Newtown Creek OU1 Lateral Groundwater Investigation – Technical Approach

Newtown Creek Superfund Site

Queens and Brooklyn, New York City

April 20, 2022

Investigation Objectives

- Improve characterization of shallow lateral groundwater flow and contaminant loading to the study area, including discharge of contaminants of concern (COCs).
- Improve the Conceptual Site Model (CSM) for shallow lateral groundwater flow and contaminant discharge to the study area.
- Provide critical information regarding the shallow lateral groundwater flow characterization to support decisions for the Feasibility Study (FS).

Investigation Approach

Determination of Study Locations

- Select Unbiased Locations
- Review Existing Property Information
- Reconnaissance and Inspection of Existing Well Infrastructure
- Finalize Monitoring Well Network

Installation of Monitoring Well Network

- New Well Installation
- New and Existing Well Development
- Installation of Tide Gauges
- Survey
- IDW Management

Hydraulic Characterization

- Long-Term Water Level Monitoring
- Slug and Specific Capacity Tests
- Groundwater Velocity Measurements

Water Quality Characterization

- Shoreline Monitoring Well Sampling (Two Rounds)
- Shoreline Assessment and Opportunistic Seep Sampling
- Opportunistic NAPL Sampling

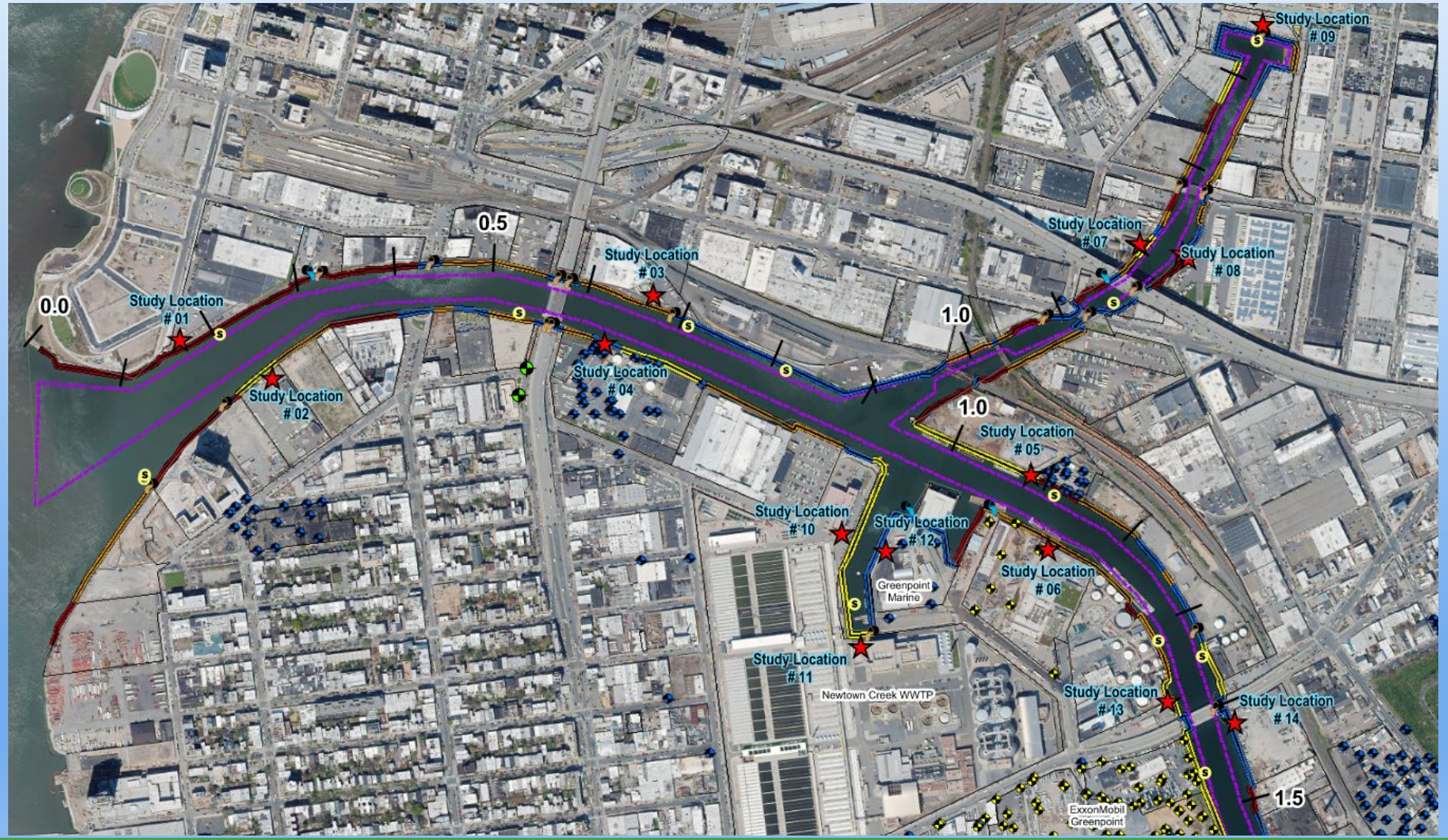
Study Locations

- Adequately define representative lateral groundwater flow conditions
- Study location – area where monitoring well pairs or well clusters may be installed
- Target spatial density calculated 32 initial shoreline study locations
- Initial study locations were evaluated for other factors – feasibility and access
- Determine if existing monitoring wells are adequate for the study or if new monitoring wells need to be installed
- Final monitoring well network selected to provide a representative set of the various shoreline types/structures

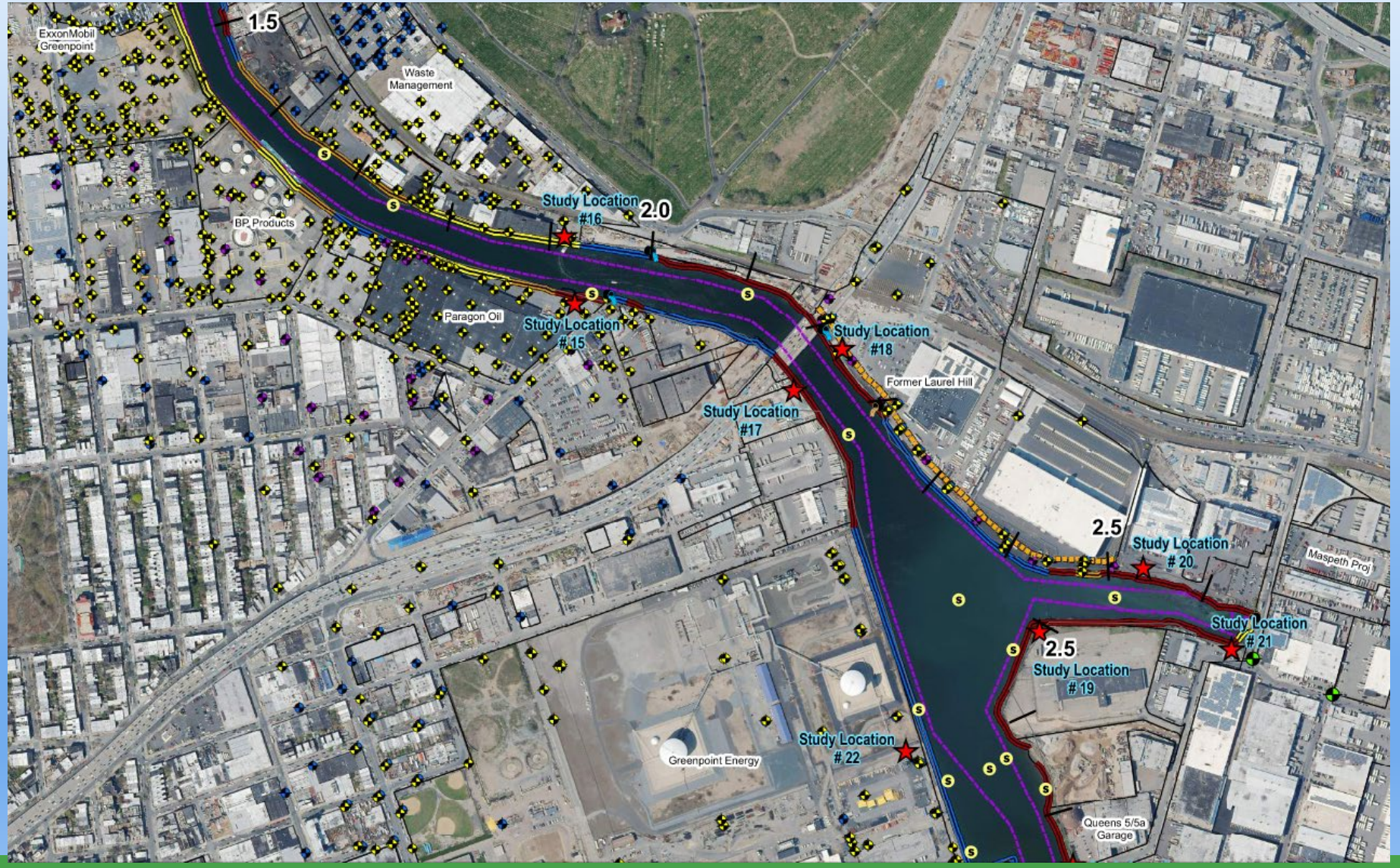
Shoreline Types

- Newtown Creek representative shoreline types
  - **Permeable** – Riprap, Bare Ground, Pile-Supported Concrete, Precast Concrete Blocks, Vertical Wood Bulkheads (approximately 17 study locations)
  - **Shallow Barrier** – Vertical Concrete, Vertical Concrete with Wood Bulkhead, Shallow, Remediation Barrier/Grout Curtain (approximately 5 study locations)
  - **Deep Barrier** – Steel Sheet Pile Bulkhead (approximately 10 study locations)

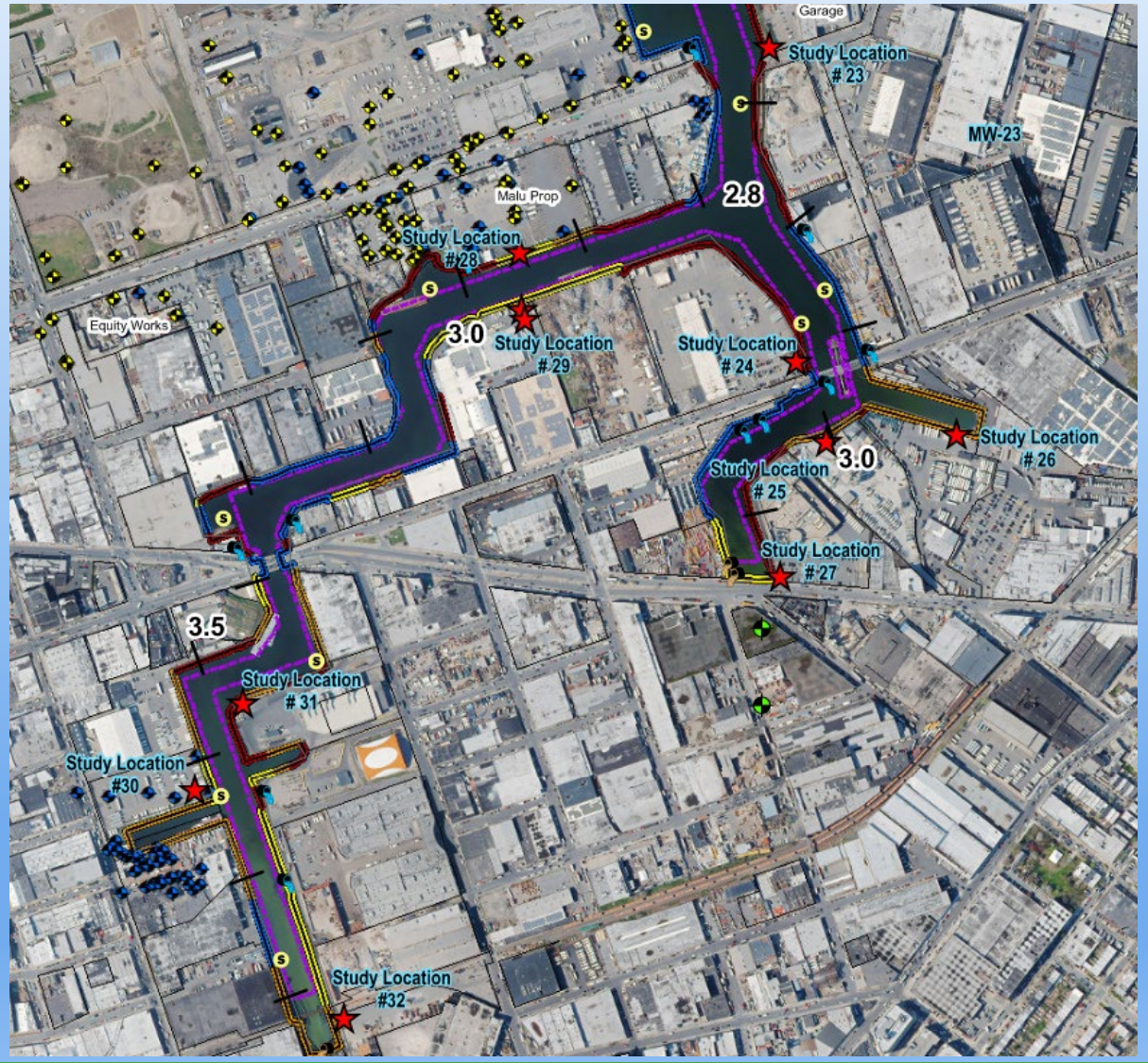
Investigation Locations



Investigation Locations



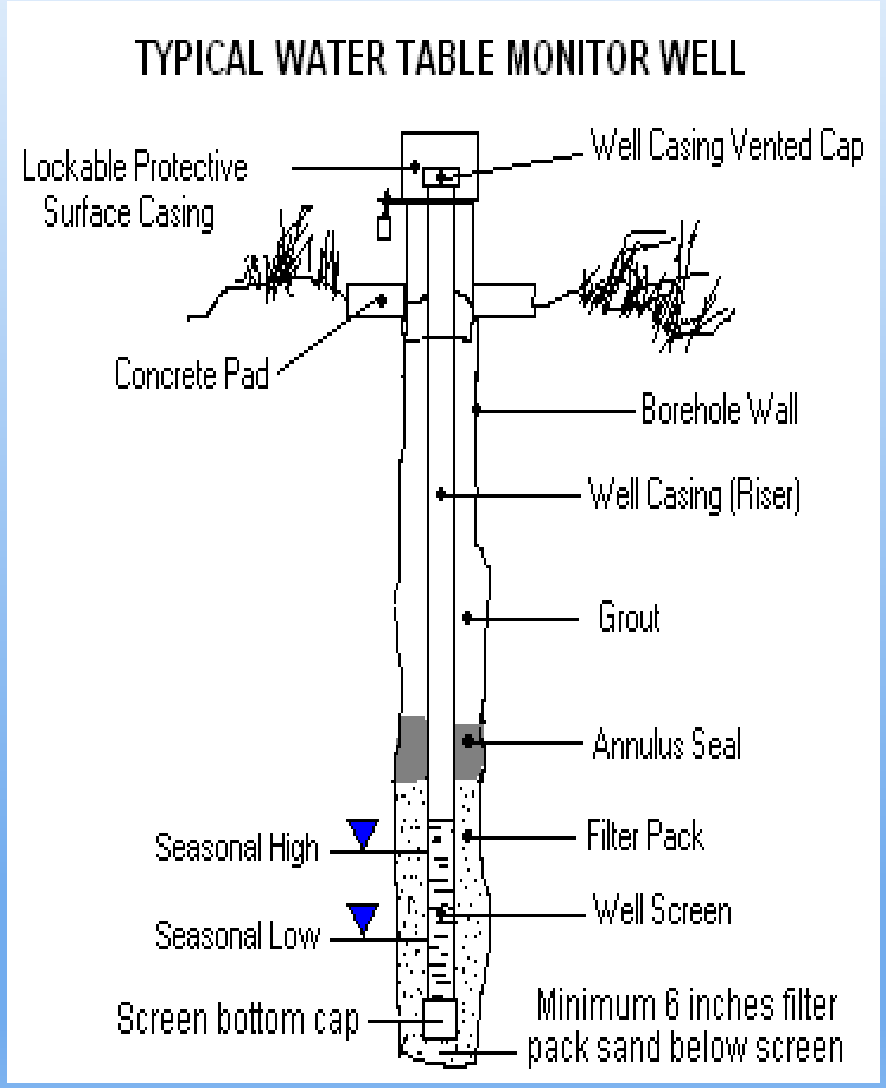
Investigation Locations



Installation of Monitoring Well Network

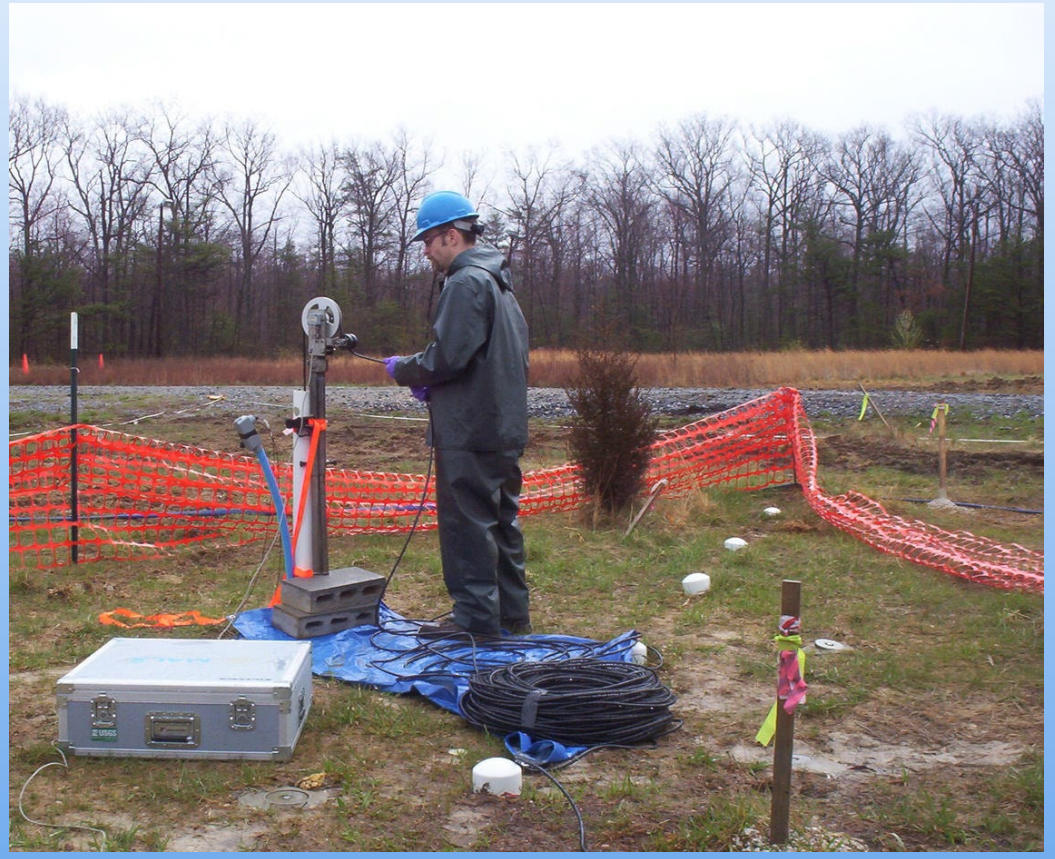
- Monitoring well installation and development
  - 2 shallow water table wells at each study location
  - 1 deeper well at 20-30% study locations

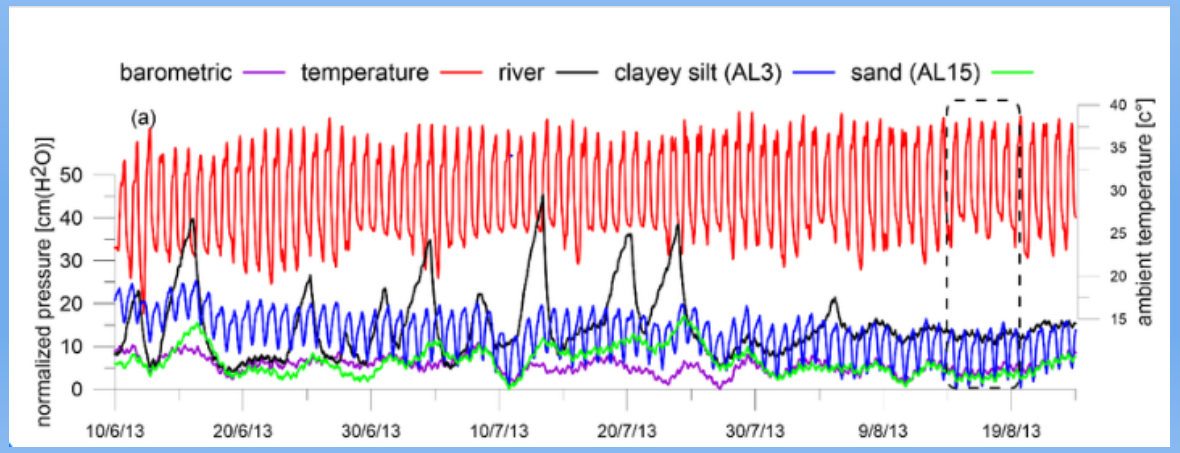
Typical Shallow Monitoring Well Network



Hydraulic Characterization

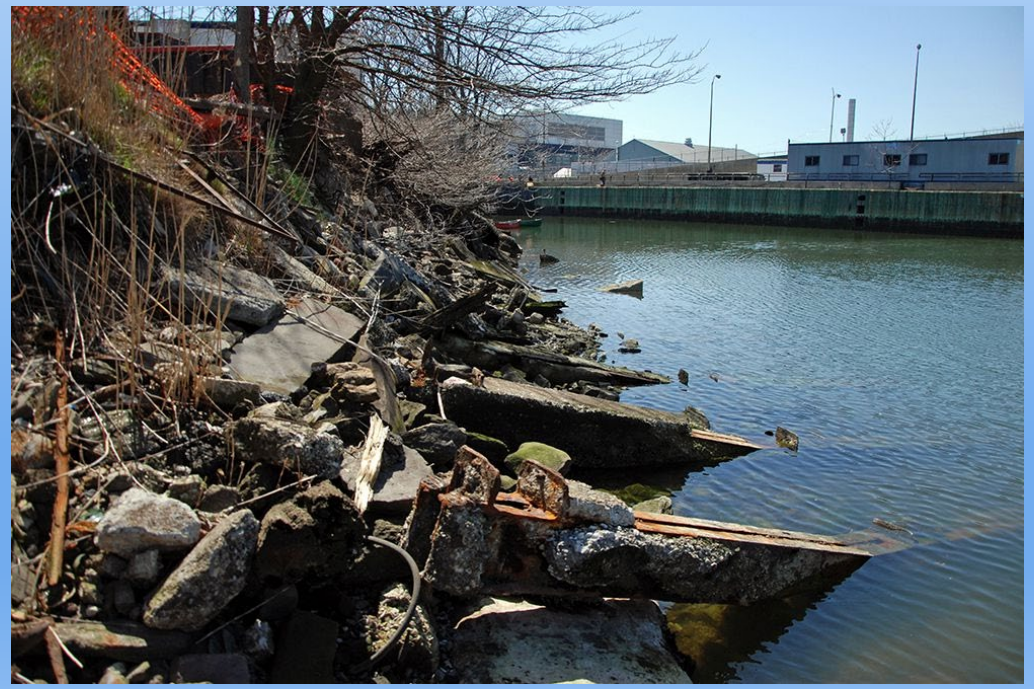
- Hydrogeologic Testing – slug tests and specific capacity tests
- Groundwater velocity measurements (heat pulse flow meters and passive flux meters)
- 1 year of continuous water level measurements via transducers





Groundwater Quality Characterization

- Groundwater sampling – two rounds in Winter and Spring
- Opportunistic shoreline seep sampling
- Non-aqueous phase liquid (NAPL) sampling (if encountered)
- Sampling for COCs consistent with the Remedial Investigation (RI)



Tentative Schedule

- Held workshops with NYSDEC, NYCDEP, and the NCG
- Reviewed feedback for incorporation into the work plan
- Tentative Schedule
  - Mobilization – Late May
  - MW installations – Summer 2022
  - Hydraulic Characterization – Fall 2022
  - Groundwater Qualtiy Characterization – Winter 2022/Spring 2023
- Schedule subject to change based on access
- Data will be presented in a Data Summary Report and incorporated in the FS