

RACER Lansing RFI-CMS Review

RACER Trust

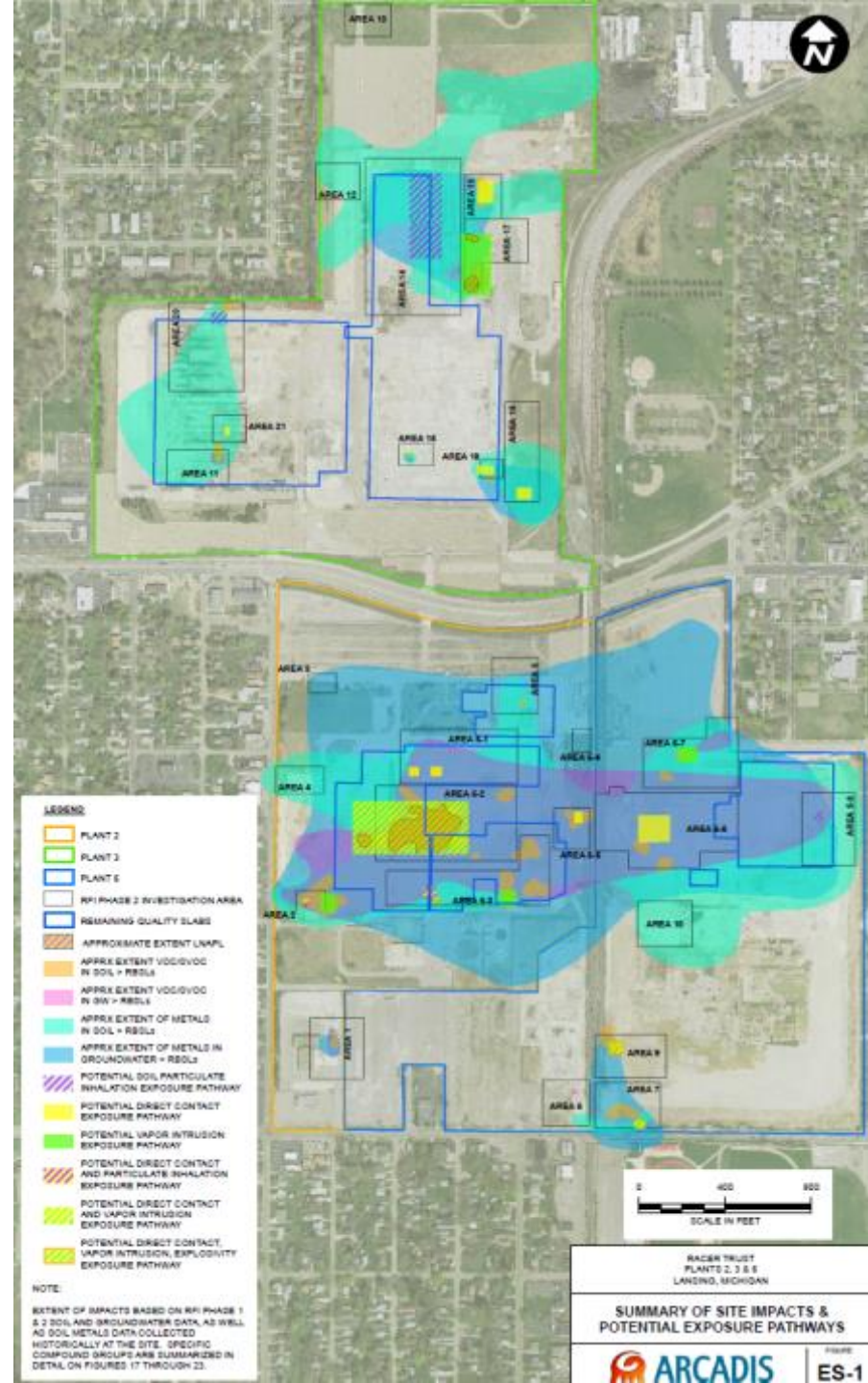
Plants 2, 3 & 6

Lansing, Michigan

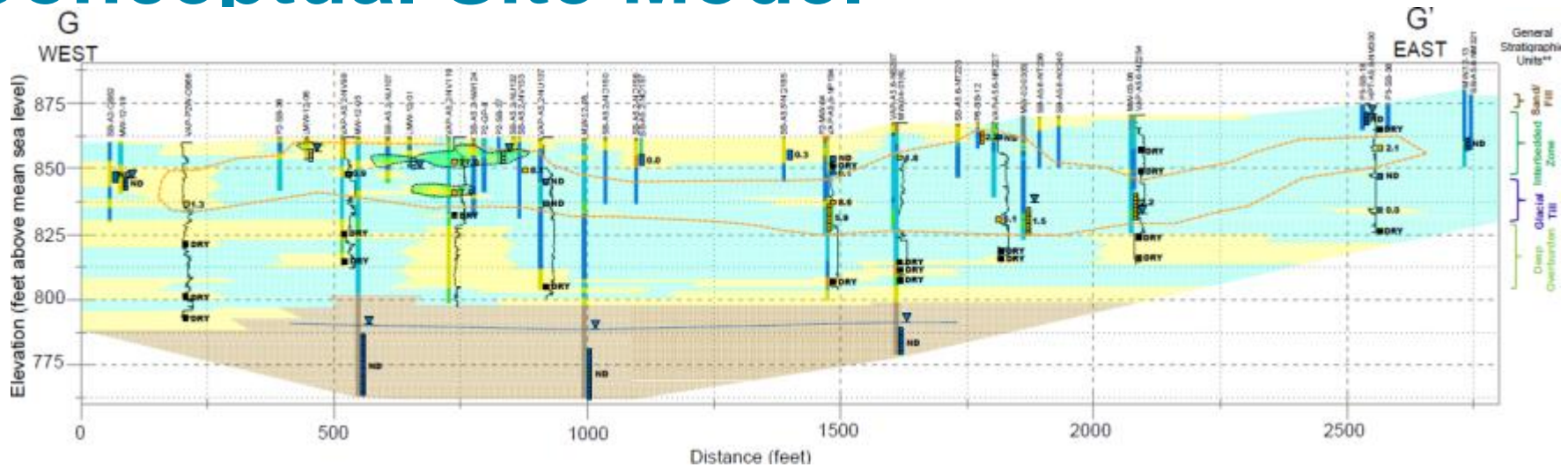
July 10, 2013



RFI Discussion



Conceptual Site Model



- Limited vertical communication between the overburden and bedrock
 - Overburden impacts separated from bedrock by vadose zone except near coliseum
 - Lack of deep overburden impacts except near coliseum
 - Lack of bedrock impacts
 - No 1,4-dioxane impacts in bedrock
 - Only VOCs related to well construction and off-site source
 - Sporadic metals slightly above standard (confirmation pending sampling results)

Quarterly Groundwater Sampling Event

VOCs:

- Results consistent with previous findings
 - No 1,4-dioxane in bedrock
 - Only VOCs related to off-site source and well construction
 - Plant 2 & 6 1,4-dioxane defined at property boundaries

Metals:

- 16 of 103 wells maintained turbidity >10 NTU
 - 2 bedrock, 14 overburden
- Analytical results pending for metals at many wells

Additional Work – Plant 3 Metals

July 10-12, Soil Borings

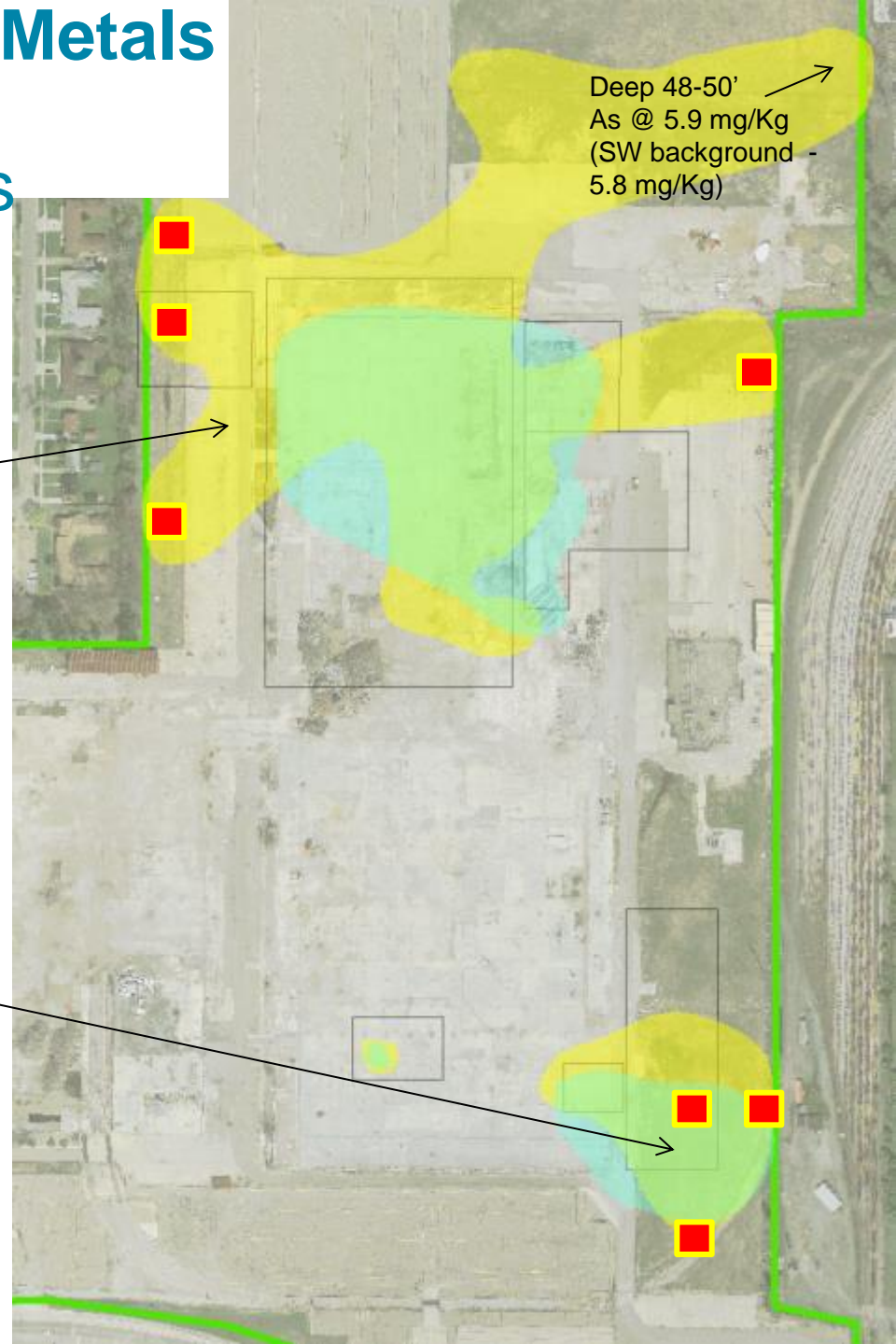
July 22-24, Monitoring Wells

Northern Plant 3

- Soil borings adjacent to historical soil borings to confirm arsenic results

Area 16

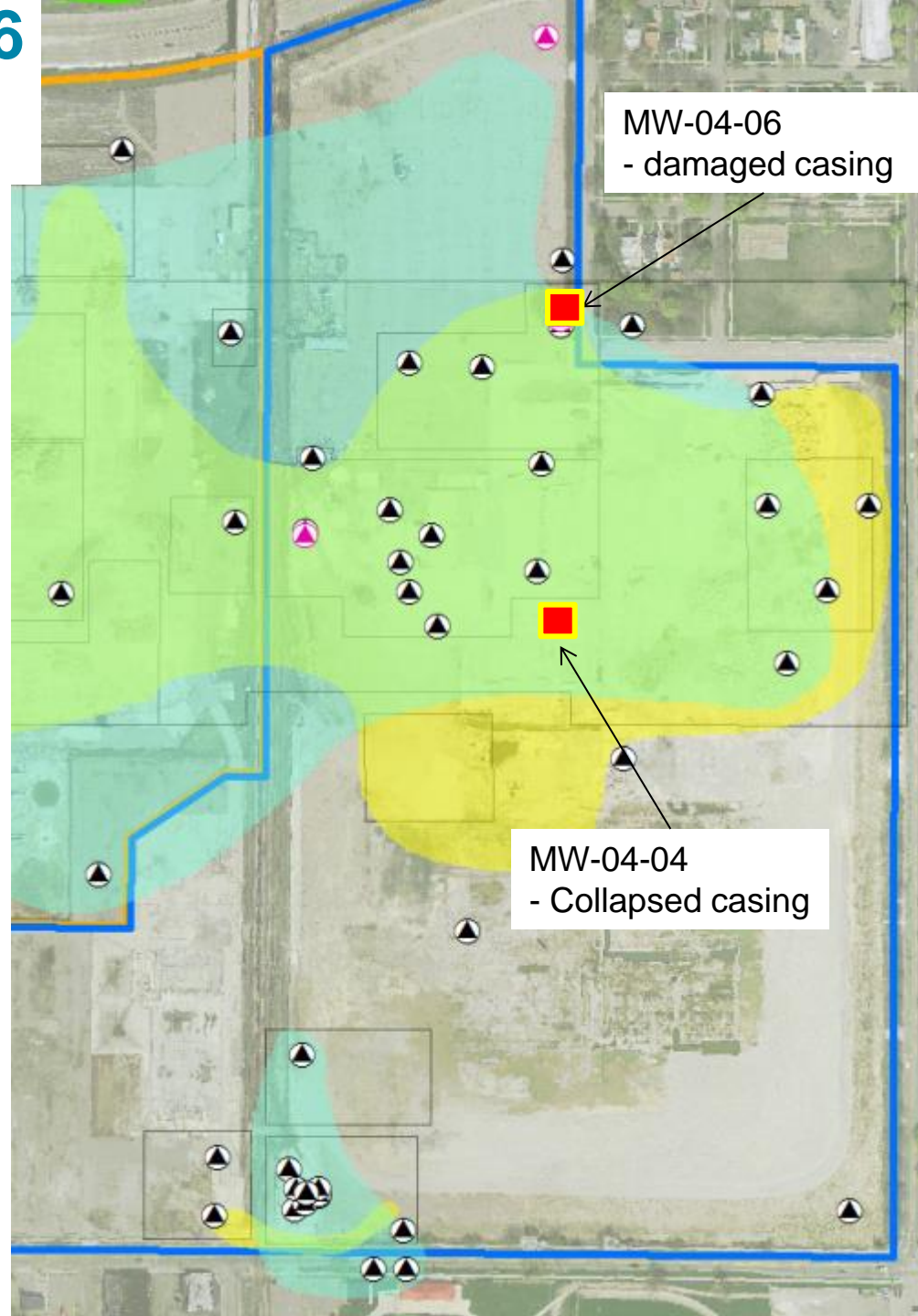
- Soil Borings to define metals in soil and identify permeable zones
- Monitoring wells to define/monitor metals in GW



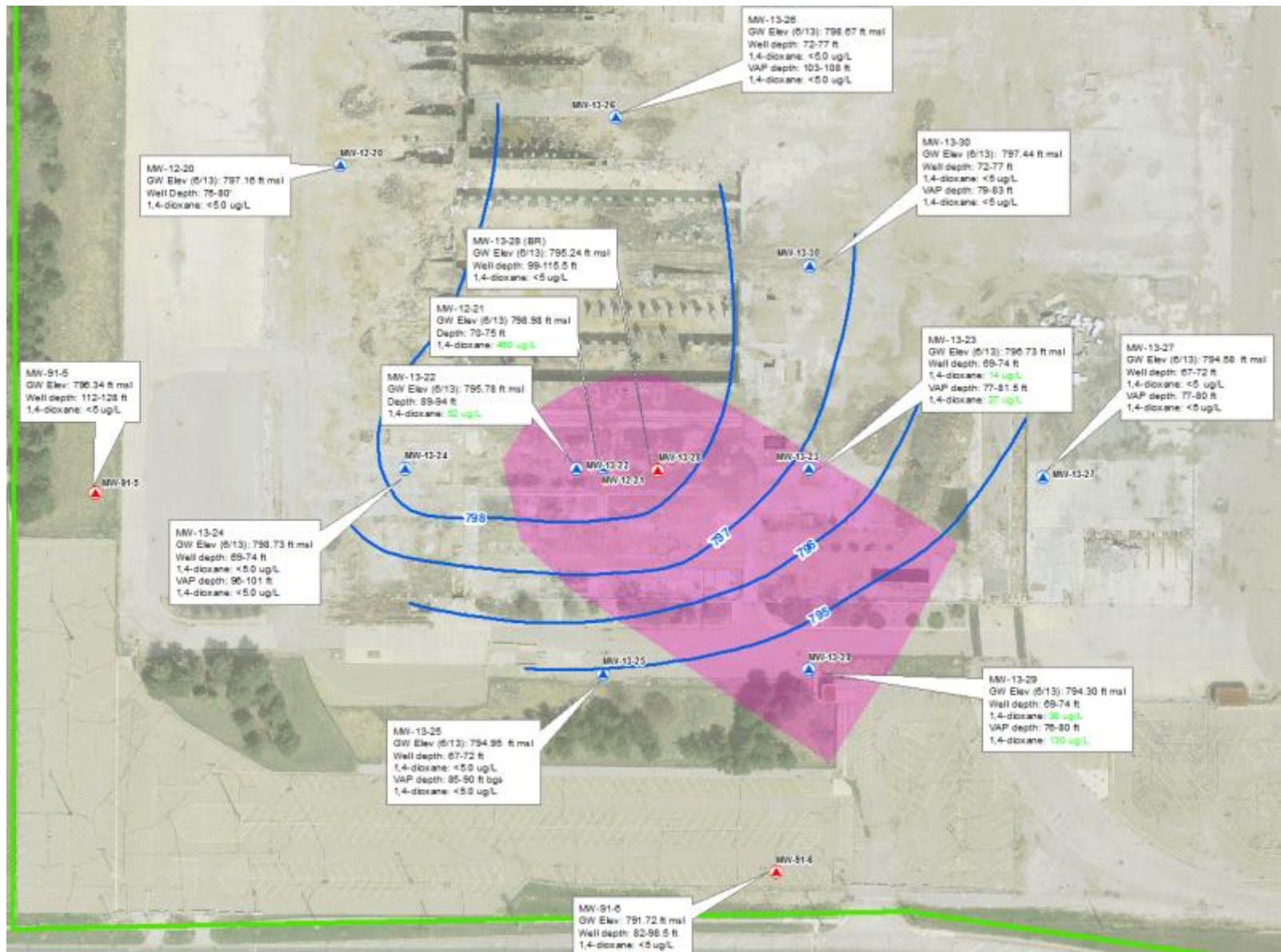
Additional Work – Plant 6

July 15-19, Replace
July 22-25, Abandon

- Replace damaged bedrock wells

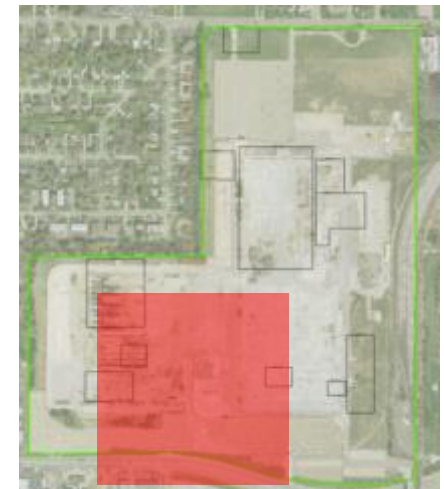
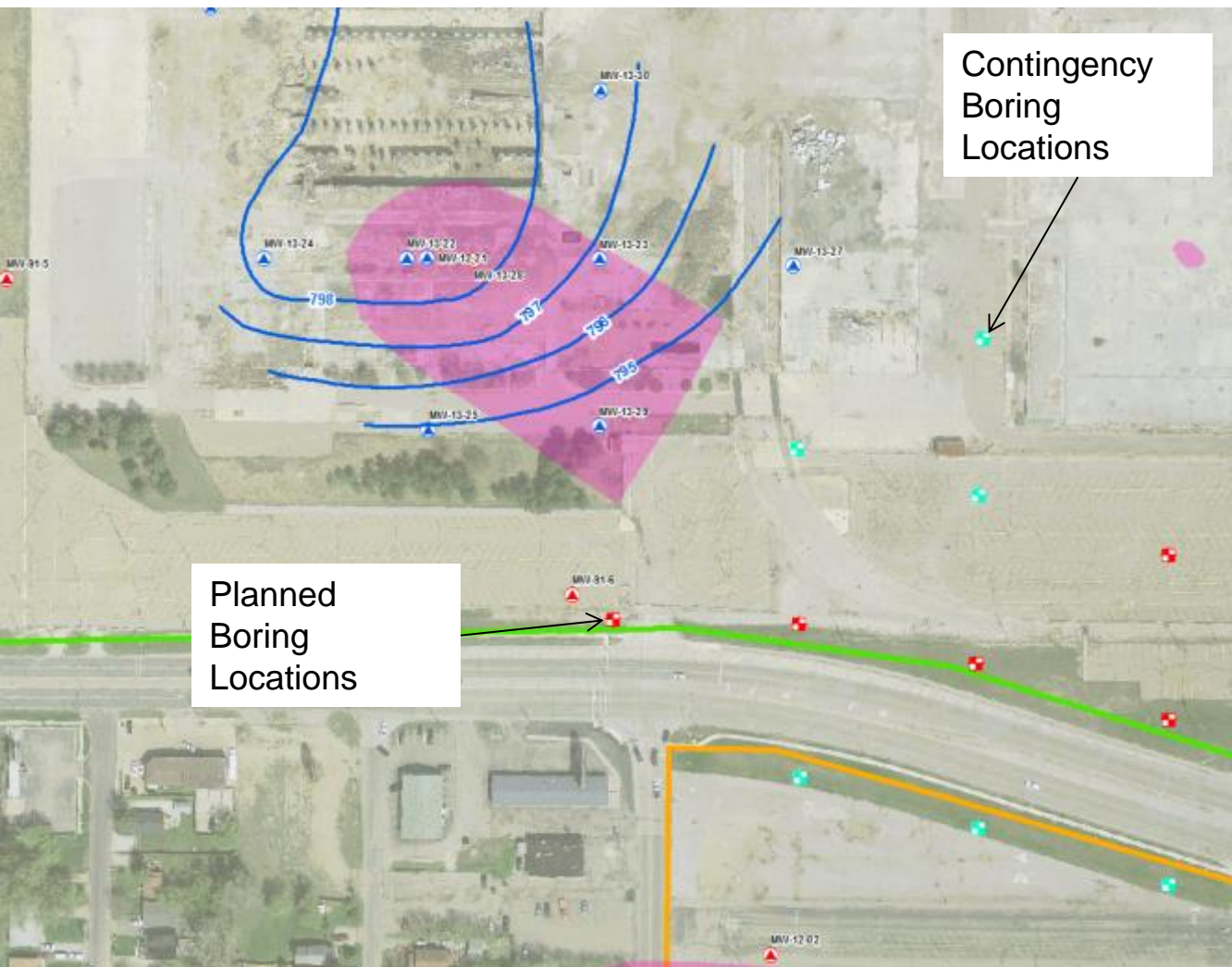


Plant 3 - 1,4-Dioxane Investigation Area



Additional Work – Plant 3 1,4-dioxane

July 22 – August 9

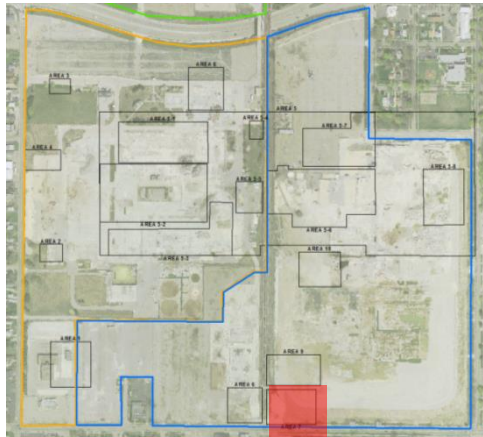
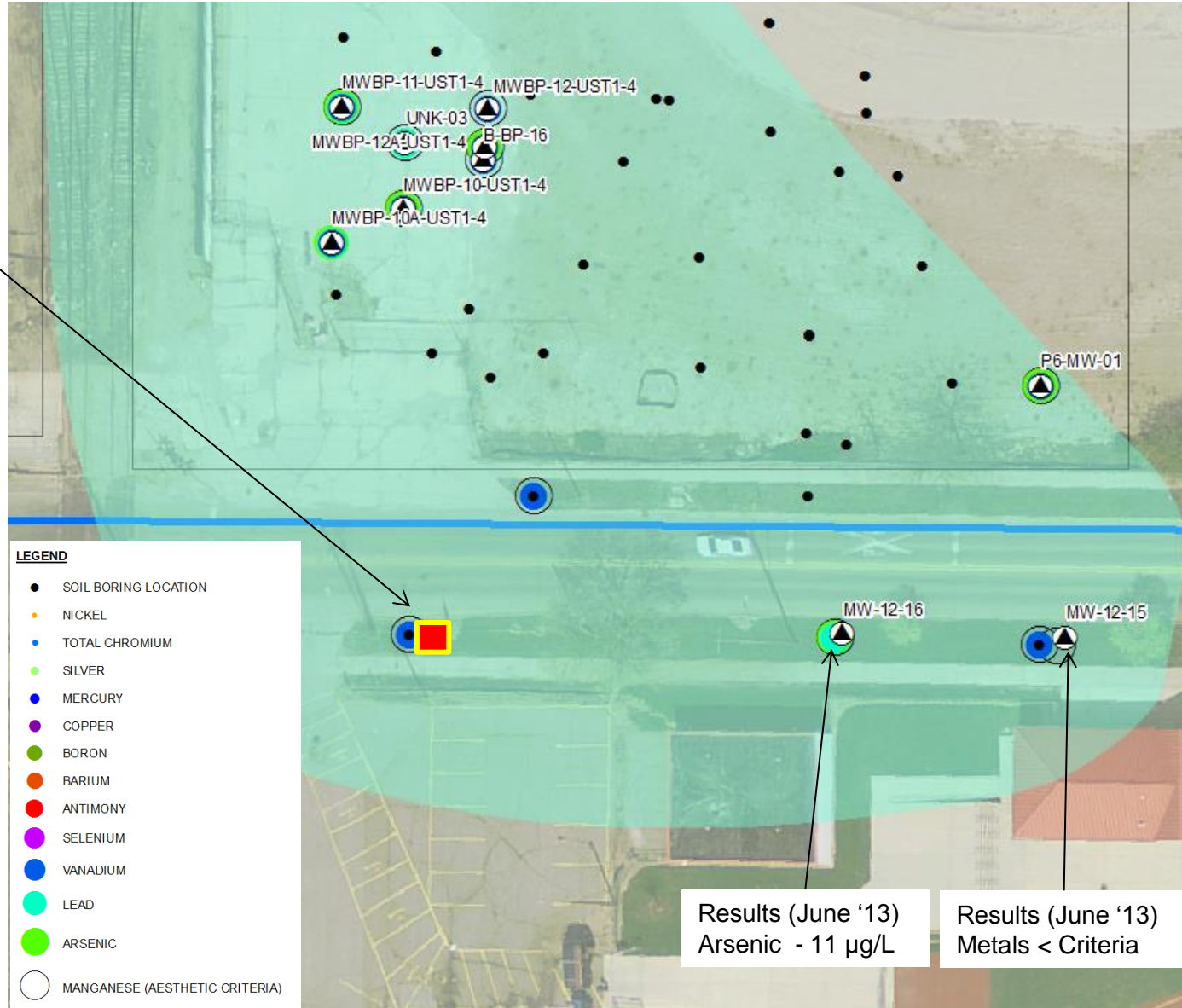


- VAP borings to bedrock
- Sample GW at bedrock/OB interface
- Bedrock well(s) if necessary

Additional Work – Area 7 Offsite Metals

July 22-23

- Install additional well to provide additional off-site location for metals monitoring



Results (June '13)
Arsenic - 11 µg/L

Results (June '13)
Metals < Criteria

CMS Approach

- Risk-based approach for soil, groundwater and LNAPL
 - Land-use controls and deed restrictions
 - Prevent groundwater use site-wide
 - Maintain existing surface cover conditions, cap when needed
 - Minimize infiltration
 - Prevent exposure
 - Excavation to mitigate potential off-site vapor risks
 - Areas 5-7, 7 and 9 (Plant 6)
 - Monitored plume stability
 - Contingent measure for groundwater plume(s) containment, source treatment, or both

CMS Contingent Remedy Triggers





- Plume stability analysis – Pass/Fail
 - Metals turbidity analysis
 - On-going delineation effort
 - One year of monitoring

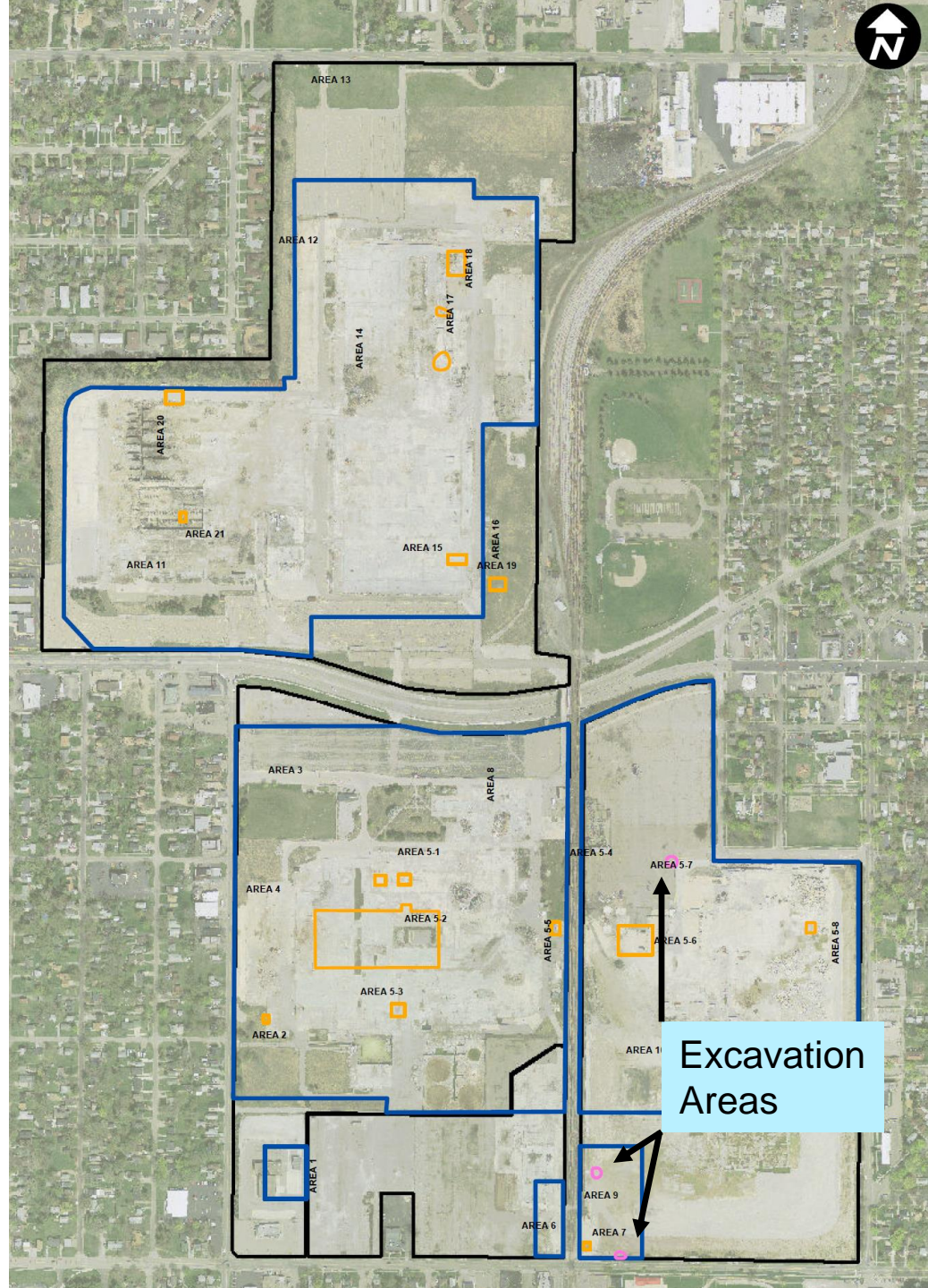
- Five year review – Long-Term Verification
 - Verify plume stability
 - Define long term monitoring contingent remedy requirements, as needed

Proposed Corrective Measures

- Land Use Restrictions
- Groundwater Use Restrictions
- Excavation in Certain Areas
- Caps
- Monitored Plume Stability
 - Groundwater Monitoring
 - Preserve Current Condition of Existing Surface Cover

LEGEND

-  EXCAVATION FOR POTENTIAL OFFSITE VAPOR INTRUSION RISK AND/OR DIRECT CONTACT EXPOSURE PATHWAY
-  CAP AREA FOR DIRECT CONTACT AND/OR PARTICULATE INHALATION EXPOSURE PATHWAYS
-  PRESERVE CURRENT CONDITION OF EXISTING SURFACE COVER
-  PROPERTY BOUNDARY



Excavations



EXCAVATION FOR POTENTIAL OFFSITE
VAPOR INTRUSION RISK AND/OR
DIRECT CONTACT EXPOSURE PATHWAY

Area 5-7

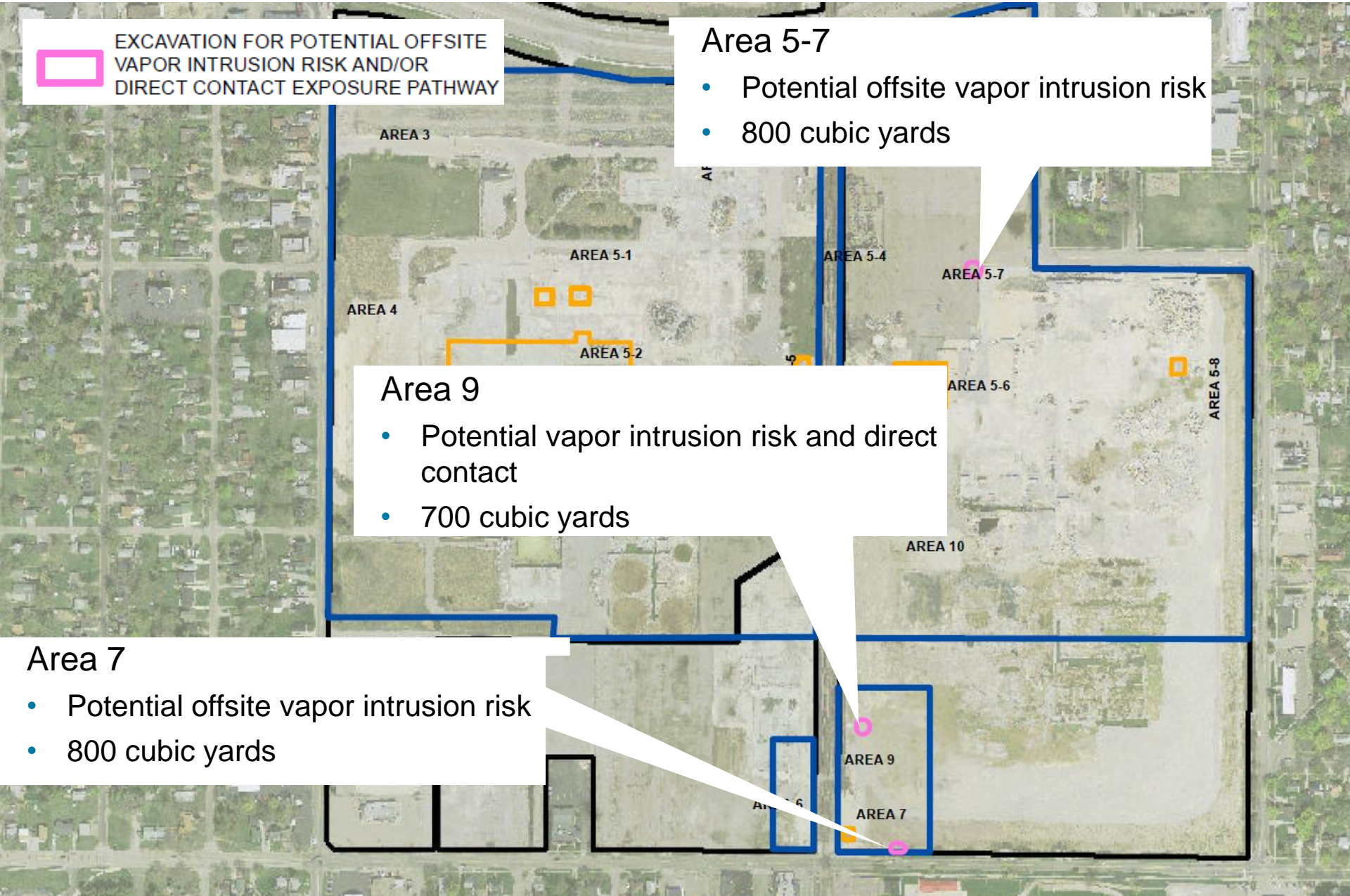
- Potential offsite vapor intrusion risk
- 800 cubic yards

Area 9

- Potential vapor intrusion risk and direct contact
- 700 cubic yards

Area 7

- Potential offsite vapor intrusion risk
- 800 cubic yards



Caps & Existing Surface Covers

- Cap types
 - Existing building slabs
 - Existing cover (soil, gravel, concrete, or asphalt)
 - Extension of existing cover
 - Placement of clean soil
- An RC filed with the deed:
 - Prohibiting the removal of the cap
 - Requiring replacement of the cap following any intrusive activities or additional sampling to demonstrate that a cap in the area is no longer necessary
- O&M Plan including annual inspections and maintenance of the cap, as necessary

Monitored Plume Stability

- Ongoing groundwater monitoring
 - Contingent remedy triggers
 - Plume Stability Analysis
 - 5-year Long-Term Verification
- An RC filed with the deed:
 - Prohibiting any activities that would interfere with or obstruct access to monitoring wells

Imagine the result

