

LETTING DATE  
10-16-07

BRFIM-080-1(308)2--05-78

POTTAWATTAMIE COUNTY

POTTAWATTAMIE COUNTY - DESIGN NO. 508

CONVENTIONAL	SIGNS
	DIVIDED HIGHWAY
	PAVED ROAD
	BITUMINOUS ROAD
	GRAVEL ROAD
	EARTH ROAD
	INTERSTATE HIGHWAY
	UNITED STATES HIGHWAY
	STATE HIGHWAY
	COUNTY HIGHWAY
	RAILROAD
	PIPELINE
	AIRPORT
	HYDROLOGY
	BRIDGE
	STATE BOUNDARY
	COUNTY BOUNDARY
	CORPORATE LIMIT LINE
	TOWNSHIP LINE
	SECTION LINE



Iowa Department of Transportation

Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

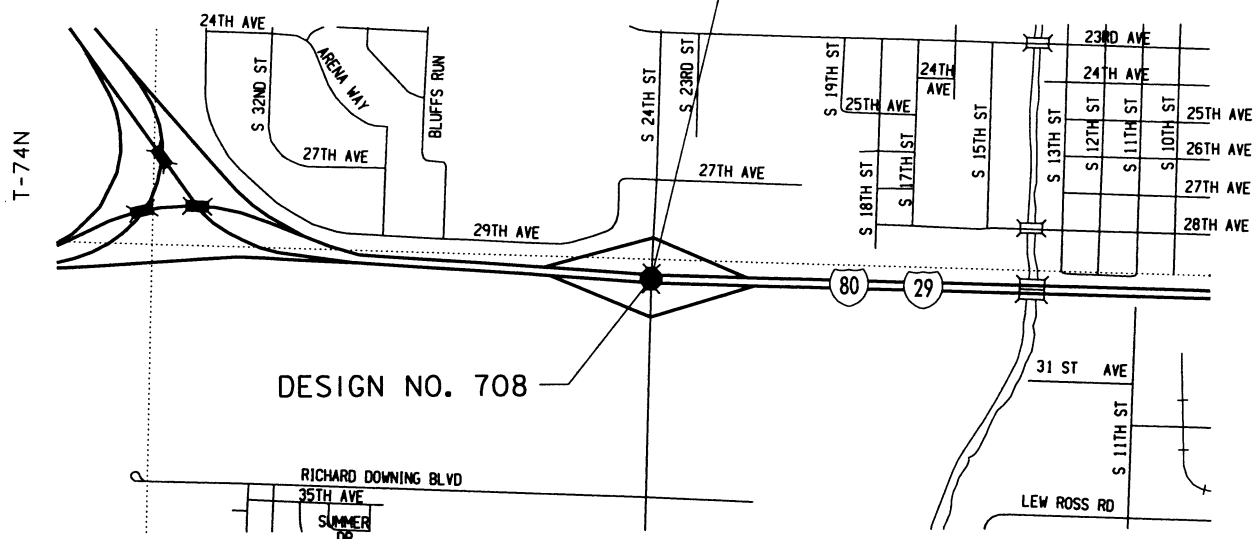
# INTERSTATE ROAD SYSTEM POTTAWATTAMIE COUNTY

## BRIDGE REPLACEMENT-STEEL GIRDER ON 24TH STREET OVER I-80

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2001, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

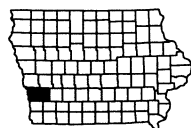
VALUE ENGINEERING SAVES. REFER TO THE GENERAL NOTES IN THESE PLANS.

DESIGN NO. 508



DESIGN NO. 708

R-44W  
LOCATION MAP  
(PART OF CITY OF COUNCIL BLUFFS)



ALL WORKING DRAWINGS INCLUDING SHOP DRAWINGS AND FALSEWORK DRAWINGS WILL BE REVIEWED BY:  
HDR ENGINEERING  
BRIDGE SECTION  
8404 INDIAN HILLS DRIVE  
OMAHA, NE 68114

PROJECT DIRECTORY NAME: P8921997 / 7802901004

DESIGN TEAM: HDR

ENGLISH

IOWA DOT \* OFFICE OF BRIDGES AND STRUCTURES

FILE NO. 30169

POTTAWATTAMIE COUNTY

PROJECT NUMBER BRFIM-080-1(308)2--05-78

SHEET NUMBER 1

TOTAL SHEETS  
66

PROJECT NUMBER

BRFIM-080-1(308)2--05-78

R.O.W. PROJECT NUMBER

PROJECT IDENTIFICATION NUMBER

04-78-029-010-02

### INDEX OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2-3	GENERAL NOTES
4	BRIDGE ESTIMATE SHEET
5-63	BRIDGE DESIGN NO. 508
1-18	TERRACE WALLS DESIGN NO. 708
SPS.01-SPS.03	SOIL PROFILE SHEET

### ENGLISH STANDARD BRIDGE PLANS

STANDARD	ISSUED	REVISED

STANDARD ROAD  
PLANS  
STANDARD ROAD PLANS ARE LISTED  
ON SHEET 5

TRAFFIC ESTIMATE  
(24TH STREET)  
A.A.D.T. = 15,000 VPD (2004)  
A.A.D.T. = 24,400 VPD (2030)  
D.H.V. = 2,930 VPH (2030)  
19% TRUCKS

REVISIONS

SEE REVISION SHEET 1A	11-20-07
SEE REVISION SHEET 1A	01-18-08
SEE REVISION SHEET 1A	01-23-08
SEE REVISION SHEET 1A	04-09-08

### INDEX OF SEALS

SHEET NO.	NAME	TYPE
1	HUSSEIN H. KHALIL	STRUCTURAL DESIGN
SPS.01	ROBERT L. STANLEY	SOILS DESIGN

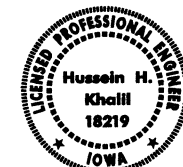
### STRUCTURAL DESIGN

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

*Hussein H. Khalil* 4/9/08  
Signature Date  
Hussein H. Khalil  
Printed or Typed Name

My license renewal date is December 31, 2008

Pages or sheets covered by this seal: SHEETS 1 THRU 81 OF 81



LISTING OF PROJECT REVISIONS

DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS	DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS
11-20-07	1A	REVISION SHEET ADDED.			
11-20-07	65-76	WALL ELEVATIONS REVISED. REASON: GRADING CHANGES TO ACCOMMODATE 3' BERM IN FRONT OF ABUTMENTS.			
11-20-07	80 & 81	SUBDRAIN ELEVATIONS REVISED. REASON: REVISED WALL ELEVATIONS.			
01-18-08	4 & 52	ADDED STEEL PEDESTRIAN HAND RAILING TO THE EAST SEPERATION BARRIER REASON: PER IADOT'S REQUEST			
01-23-08	4, 5,9 & 11	REVISED QUANTITY ITEMS NO. 4 & 7 REVISED LOW STEP ELEVATIONS AT PIER NO. 1 REVISED PIER STEP ELEVATIONS AND HEIGHTS REVISED PIER STEP REINFORCING AND QUANTITIES REASON: ACTUAL DISC BEARING HEIGHTS ARE SHALLOWER THAN ASSUMED.			
04-09-08	12, 13, 14, 15, 19 & 20	THESE SHEETS DELETED REASON: CONTRACTOR VE PROPOSAL TO REPLACE STONE VENEER ON OUTSIDE FACE AT ABUTMENTS WITH FORM LINER.			
04-09-08	12A, 13A, 14A, 15A, 19A & 20A	THESE SHEETS ADDED REVISED DETAILS, NOTES, DIMENSIONS & REINFORCING REASON: CONTRACTOR VE PROPOSAL TO REPLACE STONE VENEER ON OUTSIDE FACE AT ABUTMENTS WITH FORM LINER.			
04-09-08	4 & 18	REVISED QUANTITY ITEMS 4, 7 & 22 REASON: CONTRACTOR VE PROPOSAL TO REPLACE STONE VENEER ON OUTSIDE FACE AT ABUTMENTS WITH FORM LINER.			
04-09-08	5, 6, 45, 46, 57, 63	REVISED DETAILS, NOTES, DIMENSIONS & REINFORCING REASON: CONTRACTOR VE PROPOSAL TO REPLACE STONE VENEER ON OUTSIDE FACE AT ABUTMENTS WITH FORM LINER.			

**POTTAWATTAMIE COUNTY  
DESIGN NOS. 508 & 708  
REVISION SHEET**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

## ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUANTITY
1	2401-6745625	RMVL OF EXIST BRIDGE	LS	1.0	
2	2402-2720000	EXCAVATION, CL 20	CY	1031.0	
3	2403-0100010	STRUCT CONC (BRIDGE)	CY	96.2	
4	2403-7000210	HIGH PERFORMANCE STRUC CONC	CY	<del>1088.2</del>	1108.4
5	2403-7000220	TRIAL BATCH HIGH PERFORMANCE STRUC CONC	LS	1.0	
6	2403-7302000	COLORLED SEALER COAT - STRUCT CONC	SY	1711.0	
7	2404-7775005	REINFORC STEEL, EPOXY COATED	LB	<del>164433</del>	164831
8	2408-7800000	STRUCTURAL STEEL	LB	1485189	
9	2413-0698110	BRIDGE FLOOR SURF	SY	3072	
10	2413-1200000	STEEL EXTRUSION JOINT W/NEOPRENE	LF	211.5	
11	2414-6425410	CONC BARRIER, REINFORCED, SEPARATION	LF	745.0	
12	2414-6425420	CONC BARRIER, PARAPET	LF	708.5	
13	2414-6445100	STRUCTURAL STEEL PEDESTRIAN HAND RAIL	LF	<del>372.3</del>	744.5
14	2414-6772020	STEEL FENCE, WELDED WIRE MESH	LF	707.3	
15	2501-0201057	PILE, STEEL, HP 10x57	LF	13250.0	
16	2501-0201489	PILE, STEEL, HP 14x89	LF	8100.0	
17	2501-8400172	TEMP SHORING	LS	1.0	
18	2526-8285000	CONSTRUCTION SURVEY	LS	1.0	
19	2533-4980005	MOBILIZATION	LS	1.0	
20	2599-9999005	PRECAST POST-TENSIONED SLAB PANELS	EA	70.0	
21	2599-9999005	DISC BEARINGS	EA	12.0	
22	2599-9999014	STONE VENEER	SF	<del>2428</del>	548
23	2601-2638610	CONC SLOPE PROTECTION	SY	572.0	

ITEM NO.

- 1
- 3
- 4
- 7
- 8
- 9
- 10
- 11, 12
- 14
- 15, 16
- 17
- 20
- 22
- 23

ESTIMATE REFERENCE INFORMATION

1 INCLUDES ALL COSTS ASSOCIATED WITH DECK FORMING AS SHOWN ON DETAIL "C" ON DESIGN SHEET 7.

3 ALL PIER FOOTING CONCRETE SHALL BE CLASS "C".

4 ALL CAST-IN-PLACE SLAB CONCRETE, INCLUDING CLOSURE POUR AND END SECTIONS, PRECAST SLAB PANELS, SIDEWALK, PIER CONCRETE ABOVE FOOTING AND CONCRETE FOR ABUTMENTS SHALL BE STRUCTURAL CONCRETE (HIGH PERFORMANCE). INCLUDES 722 FT. OF 3" DIA. RIGID STEEL CONDUIT IN SIDEWALK, 227 FT. OF 2" DIA. RIGID STEEL CONDUIT AND 629 FT. OF 1" DIA. RIGID STEEL CONDUIT. INCLUDES ALL COSTS ASSOCIATED WITH FURNISHING AND PLACING CONDUITS IN THE ABUTMENTS, SIDEWALKS AND UNDER SLAB FOR BRIDGE LIGHTING. INCLUDES FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION), GRANULAR BACKFILL, POROUS BACKFILL, AND SUBDRAIN OUTLET AT ABUTMENTS. INCLUDES FURNISHING AND PLACING CONCRETE SEALER. INCLUDES ALL PREFORMED EXPANSION JOINT FILLER REQUIRED. INCLUDES 36.8 CY OF INTEGRALLY COLORED CONCRETE FOR RAISED MEDIAN. INCLUDES ANCHOR BOLTS AND PLATES AT LIGHT POLE BASES. INCLUDES ALL COSTS ASSOCIATED WITH THE PIER AND ABUTMENT FORM LINER.

7 INCLUDES COST OF 149 LBS. OF STAINLESS STEEL REINFORCING IN THE ABUTMENT PAVING NOTCHES. FOR DETAILS, SEE DESIGN SHEET 15.

8 INCLUDES 662,991 LBS. OF ASTM A709 GRADE HPS 70W (AASHTO M270 GRADE HPS 70W) WEATHERING STEEL. INCLUDES COST OF ABUTMENT BEARING MATERIALS.

9 PORTLAND CEMENT CONCRETE OVERLAY. INCLUDES ALL COSTS ASSOCIATED WITH FURNISHING, PLACING AND REMOVING PLUGS OVER MECHANICAL CONNECTORS FOR MEDIAN CONSTRUCTION.

10 INCLUDES ALL NECESSARY HARDWARE AND ACCESSORIES INCLUDING THE ANCHORAGE SYSTEM, TEMPORARY ERECTION MATERIAL, AND THE COVER PLATES WITH THEIR ANCHORAGE SYSTEMS.

11, 12 IF PLACEMENT OF CONCRETE IS DONE BY THE SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF THE CONCRETE. INCLUDES ALL COSTS ASSOCIATED WITH FURNISHING AND PLACING CONDUITS IN BARRIERS. INCLUDES 1068 FT. OF 2" DIA. RIGID STEEL CONDUIT, 15 FT. OF 1" DIA. RIGID STEEL CONDUIT AND 133 FT. OF 3/4" DIA. RIGID STEEL CONDUIT IN BARRIERS. INCLUDES MATERIAL AND LABOR ASSOCIATED WITH PROVIDING AND INSTALLING RIGID STEEL CONDUIT, JUNCTION BOXES AND FITTINGS.

14 ALL COSTS ASSOCIATED WITH THE FENCE INCLUDING THE ANCHORAGES AND PAINTING SHALL BE INCLUDED IN THE PRICE BID FOR "STEEL FENCE, WELDED WIRE MESH".

15, 16 PILING SHALL BE GRADE 50.

17 INCLUDES THE COST TO DESIGN, FURNISH AND INSTALL SHEETING & SHORING AS REQUIRED TO FACILITATE CONSTRUCTION OF THE ABUTMENTS AND THE PIER WITHOUT LOSS OF SUPPORT OF THE ADJACENT AT-GRADE PAVEMENT. TEMPORARY SHEET PILING & SHORING SHALL BE MEASURED AND PAID FOR AT THE LUMP SUM CONTRACT PRICE.

20 THIS ITEM INCLUDES ALL COSTS ASSOCIATED WITH FURNISHING AND PLACING THE PRECAST SLAB PANELS. INCLUDING GROUT FOR TRANSVERSE JOINTS (19.8 CY), 3/4" DIA. TRANSVERSE BACKING ROD (3559 LF), LEVELING DEVICES, CONCRETE FOR GIRDER HAUNCHES & SHEAR STUD POCKETS (125.8 CY), HIGH PERFORMANCE STRUCTURAL CONCRETE FOR PANELS (812.0 CY) MILD REINFORCING (124,021 LBS), 0.6" DIA. 270-LL POST TENSIONING STRANDS (78,400 LF), P.T. PRESSURE GROUT INSIDE OF DUCTS AND REQUIRED POST TENSION END ANCHORAGES, ALL EMBEDDED ITEMS SUCH AS DUCTS & DUCT SPLICES, LIFTING AND LEVELING DEVICES. TRIAL BATCH FOR CLASS 0-4 WR CONCRETE.

22 INCLUDES ALL COSTS ASSOCIATED WITH FURNISHING AND APPLYING ANTI-GRAFFITI COATING (270.0 SY). ANTI-GRAFFITI COATING SHALL BE REQUIRED FOR ALL STONE VENEER SURFACES AND THE SIMULATED STONE SURFACES AT THE ABUTMENTS.

23 METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE PER SQUARE YARD AS MEASURED IN THE FIELD.

REVISED 04-09-08:  
REVISED QUANTITY ITEMS  
NO. 4, 7, & 22.

REVISED 01-23-08,  
REVISED QUANTITY ITEM NO. 4  
REVISED QUANTITY ITEM NO. 7

REVISED 01-08-08,  
REVISED QUANTITY ITEM NO. 13

DESIGN FOR 0° SKEW

**353'-6X82' CONT. WELDED GIRDER BRIDGE  
W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**

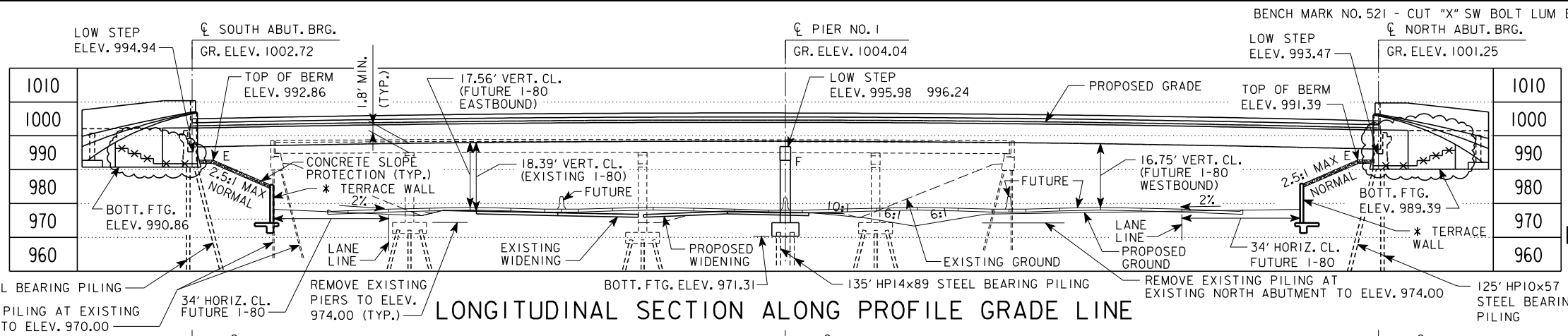
24TH STREET OVER I-80  
178'-6 & 175'-0 SPANS

**ESTIMATED QUANTITIES**

STA. 40176+95.25 (24TH STREET) JUNE, 2007  
STA. 7476+95.25 (FUTURE I-80)

**POTTAWATTAMIE COUNTY**

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 3 OF 62 FILE NO. 30169 DESIGN NO. 508



$g_1 = +3.0700\%$      $g_2 = -3.5422\%$   
 V.P.I. STA. 40176+80.00  
 V.P.I. ELEV. 1008.23  
 V.C. = 500'

**PROPOSED PROFILE GRADE  
24TH STREET**

$g = +0.5000\%$   
 V.P.T. STA. 7476+00.00  
 ELEV. 977.65

**PROPOSED PROFILE GRADE  
FUTURE I-80**

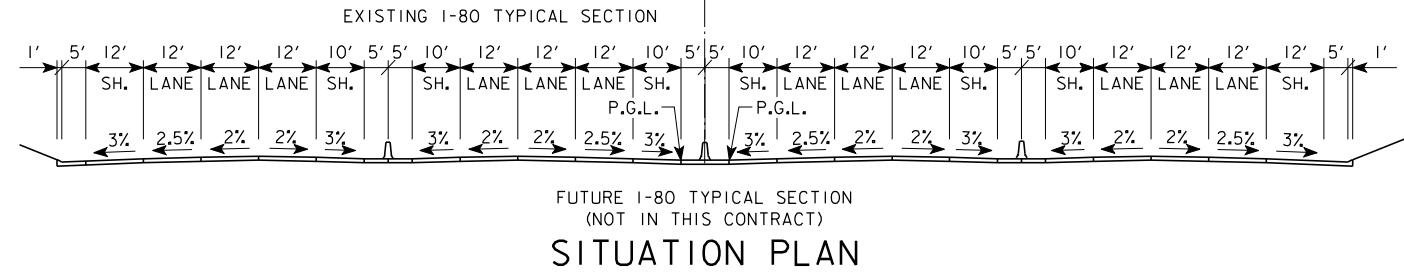
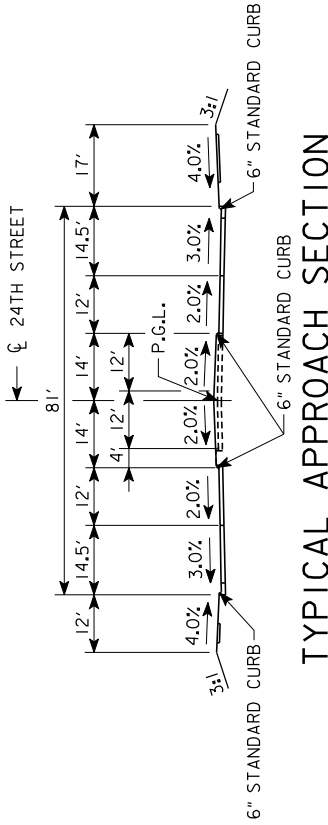
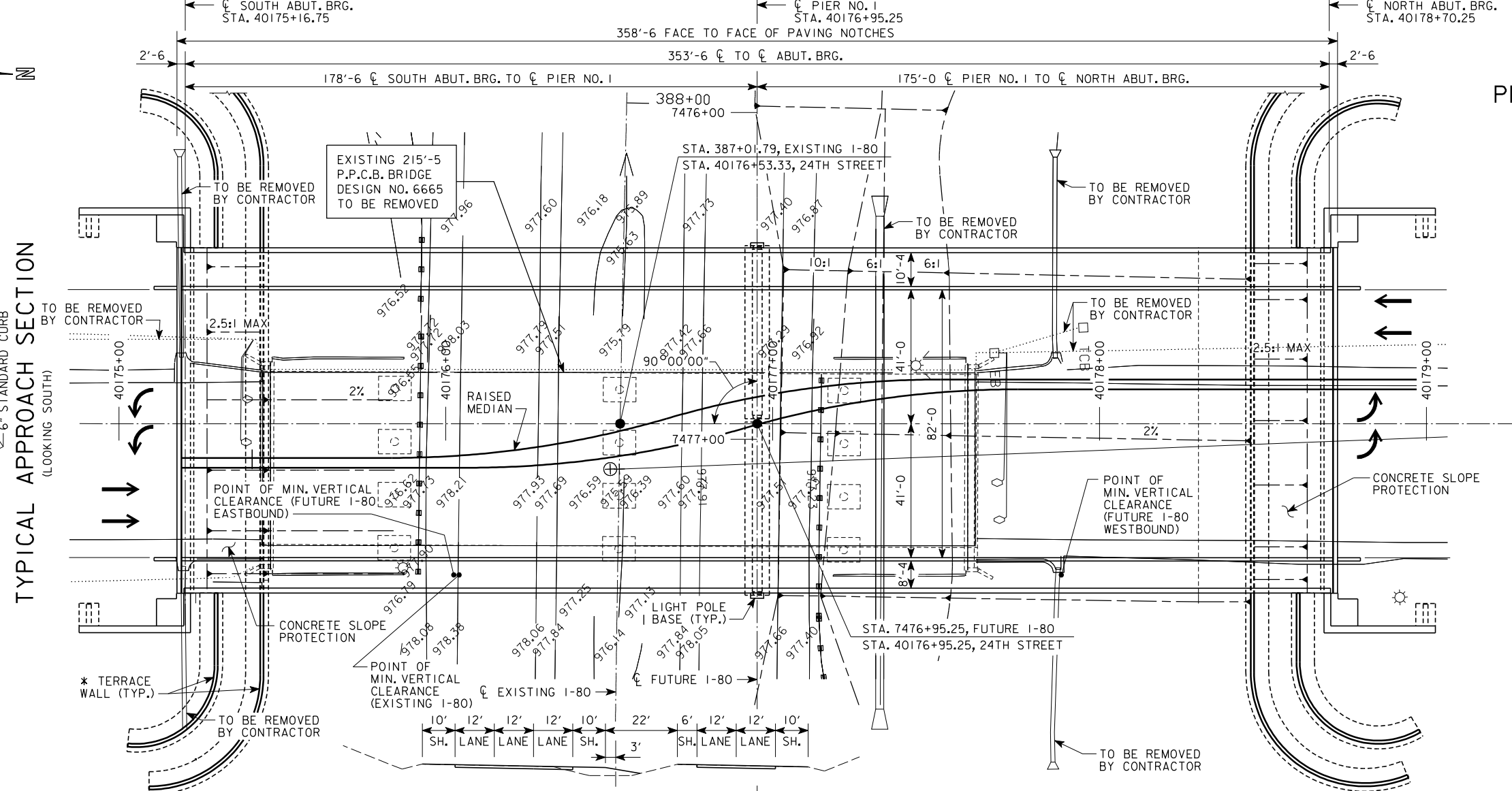
**MINIMUM VERTICAL  
CLEARANCE**

24TH ST. STATION 40177+88.25  
 ELEVATION AT PROFILE GRADE = 1003.06  
 ELEVATION AT LOW GIRDER = 1001.96  
 (TOP OF PRECAST SLAB PANEL)  
  
 FUTURE I-80 STATION 7477+43.75  
 ELEVATION AT PROFILE GRADE = 978.37  
 ELEVATION AT CRIT. CLEARANCE POINT = 979.21  
  
 SLAB, HAUNCH AND GIRDER = 6.00'  
 CLEARANCE = 16.75'

REVISD 04-09-08:  
 REPLACED STONE VENEER ON  
 OUTSIDE FACE WITH FORM LINER  
  
 REVISD 01-23-08  
 REVISD LOW STEP  
 ELEVATION AT PIER

**LOCATION**

24TH ST OVER I-80  
 T-74 N R-44 W  
 SECTION 2/3/10/11  
 LEWIS TOWNSHIP  
 POTTAWATTAMIE COUNTY  
 CITY OF COUNCIL BLUFFS  
 BRIDGE MAINT. NO. 7801.70080  
 FHWA NO. 44691



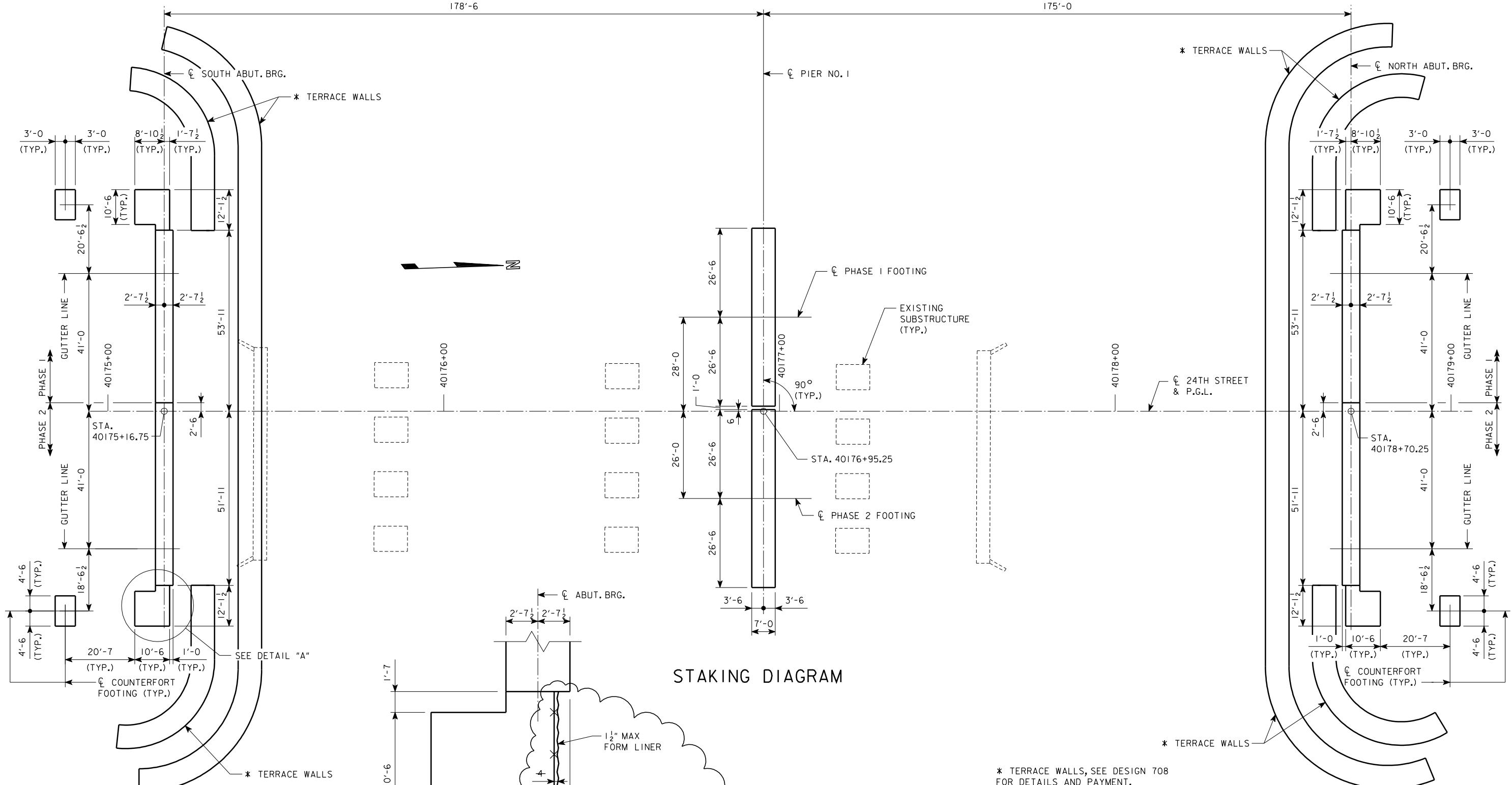
\* SEE DESIGN 708 FOR DETAILS AND PAYMENTS.

DESIGN FOR 0° SKEW  
**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**  
 24TH STREET OVER I-80  
 178'-6 & 175'-0 SPANS  
**SITUATION PLAN**  
 STA. 40176+95.25 (24TH STREET)  
 STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 4 OF 62 FILE NO. 30169 DESIGN NO. 508

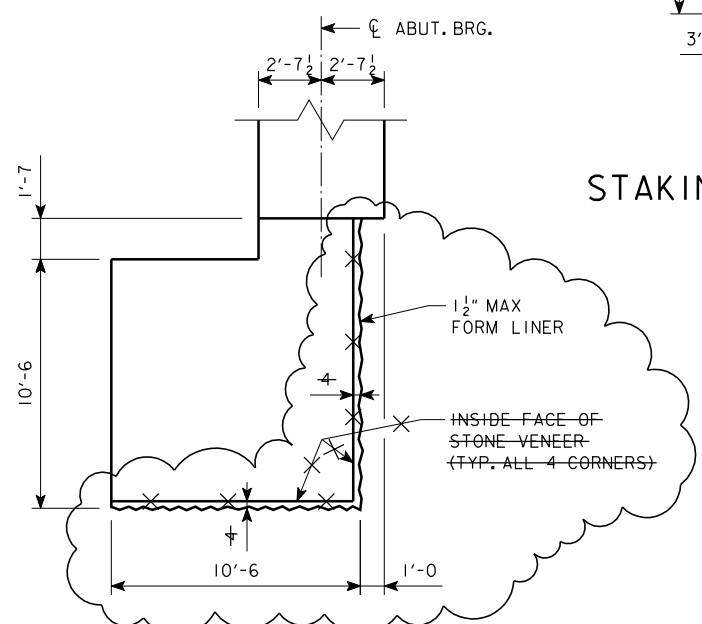
JUNE, 2007

178'-6

175'-0



### STAKING DIAGRAM



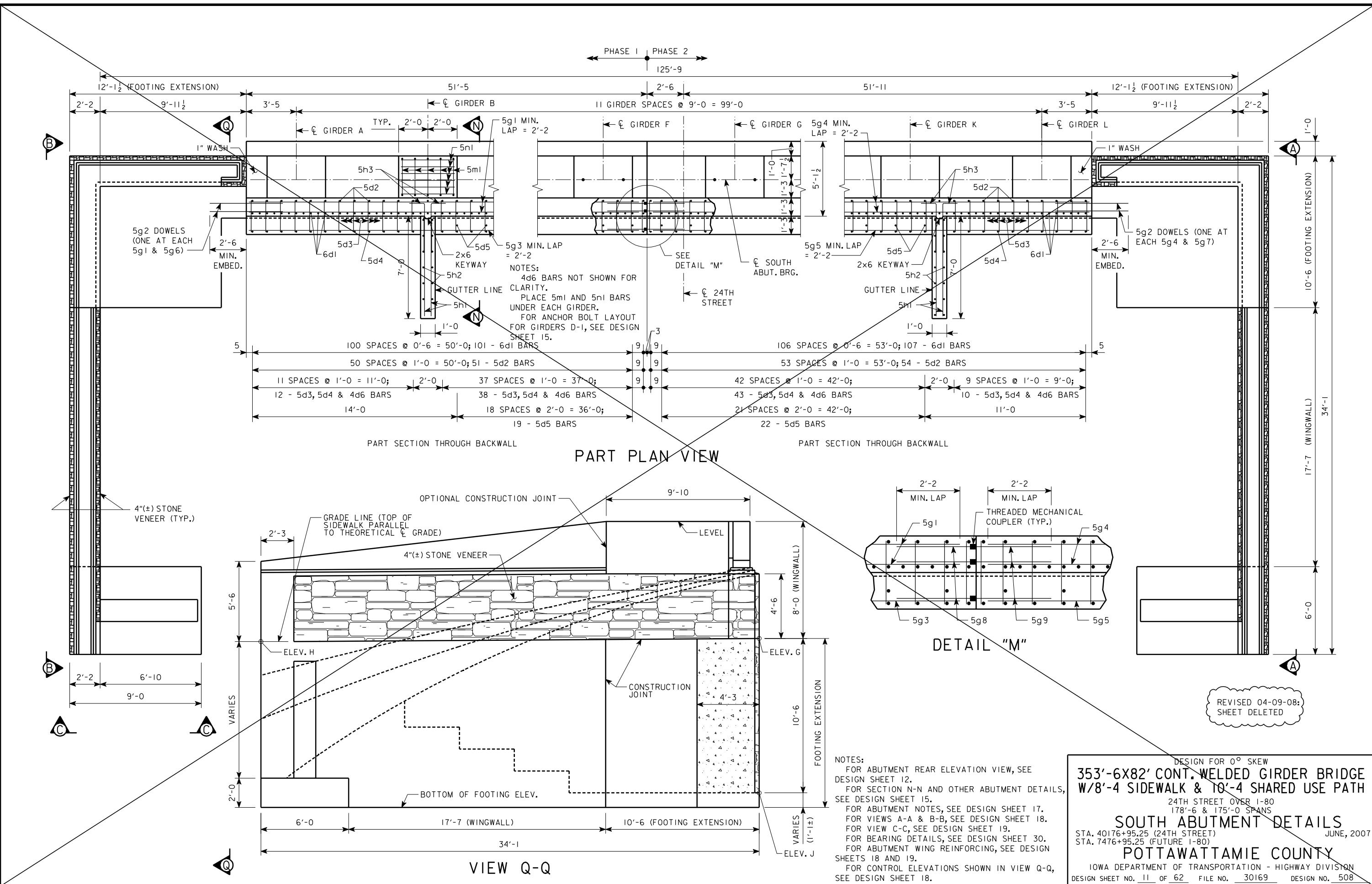
REVISED 04-09-08:  
REPLACED STONE VENEER ON  
OUTSIDE FACE WITH FORM LINER.

\* TERRACE WALLS, SEE DESIGN 708  
FOR DETAILS AND PAYMENT.

DESIGN FOR 0° SKEW  
**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**  
 24TH STREET OVER I-80  
 178'-6 & 175'-0 SPANS  
**STAKING DIAGRAM**  
 STA. 40176+95.25 (24TH STREET)  
 STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 5 OF 62 FILE NO. 30169 DESIGN NO. 508

**HDR**  
 HDR Engineering, Inc.

REVISED 11-05 - ALL BLACK BARS CHANGES TO EPOXY COATED. ENGLISHSTUBABUTMENTBRIDGES.DGN 2092 - THIS SHEET REDRAWN 5-23-91.



DESIGN FOR 0° SKEW

**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**

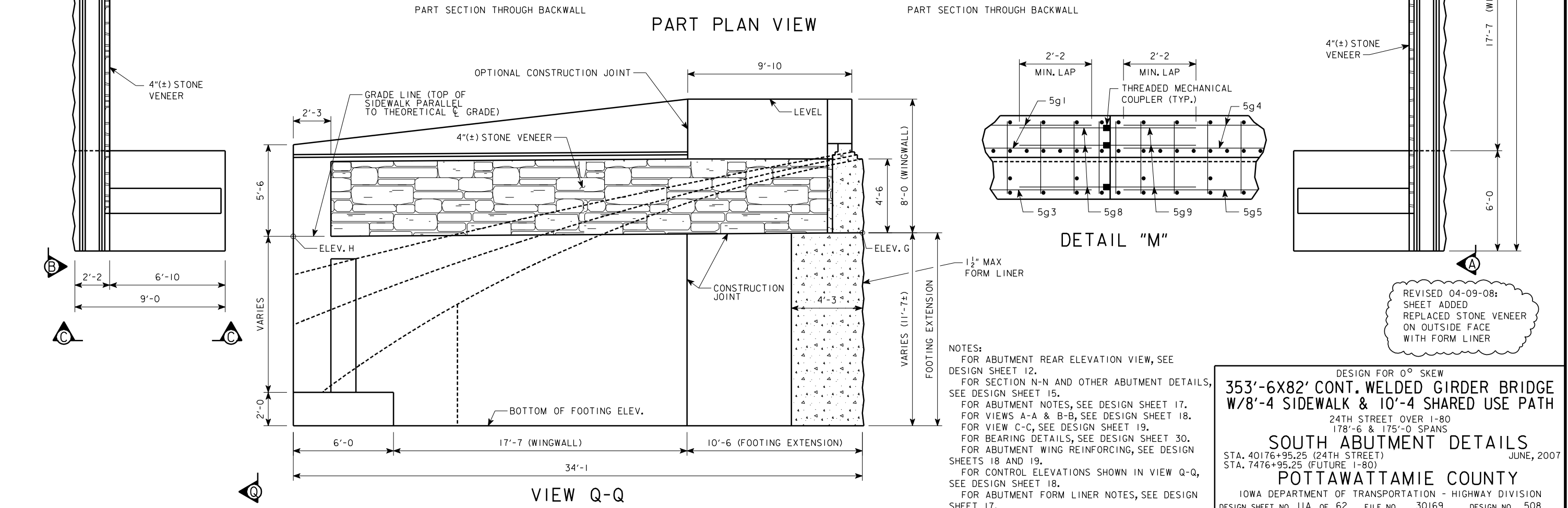
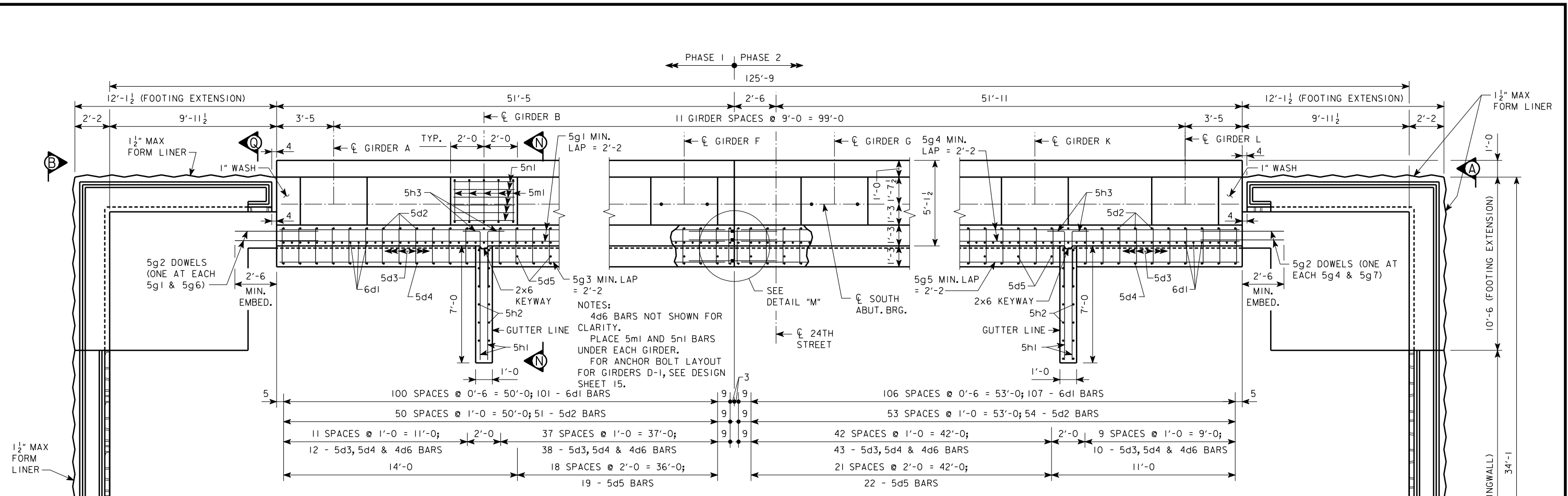
24TH STREET OVER I-80  
 178'-6 & 175'-0 SPANS

**SOUTH ABUTMENT DETAILS**

STA. 40176+95.25 (24TH STREET) | STA. 7476+95.25 (FUTURE I-80) | JUNE, 2007

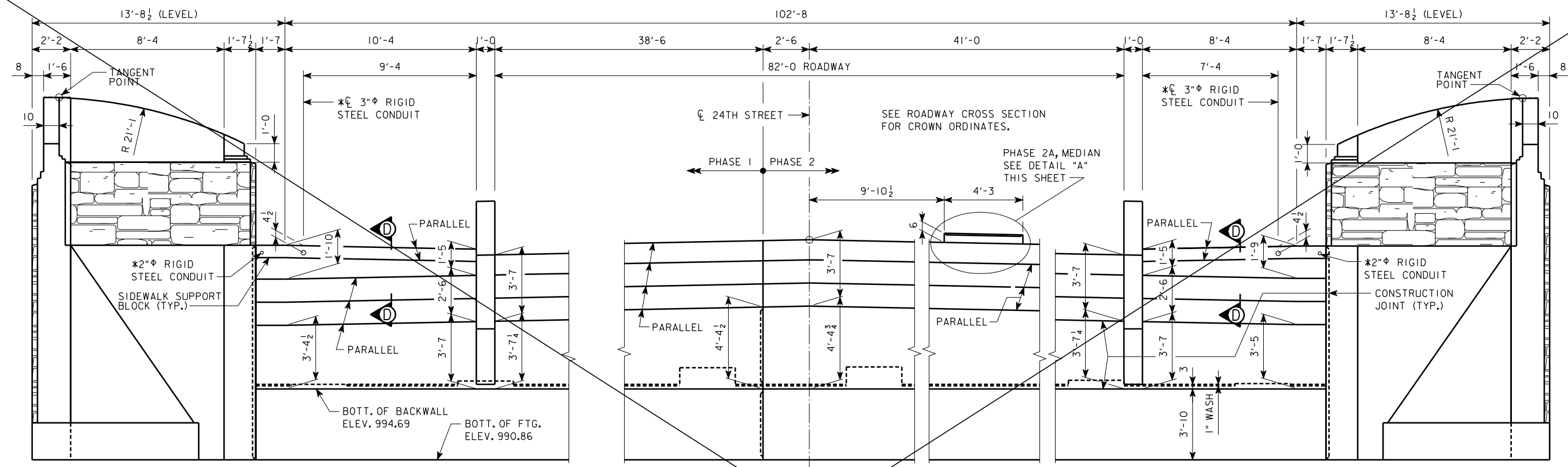
**POTTAWATTAMIE COUNTY**

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 11 OF 62 | FILE NO. 30169 | DESIGN NO. 508



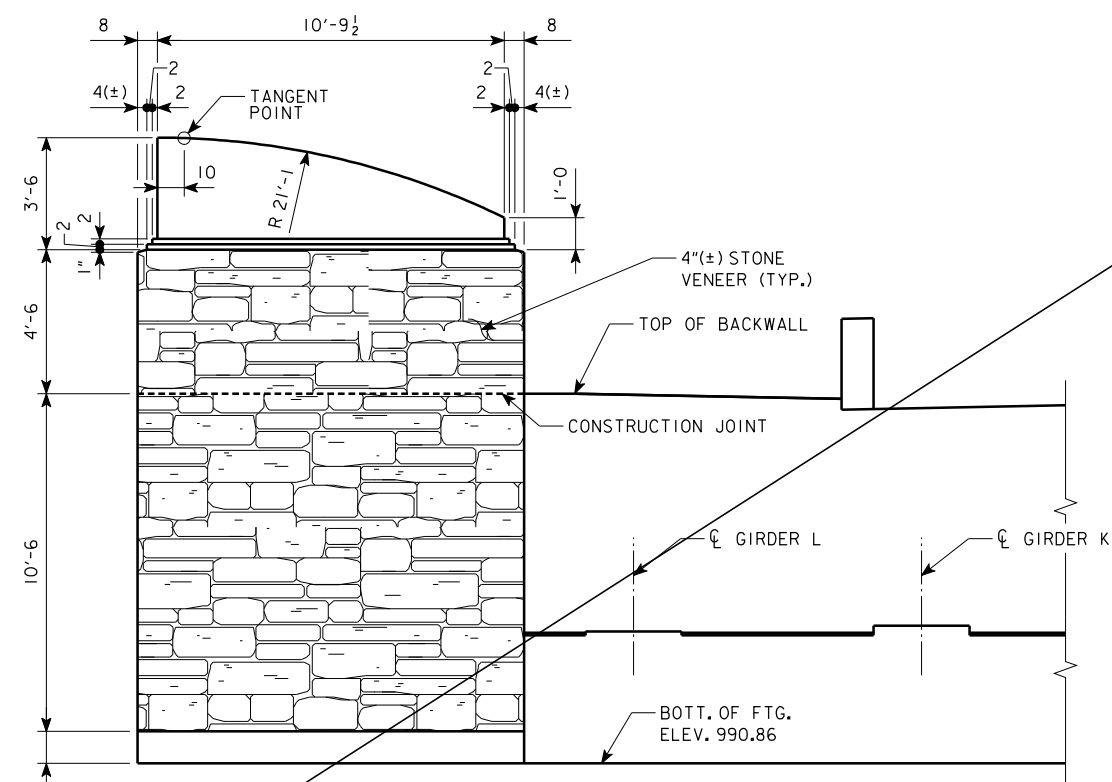
DESIGN FOR 0° SKEW  
**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**  
 24TH STREET OVER I-80  
 178'-6 & 175'-0 SPANS  
**SOUTH ABUTMENT DETAILS**  
 STA. 40176+95.25 (24TH STREET) JUNE, 2007  
 STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 11A OF 62 FILE NO. 30169 DESIGN NO. 508

REVISED 11-05 - ALL BLACK BARS CHANGES TO EPOXY COATED. ENGLISHSTUBABUTMENTBRIDGES.DGN 2092 - THIS SHEET REDRAWN 5-23-91.

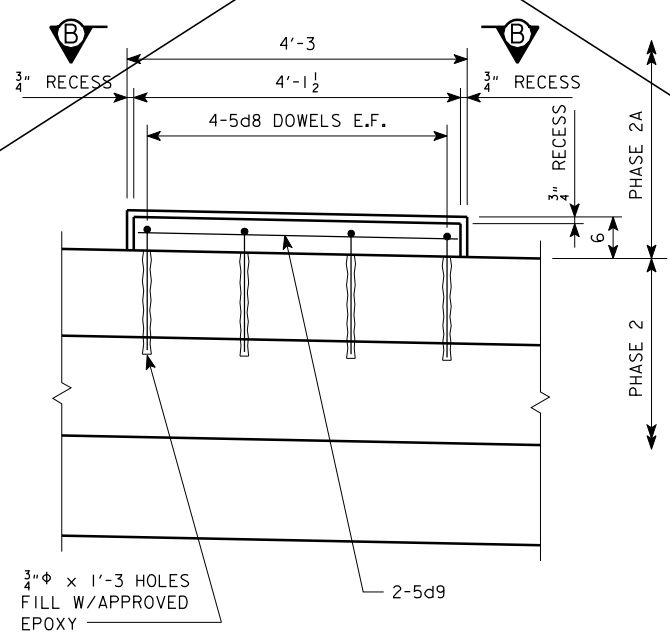


PART REAR ELEVATION

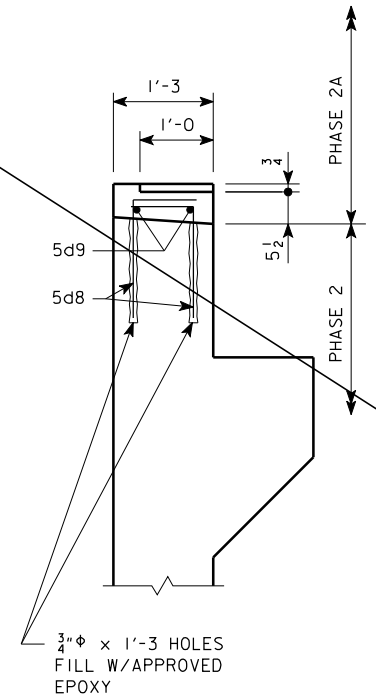
NOTE:  
 FOR SECTION D-D, SEE DESIGN SHEET 15.  
 \*FOR ADDITIONAL CONDUIT DETAILS EMBEDDED  
 IN THE ABUTMENT, SEE DESIGN SHEETS 43 TO 48.



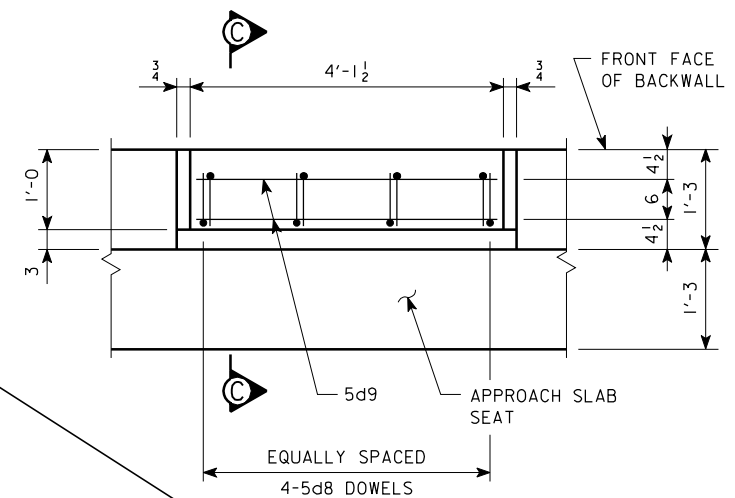
PART FRONT ELEVATION



DETAIL "A"



SECTION C-C



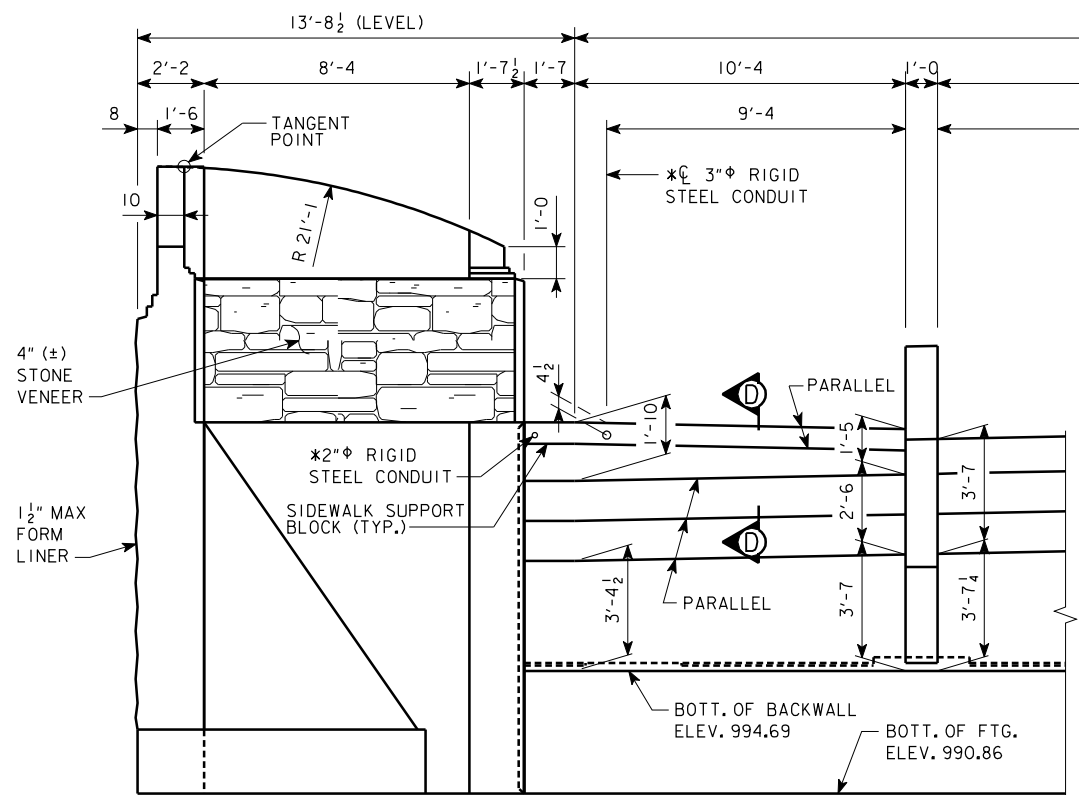
SECTION B-B

DESIGN FOR 0° SKEW  
**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**  
 24TH STREET OVER I-80  
 178'-6 & 175'-0 SPANS  
**SOUTH ABUTMENT DETAILS**  
 STA. 40176+95.25 (24TH STREET) JUNE, 2007  
 STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 12 OF 62 FILE NO. 30169 DESIGN NO. 508

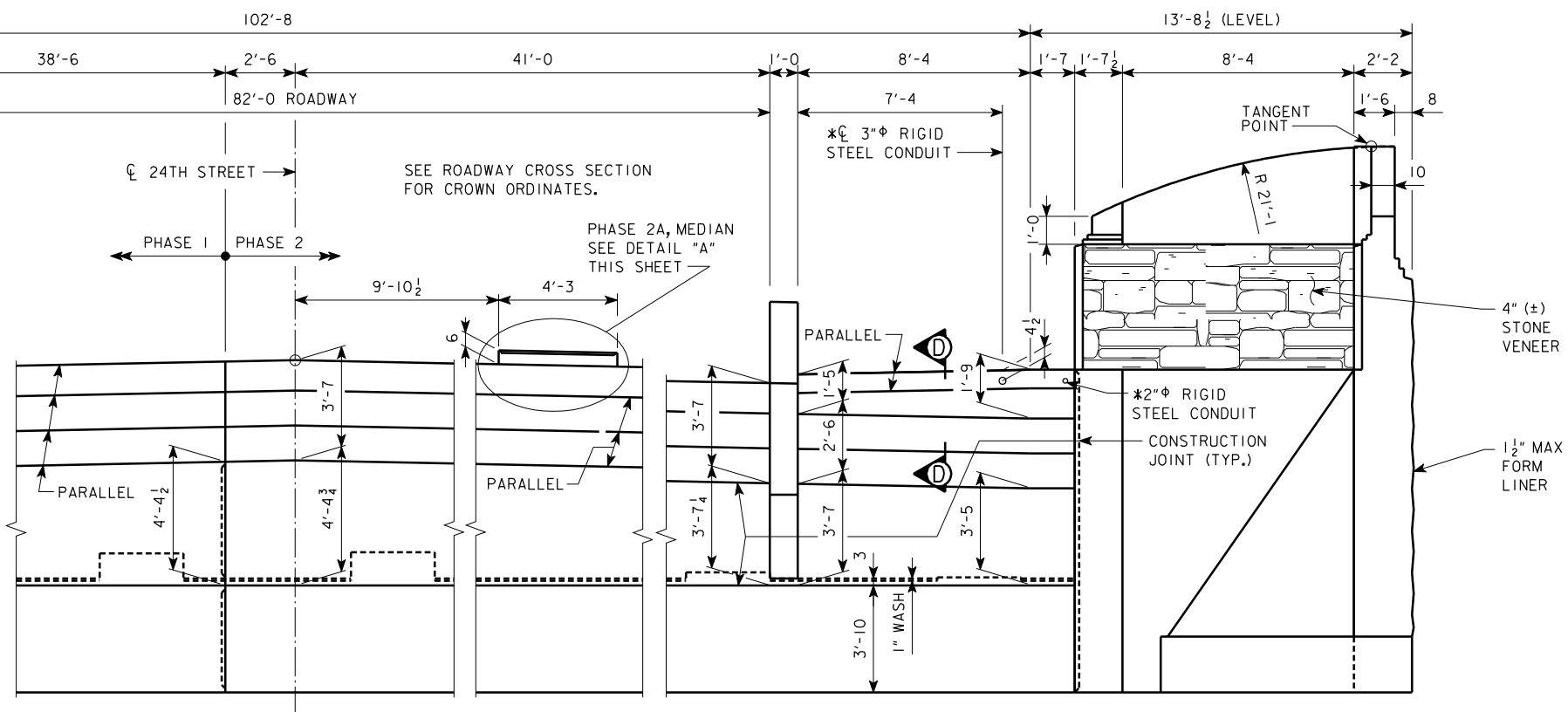
REVISED 04-09-08;  
 SHEET DELETED

REVISED 11-05 - ALL BLACK BARS CHANGES TO EPOXY COATED.  
 ENGLISHSTUBABUTMENTBRIDGES.DGN 2092 - THIS SHEET REDRAWN 5-23-91.

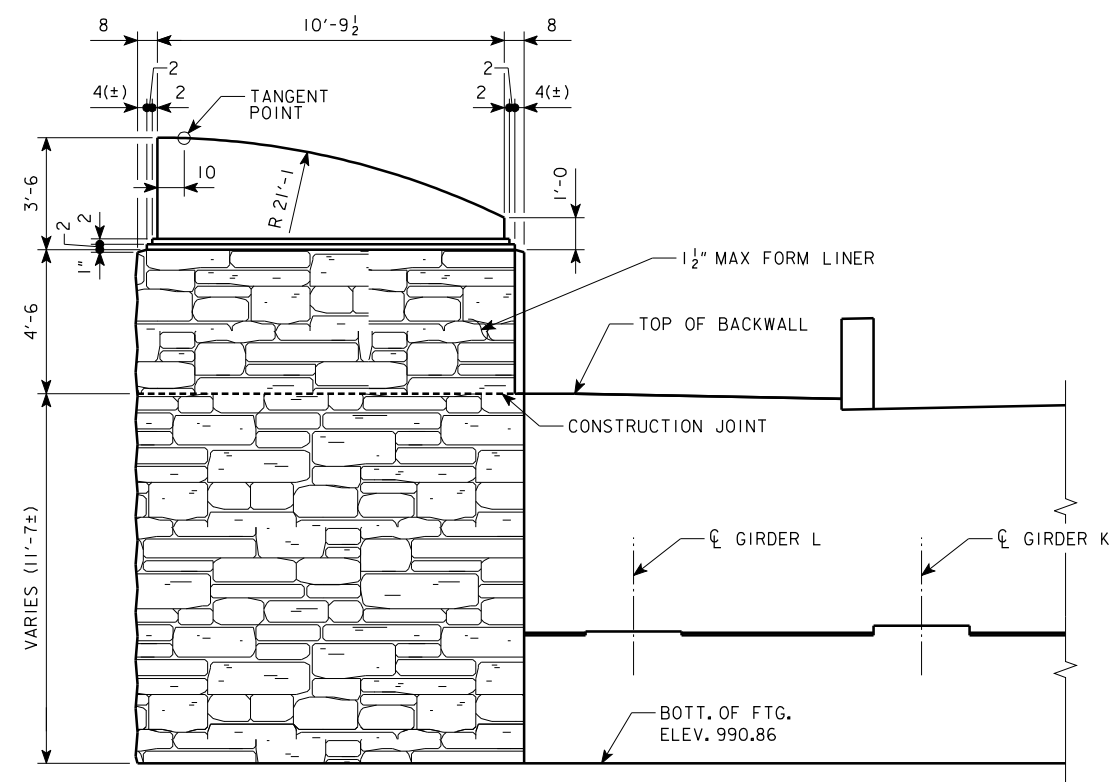




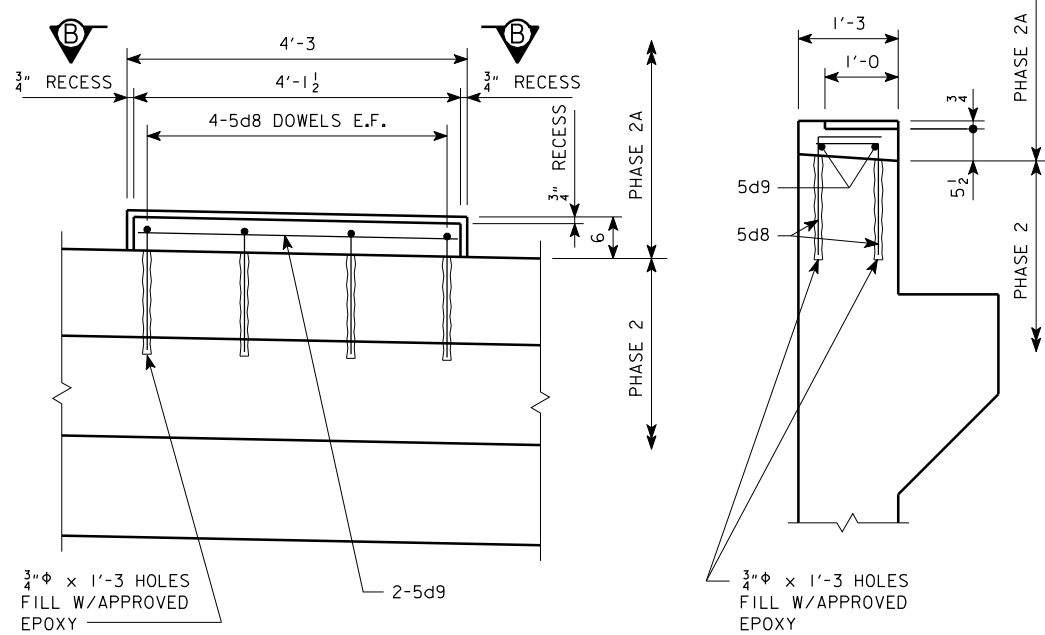
PART FRONT ELEVATION



PART REAR ELEVATION



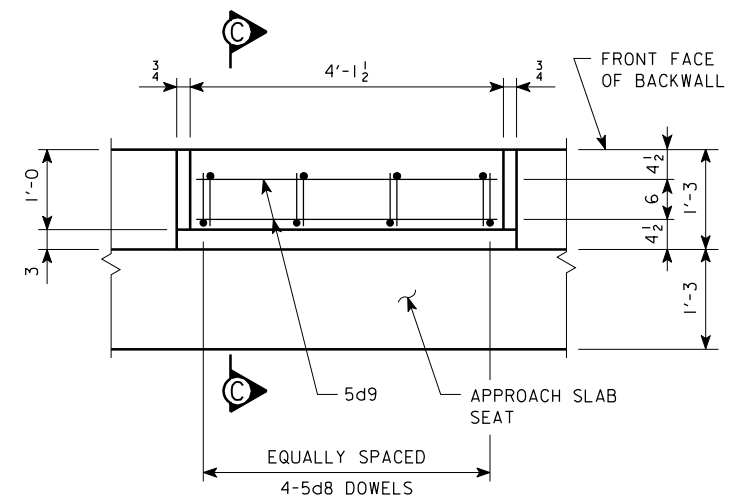
PART FRONT ELEVATION



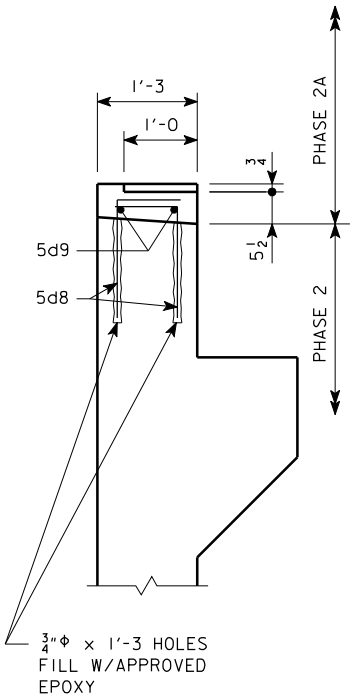
DETAIL "A"

REVISED 04-09-08:  
SHEET ADDED  
REPLACED STONE VENEER  
ON OUTSIDE FACE WITH  
FORM LINER

NOTE:  
FOR SECTION D-D, SEE DESIGN SHEET 15.  
\*FOR ADDITIONAL CONDUIT DETAILS EMBEDDED  
IN THE ABUTMENT, SEE DESIGN SHEETS 43 TO 48.  
FOR ABUTMENT FORM LINER NOTES, SEE DESIGN  
SHEET 17.



SECTION B-B

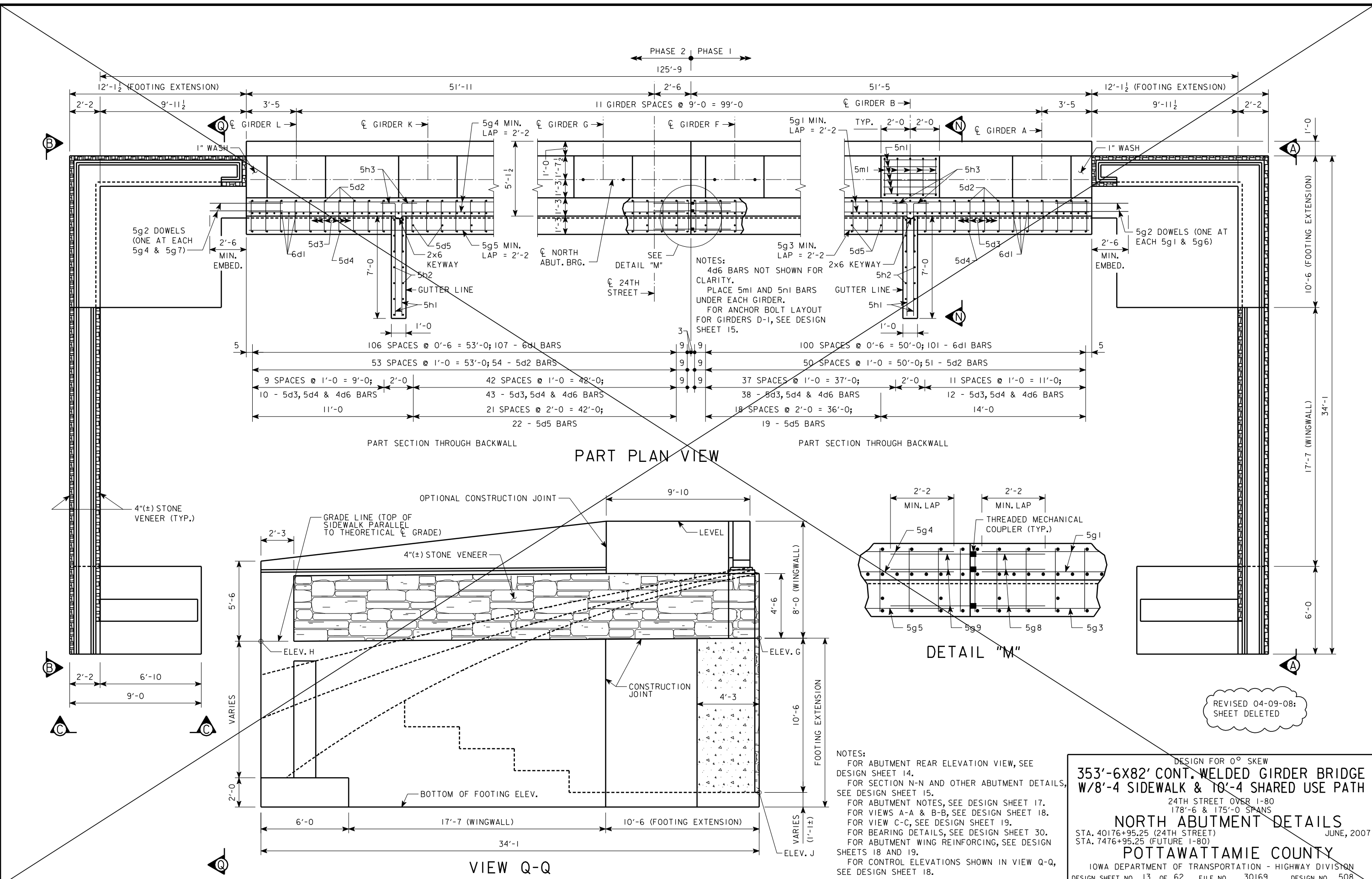


SECTION C-C

DESIGN FOR 0° SKEW  
353'-6X82' CONT. WELDED GIRDER BRIDGE  
W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH  
24TH STREET OVER I-80  
178'-6 & 175'-0 SPANS  
SOUTH ABUTMENT DETAILS  
STA. 40176+95.25 (24TH STREET) JUNE, 2007  
STA. 7476+95.25 (FUTURE I-80)  
POTTAWATTAMIE COUNTY  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 12A OF 62 FILE NO. 30169 DESIGN NO. 508

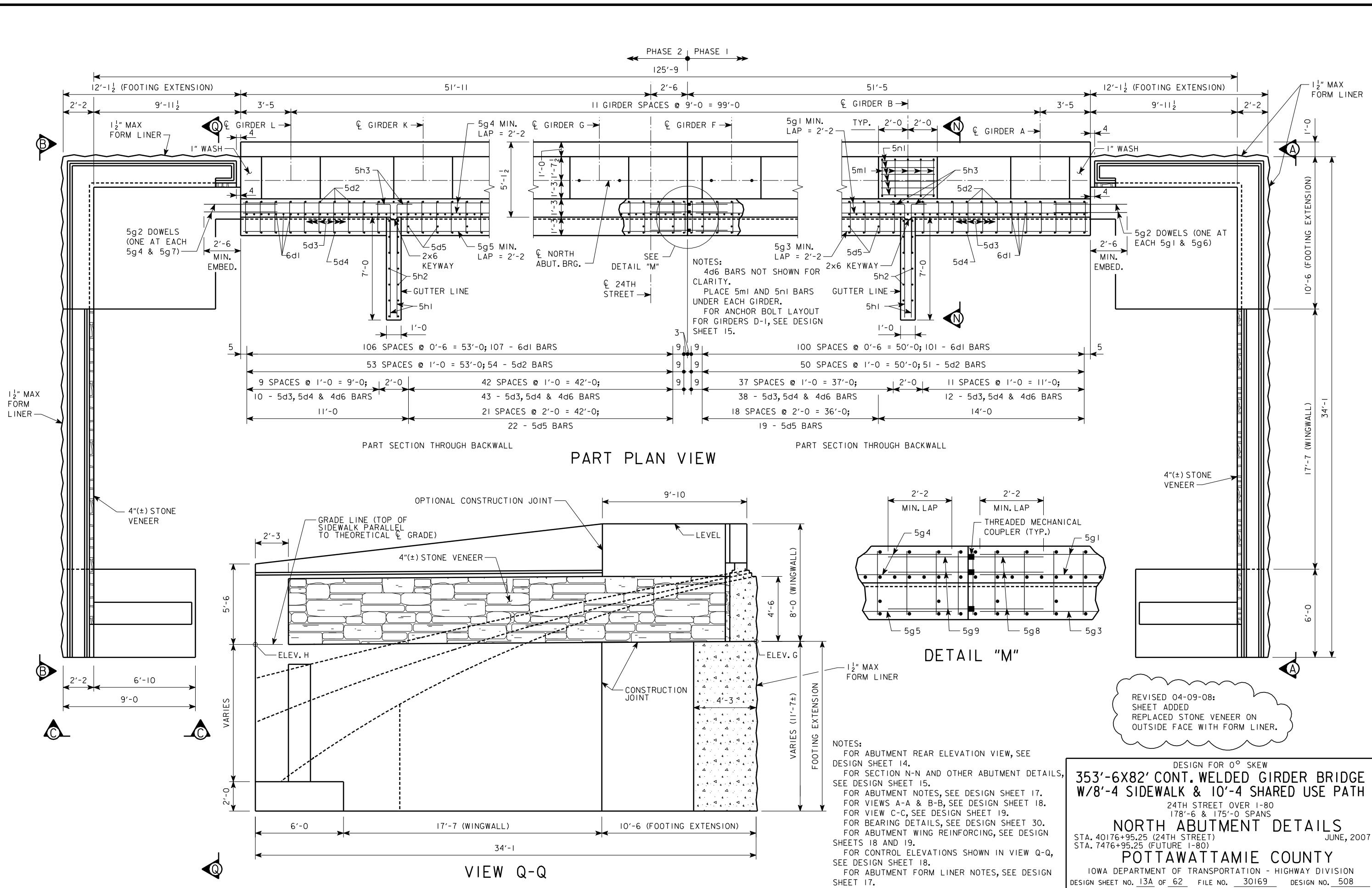
REVISED 11-05 - ALL BLACK BARS CHANGES TO EPOXY COATED. ENGLISHSTUBABUTMENTBRIDGES.DGN 2092 - THIS SHEET REDRAWN 5-23-91.

REVISED 11-05 - ALL BLACK BARS CHANGES TO EPOXY COATED. ENGLISHSTUBABUTMENTBRIDGES.DGN 2092 - THIS SHEET REDRAWN 5-23-91.



NOTES:  
FOR ABUTMENT REAR ELEVATION VIEW, SEE DESIGN SHEET 14.  
FOR SECTION N-N AND OTHER ABUTMENT DETAILS, SEE DESIGN SHEET 15.  
FOR ABUTMENT NOTES, SEE DESIGN SHEET 17.  
FOR VIEWS A-A & B-B, SEE DESIGN SHEET 18.  
FOR VIEW C-C, SEE DESIGN SHEET 19.  
FOR BEARING DETAILS, SEE DESIGN SHEET 30.  
FOR ABUTMENT WING REINFORCING, SEE DESIGN SHEETS 18 AND 19.  
FOR CONTROL ELEVATIONS SHOWN IN VIEW Q-Q, SEE DESIGN SHEET 18.

DESIGN FOR 0° SKEW  
**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**  
24TH STREET OVER I-80  
178'-6 & 175'-0 SPANS  
**NORTH ABUTMENT DETAILS**  
STA. 40176+95.25 (24TH STREET) | JUNE, 2007  
STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 13 OF 62 | FILE NO. 30169 | DESIGN NO. 508

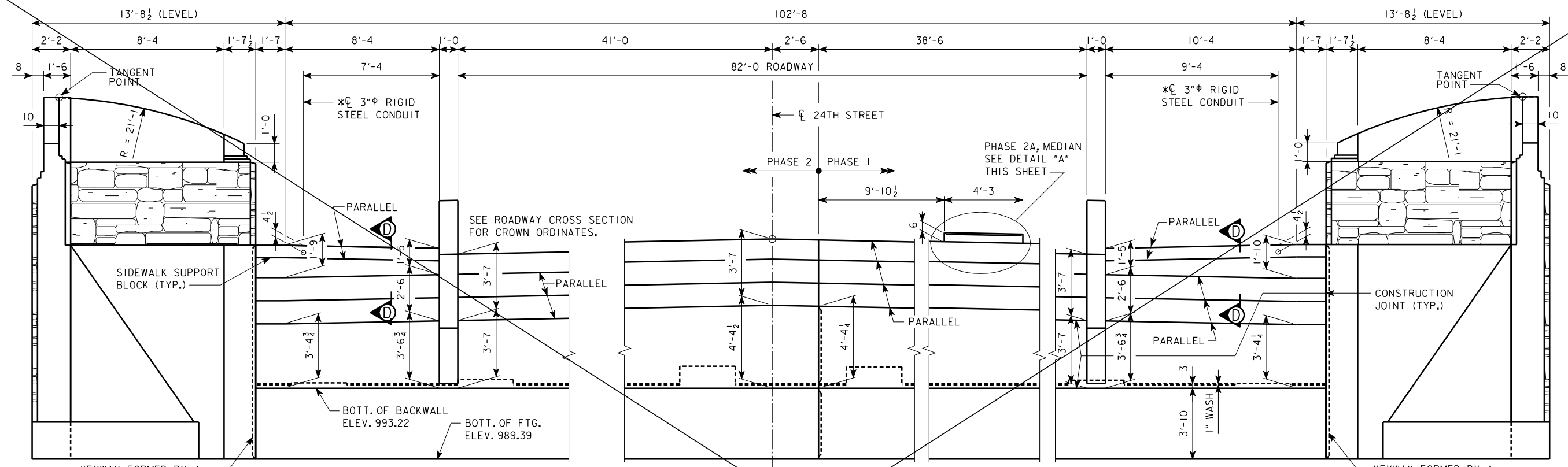


REVISED 11-05 - ALL BLACK BARS CHANGES TO EPOXY COATED. ENGLISHSTUBABUTMENTBRIDGES.DGN 2092 - THIS SHEET REDRAWN 5-23-91.

REVISED 04-09-08:  
 SHEET ADDED  
 REPLACED STONE VENEER ON  
 OUTSIDE FACE WITH FORM LINER.

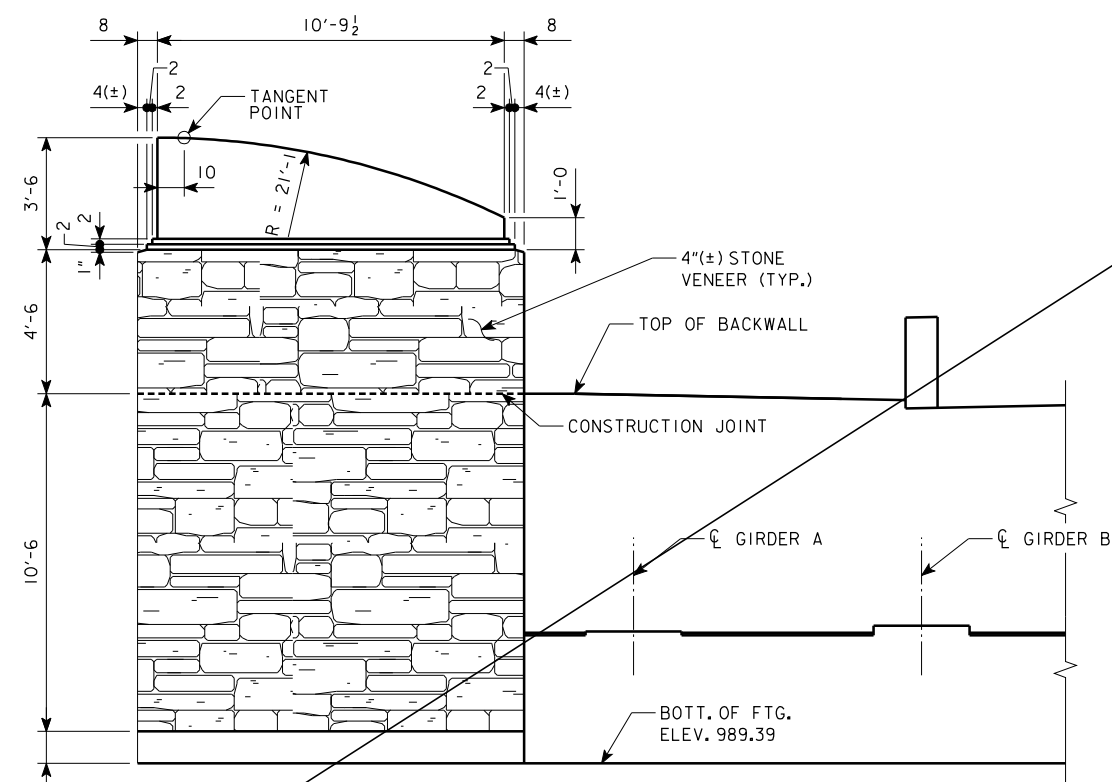
NOTES:  
 FOR ABUTMENT REAR ELEVATION VIEW, SEE DESIGN SHEET 14.  
 FOR SECTION N-N AND OTHER ABUTMENT DETAILS, SEE DESIGN SHEET 15.  
 FOR ABUTMENT NOTES, SEE DESIGN SHEET 17.  
 FOR VIEWS A-A & B-B, SEE DESIGN SHEET 18.  
 FOR VIEW C-C, SEE DESIGN SHEET 19.  
 FOR BEARING DETAILS, SEE DESIGN SHEET 30.  
 FOR ABUTMENT WING REINFORCING, SEE DESIGN SHEETS 18 AND 19.  
 FOR CONTROL ELEVATIONS SHOWN IN VIEW Q-Q, SEE DESIGN SHEET 18.  
 FOR ABUTMENT FORM LINER NOTES, SEE DESIGN SHEET 17.

DESIGN FOR 0° SKEW  
**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**  
 24TH STREET OVER I-80  
 178'-6 & 175'-0 SPANS  
**NORTH ABUTMENT DETAILS**  
 STA. 40176+95.25 (24TH STREET)      JUNE, 2007  
 STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 13A OF 62      FILE NO. 30169      DESIGN NO. 508

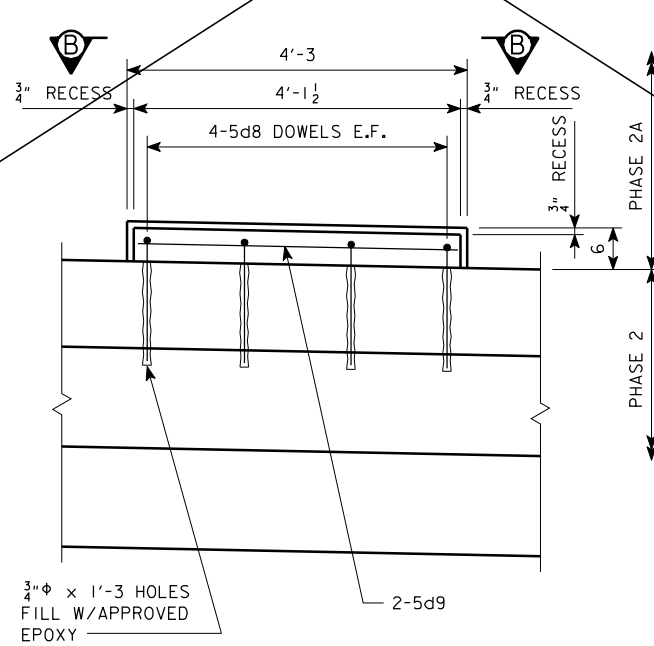


PART REAR ELEVATION

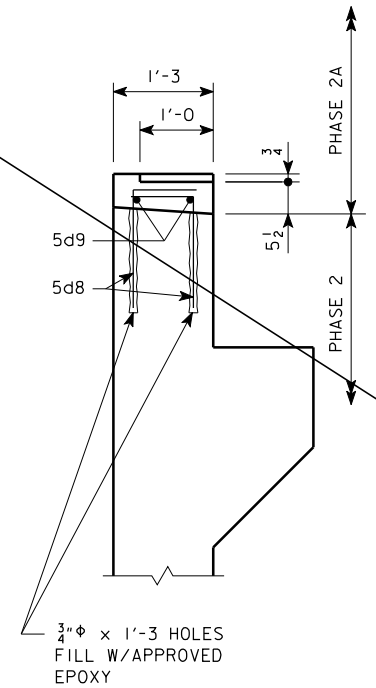
NOTE:  
FOR SECTION D-D, SEE DESIGN SHEET 15.  
\*FOR ADDITIONAL CONDUIT DETAILS, SEE  
DESIGN SHEETS 43 TO 48.



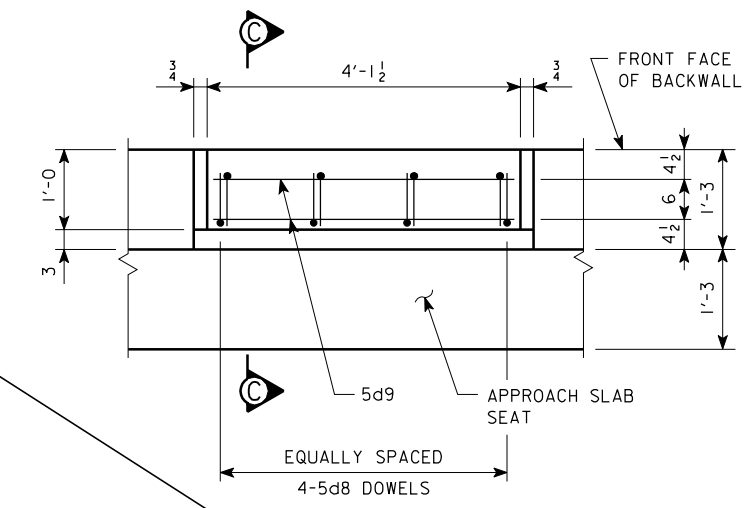
PART FRONT ELEVATION



DETAIL "A"



SECTION C-C

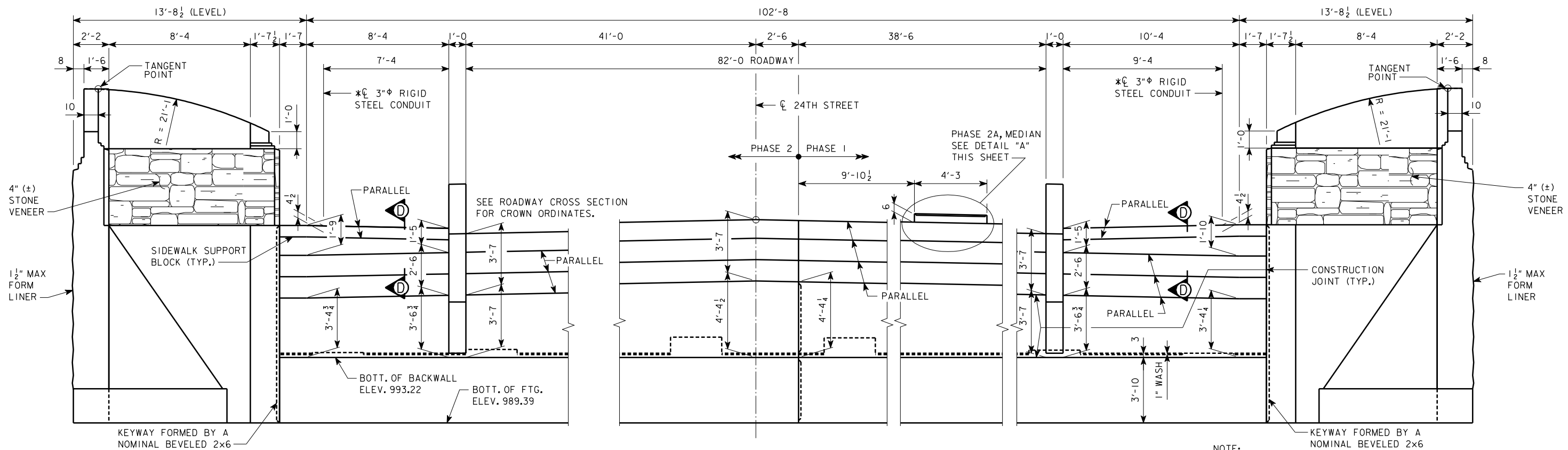


SECTION B-B

DESIGN FOR 0° SKEW  
**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**  
 24TH STREET OVER I-80  
 178'-6 & 175'-0 SPANS  
**NORTH ABUTMENT DETAILS**  
 STA. 40176+95.25 (24TH STREET) JUNE, 2007  
 STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 14 OF 62 FILE NO. 30169 DESIGN NO. 508

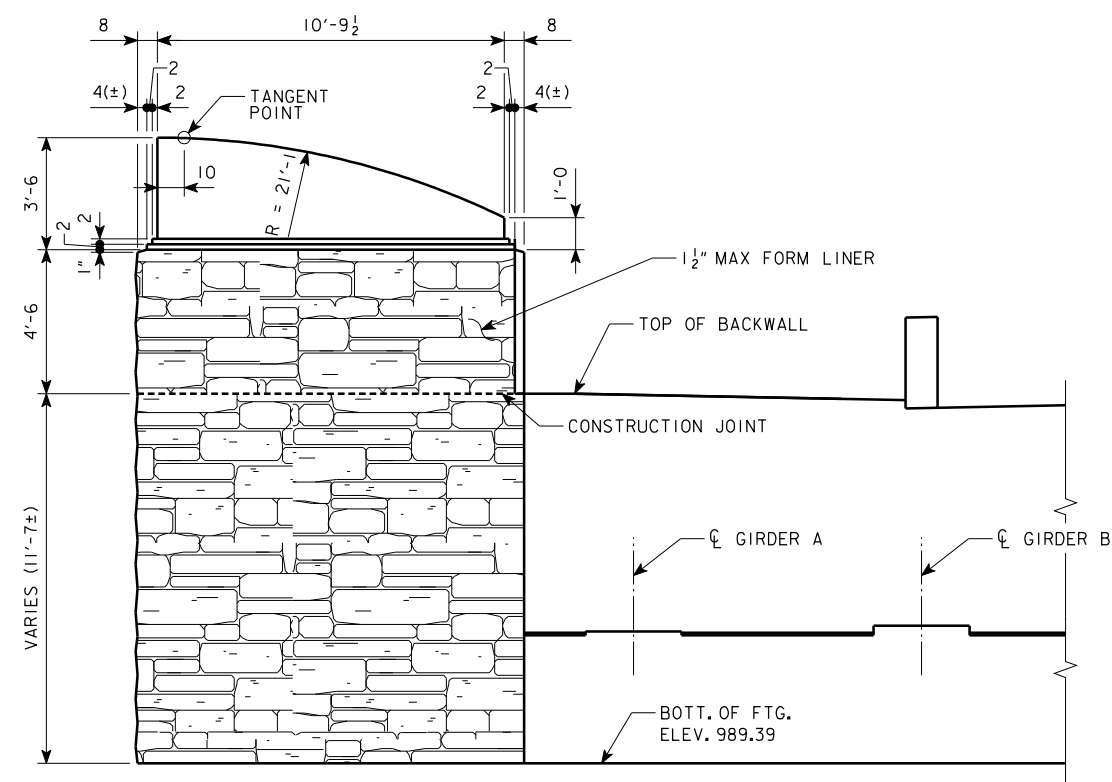
REVISED 04-09-08;  
SHEET DELETED

REVISED 11-05 - ALL BLACK BARS CHANGES TO EPOXY COATED. ENGLISHSTUBABUTMENTBRIDGES.DGN 2092 - THIS SHEET REDRAWN 5-23-91.

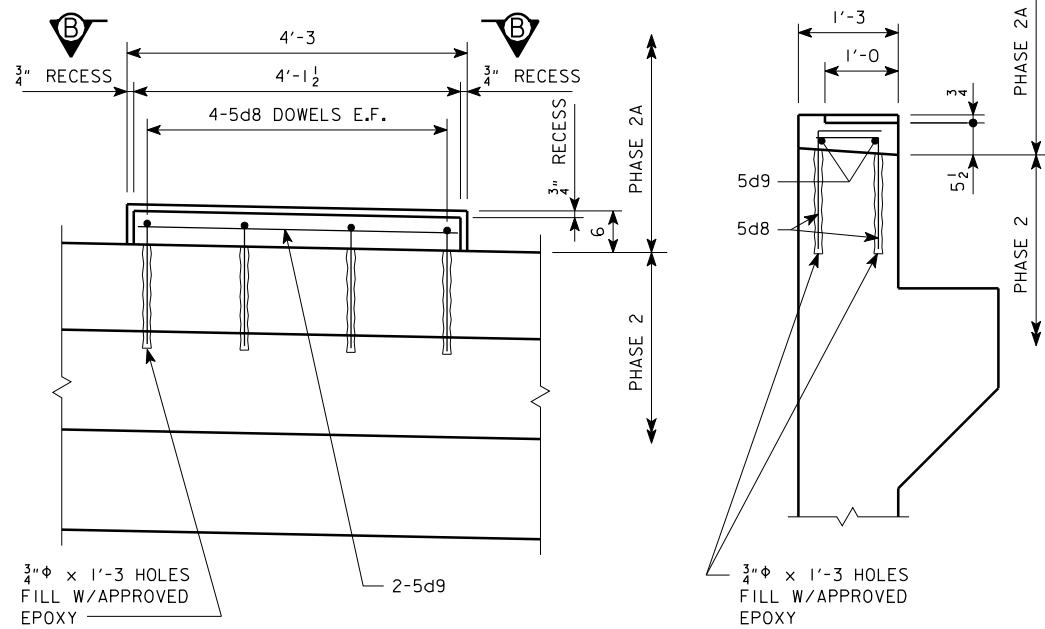


PART REAR ELEVATION

NOTE:  
 FOR SECTION D-D, SEE DESIGN SHEET 15.  
 \*FOR ADDITIONAL CONDUIT DETAILS, SEE DESIGN SHEETS 43 TO 48.  
 FOR ABUTMENT FORM LINER NOTES, SEE DESIGN SHEET 17.

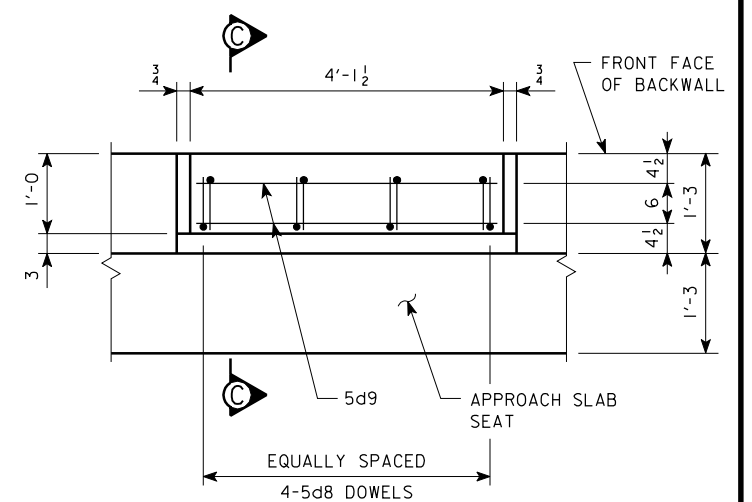


PART FRONT ELEVATION



DETAIL "A"

REVISED 04-09-08:  
 SHEET ADDED  
 REPLACED STONE VENEER  
 ON OUTSIDE FACE WITH  
 FORM LINER



SECTION B-B

DESIGN FOR 0° SKEW  
**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**  
 24TH STREET OVER I-80  
 178'-6 & 175'-0 SPANS  
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**POTTAWATTAMIE COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 14A OF 62 FILE NO. 30169 DESIGN NO. 508

REVISED 11-05 - ALL BLACK BARS CHANGES TO EPOXY COATED. ENGLISHSTUBABUTMENTBRIDGES.DGN 2092 - THIS SHEET REDRAWN 5-23-91.

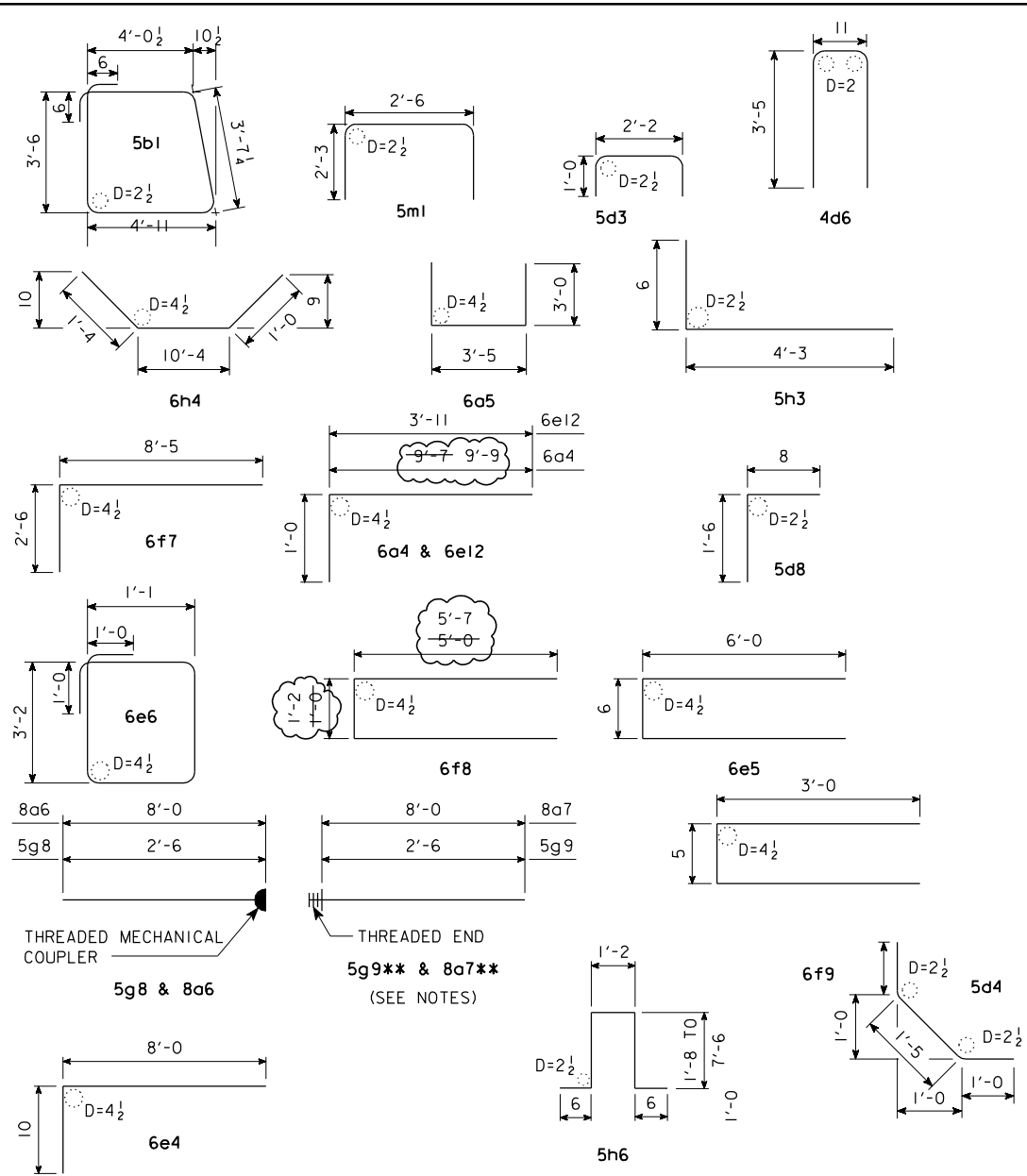
### REINFORCING BAR LIST - ONE ABUTMENT

BAR	LOCATION	SHAPE	LENGTH	PHASE 1		PHASE 2	
				NO.	WEIGHT	NO.	WEIGHT
8a1	FOOTING LONGITUDINAL	—	29'-6"	28	2205	0	0
8a2	FOOTING LONGITUDINAL	—	31'-0"	0	0	28	2318
6a3	FOOTING VERTICAL	—	10'-10"	19	309	19	309
6a4	FOOTING HORIZONTAL	—	10'-7"	48	763.775	48	763.775
6a5	FOOTING HORIZONTAL	—	9'-5"	12	170	12	170
8a6*	FOOTING DOWEL	—	8'-0"	14	299	0	0
8a7**	FOOTING DOWEL	—	8'-0"	0	0	14	299
5b1	FOOTING HOOPS	⌋	17'-1"	52	927	55	980
6d1	BACKWALL VERTICAL B.F.	—	8'-10"	102	1353	108	1433
5d2	BACKWALL VERTICAL F.F.	—	8'-6"	52	461	55	488
5d3	PAVING NOTCH	⌋	4'-2"	51	222	54	235
5d4	PAVING NOTCH	⌋	3'-5"	51	182	54	192
4d6	BACKWALL VERTICAL HOOP	⌋	7'-9"	51	264	54	280
5d8	MEDIAN DOWELS	—	2'-2"	-	-	8	18
5d9	MEDIAN TRANSVERSE	—	3'-9"	-	-	2	8
6e1	WINGWALL VERTICAL	—	13'-6"	24	487	24	487
6e2	WINGWALL VERTICAL	—	16'-7"	18	448	18	448
6e3	WINGWALL VERTICAL	—	10'-5"	18	282	18	282
6e4	WINGWALL VERTICAL	—	8'-10"	85	1128	85	1128
6e5	WINGWALL VERTICAL	—	12'-6"	46	864	46	864
6e6	WINGWALL VERTICAL	—	10'-6"	19	300	19	300
6e10	WINGWALL VERTICAL	—	13'-9"	7	145	7	145
6e11	WINGWALL VERTICAL	—	8'-3"	7	87	7	87
6e12	WINGWALL VERTICAL	—	4'-11"	7	52	7	52
6f1	WINGWALL HORIZONTAL	—	17'-3"	4	104	4	104
6f2	WINGWALL HORIZONTAL	—	23'-3"	30	1048	30	1048
6f3	WINGWALL HORIZONTAL	—	9'-7"	18	259	18	259
6f4	WINGWALL HORIZONTAL	—	14'-5"	2	43	2	43
6f5	WINGWALL HORIZONTAL	—	6'-11"	2	21	2	21
6f6	WINGWALL HORIZONTAL	—	23'-6"	2	71	2	71
6f7	WINGWALL HORIZONTAL (FIELD CUT AS REQ'D)	—	10'-11"	18	295	18	295
6f8	WINGWALL HORIZONTAL	—	11'-0"	5	83.93	5	83.93
6f9	WINGWALL HORIZONTAL	—	6'-5"	4	39	4	39
6f10	WINGWALL HORIZONTAL	—	1'-11"	4	12	4	12
5g1	BACKWALL LONGITUDINAL	—	26'-9"	36	1004	0	0
5g2	DOWELS	—	5'-0"	70	365	70	365
5g3	PAVING NOTCH LONGITUDINAL	—	26'-9"	4	112	0	0
5g4	BACKWALL LONGITUDINAL	—	28'-3"	0	0	36	1061
5g5	PAVING NOTCH LONGITUDINAL	—	28'-3"	0	0	4	118
5g6	BACKWALL LONGITUDINAL	—	11'-7"	2	24	0	0
5g7	BACKWALL LONGITUDINAL	—	9'-7"	0	0	2	20
5g8*	BACKWALL DOWEL	—	2'-6"	20	52	0	0
5g9**	BACKWALL DOWEL	—	2'-6"	0	0	20	52
5h1	WING HORIZONTAL	—	6'-8"	16	111	16	111
5h2	WING VERTICAL	—	5'-2"	14	75	14	75
5h3	WING DOWELS	—	4'-9"	16	79	16	79
6h4	COUNTERFORT VERTICAL	⌋	12'-8"	3	57	3	57
6h5	COUNTERFORT VERTICAL	—	6'-2"	10	93	10	93
5h6	COUNTERFORT HORIZONTAL	⌋	11'-4"	8	95	8	95
5j1	WING FOOTING TRANSVERSE	—	5'-8"	10	59	10	59
5j2	WING FOOTING LONGITUDINAL	—	8'-8"	7	63	7	63
5m1	BEAM STEPS TRANSVERSE	⌋	7'-0"	30	219	30	219
5n1	BEAM STEPS LONGITUDINAL	—	3'-8"	36	138	36	138
REINFORCING STEEL EPOXY COATED TOTAL (LBS.)				15,491	15,888		
STAINLESS STEEL-TOTAL (LBS)				69	80		

EPOXY COATED REINFORCING

S.S. BARS

### BENT BAR DETAILS



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIA

\*INCLUDES 1 THREADED MECHANICAL COUPLER.  
\*\*SEE ABUTMENT NOTES.

### ESTIMATED QUANTITIES - BOTH ABUTMENTS

ITEM	UNIT	SOUTH ABUT.		NORTH ABUT.		TOTAL					
		PHASE 1	PHASE 2	PHASE 1	PHASE 2						
STRUCTURAL CONCRETE (HIGH PERFORMANCE)	C.Y.	146.0	151.2	149.4	154.6	145.7	150.9	149.1	154.3	590.2	611.0
REINFORCING STEEL - EPOXY COATED	LB.	15,538	15,560	15,946	15,968	15,538	15,560	15,946	15,968	62,968	63,056
CLASS 20 EXCAVATION	C.Y.	187	191	186	190					754	754
HP10x57 STEEL BEARING PILING	L.F.	26 @ 125	27 @ 125	26 @ 125	27 @ 125					13,250	13,250
STONE VENEER	S.F.	617	137	617	137	617	137	617	137	2,468	548

### ABUTMENT NOTES:

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN. CONSTRUCTION JOINT KEYWAYS ARE TO BE FORMED WITH BEVELED 2x6's.

THE PORTION OF THE BACKWALL CONTAINING THE ABUTMENT ANCHORAGE OF THE EXPANSION DEVICE IS TO BE PLACED AFTER THE BRIDGE FLOOR IS PLACED.

CONCRETE SEALER IS TO BE APPLIED TO THE ABUTMENT BRIDGE SEAT IN ACCORDANCE WITH THE CURRENT IOWA D.O.T. STANDARD SPECIFICATIONS.

THE COST OF PREFORMED EXPANSION JOINT FILLER, AND COST OF FURNISHING AND PLACING CONCRETE SEALER IS TO BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)".

PAVING NOTCH DOWEL (5d5) SHALL BE DEFORMED BAR GRADE 60, TYPE 316 LN IN ACCORDANCE WITH ASTM A955/A955M-01. THE COST AND WEIGHT OF THE STAINLESS STEEL PAVING NOTCH DOWEL IS TO BE INCLUDED IN THE PRICE BID FOR "REINFORCING STEEL-EPOXY COATED"

IF NECESSARY TO PREVENT DAMAGE TO THE END OF THE BRIDGE DECK OR BACKWALL FROM CONSTRUCTION EQUIPMENT, AN APPROPRIATE METHOD OF PROTECTION APPROVED BY THE ENGINEER SHALL BE PROVIDED BY THE BRIDGE CONTRACTOR AT NO EXTRA COST TO THE STATE.

ALL THREADED MECHANICAL COUPLER ASSEMBLIES TO BE USED IN SPLICING THE REINFORCING IN THE ABUTMENT SHALL BE EPOXY COATED. THREE ADDITIONAL NON EPOXY COATED SPLICE ASSEMBLIES OF EACH SIZE SHALL BE FURNISHED TO THE ENGINEER FOR TESTING AND APPROVAL. THE COST OF ALL COUPLERS, INCLUDING THE 3 TO BE FURNISHED FOR TESTING, IS TO BE INCLUDED IN THE PRICE BID FOR "REINFORCING STEEL EPOXY COATED" AND NO ADDITIONAL PAYMENT WILL BE MADE. THE WEIGHT OF THE MECHANICAL COUPLERS IS NOT INCLUDED IN THE QUANTITY SHOWN FOR "REINFORCING STEEL EPOXY COATED".

EXPOSED CONCRETE SURFACES OF THE ABUTMENT WING WALLS ABOVE THE STONE VENEER (OR FORM LINER) SHALL BE SMOOTH AND SHOW NO WOOD GRAIN OR OTHER TEXTURE FROM THE FACE OF THE FORMS USED. ALL COSTS FOR REPAIRS OR COVERING THE WOOD GRAIN OR OTHER TEXTURE ON THESE SURFACES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

\*\* THE LENGTHS SHOWN DO NOT INCLUDE AN ALLOWANCE FOR THE THREADED ENDS. BAR LENGTHS MAY NEED TO INCREASE DEPENDING ON THE MECHANICAL COUPLER ASSEMBLY USED. THE COST OF ALL THREADED PORTIONS OF THESE BARS IS TO BE INCLUDED IN THE PRICE BID FOR "REINFORCING STEEL EPOXY COATED" AND NO ADDITIONAL PAYMENT WILL BE MADE. THE WEIGHT OF THE THREADED ENDS IS NOT INCLUDED IN THE QUANTITY SHOWN FOR "REINFORCING STEEL EPOXY COATED".

ALL BATTERED PILING SHALL BE TRIMMED TO THE HORIZONTAL LINE TO AID IN THE PLACEMENT OF THE REINFORCING.

### CONCRETE PLACEMENT QUANTITIES

LOCATION	SOUTH ABUT.		NORTH ABUT.	
	PHASE 1	PHASE 2	PHASE 1	PHASE 2
FOOTING AND STEPS	37.2	39.4	37.2	39.4
BACKWALL BELOW CONSTR. JOINT	9.2	9.9	9.1	9.8
BACKWALL ABOVE CONSTR. JOINT	13.2	13.9	13.2	13.9
BARRIER SUPPORT WING	1.4	1.4	1.4	1.4
WING FOOTING	4.0	4.0	4.0	4.0
COUNTERFORT	1.5	1.5	1.5	1.5
WINGWALL	31.9	34.2	31.8	34.1
FOOTING EXTENSION	47.6	50.5	47.5	50.4
TOTAL (C.Y.)	146.0	151.2	149.4	154.6

### ABUTMENT FORM LINER NOTES:

STONE FORM LINER FOR ABUTMENTS SHALL SIMULATE A PATTERN OF SMALL ASHLAR STONES WITH SAWED EDGES ON ALL FOUR SIDES AND A SPLIT OR SNAPPED EXPOSED FACE. STONE SIZES SHALL RANGE FROM 3" x 6" MINIMUM TO 14" x 28" MAXIMUM. MAXIMUM DEPTH OF RELIEF IN THE FORM LINER SHALL BE 1 1/2" AND JOINT WIDTH SHALL BE 3/4". THE FORM LINER PATTERN AND MANUFACTURER USED FOR ABUTMENTS SHALL MATCH THE FORM LINER USED FOR THE DESIGN 708 TERRACE WALLS ASSOCIATED WITH THIS CONTRACT. ACCEPTABLE PATTERNS AND MANUFACTURERS ARE:

PATTERN #12020 - TOLLWAY ASHLAR CUSTOM ROCK  
2020 W. 7TH STREET  
ST. PAUL, MN 55116

PATTERN #17000 - FLORIDA ASHLAR FITZGERALD FORM LINER  
1341 EAST PAMONA STREET  
SANTA ANA, CA 92705

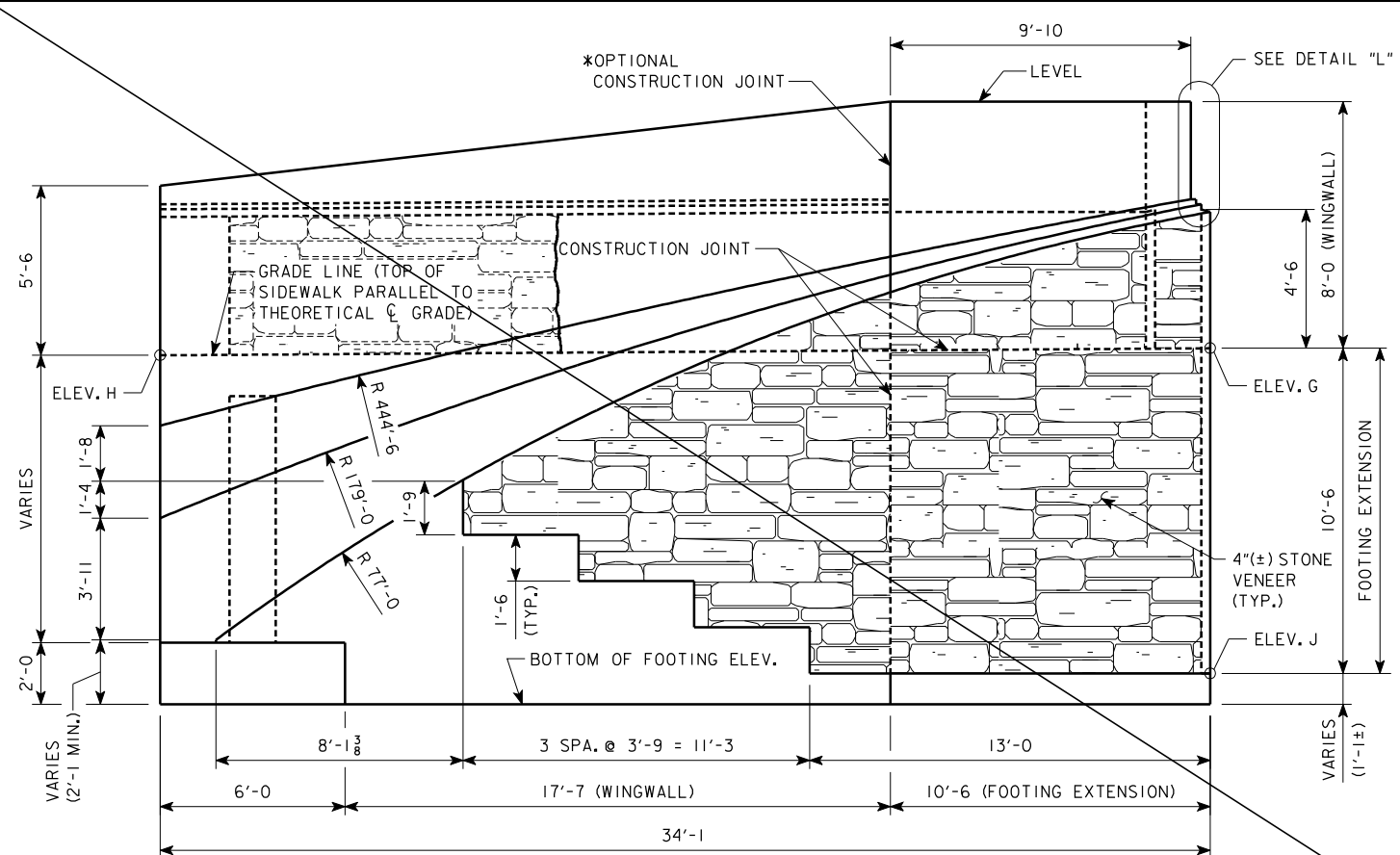
PATTERN #905 - SMALL AGED ASHLAR STONE ARCHITECTURAL POLYMERS  
1220 LITTLE GAP ROAD  
PALMERTON, PA 18071

PATTERN #1515 - SC ASHLAR SPEC FORM LINERS, INC.  
530 EAST DYER ROAD  
SANTA ANA, CA 92707

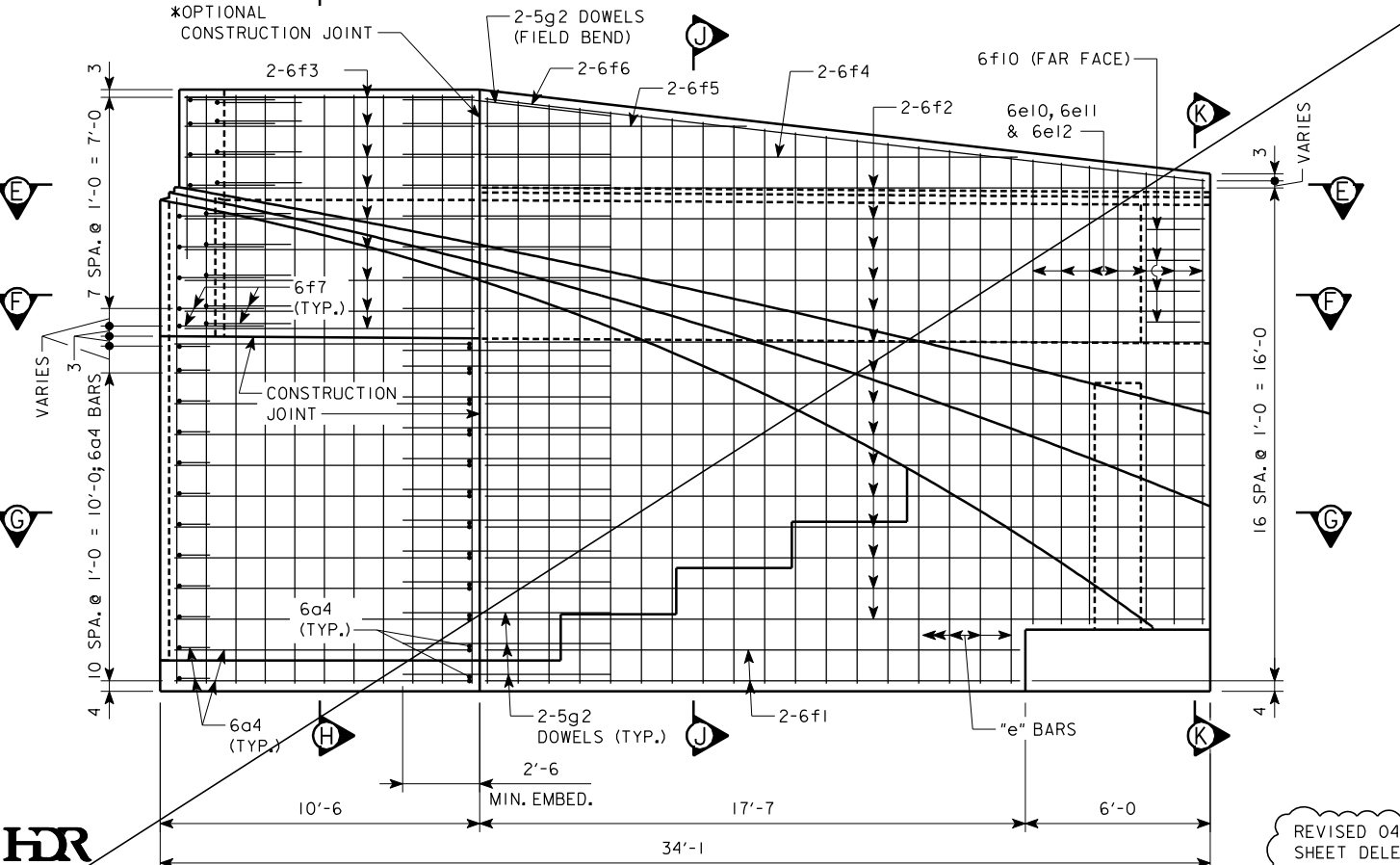
REVISED 04-09-08:  
REPLACED STONE VENEER ON OUTSIDE FACE WITH FORM LINER.

DESIGN FOR 0° SKEW  
353'-6X82' CONT. WELDED GIRDER BRIDGE  
W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH

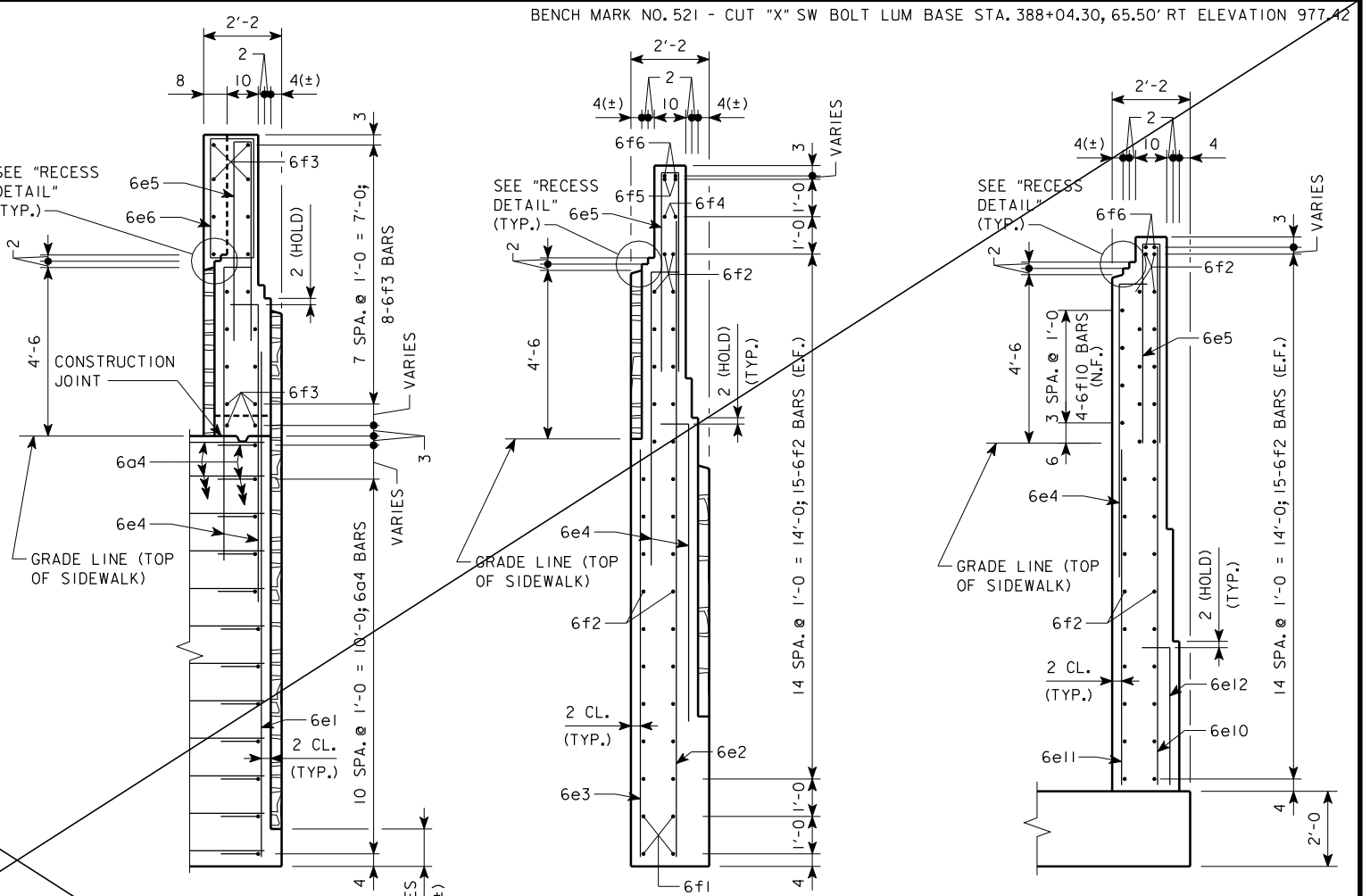
24TH STREET OVER I-80  
178'-6 & 175'-0 SPANS  
**ABUTMENT DETAILS**  
STA. 40176+95.25 (24TH STREET) JUNE, 2007  
STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 17 OF 62 FILE NO. 30169 DESIGN NO. 508



VIEW A-A (SHOWING GENERAL DIMENSIONS)



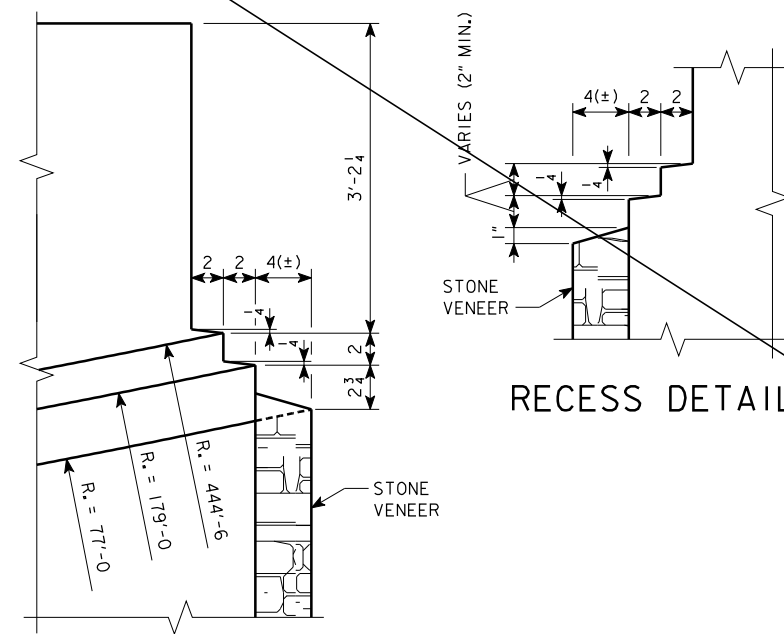
VIEW B-B (SHOWING REINFORCING STEEL)



SECTION H-H

SECTION J-J

SECTION K-K



RECESS DETAIL

DETAIL "L"

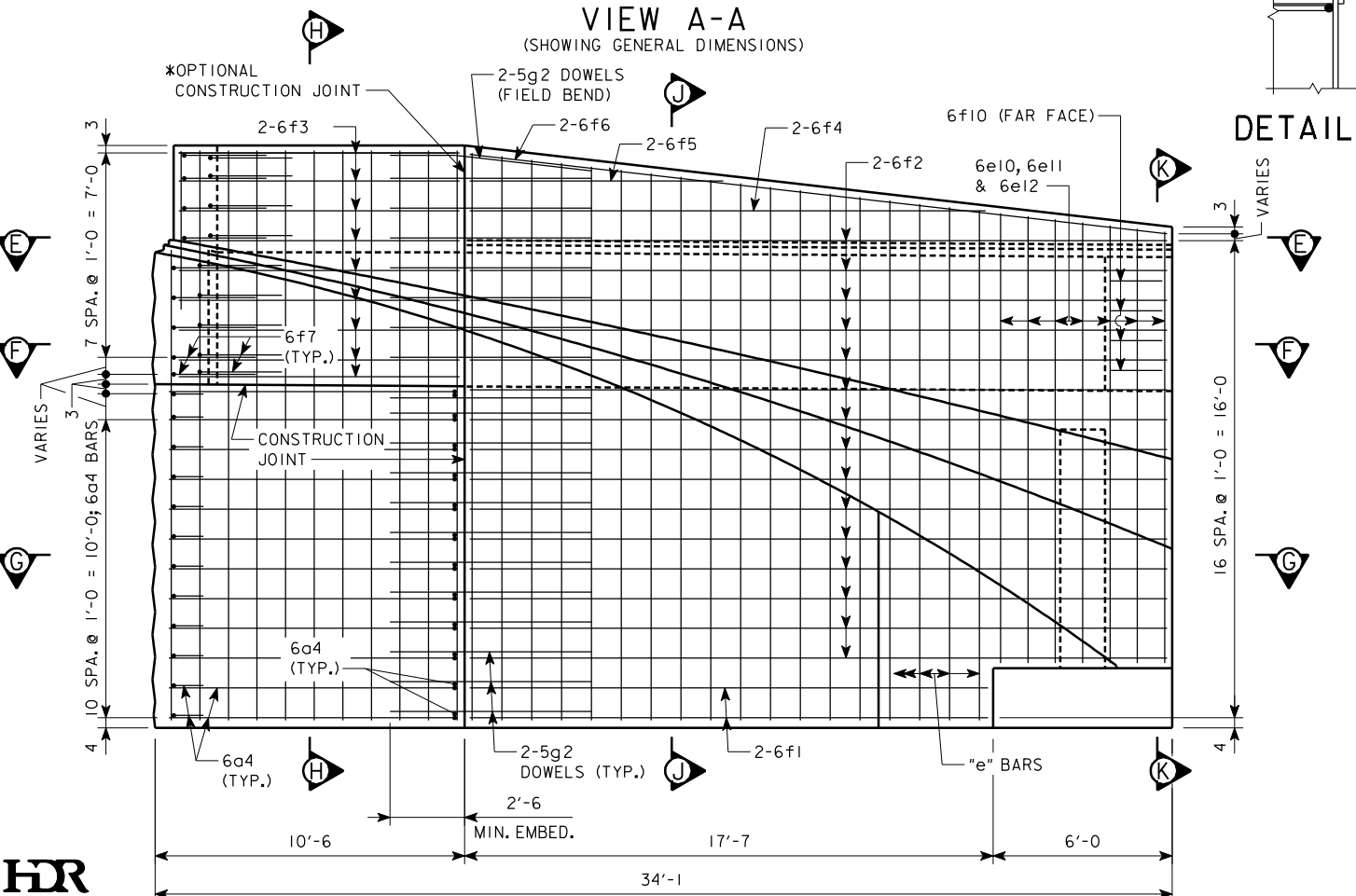
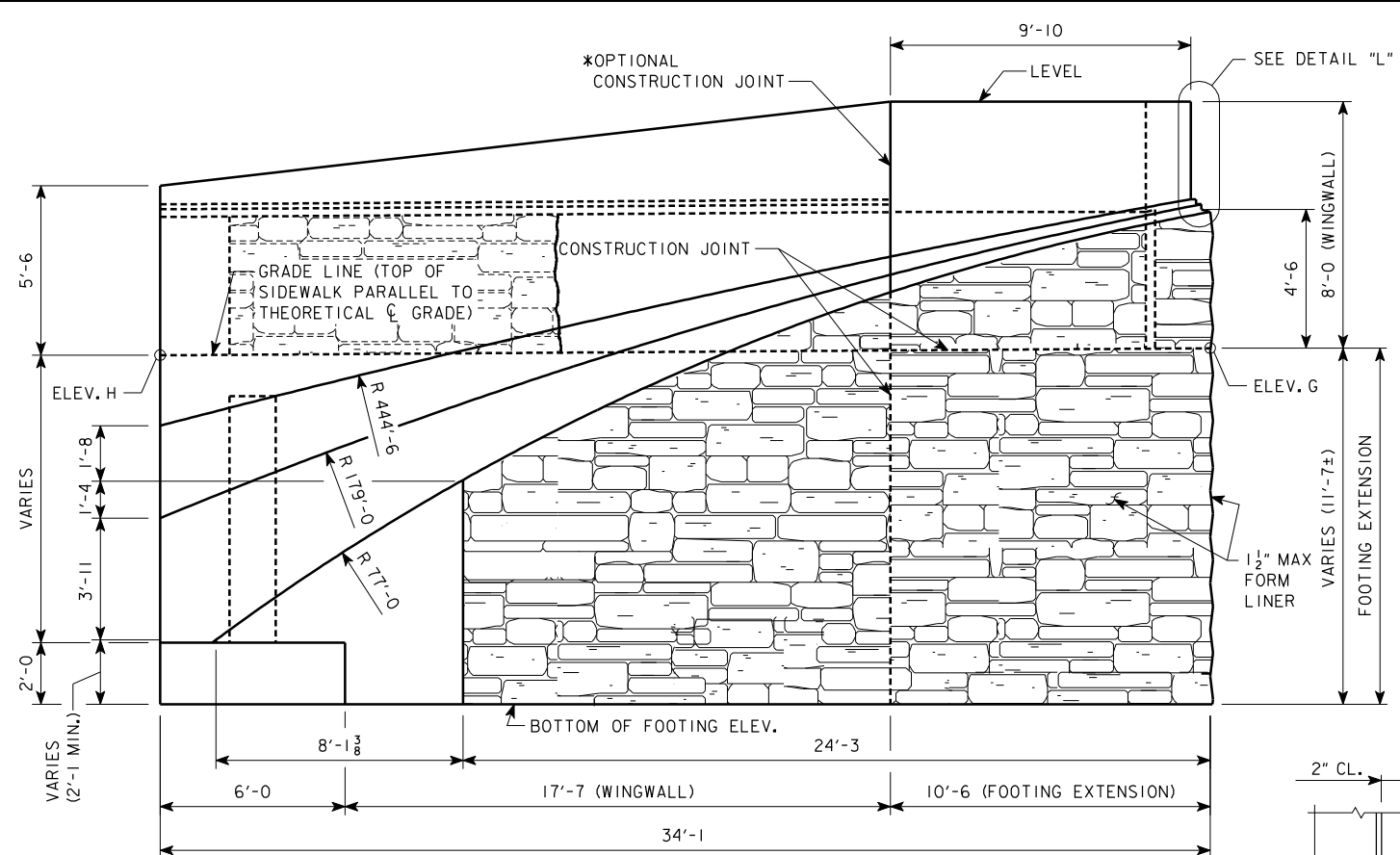
TABLE OF WINGWALL ELEVATIONS			
LOCATION	ELEV. G	ELEV. H	ELEV. J
SOUTHWEST WING	1002.48	1001.76	991.98
SOUTHEAST WING	1002.44	1001.71	991.94
NORTHWEST WING	1001.03	1000.02	990.53
NORTHEAST WING	1000.99	999.98	990.49

\*IF CONTRACTOR UTILIZES THE OPTIONAL CONSTRUCTION JOINT SHOWN, THE JOINT SHALL NOT BE DRESSED WITH A BEVELED CHAMFER STRIP. FORMS SHALL BE REMOVED IN ACCORDANCE WITH SECTION 2403.18.A OF THE IOWA D.O.T. STANDARD SPECIFICATIONS AND THE JOINT SHALL RECEIVE A CLASS 2 SPECIAL SURFACE FINISH IN ACCORDANCE WITH SECTION 2403.21.B TO OBTAIN A SURFACE THAT IS UNIFORM IN TEXTURE AND APPEARANCE.

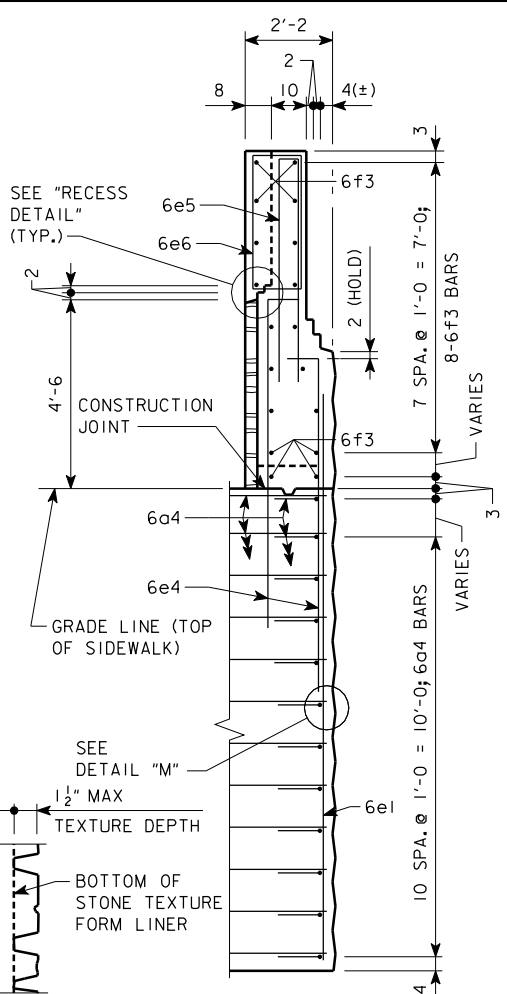
DESIGN FOR 0° SKEW  
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**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**  
 24TH STREET OVER I-80  
 178'-6 & 175'-0 SPANS  
**WINGWALL DETAILS**  
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 STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 18 OF 62 FILE NO. 30169 DESIGN NO. 508

NOTES:  
 FOR SECTIONS E-E, F-F & G-G,  
 SEE DESIGN SHEET 19.  
 FOR CONDUIT DETAILS, SEE  
 DESIGN SHEETS 43 TO 48.

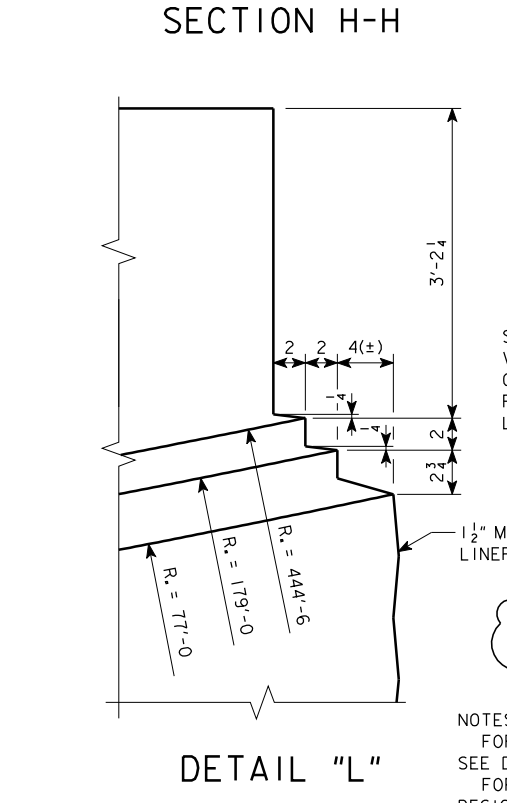
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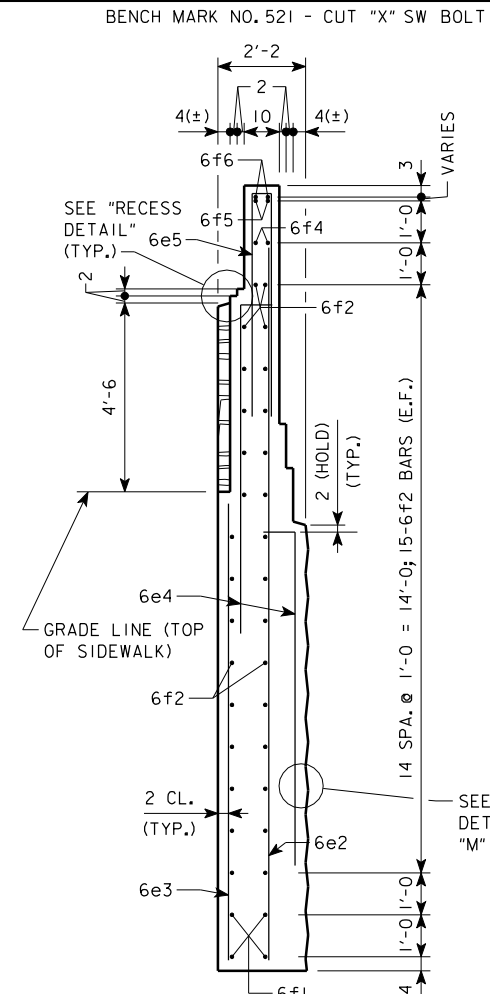
HDR  
HDR Engineering, Inc.



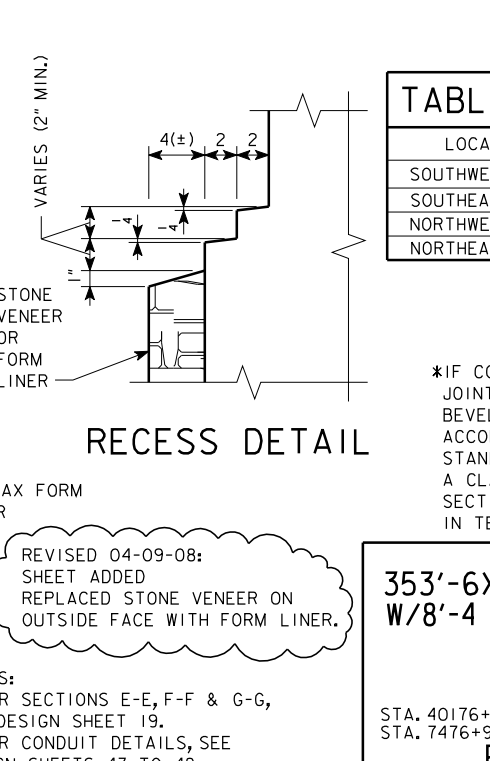
DETAIL "M"



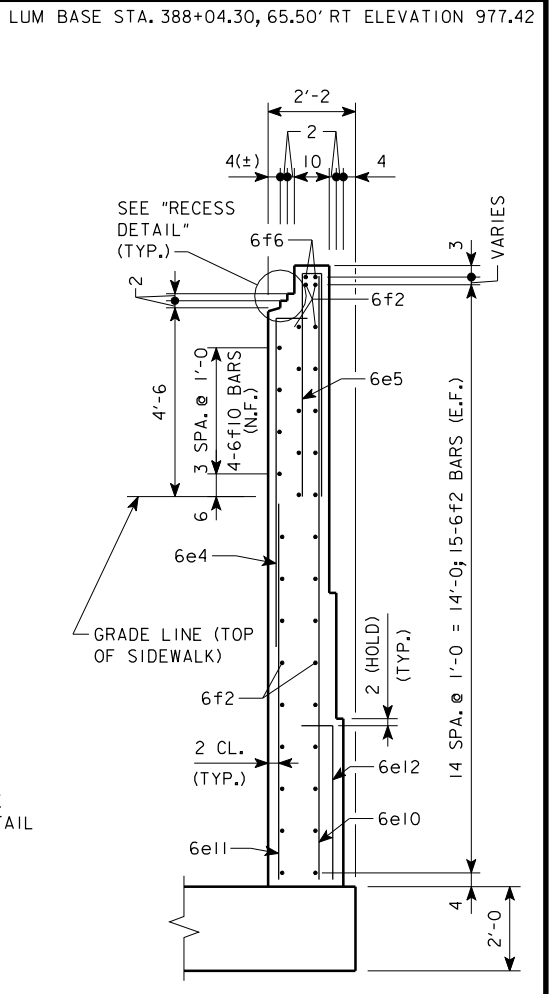
DETAIL "L"



SECTION H-H



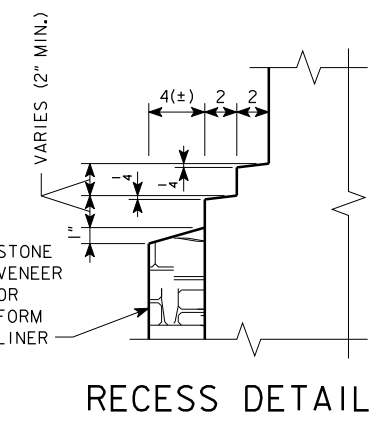
SECTION J-J



SECTION K-K

LOCATION	ELEV. G	ELEV. H
SOUTHWEST WING	1002.48	1001.76
SOUTHEAST WING	1002.44	1001.71
NORTHWEST WING	1001.03	1000.02
NORTHEAST WING	1000.99	999.98

\*IF CONTRACTOR UTILIZES THE OPTIONAL CONSTRUCTION JOINT SHOWN, THE JOINT SHALL NOT BE DRESSED WITH A BEVELED CHAMFER STRIP. FORMS SHALL BE REMOVED IN ACCORDANCE WITH SECTION 2403.18.A OF THE IOWA D.O.T. STANDARD SPECIFICATIONS AND THE JOINT SHALL RECEIVE A CLASS 2 SPECIAL SURFACE FINISH IN ACCORDANCE WITH SECTION 2403.21.B TO OBTAIN A SURFACE THAT IS UNIFORM IN TEXTURE AND APPEARANCE.



RECESS DETAIL

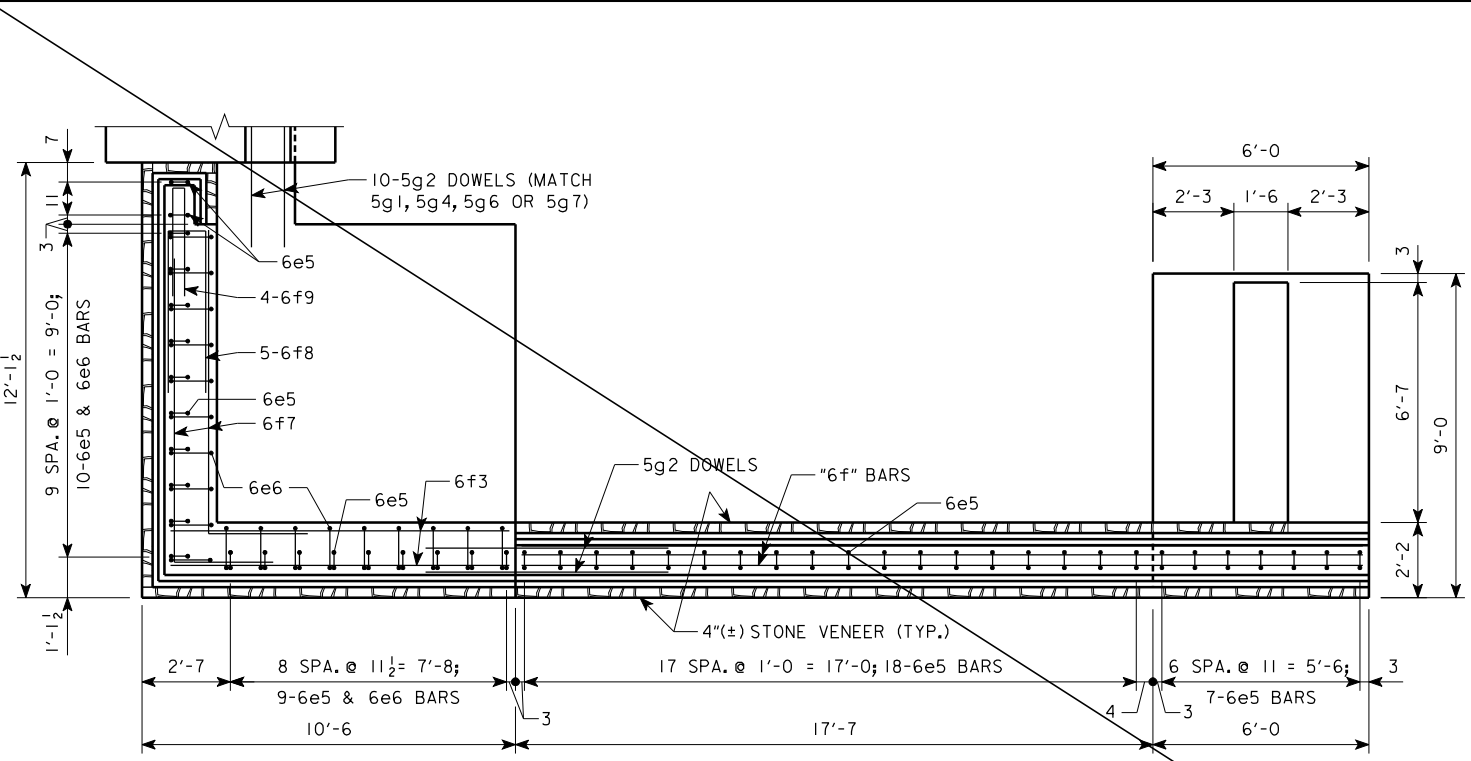
REVISED 04-09-08:  
SHEET ADDED  
REPLACED STONE VENEER ON  
OUTSIDE FACE WITH FORM LINER.

NOTES:  
FOR SECTIONS E-E, F-F & G-G,  
SEE DESIGN SHEET 19.  
FOR CONDUIT DETAILS, SEE  
DESIGN SHEETS 43 TO 48.  
FOR ABUTMENT FORM LINER NOTES,  
SEE DESIGN SHEET 17.

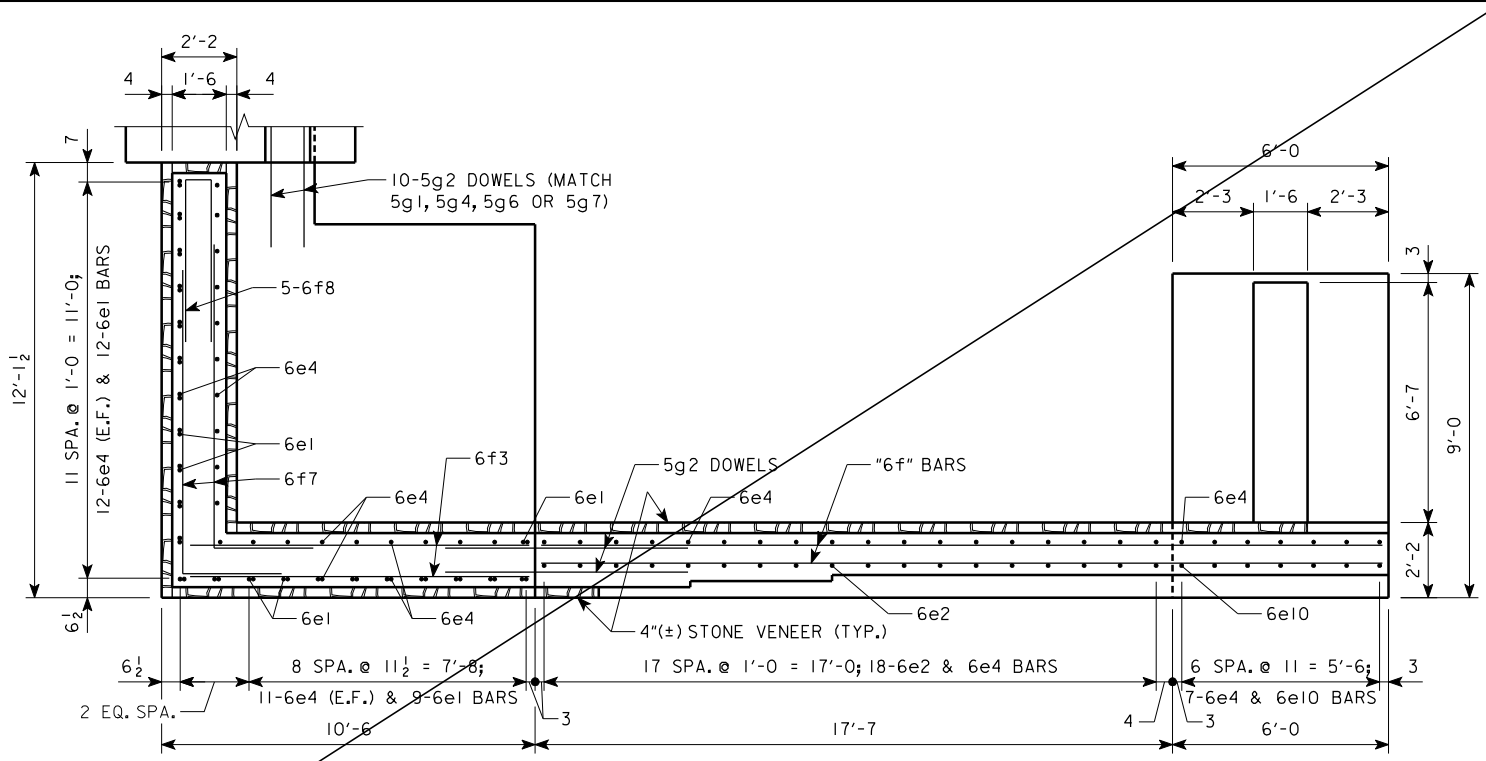
DESIGN FOR 0° SKEW  
**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**  
24TH STREET OVER I-80  
178'-6 & 175'-0 SPANS  
**WINGWALL DETAILS**  
STA. 40176+95.25 (24TH STREET) JUNE, 2007  
STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 18A OF 62 FILE NO. 30169 DESIGN NO. 508



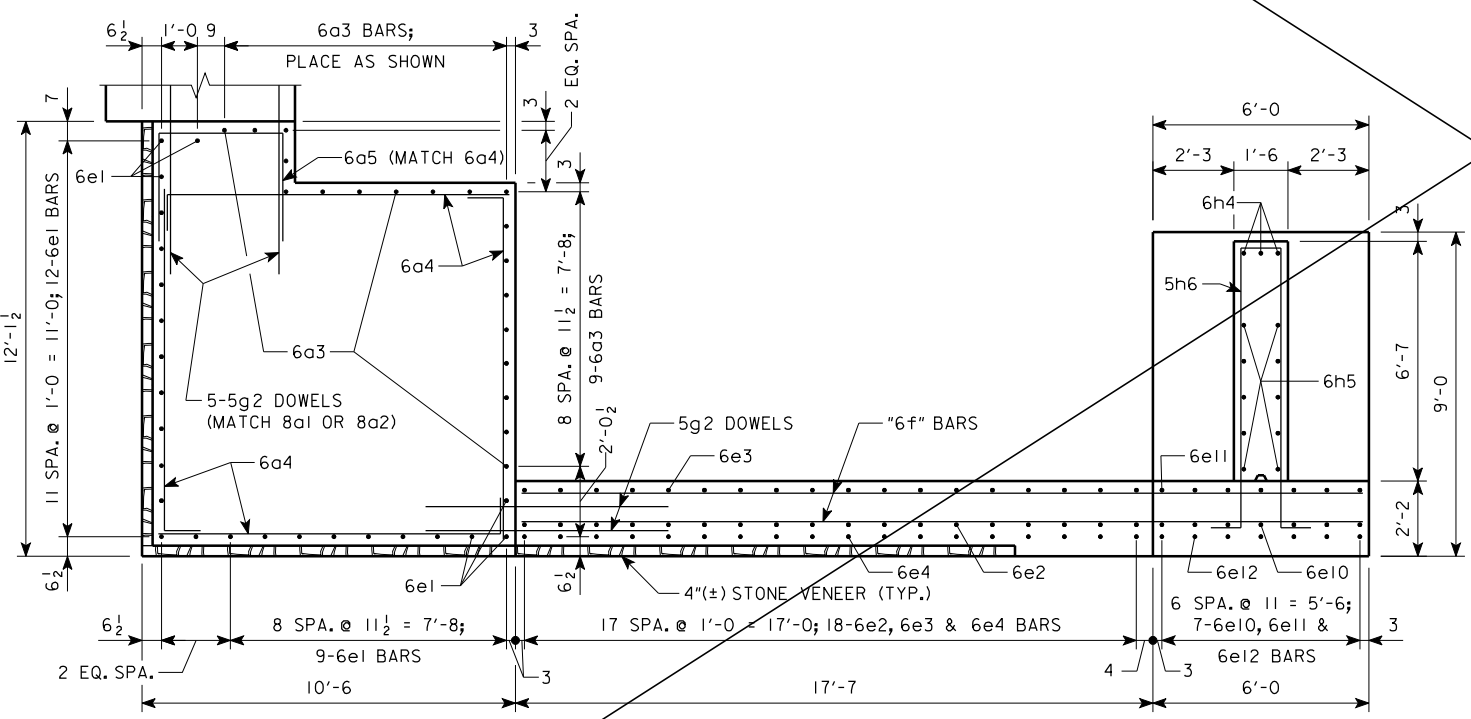
REVISED 11-05 - ALL BLACK BARS CHANGES TO EPOXY COATED.  
ENGLISHSTUBABUTMENTBRIDGES.DGN 2092 - THIS SHEET REDRAWN 5-23-91.



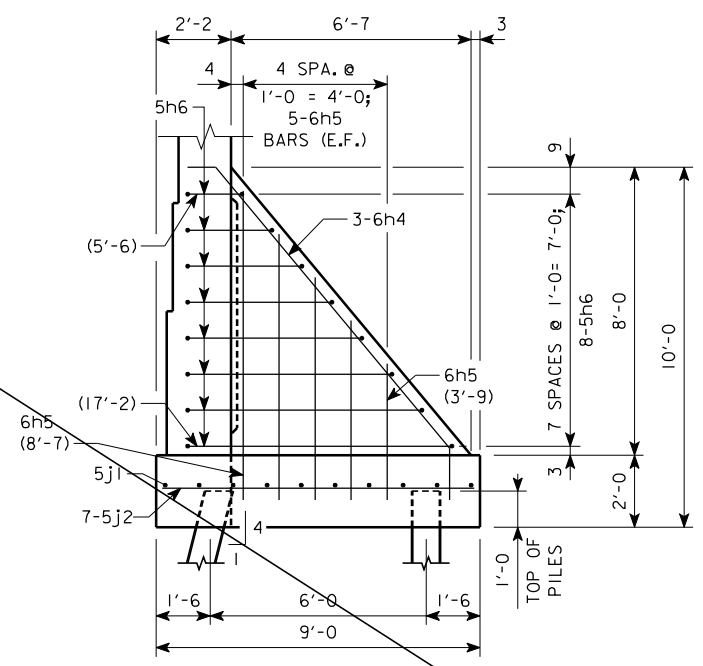
SECTION E-E



SECTION F-F



SECTION G-G



VIEW C-C

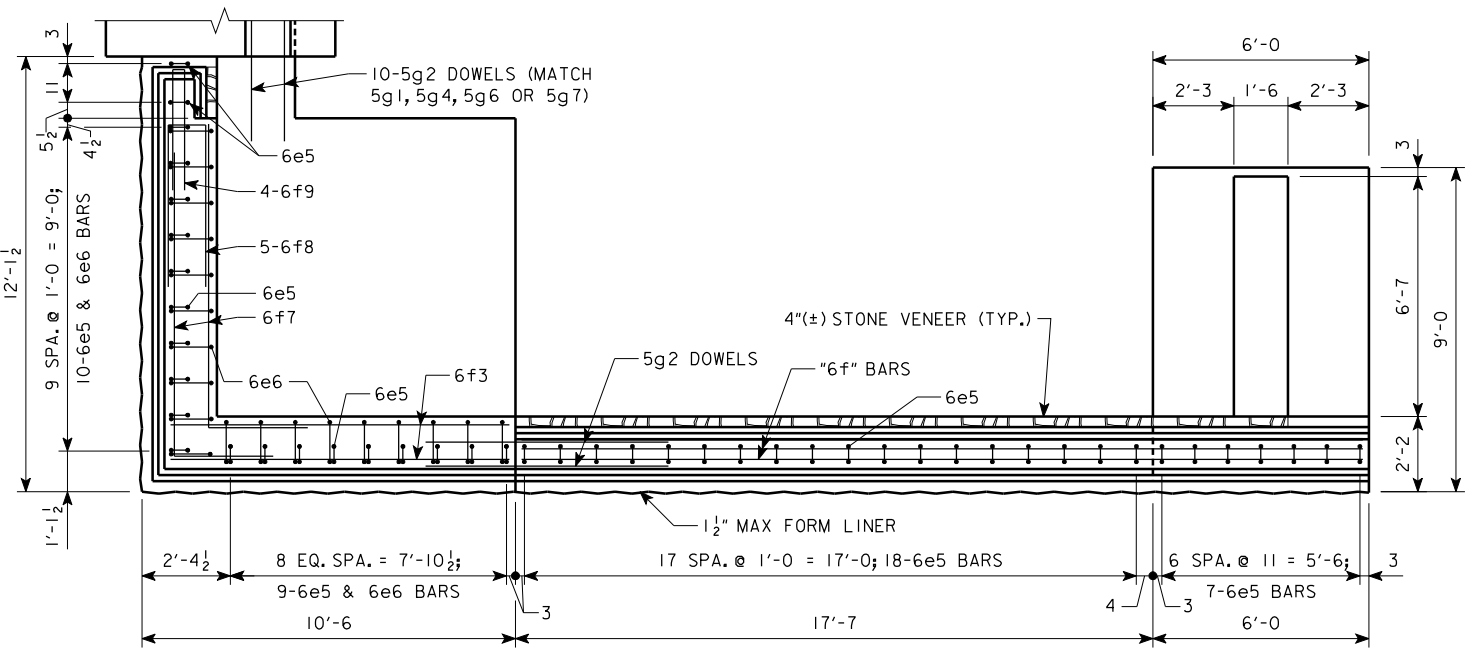
NOTE:  
TYPICAL WING REINFORCING  
NOT SHOWN FOR CLARITY.

REVISED 04-09-08:  
SHEET DELETED

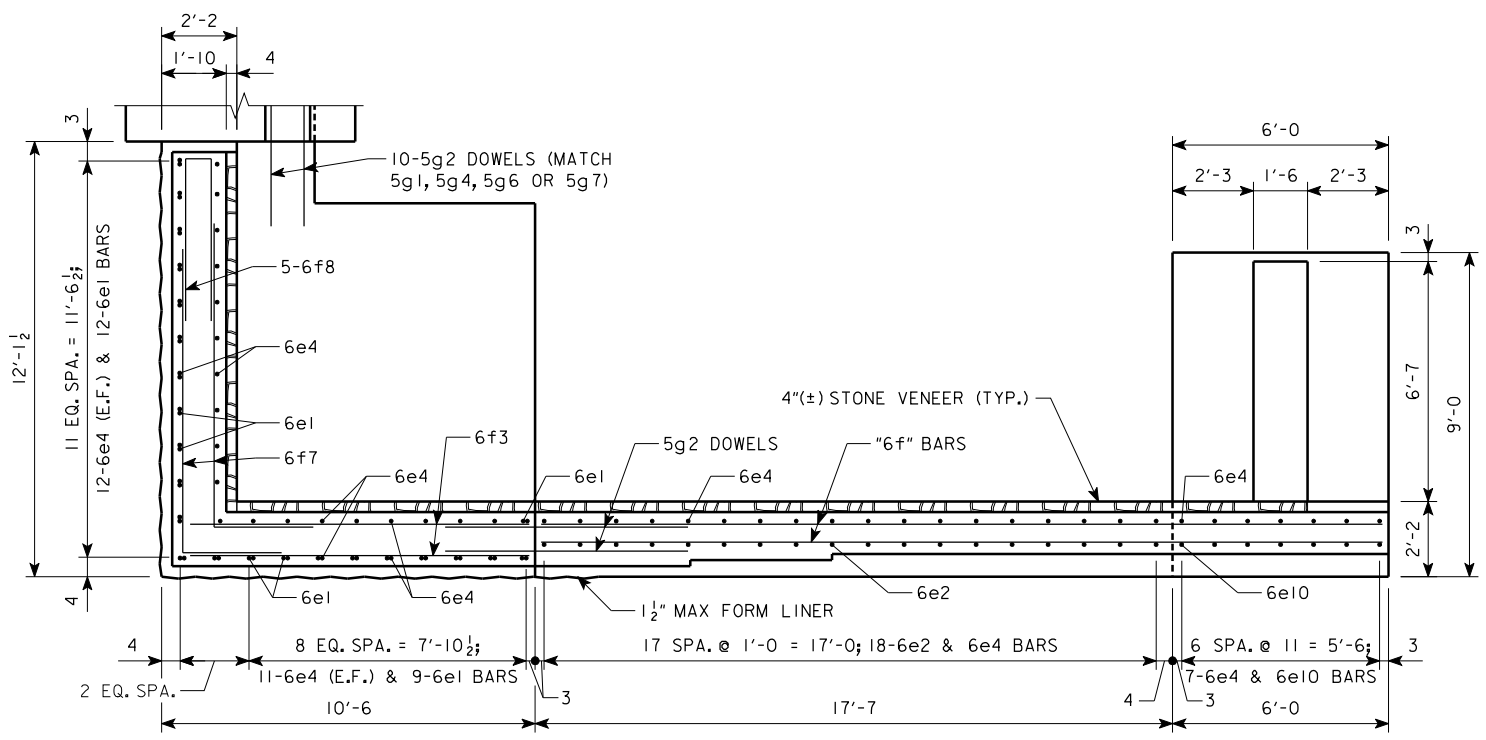
DESIGN FOR 0° SKEW  
**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**  
 24TH STREET OVER I-80  
 178'-6 & 175'-0 SPANS  
**WINGWALL DETAILS**  
 STA. 40176+95.25 (24TH STREET) JUNE, 2007  
 STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 19 OF 62 FILE NO. 30169 DESIGN NO. 508

**HDR**  
HDR Engineering, Inc.

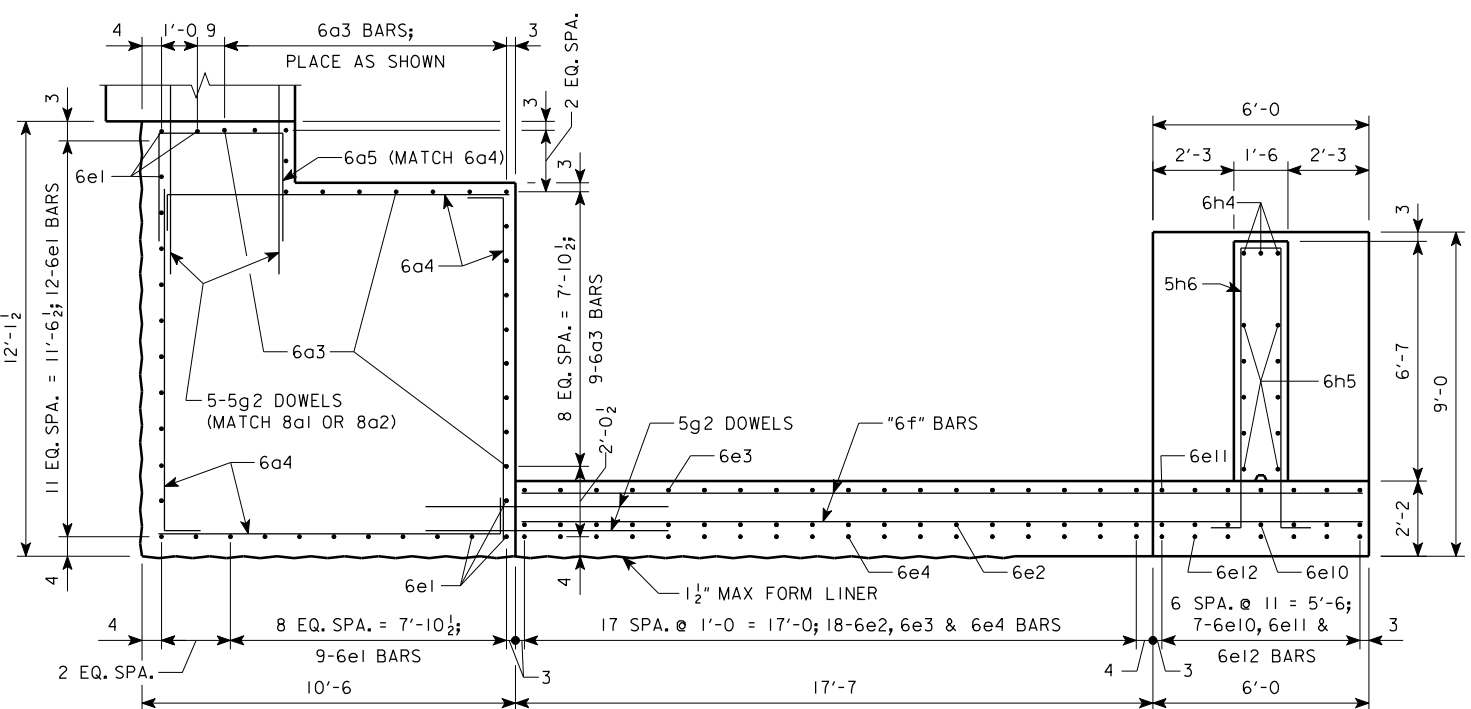
REVISED 11-05 - ALL BLACK BARS CHANGES TO EPOXY COATED. ENGLISH/STUB/ABUTMENT/BRIDGES.DGN 2092 - THIS SHEET REDRAWN 5-23-91.



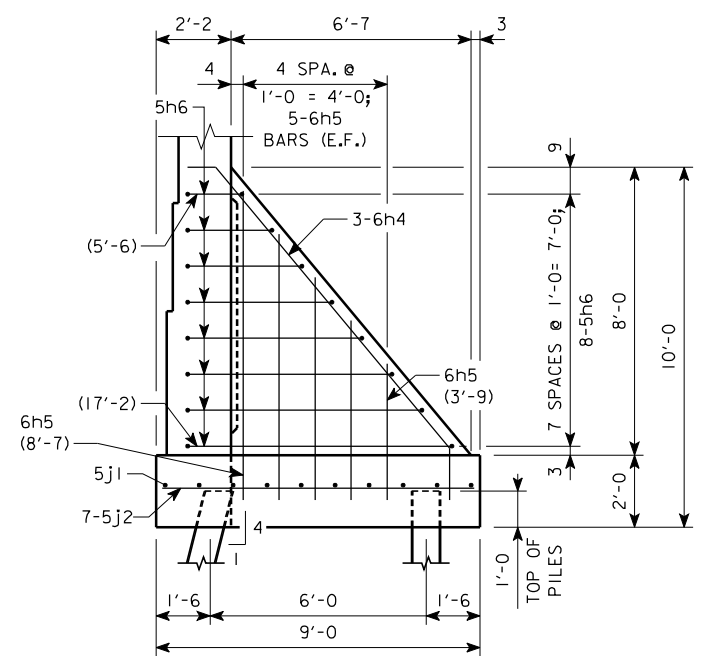
SECTION E-E



SECTION F-F



SECTION G-G



VIEW C-C

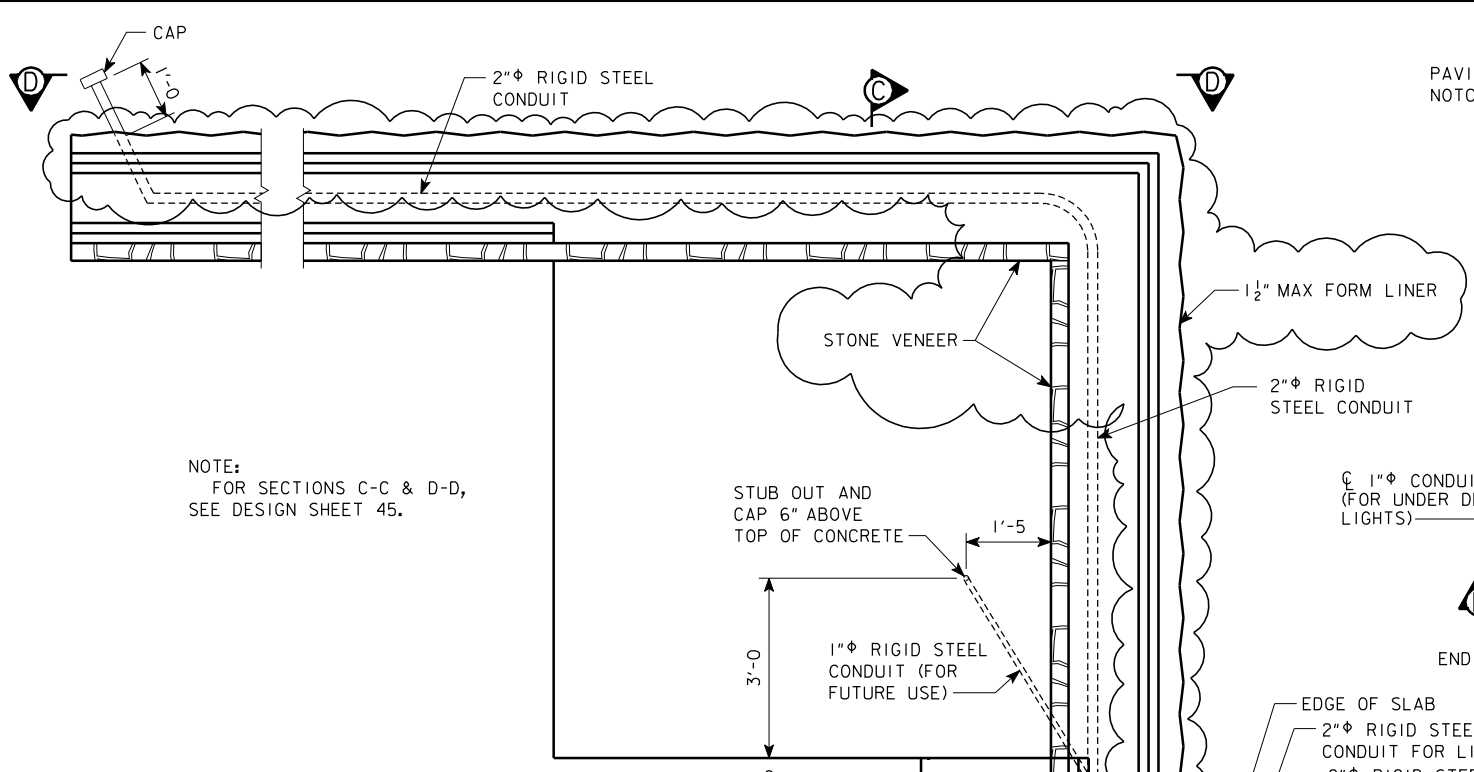
NOTE:  
FOR ABUTMENT FORM LINER NOTES,  
SEE DESIGN SHEET 17.

NOTE:  
TYPICAL WING REINFORCING  
NOT SHOWN FOR CLARITY.

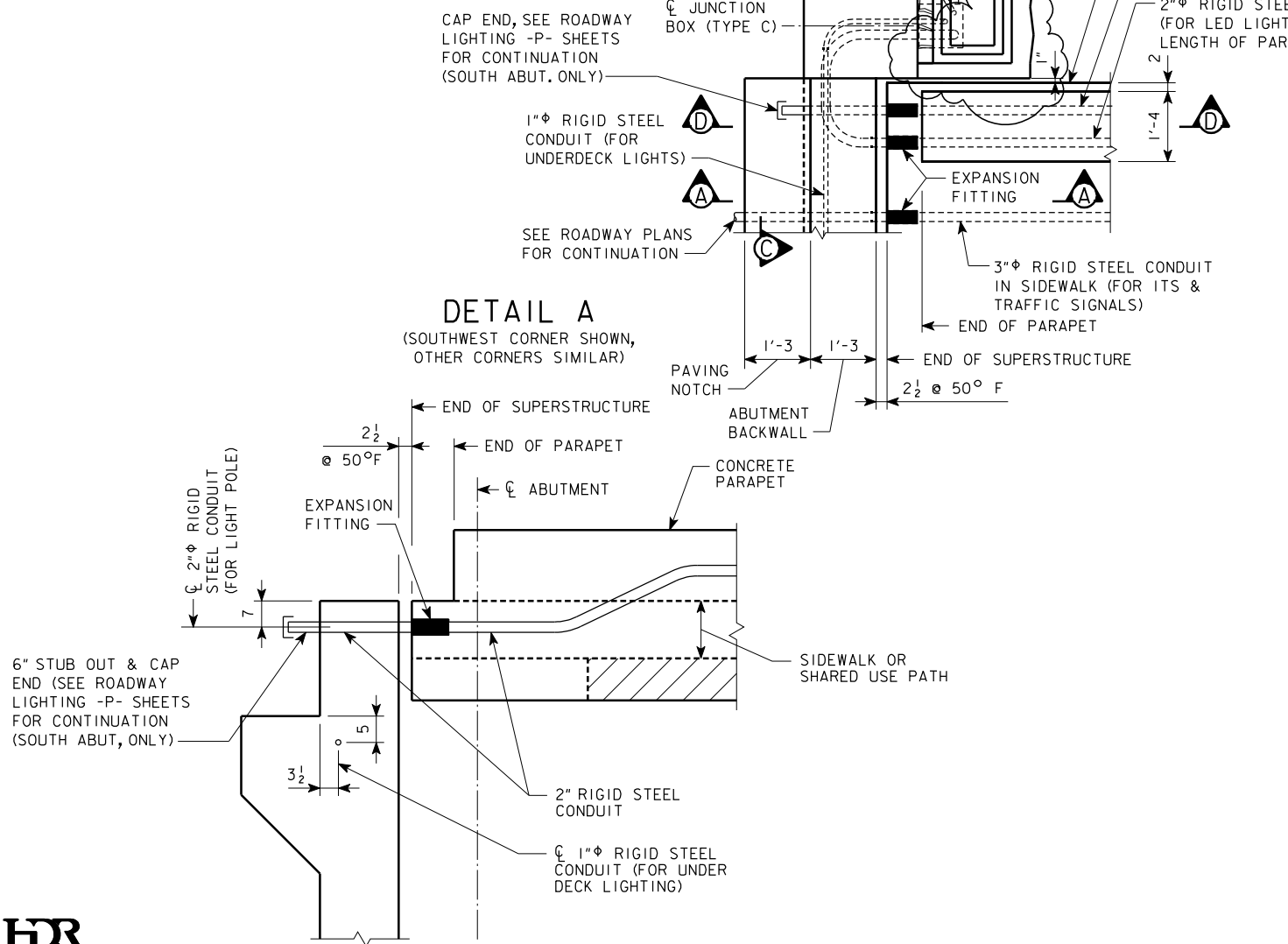
REVISED 04-09-08:  
SHEET ADDED  
REPLACED STONE VENEER  
ON OUTSIDE FACE  
WITH FORM LINER.

DESIGN FOR 0° SKEW  
**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**  
 24TH STREET OVER I-80  
 178'-6 & 175'-0 SPANS  
**WINGWALL DETAILS**  
 STA. 40176+95.25 (24TH STREET) JUNE, 2007  
 STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 19A OF 62 FILE NO. 30169 DESIGN NO. 508

**HDR**  
 HDR Engineering, Inc.

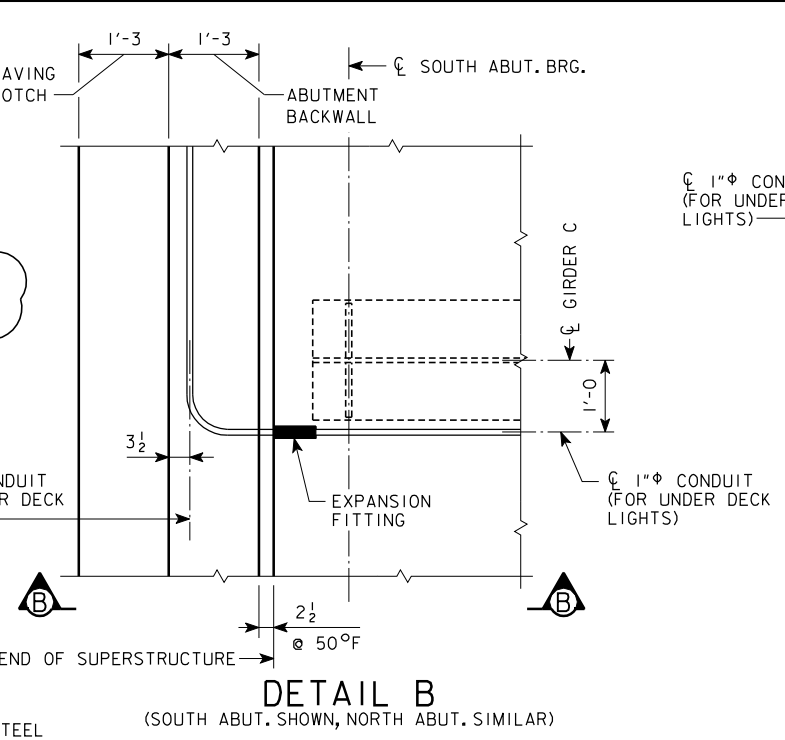


NOTE:  
FOR SECTIONS C-C & D-D,  
SEE DESIGN SHEET 45.

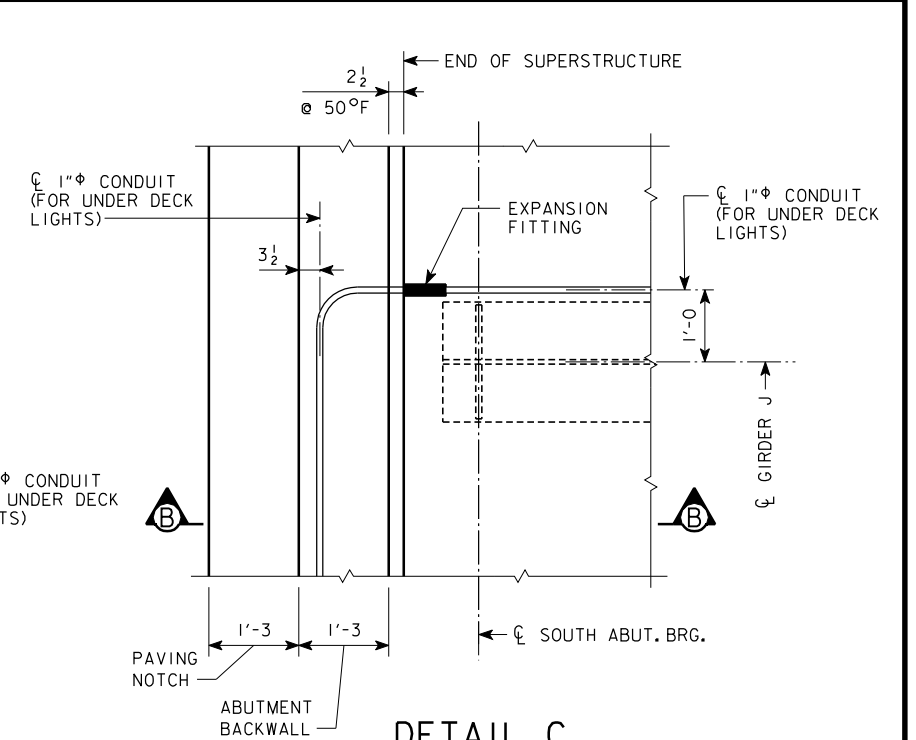


**DETAIL A**  
(SOUTHWEST CORNER SHOWN,  
OTHER CORNERS SIMILAR)

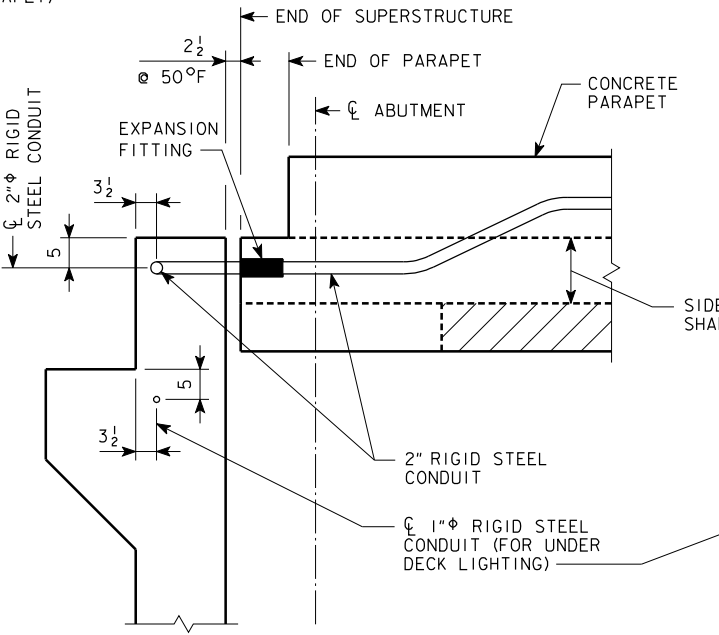
**SECTION P-P**  
(SHOWING CONDUIT FOR LIGHT POLES)



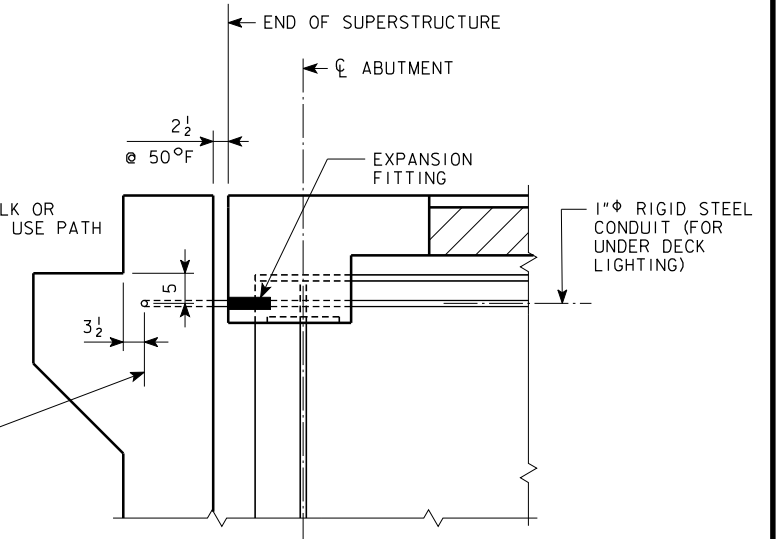
**DETAIL B**  
(SOUTH ABUT. SHOWN, NORTH ABUT. SIMILAR)



**DETAIL C**  
(SOUTH ABUT. SHOWN, NORTH ABUT. SIMILAR)



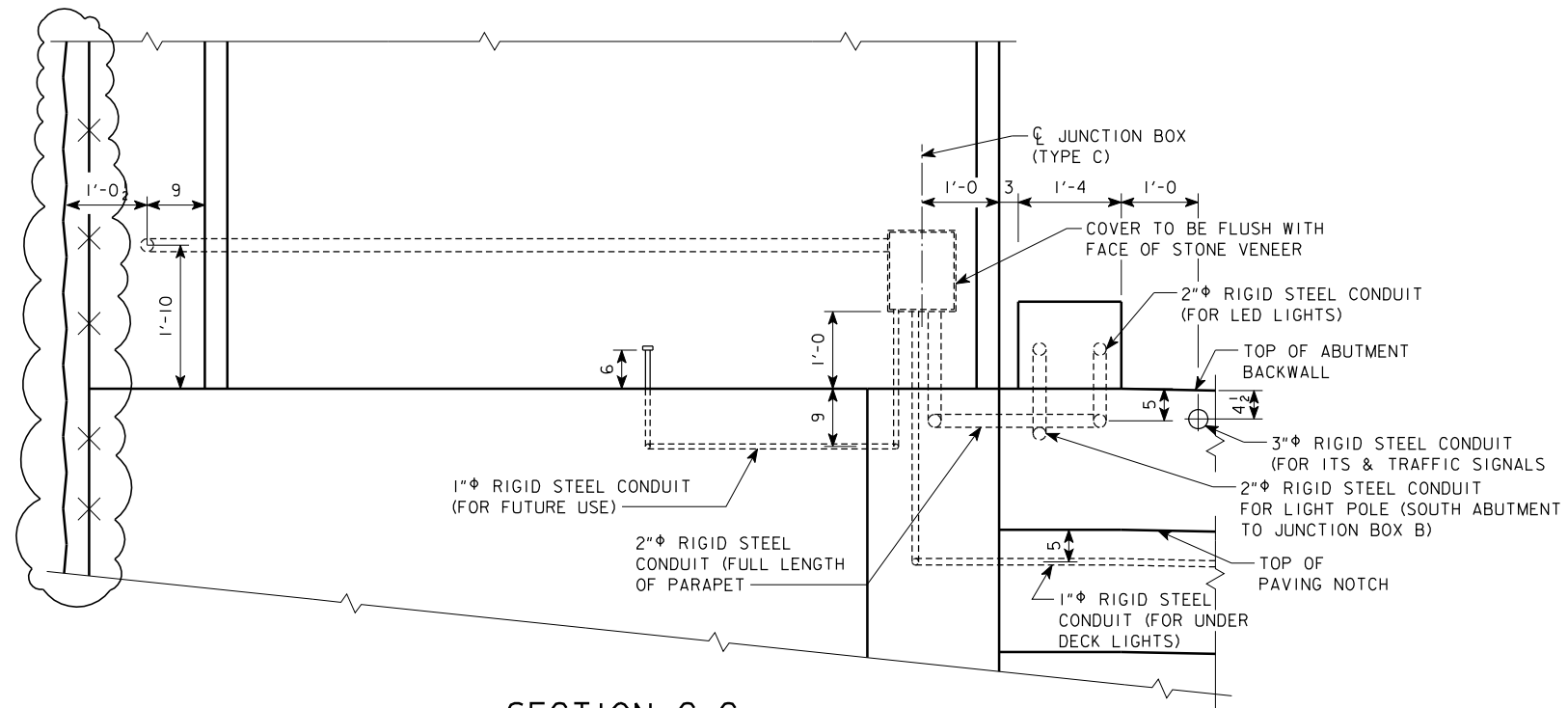
**SECTION A-A**  
(SHOWING CONDUIT FOR LED LIGHT)



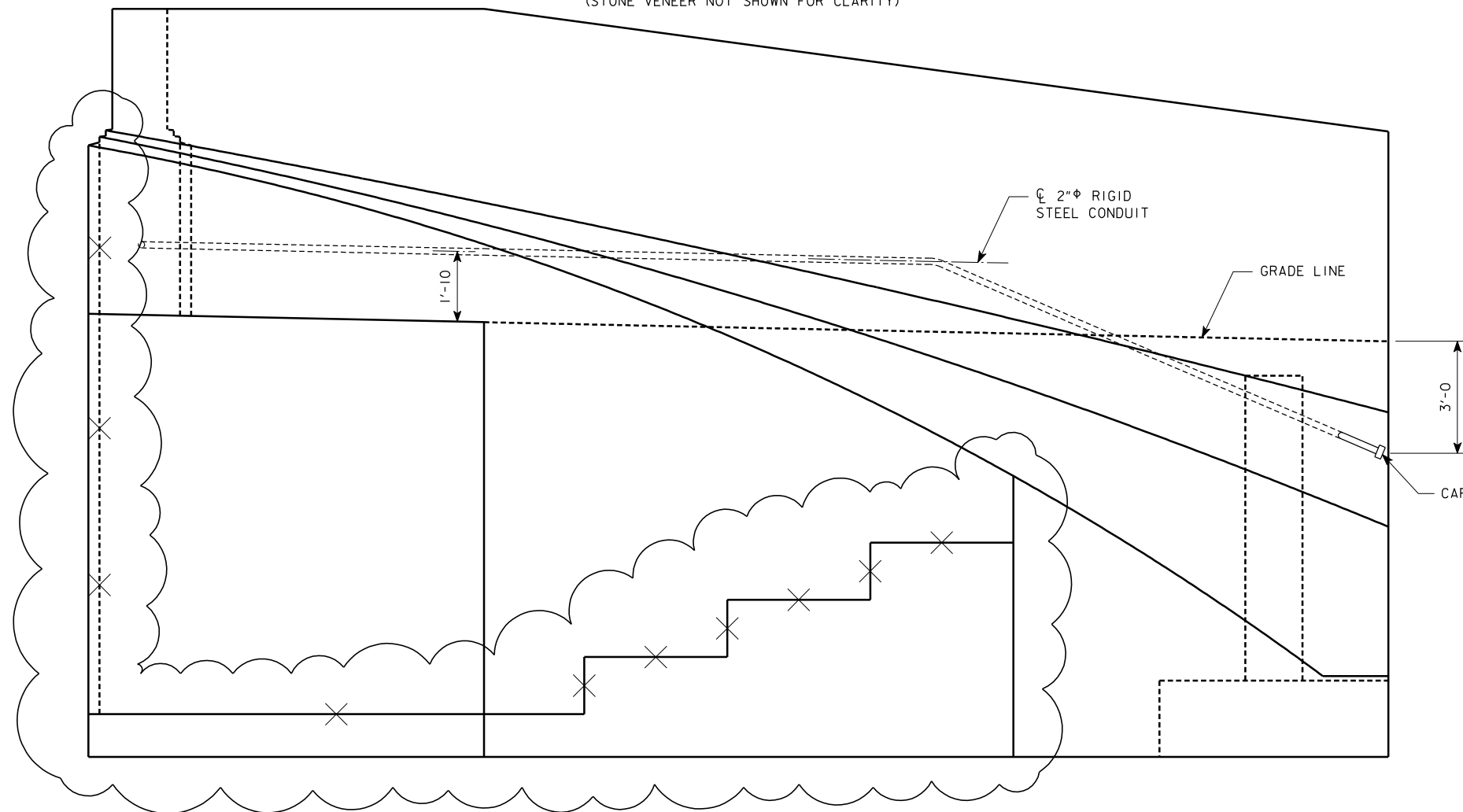
**SECTION B-B**

REVISED 04-09-08:  
REPLACED STONE VENEER  
ON OUTSIDE FACE  
WITH FORM LINER

DESIGN FOR 0° SKEW  
**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH  
24TH STREET OVER I-80  
178'-6 & 175'-0 SPANS  
**LIGHTING DETAILS**  
STA. 40176+95.25 (24TH STREET) JUNE, 2007  
STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 44 OF 62 FILE NO. 30169 DESIGN NO. 508



SECTION C-C  
(STONE VENEER NOT SHOWN FOR CLARITY)

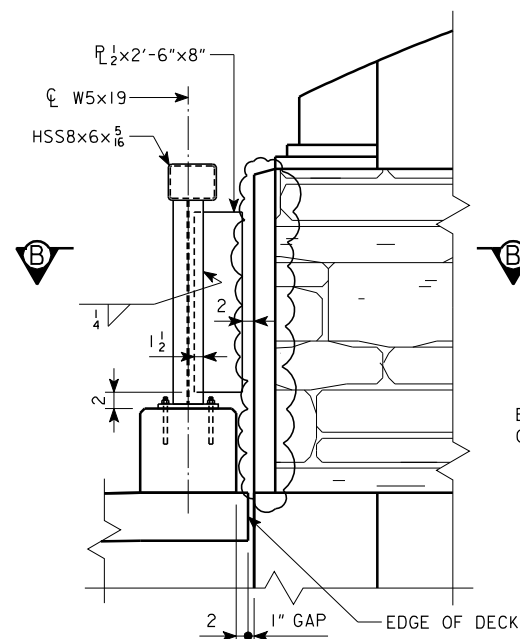


SECTION D-D  
(STONE VENEER NOT SHOWN FOR CLARITY)

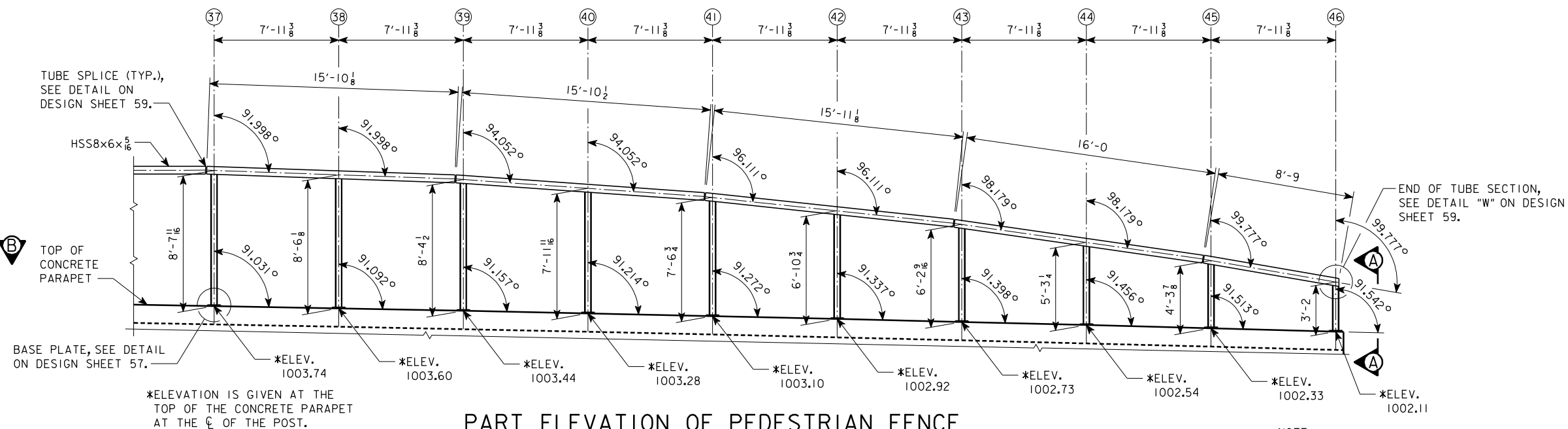
REVISED 04-09-08:  
REPLACED STONE VENEER  
ON OUTSIDE FACE  
WITH FORM LINER.

DESIGN FOR 0° SKEW  
**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**  
 24TH STREET OVER I-80  
 178'-6 & 175'-0 SPANS  
**LIGHTING DETAILS**  
 STA. 40176+95.25 (24TH STREET) JUNE, 2007  
 STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 45 OF 62 FILE NO. 30169 DESIGN NO. 508

**HDR**  
 HDR Engineering, Inc.

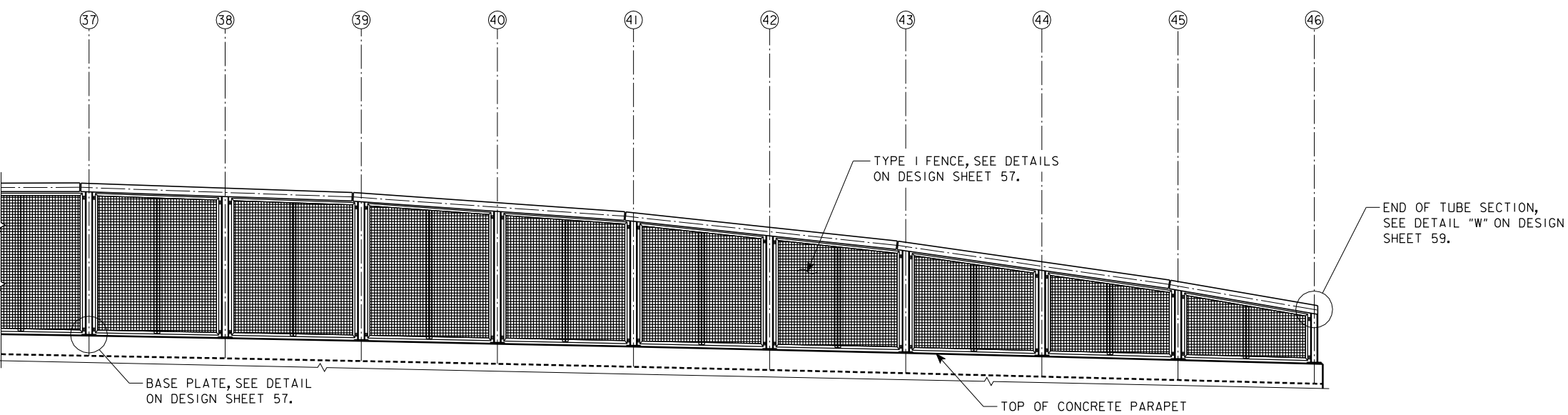


SECTION A-A

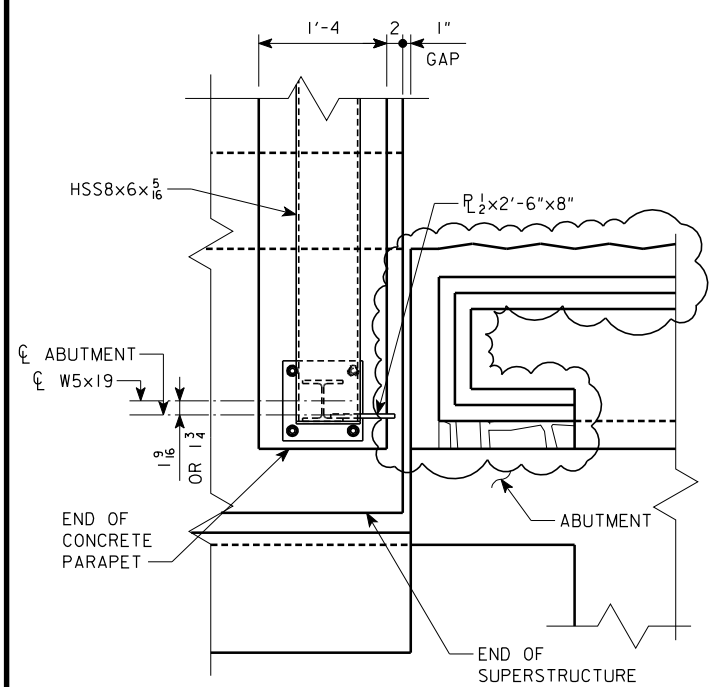


PART ELEVATION OF PEDESTRIAN FENCE  
(FENCE FABRIC NOT SHOWN, OUTSIDE OF EAST FENCE SHOWN, WEST FENCE SIMILAR - OPPOSITE HAND)

NOTE:  
VERTICAL POST DIMENSIONS ARE MEASURED FROM TOP OF CONCRETE PARAPET TO THE CENTER OF HSS8x6x5/16.



PART ELEVATION OF PEDESTRIAN FENCE  
(OUTSIDE OF EAST FENCE SHOWN, WEST FENCE SIMILAR - OPPOSITE HAND)



SECTION B-B

REVISED 04-09-08:  
REPLACED STONE VENEER ON OUTSIDE FACE WITH FORM LINER

DESIGN FOR 0° SKEW  
**353'-6x82' CONT. WELDED GIRDER BRIDGE**  
 W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH  
 24TH STREET OVER I-80  
 178'-6 & 175'-0 SPANS  
**PEDESTRIAN FENCE DETAILS**  
 STA. 40176+95.25 (24TH STREET) JUNE, 2007  
 STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 56 OF 62 FILE NO. 30169 DESIGN NO. 508

**HDR**  
 HDR Engineering, Inc.

# COLORED SEALER COATINGS NOTES:

PRIOR TO BEGINNING ANY CONCRETE SEALER COATING WORK ON THE ACTUAL PROJECT, THE MOCKUP PANEL CREATED TO DEMONSTRATE THE SIMULATED STONE TEXTURES ON THE PIERS (AND ABUTMENTS) SHALL BE USED TO DEMONSTRATE THE PREPARATION, APPLICATION METHODS AND RESULTS FOR CONCRETE STAINING. BEGIN WORK ON THE ACTUAL COATING APPLICATION ONLY AFTER FINAL APPROVAL BY THE ENGINEER.

ALL CONCRETE SURFACES NOTED AND SHOWN IN ON THIS SHEET WILL RECEIVE APPLICATION OF COLORED SEALER COATING. CONCRETE COATING WORK SHALL BE IN ACCORDANCE WITH THE DEVELOPMENTAL SPECIFICATION, "COLORED SEALER COATING FOR STRUCTURAL CONCRETE".

THERE ARE THREE COLORS OF CONCRETE SEALER COATING TO BE USED ON THE PIERS AND ONE COLOR TO BE USED ON THE ABUTMENTS. IN ADDITION, THE SIMULATED STONE TEXTURES ON THE PIERS (AND ABUTMENTS) WILL RECEIVE A THREE-COAT SYSTEM OF PENETRATING STAIN TO SIMULATE THE NATURAL TONES AND VARIATIONS OF THE STONE. APPEARANCE OF THE SIMULATED STONE TEXTURE IS INTENDED TO CLOSELY MATCH THE STONE VENEER USED ON THE (INSIDE FACE OF) ABUTMENT WINGS. SEE DETAILS ON THIS DESIGN SHEET FOR SPECIFIC COLOR LOCATIONS AND LIMITS. "COLOR NO. 1" SHALL BE A LIGHT BUFF COLOR, "COLOR NO. 2" AND "COLOR NO. 3" SHALL BE IN THE SAME COLOR FAMILY AS "COLOR NO. 1" WITH INCREASINGLY DARKER HUES. "COLOR NO. 4" SHALL BE A FULL RANGE OF NATURAL STONE COLORS WITH A FIRST COAT COLOR OF LIGHT OR MEDIUM BUFF AND INCLUDING SUBTLE COLOR VARIATIONS, MINERAL OXIDATION AND STAINING. THE FINAL COLORATION OF THE CONCRETE SURFACE SHALL ACCURATELY SIMULATE THE APPEARANCE OF REAL STONE INCLUDING THE MULTIPLE COLORS, SHADES, FLECKING, AND VEINING THAT ARE APPARENT IN REAL LIMESTONE. USE AT LEAST THREE COLOR SHADES TO SIMULATE THE APPEARANCE OF STONE. BEGIN WITH A BASE COLOR APPLICATION OF LIGHT BUFF. APPLY A SLIGHTLY LIGHTER OR DARKER BASE COLOR TO RANDOM STONES PRIOR TO ADDING THE COLOR VARIATIONS. WHEN ALL STONE COLORS HAVE BEEN APPLIED, APPLY A LIGHT GREY COLOR TO THE SIMULATED MORTARED JOINTS. THE GREY COLOR SHALL MATCH OR BE SLIGHTLY LIGHTER THAN THE PLAIN CONCRETE SURFACES OF THE STRUCTURE. APPLY JOINT COLOR NEATLY AND ONLY TO THE BOTTOM SURFACE OF SIMULATED JOINTS. SUBMIT PRODUCT SPECIFICATION SHEETS AND COATED CONCRETE SAMPLES AS DESCRIBED IN THE DEVELOPMENTAL SPECIFICATION.

MASK ADJACENT CONCRETE SURFACES THAT WILL NOT RECEIVE COATING. NO OVERSPRAY OR CONTAMINATION OF ADJACENT SURFACES IS ALLOWED.

AFTER ALL COLORED SEALER COATING WORK IS COMPLETED, THE TEXTURE MOCKUP PANEL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED FROM THE SITE.

### COLORED SEALER COATING SURFACE AREA TABULATION:

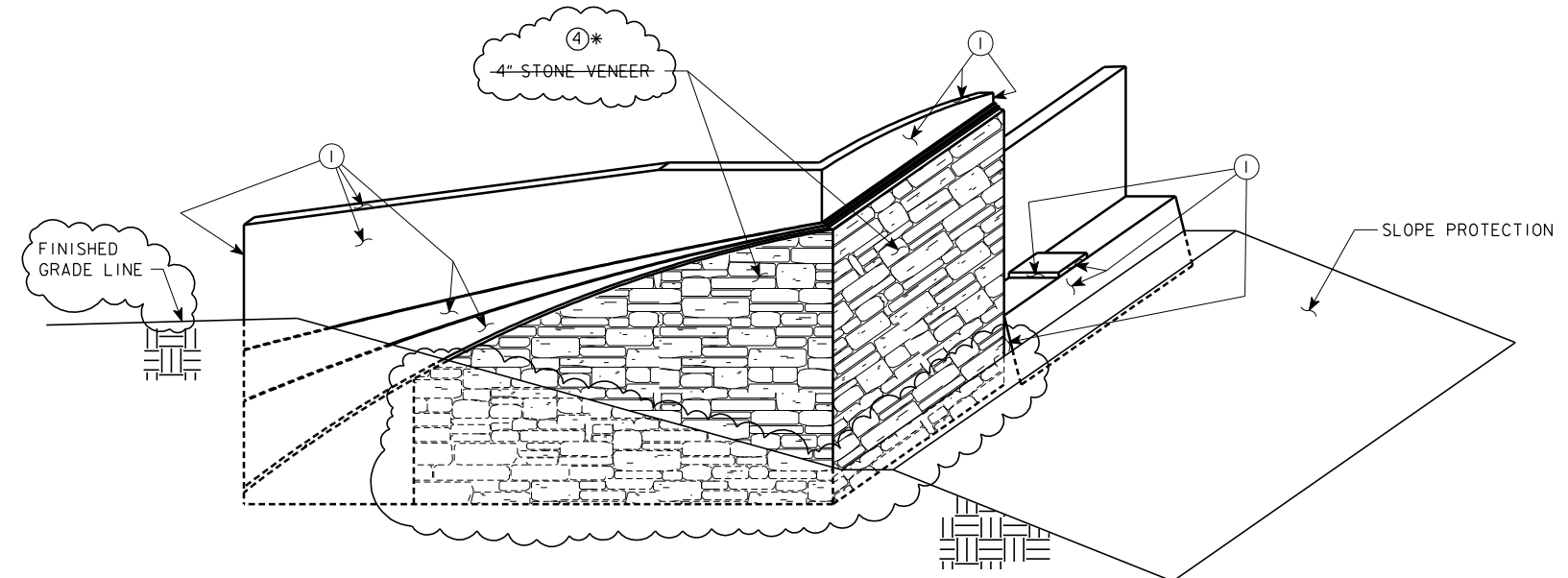
COLOR NO. 1 PIER 277.6 SY ABUTMENTS 285.3 SY SUPERSTRUCTURE 908.3 SY	COLOR NO. 2 PIER 5.6 SY
---	----------------------------

COLOR NO. 3  
PIER 6.2 SY

COLOR NO. 4  
SIMULATED STONE ON PIER 228.0 SY  
SIMULATED STONE ON ABUTMENT 153.0 SY  
TOTAL 381.0 SY  
1864.0

ALL COSTS ASSOCIATED WITH CONCRETE SEALER COATING ARE TO BE INCLUDED IN THE BID ITEM "COLORED SEALER COATING FOR STRUCTURAL CONCRETE".

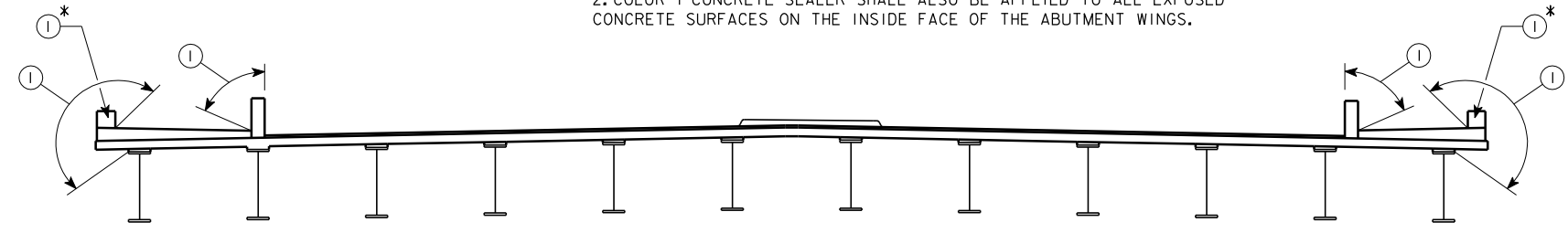
\* ABUTMENT SURFACES REQUIRING COLOR SEALER NO. 4 SHALL ALSO REQUIRE AN APPLICATION OF ANTI-GRAFFITI COATING. CONTRACTOR SHALL VERIFY THAT ANTI-GRAFFITI COATING IS COMPATIBLE WITH COLOR SEALER COATING PER MANUFACTURERS RECOMMENDATIONS. ALL COSTS ASSOCIATED WITH FURNISHING AND APPLYING ANTI-GRAFFITI COATING SHALL BE INCLUDED IN THE COST FOR STONE VENEER.



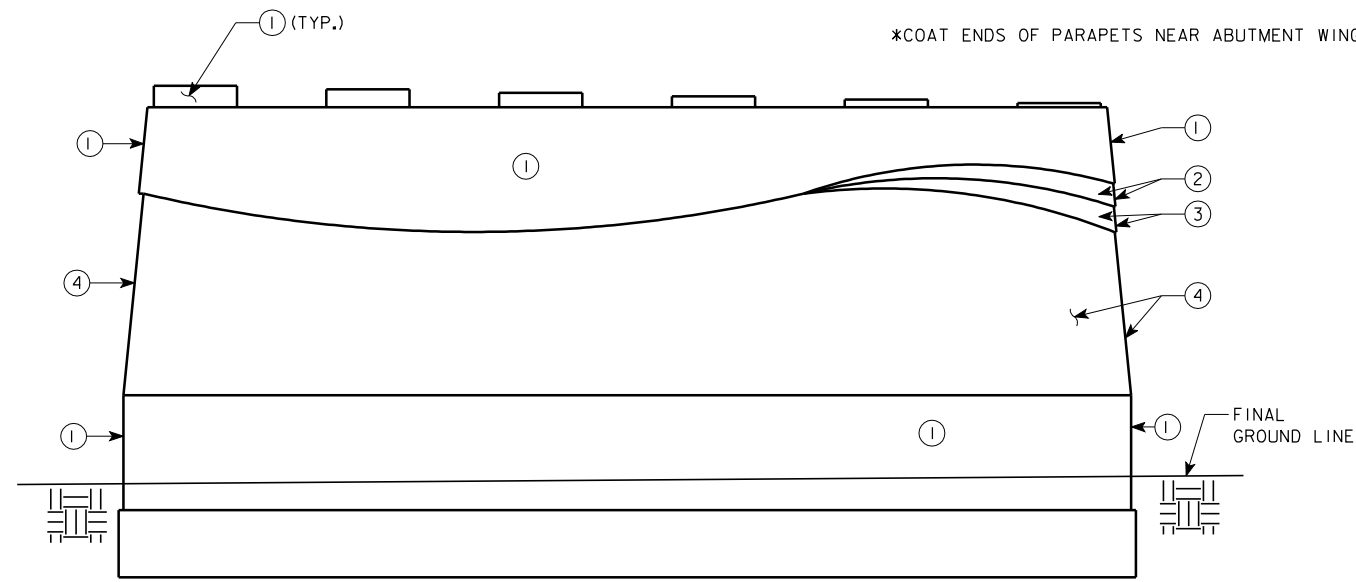
## ABUTMENT WINGS (OUTSIDE)

NOTES:  
1. LIMITS OF COLOR SEALER COAT AND ANTI-GRAFFITI COATING \* FOR CONCRETE SHALL EXTEND TO A MINIMUM OF SIX INCHES BELOW FINISHED GRADE.

2. COLOR 1 CONCRETE SEALER SHALL ALSO BE APPLIED TO ALL EXPOSED CONCRETE SURFACES ON THE INSIDE FACE OF THE ABUTMENT WINGS.



\*COAT ENDS OF PARAPETS NEAR ABUTMENT WINGWALLS



NOTE:  
CONCRETE SEALER COATING SHALL EXTEND TO CONCRETE SURFACES ON EACH END OF THE PIERS, EXTEND APPLICATION OF SEALER TO A MINIMUM OF 6" BELOW FINISHED GRADE.

LEGEND:  
X = COLOR NUMBER

REVISED 04-09-08:  
REPLACED STONE VENEER ON OUTSIDE FACE WITH FORM LINER

DESIGN FOR 0° SKEW  
**353'-6X82' CONT. WELDED GIRDER BRIDGE**  
**W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH**  
 24TH STREET OVER I-80  
 178'-6 & 175'-0 SPANS  
**LIMITS OF CONCRETE STAINING**  
 STA. 40176+95.25 (24TH STREET) JUNE, 2007  
 STA. 7476+95.25 (FUTURE I-80)  
**POTTAWATTAMIE COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 62 OF 62 FILE NO. 30169 DESIGN NO. 508