DESIGN DESIGNATION

A.A.D.T. - 2022 = 1957A.A.D.T. - 2032 = 2088T = 7.6%V = 55 M.P.H.

FUNCTIONAL CLASSIFICATION - MAJOR COLLECTOR

NO NEW RIGHT OF WAY



CONVENTIONAL SYMBOLS

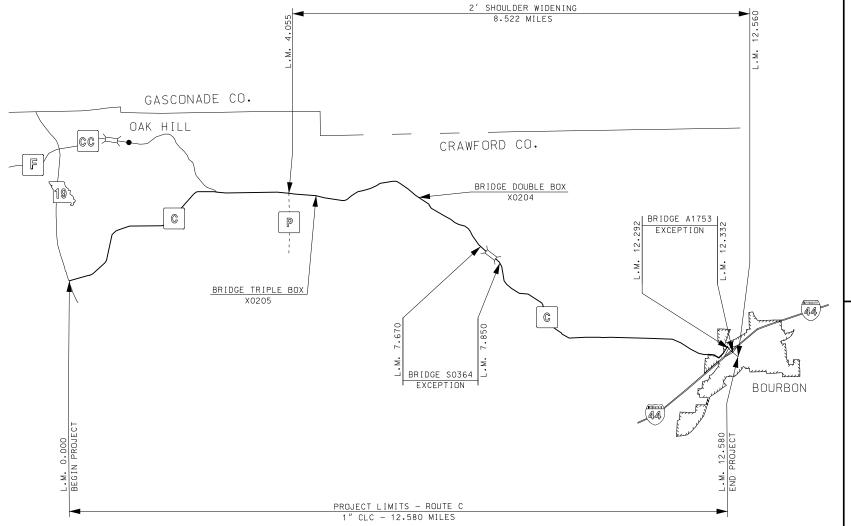
TOOLD IN FLAME		
	EXISTING	NEW
BUILDINGS AND STRUCTURES GUARD RAIL GUARD CABLE CONCRETE RIGHT-OF-WAY MARKER STEEL RIGHT-OF-WAY MARKER LOCATION SURVEY MARKER UTILITIES	0000	••••• ••••
FIBER OPTICS OVERHEAD CABLE TV UNDERGROUND CABLE TV OVERHEAD TELEPHONE UNDERGROUND TELEPHONE OVERHEAD POWER UNDERGROUND POWER SANITARY SEWER STORM SEWER GAS WATER	-OTV- -UTV- - OT - - UT - - OE - - UE - - S - - SS - - G - - W -	-F0 -0TV -0TV -0T -0E -0E -S -SS -6 -W
MANHOLE	SAN)
FIRE HYDRANT	C	ĵ
WATER VALVE	wv wm)
WATER METER	*‴⊕)
DROP INLET	" <u></u>	
DITCH BLOCK	=	⊨
GROUND MOUNTED SIGN	SIGN	_
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL FENCE CHAIN LINK WOVEN WIRE GATE POST BENCHMARK	PED V X	
DENUMBER	8)

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY

CRAWFORD COUNTY



NOT TO SCALE

THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION. IT IS, THEREFORE, THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE, LOCATION AND STATUS OF ANY FACILITY. SUCH VERIFICATION INCLUDES DIRECT CONTACT WITH THE LISTED UTILITIES.

INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (TS) (1 SHEET)	2
QUANTITIES (QU) (4 SHEETS)	3
DETAIL SHEETS (DS)	4-6
TRAFFIC CONTROL SHEETS (TC)	7-11
EROSION CONTROL SHEETS (EC)	12-13
BRIDGE DRAWINGS (B)	
X0205	1
X0204	1

JAMES V. BEATTIE NUMBER PE-2018021150 JAMES V. BEATTIE NUMBER PE-2018021150 JAMES V. BEATTIE NUMBER SONAL ENGLISH SHET HAS BEEN SIGNED. SEALED AND DATED SIGNED. SEALED AND DATED					
SIGNED, SEALE ELECTRO	D AND DATED ONICALLY.	-			
DATE PF 8/5/		LI LOTEONITONI V SENI ED			
_{коите}	STATE MO	T U 1 1.			
DISTRICT	SHEET NO.	פבבאונ			
cou CRAW	FORD	CHEET IT HAS DE			
JOB NO. J5S3346					
CONTRACT ID.					
PROJEC					
BRIDG	E NO.	3111			

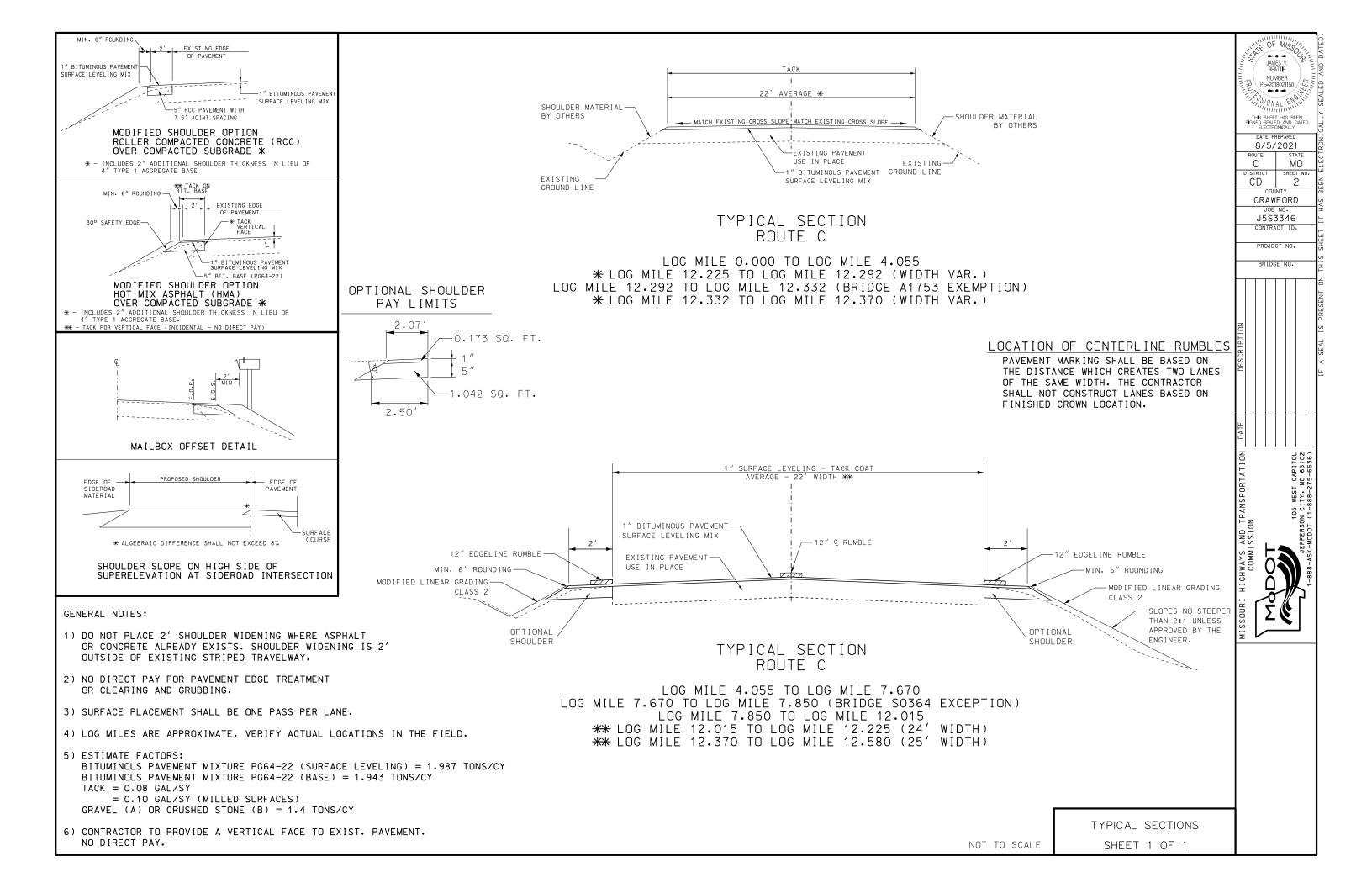
LENGTH OF PROJECT

BEGINNING OF PROJECT END OF PROJECT	LOG MILE 0.000 LOG MILE 12.580
APPARENT LENGTH	66,422.40 FEET
EQUATIONS AND EXCEPTIONS:	
BRIDGE S0364 EXCEPTION	950 FEET
BRIDGE A1753 EXCEPTION	211 FEET

TOTAL CORRECTIONS 1161 FEET NET LENGTH OF PROJECT 65261.4 FEET STATE LENGTH 12.360 MILES FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES

19.64 ACRES





			1" PMBF	SURFA	CE LEVELI	NG (PG64	-22) - ROI	UTE C
				AVERAGE				
LOG	LOG		LENGTH	WIDTH	THICKNESS	PMBP	TACK	
MILE	MILE	LOCATION	(FT)	(FT)	(IN)	(TONS)	(GAL)	REMARKS
0.000	0.009	RTE. C	47.52		1	19.87	29	IRREGULAR AREA = 360 SY
0.009	7.670	RTE. C	40450.08	22	1	5,457,51	7,910	
7.670	7.850	RTE. C	950.4					BRIDGE S0364 EXCEPTION
7.850	12.015	RTE. C	21991.2	22	1	2,967.05	4,301	
12.015	12.225	RTE. C	1108.8	24	1	163.20	237	
12.225	12.292	RTE. C	353.76		1	151.78	275	IRREGULAR AREA = 2750 SY
12.292	12.332	RTE. C	211.2					BRIDGE A1753 EXCEPTION
12.332	12.370	RTE. C	200.64	36	1	57.68	105	IRREGULAR AREA = 1045 SY
12.370	12.430	RTE. C	316.8	25	1	48.57	88	
12.430	12.492	RTE. C	327.36	32	1	64.24	116	INCLUDES RIGHT SHOULDER
12.492	12.560	RTE. C	359.04	25	1	55.05	100	
12.560	12.580	RTE. C	105.6			21.25	31	IRREGULAR AREA = 385 SY
		RTE. CC			1	52.71	76	IRREGULAR AREA = 955 SY
		RTE. P			1	12.97	19	IRREGULAR AREA = 235 SY
		OUTER RD.			1	21.25	31	IRREGULAR AREA = 385 SY
						23.24		PAVED ENTRANCES
						1,801.24		20% FOR IRREGULARITIES
					TOTAL	10,917,61	13,316,40	SEE TYPICAL SECTIONS
					USE	10,917.6	13,316	FOR ESTIMATE FACTORS.

1" BIT	TUMINOUS	PAVEMENT	SURFACE	LEVELI	NG (PG64-	-22) - OPI	TIONAL SHOULDER WIDENING
LOG MILE	LOG MILE	LOCATION	LENGTH (FT)	WIDTH (FT)	PMBP (TONS)	TACK (GAL)	REMARKS
4.055	7.670	RTE. C - RT.	19087.2	2.07	242.31	351.20	
7.850	12.015	RTE. C- RT.	21991.2	2.07	279.17	404.64	
12.040	12.225	RTE. C - RT.	978.8	2.07	12.43	18.01	
12.370	12.432	RTE. C - RT.	327.36	2.07	4.16	6.02	
4.055	7.670	RTE. C - LT.	19087.2	2.07	242.31	351.20	
7.850	12.225	RTE. C - LT.	23100	2.07	293.25	425.04	
12.370	12.560	RTE. C - LT.	1003.2	2.07	12.74	18.46	
				TOTAL	1,086.35	1,574.58	SEE TYPICAL SECTIONS
				USE	1,086.4	1,575	FOR ESTIMATE FACTORS.

5" BIT	5" BITUMINOUS PAVEMENT BASE COURSE (PG64-22) - OPTIONAL SHOULDER WIDENING								
			LENGTH	WIDTH	РМВР				
LOG MILE	LOG MILE	LOCATION	(FT)	(FT)	(TONS)	REMARKS			
4.055	7.670	RTE. C - RT.	19087.2	2.50	1430.80				
7.850	12.015	RTE. C- RT.	21991.2	2.50	1648.49				
12.040	12.225	RTE. C - RT.	976.8	2.50	73.22				
12.370	12.432	RTE. C - RT.	327.36	2.50	24.54				
4.055	7.670	RTE. C - LT.	19087.2	2.50	1430.80				
7.850	12.225	RTE. C - LT.	23100	2.50	1731.61				
12.370	12,560	RTE. C - LT.	1003.2	2.50	75.20				
				TOTAL	6,414.67	SEE TYPICAL SECTIONS			
				USE	6,414.7	FOR ESTIMATE FACTORS.			

	COLDMILLING (3" THICK OR LESS)								
LOG MILE	LOG MILE	LOCATION	LENGTH	WIDTH (FT)	COLDMILLING (SY)	REMARKS			
12,225	12,292	RTE. C	353.8		2750.0	IRREGULAR AREA = 2750 SY			
12.332	12.370	RTE, C	200.6 316.8	25	1045.0	IRREGULAR AREA = 1045 SY			
12.370	12.430	RTE. C	327.4	32	1163.9				
12.492	12.560	RTE. C	359.0	25	997.3				
12,560	12.580	RTE. C	105.6		385.0	IRREGULAR AREA = 385 SY			
				TOTAL	7,221.2				
				USE	7,221				

MODIFIED COLDMILLING (DEPTH TRANSITIONS)								
					MOD.			
LOG	LOG		LENGTH	WIDTH	COLDMILLING			
MILE	MILE	LOCATION	(FT)	(FT)	(SY)	REMARKS		
0.000	0.009	RTE. C	50	VAR.	360.0	BEGIN PROJECT		
7.665	7.670	RTE. C	25	22	61.1	BEGIN BRIDGE S0364		
7.850	7.855	RTE. C	25	22	61.1	END BRIDGE S0364		
12.216	12.225	RTE. C	50	22	122.2	APPROACH TO C/J		
		RTE. CC	10	22	24.4			
		RTE. CC	10	22	24.4			
		RTE. P	10	22	24.4			
		NORTH OUTER ROAD	10	24	26.7			
				TOTAL	704.4			
				USE	704			

MOE	BILIZ	ATION
1	LUMP	SUM

ADDITIO	ONAL MOBI	LIZATION	FOR	SEEDING	
TOTAL = 4 UNITS					
	USE	= 4 UNITS			

MODIFIED LINEAR GRADING, CLASS 2											
				MOD. LIN.							
			LENGTH	GRADING							
LOG MILE	LOG MILE	LOCATION	(FT)	CL. 2 (STA)	REMARKS						
4.055	7.670	RTE. C - RT.	19087.2	190.87							
7.850	12.015	RTE. C- RT.	21991.2	219.91	BRIDGE B0467 EXCEPTION						
12.040	12,220	RTE. C - RT.	950.4	9.50							
12.370	12.430	RTE. C - RT.	316.8	3.17	EXIST, SHLDR, EXCEPTION						
		RTE. C - RT.		-11.57	ENTRANCE EXCEPTIONS						
4.055	7.670	RTE. C - LT.	19087.2	190.87							
7.850	12.225	RTE. C - LT.	23100	231.00	BRIDGE BO467 EXCEPTION						
12.370	12,560	RTE. C - LT.	1003.2	10.03							
		RTE. C - LT.		-22.11	ENTRANCE EXCEPTIONS						
			TOTAL	821.68							
			USE	821.7							

DATE PREPARED 8/5/2021 CRAWFORD

JOB NO.

J5S3346

CONTRACT ID.

	RUMBLE STRIPS									
			BITUMINOUS	BITUMINOUS						
			CENTERLINE RUMBLE	SHOULDER RUMBLE						
LOG MILE	LOG MILE	LOCATION	STRIPS (STA)	STRIPS (STA)	REMARKS					
4.055	11.744	RTE. C	405.98							
4.055	11.744	RTE. C - RT.		405.98						
				-92.57	ENTRANCES & EXCEPTIONS					
4.055	11.744	RTE. C - LT.		405.98						
				-166.11	ENTRANCES & EXCEPTIONS					
		TOTAL	405.98	553.28						
		USE	406.0	553.3						

	GRAVEL (A), OR CRUSHED STONE (B)							
LOG	LOG		LENGTH					
MILE	MILE	LOCATION	(MI)	TONS	REMARKS			
0.064	12.000	RTE. C	11.936	109.1				
12.000	12.223	RTE. C	0.223	81.4	RT & LT EXIST. GRAVEL SHLDR.			
12.370	12.430	RTE. C	0.060	21.9	RT & LT EXIST. GRAVEL SHLDR.			
12.43	12.56	RTE. C	0.130	29.7	LT. EXIST. GRAVEL SHLDR.			
			TOTAL	242.1	TO BE USED ON EXIST. ENTRANCES			
			USE	242	AND DROPOFF LOCATIONS.			

				GUARI	DRAIL			
					MGS THRIE	TYPE A	SHAPING	
				MGS	BEAM	CRASHWORTHY	SLOPES	
	LOG	LOG		GUARDRAIL	TRANS. SECT.	END TERMINAL	CLASS III	
	MILE	MILE	LOCATION	(LF)	(EA)	(MASH) (EA)	(100 FT)	REMARKS
[4.323	4.347	BRIDGE CULVERT X0205 - LT.	37.5	1	1	1.5	SOFTSTOP CET
[4.311	4.347	BRIDGE CULVERT X0205 - RT.	100	1	1	2.1	SOFTSTOP CET
[4.355	4.391	BRIDGE CULVERT X0205 - LT.	100	1	1	2.1	SOFTSTOP CET
[4.355	4.379	BRIDGE CULVERT X0205 - RT.	37.5	1	1	1.5	SOFTSTOP CET
[
[6.076	6.100	BRIDGE CULVERT X0204 - LT.	37.5	1	1	1.5	SOFTSTOP CET
[6.064	6.100	BRIDGE CULVERT X0204 - RT.	100	1	1	2.1	SOFTSTOP CET
[6.104	6.140	BRIDGE CULVERT X0204 - LT.	100	1	1	2.1	SOFTSTOP CET
[6.104	6.128	BRIDGE CULVERT X0204 - RT.	37.5	1	1	1.5	SOFTSTOP CET

550 550 14.5 14.5

CONTRACTOR	FURNISHED	SURVEYING	AND	STAKIN
	1 LUI	MP SUM		

	EROSION CONTROL*											
	SILT	ALT. DITCH	ROCK DITCH	SEDIMENT	SEDIMENT							
	FENCE	CHECK	CHECK	TRAP ROCK	REMOVAL							
LOCATION	(LF)	(LF)	(LF)	(CY)	(CY)	REMARKS						
RTE. C	1600.0	320.0	2560.0	48.00	313.6							
TOTAL	1600.0	320.0	2560.0	48.00	313.6	SEE TEMP, EROSION CONTROL JSP						
USE	1600	320	2560	48.0	314	FOR MOR INFO.						

* SILT FENCE - 200' PER MILE ALTERNATE DITCH CHECKS - 5' PER MILE ROCK DITCH CHECKS - 40' PER MILE SEDIMENT TRAPS - 6 CY PER MILE

SEEDING AND MULCH									
	COOL	TEMP.							
	SEASON	SEEDING							
LOCATION	(AC)	(AC)	REMARKS						
RTE, C	19.65	3.93	WIDTH = 10'/SIDE						
TOTAL	19.65	3.93							
USE	19.6	3.9							
NOTE: TEMP. SEED	ING ESTIMA	TED AT 2	20% OF COOL SEASON.						

TOTAL USE

		IFICATION		
			QTY	
LOG MILE	LOCATION	ITEM	(LS)	REMARKS
6.300	ROUTE C	CONCRETE CULVERT HEADWALL	1	RAISE LEFT HEADWALL (1' H × 19.9' L)
6.300	ROUTE C	CONCRETE CULVERT HEADWALL	1	RAISE RIGHT HEADWALL (1'H × 20'L)
6.550	ROUTE C	CONCRETE CULVERT HEADWALL	1	RAISE LEFT HEADWALL (1' H x 10.1' L)
		TOTAL	1	
		USE	1 LUMP SUM	

	LOC	P DETECTOR	
LOG MILE	LOCATION	QUANTITY (EA)	REMARKS
0.009	RTE. C & RTE. 19	1	SEE JSP
	TOTAL	1	
	USE	1	

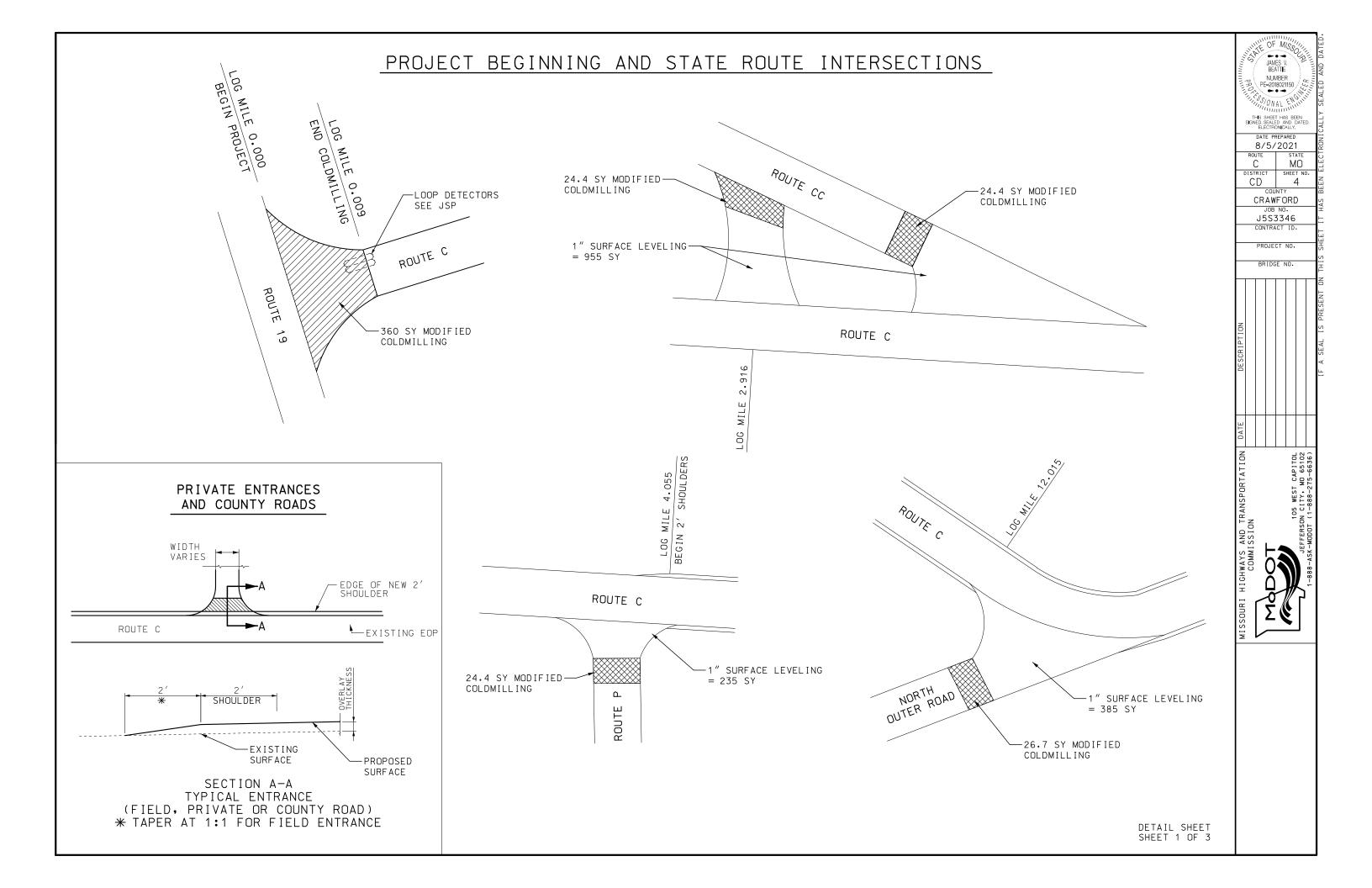
JAMES V.
BEATTIE
NUMBER
PE-2018021150 8/5/2021 ROUTE STATE MO DISTRICT SHEET NO. CRAWFORD JOB NO.
J5S3346
CONTRACT ID. PROJECT NO.

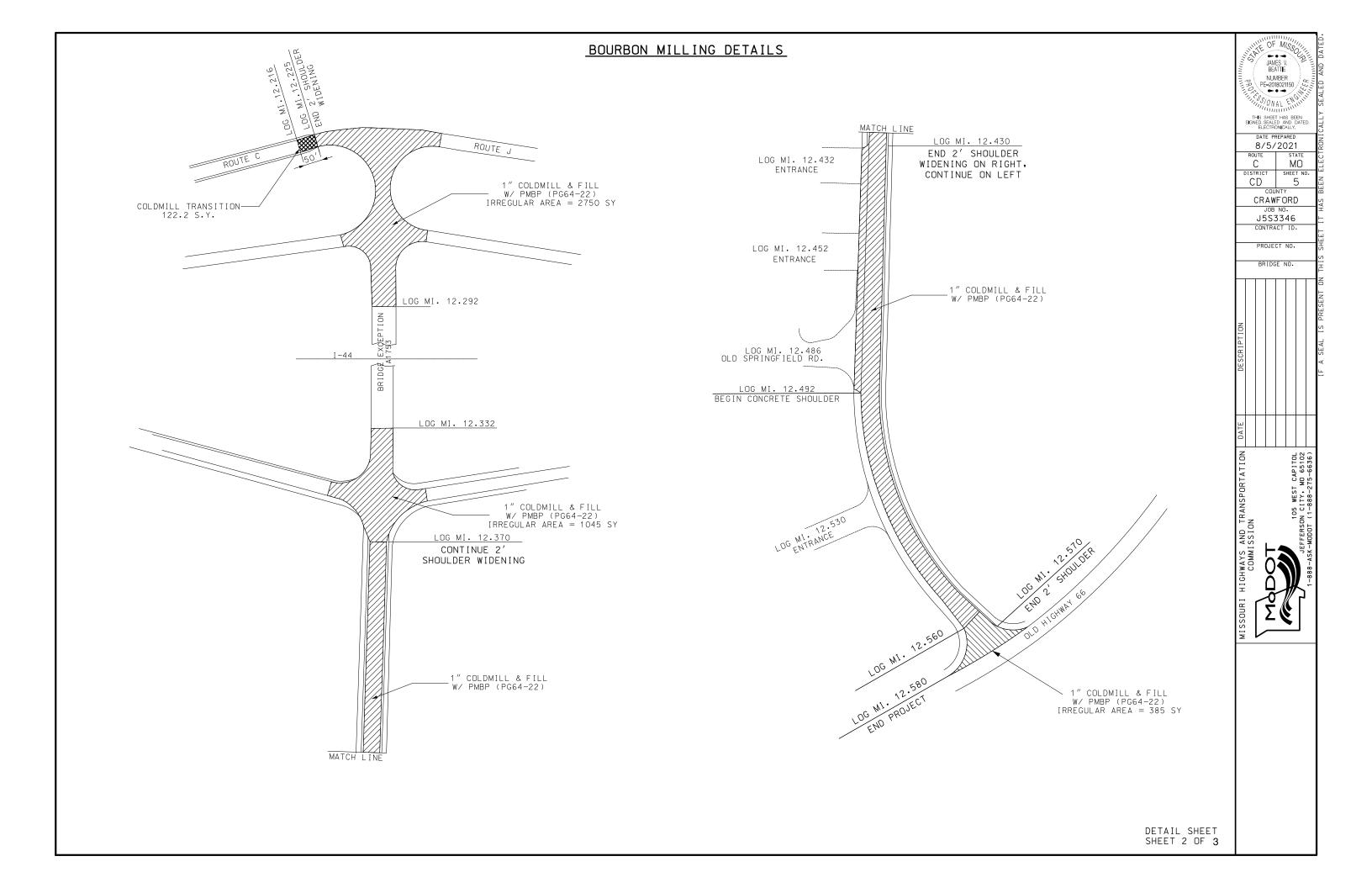
SUMMARY OF QUANTITIES SHEET 2 OF 4

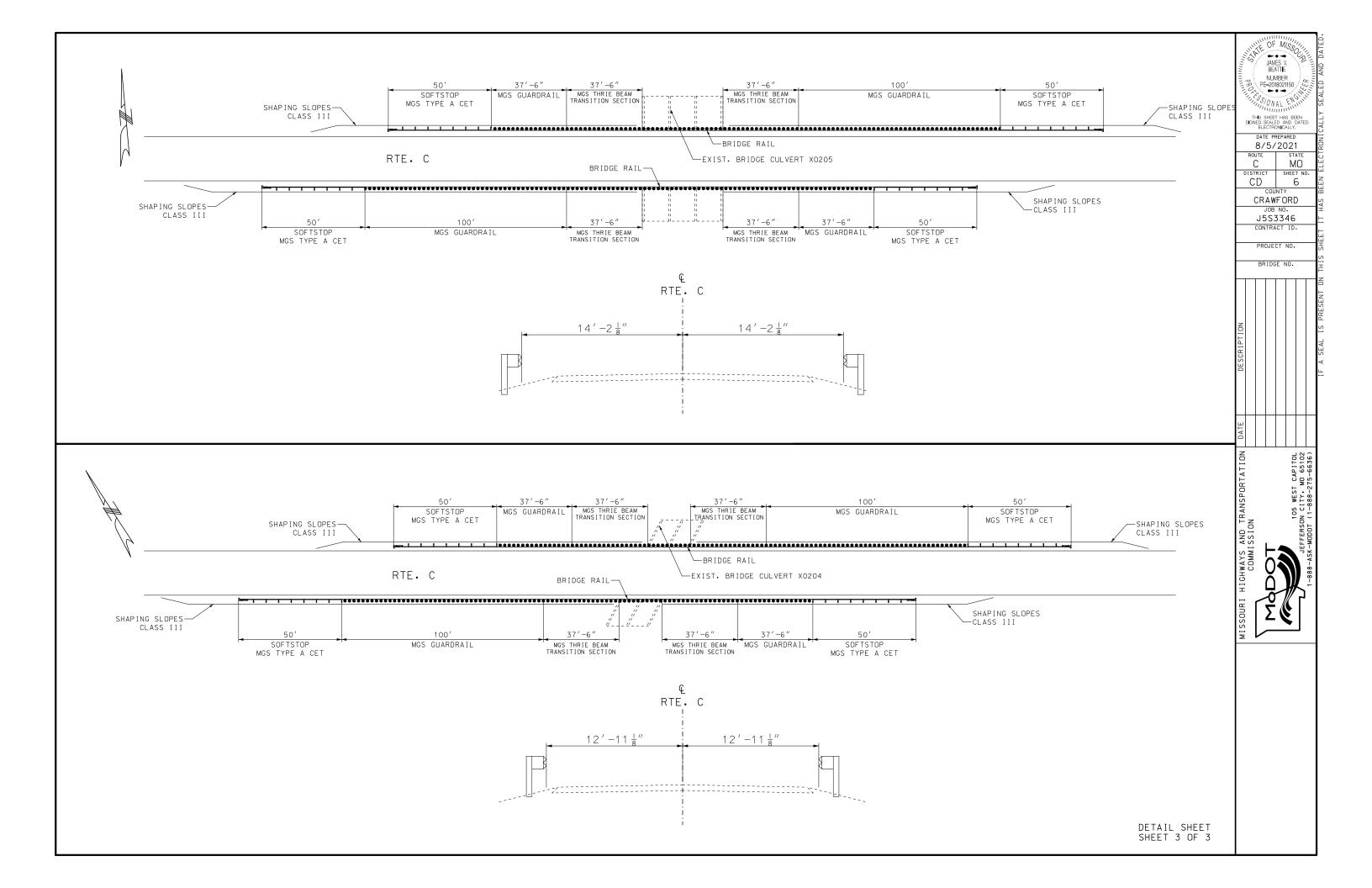
	г			AVEMENT MARKIN		1
			WATERBORNE PAINT	, IYPE P BEADS	PREFORMED THERMOPLASTIC	-
			4 "	4 "	24" STOP BAR	
		LENGTH	SOLID YELLOW	SOLID WHITE	SOLID WHITE	
	LOG MILE	(FT)	(LF)	(LF)	(LF)	REMARKS
0.000	0.060	316.80	633.6	633.6	11.0	NO PASS
0.060	0.180	633.60	792.0	1,267.2	11.0	RIGHT PASS ZONE
0.180	0.300	633.60	792.0	1,267.2		LEFT PASS ZONE
0.300	1.420	5913.60	11,827.2	11,827.2		NO PASS
1.420	1.559	733.92	917.4	1,467.8		RIGHT PASS ZONE
1.559	1.600	216.48	54.1	433.0		PASS ZONE
1.600	1.739	733.92	917.4	1,467.8		LEFT PASS ZONE
1.739	2.139	2112.00	4,224.0	4,224.0		NO PASS
2.139	2.238	522.72	653.4	1,045.4		RIGHT PASS ZONE
2.238	2.298	316.80 528.00	633.6 660.0	633.6 1,056.0		NO PASS LEFT PASS ZONE
2.298	3.195	4208.16	8,416.3	8,416.3		NO PASS
3.195	3.275	422.40	528.0	844.8		RIGHT PASS ZONE
3.275	3.356	427.68	855.4	855.4		NO PASS
3.356	3.435	417.12	521.4	834.2		LEFT PASS ZONE
3.435	3.596	850.08	1,700.2	1,700.2		NO PASS
3.596	3.755	839.52	1,049.4	1,679.0		RIGHT PASS ZONE
3.755	3.816	322.08	80.5	644.2		PASS ZONE
3.816	3.896	422.40	528.0	844.8		LEFT PASS ZONE
3.896	4.150	1341.12	2,682.2	2,682.2		NO PASS
4.150 4.316	4.316 4.337	876.48 110.88	1,095.6	1,753.0 221.8		RIGHT PASS ZONE NO PASS
4.337	4.476	733.92	917.4	1,467.8		LEFT PASS ZONE
4.476	5.194	3791.04	7,582.1	7,582.1		NO PASS
5.194	5.274	422.40	528.0	844.8		RIGHT PASS ZONE
5.274	5.354	422.40	844.8	844.8		NO PASS
5.354	5.433	417.12	521.4	834.2		LEFT PASS ZONE
5.433	5.873	2323.20	4,646.4	4,646.4		NO PASS
5.873	6.034	850.08	1,062.6	1,700.2		RIGHT PASS ZONE
6.034	6.054	105.60	26.4	211.2		PASS ZONE
6.054 6.194	6.194 7.670	739.20 7793.28	924.0 15,586.6	1,478.4		LEFT PASS ZONE NO PASS
7.850	9.307	7692.96	15,385.9	15,385.9		NO PASS
9.307	9.427	633.60	792.0	1,267.2		RIGHT PASS ZONE
9.427	9.467	211.20	422.4	422.4		NO PASS
9.467	9.606	733.92	917.4	1,467.8		LEFT PASS ZONE
9.606	9.846	1267.20	2,534.4	2,534.4		NO PASS
9.846	9.946	528.00	660.0	1,056.0		RIGHT PASS ZONE
9.946	9.986	211.20	422.4	422.4		NO PASS
9,986	10.106	633.60	792.0	1,267.2		LEFT PASS ZONE
10.106	10.665	2951.52 739.20	5,903.0 924.0	5,903.0 1,478.4		NO PASS RIGHT PASS ZONE
10.805	10.805	739.20	924.0	1,478.4		LEFT PASS ZONE
10.945	11.064	628.32	785.4	1,256.6		RIGHT PASS ZONE
11.064	11.125	322.08	644.2	644.2		NO PASS
11.125	11.224	522.72	653.4	1,045.4		LEFT PASS ZONE
11.224	11.285	322.08	644.2	644.2		NO PASS
11.285	11.445	844.80	1,056.0	1,689.6		RIGHT PASS ZONE
11.445	11.545	528.00	132.0	1,056.0		PASS ZONE
11.545	11.725	950.40	1,188.0	1,900.8	44.0	LEFT PASS ZONE
11.725	12.015	1531.20	3,062.4 2,217.6	3,062.4 2,217.6	11.0	NO PASS
12.015	12.555	1742.40	3,484.8	3,484.8	33.0	NO PASS
	12.555	1112.70	37134.0	J7 107 • 0	33.0	100
2.900	2.956		380.0	380.0	33.0	ROUTE CC
4.035	4.056		100.0	100.0	11.0	ROUTE P
12.000	12.005		100.0	100.0	11.0	I-44 OUTER ROAD
		TOTAL	116,548.6	131,260.0	132.0	
		USE	116,549	131,260	132	

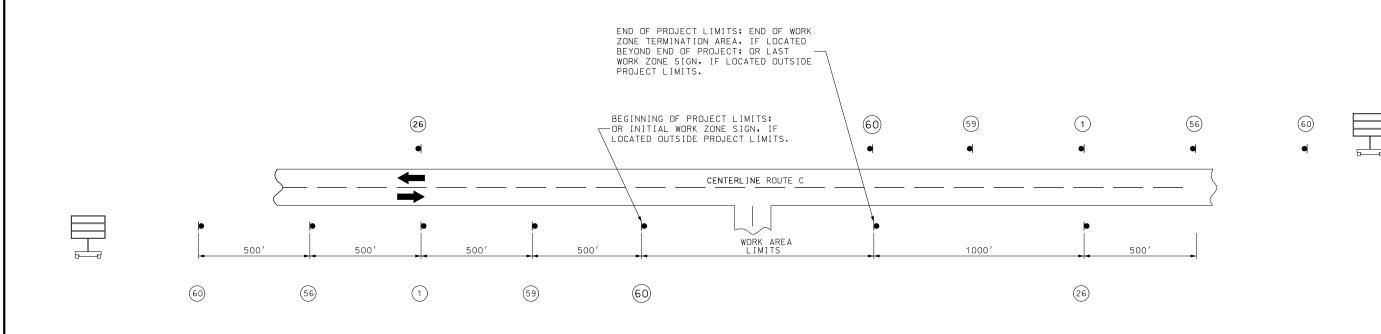
JAMES V. BEATTIE NUMBER PE-2018021150 THIS SHEET HAS BEEN SIGNED SEALED AND DATED ELECTRONICALLY. DATE PREPARED 8/5/2021 ROUTE C MO DISTRICT CRAWFORD JOB NO. J5S3346 CONTRACT ID. PROJECT NO. BRIDGE NO.	DESCRIPTION NO THE SCRIPTION NO THE SCRI	DATE
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TOTAL QTY TOT	AL C T CNI	П			0 TV 1 T	OT AT 10	TCN	П		EFFECTIVE: 04-01-2021	11/1/2	OF MA
						DTALS					II. A	JAMES V.
SIZE AREA QTY AREA RELOCREL			l l	QTY TOTA			IUM•	, , , , ,	TOTAL			JAMES V. BEATTIE
SIGN IN SQ.FT EACH SQ.FT EACH SQ.F		SIGN	IN. SQ.FT	EACH SQ.F		Q.FT.		ITEM			= 2	NUMBER
WARNING SIGNS	DESCRIPTION	1		GUIDE SI	GNS		DESCRIPTION	NUMBEF	QTY	DESCRIPTION	100	PE-2018021
1-1L 48X48 16.00	TURN (SYMBOL LEFT ARROW)	4	36X48 12.00				GORE EXIT	6122008	-	IMPACT ATTENUATOR 40 MPH (SAND BARRELS)	11,58	SS/ONAL
1-1R 48X48 16.00	TURN (SYMBOL RIGHT ARROW)	1	48X36 12.00				EXIT OPEN	6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)		.millin.
-2L	CURVE (SYMBOL LEFT ARROW) CURVE (SYMBOL RIGHT ARROW)	1	48X36 12.00	2 20.00	,		1 ROAD WORK NEXT 12 MILES	6122012		IMPACT ATTENUATOR 50 MPH (SAND BARRELS) IMPACT ATTENUATOR 55 MPH (SAND BARRELS)	SIGNED	HIS SHEET HAS ED, SEALED AN ELECTRONICA
-3L 48X48 16.00	REVERSE TURN (SYMBOL LEFT ARROW)	4	48X24 8.00				26 END ROAD WORK	6122012		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)		DATE PREPA
-3R 48X48 16.00	REVERSE TURN (SYMBOL RIGHT ARROW)	1	36X18 4.50				53 PILOT CAR FOLLOW ME	6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)	8	8/5/20
-4L 48X48 16.00	REVERSE CURVE (SYMBOL LEFT ARROW)		42X30 8.75				58 PILOT CAR IN USE WAIT & FOLLOW	6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)	ROUTI	
-4R 48X48 16.00	REVERSE CURVE (SYMBOL RIGHT ARROW)	4		10 15.00			59 PILOT CAR IN USE WAIT & FOLLOW	6122020		REPLACEMENT SAND BARREL	C	
-4bL 48X48 16.00	DOUBLE ARROW REVERSE CURVE (SYMBOL LT ARROWS)	1	36X24 6.00				WORK ZONE (PLAQUE)	6122030		IMPACT ATTENUATOR (RELOCATION)	DISTRI	
-4bR 48X48 16.00	DOUBLE ARROW REVERSE CURVE (SYMBOL RT ARROWS)	1	24X18 3.00				END DETOUR	6123000	2	TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)		COUNTY
-4cL 48X48 16.00	TRIPLE ARROW REVERSE CURVE (SYMBOL LT ARROWS)	1	48X36 12.00				DETOUR (LEFT ARROW)	6161008		ADVANCED WARNING RAIL SYSTEM	l CF	CRAWFO
-4cR 48X48 16.00	TRIPLE ARROW REVERSE CURVE (SYMBOL RT ARROWS)	MO4-9R 48	48X36 12.00				DETOUR (RIGHT ARROW)	6161012		BUOYS (BOATS KEEP OUT)		JOB NO
-6 60X30 12.50	HORIZONTAL ARROW (SYMBOL)	MO4-9P 48	48X12 4.00				STREET NAME (PLAQUE)	6161013		BUOYS (NO WAKE)		J5S334
-6a 72X36 18.00	HORIZ: ARROW (SYMBOL ON PERMANENT BARRICADE)	MO4-10L 4	48X18 6.00				DETOUR (ARROW LEFT)	6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)	CC	CONTRACT
-7 60X30 12.50	DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)	MO4-10R 4	48X18 6.00				DETOUR (ARROW RIGHT)	6161025	100	CHANNELIZER (TRIM LINE)		
-7a 72X36 18.00	DOUBLE HEAD HORIZ, ARROW (SYMBOL ON PERM, BARR,)			REGL	JLATORY S	IGNS		6161030		TYPE III MOVEABLE BARRICADE		PROJECT N
-8 18X24 3.00	CHEVRON (SYMBOL)	R1-1 48	48X48 13.25	5			STOP	6161033		DIRECTION INDICATOR BARRICADE	Е.	BRIDGE N
-8a 30X36 7.50	CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)	4	8TRI. 6.93				YIELD	6161040		FLASHING ARROW PANEL		
-1 48X48 16.00	STOP AHEAD (SYMBOL)	1	36X36 9.00				TO ONCOMING TRAFFIC (PLAQUE)	6161047		TYPE III OBJECT MARKER		\Box
-2 48X48 16.00	YIELD AHEAD (SYMBOL)	4	30X12 2.50				ALL WAY (PLAQUE)	6161051		WARNING LIGHT, TYPE A		. '
-3 48X48 16.00	SIGNAL AHEAD (SYMBOL)		36X48 12.00				SPEED LIMIT XX	6161052		WARNING LIGHT, TYPE B		. '
-4 48X48 16.00 7 112.00	11 BE PREPARED TO STOP	4	48X48 16.00				NO RIGHT TURN (SYMBOL)	6161053		WARNING LIGHT, TYPE C		
6-5 48X48 16.00	SPEED LIMIT AHEAD		48X48 16.00				NO LEFT TURN (SYMBOL)	6161055	-	SEQUENTIAL FLASHING WARNING LIGHT		
-1L 48X48 16.00	MERGE (SYMBOL FROM LEFT)	4	36X36 9.00				NO TURNS	6161070	-	TUBULAR MARKER		.
4-1R 48X48 16.00	MERGE (SYMBOL FROM RIGHT)	1	48X48 16.00				NO U-TURN (SYMBOL)	6161095	-	RADAR SPEED ADVISORY SYSTEM	I.I.	. '
4-1aL 48X48 16.00 4-1aR 48X48 16.00	MERGE (ARROW SYMBOL) MERGE (ARROW SYMBOL)	1	30X30 6.25 30X30 6.25			-	RIGHT LANE MUST TURN RIGHT	6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED	SCR	. '
5-1 48X48 16.00	ROAD/BRIDGE/RAMP NARROWS	1	36X48 12.00				DO NOT PASS	0101030		CHANGEABLE MESSAGE SIGN W/O COMM.	DE	. '
5-3 48X48 16.00	ONE LANE BRIDGE	1	36X48 12.00				PASS WITH CARE	6161098	2	INTERFACE, CONTRACTOR FURNISHED/RETAINED		. '
5-5 48X48 16.00	NARROW LANES	1	36X48 12.00				KEEP LEFT (HORIZONTAL ARROW)	0101030	1	CHANGEABLE MESSAGE SIGN WITH COMM.		. !
5-1 48×48 16.00	DIVIDED HIGHWAY (SYMBOL)		36X48 12.00				KEEP RIGHT (HORIZONTAL ARROW)	6161099		INTERFACE, CONTRACTOR FURNISHED/RETAINED		. !
5-2 48X48 16.00	DIVIDED HIGHWAY END (SYMBOL)	1	30X30 6.25				DO NOT ENTER	6162000		WORK ZONE TRAFFIC SIGNAL SYSTEM		. '
6-3 48X48 16.00	TWO WAY TRAFFIC (SYMBOL)	1	36X24 6.00				WRONG WAY	6162002		TEMPORARY LONG-TERM RUMBLE STRIPS		
7-3a 30X24 5.00	NEXT XX MILES (PLAQUE)	4	54X18 6.75				ONE WAY ARROW (LEFT)	6162004	4	TEMPORARY SHORT-TERM RUMBLE STRIPS	ATE	. '
08-1 48X48 16.00	BUMP	1	54X18 6.75				ONE WAY ARROW (RIGHT)			TEMPORARY TRAFFIC BARRIER		. !
8-2 48X48 16.00	DIP	R6-2L 24	24X30 5.00				ONE WAY (LEFT)	6173600		CONTRACTOR FURNISHED/RETAINED	z	
8-3 48X48 16.00	PAVEMENT ENDS	R6-2R 24	24X30 5.00				ONE WAY (RIGHT)			TEMPORARY TRAFFIC BARRIER	0.1	
8-4 48X48 16.00	SOFT SHOULDER	R9-9 2	24X12 2.00				SIDEWALK CLOSED	6173602	3	CONTRACTOR FURNISHED/COMMISSION RETAINED	₽	
8-5 48X48 16.00	SLIPPERY WHEN WET (SYMBOL)						SIDEWALK CLOSED AHEAD,	6174000	1	TEMP. TRAFFIC BARRIER HEIGHT TRANSITION	۳. ⊢	
8-6 48X48 16.00	TRUCK CROSSING (WITH FLAGS)	R9-11L 2	24X18 3.00				(ARROW LEFT) CROSS HERE	6175010.	١	RELOCATING TEMPORARY TRAFFIC BARRIER	PO	
8-6c 48X48 16.00	TRUCK ENTRANCE	41					SIDEWALK CLOSED AHEAD,			TEMPORARY TRAFFIC BARRIER	SN	
8-7 36X36 9.00	LOOSE GRAVEL		24X18 3.00				(ARROW RIGHT) CROSS HERE	6176000	3	COMMISSION FURNISHED/RETAINED	RA	
8-7a 36X36 9.00	FRESH OIL/LOOSE GRAVEL	1 — — —	24X36 6.00				STOP HERE ON RED (45° ARROW)			TEMP. TRAFFIC BARRIER HEIGHT TRANSITION	- N	
8-9 48X48 16.00	LOW SHOULDER	R11-2 48	48X30 10.00				ROAD CLOSED	6177000		COMMISSION FURNISHED/RETAINED	AND SSI(
8-11 48X48 16.00 24 384.00	36 UNEVEN LANES	1					ROAD CLOSED XX MILES AHEAD	6208064		TEMPORARY RAISED PAVEMENT MARKER		
8-12 48X48 16.00 12 192.00	35 NO CENTER LINE		50X30 12.50				LOCAL TRAFFIC ONLY	9029400		TEMPORARY TRAFFIC SIGNALS	×S MM	
3-15 48X48 16.00	GROOVED PAVEMENT	1	50X30 12.50				ROAD CLOSED TO THRU TRAFFIC	9029401	-	TEMPORARY TRAFFIC SIGNALS AND LIGHTING	HIGHWAYS COMMI	U
8-15P 30X24 5.00 8-17 48X48 16.00	MOTORCYCLE (PLAQUE) SHOULDER DROP-OFF (SYMBOL)	4	50X48 20.00 56X12 4.67				FINE SIGN SPEEDING/PASSING (PLATE)		-		F5	$\tilde{\wedge}$
18-17 48x48 16.00 18-17P 30x24 5.00	SHOULDER DROP-OFF (SYMBUL) SHOULDER DROP-OFF (PLAQUE)	1 - 2 X 5	JUNIZ 4.61		ELLANEOU	15 210		 			표	ヷヿ
0-1 42RND. 9.62	RAILROAD CROSSING	CONST-5 TA	48X36 12.0C				60 POINT OF PRESENCE					J D_
112-1 24X24 4.00	DOUBLE DOWN ARROW (SYMBOL)	1	96X48 32.00		+		POINT OF PRESENCE				MISSOUR	, Z N
12-2 48X48 16.00	LOW CLEARANCE (SYMBOL)	1		2 16.00			56 RATE OUR WORK ZONE				SO	<u> </u>
12-2X 24X18 3.00	LOW CLEARANCE (PLAQUE)		72X36 18.00				RATE OUR WORK ZONE				SII	
12-2a 84X24 14.00	OVERHEAD LOW CLEARANCE (FEET AND INCHES)	1		2 24.00	, 		59 WORK ZONE NO PHONE ZONE	l'		1	\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	
12-4 120X60 50.00	LOW CLEARANCE XX FT XX IN XX MILES AHEAD	11	12:00									
112-5 120X60 50.00	WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD							1				
13-1 30X30 6.25	ADVISORY SPEED (PLAQUE)							1				
16-2 30X24 5.00	XXX FEET (PLAQUE)							1				
16-3 30X24 5.00	X MILE (PLAQUE)											
20-1 48X48 16.00 11 176.00	2 ROAD/BRIDGE/RAMP WORK AHEAD											
0-2 48X48 16.00	DETOUR AHEAD											
20-3 48X48 16.00	ROAD CLOSED AHEAD]				
20-4 48X48 16.00 6 96.00	7 ONE LANE ROAD AHEAD	616-10.0		TOTA		T						
20-5 48X48 16.00	RIGHT/CENTER/LEFT LANE CLOSED AHEAD	CONSTRUC		GNS 1352								
20-5a 48X48 16.00	2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD	616-10.1		·		JATC						
20-6a 48X48 16.00	RIGHT/CENTER/LEFT LANE CLOSED	RELOCATE	ED SIGNS			0						
20-7a 48X48 16.00 11 176.00	8 FLAGGER (SYMBOL, WITH FLAGS)	4										
	FRESH OIL	1										
21-2 36X36 9.00		1										
21-2 36X36 9.00 21-5 48X48 16.00	SHOULDER WORK AHEAD	1										
21-2 36X36 9.00 21-5 48X48 16.00 22-1 48X48 16.00	SHOULDER WORK AHEAD BLASTING ZONE AHEAD									CHAMADY OF CHANTITIES		
21-2 36X36 9.00 21-5 48X48 16.00 22-1 48X48 16.00 22-2 42X36 10.50	SHOULDER WORK AHEAD BLASTING ZONE AHEAD TURN OFF 2-WAY RADIO AND PHONE									SUMMARY OF QUANTITIES		
1-2 36X36 9.00 1-5 48X48 16.00 2-1 48X48 16.00	SHOULDER WORK AHEAD BLASTING ZONE AHEAD									SUMMARY OF QUANTITIES SHEET 4 OF 4		









GENERAL NOTES:

ANY EXISTING SIGNING THAT CONFLICTS WITH THE TRAFFIC CONTROL SIGNING SHALL BE COMPLETELY COVERED OR REMOVED.

DISTANCES MAY BE ADJUSTED ACCORDING TO FIELD CONDITIONS. WHERE TRAFFIC BACKUPS ARE EXPECTED BEYOND THE ADVANCE WARNING AREA, ADDITIONAL SIGNING MAY BE NEEDED.

PERMANENT SIGNS SHALL BE INSTALLED FOR THE DURATION OF THE PROJECT.

CONTRACTOR MUST MAINTAIN INGRESS AND EGRESS AT ALL SIDE ROADS, STATE ROUTES AND PRIVATE ENTRANCES.

CHANGEABLE MESSAGE SIGNS (CMS) SHALL BE LOCATED AS APPROVED BY THE ENGINEER.

NOTES:

SIGN (1) IS REQUIRED PER EPG 616.2.3.

SIGN (26) IS USED ON ALL PROJECTS WHERE SIGN (1) IS USED.





CONST-7-48

(56)

ROAD WORK

NEXT 12 MILES

GO20-1

END ROAD WORK NUMBER

8/5/2021

CRAWFORD

J5S3346

PROJECT NO.

MΩ

SHEET NO

C

CD

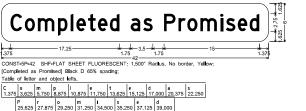
G020-2

26)

NO PHONE ZONE

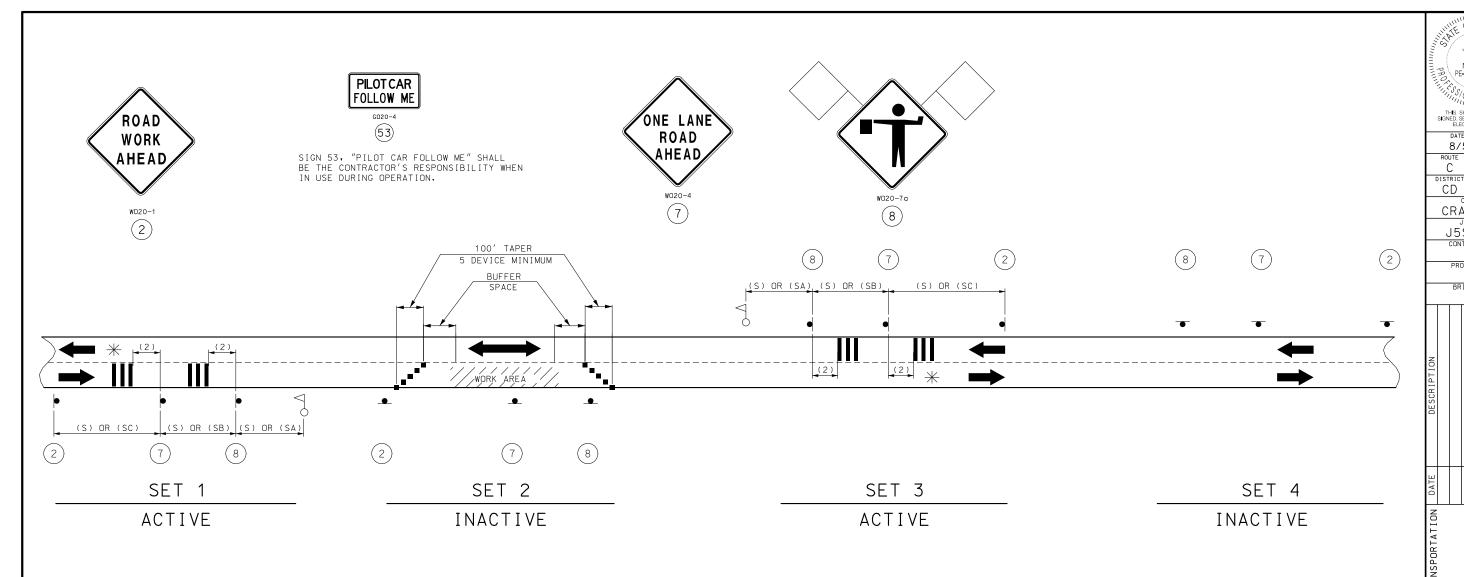
CONST-8

(59)



NOT TO SCALE

TRAFFIC CONTROL
1 OF 5



SIGN SETS 1 AND 3 ARE ACTIVE AND (I.E., SIGNS FACE ONCOMING

SIGN SETS 2 AND 4 ARE INACTIVE (I.E., SIGNS DO NOT FACE EITHER DIRECTION OF TRAFFIC) WHEN THE RESURFACING OPERATION IS LOCATED BETWEEN SIGN SETS 1 AND 3.

WHEN SIGN SETS 2 AND 4 ARE ACTIVE, SIGN SETS 1 AND 3 BECOME INACTIVE AND ARE ADVANCED TO BECOME SETS 2 AND 4 WITH SIGN LEGENDS TURNED AWAY FROM BOTH DIRECTIONS OF TRAFFIC. WHEN THE RESURFACING OPERATION ADVANCES TO BETWEEN SIGN SETS 2 AND 4, SIGN SETS 2 AND 4 BECOME ACTIVE (I.E., NEW SIGN SETS 1 AND 3) AND SIGN SETS 1 AND 3 ADVANCED IN THE DIRECTION OF THE OPERATION (I.E., NEW SIGN SETS 2 AND 4).

- CHANNELIZERS

- FLAGGER

TEMPORARY SHORT TERM RUMBLE STRIPS

DAYLIGHT FLAGGING OPERATIONS ONLY.

CHANNELIZING DEVICES LOCATED DOWNSTREAM OF THE ONE-LANE, TWO-WAY TAPER ARE OPTIONAL. THESE DEVICES SHOULD BE ELIMINATED WHEN THEIR USE WILL REDUCE THE USABLE LANE WIDTH, INCLUDING ANY ACCEPTABLE SHOULDERS, TO LESS THAN 10' OR WILL SIGNIFICANTLY AFFECT THE RESURFACING OPERATION.

FLAG ASSEMBLIES FOR SIGNS WILL BE PAID FOR AS EACH PER SIGN, EXCEPT FOR SIGN W020-7a WHICH IS SUBSIDIARY TO THE SIGN.

ERM RUMBLE S	TRIPS
DISTANCE (2)	SPACING (3)
120 FT	10 FT
160 FT	20 FT
200 FT	30 FT
	(2) 120 FT 160 FT

**SECOND SET OF TEMPORARY RUMBLES OPTIONAL



SPACING EXAMPLE

SPEED	SIGN SPACING (FT.) (1)		
PERMANENT POSTED (MPH)	NON-DIVIDED HIGHWAYS (S)	DIVIDED HIGHWAYS (S)	
0-35	200	200	
40-45	350	500	
50-55	500	1000	
60-70	1000	(SA)-1000 (SB)-1500 (SC)-2640	

(1) SPACING BETWEEN SIGNS, BETWEEN LAST SIGN AND FLAGGER, BEGINNING OF TAPER OR SIGNED CONDITION.

SPACINGS MAY BE ADJUSTED AS NECESSARY TO MEET FIELD CONDITIONS.

PERMANENT POSTED	BUFFER SPACE	
SPEED LIMIT	LENGTH	
(MPH)	(FT)	
0 - 35	280	
40 - 45	400	
50 - 55	560	
60 - 70	840	

TRAFFIC CONTROL 2 OF 5

JAMES V. BEATTIE NUMBER PE-2018021150

8/5/2021

CRAWFORD

J5S3346 CONTRACT ID.

PROJECT NO.

BRIDGE NO.

MΩ

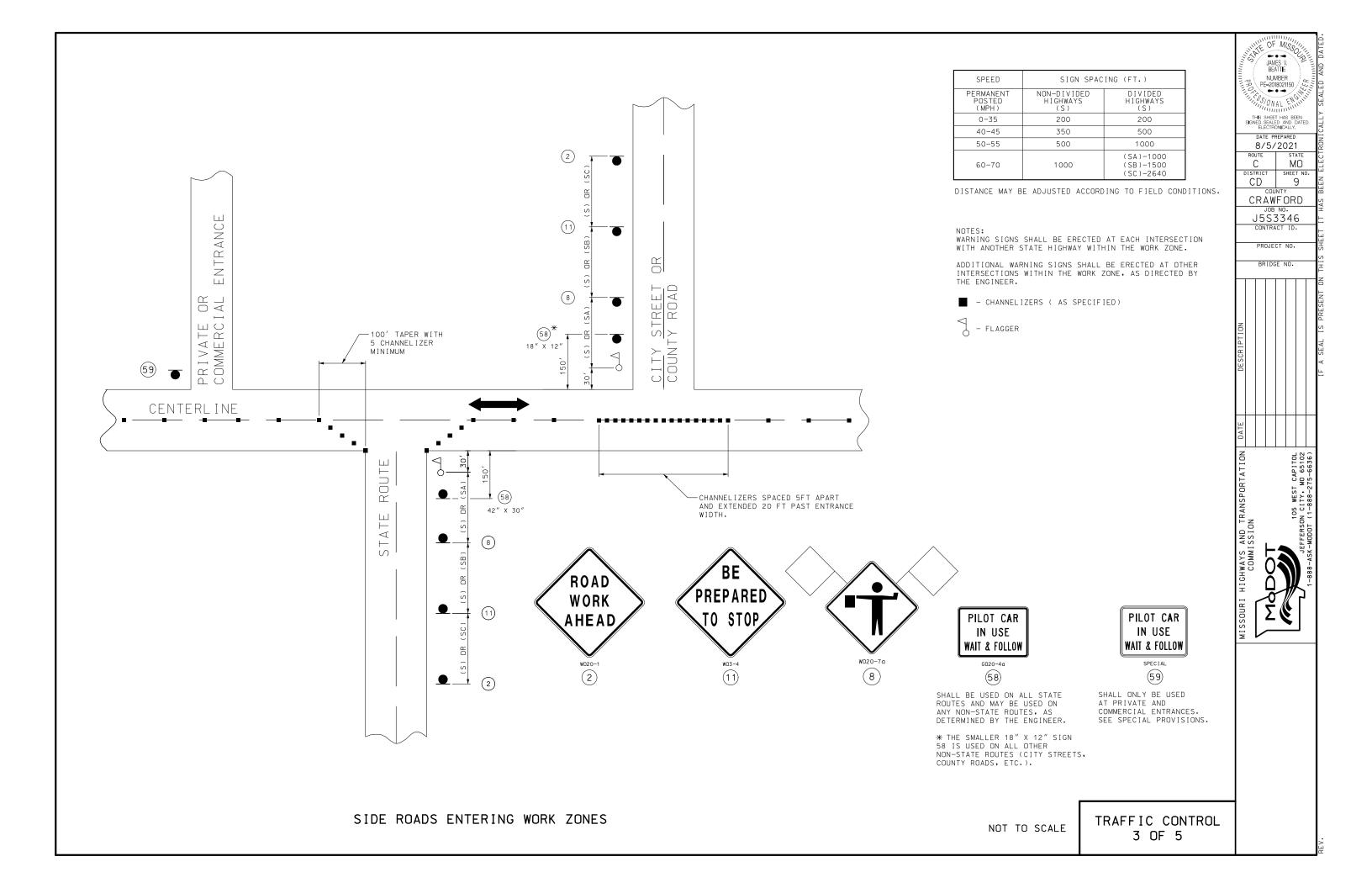
SHEET NO

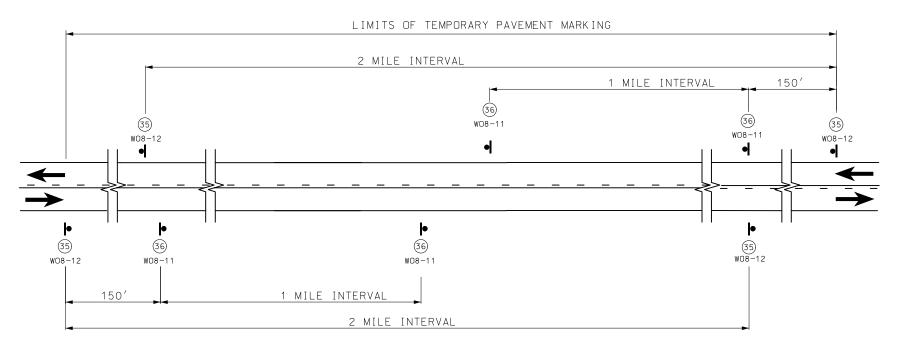
8

C

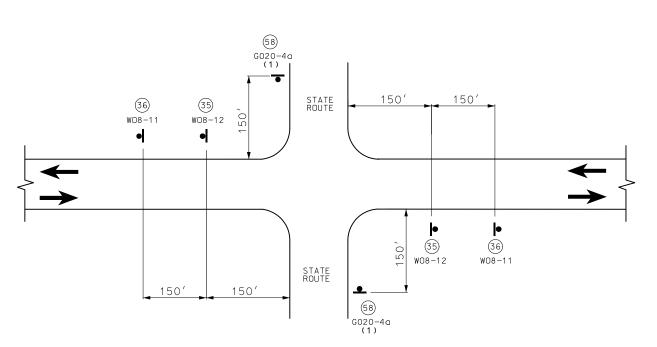
CD

NOT TO SCALE





SIGN SPACING AND TEMPORARY STRIPING FOR MAINLINE



SIGN SPACING AT STATE ROUTE INTERSECTIONS SHOWING TEMPORARY STRIPING FOR MAINLINE

(1) ADDITIONAL SIDEROADS MAY BE SIGNED AS APPROVED BY THE ENGINEER.





NOTES:

PILOT CAR

IN USE

WAIT & FOLLOW

G020-4a

(58)

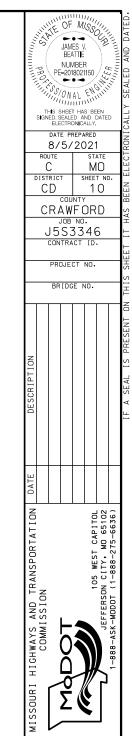
SIGN 35 AND TEMPORARY RAISED PAVEMENT MARKING (SEE STANDARD PLAN 620.10) INSTALLED WHERE CENTERLINE STRIPING HAS BEEN COVERED OR REMOVED. SIGNS ARE TO REMAIN IN PLACE UNTIL THE PERMANENT CENTERLINE PAVEMENT MARKINGS ARE IN PLACE. SIGNS SHALL BE COVERED OR REMOVED WHEN PAVEMENT CENTERLINE MARKING HAS BEEN INSTALLED.

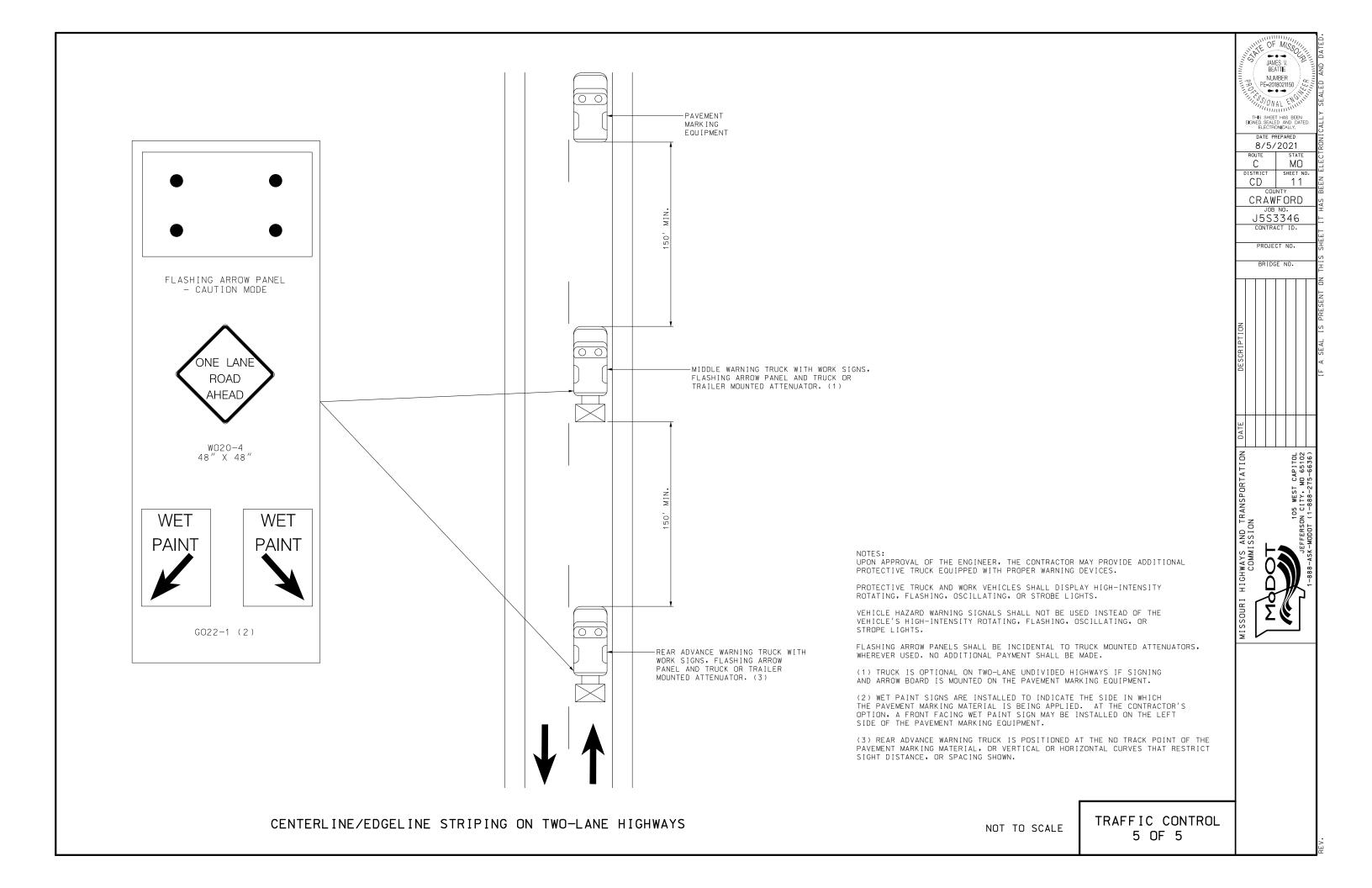
SIGN 35 IS PLACED AT APPROXIMATELY TWO-MILE INTERVALS AND AT STATE ROUTE JUNCTIONS. WHEN THE INSTALLATION AT A JUNCTION IS WITHIN ONE-EIGHTH MILE OF THE NORMAL MAINLINE SIGN 35. THE LATTER MAY BE ELIMINATED.

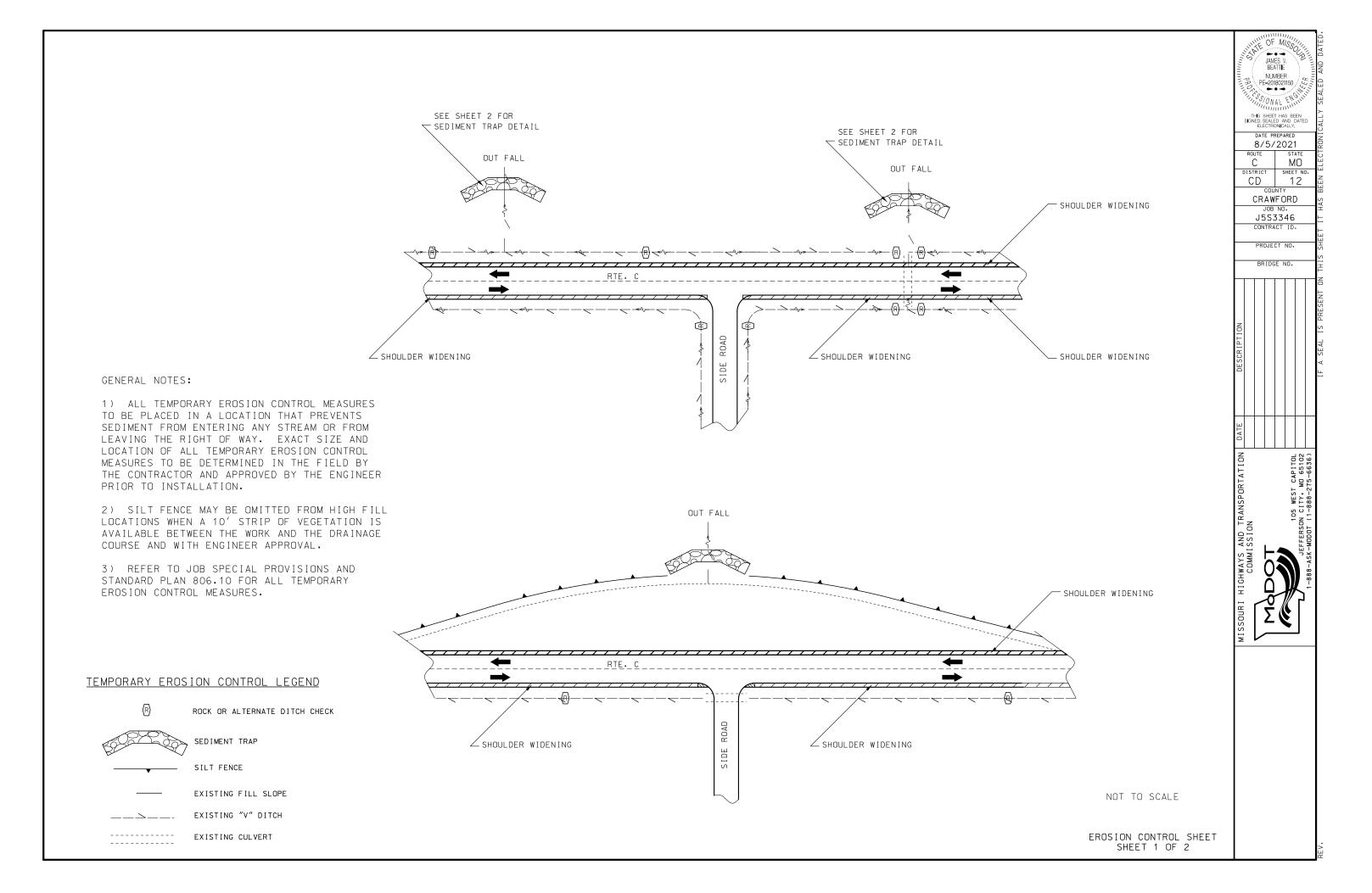
ALL SIGNS SHALL BE POST MOUNTED AND IN ACCORDANCE WITH STANDARD PLAN 616.10 AND 903.03.

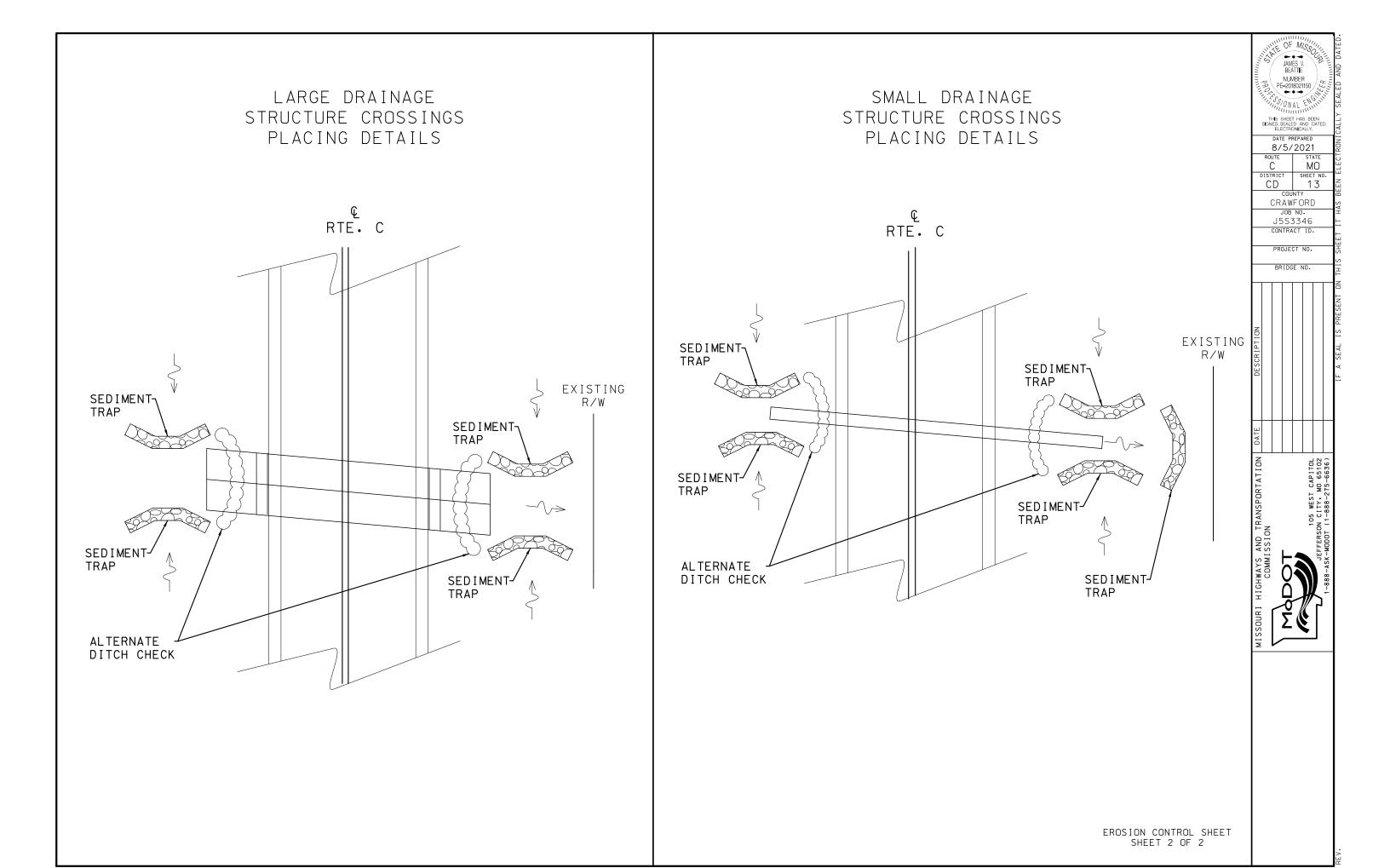
TRAFFIC CONTROL 4 OF 5

NOT TO SCANDET TO SCALE

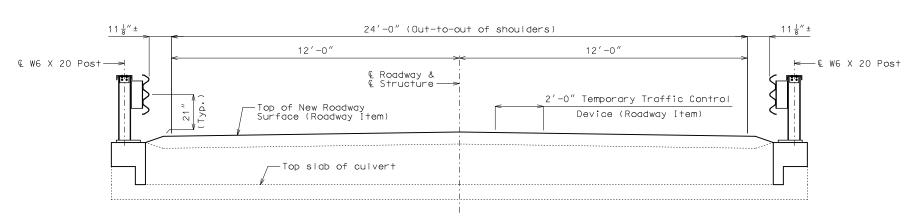




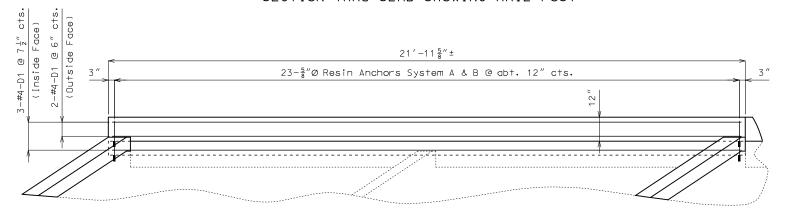




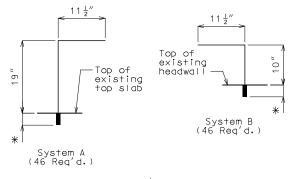
U.I.P. AND REHAB EXISTING 2(8' X 9.5') CONCRETE BOX CULVERT (SKEW: 35° L.A.)



SECTION THRU SLAB SHOWING RAIL POST



TYPICAL PART ELEVATION OF EXISTING BOX CULVERT SHOWING NEW HEADWALL REINFORCEMENT



* Manufacturer's recommended embedment length (5" min.)

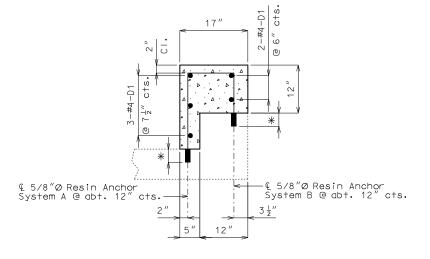
DETAILS OF RESIN ANCHOR SYSTEMS

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

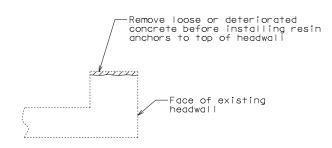
Cost of furnishing and installing the resin anchor systems for the headwall modification, complete in place, will be considered completely covered by the contract unit price for Headwall Modification.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor systems shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5

A #5 Grade 60 reinforcing bar shall be substituted for the 5/8"Ø threaded rod.



SECTION THRU HEADWALL SHOWING REINFORCEMENT



SECTION THRU EXISTING HEADWALL SHOWING CONCRETE REMOVAL

GENERAL NOTES:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications

Design Unit Stresses:

Class B-1 Concrete Reinforcing Steel (Grade 60)

f'c = 4,000 psify = 60,000 psi

Standard Plans: 606.70

Miscellaneous:

Outline of existing work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

Bars banded in existing concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, existing bars shall extend into new concrete at least 40 diameters for plain bars and 30 diameters for deformed bars. Unless otherwise noted.

Traffic Handling:

Traffic to be maintained on existing structure during construction. See roadway plans for traffic control.

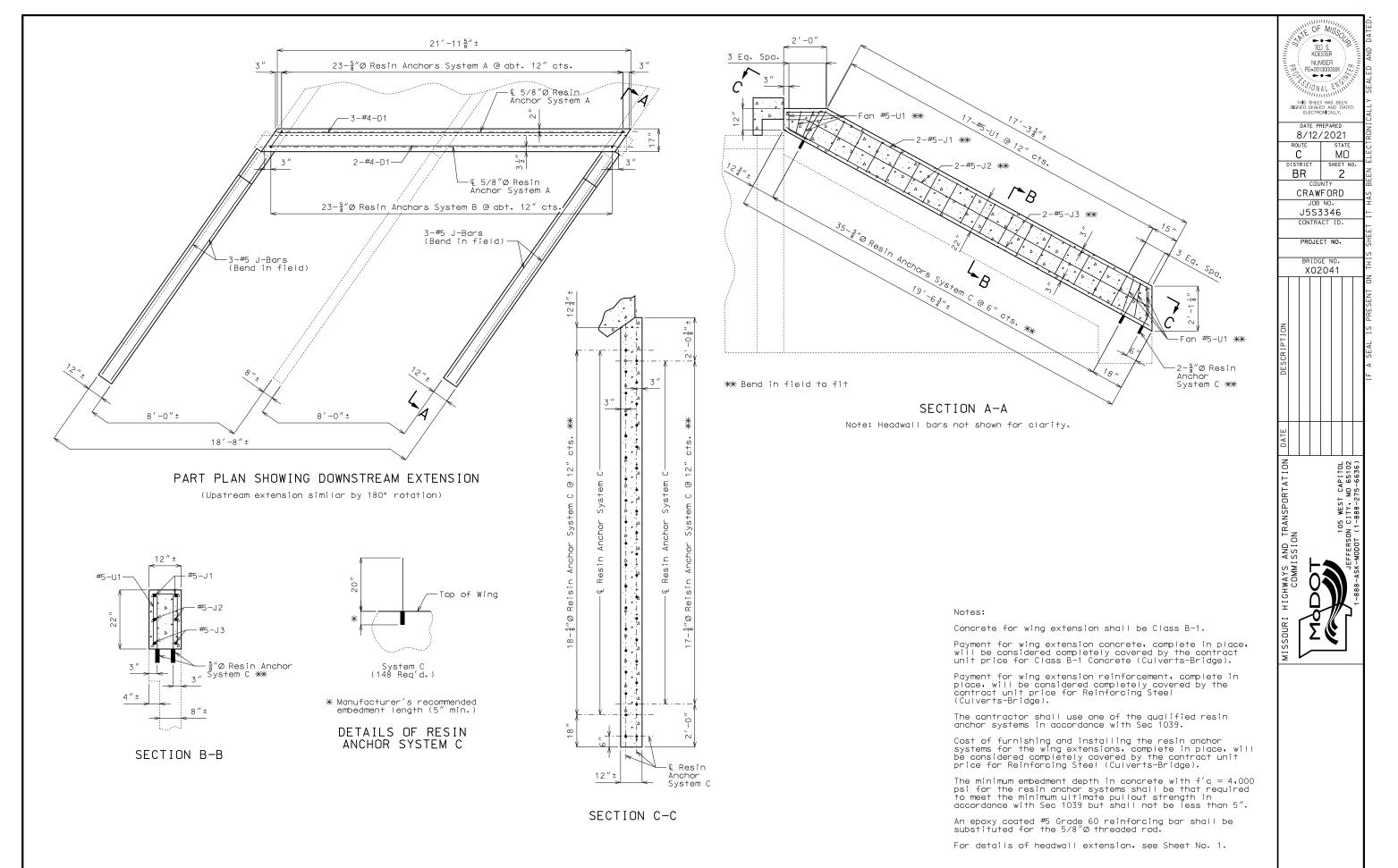
Estimated Quantities				
I+em		Total		
Class B-1 Concrete (Culverts-Bridge)	cu, yard	5.2		
Headwall Modification	linear foot	44		
Reinforcing Steel (Culverts-Bridge)	pound	840		
Bridge Guardrail (Thrie Beam)	linear foot	38		

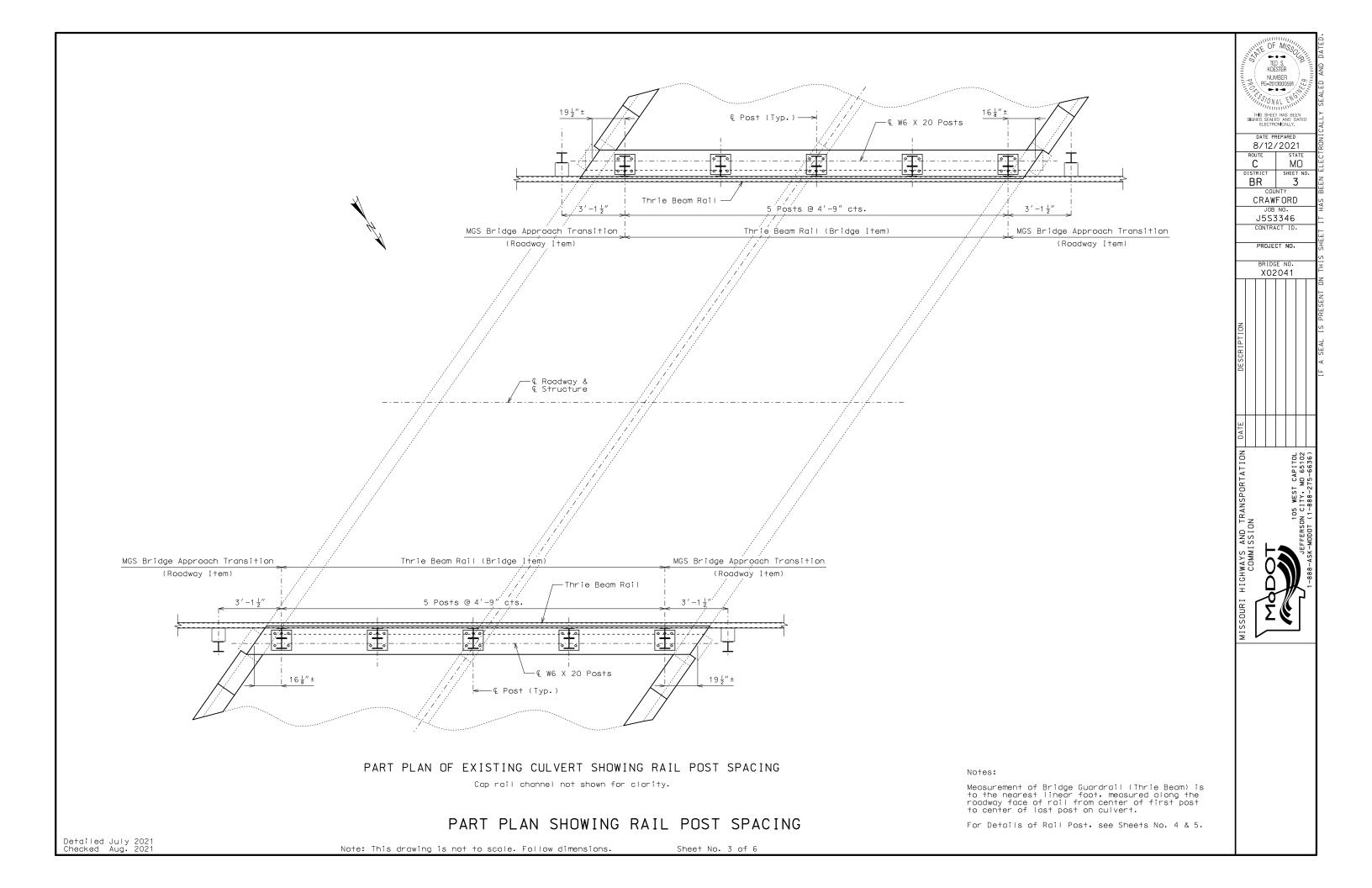
REPAIRS TO BRIDGE: ROUTE C OVER BRANCH RECTOR CREEK

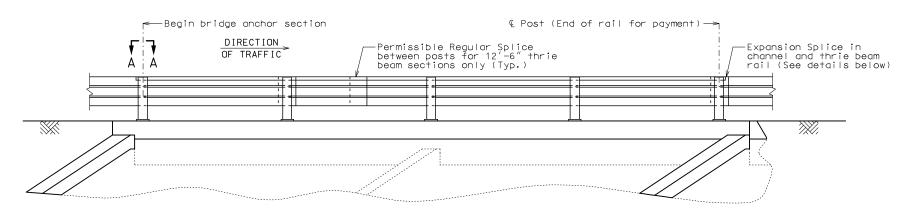
ROUTE C FROM ROUTE P TO ROUTE I-44 ABOUT 2.1 MILES EAST OF ROUTE P BEG. STA. 332+97.01 ± (MATCH EXISTING)

PE-2013000591 INTOSONAL EN 8/12/2021 С MΩ DISTRICT SHEET NO BR 1 CRAWFORD J5S3346 CONTRACT ID PROJECT NO. BRIDGE NO X02041 105 ON CI

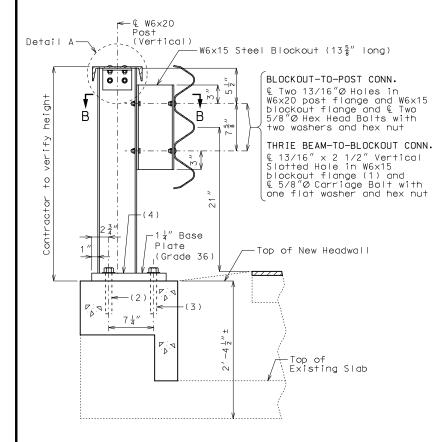
TED S. KOESTER NUMBER







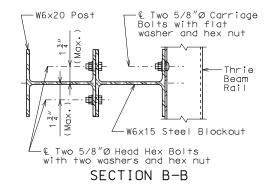
ELEVATION OF THRIE BEAM RAIL

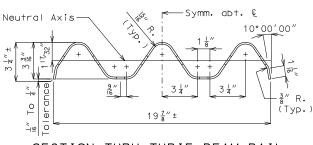


PART SECTION AT RAIL POST

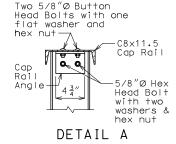
See front sheet for rail post spacing.

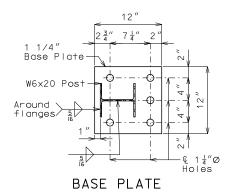
- (1) Required on one side of web only, but may be provided on both sides of web at the contractor's option.
- (2) & Two Resin Anchor Systems each to include:
 1 1/8"@ (Min.) Drilled Hole in slab or as recommended
- by manufacturer
 1 1/4"Ø Hole in plate
 1"Ø A449 Type 1 Threaded Rod snug tight and embedded 8 inches in headwall
 Hex Nut and 2 1/2" Hardened Locking Washer
- (3) & Three Resin Anchor Systems each to include: 1/8"Ø (Min.) Drilled Hole in slab or as recommended
 - by manufacturer
 - by manufacturer
 1 1/4"Ø Hole in plate
 1"Ø A449 Type 1 Threaded Rod snug tight and embedded 8 inches in headwall
 Hex Nut and 2 1/2" Hardened Locking Washer
- (4) Bevel bottom of post (slope 2% or slab elevation).

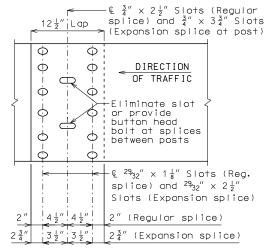




SECTION THRU THRIE BEAM RAIL







THRIE BEAM RAIL SPLICE

General Notes:

Design Specifications: 2002 AASHTO LFD (17th Ed.) Standard Specifications

Guardrail delineators shall be attached to the top of the guardrail and shall similarly use the delineator details of Missouri Standard Plan 617.10, except that details of Missouri Standard Plan 617.10, except that the delineator body shall be attached to the top of the cap rail using galvanized anchorage as shown on Missouri Standard Plan 606.00. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Guardrail delineators will be considered completely covered by the contract unit price for Bridge Guardrail (Thrie Beam).

Panel lengths of channel members shall be attached continuously to a minimum of four posts and a maximum of six posts (except at end bents).

All bolts, nuts, washers, plates and elastomeric material will be considered completely covered by the contract unit price for Bridge Guardrail (Thrie Beam).

All steel connecting bolts and fasteners for posts and railing, and all anchor bolts, nuts, washers and plates shall be galvanized after fabrication. Protective coating and material requirement of steel railing shall be in accordance with Sec 1040.

Rail posts shall be set perpendicular to roadway profile grade, vertically in cross section and aligned in accordance with Sec 713 except that the rail posts shall be aligned by the use of 3 x 1 3/4-inch shims such that the post deviates not more than 1/2 inch from true horizontal alignment after final adjustment. The shims shall placed between the blockout and the thrie beam rail. The thickness of the shims shall be determined by the contractor and verified by the engineer before ordering material for this work.

Rail posts shall be seated on 1/16-inch elastomeric pads having the same dimensions as the post base plate. Such pads may be any elastomeric material, plain or fibered, having a hardness (durometer) of 50 or above, as certified by the manufacturer. Additional pads or half pads may be used in shimming for alignment. Post heights shown will increase by the thickness of the pad.

At the expansion slots in the thrie beam rails and channels, the bolts shall be tightened and backed off one-half turn and the threads shall be burred.

Minimum length of thrie beam sections is equal to one

A 5/8-inch diameter button-head, oval shoulder bolt with a minimum 3/8-inch thick hex nut shall be used at all slots.

Thrie beam guardrail on the bridge shall be 12-guage steel.

Posts, cap rail angles, base plates, channels and channel splice plates shall be fabricated from ASTM A709 Grade 36 steel and galvanized.

Flat washers 3 \times 1 3/4 \times 3/16-inch minimum shall be used at all post bolts between the bolt head and beam. washers shall be rectangular in shape with an 11/16 \times 1-inch slot, or when necessary of such design as to fit the contour of the beam. Rectangular washers 3 \times 1 3/4 \times 5/8-inch shall be used between the blockout and the

Special drilling of the thrie beam may be required at the splices. All drilling details shall be shown on the shop drawings.

Fabrication of structural steel shall be in accordance with Sec 1080.

Expansion splices in the thrie beam rail shall be made at either the first or second post on either side of the joint and on structure at bridge ends. When the splice is made at the second post, an expansion slot shall be provided in the thrie beam rail for connection to the first post to allow for movement.

In addition to the expansion provisions at the expansion joints, expansion splices in the thrie beam rail and the channel shall be provided at other locations so that the maximum length without expansion provisions does

Shim plates $6 \times 6 \times 1/16$ —inch may be used between the top of the post and the channel member as required for vertical alignment.

Shim plates shall be galvanized after fabrication.

See Missouri Standard Plan 606.00 for details not shown

OF MISS ---TED S. KOESTER NUMBER PE-2013000591 SSIONAL E

8/12/2021 MΩ DISTRICT SHEET NO BR 4

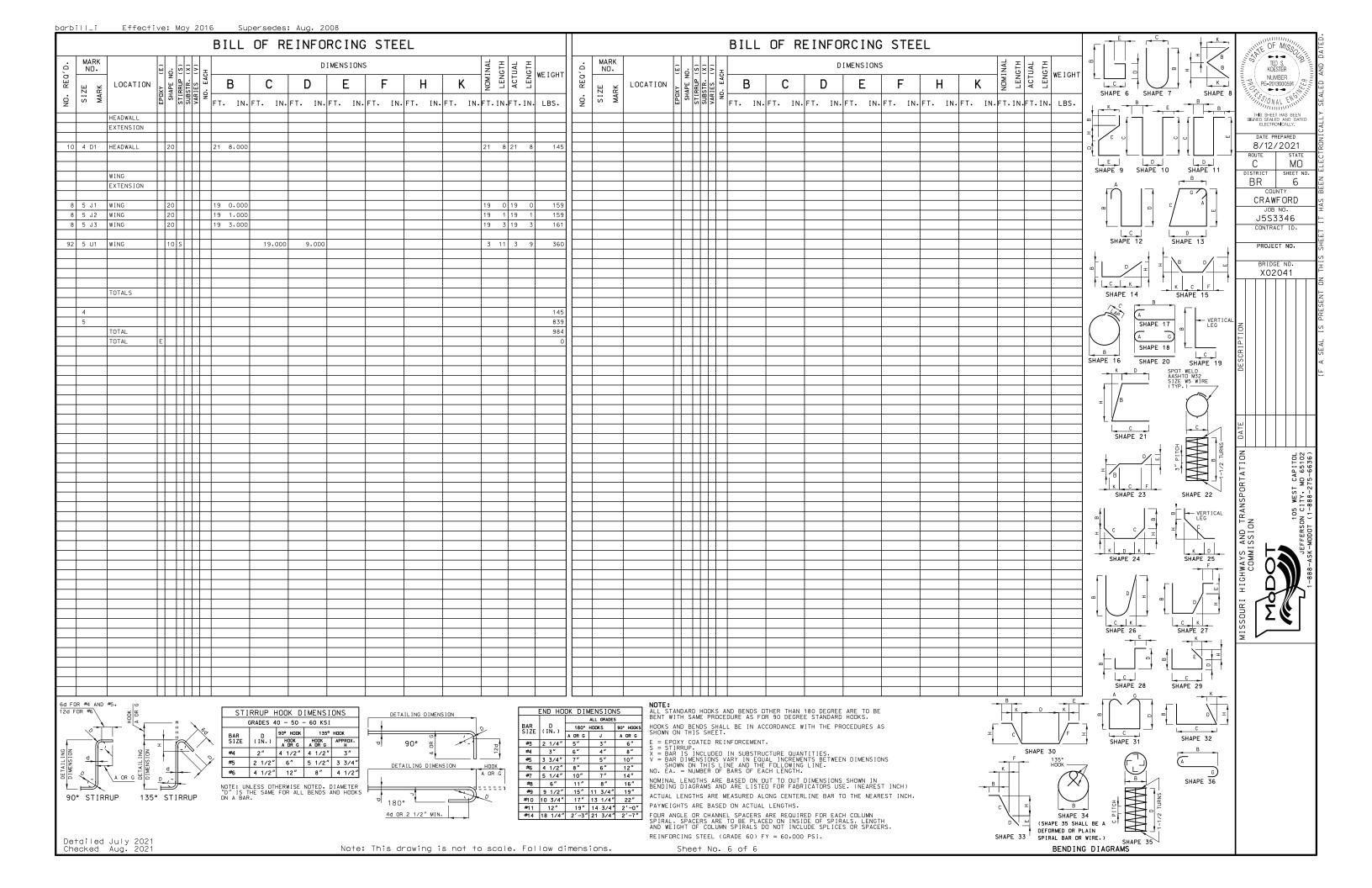
CRAWFORD J5S3346

CONTRACT ID PROJECT NO.

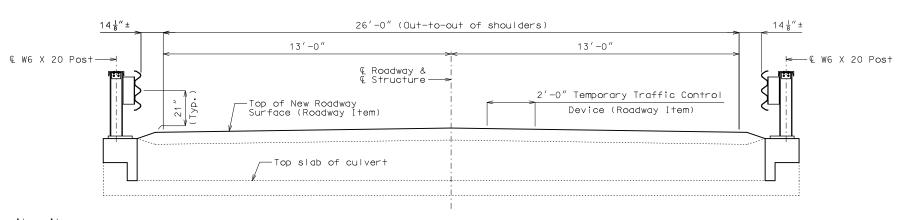
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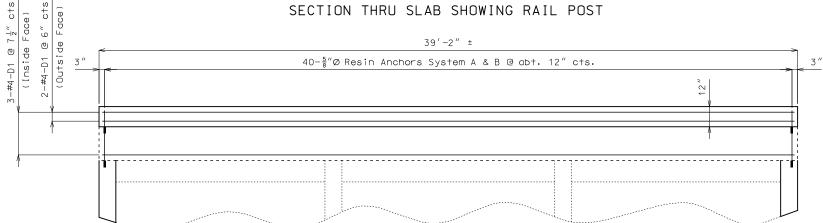
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105 ON CI



U.I.P. AND REHAB EXISTING 3(12' X 9.5') CONCRETE BOX CULVERT





TYPICAL PART ELEVATION OF EXISTING BOX

CULVERT SHOWING NEW HEADWALL REINFORCEMENT Top of existing -Top of existing top slab System B (80 Req'd.) System A (80 Req'd.)

* Manufacturer's recommended embedment length (5" min.)

DETAILS OF RESIN ANCHOR SYSTEMS

Notes:

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Cost of furnishing and installing the resin anchor systems for the headwall modification, complate in place, will be considered completely covered by the contract unit price for Headwall Modification.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor systems shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

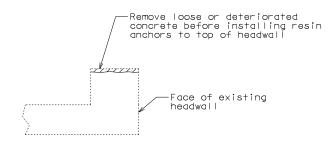
A #5 Grade 60 reinforcing bar shall be substituted for the $5/8\,^{\prime\prime}$ Ø threaded rod.

SECTION THRU HEADWALL SHOWING REINFORCEMENT

12"

€ 5/8″Ø Resin Anchor System A @ abt. 12″ cts.

-⊊ 5/8″Ø Resin Anchor System B @ abt. 12″ cts.



SECTION THRU EXISTING HEADWALL SHOWING CONCRETE REMOVAL

GENERAL NOTES:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications

Design Unit Stresses:

Class B-1 Concrete f'c = 4,000 psiReinforcing Steel (Grade 60) Standard Plans:

606.70

Miscellaneous:

Outline of existing work is indicated by light dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

Bars banded in existing concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, existing bars shall extend into new concrete at least 40 diameters for plain bars and 30 diameters for deformed bars. Unless otherwise noted.

Traffic Handling:

Traffic to be maintained on existing structure during construction. See roadway plans for traffic control.

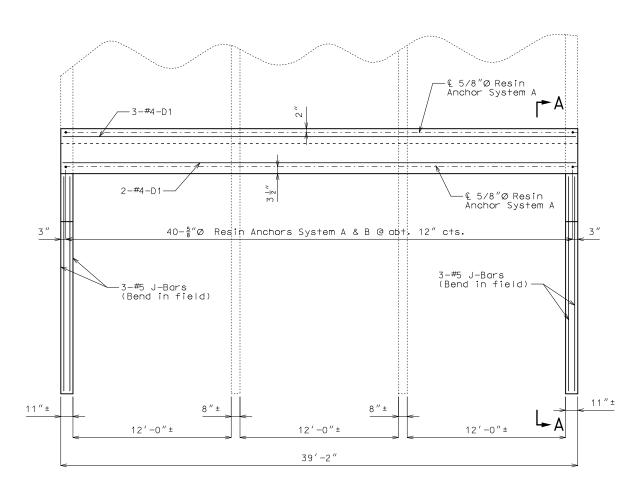
Estimated Quantities				
I+em		Total		
Class B-1 Concrete (Culverts-Bridge)	cu, yard	4.7		
Headwall Modification	linear foot	78		
Reinforcing Steel (Culverts-Bridge)	pound	730		
Bridge Guardrail (Thrie Beam)	linear foot	72		

OVER THREE MILE CREEK

ROUTE C FROM ROUTE P TO ROUTE I-44 ABOUT 0.3 MILES EAST OF ROUTE P TIE STATION 425+93.67 ± (MATCH EXISTING)

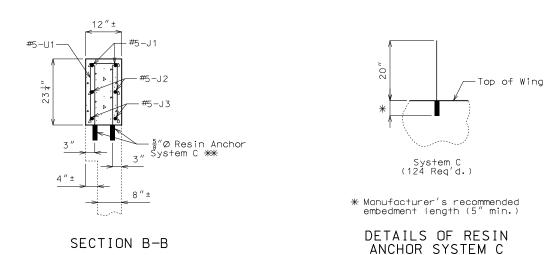
TED S. KOESTER NUMBER PE-2013000591 INTESTONAL EN 8/12/2021 С MΩ DISTRICT SHEET NO BR 1 CRAWFORD J5S3346 CONTRACT ID PROJECT NO. X02051 105 ON CI

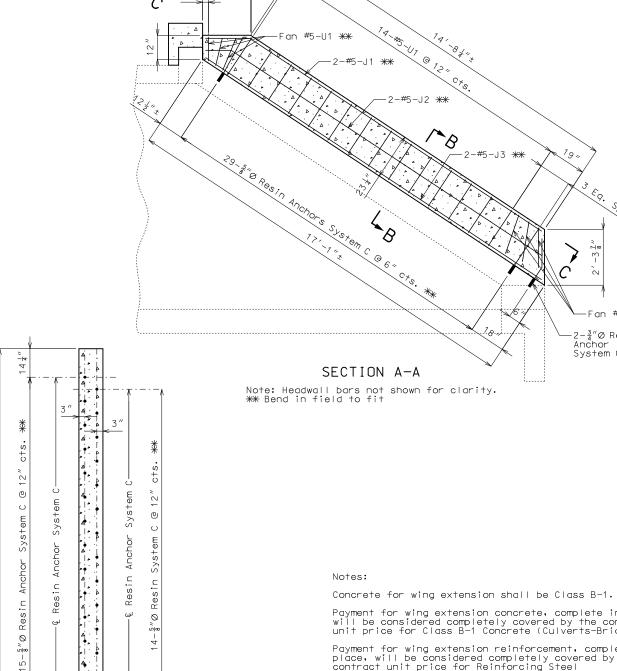
REPAIRS TO BRIDGE: ROUTE C



PART PLAN SHOWING DOWNSTREAM EXTENSION

(Upstream extension similar by 180° rotation)





3 Eq. Spa.

Payment for wing extension concrete, complete in place, will be considered completely covered by the contract unit price for Class B-1 Concrete (Culverts-Bridge).

TED S. KOESTER

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8/12/2021

CRAWFORD

J5S3346

CONTRACT ID

PROJECT NO. BRIDGE NO

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DISTRICT

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-Fan #5-U1 **

 $2-\frac{3}{4}$ Ø Resin

Anchor System C **

Payment for wing extension reinforcement, complete in place, will be considered completely covered by the contract unit price for Reinforcing Steel

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

Cost of furnishing and installing the resin anchor systems for the wing extensions, complete in place, will be considered completely covered by the contract unit price for Reinforcing Steel (Culverts-Bridge).

The minimum embedment depth in concrete with f'c = 4,000psi for the resin anchor systems shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

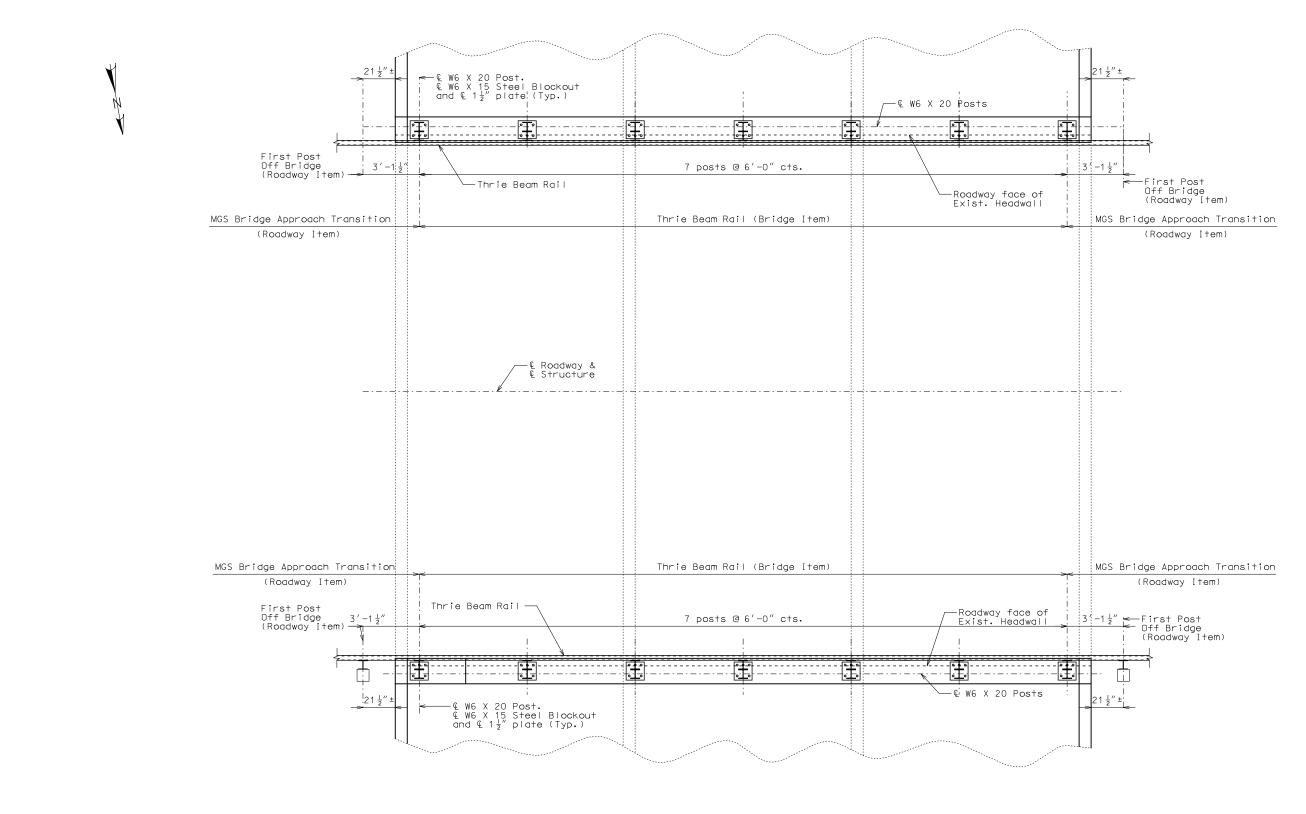
An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the $5/8\,^{\prime\prime}\text{Ø}$ threaded rod.

For details of headwall extension, see Sheet No. 1.

SECTION C-C

Resin

Anchor System C



PART PLAN OF EXISTING CULVERT SHOWING RAIL POST SPACING

Cap rail channel not shown for clarity.

PART PLAN SHOWING RAIL POST SPACING

Notes:

Measurement of Bridge Guardrail (Thrie Beam) is to the nearest linear foot, measured along the roadway face of rail from center of first post to center of last post on culvert.

For Details of Rail Post, see Sheets No. 4 & 5.

Detailed July 2021 Checked Aug. 2021

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

Sheet No. 3 of 6



COUNTY
CRAWFORD
JOB NO.
J5S3346
CONTRACT ID.

PROJECT NO.

BRIDGE NO.
X02051

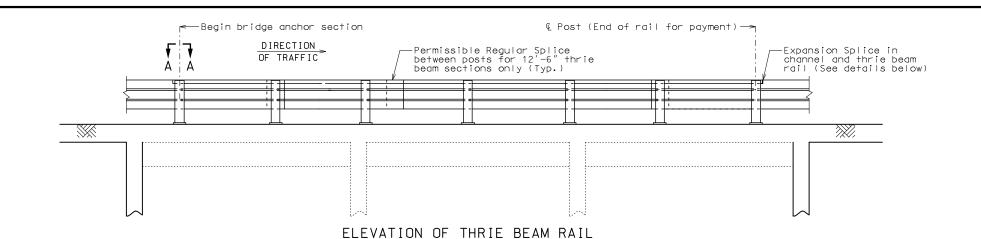
COMMISSION

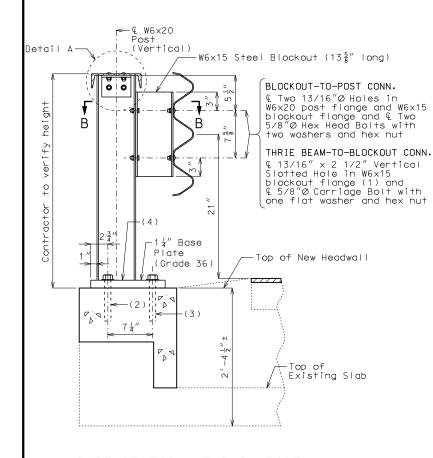
COMMISSION

105 WEST CAPITOL

LIFFERSON CITY, MD 65102

MISSOURI HIGHWAYS AND TRA





PART SECTION AT RAIL POST

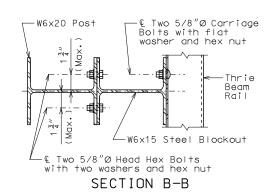
See front sheet for rail post spacing.

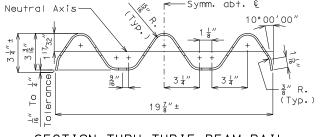
- (1) Required on one side of web only, but may be provided on both sides of web at the contractor's option.
- (2) © Two Resin Anchor Systems each to include: 1/8"Ø(Min.) Drilled Hole in slab or as recommended by manufacturer

 - 1 1/4"Ø Hole in plate 1"Ø A449 Type 1 Threaded Rod snug tight and embedded 8 inches in headwall
 - Hex Nut and 2 1/2" Hardened Locking Washer
- (3) & Three Resin Anchor Systems each to include: 1 1/8"Ø (Min.) Drilled Hole in slab or as recommended by manufacturer

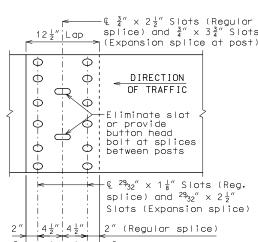
 - 1¹/4"Ø Hole in plate 1"Ø A449 Type 1 Threaded Rod snug tight and

 - embedded 8 inches in headwall Hex Nut and 2 1/2" Hardened Locking Washer
- (4) Bevel bottom of post (slope 2% or slab elevation).





SECTION THRU THRIE BEAM RAIL



THRIE BEAM RAIL SPLICE

General Notes:

Design Specifications: 2002 AASHTO LFD (17th Ed.) Standard Specifications

Guardrail delineators shall be attached to the top of the guardrail and shall similarly use the delineator details of Missouri Standard Plan 617.10, except that the delineator body shall be attached to the top of cap rail using galvanized anchorage as shown on Missour Standard Plan 606.00. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Guardrail delineators will be considered completely covered by the contract unit price for Bridge Guardrail (Thrie Beam).

Panel lengths of channel members shall be attached continuously to a minimum of four posts and a maximum of six posts (except at end bents).

All bolts, nuts, washers, plates and elastomeric material will be considered completely covered by the contract unit price for Bridge Guardrail (Thrie Beam).

All steel connecting bolts and fasteners for posts and railing, and all anchor bolts, nuts, washers and plates shall be galvanized after fabrication. Protective coating and material requirement of steel railing shall be in accordance with Sec 1040.

Rail posts shall be set perpendicular to roadway profile grade, vertically in cross section and aligned in accordance with Sec 713 except that the rail posts shall be aligned by the use of 3 \times 1 3/4-inch shims such that the post deviates not more than 1/2 inch from true horizontal alignment after final adjustment. The shims shall placed between the blockout and the thrie beam rail. The thickness of the shims shall be determined by the contractor and verified by the engineer before ordering material for this work.

Rail posts shall be seated on 1/16-inch elastomeric pads having the same dimensions as the post base plate. Such pads may be any elastomeric material, plain or fibered, having a hardness (durometer) of 50 or above, as certified by the manufacturer. Additional pads or half pads may be used in shimming for alignment. Post heights shown will increase by the thickness of the pad.

At the expansion slots in the thrie beam rails and channels, the bolts shall be tightened and backed off one-half turn and the threads shall be burred.

Minimum length of thrie beam sections is equal to one post space.

A 5/8-inch diameter button-head, oval shoulder bolt with a minimum 3/8-inch thick hex nut shall be used at all

Thrie beam guardrail on the bridge shall be 12-guage steel.

Posts, cap rail angles, base plates, channels and channel splice plates shall be fabricated from ASTM A709 Grade 36 steel and galvanized.

Flat washers 3 \times 1 3/4 \times 3/16-inch minimum shall be used at all post bolts between the bolt head and beam. The washers shall be rectangular in shape with an 11/16 1-inch slot, or when necessary of such design as to fit the contour of the beam. Rectangular washers 3 \times 1 3/4 \times 5/8-inch shall be used between the blockout and the thrie beam rail.

Special drilling of the thrie beam may be required at the splices. All drilling details shall be shown on the shop drawinas.

Fabrication of structural steel shall be in accordance with Sec 1080.

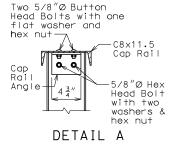
Expansion splices in the thrie beam rail shall be made either the first or second post on either side of the ioint and on structure at bridge ends. When the splice is made at the second post, an expansion slot shall be provided in the thrie beam rail for connection to the first post to allow for movement.

In addition to the expansion provisions at the expansion joints, expansion splices in the thrie beam rail and the channel shall be provided at other locations so that the maximum length without expansion provisions does not exceed 200 feet.

Shim plates 6 \times 6 \times 1/16-inch may be used between the top of the post and the channel member as required for vertical alianment.

Shim plates shall be galvanized after fabrication.

See Missouri Standard Plan 606.00 for details not shown.



12"

-⇔

2 3 " 7 1 "

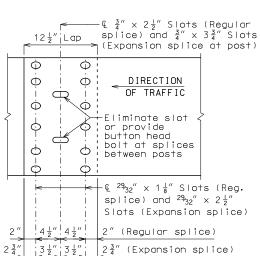
BASE PLATE

1/4"

Base Plate

W6x20 Post

Around flanges/







8/12/2021 С MΩ

DISTRIC SHEET NO BR 4 CRAWFORD

CONTRACT ID PROJECT NO.

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