

RIP-RAP
MILLS/ADAMS/AUDUBON/
CASS COUNTIES

LETTING DATE
07-18-06

BRFN-034-1(83)--39-65/BRFN-071-4(45)--39-05/
BRFN-006-2(40)--39-15

STANDARD ROAD PLANS

105-4
12-03-96

The following Standard Road Plans shall be considered applicable to construction work on this project.

Number	Date	Number	Date	Number	Date
RC-17	04-18-06				
RS-1	10-27-98				
RS-2	10-27-98				
RS-3	12-03-96				



Iowa Department of Transportation Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM MILLS/ADAMS/AUDUBON/ CASS COUNTIES RIP-RAP

US 34 At Missouri River Overflow 1.1 miles E. Of Nebraska State Line.
US 34 At Metz Creek 2.3 Miles W. Of W. Jct. IA 25. US 71 At Sifford Creek
0.9 Miles N. Of Brayton. US 6 At Small Stream 1.5 Miles S. Of I-80.

SCALES: As Noted

The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, series 2001, plus General Supplemental Specifications; and applicable Supplemental Specifications, Developmental Specifications, and Special Provisions, shall apply to construction on this project.

Value Engineering Saves. Refer to Article 1105.15 of the Specifications.

NO MILEAGE SUMMARY

I hereby certify that this project was constructed in accordance with the contract documents, the "as-built" plans were prepared under my supervision, and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Robert A. Schoenrock
Project Engineer
DEC 29 2006
Date

My license renewal date is December 31, 07

Steve Skuy
Project Inspector

Mike Nelson
Contractor



REVISIONS

TOTAL
8

PROJECT IDENTIFICATION NUMBER

06-65-034-020

PROJECT NUMBER

BRFN-034-1(83)--39-65

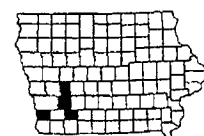
BRFN-071-4(45)--39-05

BRFN-006-2(40)--39-15

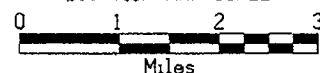
INDEX OF SHEETS

105-3
10-18-05

No.	Description
A.01	Title Sheet
A.03	Map Sheet
C.01	Estimate and Reference Information
V.01-V.05	Bridge Situation Plan



LOCATION MAP SCALE



04-30-02	Mills County	101-4
DESIGN DATA RURAL		
2003 AADT	1270	V.P.D.
20 AADT	--	V.P.D.
20 OHV	--	V.P.H.
TRUCKS	12 %	
Total		
Design ESALs	--	

04-30-02	Adams County	101-4
DESIGN DATA RURAL		
2003 AADT	2220	V.P.D.
20 AADT	--	V.P.D.
20 OHV	--	V.P.H.
TRUCKS	17 %	
Total		
Design ESALs	--	

04-30-02	Audubon County	101-4
DESIGN DATA RURAL		
2003 AADT	2650	V.P.D.
20 AADT	--	V.P.D.
20 OHV	--	V.P.H.
TRUCKS	11 %	
Total		
Design ESALs	--	

04-30-02	Cass County	101-4
DESIGN DATA RURAL		
2003 AADT	2000	V.P.D.
20 AADT	--	V.P.D.
20 OHV	--	V.P.H.
TRUCKS	12 %	
Total		
Design ESALs	--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.01	Robert A. Schoenrock	Primary Signature Block



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.

Robert A. Schoenrock 4-30-06
Signature Date

Robert A. Schoenrock

Printed or Typed Name

My license renewal date is December 31, 20 07

Pages or sheets covered by this seal: ALL

DESIGN TEAM ABRAMS/SCHOENROCK

ENGLISH

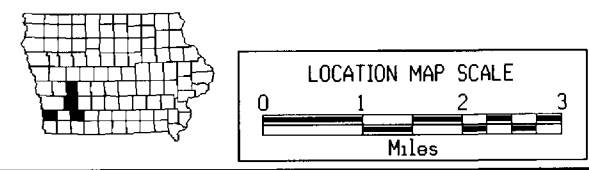
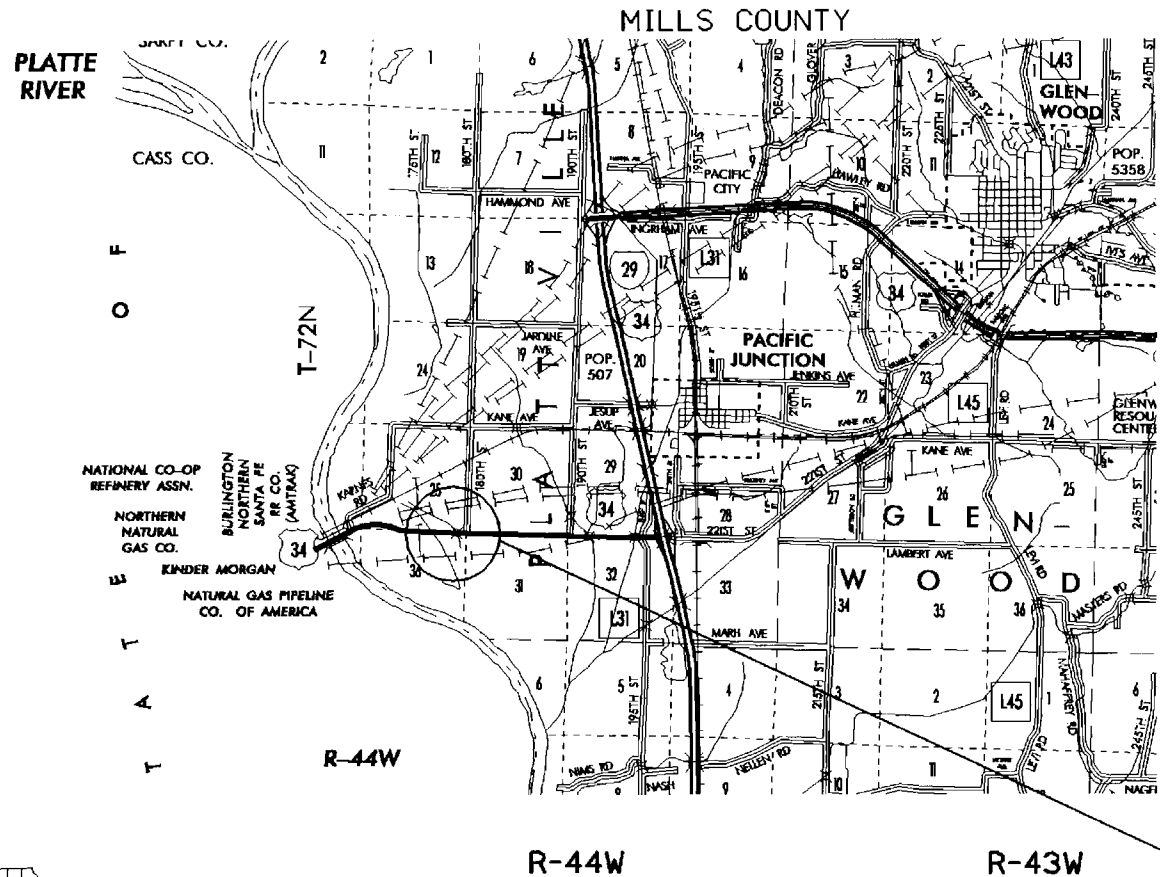
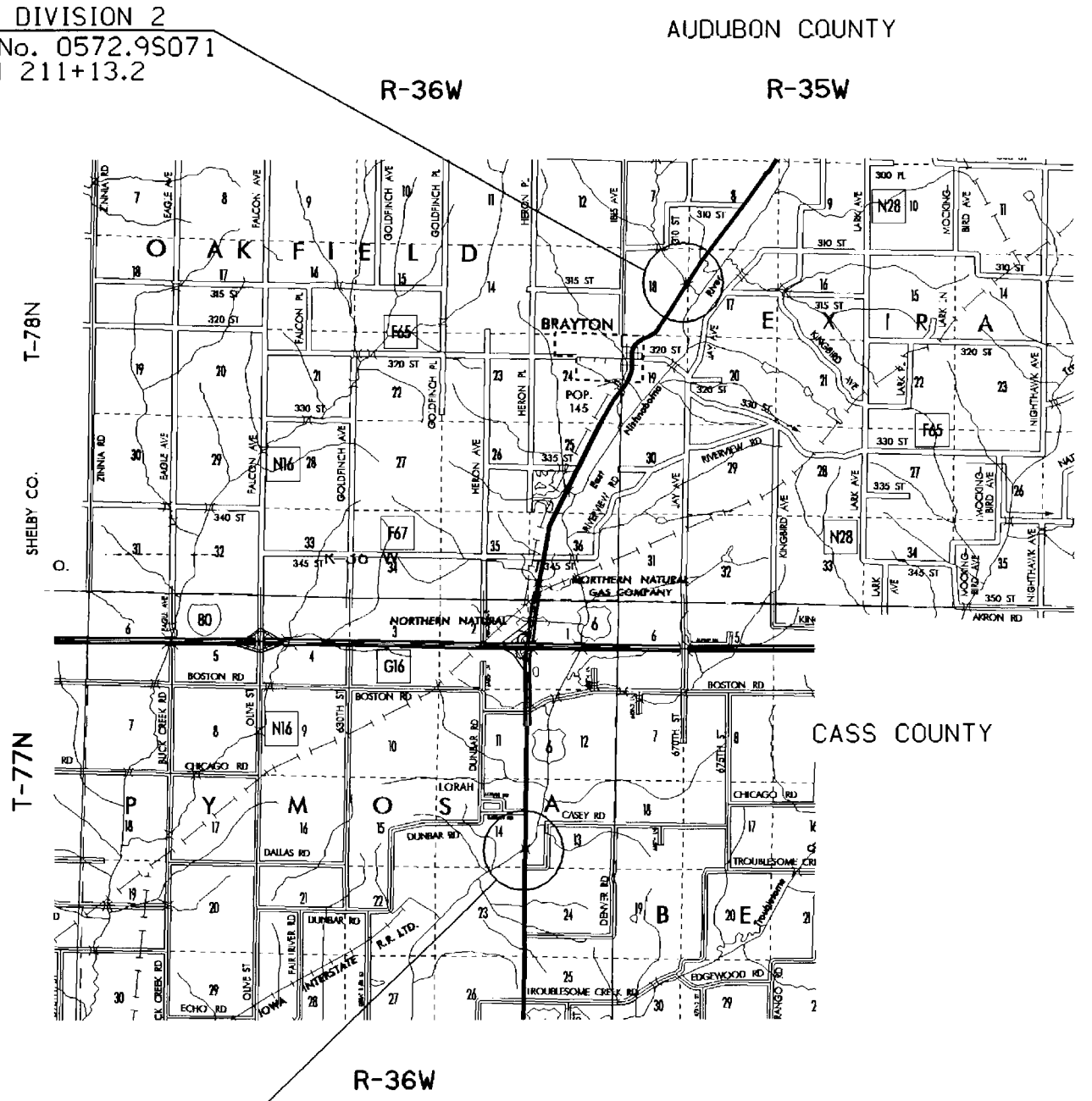
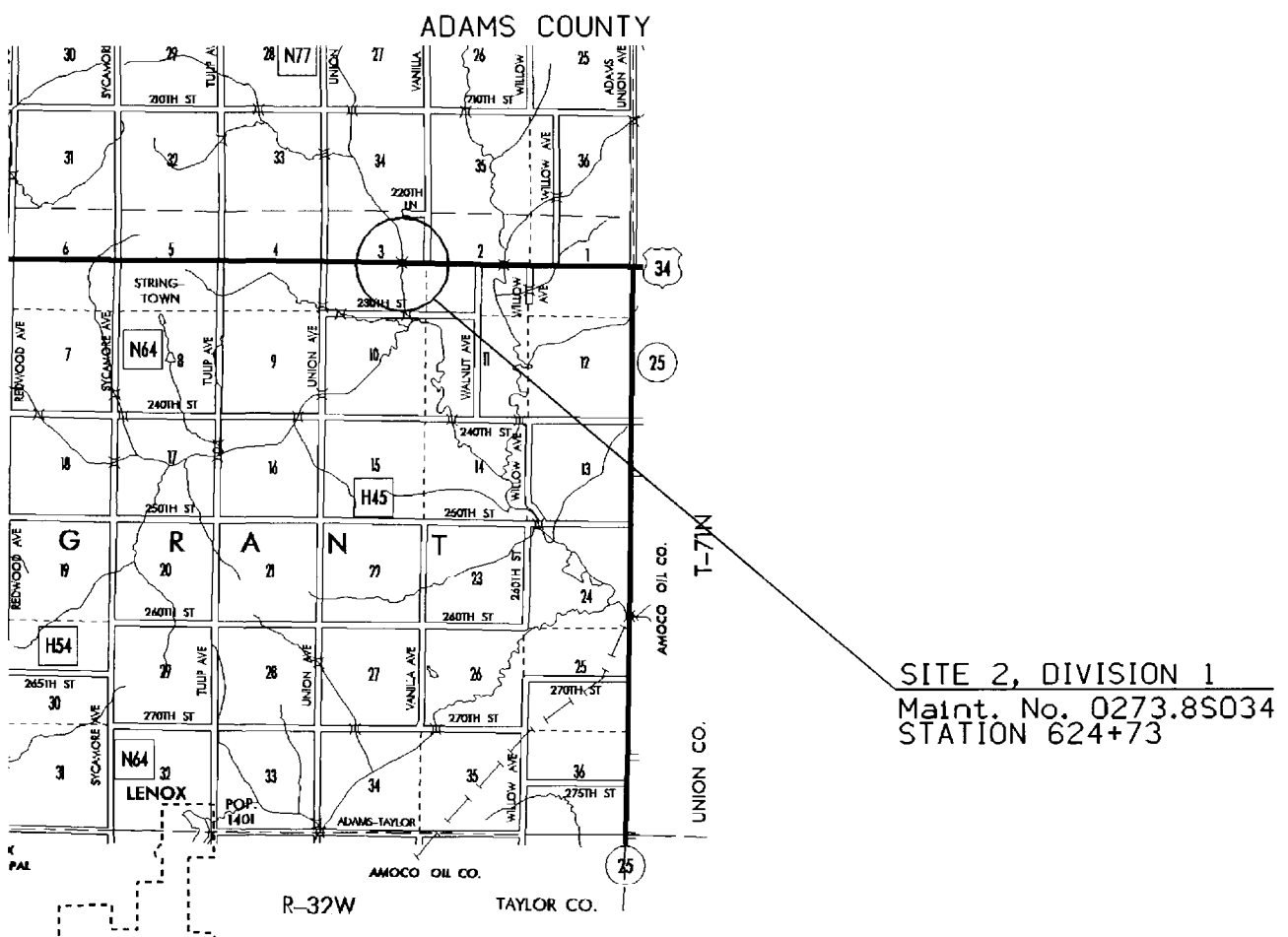
IOWA DOT * OFFICE OF DESIGN

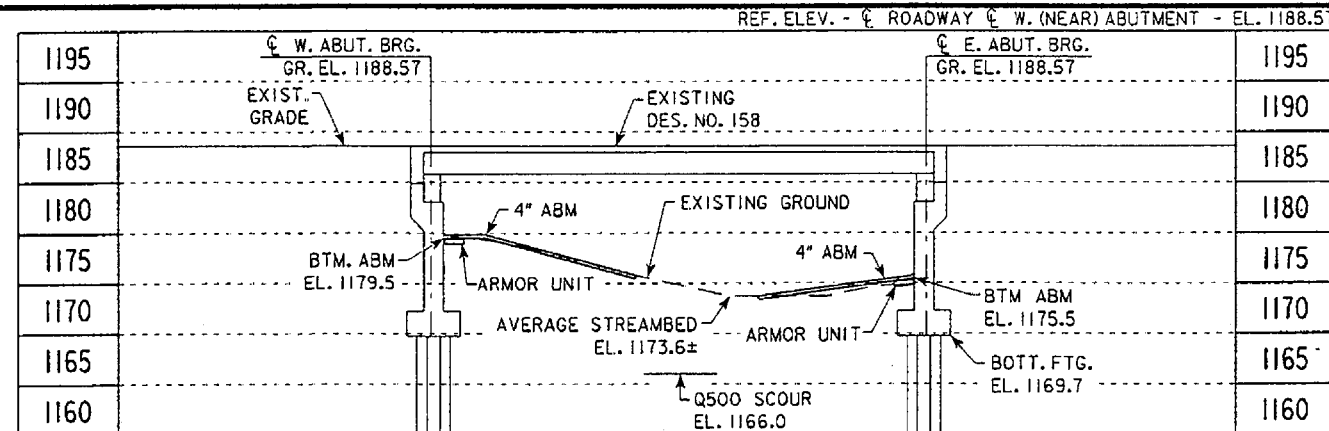
MILLS/ADAMS/AUDUBON/CASS COUNTY

PROJECT NUMBER BRFN-034-1(83)--39-65/BRFN-071-4(45)--39-05/
BRFN-006-2(40)--39-15

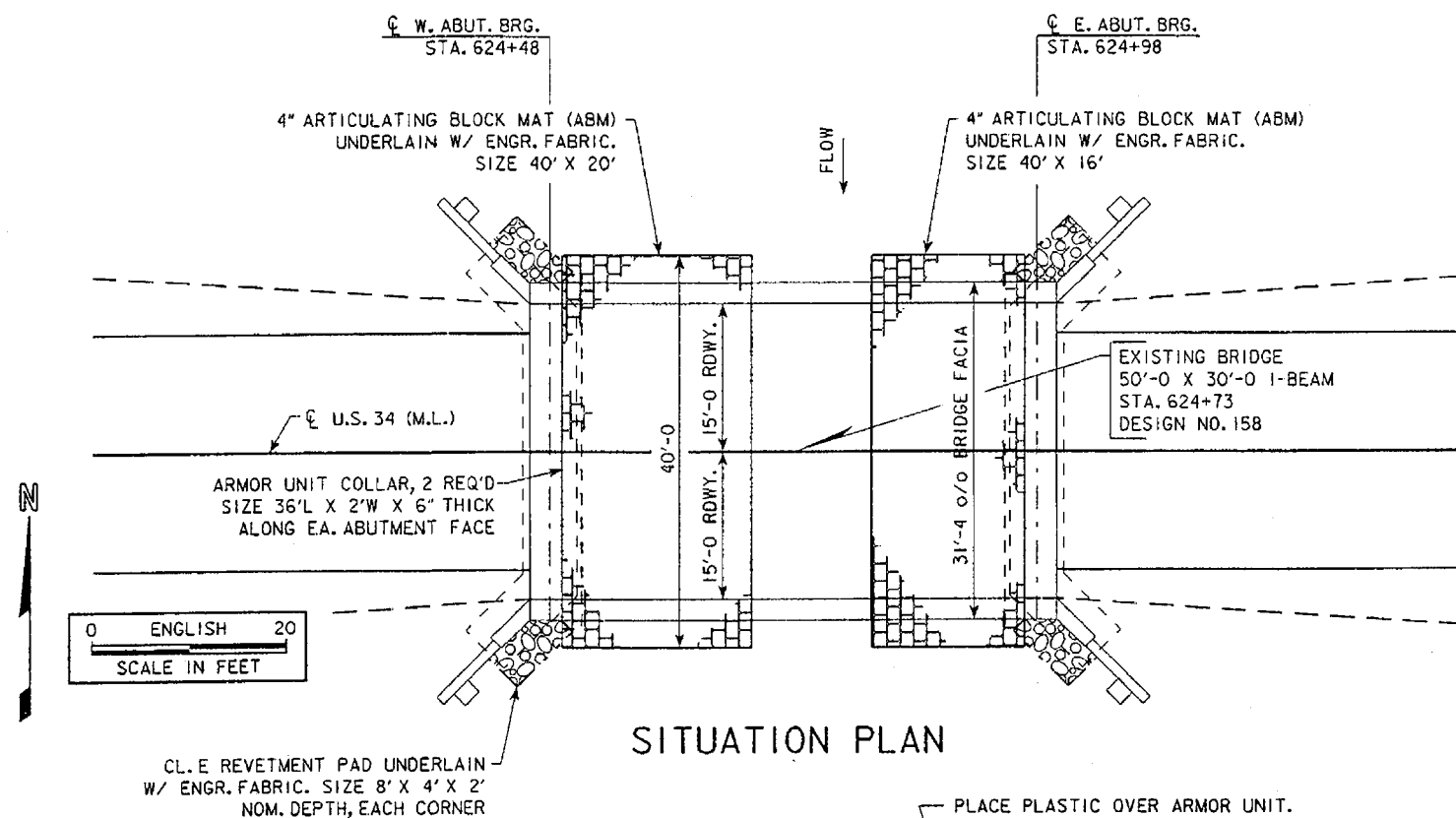
SHEET NUMBER A.01

PROJECT LOCATIONS





NOTE: FINISHED ABM SHALL BE FLUSH AGAINST EXISTING FOUNDATION WALLS. THE FINISHED MATS SHALL BE APPROX. LEVEL FROM THE UPSTREAM TO DOWNSTREAM ENDS AND THEY SHALL SLOPE TO THE CENTER CHANNEL.



NOTE: ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
4721	ORIG. DESIGN
2329	RAISE
158	MAJOR REMODEL
179	REPAIR/OVERLAY
106	SCOUR COUNTERMEAS.

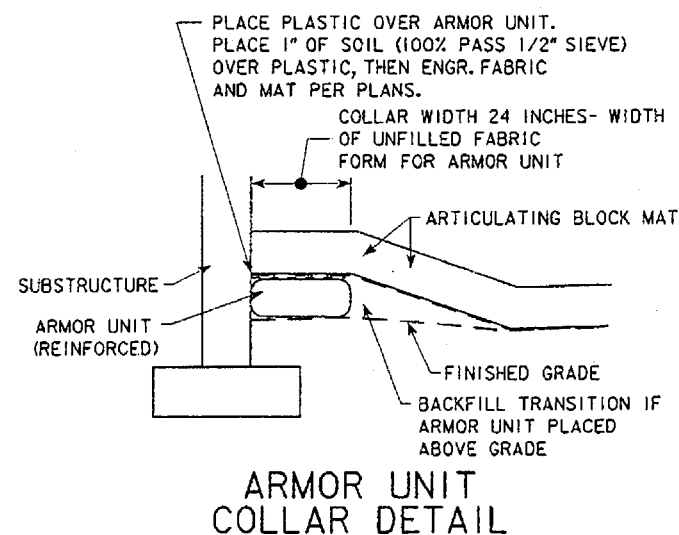
HYDRAULIC DATA

DRAINAGE AREA= 6.05 SQ. MI.
STREAM SLOPE= 9.0 FT./MI.

Q_{50} = 2105 CFS
STAGE = EL. 1183.7
BRIDGE VELOCITY = 6.5 FPS

Q_{100} = 2535 CFS
STAGE = EL. 1184.1
BRIDGE VELOCITY = 7.4 FPS
CALCULATED SCOUR= EL. 1168.7

Q_{500} = 3410 CFS
STAGE = EL. 1184.7
BRIDGE VELOCITY = 9.1 FPS
CALCULATED SCOUR = EL. 1166.0



TOTAL ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	QUANTITY	AS BUILT QUAN.
1	2402-2723000	EXCAVATION, CL. 23	C.Y.	94.8	
2	2507-3250005	ENGINEERING FABRIC	SQ. YD.	174.2	
3	2507-6800061	REVTMENT, CLASS E	TON	15.2	
4	2507-8500040	FFC REVET, ARTICULATING BLOCK MAT, 4"	SQ. YD.	193.6	
5	2507-8501020	FFC REVET, ARMOR UNIT REINFORCED	SQ. YD.	16.0	
6	2507-8501100	CONC GROUT-FABRIC FORMED CONC REVETMENT	C.Y.	22.1	

ESTIMATE REFERENCE INFORMATION

- ITEM NO. 1 INCLUDES ALL WORK IN PREPARATION OF GRADE FOR PLACEMENT OF REVETMENT INCLUDING ANY CLEARING AND GRUBBING, EXCAVATION TO THE LIMITS SHOWN ON THE DRAWINGS, BACKFILL UTILIZING EXCAVATED MATERIAL AND ANY ON-SITE DISPOSAL OF EXCESS EXCAVATED MATERIAL. THE BOUNDING LIMITS OF ARTICLE 2402.12(A) ARE NOT APPLICABLE.
- ITEM NO. 3 ESTIMATED AT 1.6 TON/CY.
- ITEM NO. 4, 5 BASED ON UNFILLED FABRIC FORM DIMENSIONS WITH FORM LAID FLAT AND THE FORM AREA IN TRENCHES SHOWN ON THE PLAN AND ALL FORM LAYERS IN OVERLAPS SHOWN ON THE PLAN. MAT PLAN FINISHED DIMENSIONS WERE INCREASED BY 21% TO ESTIMATE FABRIC FORM QUANTITY. COMPENSATION FOR BANK SHAPING, EXCAVATION AND BACKFILLING WILL BE MADE UNDER THE EXCAVATION ITEM.

GENERAL NOTES:

THIS DESIGN IS FOR REPAIRS TO THE EXISTING 50' X 30'-0" I-BEAM BRIDGE ON US 34 OVER METZ CREEK. 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. INSTALLATION OF FABRIC FORMED CONCRETE REVETMENT SCOUR COUNTERMEASURE. TARGET CLASSIFICATION - PERMANENT.

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

FABRIC FORMED REVETMENT DIMENSIONS SHOWN REFLECT THE FINISHED SIZE FOLLOWING FILLING WITH CONCRETE GROUT.

THE SPECIFIED ARMOR UNIT WIDTH REFLECTS THE WIDTH OF THE UNFILLED FABRIC FORM. THE THICKNESS REFLECTS THE FILLED THICKNESS.

LABOR, EQUIPMENT AND MATERIALS REQUIRED TO ANCHOR FABRIC FORMS DURING PLACEMENT AND CURING OF GROUT SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

EXCESS EXCAVATED MATERIAL SHALL BE DISPOSED OF WITHIN THE PROJECT R.O.W. AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL DIVERT WATER AROUND THE WORK SITE WHILE PERFORMING IN-STREAM WORK AND/OR CONTAIN THE WORK AREA WITHIN SILT FENCE OR A FLOATING DAM TO CONTAIN SEDIMENT WITHIN THE WORK AREA.

SPECIFICATIONS:

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES OF 2001, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT INCLUDING "DEVELOPMENTAL SPECIFICATIONS FOR FABRIC FORMED CONCRETE STRUCTURE REVETMENT".

LOCATION

US 34 OVER METZ CREEK
T-71 N R-32 W
SECTION 3
GRANT TOWNSHIP
ADAMS COUNTY
BRIDGE MAINT. NO. 0273.8S034
FHWA NO. 013330

PRELIMINARY

DESIGN FOR REPAIRS TO 0° SKEW
50'-0" X 30'-0" I-BEAM
BRIDGE

50' SINGLE SPAN

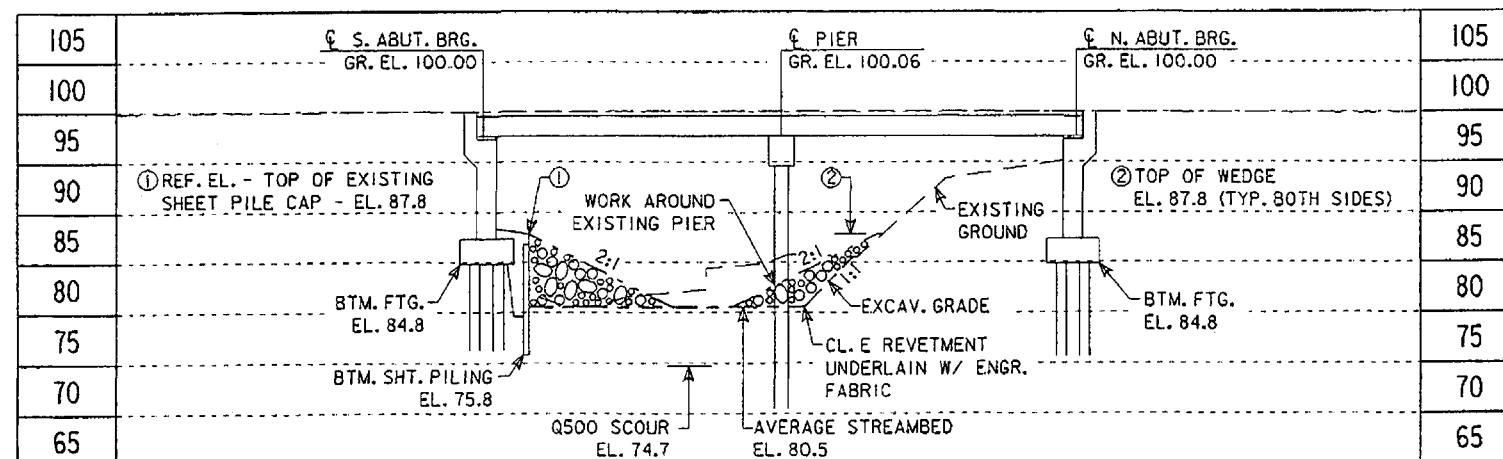
SITUATION PLAN

STATION 624+73

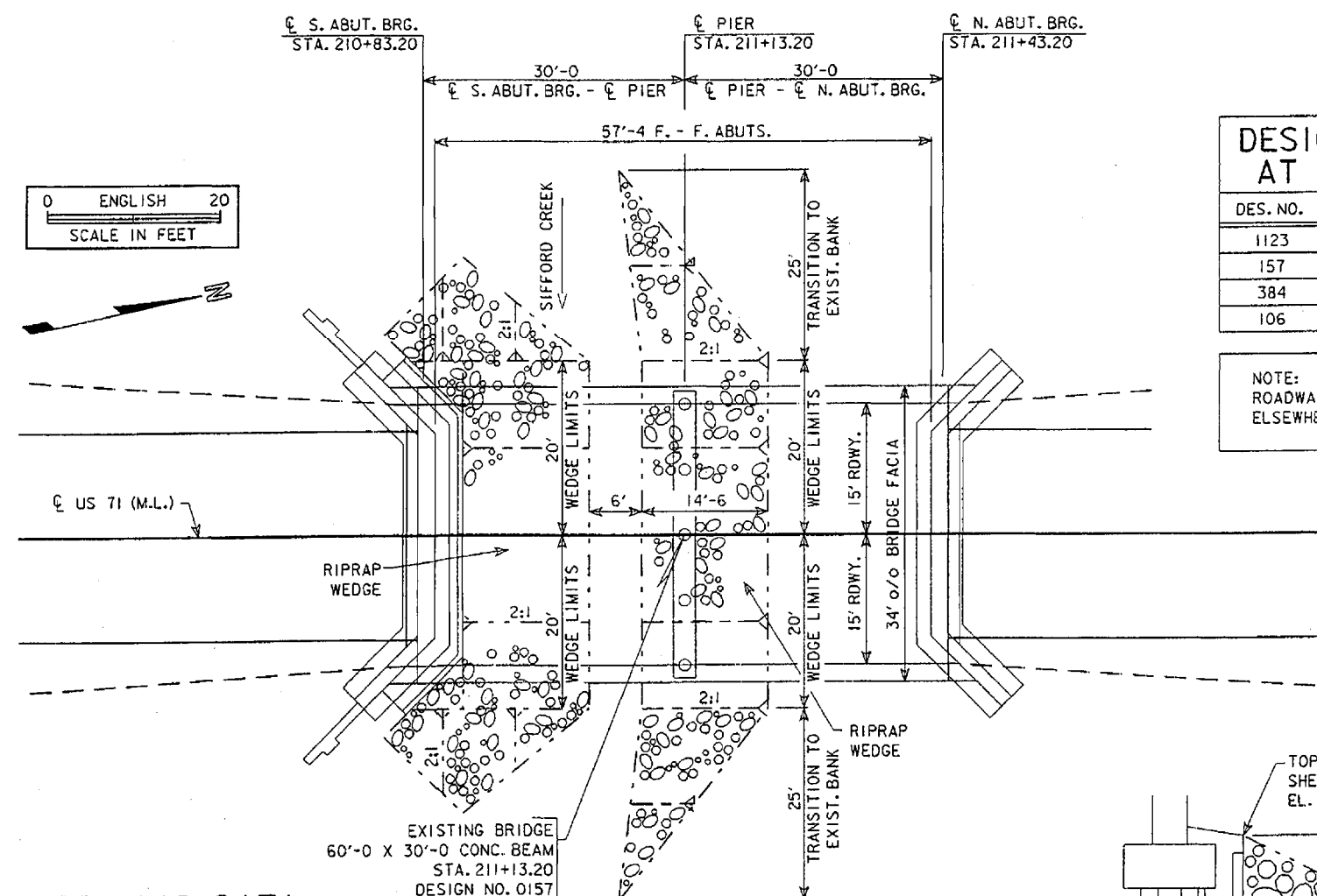
ADAMS COUNTY

JULY 2006

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ____ OF ____ FILE NO. 30147 DESIGN NO. 106



LONGITUDINAL SECTION ALONG ϕ ROADWAY



HYDRAULIC DATA

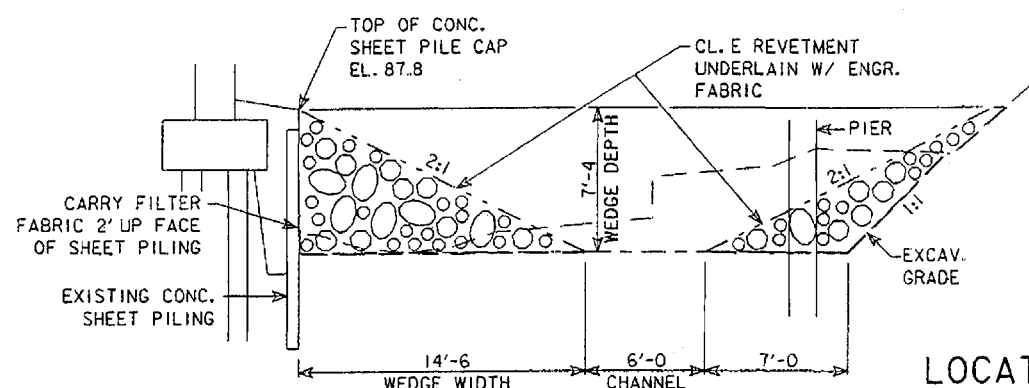
DRAINAGE AREA= 6.3 SQ. MI.
STREAM SLOPE= 19.0 FT./MI.

$Q_{50} = 2712$ CFS
STAGE = EL. 94.9
BRIDGE VELOCITY = 5.2 FPS

$Q_{100} = 3271$ CFS
STAGE = EL. 95.7
BRIDGE VELOCITY = 5.7 FPS
CALCULATED SCOUR = EL. 76.1

$Q_{500} = 4393$ CFS
STAGE = EL. 97.0
BRIDGE VELOCITY = 6.8 FPS
CALCULATED SCOUR = EL. 74.7

SITUATION PLAN



RIPRAP WEDGE DETAIL

LOCATION

US 71 OVER SIFFORD CREEK
T-78 N R-35 W
SECTION 18
EXIRA TOWNSHIP
AUDUBON COUNTY
BRIDGE MAINT. NO. 0572.95071
FHWA NO. 014090

TOTAL ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	QUANTITY	AS BUILT QUAN.
1	2402-2723000	EXCAVATION, CL. 23	C.Y.	171.9	
2	2507-3250005	ENGINEERING FABRIC	SQ. YD.	230.9	
3	2507-6800061	REVTMENT, CLASS E	TON	281.1	
4	2599-9999003	DISPOSAL EXCESS EXCAVATION	C.Y.	171.9	

ESTIMATE REFERENCE INFORMATION

- ITEM NO. 1 INCLUDES ALL WORK IN PREPARATION OF GRADE FOR PLACEMENT OF REVTMENT INCLUDING ANY CLEARING AND GRUBBING, EXCAVATION TO THE LIMITS SHOWN ON THE DRAWINGS, BACKFILL UTILIZING EXCAVATED MATERIAL, AND ANY ON-SITE DISPOSAL OF EXCESS EXCAVATED MATERIAL. THE BOUNDING LIMITS OF ARTICLE 2402.12(A) ARE NOT APPLICABLE.
- 3 ESTIMATED AT 1.6 TON/CY.
- 4 INCLUDES REMOVAL AND OFF-SITE DISPOSAL OF THAT PORTION OF MATERIAL EXCAVATED UNDER EXCAVATION, CL. 23, NOT INCORPORATED IN THE WORK OR DISPOSED OF ON-SITE.

GENERAL NOTES:

THIS DESIGN IS FOR REPAIRS TO THE EXISTING 60' X 30' CONCRETE BEAM BRIDGE ON US 71 OVER SIFFORD CREEK. 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. INSTALLATION OF CL. E REVTMENT SCOUR COUNTERMEASURE. TARGET CLASSIFICATION - PERMANENT.

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

EXCESS EXCAVATED MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR OFF OF THE PROJECT SITE UNLESS DIRECTED OTHERWISE BY THE ENGINEER.

THE CONTRACTOR SHALL DIVERT WATER AROUND THE WORK SITE WHILE PERFORMING IN-STREAM WORK AND/OR CONTAIN THE WORK AREA WITHIN SILT FENCE OR A FLOATING DAM TO CONTAIN SEDIMENT WITHIN THE WORK AREA.

SPECIFICATIONS:

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

PRELIMINARY

DESIGN FOR REPAIRS TO 0° SKEW
60'-0 x 30'-0
CONCRETE BEAM BRIDGE
30'-0 END SPANS
SITUATION PLAN
STATION 211+13.20
AUDUBON COUNTY
JULY 2006
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 30147 OF 30147 FILE NO. 30147 DESIGN NO. 106