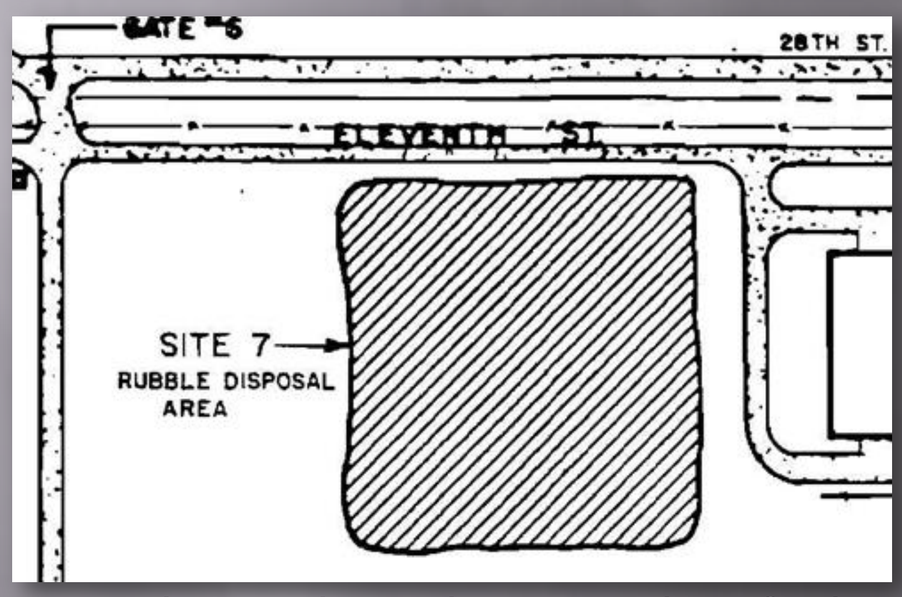
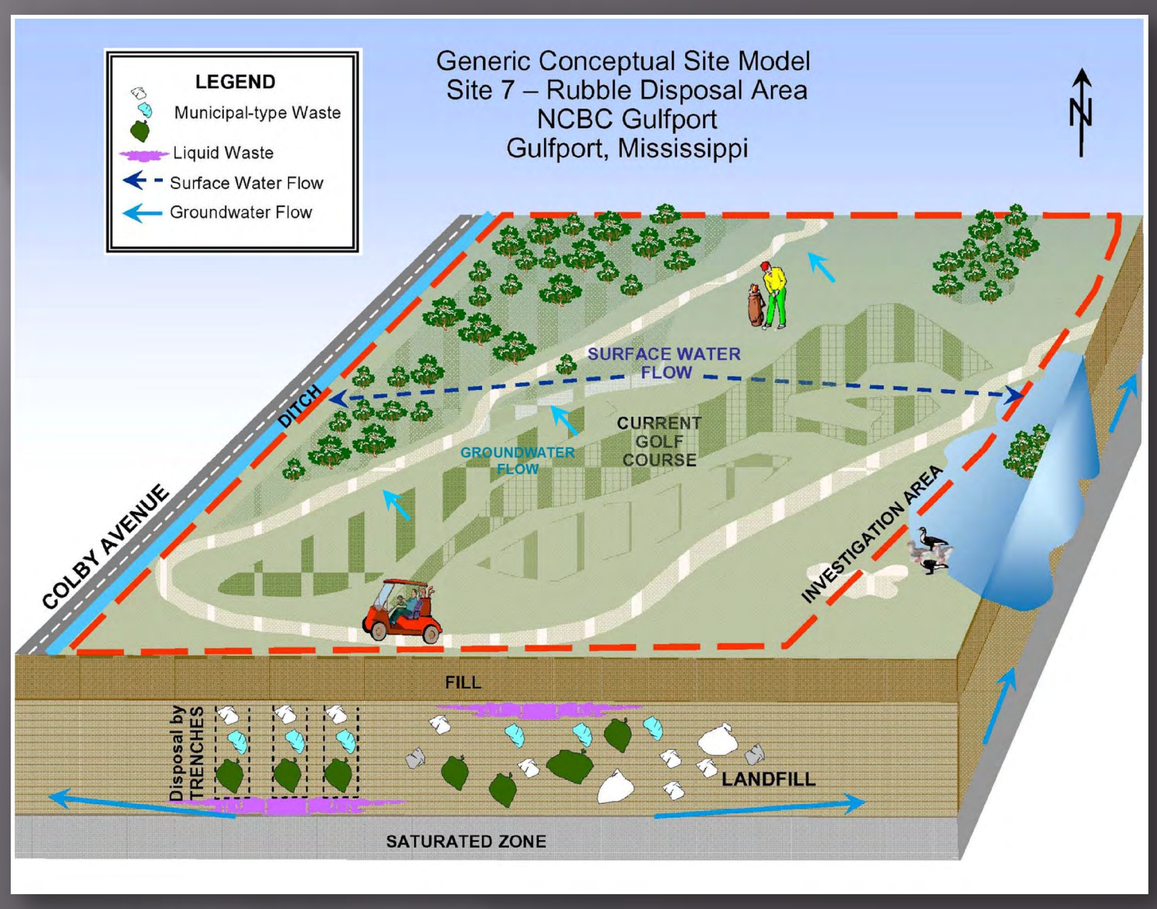
REMEDIAL INVESTIGATION AT THE RUBBLE DISPOSAL AREA (SITE 7)

Site History

- The Rubble Disposal Area landfill operated from 1978 -1984.
- The 3-acre landfill received construction and building demolition debris.
- The site was identified during the Initial Assessment Study in 1985.
- Disposal history resulted in a "LOW" risk rating and as a result, this is the last of the Installation Restoration Program sites to be investigated at NCBC Gulfport.
- The Remedial Investigation for Site 7 began in 2012.



Initial Site 7 boundaries as identified in the 1985 Initial Assessment Study.



This Site Conceptual Model shows the Navy's understanding of Site 7. This model may be slightly modified based on new findings.

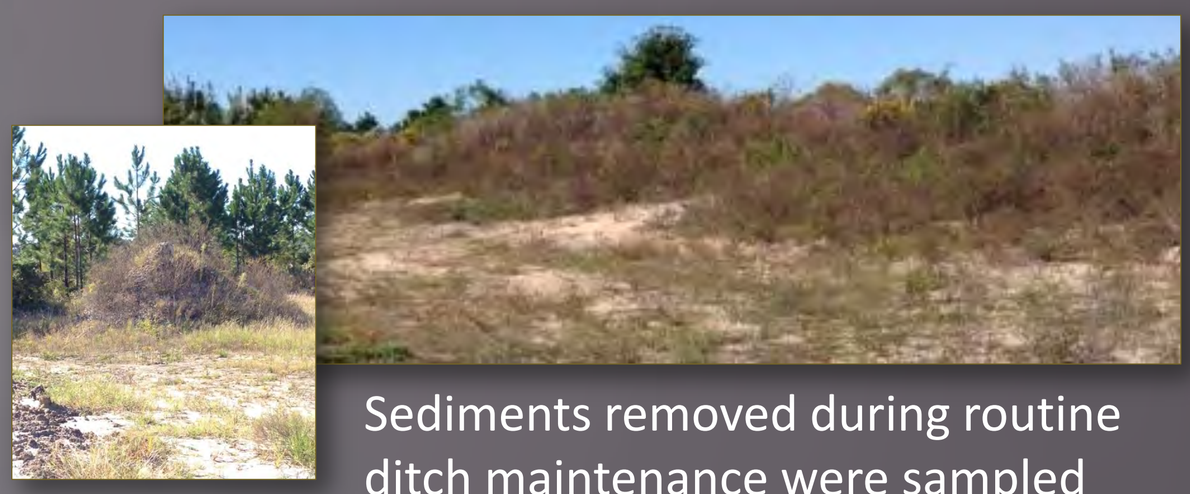
Location of Site 7 on NCBC Gulfport

November 2014

REMEDIAL INVESTIGATION AT THE RUBBLE DISPOSAL AREA (SITE 7)

The Remedial Investigation was completed in four phases:

1. **Defining the Landfill**
2. **Defining Contamination**
3. **Defining Limits of Contamination**
4. **Defining Landfill Contents**



Sediments removed during routine ditch maintenance were sampled and transported to Site 8B.

Phase 1
Defining the Landfill

- Geophysics helped define the boundaries of the site by locating disposal "cells."
- A series of 3-foot deep borings were completed on a 100-foot grid to visually identify buried waste.
- Soil gas studies showed that methane gas, volatile organic compounds, and hydrogen sulfide were below the appropriate action level.

A typical magnetometer survey instrument

Monitoring Well Locations at Site 7

Phase 2
Defining the Contamination

Surface and Subsurface Soil

- Soil samples were collected on the surface (0-2') and below the surface (3-5' and 6-8').
- Low concentrations of dioxins (between 5 to 20 ppt) were found.

Groundwater:

- Seventeen (17) groundwater monitoring wells were installed along the perimeter of Site 7.
- Low concentrations of contaminants found in the groundwater are being evaluated as part of the human health risk assessment.

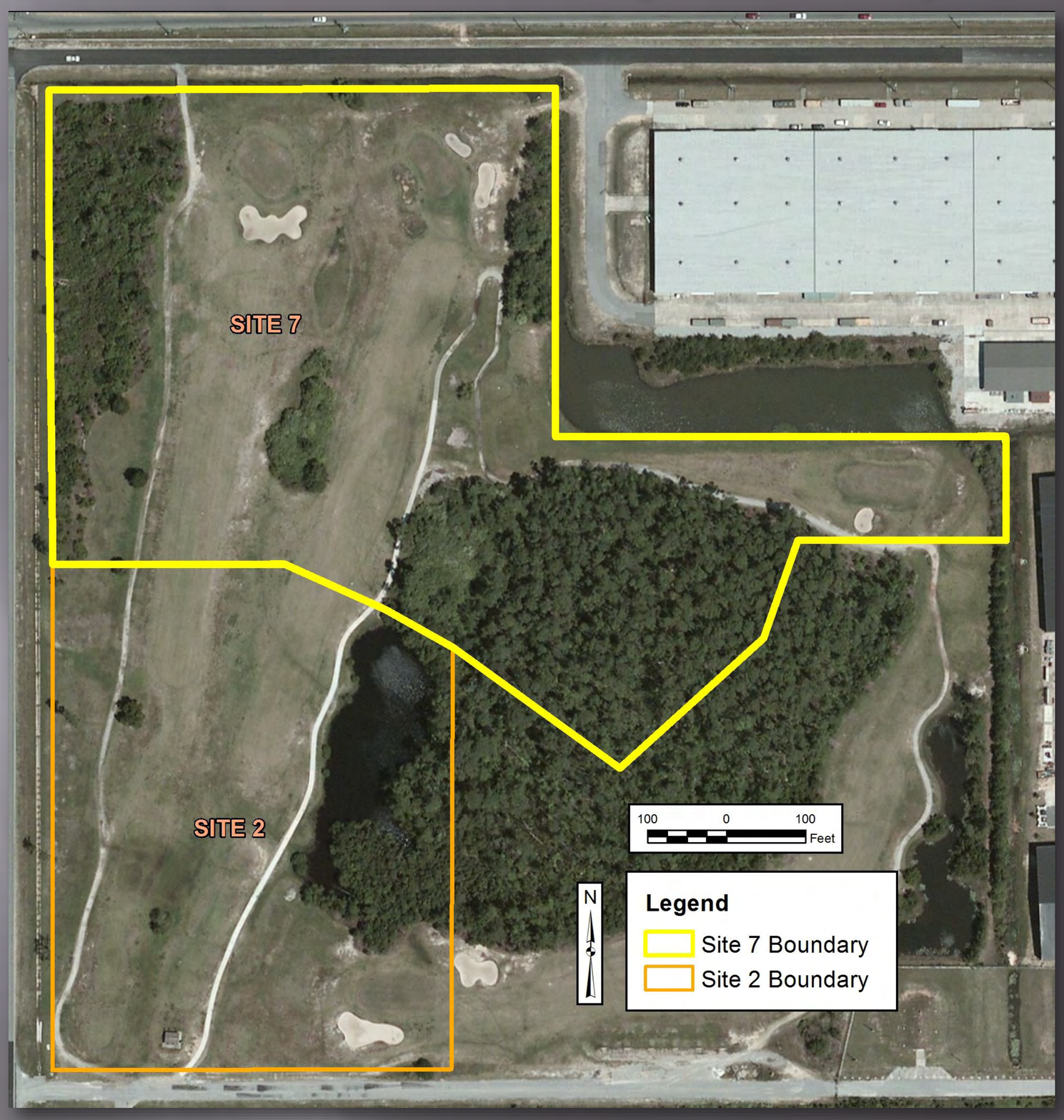
Surface Water and Sediment:

- Four surface water and sediment samples were collected in the ditches adjacent to Site 7 prior to NCBC Gulfport ditch maintenance.
- Two sediment samples contained dioxins at concentrations that were slightly higher than acceptable residential levels (but within acceptable industrial levels).
- Although not part of the Remedial Investigation, the base recently completed routine maintenance in the ditches flowing past Site 7. As a precaution, these sediments were transported and stockpiled at Site 8.

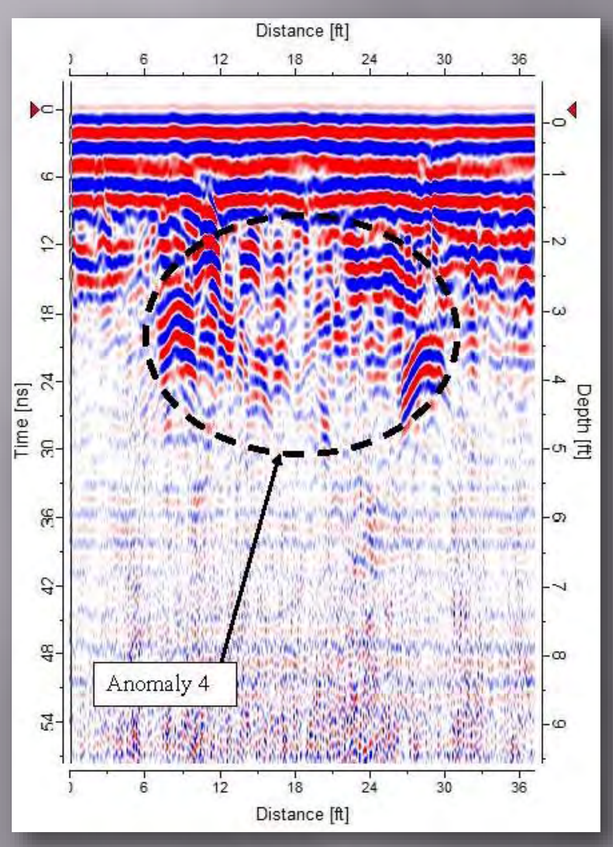
REMEDIAL INVESTIGATION AT THE RUBBLE DISPOSAL AREA (SITE 7)

Phase 3
Defining Limits of Contamination

- Additional sampling was completed to determine the depth and areal extent of contamination.
- The types of dioxins found during Phase 3 indicate that Herbicide Orange may be the source.
- The site was found to be larger than previously understood.



New boundaries of Site 7 based on investigation results.



A ground penetrating radar (GPR) result indicating a buried metal item.

Phase 4
Defining Landfill Contents

- Ground Penetrating Radar (GPR) was used to look for possible drums-sized objects.
- Trenching of the area was completed to identify the objects found with the GPR.
- Items targeted by the GPR were identified as construction rubble, as previously reported.

Trenching at Site 7

Sink

Metal Mat

Reinforced Concrete Pipe

Filing Cabinet

Trash Can Lid

Some of the metal items found in the landfill trenches

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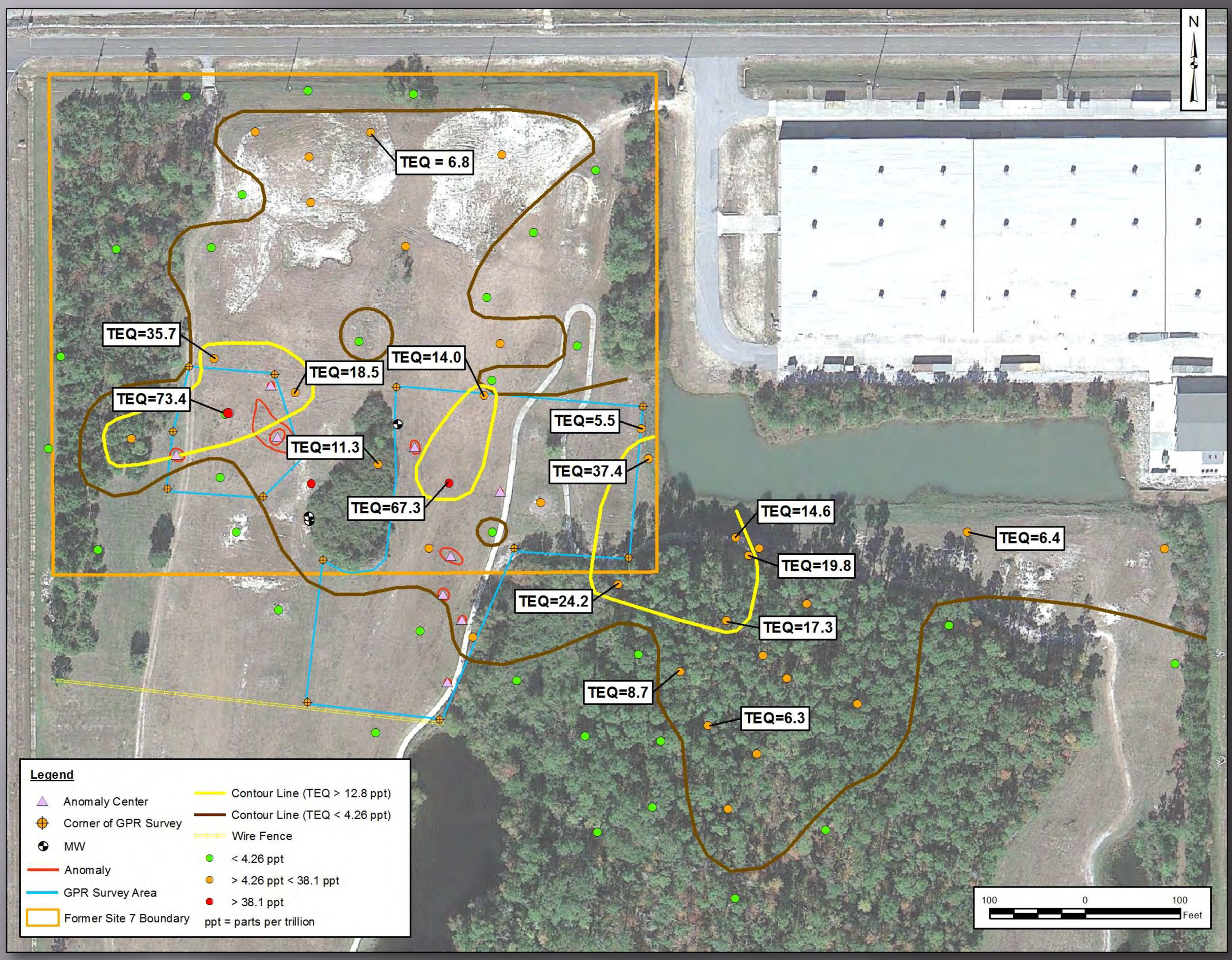
REMEDIAL INVESTIGATION AT THE RUBBLE DISPOSAL AREA (SITE 7)

Surface Soil Results



Surface Soil Sampling Results (0 – 2 Feet)

Surface Soil Samples (0-2 Feet)

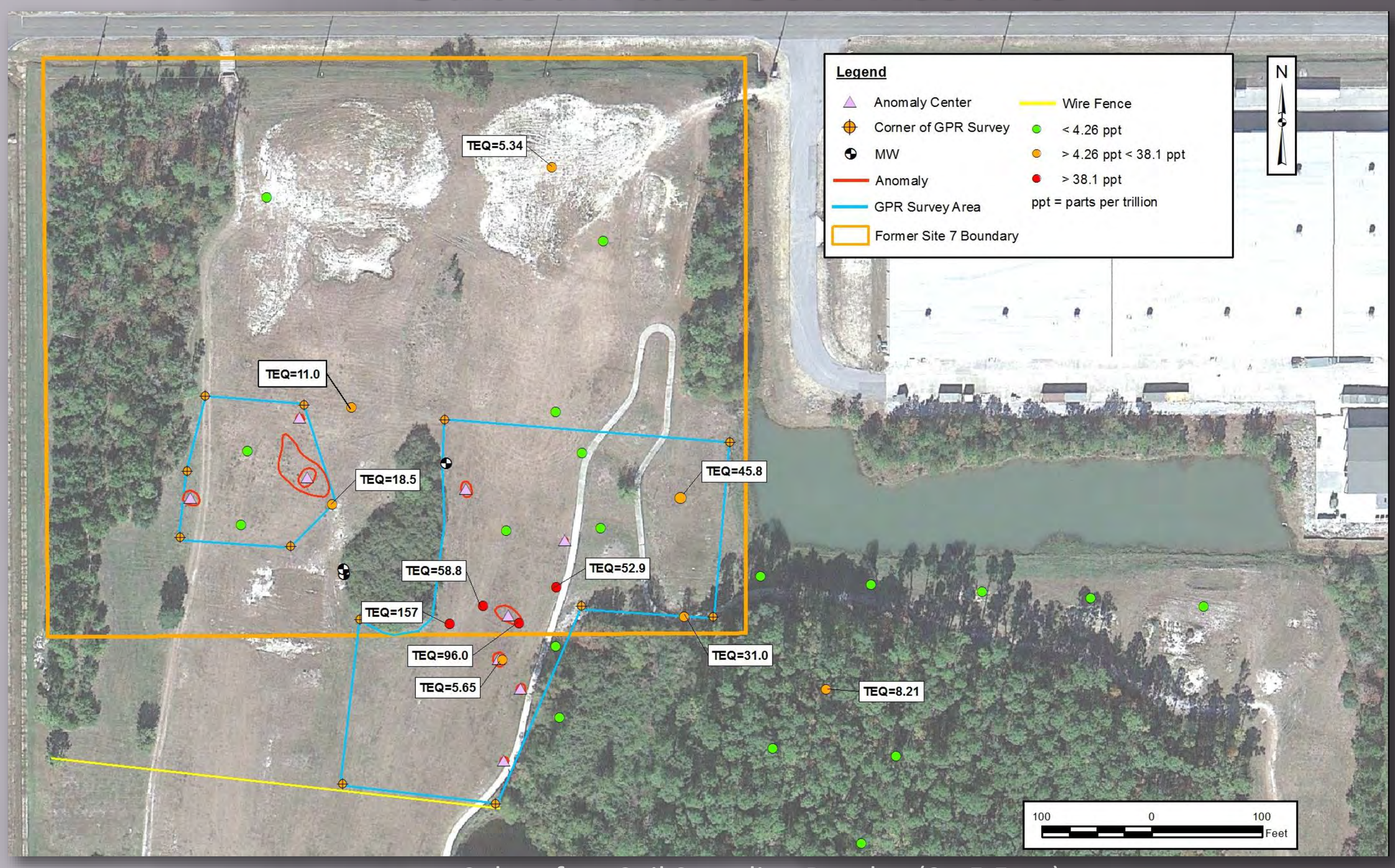
- Sixty-three (63) surface soil samples were collected.
- Thirty-two (32) samples contained dioxins at levels higher than MDEQs screening level of 4.26 ppt.
- Forty-eight (48) of these samples contained TCDD, the type of dioxin we often use to indicate that the source is Herbicide Orange.
- Dioxin concentrations ranged from 0.25 ppt to 73.4 ppt.

Acceptable Levels of Dioxins

- Dioxins in soil are usually measured in parts per trillion (ppt). One ppt means that there is one "piece" or unit of dioxin in one trillion units of soil.
- Dioxin results are reported as toxicity equivalent quotients, or TEQs. (See "Dioxin" poster for more information).
- The Mississippi Department of Environmental Quality (MDEQ) considers dioxin concentrations of 4.26 ppt or less to be acceptable in residential locations. The acceptable level at industrial locations is 38.2 ppt.

REMEDIAL INVESTIGATION AT THE RUBBLE DISPOSAL AREA (SITE 7)

Subsurface Soil Results



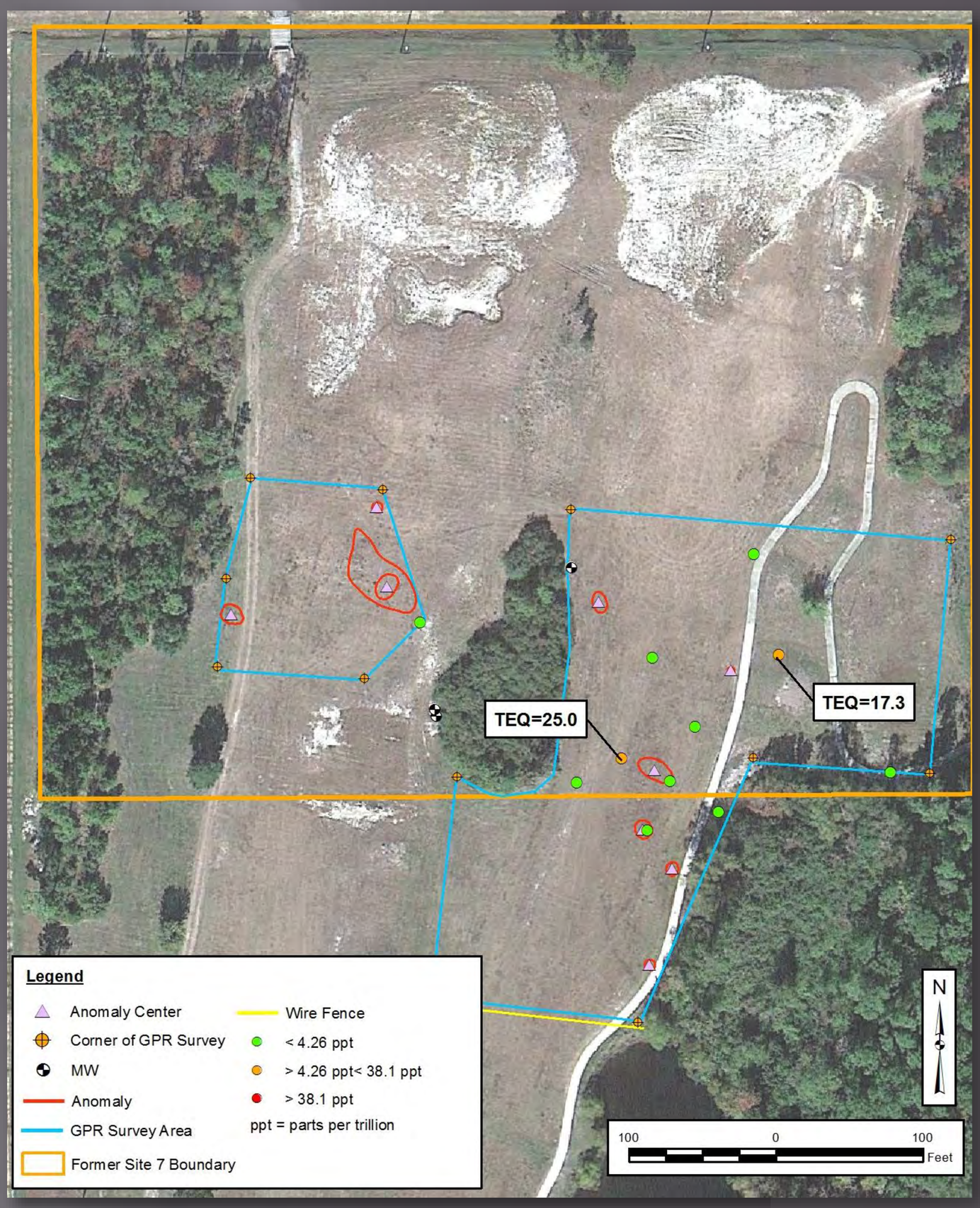
Subsurface Soil Sampling Results (3 - 5 Feet)

Subsurface Soil Samples (3-5 Feet)

- Twenty eight (28) soil samples were collected from 3 to 5 feet below ground surface.
- TCDD was found in 16 samples.
- Thirteen (13) samples contained dioxins at levels higher than MDEQ's screening level of 4.26 ppt.
- Dioxin concentrations ranged from 2.1 to 157 ppt.

Subsurface Soil Samples (6-8 Feet)

- Twelve (12) soil samples were collected at 6 to 8 feet below ground surface.
- TCDD was found in 2 samples.
- Two (2) samples contained dioxins at levels higher than MDEQ's screening level of 4.26 ppt.
- Dioxin concentrations ranged from 1.91 to 25.0 ppt.



Subsurface Soil Sampling Results (6 - 8 Feet)