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FINAL

REPORT OF RESULTS FOR THE REMEDIAL INVESTIGATION OF UNDERGROUND UTILITY LINES FORMERLY USED BY THE DEPARTMENT OF DEFENSE, LAKE ONTARIO ORDNANCE WORKS (LOOW) NIAGARA COUNTY, NEW YORK,

VOLUME II
LARGE SIZE FIGURES

U.S. Army Corps of Engineers

September 2008

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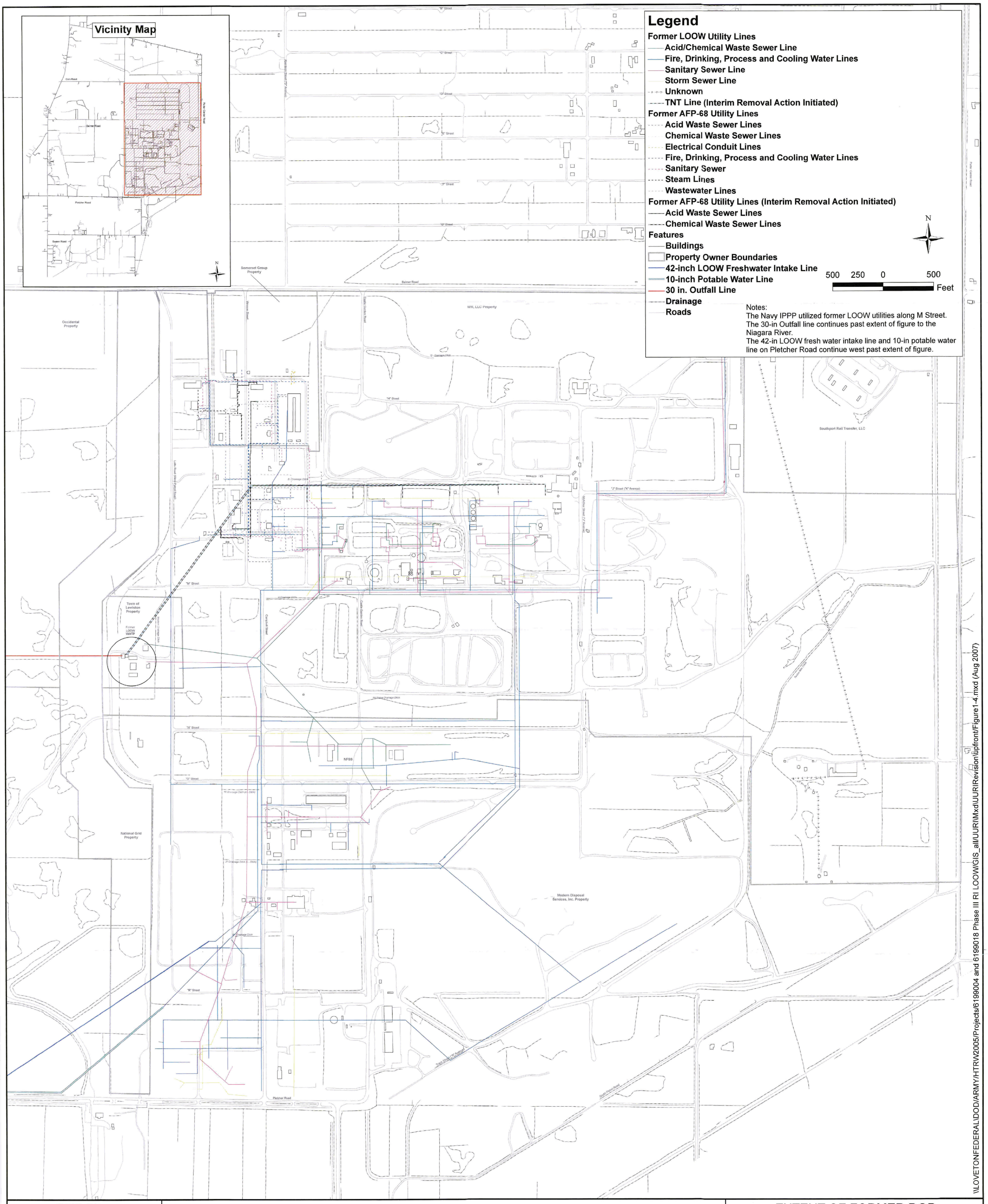

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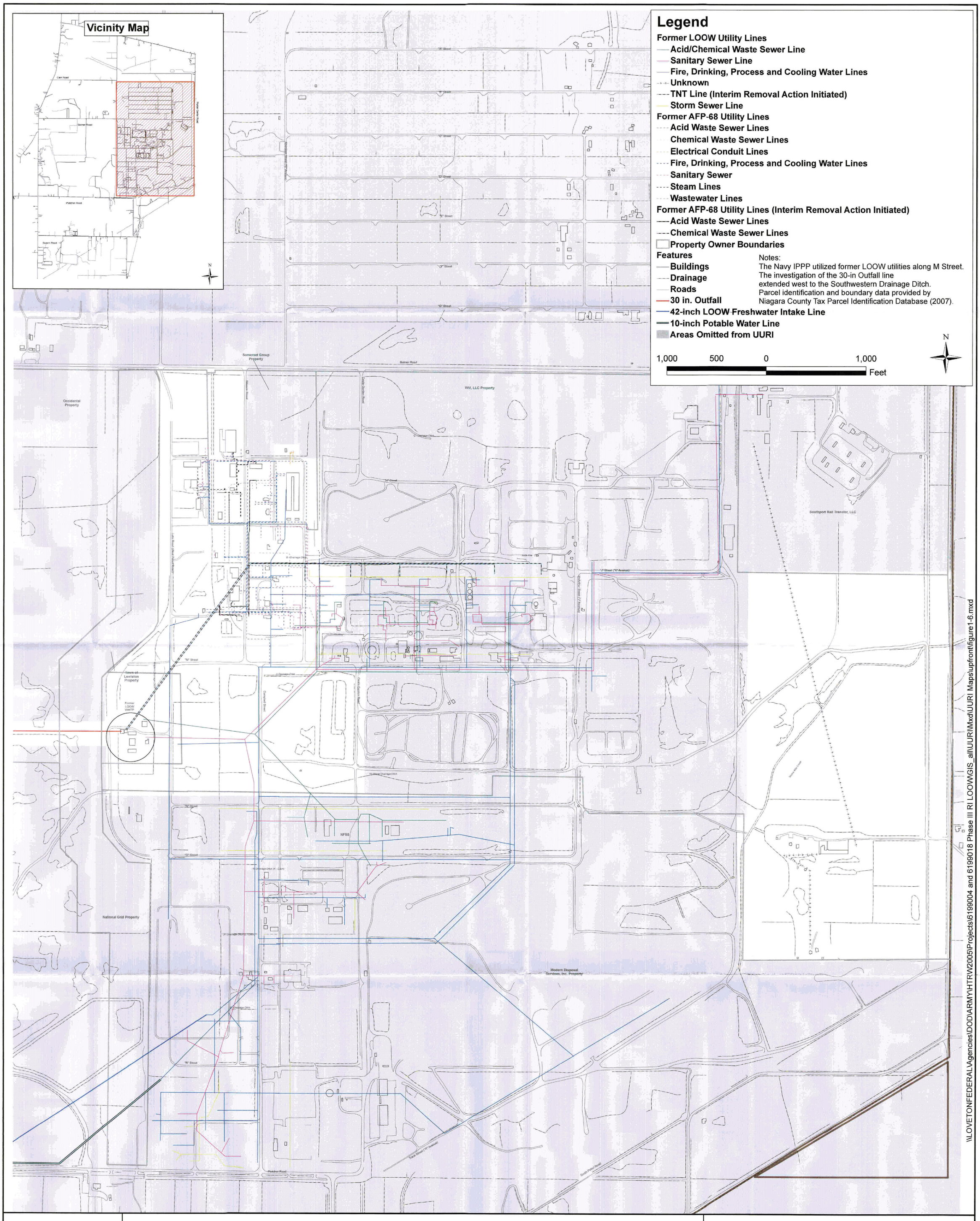
EXTENT OF FORMER DOD UNDERGROUND UTILITIES

FIGURE 1-4



\\LOVETONFEDERAL\Agencies\DOD\ARMY\HTRW2005\Projects\6199004 and 6199018 Phase III RI LOOWGIS_all\UURI\Mxd\UURI Maps\upfront\figure1-6.mxd

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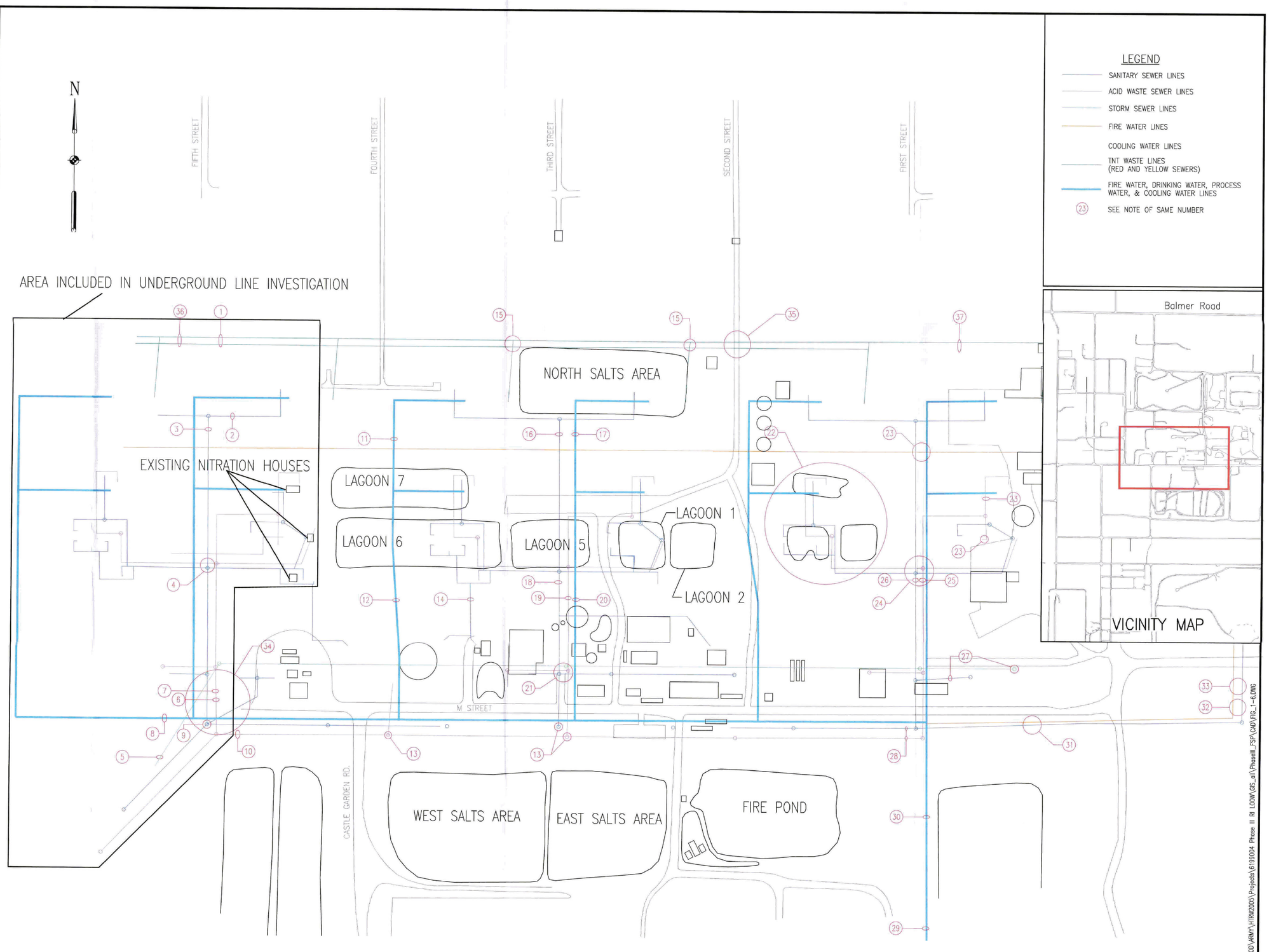
AREAS INCLUDED IN UNDERGROUND LINE INVESTIGATION

FIGURE 1-5

NOTES:

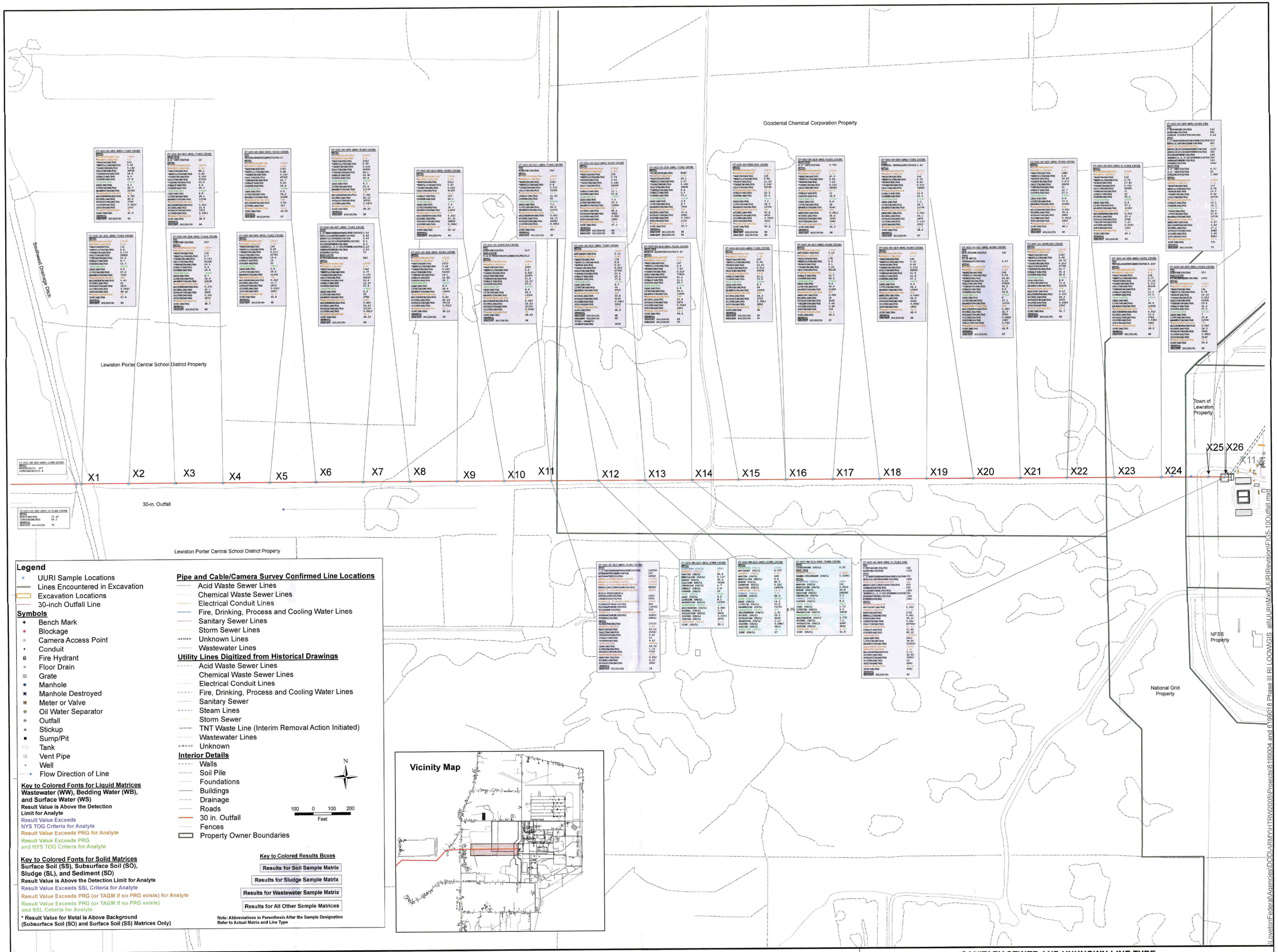
1. SECTION REMOVED AND ENDS PLUGGED, MARCH 1978
2. 24' REMOVED AND ENDS PLUGGED, APRIL 1978
3. 21' REMOVED AND ENDS PLUGGED, APRIL 1978
4. 20' REMOVED AND ENDS PLUGGED IN BOTH LINES APRIL 1978
5. 15' REMOVED AND ENDS PLUGGED, APRIL 1978
6. 20' REMOVED AND ENDS PLUGGED, MAY 1978
7. 8' REMOVED AND ENDS PLUGGED, APRIL 1978
8. COOLING WATER LINE PLUGGED
9. MANHOLE PLUGGED WITH CONCRETE PRIOR TO MARCH 1978
10. 15' REMOVED AND (2) SEWER LINES PLUGGED
11. 20' REMOVED AND ENDS PLUGGED APRIL 1978 (3) 6"ø, (1) 4"ø
12. 8' REMOVED AND ENDS PLUGGED APRIL 1978 (1) 8"ø, (2) 6"ø, (1) 12"ø
13. PLUGGED WITH CONCRETE NOVEMBER 1978
14. 8' REMOVED AND ENDS PLUGGED, APRIL 1978
15. LINES PLUGGED FOR CONSTRUCTION OF NORTH SALTS AREA, FEBRUARY 1977
16. 10' REMOVED AND ENDS PLUGGED, APRIL 1978
17. 15' REMOVED AND PLUGGED (3) 6"ø, (1) 4"ø
18. REMOVED AND PLUGGED JUNE 1978
19. 30x24"ø REMOVED AND PLUGGED, JUNE 1978
20. 12"ø, 8"ø, 6"ø, 4"ø, ALL REMOVED JANUARY 1978. PLUGGED JUNE 1978
21. MANHOLES REMOVED
22. LAGOON #3; #4, REMOVED MAY 1978 AND ALL LINES ENCOUNTERED WERE REMOVED
23. CAPPED OFF
24. 1982 SAMPLE LOCATIONS
25. 9' REMOVED AND PLUGGED, APRIL 1978
26. 20' REMOVED AND PLUGGED, APRIL 1978
27. CUT AND PLUGGED, MAY 1978
28. 20' REMOVED AND PLUGGED, APRIL 1978
29. CUT AND PLUGGED, MAY 1978 (EXCEPT DRINKING WATER)
30. FIRE WATER (WEST), DRINKING WATER (WEST/MID), PROCESS WATER (EAST/MID), COOLING WATER (EAST)
31. BLOCKED AND SEALED APRIL 1978
32. REMOVED FOR CONSTRUCTION OF LAGOON 8
33. BLOCKED APRIL 1978
34. VICINITY OF SAMPLES COLLECTED IN 1990 BY CWM
35. SECTION REMOVED BY CWM 1990
36. 37. ENTIRE LENGTH OF TNT WASTE LINE REMEDIATED BY USACE(2000) EXCEPT PORTION UNDER NORTH SALTS AREA



SOURCE: ADAPTED FROM WEHRAN, 1978 AND J.G. WHITE, 1942.

FIGURE 1-6a
UNDERGROUND LINES SEALED BY WM, LLC

FILE: P:\Projects\Federal\300D\ARMY\HTRW2005\Projects\619900\4 Phase III RI 1.0DW\GIS_all\PhaseIII_FSP\CAD\FIG_1-6.DWG



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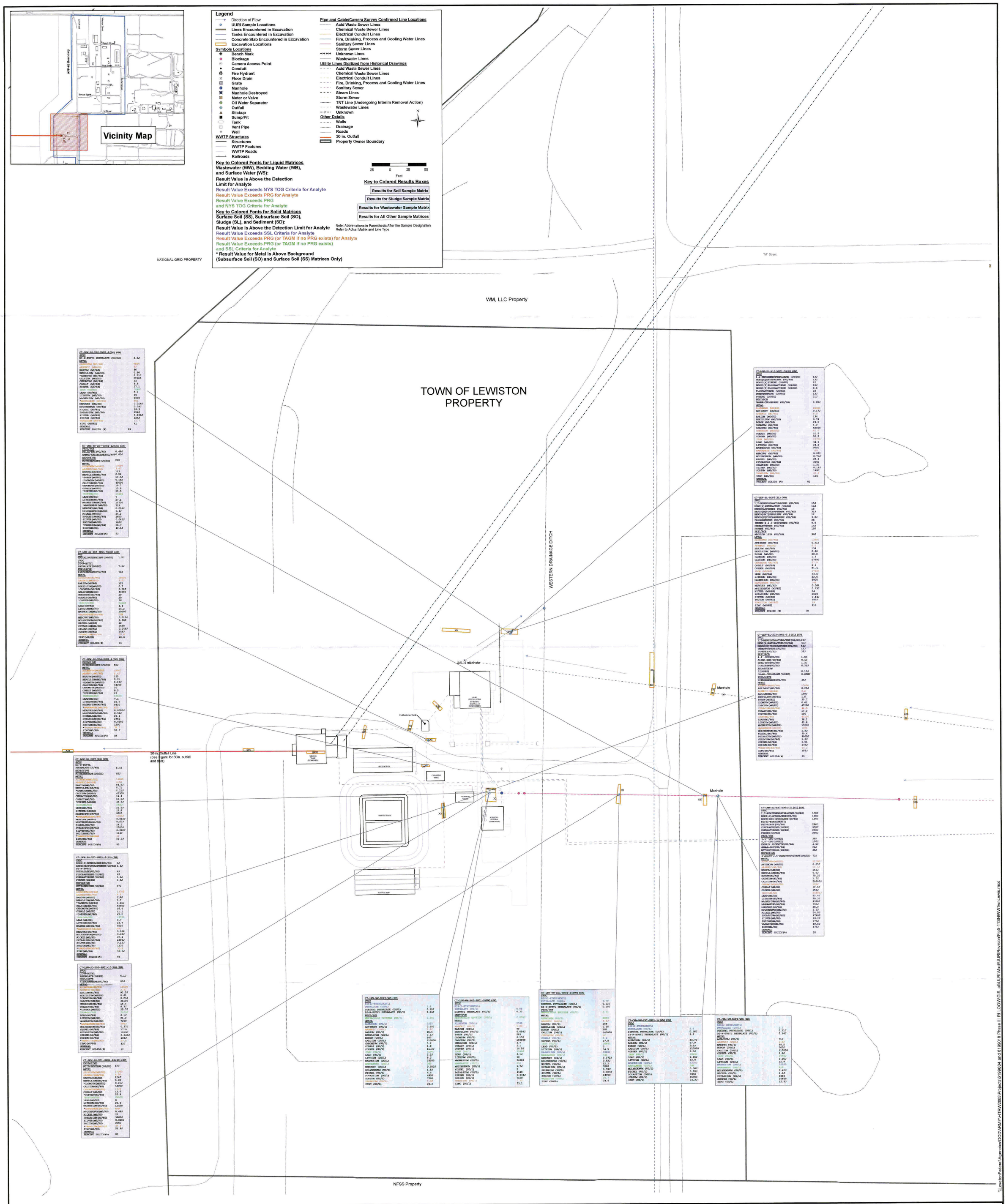
SANITARY SEWER AND UNKNOWN LINE TYPE
SAMPLING RESULTS FOR THE 30-INCH OUTFALL LINE, VARIOUS PROPERTY OWNERS

FIGURE 5-10



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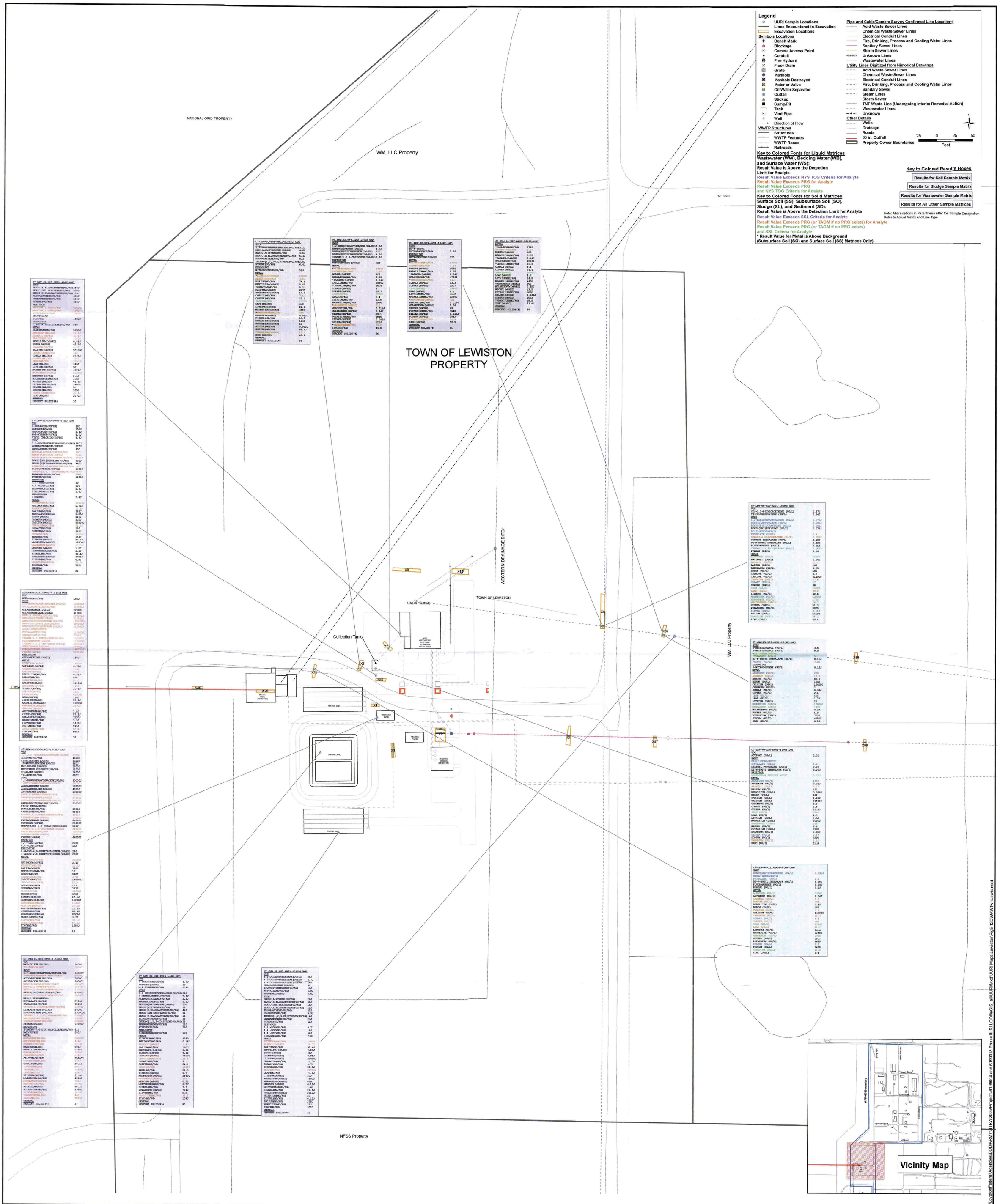
SANITARY SEWER AND WASTEWATER LINE SAMPLING RESULTS, TOWN OF LEWISTON PROPERTY, FORMER LOOW WWTP

FIGURE 5-11

\\LovetonFederalAgencies\DOD\ARMY\HTRW2005\Projects\6199004 and 6199018 Phase III RI LOOW\GIS_all\U_RI\Mxd\UURIRevision\Fig5-11SNWWTwn_Lewis.mxd



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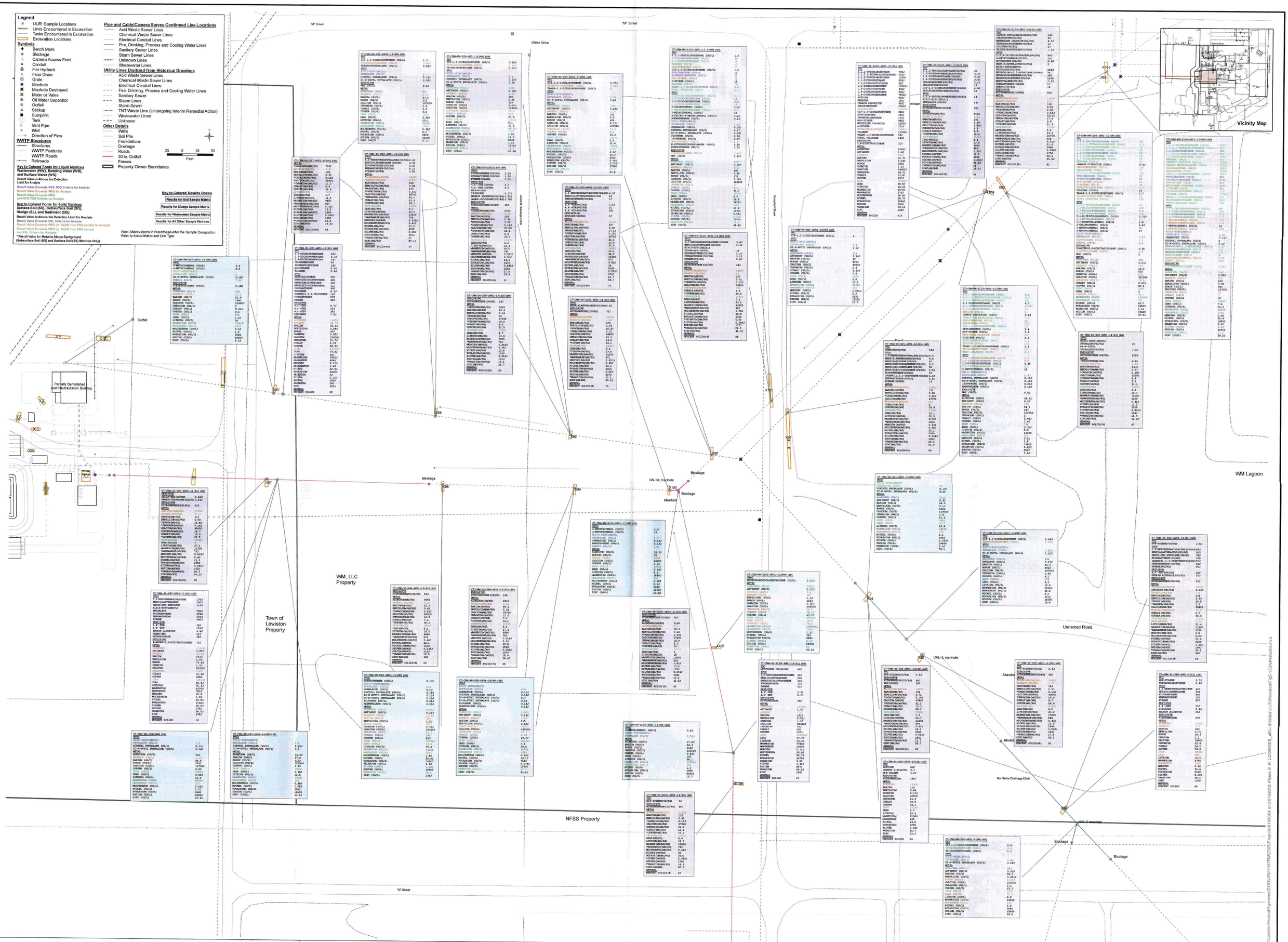
DRAIN, PIT, SUMP AND ACID WASTE LINE SAMPLE RESULTS, TOWN OF LEWISTON PROPERTY, FORMER LOOW WWTP

FIGURE 5-12



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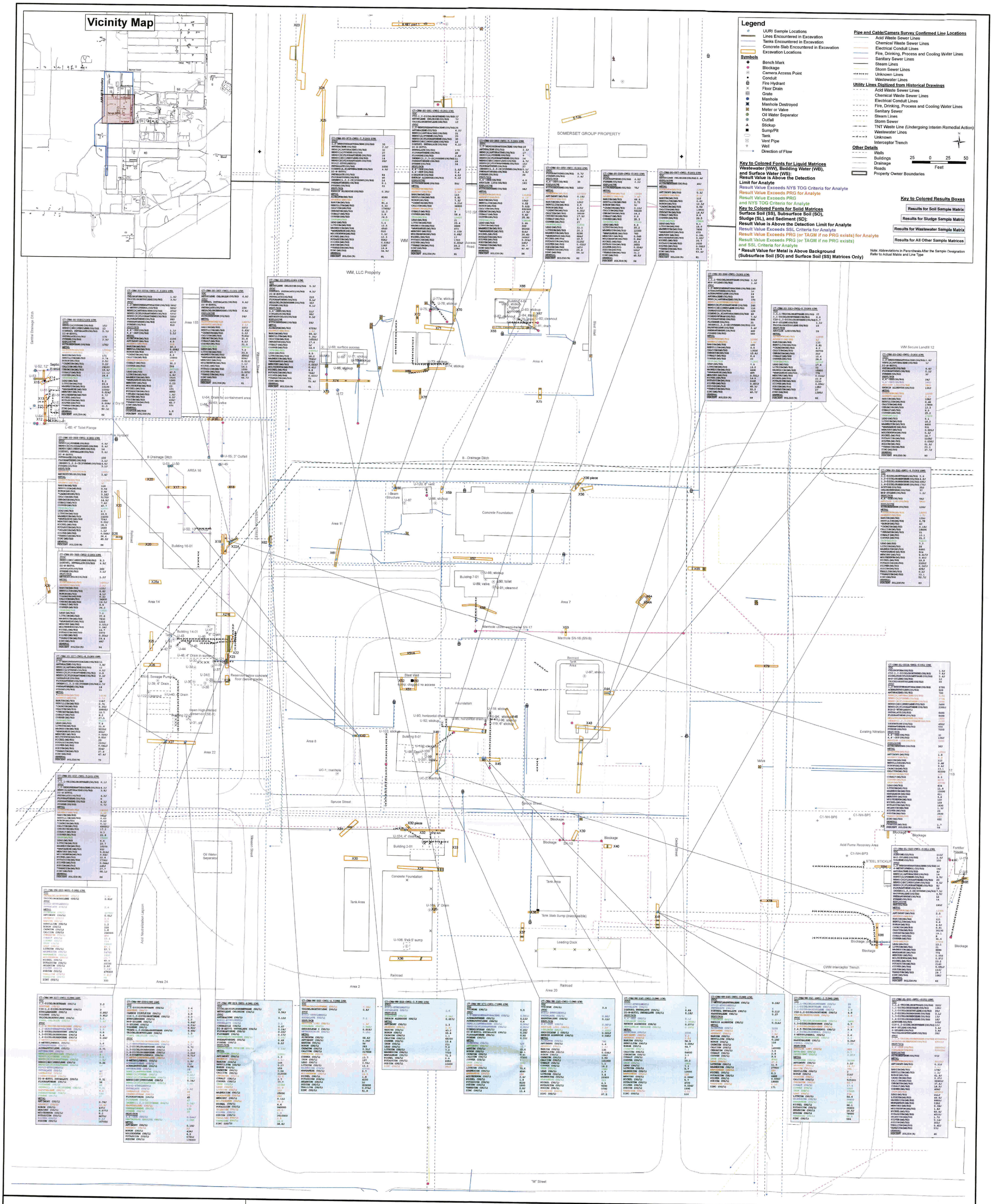
ACID WASTE LINE AND SANITARY SEWER LINE SAMPLING RESULTS, WASTE MANAGEMENT PROPERTY, FORMER LOOW UTILITIES SOUTH OF M STREET

FIGURE 5-13



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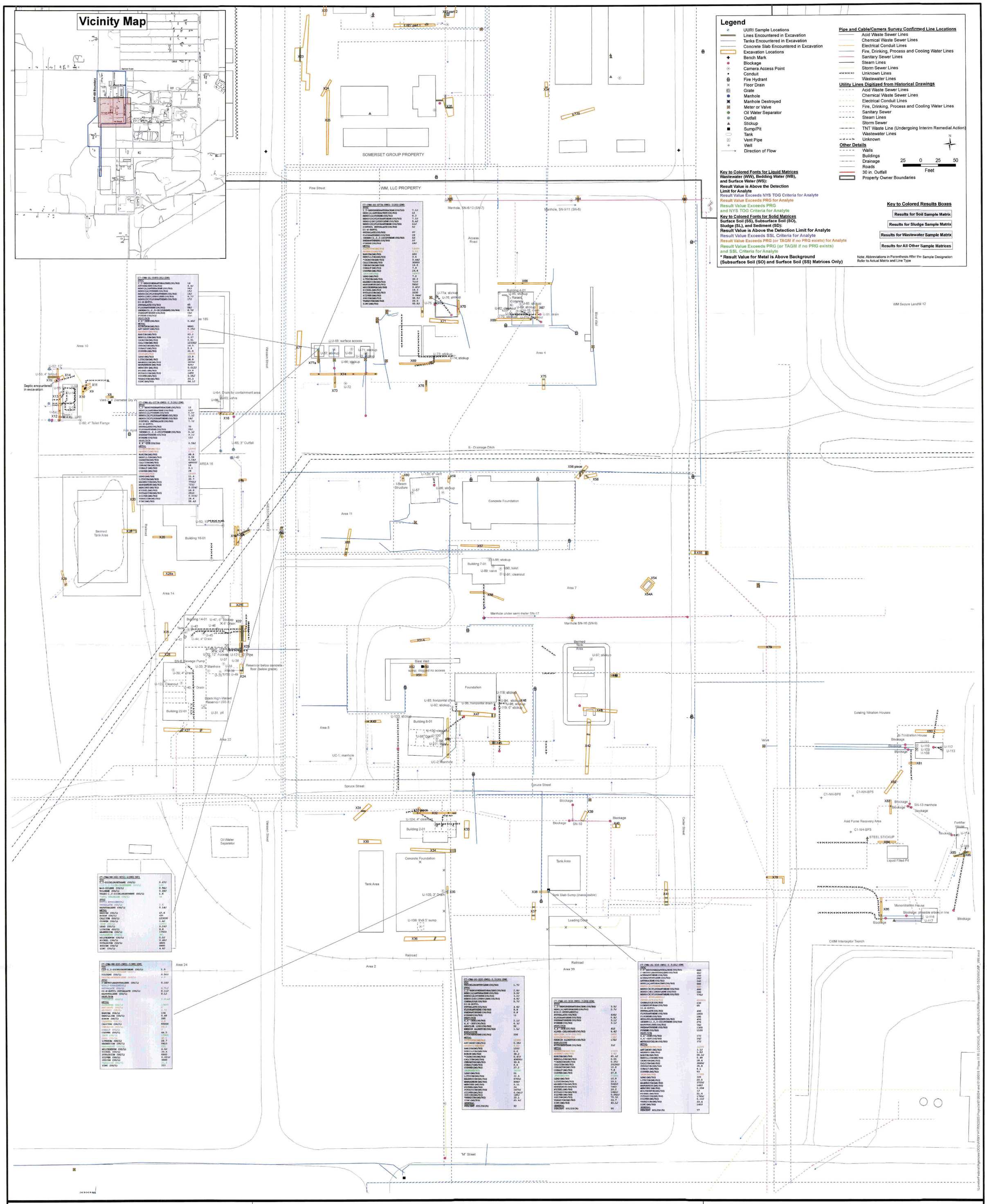
ACID AND CHEMICAL WASTE SEWER LINE SAMPLING RESULTS, WM PROPERTY, FORMER LOOW NITRATION HOUSE AREA AND AFP-68 (SOUTHERN PROCESS AREAS)

FIGURE 5-14



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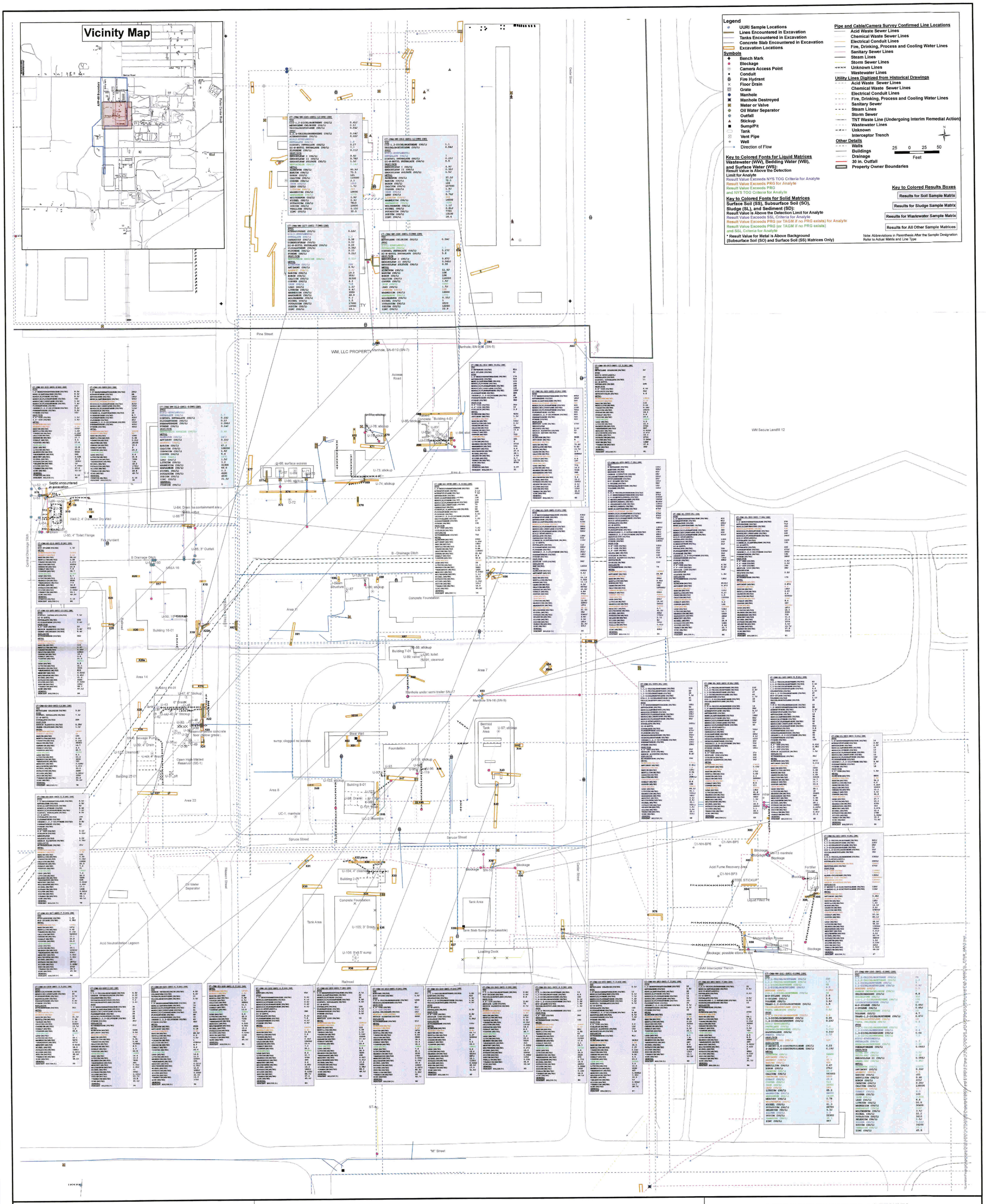
DRAINS, PITS, SUMPS, AND WATER LINE SAMPLING RESULTS, WM PROPERTY, FORMER LOOW NITRATION HOUSE AREA AND AFP-68 (SOUTHERN PROCESS AREAS)

FIGURE 5-15



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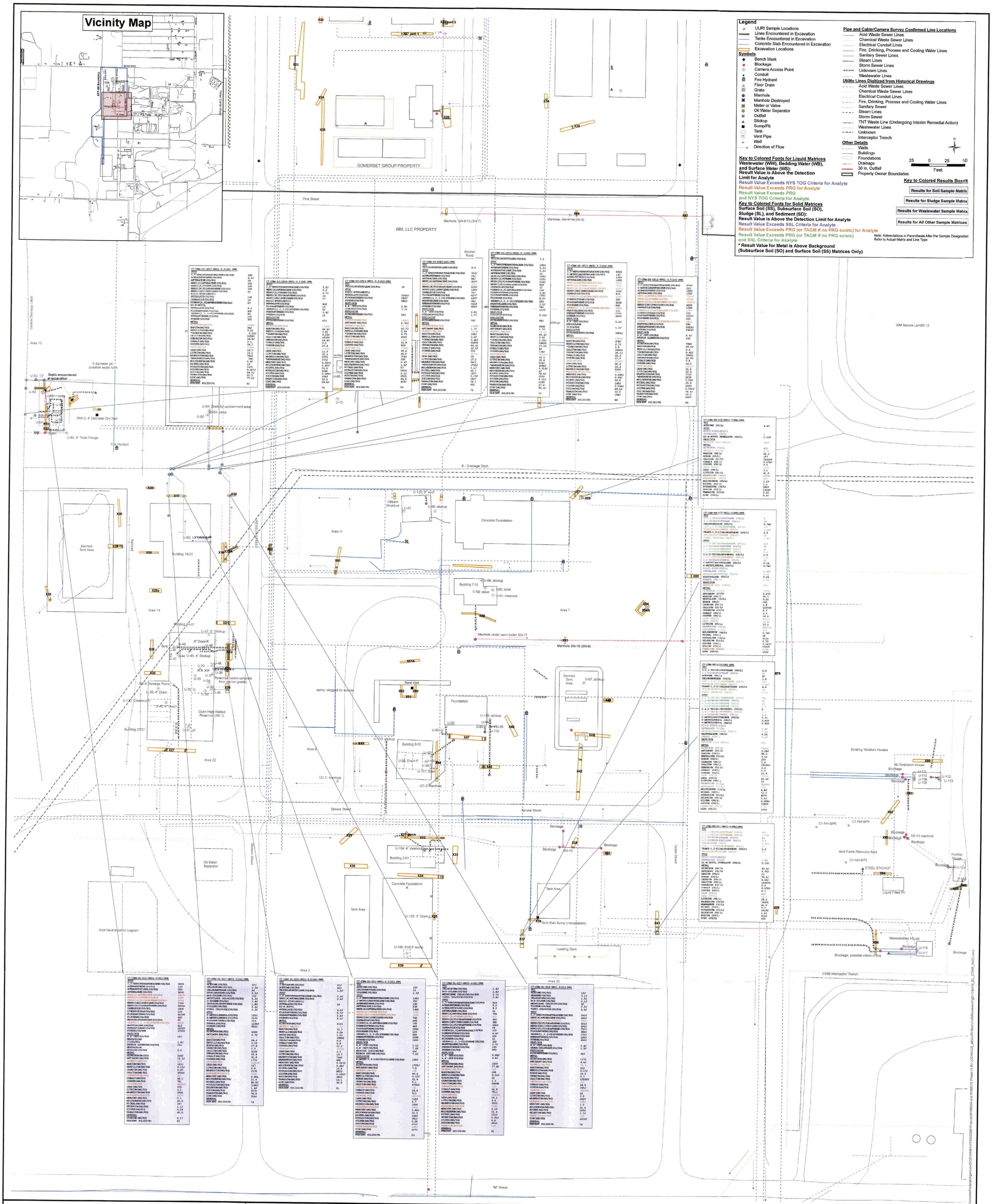
SANITARY SEWER LINE SAMPLING RESULTS,
WM PROPERTY, FORMER LOOW
NITRATION HOUSE AREA AND AFP-68 (SOUTHERN PROCESS AREAS)

FIGURE 5-16



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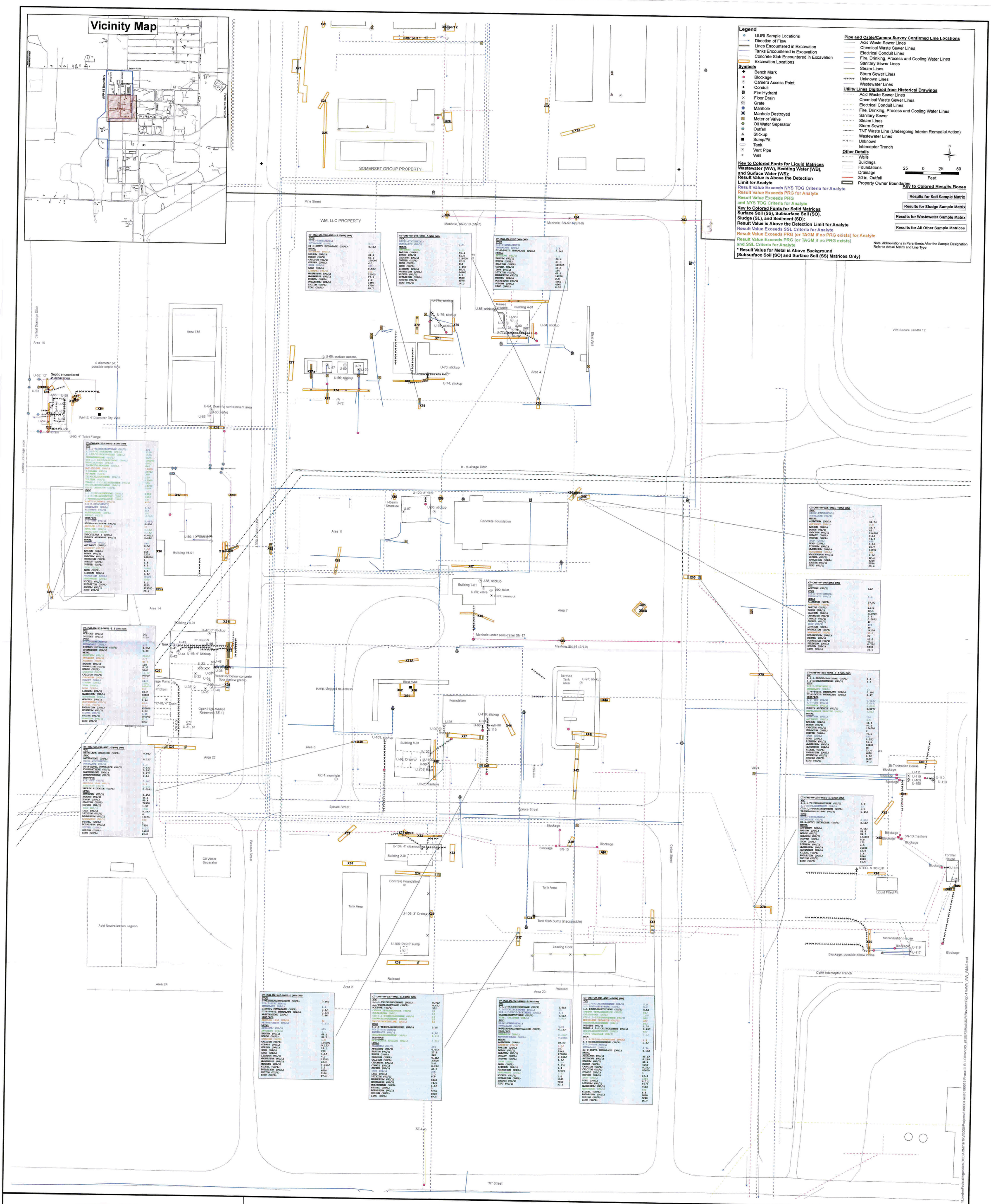
WASTEWATER LINES SLUDGE, SURFACE SOIL AND BEDDING MATERIAL RESULTS, WM PROPERTY, FORMER LOOW NITRATION HOUSE AREA AND AFP-68 (SOUTHERN PROCESS AREAS)

FIGURE 5-17a



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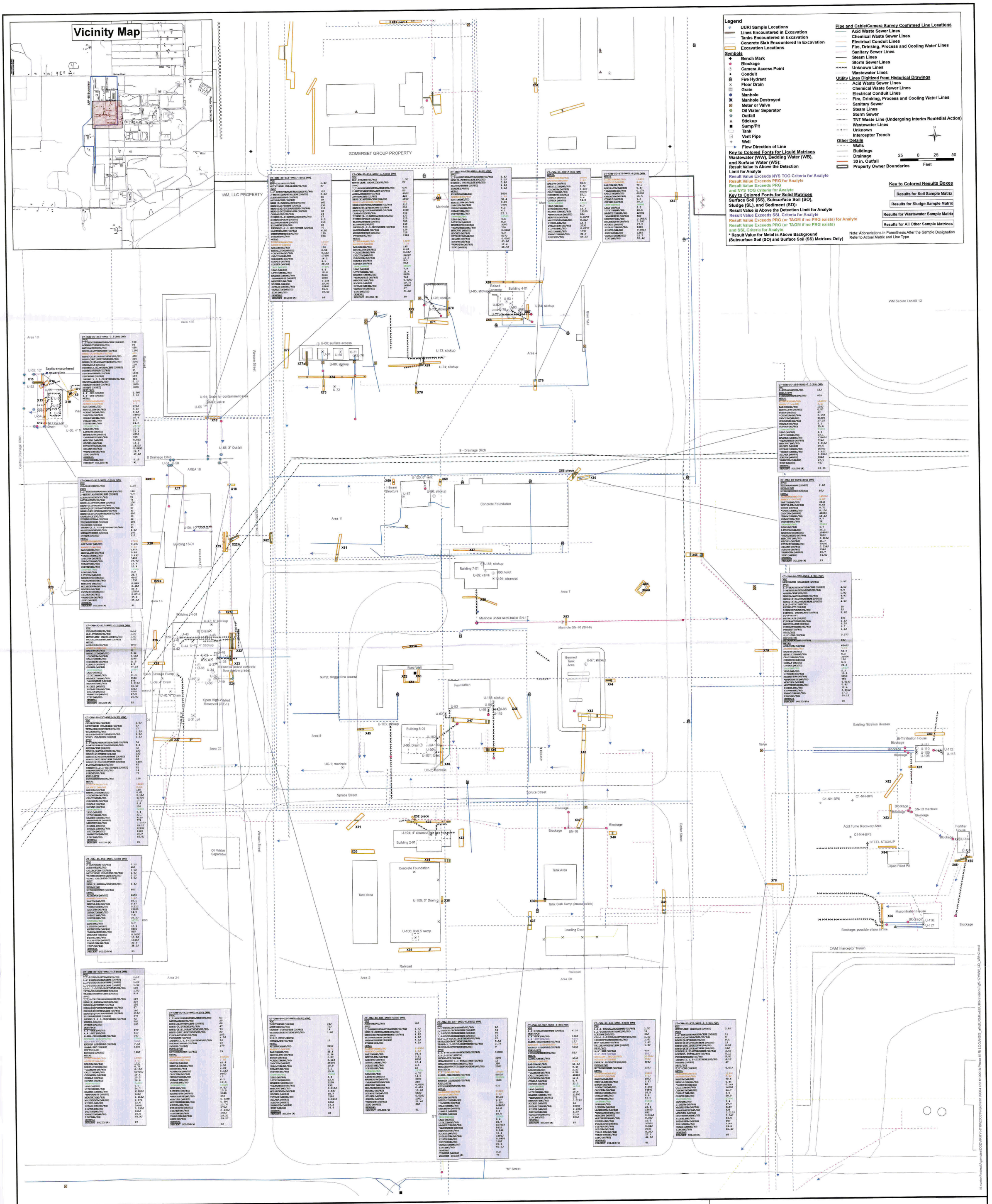
WASTEWATER LINE WASTEWATER SAMPLING RESULTS, WM PROPERTY, FORMER LOOW NITRATION HOUSE AREA AND AFP-68 (SOUTHTERN PROCESS AREAS)

FIGURE 5-17b



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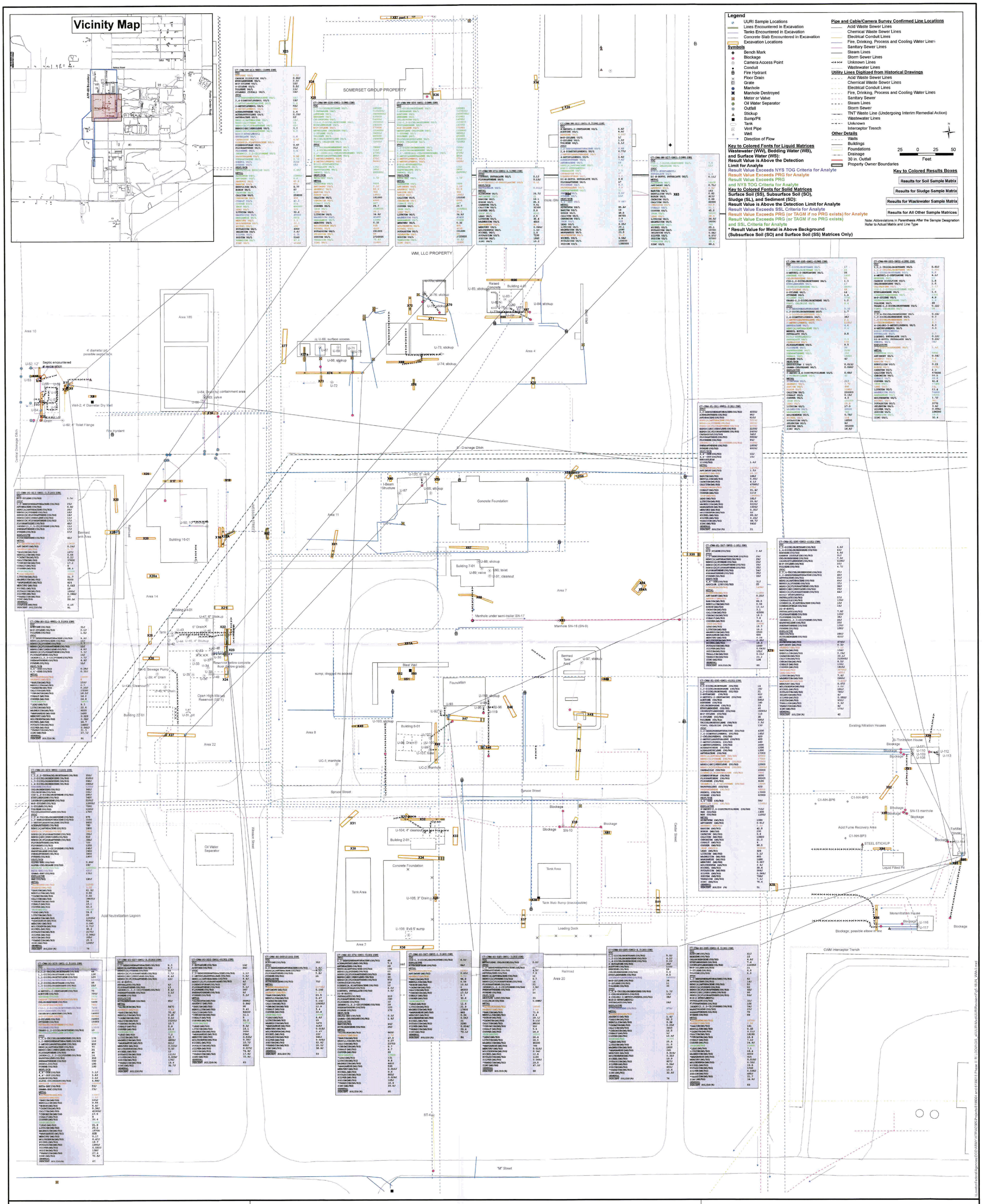
WASTEWATER LINE SUBSURFACE SOIL SAMPLING RESULTS, WM PROPERTY, FORMER LOOW NITRATION HOUSE AREA AND AFP-68 (SOUTHERN PROCESS AREAS)

FIGURE 5-17c



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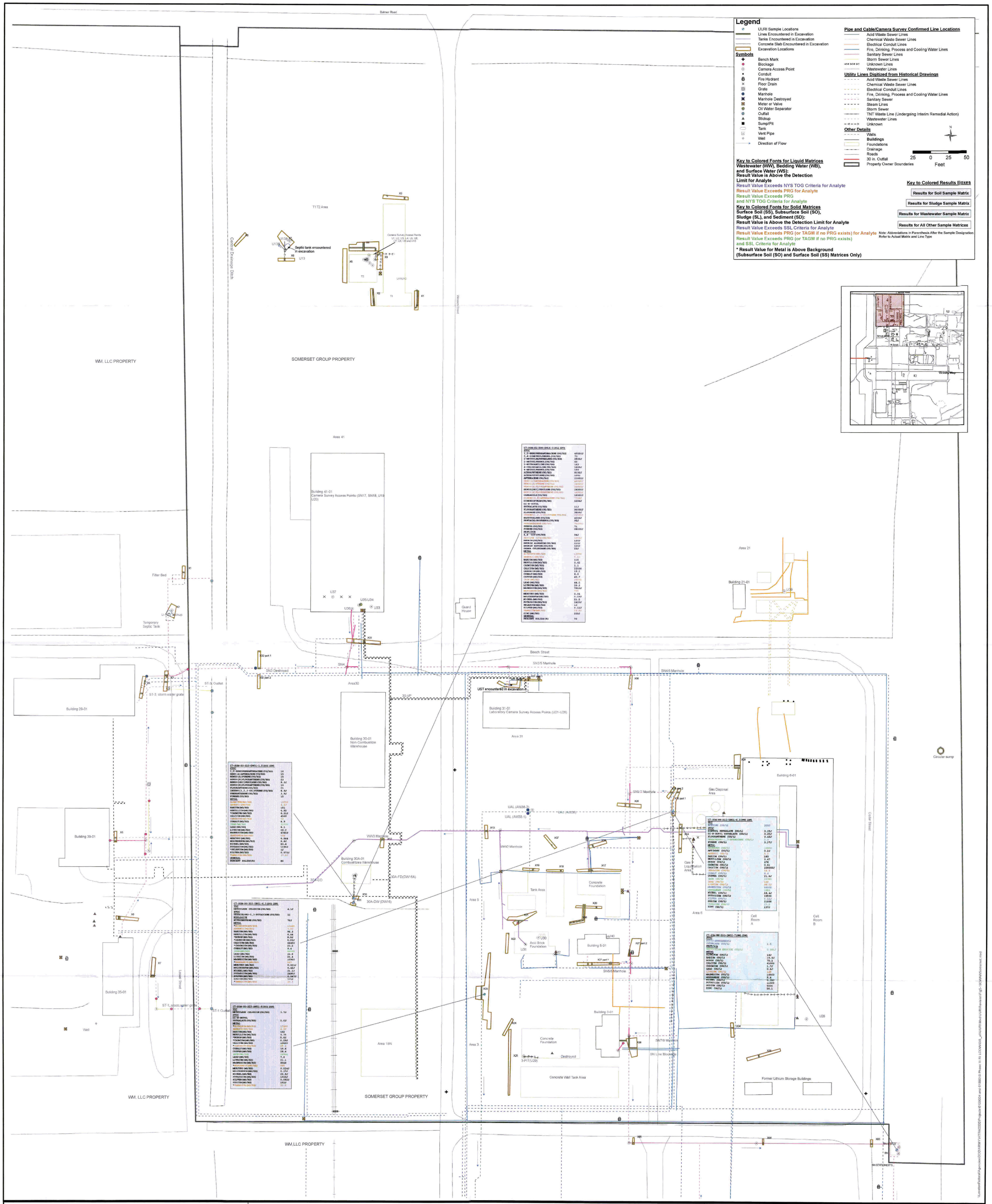
UNKNOWN LINE TYPE SAMPLING RESULTS, WM PROPERTY, FORMER LOOW NITRATION HOUSE AREA AND AFP-68 (SOUTHERN PROCESS AREAS)

FIGURE 5-18



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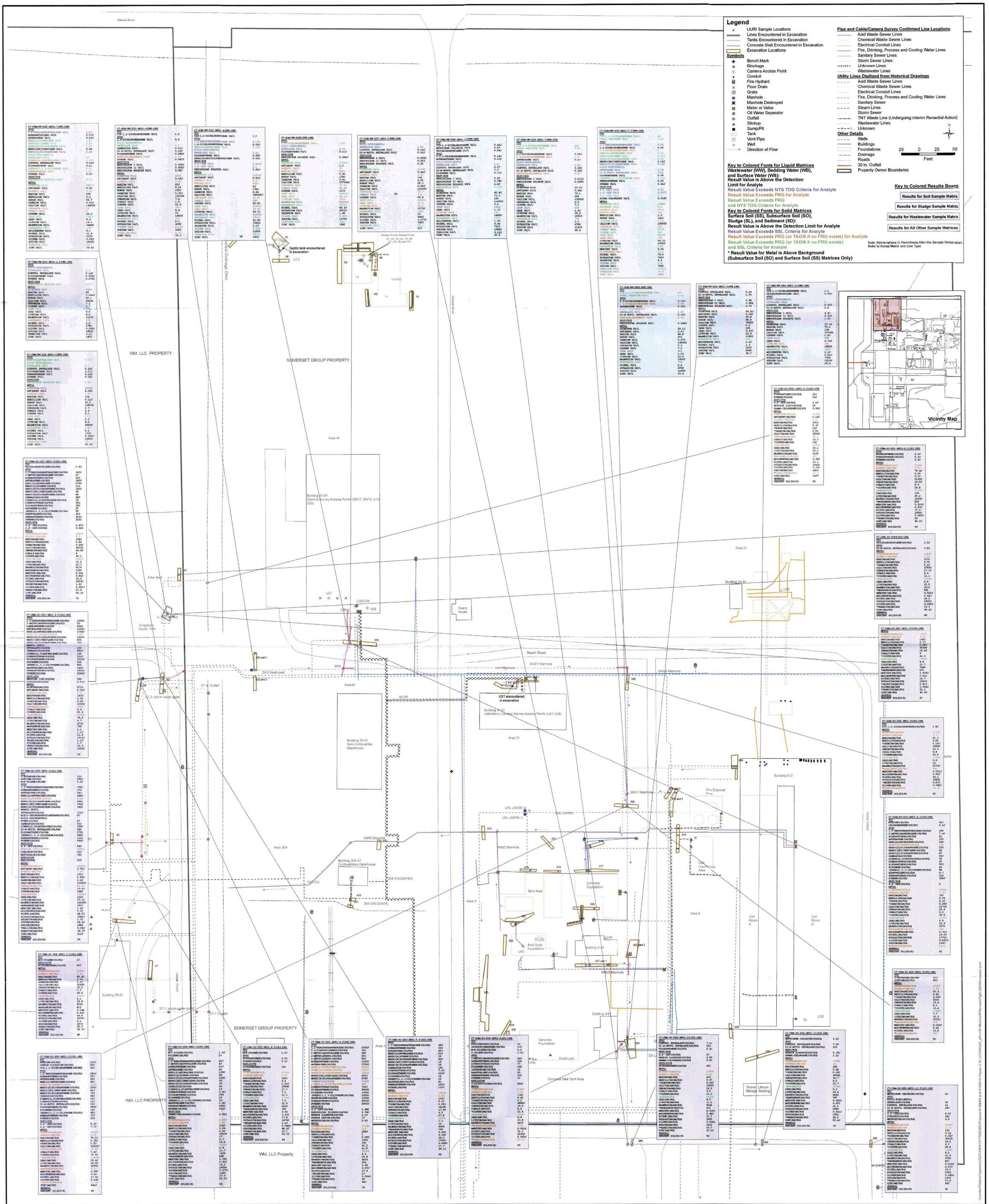
ACID WASTE LINE AND DRAIN, PIT AND SUMP SAMPLING RESULTS, SOMERSET GROUP PROPERTY AND NORTHWEST PORTION OF WM PROPERTY AFP-68 (NORTHERN PROCESS AREAS)

FIGURE 5-19



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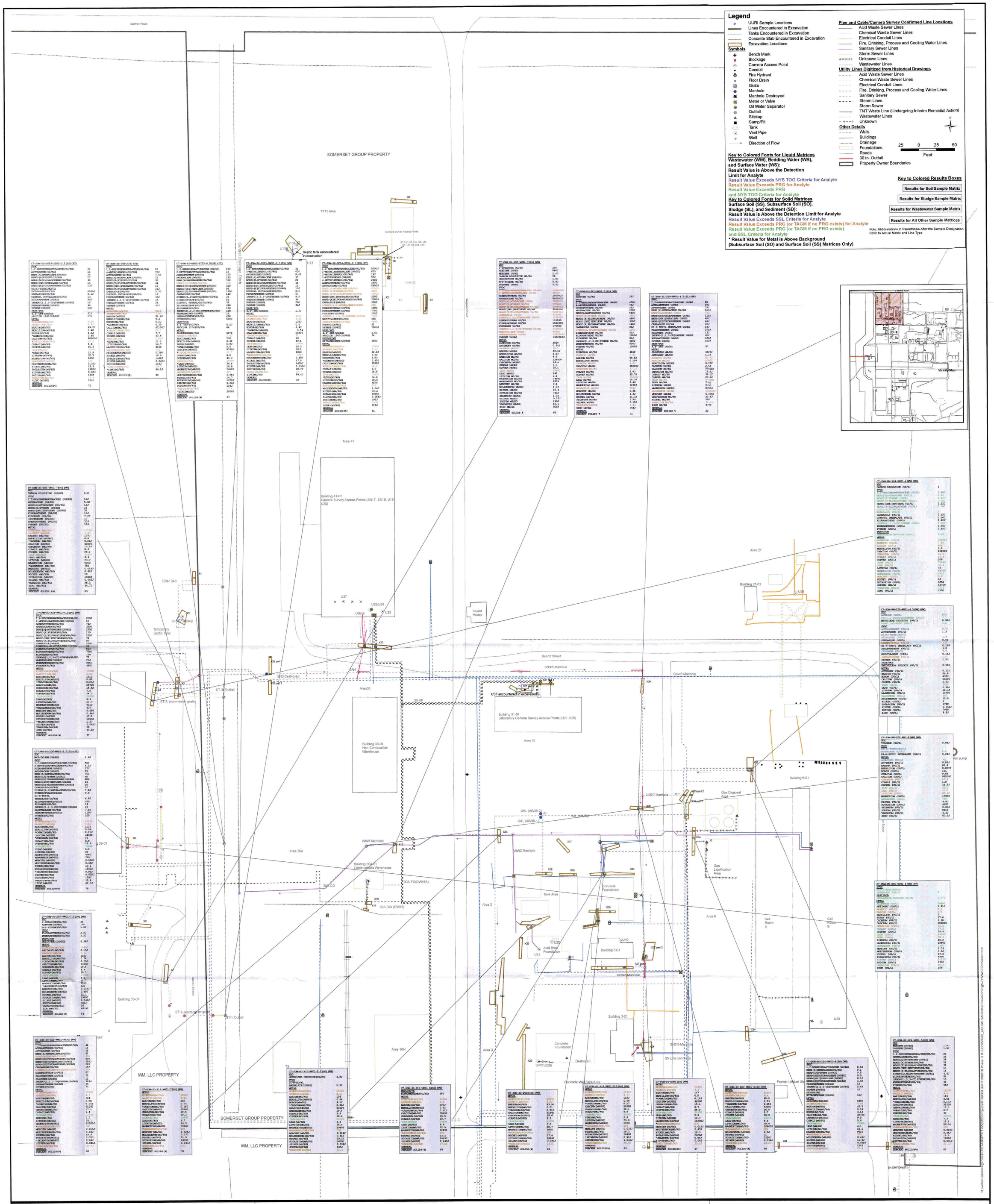
SANITARY SEWER LINE SAMPLING RESULTS, SOMERSET GROUP PROPERTY AND NORTHWEST PORTION OF WM PROPERTY, AFP-68 (NORTHERN PROCESS AREAS)

FIGURE 5-20



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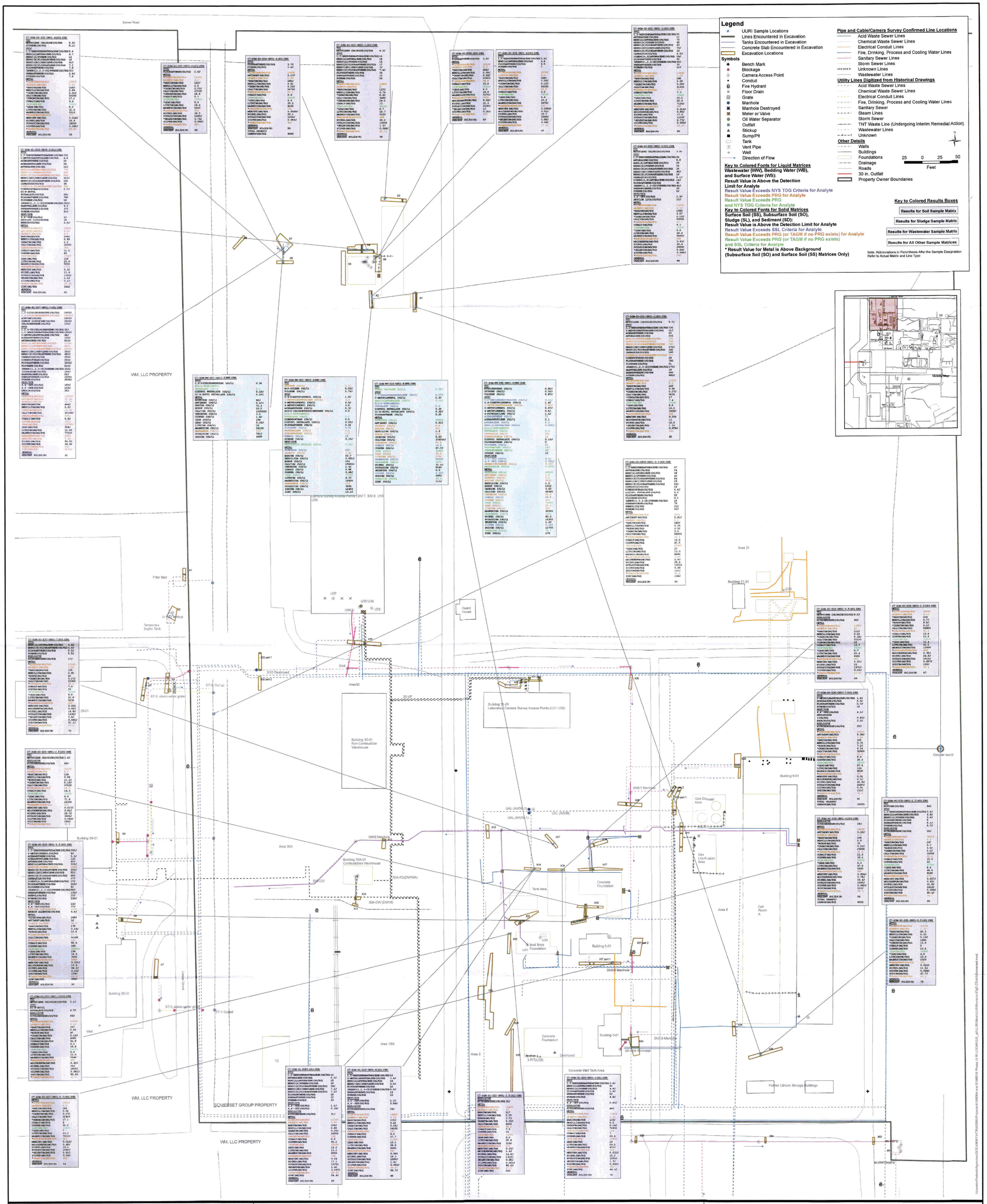
WASTEWATER LINE AND STORMSEWER LINE SAMPLING RESULTS, SOMERSET GROUP PROPERTY AND NORTHWEST PORTION OF WM PROPERTY, AFP-68 (NORTHERN PROCESS AREAS)

FIGURE 5-21



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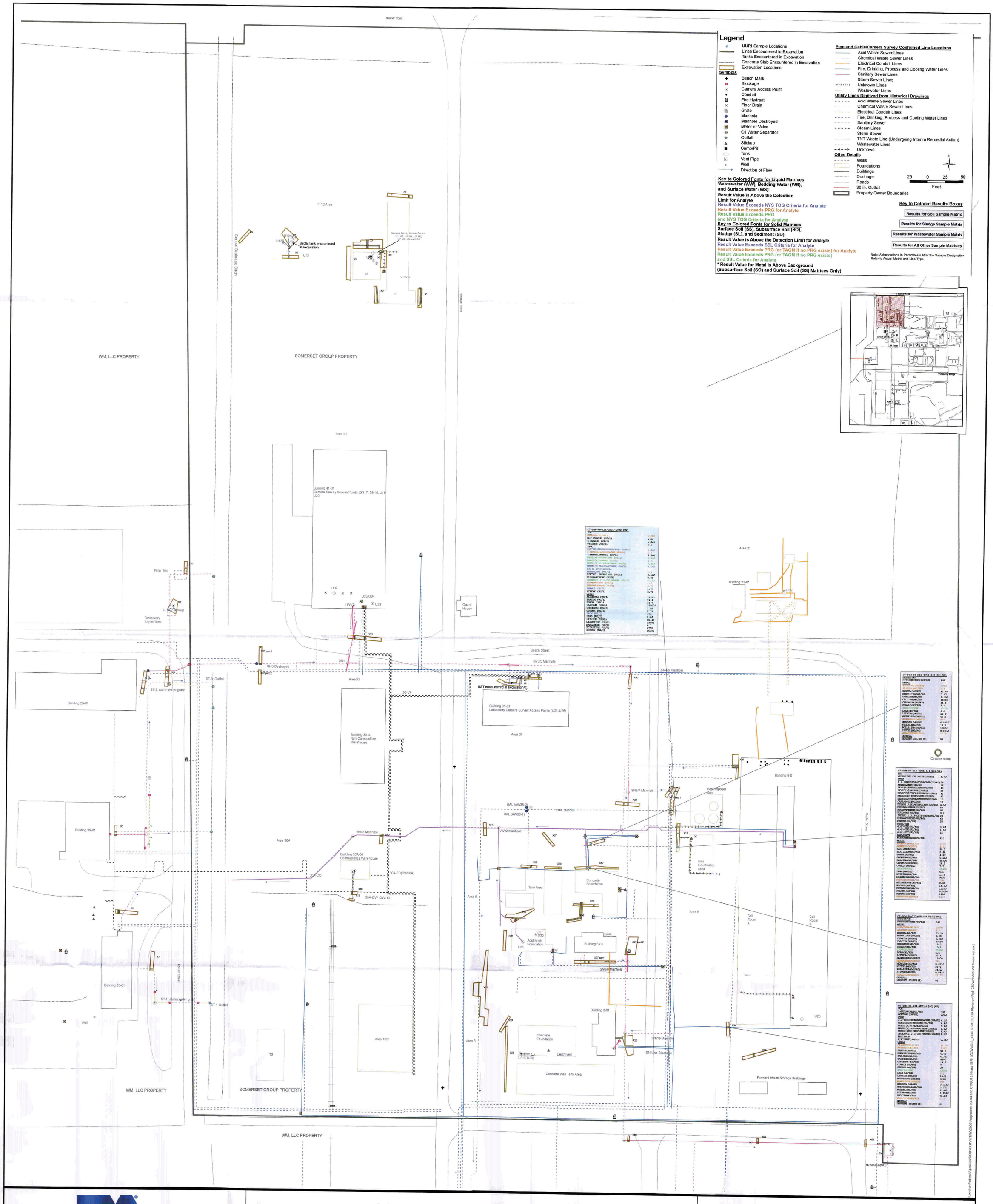
UNKNOWN LINE TYPE SAMPLING RESULTS, SOMERSET GROUP PROPERTY AND NORTHWEST PORTION OF WM PROPERTY, AFP-68 (NORTHERN PROCESS AREAS)

FIGURE 5-22



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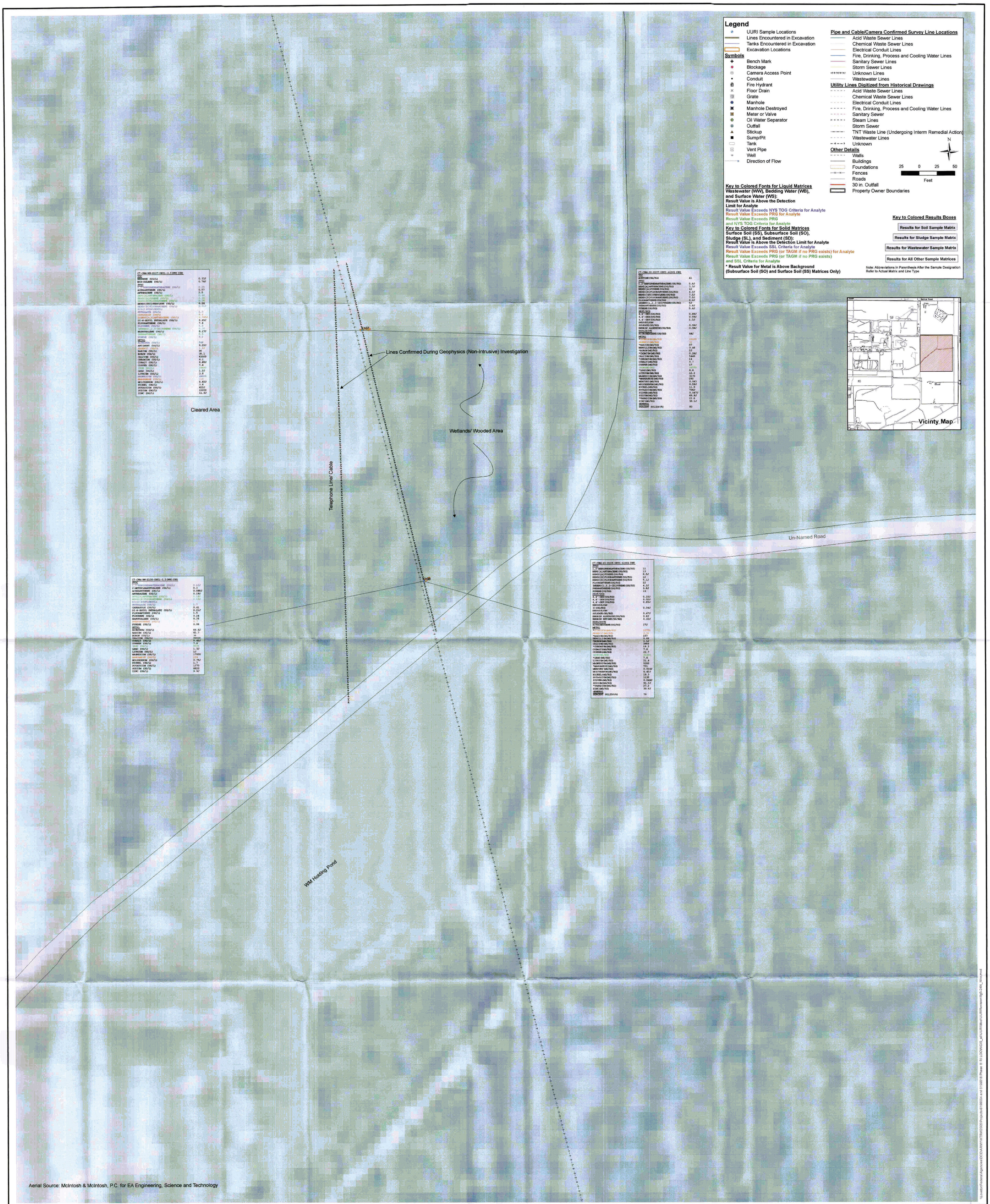
COOLING WATER LINE AND POTABLE WATER LINE SAMPLING RESULTS, SOMERSET GROUP PROPERTY AND NORTHWEST PORTION OF WM PROPERTY, AFP-68 (NORTHERN PROCESS AREAS)

FIGURE 5-23



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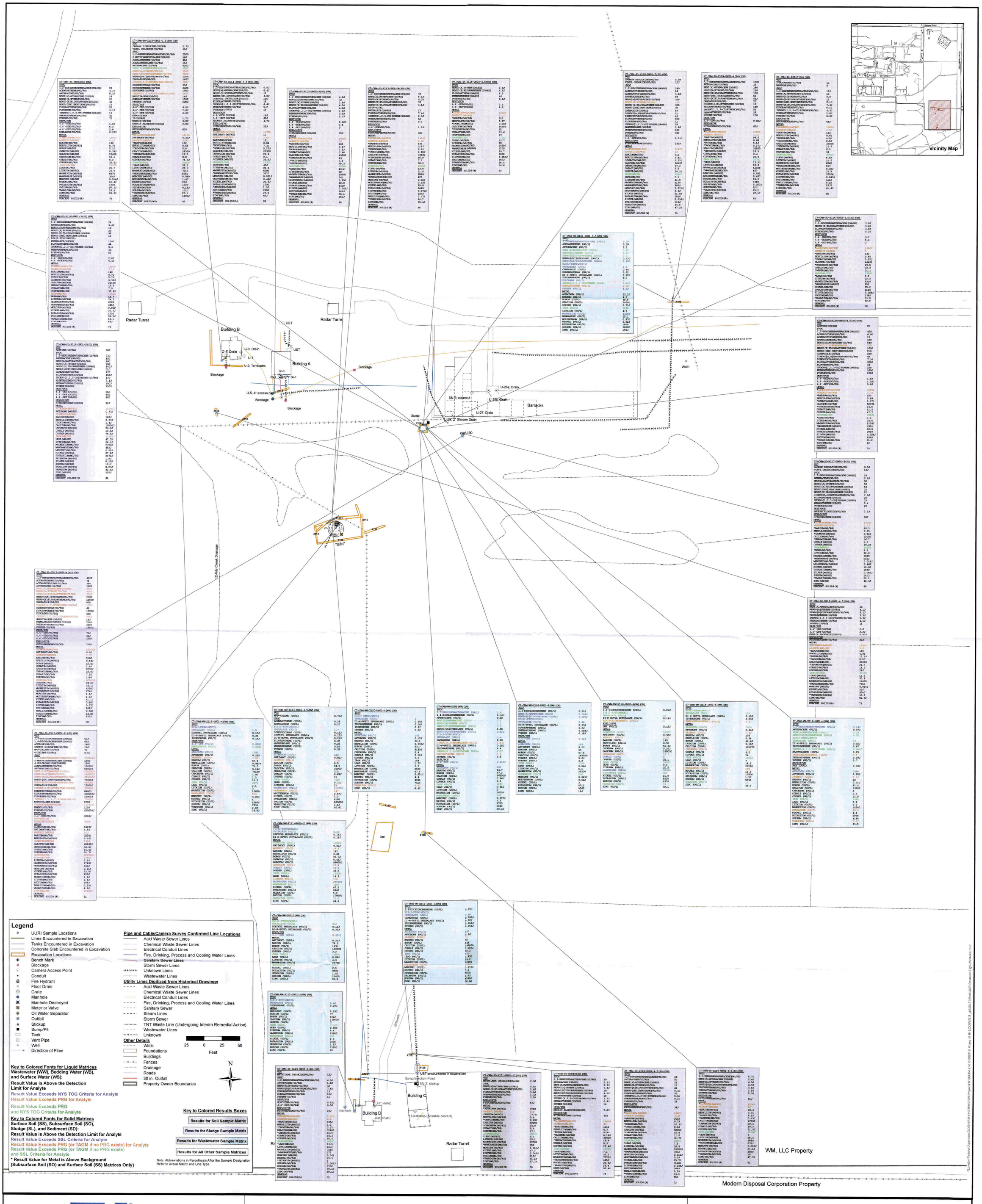
UNKNOWN LINE TYPE SAMPLING RESULTS, WM PROPERTY, CENTRAL PORTION OF THE FORMER NIKE BASE

FIGURE 5-24



Legend

- UURI Sample Locations
- Lines Encountered in Excavation
- Tanks Encountered in Excavation
- Concrete Slab Encountered in Excavation
- Excavation Locations
- Bench Mark
- Blockage
- Camera Access Point
- Conduit
- Fire Hydrant
- Floor Drain
- Grate
- Manhole
- Manhole Destroyed
- Meter or Valve
- Oil Water Separator
- Outfall
- Stickup
- Sump/Pit
- Tank
- Vent Pipe
- Well
- Direction of Flow

Pipe and Cable/Camera Survey Confirmed Line Locations

- Acid Waste Sewer Lines
- Chemical Waste Sewer Lines
- Electrical Conduit Lines
- Fire, Drinking, Process and Cooling Water Lines
- Sanitary Sewer Lines
- Storm Sewer Lines
- Unknown Lines
- Wastewater Lines

Utility Lines Digitized from Historical Drawings

- Acid Waste Sewer Lines
- Chemical Waste Sewer Lines
- Electrical Conduit Lines
- Fire, Drinking, Process and Cooling Water Lines
- Sanitary Sewer
- Steam Lines
- Storm Sewer
- TNT Waste Line (Undergoing Interim Remedial Action)
- Wastewater Lines
- Unknown

Other Details

- Walls
- Foundations
- Buildings
- Fences
- Drainage
- Roads
- 30 in. Outfall
- Property Owner Boundaries

25 0 25 50
Feet

N

Key to Colored Fonts for Liquid Matrices
Wastewater (WW), Bedding Water (WB), and Surface Water (WS):
Result Value is Above the Detection Limit for Analyte
Result Value Exceeds NYS TOG Criteria for Analyte
Result Value Exceeds PRG for Analyte
Result Value Exceeds PRG and NYS TOG Criteria for Analyte

Key to Colored Fonts for Solid Matrices
Surface Soil (SS), Subsurface Soil (SO), Sludge (SL), and Sediment (SD):
Result Value is Above the Detection Limit for Analyte
Result Value Exceeds SSL Criteria for Analyte
Result Value Exceeds PRG (or TAGM if no PRG exists) for Analyte
Result Value Exceeds PRG (or TAGM if no PRG exists) and SSL Criteria for Analyte
*** Result Value for Metal is Above Background (Subsurface Soil (SO) and Surface Soil (SS) Matrices Only)**

Key to Colored Results Boxes

- Results for Soil Sample Matrix
- Results for Sludge Sample Matrix
- Results for Wastewater Sample Matrix
- Results for All Other Sample Matrices

Note: Abbreviations in Parenthesis After the Sample Designation Refer to Actual Matrix and Line Type

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DRAIN, PIT, SUMP, SANITARY SEWER AND UNKNOWN LINE TYPE SAMPLING RESULTS, WM PROPERTY, CONTROL AREA OF THE FORMER NIKE BASE

FIGURE 5-25