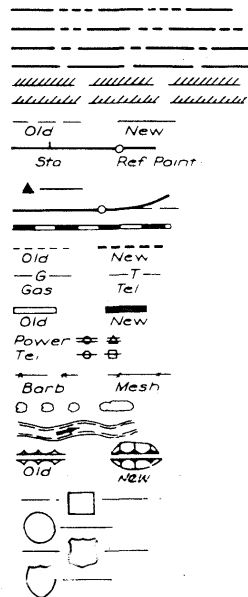


BRIDGE REPAIR  
IN-380-6-(161) 263--15-57

LINN COUNTY

CONVENTIONAL SIGNS

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



IOWA  
DEPARTMENT OF TRANSPORTATION  
**Highway Division**

PLANS OF PROPOSED IMPROVEMENT ON THE

INTERSTATE ROAD SYSTEM  
**LINN COUNTY**  
BRIDGE REPAIR

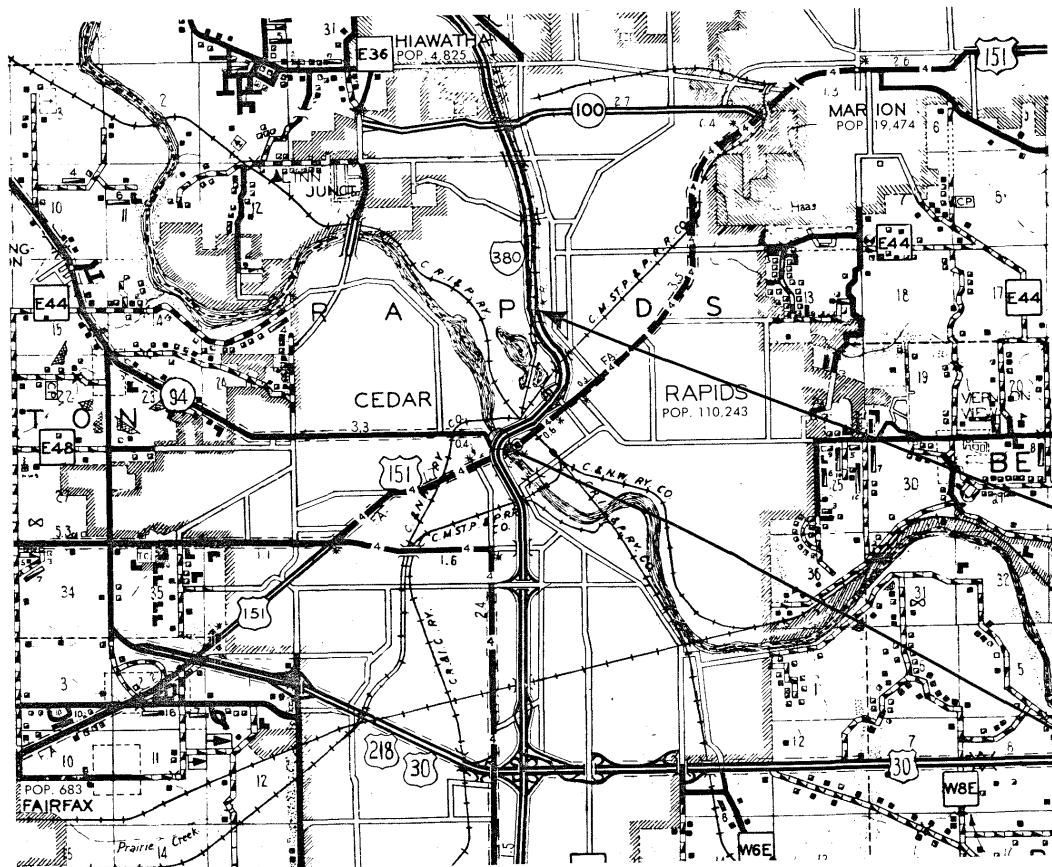
I-380 IN CITY OF CEDAR RAPIDS (2 LOCATIONS)

SCALES AS NOTED

THE STANDARD SPECIFICATIONS, SERIES OF 1984  
OF THE IOWA DEPARTMENT OF TRANSPORTATION,  
SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT  
(PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS)

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	6	1	25	
PROJECT NUMBER				
IN-380-6-(161) 263--15-57				
R.O.W. PROJECT NUMBER				
PIN 87-57--090-1				

INDEX OF SHEETS	
NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATE SHEET
3 - 11	BRIDGE DESIGN NO. 1786
<del>12 - 25</del>	<del>BRIDGE DESIGN NO. 1886</del>



LOCATION MAP



CONSTRUCTION PLANS SHOWING PROJECT AS BUILT

Plan Preparation Supervised By: Paul R. Buttle  
Resident Construction Engineer  
Date 1-25-88 Iowa Reg. No. 10048

REVIEWED AND FORWARDED TO AMES

District Construction Engineer Date  
One 50% Reduced and Two Full-Size Prints To Be Made and Returned To

District Engineer  
AFTER MICROFILMING RETURN ORIGINAL  
TO DISTRICT NO. 150\*

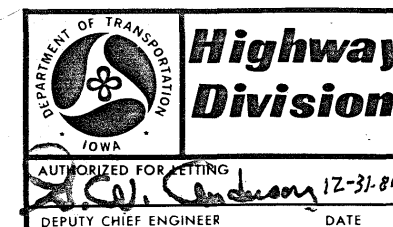
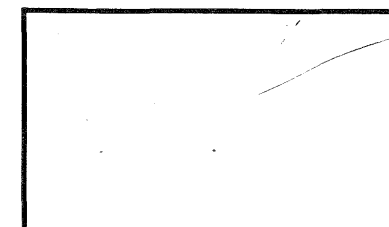
~~DESIGN NO. 1886~~

DESIGN NO. 1786

THIS AS BUILT PLAN INCLUDES			
YEAR	WORK	CONTRACTOR	PROJ. INSPECTOR
1987	BRIDGE REPAIR	CRAMER ASSOC.	J. CAMPBELL

STANDARD ROAD PLANS			
IDENT	DATE	IDENT	DATE
RF-19E	2-17-87		
RH-2A	9-23-86		
RH-2B	8-20-85		
RK-16	2-17-87		
RS-62	11-5-85		
RS-63A	2-17-87		
RS-65A	2-17-87		

STANDARD BRIDGE PLANS		
STANDARD	ISSUED	REVISED



I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED  
UNDER MY SUPERVISION AND THAT ENGINEERING  
DECISIONS WITH REGARD TO THE DESIGN WERE  
MADE BY ME OR BY OTHER DULY REGISTERED  
PROFESSIONAL ENGINEERS UNDER THE LAWS OF  
THE STATE OF IOWA.  
William A. Zundquist  
IOWA REGISTRATION NUMBER 2445 DATE 12/30/87

U.S. DEPT. TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
APPROVED  
DIVISION ENGINEER DATE

1-5-87      Wendal Johnston      REG. NO. 4316  
DATE      WENDAL JOHNSTON

12/30/86  
DATE

James R. Sassaman  
JAMES R. SASSAMAN

REG. NO. 2663

IN LETTING OF FEBRUARY 17, 1987

ESTIMATE REFERENCE INFORMATION			100-4
Data listed below is for informational purposes only and shall not constitute a basis for any extra work orders.			
ITEM NO.	DESCRIPTION		
EXTRA WORK ORDERS			
	DESCRIPTION	UNIT	TOTAL
8001	Remove and replace shoulder panels	Sq yds	44.4
8002	Place permanent pavement markings	Sta.	25.85
8003	Furnish and place extra reinforcing steel	Agreed Price	\$ 1135.00

Letting Date FEBRUARY 17, 1987		OVER "J" AVE. N.E.	STATION: 433 + 33.67
LINK COUNTY		MAINT. NOS. 5721.9L380 & 5721.9R380	
SECTION 16		T-83N R-7W	RAPIDS TOWNSHIP
DESIGN FOR REPAIRS TO 0° SKEW 228'-8 X 68' DUAL PRESTRESSED CONCRETE BEAM BRIDGE			
<b>OF QUANTITIES - BRIDGE GRP 2</b>			
No.	Item	Unit	Total
6	BRIDGE REPAIR	L.S.	\$ 8664.00
7	REMOVALS, AS PER PLAN	L.S.	\$ 8500.00
8	TEMPORARY FLOODLIGHTING	L.S.	\$ 4000.00
9	PAVEMENT MARKINGS	STA.	561.71
10	TRAFFIC CONTROL	L.S.	7490.00
11	TEMPORARY BARRIER RAIL - FURNISH ONLY	L.F.	500
12	TEMPORARY BARRIER RAIL - PLACE ONLY	L.F.	2000
13	CONCRETE SEALER AS PER PLAN	SQ. FT.	109
14	BRIDGE APPROACH SECT., REINF. AS PER PLAN	SQ. YDS.	617.3
15	REMOVAL OF PAVEMENT	SQ. YDS.	615.8
16	BACKFILL, SPECIAL	TONS	153.7
17	MOBILIZATION	L.S.	\$ 4000.00
18	FIAGGERS	DAYS	8.5
19	STOCKPILED MATERIALS	ONLY	0

ESTIMATE REFERENCE INFORMATION		100-4
Data listed below is for informational purposes only and shall not constitute a basis for any extra work orders.		
ITEM NO.	DESCRIPTION	
6	INCLUDES 268 -3/4" Ø X 0'-9 THREADED RODS WITH NUTS AND 697 LBS. OF REINFORCING STEEL. ALL CONCRETE TO BE CLASS "D".	
9	INCLUDES 245.4 STA. REMOVAL OF PAVEMENT MARKINGS, 151.8 STA. OF YELLOW TEMPORARY AND PERMANENT PAVEMENT MARKINGS, AND 95.8 STA. OF WHITE TEMPORARY AND PERMANENT PAVEMENT MARKINGS.	
11	ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS. QUANTITY SHOWN ASSUMES REPAIR WILL BE MADE ON ONE BRIDGE AT A TIME.	
12	QUANTITY PROVIDES 500' OF PLACEMENT ON EACH STAGE OF CONSTRUCTION. ASSUMES A TOTAL OF 4 STAGES.	
14	PLAN INTENT IS TO REPLACE 20' OF REINFORCED BRIDGE APPROACH SECTION ONLY. PROPOSED APPROACH ROADWAY PAVEMENT AS INDICATED ON STD. RD. PLAN RK-16 WILL NOT BE REPLACED. THE 4" PERFORATED SUBDRAIN SHALL BE PLACED AT THE END OF THE REINFORCED BRIDGE APPROACH SECTION.	
15	TO BE DISPOSED OF AS PER STD. NOTATION 213-1. INCLUDES EXISTING SHLDR. MATERIAL.	

# ESTIMATE SHEET

DESIGN NOTES

GENERAL

THIS DESIGN PROPOSES DIAMOND GRINDING OF PCC BRIDGE FLOOR SURFACE, IN THE VICINITY OF INDIVIDUAL FLOOR JOINTS, TO ACHIEVE PROFILE IMPROVEMENT. AFTER GRINDING, EACH AREA DESIGNATED FOR "BRIDGE FLOOR SURFACE REPAIR" SHALL BE DIAMOND GROOVED. THIS WORKED IS TO BE PERFORMED ON THE FOLLOWING BRIDGES:

1. DESIGN NO. 1276 LINN COUNTY, I-380 SOUTH APPROACH TO THE CEDAR RIVER CROSSING, CONT. WELDED GIRDER, SOUTHBOUND AND NORTHBOUND.
2. DESIGN NO. 174 LINN COUNTY, I-380 OVER THE CEDAR RIVER, PRETENSIONED, PRESTR. CONC. BEAM SPANS, SOUTHBOUND AND NORTHBOUND.
3. DESIGN NO. 1176 LINN COUNTY, I-380 NORTH APPROACH TO THE CEDAR RIVER CROSSING, CONT. WELDED GIRDER, NORTHBOUND AND SOUTHBOUND.

ALL STRUCTURES HAVE TWO COURSE BRIDGE FLOOR CONSTRUCTION. THE TOP COURSE IS A NOMINAL TWO INCHES OF SURFACING CONCRETE CONFORMING TO 2413.02A OF THE STANDARD SPECIFICATIONS. THE CONCRETE SURFACES ARE TINED TRANSVERSE TO THE ROADWAY. REINFORCING COVER IS A NOMINAL ONE INCH IN THE FIRST COURSE PLUS THE NOMINAL TWO INCHES OF SURFACE COURSE. TOP SLAB REINFORCING BARS IN THE APPROACH STRUCTURE FLOORS (DESIGNS 1276 AND 1176) ARE EPOXY COATED. ALL REINFORCING BARS OF THE RIVER SPANS (DESIGN 174) ARE UNCOATED.

THE SPECIFIC JOINTS, AT WHICH THE PCC SURFACE IS TO BE REPAIRED, ARE TABULATED ON DESIGN SHEET 2 AND ARE REFERENCED TO SITUATION PLANS INCLUDED IN THIS DESIGN. THE JOINTS TO BE REPAIRED AND THE LIMITS OF REPAIR AT EACH JOINT ARE BASED ON EXAMINATION OF PROFILOGRAPH SURVEYS---ONE PROFILOGRAM TRACE FOR EACH OF THE SIX MAINLINE LANES EXTENDING THE LENGTH OF THE THREE CONTIGUOUS STRUCTURES. THE JOINT NUMBER DESIGNATIONS (ENCIRCLED) ON THESE PLANS CORRESPOND TO JOINT DESIGNATIONS ON THE PROFILOGRAMS. THE PROFILOGRAMS WILL BE AVAILABLE FROM THE ENGINEER PRIOR TO CONSTRUCTION.

ESTIMATED QUANTITIES ON THESE PLANS ARE FOR BIDDING PURPOSES ONLY. AFTER CONSTRUCTION TRAFFIC CONTROL HAS BEEN PLACED BUT BEFORE GRINDING, THE ENGINEER WILL DETERMINE THE ACTUAL BOUNDARIES BY STRAIGHTEDGING OR STRINGLINING. PAY QUANTITIES FOR "BRIDGE FLOOR SURFACE REPAIR" WILL BE BASED ON THE ACTUAL FIELD DETERMINATIONS AND ART. 1109.03 SHALL NOT APPLY.

CONCRETE REMOVAL SHALL BE LIMITED TO 0.75 INCH ON THE APPROACH SPANS AND SHALL BE AVOIDED ON THE RIVER SPANS. THE SURFACE ROUGHNESS VARIES SIGNIFICANTLY ACROSS THE BRIDGE ROADWAY, BUT THE ENTIRE ROADWAY WIDTH, GUTTER TO GUTTER, SHALL BE CONSIDERED FOR PROFILE CORRECTION AT A DESIGNATED JOINT. NO RIDGES DUE TO REMOVAL SHALL BE ALLOWED BETWEEN ADJACENT LANES NOR BETWEEN A LANE AND ADJACENT SHOULDER.

EQUIPMENT

GRINDING SHALL BE DONE UTILIZING DIAMOND BLADES MOUNTED ON A SELF-PROPELLED MACHINE THAT HAS BEEN DESIGNED FOR GRINDING OF ROADWAY SURFACES. THE EQUIPMENT SHALL BE SUCH THAT IT WILL NOT CAUSE STRAIN OR DAMAGE TO THE UNDERLYING SURFACE OF THE PCC FLOOR. GRINDING EQUIPMENT THAT CAUSES EXCESSIVE RAVELS, AGGREGATE FRACTURES OR SPALLS WILL NOT BE PERMITTED.

GROOVING SHALL BE DONE UTILIZING DIAMOND BLADES, MOUNTED ON A MULTI-BLADE ARBOR AND DRIVEN BY A SELF PROPELLED MACHINE WHICH HAS BEEN BUILT FOR GROOVING OF ROADWAY SURFACES. THE GROOVER SHALL HAVE A DEPTH CONTROL DEVICE WHICH WILL DETECT VARIATIONS IN THE PAVEMENT SURFACE AND WILL ADJUST THE CUTTING HEAD HEIGHT TO MAINTAIN THE DEPTH OF GROOVE SPECIFIED. THE GROOVING MACHINE SHALL BE PROVIDED WITH DEVICES TO CONTROL ALIGNMENT.

GRINDING

THIS WORK SHALL CONSIST OF GRINDING THE PCC SURFACES ADJACENT TO DESIGNATED BRIDGE FLOOR JOINTS. THE GRINDING SHALL BE PERFORMED IN A LONGITUDINAL DIRECTION (PARALLEL TO LANE OR SHOULDER) AND SHALL BEGIN AND END AT LINES PERPENDICULAR TO THE RESPECTIVE LANE OR SHOULDER. THE GRINDING SHALL BE PERFORMED INDIVIDUALLY FOR EACH MAINLINE LANE, FOR EACH RAMP LANE AND FOR EACH SHOULDER. THE PCC AREA SHALL BE GROUND UNTIL THE FLOOR SURFACES ADJACENT TO OPPOSITE EDGES OF THE STEEL JOINT ARE AT THE SAME ELEVATION.

MAXIMUM CONCRETE REMOVAL SHALL BE LIMITED TO 0.75 INCH. IN ORDER TO RESTRICT CONCRETE REMOVAL, SOME STEEL JOINTS MAY REMAIN DEPRESSED, WITH RESPECT TO THE ADJACENT SURFACE, UP TO A MAXIMUM OF 0.4 INCH. THE STEEL JOINTS SHALL HAVE A MINIMUM DEPRESSION SUCH THAT DIAMOND BLADES WILL NOT SCORE THE STEEL. NO SPECIFIC PERCENTAGE OF THE PCC SURFACE BETWEEN BOUNDARIES WILL BE TARGETED FOR REMOVAL BY GRINDING. ACCEPTABILITY OF THE GROUND SURFACE, BOTH LONGITUDINALLY AND TRANSVERSELY, WILL BE DETERMINED WITH A SURFACE CHECKER AS DESCRIBED IN ARTICLE 2301.19B. SMOOTHNESS REQUIREMENT MAY BE MODIFIED OR WAIVED IN THOSE AREAS WHERE EXCESS GRINDING WOULD OTHERWISE BE REQUIRED.

GROOVING

TRANSVERSE GROOVING SHALL BEGIN AND END AT DESIGNATED BOUNDARY LINES PERPENDICULAR TO THE RESPECTIVE LANE OR SHOULDER. THE ACTUAL GROOVED AREA SHOULD NOT BE LESS THAN 90 PERCENT OF THE DESIGNATED AREA BETWEEN BOUNDARIES, BUT THE ENGINEER MAY WAIVE THIS REQUIREMENT FOR EXTRAORDINARY IRREGULARITIES. GROOVING SHALL RUN IN A CONTINUOUS PATTERN FOR EACH INDIVIDUAL LANE OR FOR EACH INDIVIDUAL LANE AND ADJACENT SHOULDER. GROOVING SHALL EXTEND AS CLOSE TO THE GUTTER AS PRACTICAL AND SHALL BE TERMINATED APPROXIMATELY 12 INCHES FROM A STEEL EXPANSION JOINT.

THE GROOVING BLADES SHALL BE POSITIONED SO THERE IS A RANDOM VARIATION IN CENTER-TO-CENTER SPACING BETWEEN 0.75 INCH AND 1.25 INCHES SO AS TO PROVIDE AN AVERAGE SPACING OF 0.875 INCH. THE WIDTH OF THE GROOVE SHALL NOT BE MORE THAN 0.115 INCH NOR LESS THAN 0.090 INCH. DEPTH OF GROOVES SHALL BE 0.188 INCH MAXIMUM AND 0.125 INCH MINIMUM.

LIMITATIONS

TRAFFIC CONTROL AND HOURS OF OPERATION ARE NOTED ELSEWHERE ON THESE PLANS. ALL CONSTRUCTION TRAFFIC ENTERING OR LEAVING THE WORK SHALL MOVE IN THE DIRECTION OF TRAFFIC.

REMOVAL OF ALL SLURRY OR RESIDUE, RESULTING FROM THE GRINDING AND GROOVING OPERATIONS, SHALL BE CONTINUOUS. SLURRY AND RESIDUE SHALL NOT BE PERMITTED TO FLOW ACROSS LANES OCCUPIED BY PUBLIC TRAFFIC NOR TO FLOW INTO JOINTS AND DRAINS. DISPOSAL WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND DEBRIS MAY NOT BE DISPOSED OF AT THE BRIDGE SITE. THE FLOOR SURFACE AND JOINTS MUST BE LEFT IN A CLEAN CONDITION. COST OF DISPOSAL SHALL BE INCIDENTAL TO THE PRICE BID FOR "BRIDGE FLOOR SURFACE REPAIR".

METHOD OF MEASUREMENT

THE ENGINEER WILL CALCULATE THE AREAS OF BRIDGE FLOOR SURFACE SATISFACTORILY GROUND AND GROOVED USING BOUNDARIES ESTABLISHED IN THE FIELD AND ACTUAL MEASUREMENTS OF LANE WIDTH OR LANE AND SHOULDER WIDTH. THESE AREAS, IN SQUARE YARDS, WILL BE THE BASIS FOR PAY QUANTITY OF "BRIDGE FLOOR SURFACE REPAIR" REGARDLESS OF THE PERCENTAGES OF ACTUAL GRINDING AND GROOVING PERFORMED WITHIN THE INDIVIDUALLY MEASURED AREAS. THE AREA OF STEEL EXPANSION JOINT WITHIN THESE DEFINED AREA LIMITS WILL NOT BE INCLUDED IN THE CALCULATED QUANTITY FOR PAYMENT.

BASIS OF PAYMENT

FOR THE NUMBER OF SQUARE YARDS OF "BRIDGE FLOOR SURFACE REPAIR", COMPLETED AND MEASURED AS PROVIDED IN THESE NOTES, THE CONTRACTOR WILL BE PAID THE CONTRACT PRICE PER SQUARE YARD. THIS PAYMENT WILL BE FULL COMPENSATION FOR FURNISHING ALL EQUIPMENT, MATERIALS AND LABOR REQUIRED TO GRIND THE PCC SURFACE, GROOVE THE SURFACE AND REMOVE AND DISPOSE OF SLURRY OR RESIDUE.

TRAFFIC CONTROL PLAN

108-23

11-10-83

1. Through traffic will be maintained on the project at all times.
2. Traffic control on this project shall be in accordance with the special layouts contained in the plans. For additional complementary information, refer to current supplemental specification for traffic controls.
3. Diamond grinding shall be done at night between the hours of 9:00 PM and 6:00 AM.  
  
All roadways shall be returned to normal traffic during non-working hours.
4. The contractor will be required to use supplemental lighting to illuminate the work area. The contractor shall submit proposals for lighting to the engineer in charge of construction for approval.
5. All construction vehicles and equipment shall be equipped with amber strobe lights.
6. The contractor shall be required to feather out the grinding to eliminate dropoffs in adjacent lanes during non-working hours.
7. Any trail blazing or on-ramp closures shall be the responsibility of the contracting authority. The contracting authority will furnish and operate variable message boards to alert motorists of exit ramp closures and to inform them of alternative exits.
8. Ramps within the work area may be closed when necessary. All ramps with the approach traffic control signing shall remain open as shown in the special traffic control layouts. The contractor shall notify the engineer when on-ramps are to be closed.
9. On-ramps within the traffic control signing area shall have a "Road Construction Ahead" sign placed 300 to 500 feet in advance of the "Yield" sign.
10. All traffic control devices shall be furnished, maintained and removed by the contractor except for special signs which shall be frnished by I.D.O.T. but erected, maintained, removed and returned by the contractor.
11. Where possible, all post mounted signs shall be placed a minimum of two feet clear of the shoulder.
12. The location for overnight storage of equipment by the contractor shall be approved by the engineer in charge of construction. Parking of private vehicles on interstate right-of-way will not be allowed. Parking of unattended equipment within the median, or overnight storage of equipment within 50 feet of the edge of pavement will not be allowed.
13. Proposed sign spacing may be modified, as approved by the engineer to meet existing field restrictions, or to prevent obstruction of the motorist's view of permanent signing.
14. Proposed changes in the traffic control plan shall be reviewed with the office of construction before changes are made.
15. The bid item "Traffic Control" shall include the cost for all traffic control measures required of the contractor except for those which are separate bid items or are incidental to other bid items.

TOTAL	QUANTITIES	
ITEM	UNIT	TOTAL
Bridge Floor Surface Repair	Sq. Yd.	4057.5
Traffic Control	L.S.	\$5000.0
Mobilization	L.S.	\$5000.0
Flaggers	Days	0
Stockpiled Materials	1 only	0

LOCATION

Linn County  
T-83N R-7W  
Section 21 and 28  
Rapids Twp.  
I-380 over Cedar River  
in Cedar Rapids  
Bridge No. 5719.7 R/L 380  
Bridge No. 5720.15 380  
Bridge No. 5720.3 R/L 380

Design For Repair To

CEDAR RIVER BRIDGE AND APPROACHES

DETAILS

I 380 over Cedar River

December, 1986

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

Design Sheet No.: 1 Of 9 File No.: 27429 Design No.: 1786

DESIGNED BY: W.C. Eyer

TRACED BY: S. Daniel Nord

DETAILED BY:

CHECKED BY: W. Johnston, G. Port

LINN COUNTY

PROJECT NUMBER

IN-380-G(161)263--15-57

STATE

IOWA

FHWA Region

7

FISCAL YEAR

SHEET NO.

3

TOTAL SHEETS

25



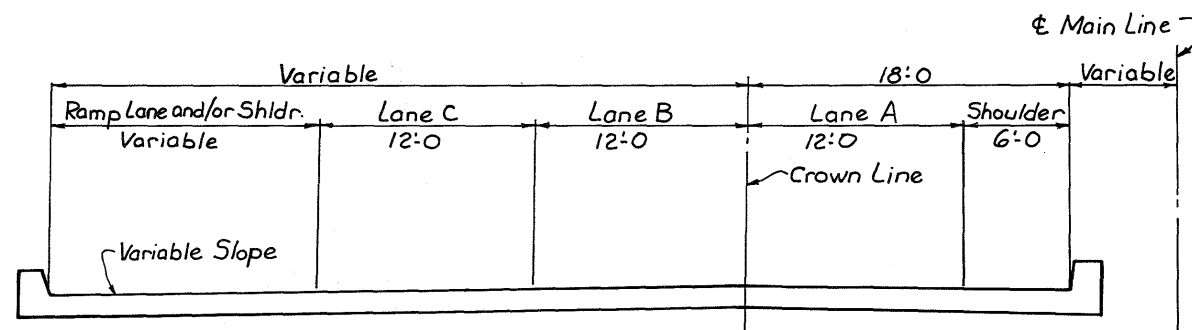
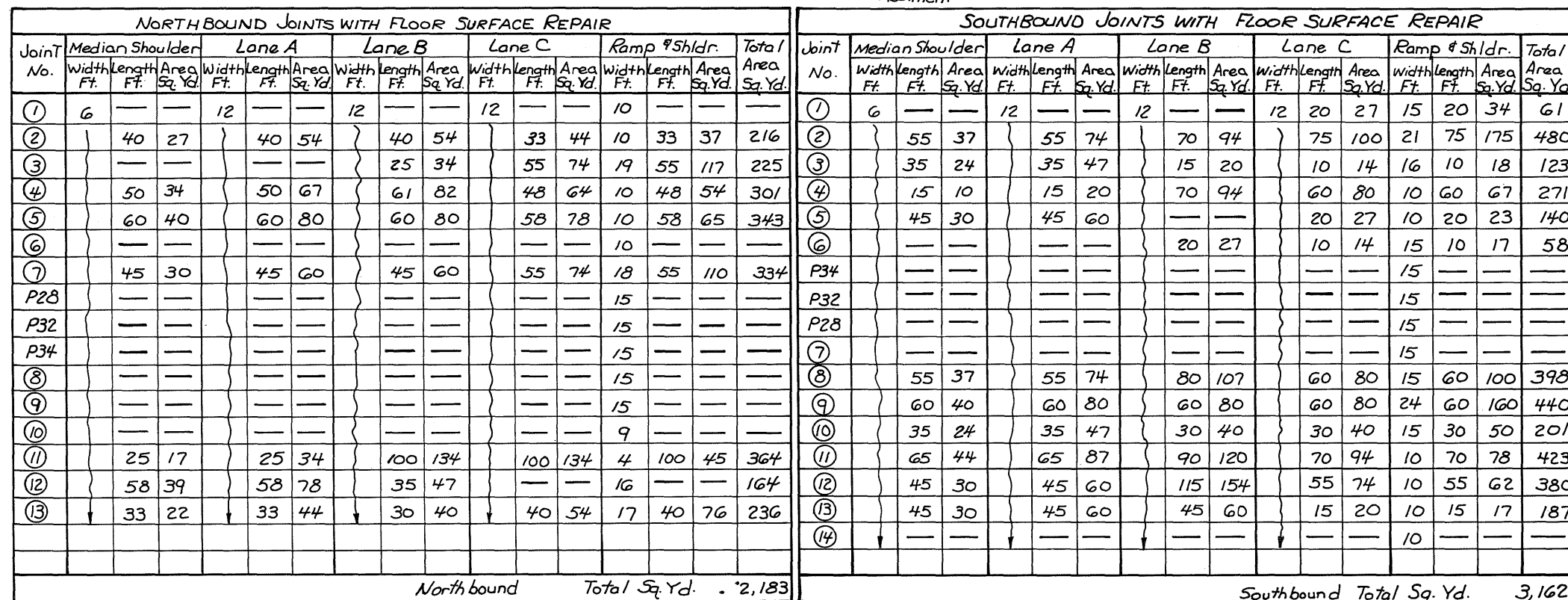
REPAIR LENGTHS HAVE BEEN ESTIMATED FROM PROFILOGRAMS MADE ALONG THE CENTERLINES OF MAIN LINE LANES A, B, AND C FOR EACH TRAFFIC DIRECTION. THE ESTIMATED REPAIR LENGTH FOR THE MEDIAN SHOULDER IS ASSUMED THE SAME AS FOR LANE A. ESTIMATED REPAIR LENGTH FOR THE RAMP AND/OR OUTSIDE SHOULDER IS ASSUMED THE SAME AS FOR LANE C. SEE "DESIGN NOTES", ON DESIGN SHEET 1 REGARDING ACTUAL FIELD MEASUREMENTS.

EACH LENGTH OF BRIDGE FLOOR SURFACE REPAIR, SHOWN FOR EACH LANE OR SHOULDER, IS THE SUM OF REPAIR DISTANCES NORTHERLY AND SOUTHERLY MEASURED FROM THE EDGES OF THE RESPECTIVE STEEL JOINT. LENGTHS ARE MEASURED PARALLEL TO AND ALONG THE CENTERLINE OF EACH LANE OR SHOULDER.

REPAIR LENGTHS FOR ABUTMENT JOINTS ARE MEASURED FOR THE BRIDGE FLOOR ONLY.

WIDTHS ARE MEASURED PERPENDICULAR TO THE RESPECTIVE LANE OR SHOULDER.

REMOVAL SHALL BE AVOIDED ON THE RIVER SPANS. HOWEVER, NORTHBOUND JOINT 7 COULD BENEFIT GREATLY FROM REMOVAL ON THE RIVER SPAN SIDE OF THE JOINT. REMOVAL SHALL BE LIMITED TO 0.5 INCH ON THE RIVER SPAN SIDE.



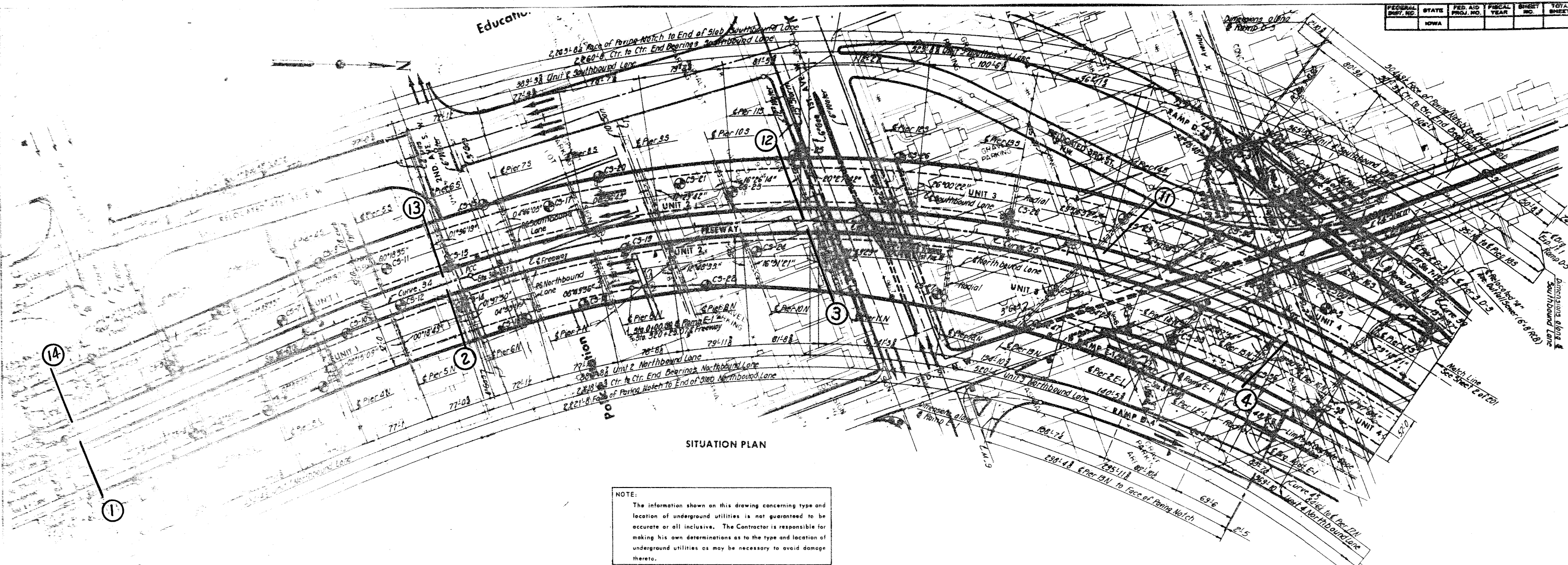
### TYPICAL ROADWAY CROSS SECTION

# Design For Repair To CEDAR RIVER BRIDGE AND APPROACHES DETAILS

I-380 over Cedar River Nov., 1986

**LINN COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

Design Sheet No.: 2 Of 9 File No.: 27429 Design No.: 1786



SITUATION PLAN

NOTE:  
The information shown on this drawing concerning type and location of underground utilities is not guaranteed to be accurate or all inclusive. The Contractor is responsible for making his own determinations as to the type and location of underground utilities as may be necessary to avoid damage thereto.

CURVE DATA

Curve 20 @ Freeway	Curve 36 @ Southbound Lane	Curve 37 @ Northbound Lane
P.I. Sta. 327+27.263	P.I. Sta. 334+27.104	P.I. Sta. 336+07.126
L = 713.015'	L = 8°11'21.5"	L = 12°53'16.1"
D = 4°56'22.7"	D = 2°30'00.0"	D = 2°30'00.0"
T = 63.435	T = 258.848	T = 258.848
L = 144.153	L = 155.788	L = 515.512
E = 3+2.443	E = 2.958	E = 14.571
R = 1152.314	R = 2291.831	R = 2291.831
Curve 40 @ Ramp D-3	Curve 45 @ Ramp D-4	
P.I. Sta. 10+11.904	P.I. Sta. 5+05.013	
L = 12°07'12.4"	L = 24°04'50.3"	
D = 6°00'00.0"	D = 4°00'00.0"	
T = 107.373	T = 305.521	
L = 202.002	L = 602.020	
E = 5.366	E = 32.220	
R = 954.930	R = 1432.394	
Curve 48 @ Ramp E-1		
P.I. Sta. 8+04.504		
L = 12°31'15.2"		
D = 3°30'00.0"		
T = 251.093		
L = 101.241		
E = 12.170		
R = 2291.831		

BENCH MARK

B.M. - 95	"X" cut in East Top Bolt on Top of Fire Hydrant on NE Corner of 3rd. St. and 3rd. Ave. S.W. El. 99.95
B.M. - 97	"X" cut in Northeast Bolt on Top Flange of Fire Hydrant on NE Corner of 1st. Ave. and 3rd. St. N.W. El. 97.96
B.M. - 99	"X" cut in Northeast Bolt on Top Flange of Fire Hydrant on SW Corner of 1st. Ave. and 1st. St. S.W. El. 100.93

LOCATION

I-380 over 3rd. Ave S.W., 2nd. Ave. S.W., 1st. Ave. W., 3rd. St. N.W., and 1st St. N.W.  
City of Cedar Rapids  
Linn County  
Rapid Twp.  
T-83N R-7W  
Sections 21 and 23

This Sheet, from Original Plans, Is Included To Show Floor Joint Locations.

DESIGN TRAFFIC

I-380 Traffic Count  
40,420 Two Way V.P.D. (1994)  
Ramp E-1 Traffic Count  
2,770 One Way V.P.D. (1994)  
Ramp D-3 Traffic Count  
12,940 One Way V.P.D. (1994)  
Ramp D-4 Traffic Count  
12,940 One Way V.P.D. (1994)

Notes:  
All dimensions are measured horizontally.  
• Indicates sounding location.  
For Sounding Data see Sheets 9, 5, 6, 7, and 8 of 201.  
• Indicates point of minimum vertical clearance.

Iowa Natural Resources Council Approval  
Order No. 72-29, dated February 8, 1972.

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 under the laws of the State of Iowa.

Paul L. Heineman, P.E. Iowa Reg. No. 5156

CEDAR RIVER BRIDGE  
SOUTH APPROACH  
DESIGN FOR VARIABLE SKEW  
CONTINUOUS WELDED PLATE GIRDER BRIDGE

SITUATION PLAN

STA. 322+81.95 @ FREEWAY=  
STA. 32+14.70 @ 1ST. AVE. W. PROJECT NO. I-380-6(68)263--01-57

LINN COUNTY  
IOWA STATE HIGHWAY COMMISSION

SHEET OF

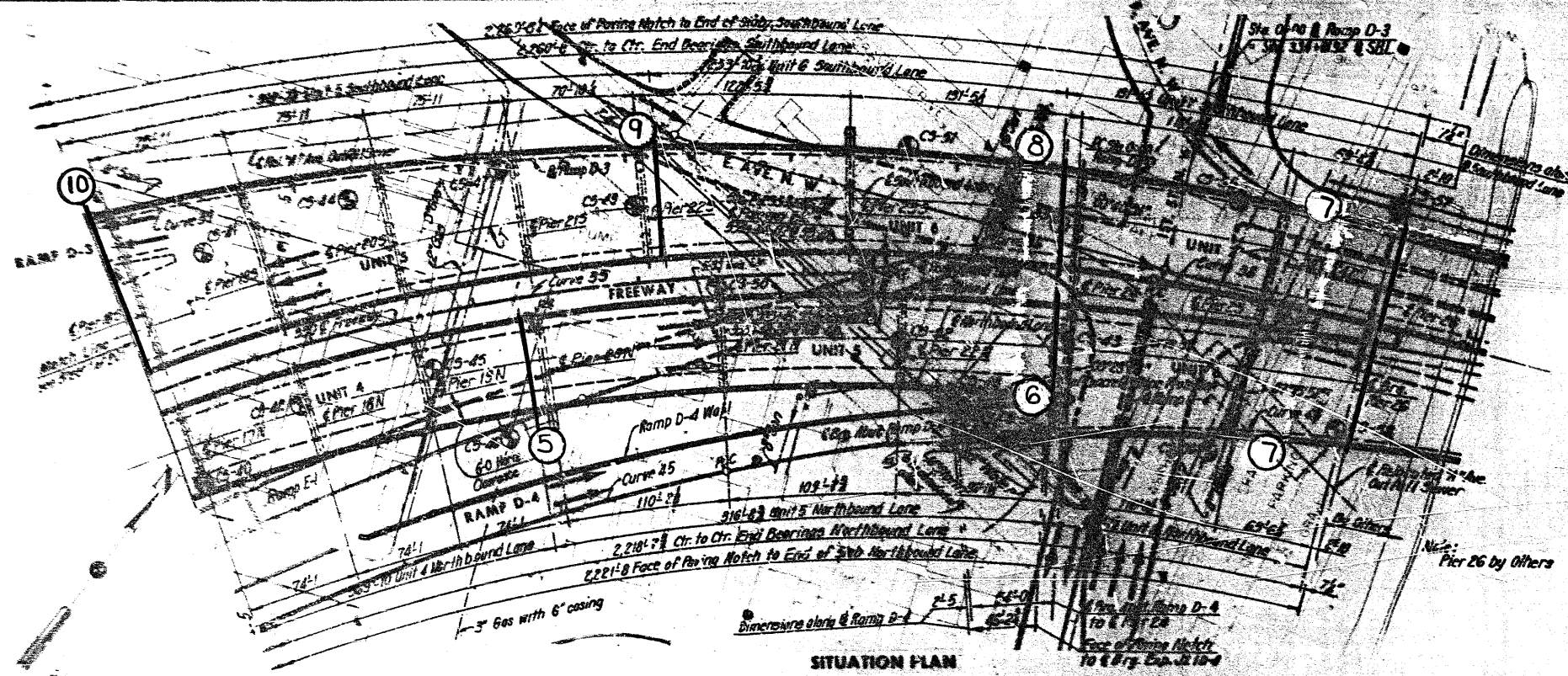
DESIGN NO. 178G  
FILE NO. 27429  
DES. SH. NO. 3 OF 9

Linn County

Sheet No. 5 of 25

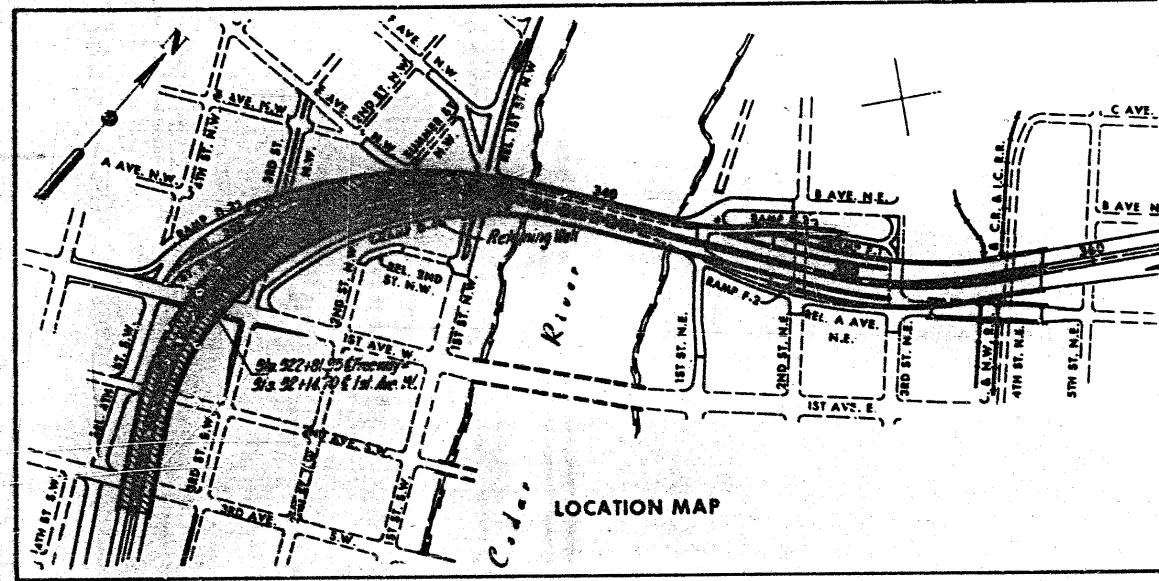
HOWARD NEEDLES TAMMEN & BERGENDOFF  
CONSULTING ENGINEERS  
LANSING, MI

W. Eyer



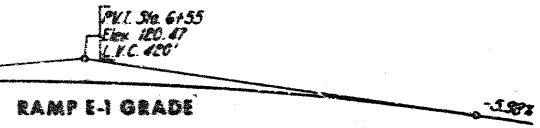
SITUATION PLAN

NOTE:  
The information shown on this drawing concerning type and location of underground utilities is not guaranteed to be accurate or all inclusive. The Contractor is responsible for making his own determinations as to the type and location of underground utilities as may be necessary to avoid damage thereto.

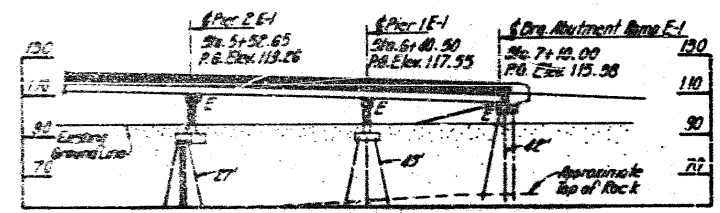


LOCATION MAP

Note:  
For Curve Data, Bench Marks, Design Traffic, Location and Notes see Sheet 1 of 201.  
For Scheduling Data see Sheets 6 and 9 of 201.  
• Indicates point of minimum vertical clearance



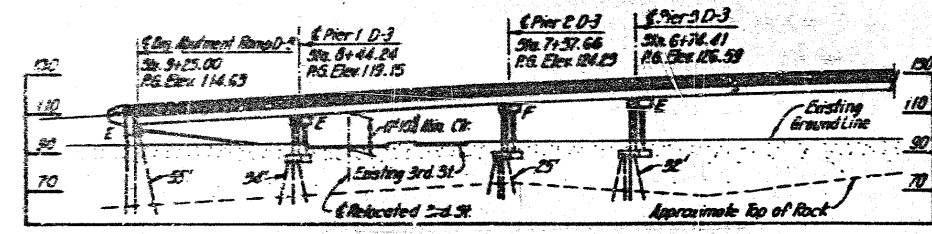
RAMP E-1 GRADE



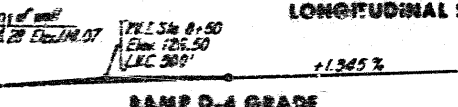
LONGITUDINAL SECTION ALONG RAMP E-1



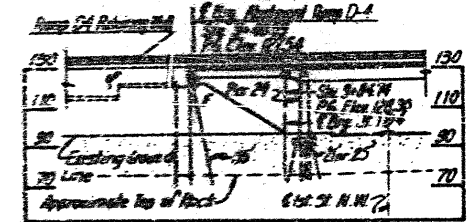
RAMP D-3 GRADE



LONGITUDINAL SECTION ALONG RAMP D-3



RAMP D-4 GRADE



LONGITUDINAL SECTION ALONG RAMP D-4

This Sheet, From Original Plans, Is Included To Show Floor Joint Locations.

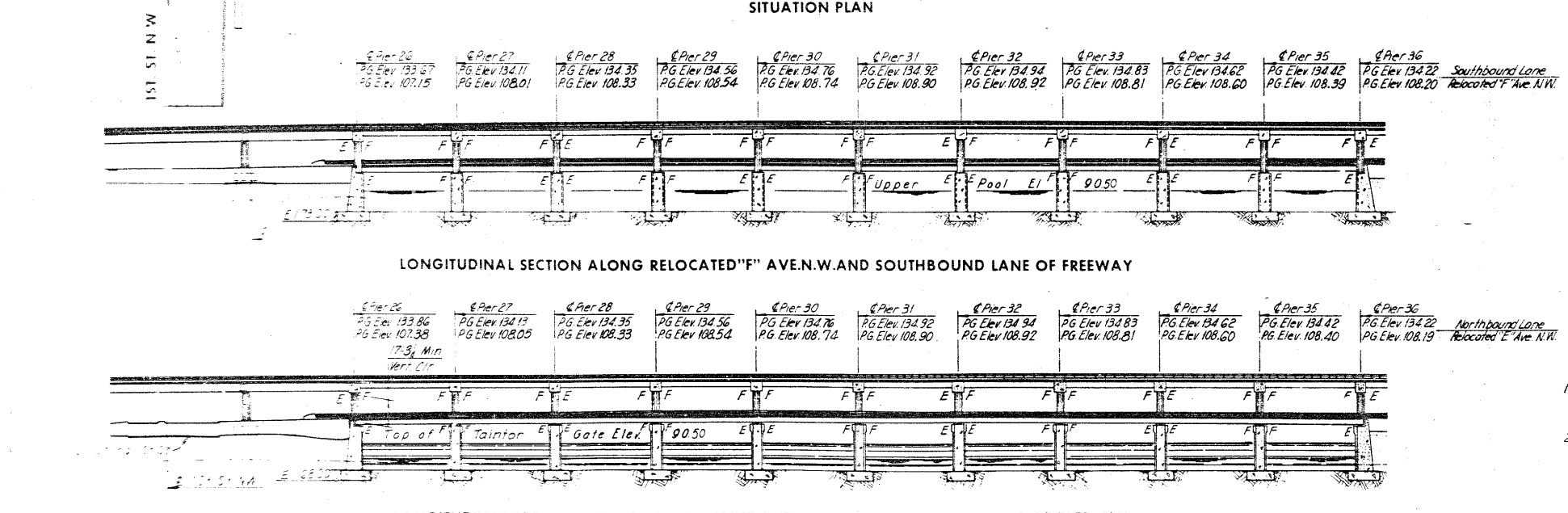
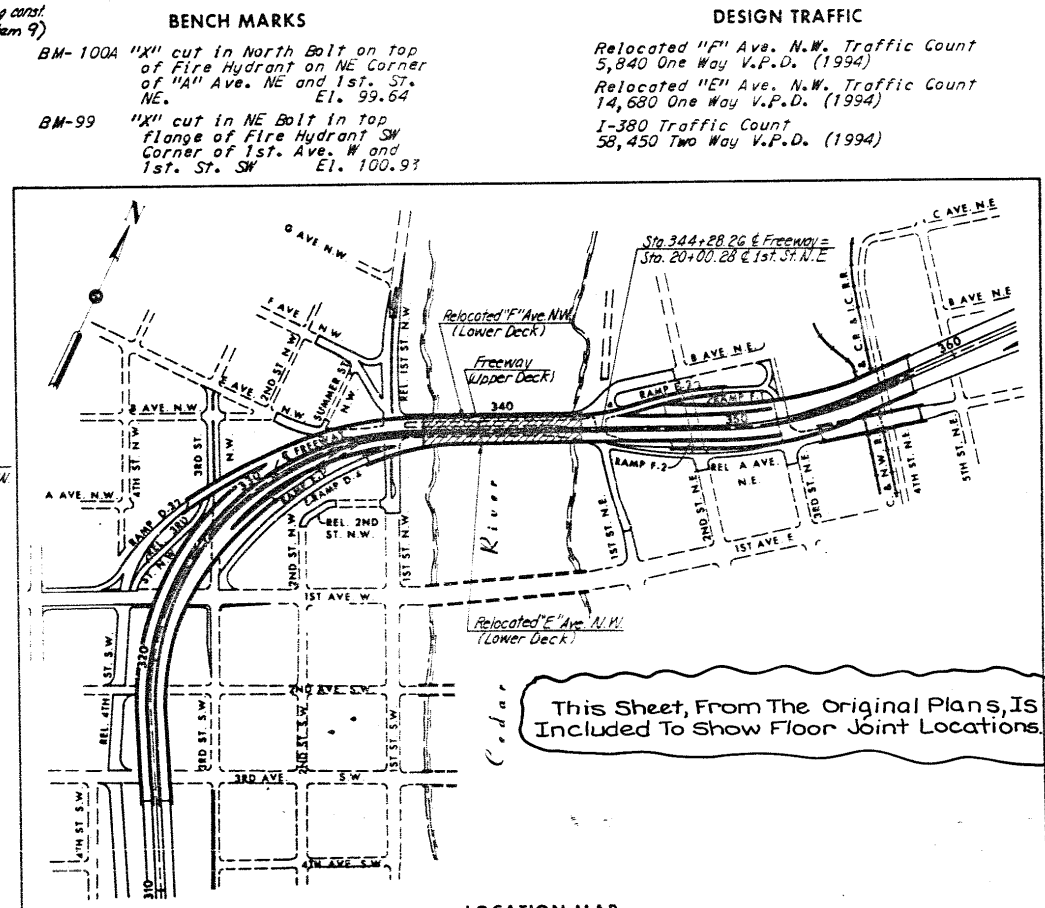
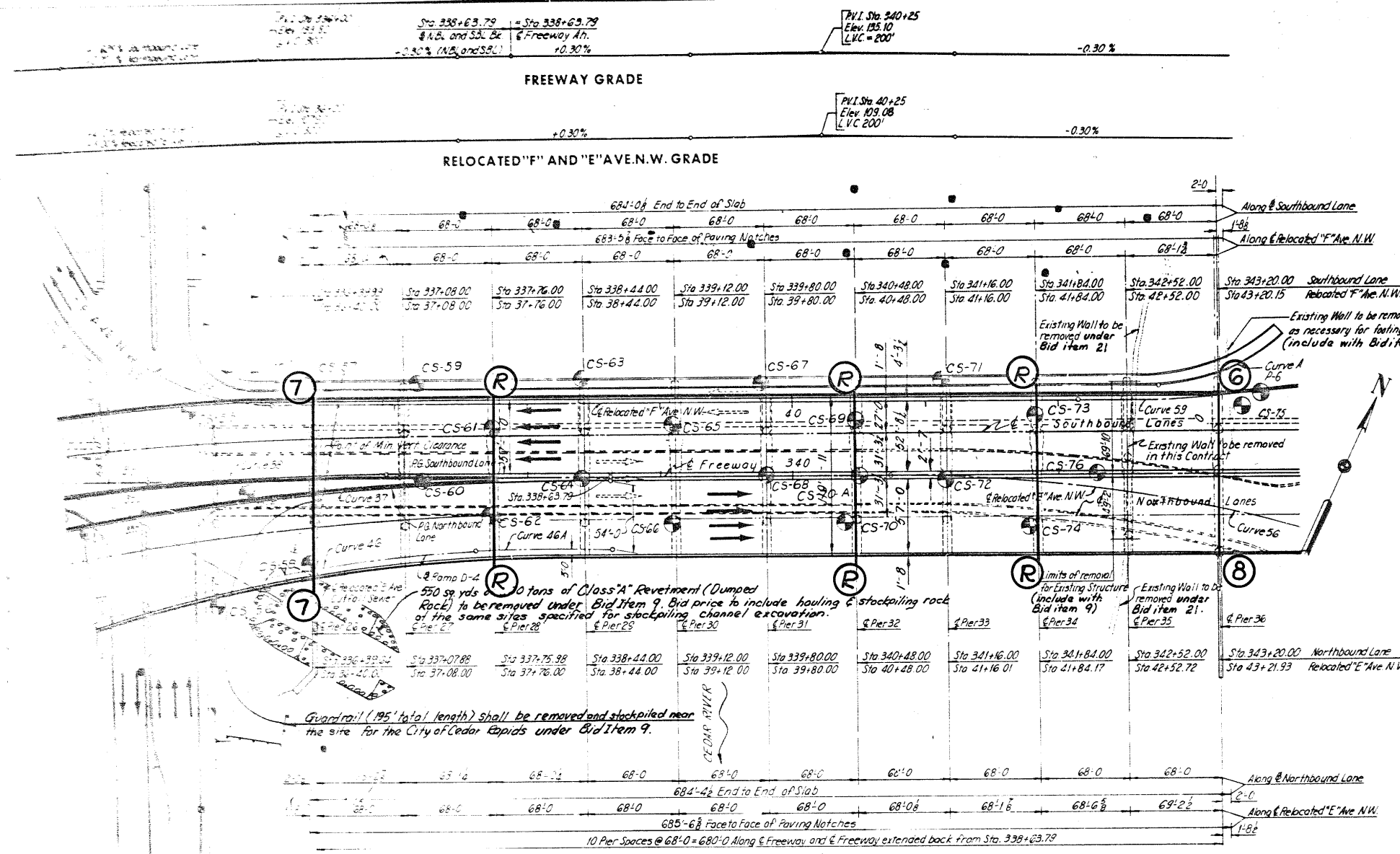
**CEDAR RIVER BRIDGE  
SOUTH APPROACH  
DESIGN FOR VARIABLE SKEW  
CONTINUOUS WELDED PLATE GIRDER BRIDGE  
SITUATION PLAN**

STA. 322+81.95 @ FREEWAY =  
STA. 32+14.70 @ 1ST AVE. W  
PROJECT NO. 1-C80-6(68)263-01-57  
LINN COUNTY.  
IOWA STATE HIGHWAY COMMISSION

DESIGN NO. 1786  
FILE NO. 27420  
DES. SH. NO. 4 OF 9

Linn County





**LOCATION**  
 I-380, Relocated "F" Ave. N.W. and Relocated "E" Ave. N.W. over Cedar River.  
 City of Cedar Rapids  
 Linn County  
 Rapids Twp.  
 T-83N R-7W  
 Section 21

**NOTES**  
 All dimensions are measured horizontally.  
 indicates sounding location.  
 For Sounding Data, see Sheets 2, 2A, 2B, 2C, and 2D of 118.

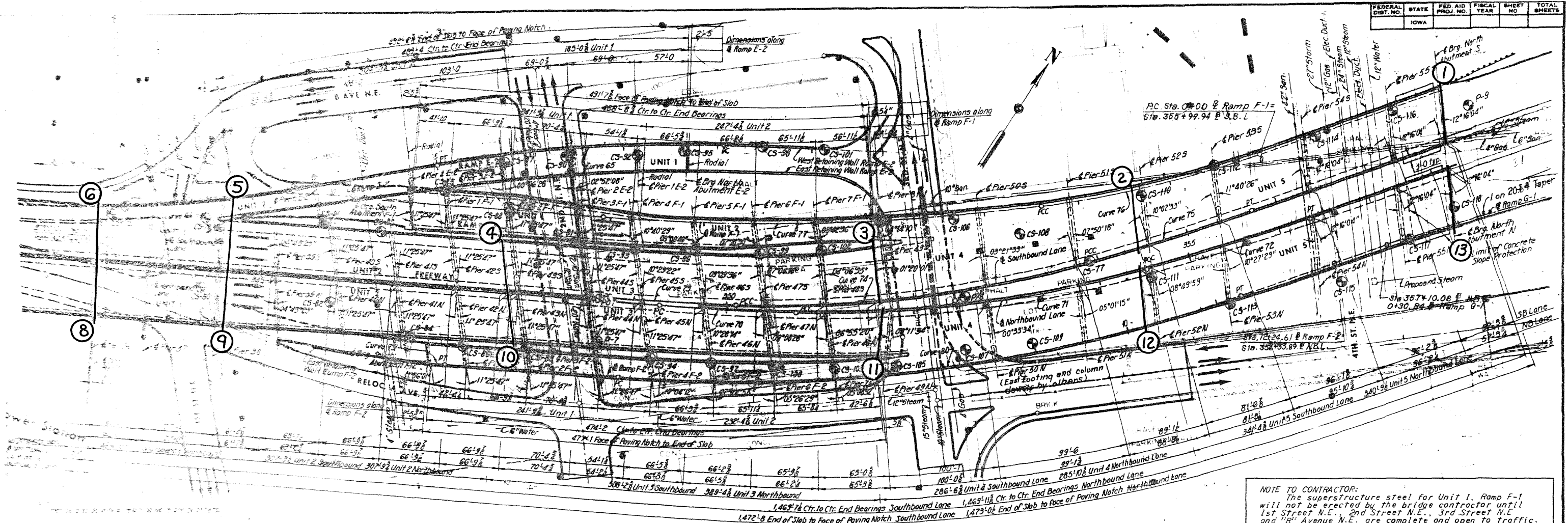
**DESIGN NO. 1786  
 FILE NO. 27429  
 DES. SH. NO. 5 OF 9**

**CEAR RIVER BRIDGE  
 RIVER SPANS  
 DESIGN FOR VARIABLE SKEW  
 PRETENSIONED PRESTRESSED CONCRETE BEAM  
 BRIDGE AND DAM STRUCTURE**

**SITUATION PLAN**  
 STA. 344+28.26 @ FREEWAY = STA. 20+00.28 @ 1ST. ST. N.E.  
 PROJECT NO. I-380-6(50)263--01-57  
 LINN COUNTY  
 IOWA STATE HIGHWAY COMMISSION

**AUGUST 1975**  
**SHEET 7 OF 25**

HOWARD NEEDLES TAMMEN & BERGENDOFF  
 CONSULTING ENGINEERS  
 KANSAS CITY, MO.  
 W. EYER



**NOTE TO CONTRACTOR:**  
The superstructure steel for Unit 1, Ramp F-1 will not be erected by the bridge contractor until 1st Street N.E., 2nd Street N.E., 3rd Street N.E. and 18th Avenue N.E. are complete and open to traffic.

### SITUATION PLAN

CURVE DATA		BENCH MARK	
Curve 65 @ Ramp E-2 P.I. Sta. 3+46.575 Δ = 12° 17'23.1" D = 4° 00'00.0" T = 154.214 L = 307.244 E = 8.278 R = 1432.394	Curve 66 @ Ramp E-2 P.I. Sta. 8+01.066 Δ = 14° 24'23.1" D = 5° 00'00.0" T = 144.828 L = 288.128 E = 9.116 R = 1145.916	Curve 70 @ Northbound Lane P.I. Sta. 350+00.757 Δ = 2° 53'46.4" D = 2° 00'00.0" T = 72.421 L = 144.810 E = 0.915 R = 2864.789	BM-100A "X" cut in North Bolt on top of Fire Hydrant on NE Corner of "A" Ave. NE and 1st. St. NE. El. 99.64 BM-103 "X" cut in Northeast bolt in Top Flange of Fire Hydrant SW Corner of 1st. Ave. and 3rd. St. SE. El. 105.85 BM-105 "X" cut in Northeast Bolt, Top Flange of Fire Hydrant on NW Corner of 1st. Ave. and 5th. St. NE. El. 121.21
Curve 71 @ Northbound Lane P.I. Sta. 352+65.519 Δ = 17° 11'01.1" D = 4° 30'00.0" T = 192.373 L = 381.859 E = 14.451 R = 1273.240	Curve 72 @ Northbound Lane P.I. Sta. 355+44.476 Δ = 3° 34'39.6" D = 2° 00'00.0" T = 89.471 L = 178.883 E = 1.397 R = 2864.789	Curve 73 @ Southbound Lane P.I. Sta. 349+36.514 Δ = 2° 58'56.0" D = 2° 00'00.0" T = 74.572 L = 149.111 E = 0.970 R = 2864.789	
Curve 74 @ Southbound Lane P.I. Sta. 352+01.391 Δ = 17° 00'16.3" D = 4° 30'00.0" T = 190.338 L = 377.878 E = 14.146 R = 1273.240	Curve 75 @ Southbound Lane P.I. Sta. 354+80.731 Δ = 3° 40'14.7" D = 2° 00'00.0" T = 91.800 L = 183.538 E = 1.470 R = 2864.789	Curve 76 @ Ramp F-1 P.I. Sta. 1+19.765 Δ = 11° 55'59.5" D = 5° 00'00.0" T = 119.765 L = 238.664 E = 6.242 R = 1145.916	
Curve 77 @ Ramp F-1 P.I. Sta. 4+73.972 Δ = 11° 43'27.5" D = 2° 30'00.0" T = 235.308 L = 468.972 E = 12.048 R = 2291.831	Curve 79 @ Ramp F-2 P.I. Sta. 1+33.809 Δ = 13° 19'14.0" D = 5° 00'00.0" T = 133.809 L = 266.411 E = 7.786 R = 1145.916	Curve 80 @ Ramp F-2 P.I. Sta. 7+93.475 Δ = 23° 39'27.0" D = 3° 30'00.0" T = 342.849 L = 675.928 R = 35.517 R = 1637.022	

**DESIGN TRAFFIC**  
I-380 Traffic Count  
55,520 Two Way V.P.D. (1994)  
Ramp E-2 Traffic Count  
10,440 One Way V.P.D. (1994)  
Ramp F-1 Traffic Count  
10,480 One Way V.P.D. (1994)  
Ramp F-2 Traffic Count  
2,480 One Way V.P.D. (1994)

**Notes:**  
All dimensions are measured horizontally.  
⊙ indicates sounding location.  
For Sounding Data see Sheets 3, 4 and 5 of 177.  
⊙ indicates point of minimum vertical clearance.

### LOCATION

I-380 over 1st., 2nd., 3rd., and 4th. Streets N.E. and C. and N.W. and C.R. and I.C. Railroads.  
City of Cedar Rapids  
Linn County  
Rapids Two.  
T-83N P-7W  
Section 21

This Sheet, From Original Plans, Is Included To Show Floor Joint Locations.

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 under the laws of the State of Iowa.  
*Paul L. Heinen* July 8, 1976  
Paul L. Heinen, P.E., Iowa Reg. No. 676



### CEDAR RIVER BRIDGE NORTH APPROACH DESIGN FOR VARIABLE SKEW CONTINUOUS WELDED PLATE GIRDER BRIDGE

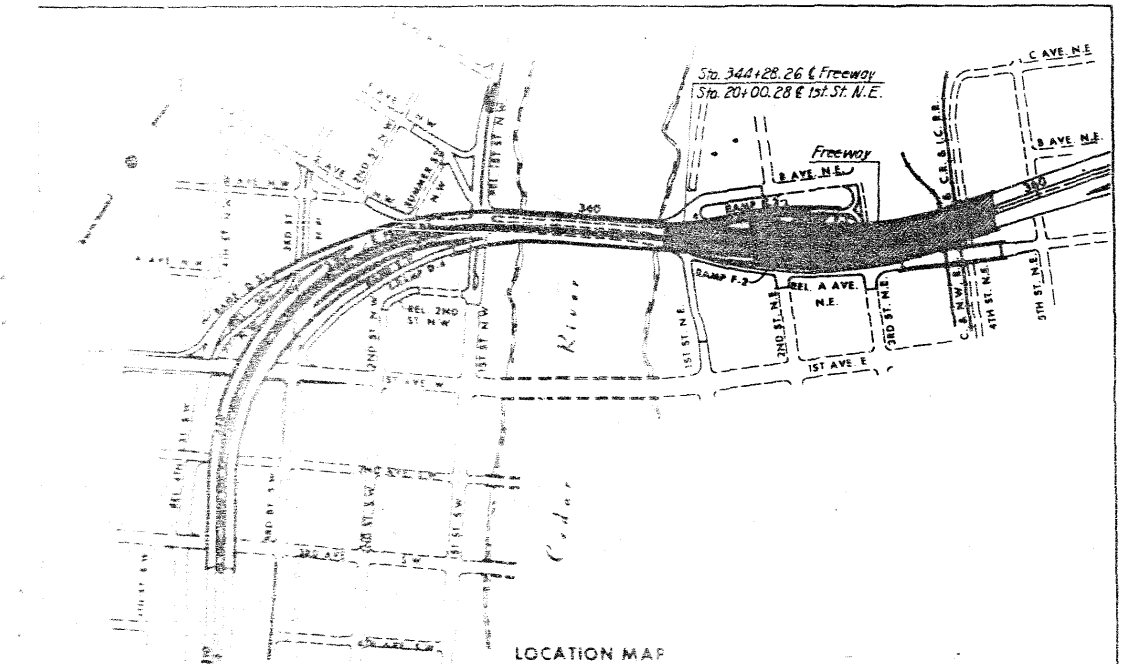
### SITUATION PLAN

STA. 344+28.26 @ FREEWAY = STA. 20+00.28 @ 1ST. ST. N.E. PROJECT NO. I-IG-380-6 69 263-04-57

LINN COUNTY  
IOWA STATE HIGHWAY COMMISSION

DESIGN NO. 1786  
FILE NO. 27420  
DES. SH. NO. 00 of 9

Linn County



LOCATION MAP

**NOTE**  
The information shown on this drawing concerning type and location of underground utilities is not guaranteed to be accurate or all inclusive. The Contractor is responsible for making his own determinations as to the type and location of underground utilities as may be necessary to avoid damage thereto.

HOWARD NEEDLES TAMMEN & BERGENDOFF

W. EYER