

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
HIGHWAY BRIDGE PROGRAM

TR 373 OVER NICKOLSEN CREEK
SECTION 05-12115-00-BR
CLAY COUNTY
PROJECT NO. BROS-025(59)
C-97-014-08

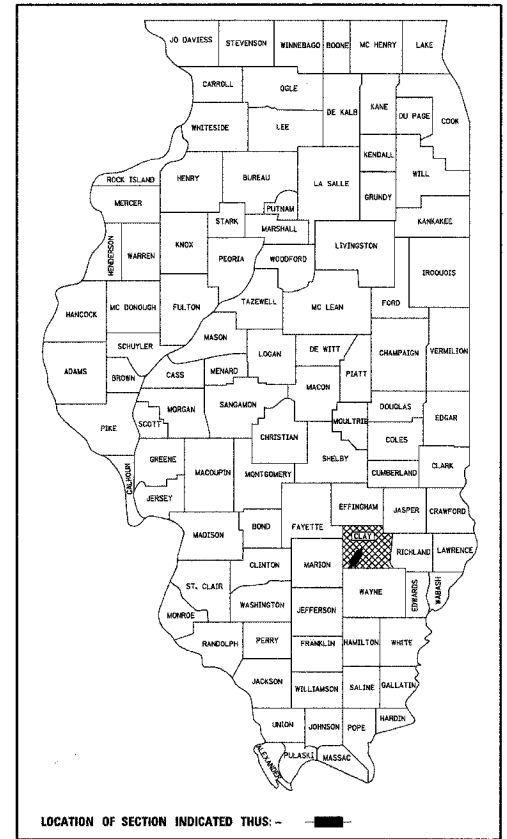
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	05-12115-00-BR	CLAY	9	1
FED. ROAD DIST. NO. 7 ILLINOIS		FEDERAL AID PROJECT		
CONTRACT NO. 95536				

INDEX OF SHEETS

- COVER SHEET
- SUMMARY OF QUANTITIES AND TYPICAL SECTIONS
- PLAN AND PROFILE OF ROADWAY
- CROSS SECTIONS OF ROADWAY
- GENERAL PLAN AND ELEVATION
- PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
- STEEL RAILING, TYPE S1 DETAILS
- ABUTMENT DETAILS

STANDARDS ARE INCLUDED IN PLANS AFTER SHEET NO. 9
 00001-05 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
 515001-02 NAME PLATE FOR BRIDGES
 635006-02 REFLECTOR AND TERMINAL MARKER PLACEMENT
 701901 TRAFFIC CONTROL DEVICES
 BLR 21-7 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

SOIL BORINGS (SEE SPECIFICATIONS)



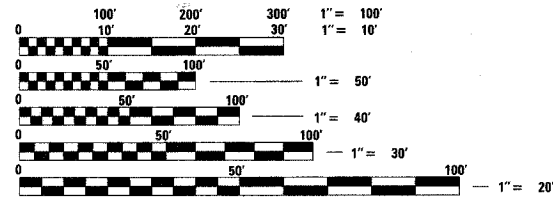
CLAY COUNTY
HIGHWAY DEPARTMENT

APPROVED Oct 26, 2007
[Signature]
CLAY COUNTY, COUNTY ENGINEER

PASSED 11-2, 2007
[Signature]
DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID
BASED ON LIMITED
REVIEW 11-2, 2007
[Signature]
DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

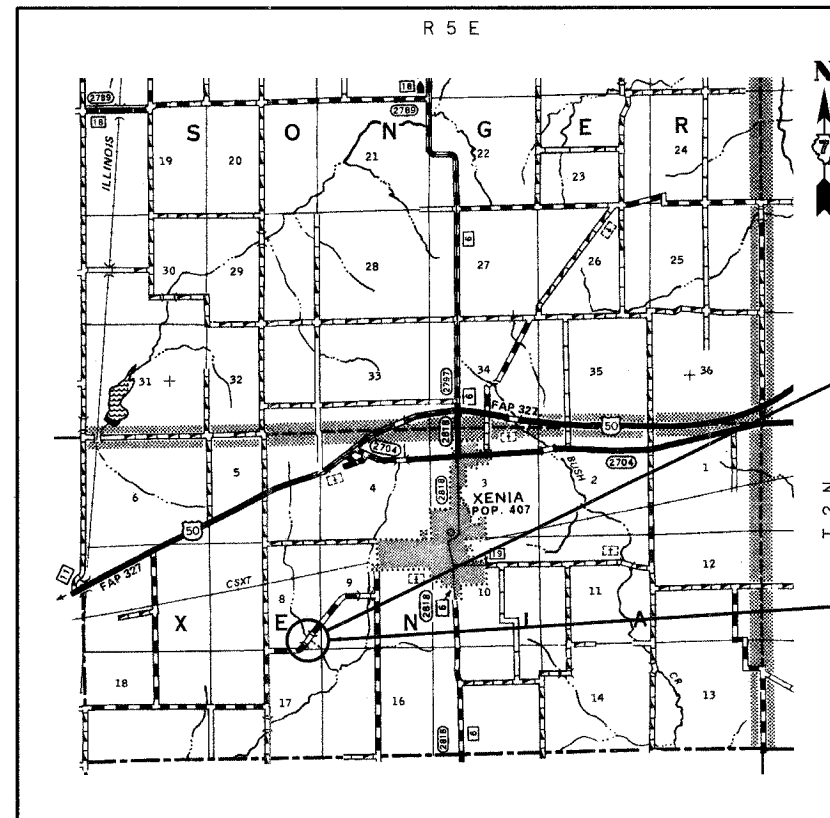
DESIGN CLASSIFICATION: RURAL LOCAL ROAD
 ADT₂₀₀₇ : 100
 ADT₂₀₂₇ : 125
 DESIGN SPEED - 30 MPH



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 LOCATING INFORMATION FOR EXCAVATORS
1-800-892-0123 Website: <http://www.illinois1call.com>

CONTRACT NO. 95536



SECTION BEGINS
STA. 49+26.56

SECTION 05-12115-00-BR

INCLUDES THE CONSTRUCTION OF A SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE CARRYING TR 373 OVER NICKOLSEN CREEK, 37'-10" BK. TO BK. ABUTMENTS. NO SKEW. EXISTING STRUCTURE NO. 013-3126 PROPOSED STRUCTURE NO. 013-3232

SECTION ENDS
STA. 51+02.51

LOCATION: NEAR THE SE CORNER OF SECTION 8, T2N, R5E, 3RD P.M.
NET LENGTH OF PROJECT: 175.95 FT = 0.033 MI



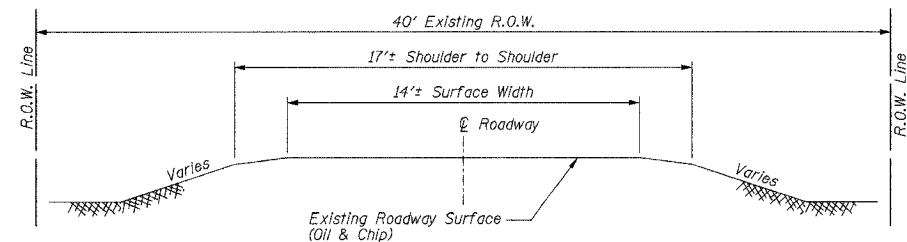
[Signature] 10-25-07
GARY L. HAHN
CENTRALIA, ILLINOIS
ILLINOIS LICENSED PROFESSIONAL
ENGINEER NO. 62-42606
EXPIRES NOV. 30, 2009

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

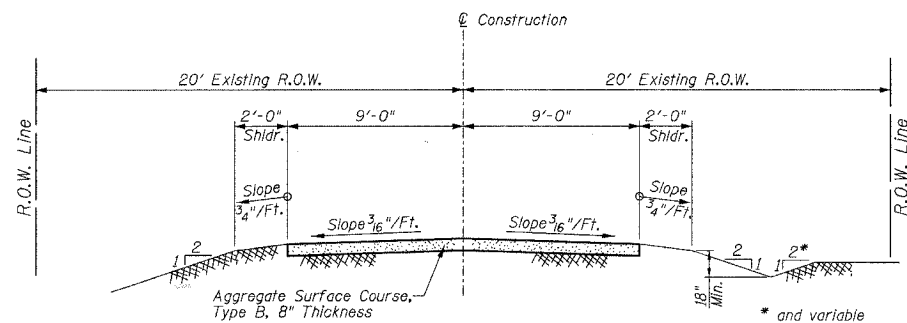
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Job No. 51106

10/25/2007

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	05-12115-00-BR	CLAY	9	2
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 95536				



TYPICAL SECTION
EXISTING APPROACH ROADWAY



TYPICAL SECTION
PROPOSED APPROACH ROADWAY

SUMMARY OF QUANTITIES

Code No.	Item	Unit	Quantity	Location	
				X080-2A	E000
20200100	EARTH EXCAVATION	CU YD	52	-	52
20300100	CHANNEL EXCAVATION	CU YD	30	30	-
20400800	FURNISHED EXCAVATION	CU YD	65	-	65
* 20700110	POROUS GRANULAR EMBANKMENT	TON	46	46	-
* 25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.1	-	0.1
* 28100807	STONE DUMPED RIPRAP, CLASS A4	TON	82	82	-
* 40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	213	-	213
* 50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1	1	-
50300225	CONCRETE STRUCTURES	CU YD	15.6	15.6	-
* 50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	876	876	-
50800105	REINFORCEMENT BARS	POUND	2740	2740	-
50900205	STEEL RAILING, TYPE S1	FOOT	74	74	-
51201600	FURNISHING STEEL PILES HP12X53	FOOT	152	152	-
51500100	NAME PLATES	EACH	1	1	-
67100100	MOBILIZATION	L SUM	1	-	-
Δ 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4	4	-
* 20065000	SETTING PILES IN ROCK	EACH	8	8	-

* See Special Provisions.

Δ Specialty Items

GENERAL NOTES

This section shall be constructed in accordance with the plans, the Special Provisions, and the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2007.

If Section or Subsection monuments are encountered, the Engineer shall be notified before such monuments are removed. The Contractor shall protect and carefully preserve all property markers and monuments until owner, an authorized Surveyor or agent has witnessed or otherwise referenced their location.

Any reference to a Standard in these plans shall be interpreted to mean the edition as indicated by the sub-number listed in the Index of Sheets or the copy of the Standard included in these plans.

Roadway Centerline profiles refer to the finished surface.

Existing utilities shown are located from surface observations or information provided by the respective utilities and must be considered approximate. There may be others, the exact location of which are unknown and not shown. The Contractor will be responsible for notifying the respective utilities before work is begun. Field marking of underground utilities may be obtained by providing a minimum of 48 hours advance notice through the J.U.L.I.E. system by calling 1-800-892-0123, or by direct contact with non-members of J.U.L.I.E.

The nominal thickness for surface course is shown on the Typical Sections, Standards, Schedules, or Special Details. The constructed thickness of the above item shall not be less than 90 percent of the nominal thickness at any location.

Factors used for quantity calculations are as follows:

Porous Granular Embankment	2.1 tons/cu. yd.
Stone Dumped Riprap	130 pounds/cu. ft.
Aggregate Surface Course	2.1 tons/cu. yd.

UTILITIES

Telephone:
Wabash Telephone Coop., Inc.
Attn: Todd Fender
210 South Church Street
P.O. Box 299
Louisville, IL 62858
Phone: 618-665-3311

Water:
Northeast Marion Water Company
Attn: Shirley Conrad
5329 Kinmundy Road
Salem, IL 62881
Phone: 618-547-9887

Electric:
Clay Electric Cooperative, Inc.
Attn: Sam Kessler
7784 Old Highway 50
Flora, IL 62839
Phone: 618-662-2171

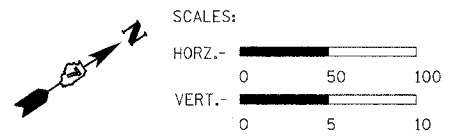
SUMMARY OF QUANTITIES AND
TYPICAL SECTIONS
PROPOSED BRIDGE OVER
NICKOLSEN CREEK
TR 373
SECTION 05-12115-00-BR
CLAY COUNTY, ILLINOIS

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Job No. 51106

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ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	05-12115-00-BR	CLAY	9	3
STA. 46+00.00 TO STA. 54+00.00				
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT	

EXISTING STRUCTURE: SINGLE SPAN BRIDGE WITH CONCRETE DECK AND STEEL STRINGERS ON CONCRETE ABUTMENTS, 26' LONG X 17' WIDE. TO BE REMOVED. SEE SPECIAL PROVISIONS.



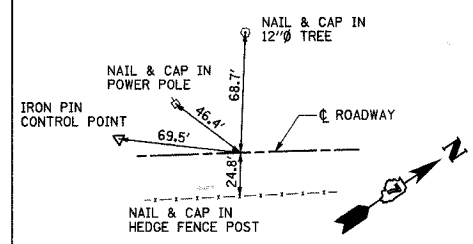
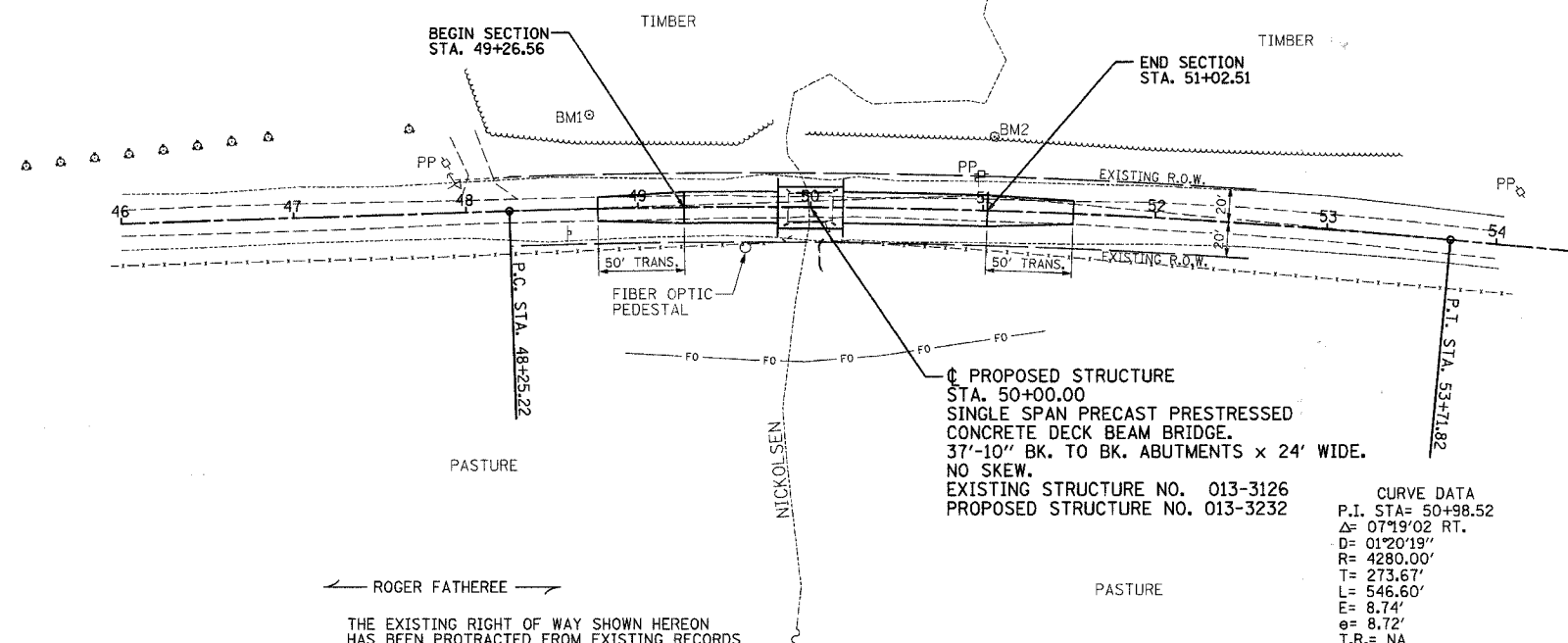
MERYLE S. FATHEREE

EARTHWORK SCHEDULE

LOCATION	EARTH EXCAVATION CU. YD.	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE* CU. YD.	EMBANKMENT CU. YD.	EARTHWORK BALANCE** WASTE (+) OR SHORTAGE (-) CU. YD.
STA. 48+76.56 TO STA. 49+81.08	25	19	39	-20
STA. 50+18.92 TO STA. 51+52.51	27	20	65	-45
TOTAL	52	39	104	-65

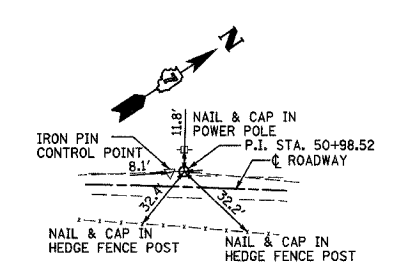
*25% SHRINKAGE **FURNISHED EXCAVATION

DATE	
BY	
DESIGNED	
CHECKED	
PLOTTED	
DATE	



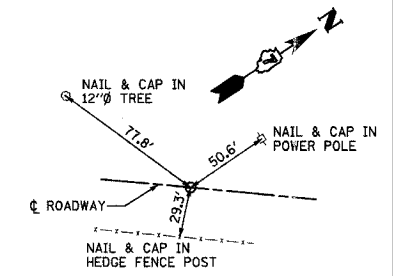
LINE TIES

P.C., STA. 48+25.22



LINE TIES

P.I., STA. 50+98.52



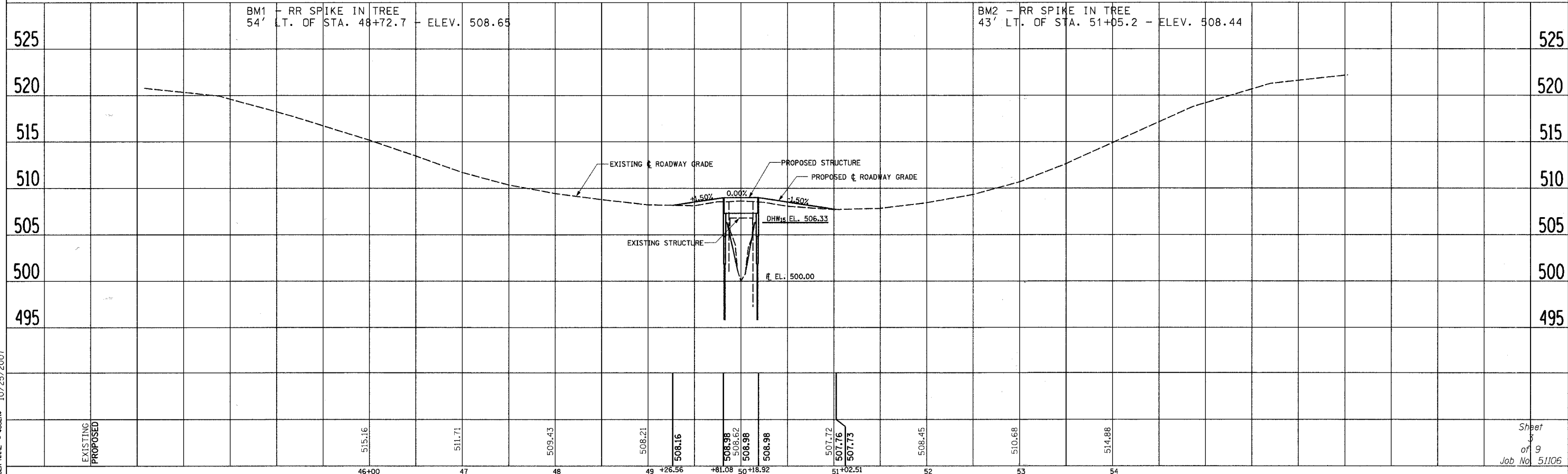
LINE TIES

P.T., STA. 53+71.82

THE EXISTING RIGHT OF WAY SHOWN HEREON HAS BEEN PROTRACTED FROM EXISTING RECORDS AND IS TO BE USED FOR REFERENCE PURPOSES ONLY. FURTHERMORE, NO COMPLETE SURVEY OF SAID R.O.W. IS IMPLIED BY THIS DRAWING.

CURVE DATA
 P.I. STA= 50+98.52
 Δ= 07°19'02 RT.
 D= 01°20'19"
 R= 4280.00'
 T= 273.67'
 L= 546.60'
 E= 8.74'
 e= 8.72'
 T.R.= NA
 S.E. RUN= NONE
 P.C. STA= 48+25.22
 P.T. STA= 53+71.82

DATE	
BY	
DESIGNED	
CHECKED	
PLOTTED	
DATE	



10/25/2007

EXISTING
 PROPOSED

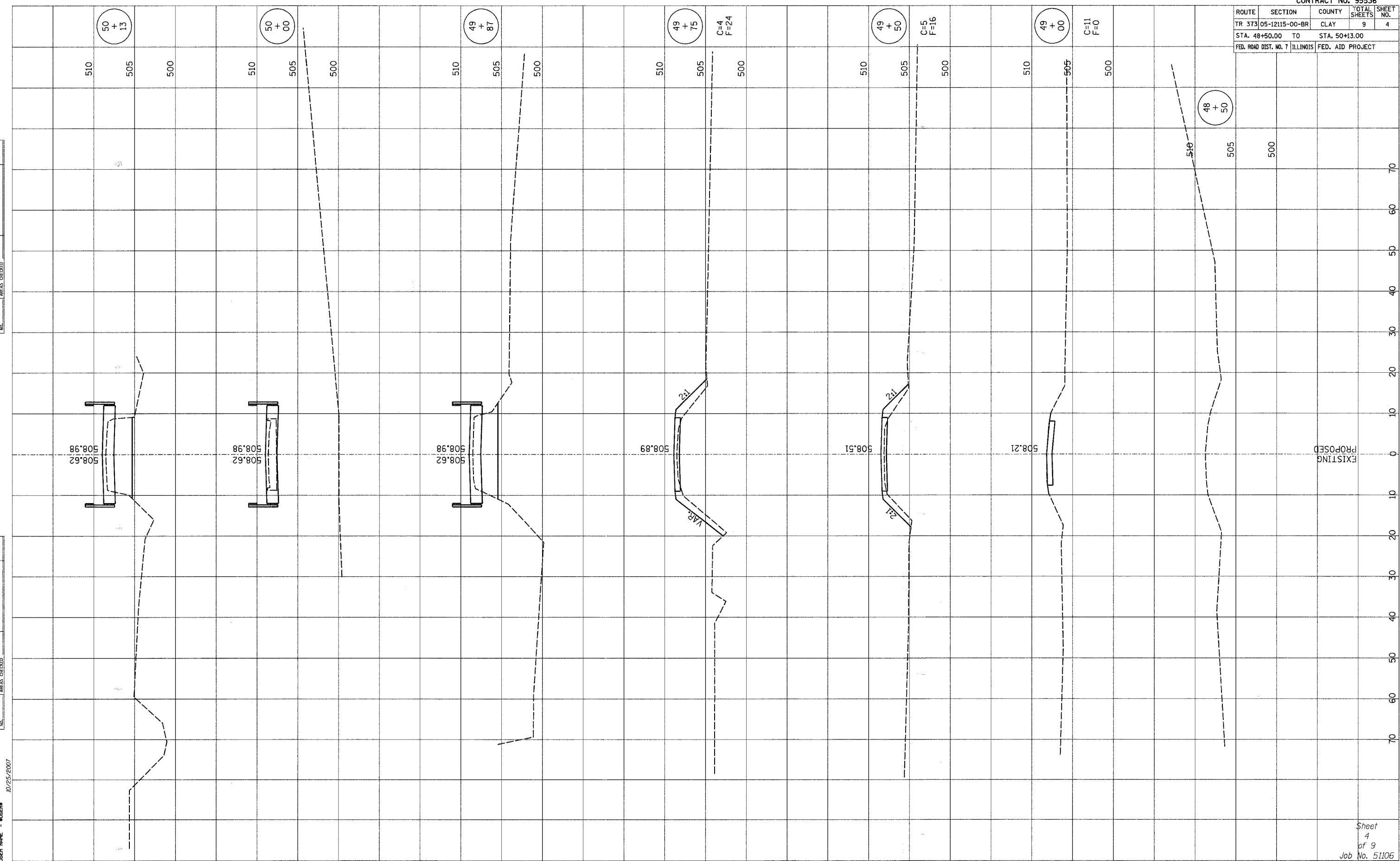
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ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	05-12115-00-BR	CLAY	9	4
STA. 48+50.00 TO		STA. 50+13.00		
FED. ROAD DIST. NO. 7		ILLINOIS FED. AID PROJECT		

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

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

PLOT DATE = #DATE*
 FILE NAME = #FILE#*
 USER NAME = #USER#



10/25/2007

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	05-12115-00-BR	CLAY	9	5
STA. 50+25.00 TO		STA. 53+00.00		
FED. ROAD DIST. NO. 7		ILLINOIS FED. AID PROJECT		

FINAL SURVEY NOTE BOOK NO. _____

SURVEYED _____ PLOTTED _____

TEMPLATE _____ AREAS CHECKED _____

BY: _____ DATE: _____

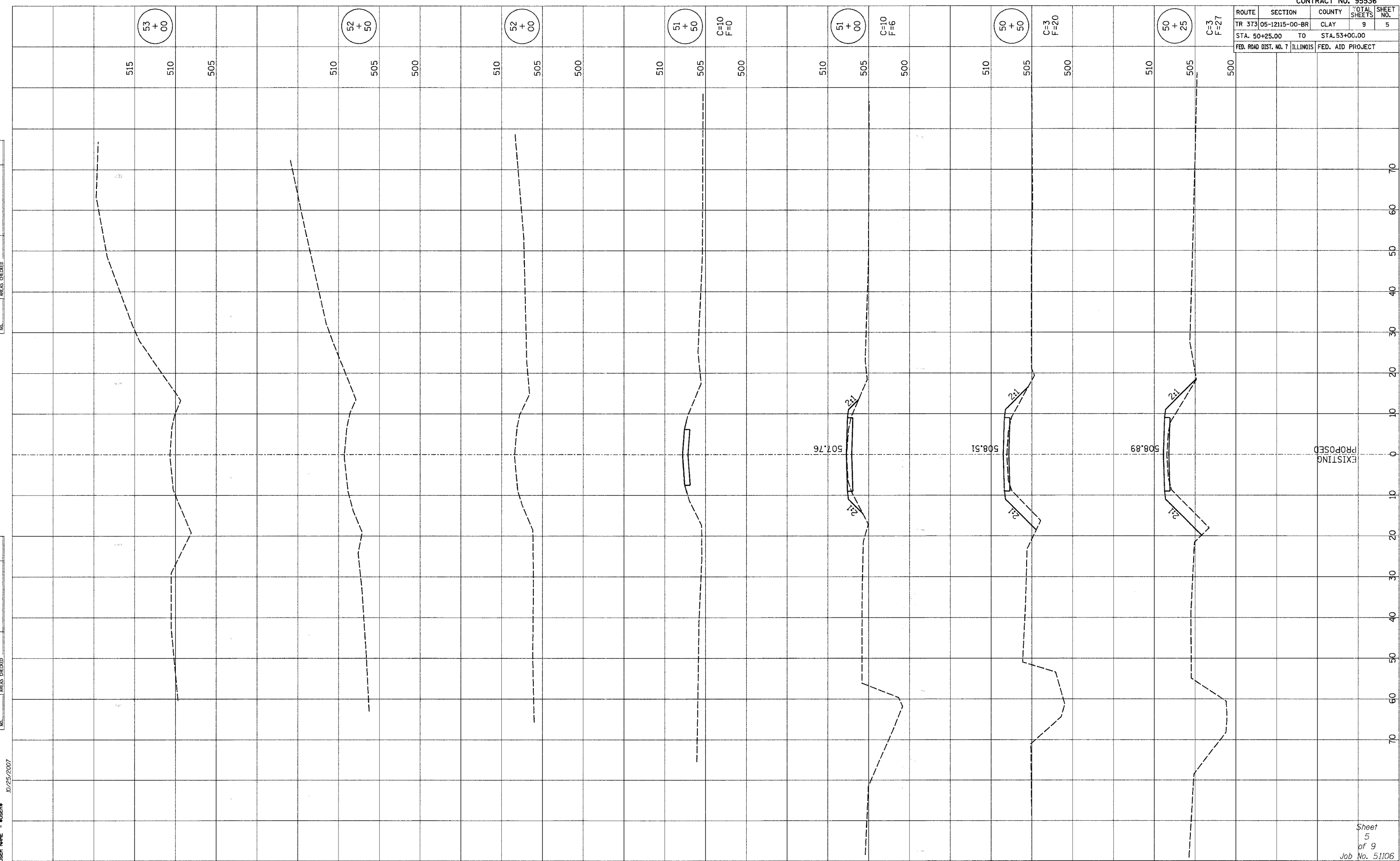
ORIGINAL SURVEY NOTE BOOK NO. _____

SURVEYED _____ PLOTTED _____

TEMPLATE _____ AREAS CHECKED _____

BY: _____ DATE: _____

PLOT DATE = DATE
 FILE NAME = FILE
 USER NAME = USER



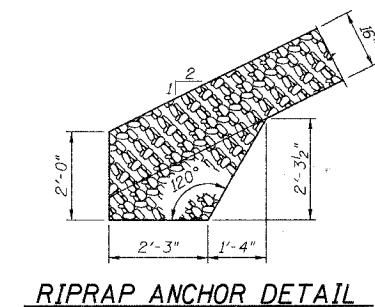
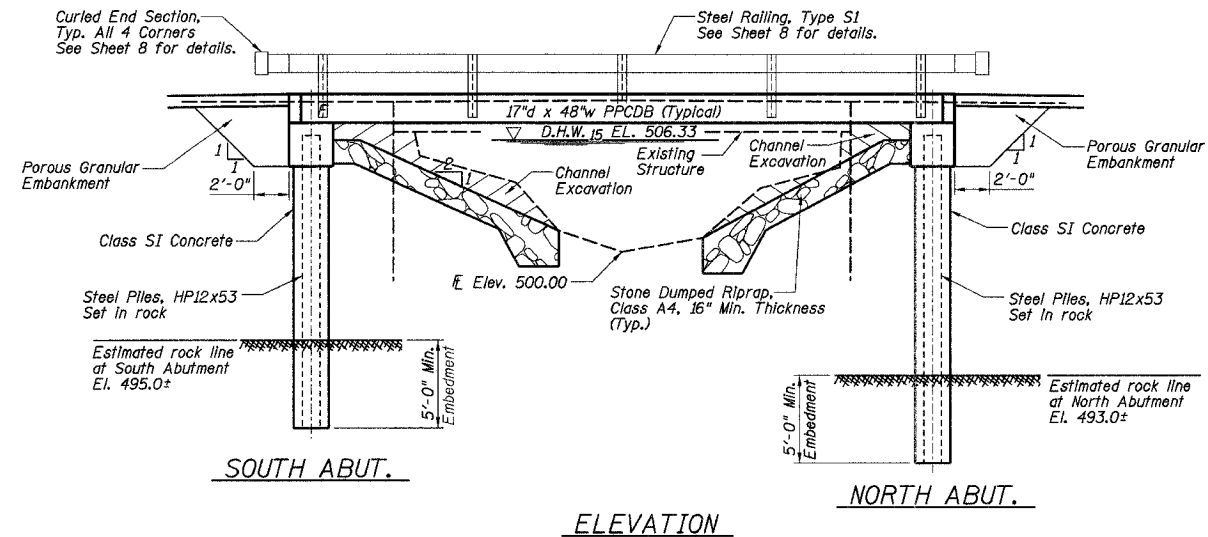
10/25/2007

BM 1 - RR spike in tree
54' Lt., Sta. 48+72.7 - Elev. 508.65

BM 2 - RR spike in tree
43' Lt., Sta. 51+05.2 - Elev. 508.44

Existing Structure: Single span bridge with concrete deck and steel stringers on concrete abutments. 26' long x 17' wide. To be removed. See Special Provisions.

ROUTE	SECTION	COUNTY	TOTAL SHEET NO.
TR 373	05-12115-00-BR	CLAY	9 6
FED. ROAD DIST. NO. 7		ILLINOIS	FEDERAL AID PROJECT
CONTRACT NO. 95536			



ITEM	UNIT	SUB	SUPER	TOTAL
CHANNEL EXCAVATION	CU YD	30	-	30
POROUS GRANULAR EMBANKMENT	TON	46	-	46
STONE DUMPED RIPRAP, CLASS A4	TON	82	-	82
REMOVAL OF EXISTING STRUCTURES	EACH	-	-	1
CONCRETE STRUCTURES	CU YD	15.6	-	15.6
PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	-	876	876
REINFORCEMENT BARS	POUND	2740	-	2740
STEEL RAILING, TYPE S1	FOOT	-	74	74
FURNISHING STEEL PILES HP 12x53	FOOT	152	-	152
NAME PLATES	EACH	1	-	1
TERMINAL MARKER - DIRECT APPLIED	EACH	-	4	4
SETTING PILES IN ROCK	EACH	8	-	8

GENERAL NOTES

See Section 502 of the Standard Specifications for Structural Excavation. Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

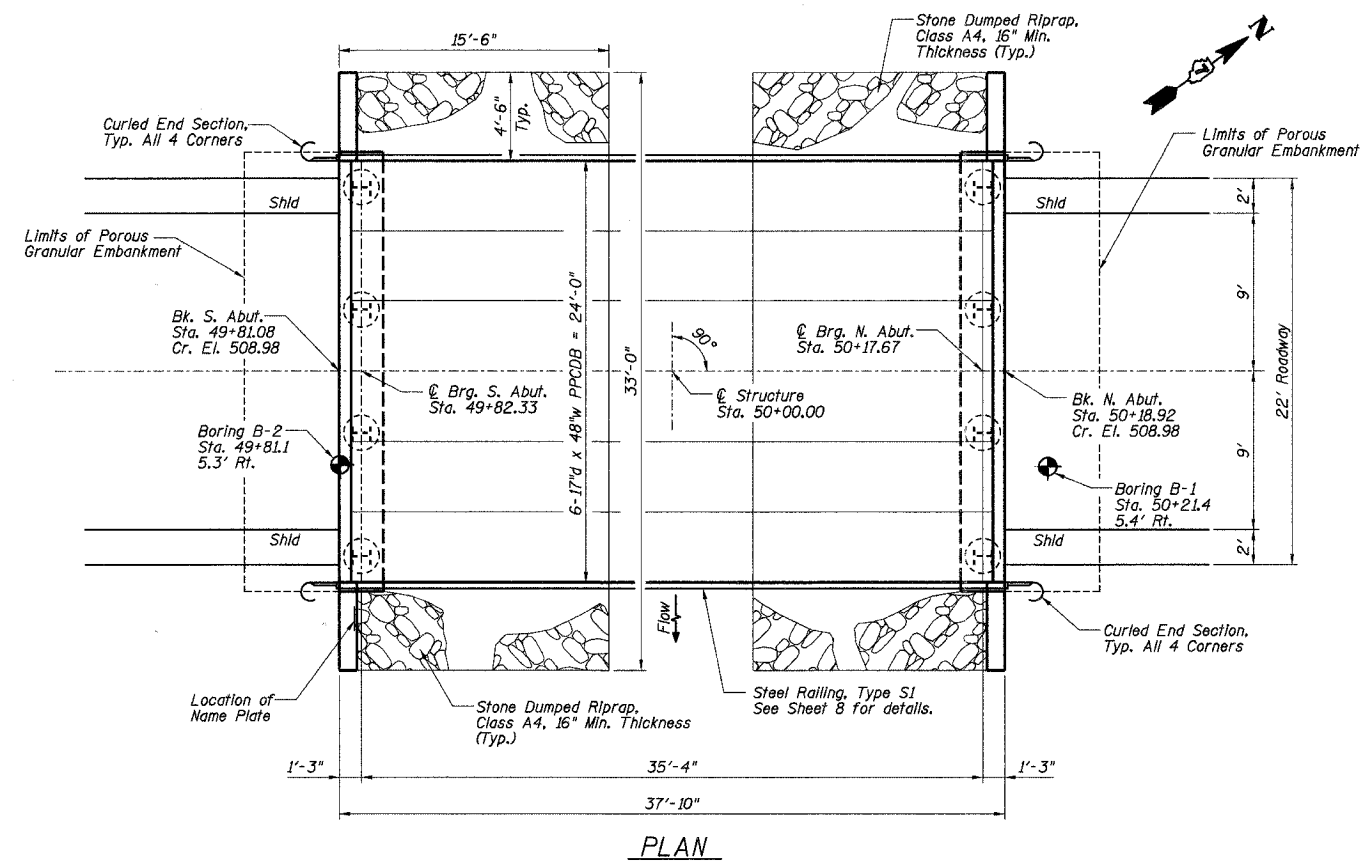
Channel excavation shall be excavated as shown within the limits of the proposed bridge, then tapered to the existing channel at the ROW line. If the Engineer deems the material satisfactory, it may be used to construct the roadway embankment.

See Specifications for Soil Borings.

Do not scale these drawings.

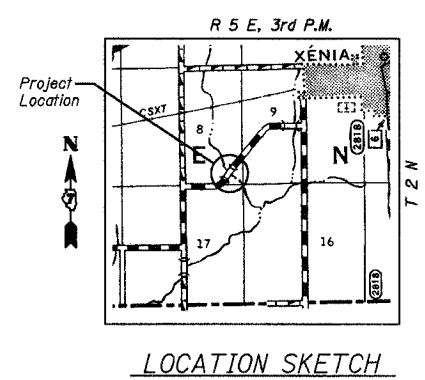
The Steel H-piles shall be according to AASHTO M270 Grade 50.

The abutment bearing seat surfaces for the precast prestressed concrete deck beams shall be adjusted by shimming to assure firm and even bearing. As required, 1/8" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.



**NICKOLSEN CREEK
BUILT 200_ BY
CLAY COUNTY
SEC. 05-12115-00-BR
PROJECT NO. BROS-025(59)
STRUCTURE NO. 013-3232
LOADING HS-20**

NAME PLATE
(See State Standard 515001 for details)



WATERWAY DATA

Drainage Area = 1.13 Sq. Mi. Low Grade Elev. 507.72 @ Sta. 50+00

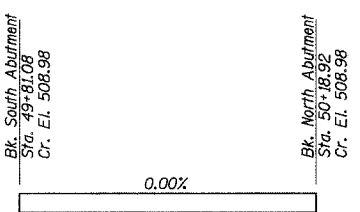
Flood Yr.	Freq.	Q C.F.S.	Opening Sq. Ft. Exist. Prop.	Natural H.W.E. Exist. Prop.	Head - Ft. Exist. Prop.	Headwater El. Exist. Prop.
Design	15	585	90 106	506.33 0.11 0.06	506.44 506.39	
Base	100	974	101 137	507.29 1.04 0.76	508.31 508.05	
Max. Calc.	500	1349	101 139	507.65 1.76 1.88	509.41 509.53	

DESIGN STRESSES
FIELD UNITS
f'c = 3,500 psi
fy = 60,000 psi

PRECAST PRESTRESSED UNITS
f'c = 5,000 psi
f'ci = 4,200 psi
fs = 270,000 psi (2/3% strands)
f'si = 189,000 psi (1/2% strands)

DESIGN SPECIFICATIONS
AASHTO - 2002 17th Edition

LOADING HS 20-44
Allow 25#/sq. ft. for future wearing surface.



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

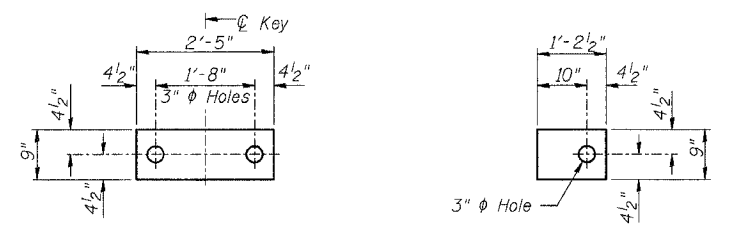
GARY L. HAHN
81-4853
LICENSED STRUCTURAL ENGINEER
STATE OF ILLINOIS

Gary L. Hahn 10-25-07
GARY L. HAHN
CENTRALIA, ILLINOIS
ILLINOIS LICENSED STRUCTURAL ENGINEER NO. 81-4853
EXPIRES NOV. 30, 2008

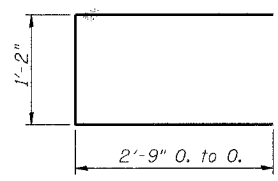
**GENERAL PLAN AND ELEVATION
PROPOSED BRIDGE OVER
NICKOLSEN CREEK
TR 373
SECTION 05-12115-00-BR
CLAY COUNTY, ILLINOIS**

10/25/2007

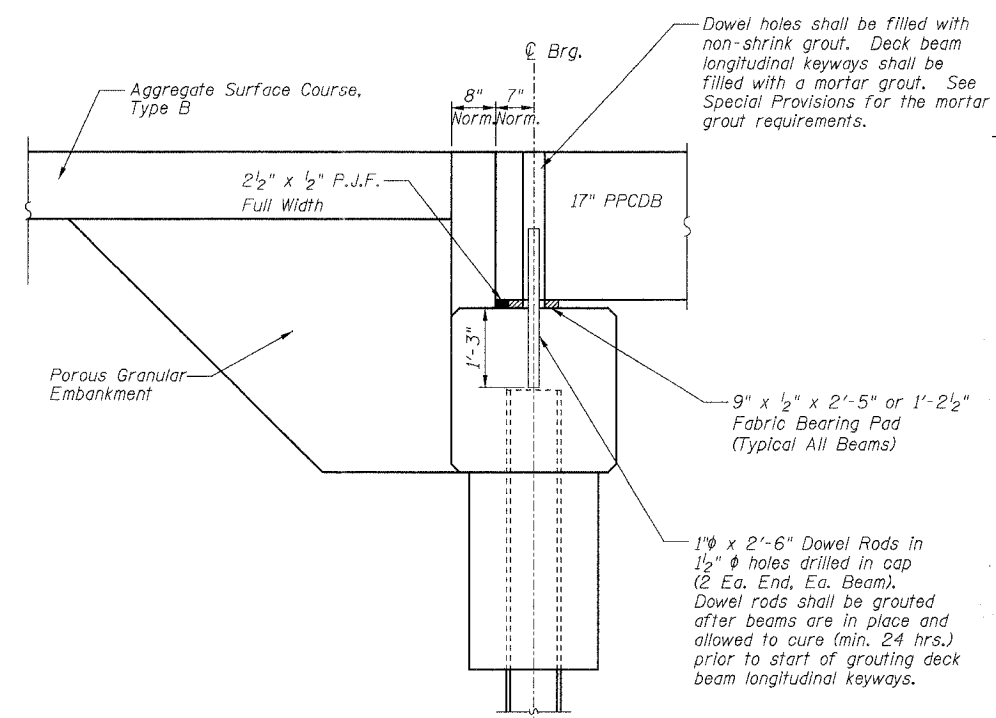
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	05-12115-00-BR	CLAY	9	7
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
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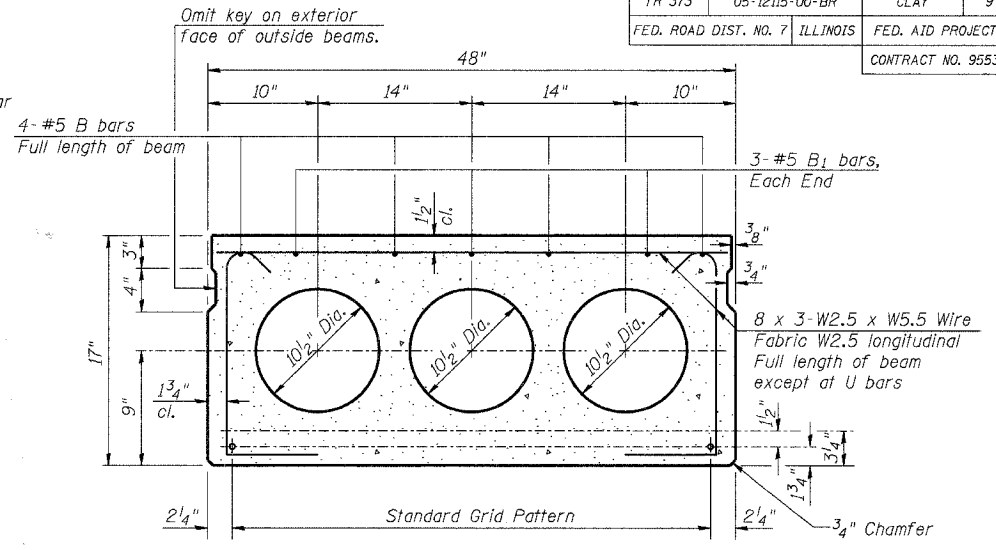
FABRIC BEARING PAD (Interior)
FABRIC BEARING PAD (Exterior)



BAR U



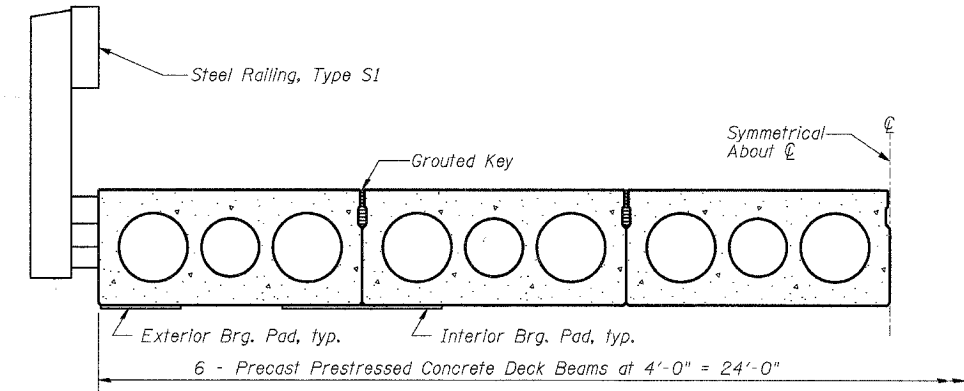
FIXED BEARING ABUTMENT



TYPICAL SECTION

14 - 1/2" ϕ Strands, Each Strand Stressed to 28,900 Lbs.
10 - Strands 1 3/4" up, 4 - Strands 3/4" up

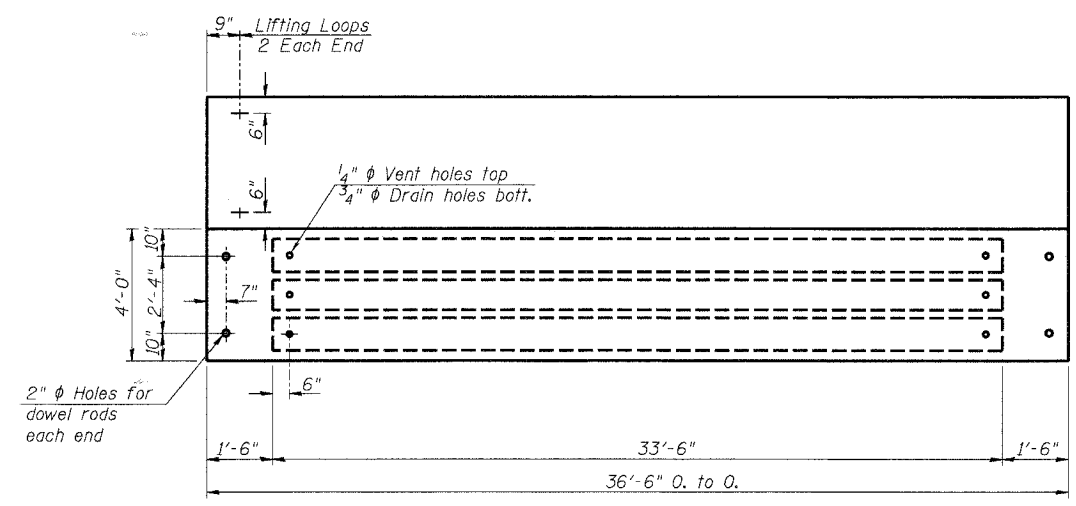
Note: Place strands symmetrically about ϕ of beam.



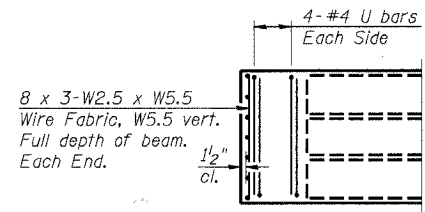
HALF CROSS SECTION

BILL OF MATERIAL FOR ONE BEAM

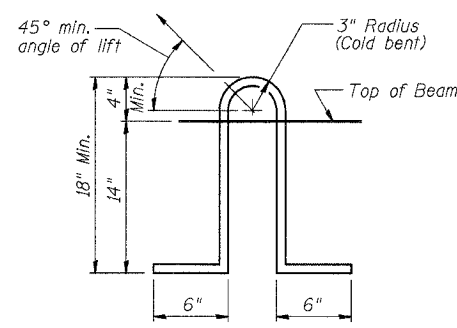
Bar	No.	Size	Length	Shape
B	4	#5	36'-2"	—
B1	6	#5	7'-6"	—
U	16	#4	6'-8"	U
Precast Prestressed Conc. Deck Bms.			Sq. Ft.	146
Reinforcement Bars			Pound	270
Total Weight Each Beam			Pound	21960



PLAN



END PLAN



LIFTING LOOP DETAIL

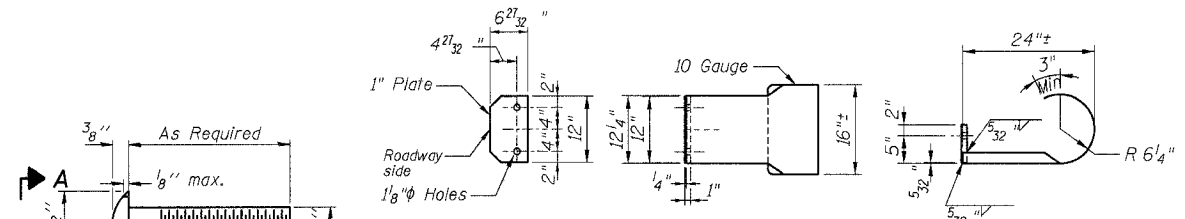
NOTES

- Prestressing steel shall be uncoated high strength, stress-relieved 7-wire strand, Grade 270.
- The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in.
- Lifting loops shall be 3 - 1/2" ϕ - 270 ksi strands, as shown.
- Non prestressing steel shall conform to ASTM A706 (IL MOD), Grade 60.
- The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 1/8" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.
- Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between top of the beam and the bottom edge of the key.
- Required Release Strength, f'ci, shall be 4200 p.s.i.
- An equal substitution of the low-relaxation strands for the stress-relieved strands will be permitted. However, all strands shall be stressed to a maximum of 28,900 pounds per strand.

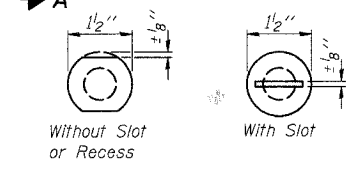
PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
PROPOSED BRIDGE OVER NICKOLSEN CREEK
TR 373
SECTION 05-12115-00-BR
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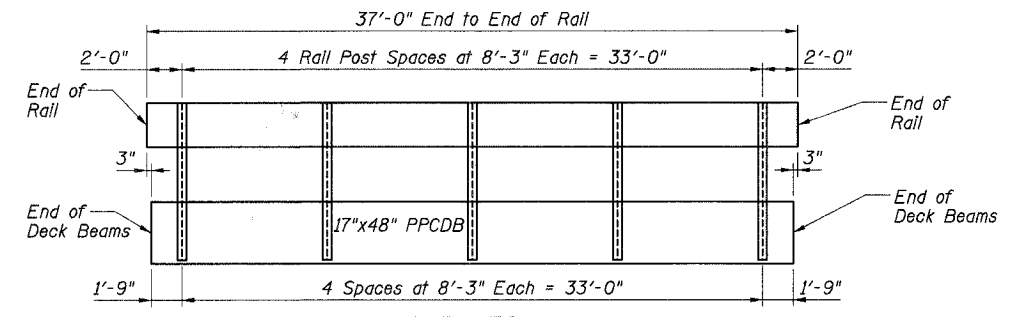
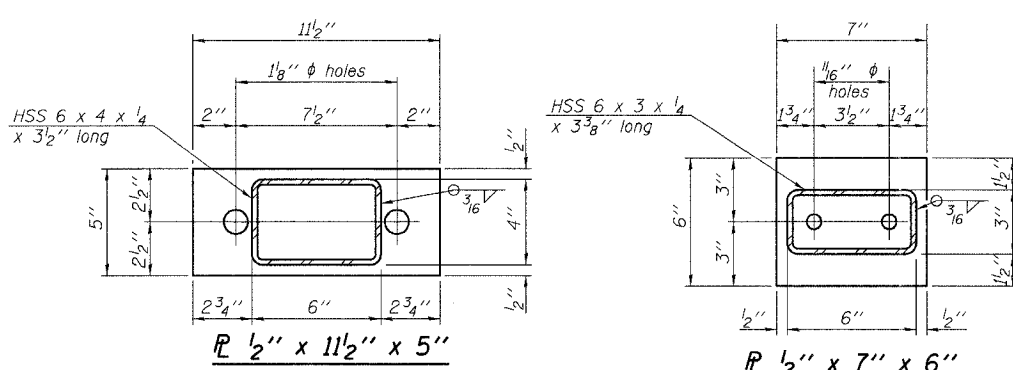
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 95536				



CURLLED END SECTION DETAILS

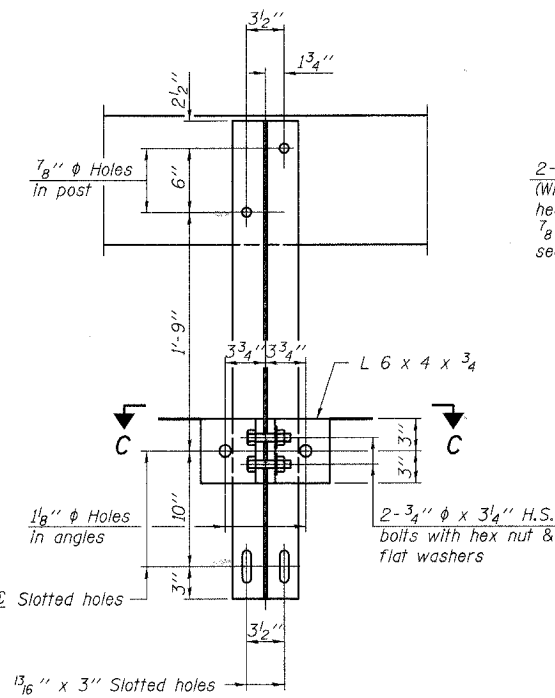


VIEW A-A ROUND HEAD BOLT

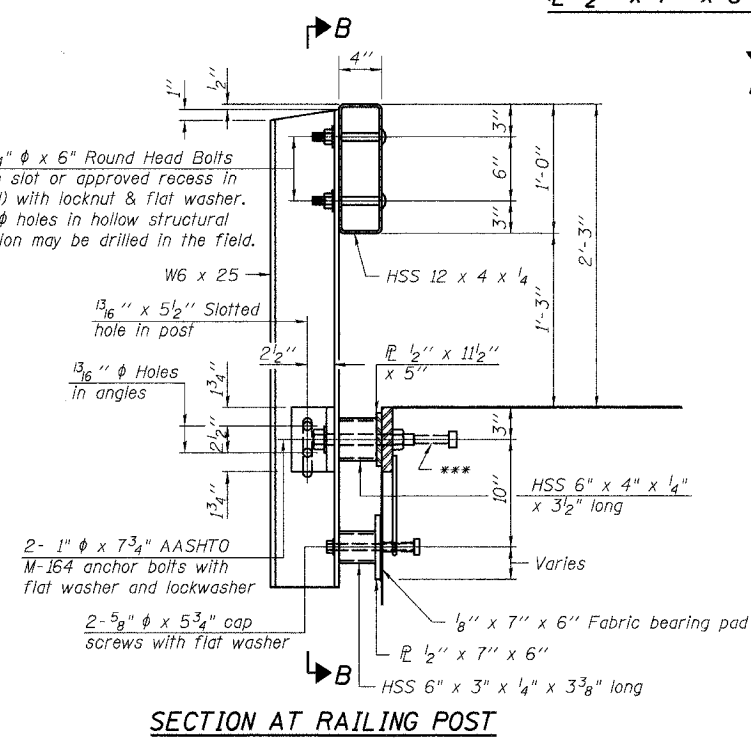


ELEVATION

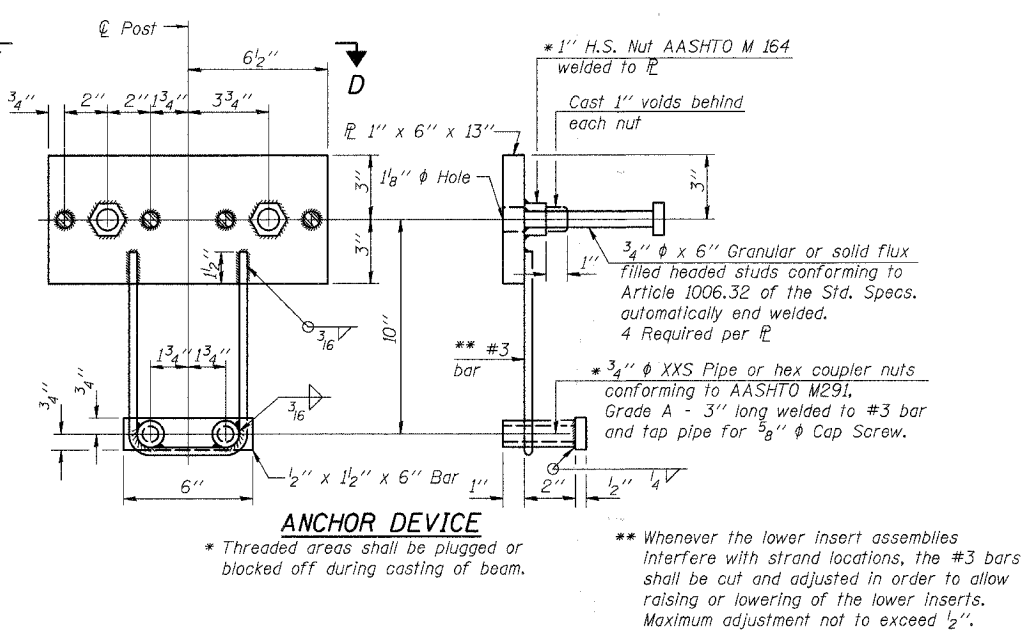
Note: The cost of the Curled End Sections shall be included in the contract unit price per foot for "STEEL RAILING, TYPE S1", and no additional compensation will be allowed.



SECTION B-B

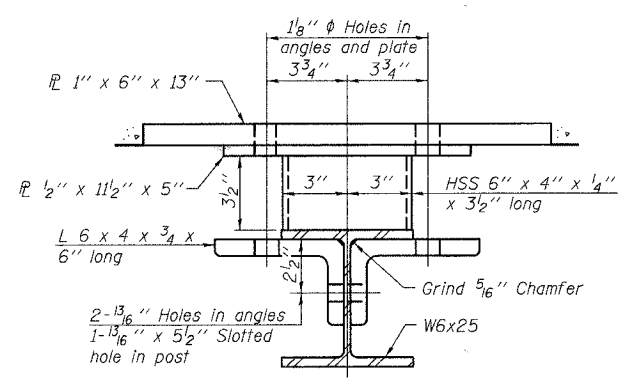


SECTION AT RAILING POST

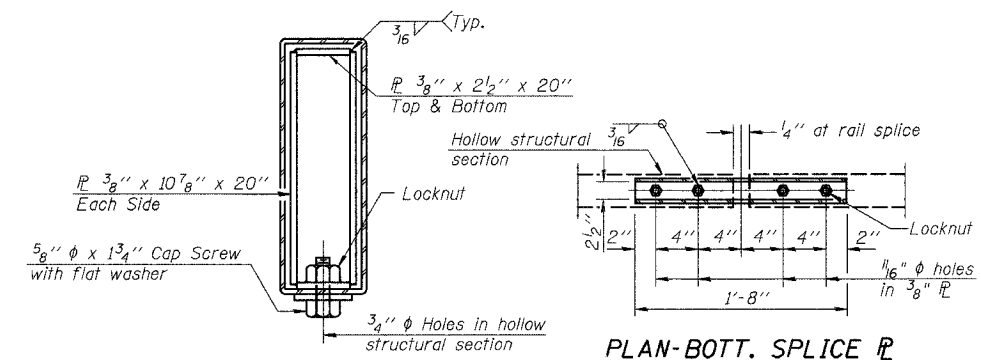


ANCHOR DEVICE

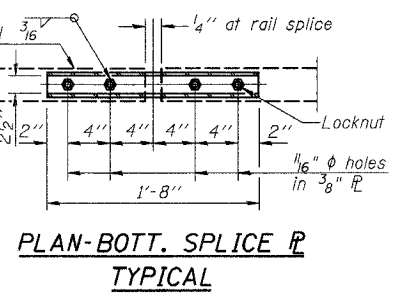
Notes:
 All field drilled holes shall be coated with an approved zinc rich paint before erection.
 For multi-span bridges, sufficient 1/4 inch x 6 inch x 1-2 inch galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S1.
 All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
 *** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



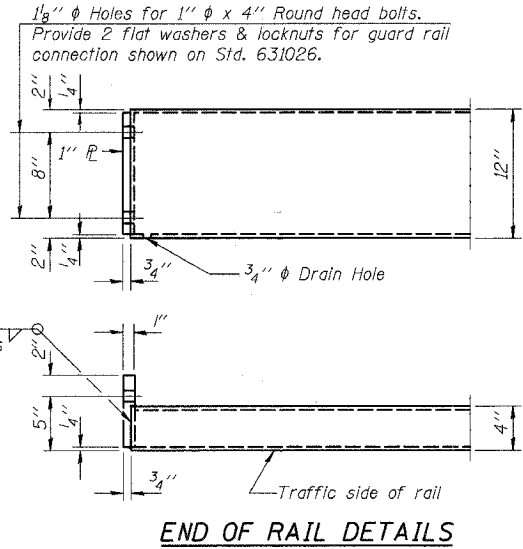
SECTION C-C



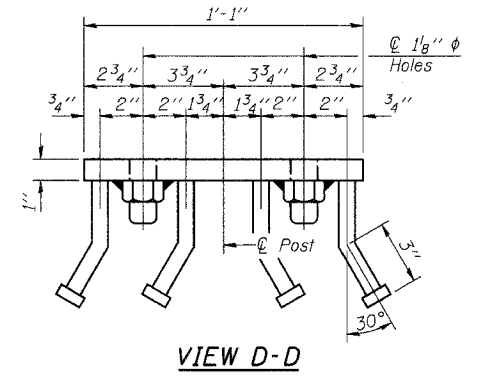
SECTIONS AT RAIL SPLICE



PLAN-BOTT. SPLICE R TYPICAL



END OF RAIL DETAILS



VIEW D-D

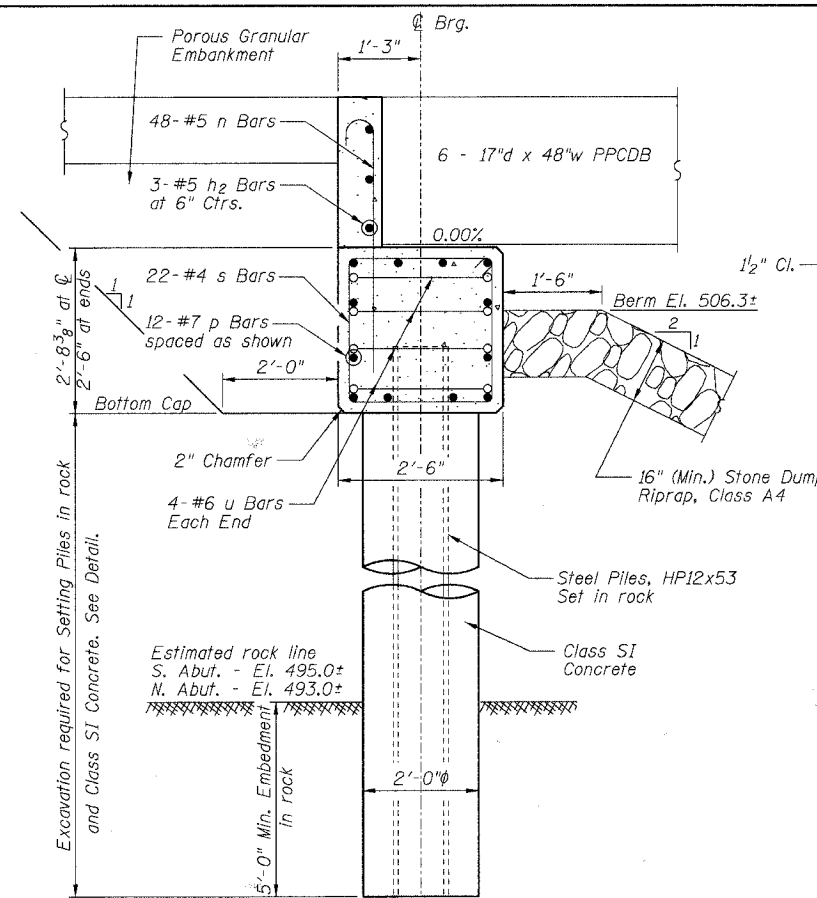
BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S1	Foot	74

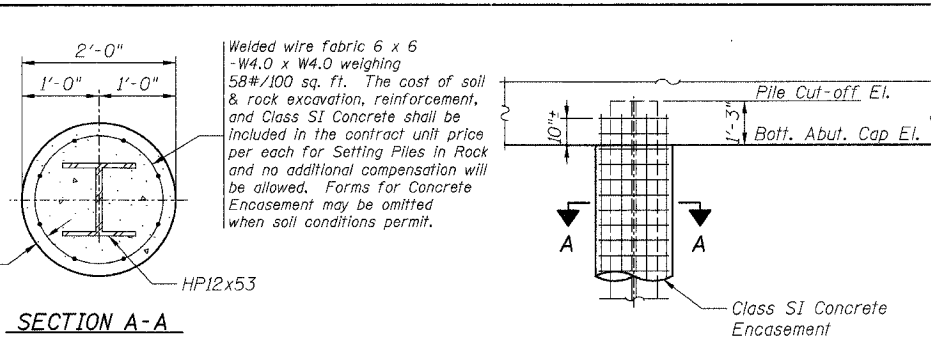
STEEL RAILING, TYPE S1 DETAILS
 PROPOSED BRIDGE OVER
 NICKOLSEN CREEK
 TR 373
 SECTION 05-12115-00-BR
 CLAY COUNTY, ILLINOIS

10/25/2007

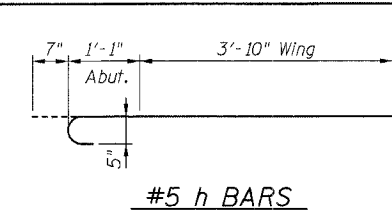
ROUTE	SECTION	COUNTY	TOTAL SHEET NO.
TR 373	05-12115-00-BR	CLAY	9
FED. ROAD DIST. NO. 7	ILLINOIS	FEDERAL AID PROJECT	
			CONTRACT NO. 95536



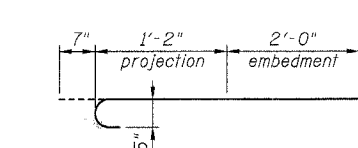
SECTION THRU ABUTMENT



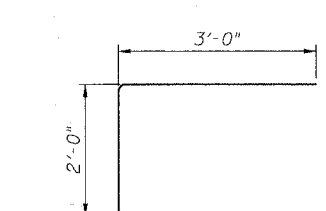
PILE ENCASEMENT DETAIL



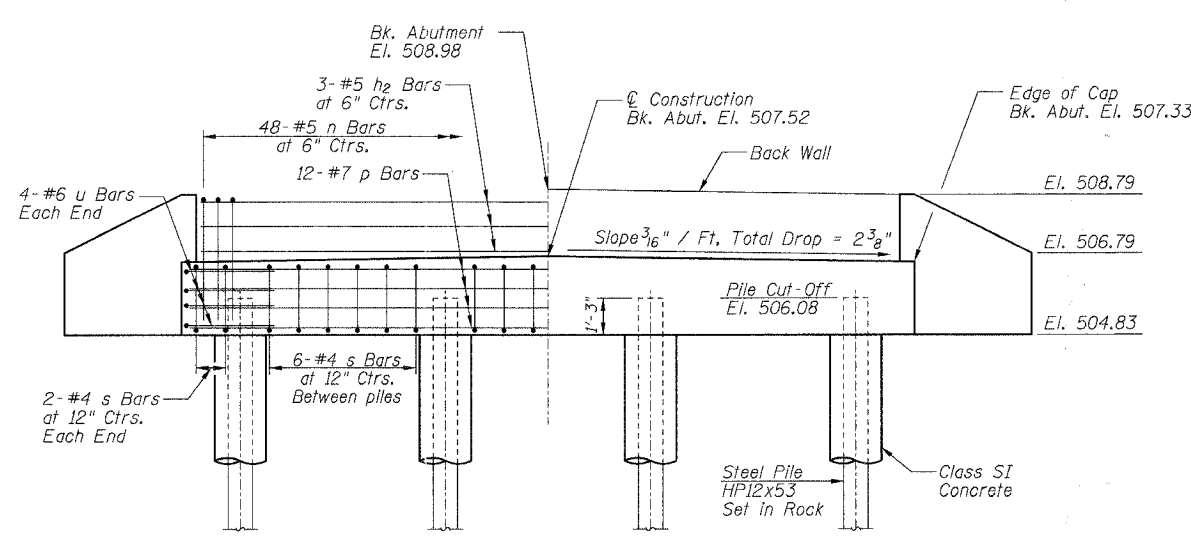
#5 h BARS



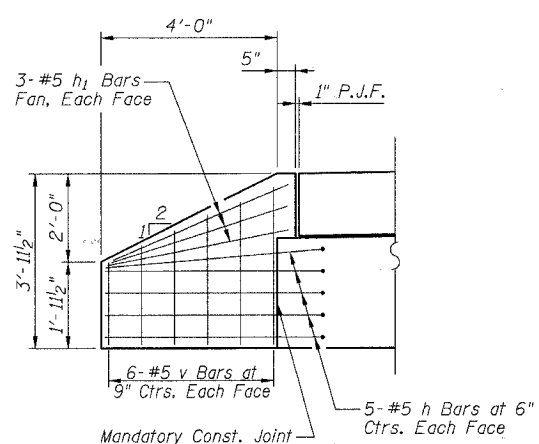
#5 n BARS



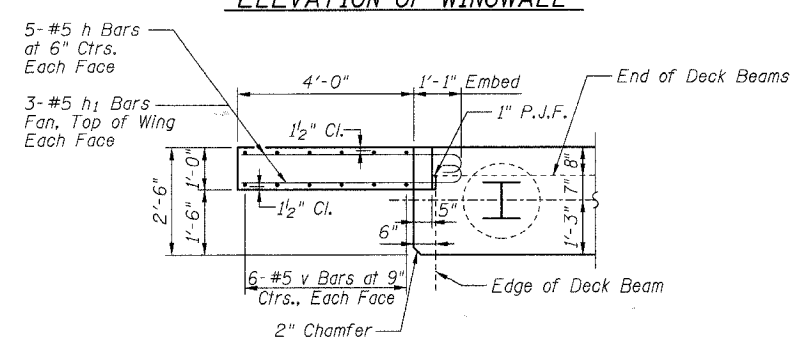
#6 u BARS



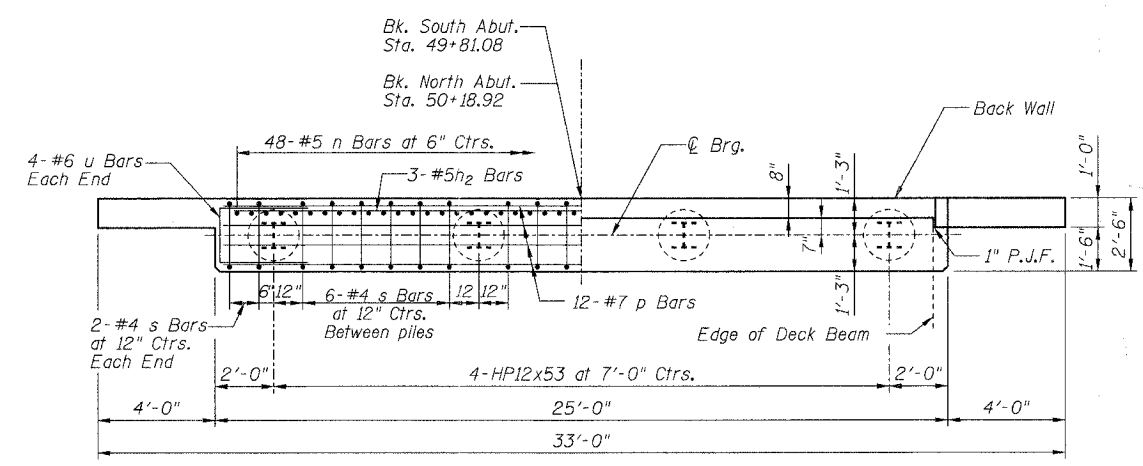
ELEVATION



ELEVATION OF WINGWALL



WINGWALL CONNECTION DETAIL



PLAN

BILL OF MATERIALS
ONE ABUTMENT w/ WINGWALLS

Bar	No.	Size	Length	Shape
h	20	#5	5'-6"	
h1	12	#5	4'-6"	
h2	3	#5	23'-8"	
n	48	#5	3'-9"	
p	12	#7	24'-8"	
s	22	#4	9'-5"	
u	8	#6	8'-0"	
v	24	#5	3'-9"	CUT IN FIELD
Concrete Structures			Cu Yd	7.8
Reinforcement Bars			Pound	1370
Furnishing Steel Piles HP 12x53			Foot	S. Abut. 72 N. Abut. 80
Setting Piles in Rock			Each	4

PILE DATA

Type and Size: Steel HP12x53
 Estimated Length:
 South Abutment: 18 Foot
 North Abutment: 20 Foot
 Number of Production Piles:
 South Abutment: 4 Each
 North Abutment: 4 Each
 Number of Test Piles:
 South Abutment: None
 North Abutment: None

GENERAL NOTES

All exposed edges shall have standard 3/4" chamfer, unless otherwise noted.
 All clearances between rebar and form surface shall be 2", unless otherwise noted.
 Space reinforcement in cap to miss PPCDB dowel rods.
 The Steel H-piles shall be according to AASHTO M270 Grade 50.
 In addition to all other requirements of Section 512 of the Standard Specifications, splices for Steel H-piles shall develop the full capacity of the steel's cross sectional area of the pile for tension, shear and bending forces. One approved method of achieving this requirement is full penetration butt welding of the entire cross section. Other types of splices meeting the full capacity requirement may be allowed subject to the approval of the Engineer. Any proposal by the Contractor to use an alternate splice method must include adequate documentation demonstrating that the full tension, shear and bending capacities will be met. Appropriate welder qualifications will be required for the positions and processes used in splicing all piles. Nondestructive testing of completed welds will be limited to visual inspection.

ABUTMENT DETAILS
PROPOSED BRIDGE OVER
NICKOLSEN CREEK
TR 373
SECTION 05-12115-00-BR
CLAY COUNTY, ILLINOIS

10/25/2007