

LISTING OF PROJECT REVISIONS

DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS	DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS
01/09/03	21	ADDED TWO BENT BOLTS TO PART PLAN VIEWS, ADDED DIMENSION OF RECESS IN BARRIER ON PART PLAN VIEWS, ADDED NOTE IN SECTION C-C FOR EXPANSION JOINT SETTINGS, CHANGED EXPANSION DEVICE NUMBER IN TABLE, ADDED EXPANSION JOINT SETTINGS TABLE, REPLACED ANCHOR BARS IN SECTION B-B WITH BENT BARS			
01/09/03	22	ADDED DIMENSION OF RECESS IN BARRIER ON PART PLAN VIEWS, ADDED PLATE SIZE ON PART PLAN VIEWS, ADDED NOTE IN SECTION C-C FOR EXPANSION JOINT SETTINGS, CHANGED EXPANSION DEVICE NUMBER IN TABLE			

LINN COUNTY
DESIGN NO. 100, 102, 202
REVISION SHEET

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

04/03/2002
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GENERAL NOTES:

THIS DESIGN IS FOR REPAIRS TO THREE BRIDGES ON SOUTHBOUND I-380 IN CEDAR RAPIDS. THE FIRST BRIDGE IS THE 2263'- 8" X 52' - 0" CONTINUOUS WELDED PLATE GIRDER BRIDGE OVER IA 922 AND 3RD AVE. THIS BRIDGE IS DES. NO. 102 AND WILL BE REFERRED TO AS THE SOUTH APPROACH BRIDGE. THE SECOND BRIDGE IS THE 684' -0" X VARIABLE WIDTH PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE OVER THE CEDAR RIVER. THIS BRIDGE IS DES. NO. 202 AND WILL BE REFERRED TO AS THE RIVER BRIDGE. THE THIRD BRIDGE IS THE 1472'-8" X VARIABLE WIDTH CONTINUOUS WELDED PLATE GIRDER BRIDGE OVER IST. THROUGH 4TH STREETS AND THE CRI & P R.R. THIS BRIDGE ALSO INCLUDES THE 492' - 2" X 24' - 0" ON RAMP (REFERRED TO AS RAMP E-2) AND THE 491' - 2" X VARIABLE WIDTH OFF RAMP (REFERRED TO AS RAMP F-1). THESE BRIDGES ARE DES. NO. 100 AND WILL BE REFERRED TO AS THE NORTH APPROACH BRIDGE. THE THREE MAINLINE BRIDGES FORM ONE CONTINUOUS STRUCTURE THROUGH DOWNTOWN CEDAR RAPIDS. COPIES OF THE ORIGINAL DESIGN PLANS WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - HIGHWAY DIVISION - IOWA D.O.T. - AMES.

REPAIR SHALL CONSIST OF:

- ① REPLACING THE EXISTING SLIDING PLATE EXPANSION JOINTS WITH NEW STEEL EXTRUSIONS WITH NEOPRENE SEALS AT THE FOLLOWING LOCATIONS:

-SOUTH ABUTMENT OF THE SOUTH APPROACH BRIDGE
-NORTH ABUTMENT OF THE NORTH APPROACH BRIDGE
- ② REPLACING THE EXISTING SLIDING PLATE EXPANSION JOINTS WITH A NEW FINGER JOINT SYSTEM AT THE FOLLOWING LOCATIONS:

-JOINT NO. 1S (NEAR PIER NO. 6S) AND JOINT NO. 2S (NEAR PIER NO. 11S) OF THE SOUTH APPROACH BRIDGE.
-JOINT NO. 2S (NEAR PIER NO. 43S), JOINT NO. 3S (NEAR PIER NO. 49S), AND JOINT NO. 4S (NEAR PIER NO. 52S) OF THE NORTH APPROACH BRIDGE.
- ③ REPLACING THE EXISTING COMPRESSION SEALS WITH NEW STEEL EXTRUSIONS WITH NEOPRENE SEALS AT THE FOLLOWING LOCATIONS:

-PIER NOS. 26, 28, 32, 34, AND 36 OF THE RIVER BRIDGE.
-JOINT NO. 1S (NEAR PIER NO. 38S) OF THE NORTH APPROACH BRIDGE
- ④ REPLACE THE EXISTING COMPRESSION JOINT SEALS WITH NEW PREFORMED ELASTIC NEOPRENE COMPRESSION SEALS AT THE FOLLOWING LOCATIONS:

-NORTH ABUTMENT OF RAMP E-2
-SOUTH ABUTMENT OF RAMP F-1

ALL DIMENSIONS AND DETAILS SHOWN ON THESE PLANS PERTINENT TO NEW CONSTRUCTION IN RELATION TO EXISTING PORTIONS OF THE STRUCTURE SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING CONSTRUCTION.

ALL DIMENSIONS REQUIRED TO FABRICATE NEW STRUCTURAL STEEL SHALL BE FIELD VERIFIED BY THE CONTRACTOR.

THE CITY AND UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE BRIDGE CONTRACTOR OF THE STARTING DATE.

THE CONTRACTOR SHALL WORK IN SUCH A MANNER THAT EQUIPMENT AND MATERIALS SHALL NOT BE ALLOWED TO INTERFERE WITH TRAFFIC BELOW OR BE ALLOWED TO FALL ON THE ROADWAYS BELOW. ON THE NORTH APPROACH BRIDGE, THE CONTRACTOR SHALL ALSO BE REQUIRED TO WORK IN SUCH A MANNER THAT EQUIPMENT AND MATERIALS SHALL NOT BE ALLOWED TO INTERFERE WITH TRAIN TRAFFIC OR BE ALLOWED TO FALL ON THE RAILROAD TRACKS. INTERFERENCE ABOVE THE RAILROAD TRACK AREA SHALL BE COORDINATED WITH THE RAILROAD

CONSTRUCTION SHALL BE DONE IN STAGES WITH AT LEAST TWO LANE TRAFFIC MAINTAINED AT ALL TIMES IN ACCORDANCE WITH 'TRAFFIC CONTROL PLAN' NOTE.

THE PRICE BID FOR 'REMOVALS, AS PER PLAN' SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE FOLLOWING:
REMOVAL OF THE EXPANSION JOINTS ON ALL BRIDGES.
REMOVAL OF THE SECTIONS OF CONCRETE IN THE SLAB, DIAPHRAGM, BARRIER RAIL, AND/OR BACKWALL ADJACENT TO EACH OF THE EXPANSION JOINTS ON ALL BRIDGES.
THE DISMANTLED MATERIAL IS TO BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED FROM THE SITE BY THE CONTRACTOR.

REMOVAL OF SCHEDULED ITEMS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE SPECIFICATIONS. ANY DAMAGE TO ANY STEEL OR CONCRETE NOT TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.

EXISTING REINFORCING BARS THAT ARE EXPOSED BY CONCRETE REMOVAL SHALL BE CLEANED AND CAREFULLY INCORPORATED INTO THE NEW WORK WHERE NOTED OR SHOWN. REINFORCING BARS WHICH ARE DAMAGED OR RENDERED UNSERVICEABLE BY REMOVAL OPERATIONS SHALL BE REPLACED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE STATE.

IF MACHINE FINISHING FOR THE TOP OF BACKWALL AND ENDS OF SLAB AT THE NEW JOINTS IS NOT PRACTICAL, A MANUAL TYPE SCREED OR METAL PLATE, WITH APPROVED VIBRATORS ATTACHED, SHALL BE USED.

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

ALL CONCRETE REMOVAL LINES SHALL BE INITIATED WITH A 3/4 INCH SAWCUT.

ALL EXPOSED CORNERS 90 DEGREES OR SHARPER ARE TO BE FILLETED WITH A 3/4 INCH DRESSED AND BEVELED STRIP.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE EXISTING CONDUIT IN THE BRIDGE CURBS. IN ORDER TO ENSURE THE EXISTING CONDUITS AND/OR ELECTRICAL SERVICE (IF PRESENT) ARE NOT DAMAGED DURING REMOVAL OF THE EXISTING EXPANSION JOINTS AND INSTALLATION OF THE NEW JOINTS, THE CONTRACTOR SHALL BE REQUIRED TO DO THE FOLLOWING:
1. PHYSICALLY LOCATE THE CONDUIT PRIOR TO THE REMOVAL OF THE EXISTING CURBS.
2. AFTER PERFORMING THE REMOVAL OF THE EXISTING CURBS AND PRIOR TO PLACEMENT OF THE NEW CONCRETE, PROVE TO THE INSPECTOR BY A REASONABLE METHOD THE USABILITY OF THE CONDUIT HAS NOT BEEN COMPROMISED.
THE COST OF THESE OPERATIONS WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE STRUCTURAL CONCRETE. ANY DAMAGE TO THE CONDUIT OR WIRING BY THE CONTRACTOR WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.

NO TORCHWORK, CUTTING, GRINDING OR DRILLING OF HOLES ON THE EXISTING STRUCTURAL STEEL OF THE BRIDGE SHALL BE PERFORMED WHEN THE AIR TEMPERATURE AND STEEL TEMPERATURE ARE BELOW 40 °F.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, PRIOR TO BEGINNING CONSTRUCTION, A PROPOSED METHOD THAT SHOWS THEY ARE CAPABLE OF PROVIDING THE CONCRETE STRENGTH REQUIRED WITHIN THE TIME PERIOD ALLOWED. INCLUDED IN THE SUBMITTAL WILL BE THE CONTRACTORS PROPOSED METHOD OF CURING THE CONCRETE. IDOT INTENDS TO USE THE MATURITY METHOD OF TESTING THE STRENGTH OF THE PORTLAND CEMENT CONCRETE. REFER TO THE TRAFFIC CONTROL PLAN, ON SHEET 40, FOR ADDITIONAL INFORMATION CONCERNING THE TIME PERIOD ALLOWED FOR CONSTRUCTION. SEE ESTIMATE REFERENCE INFORMATION FOR ADDITIONAL CONCRETE REQUIREMENTS.

ACTUAL BRIDGE QUANTITIES					
ITEM NO.	ITEM CODE	ITEM	UNITS	QUANTITY	AS BUILT QUANTITY
1	2401-6750001	REMOVALS, AS PER PLAN	LS	1.000	1.000
2	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	115.200	115.200
3	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	15009.000	15,009.000
4	2408-7800000	STRUCTURAL STEEL	LB	87789.000	87,789.000
5	2413-1100000	PREFORMED ELASTIC NEOPRENE JOINT	LF	75.000	75.00
6	2413-1200000	STEEL EXTRUSION JOINT WITH NEOPRENE	LF	454.000	454.000
7	2528-8400047	TEMPORARY BARRIER RAIL	LF	6175.000	5854.000
8	2533-4980005	MOBILIZATION	LS	1.000	1.000

ESTIMATE REFERENCE INFORMATION

DATA LISTED BELOW IS FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT CONSTITUTE A BASIS FOR ANY EXTRA WORK ORDERS.

ITEM NO.	DESCRIPTION
1	INCLUDES REMOVAL OF THE EXISTING COMPRESSION SEALS AND SLIDING PLATE JOINTS.
2	CONCRETE SHALL MEET THE REQUIREMENTS OF A CLASS C MIX. MATURITY TESTING WILL BE USED TO DETERMINE CONCRETE STRENGTH. A FLEXURAL STRENGTH OF 400 PSI WILL BE REQUIRED PRIOR TO SUBJECTING THE CONCRETE TO TRAFFIC LOADS.
7	ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 12'-6 LONG CONCRETE UNITS.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A PROPOSED METHOD FOR POURING THE BARRIER RAIL AND CURB SECTIONS WITHIN THE TIME PERIOD ALLOWED.

THE STRIP SEAL GLANDS SHALL BE PLACED IN THE STEEL EXTRUSIONS IN ONE CONTINUOUS PIECE. THIS OPERATION SHALL BE PERFORMED AS PART OF STAGE 3 OF THE CONSTRUCTION. NO SPLICING OF THE STRIP SEAL GLAND WILL BE PERMITTED. THE GLANDS MAY BE DROPPED THROUGH THE OPENING AND TEMPORARILY SUPPORTED BELOW THE DECK WHILE THE TRAFFIC CONTROL IS MANEUVERED. REFER TO THE STAGING NOTES AND TRAFFIC CONTROL PLAN, ON SHEET 40, FOR ADDITIONAL INFORMATION CONCERNING STAGE 3 CONSTRUCTION.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A PROPOSED METHOD FOR PREVENTING DEBRIS FROM THE CONCRETE REMOVAL OPERATIONS NEAR THE MEDIAN BARRIER FROM INTERFERING WITH TRAFFIC ON THE NORTHBOUND LANES OF I-380.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, PRIOR TO BEGINNING CONSTRUCTION, A PROPOSED METHOD FOR COVERING THE OPENING IN THE SLAB IN THE EVENT THAT THE EXISTING JOINT HAS BEEN REMOVED, CONCRETE HAS NOT BEEN POURED, AND THE BRIDGE MUST BE OPENED TO TRAFFIC.

SPECIFICATIONS:
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, SERIES OF 2001, PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

DESIGN STRESSES:
DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1996, PLUS CURRENT INTERIM SPECIFICATIONS. CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 3,500 PSI. REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60. STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 10, ASTM A709, GRADE 36.

WHKS & CO.

ENGINEERS PLANNERS LAND SURVEYORS

MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

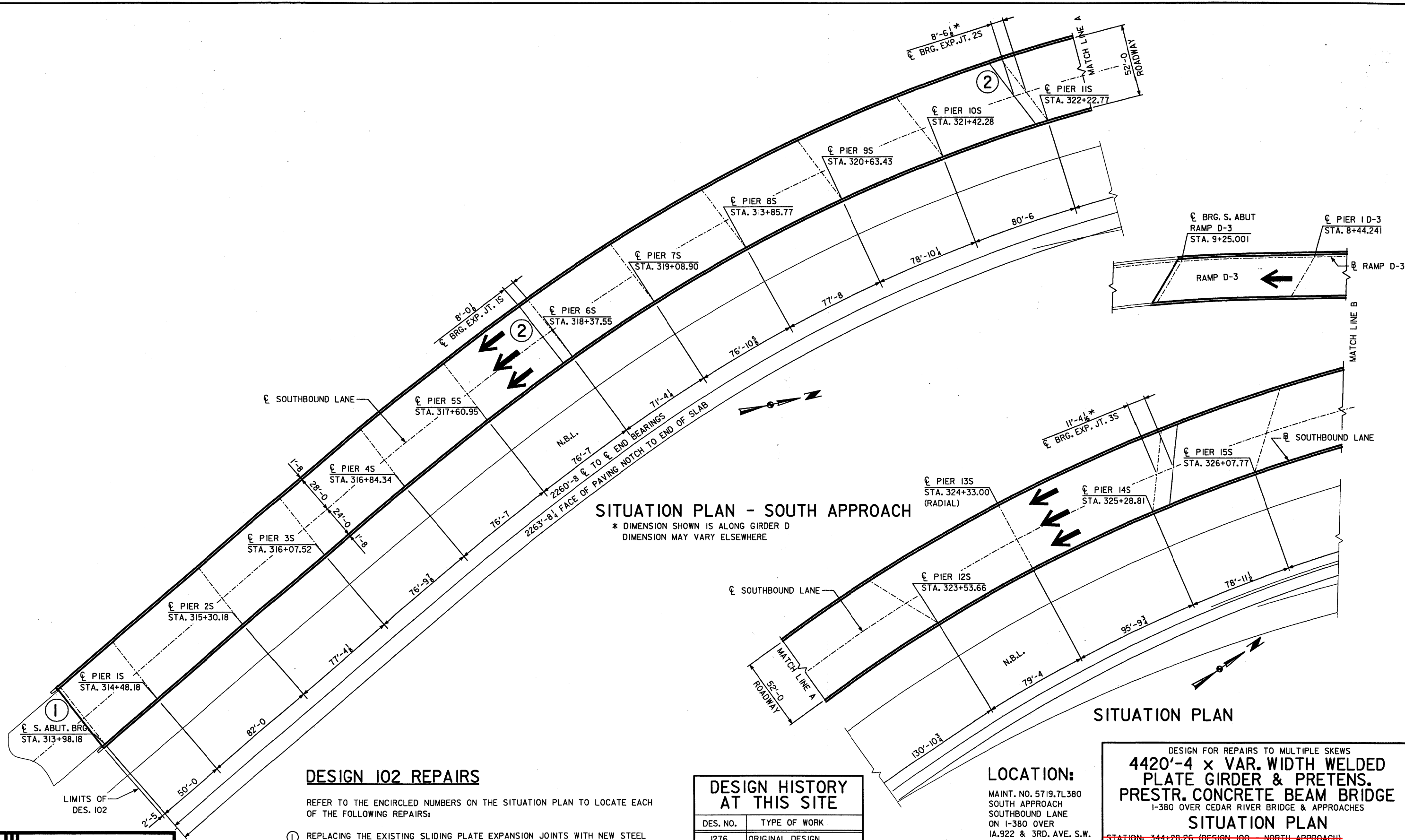
DESIGNED BY S.T.S. CHECKED BY S.T.S.
DETAILED BY T.A.M. CADD FILE H570000.S01

NOTE:
ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

TRAFFIC CONTROL PLAN:
THE ROADWAY WILL BE OPEN TO THRU TRAFFIC. REFER TO THE TRAFFIC CONTROL PLAN SHOWN ELSEWHERE IN THESE PLANS.

THE CONTRACTOR IS ENCOURAGED TO TAKE FULL ADVANTAGE OF SPECIFICATION 1105.15 -- VALUE ENGINEERING INCENTIVE PROPOSAL. A PAMPHLET AND CONCEPTUAL PROPOSAL FORM WILL BE AVAILABLE AT THE PRECONSTRUCTION CONFERENCE.

DESIGN FOR REPAIRS TO MULTIPLE SKEWS
4420'-4 x VAR. WIDTH WELDED
PLATE GIRDER & PRETENS.
PRESTR. CONCRETE BEAM BRIDGE
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES
SITUATION PLAN & QUANTITIES
~~STATION: 344+28.26 (DESIGN 100 - NORTH APPROACH)~~
~~STATION: 322+81.95 (DESIGN 102 - SOUTH APPROACH)~~
~~STATION: 344+28.26 (DESIGN 202 - CEDAR RIVER)~~ MARCH, 2002
LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 37 FILE NO. 29539 DESIGN NO. 100, 102, 202



SITUATION PLAN - SOUTH APPROACH
 * DIMENSION SHOWN IS ALONG GIRDER D
 DIMENSION MAY VARY ELSEWHERE

DESIGN 102 REPAIRS

REFER TO THE ENCIRCLED NUMBERS ON THE SITUATION PLAN TO LOCATE EACH OF THE FOLLOWING REPAIRS:

- ① REPLACING THE EXISTING SLIDING PLATE EXPANSION JOINTS WITH NEW STEEL EXTRUSIONS WITH NEOPRENE SEALS.
- ② REPLACING THE EXISTING SLIDING PLATE JOINT WITH A FINGER JOINT SYSTEM.

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
1276	ORIGINAL DESIGN
102	JOINT REPAIR

LOCATION:

MAINT. NO. 5719.7L380
 SOUTH APPROACH
 SOUTHBOUND LANE
 ON I-380 OVER
 IA. 922 & 3RD. AVE. S.W.
 T-83N, R-7W
 SECTION 21 & 28
 RAPIDS TWP.
 CITY OF CEDAR RAPIDS
 LINN COUNTY
 FHWA #603688

DESIGN FOR REPAIRS TO MULTIPLE SKEWS
**4420'-4 x VAR. WIDTH WELDED
 PLATE GIRDER & PRETENS.
 PRESTR. CONCRETE BEAM BRIDGE**
 I-380 OVER CEDAR RIVER BRIDGE & APPROACHES
SITUATION PLAN
~~STATION: 344+28.26 (DESIGN 100 - NORTH APPROACH)~~
~~STATION: 322+81.95 (DESIGN 102 - SOUTH APPROACH)~~
~~STATION: 344+28.26 (DESIGN 202 - CEDAR RIVER)~~
 MARCH, 2002
LINN COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 2 OF 37 FILE NO. 29539 DESIGN NO. 102

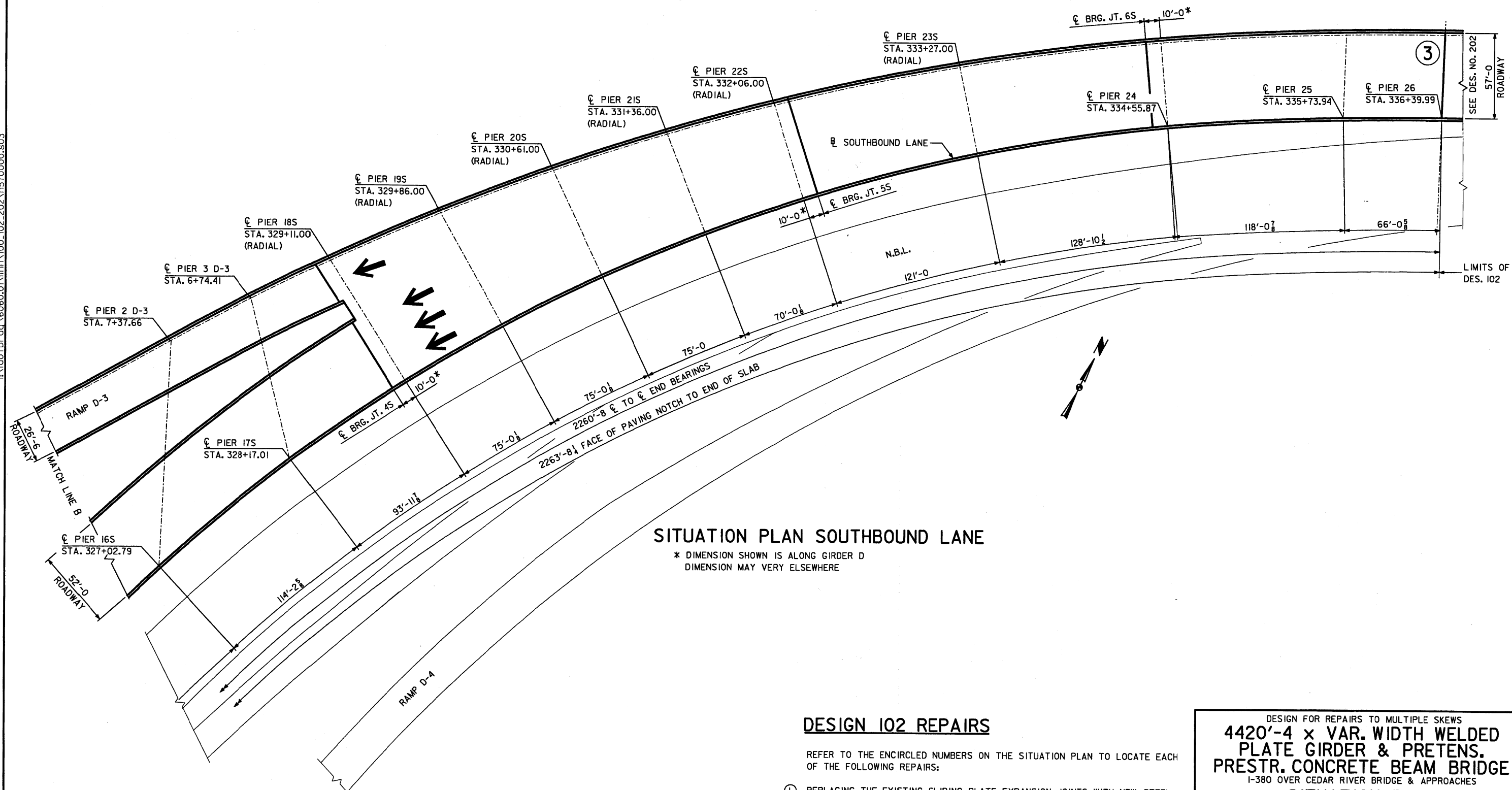
WHKS & CO.
 ENGINEERS PLANNERS LAND SURVEYORS
 MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

DESIGNED BY S.T.S. CHECKED BY S.T.S.
 DETAILED BY T.A.M. CADD FILE H570000.S02

LINN COUNTY

PROJECT NUMBER IMN-380-6(220)19--0E-57

SHEET NUMBER 3



DESIGN 102 REPAIRS

REFER TO THE ENCIRCLED NUMBERS ON THE SITUATION PLAN TO LOCATE EACH OF THE FOLLOWING REPAIRS:

- ① REPLACING THE EXISTING SLIDING PLATE EXPANSION JOINTS WITH NEW STEEL EXTRUSIONS WITH NEOPRENE SEALS.
- ② REPLACING THE EXISTING SLIDING PLATE JOINT WITH A FINGER JOINT SYSTEM.
- ③ REPLACING THE EXISTING COMPRESSION SEALS WITH NEW STEEL EXTRUSIONS WITH NEOPRENE SEALS.

DESIGN FOR REPAIRS TO MULTIPLE SKEWS
**4420'-4 x VAR. WIDTH WELDED
 PLATE GIRDER & PRETENS.
 PRESTR. CONCRETE BEAM BRIDGE**
 I-380 OVER CEDAR RIVER BRIDGE & APPROACHES

SITUATION PLAN

~~STATION: 344+28.26 (DESIGN 100 - NORTH APPROACH)~~
~~STATION: 322+81.95 (DESIGN 102 - SOUTH APPROACH)~~
~~STATION: 344+28.26 (DESIGN 202 - CEDAR RIVER)~~

MARCH, 2002

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 3 OF 37 FILE NO. 29539 DESIGN NO. 102



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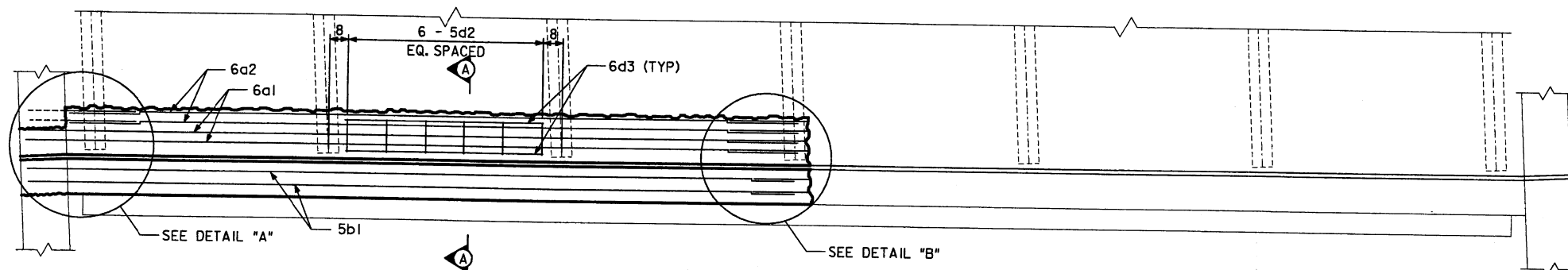
LINN COUNTY

PROJECT NUMBER

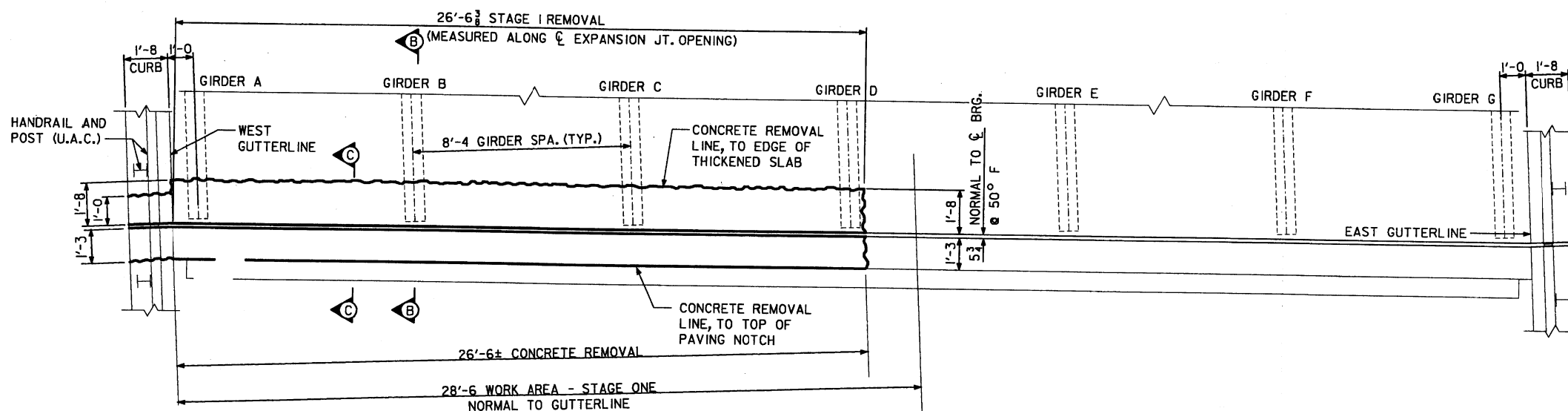
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SHEET NUMBER

4



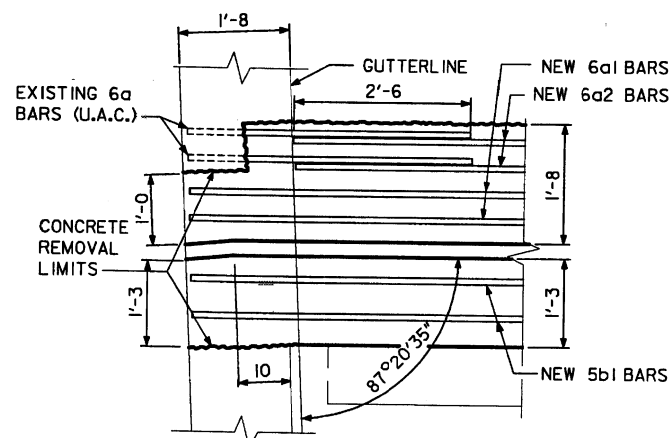
PLAN VIEW
REPAIR DETAILS - STAGE ONE
(NEW STRIP SEAL NOT SHOWN)



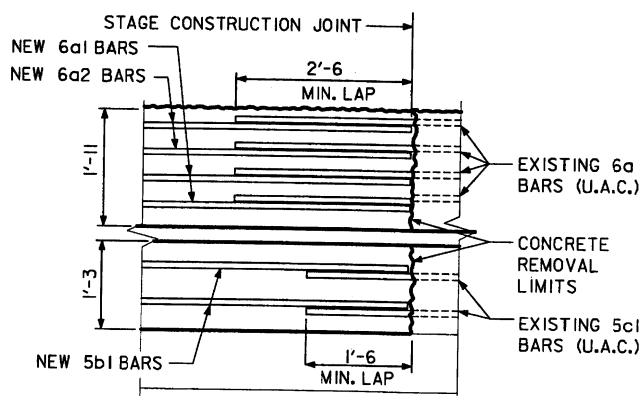
NOTE:
LONGITUDINAL BARS AND CURB HOOPS EXPOSED BY
CONCRETE REMOVAL SHALL BE CLEANED AND
INCORPORATED INTO NEW WORK.

PLAN VIEW
CONCRETE REMOVAL - STAGE ONE
(EXISTING SLIDING PLATE AND REINFORCING NOT SHOWN)

NOTE:
SEE DESIGN SHEET 7 FOR DETAILS SECTIONS
A-A, B-B, AND C-C.



DETAIL A
(STAGE I SHOWN, MIRROR FOR STAGE II)



DETAIL B
(STAGE I SHOWN, MIRROR FOR STAGE II)

EPOXY COATED REINFORCING STEEL SOUTH ABUTMENT

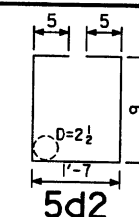
MARK	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	SLAB TRANSVERSE	—	2	27'-10"	84
6a2	SLAB TRANSVERSE	—	2	26'-2"	79
5b1	BACKWALL	—	4	27'-10"	116
5d2	DIAPHRAGM HOOPS	□	18	3'-11"	74
6d3	DIAPHRAGM	—	12	8'-0"	144
TOTAL (lbs)					497

CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
SLAB *	2.5
BACKWALL *	1.3
TOTAL (CY)	3.8 ✓

* INCLUDES CURB

BENT BAR DETAIL



WHKS & CO.

ENGINEERS PLANNERS LAND SURVEYORS
MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

DESIGNED BY S.T.S. CHECKED BY S.T.S.
DETAILED BY T.A.M. CADD FILE H570000.S06

DESIGN FOR REPAIRS TO MULTIPLE SKEWS
**4420'-4 x VAR. WIDTH WELDED
PLATE GIRDER & PRETENS.
PRESTR. CONCRETE BEAM BRIDGE**
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES
S. ABUTMENT - STAGE ONE DETAILS
~~STATION: 344+28.26 (DESIGN 100 - NORTH APPROACH)~~
~~STATION: 322+81.95 (DESIGN 102 - SOUTH APPROACH)~~
~~STATION: 344+28.26 (DESIGN 202 - CEDAR RIVER)~~ MARCH, 2002
LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 6 OF 37 FILE NO. 29539 DESIGN NO. 102

LINN COUNTY

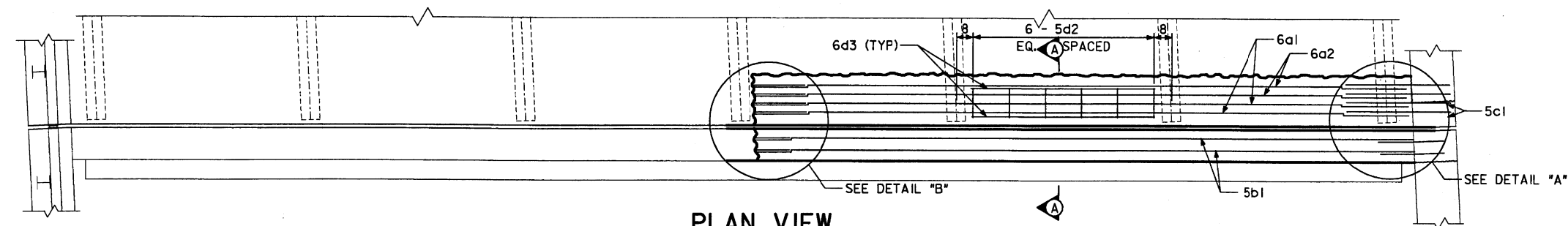
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IMN-380-6(220)19--0E-57

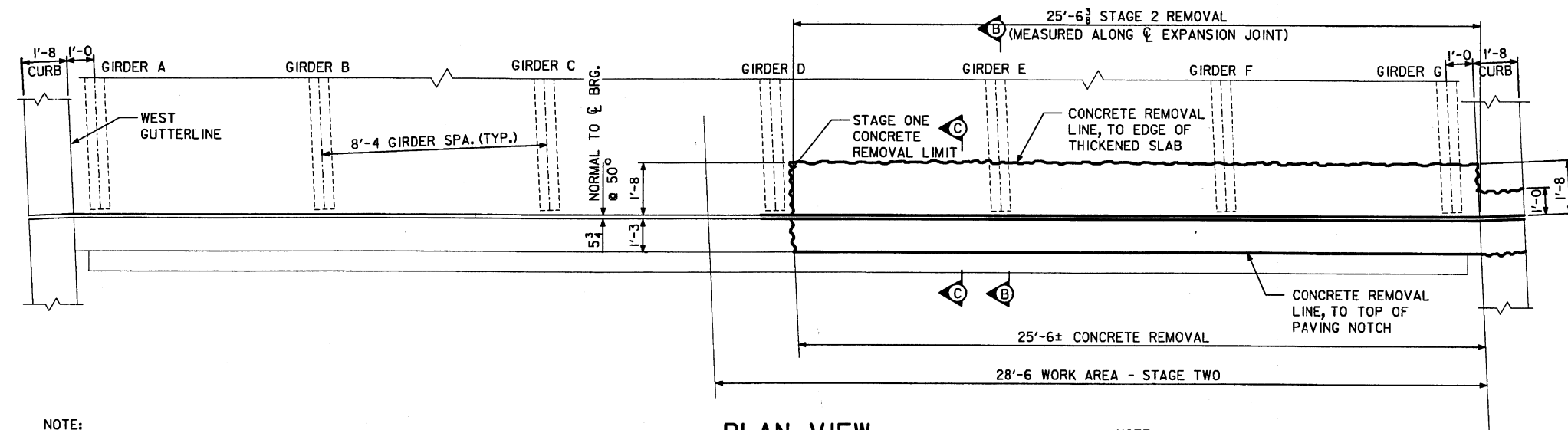
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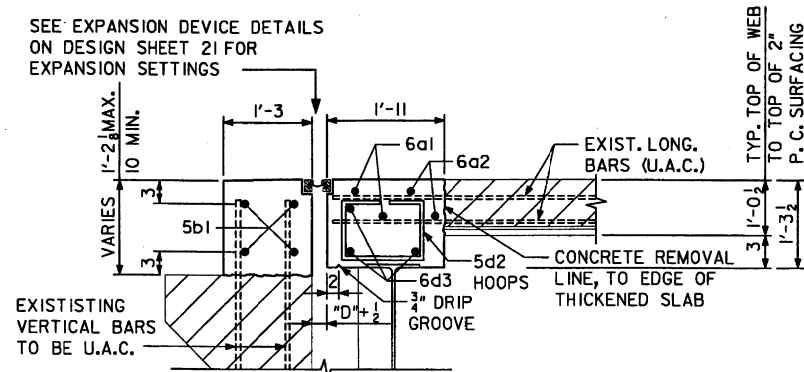
PLAN VIEW
REPAIR DETAILS - STAGE TWO
(NEW STRIP SEAL NOT SHOWN)



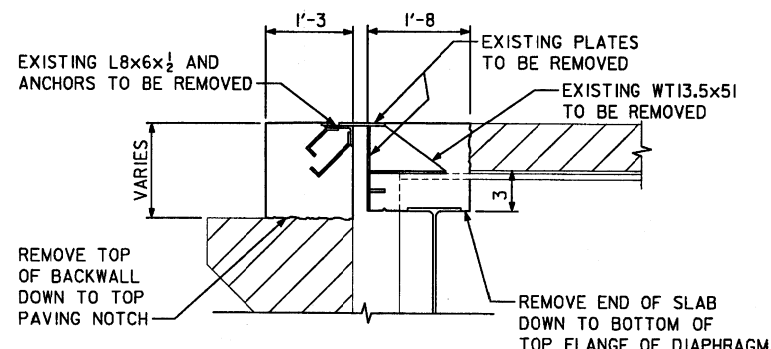
NOTE:
LONGITUDINAL BARS AND CURB DROPS EXPOSED BY
CONCRETE REMOVAL SHALL BE CLEANED AND
INCORPORATED INTO NEW WORK.

PLAN VIEW
CONCRETE REMOVAL - STAGE TWO
(EXISTING SLIDING PLATE AND REINFORCING NOT SHOWN)

NOTE:
SEE DESIGN SHEET 6 FOR DETAILS "A" AND "B".



SECTION A-A



SECTION B-B
(AT GIRDER LOCATIONS / REINFORCING NOT SHOWN)

EPOXY COATED REINFORCING STEEL SOUTH ABUTMENT

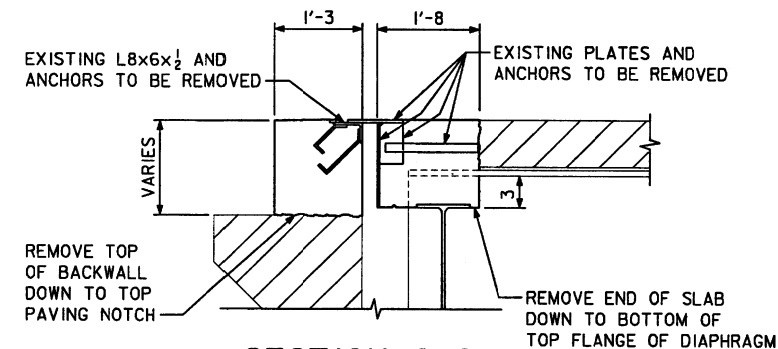
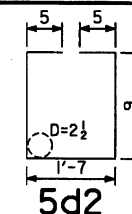
MARK	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	SLAB TRANSVERSE	—	2	26'-10	81
6a2	SLAB TRANSVERSE	—	2	25'-2	76
5b1	BACKWALL	—	4	26'-10	112
5d2	DIAPHRAGM HOOPS	□	18	3'-11	74
6d3	DIAPHRAGM	—	12	8'-0	144
TOTAL (lbs)					487

CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
SLAB *	2.4
BACKWALL *	1.3
TOTAL (CY)	3.7

* INCLUDES CURB

BENT BAR DETAIL



SECTION C-C
(TYPICAL BETWEEN GIRDERS / REINFORCING NOT SHOWN)

DESIGN FOR REPAIRS TO MULTIPLE SKEWS
**4420'-4 x VAR. WIDTH WELDED
PLATE GIRDER & PRETENS.
PRESTR. CONCRETE BEAM BRIDGE**
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES
S. ABUTMENT - STAGE TWO DETAILS
~~STATION: 344+28.26 (DESIGN 100 - NORTH APPROACH)~~
~~STATION: 322+81.95 (DESIGN 102 - SOUTH APPROACH)~~
~~STATION: 344+28.26 (DESIGN 202 - CEDAR RIVER)~~ MARCH, 2002
LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 7 OF 37 FILE NO. 29539 DESIGN NO. 102



DESIGNED BY S.T.S. CHECKED BY S.T.S.
DETAILED BY T.A.M. CADD FILE H570000.S07

LINN COUNTY

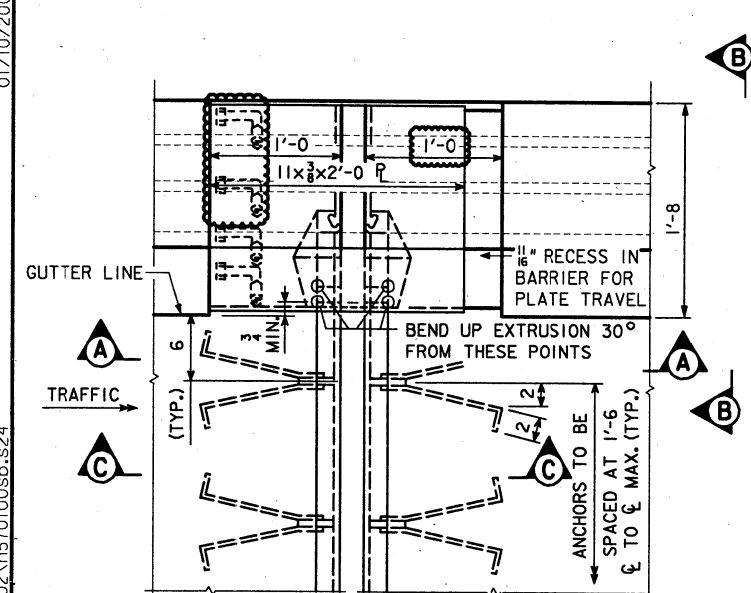
PROJECT NUMBER

IMN-380-6(220)19--0E-57

SHEET NUMBER

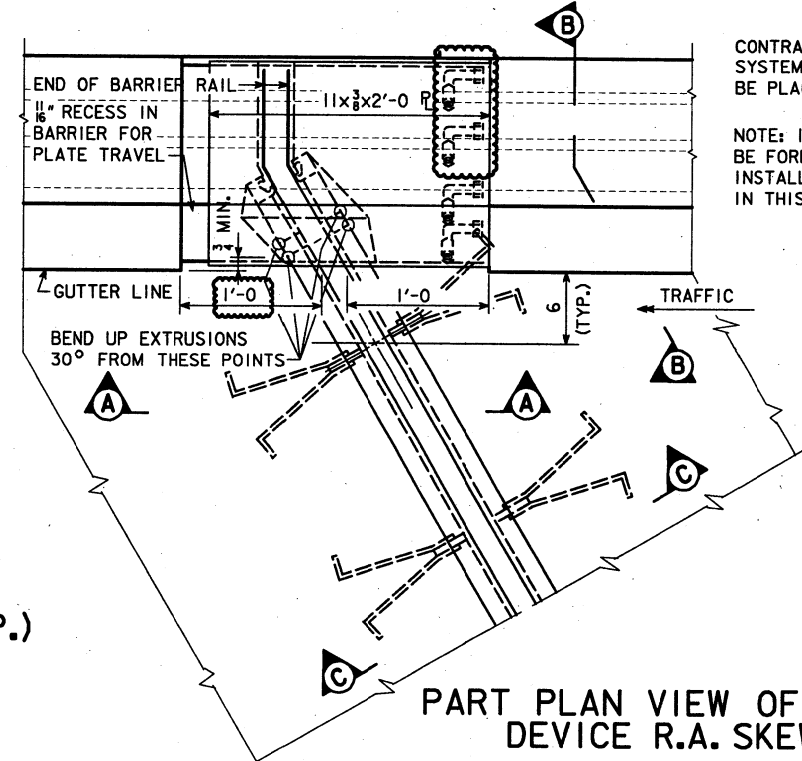
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01/10/2003
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HE1026F.S01 - 02-00 THIS SHEET ISSUED.



PART PLAN VIEW OF EXPANSION DEVICE (TYP.)

CONTRACTOR TO NOTE THAT THE CAP SCREW ANCHORAGE SYSTEM FOR THE 3/8" BARRIER PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.



PART PLAN VIEW OF EXPANSION DEVICE R.A. SKEW (TYP.)

CONTRACTOR TO NOTE THAT THE CAP SCREW ANCHORAGE SYSTEM FOR THE 3/8" BARRIER PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.

NOTE: IT IS INTENDED THAT THE 1/8" RECESSED AREA BE FORMED SO THAT WHEN THE 3/8" BENT PLATE IS INSTALLED, THE PLATE WILL BE ABLE TO MOVE FREELY IN THIS RECESSED AREA.

BARRIER PLATE NOTE:

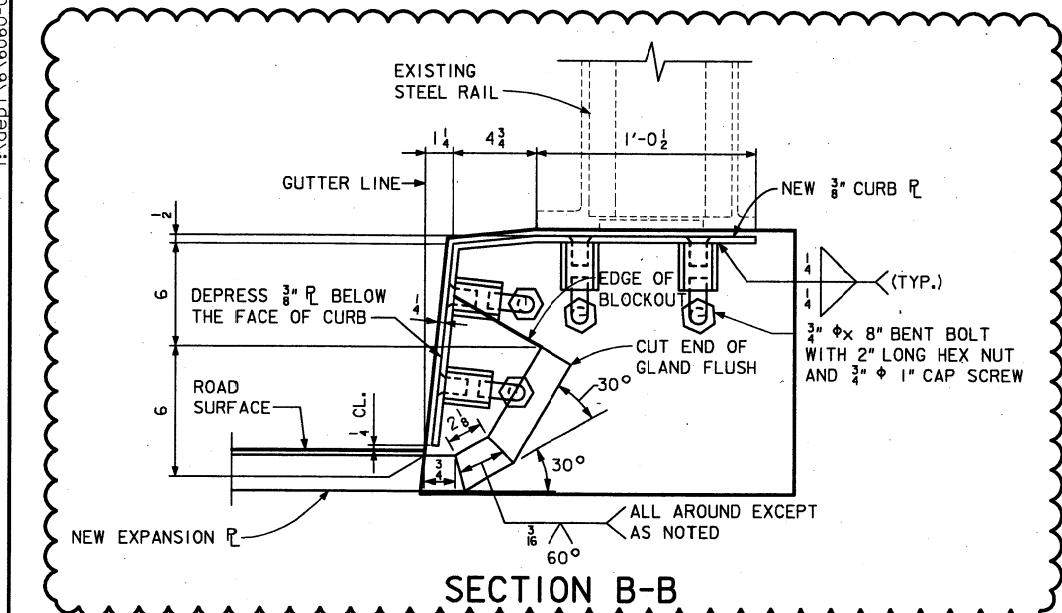
THE MATERIAL USED FOR THE BARRIER PLATES IS TO BE ASTM A-36 STEEL. THE BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A-307. THE PLATES, BOLTS, NUTS AND CAP SCREWS ARE TO BE GALVANIZED IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS.

EXPANSION DEVICE NOTES:

THE CONTRACTOR SHALL SUBMIT FOR APPROVAL SHOP DRAWINGS OF THE EXPANSION DEVICES SHOWING LAYOUT, MATERIAL TO BE USED, AND PROVISIONS FOR HOLDING DEVICE DURING PLACEMENT OF CONCRETE.
THE EXPANSION DEVICE SHALL BE GALVANIZED AFTER WELDING.
THE EXPANSION DEVICE IS TO BE PARALLEL TO GRADE.
CAP SCREWS SHALL BE COUNTERSUNK 1/8" BELOW TOP OF THE PLATE.
THE NEOPRENE GLAND IS TO BE PLACED AS ONE CONTINUOUS PIECE FROM END TO END OF THE STEEL EXTRUSIONS.
THE MINIMUM GRADE OF STRUCTURAL STEEL FOR THE EXPANSION DEVICE SHALL BE ASTM A-36.
THE NEOPRENE GLAND SHALL CONFORM TO ASTM D-2628 MODIFIED TO EXCLUDE RECOVERY TESTS AND COMPRESSION SET.
BLOCKOUT DETAILS MAY BE ALTERED FROM THOSE SHOWN PROVIDED THE GLAND MAY BE INSTALLED AND REMOVED IF NECESSARY.
THE CONTRACT UNIT PRICE BID FOR "STEEL EXTRUSION JOINT WITH NEOPRENE" SHALL BE FULL COMPENSATION FOR FURNISHING AND INSTALLING THE EXPANSION JOINTS. THIS WORK WILL CONSIST OF FURNISHING ALL REQUIRED MATERIALS, (INCLUDING THE 3/8" PLATES AT THE BARRIERS AND THEIR ANCHORAGE SYSTEMS), AND THE INSTALLATION AND ADJUSTMENT OF THE EXPANSION JOINTS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. THE FURNISHING AND INSTALLATION OF ALL NECESSARY HARDWARE AND ACCESSORIES AS SUPPLIED BY THE EXPANSION JOINT MANUFACTURER ARE TO BE INCLUDED IN THIS WORK, INCLUDING THE ANCHORAGE SYSTEM AND ANY TEMPORARY ERECTION MATERIAL. ALL WORK AND MATERIALS FOR THE INSTALLATION OF THE EXPANSION JOINTS ARE TO COMPLY WITH THE WRITTEN RECOMMENDATIONS OF THE EXPANSION JOINT MANUFACTURER.
SHOP AND OR FIELD SPLICES OF THE STEEL EXTRUSION WILL BE PERMITTED. PIECES OF STEEL EXTRUSION IN THE 15 FT. TO 22 FT. RANGE SHALL BE USED TO FORM THE REQUIRED GUTTER TO GUTTER LENGTH. THE INDIVIDUAL LENGTH OF PIECES SHALL BE CHOSEN SO THAT A MINIMUM NUMBER OF SPLICES IS REQUIRED. ALL PIECES SHALL BE JOINED WITH A PREQUALIFIED PARTIAL PENETRATION SINGLE GROOVE WELD, AND ALL SURFACES NOT IN CONTACT WITH CONCRETE ARE TO BE GROUND FLUSH. NO WELD SHALL BE PERMITTED IN THE INTERNAL SECTION OF THE EXTRUSION WHERE THE NEOPRENE GLAND IS TO BE LOCATED.

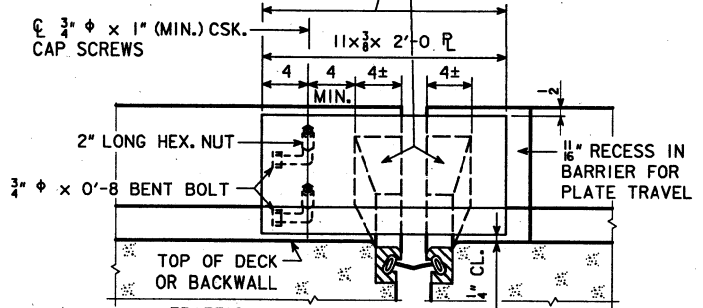
STAGE CONSTRUCTION NOTES:

FIELD SPLICES IN THE STEEL EXTRUSION SHALL BE MADE IN THE LOCATIONS DETAILED. PIECES SHALL BE JOINED WITH A PRE-QUALIFIED PARTIAL PENETRATION SINGLE-V-GROOVE WELD AS DETAILED. ALL SURFACES NOT IN CONTACT WITH CONCRETE ARE TO BE GROUND FLUSH. NO WELD SHALL BE PERMITTED IN THE INTERNAL SECTION OF THE EXTRUSION WHERE THE NEOPRENE GLAND IS TO BE LOCATED.
IN ADDITION TO THE FIELD SPLICES IN THE STEEL EXTRUSIONS NOTED ABOVE, ONE ADDITIONAL SHOP SPlice WILL BE PERMITTED AT THE APPROXIMATE MIDPOINT OF EACH STAGE PORTION OF THE STEEL EXTRUSIONS.
FIELD WELDS ON GALVANIZED ITEMS SHALL BE COATED WITH A ZINC RICH MATERIAL APPROVED BY THE ENGINEER.
ALL CURB PLATES INCLUDING THEIR ANCHORAGES SHALL BE GALVANIZED.



SECTION B-B

THIS PORTION OF THE 3/8" BENT PLATE IS TO BE PAINTED WITH A COLORLESS OIL, OR SOME OTHER SATISFACTORY MEANS TO PREVENT CONCRETE FROM ADHERING TO THE PLATE SO THAT THE PLATE CAN BE REMOVED IF NECESSARY. (TYP. ALL 3/8" BENT PLATES)



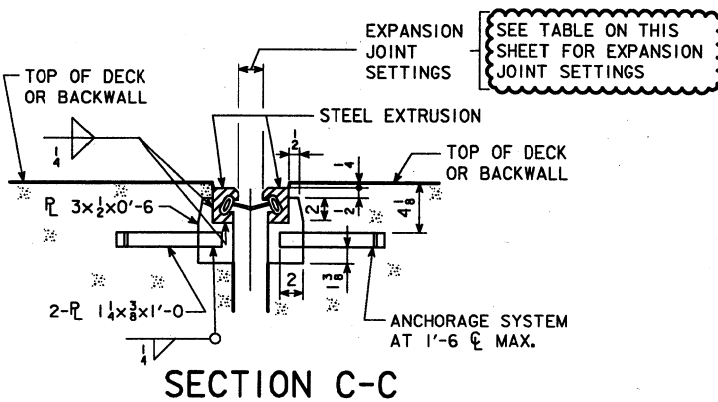
SECTION A-A

(DRAWN FOR 0° SKEW FOR ILLUSTRATIVE PURPOSES)

EXPANSION JOINT SETTINGS - "D"								
TEMP. AT TIME OF SETTING	S. ABUT. DES. 102	PIER 26 DES. 202	PIER 28 DES. 202	PIER 32 DES. 202	PIER 34 DES. 202	PIER 36 DES. 202	JOINT IS DES. 100	N. ABUT. DES. 100
90° F	1 5/8	1 1/8	1 1/8	1 1/8	1 3/4	1 3/8	1 5/8	1 1/2
50° F	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4
10° F	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	2 7/8	3

TABLE OF APPROVED EXPANSION DEVICES

MANUFACTURER	TYPE OF STEEL EXTRUSION	NEOPRENE GLAND
WATSON-BOWMAN & ACME CORP.	A	SE-400
D.S. BROWN CO.	SSA2	SE-400
APPROVED EQUAL		

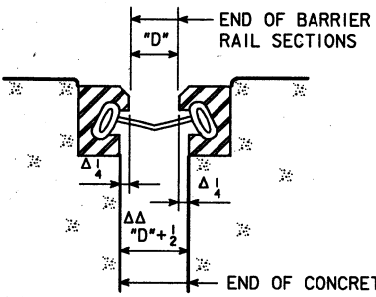


SECTION C-C

EXPANSION OPENING DETAIL

THIS DIMENSION MAY VARY SLIGHTLY DEPENDING ON MANUFACTURER FURNISHING THE JOINT.
USED FOR ALL OUT TO OUT DIMENSIONS OF SLAB. THE DIMENSION MAY VARY SLIGHTLY DEPENDING ON MANUFACTURER FURNISHING THE JOINT.

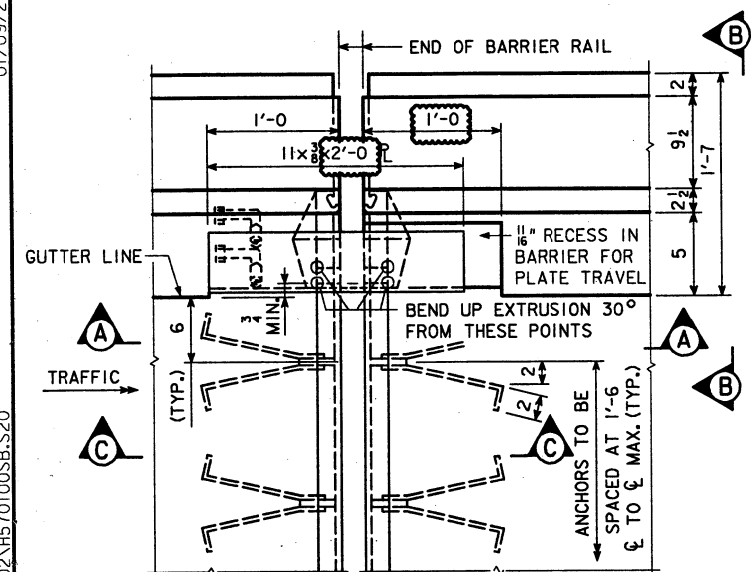
NOTE: JOINT SETTINGS FOR OTHER TEMPERATURES ARE PROPORTIONAL. TEMPERATURES SHOWN ARE CONCRETE DECK TEMPERATURES ON THE UNDERSIDE OR SHADED PORTION OF THE DECK.



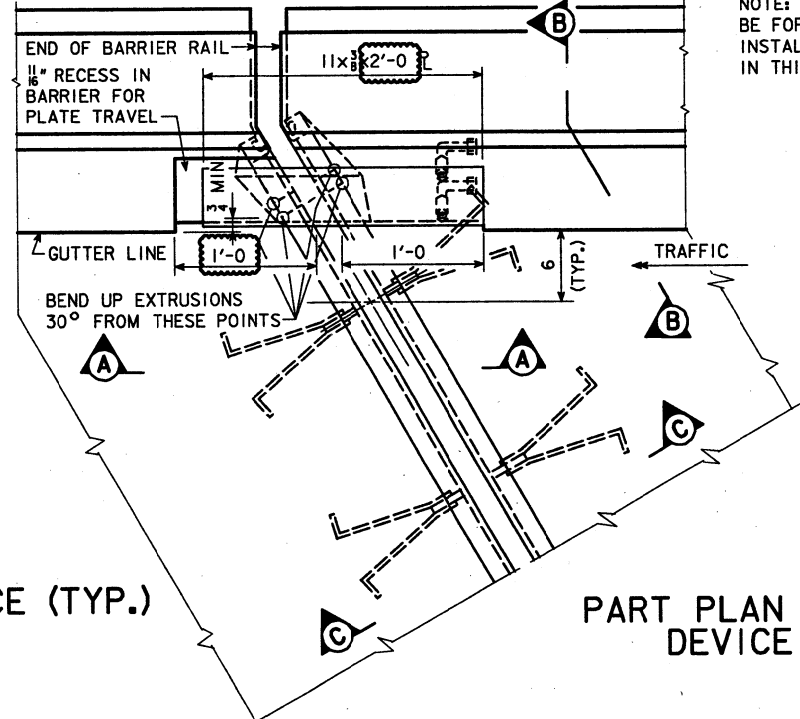
BENT BOLT DETAIL

WHKS & CO.
ENGINEERS PLANNERS LAND SURVEYORS
MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

01/09/2003
I:\Dept\6\6060-0\Lin\100-102-202\H570000.S20
HE1026F.S01 - 02-00 THIS SHEET ISSUED.



PART PLAN VIEW OF SOUTH EXPANSION DEVICE (TYP.)
CONTRACTOR TO NOTE THAT THE CAP SCREW ANCHORAGE SYSTEM FOR THE 3/8" BARRIER PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.



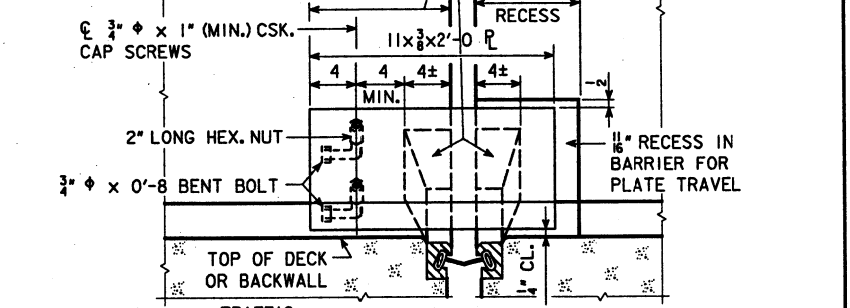
PART PLAN VIEW OF EXPANSION DEVICE R.A. SKEW (TYP.)

NOTE: IT IS INTENDED THAT THE 1/2" RECESSED AREA BE FORMED SO THAT WHEN THE 3/8" BENT PLATE IS INSTALLED, THE PLATE WILL BE ABLE TO MOVE FREELY IN THIS RECESSED AREA.

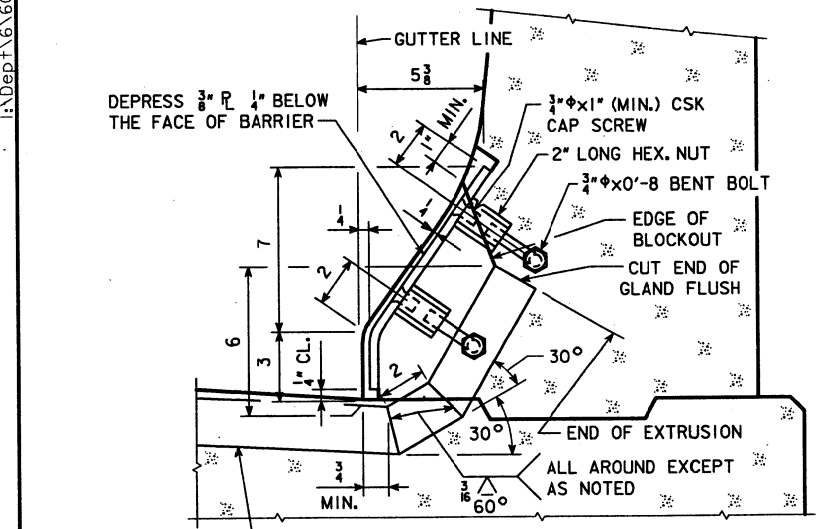
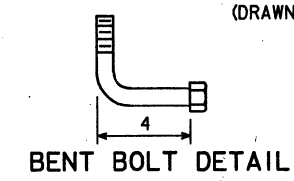
CONTRACTOR TO NOTE THAT THE CAP SCREW ANCHORAGE SYSTEM FOR THE 3/8" BARRIER PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.

BARRIER PLATE NOTE:
THE MATERIAL USED FOR THE BARRIER PLATES IS TO BE ASTM A-36 STEEL. THE BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A-307. THE PLATES, BOLTS, NUTS AND CAP SCREWS ARE TO BE GALVANIZED IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS.

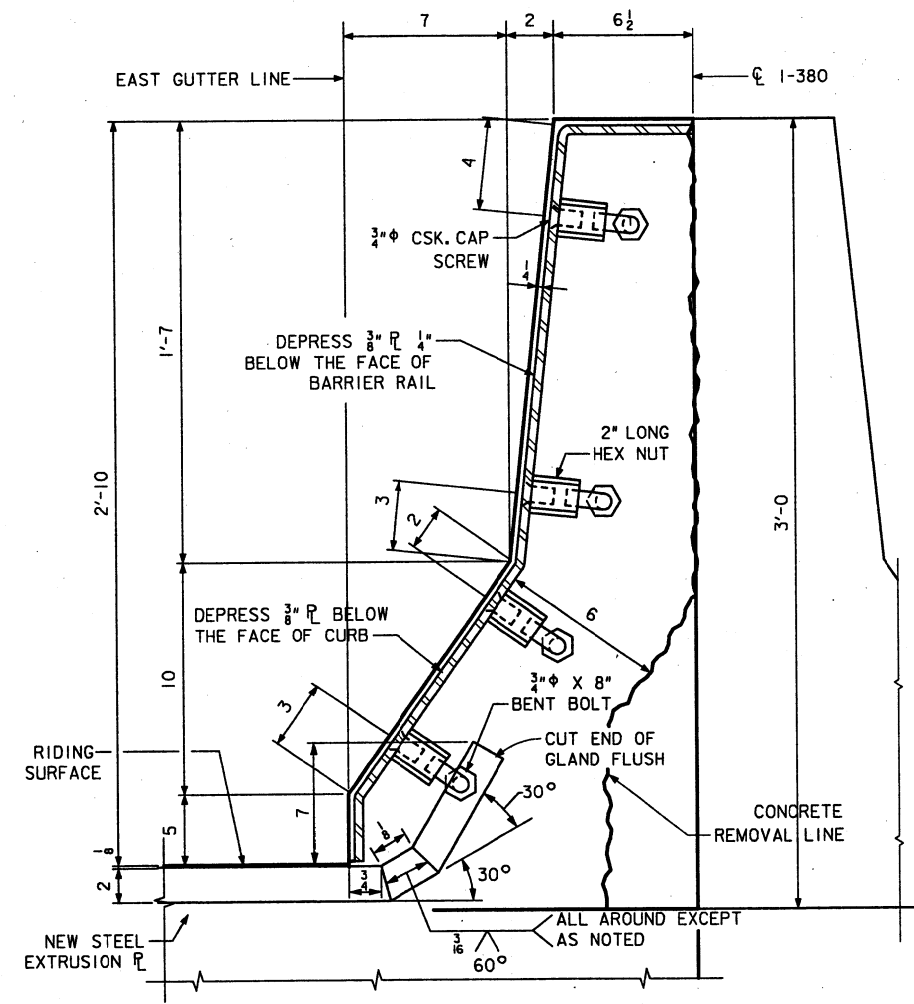
THIS PORTION OF THE 3/8" BENT PLATE IS TO BE PAINTED WITH A COLORLESS OIL, OR SOME OTHER SATISFACTORY MEANS TO PREVENT CONCRETE FROM ADHERING TO THE PLATE SO THAT THE PLATE CAN BE REMOVED IF NECESSARY. (TYP. ALL 3/8" BENT PLATES)



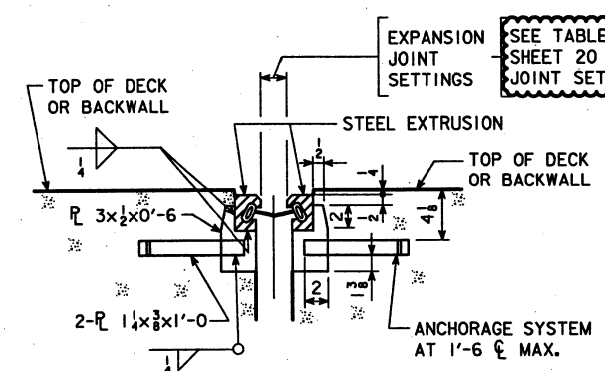
SECTION A-A
(DRAWN FOR 0° SKEW FOR ILLUSTRATIVE PURPOSES)



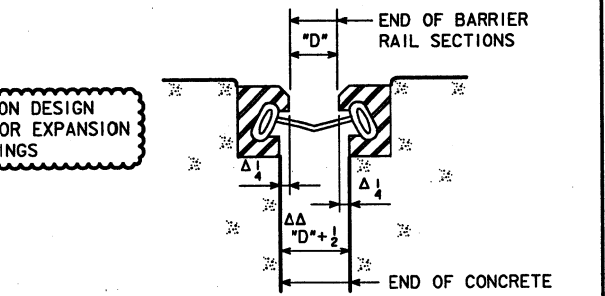
SECTION B-B FOR JERSEY RAIL
NOTE: JOINT SETTINGS FOR OTHER TEMPERATURES ARE PROPORTIONAL. TEMPERATURES SHOWN ARE CONCRETE DECK TEMPERATURES ON THE UNDERSIDE OR SHADED PORTION OF THE DECK.



SECTION B-B FOR MEDIAN RAIL



SECTION C-C



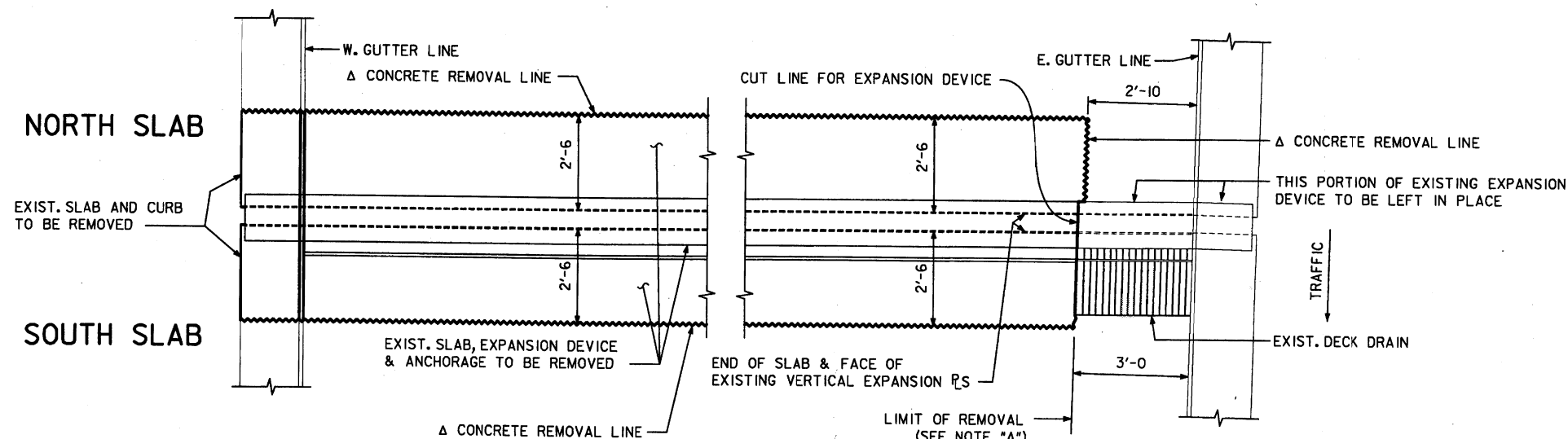
EXPANSION OPENING DETAIL
Δ THIS DIMENSION MAY VARY SLIGHTLY DEPENDING ON MANUFACTURER FURNISHING THE JOINT.
ΔΔ USED FOR ALL OUT TO OUT DIMENSIONS OF SLAB. THE DIMENSION MAY VARY SLIGHTLY DEPENDING ON MANUFACTURER FURNISHING THE JOINT.

TABLE OF APPROVED EXPANSION DEVICES

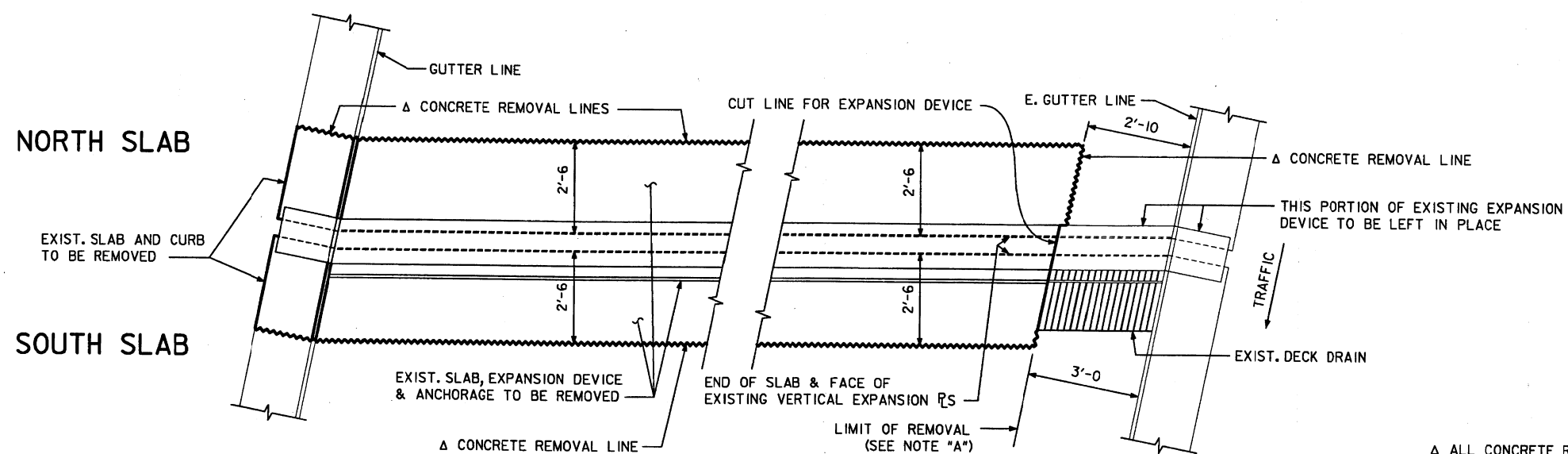
MANUFACTURER	TYPE OF STEEL EXTRUSION	NEOPRENE GLAND
WATSON-BOWMAN & ACME CORP.	A	SE-400
D.S. BROWN CO.	SSA2	A2R-400
APPROVED EQUAL		

DESIGN FOR REPAIRS TO MULTIPLE SKEWS
4420'-4 x VAR. WIDTH WELDED PLATE GIRDER & PRETENS. PRESTR. CONCRETE BEAM BRIDGE
1-380 OVER CEDAR RIVER BRIDGE & APPROACHES
EXPANSION WITH RAIL DETAILS
~~STATION: 344+28.26 (DESIGN 100 - NORTH APPROACH)~~
~~STATION: 322+81.95 (DESIGN 102 - SOUTH APPROACH)~~
~~STATION: 344+28.26 (DESIGN 202 - CEDAR RIVER)~~
LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 21 OF 37 FILE NO. 29539 DESIGN NO. 100, 102, 202
MARCH, 2002

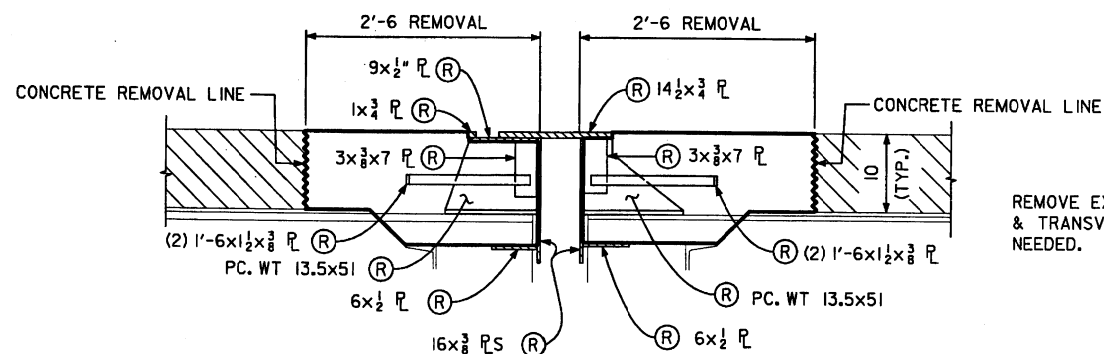
WHKS & CO.
ENGINEERS PLANNERS LAND SURVEYORS
NASHVILLE, TN DUBUQUE, IA AMES, IA ROCHESTER, MN



PART PLAN VIEW SHOWING LIMITS
OF REMOVAL FOR JOINT 1S



PART PLAN VIEW SHOWING LIMITS
OF REMOVAL FOR JOINT 2S



REMOVE EXISTING LONGITUDINAL
& TRANSVERSE REINFORCING AS
NEEDED.

(R) DENOTES ITEMS TO BE REMOVED

FINGER JOINT NOTES:

THE CONTRACTOR SHALL SUBMIT, FOR APPROVAL, SHOP DRAWINGS OF THE FINGER JOINT SYSTEM SHOWING LAYOUT, MATERIAL TO BE USED, AND PROVISIONS FOR HOLDING THE JOINT DURING PLACEMENT OF CONCRETE.

THE EXPANSION DEVICE SHALL BE GALVANIZED AFTER WELDING, EXCEPT FOR THE SHIMS, BOLTS, WASHERS AND NUTS.

THE EXPANSION DEVICE IS TO BE PARALLEL TO GRADE.

CAP SCREWS SHALL BE COUNTERSUNK $\frac{1}{8}$ " BELOW TOP OF THE BARRIER PLATE.

THE CONTRACT UNIT PRICE BID FOR 'STRUCTURAL STEEL' SHALL BE FULL COMPENSATION FOR ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING THE FINGER JOINT SYSTEM AT JT. 1S AND JT. 2S EXCEPT ITEMS INCLUDED IN 'REMOVALS, AS PER PLAN', 'STRUCTURAL CONCRETE' AND 'EPOXY COATED REINFORCING STEEL'. THIS WORK SHALL INCLUDE FURNISHING AND INSTALLING THE COMPLETE FINGER JOINT SYSTEM, CURB PLATES, TEMPORARY ERECTION MATERIAL AND HOLDING DEVICES, NEOPRENE TROUGHS, AND ALL HARDWARE REQUIRED.

FIELD SPLICES OF THE FINGER JOINT WILL BE PERMITTED AT THE STAGING JOINTS. THE JOINTS SHALL BE BOLTED TOGETHER AT SPLICE LOCATIONS AS SHOWN IN 'SLICE DETAIL AT CONSTRUCTION JOINT' ON DES. SH. 34 & 35. ALL PIECES SHALL BE JOINED WITH A PREQUALIFIED PARTIAL PENETRATION BEVEL WELD, AND ALL SURFACES NOT IN CONTACT WITH CONCRETE ARE TO BE GROUND FLUSH.

THE MATERIAL USED FOR THE 2" x 2'-6" EXPANSION PLATE IS TO BE ASTM A572, GRADE 50 STEEL. ALL OTHER STRUCTURAL STEEL IS TO BE ASTM A-36 STEEL. THE $\frac{5}{8}$ " CAP SCREWS AND WASHERS ATTACHING THE NEOPRENE TROUGH TO THE $\frac{1}{2}$ " BENT PLATE ARE TO BE STAINLESS STEEL. ALL OTHER BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A-307. THE PLATES, BOLTS, NUTS AND CAP SCREWS ARE TO BE GALVANIZED IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED.

THE ELASTOMER COMPOUND FOR TROUGH SHALL BE IN ACCORDANCE WITH TABLE B OF ARTICLE 4195.02 OF THE STANDARD SPECIFICATIONS, EXCEPT THE TENSILE STRENGTH SHALL BE 1500 PSI MINIMUM OR IT SHALL BE (EPDM) ETHYLENE PROPYLENE DIENE MONOMER (ASTM D 2000, LINE CALL-OUTS 3BA, 515, A14, B13, F17, C12, K21, Z1, Z2).

ALL CONCRETE REMOVAL LINES SHALL
BE INITIATED WITH A $\frac{3}{4}$ " SAWCUT
WHEREVER POSSIBLE.

NOTE "A":
EXISTING SLIDING PLATES, VERTICAL PLATES, AND
NEOPRENE DRAIN TROUGH SHALL BE CUT CLEAN AT
THE EDGE OF THE DRAIN BOX AND INCORPORATED
INTO THE NEW WORK. SEE DES. SH. 34 & 35
FOR DETAILS.

SEE DES. SH. 34 & 35 FOR STAGE CONSTRUCTION JOINT LOCATIONS.



DESIGNED BY J.S.L. CHECKED BY S.K.G.
DETAILED BY M.A.F. CADD FILE H570102.S01

TYPICAL SECTION THROUGH EXPANSION DEVICE

DESIGN FOR REPAIRS TO MULTIPLE SKEWS
4420'-4 x VAR. WIDTH WELDED
PLATE GIRDER & PRETENS.
PRESTR. CONCRETE BEAM BRIDGE
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES
FINGER JOINT DETAILS

STATION: 322+81.95 (DESIGN 102 - SOUTH APPROACH)

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 30 OF 37 FILE NO. 29539 DESIGN NO. 102

MARCH, 2002

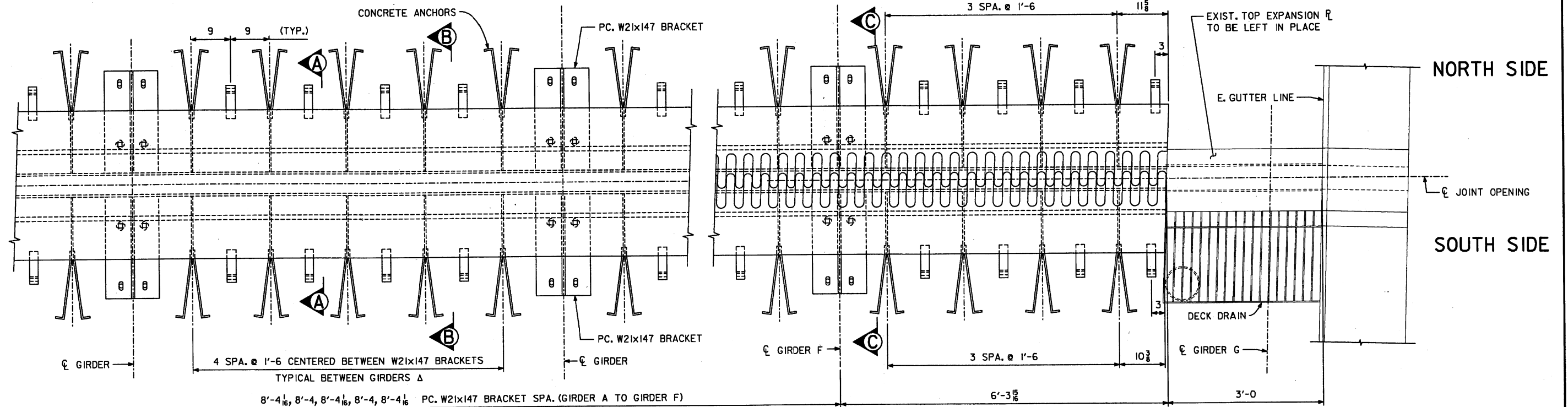
LINN COUNTY

PROJECT NUMBER

IMN-380-6(220)19--0E-57

SHEET NUMBER

31



PART PLAN VIEW

SEE DES. SH. 33 FOR SECTIONS A-A, B-B, & C-C

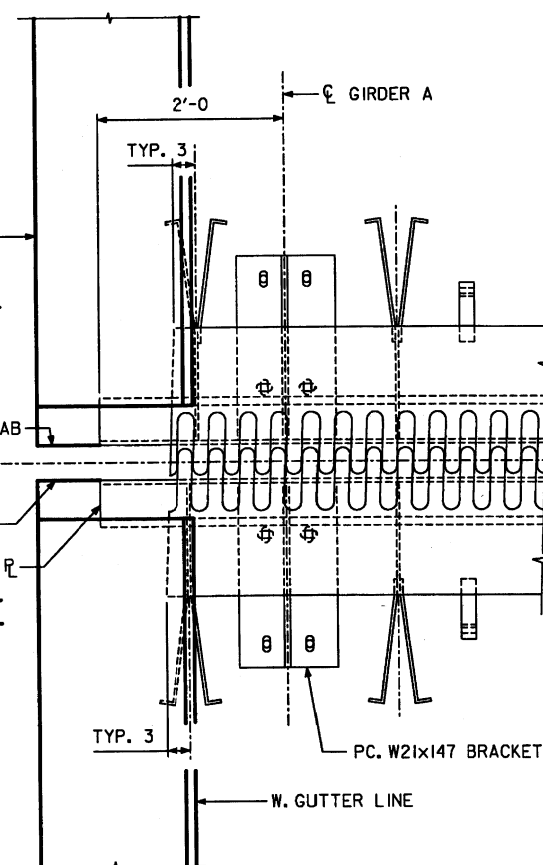
Δ CONCRETE ANCHOR POSITION TO BE ADJUSTED AS REQUIRED AT THE STAGE CONSTRUCTION JOINT. SEE DES. SH. 34 FOR LOCATION OF STAGE CONSTRUCTION JOINT.

NEW CURB SECTION
(SEE DES. SH. 36 FOR
DETAILS)

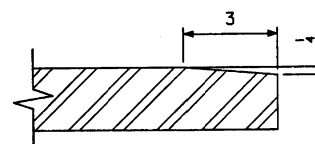
NORTH SIDE

END OF FAR SLAB
Δ JOINT OPENING
END OF NEAR SLAB

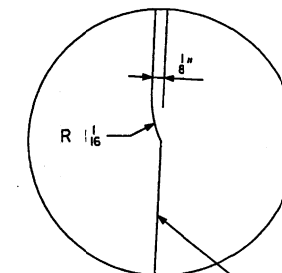
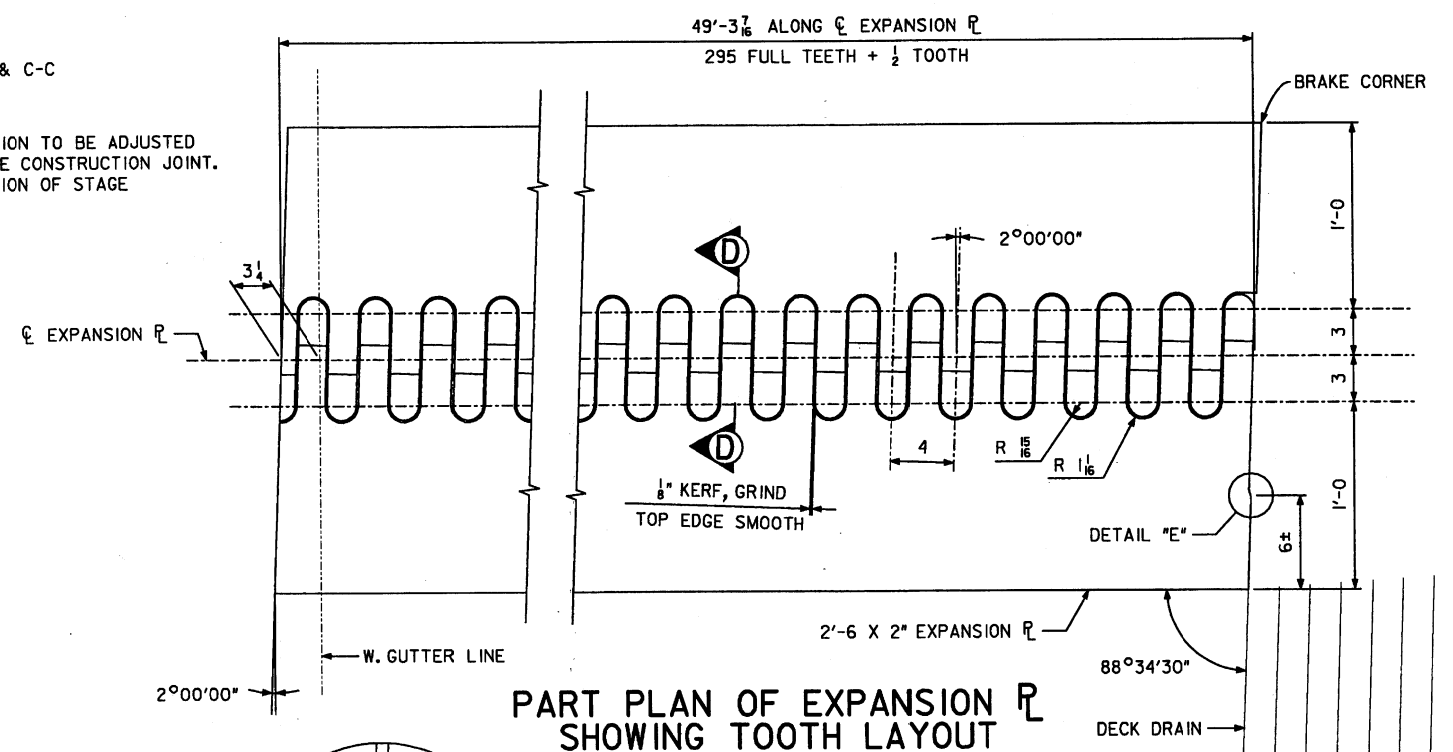
SOUTH SIDE



NOTE: TOP OF EXPANSION DEVICE IS TO BE PARALLEL TO GRADE. FLAME CUT FROM 2'-6 x 2" Δ. BEVEL EACH TOOTH 1/4" x 3".



SECTION D-D



DETAIL "E"

END OF EXPANSION Δ AT DECK DRAIN

WHKS & CO.

ENGINEERS PLANNERS LAND SURVEYORS

MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

DESIGNED BY J.S.L. CHECKED BY S.K.G.
DETAILED BY M.A.F. CADD FILE H570102.S02

SEE DES. SH. 32 FOR FINGER JOINT SETTINGS.

DESIGN FOR REPAIRS TO MULTIPLE SKEWS
**4420'-4 x VAR. WIDTH WELDED
PLATE GIRDER & PRETENS.
PRESTR. CONCRETE BEAM BRIDGE**
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES
FINGER JOINT DETAILS - JT. IS

STATION: 322+81.95 (DESIGN 102 - SOUTH APPROACH)

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 31 OF 37 FILE NO. 29539 DESIGN NO. 102

MARCH, 2002

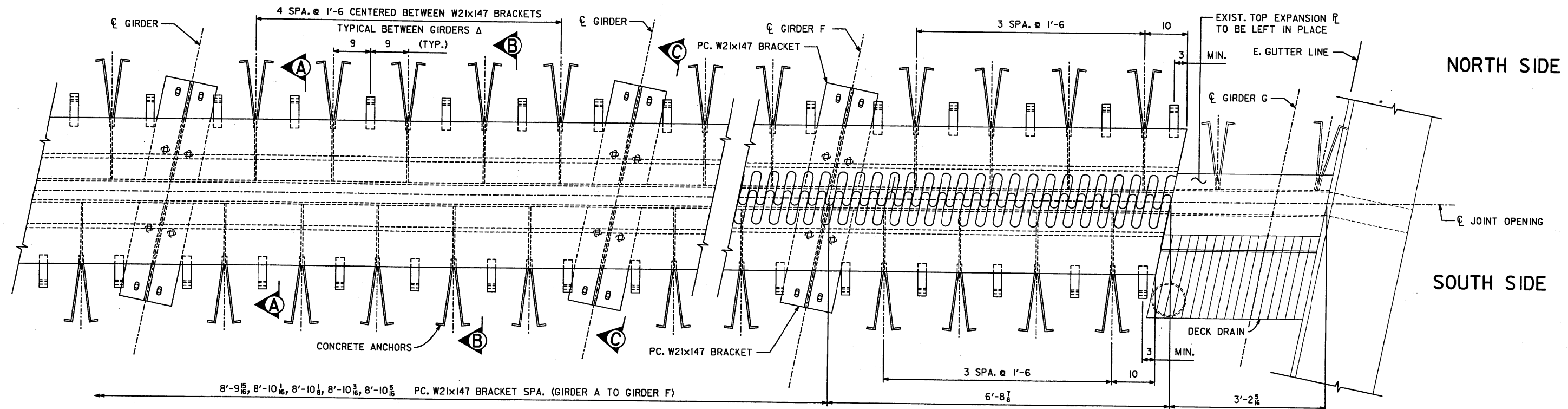
LINN COUNTY

PROJECT NUMBER

IMN-380-6(220)19--0E-57

SHEET NUMBER

32

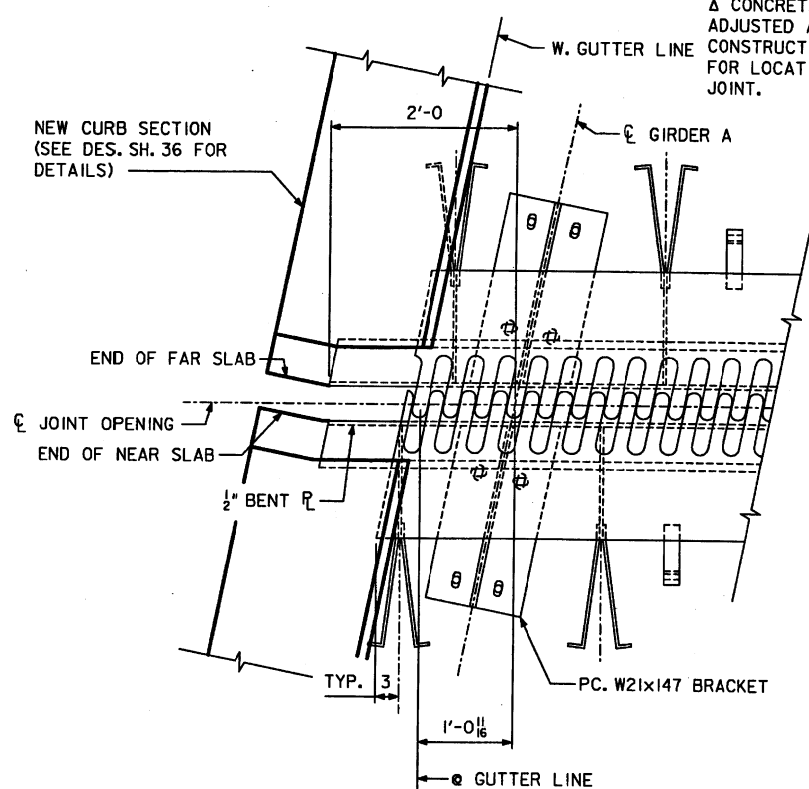


PART PLAN VIEW

SEE DES. SH. 33 FOR SECTIONS A-A, B-B, & C-C

A CONCRETE ANCHOR POSITION TO BE ADJUSTED AS REQUIRED AT THE STAGE CONSTRUCTION JOINT. SEE DES. SH. 35 FOR LOCATION OF STAGE CONSTRUCTION JOINT.

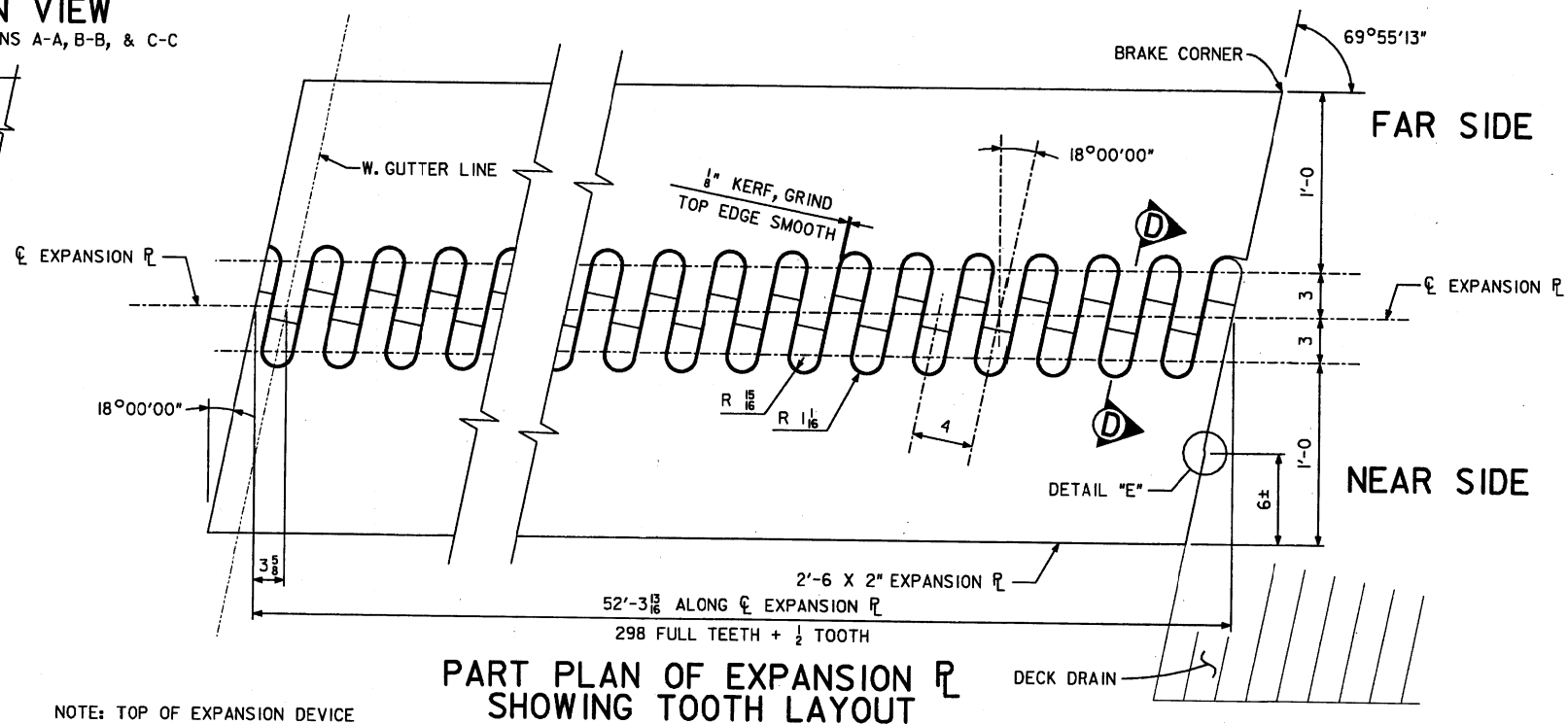
NEW CURB SECTION
(SEE DES. SH. 36 FOR
DETAILS)



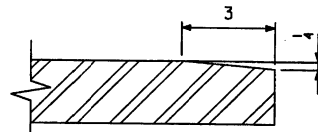
* JOINT SETTINGS FOR OTHER TEMPERATURES ARE PROPORTIONAL. TEMPERATURES SHOWN ARE CONCRETE DECK TEMPERATURES ON THE UNDERSIDE OR SHADED PORTION OF THE DECK.

FINGER JOINT SETTINGS

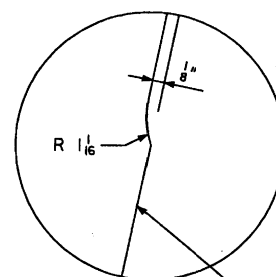
TEMP. *	DIMENSION "D"	
	JOINT 1S	JOINT 2S
10°F	4 13/16	4 3/4
15°F	4 11/16	4 5/8
20°F	4 1/2	4 1/2
25°F	4 3/8	4 5/16
30°F	4 1/4	4 3/8
35°F	4 1/8	4 1/8
40°F	3 15/16	3 7/8
45°F	3 1/2	3 3/4
50°F	3 5/8	3 5/8
55°F	3 1/2	3 1/2
60°F	3 5/16	3 5/16
65°F	3 3/16	3 3/16
70°F	3	3 1/8
75°F	2 7/8	2 15/16
80°F	2 3/4	2 13/16
85°F	2 5/8	2 5/8
90°F	2 1/2	2 1/2



NOTE: TOP OF EXPANSION DEVICE IS TO BE PARALLEL TO GRADE. FLAME CUT FROM 2'-6 x 2" JOINT. BEVEL EACH TOOTH 1/4" x 3".



SECTION D-D



DETAIL "E"

END OF EXPANSION JOINT
AT DECK DRAIN

WHKS & CO.

ENGINEERS PLANNERS LAND SURVEYORS
MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

DESIGNED BY J.S.L. CHECKED BY S.K.G.
DETAILED BY M.A.F. CADD FILE H570102.S03

DESIGN FOR REPAIRS TO MULTIPLE SKEWS
**4420'-4 x VAR. WIDTH WELDED
PLATE GIRDER & PRETENS.
PRESTR. CONCRETE BEAM BRIDGE**
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES
FINGER JOINT DETAILS - JT. 2S

STATION: 322+81.95 (DESIGN 102 - SOUTH APPROACH)

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 32 OF 37 FILE NO. 29539 DESIGN NO. 102

MARCH, 2002

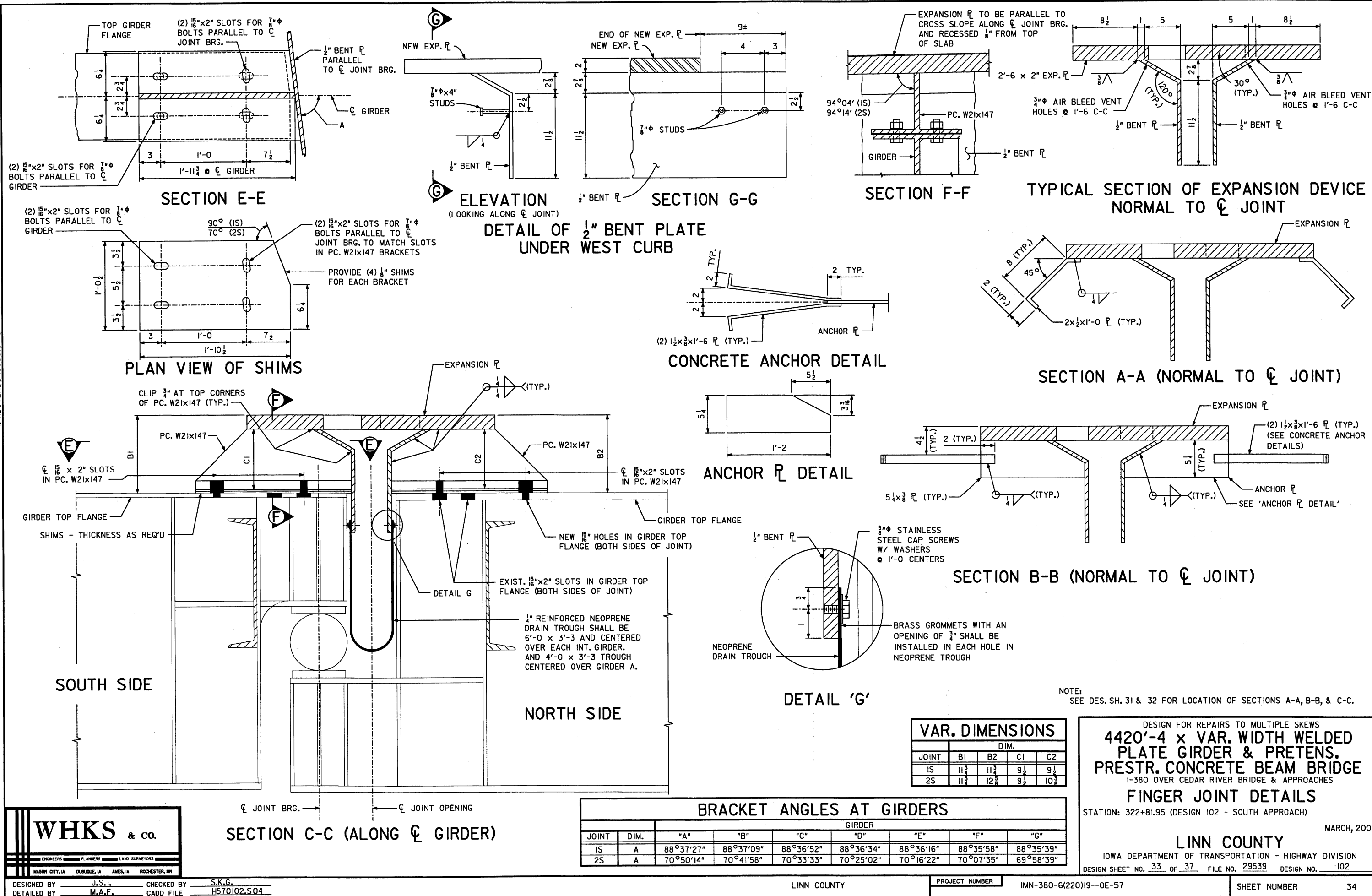
LINN COUNTY

PROJECT NUMBER

IMN-380-6(220)19--0E-57

SHEET NUMBER

33

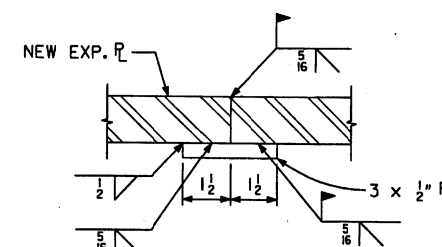




NOTE:
EXISTING REINFORCING BARS SHALL BE
CUT, CLEANED, AND INCORPORATED INTO
THE NEW WORK WHEREVER POSSIBLE.



SECTION A-A



SPLICE DETAIL AT CONSTRUCTION JOINT

MECHANICAL SPLICE ASSEMBLIES:

THE TRANSVERSE REINFORCING BARS IN THE SLAB AND DIAPHRAGM SHALL BE SPLICED AT THE LOCATIONS SHOWN USING COIL TIE ASSEMBLIES OR MECHANICAL SPLICE ASSEMBLIES. COIL TIE ASSEMBLIES CONSIST OF COIL TIES AND THREADED COIL RODS. MECHANICAL SPLICE ASSEMBLIES CONSIST OF MECHANICAL SPLICERS AND REINFORCING SPLICE BARS AS REQUIRED TO FACILITATE THE USE OF THE MECHANICAL SPLICER. THE COIL TIE ASSEMBLY OR MECHANICAL SPLICE ASSEMBLY USED SHALL BE CAPABLE OF DEVELOPING 90 KSI TENSILE STRENGTH IN THE ASSEMBLY BARS. THREADED COIL RODS OR REINFORCING SPLICE BARS SHALL BE A MINIMUM OF $\frac{3}{4}$ " DIA.

ALL COIL TIE ASSEMBLIES OR MECHANICAL SPLICE ASSEMBLIES TO BE USED SHALL BE EPOXY COATED. THREE ADDITIONAL NON EPOXY COATED SPLICE ASSEMBLIES SHALL BE FURNISHED TO THE ENGINEER FOR TESTING AND APPROVAL.

THE COST OF ALL SPLICE ASSEMBLIES, INCLUDING THE 3 TO BE FURNISHED FOR TESTING, IS TO BE INCLUDED IN THE PRICE BID FOR "REINFORCING STEEL EPOXY COATED" AND NO SEPARATE PAYMENT WILL BE MADE. THE WEIGHT OF COIL TIE ASSEMBLIES OR MECHANICAL SPLICE ASSEMBLIES IS NOT INCLUDED IN THE QUANTITY SHOWN FOR "REINFORCING STEEL EPOXY COATED". A TOTAL OF 6 SPLICE ASSEMBLIES WILL BE REQUIRED FOR JOINT IS.

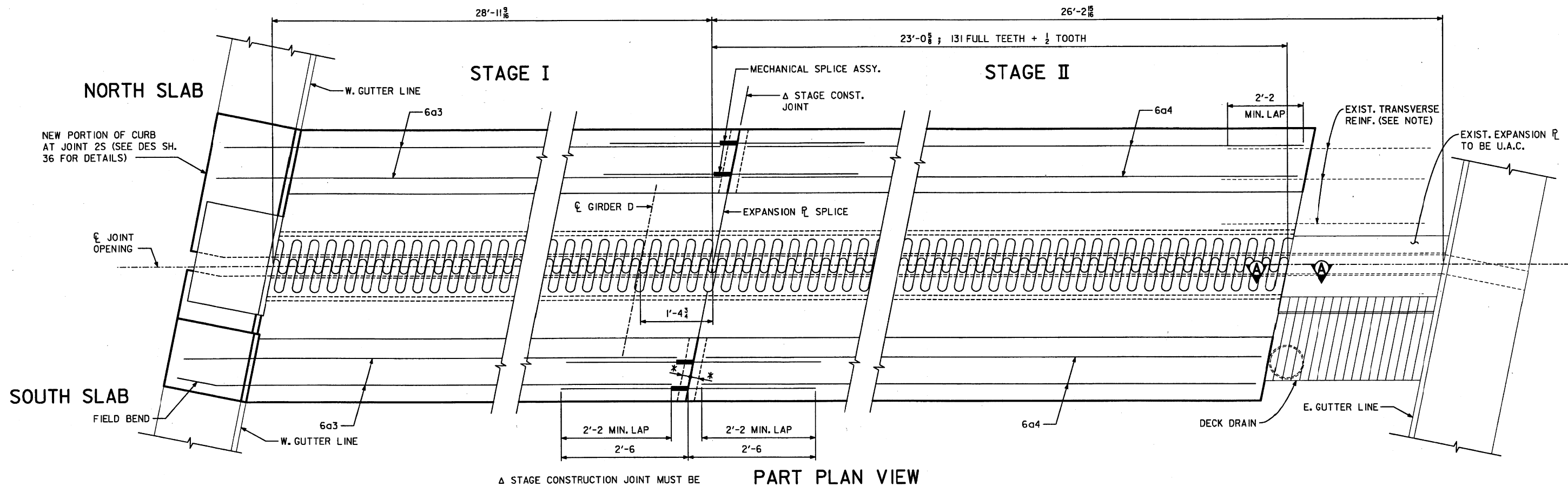
DESIGN FOR REPAIRS TO MULTIPLE SKEWS
4420'-4 x VAR. WIDTH WELDED
PLATE GIRDER & PRETENS.
PRESTR. CONCRETE BEAM BRIDGE
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES
RECONSTRUCTION DETAILS - IS
STATION: 322+81.95 (DESIGN 102 - SOUTH APPROACH)

MARCH, 2002

LINN COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 34 OF 37 FILE NO. 29539 DESIGN NO. 102

SHEET NUMBER	35
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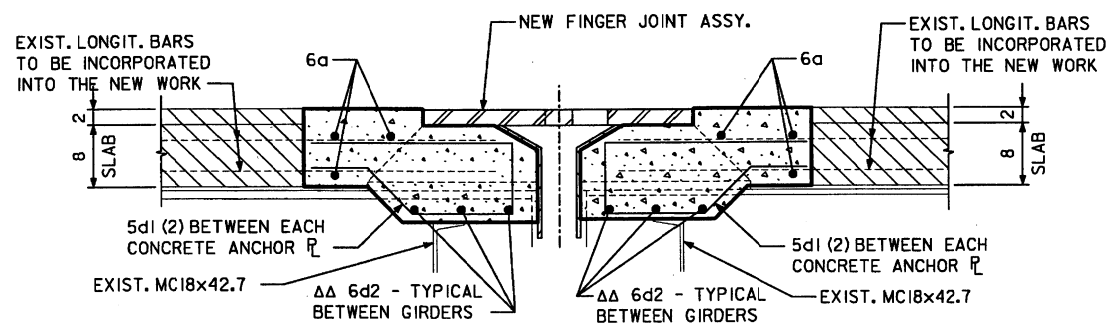
<h1>WHKS & CO.</h1>			
ENGINEERS PLANNERS LAND SURVEYORS			
MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN			
DESIGNED BY <u>J.S.L.</u>	CHECKED _____		
DETAILED BY <u>M.A.F.</u>	CADD FILE _____		



Δ STAGE CONSTRUCTION JOINT MUST BE PARALLEL TO EXPANSION JOINT FINGERS TO INSURE PROPER SPLICING.

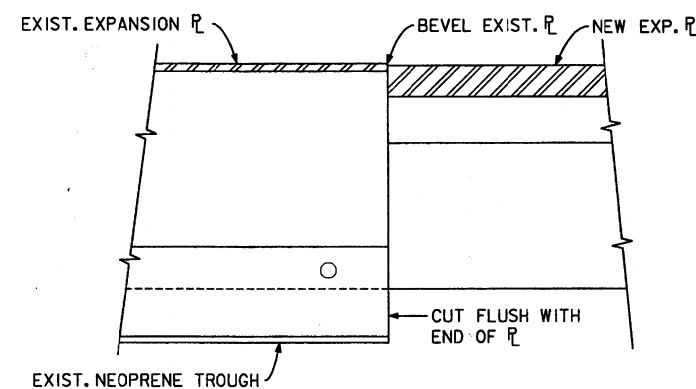
DIM "*" - CONCRETE MAY BE REMOVED BEYOND THE STAGE CONSTRUCTION JOINT A DISTANCE NO GREATER THAN 2".

NOTE:
EXISTING REINFORCING BARS SHALL BE CUT, CLEANED, AND INCORPORATED INTO THE NEW WORK WHEREVER POSSIBLE.

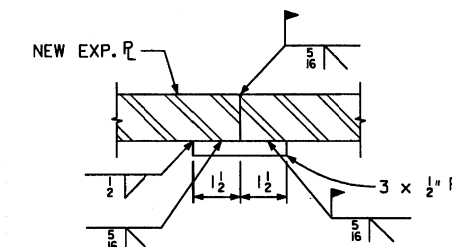


TYPICAL SECTION THROUGH EXPANSION DEVICE

$\Delta\Delta$ 6d2 NOT PRESENT AT STAGE CONSTRUCTION JOINT. EXISTING TRANSVERSE BARS SHALL BE USED AT STAGE CONSTRUCTION.



SECTION A-A



SPLICE DETAIL AT CONSTRUCTION JOINT

MECHANICAL SPLICE ASSEMBLIES:

THE TRANSVERSE REINFORCING BARS IN THE SLAB AND DIAPHRAGM SHALL BE SPLICED AT THE LOCATIONS SHOWN USING COIL TIE ASSEMBLIES OR MECHANICAL SPLICE ASSEMBLIES. COIL TIE ASSEMBLIES CONSIST OF COIL TIES AND THREADED COIL RODS. MECHANICAL SPLICE ASSEMBLIES CONSIST OF MECHANICAL SPLICERS AND REINFORCING SPLICE BARS AS REQUIRED TO FACILITATE THE USE OF THE MECHANICAL SPLICER. THE COIL TIE ASSEMBLY OR MECHANICAL SPLICE ASSEMBLY USED SHALL BE CAPABLE OF DEVELOPING 90 KSI TENSILE STRENGTH IN THE ASSEMBLY BARS. THREADED COIL RODS OR REINFORCING SPLICE BARS SHALL BE A MINIMUM OF $\frac{5}{8}$ " DIA.

ALL COIL TIE ASSEMBLIES OR MECHANICAL SPLICE ASSEMBLIES TO BE USED SHALL BE EPOXY COATED. THREE ADDITIONAL NON EPOXY COATED SPLICE ASSEMBLIES SHALL BE FURNISHED TO THE ENGINEER FOR TESTING AND APPROVAL.

THE COST OF ALL SPLICE ASSEMBLIES, INCLUDING THE 3 TO BE FURNISHED FOR TESTING, IS TO BE INCLUDED IN THE PRICE BID FOR "REINFORCING STEEL EPOXY COATED" AND NO SEPARATE PAYMENT WILL BE MADE. THE WEIGHT OF COIL TIE ASSEMBLIES OR MECHANICAL SPLICE ASSEMBLIES IS NOT INCLUDED IN THE QUANTITY SHOWN FOR "REINFORCING STEEL EPOXY COATED". A TOTAL OF 6 SPLICE ASSEMBLIES WILL BE REQUIRED FOR JOINT 25.

DESIGN FOR REPAIRS TO MULTIPLE SKEWS
**4420'-4 x VAR. WIDTH WELDED
PLATE GIRDER & PRETENS.
PRESTR. CONCRETE BEAM BRIDGE**
I-380 OVER CEDAR RIVER BRIDGE & APPROACHES
RECONSTRUCTION DETAILS - 2S

STATION: 322+81.95 (DESIGN 102 - SOUTH APPROACH)

MARCH, 2002

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 35 OF 37 FILE NO. 29539 DESIGN NO. 102

LINN COUNTY

PROJECT NUMBER

IMN-380-6(220)19--OE-57

SHEET NUMBER

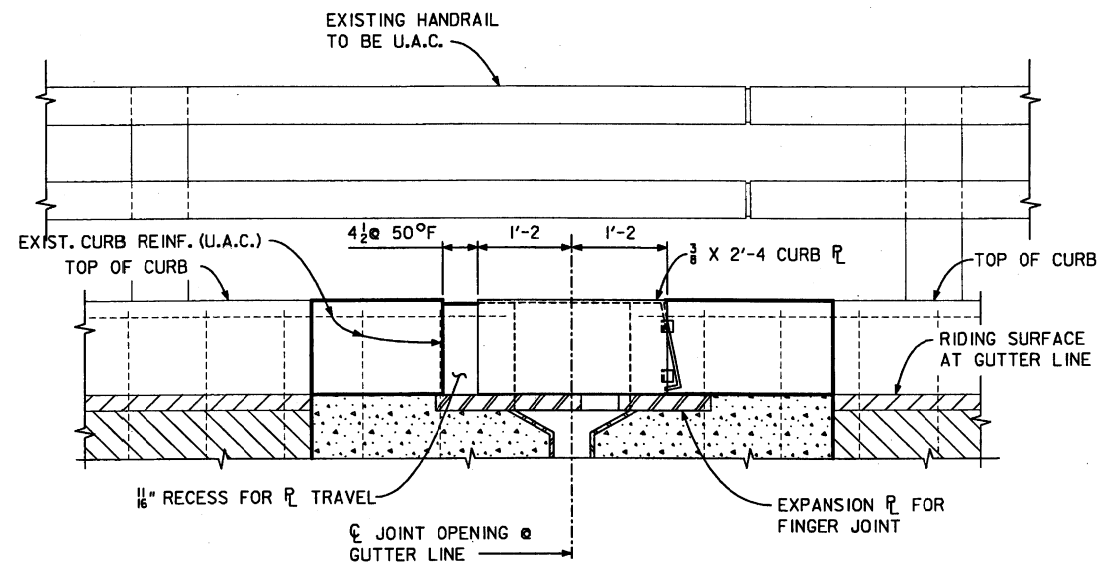
36

WHKS & CO.

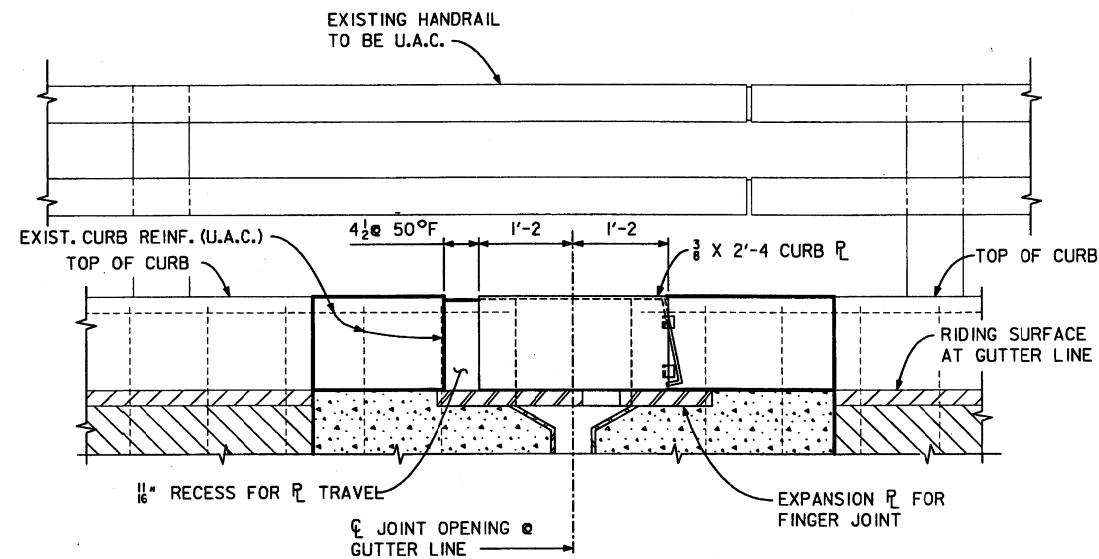
ENGINEERS PLANNERS LAND SURVEYORS

MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

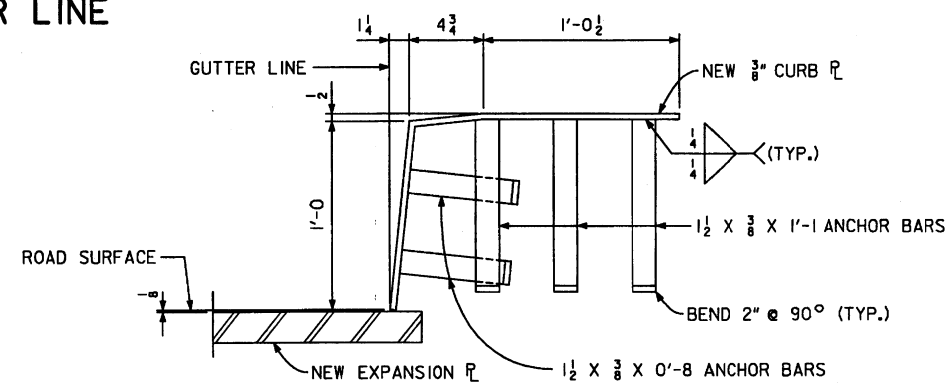
DESIGNED BY J.S.L. CHECKED BY S.K.G.
DETAILED BY M.A.F. CADD FILE H570102.S06



PART SECTION AT W. GUTTER LINE
AT JOINT IS




PART SECTION AT W. GUTTER LINE
AT JOINT 2S



CURB R DETAIL

EPOXY COATED REINFORCING STEEL

MARK	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	SLAB, TRANS. (IS)	—	6	28'-8	258
6a2	SLAB, TRANS. (IS)	—	6	21'-3	192
6a3	SLAB, TRANS. (2S)	—	6	30'-3	273
6a4	SLAB, TRANS. (2S)	—	6	22'-8	204
5d1	LONGIT., DIAPHRAGM		240	5'-1	1272
* 6d2	DIAPHRAGM, TRANS., BOTT.	—	60	VAR.	700
				TOTAL (lbs)	2899 ✓

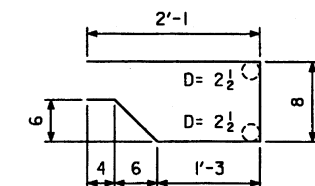
* - 6d2	
JT. 1S	JT. 2S
6 @ 6'-0	6 @ 6'-4
24 @ 7'-11	24 @ 8'-5

COST FOR 'REINFORCING STEEL, EPOXY COATED'
INCLUDES 15 MECHANICAL SPLICE ASSEMBLIES
(12 EPOXY COATED AND 3 NON EPOXY COATED).

CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
JOINT 1S	10.2
JOINT 2S	11.0
TOTAL (YD ³)	21.2

BENT BAR DETAIL



5dl

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

NOTE:
IT IS INTENDED THAT THE $\frac{1}{16}$ " RECESSED AREA BE FORMED SO THAT WHEN THE $\frac{3}{8}$ " PLATE IS INSTALLED, THE PLATE WILL BE ABLE TO MOVE FREELY IN THE RECESSED AREA.

NOTE:
CONTRACTOR TO NOTE THAT THE ANCHOR BARS FOR THE $\frac{3}{8}$ " CURB
PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE
OF THE JOINT.

DESIGN FOR REPAIRS TO MULTIPLE SKEWS
**4420'-4 x VAR. WIDTH WELDED
 PLATE GIRDER & PRETENS.
 PRESTR. CONCRETE BEAM BRIDGE**
 I-380 OVER CEDAR RIVER BRIDGE & APPROACHES

CURB DETAILS

STATION: 322+81.95 (DESIGN 102 - SOUTH APPROACH)

MARCH, 2002

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 36 OF 37 FILE NO. 29539 DESIGN NO. 102



DESIGNED BY J.S.I. CHECKED BY S.K.G.
DETAILED BY M.A.F. CADD FILE H570102.S07

LINN COUNTY

PROJECT NUMBER

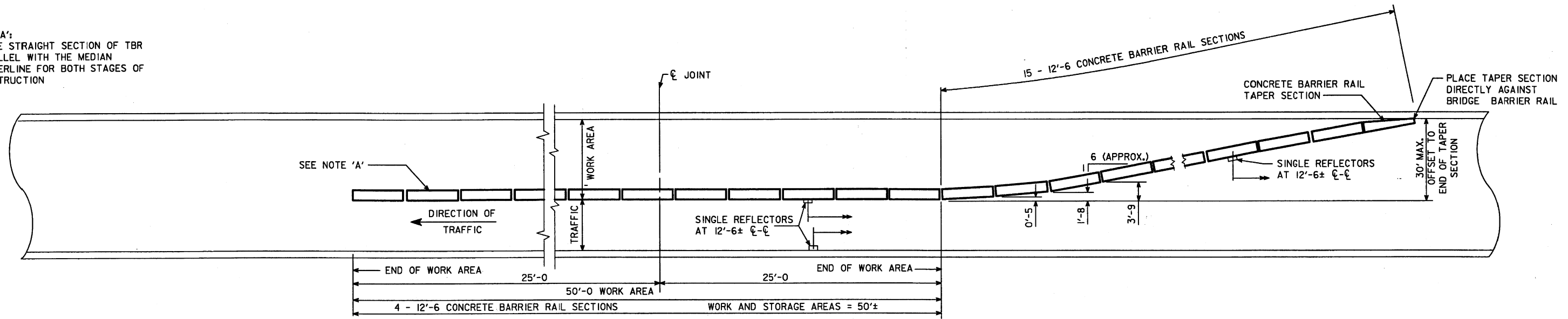
IMN-380-6(220)19--0E-57

SHEET NUMBER

37

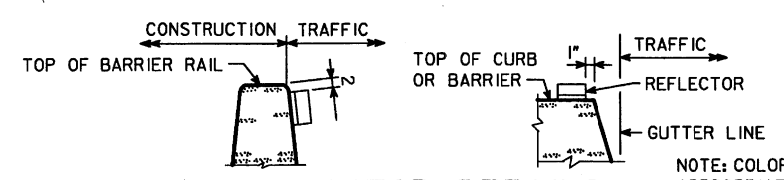
04/03/2002
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NOTE 'A':
PLACE STRAIGHT SECTION OF TBR
PARALLEL WITH THE MEDIAN
GUTTERLINE FOR BOTH STAGES OF
CONSTRUCTION



TEMPORARY CONCRETE BARRIER RAIL LAYOUT FOR ONE WAY TRAFFIC

(ROAD CURVATURE NOT SHOWN)
(SIMILAR FOR BOTH STAGES OF CONSTRUCTION WITH OPPOSITE SIDES OF THE ROADWAY BLOCKED OFF)



REFLECTOR DETAILS

NOTE: COLOR OF REFLECTOR SHALL BE
APPROPRIATE FOR EDGE LINE.

CONCRETE TEMPORARY BARRIER RAIL NOTES:

CONCRETE TEMPORARY BARRIER RAIL SHALL BE CONSTRUCTED AS DETAILED AND NOTED ON THE ENGLISH RE-71 (1), RE-71 (2) AND RE-72 STANDARD ROAD PLANS.
A LANE WIDTH AS SPECIFIED ON THE STAGING SHEETS SHALL BE AVAILABLE FOR TRAFFIC. SCREED EXTENSION OR OVERLAP BEYOND THE LONGITUDINAL CONSTRUCTION JOINTS MAY BE LESS THAN THE 6 INCHES REQUIRED BY SUB-ARTICLE 2413.03C.1. THE ENGINEER MAY REQUIRE ADDITIONAL VIBRATION OR SPECIAL FINISHING PROCEDURES ADJACENT TO THE LONGITUDINAL CONSTRUCTION JOINT.
TRAFFIC REFLECTORS SHALL BE A RETRO-REFLECTIVE TYPE, APPROVED BY THE ENGINEER, AND THEY SHALL BE LOCATED AS SHOWN ON THIS SHEET. THE CONTRACTOR SHALL MAINTAIN THE REFLECTORS AND SHALL PROMPTLY REPLACE ANY MISSING OR DAMAGED UNITS. ALL COSTS FOR FURNISHING, INSTALLING AND MAINTAINING REFLECTORS SHALL BE INCLUDED IN THE PRICE BID FOR THE TEMPORARY BARRIER RAIL.
REFER TO OTHER DETAILS, NOTES, AND QUANTITY ITEMS ELSEWHERE IN THESE PLANS FOR TRAFFIC CONTROL TO BE ESTABLISHED IN CONJUNCTION WITH THE TEMPORARY BARRIER RAIL.
NO STATIONARY EQUIPMENT OR CONSTRUCTION MATERIAL IS TO BE PLACED IN FRONT OF THE TEMPORARY BARRIER RAIL AT ANY TIME.
TIE-DOWNS WITH CONCRETE ANCHORS ARE NOT REQUIRED.

ALTERNATE TBR DESIGNS
MAY BE SUBMITTED TO THE
ENGINEER FOR CONSIDERATION

ACTUAL QUANTITIES	
ITEM	AMOUNT
TEMPORARY BARRIER RAIL	5854 L.F.

ITEM REFERENCE:
ALL TEMPORARY BARRIER RAIL SHALL
BE NOMINAL 12'-6" LONG CONCRETE UNITS.

WHKS & CO.

ENGINEERS PLANNERS LAND SURVEYORS

MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN

DESIGNED BY S.T.S. CHECKED BY S.T.S.
DETAILED BY T.A.M. CADD FILE H570000.S22

LINN COUNTY

PROJECT NUMBER

IMN-380-6(220)19--OE-57

SHEET NUMBER

38

DESIGN FOR REPAIRS TO MULTIPLE SKEWS

4420'-4 x VAR. WIDTH WELDED
PLATE GIRDER & PRETENS.
PRESTR. CONCRETE BEAM BRIDGE

I-380 OVER CEDAR RIVER BRIDGE & APPROACHES

TEMPORARY BARRIER RAIL

~~STATION: 344+28.26 (DESIGN 100 - NORTH APPROACH)~~
~~STATION: 322+81.95 (DESIGN 102 - SOUTH APPROACH)~~
~~STATION: 344+28.26 (DESIGN 202 - CEDAR RIVER)~~

MARCH, 2002

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION


DESIGN SHEET NO. 37 OF 37 FILE NO. 29539 DESIGN NO. 100, 102, 202

100-1A
07-15-97

[illegible]

100-4B
07-15-97

ITEM NO.	ITEM CODE	DESCRIPTION
1	2518-6910000	See Tabulation 108-13A on Sheet 40 for location and type of closure. See also Detail RCD-1 on Sheet 41 for further information.
2	2527-9263130	See Tabulation 108-22 on Sheets 43 and 44 for quantities and types of removable tape. For locations and types of markings see Detail LMD-1 and Detail 9001 on Sheet 41.
3	2528-8445110	See Tabulation 108-23 on Sheet 40 for Traffic Control Plan.
4	2528-8445112	The contractor shall provide a flagger at each joint location, during each stage of construction on I-380. A day shall be considered a twelve (12) hour period. Three (3) flagger-days per joint per stage are anticipated.

	<p>I hereby certify that this plan 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.</p>
	<p><u>Robert A. Welpel</u> 4-302</p>
	<p>Signature _____ Date _____</p>
	<p>Robert A. Welpel</p>
	<p>Printed or Typed Name _____</p>
	<p>My license renewal date is December 31, 2003</p>
	<p>Pages or sheets covered by this seal: <u>39 thru 68</u></p>

DESIGN NOS. 100, 102, 202
FILE NO. 29539

