense, with trace of rock pieces
 WEATHERED LIMESTONE: Light gray, decomposed to highly weathered rock pieces, trace sand and silt
 3.5 LIMESTONE: Dark to light gray, fine grained, very strong, medium bedded, slightly weathered, open to close joints
 - soft, clay shale seam from 5.25 to 5.75 feet
 - very strong
 E.O.B.
 548.4

WATER LEVEL OBSERVATIONS	STARTED	FINISHED	LOGGED BY	APPROVED
WL NE	11/1/17	11/1/17	Bahrooz Bajestani	Kip Chappok

BORING B-03

BORING DATA

Note: For location of borings, see Sheet No. 1.

Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

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

Sheet No. 4 of 6

BORINGS


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DATE PREPARED: 02/02/18
 ROUTE: 366
 STATE: MO
 DISTRICT: BR
 SHEET NO.: 4
 COUNTY: ST. LOUIS
 JOB NO.: J6S3181
 CONTRACT ID.

PROJECT NO.:
 BRIDGE NO.: A8699

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



105 WEST CAPITOL JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-275-6636)



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 Professional Engineer 001632
 www.hanson-inc.com
 314.770.0467

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Project No. 17H0047 - 3100 **LOG OF BOREHOLE NO. B-04** **Sheet 1 of 1**

CLIENT: **MODOT** ARCHITECT/ENGINEER: **Hanson Professional Services Inc.**
 SITE: **144 MP 277.1** PROJECT: **366 Over I-44**

DEPTH (ft)	BLOWS/6in N - VALUE RQD	NUMBER	TYPE	RECOVERED (in) LTH SMPLED (in)	MOISTURE, %	DRY DENSITY (lb/ft ³)	Qu (tsf) FAILURE TYPE	ADDITIONAL DATA REMARKS
0.3								
1.0								
2.5								
3.5								
8.5								

Surface Elev.: **557.5 ft**

0.3 Asphalt Cement Concrete (ACC): 4-inch thick
 1.0 FILL: Sand, silt and gravel mix
 FILL: Sandy gravel (GWS) - gray and light brown traces of weathered rock
 2.5 WEATHERED LIMESTONE: Light gray, decomposed to highly weathered limestone pieces, with Sandy Gravel
 3.5 LIMESTONE: Gray, fine grained, very strong, thinly bedded, moderate to slightly weathered, open to close joints
 - light gray, soft, clay shale from 6.8 to 7.0 feet

557.1
556.5
555.0
554.0
549.0

GRAPHIC LOG

DEPTH (ft)

BLOWS/6in
N - VALUE
RQD

NUMBER

TYPE

RECOVERED (in)
LTH SMPLED (in)

MOISTURE, %

DRY DENSITY
(lb/ft³)

Qu (tsf)
FAILURE TYPE

ADDITIONAL
DATA
REMARKS

50/1" SS-2
RQD= 0%
SS 100%
RC 10/24
42%

3.5

50/1" SS-2
RQD= 19%
SS 6/18
RC 19/36
53%

10/31/17

10/31/17

DRILL CO: Geotechnology, Inc. DRILL RIG: CMF-550 ATV DRILL

DRILLER: ST ASST DRILLER

LOGGED BY: Behrooz Bajestani APPROVED: Kip Chepkol

BORING B-04

Project No. 17H0047 - 3100 **LOG OF BOREHOLE NO. B-05** **Sheet 1 of 1**

CLIENT: **MODOT** ARCHITECT/ENGINEER: **Hanson Professional Services Inc.**
 SITE: **144 MP 277.1** PROJECT: **366 Over I-44**

DEPTH (ft)	BLOWS/6in N - VALUE RQD	NUMBER	TYPE	RECOVERED (in) LTH SMPLED (in)	MOISTURE, %	DRY DENSITY (lb/ft ³)	Qu (tsf) FAILURE TYPE	ADDITIONAL DATA REMARKS
0.3								
1.0								
2.0								
3.0								
8.0								

Surface Elev.: **561.2 ft**

0.3 Asphalt Cement Concrete (ACC): 4-inch thick
 1.0 FILL: Sand, silt and gravel mix
 FILL: Sandy gravel (GWS) - light brown to gray, dense, with silt
 WEATHERED LIMESTONE: Dark gray and black to light gray, highly weathered rock pieces
 LIMESTONE: Dark gray fine grained, strong medium bedded, slightly weathered, open to close joint

560.8
560.2
559.2
558.2
553.2

GRAPHIC LOG

DEPTH (ft)

BLOWS/6in
N - VALUE
RQD

NUMBER

TYPE

RECOVERED (in)
LTH SMPLED (in)

MOISTURE, %

DRY DENSITY
(lb/ft³)

Qu (tsf)
FAILURE TYPE

ADDITIONAL
DATA
REMARKS

5-9-34 SS-1
N=43
SS 15/18
83%

9/24
RC 9/24
39%

46%
RQD= RUN-2
RC 33/36
92%

10/31/17

10/31/17

DRILL CO: Geotechnology, Inc. DRILL RIG: CMF-550 ATV DRILL

DRILLER: ST ASST DRILLER

LOGGED BY: Behrooz Bajestani APPROVED: Kip Chepkol

BORING B-05

BORING DATA

Note: For location of borings, see Sheet No. 1.

BORINGS

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DATE PREPARED: 02/02/18
 ROUTE: 366 STATE: MO
 DISTRICT: BR SHEET NO.: 5
 COUNTY: ST. LOUIS
 JOB NO.: J6S3181
 CONTRACT ID: 10.
 PROJECT NO.:
 BRIDGE NO.: A8699

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-275-6636)

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 St. Louis, Missouri 63043
 Professional Engineer 001632
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 314.770.0467

Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

Project No. 17H0047 - 3100

LOG OF BOREHOLE NO. B-302

Sheet 1 of 1

CLIENT

MODOT

ARCHITECT/ENGINEER

Hanson Professional Services Inc.

SITE

I-44 MP 277.1

PROJECT

366 Over I-44

N 990399.01 E 843084.88

SAMPLES

TESTS

Surface Elev.: 557.2 ft

0.3 Asphalt Cement Concrete (ACC) 4-inch thick

1.0 FILL: Sand, silt and gravel mix

2.0 WEATHERED LIMESTONE: Light to dark gray, decomposed to highly weathered rock pieces, trace sand and silt

7.5 LIMESTONE: Dark gray to light gray, fine grained, strong, thinly bedded, moderately weathered, open to close joints - slightly weathered

- highly weathered, trace of soft clayey shale from 6.5 to 7.0 feet

- very strong

17.5 - dark gray and black to light gray E.O.B.



DEPTH (ft)	BLOWS/6in N - VALUE RQD	NUMBER	TYPE	RECOVERED (in) LTH SMPLD (in)	MOISTURE, %	DRY DENSITY (lb/ft ³)	Qu (tsf) FAILURE TYPE	ADDITIONAL DATA REMARKS
0-0.3								
0.3-1.0	8-13-14 N=27	SS1	SPT	12/18	67%			1" thick layer of brown silt (ML) @ 5'
1.0-2.0	26-36-12 N=48	SS2	SPT	12/18	67%			
2.0-6.5	8-5-50/4	SS3	SPT	8/16	50%			Qu = 1591.5 tsf; Unit Weight = 162.5 pcf
6.5-7.0								
7.0-17.5	ROD= RUN1 40%	RUN1	RC	31/42	74%			Qu = 760 tsf; Unit Weight = 162.2 pcf
17.5-18.0	ROD= RUN2 95%	RUN2	RC	60/60	100%			
18.0-18.5	ROD= RUN3 100%	RUN3	RC	18/18	100%			

BORING B-302



STARTED	10/31/17	FINISHED	10/31/17
DRILL CO.	Geotechnology, Inc.	DRILLING	CHE-550 ATV/DRILL
DRILLER	ST ASST DRILLER	LOGGED BY	Bahroz Bajestani APPROVED
			Kip Chappack

BORING DATA

Note: For location of borings, see Sheet No. 1.

Designed: BMC 11/01/17
 Detailed: BMC 01/01/18
 Checked: HNS 02/02/18

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

Sheet No. 6 of 6

BORINGS

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DATE PREPARED
02/02/18

ROUTE STATE
366 MO

DISTRICT SHEET NO.
BR 6

COUNTY
ST. LOUIS

JOB NO.
JCS3181

CONTRACT ID.
PROJECT NO.

BRIDGE NO.
A8699

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

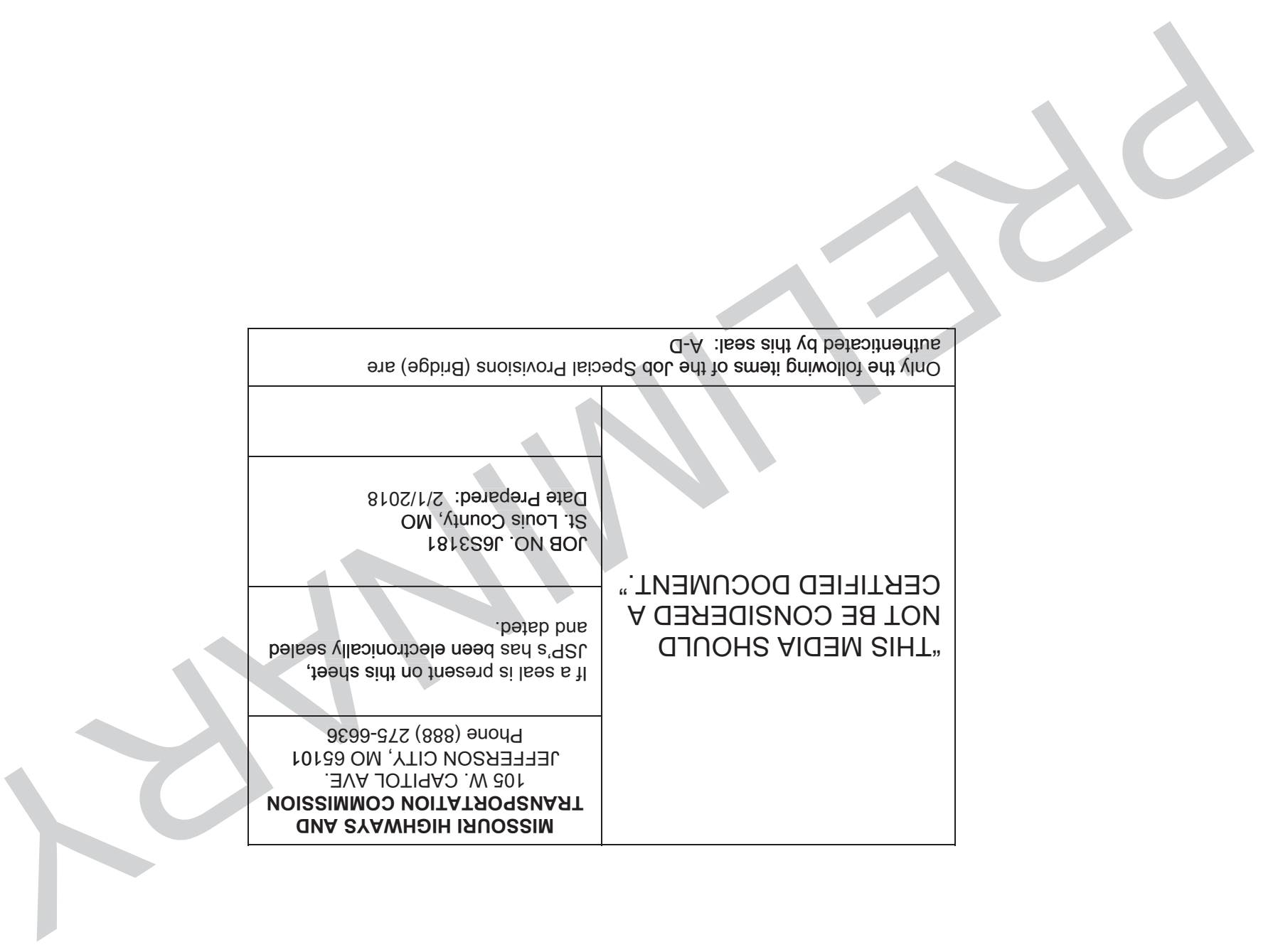
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Professional Engineer 001632
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314.770.0467

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- B. Galvanized Structural Steel Pile
- C. Corrugated Metal Pipe Pile Spacers
- D. Pre-bore for Piling

<p>MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 W. CAPITOL AVE. JEFFERSON CITY, MO 65101 Phone (888) 275-6636</p>	<p>If a seal is present on this sheet, JSP's has been electronically sealed and dated.</p>	<p>JOB NO. J6S3181 St. Louis County, MO Date Prepared: 2/1/2018</p>	<p>Only the following items of the Job Special Provisions (Bridge) are authenticated by this seal: A-D</p>
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A. CONSTRUCTION REQUIREMENTS

1.0 Description. This provision contains general construction requirements for this project.
2.0 Construction Requirements. Plans for the existing structure(s) are included in the contract with the bridge plans for informational purposes only.

2.1 In order to assure the least traffic interference, the work shall be scheduled so that a lane closure is for the absolute minimum amount of time required to complete the work. A lane shall not be closed until material is available for continuous construction and the contractor is prepared to diligently pursue the work until the closed lane is opened to traffic.

2.2 Bridge work by contractor forces, including erection, rehabilitation, or demolition, shall not be allowed over traffic unless a bridge platform protection system is installed below the work area except for work performed above a deck that is intact. The protection system shall be capable of catching all falling objects such as tools, overhead brackets or materials. Lifting or objects that are heavier than the capacity of the bridge protection system shall not be allowed.

2.3 Provisions shall be made to prevent any debris and materials from falling onto the roadway. Any debris and materials that falls below the bridge outside the limits mentioned previously and if determined necessary by the engineer, the debris shall be removed as approved by the engineer at the contractor's expense. Traffic under the bridge shall be maintained in accordance with the contract documents.

2.4 Provisions shall be made to prevent damage to any existing utilities. Any damage sustained to the utilities as a result of the contractor's operations shall be the responsibility of the contractor. All costs of repair and disruption of service shall be as determined by the utility owners and as approved by the engineer.

3.0 Method of Measurement. No measurement will be made.

4.0 Basis of Payment. Payment for the above described work will be considered completely covered by the contract unit price for other items included in the contract.

B. GALVANIZED STRUCTURAL STEEL PILE

1.0 Description. This job special provision contains general requirements for furnishing, coating and placing galvanized steel piles as shown on the plans and shall be in addition to the requirements of Sec 702.

2.0 Material. Structural steel piles shall be galvanized in accordance with ASTM A123 and Sec 1080. Repairs to the galvanized coating and field galvanizing shall be in accordance with ASTM A780. Zinc rich paints will not be allowed. Repairs and field galvanizing will not be required where the pile will be encased in concrete or below the limits specified in section 3.0 of this job special provision. Protective Coatings specified in Sec 702 will not be required for galvanized piles.

3.0 Construction Requirements.

3.1 Galvanizing material shall be omitted or removed or 1 inch clear of weld locations. The method used to omit or remove the galvanizing material shall be masking, grinding or other methods as approved by the engineer. If a weld location falls within an area where galvanizing

is required, clean the weld area making sure to remove all welding slag. Then field galvanize the weld area in accordance with ASTM A780. Zinc rich paints will not be allowed.

3.2 All pile below the pile concrete encasement shall be galvanized down to an elevation as shown on the plans.

3.3 At the contractor's option, the entire pile length may be galvanized.

4.0 Method of Measurement. Galvanized Structural Steel Pile in place will be the actual length to the nearest linear foot for that portion of the pile that remains permanently in the structure. See Sec 702 Basis of Payment for any additional length authorized by the engineer resulting from pile splices. No separate measurement will be made for pile that is not galvanized.

5.0 Basis of Payment. The accepted quantity of galvanized and non galvanized pile in place will be paid for at the contract unit price for Galvanized Structural Steel Pile. No direct payment will be made for incidental items necessary to complete the work unless specifically provided as a pay item in the contract.

C. CORRUGATED METAL PIPE PILE SPACERS

1.0 Description. The contractor shall install corrugated metal pipe at pile locations in the porous backfill of the mechanically stabilized earth walls at end bents as shown on the bridge plans. The corrugated pipe shall be accurately located and centered on the piles.

2.0 Construction Requirements. The corrugated metal pipe shall be accordance with requirements of [Sec 725](#).

2.1 The corrugated steel pipe shall be galvanized in accordance with ASTM A 153 and have an inside diameter as specified on the plans. The size of pipe shall be subject to approval by the engineer before work is started. The bottom of the corrugated metal pipe spacers shall be placed below the bottom of the MSE wall leveling pad as shown on the plans. The pipe shall be filled with loose sand or other approved material. Shop drawings of the corrugated steel pipe will not be required.

2.2 The contractor shall follow the following sequence of construction:

1. Pre-bore for piling in accordance with the plans and Special Provisions (Bridge), item C, Pre-bore for Piling.
2. Set and seat piling in accordance with the plans.
3. Adequately brace piling to insure that proper pile alignment is maintained. The contractor's plan for bracing the piles shall be submitted to the engineer for review.
3. Backfill pre-bored holes with Class B Concrete to the top of rock in accordance with the plans.
4. Set and center corrugated metal pipe spacers in place around piling.
5. Place loose sand in the corrugated metal pipe spacer.
6. Construct MSE wall placing the wall reinforcing and backfill material around the corrugated metal pipe spacers.

3.0 Method of Measurement. Measurement for corrugated metal pipe pile spacers will be made per each.

4.0 Basis of Payment. Payment for the above described work, including all material, equipment, labor and any other incidental work necessary to furnish and install the corrugated metal pipe spacer and loose sand will be considered completely covered by the contract unit price for "Corrugated Metal Pipe Spacers". Payment for all other work described in Section 2.2 above including all material, equipment, labor and any other incidental work will be covered for the contract unit price of other pay items as specified on the plans.

D. PRE-BORE FOR PILING

1.0 Description. This work shall consist of Pre-bore for Piling as described on the plans.

2.0 Material. Shall be in accordance with [Sec 702.4.3](#) and pre-bored holes shall be backfilled with loose sand and Class B concrete.

3.0 Construction Requirements. Pre-boring shall be in accordance with [Sec 702.4.3](#) except that the pre-bored hole shall be backfilled with Class B concrete to the approximate top of rock. Remainder of backfill shall be in accordance with [Sec 702.4.3](#).

4.0 Method of Measurement. No measurement will be made. Class B Concrete for the concrete backfill and sand used as backfill shall be considered incidental to and included with the quantity "Pre-bore for Piling".

5.0 Basis of Payment. The accepted quantity of pre-bore for piling will be paid at the contract unit price. Payment for the above described work, including all material, equipment, labor and any other incidental work necessary to complete this item, will be paid for at the contract unit price for "Pre-bore for Piling".