

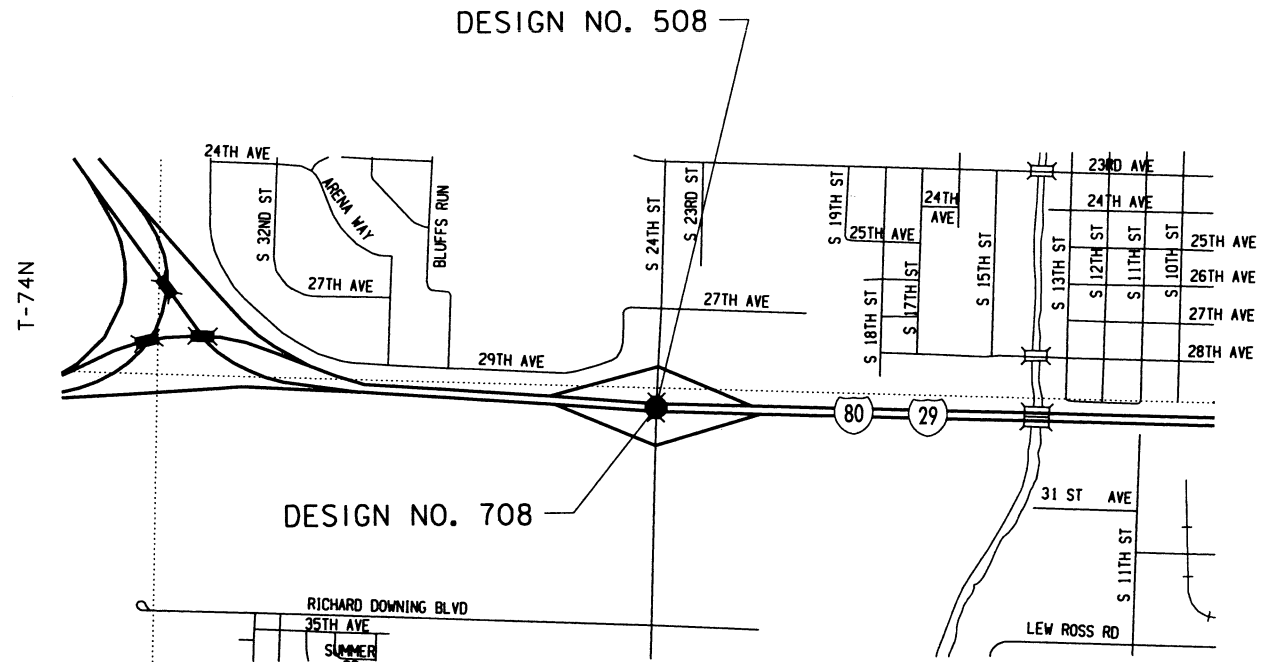
Iowa Department of Transportation
Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE
INTERSTATE ROAD SYSTEM
POTTAWATTAMIE COUNTY

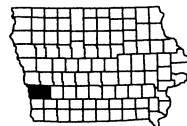
**BRIDGE REPLACEMENT-STEEL GIRDER
ON 24TH STREET OVER I-80**

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.



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



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

LETTING DATE
10-16-07

BRF IM-080-1(308)2--05-78

TOTAL SHEETS
66

PROJECT NUMBER

BRF IM-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

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 1/18/08
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

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

POTTAWATTAMIE COUNTY

POTTAWATTAMIE COUNTY - DESIGN NO. 508

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		ADDED STEEL PEDESTRIAN HAND RAILING TO THE EAST SEPERATION BARRIER REASON: PER IADOT'S REQUEST			

**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	1088.2	
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	164433	
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	372.3 744.5	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	2428	
23	2601-2638610	CONC SLOPE PROTECTION	SY	572.0	

ITEM NO.

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

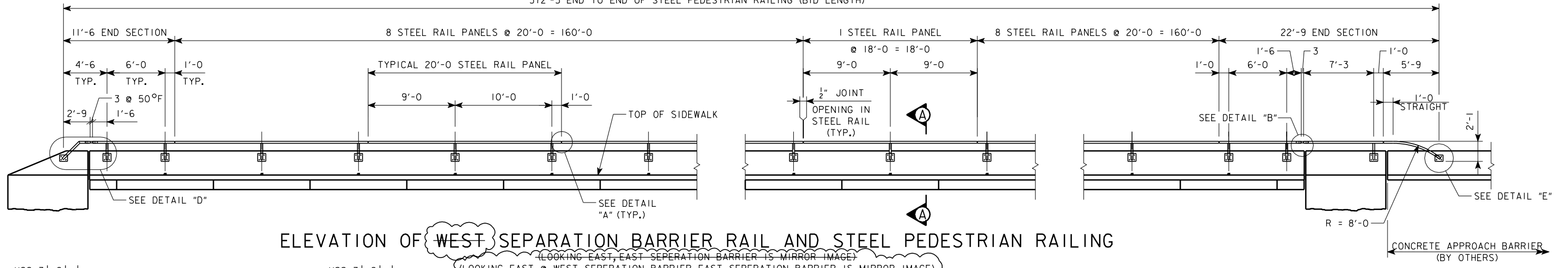
REVISED 01-18-08,
REVISED QUANTITY ITEM NO. 13



HDR Engineering, Inc.

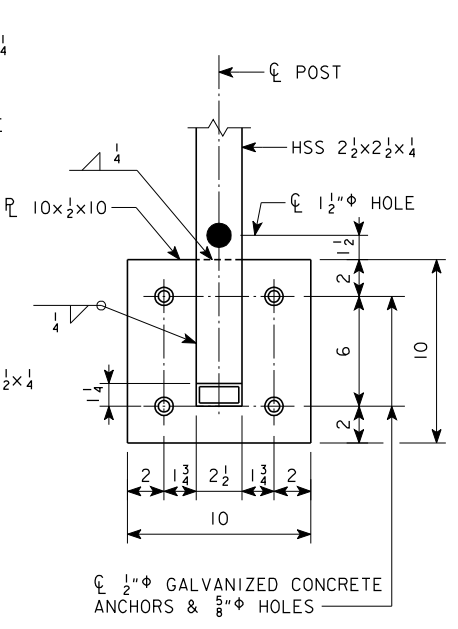
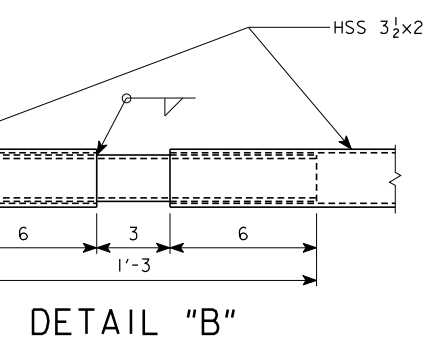
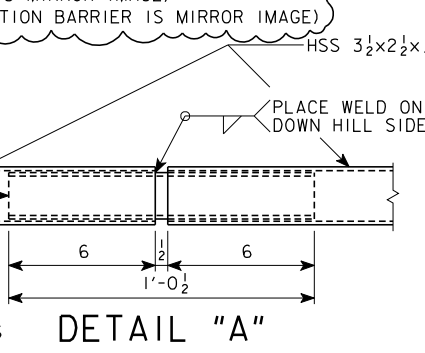
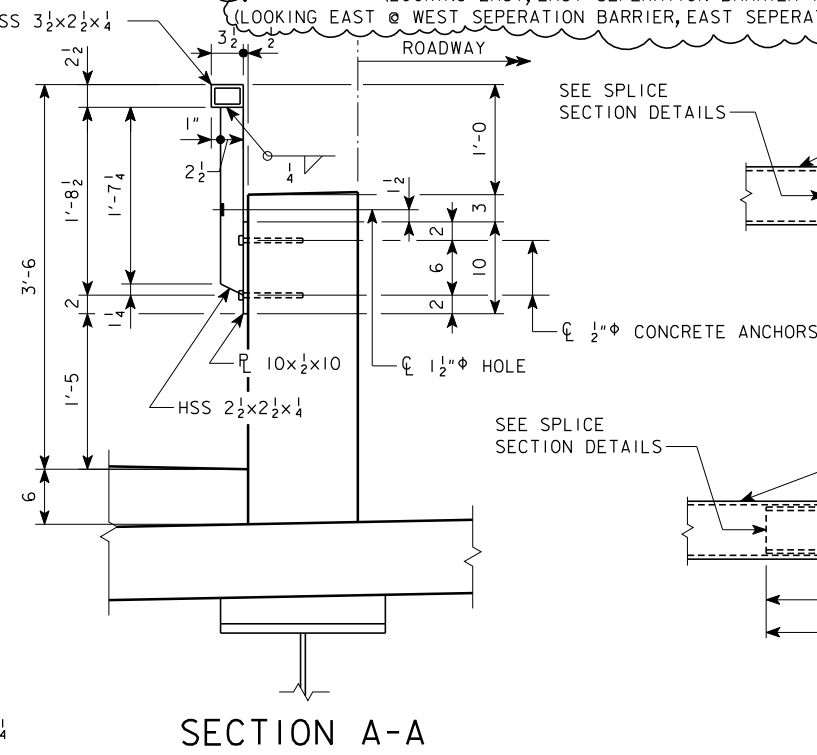
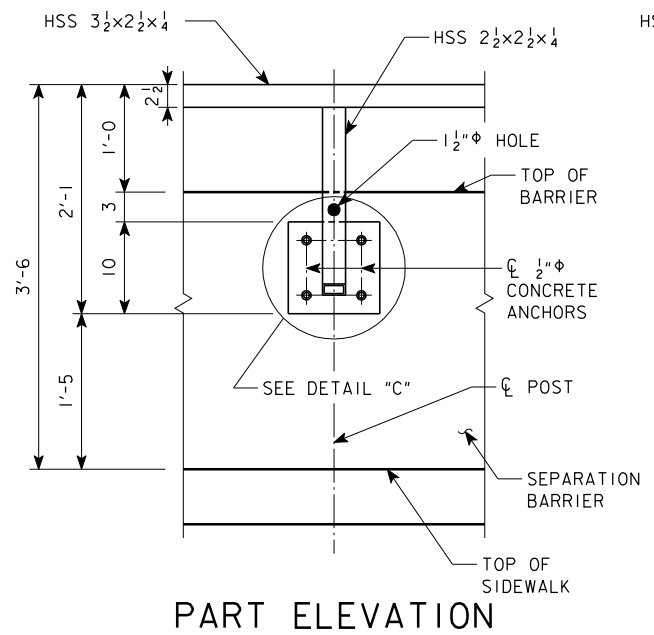
DESIGN FOR 0° SKEW
353'-6X82' CONT. WELDED GIRDER BRIDGE
W/8'-4 SIDEWALK & 10'-4 SHARED USE PATH
 24TH STREET OVER I-80
 178'-6 & 175'-0 SPANS
ESTIMATED QUANTITIES
 STA. 40176+95.25 (24TH STREET) JUNE, 2007
 STA. 7476+95.25 (FUTURE I-80)
POTTAWATTAMIE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 3 OF 62 FILE NO. 30169 DESIGN NO. 508

372'-3 END TO END OF STEEL PEDESTRIAN RAILING (BID LENGTH)



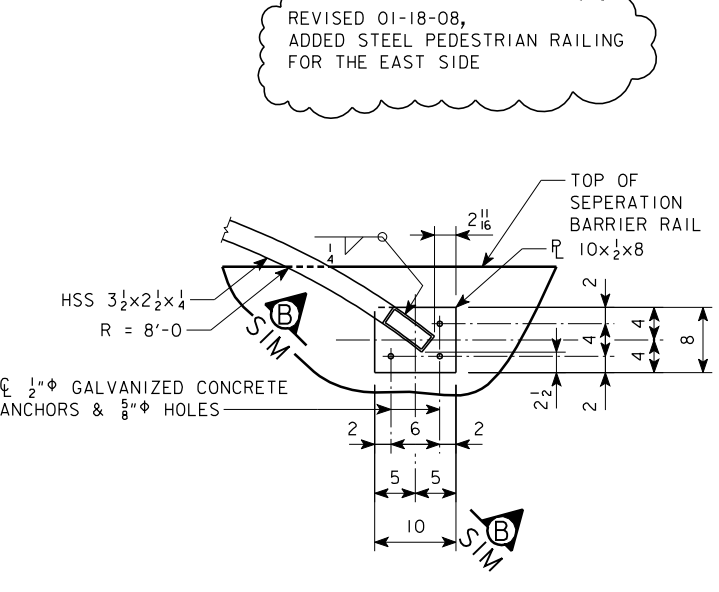
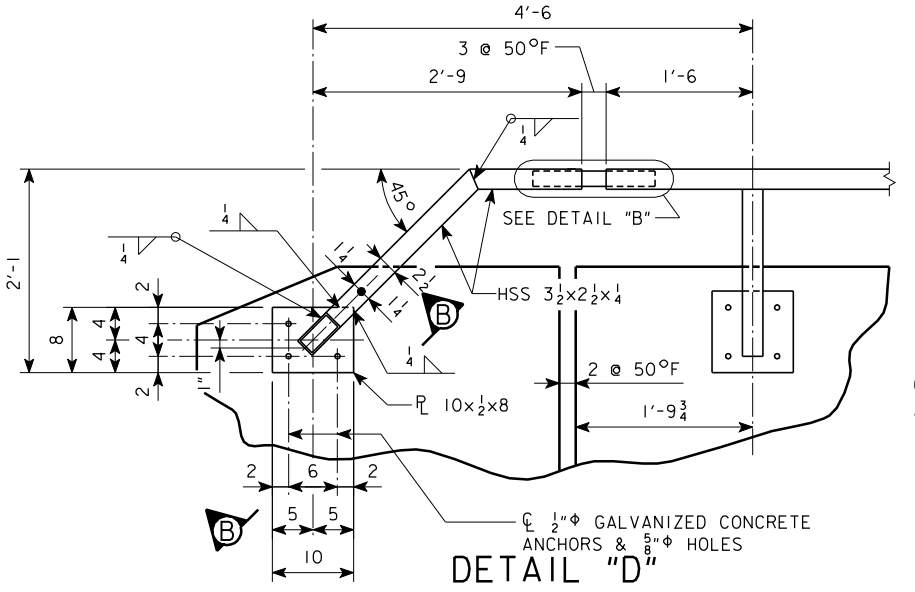
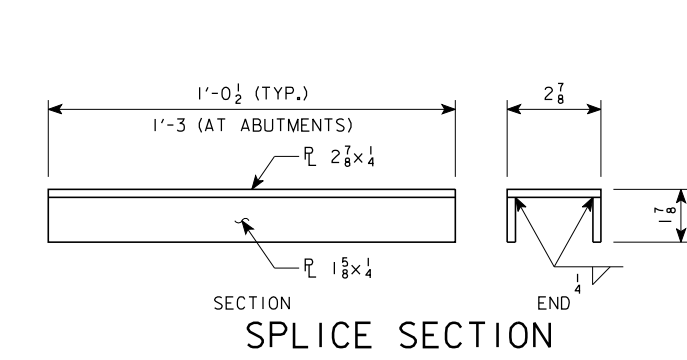
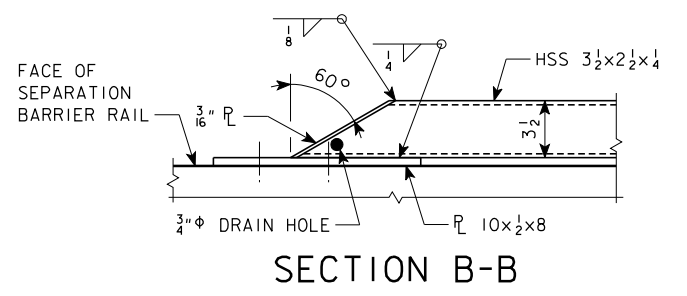
ELEVATION OF WEST SEPARATION BARRIER RAIL AND STEEL PEDESTRIAN RAILING

(LOOKING EAST, EAST SEPARATION BARRIER IS MIRROR IMAGE)
 (LOOKING EAST @ WEST SEPARATION BARRIER, EAST SEPARATION BARRIER IS MIRROR IMAGE)



QUANTITIES		
ITEM	UNITS	AMOUNT
STRUCTURAL STEEL PEDESTRIAN HAND RAILING	LIN. FT.	372.3 744.5

STEEL PEDESTRIAN RAILING NOTES:
 THE STRUCTURAL STEEL PEDESTRIAN RAILING IS TO BE BID ON A LINEAL FOOT BASIS MEASURED END TO END OF RAIL. THE PRICE BID FOR "STRUCTURAL STEEL PEDESTRIAN HAND RAILING" SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, INCLUDING ANCHOR BOLTS AND SHIMS, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS.
 THE MATERIAL FOR HOLLOW STRUCTURAL SECTIONS SHALL MEET THE REQUIREMENTS OF ASTM A500, GRADE B. STEEL PLATES AND SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A-36. PANELS AND END SECTIONS SHALL BE GALVANIZED, AFTER FABRICATION, IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A-123.
 ENDS OF RAIL SECTIONS ARE TO BE SAWED OR MILLED. ALL CUT ENDS ARE TO BE TRUE, SMOOTH, AND FREE OF BURRS OR RAGGED EDGES.
 NO PAINTING WILL BE REQUIRED.
 THE CONCRETE ANCHORS SHALL BE GALVANIZED AND HAVE A MINIMUM PULL OUT STRENGTH OF 8000 POUNDS BASED ON 3500 PSI CONCRETE.
 FOR DETAILS OF SEPARATION BARRIER RAIL SEE DESIGN SHEET 50.
 DIMENSIONS SHOWN ARE ALONG C/R RAILING AND ARE IN HORIZONTAL PLANE ONLY. CONTRACTOR SHALL ADJUST FOR SLOPE AND VERTICAL CURVE TO CONFORM TO THE HORIZONTAL AND VERTICAL ALIGNMENT OF THE BRIDGE. POSTS SHALL BE SET PLUMB.



REVISED 01-18-08,
 ADDED STEEL PEDESTRIAN RAILING
 FOR THE EAST SIDE

STEEL PEDESTRIAN HANDRAIL IS REQUIRED ON THE WEST SEPARATION BARRIER ONLY, AND EAST SEPARATION BARRIERS.

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
STEEL PEDESTRIAN RAILING
 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. 51 OF 62 FILE NO. 30169 DESIGN NO. 508