MOULTRIE CO. SEC. 8BR I & R 12-4-87 #20

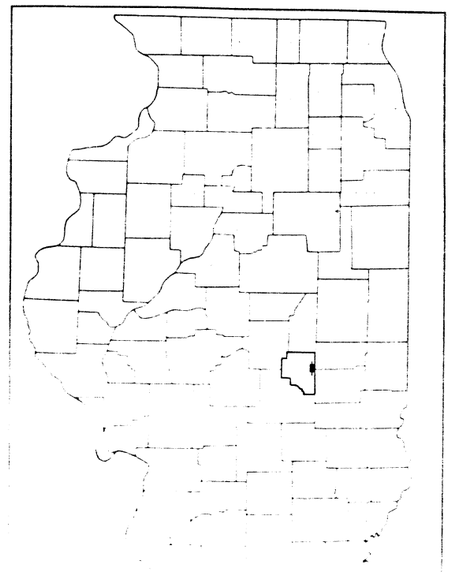
070-0045

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED FEDERAL AID HIGHWAY

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
659	8BR	*	22	1
F.H.W.A. REG.		ILLINOIS	PROJECT ACBRS-659(105)	

*MOULTRIE P-95-085-79



SCALES
- PLAN 1"=50'
- PROFILE HOR 1"=50'
- PROFILE VERT 1"=5'
- CROSS SECTIONS 1"=5' VERT., 1"=10' HORIZ.

F. A. S. ROUTE 659 (CADWELL ROAD)
SECTION 8 BR
PROJECT ACBRS-659 (105)
MOULTRIE COUNTY
C-95-002-88
BRIDGE REPLACEMENT

LOCATION OF SECTION INDICATED THUS — ■■■■

TOLL FREE "JOINT UTILITY LOCATING INFORMATION FOR EXCAVATORS" (J.U.L.I.E.) TELEPHONE NUMBER 1-800-832-0123

JONATHAN CREEK TOWNSHIP

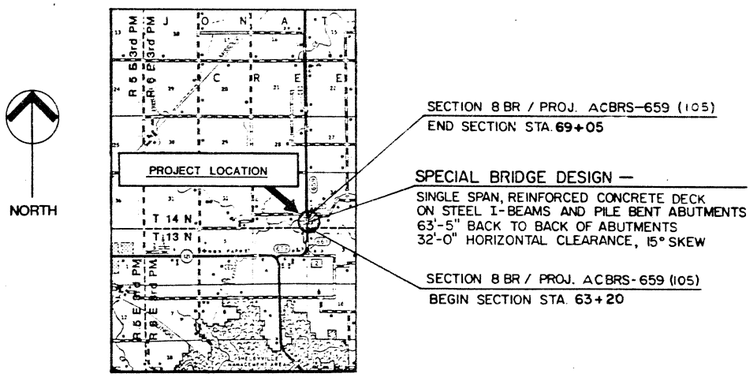
INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	TYPICAL CROSS SECTIONS
3.	SUMMARY OF QUANTITIES, GENERAL NOTES
4.	SOIL BORINGS
5.	PLAN & PROFILE
6.	QUANTITIES & PROFILE DETAILS
7.	SPECIAL DETAILS
8. - 9.	BRIDGE APPROACH DETAILS
10. - 17.	STRUCTURE PLANS
18. - 22.	CROSS SECTIONS

STANDARDS

STD. NO.	DESCRIPTION
1686-4	SYMBOLS & ABBREVIATIONS
2113 - 2	NAMEPLATE FOR BRIDGES
2135	PERMANENT SURVEY MARKERS (BRONZE TABLET)
2228 - 4	METAL END SECTION FOR PIPE CULVERTS
2230 - 14	STEEL PLATE BEAM GUARD RAIL (2 SHEETS)
2298 - 7	TRAFFIC CONTROL (2 SHEETS)
2299 - 10	TRAFFIC CONTROL
2300 - 3	FLAGMAN TRAFFIC CONTROL SIGN
2302 - 5	TYPICAL APPLICATION TRAFFIC CONTROL
2303 - 6	TYPICAL APPLICATION TRAFFIC CONTROL
2305 - 5	TYPICAL APPLICATION TRAFFIC CONTROL
2306 - 6	TYPICAL APPLICATION TRAFFIC CONTROL
2307 - 6	TYPICAL APPLICATION TRAFFIC CONTROL
2308 - 4	TYPICAL APPLICATION TRAFFIC CONTROL (2 SHEETS)
2323 - 8	PAVEMENT JOINTS
2324 - 6	BRIDGE APPROACH SHOULDER PAVEMENT
2336 - 4	TRAFFIC BARRIER TERMINAL TYPE I & IA
2341 - 1	TRAFFIC BARRIER TERMINAL TYPE 6
2381	TEMPORARY EROSION CONTROL SYSTEMS

DESIGN DESIGNATION
1750 (06) MAJOR COLLECTOR



LOCATION MAP

NET LENGTH OF SECTION = 585 FEET = 0.111 MILES
NET LENGTH OF PROJECT = 585 FEET = 0.111 MILES

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

24 JUL 87
10-26 87
10-26 87
10-26 87

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ENGINEER DATE

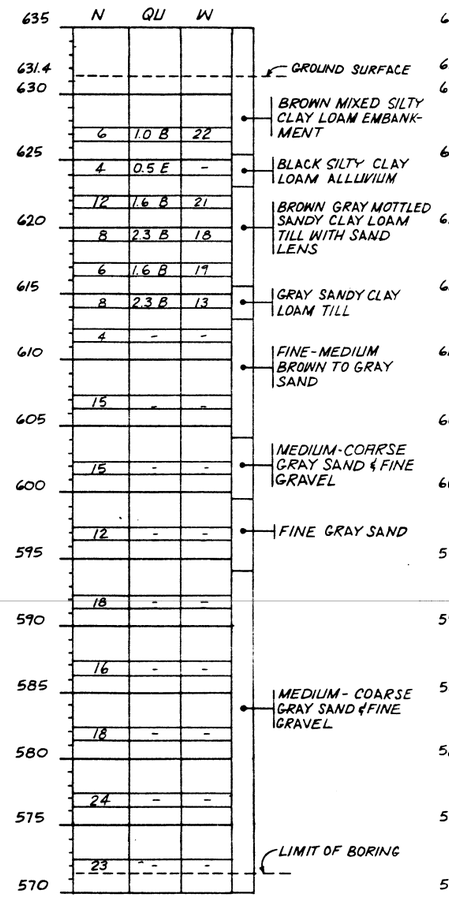
James B. Upchurch
JAMES B. UPCHURCH
professional engineer

CONTRACT NO. 42889

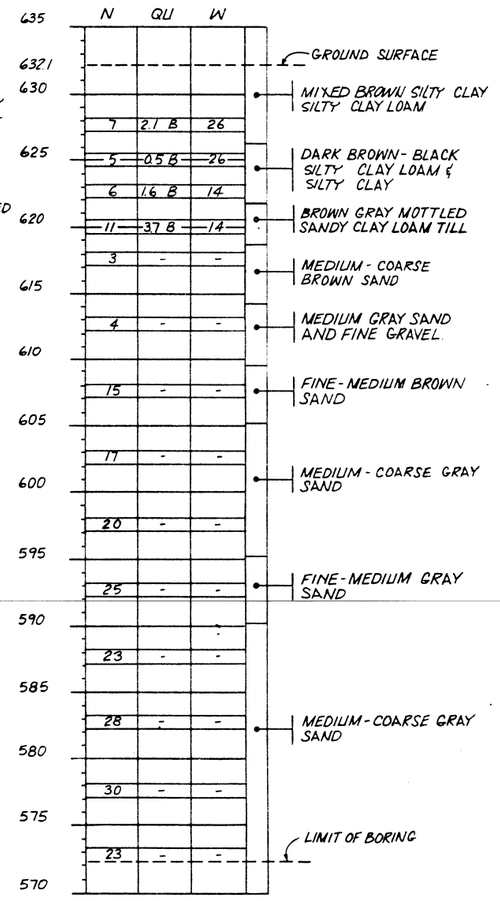
MOULTRIE COUNTY SECTION 8BR F. A. S. ROUTE 659

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
659	8BR	*	22	4
FED. ROAD DIST. NO. 9	ILLINOIS	PROJECT		

* MOULTRIE



SOIL BORING #1
STA. 65+90 14'LT.



SOIL BORING #2
STA. 65+30 15'LT.

N - Standard Penetration Test - Blows per foot to drive 2" O.D. Split Spoon 12" with 140 LB. hammer falling 30".

W - Water Content - percentage of oven dry weight - %

Type failure:
B - Bulge Failure
S - Shear Failure
E - Estimated Value
P - Penetrometer

Qu - Unconfined Compressive Strength - t/sf

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
659	8BR	*	22	10
FED. ROAD DIST. NO. 9	ILLINOIS	PROJECT		

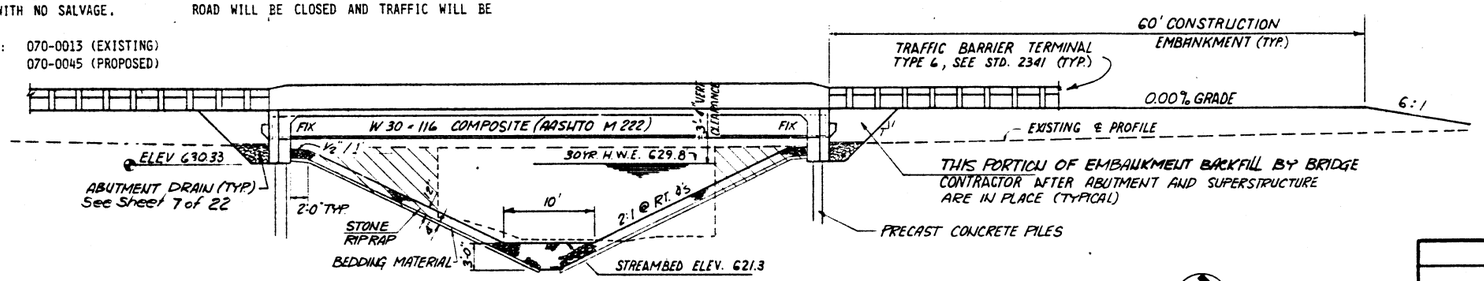
* MOULTRIE

SHEET 1 OF 8

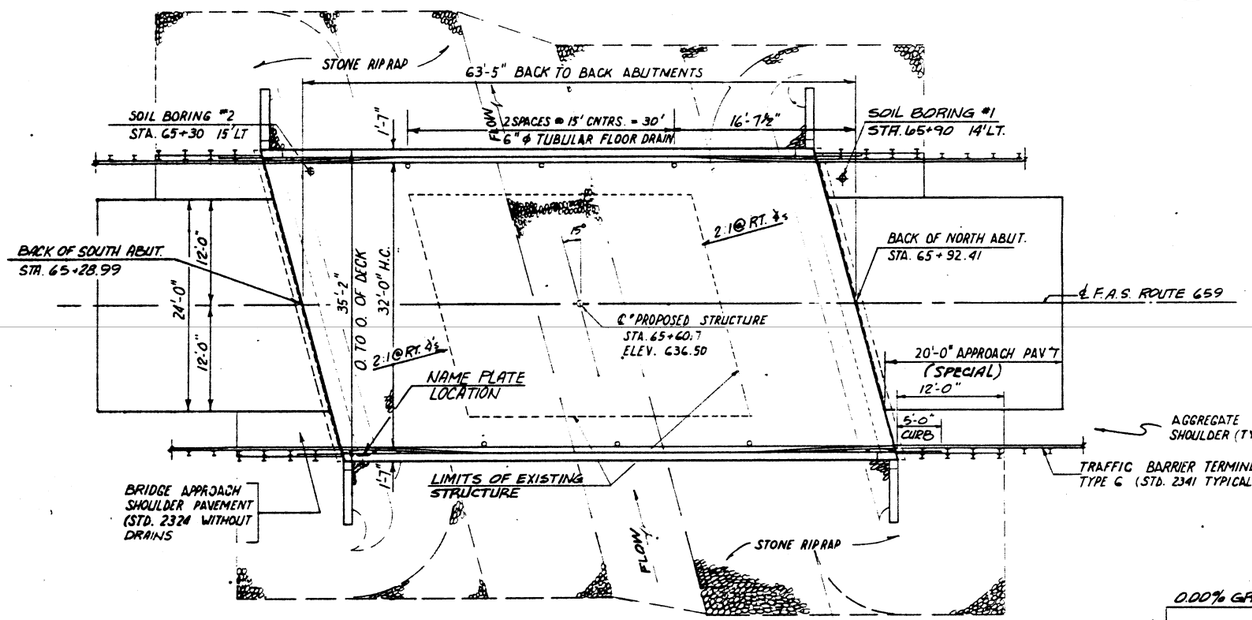
BENCH MARK "C"
CHISLED "□" ON SOUTH END OF EAST HUB GUARD ELEV. 633.09

DESCRIPTION OF EXISTING STRUCTURE:
THE EXISTING SINGLE SPAN STRUCTURE, CONSTRUCTED IN 1935, CONSISTS OF A STEEL REINFORCED CONCRETE DECK ON STEEL I-BEAMS ON CREOSOATED TIMBER BENT ABUTMENTS. EXISTING STRUCTURE IS 31'-0" ± IN LENGTH F. TO F. OF ABUTMENTS AND HAS AN EXISTING HORIZONTAL CLEARANCE OF 23'-8". ENTIRE EXISTING STRUCTURE TO BE REMOVED WITH NO SALVAGE. ROAD WILL BE CLOSED AND TRAFFIC WILL BE DETOURED.

STRUCTURE: 070-0013 (EXISTING)
070-0045 (PROPOSED)

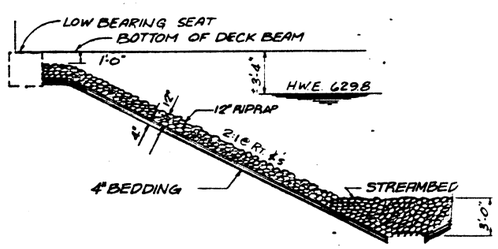


ELEVATION

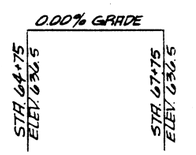


PLAN

NOTE:
LAYOUT OF STONE RIP RAP MAY BE VARIED TO SUIT GROUND CONDITIONS IN THE FIELD, AS DIRECTED BY THE ENGINEER



RIPRAP DETAIL



PROFILE GRADE

WATERWAY INFORMATION

Drainage Area 11.35 SQ. MI. Low Grade Elev. 632.0' (e) 636.5' (p) @ Sta. 65+77 64+75

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head-Ft. Exist.	Head-Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	30	1625	232	230	629.8'	1.33	1.10	631.63	630.90
Base	100	2087	232	252	630.3'	1.94	1.70	632.24	632.00
Overtopping									
Max. Calc.	500	2684		280	630.9'		2.72		633.62

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUBSTR.	SUPER.	TOTAL
CLASS "X" CONCRETE	CU. YD.	23.4		23.4
REINFORCEMENT BARS	POUNDS	3275	1470	4745
REINFORCEMENT BARS (EPOXY COATED)	POUNDS		17,600	17,600
STRUCTURAL STEEL	L. SUM		1	1
NAME PLATES	EACH		1	1
FLOOR DRAINS	EACH		6	6
PROTECTIVE COAT	SQ. YD.		54	54
PRECAST CONCRETE PILES 14"	LIN. FT.	443		443
TEST PILES PRECAST CONCRETE	EACH	1		1
STONE RIPRAP	SQ. YD.	550		550
REMOVAL OF EXISTING STRUCTURES	EACH	1		1
STRUCTURE EXCAVATION	CU. YD.	30		30
STUD SHEAR CONNECTORS	EACH		1470	1470
Class X Concrete Superstructure	Cu.Yd.		87.8	87.8

Station 65+60.70
Built 198_ By
State of Illinois
F.A.S. Rte. 659 Sec. 8BR
PROJECT ACBRS-659(105)
Loading HS 20
Structure No. 070-0045

NAME PLATE
SEE STD. 2113

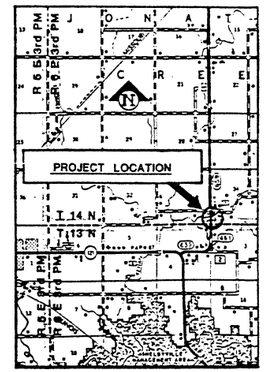
DESIGN STRESSES

f'_c = 3,500 P.S.I. (CLASS X CONCRETE)
f_y = 60,000 P.S.I. (REINFORCEMENT BARS) } LOAD FACTOR DESIGN
f_y = 50,000 P.S.I. (STRUCTURAL STEEL)
n = 9 (COMPOSITE)

LOADING HS20-44
DESIGN SPECIFICATIONS: AASHTO 1983, 1984 & 1985 INTERIMS
25#/SQ FT INCLUDED IN DEAD LOAD FOR FUTURE WEARING SURFACE

APPROVED
for STRUCTURAL ASSOCIATES, INC.
James T. Rayburn
Engr.

PATRICK H. McHOOD
structural engineer



LOCATION PLAN

GENERAL PLAN & ELEVATION
F.A.S. ROUTE 659 SEC 8BR.
MOULTRIE COUNTY
STATION 65+60.70

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
659	8BR	*	22	11
FED. ROAD DIST. NO. 9	ILLINOIS	PROJECT		

* MOULTRIE
SHEET 2 OF 8

GENERAL NOTES

SEE SHEET # 4 OF 22 FOR BORING DATA.

CALCULATED WEIGHT OF STRUCTURAL STEEL = 37,810 POUNDS.

ALL STRUCTURAL STEEL SHALL BE AASHTO M 222 AND SHALL NOT BE PAINTED.

FIELD WELDING OF CONSTRUCTION ACCESSORIES WILL NOT BE PERMITTED TO THE BOTTOM FLANGE OF BEAMS. FIELD WELDING IN OTHER AREAS WILL BE PERMITTED ONLY WHEN APPROVED BY THE ENGINEER.

THE MAIN LOAD CARRYING MEMBER COMPONENTS SUBJECT TO TENSILE STRESS SHALL CONFORM TO THE SUPPLEMENTAL REQUIREMENTS FOR NOTCH TOUGHNESS, ZONE 2. THESE COMPONENTS ARE THE WIDE FLANGE BEAMS.

REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31, M-42 OR M-53, GRADE 60

LAYOUT OF STONE RIPRAP SLOPE WALLS MAY BE VARIED IN THE FIELD TO SUIT GROUND CONDITIONS AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL DRIVE ONE PRECAST PILE IN A PERMANENT LOCATION AT THE SOUTH ABUTMENT AS DIRECTED BY THE ENGINEER BEFORE ORDERING THE REMAINDER OF THE PILES.

THE CONTRACTOR SHALL REMOVE THE EXISTING TIMBER, DEADMEN AND 3/4" Ø STEEL TIE RODS THAT WILL INTERFERE WITH CONSTRUCTION PRIOR TO DRIVING THE PILES. THIS WORK SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR REMOVAL OF EXISTING STRUCTURES.

FASTENERS SHALL BE HIGH STRENGTH BOLTS AASHTO M164, TYPE 3.

THE EMBANKMENT CONFIGURATION SHOWN SHALL BE THE MINIMUM EMBANKMENT THAT MUST BE CONSTRUCTED PRIOR TO CONSTRUCTION OF THE ABUTMENTS.

All structural steel fabricators performing work on the main load carrying components of steel structures shall be certified under Category I (AISC) of the Quality Certification Program.

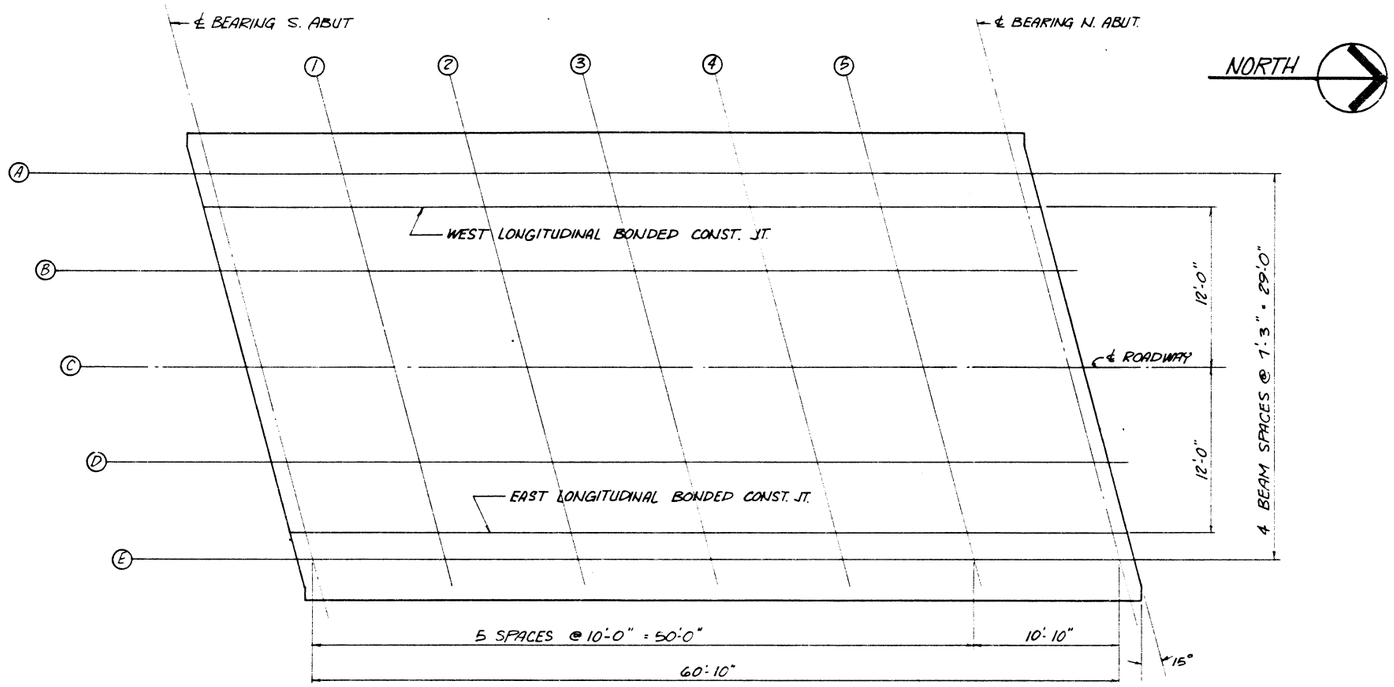
All high strength bolt connections shall conform to the requirements of the latest issue of the Specifications for Structural Joints using ASTM A325 (M164) or A490 (M253) bolts for slip-critical connections. Except tightening methods using either the load indicating washers or the calibrated wrench are not allowed.

GENERAL NOTES
F.A.S. ROUTE 659 SEC. 8BR.
MOULTRIE COUNTY
STATION 65+60.70

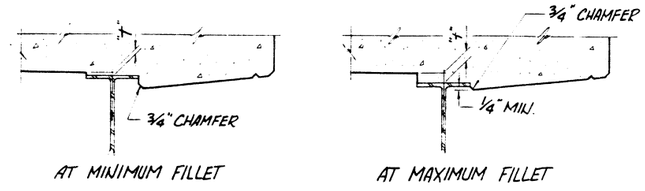
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
659	8BR	*	22	18
FED. ROAD DIST. NO. 9	ILLINOIS	PROJECT		

* MOULTRIE

SHEET 3 OF 8



PLAN



FILLET HEIGHT "t"

TO DETERMINE "t": AFTER ALL STRUCTURAL STEEL HAS BEEN ERECTED, ELEVATIONS OF THE TOP FLANGES OF THE BEAMS SHALL BE TAKEN AT INTERVALS SHOWN. THESE ELEVATIONS SUBTRACTED FROM THE "THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION" SHOWN, MINUS SLAB THICKNESS, EQUALS THE FILLET HEIGHT "t" ABOVE TOP FLANGES OF BEAMS.

BEAM A

LOCATION	STATION	OFFSET	T	ADJ.
℄ Brg. S. Abut.	65+26.395	14.50'	636.260	636.260
1.	65+36.395	14.50'	636.260	636.326
2.	65+46.395	14.50'	636.260	636.373
3.	65+56.395	14.50'	636.260	636.392
4.	65+66.395	14.50'	636.260	636.376
5.	65+76.395	14.50'	636.260	636.331
℄ Brg. N. Abut.	65+87.228	14.50'	636.260	636.260

WEST LONGITUDINAL BONDED CONST. JT.

LOCATION	STATION	OFFSET	T	ADJ.
℄ Brg. S. Abut.	65+27.065	12.00'	636.312	636.312
1.	65+37.065	12.00'	636.312	636.378
2.	65+47.065	12.00'	636.312	636.425
3.	65+57.065	12.00'	636.312	636.444
4.	65+67.065	12.00'	636.312	636.428
5.	65+77.065	12.00'	636.312	636.382
℄ Brg. N. Abut.	65+87.898	12.00'	636.312	636.312

BEAM B

LOCATION	STATION	OFFSET	T	ADJ.
℄ Brg. S. Abut.	65+28.337	7.25'	636.386	636.386
1.	65+38.337	7.25'	636.386	636.452
2.	65+48.337	7.25'	636.386	636.500
3.	65+58.337	7.25'	636.386	636.518
4.	65+68.337	7.25'	636.386	636.503
5.	65+78.337	7.25'	636.386	636.457
℄ Brg. N. Abut.	65+89.171	7.25'	636.386	636.386

BEAM C

LOCATION	STATION	OFFSET	T	ADJ.
℄ Brg. S. Abut.	65+30.280	0'	636.500	636.500
1.	65+40.280	0'	636.500	636.566
2.	65+50.280	0'	636.500	636.613
3.	65+60.280	0'	636.500	636.632
4.	65+70.280	0'	636.500	636.616
5.	65+80.280	0'	636.500	636.570
℄ Brg. N. Abut.	65+91.113	0'	636.500	636.500

BEAM D

LOCATION	STATION	OFFSET	T	ADJ.
Brg. S. Abut.	65+32.223	7.25'	636.386	636.386
1.	65+42.223	7.25'	636.386	636.452
2.	65+52.223	7.25'	636.386	636.500
3.	65+62.223	7.25'	636.386	636.518
4.	65+72.223	7.25'	636.386	636.503
5.	65+82.223	7.25'	636.386	636.457
Brg. N. Abut.	65+93.056	7.25'	636.386	636.386

EAST LONGITUDINAL BONDED CONST. JT.

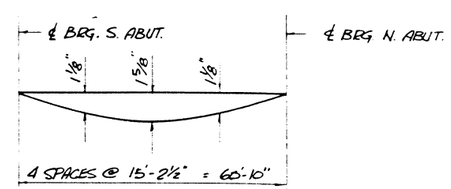
LOCATION	STATION	OFFSET	T	ADJ.
Brg. S. Abut.	65+33.495	12.00'	636.312	636.312
1.	65+43.495	12.00'	636.312	636.378
2.	65+53.495	12.00'	636.312	636.425
3.	65+63.495	12.00'	636.312	636.444
4.	65+73.495	12.00'	636.312	636.428
5.	65+83.495	12.00'	636.312	636.382
Brg. N. Abut.	65+94.329	12.00'	636.312	636.312

BEAM E

LOCATION	STATION	OFFSET	T	ADJ.
Brg. S. Abut	65+34.165	14.50'	636.260	636.260
1.	65+44.165	14.50'	636.260	636.326
2.	65+54.165	14.50'	636.260	636.373
3.	65+64.165	14.50'	636.260	636.392
4.	65+74.165	14.50'	636.260	636.376
5.	65+84.165	14.50'	636.260	636.331
Brg. N. Abut.	65+94.999	14.50'	636.260	636.260

T = THEORETICAL GRADE ELEVATIONS

ADJ = THEORETICAL GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTION.



DEAD LOAD DEFLECTION DIAGRAM *

(INCLUDES WEIGHT OF CONCRETE ONLY)

*NOTE:

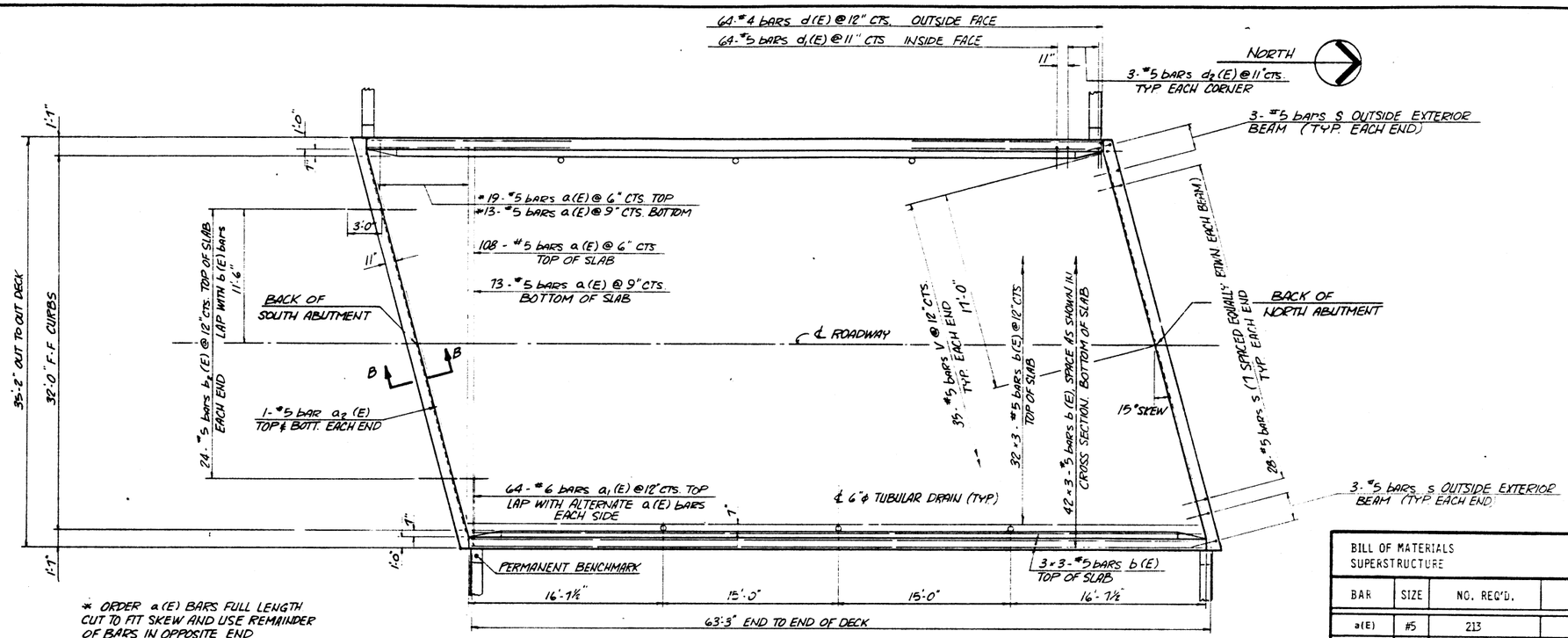
THESE DEFLECTIONS ARE NOT TO BE USED IN THE FIELD IF THE ENGINEER IS WORKING FROM THE GRADE ELEVATIONS ADJUSTED FOR DEAD LOAD DEFLECTIONS AS SHOWN.

SLAB ELEVATIONS
F.A.S. ROUTE 659 SEC. 8BR.
MOULTRIE COUNTY
STATION 65+60.70

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
659	8BR	*	22	13
FED. ROAD DIST. NO. 9	ILLINOIS	PROJECT		

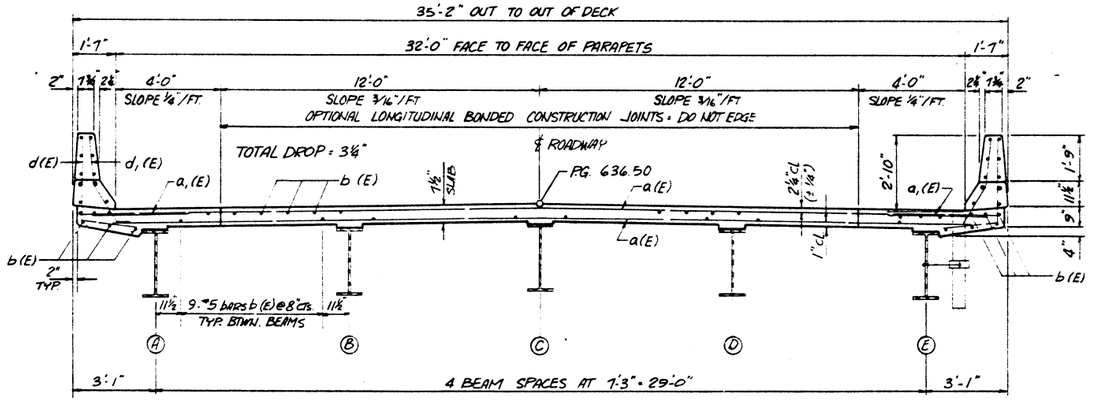
* MOULTRIE

SHEET 4 OF 8



* ORDER a(E) BARS FULL LENGTH CUT TO FIT SKEW AND USE REMAINDER OF BARS IN OPPOSITE END

PLAN



CROSS SECTION

(Looking North)

MIN. BAR LAPS

#4 ___ ___ 1'-5"
#5 ___ ___ 1'-9"
#6 ___ ___ 3'-8"

BILL OF MATERIALS
SUPERSTRUCTURE

BAR	SIZE	NO. REQ'D.	LENGTH	SHAPE
a(E)	#5	213	33' - 0"	
a_1(E)	#6	128	4' - 0"	
a_2(E)	#5	4	38' - 0"	
a_3	#6	8	38' - 1"	
a_4	#4	4	16' - 4"	
a_5	#4	4	18' - 11"	
a_6	#6	8	7' - 2"	
a_7	#6	4	3' - 0"	
b(E)	#5	252	22' - 2"	
b_2(E)	#5	48	6' - 0"	
b_3(E)	#6	8	33' - 7"	
d(E)	#4	128	4' - 11"	
d_1(E)	#5	128	3' - 11"	
d_2(E)	#5	12	4' - 2"	
e(E)	#4	48	15' - 7"	
V	#5	70	3' - 3"	
S	#5	68	3' - 10"	
s_1	#4	60	8' - 1"	

CLASS "X" CONCRETE Superstr.	CU. YD.	87.8
REINFORCEMENT BARS	POUNDS	1470
REINF. BARS (EPOXY COATED)	POUND	17600
PROTECTIVE COAT	SQ. YD.	54
FLOOR DRAINS	EACH	6

BARS INDICATED THUS - 32 × 3 - #5 ETC... INDICATES 32 LINES OF BARS WITH 3 LENGTHS PER LINE.

REINFORCEMENT BARS DESIGNATED (E) SHALL BE EPOXY COATED.

SEE SHEET 5 FOR SECTION E-E.

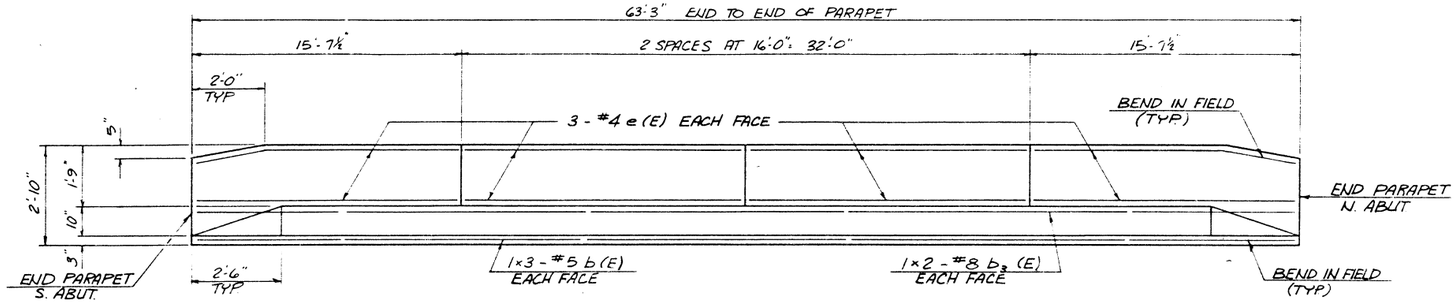
'WORK THIS SHEET WITH SHEET 5.

SUPERSTRUCTURE
F.A.S. ROUTE 659 SEC. 8BR.
MOULTRIE COUNTY
STATION 65+60.70

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
659	8BR	*	22	14
FED. ROAD DIST. NO. 9	ILLINOIS	PROJECT		

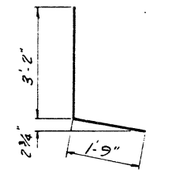
* MOULTRIE

SHEET 5 OF 8

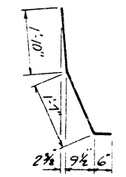


INSIDE ELEVATION OF PARAPET

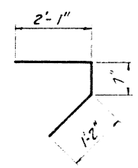
(Dimensions are along toe of parapet)



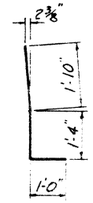
BAR d (E)



BAR d_1 (E)

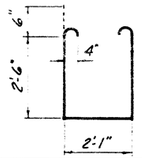


BAR S



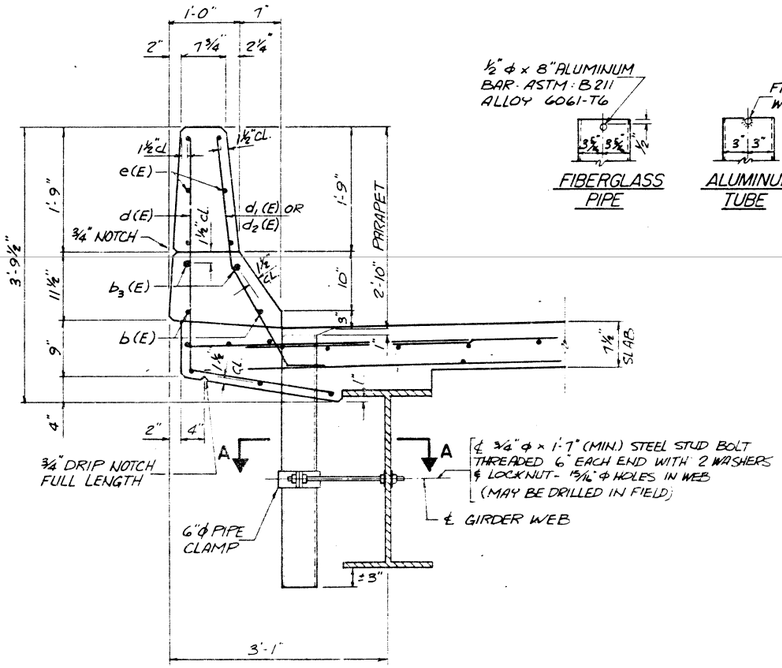
BAR d_2 (E)

BAR V



BAR S1

BAR DETAILS



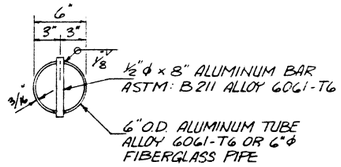
SECTION THRU PARAPET

½"ϕ x 8" ALUMINUM BAR: ASTM: B211 ALLOY 6061-T6

FIBERGLASS PIPE

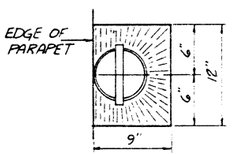
FILL SLOT WITH WELD

ALUMINUM TUBE



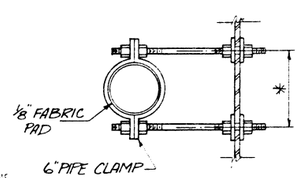
TOP PLAN

(Showing Aluminum Tube)



TOP PLAN

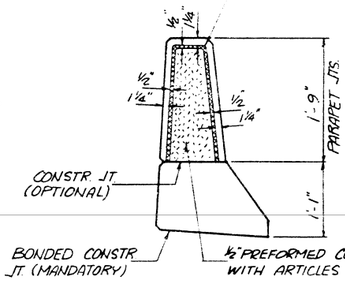
(Drain)

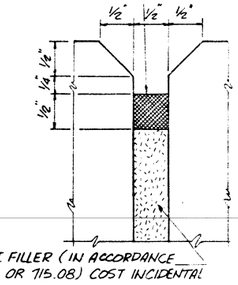


SECTION A-A

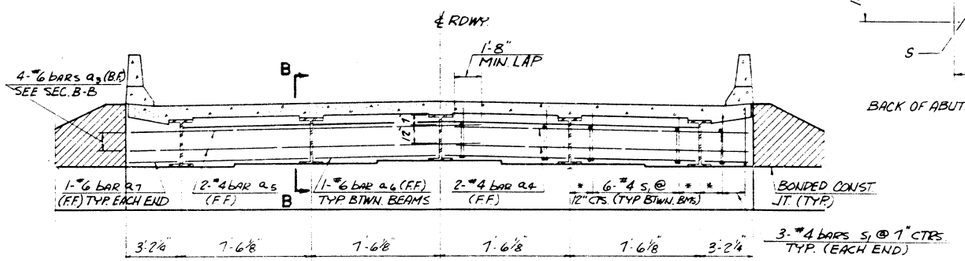
* DIMENSION AS REQUIRED BY PIPE CLAMP

TWO COMPONENT NON-STAINING GRAY SEALING COMPOUND WITH POLYSULFIDE LIQUID POLYMER GUN-GRADE WITH PRIMER





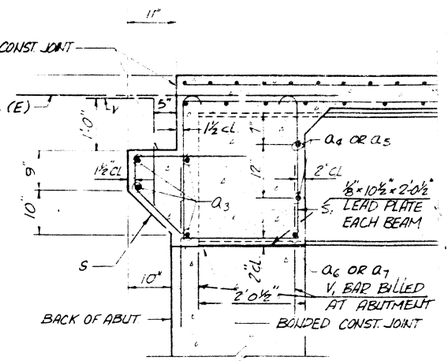
PARAPET JOINT DETAILS



* 1'-3½" @ ℄ ABUT. CAP

TYPICAL ELEVATION OF DIAPHRAGM

DIMENSIONS ALONG ℄ ABUTMENT CAP
B.F. - BACK FACE
F.F. - FRONT FACE



SECTION B-B

DIMENSION AT RIGHT ANGLES TO ABUTMENT. FOR SPACING OF b_2 (E), S AND V BARS, SEE SHEET 4

THE EXTERIOR SURFACES OF THE FLOOR DRAINS SHALL BE PAINTED WITH A DARK MAROON VINYL ENAMEL COAT. THE VINYL ENAMEL COAT MAY BE APPLIED IN THE SHOP WITH SPOT PAINTING ONLY IN THE FIELD. THE EXTERIOR SURFACE OF THE ALUMINUM TUBE SHALL BE CLEANED AND GIVEN A WASHCOAT PRETREATMENT IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL'S SPEC. SSPC-SP1 & SSPC-PAINT 27 PRIOR TO PAINTING.

FIBERGLASS PIPE SHALL CONFORM TO ASTM: D2996, WITH SHORT-TIME RUPTURE STRENGTH HOOP TENCILE STRESS OF 30,000 P.S.I. MINIMUM. THE SURFACE OF THE FIBERGLASS PIPE SHALL BE FREE OF BOND INHIBITING AGENTS.

THE CLAMPING DEVICE AND INSERTS SHALL BE GALVANIZED IN ACCORDANCE WITH A.A.S.H.T.O. M-232.

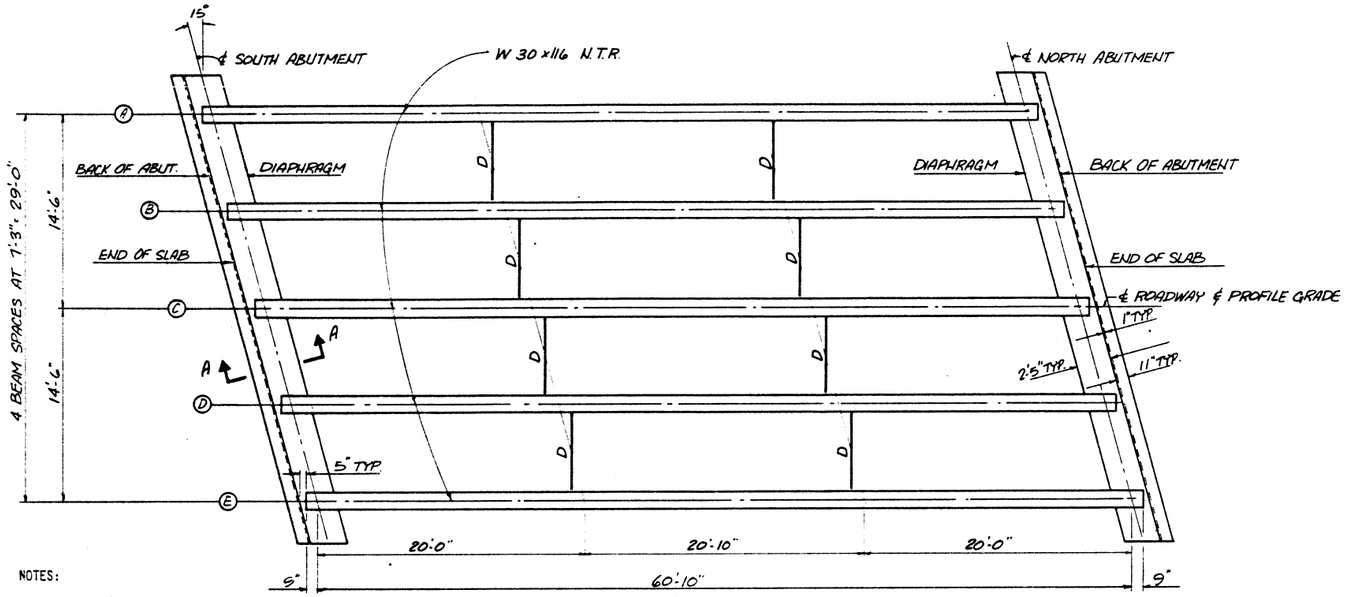
MINIMUM BAR LAPS: #5 = 2'-2"
#8 = 4'-5"

SUPERSTRUCTURE DETAILS
F.A.S. ROUTE 659 SEC. 8BR
MOULTRIE COUNTY
STATION 65+60.70

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
659	8BR	*	22	15
FED. ROAD DIST. NO. 9	ILLINOIS	PROJECT		

* MOULTRIE

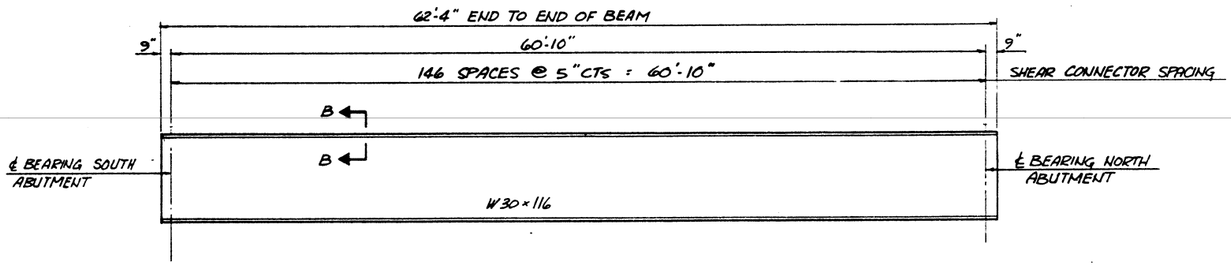
SHEET 6 OF 8



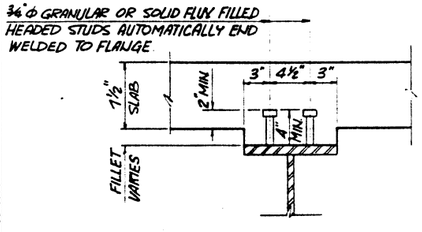
NOTES:

N.T.R. INDICATES NOTCH TOUGHNESS REQUIREMENTS, ZONE 2.
STRUCTURAL STEEL SHALL BE M 222 .

FRAMING PLAN



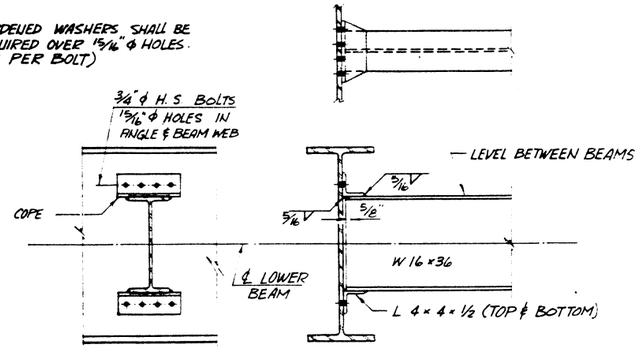
GIRDER ELEVATION



SECTION B-B

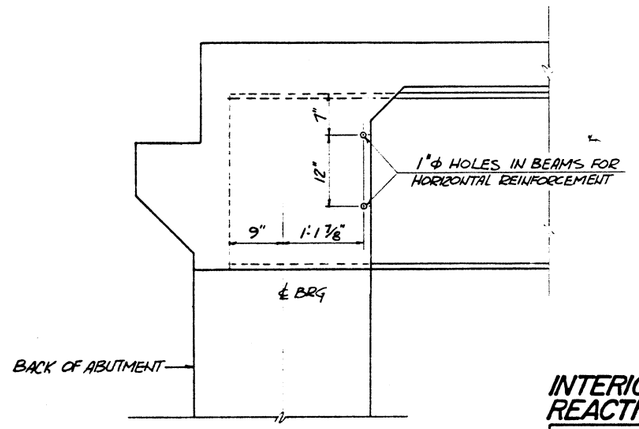
1470 REQUIRED

NOTE: HARDENED WASHERS SHALL BE REQUIRED OVER 15/16" ϕ HOLES. (2 PER BOLT)



DIAPHRAGM D

8 REQUIRED



SECTION A-A

INTERIOR BEAM REACTION TABLE

		ABUTS.
R℄ NC + R℄C.	(K)	34.4
R℄L	(K)	40.2
RIMP	(K)	10.8
RTOTAL	(K)	85.4

INTERIOR BEAM MOMENT TABLE

		C.S SPAN
Is	(IN.⁴)	4,930
Ic ℄	(IN.⁴)	14,115
Ss	(IN.³)	329
Sc ℄	(IN.³)	499
M℄ N.C.	(K)	0.810
M℄ N.C.	(K)	373
M℄ C.	(K)	0.323
M℄ C.	(K)	149
M℄L	(K)	537
MIMP	(K)	144
5_3(M℄ + I)	(K)	1,135
MA	(K)	2,156
Mu	(K)	2,722
FS ℄ N.C.	(K.S.I.)	13.6
FS ℄ C.	(K.S.I.)	3.6
FS 5_3 (℄ +I)	(K.S.I.)	27.3
FS (OVERLOAD)	(K.S.I.)	44.5
VR	(K)	51.0

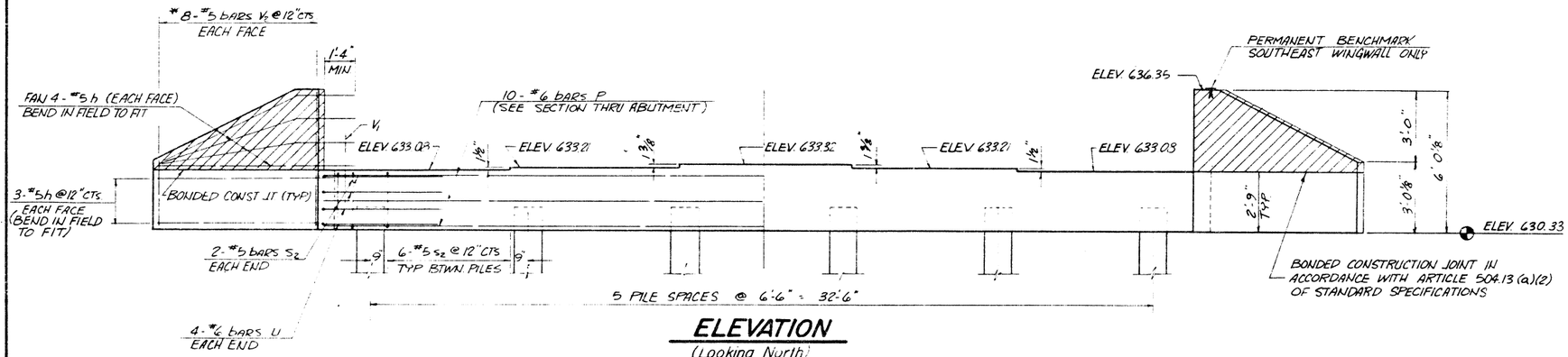
Is AND Ss ARE THE MOMENT OF INERTIA AND SECTION MODULUS OF THE STEEL SECTION USED IN COMPUTING FS (OVERLOAD).
Ic AND Sc ARE THE MOMENT OF INERTIA AND SECTION MODULUS OF THE COMPOSITE SECTIONS USED IN COMPUTING FS (OVERLOAD).
VR IS THE MAXIMUM (℄ + I) SHEAR RANGE IN THE SPAN.
FS (OVERLOAD) IS THE SUM OF THE STRESSES DUE TO M℄N.C. + M℄C. + 5_3(M℄ + I).
MA (APPLIED MOMENT) = 1.3 [M℄N.C. + M℄C. + 5_3 (M℄ + I)].
Mu = FULL PLASTIC MOMENT CAPACITY FOR COMPACT, BRACED SECTION. THE FULLY PLASTIC MOMENT CAPACITY (Mu) IS COMPUTED ACCORDING TO AASHTO 10.48.1 & 10.50.1.1.
M℄N.C. - MOMENT DUE TO DEAD LOADS ON NON-COMPOSITE SECTION.
M℄C. - MOMENT DUE TO DEAD LOADS ON COMPOSITE SECTION.
M℄ - MOMENT DUE TO LIVE LOAD ON COMPOSITE SECTION.
I - LIVE LOAD IMPACT.

DIAPHRAGM DETAIL
STRUCTURAL STEEL
F.A.S. ROUTE 659 SEC. 8BR
MOULTRIE COUNTY
STATION 65+60.70

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
659	8BR	*	22	16
FED. ROAD DIST. NO. 9	ILLINOIS	PROJECT		

* MOULTRIE

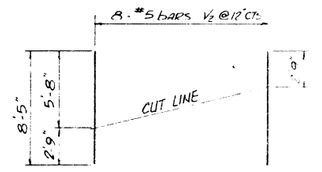
SHEET 7 OF 8



ELEVATION

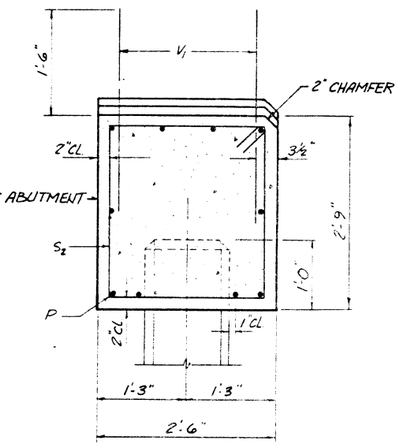
(Looking North)

NOTE HATCHED AREA TO BE POURED WITH DECK AFTER BEAMS ARE IN PLACE. QUANTITY OF CLASS X CONCRETE INCLUDED WITH SUPERSTRUCTURE

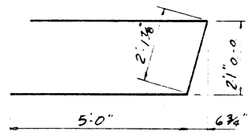


* FIELD CUTTING DIAGRAM

ORDER ½ bars FULL LENGTH. CUT TO FIT AND USE THE REMAINDER IN THE OPPOSITE END.

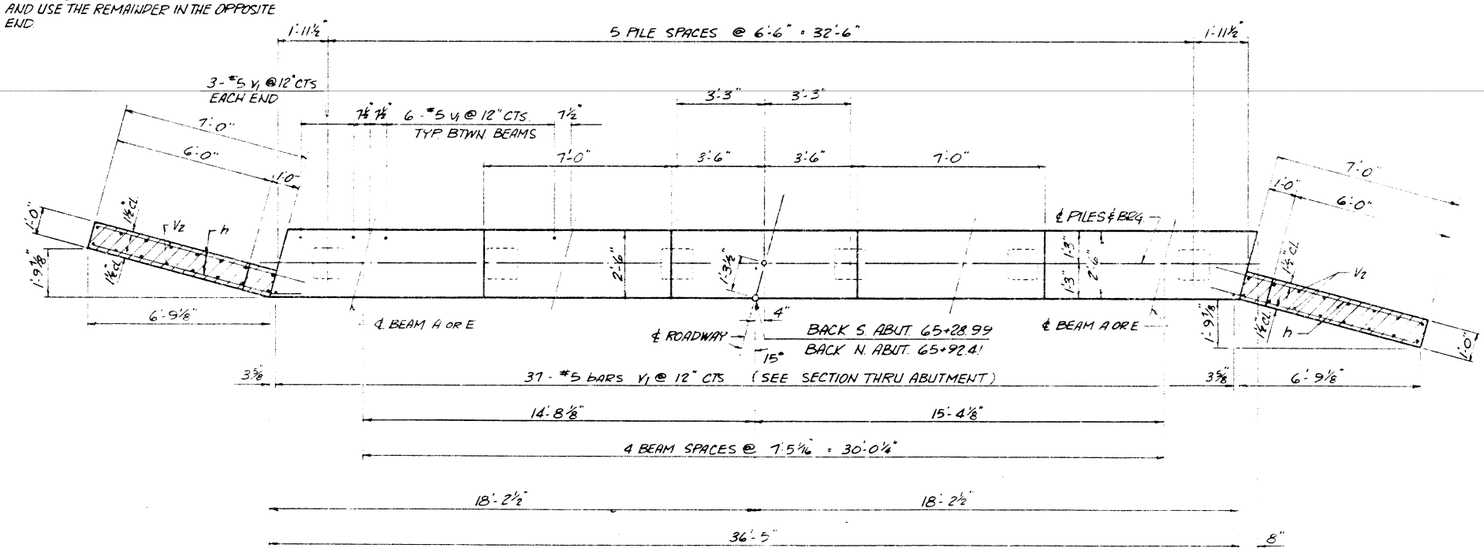


SECTION THRU ABUTMENT



BAR U

BAR S_2



PILE DATA

TYPE	PRECAST CONCRETE 14"
NO. REQ'D. (2 ABUTS.)	12 **
CAPACITY	45 TONS/PILE
EST. LENGTH	37 FEET/PILE S. ABUT.
	43 FEET/PILE N. ABUT.

** INCLUDES ONE TEST PILE TO BE DRIVEN IN A PERMANENT LOCATION AT THE SOUTH ABUTMENT.

BILL OF MATERIALS
2 ABUTS.

BAR	SIZE	NO. REQ'D.	LENGTH	SHAPE
h	#5	56	8' - 3"	
P	#6	20	36' - 1"	
S_2	#5	68	10' - 1"	
U	#6	16	12' - 2"	
V_1	#5	134	3' - 0"	
V_2	#5	32	8' - 5"	

CLASS "X" CONCRETE	CU. YD.	22.6
REINFORCEMENT BARS	POUNDS	3075
PRECAST CONC. PILES 14"	LIN. FT.	443
TEST PILES PRECAST CONC.	EACH	1

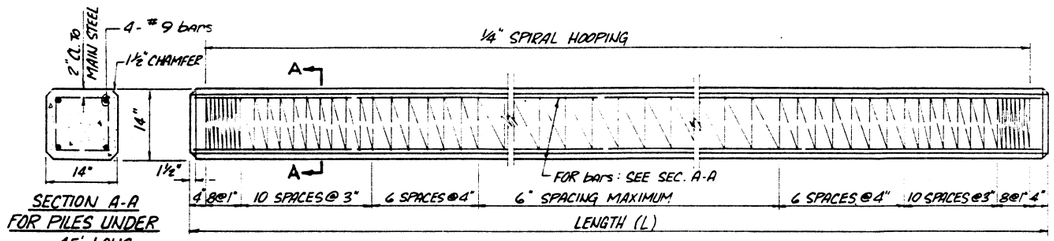
SEE SHEET 8 FOR CONCRETE PILE DETAILS.

ABUTMENTS
F.A.S. ROUTE 659 SEC. 8BR
MOULTRIE COUNTY
STATION 65+60.70

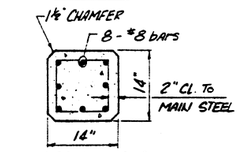
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
659	8BR	*	22	17
FED. ROAD DIST. NO. 9	ILLINOIS	PROJECT		

* MOULTRIE

SHEET 8 OF 8



SECTION A-A
FOR PILES UNDER
45' LONG



SECTION A-A
FOR PILES 45' OR
MORE

HANDLING:
FOR PILE LENGTHS UP TO 45 FT. USE TWO (2) SLINGS PLACED AT A DISTANCE OF 0.21 L* FROM EACH END. FOR PILES LONGER THAN 45 FT. USE THREE (3) SLINGS PLACED AT A DISTANCE OF 0.12 L* FROM EACH END AND AT MID-POINT OF PILE.

*L = OVER ALL LENGTH OF PILE TO BE HANDLED

DETAIL OF PRECAST CONCRETE PILES

CONCRETE PILE DETAILS
F.A.S. ROUTE 659 SEC. 8BR.
MOULTRIE COUNTY
STATION 65+60.70