

06-13-14 LETTING ITEM 283

FOR INDEX OF SHEETS, SEE SHEET 2 OF 19
FOR HIGHWAY STANDARDS, SEE SHEET 2 OF 19

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7449	11-00241-00-BR	MACON	19	1
ILLINOIS CONTRACT NO. 95743				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

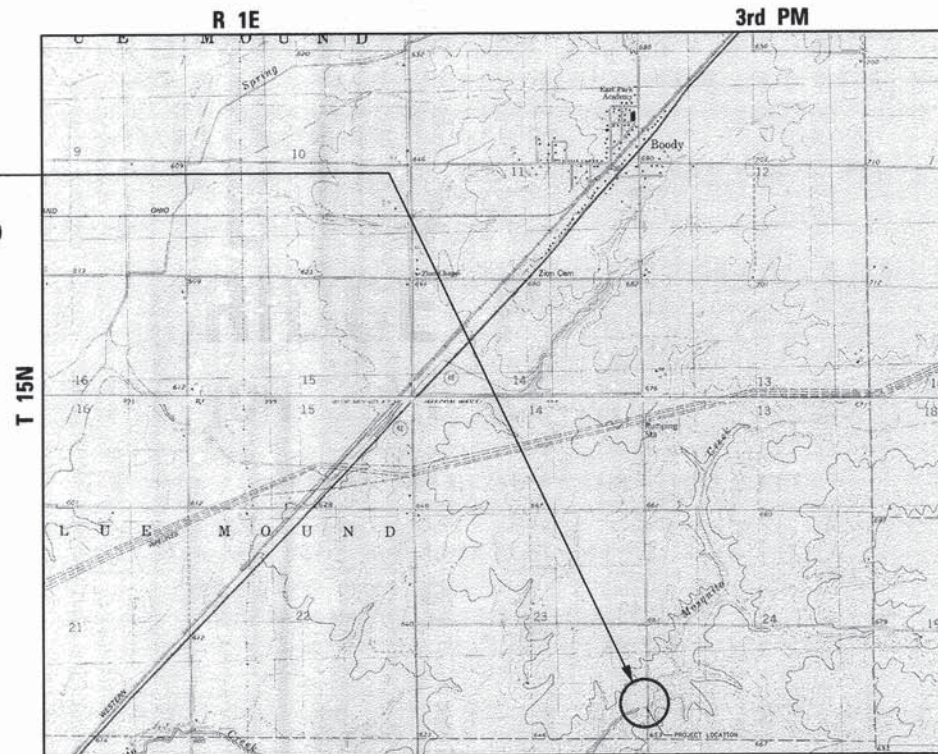
**PLANS FOR PROPOSED
SURFACE TRANSPORTATION
BRIDGE PROGRAM**

**FAU 7449 (CH 29) OVER MOSQUITO CREEK
MACON COUNTY
SECTION 11-00241-00-BR
PROJECT BROS-0115(069)
JOB C-97-082-12**



FUNCTIONAL CLASSIFICATION - MINOR COLLECTOR (RURAL)
2013 ADT = 175
DESIGN SPEED = 40 MPH

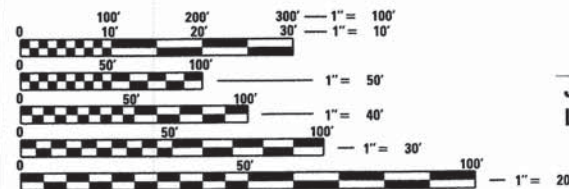
PROPOSED
SECTION 11-00241-00-BR
BEGINS STATION 8+50.00
ENDS STATION 11+40.00
PROPOSED SN 058-3397
EXISTING SN 058-3247



LOCATION MAP

TOTAL LENGTH 290 FEET = 0.055 MILES
NET LENGTH 290 FEET = 0.055 MILES

THE PROPOSED IMPROVEMENT CONSISTS OF REMOVAL OF EXISTING STRUCTURE AND REPLACEMENT WITH A SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM (27" DEPTH) BRIDGE, PILE BENT ABUTMENTS, 27'-0" CLEAR ROADWAY AND 59'-0" BACK TO BACK ABUTMENTS, 0 DEGREE SKEW, AND OTHER MINOR COLLATERAL WORK.



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123

HLC PROJECT NO. 5730
HLC FIELD BOOK NO. 486
CONTRACT NO. 95743



JEREMY BUENING, P.E., S.E.
LICENSE EXPIRES 11/30/15
DATE 4/8/14

CHASTAIN & ASSOCIATES LLC
CONSULTING ENGINEERS
DECATUR (217) 422-8544
CHICAGO (773) 714-0050
ROCKFORD (815) 489-0050
184-001397

APPROVED April 8, 2014
John R. S.
COUNTY ENGINEER

PASSED April 22, 2014
Maura E. Kraft
DISTRICT SEVEN ENGINEER OF
LOCAL ROADS AND STREETS

Releasing For Bid Based on Limited Review April 22, 2014
Joan Z. Onsheloh
DEPUTY/DIRECTOR OF HIGHWAYS
REGION FOUR ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

INDEX OF SHEETS

- 1 COVER SHEET
- 2 GENERAL NOTES, INDEX OF SHEETS AND STANDARDS
- 3 SUMMARY OF QUANTITIES AND SCHEDULE OF QUANTITIES
- 4 ROADWAY TYPICAL SECTIONS
- 5 PLAN AND PROFILE
- 6-13 SN 058-3397 STRUCTURE PLANS
- 14-19 CROSS SECTIONS

GENERAL NOTES

WHEREVER IN THE PLANS OR SPECIFICATIONS THE TERM STANDARD SPECIFICATIONS IS USED, IT SHALL BE UNDERSTOOD BY THE CONTRACTOR TO MEAN THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AS PREPARED BY THE DEPARTMENT OF TRANSPORTATION OF THE STATE OF ILLINOIS AND ADOPTED JANUARY 1, 2012.

EXISTING ROAD SIGNS THAT CONFLICT WITH CONSTRUCTION OPERATIONS SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE CONTRACT PAY ITEMS AND NO ADDITION COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR.

EXCEPT WHERE DESIGNATED OTHERWISE, THE LOCATIONS AND/OR DEPTHS OF UNDERGROUND UTILITIES SHOWN HAVE BEEN TAKEN FROM INFORMATION FURNISHED BY THE UTILITY OWNERS & MUST BE CONSIDERED APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES. CONTACT J. U. L. I. E., PHONE 800-892-0123, AND ALL UTILITY COMPANIES PRIOR TO DIGGING.

THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION OPERATIONS.

THE CONTRACTOR SHALL TAKE REASONABLE PRECAUTIONS TO PROTECT PUBLIC AND PRIVATE PROPERTY. IF AT ANY TIME THE CONTRACTOR DAMAGES OR DESTROYS PUBLIC OR PRIVATE PROPERTY, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, RESTORE SUCH PROPERTY TO A CONDITION EQUAL TO THAT EXISTING BEFORE SUCH DAMAGE.

THE CONTRACTOR SHALL NOTIFY THE MACON COUNTY HIGHWAY DEPARTMENT RESIDENT ENGINEER AND THE COUNTY ENGINEER 72 HOURS IN ADVANCE OF CONSTRUCTION WORK.

UTILITY COMPANIES MAY BE ADJUSTING THEIR FACILITIES AT THE TIME OF CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL COOPERATE WITH THESE ORGANIZATIONS WHILE THEY PERFORM THEIR WORK.

GRADING SHALL BE DONE BY HAND AROUND LIGHTS POLES, UTILITY POLES, SIGN POSTS, SHRUBS, TREES OR OTHER NATURAL OR MAN-MADE OBJECTS WHERE SHALLOW FILLS OR CUTS ARE ADJACENT TO THE ITEMS. THE DECISION AS TO ITEMS TO REMAIN IN PLACE SHALL BE DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY, AND NO ADDITION COMPENSATION WILL BE ALLOWED.

TEMPORARY EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS SHOWN IN THE PLAN AND PROFILE AND AS DIRECTED BY THE ENGINEER.

SEEDING SHALL BE DONE ON ALL AREAS THAT ARE DISTURBED BY CONSTRUCTION OPERATIONS AS DIRECTED BY THE ENGINEER. SEEDING SHALL BE PAID FOR ONLY WITHIN THE PROPOSED RIGHT-OF-WAY LIMITS. ALL AREAS DISTURBED BY THE CONTRACTOR OUTSIDE THE PROPOSED CONSTRUCTION LIMIT SHALL BE SEEDED AS DIRECTED BY THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING MATERIALS.

HIGHWAY STANDARDS

000001-06	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
515001-03	NAME PLATE FOR BRIDGES
630301-06	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
701901-03	TRAFFIC CONTROL DEVICES
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
BLR 27-1	TRAFFIC BARRIER TERMINAL TYPE 5A

RATES OF APPLICATION

ITEMS		RATE OF APPLICATION
AGGREGATE SHOULDERS	=	2.05 TONS/ CU YD
RIPRAP	=	1.5 TONS/ CU YD
HOT MIX ASPHALT SURFACE COURSE	=	112 LBS/ SQ YD/ INCH
PORTLAND CEMENT	=	8% BY WEIGHT

LOCATION(S)	FAU 7449	
• MIXTURE USE(S)	6" HMA BINDER	2" HMA SURFACE
PG	PG 64-28	PG 64-28
DESIGN AIR VOIDS	4.0 % @ Ndes = 50	4.0 % @ Ndes = 50
MIX COMP (GRADATION)	IL 19.0	IL 9.5
FRICTION AGGREGATE	MIX C	MIX C

• PAID FOR AS HOT-MIX ASPHALT PAVEMENT (FULL DEPTH), 8"

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	DRAWN - DLB	REVISED -
PLOT SCALE = 5.0000' / in.	CHECKED - JMB	REVISED -
PLOT DATE = 4/8/2014	DATE -	REVISED -



DECATUR (317) 422-8544
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GENERAL NOTES, INDEX OF SHEETS, AND STANDARDS

SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.U.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7449	11-00241-00-BR	MACON	19	2
CONTRACT NO. 95743				
ILLINOIS FED. AID PROJECT				

EROSION CONTROL SCHEDULE						
				25100630 EROSION CONTROL BLANKET	28000305 TEMPORARY DITCH CHECKS	28100207 STONE RIPRAP, CLASS A4
STATION	TO	STATION	LT/RT	SO YD	FOOT	TON
8+49.00		9+50.00	RT	89		
8+50.00		9+71.50	LT	108		
8+50.00			LT/RT		12	
8+70.00			LT		6	
8+90.00			LT		6	
9+00.00			RT		6	
9+10.00			LT		6	
9+30.00			LT		6	
9+50.00			LT		6	
9+50.00		9+71.50	RT			13
9+65.00			LT		6	
10+28.50		11+40.00	LT	149		
10+50.00			RT		6	
10+90.00			LT/RT		12	
11+40.00			LT/RT		12	
TOTAL				346	84	13

SEEDING SCHEDULE			
			X2501000 SEEDING, CLASS 2 (SPECIAL)
STATION	LT/RT	STATION	ACRE
8+50.00	LT	9+71.50	0.08
10+28.50	LT	11+40.00	0.09
8+50.00	RT	9+71.50	0.08
10+28.50	RT	11+40.00	0.07
TOTAL			0.32

SUMMARY OF QUANTITIES			
CODE NUMBER	PAY ITEM	UNIT	TOTAL
20200100	EARTH EXCAVATION	CU YD	224
20300100	CHANNEL EXCAVATION	CU YD	99
20400800	FURNISHED EXCAVATION	CU YD	79
25100630	EROSION CONTROL BLANKET	SO YD	346
28000305	TEMPORARY DITCH CHECKS	FOOT	84
28100207	STONE RIPRAP, CLASS A4	TON	365
28200200	FILTER FABRIC	SO YD	546
30200650	PROCESSING MODIFIED SOIL 12"	SO YD	557
30201700	PORTLAND CEMENT	TON	24
40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	24
40701841	HOT-MIX ASPHALT PAVEMENT (FULL DEPTH), 8"	SO YD	515
48101200	AGGREGATE SHOULDERS, TYPE B	TON	58
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	61
50200100	STRUCTURE EXCAVATION	CU YD	95
50300225	CONCRETE STRUCTURES	CU YD	28.2
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SO FT	1,557
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	3,040
* 50901050	STEEL RAILING, TYPE SM	FOOT	118
51200957	FURNISHING METAL SHELL PILES 12" X 0.250"	FOOT	279
51202305	DRIVING PILES	FOOT	279
51203200	TEST PILE METAL SHELLS	EACH	1
51500100	NAME PLATES	EACH	1
58100200	WATERPROOFING MEMBRANE SYSTEM	SO YD	173
59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	43
* 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	2
* 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	2
67100100	MOBILIZATION	L SUM	1
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
* 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.32

* SPECIALTY ITEMS

EARTHWORK SCHEDULE				
LOCATION	1	2	3	4
	20200100 EARTH EXCAVATION (CU YD)	*EXCAVATION TO BE USED IN EMBANKMENT (ADJUSTED FOR SHRINKAGE) (COL 1 X 0.75) (CU YD)	*EMBANKMENT (FILL) (CU YD)	20400800 FURNISHED EXCAVATION (COL 3 - COL 2) (CU YD)
8+50.00 to 11+40.00	224	168	247	79
TOTAL	224	168	247	79

EARTH EXCAVATION SHRINKAGE FACTOR ASSUMED TO BE 25%
ITEMS MARKED WITH AN ASTERISK (*) ARE FOR INFORMATIONAL PURPOSES ONLY

PAVING SCHEDULE						
		30200650 PROCESSING MODIFIED SOIL 12"		40701841 HOT-MIX ASPHALT PAVEMENT (FULL DEPTH), 8"	48101200 AGGREGATE SHOULDERS, TYPE B	40603310 HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50
STATION	LT/RT	STATION	SO YD	SO YD	TON	TON
8+50.00	LT/RT	9+00.00	115	103	10	
9+00.00	LT/RT	9+70.50	174	156	14	
9+71.17	LT/RT	10+28.83				24
10+29.50	LT/RT	11+00.00	174	156	14	
11+00.00	LT/RT	11+40.00	94	84	8	
8+50.00	LT/RT WEDGE	9+70.50		8	6	
10+29.50	LT/RT WEDGE	11+40.00		8	6	
TOTAL			557	515	58	24

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	DATE -	REVISED -

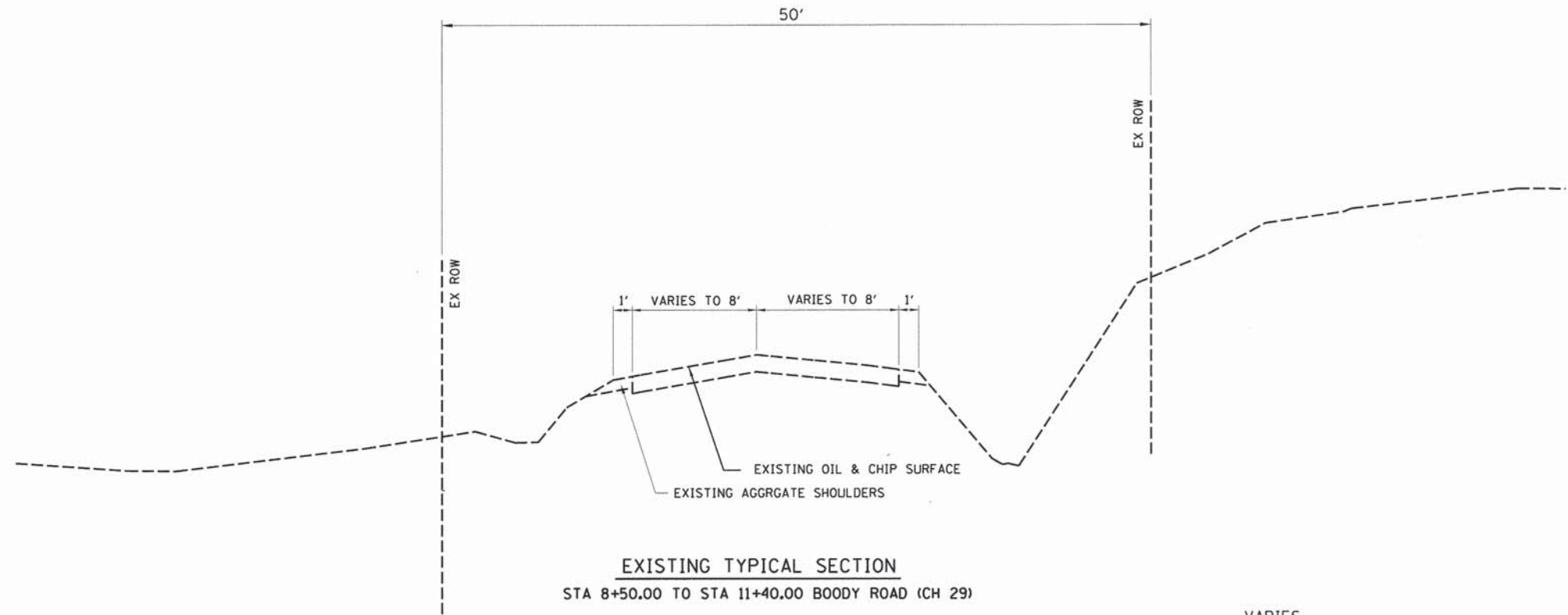


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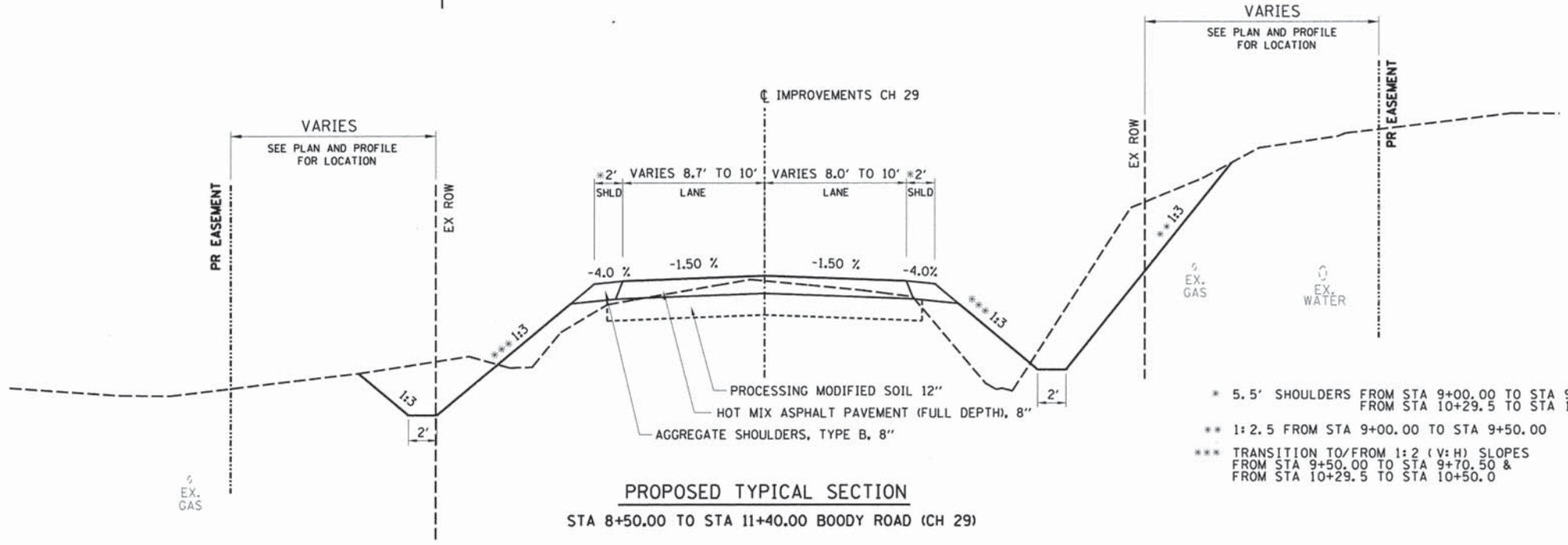
SCHEDULE OF QUANTITIES AND SUMMARY OF QUANTITIES

SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.U.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7449	11-00241-00-BR	MACON	19	3
CONTRACT NO. 95743				
ILLINOIS FED. AID PROJECT				



EXISTING TYPICAL SECTION
STA 8+50.00 TO STA 11+40.00 BOODY ROAD (CH 29)



PROPOSED TYPICAL SECTION
STA 8+50.00 TO STA 11+40.00 BOODY ROAD (CH 29)

- * 5.5' SHOULDERS FROM STA 9+00.00 TO STA 9+70.50 RT
FROM STA 10+29.5 TO STA 11+00.0 LT
- ** 1:2.5 FROM STA 9+00.00 TO STA 9+50.00
- *** TRANSITION TO/FROM 1:2 (V:H) SLOPES
FROM STA 9+50.00 TO STA 9+70.50 &
FROM STA 10+29.5 TO STA 10+50.0

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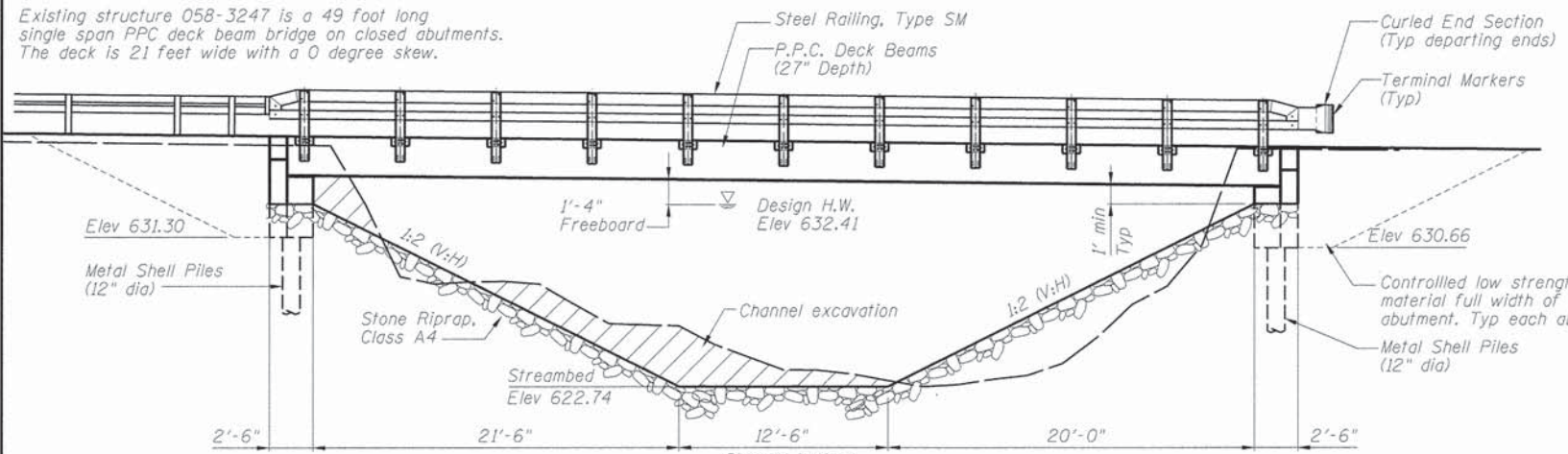
TYPICAL SECTIONS			
SCALE:	SHEET NO.	OF SHEETS	STA. TO STA.

F.A.U.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7449	11-00241-00-BR	MACON	19	4
CONTRACT NO. 95743				
ILLINOIS FED. AID PROJECT				

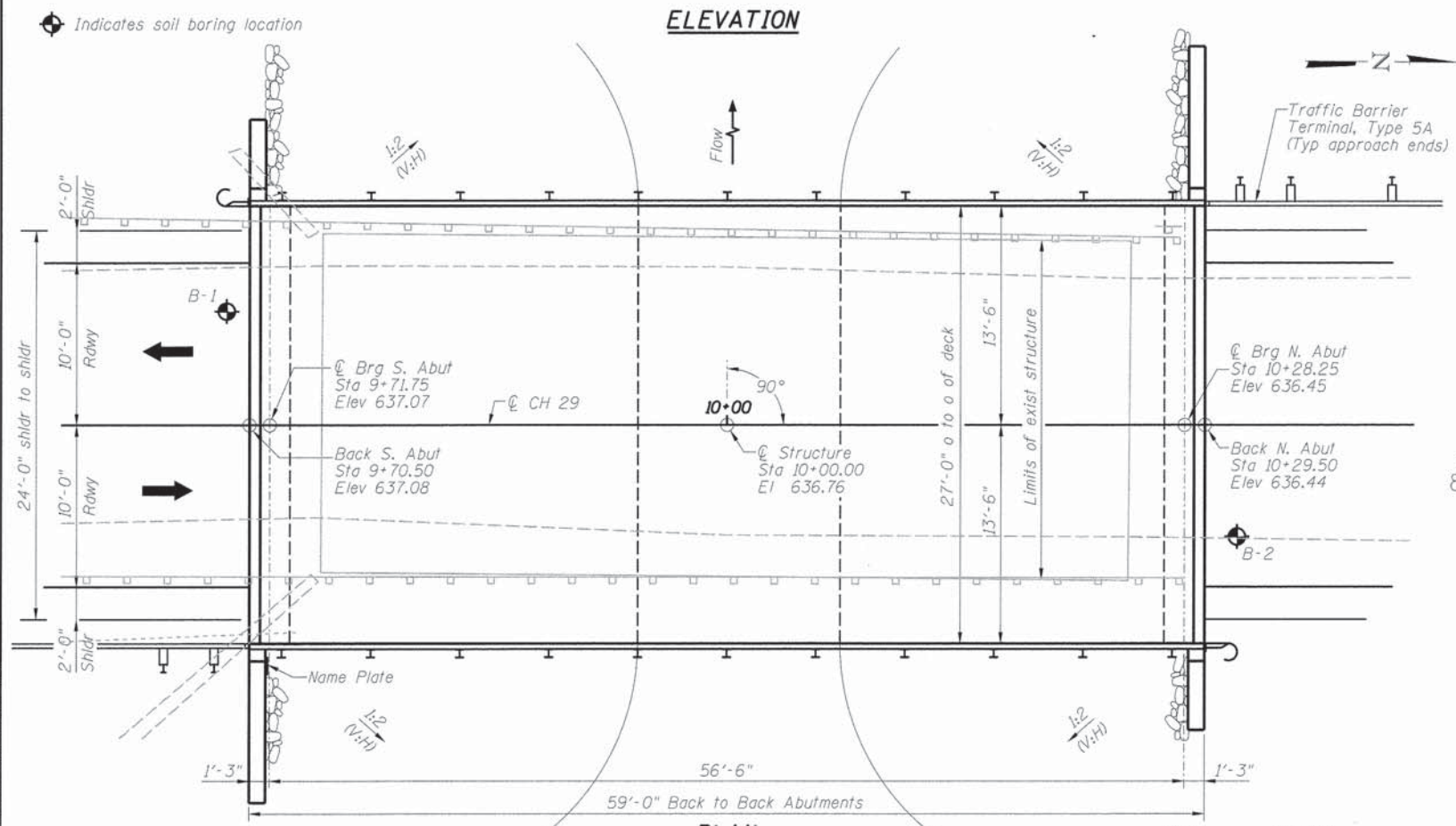
BENCH MARKS:

5730-2 R.R. spike set in east face of power pole, 1st power pole south of bridge on Boody Road Elev 639.27
 5730-3 R.R. spike set in east face of power pole, 1st power pole north of bridge on Boody Road Elev 635.02

Existing structure 058-3247 is a 49 foot long single span PPC deck beam bridge on closed abutments. The deck is 21 feet wide with a 0 degree skew.



ELEVATION

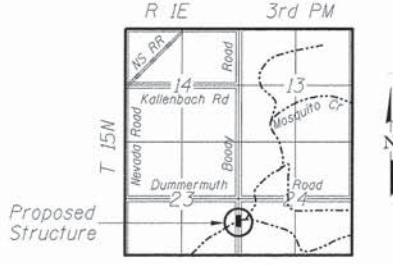


PLAN

WATERWAY INFORMATION TABLE

Drainage Area = 5.47 sq mi		Low Grade Elev. 634.83 @ Sta 19+60							
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist. Prop.	Nat. H.W.E. Exist. Prop.	Head - Ft. Exist. Prop.	Headwater El. Exist. Prop.			
Design	15	1200	291 310	286 306	632.01 --	632.01 632.41			
Base	100	1980	375 378	--	633.77 --	633.77 633.77			
Overtopping Existing	475	2652	411 --	--	634.90 --	634.90			
Max. Calc.	500	2720	411	406	634.95 0.27	635.22 635.01			

10 Year velocity through existing bridge = 3.38 ft/s 10 Year velocity through proposed bridge = 3.45 ft/s



LOCATION SKETCH

POWERS BRIDGE OVER MOSQUITO CREEK
 BUILT 20 BY
 MACON COUNTY
 SECTION 11-00241-00-BR
 STA 10+00.00
 STR. NO. 058-3397 LOADING HL-93

NAME PLATE

See Std. 515001

LOADING HL-93

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

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications 6th Edition with 2013 Interims

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
 fy = 60,000 psi (reinforcement)

PRECAST PRESTRESSED UNITS

f'c = 6,000 psi
 f'ci = 5,000 psi
 f's = 270,000 psi (1/2" φ low-relaxation strands)
 f'si = 202,000 psi (1/2" φ low-relaxation strands)

SEISMIC DATA

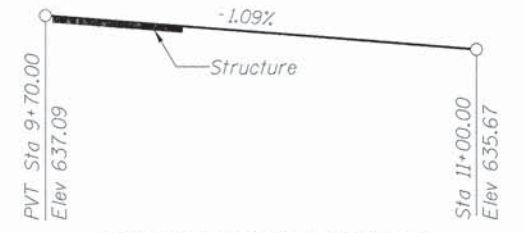
Seismic Performance Zone (SPZ) = 2
 Design Spectral Acceleration at 1.0 sec (S₀₁) = 0.158g
 Design Spectral Acceleration at 0.2 sec (S₀₅) = 0.304g
 Soil Site Class = D

GENERAL NOTES:

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
 All Construction joints shall be bonded.
 See Roadway Plans for channel excavation limits.
 See Roadway Plans for additional riprap limits.
 Reinforcement bars designated (E) shall be epoxy coated.

INDEX OF SHEETS

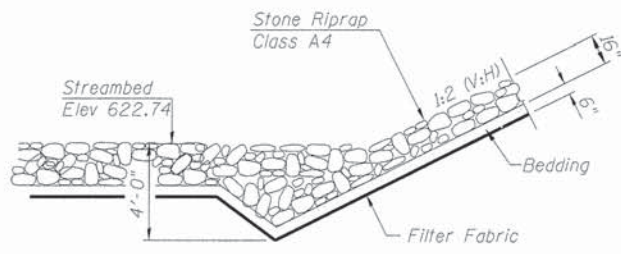
- 1 General Plan and Elevation
- 2 Steel Railing, Type SM
- 3 Superstructure Plan and Cross Section
- 4 27"x36" PPC Deck Beam
- 5 27"x36" PPC Deck Beam Details
- 6 Abutment Details
- 7 Metal Shell Pile Details
- 8 Soil Boring Logs



CONSTRUCTION PROFILE

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	S. Abut.	N. Abut.
	631.30	630.66



STONE RIPRAP ANCHOR DETAIL

TOTAL BILL OF MATERIAL

Item	Unit	Quantity
Hot-Mix Asphalt Surface Course, Mix "C", N50	Ton	24
Removal of Existing Structures	Each	1
Structure Excavation	Cu Yd	95
Concrete Structures	Cu Yd	28.2
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq Ft	1557
Reinforcement Bars, Epoxy Coated	Pound	3040
Steel Railing, Type SM	Foot	118
Furnishing Metal Shell Piles 12"x 0.25"	Foot	279
Driving Piles	Foot	279
Test Pile Metal Shells	Each	1
Name Plates	Each	1
Waterproofing Membrane System	Sq Yd	173
Controlled Low-Strength Material	Cu Yd	43.1
Terminal Marker - Direct Applied	Each	4
Channel Excavation	Cu Yd	99
Stone Riprap, Class A4	Ton	352
Filter Fabric	Sq Yd	527



Jeremy Buening, P.E., S.E. Date 4/8/14
 License Expires 11/30/14

I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specifications for Highway Bridges.

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PLOT DATE = 4/8/2014	CHECKED ACB	REVISED -
	DATE -	REVISED -

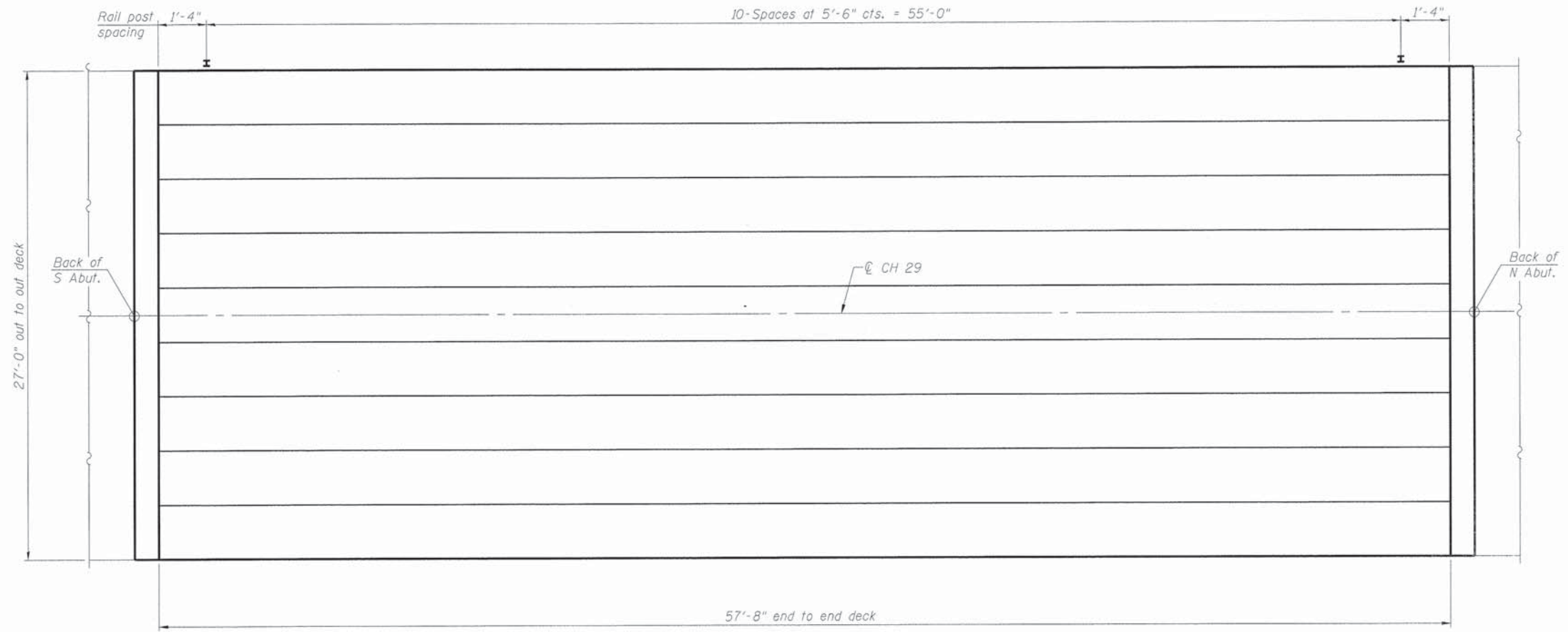
CHASTAIN & ASSOCIATES LLC
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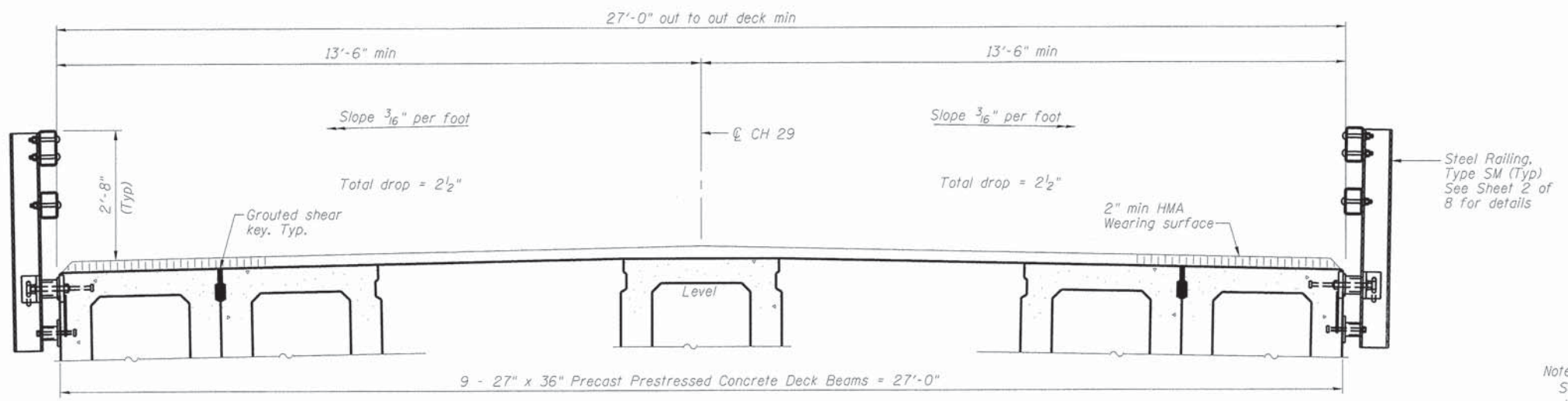
CH 29 OVER MOSQUITO CREEK
 GENERAL PLAN AND ELEVATION

SCALE: SHEET NO. 1 OF 8 SHEETS STA. TO STA.

F.A.U.	SECTION	COUNTY	TOTAL SHEETS	NO.
7449	11-00241-00-BR	MACON	19	6
			CONTRACT NO. 95743	
ILLINOIS FED. AID PROJECT				



PLAN



CROSS SECTION

Notes:
 See sheet 5 of 8 for fabric bearing pad details.
 Dowel rods drilled in cap are included in the cost of Precast Prestressed Concrete Deck Beams (27" Depth)

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PDS-S-R34-0 7-1-10

USER NAME = dbullock	DESIGNED JMB	REVISED -
PLOT SCALE = 1:8000 1/4" = 1'	DRAWN RLK	REVISED -
PLOT DATE = 4/8/2014	CHECKED ACB	REVISED -
	DATE -	REVISED -

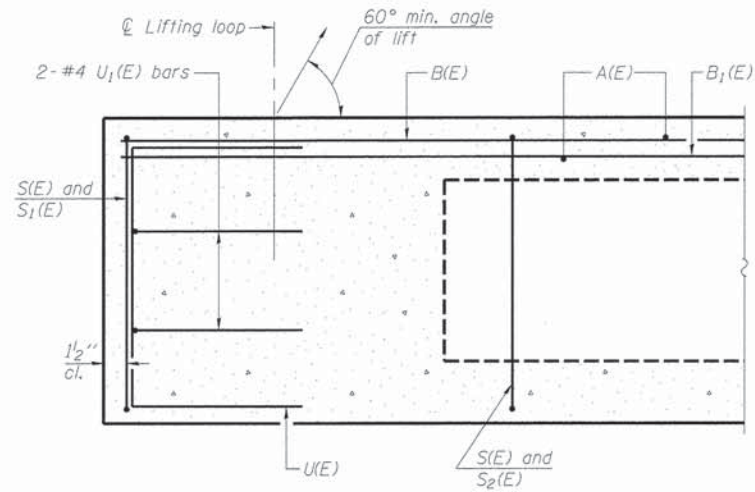
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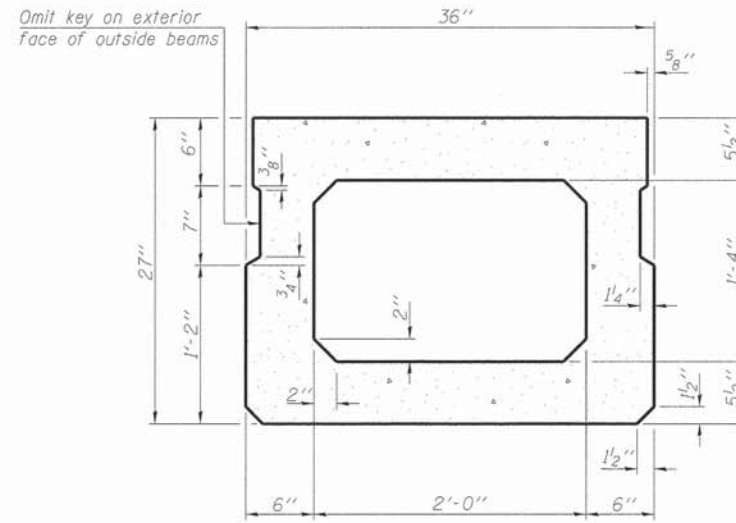
**CH 29 OVER MOSQUITO CREEK
 SUPERSTRUCTURE PLAN AND CROSS SECTION**

SCALE: SHEET NO. 3 OF 8 SHEETS STA. TO STA.

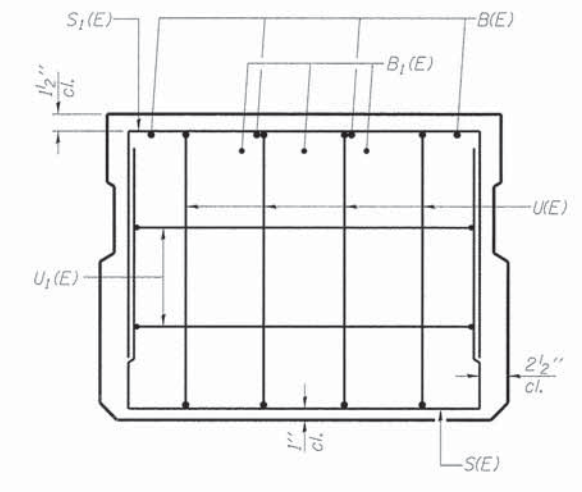
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7449	11-00241-00-BR	MACON	19	8
CONTRACT NO. 95743				
ILLINOIS FED. AID PROJECT				



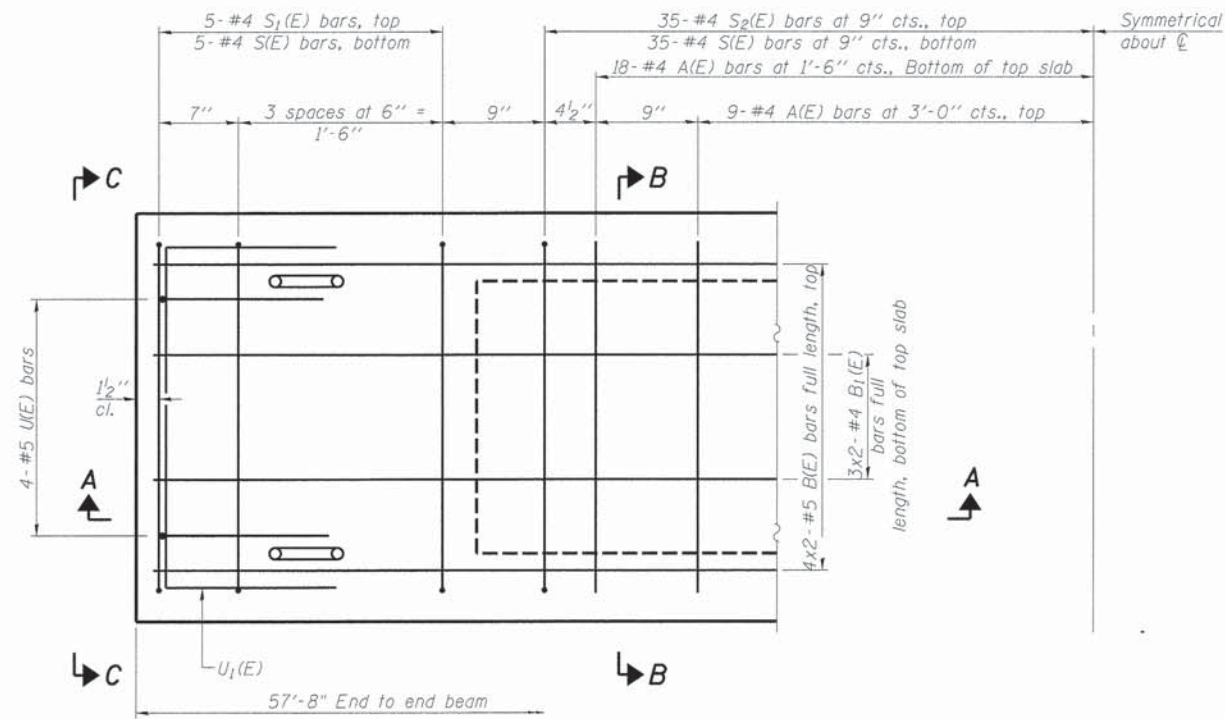
SECTION A-A



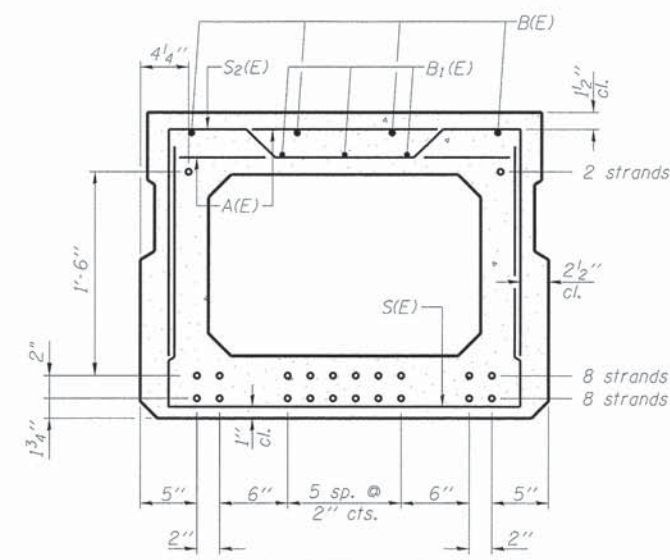
SECTION B-B
(Showing dimensions)



VIEW C-C



PLAN VIEW



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)	54	#4	2'-7"	—
B(E)	8	#5	29'-11"	—
B1(E)	6	#4	29'-8"	—
S(E)	80	#4	6'-5"	U
S1(E)	10	#4	5'-11"	U
S2(E)	70	#4	6'-2"	U
U(E)	8	#5	4'-6"	C
U1(E)	4	#4	5'-0"	C

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

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"

FILE NAME: I:\municipal\item\macon_county\5728 - powers_bridges\CADD_Structural\beam\ldp

PD-2736-0 7-1-10

USER NAME = dbullock	DESIGNED JMB	REVISED -
PLOT SCALE = 1.0000' / 1"	DRAWN RLK	REVISED -
PLOT DATE = 4/8/2014	CHECKED ACB	REVISED -
	DATE -	REVISED -

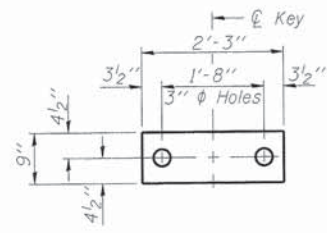
CHASTAIN & ASSOCIATES LLC
CONSULTING ENGINEERS

DECATUR (217) 422-8544
CHICAGO (773) 714-0050
ROCKFORD (815) 489-0050
184-001397

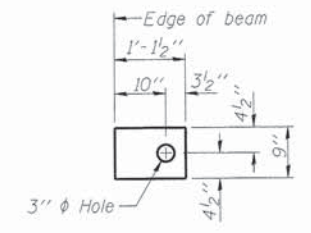
CH 29 OVER MOSQUITO CREEK
27" x 36" PPC DECK BEAM

SCALE: SHEET NO. 4 OF 8 SHEETS STA. TO STA.

F.A.U.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7449	11-00241-00-BR	MACON	19	9
CONTRACT NO. 95743				
ILLINOIS FED. AID PROJECT				



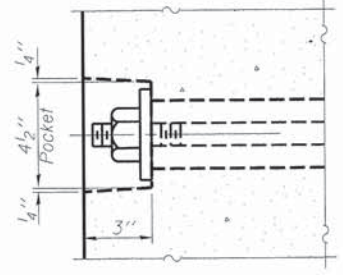
FABRIC BEARING PAD
(Interior)



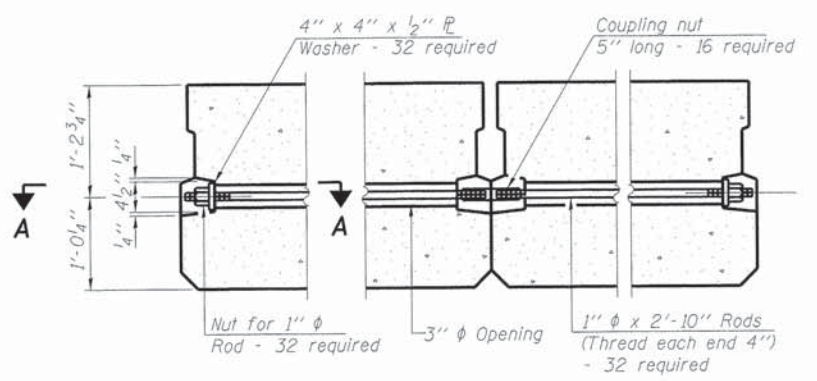
FABRIC BEARING PAD
(Exterior)

FIXED

Notes:
All bearing pads shall be 1" thick.
Omit holes when using expansion bearings.
Expansion bearing pad shall be bonded to the substructure.



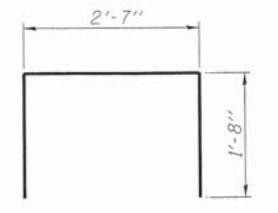
SECTION A-A



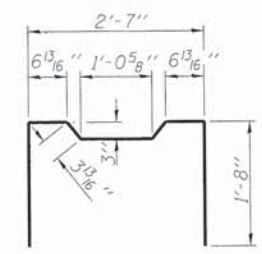
TYPICAL TRANSVERSE TIE ASSEMBLY



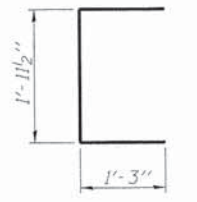
BAR S1(E)



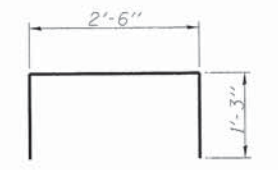
BAR S1(E)



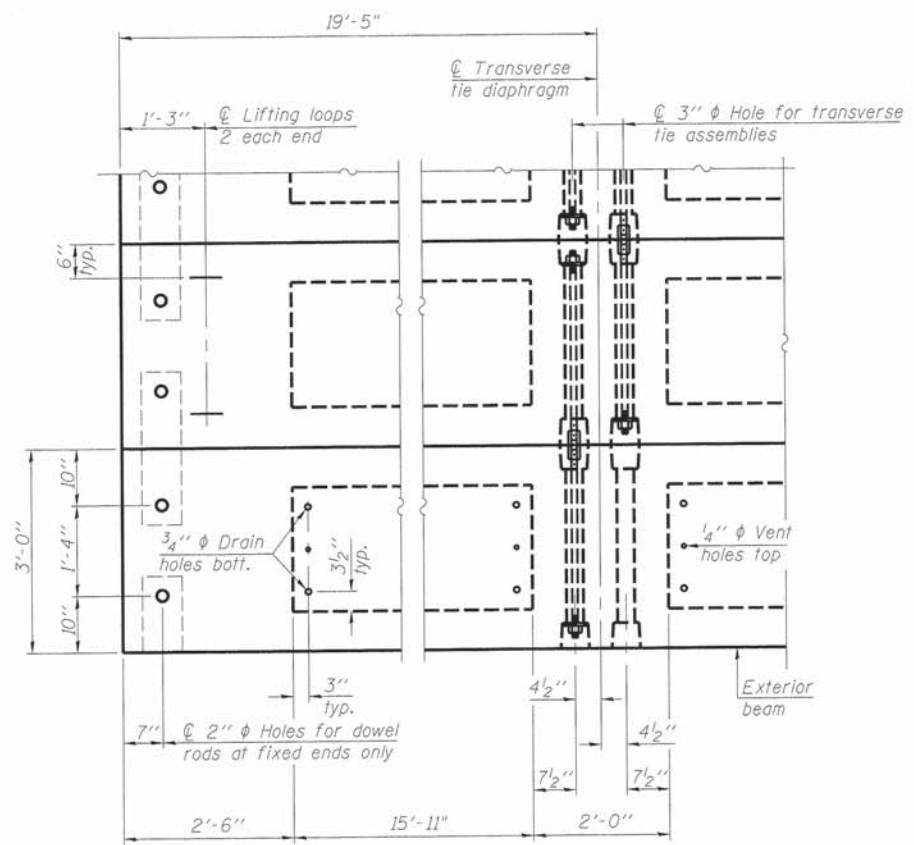
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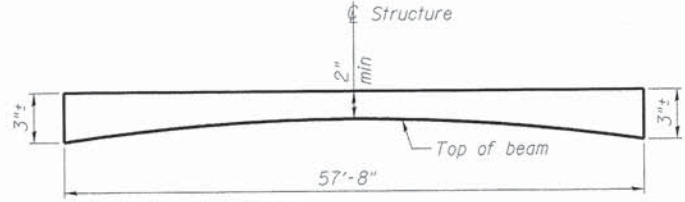
BAR U1(E)



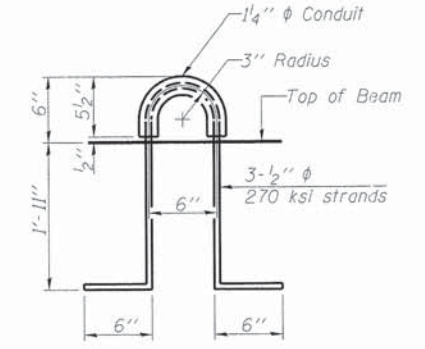
BAR U1(E)



PLAN VIEW



ANTICIPATED HMA WEARING SURFACE PROFILE
(For information only)



LIFTING LOOP DETAIL

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).
Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling.
Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
Compressive strength of prestressed concrete, f'c, shall be 6000 psi.
Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1557
---	---------	------

PD-2736-0D 7-1-10

USER NAME: abullack	DESIGNED: JMB	REVISED: -
	DRAWN: RLK	REVISED: -
PLOT SCALE: 1/8" = 1'-0"	CHECKED: ACB	REVISED: -
PLOT DATE: 4/8/2014	DATE: -	REVISED: -

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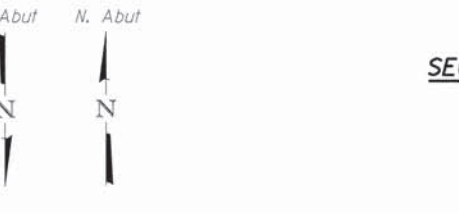
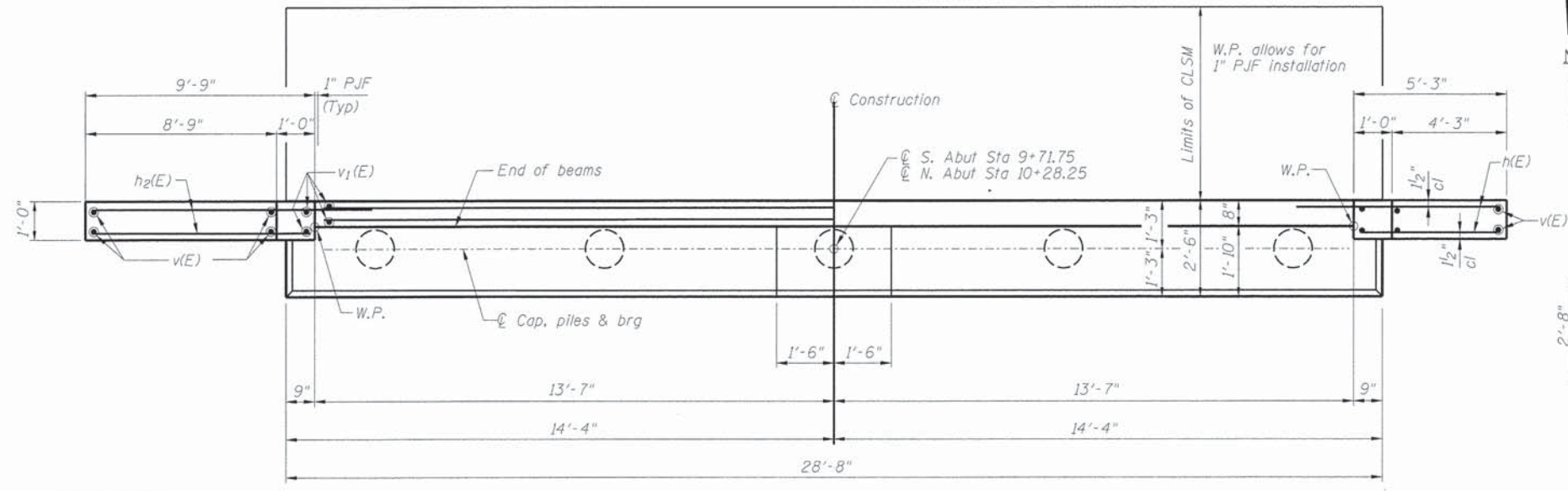
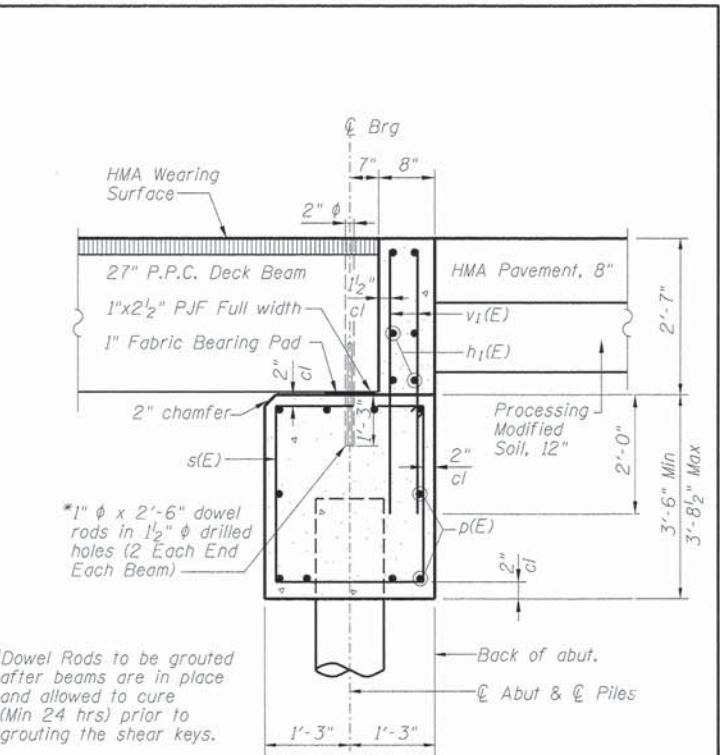
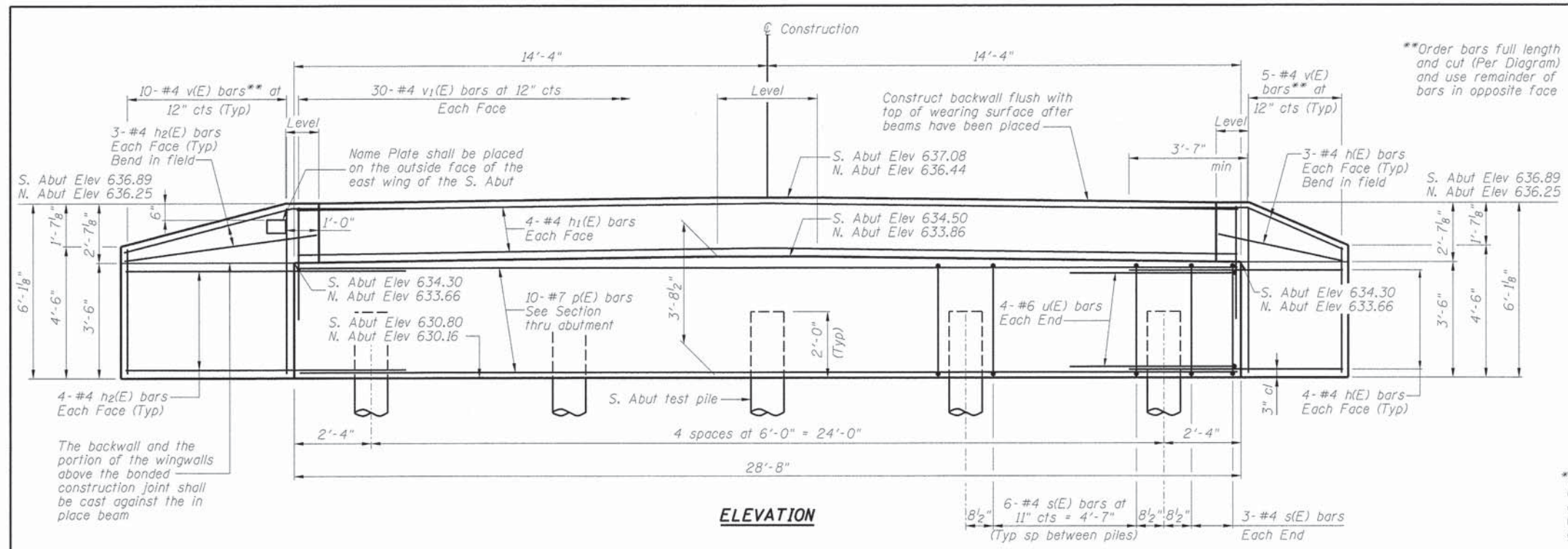
DECATUR (217) 422-8544
CHICAGO (773) 714-0050
ROCKFORD (815) 489-0050
184-001397

CH 29 OVER MOSQUITO CREEK
27" x 36" PPC DECK BEAM DETAILS

SCALE: SHEET NO. 5 OF 8 SHEETS STA. TO STA.

F.A.U.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7449	11-00241-00-BR	MACON	19	10
CONTRACT NO. 95743				
ILLINOIS FED. AID PROJECT				

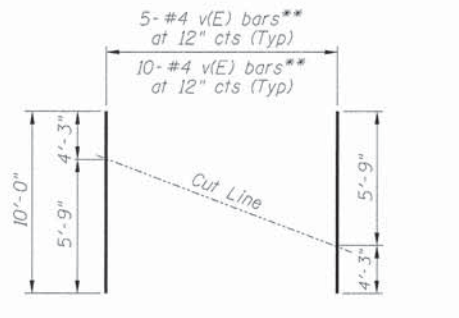
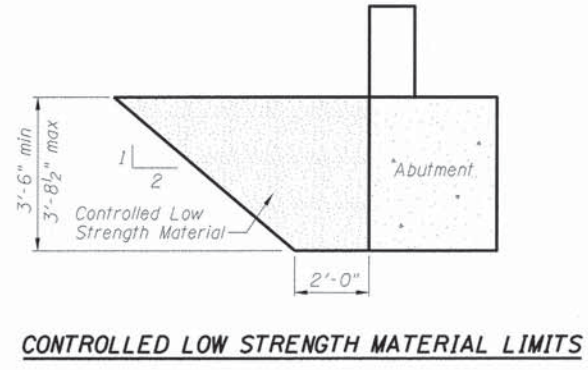
FILE NAME = I:\municipal\lites\mason_county\57238 - powers bridge\CAAD\Structural\abut.edgn



2 ABUTMENTS BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	28	#4	8'-1"	—
h1(E)	16	#4	28'-4"	—
h2(E)	28	#4	12'-3"	—
p(E)	20	#7	28'-4"	—
s(E)	60	#4	10'-7"	□
u(E)	16	#6	9'-9"	U
v(E)	30	#4	10'-0"	—
v1(E)	120	#4	4'-4"	—
Test Pile Metal Shells	Each		1	
Structure Excavation	Cu Yd		95	
Concrete Structures	Cu Yd		28.2	
Reinforcement Bars (Epoxy Coated)	Pound		3040	
Furnishing Metal Pile Shells, 12"x0.25"	Foot		279	
Driving Piles	Foot		279	
Controlled Low Strength Material	Cu Yd		43.1	

Reinforcement bars designated (E) shall be epoxy coated.



PILE DATA:
 Type: Metal Shell 12 in dia x 0.25 in walls
 Nominal Required Bearing: 290 kips
 Factored Resistance Available: 137 kips
 Est. Length: 31
 No. Production Piles (2 Abuts.): 9
 No. Test Piles: 1 at S. Abut.

AD-1721-0 7-1-10

USER NAME = dbullcock	DESIGNED JMB	REVISED -
PLOT SCALE = 2.0000" / 1"	DRAWN RLK	REVISED -
PLOT DATE = 4/8/2014	CHECKED ACB	REVISED -
	DATE -	REVISED -

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ROCKFORD (815) 489-0050
184-001397

CH 29 OVER MOSQUITO CREEK ABUTMENT DETAILS

SCALE: SHEET NO. 6 OF 8 SHEETS STA. TO STA.

F.A.U.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7449	11-00241-00-BR	MACON	19	11
CONTRACT NO. 95743				
ILLINOIS FED. AID PROJECT				

SOIL BORING LOG

ROUTE _____ DESCRIPTION BRIDGE BORINGS LOGGED BY CM, JD
SECTION _____ LOCATION BLUE MOUND TOWNSHIP, BOODY ROAD OVER MOSQUITO CREEK
COUNTY MACON STRUCTURE NO. SN 058-3247 (Exist) X (Prop.)
BORING NO. B-1 DRILLING METHOD HOLLOW STEM HAMMER TYPE 140# SAFETY HAMMER

Station	Offset	Ground Surface Elev.	ELEV (ft.)	DEPTH (ft.)	BULGE (ft.)	UCS (tsf)	MOISTURE (%)	SOIL DESCRIPTION	ELEV (ft.)	DEPTH (ft.)	BULGE (ft.)	UCS (tsf)	MOISTURE (%)
1+26	7.0' LT.	97.3						12" ASPHALT					
				4			21.9	SAND A-1-a Gray, saturated, medium dense, fine-coarse, little gravel (*free water @ 35.5' - dense)	35	5			
				3						12			
				5			21.6			8			
				3						15			
				4						20			
				3						40	14		
				3						25			
				3						37			
				3			21.6			19			
				10			21.1			31			
				2						28			
				2						45	20		
				2						28			
				2			13.8			20			
				2						8			
				2			22.8	SILT CLAY LOAM A-6 Gray, moist, very stiff, low plasticity, trace sand, trace gravel - hard		10			10.1
				2						17			
				2						16			
				2			29.9			30			
				3						42			
				4			23.9			60-5"	2.4		9.4
				4						55			
				4			20.3			60-6"			13.7
				5						60-5"			9.4
				7			14.4			60			8.5
				9						60-5"			
				6			12.7			60-5"			
				11						60			
				15						65			
				30			10.7						
				9									
				14									
				6			10.0						
				12									

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer).
The Standard Penetration Test (SPT) N Value is per (AASHTO T206)

BBS 137 (6/05)

SOIL BORING LOG

ROUTE _____ DESCRIPTION BRIDGE BORINGS LOGGED BY JD
SECTION _____ LOCATION BLUE MOUND TOWNSHIP, BOODY ROAD OVER MOSQUITO CREEK
COUNTY MACON STRUCTURE NO. SN 058-3247 (Exist) X (Prop.)
BORING NO. B-2 DRILLING METHOD HOLLOW STEM HAMMER TYPE 140# SAFETY HAMMER

Station	Offset	Ground Surface Elev.	ELEV (ft.)	DEPTH (ft.)	BULGE (ft.)	UCS (tsf)	MOISTURE (%)	SOIL DESCRIPTION	ELEV (ft.)	DEPTH (ft.)	BULGE (ft.)	UCS (tsf)	MOISTURE (%)
2+82	8.9' RT.	97.0						6" ASPHALT					
				4				SILT CLAY LOAM A-6 Dark Brown, moist, firm, low-medium plasticity, trace sand, trace gravel		35			
				3						17			
				3						28			
				5						30			
				4						38			
				3						22-3"			
				3						40			
				3						30			
				3						32-5"			
				3			25.3			15			
				4						17			
				10			27.6	SILT CLAY LOAM A-6 Gray, moist, hard, low plasticity, trace sand, trace gravel		40			8.5
				2						45			
				2						23			
				1			35.2			24			10.0
				3									
				3									
				15			22.4	SILT CLAY LOAM A-6 Gray, moist, firm, low plasticity, trace sand, trace gravel - soft-firm		50			
				3									
				4									
				2			20.6						
				2									
				20			24.5						
				4									
				5									
				7			18.2			55			
				6									
				6									
				25									
				2									
				5									
				3									
				10			15.2						
				12									
				16									
				30			10.4						
				18									
				20									
				8			10.8						
				12									

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer).
The Standard Penetration Test (SPT) N Value is per (AASHTO T206)

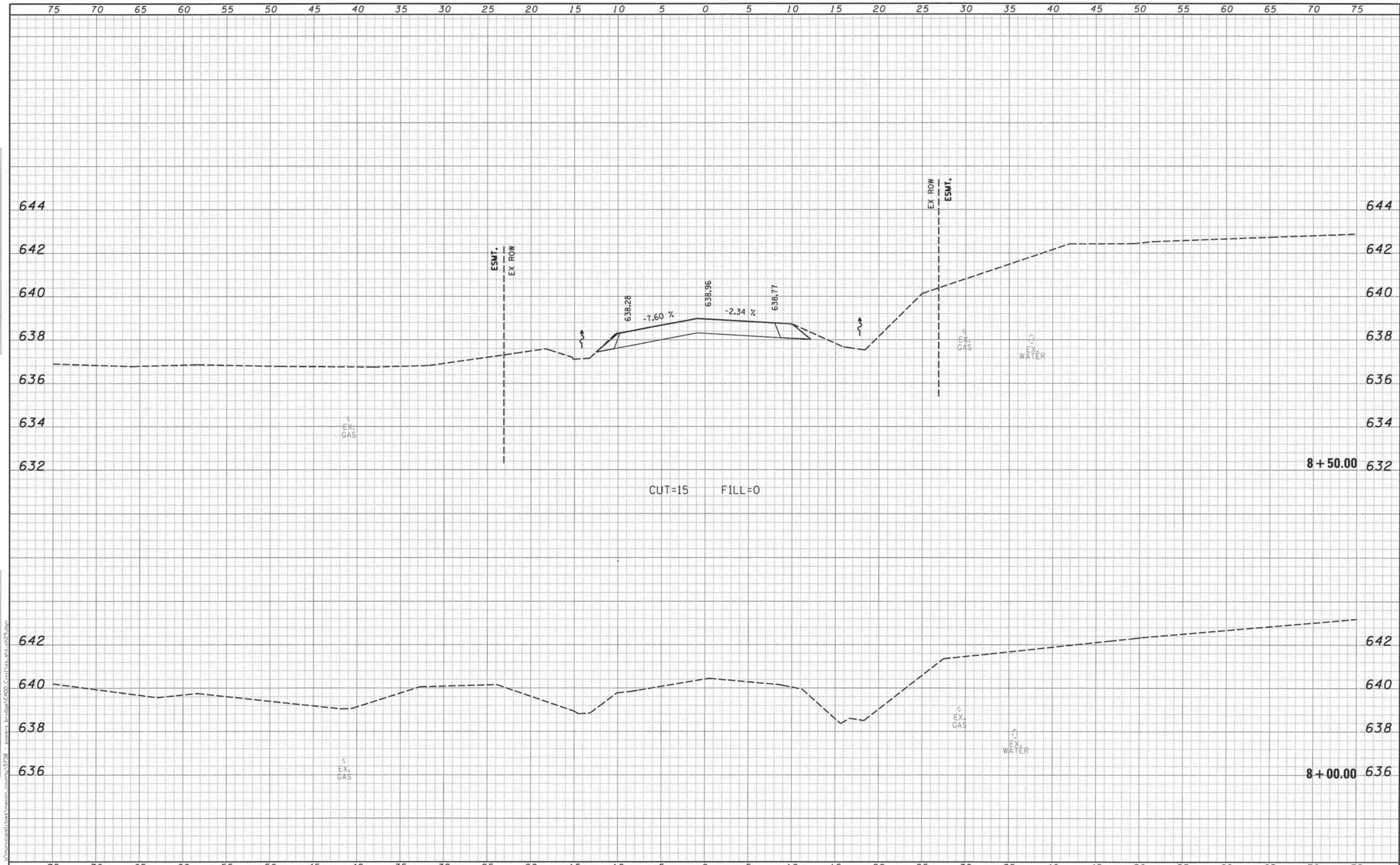
BBS 137 (6/05)

FILE NAME = C:\municipal\lites\maccon_county\5728 - powers_bridges\CADD_Structure\borings.dgn

USER NAME = dbullock	DESIGNED JMB	REVISED -		DECATUR (317) 422-8544 CHICAGO (773) 714-0050 ROCKFORD (815) 489-0050 184-001397	CH 29 OVER MOSQUITO CREEK SOIL BORING LOGS	F.A.U.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT SCALE = 1.0000 1/1 in.	DRAWN RLK	REVISED -				7449	11-00241-00-BR	MACON	19	13
PLOT DATE = 4/8/2014	CHECKED ACB	REVISED -				CONTRACT NO. 95743				
	DATE -	REVISED -				ILLINOIS FED. AID PROJECT				

DATE	
BY	
REVIEWED	
DATE	
FINAL SURVEY	
NOTE BOOK	
TEMPLATE	
AREAS	
AREAS CHECKED	
NO.	

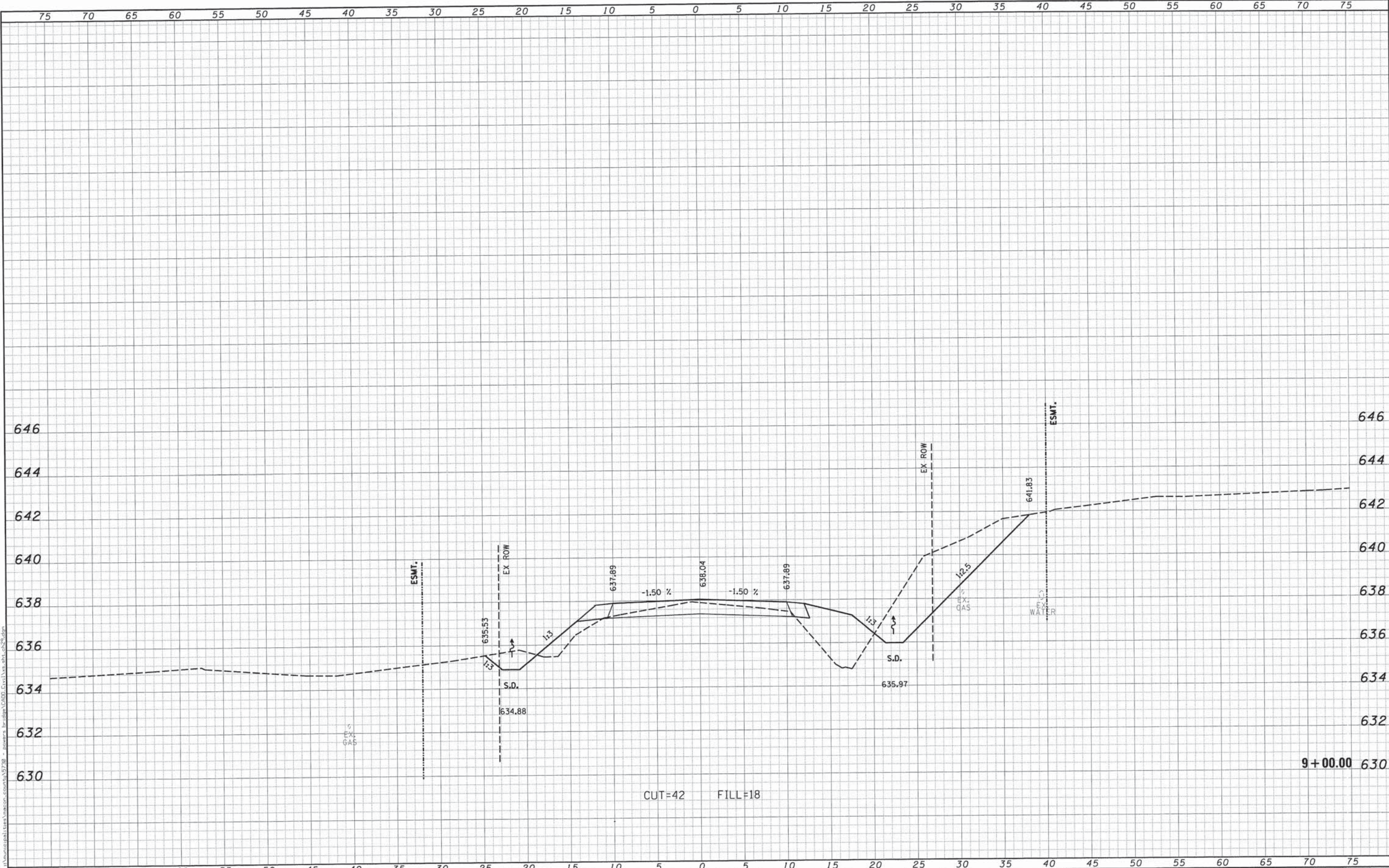
DATE	
BY	
REVIEWED	
DATE	
ORIGINAL SURVEY	
NOTE BOOK	
TEMPLATE	
AREAS	
AREAS CHECKED	
NO.	



USER NAME = dbullock	DESIGNED -	REVISED -		DECATUR (217) 422-8544 CHICAGO (773) 714-0050 ROCKFORD (815) 489-0050 184-001397	CROSS SECTIONS BOODY ROAD (CH 29)		F.A.J. RTE. 7449	SECTION 11-00241-00-BR	COUNTY MACON	TOTAL SHEETS 19	SHEET NO. 14		
PLOT SCALE = 5.0000' / 1"	DRAWN -	REVISED -					SCALE: 5'H / 2"V		SHEET NO. OF SHEETS	STA. 8+00.00 TO STA. 8+50.00	ILLINOIS FED. AID PROJECT		
PLOT DATE = 4/8/2014	CHECKED -	REVISED -									CONTRACT NO. 95743		
	DATE -	REVISED -											

FINAL SURVEY	DATE
SURVEYED	BY
PLOTTED	
NOTE BOOK	
AREAS CHECKED	
NO.	

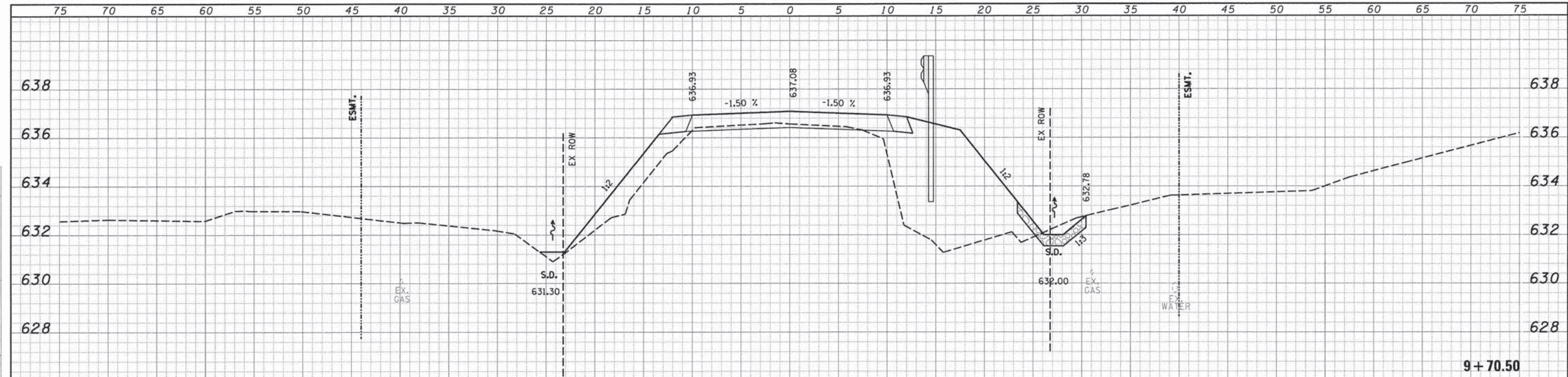
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SURVEYED	BY
PLOTTED	
NOTE BOOK	
AREAS CHECKED	
NO.	



USER NAME = dbullack PLOT SCALE = 5.0000' / in. PLOT DATE = 4/8/2014	DESIGNED - DRAWN - CHECKED - DATE -	REVISED - REVISED - REVISED - REVISED -	CHASTAIN & ASSOCIATES LLC CONSULTING ENGINEERS DECATUR (217) 422-8544 CHICAGO (773) 714-0050 ROCKFORD (815) 489-0050 184-001397	CROSS SECTIONS BOODY ROAD (CH 29) SCALE: 5'H / 2"V SHEET NO. OF SHEETS STA. 9+00.00 TO STA. 9+00.00	F.A.U. RTE. 7449 SECTION 11-00241-00-BR COUNTY MACON TOTAL SHEETS 19 SHEET NO. 15 CONTRACT NO. 95743 ILLINOIS FED. AID PROJECT
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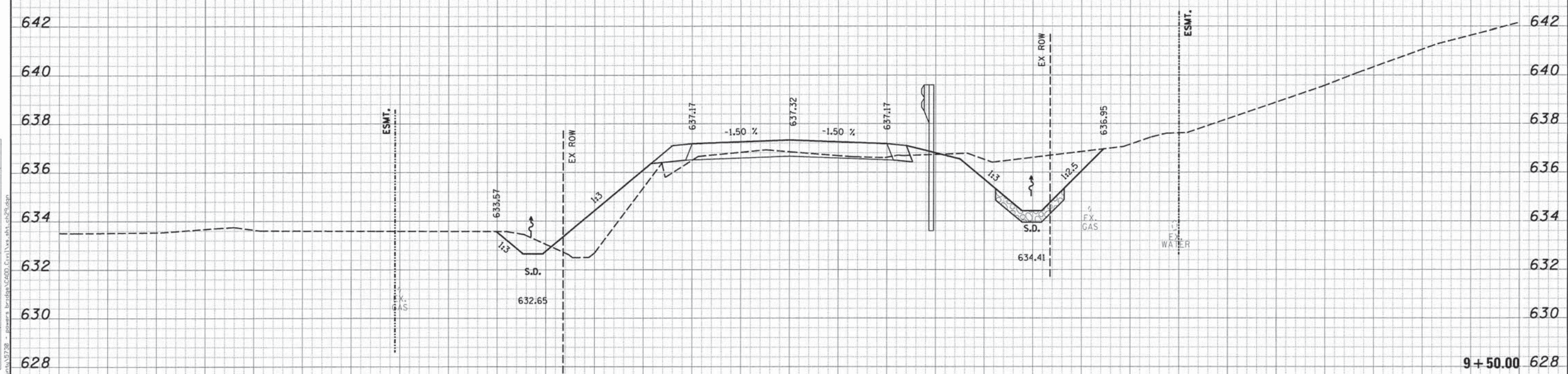
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BY	
SUBMITTED	
DESIGNED	
DRAWN	
CHECKED	
DATE	

DATE	
BY	
SUBMITTED	
DESIGNED	
DRAWN	
CHECKED	
DATE	



CUT=4 FILL=63

9+70.50

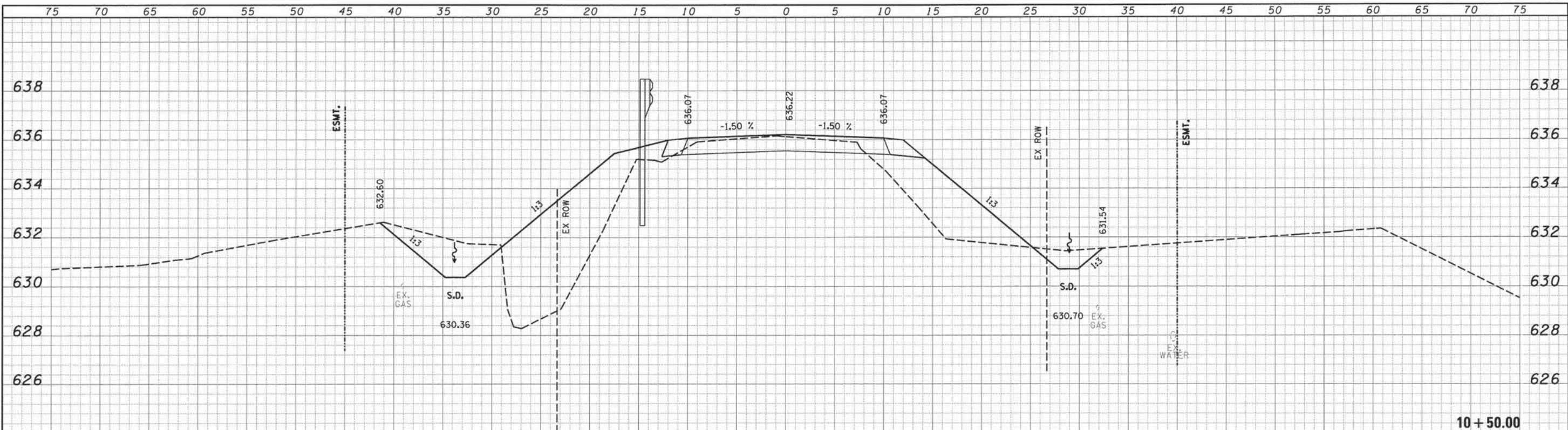


CUT=25 FILL=13

9+50.00

USER NAME = dbullock	DESIGNED -	REVISED -	<p>CHASTAIN & ASSOCIATES LLC CONSULTING ENGINEERS</p> <p>DECATUR (217) 422-8544 CHICAGO (773) 714-0050 ROCKFORD (815) 489-0050 184-001397</p>	<p align="center">CROSS SECTIONS BOODY ROAD (CH 29)</p> <p>SCALE: 5'H / 2"V SHEET NO. OF SHEETS STA. 9+50.00 TO STA. 9+70.50</p>		F.A.U. RTE. 7449	SECTION 11-00241-00-BR	COUNTY MACON	TOTAL SHEETS 19	SHEET NO. 16
PLOT SCALE = 5.0000' / in.	DRAWN -	REVISED -				CONTRACT NO. 95743		ILLINOIS FED. AID PROJECT		
PLOT DATE = 4/8/2014	CHECKED -	REVISED -								
	DATE -	REVISED -								

DATE	
BY	
FINAL SURVEY	
NOTE BOOK	
NO.	



CUT=25 FILL=70

10 + 50.00

DATE	
BY	
ORIGINAL SURVEY	
NOTE BOOK	
NO.	



CUT=13 FILL=61

10 + 29.50

USER NAME = dbullock	DESIGNED -	REVISED -
PLOT SCALE = 5.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 4/8/2014	CHECKED -	REVISED -
	DATE -	REVISED -

CHASTAIN & ASSOCIATES LLC
CONSULTING ENGINEERS

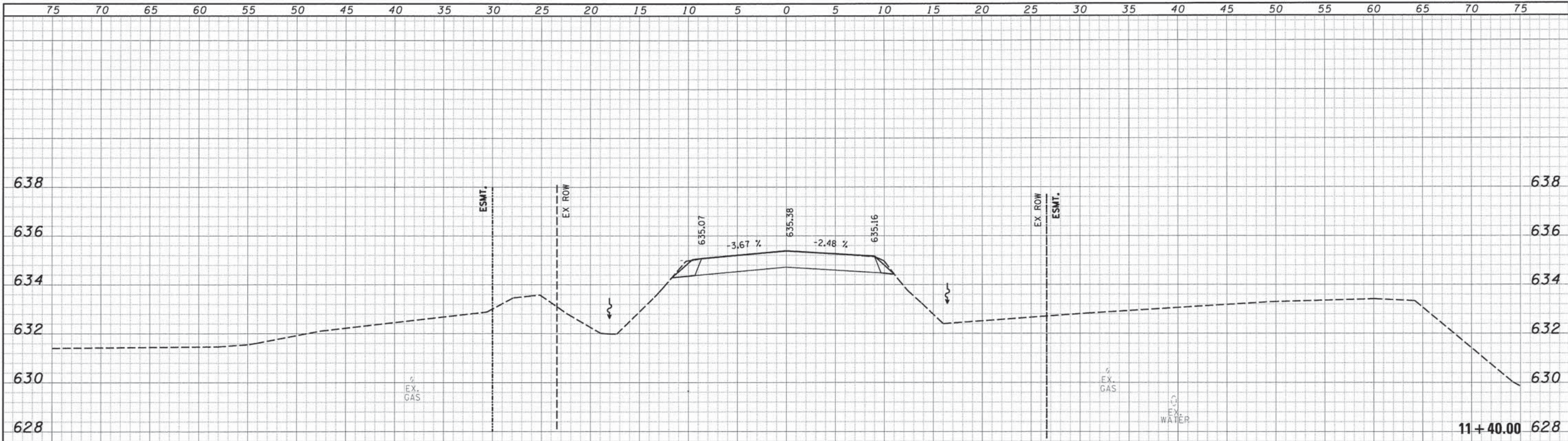
DECATUR (217) 422-8544
CHICAGO (773) 714-0050
ROCKFORD (815) 489-0050
184-001397

CROSS SECTIONS
BOODY ROAD (CH 29)
SCALE: 5'H / 2"V SHEET NO. OF SHEETS STA. 10+29.50 TO STA. 10+50.00

F.A.U. RTE. 7449	SECTION 11-00241-00-BR	COUNTY MACON	TOTAL SHEETS 19	SHEET NO. 17
CONTRACT NO. 95743				ILLINOIS FED. AID PROJECT

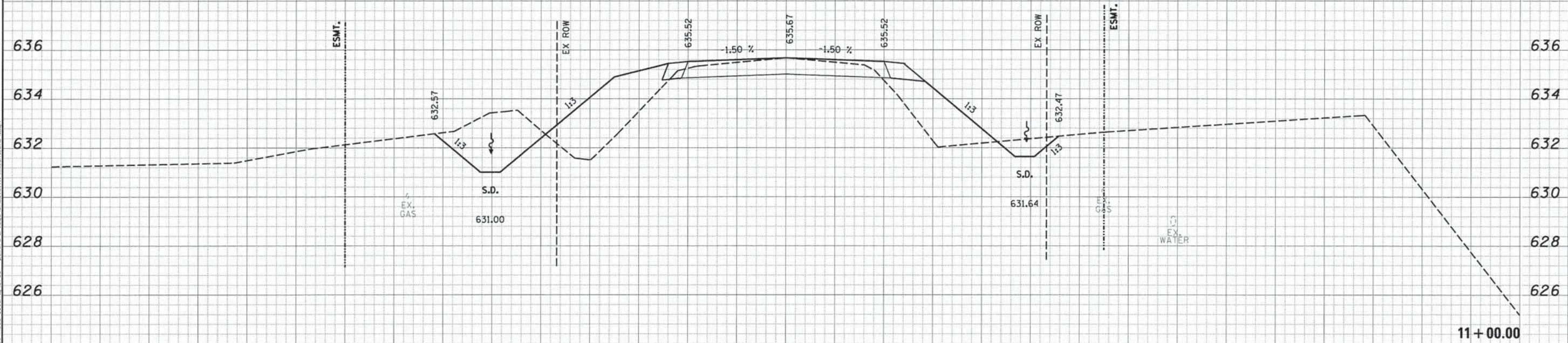
DATE _____
 BY _____
 SURVEYED _____
 FINAL SURVEY _____
 NOTE BOOK _____
 NO. _____

DATE _____
 BY _____
 SURVEYED _____
 ORIGINAL SURVEY _____
 NOTE BOOK _____
 NO. _____



CUT=14 FILL=0

11+40.00



CUT=30 FILL=35

11+00.00

USER NAME = dbullcock	DESIGNED -	REVISED -
PLOT SCALE = 5,0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 4/8/2014	CHECKED -	REVISED -
	DATE -	REVISED -

CHASTAIN & ASSOCIATES LLC
 CONSULTING ENGINEERS

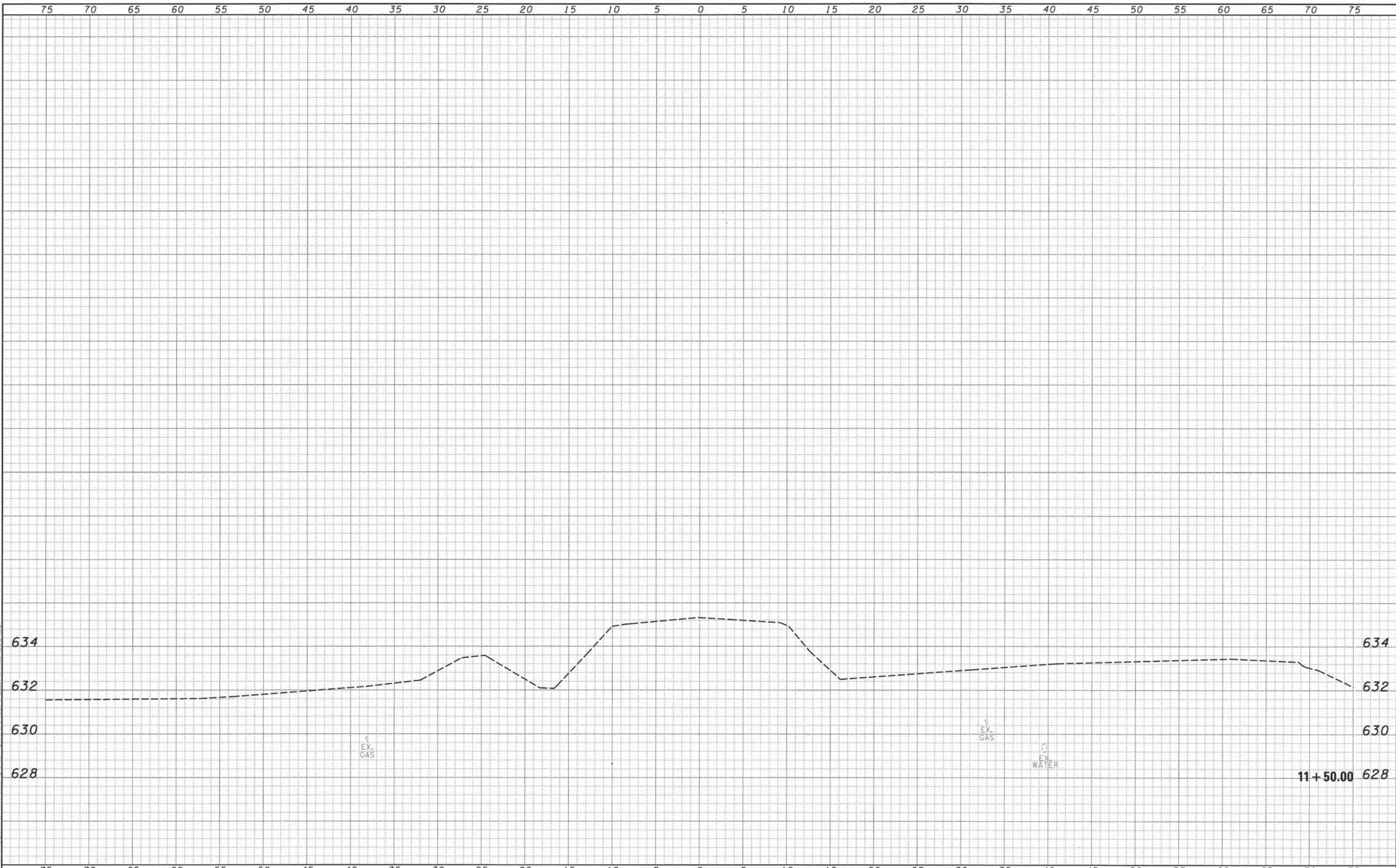
DECATUR (217) 422-8544
 CHICAGO (773) 714-0050
 ROCKFORD (815) 489-0050
 184-001397

CROSS SECTIONS
BOODY ROAD (CH 29)
 SCALE: 5'H / 2"V SHEET NO. OF SHEETS STA. 11+00.00 TO STA. 11+40.00

F.A.J. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
7449	11-00241-00-BR	MACON	19	18
CONTRACT NO. 95743				
ILLINOIS FED. AID PROJECT				

FINAL SURVEY	DATE
SURVEYED	BY
NOTE BOOK	
NO.	
AREAS CHECKED	
AREAS	
TEMPLATE	

ORIGINAL SURVEY	DATE
SURVEYED	BY
NOTE BOOK	
NO.	
AREAS CHECKED	
AREAS	
TEMPLATE	



USER NAME = dbullcock	DESIGNED -	REVISED -	CHASTAIN & ASSOCIATES LLC CONSULTING ENGINEERS DECATUR (217) 422-8544 CHICAGO (773) 714-0050 ROCKFORD (815) 489-0050 184-001397	CROSS SECTIONS BOODY ROAD (CH 29)		F.A.U. RTE. 7449	SECTION 11-00241-00-BR	COUNTY MACON	TOTAL SHEETS 19	SHEET NO. 19	
PLOT SCALE = 5,0000' / in.	CHECKED -	REVISED -				SCALE: 5'H / 2"V	SHEET NO. OF SHEETS	STA. 11+50.00 TO STA. 11+50.00	ILLINOIS FED. AID PROJECT		
PLOT DATE = 4/8/2014	DATE -	REVISED -									
CONTRACT NO. 95743											