

Benton County Ditch 14 Record Re-establishment Public Hearing



Garrett Monson, PE
Benton County | August 18, 2020



Drainage Authority Responsibilities



- Benton County serves as the “drainage authority”
- Enforces State Drainage Law (Minnesota Statutes Chapter 103E)
- The drainage system is “owned” by landowners that paid for it (i.e., assessed)
- Lands assessed have a right to drain water to the ditch (within reason)
- Assessed landowner can request action by the drainage authority
- Drainage authority “administers” the system on behalf of the assessed landowners



Comprehensive Drainage System Management Cycle





Drainage Authority Responsibilities



M.S. 103E.101 Subd. 4a. If, after investigation of drainage system records, the drainage authority finds that the records are lost, destroyed, or otherwise incomplete, it may, by order, reestablish records defining the alignment; cross-section; profile; hydraulic structure locations, materials, dimensions, and elevations; or right-of-way of the drainage system as originally constructed or subsequently improved



Record Reestablishment Purpose

What Record Reestablishment Means

- Defines where the Drainage Authority can do work (limited to on the public drainage system)
- Defines maximum level of repair (as-built) and therefore drainage quality
- Work beyond the as-built (Improvement) has regulatory implications
 - Not exempt from COE
 - Wetland mitigation
 - Potential downstream impacts



Record Reestablishment Process



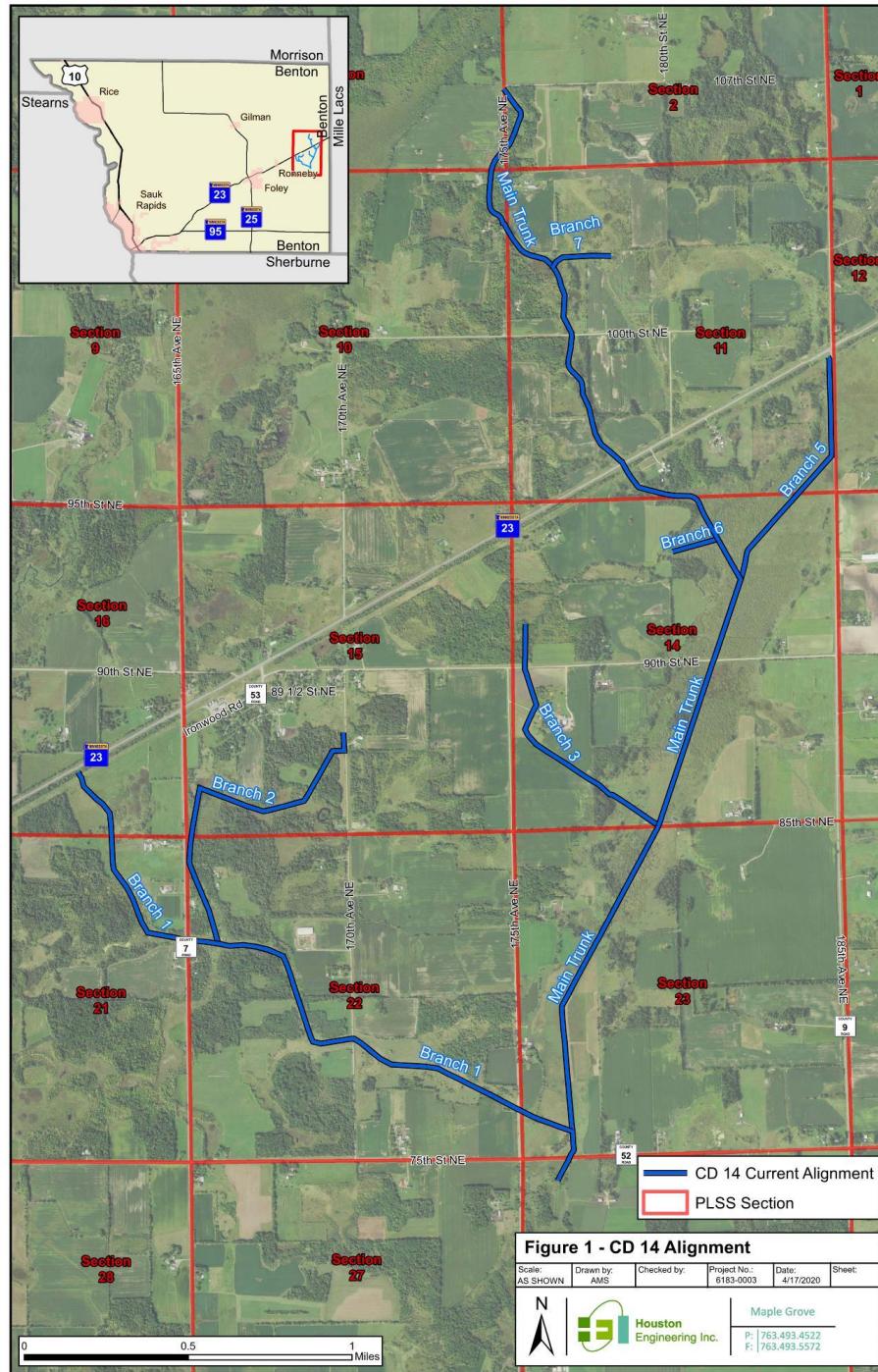
1. Investigate the historical development of the system by record review
2. Field survey
3. Establish the “As-Constructed and Subsequently Improved Condition”
4. Describe the right-of-way of the system
5. Engineer’s Report



CD 14 Location and History



- Maywood Township
- Approx. 9 miles of open channel ditch
- Established in 1915
- Main Trunk and 6 Branches
- Small repair of downstream end into CD 9 in 2004

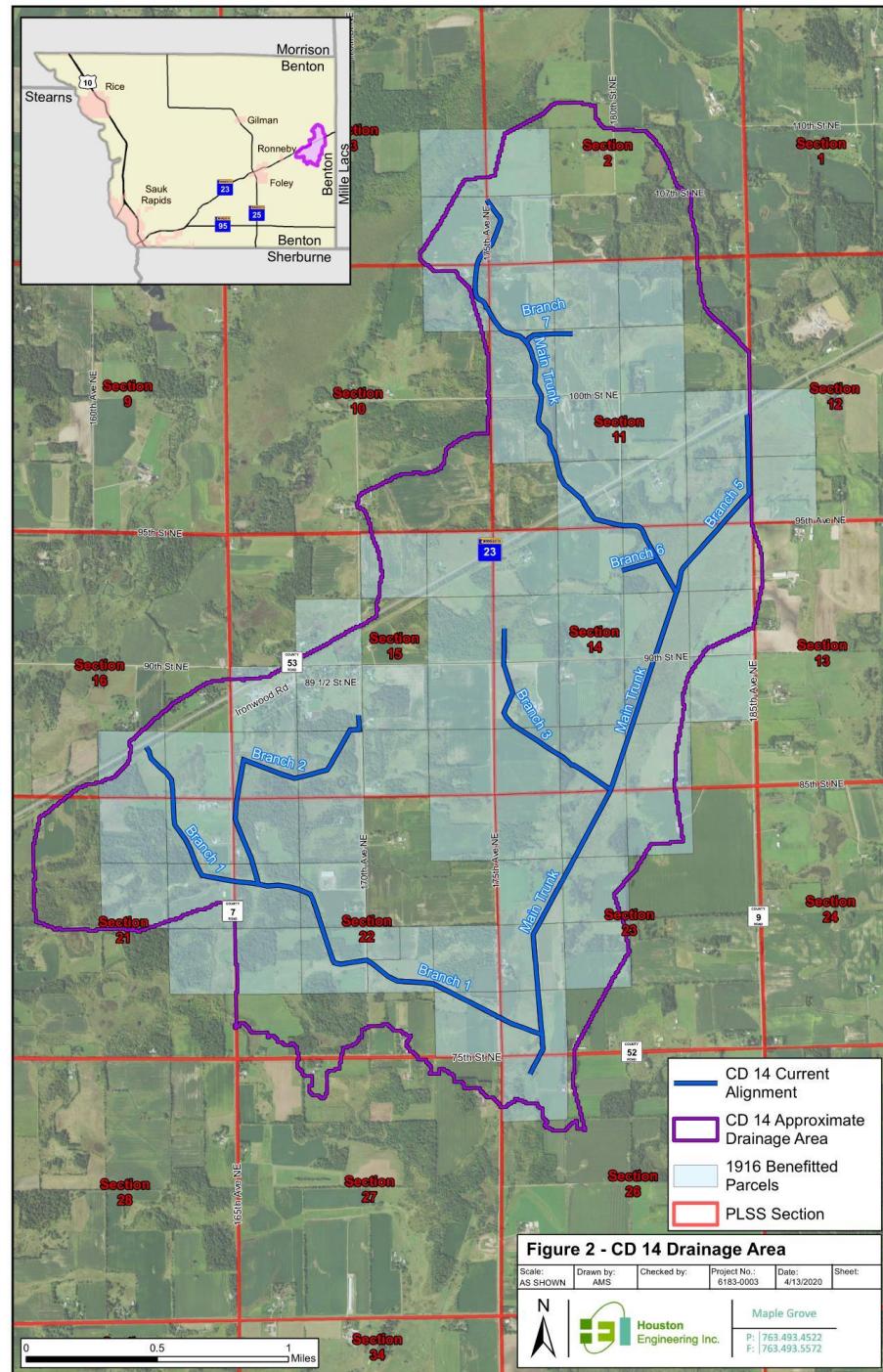




Benefitted Area



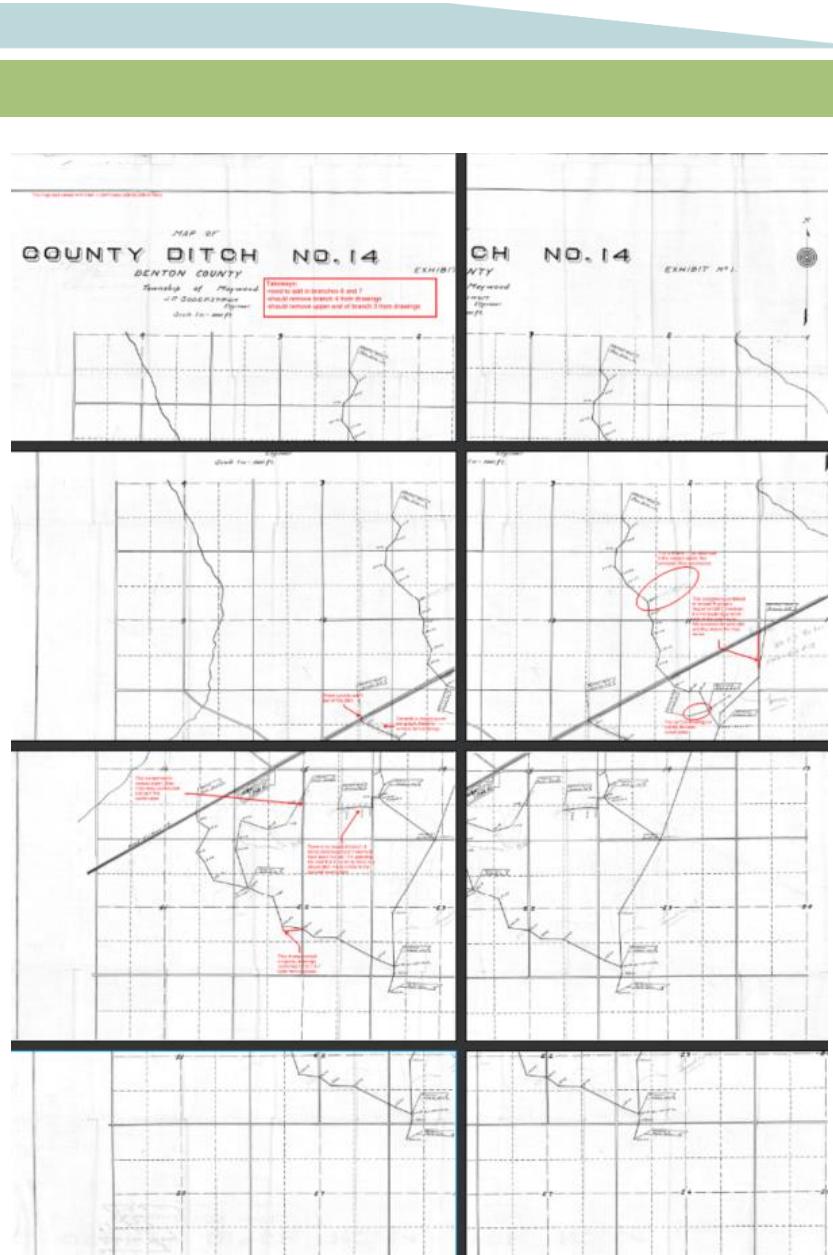
- Drains ~3,340 acres
- 1916 Viewers Report identifies 1,373 benefitting acres



Determination of the As-Constructed Alignment



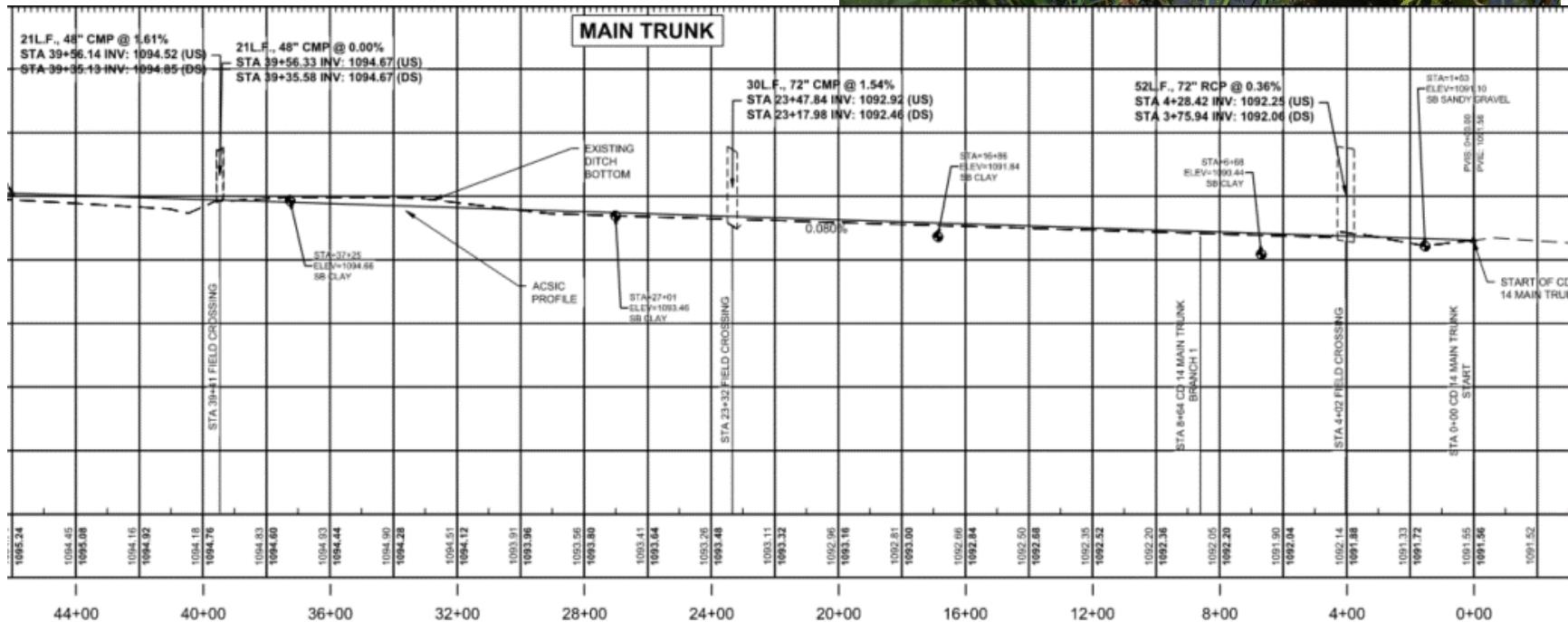
- Review established alignment
- Review construction documents
 - a small adjustment was made on Branch 1
 - Branch 4 was never constructed
- Current alignment reflects ACSIC



Determination of the As-Constructed Grade



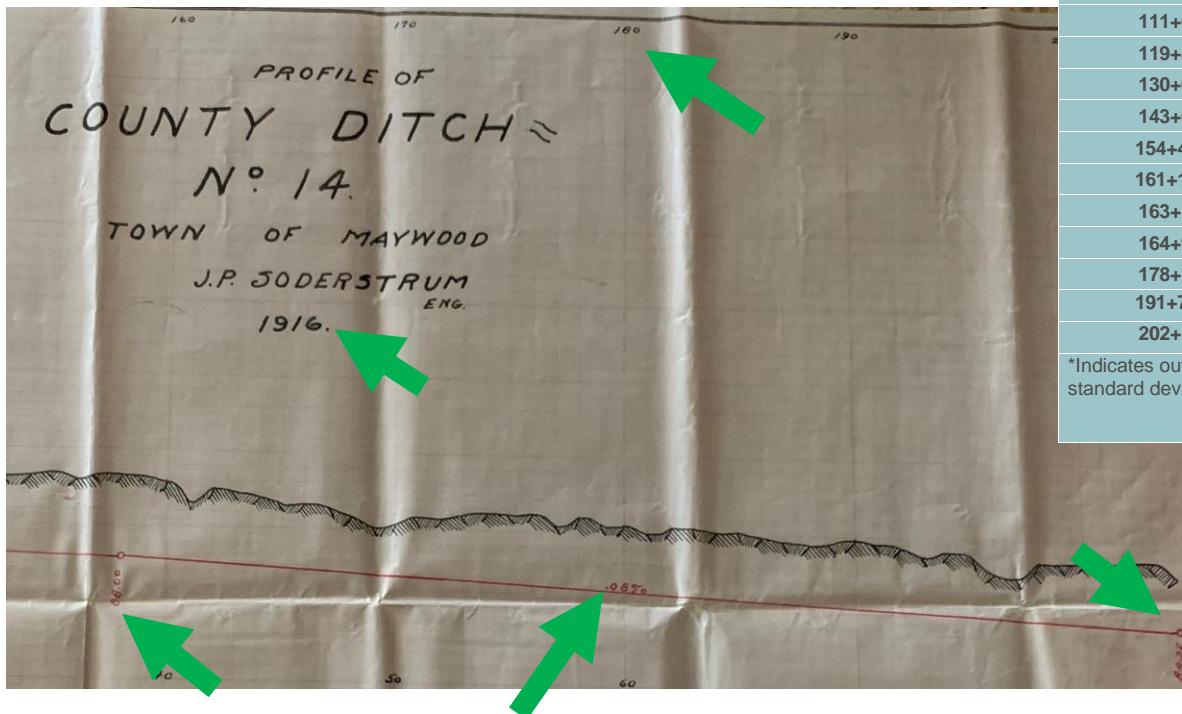
- Soil probes identify the hard bottom of open channel ditch



Determination of the As-Constructed Grade



- Field surveyed bottom of channel are compared to the design profile

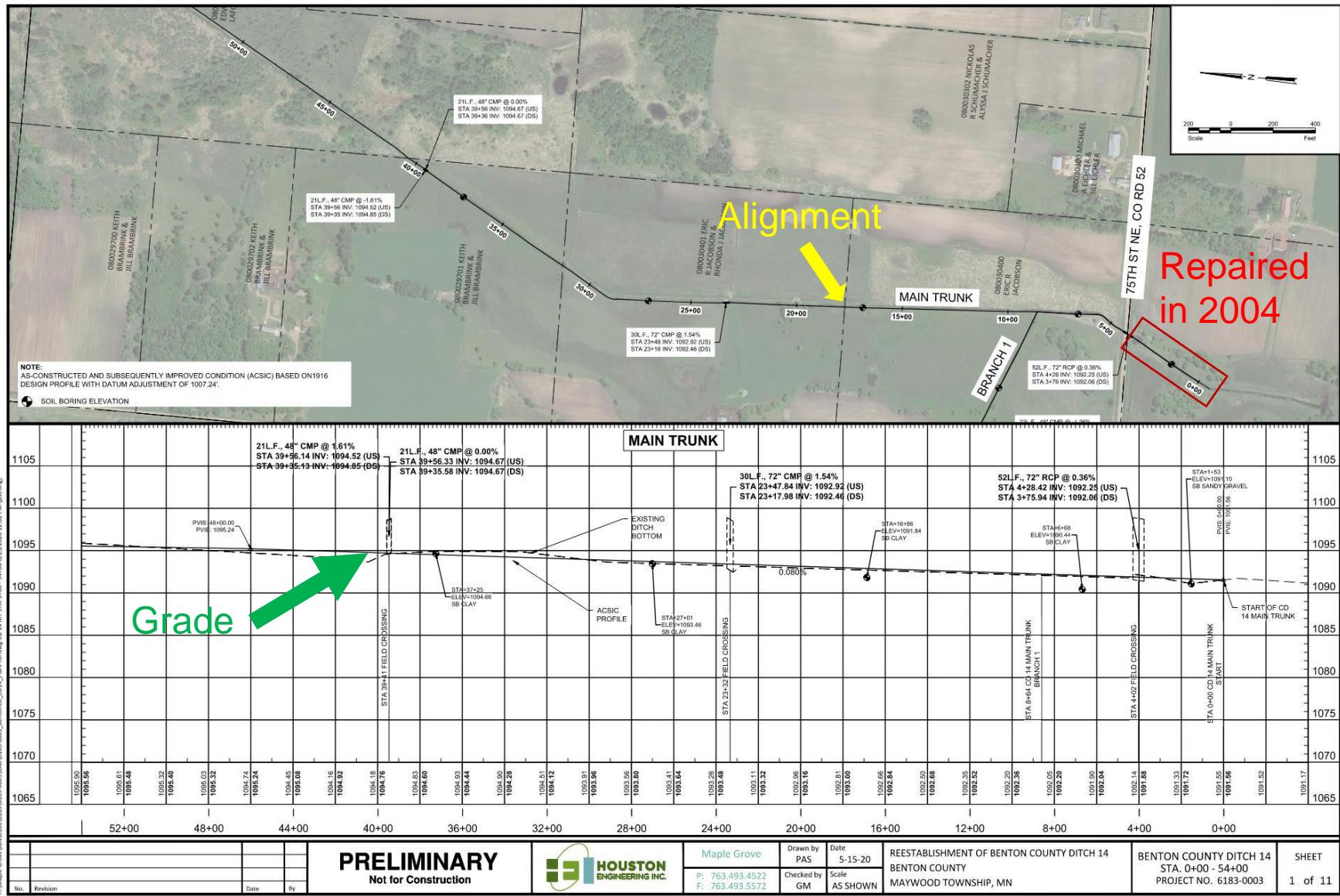


Current CD 14 Alignment Station	Soil Boring Elev.	1916 Profile Elev.	Deviation from Datum Adjustment of 1007.24
1+53	1091.1	84.42	-0.56
6+68*	1090.44	84.84	-1.64*
16+86*	1091.84	85.65	-1.05*
27+01	1093.46	86.46	-0.24
37+25	1094.66	87.28	0.14
60+77	1095.72	88.58	-0.10
103+73	1097.85	90.32	0.29
105+28	1098.45	90.70	0.51
111+62	1098.93	92.26	-0.57
119+89	1100.02	93.47	-0.68
130+00	1105.81	98.76	-0.19
143+60	1115.16	107.94	-0.02
154+41*	1117.16	109.02	0.90*
161+13*	1118.79	109.69	1.86*
163+15	1117.64	109.89	0.51
164+91	1117.72	110.07	0.41
178+15	1118.93	111.39	0.30
191+74*	1124	115.15	1.61*
202+19	1123.62	116.20	0.18

*Indicates outlier that was not used in determining the Datum Adjustment (1 standard deviation value of 0.82)

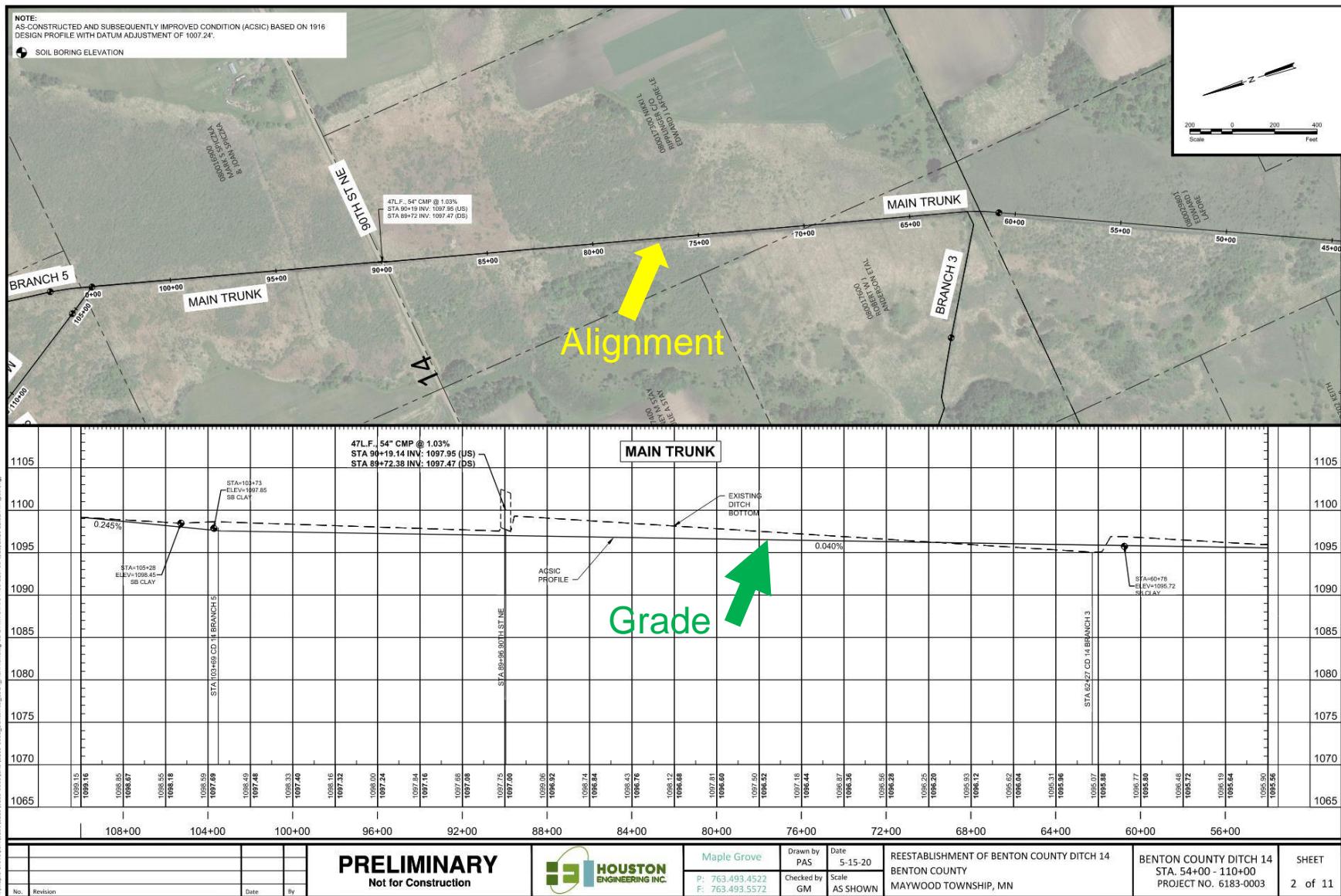


As-Constructed or Subsequently Improved Condition



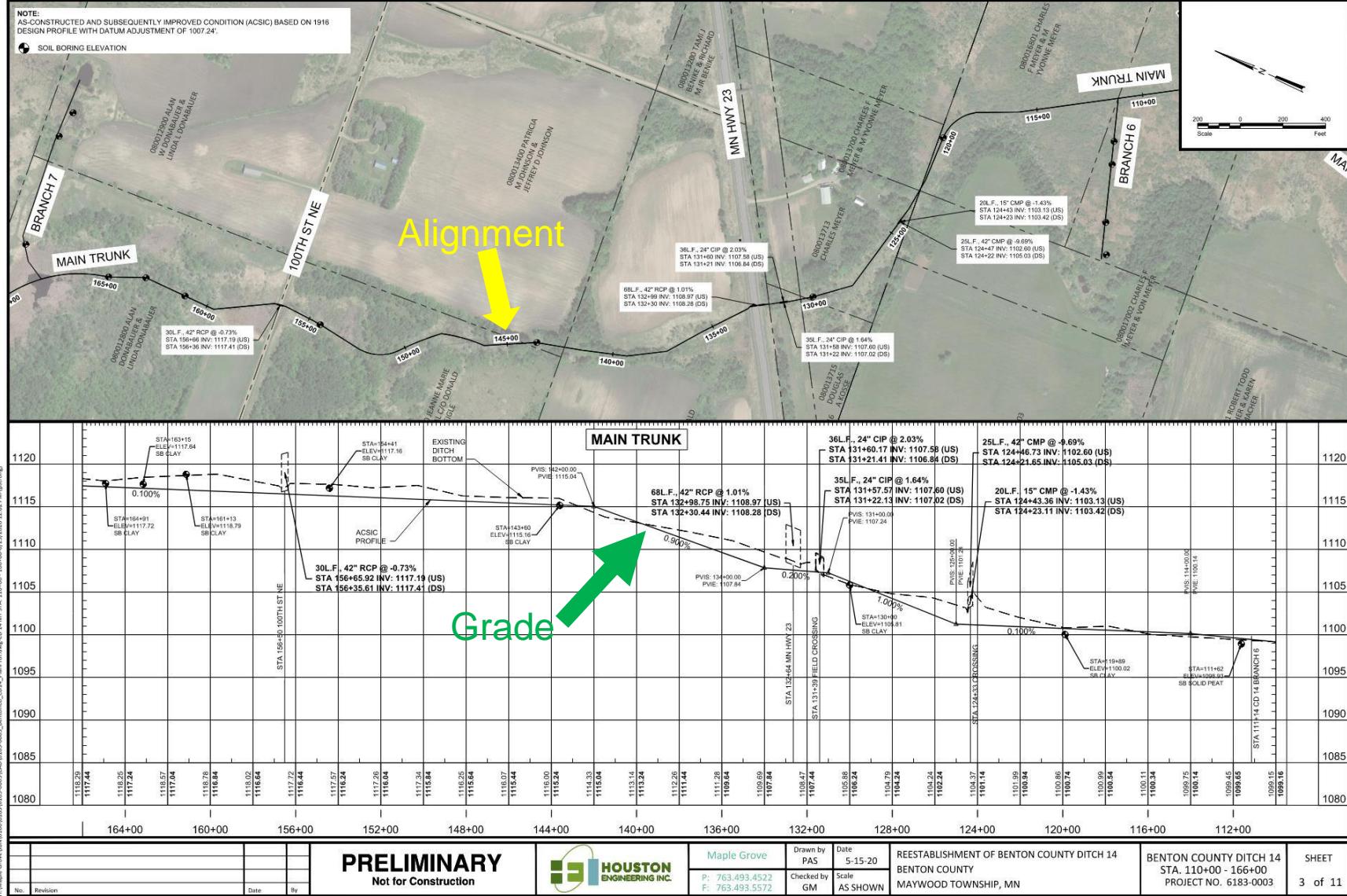


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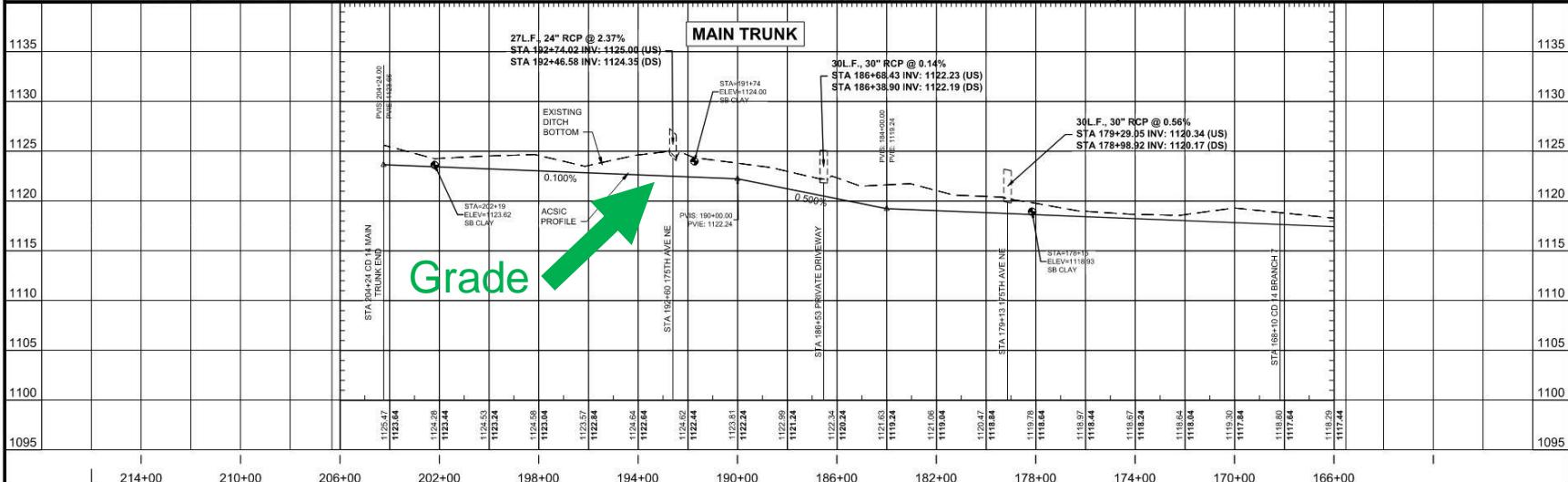
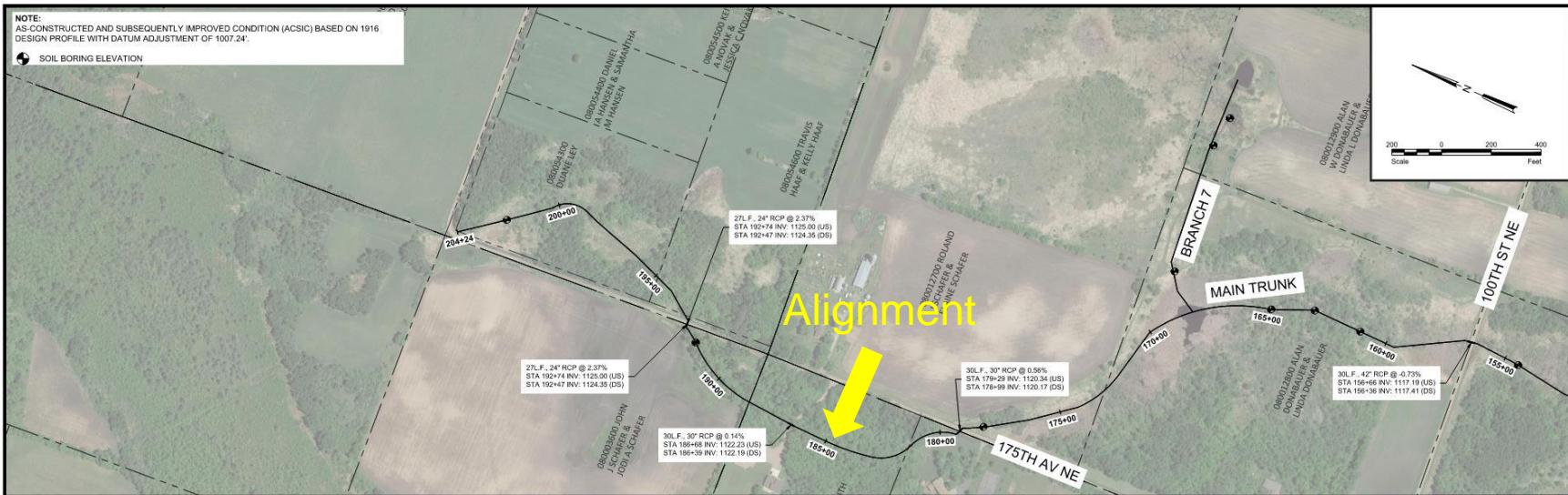


As-Constructed or Subsequently Improved Condition





As-Constructed or Subsequently Improved Condition



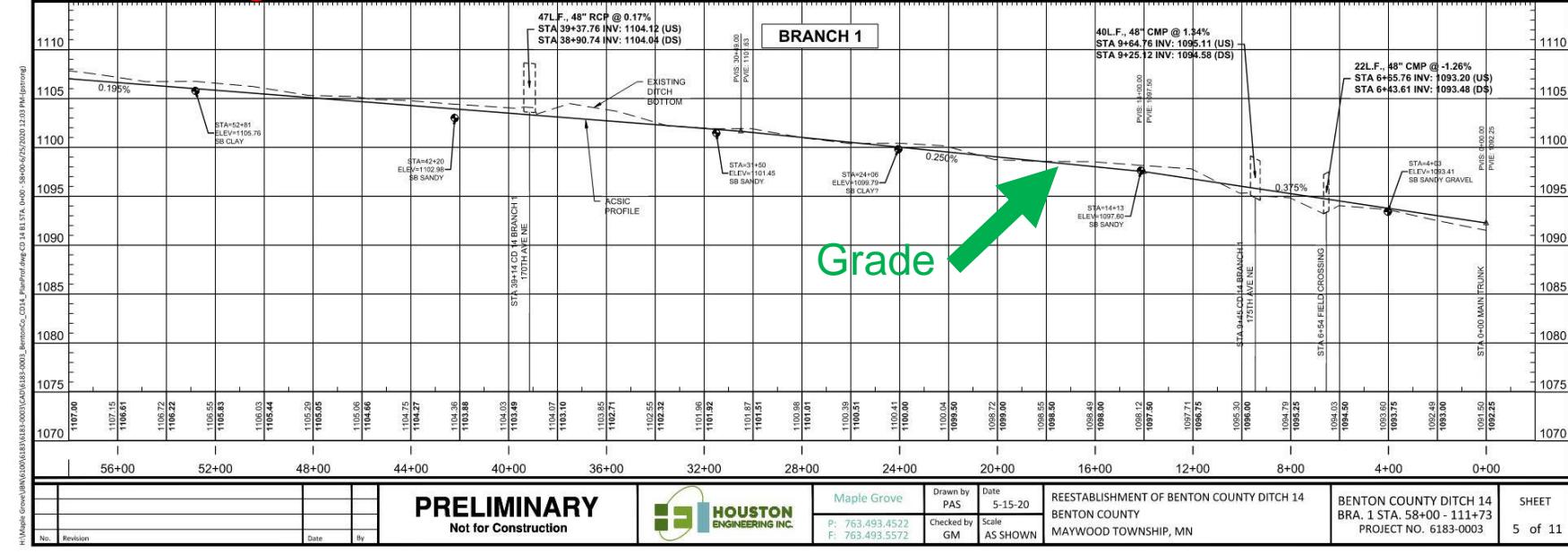
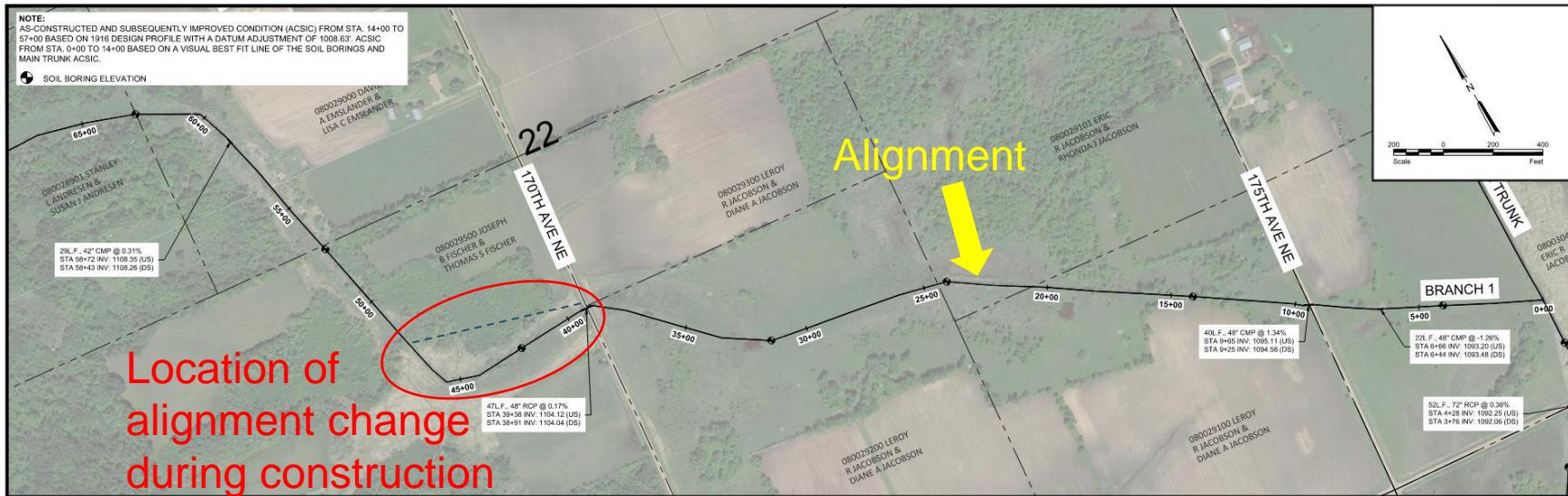
PRELIMINARY



				PRELIMINARY Not for Construction	 HOUSTON ENGINEERING INC.	Maple Grove	Drawn by PAS	Date 5-15-20	REESTABLISHMENT OF BENTON COUNTY DITCH 14 BENTON COUNTY MAYWOOD TOWNSHIP, MN	BENTON COUNTY DITCH 14 STA. 166+00 - 204+24 PROJECT NO. 6183-0003	SHEET 4 of 11
No.	Revision	Date	By			P: 763.493.4522 F: 763.493.5572	Checked by GM	Scale AS SHOWN			

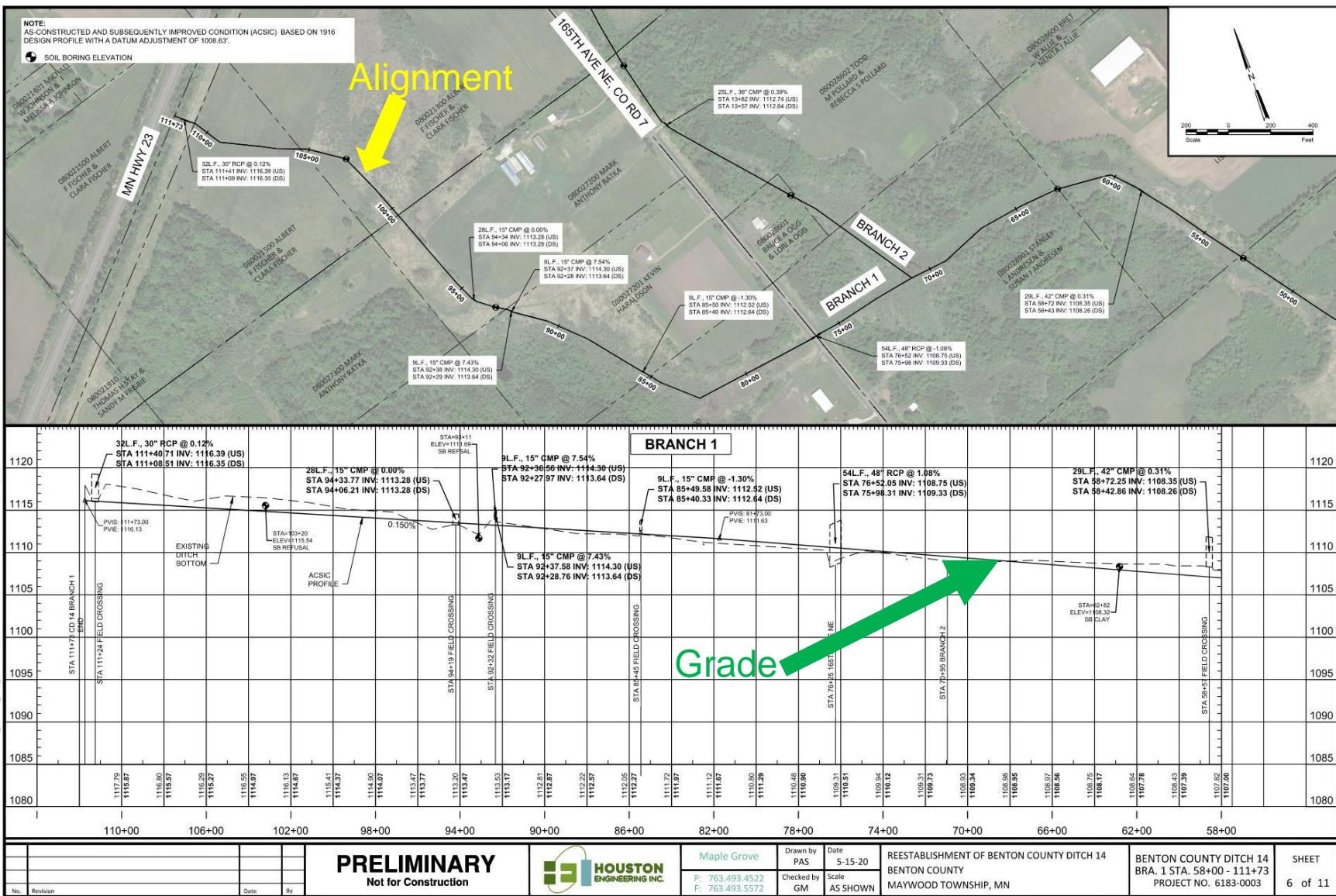


As-Constructed or Subsequently Improved Condition



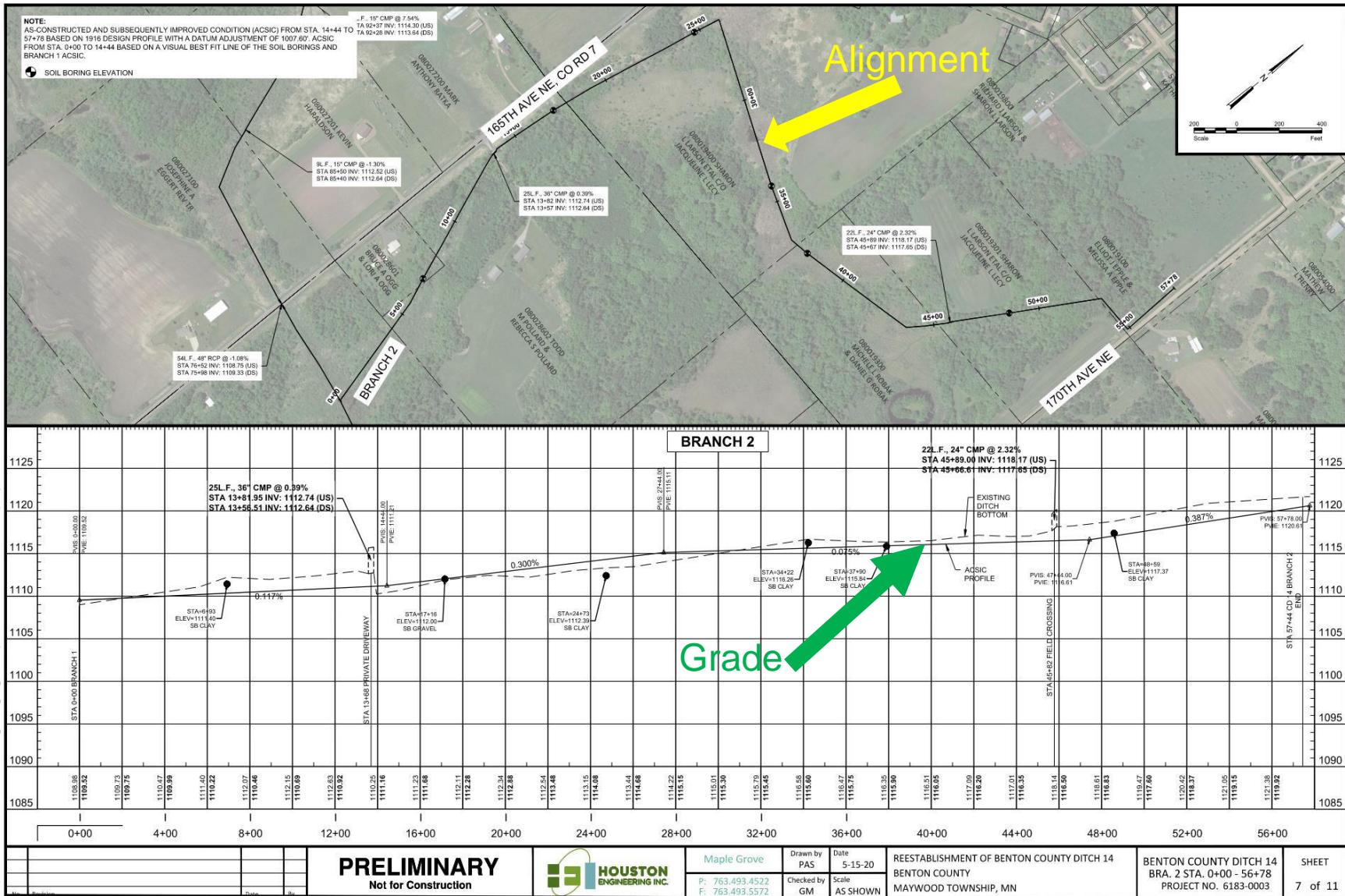


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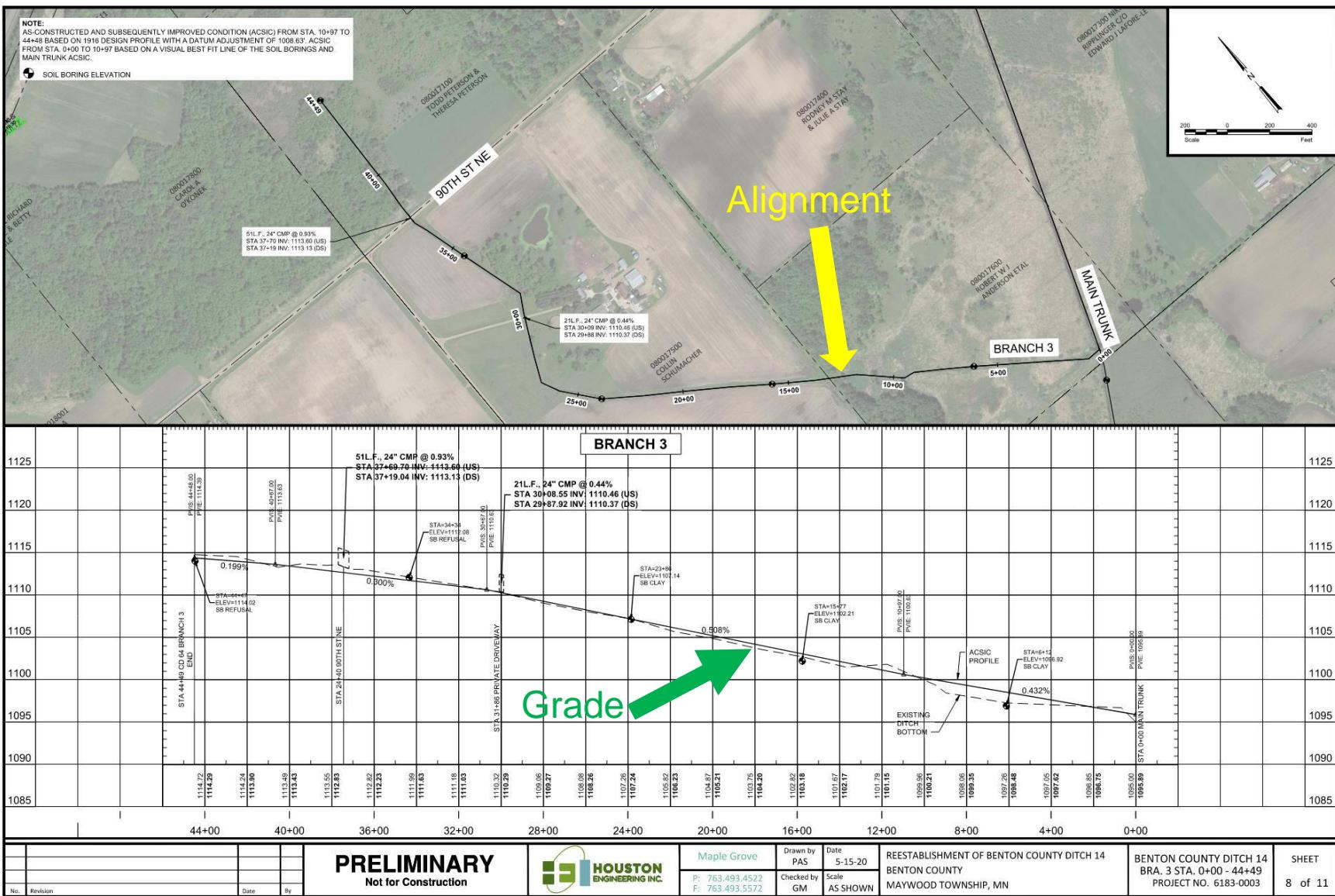


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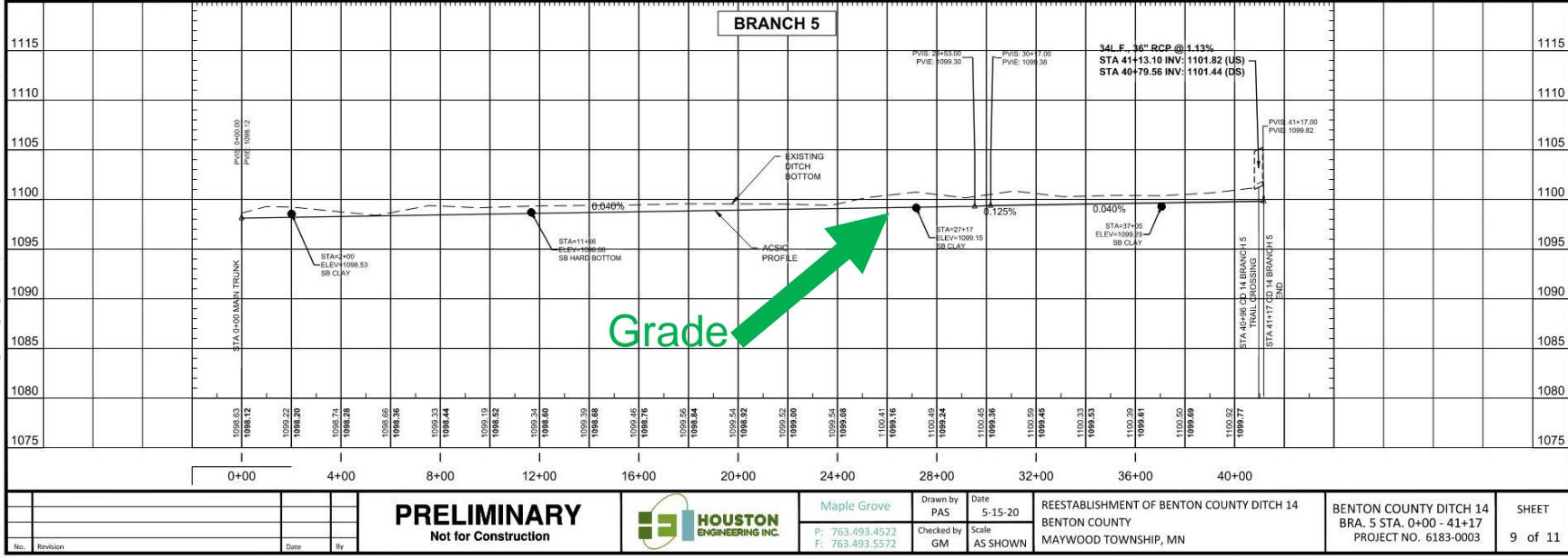
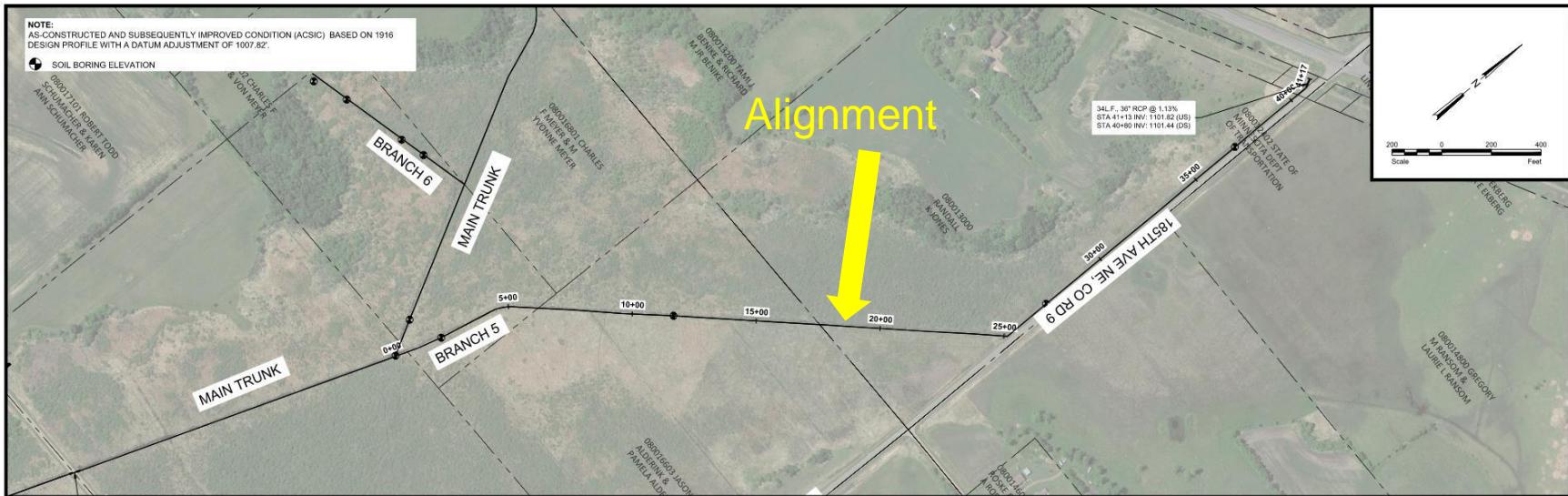


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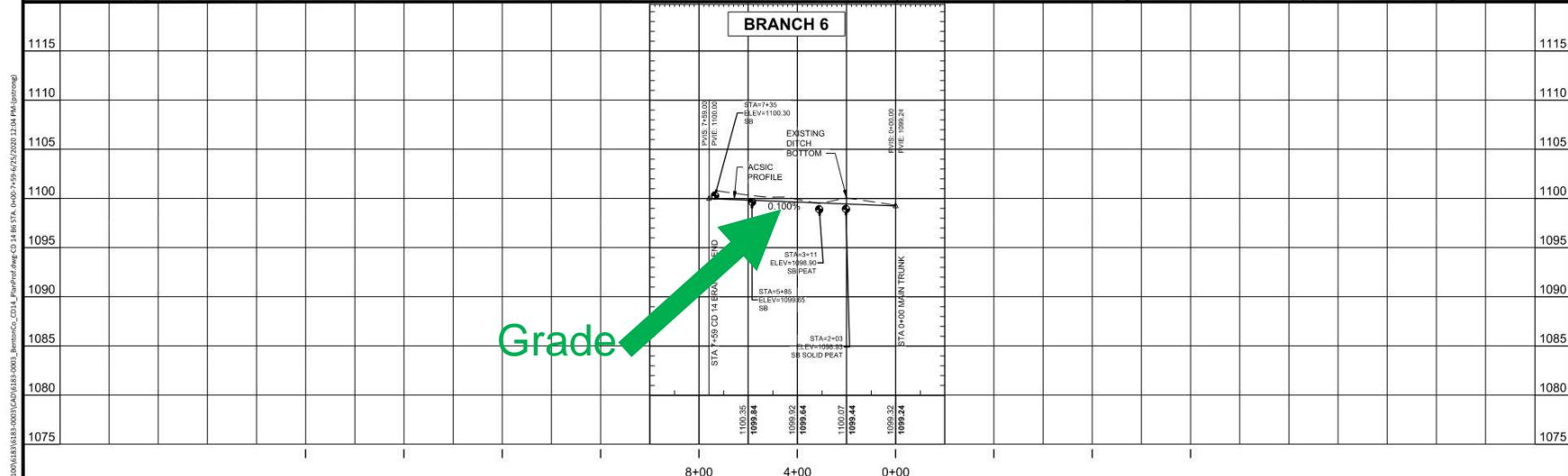
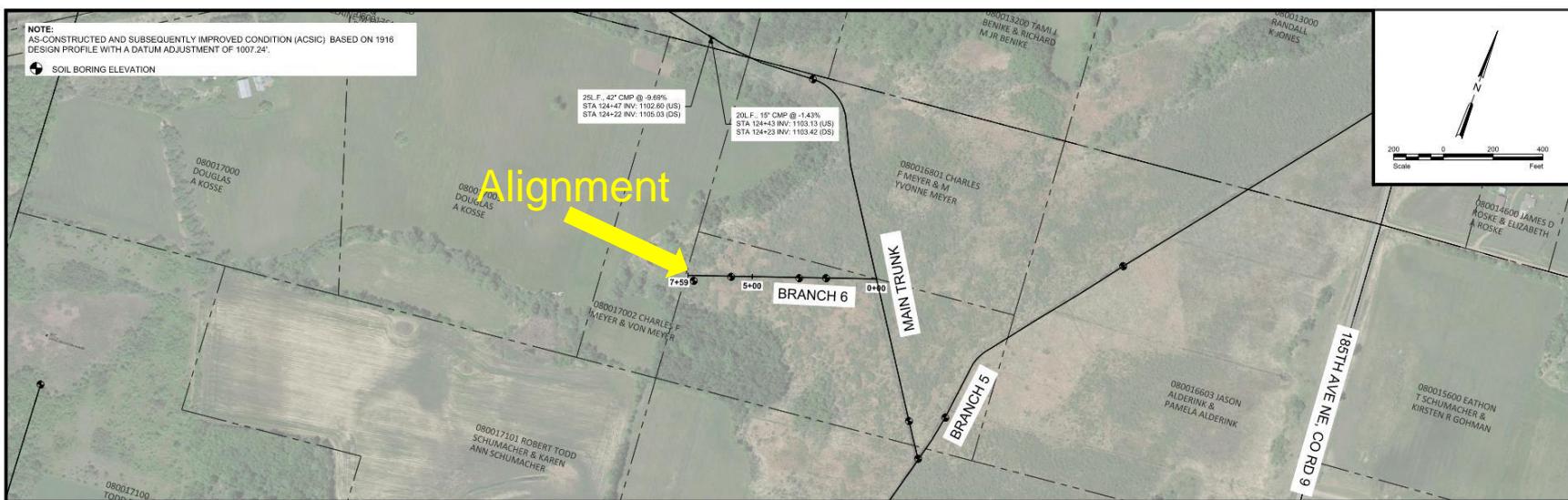


As-Constructed or Subsequently Improved Condition





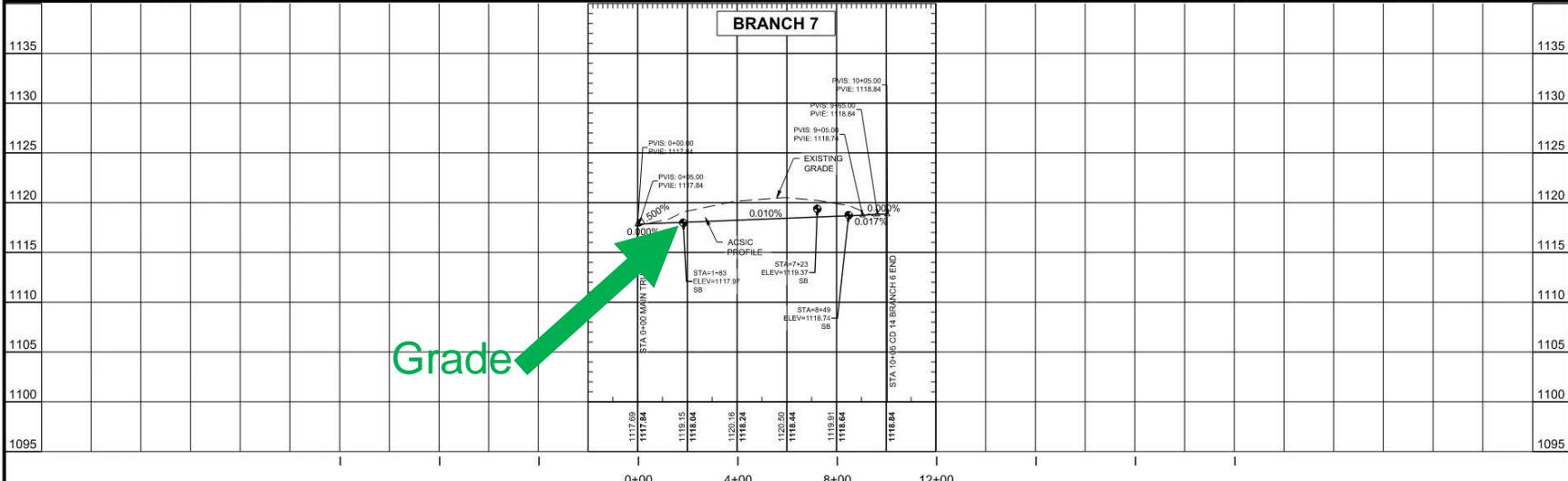
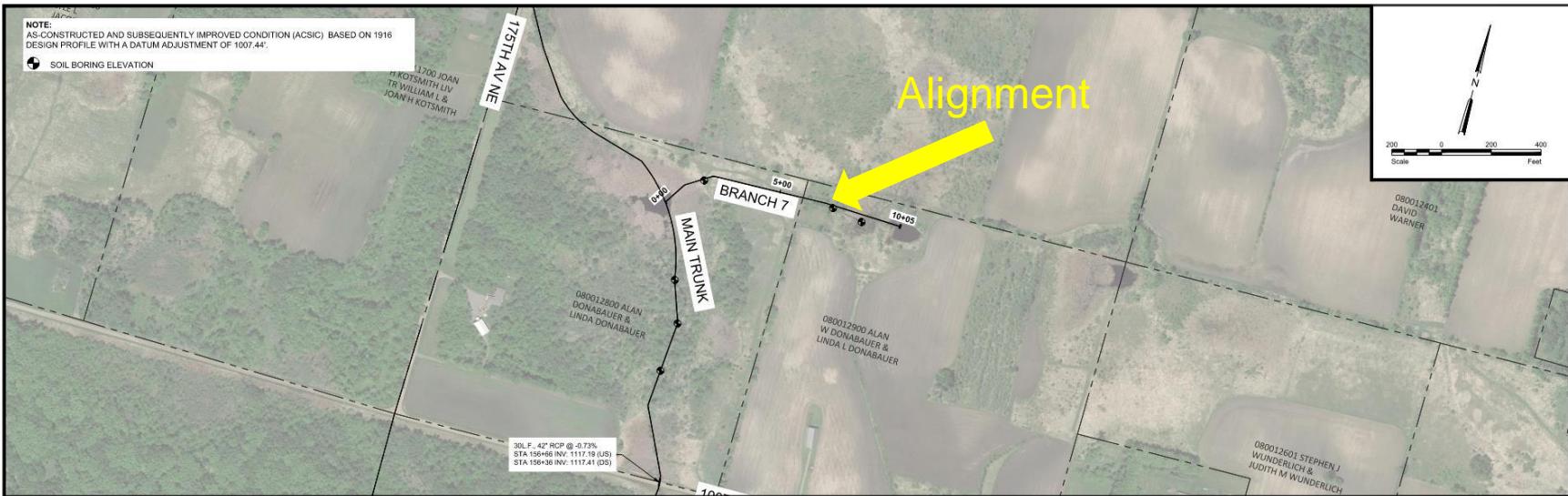
As-Constructed or Subsequently Improved Condition



No.	Revision	Date	By	PRELIMINARY Not for Construction	Maple Grove	Drawn by PAS	Date 5-15-20	REESTABLISHMENT OF BENTON COUNTY DITCH 14	BENTON COUNTY DITCH 14 BRA. 6 STA. 0+00 - 7+59 PROJECT NO. 6183-0003	SHEET 10 of 11
					P: 763.493.4522 F: 763.493.5572	Checked by GM	Scale AS SHOWN			



As-Constructed or Subsequently Improved Condition



PRELIMINARY



Maple Grove	Drawn by PAS	Date 5-15-20	REESTABLISHMENT OF BENTON COUNTY DITCH 1A BENTON COUNTY MAYWOOD TOWNSHIP, MN
P: 763.493.4522 F: 763.493.5572	Checked by GM	Scale AS SHOWN	

BENTON COUNTY DITCH 14
BRA. 7 STA. 0+00 - 10+05
PROJECT NO. 6183-0003

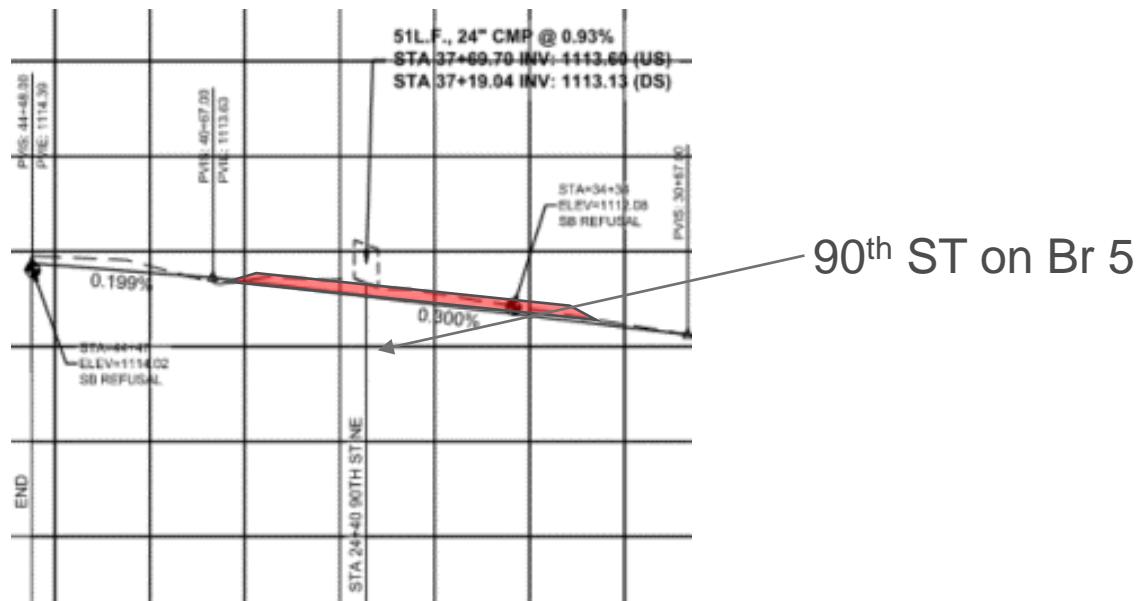
SHEET
11 of 11



Why Are Some Culverts Higher Than ACSIC?



- Some roads weren't present or in present location in 1915
- Over years, sediment accumulated
- New or replacement culvert placed on top of existing sediment (not ACSIC)





Right-of-Way



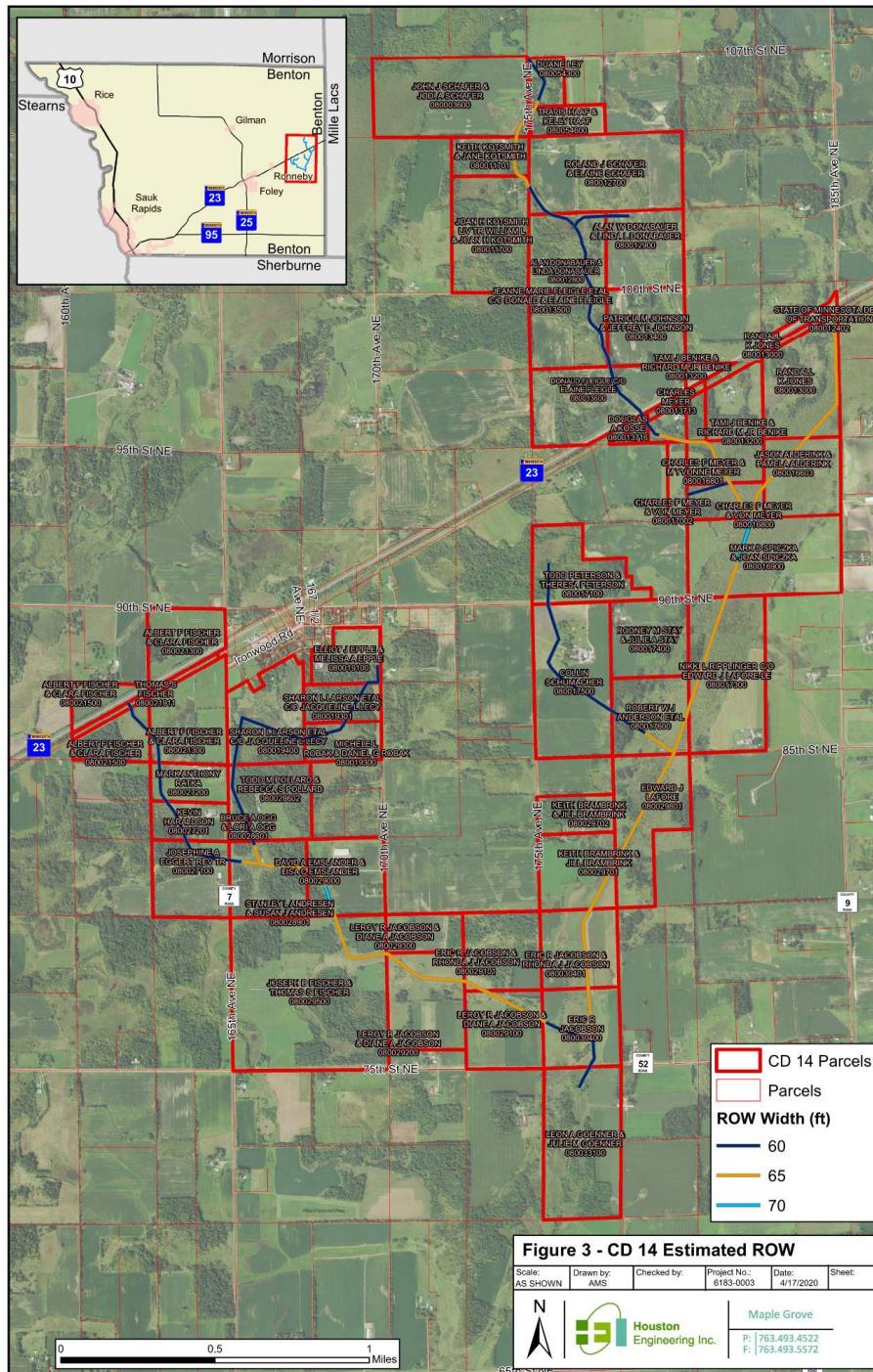
- Damages awarded during drainage system establishment for the:
 - Area physically occupied by the ditch
 - Area required to construct and maintain the drainage system
- Based on channel depths, visible spoil areas, topography

		Downstream Station	Upstream Station	ROW Width (ft)
Main Trunk		0+00	96+00	65
		96+00	104+00	70
		104+00	127+00	65
		127+00	179+00	60
		179+00	196+00	65
		196+00	204+24	60
Branch 1		0+00	9+00	60
		9+00	55+00	65
		55+00	58+15	70
		58+15	74+00	65
		74+00	111+73	60
Branch 2		0+00	3+44	65
		3+44	57+78	60
Branch 3		0+00	6+00	65
		6+00	44+49	60
Branch 5		0+00	41+17	65
Branch 6		0+00	7+59	60
Branch 7		0+00	10+05	60

*Centered on the channel



Right-of-Way





Recommendations

- Order the reestablishment of the public drainage system record following MS103E.101
- Continue with the preparation of a Repair Report consistent with MS103E.

