



Canal 114 Gravity Flow Infiltration Well Pilot Project

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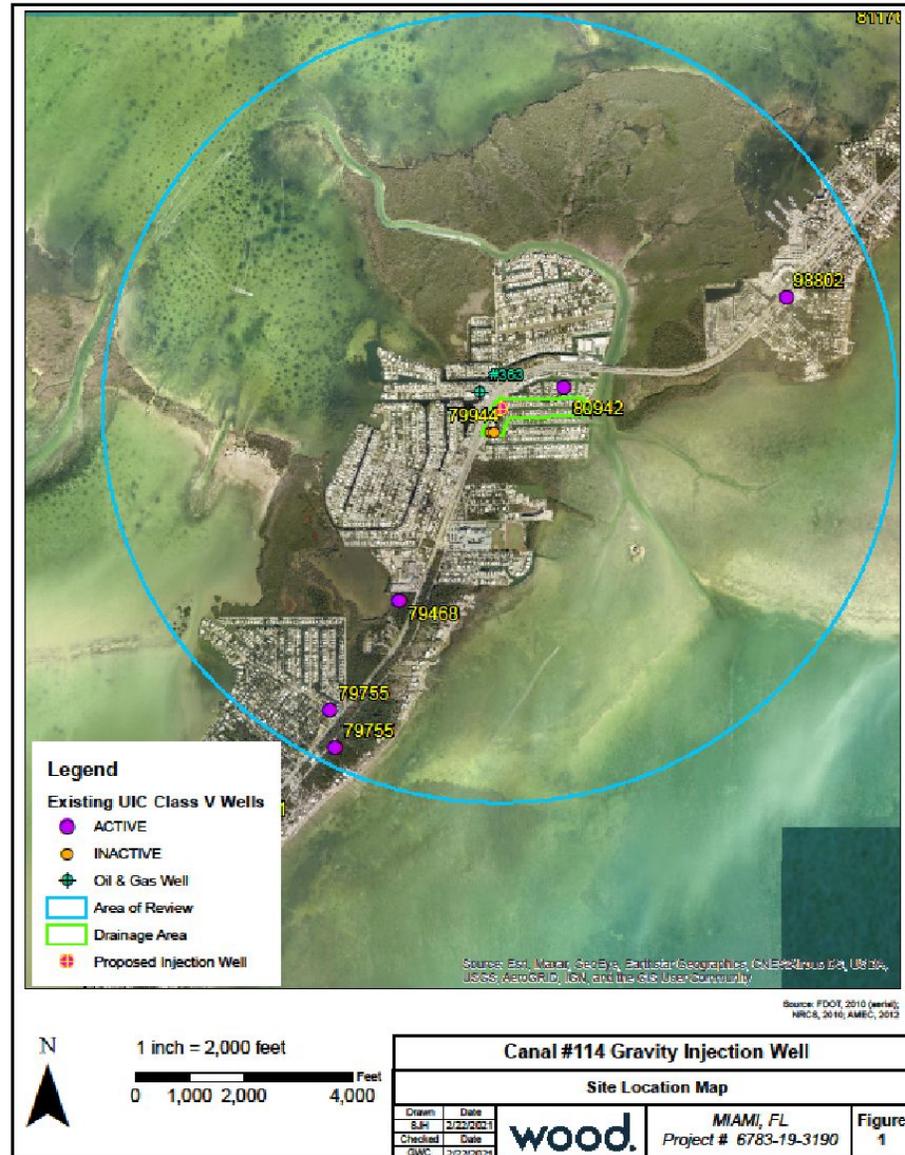


Canal Restoration Technologies & Needs



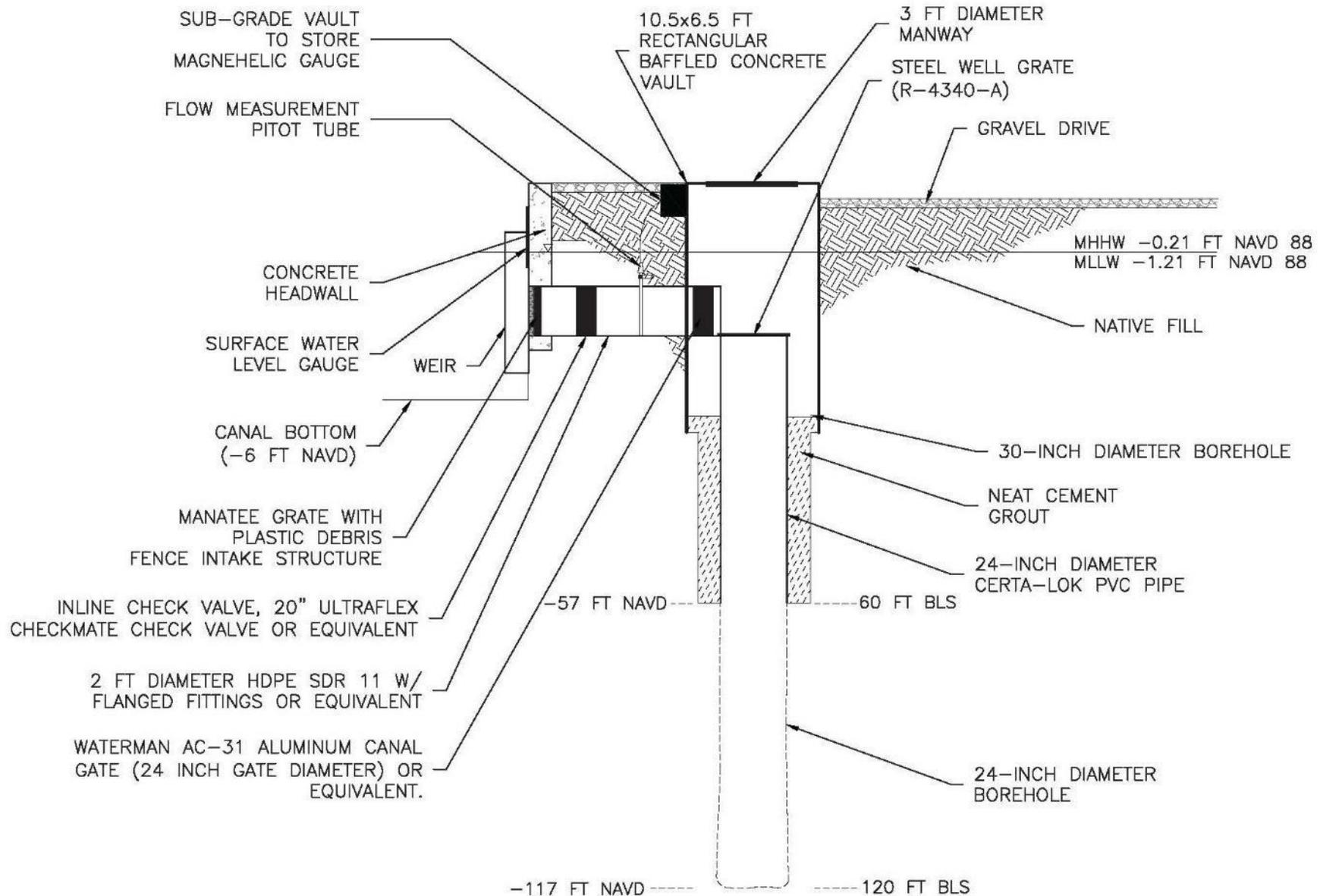
- 2014 demonstration program exhibited the effectiveness of backfilling, culverts, dredging, and air curtains, and the infeasibility of pumping.
- The selected technologies address excessive depth (backfilling), length and stagnation (culverts), and organic accumulation (capping, dredging, and air curtains).
- Not all long or stagnate canals are amenable to culverts.
- Circulation pumping not cost effective.
- A widespread need is present to increase canal circulation in a cost effective manner.

Gravity Flow Infiltration Well Evaluation



- Selected restoration technology for the 2017 evaluation of Canal 278.
- Design of the pilot gravity infiltration well for Canal 114 began in February 2021.
- Design evaluated surrounding wells, formation capacity, geologic profile, and water quality (from Canal 113).
- Due to the lack of reliable data, the potential performance was bracketed between 0.4 MGD and 4.1 MGD.

Overview of the Infiltration Well Design

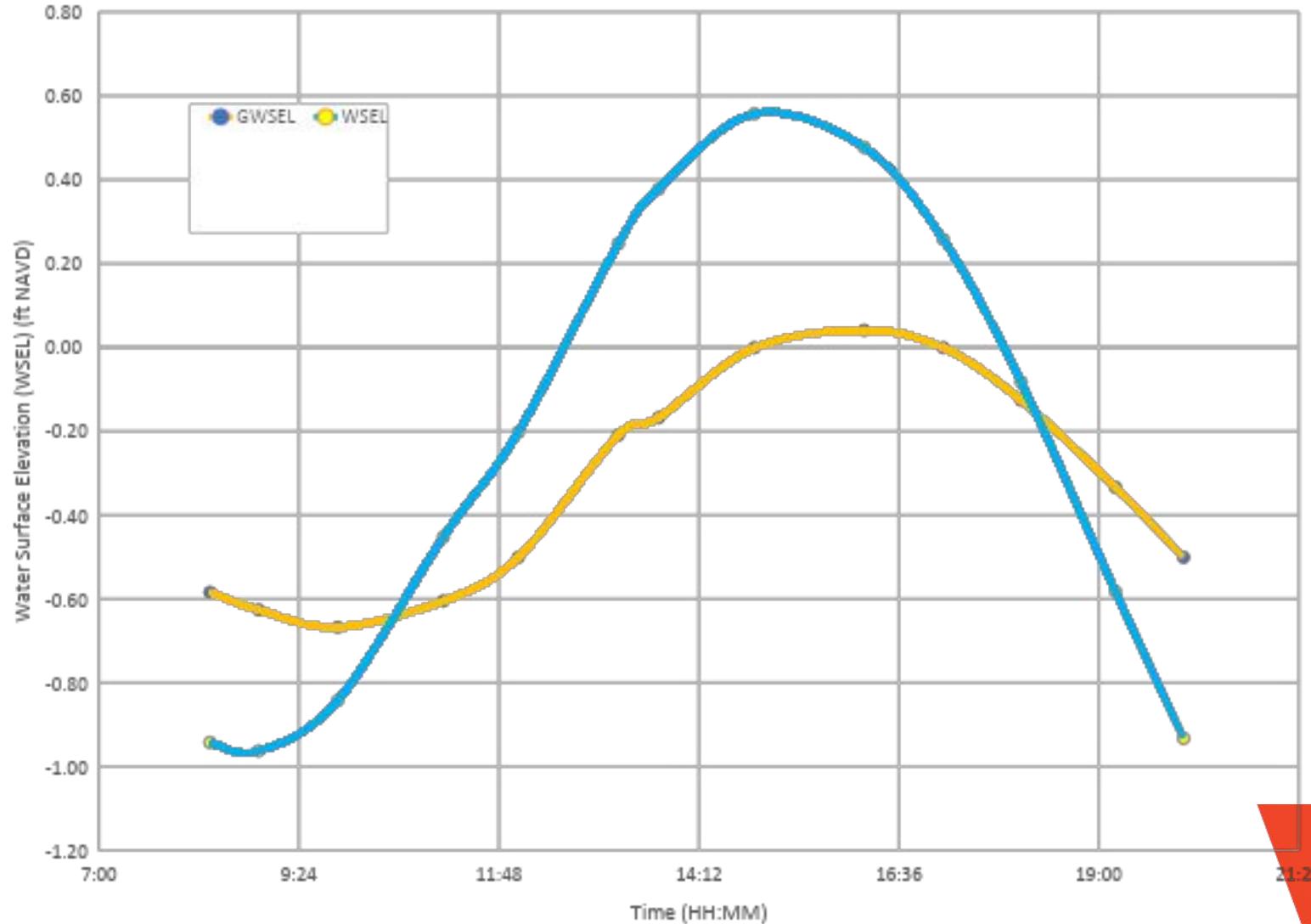


Well Construction

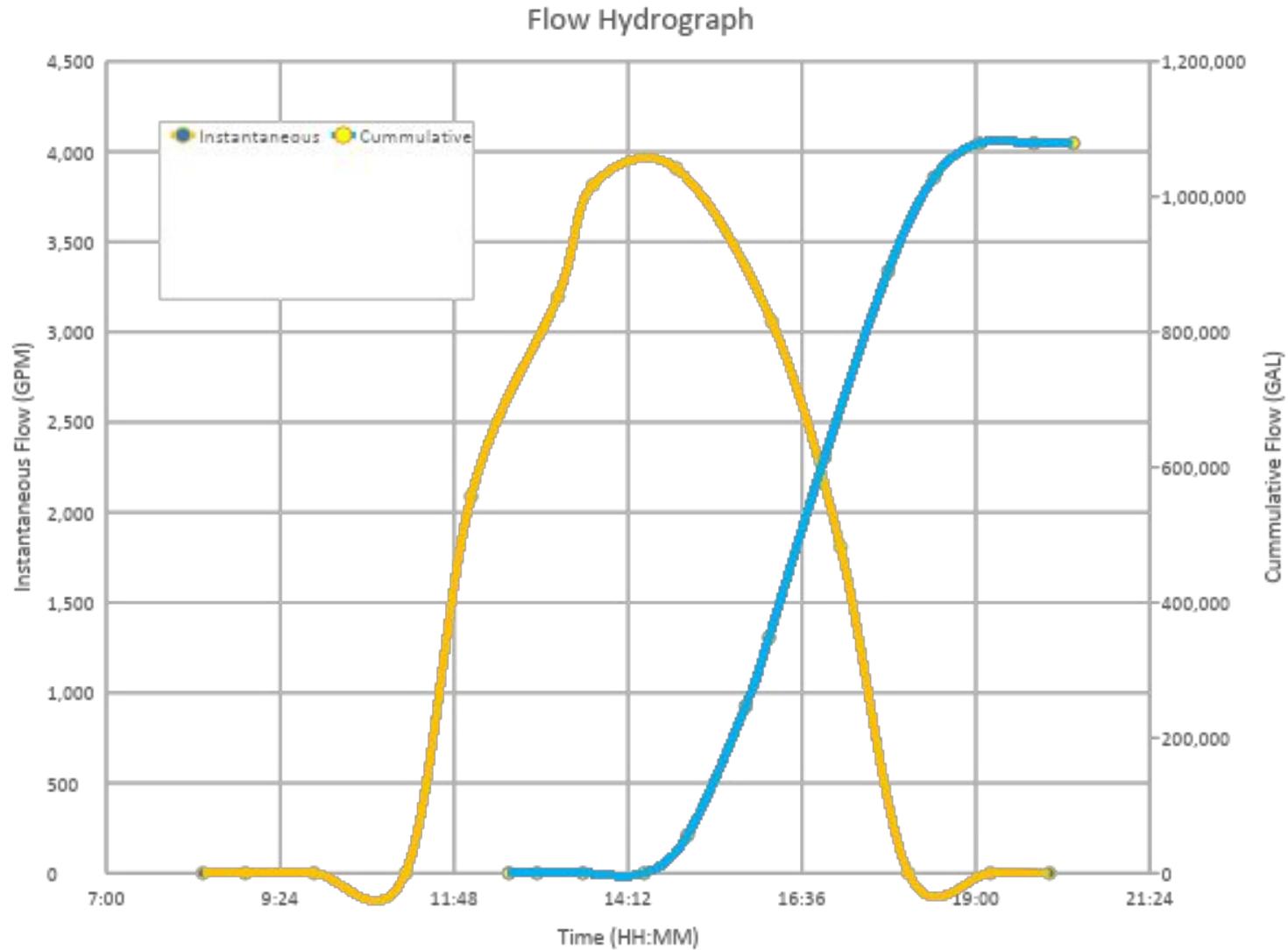


Injection Well Performance

GWSEL & WSEL Stage Hydrograph



Injection Well Performance – Cont.



Injection Well Parameters

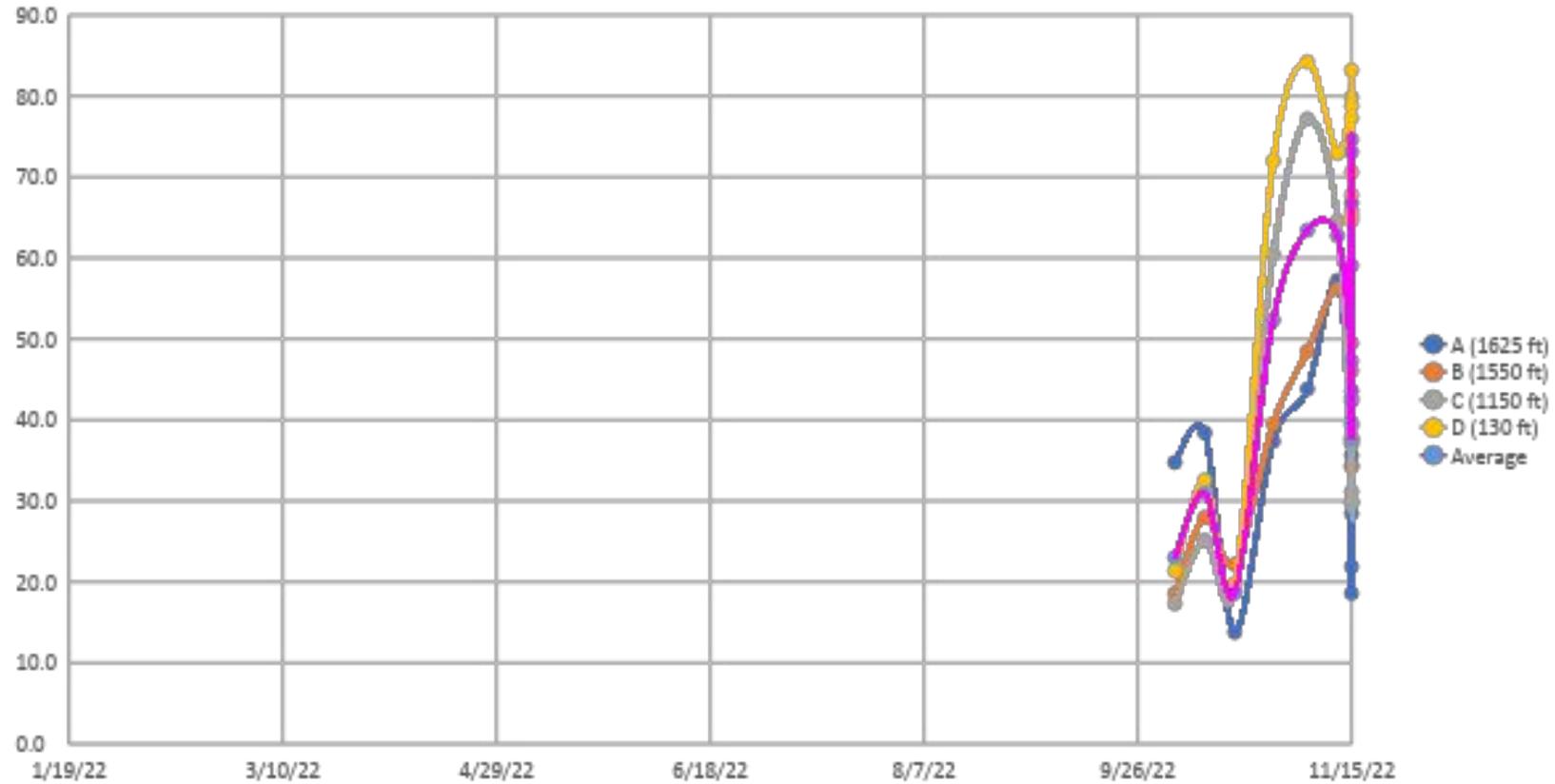
Parameter	Design - Conservative Scenario	Design – Upper Range Scenario	Observed Value
Transmissivity (ft ² /day)	2.6E+05	1.0E+06	1.9E+06
Negative Vertical Gradient (ft/ft)	0	-0.009	-0.001
Mean GWSEL Offset (ft)	0	-0.808	-0.092
Head Differential (ft)	70.0%	70.0%	70.1%
Maximum Instantaneous Flow (GPM)	900	6,700	3,900
Average Daily Flow (MGD)	0.4	4.1	2.2
Daily Waterbody Turnover	3.7%	40.2%	21.1%

Monitoring Locations



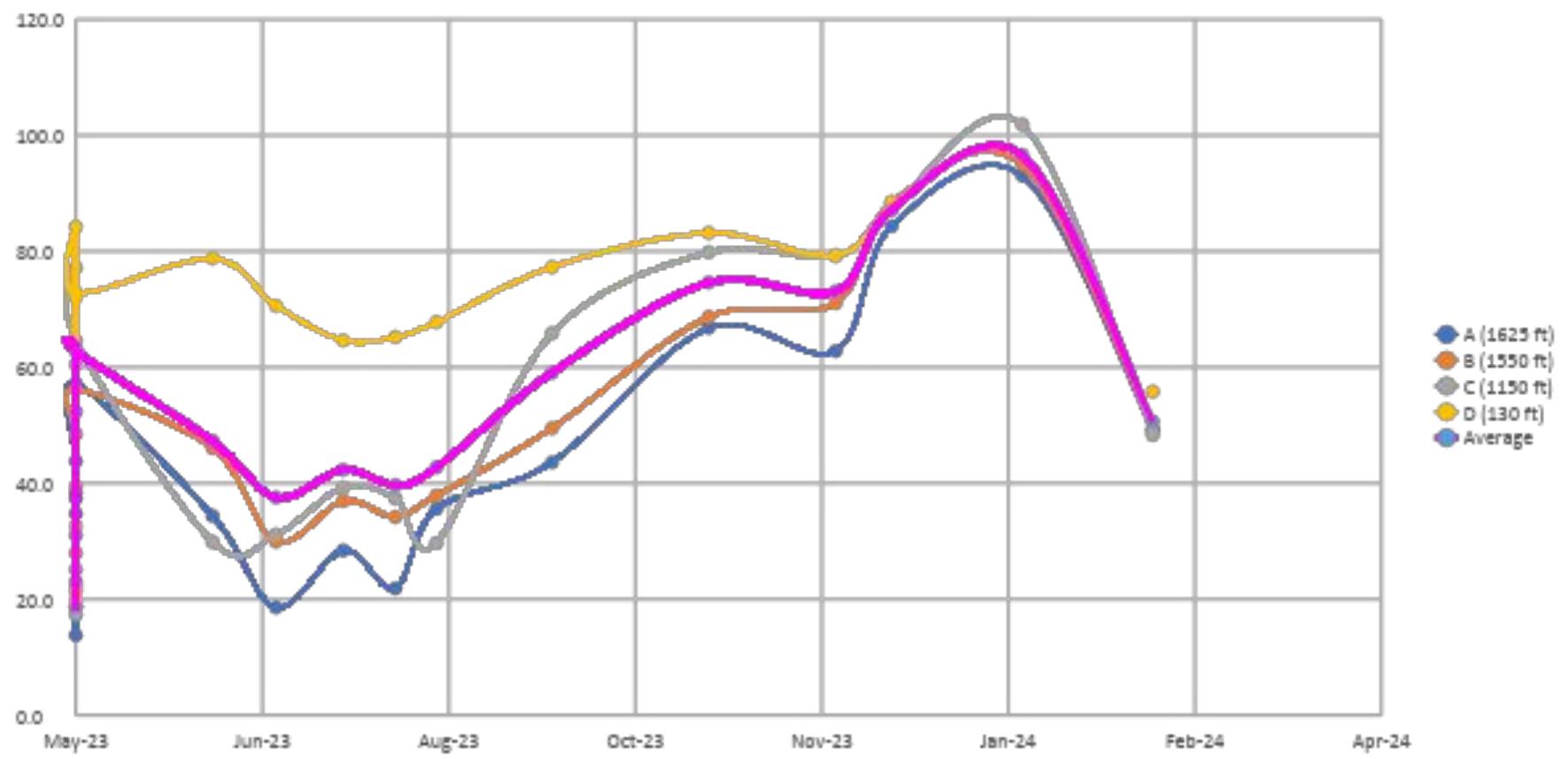
Monitoring Summary – Pre-Construction

C114 WQ Trends - 2022



Monitoring Summary – Post-Construction

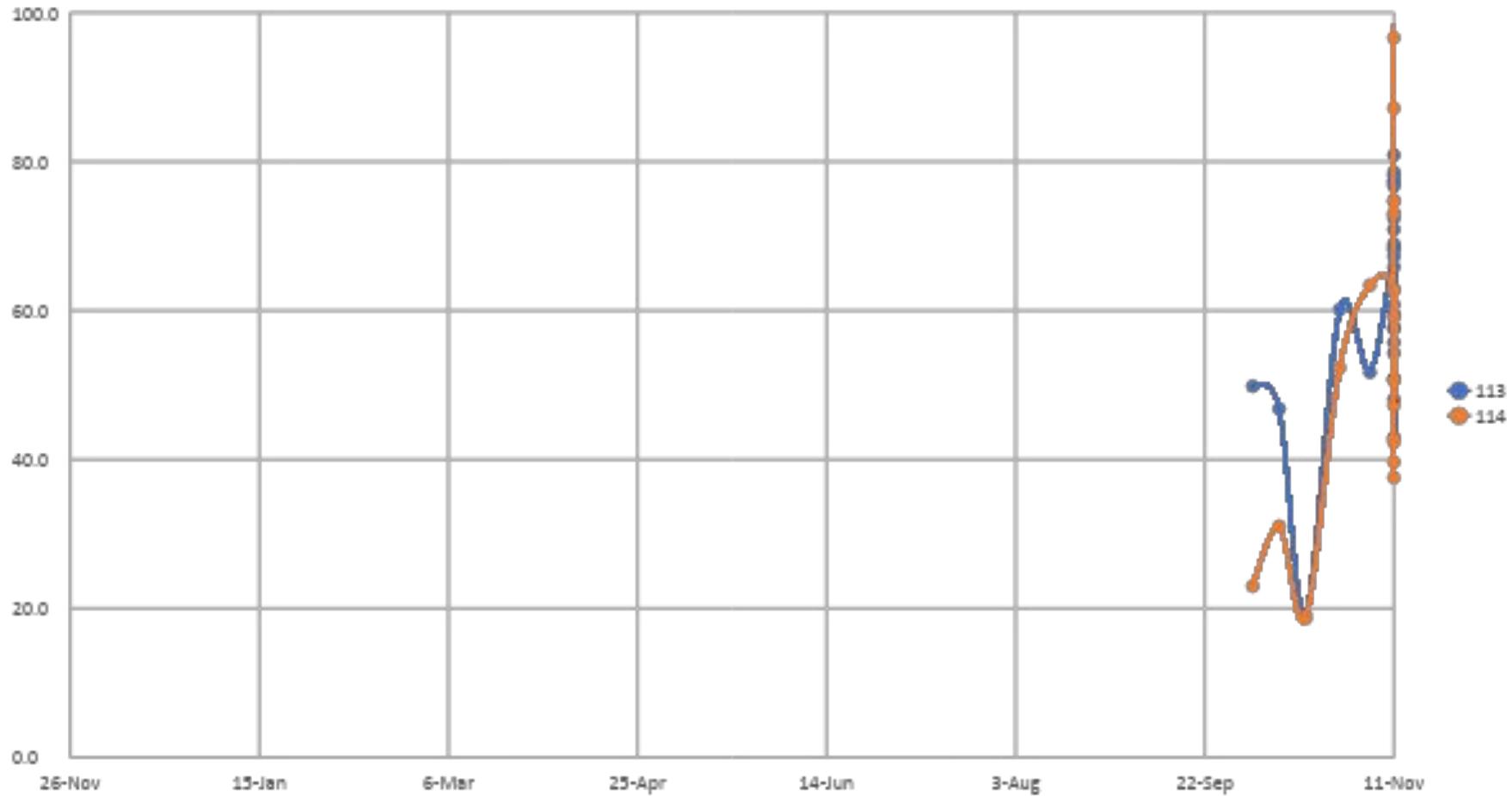
C114 WQ Trends - 2023



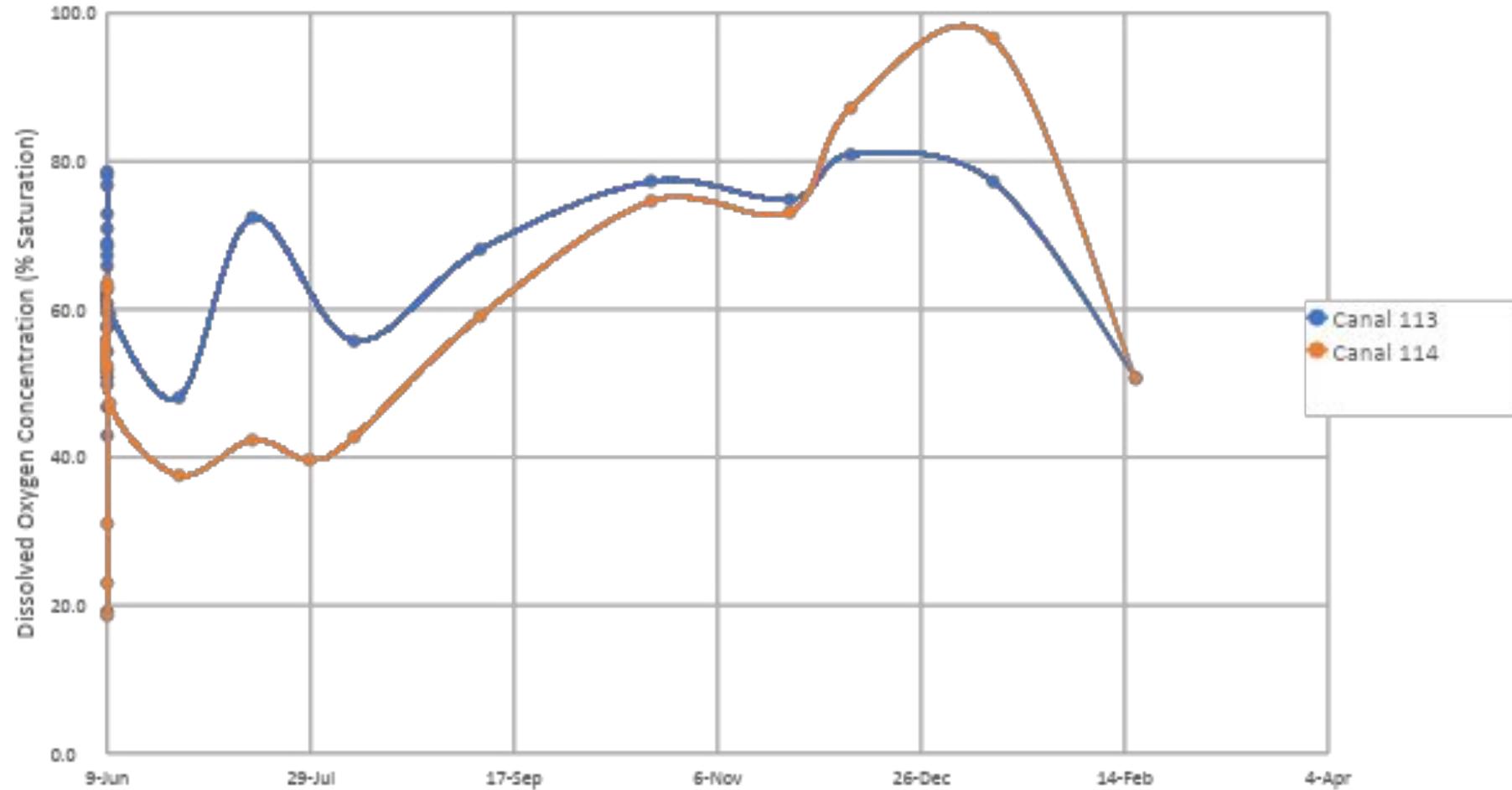
Profile Comparison

Sample Location	Distance From Mouth (ft)	10/27/2022	10/20/2023	Delta
A	1625	37.4	66.8	29.4
B	1550	39.5	68.7	29.2
C	1150	60.5	79.8	19.4
D	130	72.0	83.2	11.2

WQ Comparison Pre-Construction



WQ Comparison Post-Construction



WQ Comparison Post-Construction

Date	C114	C113	Delta
6/9/2023	47.3	59.2	-12.0
6/26/2023	37.6	48.1	-10.5
7/14/2023	42.3	72.4	-30.1
8/8/2023	42.7	55.7	-13.0
9/8/2023	59.1	68.1	-9.0
10/20/2023	74.6	77.3	-2.7
11/23/2023	73.1	74.8	-1.7
12/8/2023	87.2	80.9	6.3
1/12/2024	96.6	77.2	19.4
2/16/2024	50.6	50.7	-0.1
		Average Increase	24.9



Questions?

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