LETTING DATE 04-17-2018

HMA RESURFACING

IMX-080-8(293)285--02-82

SCOTT Co.

# IOWA DOT

## Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

INTERSTATE ROAD SYSTEM

# SCOTT COUNTY

## HMA RESURFACING

**1.1 miles E. of Co. Rd. Y40 to Co. Rd. Z-30 (EB)**

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

REVISIONS

| TOTAL 135 |
|---|
| PROJECT IDENTIFICATION NUMBER |
| 14-82-080-030 |
| PROJECT NUMBER |
| IMX-080-8(293)285--02-82 |
| R.O.W. PROJECT NUMBER |

## INDEX OF SHEETS


| No. | DESCRIPTION |
|---|---|
| **A Sheets** | **Title Sheets** |
| A.1 | Title Sheet |
| A.2 | Location Map Sheet |
| **B Sheets** | **Typical Cross Sections and Details** |
| B.1 - 15 | Typical Cross Sections and Details |
| **C Sheets** | **Quantities and General Information** |
| C.1 | Project Description |
| C.1 | Estimated Project Quantities |
| C.2 - 3 | Estimate Reference Information |
| C.4 | Standard Road Plans |
| C.4 | Index of Tabulations |
| C.4 | General Notes |
| C.5 - 6 | Pollution Prevention Plan |
| C.6 - 24 | Tabulations (beg. with tab. of incidentals if needed) |
| **D Sheets** | **Mainline Plan and Profile Sheets** |
| * D.1 - 9 | I-80 |
| **J Sheets** | **Traffic Control and Staging Sheets** |
| J.1 | Traffic Control Plan |
| J.2 | 511 Information |
| * J.3 - 4 | Ramp Detour Sheets |
| * J.5 - 8 | Concrete Barrier Rail Staging Sheets |
| * J.9 - 21 | Bridge End Rail Staging Sheets |
| **U Sheets** | **500 Series, Mod.Stds. and Detail Sheets** |
| U.1 - 8 | 500 Series, Modified Standards and Detail Sheets |
| U.9 - 44 | Existing Plan and Profile Sheets for Information Only |
| **V Sheets** | **Bridge and Culvert Situation Plans** |
| * V.1 - 20 | Bridge and Culvert Situation Plans |

* Color Plan Sheets


For Project Location Map
Refer to Sheet A.2



## DESIGN DATA RURAL

| | | |
|---|---|---|
| 2016 AADT | 37,800 | V.P.D. |
| 2036 AADT | 55,300 | V.P.D. |
| 2036 DHV | 5,710 | V.P.H. |
| TRUCKS | 34 | % |
| Total Design ESALs | 54,655,100 | |

## INDEX OF SEALS

| SHEET NO. | NAME | TYPE |
|---|---|---|
| A.1 | Jason M. Holst | Primary Signature Block |
| V.1 | Dean G. Bierwagon | Structural Design |
| | | |
| | | |
| | | |
| | | |
| | | |

## ROADWAY DESIGN

LICENSED PROFESSIONAL ENGINEER Jason M. Holst 16923 IOWA

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.

Signature 02-06-2018 Date

Jason M. Holst
Printed or Typed Name

My license renewal date is December 31, 2019

Pages or sheets covered by this seal: A.1-A.2, B.1-B-15, C.1-C-24, D.1-D.9, J.1-J.21, U.1-U-44

| FILE NO. | ENGLISH | DESIGN TEAM HOLST\MAACH | SCOTT COUNTY | PROJECT NUMBER IMX-080-8(293)285--02-82 | SHEET NUMBER A.1 |
|---|---|---|---|---|---|

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FHWA #47760
FHWA #47740
FHWA #47460
FHWA #47450
FHWA #47230
FHWA #47220
FHWA #47490
FHWA #46970
FHWA #46960
FHWA #47520
FHWA #47390
FHWA #3410
FHWA #47400
FHWA #47610

STA. 1305+00.00 (EB)
END PATCHING
END PROJECT
Reference Location 302.81

STA. 389+00.00 (EB)
BEGIN PROJECT
BEGIN RESURFACING MAINLINE
Reference Location 285.45

STA. 579+00.00 (EB)
STOP RESURFACING MAINLINE
BEGIN PATCHING
Reference Location 289.06

STA. 641+40.00 (EB)
STOP PATCHING
RESUME RESURFACING MAINLINE
Reference Location 290.30

STA. 875+00.00 (EB)
END RESURFACING MAINLINE
RESUME PATCHING
Reference Location 294.66

FHWA #47680
RCB-3
RCB-2
FHWA #47630
RCB-1
FHWA #47560

LOCATION MAP SCALE
0 1 2 3
Miles

# LOCATION MAP

| FILE NO. | ENGLISH | DESIGN TEAM HOLST\MAACH | SCOTT COUNTY | PROJECT NUMBER IMX-080-8(293)285--02-82 | SHEET NUMBER A.2 |
|---|---|---|---|---|---|

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## ESTIMATED BRIDGE REPAIR QUANTITIES

| ITEM NO. | ITEM CODE | ITEM | UNIT | TOTAL | AS BUILT QUAN. |
|---|---|---|---|---|---|
| 1 | 2401-6750001 | REMOVALS, AS PER PLAN | LS | 1.00 | |
| 2 | 2403-0100000 | STRUCTURAL CONCRETE (MISCELLANEOUS) | CY | 1.6 | |
| 3 | 2404-7775005 | REINFORCING STEEL, EPOXY COATED | LB | 332 | |
| 4 | 2426-6772120 | BRIDGE REPAIR | LS | 1.00 | |
| 5 | 2533-4980005 | MOBILIZATION | LS | 1.00 | |

## ESTIMATE REFERENCE INFORMATION

| ITEM NO. | ITEM CODE | DESCRIPTION |
|---|---|---|
| 1 | 2401-6750001 | REMOVALS, AS PER PLAN<br>- - |
| 2 | 2403-0100000 | STRUCTURAL CONCRETE (MISCELLANEOUS)<br>INCLUDES FURNISHING AND INSTALLING 1 INCH DIAMETER PLASTIC CONDUIT. |
| 3 | 2404-7775005 | REINFORCING STEEL, EPOXY COATED<br>- - |
| 4 | 2426-6772120 | BRIDGE REPAIR<br>INCLUDES THE COST OF CLEANING, FURNISHING SEALER AND SEALING THE EXISTING BARRIER RAIL. |
| 5 | 2533-4980005 | MOBILIZATION<br>- - |

DESIGN FOR REPAIRS TO A 3°40′ (LA) SKEW

# 146′-8 x VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE - W.B.

47′-3½ END SPANS 52′-1 INTERIOR SPAN

## QUANTITIES

STA. 942+58.29 (℄ I-80) DECEMBER 2017

## SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 5 FILE NO. 31553 DESIGN NO. 618

DESIGN TEAM DGB / PES | SCOTT COUNTY | PROJECT NUMBER IMX-080-8(293)285--02-82 | SHEET NUMBER V.6

# GENERAL NOTES:

THIS DESIGN IS FOR REPAIR TO THE EXISTING DUAL 146'-8 x VARIABLE WIDTH PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE ON I-80 W.B. OVER IMRL RAILROAD. ELECTRONIC COPIES OF THE ORIGINAL DESIGN PLANS ARE AVAILABLE TO THE CONTRACTOR AS PART OF THE LETTING DOCUMENTS. SHOP DRAWINGS WILL BE AVAILABLE TO THE CONTRACTOR BY CONTACTING THE OFFICE OF CONTRACTS HIGHWAY DIVISION - IOWA DOT - AMES. DIMENSIONS SHOWN ON THESE PLANS ARE BASED ON DESIGN PLANS (ORIGINAL DESIGN NO. 260).

REPAIR SHALL CONSIST OF:

1. REMOVAL OF END BLOCK AND ANCHOR BLOCK ON THE ONE END.
2. PARTIAL REMOVAL OF ON END BARRIER RAIL TO DIMENISON SHOWN IN THE PLANS.
3. ADD NEW BARRIER RAIL END SECTION ON END ONLY.
4. SEAL EXISTING BARRIER RAIL.

ALL ALIGNMENT, STATIONING, DIMENSIONS, AND ELEVATIONS USED IN THESE PLANS WERE DEVELOPED BASED ON THE ORIGINAL DESIGN PLANS. ALL DIMENSIONS AND DETAILS SHOWN ON THESE PLANS PERTINENT TO NEW CONSTRUCTION SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING CONSTRUCTION.

FAINT LINES ON PLANS INDICATE THE EXISTING STRUCTURE.

"REMOVALS AS PER PLAN" SHALL INCLUDE ALL COSTS ASSOCIATED WITH REMOVING THE FOLLOWING:

1. REMOVAL OF END BLOCK & ANCHOR BLOCK.
2. PARTIAL REMOVAL OF BARRIER RAIL TO THE DIMENSIONS SHOWN.

REMOVALS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO OTHER PORTIONS OF THE EXISTING STRUCTURE NOT NOTED FOR REMOVAL SHALL BE THE RESPONSIBILITY OF THE BRIDGE CONTRACTOR AND SHALL BE REPAIRED AT NO EXTRA COST TO THE STATE.

THE BRIDGE CONTRACTOR IS TO PROVIDE A METHOD OF REMOVAL THAT WILL PREVENT DAMAGE TO CAST IN PLACE CONCRETE NOT DESIGNATED FOR REMOVAL. CONCRETE REMOVAL SHALL BE INITIATED WITH A $\frac{3}{4}$" SAW CUT WHEREVER POSSIBLE.

THIS DESIGN DESIGNATES CERTAIN EXISTING REINFORCING BARS TO BE REUSED IN THE NEW CONSTRUCTION. CARE SHALL BE TAKEN WHEN EXPOSING EXISTING REINFORCING SO THE BOND TO EXISTING CONCRETE IS NOT BROKEN AT THE CONCRETE BREAK LINES. EXISTING REINFORCING BARS TO BE SAVED SHALL BE CLEANED AND STRAIGHTENED.

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a1 IS $\frac{5}{8}$ INCH DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

| ENGLISH SIZE | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|
| BAR DESIGNATION | 10 | 13 | 16 | 19 | 22 | 25 | 29 | 32 | 36 |

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

ALL EXPOSED EXISTING REINFORCING NOT INCORPORATED INTO NEW WORK IS TO BE CUT FLUSH WITH OR JUST BELOW CONCRETE SURFACE AND PAINTED WITH 2 COATS OF ZINC RICH PAINT.

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

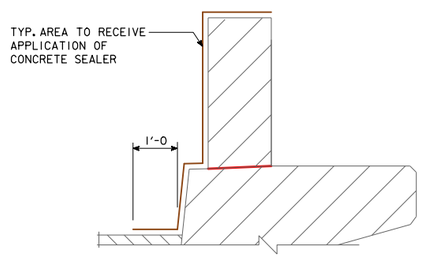
CONSTRUCTION STAGES I & II AS DETAILED ON THESE PLANS MAY BE REVERSED AT THE CONTRACTOR'S OPTION SUBJECT TO THE ENGINEER'S APPROVAL.

# SPECIFICATIONS:

DESIGN: AASHTO SERIES OF 2002.
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2015, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

# DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 2002.
REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.
CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 4,000 PSI.
STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 10, GRADE 50.




## DETAIL OF CONCRETE SEALER AREA

THE TOP AND INTERIOR FACES OF THE EXISTING CONCRETE RAILING ARE TO BE CLEANED AND SEALED IN ACCORDANCE WITH ARTICLE 2403.03, P, OF THE STANDARD SPECIFICATIONS. NEW SECTIONS OF RAIL SHALL NOT BE SEALED. ALL COSTS ASSOCIATED WITH CLEANING AND SEALING OF THE CONCRETE RAILS SHALL BE INCLUDED IN THE UNIT PRICE BID ITEM "BRIDGE REPAIR".

## TRAFFIC CONTROL PLAN

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

## DESIGN HISTORY AT THIS SITE
(INCLUDES THIS DESIGN)

| DES. NO. | TYPE OF WORK |
|---|---|
| 260 | ORIGINAL DESIGN |
| 1182 | OVERLAY & RETROFIT RAIL |
| | |

DESIGN FOR REPAIRS TO A 3°40' (LA) SKEW

# 146'-8 x VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE - W.B.

47'-3½ END SPANS 52'-1 INTERIOR SPAN

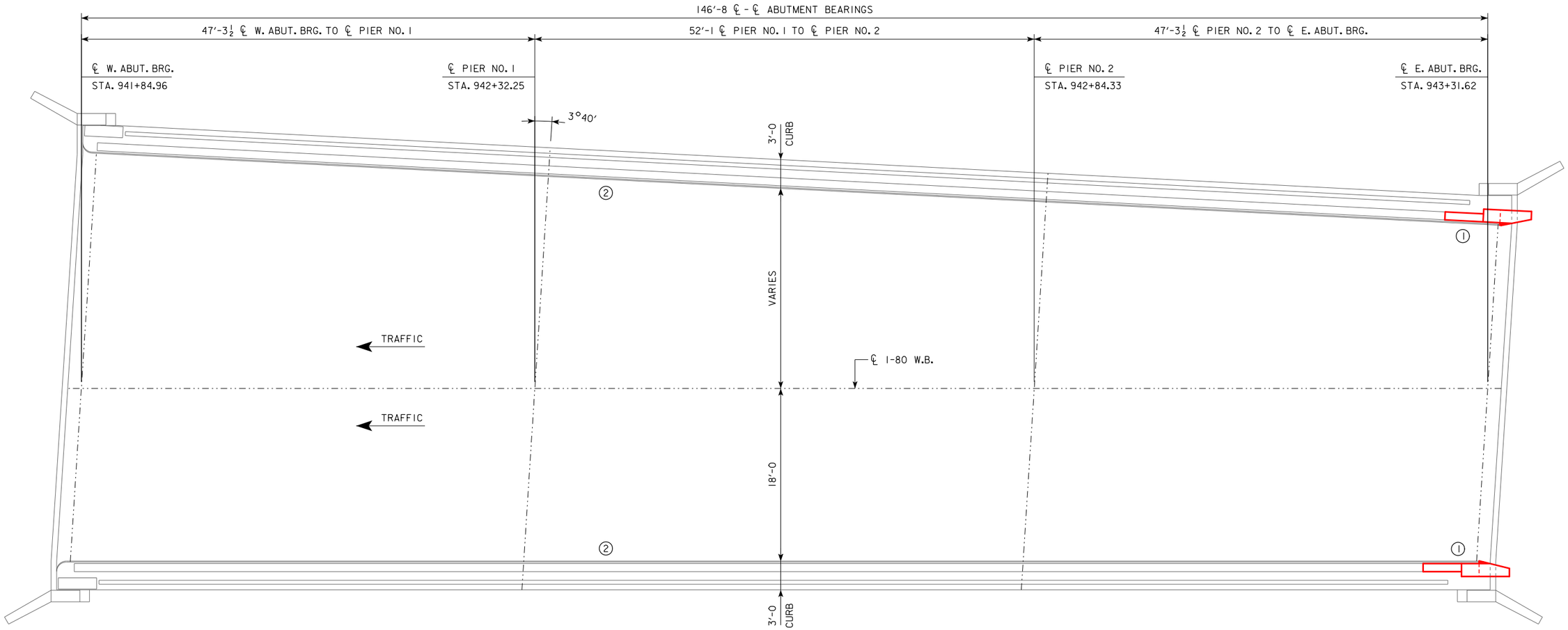
## GENERAL NOTES

STA. 942+58.29 (℄ I-80) DECEMBER 2017

## SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 5 FILE NO. 31553 DESIGN NO. 618




## SITUATION PLAN

N

## LOCATION

W.B. I-80 OVER
IMRL R.R.
FRA NO. 375971Y
T-78N R-3E
SECTION 1
DAVENPORT TOWNSHIP
SCOTT COUNTY
BRIDGE MAINT. NO. 8295.9L080
FHWA NO. 047560
LATITUDE 41.59495722°
LONGITUDE -90.56302879°

### SITUATION PLAN NOTES:

① REMOVE EXISTING END BLOCK AND BARRIER RAIL END SECTION. REPLACE WITH NEW BARRIER RAIL END SECTION.

② CLEAN AND SEAL EXISTING BARRIER RAIL.

DESIGN FOR REPAIRS TO A 3°40' (LA) SKEW

# 146'-8 x VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE - W.B.

47'-3½ END SPANS — 52'-1 INTERIOR SPAN

## SITUATION PLAN

STA. 942+58.29 (℄ I-80) — DECEMBER 2017

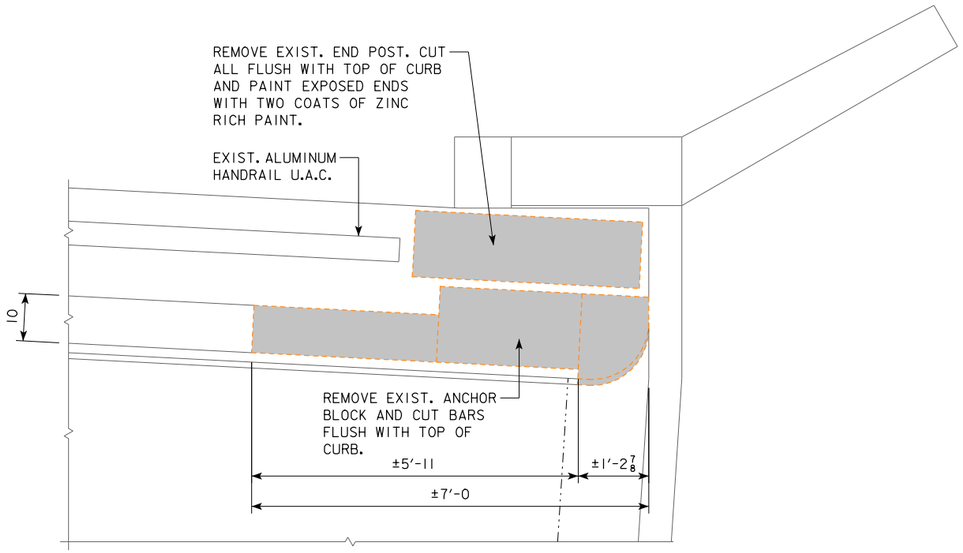
## SCOTT COUNTY

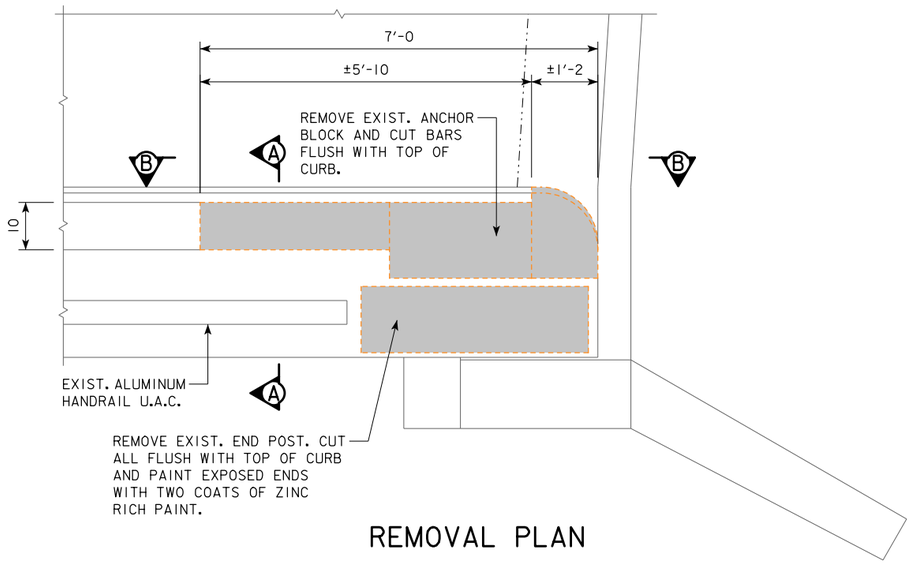
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 5 FILE NO. 31553 DESIGN NO. 618

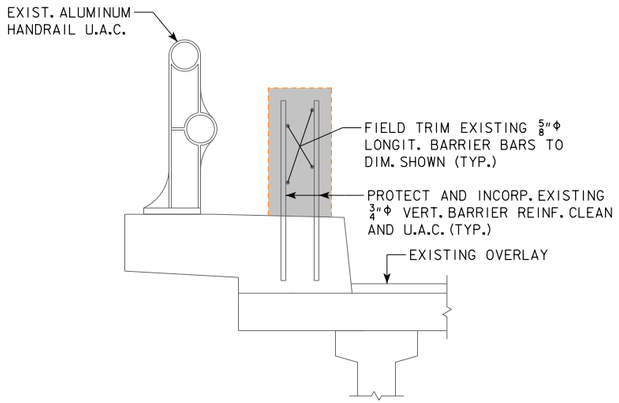
DESIGN TEAM DGB / PES | SCOTT COUNTY | PROJECT NUMBER IMX-080-8(293)285--02-82 | SHEET NUMBER V.8

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REMOVAL PLAN




SECTION A-A

## REMOVAL NOTES:

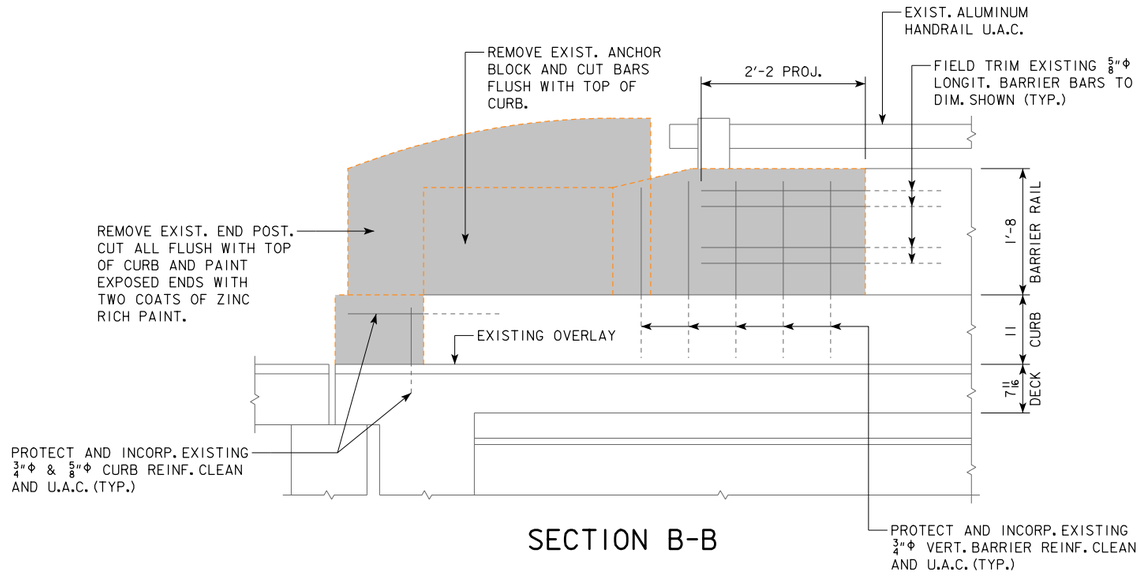
ALL PARTIAL REMOVALS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS.

ALL CONCRETE REMOVALS SHALL BE TO NEAT $\frac{3}{4}$" SAW CUTS TO PROVIDE CLEAN STRAIGHT SURFACES AT INTERFACES BETWEEN NEW CONCRETE AND REMAINING CONCRETE. UPON COMPLETION OF THE NOTED REMOVALS, THE CONTACT SURFACES BETWEEN EXISTING AND NEW CONCRETE SHALL BE CLEANED AND ROUGHENED BY SANDBLASTING OR OTHER APPROVED METHODS TO PROVIDE A SUITABLE BOND BETWEEN THE NEW AND EXISTING CONCRETE IN ACCORDANCE WITH ARTICLE 2403.03,I OF THE STANDARD SPECIFICATIONS.

EXISTING REINFORCING STEEL DESIGNATED TO BE "SAVED" SHALL BE PROTECTED DURING REMOVALS AND SHALL BE CLEANED, STRAIGHTENED AND INCORPORATED INTO NEW CONSTRUCTION.

IF MORE THAN $\frac{1}{2}$ OF A SINGLE PARALLEL REBAR IS EXPOSED AT THE DESIGN CONCRETE BREAKLINE, CONCRETE REMOVALS SHALL BE EXTENDED AT THE REBAR TO REMOVE A MINIMUM $1\frac{1}{2}$" OF CLEAR SPACE BETWEEN ALL SIDES OF THE BAR AND EXISTING CONCRETE.

REMOVALS SHALL BE DONE IN A MANNER WHICH WILL PREVENT DAMAGE TO THE EXISTING STRUCTURE TO REMAIN. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE CAUSED, AND SHALL REPAIR ANY DAMAGED AREA TO ITS ORIGINAL CONDITION, AS DIRECTED BY THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.




SECTION B-B

REMOVALS TO BE DONE IN STAGES. SEE STAGING DETAILS ELSEWHERE IN THESE PLANS.

| LEGEND |
| --- |
| INDICATES REMOVAL |

DESIGN FOR REPAIRS TO A 3°40' (LA) SKEW

# 146'-8 x VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE - W.B.

47'-3½ END SPANS 52'-1 INTERIOR SPAN

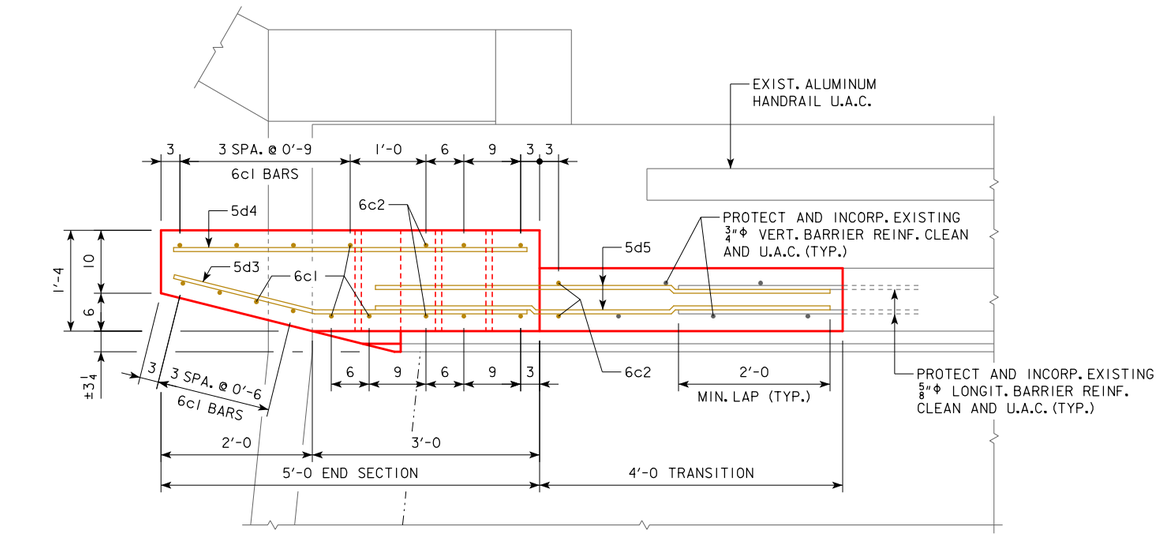
## REMOVAL DETAILS

STA. 942+58.29 (℄ I-80) DECEMBER 2017

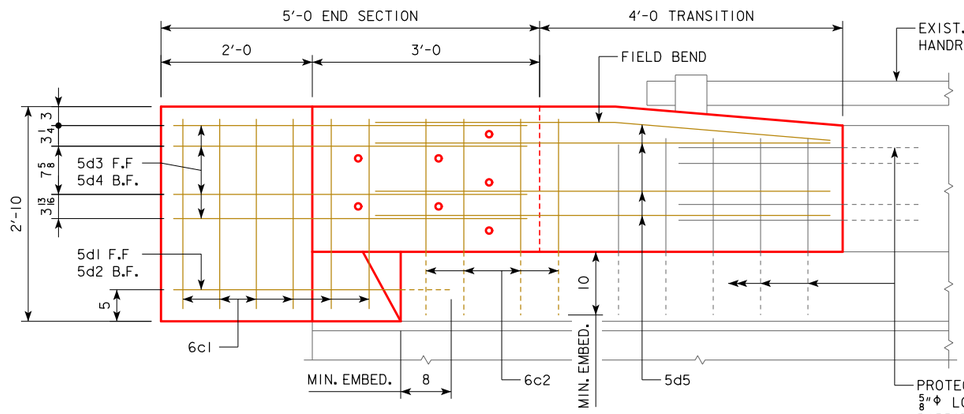
## SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

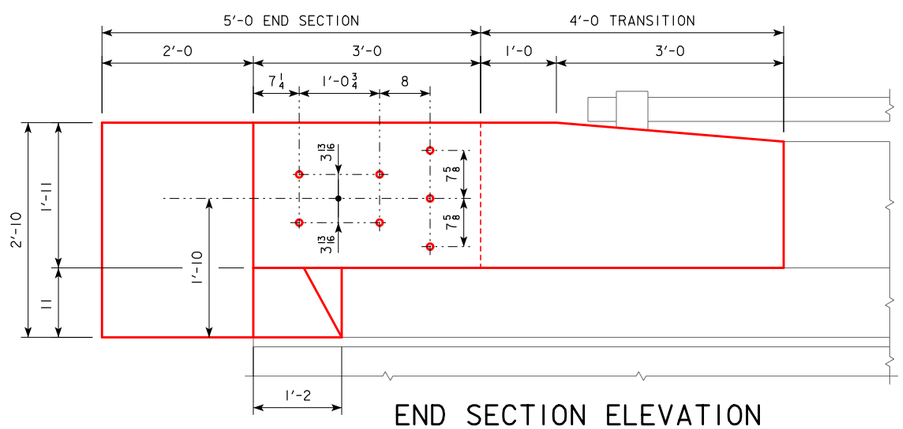
DESIGN SHEET NO. 4 OF 5 FILE NO. 31553 DESIGN NO. 618




END SECTION PLAN




END SECTION ELEVATION



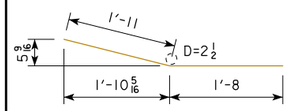

END SECTION ELEVATION

PROVIDE SEVEN HOLES FORMED WITH 1"Φ PVC PIPE. COST TO BE INCLUDED IN PRICE BID FOR "STRUCTURAL CONCRETE, MISCELLANEOUS" TYP EACH END SECTION.

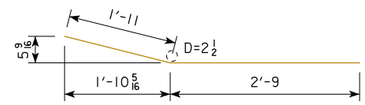
## EPOXY COATED REINFORCING STEEL - ONE END SECTION

| BAR | LOCATION | SHAPE | NO. | LENGTH | WEIGHT |
|---|---|---|---|---|---|
| 6c1 | VERTICAL BOTH FACES | — | 10 | 2'-6 | 38 |
| 6c2 | VERTICAL BOTH FACES | — | 8 | 2'-8 | 32 |
| | | | | | |
| 5d1 | HORIZONTAL FRONT FACE | ⌐ | 1 | 3'-7 | 4 |
| 5d2 | HORIZONTAL BACK FACE | — | 1 | 3'-6 | 4 |
| 5d3 | HORIZONTAL FRONT FACE | ⌐ | 4 | 4'-8 | 19 |
| 5d4 | HORIZONTAL BACK FACE | — | 4 | 4'-8 | 19 |
| 5d5 | HORIZONTAL TRANSITION | — | 8 | 6'-0 | 50 |
| | | | | | |
| | | | | TOTAL (LBS) | 166 |

## BENT BAR DETAILS




5d1




5d3

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

## CONCRETE PLACEMENT QUANTITY - ONE END SECTION

| LOCATION | TOTAL (CY) |
|---|---|
| END SECTION & TRANSITION | 0.8 |
| | |
| TOTAL (CY) | 0.8 |

## DOWEL SETTING NOTE :

THE 6c2 BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 10" DEEP. THE 5d1 & 5d2 BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 8" DEEP. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. EITHER OF THE FOLLOWING SYSTEMS MAY BE USED AS A BONDING AGENT FOR VERTICAL DOWELS, BUT ONLY SYSTEM "A" MAY BE USED FOR HORIZONTAL DOWELS:

A. POLYMER GROUT SYSTEM SHALL BE IN ACCORDANCE WITH ARTICLE 2301.03, E, OF THE STANDARD SPECIFICATIONS.
B. HYDRAULIC CEMENT GROUT SYSTEMS. DRILLED HOLES ARE TO BE 2½ TIMES THE DOWEL DIAMETER AND ARE TO BE BLOWN CLEAN WITH COMPRESSED AIR IMMEDIATELY PRIOR TO PLACING GROUT. THE HYDRAULIC CEMENT GROUT SHALL BE ONE OF THOSE APPROVED IN MATERIALS I.M. 491.13 AND SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

DESIGN FOR REPAIRS TO A 3°40' (LA) SKEW

# 146'-8 x VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE - W.B.

47'-3½ END SPANS — 52'-1 INTERIOR SPAN

# RETROFIT BARRIER RAIL DETAILS

STA. 942+58.29 (℄ I-80) — DECEMBER 2017

## SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 5 OF 5 FILE NO. 31553 DESIGN NO. 618

DESIGN TEAM DGB / PES | SCOTT COUNTY | PROJECT NUMBER IMX-080-8(293)285--02-82 | SHEET NUMBER V.10