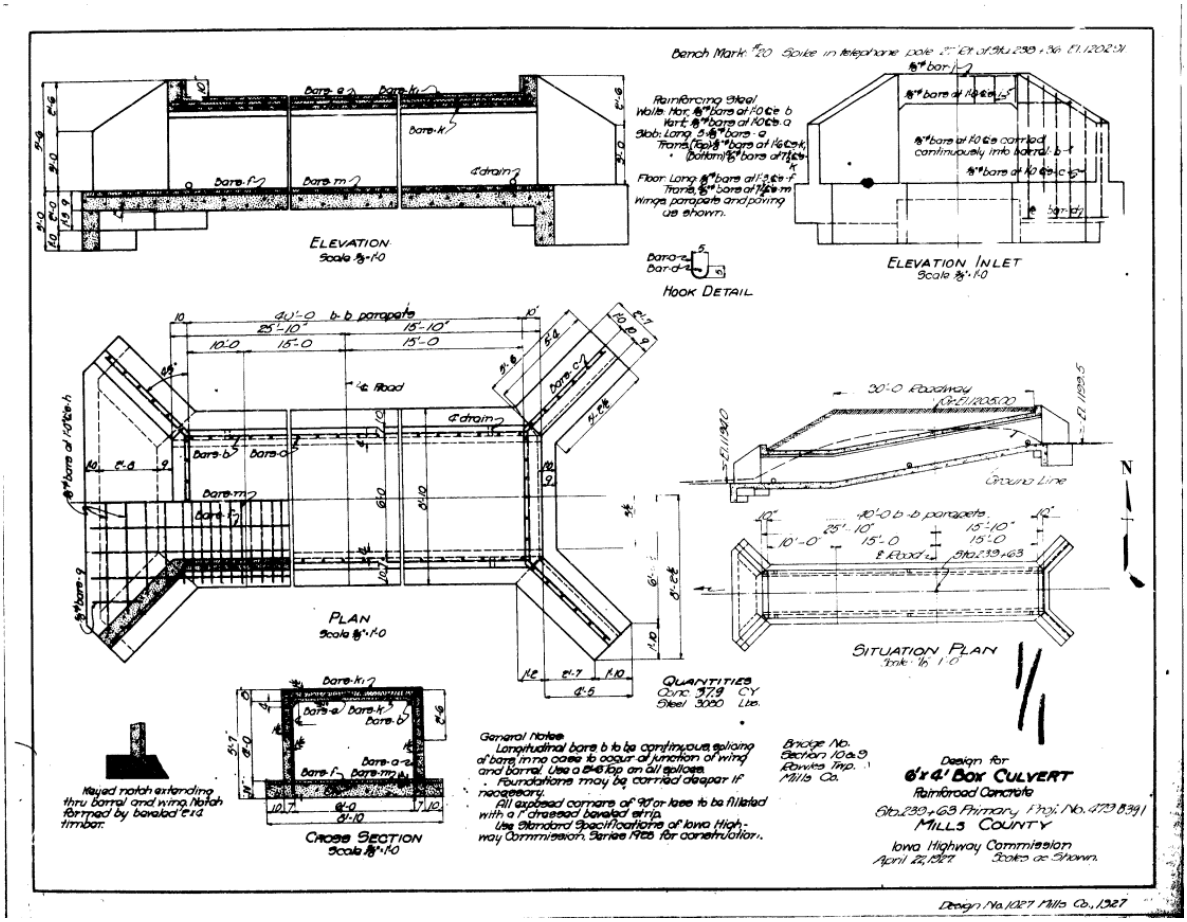
IOWA DEPARTMENT OF TRANSPORTATION

TO OFFICE:	District 4	**DATE:**	November 12, 2020
ATTENTION:	Wes Mayberry	**REF. NO.:**	500 Mills County STPN-275-2(25)--2J-65 PIN: 20-65-275-020
FROM:	Orest Lechnowsky		
OFFICE:	District 4 Design Staff Engineer		
SUBJECT:	2022 Pipe Culvert Project Concept – **FINAL**	**FOLDER:**	pw://.../6527502020/

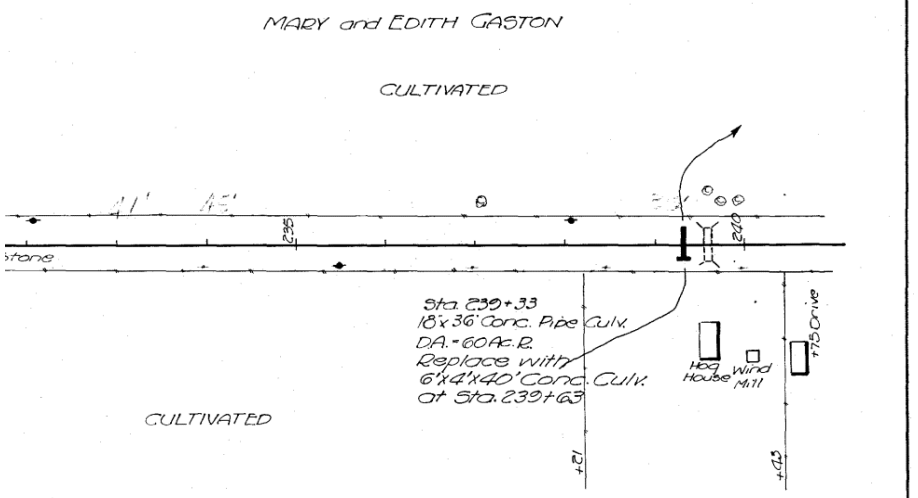
LOCATION MAP:

PROJECT DATA:
ROUTE: On US 275 Approx 0.33 mi S of Co Rd H40
PLANNING CLASSIFICATION: 4-Acess Routes
MAINTENANCE SERVICE LEVEL: C
TRAFFIC:
2016: 1830 ADT, 7% trucks

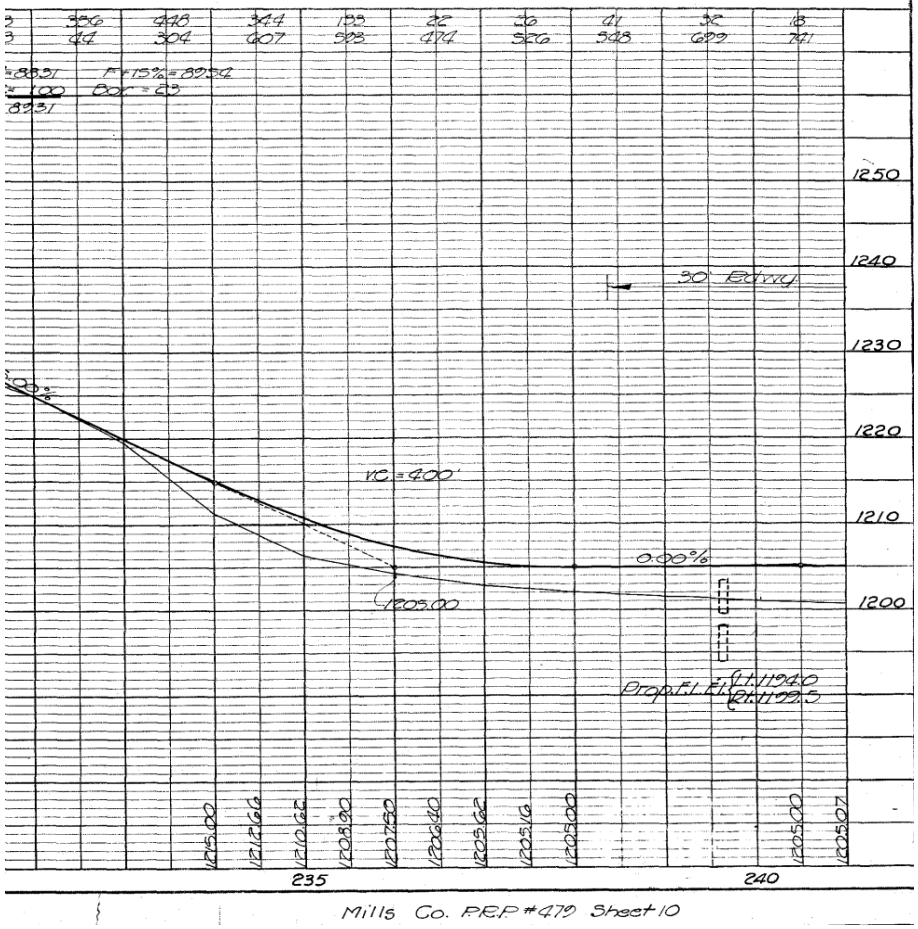
EXISTING CONDITIONS AND NEED FOR WORK:



FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
5	Iowa	479		10	67



BENCH MARKS
No 19 Sta. 223+82 Spike in tel. pole 40' Lt. ..... El. = 1252.14
No 20 Sta. 238+36 Spike in tel. pole 27 Rt. ..... El. = 1202.91



Mills Co. P.R.P. #479 Sheet 10

The culvert in the above as-built sheet, extracted from plans dated 1927, is located north of Tabor in Mills County. This RCB culvert measures 6'x4'x40' and has a vertical bend. It drains a 60 acre basin of rolling topography.

As shown in the plan sheet there is a significant difference between the inlet and outlet flow lines. The outlet end is currently mostly buried. The inlet headwall is located approximately 3' from the current edge of pavement. There is damage to the roof of the culvert which is allowing soil to fall into the culvert. This has resulted in a dip in the roadway above the culvert which has been addressed with a spot overlay.

Due to the vertical bend, the culvert cannot be slip-lined. Due to the age and condition of the RCB repair and extension is also impractical.

Topo and ROW survey have been requested and completed by District 4 ROW survey crew. Survey information is available on ProjectWise.

PEDESTRIAN AND BICYCLE ACCOMMODATION:
The project area is a rural facility. No sidewalks are found within the project area. ADA accommodation work is not anticipated.

SAFETY CONSIDERATIONS:
Crash history shows no accidents in the vicinity of this culvert in the last 10 years.

RECOMMENDATIONS:
It is recommended that a new 48" RCP be jacked under the roadway adjacent to the current structure, with flowlines optimized for the existing grade. The 48" RCP will handle a Q50 flow for the drainage basin. The existing structure should be filled with flowable mortar and abandoned, after removing headwall and wingwalls. The existing roadway section in this area will be modified to ensure the ends of the culvert are at minimum three feet outside the edge of the proposed shoulder. This work would also include minor grading, minor clearing and grubbing, and a small amount of HMA shoulder paving. Temporary easement will be required to provide a 100 foot square area for staging and constructing the jacking pit on the downstream (west) side.

The road is to remain open during construction.

ESTIMATED COST (thousands):

Jack 48"x50' RCP	$50
Clear and Grub	$2
Minor Grading	$7
Plug and abandon existing	$5
48" Aprons w/ guards	$6
4' HMA shoulder	$2
Traffic Control/Mobilization	$20
Misc 5%-10%	$9
Total	$101

SCHEDULE:
This is a District 4, FY 2022, 3R project. The proposed project is currently scheduled for the December 2021 letting.

DESIGN:
District 4 requests hydraulic design sheets be completed by the Preliminary Bridge office in Ames. ROW design will be required.

Orest Lechnowsky

cc:

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