

CONVENTIONAL SIGNS

CITY LIMITS	-----
STATE OR COUNTY LINES	-----
SECTION LINES	-----
FENCE LINES	-----
RIGHT OF WAY LINES	-----
GUARD RAIL	-----
TRAVELED WAY	-----
BASE OR SURVEY LINE	-----
RAILROADS	-----
PRESENT TILE DRAINS	-----
PROPOSED TILE DRAINS	-----
PIPE LINE	-----
CULVERTS	-----
TELEPHONE, TELEGRAPH OR TRANSMISSION LINES	-----
PRIMARY ROAD NUMBERS	-----
U.S. ROAD NUMBERS	-----
INTERSTATE ROAD NUMBERS	-----

STATE OF IOWA
STATE HIGHWAY COMMISSION

BRIDGES
ON THE
SECONDARY ROAD SYSTEM
CRAWFORD (SAC) COUNTIES
PROJECT NO. L71-21 ONLY

CRAWFORD COUNTY
PROJECT NO. L71-22

THE IOWA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS
FOR CONSTRUCTION WORK, SERIES OF 1964 SHALL
APPLY TO WORK ON THIS PROJECT, PLUS
CURRENT SUPPLEMENTAL SPECIFICATIONS
AND SPECIAL PROVISIONS.

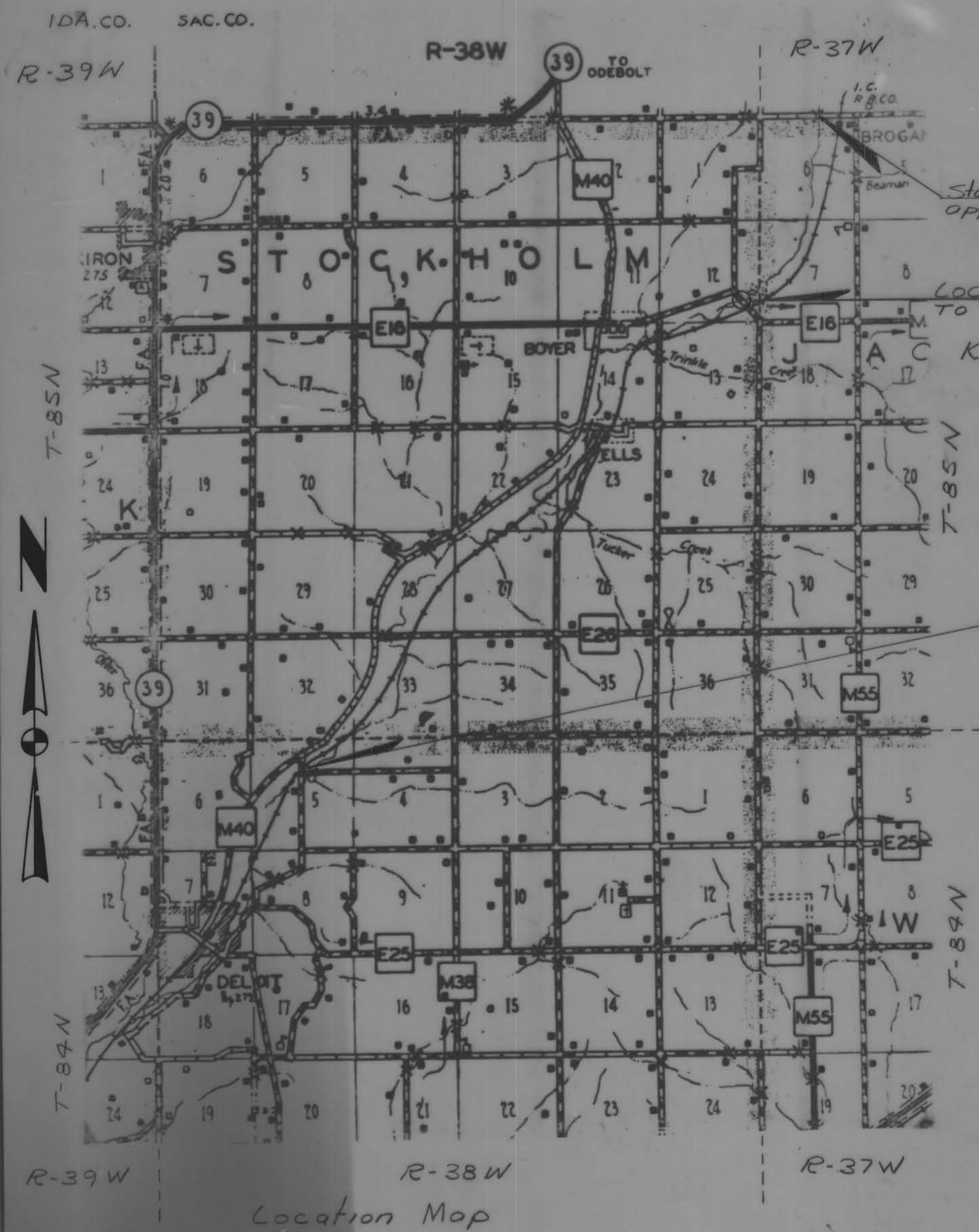
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	IOWA	L71-21 L71-22	1971	1	5

INDEX OF SHEETS

SHEET NO. 1 TITLE PAGE, INCLUDING CONVENTIONAL SIGNS,
LAYOUT, AND MILEAGE SUMMARY
2-5 Details

MILEAGE SUMMARY

Sta. 8+40.0 = 132'-5" = 0.02508 Miles
Sta. 2+81.5 = 137'-5" = 0.02603 Miles
Total Net Mileage = 0.05111 Miles



Crawford (SAC) Counties		Project No. L71-21		
90'x17' Pony Truss & Approaches - ESTIMATE OF QUANTITIES				
ITEM	Piers	Deck	Abutment	Totals
① Structural Concrete	① 11.50 cu. yds			11.50 cu. yds.
① Reinforcing steel	1352 Lbs.			1352 Lbs.
② Creosoted Piles 10 @ 40'			400 L.F.	400 L.F.
③ Cast in Place Type II 16" 14 @ 50'	700 L.F.			700 L.F.
④ Re-erect Bridge & Approaches				Lump sum

- Furnish and Place by Contractor
- Contractor to furnish and drive.
- Furnished and hauled by County, to be driven, filled with Class "C" concrete and painted 3' below stream bed by Contractor.
- See general notes, and plan
- Class "C" concrete.
- Removal of existing abutments at proposed bridge site, shall be considered incidental.

Crawford County		Project No. L71-22		
75'x20' Pony Truss & Approaches - ESTIMATE OF QUANTITIES				
ITEM	Piers	Deck	Abutment	Totals
① Structural Concrete	① 13.02 cu. yds.	② 50.89 cu. yds.		63.91 cu. yds.
① Reinforcing steel	1474 Lbs.	4276 Lbs.		5770 Lbs.
② Creosoted Piles 10 @ 40'			400 L.F.	400 L.F.
③ Cast in Place Type II 16" 14 @ 50'	700 L.F.			700 L.F.
④ Excavation Class 10 channel				175 cu. yds.
⑤ Re-erect Bridge & Approaches				Lump sum

- Furnish and Place, by Contractor.
- Contractor to furnish and drive.
- Furnished and hauled by County, to be driven, filled with Class "C" concrete and painted 3' below stream bed by contractor.
- By Contractor
- See general notes, and plan.
- Class C concrete
- Class D concrete
- Contractor to disassemble and haul Trusses to proposed bridge site, shall be considered incidental.
- Removal of existing abutments at proposed bridge site, shall be considered incidental.

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer and Land Surveyor, under the laws of the State of Iowa.
Signed: *H. Dale Wight* Date: *July 28, 1971*
H. DALE WIGHT, P. E. & L. S. Iowa Reg. No. 5798

APPROVED
P. J. Green 8-2-71
SAC COUNTY ENGINEER

APPROVED
H. O. Stork 8-2-71

APPROVED
Marvin Nutzman 8-2-71

Earth Fuller 8-2-71

Lawrence Retter 8-2-71

Merwin Arnold 8-3-71

J. H. Mosche 8-2-71
BOARD OF SUPERVISORS
SAC COUNTY PROJ. NO. L71-21

John Hildebrandt 8-3-71

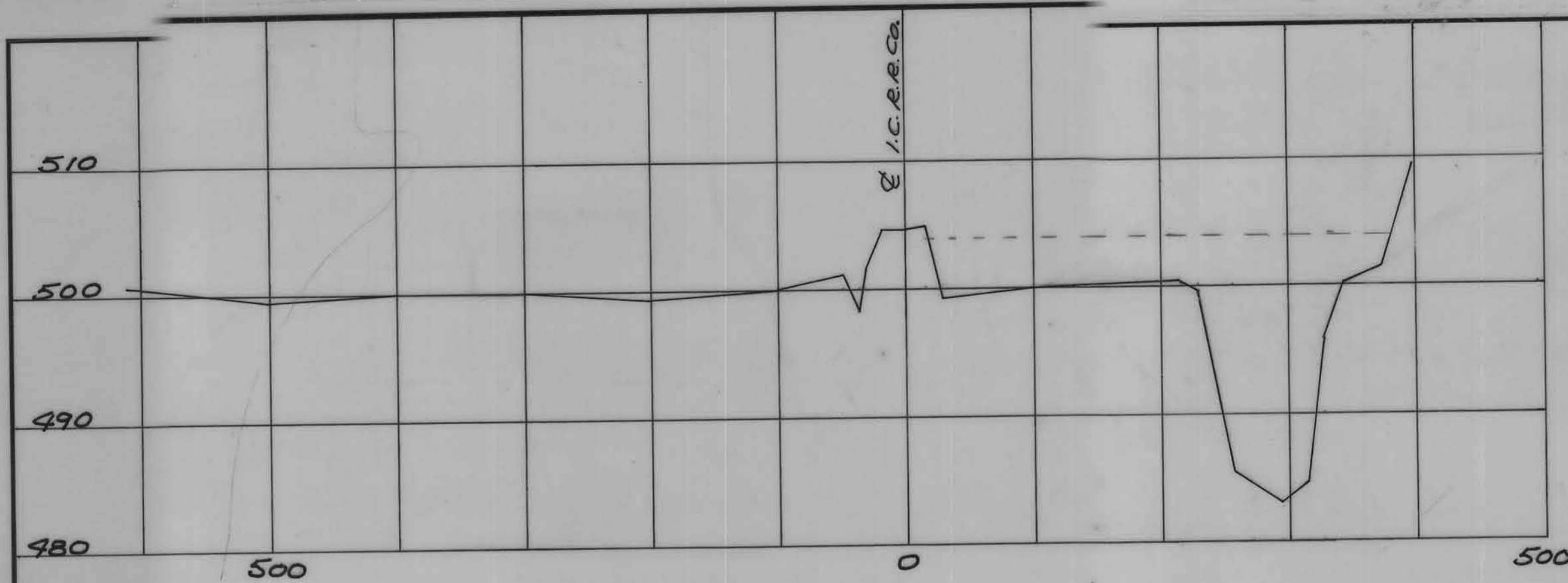
Charles Starnes 8-4-71
BOARD OF SUPERVISORS
CRAWFORD COUNTY
PROJ. NOS. L71-21 & L71-22

APPROVED
DEPUTY CHIEF ENGINEER DATE
IOWA HIGHWAY COMMISSION

ASSISTANT DISTRICT ENGINEER
SECONDARY ROADS
IOWA STATE HIGHWAY COMMISSION

APPROVED
DATE

1966 TRAFFIC
PROJECT NO. L71-21 26 V.P.D.
PROJECT NO. L71-22 57 V.P.D.



Valley Profile 1400' downstream

Stream Slope 3.57' Per mile
From Drainage Ditch Plans. Scale 1" = 100' Horz.
1" = 10' Vert.

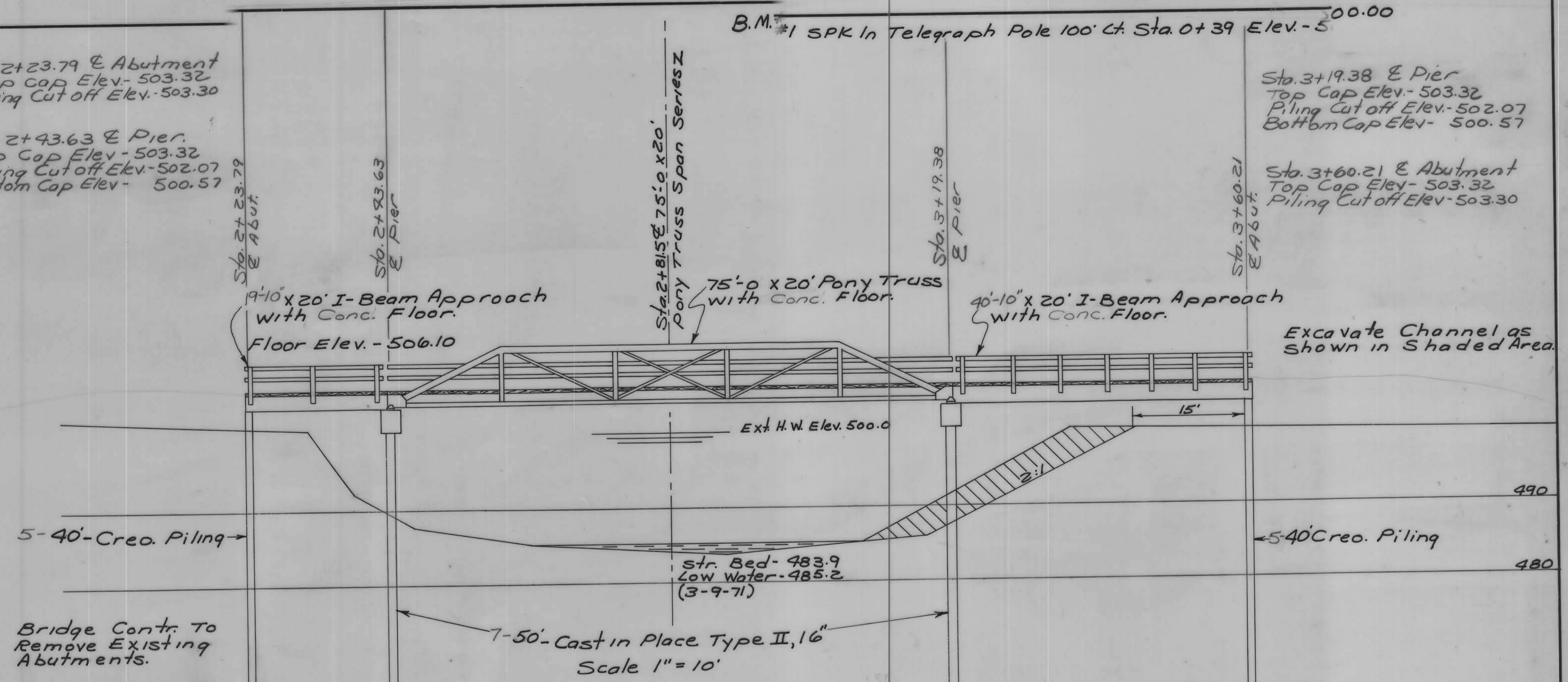
Hydraulic Data
 M.A.F. = 50.22 A.707 S.367
 A = 280 Sq. mi.
 S = 3.57
 M.A.F. = (50.22)(280)707(3.57)367
 = (50.22)(53.9)(1596) = 4320 c.f.s.
 25 year storm (4320)(2.65) = 11,448 c.f.s.
 50 year storm (4320)(3.10) = 13,392 c.f.s.
 $V = \frac{1.486}{h} R^{2/3} S^{1/2}$
 $\frac{1.486}{.028} = 53.07$.025 was used on original drainage ditch calculations.
 $R^{2/3} = \frac{1204}{110} = 10.9^{2/3} = 4.92$
 $S^{1/2} = .000676^{1/2} = 0.026$
 $V = (53.07)(4.92)(0.026) = 6.79$ fps.
 $Q = V \cdot A$
 $Q = (6.79)(1784) = 12,113$ c.f.s. @ Elev. - 504.0

Sta. 2+23.79 & Abutment
Top Cap Elev. - 503.32
Piling Cut off Elev. - 503.30

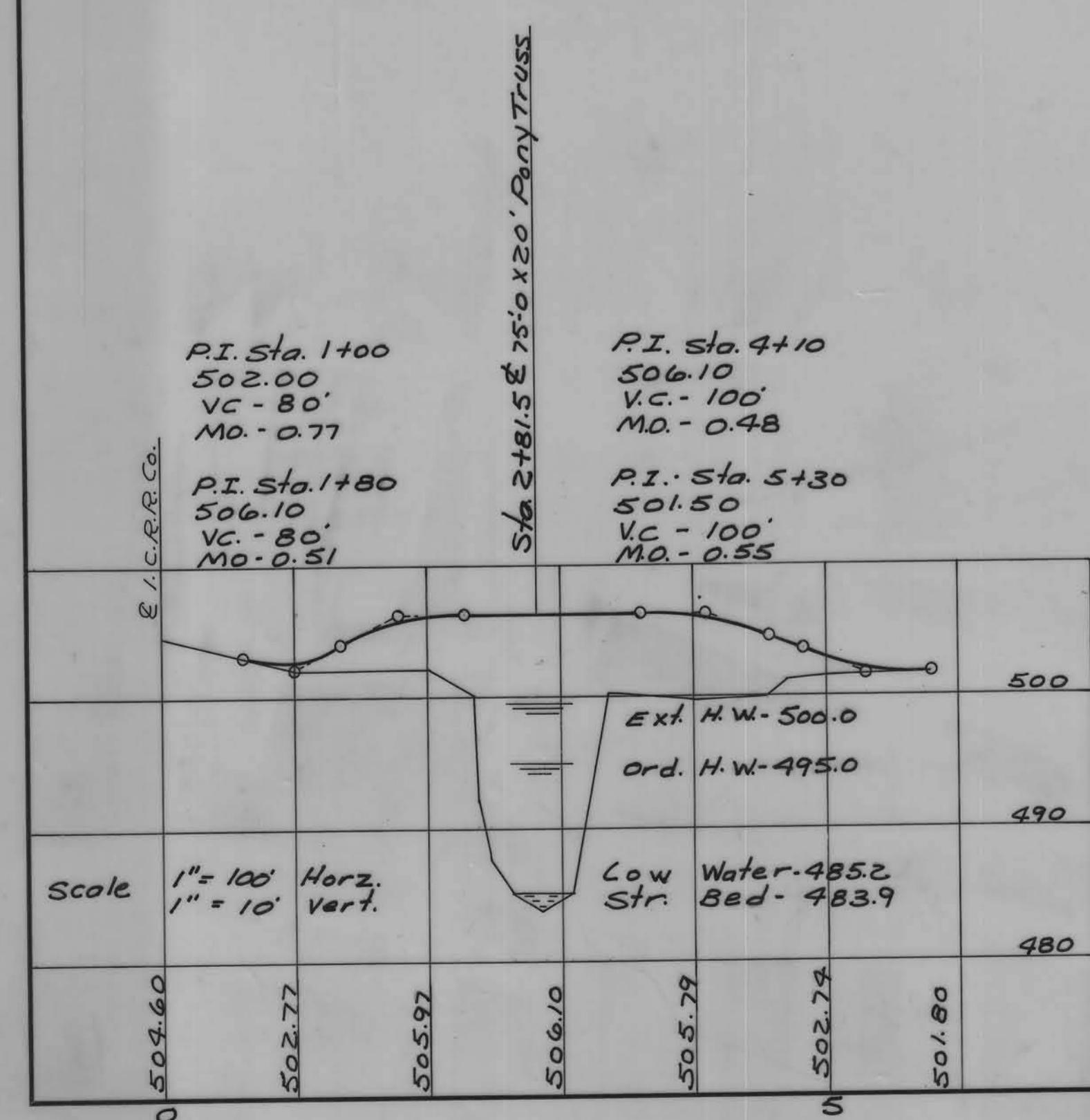
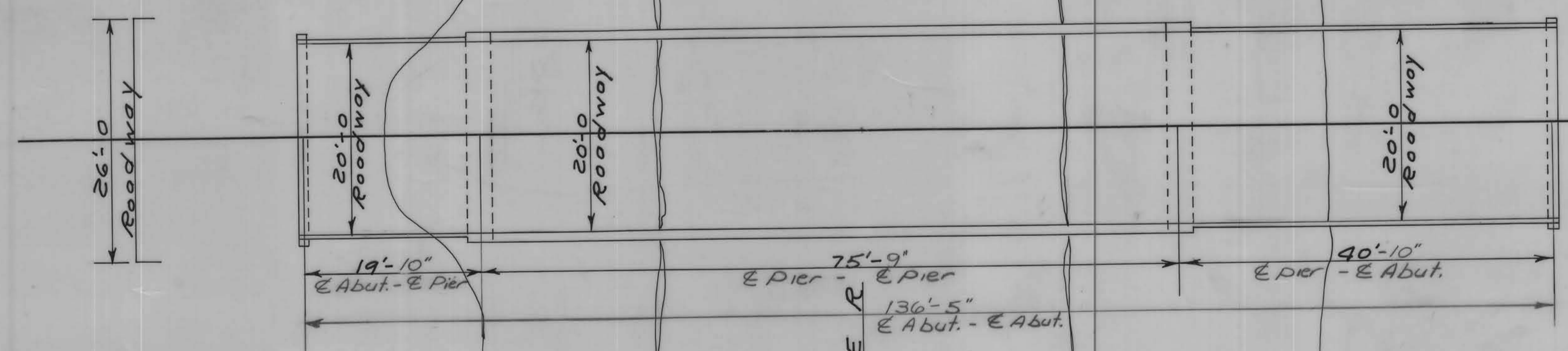
Sta. 2+43.63 & Pier
Top Cap Elev. - 503.32
Piling Cut off Elev. - 502.07
Bottom Cap Elev. - 500.57

Sta. 3+19.38 & Pier
Top Cap Elev. - 503.32
Piling Cut off Elev. - 502.07
Bottom Cap Elev. - 500.57

Sta. 3+60.21 & Abutment
Top Cap Elev. - 503.32
Piling Cut off Elev. - 503.30



Bridge Contr. To Remove Existing Abutments.
 Grading To Bridge By County.
 Bearing required wood - 20 ton
 Cast in Place - 28 ton



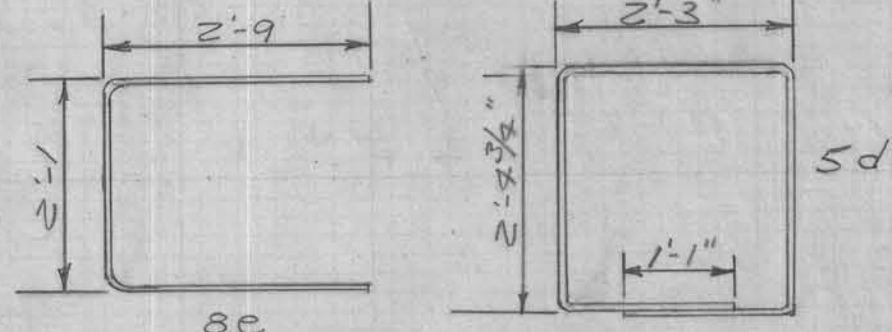
RE-ERECTION
 75'X20' PONY TRUSS BRIDGE (SERIES Z)
 WITH APPROACH SPANS.
 LOCATED IN SEC. 5, T-84N, R-38W,
 MILFORD TWP., CRAWFORD COUNTY, IOWA,
 OVER THE BOYER RIVER.

1966 Traffic 67 V.P.D.

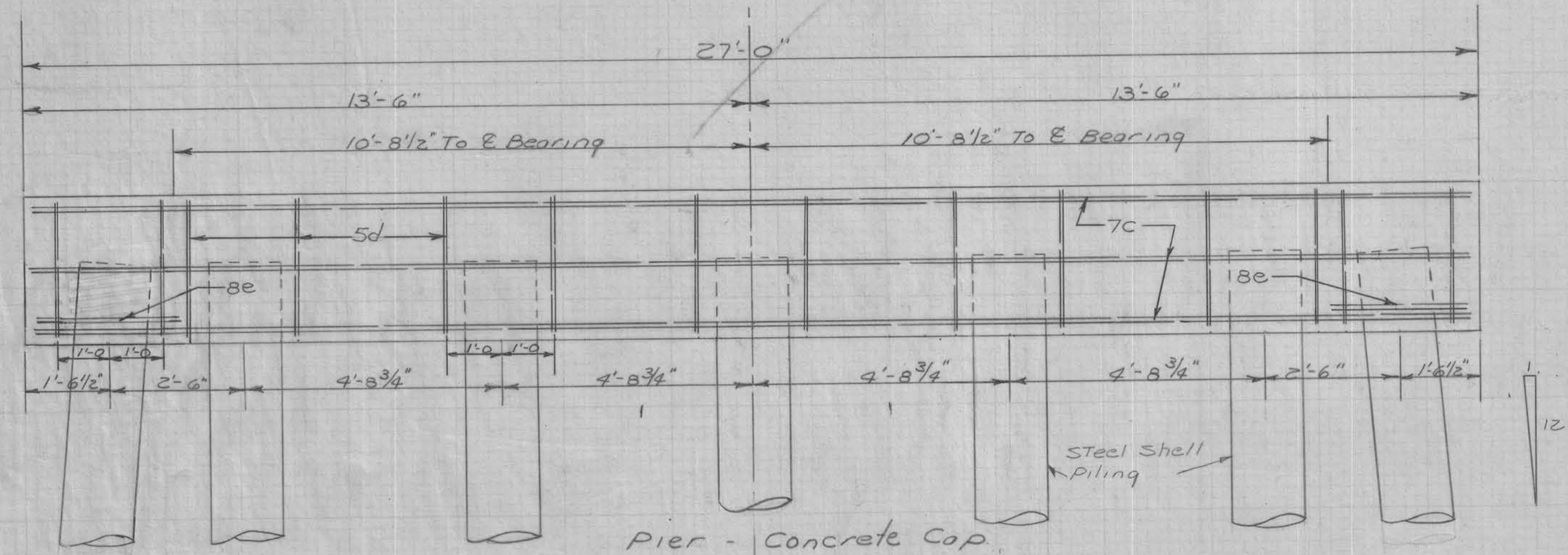
Z-Caps Reinforcing Steel			
Bar Size	Length	Nr	Weight
C 7	26'-8"	20	1090
d 5	10'-4 1/2"	28	303
e 8	7'-7"	4	81
Total Weight			1474

Class "C" Concrete - Z caps
13.02 cu. yds.

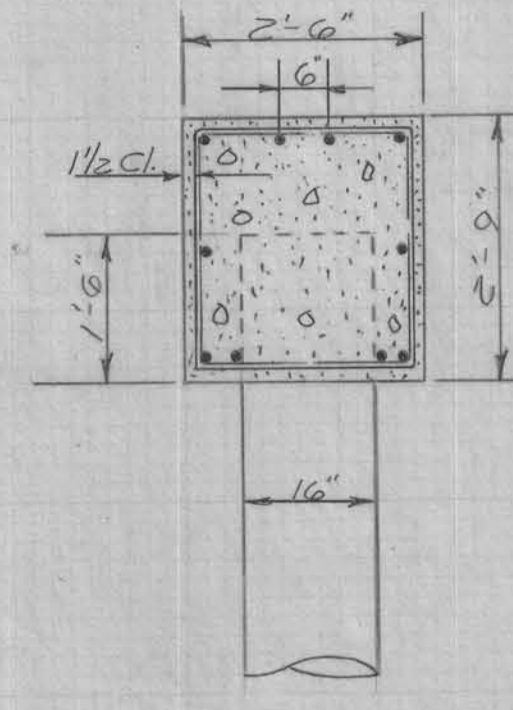
26'-8"
7C



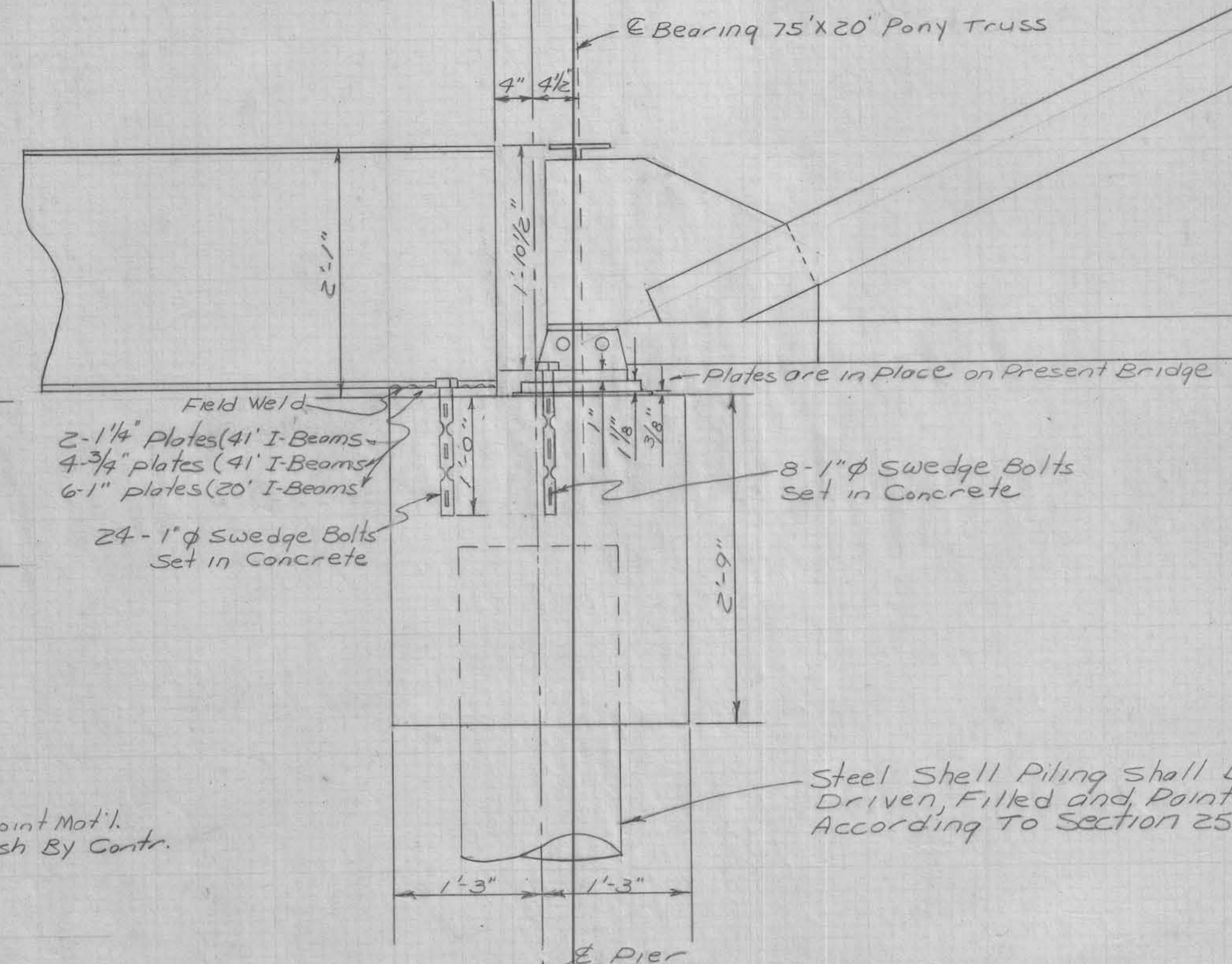
8e
Cap-Bar Details
All dimensions are out to out



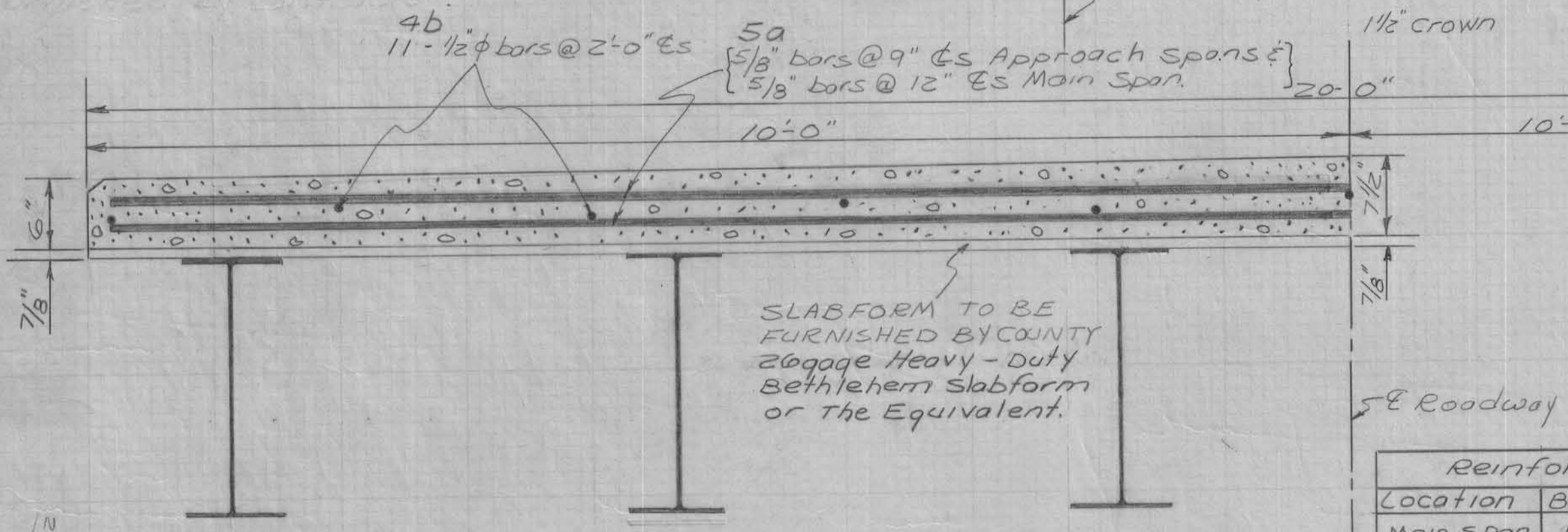
Pier - Concrete Cap



Pier-Cap
Preformed Joint Mat'l.
To Be Furnish By Contr.



Steel Shell Piling shall Be
Driven, Filled and Painted
According to Section 2501.04.



SLABFORM TO BE
FURNISHED BY COUNTY
26 gauge Heavy-Duty
Bethlehem Slabform
or the Equivalent.

Bottom Transverse Steel supported by 2" chairs.
TOP Transverse Steel supported by 4 1/2" chairs.
Furnished by Contractor.

Reinforcing steel - Deck				
Location	Bar Size	Length	Nr	Weight
Main Span	b	4 38'-6"	22	566
4' Approach	b1	4 41'-0"	11	301
20' Approach	b2	4 20'-0"	11	147
Complete Deck	a	5 19'-8"	160	3282
Total Weight				4296

Deck-Class "D" Concrete	
Main Span	33.61 cu. yds.
4' Approach	18.30 cu. yds.
20' Approach	8.98 cu. yds.
Total	50.89 cu. yds.

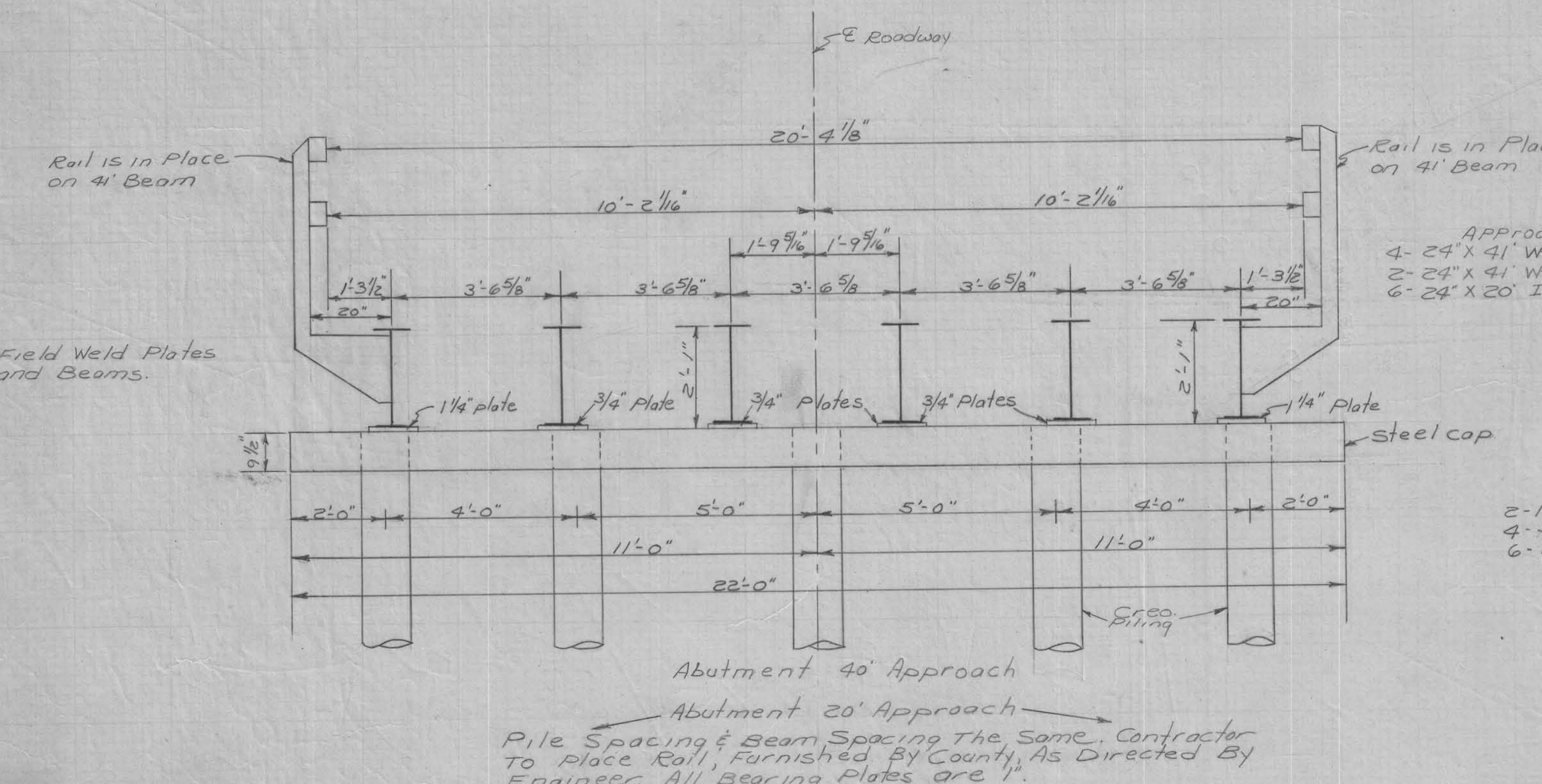
General Notes:

Contractor to install railing on 20' approach, furnish by county.
County to furnish and haul Steel Shell Piling, to bridge site.
Contractor to furnish and drive wood Piling.
Contractor to furnish Preformed Joint material.
County to furnish Plates and bolts.
Contractor to disassemble Trusses which are in place on steel caps, supported by the two end transverse I-Beams. The remaining floor beams have been removed and are stock piled near the present bridge site, between Section 7 Jackson Township and Section 12 Stockholm Township over the Boyer River. Contractor to haul to proposed bridge site as shown on plans, and re-erect. County to furnish and haul to bridge site steel I-Beams and steel caps for approaches.
24'x41' I-Beams, which includes two exterior beams with railing attached from Aspinwall yard, 24'x20' I-Beams and 22' steel caps from the Denison yard.
All exposed corners of 90° or sharper are to be filleted 3/4".
County to furnish Slabform, Contractor to place.

ESTIMATE OF QUANTITIES				
Item	Piers	Deck	Abutment	Totals
1 Structural Concrete	13.02 cu. yds.	50.89 cu. yds.		63.91 cu. yds.
2 Reinforcing Steel	1474 Lbs.	4296 Lbs.		5770 Lbs.
3 Creosoted Piles 10 @ 40'			400 L.F.	400 L.F.
4 Cast in place TYPE II 16" 14 @ 50'	700 L.F.			700 L.F.
5 Excavation Class 10 channel				175 cu. yds.
6 Re-erect Bridge and Approaches				Lump Sum

- Furnish and place, by contractor.
- Contractor to furnish and drive.
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- By contractor.
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- Class C concrete
- Class D concrete
- Contractor to disassemble and haul Trusses to proposed bridge site, shall be considered incidental. Removal of existing abutments at proposed bridge site shall be considered incidental.

RE-ERECTION
75'x20' PONY TRUSS BRIDGE (SERIES Z)
WITH APPROACH SPANS
IN SEC 5 T89N-R-38 W OVER THE
BOYER RIVER.



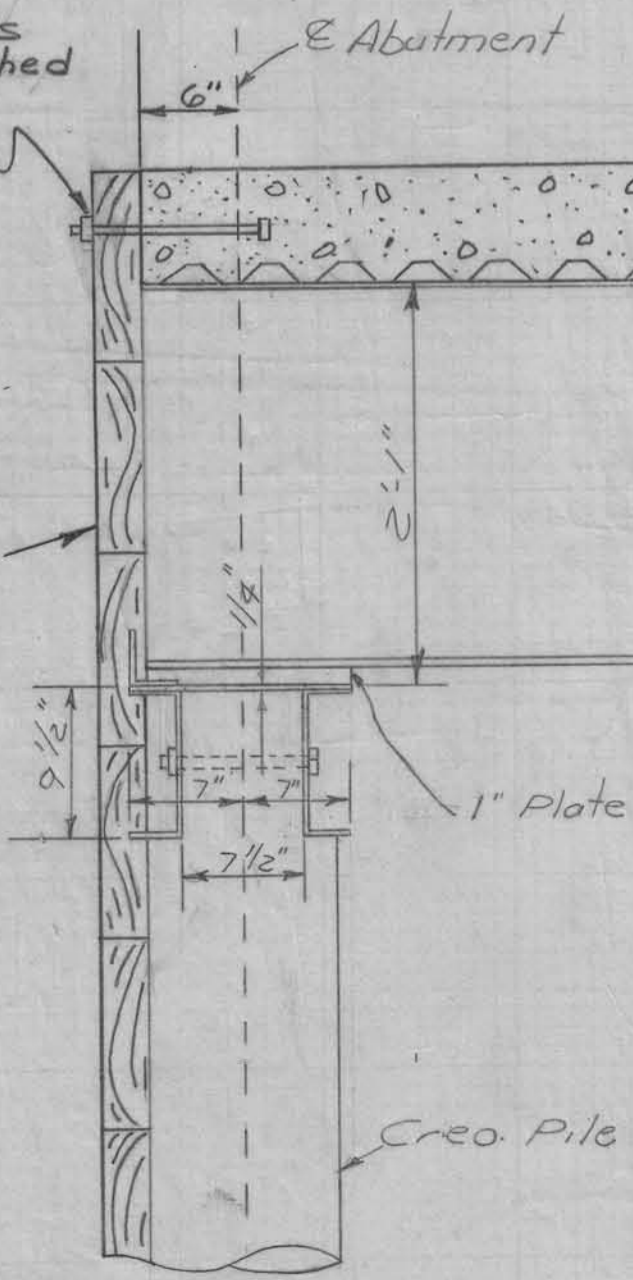
Abutment 40' Approach
Abutment 20' Approach
Pile Spacing & Beam Spacing The Same. Contractor to place Rail, Furnished by County, As Directed by Engineer. All Bearing Plates are 1".

Contractor to set Bolts in concrete (bolts furnished by county) at 3'-0" cts.

Approach I-Beams
4- 24'x41' WF I-Beams @ 94# interior
2- 24'x41' WF I-Beams @ 74# exterior
6- 24'x20' I-Beams @ 799#

County to construct Plan K backwall

Abutments
2- 1 1/4" Plates (41 I-Beams)
4- 3/4" Plates (41 I-Beams)
6- 1" Plates (20 I-Beams)



Abutment 20' Approach
40' Abutment the Same Except Plates.