



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

North 34th Street/Former Production Plated Plastics

Erica Bays

Remediation and Redevelopment Division

269-350-0080 | BaysE@Michigan.gov

Outline

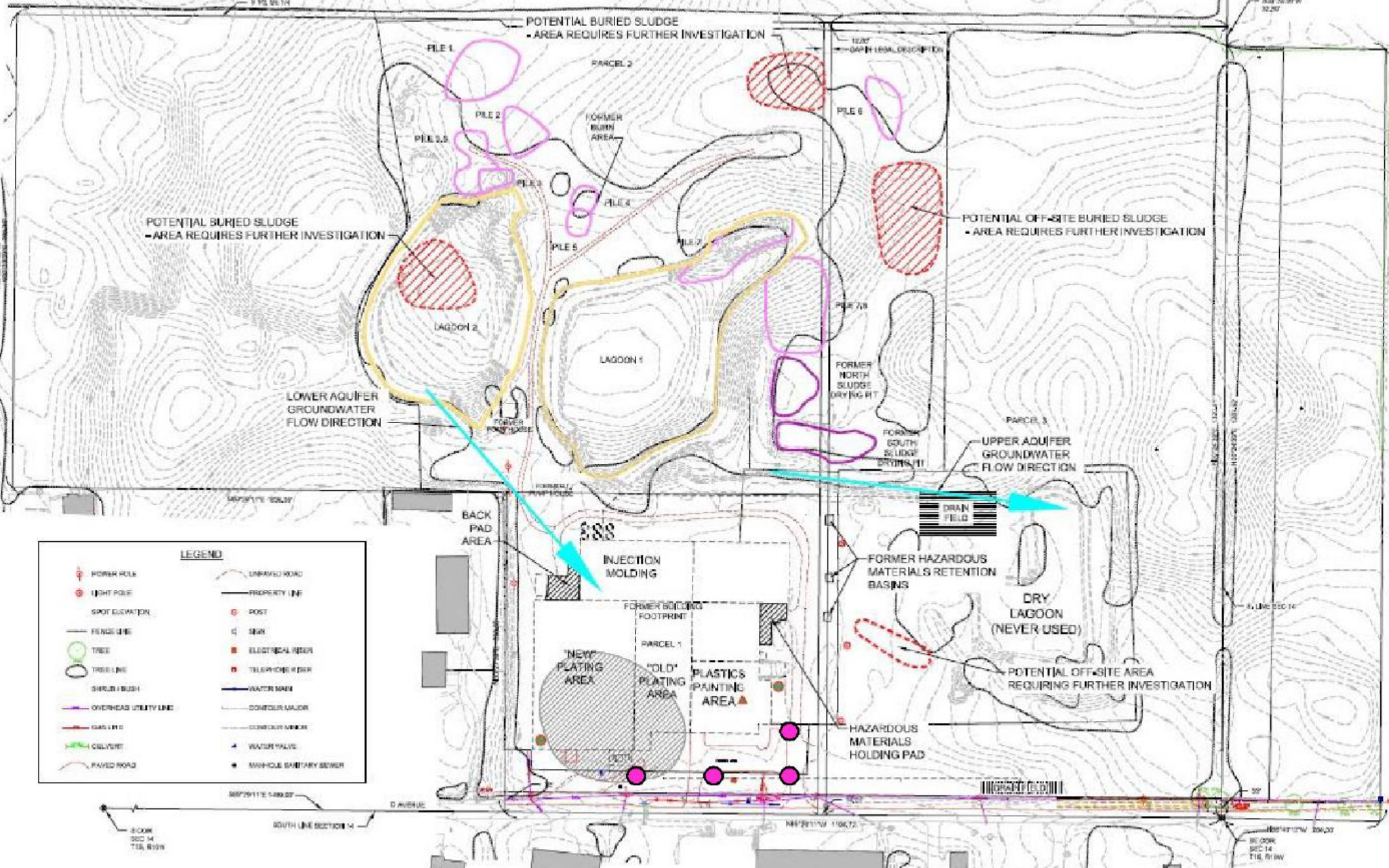
- Where have we been?
- Where we are now?
- Where are we going?



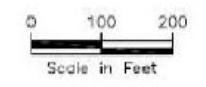
1978

Where have we been?

- Production Plated Plastics (PPP) - Former plastics plating company (~1966 – bankruptcy in 1991)
- 1977 – Heavy metal contamination discovered in residential wells
 - PPP replaced affected residential drinking water wells
- 1985 – Chlorinated Volatile Organic Compounds discovered at the site
 - PPP conducted investigations and operated a groundwater cleanup system
- 1988 – Municipal water extended to area impacted by Ni and Cr+6
- 1991 – PPP bankrupt, State took over response activities



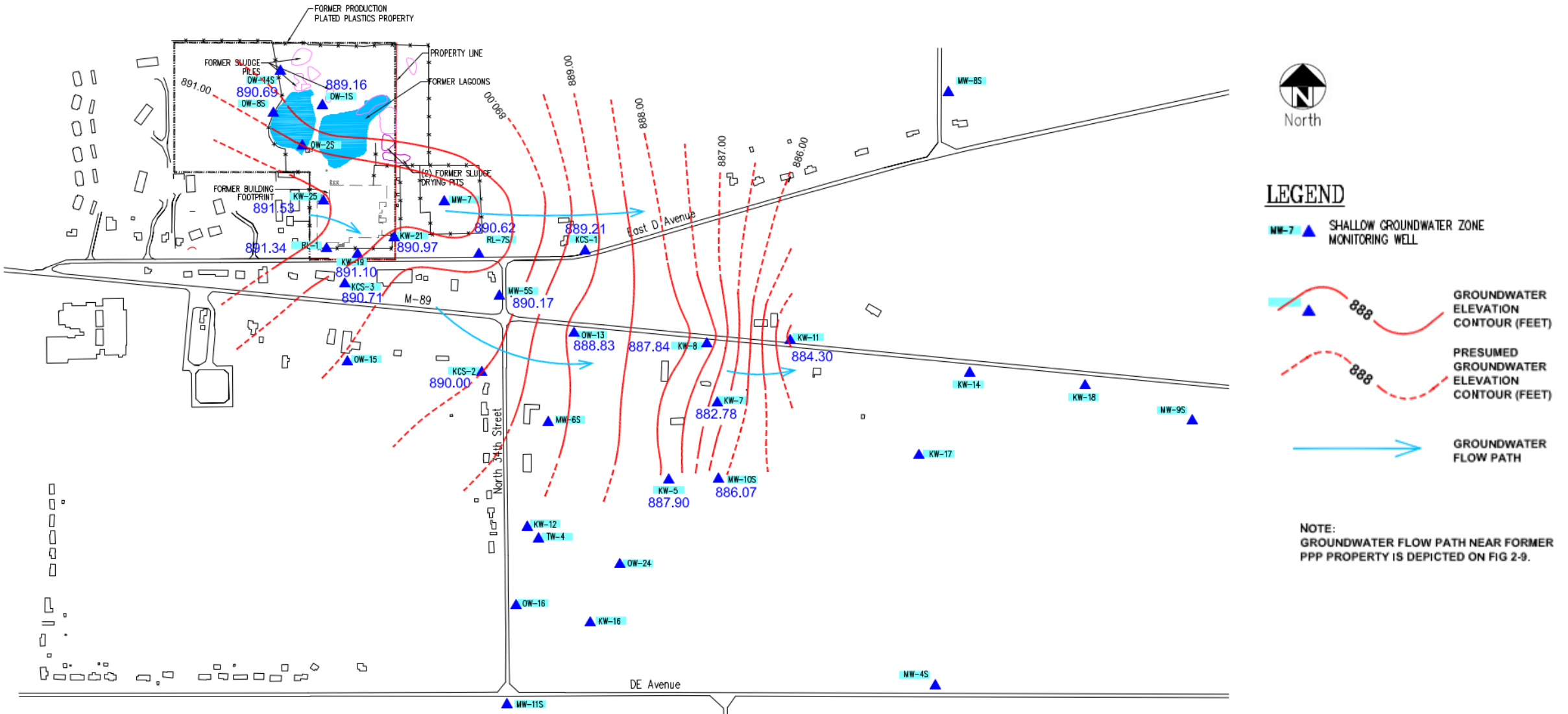
- POTENTIAL BURIED SLAGGE
- FORMER SLAGGE PILE
- LAGOONS
- POTENTIAL OFF-SITE AREA REQUIRING FURTHER INVESTIGATION
- HEXAVALENT CHROMIUM & NICKEL SOURCE AREA
- FORMER SLAGGE DRYING PIT
- FORMER PRODUCTION WELL
Source: Screening Site Inspection Report Aug. 10, 1994
- SUSPECTED FORMER PRODUCTION WELL
Source: Unknown
-



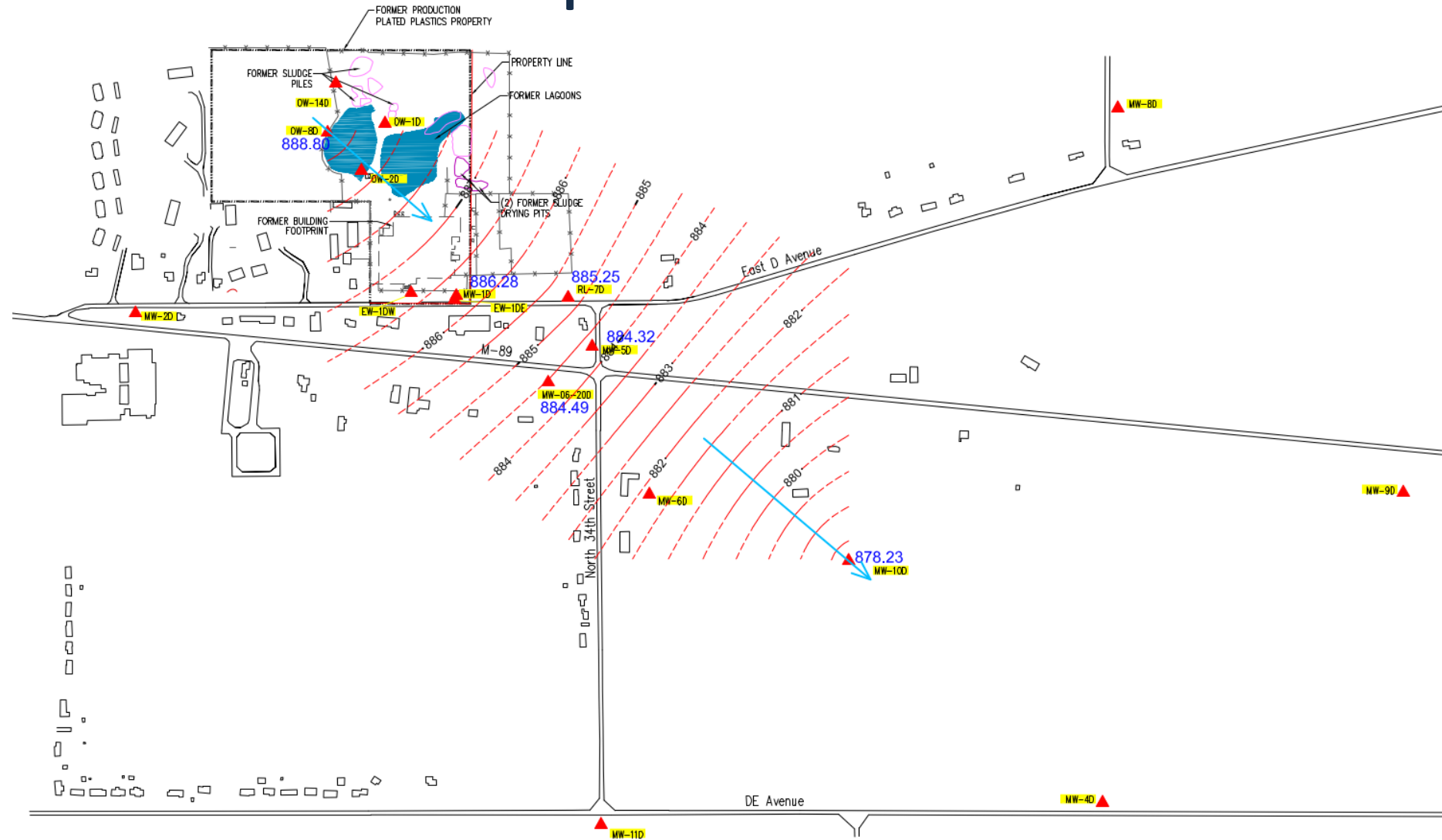
Where have we been?

- 2018 – PFAS identified in groundwater cleanup system effluent being discharged to Gull Lake Sewer and Water Authority
 - Cleanup System retrofitted with six 2,000lb GAC vessels for PFAS treatment
 - Begin PFAS Remedial Investigation
- 2021-2022 – Municipal water extended to much of the known area impacted by PFAS within Richland Township
- 2022 – Commenced quarterly groundwater monitoring

Shallow Groundwater Flow— 2013

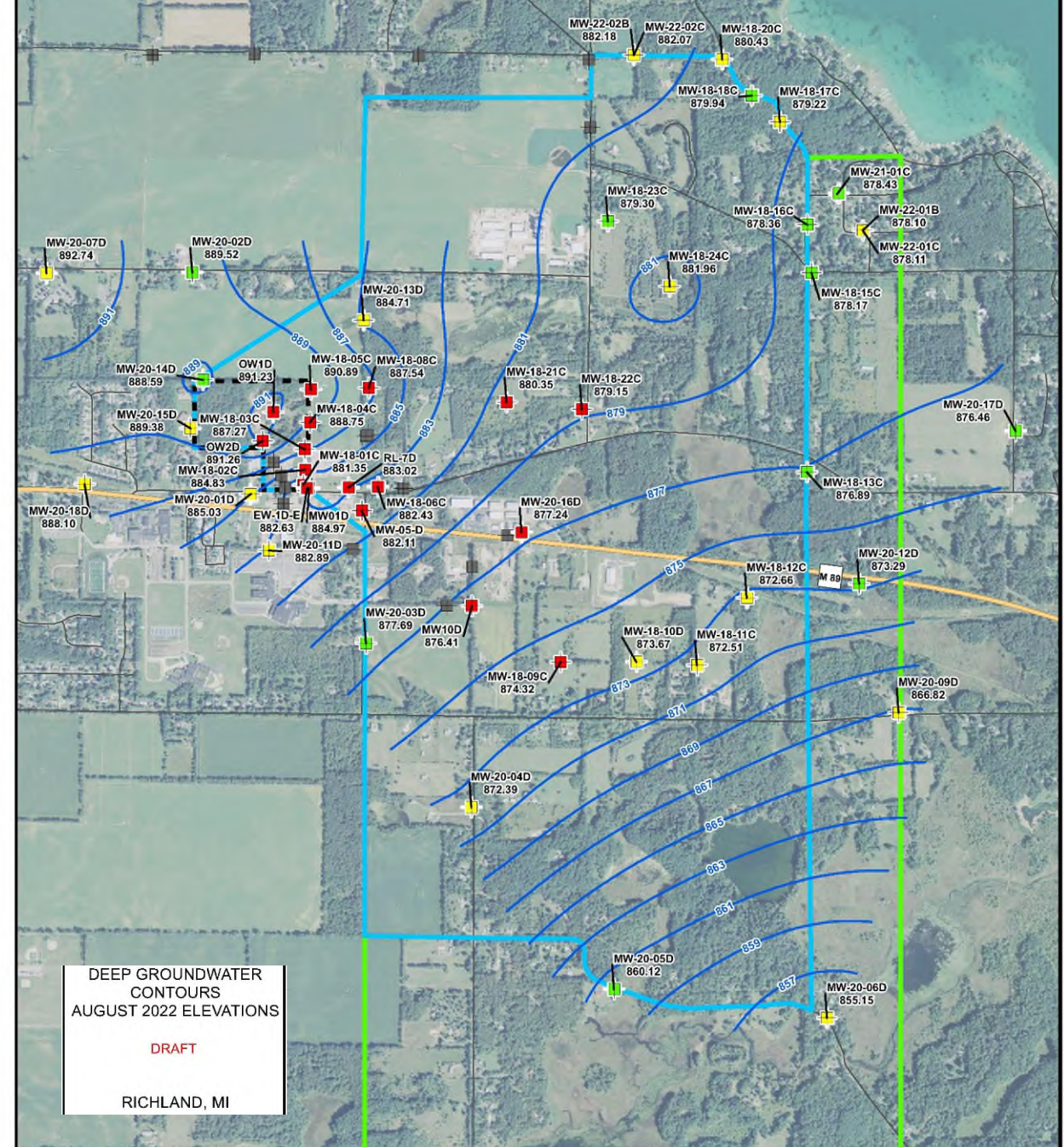
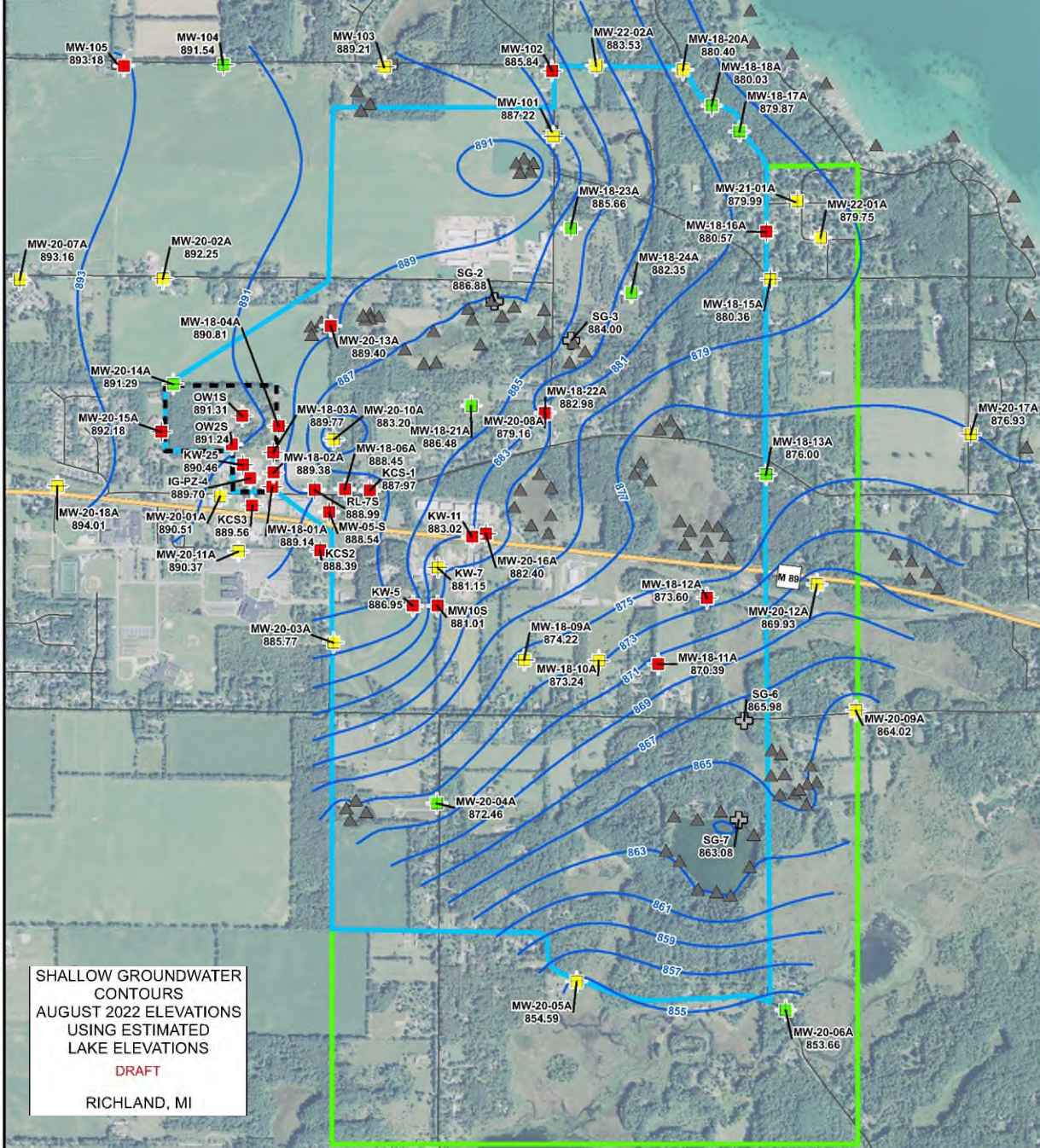


Deep Groundwater Flow— 2013



LEGEND

- MW-20 ▲ DEEP GROUNDWATER ZONE MONITORING WELL
- ▲ GROUNDWATER ELEVATION CONTOUR (FEET)
- 888 GROUNDWATER ELEVATION CONTOUR (FEET)
- 888 PRESUMED GROUNDWATER ELEVATION CONTOUR (FEET)
- GROUNDWATER FLOW PATH



Where are we now?

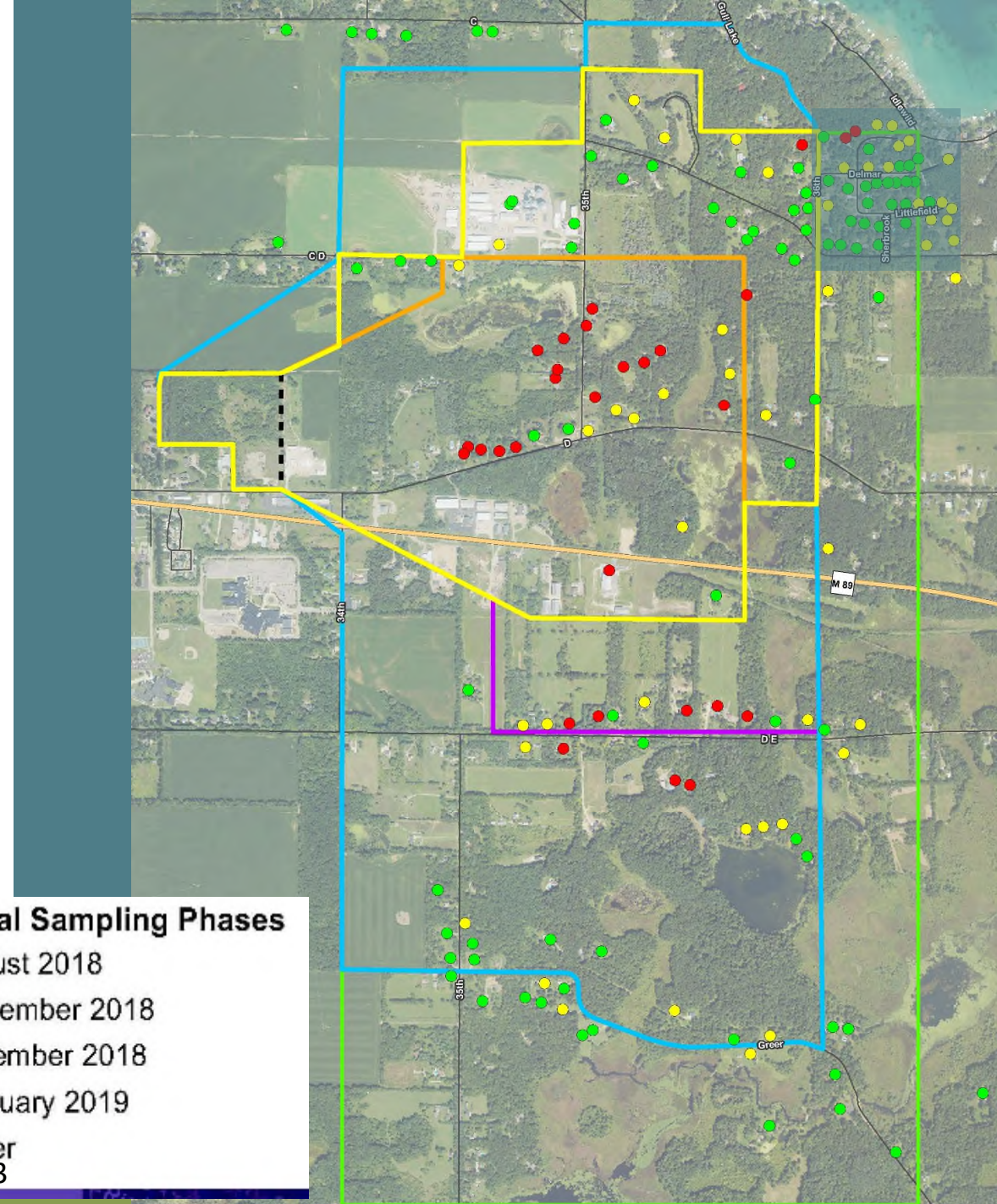
- Residential Wells
 - 4 Phases of sampling
 - Later phases guided by well results

	Exceed Criteria	Between ND and Criteria	ND
Richland Township	26	28	58
Ross Township	2	21	33
Residential Total	28	49	91
Total Residential Wells Sampled since 2018	168		

PFAS Compound	Part 201 Residential and Nonresidential Drinking Water Criteria (ng/L or ppt)
Perfluorobutane Sulfonic Acid (PFBS)	420
Perfluorohexane Sulfonic Acid (PFHxS)	51
Perfluorohexanoic Acid (PFHxA)	400,000
Perfluorononanoic acid (PFNA)	6
Perfluorooctanoic Acid (PFOA)	8
Perfluorooctane Sulfonic Acid (PFOS)	16
Hexafluoropropylene Oxide Dimer Acid (GenX)	370

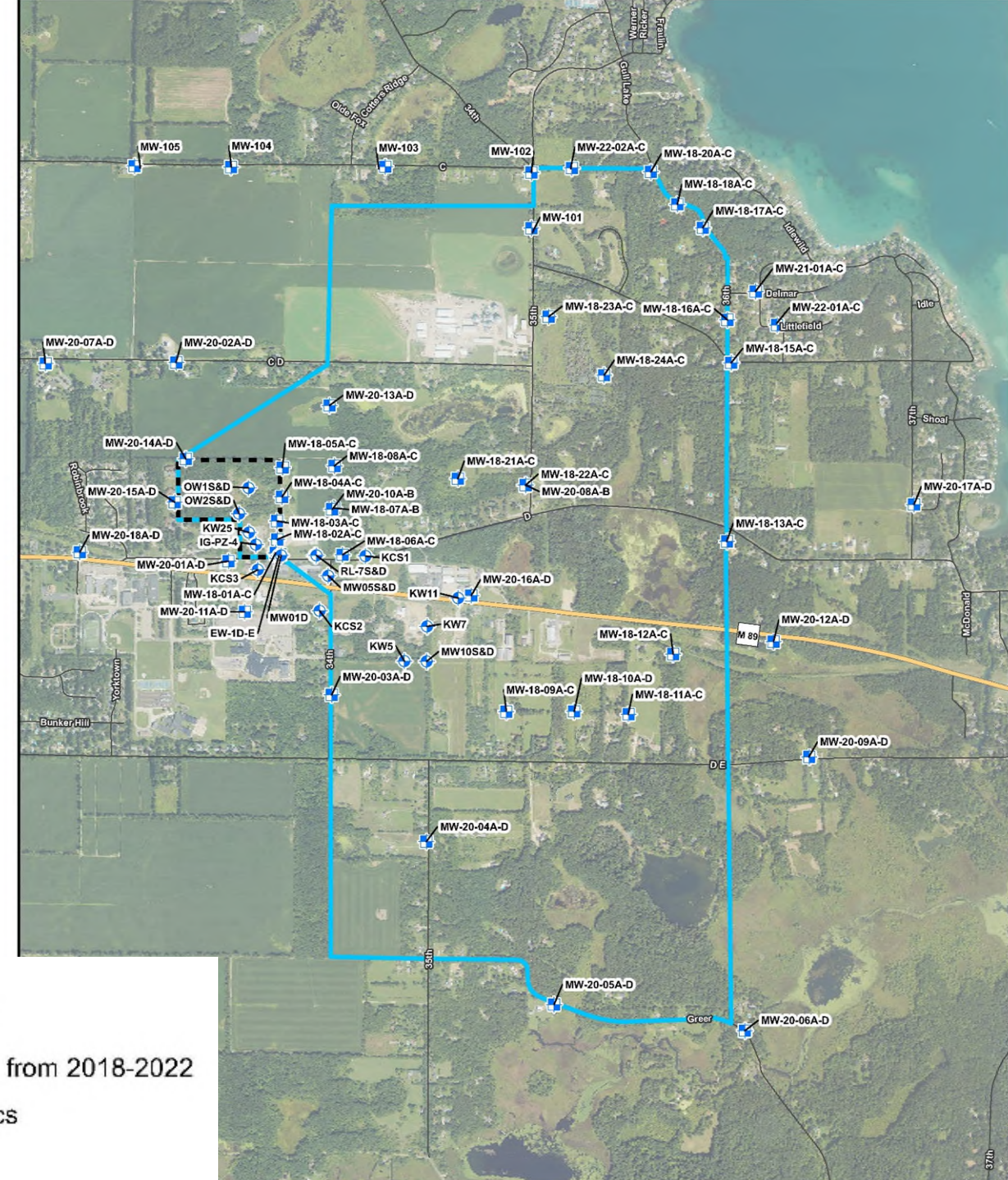
Residential Sampling Phases

- August 2018
- September 2018
- December 2018
- February 2019
- Buffer 2023



Where are we now?

- Groundwater Monitoring Wells
 - Existing: 21 wells, 80 samples collected
 - 2018: 66 wells installed, 282 samples collected
 - 2020: 68 wells installed, 286 samples collected
 - 2021/22: 14 wells installed, 66 samples collected
 - Quarterly sampling conducted in 2022-2023







Legend

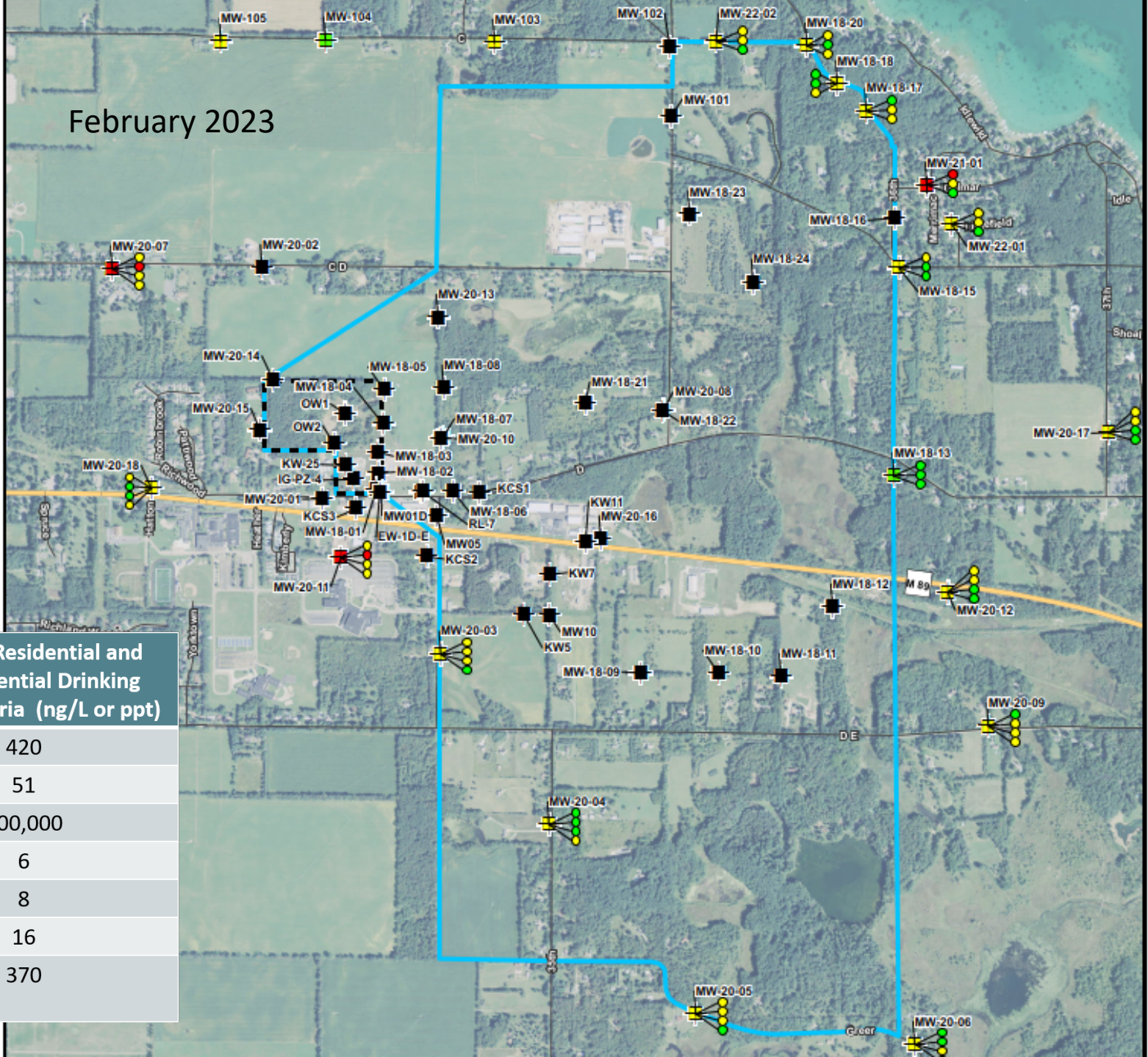
-  Existing Monitoring Well
-  Monitoring Well Installed from 2018-2022
-  Production Plated Plastics
-  Study Area

Quarterly PFAS Groundwater Results

Legend

Monitoring Well

-  Non-Detect for Part 201 PFAS Compounds
-  Detection below Part 201 PFAS Criteria, but no Exceedance
-  One or more Part 201 PFAS Criteria Exceeded
-  Not Sampled



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Where are we now?

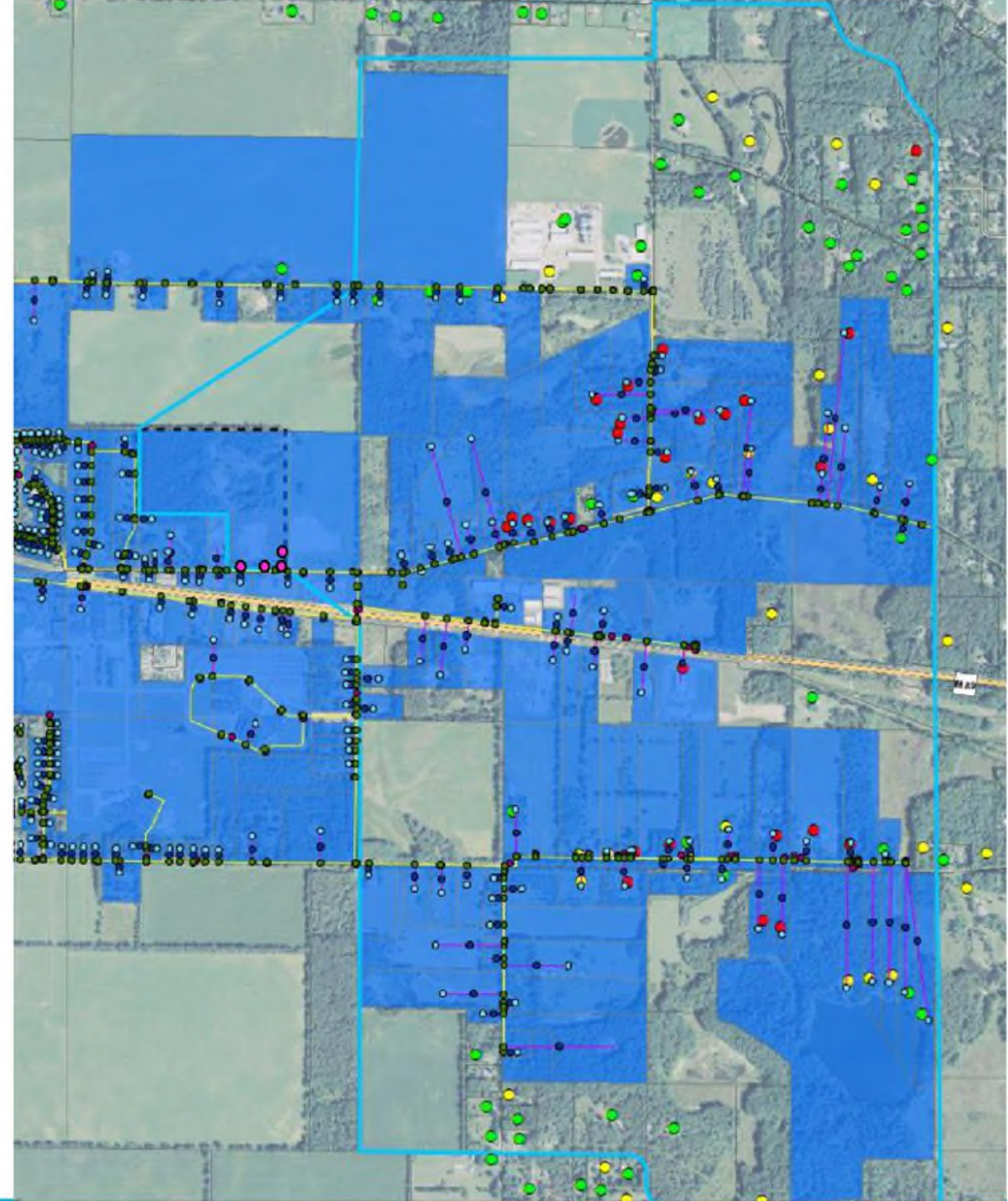
Legend

Residential Well Sampling Location

- Non-Detect for Part 201 PFAS Compounds
- Detection below Part 201 PFAS Criteria, but no Exceedance
- One or more Part 201 PFAS Criteria Exceeded
- ▭ Parcel Boundary
- ▭ Parcel with New Municipal Water Connection
- ▭ Production Plated Plastics
- ▭ Study Area

Legend

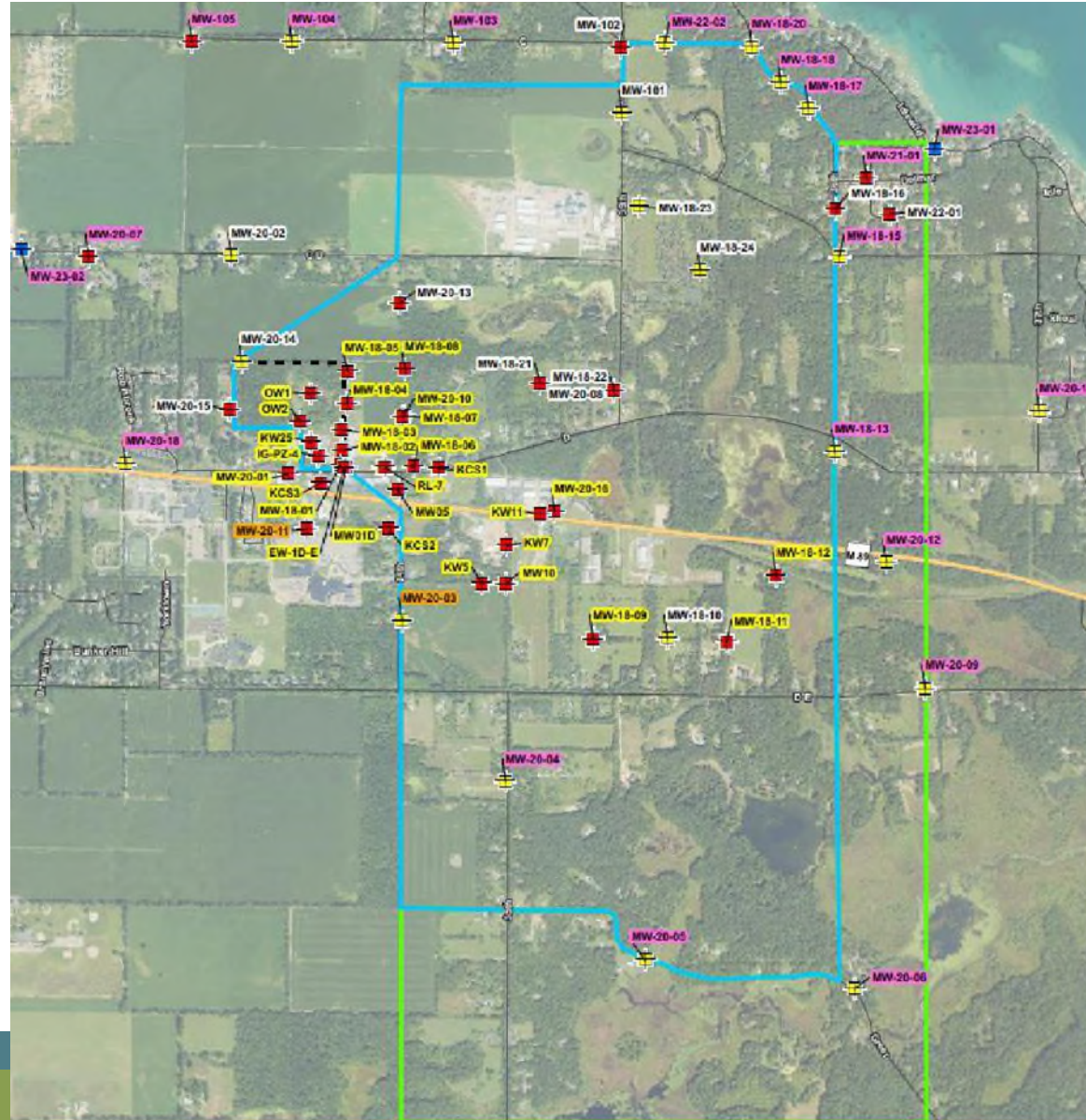
- Fittings
- Hydrant Valves
- Hydrants
- Meters
- Service Connections
- System Valves
- Mains
- Service Lines



Where are we going?

- Treatment system decommissioning
 - Injections to decrease concentrations of metals migrating offsite
- Long-term groundwater monitoring for PFAS at perimeter wells only
- Potential evaluation of the groundwater surface water interface pathway at Gull Lake
- Working with the local communities on a long-term solution to mitigate current and potential future exposure to PFAS in the groundwater via the drinking water pathway

Semi-Annual Sampling



Notes:

- Wells with yellow highlight will be sampled for MI-10 Metals & Nickel during both sampling events and VOCs during second sampling event.
- Wells with pink highlight will be sampled for PFAS during both sampling events.
- Wells with orange highlight will be sampled for PFAS, MI-10 Metals, & Nickel during both sampling events and VOCs during second sampling event.

Legend

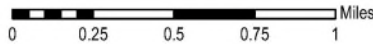
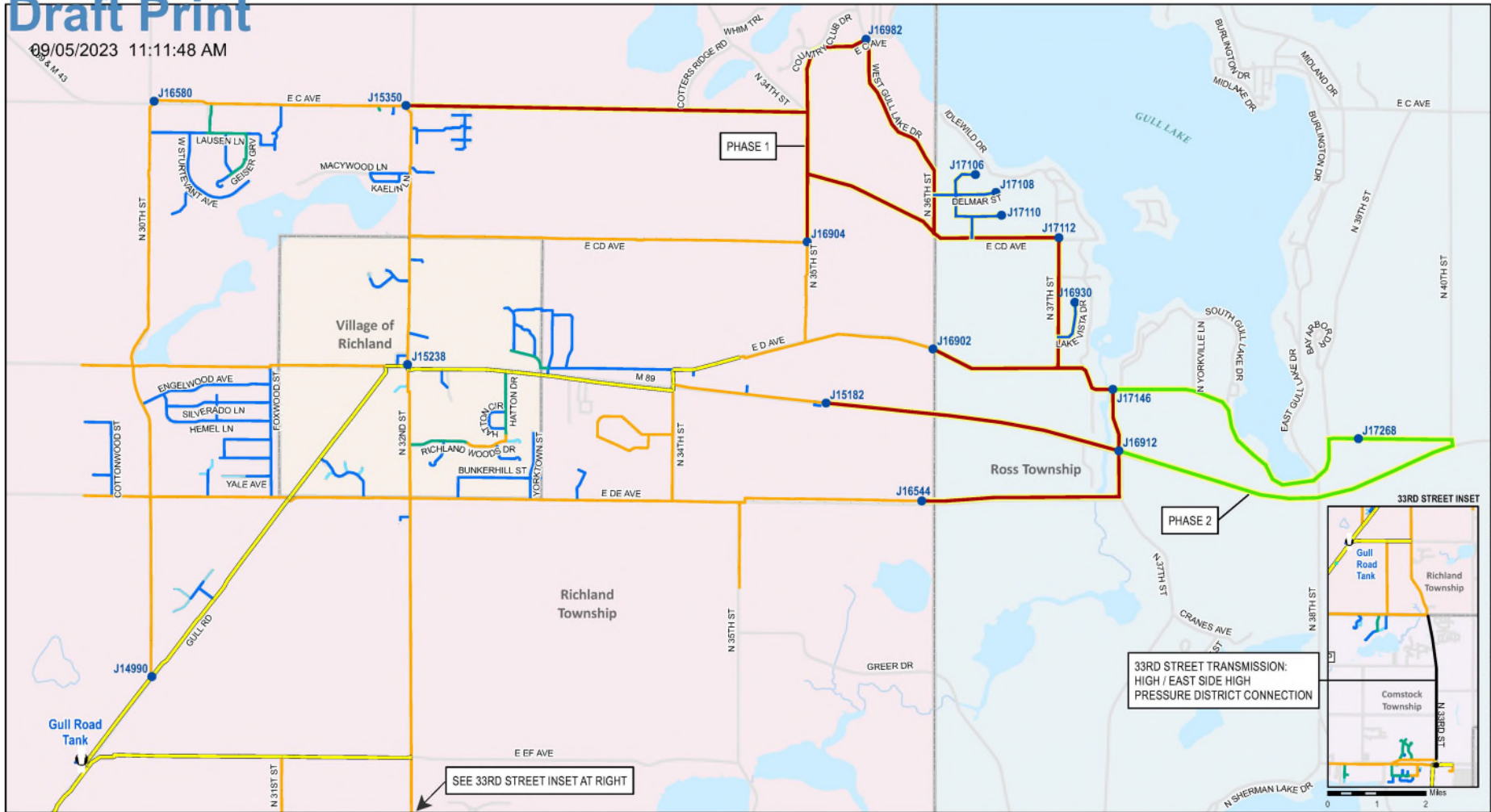
- Proposed Monitoring Well Location
- Non-Detect for Part 201 PFAS Compounds
- Detection below Part 201 PFAS Criteria, but no Exceedance
- One or more Part 201 PFAS Criteria Exceeded
- Production Plated Plastics
- Study Area
- Buffer Zone



Proposed Municipal Water Extension

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● Select Model Node	Proposed Water Main (Phase 1)	Existing Water Main	10"	24"
	8"	4" and Smaller	12"	30"
	12"	6"	16"	Existing Hydrant
	Proposed Water Main (Phase 2)	8"	20"	● Bleeder Station
	12"			

CITY OF KALAMAZOO
 KALAMAZOO COUNTY, MICHIGAN
FIGURE 1: PROPOSED WATER MAIN EXTENSION
 SEPTEMBER 2023
 Prein&Newhof
 2180276

Michigan Department of
Environment, Great Lakes, and Energy

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