

STORY COUNTY
 RCB CULVERT NEW - TWIN BOX
 Proj. No. L-M22--73-85
 Letting Date March 3, 2026

PROJECT TRAFFIC CONTROL PLAN

THIS ROAD WILL BE CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION. LOCAL TRAFFIC TO ADJACENT PROPERTIES WILL BE MAINTAINED AS PROVIDED FOR IN ARTICLE 1107.08 OF THE CURRENT STANDARD SPECIFICATIONS. TRAFFIC CONTROL DEVICES, PROCEDURES, LAYOUTS, SIGNING, AND PAVEMENT MARKINGS INSTALLED WITHIN THE LIMITS OF THIS PROJECT SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AS ADOPTED BY THE DEPARTMENT PER 761 OF THE IOWA ADMINISTRATIVE CODE (IAC) CHAPTER 130.

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, AND MAINTAINED BY THE CONTRACTOR.

UTILITIES INFORMATION

UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THESE PLANS OR SHOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE CONTRACTOR OF THE CONSTRUCTION STARTING DATE AND SUBSEQUENT WORK IN THE AREA.

Colo Telephone Company 641-377-2202

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF UTILITIES IN THE PROJECT AREA PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL GRANT ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATIONS. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEIR LOCATIONS ARE ONLY APPROXIMATE. IT IS POSSIBLE THERE MAY BE OTHER UTILITIES, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALL UTILITIES IN THE PROJECT AREA AND THEIR EXACT LOCATION AND TO AVOID DAMAGE TO THEM. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.

IOWA
DEPARTMENT OF TRANSPORTATION
 Highway Division
 PLANS OF PROPOSED IMPROVEMENT ON THE
Secondary Road System
STORY COUNTY
RCB CULVERT NEW-TWIN BOX

On 590th Ave.; over overflow of Milford 13,
in S21-T84-R23.

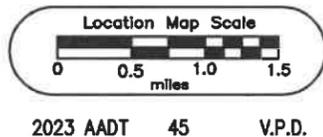
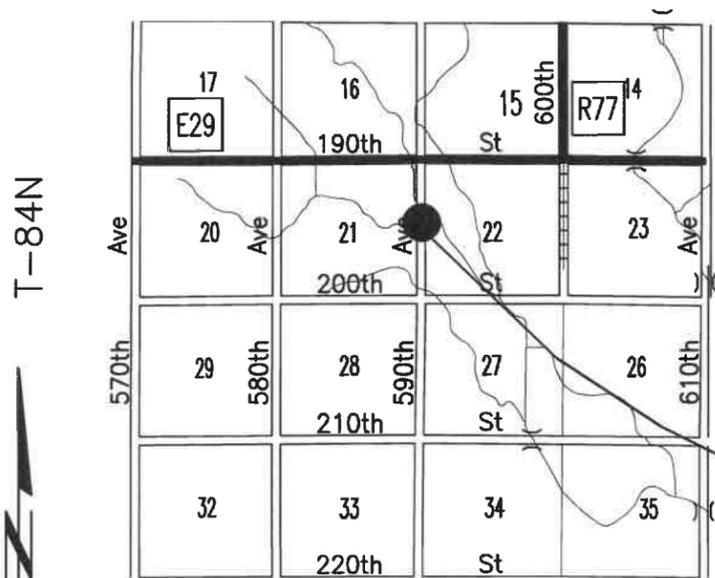
Refer to Proposal Form for a list of applicable specifications.

Scales: As Noted

CORPS OF ENGINEERS PERMIT

CONSTRUCT THIS PROJECT ACCORDING TO THE REQUIREMENTS OF U.S. ARMY CORPS OF ENGINEERS Nationwide Permit No. 14. A COPY OF THIS PERMIT IS AVAILABLE FROM THE IOWA DOT WEBSITE. THE U.S. ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE. ([HTTP://WWW.ENRPERMITS.IOWADOT.GOV/](http://www.enrpermits.iowadot.gov/)).

R-23W



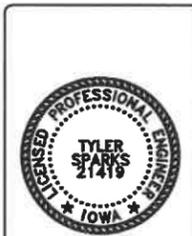
SEND SHOP DRAWINGS TO:

STORY COUNTY ENGINEER
837 N AVE.
NEVADA, IOWA 50201

PROJECT LOCATION

STA 1+27.00; On 590th Ave.;
over overflow of Milford 13, in
S21-T84-R23.

DESIGN FOR:
TWIN 10'X4'X42'
PRE-CAST CONCRETE BOX
CULVERT ON 0° SKEW



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.

Signed: Tyler Sparks Date: 1-16-26

Tyler Sparks, P.E. 21419
My license renewal date is December 31, 2026

Pages or sheets covered by this seal:
(Entire submission unless specified here)

Project No. L-M22--73-85

INDEX OF SHEETS	
No.	Description
A.01	TITLE SHEET
B.01	TYPICAL SECTIONS SHEET
B.02	CULVERT SECTION SHEET
C.01	QUANTITY INFORMATION SHEET
C.02	GENERAL NOTES SHEET
C.03	TABULATION SHEET
D.01	PLAN AND PROFILE SHEET
W.01-W.02	CROSS SECTION SHEETS

MILEAGE SUMMARY			
Div.	Location	Lin. Ft.	Miles
I	STA. 0+50.00 TO STA. 2+00.00	150.00	0.028
Total		150.00	0.028

STANDARD ROAD PLANS		
The following Standard Road Plans apply to construction work on this project.		
Number	Date	Title
DR-101	04-18-17	PIPE CULVERT (BEDDING AND BACKFILL)
DR-102	04-21-15	PIPE CULVERT (COVER AND CAMBER)
DR-103	04-21-15	PIPE CULVERT (INSTALLATION DETAILS)
DR-104	04-19-16	DEPTH OF COVER TABLES FOR CONCRETE AND CORRUGATED PIPE
DR-302	04-18-23	SUBDRAINS STANDARD (FARM TILE REPLACEMENT)
EC-301	10-18-22	ROCK EROSION CONTROL (REC)
EW-101	10-17-17	EMBANKMENT AND REBUILDING EMBANKMENTS
EW-102	10-20-15	ALLOWABLE PLACEMENT OF UNSUITABLE SOILS IN EMBANKMENTS
TC-252	04-21-20	ROUTES CLOSED TO TRAFFIC

Accepted by

Danny Mon 1-20-26
Story County Engineer Date

Approved Story County Board of Supervisors

PROJ No. L-M22--73-85

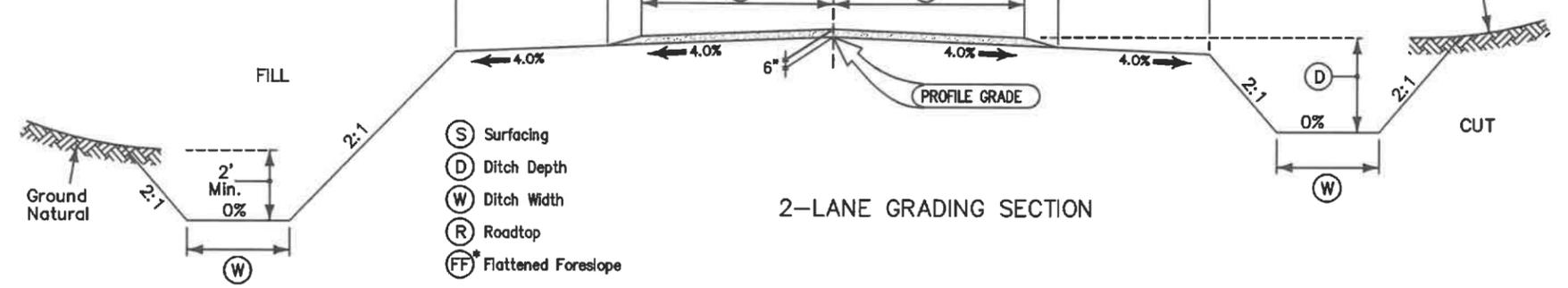
TYPICAL SECTIONS SHEET

Normal section shown may be modified appropriately in areas of super-elevated curves or other locations specifically designated by the Engineer.

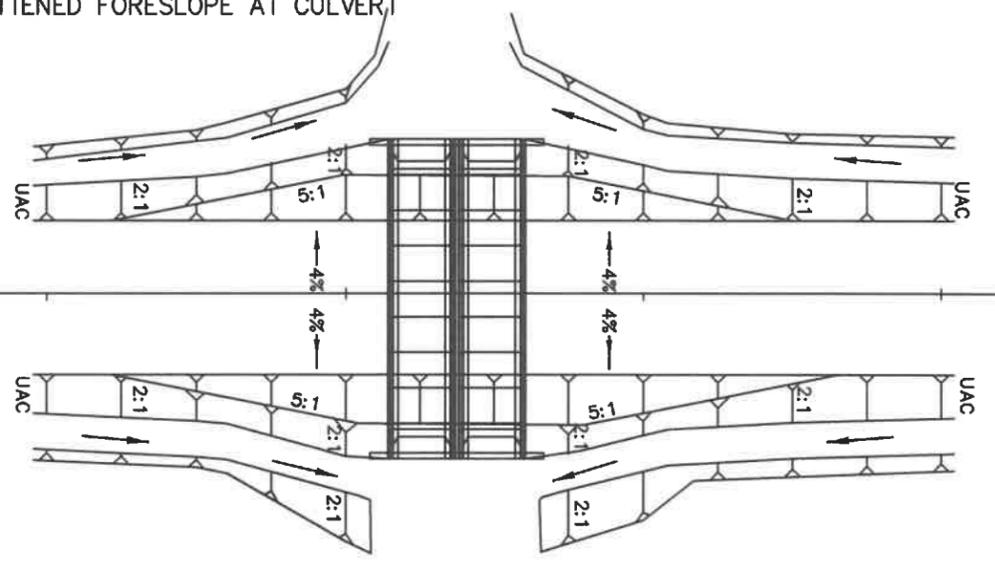
See Plan & Profile sheets and cross sections for additional details of ditches and backlopes.

LOCATION				DIMENSIONS				
ROAD IDENTIFICATION	SIDE	STATION TO STATION		FF*	D	W	R	S
				Feet	Feet	Feet	Feet	Feet
590th Ave.	Lt.	0+50.0	0+67.4	0	var.	6	13	11
590th Ave.	Lt.	0+67.4	1+06.9	var.	var.	6	13	11
590th Ave.	Lt.	1+06.9	1+44.8	8	var.	6	13	11
590th Ave.	Lt.	1+44.8	1+86.9	var.	var.	6	13	11
590th Ave.	Lt.	1+86.9	2+00.0	0	var.	6	13	11
590th Ave.	Rt.	0+50.0	0+67.4	0	var.	6	13	11
590th Ave.	Rt.	0+67.4	1+09.5	var.	var.	6	13	11
590th Ave.	Rt.	1+09.5	1+47.4	8	var.	6	13	11
590th Ave.	Rt.	1+47.4	1+86.9	var.	var.	6	13	11
590th Ave.	Rt.	1+86.9	2+00.0	0	var.	6	13	11

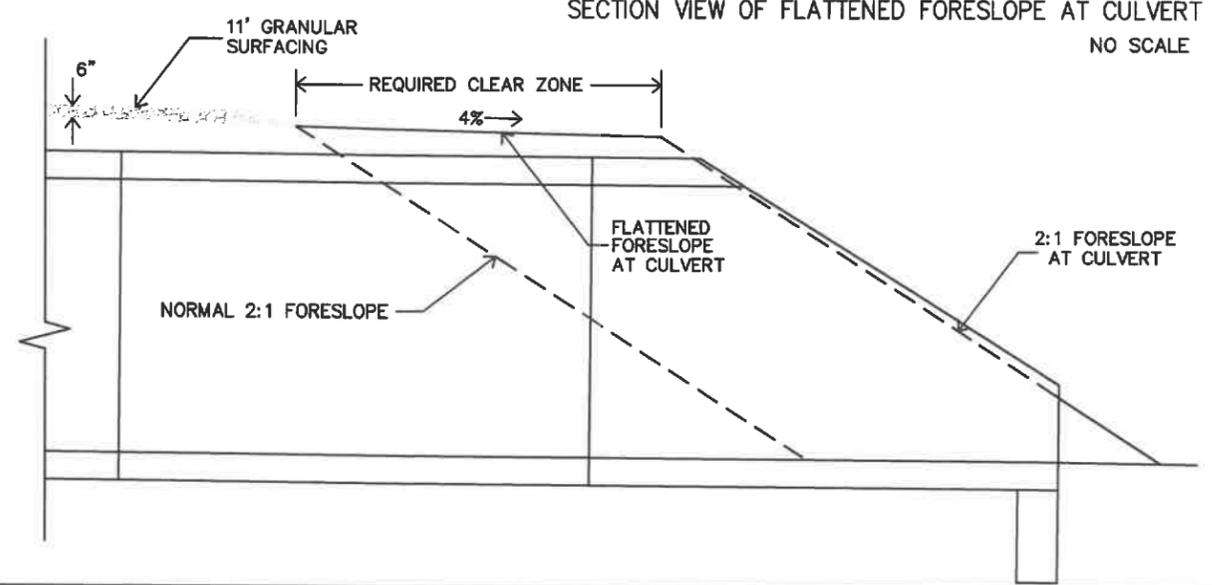
* Flattened foreslope at culvert to meet clear zone requirements.



PLAN VIEW OF FLATTENED FORESLOPE AT CULVERT
NO SCALE

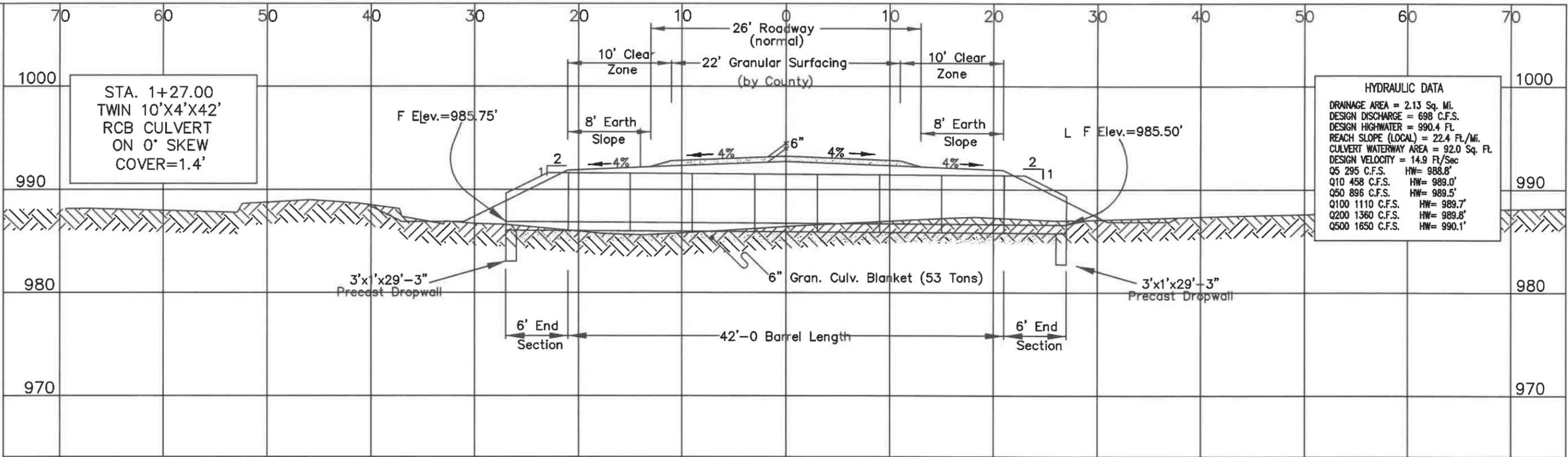


SECTION VIEW OF FLATTENED FORESLOPE AT CULVERT
NO SCALE



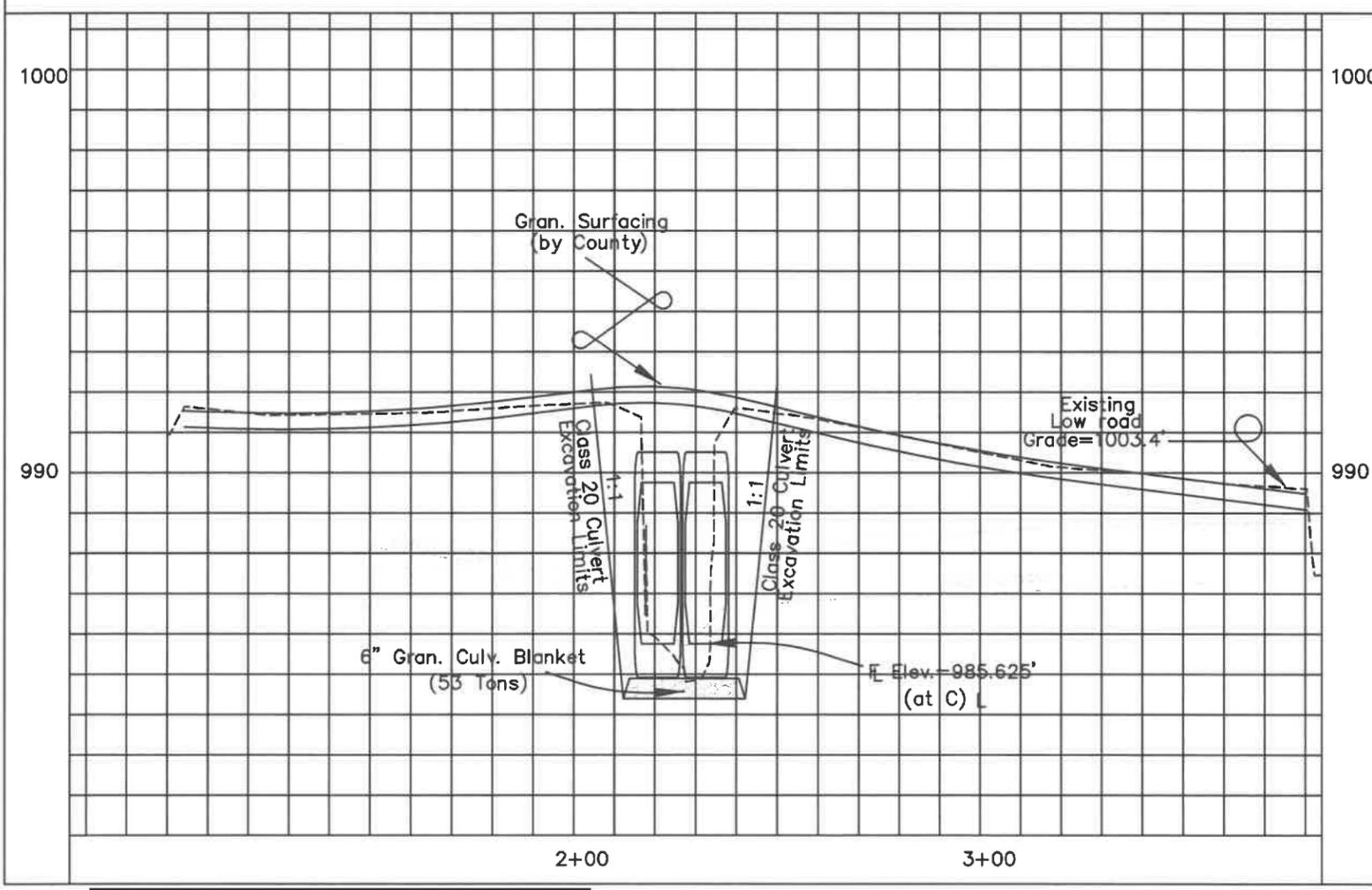
PROJ No. L-M22--73-85

CULVERT SECTION SHEET

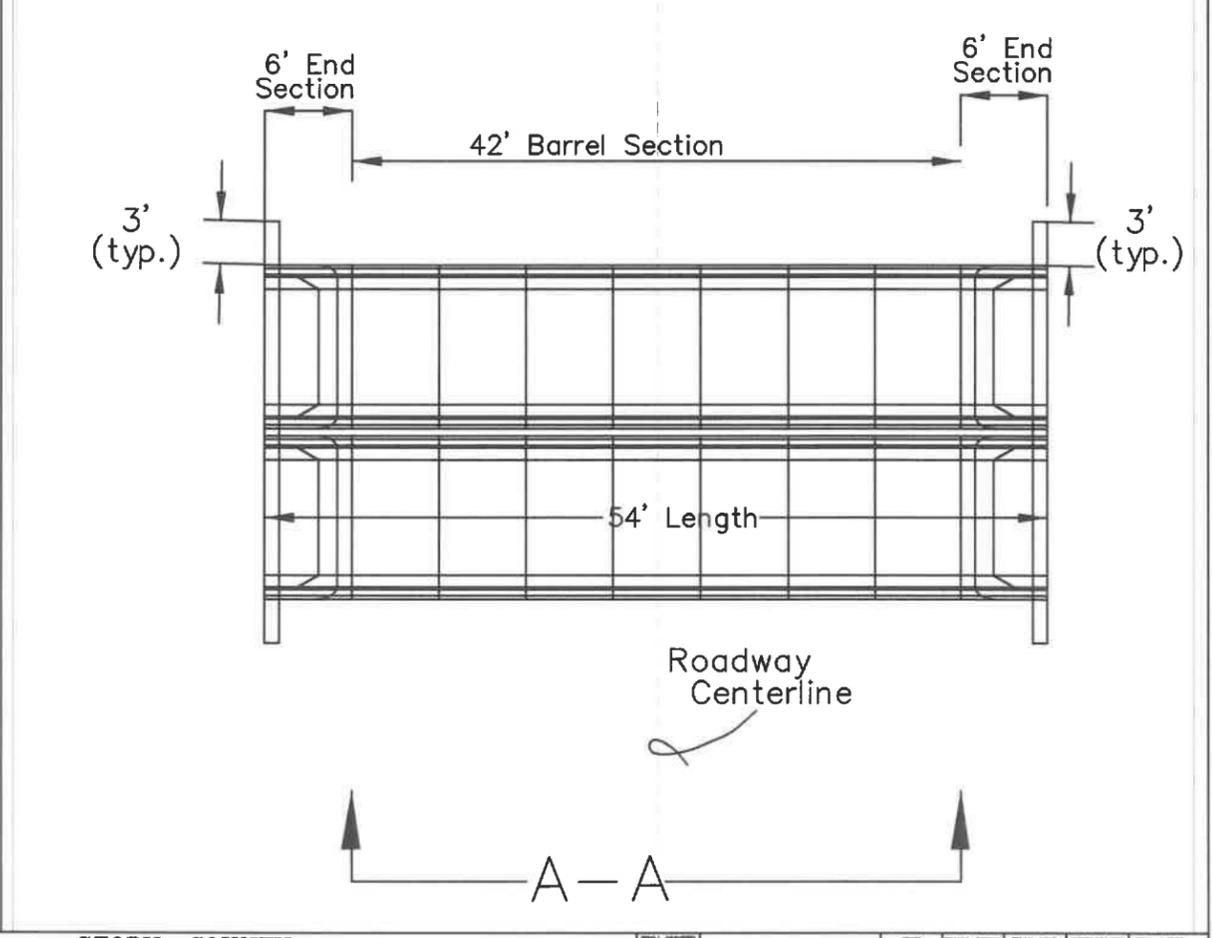


HYDRAULIC DATA

DRAINAGE AREA = 2.13 Sq. Mi.	
DESIGN DISCHARGE = 698 C.F.S.	
DESIGN HIGHWATER = 990.4 FT.	
REACH SLOPE (LOCAL) = 22.4 FT./Mi.	
CULVERT WATERWAY AREA = 92.0 Sq. Ft.	
DESIGN VELOCITY = 14.9 Ft/Sec	
Q5 295 C.F.S.	HW= 988.8'
Q10 458 C.F.S.	HW= 989.0'
Q50 896 C.F.S.	HW= 989.5'
Q100 1110 C.F.S.	HW= 989.7'
Q200 1360 C.F.S.	HW= 989.8'
Q500 1650 C.F.S.	HW= 990.1'



RCB Plan View Detail

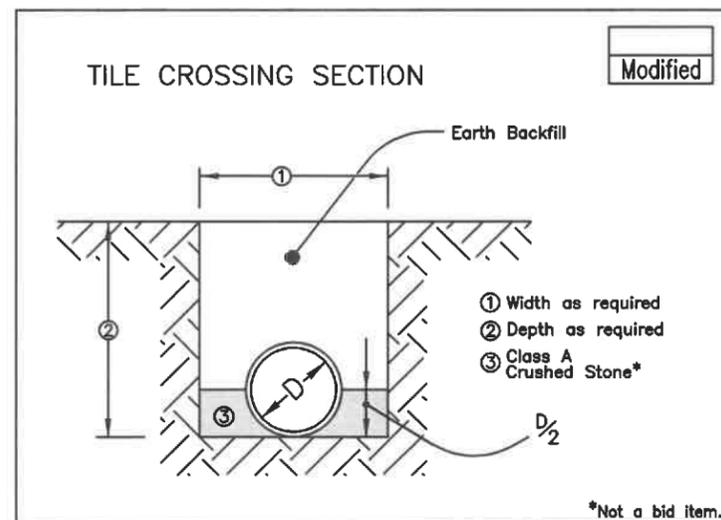


ESTIMATED PROJECT QUANTITIES OF QUANTITIES
(1 DIVISION PROJECT)

ITEM	ITEM CODE	ITEM	UNIT	TOTAL
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0.2
2	2102-2710070	EXCAVATION, CL 10, ROADWAY AND BORROW	CY	216.3
3	2102-4560000	LOCATING TILE LINES	STA	1.0
4	2104-2710020	EXCAVATION, CL 10, CHANNEL	CY	35.0
5	2110-3825010	GRANULAR MATERIAL	TON	53.0
6	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1.0
7	2402-2720000	EXCAVATION, CLASS 20	CY	86.9
8	2415-2111004	PRECAST CONCRETE BOX CULVERT, 10 FT. X 4 FT.	LF	84.0
9	2415-2201004	PRECAST CONCRETE BOX CULVERT END SECTION, 10 FT. X 4 FT.	EACH	4.0
10	2502-4388050	INTAKE, STANDPIPE, AS PER PLAN	EACH	1.0
11	2502-8215810	SUBDRAIN, TILE, 10 IN. DIA.	LF	20.0
12	2502-8215824	SUBDRAIN, TILE, 24 IN. DIA.	LF	100.0
13	2507-3250005	ENGINEERING FABRIC	SY	80.5
14	2507-6800061	REVTMENT, CLASS E	TON	42.0
15	2507-6875002	REVTMENT, REMOVE AND REPLACE	CY	8.0
16	2528-2518000	SAFETY CLOSURE	EACH	4.0
17	2528-8445110	TRAFFIC CONTROL	LS	1.0
18	2533-4980005	MOBILIZATION	LS	1.0

GENERAL NOTES

Story County to stake culvert control and right-of-way, maintain detour signing, furnish and place granular surfacing on roadway, apply seeding and mulching, and place erosion control measures.



ESTIMATE REFERENCE INFORMATION

ITEM NO.	DESCRIPTION
1.	The entire project shall be cleared and grubbed from BOP to EOP and from ROW line to ROW line
2.	Plan quantity is based on approximately 176.04 CY of fill (30% shrink factor) and 216.33 CY of cut. Type A compaction required. No payment for overhaul will be made. Approximately 77 cy of this item includes the stripping, stockpiling, and spreading topsoil. Topsoil to be spread smooth to a minimum of 4" on all disturbed areas from catch points to edge of road. Slopes to be finished smooth to allow for seeding. See Cross Section sheets for station-by-station dirt quantities..
3.	Item for locating existing tile crossings that are to be replaced. Quantity includes locating 50' at Sta. 1+27 Rt. for the cross-road tile, 50' at Sta. 1+27 Lt. for the other end of the cross-road tile.
4.	Item for excavating a 33'x8'x2' rock splash basin at the outlet and matching the inlet channel. Quantity includes 18.4 cy for the outlet splash basin and approx. 15.0 cy for channel matching. Suitable excavated material may be drained and wasted on roadway foreslopes with the approval from the Engineer.
5.	Approximately 53 tons of 1" rock is required under the box for bedding.
6.	Materials from the old structure shall become the property of the Contractor according to article 1104.08 of the Standard Specifications, and removed from site. The existing structure is a 18'x24' treated timber beam bridge on a 0' skew with timber piling, backwalls, and wingwalls.
7.	Item for excavation for culvert placement. Suitable material may be used to backfill culvert and supplement Class 10 roadway quantity with approval from the Engineer.
8.-9.	Precast RCB culvert shall be a twin 10'x4'x42' with straight end sections on the outlet and inlet. The culvert shall be supplied by the Contractor as per plan, which includes dropwalls. See tabulation on Sheet C.03 and notes on Sheet C.02 for details.
10.-12.	Item for the replacement of drainage tile roadway crossing. The 24" tile is to be dual wall plastic. The 10" tile to be single-wall plastic. The intake shall be of the plastic Hickenbottom standpipe type, and 10" in diameter. Price bid shall include trenching and furnishing all materials, fittings, labor and equipment necessary for replacing existing drainage tile roadway crossing. See Tabulation 104-5C on Sheet C.03 and backfilling detail on this sheet for more information. Class A crushed stone and removal of abandoned tile shall be incidental to this item. All the removed existing tile shall become the property of the Contractor and shall be disposed of by the Contractor. Burying removal materials on site will not be allowed. See plan sheet for approximate location, actual location will be determined by locating (see item 3)
13.	Items for the construction of a rock splash basin at the outlet and slope protection at all four wings. See Tabulation 100-23 on Sheet C.03 for stationing and quantities, and Standard Road Plan EC-301 for details.
14.	See Tabulation 108-13A on Sheet C.03 for stationing and quantities.
15.	Item for the removal, stockpiling, and disposal of existing revetment and broken concrete. Preliminary survey shows several pieces of broken concrete lying in the streambed and on the stream banks. Quantity is an estimate only. Contractor shall be paid actual quantity by measuring the stockpile and computing its volume. Basis of Payment shall be in cubic yards as computed by measurements.
16.	See Standard Road Plan TC-252 for details.

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GENERAL NOTES SHEET

GENERAL NOTES

GENERAL NOTES:

Contractor to construct a twin 10'x4'x42' pre-cast concrete box culvert on a 0° skew, on 590th Ave. over a field drainage waterway, and grade approaches.

It shall be the contractor's responsibility to provide waste areas or disposal sites for excess material (excavated material or broken concrete) which is not desirable to be incorporated into the work involved on this project. These areas shall not impact wetlands or "Waters Of The U.S." No payment for overhaul will be allowed for material hauled to these sites. No material shall be placed within the right-of-way, unless specifically stated in the plans.

Contractor shall maintain access to individual properties during construction, and any associated work shall be considered incidental to this project.

Construction activities, equipment, and materials shall be kept out of the streams, wetlands, or other bodies of water to the maximum extent practicable.

CONTRACTOR'S WORK AREA:

The Contractor's work and material storage area shall be defined by the Contractor and noted to the Engineer. Any area outside the Contractor's work and material storage area that is disturbed by the Contractor shall be repaired to its original condition by the Contractor and no additional payment shall be made for this work.

UTILITY NOTES:

The Contractor shall call One Call at least 48 hours prior to beginning work. Utility companies found to be located within the construction area are listed on the title sheet of these plans. See Section 1107.15 of the Iowa DOT Standard Specifications For Highway And Bridge Construction, Series 2015, regarding utility related responsibilities.

SHOP DRAWING NOTES:

Working drawings and calculations shall be furnished by the Contractor and certified by a licensed engineer in the State of Iowa, and shall be submitted to the Story County Engineer for review and approval. Refer to Section 1105.03 for additional information.

HAZARDOUS MATERIALS NOTES:

It is presumed that there is no asbestos at this site. However, should the occasion arise that asbestos is discovered during bridge demolition, then demolition shall cease and the County will contract with a licensed asbestos contractor to remove any asbestos.

EMERALD ASH BORER NOTE:

Dispose of all wood material generated as a result of clearing and/or grubbing according to the Iowa Department of Agriculture and Land Stewardship's Emerald Ash Borer (EAB) Quarantine Order. For more information refer to http://www.iowatrepests.com/eab_regulations.html.

INDIANA BAT HABITAT:

See Iowa DOT Specification 2101.01.

PRE-CAST CULVERT NOTES

INSTALLATION NOTES:

The "twin" culvert will actually be two single 10'x4' pre-cast culverts placed side by side, 6" apart. The spaces between shall be filled with concrete. See detail on this sheet below. All costs including material, equipment, forming, and labor associated with filling the spaces with concrete shall be incidental to the bid item Precast Concrete Box Culvert.

Precast concrete box culvert sections shall be laid with the groove end of each section up-grade, and the sections shall be tightly joined. Joint openings between sections should be as tight as practicable and limited to a maximum of 1/4 inch openings. The joint on the bottom of the culvert shall be sealed with a flexible water tight 1" butyl rope gasket as per Materials I.M. 491.09. The butyl rope gasket shall be installed in accordance with the recommendations of the manufacturer and shall extend vertically 6" above the bottom fillet. All joints shall be trimmed clean on the inside after sealing. The contractor shall also place a 2 foot wide piece of engineering fabric around the top and sides of each precast joint. The fabric shall be centered with 1 foot on each side of the joint. The fabric shall be attached to the walls and top of each section to prevent the fabric from slipping off the joint during backfilling operations. Attachment methods shall be approved by the engineer.

All costs including material and labor associated with providing the engineering fabric and installing it as required shall be included in the bid item Precast Concrete Box Culvert. The engineering fabric shall meet the material requirements as set forth in 4196.01c of the Iowa DOT Standard Specifications. During backfilling the compaction adjacent to the bottom corner radii shall be accomplished with a mechanical hand compactor. The contractor shall furnish and install lifting hole plugs for each section. Lifting holes shall be plugged with a precast concrete plug, sealed and covered with mastic or mortar.

DESIGN REQUIREMENTS:

The precast culvert sections shall meet the minimum requirements of ASTM C 1577, Table 1 sections that are designed for combined earth dead load and AASHTO HL-93 live load conditions. Any precast box culvert designs submitted that vary from the ASTM C 1577 standard, shall be designed and sealed by a professional engineer, currently registered in the State of Iowa. Minimum length of precast sections shall be 4.0 feet. Minimum culvert wall thickness shall be 8 inches.

PRE-CONSTRUCTION NOTES:

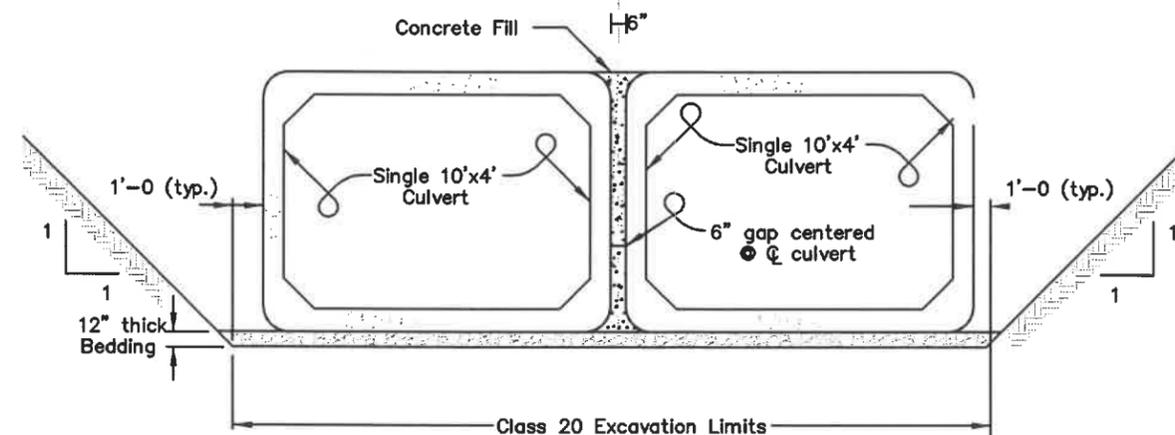
The Contractor shall submit details of the proposed precast box sections to the Story County engineers office for approval. These details shall include a situation plan, culvert barrel cross sections showing steel, and end section details. The length in linear feet of precast concrete box culvert will be based on the plan quantity.

For the number of linear feet given on the plan, the Contractor will be paid the contract unit price per linear foot. The payment shall be full compensation for furnishing all materials, labor and equipment necessary to complete the work except for items in end sections and Class 20 Excavation.

For each precast box culvert end section installed the Contractor will be paid the contract price for each. The payment shall be full compensation for furnishing all materials (including dropwalls), labor and equipment necessary to complete the work except for items in precast concrete box culvert and Class 20 Excavation.

Dropwalls shall be precast.

The Contractor shall furnish culvert ties for all joints. The main section joints will have one tie on each side of the barrel and the last barrel section will be attached to the end sections with two ties per side. Culvert ties shall be included in the cost for precast concrete box culvert. Tie rods will be 1 inch in diameter steel and shall meet requirements of ASTM A 709 grade 36 or equal. Culvert tie assemblies shall be galvanized or painted according to 2408.30 of the Iowa DOT Standard Specifications. Acrylic topcoat not required.



PROJ No. L-M22--55-85

TABULATIONS SHEET

DRAINAGE STRUCTURES BY CULVERT CONTRACTOR

* Not a bid item.

Location	Size Ft.	Type	Length New Const. Lin. Ft.	No. of Aprons	Flow Line Elevation				Dimensions - Lin. Ft.				Skew Ahead		By Road Contractor			Floodable* Backfill (A)	Porous* Backfill (B)	Flooded Backfill (A+B)	REMARKS					
					Left	Right	Other	Other	Left	Right	Left	Right	Left	Right	Degrees Left	Right	Lt.					Rt.	Location Station	Top Elev.	Type	Comp. Backfill Cu. Yds.
1+27.00	10x4	Twin RCB	42.0		985.75	985.50			27.1	26.9				0									86.9 cy Class 20 Excav.			

LIST OF SUBDRAIN WORK

* Not a bid item.

Possible Standards: DR-121, DR-201, DR-203, DR-301, DR-302, DR-303, DR-305, and DR-306. Possible Detail: 500-10.

No.	Location Station to Station		Type of Installation DR-301, DR-302, DR-303	Pipe		Aprons			Outlets			Connected Pipe Joints* DR-121		Trench Drain LF	Granular Material Blanket CY	Porous Backfill* CY	Class "A" Crushed Stone* CY	Remarks
				Concrete C.M.P., C.M.P. Coated, or Plastic	Dia. IN	Length LF	DR-201 No.	DR-203 No.	500-10 No.	DR-305 Type	DR-306 No.	Type	No.					
1	1+26.9 Rt.	1+20.8	DR-302	Plastic	24	100												Connecting Tile to Intake
1	1+26.9 Rt.	1+20.8	DR-302	Plastic	10	20												Connecting Tile to Intake

ROCK EROSION CONTROL

Refer to EC-30 and Detail 570-81

Location				L FT	W FT	Rock Erosion Control (REC)					Material Bid Quantities			Remarks
Road Identification	Begin Station	End Station	Side Lt./Rt.			Type 1	Type 2	Type 3	Type 4	Type 5	Eng. Fabric SY	Class E Revetment TON	Erosion Stone TON	
						Rock Ditch Check	Rock Ditch	Rock Flume	Rock Splash Basin	Rock Slope Protection				
590th Ave.	1+10.9	1+43.9	25.0' Rt.	30	8				X	49.3	33.0		Splash Basin at RCB outlet.	
590th Ave.	1+10.9	1+43.9	19.0' Rt.	3	7				X	15.6	4.5		Wing Armoring at outlet.	
590th Ave.	1+10.2	1+40.7	18.7' Rt.	3	7				X	15.6	4.5		Wing Armoring at Inlet.	

TABULATION OF SAFETY CLOSURES

Refer to Section 2518 of the Standard Specifications

STATION	CLOSURE TYPE		REMARKS
	ROAD QTY.	HAZARD QTY.	
0+50.0	1		
0+75.0		1	
1+75.0		1	
2+00.0	1		
	2	2	TOTAL = 4.00

INTAKES AND UTILITY ACCESSES

* Bid Item.
** For SW-545

No.	Location Station	Type or Standard Road Plan*	Form Grade	Bottom Well	Extension Length **	Notes
			Elev.	Elev.	FT	
1	1+26.9; 30.7' Rt.	standpipe	982.50	980.50		Plastic Hickenbottom-riser type, 10" in diameter.

PROJ No. L-M22--73-85

PLAN AND PROFILE SHEET

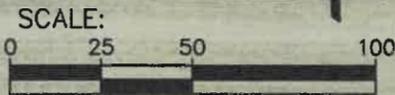
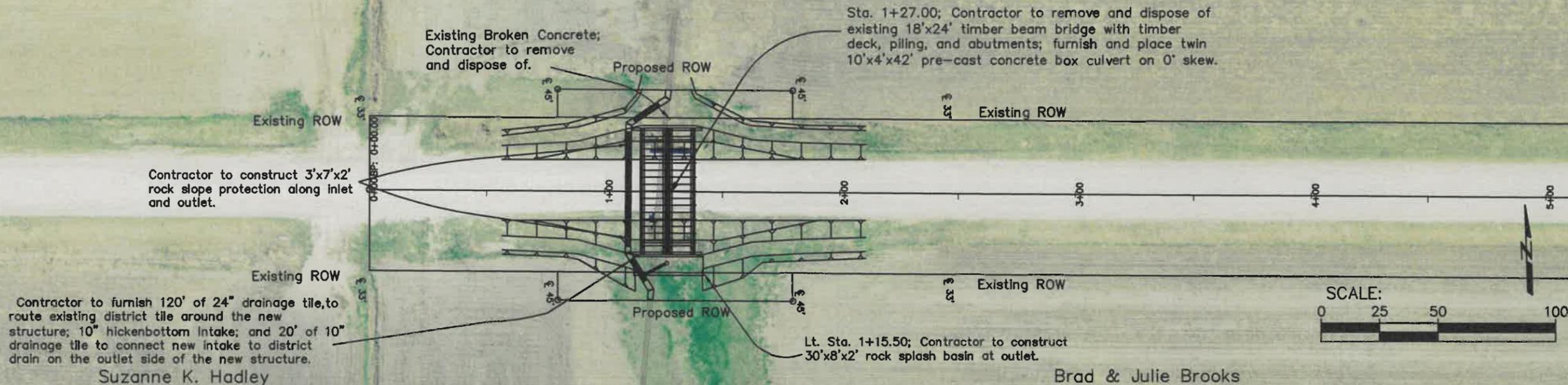
NE¼, SE¼, Sec. 21-84-23

Timothy R. Hadley

SW¼, NE¼, Sec. 21-84-23

Coder Family Farms LLC

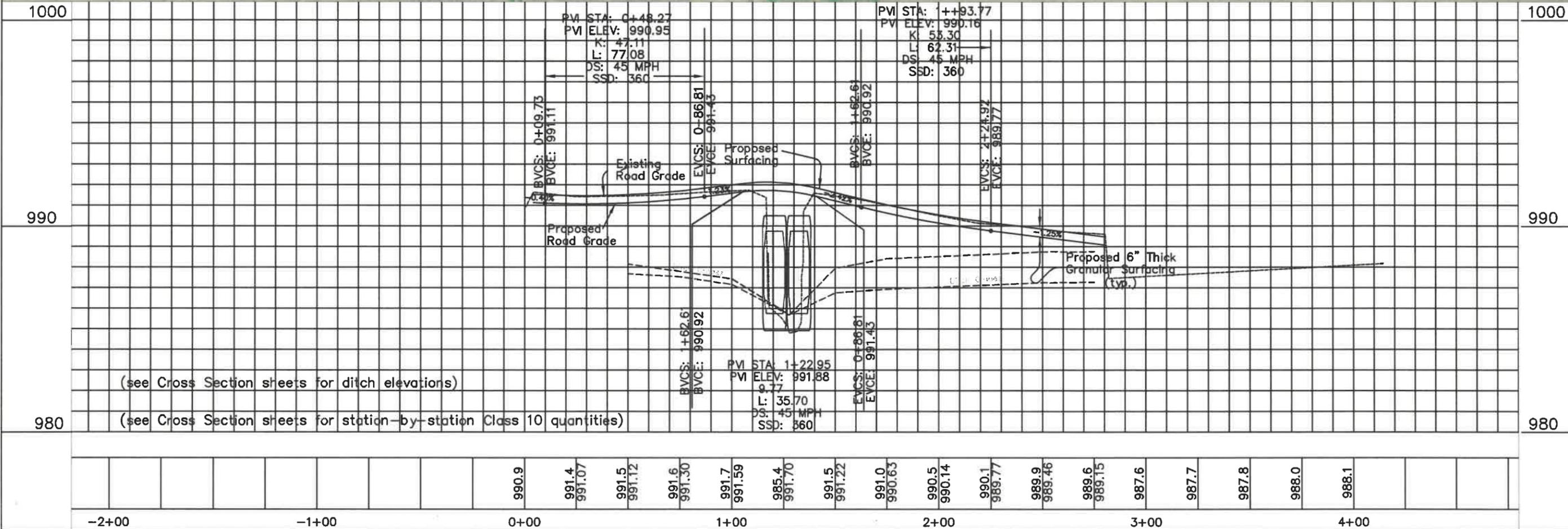
- Water Line
- FIBER - FIBER - Fiber Cable
- ⊕ Power Pole
- ⊗ Telephone Ped
- Tile Intake
- ⊕ Water Valve



NW¼, SW¼, Sec. 22-84-23

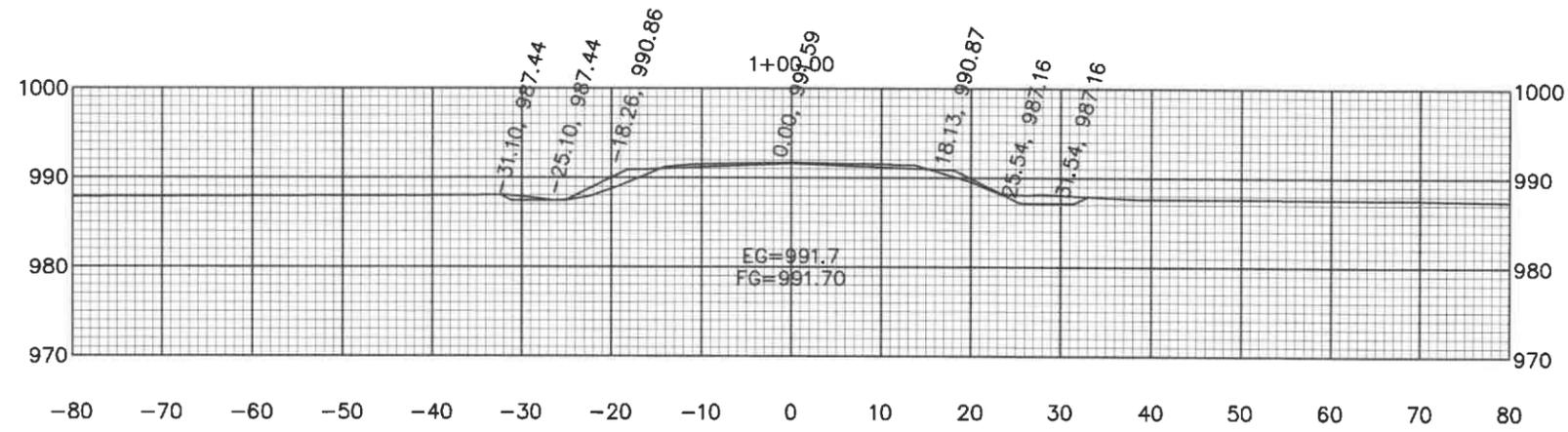
SW¼, NW¼, Sec. 22-84-23

BM: W¼ Cor. Sec. 22; Fd. ½" bar; on centerline; Sta. 0+00.00; Elev.=980.89

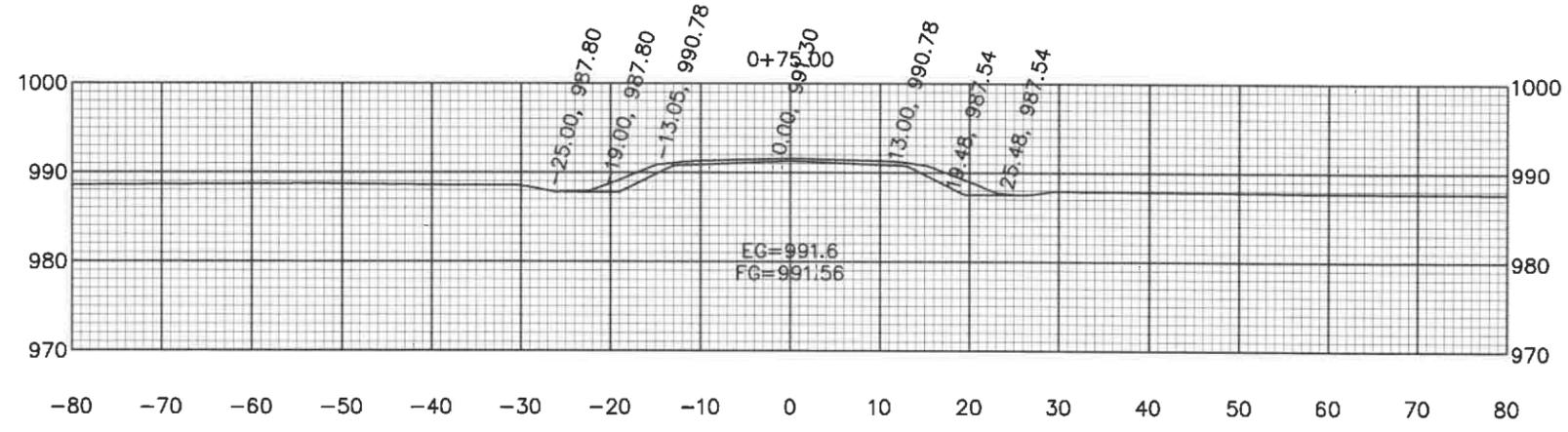


(see Cross Section sheets for ditch elevations)

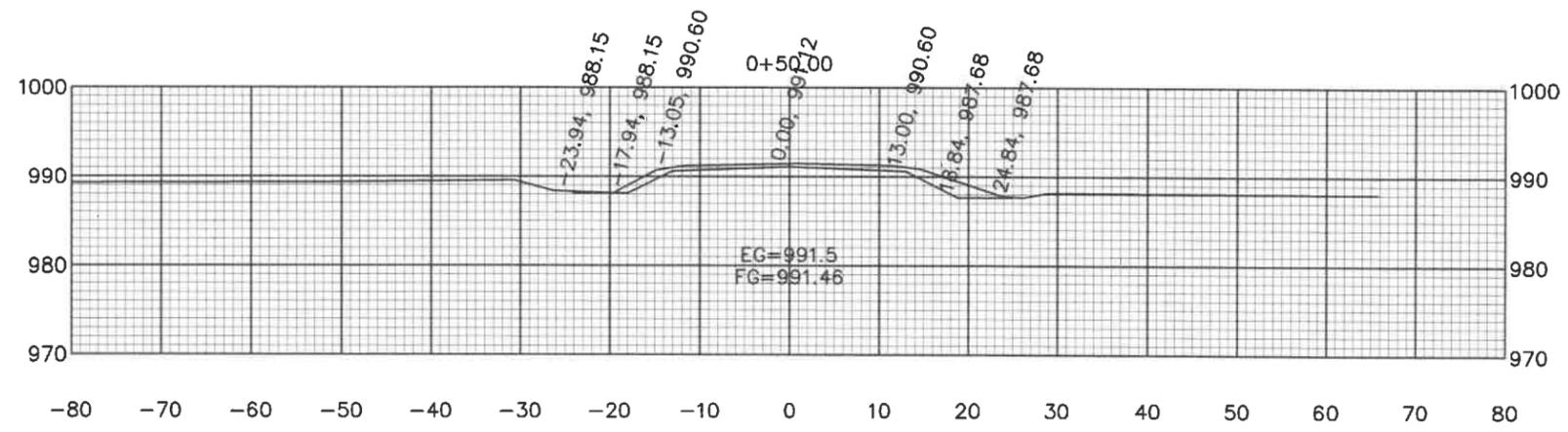
(see Cross Section sheets for station-by-station Class 10 quantities)



Sta. 1+00.00	
Cut Area	15.81
Fill Area	11.71
Cut Vol	21.10
Fill Vol	7.05



Sta. 0+75.00	
Cut Area	29.76
Fill Area	0.00
Cut Vol	27.59
Fill Vol	0.00



Sta. 0+50.00	
Cut Area	29.84
Fill Area	0.00
Cut Vol	13.82
Fill Vol	0.00

