

DESIGN DESIGNATION
ADT - 1400 (2013)
SPEED - 35 MPH
CLASSIFICATION - MAJOR LOCAL

UTILITY CONTACTS

AMEREN MISSOURI
ROB VANCE
6450 HIGHWAY MM
HOUSE SPRINGS, MO 63051
(636) 671-6156

AT&T
GLENN HOGENMILLER
122 NORTH SECOND STREET
FESTUS, MO 63028
(636) 931-7506

PUBLIC WATER SERVICE
DISTRICT #2
2720 WILLIAMS CREEK ROAD
HIGH RIDGE, MO 63049
(636) 376-4131

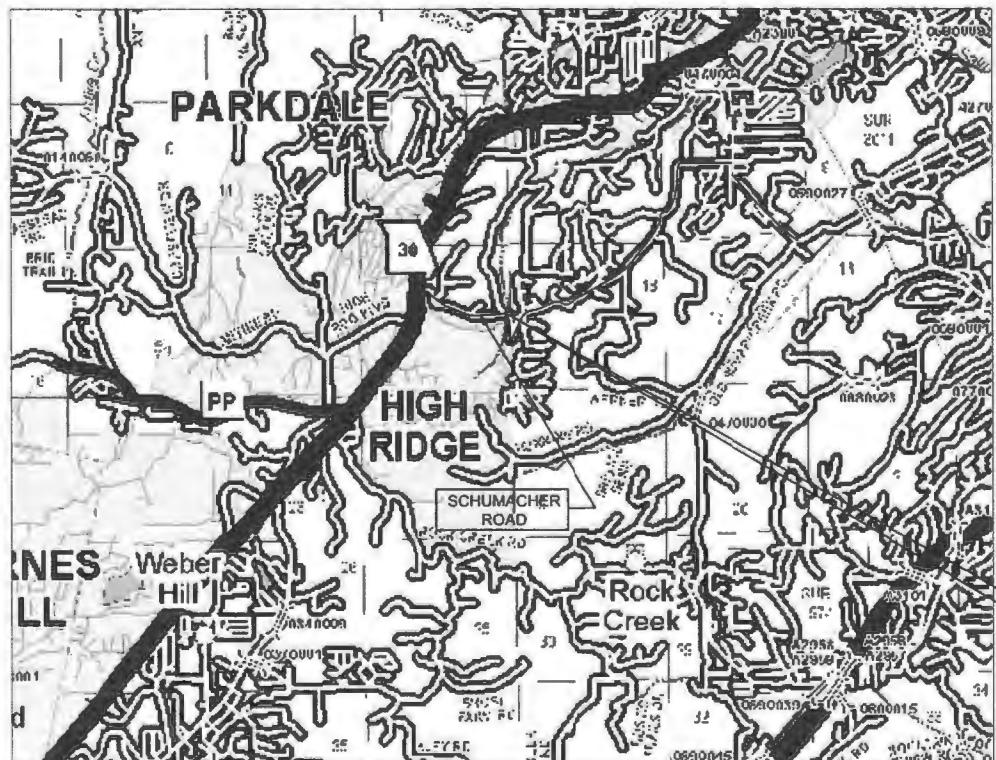
LEGEND
(USED IN PLANS)

POWER POLE	□
GUY WIRE	◎
WATER VALVE	■
TELEPHONE SPLICE BOX	TSB
TELEPHONE VAULT	W
TREE	○
SIGN	○
CONTROL POINTS	○
SURVEY MARKER	○
FLOW LINE	—
CONSTRUCTION LIMITS	—
PROPOSED BRIDGE GUARDRAIL	—
EXISTING WATER LINE	W
PROPOSED ROW OF WAY	R/W
EXISTING TELEPHONE LINE	T
PROPERTY LINE	R
TYPICAL	TYP
ROADWAY	ROWY
ABUTMENT	ABUT
ELEVATION	ELEV
RIGHT OF WAY	R/W
CENTERLINE	C
PROFILE GRADE	P.G.
EXISTING	EXIST
PROPOSED	PROP
STATION	STA
NORTH	N
EAST	E
POINT OF INTERSECTION	PI
POINT OF TANGENT	PT
CURVE LENGTH	L
RIGHT	R
LEFT	L
BACK	BK
NUMBER	NO
CONSTRUCTION	CONST

BENCH MARK: TBM #2025 CHISELED 'X' ON
SOUTHWEST SIDE OF WINGWALL
STA 2+04.83, 13.28' RT, ELEVATION: 703.67
N 95°04'13.9", E 81°55'53.1".

SCHUMACHER ROAD STRUCTURE OVER TRIBUTARY TO SALINE CREEK

JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO, MISSOURI 63050
PROJECT No. PW16050BXC
CULVERT No. BC050030



LOCATION MAP

APPROVED FOR CONSTRUCTION
6/29/2017
JASON JONAS, P.E. - DIRECTOR OF PUBLIC WORKS

100% FINAL PLAN SUBMITTAL

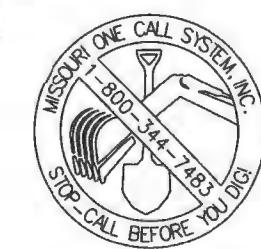
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SHEET NUMBER	SHEET NAME
G-001	TITLE SHEET
G-002	TRAFFIC CONTROL PLAN WITH DETOUR ROUTING
G-101	GENERAL NOTES AND SUMMARY QUANTITIES SHEET
G-102	REFERENCE TIES SHEET
C-101	PLAN AND PROFILE SHEET
C-102	RIGHT OF WAY AND EROSION CONTROL PLAN
S-101	GENERAL PLAN AND ELEVATION
S-102	GENERAL DATA
S-103	SUPERSTRUCTURE PLAN
S-104	SUPERSTRUCTURE DETAILS
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S-106	21" PC SPREAD BOX BEAM DETAILS
S-107 TO 108	EAST ABUTMENT
S-109	WEST ABUTMENT
S-110 TO 111	BRIDGE APPROACH SLAB DETAILS
S-112	HP-PILE DETAILS
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S-115	VERTICAL DRAIN AT END BENTS
S-116 TO 117	SOIL BORING LOGS
C-201 TO 204	CROSS SECTIONS SHEETS



PROJECT LOCATION
STA. 2+10.39 TO
STA. 3+26.22

UNDERGROUND UTILITY NOTE

ANY UNDERGROUND FACILITIES, STRUCTURES, OR UTILITIES THAT HAVE BEEN PLOTTED AND SHOWN FROM AVAILABLE INFORMATION AND RECORDS. THEREFORE, THEIR LOCATION AND RELATIONSHIP TO NEW PROPOSED WORK MUST BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATION OF UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THE PLANS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE LOCATED PRIOR TO ANY WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL THE LOCAL GOVERNING AGENCIES AND UTILITY COMPANIES PRIOR TO CONSTRUCTION TO DETERMINE THEIR UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES EXACT LOCATION AND THE EXISTENCE OF ANY NOT SHOWN. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES AND THE OWNER AS TO THE RELOCATION OR REMOVAL OF ANY UTILITIES SHOWN OR NOT SHOWN. THE ENGINEER/ARCHITECT AND THE OWNER DO NOT WARRANT OR GUARANTEE THE COMPLETENESS OR THE CORRECTNESS OF THE INFORMATION GIVEN.



Hurst-Rosche, Inc.
PROFESSIONAL DESIGN NUMBER: 000272
3675 W. OUTER ROAD
SUITE 101

ARNOLD, MO 63010
PH: 636.333.3351
HILLSBORO, IL
EAST ST. LOUIS, IL
MARION, IL
SPRINGFIELD, IL
NEOSHO, MO
NASHVILLE, TN



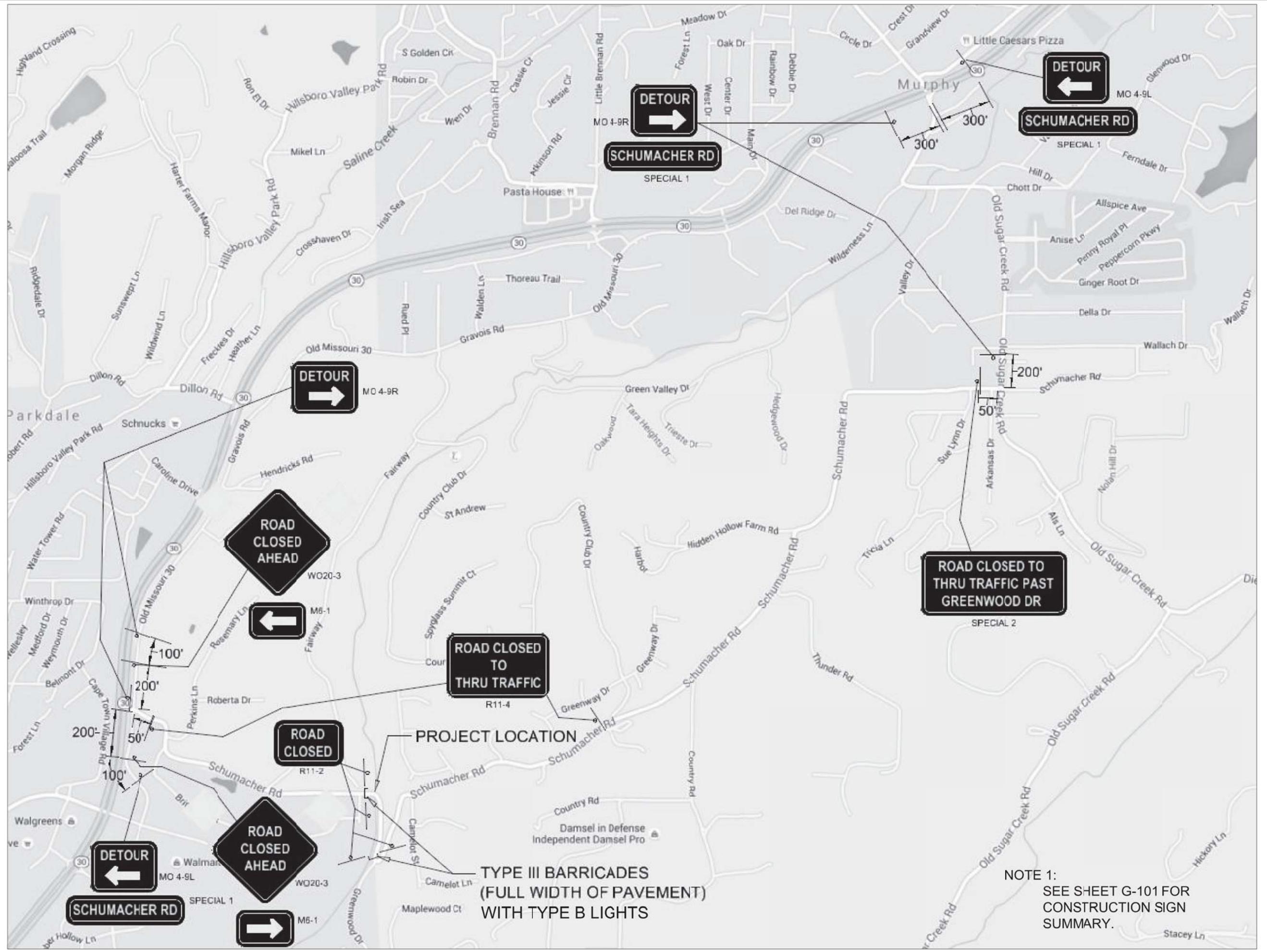
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04-19-17
DATE
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LICENSE NUMBER
1231-17
LICENSE EXPIRES

SCHUMACHER ROAD STRUCTURE OVER
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050

MARK DATE DESCRIPTION
DATE: 4-19-17
PROJECT NO: 290-0387
DESIGN: DRAWN: CHECK:
WEB UJ CJC

TITLE SHEET

G-001



Hurst-Rosche, Inc.

PROFESSIONAL DESIGN NUMBER: 184-000298

3675 W. OUTER ROAD

SUITE 101

ARNOLD, MO.

PH: 636.333.3351

HILLSBORO, IL

EAST ST. LOUIS, IL

MARION, IL

SPRINGFIELD, IL

NEOSHO, MO

NASHVILLE, TN



SIGNATURE
4-19-17
DATE
2011025295
LICENSE NUMBER
12-31-17
LICENSE EXPIRES

**SCHUMACHER ROAD STRUCTURE OVER
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050**

MARK	DATE	DESCRIPTION

DATE: 4-16-17
PROJECT NO: 290-0387
DESIGN: DRAWN: CHECK:
KJW KJW MEB

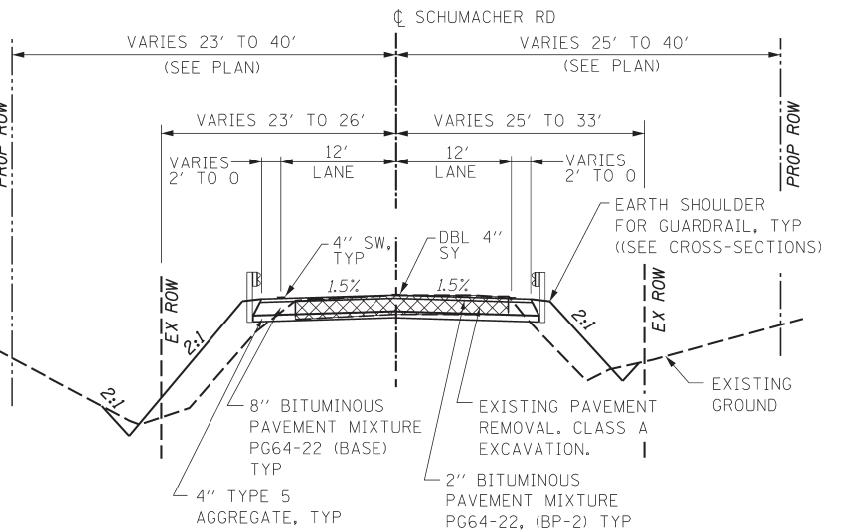
TRAFFIC CONTROL PLAN
WITH DETOUR ROUTING

G-002

SUMMARY OF QUANTITIES				
CODE No.	ITEM	UNIT	TOTAL	
2013000	CLEARING AND GRUBBING	ACRE	0.1	
2031000	CLASS A EXCAVATION	CU YD	106	
2036000	COMPACTING EMBANKMENT	CU YD	105	
2061000	CLASS 1 EXCAVATION	CU YD	494	
2160500	REMOVAL OF BRIDGE	LS	1	
3040506	TYPE 5, AGGREGATE FOR BASE (4 INCH THICK)	SQ YD	124	
4011211	BITUMINOUS PAVEMENT MIXTURE PG64-22, (BP-2)	TON	13	
4013000	BITUMINOUS PAVEMENT MIXTURE PG64-22 (BASE)	TON	54	
5031011A	BRIDGE APPROACH SLABS (MINOR ROAD)	SQ YD	65	
6061054	GUARDRAIL TYPE E, 6 FT. POST, 6 FT.-3 IN. SPACING	LF	56	
6062300A	TRANSITION SECTION, 6.5 FT. POSTS	EA	3	
6063015	TYPE A CRASHWORTHY END TERMINAL	EA	3	
6069902	THRIE BEAM END SECTION	EA	1	
6115030A	HEAVY STONE REVETMENT	SQ YD	209	
6161005	CONSTRUCTION SIGNS	SQ FT	254	
6161030	TYPE III MOVEABLE BARRICADE WITH TYPE B LIGHTS	EA	4	
6181000	MOBILIZATION	LS	1	
6206000C	4 INCH WHITE WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS	LF	232	
6206001C	4 INCH YELLOW WATERBORNE PAVEMENT MARKING PAINT, TYPE P BEADS	LF	232	
6274000	CONTRACTOR FURNISH SURVEYING AND STAKING	LS	1	
7011201	ROCK SOCKETS (1 FT 6 IN. DIA.)	LF	25	
7021010	STRUCTURAL STEEL PILES (10 INCH)	LF	412	
7023000	TEST PILES	EA	1	
7026000	PRE-BORE FOR PILING (1 FT 6 IN. DIA.)	LF	415	
7034003	CLASS B-1 CONCRETE (SUBSTRUCTURE)	CU YD	74.5	
7034226	REINFORCED CONCRETE SLAB OVERLAY	SQ YD	170	
7056054	21 INCH PRESTRESSED CONCRETE ADJACENT BOX BEAM	LF	500	
7061000	REINFORCING STEEL	LB	8110	
7101000	REINFORCING STEEL (EPOXY COATED)	LB	10440	
7110300	CONCRETE AND MASONRY PROTECTION SYSTEM	LS	1	
7134000	BRIDGE GUARDRAIL (THRIE BEAM)	LF	112	
7151001	VERTICAL DRAIN AT END BENTS	EA	2	
8059919	SEEDING	ACRE	0.1	
8061005	ROCK DITCH CHECK	LF	20	
8061019	SILT FENCE	LF	170	
8064120	TYPE 1 EROSION CONTROL BLANKET	SQ YD	120	
	TREE REMOVAL	EA	1	

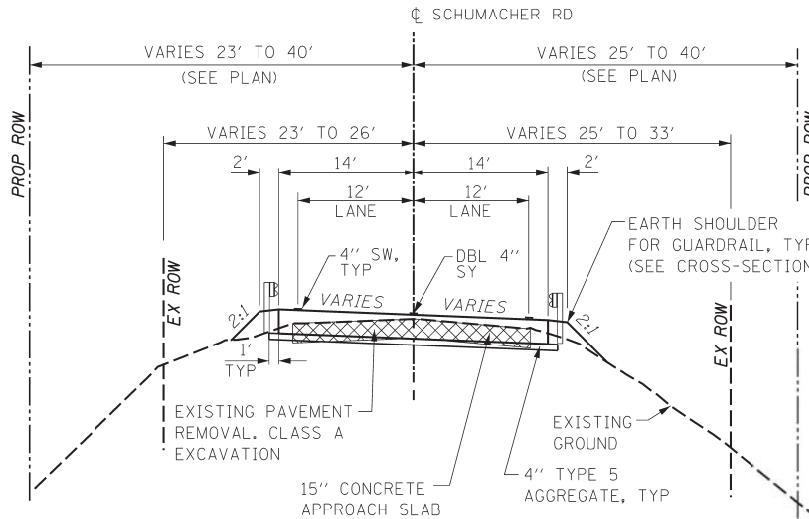
GENERAL NOTES

1. CLEARING AND GRUBBING OF MATURE TREE SPECIES
MUST NOT OCCUR FROM APRIL 1ST THROUGH OCTOBER 31ST.



PROPOSED TYPICAL ROADWAY SECTION

STA 2+10.39 TO STA 2+30.65
STA 3+03.75 TO STA 3+26.22



PROPOSED TYPICAL APPROACH SLAB SECTION

STA 2+30.65 TO STA 2+40.78
STA 2+93.26 TO STA 3+03.75

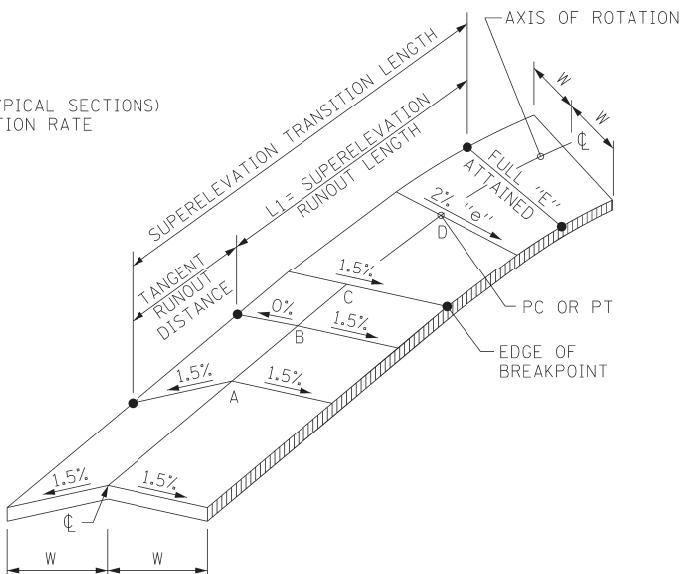
W = LANE WIDTH (SEE TYPICAL SECTIONS)
E = DESIGN SUPERELEVATION RATE

ATTAINING SUPERELEVATION

RDWY	A		B		C		D		E	
	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT
	2+10.39		2+20.39		2+30.65		2+40.78			
	-1.5%	-1.5%	0.0%	-1.5%	1.5%	-1.5%	2.0%	-2.0%		

REMOVING SUPERELEVATION

RDWY	E		D		C		B		A	
	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT
			2+93.26		3+03.75		3+16.22		3+26.22	
		2.0%	-2.0%	1.5%	-1.5%	0.0%	-1.5%	-1.5%	-1.5%	



NOTE: ROUND ALL EDGE BREAKPOINTS IN FIELD.

SCHUMACHER ROAD – SUPERELEVATION TRANSITION

CONSTRUCTION SIGNS SUMMARY

SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA (SQ. FT.)	DESCRIPTION
W020-3	48X48	16.00	2	32	ROAD CLOSED AHEAD
M04-9L	48X36	12.00	2	24	DETOUR (LEFT ARROW)
M04-9R	48X36	12.00	4	48	DETOUR (RIGHT ARROW)
M6-1	21X15	2.19	2	5	TURN ARROW
R11-2	48X30	10.00	4	40	ROAD CLOSED
R11-4	60X30	12.50	2	25	ROAD CLOSED TO THRU TRAFFIC
SPECIAL 1	70X20	9.72	3	30	SCHUMACHER ROAD
SPECIAL 2	90X40	25.00	2	50	ROAD CLOSED TO THRU TRAFFIC PAST GREENWOOD DRIVE
TOTAL CONSTRUCTION SIGN AREA			254		

SEE SHEET G-002 FOR CONSTRUCTION SIGN LOCATIONS.



Hurst-Rosche, Inc.
PROFESSIONAL DESIGN NUMBER: 000372
2675 W. OUTER ROAD

3675 W. OUTER ROAD
SUITE 101
ARNOLD, MO 63010
PH: 636.333.3351

HILLSBORO, IL
EAST ST. LOUIS, IL
MARION, IL
SPRINGFIELD, IL
NEOSHO, MO
NASHVILLE, TN



NATURE
6-17
TE
11025295
ENSE NUMBER
31-17
ENSE EXPIRES

JEFFERSON COUNTY, MISSOURI
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
7275 MAPLE, ROOM 104
JULI 1 1980 MISSOURI 63050

WK	DATE	DESCRIPTION

TE: 4-26-17

JECT NO: 290-0387		
SIGN: MEB	DRAWN: UJ	CHECK: CJC

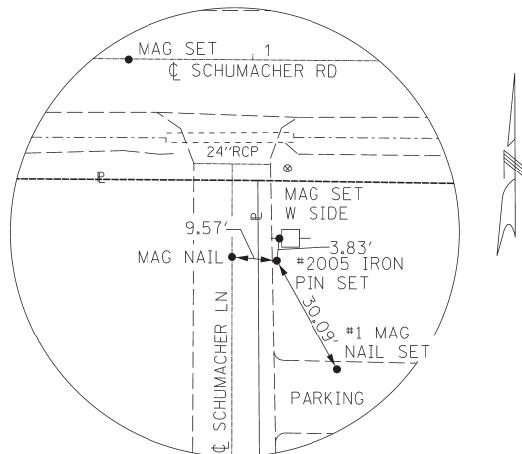
GENERAL NOTES, TYPICAL
ECTIONS, DETAILS AND
SUMMARY OF QUANTITIES

G-101



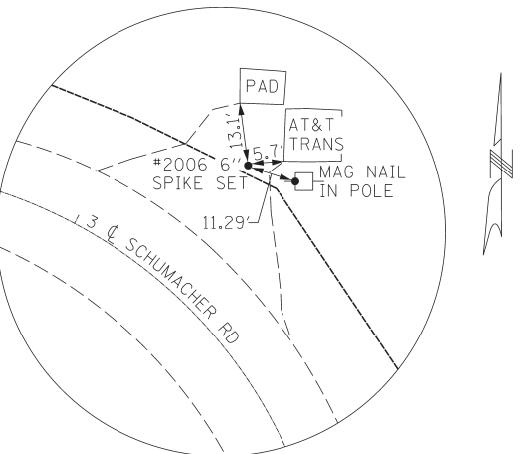
SIGNATURE
4-19-17
DATE
2011025295
LICENSE NUMBER
12-31-17
LICENSE EXPIRES

SCHUMACHER ROAD STRUCTURE OVER
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050



#2005 38" IRON PIN SET

STA 1+05.29, 41.72' RT
N 958014.91, E 816397.31
ELEVATION 700.91



#2006 6" SPIKE SET SET

STA 3+20.27, 30.31' LT
N 958055.86, E 816626.56
ELEVATION 705.57

NOTES:

- STATE PLANE COORDINATES ARE BASED ON GPS OBSERVATION OF GEOGRAPHIC REFERENCE SYSTEM (GRS) MONUMENT; JE-104 (MISSOURI STATE PLANE COORDINATE SYSTEM NAD 1983, EAST ZONE). JE-104 ELEVATION = 466.11 FT USED AS PROJECT BENCHMARK.
- MISSOURI STATE PLANE COORDINATES FOR GRS STATION: JE-104: NORTH (Y) = 938157.35 FT EAST (X) = 799068.69 FT
- BASIS OF BEARINGS FOR COORDINATE SYSTEMS IS MISSOURI STATE PLANE COORDINATE SYSTEM 1983, EAST ZONE, GRID NORTH.
- UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY UNKNOWN.

CONTROL POINTS			
POINT	COORDINATES	ELEVATION	DESCRIPTION
CP 2005	N 958014.91	E 816397.31	700.91
CP 2006	N 958055.86	E 816626.56	705.57

MARK DATE DESCRIPTION
DATE: 4-19-17
PROJECT NO: 290-0387
DESIGN: DRAWN: CHECK:
MEB UJ CJC

REFERENCE TIES

G-102



Hurst-Rosche, Inc.
PROFESSIONAL DESIGN NUMBER: 000372
3675 W. OUTER ROAD
SUITE 101
ARNOLD, MO 63010
PH: 636.333.3351
HILLSBORO, IL
EAST ST. LOUIS, IL
MARION, IL
SPRINGFIELD, IL
NEOSHO, MO
NASHVILLE, TN



SIGNATURE
4-19-17
DATE
2011(25295)
LICENSE NUMBER
12-31-17
LICENSE EXPIRES

SCHUMACHER ROAD STRUCTURE OVER
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050

MARK	DATE	DESCRIPTION

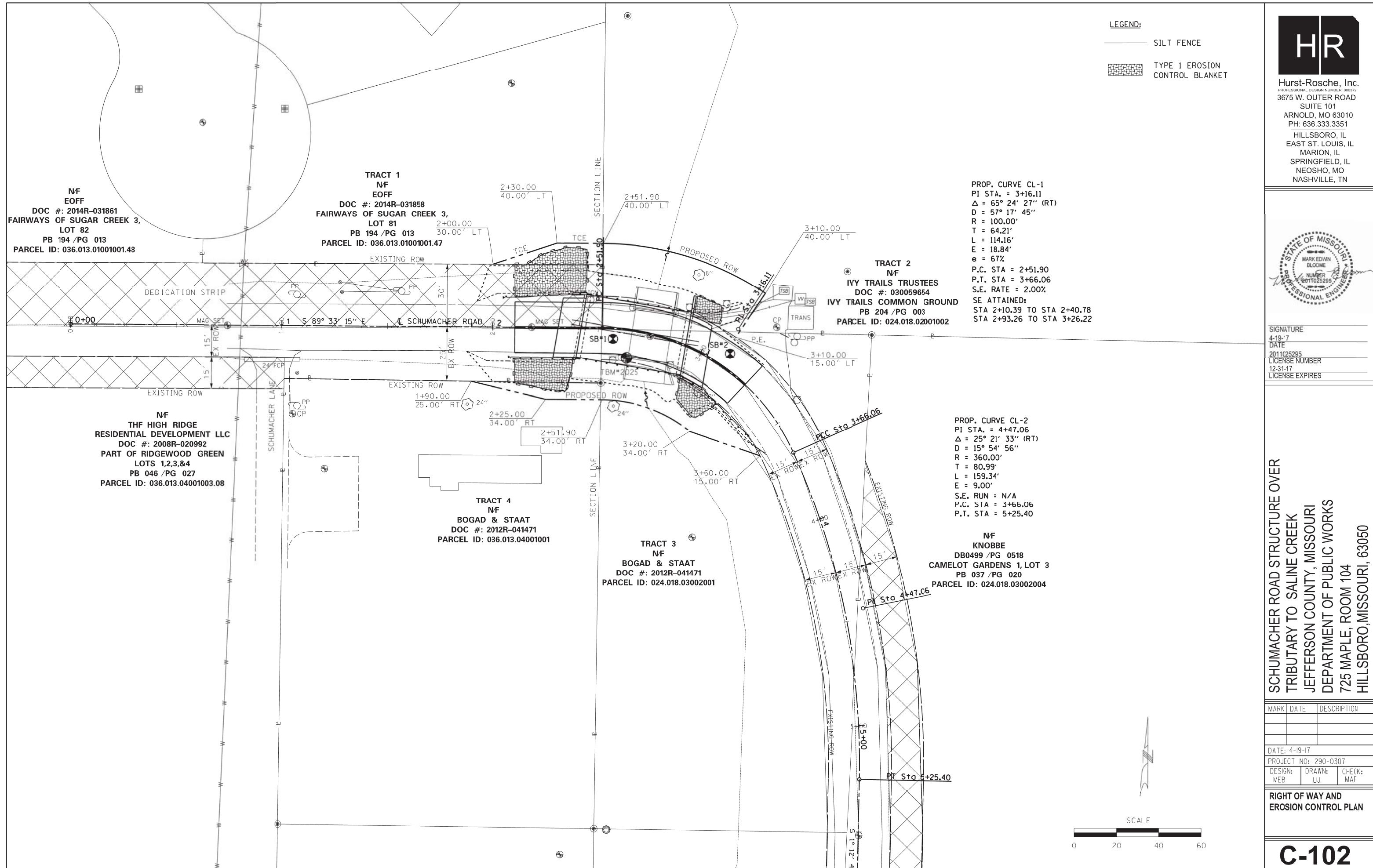
DATE: 4-19-17
PROJECT NO: 290-0387

DESIGN: DRAWN: CHECK:
MEB UJ MAF

RIGHT OF WAY AND
EROSION CONTROL PLAN

C-102

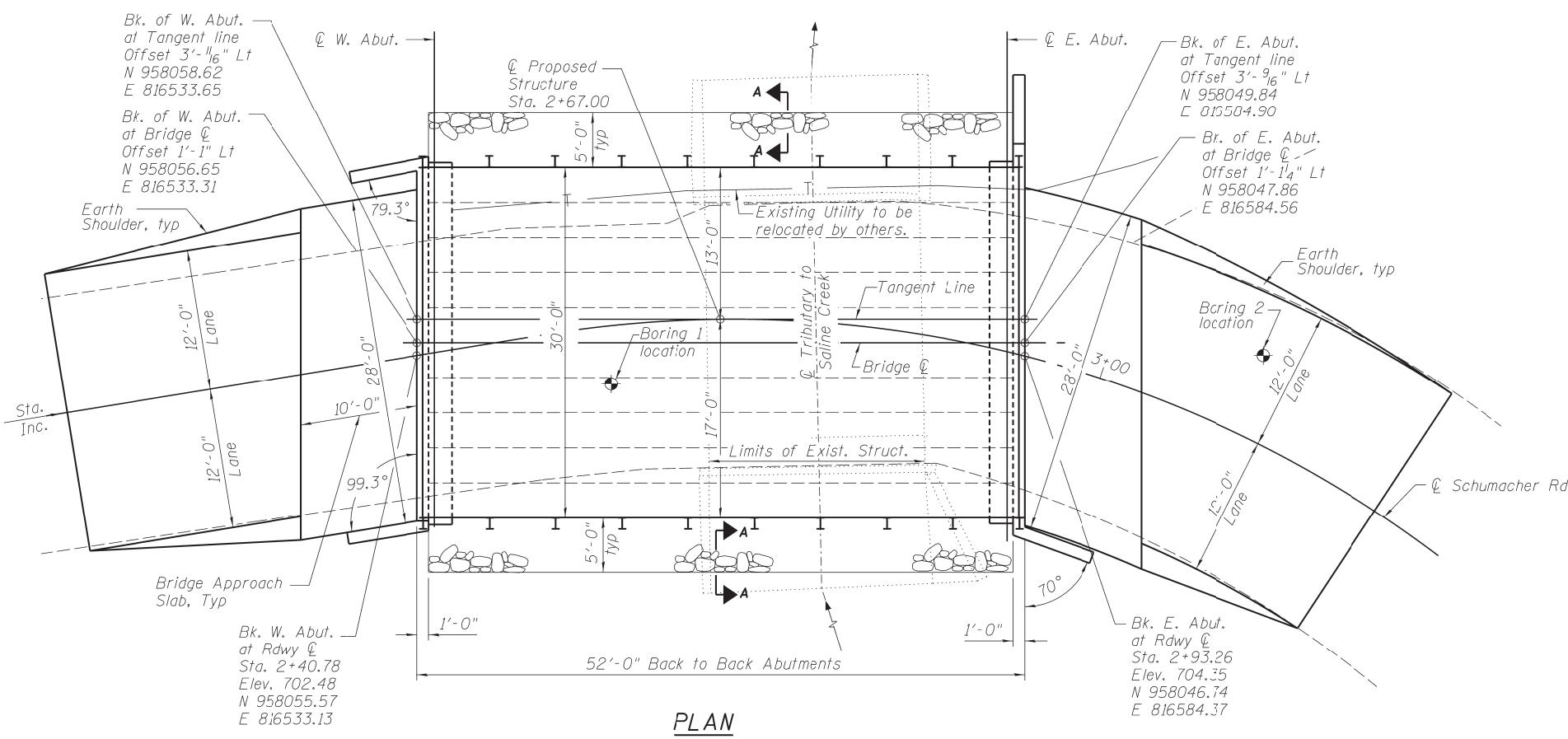
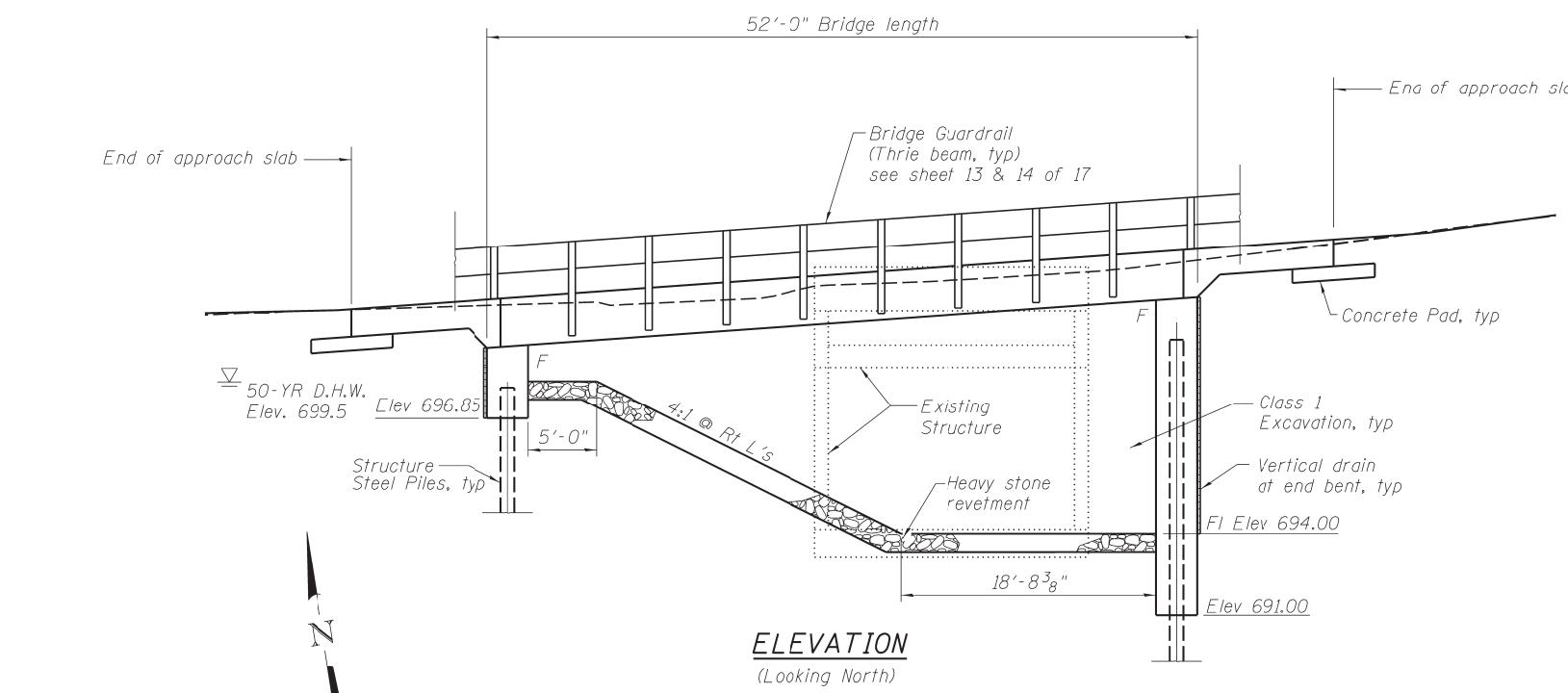
LEGEND:
— SILT FENCE
[wavy line] TYPE 1 EROSION
CONTROL BLANKET



Benchmark: TMB #2025 chisled "X" on southwest corner of wingwall,
Station 2+64.83, 13.28' Rt., Elevation 703.67.
N 958041.39, E 816555.31

Existing Structure: Single Span Steel WF Non-Bridge length Structure
with Concrete Box Culvert Substructure: Length 20'-0", width 23'-6".

No Salvage



Note: This drawing is not to scale follow dimensions.

DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications

DESIGN STRESSES

FIELD UNITS

$f'c = 3,500$ psi
 $f_y = 60,000$ psi (Reinforcement)

PRESTRESSED UNITS

$f'c = 6,000$ psi
 $f'ci = 5,000$ psi
 $fpu = 270,000$ psi ($1\frac{1}{2}$ " ϕ low lax. strands)
 $fpbt = 201,960$ psi ($1\frac{1}{2}$ " ϕ low lax. strands)

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

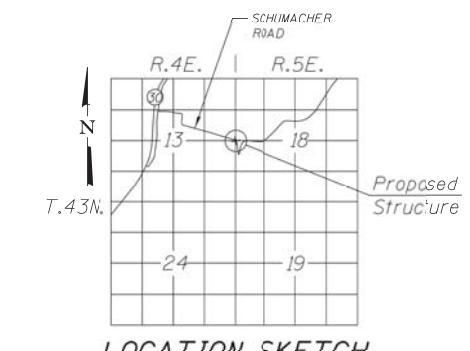
SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.16
Design Spectral Acceleration at 0.2 sec. (S_{D2}) = 0.40
Soil Site Class = C

NOTICE & DISCLAIMER REGARDING BORING LOG DATA

The locations of all subsurface borings for this structure are shown on this sheet. Boring data for the numbered locations are shown on the soil boring log sheets. 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, is 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 from the County or 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 those available from the County, or on any other documentation not expressly warranted, which the contractor may obtain from the County.



GENERAL PLAN AND ELEVATION
SCHUMACHER ROAD
OVER TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY
STATION 2+67.00

Sheet 1 of 17



Hurst-Rosche, Inc.
PROFESSIONAL DESIGN NUMBER: 000372

3675 W. OUTER ROAD
SUITE 101
ARNOLD, MO 63010
PH: 636.333.3351
HILLSBORO, IL
EAST ST. LOUIS, IL
MARION, IL
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SCHUMACHER ROAD STRUCTURE OVER
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050

MARK DATE DESCRIPTION
DATE: 4-19-17
PROJECT NO: 290-0387
DESIGN: DRAWN: CHECK:
MEB UJ CJC

GENERAL PLAN AND ELEVATION

S-101



SIGNATURE
4-19-17
DATE
2011025295
LICENSE NUMBER
12-31-17
LICENSE EXPIRES

SCHUMACHER ROAD STRUCTURE OVER
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050

MARK	DATE	DESCRIPTION

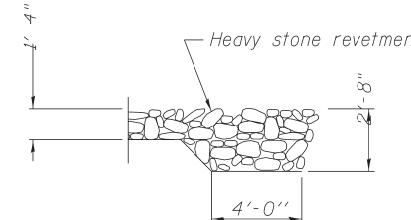
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PROJECT NO: 290-0387
DESIGN: MEB DRAWN: UJ CHECK: CJC

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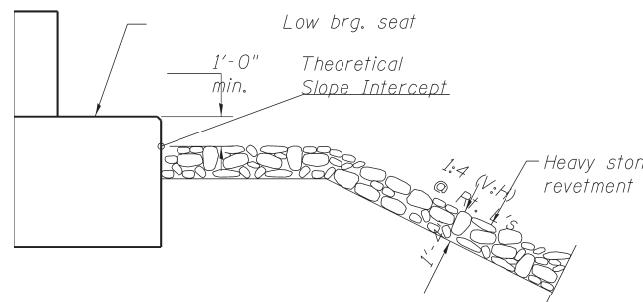
S-102

GENERAL NOTES

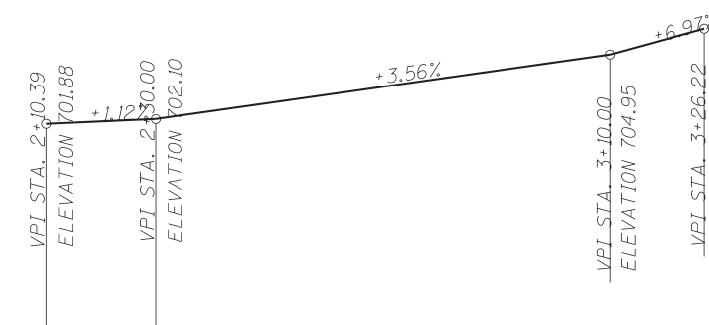
1. Layout of heavy stone revetment system may be varied to suit ground conditions in the field as directed by the Engineer.



SECTION A-A



SECTION B-B



PROFILE GRADE
(Along ℓ of Rdwy.)

Note: This drawing is not to scale follow dimensions.

STRUCTURE TOTAL BILL OF MATERIAL

CODE NO.	ITEM	UNIT	TOTAL
2061000	Class 1 Excavation	Cu. Yd.	494
2160500	Removal of Bridges	LS	1
503101A	Bridge Approach Slabs (Minor Road)	Sq. Yd.	65
6115030A	Heavy Stone Revetment	Sq. Yd.	209
7011201	Rock Sockets (1.0 Ft 6.0 In. Dia.)	LF	25
7021010	Structure Steel Piles (10 inch)	LF	412
7023000	Test Piles	Each	1
7026000	Pre-Bore for Piling (1.0 Ft 6.0 In. Dia.)	LF	415
7034003	Class B-1 Concrete (Substructure)	Cu. Yd.	74.5
7034226	Reinforced Concrete Slab Overlay	Sq. Yd.	170
7056054	21 inch, Prestressed Concrete Adjacent Box Beam	LF	500
7061000	Reinforcing Steel	LB	8110
7101000	Reinforcing Steel (Epoxy Coated)	LB	10440
7110300	Concrete and Masonry Protection System	LS	1
7134000	Bridge Guardrail (Thrie Beam)	LF	112
7151001	Vertical Drain at End Bents	Each	2

INDEX OF SHEETS

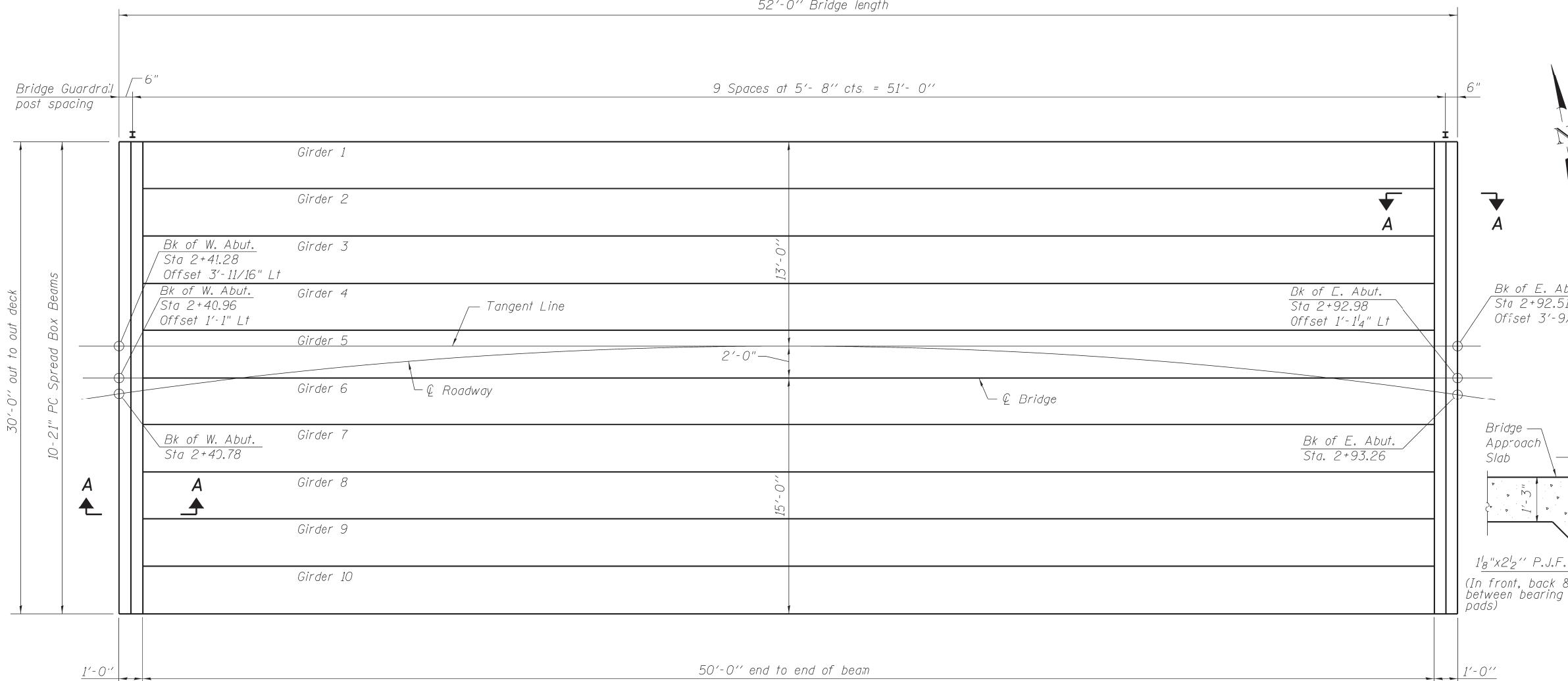
- General Plan and Elevation
- General Data
- Superstructure Plan
- Superstructure Details
- 21" PC Adjacent Box Beam Plan
- 21" PC Adjacent Box Beam Details
- East Abutment
- East Abutment Details
- West Abutment
- Bridge Approach Slab Details
- Bridge Approach Slab Details
- HP Pile Details
- Thrie Beam Details
- Thrie Beam Details
- Vertical Drain at End Bents
- Soil Boring Logs
- Soil Boring Logs

HYDROLOGIC DATA

Drainage Area = 595 AC (0.93 SQ.MI)	
DESIGN FLOOD DATA (50-YR)	
Discharge = 1315 CFS	
H. W. Elevation = 699.50	
BASE FLOOD DATA (100-YR)	
Discharge = 1524 CFS	
H. W. Elevation = 699.97	

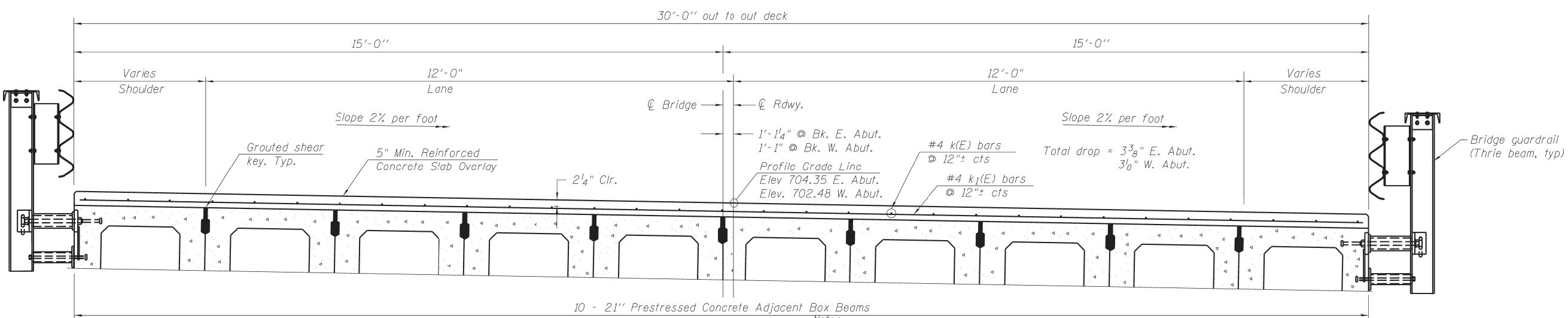


SIGNATURE
4-19-17
DATE
2011025295
LICENSE NUMBER
12-31-17
LICENSE EXPIRES



PLAN

SECTION A-A
(Dimensions are at R.L.'s)



CROSS SECTION
(Looking East)

Note: This drawing is not to scale follow dimensions.

- Concrete Joint Sealer shall be incidental to concrete wearing surface and shall conform to section 1057.5.
- Preformed Joint Filler shall conform to section 1057.6 and shall be incidental to PC Adjacent Box Beams.
- Steel Dowels Rods shall conform to AASHTO M31 or M53.
- See sheet 5 & 6 of 17 for PC Adjacent Box Beam Details and Bill of Material.
- After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure at least 24 hours prior to grouting shear keys.
- Concrete Slab Overlay shall not be placed until grouted shear keys have cured for at least 3 days.
- Bridge Deck Surface may be finished with a vibratory screed and then tined.
- Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise noted.

Sheet 3 of 17

SCHUMACHER ROAD STRUCTURE OVER
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050

MARK	DATE	DESCRIPTION

DATE: 4-19-17
PROJECT NO: 290-0387

DESIGN: MEB DRAWN: UJ CHECK: CJC

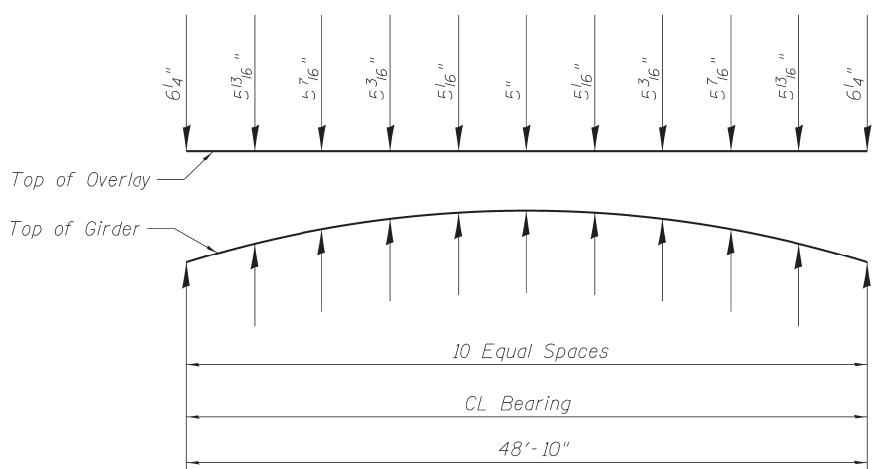
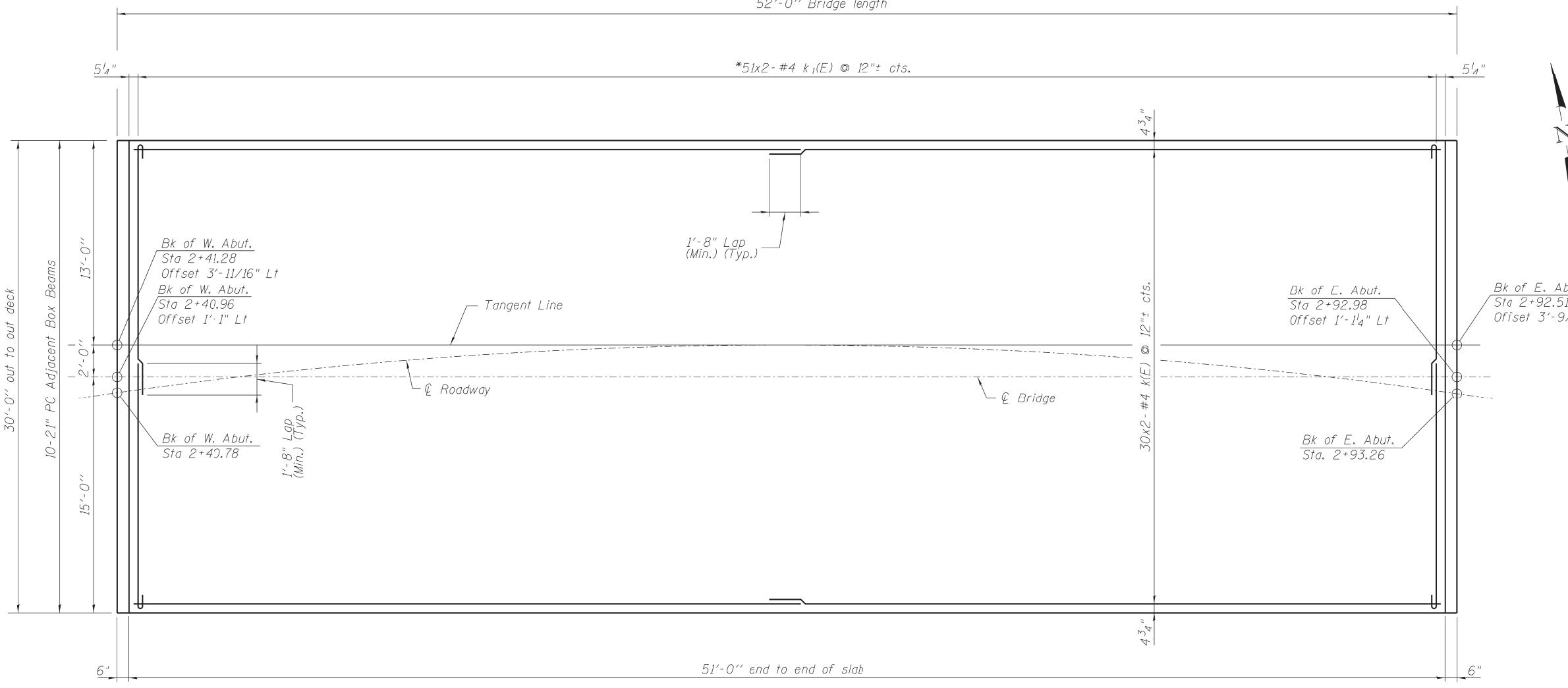
SUPERSTRUCTURE PLAN

S-103

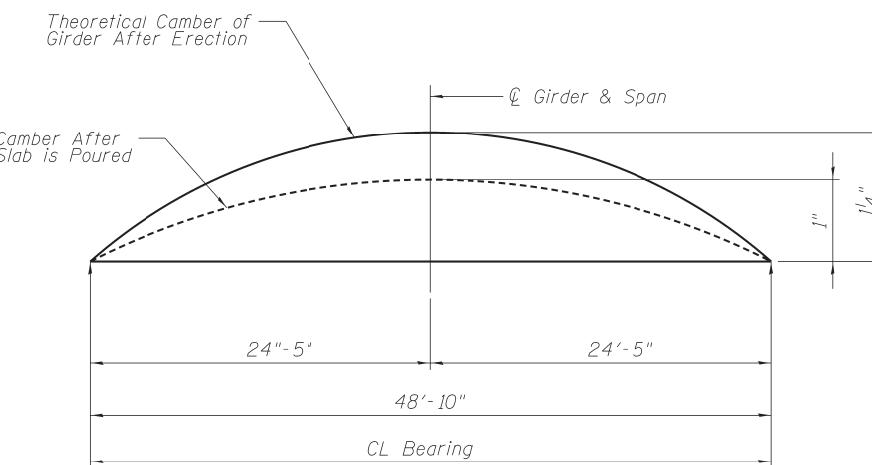


SIGNATURE
4-19-17
DATE
2011025295
LICENSE NUMBER
12-31-17
LICENSE EXPIRES

SCHUMACHER ROAD STRUCTURE OVER
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050



REINFORCED CONCRETE SLAB OVERLAY PROFILE

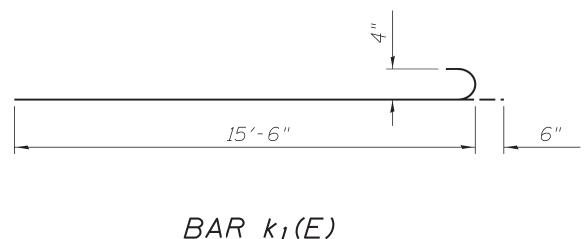


ANTICIPATED CAMBER DIAGRAM

Notes:

Camber at the $\frac{1}{4}$ Point of the Box Girder is equal to 0.7125 multiplied by the camber at the centerline of the girder.

If Box Girder Camber is different from that shown in the Camber Diagram it shall be necessary to adjust the concrete overlay thickness, or raise the grade throughout the structure. No Payment will be made for additional labor or materials required for variation in concrete overlay thickness or grade adjustment.



BAR k₁(E)

ESTIMATED BILL OF MATERIAL

Bar	No.	Size	Length	Shape
k ₁ (E)	60	#4	26'-0"	—
k ₁ (E)	102	#4	16'-0"	—
Reinforced Concrete Slab Overlay			Sq. Yd.	170
Reinforcement Steel (Epoxy Coated)			Lbs.	2135

*Tilt #4 k₁(E) bars as required to maintain clearance.

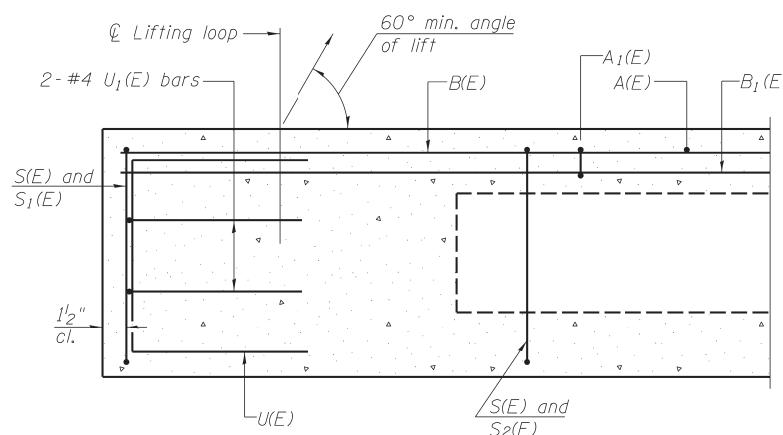
**Concrete needed for encasing Beam Ends is to be considered incidental to Reinforced Concrete Slab Overlay.

Note: This drawing is not to scale follow dimensions.

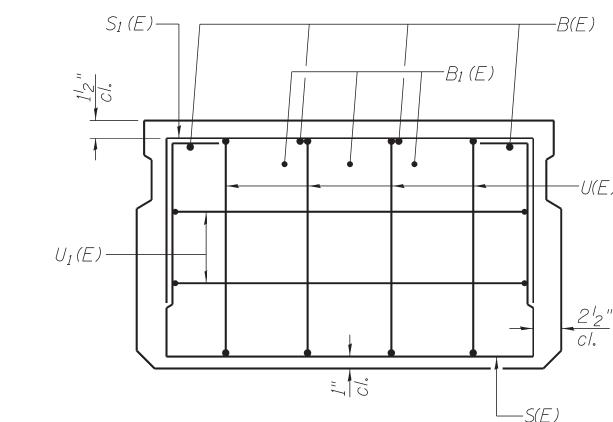
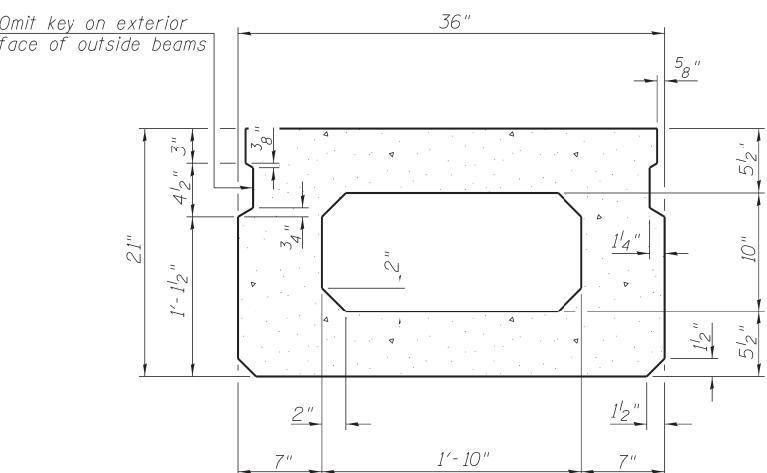


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 4-19-17
 DATE
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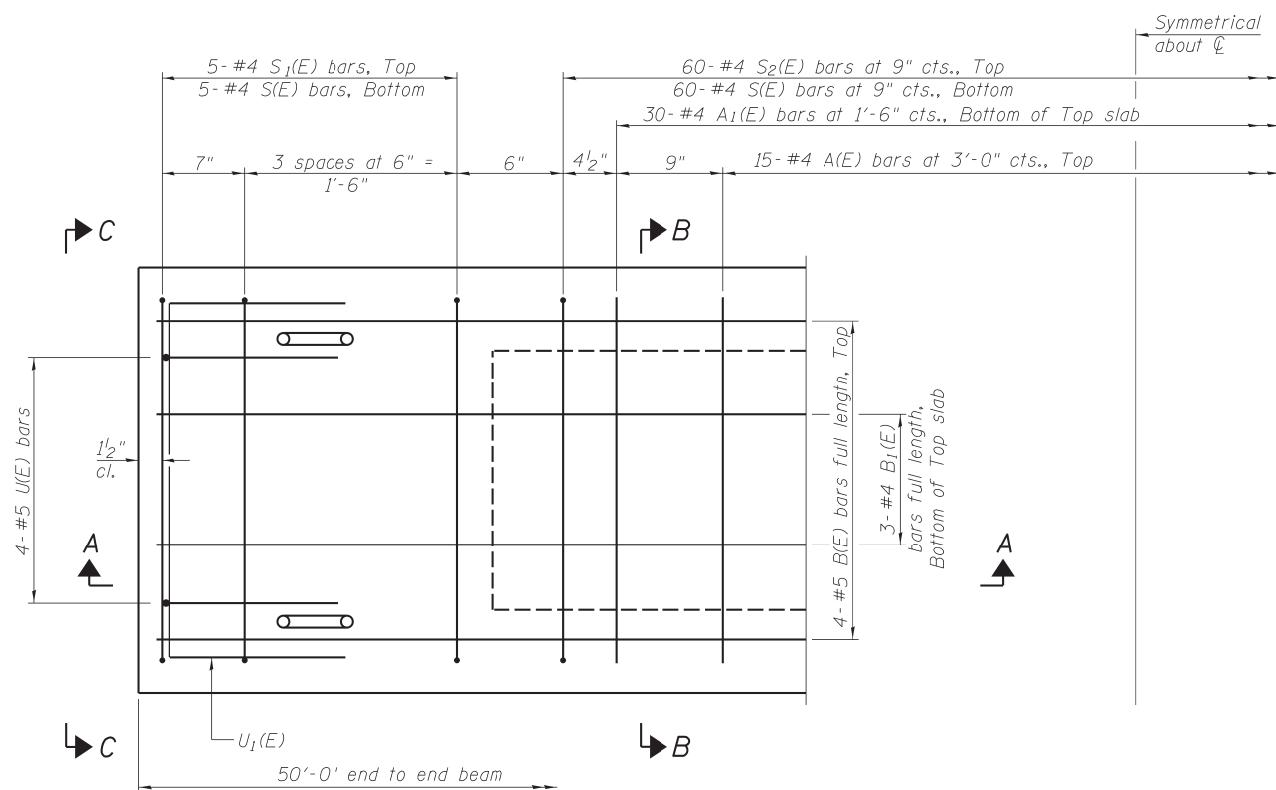
SCHUMACHER ROAD STRUCTURE OVER
 TRIBUTARY TO SALINE CREEK
 JEFFERSON COUNTY, MISSOURI
 DEPARTMENT OF PUBLIC WORKS
 725 MAPLE, ROOM 104
 HILLSBORO, MISSOURI, 63050



SECTION A-A



VIEW C-C

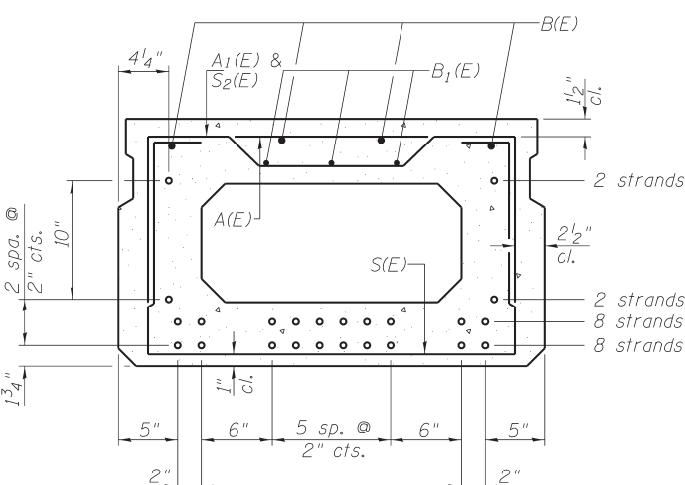


PLAN VIEW

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.

MINIMUM BAR LAP

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

SECTION B-B
(Showing 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.

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	15	#4	2'-7"	
A ₁ (E)	30	#4	2'-10"	
B(E)	4	#5	49'-8"	
B ₁ (E)	3	#4	49'-8"	
S(E)	70	#4	6'-5"	
S ₁ (E)	10	#4	4'-11"	
S ₂ (E)	60	#4	5'-2"	
U(E)	8	#5	4'-0"	[]
U ₁ (E)	4	#4	5'-0"	[]

Note: See sheet 6 of 17 for additional details and Bill of Material.

21" PC ADJACENT BOX
BEAM PLAN

* Cast top of wingwall flush with exterior beam face after beams have been erected.

HR

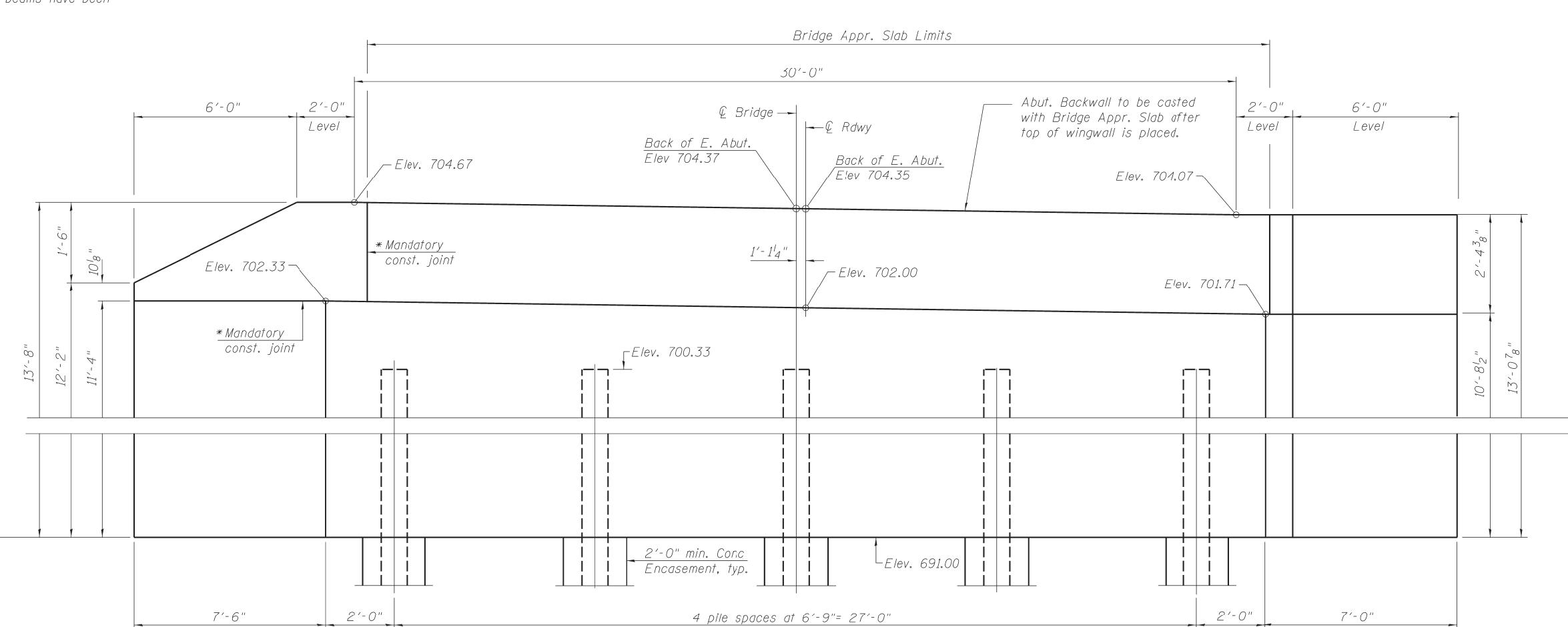
Hurst-Rosche, Inc.

PROFESSIONAL DESIGN NUMBER: 000372
3675 W. OUTER ROAD
SUITE 101
ARNOLD, MO 63010
PH: 636.333.3351
HILLSBORO, IL
EAST ST. LOUIS, IL
MARION, IL
SPRINGFIELD, IL
NEOSHO, MO
NASHVILLE, TN



SIGNATURE
4-19-17
DATE
2011025295
LICENSE NUMBER
12-31-17
LICENSE EXPIRES

All piling holes are to be pre-bored down to rock with 15-ft dia. holes. Each pile is to be rock socketed 5-ft into rock. Remaining void in each pre-bored hole are to be filled with Select Granular Backfill for Structural Systems. Backfill is to be considered incidental to pre-boring of piling.



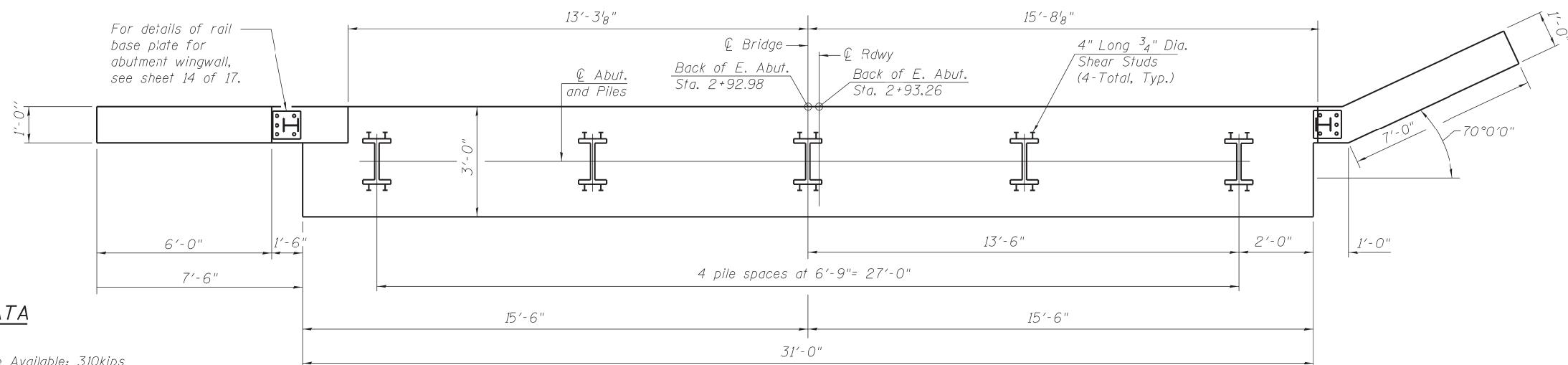
PILE DATA

Type: HP10x42
Factored Resistance Available: 310kips
Est. Length: 23' Abut Wall
No. Production Piles: 5

Note:

1. For Rebar placement and call-outs see sheet 8 of 17.
2. For details of piles, concrete encasement and shear studs, see sheet 12 of 17.
3. Rail base plates to be placed after abutment wingwalls and approach slabs are casted in placed.

ELEVATION
(Looking East)



PLAN
(East Abutment)

Note: This drawing is not to scale follow dimensions.

SCHUMACHER ROAD STRUCTURE OVER
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050

MARK	DATE	DESCRIPTION

DATE: 4-19-17
PROJECT NO: 290-0387

DESIGN: MEB DRAWN: UJ CHECK: CJC

EAST ABUTMENT



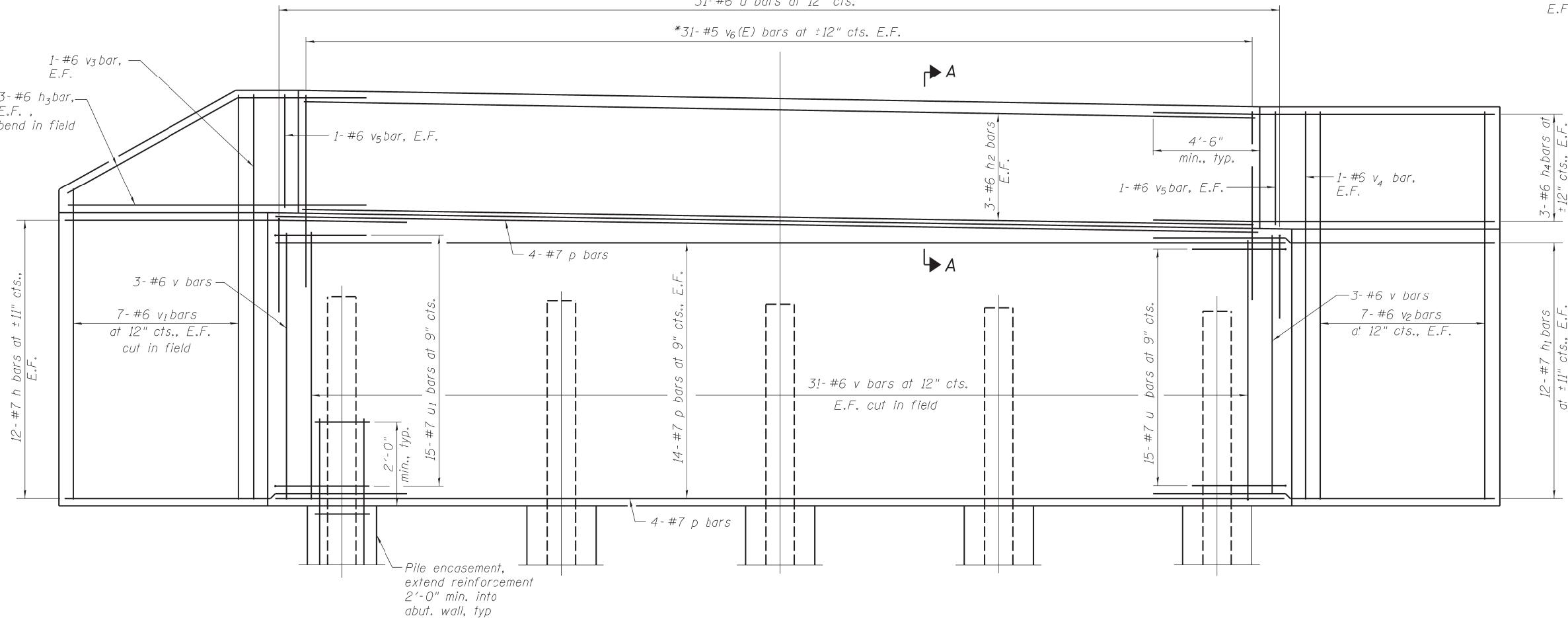
urst-Rosche, Inc.
OFFICIAL DESIGN NUMBER: 000372
3675 W. OUTER ROAD
SUITE 101
ARNOLD, MO 63010
PH: 636.333.3351
HILLSBORO, IL
EAST ST. LOUIS, IL
MARION, IL
SPRINGFIELD, IL
NEOSHO, MO
NASHVILLE, TN



GNATURE
19-17
ATE
110125295
CENSE NUMBER
-31-17
CENSE EXPIRES

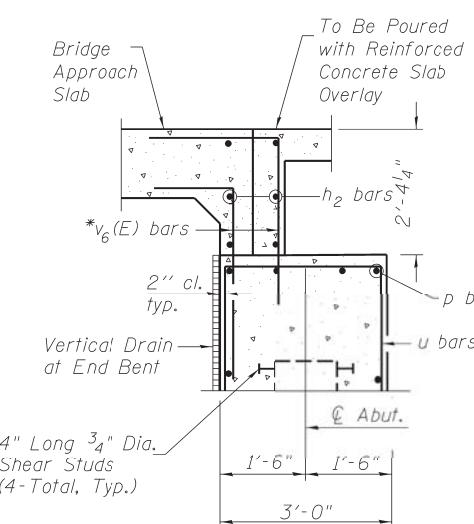
#6 u bars at 12" cts.

E.F. = Each face



ELEVATION

(Looking East)

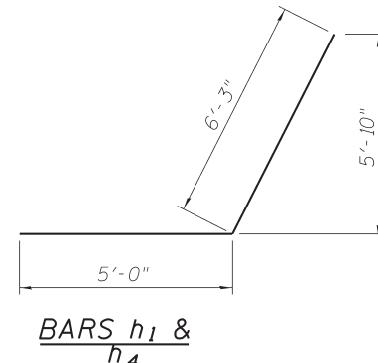


SECTION A-A
(Dimensions are at Rt. L's)

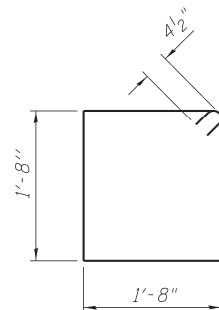
Note:

1. All exposed concrete surfaces shall be sealed with a concrete and masonry protection system as outlined in Section 711 of Modot Standard Specifications.

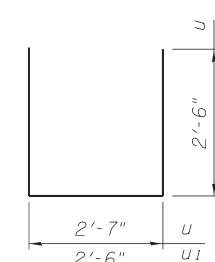
2. $v_6(E)$ Bar is included with Bridge Approach Slab Epoxy Reinforcement. Shown here for clarity only.



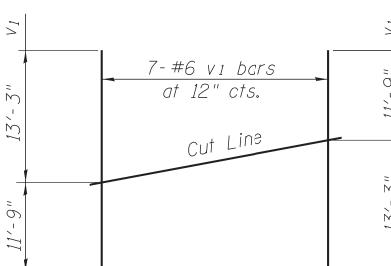
BARS h_1 8
 h_4



BAR S



BARS u & ui



FIELD CUTTING DIAGRAM

Order v_1 bars full length. Cut as shown and use remainder of bars in opposite face.

Bar	No.	Size	Length	Shape
h	24	#7	11'-3"	—
h_1	24	#7	11'-3"	—
h_2	6	#6	30"-8"	—
h_3	6	#6	11"-3"	—
h_4	6	#6	11"-3"	—
p	36	#7	30"-8"	—
u	31	#6	7'-7"	—
u_1	30	#7	9'-6"	—
v	68	#6	11'-0"	—
v_1	7	#6	25'-0"	—
v_2	7	#6	12'-8"	—
v_3	2	#6	13'-4"	—
v_4	2	#6	12'-8"	—
v_5	4	#6	1'-6"	—
<i>Class 1 Excavation</i>			Cu. Yd.	320.4
<i>Class B-1 Concrete</i>			Cu. Yd.	57.8
<i>Structural Steel Piles, (10 IN.)</i>			Foot	112
<i>Reinforcement Steel</i>			Lbs.	6500
<i>Vertical Drain at End Bent</i>			Each	1
<i>Pre-bore for Piling (1 ft 6 in. Dia.)</i>			Foot	55
<i>Rock Sockets (1 ft 6 in. Dia.)</i>			Foot	25

For details of piles, Concrete Encasement and shear studs, see sheet 12 of 17.

*See Note 2 this Sheet.

Note: This drawing is not to scale follow dimensions.

Details of piles, Concrete Encasement

Sheet 8 of 17



SIGNATURE
 4-19-17
 DATE
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 LICENSE NUMBER
 12-31-17
 LICENSE EXPIRES

SCHUMACHER ROAD STRUCTURE OVER
 TRIBUTARY TO SALINE CREEK
 JEFFERSON COUNTY, MISSOURI
 DEPARTMENT OF PUBLIC WORKS
 725 MAPLE, ROOM 104
 HILLSBORO, MISSOURI, 63050

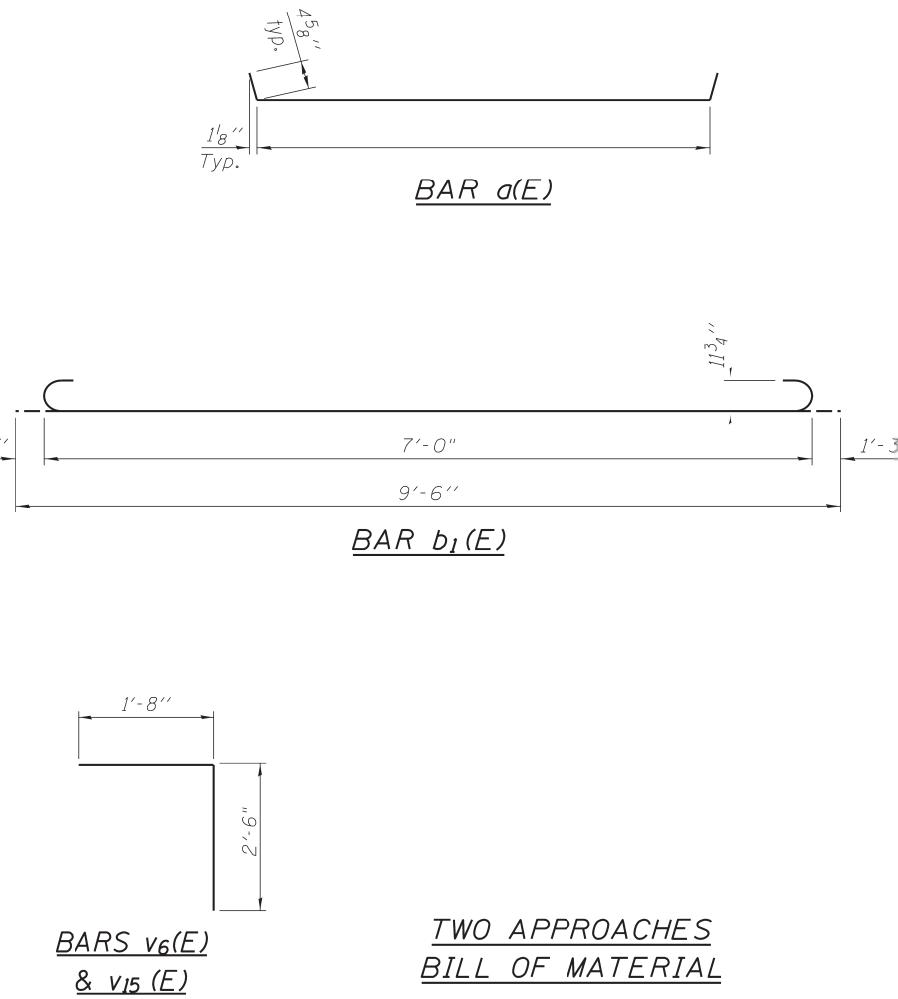
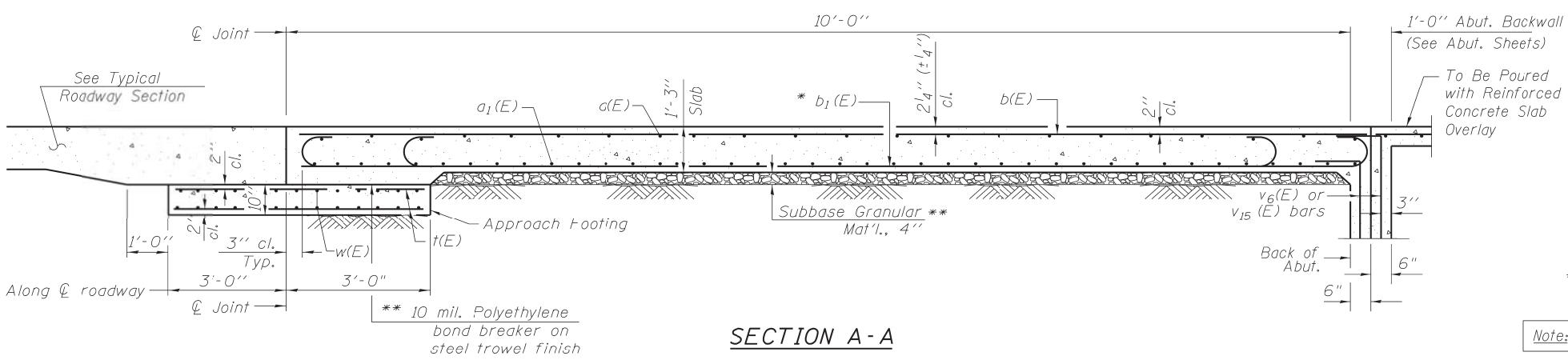
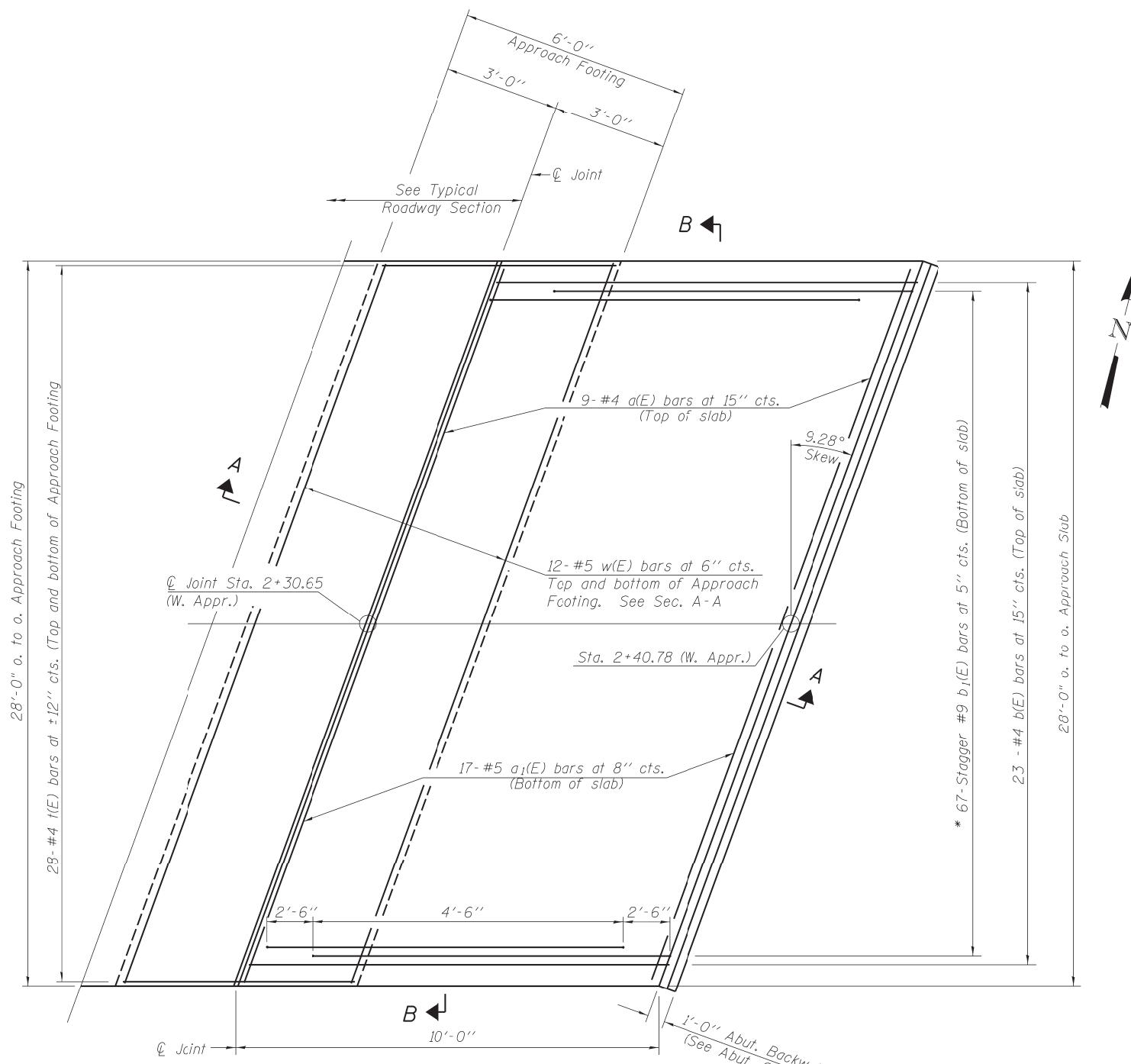
MARK	DATE	DESCRIPTION

DATE: 4-19-17
 PROJECT NO: 290-0387
 DESIGN: MEB DRAWN: UJ CHECK: CJC

BRIDGE APPROACH SLAB DETAILS

S-110

Notes:
 See sheet 3 of 17 for Reinforced Concrete Slab Overlay.
 See sheet 11 of 17 for Section B-B.
 Approach slab shall be paid for as Bridge Approach Slabs.
 Approach footing concrete shall be paid for as Class B-1 Concrete.
 Reinforcement shall be paid for as Reinforcement Steel, (Epoxy Coated.)
 The approach footing maximum applied service bearing pressure (Q_{max}) = 2.0 ksf.
 Cost of excavation for approach footing included with Class A Excavation.



TWO APPROACHES BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	18	#4	27'-8"	—
a1(E)	34	#5	27'-8"	—
b(E)	46	#4	10'-2"	—
b1(E)	134	#9	9'-6"	—
t(E)	112	#4	5'-8"	—
v6(E)	62	#5	4'-2"	—
v15(E)	62	#5	4'-2"	—
w(E)	48	#5	27'-8"	—
Bridge Approach Slabs	Sq. Yd.	65		
Class B-1 Concrete	Cu. Yd.	10.4		
Reinforcement Steel, (Epoxy Coated)	Pound	8305		

* Tilt #9 b1(E) bars as required to maintain clearance.

** Cost included with Bridge Approach Slabs.

Note: This drawing is not to scale follow dimensions.

Sheet 10 of 17



SIGNATURE
4-18-17
DATE
201102525
LICENSE NUMBER
12-31-17
LICENSE EXPIRES

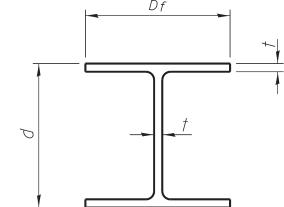
SCHUMACHER ROAD STRUCTURE OVER
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050

MARK	DATE	DESCRIPTION

DATE: 4-18-17
PROJECT NO: 290-0387
DESIGN: MEB DRAWN: UJ CHECK: CJC

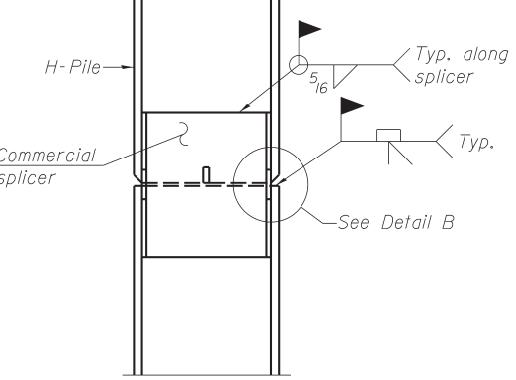
HP PILE DETAILS

Designation	F	F _t	F _w	N	W _t	W _w
HP 14x117	12 ¹ / ₂	1"	7 ³ / ₄	7 ³ / ₄	5 ⁸ / ₈	1 ¹ / ₂
x102	12 ¹ / ₂	7 ⁸ / ₈	3 ⁴	7 ³ / ₄	5 ⁸ / ₈	1 ¹ / ₂
x89	12 ¹ / ₂	3 ⁴	1 ¹ / ₆	7 ³ / ₄	5 ⁸ / ₈	1 ¹ / ₂
x73	12 ¹ / ₂	5 ⁸	9 ¹ / ₆	7 ³ / ₄	5 ⁸ / ₈	1 ¹ / ₂
HP 12x84	10"	7 ⁸ / ₈	1 ¹ / ₆	6 ¹ / ₂	5 ⁸ / ₈	1 ¹ / ₂
x74	10"	7 ⁸ / ₈	1 ¹ / ₆	6 ¹ / ₂	5 ⁸ / ₈	1 ¹ / ₂
x63	10"	5 ⁸	2"	6 ¹ / ₂	2"	3 ⁸
x53	10"	5 ⁸	2"	6 ¹ / ₂	1 ¹ / ₂	3 ⁸
HP 10x57	8"	3 ⁴	9 ¹ / ₆	5 ¹ / ₄	1 ¹ / ₂	3 ⁸
x42	8"	5 ⁸	9 ¹ / ₆	5 ¹ / ₄	1 ¹ / ₂	3 ⁸
HP 8x36	7"	5 ⁸	7 ¹ / ₆	4 ¹ / ₄	1 ¹ / ₂	3 ⁸

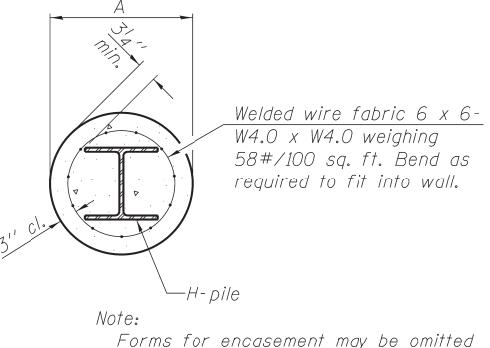
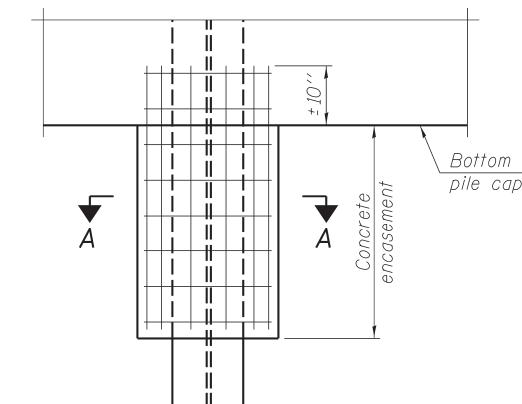


STEEL PILE TABLE

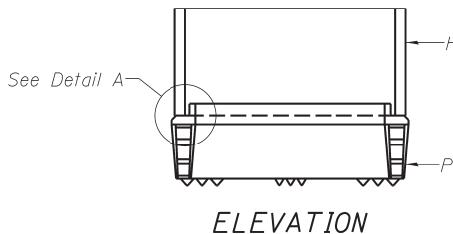
Designation	Depth d	Flange width b _f	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 ¹ / ₄ "	14 ⁷ / ₈ "	1 ³ / ₁₆ "	30"
x102	14"	14 ³ / ₄ "	1 ¹ / ₁₆ "	30"
x89	13 ⁷ / ₈ "	14 ³ / ₄ "	5 ⁸ "	30"
x73	13 ⁵ / ₈ "	14 ⁵ / ₈ "	1 ² "	30"
HP 12x84	12 ¹ / ₄ "	12 ¹ / ₄ "	1 ¹ / ₁₆ "	24"
x74	12 ¹ / ₈ "	12 ¹ / ₄ "	5 ⁸ "	24"
x63	12"	12 ¹ / ₈ "	1 ² "	24"
x53	11 ³ / ₄ "	12"	7 ¹ / ₁₆ "	24"
HP 10x57	10"	10 ¹ / ₄ "	9 ¹ / ₁₆ "	24"
x42	9 ³ / ₄ "	10 ⁸ "	7 ¹ / ₁₆ "	24"
HP 8x36	8"	8 ⁸ "	7 ¹ / ₁₆ "	18"



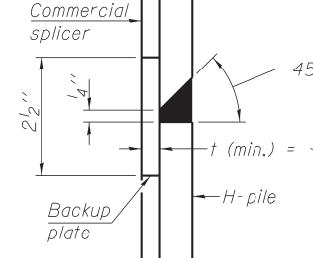
ELEVATION



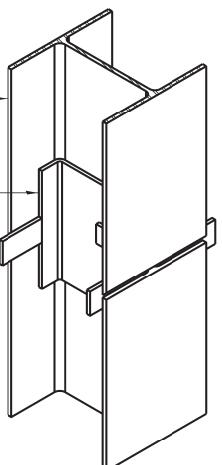
SECTION A-A



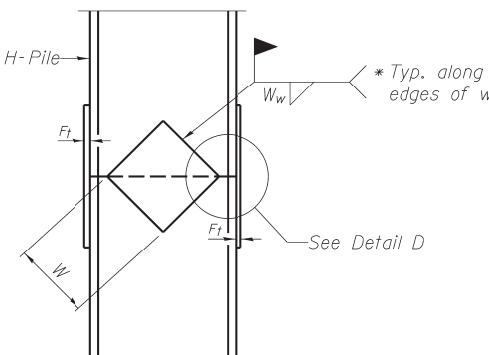
ELEVATION



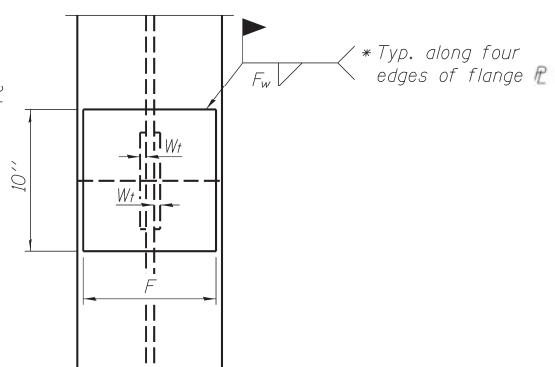
DETAIL "B"



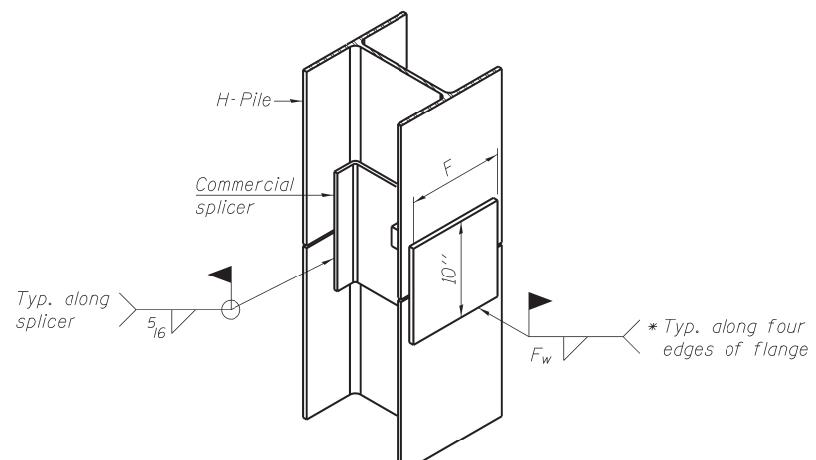
WELDED COMMERCIAL SPLICE



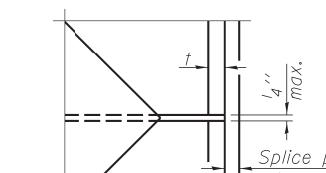
ELEVATION



END VIEW



WELDED COMMERCIAL SPLICE ALTERNATE



DETAIL D

WELDED PLATE FIELD SPLICE

Note:

The steel H-piles shall be according to AASHTO M270 Grade 50. Encasement Concrete shall be paid for as Class B-1 Concrete. Shear Studs and attaching them to steel H-piles will be incidental to Structural Steel Piles.

* Interrupt welds $\frac{1}{4}$ " from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoc manufacturer ($\frac{5}{16}$ " min.).

Note: This drawing is not to scale follow dimensions.



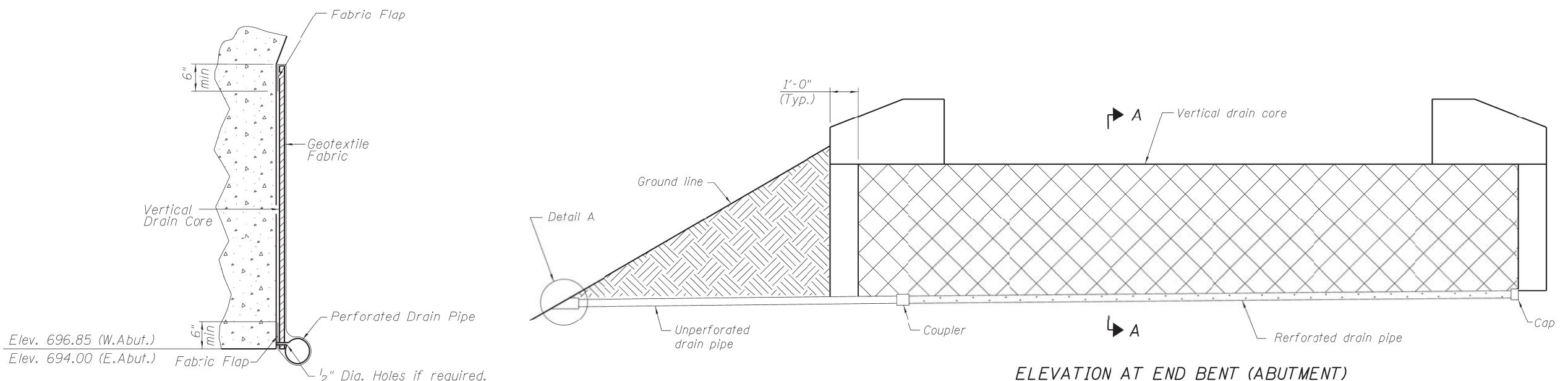
SIGNATURE
4-18-17
DATE
2011025295
LICENSE NUMBER
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LICENSE EXPIRES

SCHUMACHER ROAD STRUCTURE OVER
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050

MARK	DATE	DESCRIPTION

DATE: 4-18-17
PROJECT NO: 290-0387
DESIGN: MEB DRAWN: UJ CHECK: CJC

VERTICAL DRAIN AT
END BENTS



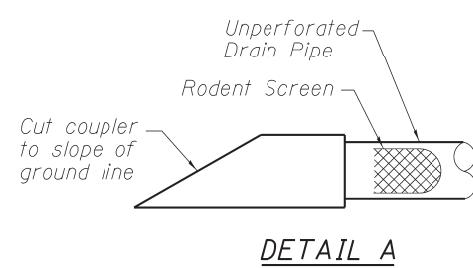
Note:

Drain pipe may be either 6-inch diameter corrugated metallic-coated steel pipe underdrain, 4-inch diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4-inch diameter corrugated polyethylene (PE) drain pipe.

Place drain pipe at fill face of end bent (abutment) and slope to lowest grade of ground line, also missing the lower beam of end bent by 1 1/2 inches. (See Elevation at End Bent (Abutments))

Drain pipe outfall at End Bents (Abutments) shall be at the north end of the bent (abutment).

Perforated pipe shall be placed at fill face side at the bottom of End Bent (Abutment) and plain pipe shall be used where the vertical drain ends to the exit at ground line.



Note: This drawing is not to scale follow dimensions.

Sheet 15 of 17



BORING LOG

PROJECT Schumacher Road Culvert Replacement
 LOCATION Jefferson County, Missouri
 DRILLER Midwest Drilling, Inc.
 EQUIPMENT CME 550 w/CFA
 STATION 2+57

BORING NUMBER B-1
 SHEET 2 of 2
 HAMMER Automatic
 PROJECT NO. 2015-5001.10 Task 100
 ELEVATION 703.0±
 DATE DRILLED 05/06/15
 OFFSET 5' RT

DEPTH (ft)	SAMPLE				DESCRIPTION (UNIFIED SOIL CLASSIFICATION)	GRAPHIC	SEE REMARK NO.	LABORATORY TEST RESULTS					ELEVATION (ft)
	NUMBER	TYPE	RECOVERY (in/in)	BLOWS (per 6 in)				DRY DENSITY (pcf)	HAND PENETROMETER (ksf)	UNCONFINED COMPRESSIVE STRENGTH (ksf)	LIQUID LIMIT	PLASTICITY INDEX	
30	8	SS	12/18	8	SANDY FAT CLAY (CH): Reddish-brown, trace gravel, sand is fine to coarse (Continued)		15		2.0				675
35	9	SS	13/18	9	Boring terminated at 35.0 feet.		18		4.0				670
40													665
45													660
													655

WATER LEVEL:
 X NONE OBSERVED WHILE DRILLING
 ft WHILE DRILLING
 ft AT COMPLETION OF DRILLING
 ft HRS AFTER DRILLING

REMARKS:



BORING LOG

PROJECT Schumacher Road Culvert Replacement
 LOCATION Jefferson County, Missouri
 DRILLER Midwest Drilling, Inc.
 EQUIPMENT CME 550 w/CFA
 STATION 2+57

BORING NUMBER B-1
 SHEET 1 of 2
 HAMMER Automatic
 PROJECT NO. 2015-5001.10 Task 100
 ELEVATION 703.0±
 DATE DRILLED 05/06/15
 OFFSET 5' RT

DEPTH (ft)	SAMPLE				DESCRIPTION (UNIFIED SOIL CLASSIFICATION)	GRAPHIC	SEE REMARK NO.	LABORATORY TEST RESULTS					ELEVATION (ft)
	NUMBER	TYPE	RECOVERY (in/in)	BLOWS (per 6 in)				DRY DENSITY (pcf)	HAND PENETROMETER (ksf)	UNCONFINED COMPRESSIVE STRENGTH (ksf)	LIQUID LIMIT	PLASTICITY INDEX	
5	1	SS	11/18	10	9.5" ASPHALTIC CONCRETE		13						700
5	2	SS	6/18	2	FILL: Brown, lean clay, with fine to coarse sand, crushed rock, and brick		15						695
5	3	SS	4/18	2	Trace crushed rock		23						690
5	4	SS	13/18	10	GRAVELLY FAT CLAY (CH): Brown, with fine to coarse sand, gravel is chert		13						685
10					FAT CLAY (CH): Brown, trace fine sand		25						680
15	5	SS	15/18	3	With fine to medium sand		23						675
20	6	SS	18/18	4	SANDY FAT CLAY (CH): Reddish-brown, trace gravel, sand is fine to coarse		20						670
20	7	SS	18/18	5									665

WATER LEVEL:
 X NONE OBSERVED WHILE DRILLING
 ft WHILE DRILLING
 ft AT COMPLETION OF DRILLING
 ft HRS AFTER DRILLING

REMARKS:



Hurst-Rosche, Inc.

PROFESSIONAL DESIGN NUMBER: 000372

3675 W. OUTER ROAD

SUITE 101

ARNOLD, MO 63010

PH: 636.333.3351

HILLSBORO, IL

EAST ST. LOUIS, IL

MARION, IL

SPRINGFIELD, IL

NEOSHO, MO

NASHVILLE, TN

SIGNATURE
 DATE
 201102525
 LICENSE NUMBER
 12-31-17
 LICENSE EXPIRES

SCHUMACHER ROAD STRUCTURE OVER
 TRIBUTARY TO SALINE CREEK
 JEFFERSON COUNTY, MISSOURI
 DEPARTMENT OF PUBLIC WORKS
 725 MAPLE, ROOM 104
 HILLSBORO, MISSOURI, 63050

MARK DATE DESCRIPTION

DATE: 4-18-17

PROJECT NO: 290-0387

DESIGN: MEB DRAWN: UJ CHECK: CJC

SOIL BORING LOGS

S-116

Sheet 16 of 17

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BORING LOG

PROJECT Schumacher Road Culvert Replacement		BCRING NUMBER	B-2
LOCATION Jefferson County, Missouri		SHEET	1 of 2
DRILLER	Midwest Drilling, Inc.	HAMMER	Automatic
EQUIPMENT	CME 550 w/CFA	ELEVATION	704.0±
STATION	3+12	OFFSET	7' LT

WATER LEVEL:
X NONE OBSERVED WHILE DRILLING

ft WHILE DRILLING

ft AT COMPLETION OF DRILLING
ft HRS AFTER DRILLING

REMARKS:

- 1) Auger refusal
- 2) Driller noted good water return
- 3) RQD = 27%
- 4) Driller noted loss of water 42 inches into coring

BORING LOG

PROJECT	Schumacher Road Culvert Replacement	BORING NUMBER	B-2
LOCATION	Jefferson County, Missouri	SHEET	2 of 2
DRILLER	Midwest Drilling, Inc.	PROJECT NO.	2015-5001.10 Task 100
EQUIPMENT	CME 550 w/CFA	DATE DRILLED	05/06/15
STATION	3+12	OFFSET	7' LT

WATER LEVEL:

X NONE OBSERVED WHILE DRILLING
 ft WHILE DRILLING
 ft AT COMPLETION OF DRILLING
 ft HRS AFTER DRILLING

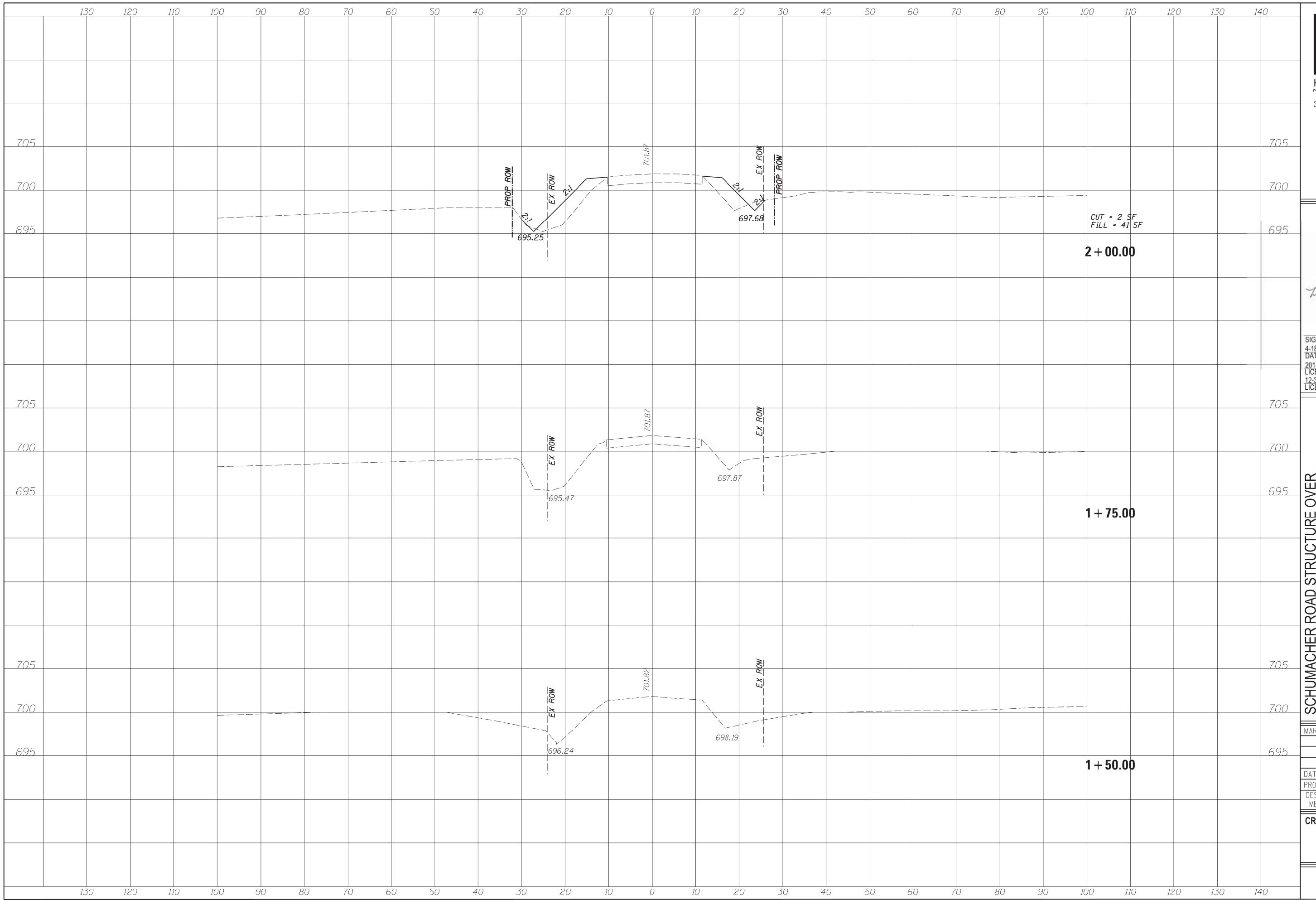
REMARKS:

SCHUMACHER ROAD STRUCTURE OVER
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
7725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050

MARK DATE	DESCRIPTION

DATE: 4-18-17		
PROJECT NO: 290-0387		
DESIGN: MEB	DRAWN: UJ	CHECK: CJC

SOIL BORING LOGS



Hurst-Rosche, Inc.
PROFESSIONAL DESIGN NUMBER: 000372

8675 W. OUTER ROAD
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PH: 636.333.3351

HILLSBORO, IL
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SPRINGFIELD, IL
NEOSHO, MO
NASHVILLE, TN



NATURE
3-7
TE
1(25295
ENSE NUMBER
11-17
ENSE EXPIRES

TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO MISSOURI 63050

WK	DATE	DESCRIPTION

LOSS SECTIONS

See also

—
—
—

G-201

C-201



Hurst-Rosche, Inc.
PROFESSIONAL DESIGN NUMBER: 000372

3675 W. OUTER ROAD
SUITE 101
ARNOLD, MO 63010
PH: 636.333.3351

HILLSBORO, IL
EAST ST. LOUIS, IL
MARION, IL
SPRINGFIELD, IL
NEOSHO, MO
NASHVILLE, TN



SIGNATURE
4-18-17
DATE
2011(25295)
LICENSE NUMBER
12-31-17
LICENSE EXPIRES

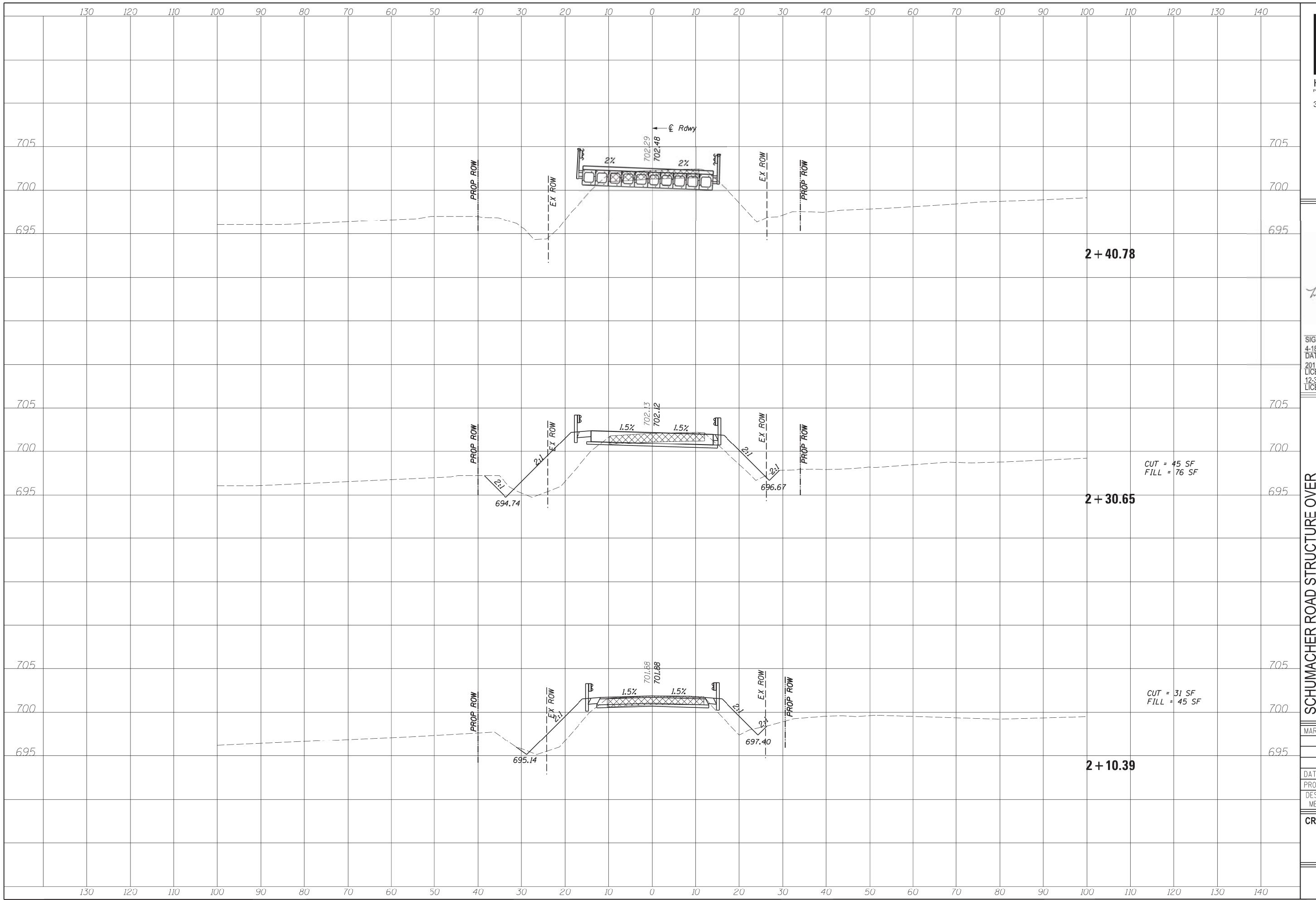
SCHUMACHER ROAD STRUCTURE OVER
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050

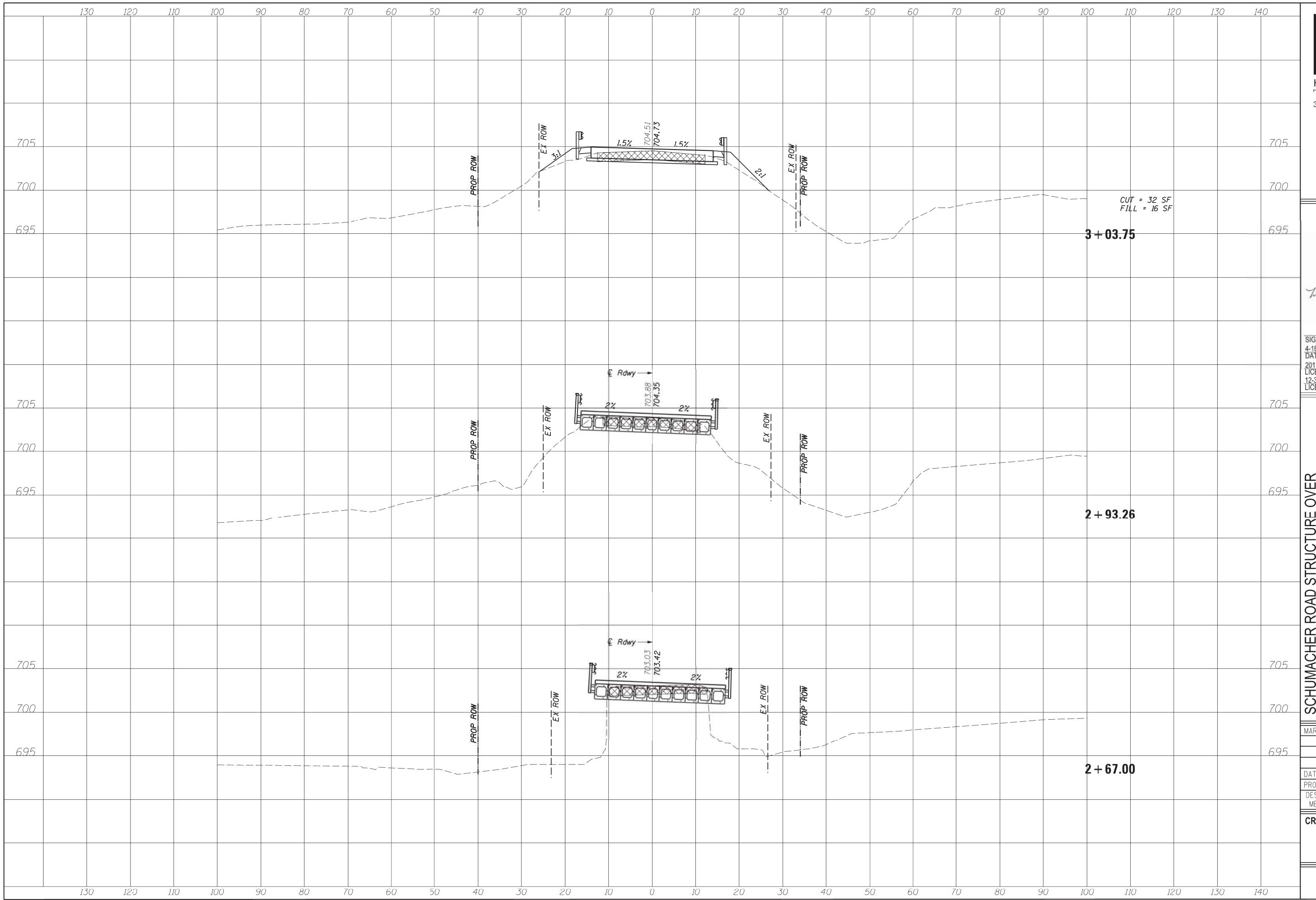
MARK	DATE	DESCRIPTION

DATE: 4-18-17
PROJECT NO: 290-0387
DESIGN: MEB DRAWN: UJ CHECK: MAF

CROSS SECTIONS

C-202





Hurst-Rosche, Inc.
PROFESSIONAL DESIGN NUMBER: 000372

3675 W. OUTER ROAD
SUITE 101
ARNOLD, MO 63010
PH: 626-333-3351

HILLSBORO, IL
EAST ST. LOUIS, IL
MARION, IL
SPRINGFIELD, IL
NEOSHO, MO
NASHVILLE, TN



NATURE
3-7
TE
1(25295
ENSE NUMBER
31-17
ENSE EXPIRES

TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO MISSOURI 63050

WK	DATE	DESCRIPTION

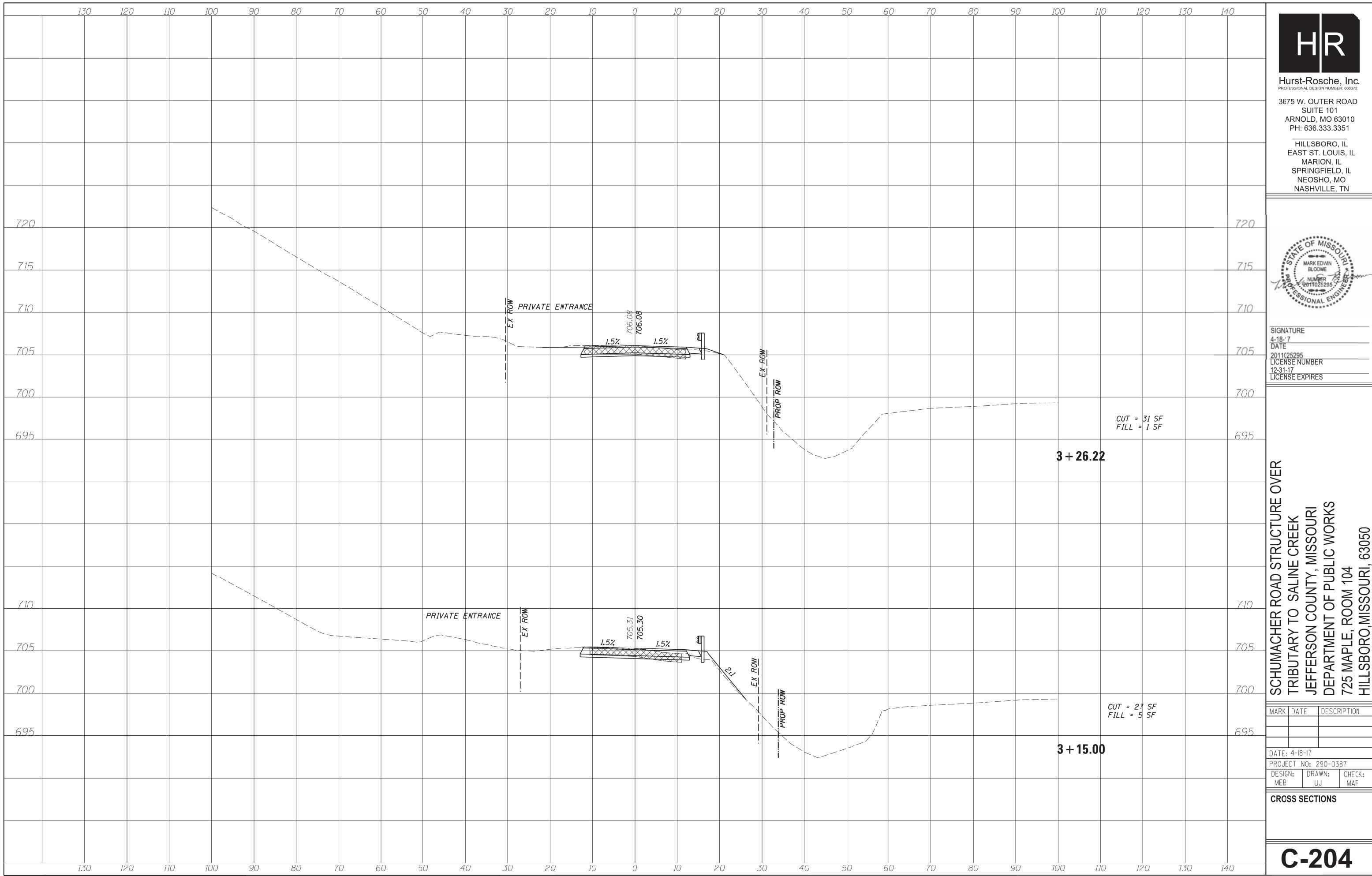
LOSS SECTIONS

See also works

2000

C-203

C-203



Hurst-Rosche, Inc.
PROFESSIONAL DESIGN NUMBER: 000372

3675 W. OUTER ROAD
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HILLSBORO, IL
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SCHUMACHER ROAD STRUCTURE OVER
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JEFFERSON COUNTY, MISSOURI
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725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050

MARK	DATE	DESCRIPTION

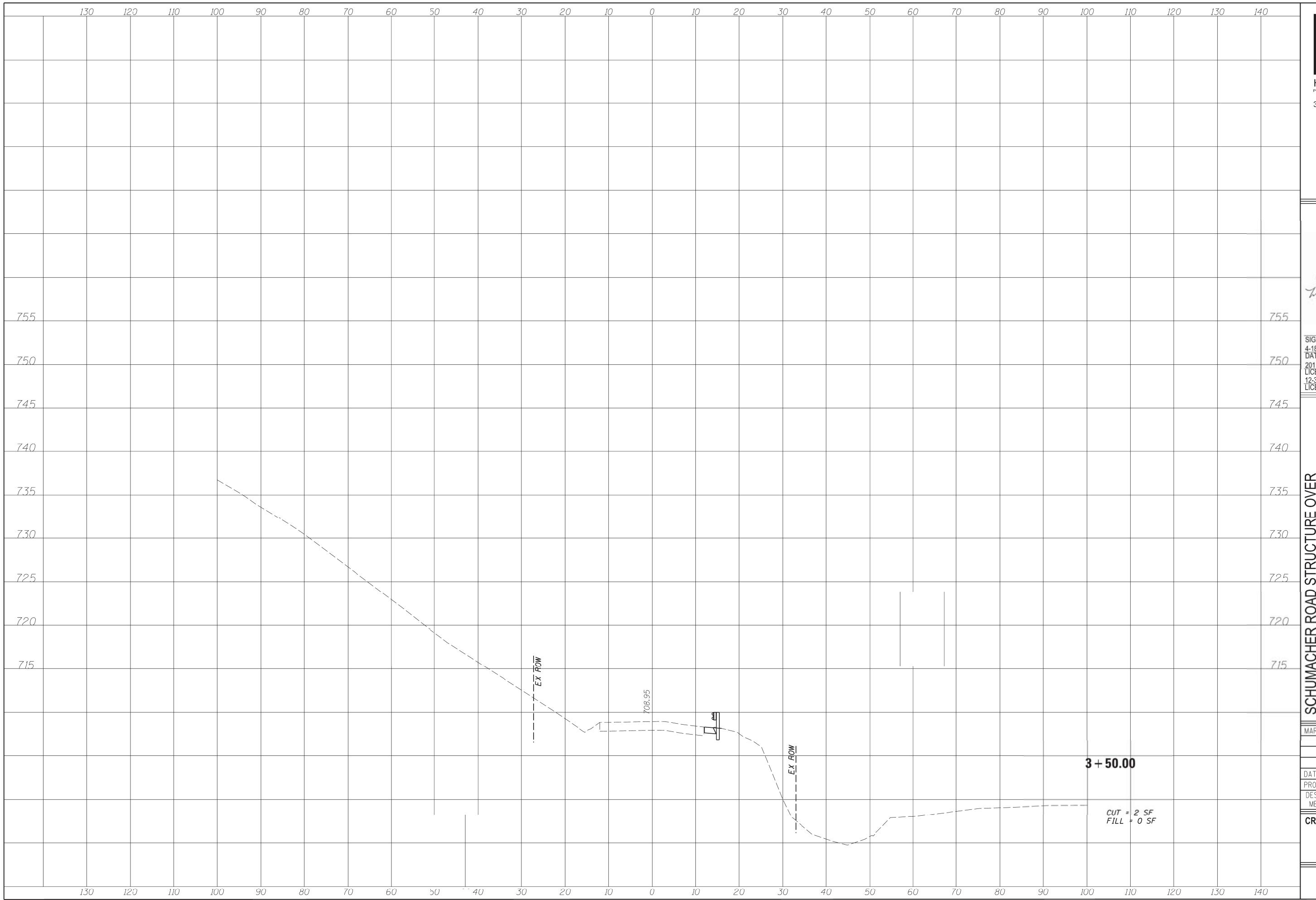
DATE: 4-18-17

PROJECT NO: 290-0387

DESIGN: MEB DRAWN: UJ CHECK: MAF

CROSS SECTIONS

C-204



Hurst-Rosche, Inc.
PROFESSIONAL DESIGN NUMBER: 000372

3675 W. OUTER ROAD
SUITE 101
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PH: 636.333.3351

HILLSBORO, IL
EAST ST. LOUIS, IL
MARION, IL
SPRINGFIELD, IL
NEOSHO, MO
NASHVILLE, TN



SIGNATURE
4-18-17
DATE
2011(25295)
LICENSE NUMBER
12-31-17
LICENSE EXPIRES

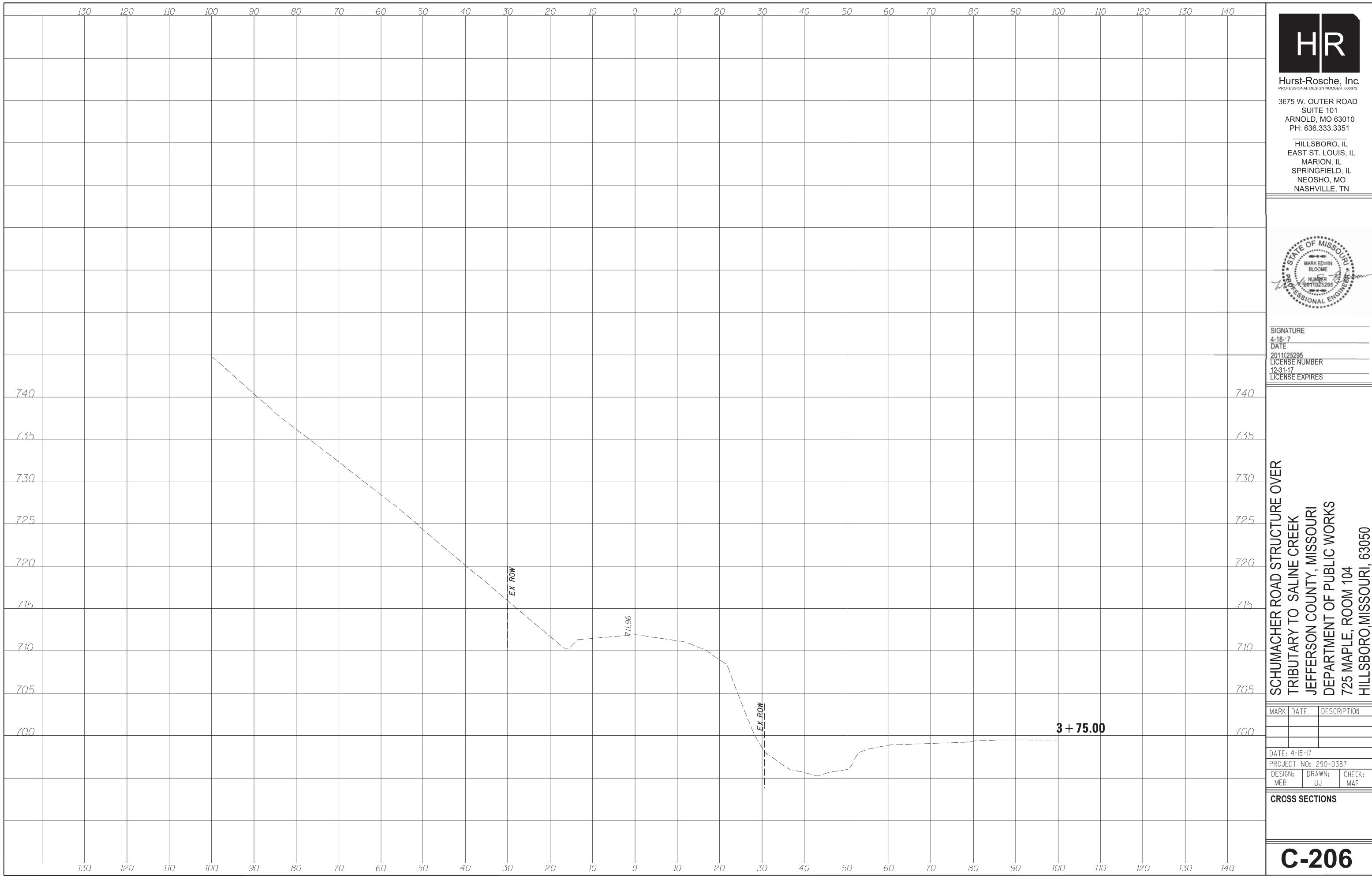
SCHUMACHER ROAD STRUCTURE OVER
TRIBUTARY TO SALINE CREEK
JEFFERSON COUNTY, MISSOURI
DEPARTMENT OF PUBLIC WORKS
725 MAPLE, ROOM 104
HILLSBORO, MISSOURI, 63050

MARK	DATE	DESCRIPTION

DATE: 4-18-17
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DESIGN: MEB
DRAWN: UJ
CHECK: MAF

CROSS SECTIONS

C-205



Hurst-Rosche, Inc.
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3675 W. OUTER ROAD
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HILLSBORO, IL
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SIGNATURE
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CROSS SECTIONS

C-206