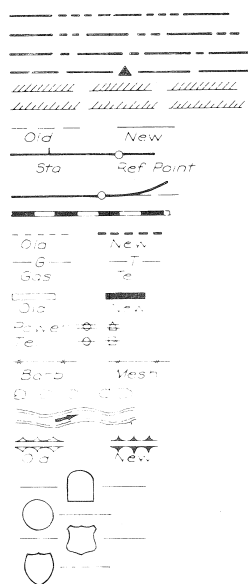


CONVENTIONAL SIGNS

State Line
Co. Line
Twp. Line
Sec. Line
Corp. Line
Urban Bdry.
R.O.W. Lines
Survey Line

Profile Grade
Railroad
Field Tile
Underground Lines
Culverts
Utility Poles
Fences
Trees Or Brush
Stream
Dike

County Road No.
Primary Road No.
U. S. Road No.
Interstate Road No.



CONSTRUCTION PLANS SHOWING PROJECT AS BUILT
ONE COPY PREPARED BY R. J. Jorgensen DATE 11-13-67
RESIDENT CONSTR. ENGR.
ONE COPY APPROVED AND FORWARDED TO AMES
DISTRICT CONSTRUCTION ENGR. Jay M. Collins DATE 1/22/68
TWO COPIES TO BE MADE AND RETURNED TO:
ROBERT I. BORTLE DISTRICT ENGINEER
RALPH D. CORNICK RESIDENT MAINT. ENGINEER

STATE OF IOWA
STATE HIGHWAY COMMISSIONPLANS OF PROPOSED IMPROVEMENT
ON THEPRIMARY ROAD SYSTEM
BRIDGE AND CULVERTS
MADISON COUNTYON IA. 92 FROM ADAIR CO. LINE NORTHEASTERLY TO POINT ON SOUTH LINE
SW 1/4 SEC. 35-76-29THE IOWA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS
FOR CONSTRUCTION WORK, SERIES OF 1964 SHALL
APPLY TO WORK ON THIS PROJECT

(Plus Current Supplement Specifications and Special Provisions)

DESIGN STRESSES for the following materials are in accordance with
A. S. S. H. O. Standard Specifications for Highway Bridges, Series of 1961.

Concrete in accordance with Section 1.4.11 f'c = 3500 psi.

Reinforcing Steel in accordance with Section 1.4.12

"Reinforcement" for Intermediate, Hard, or Rail
Steel Grade.Structural Steel in accordance with INT. 7(62); Section 1.4.2(B)
"Structural Steel", A-36, fs = 20,000 psi.

MILEAGE SUMMARY

105-1

DIV.	LOCATION	LIN. FT.	MILES
	BRIDGE AT STA. 222+67	214.0	.140

INDEX OF SHEETS

105-3

NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATE SHEET
3	MISCELLANEOUS SHEET
4	MISCELLANEOUS SHEET
5	MISCELLANEOUS SHEET CHP2, 5-65
6	MISCELLANEOUS SHEET RF-1
7	MISCELLANEOUS SHEET RF-2
8	MISCELLANEOUS SHEET RF-3
9	MISCELLANEOUS SHEET RF-4
10-19	BRIDGE DESIGN NO. 965
20	SITUATION PLAN FOR DESIGN NO. 1165 - 1465
21	SITUATION PLAN FOR DESIGN NO. 1265
22	SITUATION PLAN FOR DESIGN NO. 1365
23	SITUATION PLAN FOR DESIGN NO. 1565 - 1665
24	SITUATION PLAN FOR DESIGN NO. 1765
25	SITUATION PLAN FOR DESIGN NO. 1865
26	SITUATION PLAN FOR DESIGN NO. 1965
27	SITUATION PLAN FOR DESIGN NO. 2065
28-30	SITUATION PLAN FOR DESIGN NO. 2165
31	SITUATION PLAN FOR DESIGN NO. 4465

IOWA STATE HIGHWAY COMMISSION STANDARDS REQUIRED
(AVAILABLE AT I. S. H. C. STOREROOM)

STANDARD	ISSUED	REVISED
C1P	1932	1944
C2P	1932	1944
C3P	1932	1944
C5P	1932	1944
CFP	1945	
F2J	1959	1964
F3J	1959	1964
F5J	1959	1964
C6F	1952	1955
C8F	1952	1955
C12F	1952	1955
CBH-00	1960	
CBH-30	1960	1961
JD1-65	1965	

DETAIL PLANS
REDUCED IN SIZE
(DO NOT SCALE)DESIGN DATA
RURAL

1966 AADT 1886 V.P.D.
1966 AADT 3021 V.P.D.
1966 DHV 339 V.P.H.
DIRECTIONAL 58 %
TRUCKS 14 %
DESIGN V 70 M.P.H.
PARTIAL ACCESS CONTROL

REVISED

DIRECTOR OF ENGINEERING
IOWA STATE HIGHWAY COMMISSIONDEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Donald K. Schuge
DONALD K. SCHULZE

DATE 5-3-66

REG. NO. 2793

DESIGN 965 1A, #92 OVER STATION 222+67 (O.R.)
SECTION 5 MIDDLE RIVER
T - 75N R - 29W WEBSTER TOWNSHIP

210'X30' CONTINUOUS I-BEAM BRIDGE
CONTRACTOR~A.M.COHRON AND SON INC.

ESTIMATE OF QUANTITIES

ITEM	UNIT	TOTAL	FINAL (Actual) QUANT.
1) Structural Concrete	Cu. Yds.	467.3	467.3
Reinforcing Steel	Lbs.	96,309	96,309
Structural Steel	Lbs.	182,686	182,686
Aluminum Handrail	L.F.	410.3	410.3
Steel Handrail	L.F.	410.3	410.3
10B&42 Steel - Furnish	L.F.	392	444.5
Bearing Piling - Drive	L.F.	392	443.0
Class 20 Excavation	Cu. Yds.	80	80.0
Class 21 Excavation	Cu. Yds.	110	110
Class 22 Excavation	Cu. Yds.	190	190
Class 10 Channel Excavation	Cu. Yds.	2,660	2,660
Granular Backfill	Cu. Yds.	108	108
4" ϕ Tile Subdrain	L.F.	112	112
(2) Removal of Existing Structure	L.S.	Lump Sum	\$8,000.00
(2) Hauling & Storing Structural Steel	L.S.	Lump Sum	\$4,000.00

(1) 223.5 cu. yds. Class "D" Concrete for Superstructure &
243.8 cu. yds. Class "C" Concrete for Substructure.

(2) Federal Non-Participating Item.

EXTRA WORK ORDERS~A.M.COHRON AND SON INC.

E.W.O. #1 (blanket)
Increased piling, furnished 3,823 lin. ft. (10B&42 steel 1" H")
E.W.O. #2 (blanket)
Inspection: Magnetic Particle Lump Sum \$97.00
E.W.O. #3
Adjustment in price of structural concrete - deduct
Lump Sum of \$17.00 (diff. between D-57 mix and C-4 mix.

THIS BRIDGE WILL REQUIRE BRIDGE SIGN ASSEMBLIES, FURNISHED AND PLACED BY OTHERS, AS SPECIFIED IN SECTION 2 C-5 OF THE I. S. H. C. MANUAL ON "UNIFORM TRAFFIC CONTROL DEVICES", DATED JANUARY 1963.

EXTRA WORK ORDERS~F.A. MOSER INC. & PIERCE CONST. CO. INC.
NONE

I HEREBY CERTIFY THAT THESE PLANS HAVE BEEN PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

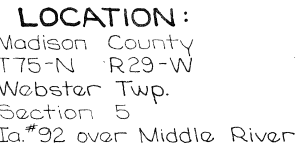
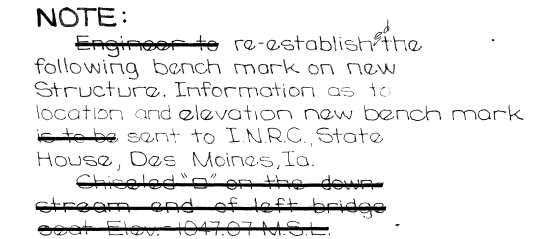
Dale E. Derby
DALE E. DERBY
IOWA REGISTRATION NO. 3049
DATE 5-4-66

IN LETTING OF JUNE 21, 1966

DESIGN	LOCATION			DESCRIPTION	ESTIMATE OF QUANTITIES														FOUNDATION	REMOVALS			
	SECTION	TOWNSHIP	STATION		F.A. MOSER INC. & PIERCE CONST. CO. INC.	SPT. CONC. CL. C. CYLDS.	REINF. STEEL LBS.	EXCAVATION - C.Y.				CONCRETE ROADWAY PIPE CULVERT I.F.				CONCRETE APRONS NO.					GALVANIZED PIPE RAIL 1 1/2" ϕ , D. LBS.	TREATMENT C.Y.	
								CL. 20	CL. 24	CL. 10 CHAN.	CL. 22	24" ϕ	30" ϕ	36" ϕ	42" ϕ	24" ϕ	30" ϕ	36" ϕ					42" ϕ
1165	5	WEBSTER	232+19 (O. R.)	30" ϕ Conc. Rdwy. Pipe Culv. Ext. (Inlet) 2'X2' PCB Culv. Ext. & Stub Flume (Outlet) 3'24' Sk.	29	3.6	487.567	38.42															
1265	5	WEBSTER	234+07 (O. P.)	3' X 2' Reinf. Conc. Box Culv. Ext. 1" Sk. with 4'X3' Drop Inlet & Stub Flume	17.2	1.100		24										1 Inlet				AS PER PLAN	
1365	5	WEBSTER	239+89.8 (O. R.)	42" ϕ Conc. Rdwy. Pipe Culv. Ext. (Inlet) 3'X3' PCB Culv. Ext. & Stub Flume (Outlet) 29'30' Sk.	19.5	19.6	1.070	32			72							1 Inlet				AS PER PLAN	
1465	4 & 5	WEBSTER	4249+39 (SIDE ROAD)	42" ϕ X 54' Concrete Roadway Pipe Culvert with 4' X 3' Stub Flume Sk. 20"	8.9	483	26	62	64									1 Inlet				AS PER PLAN	
1565	4	WEBSTER	292+90.1 (O. R.)	30" ϕ Concrete Roadway Pipe Culvert Ext.	2.1	102	15	5														AS PER PLAN	
1665	4	WEBSTER	298+87.4 (O. R.)	3' X 2' Reinforced Concrete Box Culvert Ext.	10.1	605	10															AS PER PLAN	
1765	4 & 33	WEBSTER - JACKSON	315+17 (O. R.)	5'X4'X94' Reinf. Conc. Box Culvert with Flume Sk. 20"	83.4	7.381	238															AS PER PLAN	
1865	4 & 33	WEBSTER - JACKSON	325+52 (O. P.)	8' X 8' X 155' Reinf. Conc. Box Culvert Sk. 45"	215.6	36.861	886															AS PER PLAN	
1965	3 & 34	WEBSTER - JACKSON	346+66	12' X 10' X 109' Reinforced Conc. Box Culvert	291.5	51.911	740															AS PER PLAN	
2065	3 & 34	WEBSTER - JACKSON	357+67.3	5' X 5' Reinf. Box Culvert Ext. with Flume, Outlet Sk. 30"	66.2	66.0	5.400	93			174											AS PER PLAN	
2165	2 & 3	WEBSTER - JACKSON	378+06.9 (East RBL)	Extending Two 3' X 3' P.C.B. Culverts with	43.1	3.535	85															AS PER PLAN	
34 & 35	JACKSON	377+73.8 (West RBL)	42" ϕ Conc. Rdwy. Pipe Culv. Inlets & a Twin 3'X3' P.C.B. Culv. Outlet	107.4	106.1	12.211	193				275											AS PER PLAN	
4465	5	WEBSTER	3228+70 (Side Road)	6' X 6' X 70' Reinforced Concrete Box Culv. & Flume Sk. 30"																		AS PER PLAN	
			(O. P.)																			AS PER PLAN	
TOTAL					872.9	872.7	121.228	2.384	67	692	1	34	142	3	4		134	60.20				Lump Sum \$1,200.00	
							121.146	2.380		669													

(1) INCLUDES ONE TYPE C-2 CONNECTION

ESTIMATE SHEET



— HYDRAULIC DATA:
Drainage Area = 156 sq. miles
Design Discharge = 12,500 c.f.s.

Design For
210'x30' CONTINUOUS I-BEAM BRIDGE
64'-0" End Spans 82'-0" Center Span
Concrete Floor & Substructure Tubular Handrail
SITUATION PLAN
Station: 222+67 on Ia #92 Proj. No. F-92-4(1)**20-61
MADISON COUNTY
IOWA STATE HIGHWAY COMMISSION
January, 1966 Sheet 1 of 10

Bench Mark #17 Sta. 222+45.50, 18" Walnut West Bank of Middle River, 179' Rt. El. 1045.91
 221+61 I.S.H.C. B.M. in Rt. Curb Section of West Abutment Backwall of Middle River Bridge Elevation = 1065.06

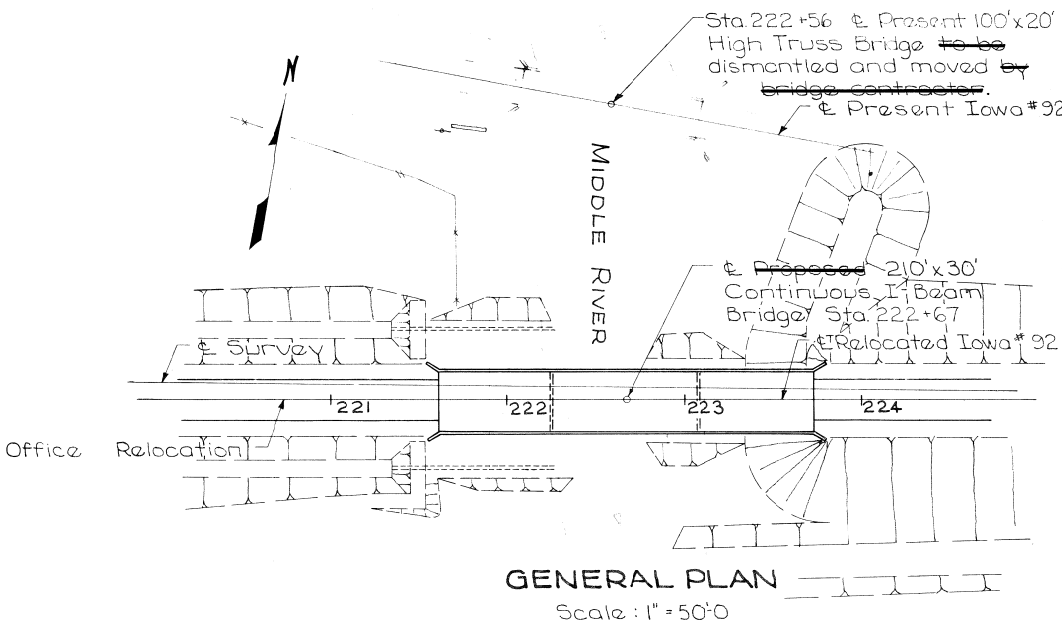


SOUNDING DATA
 Scale: 1"=10'-0"
 All Soundings taken on 5-12-65, except for T.H.#F-5547 which is dated 6-22-65.

Design For
210'x30' CONTINUOUS I-BEAM BRIDGE
 64'-0" End Spans 82'-0" Center Span
 Concrete Floor & Substructure Tubular Handrail
SOUNDING DATA
 Station: 222+67 on Ia #92 Proj. No. F-92-4(1)**20-61
MADISON COUNTY
 IOWA STATE HIGHWAY COMMISSION
 January, 1966 Sheet 2 of 10
 Design N° 965 Madison County File N° 21900

Bench Mark: #17 Sta. 222+15 Set R.R. Set in North Side 18" Walnut West Bank of Middle River 173' RI Elev. = 1045.81
221+61 I.S.H.C. B.M. in R.R. Curb Section of West Abutment Backwall of Middle River Bridge Elevation = 1065.06

Note: Old 100'x20' High Truss Bridge @ Sta. 222+56 was dismantled and match marked and hauled to the Madison County Maintenance yards @ Winterset, Iowa.



DESIGN STRESSES:

Design Stresses for the following materials are in accordance with A.A.S.H.O. Standard Specifications for Highway Bridges, Series of 1961:
Reinforcing Steel in accordance with Section 1-4.12 "Reinforcement" for Intermediate, Hard or Rail Steel Grade.
Concrete in accordance with Section 1-4.11 $f'_c=3500$ psi.
Structural Steel in accordance with INT. 7(62) Section 1-4.2(B) "Structural Steel,"
A-36, $f_y=20,000$ p.s.i.

SPECIFICATIONS:

DESIGN: A.A.S.H.O. Series of 1961
CONSTRUCTION: Standard Specifications of the Iowa State Highway Commission, Series of 1964, plus current Supplemental Specifications and Special Provisions.

TOTAL ESTIMATED QUANTITIES					
Item	Unit	2 Abut	2 Piers	Super Struc.	Total
*Structural Concrete	C.Y.	60.6	183.2	223.5	467.3
Reinforcing Steel	lbs.	6784	23704	65821	96309
Structural Steel	lbs.	—	—	182,686	182,686
Aluminum Handrail	L.F.	—	—	—	410.3
Steel Handrail	L.F.	—	—	—	410.3
10 BP42 Steel	L.F.	7@18	—	—	392
Bearing Piling	L.F.	7@18	—	—	392
Drive	L.F.	7@18	—	—	392
Class 20 Excavation	C.Y.	80	—	—	80
Class 21 Excavation	C.Y.	—	110	—	110
Class 22 Excavation	C.Y.	—	190	—	190
Class 10 Channel Excavation	C.Y.	—	—	—	2660
Granular Backfill	C.Y.	108	—	—	108
4" Tile Subdrain	L.F.	112'	—	—	112'
**Removal of Existing Structure	Lump Sum	—	—	—	Lump Sum
**Hauling & Storing Structural Steel	Lump Sum	—	—	—	Lump Sum

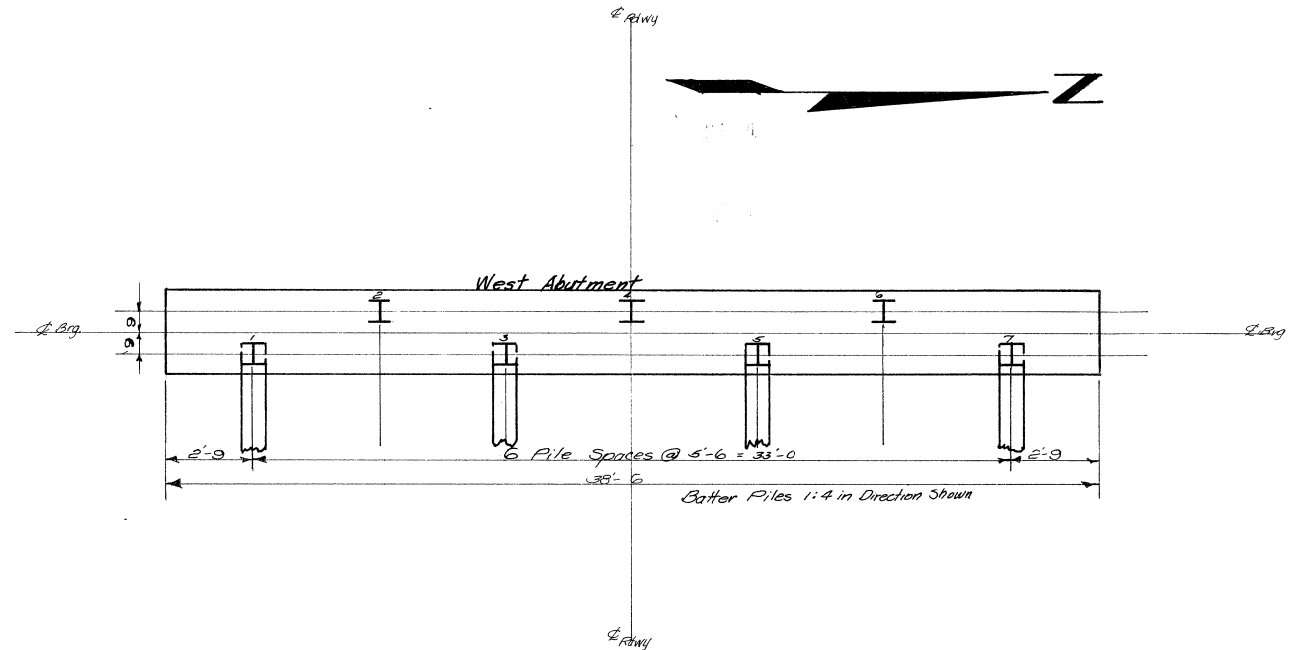
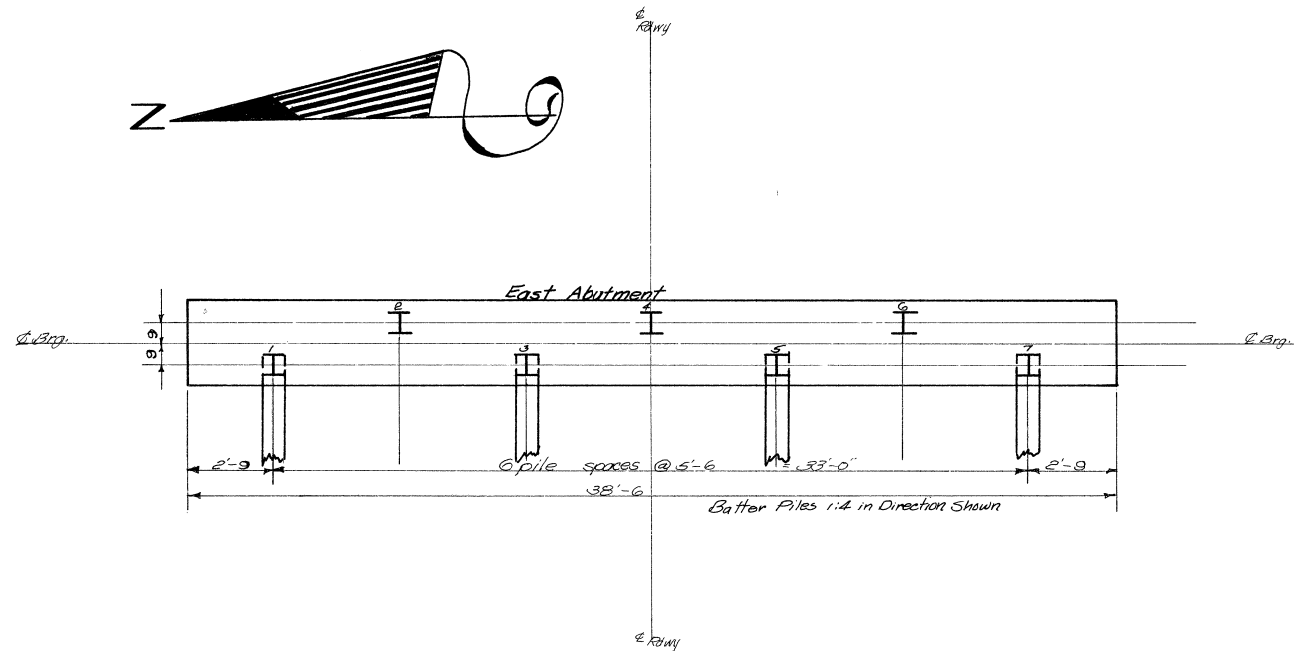
* 223.5 C.Y. Class D Concrete for Superstructure, and
243.8 C.Y. Class C Concrete for Substructure.
** Federal Non-participating Item.

GENERAL NOTES:

This bridge is designed for H20-S16-44 loading plus an allowance of 19# per sq. ft. of roadway for future wearing surface.
The approach fills are not a part of this Contract but ~~are to be~~ ^{were} in place and compacted before driving the abutment piles. ~~The Bridge Contractor is to level off and shape the berms to the elevations and slopes shown.~~
The wing dike ~~is to be~~ done by others and is not a part of this estimate.
Pier Excavation is based on channel excavation being completed before the piers are excavated.
~~The Bridge Contractor is to install the tile subdrain behind each abutment as detailed. The price bid for 4" Tile Subdrain is to be included in the excavation necessary for installation.~~
~~The Bridge Contractor is to clear the channel under the bridge for a distance of 28' on either side of the C of roadway as shown by the hatched areas on the "Situation Plan" and "Longitudinal Section" along C of Roadway.~~
Red Lines on the tracings and faint lines on prints indicate the existing structure.

The bid item "Removal of Existing Structure" includes dismantling and matchmarking of the 100'x20' Existing High Truss Bridge; The concrete abutments are ~~to be~~ removed to at least one foot below finished ground line. Broken concrete ~~shall be~~ disposed of near the site as directed by the Engineer.
The bid item "Hauling and Storing Structural Steel" includes hauling the dismantled 100'x20' High Truss to the ~~State~~ ^{County} Maintenance Yard at Winterset, Iowa in Madison County, and storing said steel.

Design For
210'x30' CONTINUOUS I-BEAM BRIDGE
64'-0" End Spans 82'-0" Center Span
Concrete Floor & Substructure Tubular Handrail
GENERAL PLAN
Station: 222+67 on Ia #92 Proj. No. F-92-4(1)**20-61
MADISON COUNTY
Iowa STATE HIGHWAY COMMISSION
January, 1966 Sheet 3 of 10
Design N° 965 Madison County File N° 21900



East Abutment Pile Log

Pile No	Date Driven	Length in Leads Nearest ft	Length of Cut-off in Nearest ft	Length in Structure	Average Penetration Last 5 Blows	Drop in Feet	Bearing in Tons	Remarks
B-1	2-9-67	42.0	6.2	35.8	0.14	10	66.6	
2	2-13-67	95.1	20.3	74.8	0.20	"	46.9	42' + 6.9' - 0.9' - 1.0' + 6.2' - 0.2' - 0.5' + 22.0' - 1.1' + 22.0' = 95.1'
B-3	2-8-67	42.0	6.9	35.1	0.10	"	72.5	- - - see Note Below - - - - -
4	2-8-67	38.0	0.3	37.7	0.27	"	57.1	
B-5	2-8-67	42.0	6.8	35.2	0.14	"	66.6	
6	2-9-67	43.0	0.7	42.3	0.17	"	65.9	38' + 6.8' - 1.8' = 43.0' - See Note below
B-7	2-8-67	42.0	1.4	40.6	0.17	"	62.8	

Note: Pile No 2: Used 6.9' cut-off from B-3 minus batter skew & deformed end trim to add 6.0' length; also the 6.2' cut-off from B-1 with the batter skew end trimmed square for another 6.0' addition; cut deformed top off 0.5' and added 22.0' on by welding, as were the other additions. After driving this, cut deformed top again 1.1' and added final 22.0' for a total of 95.1 in leads

Pile No 6: Used 6.8' cut-off from B-5 minus batter skew & deformed end of 1.8' to weld 5.0' to pile for a total of 43.0 in leads

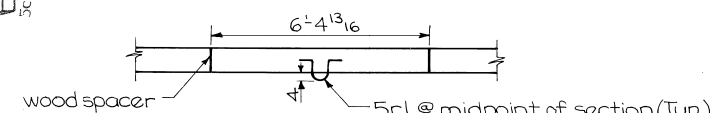
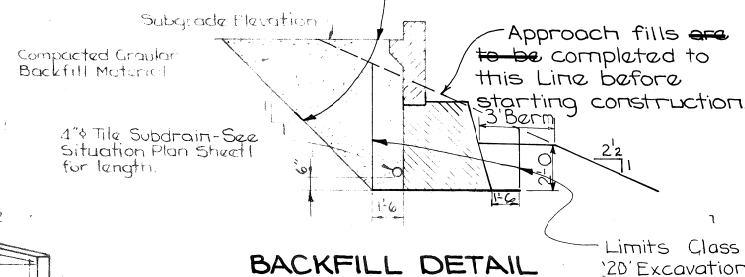
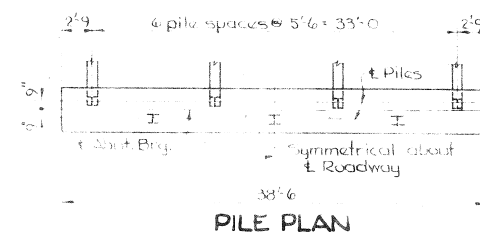
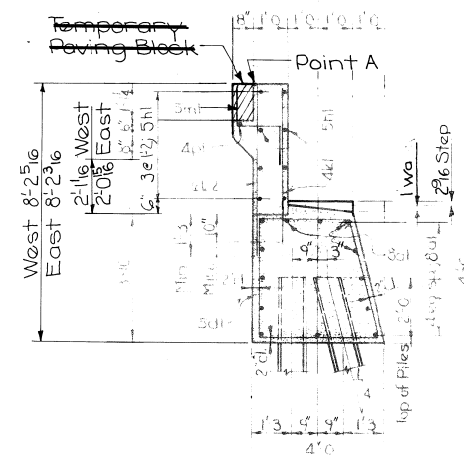
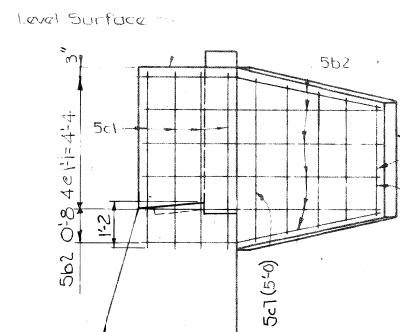
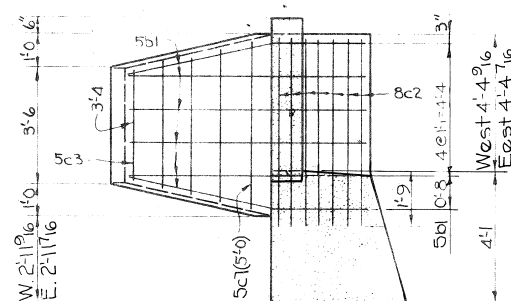
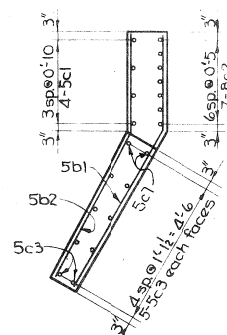
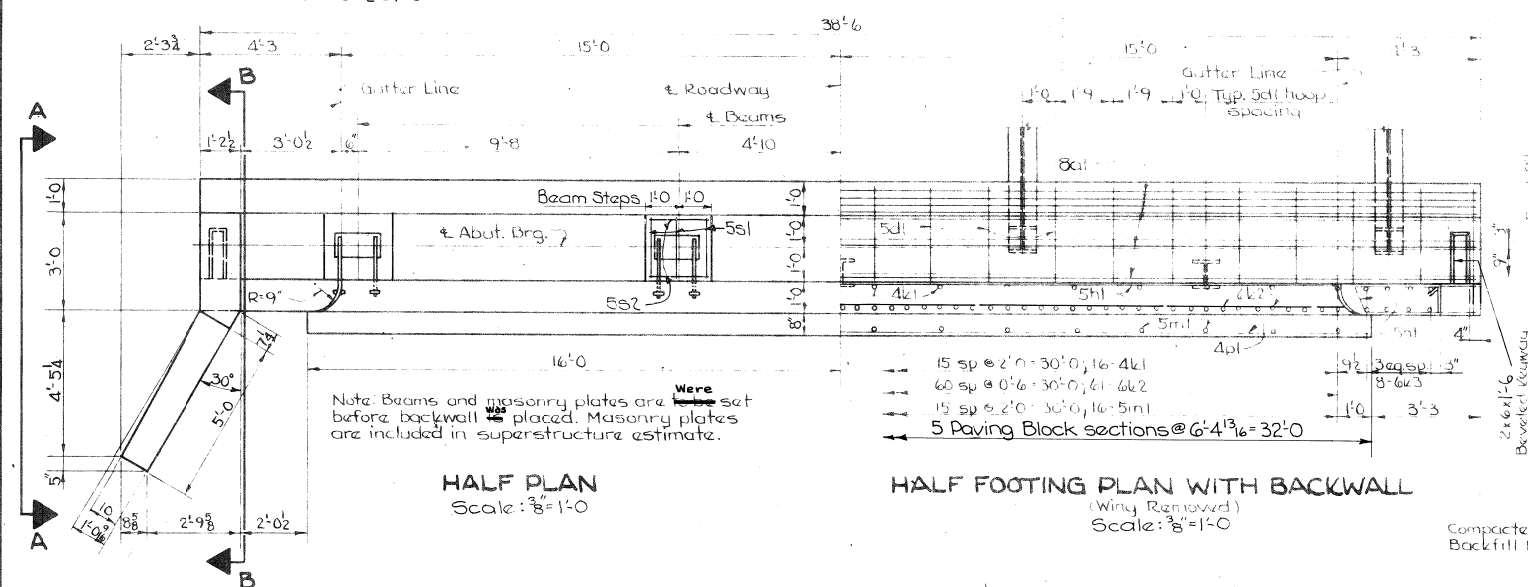
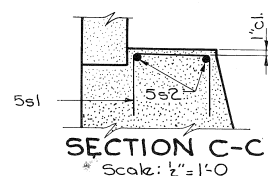
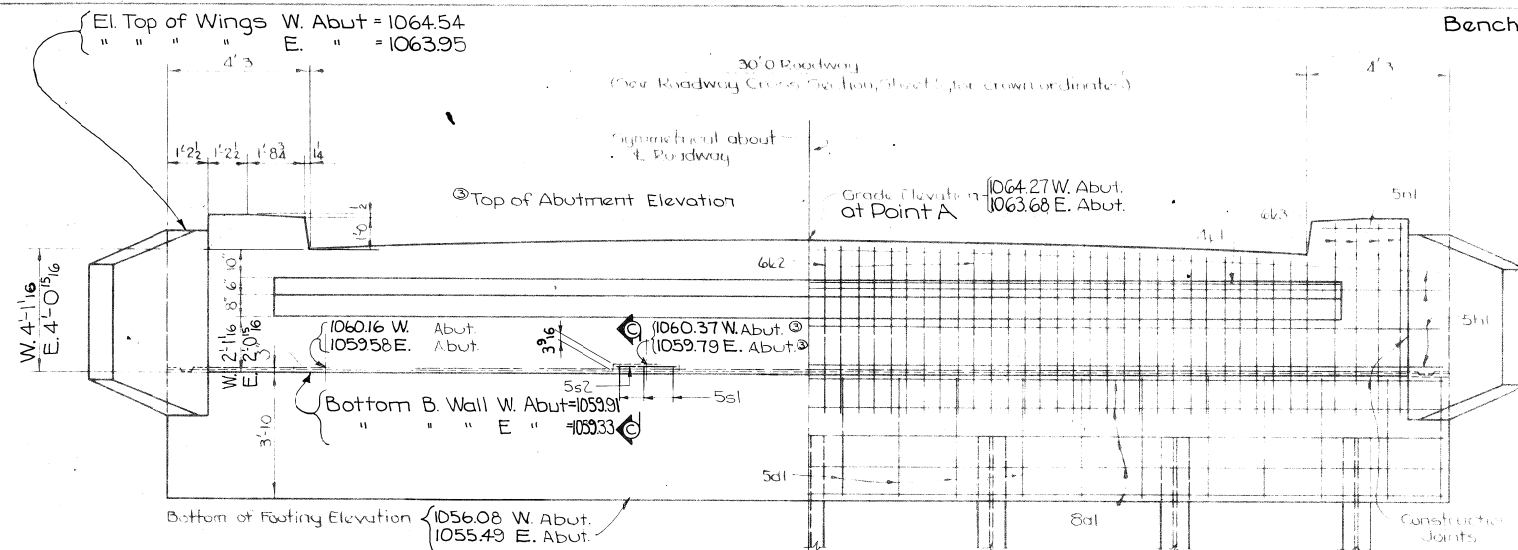
Furnish = 330.0'
- Total Cut-off = 426'
+ Re-Used pieces of pile cut-off = 14.1'
Drive = 301.5'

West Abutment Pile Log

Pile No	Date Driven	Length in Leads Nearest Foot	Length of Cut-Off Nearest ft	Length in Structure	Average Penetration Last 5 Blows	Drop in Feet	Bearing in Tons	Remarks
B-1	2-17-67	20.3	1.3	19.0	.34	10'	54.9	
* 2	"	19.6	—	19.6	.42	"	52.9	
* B-3	"	19.4	—	19.4	.35	"	55.0	
4	"	18.0	—	18.0	.32	"	60.7	
* B-5	"	19.2	—	19.2	.40	"	51.3	
6	"	18.0	—	18.0	.36	"	57.3	
B-7	"	18.5	0.2	18.3	.30	"	59.0	

* These three piling were driven as 18.0' lengths and very nearly to bottom of footing. Additional lengths were welded on to bring these up to cut-off. Pile B-1 was driven as 20.3' & Pile No B-7 as 18.5'

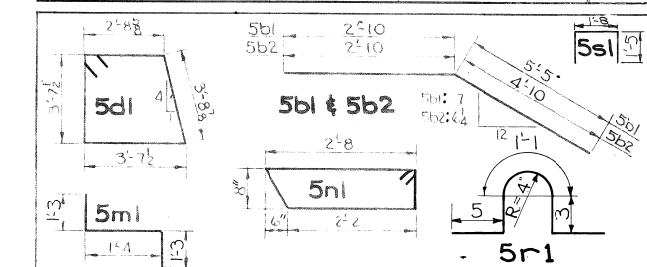
Furnish = 133.0'
- Cut-off = 1.5'
Drive = 131.5'



REINFORCING STEEL ~ ONE ABUTMENT						
a Structural Steel	Location		Shape	N ^o	Length	Weight
	8 in	Footings, Longitudinal		13	38' 2"	1325
	5 in	Wing BFH		12	8' 3"	103
	5 in	Wing EFH		12	7' 8"	96
	9 in	Wing FFF		8	5' 4"	44
	9 in	Wing BFV		14	5' 11"	221
	5 in	Wing BFV & FFF		20	Varies	87
	5 in	Footings, Hoops		22	14' 5"	331
	5 in	Backwall, Horizontal		8	38' 2"	318
	4 in	Backwall, FFF		16	4' 11"	53
	6 in	Backwall, BFV		61	5' 4"	489
	6 in	Backwall, BFV & FFF		16	6' 2"	148
	5 in	Backwall, Notch		16	3' 8"	61
	4 in	Backwall, Curb, Horizontal		2	7' 1"	15
	4 in	Backwall, Notch, Horizontal		1	31' 8"	21
	5 in	Paving Block Hoops		5	2' 3"	12
	5 in	Beam Seat		12	4' 4"	54
	5 in	" "		8	FB	14

1 in 3 in, lbs.

3392



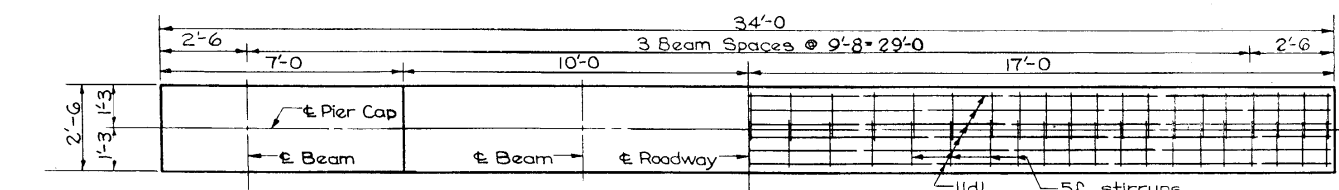
CONCRETE PLACEMENT QUANTITIES ~ ONE ABUT.	
Footings	199 cu. yds.
Jackwall	6.6 " "
Wings	3.0 " "
Temporary Paving Block	0.8 " "
Total	30.3 cu. yds.

ABUTMENT NOTES:

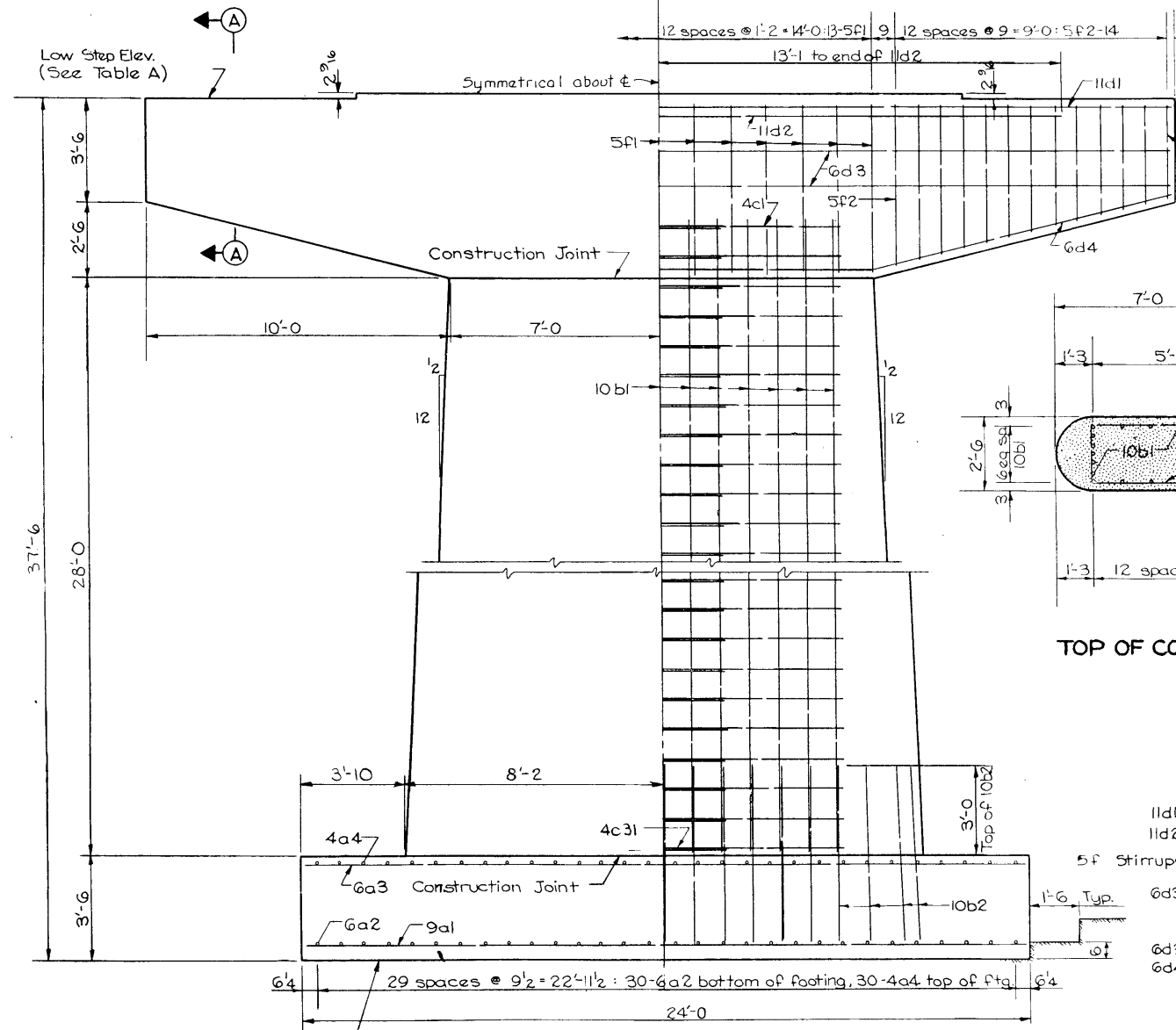
1. All exposed corners of 90° or sharper are ~~to be~~ filletted with a $\frac{3}{4}$ " unressed and beveled strip.
2. Reinforcing steel is ~~to be~~ securely wired in place before concrete is poured.
3. Minimum clear distance from face of concrete to near reinforcing bar is ~~to be~~ 2" unless otherwise noted or shown.
4. All backfill behind the abutment wing is ~~to be~~ granular backfill. The remainder of the abutment excavation is ~~to be~~ filled with soil.
5. The concrete paving block is to be placed after the backwall is in place. Bend down 5ml dowels (structural grade) and line the notch with torpaper to prevent bond. Block is to be removed and bar straightened before pavement is placed.

Design for
210'-0" x 30' CONTINUOUS I-BEAM BRIDGE
4'-0" End Spans
Concrete Floor & Substructure
8'-0" Center Span
Tubular Handrail
ABUTMENT DETAILS
Station 222+67 on Ia*92
Proj. No. F-92-4(1)**206
MADISON COUNTY
Iowa State Highway Commission
January 1966 Sheet 4 of 10
Design No 965 Madison County File No 2190

BENCH MARK No. 17: Sta. 222+45, Set R.R. Spike in North Side 18" Walnut
West Bank of Middle River. Elevation = 1045.91
Sta. 221+61 I.S.H.C. B.M. in Rt. Curb Section of West Abutment
Backwall of Middle River Bridge. Elevation = 1065.06

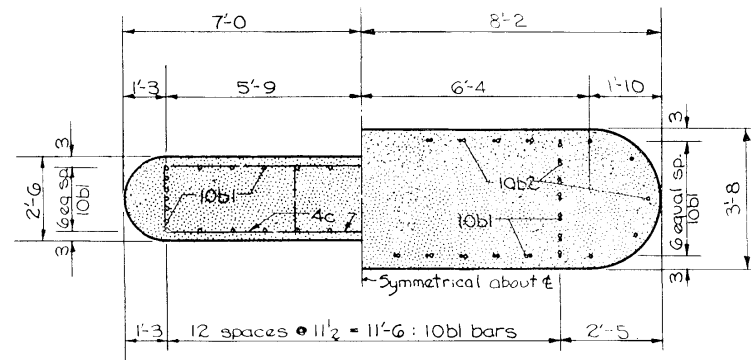


PLAN OF PIER CAP



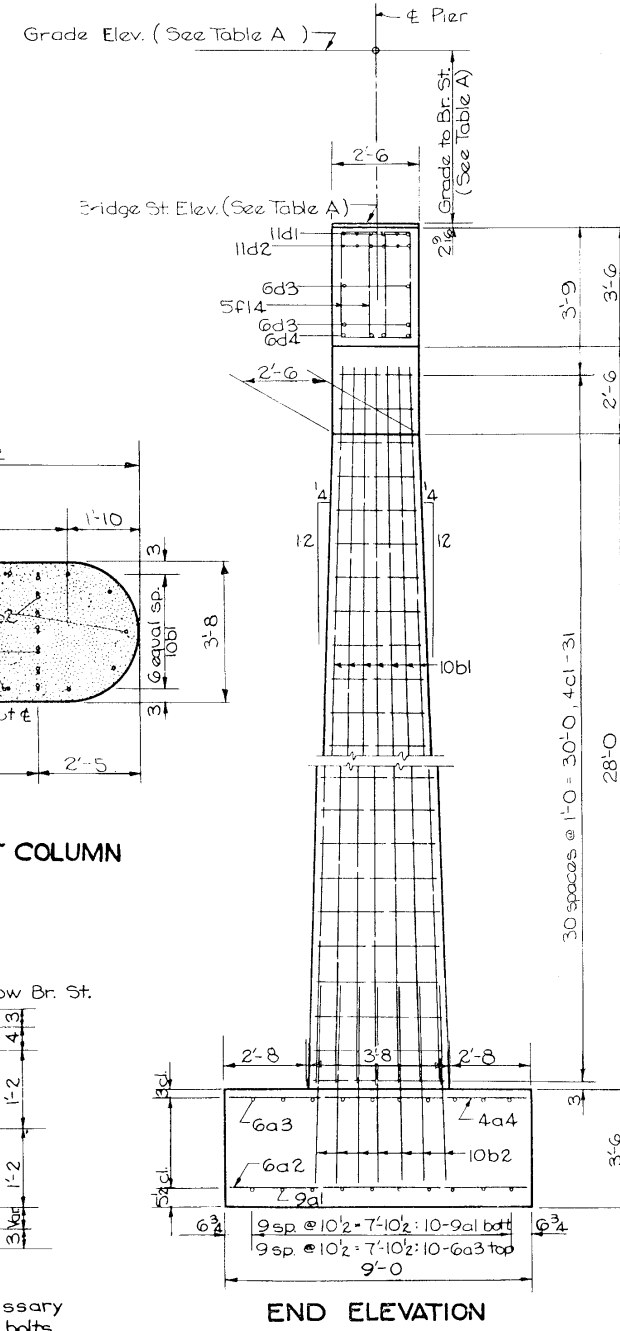
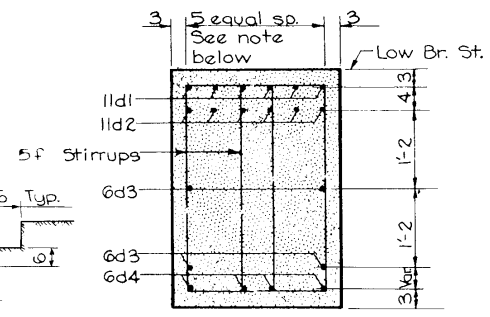
PIER ELEVATION

TOP OF COLUMN BOTTOM OF COLUMN
COLUMN PLAN

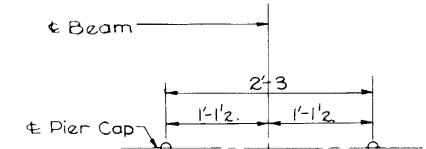


SECTION A-A

NOTE: Shift bars as necessary to clear preset anchor bolts.



END ELEVATION

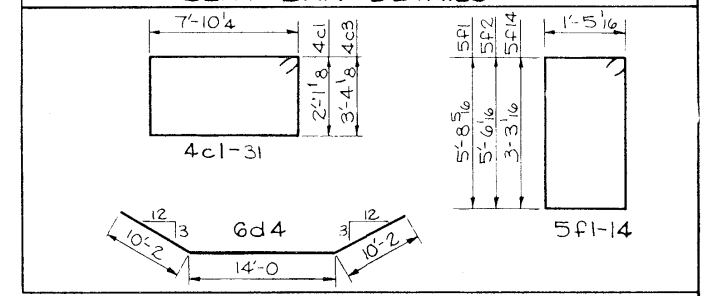


ANCHOR BOLT LOCATION

REINFORCING BAR LIST

Bar	Location	Shape	No.	Length	Weight
5a1	Footing Longitudinal Bottom	---	10	23'-8"	805
6a2	" Transverse "	---	30	8'-8"	391
6a3	" Longitudinal Top	---	10	23'-8"	355
4a4	" "	---	30	8'-8"	174
10b1	Column Vertical	---	36	30'-0"	4647
10b2	Column Dowels	---	46	6'-0"	1,188
4c1-31	Column Ties	□	62	Varies	901
11d1	Cap Longitudinal Top	---	6	33'-8"	1,073
11d2	" "	---	6	26'-2"	834
6d3	" " Center	---	4	33'-8"	202
6d4	" " Bottom	---	4	34'-4"	206
5f1	Cap Stirrups	□	26	15'-0"	407
5f2-14	" "	□	52	Varies	669
Total					11,852

BENT BAR DETAILS



CONCRETE PLACEMENT QUANT. - ONE PIER

Location	Quantity
Cap	17.0 C.Y.
Column	46.6 C.Y.
Footing	28.0 C.Y.
Total	91.6 C.Y.

TOTAL ESTIMATED QUANTITIES - TWO PIERS

Quantity	Quantity
Concrete	183.2 C.Y.
Reinforcing Steel	23,704 lbs.
Class 21 Excavation	110 C.Y.
Class 22 Excavation	190 C.Y.

TABLE A

Pier	Grade Elev.	Gr. to Br. St.	Br. St. Elev.	Low Step Elev.	Bot. Ftg. Elev.
West	1063.84	5'-0 15/16	1058.76	1058.54	1021.04
East	1063.61	5'-0 15/16	1058.53	1058.32	1020.82

PIER NOTES:

Minimum clear distance from face of concrete to near reinforcing bar is ~~to be~~ 2" unless otherwise noted or shown.
Anchor bolts ~~were~~ preset. Weight of anchor bolts is included in superstructure structural steel estimate.
Footings ~~are to~~ extend at least 6' into hard limestone with the final 6' of excavation to ~~be~~ neat lines of footing.

Design for
210'-0" x 30' CONTINUOUS I-BEAM BRIDGE
64'-0" End Spans 82'-0" Interior Spans
Concrete Floor & Substructure Aluminum Handrail

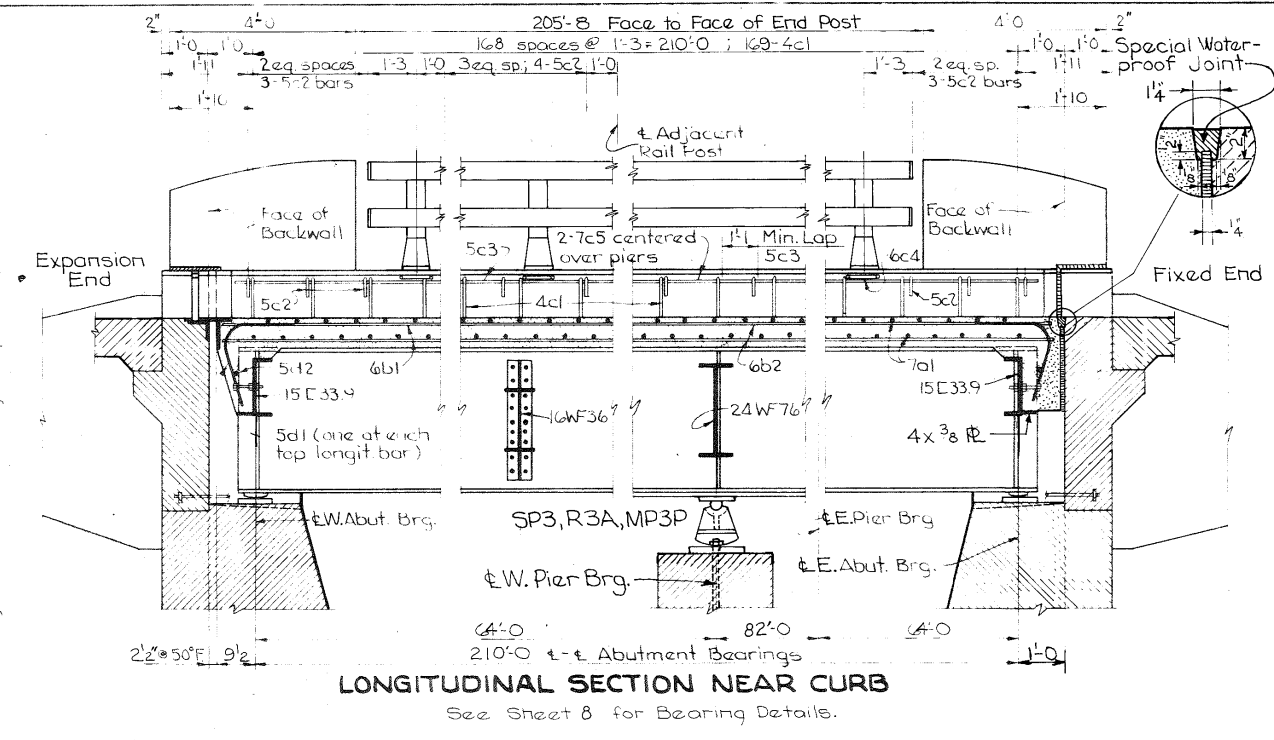
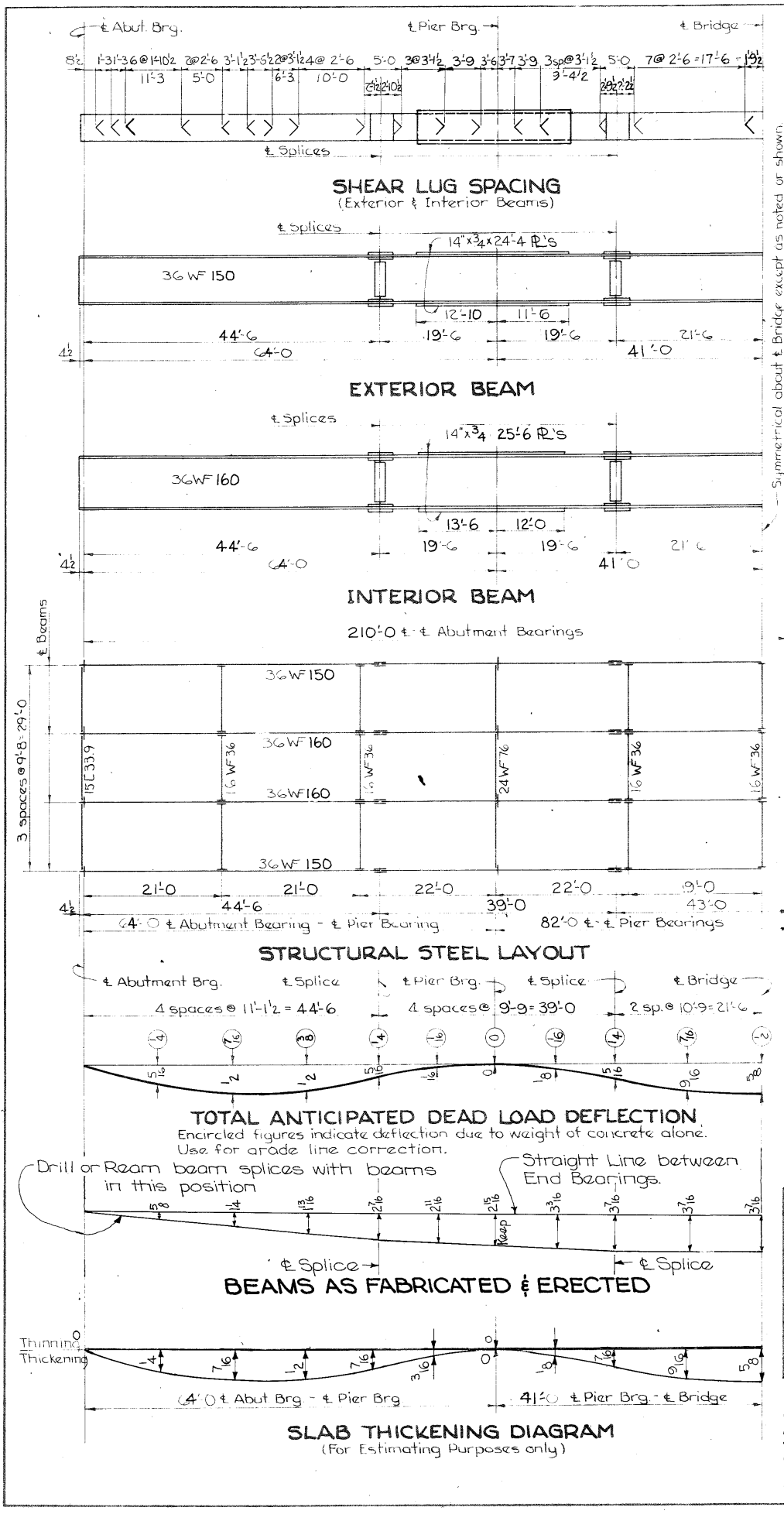
PIER DETAILS

Station 222+67 on Ia.#92 Proj.No. F-92-4(1)**20-61

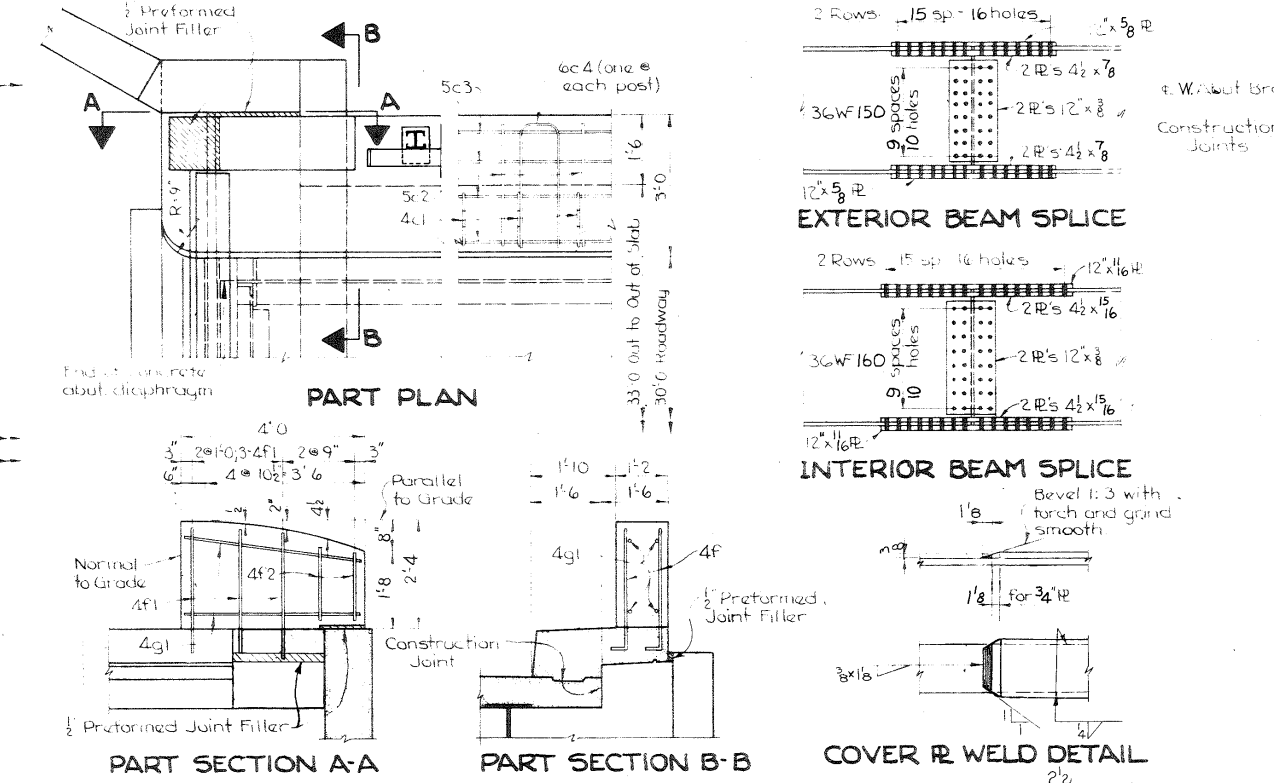
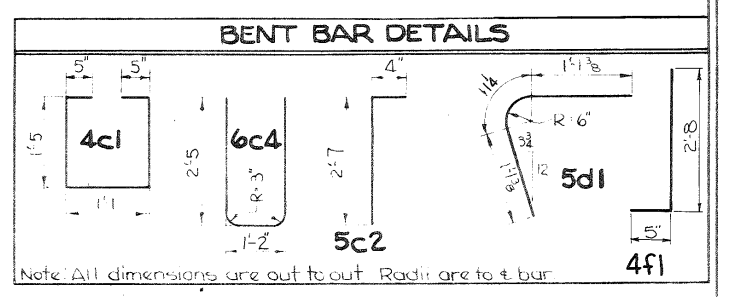
MADISON COUNTY

Iowa State Highway Commission
January, 1966 Sheet 5 of 10
Design No. 965 Madison County File No. 21900

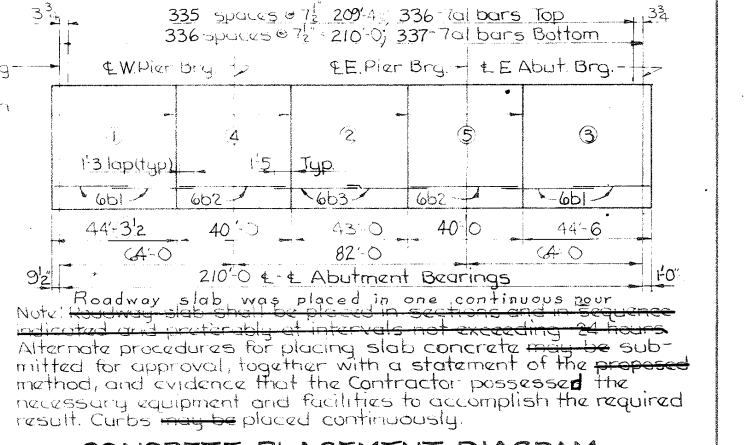
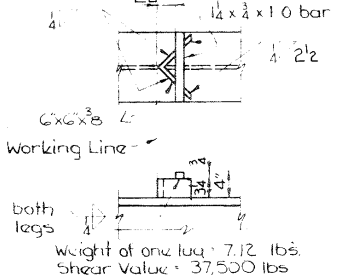
Designed by: A.G.L. Traced by: JPI Checked by: WAL



REINFORCING STEEL ~ SUPERSTRUCTURE					
Bar	Location	Shape	N ^o	Length	Weight
7a1	Slab, Transverse, Top & Bottom	673	32-8	4-4937	
6b1	Slab, Longitudinal, Top & Bottom, 1 & 3	196	23-5	6894	
6b2	Slab, Longitudinal, Top & Bottom, 4 & 5	98	39-8	5,839	
6b3	Slab, Longitudinal, Top & Bottom, 2	98	23-7	3,471	
4c1	Curb, Transverse, Hoops	338	4'-6"	1,016	
5c2	Curb, Transverse	204	2'-10"	603	
5c3	Curb, Longitudinal	48	36'-2"	1,811	
6c4	Curb, Transverse @ Posts	50	5'-10"	438	
7c5	Curb, Longitudinal @ Pier	8	30'-0"	491	
5d1	End Diaphragm, Vertical	48	3'-2"	159	
5d2	End Diaphragm, Horizontal	2	28'-8"	60	
4f1	Wing Post, Vertical	24	3'-0"	48	
4f2	Wing Post, Vertical	16	1'-5"	15	
4g1	Wing Post, Horizontal	16	3'-8"	39	
Total, lbs.					65,821



MOMENTS & REACTIONS											
Moments in Ft. Kips						Reactions in Kips					
	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Int.
D.L. N ^o 1	0.807	259	199.8	313.35	499.7	779.6	179.1	280.9	18.0	28.1	66.7
D.L. N ^o 2	0.621	0.102	170.8	28.1	337.3	55.4	183.4	30.1	14.6	2.4	50.6
U.L.L.	0.482	0.5624	—	—	294.8	343.8	—	—	—	—	41.6
C.L.L.	13.534	15.811	—	—	177.8	207.5	—	—	—	—	19.6
H20-S16	24.096	28.128	537.4	627.3	—	—	560.0	653.7	44.8	53.3	19.4
Impact	—	—	140.0	163.1	118.0	138.0	134.4	157.0	11.9	13.9	15.5
Total	—	—	—	—	1427.6	1524.3	—	—	89.3	97.7	201.8



CONCRETE PLACEMENT QUANTITIES	
Sections 1	38.5 cu.yds
Section 2	36.9 "
Sections 4 & 5	39.2 "
Curbs	2 @ 32.6 = 65.2 "
End Posts	42.2 "
Total	223.5 cu.yds

ESTIMATED QUANTITIES ~ SUPERSTRUCTURE	
Item	Quantity
Structural Concrete Class D	223.5 cu.yds
Reinforcing Steel	65,821 lbs.
Structural Steel	182,686 lbs.

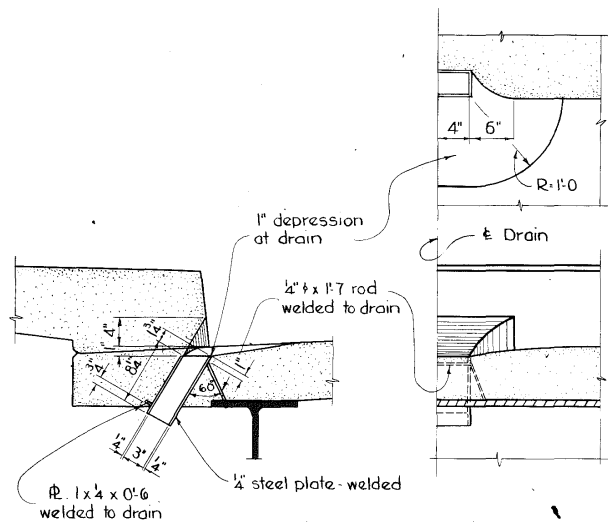
Note: L₁ curb was inadvertently poured with c-4 mix in lieu of D-57 mix (See E.W.O. No. 3)

Design for
210'-0" x 30' CONTINUOUS I-BEAM BRIDGE
64'-0" End Spans
Concrete Floor & Substructure
82'-0" Center Span
Tubular Handrail

SUPERSTRUCTURE DETAILS
Station: 222+67 on Ia #92
Proj. No. F-92-4(1) *20-61
MADISON COUNTY
Iowa State Highway Commission
January, 1966
Design: N^o 965
Madison County

Sheet 6 of 10
File N^o 21900

* Upper figure is for moment, lower figure is for shear.
** Pier increase = 14% = Total not given due to composite action.
Note: Moments & Reactions shown are for normal Live Load & Impact. Positive moments due to Dead Load N^o2 and Live Load and Impact are resisted by composite action. Shear lugs insure composite action.
Dead Load N^o1 includes weights of slab, beams, diaphragms, cover plates and shear lugs.
Dead Load N^o2 includes weights of curbs, rail, rail posts, rail post anchorages, and future wearing surface.

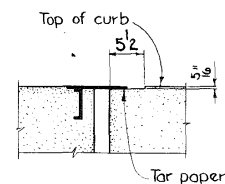


Note: See Situation Plan, Sheet 1 for sp'g
12 Req'd. Wt. 165 lbs. each

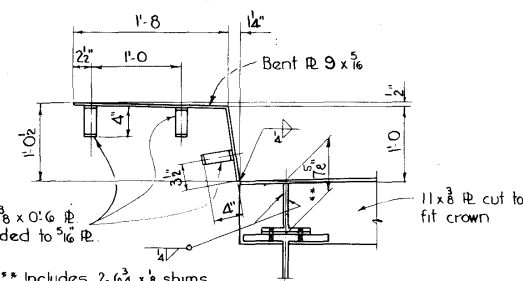
DRAIN DETAILS

Scale: 1" = 1'-0"

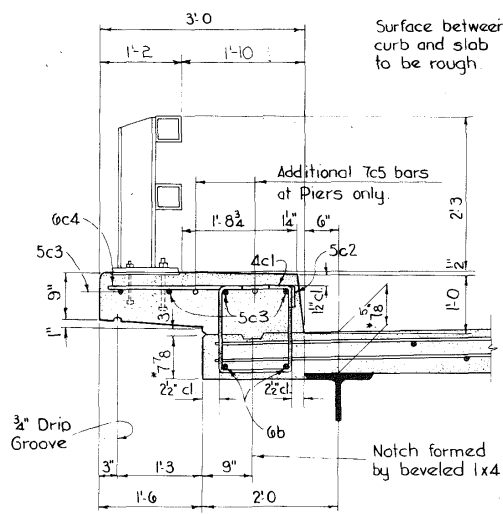
Note: 4" x 8" outside dimension rolled tube with 1/2" wall thickness may be substituted for the welded floor drain shown.



SECTION A-A

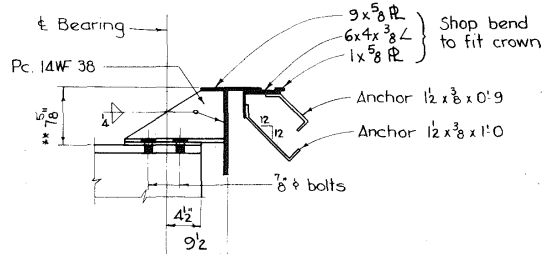


** Includes 2-6/8 x 8 shims
(Furnish 4 shims)

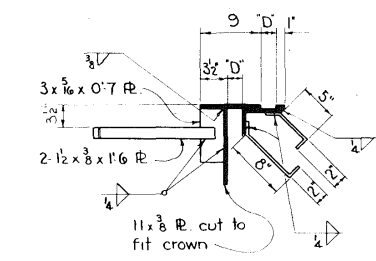


CURB DETAILS

Scale: 3/4" = 1'-0"



SECTION C-C

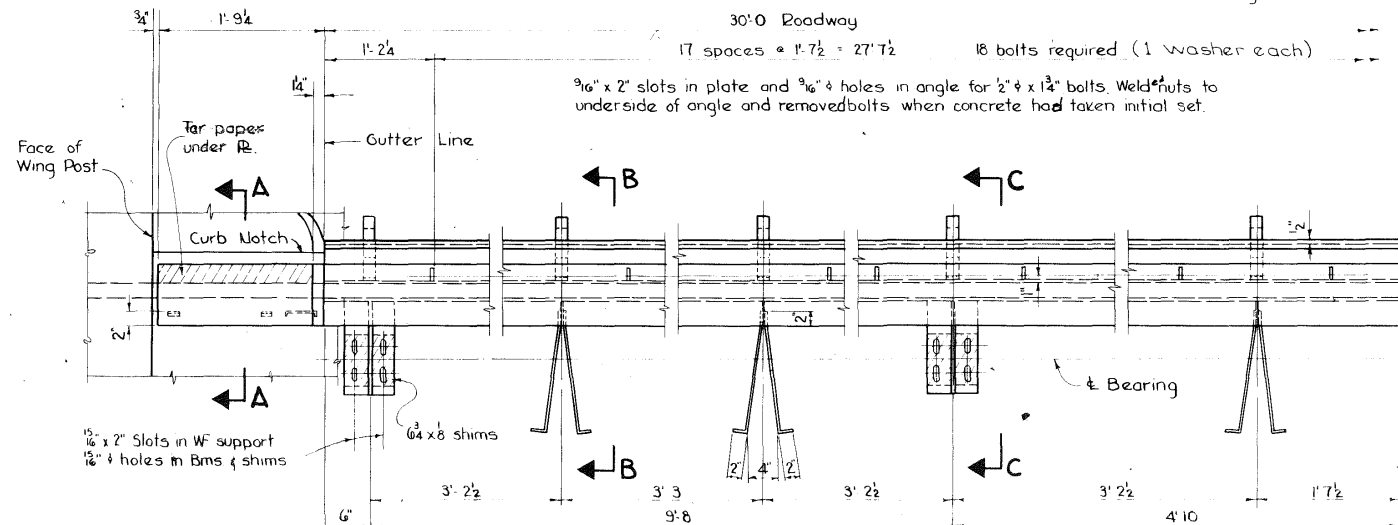


SECTION B-B

Note: Dimension "D" is 2 1/2" for a temperature of 50° F, 3 1/8" for 10° F, and 1 1/8" for 90° F. Proportionate values ~~are to be~~ used for other temperatures.

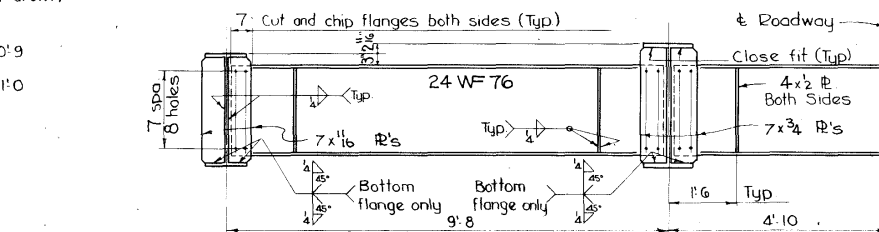
Symmetrical about
to Roadway

18 bolts required (1 washer each)



EXPANSION PLATE DETAILS

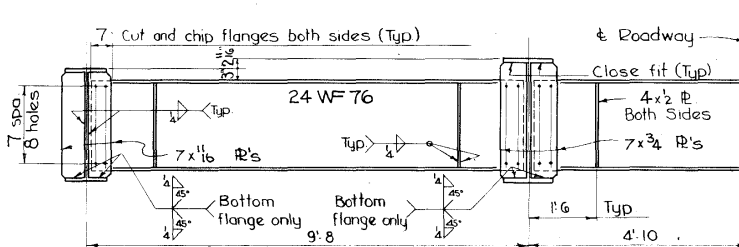
Scale: 1" = 1'-0"



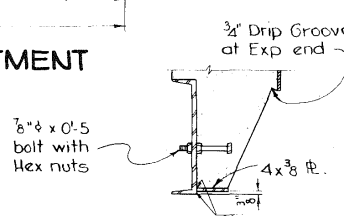
HALF INTERMEDIATE SECTION

Scale: 1/2" = 1'-0"

Note: The bottom of the slab is ~~to be~~ a flat surface between the top of the top flanges of adjacent beams.
* Indicates nominal dimensions



HALF SECTION NEAR ABUTMENT

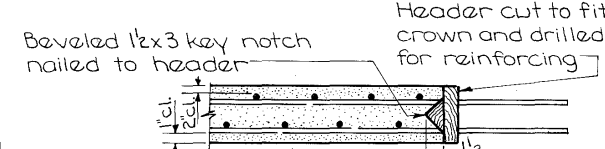


SECTION THROUGH ABUTMENT DIAPHRAGM (Expansion End Shown)

SUPERSTRUCTURE NOTES:

This bridge is designed for H20 S16 loading,
plus 19 sq ft of roadway for future wearing surface.
The floor slab, as shown, includes 2" of wearing surface.
Fizid connections are ~~to be~~ bolted. Splice connections ~~will~~ required.
High Tensile Strength Bolts.
All open holes are ~~to be~~ 1/2" unless otherwise noted.
All bolts are ~~to be~~ 3/4" unless otherwise noted.
Bottom flanges of beams are ~~to be~~ perpendicular to webs at reaction points.

Masonry plates are ~~to be~~ set in paint & canvas.
Bearing surfaces of unfinished masonry plates are ~~to be~~ flat and true.
Shop coat of paint is ~~to be~~ omitted on tops of top flanges of beams and on other steel surfaces in contact with concrete.
Parts inaccessible after erection ~~were~~ given three coats of paint in the shop.
Forms for the slab and curb are ~~to be~~ supported by the beams.
Approved stud shear connectors may be used as an alternate for the angle shear connectors shown. If studs are used, each angle lug is to be replaced by a group of 10 3/4" x 4" studs. The centroid of the stud group is to be in the approximate location of the angle lug replaced. Studs are to be welded at the shop at locations shown on shop drawings approved by the Iowa State Highway Commission.



CONSTRUCTION JOINT DETAIL

210'-0" x 30' CONTINUOUS I-BEAM BRIDGE

64'-0" End Spans 82'-0" Interior Span
Concrete Floor & Substructure Tubular Hand Rail

SUPERSTRUCTURE DETAILS

Station: 222+67 on Ia. #92 Proj. No. F-92-4(1)**20-61

MADISON COUNTY

Iowa State Highway Commission

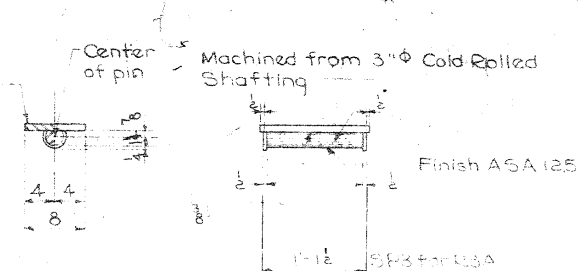
January, 1966

Sheet 7 of 10

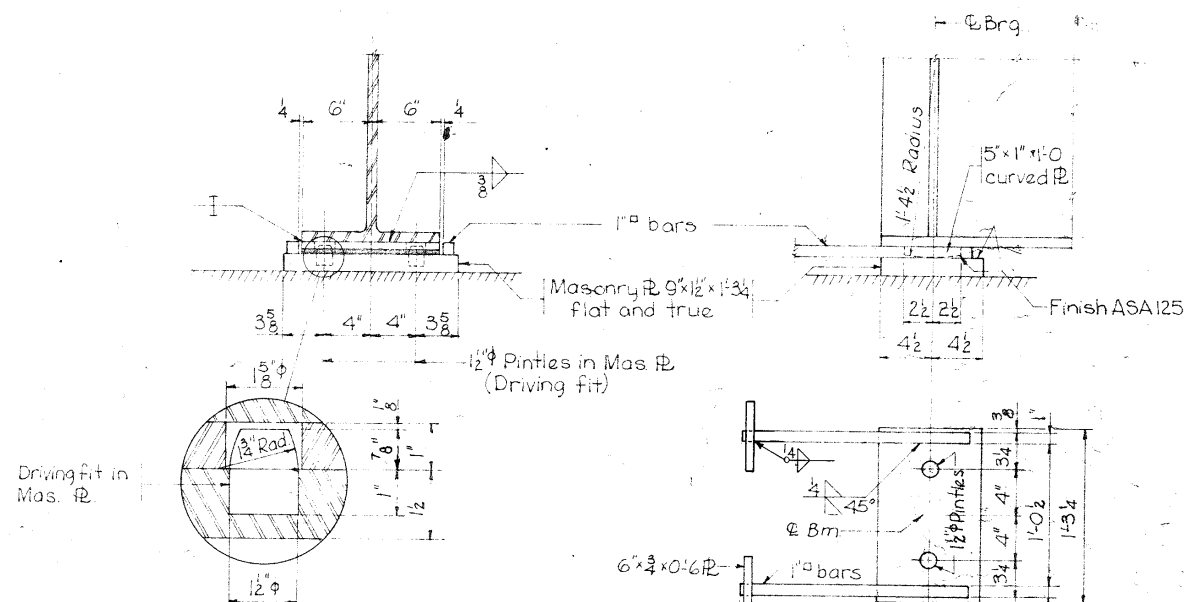
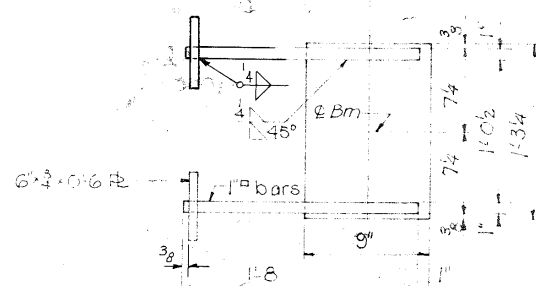
Design No. 965

Madison Co.

File No. 21900



WT
SP3 - 43 1b



The coating or _____ shall comply with Article 4 of DIN 55961 IHC Standard Specifications for either Gray Iron or Nodular Iron.

The following listed items _____

Molded _____

of ASTM A86 Steel.

The parts _____ comply with the requirements of the IHC Standard Specification for the _____ components of ASTM A 86 Steel.

All bearings are _____

Another part _____

Article 2409-47 _____

After cleaning and _____ were
correctly finished, checked _____
fill the bearing _____

The weight of the _____
the weight of the _____

Surfaces _____

It was coated with _____
and followed by _____
The shot _____ were _____
then a field of _____
applied over surface _____
in the type _____

DISTANCE FROM TOP OF SOLE
PLATE TO BRIDGE SEAT

* Intention to paint and ...



ROCKER & EXPANSION PLATE SETTING					
	W. Abut		W. Pier	E. Pier	E. Abut.
Temp. at time of setting					Fixed Curved Plate
10°	3 1/8	-5/8	-7/16	-3/16	—
50°	2 1/2	0	0	0	—
90°	1 1/2	+ 5/8	+ 1/2	+ 3/8	—

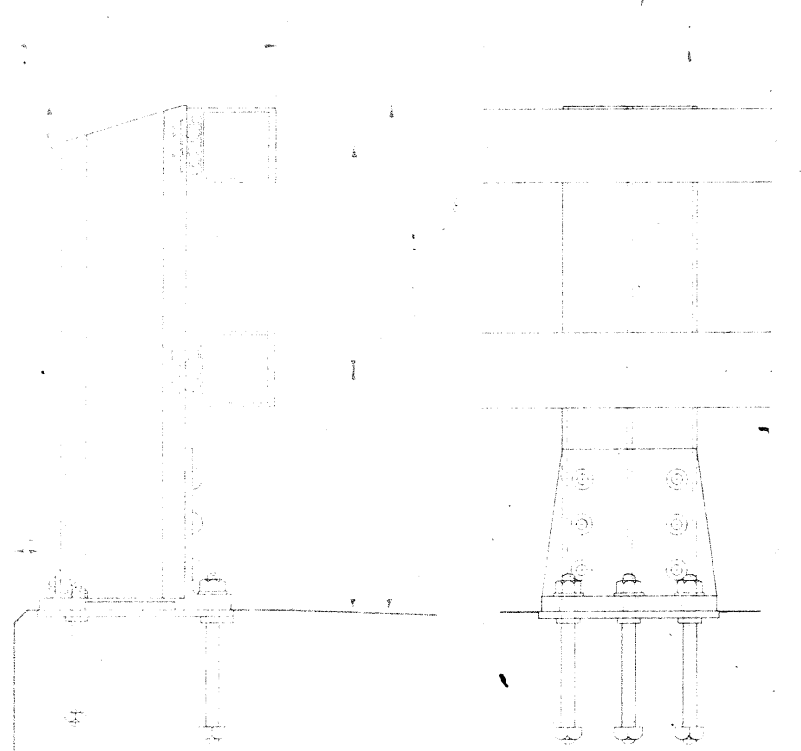
Plus(+) setting indicates rockers tipped toward expansion plate.
Minus(-) setting indicates rockers tipped toward fixed end.

BEARING SUMMARY			
Location	Type	No. Req'd.	Weight
West Abut.	Curved R	4	64
	Mas. R	4	344
Piers	SP3	8	344
	R3A	8	2072
	MP3P	8	1992
	Anchor bolt	16	195
East Abut.	Curved R	4	64
	Mas. R	4	348
Total			5423

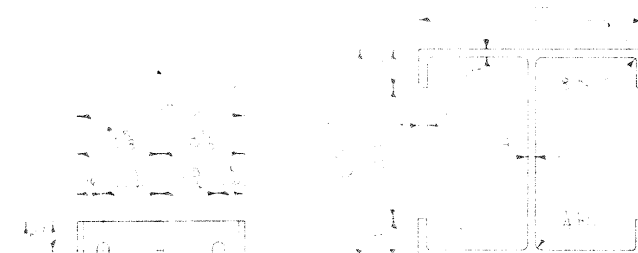
MAXIMUM REACTION (in kips)		P.30
		263

Design For
210'x30' CONTINUOUS I-BEAM BRIDGE
64'-0" End Spans 82'-0" Center Span
Concrete Floor & Substructure Tubular Handrail
BEARING DETAILS
Station: 222+67 on Ia. #92 Proj. No. F-92-4(1)**206
MADISON COUNTY
IOWA STATE HIGHWAY COMMISSION
January, 1966 Sheet 8 of 10

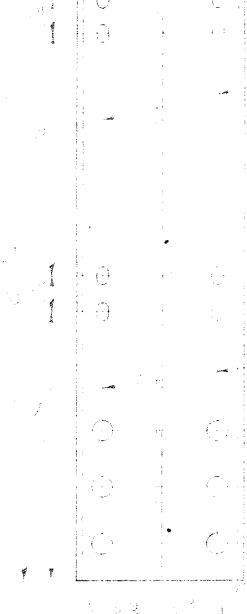
Design N° 965 Madison County File N° 21900
Designed By: AGL Traced By: M Checked By: WA



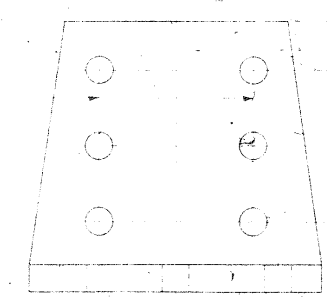
RAIL POST ASSEMBLY



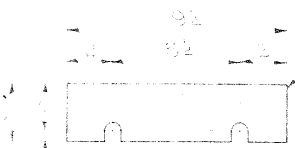
POST SECTION



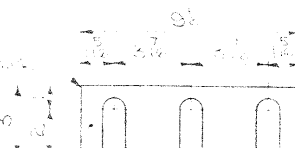
REAR VIEW OF POST



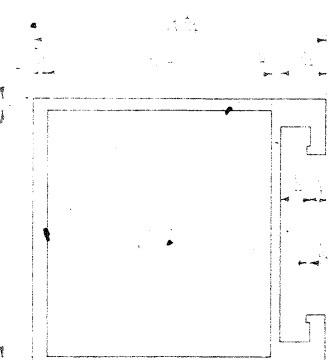
POST BASE PLATE DETAILS



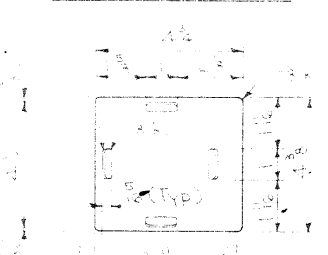
SHIM "A" DETAIL



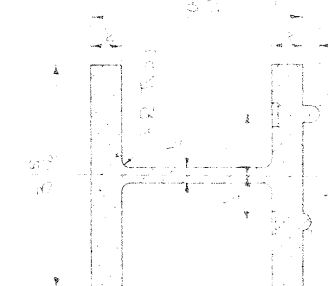
SHIM "B" DETAIL



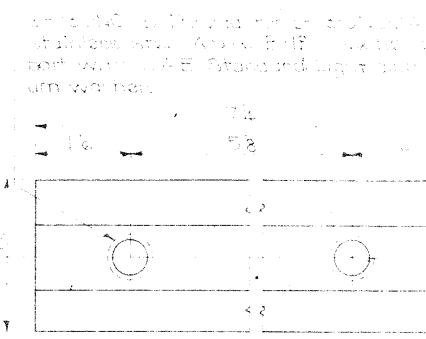
RAIL SECTION



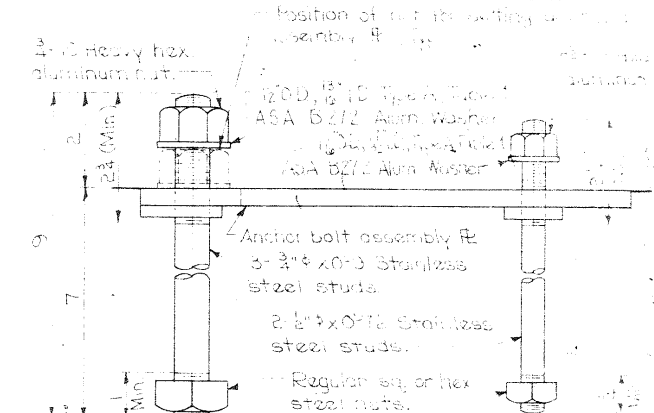
RAIL END CAP DETAILS



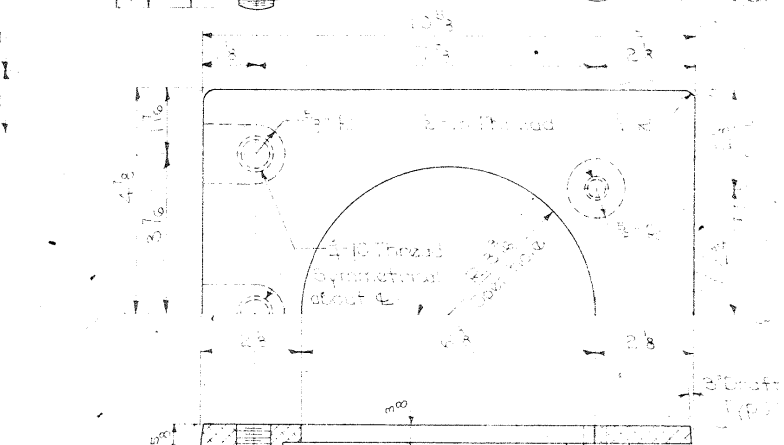
SECTION A-A



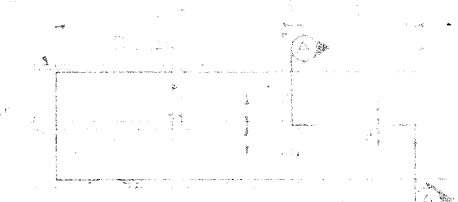
CLAMP BAR DETAILS



ANCHOR BOLT ASSEMBLY



TYPICAL ELEVATION OF RAILING AND RAIL POST LAYOUT



RAIL SPICE DETAIL

ALUMINUM HANDRAIL NOTES:

1. All dimensions are in inches unless otherwise noted.

2. Material and finish shall be as specified in the contract documents.

3. The contractor shall be responsible for obtaining all necessary permits and approvals.

4. The contractor shall be responsible for the safety of the work area.

5. The contractor shall be responsible for the protection of existing structures.

6. The contractor shall be responsible for the removal and disposal of debris.

7. The contractor shall be responsible for the cleanup of the work area.

8. The contractor shall be responsible for the final inspection and acceptance.

9. The contractor shall be responsible for the final payment.

10. The contractor shall be responsible for the final report.

DESIGN SPECIFICATIONS:

ALUMINUM HANDRAIL QUANTITIES	
Aluminum Handrail	410.3

Design For
210'x30' CONTINUOUS I-BEAM BRIDGE
 64'-0" End Spans 82'-0" Center Span
 Concrete Floor & Substructure Tubular Handrail
ALUMINUM HANDRAIL DETAILS
 Station: 222+67 on Ia #92 Proj. No. F-92-4(1)**20-61
MADISON COUNTY
 Iowa STATE Highway Commission
 January, 1966 Sheet 9 of 10

