



## 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.			
04-10-08	4 & 18	REVISED QUANTITY ITEM 15 REVISED ABUTMENT PILE QUANTITY REASON: ADDED PILES AT ABUTMENT CORNERS TO ACCOMMODATE PROPOSED SCULPTURES ABOVE WINGWALLS.			
04-10-08	17	THIS SHEET DELETED REASON: ADDED PILES AT ABUTMENT CORNERS TO ACCOMMODATE PROPOSED SCULPTURES ABOVE WINGWALLS.			
04-10-08	17A	THIS SHEET ADDED REASON: ADDED PILES AT ABUTMENT CORNERS TO ACCOMMODATE PROPOSED SCULPTURES ABOVE WINGWALLS.			

**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>	<del>1089.4</del>
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>	<del>164537</del>
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	<del>13250.0</del>	15250.0
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.

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 04-10-08:  
REVISED QUANTITY ITEM NO. 15.

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



HDR Engineering, Inc.

DESIGN TEAM RRP/JPS/ACB

4/9/2008

DStone

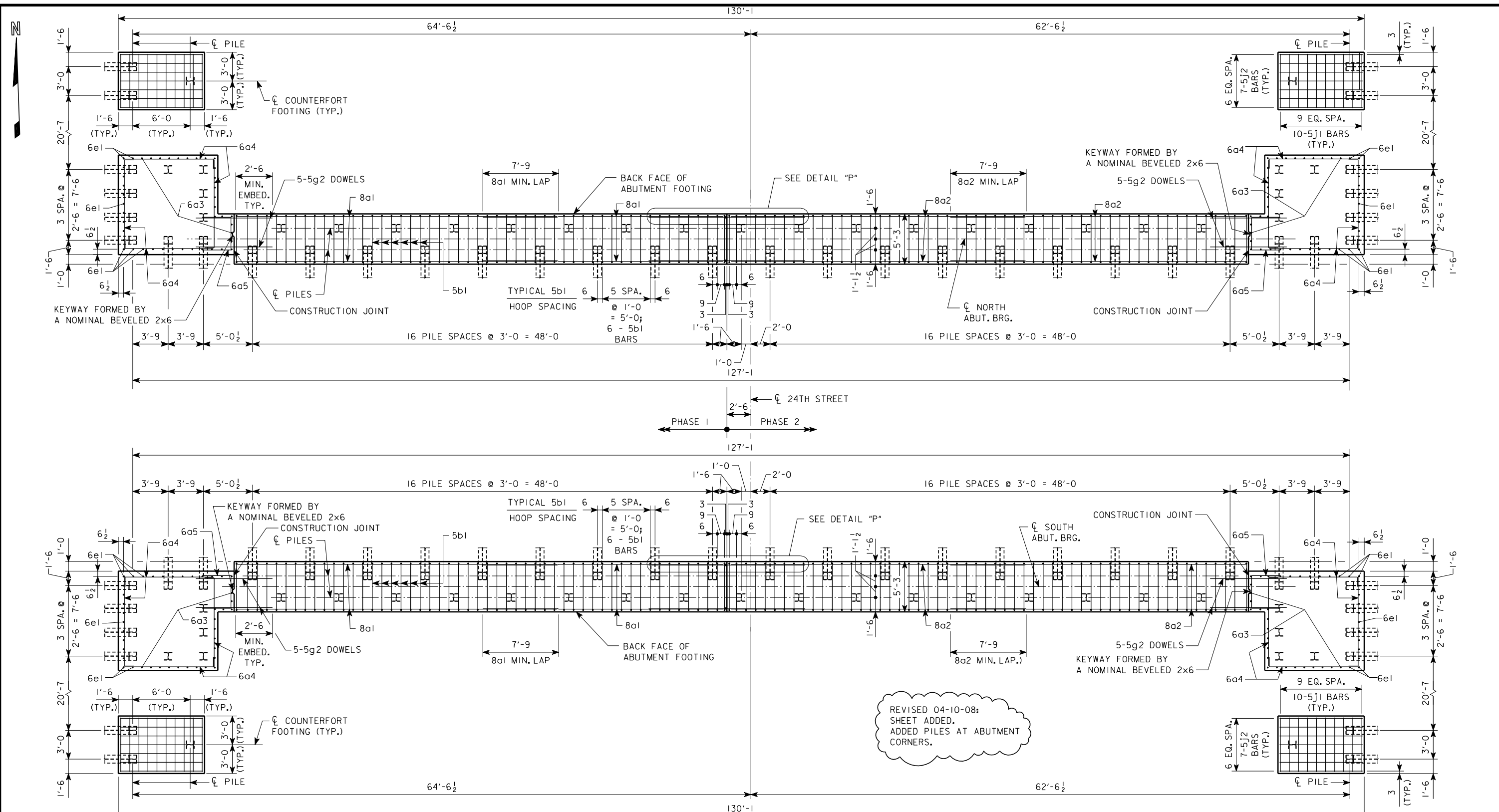
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POTTAWATTAMIE COUNTY

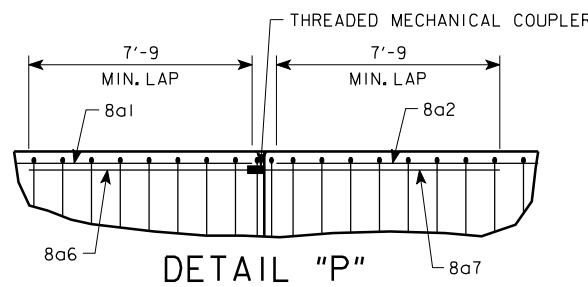
PROJECT NUMBER BRFIM-080-I(308)2--05-78

SHEET NUMBER 4





PILING LAYOUT



NOTES:  
 DIMENSIONS SHOWN ON PILING LAYOUT ARE AT BOTTOM OF FOOTING.  
 BATTER PILES 4:1 IN THE DIRECTION SHOWN.  
 53 - HPI0x57 STEEL BEARING PILING REQUIRED AT EACH ABUTMENT.  
 DESIGN BEARING FOR THE ABUTMENT PILES IS 50 TONS.  
 FOR ADDITIONAL ABUTMENT NOTES, SEE DESIGN SHEET 17.

REVISED 04-10-08:  
 SHEET ADDED.  
 ADDED PILES AT ABUTMENT  
 CORNERS.

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 PILE PLAN**  
 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. 16A OF 62 FILE NO. 30169 DESIGN NO. 508

**HDR**  
 HDR Engineering, Inc.

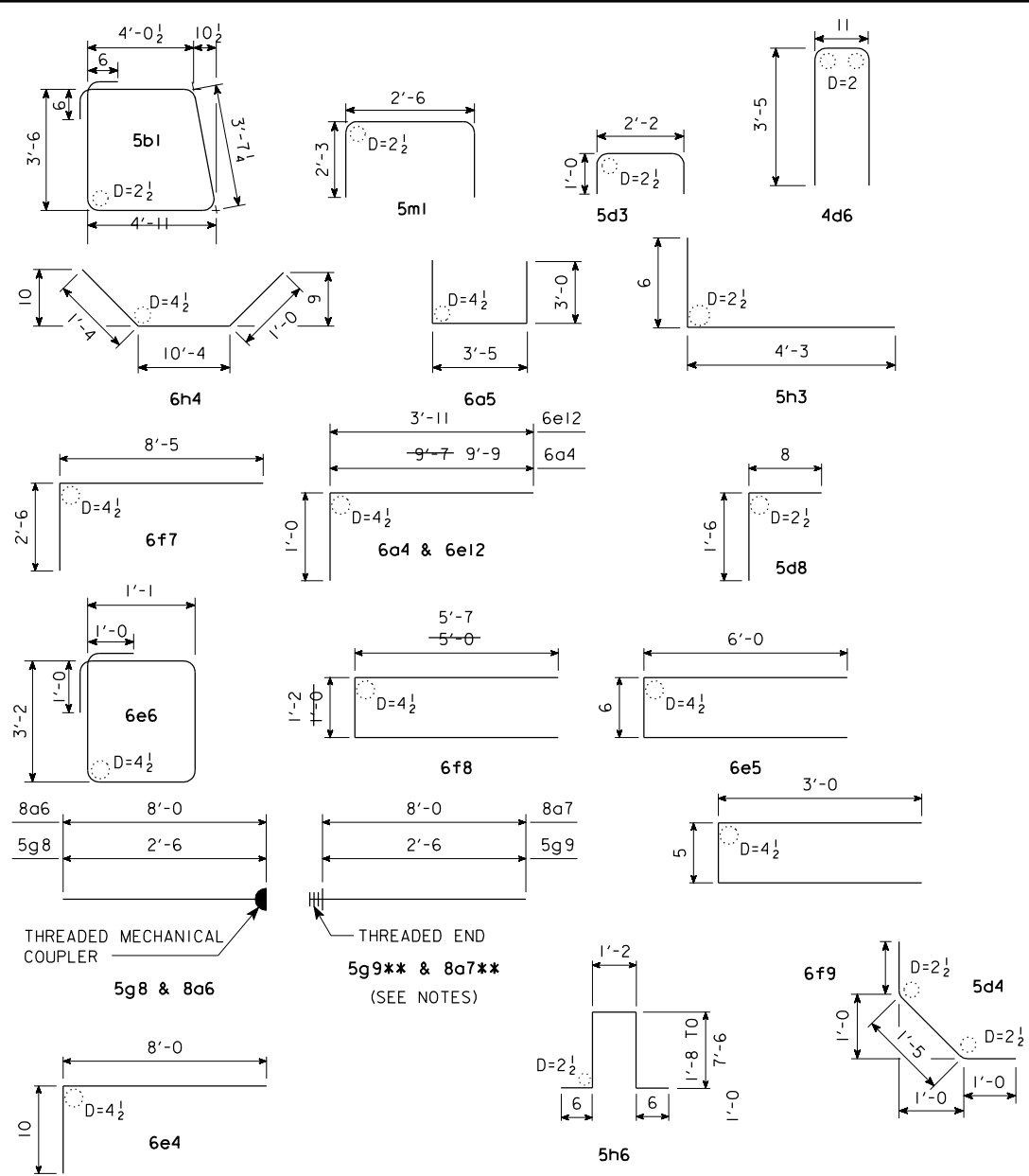
## REINFORCING BAR LIST - ONE ABUTMENT

BAR	LOCATION	SHAPE	LENGTH	PHASE 1		PHASE 2	
				NO.	WEIGHT	NO.	WEIGHT
8a1	FOOTING LONGITUDINAL	—	29'-6"	28	2205		0
8a2	FOOTING LONGITUDINAL	—	31'-0"		0	28	2318
6a3	FOOTING VERTICAL	—	10'-10"	19	309	19	309
6a4	FOOTING HORIZONTAL	—	10'-9"	48	763.775	48	763.775
6a5	FOOTING HORIZONTAL	—	9'-5"	12	170	12	170
8a6*	FOOTING DOWEL	—	8'-0"	14	299		0
8a7**	FOOTING DOWEL	—	8'-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	—	12'-4"	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
5g2	DOWELS	—	5'-0"	70	365	70	365
5g3	PAVING NOTCH LONGITUDINAL	—	26'-9"	4	112		0
5g4	BACKWALL LONGITUDINAL	—	28'-3"		0	36	1061
5g5	PAVING NOTCH LONGITUDINAL	—	28'-3"		0	4	118
5g6	BACKWALL LONGITUDINAL	—	11'-7"	2	24		0
5g7	BACKWALL LONGITUDINAL	—	9'-7"		0	2	20
5g8*	BACKWALL DOWEL	—	2'-6"	20	52		0
5g9**	BACKWALL DOWEL	—	2'-6"		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
					15,491		15,888
REINFORCING STEEL EPOXY COATED TOTAL (LBS.)					15,469		15,866
5d5	PAVING NOTCH DOWELS	—	3'-6"	19	69	22	80
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.	+46.0 151.2	+49.4 154.6	+45.7 150.9	+49.4 154.3	-590.2 611.0
REINFORCING STEEL - EPOXY COATED	L.B.	+5,538 15,560	+5,946 15,968	+5,538 15,560	+5,946 15,968	62,968 63,056
CLASS 20 EXCAVATION	C.Y.	187	191	186	190	754
HP10x57 STEEL BEARING PILING	L.F.	(30.26 @ 125)	(31.27 @ 125)	(30.26 @ 125)	(31.27 @ 125)	(13,250 15,250)
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	31.8 34.1	31.7 34.0
FOOTING EXTENSION	47.6 50.5	47.5 50.4	47.5 50.4	47.4 50.3
TOTAL (C.Y.)	146.0 151.2	149.4 154.6	145.7 150.9	149.4 154.3

## 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.

REVISED 04-10-08:  
ADDED PILES AT ABUTMENT CORNERS.

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