



ASSOCIATION OF
ENVIRONMENTAL
& ENGINEERING
GEOLOGISTS

Nuts and Bolts of a Remediation Site

Innovative and Budget-Saving Site
Remediation of a very messy
manufacturing site





About the Speaker

Patricia Bryan is President and Principal Geologist at Bryan Environmental Consultants, Inc. (Bryan) in Homewood, IL, a 100% Women-Owned Business. After decades working with small, mid-sized, and large engineering consulting firms, Ms. Bryan started Bryan in 2014. Clients include private industry, municipalities, local and state government agencies, including Illinois Tollway and IDOT, construction companies, and other consulting firms.

Ms. Bryan received a B.S. in Geology from Binghamton University (SUNY Binghamton) and enrolled in the Masters program at the University of Houston in Geology and at Boston College, where she focused on Groundwater Hydrology and Groundwater Modeling.

Ms. Bryan is a licensed professional geologist in Illinois, Kentucky and Wyoming. She serves on the IL Board of Professional Geologists and is Past President and Executive Director of the AEG Foundation and Past President of AEG North Central Section (now Chicago Chapter).





Experience

Rush University Medical Center Transformation Program



Project Description

The \$1 billion Rush Transformation Project is the most comprehensive construction and facilities renovation program in Rush's more than 174-year history. The new hospital is the centerpiece and represents a new era of hospital design, shaped by user input to improve quality and optimize the patient experience while creating an environmentally sustainable facility with the most advanced technology available. It is the first full service "green" hospital in Chicago. Key Transformation projects included:

- Hospital Tower
- Orthopedic Building at Rush
- Rush University Cancer Center
- Atrium Building Renovations
- Staff/student parking garage
- Central energy plant/underground loading dock

Bryan staff acted as the owner's environmental engineer responsible for environmental assessment through remediation. The team secured NFRs under the Illinois Site Remediation Program (SRP).

The scope of work included environmental assessment, development of remediation plans/specifications, and remediation oversight for Transformation projects.

Location

Chicago, Illinois

Services

Phase I and II ESAs
 Illinois SRP
 Remediation Plans
 Remediation Oversight --Special and Hazardous Waste Monitoring
 Regulatory Compliance Support
 Green Remediation

Client/Reference

Michael E. LaMont, PE, SE, MBA
 Associate Vice President, Capital Projects
 Office of Transformation
 Rush University Medical Center
 312-942-6195

Ms. Lorez Mitchell
 Jacobs Facilities
 Tel: 312.203.7194

Total Project Value/Cost

\$1,011,834

Project Duration

2007 – 2012

Project Team

Patricia Bryan
 Kim Rentz

Location

Chicago, Illinois

Services

Remediation Oversight --Special Waste Monitoring
 Cut & Fill Calculations
 Regulatory Compliance Support
 Illinois Site Remediation Program Soil Management Plan
 No Further Remediation Letter
 Green Remediation

Client/Reference

Diane Martin
 Environmental Program Manager
 Chicago Housing Authority
[dimartin@thecha.org](mailto:d martin@thecha.org)
 312-913-7606

Total Project Value/Cost

\$437,000

Project Duration

Feb 2010 – Nov 2012

Project Team

Patricia Bryan Rosann
 Park-Jones
 Kim Rentz



Chicago Housing Authority Rockwell Gardens Redevelopment

Project Description



The CHA Plan for Transformation is the most ambitious redevelopment plan for public housing in the United States, involving the redevelopment of 25,000 units and homes to more than 50,000 families. Now in its 14th year, the plan calls for high rise to low rise development

The Project Site, Rockwell Gardens is a 2.5-acre Site consisting of 22 non-contiguous parcels that will be developed as rental properties

The scope of work included development and revision of remediation plans, soil management plans and remediation oversight. We conducted the following tasks:

- Evaluated recent changes to the Illinois Site Remediation Program (SRP)
- Conducted volume calculations to estimate volume of soil remediation
- Conducted Remedial Oversight activities
- Prepared the RACRs
- Prepared a Soil Management Plan
- Provide general consulting such as coordination with HUD, development team members; Illinois EPA

We conducted management and oversight for:

- Soil excavated for building foundations
- Soil transported as special waste to CID
- Soil reused where possible under a Soils Management Plan
- "Engineered Barriers" placed over contaminated soil left in place

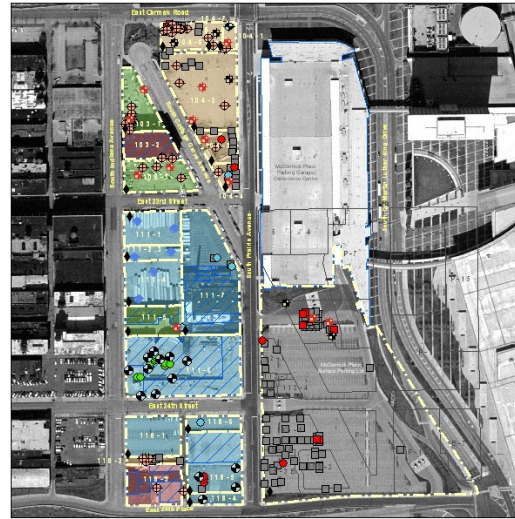




Experience



McCormick Place West Expansion



Location

Chicago, Illinois

Services

Planning/Design of Environmental Investigations
Environmental Sampling and Reporting
Public Relations
Regulatory Compliance Support
Regulatory Negotiations
Remediation Plans
Remediation Oversight
Asbestos and Lead-Based Paint sampling and abatement

Client/Reference

Ms. Laura Tagler
MPEA
301 East Cermak Road
Chicago, Illinois 60616
Tel: 312.791.6289
Fax: 312.791.6156

Project Value/Cost

\$535,000

Project Labor Hours

4906

Project Duration

2002 – Present

Project Team

Patricia Bryan
Kim Rentz

Project Description

Currently, the largest public project in Illinois, the McCormick Place West Expansion area comprises approximately six city blocks in Chicago, Illinois, bounded by Cermak Avenue to the north, South Martin Luther King Drive to the east, I-55 to the south, and South Indiana Avenue to the west.

The Site consists of 23 separate parcels and includes parking lots, buildings, and vacant lots that were previously occupied by buildings or paved areas. The redevelopment of these properties will provide over 3,000,000 gross square feet for the McCormick Place Convention Center. The new facilities will include an approximately 500,000 square foot ballroom and 200,000 square feet of meeting rooms.

We served as the owner's environmental engineer responsible for environmental assessment through remediation of the 23 parcels. The scope of work includes assessment, development of remediation plans and specifications, remediation oversight and entering the site in the Illinois SRP and obtaining an NFR letter.

Location

West Chicago, IL

Services

Phase I and II ESAs, Oversight of Removal of Thorium-Containing Soils, TACO and SRP, Public Meetings, EPA Brownfield Assessment & Cleanup Grant Writing, ATSDR Grant Writing

Client & Reference

Mr. John Said, AICP
Director of Community Development
475 Main Street
West Chicago, IL 60185
Phone 630.293.2200 ext 140
JSaid@westchicago.org

Project Cost and/or Fee

\$350,000

Project Duration

2011-2016 (5 years)

Project Team

Patricia M. Bryan, PG
Rosann Park-Jones, PG
Kimberly Rentz, PE

City of West Chicago Redevelopment



WEST WASHINGTON STREET REDEVELOPMENT PROJECT

With an economically-languishing downtown, the need for redevelopment was great. A 14-acre brownfield site was assembled in the heart of the City of West Chicago's downtown for a new municipal campus. The problem: the 14-acre site, previously used by a scrap metal business, was contaminated with radiological waste by a previous industry and needed environmental investigation and remediation.

Bryan personnel conducted a Phase I ESA of the 16 parcels of land. RECs were identified, based on the historic use of the property as a rail yard with adjoining factories, a scrap iron and steel salvage yard, and a gasoline station. Previous Phase I and II ESAs conducted at the former scrap yard indicated contaminants were present. Radiological contaminants were removed from the Site during the 1990s by the US EPA as part of the cleanup of the Residential Areas Superfund Site. The source of the radiological contaminants was probably the former Rare Earths Facility, which gave thorium mill tailings for free to West Chicago businesses and residents from the 1930s to the 1950s.

Bryan personnel conducted a Phase II ESA that included a radiological survey, geophysical survey, drilling of borings, installation of monitoring wells, sampling of soils and groundwater. Contaminants identified included heavy metals, semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs) and radiological contaminants (radium and thorium). Bryan personnel assisted the client in enrolling the Site in the Illinois EPA's Site Remediation Program (SRP), and prepared a Comprehensive Site Investigation Report/Remediation Objectives Report/Remedial Action Plan (CSIR/ROR/RAP). On behalf of the client, Bryan wrote EPA brownfield assessment and cleanup grants and Agency for Toxic Substances and Disease Registry (ATSDR) grants.





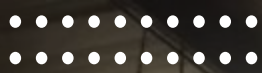
PRESENTATION OVERVIEW

- A SMALL SITE WITH BIG PROBLEMS
 - ABOUT THE SITE
 - PROJECT OBJECTIVES
 - PROJECT STRATEGY
 - TIMELINE
 - OUTCOME



Before Project Began

- 1940s Machinery
- 1940s Technology
- 1940s Safety Protocols
- 1940s Materials Handling



Manufacturing Floor

- Fork-lift traffic, heavy machinery and constant vibration caused the concrete floor to fail
- What did this company make?
- How long did it operate at this location ~ 40 years



Manufacturing Floor

- 10 Bolt Making Machines
- Machine Oil
- Cutting Oil
- Chlorinated Solvents
- Petroleum Distillates



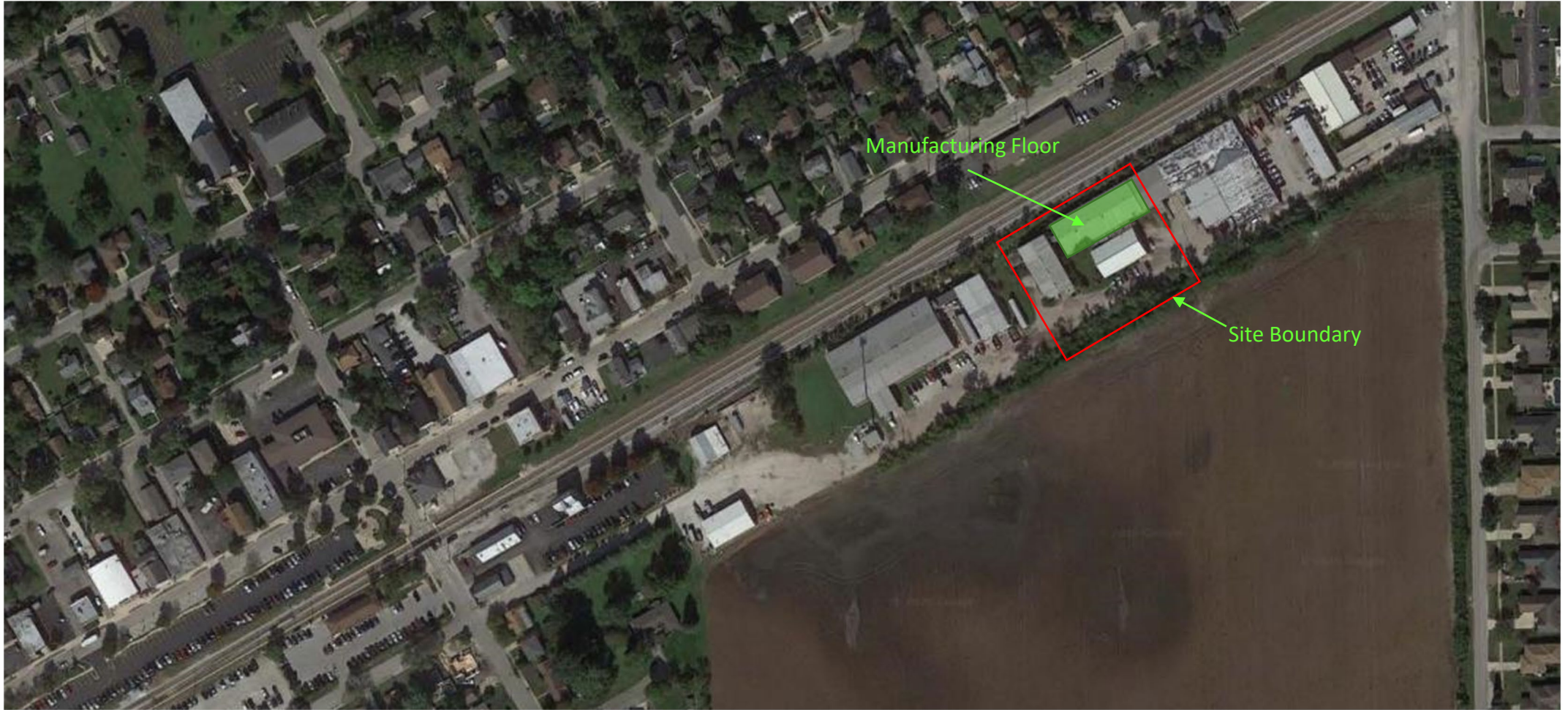


Oil
everywhere!

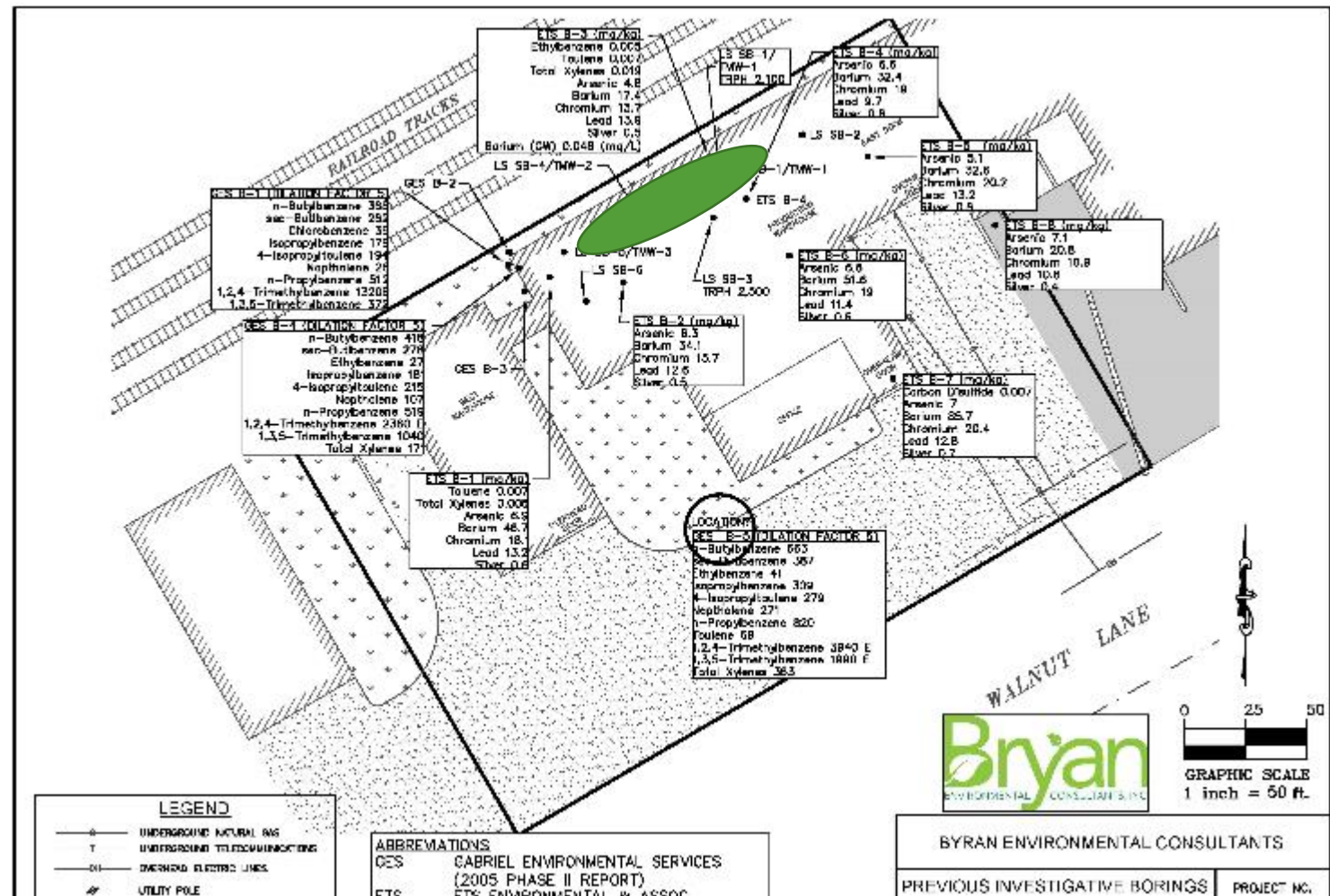


Standing oil in East Loading Dock

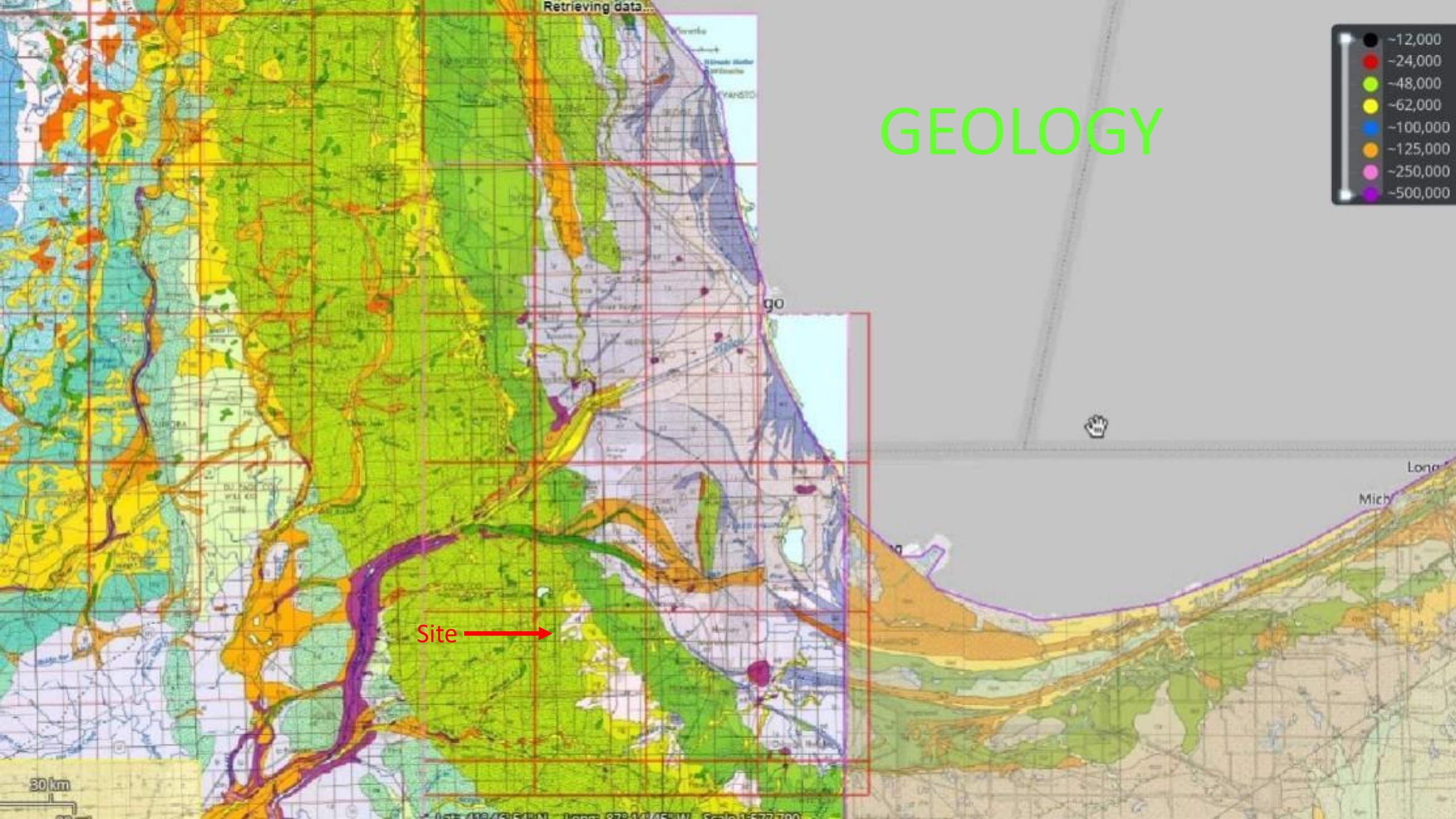
First stack remove oil so loading
dock can be used



Previous Investigations



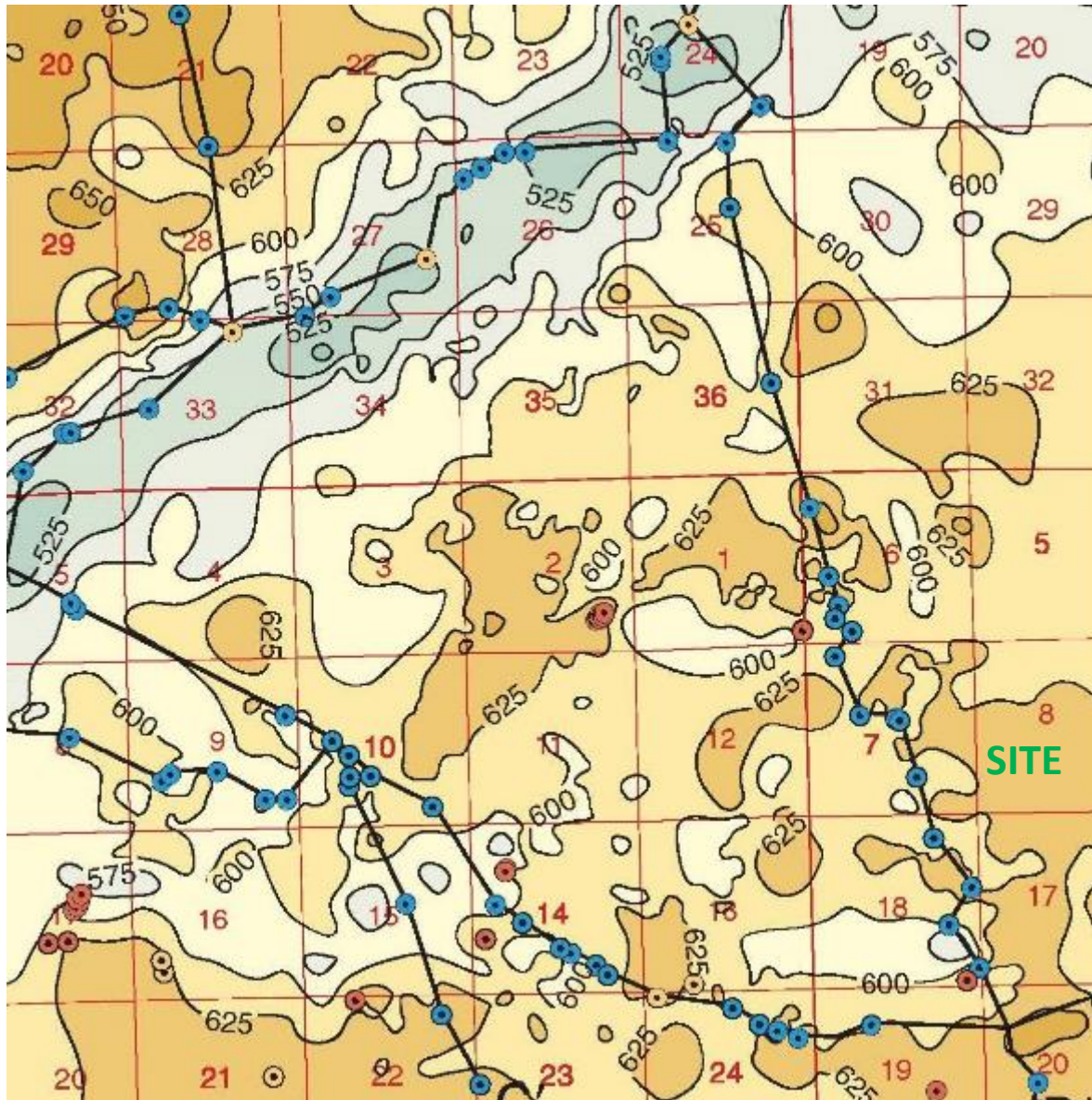
GEOLOGY



Site →

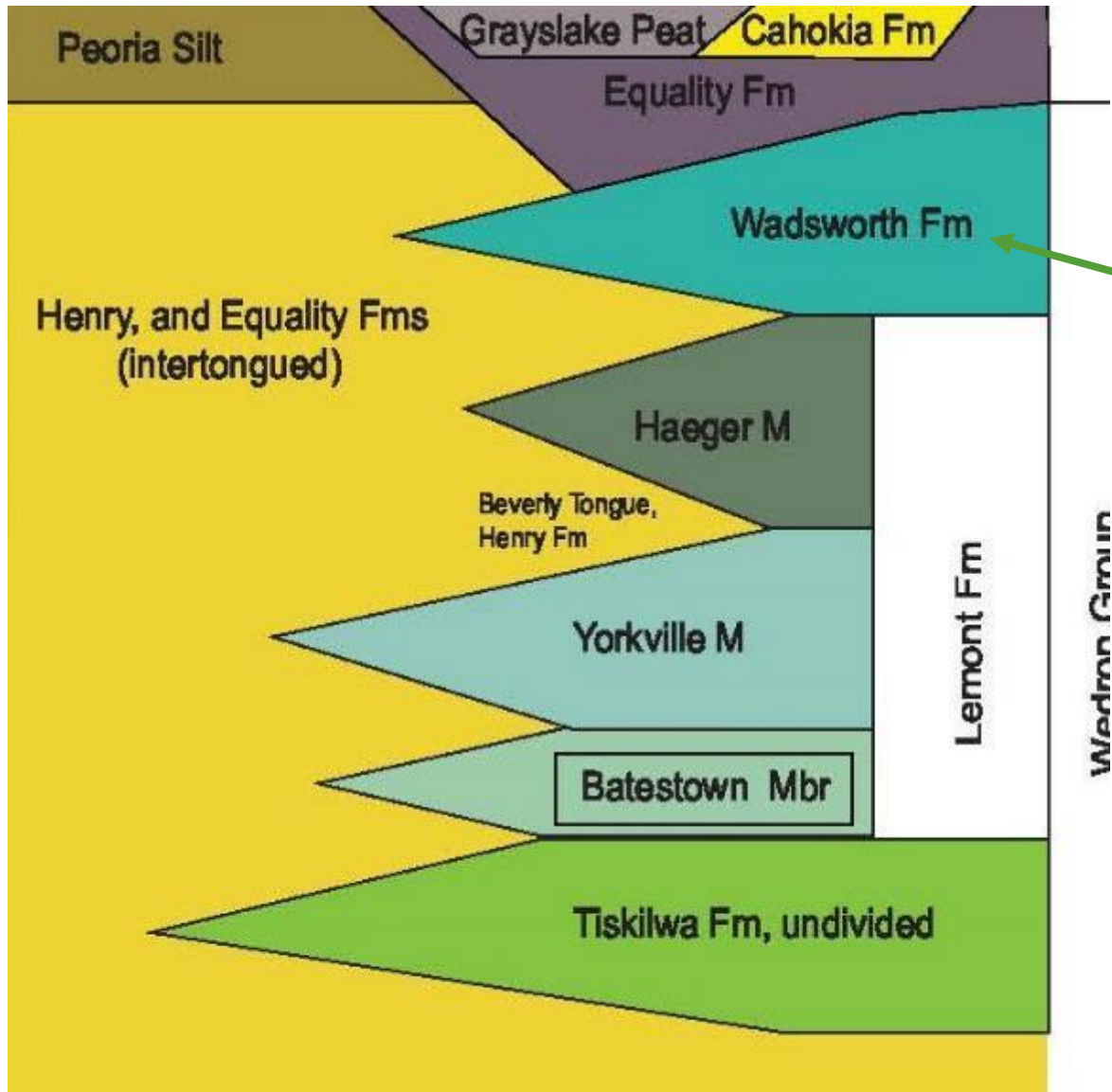
30 km

117° 40' 43.61" W, 37° 13' 45.15" N, Scale 1:577,700



Bedrock Topography

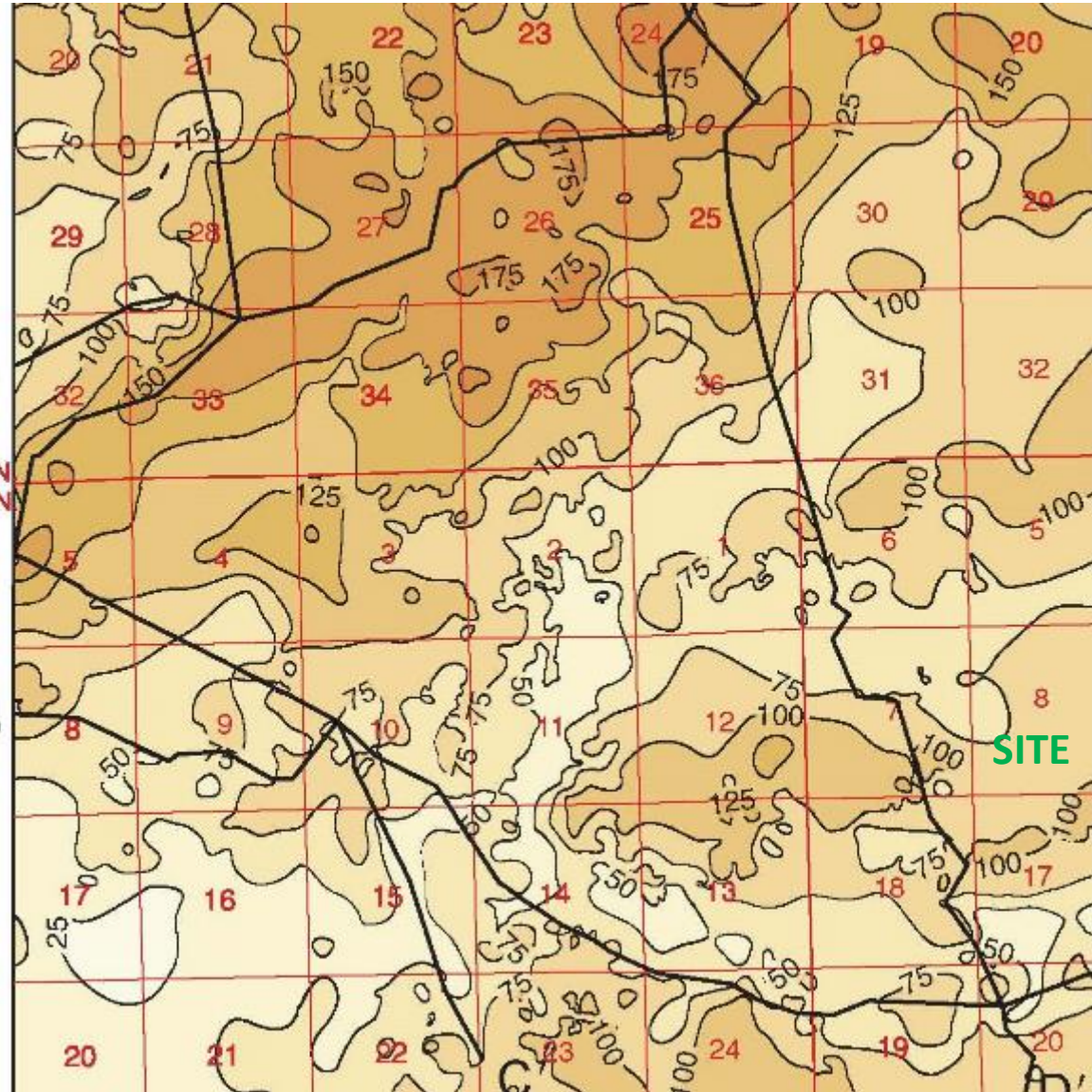
625 feet above mean sea level



Stratigraphy of the Mokena Quadrangle

- The Wadsworth Formation is the uppermost diamicton in the area
- Extensive surficial clay-rich stratigraphic unit in northeastern Illinois.
- Interstratified clayey till and lacustrine sediment
- More than 125 feet thick.

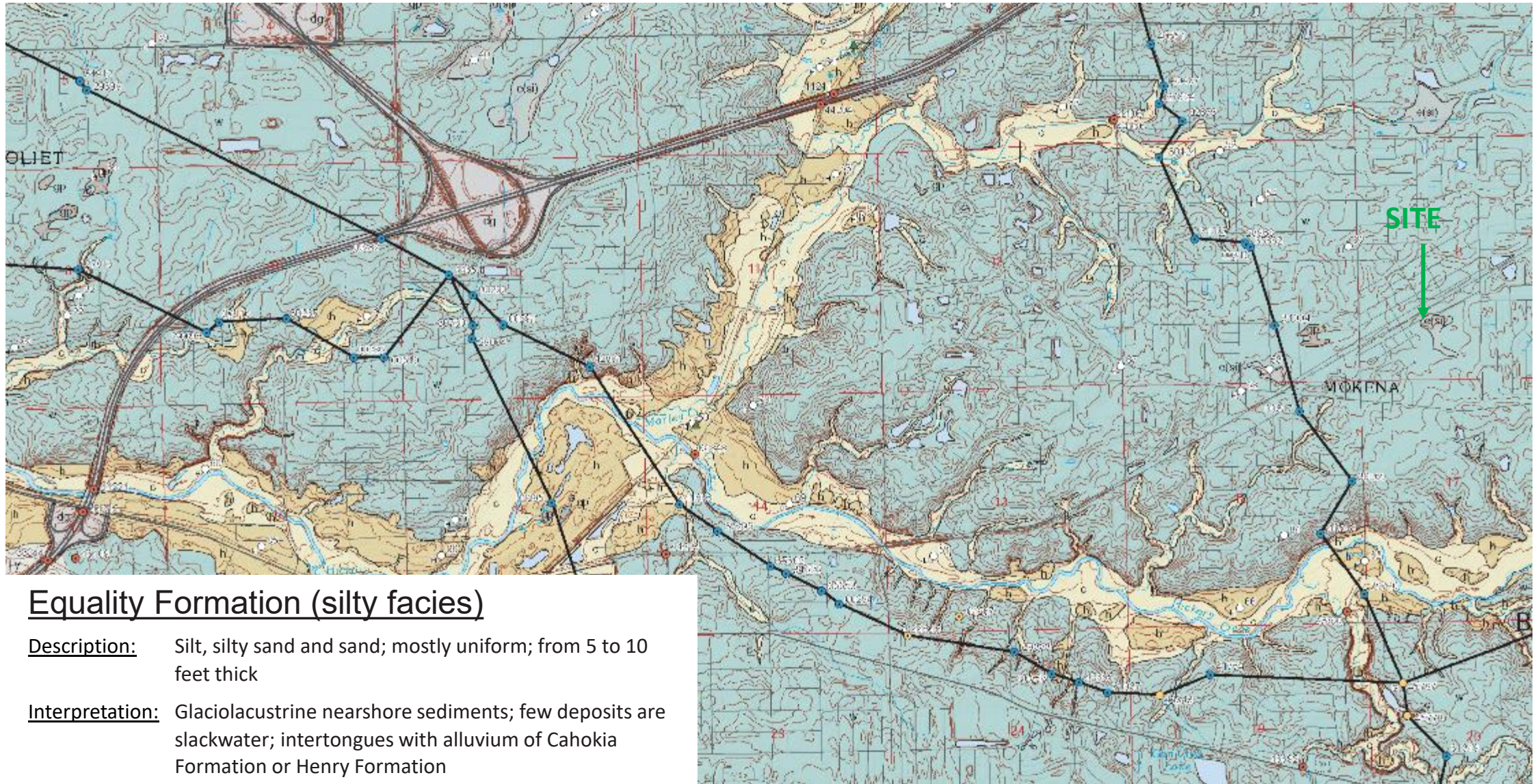
Lithostratigraphy of Will County and environs (Caron and Curry, 2016). The Batestown Member and the Tiskilwa Formation have not been identified in the Mokena 7.5' Quadrangle



Glacial Drift Thickness

75 to 100 feet thick

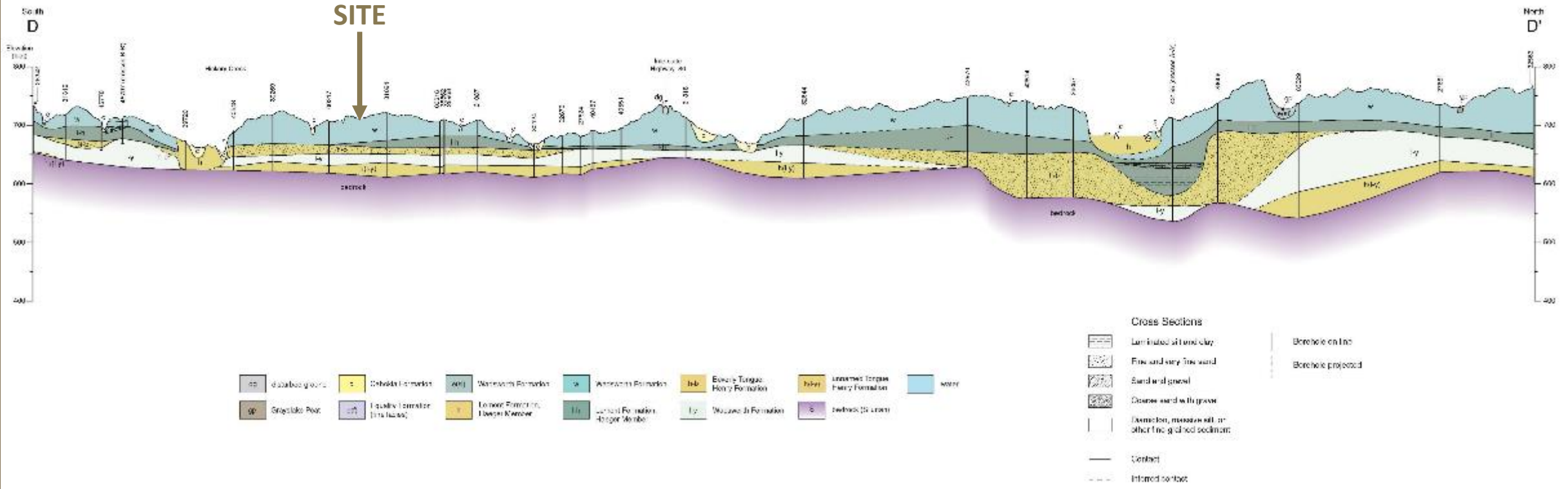




Equality Formation (silty facies)

Description: Silt, silty sand and sand; mostly uniform; from 5 to 10 feet thick

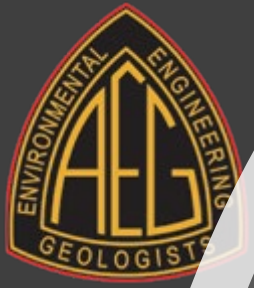
Interpretation: Glaciolacustrine nearshore sediments; few deposits are slackwater; intertongues with alluvium of Cahokia Formation or Henry Formation





Project Objectives

- Owner want to sell the site and the business
- Buyer wants “*clean bill of health*” in their words in order to purchase the property
- In Illinois, this means a No Further Remediation (NFR) determination from the IL EPA
- It also means entering the Site Remediation Program (SRP), a voluntary clean up program administered by IL EPA
- Objectives: Obtain an NFR for the site



Project Strategy

- Conduct the requisite investigations and reporting. In Illinois: Comprehensive Site Investigation Report (CSIR), Remediation Objectives Report (ROR), Remedial Action Plan (RAP)
- Enter the SRP
- Conduct Remediation
- Prepare Remedial Action Completion Report (RACR)
- Submit Reports to the IL EPA
- Respond to IL EPA comments
- Finalize documents, receive NFR, record NFR
- DONE!

Timeline

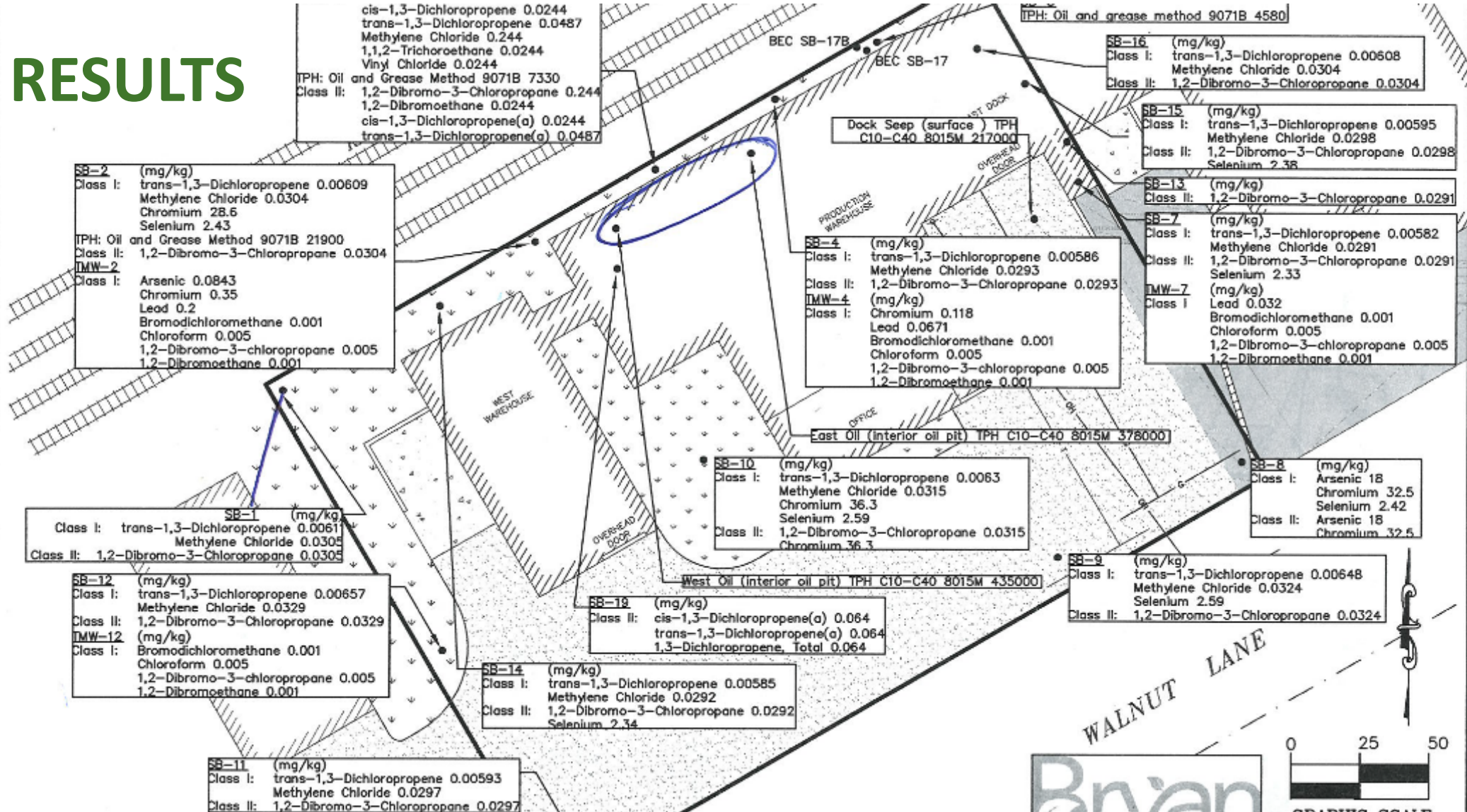
- 2018 – CSIR
- 2019 – Interim Remediation
 - Pump out sump pumps
 - Install injection wells for OSEII
 - Install recovery wells
 - Install recovery sumps
- 2020 – Interceptor Trenches
- 2020 – Remove Concrete Floor, remove subbase, pump additional oil, spread HTP, conduct confirmation sampling, complete RACR, enter SRP, submit reports

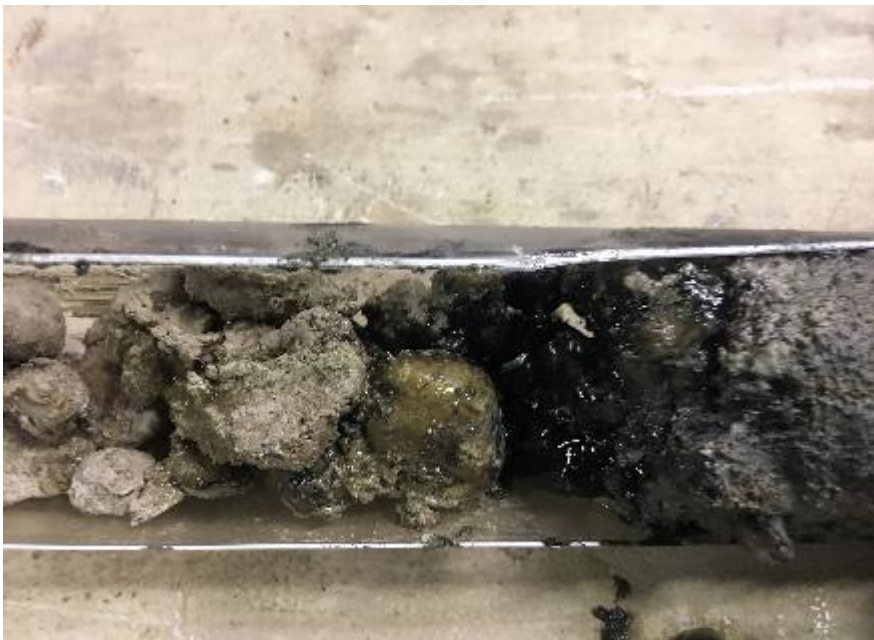
Site Investigation

- Install soil borings
- Install temporary monitoring wells
- Collect soil and groundwater samples
- Fingerprint oils used in operations
- Fingerprint oils found in the subsurface
- Laboratory analysis of soil and groundwater samples
- Used TRPH as indicator of oil contamination

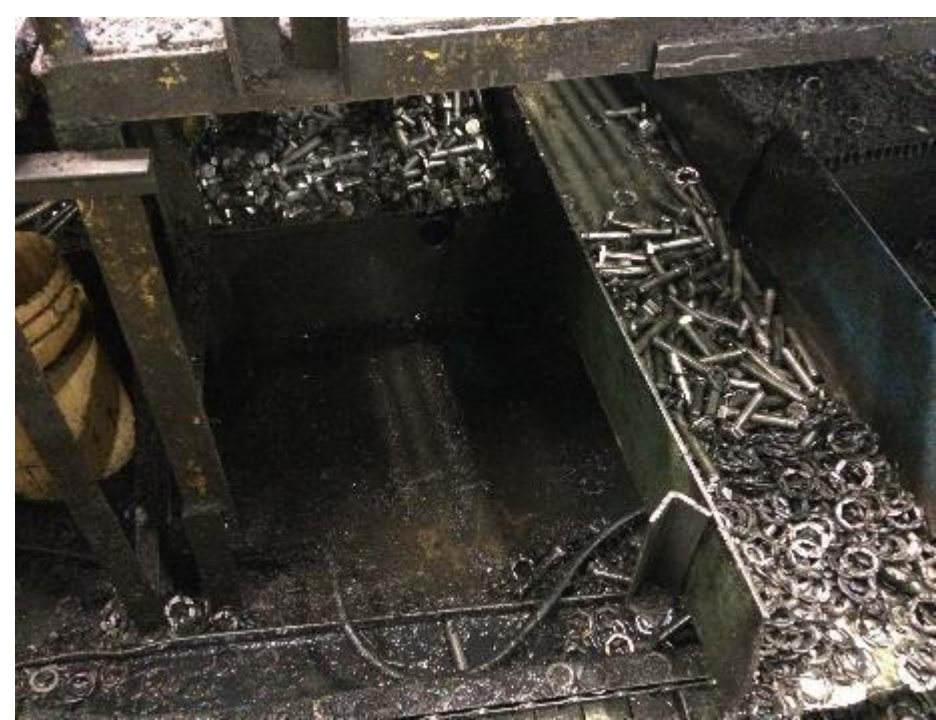


RESULTS





Found



Interim Remediation Strategy

Installed 6 interceptor trenches; bottom of trench was near the top of the clay layer

Pumped oil from the trenches – 3,000 gallons oil pumped to tote on first day

Trenching revealed oil beneath the entire building

Installed 33 injection points to “flush” oil to trenches

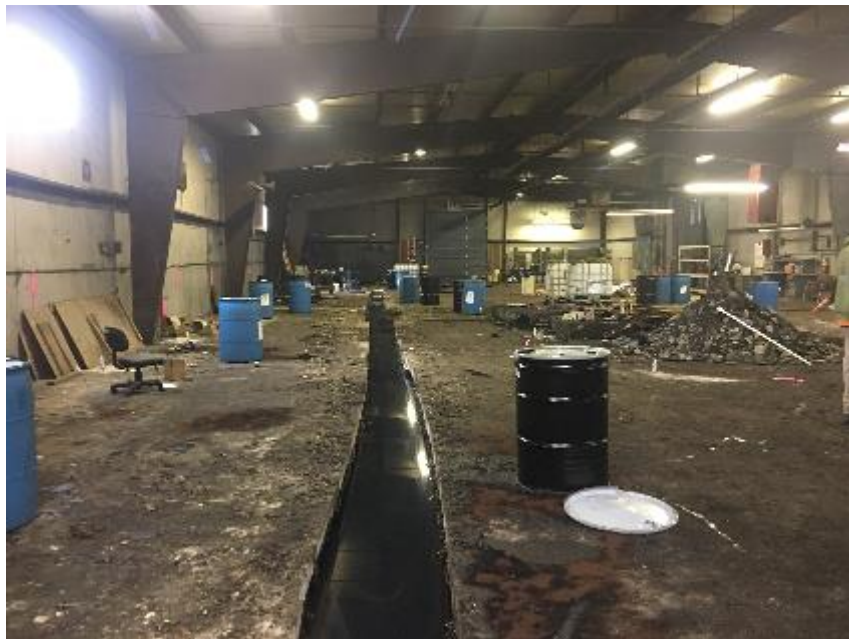
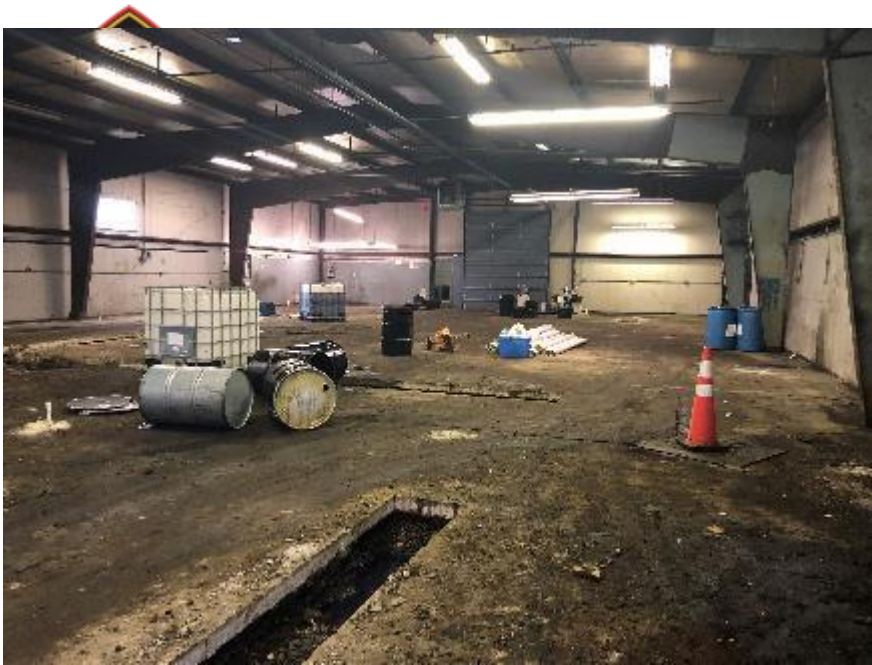
Pumped trenches again




To remove oil from beneath the slab, installed injection wells and extraction wells, used existing sumps while plant was still operating



Interceptor Trenching



OSEI Injection



ENVIRONMENTAL CONSULTANTS, INC.





Change in Strategy

- New Owner, with a quicker time-frame
- Remove concrete floor and subbase
- Pump to totes any remaining free product
- Install poly sheeting over new gravel base
- Pour new concrete floor



HTP spread in areas with potential residual oil

Before new floor

Final Days - more oil along loading dock wall,





Outcome: Clean usable building



The End

- Special thanks to CABENO Environmental Services, Inc.
- PACE Analytical Labs

