DESIGN DESIGNATION

A.A.D.T. - 2017 = 14.911A.A.D.T. - 2036 = 20.875T = 13.0%V = 45 M.P.H.

FUNCTIONAL CLASSIFICATION - PRINCIPAL ARTERIAL

NO NEW RIGHT-OF-WAY WILL BE ACQUIRED FOR THIS PROJECT

CONVENTIONAL SYMBOLS

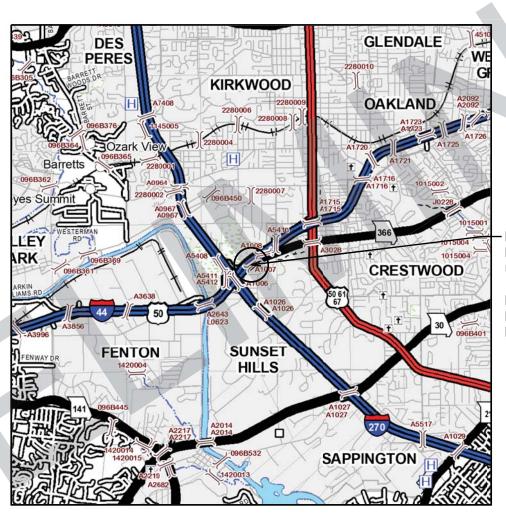
(USED IN PLANS	.)	
	EXISTING	NE W
BUILDINGS AND STRUCTURES GUARD RAIL CONCRETE RIGHT-OF-WAY MARKER STEEL RIGHT-OF-WAY MARKER LOCATION SURVEY MARKER	00000 171 171 171	·····
UTILITIES FIBER OPTICS OVERHEAD TELEPHONE UNDERGROUND TELEPHONE OVERHEAD POWER UNDERGROUND POWER GAS WATER	-F0- 	-F0
MANHOLE	HAZ H	\rightarrow
FIRE HYDRANT	HAD	1
WATER VALVE	wv_C	→ \
WATER METER	wм ⊕	€
DROP INLET	Ē	Ī
DITCH BLOCK	-	-
GROUND MOUNTED SIGN	SIGN	-
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL FENCE CHAIN LINK WOVEN WIRE GATE POST	PED V	/ ————————————————————————————————————
BENCHMARK	BM	

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

NOT TO SCALE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION FINAL PLANS FOR PROPOSED STATE HIGHWAY

ST. LOUIS COUNTY SEC 14 TWP 44 N RGE 5 E



PROJECT LOCATION REPLACE BRIDGE A1007 OVER EAST BOUND RAMP TO I-44 WITH BRIDGE A8580 BRIDGE, PAVING, AND MSE WALL A8695 &A8696

INDEX OF SHEETS

	DESCRIPTION	SHEET NUMBE
	TITLE SHEET	1
	TYPICAL SECTIONS (TS) (1 SHEET)	2
	QUANTITIES (QU) (3 SHEETS)	3
	PLAN-PROFILE (PP)	4
	COORDINATE POINTS (CP)	5
	TRAFFIC CONTROL SHEETS (TC)	6-8
	EROSION CONTROL (EC)	9
	SIGNING & PAVEMENT MARKING (SN) BRIDGE DRAWINGS (B)	10
	A8580	1-38
	MSE WALL A8695	1 –5
$\overline{}$	MSE WALL A8696	1 –4
	CROSS SECTIONS (XS) MO 366 E	- 1-10

NOT BE CONSIDERED A CERTIFIED DOCUMENT."								
		DAT	E PI	REPA	RED			ECTRONICALLY SEALED
			/3,	/20	21			Va.
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		CON	TRA	CT	ID			CHEFT 1T
		PR	JE	СТ	NO.			
		BR	IDG	E N	ın.			2
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DESCRIPTION								17 45
ESC								<
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DATE								

"THIS MEDIA SHOULD

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA.	7+50.00		
END OF PROJECT	STA.	18+75.00		
APPARENT LENGTH		1125.00	FEET	
EQUATIONS AND EXCEPTIONS:		NONE		

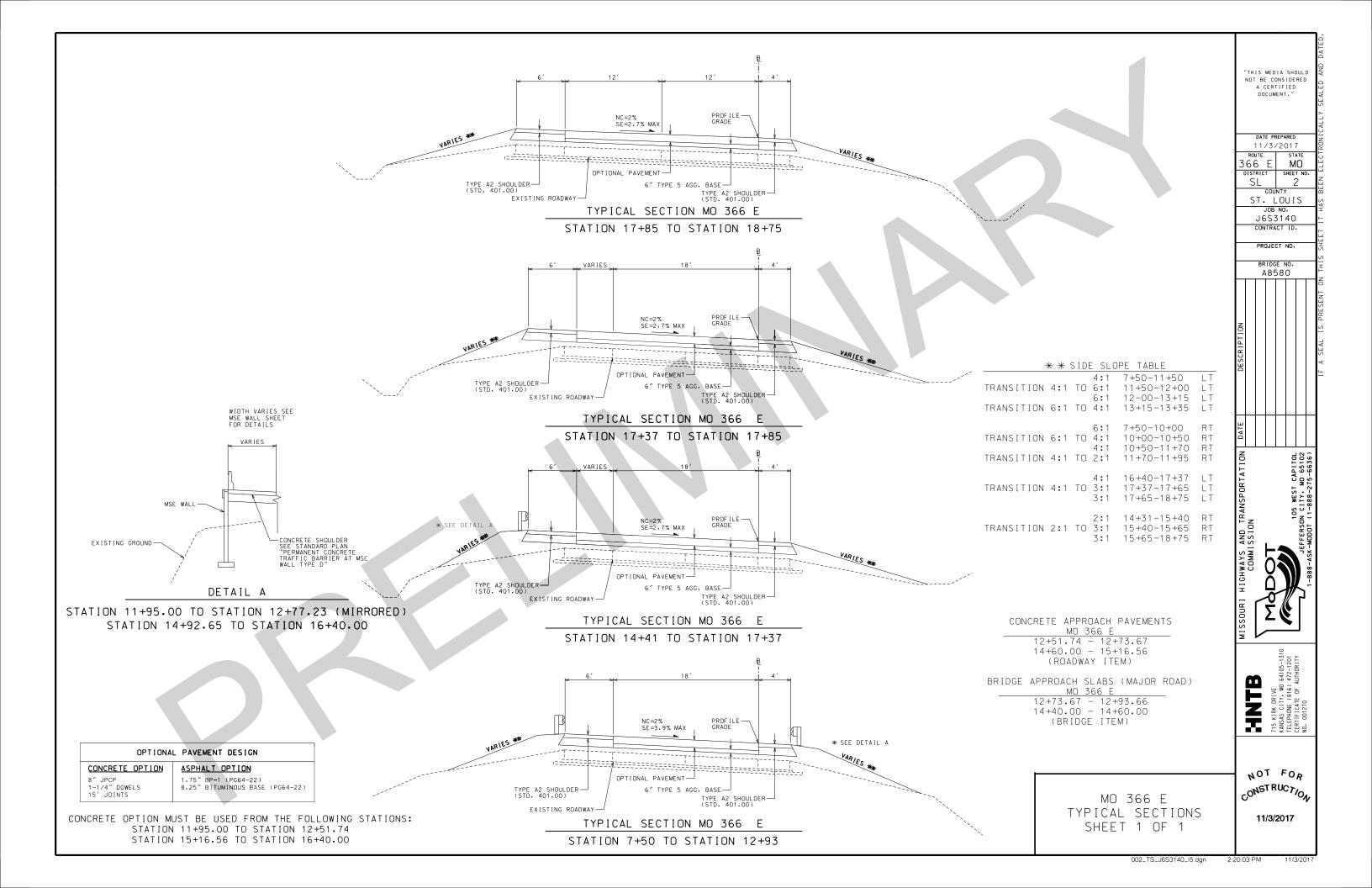


TOTAL CORRECTIONS NET LENGTH OF PROJECT STATE LENGTH

0.00 FEET 1125.00 FEET 0.21 MILES

CONSTRUCTION 11/3/2017

001_TITLE_J6S3140_ITITLESHEET.dgn 2:19:45 PM



MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUMMARY OF QUANTITIES

	CLEARING AND GRUBBING, AND SEEDING									
SHEET	FROM STATION	TO STATION	ROADWAY	CLEARING AND GRUBBING (ACRES)	SEEDING BERMUDA GRASS (ACRES)	REMARKS				
4	7+50.00	13+43.00	MO 366 E	0.6	0.6					
4	14+23.00	18+75.00	MO 366 E	0.3	0.3					
			SUBTOTAL	0.9	0.9					
			TOTAL	1	0.9					

	PAVEMENT, SHOULDER, AND BASE										
SHEET	FROM STATION	TO STATION	ROADWAY	LOCATION	OPTIONAL PAVEMENT (SY)	8″JPCP (SY)	TYPE 5 AGGREGATE FOR BASE (6IN. THICK) (SY)	A2 SHOULDER (SY)	CONCRETE APPROACH PAVEMENT (SY)	REMARKS	
4	7+50.00	11+95.00	MO 366 E	RT./LT.	892.2		1387	495.0			
4	11+95.00	12+51.74	MO 366 E	RT./LT.		138.8	177	37.8		A2 SHOULDER LEFT SIDE ONLY	
4	15+16.56	16+40.00	MO 366 E	RT./LT.		353.8	409	55.0		A2 SHOULDER RIGHT SIDE ONLY	
4	16+40.00	18+75.00	MO 366 E	RT./LT.	608.6		871	262.7			
4	12+51.74	12+73.67	MO 366 E	RT./LT.					122.1		
4	14+60.00	15+16.56	MO 366 E	RT./LT.		<u> </u>		_	122.5		
			TOTAL	FOR PLANS	1500.8	492.6	2844	850.5	244.6		

	GUARDRAIL									
PLAN SHEET NO.	STATION	STATION	ROADWAY	LOCATION	MGS BRIDGE APPROACH TRANSITION SECTION (EA)	TYPE A CRASHWORTHY END SECTION (MASH) (EA)	TERMINAL	HEIGHT AND BLOCK TRANSITION (EA)	MGS	REMARKS
4	7+50.00	13+23.23	MO 366 E	LT.	1	0	0	1	511	
4	7+96.00	11+95.00	MO 366 E	RT.	1	1	0	0	311	
4	16+40.00	17+37.00	MO 366 E	LT.	1	0	1	0	47	
				Totals	3	1	1	1	868	

					EARTHWORK	(
SHEET	FROM STATION	TO STATION	ROADWAY	LOCATION	CLASS A EXCAVATION C.Y.	CLASS C EXCAVATION C.Y.		EMBANKMENT IN PLACE C.Y.	REMARKS
XS	7+50.00	18+75.00	MO 366 E	LT. & RT.	344	702	275	4736	
				TOTAL	344	702	275	4736	

	COMPACTING IN CUT										
	FROM	TO									
SHEET	STATION	STATION	ROADWAY	LENGTH	REMARKS						
XS	7+50.00	9+00.00	MO 366 E	1+50							
XS	17+00.00	18+75.00	MO 366 E	1+75							
			TOTAL	3+25							

			PERMANENT CC	NCRETE BARR	RIER	
SHEET	FROM STATION	TO STATION	ROADWAY	LOCATION	CONCRETE TRAFFIC BARRIER TYPE D (LF)	REMARKS
4	11+95.00	12+74.73	MO 366 E	RT.	80	
4	14+81.56	16+40.00	MO 366 E	LT.	158	
4	14+33.07	14+53.07	MO 366 E	RT.	20	
			·	TOTAL	258	

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	мов	ΙLΙ	ZATI	ON		7	
						1	
PAY TOTA	L			1	LUMP	SUM	

	CONTRACTOR	FURNISHED	SURVEYING
1	PAY TOTAL		1 LUMP SUM

CONCF	RETE	MASON	NRY AN	ID PRO	ГЕСТІ	ON	SYSTE	М
	INCL	UDES	BOTH	A8695	AND	869	16	
	PAY	TOTAL			1 LUM	- SU	М	

SACRIFICIAL GRAFFIT	I PROTECTION SYSTEM
INCLUDES BOTH	A8695 AND 8696
PAY TOTAL	1 LUMP SUM

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11/3/2017

ROUTE STATE

366 E MO

DISTRICT SHEET NO

SL 3 SHEET NO. ST. LOUIS

JOB NO.
J6S3140
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A8580

NOT FOR CONSTRUCTION 11/3/2017

MO 366 E QUANTITY SUMMARY SHEET 1 OF 3

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUMMARY OF QUANTITIES

							EROSION CONT	ROL				
SHEET	FROM STATION	TO STATION	ROADWAY	LOCATION	SILT FENCE LF	ROCK DITCH CHECK LF	SEDIMENT REMOVAL CY	TYPE 1 TURF REINFORCEMENT MAT SY	FURNISHING TYPE 2 ROCK BLANKET CY	PLACING TYPE 2 ROCK BLANKET CY	PERMANENT EROSION CONTROL GEOTEXTILE SY	REMARKS
10	7+50.00	13+45.00	MO 366 E	LT./RT.	1309	883	24					PROTECT EXISTING DITCHES WITH ROCK DITCH CHECKS
10	14+21.00	18+75.00	MO 366 E	LT./RT.	1001	1070	40				1	PROTECT EXISTING DITCHES WITH ROCK DITCH CHECKS
10	11+95.00	12+77.23	MO 366 E	RT.				37				
10	14+92.65	16+40.00	MO 366 E	LT.				66				
10	13+15.26	13+43.11	MO 366 E	LT.					116	116	175	
10	14+23.17	14+56.07	MO 366 E	RT.					81	81	120	
			•	TOTAL	2310	1953	64	102	197	197	295	

			PERMANEN	T PAVEMENT MARKI	NGS	
					ERBORNE PAVEMENT VITH TYPE L BEADS	
PLAN SHEET				6" SOLID WHITE	6" SOLID YELLOW	
NO.	STATION	STATION	ROADWAY	(LF)	(LF)	REMARKS
11	7+50	18+75	MO 366 E	1152	1125	INCLUDES INTERMITTENT STRIPING
			TOTAL	1152	1125	

	MSE WALLS											
	FROM	TO			MECHANICALLY STABILIZED EARTH WALL SYSTEMS							
SHEET	STATION	STATION	ROADWAY	LOCATION	(SF)	REMARKS						
4	11+95.00	12+77.23	MO 366 E	RT.	960							
4	14+92.65	16+40.00	MO 366 E	LT.	1797							
				TOTAL	2757							

				SIGNING		
	SIC	GNS				
			FLAT SHEET FLUORESCENT (SHF)			
SHEET	STATION	LOCATION	(SF)	REMARK	S	
11	-	LT.	6	SIGN 19 "45 M.P.H" MOUNTED TO OVERHEAD TRUSS APPR	ROXIMATELY 600' WEST OF PR	OJECT BEGINNING
		TOTAL	6			

				REMOVAL OF IMPROVEM	MENTS - 1 LUMP SUM
	FROM	TO			
SHEET	STATION	STATION	ROADWAY	LOCATION	REMARKS
4	7+50.00	13+35.00	MO 366 E	LT./RT.	PAVEMENT REMOVAL 1711 SY
4	14+31.00	18+75.00	MO 366 E	LT./RT.	PAVEMENT REMOVAL 1465 SY
4	7+96.36	12+51.21	MO 366 E	RT.	REMOVE 455' OF EXISTING GUARDRAIL
4	7+50.00	13+10.82	MO 366 E	LT.	REMOVE 561' OF EXISTING GUARDRAIL
4	15+07.53	17+37.13	MO 366 E	LT.	REMOVE 230' OF EXISTING GUARDRAIL
11	15+43.00	-	MO 366 E	RT.	REMOVE AND REINSTALL EXISTING DELINEATOR
11	16+46.00	-	MO 366 E	RT.	REMOVE AND REINSTALL EXISTING DELINEATOR
11	17+42.00	-	MO 366 E	RT.	REMOVE AND REINSTALL EXISTING DELINEATOR
4	7+50.00	-	MO 366 E	LT./RT.	18' SAW CUT
4	18+75.00	-	MO 366 E	LT./RT.	24' SAW CUT

	DRAINAGE											
SHEET	FROM STATION	TO STATION	ROADWAY	LOCATION	FURNISHING TYPE 1 ROCK DITCH LINER (CY)	TYPE 1 ROCK		REMARKS				
10	11+93.50	-	MO 366 E	RT.	3	3		DRAINAGE FLUME				
10	12+14.00	12+80.00	MO 366 E	RT.			1	36" CULVERT				
	TOTAL 3 3 1											

MO 366 E QUANTITY SUMMARY SHEET 2 OF 3

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THE PROJECT TO WHICH THIS PAGE REFERS.

DATE PREPARED								
11/3/2017								
ROUTE	STATE							
66 E	MO							
DISTRICT	SHEET NO.							
SL	3							
COU	NTY							
ST. LOUIS								
JOB	NO.							
J6S3	3140							

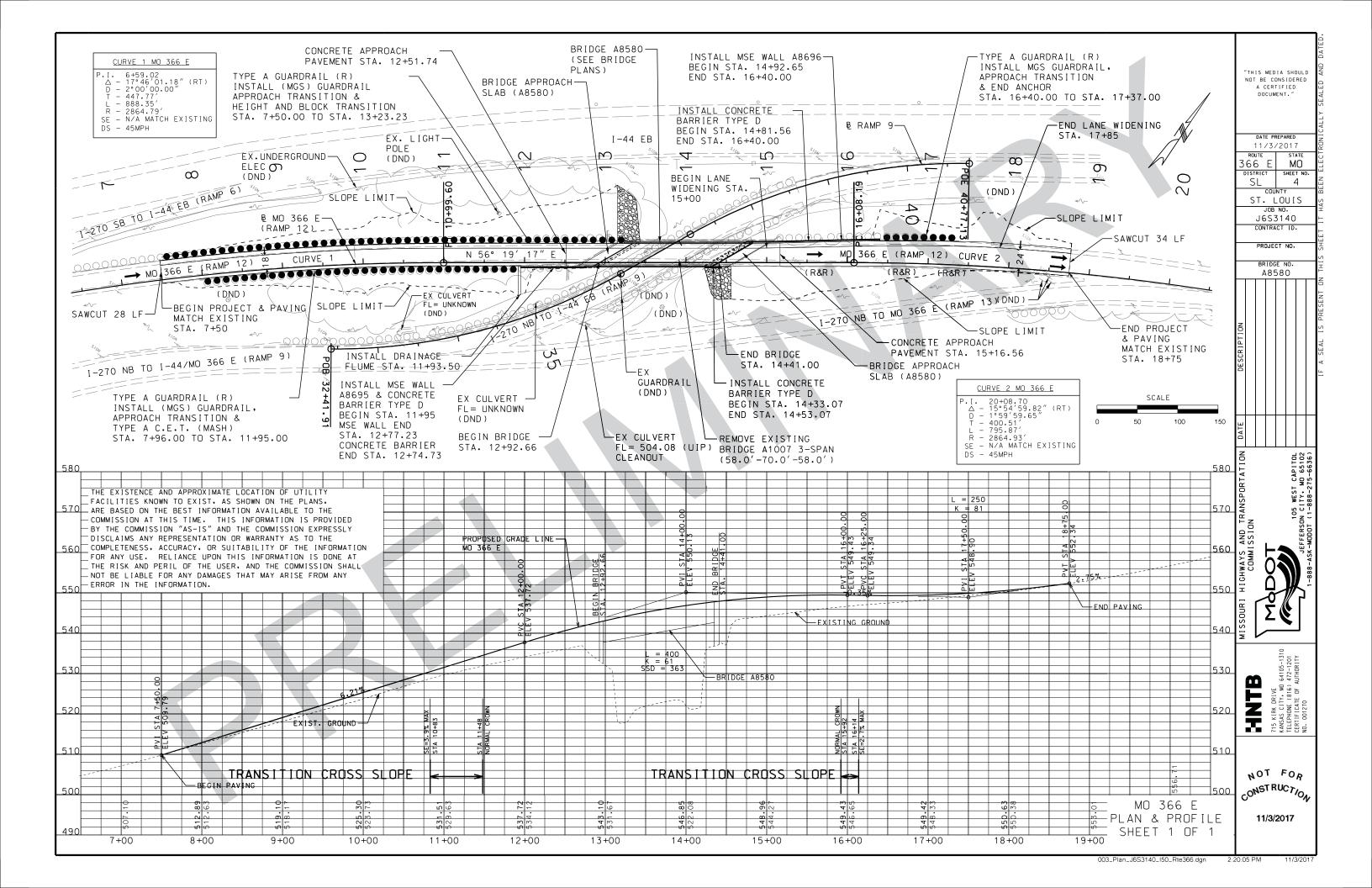
CONTRACT ID.

PROJECT NO.

BRIDGE NO.



SIGN	SIZE (IN.)	AREA (SQ. FT.)	TOTAL AREA	REL		ITAL LOC DESCRIPTION REA	SIGN	SIZE	ARE A	A QTY	TOTAL OTY AREA RELOC	RELOC AREA	DESCRIPTION	I TEM NUMBER	TOTAL QTY	DESCRIPTION	"THIS MEDIA SHO
					W.A	RNING SIGNS	W020-3	48X48		0			ROAD CLOSED AHEAD	6122008		IMPACT ATTENUATOR (8 SAND BARRELS)	A CERTIFIED DOCUMENT."
)1-1L	48X48					TURN (SYMBOL LEFT ARROW)	W020-3a	48X48					ROAD CLOSED 500 FT	6122009		IMPACT ATTENUATOR (9 SAND BARRELS)	4
)1-1R	48X48					TURN (SYMBOL RIGHT ARROW)	W020-4 W020-5	48X48 48X48		_	16 00		ONE LANE ROAD AHEAD	6122010 6122012		IMPACT ATTENUATOR (10 SAND BARRELS) IMPACT ATTENUATOR (12 SAND BARRELS)	-
)1-2L	48X48					CURVE (SYMBOL LEFT ARROW)	W020-5a	48X48			16.00	_	RIGHT/CENTER/LEFT LANE CLOSED AHEAD 2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD	6122012		IMPACT ATTENUATOR (14 SAND BARRELS)	
11-2R 11-3L	48X48					CURVE (SYMBOL RIGHT ARROW) REVERSE TURN (SYMBOL LEFT ARROW)	W020-6a	48X48					RIGHT/CENTER/LEFT LANE CLOSED	6122017		IMPACT ATTENUATOR (17 SAND BARRELS)	DATE PREPARED
11-3L 11-3R	48X48 48X48					REVERSE TURN (SYMBOL RIGHT ARROW)	W020-7a	48X48	_	_			FLAGGER (SYMBOL) WITH FLAGS	6122019		IMPACT ATTENUATOR (19 SAND BARRELS)	11/3/2017 ROUTE STA
)1-3K	48X48					REVERSE CURVE (SYMBOL LEFT ARROW)	W021-2	36X36					FRESH OIL	6122020		REPLACEMENT SAND BARREL	366 E M
1-4R	48X48					REVERSE CURVE (SYMBOL RIGHT ARROW)	W021-5	48X48		_			SHOULDER WORK AHEAD	6122030		IMPACT ATTENUATOR (RELOCATION)	DISTRICT SHEE
1-4bL	48X48					DOUBLE ARROW REVERSE CURVE (SYMBOL	W022-1	48X48	_				BLASTING ZONE AHEAD	6123000A	1	TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)	SL 3
1 102	10 / 10	10.00				LEFT ARROWS)	WO22-2	42X36	10.5	0			TURN OFF 2-WAY RADIO AND PHONE	6161007		SPEED LIMIT AND STROBE LIGHT ASSEMBLY	ST. LOUI
1-4bR	48X48	16.00				DOUBLE ARROW REVERSE CURVE (SYMBOL	WO22-3	42X36	10.5	0			END BLASTING ZONE	6161008		ADVANCED WARNING RAIL SYSTEM	JOB NO.
						RIGHT ARROWS)	W022-6e	21X15	2.1	9			WET PAINT (ARROW PIVOTS)	6161009	4	FLAG ASSEMBLY	J6S3140
1-4cL	48X48	16.00				TRIPLE ARROW REVERSE CURVE (SYMBOL								6161020		CHANNELIZER (DRUM-LIKE)	CONTRACT ID
4 4 5	407/40	16.00				LEFT ARROWS)	_				GUI	DE SIG	NS	6161022 6161024		CHANNELIZER (CONES) CHANNELIZER (TRIM LINE) WITH LIGHT	PROJECT NO.
1-4cR	48X48	16.00				TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)	SPECIAL	36X36	9.0	0			FRESH OIL/LOOSE GRAVEL	6161025	45	CHANNELIZER (TRIM LINE)	=
1-6	60X30	12.50				HORIZONTAL ARROW (SYMBOL)	E05-1	36X48	12.0	0			GORE EXIT	6161026		CHANNELIZER (VERTICAL PANEL)	BRIDGE NO.
1-6a	72X36					HORIZONTAL ARROW (SYMBOL ON PERMANENT	E05-2	48X36	12.0	0			EXIT OPEN	6161027		CHANNELIZER (VERTICAL PANEL) WITH LIGHT	A8580
- 0						BARRICADE)	E05-2a	48X36	_		36.00		EXIT CLOSED	6161028		CHANNEL I ZER	7
l - 7	60X30	12.50				DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)	G020-1	60X24	_	_	1		ROAD WORK NEXT XX MILES	6161030	6	TYPE III MOVEABLE BARRICADE]
-7a	72X36	18.00				DOUBLE HEAD HORIZONTAL ARROW (SYMBOL		48X24			16.00	_	END ROAD WORK	6161031		TYPE III MOVEABLE BARRICADE WITH LIGHT	_
1 0	1070	7 00				PERMANENT BARRICADE)	G020-4	36X18					PILOT CAR FOLLOW ME	6161033	15	DIRECTION INDICATOR BARRICADE	_ s
1 -8 1 -8 a	18X24 30X36					CHEVRON (SYMBOL) CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)	SPECIAL GO20-5aP	42X30	_				PLEASE WAIT FOR PILOT CAR WORK ZONE (PLAQUE)	6161034		DIRECTION INDICATOR BARRICADE, WITH LIGHT	451111
3-1	48X48					STOP AHEAD (SYMBOL)	M04-8a	36X24 24X18	_	_	3.00		END DETOUR	6161040		FLASHING ARROW PANEL	<u> </u>
3-2	48X48					YIELD AHEAD (SYMBOL)	MO4-80	48X36	_		3.00		DETOUR (LEFT ARROW)	6161047		TYPE III OBJECT MARKER	
3-3	48X48					SIGNAL AHEAD (SYMBOL)	M04-9R	48X36					DETOUR (RIGHT ARROW)	6161051 6161052		WARNING LIGHT, TYPE A WARNING LIGHT, TYPE B	-
-4	48X48					BE PREPARED TO STOP	M04-10L	48X18	_			_	DETOUR (ARROW LEFT)	6161052		WARNING LIGHT, TYPE C	+ $+$ $+$ $+$ $+$ $+$ $+$
-5	48X48					SPEED LIMIT AHEAD	M04-10R	48X18		_			DETOUR (ARROW RIGHT)	6161055		SEQUENTIAL FLASHING WARNING LIGHT	+ $+$ $+$ $+$ $+$ $+$ $+$
-1 L	48X48					MERGE (SYMBOL FROM LEFT)			-					6161070		TUBULAR MARKER	\dashv \mid \mid \mid \mid \mid
1-1 aL	48X48	16.00				MERGE (LEFT ARROW AT LANE DROP)					REGUI	ATORY S	LIGNS	6161095		RADAR SPEED ADVISORY SYSTEM	1
1-1R	48X48	16.00				MERGE (SYMBOL FROM RIGHT)	R1-1	48X48	13.2	5	1.2002		STOP	6161096	7	CHANGEABLE MESSAGE SIGN, COMMISSION	ATE
4-1aR	48X48	16.00				MERGE (RIGHT ARROW AT LANE DROP)	R1-2	48 TRI		_			YIELD	0101030	3	FURNISHED/RETAINED	
5-1	48X48	16.00				ROAD/BRIDGE/RAMP NARROWS	R1-2a	36X36	_				TO ONCOMING TRAFFIC (PLAQUE)	1		CHANGEABLE MESSAGE SIGN WITHOUT	z
5-3	48X48	16.00				ONE LANE BRIDGE	R1-3	20X9	1.2				X-WAY (PLAQUE)	6161098A		COMMUNICATION INTERFACE, CONTRACTOR	12
5-4	48X48		1 16.00			RAMP NARROWS	R2−1	36X48					SPEED LIMIT XX			FURNISHED/RETAINED	
5-5	48X48					NARROW LANES	R3−1	48X48	16.0	0			NO RIGHT TURN (SYMBOL)			CHANGEABLE MESSAGE SIGN WITH	ORT,
5-1	48X48					DIVIDED HIGHWAY (SYMBOL)	R3−2	48X48	16.0	0			NO LEFT TURN (SYMBOL)	6161099		COMMUNICATION INTERFACE, CONTRACTOR FURNISHED/RETAINED	SPI
5-2	48X48					DIVIDED HIGHWAY END (SYMBOL)	—_R3−3	36X36	9.0	0			NO TURNS	6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM	⊢ NA
6-3 7-3a	48X48	16.00				TWO WAY TRAFFIC (SYMBOL) NEXT XX MILES (PLAQUE)	R3-4	48X48					NO U-TURN (SYMBOL)	6162003		LONG-TERM RUMBLE STRIPS	⊣≝ _≅
3-1	48X48					BUMP	R3-7L	30X30					LEFT LANE MUST TURN LEFT			CONTRACTOR FURNISHED/RETAINED TEMPORARY	N S I C
3-2	48X48					DIP	R3-7R	30X30					RIGHT LANE MUST TURN RIGHT	6173600D		TRAFFIC BARRIER	I S I
3-3	48X48					PAVEMENT ENDS	R4-1	36X48				_	DO NOT PASS	6173602B		CONTRACTOR FURNISHED/COMMISSION RETAINED	T×₩ 【】
-4	48X48					SOFT SHOULDER	R4-2	36X48					PASS WITH CARE			TEMPORARY TRAFFIC BARRIER	_ ₹5 ()<
-5	48X48					SLIPPERY WHEN WET (SYMBOL)	R4-7aL	36X48					KEEP LEFT (HORIZONTAL ARROW)	6174000A		TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION	5 ∧ \
3-6	48X48	16.00				TRUCK CROSSING WITH FLAGS	R4 - 7a R5-1	36X48 30X30				_	KEEP RIGHT (HORIZONTAL ARROW) DO NOT ENTER	64750401		RELOCATING TEMPORARY TRAFFIC	┧┋ ╶╏
-6c	48X48	16.00				TRUCK ENTRANCE	R5-1a	36X24					WRONG WAY	6175010A		BARRIER	
3-7	36X36	9.00				LOOSE GRAVEL	R6-1L	48X18	_				ONE WAY ARROW (LEFT)	6176000B		COMMISSION FURNISHED/RETAINED TEMPORARY	73 5 (8
3-9	48X48	16.00				LOW SHOULDER	R6-1R	48X18					ONE WAY ARROW (RIGHT)	01100000		TRAFFIC BARRIER	SS -
3-11	48X48	16.00				UNEVEN LANES	R6-2L	24X30	_	_			ONE WAY (LEFT)	6177000B		COMMISSION FURNISHED/RETAINED TEMPORARY	Ξ V
3-12	48X48					NO CENTER LINE	R6-2R	24X30					ONE WAY (RIGHT)	9019400		TRAFFIC BARRIER HEIGHT TRANSITION TEMPORARY LIGHTING	-
)-1	42 RND					RAILROAD CROSSING	R10-6	24X36	6.0	0			STOP HERE ON RED (45° ARROW)	9029400		TEMPORARY TRAFFIC SIGNALS	131
2-1	24X24					DOUBLE DOWN ARROW (SYMBOL)	R11−2	48X30	10.0	0			ROAD CLOSED	9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING	⊣ % ⊤
2-2	48X48					LOW CLEARANCE (SYMBOL)	R11-3a	60X30	12.5	0			ROAD CLOSED XX MILES AHEAD LOCAL				a 6410
2-2x 2-2a	24X18 84X24					OVERHEAD LOW CLEARANCE (FEET AND	_						TRAFFIC ONLY. 1@ 4 MILES, 1 @ 12 MILES				I I I I
U	0774	11.00				INCHES)	R11-4	60X30		_			ROAD CLOSED TO THRU TRAFFIC				
-15	48X48	16.00			7	GROOVED PAVEMENT	S4-4	36X15					WHEN FLASHING	4			K IR
-15p	30X24	5.00				MOTORCYCLE (PLAQUE)	CONST-3A						FINE SIGN	_			715 K KANSA
-17	48X48	16.00				SHOULDER DROP-OFF (SYMBOL)	CONST-3X	56X12	4.6	ı			SPEEDING/PASSING (PLATE)	-		DISCLAIMER THE PROFESSIONAL WHOSE SIGNATURE AND PERSONAL	
-17p	30X24					SHOULDER DROP-OFF (PLAQUE)					MICOELL	ANEGUIC	CICNC	-		SEAL APPEAR HEREON ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS PAGE. AND	1
-2L	48X48	16.00				LANE ENDS MERGE LEFT		I a =	1	<u> </u>	MISCELL			4		DISCLAIMS (PURSUANT TO SECTION 327.411 RSMO) SPECIFICATION, ESTIMATES, REPORTS, OR OTHER	1
CIA	10000	1 50 00				WIDTH DECERTOR OF THE COLUMN TO THE COLUMN T	SPECIAL	64X36	_	_	64.00		DETOUR SIGNS MISC (15-17)	4		DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR	NOT F
CIAL	120X60	50.00				WIDTH RESTRICTION XX FT XX IN XX MILE		84X18		_	105.00	_	CLOSED SIGN (20)	4		INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS PAGE REFERS.	
3-1	30X30	6.25				ADVISORY SPEED (PLAQUE)	CONST-7-48						RATE OUR WORK ZONE	4			CONST RUC
6-2	30X24					XXX FEET (PLAQUE)	CONST-7-72	ΩE					RATE OUR WORK ZONE	J		MO 360 F	1
~ _						X MILE (PLAQUE)	616-10.	CT I UVI CD	SIGNE	TOTAL	320.00	<	NOTE:			MO 366 E	11/3/201
5-3	.5(1X Z 4			1	- 1	,	THE CHAIN STRUCT	CLI LUIN	CVIDLE	LULAL	1	_	LIC CICNE MAY DE MADE OF				
−3 −1	30X24 48X48		3 48.00			ROAD/BRIDGE/RAMP WORK AHEAD	616-10.	10	0.10.10		' 	1	TTC SIGNS MAY BE MADE OF MATERIAL OTHER THAN ALUMINUM			QUANTITY SUMMARY SHEET 3 OF 3	



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.

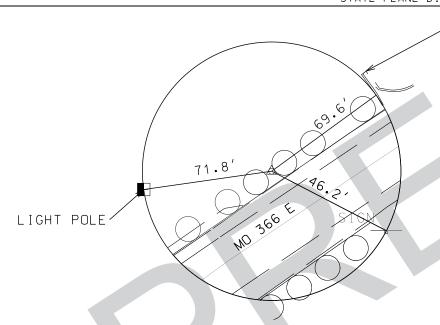
COORDINATE POINT LISTING MISSOURI COORDINATE SYSTEM OF 1983

RECIPROCAL AVERAGE GRID FACTOR: 1/GRID = 1/0.999905609

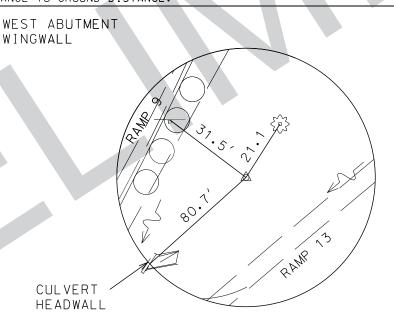
SHEET	STATION ¹	LOCATION	DECCRIPTION	NORTHING	EASTING
NO.	STATION	LOCATION	DESCRIPTION	STATE PLANE	STATE PLANE
	0+00.00	MO 366 E	P.O.B. & MO 366 E	988,763.48	841,441.26
	2+11.25	MO 366 E	P.C. CURVE 1 & MO 366 E	988,928.68	841,572.92
	6+59.02	MO 366 E	P.I. CURVE 1 & MO 366 E	989,278.84	841,852.00
	10+99.60	MO 366 E	P.T. CURVE 1 & MO 366 E	989,527.14	842,224.61
	16+08.19	MO 366 E	P.C. CURVE 2 & MO 366 E	989,809.17	842,647.84
	20+08.70	MO 366 E	P.I. CURVE 2 & MO 366 E	990,031.27	842,981.13
	24+04.06	MO 366 E	P.T. CURVE 2 & MO 366 E	990,153.46	843,362.56
	25+04.06	MO 366 E	P.O.E. & MO 366 E	990,183.96	843,457.79
	32+41.91	RAMP 9	P.O.B. CURVE 1 & RAMP 9	989,360.84	842,167.89
	34+33.97	RAMP 9	P.I. CURVE 1 & RAMP 9	989,466.13	842,328.52
	36+17.22	RAMP 9	P.T. CURVE 1 & RAMP 9	989,637.63	842,414.99
	37+16.22	RAMP 9	P.C. CURVE 2 & RAMP 9	989,726.03	842,459.56
	39+01.11	RAMP 9	P.I. CURVE 2 & RAMP 9	989,891.13	842,542.80
	40+77.13	RAMP 9	P.O.E. CURVE 2 & RAMP 9	989,990.65	842,698.62

1 Ground Distance

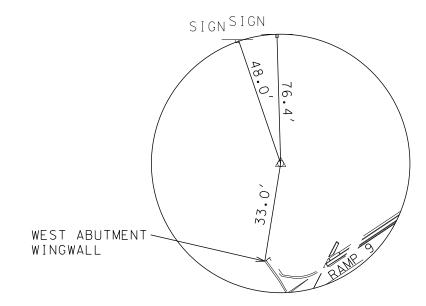
NOTE: THE RECIPROCAL OF THE AVERAGE GRID FACTOR IS USED AS A MULTIPLIER FROM STATE PLANE DISTANCE TO GROUND DISTANCE.



CONTROL POINT NO. 2 OLD IRON ROD STA. 12+33.17, 30.18' LT N: 989,626.3310 E: 842,319.0310 EL: 535.02



CONTROL POINT NO. 4
PK NAIL
STA. 13+51.08, 63.60' RT
N: 989,613.6750
E: 842,469.1540
EL: 521.86



CONTROL POINT NO. 1 LARGE NAIL STA. 13+24.61, 63.91' RT N: 989,705.0990 E: 842,376.4220 EL: 534.58

> MO 366 E COORDINATE POINTS SHEET 1 OF 1

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DATE PREPARED
11/3/2017

ROUTE STATE
366 E MO

SL SHEET NO SL 5 COUNTY ST. LOUIS

JOB NO.
J6S3140
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A8580

E DESCRIPTION

COMMISSION

COMMISSION

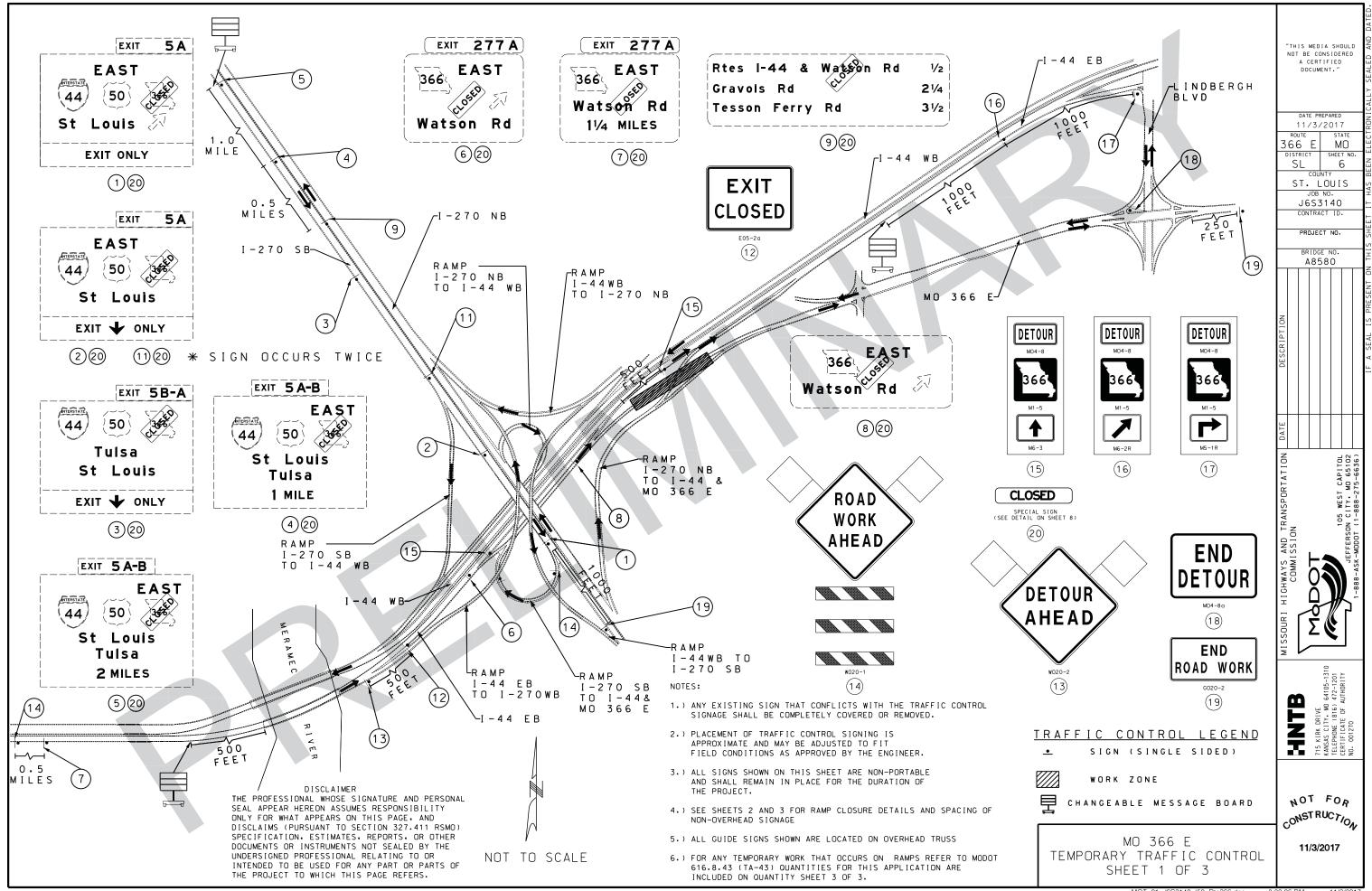
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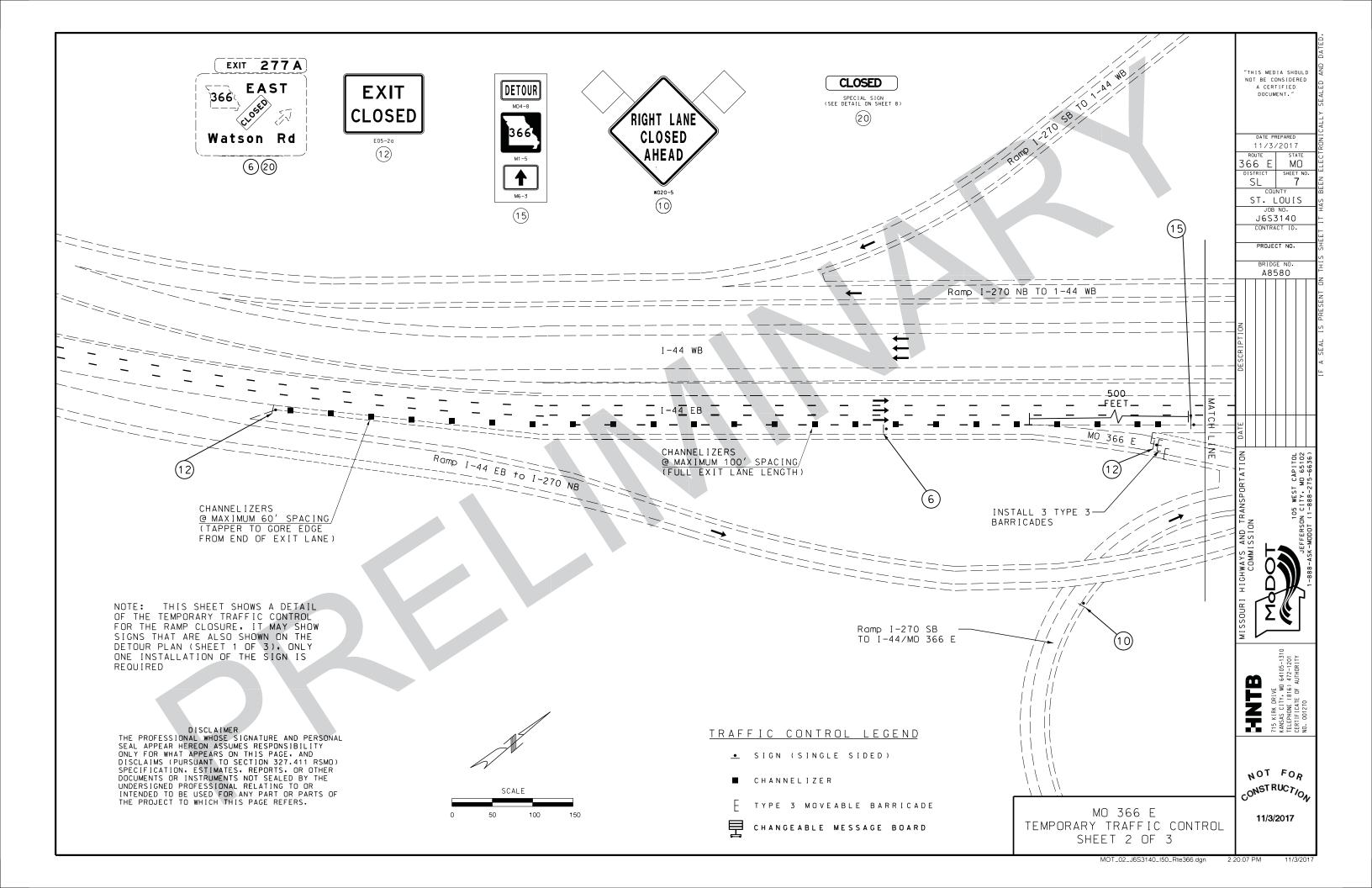
105 WEST CAPITOL

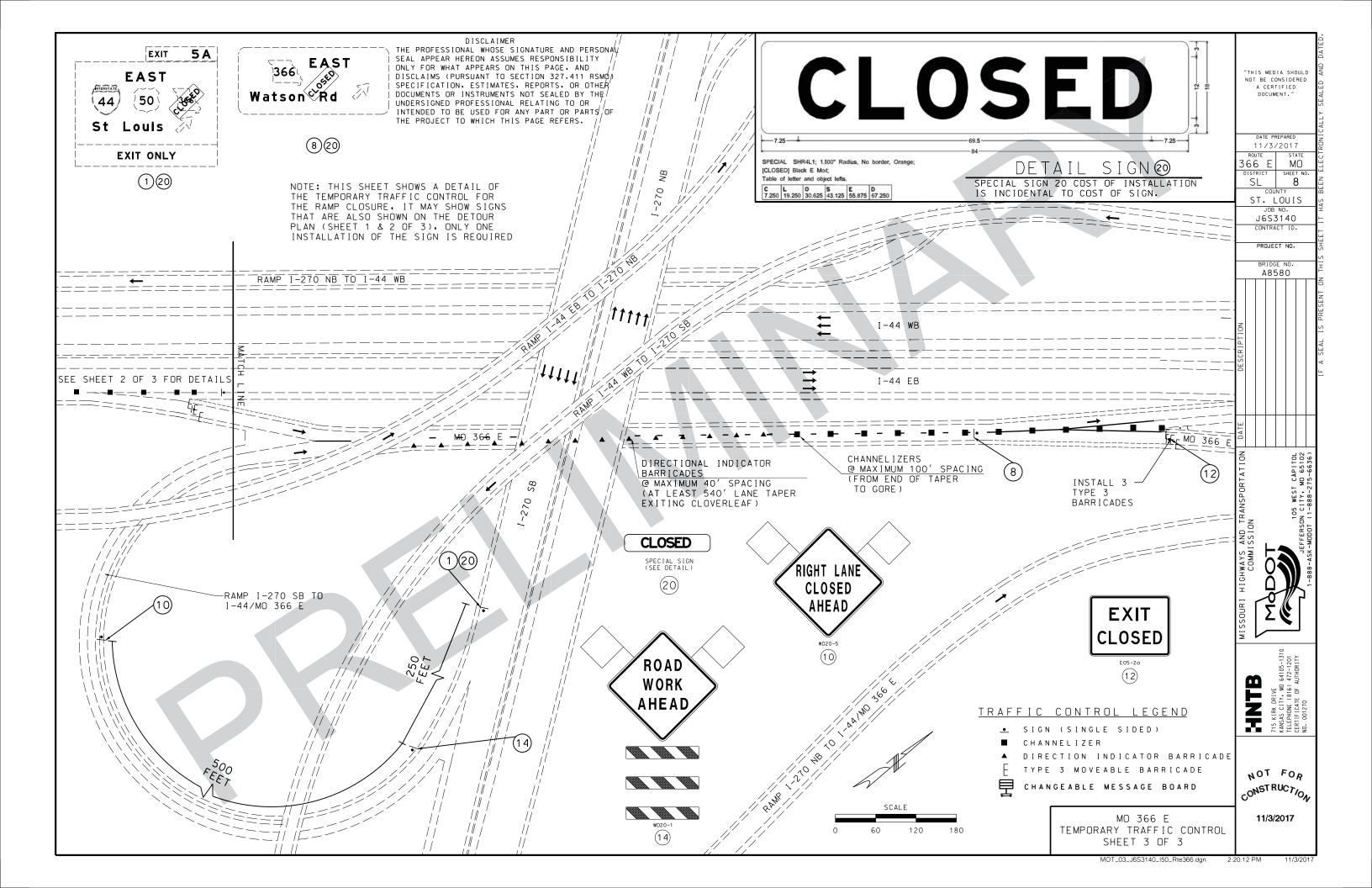
JEFFERSON CITY: MO 65102

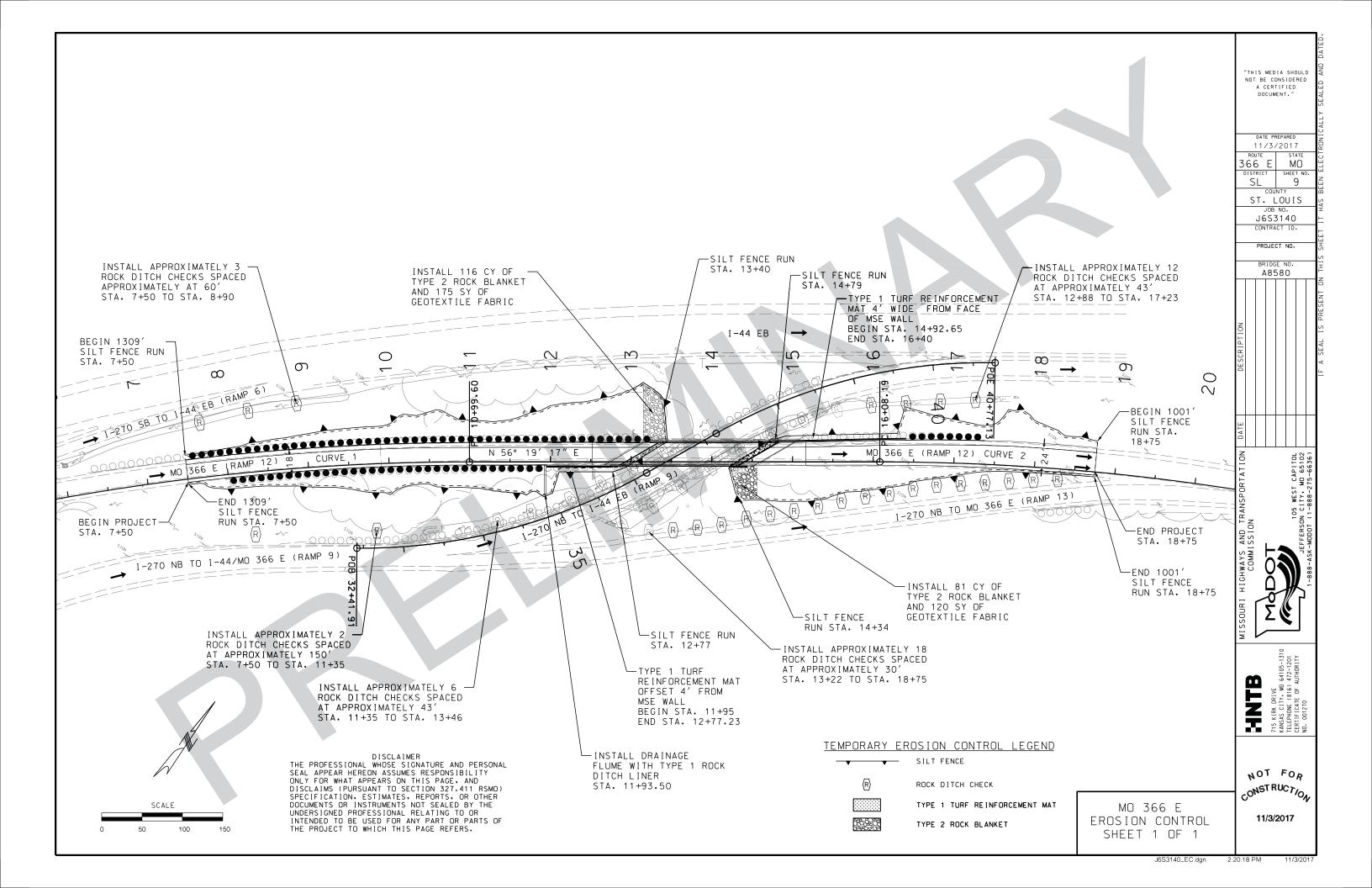
TIS KIRK DRIVE
KANSAS CITY, MD 64105-1310
ELELEPHONE (816) 472-1201
ECHIFICATE OF AUTHORITY
NO. 001270

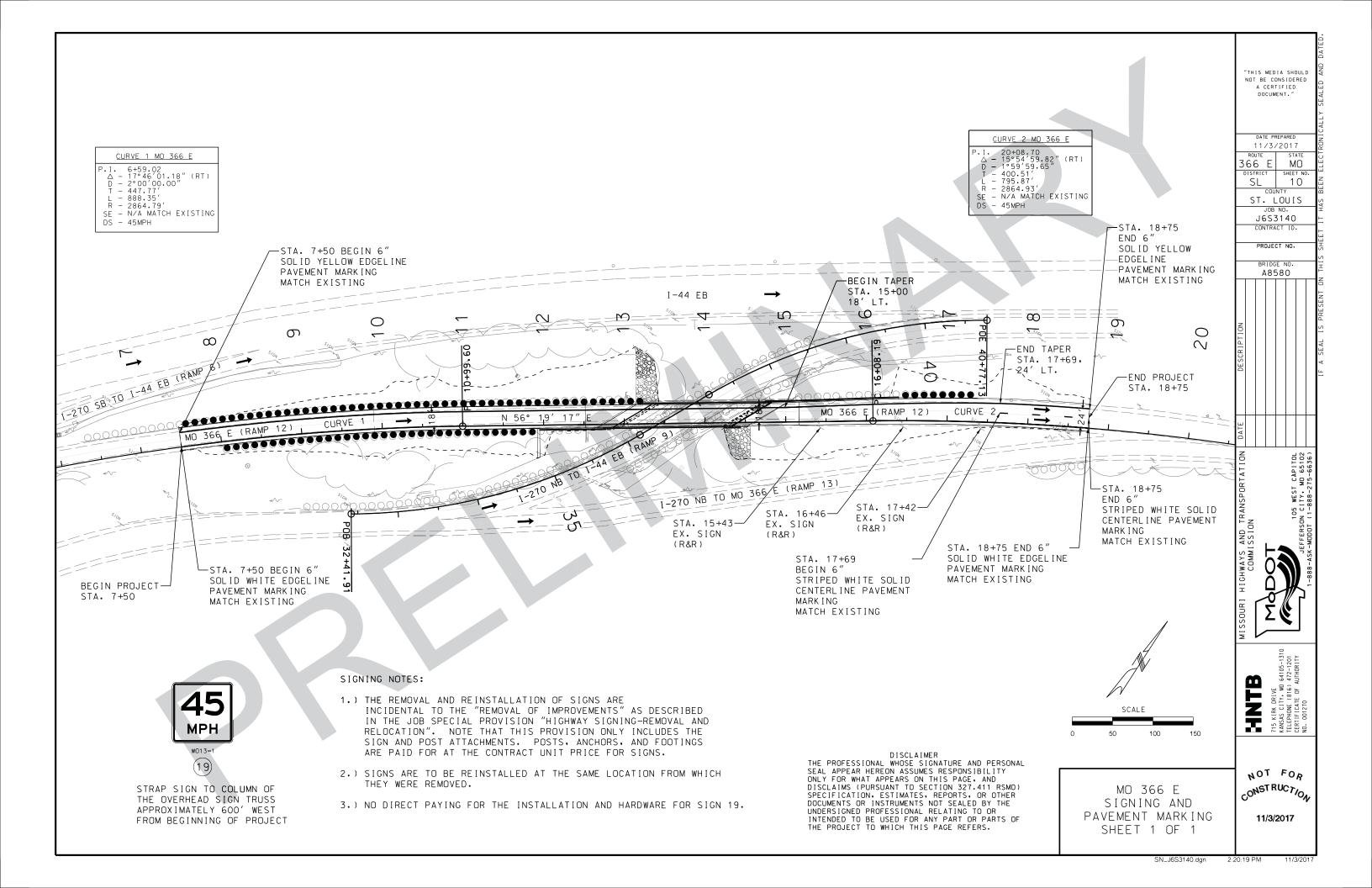
NOT FOR
CONSTRUCTION
11/3/2017











SEC. 14 T. 44N R. 5E

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11/3/2017

St. Louis

J6S3140

PROJECT NO.

BRIDGE NO.

A8580

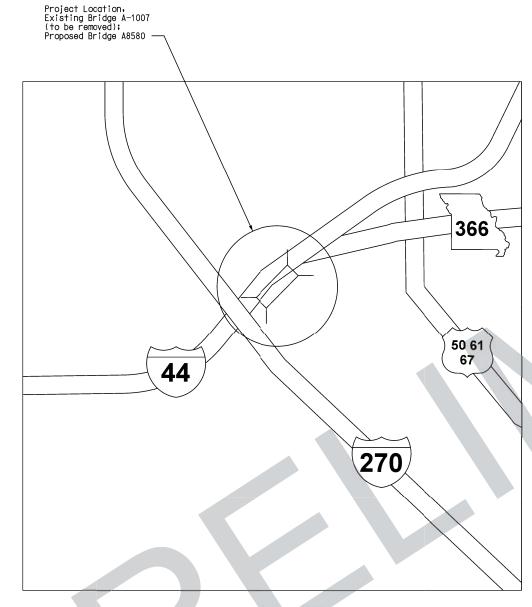
MO SHEET NO

1

366E

BR





LOCATION MAP

INDEX OF DRAWINGS

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TITLE SHEET AND INDEX
            GENERAL PLAN AND ELEVATION
            GENERAL NOTES AND ESTIMATED QUANTITIES
            DETAILS OF END BENT NO. 1
          VERTICAL DRAIN AT END BENTS
          DETAILS OF END BENT NO. 2
DETAILS OF LAMINATED NEOPRENE BEARING PAD ASSEMBLY
FRAMING PLAN
9 - 13
14
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            NU63 P/S GIRDER DETAILS SPAN (1-2)(WWR)
           STEEL INTERMEDIATE DIAPHRAGM DETAILS
            SLAB DRAIN DETAILS
            THEORETICAL SLAB HAUNCHING DIAGRAM, THEORETICAL BOTTOM OF SLAB ELEVATIONS, AND GIRDER CAMBER DIAGRAM
           SLAB PLAN SHOWING REINFORCING
           SLAB CROSS SECTION AND POURING SEQUENCE
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CONVENTIONAL-FORMED BARRIER CURB (TYPE D) AT END BENTS
OPTIONAL SLIP-FORMED BARRIER CURB (TYPE D)
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           DETAILS OF END BENT 2 BRIDGE APPROACH SLAB (MAJOR ROAD)
           BAR BENDING DIAGRAMS
           BILL OF REINFORCING STEEL (1 OF 2)
           BILL OF REINFORCING STEEL (2 OF 2)
           AS BUILT PILE DATA
            BORING DATA (1 OF 6)
            BORING DATA (2 OF 6)
            BORING DATA (3 OF 6)
            BORING DATA (4 OF 6)
            BORING DATA (5 OF 6)
           BORING DATA (6 OF 6)
```

BRIDGE: MO 366 E OVER RAMP I-270 NB TO I-44 EB

MO 366 E FROM I-270 TO HWY 50

ABOUT 0.4 MILES EAST OF I-270

STA. 12+92.66

STD. 609.00P STD. 617.10K

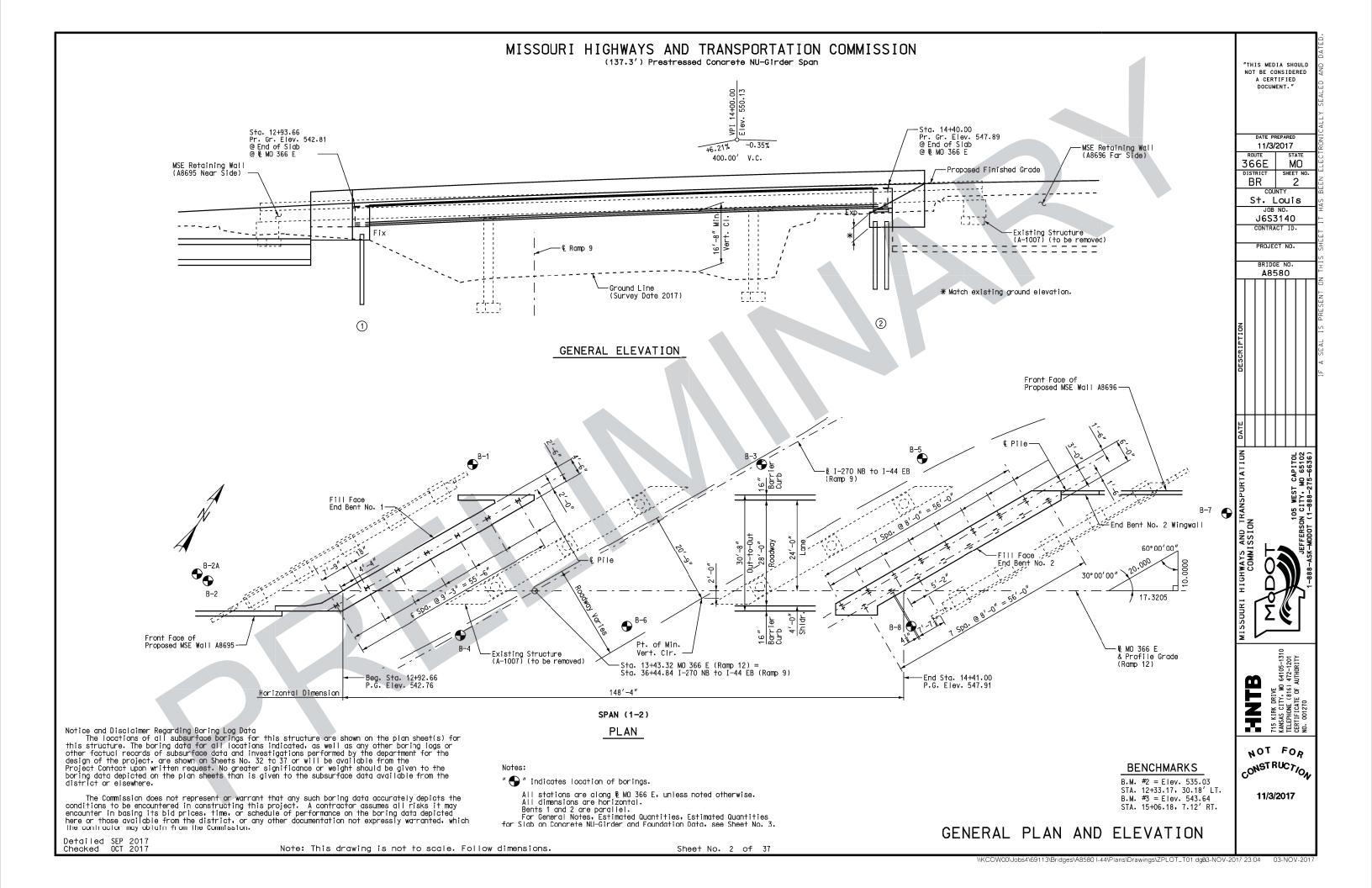
STD. 706.35H

TAN KINK DRIVE KANSAS CITY. NO 64105 TELEPONE (816) 472-1 CERTIFICATE OF AUTHOR NO. 001270

NOT FOR

11/3/2017

Designed SEP 2017 Detailed SEP 2017 Checked OCT 2017



GENERAL NOTES:

Design Specifications:
2014 AASHTO LRFD Bridge Design Specifications (7th Ed.) thru 2016 Interim Revisions
Seismic Design Category A

Design Loading:

HL-93 35 lb/sf Future Wearing Surface Earth 120 lb/cf, Equivalent Fluid Pressure 45 lb/cf

Superstructure:Simply-Supported, Non-Composite for dead load, Composite for live load.

Design Unit Stresses:
Class B Concrete (Substructure)
Class B-1 Concrete Barrier Curb (Type D)
Class B-2 Concrete (Superstructure, except
Prestressed Girders and Safety f'c = 4.000 psif'c = 4,000 psiReinforcing Steel (Grade 60)

Reinforcing Steel (Grade 60)

Steel Pile (ASTM A709 Grade 50)

For prestressed girder stresses, see Sheets No. 16 & 17.

Laminated Neoprene Bearing Pads (Tapered) shall be 60 durometer and shall be in accordance

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.

Traffic Handling:
Structure to be closed during construction. Traffic to be maintained on other routes during construction. See roadway plans for traffic control.

Miscellaneous:

M000T construction personnel will indicate the type of joint filler option under the precast panels for this structure:

Constant Joint filler
Variable Joint Filler

ESTIMATED QUA	NTITIES			
Item		Substr.	Superstr.	Total
Class 1 Excavation in Rock	cu. yard	11		11
Removal of Bridges (A-1007)	lump sum			1
Bridge Approach Slab (Major Road)	sq. yard		130	130
Galvanized Structural Steel Piles (12 in.)	linear foot	445		445
Dynamic Pile Testing	each	2		2
Pre-Bore for Piling	linear foot	385		385
Pile Point Reinforcement	each	23		23
Class B Concrete (Substructure)	cu. yard	109.1		109.1
Slab on Concrete NU-Girder	sq. yard		499	499
Barrier Curb (Type D)	linear foot		317	317
NU-63, Prestressed Concrete NU-Girder	linear foot		556	556
Reinforcing Steel (Bridges)	pound	8,270		8,270
Vertical Drain at End Bents	each			2
Steel Intermediate Diaphragm for P/S Concrete Girders	each		6	6
Slab Drain	each		6	6
Laminated Neoprene Bearing Pad (Tapered)	each		4	4
Laminated Neoprene Bearing Pad Assembly	each		4	4

* Barrier Curb (Type D) shall be cast—in—place option or slip—form option.

All concrete above the construction joint in End Bent 1 is included in the Estimated Quantities

All reinforcement in End Bent 1 is included in the Estimated Quantities for Slab on Concrete

All concrete in the concrete diaphragm at End Bent 2 is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All reinforcement in the concrete diaphragm at End Bent 2 is included in the Estimated Quantities for Slab on Concrete NU-Girden

ESTIMATED QUANTITIES FOR SLAB ON CONCRETE NU-GIRDER				
I+em	Total			
Class B-2 Concrete	cu. yard	238.0		
Reinforcing Steel	pound	13,520		
Reinforcing Steel (Epoxy Coated)	pound	43,220		

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

> DATE PREPARED 11/3/2017

St. Louis

J6S3140

PROJECT NO.

BRIDGE NO A8580

MΩ

SHEET NO

3

366E

DISTRICT

BR

WAYS AND TH

T15 KIRK BRIVE
KANSAS CITY, MO 641
TELEPHONE (816) 472.
CERTIFICATE OF AUTHO
NO. 001270

NOT FOR

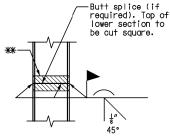
CONSTRUCTION

11/3/2017

Notes:

The table of Estimated Quantities for Slab on Concrete NU-Girder represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard with the longitudinally from end of slab to end of slab transversely from out to out of bridge slab (or horizontal dimensions as shown on the plan of slab). Payment for conventional forms, all concrete and coated and uncoated reinforcing steel will be considered completely covered by the contract unit price for the will be considered completely covered by the contract unit price for the slab. Variations may be encountered in the astimated quantities but the variations cannot be used for an adjustment in the contract unit price.

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 ASTN A123 or ASTM B633 with a thickness class SC 4 and a finish type I. II or III.



STEEL PILE SPLICE

*## Galvanization material shall be omitted or removed for a minimum of 1" around weld locations. The method used to

omit or remove galvanizing material shall be as approved by the engineer.

Туре

Load

Notes: DT = Dynamic Testing

Number

Minimum Nominal Axial Compressive Resistance = Maximum Factored Loads/Resistance Factor

Design Data

Prebore for piles at End Bents No. 1 and 2 to elevations 517.00 and 521.00, respectively.

FOUNDATION DATA

GENERAL NOTES AND ESTIMATED QUANTITIES

HP Pile Type and Size

Approximate Length per Each

Min. Galvanized Penetration (Elev.)

Minimum Tip Penetration (Elev.)

Criteria for Min. Tip Penetration

Pile Driving Verification Method

Design Bearing Minimum Nominal Axial Compressive

Pile Point Reinforcement

Rept No.

HP 12x74

16

20

ΔΙΙ

Full Length

520.00

Lateral Stability

DT

445

HP 12x53

20

ΔΙΙ

Full Length

516.00

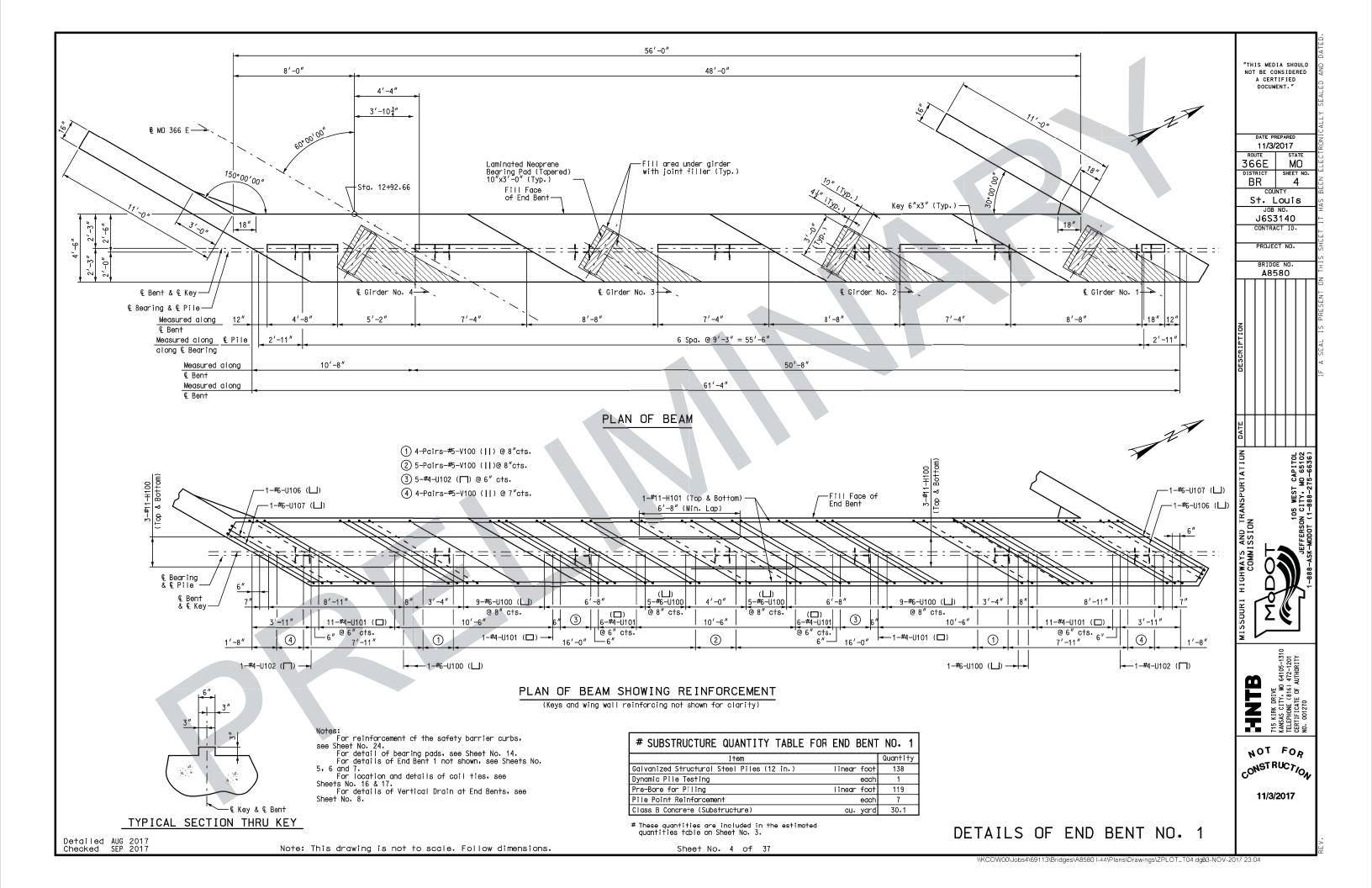
Lateral Stability

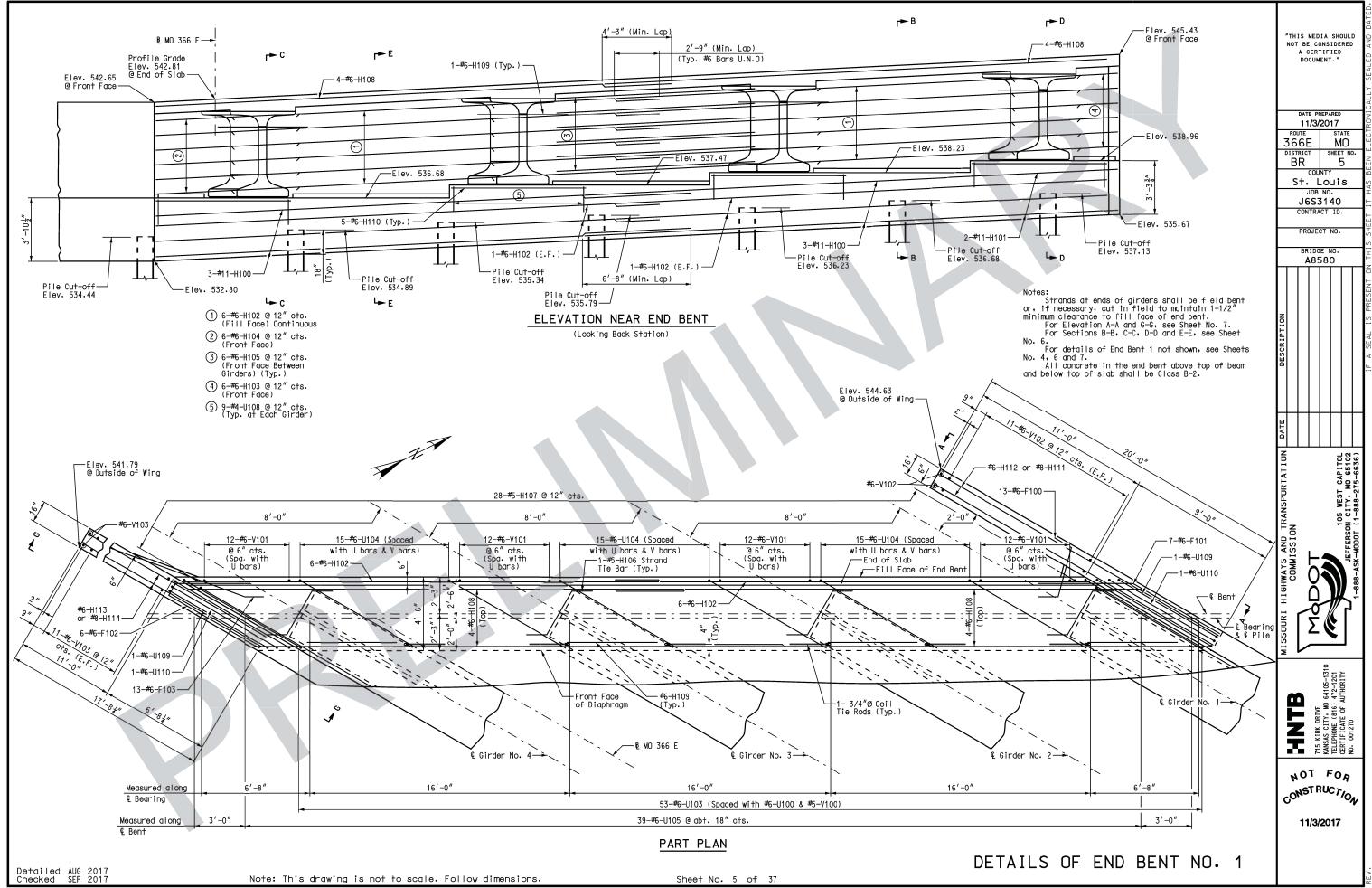
DT

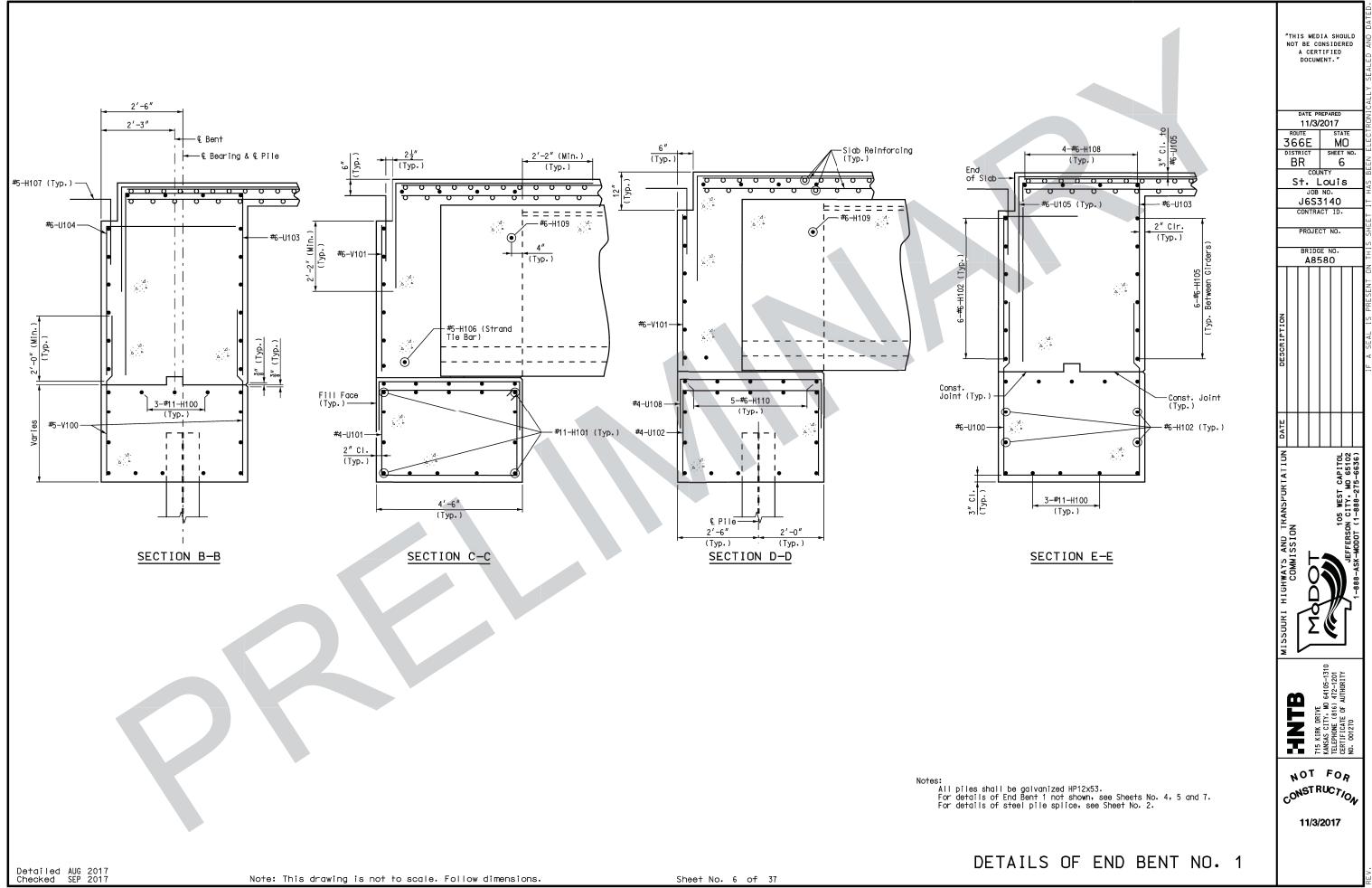
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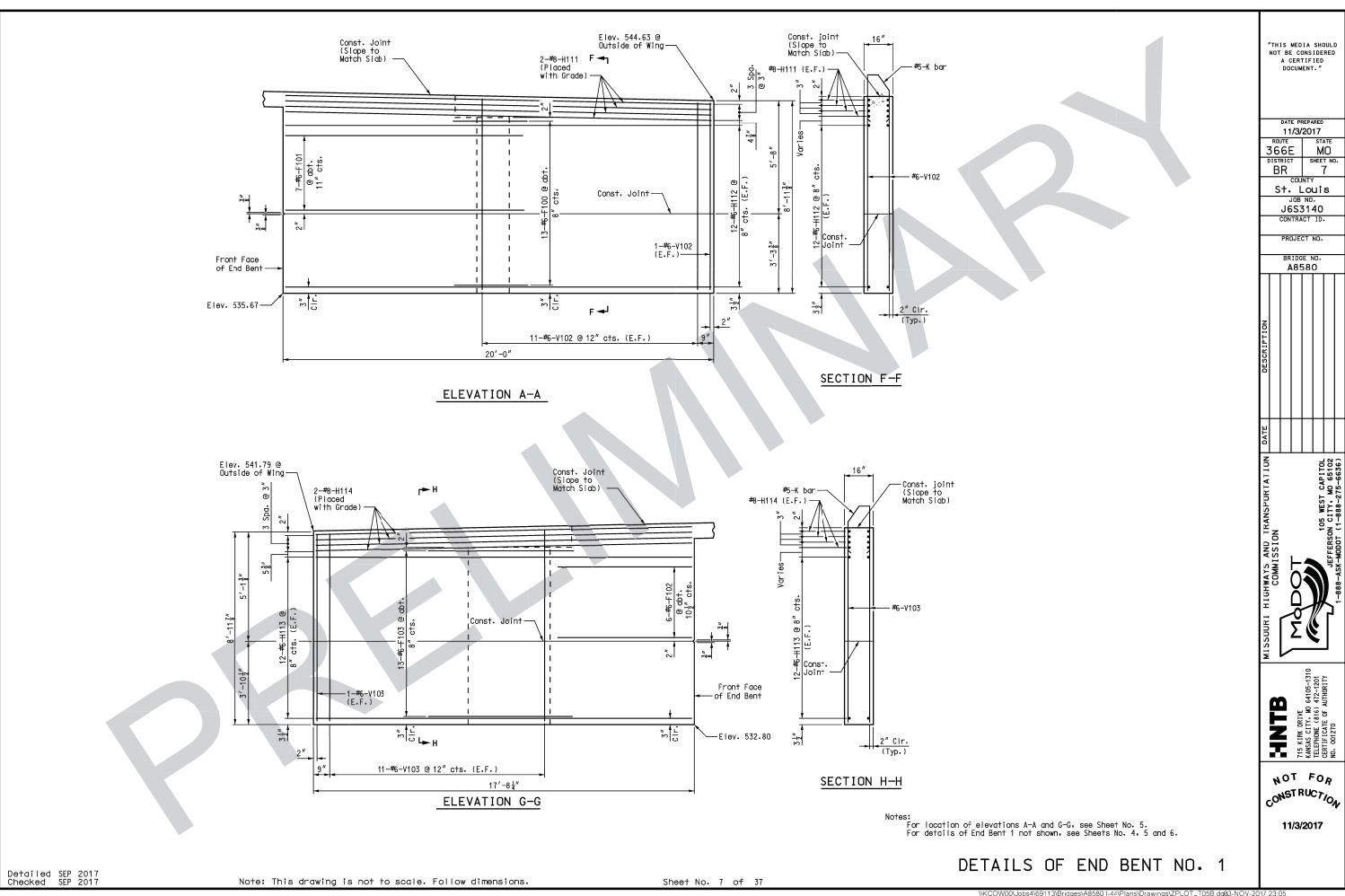
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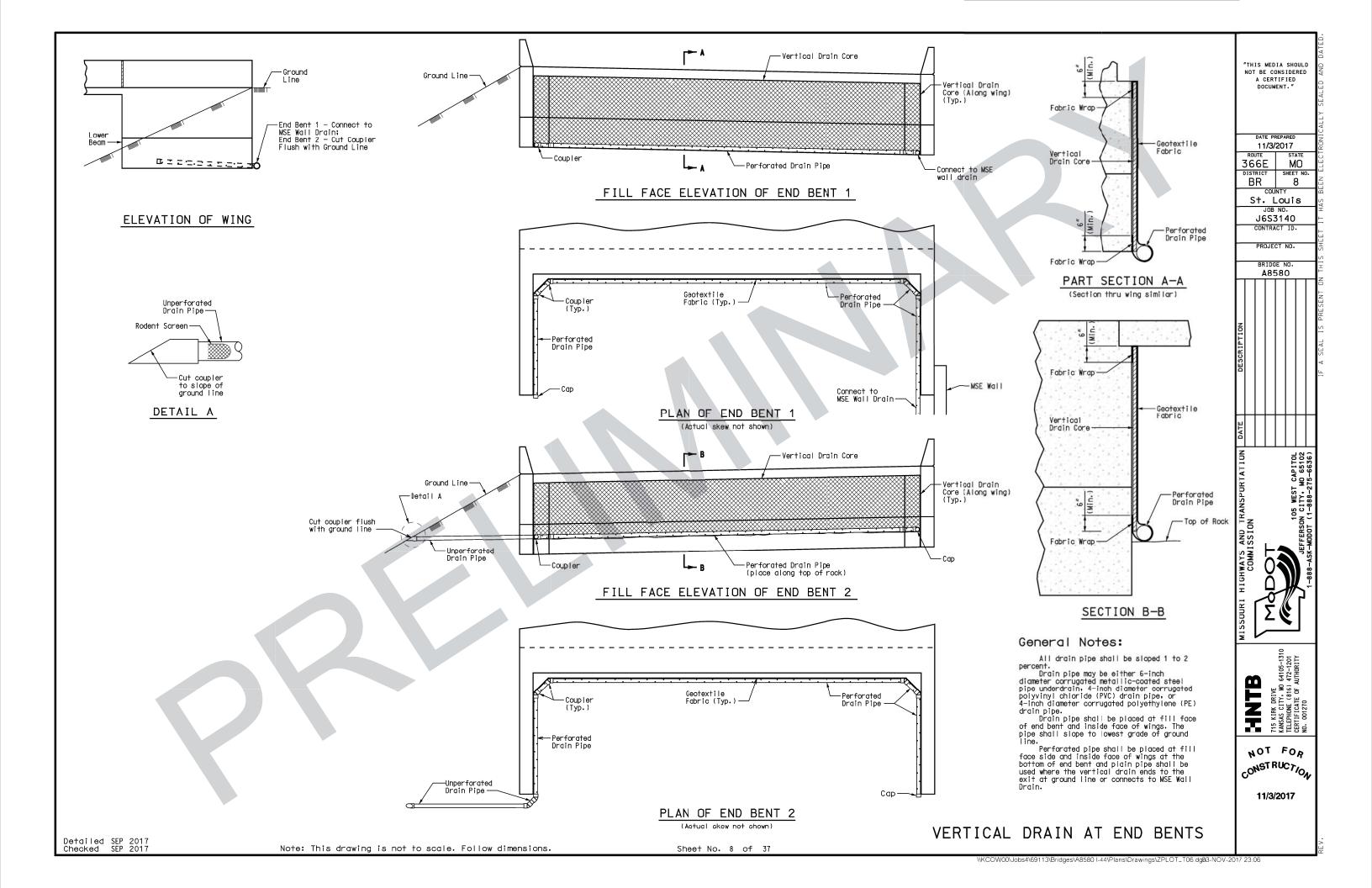
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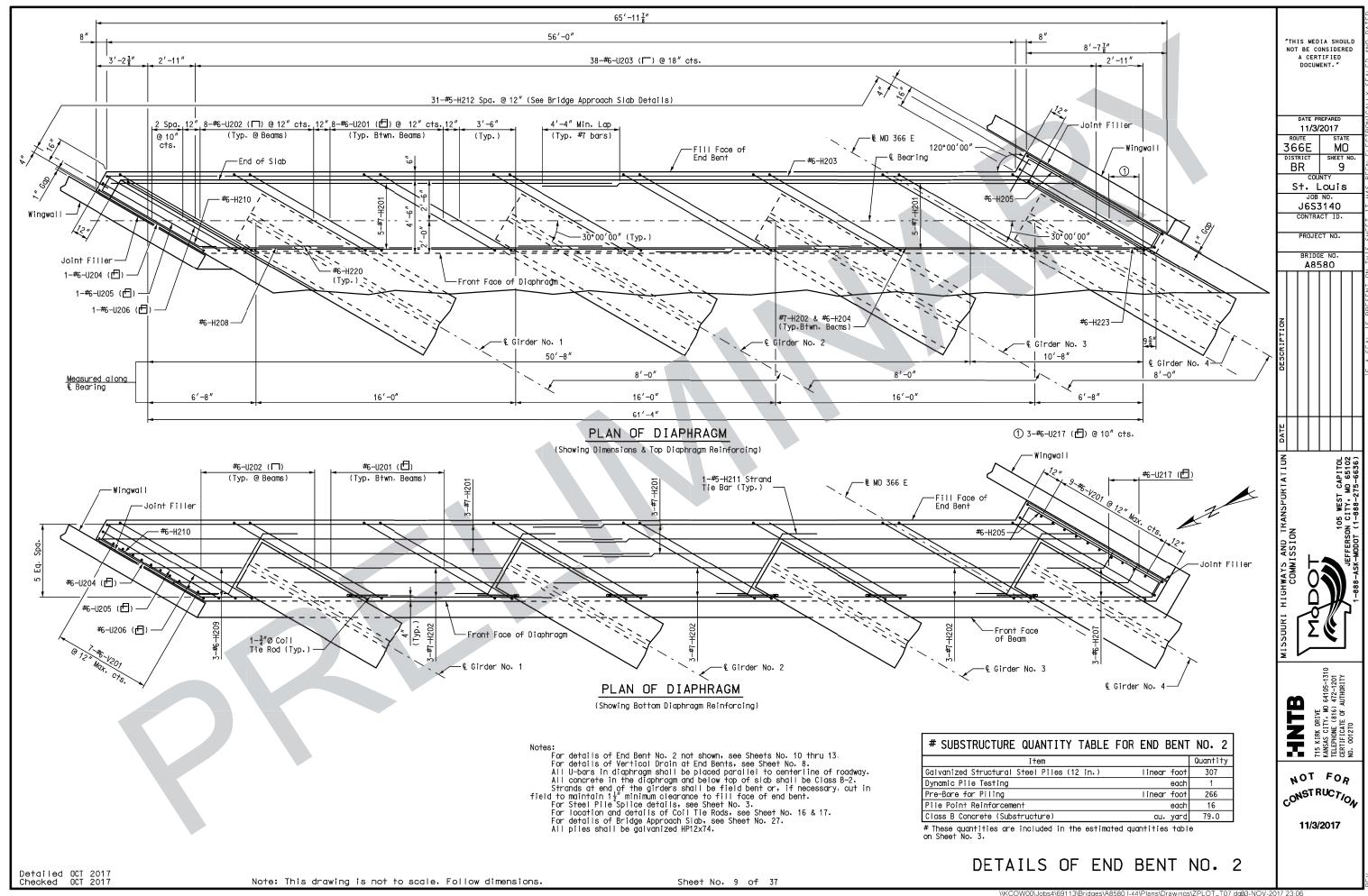


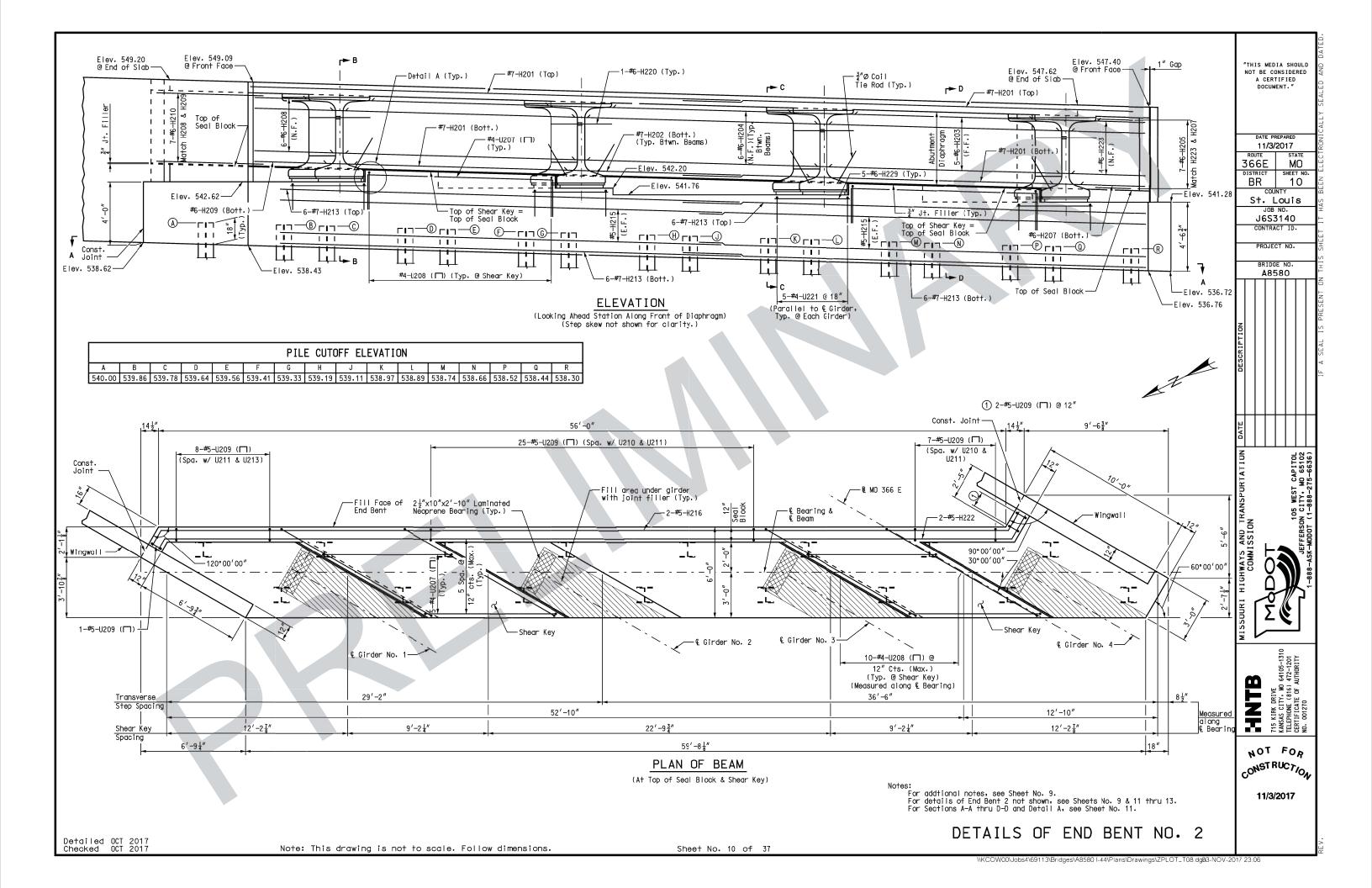


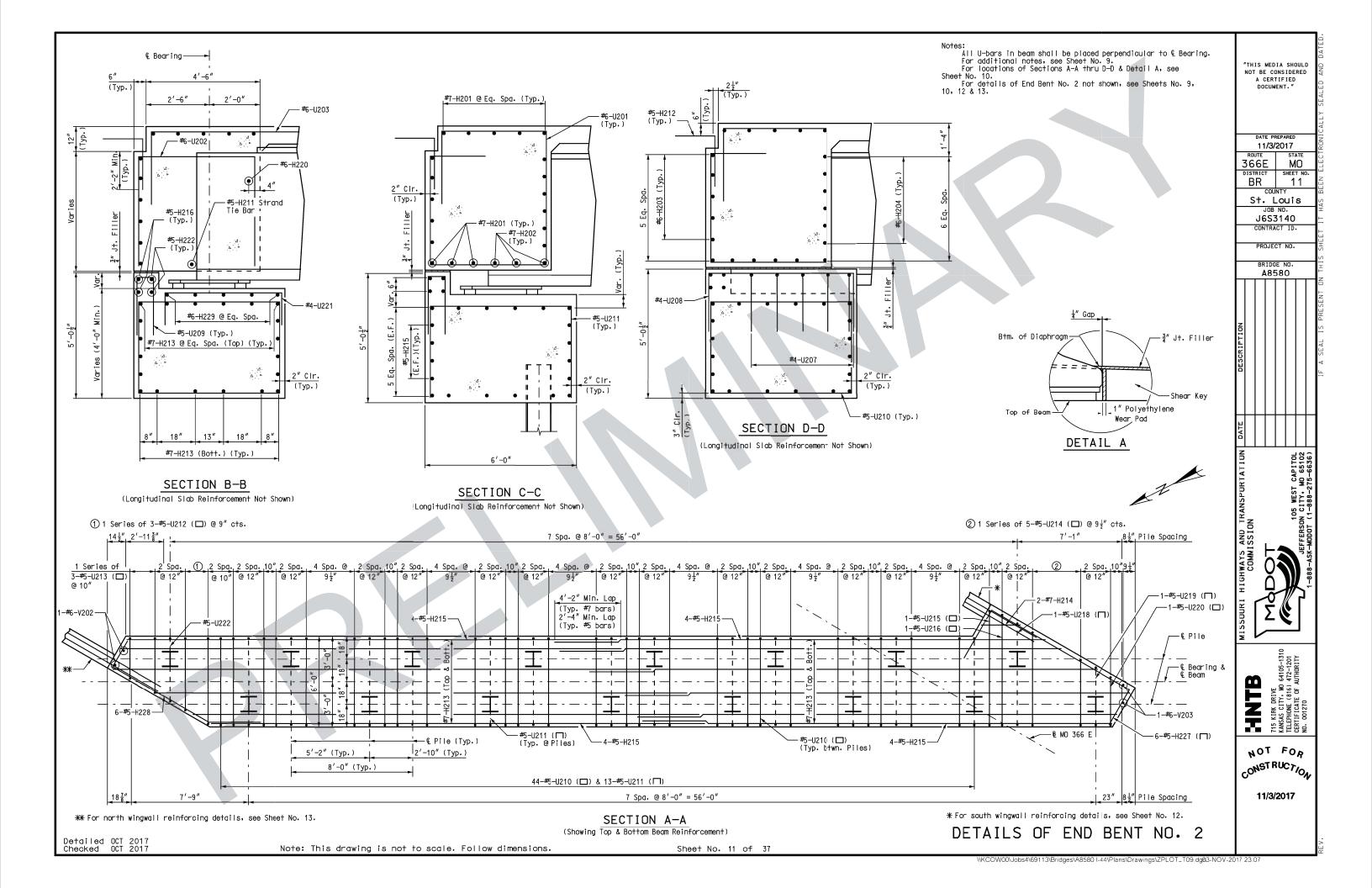


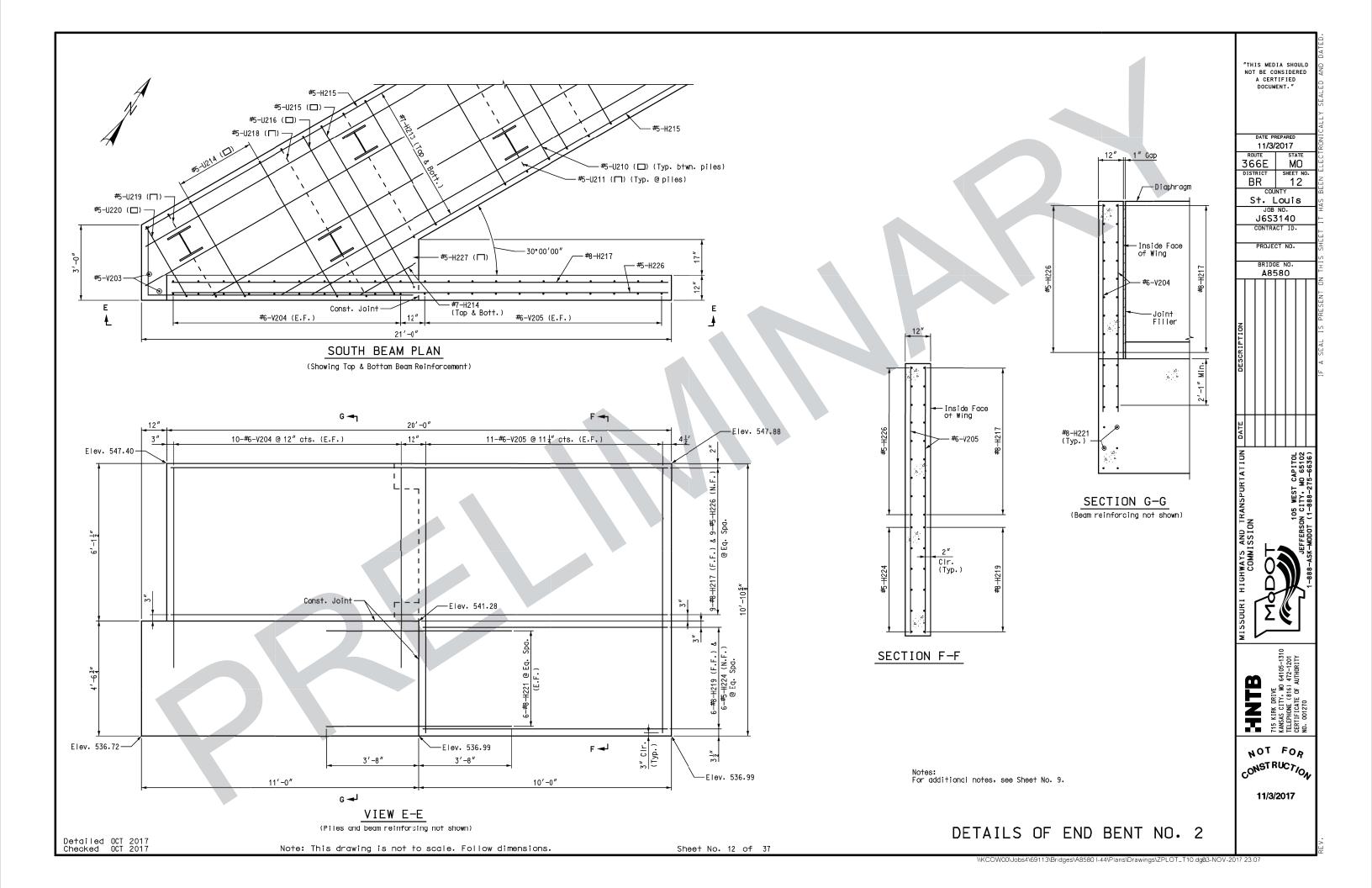


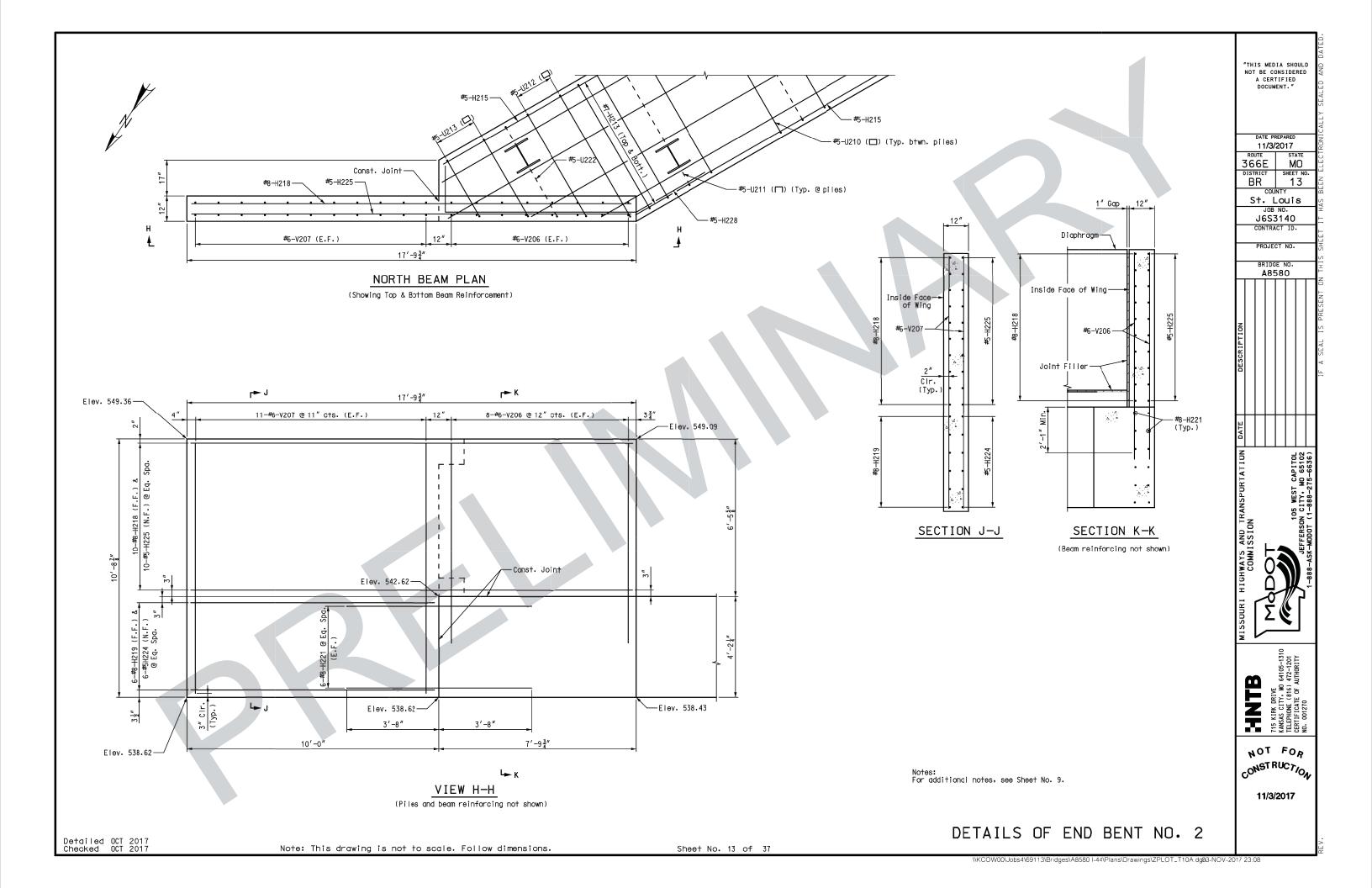


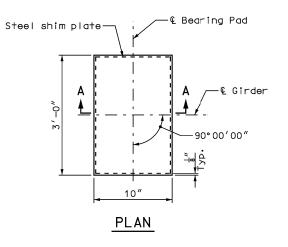


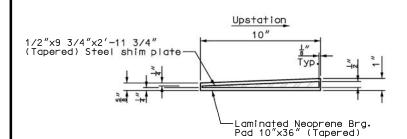




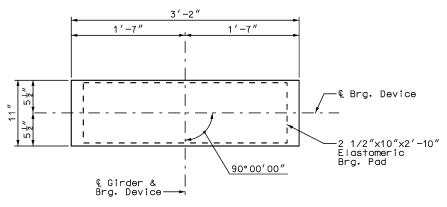






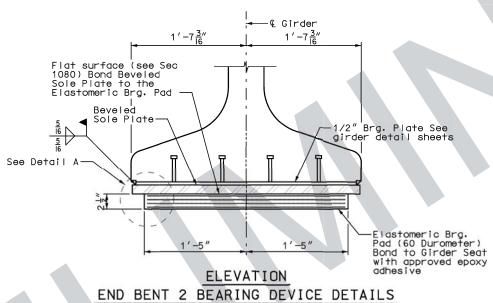


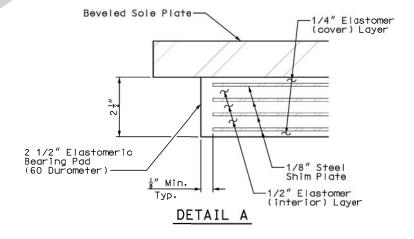
SECTION A-A END BENT 1 BEARING



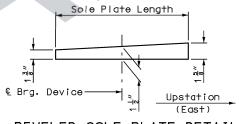
BEVELED SOLE PLATE PLAN

(END BENT 2)





Sheet No. 14 of 37



BEVELED SOLE PLATE DETAIL

GENERAL NOTES:

Neoprene Elastomeric Pads shall be 60 Durometer.

Structural steel for sole plate shall be ASTM A709 Grade 36 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.

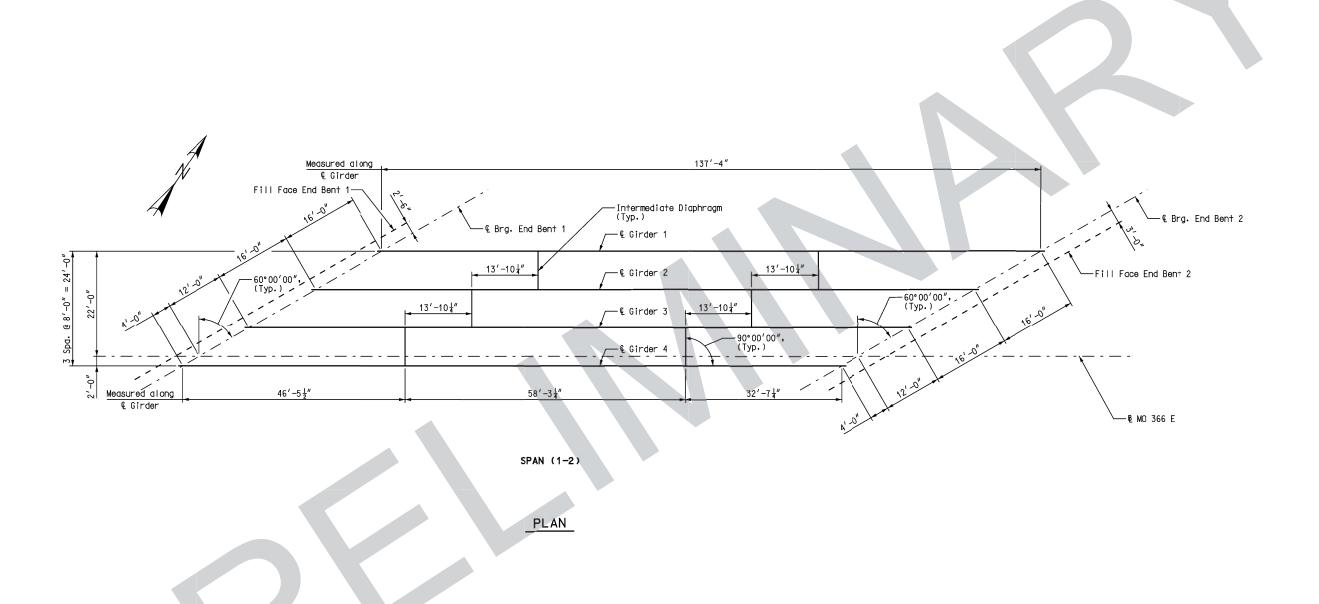
The required shim plates shall be placed between layers of elastomer and molded together to form an integral unit.

Steel shim plates shall be ASTM A709 Grade 36.

Bearing pads designed with Method A of the AASHTO LRFD Specs.

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT." 11/3/2017 366E MΩ SHEET NO BR 14 St. Louis J6S3140 PROJECT NO BRIDGE NO. A8580 TIS KIRK DRIVE KANSA CITY, MO 6410 CERTIFICATE OF AUTHONO. 001270 NOT FOR CONSTRUCTION 11/3/2017

DETAILS OF LAMINATED NEOPRENE BEARING PAD ASSEMBLY



Sheet No. 15 of 37

Detailed JUN 2017 Checked AUG 2017

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

Notes:
Longitudinal dimensions shown are horizontal.

FRAMING PLAN

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11/3/2017

St. Louis JOB NO.
J6S3140
CONTRACT ID.

BRIDGE NO.

NOT FOR CONSTRUCTION

11/3/2017

STATE MO SHEET NO.

ROUTE 366E DISTRICT BR

 $4'-8\frac{7}{8}''$ @ End Bents 1 Fabricator shall be responsible for location and design of lifting devices. BILL OF REINFORCING STEEL - EACH GIRDER Concrete for prestressed girders shall be Class A-1 with @ End Bents 2 f'c = 8000 psi and f'ci = 6000 psi. THIS MEDIA SHOULD * Girder top flange shall be steel troweled to a smooth finish for 8" at the edges, as shown. Apply two layers of 30-lb roofing felt as a bond breaker to this region only excluding where joint filler is applied. The center portion shall be rough finished by scarifying ACTUAL LENGTH SIZE & MARK RENDING DIAGRAM 14 Spa. @ 2 NOT BE CONSIDERED (+) indicates prestressing strand. #4_C1 a 302 4 B1 6'-10" A CERTIFIED DOCUMENT." each end the surface transversely with a wire brush, and no laitance shall remain on the surface. 6 B2 Use 42 strands with an initial prestress force of 1846 kips. ** At the contractor's option the location for bent-up strands may be varied from that shown 4 C1 7'-8½" 20 Prestressing tendons shall be uncoated, seven-wire, low-SHAPE 20 for fully bonded strands only. The total number of bent-up strands shall not be changed. One strand tie bar is required for each layer of bent-up strands except at end bents which require one bar on the bottom layer of strands only. No additional payment will be made if relaxation strands, 0.6 inch diameter in accordance with AASHTO M 203, Grade 270. Pretensioned members shall be in 4 C2 Varies 26 accordance with Sec 1029. 318 4 D1 4'-0" additional strand tie bars are required. ′-2″ 5'-10" B' #4-C2 11/3/2017 3/8"Ø Reinforcement Support Strands (Required) -Cut top 2 rows of strands with a 12" projection and bend tensioned to 2.02 kips/strand (Outer strands) and 8 kips/strand (Inner strands) placed symm, about & Girder. varies @ SHAPE 9 5'-1" B2 4'-01" each end 366E MΩ 3'-0" DISTRICT SHEET NO May be moved laterally in pairs. € Lifting Cut any remaining top strands within 1" of end of girder. (Typ.) Top leg BR 16 (Typ.) (Min.) £2₽₽₽ Devices TOP FLANCE SHAPE 11 St. Louis BLOCKOUT DETAIL (Typ. shop be ojectic ining b within -₩8 (Typ.) "—D20 @ 6" J6S3140 R=7류" (Typ.: o" pro o" pro remail ands w 20" PROJECT NO $R=7\frac{7}{8}$ " (Typ. 3'-10' Sylt any stry end WELDED WIRE BENDING DIAGRAM **A8580** (Typ.) Z#5 Strand ¾″ Chamfe $3'-2\frac{3}{8}$ Bar (Typ.)
(Normal to girder) (Typ.) 17 Spa. @ 2' 7 Spa.6" 7 Spa. @ 2" `@ 2″ DIMENSIONS € GIRDER END OF GIRDER END BENT END BENT General Notes: STRAND ARRANGEMENTS STRAND DETAILS AT GIRDER ENDS Reinforcing Steel: All dimensions are out to out. 151-Pairs-#4-B1 and 151-Pairs-#4-D1 (Spaced as shown) 3 Spa. Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie @ 3½' a" 68 Spa. @ 15" 11 Spa. @ 3" 28 Spa. @ 9" 14 1/4" 27'-5" 13'-9" 13'-9" 13'-9" Actual bar lengths are measured along centerline of bar to the nearest inch. 13" Symm. abt. @ girder except as shown WWR5-Minimum clearance to reinforcing shall All bar reinforcement shall be Grade 60. #6-B2 #6-B2 Welded Wire Reinforcement (WWR) shall be in accordance with AASHTO M 221. 2-#6-B2 The two D1 bars may be furnished as one bar at the fabricator's option. 105 WEST FERSON CITY. M 2-#4-D1 #4-D1 #4-D1-All B1 bars shall be epoxy coated. Miscellaneous: Cost of 3/4" coil tie rods placed in diaphragms will be considered completely covered by the contract uniprice for Prestressed Concrete NU-Girder. 13'-103" YS AND ← € Bearing SECTION B-B B1 BAR SECTION A-A PERMISSIBLE Strands not shown Strands not shown 137'-4" € - € Bearing measured horizontally for clarity. for clarity. ALTERNATE SHAPE Coil ties shall be held in place in the forms by slotted wire-setting-studs projecting thru forms. Studs are to be left in place or replaced with temporary plugs until girders are erected, then replaced by coil tie rods. HALF ELEVATION OF GIRDER SPAN (1-2) Exterior and interior girders are the same, except for coil ties, and coil inserts for slab drains. Reinforcement support strands not shown for clarity. For location of coil inserts at slab drains, see Sheet No. 19. ← & Girder ←End of Girder For location of coil ties and #6 bars, see Sheets No. 5, 6, 9, 10 & 11. $\frac{3}{4}$ " $\times \frac{3}{4}$ " $\times 18$ " -1/2" Bearing Plate (ASTM Chamfer Block-€ 3/4"Ø (Min.) 1 64105-131 472-1201 AUTHORITY C 1"Ø Coil Tie Rods 2'-6" long (Typ.)-The 1 1/2"Ø holes shall be cast in the web for steel intermediate diaphragms. Drilling is not allowed. For location of holes and details of steel intermediate diaphragms, see Sheet No. out (Typ.) Hole Hole £ 3/4"Ø NTB (Min.) Coil T15 KIRK DRIVE KANSAS CITY, NO 6 CERTIFICATE OF AU NO. 001270 Tie Rods 2'-6" long-(Typ.) -€ Two -€ Four Welded Welded Studs Studs For Girder Camber Diagram, see Sheet No. 20. $(\frac{1}{2}" \times 5")$ 3'-0급" AT END BENT 2 AT END BENT 1 (Omit ext. face coil tie rod in exterior girders) SIDE VIEW END VIEW (Omit ext. face coil tie rod Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans. in exterior girders) NOT FOR BEARING PLATE DETAILS Galvanize the 1/2" bearing plate (ASTM A709 Grade 36) in accordance with ASTM A123. CONSTRUCTION DETAILS OF COIL TIES Cast 1"Ø hole horizontally in girder for #6 bar 5-6" long and clear reinforcing steel or strands by 1 1/2" Cost of furnishing, galvanizing, and installing the 1/2" bearing plate (ASTM A709 Grade 36) and welded studs in the prestressed girder will be considered 11/3/2017 completely covered by the contract unit price for Prestressed Concrete NU-Girder. ALTERNATE BAR REINFORCING STEEL DETAILS NU63 P/S GIRDER DETAILS SPAN (1-2)(REBAR) Detailed JUN 2017 Checked AUG 2017 Note: This drawing is not to scale. Follow dimensions. Sheet No. 16 of 37

Concrete for prestressed girders shall be Class A-1 with f'c = 8000 psi and f'ci = 6000 psi. (+) indicates prestressing strand. Use 42 strands with an initial prestress force of 1846 kips. Prestressing tendons shall be uncoated, seven-wire, lowrelaxation strands, 0.6 inch diameter in accordance with AASHTO M 203, Grade 270. Pretensioned members shall be in accordance with Sec 1029. 4'-01"

Fabricator shall be responsible for location and design of lifting devices.

3/8"Ø Reinforcement Support Strands (Required)

tensioned to 2.02 kips/strand (Outer strands) and 8 kips/strand (Inner strands) placed symm. about © Girder.

STRAND ARRANGEMENTS

2-WWR2

WWR5

2-WWR4

137'-4" € - € Bearing measured horizontally

Exterior and interior girders are the same, except for coil ties, and coil inserts for slab drains. Reinforcement support strands not shown for clarity.

HALF ELEVATION OF GIRDER SPAN (1-2)

May be moved laterally in pairs.

യ

2-WWR1

21-#3 G1 @ 6"

17 Spa. @ 2'

€ GIRDER

J1

27'-5"

* Girder top flange shall be steel troweled to a smooth finish for 8" at the edges, as shown. Apply two layers of 30-lb roofing felt as a bond breaker to this region only excluding where joint filler is applied. The center portion shall be rough finished by scarifying the surface transversely with a wire brush, and no laitance shall remain on the surface.

*** At the contractor's option the location for bent-up strands may be varied from that shown for fully bonded strands only. The total number of bent-up strands shall not be changed. One strand tie bar is required for each layer of bent-up strands except at end bents which require one bar on the bottom layer of strands only. No additional payment will be made if additional strand tie bars are required.

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shop be ojectic ining b within

and s 0" pro remai ands w

Sylt any stry end

13'-9"

2-WWR3

13'-9"

Symm, abt. @ girder except as shown +

13'-103"

7 Spa 6" 7 Spa.

END OF GIRDER

58-#3 G1 @ 12'

`@ 2″

@ 2"

3'-0"

(Typ.)

Z#5 Strand

END BENT

13'-9"

8 1/4"

Bar (Typ.) (Normal to girder)

STRAND DETAILS AT GIRDER ENDS

1-#3-G1

WWR4

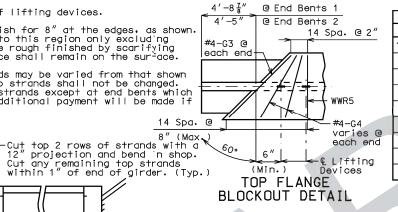
SECTION B-B

Strands not shown

for clarity.

END BENT

WWR3



-Longitudinal Wire

~ Vertical

Wire (Typ.

S

WELDED WIRE

PLACEMENT DETAIL

S = Vertical wire L = Length of WWR

J = Distance between

BILL OF REINFORCING STEEL - EACH GIRDER ACTUAL SHAPE NO. SIZE & MARK RENDING DIAGRAM 167 3 G1 2'-10" 16" 6 G2 5'-11" 4 G3 $7'-8\frac{1}{2}''$ 20 SHAPE 8 26 4 G4 Varies 20 -Top leg SHAPE 11 SHAPE 20

WELDED WIRE REINFORCEMENT (WWR4 & WWR5 as shown in Welded Wire Bending Diagrams WWR3 1-2|D20|3" 2'-9" |9" |D20|9" | 21'-0" | 14\frac{1}{4}" |D20|15" | 85'-0" A8580

St. Louis J6S3140 PROJECT NO

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SHEET NO

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W2 (Typ.) ·d=2 ½" d=2 ½" 16聋" 6콯" **@** 6 3'-33" table for bar W8 (Typ.) 3'-101"

WWR2

L2

WWR1, WWR2 & WWR3 WWR5 WELDED WIRE BENDING DIAGRAMS

General Notes: Reinforcing Steel:

WWR

All dimensions are out to out.

Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Actual bar lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be 1", unless otherwise shown.

All bar reinforcement shall be Grade 60 Welded Wire Reinforcement (WWR) shall be in accordance with AASHTO M 221.

WWR shall not be epoxy coated.

Miscellaneous:

WWR1

Cost of 3/4"Ø coil tie rods placed in diaphragms will be considered completely covered by the contract unit price for Prestressed Concrete NU-Girder.

Coil ties shall be held in place in the forms by slotted wire-setting-studs projecting thru forms. Studs are to be left in place or replaced with temporary plugs until girders are erected, then replaced by coil tie rods

For location of coil inserts at slab drains, see Sheet No. 19.

For location of coil ties and #6 bars, see Sheets No. 5, 6, 9, 10 & 11.

The 1 1/2"Ø holes shall be cast in the web for steel intermediate diaphragms. Drilling is not allowed. For location of holes and details of steel intermediate diaphragms, see Sheet No.

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.

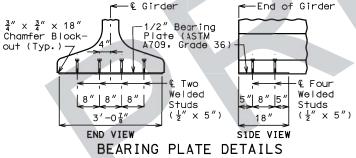
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) 64105-1310) 472-1201 AUTHORITY 715 KIRK DRIVE KANSAS CITY, NO 6 TELEPHONE (816) 4 CERTIFICATE OF AU NO. 001270 Z

NOT FOR CONSTRUCTION 11/3/2017

DETAILS OF COIL TIES

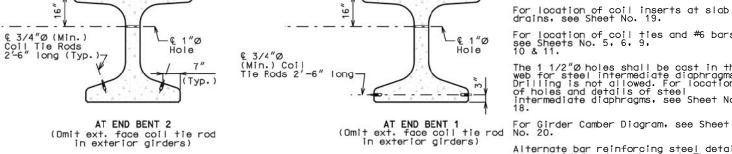
Cast 1"0 hole horizontally in girder for #6 bar 5'-6" long and clear reinforcing steel or strands by 1 1/2" minimum.



Bearing

Galvanize the 1/2" bearing plate (ASTM A709 Grade 36) in accordance with ASTM A123.

Cost of furnishing, galvanizing, and installing the 1/2" bearing plate (ASTM A709 Grade 36) and welded studs in the prestressed girder will be considered completely covered by the contract unit price for Prestressed Concrete NU-Girder.



NU63 P/S GIRDER DETAILS SPAN (1-2)(WWR)

Detailed JUN 2017 Checked AUG 2017

(Typ.

R=7류" (Typ.)

 $R=7\frac{7}{8}$ " (Typ.

3" Chamfe

 $3'-2\frac{3}{8}$

DIMENSIONS

2-#6-G2

4-#3 G1

@ 3½"

1 3"

₃lspa.

@ 3½"

(Typ.)

(Typ.)

WWR4

SECTION A-A

Strands not shown

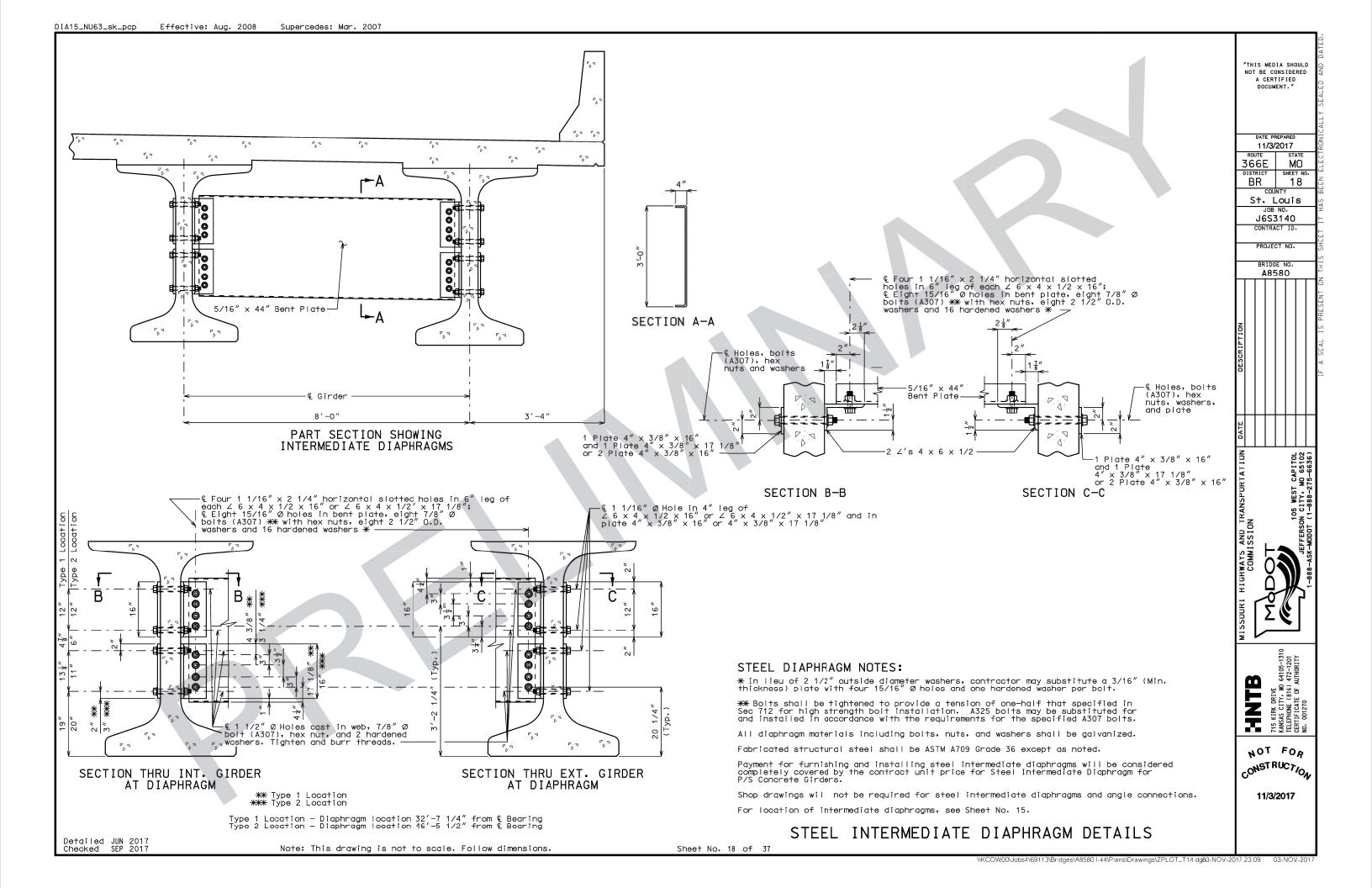
for clarity.

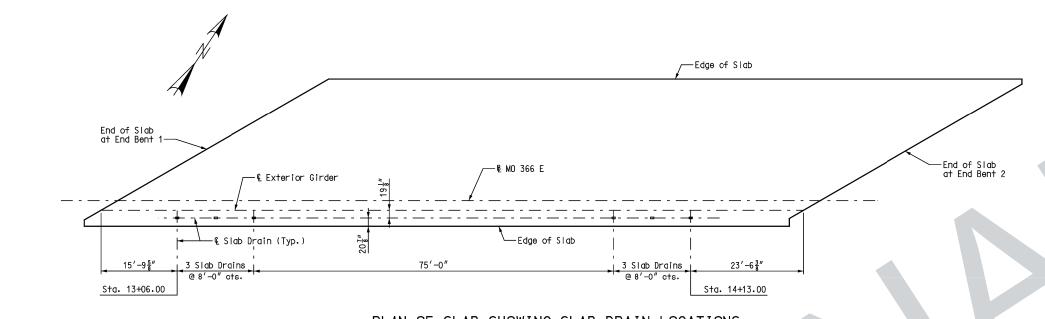
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 17 of 37

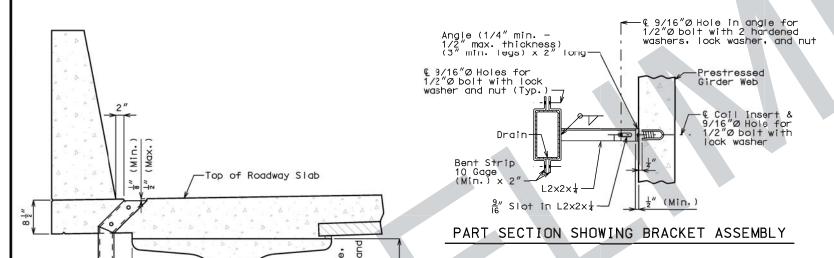
in exterior girders)

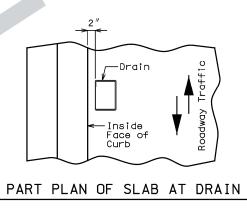
\\KCOW00\Jobs4\69113\Bridges\A8580 I-44\Plans\Drawings\ZPLOT_T13A.dg03-NOV-2017 23:09 03-NOV-201

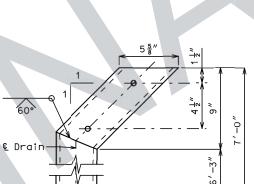




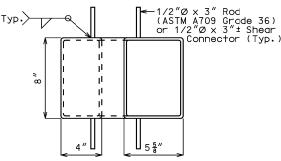
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



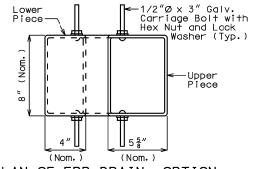




ELEVATION OF DRAIN



PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

General Notes:

Contractor shall have the option to construct either steel or FRP slab drains. All drains shall be of same type.

Slab drain bracket assembly shall be ASTM A709 Grade 36 steel.

Locate drains in slab by dimensions shown in Part Section Near Drain.

Reinforcing steel shall be shifted to clear drains.

The coil inserts and bracket assembly shall be galvanized in accordance with ASTM A123.

All bolts, hardened washers, lock washers and nuts shall be galvanized in accordance with ASTM A153.

Shop drawings will not be required for the slab drains and the bracket assembly.

The coil insert required for the bracket assembly attachment shall be located on the prestressed girder shop drawings.

Coil inserts shall have a concrete pull-out strength (ultimate load) of at least 2,500 pounds in 5,000 psi concrete.

The bolt required to attach the slab drain bracket assembly to the prestressed girder web shall be supplied by the prestressed girder fabricator.

Notes for Steel Drain:

Slab drains may be fabricated of either 1/4" welded sheets of ASTM A709 Grade 36 steel or from 1/4" structural steel tubing ASTM A500 or A501.

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

Drains shall be machine filament-wound thermosetting resin tubing meeting the requirements of ASTM D2996 with the following exceptions:

Shape of drains shall be rectangular with outside nominal dimensions of $8\,^{\prime\prime}$ x $4\,^{\prime\prime}$.

Minimum reinforced wall thickness shall be

The resin used shall be ultraviolet (UV) resistant and/or have UV inhibitors mixed throughout. Drains may have an exterior coating for additional UV resistance.

The color of the slab drain shall be gray (Federal Standard 26373). The color shall be uniform throughout the resin and any coating used.

The combination of materials used in the manufacture of the drains shall be tested for UV resistance in accordance with ASTM D4329 Cycle A. The representative material shall withstand at least 500 hours of testing with only minor discoloration and without any physical deterioration. The contractor shall furnish the results of the required ultraviolet testing prior to acceptance of the slab drains.

At the contractor's option, drains may be field cut. The method of cutting FRP slab drain shall be as recommended by the manufacturer to ensure a smooth, chip free

Both upper and lower drain pieces shall be rigidly connected to each other. Drain flow shall not be obstructed. Approval of the

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> 1 64105-131 472-1201 AUTHORITY T15 KIRK DRIVE
> KANSAS CITY, NO 6410
> TELEPHONE (816) 472CERTIFICATE OF AUTHO
> NO. 001270

NOT FOR CONSTRUCTION 11/3/2017

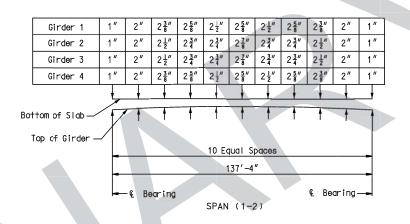
SLAB DRAIN DETAILS

1" (Min.)

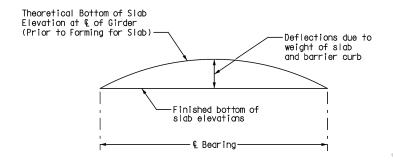
PART SECTION NEAR DRAIN

THEORETICAL BOTTOM OF SLAB ELEVATIONS AT & OF GIRDER (PRIOR TO FORMING FOR SLAB) ***											
Span (1-2) (137'-4" € brg - € brg.)											
	€ brg.	.10	.20	.30	•40	•50	.60	.70	.80	.90	€ brg.
Girder No. 1	544.36	544.98	545.56	546.09	546.56	546.98	547.35	547.66	547.91	548.12	548.29
Girder No. 2	543.63	544.29	544.90	545.47	545.98	546.43	546.83	547.16	547.44	547.68	547.87
Girder No. 3	542.87	543.56	544.21	544.80	545.34	545.83	546.25	546.62	546.94	547.20	547.42
Girder No. 4	542.08	542.80	543.47	544.09	544.66	545.17	545.63	546.03	546.38	546.68	546.94

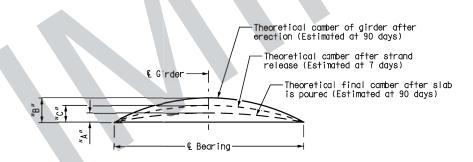
^{**} Elevations are based on a constant slab thickness of 8 1/2" and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier curb.



THEORETICAL SLAB HAUNCHING DIAGRAM



TYPICAL SLAB ELEVATIONS DIAGRAM



	Span (1–2)		
	"A"	"B"	"c"
⊈ Girder 1	1 7 "		
⊈ Girder 2	1 5 "	4 <u>3</u> "	2 3 "
⊈ Girder 3	1 5 "	44	<u> </u>
€ Girder 4	1 7 "		

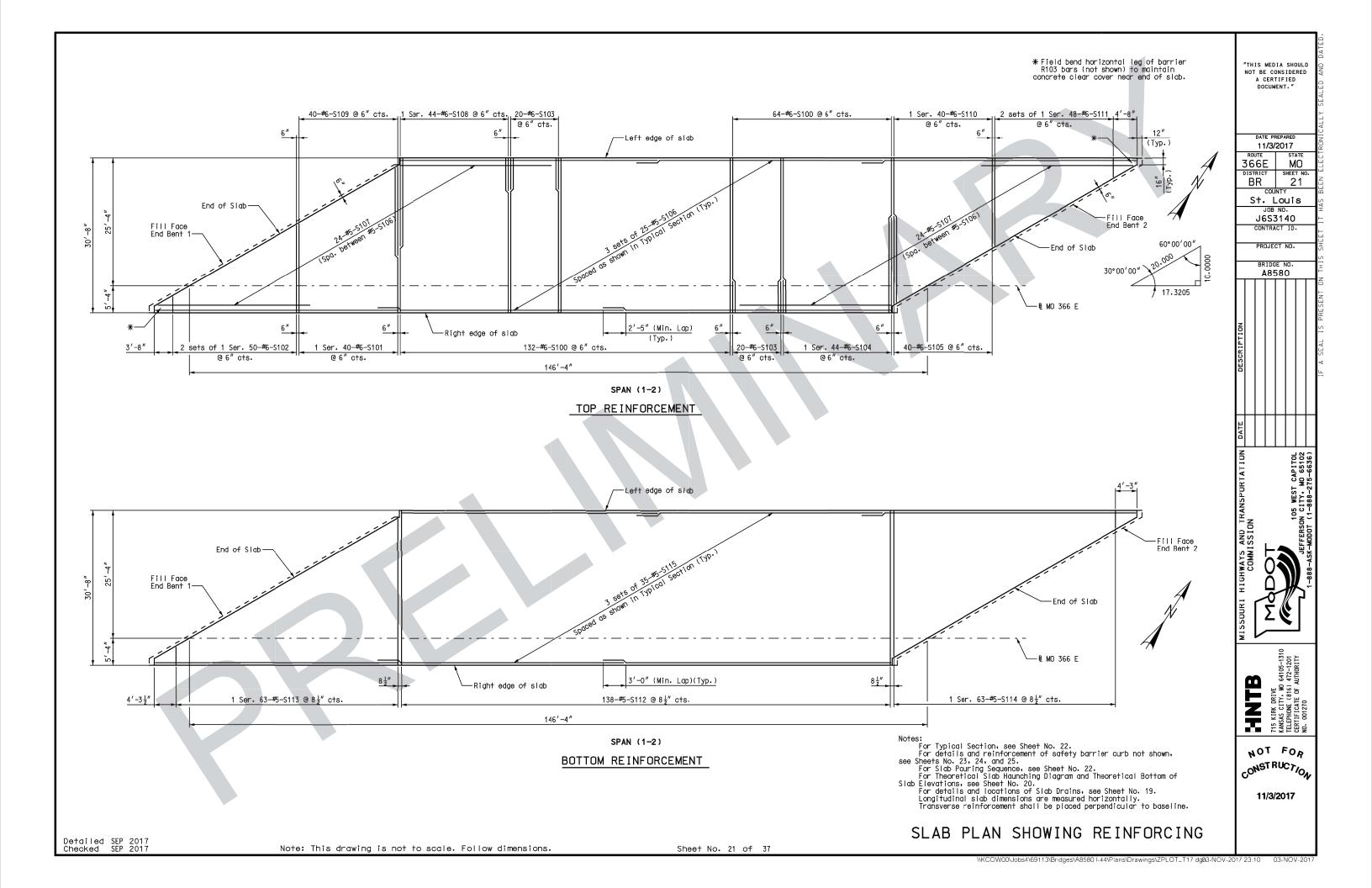
GIRDER CAMBER DIAGRAM

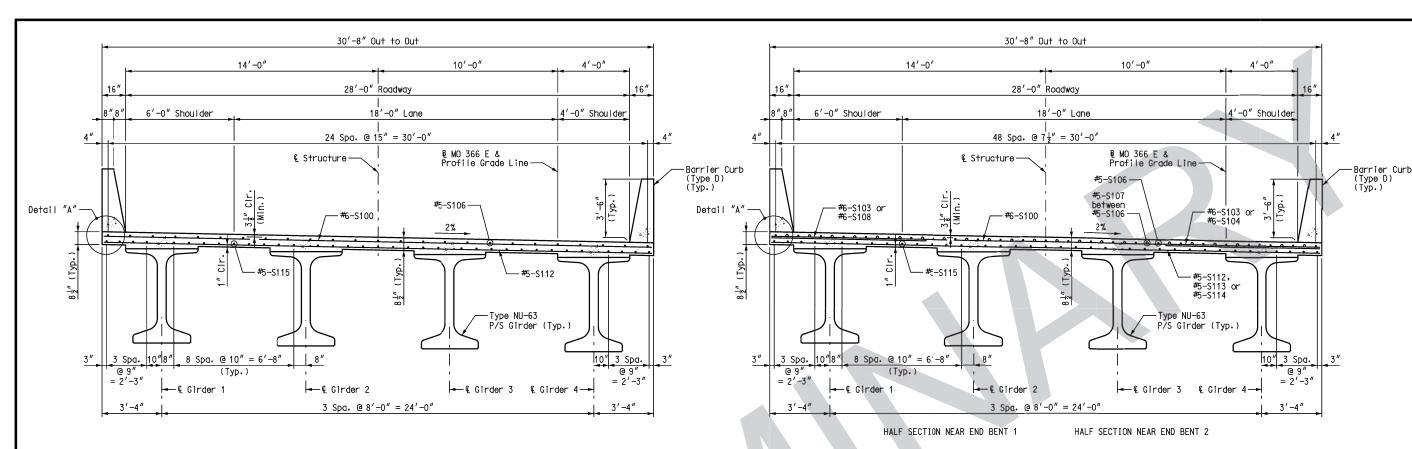
If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness an adjustment of the slab haunches, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete NU-Girder. Conversion factors for girder camber (Estimated at 90 days) 0.1 pt. = 0.314×0.5 pt. 0.2 pt. = 0.593×0.5 pt. 0.3 pt. = 0.813×0.5 pt. 0.4 pt. = 0.952×0.5 pt.

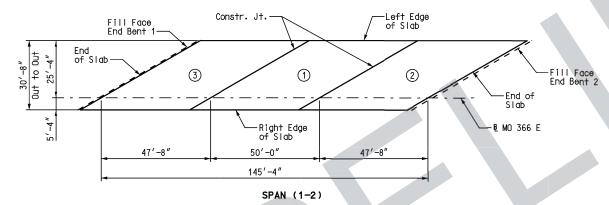
THEORETICAL SLAB HAUNCHING DIAGRAM, THEORETICAL BOTTOM OF SLAB ELEVATIONS, AND GIRDER CAMBER DIAGRAM Sheet No. 20 of 37

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TYPICAL SECTION NEAR MIDSPAN



SLAB POURING SEQUENCE

		Sequence of Pours		Min. rate of pour cu. yds./hr.
		Direction		With retarder
Basic 1		2	3	0.5
sequence	3 to 2	1 to End	End to 1	25
	to the basic sequence th Sec 703.	are subject to the ap	proval of the engine	er
Alternate "A" pours	3 to End	<u> </u>		65
Alternate "B"	3 + 1 + 2			- 65
pours		1		

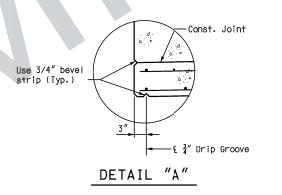
Note: This drawing is not to scale. Follow dimensions.

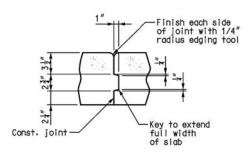
- Bridge deck shall be poured upgrade.
 The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.
 The concrete diaphragm at the integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

Detailed SEP 2017 Checked SEP 2017

SLAB CROSS SECTION AND POURING SEQUENCE

TYPICAL SECTION NEAR ENDS OF SLAB





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PROJECT NO

BRIDGE NO. A8580

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SLAB CONSTRUCTION JOINT DETAILS

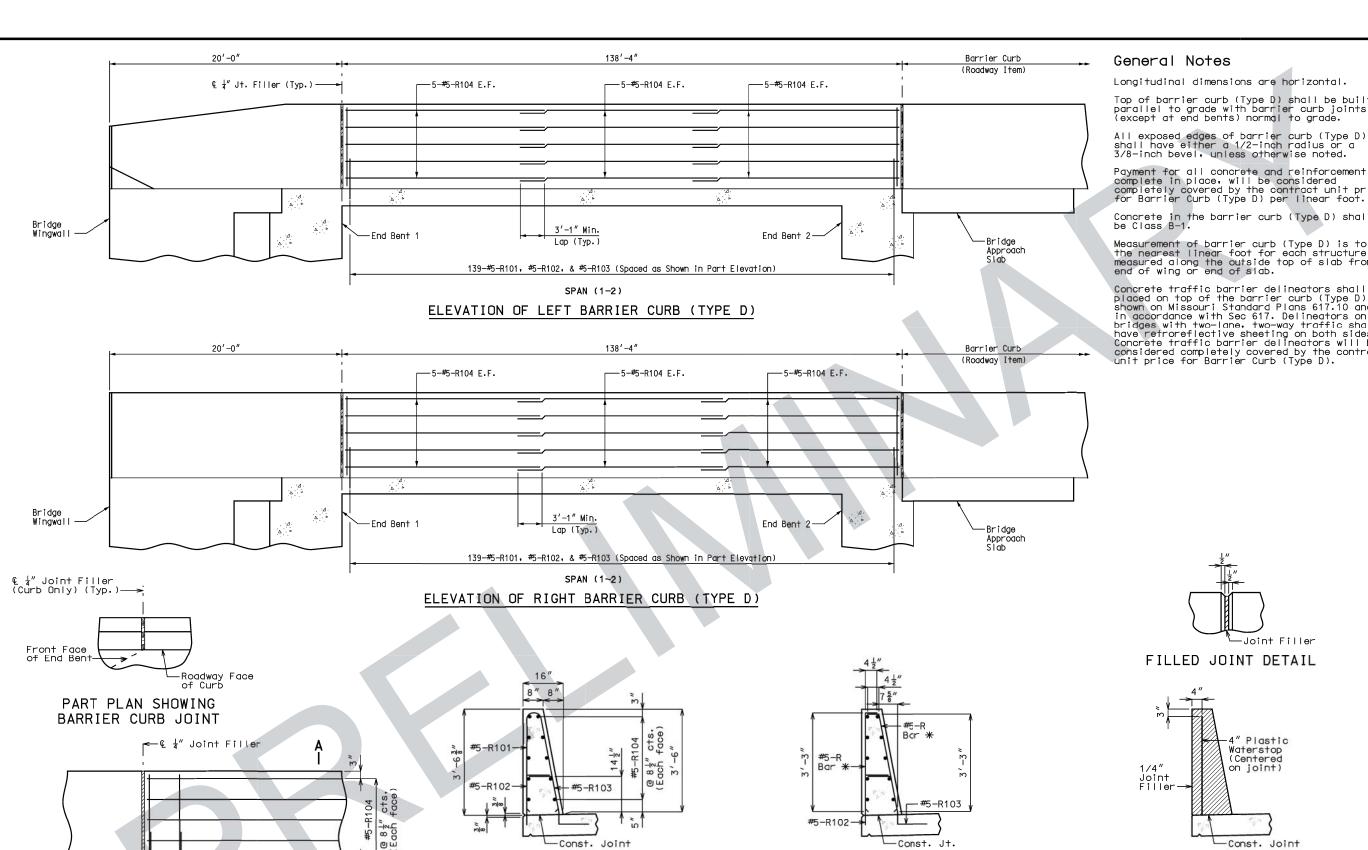
Notes:

For details and reinforcement of Safety Barrier Curb, see Sheets No. 23, 24, and 25.

For Plan of Slab showing Reinforcement, see Sheet No. 21. For Theoretical Slab Haunching Diagram and Theoretical Bottom of Slab Elevations, see Sheet No. 20.

For details and locations of Slab Drains, see Sheet No. 19. Place screed parallel with skew to minimize the effects of differential displacement between girders during slab placement.

Sheet No. 22 of 37



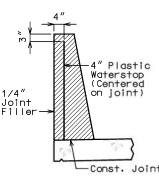
Top of barrier curb (Type D) shall be built parallel to grade with barrier curb joints

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 or end of slab.

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 superelevation, 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).



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St. Louis

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PROJECT NO

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SHEET NO

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DISTRICT

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CONVENTIONAL-FORMED BARRIER CURB (TYPE D)

slab = 3.52 sq. ft.

#5-R101, R102 and R103

@ abt. 12" cts.

PART ELEVATION OF BARRIER CURB (TYPE D)

Detailed SEP 2017 Checked SEP 2017

SECTION A-A

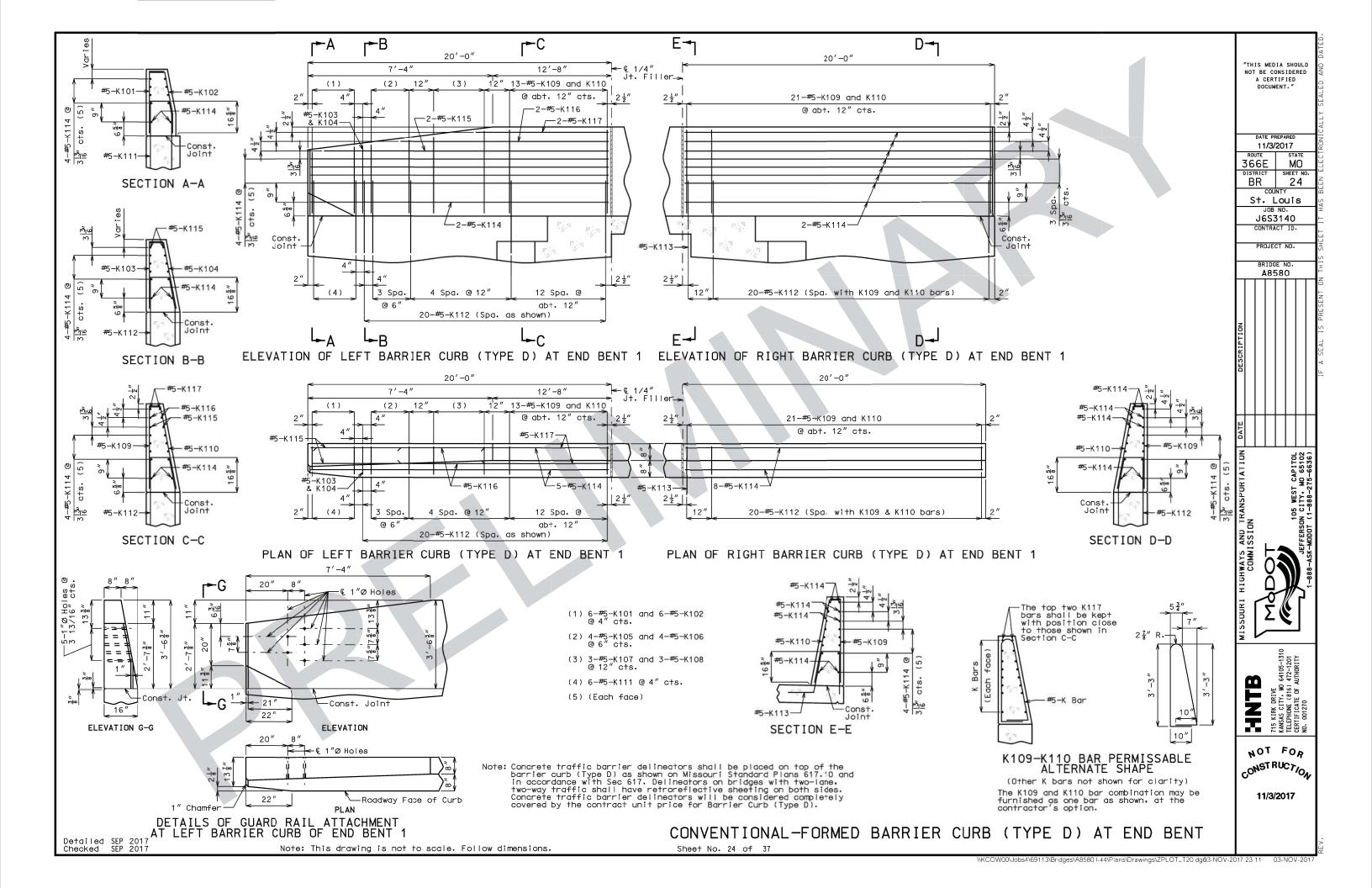
Use a minimum lap of 3'-1" for #5 horizontal barrier curb (Type D) bars.

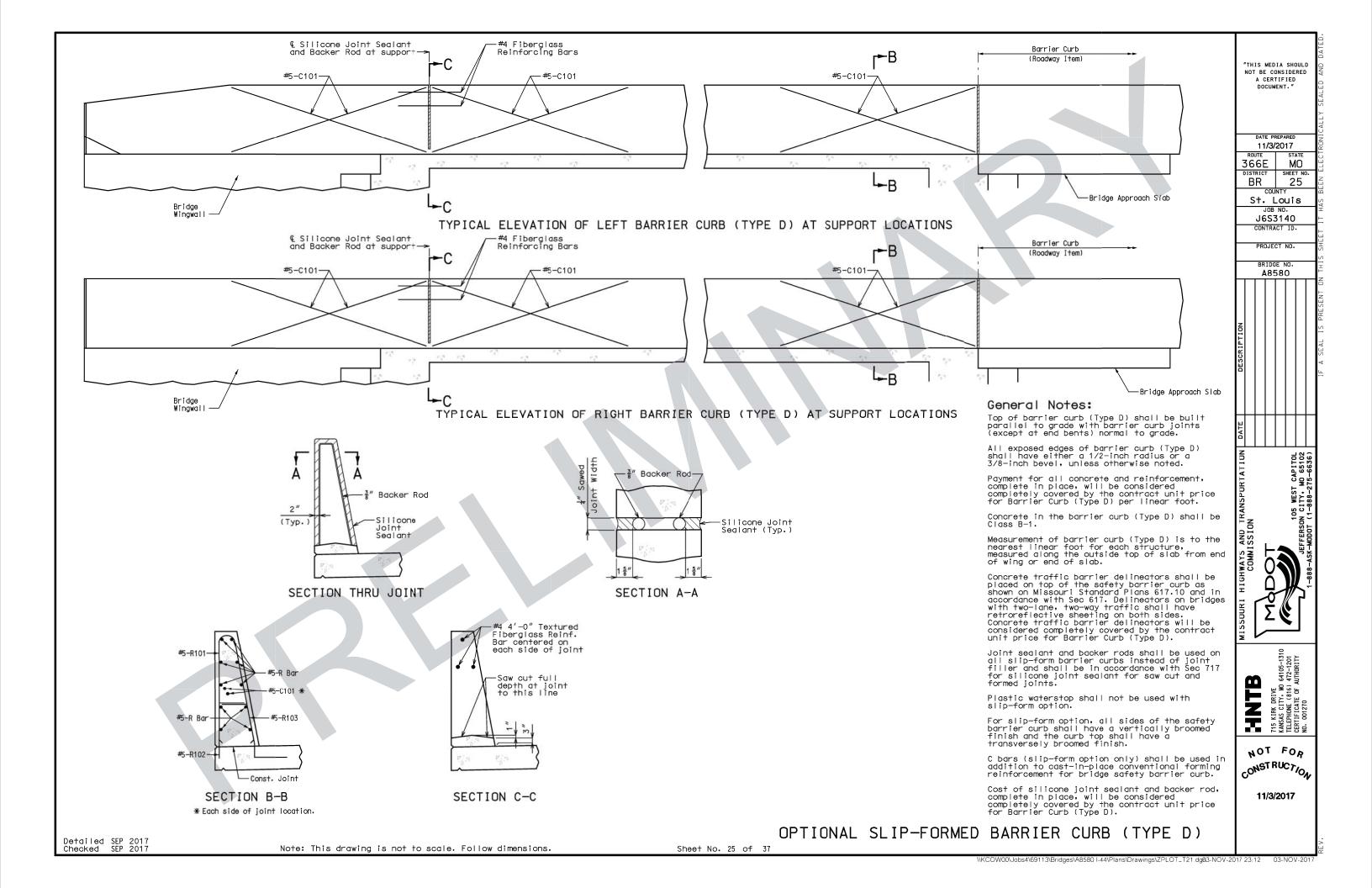
The cross-sectional area above the

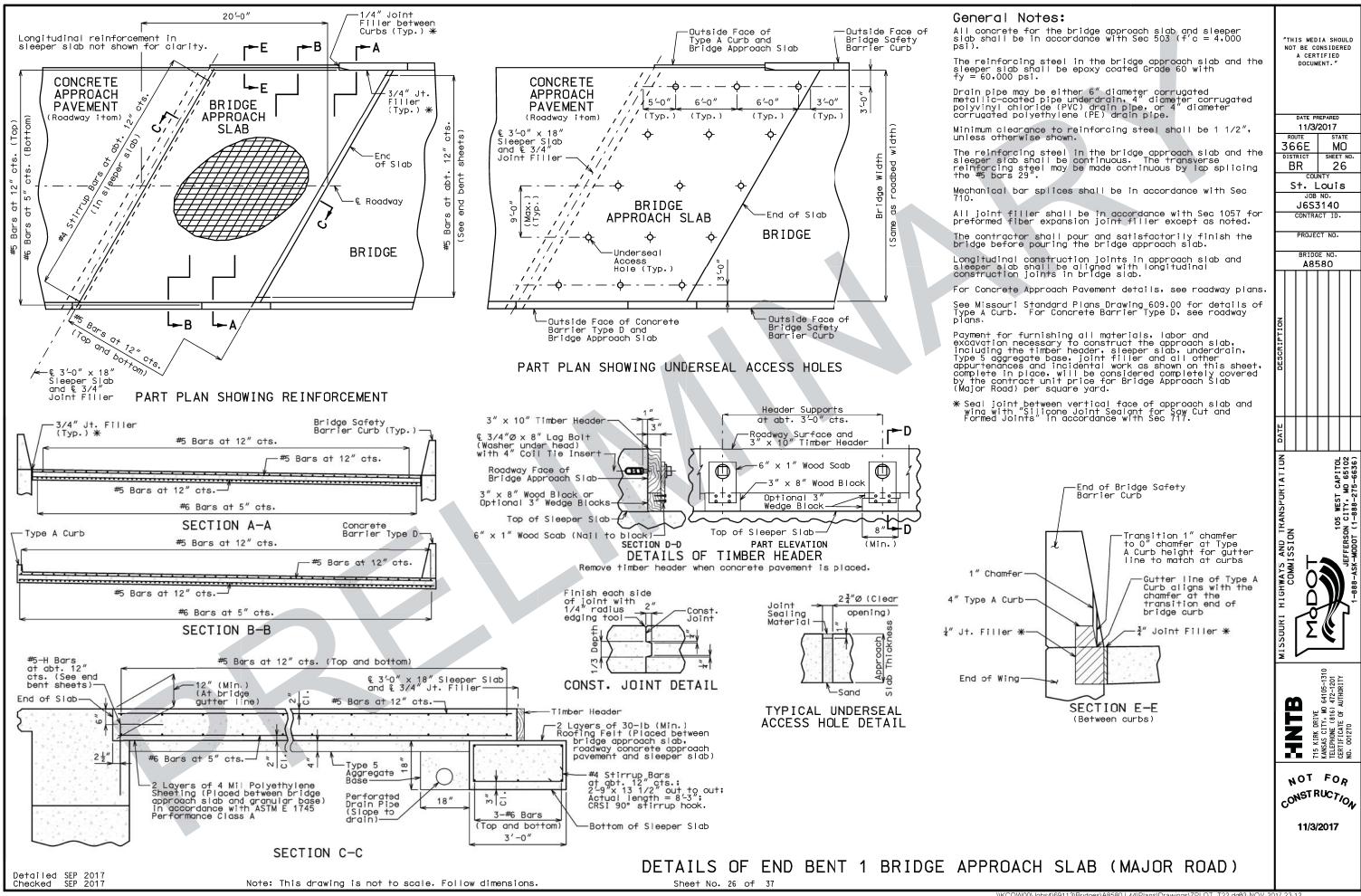
R-BAR PERMISSIBLE ALTERNATE SHAPE

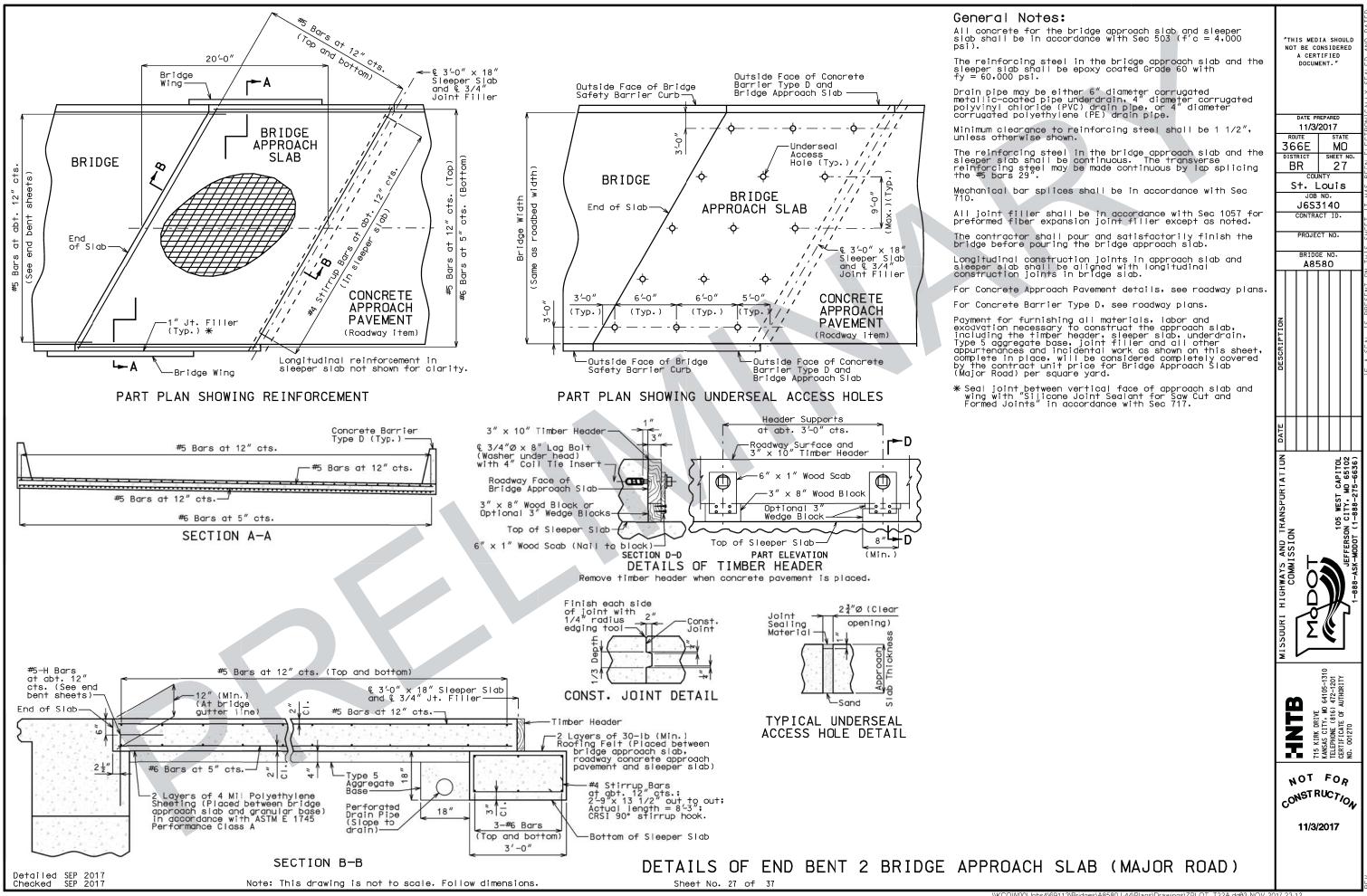
* The R101 bar may be separated into two bars as shown, at the contractor's option, only when slip forming is

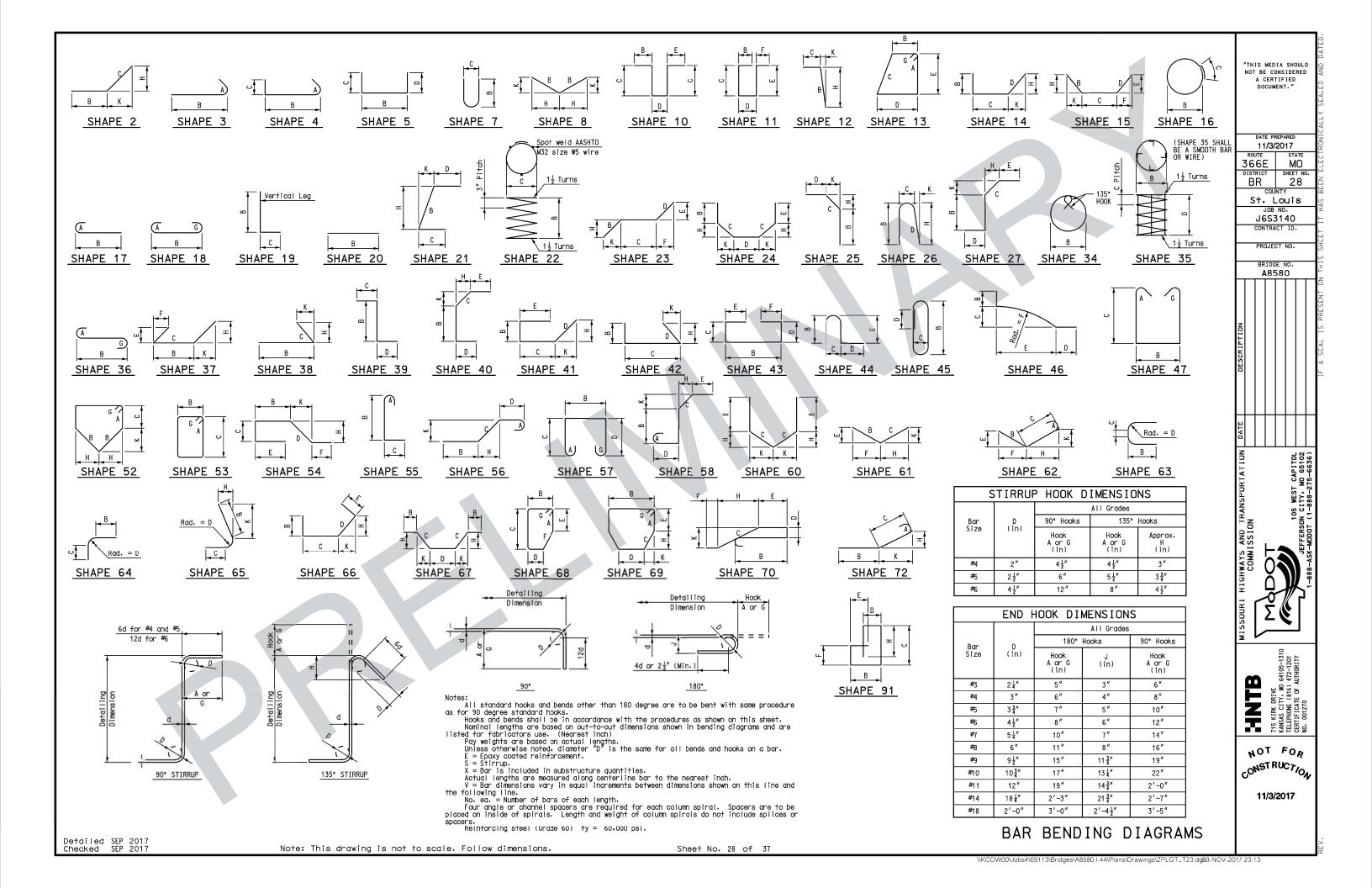
not used. (All dimensions are out to out.)











							-	 3 I	LL OI	F REI	NFOR	CING	STEEL					
	MARK NO.		_	-:	(S)	î	<u> </u>	<i>T</i>			С	IMENSION	S			NAL TH	JAL	ļ.
REQ'D.	NO	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (STR. (VARIES (V)	. EACH	В	С	D	E	F	Н	К	NOMINAL	ACTUAL LENGTH	WEIGHT
NO.	SIZE		EP(SH/	STIF	SUBS	VAR	.ON	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	LBS.
		SUBSTRUCTURE	П															
24	7H213	END BENT NO. 2 Footing	Н	20	H	Х			34'-9"							34'-9"	34'-9"	1705
2	7H214	Footing	Н	20	Н	X			2'-6"							2'-6"	2'-6"	10
16	5H215	Footing		20		Χ			31'-9"							31'-9"	31'-9"	530
2	5H216	Footing	Ц	23		Х			12"	56'-0"	16"	13 7 "	8"	10 ³ / ₈ "	6"	58'-4"	58'-4"	122
10	8H217 8H218	Wingwall Wingwall	Н	20	H	X			19'-8" 17'-5"							19'-8" 17'-5"	19'-8" 17'-5"	473 465
12	8H219	Wingwall	Н	20	Н	X	H		9'-8"							9'-8"	9'-8"	310
24	8H221	Footing	Н	20	Н	X			7'-4"							7'-4"	7'-4"	470
2	5H222	Footing		23		Χ			8"	56'-0"	20"	17 3 ″	10"	6 7 "	4"	58'-4"	58'-4"	122
12	5H224	Wingwall	Ц	20	\sqcup	Х	L		9'-8"							9'-8"	9'-8"	121
10	5H225 5H226	Wingwall Wingwall	Н	20	H	X	H		17'-5" 19'-8"							17'-5" 19'-8"	17'-5" 19'-8"	182 185
6	5H227	Footing	Н	5	Н	Х	H	Н	10'-6"	2'-8"	2'-8"					15'-10"	15'-7"	98
6	5H228	Footing	Н	14	П	Х			2'-0"	7'-6"	18"			9"	15 \frac{5}{8}"	11'-0"	10'-11"	
20	6H229	Footing		20		Х			6'-9"							6'-9"	6'-9"	203
10	411007	Facilitate	Ц	_	اً		\vdash		0/ 6"	0/ 6"	0/ 6"					47/ 2"	47/ -"	
20	4U207 4U208	Footing Footing	Н	5 5	S		H	H	8'-6" 11'-4"	2'-6"	2'-6"				-	13'-6" 16'-4"	13'-4" 16'-2"	89 216
43	5U209	Footing	Н	5	S		H	H	8"	2'-6"	2'-6"					5'-8"	5'-5"	243
44	5U210	Footing	H	53	S	X	H	H	5'-8"	3'-7"						19'-5"	19'-2"	880
13	5U211	Footing		5	S	Χ			5'-8"	3'-7"	3'-7"					12'-10"	12'-7"	171
3	5U212	Footing	Ц	53	S	Х	٧	1	4'-8"	3'-7"						17'-5"	17'-2"	57
	EU047	Increment = 11"	Н	F 7	_	v	v	_	5'-7"	3'-7"						19'-3"	19'-0"	144
3	5U213	Footing Increment = 11"	Н	53	S	X	٧	1	2'-7" 3'-6"	3'-7" 3'-7"						13'-3"	13'-0" 14'-10"	44
5	5U214	Footing	Н	53	S	Х	٧	1	4'-3"	3'-7"						16'-7"	16'-4"	95
		Increment = 11"							6'-1"	3'-7"						20'-3"	20'-0"	
1	5U215	Footing	Ц	53	S				7'-5"	3'-7"						22'-11"	22'-8"	24
1	5U216 5U218	Footing Footing	Н	53 5	S S				7'-3" 6'-8"	3'-7" 3'-7"	3'-7"					22'-7" 13'-10"	22'-4" 13'-7"	23
1	5U219	Footing	Н	5					3'-8"	3'-7"	3'-7"				<u> </u>	10'-10"	10'-7"	11
1	5U220	Footing	Н	53	S				3'-2"	3'-7"	<u> </u>					14'-5"	14'-2"	15
20	4U221	Footing		5		Χ			9'-4"	15"	15"					11'-10"	11'-8"	156
1	5U222	Footing	Ш	5	S	Х			4'-1"	3'-7"	3'-7"					11'-3"	11'-0"	11
2	6V102	Footing	Н	20	H	Х			3'-7"							3'-7"	3'-7"	11
2	6V203	Footing	Н	20	Н	Χ	H	Н	4'-1"							4'-1"	4'-1"	12
20	6V204	Wingwall	Н	20	П	X			8'-3"					-		8'-3"	8'-3"	248
22	6V205	Wingwall		20		X X			10'-3"		F			-		10'-3"	10'-3"	339
16	6V206	Wingwall	Ш	20	L	X	L	L	8'-5"							8'-5"		202
22	6V207	Wingwall	Н	20	\vdash	L _X	H	H	10'-3"	`		_				103"	10'-3"	339
			Н		Н	┢	H	H										
			Ц															
\vdash			Н		H			H			<u> </u>							
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_	\vdash		Н		\vdash		H	H	ļ			<u> </u>	<u> </u>		<u> </u>			
\vdash			Н		\vdash	├	-	H										
			Н		Н	\vdash	Н											
					L													
\Box			Ш			L_		L				<u> </u>	L		L		<u> </u>	

	MARK					_						IMENSION	c					
REQ'D.	NO.		(E	ě.	(S)	Ξ.	VARIES (V)	EACH		Ι	1	ı	I		<u> </u>	NOMINAL	ACTUAL LENGTH	WEIGHT
		LOCATION	EPOXY	SHAPE	STIRRUP	SUBSTR.	RIES	No.	В	С	D	E	F	Н	K	ON 17	A(3
2	S I Z E MARK		"	Š	ST	SE	X	z	FT. IN.	 FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	 FT. IN.	LBS
		SUPERSTRUCTURE	T															
13	65100	END BENT NO. 1	+-	15	L	H	-	\vdash	14"	3'-2"	14"	13½"	3 5 "	13½"	35/	5'-6"	5'-6"	107
7	6F100 6F101	Diaphragm	+-	2	┢	┢	\vdash	\vdash	4'-10"	6'-5"	14	13 2	2 8	$5'-6\frac{5}{8}''$	$3'-2\frac{1}{2}''$	11'-3"	11'-3"	118
6	6F102	Diaphragm	+-	14	t	t	T	T	6'-5"	10"	4'-6"			3'-3"	3'-3"	11'-9"	11'-8"	105
13	6F103	Wingwall	I	15					14"	13'-3"	14"	4 3 "	13 1/8"	4 3 "	13 ½"	15'-7"	15'-7"	304
12	11H100	Beam	+	20	H	H	-	L	34'-0"							34'-0"	34'-0"	2168
12 4	11H101	Beam	+-	20	H	H	H		58'-9"	12"				6"	103"	59'-9"	59'-9"	1270
20	6H102	Beam & Diaphragm	╁	20	t	t	H	T	31'-0"	12				ľ	108	31'-0"	31'-0"	93
6	6H103	Diaphragm	I	2					11"	12"				6"	10 3 "	23"	23"	17
6	6H104	Diaphragm		20	_			_	3'-1"							3'-1" 9'-4"	3'-1" 9'-4"	28
18 4	6H105 5H106	Diaphragm Diaphragm		20	H	┝	H	┝	9'-4"	3'-3"	15"	13"	7 ½"	13"	7 ½"	5'-9"	5'-9"	252 24
28	5H107	Diaphragm	E	19		T	t	t	2'-0"	15"	1,0	13	1 2	'	1 2	3'-3"	3'-2"	92
8	6H108	Diaphragm	E	20					33'-0"							33'-0"	33'-0"	39
4	6H109	Diaphragm	+	20			L	\vdash	5'-6"		<u> </u>					5'-6"	5'-6"	33
20 8	6H110 8H111	Beam Wingwall	NE.	20	-	-		+	8'-3" 19'-8"	-	├				-	8'-3" 19'-8"	8'-3" 19'-8"	248 420
<u>o</u> 24	6H112	Wingwall	1	20				H	19'-8"							19'-8"	19'-8"	709
24	6H113	Wingwall		20					17'-4"							17'-4"	17'-4"	625
8	8H114	Wingwall	E	20					17'-4"	=//						17'-4"	17'-4"	370
32 36	6U100 4U101	Beam Beam	╁	5 53	S	┢	F	F	8'-4" 8'-4"	5'-10" 2'-7"	5'-10"					20'-0" 22'-7"	19'-9" 22'-4"	949 537
2	4U102	Beam	+	5	S	╁	H	╁	8'-4"	2'-7"	2'-7"					13'-6"	13'-4"	10
53	6U103	Diaphragm	E	5	s	H	t	t	7'-4"	5'-7"	5'-7"					18'-6"	18'-3"	1453
45	6U104	D) aphragm		19	s				4'-8"	8'-0"						12'-8"	12'-7"	85
39	6U105	Diaphragm	E	19	S	L	-	_	2'-11"	9'-10"	F/ 7//					12'-9"	12'-8"	742
2	6U106	Beam	╁	5 5	S	┢	-	\vdash	6'-7"	5'-7" 5'-7"	5'-7" 5'-7"					17'-9" 17'-4"	17'-6" 17'-1"	53 51
<u>-</u> 36	4U108	Beam	+-	5	Ť	H	H	H	8'-4"	18"	18"					11'-4"	11'-2"	269
2	6U109	Diaphragm		5	S				6'-2"	5'-8"	5'-8"					17'-6"	17'-3"	52
2	6U110	Diaphragm	4	5	S	L			6'-7"	5'-8"	5'-8"					17'-11"	17'-8"	53
42	5V100	Beam	+-	20	┢	┝	┢	┢	5'-10"							5'-10"	5'-10"	256
48	6V101	Diaphragm	\dagger	20	t	H	H	T	4'-8"							4'-8"	4'-8"	336
24	6V102	Wingwall		20					8'-6"							8'-6"	8'-6"	306
24	6V103	Wingwall	+-	20	-	L		\vdash	8'-7"							8'-7"	8'-7"	309
		END BENT NO. 2	+-		H	H	H	\vdash										
16	7H2O1	Diaphragm	E	20					32'-8"							32'-8"	32'-8"	1068
9	7H2O2	Diaphragm	\bot	20	L	L	L	L	14'-0"							14'-0"	14'-0"	258
5 18	6H2O3 6H2O4	Diaphragm Diaphragm	+	20	\vdash	H	\vdash	\vdash	58'-6" 14'-7"							58'-6" 14'-7"	58'-6" 14'-7"	439 394
7	6H2U4 6H2O5	Diaphragm Diaphragm	+	5	H	\vdash	H	H	9'-5"	12"	2'-0"					12'-5"	12'-2"	128
3	6H2O7	Diaphragm	T	2	İ	T	T	T	3'-2"	12"	L			10 3 ″	6"	4'-2"	4'-2"	19
6	6H2O8	Diaphragm	Γ	20					5'-9"							5'-9"	5'-9"	52
3	6H2O9	Diaphragm	+	20	1	\vdash	-	-	5'-5"	7/ 0//	10"			0"	455#	5'-5"	5'-5"	24
7 4	6H210 5H211	Diaphragm Diaphragm	+	23	\vdash	\vdash	\vdash	+	13" 15"	7'-2" 3'-3"	18" 15"	13"	7 ½"	9" 13"	15	9'-9" 5'-9"	9'-8" 5'-9"	102
7 31	5H212	Diaphragm	E	19	t	\vdash	T	T	2'-0"	15"	 	' <u>`</u>	' 2	' <u>'</u>	1 2	3'-3"	3'-2"	102
4	6H220	Diaphragm	I	20					5'-6"							5'-6"	5'-6"	33
6	6H223	Diaphragm	+	2	\vdash	\vdash	\vdash	\vdash	3'-6"	12"				103"	6"	4'-6"	4'-6"	4
24	6U201	Diaphragm	E	91	S	H	H	H	9'-4"	5'-1"	8'-4"	2'-6"	4'-2"	3'-1"		32'-6"	31'-9"	114
32	6U202	Diaphragm		5	S				9'-4"	4'-2"	3'-8"					17'-2"	16'-11"	813
38	6U203	Diaphragm	E	19	Ļ	L	L	L	2'-11"	10'-10"	6/ 7"	0/ 0"	4/ 0"	7/ ."		13'-9"	13'-8"	780
<u>1</u> 1	6U204 6U205	Diaphragm Diaphragm	E	91 91	S	\vdash	-	\vdash	7'-7" 8'-4"	5'-1" 5'-1"	6'-7" 7'-4"	2'-6"	4'-2"	3'-1" 3'-1"		29'-0" 30'-6"	28'-3" 29'-9"	42
1	6U205	Diaphragm Diaphragm	E	91	S	\vdash	\vdash	T	9'-0"	5'-1"	B'-0"	2'-6"	4'-2"	3'-1"		31'-10"	31'-1"	4
3	6U217	Diaphragm	Ē	91	S		İ		9'-8"	5'-1"	8'-8"	2'-6"	4'-2"	3'-1"		33'-2"	32'-5"	146
1.0	CVOCA	Diaphrage	\perp	20	L	L	L	L	E/ ^//							E/ ^//	E' 0"	401
16	6V201	Diaphragm	+	20	⊢	\vdash	\vdash	+	5'-0"							5'-0"	5'-0"	120
			+	-	-	-	-	-								l		

BILL OF REINFORCING STEEL (1 OF 2)

Detailed NOV 2017 Checked NOV 2017

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

Sheet No. 29 of 37

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

11/3/2017

ROUTE STATE
366E MO
DISTRICT SHEET NO.
BR 29

COUNTY St. Louis JOB NO.
J6S3140
CONTRACT ID.

> PROJECT NO. BRIDGE NO. A8580

NOT FOR CONSTRUCTION

							-	 3 I	ILL O	F REI	NFOR	CING	STEEL	_					
	MARK NO.		<u> </u>		(S)	(X	()	_			[IMENSION	IS			NAL 3TH	JAL .	<u> </u>	нт
. REQ'D.		LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (SUBSTR. (VARIES (V)). EAC	В	С	D	E	F	Н	К	NOMINAL	ACTUAL	LENC	WEIGHT
N	SIZE MARK		EP	НS	STI	ans	٨AF)N	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT.	IN.	LBS.
		SLAB	L						/ -"							/ -"	/	- "	
196	6S100	Slab	E	20	Н	Н	1/	1	30'-5" 17'-6"			 				30'-5" 17'-6"	30'-		8954 1389
40	6S101	$\frac{\text{Slab}}{\text{Increment} = 3\frac{1}{2}''}$	E	20	Н		٧	_	28'-9"							28'-9"	28'-		1389
100	6S102	Slab	Ε	20	Н		٧	2								3'-0"	3'-0		1521
	30.02	Increment = $3\frac{1}{2}$ "	Ė		Н		Ť	Ė	17'-3"							17'-3"	17'-		
40	6S103	Slab	Ε	20	П				6'-0"							6'-0"	6'-0)"	360
44	6S104	Slab	Ε	20			٧	1	6'-4"							6'-4"	6'-4		829
L		Increment = $3\frac{1}{2}$ "	L	L	Ц				18'-9"							18'-9"	18'-		
40	6S105	Slab	E	20	Н				17'-5"							17'-5"	17'-		1046
75 48	5S106 5S107	Slab	E	20	Н				50'-5" 30'-0"							50'-5" 30'-0"	50'-		3944 1502
44	6S108	Slab Slab	E	20	H		٧	1	6'-4"							6'-4"	6'-4	1"	829
	03100	Increment = $3\frac{1}{2}$ "	F		Н		Ť	Ė	18'-9"							18'-9"	18'-		023
40	6S109	Slab	Ε	20	П				17'-5"							17'-5"	17'-	5"	1046
40	6S110	Slab	Ε	20			٧	1	17'-5"							17'-5"	17'-	5"	1384
		Increment = $3\frac{1}{2}$ "			Ц	Ш			28'-8"							28'-8"	28'-		
96	6S111	Slab	Ε	20	Ц	Ш	٧	2								3'-7"	3'-7		1496
138	5S112	Increment = $3\frac{1}{2}$ " Slab	F	20	Н	Н		-	17'-2" 30'-5"				<u> </u>			17'-2" 30'-5"	17'- 30'-		4378
63	5S112 5S113	Slab	E	20	Н	H	٧	1			-	-	 			3'-6"	3'-6		1062
03	33113	Increment = $4\frac{7}{8}$	┢	20	Н		_	Ė	28'-10"							28'-10"			1002
63	5S114	Slab	Ε	20	Н	П	٧	1				1				3'-6"	3'-6		1062
		Increment = $4\frac{7}{8}$			П				28'-10"							28'-10"	28'-1	10"	
105	5S115	Slab	Ε	20					50'-10"							50'-10"			5567
Щ			\Box		Ц	Ц												\Box	
	5V101	BARRIER CURB (TYPE D)	F	10		Н	W	4	2/_11/	7.1//			<u> </u>			3'-0"	2'-1	0"	40
6	5K101	Barrier Curb Increment = 3/8"	Ε	19	S	H	٧	Н	$2'-4\frac{1}{4}''$ $2'-6\frac{3}{4}''$	7¼" 6¼"			-			3'-2"	3'-(18
6	5K102	Barrier Curb	Ε	25	S	H	٧	1	8 ½"	20 ½"	7 ‡"			193"	3 3 "	3'-0"	2'-1		19
۱Ť	SKIDE	Increment $=\frac{3}{4}''$	┢		Ť		•	Ė	0"	2'-9"	7¼" 6¾"			2'-83"	6 ½"	3'-4"	3'-3	3"	17
1	5K103	Barrier Curb	Ε	19	S				2'-74"	6"						3'-2"	3'-0		3
1	5K104	Barrier Curb	Ε	12	S				2'-9"	6 <u>3</u> "				$2'-8\frac{3}{8}"$	6 ½"	3'-4"	3'-4		3
4	5K105	Barrier Curb	Ε	19	S		٧	1	$2'-7\frac{3}{4}''$	6 5 "						3'-3"	3'-1		13
\vdash	EV400	Increment $=\frac{5}{8}"$	Ļ	40				_	2'-10"	6 4"				2/ 2//	0.1//	3'-5"	3'-		
4	5K106	Barrier Curb Increment $=\frac{3}{8}$ "	E	12	S		٧	1	$2'-8\frac{3}{4}''$ $2'-10\frac{1}{4}''$	6 \frac{5}{8}" 6 \frac{1}{4}"				2'-8 \frac{1}{8}" 2'-9 \frac{5}{8}"	$6\frac{1}{8}''$ $6\frac{3}{8}''$	3'-4" 3'-5"	3'-2 3'-5		14
3	5K107	Barrier Curb	Ε	19	S		V	1	$2'-10\frac{1}{4}''$	5 1 "				2 -9 8	<u>₽</u>	3'-6"	3'-4		11
۱Ť	31(101	Increment = $1\frac{1}{2}$ "	┢	13	H		_	Ė	$3'-2\frac{1}{2}''$	5 3 "						3'-8"	3'-7		- 31
3	5K108	Barrier Curb	Ε	12	S		٧	1	2'-113"	6"				2'-11 \frac{1}{8}" 3'-1 \frac{3}{8}"	63"	3'-6"	3'-6	5"	11
		Increment = $1\frac{1}{2}$ "	L						$3'-2\frac{3}{4}''$	5 3 ″	3	0		$3'-1\frac{3''}{8}$	6 3/4 7 1/4"	3'-9"	3'-	9"	
34	5K109	Barrier Curb	Ε	19		Ц			3'-3"	5"						3'-8"	3'-	100	127
34	5K110	Barrier Curb	E	12	_	Щ		Ļ	3'-4"	5"	71 -3"	0/ 01"		$3' - 3\frac{1}{2}''$	7½"	3'-9"	3'-9	_	133
6	5K111	Barrier Curb Increment = ¼"	Ε	40	S	Н	٧	1	9½" 9½"	$6\frac{1}{2}''$ $16\frac{5}{8}''$	3'-31"			63/8" 163/8"	1 분" 3 분"	7'-6"	7'-3		46
40	5K112	Barrier Curb	Ε	40	S	Н			9 1 "	163"	3'-34"			16 \frac{1}{2}"	3 ½"	7'-6"	7'-3		302
1	5K112	Barrier Curb	E	54	H	Н			10"	20"	21 3"	2 0	12"	21"	$4\frac{1}{4}''$	5'-4"	4'-1	_	5
26	5K114	Barrier Curb	E	20					19'-8"		8		·-		- 4	19'-8"		_	533
2	5K115	Barrier Curb	E	20					18'-10"							18'-10"		_	39
2	5K116	Barrier Curb	Ε	20					15'-10"							15'-10"			33
2	5K117	Barrier Curb	Ε	20	N				12'-10"							12'-10"	12'-1	10"	27
	ED404	Deventor Comb	-	00	Н	V			71 711	r 3//	7/ 75//			7/ 7//	7 //	C/ C"		,,,	4057
278 278	5R101 5R102	Barrier Curb Barrier Curb	E	26 19	S	Н			3'-3"	5¾" 10"	3'-35"		-	3'-3"	7"	6'-9" 2'-6"	6'-9 2'-5		1957 701
278	5R102	Barrier Curb	E	27	S	Н	-		6"	15 \frac{1}{4}"	12"	10"		3"	15"	3'-8"	3'-4	_	967
60	5R104	Barrier Curb	Ē	20	Ĭ			1	50'-9"	4	<u> </u>					50'-9"		_	3176
		SLIP FORM BARRIER CURB			Н	Н												\dashv	
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BILL OF REINFORCING STEEL (2 OF 2)

Detailed NOV 2017 Checked NOV 2017

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

Sheet No. 30 of 37

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

11/3/2017

ROUTE STATE

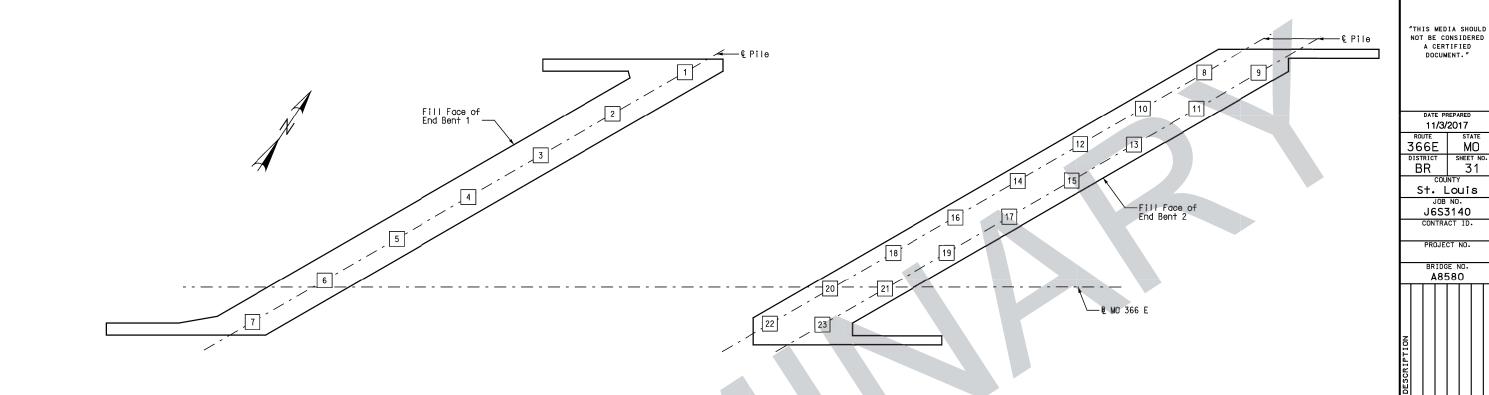
366E MO
DISTRICT SHEET NO.
BR 30

COUNTY
St. Louis
JOB NO.
J6S3140
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A8580

NOT FOR



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

				AS-BUILT	PILE DATA
Pile No.	Length in Place (ft)	PDA Nominal Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (Blows/In.)	Actual End of Drive Blow Count (Blows/In.)	Remarks
					END BENT 1
1					
2					
_					
3					
4					
5				,	
6					
7					
					FUR DELIT O
8					END BENT 2
0					· ·
9					
10					
11					
		Note:		L	

			7
A. B. C. D.	in remarks co Pile type and Batter Driven to pra PDA test pile Minimum tip e	grade ctical ret	od

Detailed SEP 2017 Checked SEP 2017

(Use when actual blow count is less than PDA blow count due -o minimum tip elevation requirement. A plus sign (+) shall be placed after the PDA nominal axial compressive resistance value indicating actual value is higher than PDA value.) Note: This drawing is not to scale. Follow dimensions.

_	-			NO BOIL	, , , , , ,			
					AS-BUILT	PILE	DATA	
	Pile No.	Length in Place (ft)	PDA Nominal Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (Blows/In.)	Actual End of Drive Blow Count (Blows/In.)		Remarks	
							END BENT 2 CONTINUED	
	12							
		4						
	13							
	14							
	15							
	4.0							
	16							
	17							
	- 17							
	18							
	10							
	19							
	<u> </u>							
	20							
	21							
	22							
	23							

Note: This sheet to be completed by MoDOT construction personnel.

AS BUILT PILE DATA

Sheet No. 31 of 37

MO

SHEET NO

BRIDGE NO. A8580

NOT FOR CONSTRUCTION

				RING NO. B-2 on: I-44 Ramp 12 ov Sunset Hills, Mis	er Ramp 6 Bridge R	eplacen	nent (A858		1340 N St. Lou	eotech lorth Pr is, Miss 373-400	ice Ro souri 6	ad 3132		SI FAX
Depth, feet	Samples	Sample #	Graphic Log	Surface El.: App Location: See Sit Locatio	e and Boring	Recovery %	ROD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, Ib/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				Asphaltic concre Portland cement										-	_
-				reinforcing steel	(16.0")										
-				Gray, weathered	LIMESTONE										
-			74	LIMESTONE or	ay hard slightly	_	-	-					_	_	_
	Н		H	LIMESTONE, graveathered, medium bedded	um crystalline,	-	-			-			_	_	_
٦	П	RUN1		No recovery from	3.6 to 7.6 ft	25	25							Į	
5 -	H			possible day/sha	ale washout based erved during coring										
-		RUN2		thick bedded	ht gray to light ly hard, slightly crystalline, thin to tic from 7.6 to 9.4	68	68								
5-		RUN3		ft gravel size frag 12.1 ft.	oft. clay seam at 11.7 ments from 12.0 to possibly dolomitic 13.2 to 14.2 and	100	90								
-				 light brown to go dolomitic below 1 moderately hard to 21.0 ft. 	ray, possibly 6.0 ft. d to hard from 16.0										`
Н			1	- stylolite at 16.6	and 18.7 ft.		_					Í			
0-		RUN4				97	73				7				
-	1			- gray from 20.2 t - no recovery from possible shale se - pitted at 20.9 ft. - moderately to hi	n 20.5 to 20.7 ft., am										
1	F	RUN5		very finely crystal thin bedded below - moderately hard - near vertical frac 21.8 ft.	v 21.0 ft. I below 21.0 ft. cture from 21.4 to	68	15								
mple		Depth.		31.0 4/16/17	Remarks: Boring di	illed wit	h CM	IE-55	0 usir	ng CF	A and	d au	to SF	T.	
te B	oring	Comp	leted:	4/17/17	Groundw Offset bo								thwe	st of	2
•	er/G No.:	eologis	t:	MDE 20171039.01	staked lo	cation.				oversal I	J. J 16.	550	21110	5, 01	
			es rep	resent approximate stra	ta houndaries Auger re	usal at	28 II		_		_			-	

LOG OF BORING NO. B-2A TSi Geotechnical Inc. 1340 North Price Road St. Louis, Missouri 63132 (314) 373-4000 (314) 227-6622 FAX Project Description: I-44 Ramp 12 over Ramp 6 Bridge Replacement (A8580) Sunset Hills, Missouri Surface El.: Approx. 536.189 Location: See Site and Boring Location Plan MATERIAL DESCRIPTION - no recovery from 22.9 to 23.4 ft., from 24.0 to 24.3 ft., and from 24.7 to 25.0 ft.; possible shale washout LIMESTONE, light gray to light brown, moderately hard, slightly to moderately weathered, very finely to finely crystalline, thin to medium bedded, possibly dolomitic highly weathered from 25.0 to 26.0 ft., gravel size fragments vuggy from 26.9 to 28.7 ft., and below 30.5 ft. 100 Boring terminated at 31.0 ft. 31.0 4/16/17 4/17/17 MDE 20171039.01 Completion Depth: Remarks: Boring drilled with CME-550 using CFA and auto SPT. Date Boring Started: Groundwater not encountered during drilling. Date Boring Completed: Offset boring 12.0 ft. northwest and 10.5 ft. southwest of Engineer/Geologist: staked location. Project No.: Auger refusal at 2.8 f The stratification lines represent approximate strata boundaries. In situations, the transition may be gradual.

BORING DATA

For locations of borings, see Sheet No. 2.
Use Northing and Easting coordinates for location of borings. Bent numbers, stations and offsets shown are from existing Bridge A1007.

BORING DATA (1 OF 6)

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

11/3/2017

St. Louis

JOB NO. J6S3140

PROJECT NO. BRIDGE NO. A8580

MΩ

SHEET NO

32

366E

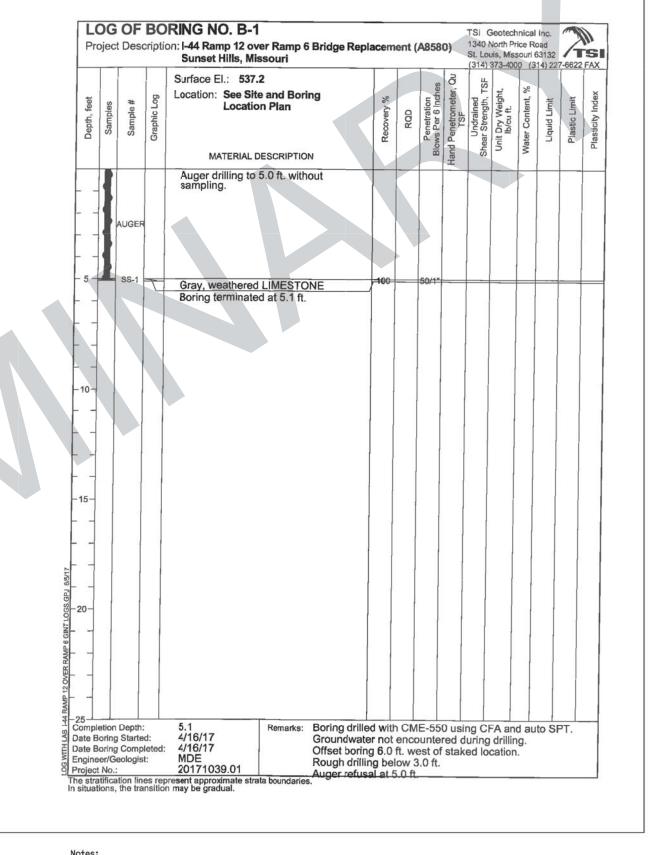
BR

HWAYS AND TR COMMISSION

TIE KIRK DRIVE
KANSAS CITY. NO 64105-1310
TELEPHONE (816) 472-1201
CERTIFICATE OF AUTHORITY
NO. 001270

NOT FOR CONSTRUCTION

				RING NO. B-2 on: I-44 Ramp 12 over Ran Sunset Hills, Missouri	mp 6 Bridge Rep	acem	ent (A858	0)	1340 N St. Lou	eotech lorth Pr lis, Miss 373-400	ice Ro souri 6	oad 33132		SI
Depth, feet	Samples	Sample #	Graphic Log	Surface El.: 536.2 Location: See Site and Location Plan MATERIAL DESCRI	PTION	Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, Ib/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				Asphaltic concrete (2.0 Portland cement concreinforcing steel (16.0"	ete with										
-	X	SS-1		Brown and gray, fat CL trace limestone pieces FILL)	AY (CH), (Possible	56		4 2 10	0.25						
1	X	SS-2		Gray, weathered LIME	STONE	33		3 25 11						- 30	
5 -				Boring terminated at 5.	0 ft.			77				-			
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						V			1						
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e Bo	oring oring	Depth Starte Comp	d: leted:	5.0 4/16/17 4/16/17 MDE	rks: Boring drille Groundwate Offset borin staked loca	er not g 11.0	enco	unter	ed di	uring	drillin	g.			



BORING DATA

For locations of borings, see Sheet No. 2.
Use Northing and Easting coordinates for location of borings. Bent numbers, stations and offsets shown are from existing Bridge A1007.

BORING DATA (2 OF 6)

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

11/3/2017

St. Louis

JOB NO. J6S3140

PROJECT NO. BRIDGE NO. A8580

MO

SHEET NO

33

366E

BR

WAYS AND TRANS COMMISSION

TIS KIRK DRIVE
KANSAS CITY, NO 64105-1310
KELEPHONE (816) 472-1201
CERTIFICATE OF AUTHORITY
NO. 001270

NOT FOR CONSTRUCTION

				RING NO. B-4 on: I-44 Ramp 12 over Ram Sunset Hills, Missouri	p 6 Bridge Replacem	ent (A858	0)	1340 N St. Lou (314) 3	Seotech North Pruis, Miss 373-400	ice R	oad 33132		SI
Depth, feet	Samples	Sample #	Graphic Log	Surface El.: 520.6 Location: See Site and B Location Plan	Recovery %	ROD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, Ib/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				MATERIAL DESCRIP		13	8	Han	S		S			
			设 张	Asphaltic concrete (6.0" Portland cement concre		_					-			
1 1				Brown, lean CLAY (CL), gravel (FILL)	trace								8	
5 -			14. XX	Gray, weathered LIMES	TONE									
	-	SS-1		Boring terminated at 6.6	ft. 100-		50/1"		\dashv		_			
15-														
7		1						1	A			1	ļ	
		-												
0-														
_														
-														
-														
ate B	oring oring	Depth Starte Comp	d: leted:	6.6 4/19/17 4/19/17 MDE	ks: Boring drilled with Groundwater not Offset boring 10. Hard drilling belo	enco	ounter east o	red d	uring	drillir	ıg.	ito SI	PT.	
ate B	aclo													

LOG OF BORING NO. B-3 TSi Geotechnical Inc. Project Description: I-44 Ramp 12 over Ramp 6 Bridge Replacement (A8580) 1340 North Price Road St. Louis, Missouri 63132 Sunset Hills, Missouri (314) 373-4000 (314) 227-6622 FAX Surface El.: 524.6 Location: See Site and Boring Location Plan MATERIAL DESCRIPTION Asphaltic concrete (5.25") Portland cement concrete (7.0") Brown, lean CLAY (CL), with gravel and crushed limestone (FILL) Weathered LIMESTONE
LIMESTONE, gray, moderately
hard to hard, slightly to moderately
weathered, finely crystalline, thin to RUN1 100 medium bedded - fractured from 3.3 to 3.5 ft. - medium to thick bedded from 4.5 to 9.0 ft. - near vertical fracture from 4.9 to 5.9 ft. 100 70 - chert seam from 7.6 to 7.8 ft. - diagonal fracture at 7.8 ft. - healed horizontal fracture at 8.9 ft. -light gray to brown below 9.5 ft. DOLOMITIC LIMESTONE, light gray to brown, soft to moderately hard, moderately weathered, finely crystalline, banded to medium 100 55 bedded - highly weathered from 12.2 to 13.2 ft. - light brown below 14.5 ft. - chert seam from 14.9 to 15.1 ft. -chert seam from 16.5 to 16.7 ft. 93 78 - no recovery from 17.2 to 17.5 ft. LIMESTONE, dark gray to gray, hard, slightly weathered, finely crystalline, massive bedded - trace fossils from 20.0 to 20.1 ft. - slightly pitted from 20.1 to 21.5 ft. 100 100 Boring terminated at 24.5 ft. Completion Depth: 24.5 4/20/17 Remarks: Boring drilled with CME-550 using CFA and auto SPT. Groundwater not encountered during drilling. Date Boring Started: 4/20/17 MDE Date Boring Completed: Offset boring 11.0 ft. south and 17.0 ft. east staked location Engineer/Geologist: Auger refusal at 3.0 ft. 20171039.01 Project No.: The stratification lines represent approximate strata boundaries. In situations, the transition may be gradual.

BORING DATA

For locations of borings, see Sheet No. 2.
Use Northing and Easting coordinates for location of borings. Bent numbers, stations and offsets shown are from existing Bridge A1007.

BORING DATA (3 OF 6)

MISSOURI HIGHWAYS AND THE COMMISSION COMMISSION COMMISSION THE KIRK PRIVE KANSAS CITY. NO 64105-1310 TELEPHOR (1814) A72-1201 CERTIFICATE OF AUTHORITY NO. 001270 NO. 001270

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

DATE PREPARED

11/3/2017

St. Louis

J6S3140

PROJECT NO.

BRIDGE NO.

MΩ

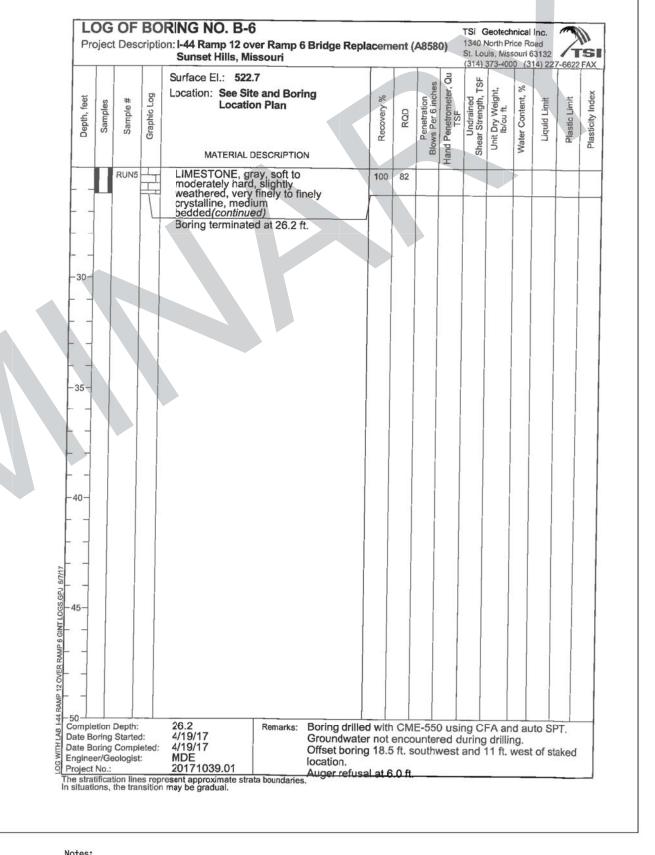
SHEET NO

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366E

BR

				RING NO. B-6 on: I-44 Ramp 12 over Ramp 6 Bridg Sunset Hills, Missouri	ge Replace	m	ent (A858	0)	1340 N St. Lou	Seotech North Pruis, Miss 373-400	ice R	oad 63132		FAX
Depth, feet	Samples	Sample #	Graphic Log	Surface El.: 522.7 Location: See Site and Boring Location Plan MATERIAL DESCRIPTION		Necovery 76	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, Ib/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
\neg				Asphaltic concrete (7.0")		\exists		_			_				
-			XX	Crushed limestone (5.0")											
]	Y	SS-1	7	Brown, fat CLAY (CH) (FILL)	5	6	-	5	0.75				-		
7			3.	Weathered LIMESTONE and SHALE fragments	"			10	0.75						
- - 5 -	X	SS-2		Brown, lean CLAY (CL), and weathered LIMESTONE fragmer	nts 6	7		5 10 31							
-		SS-3	H	Weathered LIMESTONE	10	0		50/2"							_
-		RUN1		LIMESTONE, gray, hard, slightly weathered, finely crystalline, thin medium bedded - highly fractured from 6.0 to 6.4 - no recovery from 8.0 to 8.1 ft highly weathered from 8.1 to 8.3 ft light brown from 8.1 to 9.5 ft.	ft. 98	3	46								
0- - -		RUN2		- light brown to light gray, moderately weathered, thick bedded from 9.5 to 14.5 ft highly fractured from 10.7 to 10 ft near vertical fracture from 10.9 12.3 ft.	140		45								
			井	 highly fractured from 13.5 to 14. ft. slightly weathered, thin to massive bedded below 15.0 ft. 	.5										
-				mašsivė bedded below 15.0 ft.	5										
-		RUN3		- trace chert seams from 17.1 to 17.7 ft.	100		100								4
-	1			- trace chert from 19.5 to 20.0 ft.											
		RUN4			100	1	100			100					
				- 1.0" cherty seam at 23.4 ft.										_	
e Bo	oring oring er/G No.		d: leted: t:	4/19/17 Grou 4/19/17 Offse MDE locat	ng drilled wandwater no et boring 18 ion.	ot 6	ft. s	unter	ed d	urina	drillin	a.			9000



BORING DATA

For locations of borings, see Sheet No. 2.
Use Northing and Easting coordinates for location of borings. Bent numbers, stations and offsets shown are from existing Bridge A1007.

BORING DATA (4 OF 6)

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11/3/2017

St. Louis

JOB NO. J6S3140

PROJECT NO.

BRIDGE NO.

A8580

MΩ

SHEET NO

35

366E

DISTRICT BR

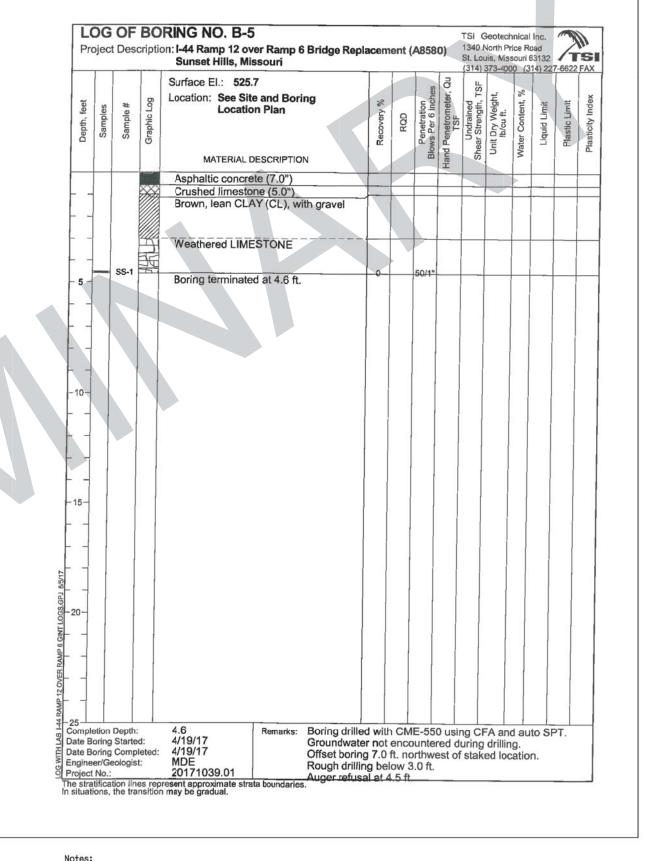
WAYS AND TRANSF COMMISSION

T15 KIRK DRIVE
KANSAS CITY. NO 64105-1310
TELEPHONE (816) 472-1201
CERTIFICATE OF AUTHORITY
NO. 001270

NOT FOR CONSTRUCTION

				RING NO. B-8 on: I-44 Ramp 12 over Ra Sunset Hills, Missou	amp 6 Bridge Repl ri	acem	ent (A858	0)	1340 N St. Lou	Seotech North Pruis, Miss 373-400	rice Ro souri 6	oad 33132		SI FAX
Deptil, reet	Samples	Sample #	Graphic Log	Surface El.: 538.9 Location: See Site and Location Pla MATERIAL DESCRIPTION	an	Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, Ib/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
- 9			-	Auger drilling to 1.0 ft	29 11512				Ϋ́	1000					
7	1	AUGER	I	sampling. Gray, weathered LIM				30							
-	Ă	SS-1	7	Boring terminated at		50		50/6"							
			ĺ	bonng terminated at	2.0 11.										
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				2.0 Ren	narks: Boring drille	d with	CM	E-550	usir	ng CI	A an	d au	to SF	PT.	
		Depth:			Groundwate	Ir no									
B	oring	Starte	d: leted:	4/16/17 4/16/17	Groundwate								aked		
B	oring	Starte	d: leted:	4/16/17	Groundwate Offset boring location.								aked		

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



For locations of borings, see Sheet No. 2.
Use Northing and Easting coordinates for location of borings. Bent numbers, stations and offsets shown are from existing Bridge A1007.

BORING DATA (5 OF 6)

BORING DATA

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11/3/2017

St. Louis

JOB NO. J6S3140

PROJECT NO. BRIDGE NO. A8580

MΩ

SHEET NO

36

366E

BR

WAYS AND TRANSI COMMISSION

TIS KIRK DRIVE
ANSAS CITY, NO 64105-1310
KELEPHONE (816) 472-1201
CERTIFICATE OF AUTHORITY
NO. 001270

NOT FOR CONSTRUCTION

				PRING NO. B-7 on: I-44 Ramp 12 ove Sunset Hills, Mis		Bridge Re	olacem	ent (A858	O)	1340 N St. Lou	Seotech North Pruis, Miss 373-400	ice Ro souri 6	ad 3132		FAX
Depth, feet	Samples	Sample #	Graphic Log	Surface El.: 544.8 Location: See Site Location MATERIAL DE	and Borin Plan		Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, Ib/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
_				Asphaltic concret	e (2.0")		+			_		_				
-				Portland cement reinforcing steel (rith										
_	X	SS-1		Crushed limeston brown and gray, I (FILL)	e pieces, a ean CLAY	(CL)	33		2 2 3	>4.5					8	
				Brown and gray, s (CL)	shaley lear	CLAY	1		1	2						-
5 -	X	SS-2		Gray, weathered	LIMESTON	NE	33		4 3 5							
_			光						i i i i i i i i i i i i i i i i i i i		J					
-	X	SS-3	至	- trace clay below	6.0 ft.		67		15 6 10							
+			THE STATE OF THE S				Ĺ		١,						1	
4	Y	SS-4	5				56		11 30		1			i		
0-	A		70	LIMESTONE link	t annu ta ba		- 00		15	_				_		
-		RUN1		LIMESTONE, ligh moderately hard to moderately weath crystalline, mediuuus moderately to high from 10.0 to 10.2 pitted at 10.6 ft. moderately weath fractured from 11. 45° fracture from	ι.		100	70								
;- - -		RUN2		medium crystallii 20.0 ft. slightly weathere 60° fracture from	ne from 15	.0 to	100	67								
-		NON2		- 45° fracture from 18.3 to 18.7 ft. and 19.8 ft.			100	01								
				- hard, banded to below 24.0 ft finely crystalline		2 (2) (2) (2) (2)										
-		RUN3		- stylolite at 22.3 ft - 45° fracture from	22.4 to 22	.6 ft.	100	80								
			T	- highly weathered brown shale	at 24.7 ft.,	trace				-						
e B	oring	Depth Starte Comp	ed: oleted:	30.0 4/17/17 4/18/17		Boring drill Groundwa ST refusal	ter not at 3.1	enco ft.; d	ounte rove	red d	uring om 3.	drilling.5 to 5	ig. 5.0 ft		PT.	_
	No.	eologis	it.	MDE 20171039.01		Offset bori Auger refu				east o	of sta	ked lo	cati	on.		

LOG OF BORING NO. B-7 TSi Geotechnical Inc. 1340 North Price Road St. Louis, Missouri 63132 Project Description: I-44 Ramp 12 over Ramp 6 Bridge Replacement (A8580) Sunset Hills, Missouri (314) 373-4000 (314) 227-6622 FAX Surface El.: 544.8 Location: See Site and Boring **Location Plan** MATERIAL DESCRIPTION LIMESTONE, light gray to brown, moderately hard to hard, slightly weathered, finely crystalline, banded to medium bedded banded to medium bedded
- dark gray, coarsely crystalline
from 25.5 to 25.7 ft.
- shale parting at 25.7 ft.
- chert seam from 25.7 to 26.0 ft.
- chert seam from 27.0 to 27.1 ft.,
and from 28.2 to 28.3 ft.
- stylolite at 28.9 ft. 92 63 - no recovery below 29.6 ft. Boring terminated at 30.0 ft. 40-Completion Depth:
Date Boring Started: 30.0 4/17/17 4/18/17 MDE Remarks: Boring drilled with CME-550 using CFA and auto SPT. Groundwater not encountered during drilling. ST refusal at 3.1 ft.; drove SS from 3.5 to 5.0 ft. Date Boring Completed: Engineer/Geologist: Offset boring 11.0 ft. southeast of staked location 20171039.01 Project No.: Auger refusal at 10.0 ft. The stratification lines represent approximate strata boundaries in situations, the transition may be gradual.

BORING DATA

For locations of borings, see Sheet No. 2.
Use Northing and Easting coordinates for location of borings. Bent numbers, stations and offsets shown are from existing Bridge A1007.

BORING DATA (6 OF 6)

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

11/3/2017

St. Louis

JOB NO. J6S3140

PROJECT NO.

BRIDGE NO.

A8580

MΩ

SHEET NO

37

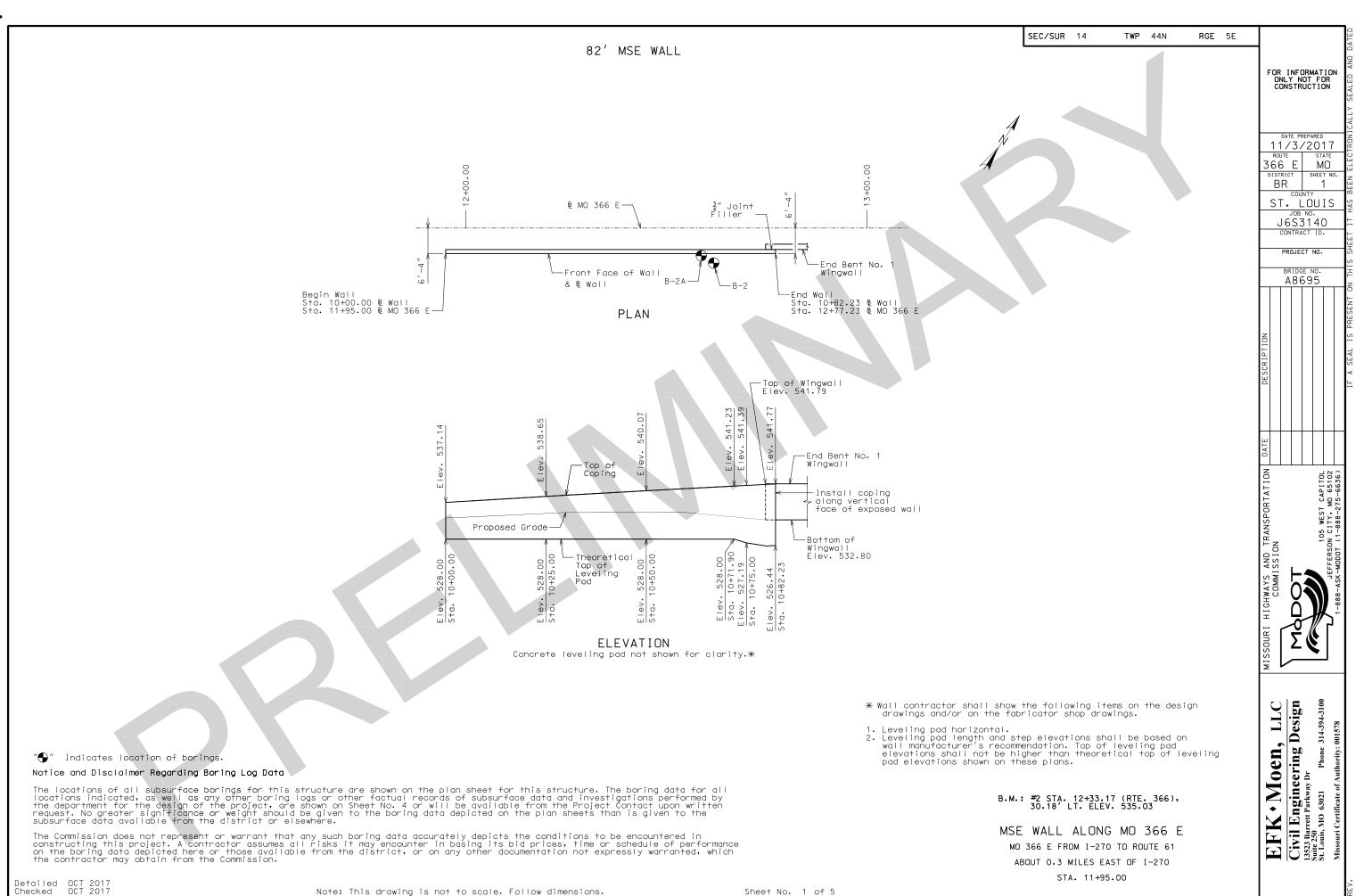
366E

DISTRICT BR

HWAYS AND TR COMMISSION

TIE KIRK DRIVE
KANSAS CITY. NO 64105-1310
TELEPHONE (816) 472-1201
CERTIFICATE OF AUTHORITY
NO. 001270

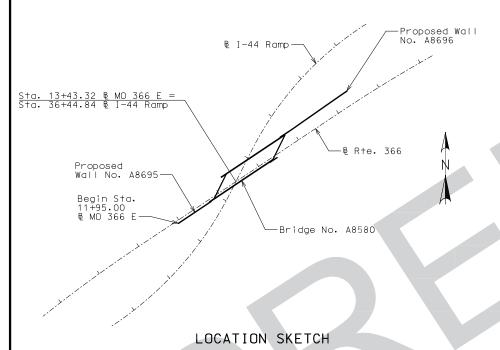
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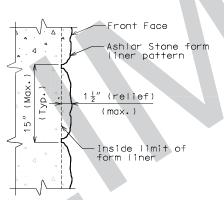


Estimated Quantities		
I tem		Total
Concrete and Masonry Protection System	lump sum	1
Sacrificial Graffiti Protection System	lump sum	1
Mechanically Stabilized Earth Wall Systems	sq. foot	960

MSE Wall Systems Data Table										
Proprietary Wall S	ystems	Combination Wall Systems								
Manufacturer	System	Facing Unit Manufacturer	Facing Unit	Geogrid Manufacturer	Geogrid					

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





FORM LINER DETAIL (Large Block Wall)

Notes:

The cost of form liners for MSE wall systems, complete in place, will be considered completely covered by the contract unit price for Mechanically Stabilized Earth Wall System.

Form liner shall be constructed in accordance with Special Provisions.

The following is a list of form liner manufacturers and types which may be used. Depth of relief for all form liner pattern's shall vary up to 1 1/2". The height of any single 'stone' shall be 15" maximum.

- (1) Scott System, Inc.: Form liner pattern #167 "Ashlar Stone"
- (2) Fitzgerald Formliners: Form liner pattern #16986 "Ashlar Stone"
- (3) Greenstreak: Form liner pattern #330 "Ashlar Stone"
- (4) Spec Formliners: Form liner pattern #1515
- (5) An approved equal

General Notes:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications (Section 5, ASD Design) Seismic Performance Category B

Design Loading:

 $\phi_{\mathcal{D}}$ = 26° and Unit weight, $\chi_{\mathcal{D}}$ = 120 pcf for retained backfill material to be retained by the mechanically stabilized earth wall system.

 ϕ_f = 35° for unimproved foundation ground where wall is to rest.

Actual $\Phi_r \geq 34^{\circ}$ for the select granular backfill (reinforced backfill and wedge area backfill) for structural systems.

Design $\phi_r = 34^{\circ}$ for the select granular backfill (reinforced backfill) only for structural systems.

The allowable bearing pressure for unimproved ground is 4.0 ksf.

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 cost of joint filler and joint seal, complete in place, will be considered completely covered by the contract unit price for Concrete Traffic Barrier (Type D). See Roadway Plans.

Panel and coping (or capstone) reinforcement shall be epoxy coated.

Anchorage reinforcement shall be spaced to avoid roadway drop inlet behind

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 (roofing 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.

Minimum soil reinforcement length (L) shall be a ratio of the wall height (H), as measured from the top of the leveling pad. The minimum reinforcement length shall be 1.0 times H. The reinforcement length shall be uniform throughout the entire height of 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

All steel soil reinforcements shall be separated from other metallic elements by at least 3 inches.

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/bent 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 obstructions in reinforced soil mass, see FHWA-NHI-10-024, Section 5.4.3.

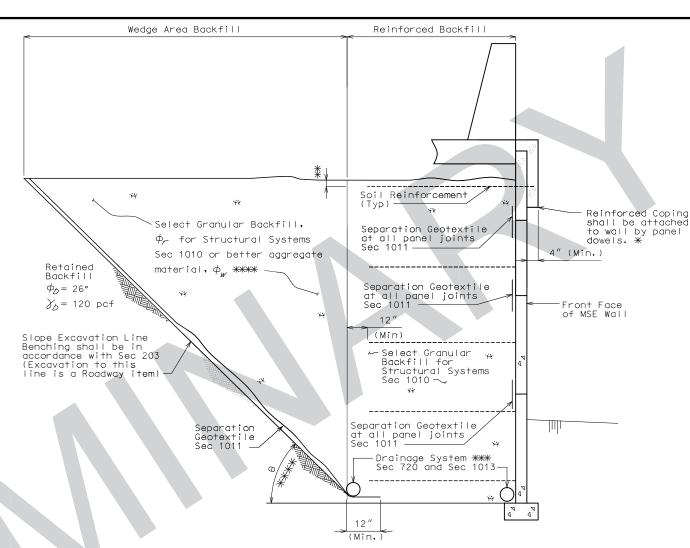
Rock excavation is required for MSE wall construction. Rock shall not be removed beyond edge of leveling pad to face of rock ledge. Backfill between the excavation and face of wall to top of rock shall be backfilled with flowable fill. Flowable fill cost should be considered subsidiary to MSE

Joints that are greater than 1 inch wide at the rock face and on top of the rock surface should be filled with neat cement grout. Grout cost should be considered subsidiary to MSE Wall Systems.

FOR INFORMATION ONLY NOT FOR CONSTRUCTION 11/3/2017 366 F MΩ DISTRICT SHEET NO BR 2 ST. LOUIS J6S3140 PROJECT NO. A8695 105 IN C.I

> , LLC Design Engineering I 63021

GENERAL NOTES AND QUANTITIES



TYPICAL SECTION THRU LARGE BLOCK WALL SHOWING FILTER CLOTH

- # 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, unless larger size pipes are required by design by wall manufacturer.

Adjustment in the vertical alignment of the drainage pipes from that depicted in the plans may be necessary to ensure positive flow out of the drainage system.

Outlet ends of pipes shall be located to avoid clogging or flow into the drainage system.

Excavation quantities and pay items are given on the roadway plans. Excavation quantities are based on a soil reinforcement length of 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.

***** Select granular backfill shall extend a minimum of 12" beyond the end of all soil reinforcement. Where the angle, 0, between the retained backfill excavation/fill line and the horizontal is less than 90°, the wedge area backfill between 8 and 90° shall be filled with select granular backfill for structural systems meeting the requirements of Section 1010.

- For $(45^{\circ} + \Phi_{b}/2) < \Theta \leq 90^{\circ}$, properties for retained backfill shall be used for active force computations.

- For $\theta \le (45^{\circ} + \Phi_{0}/2)$, 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 benched 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.

WAYS AND TR COMMISSION , LLC Design 314-394-3100

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11/3/2017

ST. LOUIS

J6S3140

PROJECT NO.

A8695

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| Engineering | ·Moen, 63021 MO

DETAILS FOR GENERIC MSE WALL

Detailed ADGT2007

				RING NO. B-2A on: I-44 Ramp 12 over Ramp 6 Bridge Sunset Hills, Missouri	Replace	mer	nt (/	A858	0)	1340 l St. Loi	Seotech North Pruis, Miss 373-400	rice Ri souri (oad 53132		FAX
Depth, feet	Samples	Sample #	Graphic Log	Surface El.: Approx. 536.189 Location: See Site and Boring Location Plan MATERIAL DESCRIPTION	/0 money	Necovery 76	ROD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, Ib/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				Asphaltic concrete (2.0") Portland cement concrete with											
			H 7	reinforcing steel (16.0") Gray, weathered LIMESTONE	-										
			T	LIMESTONE, gray, hard, slightly weathered, medium crystalline, medium bedded, trace fossils		1									
- 5 -	H	RUN1		No recovery from 3.6 to 7.6 ft., possible clay/shale washout based on rod drop observed during coring] 2! 	5 2	25								
10-		RUN2		LIMESTONE, light gray to light brown, moderately hard, slightly weathered, finely crystalline, thin to thick bedded - possibly dolomitic from 7.6 to 9.4 ft.	68	3 6	68								
15-		RUN3		- hard, medium to thick bedded from 11.0 to 16.0 ft 1.0" gray, soft, clay seam at 11.7 ft gravel size fragments from 12.0 to 12.1 ft brownish-gray, possibly dolomitic from 12.8 to 12.9, 13.2 to 14.2 and 14.9 to 16.0 ft stylolite at 14.9 ft.	100	0 9	0								
-		CUNA		 light brown to gray, possibly dolomitic below 16.0 ft. moderately hard to hard from 16.0 to 21.0 ft. stylolite at 16.6 and 18.7 ft. 											
- 20-		RUN4		- gray from 20.2 to 20.5 ft. - no recovery from 20.5 to 20.7 ft.,	97	7:	3								
-	,	RUN5		possible shale seam - pitted at 20.9 ft moderately to highly weathered, very finely crystalline, medium to thin bedded below 21.0 ft moderately hard below 21.0 ft near vertical fracture from 21.4 to 21.8 ft.	68	15	5								
ate B ate B ngine	oring oring er/G	Depth: Starte Comp eologis	d: eted:	4/16/17 Ground 4/17/17 Offset I MDE staked	drilled water no coring 12 location	ot er 2.0 f	псо	unter	red d	uring	drillin	ıq.			
roject e stra	tifica	ition lin	es rep	20171039.01 Auger resent approximate strata boundaries.	efusal a	t 2.8	l ft	98			Cont		-1.64		_

LOG OF BORING NO. B-2A TSi Geotechnical Inc. Project Description: I-44 Ramp 12 over Ramp 6 Bridge Replacement (A8580) 1340 North Price Road St. Louis, Missouri 63132 /TSI Sunset Hills, Missouri (314) 373-4000 (314) 227-6622 FAX Surface El.: Approx. 536.189 Location: See Site and Boring **Location Plan** MATERIAL DESCRIPTION - no recovery from 22.9 to 23.4 ft., from 24.0 to 24.3 ft., and from 24.7 to 25.0 ft.; possible shale washout RUN6 to 25.0 ft.; possible shale washout LIMESTONE, light gray to light brown, moderately hard, slightly to moderately weathered, very finely to finely crystalline, thin to medium bedded, possibly dolomitic highly weathered from 25.0 to 26.0 ft., gravel size fragments vuggy from 26.9 to 28.7 ft., and below 30.5 ft. 100 85 -30-Boring terminated at 31.0 ft. Completion Depth: 31.0 4/16/17 Boring drilled with CME-550 using CFA and auto SPT. Groundwater not encountered during drilling. 4/17/17 MDE Date Boring Completed: Offset boring 12.0 ft. northwest and 10.5 ft. southwest of Engineer/Geologist: staked location. 20171039.01 Project No.: Auger refusal at 2.8 f The stratification lines represent approximate strata boundaries. In situations, the transition may be gradual.

BORING DATA

Note: For locations of borings, see sheet No. 1.

Detailed OCT 2017 Checked OCT 2017

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

VAYS AND TRANSF COMMISSION

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11/3/2017

ST. LOUIS

J6S3140

PROJECT NO.

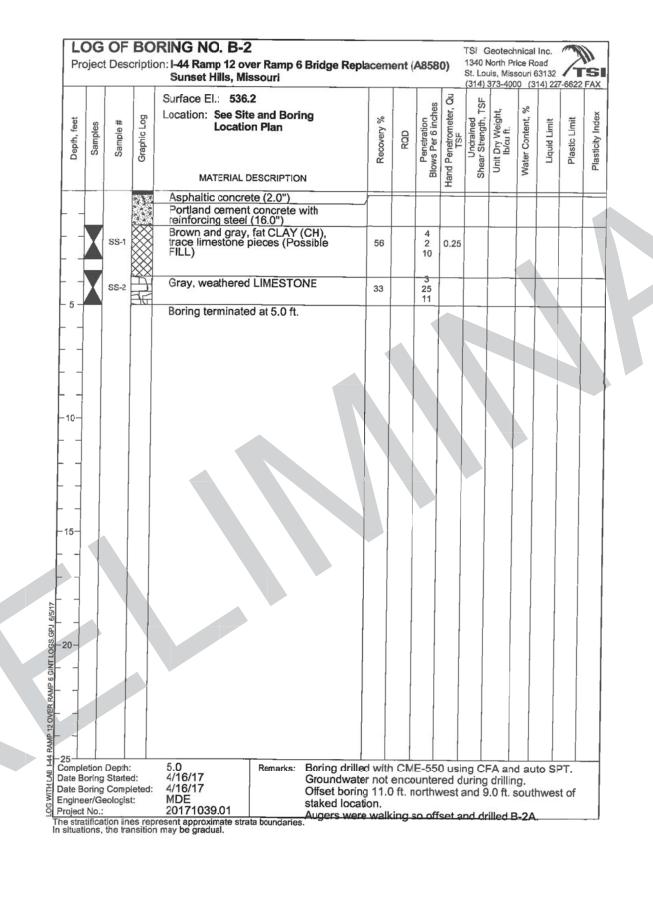
A8695

MO SHEET NO

4

366 E

DISTRICT BR



BORING DATA

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

Note: For locations of borings, see sheet No. 1.

Detailed OCT 2017 Checked OCT 2017

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11/3/2017

ST. LOUIS

J6S3140

PROJECT NO.

A8695

EFK • Moen, LLC

Civil Engineering Design
13523 Barrett Parkway Dr
Sulte 250
St. Louis, MO 63021 Phone 314-394-3100

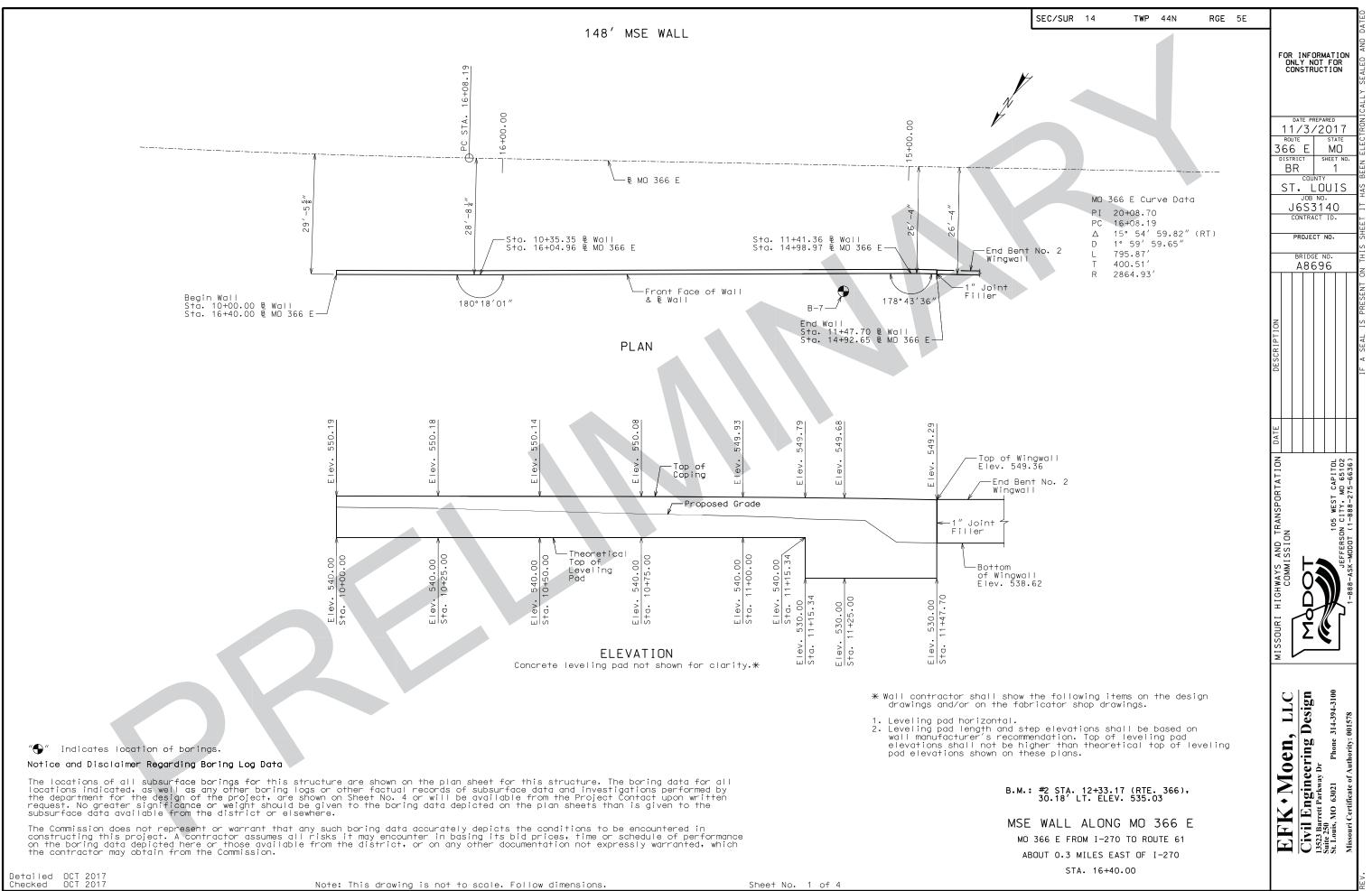
366 E

BR

STATE

SHEET NO

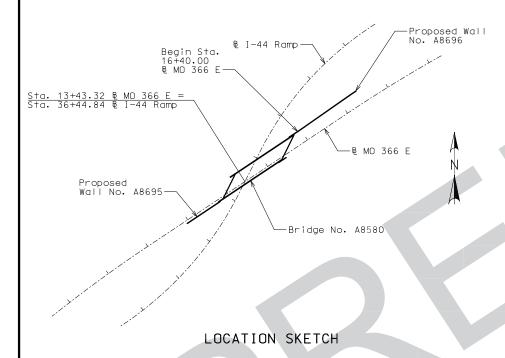
5



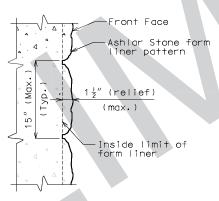
Estimated Quantities	
I tem	Total
Concrete and Masonry Protection System lump sum	1
Sacrificial Graffiti Protection System lump sum	1
Mechanically Stabilized Earth Wall Systems sq. foot	1,797

MSE Wall Systems Data Table										
Proprietary Wall S	ystems	Combination Wall Systems								
Manufacturer	System	Facing Unit Manufacturer	Facing Unit	Geogrid Manufacturer	Geogrid					

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



Detailed OCT 2017 Checked OCT 2017



FORM LINER DETAIL (Large Block Wall)

Notes:

The cost of form liners for MSE wall systems, complete in place, will be considered completely covered by the contract unit price for Mechanically Stabilized Earth Wall System.

Form liner shall be constructed in accordance with Special Provisions.

The following is a list of form liner manufacturers and types which may be used. Depth of relief for all form liner pattern's shall vary up to 1 1/2". The height of any single 'stone' shall be 15" maximum.

- (1) Scott System, Inc.: Form liner pattern #167 "Ashlar Stone"
- (2) Fitzgerald Formliners: Form liner pattern #16986 "Ashlar Stone"
- (3) Greenstreak: Form liner pattern #330 "Ashlar Stone"
- (4) Spec Formliners: Form liner pattern #1515
- (5) An approved equal

General Notes:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications (Section 5, ASD Design) Seismic Performance Category B

Design Loading:

 $\phi_{\mathcal{D}}$ = 26° and Unit weight, $\chi_{\mathcal{D}}$ = 120 pcf for retained backfill material to be retained by the mechanically stabilized earth wall system.

 ϕ_f = 35° for unimproved foundation ground where wall is to rest.

Actual $\Phi_r \geq 34^{\circ}$ for the select granular backfill (reinforced backfill and wedge area backfill) for structural systems.

Design $\phi_r = 34^{\circ}$ for the select granular backfill (reinforced backfill) only for structural systems.

The allowable bearing pressure for unimproved ground is 4.0 ksf.

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 cost of joint filler and joint seal, complete in place, will be considered completely covered by the contract unit price for Concrete Traffic Barrier (Type D). See Roadway Plans.

Panel and coping (or capstone) reinforcement shall be epoxy coated.

Anchorage reinforcement shall be spaced to avoid roadway drop inlet behind

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 (roofing 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.

Minimum soil reinforcement length (L) shall be a ratio of the wall height (H), as measured from the top of the leveling pad. The minimum reinforcement length shall be 1.1 times H. The reinforcement length shall be uniform throughout the entire height of 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

All steel soil reinforcements shall be separated from other metallic elements by at least 3 inches.

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/bent 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 obstructions in reinforced soil mass, see FHWA-NHI-10-024, Section 5.4.3.

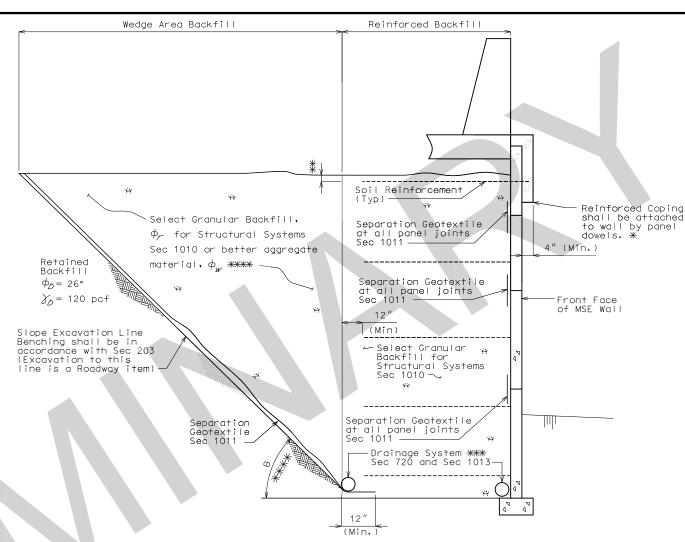
Rock excavation is required for MSE wall construction. Rock shall not be removed beyond edge of leveling pad to face of rock ledge. Backfill between the excavation and face of wall to top of rock shall be backfilled with flowable fill. Flowable fill cost should be considered subsidiary to MSE

Joints that are greater than 1 inch wide at the rock face and on top of the rock surface should be filled with neat cement grout. Grout cost should be considered subsidiary to MSE Wall Systems.

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> , LLC Design Engineering I 63021

GENERAL NOTES AND QUANTITIES



TYPICAL SECTION THRU LARGE BLOCK WALL SHOWING FILTER CLOTH

- # 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, unless larger size pipes are required by design by wall manufacturer.

Adjustment in the vertical alignment of the drainage pipes from that depicted in the plans may be necessary to ensure positive flow out of the drainage system.

Outlet ends of pipes shall be located to avoid clogging or flow into the drainage system.

Excavation quantities and pay items are given on the roadway plans. Excavation quantities are based on a soil reinforcement length of 14 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.

***** Select granular backfill shall extend a minimum of 12" beyond the end of all soil reinforcement. Where the angle, 0, between the retained backfill excavation/fill line and the horizontal is less than 90°, the wedge area backfill between 8 and 90° shall be filled with select granular backfill for structural systems meeting the requirements of Section 1010.

- For $(45^{\circ} + \Phi_{b}/2) < \Theta \leq 90^{\circ}$, properties for retained backfill shall be used for active force computations.

- For $\theta \le (45^{\circ} + \Phi_{0}/2)$, 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 benched 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 shop drawing submittal.

designer (manufacturer) and contractor is required before

, LLC Design 314-394-3100 63021

WAYS AND TR COMMISSION

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11/3/2017

ST. LOUIS

J6S3140

PROJECT NO.

A8696

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| Engineering | ·Moen,

MO

DETAILS FOR GENERIC MSE WALL

Detailed OCT 2017 Checked OCT 2017

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

				RING NO. B-7 on: I-44 Ramp 12 ov Sunset Hills, Mis	er Ramp 6	Bridge Rep	lacem	nent ((A858	0)	1340 N St. Lot	Seotech North Pruis, Miss 373-400	ice Resouri 6	oad 33132		IN SI
Depth, feet	Samples	Sample #	Graphic Log	Surface El.: 544. Location: See Sit Locatio	e and Borin		Recovery %	Rab	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, Ib/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				Asphaltic concre Portland cement	concrete w	vith	7									
_	X	SS-1		reinforcing steel Crushed limesto brown and gray, (FILL)	(12.0") ne pieces, a	and	33		2 2 3	>4.5						
-	X	SS-2	THE THE	Brown and gray, (CL) Gray, weathered			33		4 3 5							
5 -	X	SS-3	遊遊	- trace clay below	v 6.0 ft.		67		15 6 10							
	X	SS-4	野田				56		11 30 15							
10-		RUN1		LIMESTONE, lig moderately hard moderately weat crystalline, medii. - moderately to h from 10.0 to 10.2 - pitted at 10.6 ft. - moderately wea fractured from 11 - 45° fracture fror	. IL.		100	70								
15-		RUN2		- medium crystall 20.0 ft. - slightly weather - 60° fracture from - 45° fracture from 18.3 to 18.7 ft. an 19.8 ft.	ine from 15 ed below 15 n 15.3 to 15	5.0 to 5.0 ft. 5.6 ft.	100	67								
-		RUN3		 hard, banded to below 24.0 ft. finely crystalline stylolite at 22.3 ft. 45° fracture from highly weathere brown shale 	below 20.0 ft. n 22.4 to 22	ft. .6 ft.	100	80								
ate 🛭	oring	Depth Starte	ed:	30.0 4/17/17		Boring drille Groundwat	er not	ence	ounte	red d	uring	drillin	ng.		PT.	\neg
	er/G	Comp eologis		4/18/17 MDE 20171039.01		ST refusal Offset borir	at 3.1 1g 11.	ft.; d 0 ft. s	rove s	SS fr	om 3	.5 to 5	5.0 ft			
e stra	atifica	ation lin	es rep	resent approximate stra may be gradual.	ta boundaries.	Auger refus	al at	10.0				Cont	inue	d Ne	xt Ps	

Location: See Site and Boring Location Plan MATERIAL DESCRIPTION LIMESTONE, light gray to brown, moderately hard to hard, slightly weathered, finely crystalline, banded to medium bedded - dark gray, coarsely crystalline from 25.5 to 25.7 ft. - shale parting at 25.7 ft. - chert seam from 25.7 to 26.0 ft. - chert seam from 27.0 to 27.1 ft., and from 28.2 to 28.3 ft. - stylolite at 28.9 ft. - no recovery below 29.6 ft. RUN4 T 92 63 - no recovery below 29.6 ft Boring terminated at 30.0 ft. Completion Depth: 30.0 4/17/17 Remarks: Boring drilled with CME-550 using CFA and auto SPT. Groundwater not encountered during drilling. Date Boring Started: 4/18/17 Date Boring Completed: ST refusal at 3.1 ft; drove SS from 3.5 to 5.0 ft. MDE Engineer/Geologist: Offset boring 11.0 ft. southeast of staked location. Project No.: 20171039.01 Auger refusal at 10.0 ft. The stratification lines represent approximate strata boundaries. In situations, the transition may be gradual.

BORING DATA

Note: For locations of borings, see sheet No. 1.

Detailed OCT 2017 Checked OCT 2017

LOG OF BORING NO. B-7

Project Description: I-44 Ramp 12 over Ramp 6 Bridge Replacement (A8580)

Sunset Hills, Missouri

Surface El.: 544.8

FOR INFORMATION ONLY NOT FOR CONSTRUCTION

11/3/2017

ST. LOUIS

J6S3140

PROJECT NO.

A8696

MO SHEET NO

4

366 E

DISTRICT BR

TSi Geotechnical Inc.

St. Louis, Missouri 63132

(314) 373-4000 (314) 227-6622 FAX

1340 North Price Road

