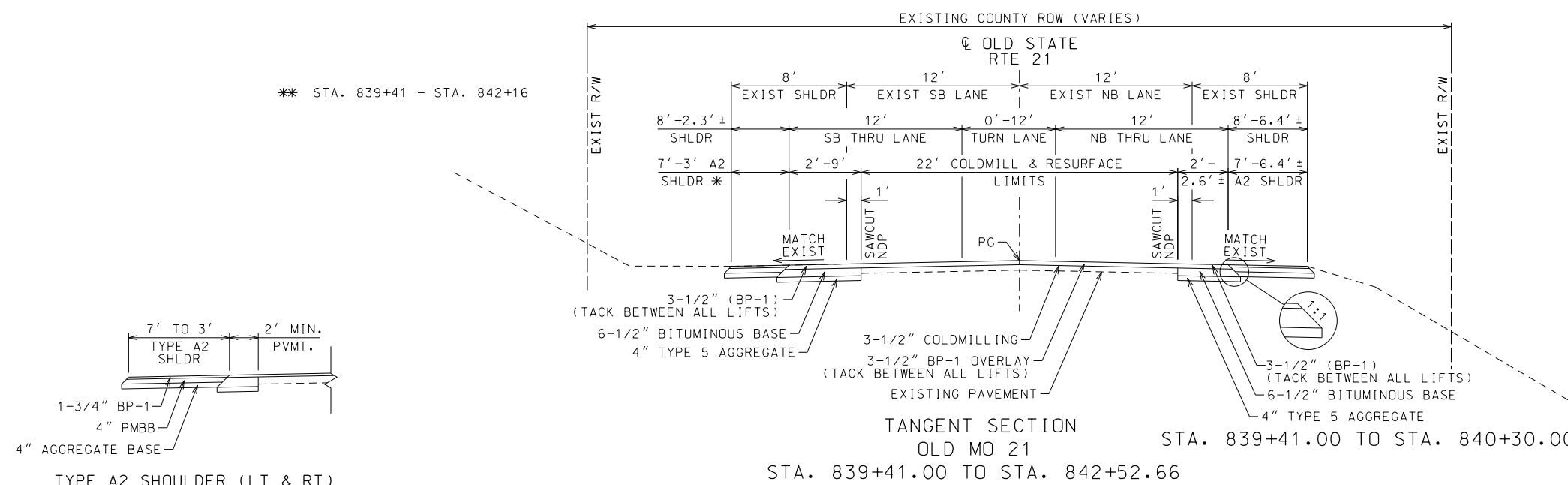
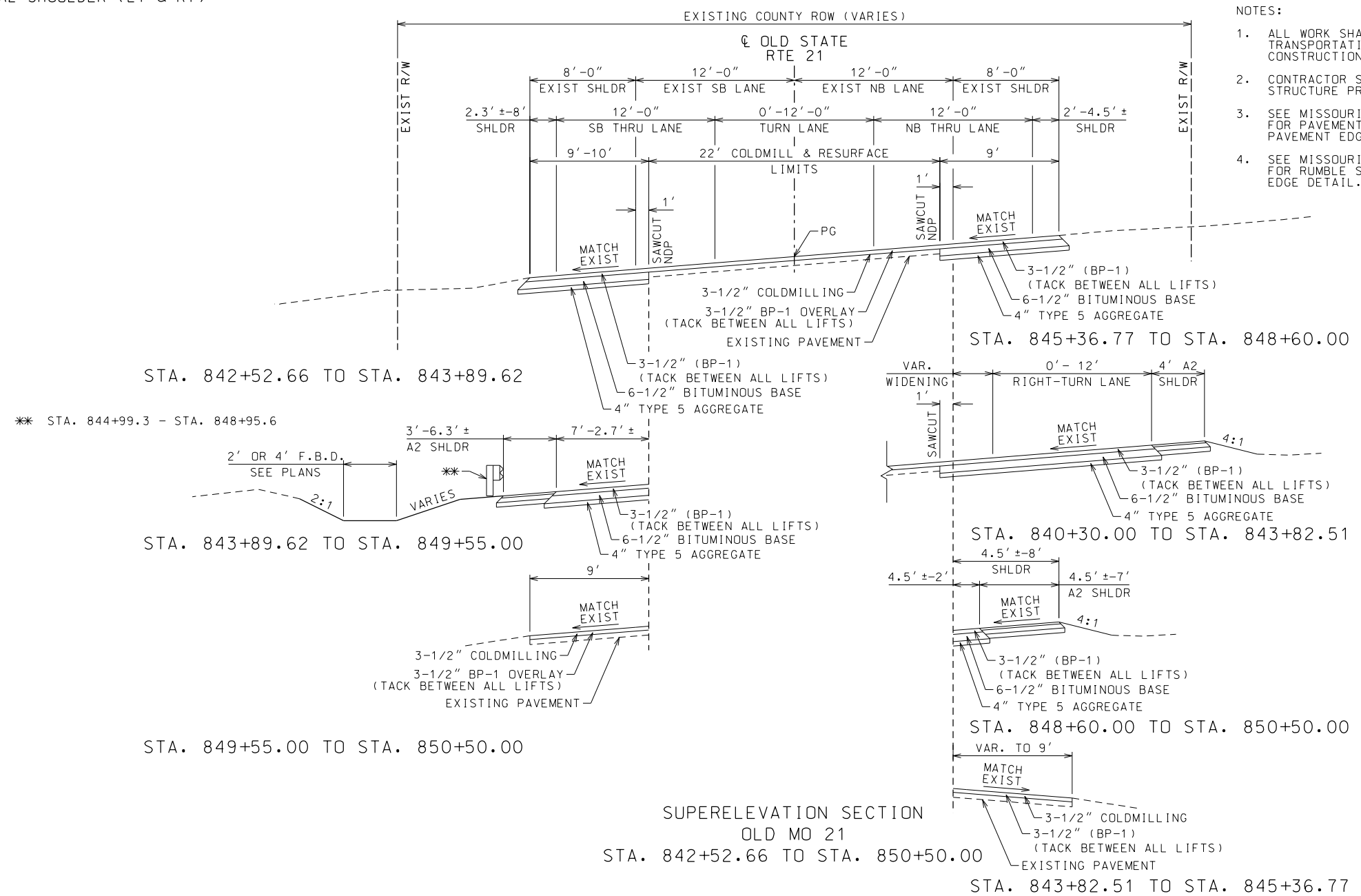




APPLICATION RATES

PG64-22 BP-1 (BIT. PAVEMENT):	1.987 TONS/CY
PG64-22 (BIT. BASE)	: 2.005 TONS/CY
TACK (NEW ASPHALT SURFACES)	: 0.05 GAL/SY
TACK (COLDMILLED ASPHALT)	: 0.10 GAL/SY

- NOTES:
- ALL WORK SHALL CONFORM TO MISSOURI DEPARTMENT OF TRANSPORTATION'S STANDARD PLANS AND SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
 - CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF EXISTING PAVEMENT STRUCTURE PRIOR TO SAWCUT.
 - SEE MISSOURI DEPARTMENT OF TRANSPORTATION'S STANDARD PLAN 620.00 FOR PAVEMENT MARKING DETAILS AND TYPICAL SECTIONS SHEET 2 - PAVEMENT EDGE DETAIL.
 - SEE MISSOURI DEPARTMENT OF TRANSPORTATION'S STANDARD PLAN 626.00 FOR RUMBLE STRIP DETAILS AND TYPICAL SECTION SHEET 2 - PAVEMENT EDGE DETAIL.



TYPICAL SECTIONS
SHEET 1 OF 2

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

DATE PREPARED
11/7/2019

ROUTE
21

STATE
MO

DISTRICT
SL

SHEET NO.
2

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
STP-5462(607)

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION

DATE

OLD STATE ROUTE 21
AT LIONS DEN ROAD
JEFFERSON COUNTY

725 Maple Street
Hillsboro, MO 63050

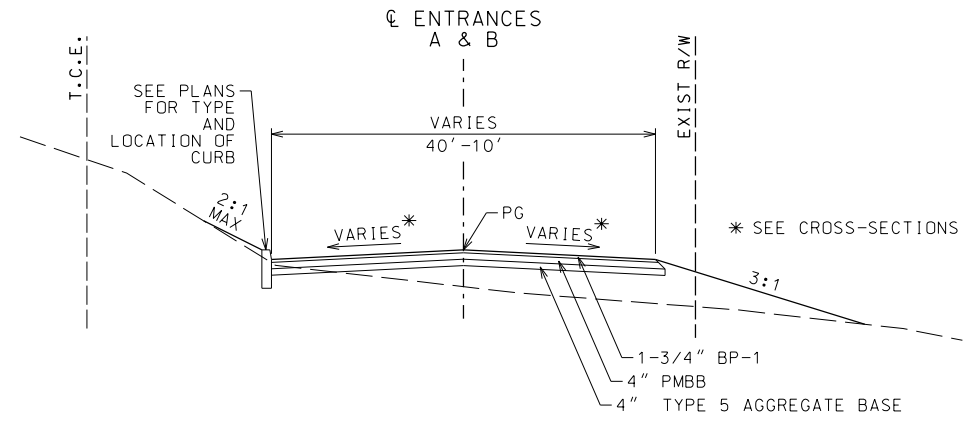
EFK Moen, LLC

Civil Engineering Design

13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021

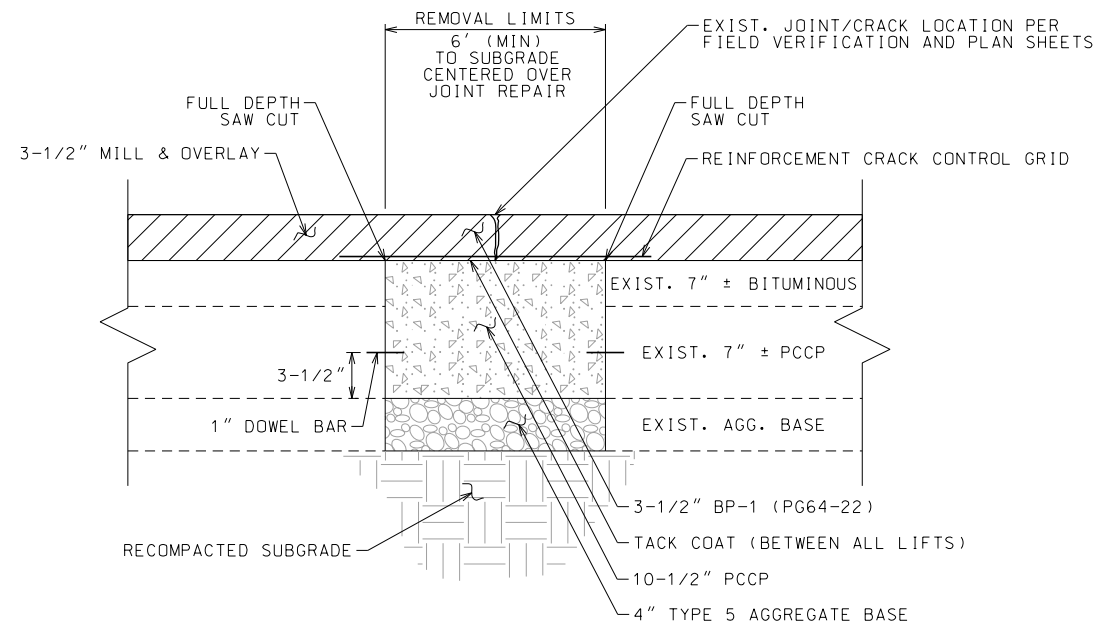
Phone 314-394-3100
Fax 314-394-3199

Missouri Certificate of Authority: 001578



ENTRANCE A
STA. 10+21.42 TO STA. 12+15.00

ENTRANCE B
STA. 10+87.11 TO STA. 11+68.00

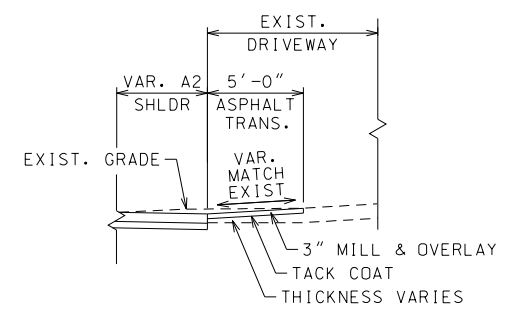


- NOTES:
1. SEE MISSOURI DEPARTMENT OF TRANSPORTATION'S STANDARD PLAN 613.00 FOR ADDITIONAL INFORMATION.
 2. SEE PLANS FOR LOCATIONS OF FULL DEPTH JOINT REPAIR.

FULL DEPTH JOINT REPAIR DETAIL
N.T.S.

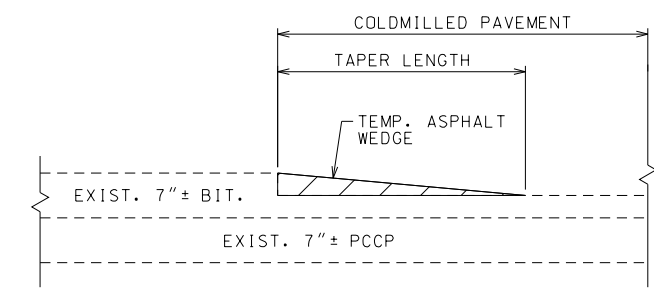
APPLICATION RATES

PG64-22 BP-1 (BIT. PAVEMENT): 1.987 TONS/CY
PG64-22 (BIT. BASE) : 2.005 TONS/CY
TACK (NEW ASPHALT SURFACES) : 0.05 GAL/SY
TACK (COLDMILLED ASPHALT) : 0.10 GAL/SY



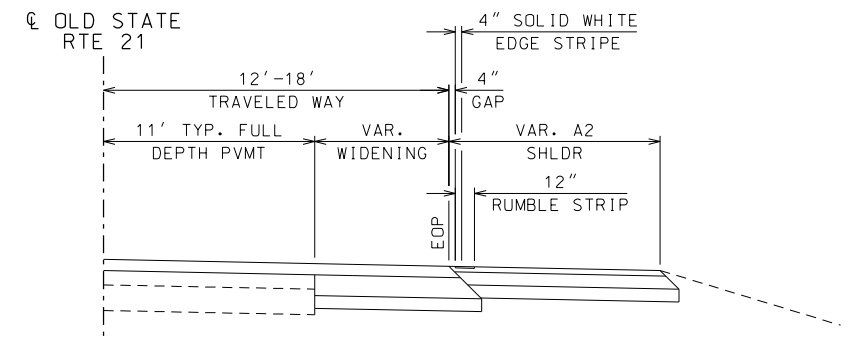
- NOTES:
1. THE CONSTRUCTION OF THE ASPHALT TRANSITION SHALL REQUIRE REMOVAL OF SUFFICIENT MATERIAL TO CONSTRUCT A MINIMUM THREE (3") INCH THICKNESS ASPHALT LAYER.
 2. REMOVAL OF SUFFICIENT MATERIAL MAY EXCEED OR BE LESS THAN THREE (3") INCHES IN THICKNESS DEPENDING ON GRADE OF EXISTING DRIVEWAY AND CONSTRUCTION OF NEW TYPE A2 SHOULDER.
 3. ASPHALT TRANSITION SHALL BE CONSTRUCTED USING PLANT MIX BITUMINOUS BASE.

ASPHALT TRANSITION DETAIL
N.T.S.



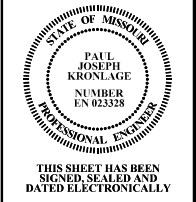
- NOTES:
1. THE TAPER LENGTH SHALL BE 3' IN LENGTH FOR EVERY 1" OF THICKNESS FOR SHORT TERM OPERATION (LESS THAN 7 CALENDAR DAYS).
 2. THE TAPER LENGTH SHALL BE 5' IN LENGTH FOR EVERY 1" OF THICKNESS FOR TEMPORARY OPERATION (IN PLACE OVER 7 CALENDAR DAYS).
 3. THE COST TO PROVIDE AND PLACE TEMPORARY ASPHALT SHALL BE CONSIDERED INCIDENTAL AND INCLUDED IN OTHER ITEMS.
 4. THE CONTRACTOR SHALL ERECT BUMP (W08-1) SIGNS FACING EACH DIRECTION OF TRAFFIC AT ALL LOCATIONS WHERE THE TEMPORARY TRANSVERSE ASPHALT TAPERS ARE USED.

TEMPORARY TRANSVERSE ASPHALT TAPER
N.T.S.



PAVEMENT EDGE DETAIL
N.T.S.

TYPICAL SECTIONS
SHEET 2 OF 2



THIS SHEET HAS BEEN
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DATED ELECTRONICALLY

DATE PREPARED
11/7/2019

ROUTE
21

STATE
MO

DISTRICT
SL

SHEET NO.
2

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
STP-5462(607)

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

OLD STATE ROUTE 21
AT LIONS DEN ROAD
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

EFK • Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

SUMMARY OF QUANTITIES

ITEM NO.	ITEM DESCRIPTIONS	UNIT	TOTAL
202-20.10	REMOVAL OF IMPROVEMENTS	LS	1
203-50.00	UNCLASSIFIED EXCAVATION	CY	774
203-60.00	COMPACTING EMBANKMENT	CY	8
203-70.75	COMPACTING IN CUT	STA	2.8
206-30.00	CLASS 3 EXCAVATION	CY	23
206-35.00	CULVERT CLEANOUT	EA	1
207-20.00	LINEAR GRADING CLASS 2	STA	28
304-05.04	TYPE 5 AGGREGATE FOR BASE (4 IN. THICK)	SY	3070
401-01.50	TYPE A2 SHOULDER	SY	764.7
401-12.09	BITUMINOUS PAVEMENT MIXTURE PG64-22, (BP-1)	TON	1072.7
401-30.00	BITUMINOUS PAVEMENT MIXTURE PG64-22, (BASE)	TON	786.7
407-10.05	TACK COAT	GAL	780
606-10.60	MGS GUARDRAIL	LF	288
606-30.14	TYPE A CRASHWORTHY END TERMINAL (MASH)	EA	2
609-10.11	CONCRETE CURB (OVER 6IN. HEIGHT) TYPE S	LF	108
609-30.10	ASPHALT CURB	LF	236
609-60.10A	FURNISHING TYPE 1 ROCK DITCH LINER	CY	20
609-60.41	PLACING TYPE 1 ROCK DITCH LINER	CY	20
609-70.00	ROCK LINING	CY	23
612-30.00A	TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)	EA	1
613-10.10	FURNISHING AND PLACING CONCRETE MATERIAL FOR FULL DEPTH PAVEMENT REPAIR	SY	158.8
613-10.12	SUBGRADE COMPACTION (6 IN. DEPTH) (PAVEMENT REPAIR)	SY	162
613-10.13	TYPE 1 OR 5 AGGREGATE FOR BASE (4 IN. THICK) (PAVEMENT REPAIR)	SY	162
613-10.14	FULL DEPTH PAVEMENT REPAIR SAW CUT (FOR PERIMETER AND INTERNAL SAW CUTS)	LF	475
613-10.15	"DOWEL BAR (DRILLING, FURNISHING AND INSTALLATION) FOR FULL DEPTH PAVEMENT REPAIR"	EA	432
613-99.05	REINFORCEMENT CRACK CONTROL GRID	SY	238
616-10.05	CONSTRUCTION SIGNS	SF	507
616-10.08	ADVANCED WARNING RAIL SYSTEM	EA	10
616-10.09	FLAG ASSEMBLY	EA	3

SUMMARY OF QUANTITIES

ITEM NO.	ITEM DESCRIPTIONS	UNIT	TOTAL
616-10.25	CHANNELIZER (TRIM LINE)	EA	100
616-10.30	TYPE III MOVEABLE BARRICADE	EA	4
616-10.33	DIRECTION INDICATOR BARRICADE	EA	14
616-10.98A	CHANGEABLE MESSAGE SIGN WITHOUT COMMUNICATION INTERFACE, CONTRACTOR	EA	3
618-10.00	MOBILIZATION	LS	1
619-10.00	PAVEMENT EDGE TREATMENT	LF	1995
620-00.15	"PREFORMED THERMOPLASTIC PAVEMENT MARKING, 24 IN. WHITE"	LF	58
620-00.21	"PREFORMED THERMOPLASTIC PAVEMENT MARKING, LEFT/RIGHT ARROW"	EA	4
620-60.00C	"4 IN. WHITE STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS"	LF	2695
620-60.01C	"4 IN. YELLOW STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS"	LF	3980
620-61.25A	"24 IN. YELLOW STANDARD WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS"	LF	150
620-80.64A	TEMPORARY RAISED PAVEMENT MARKER	EA	60
620-80.76	4 IN TEMPORARY PAVEMENT MARKING PAINT	LF	120
622-10.01	COLDMILLING BITUMINOUS PAVEMENT FOR REMOVAL OF SURFACING (3 IN. THICK OR LESS)	SY	3663
624-01.01A	SUBSURFACE DRAINAGE GEOTEXTILE	SY	70
626-10.00A	BITUMINOUS SHOULDER RUMBLE STRIP	STA	12
627-40.00	CONTRACTOR FURNISHED SURVEYING AND STAKING	LS	1
725-04.15	15 IN. PIPE GROUP C	LF	91
732-20.15A	BEVELED PIPE END TREATMENT FOR 15 IN. OR ALLOWED SUBSTITUTE PIPE	EA	4
805-10.00A	SEEDING - COOL SEASON MIXTURES	AC	0.5
806-10.03	SEDIMENT TRAP EXCAVATION	CY	22
806-10.04	SEDIMENT TRAP ROCK	CY	30
806-10.05	ROCK DITCH CHECK	LF	391
806-10.16	SEDIMENT REMOVAL	CY	47
806-10.17	TEMPORARY SEEDING AND MULCHING	AC	0.2
806-10.19	SILT FENCE	LF	1415
903-99.02	MISC. {REMOVE AND RELOCATE SIGN}	EA	2

SUMMARY OF QUANTITIES

SHEET 1 OF 1

STATE OF MISSOURI

PAUL JOSEPH KRONLAGE

NUMBER EN 023328

PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

DATE PREPARED
11/7/2019

ROUTE
21

STATE
MO

DISTRICT
SL

SHEET NO.
2A

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
STP-5462(607)

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION

DATE

OLD STATE ROUTE 21
AT LIONS DEN ROAD
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

EFK • Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578

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REV.

Z:\16060-Old 21-Lions Den\DGN\Design\Final\Plotsheets\002A_QU_1.itl.dgn 9:02:54 AM 11/7/2019

REMOVAL OF IMPROVEMENTS								
PLAN SHEET	STA	STA	LOC	ROADWAY	LF	SF	EACH	DESCRIPTIONS
3	841+66		RT	OLD RTE 21			1	4'x8' CONCRETE FOUNDATION
5	844+13		LT	OLD RTE 21			1	CONCRETE BLOCK
5	844+67	845+04	LT	OLD RTE 21	36			15" PIPE
5	844+99		LT	OLD RTE 21			3	MAILBOXES
5	844+89	845+11	LT	OLD RTE 21	32			15" PIPE
10	841+48		RT	OLD RTE 21			1	WOOD ADVERTISING SIGN
10	842+31		RT	OLD RTE 21			1	UTILITY MARKER
10	843+00		RT	OLD RTE 21			1	UTILITY MARKER
10	843+98		LT	OLD RTE 21			1	SIGN *
10	845+00		LT	OLD RTE 21			1	SIGNS, POST & FOOTING
10	849+06		LT	OLD RTE 21			1	SIGNS, POST & FOOTING

PAY TOTAL 1 LUMP SUM * SIGNS AND U-CHANNEL POSTS TO BE SALVAGED FOR JEFFERSON COUNTY

LINEAR GRADING						
PLAN SHEET	ROADWAY	STA	STA	LOC	CLASS 2 STA	REMARKS
3	OLD RTE 21	839+41.00	843+72.00	RT	4.31	SHOULDER
3	OLD RTE 21	839+41.00	849+55.00	LT	10.14	SHOULDER, DITCH, GUARDRAIL
3	OLD RTE 21	842+81.00	844+42.00	LT	1.61	REMOVE ENTRANCE
3	OLD RTE 21	844+00.00	850+50.00	RT	6.50	SHOULDER
3	OLD RTE 21	844+29.00	849+55.00	LT	5.26	SHOULDER, DITCH
3	ENTRANCE A	10+21.41	10+70.00	RT	0.49	REMOVE ENTRANCE
TOTALS					28.31	
PAY TOTALS					28.0	

PLAN SHEET	ROADWAY	STA	STA	LOC	COLDMILLING BITUMINOUS PAVEMENT (GREATER THAN 3" THICK) SY	BITUMINOUS PAVEMENT MIXTURE PG64-22 (BP-1) TONS	BITUMINOUS PAVEMENT MIXTURE PG64-22 (BIT. BASE) TONS	TYPE 5 AGGR. FOR BASE 4" THICK SY	TACK COAT GAL	TYPE A2 SHOULDER SY	REMARKS
3	OLD RTE 21	839+41.00	850+50.00	LT&RT	2806.4	542.15			421.0		RESURFACING EXISTING
3	LIONS DEN	10+11.13	11+00.00	LT&RT	800.6	154.66			120.1		RESURFACING EXISTING
3	OLD RTE 21	839+41.00	843+74.00	RT		107.03	208.25	759.66	56.5	207.68	PAVEMENT WIDENING
3	OLD RTE 21	839+41.00	849+55.00	LT		131.32	262.91	1104.71	70.3	425.14	PAVEMENT WIDENING
3	OLD RTE 21	845+36.77	850+50.00	RT		76.98	153.03	552.46	41.1	131.88	PAVEMENT WIDENING
TOTALS					3607.0	1012.13	624.20	2416.83	708.9	764.70	BP-1 PG64-22 : 1.987 TONS/CY BIT BASE PG64-22 : 2.005 TONS/CY TACK (NEW ASPHALT) : 0.05 GAL/SY TACK (COLDMILLED ASPHALT) : 0.10 GAL/SY
PAY TOTALS					3607	1012.1	624.2	2416.8	709	764.7	

PLAN SHEET	ROADWAY	STA	LOC	FURNISHING & PLACING CONCRETE MATERIAL FOR PAVEMENT REPAIR SY	SUBGRADE COMPACTION (6" DEPTH) (PAVEMENT REPAIR) SY	TYPE 1 OR TYPE 5 AGGR. BASE (4" THICK) (PAVEMENT REPAIR) SY	FULL DEPTH SAWCUT PAVEMENT REPAIR LF	DOWEL BAR (DRILLING, FURNISHING & INSTALLATION) FOR FULL DEPTH PAVEMENT REPAIR EA	ASPHALT REINFORCEMENT CRACK CONTROL GRID SY	REMARKS
3	OLD RTE 21	840+06.00	LT&RT	14.7	15	15	44	40	22	
3	LIONS DEN	840+48.00	LT&RT	14.7	15	15	44	40	22	
3	OLD RTE 21	841+37.00	LT&RT	14.7	15	15	44	40	22	
3	OLD RTE 21	842+19.00	LT&RT	14.7	15	15	44	40	22	
3	OLD RTE 21	843+34.00	LT&RT	14.7	15	15	44	40	22	
3	OLD RTE 21	843+92.00	LT&RT	14.7	15	15	44	40	22	
3	OLD RTE 21	847+95.00	LT&RT	14.7	15	15	44	40	22	
3	OLD RTE 21	848+61.00	LT&RT	14.7	15	15	44	40	22	
3	OLD RTE 21	849+63.00	LT&RT	14.7	15	15	44	40	22	
SUBTOTALS				132.3	135	135.00	396	360	198	
20% CONTINGENCY				26.5	27.0	27.0	79.2	72.0	39.6	
PAY TOTALS				158.8	162	162.0	475	432	238	

PLAN SHEET	ROADWAY	STA	LOC	COLDMILLING BITUMINOUS PAVEMENT (3" OR LESS) SY	BITUMINOUS PAVEMENT MIXTURE PG64-22 (BP-1) TONS	BITUMINOUS PAVEMENT MIXTURE PG64-22 (BIT. BASE) TONS	TYPE 5 AGGR. FOR BASE 4" THICK SY	TACK COAT GAL	8" TYPE S CONCRETE CURB LF	ASPHALT CURB LF	REMARKS
3	OLD RTE 21	840+24.06	LT			8.53					INCLUDES ENTRANCE 840+19.26
3	OLD RTE 21	844+00.00	LT		60.57	143.13	653.24	64.2	107.9	236.3	INCLUDES ENTRANCE A AND ENTRANCE B
3	OLD RTE 21	848+14.97	RT	16.9		2.82		1.7			
3	OLD RTE 21	849+95.52	LT	39.2		6.55		3.9			
3	OLD RTE 21	850+45.98	RT			1.47					
TOTALS				56.1	60.57	162.50	653.24	69.9	107.9	236.3	BP-1 PG64-22 : 1.987 TONS/CY BIT BASE PG64-22 : 2.005 TONS/CY
PAY TOTALS				56	60.6	162.5	653.2	70	108	236	

PLAN SHEET	ROADWAY	LOC.	STA	STA	UNCLASSIFIED EXCAVATION C.Y.	FILL C.Y.	COMPACTING EMBANKMENT C.Y.	EMBANKMENT IN PLACE C.Y.	COMPACTING IN CUT STA.	REMARKS
4	ENT A&B	CL	10+21.41	11+68/12+15	774	8	8	0	2.8	
PAY TOTAL					774		8	0	2.8	

SCHEDULE OF QUANTITIES SHEET 1 OF 3

STATE OF MISSOURI

PAUL JOSEPH KRONLAGE

NUMBER EN 023328

PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

DATE PREPARED 11/7/2019

ROUTE 21

STATE MO

DISTRICT SL

SHEET NO. 2B

COUNTY JEFFERSON

FEDERAL PROJECT NO. STP-5462(607)

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION

DATE

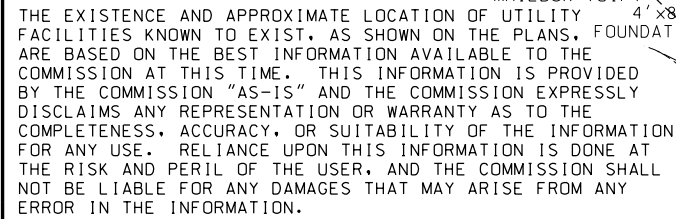
OLD STATE ROUTE 21 AT LIONS DEN ROAD JEFFERSON COUNTY 725 Maple Street Hillsboro, MO 63050

EFK Moen, LLC Civil Engineering Design 13523 Barrett Parkway Dr Suite 250 St. Louis, MO 63021 Phone 314-394-3100 Fax 314-394-3199 Missouri Certificate of Authority: 001578

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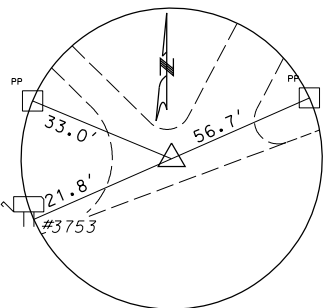
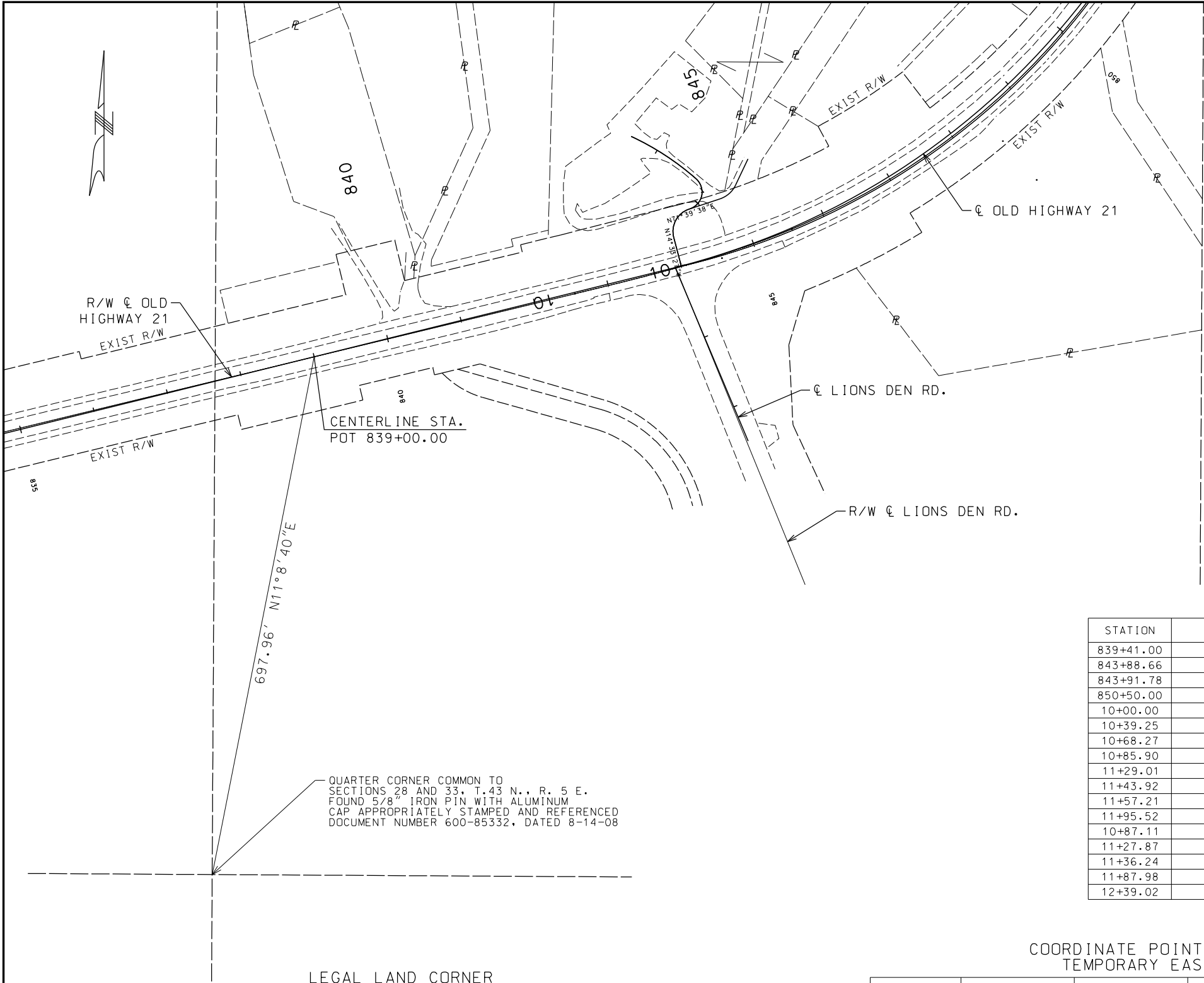
CURVE	OLD RTE 21
PI	848+78.05
PC	843+88.66
PT	852+97.07
Δ	52° 50' 25.8" (LT)
D	5° 49' 00.6"
L	908.41'
T	489.39'
R	985.00'



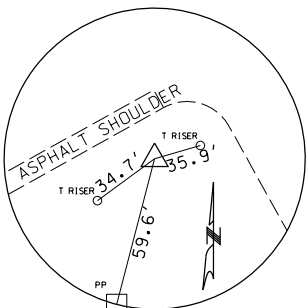
SEE PAVEMENT EDGE DETAIL ON TYPICAL SECTIONS SHEET 2 OF 2 AND PAVEMENT MARKING SHEET FOR LOCATION OF 4" SOLID WHITE EDGE STRIPE.



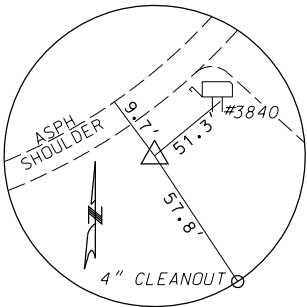
REV.



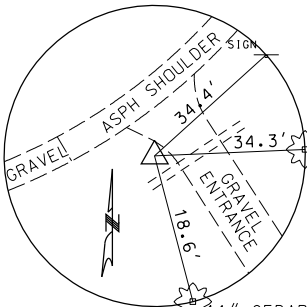
CONTROL POINT NO. 1
IRON ROD
N: 945458.8320
E: 830314.8350
EL: 614.90



CONTROL POINT NO. 2
IRON ROD W/CAP
N: 945461.4830
E: 830566.2170
EL: 611.87



CONTROL POINT NO. 3
IRON ROD W/CAP
N: 945645.9530
E: 831018.2050
EL: 615.76



CONTROL POINT NO. 4
IRON ROD W/CAP
N: 945843.4780
E: 831231.5640
EL: 630.25

COORDINATE POINT LISTING
CENTERLINE TIES

STATION	LOCATION	OFFSET	NORTHING	EASTING	DESCRIPTION
839+41.00	OLD ROUTE 21	0.00	945409.6706	830245.5738	P.O.T.
843+88.66	OLD ROUTE 21	0.00	945517.1948	830680.1281	P.C.
843+91.78	OLD ROUTE 21	0.00	945517.9483	830683.1527	LIONS DEN TIE
850+50.00	OLD ROUTE 21	0.00	945871.9162	831223.5973	P.O.C.
10+00.00	ENT A & B	0.00	945519.9821	830691.1208	OLD 21 TIE
10+39.25	ENT A & B	0.00	945557.9743	830681.2546	P.C.
10+68.27	ENT A & B	11.46 LT	945586.0613	830673.9608	P.I.
10+85.90	ENT A & B	0.00	945595.1918	830701.5054	P.T.
11+29.01	ENT A	0.00	945608.7543	830742.4204	P.C.
11+43.92	ENT A	3.05 RT	945613.4485	830756.5819	P.I.
11+57.21	ENT A	0.00	945626.9158	830763.0018	P.T.
11+95.52	ENT A	0.00	945661.4980	830779.4870	P.O.T.
10+87.11	ENT B	0.00	945595.5728	830702.6550	P.C.
11+27.87	ENT B	23.60 RT	945608.3967	830741.3416	P.I.
11+36.24	ENT B	0.00	945635.3434	830710.7642	P.C.C.
11+87.98	ENT B	3.73 RT	945669.5575	830671.9403	P.I.
12+39.02	ENT B	0.00	945691.3547	830625.0066	P.O.T.

COORDINATE POINT LISTING
TEMPORARY EASEMENT

POINT #	NORTHING	EASTING	DESCRIPTION
1	945566.0027	830551.2920	TEMP. ESMT (CONSTR.)
2	945582.2613	830547.3396	TEMP. ESMT (CONSTR.)
3	945620.6850	830638.0723	TEMP. ESMT (CONSTR.)
4	945653.2666	830658.3401	TEMP. ESMT (CONSTR.)
5	945670.0236	830686.8455	TEMP. ESMT (CONSTR.)/RIGHT OF ENTRY
6	945627.3633	830737.1280	TEMP. ESMT (CONSTR.)
7	945646.5614	830761.6033	TEMP. ESMT (CONSTR.)
8	945632.4569	830786.5387	TEMP. ESMT (CONSTR.)
9	945633.4954	830646.0412	RIGHT OF ENTRY
10	945656.7954	830626.9378	RIGHT OF ENTRY
11	945692.6755	830642.8242	RIGHT OF ENTRY
12	945700.8088	830674.2158	RIGHT OF ENTRY

SEE SHEET 5 FOR COORDINATE POINT LOCATIONS

REFERENCE TIES
SHEET 1 OF 1

- COORDINATE SYSTEM BASED ON THE MISSOURI STATE PLANE COORDINATE SYSTEM OF 1983, EAST ZONE.
- HORIZONTAL CONTROL STATEMENT: STATE PLANE COORDINATES ON THIS PROJECT WERE ESTABLISHED UTILIZING THE MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION GLOBAL NAVIGATION SATELLITE REAL TIME NETWORK FOR CONTINUOUSLY OPERATING REFERENCE STATIONS DURING DECEMBER 2016 AND JANUARY 2017, AND ARE BASED ON THE MISSOURI COORDINATE SYSTEM OF 1983, EAST ZONE. THE AVERAGE COMBINED PROJECT GRID FACTOR IS 0.9999089 AS CALCULATED BY TRIMBLE GEOMATICS OFFICE.
- PROJECT COORDINATES ARE MODIFIED MISSOURI STATE PLANE COORDINATES AND WERE ESTABLISHED BY APPLYING THE INVERSE OF THE PROJECT GRID FACTOR (1.0000911) ABOUT THE ORIGIN (0,0).
- VERTICAL DATUM IS NAVD 88. ELEVATIONS WERE ESTABLISHED ON CONTROL POINTS 1 THROUGH 4 USING A CELLULAR EQUIPPED SPECTRA PRECISION RANGER, AND BASED ON THE MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION GLOBAL NAVIGATION SATELLITE REAL TIME NETWORK FOR CONTINUOUS OPERATING REFERENCE STATIONS. FIELD WORK WAS PERFORMED DURING NOVEMBER AND DECEMBER, 2016.



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ROUTE
21

STATE
MO

DISTRICT
SL

SHEET NO.
4

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
STP-5462 (607)

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION

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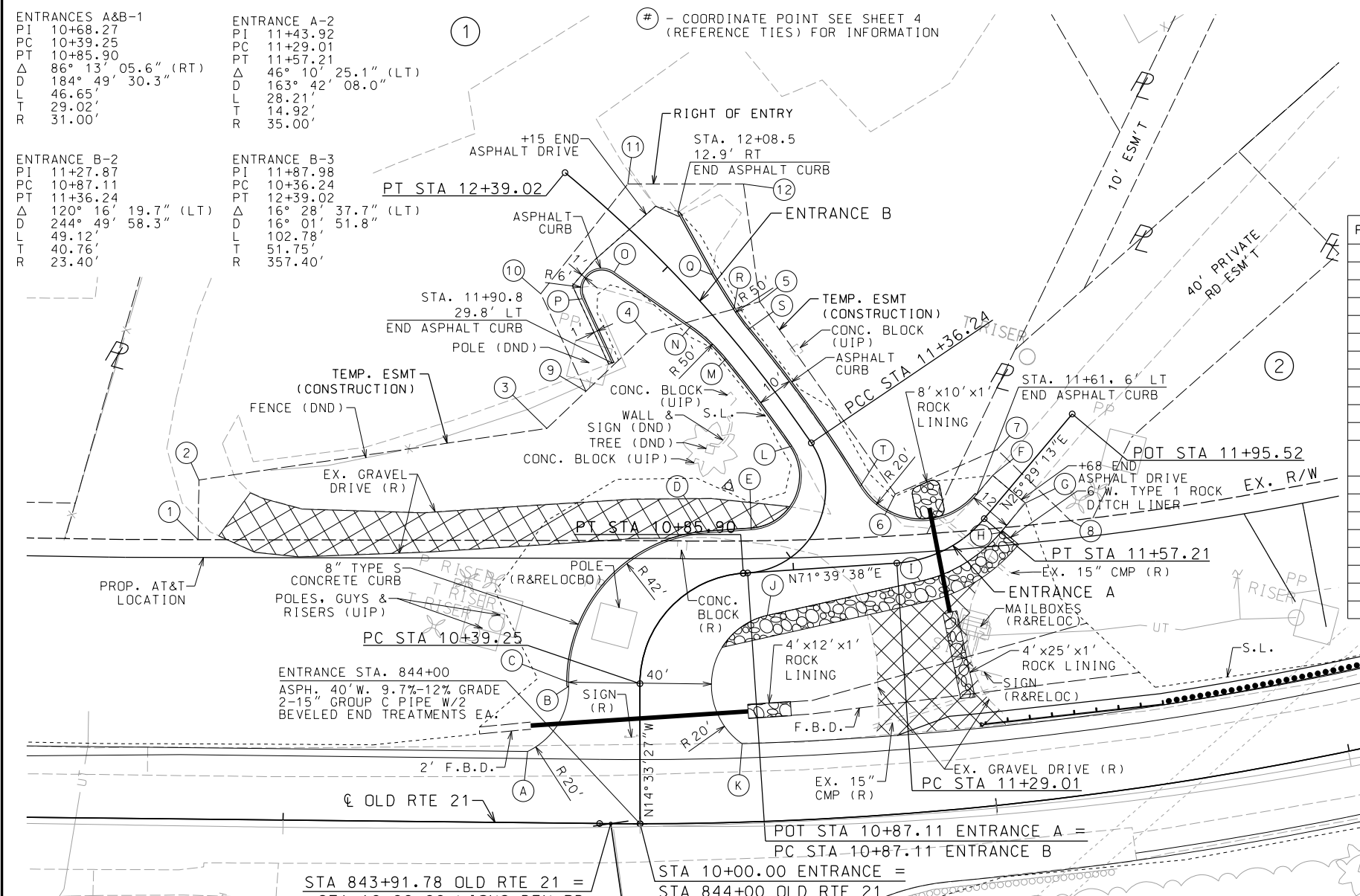
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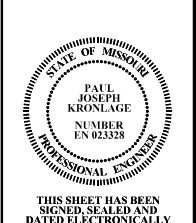
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OLD STATE ROUTE 21
AT LIONS DEN ROAD
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

EFK Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
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ROUTE 21 STATE MO
DISTRICT SL SHEET NO. 5

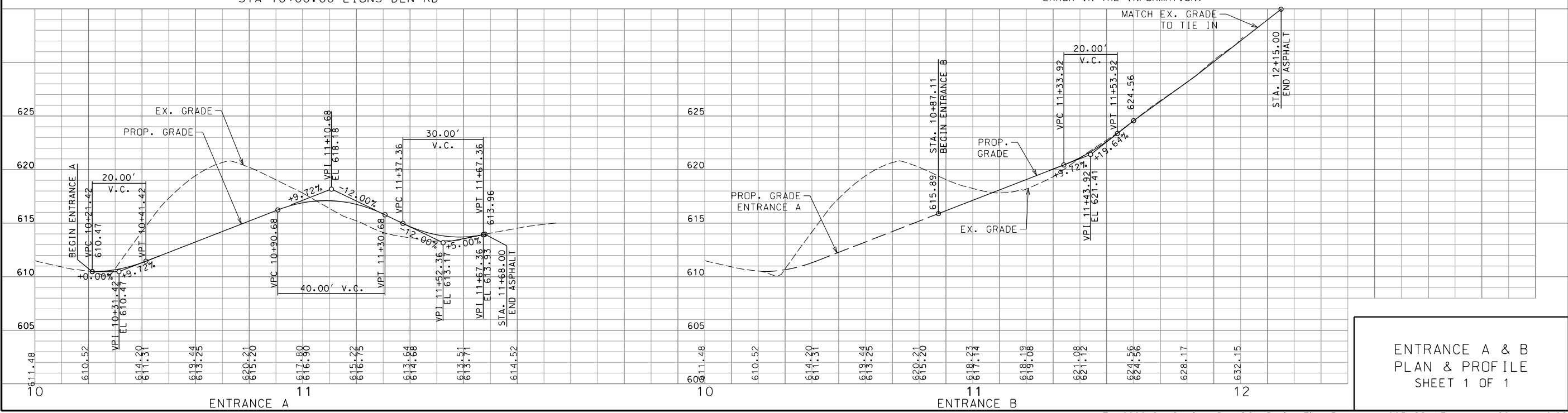
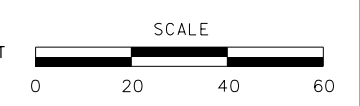
COUNTY JEFFERSON
FEDERAL PROJECT NO. STP-5462(607)
CONTRACT ID.

PROJECT NO.

BRIDGE NO.

POINT	LOCATION	OFFSET	STATION	ELEVATION	DESCRIPTION
A	ENTRANCE A	31.49' LT	10+20.30	610.70	
B	ENTRANCE A	20.00' LT	10+38.51	611.78	BEGIN 8" TYPE S CONC. CURB
C	ENTRANCE A	20.00' LT	10+39.50	611.87	
D	ENTRANCE A	12.92' LT	10+79.54	615.93	FACE OF CURB
E	ENTRANCE A	12.00' LT	10+88.94	616.78	FACE OF CURB
F	ENTRANCE A	6.00' LT	11+68.00	MATCH EX	
G	ENTRANCE A	6.00' RT	11+68.00	MATCH EX	
H	ENTRANCE A	6.00' RT	11+57.21	613.26	
I	ENTRANCE A	6.00' RT	11+34.37	614.93	
J	ENTRANCE A	12.23' RT	10+91.80	615.61	
K	ENTRANCE A	28.58' RT	10+22.42	610.20	
L	ENTRANCE B	5.00' LT	11+38.55	620.94	FACE OF CURB, END 8" CONC. CURB, BEGIN ASPHALT CURB
M	ENTRANCE B	5.03' LT	11+65.28	626.08	FACE OF CURB
N	ENTRANCE B	7.00' LT	11+65.28	628.37	FACE OF CURB
O	ENTRANCE B	14.31' LT	11+65.28	MATCH EX	FACE OF CURB
P	ENTRANCE B	25.90' LT	11+65.28	MATCH EX	FACE OF CURB
Q	ENTRANCE B	6.66' RT	11+65.28	630.66	FACE OF CURB
R	ENTRANCE B	5.29' RT	11+65.28	628.28	FACE OF CURB
S	ENTRANCE B	4.94' RT	11+65.28	627.08	FACE OF CURB
T	ENTRANCE B	9.74' RT	11+22.97	619.37	FACE OF CURB

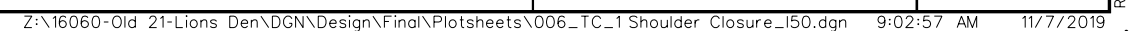
THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION.



ENTRANCE A & B
PLAN & PROFILE
SHEET 1 OF 1

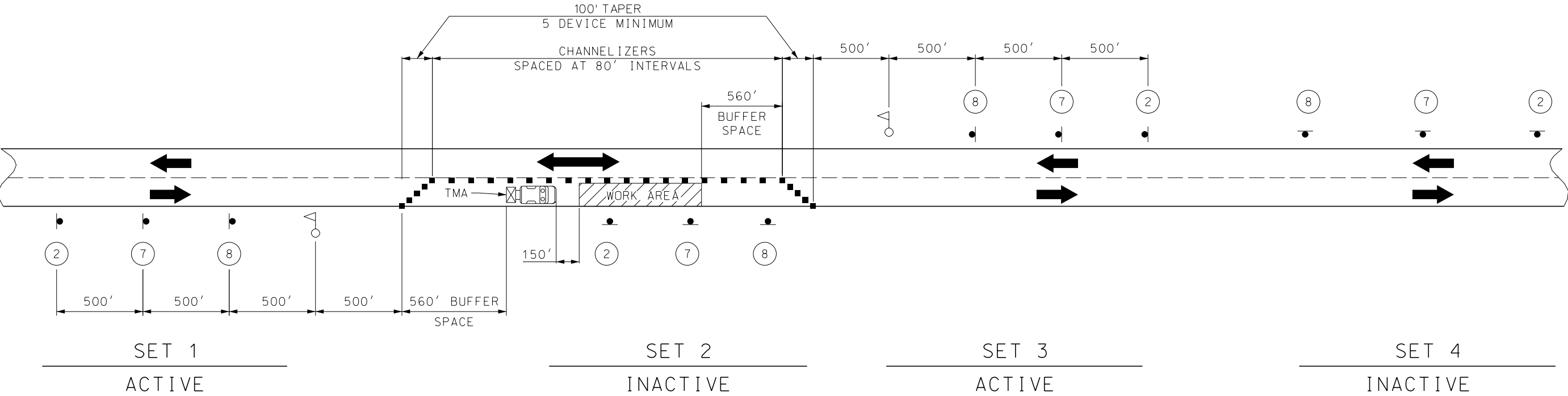
OLD STATE ROUTE 21
AT LIONS DEN ROAD
JEFFERSON COUNTY

EFK Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
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SUGGESTED CONSTRUCTION SEQUENCE FOR OLD STATE ROUTE 21 IMPROVEMENTS:

1. MILL 3-1/2" OF ASPHALT ON OLD ROUTE 21 AND LIONS DEN TRAVELED-WAY AND MILL/GRADE SHOULDERS TO MATCH TRAVELED-WAY ELEVATION AND TO MAINTAIN POSITIVE DRAINAGE (THE COST TO MILL/GRADE SHOULDERS SHALL BE CONSIDERED INCIDENTAL & THE COST TO BE INCLUDED IN OTHER ITEMS).
2. CONSTRUCT FULL DEPTH PAVEMENT REPAIRS AT ALL LOCATIONS NOTED ON THE PLANS IN ACCORDANCE TO SECTION 613.10.2.3.2 OF MISSOURI DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
3. RESURFACE OLD ROUTE 21 (1-3/4" LIFT OF BP-1).
4. CONSTRUCT OLD ROUTE 21 PAVEMENT WIDENING AND A2 SHOULDER (AGGREGATE BASE & 6-1/2" BITUMINOUS BASE WITH 1-3/4" LIFT OF BP-1 FOR WIDENING AND AGGREGATE BASE & 4" PMBB FOR A2 SHOULDERS).
5. RESURFACE OLD ROUTE 21 (FINAL LIFT OF 1-3/4" BP-1).
6. CONSTRUCT OLD ROUTE 21 A2 SHOULDERS (1-3/4" BP-1).



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

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

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

NOTES:

1. ALL TRAFFIC CONTROL SIGNS AND DEVICES SHALL CONFORM TO THE CURRENT MISSOURI DEPARTMENT OF TRANSPORTATION STANDARD PLANS AND STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. THE CONTRACTOR SHALL CONTACT JEFFERSON COUNTY PUBLIC WORKS DEPARTMENT AT LEAST ONE WEEK PRIOR TO CLOSING A LANE OR SHOULDER.
3. DAYLIGHT FLAGGING OPERATIONS ONLY.
4. FLAG ASSEMBLIES FOR SIGNS WILL BE PAID FOR AS EACH PER SIGN, EXCEPT FOR SIGN W020-7A WHICH IS SUBSIDIARY TO THE SIGN.
5. SPACINGS MAY BE ADJUSTED AS NECESSARY TO MEET FIELD CONDITIONS.
6. ALL EXISTING SIGNS THAT CONFLICT WITH THE PROPOSED TCP SHALL BE COVERED, NO DIRECT PAY.
7. NO DIRECT PAYMENT FOR RELOCATION OF TCP SIGNS.
8. ALL WARNING SIGNS SHALL HAVE FLUORESCENT SHEETING.

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- SIGN (DOUBLE SIDED)
- FLAGGER
- DIRECTIONAL INDICATOR
- BARRICADE
- CHANNELIZER
- BARRICADE
- CHANGEABLE MESSAGE BOARD
- TRUCK MOUNTED ATTENUATOR (TMA)

NOT TO SCALE

TRAFFIC CONTROL
SHEET 2 OF 3

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11/7/2019

ROUTE
21

STATE
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SHEET NO.
7

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
STP-5462(607)

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION

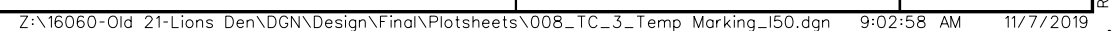
DATE

OLD STATE ROUTE 21
AT LIONS DEN ROAD
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

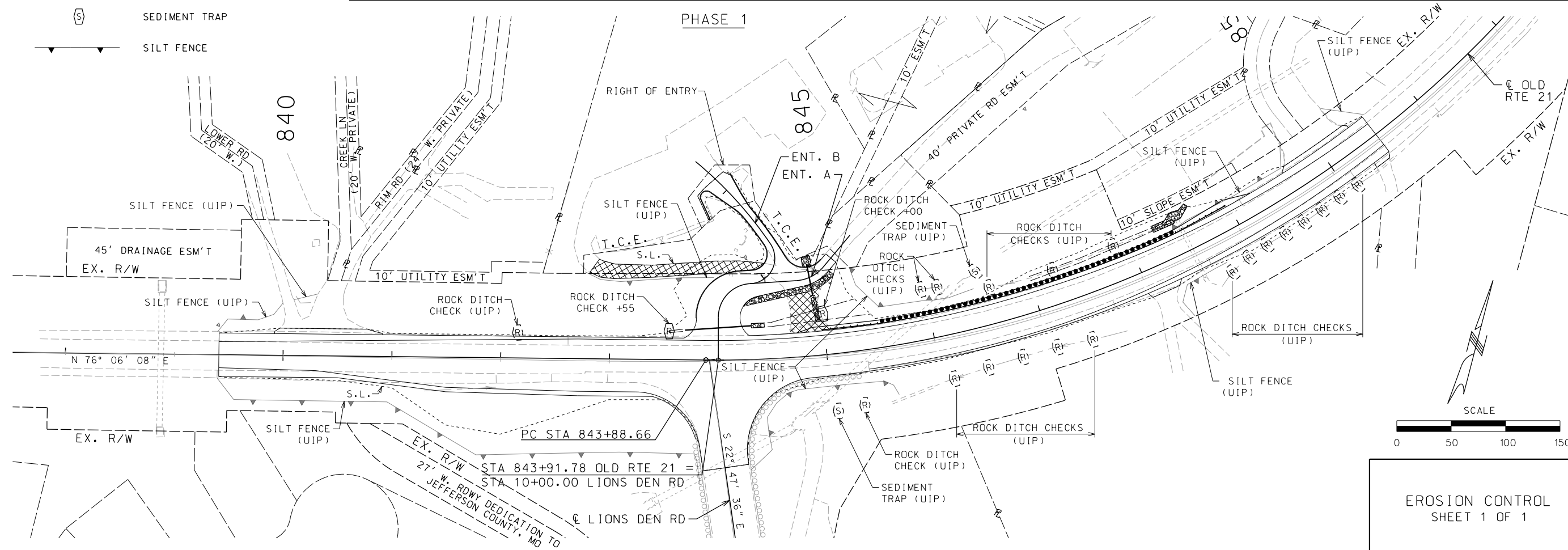
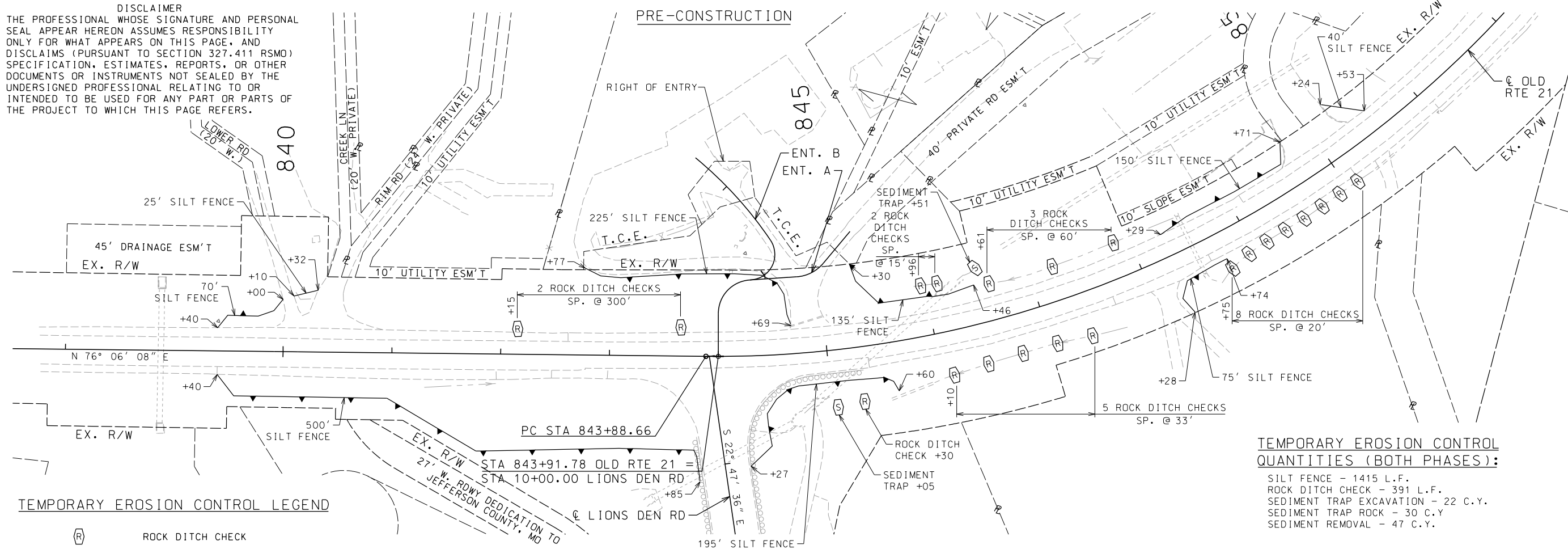
EFK Moen, LLC
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St. Louis, MO 63021
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Fax 314-394-3199
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1. ALL TRAFFIC CONTROL SIGNS AND DEVICES SHALL CONFORM TO THE CURRENT MISSOURI DEPARTMENT OF TRANSPORTATION STANDARD PLANS AND STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. THE CONTRACTOR SHALL CONTACT JEFFERSON COUNTY PUBLIC WORKS DEPARTMENT AT LEAST ONE WEEK PRIOR TO CLOSING A LANE OR SHOULDER.
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7. NO DIRECT PAYMENT FOR RELOCATION OF TCP SIGNS.
8. ALL WARNING SIGNS SHALL HAVE FLUORESCENT SHEETING.
9. THE CONTRACTOR SHALL UTILIZE WATERBORNE PAINT, TYPE P BEADS FOR TEMPORARY MARKINGS ON MILLED SURFACES AND TYPE 2 TEMPORARY RAISED MARKERS AFTER THE FIRST LITS OF BP-1.



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SHEET NO.
9

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
STP-5462(607)

CONTRACT ID.

PROJECT NO.

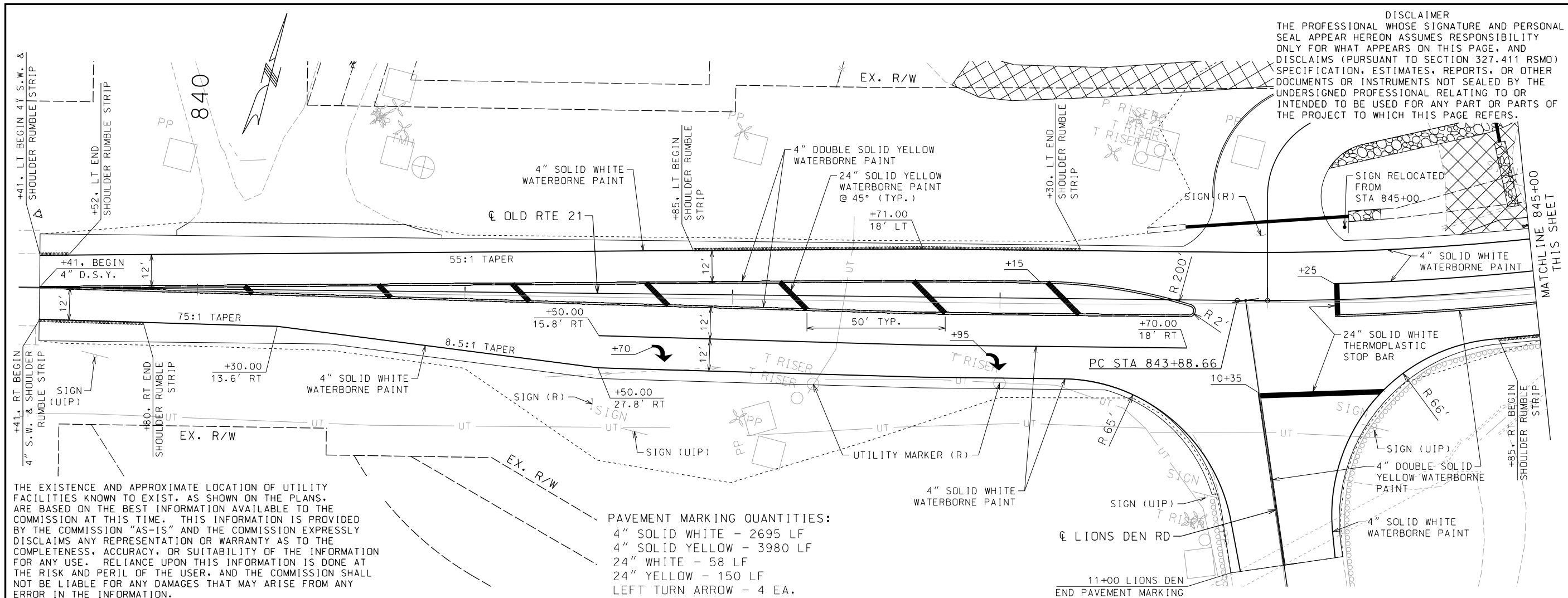
BRIDGE NO.

DESCRIPTION

DATE

OLD STATE ROUTE 21
AT LIONS DEN ROAD
JEFFERSON COUNTY

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ROUTE	STATE
21	MO

DISTRICT	SHEET NO.
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COUNTY
JEFFERSON

FEDERAL PROJECT NO.
TP-5462(607

CONTRACT ID.

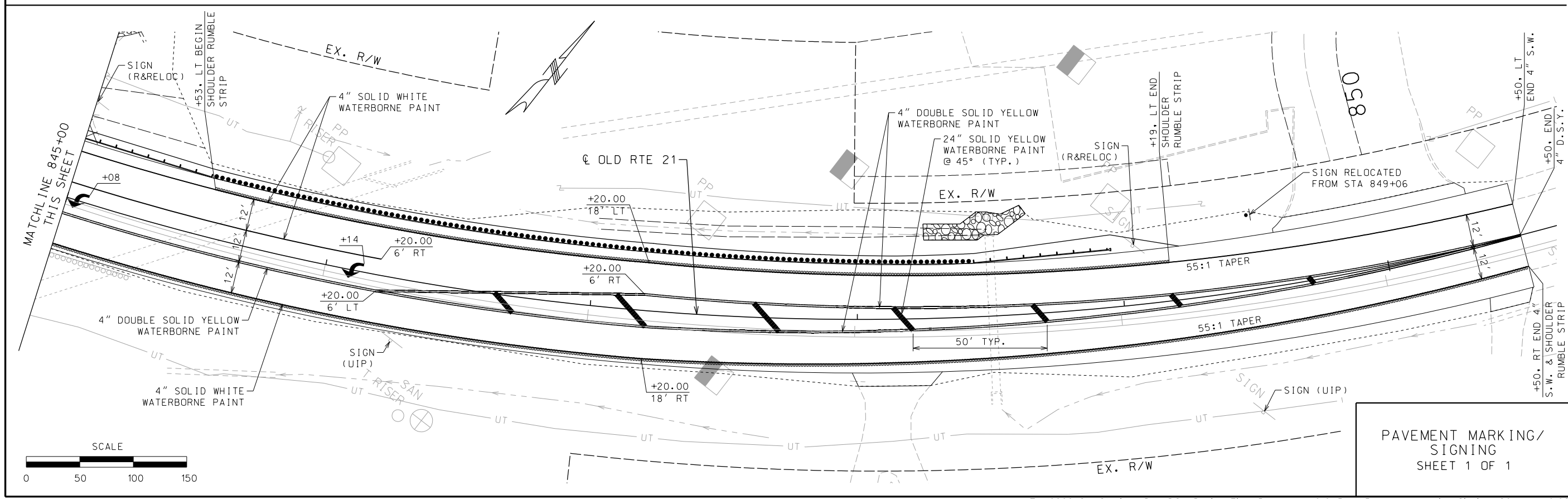
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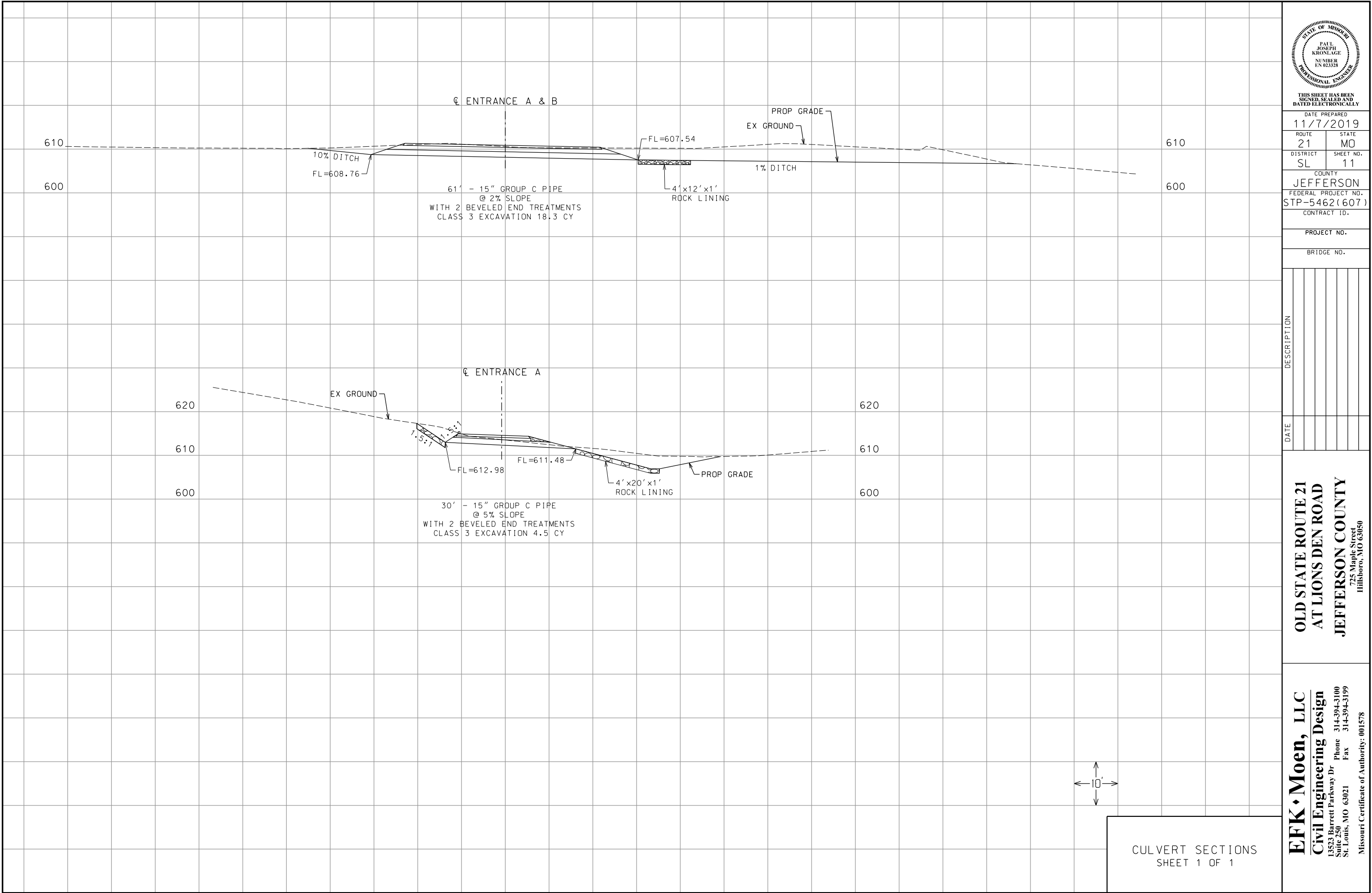
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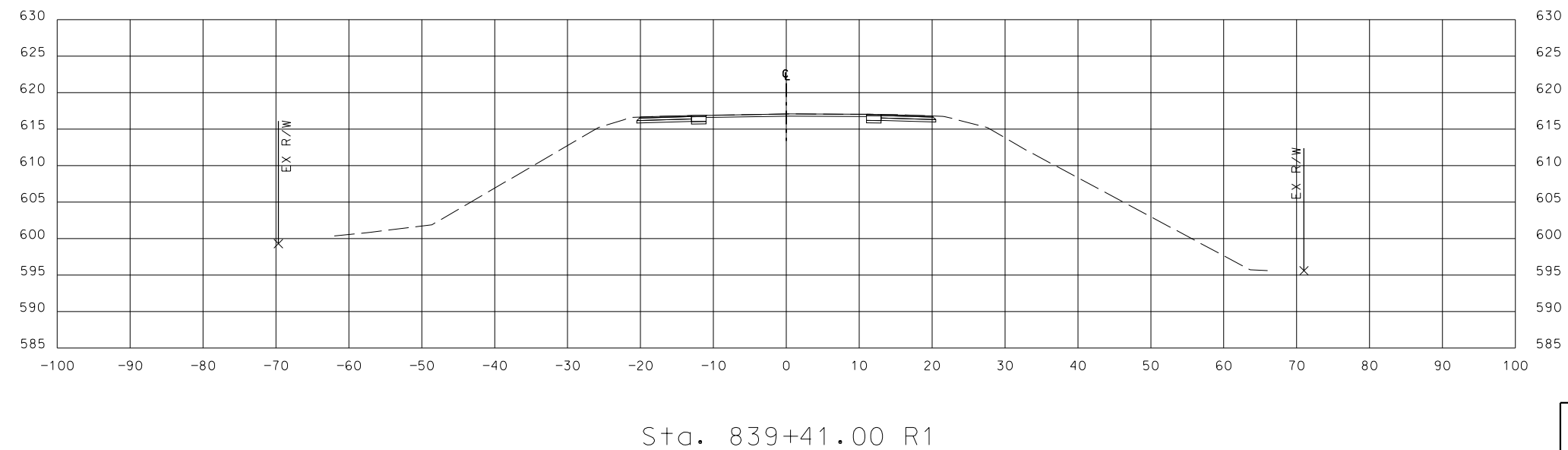
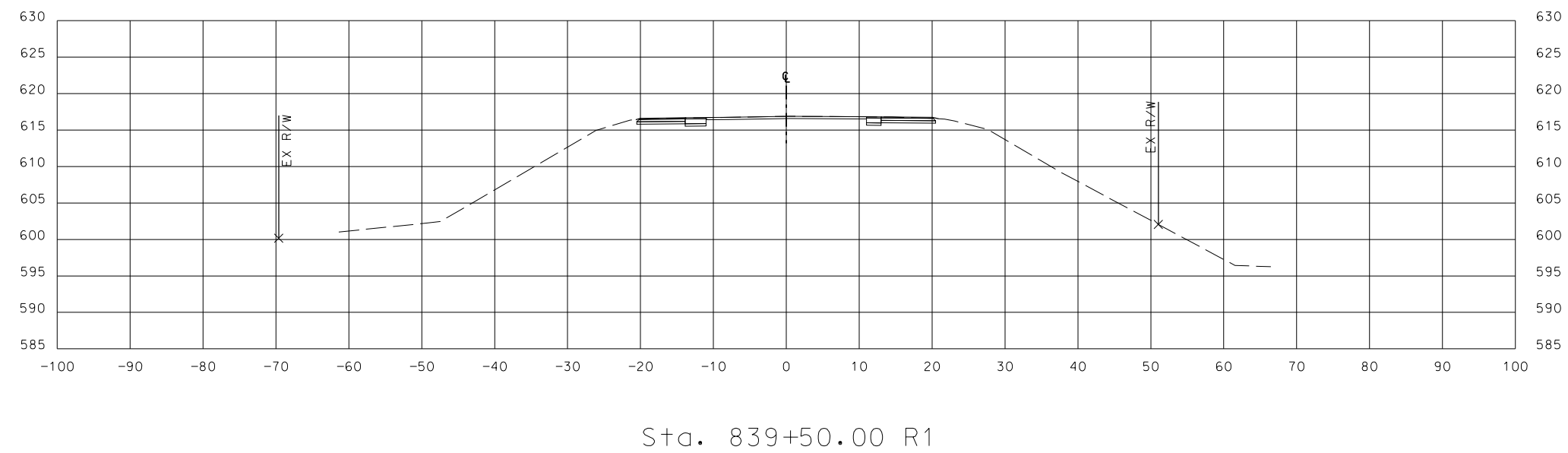
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**OLD STATE ROUTE 21
AT LIONS DEN ROAD
JEFFERSON COUNTY**
725 Maple Street
Hillsboro, MO 63050

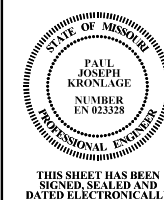
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CROSS SECTIONS
SHEET 1 OF 11



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DISTRICT SL SHEET NO. 12
COUNTY JEFFERSON
FEDERAL PROJECT NO. STP-5462(607)
CONTRACT ID.

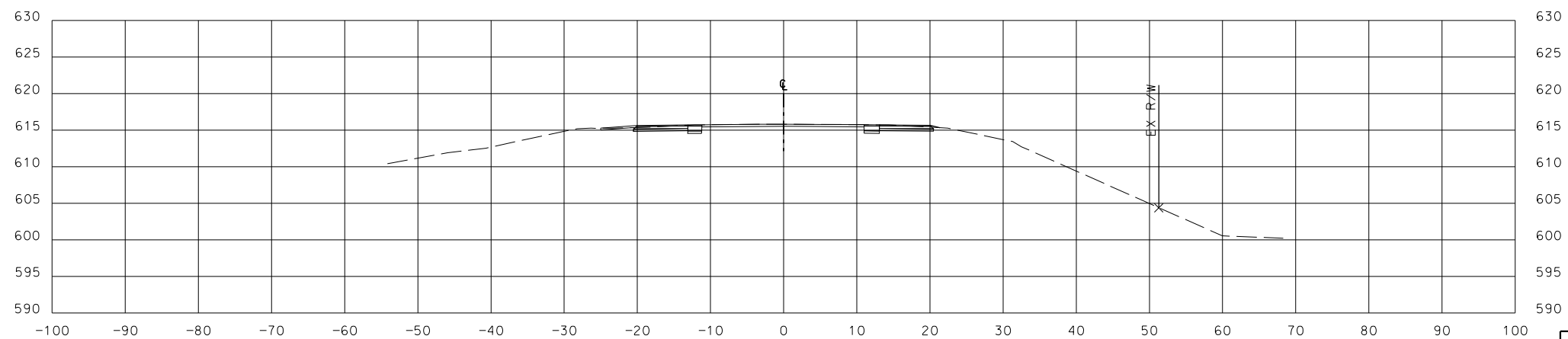
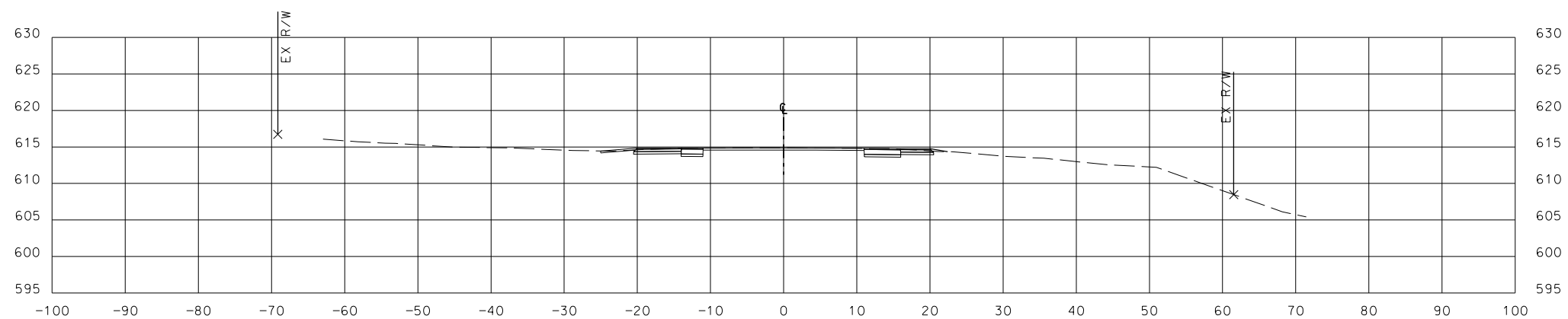
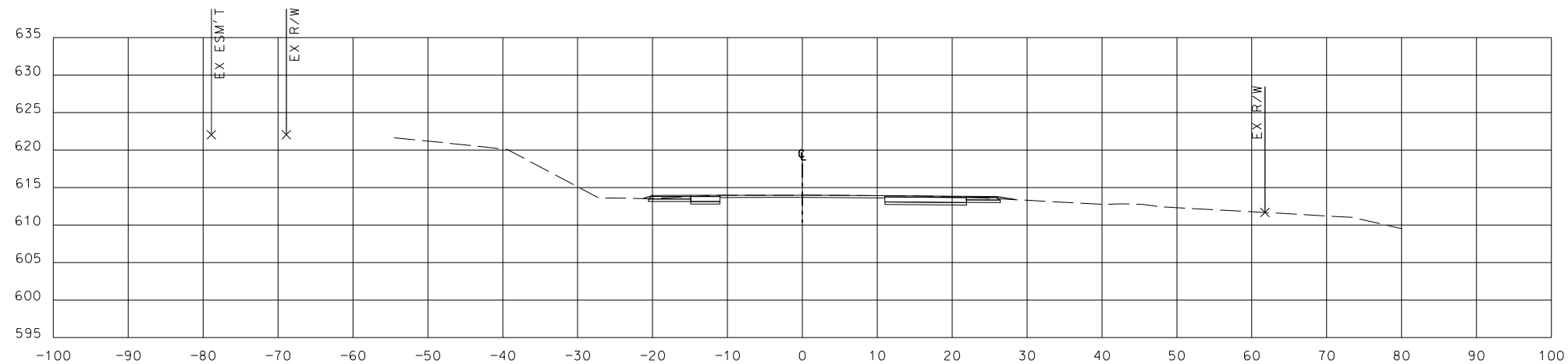
PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

OLD STATE ROUTE 21
AT LIONS DEN ROAD
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

EFK • Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr Suite 250
St. Louis, MO 63021
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ROUTE 21	STATE MO
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DISTRICT	SHEET NO
SL	13

COUNTY
JEFFERSON

FEDERAL PROJECT NO
STP-5462(607

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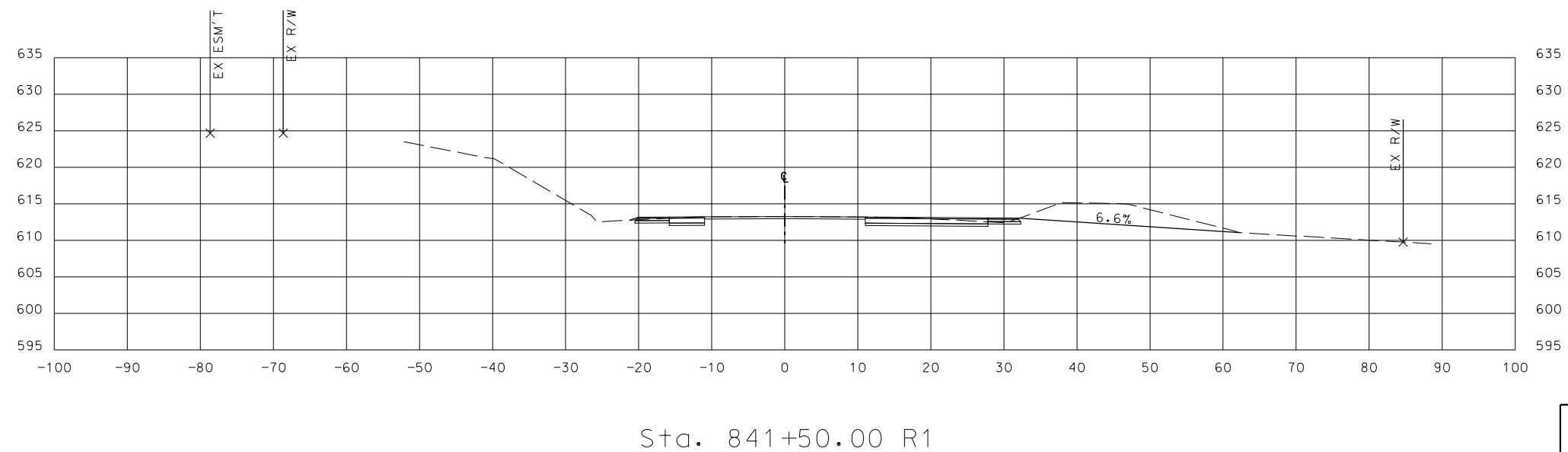
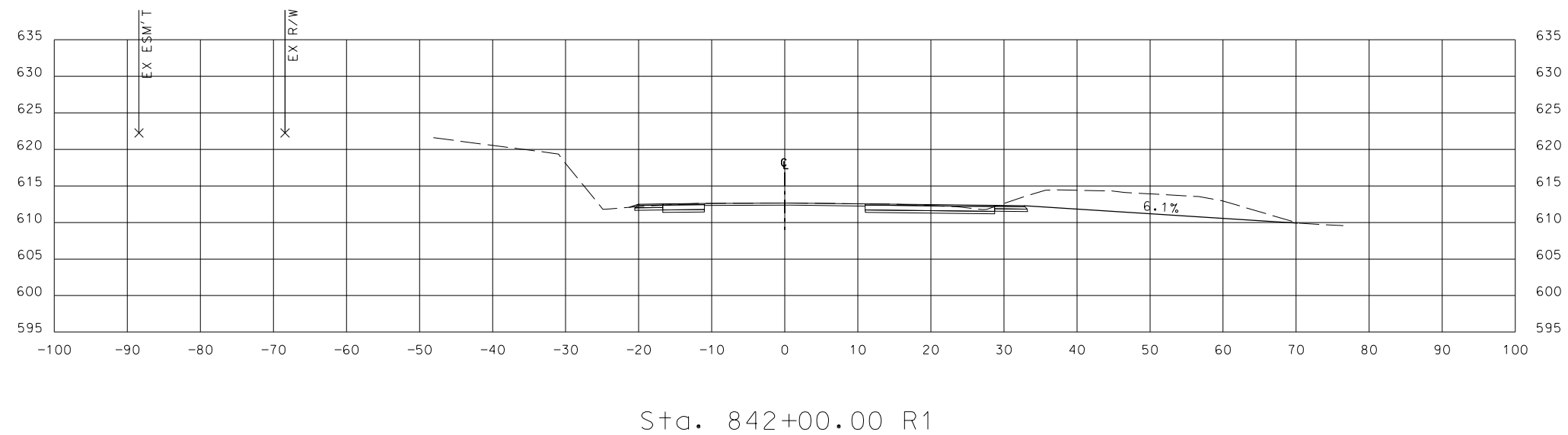
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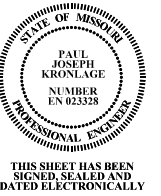
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AT LIONS DEN ROAD
JEFFERSON COUNTY**
7725 Maple Street
Lions Den, KY 40050

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Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
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Fax 314-394-3199



CROSS SECTIONS
SHEET 3 OF 11



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11/7/2019

ROUTE	STATE
21	MO

DISTRICT	SHEET NO.
SL	14

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
TP-5462(607)

CONTRACT ID.

PROJECT NO.

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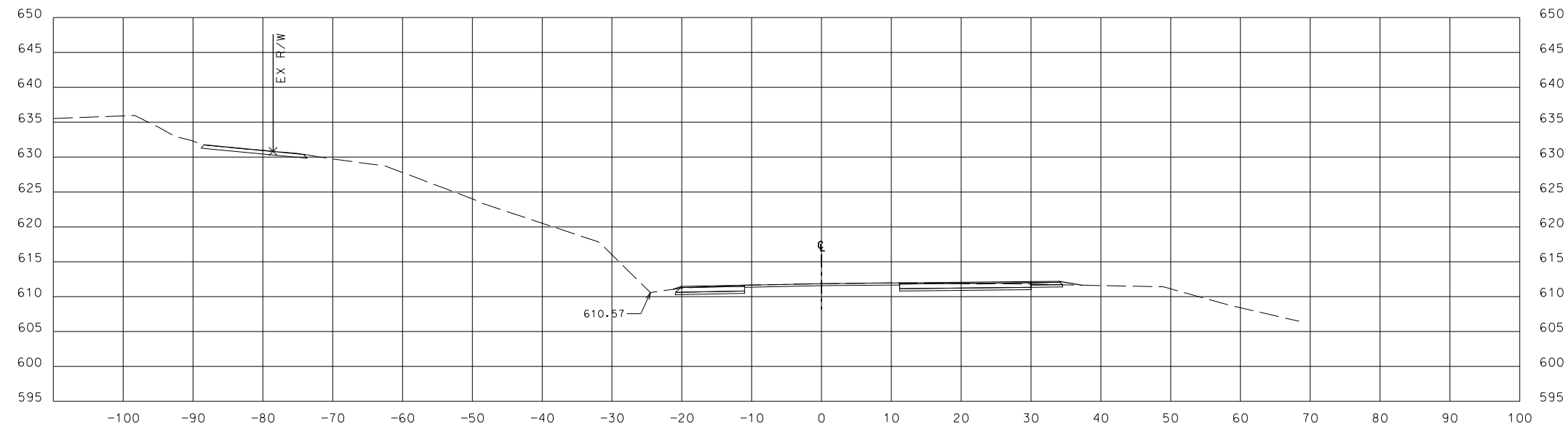
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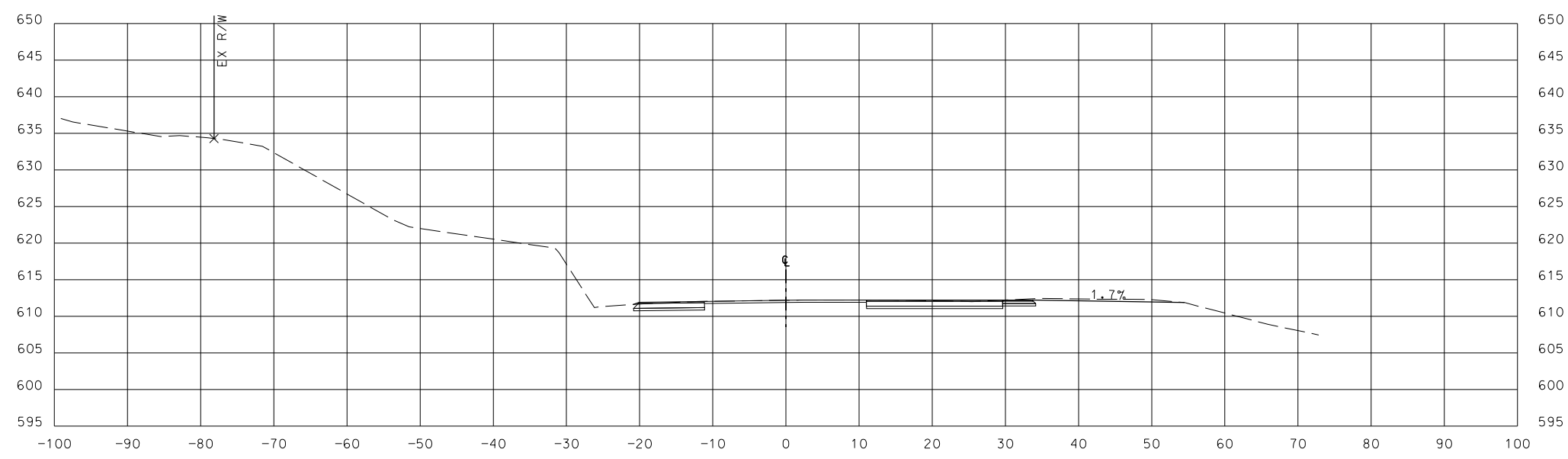
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Sta. 842+50.00 R1

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SHEET 4 OF 11



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ROUTE 21 STATE MO

DISTRICT SL SHEET NO. 15

COUNTY JEFFERSON

FEDERAL PROJECT NO.
STP-5462(607)

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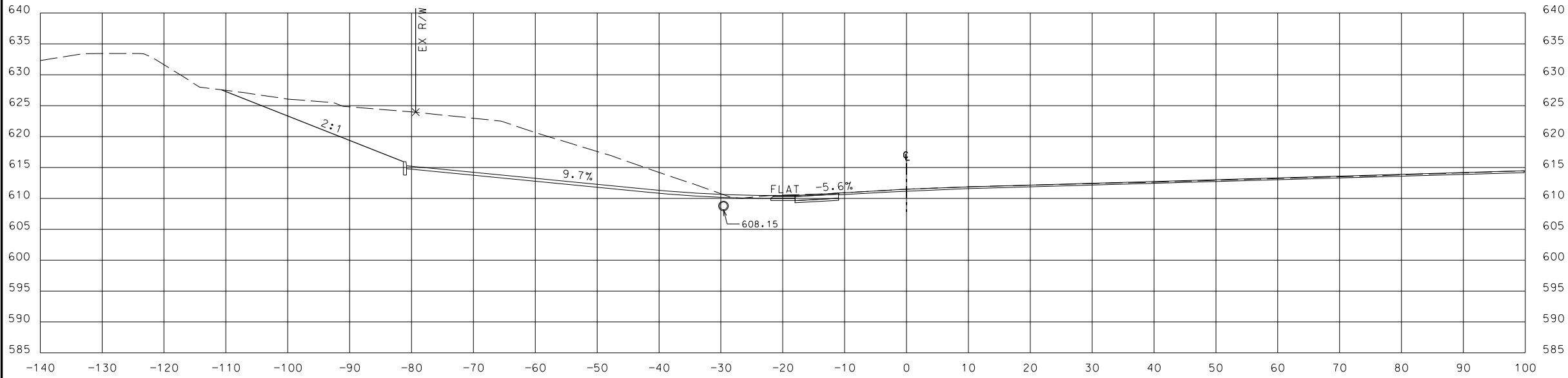
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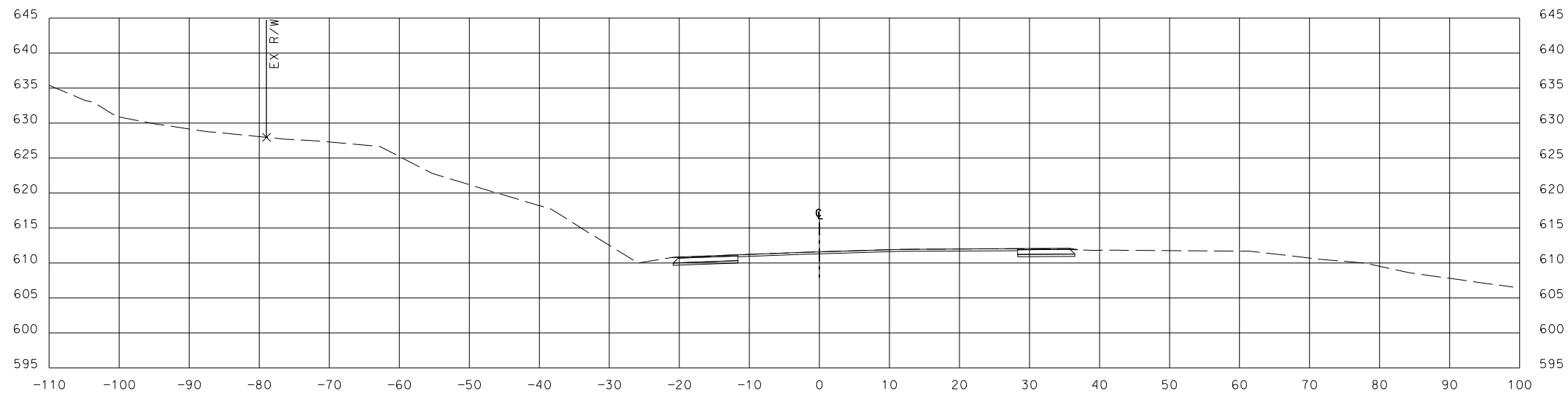
DATE	DESCRIPTION

OLD STATE ROUTE 21
AT LIONS DEN ROAD
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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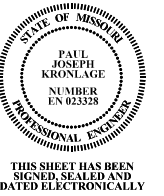


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SHEET 5 OF 11



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ROUTE 21 STATE MO

DISTRICT SL SHEET NO. 16

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
STP-5462(607)

CONTRACT ID.

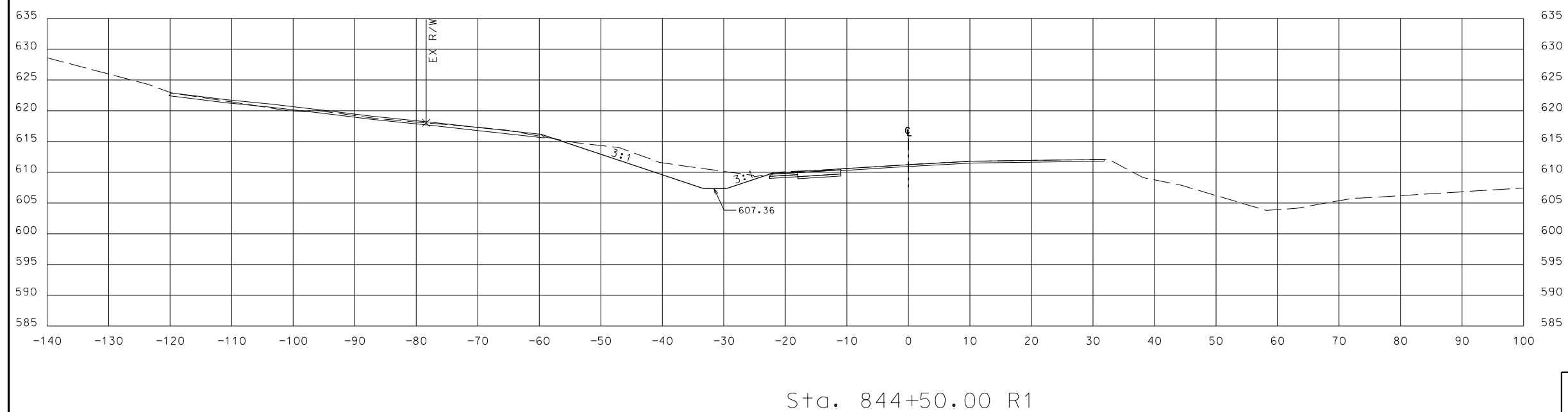
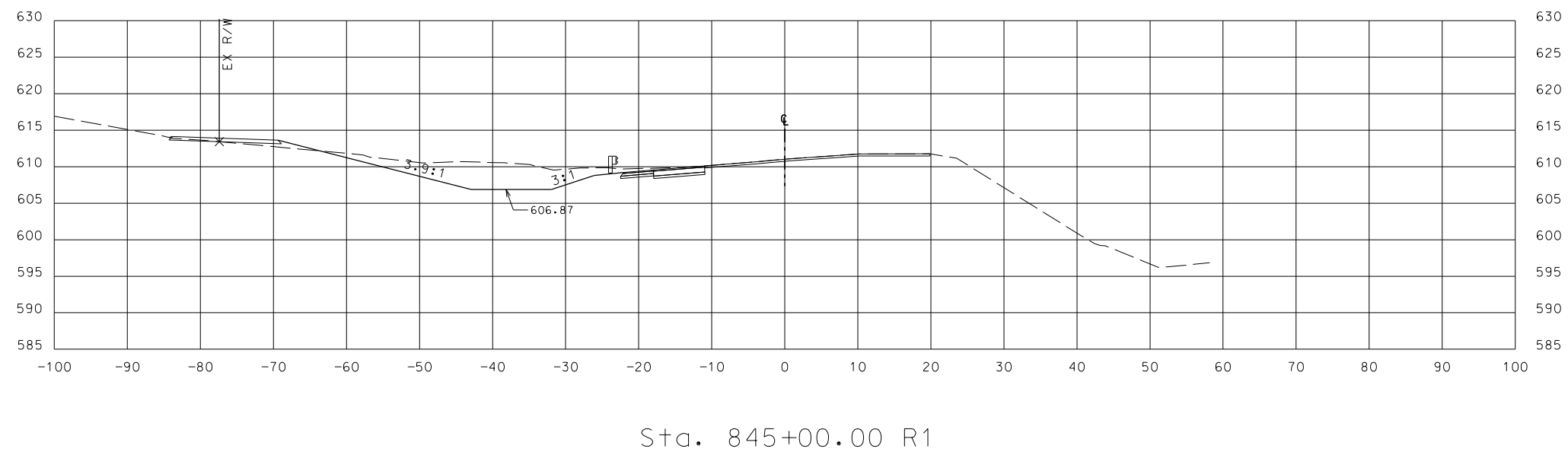
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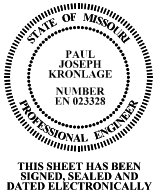
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AT LIONS DEN ROAD
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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CROSS SECTIONS
SHEET 6 OF 11



DATE PREPARED
11/7/2019

ROUTE	STATE
21	MO

DISTRICT	SHEET NO.
SL	17

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
TP-5462(607)

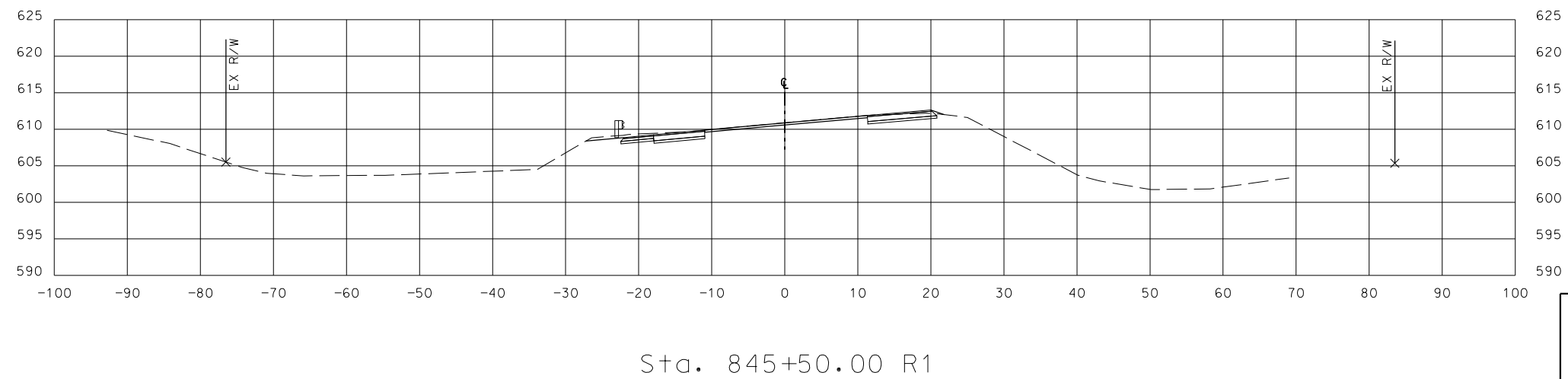
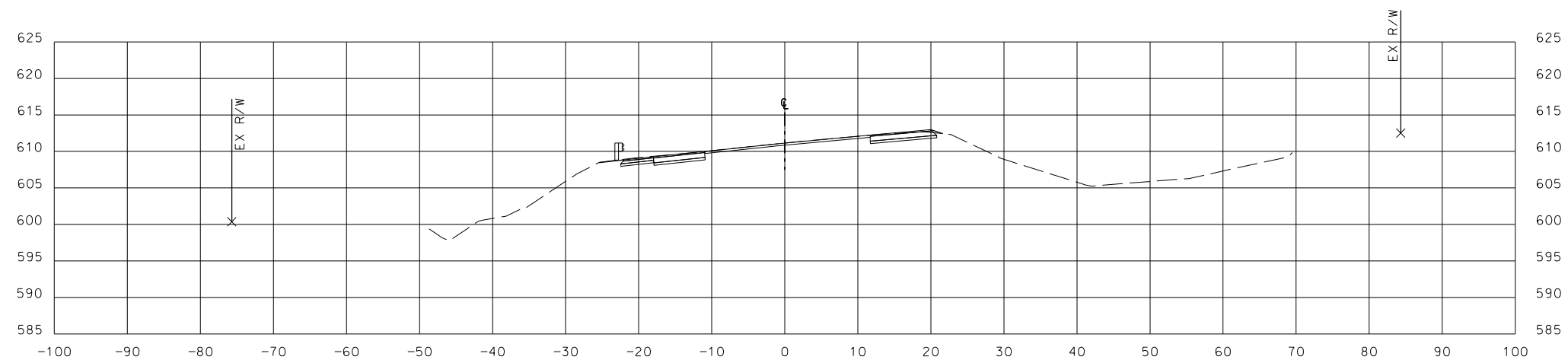
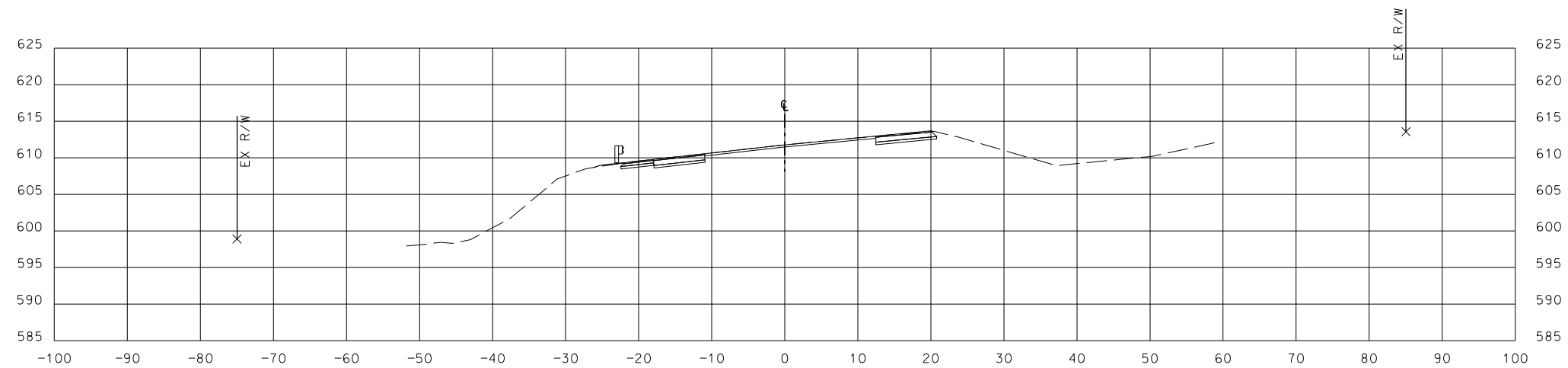
CONTRACT ID.

PROJECT NO.

BRIDGE NO.

**OLD STATE ROUTE 21
AT LIONS DEN ROAD
JEFFERSON COUNTY**
7725 Maple Street
Hillsboro, MO 63050

EFK•Moen, LLC
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578



CROSS SECTIONS
SHEET 7 OF 11



**THIS SHEET HAS BEEN
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DATE PREPARED
11/7/2019

ROUTE	STATE
21	MO

DISTRICT	SHEET NO.
SL	18

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
TP-5462(607)

CONTRACT ID.

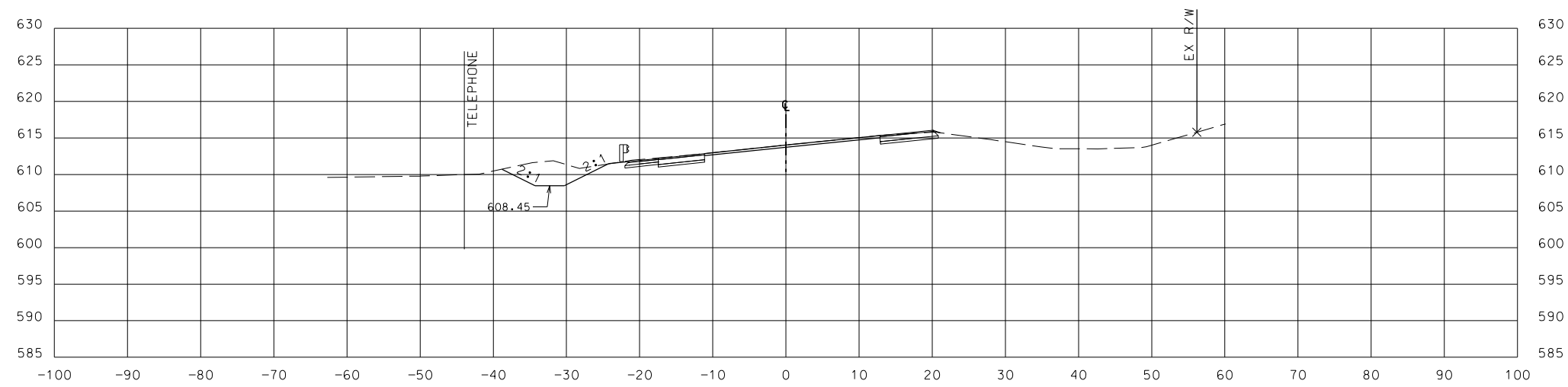
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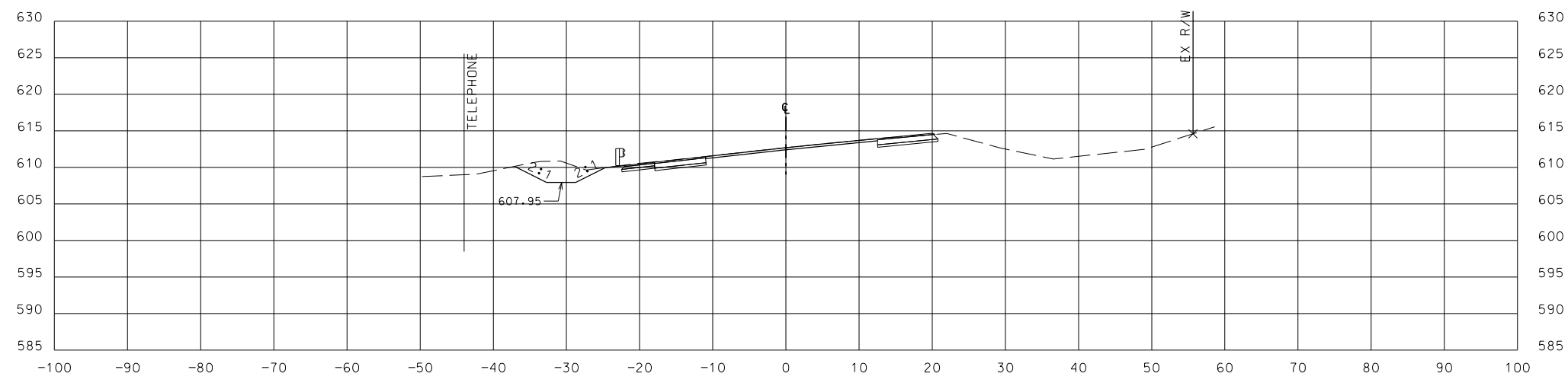
DATE	DESCRIPTION

**OLD STATE ROUTE 21
AT LIONS DEN ROAD
JEFFERSON COUNTY**
725 Maple Street
Hillsboro, MO 63650

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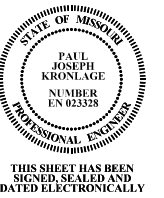


Sta. 847+50.00 R1



Sta. 847+00.00 R1

CROSS SECTIONS
SHEET 8 OF 11



THIS SHEET HAS BEEN
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DATE PREPARED
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ROUTE 21 STATE MO

DISTRICT SL SHEET NO. 19

COUNTY JEFFERSON

FEDERAL PROJECT NO.
STP-5462(607)

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION

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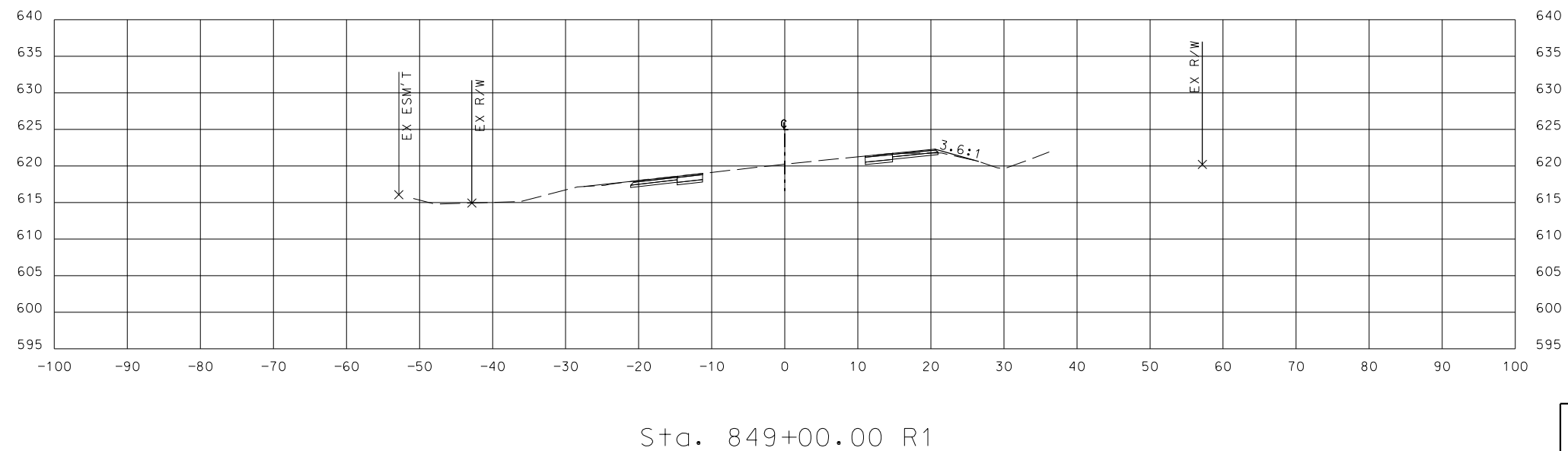
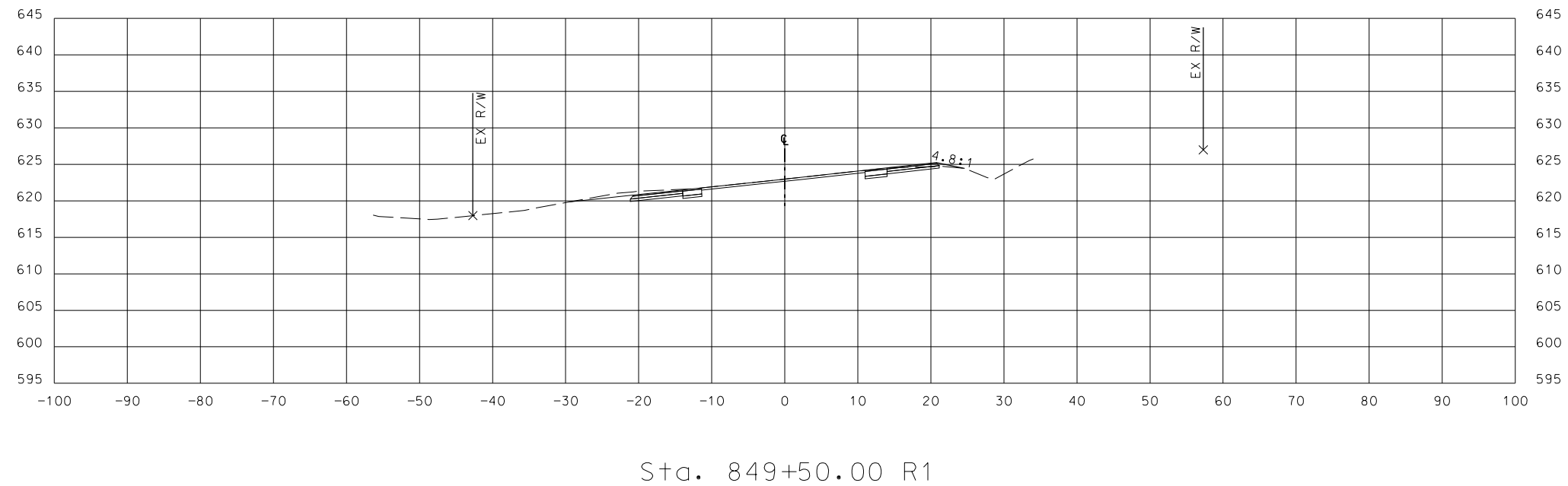
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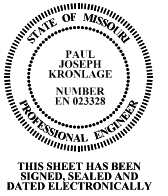
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OLD STATE ROUTE 21
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JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

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CROSS SECTIONS
SHEET 10 OF 11



DATE PREPARED
11/7/2019

ROUTE	STATE
21	MO

DISTRICT	SHEET NO.
SL	21

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
TP-5462(607)

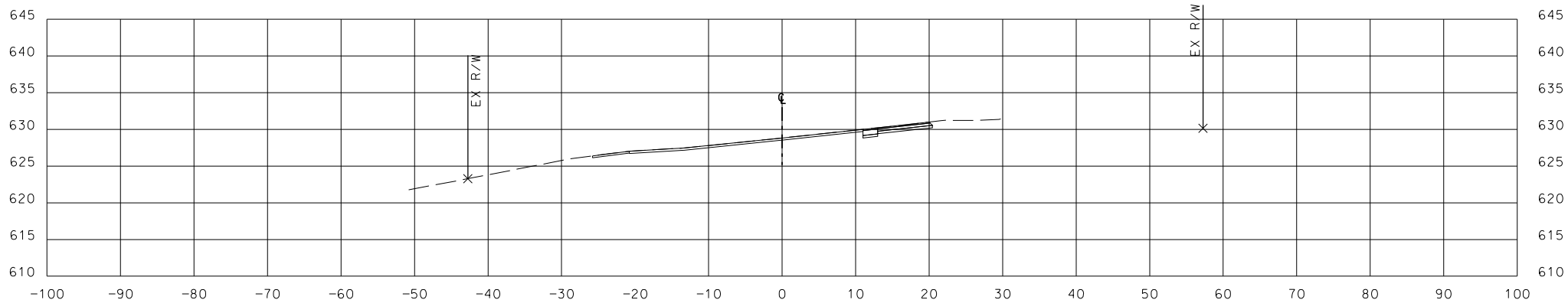
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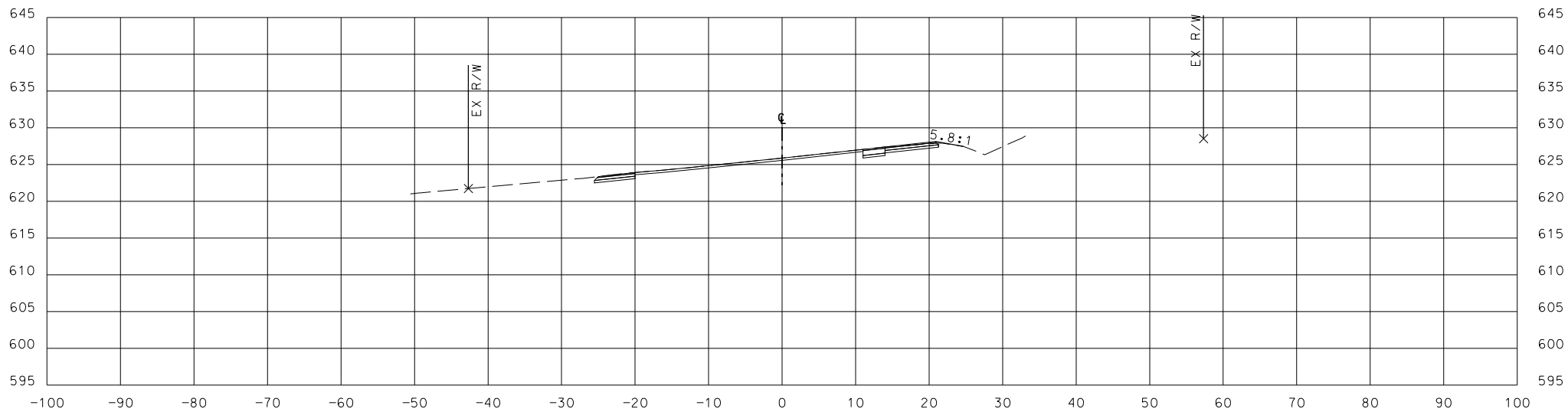
BRIDGE NO.

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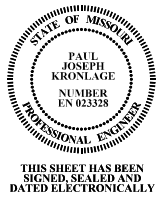


Sta. 850+50.59 R1



Sta. 850+00.00 R1

CROSS SECTIONS
SHEET 11 OF 11



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11/7/2019

ROUTE 21 STATE MO

DISTRICT SL SHEET NO. 22

COUNTY JEFFERSON

FEDERAL PROJECT NO.
STP-5462(607)

CONTRACT ID.

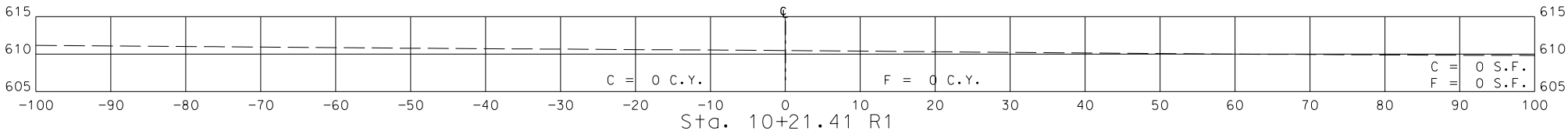
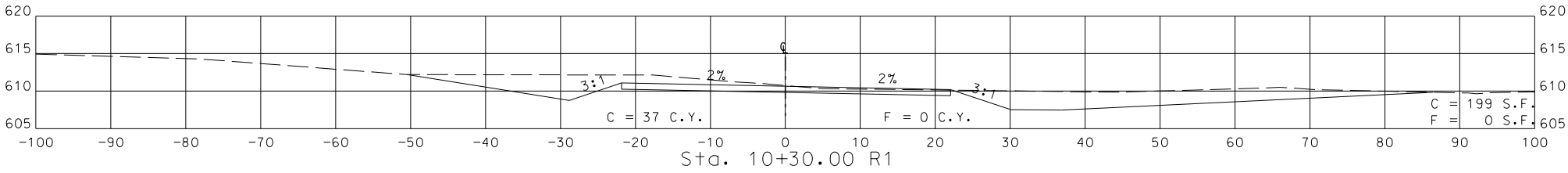
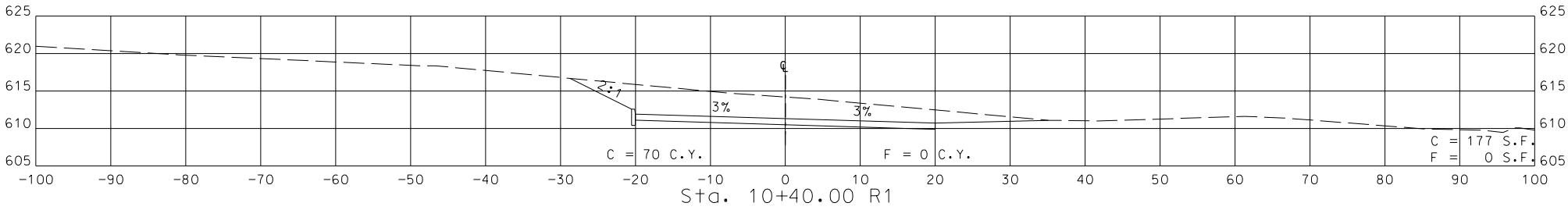
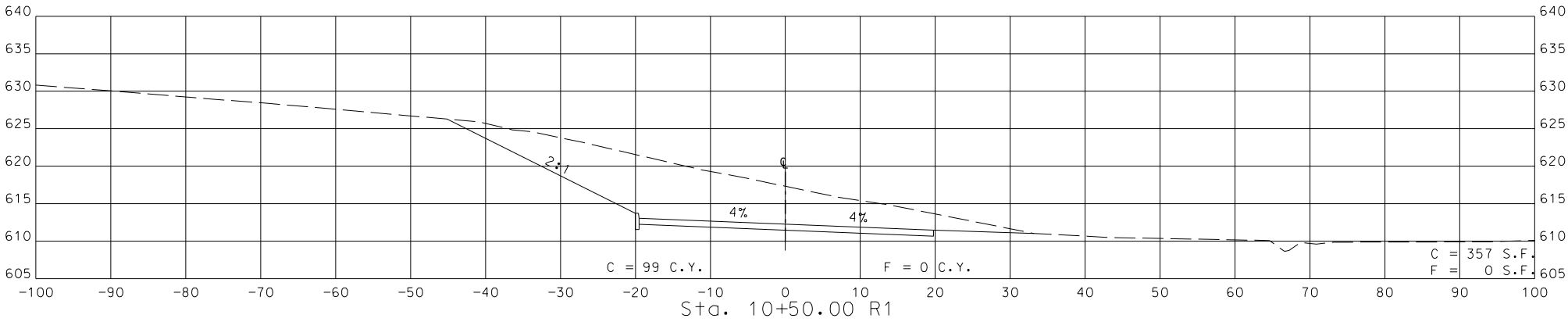
PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

OLD STATE ROUTE 21
AT LIONS DEN ROAD
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

EFK Moen, LLC
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ENTRANCE A
CROSS SECTIONS
SHEET 1 OF 4



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ROUTE 21 STATE MO

DISTRICT SL SHEET NO. 23

COUNTY JEFFERSON

FEDERAL PROJECT NO.
STP-5462(607)

CONTRACT ID.

PROJECT NO.

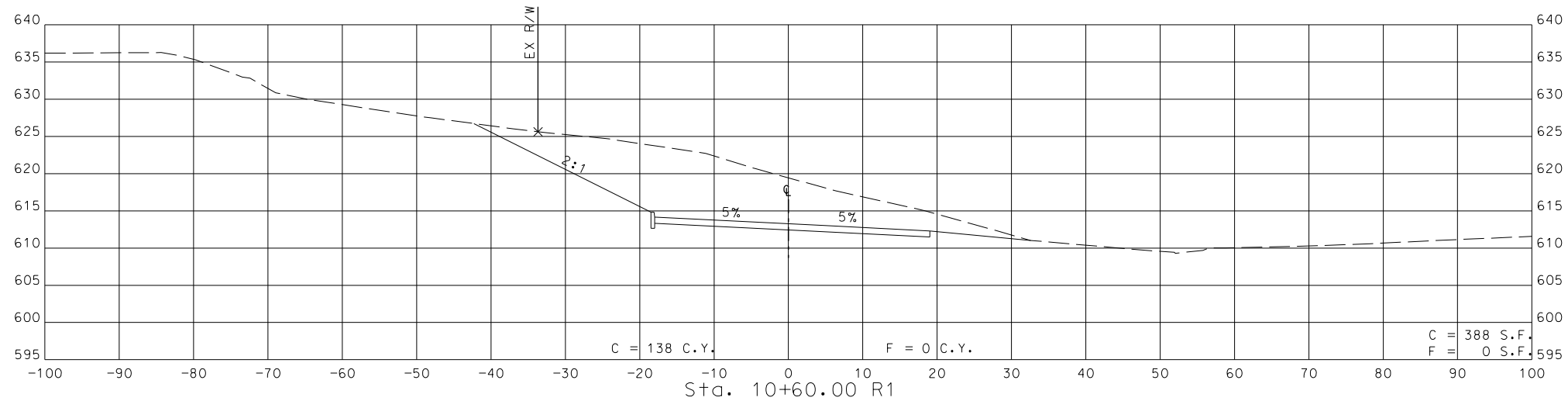
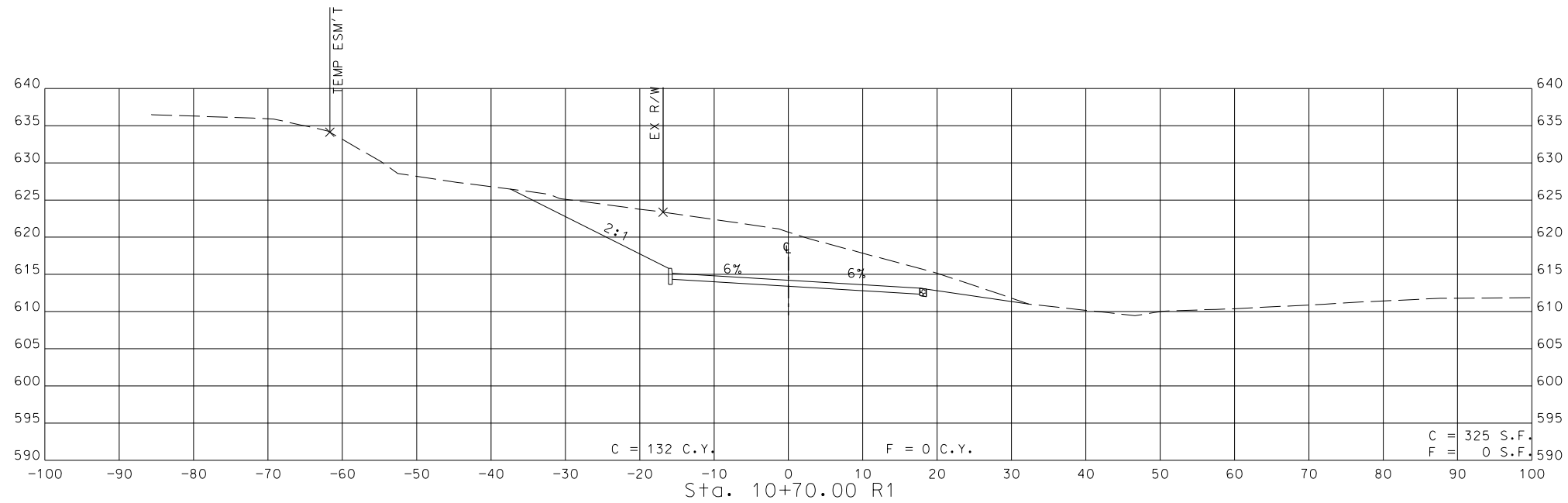
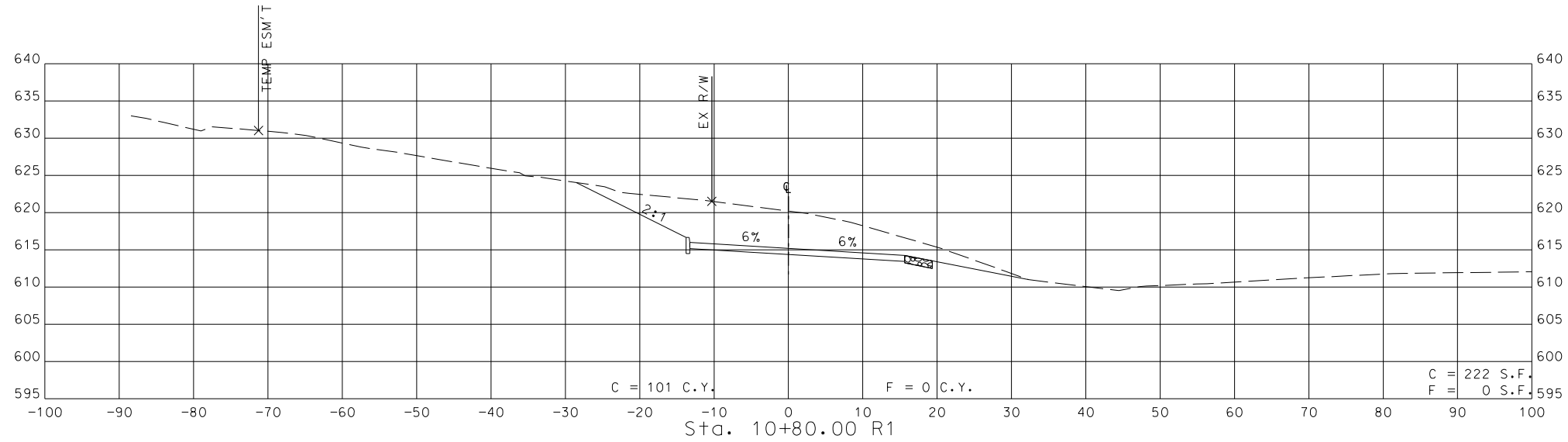
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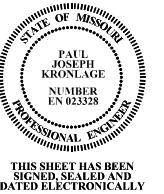
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JEFFERSON COUNTY
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Hillsboro, MO 63050

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ENTRANCE A
CROSS SECTIONS
SHEET 2 OF 4



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ROUTE
21

STATE
MO

DISTRICT
SL

SHEET NO.
24

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
STP-5462(607)

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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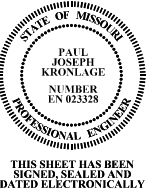
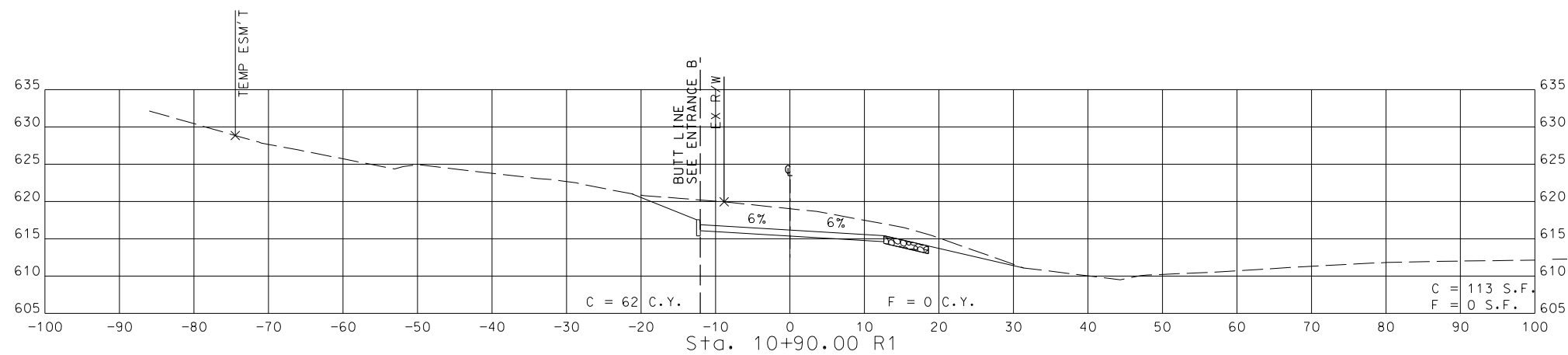
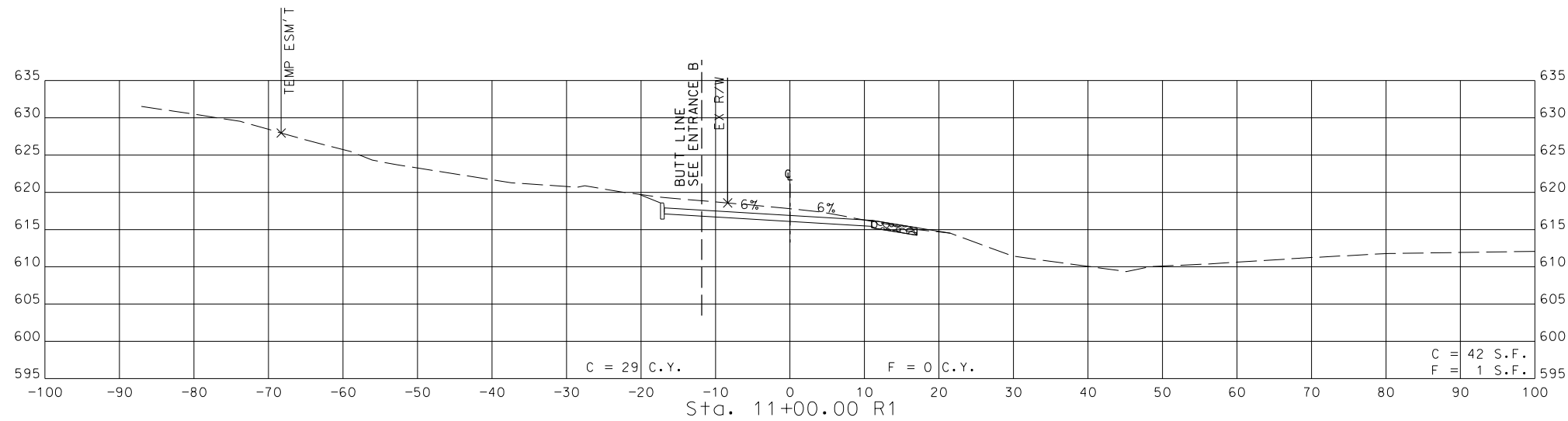
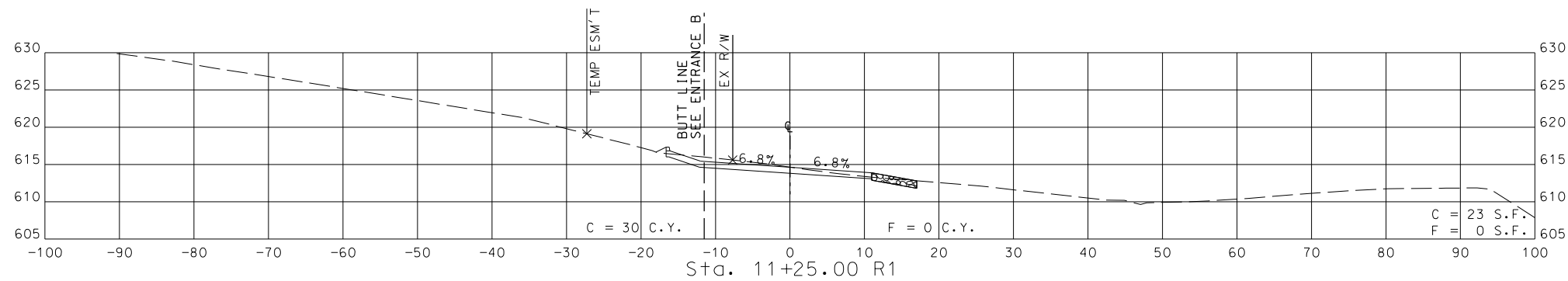
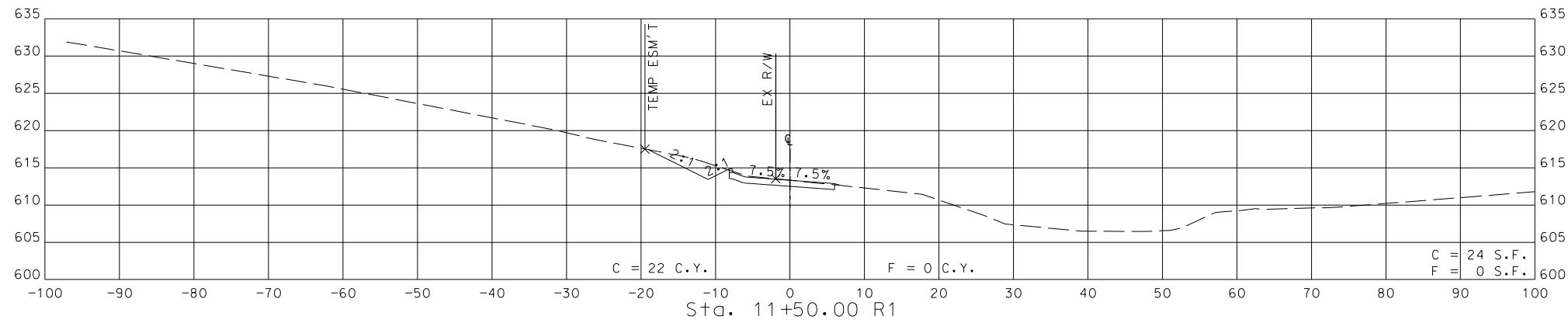
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ROUTE	STATE
21	MO

DISTRICT	SHEET NO.
SI	25

3L 23
COUNTY
JEFFERSON

JEFFERSON
FEDERAL PROJECT NO.

P-5462(607)
CONTRACT ID.

PROJECT NO.

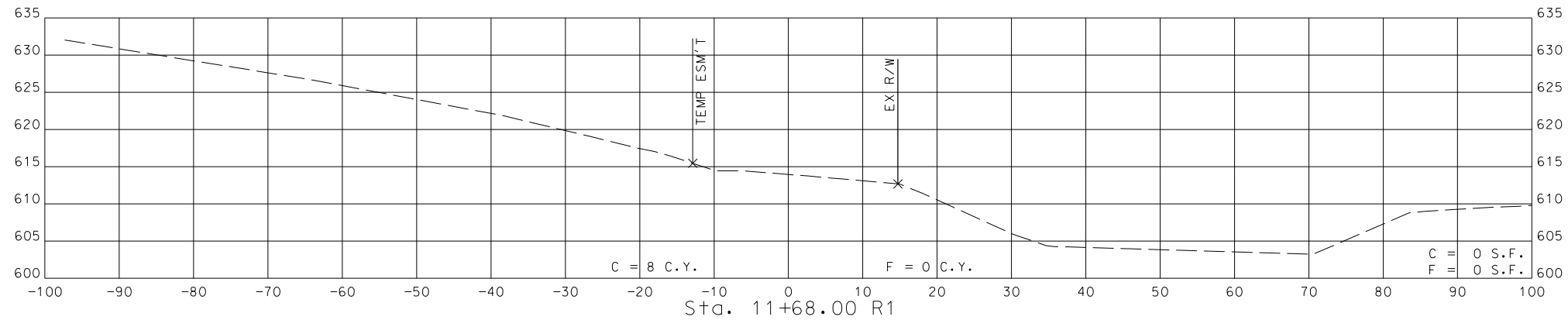
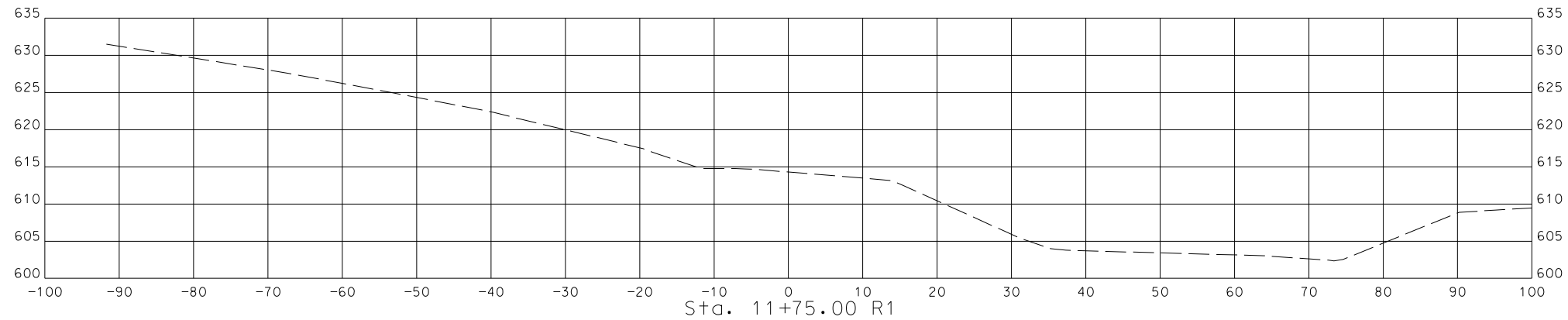
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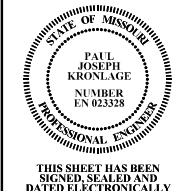
**OLD STATE ROUTE 21
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ENTRANCE A
CROSS SECTIONS
SHEET 3 OF 4



ENTRANCE A
CROSS SECTIONS
SHEET 4 OF 4



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11/7/2019

ROUTE 21	STATE MO
DISTRICT SL	SHEET NO. 26
COUNTY JEFFERSON	
FEDERAL PROJECT NO. STP-5462(607)	
CONTRACT ID.	

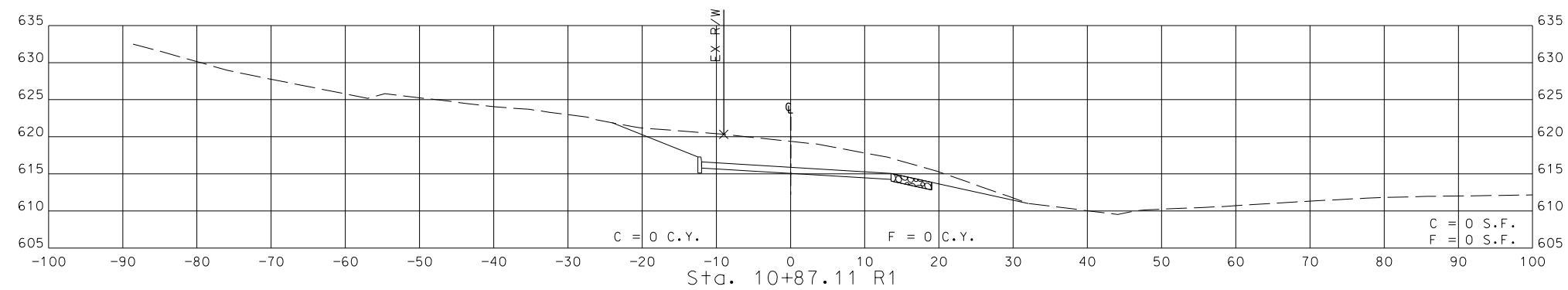
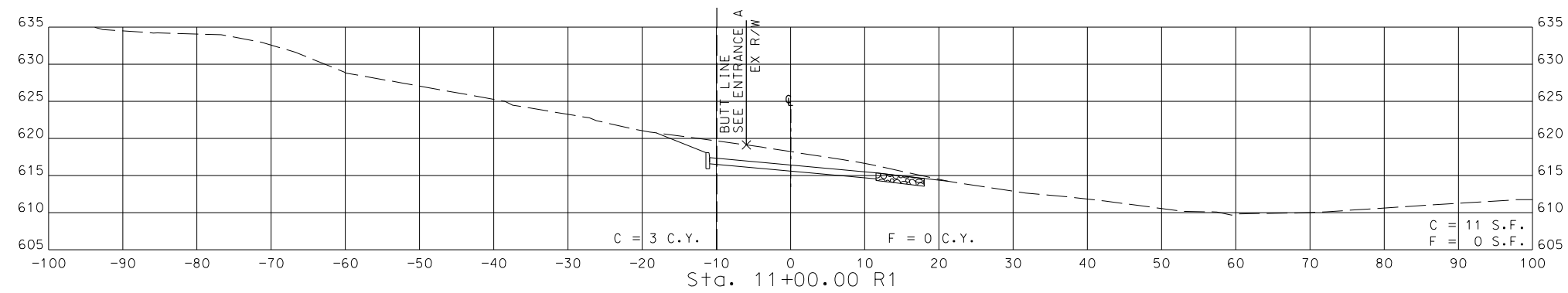
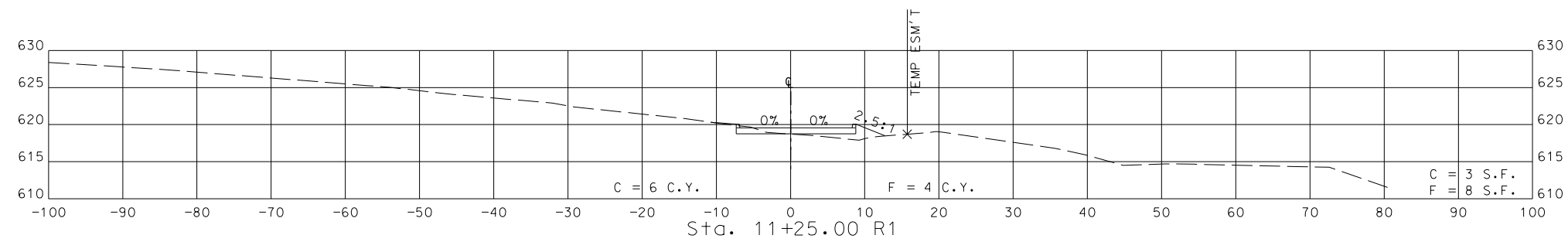
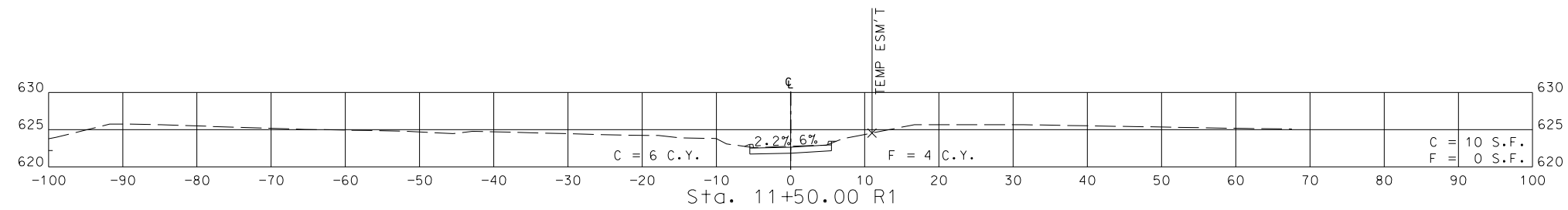
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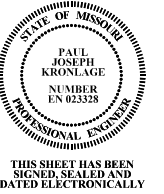
DATE	DESCRIPTION

OLD STATE ROUTE 21
AT LIONS DEN ROAD
JEFFERSON COUNTY
725 Maple Street
Hillsboro, MO 63050

EFK • Moen, LLC
Civil Engineering Design
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ENTRANCE B
CROSS SECTIONS
SHEET 1 OF 2



DATE PREPARED
11/7/2019

ROUTE	STATE
21	MO

DISTRICT	SHEET NO.
SL	27

COUNTY
JEFFERSON

FEDERAL PROJECT NO.
TP-5462(607)

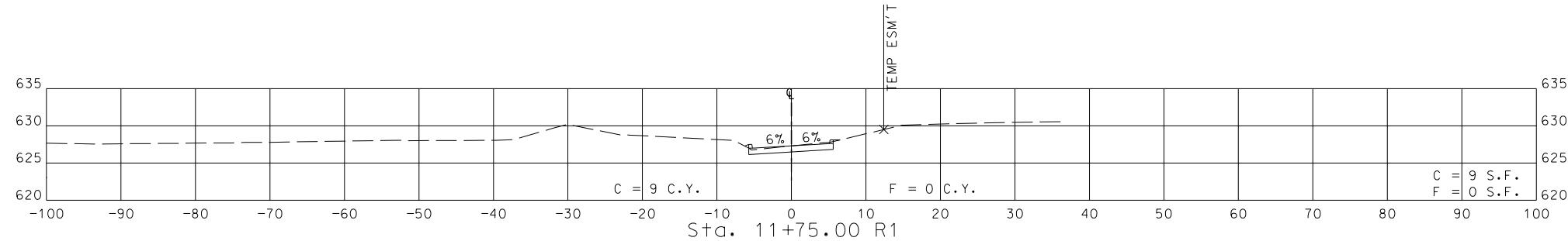
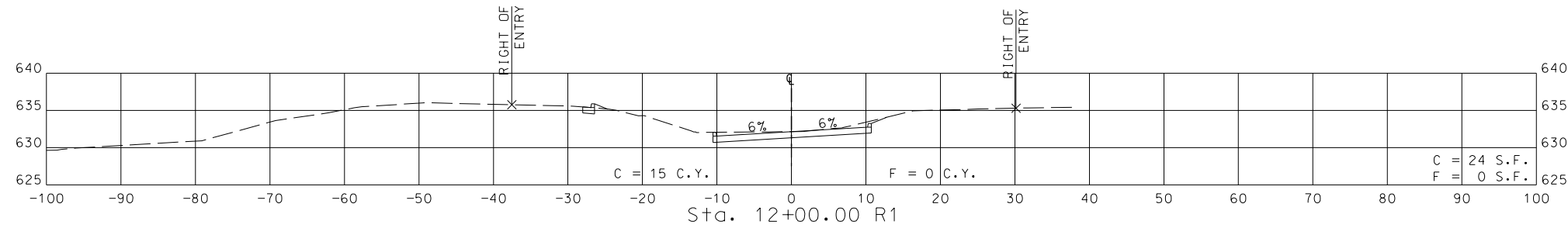
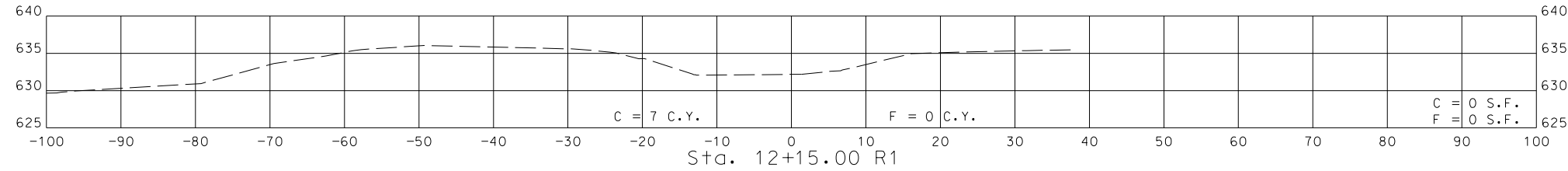
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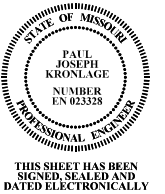
BRIDGE NO.

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JEFFERSON COUNTY**
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ENTRANCE B
CROSS SECTIONS
SHEET 2 OF 2



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ROUTE
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SHEET NO.
28

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JEFFERSON

FEDERAL PROJECT NO.
STP-5462(607)

CONTRACT ID.

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