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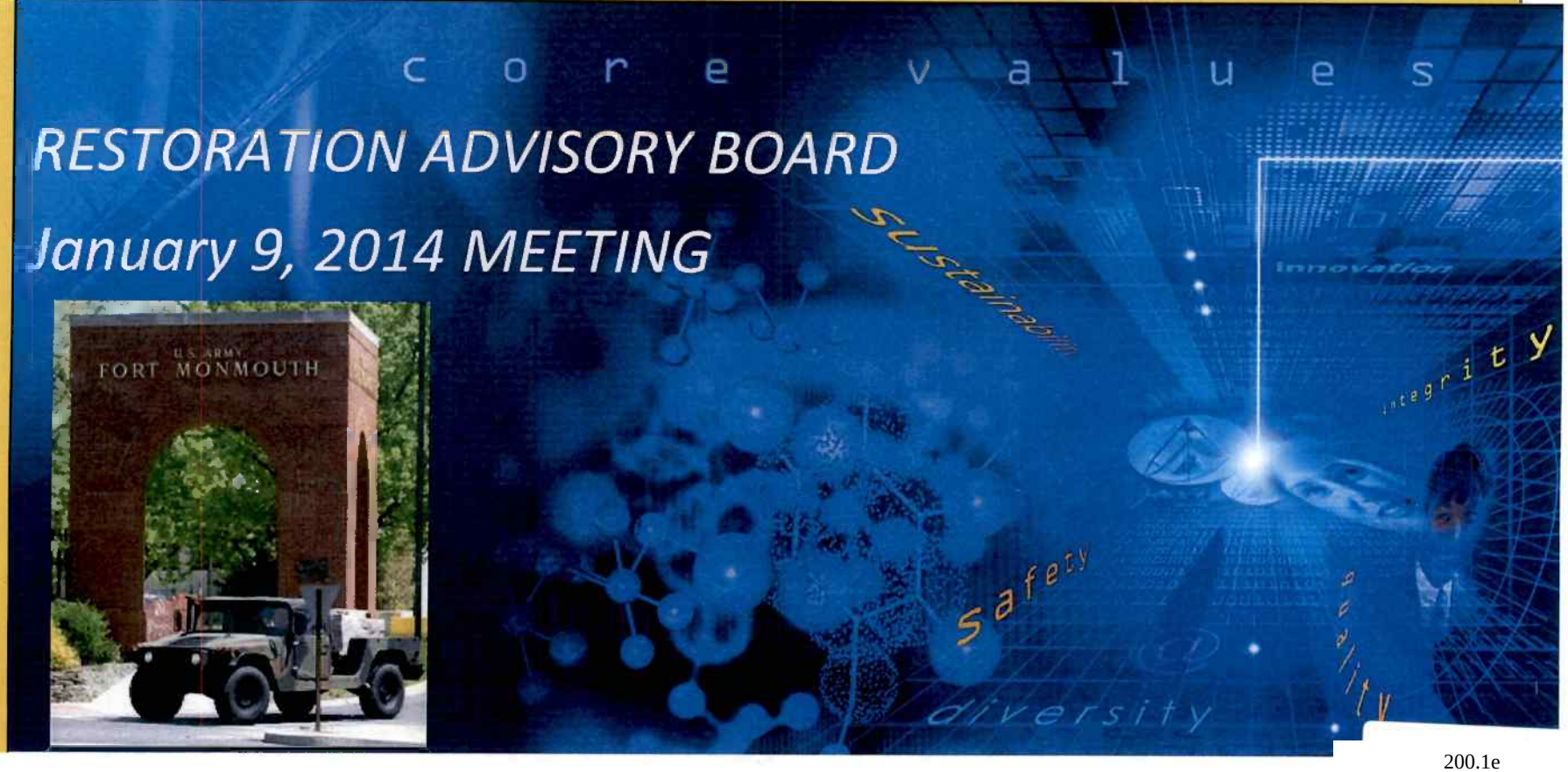
U.S. ARMY FORT MONMOUTH

August 2013 Baseline Groundwater Sampling Event



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Agenda

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- Sampling Objectives
- Sampling Methods
- Sites Sampled
- Results

Sampling Objectives

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- Re-establish baseline groundwater sampling results
  - Last complete round in 2011
- Identify wells and parameters for long term groundwater sampling program.
- Sampling performed August-September 2013.

Sampling Methods

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- Low Flow Purge Sampling (LFPS)
  - Slow sampling procedure and generates variable investigation derived wastes (IDW) depending on purge time.
  - Allows for the collection of inorganics, SVOCs, PCBs, etc.
- Passive Diffusion Bag (PDB) Sampling
  - PDB are only approved for VOC sample collection.
  - Reduces man-hours and IDW.
- A correlation study was performed to confirm similar data prior to switching to PDB sampling from LFPS.

Low Flow Purge Sampling (LFPS)

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- LFPS is performed through a pump suspended at a specific depth with the intake.
- Groundwater is pumped out of the well at a low velocity to avoid draw-down.
- Water is containerized and sent for lab analysis.

Passive Diffusion Bag (PDB) Sampling

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- PDBs are membrane-capsules pre-filled with de-ionized water and suspended at a specific depth in a monitoring well.
- Volatile organic compounds (VOCs) diffuse through the membrane into the DI water until equilibrium is reached (~2 weeks).
- Water from in the bag is then transferred to a sample bottle and submitted to the lab for analysis.

Sites Sampled

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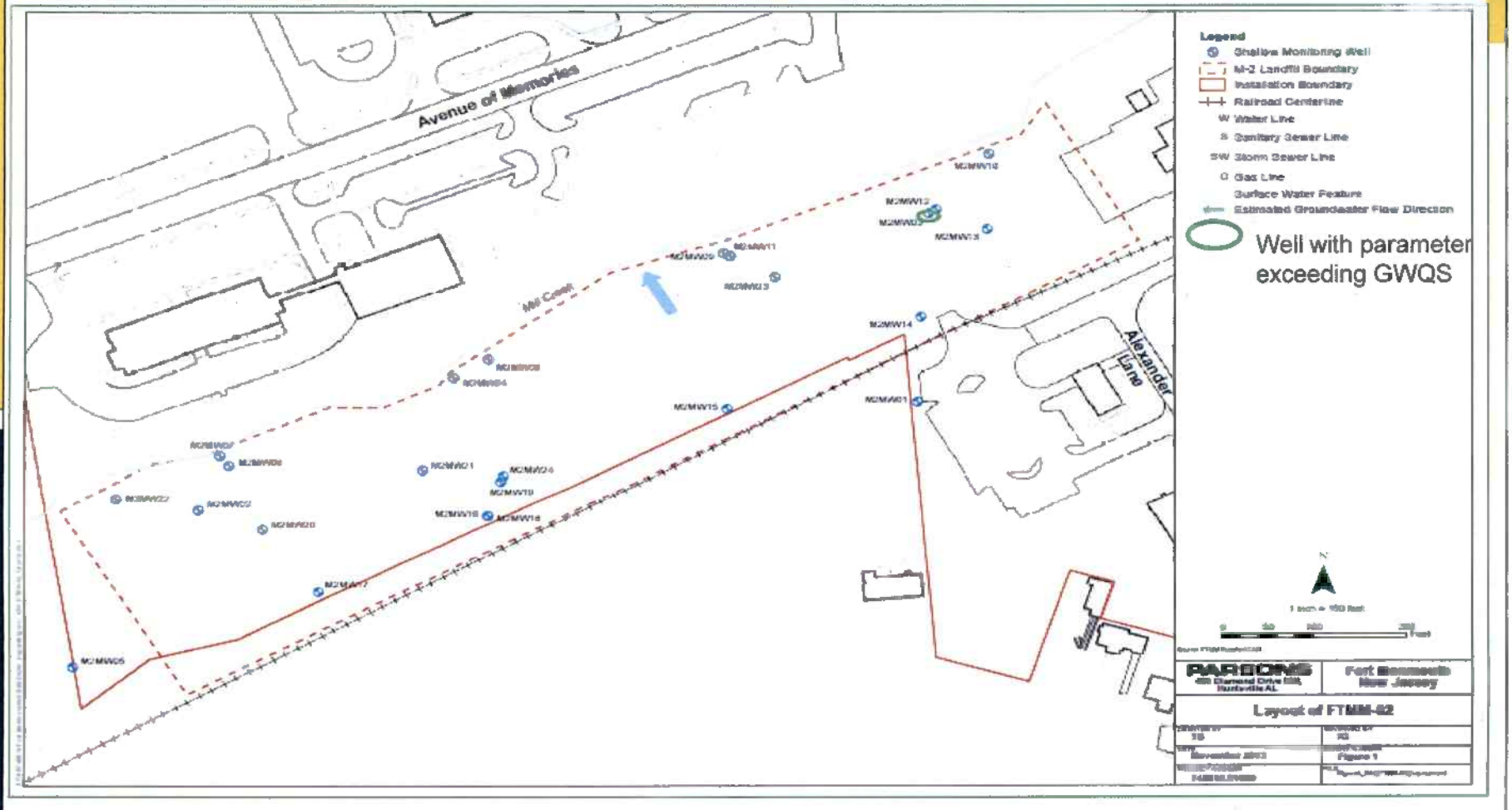
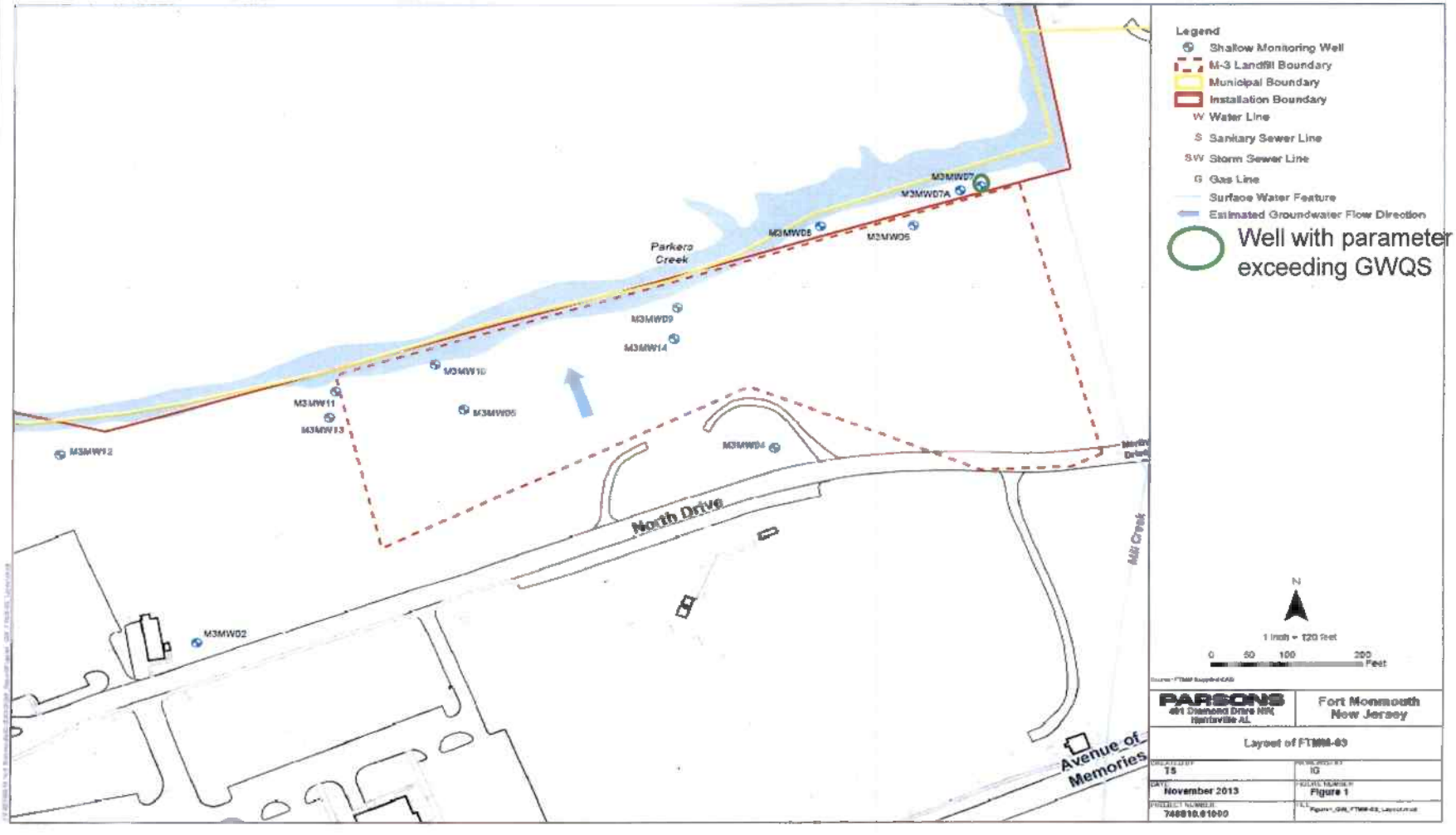
- Fourteen Sites were sampled via LFPS
  - FTMM-02, FTMM-03, FTMM-04, FTMM-08, FTMM-12, FTMM-25, FTMM-53, FTMM-54, FTMM-55, FTMM-56, FTMM-57, FTMM-61, FTMM-64, and FTMM-66
  - Sites were analyzed on a case by case basis for VOCs, SVOCs, metals, and/or pesticides
- Seven Sites were sampled via PBD Sampling
  - FTMM-05, FTMM-14, FTMM-18, FTMM-22, FTMM-58, FTMM-59, and FTMM-68
  - Sites were analyzed for VOCs only
- Three Sites were sampled via both PBD and LFPS for correlation purposes
  - FTMM-05, FTMM-22, and FTMM-58
  - Sites were analyzed for VOCs only

Results: FTMM – 02 (Closed Solid Waste Landfill)



- Analyzed for VOCs and pesticides
- Two VOCs detected in one monitoring well (M2MW03) exceedance of NJDEP Groundwater Quality Standards (GWQS)
- No pesticides detected

Results: FTMM-03 (Closed Solid Waste Landfill)

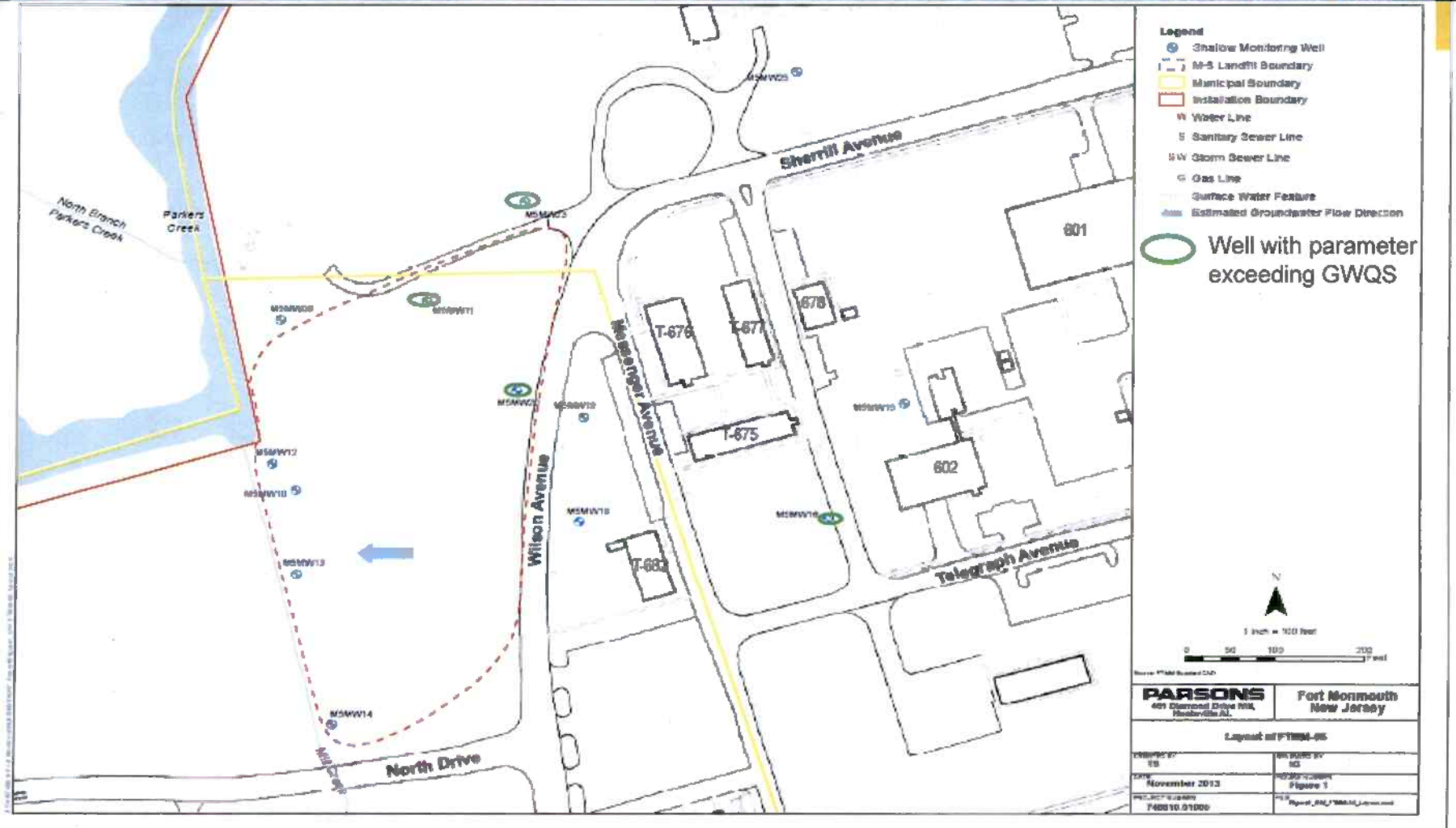


- Analyzed for VOCs and metals
- One VOC was detected in one monitoring well (M3MW07) in exceedances of the GWQS
- No metals detected above Site background concentrations

Results: FTMM-04 (Closed Solid Waste Landfill)

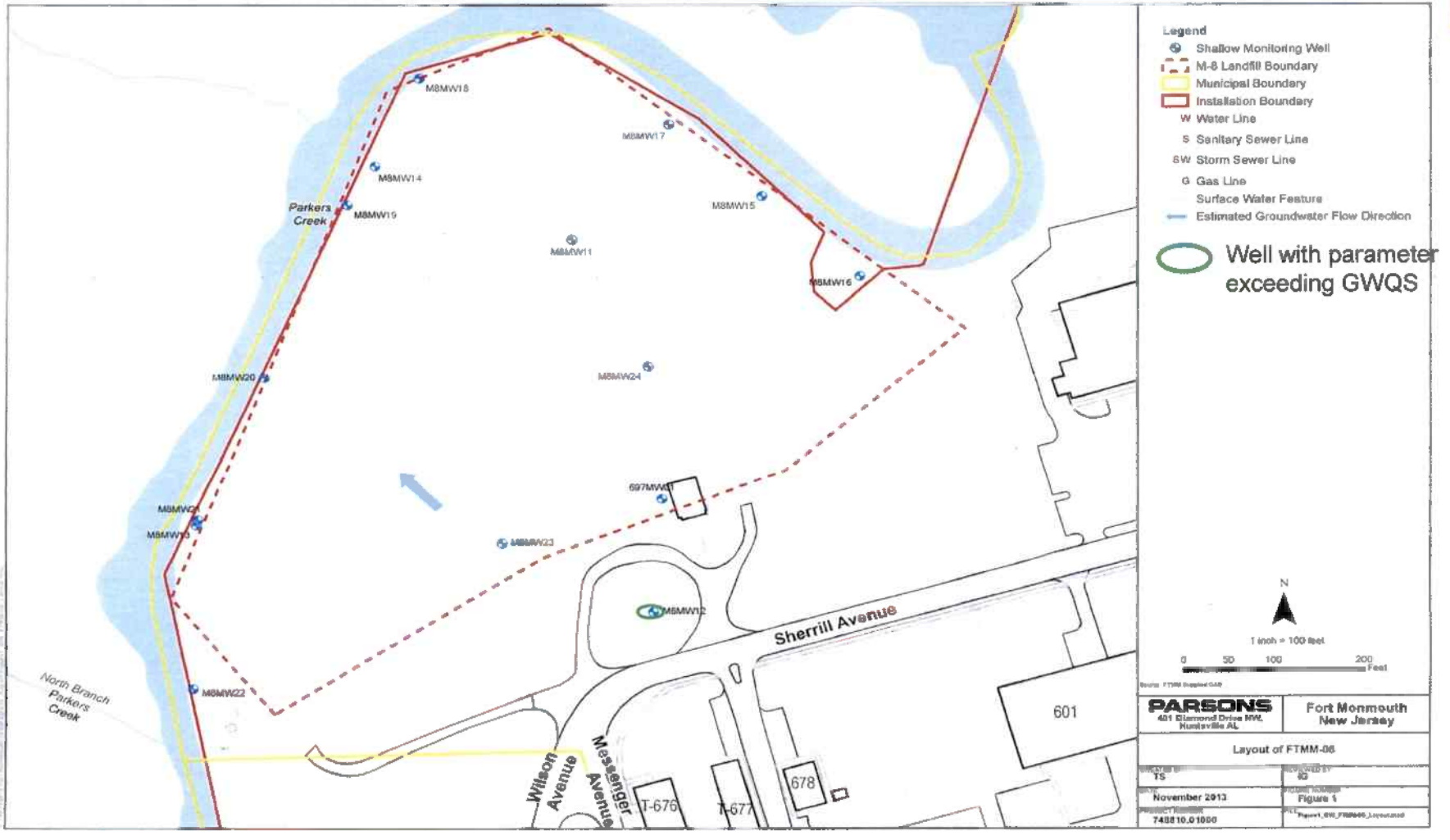
- Analyzed for VOCs and metals
- No VOCs detected above the GWQS
- One metal detected in two monitoring wells (M4MW07 and M4MW10) was in exceedance of the GWQS

Results: FTMM-05 (Closed Solid Waste Landfill)



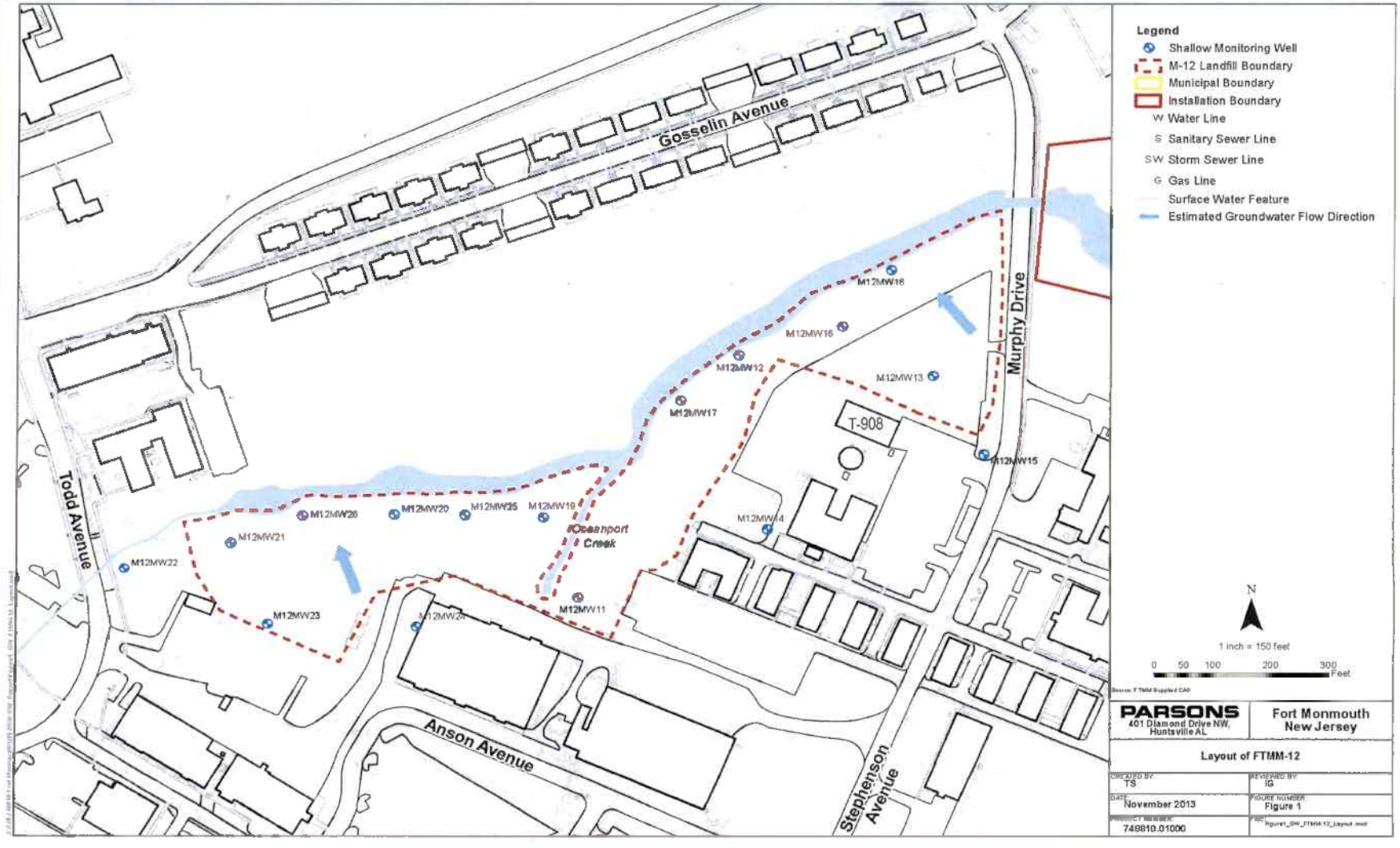
- Analyzed for VOCs
- Four VOCs were detected at four monitoring wells (M5MW11, M5MW16, M5MW20, and M5MW23) in exceedance of the GWQS

Results: FTMM-08 (Closed Solid Waste Landfill)



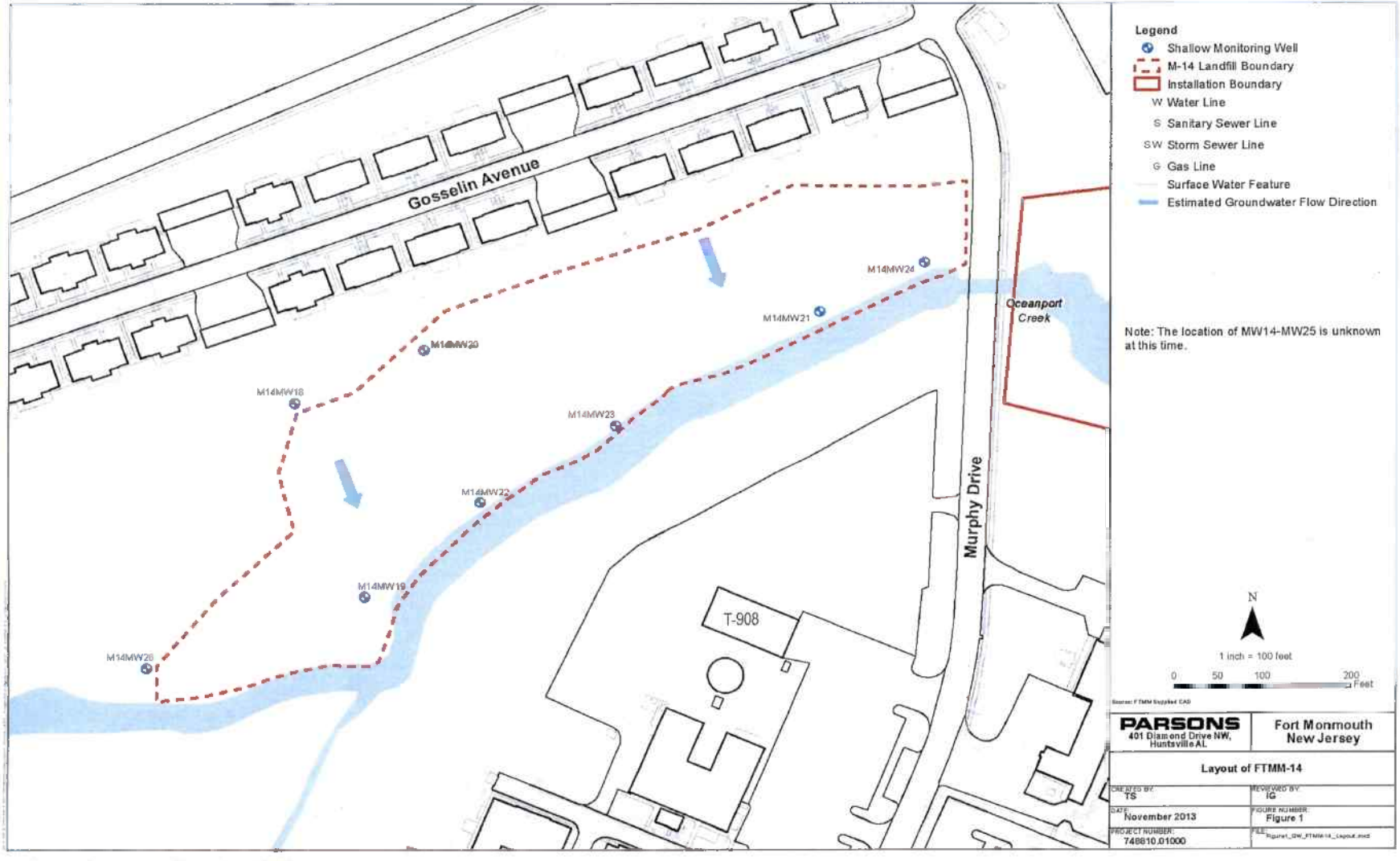
- Analyzed for VOCs, pesticides and lead
- Tetrachloroethene (PCE) detected at M8MW12 in exceedance of the GWQS
- Pesticides and lead were not detected above the GWQS

Results: FTMM-12 (Closed Solid Waste Landfill)



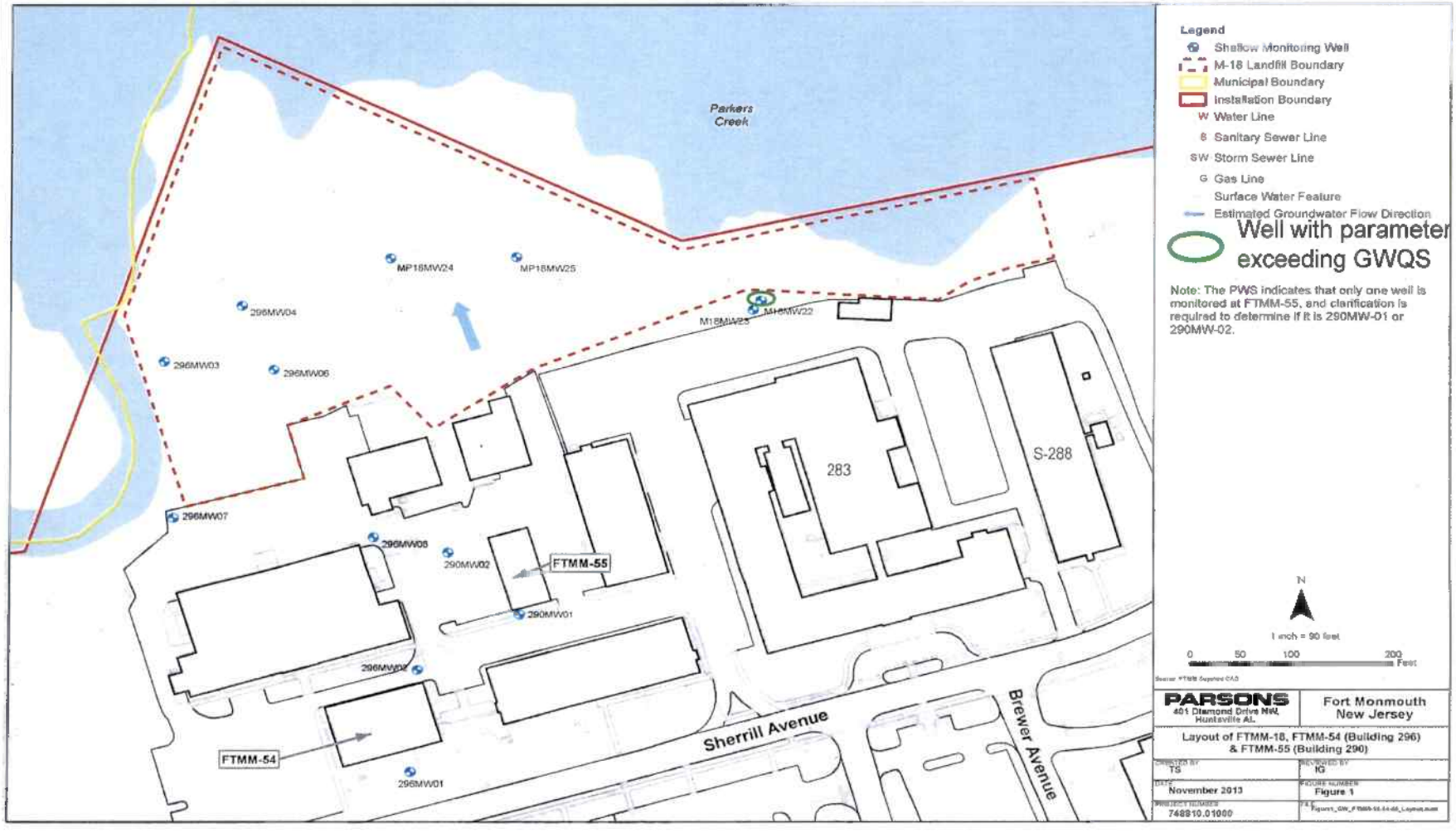
- Analyzed for lead
- Lead not detected above the GWQS

Results: FTMM-14 (Closed Solid Waste Landfill)



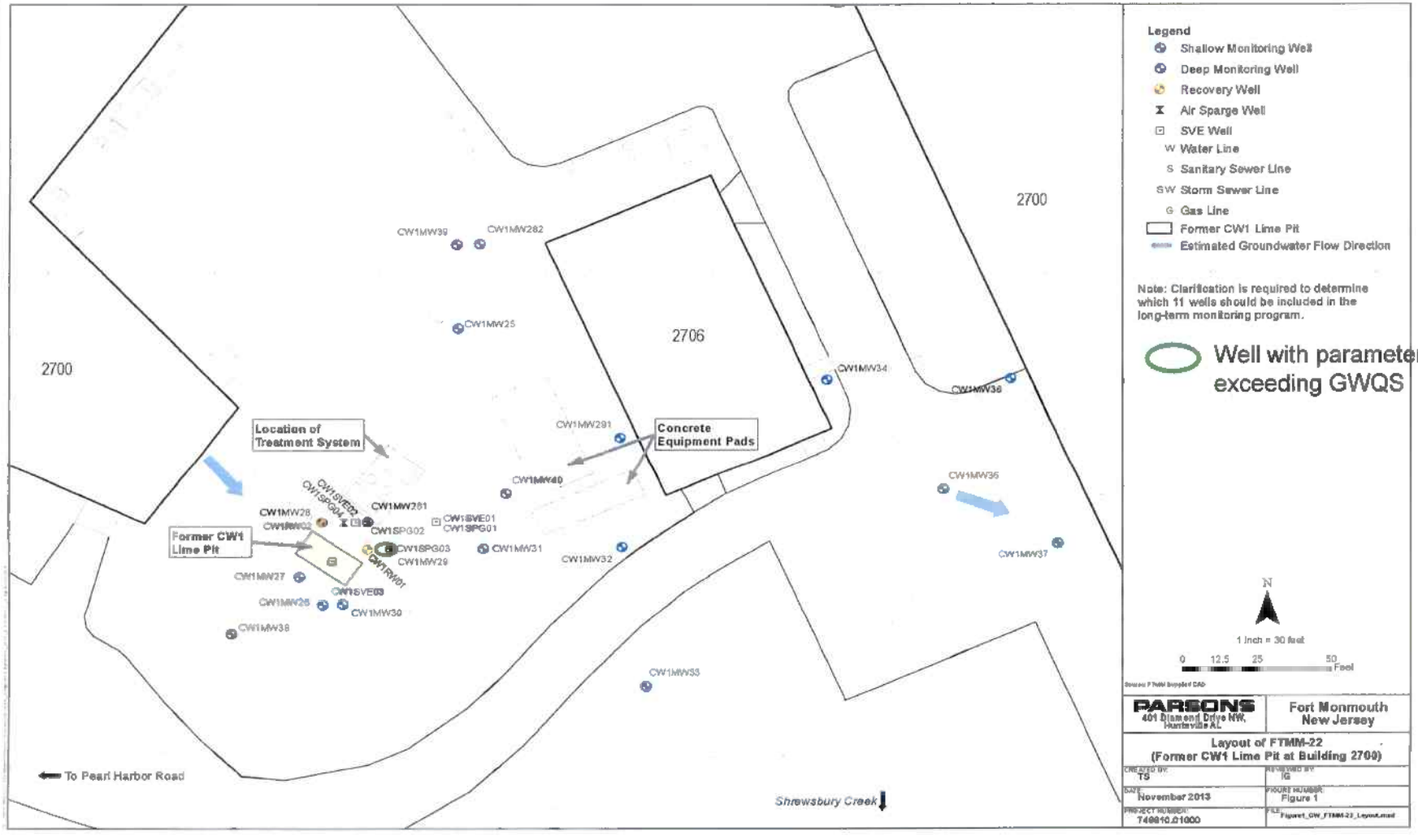
- Analyzed for VOCs
- No VOCs detected above the GWQS

Results: FTMM-18 (Closed Solid Waste Landfill/Former Training Area)



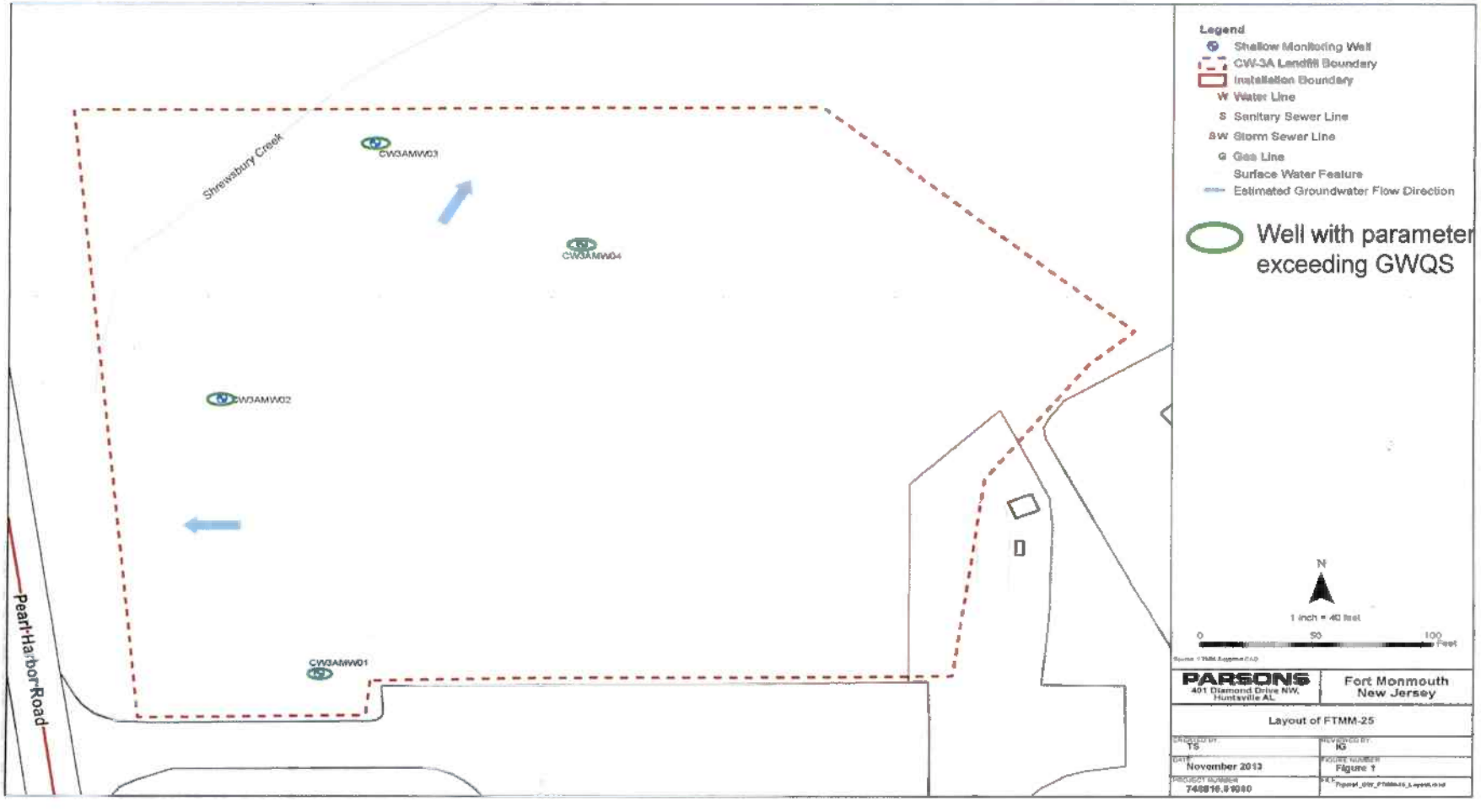
- Analyzed for VOCs
- Two VOCs were detected in one monitoring well (M18MW22) in exceedance of the GWQS

Results: FTMM-22 (Former Lime Pit)



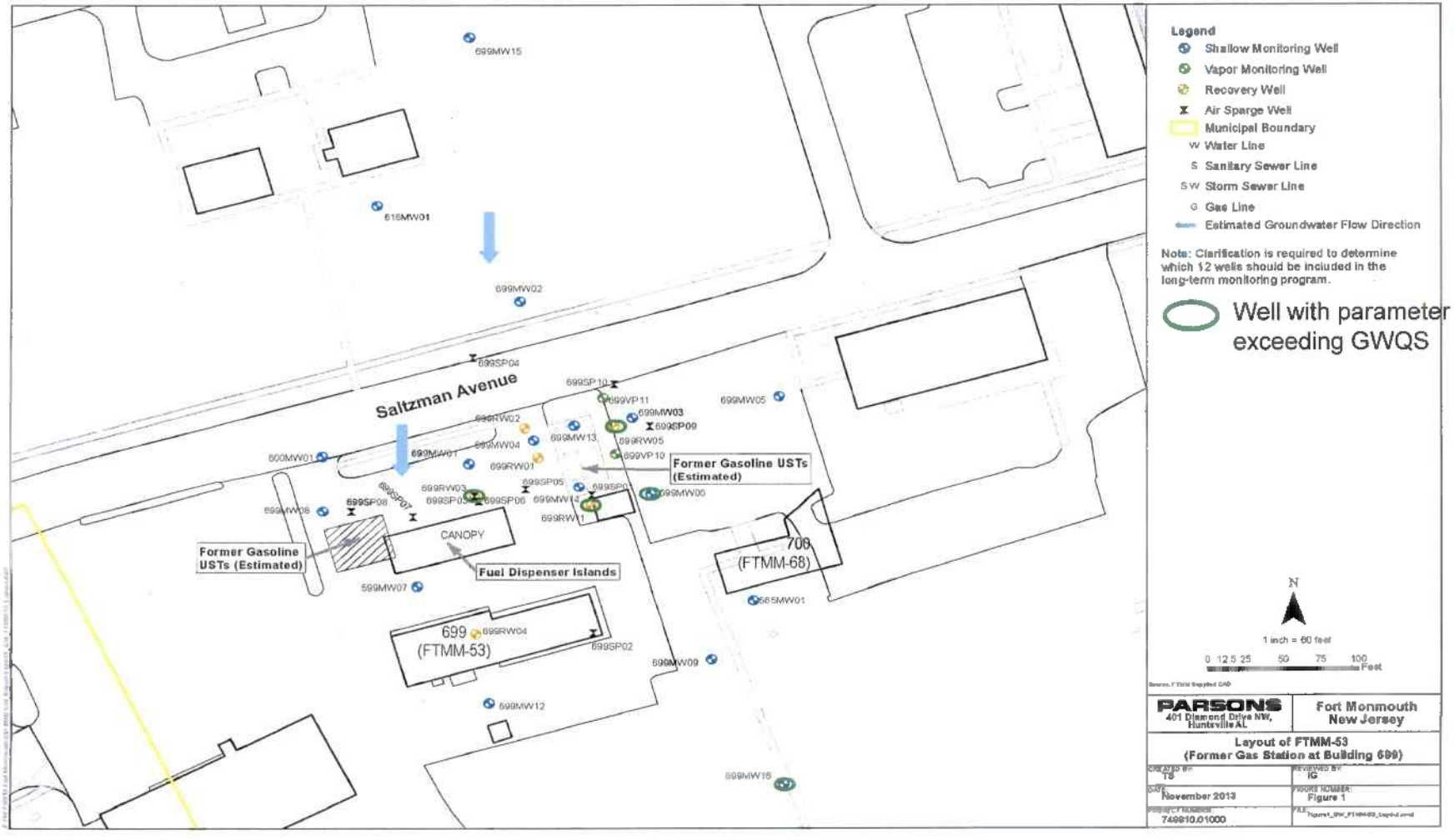
- Analyzed for VOCs
- One VOC was detected in one monitoring well (CW1MW29) in exceedance of the GWQS

Results: FTMM-25 (Closed Solid Waste Landfill)



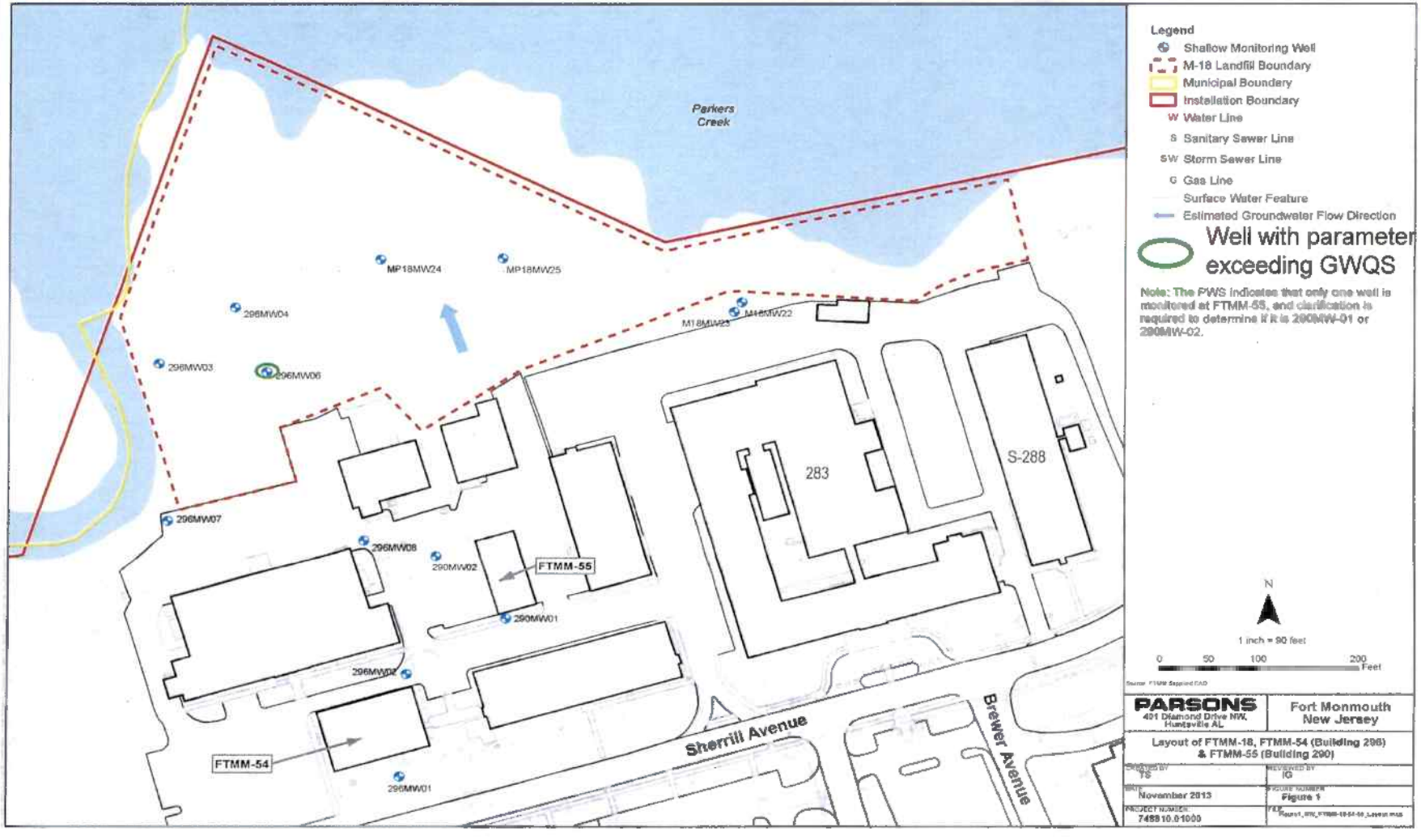
- Analyzed for VOCs, pesticides, and metals
- One metal was detected in five monitoring wells (CW3MW01, CW3MW02, CW3MW03, and CW3MW04) in exceedance of the GWQS
- VOCs and pesticides were not detected above their GWQS

Results: FTMM-53 (Former Gas Station)



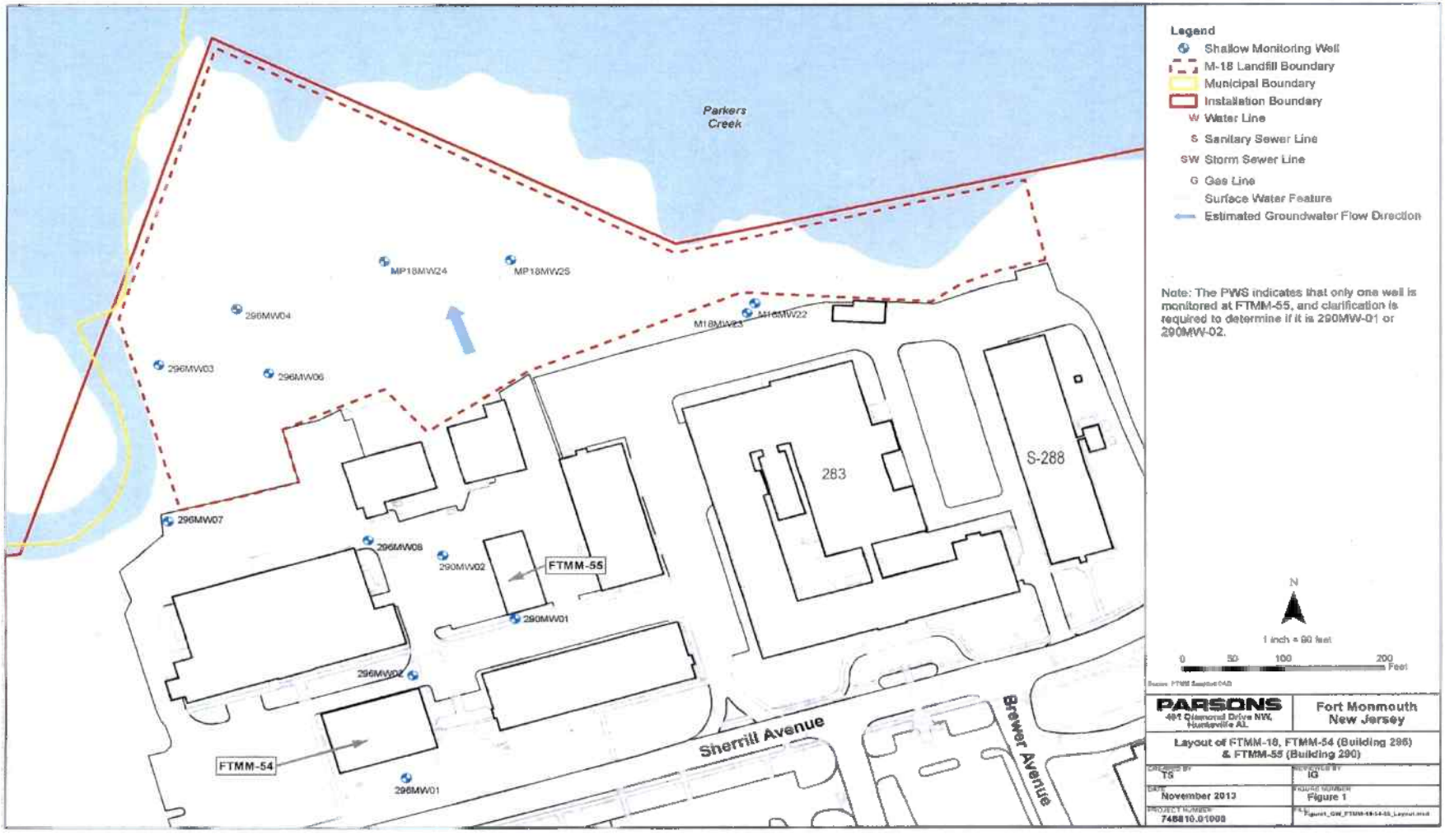
- Analyzed for VOCs
- Five VOCs were detected in five monitoring wells (699MW06, 699MW16, 699RW03, 699RW05, and 699RW11) in exceedance of the GWQS

Results: FTMM-54 (Former Gasoline Storage)



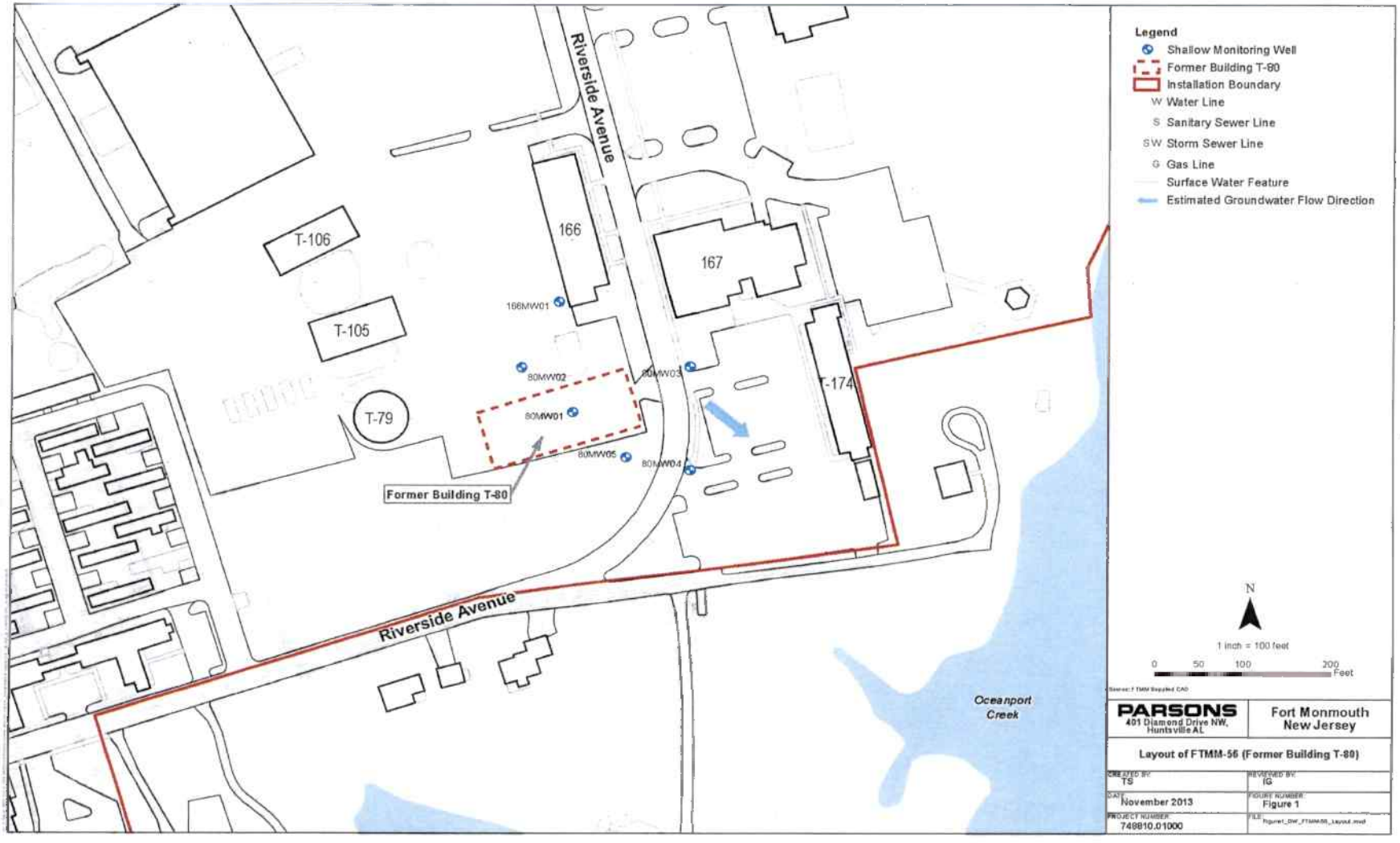
- Analyzed for VOCs and lead
- One VOC was detected in one monitoring well (296MW06) in exceedance of the GWQS
- Lead was not detected above the GWQS

Results: FTMM-55 (Former Gasoline Storage)



- Analyzed for lead
- Lead was not detected above the Site background concentration

Results: FTMM-56 (Petroleum Release Area)

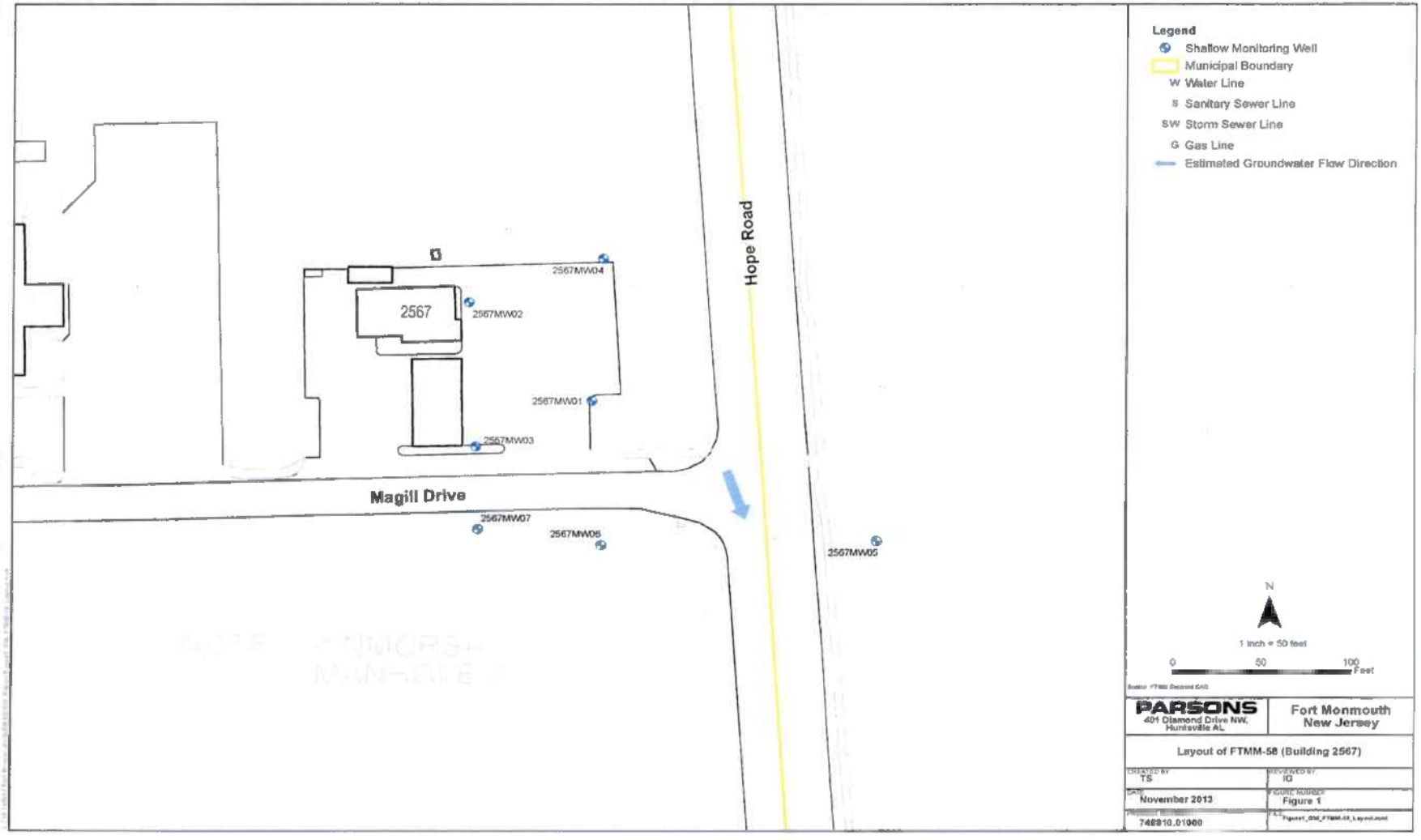


- Analyzed for lead
- Lead was not detected above the GWQS

Results: FTMM-57 (UST Gasoline Release)

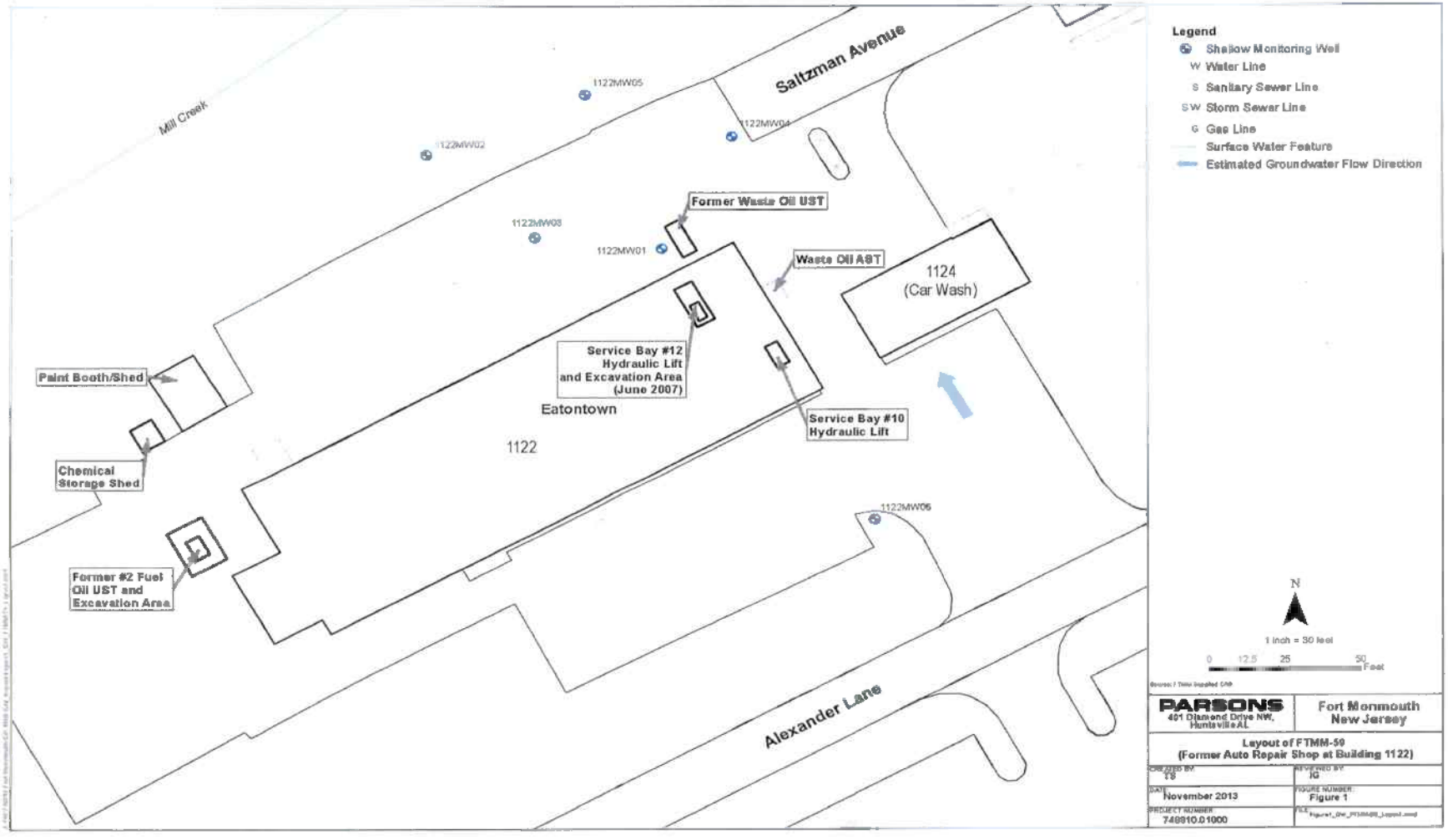
- Analyzed for VOCs, pesticides, and metals
- No VOCs or pesticides were detected above the GWQS
- Two metals were detected in three monitoring wells (108MW01, 108MW02, and 108MW03) above the Site background concentration

Results: FTMM-58 (Former Gasoline UST)



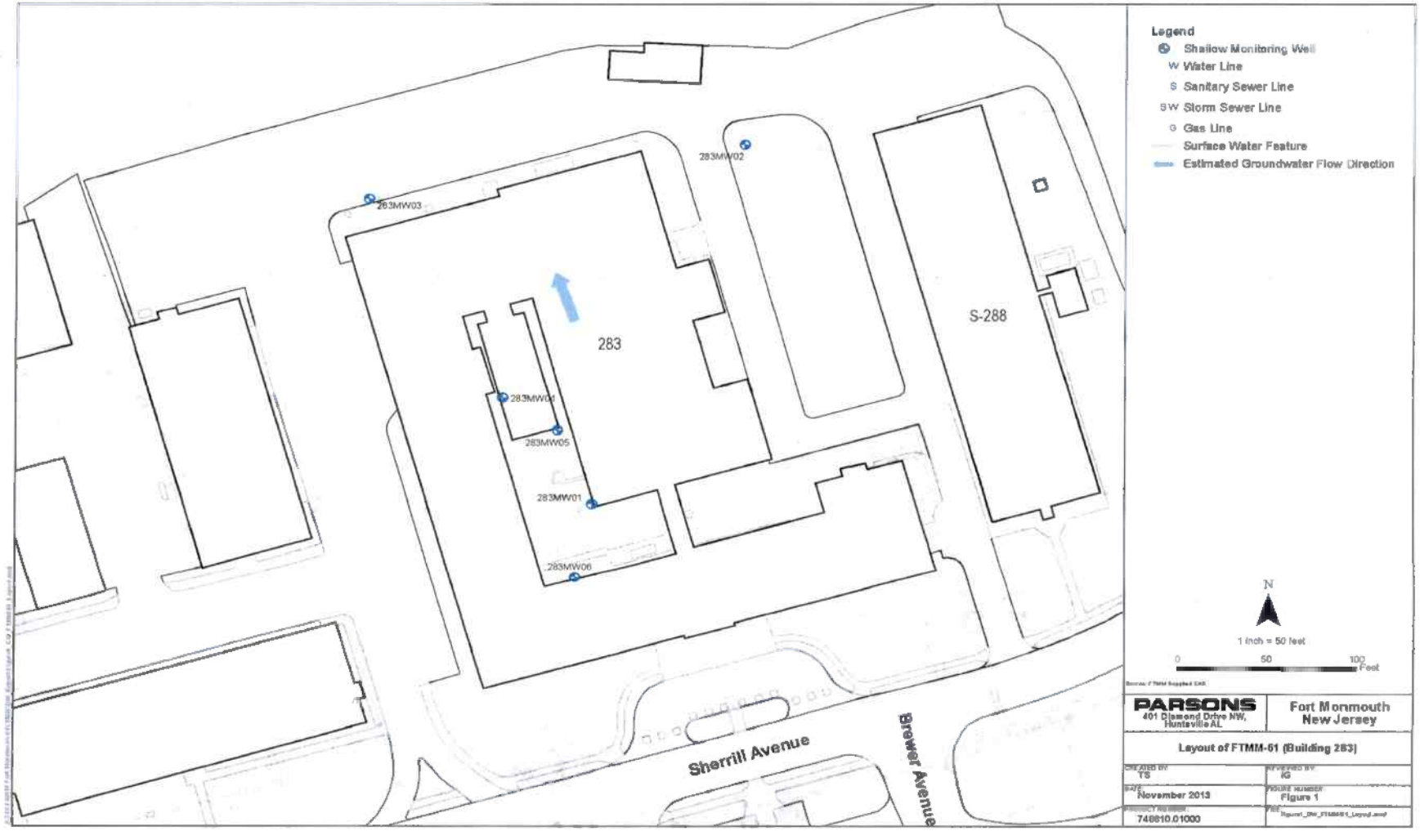
- Analyzed for VOCs
- No VOCs were detected above the GWQS

Results: FTMM-59 (Former Auto Repair Shop)



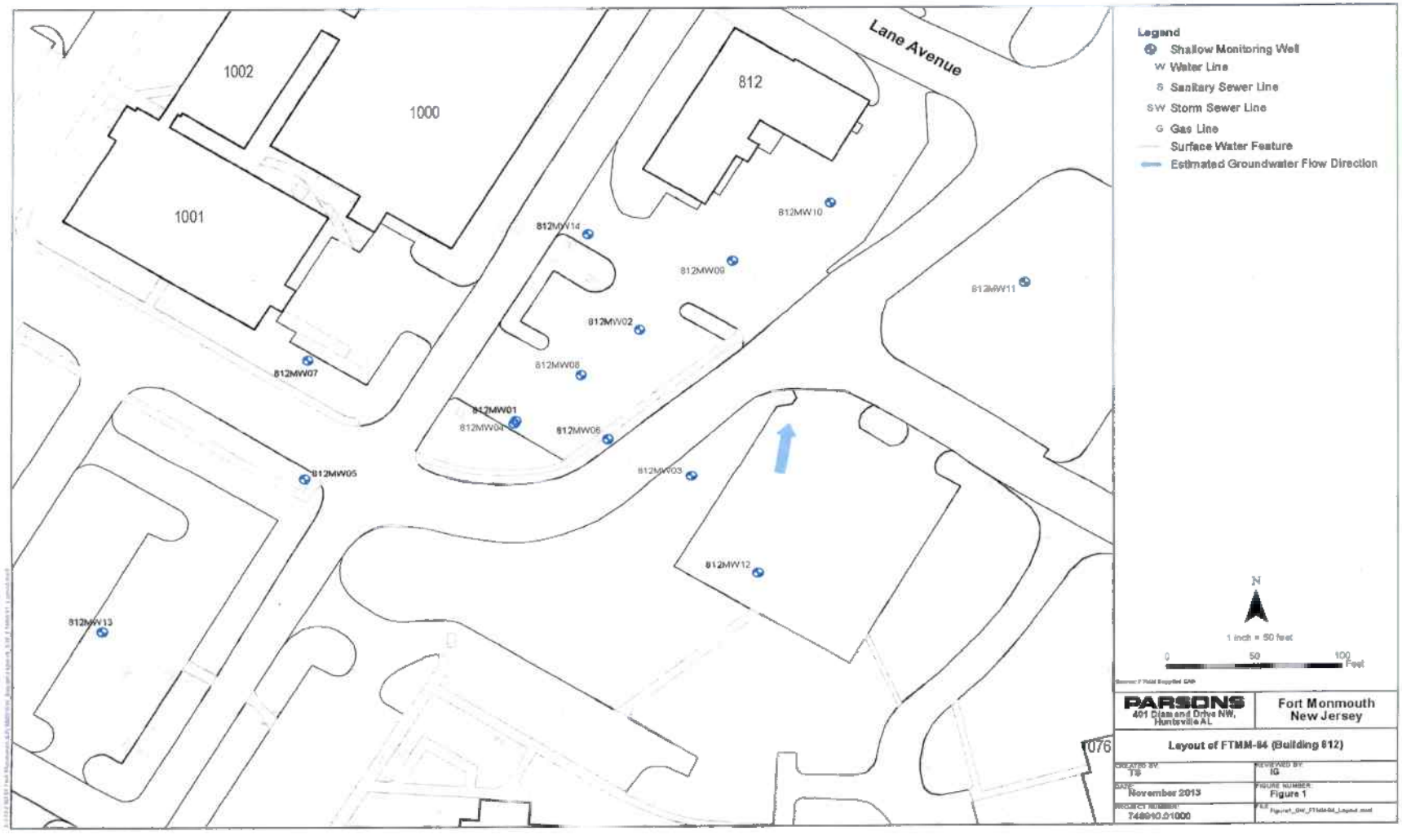
- Analyzed for VOCs
- No VOCs were detected above the GWQS

Results: FTMM-61 (Former Gasoline Storage)



- Analyzed for VOCs and lead
- No VOCs or lead were detected above the GWQS

Results: FTMM-64 (Former Gasoline UST)



- Analyzed for VOCs and lead
- No VOCs were detected above the GWQS.
- Lead was not detected over the Site background concentration

Results: FTMM-66 (Former Fuel Tanks)

- Analyzed for VOCs, SVOCs, and lead
- No VOCs, SVOCs, or lead were detected above the GWQS

Results: FTMM-68 (Former Dry Cleaners)

- Analyzed for VOCs
- Six VOCs were detected in two monitoring wells (565MW01 and 565MW01D) in exceedance of the GWQS