

DESIGN DESIGNATION

A.A.D.T. - 2011 = 760
A.A.D.T. - 2031 = 1000
D.H.V. = 12%
T = 17%
V = 40 M.P.H.
D = 60%

FUNCTIONAL CLASSIFICATION- RURAL MINOR COLLECTOR

UTILITY CONTACTS

AMEREN MISSOURI
DONALD W. KNOTTS
6450 HIGHWAY MM
HOUSE SPRINGS, MO 63051
636-671-6112

AT&T
BARRY FOSTER
122 N 2ND ST.
FESTUS, MO 63028
636-931-7506

CONVENTIONAL SYMBOLS (USED IN PLANS)

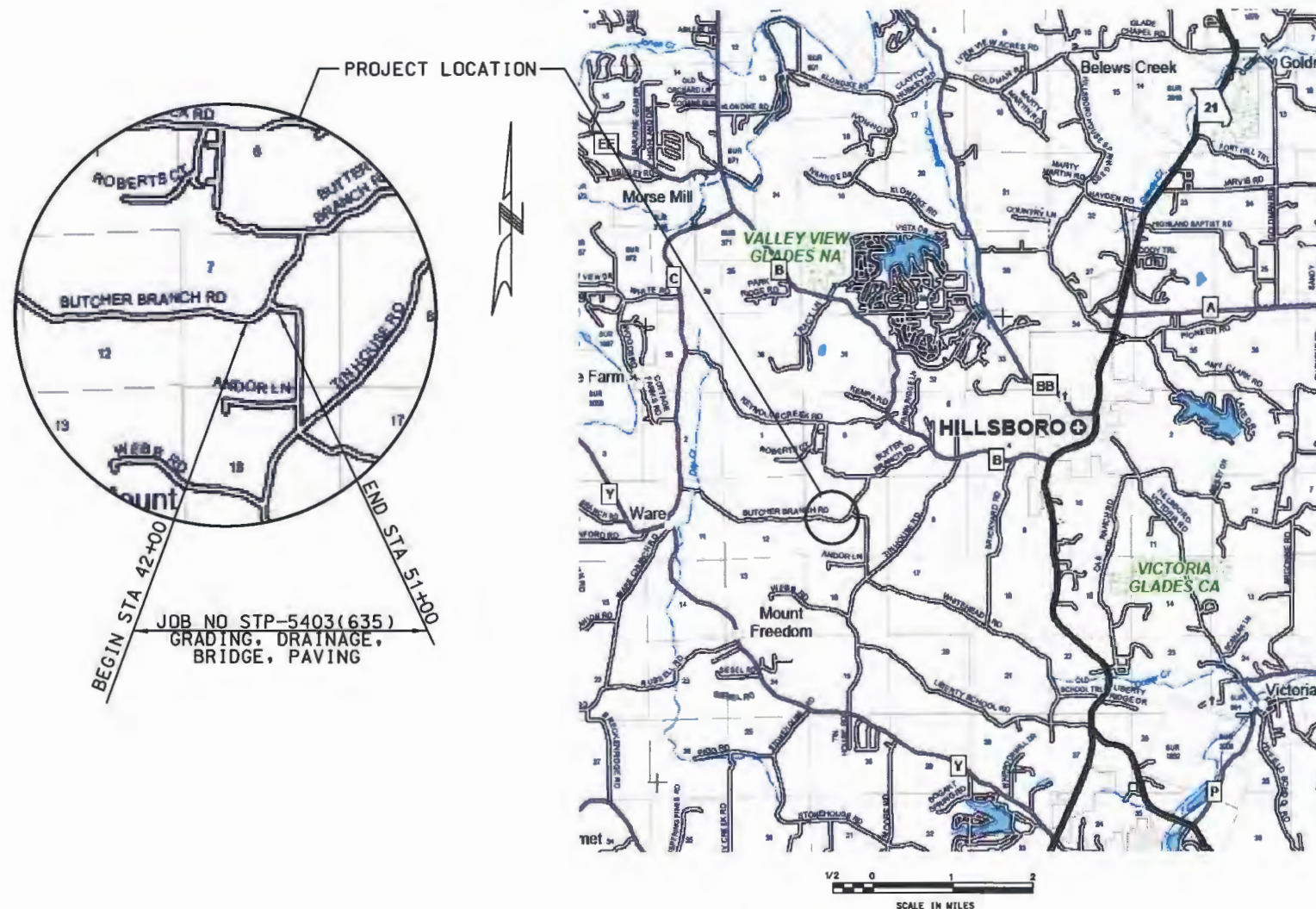
EXISTING	NEW

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

STATE OF MISSOURI JEFFERSON COUNTY PUBLIC WORKS DEPARTMENT BRIDGE REPLACEMENT

BUTCHER BRANCH ROAD OVER BUTCHER BRANCH CREEK BRIDGE NO 26700211

FINAL PLANS
FEBRUARY 19, 2014



INDEX OF SHEETS

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CROSS SECTIONS-ROADWAY	1-6
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	CROSS SECTIONS - CHANNEL	1-4
STRUCTURES, INC.	BRIDGE SHEETS	1-17

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 42 + 00.00
END OF PROJECT	STA. 51 + 00.00

APPARENT LENGTH 900.00 FEET

EQUATIONS AND EXCEPTIONS:
BK 49+05.51
AHD 49+05.74

TOTAL CORRECTIONS	-0.23 FEET
NET LENGTH OF PROJECT	899.77 FEET
STATE LENGTH	0.17 MILES

BRIDGE: OVER BUTCHER
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

TITLE SHEET

APPROVED FOR SUBMITTAL
JASON JONAS, P.E. DIRECTOR OF PUBLIC WORKS



DATE PREPARED
2/19/2014

ROUTE STATE
DISTRICT SHEET NO.
SL 1
COUNTY
JEFFERSON

JOB NO.

CONTRACT ID.

PROJECT NO.

STP-5403(635)

BRIDGE NO.

26700211

DESCRIPTION

DATE

JEFFERSON COUNTY

PUBLIC WORKS DEPARTMENT

P.O. BOX 100

HILLSBORO, MO 63050

(636-797-5540) PHONE

(636-797-5555) FAX

REV.

CERT. OF AUTHORITY: E-2006035000

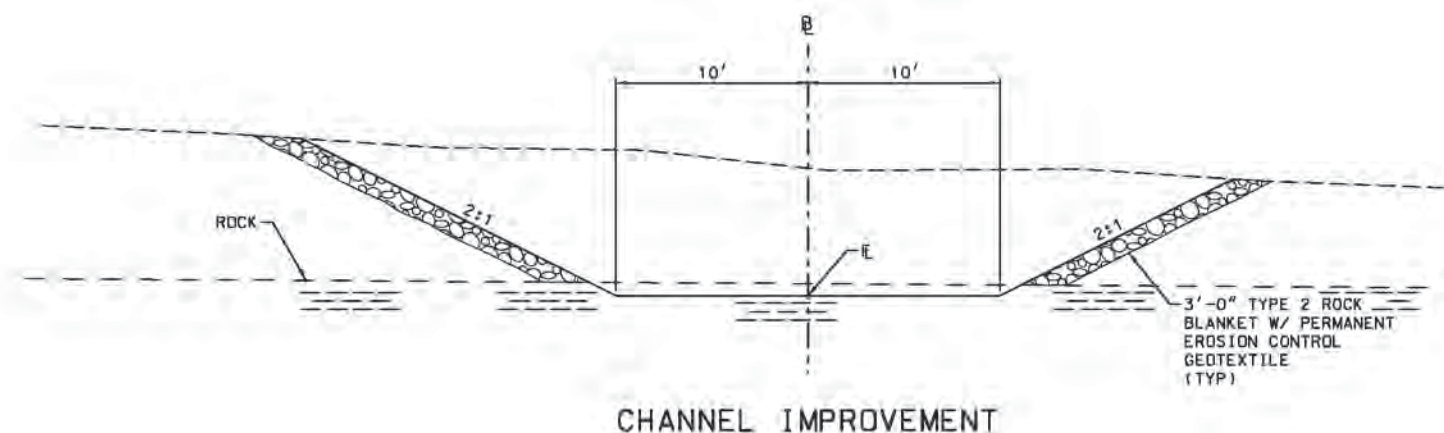
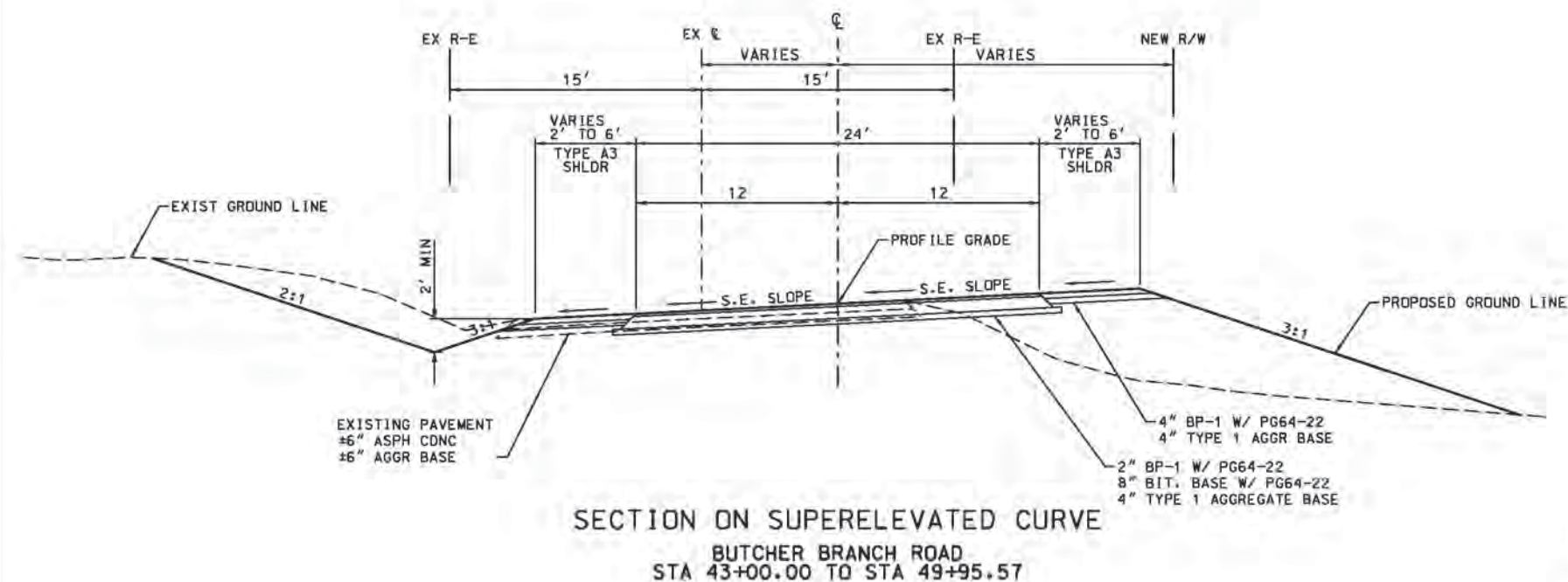
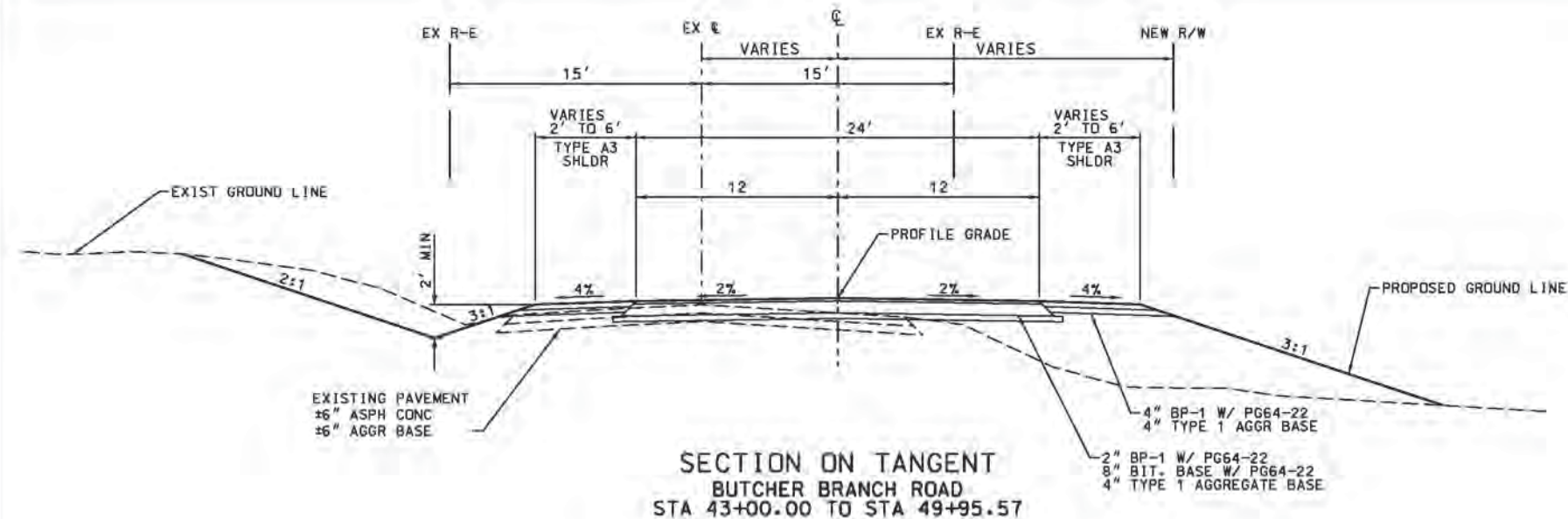
STRUCTURES, INC.

A STRUCTURAL ENGINEERING FIRM

8615 BLANCH

ST. LOUIS, MO 63123

FX (314) 638-5682



N:\E12021 Structures Inc - Butcher Branch Road\drawings\output\002_TYP_15.dgn 2:06:08 PM 2/21/2014

REMOVAL OF IMPROVEMENTS						
BEGIN STATION	END STATION	ROADWAY	LOCATION	DESCRIPTION	QUANTITY	UNITS
43+00		BUTCHER BRANCH RD	LT & RT	SAWCUT	26	LF
43+00	49+96	BUTCHER BRANCH RD	LT & RT	PAVEMENT REMOVAL	1,906	SY
43+07		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
43+58	46+98	BUTCHER BRANCH RD	RT	BARBED WIRE FENCE	332	LF
43+83		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
44+24		BUTCHER BRANCH RD	RT	TELEPHONE RISER (ATG)	1	EA
44+25	45+29	BUTCHER BRANCH RD	LT	GUARDRAIL REMOVAL	104	LF
44+59		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
44+63		BUTCHER BRANCH RD	RT	MAILBOX RELOCATION	1	EA
44+92	45+94	BUTCHER BRANCH RD	RT	GUARDRAIL REMOVAL	103	LF
44+93		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
45+04	45+60	BUTCHER BRANCH RD	RT	CONCRETE APRON	146	SF
45+25	46+20	BUTCHER BRANCH RD	LT	BARBED WIRE FENCE	105	LF
45+95	49+69	BUTCHER BRANCH RD	LT	BARBED WIRE FENCE	288	LF
46+23		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
46+92		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
47+54		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
48+17		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
48+71		BUTCHER BRANCH RD	LT	SIGN REMOVAL	1	EA
48+78		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
49+33		BUTCHER BRANCH RD	LT	SIGN RELOCATION	1	EA
49+57		BUTCHER BRANCH RD	RT	TELEPHONE RISER (ATG)	1	EA
49+96		BUTCHER BRANCH RD	LT & RT	SAWCUT	50	LF
TOTAL (202-20.10)					1	LS

GRADING AND REMOVALS							
BEGIN STATION	END STATION	ROADWAY	LOCATION	CLEARING AND GRUBBING ACRE 201-30.00	REMOVAL OF IMPROVEMENTS LS 202-20.10	UNCLASSIFIED EXCAVATION CUYD 203-50.00	COMPACTING EMBANKMENT CUYD 203-60.00
43+00	49+96	BUTCHER BRANCH RD	RT	0.432			
43+00	49+96	BUTCHER BRANCH RD	LT	0.285			
43+00	49+96	BUTCHER BRANCH RD	LT & RT		1		
43+00	49+96	BUTCHER BRANCH RD	LT & RT			2,978.0	1,803.0
TOTAL				1	1	2,978	1,803

BASES AND AGGREGATE SURFACES				
BEGIN STATION	END STATION	ROADWAY	LOCATION	TYPE 1 AGGREGATE FOR BASE (4 IN. THICK) SQYD 304-01.43
43+00	45+76	BUTCHER BRANCH RD	LT & RT	859
44+85		BUTCHER BRANCH RD	RT	14
46+23	49+96	BUTCHER BRANCH RD	LT & RT	1,159
TOTAL				2,032

FLEXIBLE PAVEMENTS						
BEGIN STATION	END STATION	ROADWAY	LOCATION	TYPE A3 SHOULDER SQYD 401-01.51	BITUMINOUS PAVEMENT MIXTURE PG64-22, (BP-1) TONS 401-12.09	BITUMINOUS PAVEMENT MIXTURE PG64-22 (BASE) TONS 401-30.00
43+00	45+59	BUTCHER BRANCH RD	LT	72.6		
43+00	44+70	BUTCHER BRANCH RD	RT	38.4		
43+00	45+76	BUTCHER BRANCH RD	LT & RT		85.1	337.3
44+84	45+79	BUTCHER BRANCH RD	RT	35.4		
46+20	49+96	BUTCHER BRANCH RD	LT	97.1		
46+23	49+96	BUTCHER BRANCH RD	LT & RT		116.0	459.8
46+39	49+69	BUTCHER BRANCH RD	RT	90.3		
TOTAL				333.8	201.1	797.1

INCIDENTAL CONSTRUCTION																	
BEGIN STATION	END STATION	ROADWAY	LOCATION	TRANSITION SECTION, 6.5 FT. POSTS	BRIDGE ANCHOR SECTION (THRIE BEAM)	TYPE A CRASHWORTHY END TERMINAL	BARBED WIRE FENCE	FURNISHING TYPE 2 ROCK BLANKET	PLACING TYPE 2 ROCK BLANKET	TOE STONE PINNED TO BEDROCK	TEMPORARY TRAFFIC CONTROL	MOBILIZATION	4 IN. WHITE ACRYLIC WATERBORNE PAVEMENT MARKING PAINT	4 IN. YELLOW ACRYLIC WATERBORNE PAVEMENT MARKING PAINT	FLOWABLE BACKFILL	PERMANENT EROSION CONTROL GEOTEXTILE	CONTRACTOR FURNISHED SURVEYING AND STAKING
				EA 606-23.00A	EA 606-24.00	EA 606-30.15	LF 607-99.03	CUYD 611-30.20	CUYD 611-30.40	LF 611-99.01	LS 616-99.01	LS 618-10.00	LF 620-60.00B	LF 620-60.01B	CUYD 621-46.00A	SY 624-01.03A	LS 627-40.00
43+13	45+74	BUTCHER BRANCH RD	LT					534	534	296						534	
43+13	46+19	BUTCHER BRANCH RD	LT					465	465	296						465	
44+85	45+37	BUTCHER BRANCH RD	LT			1											
45+09	45+61	BUTCHER BRANCH RD	RT			1											
45+37	45+56	BUTCHER BRANCH RD	LT	1													
45+56		BUTCHER BRANCH RD	LT		1												
45+61	45+79	BUTCHER BRANCH RD	RT	1													
45+79		BUTCHER BRANCH RD	RT		1												
45+79	47+42	BUTCHER BRANCH RD	RT					204	204	171						204	
45+81	46+04	BUTCHER BRANCH RD	RT				41										
46+20		BUTCHER BRANCH RD	LT		1												
46+20	46+38	BUTCHER BRANCH RD	LT	1													
46+24	47+48	BUTCHER BRANCH RD	RT					174	174	171						174	
46+38	46+89	BUTCHER BRANCH RD	LT			1											
46+43		BUTCHER BRANCH RD	RT		1												
46+43	46+62	BUTCHER BRANCH RD	RT	1													
46+44	48+27	BUTCHER BRANCH RD	RT				188										
46+62	47+13	BUTCHER BRANCH RD	RT			1											
46+86	46+95	BUTCHER BRANCH RD	LT & RT												6		
43+00	49+96	BUTCHER BRANCH RD	LT										696				
43+00	49+96	BUTCHER BRANCH RD	LT & RT											1,391			
43+00	49+69	BUTCHER BRANCH RD	RT										669				
TOTAL				4	4	4	229	1,376	1,376	933	1	1	1,365	1,391	6	1,376	1

ROADSIDE DEVELOPMENT					
BEGIN STATION	END STATION	ROADWAY	LOCATION	SEEDING - COOL SEASON MIXTURES ACRE 805-10.00A	TEMPORARY EROSION CONTROL LS 806-99.01
43+00	43+14	BUTCHER BRANCH RD	LT	0.001	
43+00	46+13	BUTCHER BRANCH RD	RT	0.100	
43+50	45+55	BUTCHER BRANCH RD	LT	0.220	
45+98	49+96	BUTCHER BRANCH RD	LT	0.104	
46+44	49+40	BUTCHER BRANCH RD	RT	0.044	
TOTAL				0.5	1

TRAFFIC CONTROL FACILITIES							
BEGIN STATION	END STATION	ROADWAY	LOCATION	CONCRETE FOOTINGS, EMBEDDED (2) CUYD 903-10.10	PIPE POSTS LB 903-12.20	BREAKAWAY ASSEMBLY EA 903-12.40	TYPE SHR2L-1 SIGN SQFT 903-50.04
43+07		BUTCHER BRANCH RD	RT	0.13			
43+83		BUTCHER BRANCH RD	RT	0.13			
44+59		BUTCHER BRANCH RD	RT	0.13			
44+93		BUTCHER BRANCH RD	RT	0.13			
46+23		BUTCHER BRANCH RD	RT	0.13			
46+92		BUTCHER BRANCH RD	RT	0.13			
47+54		BUTCHER BRANCH RD	RT	0.13			
48+17		BUTCHER BRANCH RD	RT	0.13			
48+71		BUTCHER BRANCH RD	LT	0.13			
48+78		BUTCHER BRANCH RD	RT	0.13			
49+33		BUTCHER BRANCH RD	LT	0.13			
37+00		BUTCHER BRANCH RD	RT	0.13	125	1	8.5
54+00		BUTCHER BRANCH RD	LT	0.13	125	1	8.5
TOTAL				1.7	250	2	17

- NOTES:
- 1) FLOWABLE BACKFILL IS TO FILL EXISTING 3'x2' OVAL PIPE
 - 2) CONCRETE FOOTINGS ARE FOR RELOCATED SIGNS

BRIDGE: OVER BUTCHER
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

QUANTITIES



John A. Hock
DATE PREPARED
2/19/2014

ROUTE
SL
DISTRICT
SL
COUNTY
JEFFERSON
JOB NO.

CONTRACT ID.

PROJECT NO.
STP-5403(635)
BRIDGE NO.
26700211

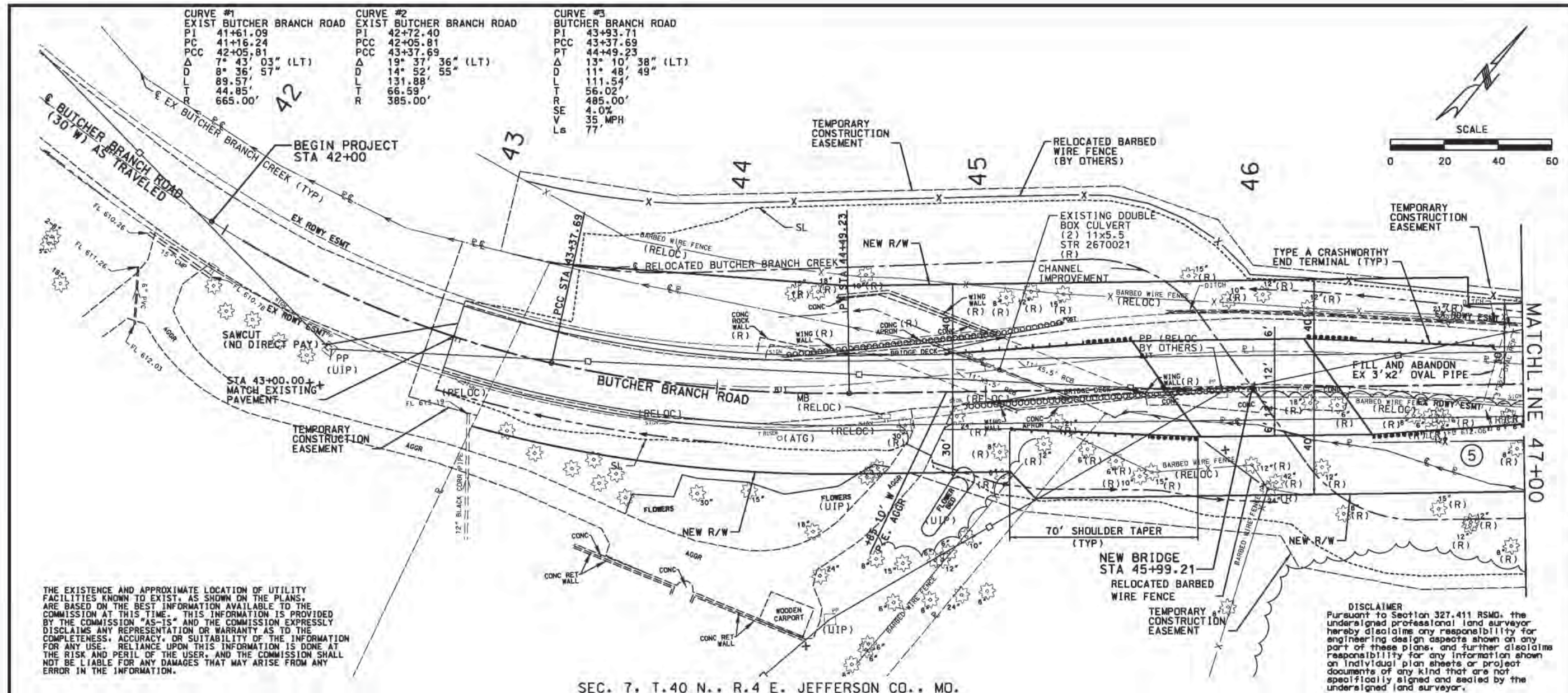
DESCRIPTION

DATE

JEFFERSON COUNTY
PUBLIC WORKS DEPARTMENT



EDSI
ENGINEERING DESIGN SOURCE, INC.
16141 SWINGLEY RIDGE RD., SUITE 300
CHESTERFIELD, MO 63017
MO CORP. ENGINEERING LICENSE NO. E-1523-D
MO CORP. SURVEYING LICENSE NO. 20020305-7



JOHN A. HOCK
REGISTERED PROFESSIONAL ENGINEER
STATE OF MISSOURI
LICENSE NO. E-23292

DATE PREPARED: 2/19/2014

ROUTE	STATE
SL	MO
DISTRICT	SHEET NO.
3	3
COUNTY	JEFFERSON
JOB NO.	
CONTRACT ID.	
PROJECT NO.	STP-5403(635)
BRIDGE NO.	26700211

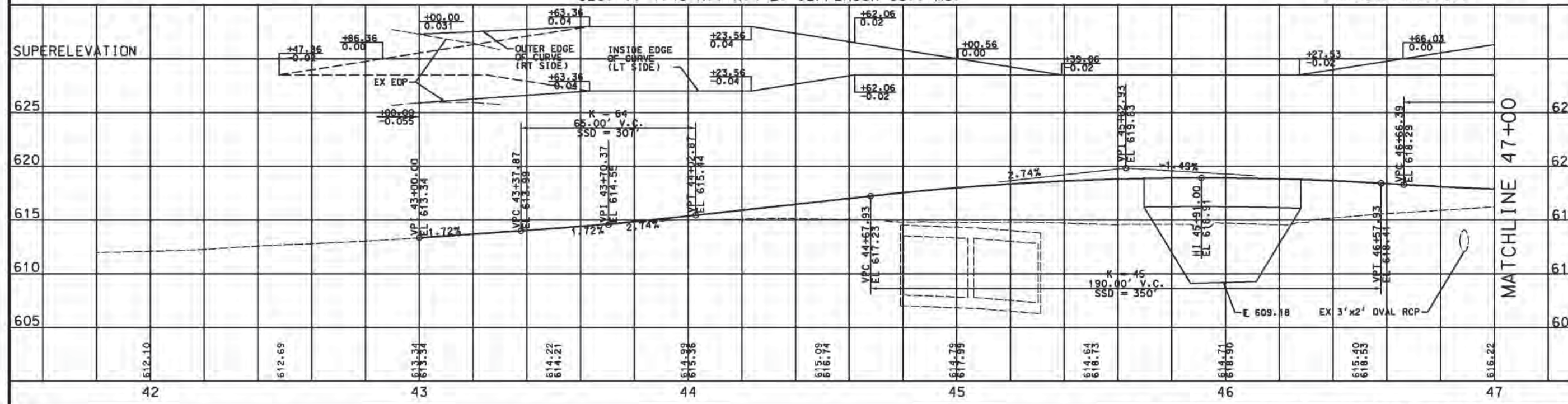
DATE	DESCRIPTION
7/29/2013	REVISE ROW AND TCE (SHEET REISSUED)

JEFFERSON COUNTY
PUBLIC WORKS DEPARTMENT

P.O. BOX 100
HILLSBORO, MO 63050
(636-797-5340) PHONE
(636-797-5566) FAX

EDSI
ENGINEERING DESIGN SOURCE, INC.
16141 SWINGLEY RIDGE RD., SUITE 300
CHESTERFIELD, MO 63017

MO CORP. ENGINEERING LICENSE NO. E-1523-D
MO CORP. SURVEYING LICENSE NO. 20020305-7





DATE PREPARED
2/19/2014

ROUTE STATE
SL MO
DISTRICT SHEET NO.
4 4
COUNTY
JEFFERSON
JOB NO.

CONTRACT ID.
PROJECT NO.
STP-5403(635)
BRIDGE NO.
26700211

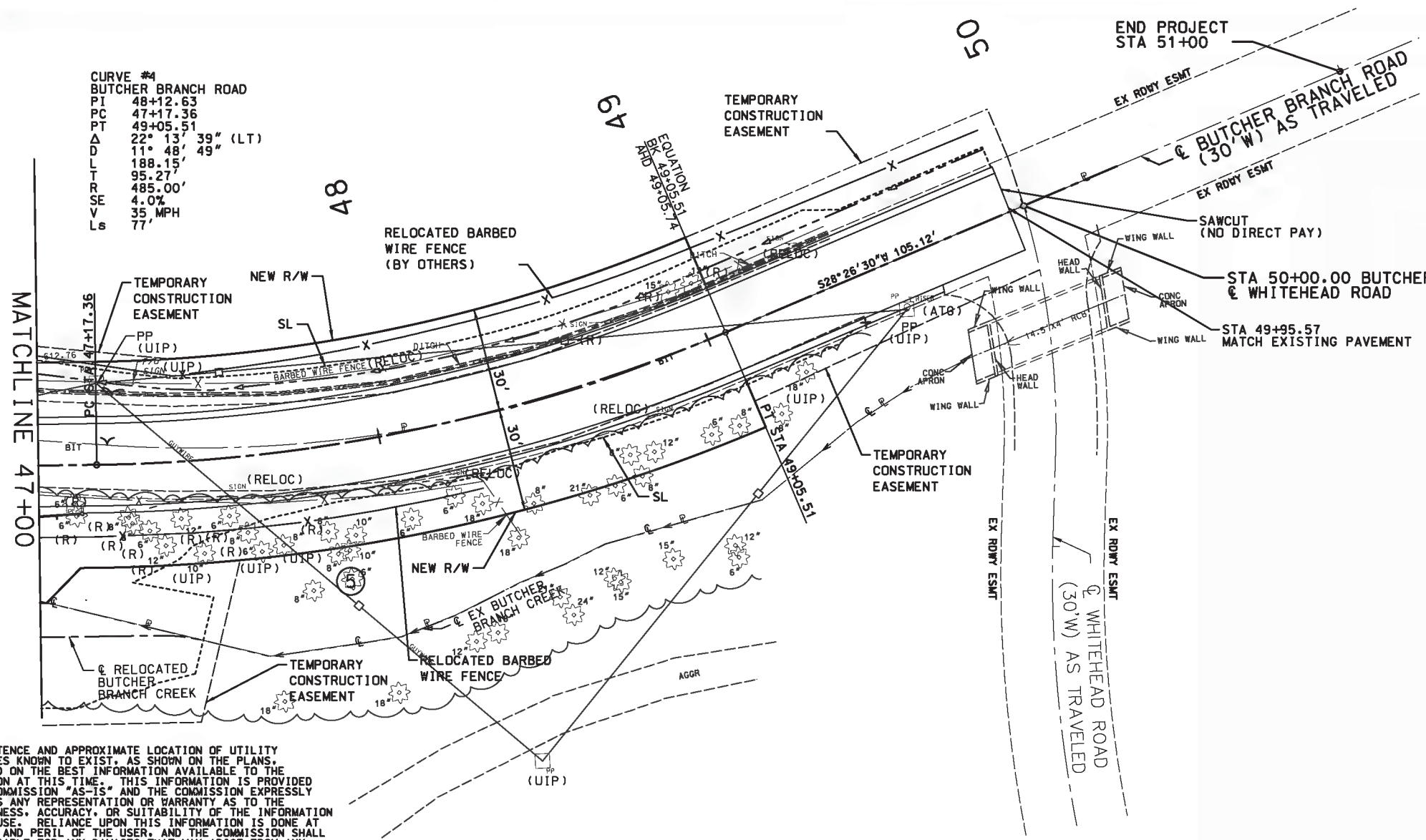
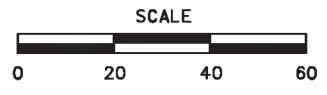
DATE	DESCRIPTION
7/29/2013	REVISE ROW AND TCE (SHEET REISSUED)

JEFFERSON COUNTY
PUBLIC WORKS DEPARTMENT
P.O. BOX 100
HILLSBORO, MO 63050
(636-797-5340) PHONE
(636-797-5966) FAX



EDSI
ENGINEERING DESIGN SOURCE, INC.
16141 SWINGLEY RIDGE RD., SUITE 300
CHESTERFIELD, MO 63017
MO CORP. ENGINEERING LICENSE NO. E-1523-D
MO CORP. SURVEYING LICENSE NO. 20020305-47

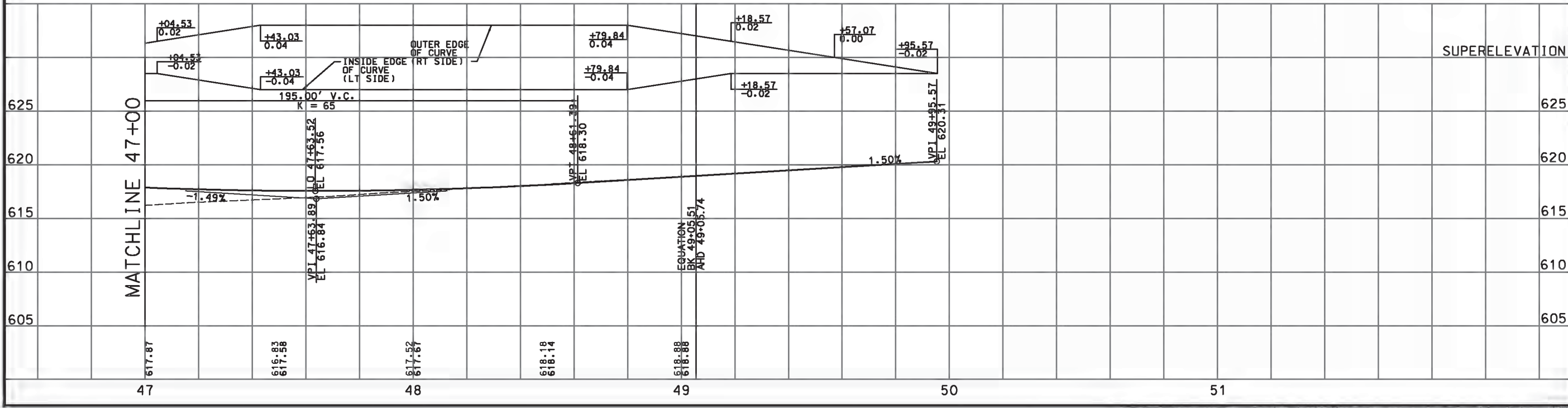
CURVE #4
BUTCHER BRANCH ROAD
PI 48+12.63
PC 47+17.36
PT 49+05.51
 Δ 22° 13' 39" (LT)
D 11° 48' 49"
L 188.15'
T 95.27'
R 485.00'
SE 4.0%
V 35 MPH
Ls 77'

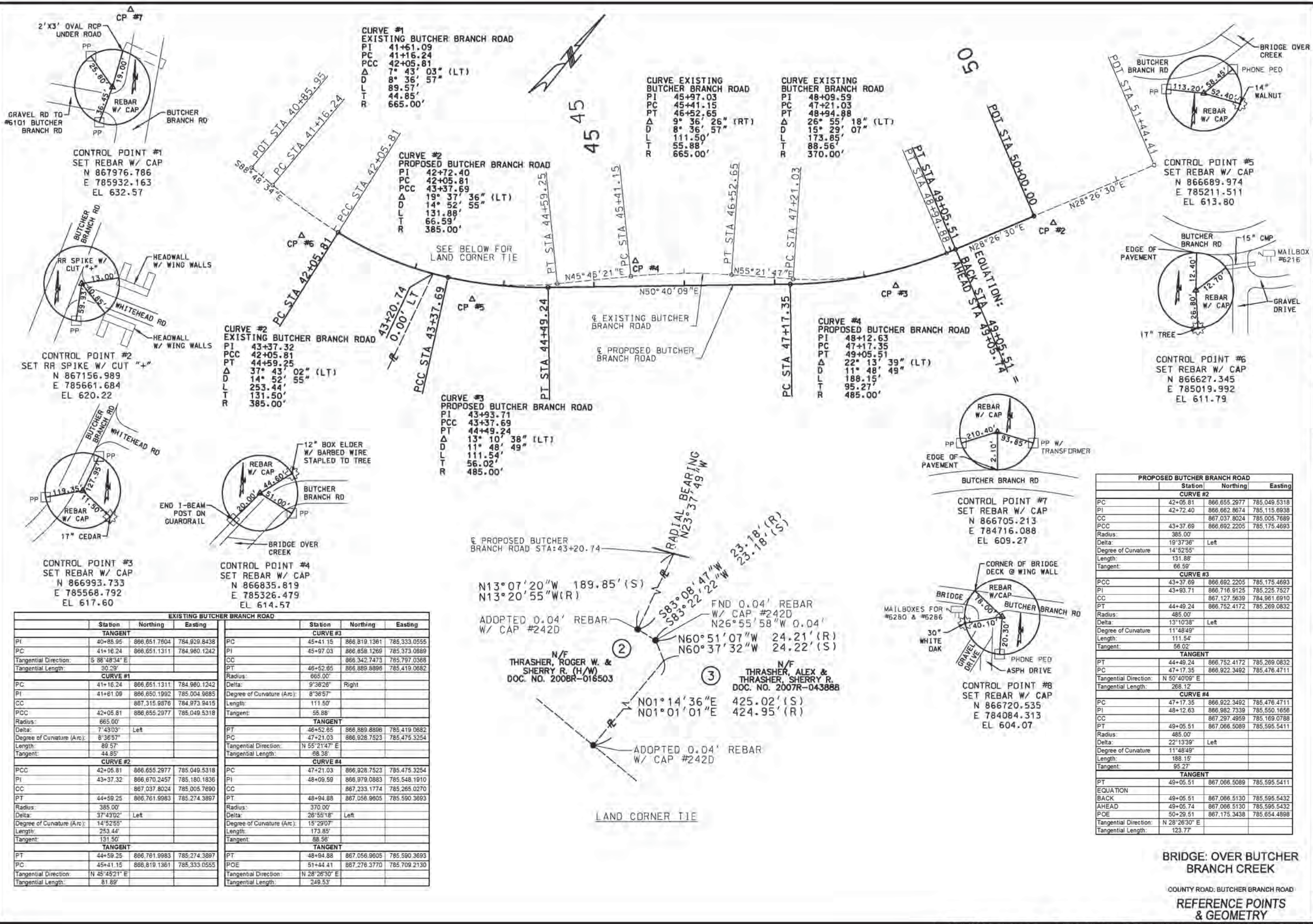


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DISCLAIMER
Pursuant to Section 327.411 RSMo, the undersigned professional land surveyor hereby disclaims any responsibility for engineering design aspects shown on any part of these plans, and further disclaims responsibility for any information shown on individual plan sheets or project documents of any kind that are not specifically signed and sealed by the undersigned land surveyor.

SEC. 7, T.40 N., R.4 E. JEFFERSON CO., MO.





EXISTING BUTC			
	Station	Northing	Easting
TANGENT			
PI	40+85.95	866,651.7604	784,929.8438
PC	41+16.24	866,651.1311	784,980.1242
Tangential Direction: S 88°48'34" E			
Tangential Length: 30.29'			
CURVE #1			
PC	41+16.24	866,651.1311	784,980.1242
PI	41+61.09	866,650.1992	785,004.9685
CC		867,315.9876	784,973.9415
PCC	42+05.81	866,655.2977	785,049.5318
Radius:	665.00'		
Delta:	7°43'03"	Left	
Degree of Curvature (Arc):	8°36'57"		
Length:	89.57'		
Tangent:	44.85'		
CURVE #2			
PCC	42+05.81	866,655.2977	785,049.5318
PI	43+37.32	866,670.2457	785,180.1836
CC		867,037.8024	785,005.7690
PT	44+59.25	866,761.9983	785,274.3897
Radius:	385.00'		
Delta:	37°43'02"	Left	
Degree of Curvature (Arc):	14°52'55"		
Length:	253.44'		
Tangent:	131.50'		
TANGENT			
PT	44+59.25	866,761.9983	785,274.3897
PC	45+41.15	866,819.1361	785,333.0555
Tangential Direction: N 45°45'21" E			
Tangential Length: 81.89'			

B BRANCH ROAD			
	Station	Northing	Easting
CURVE #3			
PC	45+41.15	866,819.1361	785,333.0555
PI	45+97.03	866,858.1269	785,373.0889
CC		866,342.7473	785,797.0368
PT	46+52.85	866,889.8896	785,419.0682
Radius:	665.00'		
Delta:	9°36'28"	Right	
Degree of Curvature (Arc):	8°36'57"		
Length:	111.50'		
Tangent:	55.88'		
TANGENT			
PT	46+52.85	866,889.8896	785,419.0682
PC	47+21.03	866,928.7523	785,475.5254
Tangential Direction:	N 55°21'47" E		
Tangential Length:	88.38'		
CURVE #4			
PC	47+21.03	866,928.7523	785,475.5254
PI	48+09.59	866,979.0883	785,548.1910
CC		867,233.1774	785,265.0270
PT	48+94.88	867,056.9805	785,590.3693
Radius:	370.00'		
Delta:	26°55'18"	Left	
Degree of Curvature (Arc):	15°29'07"		
Length:	173.85'		
Tangent:	88.56'		
TANGENT			
PT	48+94.88	867,056.9805	785,590.3693
POE	51+44.41	867,276.3770	785,709.2130
Tangential Direction:	N 28°26'30" E		
Tangential Length:	249.53'		

PROPOSED BUTCHER BRANCH ROAD			
	Station	Northing	Easting
CURVE #2			
PC	42+05.81	866,655.2977	785,049.5318
PI	42+72.40	866,662.8674	785,115.6938
CC		867,037.8024	785,005.7689
PCC	43+37.69	866,692.2205	785,175.4693
Radius:	385.00'		
Delta:	19°37'36"	Left	
Degree of Curvature	14°52'55"		
Length:	131.88'		
Tangent:	66.59'		
CURVE #3			
PCC	43+37.69	866,692.2205	785,175.4693
PI	43+93.71	866,716.9125	785,225.7527
CC		867,127.5639	784,961.6910
PT	44+49.24	866,752.4172	785,269.0832
Radius:	485.00'		
Delta:	13°10'38"	Left	
Degree of Curvature	11°48'49"		
Length:	111.54'		
Tangent:	56.02'		
TANGENT			
PT	44+49.24	866,752.4172	785,269.0832
PC	47+17.35	866,922.3492	785,476.4711
Tangential Direction:	N 50°40'09" E		
Tangential Length:	268.12'		
CURVE #4			
PC	47+17.35	866,922.3492	785,476.4711
PI	48+12.63	866,982.7339	785,550.1656
CC		867,297.4959	785,169.0788
PT	49+05.51	867,066.5089	785,595.5411
Radius:	485.00'		
Delta:	22°13'39"	Left	
Degree of Curvature	11°48'49"		
Length:	188.15'		
Tangent:	95.27'		
TANGENT			
PT	49+05.51	867,066.5089	785,595.5411
EQUATION			
BACK	49+05.51	867,066.5130	785,595.5432
AHEAD	49+05.74	867,066.5130	785,595.5432
POE	50+29.51	867,175.3438	785,654.4898
Tangential Direction:	N 28°26'30" E		
Tangential Length:	123.77'		

STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
JOHN A. HOCK
NUMBER E-23292

DATE PREPARED
2/19/2014

ROUTE
STATE
MO

DISTRICT
SHEET NO.
SL 5

COUNTY
JEFFERSON

JOB NO.

CONTRACT ID.

PROJECT NO.
STP-5403(635)

BRIDGE NO.
26700211

DESCRIPTION

DATE

JEFFERSON COUNTY
PUBLIC WORKS DEPARTMENT

STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
EDSI

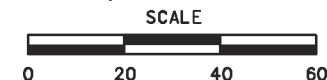
ENGINEERING DESIGN SOURCE, INC.
16141 SWINGLEY RIDGE RD., SUITE 300
CHESTERFIELD, MO 63071

MO CORP. ENGINEERING LICENSE NO. E-1523-D
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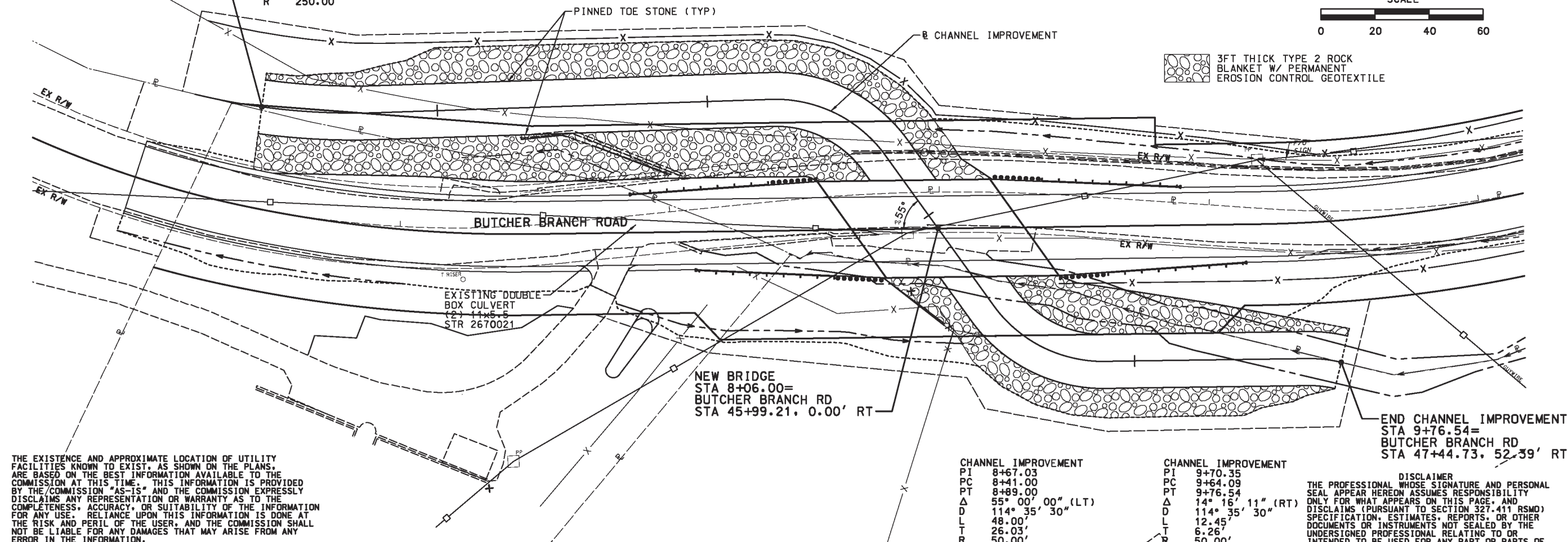
BEGIN CHANNEL IMPROVEMENT
STA 5+35.00=
BUTCHER BRANCH RD
STA 43+40.44, 37.25' LT

CHANNEL IMPROVEMENT
PI 5+43.78
PC 5+09.81
PT 5+77.34
 Δ 15° 28' 34" (LT)
D 22° 55' 06"
L 67.53'
T 33.97'
R 250.00'

CHANNEL IMPROVEMENT
PI 7+50.33
PC 7+23.67
PT 7+72.66
 Δ 56° 08' 02" (RT)
D 114° 35' 30"
L 48.99'
T 26.66'
R 50.00'



3FT THICK TYPE 2 ROCK
BLANKET W/ PERMANENT
EROSION CONTROL GEOTEXTILE



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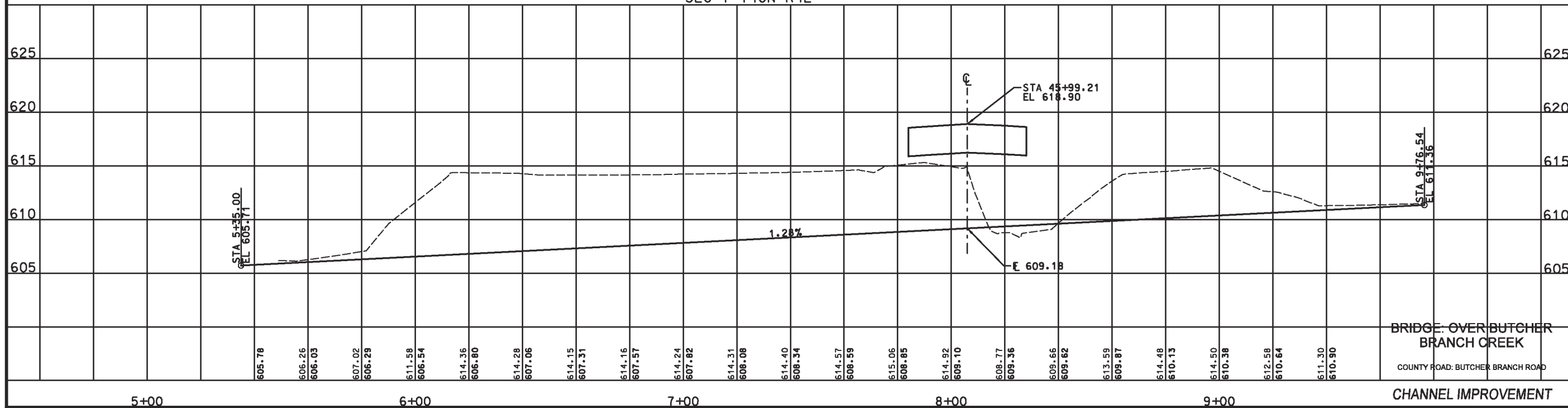
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SEC 7 T40N R4E

CHANNEL IMPROVEMENT
PI 8+67.03
PC 8+41.00
PT 8+89.00
 Δ 55° 00' 00" (LT)
D 114° 35' 30"
L 48.00'
T 26.03'
R 50.00'

CHANNEL IMPROVEMENT
PI 9+70.35
PC 9+64.09
PT 9+76.54
 Δ 14° 16' 11" (RT)
D 114° 35' 30"
L 12.45'
T 6.26'
R 50.00'

END CHANNEL IMPROVEMENT
STA 9+76.54=
BUTCHER BRANCH RD
STA 47+44.73, 52.39' RT



BRIDGE OVER BUTCHER
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

CHANNEL IMPROVEMENT

STATE OF MISSOURI
JOHN A. HOCK
NUMBER
E-23292
REGISTERED PROFESSIONAL ENGINEER

John A. Hock
DATE PREPARED
2/19/2014

ROUTE
SL
DISTRICT
SL
COUNTY
JEFFERSON
JOB NO.

CONTRACT ID.

PROJECT NO.
STP-5403(635)
BRIDGE NO.
26700211

DESCRIPTION

DATE

JEFFERSON COUNTY
PUBLIC WORKS DEPARTMENT

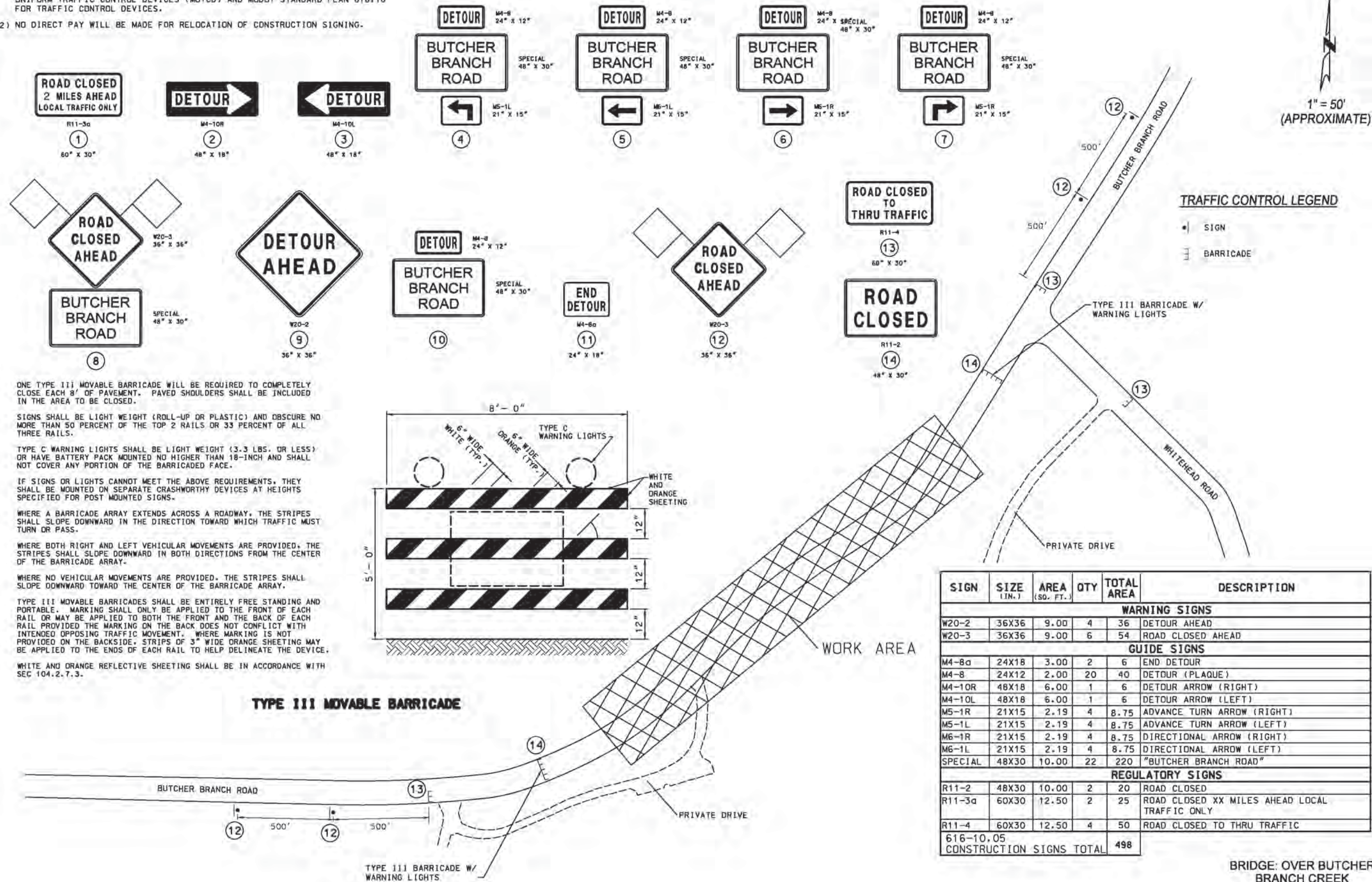
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ENGINEERING DESIGN SOURCE, INC.
16141 SWINGLEY RIDGE RD., SUITE 300
CHESTERFIELD, MO 63017
MO CORP. ENGINEERING LICENSE NO. E-1523-D
MO CORP. SURVEYING LICENSE NO. 2002030547

N:\E12021 Structures Inc - Butcher Branch Road\drawings\output\006_PNP_i20.dgn 2:06:46 PM 2/21/2014

GENERAL NOTES:

- 1) TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND MDDOT STANDARD PLAN 616.10 FOR TRAFFIC CONTROL DEVICES.
- 2) NO DIRECT PAY WILL BE MADE FOR RELOCATION OF CONSTRUCTION SIGNING.



SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	DESCRIPTION
WARNING SIGNS					
W20-2	36X36	9.00	4	36	DETOUR AHEAD
W20-3	36X36	9.00	6	54	ROAD CLOSED AHEAD
GUIDE SIGNS					
M4-8a	24X18	3.00	2	6	END DETOUR
M4-8	24X12	2.00	20	40	DETOUR (PLAQUE)
M4-10R	48X18	6.00	1	6	DETOUR ARROW (RIGHT)
M4-10L	48X18	6.00	1	6	DETOUR ARROW (LEFT)
M5-1R	21X15	2.19	4	8.75	ADVANCE TURN ARROW (RIGHT)
M5-1L	21X15	2.19	4	8.75	ADVANCE TURN ARROW (LEFT)
M6-1R	21X15	2.19	4	8.75	DIRECTIONAL ARROW (RIGHT)
M6-1L	21X15	2.19	4	8.75	DIRECTIONAL ARROW (LEFT)
SPECIAL	48X30	10.00	22	220	"BUTCHER BRANCH ROAD"
REGULATORY SIGNS					
R11-2	48X30	10.00	2	20	ROAD CLOSED
R11-3a	60X30	12.50	2	25	ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50	4	50	ROAD CLOSED TO THRU TRAFFIC
616-10.05 CONSTRUCTION SIGNS TOTAL					498

BRIDGE: OVER BUTCHER BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

TRAFFIC CONTROL PLAN

STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
JOHN A. HOCK
NUMBER E-23292

John A. Hock
DATE PREPARED 2/19/2014
ROUTE MO
DISTRICT SL SHEET NO. 7
COUNTY JEFFERSON
JOB NO.
CONTRACT ID.
PROJECT NO. STP-5403(635)
BRIDGE NO. 26700211

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PUBLIC WORKS DEPARTMENT
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HILLSBORO, MO 63050
(636-797-5340) PHONE
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CHESTERFIELD, MO 63017
MO CORP. ENGINEERING LICENSE NO. E-1523-D
MO CORP. SURVEYING LICENSE NO. 20020305-7

GENERAL NOTES:

1) TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND MODOT STANDARD PLAN 616.10 FOR TRAFFIC CONTROL DEVICES.



John A. Hock
DATE PREPARED
2/19/2014

ROUTE STATE
MO

DISTRICT SHEET NO.
SL 8

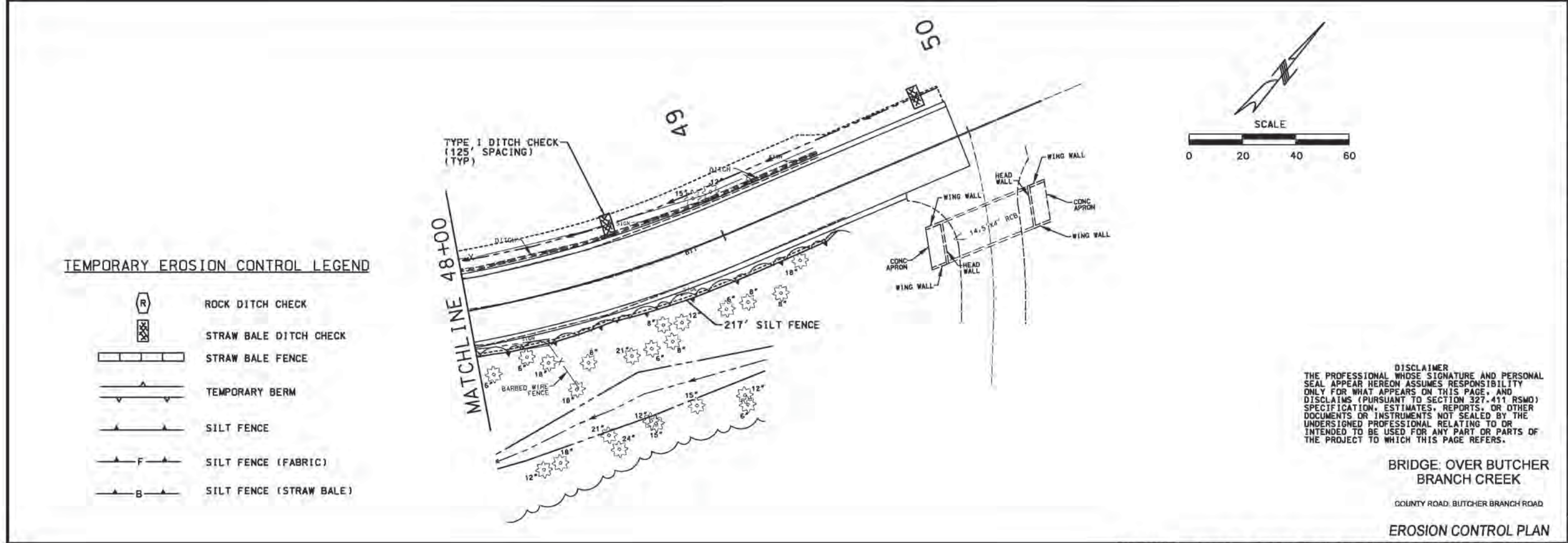
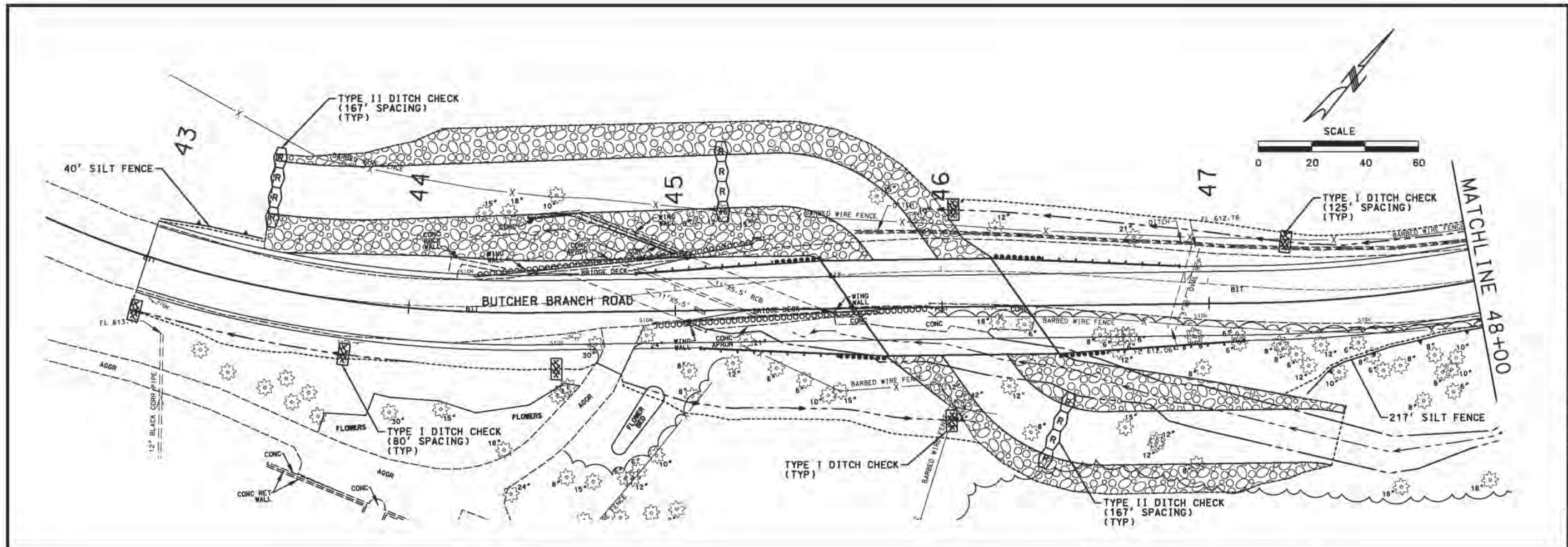
COUNTY
JEFFERSON

JOB NO.

CONTRACT ID.

PROJECT NO.
STP-5403(635)

BRIDGE NO.
26700211



JOHN A. HOCK
REGISTERED PROFESSIONAL ENGINEER
STATE OF MISSOURI
LICENSE NUMBER E-23292

John A. Hock
DATE PREPARED: 2/19/2014

ROUTE	STATE
DISTRICT	SHEET NO.
SL	9
COUNTY	JEFFERSON
JOB NO.	
CONTRACT ID.	
PROJECT NO.	STP-5403(635)
BRIDGE NO.	26700211

DESCRIPTION	DATE

JEFFERSON COUNTY
PUBLIC WORKS DEPARTMENT

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MO CORP. SURVEYING LICENSE NO. 20020305-7

BRIDGE: OVER BUTCHER BRANCH CREEK
COUNTY ROAD: BUTCHER BRANCH ROAD
EROSION CONTROL PLAN



John A. Hock
DATE PREPARED
2/19/2014

ROUTE SL
STATE MO
DISTRICT SL
SHEET NO. 10
COUNTY JEFFERSON
JOB NO.

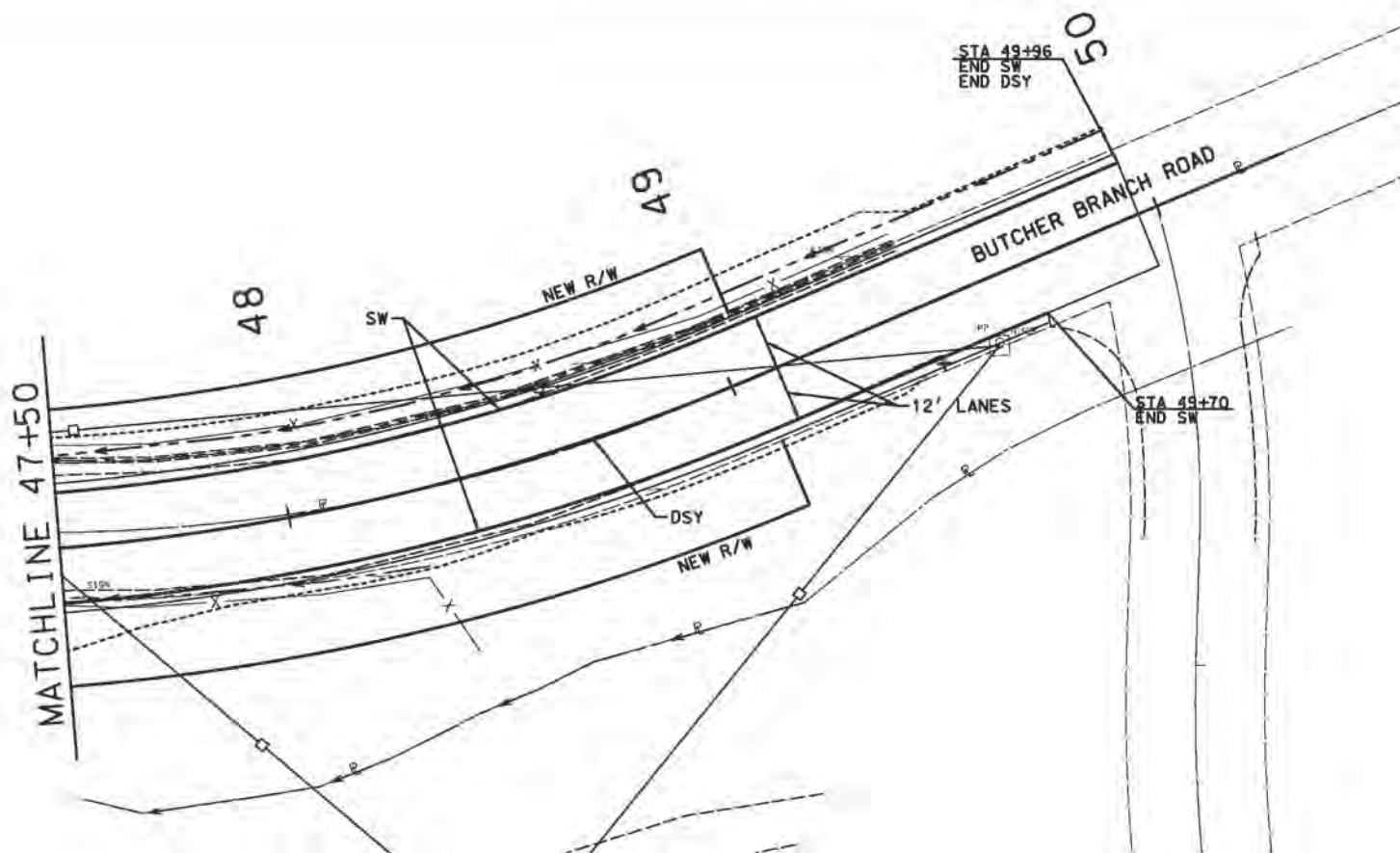
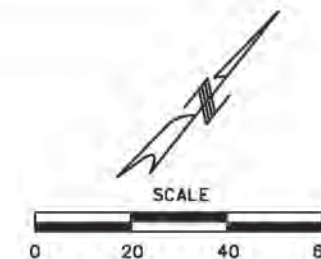
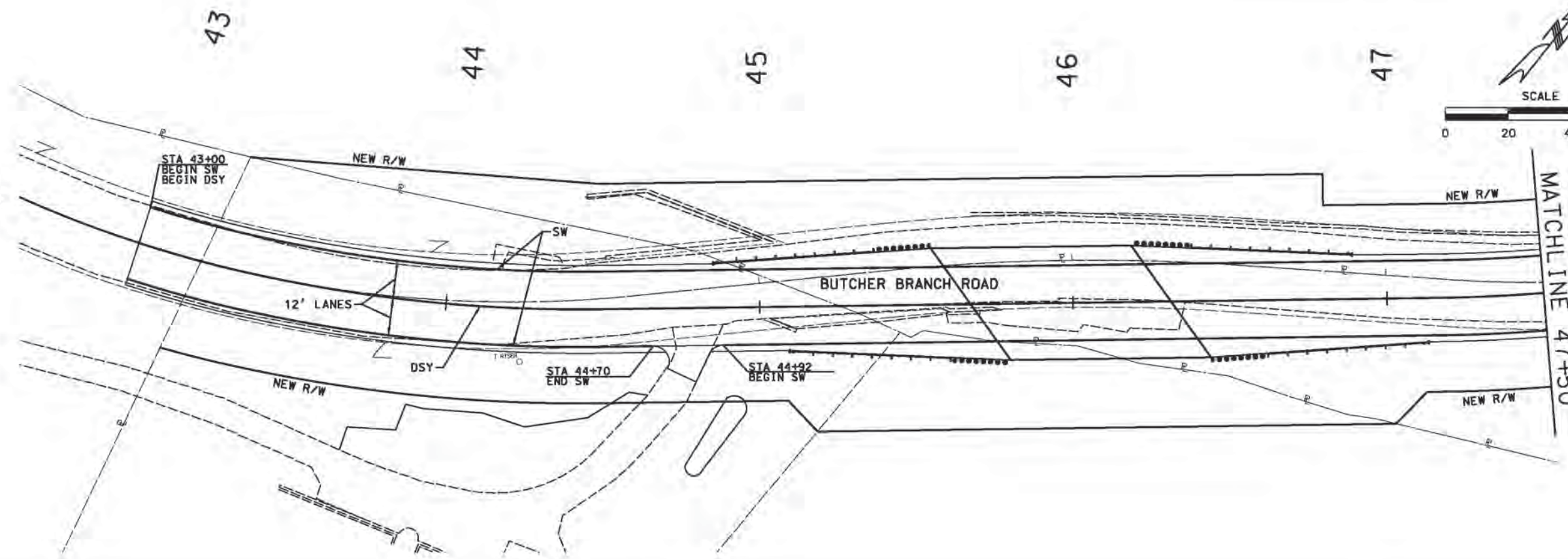
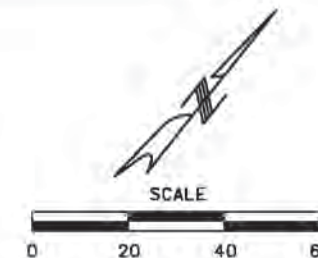
CONTRACT ID.
PROJECT NO.
STP-5403(635)
BRIDGE NO.
26700211

DATE	DESCRIPTION

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(636-797-5666) FAX



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MO CORP. SURVEYING LICENSE NO. 20020305-7

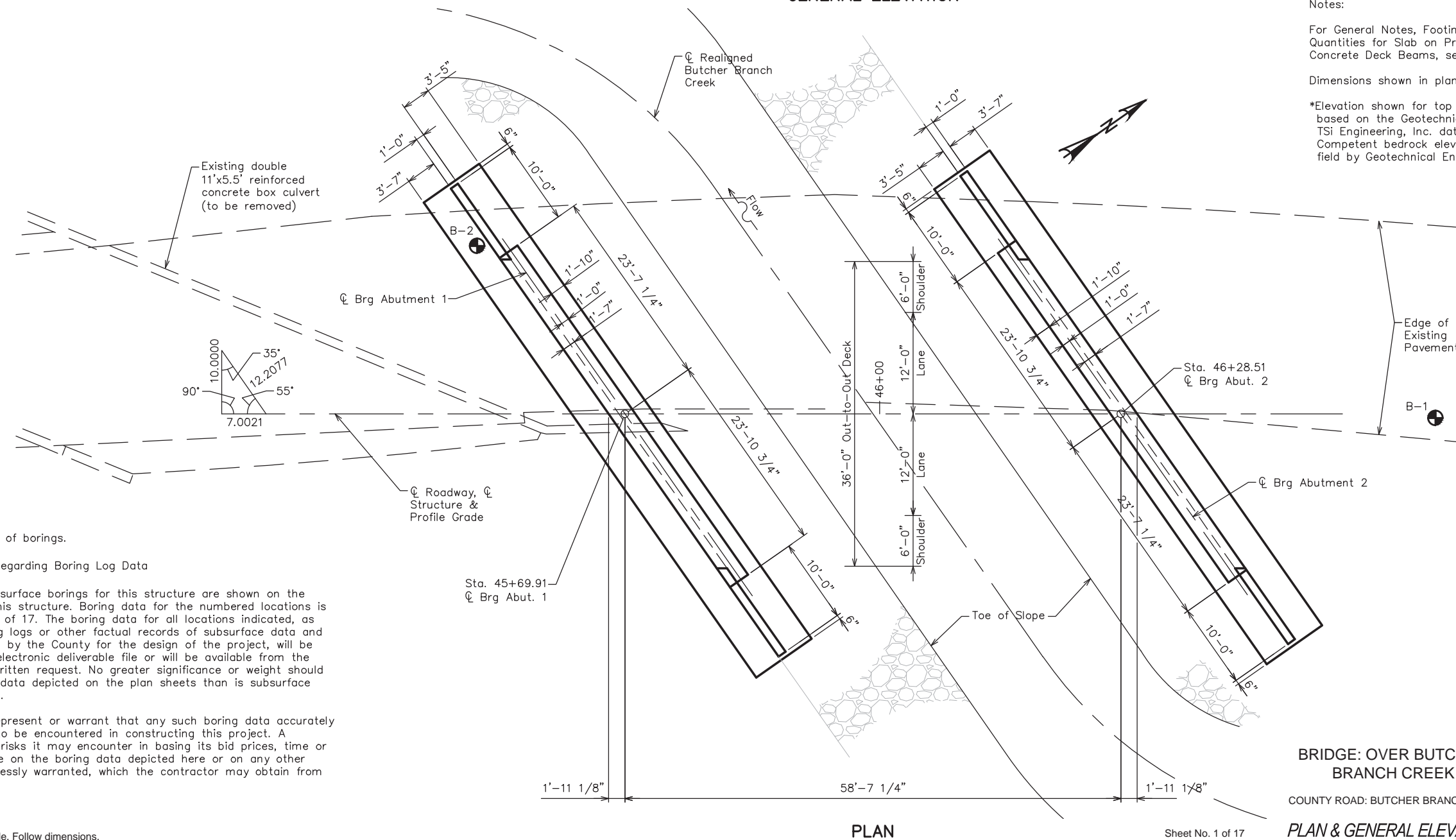
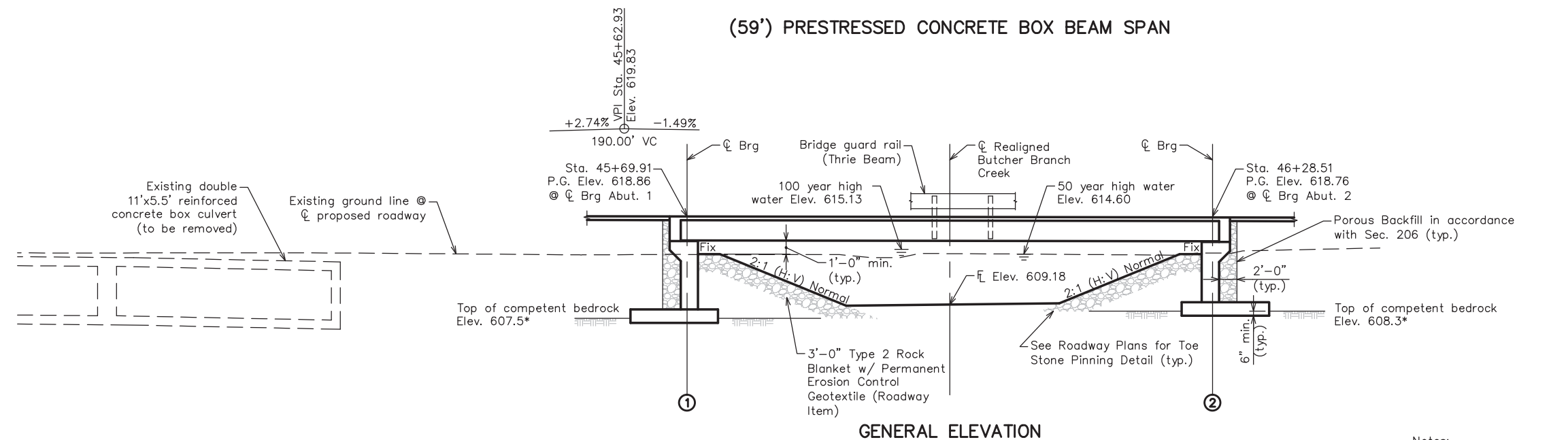


- NOTES
1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND MISSOURI STANDARD PLANS FOR HIGHWAY CONSTRUCTION.
 2. REFER TO MODOT STANDARD PLAN 903.02 FOR SIGN CONSTRUCTION DETAILS AND STANDARD PLAN 903.03 FOR MOUNTING AND INSTALLATION DETAILS.
 3. PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
 4. EXISTING PAVEMENT MARKINGS WHICH CONFLICT WITH THE PROPOSED STRIPING SHALL BE REMOVED AS DIRECTED BY THE ENGINEER.
 5. ALL PAVEMENT MARKING MATERIAL SHALL BE ACRYLIC WATERBORNE PAINT.
 6. REFER TO PLAN SHEETS FOR ADDITIONAL DIMENSIONS.

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ABBREVIATIONS:
DSY - 4" DOUBLE SOLID YELLOW LINE
SW - 4" SOLID WHITE LINE

BRIDGE: OVER BUTCHER
BRANCH CREEK
COUNTY ROAD: BUTCHER BRANCH ROAD
SIGNING/
PAVEMENT MARKING



Notes:

For General Notes, Footing Data and Estimated Quantities for Slab on Precast Prestressed Concrete Deck Beams, see Sheet No. 2 of 17.

Dimensions shown in plan are horizontal.

*Elevation shown for top of competent bedrock is based on the Geotechnical Report prepared by TSi Engineering, Inc. dated December 18, 2012. Competent bedrock elevation to be verified in field by Geotechnical Engineer.

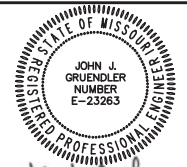
"" Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the bridge plan sheet for this structure. Boring data for the numbered locations is shown on Sheet No. 17 of 17. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the County for the design of the project, will be provided in the bridge electronic deliverable file or will be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is subsurface data available elsewhere.

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

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



DATE
2/19/14

DATE PREPARED
19/2014

STATE	MO
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T	SHEET NO. 1
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COUNTY
JEFFERSON

JOB NO.

CONTRACT ID.

PROJECT NO.
5403(635)BRIDGE NO.
6700211

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DESCRIPTION

DATE _____

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1

100



STRUCTURES, INC.

A STRUCTURAL ENGINEERING FIRM

8615 GRAVOIS
ST. LOUIS, MO 63123
PHONE (314)638-6650
FAX (314)638-2682

8615 GRAVOIS
ST LOUIS, MO 63123

8615 GRAVOIS
ST LOUIS, MO 63123

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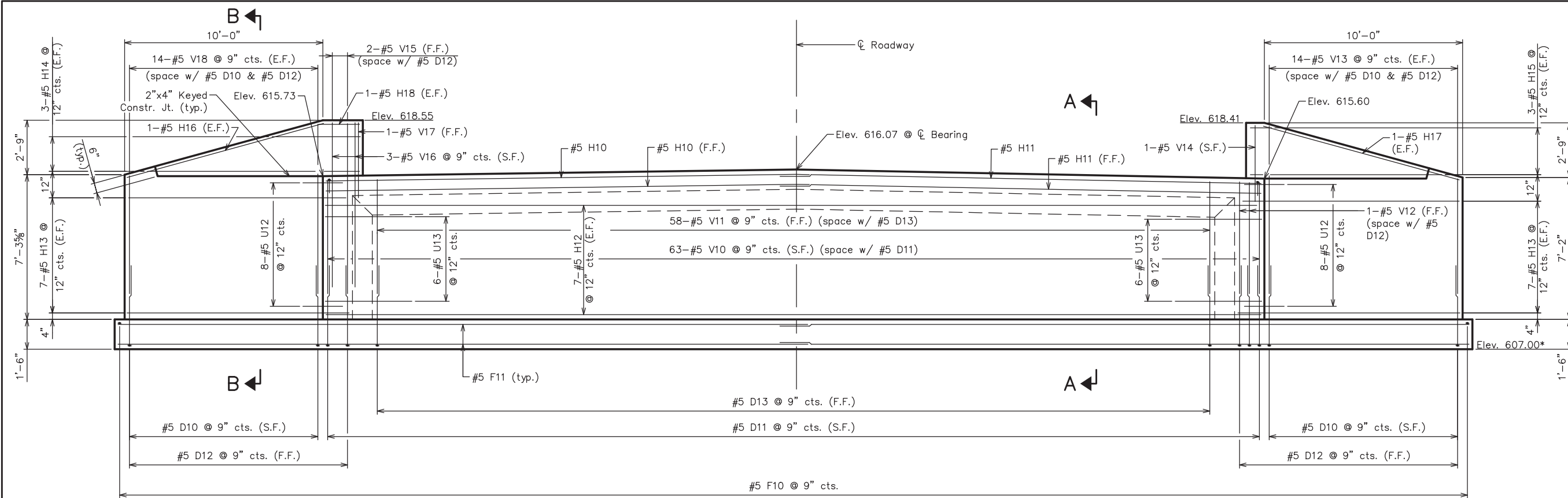
BRIDGE: OVER BUTCHER
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

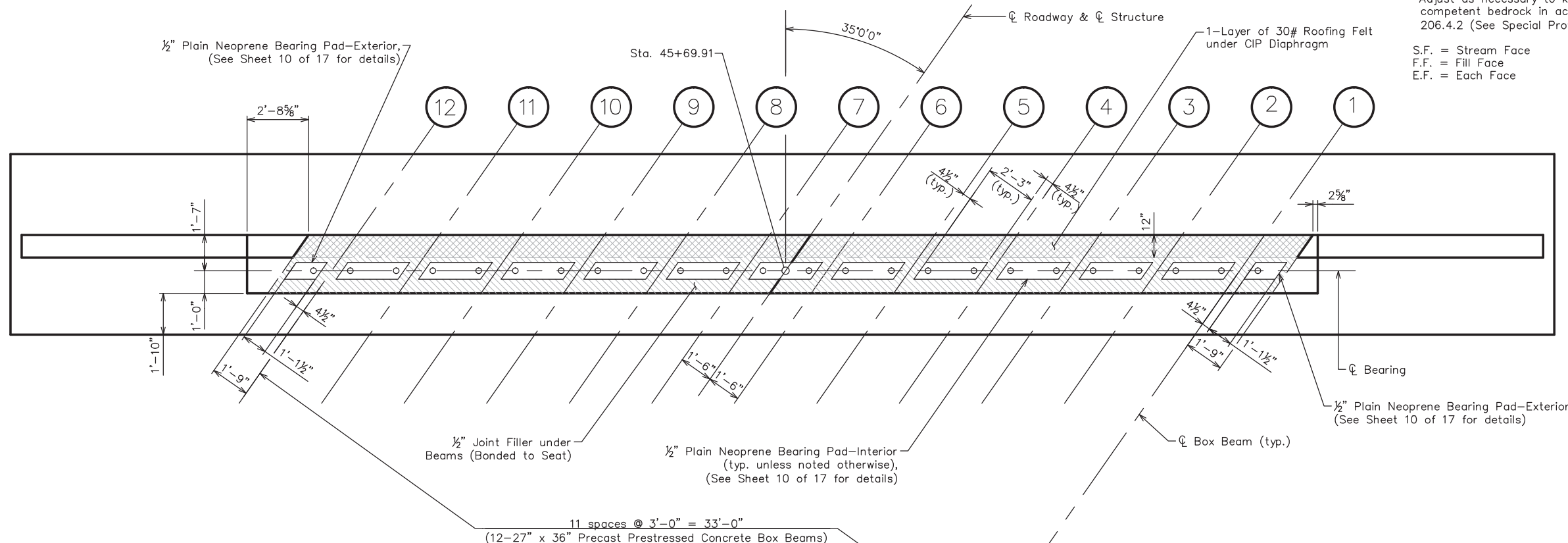
PLAN & GENERAL ELEVATION

STD. 706.35

26700211



ELEVATION
(Facing Stream Face)



PLAN

*Adjust as necessary to key footing into competent bedrock in accordance with Sec. 206.4.2 (See Special Provisions).
S.F. = Stream Face
F.F. = Fill Face
E.F. = Each Face

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

Sheet No. 3 of 17

**BRIDGE: OVER BUTCHER
BRANCH CREEK**
COUNTY ROAD: BUTCHER BRANCH ROAD
ABUTMENT 1 PLAN & ELEVATION

DATE: 2/19/14
DATE PREPARED: 2/19/2014
ROUTE: MO
DISTRICT: BR
SHEET NO.: 3
COUNTY: JEFFERSON
JOB NO.:
CONTRACT ID.:
PROJECT NO.: STP-5403(635)
BRIDGE NO.: 26700211

DATE	DESCRIPTION

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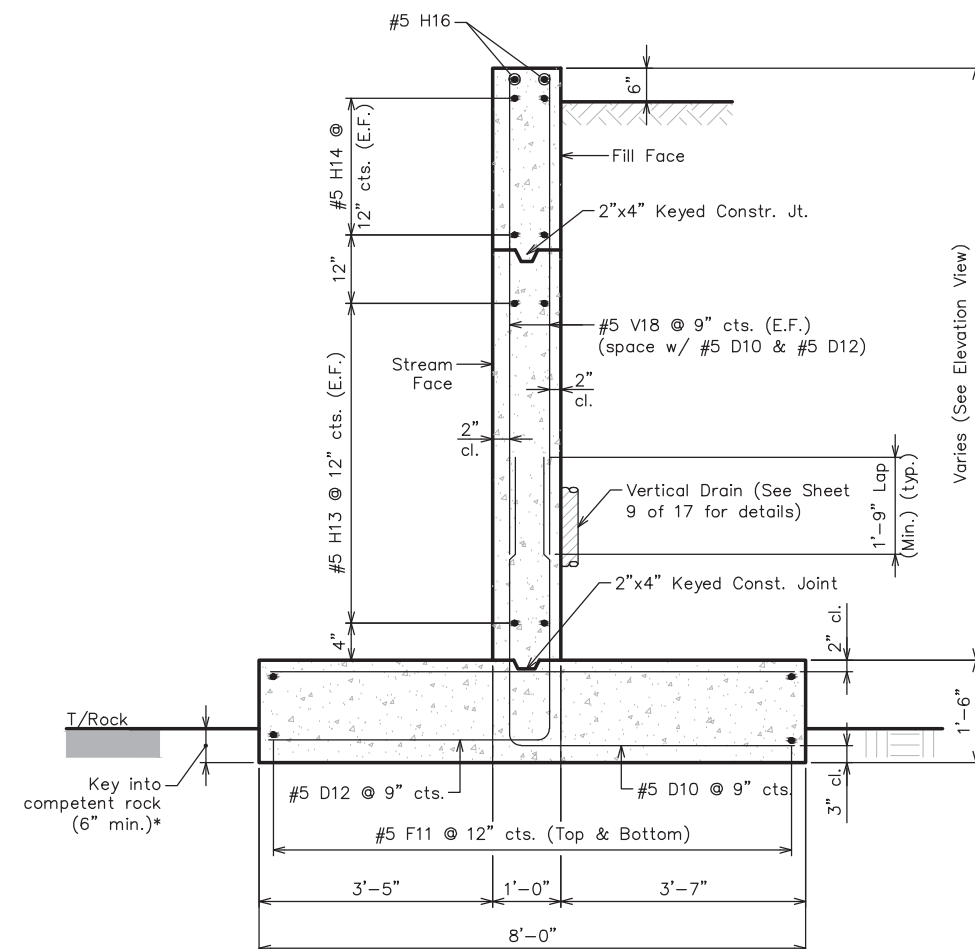
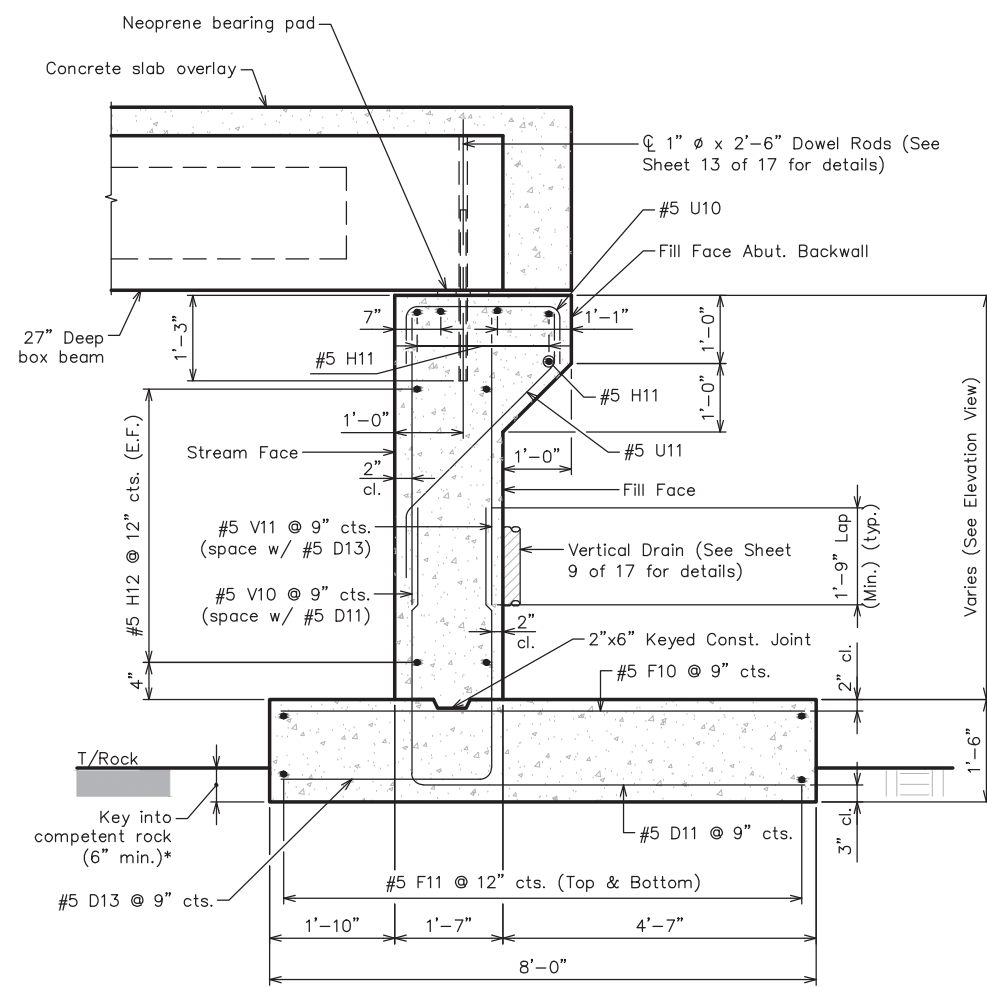
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* Adjust footing elevation as necessary to key footing into competent bedrock in accordance with Sec. 206.4.2. (See Special Provisions)

Substructure Quantity Table for Abutment No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	219
Class 1 Excavation in Rock	cu. yard	15
Porous Backfill	cu. yard	33
Class B Concrete (Substructure)	cu. yard	61.2
Reinforcing Steel (Bridges)	pound	6250
Reinforcing Steel (Epoxy Coated)	pound	690
Vertical Drain at End Bents	each	1

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

Sheet No. 5 of 17

BRIDGE: OVER BUTCHER
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

ABUTMENT 1 SECTIONS AND DETAILS



DATE
2/19/14

DATE PREPARED
2/19/2014

ROUTE	STATE MO
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DISTRICT BR	SHEET NO. 5
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COUNTY
JEFFERSON
JOB NO.

CONTRACT ID.

PROJECT NO.
STP-5403(635)

BRIDGE NO.
26700211

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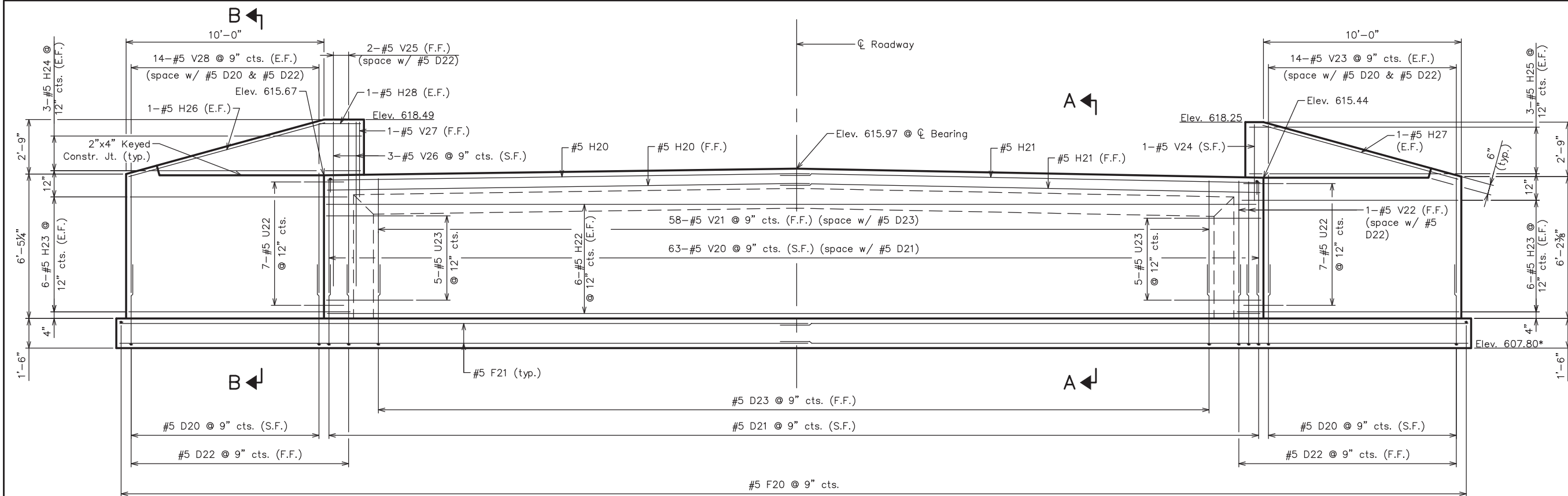
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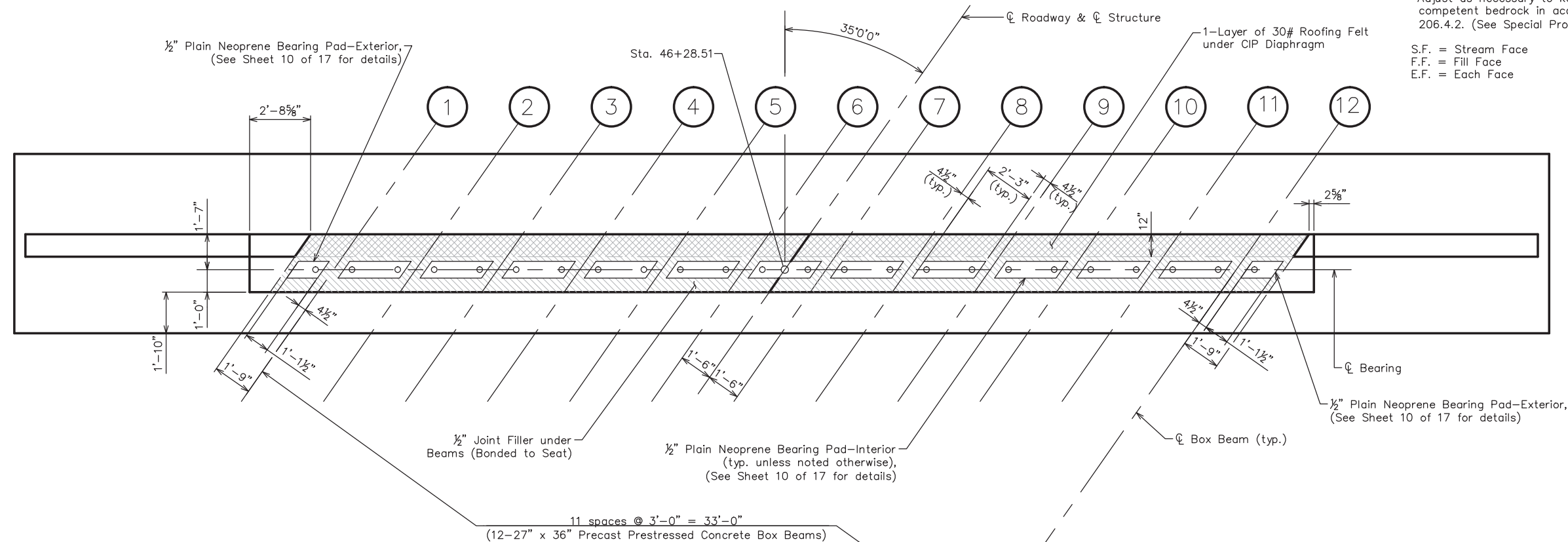
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FAX (314)638-2682
CERT. OF AUTHOR

000000007-7



ELEVATION
(Facing Stream Face)



PLAN

*Adjust as necessary to key footing into competent bedrock in accordance with Sec. 206.4.2. (See Special Provisions)

S.F. = Stream Face
F.F. = Fill Face
E.F. = Each Face

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

Sheet No. 6 of 17

BRIDGE: OVER BUTCHER
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

ABUTMENT 2 PLAN & ELEVATION



DATE
2/19/14

DATE PREPARED
2/19/2014

ROUTE STATE
BR MO

DISTRICT SHEET NO.
BR 6

COUNTY
JEFFERSON

JOB NO.

CONTRACT ID.

PROJECT NO.
STP-5403(635)

BRIDGE NO.
26700211

DATE

DESCRIPTION

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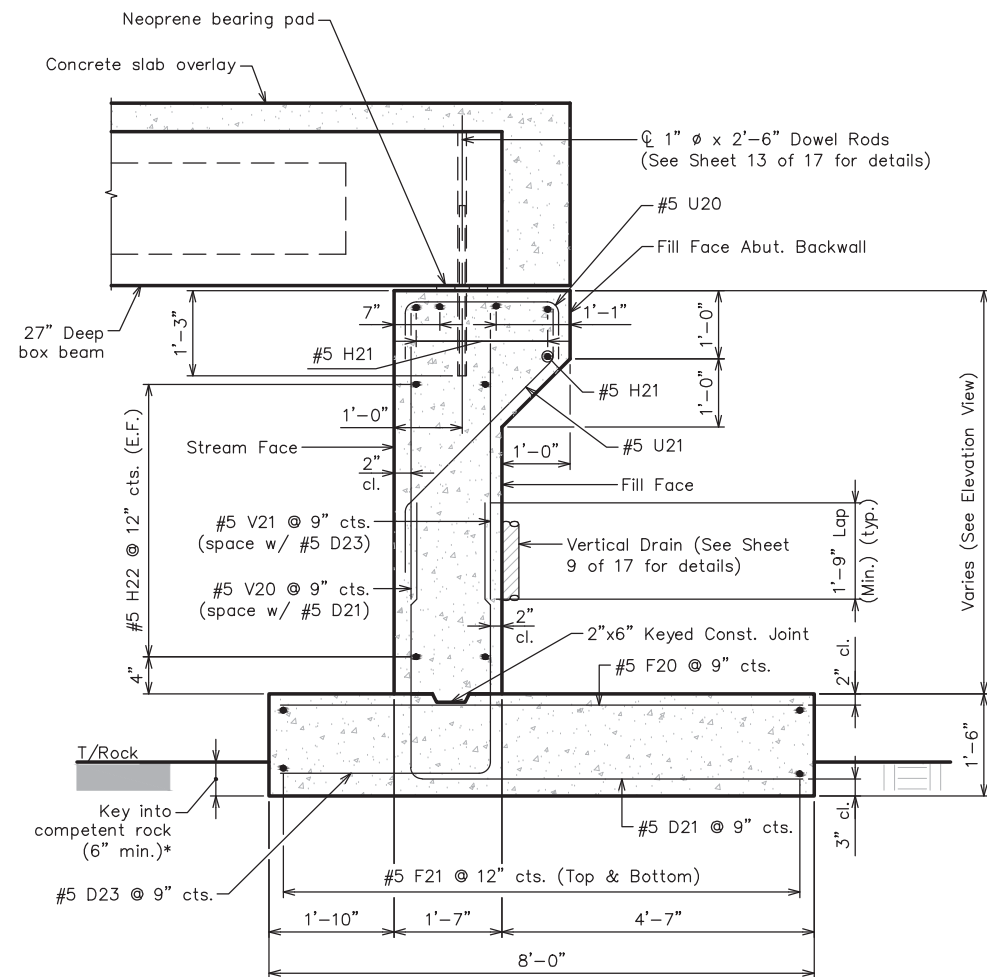
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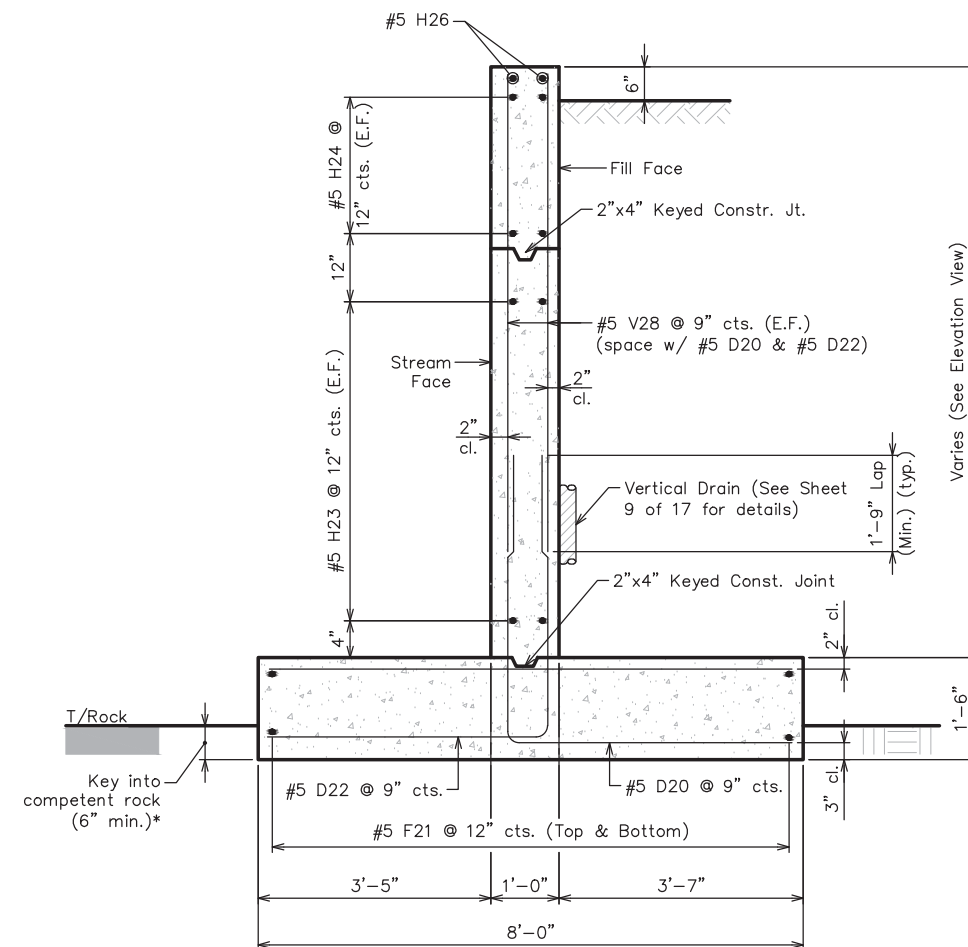
DESCRIPTION

DATE

DESCRIPTION



SECTION A-A



SECTION B-B

* Adjust footing elevation as necessary to key footing into competent bedrock in accordance with Sec. 206.4.2. (See Special Provisions)

Substructure Quantity Table for Abutment No. 2		
Item		Quantity
Class 1 Excavation	cu. yard	196
Class 1 Excavation in Rock	cu. yard	15
Porous Backfill	cu. yard	30
Class B Concrete (Substructure)	cu. yard	58.1
Reinforcing Steel (Bridges)	pound	5910
Reinforcing Steel (Epoxy Coated)	pound	690
Vertical Drain at End Bents	each	1

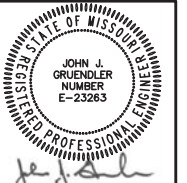
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 8 of 17

BRIDGE: OVER BUTCHER
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

ABUTMENT 2 SECTIONS AND DETAILS



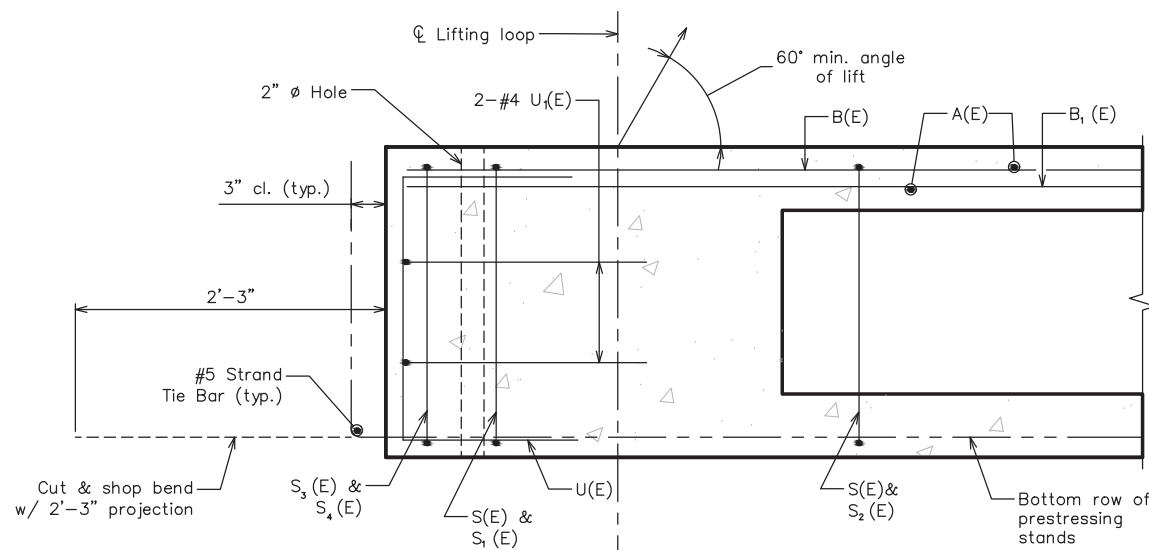
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DATE PREPARED
2/19/2014
ROUTE
STATE
MO
DISTRICT
BR
SHEET NO.
8
COUNTY
JEFFERSON
JOB NO.
CONTRACT ID.
PROJECT NO.
STP-5403(635)
BRIDGE NO.
26700211

DATE	DESCRIPTION

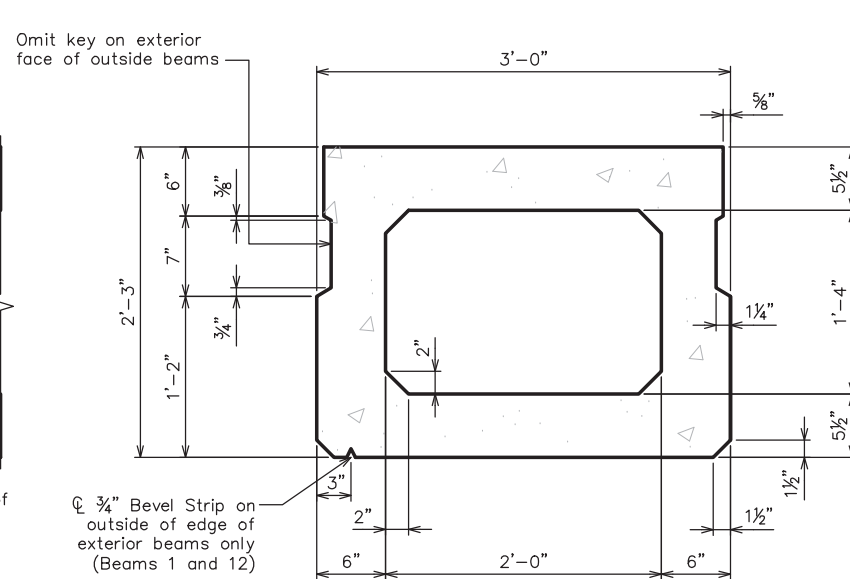
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(636-797-5340) PHONE
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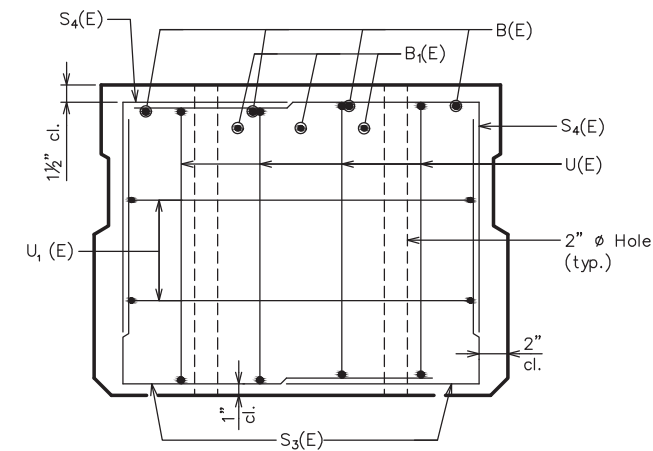
STRUCTURES, INC.
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8615 GRANDVIEW
ST. LOUIS, MO 63123
PHONE (314) 638-6650
FAX (314) 638-2682
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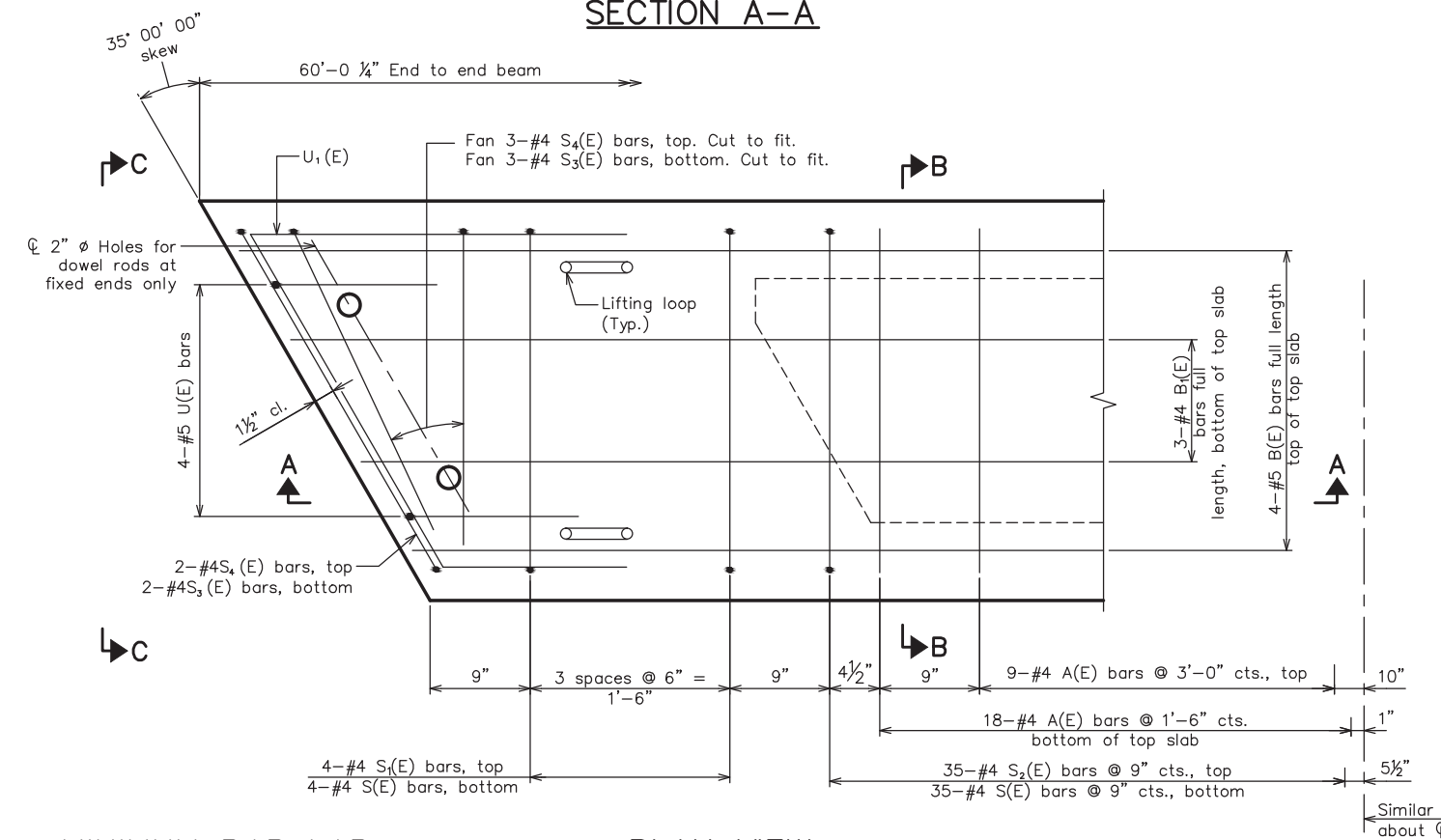
SECTION A-A



SECTION B-B
(Showing dimensions)



VIEW C-C

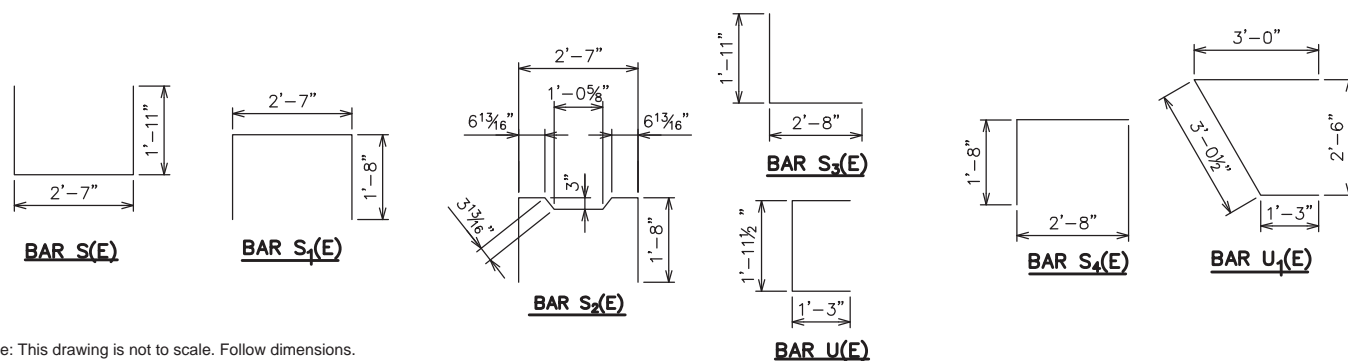


MINIMUM BAR LAP

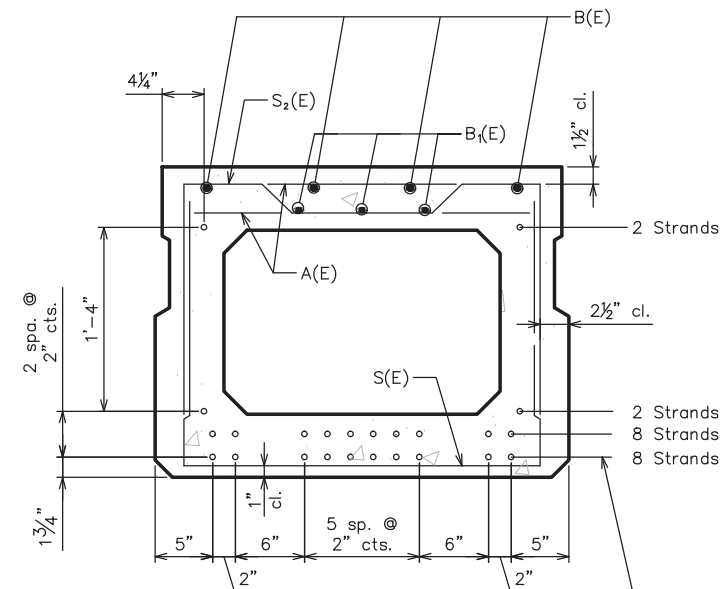
#4 BAR = 2'-0"
#5 BAR = 2'-6"

PLAN VIEW

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



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



SECTION B-B

(Showing reinforcement and permissible strand locations)

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

Use 20 strands with an initial prestress force of 618 kips.

See Sheet 10 of 17 for additional Beam Notes.

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	54	#4	2'-7"	—
B(E)	4	#5	59'-9"	—
B(E)	3	#4	59'-9"	—
S(E)	78	#4	6'-5"	—
S(E)	8	#4	5'-11"	—
S2(E)	70	#4	6'-2"	—
S3(E)	10	#4	4'-7"	—
S4(E)	10	#4	4'-4"	—
U(E)	8	#5	4'-6"	—
U(E)	4	#4	7'-4"	—
D(E)*	20	#4	2'-9"	**

* Exterior beams only.
** See Sheet 12 of 17.

Notes:
See sheet 12 of 17 for additional details.

Bars in beam designated (E) shall be epoxy coated

Cut and shop bend bottom row of strands with 2'-3" projection. Cut remaining strands within 1" of beam end.

BRIDGE: OVER BUTCHER
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

BEAM DETAILS



DATE
2/19/14
DATE PREPARED
2/19/2014
ROUTE
MO
DISTRICT
BR
SHEET NO.
11
COUNTY
JEFFERSON
JOB NO.
CONTRACT ID.
PROJECT NO.
STP-5403(635)
BRIDGE NO.
26700211

DESCRIPTION

DATE

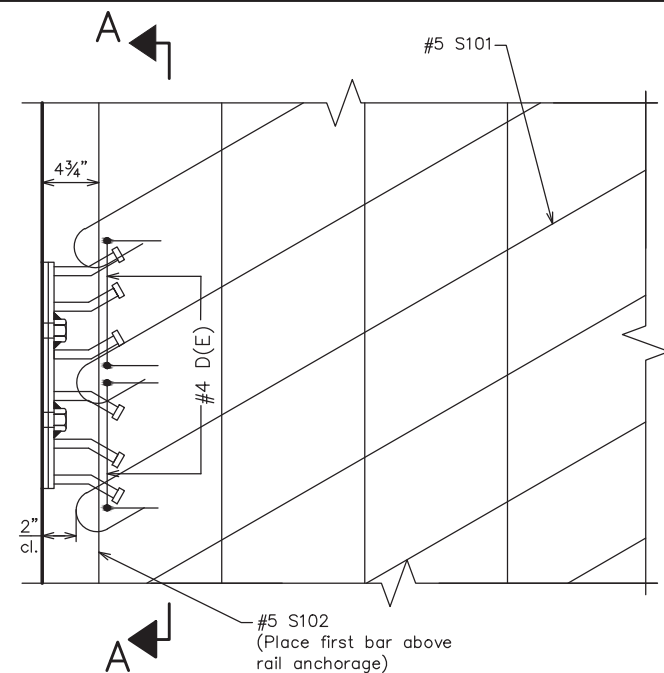
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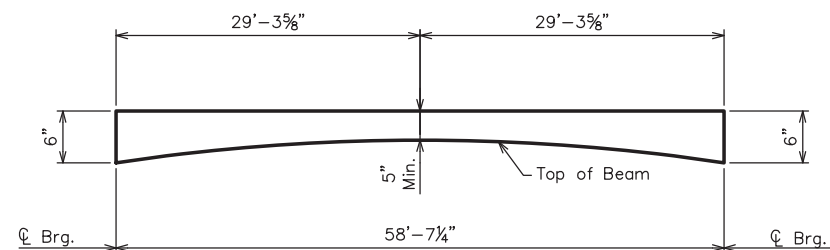
861 S. Graving
St. Louis, MO 63123
Phone: (314) 638-6650
Fax: (314) 638-2662

CERT. OF AUTHORITY: E-2006035000

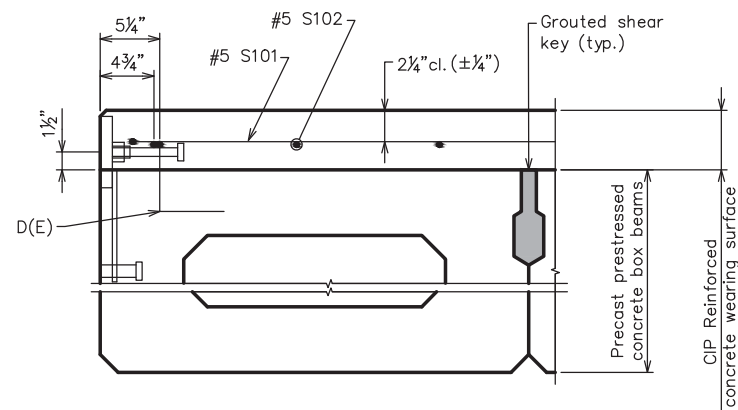


PLAN

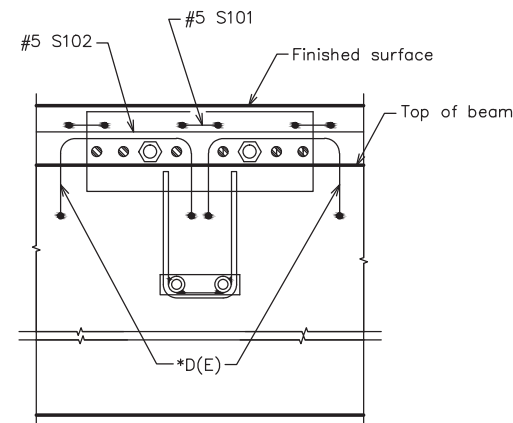
Notes:
Formwork necessary for the wearing surface may be secured utilizing the bottom rail anchorage inserts and/or additional inserts cast into the beam.



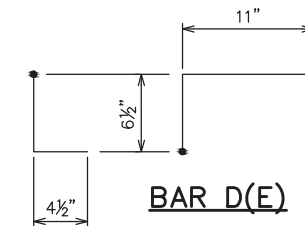
ANTICIPATED CONCRETE WEARING SURFACE PROFILE
(For information only)



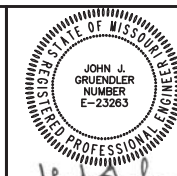
SECTION THRU FASCIA BEAM



SECTION A-A



* Place 2-#4 D(E) bars in beam at each post location as shown. D(E) bar included in cost of beam.



DATE

2/19/14

DATE PREPARED

2/19/2014

ROUTE

STATE

MO

DISTRICT

SHEET NO.

BR 12

COUNTY

JEFFERSON

JOB NO.

CONTRACT ID.

PROJECT NO.

STP-5403(635)

BRIDGE NO.

26700211

DESCRIPTION

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BRIDGE: OVER BUTCHER
BRANCH CREEK

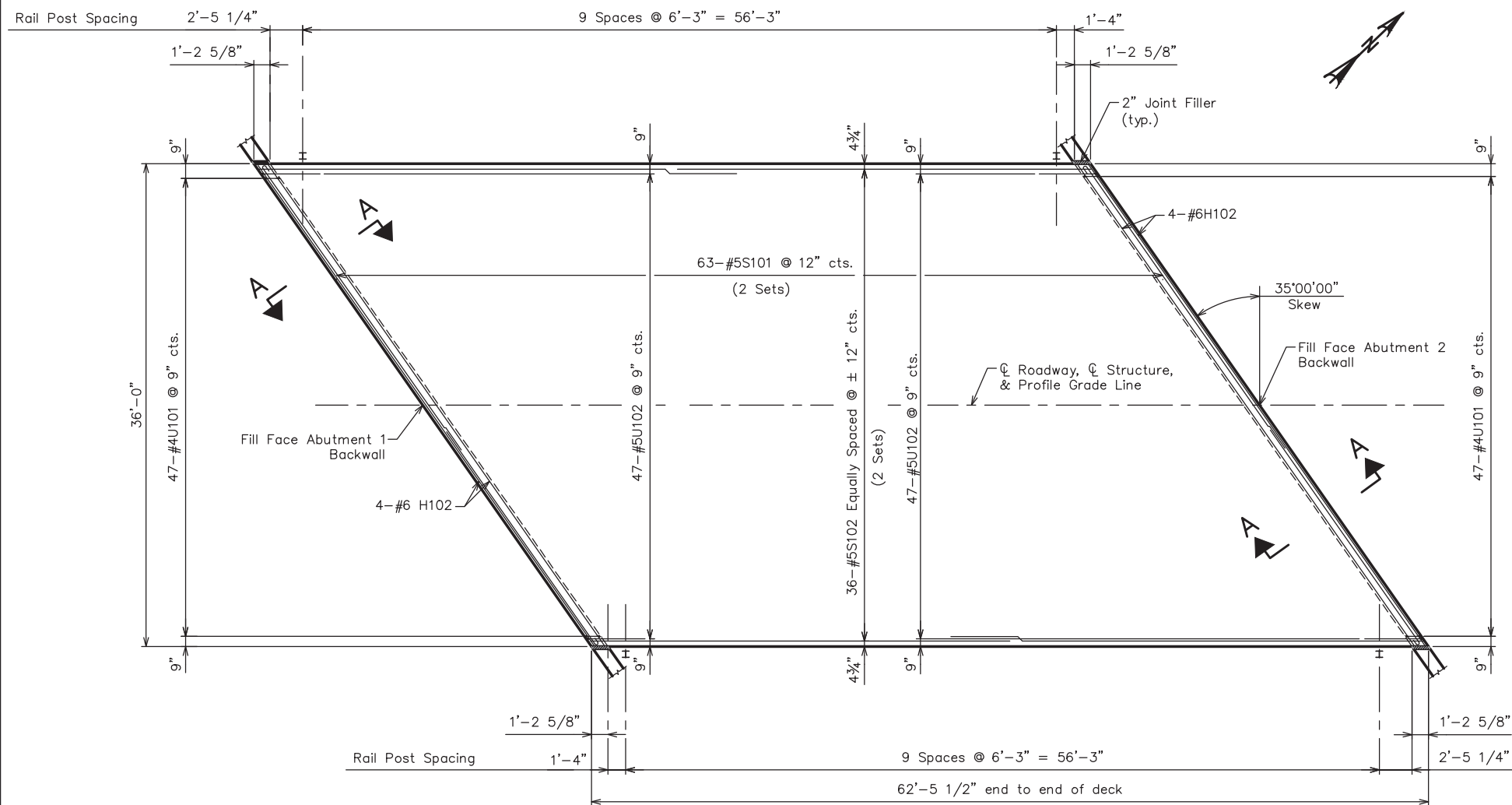
COUNTY ROAD: BUTCHER BRANCH ROAD

BEAM DETAILS

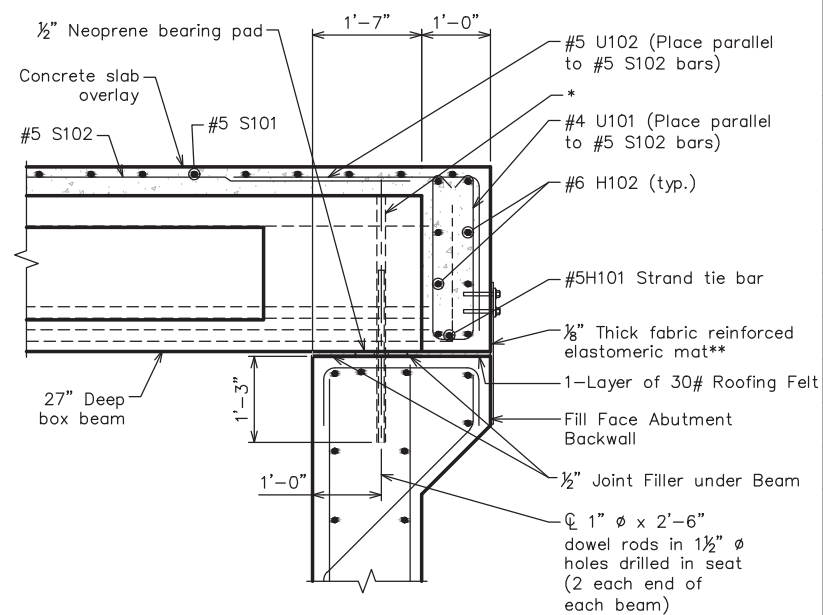
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 12 of 17





PLAN



SECTION A-A

(Dimensions are at Rt. \angle 's)

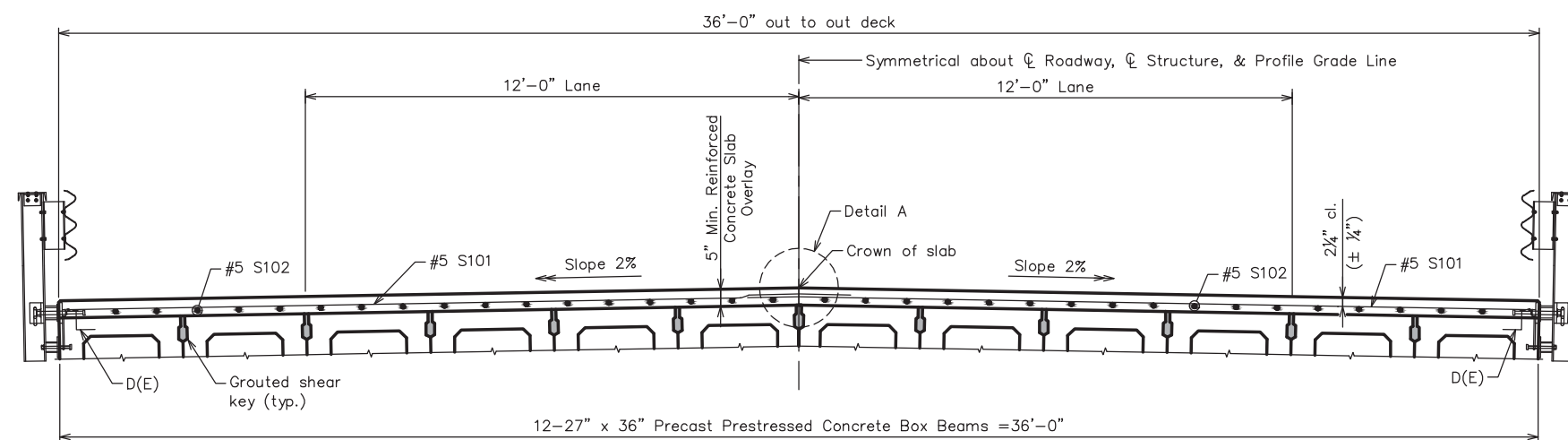
Notes:

See sheet 10 of 17 for neoprene bearing pad details.

Neoprene bearing pads and joint filler shall be bonded to the bearing seat with an epoxy adhesive.

* Fill holes in seat and beams at Abutment 1 with joint sealer meeting the requirements of Section 1057.5. Fill holes in seat and beams at Abutment 2 with non-shrink grout.

** Fabric mat shall be 24" wide and attached full width and vertically at edges to the abutment with a $\frac{3}{8}$ " x 5" steel plate (full width) and $\frac{1}{2}$ " ϕ studs with nuts and washers at 12" cts (full width). The cost of furnishing and installing the fabric mat and all misc. fasteners, plates, and hardware shall be included in the unit price bid for "Reinforced Concrete Slab Overlay."



CROSS SECTION

(Near Midspan)



#5 BAR = 2'-7"

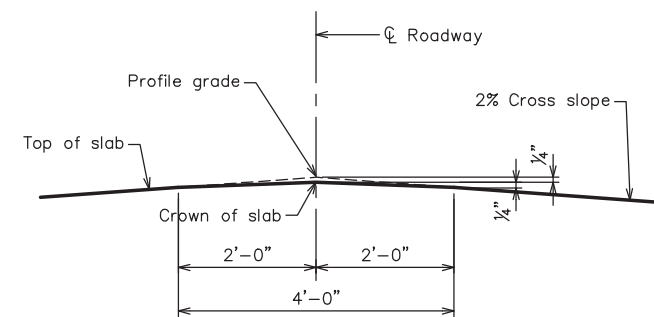
Notes:

See sheets 10-12 of 17 for Superstructure Details and Bill of Materials.

Spacing of S101 bars shall be measured along the ϕ of structure.

Apply a penetrating sealer to the exterior face and 1 ft on the underside of the outside beams after the beams have been erected (See Special Provisions).

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

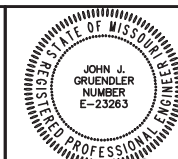


DETAIL A

BRIDGE: OVER BUTCHER
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

SLAB PLAN & CROSS SECTION



DATE _____

2/19/14

DATE PREPARED _____

2/19/2014

ROUTE	STATE
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MO

DISTRICT	SHEET NO
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BR | 13

COUNTY

JEFFERSON

JOB NO.

CONTRACT ID.

PROJECT NO. _____

[illegible]

JEFFERSON COUNTY PUBLIC
WORKS DEPARTMENT

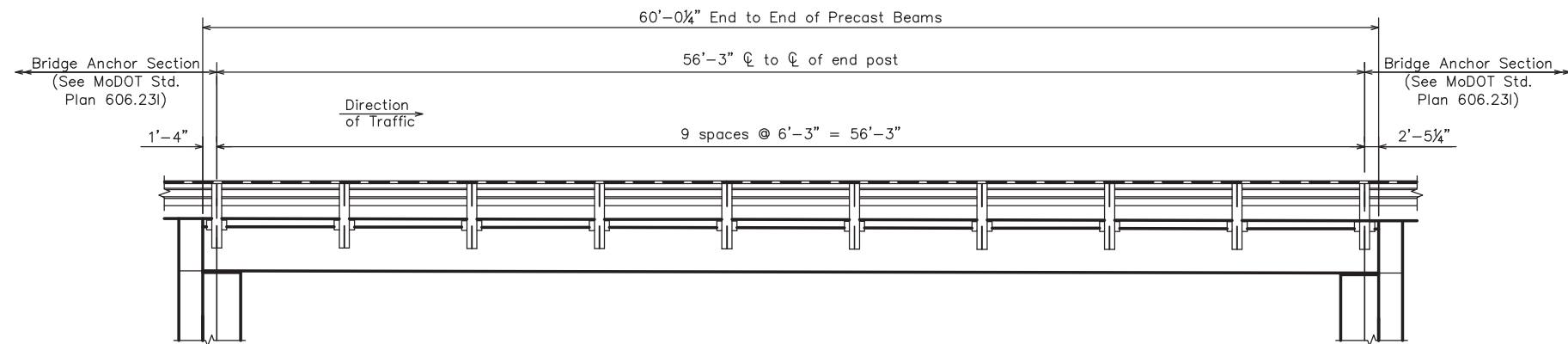
P.O. BOX 100
HILLSBORO, MO
(636-797-5340) PHONE
(636-797-5565) FAX



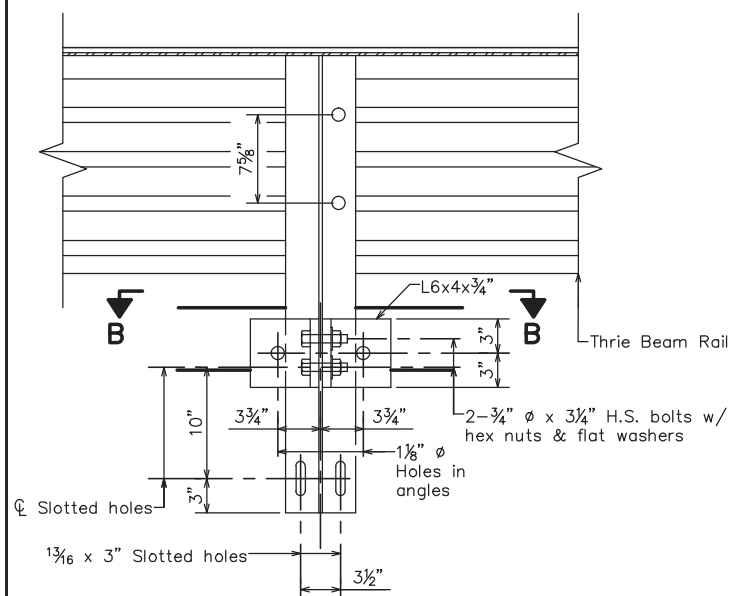
STRUCTURES, INC.
A STOKITT BAI ENGINEERING FIRM

3615 GRAVOIS
ST. LOUIS, MO 63123
PHONE (314)638-6650

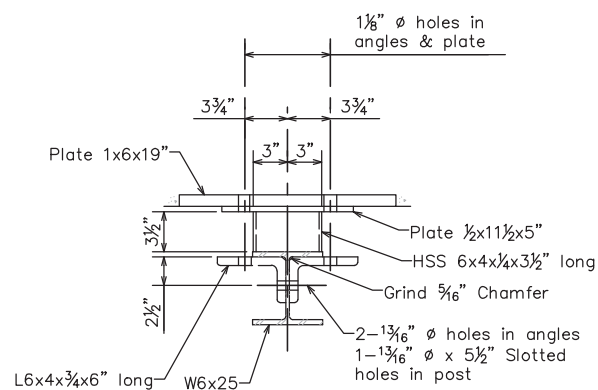
314)638-2682
 DEPT OF AUTHORITY: F-2006035000



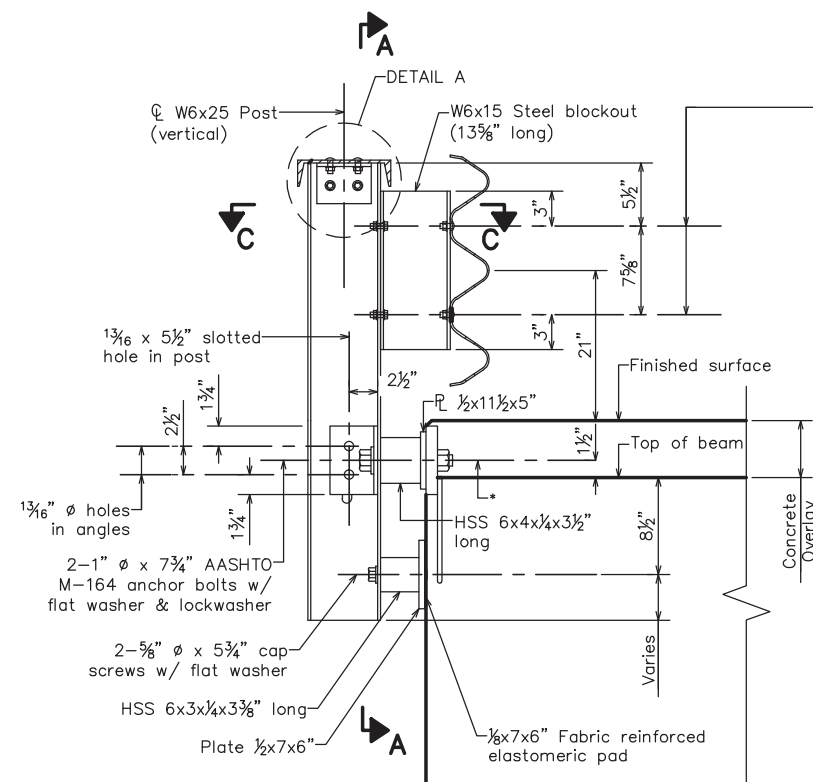
PART ELEVATION SHOWING THRIE BEAM RAIL



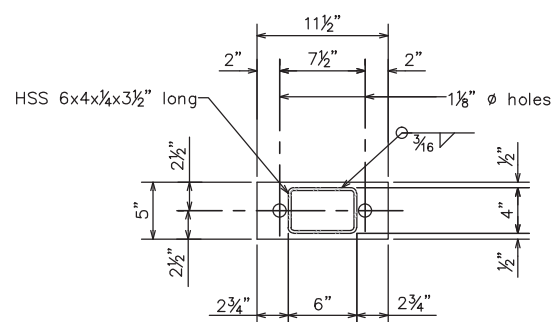
SECTION A-A



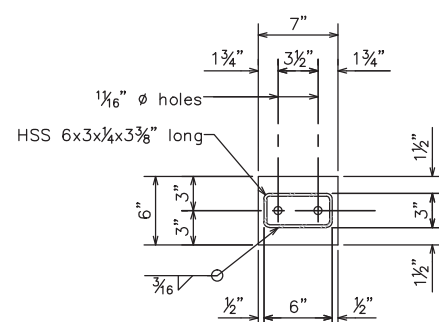
SECTION B-B



SECTION AT RAIL POST



PL 1/2x11 1/2x5"



PL 1/2x7x6"

Blockout-to-Post Connection:

C 2 holes 1 3/16" Ø in W6x25 post flange & W6x15 blockout flange

C 2 Hex head bolt 5/8" Ø w/ two washers & hex nut in W6x25 post flange

Thrie Beam-to-Blockout Connection:

C 1 3/16" x 2 1/2" vertical slotted hole in W6x15 blockout flange (**)

C 5/8" Ø Carriage bolt w/ one flat washer & hex nut

(**) Required on one side of web only, but may be provided on both sides of web at the contractor's option.

* The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

GENERAL NOTES:

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

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

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

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

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

5/8" Ø button-head, oval shoulder bolts with 3/8" min. thickness hex nuts shall be used at all slots.

Thrie beam guardrail on the bridge shall be 12 gauge steel.

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

Washers shall be used at all post bolts between the bolt head and beam. The flat washers shall be rectangular in shape 3" x 1 3/4" x 3/16" minimum and with a 11/16" x 1" slot, or when necessary of such design as to fit the contour of the beam. A 3" x 1 3/4" x 5/8" rectangular washer shall be used between the blockout and the thrie beam rail.

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

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

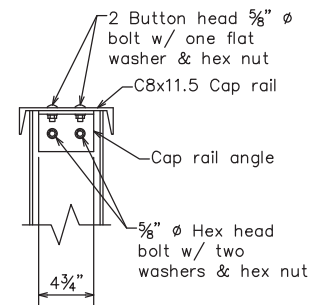
The guard rail anchor detail shown on this sheet shall be supplied by the precast concrete beam supplier for installation during beam fabrication.

The guard rail supplier shall supply the rail system which shall include all thrie beam railing, channels, posts, connecting plates, and bolts, including the guard rail anchor bolts.

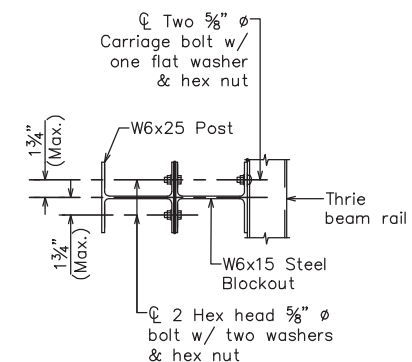
Shim plates 6x6x1/16" may be used between the top of the post and the channel member as required for vertical alignment.

All field drilled holes shall be coated with an approved zinc rich paint before erection.

See Missouri Standard Plans drawing 606.00 for details not shown.



DETAIL A



SECTION C-C

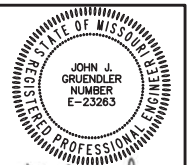
BRIDGE: OVER BUTCHER
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

BRIDGE RAILING

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

Sheet No. 14 of 17



DATE
2/19/14

DATE PREPARED
2/19/2014

ROUTE
STATE
BR MO

DISTRICT
SHEET NO.
BR 14

COUNTY
JEFFERSON

JOB NO.

CONTRACT ID.

PROJECT NO.
STP-5403(635)

BRIDGE NO.
26700211

DESCRIPTION

DATE

JEFFERSON COUNTY PUBLIC
WORKS DEPARTMENT

P.O. BOX 100
HILLSBORO, MO
(636-797-5340) PHONE
(636-797-5565) FAX

STRUCTURES, INC.
A STRUCTURAL ENGINEERING FIRM

8615 GRAVIER
ST. LOUIS, MO 63119
P (314) 638-6650
FAX (314) 638-2682

CERT. OF AUTHORITY: E-2006035000



*** Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.

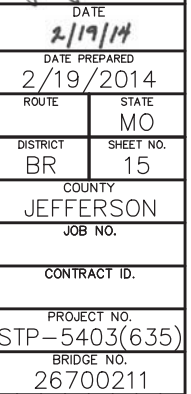
BRIDGE: OVER BUTCHER
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

BRIDGE RAILING DETAILS

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

Sheet No. 15 of 17

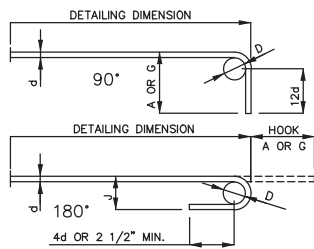
[illegible]JEFFERSON COUNTY PUBLIC
WORKS DEPARTMENT

STRUCTURES, INC.
A STRUCTURAL ENGINEERING FIRM

3615 GRAVVIS
ST. LOUIS, MO 63123
PHONE (314)638-6650
FAX (314)638-2682

CERT. OF AUTHORITY: E-2006035000

BILL OF REINFORCING STEEL																									
NO. REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT						
									B		C		D		E					F		H		K	
									FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.	FT.	IN.	FT.	IN.
		ABUTMENT 1																							
28	5 D10	FOOTING	19	X					5	0	4	2					9	2	9	0	263				
63	5 D11	FOOTING	19	X					5	0	5	9					10	9	10	7	695				
32	5 D12	FOOTING	19	X					5	0	4	0					9	0	8	10	295				
58	5 D13	FOOTING	19	X					5	0	3	0					8	0	7	10	474				
91	5 F10	FOOTING	20	X					7	6								7	6	712					
32	5 F11	FOOTING	20	X					35	3								35	3	1177					
5	5 H10	WALL	E 20	X					25	2								25	2	131					
5	5 H11	WALL	E 20	X					24	11								24	11	130					
14	5 H12	WALL	20	X					47	2								47	2	689					
28	5 H13	WINGWALL	20	X					11	4								11	4	331					
6	5 H14	WINGWALL	20	X	V	2			11	2								11	2						
		INCR=3ft-7.5in							3	11								3	11	47					
6	5 H15	WINGWALL	20	X	V	2			8	11								8	11						
		INCR=3ft-7.5in							1	8								1	8	33					
2	5 H16	WINGWALL	20	X					10	3								10	3	21					
2	5 H17	WINGWALL	20	X					10	3								10	3	21					
2	5 H18	WINGWALL	20	X					1	11								1	11	4					
52	5 U10	WALL	E 10	S	X					9	2	3						3	9	3	6	190			
52	5 U11	WALL	E 23	S	X				8	3	2	8	5.625	5.625	5.625	5.625	4	6	4	5	240				
16	5 U12	WALL	28	S	X					2	6	2	3	2	6			7	3	7	0	117			
12	5 U13	WALL	23	S	X				1	2	3	2	1	2	9.875	9.875	9.875	9.875	5	6	5	5	68		
63	5 V10	WALL	20	X					6	4								6	4	416					
58	5 V11	WALL	20	X					6	4								6	4	383					
2	5 V12	WALL	20	X					5	11								5	11	12					
28	5 V13	WINGWALL	20	X																					



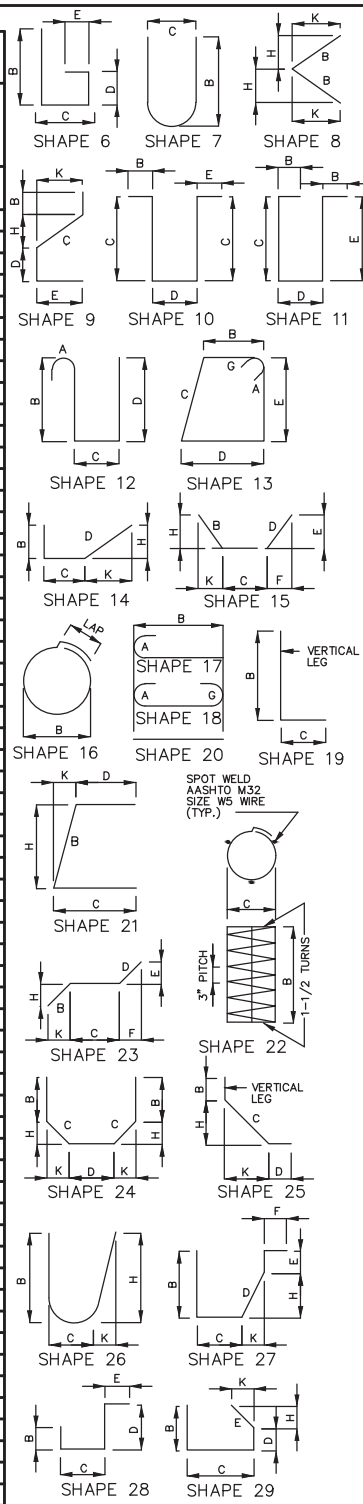
END HOOK DIMENSIONS					
BAR SIZE	D (IN.)	ALL GRADES			
		180° HOOKS		90° HOOKS	
		A	R	A	R
#3	2 1/4"	5"	3"	6"	
#4	3"	6"	4"	8"	
#5	3 3/4"	7"	5"	10"	
#6	4 1/2"	8"	6"	12"	
#7	5 1/4"	10"	7"	14"	
#8	6"	11"	8"	16"	
#9	9 1/2"	15"	11 3/4"	19"	
#10	10 3/4"	17"	13 1/4"	22"	
#11	12"	19"	14 3/4"	2'-0"	
#14	18 1/4"	2'-3"	21 3/4"	2'-7"	

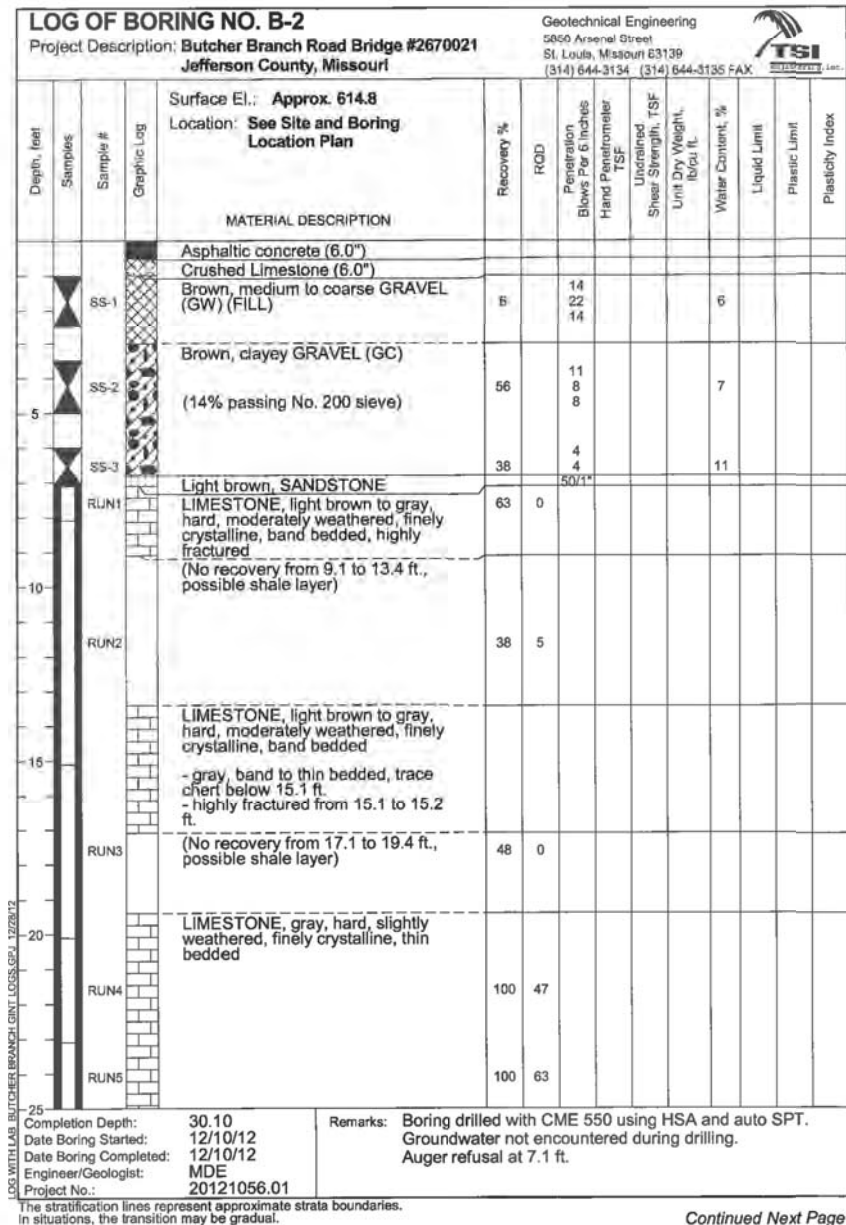
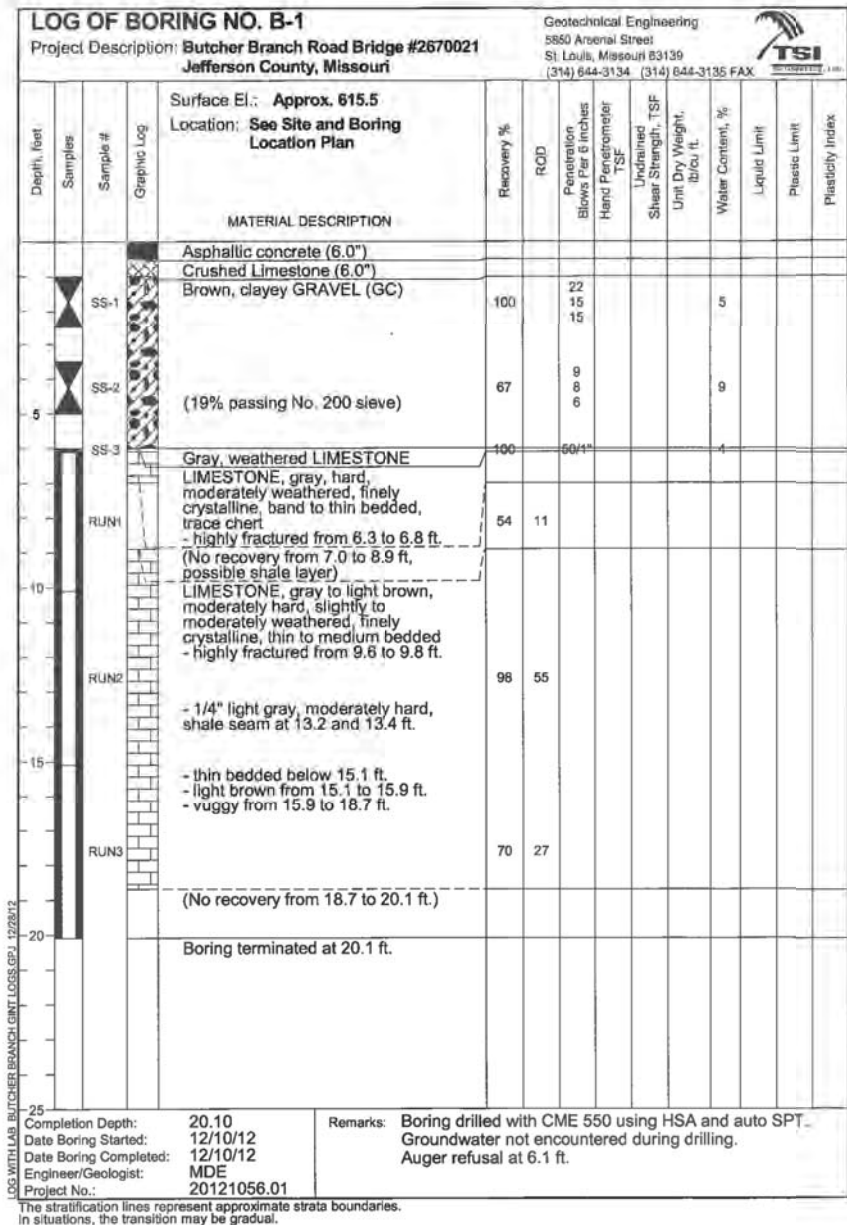
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL.
SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.
REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.

BILL OF REINFORCING STEEL																							
NO.	REQ'D.	MARK NO. SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS								NOMINAL LENGTH FT.IN.	ACTUAL LENGTH FT.IN.	WEIGHT LBS.			
										B		C		D	E	F	H				K		
										FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.				FT.	IN.	FT.
			ABUTMENT 2																				
28	5	D20	FOOTING	19	X					5	0	4	2					9	2	9	0	263	
63	5	D21	FOOTING	19	X					5	0	5	9					10	9	10	7	695	
32	5	D22	FOOTING	19	X					5	0	4	0					9	0	8	10	295	
58	5	D23	FOOTING	19	X					5	0	3	0					8	0	7	10	474	
91	5	F20	FOOTING	20	X					7	6								7	6		712	
32	5	F21	FOOTING	20	X					35	3								35	3		1177	
5	5	H20	WALL	E 20	X					25	2									25	2	131	
5	5	H21	WALL	E 20	X					24	11									24	11	130	
12	5	H22	WALL	20	X					47	2									47	2	590	
24	5	H23	WINGWALL	20	X					11	4									11	4	284	
6	5	H24	WINGWALL	20	X V 2					11	8									11	8		
			INCR=3ft-7.5in							4	5									4	5	50	
6	5	H25	WINGWALL	20	X V 2					9	0									9	0		
			INCR=3ft-7.5in							1	9									1	9	34	
2	5	H26	WINGWALL	20	X					10	3									10	3	21	
2	5	H27	WINGWALL	20	X					10	3									10	3	21	
2	5	H28	WINGWALL	20	X					1	11									1	11	4	
52	5	U20	WALL	E 10	S X						9	2	3						3	9	3	6	190
52	5	U21	WALL	E 23	S X					8	3	2	8	5.625	5.625	5.625	5.625		4	6	4	5	240
14	5	U22	WALL	28	S X						2	6	2	3	2	6			7	3	7	0	102
10	5	U23	WALL	23	S X					1	2	3	2		9.875	9.875	9.875	9.875	5	6	5	5	56
63	5	V20	WALL	20	X					5	6									5	6	361	
58	5	V21	WALL	20	X					5	6									5	6	333	
2	5	V22	WALL	20	X					5	0									5	0	10	
28	5	V23	WINGWALL	20	X V 2					7	9									7	9		
			INCR=2.500in							5	1									5	1	187	
1	5	V24	WINGWALL	20	X					4	8									4	8	5	
2	5	V25	WINGWALL	20	X					8	0									8	0		

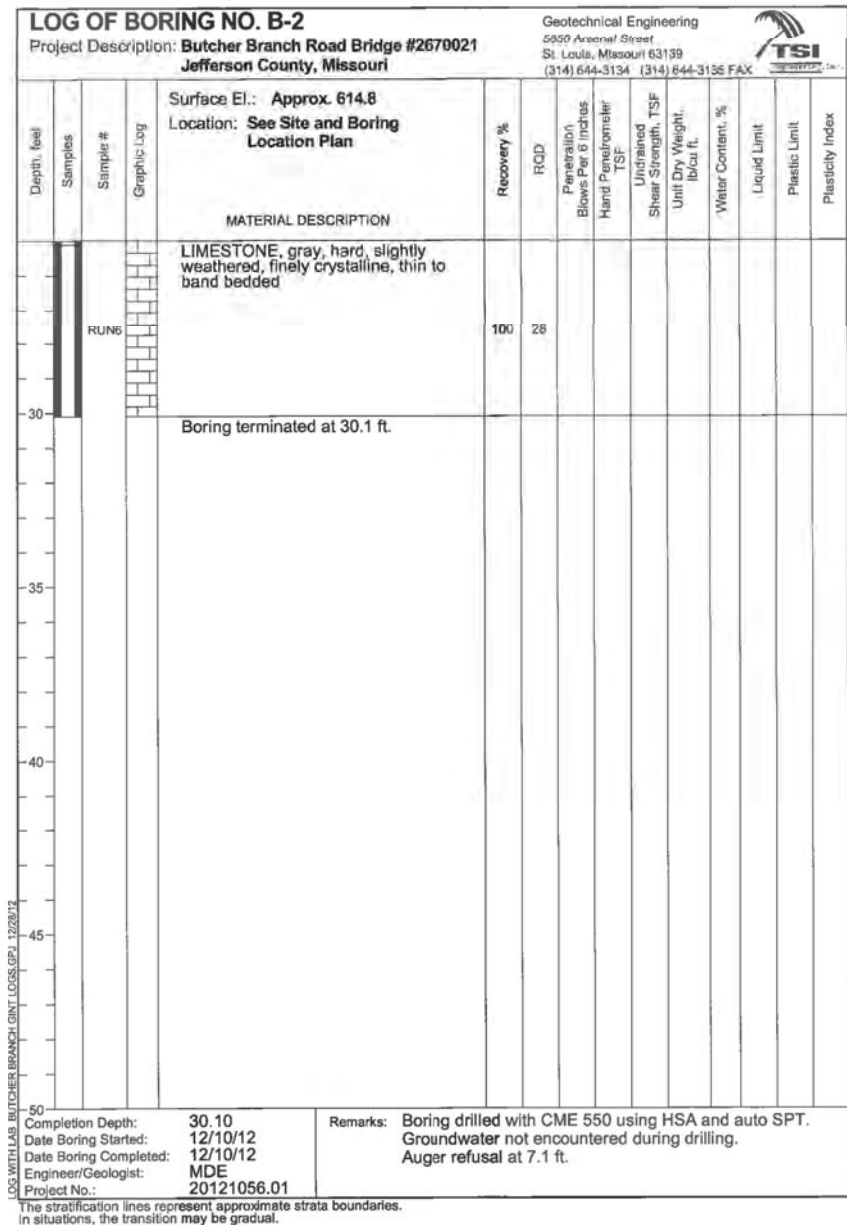


BILL OF REINFORCING STEEL





Continued Next Page



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

For location of borings, see Sheet No. 1 of 17.

See December 18, 2012 TSI Engineering, Inc.
geotechnical report for additional data.

BRIDGE: OVER BUTCHER
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

BORING DATA

Sheet No. 17 of 17

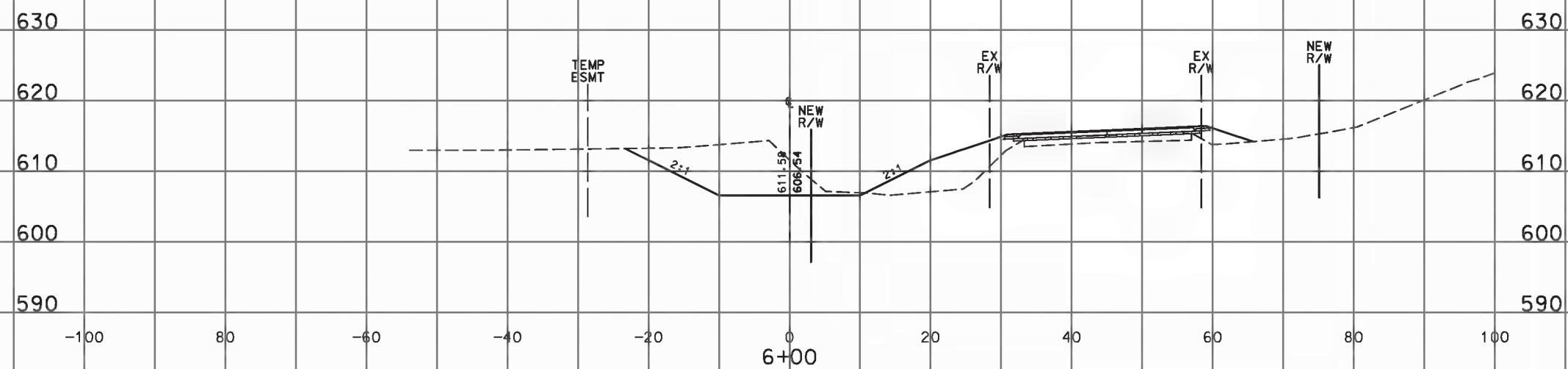
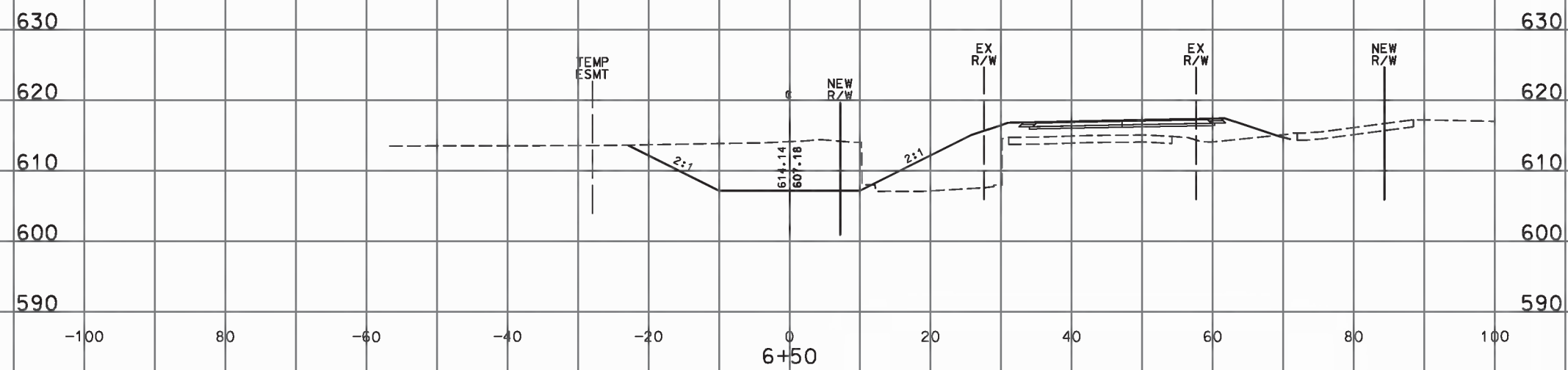
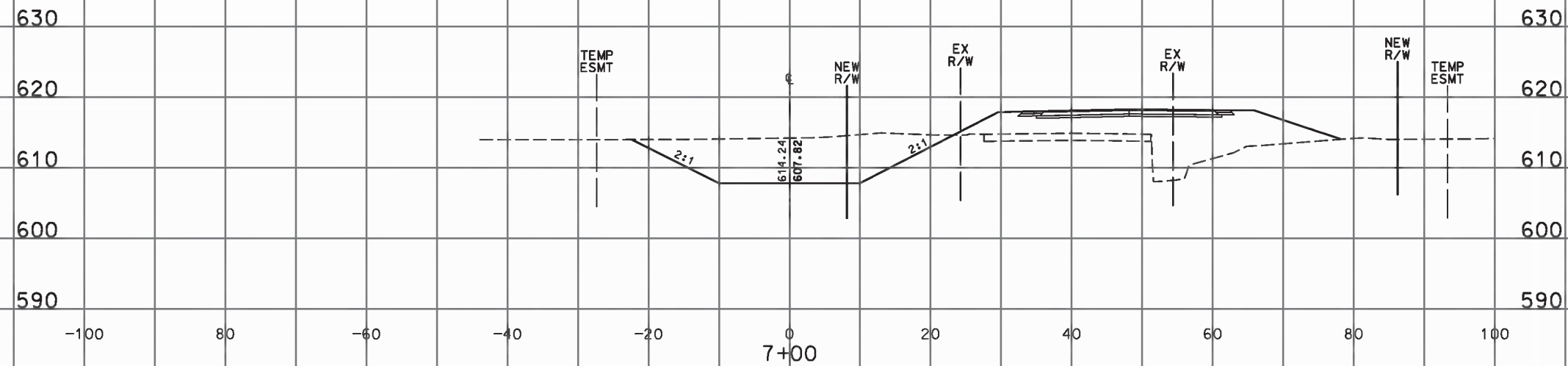
STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
JOHN J. GRUENDLER
NUMBER E-23263

DATE
2/19/14
DATE PREPARED
2/19/2014
ROUTE
BR
STATE
MO
DISTRICT
BR
SHEET NO.
17
COUNTY
JEFFERSON
JOB NO.
CONTRACT ID.
PROJECT NO.
STP-5403(635)
BRIDGE NO.
26700211

DESCRIPTION
DATE

JEFFERSON COUNTY PUBLIC
WORKS DEPARTMENT
P.O. BOX 100
HILLSBORO, MO
(636-797-5340) PHONE
(636-797-5565) FAX

STRUCTURES, INC.
A STRUCTURAL ENGINEERING FIRM
6615 GRAVIER
ST. LOUIS, MO 63113
PHONE (314) 636-6650
FAX (314) 636-2662
CERT. OF AUTHORITY: E-2006035000

BRIDGE: OVER BUTCHER
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

CHANNEL CROSS SECTIONS



John A. Hoch

DATE PREPARED
2/19/2014

ROUTE	STATE MO
-------	-------------

STRICT	SHEET NO.
SL	2

COUNTY
JEFFERSON

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524
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CONTRACT ID.

PROJECT NO.

P-5403(635)

BRIDGE NO.


BRIDGE NO.
26700211

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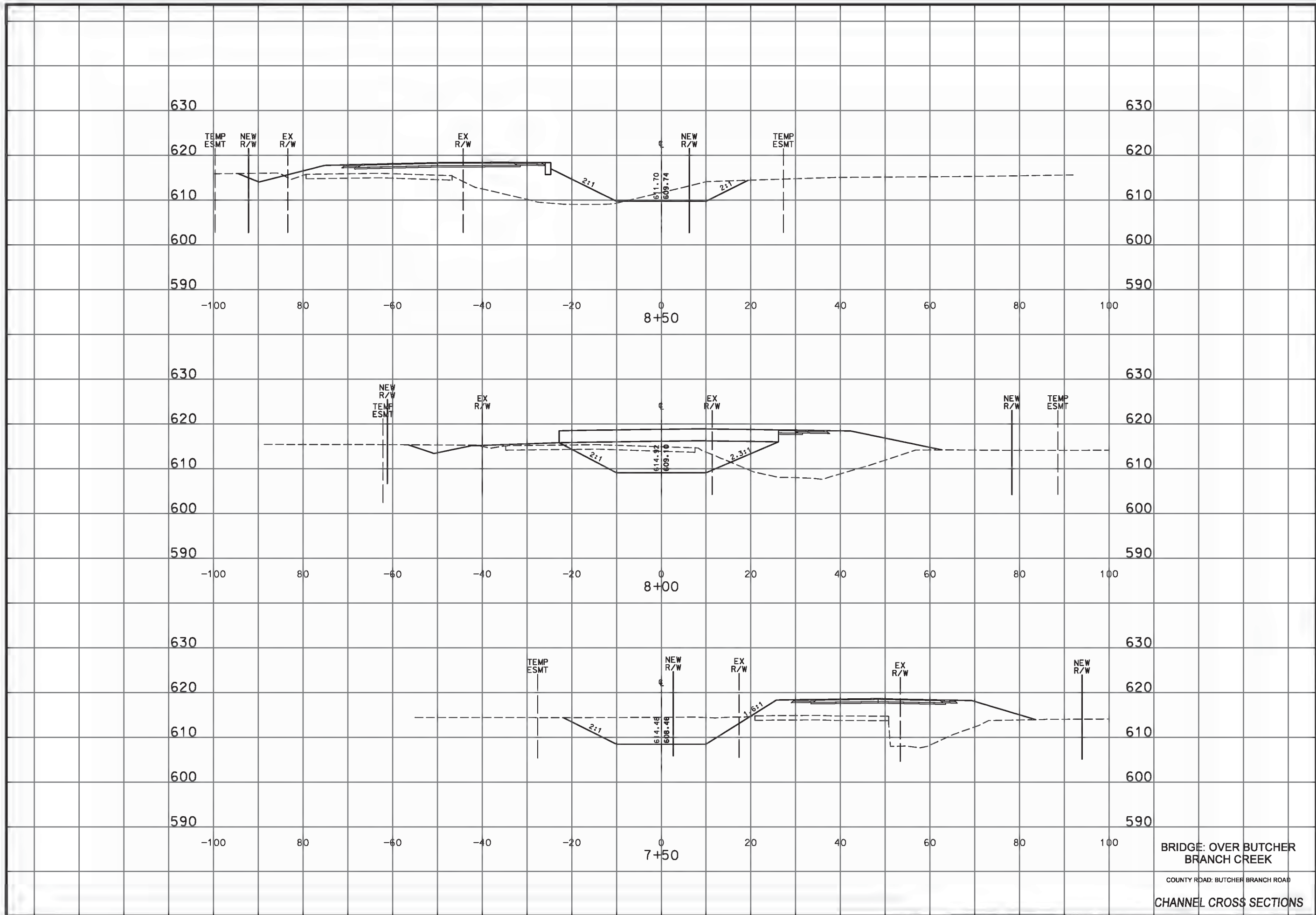
P.O. BOX 100
HILLSBORO, MO 63050
(636-797-5340) PHONE
(636-797-5565) FAX



EDSI
ENGINEERING DESIGN SOURCE, INC.
16141 SWINGLEY RIDGE RD., SUITE 300
CHESTERFIELD, MO 63017
ENGINEERING LICENSE NO. E-1523-D
SURVEYING LICENSE NO. 2002030547



MO CORP. EN
MO CORP. SU



JOHN A. HOCK
REGISTERED PROFESSIONAL ENGINEER
STATE OF MISSOURI
LICENSE NO. E-23292

DATE PREPARED
2/19/2014

ROUTE STATE
SL MO

DISTRICT SHEET NO.
3

COUNTY
JEFFERSON

JOB NO.

CONTRACT ID.

PROJECT NO.
STP-5403(635)

BRIDGE NO.
26700211

DESCRIPTION

DATE

JEFFERSON COUNTY
PUBLIC WORKS DEPARTMENT

P.O. BOX 100
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EDSI

ENGINEERING DESIGN SOURCE, INC.
16141 SWINGLEY RIDGE RD., SUITE 300
CHESTERFIELD, MO 63017

MO CORP. ENGINEERING LICENSE NO. E-1523-D
MO CORP. SURVEYING LICENSE NO. 20020305-7

BRIDGE: OVER BUTCHER
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

CHANNEL CROSS SECTIONS

