

cc: M. J. Sankey
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C. B. Brakke
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D. R. Claman
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M. K. Solberg

REVETMENT
STPN-224-1(17)--2J-50

LETTING DATE
 7/18/2017

JASPER CO.



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
JASPER COUNTY
REVTMENT

0.1 mi N of Main St / Indigo Ave in Kellogg

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



REVISIONS

TOTAL

PROJECT IDENTIFICATION NUMBER

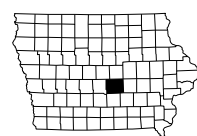
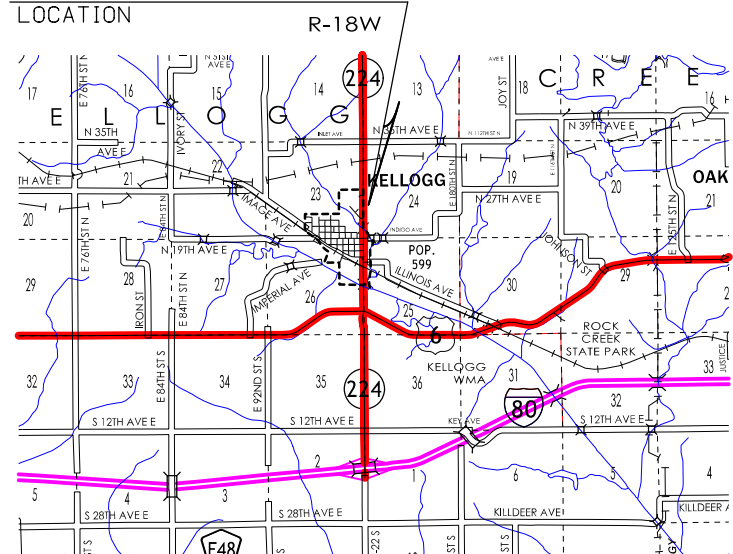
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PROJECT NUMBER

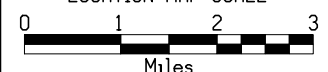
STPN-224-1(17)--2J-50

R.O.W. PROJECT NUMBER

PROJECT LOCATION



LOCATION MAP SCALE



DESIGN DATA RURAL

20--	AADT	--	V.P.D.
20--	AADT	--	V.P.D.
20--	DHV	--	V.P.H.
	TRUCKS	--	%
	Total		
	Design ESALs	--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	Tony J. Gustafson	Primary Signature Block

DESIGN EVENT DATES

- D0 - Date: 07-01-2016
- D2 - Date: 09-16-2016
- D5 - Date: 11-04-2016
- D9 - Date: 05-02-2017

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN - Date: 09-16-2016

FIELD EXAM CHECKLIST

- 1 - Duration of project?
- 2 - Speed Limit
- 3 - Speed Limit during construction
- 4 - Is sight distance a problem?
- 5 - Do any of the utilities need to be relocated (power/telephone poles) either permanently or temporarily for construction?
- 6 - Names and addresses of affected utility companies.
- 7 - Are there existing drainage problems?
- 8 - Note existing subdrain outlets for Soils Design.
- 9 - Are there any Wetland Impacts or any other environmental issues?
- 10 - Note any special features not shown on plan.
- 11 - Note condition of existing culverts.
- 12 - Names of affected special events.
- 13 - Locations of mailboxes to be relocated to a minimum of 8' from the pavement edge.
(Trees within ft from edge of roadway are to be removed. Those outside ft will be reviewed from survey data.)
- 14 - Remove & Reinstall Signs District Maintenance or by the Contractor?

FIELD EXAM CHECKLIST

- 15 - Clearing and grubbing quantities by unit or by area?
- 16 - Does patching need to be done in the project area or do the construction limits need to be extended?
Who will provide locations of patches by milepost?
- 17 - 404 Permit needed?
- 18 - City of Kellogg storm water permit needed?
- 19 - Is area within a county drainage district?
- 20 - Drainage area is 2180 acres. Will Floodplain development permit be required?

- Contractor furnish borrow? (Yes) / (No)
- Full depth patches to be PCC? (Yes) / (No)
- Full depth PCC patches to be doweled? (Yes) / (No)
- Soils to determine and provide tabulation of subdrains? (Yes) / (No)
- Pollution Prevention Plan required? (Yes) / (No)

- Field Office? (Yes) / (No)
- Construction Survey and or Point Preservation by DOT or Contractor? See Dist. 1 Surveyor for this (DOT) / (Contractor)

- Survey by Office of Design? (Yes) / (No)

- Pavement markings for turn lanes as determined by the District? (Yes) / (No)

- Any RWIS or Traffic Recorder Sites within project limits? (Yes) / (No)

PROJECT CONCEPT STATEMENT

Iowa 224 Culvert at Coon Creek
Bridge Maintenance Number = 5002.5S224
Located north of Kellogg
T-80N, R-18W, Section 23/24
Jasper County
Revetment---STPN-224-1(17)--2J-50
Right-of-Way---STPN-224-1(18)--2J-50

District 1

Cy Quick, P.E.
515-986-5729

August 11, 2016

Project Description

The culvert located at the north Corporate Limits of Kellogg on Iowa 224 at Coon Creek (0.1 miles north of Main Street/Indigo Avenue) has silted in and needs to be cleaned out, especially the south barrel. Upstream and downstream grading and shaping also needs to be completed during this project. A Transportation Data map of Kellogg is attached as Exhibit 1.

Need for Project

The Newton Shop has tried to clean out the culvert and do some re-grading, but the work is too extensive for the shop crews to do with the equipment that the shop has available to it. The ground was too soft and unstable and the equipment operator was not confident on the stability of the ground. The shop's equipment is also limited in its reach capability. The shop's skid loader also became stuck in the silty/sandy soil. A contract will be needed to re-establish flow-lines, shape the channel and clean out the culvert barrels. The west side of Iowa 224 at the culvert is significantly wet to not allow shop access to the area.

The intent of the project is to re-establish the ditch upstream and downstream and to clean out both culvert barrels.

The repair location is shown on the attached Google map as Exhibit 2.

Proposed Work

It is proposed that:

1. The upstream end be re-graded to excavate sediment and shape (approx.. 45' x 83'),
2. The downstream end be re-graded to excavate sediment and shape (approx..105' x 60'),
3. The new ditch slopes at both ends need to have rip-rap placed,
4. The culvert be cleaned out, especially the south barrel.

Special Considerations

The Bridge Maintenance Number is 5002.5S224. The original 166 foot culvert built in 1991 under project number BRF-224-1(17)--38-50 only has 1 foot of fall from the NW to the SE. The 1991 plan sheet is attached as Exhibit 3.

Survey (D01 Event) has been completed for the project area that includes utility locates. The Right-of-Way limits have been determined. The work will require temporary easements. See Exhibit 4 for existing ROW.

Temporary Easements will be needed for the excavation. See Exhibit 4.

The project is proposed for funding in FY 2018. A letting date for July 18, 2017 is recommended.

The cost is estimated at \$142,839.78.

There are two project numbers assigned to the Revetment work and Right-of-Way work:

1. Revetment---STPN-224-1(17)--2J-50
2. Right-of-Way---STPN-224-1(18)--2J-50

The projects have been set up in PSS and are on the Monitor List for programming in 2018. PIN Number: 16-50-2224-010. Project Directory: 5022401016

A 404 permit may be needed.

A City of Kellogg storm water permit may be needed.

A check should be made to determine if the area is within a county drainage district.

A check with DNR will need to be done to determine if a Floodplain Development permit is required. The drainage area is 2180 acres-rolling.

Cost Estimate

Excavation, Class 10, Waste-(includes material inside the culvert barrel)--2101-2710090	
1500 Cu Yds @ \$ 25.00/Cu. Yd-----	\$ 37,500.00
Revetment Class E ---2507-6800061	
1300 Tons @ \$44.67/ton-----	\$ 58,071.00
Engineering Fabric--2507-3250005	
1250 Sq Yds @ \$ 2.91/ Sq Yd-----	\$ 3,637.50
Traffic Control--2528-8445110-----	\$ 5,000.00
Mobilization ---2533-4980005-----	\$ 20,000.00
ROW cost -----	\$5,000.00
Contingency (15%)-----	\$ 19,381.28

Total _____ \$ 148,589.78

Schedule dates:

Field exam (D02): 9-16-2016

ROW submittal (D05): 11-4-2016

Exhibit 3---Original Culvert Plan
 1991 Plan View of 10' x 10' x 166' culvert—Project BRF-224-1(17)—38-50

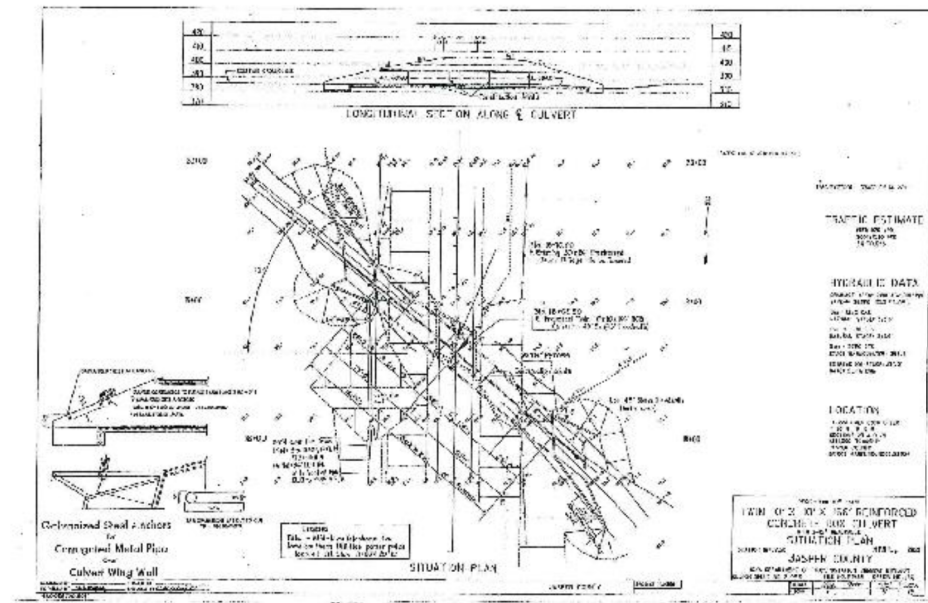
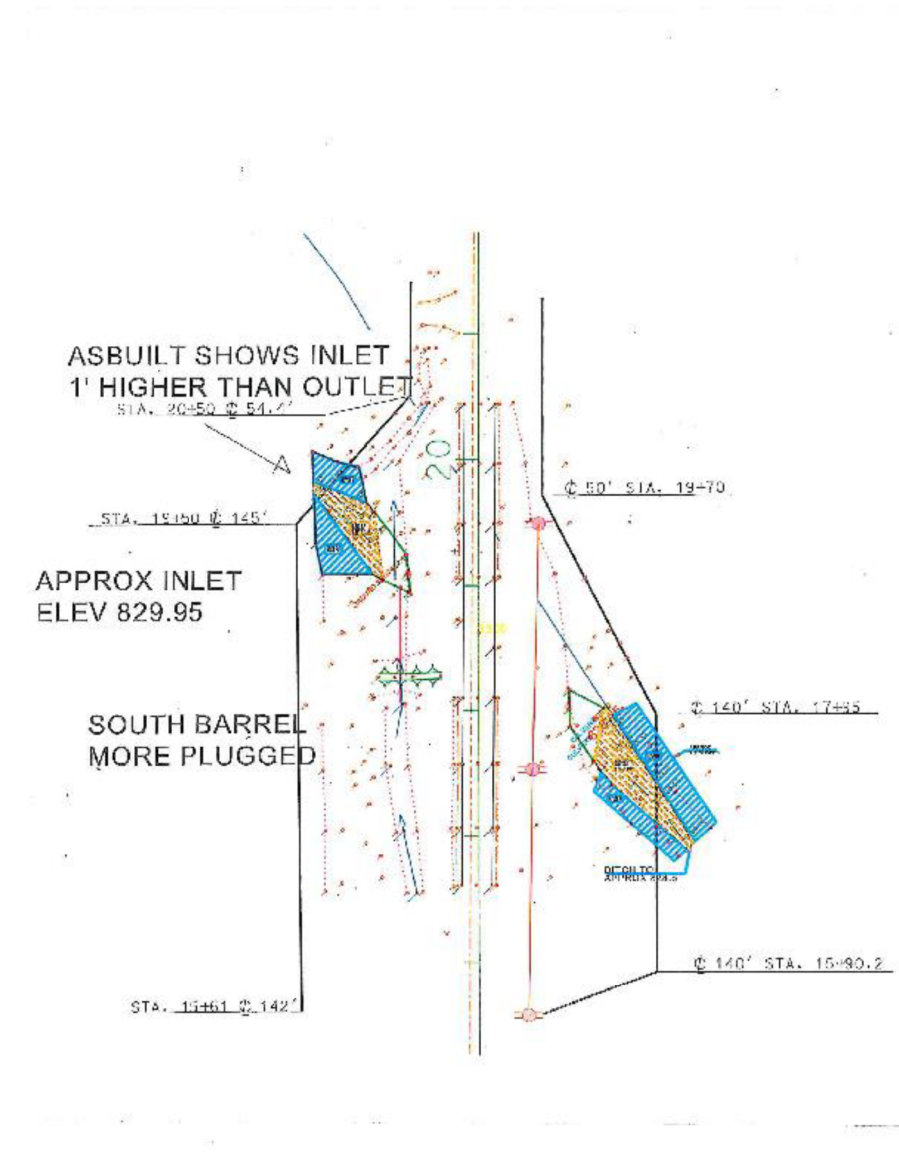
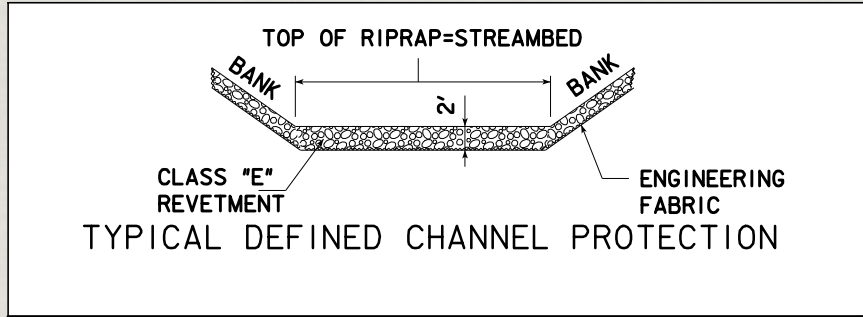
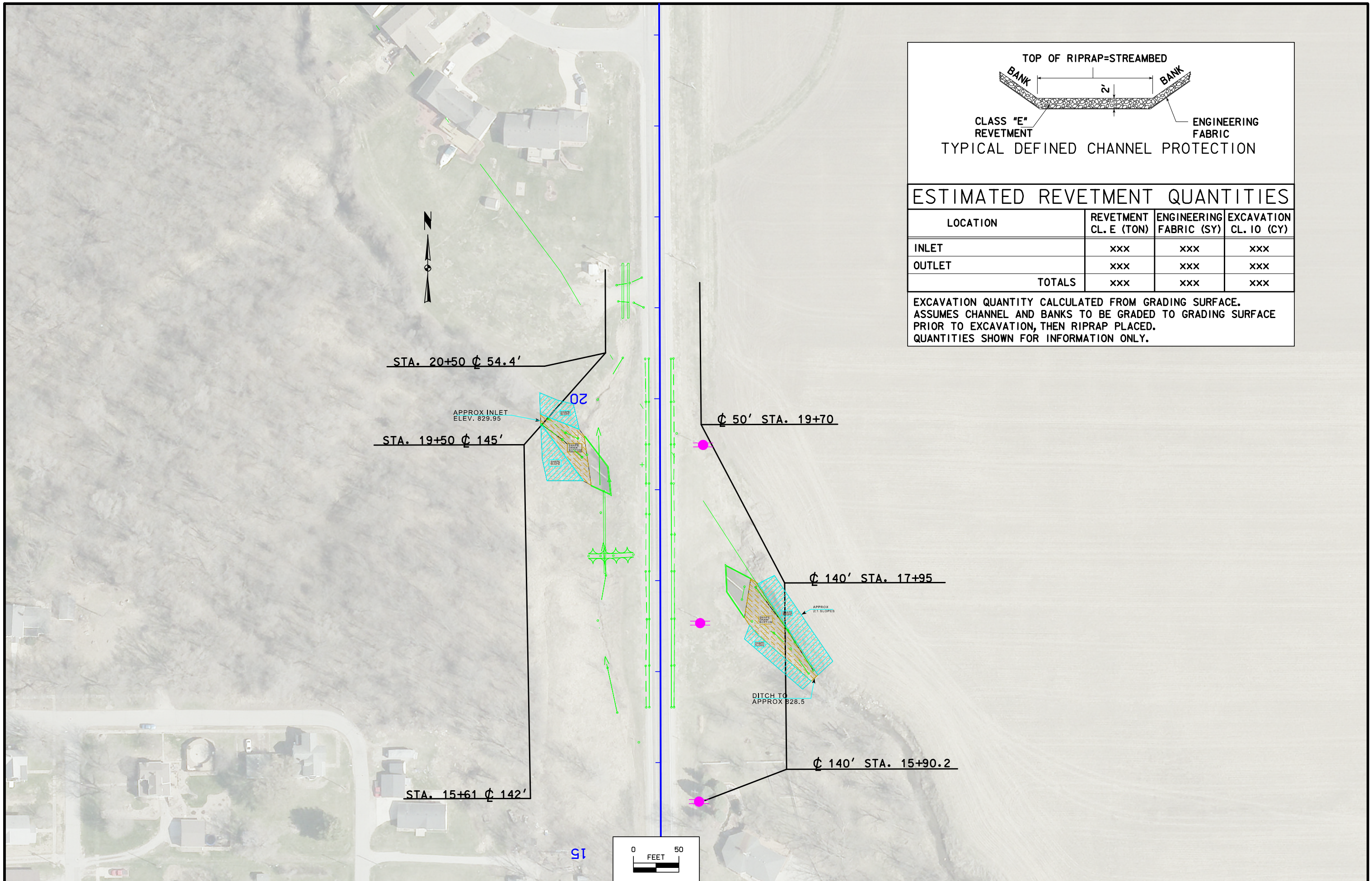


Exhibit 4—Existing ROW

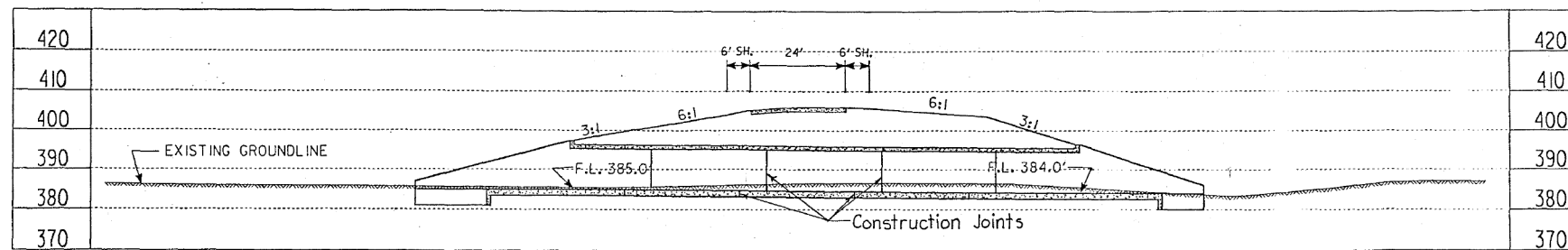




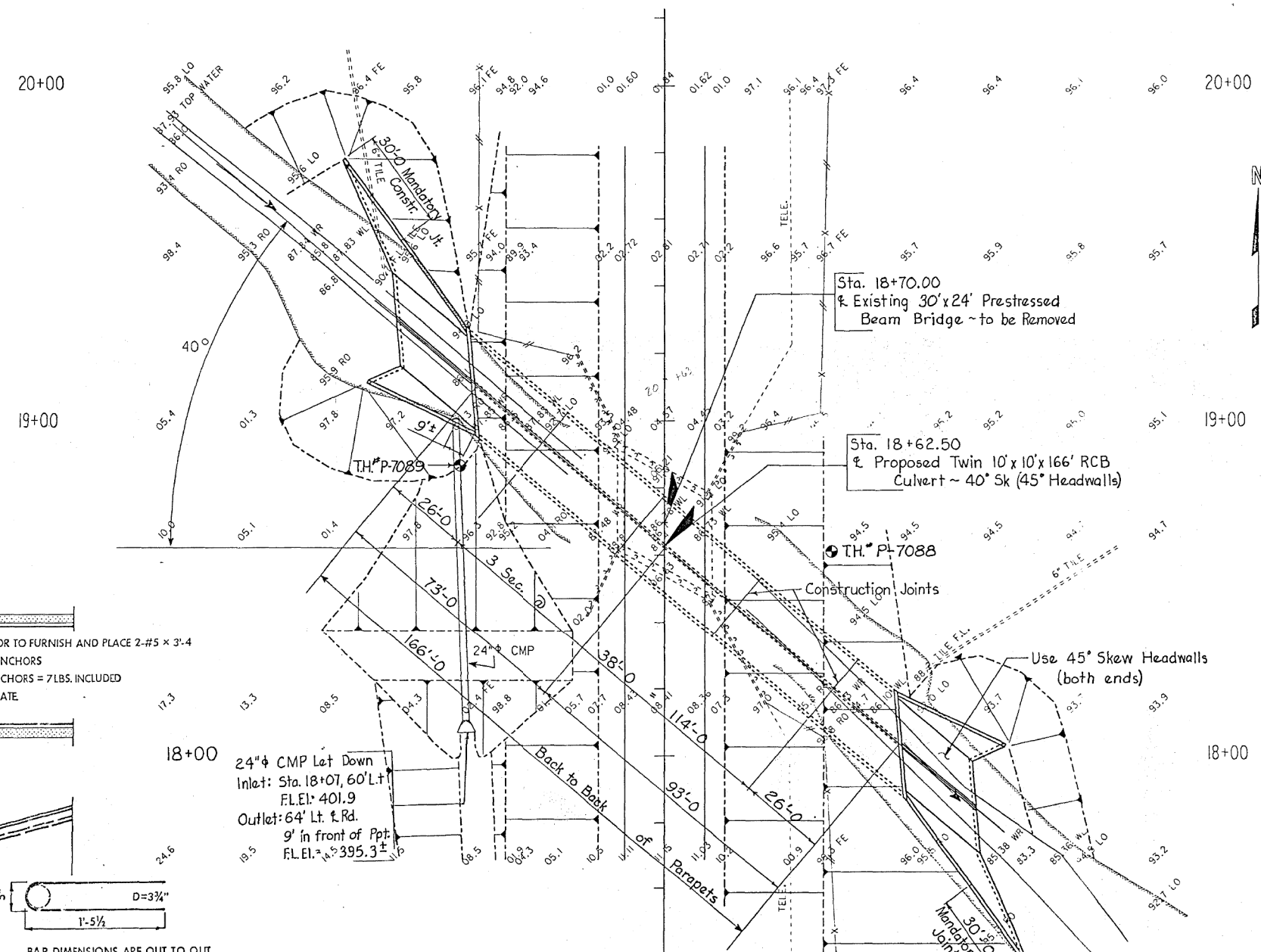
ESTIMATED REVETMENT QUANTITIES

LOCATION	REVETMENT CL. E (TON)	ENGINEERING FABRIC (SY)	EXCAVATION CL. 10 (CY)
INLET	xxx	xxx	xxx
OUTLET	xxx	xxx	xxx
TOTALS	xxx	xxx	xxx

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. ASSUMES CHANNEL AND BANKS TO BE GRADED TO GRADING SURFACE PRIOR TO EXCAVATION, THEN RIPRAP PLACED. QUANTITIES SHOWN FOR INFORMATION ONLY.



LONGITUDINAL SECTION ALONG CULVERT



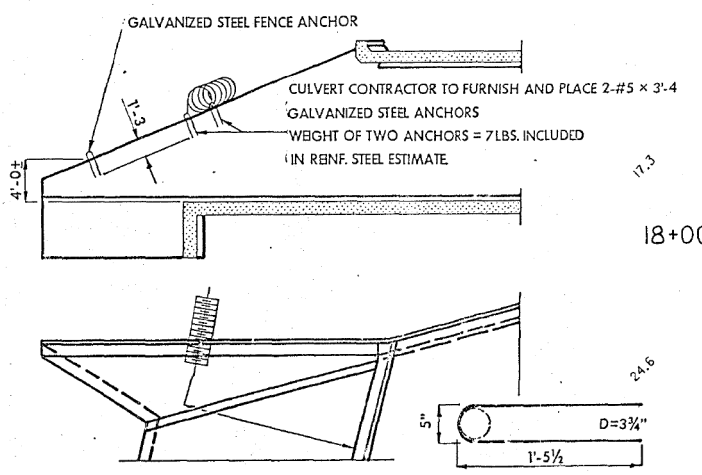
TRAFFIC WILL BE DETOURED OFF SITE

UAC EXISTING GRADE ON IA. 224

TRAFFIC ESTIMATE
 1987: 1120 VPD
 2007: 1520 VPD
 8% TRUCKS

HYDRAULIC DATA
 DRAINAGE AREA = 2180 AC - ROLLING
 STREAM SLOPE = 22.2 FT./MI.
 Q₅₀ = 1350 CFS
 NATURAL STAGE = 393.8'
 Q₁₀₀ = 1630 CFS
 NATURAL STAGE = 394.6'
 Q₅₀₀ = 2750 CFS
 STAGE W/BACKWATER = 396.6'
 EXTREME HW STAGE = 397.0'
 DATE = SEPT. 1986

LOCATION
 IA. 224 OVER COON CREEK
 T 80 N R 18 W
 SECTIONS 23 AND 24
 KELLOGG TOWNSHIP
 JASPER COUNTY
 BRIDGE MAINT. NO. 5002.55224



Galvanized Steel Anchors
 For
Corrugated Metal Pipe
 Over
Culvert Wing Wall

24" φ CMP Let Down
 Inlet: Sta. 18+07, 60' Lt.
 F.L. El. 401.9
 Outlet: 64' Lt. & Rd.
 9' in front of Ppt.
 F.L. El. = 395.31

LEGEND
 Tele ~ Mid-Iowa Telephone Co.
 Iowa Southern Utilities power poles
 located Rt. Sta's 17+00 & 20+12

This Sheet
 For Information Only

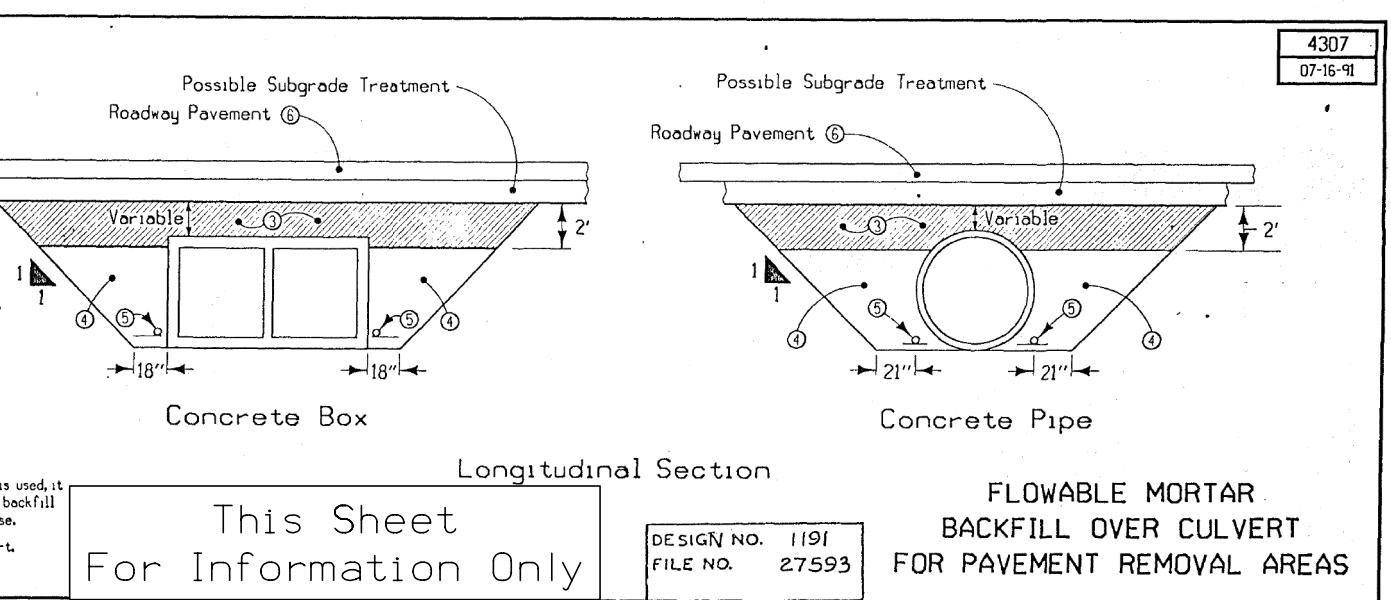
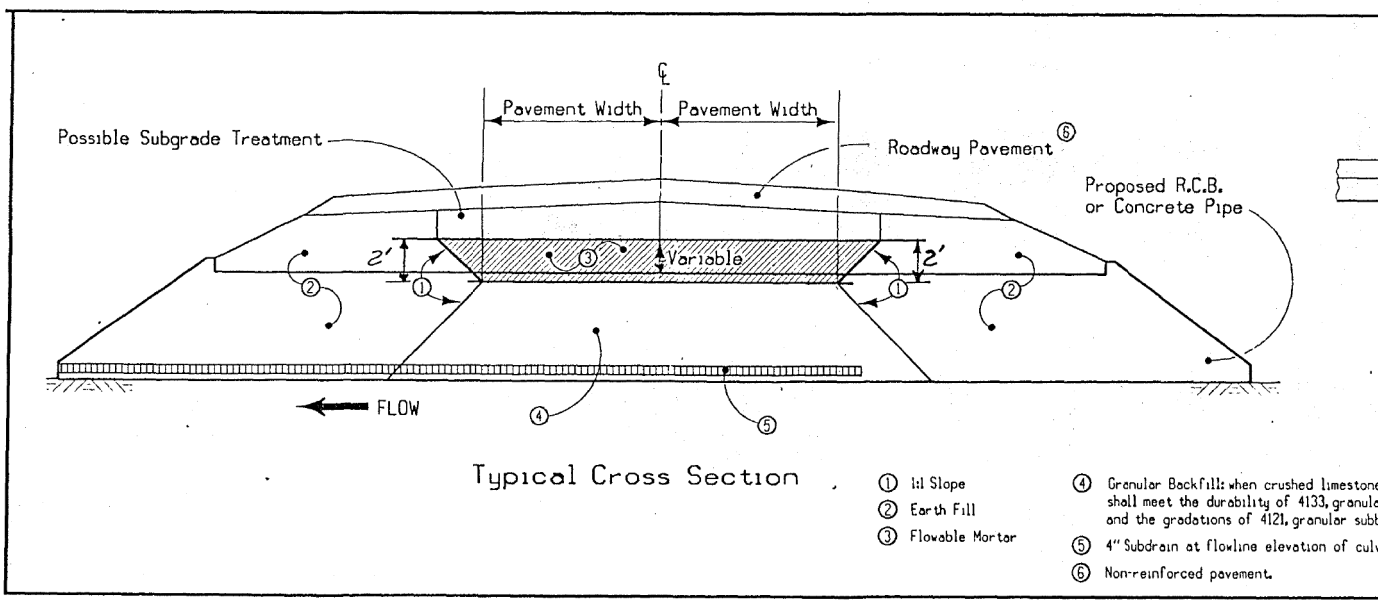
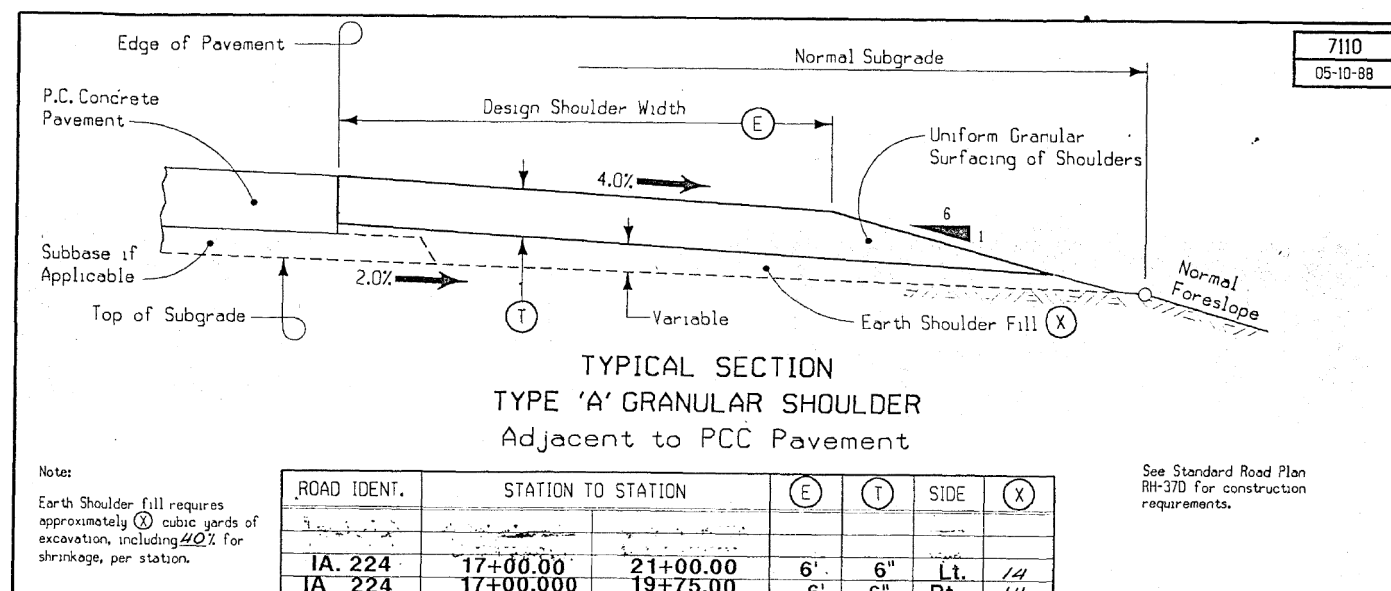
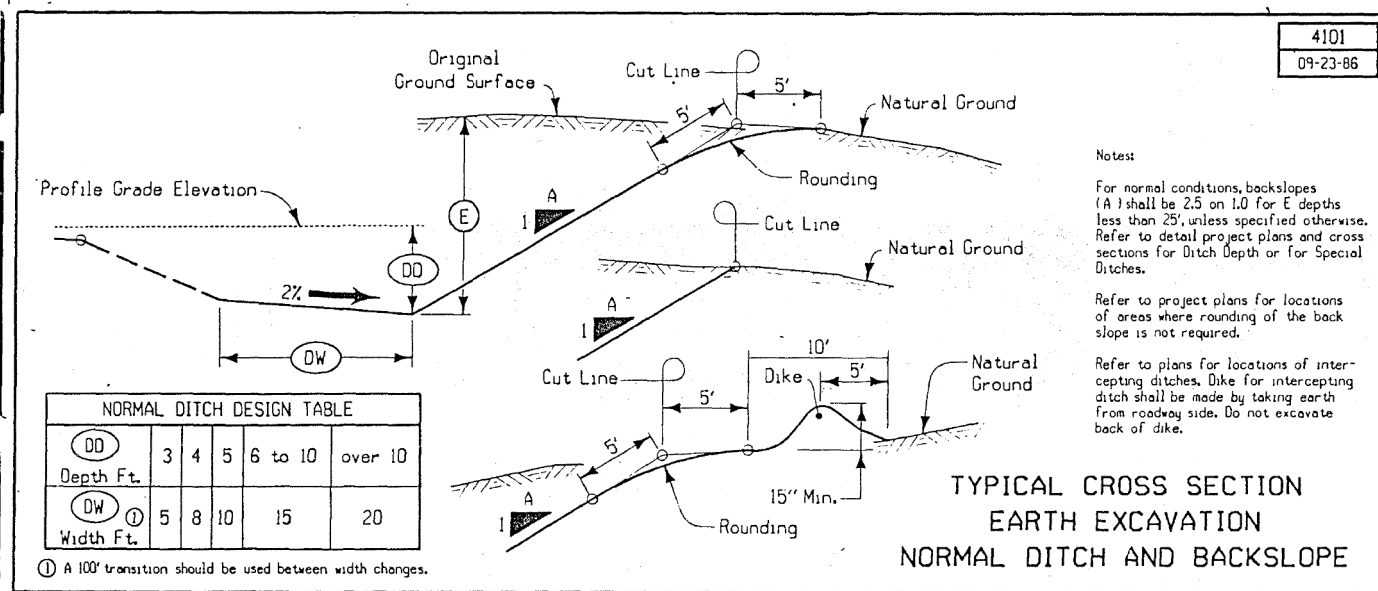
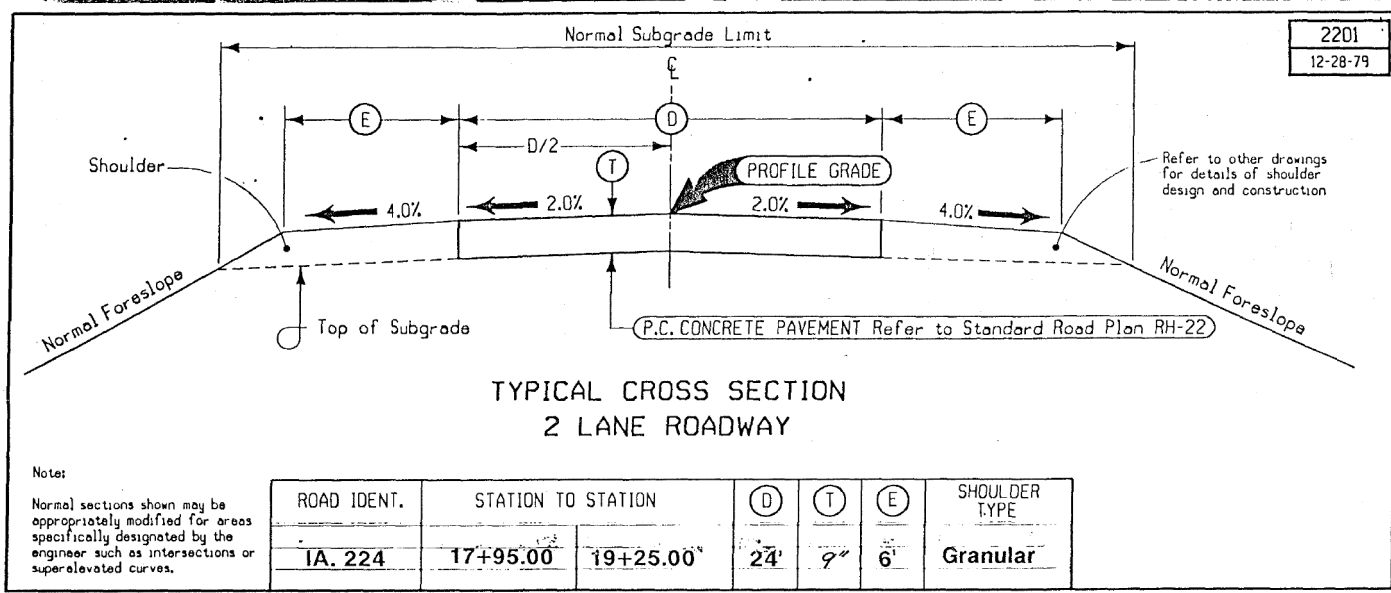
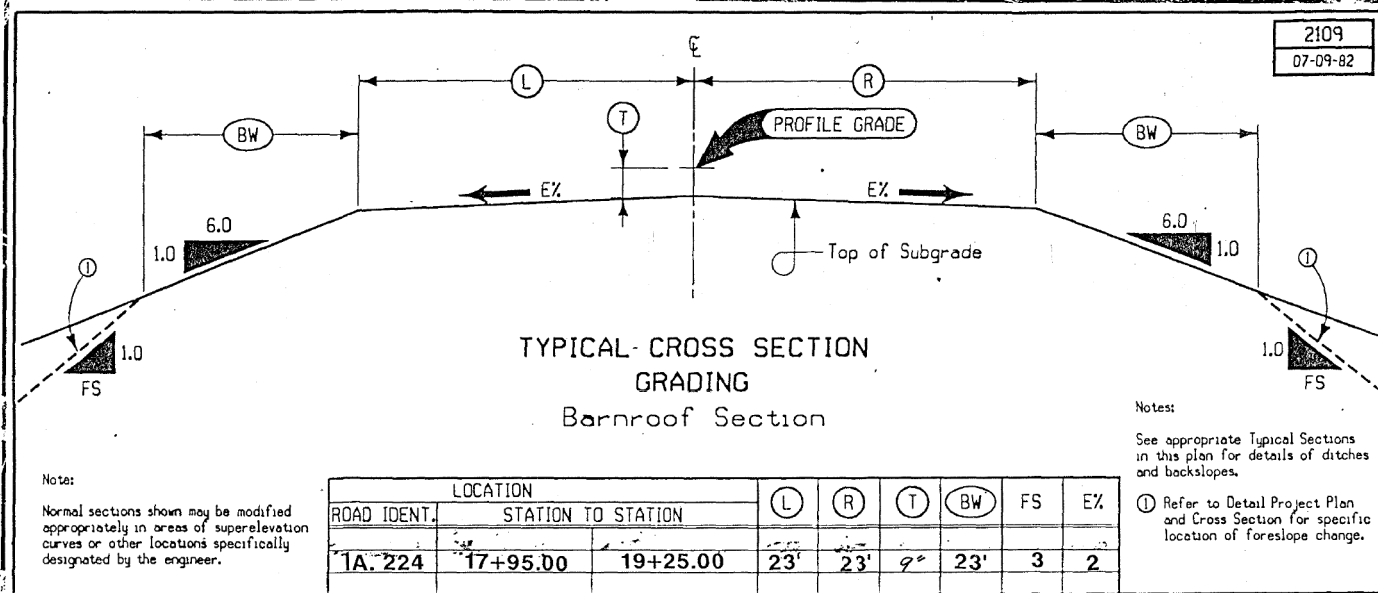
SITUATION PLAN

DESIGN FOR 40° SKEW
TWIN 10' X 10' X 166' REINFORCED CONCRETE BOX CULVERT
 WITH 2-45° HEADWALLS
SITUATION PLAN
 STATION: 18+62.50
JASPER COUNTY
 APRIL, 1989
 IOWA DEPARTMENT OF TRANSPORTATION--HIGHWAY DIVISION
 DESIGN SHEET NO. 2 OF 2 FILE NO. 27593 DESIGN NO. 1191

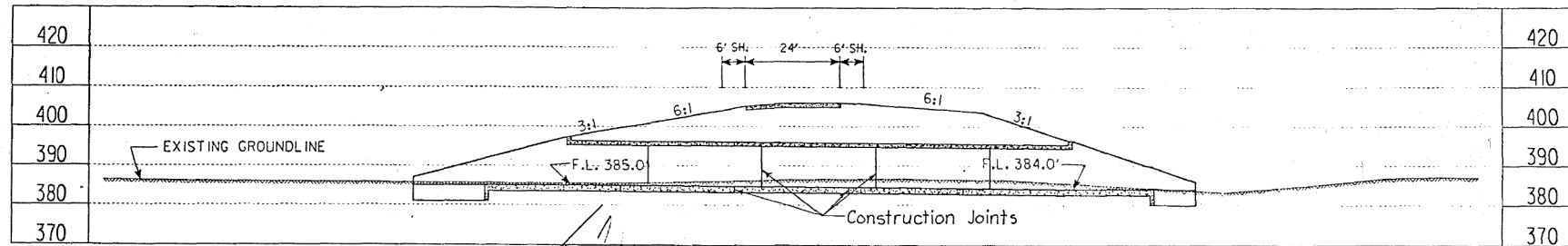
STATE	FHW REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		4	19

DESIGNED BY M. Loupee TRACED BY D.A. Wright
 CHECKED BY D.A. Wright
 H50028700.501

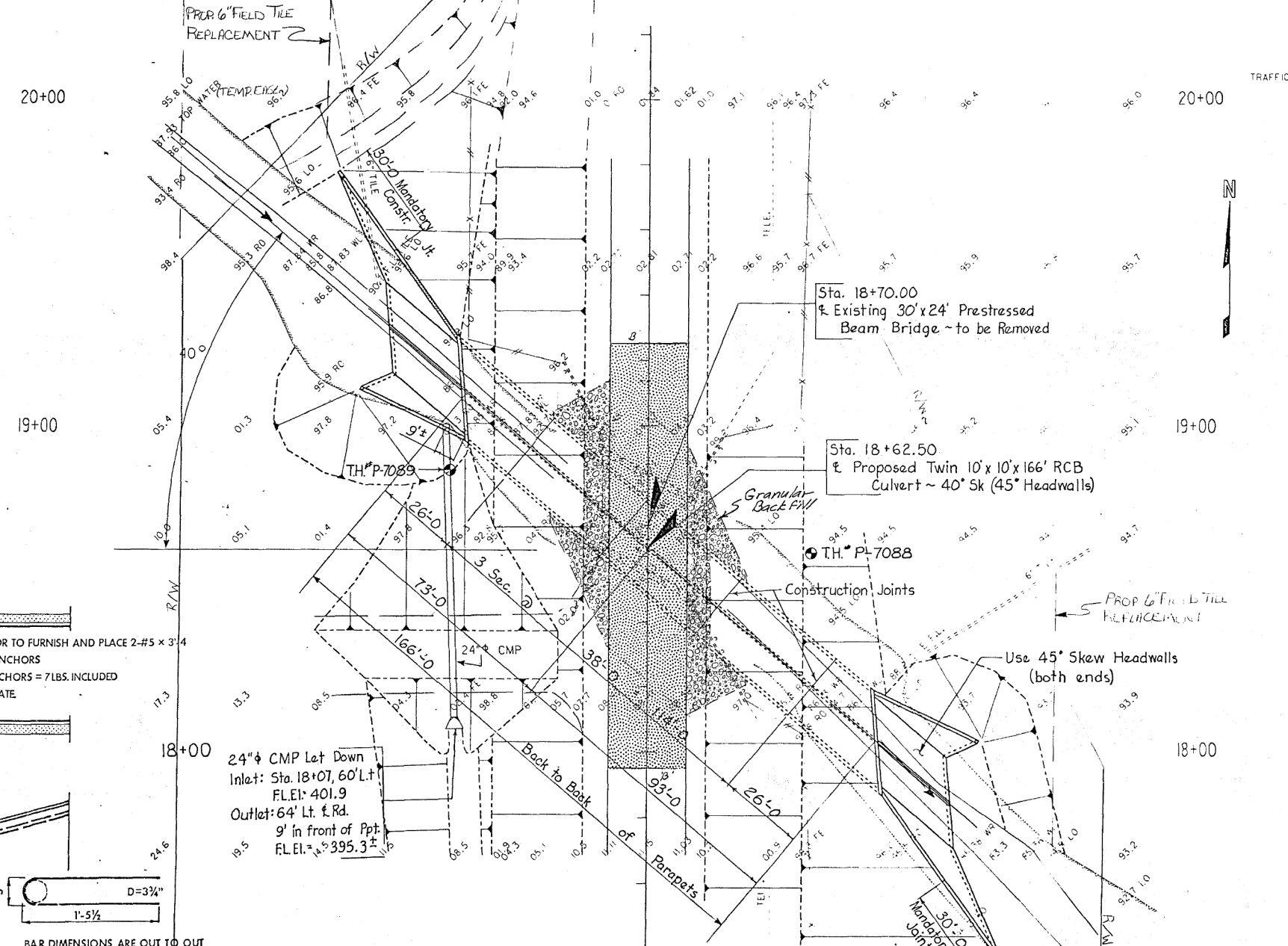
JASPER COUNTY PROJECT NUMBER STATE IOWA FHW REGION 7 FISCAL YEAR SHEET NO. 4 TOTAL SHEETS 19



This Sheet For Information Only



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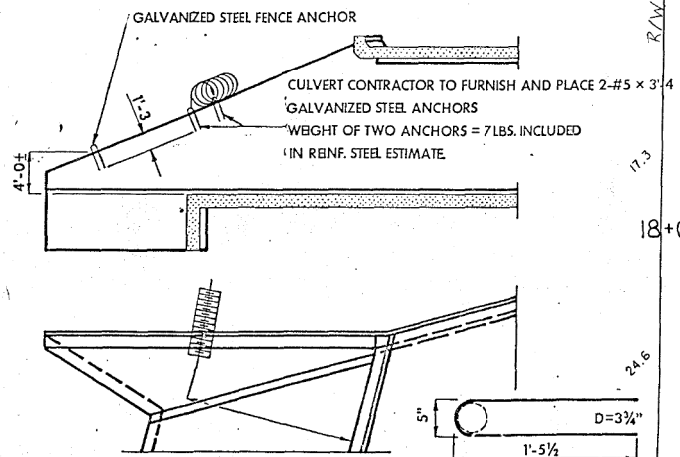
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SECTIONS 23 AND 24
KELLOGG TOWNSHIP
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BRIDGE MAINT. NO. 5002.5S224

FOR INFORMATIONAL PURPOSES ONLY



Galvanized Steel Anchors
For
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Over
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BAR DIMENSIONS ARE OUT TO OUT
"D" = PIN DIAMETER

24" ϕ CMP Let Down
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DESIGNED BY M. Loupee TRACED BY
DETAILED BY M. Loupee CHECKED BY D.A. Wright
H50028700.501

JASPER COUNTY	PROJECT NUMBER	BRT-224-1(17)-2J-50	STATE	IOWA	FEDERAL REGION	7	SHEET NO.	12	TOTAL SHEETS	19
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