

4-8-94

77

Winnebago

I&R copy

17R-1 BR-1 & 18R-3

#77

98%
10-25-95

INDEX OF SHEETS
SEE SHEET 2

STANDARDS
SEE SHEET 2

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 PLANS FOR PROPOSED
 FEDERAL AID HIGHWAY
 F.A. ROUTE 301 (U.S. ROUTE 20)
 SECTION 17R-1 BR-1 & 18R-3
 PROJECT NO. NHF-BRF-BHF-301(4)
 STEPHENSON AND
 WINNEBAGO COUNTIES

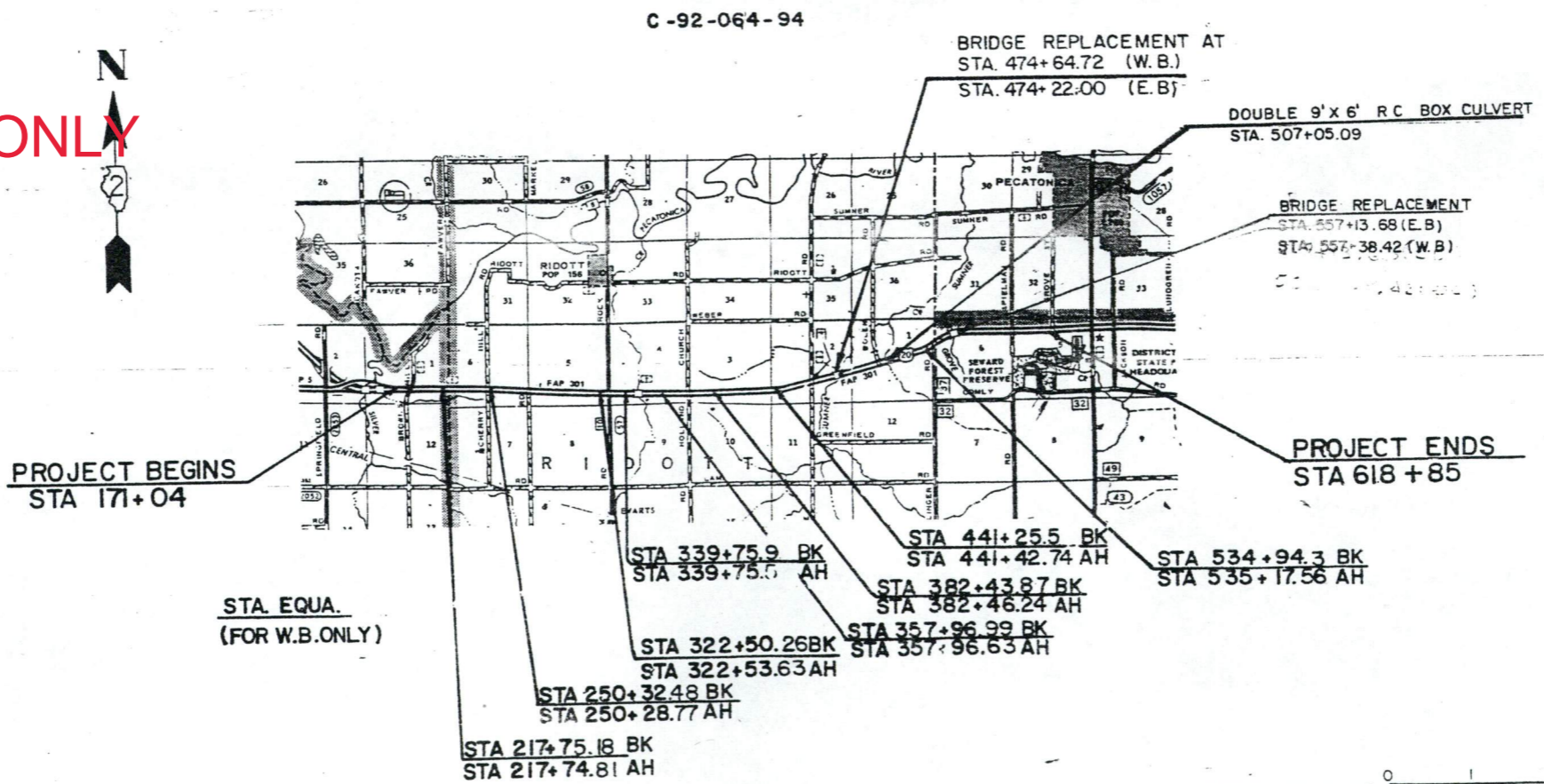
* 17R-1 BR-1 & 18R-3

TYPE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA 301	*	*	449	1

* STEPHENSON/WINNEBAGO
 D-92-062-88 NHF-BRF-BHF-301(4)



FOR INFORMATION ONLY



STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

SUBMITTED: December 22, 1993
 DISTRICT ENGINEER: *[Signature]*

EXAMINED: _____
 ENGINEER OF PLANS AND CONTRACTS

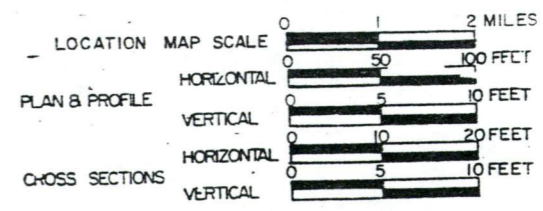
PASSED: MARCH 11, 1994
 ENGINEER OF HIGHWAYS: *[Signature]*

APPROVED: MARCH 11, 1994
 DIRECTOR, DIVISION OF HIGHWAYS: *[Signature]*

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____
 DIVISION ADMINISTRATOR DATE

DISTRICT 2
 DIXON, IL.



NET LENGTH OF PROJECT	= 4.4781	FEET = 848	MILES
GROSS LENGTH OF PROJECT	= 4.4781	FEET = 848	MILES
OMISSION LENGTH OF PROJECT	= 0	FEET = 0	MILES

"CALL J.U.L.I.E.
 BEFORE YOU DIG"
 800-892-0123
 TWP. SILVER CREEK/RIDOTT/SEWARD
 SEC. 1/1,2,3,4,5,6/5,6

089-0074

089-0074

CONTRACT No. 84659

2-195

Bench Mark: 148' Lt. Sta. 569+95. Elev. 785.64

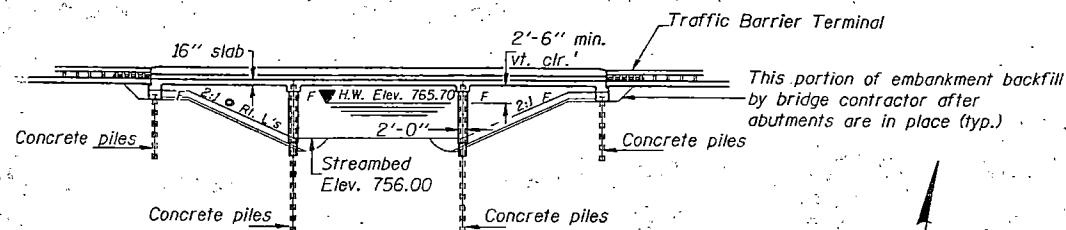
Existing Structure: #089-0015 W.B. is a single span 43'-0" Bk. to Bk. Abutments with 24'-0" O. to O. R.C. slab bridge on closed abutments. Built as S.B.I. 5, Section 18B at Station 598+50 in 1920. In 1970, the existing abutments were widened and a superstructure 33'-0" wide was constructed of precast prestressed concrete deck beams. The contractor shall remove the existing structure as required and replace it with a three span R.C. deck bridge on pile bent piers and integral abutments. Traffic to be detoured to the East bound lanes during construction. No salvage

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

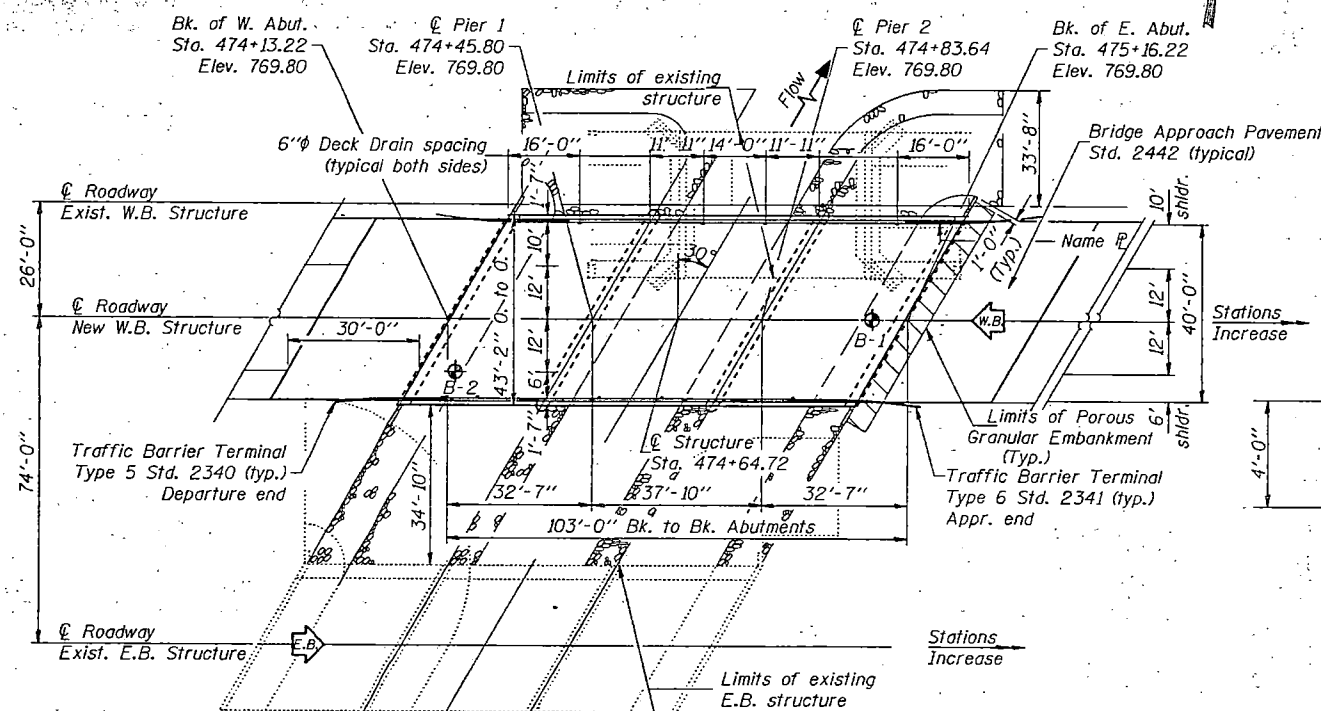
ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET NO.
F.A. 301	18R-3	STEPHENSON	136	8 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

GENERAL NOTES

Reinforcement bars shall conform to the requirements of AASHTO M-31, M-42 or M-53 Grade 60.
The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.
Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
The Contractor shall make allowance for the deflection of forms, shrinkage and settlement of falsework, in addition to allowance for dead load deflection.
The contractor shall drive two (2) Concrete test piles in a permanent location (1 at Pier 1 & 1 at E. Abut.) as directed by the Engineer before ordering the remainder of piles.
The backfill around the pier bents shall be placed after the superstructure is in place.



ELEVATION



PLAN

STATION 474+64.72
BUILT 19 BY
STATE OF ILLINOIS
F.A. RTE. 301-SEC. 18R-3
STEPHENSON COUNTY
LOADING HS20
STR. NO. 089-0074

NAME PLATE
(See Std. 2113)

*PROJECT NHF-BRF-BAF-301(A)

LOADING HS20-44
Allow 25#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS
1992 AASHTO

DESIGN STRESSES

FIELD UNITS
 $f'_c = 3,500$ psi
 $f_y = 60,000$ psi (reinforcement)

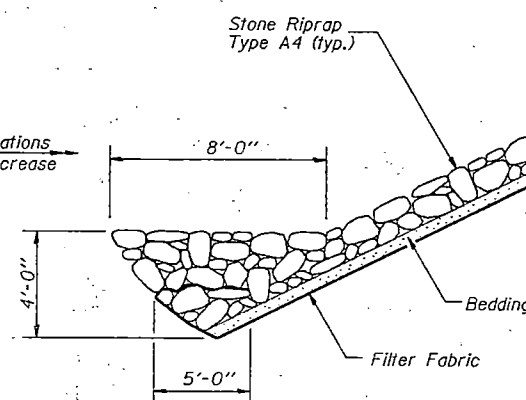
SEISMIC DATA
S.P.C. = A
A = 0.032g
S = 1.2

WATERWAY INFORMATION

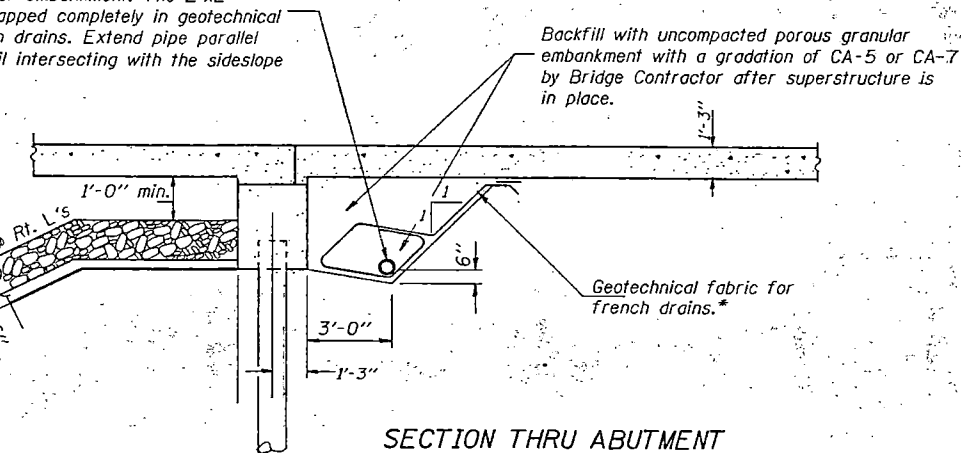
Drainage Area = 16.89 sq. mi. Low Grade Elev. 166.21 Exist. 789.5 Prop. Sta. 474+00.00

Flood	Freq. Yr.	C.F.S.	Opening Sq. Ft.		Natural H.W.E.		Head - Ft.		Headwater El.	
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
Design	50	2592	363	470	765.70		1.96	0.58	767.66	766.28
Base	100	2949	387	496	766.07		1.78	0.75	767.85	766.82
Overtopping										
Max. Calc.	500	3784	452	562	766.87		1.73	1.22	768.60	768.09

A 6" perforated drain pipe shall be situated at the bottom of an approximate 2'x2' area of porous granular embankment. The 2'x2' area shall be wrapped completely in geotechnical fabric for french drains. Extend pipe parallel with the cap until intersecting with the sideslope and riprap.



STONE RIPRAP DETAIL



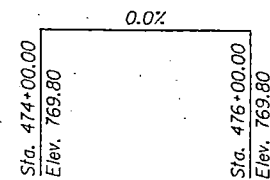
SECTION THRU ABUTMENT

*-Cost incidental to "Porous Granular Embankment"

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Structures	Each	1		1
Structure Excavation	Cu. Yd.		118.0	118.0
Class X Concrete Superstructure	Cu. Yd.	250.0		250.0
Protective Coat	Sq. Yd.	83.1		83.1
Class X Concrete	Cu. Yd.		130.4	130.4
Reinforcement Bars, Epoxy Coated	Lbs.	47,240	12,640	59,880
Concrete Piles	Lin. Ft.		1450	1450
Test Pile Concrete	Each		2	2
Name Plates	Each	1		1
Stone Riprap Class A4	Sq. Yd.		1098	1098
Filter Fabric for use with Riprap	Sq. Yd.		1215	1215
Bridge Deck Grooving	Sq. Yd.	430		430
Porous Granular Embankment	Cu. Yd.		109	109
Floor Drains	Each	8		8

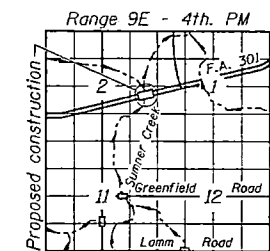
* Quantity is for top & inside surfaces of parapets.



PROFILE GRADE
(along centerline)

DESIGNED	<i>John P. Vetter</i>
CHECKED	<i>John P. Vetter</i>
DRAWN	<i>John P. Vetter</i>
CHECKED	<i>John P. Vetter</i>

December 3, 1993
EXAMINED *Raj S. Kapoor*
PASSED *Ralph C. Anderson*



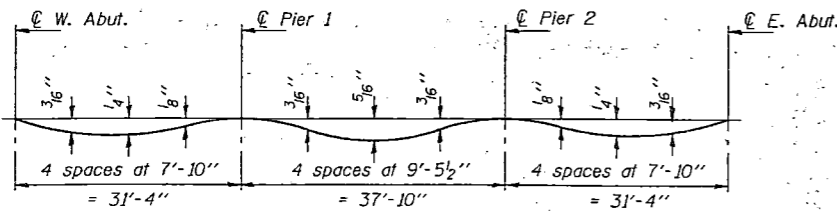
LOCATION SKETCH

GENERAL PLAN
U.S. ROUTE 20 OVER
SUMNER CREEK
F.A. ROUTE 301 - SECTION 18R-3
STEPHENSON COUNTY
STATION 474+64.72
STRUCTURE NO. 089-0074 (WB)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	DATE	SHEET NO.
301	18R-3	STEPHENSON		737
FED. AID PROJ. NO.		STATE AID PROJ. NO.		

SHEET NO. 2
8 SHEETS



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only)

Note: The above 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 below.

FACE SOUTH PARAPET

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
W. ABUT.	47404.078	18.000	769.488	769.488
A	47414.078	18.000	769.488	769.506
B	47424.078	18.000	769.488	769.503
PIER 1	47435.411	18.000	769.488	769.488
C	47445.411	18.000	769.488	769.502
D	47455.411	18.000	769.488	769.511
E	47465.411	18.000	769.488	769.499
PIER 2	47473.244	18.000	769.488	769.488
F	47483.244	18.000	769.488	769.501
G	47493.244	18.000	769.488	769.507
E. ABUT.	47504.578	18.000	769.488	769.488

SOUTH EDGE OF RDWY.

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
W. ABUT.	47407.542	12.000	769.612	769.612
A	47417.542	12.000	769.612	769.631
B	47427.542	12.000	769.612	769.628
PIER 1	47438.875	12.000	769.612	769.612
C	47448.875	12.000	769.612	769.627
D	47458.875	12.000	769.612	769.635
E	47468.875	12.000	769.612	769.624
PIER 2	47476.708	12.000	769.612	769.612
F	47486.708	12.000	769.612	769.626
G	47496.708	12.000	769.612	769.632
E. ABUT.	47508.042	12.000	769.612	769.612

W.B. LANES & P.G.

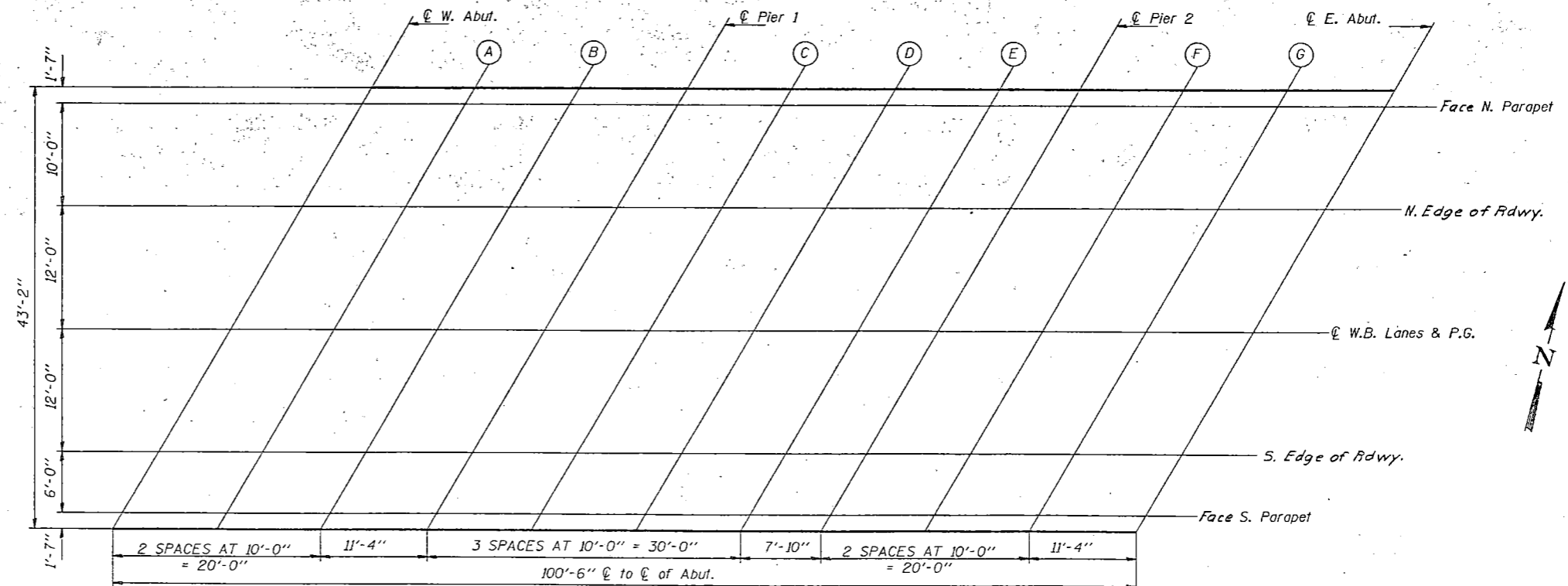
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
W. ABUT.	47414.470	0.000	769.800	769.800
A	47424.470	0.000	769.800	769.819
B	47434.470	0.000	769.800	769.815
PIER 1	47445.803	0.000	769.800	769.800
C	47455.803	0.000	769.800	769.814
D	47465.803	0.000	769.800	769.823
E	47475.803	0.000	769.800	769.811
PIER 2	47483.637	0.000	769.800	769.800
F	47493.637	0.000	769.800	769.813
G	47503.637	0.000	769.800	769.819
E. ABUT.	47514.970	0.000	769.800	769.800

NORTH EDGE OF RDWY.

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
W. ABUT.	47421.398	-12.000	769.612	769.612
A	47431.398	-12.000	769.612	769.631
B	47441.398	-12.000	769.612	769.628
PIER 1	47452.732	-12.000	769.612	769.612
C	47462.732	-12.000	769.612	769.627
D	47472.732	-12.000	769.612	769.635
E	47482.732	-12.000	769.612	769.624
PIER 2	47490.565	-12.000	769.612	769.612
F	47500.565	-12.000	769.612	769.626
G	47510.565	-12.000	769.612	769.632
E. ABUT.	47521.898	-12.000	769.612	769.612

FACE NORTH PARAPET

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
W. ABUT.	47427.172	-22.000	769.404	769.404
A	47437.172	-22.000	769.404	769.423
B	47447.172	-22.000	769.404	769.420
PIER 1	47458.505	-22.000	769.404	769.404
C	47468.505	-22.000	769.404	769.419
D	47478.505	-22.000	769.404	769.427
E	47488.505	-22.000	769.404	769.416
PIER 2	47496.338	-22.000	769.404	769.404
F	47506.338	-22.000	769.404	769.418
G	47516.338	-22.000	769.404	769.424
E. ABUT.	47527.672	-22.000	769.404	769.404



PLAN

DESIGNED *Ralph E. Anderson*
 EXAMINED *Gregory J. Kasper*
 CHECKED *Shane Summer*
 DRAWN *Shane Summer*
 CHECKED *JPV*
 December 3, 1993
 ENGINEER OF BRIDGE DESIGN
 ENGINEER OF BRIDGES AND STRUCTURES
 E-S 6-1-82

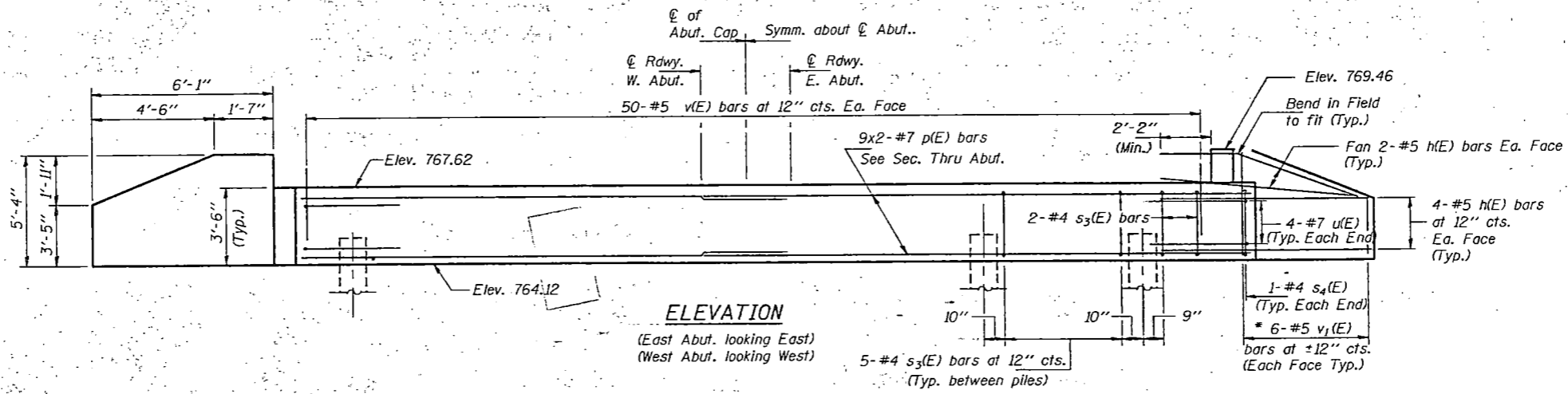
TOP OF SLAB ELEVATIONS
F.A. ROUTE 301 - SECTION 18R-3
STEPHENSON COUNTY
STATION 474+64.72

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

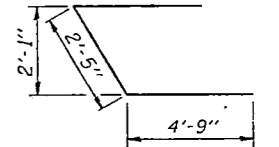
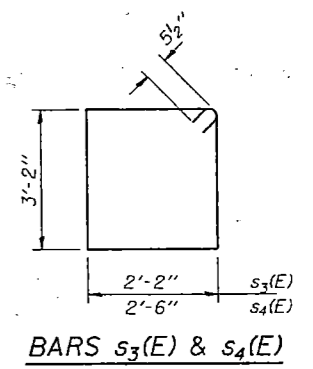
ROUTE NO.	SECTION	COUNTY	DATE	SHEET	SHEET NO. 5 8 SHEETS
F.A. 301	18R-3	STEPHENSON		140	
FED. ROAD DIST. NO. 7	RD. PROJ.	FED. AID PROJECT			

PILE DATA

Type: Concrete
Capacity: 30 Ton Design Capacity
driven to 45 Ton Bearing
Est. Length: 36 Ft. West Abut.
43 Ft. East Abut.
No. Req'd: 9 (West Abut.)
8+1 Test Pile
(East Abut.)



ELEVATION
(East Abut. looking East)
(West Abut. looking West)



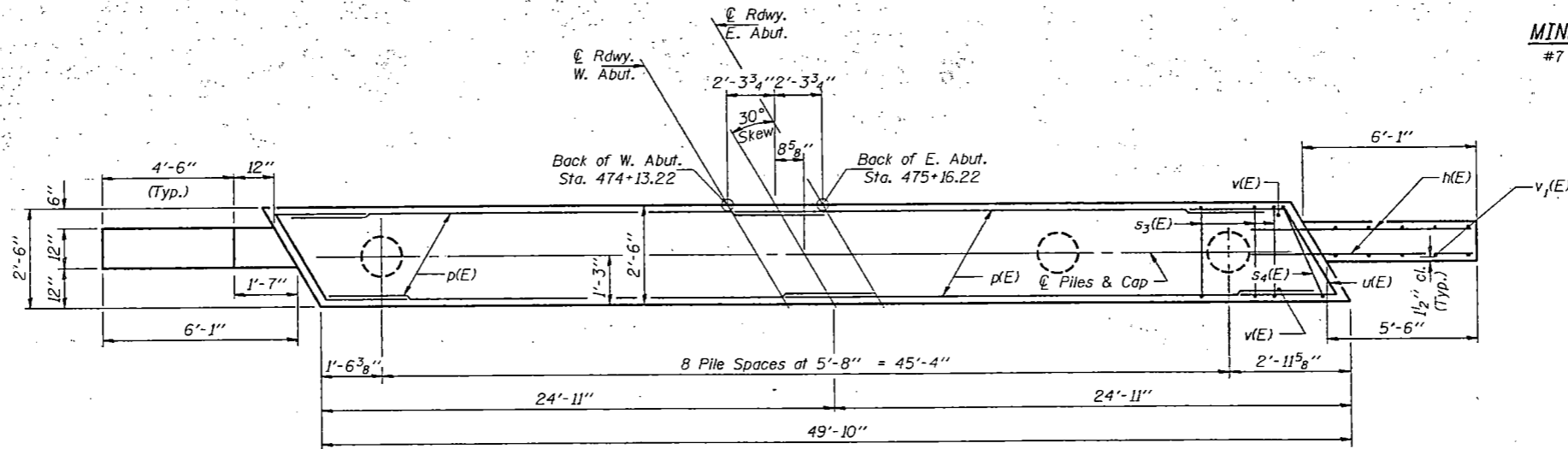
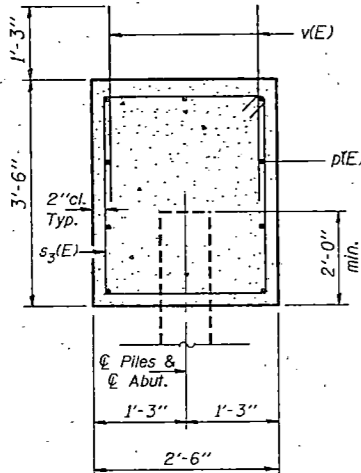
MIN. BAR LAPS
#7 Bars = 3'-10"

**TWO ABUTMENTS
BILL OF MATERIAL**

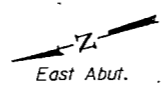
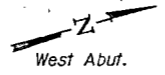
Bar	No.	Size	Length	Shape
h(E)	48	#5	8'-3"	—
p(E)	36	#7	26'-8"	—
s ₃ (E)	88	#4	11'-7"	□
s ₄ (E)	4	#4	12'-3"	□
u(E)	16	#7	11'-11"	—
v(E)	200	#5	2'-9"	—
v ₁ (E)	24	#5	8'-3"	—
Class X Concrete		Cu. Yd.	36.2	
Reinforcement Bars, Epoxy Coated		Lbs.	4260	
Concrete Piles		Lin. Ft.	668	
Test Pile Concrete		Each	1	
Structure Excavation		Cu. Yd.	90.6	

Reinforcement bars designated (E) shall be Epoxy Coated.
Bars indicated thus 28x2-#8 etc. indicates 28 lines of bars with 2 lengths per line.

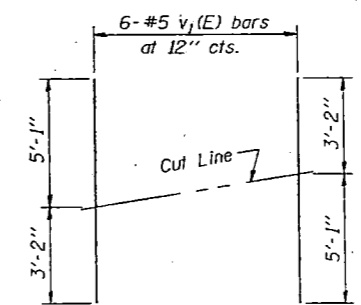
ABUTMENTS
F.A. RTE. 301 SEC. 18R-3
STEPHENSON COUNTY
STA. 474+64.72



PLAN



Note:
All edges shall have 3/4" Chamfer except as noted.

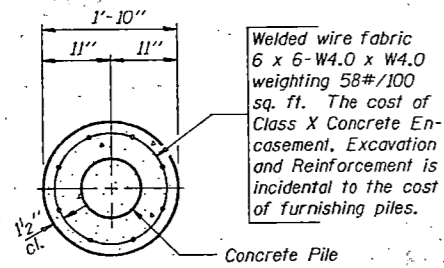


DESIGNED	<i>John P. Vetter</i>	EXAMINED	<i>Greg J. Kaspar</i>
CHECKED	<i>R. J. S. C.</i>	PASSED	<i>Ralph E. Anderson</i>
DRAWN	Shane Summer		
CHECKED	<i>SSV</i>		

December 3, 1993

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	POST MILE	SHEET NO.
F.A. 301	18R-3	STEPHENSON	14.1	8 SHEETS
FED. ROAD DIST. NO.	ALL PAGES	FED. AID PROJECT		



SECTION B-B

PILE ENCASEMENT DETAIL

Notes: Forms shall be placed below Elev. 754.87 after excavation for Pier walls. Reinforcement and Class X Concrete Encasement shall be placed underwater into Forms. The cost of Class X Concrete Encasement, reinforcement, Forms excavation, and furnishing and placing Forms is incidental to furnishing piles. If a portion of the pier wall is underwater, Class X Concrete shall be tremied underwater into forms in accordance with Art. 504.12(a) of the Standard Specifications. Concrete shall be tremied to an elevation 12" above the water level at the time of construction.

MIN. BAR LAPS

#5 Bars = 2'-5"
#7 Bars = 3'-10"

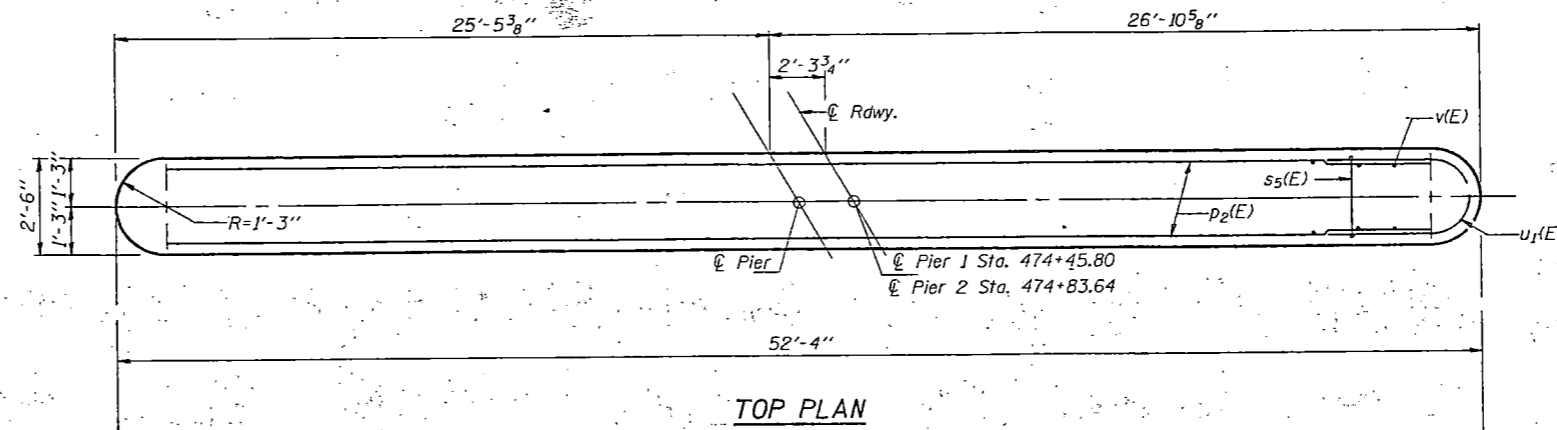
Note:
All edges shall have 3/4" Chamfer except as noted.

PILE DATA

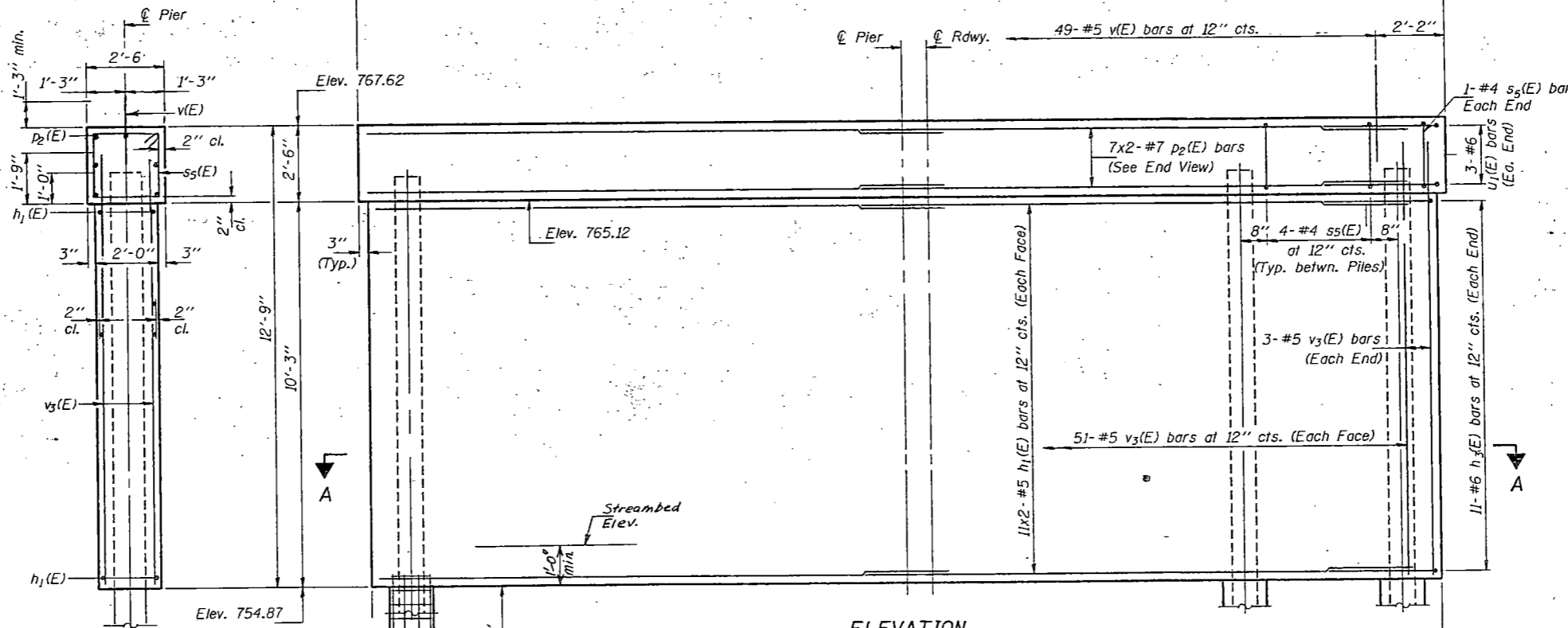
Type: Concrete
Capacity: 35 Ton
Est. Length: 34 Ft. Pier 1 & 2
No. Req'd: 12 (Pier #2)
11 + 1 Test Pile (Pier #1)

DESIGNED	December 3, 1993
CHECKED	EXAMINED
DRAWN	PASSED
CHECKED	

December 3, 1993
EXAMINED: *Rafael E. Anderson*
ENGINEER OF BRIDGES AND STRUCTURES
PASSED: *Rafael E. Anderson*
ENGINEER OF BRIDGES AND STRUCTURES

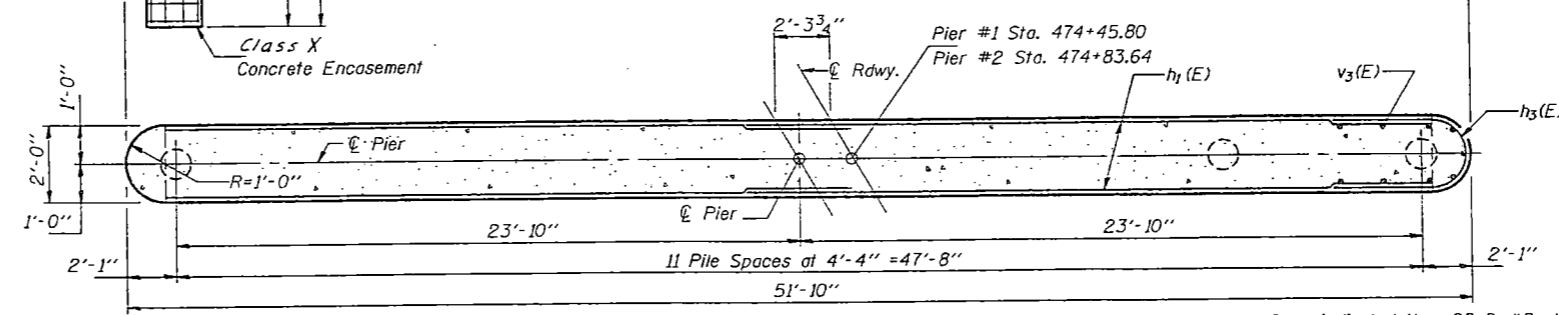


TOP PLAN

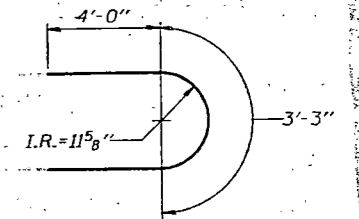


ELEVATION
(Looking East)

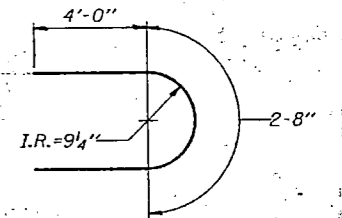
END VIEW



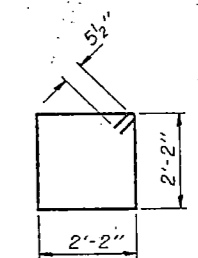
SECTION A-A



BAR u₁(E)



BAR h₃(E)



BAR s₅(E)

**TWO PIERS
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h ₁ (E)	88	#5	26'-2"	—
h ₃ (E)	44	#6	10'-8"	⌋
p ₂ (E)	28	#7	26'-10"	—
s ₅ (E)	92	#4	9'-7"	□
u ₁ (E)	12	#6	11'-3"	⌋
v(E)	98	#5	2'-9"	—
v ₃ (E)	216	#5	11'-10"	—
Structure Excavation			Cu. Yds.	27.4
Class X Concrete			Cu. Yds.	94.2
Reinforcement Bars (Epoxy Coated)			Lbs.	8,380
Concrete Piles			Lin. Ft.	782
Test Pile Concrete			Each	1

Reinforcement bars designated (E) shall be epoxy coated.

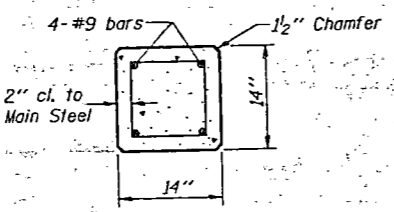
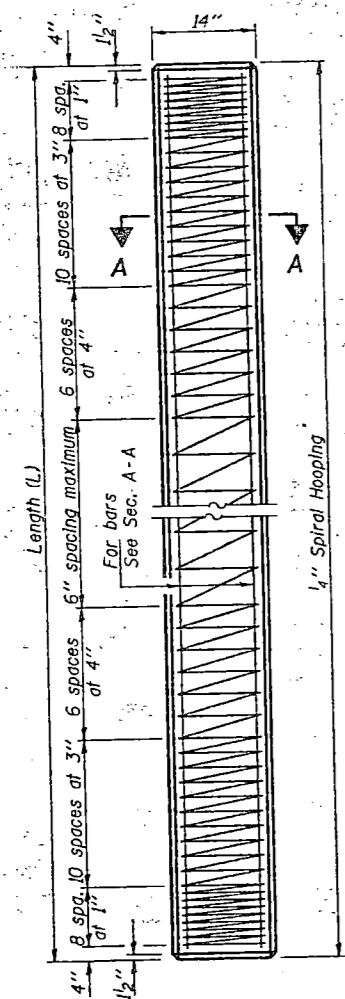
PIERS
F.A. RTE. 301 SEC. 18R-3
STEPHENSON COUNTY
STA. 474+64.72

Bars indicated thus 28x2-#8 etc. indicates 28 lines of bars with 2 lengths per line.

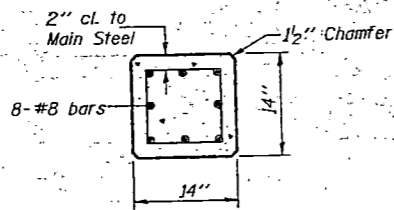
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	NO. SHEETS	SHEET NO.
F.A. 301	18R-3	STEPHENSON	1	142
FED. ROAD DIST. NO. 7		BLDG. NO.	FED. AID PROJECT	

SHEET NO. 7
8 SHEETS



**SECTION A-A
FOR PILES UNDER
45' LONG**

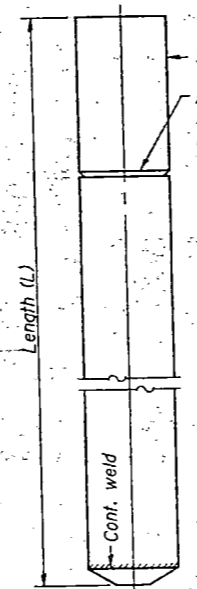


**SECTION A-A
FOR PILES 45'
OR MORE**

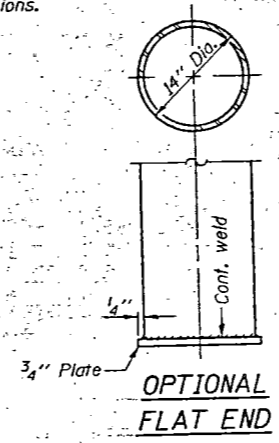
Handling: For Pile lengths up to 45' use two slings placed at a distance of 0.21L from each end. For Piles longer than 45', use three slings placed at a distance of 0.12L from each end and at mid point of pile.

**DETAIL OF PRECAST
CONCRETE PILES**

Notes: Driving and bearing ends of pipe shall be cut square. The thickness of the shell shall be 0.250 inches with a tolerance of 5%. The shell shall be in accordance with Article 710.05(a) of the Standard Specifications.

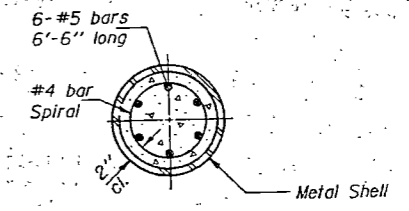
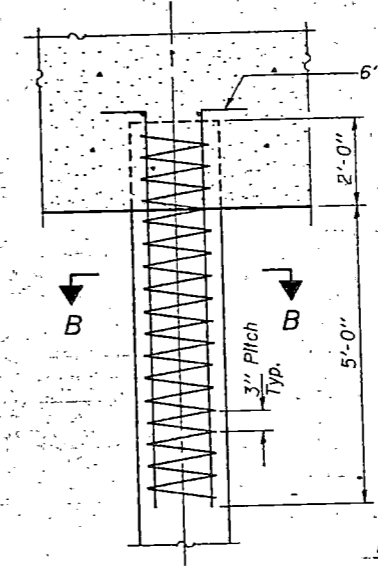


**DETAIL OF CYLINDRICAL
STEEL SHELL FOR CAST IN
PLACE CONCRETE PILES**



**OPTIONAL
FLAT END**

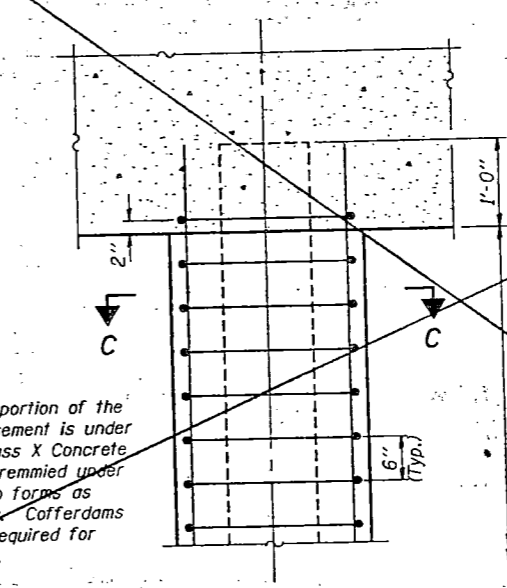
** Any detail other than the one shown here shall be submitted for the Engineer's Approval.



SECTION B-B

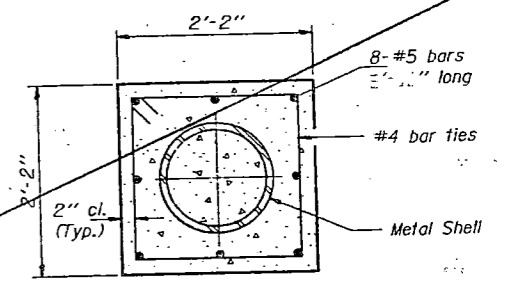
The cost of Reinforcement is incidental to the cost of furnishing piles.

**DETAIL OF REINFORCEMENT FOR
METAL SHELLS AT ABUTMENTS**



**DETAIL OF PROTECTION
FOR METAL SHELLS AT PIERS**

* If a portion of the pile encasement is under water, Class X Concrete shall be tremied under water into forms as necessary. Cofferdams are not required for this work.



SECTION C-C

The cost of Reinforcement, Class X Concrete, and excavation for forms is incidental to Class X Concrete Encasement.

DESIGNED	<i>Jerry P. Vetter</i>
CHECKED	<i>R.H. D.C.</i>
DRAWN	SHANE SUMNER
CHECKED	<i>J.P.V. P.C.</i>

EXAMINED	<i>Raj D. Kaspar</i> ENGINEER OF BRIDGE DESIGN
PASSED	<i>Ralph E. Anderson</i> ENGINEER OF BRIDGES AND STRUCTURES

X-PB 2-26-93

CONCRETE PILE DETAILS
F.A. RTE. 301 SEC. 18R-3
STEPHENSON COUNTY
STA. 474+64.72

