

Faribault County, Minnesota County Ditch #26 Staff Repair Report

February 2021

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Drainage Dept

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CD26 Main Tile Repair

BACKGROUND

County Ditch #26 was established in 1915. The Engineer's Report showed the Main tile extending into the northwest quarter of Rome Township Section 3; however, the final order incorporated an existing private 15" tile into the system that extended the system across CR4 into Emerald Township Section 34 (Figure 1). The grade, size, and extent of this additional tile was unknown.

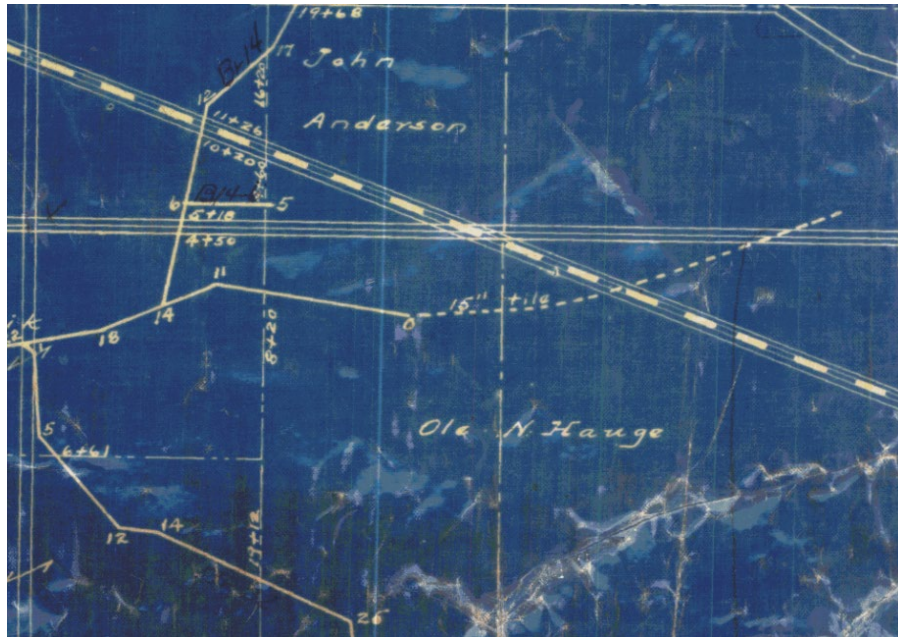


Figure 1. CD26 establishment map showing the 15" private tile that was incorporated into the system by final order.

A 2015 improvement project replaced the Main tile with 18" dual wall into the northeast of the northwest quarter of Rome Section 3. At the time of the improvement, it was not known that the private tile was incorporated into the system by final order in 1915, thus the improvement did not continue to its furthest extent as we know it today. However, the landowner privately continued the project with a 15" dual wall tile to the south edge of the railroad tracks in the northwest of the northeast quarter of Rome Township Section 3. The County tile that drains land north of the railroad tracks was cross-connected into this private 15" main. Landowners along the CD26 Main, upstream of the 2015 improvement project, have experienced poor drainage and reported multiple blowouts of the clay Main.

DATA COLLECTION

The clay main tile was televised from the cross-connection to the private 15" dual wall tile south of the railroad tracks in Rome Township Section 3 across CR4 into Emerald Township Section 34 and back across CR4 to the northeast quarter of the northeast quarter in Rome Township Section 3. The centerline and depths of the tile as well as ground surface elevations were recorded.

The Main tile at the railroad tracks was found to be 12" inside diameter. The depths of tile were plotted and profiled and the grade of the tile is estimated to be 0.10%. The approximate drainage area north of the railroad tracks is 88 acres, giving an estimated drainage coefficient of 0.80 inches per day.

PROPOSED REPAIR DETAILS

The proposed repair is to restore drainage to benefited acres north of the railroad tracks in Rome Township section 3 and Emerald Township Section 34. Replacing the tile in the same bearing would result in crossing County Road 4 twice. To save cost by limiting road crossings, the system is proposed to be split into two branches and deepened to provide adequate cover for the tile. The North Branch would cross the Railroad and CR4 and follow the same centerline as the existing tile but terminate before crossing CR4 a second time. The tile would include 12", 10", and 8" tile. The South Branch would stay south of CR4 and bear east from the junction with the North Branch and consist of 8" tile. Both the North and South Branches are sized to provide a 0.5 inch per day drainage coefficient at 0.1% grade. See Appendix A.

TIMELINE

The contractor will be required to complete all permitting requirements for the boring under CR4 and the Union Pacific Railroad. Boring should be completed during dry conditions. Tile installation could be completed in the fall after harvest.

ESTIMATED COST

Item	Unit	Quant	County Est Unit Price	County Est Amount
Mobilization	LS	1	\$ 10,000.00	\$ 10,000.00
Bore 18" HDPE Fused Drain Tile Under Railroad	LF	100	\$ 260.00	\$ 26,000.00
Bore 18" HDPE Fused Drain Tile Under CR4	LF	100	\$ 260.00	\$ 26,000.00
12" Ag Drain Tile	LF	80	\$ 13.00	\$ 1,040.00
10" Ag Drain Tile	LF	790	\$ 11.00	\$ 8,690.00
8" Ag Drain Tile	LF	2680	\$ 9.00	\$ 24,120.00
12" Drop Intake	EA	2	\$ 500.00	\$ 1,000.00
10" Drop Intake	EA	1	\$ 400.00	\$ 400.00
8" Drop Intake	EA	1	\$ 300.00	\$ 300.00
Private Tile Connections	EA	4	\$ 300.00	\$ 1,200.00
Fill abandoned pipe with sand or controlled low strength material under CR4 (x2) and Railroad per MNDOT Sec 2519	LF	360	\$ 13.00	\$ 4,680.00
Abandon clay tile	LS	1	\$ 2,000.00	\$ 2,000.00
Contingency 10%				\$ 10,543.00
				\$ 115,973.00



Watershed



Drop Intake



18" Steel Bored Pipe



12" Tile



10" Tile



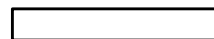
8" Tile



Private Tile



Existing Tile



1 inch = 300 feet

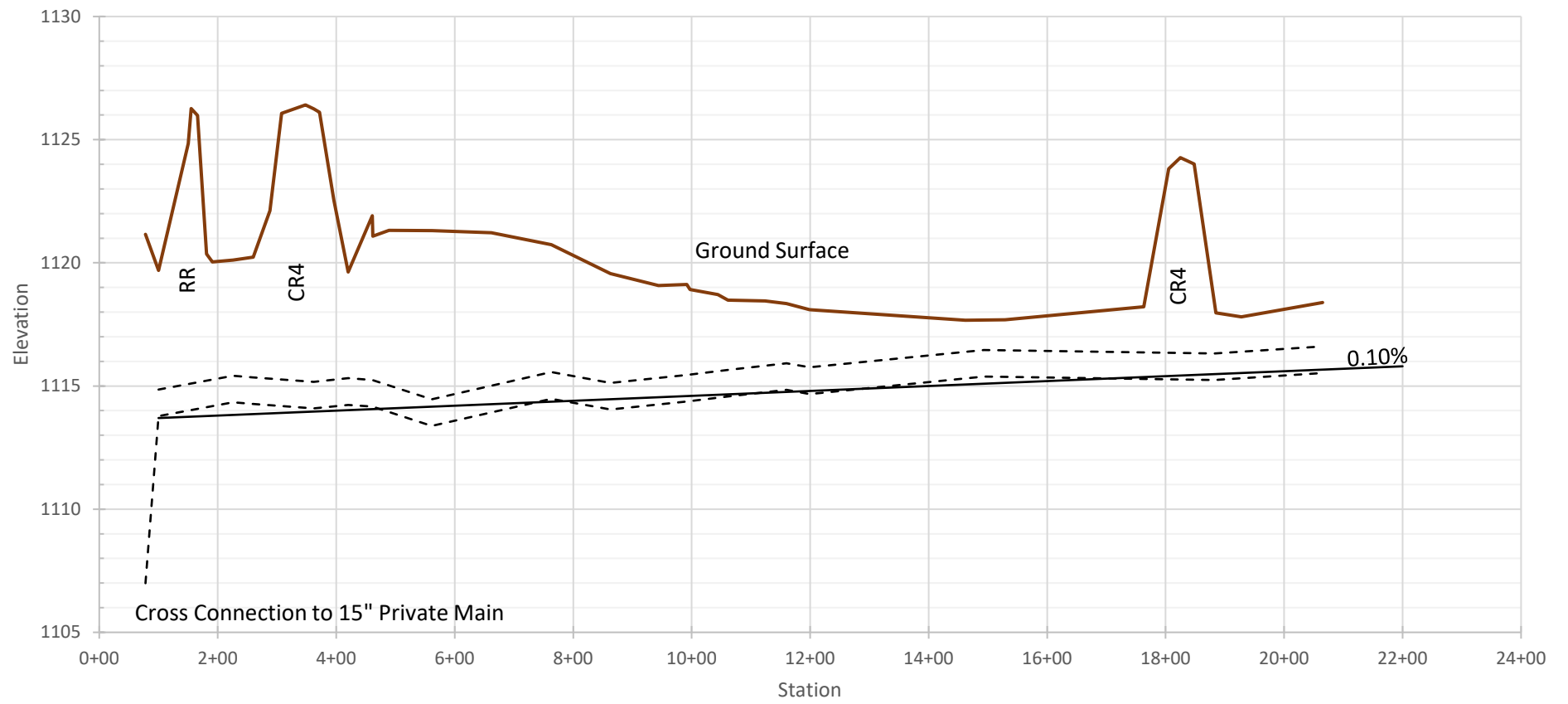


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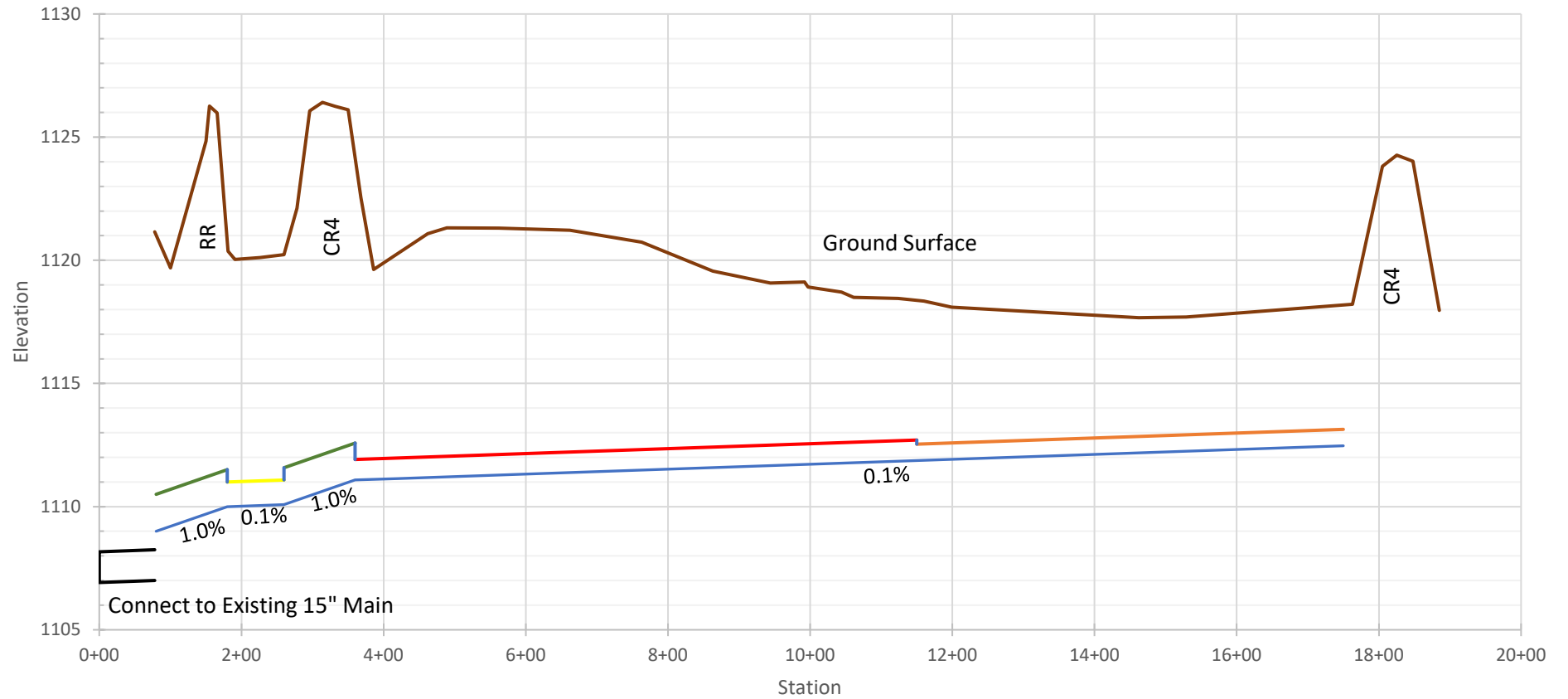
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Disclaimer: Faribault County and Faribault County SWCD do not warrant or guarantee accuracy of the GIS data. The data is meant for reference purposes only and should not be used for official decisions. The data contained in the maps were compiled from the best available records that could be found and may contain errors or omissions.

CD26 Main Trunk Existing Condition



CD26 Main North Repair



CD26 Main South Repair

