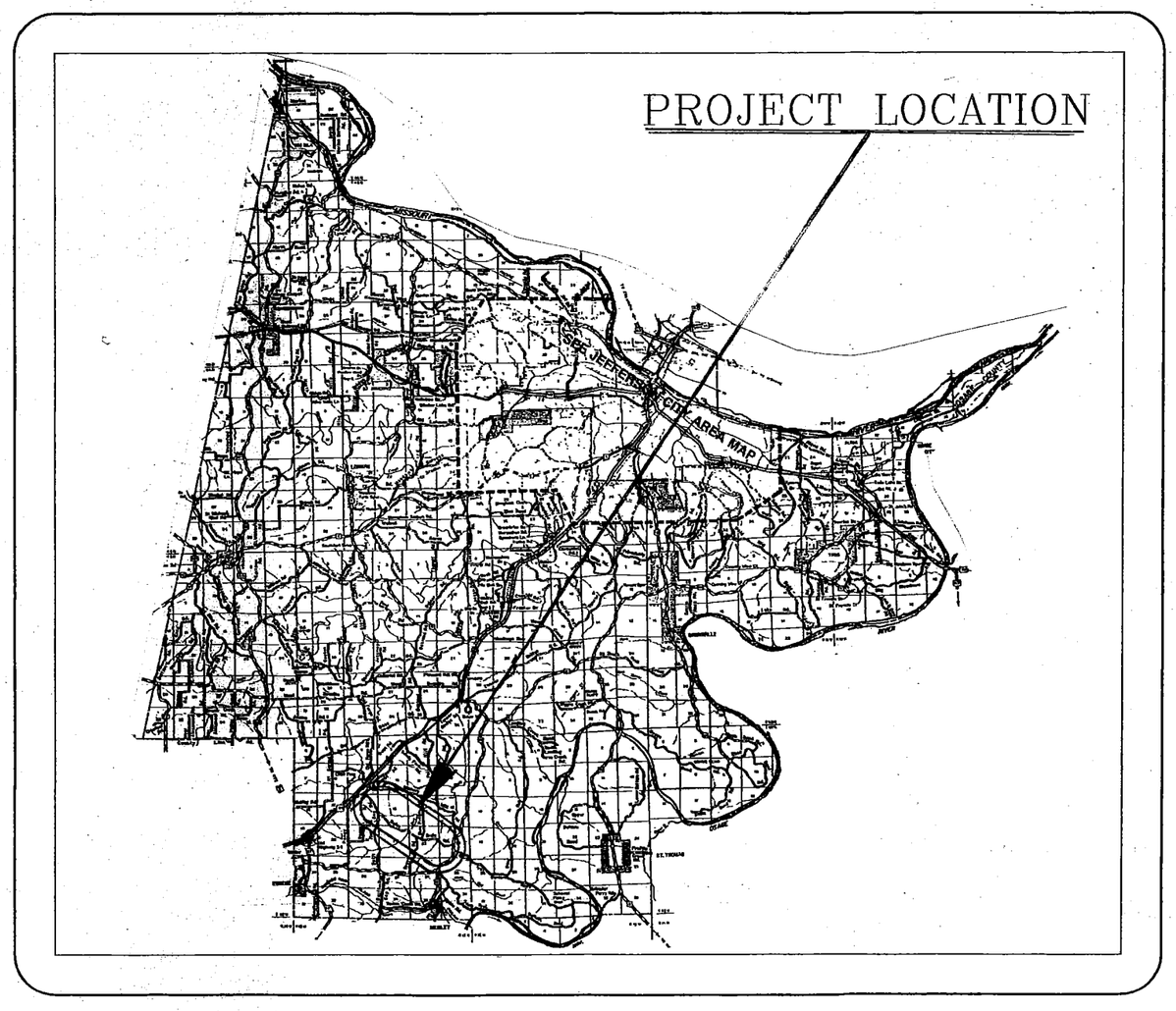
COLE COUNTY, MISSOURI
SWIFT - BOISE BRULE ROAD

GRAVEL ROAD UPGRADE PROJECT

IN THE S.E. 1/4 SEC. 9, IN THE S.W. 1/4 SEC. 15
IN THE E. 1/2 SEC. 16, N. 1/2 SEC. 22 AND IN SEC.'s 23 AND 24 TWP. 42 N, RNG 13 W.



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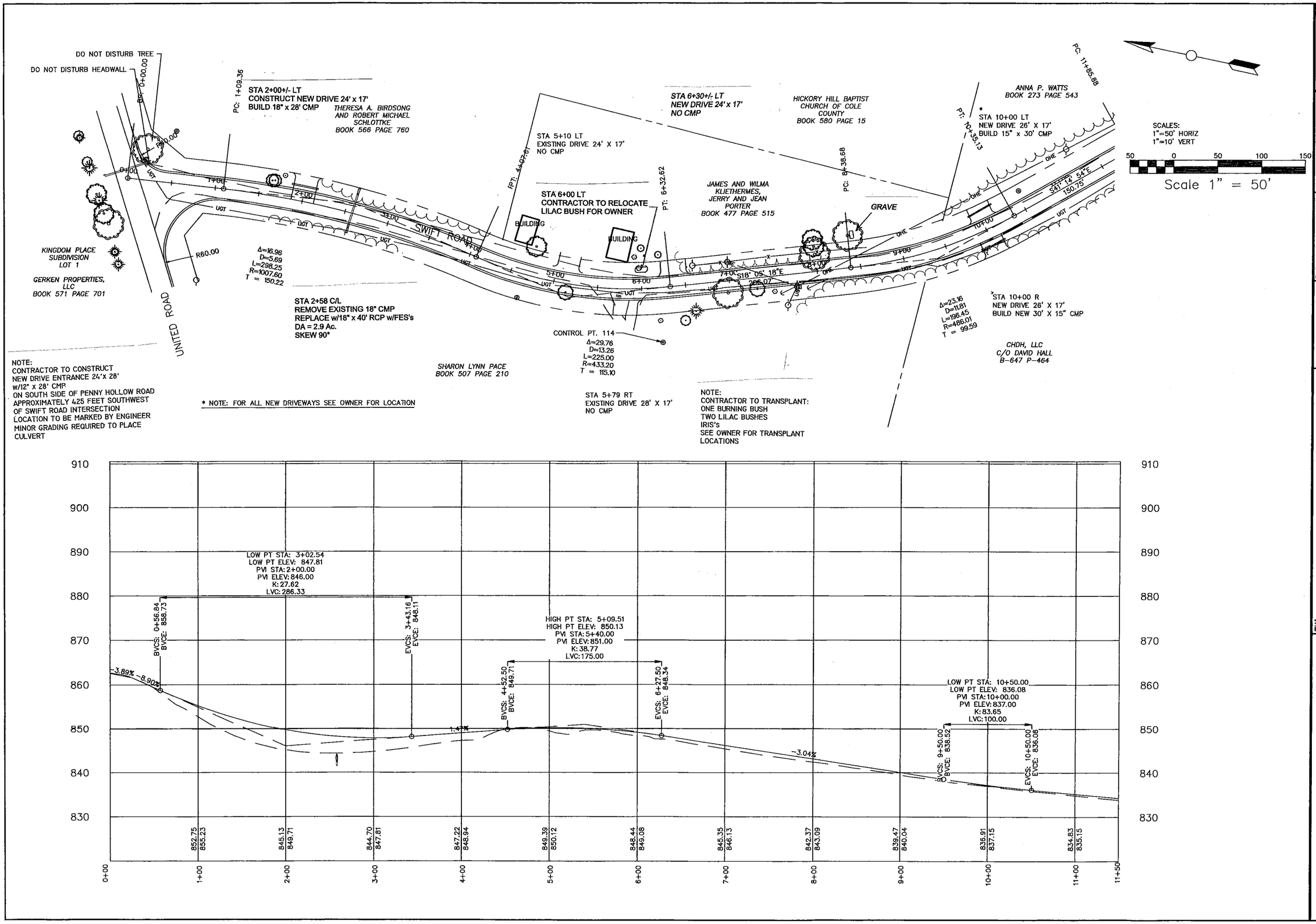
SHEETS 1-2 CULVERT CROSS SECTIONS
SHEETS 1-2 STANDARD DETAILS
SHEET 1 ROUTE H INTERSECTION
SHEET 1 ROAD INTERSECTIONS
SHEETS 1-3 PROJECT QUANTITIES
SHEETS 1-7 DRIVEWAY CROSS SECTIONS
SHEETS 1-17 ROADBED CROSS SECTIONS

NO.	REVISION

COLE COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
5055 MONTICELLO ROAD
JEFFERSON CITY, MO 65109
PHONE - 573-636-3614 FAX - 573-636-8389

PROJECT:
SWIFT -
BOISE BRULE ROAD
GRAVEL ROAD UPGRADE

SHT NO: 1 OF 1



Page 1

Date JULY 2015

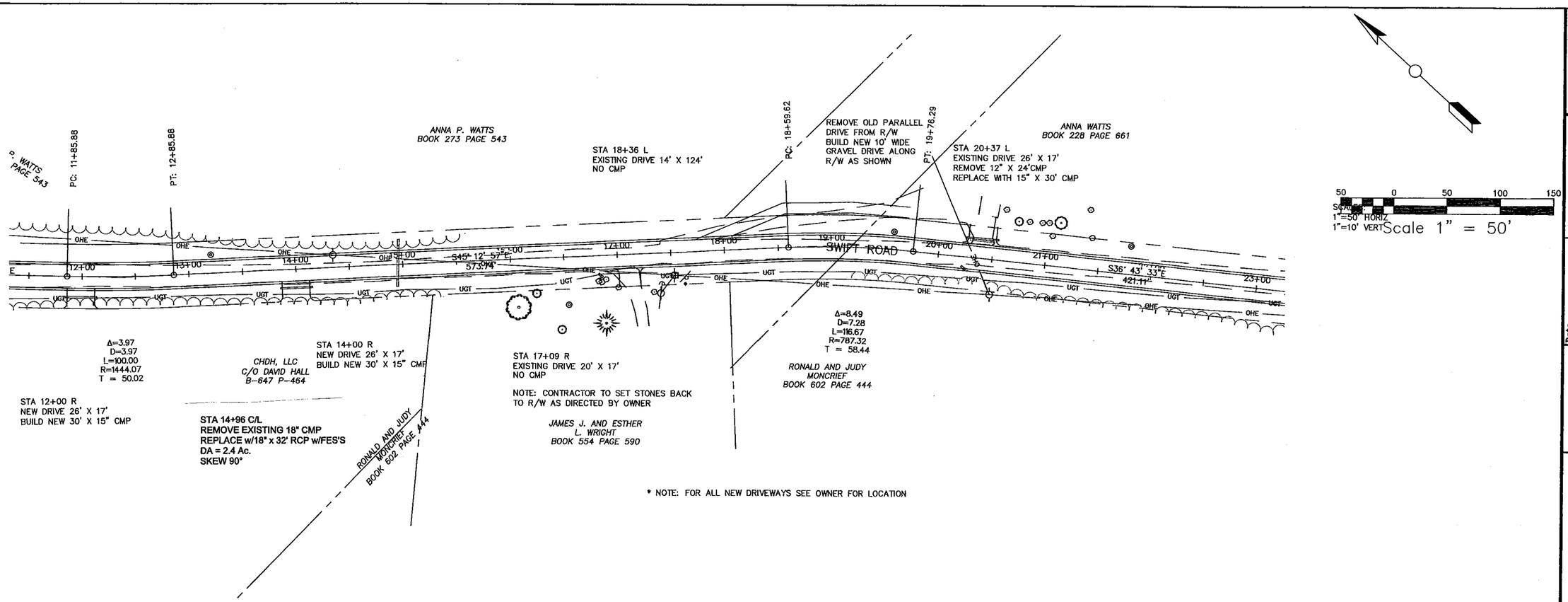
Revision

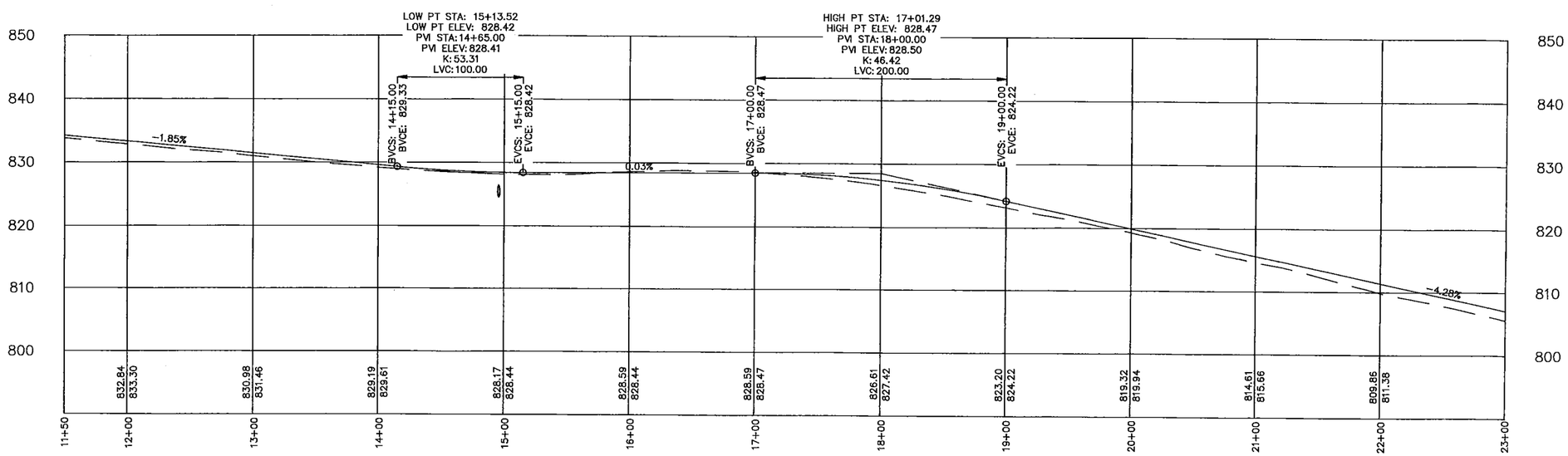
STATE OF MISSOURI
RICHARD J. MULDOON
NUMBER
E-24259
PROFESSIONAL ENGINEER

Title SWIFT-BOISE BRULE
PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON
ENGINEERING
6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300





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Date JULY 2015

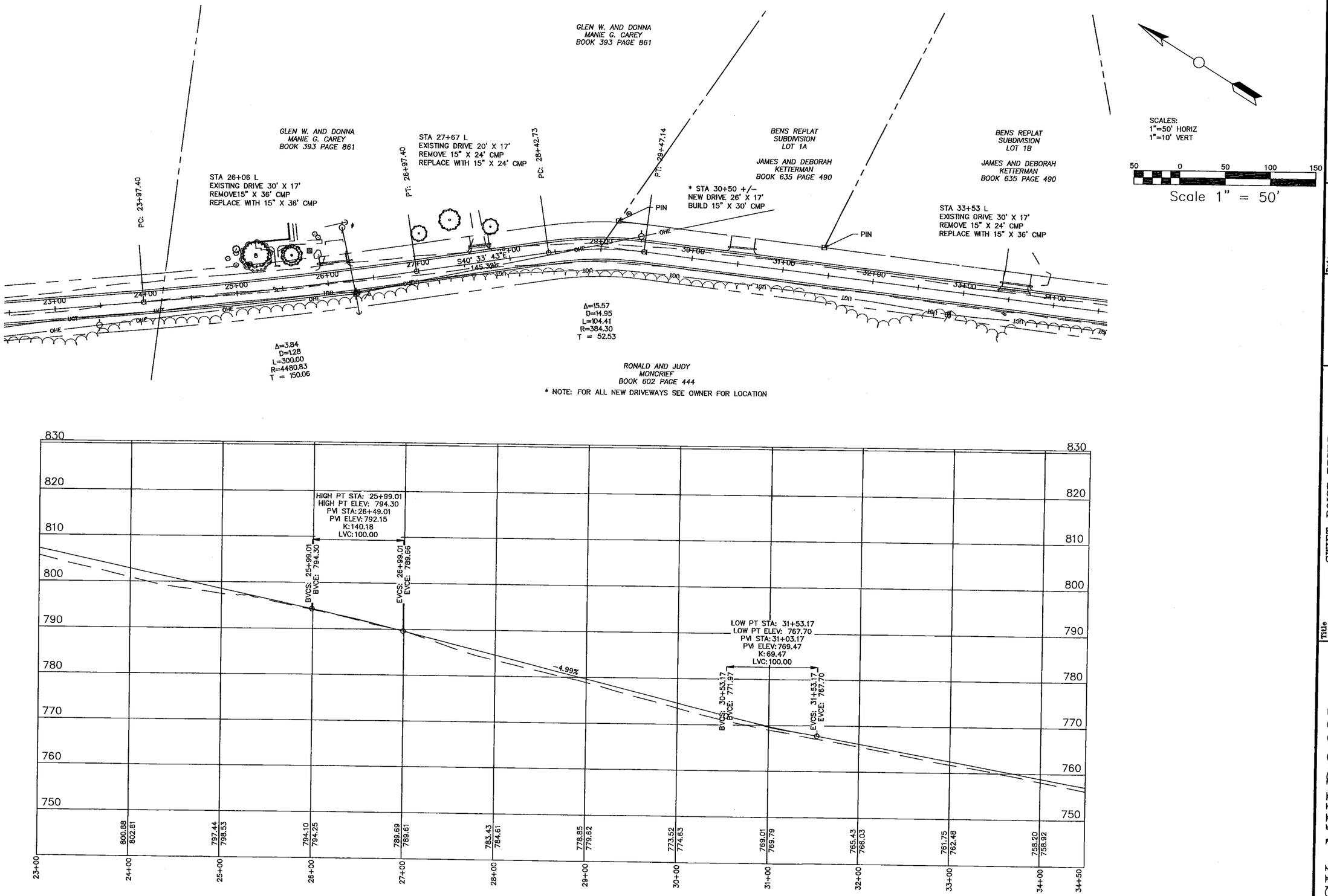
Revision

STATE OF MISSOURI RICK MULDOON NUMBER PE-2004000257 PROFESSIONAL ENGINEER

Title SWIFT-BOISE BRULE
PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON
ENGINEERING
6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



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Date JULY 2015

Revision

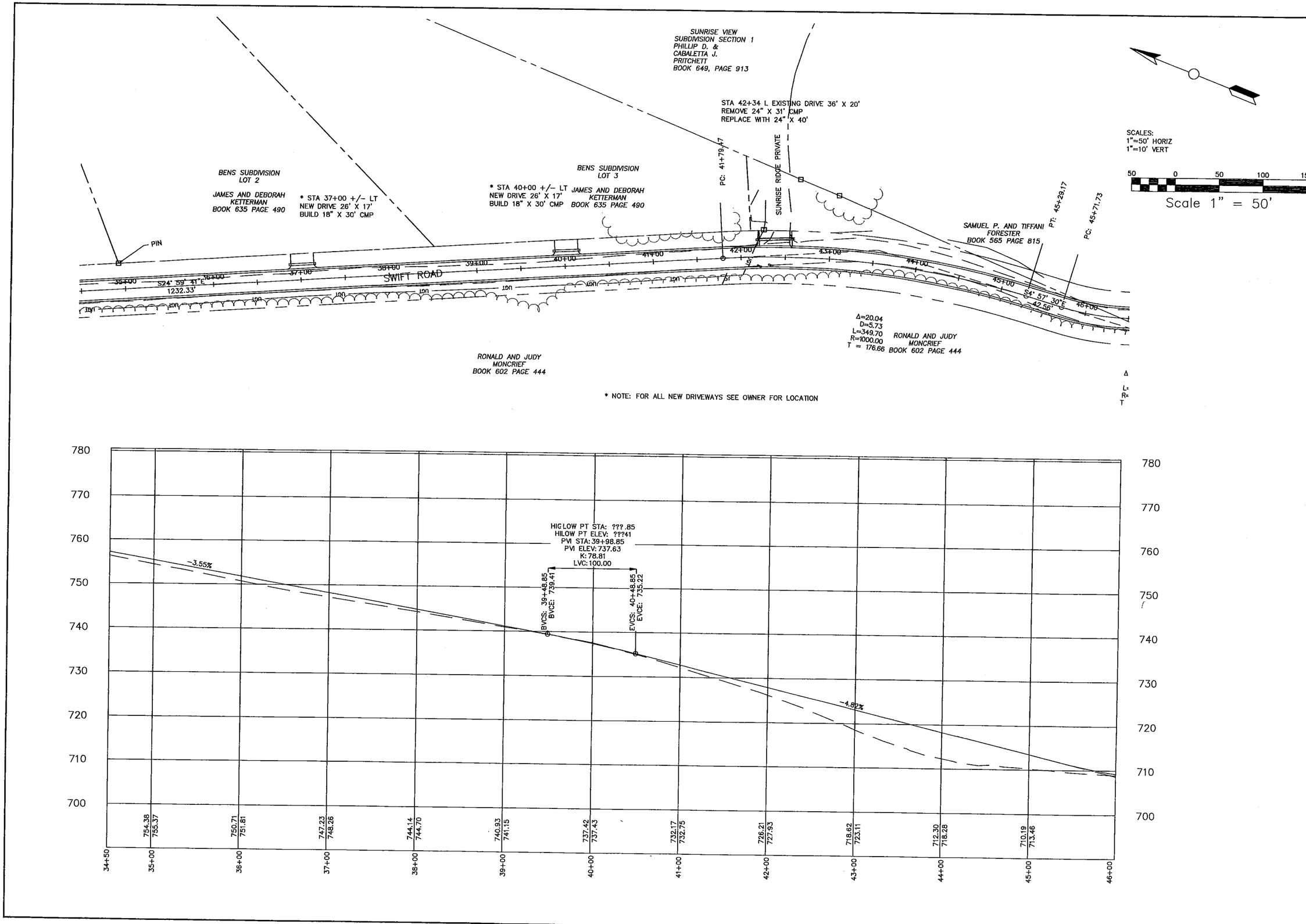
STATE OF MISSOURI RICHARD A. MULDOON NUMBER B-34259 PROFESSIONAL ENGINEER

Title SWIFT-BOISE BRULE
PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



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Date JULY 2015

Revision

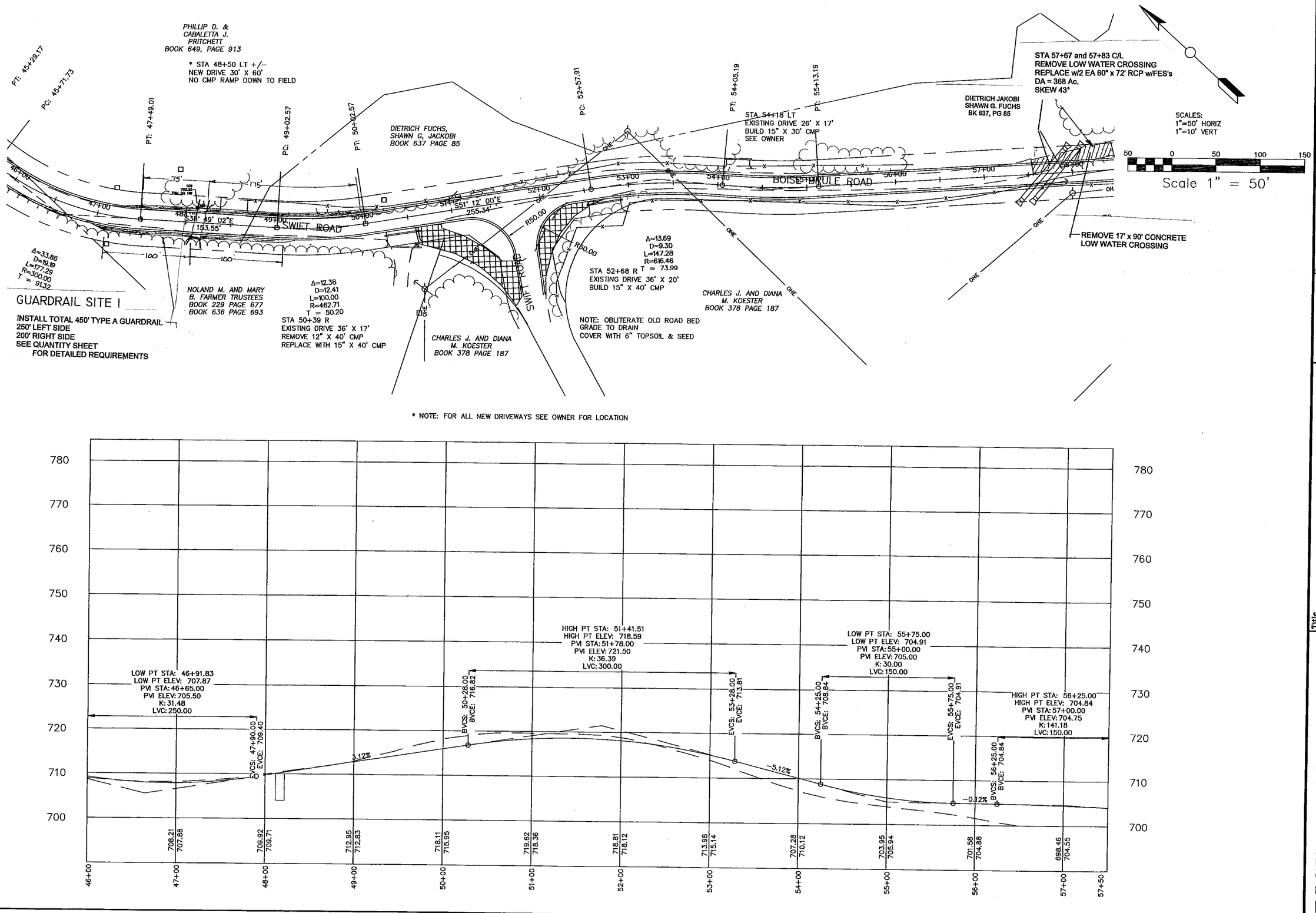
STATE OF MISSOURI
RICHARD A. MULDOON
NUMBER E-24259
PROFESSIONAL ENGINEER

Title SWIFT-BOISE BRULE
PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON
ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



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Date JULY 2015

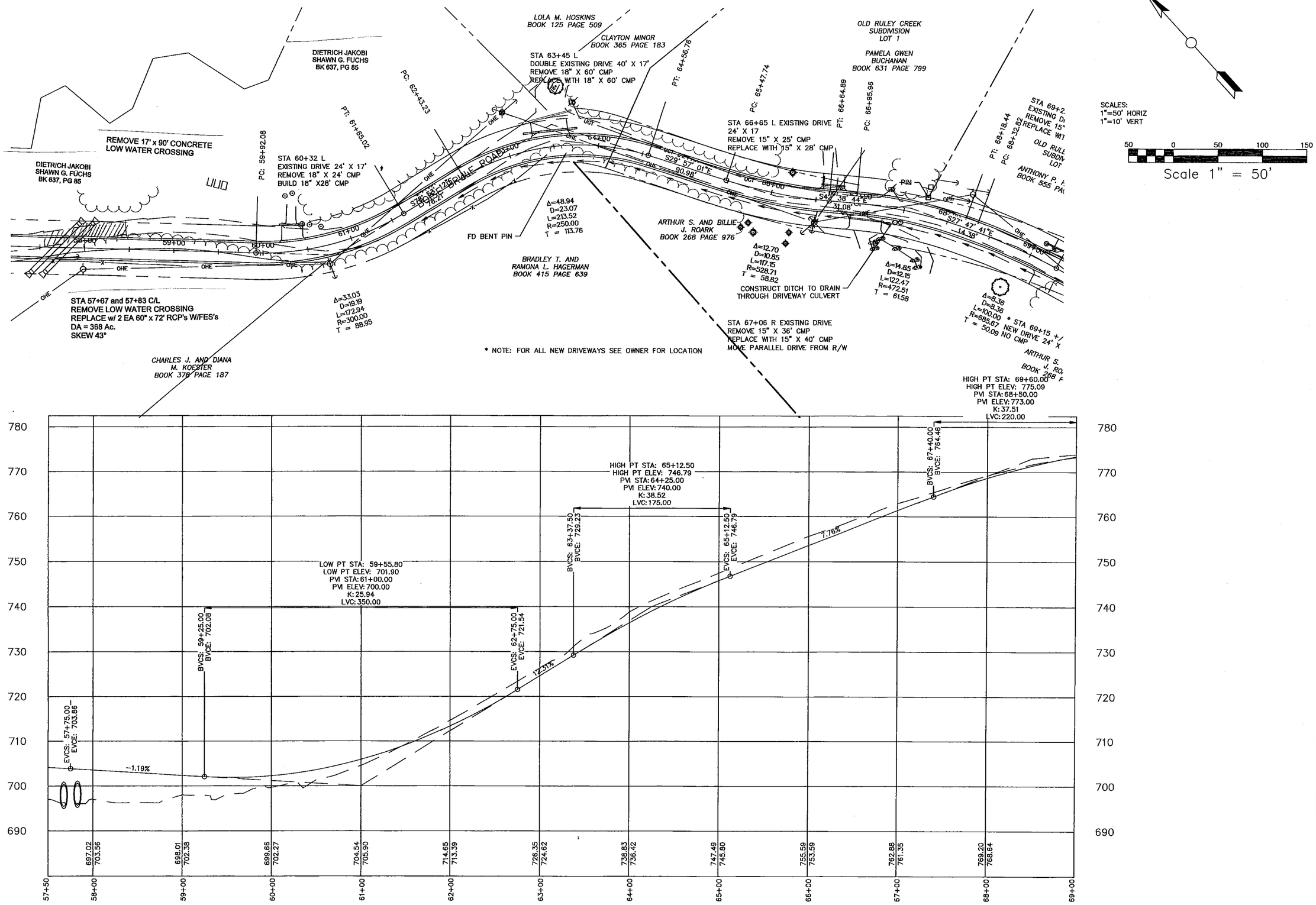
Revision

Title SWIFT-BOISE BRULE PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



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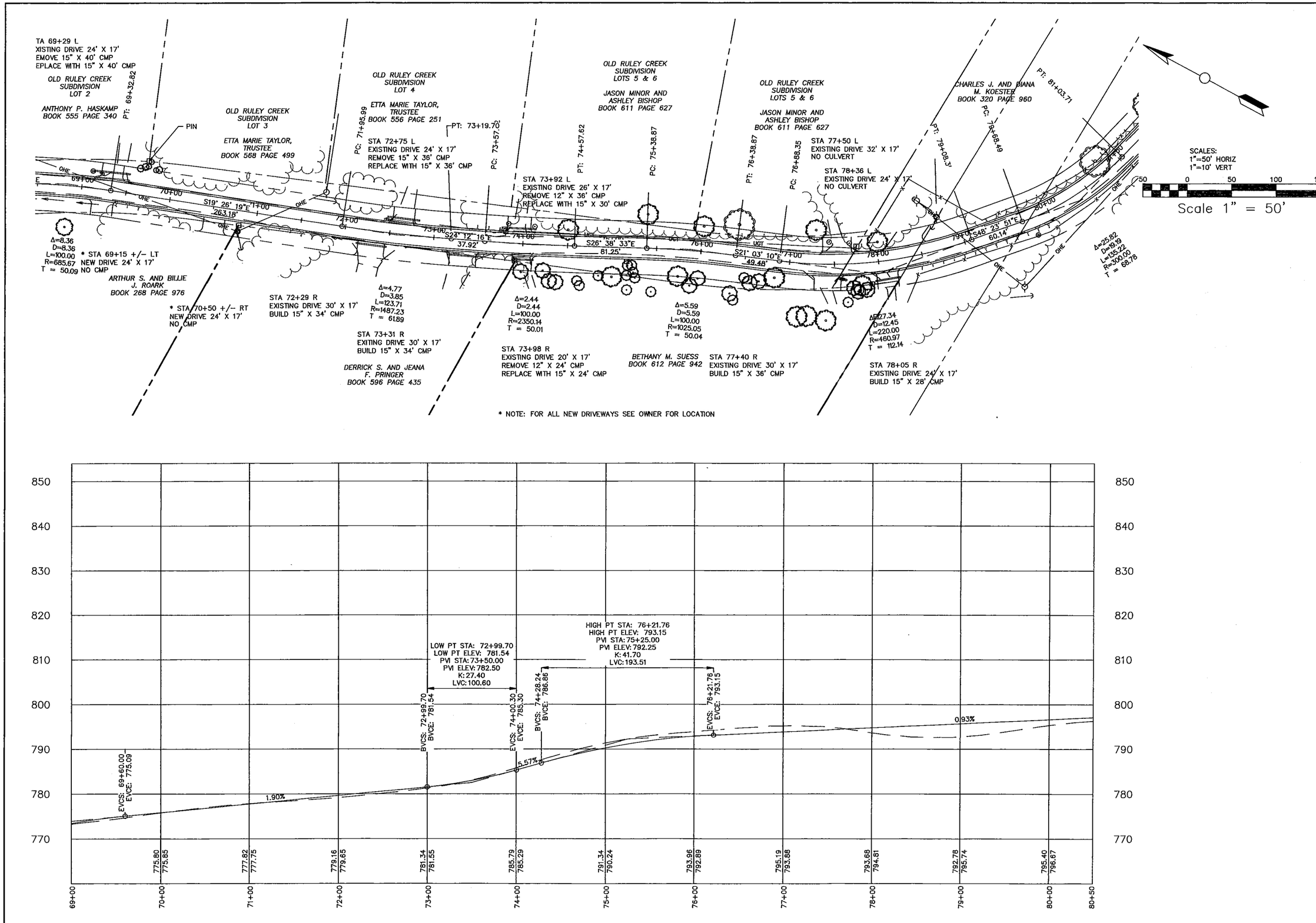
Date JULY 2015
Revision

Title SWIFT-BOISE BRULE
PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON
ENGINEERING
6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



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Date JULY 2015

Revision

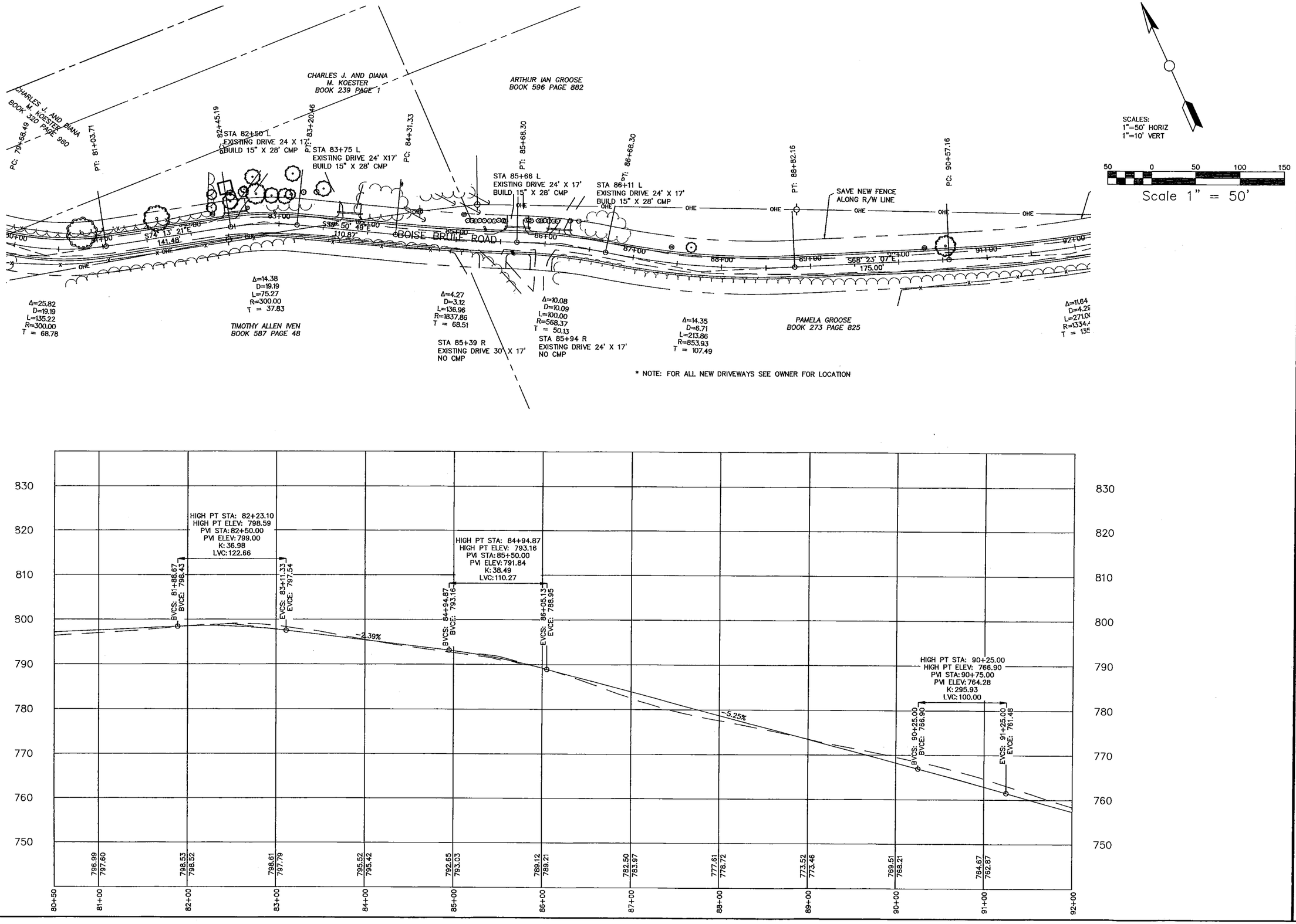
STATE OF MISSOURI RICHARD A. MULDOON NUMBER E-2429 PROFESSIONAL ENGINEER

Title SWIFT-BOISE BRULE PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



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Date JULY 2015

Revision

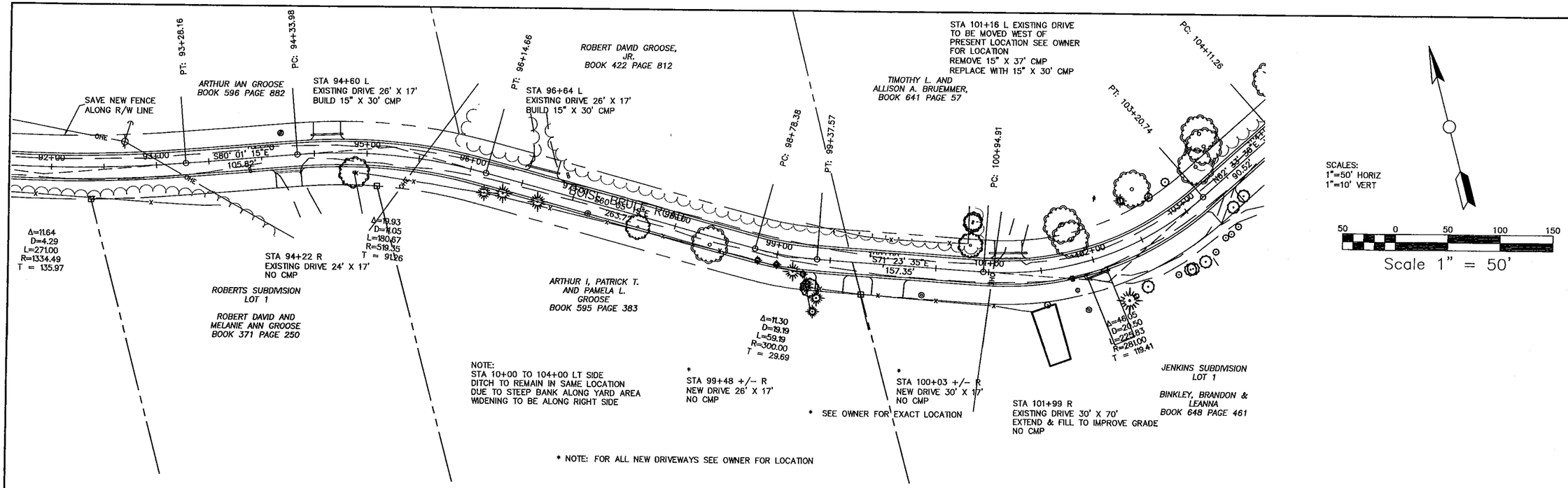
STATE OF MISSOURI RICHARD A. MULDOON NUMBER E-24259 PROFESSIONAL ENGINEER

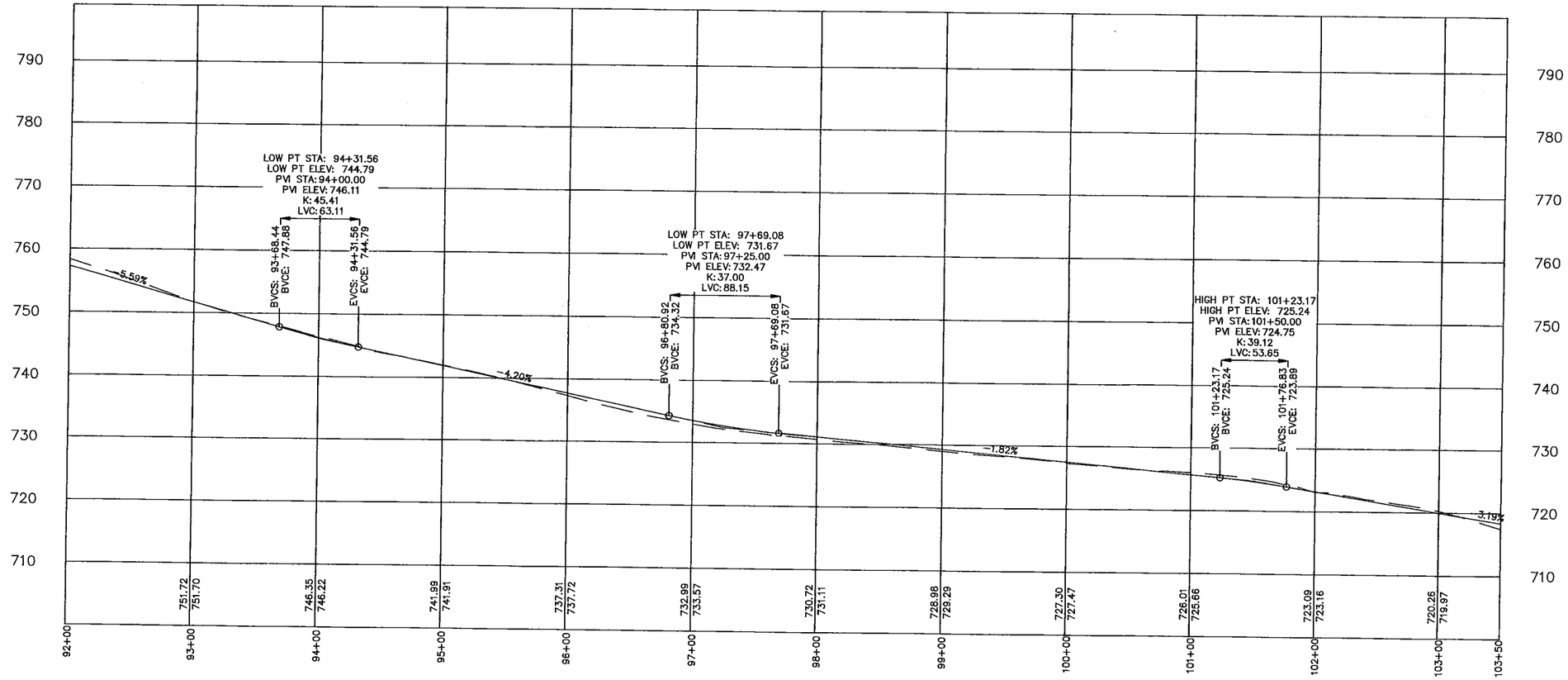
Title SWIFT-BOISE BRULE PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300





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Date JULY 2015

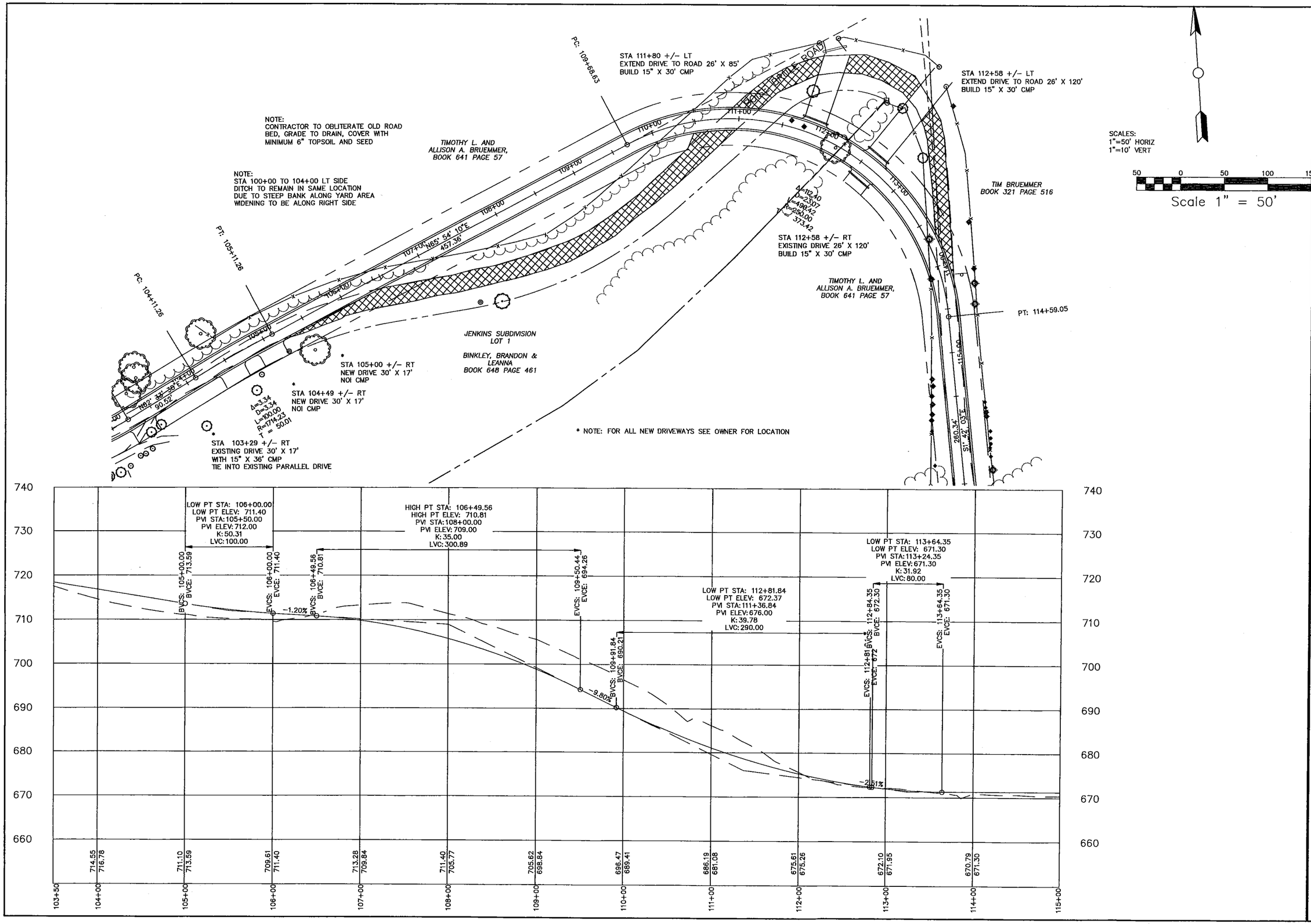
Revision

STATE OF MISSOURI RICHARD A. MULDOON NUMBER 2003 PROFESSIONAL ENGINEER

Title SWIFT-BOISE BRULE
PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON
ENGINEERING
6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



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Date JULY 2015

Revision

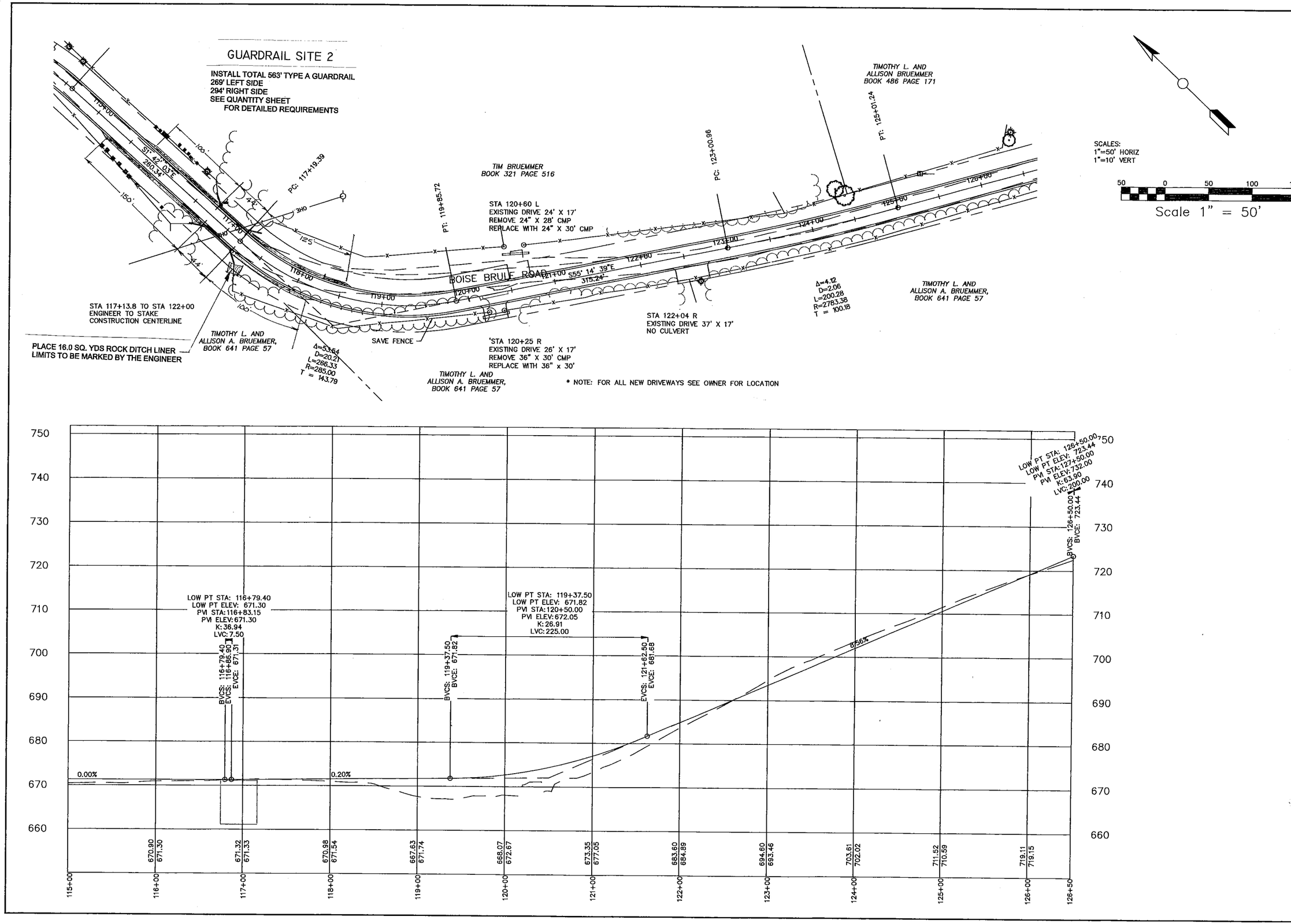
STATE OF MISSOURI RICHARD A. MULDOON NUMBER E-24539 PROFESSIONAL ENGINEER

Title SWIFT-BOISE BRULE PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



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Date JULY 2015

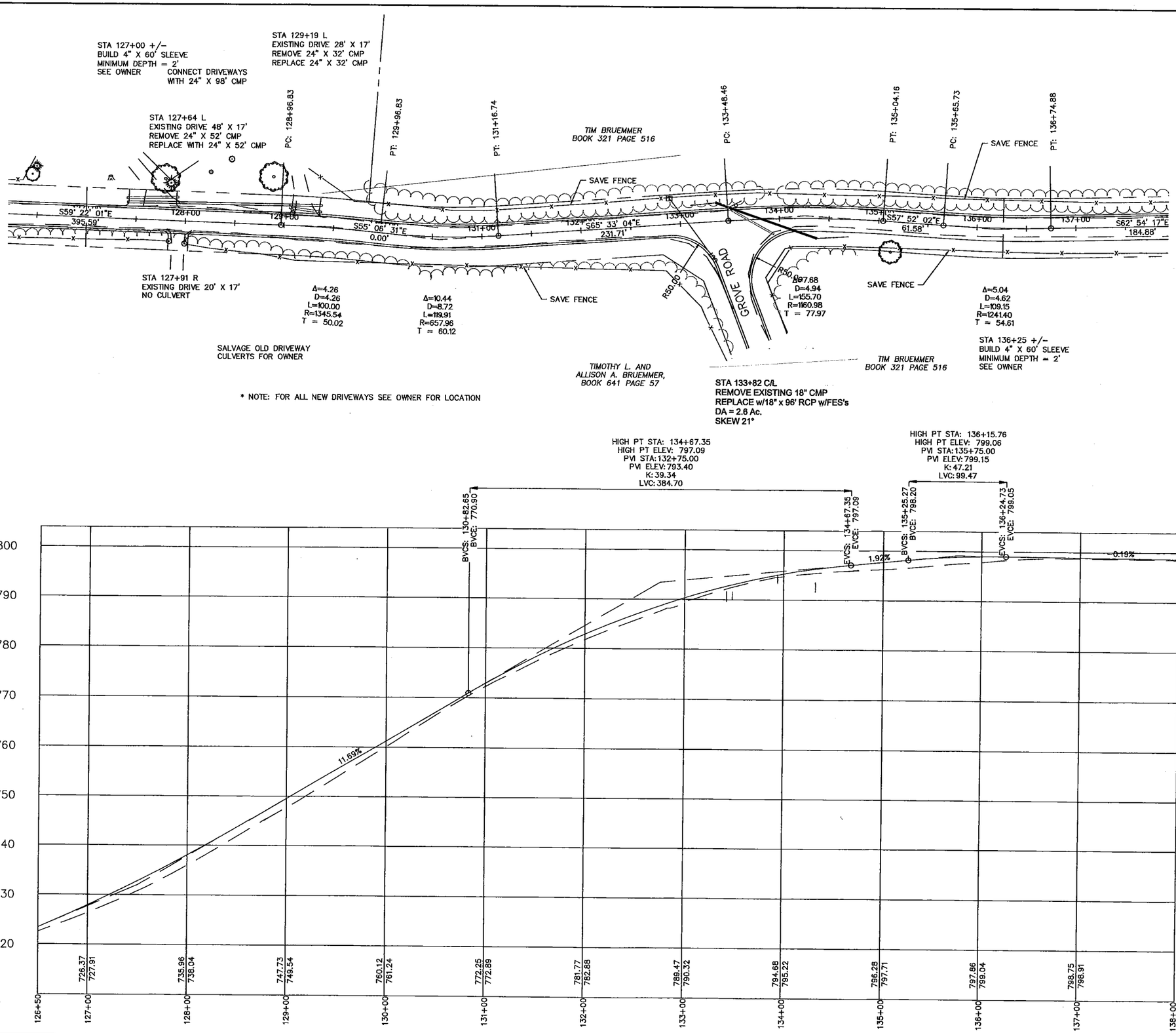
Revision

Title SWIFT-BOISE BRULE
PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON ENGINEERING

6820 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



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Date JULY 2015

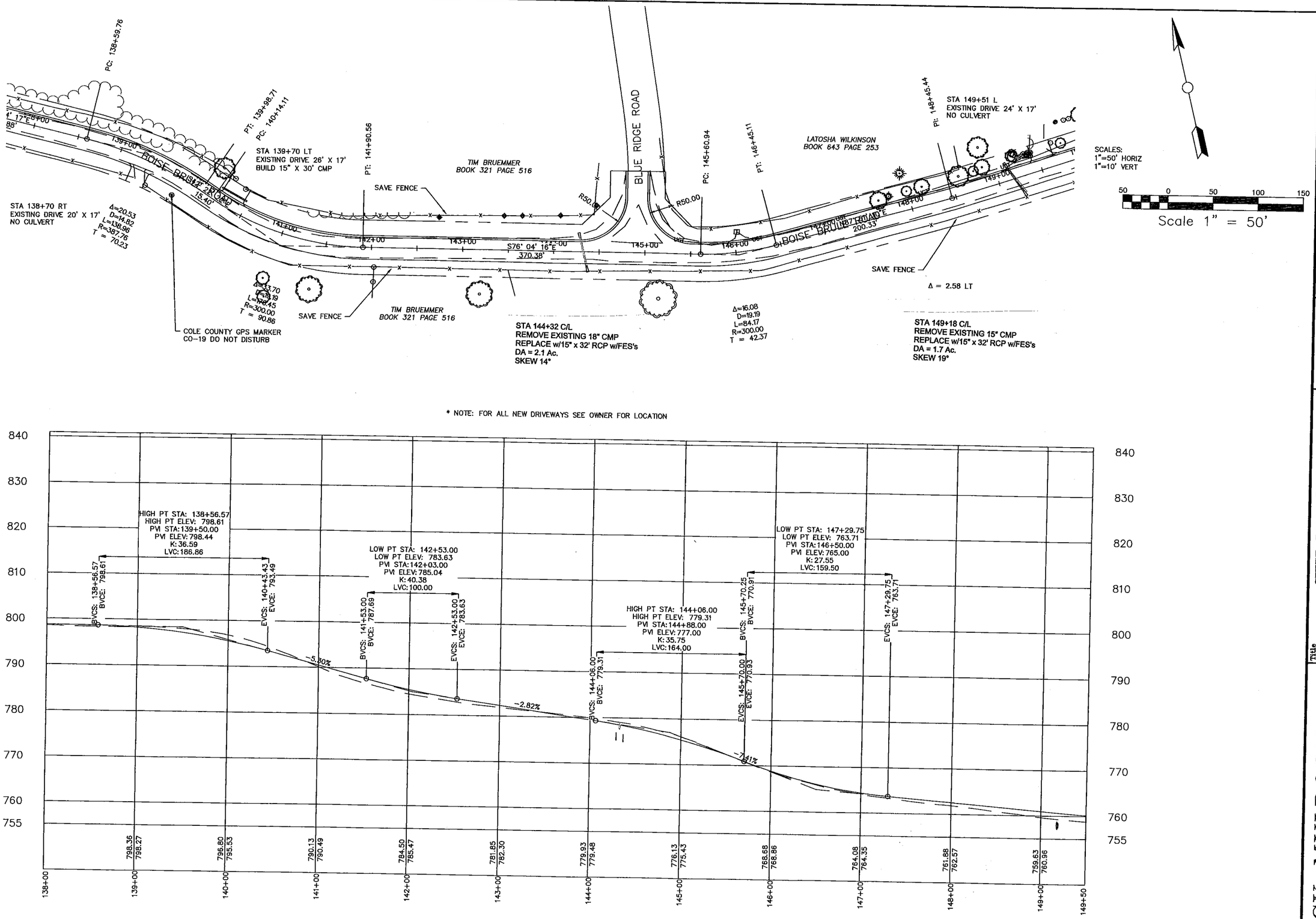
Revision

STATE OF MISSOURI RICHARD A. MULDOON NUMBER E-24459 PROFESSIONAL ENGINEER

Title SWIFT-BOISE BRULE
PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON
ENGINEERING
6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



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Date JULY 2015

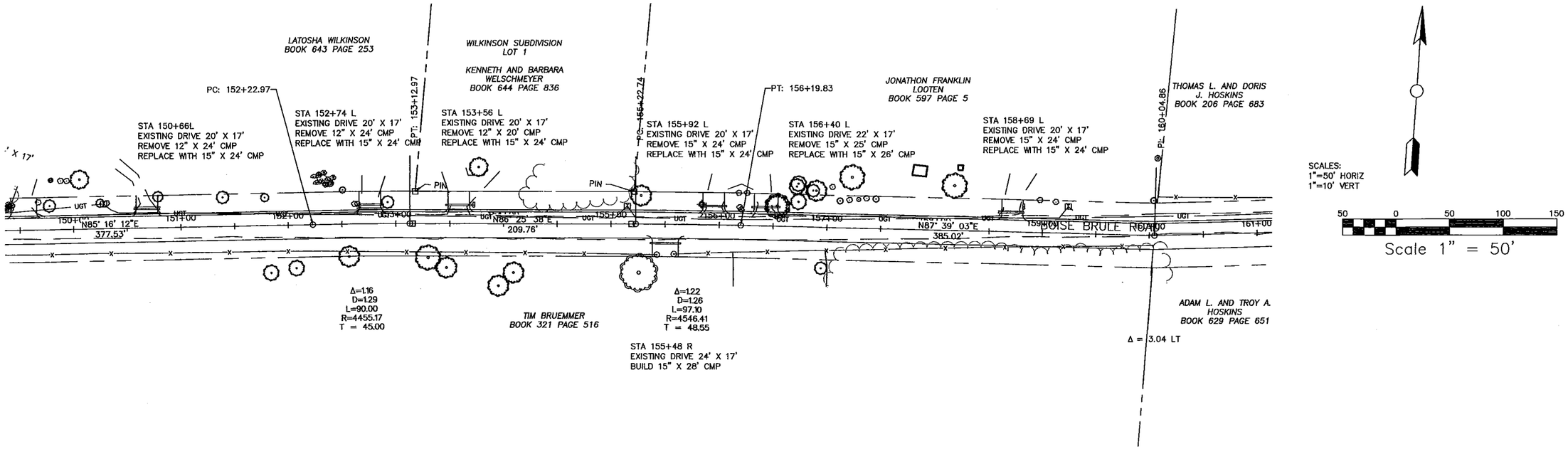
Revision

Title SWIFT-BOISE BRULE PLAN AND PROFILE

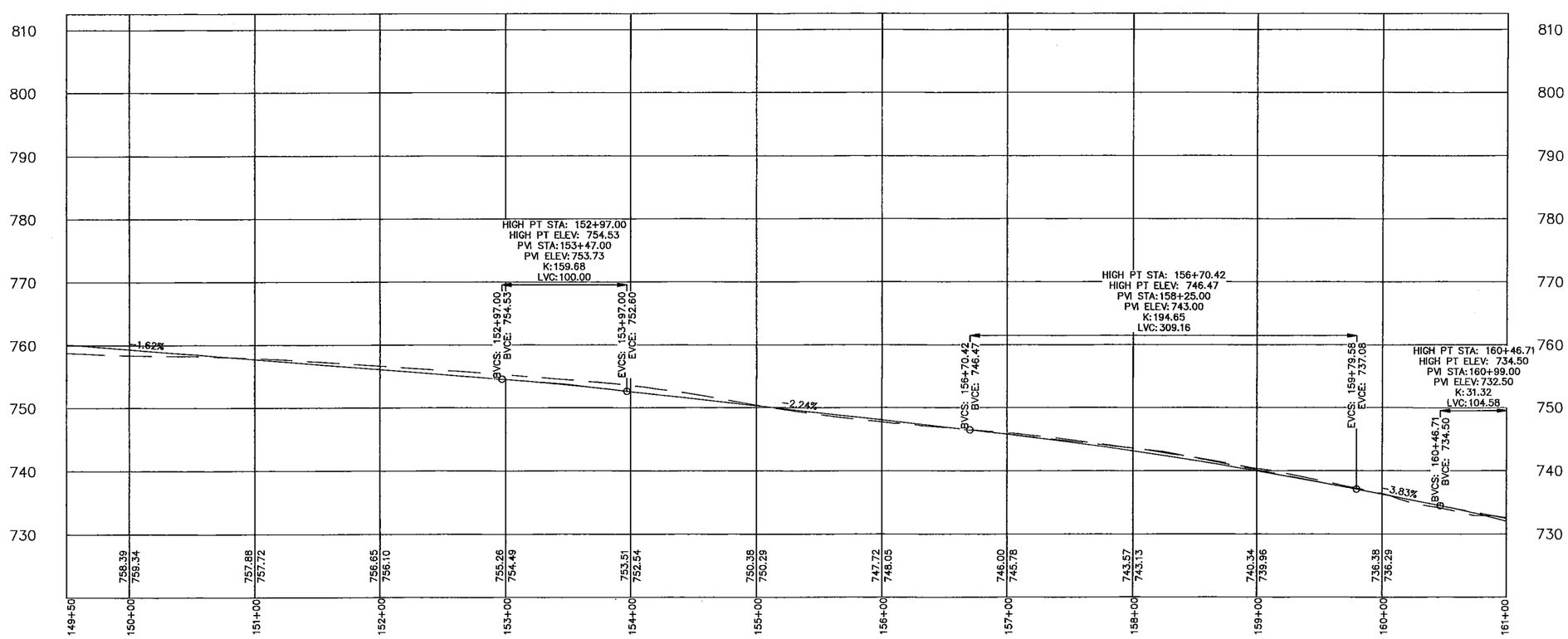
Owner COLE COUNTY

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



* NOTE: FOR ALL NEW DRIVEWAYS SEE OWNER FOR LOCATION



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Date JULY 2015

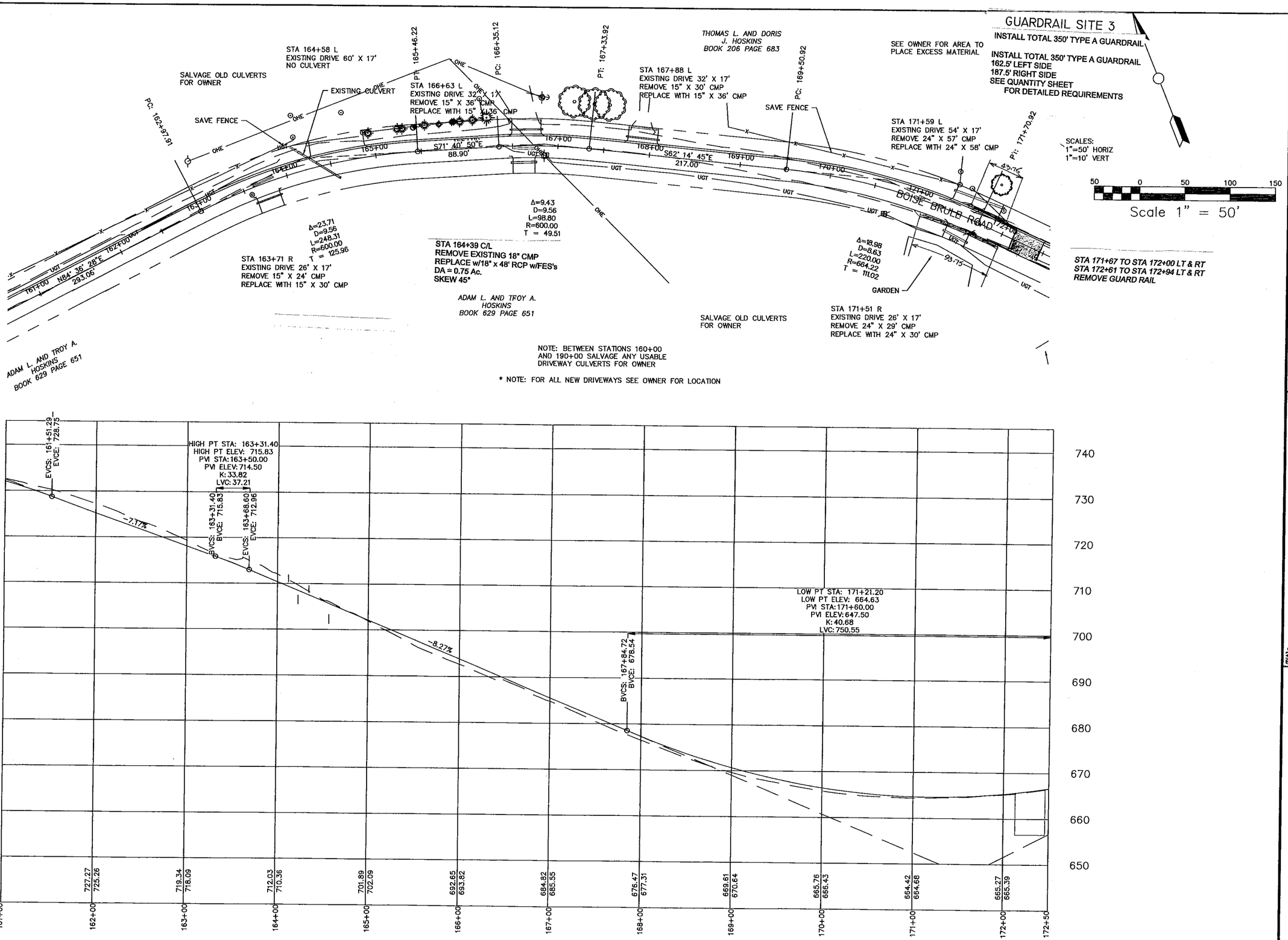
Revision

Title SWIFT-BOISE BRULE
PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



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Date JULY 2015

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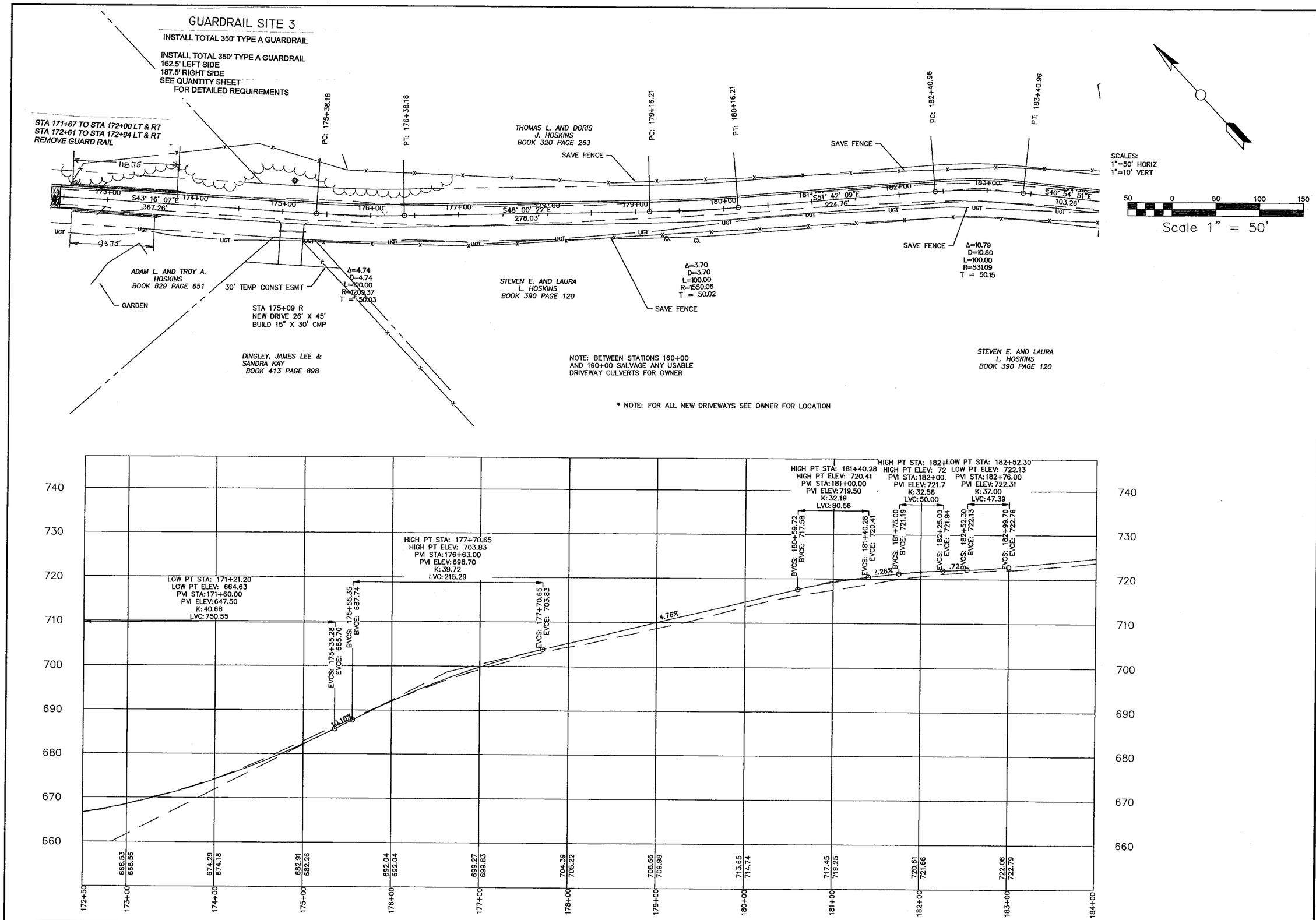
STATE OF MISSOURI
RICHARD A. MULDOON
NUMBER E-24229
PROFESSIONAL ENGINEER

Title SWIFT-BOISE BRULE
PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



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Date JULY 2015

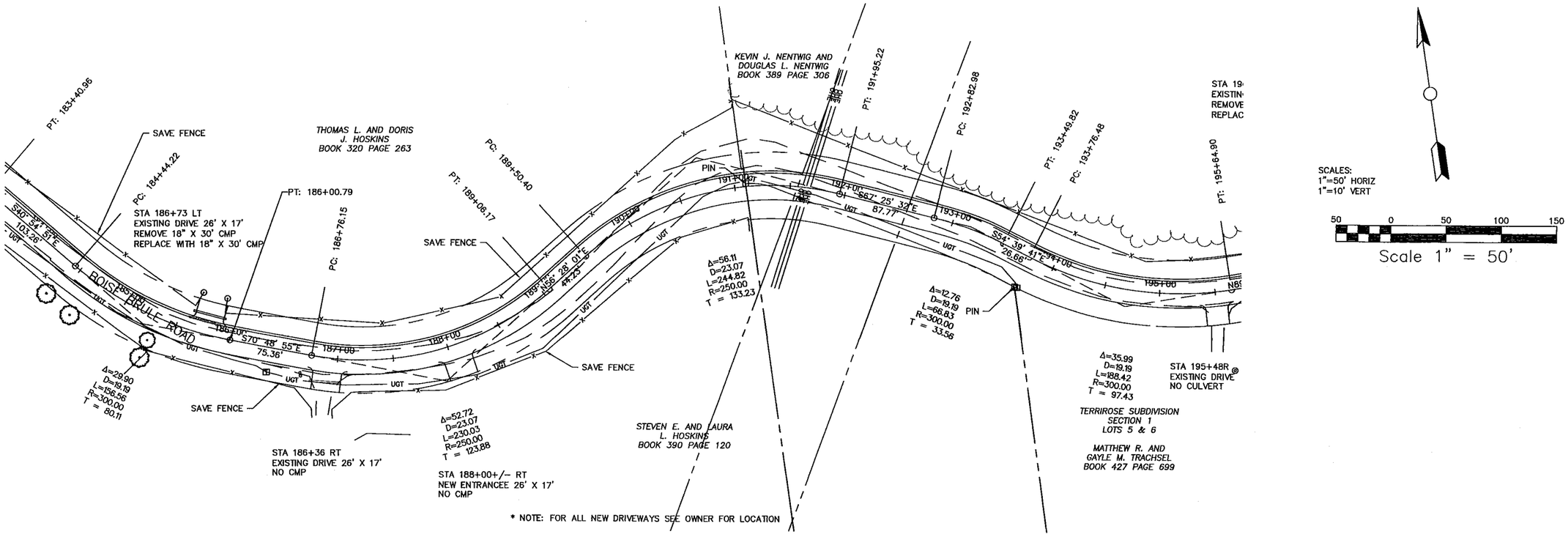
Revision

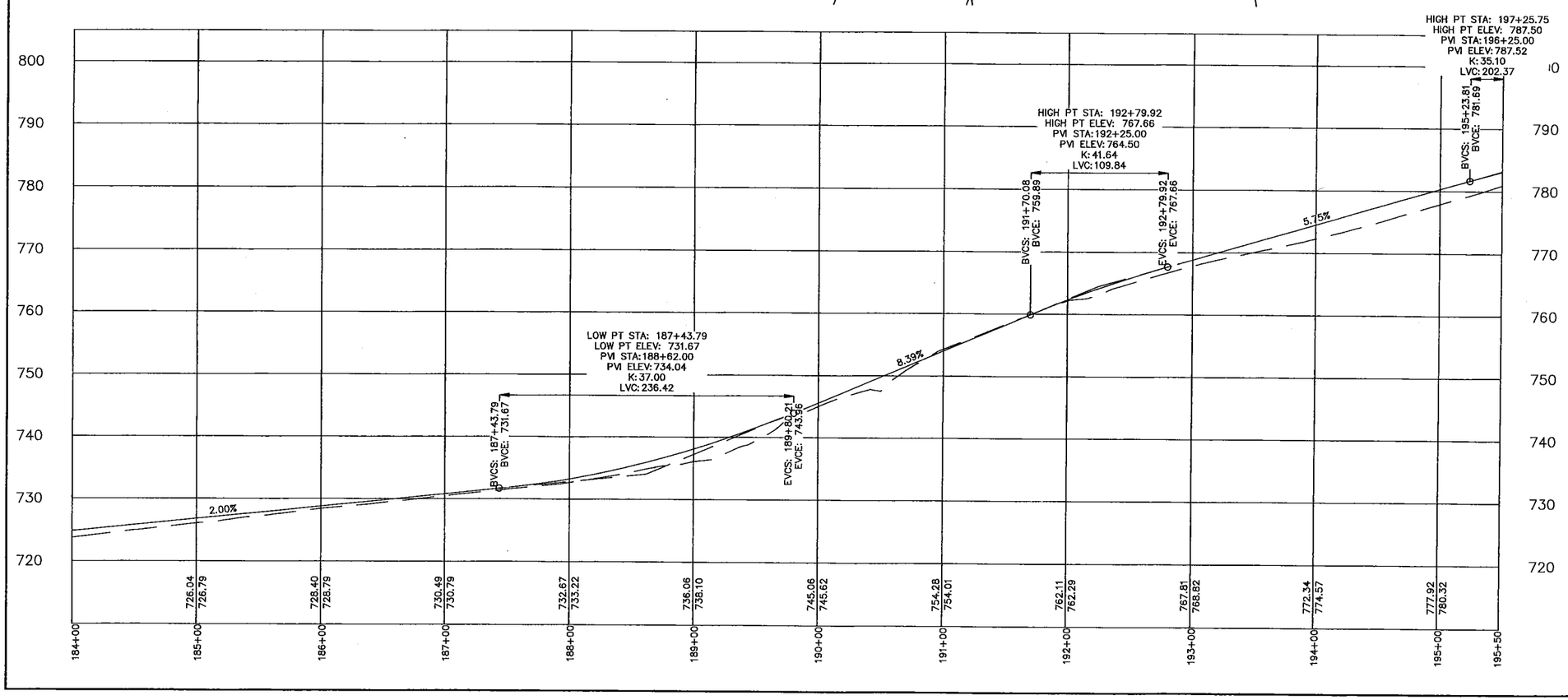
Title SWIFT-BOISE BRULE
PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300





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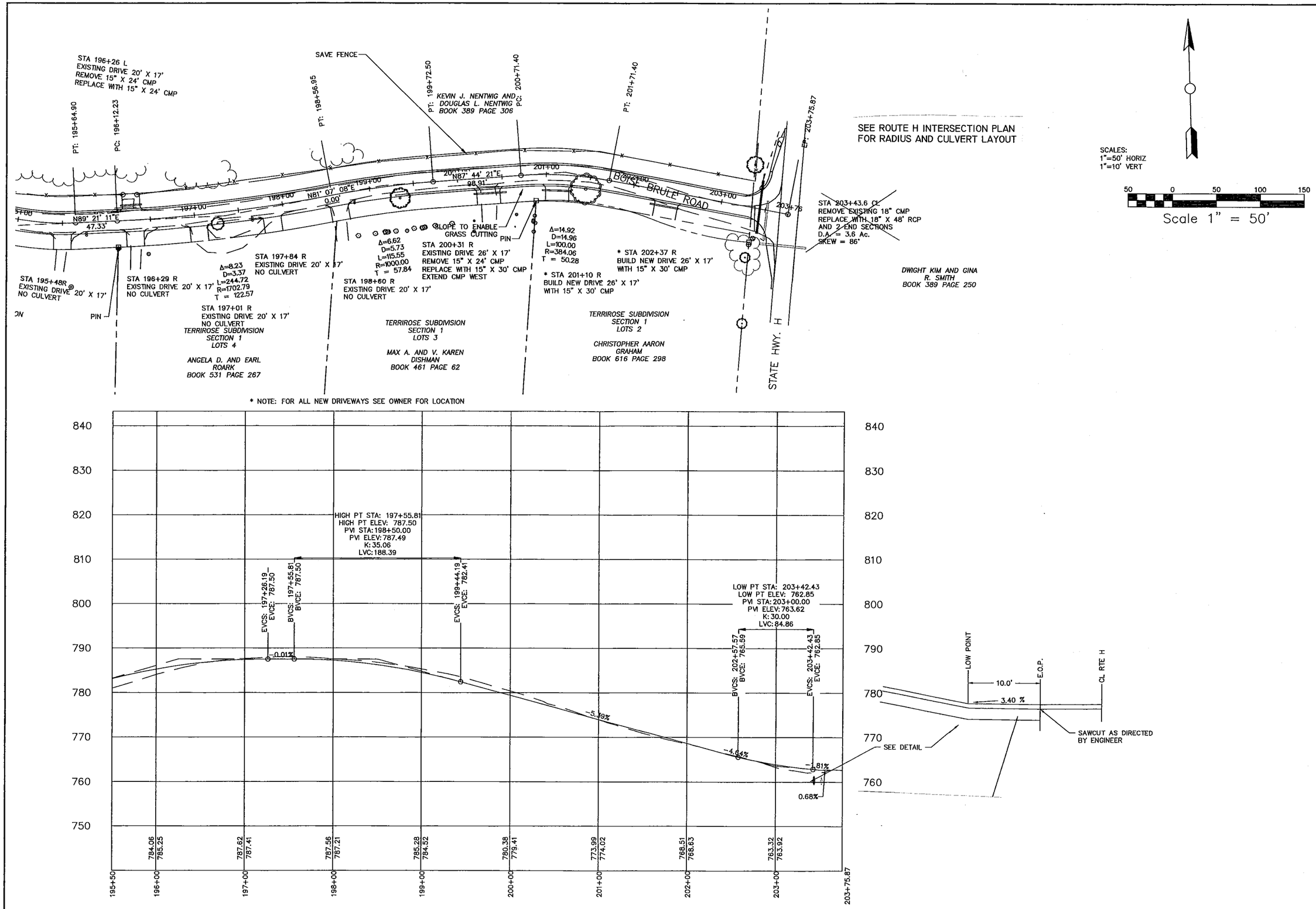
Date JULY 2015
Revision

STATE OF MISSOURI
RICHARD A. MULDOON
NUMBER E-24261
PROFESSIONAL ENGINEER

Title SWIFT-BOISE BRULE
PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON
ENGINEERING
6820 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



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Date JULY 2015
Revision

STATE OF MISSOURI
ALEXANDRA MARIE MUDDOON
NUMBER E-24259
REGISTERED PROFESSIONAL ENGINEER

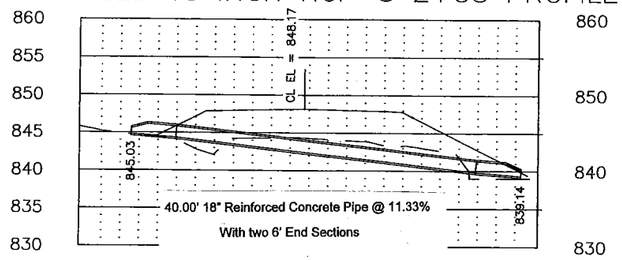
Title SWIFT-BOISE BRULE
PLAN AND PROFILE

Owner COLE COUNTY

RICK MULDOON
ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

PROPOSED 18 INCH RCP @ 2+58 PROFILE



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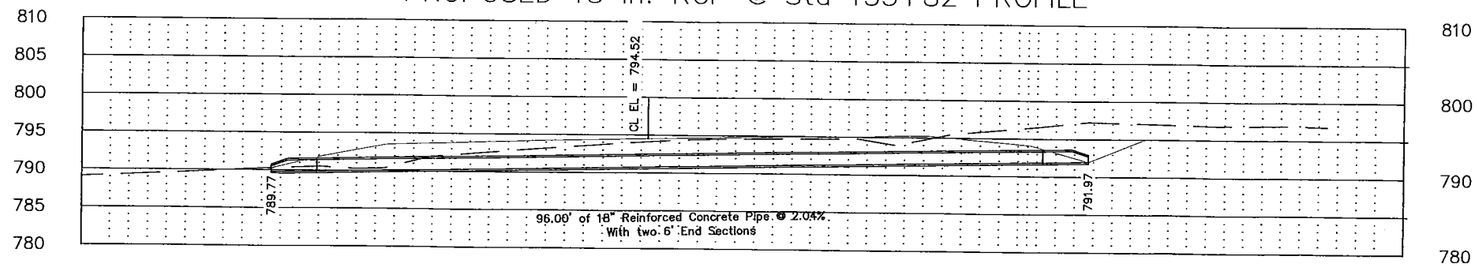

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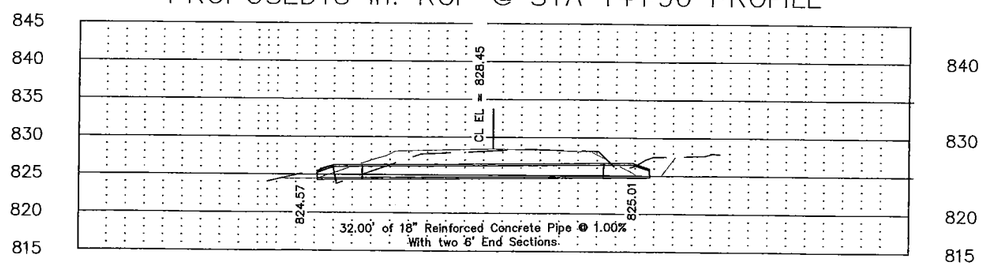

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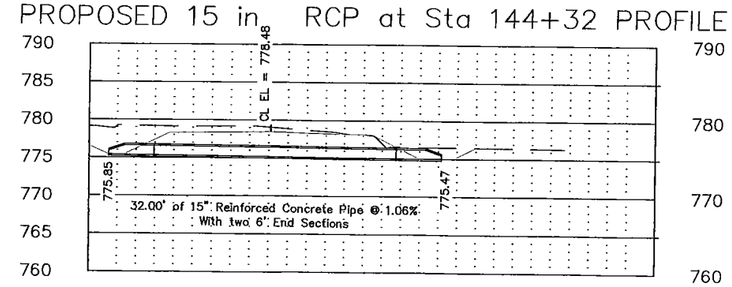

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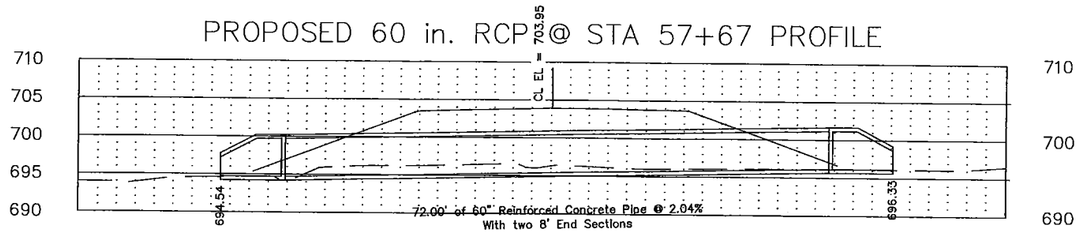

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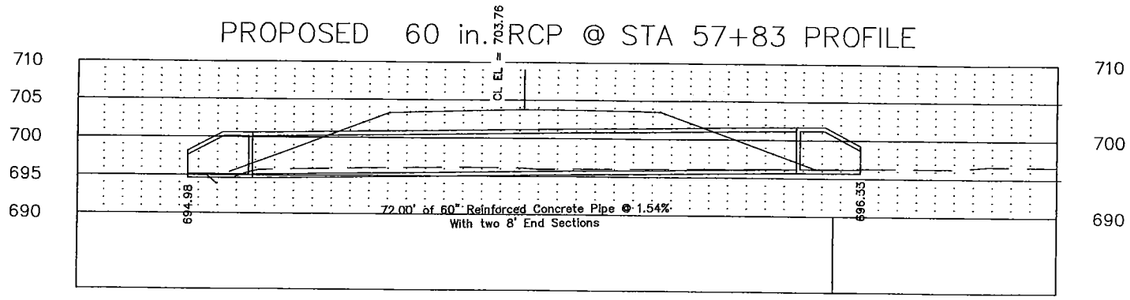


Page 1

Date JAN 2016

Revision

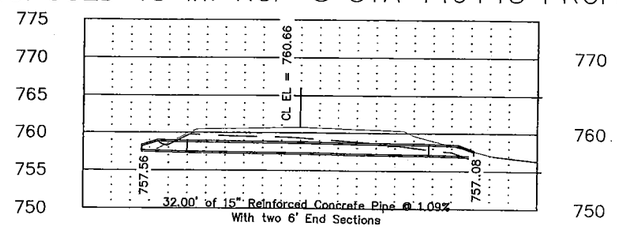
Title SWIFT-BOISE BRULE CULVERT PROFILES

Owner COLE COUNTY

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

PROPOSED 15 in. RCP @ STA 149+18 PROFILE



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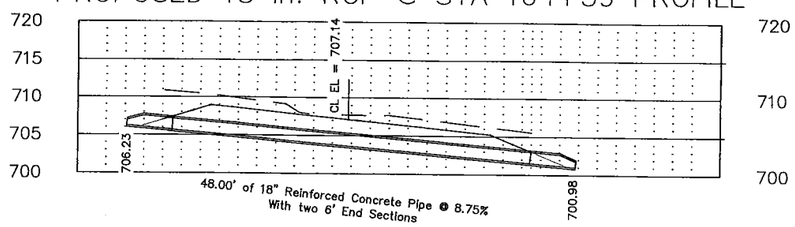


Page 2

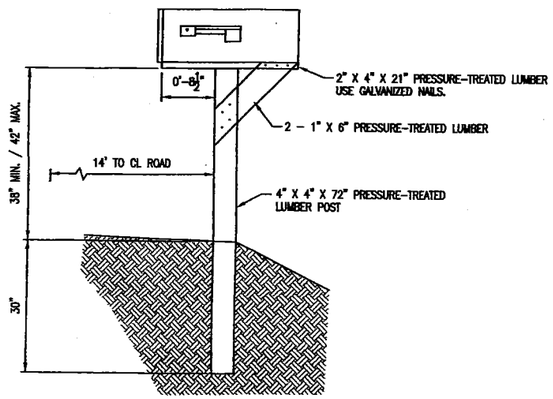
Date JAN 2016
Revision

Title SWIFT-BOISE BRULE
CULVERT PROFILES

Owner COLE COUNTY

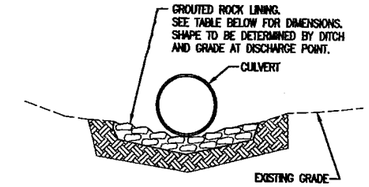
RICK MULDOON
ENGINEERING
6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

NOTE: THE CONTRACTOR SHALL REMOVE MAIL BOXES AS NECESSARY DURING CONSTRUCTION. THE CONTRACTOR SHALL TEMPORARILY SET MAIL BOXES WHERE THEY WILL BE ACCESSIBLE TO BOTH THE CARRIER AND THE PATRON. THE CONTRACTOR WILL RE-SET ALL MAIL BOXES AS SHOWN BELOW AT THE COMPLETION OF THE PROJECT. MAIL BOXES WHICH HAVE BEEN DAMAGED WILL BE REPLACED BY THE CONTRACTOR.



MAIL BOX INSTALLATION

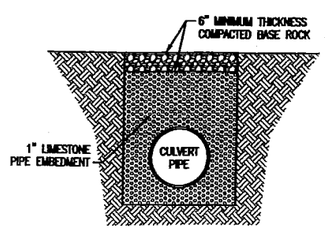
N.T.S.



GROUTED ROCK LINING TO BE PLACED AT DOWNSTREAM END OF CROSS ROAD CULVERTS

N.T.S.

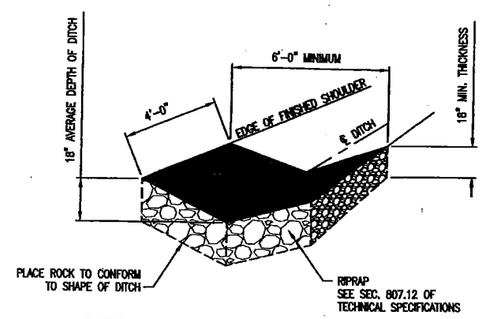
GROUTED ROCK LINING FOR CULVERT OUTLETS		
CULVERT DIAMETER	MIN. DEPTH AND WIDTH	MIN. LENGTH
15"	1' x 4'	12'
18"	1' x 4'	12'
21"	1' x 4'	12'
24"	1' x 6'	12'
27"	1' x 6'	12'
30"	1' x 6'	12'
36"	1' x 8'	12'
42"	1' x 8'	12'
48"	1' x 10'	12'
54"	1' x 10'	12'
60"	1' x 12'	12'
66"	1' x 12'	12'
72"	1' x 12'	12'
78"	1' X 12'	12'



NOTE: SEE TECHNICAL SPECIFICATIONS FOR FURTHER DETAILS

PIPE EMBEDMENT DETAIL FOR INSTALLATION OF CROSS ROAD CULVERTS

N.T.S.



DITCH STABILIZATION STRUCTURE

N.T.S.

NO.	REVISION	DATE

COLE COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
5055 MONTICELLO ROAD
JEFFERSON CITY, MO 65109
PHONE - 573-636-3614 FAX - 573-636-8389

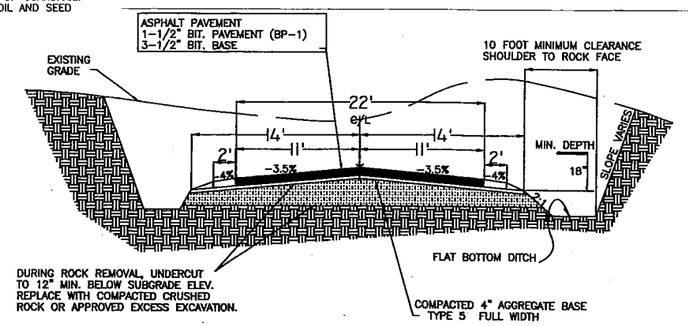
PROJECT:
SWIFT/BOISE BRULE ROAD
DETAILS

STATE OF MISSOURI
ERIC LANDWEHR
NUMBER PE-2004012004
PROFESSIONAL ENGINEER
03-23-2016

DATE:
DWN BY:

SHT 1 OF 2

NOTE:
WIDEN SHOULDERS ADDITIONAL 3 FEET
FOR INSTALLATION OF GUARDRAIL.
BACKFILL W/TOPSOIL AND SEED



IN ROCK CUT

N.T.S.

NOTES:

1. SOME UNDERGROUND UTILITY LINES AND/OR STRUCTURES ARE SHOWN ON THESE DRAWINGS IN THEIR APPROXIMATE LOCATIONS. OTHERS MAY EXIST.
THE CONTRACTOR WILL BE RESPONSIBLE FOR CALLING THE MISSOURI ONE CALL SYSTEM (1-800-344-7483) AND HAVE THE UNDERGROND UTILITIES MARKED AND RE-MARKED PRIOR TO ANY CONSTRUCTION.

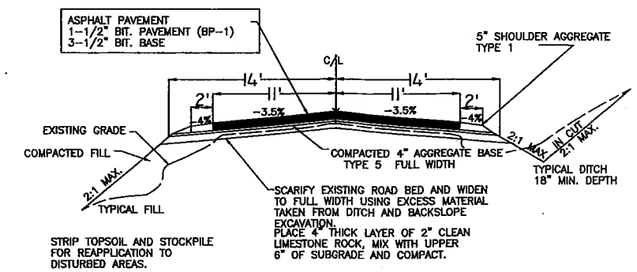
2. ALL NEW UTILITY LINES PLACED UNDER THE PROPOSED 28 FOOT WIDE ROADBED ARE TO BE BACKFILLED WITH ONE INCH CRUSHED LIMES STONE ROCK TO A LEVEL 6 INCHES BELOW THE ROAD SURFACE AND CAPPED WITH 6 INCHES OF COMPACTED BASE ROCK ACROSS THE ENTIRE 28 FOOT ROADBED WIDTH.

3. ALL EXISTING DRIVEWAY AND CROSS-ROAD CULVERTS SHALL BE REMOVED BY THE CONTRACTOR AND BE REPLACED WITH THE DESIGNATED NEW CULVERT.

4. THE PROPOSED NEW CENTERLINE GRADES SHOWN ARE FOR THE TOP OF THE FINISHED ASPHALT PAVEMENT.

5. ALL WORK IS TO BE COMPLETED WITH THE ROAD RIGHT-OF-WAY AND TEMPORARY CONSTRUCTION EASEMENTS AS SHOWN ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ADJACENT PROPERTY OWNERS AND ACQUIRING PERMISSION TO PERFORM ANY WORK OUTSIDE THESE LIMITS SHOWN.

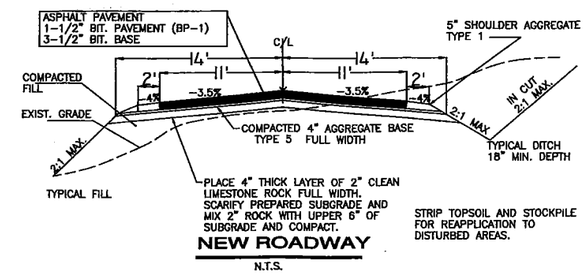
NOTE:
WIDEN SHOULDERS ADDITIONAL 3 FEET
FOR INSTALLATION OF GUARDRAIL.
BACKFILL W/TOPSOIL AND SEED



RECONSTRUCTION OF EXISTING ROADWAY

N.T.S.

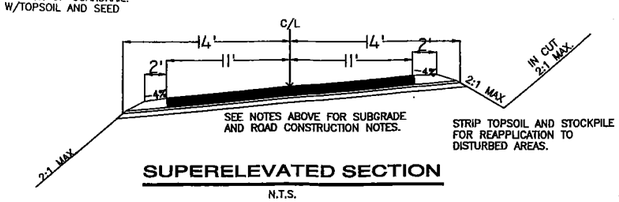
NOTE:
WIDEN SHOULDERS ADDITIONAL 3 FEET
FOR INSTALLATION OF GUARDRAIL.
BACKFILL W/TOPSOIL AND SEED



NEW ROADWAY

N.T.S.

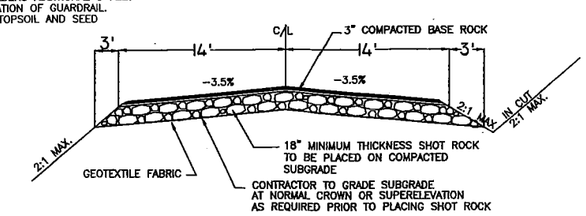
NOTE:
WIDEN SHOULDERS ADDITIONAL 3 FEET
FOR INSTALLATION OF GUARDRAIL.
BACKFILL W/TOPSOIL AND SEED



SUPERELEVATED SECTION

N.T.S.

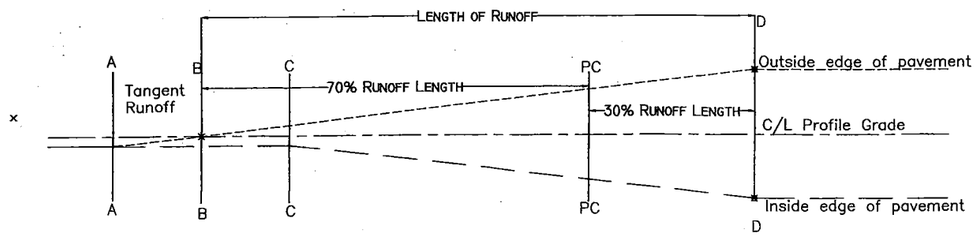
NOTE:
WIDEN SHOULDERS ADDITIONAL 3 FEET
FOR INSTALLATION OF GUARDRAIL.
BACKFILL W/TOPSOIL AND SEED



TYPICAL SECTION FOR SHOT ROCK

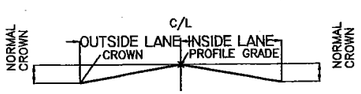
N.T.S.

SUPER ELEVATION DATA

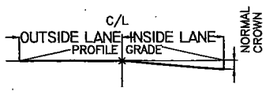


LENGTH OF RUNOFF

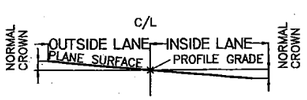
SUPER-ELEVATION RATE	SPEED 30 MPH	SPEED 40 MPH
0.02	35'	40'
0.04	70'	85'
0.06	110'	125'
0.08	145'	170'
0.10	180'	210'



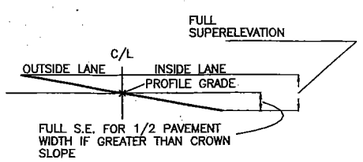
SECTION A - A



SECTION B - B



SECTION C - C



SECTION D - D

SUPERELEVATION SCHEDULE
40 MPH
MAX. DEGREE OF CURVE – 12°

DEGREE OF CURVE	S.E./FT	S.E./25 FT NO TOP
0° to 1°	0	
1°	.01	0.28
1° to 2°	.02	0.56
2°	.03	0.84
3°	.04	1.12
4°	.05	1.40
5°	.06	1.68
6°	.06	1.68
7°	.07	1.96
8°	.07	1.96
9°	.08	2.24
10°	.08	2.24
11°	.08	2.24
MAX 12°	.08	2.24

SUPERELEVATION SCHEDULE
30 MPH
MAX. DEGREE OF CURVE – 22° 45'

13°	.07	1.96
14°	.07	1.96
15°	.07	1.96
16°	.07	1.96
17°	.07	1.96
18°	.08	2.24
19°	.08	2.24
20°	.08	2.24
21°	.08	2.24
22°	.08	2.24
MAX 22° 45	.08	2.24

NO.	REVISION	DATE

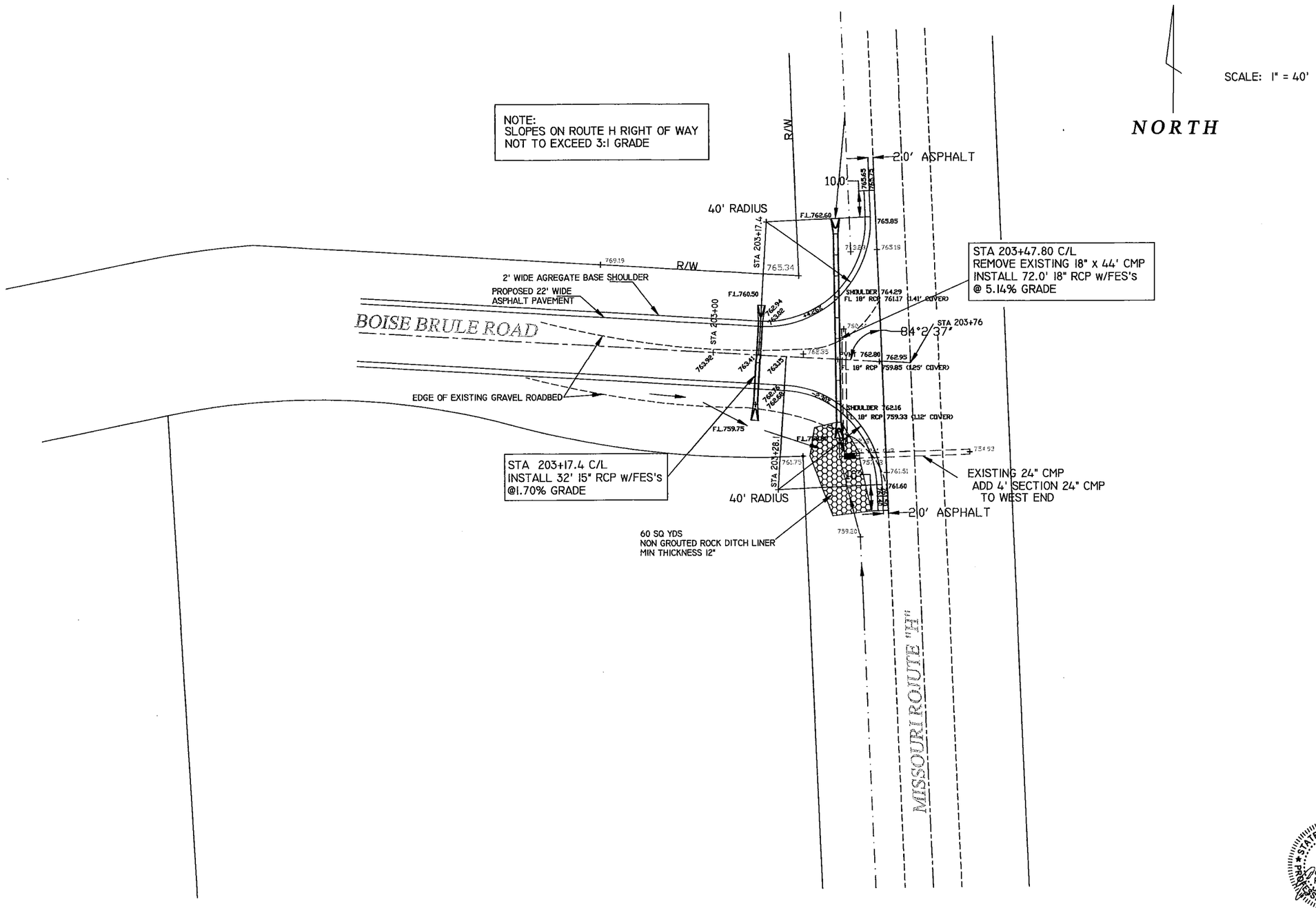
COLE COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
5055 MONTICELLO ROAD
JEFFERSON CITY, MO 65109
PHONE - 573-636-3614 FAX - 573-636-8389

PROJECT:
SWIFT/BOISE BRULE ROAD
DETAILS

STATE OF MISSOURI
ERIC LANGWENIG
NUMBER PE-2004017204
PROFESSIONAL ENGINEER
03-23-2016

DATE:

SHEET 2 OF 2



STATE OF MISSOURI
ERIC LANDWEHR
NUMBER PE-2004027604
PROFESSIONAL ENGINEER
03-23-2016

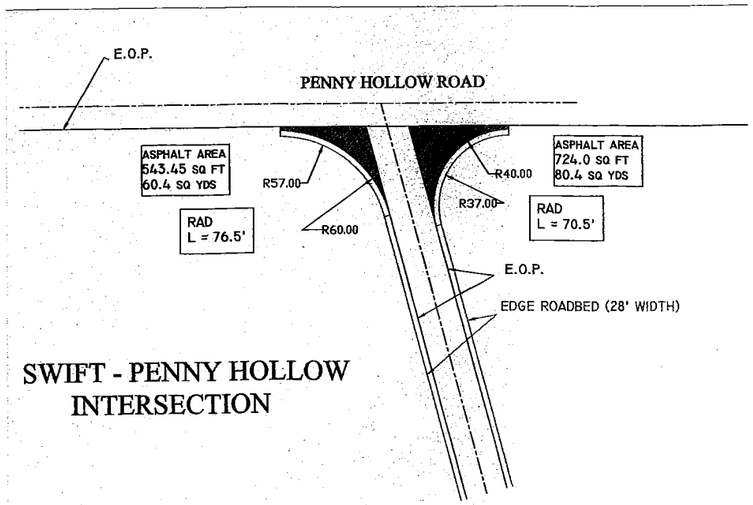
NO.	REVISION	DATE

COLE COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS

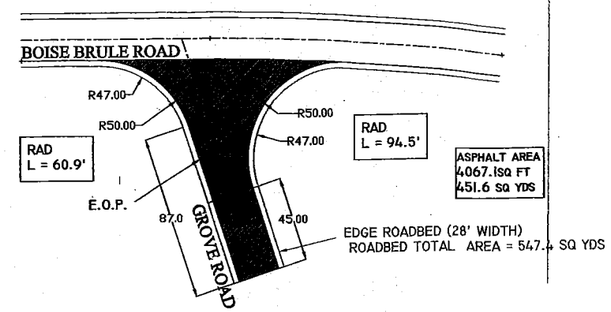
5055 MONTICELLO ROAD
JEFFERSON CITY, MO 65109
PHONE - 573-636-3614 FAX - 573-636-8389

PROJECT:
SWIFT-BOISE BRULE ROAD
UP-GRADE PROJECT
STATE ROUTE "H" INTERSECTION

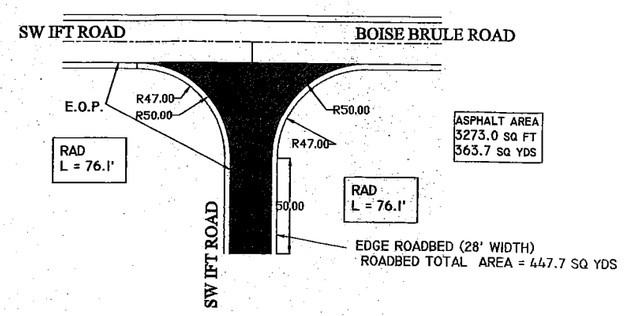
DATE:
DWN BY:
SCALE:
SHT NO: SHT ___ OF ___



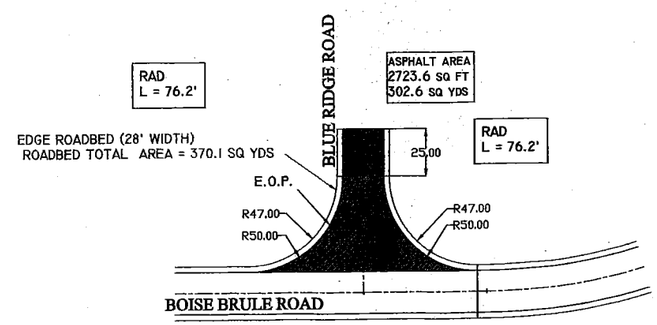
SWIFT - PENNY HOLLOW
INTERSECTION



BOISE BRULE - GROVE
INTERSECTION



SWIFT - BOISE BRULE - SWIFT
INTERSECTION



BOISE BRULE - BLUE RIDGE
INTERSECTION

NO.	REVISION	DATE

COLE COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
5055 MONTICELLO ROAD
JEFFERSON CITY, MO 65109
PHONE - 573-636-3614 FAX - 573-636-8389

PROJECT: SWIFT/BOISE BRULE ROAD ROAD INTERSECTIONS

STATE OF MISSOURI
ERIC LANDWEHR
NUMBER
PE-2004017204
PROFESSIONAL ENGINEER
03-23-2016

DATE:
DWN BY:
SCALE:
SHT NO: SHEET 1 OF 1

PROJECT QUANTITIES

SUBGRADE AGGREGATE - 2" CLEAN						
STA TO STA		LENGTH (FT)	WIDTH (FT)	THICKNESS (IN)	TOTAL (TONS)	REMARKS
0+12	116+76	11,664	28	4	7,982.6	SWIFT/BOISE BRULE MAIN ROAD
117+20	172+00	5,480	28	4	3,750.4	SWIFT/BOISE BRULE MAIN ROAD
172+61	203+64	3,103	28	4	2,123.6	SWIFT/BOISE BRULE MAIN ROAD
0+12 - 0+70		VARIES	VARIES	4	38.1	PENNY HOLLOW INTERSECTION RADIUS
51+15 - 52+45 RT		VARIES	VARIES	4	92.3	SWIFT ROAD INTERSECTION
132+85 - 134+20 RT		VARIES	VARIES	4	113.5	GROVE ROAD INTERSECTION
144+30 - 145+60 LT		VARIES	VARIES	4	71.5	BLUE RIDGE ROAD INTERSECTION
203+17 - 203+64		VARIES	VARIES	4	21.9	ROUTE H INTERSECTION RADIUS
				TOTAL	14,193.9	

AGGREGATE BASE - TYPE 5						
STA TO STA		LENGTH (FT)	WIDTH (FT)	THICKNESS (IN)	TOTAL (SY)	REMARKS
0+12	172+14	17,202	26.5	4	50,650.3	SWIFT/BOISE BRULE MAIN ROAD
172+47	203+64	3,117	26.5	4	9,177.8	SWIFT/BOISE BRULE MAIN ROAD
0+12	0+70	VARIES	VARIES	4	149.0	PENNY HOLLOW INTERSECTION RADIUS
51+15 - 52+45 RT		VARIES	VARIES	4	377.7	SWIFT ROAD INTERSECTION
132+85 - 134+20 RT		VARIES	VARIES	4	467.9	GROVE ROAD INTERSECTION
144+30 - 145+60 LT		VARIES	VARIES	4	313.9	BLUE RIDGE ROAD INTERSECTION
203+17 - 203+64		VARIES	VARIES	4	140.7	ROUTE H INTERSECTION RADIUS
				TOTAL:	61,277.3	

SHOULDER AGGREGATE - TYPE 1						
STA TO STA		LENGTH (FT)	WIDTH (FT)	THICKNESS (IN)	TOTAL (SY)	REMARKS
0+12	172+14	17,202	4	5	7,645.3	SWIFT/BOISE BRULE MAIN ROAD
172+47	203+64	3,117	4	5	1,385.3	SWIFT/BOISE BRULE MAIN ROAD
0+12	0+70	73.5	4	5	32.7	PENNY HOLLOW INTERSECTION RADIUS
51+15 - 52+45 RT		126.1	4	5	56.0	SWIFT ROAD INTERSECTION
132+85 - 134+20 RT		143.7	4	5	73.9	GROVE ROAD INTERSECTION
144+30 - 145+60 LT		101.2	4	5	45.0	BLUE RIDGE ROAD INTERSECTION
203+17 - 203+64		60.1	4	5	26.7	ROUTE H INTERSECTION RADIUS
				SUB TOTAL:	9,264.9	
LESS OVERLAP		519.0	2		- 115.3	LESS OVERLAP AT INTERSECTIONS
				TOTAL:	9,147.6	

BITUMINOUS BASE MIXTURE PG 64-22 (BASE)					
STA TO STA	LENGTH (FT)	WIDTH (FT)	THICKNESS (IN)	TOTAL (SY)	REMARKS
0+12 172+14	17,202	22	3.5	42,049.3	SWIFT/BOISE BRULE MAIN ROAD
172+47 203+64	3,117	22	3.5	7,619.3	SWIFT/BOISE BRULE MAIN ROAD
42+34 LT	15.5	28' AVG	3.5	48.2	SUNRISE RIDGE (PVT)
0+12 - 0+70	VARIES	VARIES	3.5	140.8	PENNY HOLLOW INTERSECTION RADII
51+15 - 52+45 RT	VARIES	VARIES	3.5	363.7	SWIFT ROAD INTERSECTION
132+85 - 134+20 RT	VARIES	VARIES	3.5	451.9	GROVE ROAD INTERSECTIN
144+30 - 145+60 LT	VARIES	VARIES	3.5	302.6	BLUE RIDGE ROAD INTERSECTION
203+17 - 203+65	VARIES	VARIES	3.5	100.6	RT. "H" INTERSECTION AND RADII
			TOTAL:	51,076.4	

BITUMINOUS PAVEMENT MIXTURE PG 64-22 (BP-1)					
STA TO STA	LENGTH (FT)	WIDTH (FT)	THICKNESS (IN)	TOTAL (SY)	REMARKS
0+12 172+14	17,202	22	1.5	42,049.3	SWIFT/BOISE BRULE MAIN ROAD
172+47 203+64	3,117	22	1.5	7,619.3	SWIFT/BOISE BRULE MAIN ROAD
42+34 LT	15.5	28' AVG	1.5	48.2	SUNRISE RIDGE (PVT)
0+12 - 0+70	VARIES	VARIES	1.5	140.8	PENNY HOLLOW INTERSECTION RADII
51+15 - 52+45 RT	VARIES	VARIES	1.5	363.7	SWIFT ROAD INTERSECTION
132+85 - 134+20 RT	VARIES	VARIES	1.5	451.9	GROVE ROAD INTERSECTIN
144+30 - 145+60 LT	VARIES	VARIES	1.5	302.6	BLUE RIDGE ROAD INTERSECTION
203+17 - 203+65	VARIES	VARIES	1.5	100.6	RT. "H" INTERSECTION AND RADII
			TOTAL:	51,076.4	

MOBILIZATION
1 LUMP SUM

TRAFFIC CONTROL
1 LUMP SUM

CLEARING AND GRUBBING
1 LUMP SUM

GROUTED ROCK LINING (RIP RAP)				
STATION	LOCATION	LENGTH (FT)	WIDTH (FT)	TOTAL (SY)
2+58	LT	12	4	5.33
14+96	LT	12	4	5.33
133+82	RT	12	4	5.33
144+32	RT	12	4	5.33
149+18	RT	12	4	5.33
164+39	RT	12	4	5.33
			TOTAL	32.0

NON GROUTED ROCK LINING (RIP RAP)					
STATION	LOCATION	LENGTH (FT)	WIDTH (FT)	TOTAL (SY)	REMARKS
57+75	RT	12	30	40.0	DOWNSTREAM DBL 60" RCP's
117+20	RT	12	12	16.0	TO BE MARKED BY ENGINEER
203+50	RT	VARIES	VARIES	60.0	TO BE MARKED BY ENGINEER
			TOTAL	116.0	

PROPERTY CORNERS					
#	STATION	LOCATION	REFERENCE EACH	REESTABLISH EACH	REMARKS
1	29+15	30' LT	1	1	RE-BAR
2	31+40	30' LT	1	1	RE-BAR
3	34+95	30' LT	1	1	RE-BAR
4	63+70	C/L	1	1	RE-BAR
5	63+70	28' RT	1	1	RE-BAR
6	67+75	30' LT	1	1	RE-BAR
7	69+70	35' LT	1	1	RE-BAR
8	70+80	25' RT	1	1	RE-BAR
9	73+90	25' RT	1	1	RE-BAR
10	92+40	30' RT	1	1	RE-BAR
11	95+10	30' RT	1	1	RE-BAR
12	99+60	30' LT	1	1	RE-BAR
13	99+80	30' RT	1	1	RE-BAR
14	139+70	24' RT	1	1	RE-BAR
15	153+10	30' LT	1	1	RE-BAR
16	155+20	30' LT	1	1	RE-BAR
17	193+80	30' RT	1	1	RE-BAR
18	191+10	C/L	1	1	RE-BAR
19	196+15	30' RT	1	1	RE-BAR
20	200+90	30' RT	1	1	RE-BAR
21	203+45	38' RT	1	1	RE-BAR
		TOTAL	21	21	

REINFORCED CONCRETE PIPE						
STATION	15" (L.F.)	18" (L.F.)	60" (L.F.)	15" F.E.S. (EA.)	18" F.E.S. (EA.)	60" F.E.S. (EA.)
2+68		40			2	
14+96		32			2	
57+67			72			2
57+83			72			2
133+82		96			2	
144+32	32			2		
149+18	32			2		
164+39		48			2	
203+17	32			2		
203+48		72			2	
TOTAL:	96	288	144	6	8	4

TEMPORARY EROSION CONTROL					
STATION	LOCATION	SILT FENCE (LIN FT)	STRAW BALE DITCH CHECKS (EACH)	ROCK DITCH CHECKS (EACH)	REMARKS
VARIOUS	VARIOUS	1270	40	11	LOCATIONS AS DIRECTED BY THE ENGINEER
	TOTAL	1270	40	11	

NO.	REVISION	DATE

COLE COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
5055 MONTICELLO ROAD
JEFFERSON CITY, MO 65109
PHONE - 573-636-3614 FAX - 573-636-8389

PROJECT:
SWIFT/BOISE BRULE ROAD
PROJECT QUANTITIES

STATE OF MISSOURI
ERIC LANDWEHR
NUMBER PE-2004017204
PROFESSIONAL ENGINEER
03-23-2016

DATE:
DWN BY:

PROJECT QUANTITIES

DRIVEWAY AGGREGATE - TYPE I						
STATION	LOCATION	WIDTH (FT)	LENGTH (FT)	THICKNESS (IN)	TOTAL (SY)	
2+00+/-	LT	24	17	4	45.3	
5+10	LT	24	17	4	45.3	
5+79	RT	28	17	4	53.0	
6+30+/-	LT	24	17	4	45.3	
10+00+/-	LT	26	17	4	49.1	
10+00+/-	RT	26	17	4	49.1	
12+00+/-	RT	26	17	4	49.1	
14+00+/-	RT	26	17	4	49.1	
18+30	LT	10	200	4	222.2	PARALLEL DRIVE
20+37	LT	26	17	4	49.1	
26+07	LT	32	17	4	60.5	
27+67	LT	20	17	4	37.8	
30+50+/-	LT	26	17	4	49.1	
33+53	LT	32	17	4	60.5	
37+00+/-	LT	26	17	4	49.1	
40+00+/-	LT	26	17	4	49.1	
42+34	LT	36	17	4	68.0	SUNRISE RIDGE (PVT)
49+50+/-	LT	30	60	4	200.0	RAMP DOWN TO FIELD
50+39	RT	36	17	4	68.0	
52+68	RT	36	17	4	68.0	
54+18	LT	26	17	4	49.1	
60+32	LT	24	17	4	45.3	
63+45	LT	56	20	4	124.4	DBL WIDE DRIVE
66+65	LT	24	17	4	45.3	
67+06	RT	32	17	4	60.5	
69+15+/-	RT	24	17	4	45.3	
69+29	LT	36	17	4	68.0	
70+50	RT	24	17	4	45.3	
72+29	RT	30	17	4	56.7	
72+75	LT	32	17	4	60.5	
73+31	RT	30	17	4	56.7	
73+92	LT	26	17	4	49.1	
73+98	RT	20	17	4	37.8	
76+36	LT	24	17	4	45.3	
77+40	RT	32	17	4	60.5	
77+50	LT	32	17	4	60.5	
78+05	RT	24	17	4	45.3	
82+50	LT	24	17	4	45.3	
83+75	LT	24	17	4	45.3	
85+39	RT	30	17	4	56.7	
85+68	LT	24	17	4	45.3	
85+94	RT	24	17	4	45.3	
86+11	LT	24	17	4	45.3	
94+22	RT	24	17	4	45.3	
94+60	LT	26	17	4	49.1	
96+64	LT	26	17	4	49.1	
99+48	RT	26	17	4	49.1	
100+03	RT	30	17	4	56.7	
101+15	LT	26	17	4	49.1	
101+99	RT	30	17	4	56.7	
103+29	RT	32	17	4	60.5	
104+49	RT	30	17	4	56.7	
105+00	RT	30	17	4	56.7	
111+80	LT	26	17	4	49.1	
112+58	RT	26	17	4	49.1	
112+58	LT	26	17	4	49.1	
120+25	RT	30	17	4	56.7	
120+60	LT	26	17	4	49.1	
122+04	RT	20	17	4	37.8	
127+64	LT	48	17	4	90.7	
127+91	RT	20	17	4	37.8	

DRIVEWAY AGGREGATE - TYPE I						
STATION	LOCATION	WIDTH (FT)	LENGTH (FT)	THICKNESS (IN)	TOTAL (SY)	
129+19	LT	28	17	4	52.9	
138+70	RT	20	17	4	37.8	
139+70	LT	26	17	4	49.1	
149+51	LT	24	17	4	45.3	
150+66	LT	20	17	4	37.8	
152+74	LT	20	17	4	37.8	
153+56	LT	20	17	4	37.8	
155+48	RT	24	17	4	45.3	
155+92	LT	20	17	4	37.8	
156+40	LT	22	17	4	41.6	
158+59	LT	20	17	4	37.8	
163+71	RT	26	17	4	49.1	
164+58	LT	60	17	4	113.3	
166+60	RT	26	17	4	49.1	
166+63	LT	32	17	4	60.4	
167+88	LT	32	17	4	60.4	
171+51	RT	26	17	4	49.1	
171+59	LT	54	17	4	102.0	DBL WIDE ENTRANCE
175+09	RT	26	17	4	49.1	
186+36	RT	26	17	4	49.1	
186+73	LT	26	17	4	49.1	
188+00+/-	RT	26	17	4	49.1	
195+48	RT	20	17	4	37.8	
196+26	LT	20	17	4	37.8	
196+29	RT	20	17	4	37.8	
197+01	RT	20	17	4	37.8	
197+84	RT	20	17	4	37.8	
198+60	RT	20	17	4	37.8	
200+31	RT	26	17	4	49.1	
201+10	RT	26	17	4	49.1	
202+37	RT	26	17	4	49.1	
ON PENNY HOLLOW		24	28	4	74.7	
				TOTAL	5143.7	

PRIVATE UTILITY CROSSING SLEEVE				
STATION	DIAMETER (IN)	LENGTH (FT)	NO. EACH	REMARKS
127+00	4	60	1	MIN 24" DEPTH
136+25	4	60	1	MIN 24" DEPTH
		TOTAL	2	

CORRUGATED METAL PIPE										
			PIPE DIAMETER				FLARED END SECTION (EA)			
#	STATION	LOCATION	15" (L.F.)	18" (L.F.)	24" (L.F.)	36" (L.F.)	18"	24"	36"	
1	2+00+/-	LT		28			2			
2	10+00+/-	LT	30							
3	10+00+/-	RT	30							
4	12+00+/-	RT	30							
5	14+00+/-	RT	30							
6	20+37	LT	30							
7	26+07	LT	30							
8	27+67	LT	24							
9	30+50+/-	LT	30							
10	33+53	LT	36							
11	37+00	LT	30							
12	40+00+/-	LT		30			2			
13	42+34	LT			40'			2		SUNRISE RIDGE (PVT) (USE POLYMER COATED)
14	50+39	RT	40							
15	52+68	RT	40							
16	54+18	LT	30							
17	60+32	LT		28			2			
18	63+45	LT		60			2			DBL DRIVE
19	66+65	LT	28							
20	67+06	RT	36							
21	69+29	LT	40							
22	72+29	RT	34							
23	72+75	RT	36							
24	73+31	RT	34							
25	73+92	LT	30							
26	73+98	RT	24							
27	77+40	RT	36							
28	78+05	RT	28							
29	82+50	LT	28							
30	83+75	LT	28							
31	85+68	LT	28							
32	86+11	LT	28							
33	94+60	LT	30							
34	96+64	LT	30							
35	101+15	LT	30							
36	103+29	RT	36							
37	111+80	LT	30							
38	112+58	RT	30							
39	112+58	LT	30							
40	112+25	RT				30			2	
41	120+60	LT			30			2		
42	127+64	LT			52			2		
43	128+00+/-	LT			98			2		CONNECT DRIVEWAYS
44	129+19	LT			32			2		
45	139+70	LT	30							
46	150+66	LT	24							
47	152+74	LT	24							
48	153+56	LT	24							
49	155+48	RT	28							
50	155+92	LT	24							
51	156+40	LT	26							
52	158+59	LT	24							
53	163+71	RT			30			2		
54	166+60	RT	30							
55	166+63	LT	36							
56	167+88	LT	36							
57	171+59	LT			58			2		DBL FIELD ENTRANCE
58	171+51	RT			30			2		
59	175+09	RT	30							
60	186+73	LT		30			2			
61	196+26	LT	24							
62	200+31	RT	30							
63	201+10	RT	30							
64	202+37	RT	30							
65	PENNY HOLLOW		12" DIA x 28'							
66	ROUTE H				4					
		TOTAL	1514	176	374	30	10	16	2	

NO.	REVISION	DATE

COLE COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
5055 MONTICELLO ROAD
JEFFERSON CITY, MO 65109
PHONE - 573-636-3614 FAX - 573-636-8389

PROJECT:
SWIFT/BOISE BRULE ROAD
PROJECT QUANTITIES

STATE OF MISSOURI
ERIC LANDWEHR
NUMBER PE-2004017701
PROFESSIONAL ENGINEER
03-23-2016

DATE:
DWN BY:

PROJECT QUANTITIES

REMOVAL OF IMPROVEMENTS		
STA - STA	LOCATION	REMARKS
2+58	C/L	18" x 26' CMP CROSSROAD CULVERT
14+96	C/L	18" x 30' CMP CROSSROAD CULVERT
20+37	LT	12" x 24' CMP DRIVEWAY CULVERT
26+06	LT	15" x 36' CMP DRIVEWAY CULVERT
27+67	LT	15" x 24' CMP DRIVEWAY CULVERT
33+53	LT	15" x 24' CMP DRIVEWAY CULVERT
42+34	LT	24" x 31 CMP PVT. ROAD CULVERT
50+39	RT	12" x 40' CMP DRIVEWAY CULVERT
57+55-58+45	C/L	17' x 90' LOW WATER X-ING CONC. SLAB
60+62	LT	18" x 24' CMP DRIVEWAY CULVERT
63+45	LT	18" x 60' CMP DRIVEWAY CULVERT
66+65	LT	15" x 25' CMP DRIVEWAY CULVERT
67+06	RT	15" x 36' CMP DRIVEWAY CULVERT
69+29	LT	15" x 40' CMP DRIVEWAY CULVERT
72+75	LT	15" x 36' CMP DRIVEWAY CULVERT
73+92	LT	12" x 36' CMP DRIVEWAY CULVERT
73+98	RT	12" x 24' CMP DRIVEWAY CULVERT
112+00	LT	15" x 24' CMP DRIVEWAY CULVERT
116+76-117+20	LT & RT	GUARD RAIL (LEAVE POSTS IN PLACE)
120+25	RT	36" x 30' CMP DRIVEWAY CULVERT
120+60	LT	24" x 28' CMP DRIVEWAY CULVERT
127+64	LT	24" x 52' CMP DRIVEWAY CULVERT
129+19	LT	24" x 32' CMP DRIVEWAY CULVERT
133+82	C/L	18" x 52' CMP CROSS ROAD CULVERT
144+32	C/L	18" x 36' CMP CROSS ROAD CULVERT
149+18	C/L	15" x 36' CMP CROSS ROAD CULVERT
150+66	LT	12" x 24' CMP DRIVEWAY CULVERT
152+74	LT	12" x 24' CMP DRIVEWAY CULVERT
153+56	LT	12" x 20' CMP DRIVEWAY CULVERT
155+92	LT	15" x 24' CMP DRIVEWAY CULVERT
156+40	LT	15" x 25' CMP DRIVEWAY CULVERT
158+69	LT	15" x 24' CMP DRIVEWAY CULVERT
163+71	RT	24" x 24' CMP DRIVEWAY CULVERT
164+39	C/L	18" x 48' CMP CROSS ROAD CULVERT
166+63	LT	15" x 36' CMP DRIVEWAY CULVERT
166+60	RT	24" x 25' CMP DRIVEWAY CULVERT
167+88	LT	15" x 30' CMP DRIVEWAY CULVERT
171+59	LT	24" x 57' CMP DRIVEWAY CULVERT
171+51	RT	24" x 29' CMP DRIVEWAY CULVERT
171+67-172+00	LT & RT	GUARD RAIL
172+61-172+94	LT & RT	GUARD RAIL
186+73	LT	18" x 30' CMP DRIVEWAY CULVERT
200+31	RT	15" x 24' CMP DRIVEWAY CULVERT
203+43	C/L	18" x 44' CMP CROSS ROAD CULVERT (RT H)
TOTAL: ONE (1) LUMP SUM		

DITCH STABILIZATION STRUCTURES			
LENGTH (FT)	WIDTH (FT)	TOTAL EACH	LOCATION
4	6	400	AS DIRECTED BY ENGINEER - SEE DETAIL SHEET
	TOTAL	400	

SEEDING, FERTILIZING, LIMING & MULCH							
STA to STA		LOCATION	LENGTH (FT)	WIDTH (FT)	SEEDING, FERTILIZING & LIMING (ACRES)	MULCHING - TYPE 4 (EMBEDDED) (ACRES)	REMARKS
0+12	203+64	LT & RT	20,352	34	15.89	15.89	SWIFT/BOISE BRULE ROAD
106+00	111+00	RT	500(avg)	50 (avg)	0.57	0.57	OBLITERATED ROADBED
111+00	114+00	LT	400(avg)	75 (avg)	0.69	0.69	OBLITERATED ROADBED
0+12	0+42	LT & RT	30	VARIES	0.02	0.02	PENNY HOLLOW INTERSECTION
50+50	53+00	RT	VARIES	VARIES	0.14	0.14	SWIFT ROAD INTERSECTION
132+80	134+10	RT	VARIES	VARIES	0.05	0.05	GROVE ROAD INTERSECTION
144+25	145+60	LT	VARIES	VARIES	0.04	0.04	BLUE RIDGE ROAD INTERSECTION
203+20	203+64	LT & RT	VARIES	VARIES	0.10	0.10	ROUTE H INTERSECTION
SUB TOTAL					17.5	17.5	
MINUS DRIVEWAY AREA					–1.04	–1.04	SEE DRIVEWAY AREA (SQ YDS)
SUB TOTAL					16.46	16.46	

LINEAR GRADING		
STA - STA	LENGTH (FT)	STATIONS
0+12 - 172+14	17,202.0	172.0
172+47 - 203+65	3,118.0	31.2
TOTAL	20,320.0	203.2

SUBGRADE SCARIFYING		
STA - STA	LENGTH (FT)	STATIONS
0+12 - 57+00	5,688.0	56.9
60+00 - 105+50	4,550.0	45.5
115+00 - 172+14	5,714.0	57.1
172+47 - 203+65	3,118.0	31.2
TOTAL	19,070.0	190.7

SUBGRADE STABILIZATION				
STA - STA	LENGTH (FT)	AVG. WIDTH (FT)	THICKNESS (IN)	CU. YDS.
45+00 - 48+00	300	31	18	516.7
112+00 - 119+00	700	31	18	1,205.6
169+00 - 174+00	500	31	18	861.1
ADDITIONAL	500	31	18	861.1
TOTAL	2,000		TOTAL	3,444.5

GEOTEXTILE FABRIC			
STA - STA	LENGTH (FT)	WIDTH (FT)	SQ. YDS.
45+00 - 48+00	300	34	1,133.3
112+00 - 119+00	700	34	2,644.4
169+00 - 174+00	500	34	1,888.9
ADDITIONAL	500	34	1,888.9
TOTAL	2,000		7,555.5

FOUR (4) INCH PAVEMENT MARKING PAINT		
STA - STA	WHITE (LINEAR FT x 2)	YELLOW (LINEAR FT x 2)
0+12 - 203+64	40,704	40,704
TOTAL	40,704	40,704

GUARDRAIL										
LOCATION	TOTAL LENGTH (FT)	TYPE A GUARDRAIL (6' POSTS) (LIN. FT.)	TYPE E GUARDRAIL (NO POSTS) (LIN. FT.)	TYPE A CRASHWORTHY END TERMINAL (50' LENGTH) (EACH)	TYPE A CRASHWORTHY END TERMINAL (25' LENGTH) (EACH)	BRIDGE ANCHOR SECTION (THRIE BEAM) (EACH)	BRIDGE ANCHOR SECTION (CURB TYPE) (EACH)	TRANSITION SECTION (6.25' POSTS) (EACH)	ASYMETRICAL TRANSITION SECTION (6.25' POSTS) (EACH)	NOTES
SITE 1 LT	250	150		2						MAY HAVE TO SET POSTS IN CONCRETE OR NEST QUARDRAIL OVER BOX CULVERT
SITE 1 RT	200	100		2						MAY HAVE TO SET POSTS IN CONCRETE OR NEST QUARDRAIL OVER BOX CULVERT
SITE 2 LT	269	75		2		2			2	USE EXISTING THRIE BEAM RAIL ON BRIDGE
SITE 2 RT	294	100	44	2		2			2	REPLACE 44 FT OF EXIST. GALVANIZED C8x11.5 RAIL ON TOP OF POSTS AND EXISTING THRIE BEAM RAIL
SITE 3 LT	162.5	50		2	1		2	2		TL-2 CRASHWORTHY END TERMINAL
SITE 3 RT	187.5	50		1			2	2		
	TOTAL	525	44	11	1	4	4	4	4	

NO.	REVISION	DATE

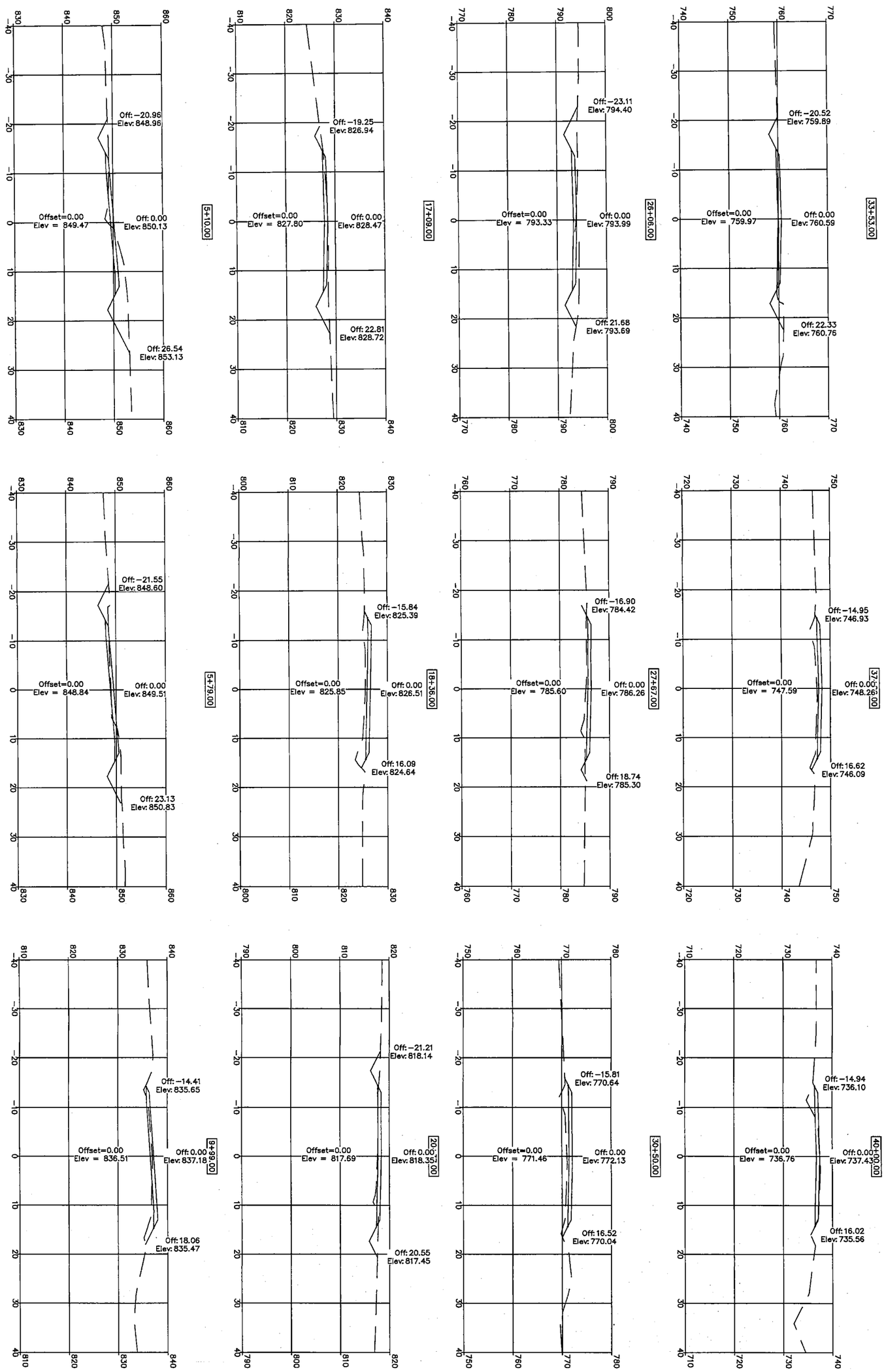
COLE COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
5055 MONTICELLO ROAD
JEFFERSON CITY, MO 65109
PHONE – 573-636-3614 FAX – 573-636-8389

PROJECT:
SWIFT/BOISE BRULE ROAD
PROJECT QUANTITIES

STATE OF MISSOURI
ERIC LANDWEHR
NUMBER PE-2004027204
PROFESSIONAL ENGINEER
03-23-2016

DATE:
DWN BY:

SHEET 3 OF 3

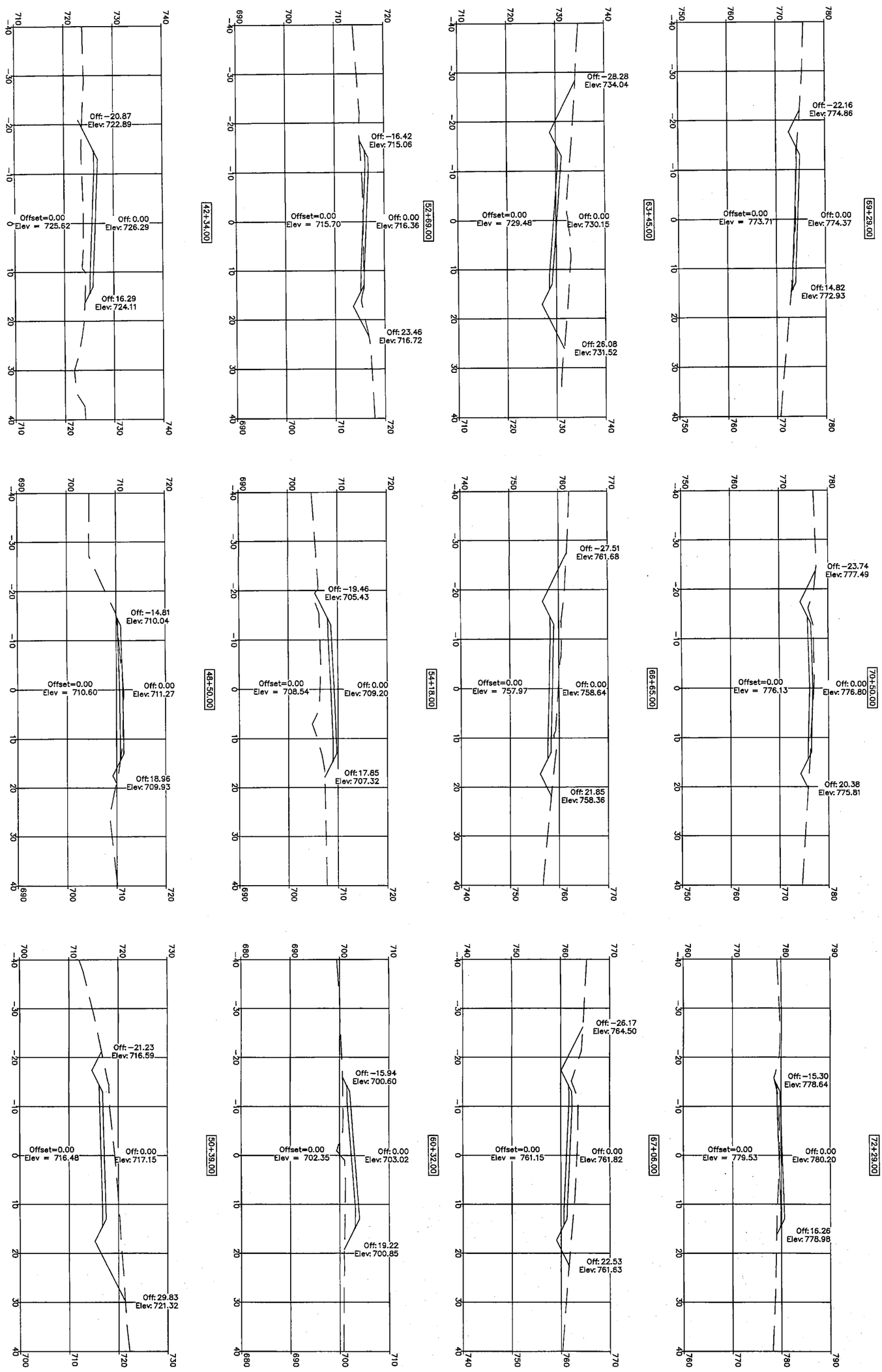


RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title	SWIFT-BOISE BRULE CROSS SECTIONS STA 5+10 TO STA 40+00	Date	JULY 2015	Page
Owner	COLE COUNTY	Revision		1

STATE OF MISSOURI RICHARD A. MULDOON NUMBER E-24525 7-31-15 PROFESSIONAL ENGINEER



RICK MULDOON
ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE
CROSS SECTIONS
STA 42+34 TO STA 72+29

Owner: COLE COUNTY

STATE OF MISSOURI
RICHARD A. MULDOON
NUMBER E-24258
PROFESSIONAL ENGINEER

Date: JULY 2015
Revision

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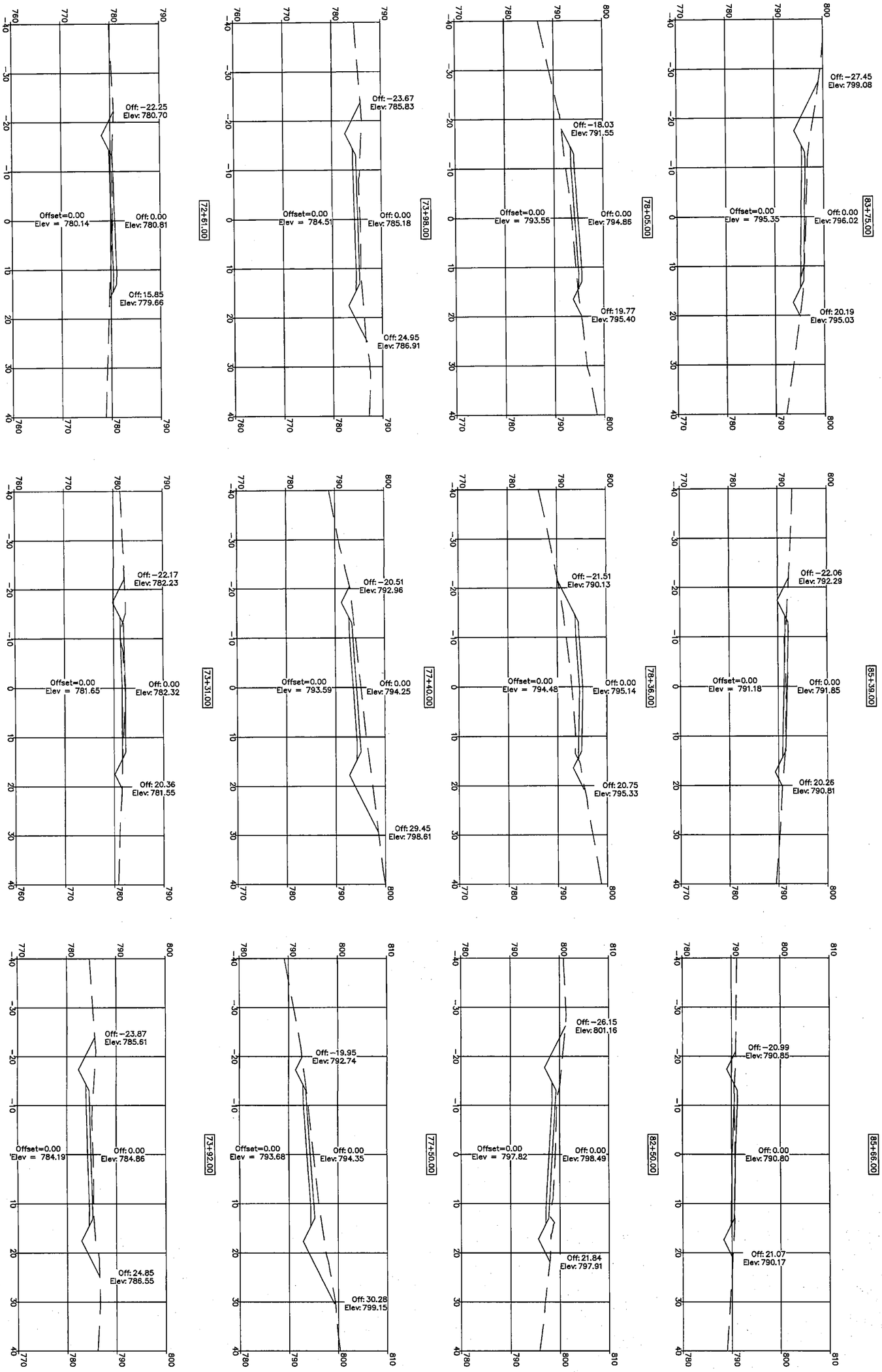

RICK MULDOON
ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title
SWIFT-BOISE BRULE
CROSS SECTIONS
STA 72+61 TO STA 85+66

Owner
COLE COUNTY

STATE OF MISSOURI
RICHARD J. MULDOON
NUMBER E-27256
7-31-15
PROFESSIONAL ENGINEER

Date
JULY 2015
Revision

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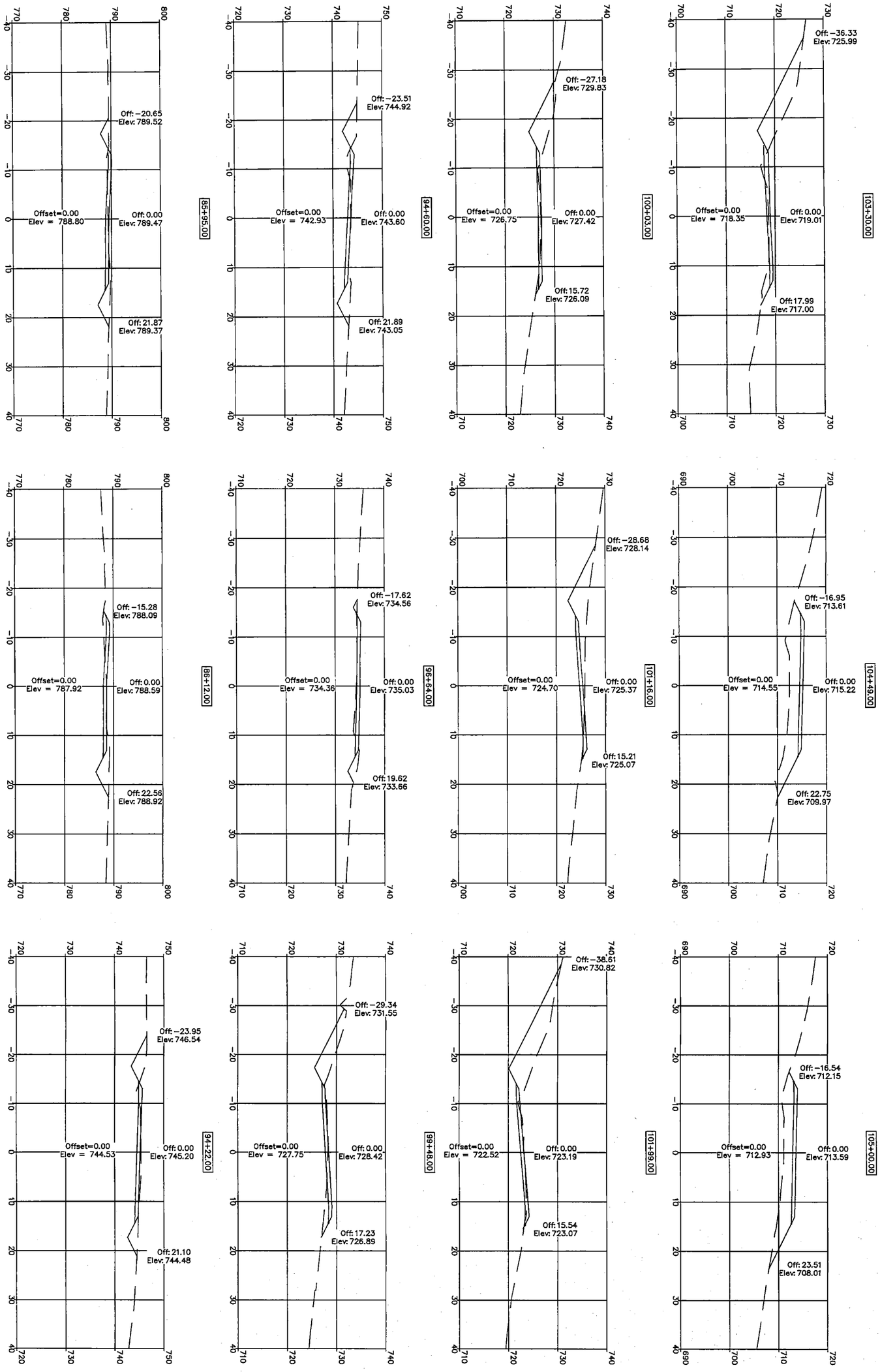
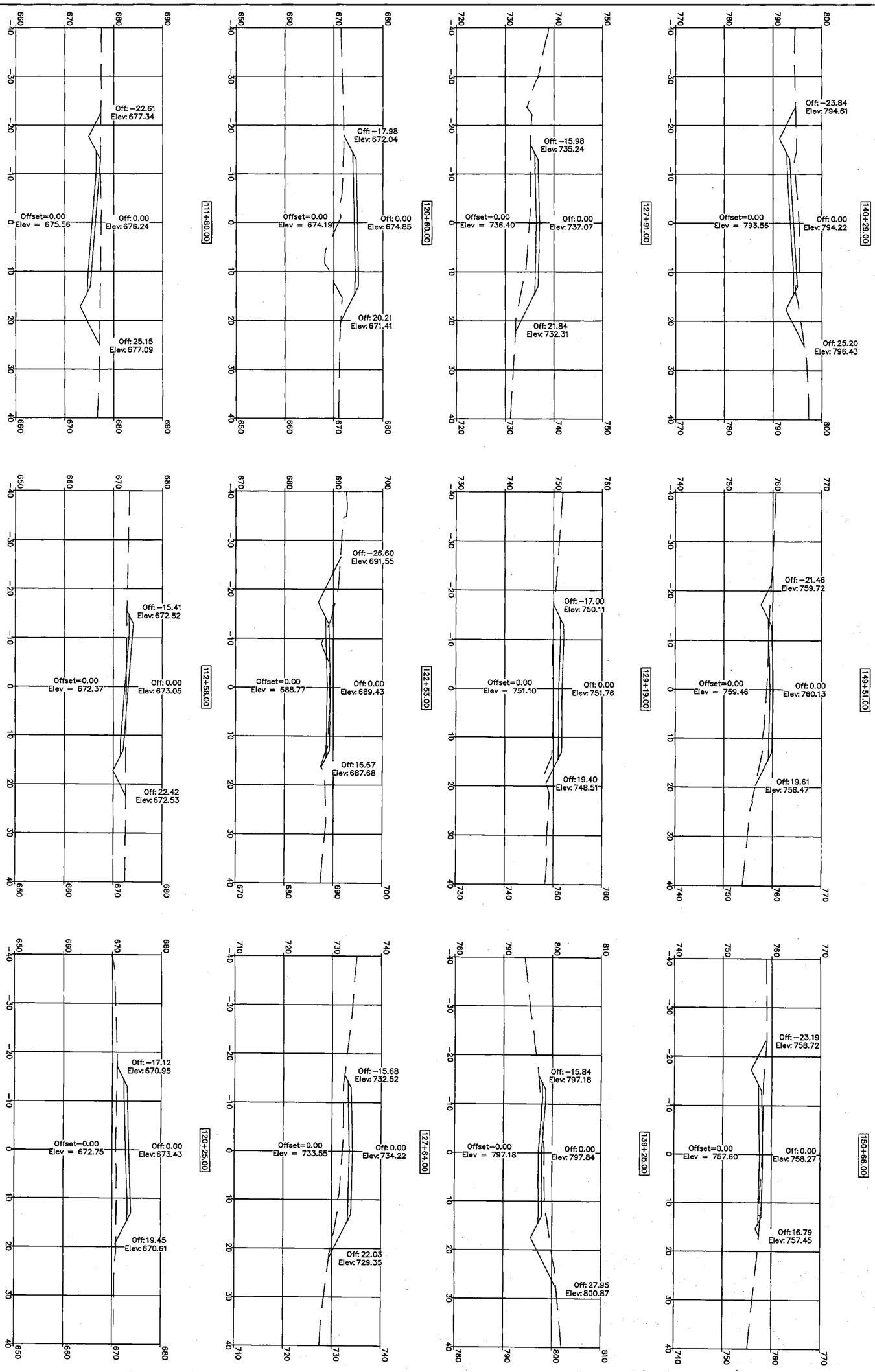


RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title	SWIFT-BOISE BRULE CROSS SECTIONS STA 85+95 TO STA 105+000	STATE OF MISSOURI RICHARD A. MULDOON NUMBER E-24259 PROFESSIONAL ENGINEER	Date JULY 2015	Page 4
Owner	COLE COUNTY		Revision	



RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 111+80 TO STA 150+66

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON — NUMBER E-24259 — 31-15 — PROFESSIONAL ENGINEER

Date: JULY 2015

Revision

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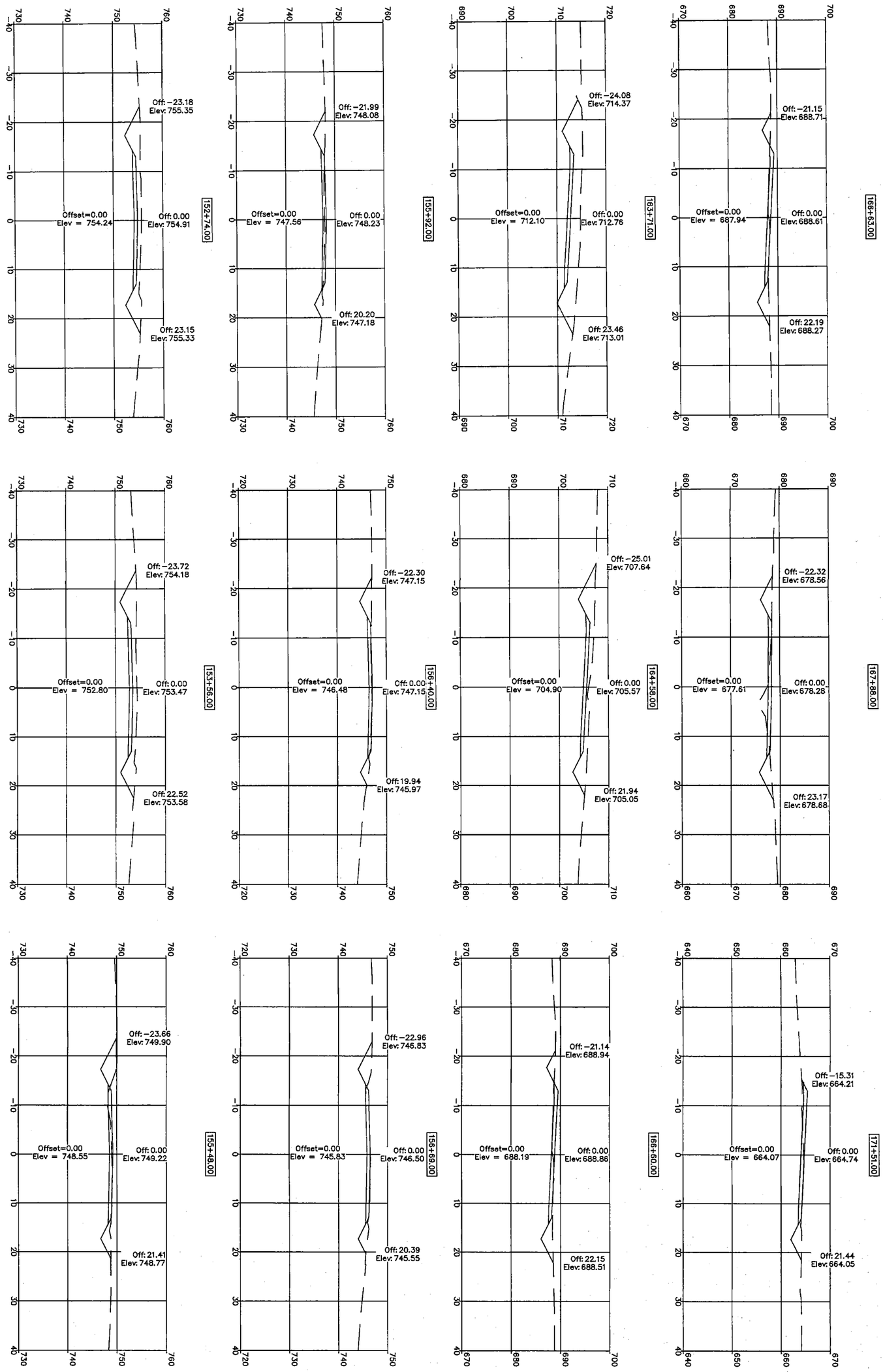

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 152+74 TO STA 171+51

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON NUMBER E-24259 — PROFESSIONAL ENGINEER

Date: JULY 2015

Revision

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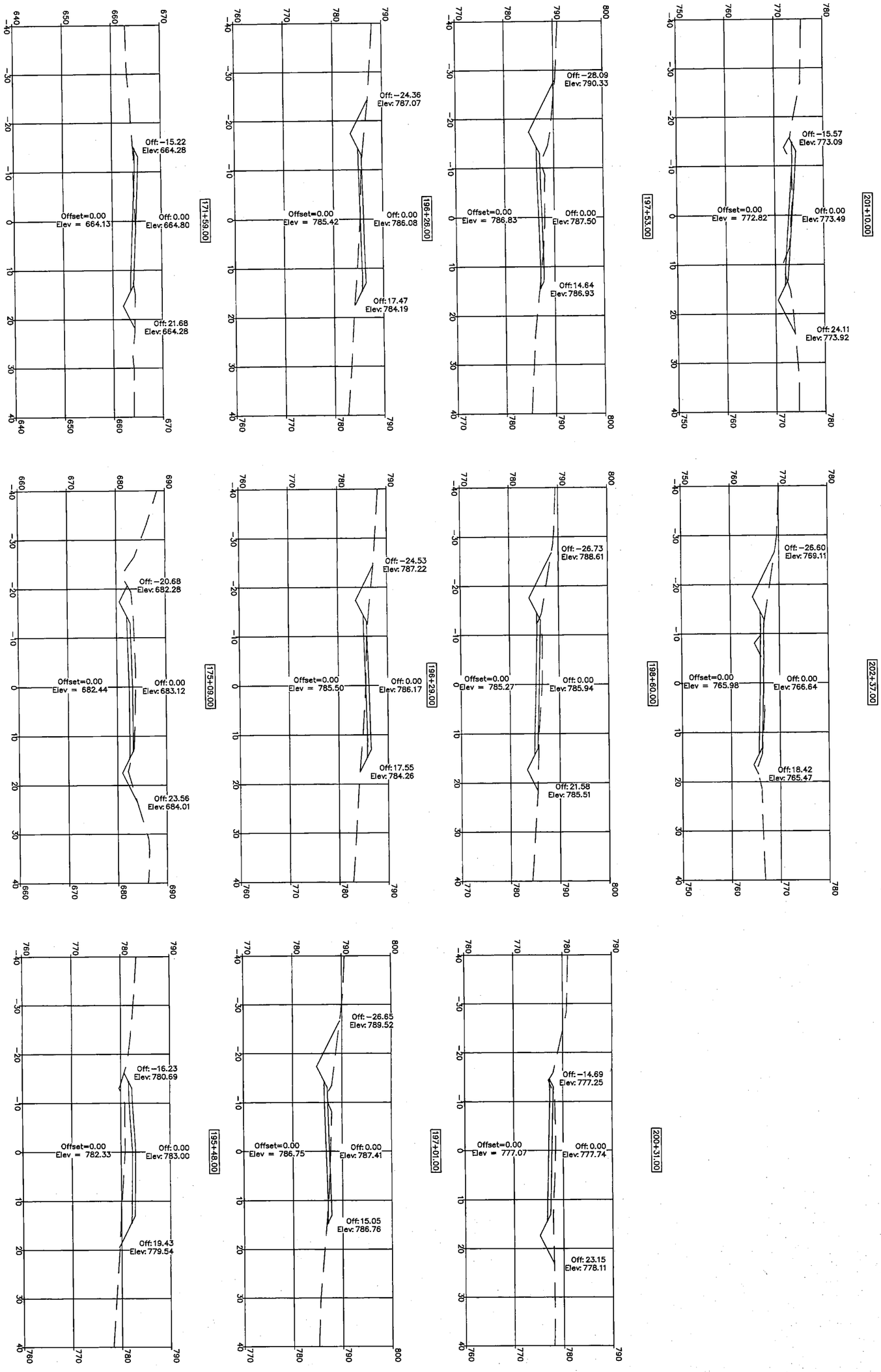

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 171+59 TO STA 202+37

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON — NUMBER E-24239 — PROFESSIONAL ENGINEER

Date: JULY 2015

Revision

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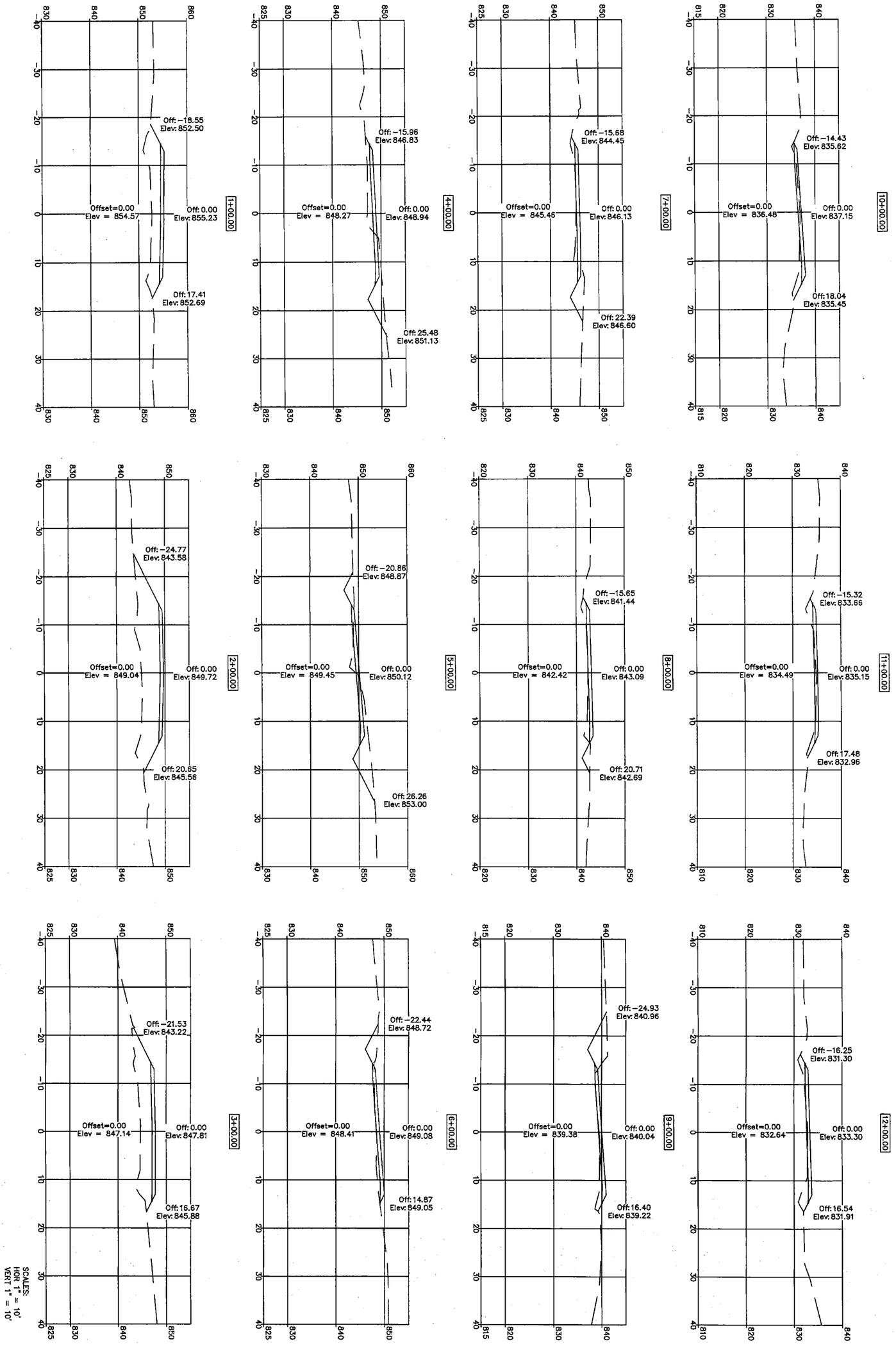

RICK MULDOON
ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE
CROSS SECTIONS
STA 1+00 TO STA 12+00

Owner: COLE COUNTY

STATE OF MISSOURI
RICHARD A. MULDOON
NUMBER E-24359
7-31-15
PROFESSIONAL ENGINEER

Date: MAY 2015
Revision

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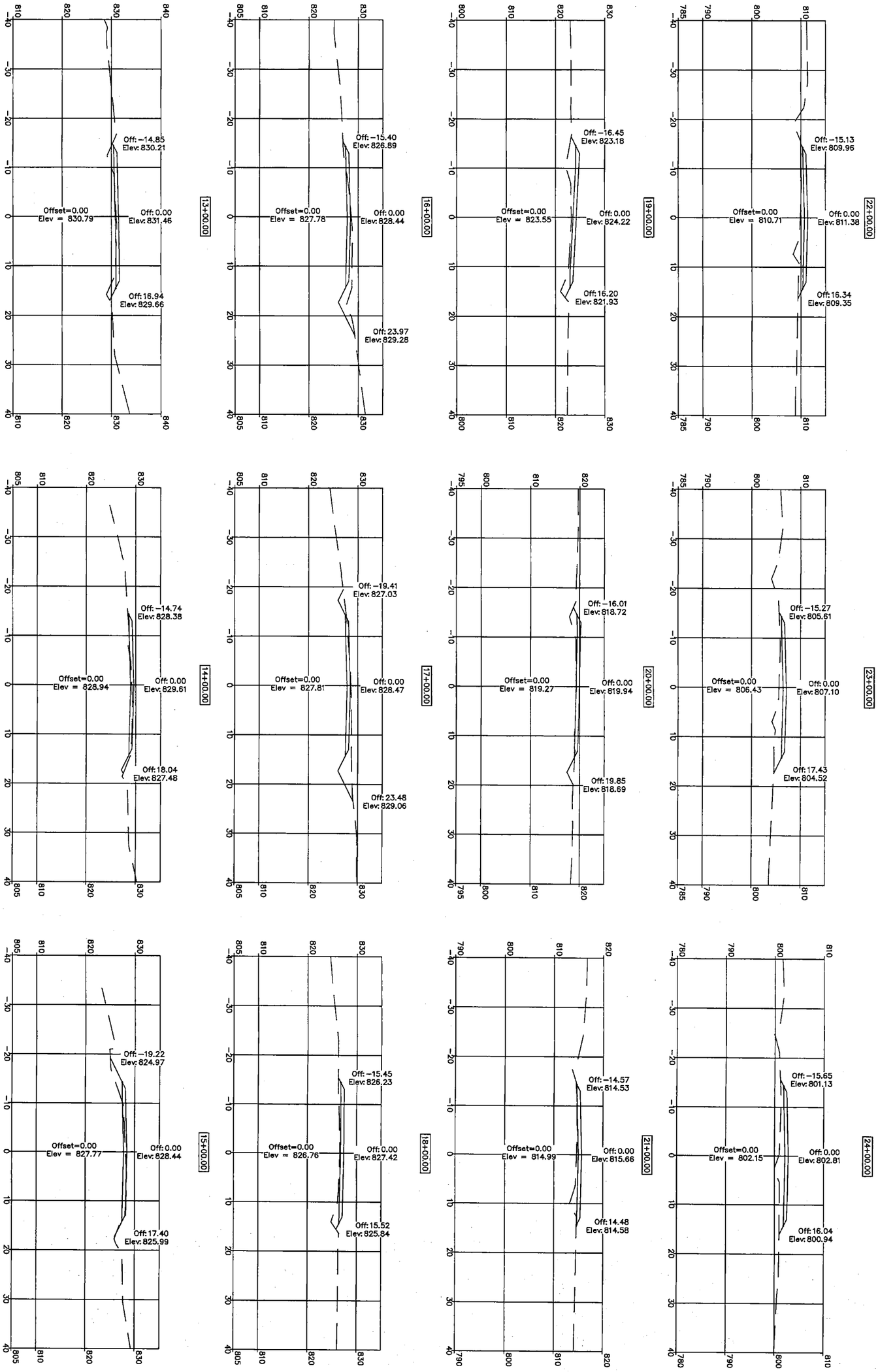

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 12+00 TO STA 24+00

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON NUMBER E-24259 — PROFESSIONAL ENGINEER

Date: MAY 2015

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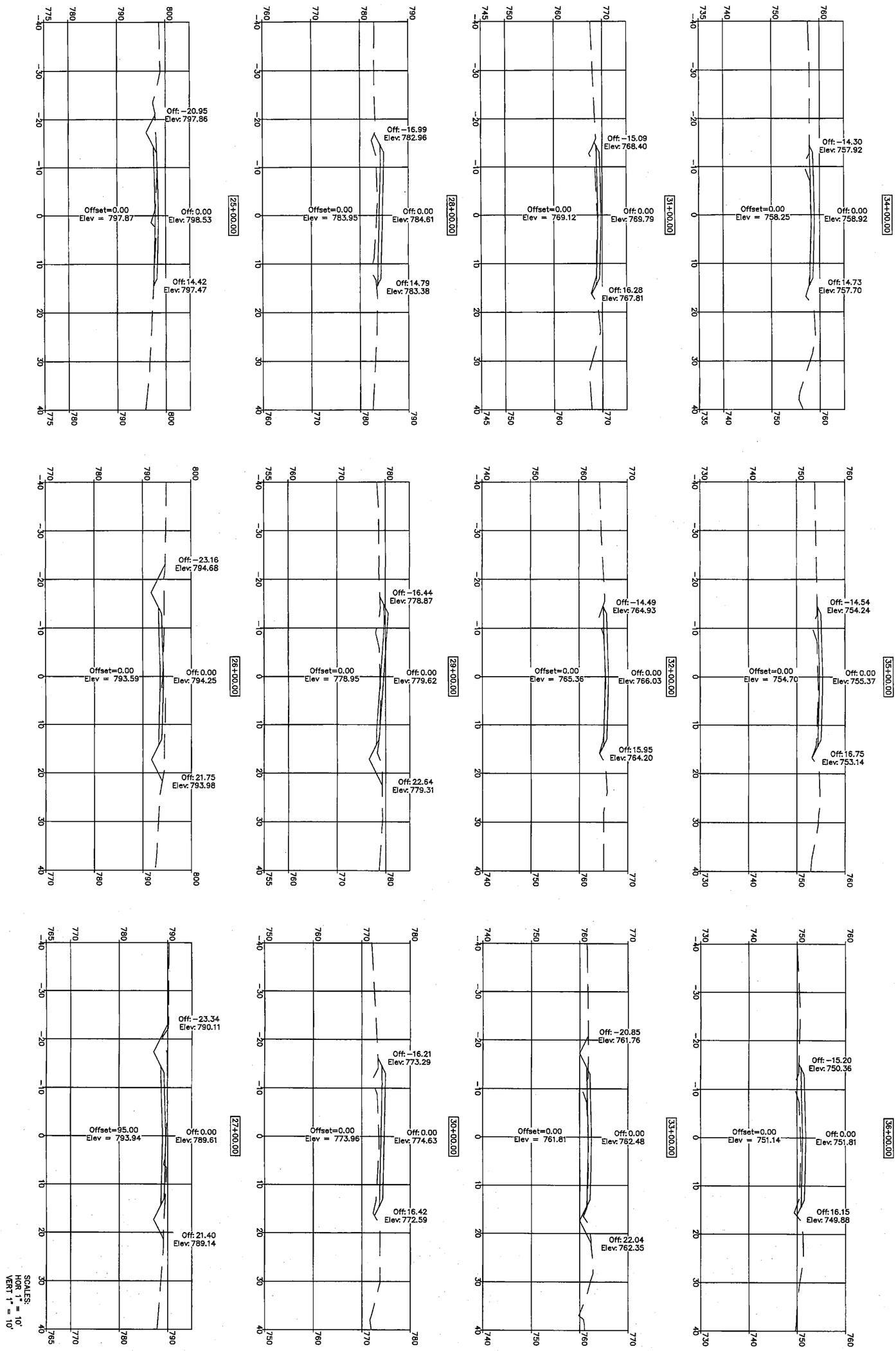

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 24+00 TO STA 36+00

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON — NUMBER E-24259 — PROFESSIONAL ENGINEER

Date: MAY 2015

Revision

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SCALES:
HOR 1" = 10'
VERT 1" = 10'

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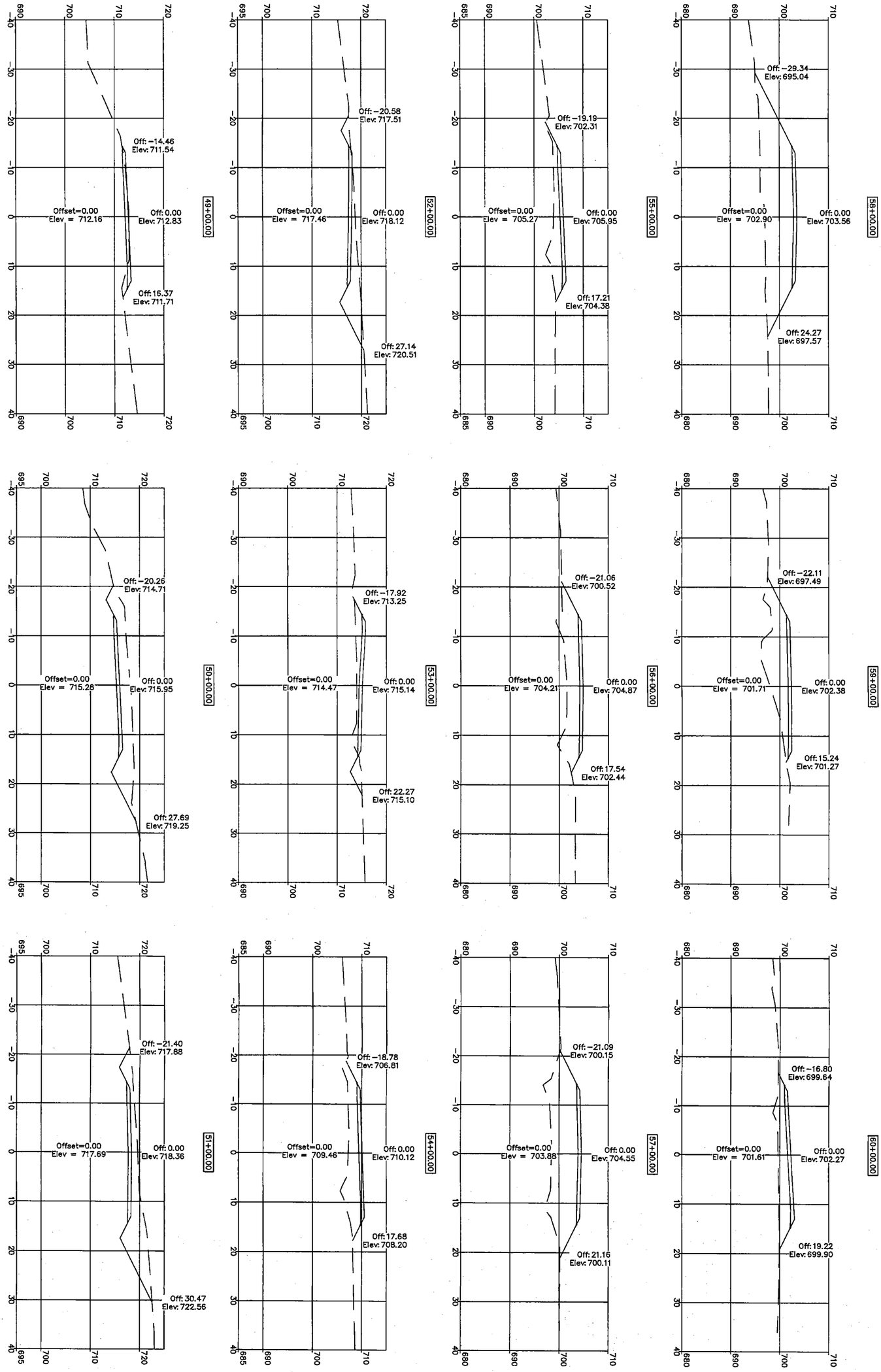
Date MAY 2015
Revision

STATE OF MISSOURI RICHARD J. MULDOON NUMBER E-24259 PROFESSIONAL ENGINEER

Title SWIFT-BOISE BRULE CROSS SECTIONS STA 36+00 TO STA 48+00

Owner COLE COUNTY

RICK MULDOON ENGINEERING
6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

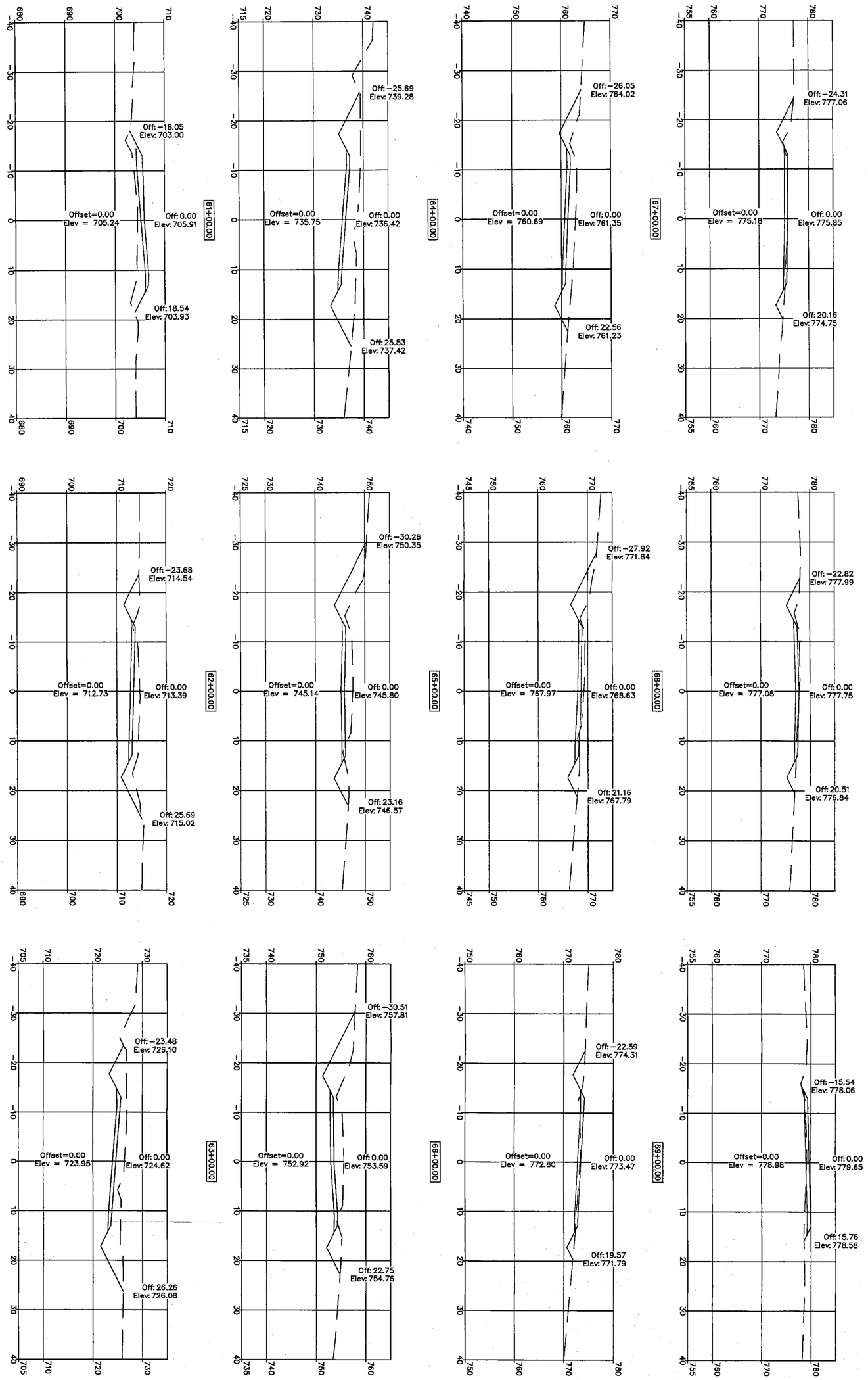
Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 48+00 TO STA 60+00

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON — NUMBER E-24258 — PROFESSIONAL ENGINEER

Date: MAY 2015

Revision



RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 61+00 TO STA 72+00

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON NUMBER E-24259 — PROFESSIONAL ENGINEER

Date: MAY 2015

Revision

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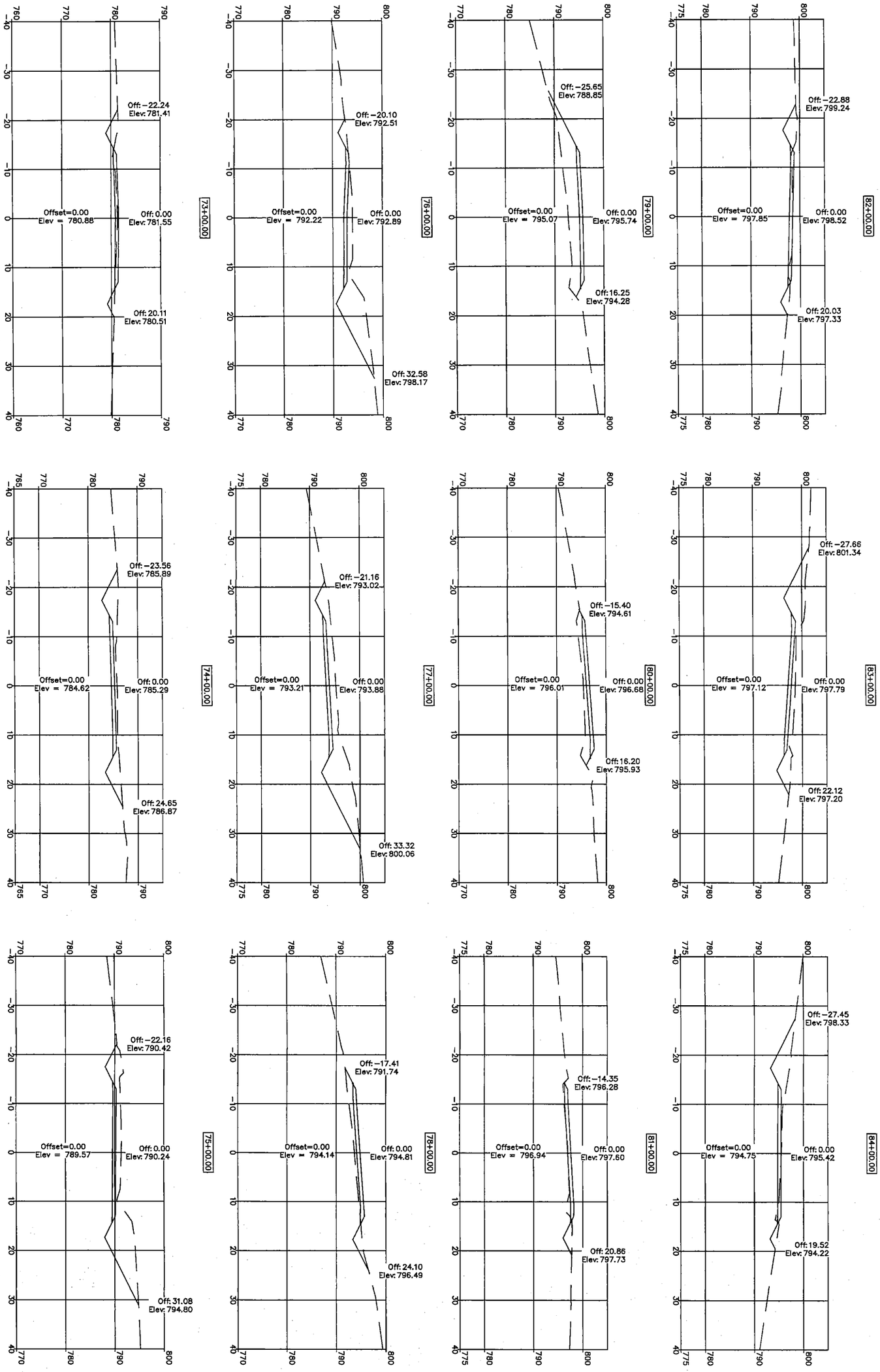


SCALES:
HOR 1" = 10'
VERT 1" = 10'

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

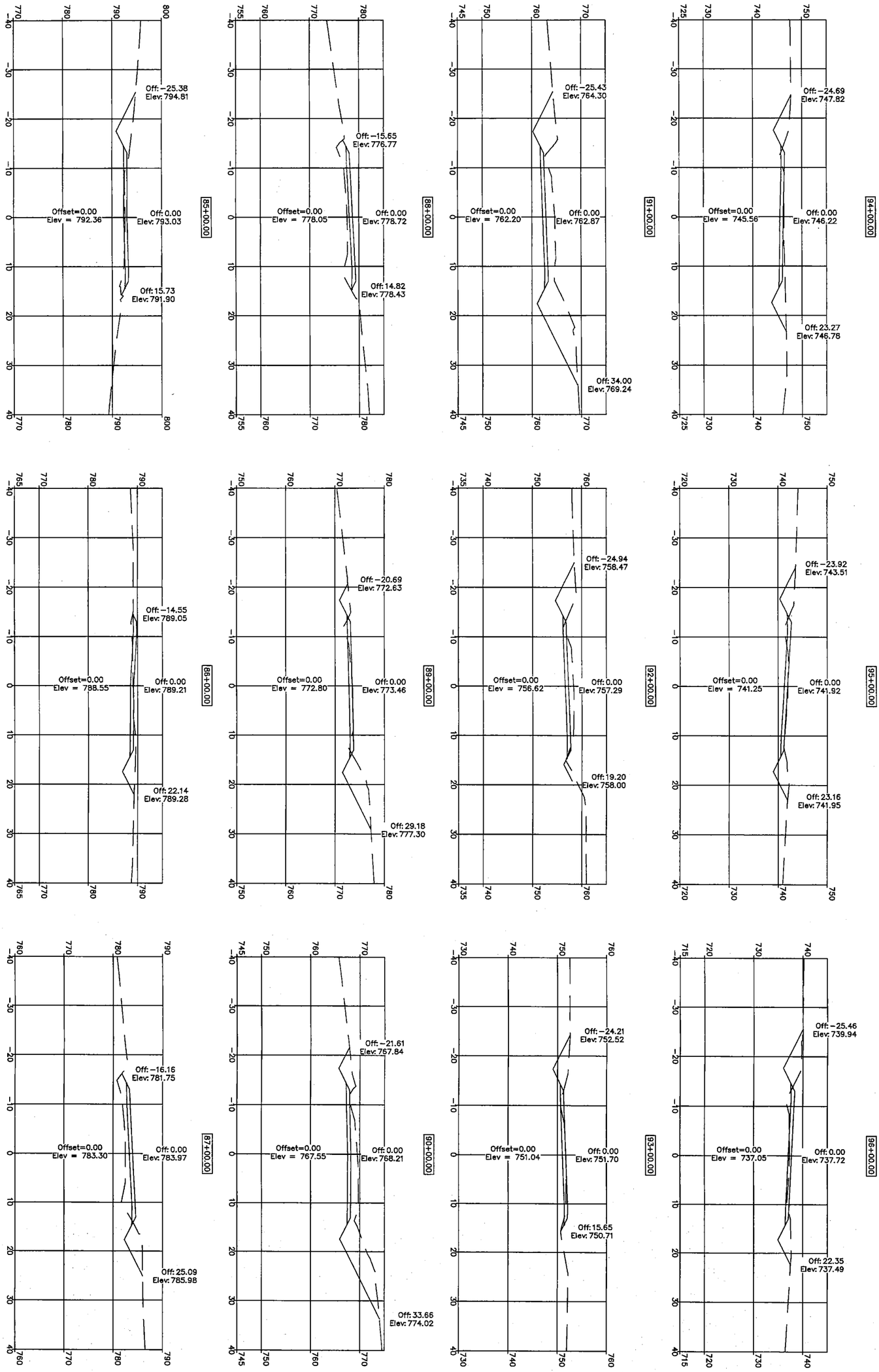
Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 73+00 TO STA 84+00

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON NUMBER E-24229 — PROFESSIONAL ENGINEER

Date: MAY 2015

Revision



SCALES:
HOR 1" = 10'
VERT 1" = 10'

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 85+00 TO STA 96+00

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON — NUMBER E-24259 — PROFESSIONAL ENGINEER

Date: MAY 2015

Revision

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SCALES:
HOR 1" = 10'
VERT 1" = 10'

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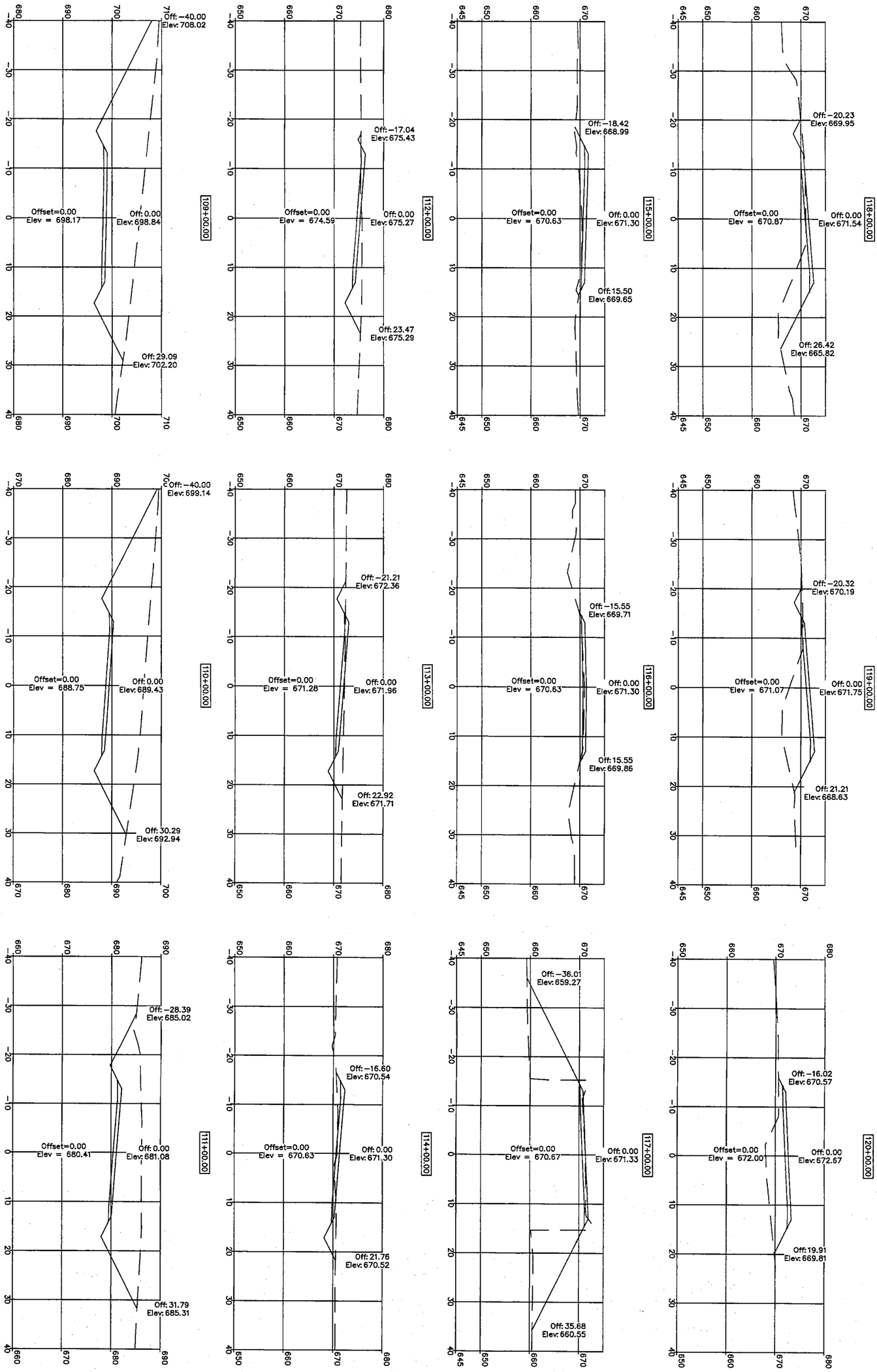
Date MAY 2015
Revision

STATE OF MISSOURI RICK MULDOON NUMBER E-31745 PROFESSIONAL ENGINEER

Title SWIFT-BOISE BRULE CROSS SECTIONS STA 97+00 TO STA 108+00

Owner COLE COUNTY

RICK MULDOON ENGINEERING
8920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



SCALES:
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VERT 1" = 10'

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 109+00 TO STA 120+00

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON NUMBER E-24259 — PROFESSIONAL ENGINEER

Date: MAY 2015

Revision

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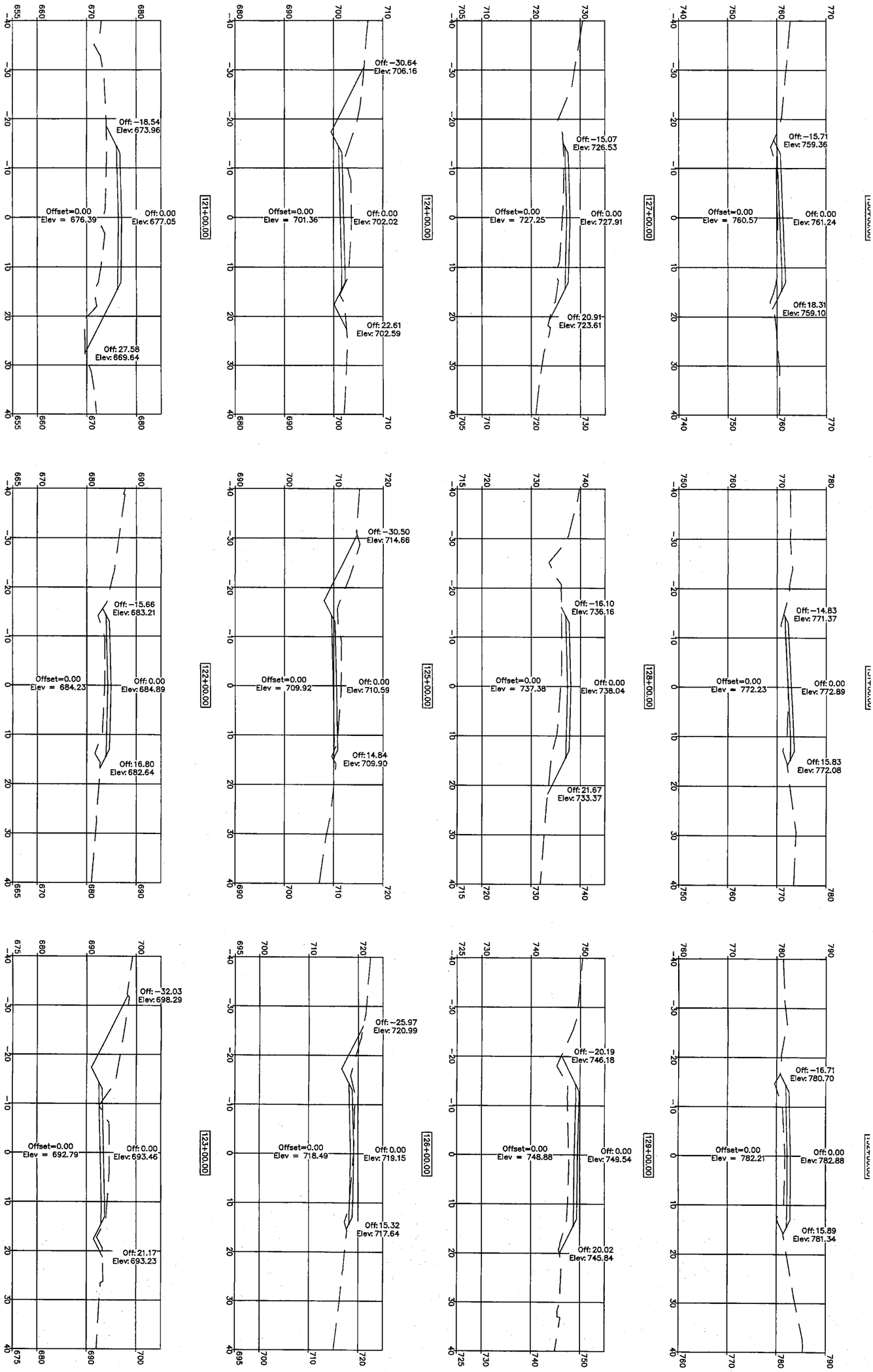

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 121+00 TO STA 132+00

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON — NUMBER E-24259 — PROFESSIONAL ENGINEER

Date: MAY 2015

Revision

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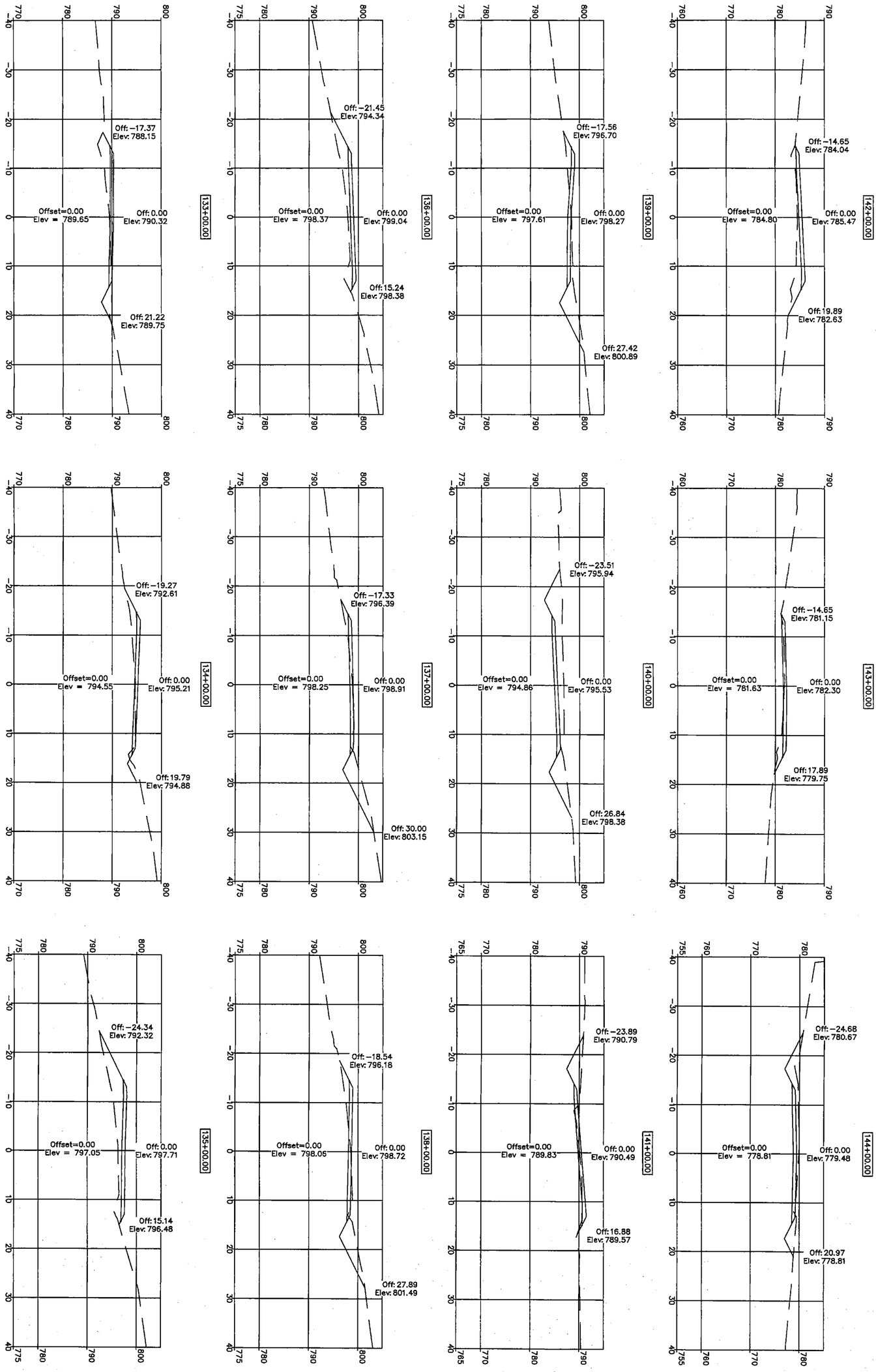

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 133+00 TO STA 144+00

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON NUMBER E-24291 — PROFESSIONAL ENGINEER

Date: MAY 2015

Revision

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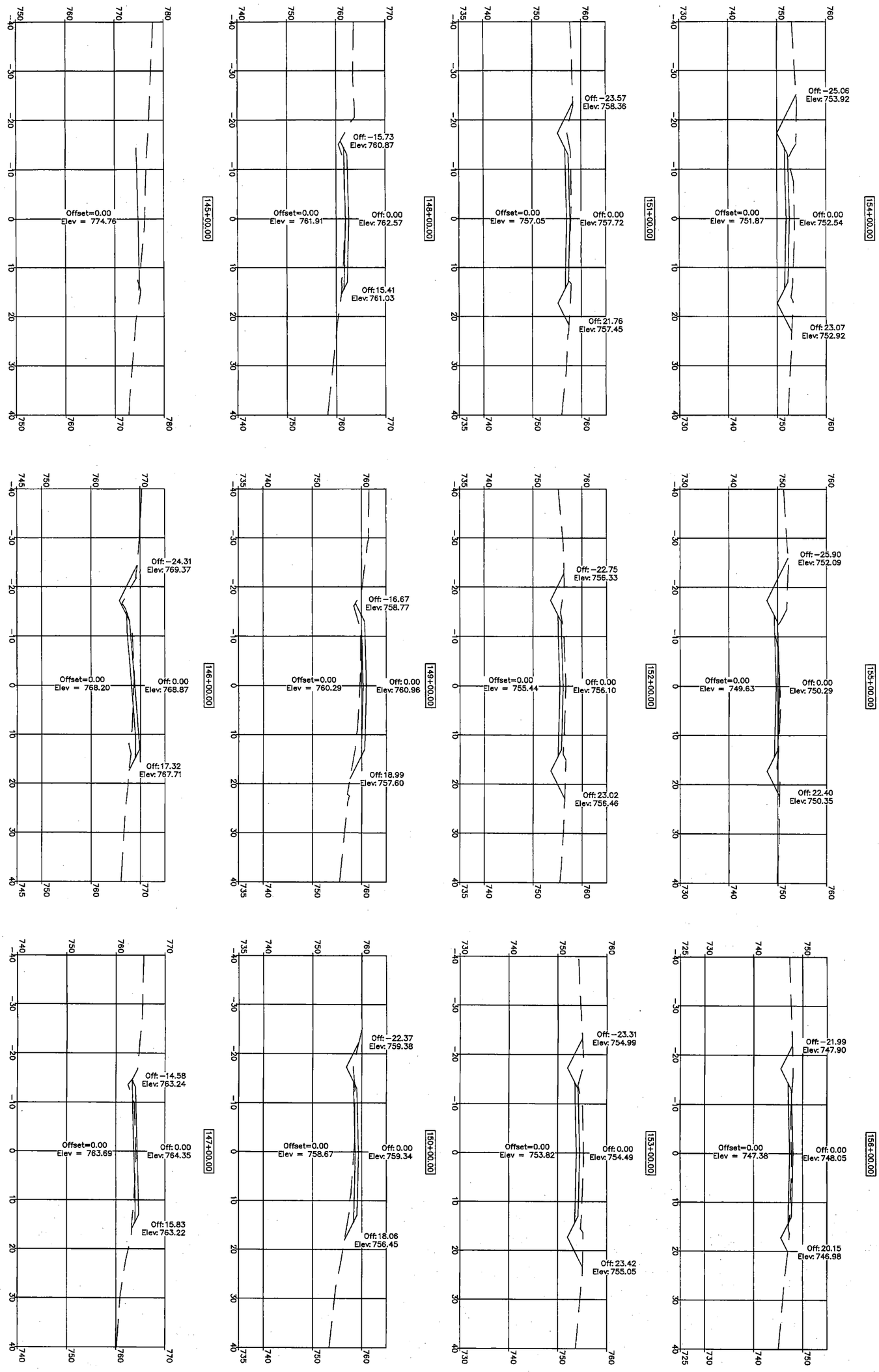
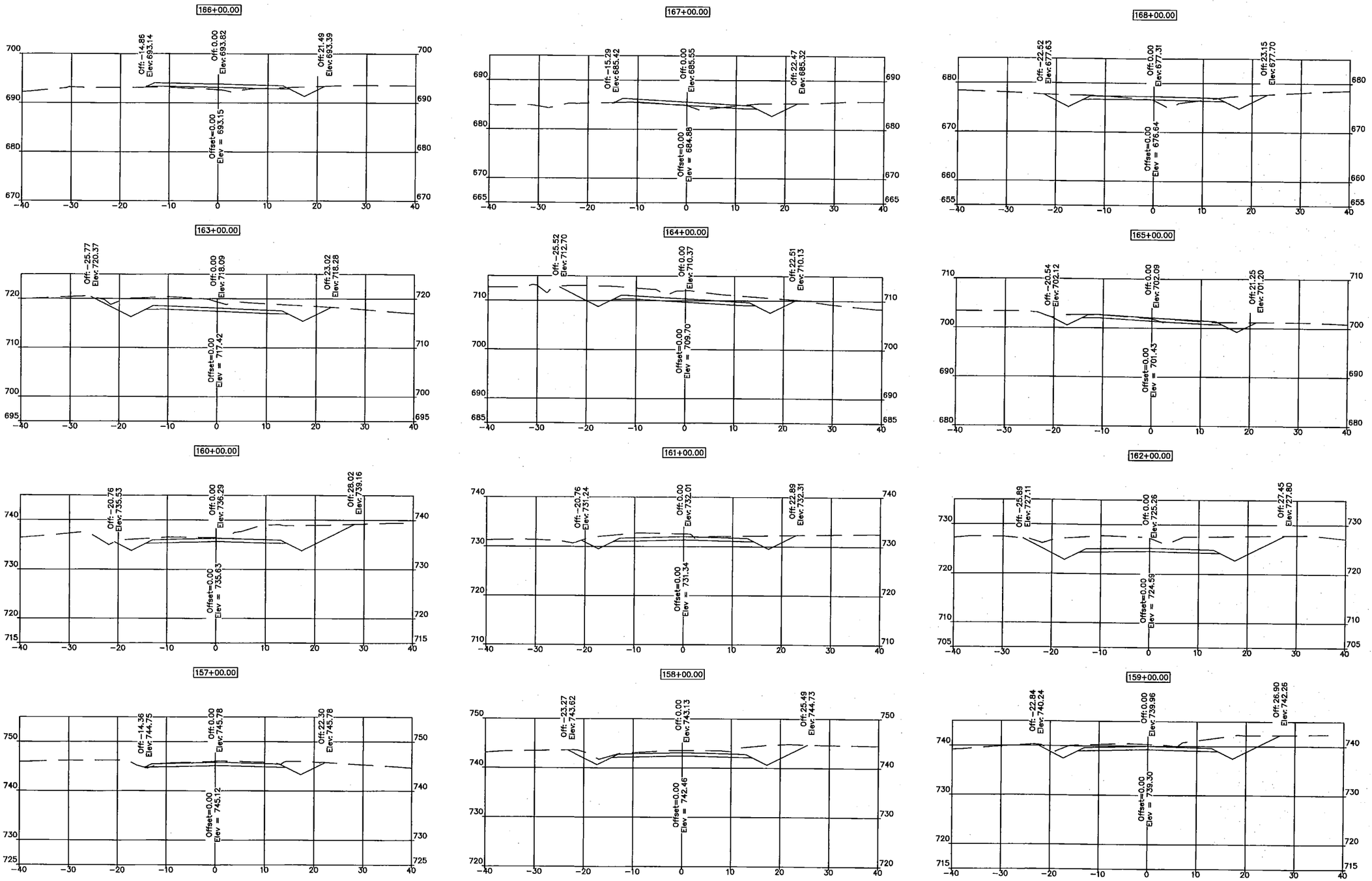


SCALES:
HOR 1" = 10'
VERT 1" = 10'

RICK MULDOON ENGINEERING 6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300	Title SWIFT-BOISE BRULE CROSS SECTIONS STA 145+00 TO STA 156+00 Owner COLE COUNTY	STATE OF MISSOURI RICHARD A. MULDOON NUMBER E-24259 PROFESSIONAL ENGINEER	Date MAY 2015 Revision	Page 13



SCALES:
HOR 1" = 10'
VERT 1" = 10'

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Date MAY 2015

Revision

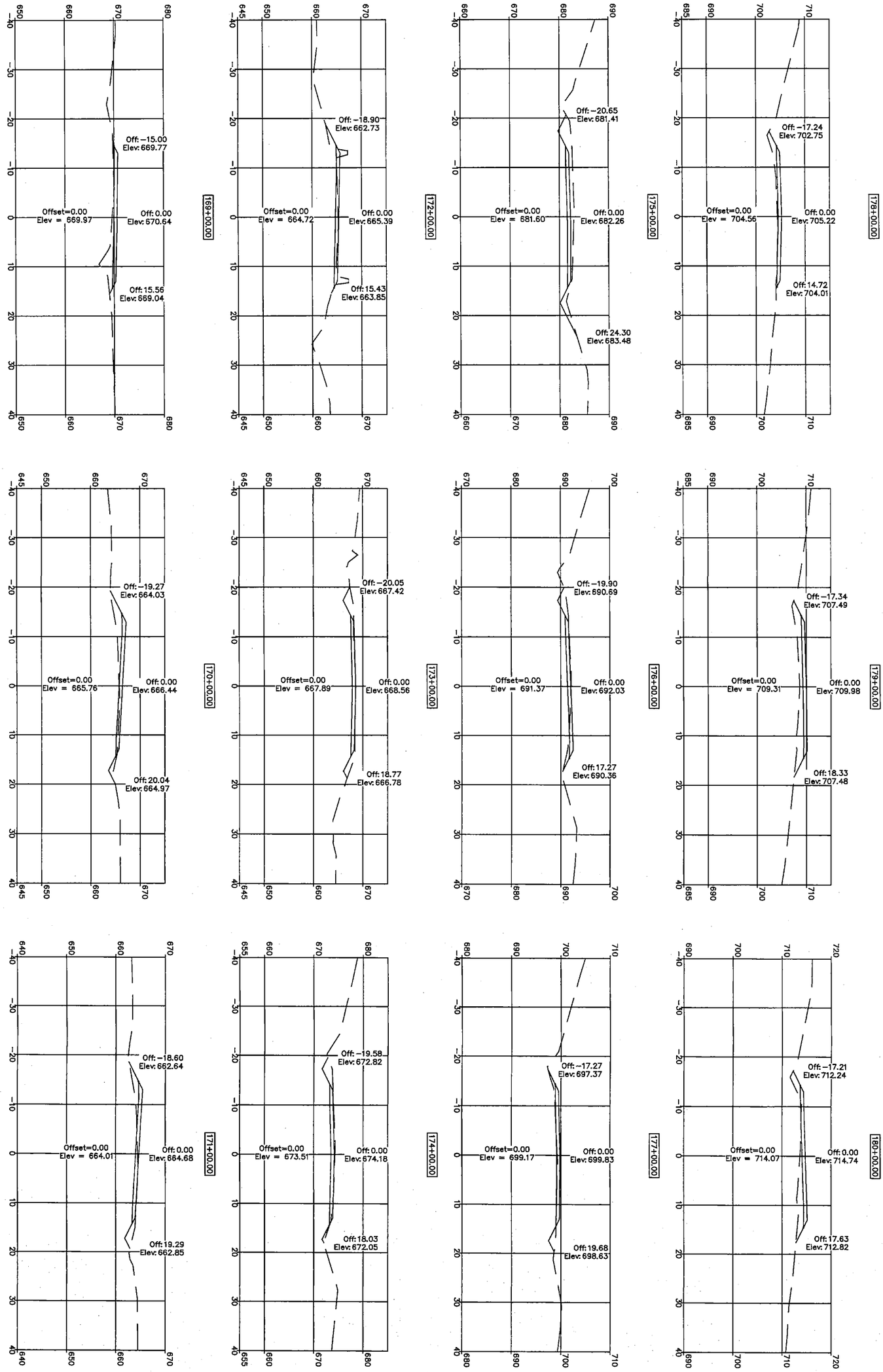
STATE OF MISSOURI RICHARD A. MULDOON NUMBER F-32259 PROFESSIONAL ENGINEER

Title SWIFT-BOISE BRULE CROSS SECTIONS STA 157+00 TO STA 168+00

Owner COLE COUNTY

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300



RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 169+00 TO STA 180+00

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON NUMBER E-24349 — PROFESSIONAL ENGINEER

Date: MAY 2015

Revision

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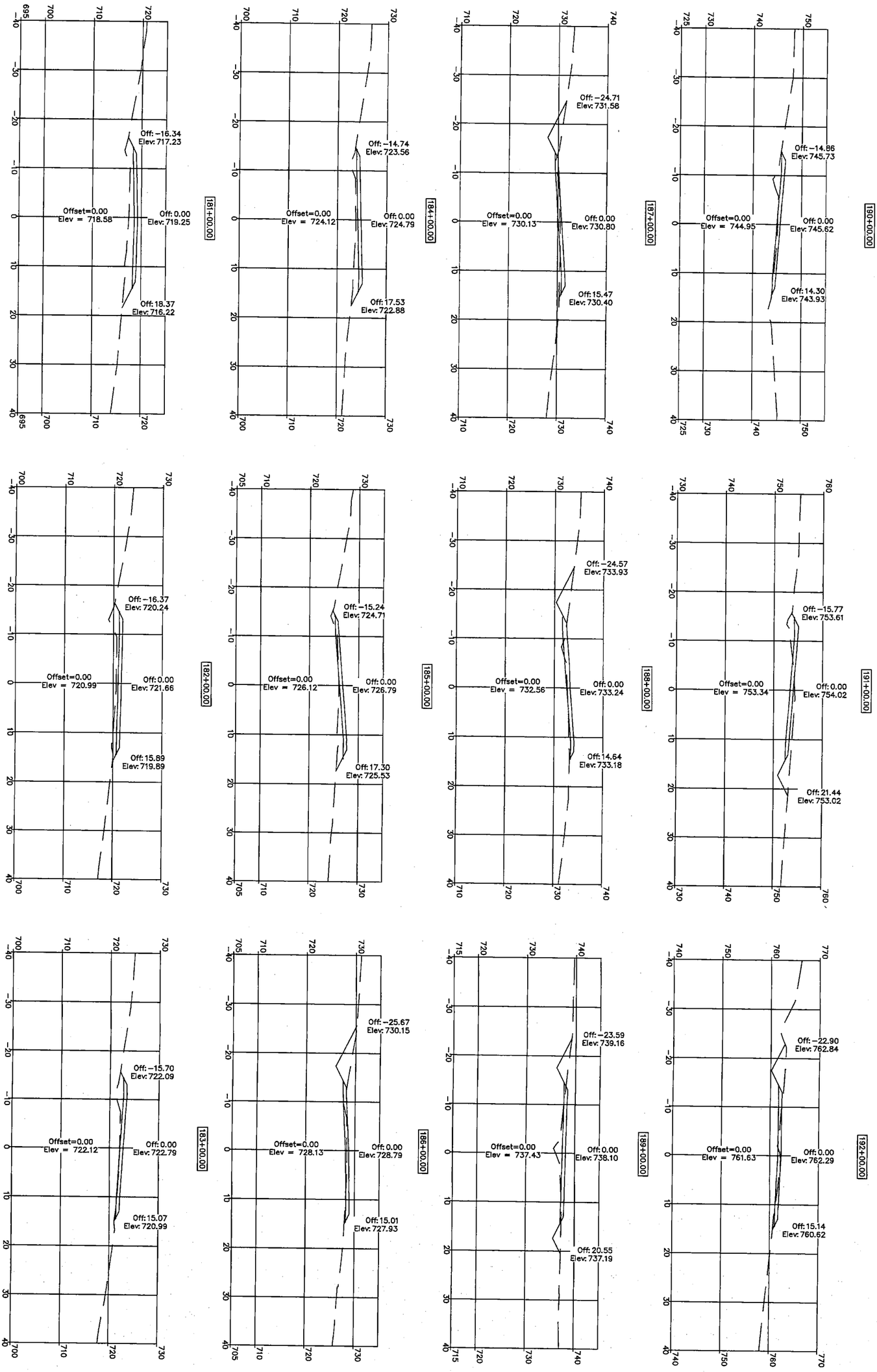

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 181+00 TO STA 192+00

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON NUMBER E-24229 — PROFESSIONAL ENGINEER — 7-7-15

Date: MAY 2015

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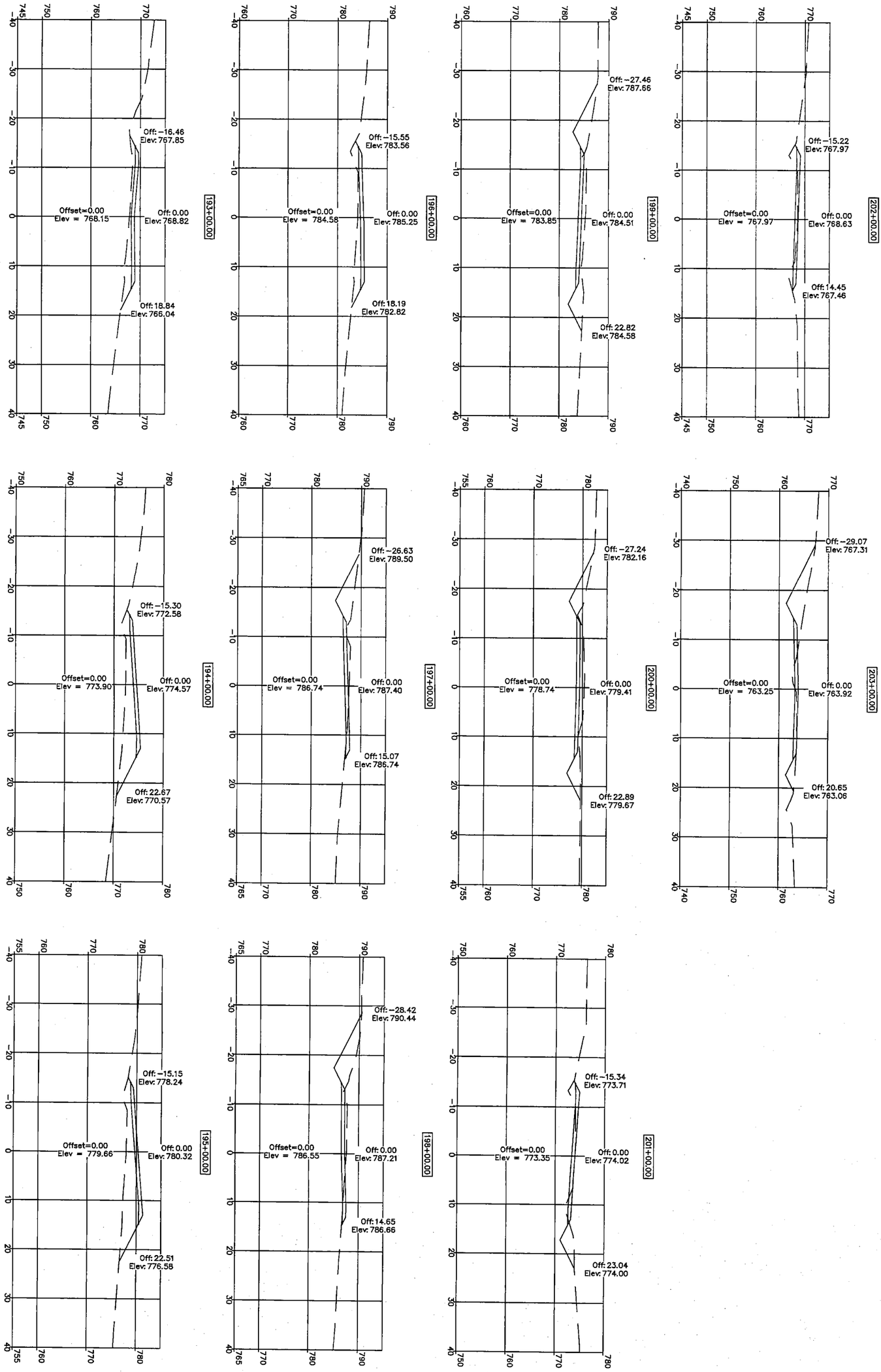

RICK MULDOON ENGINEERING

6920 Stonebridge Park Dr. Jefferson City, Mo 573.584.9300

Title: SWIFT-BOISE BRULE CROSS SECTIONS STA 193+00 TO STA 203+00

Owner: COLE COUNTY

STATE OF MISSOURI — RICHARD A. MULDOON NUMBER E-2259 — PROFESSIONAL ENGINEER

Date: MAY 2015

Revision

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