



**NY - GEO 2024**  
October 22 -23 | BROOKLYN, NY



# **Geothermal Drilling in an Urban Environment**

**Moderator: Brock Yordy / *The Developed Well Group***

**Speakers: Michael Scanlon / *P.W. Grosser***

**Garret Carrino / *American Well***

**Kim Ojanne / *Rototec***

**Andy Capelle / *Allied Geothermal***

**Scott Adelsbach / *Geothermal Drilling Solutions***

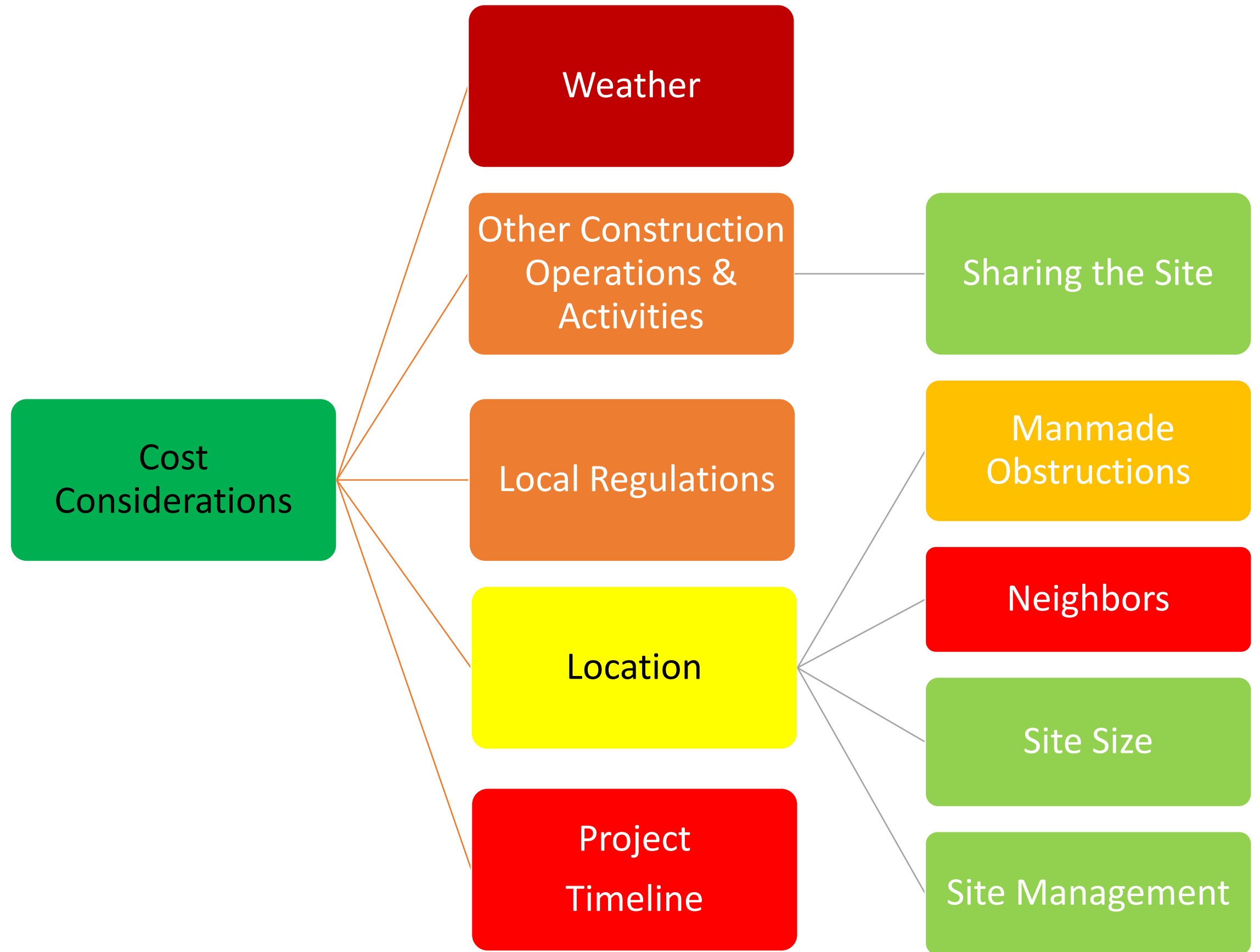
**Gino Di Rezze / *Groundheat***



# Location

- Site Size
- Site Restrictions
  - Roads
  - Hours of Operation
  - Regulations
- Site Management
  - **Neighbors**
  - Regulations
    - Site Waste
    - Environment
  - Natural Obstructions
  - Manmade Obstructions

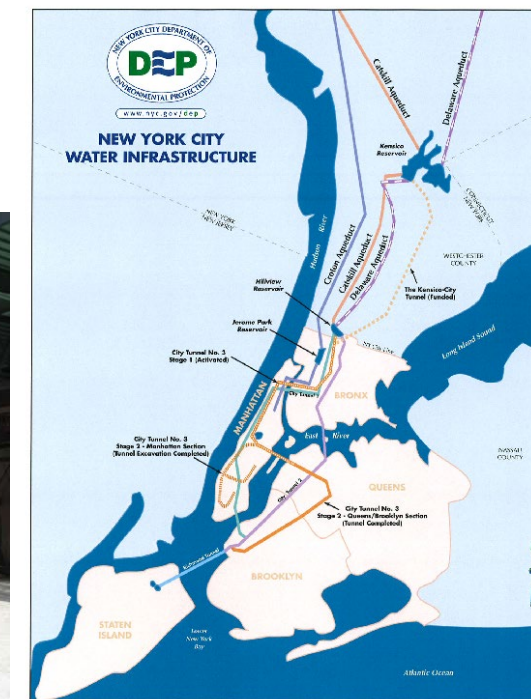
# Urban Drilling Consideration



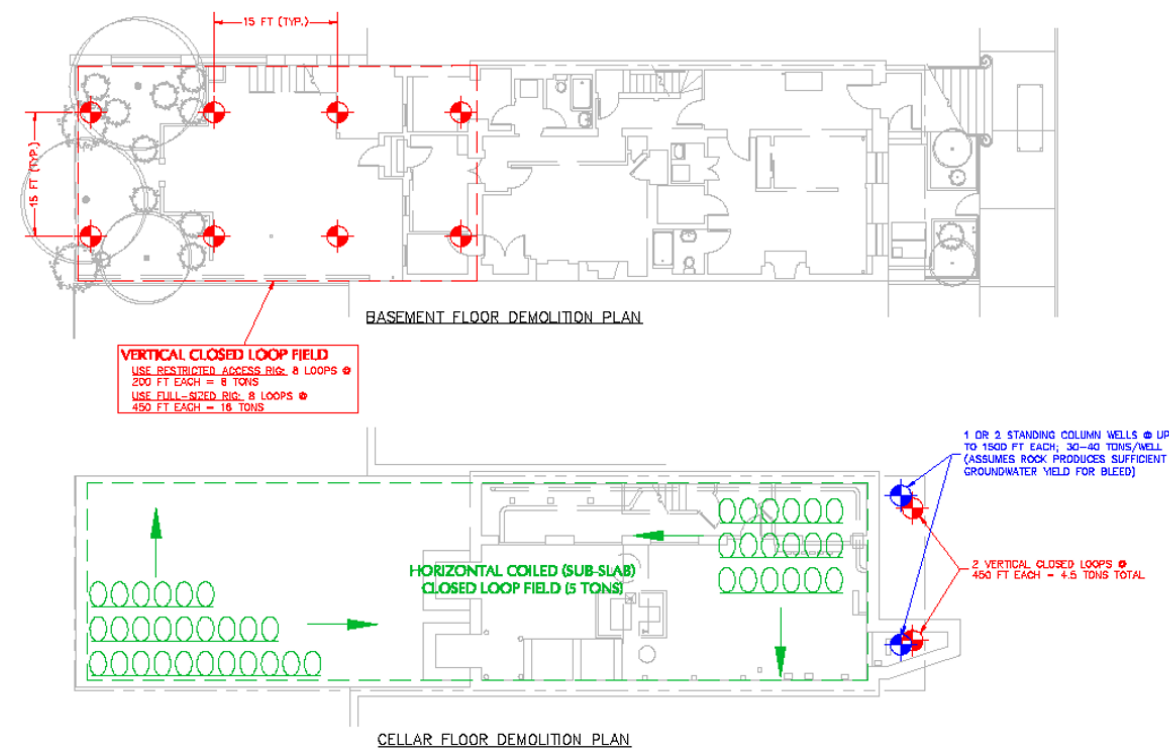
# Site Constraints

- Limited Site Footprint**
  - Renovation - Limited outdoor areas for drilling or basement installation shallower depths
  - New Construction – How much of site will be open and accessible for drilling during construction
  - New Construction – Can loops/wells be installed below the building
- Municipal Setbacks**
  - Property lines, Utilities, Drift Considerations
  - NYC Water Tunnels
  - NYC Subways – MTA Approval if drilling within 200'
  - If drilling in sidewalks need DOT approval for sidewalk and potentially lane closure
- Geologic Concerns**
  - Based on formations are Standing Column Wells or Closed Loops Feasible?
  - Resources: USGS, Municipal GIS, Test Bore Installation, NYC Geothermal Screening Webtool (Pre-Feasibility)
- Water Handling**
  - Permit required to discharge to municipal sewer (NYC DEP Sev Approval)

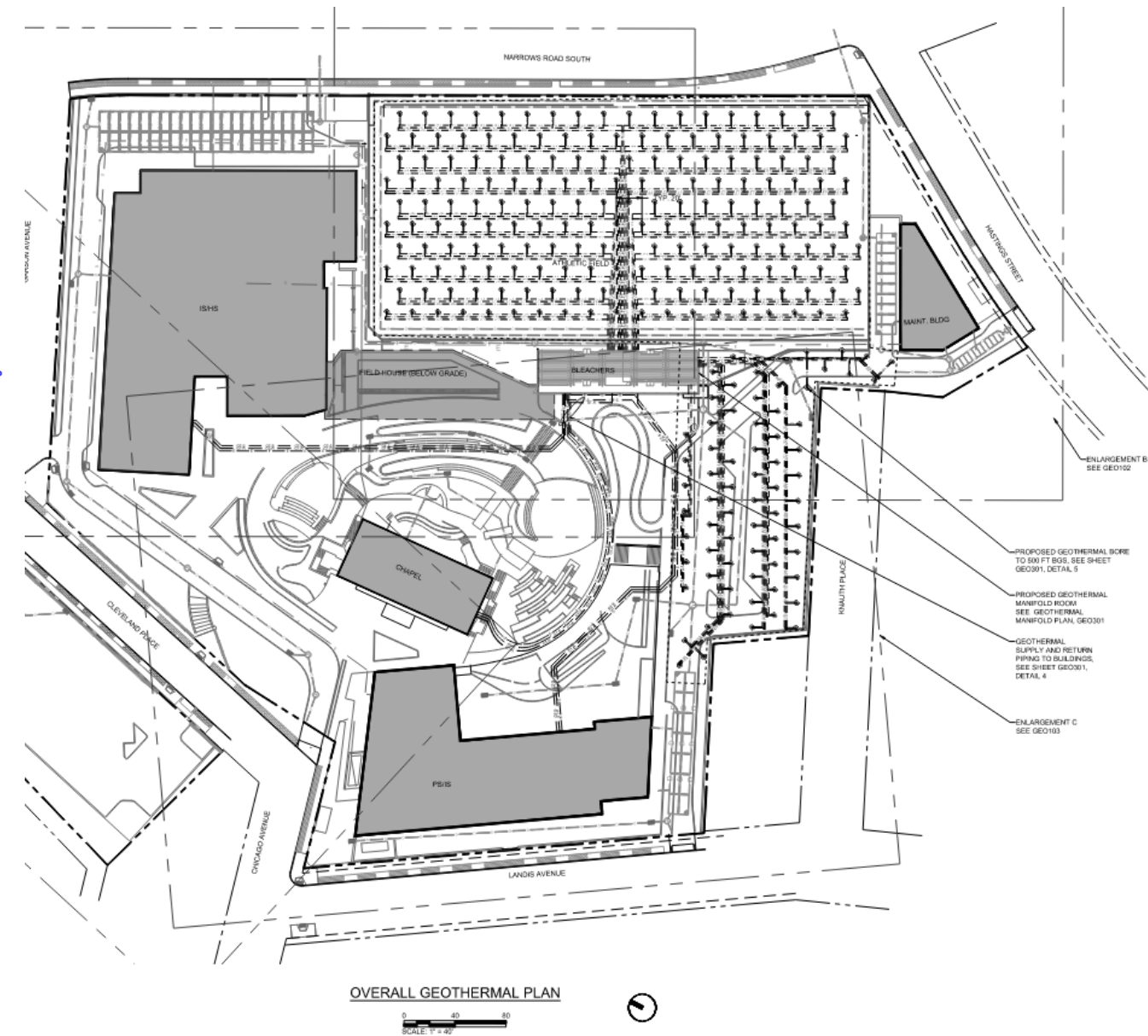
\*\*The feasibility study typically involves estimating what loads can the site actually supply, rather than where/how to locate the well/loop field to serve the entire facility demand\*\*



## Example Layouts



- Gut renovation of Manhattan high-end townhouse
- 30 ton load - options for SCWs, vertical closed loop, and sub-slab Slinkie systems



- Geothermal Layout for Multi-Building Renovation/New Construction – Staten Island
- Approximately 900 tons, closed loop system

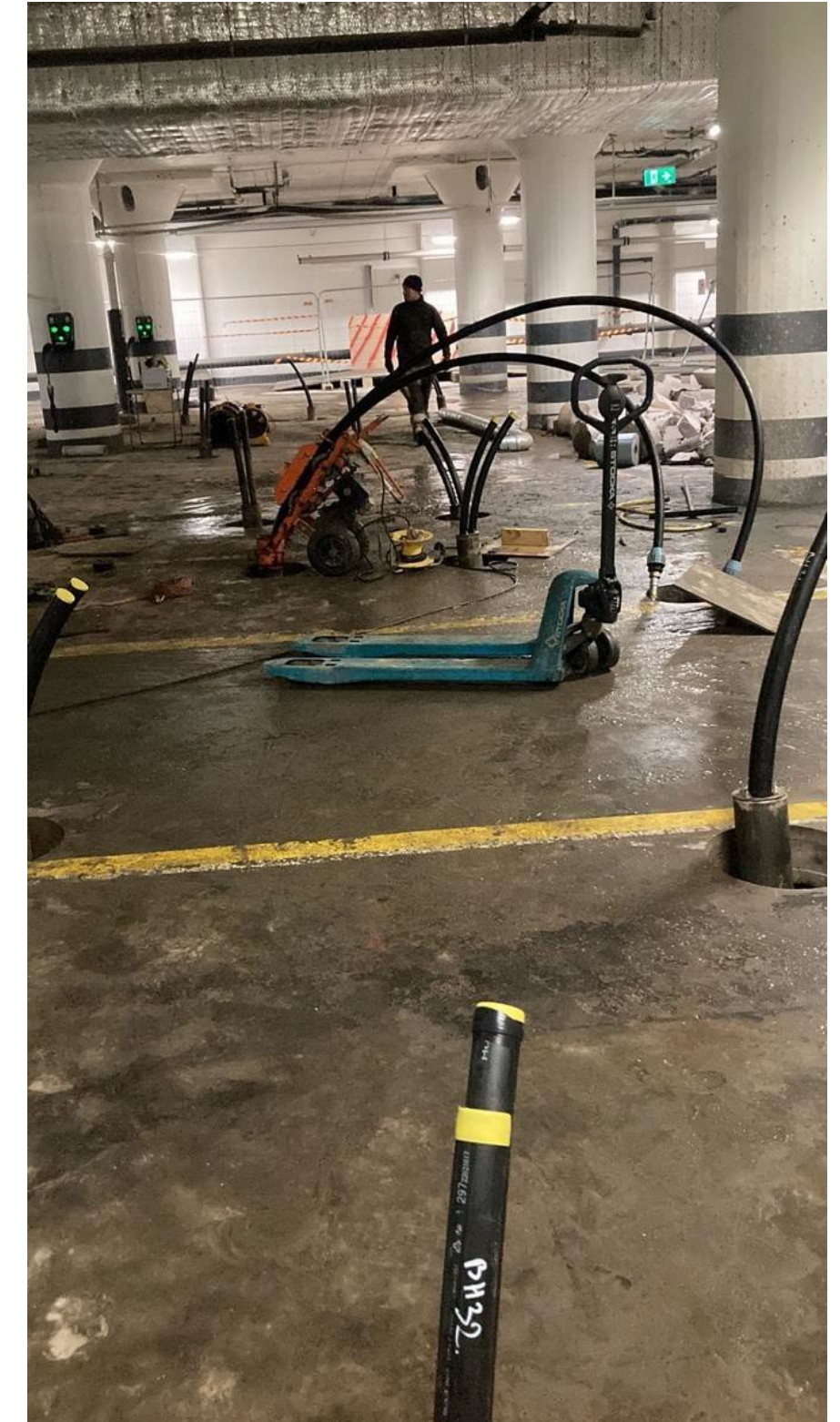


American Well & Pump

# Urban Drilling: Boreholes under the Building

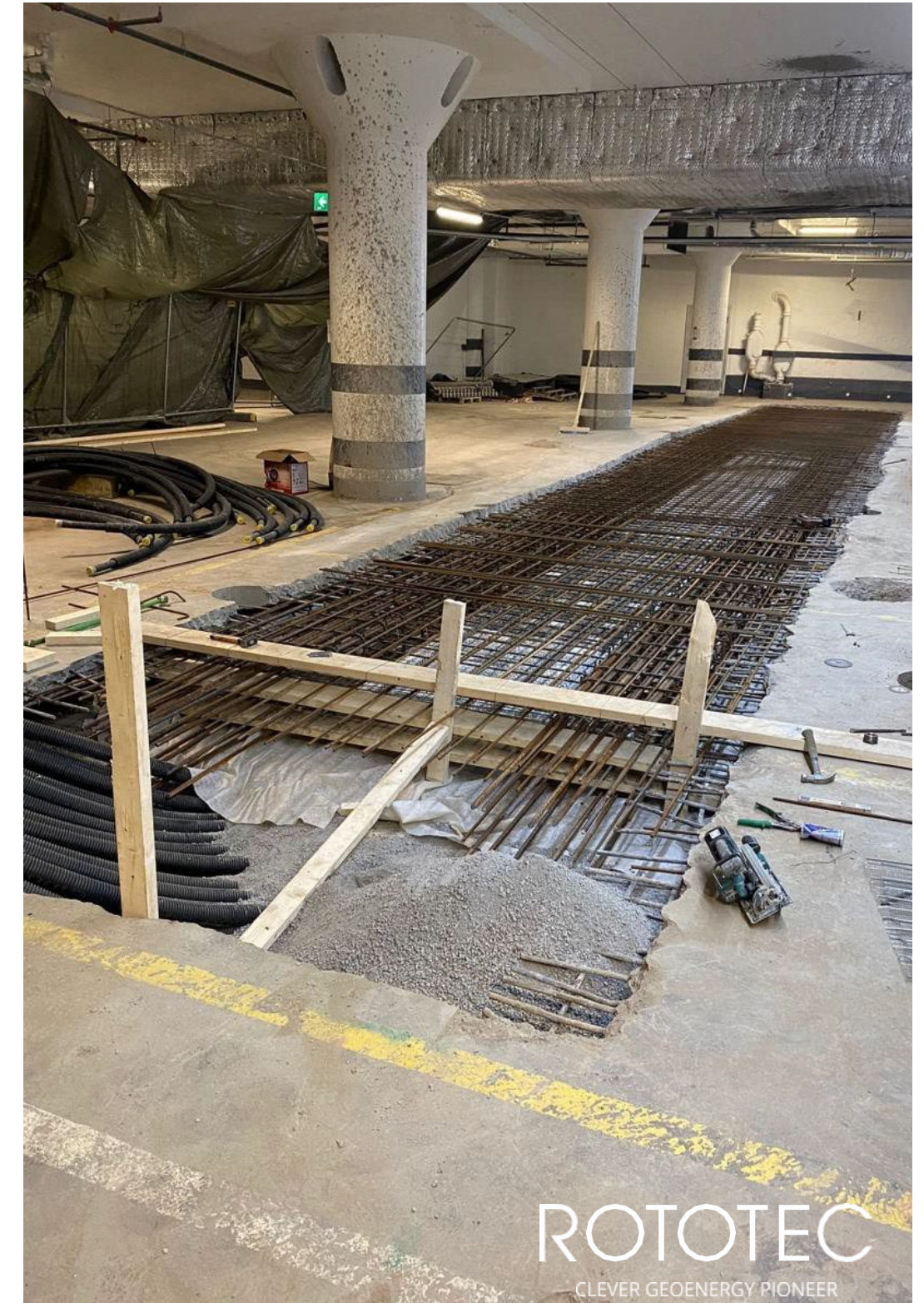
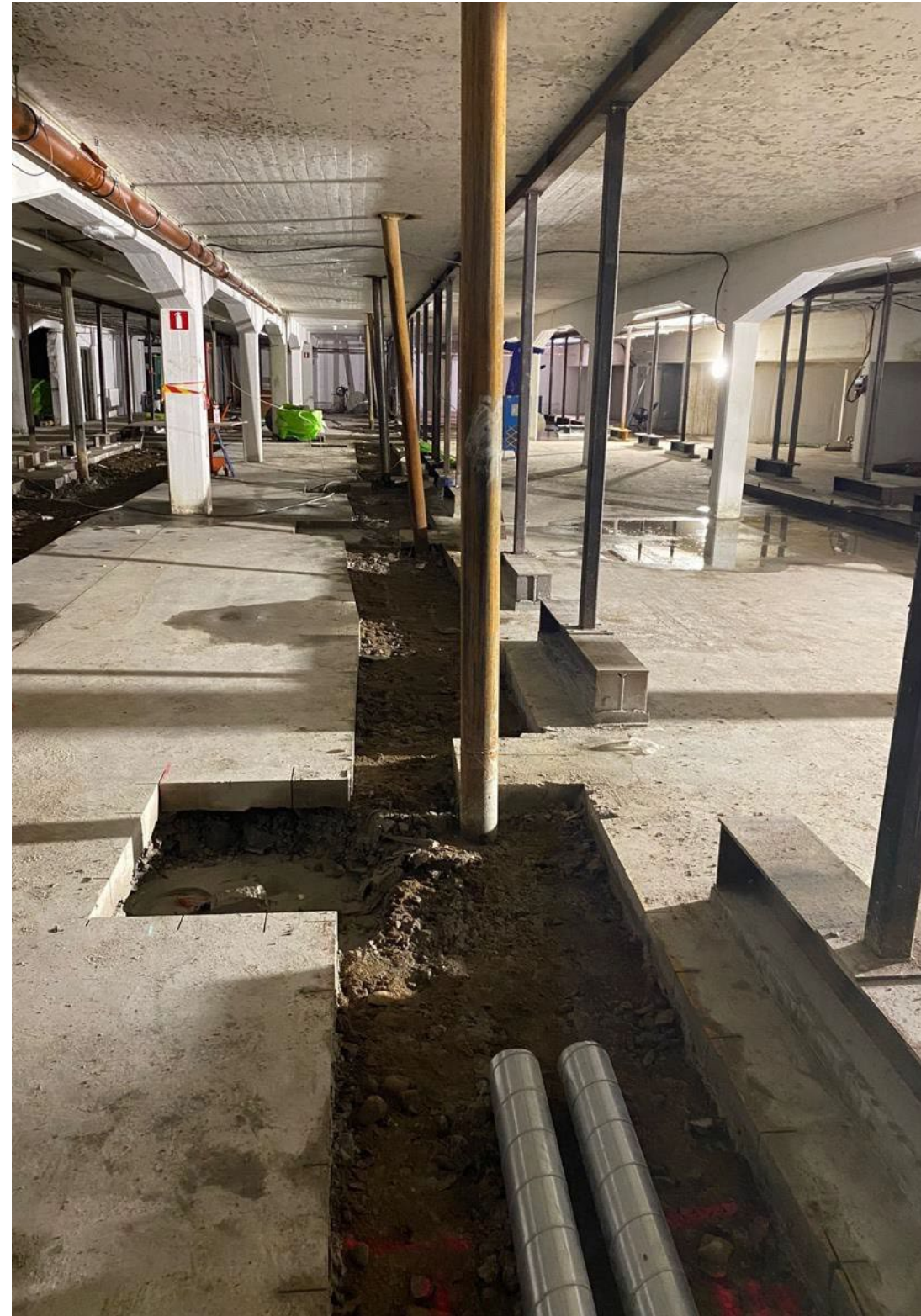
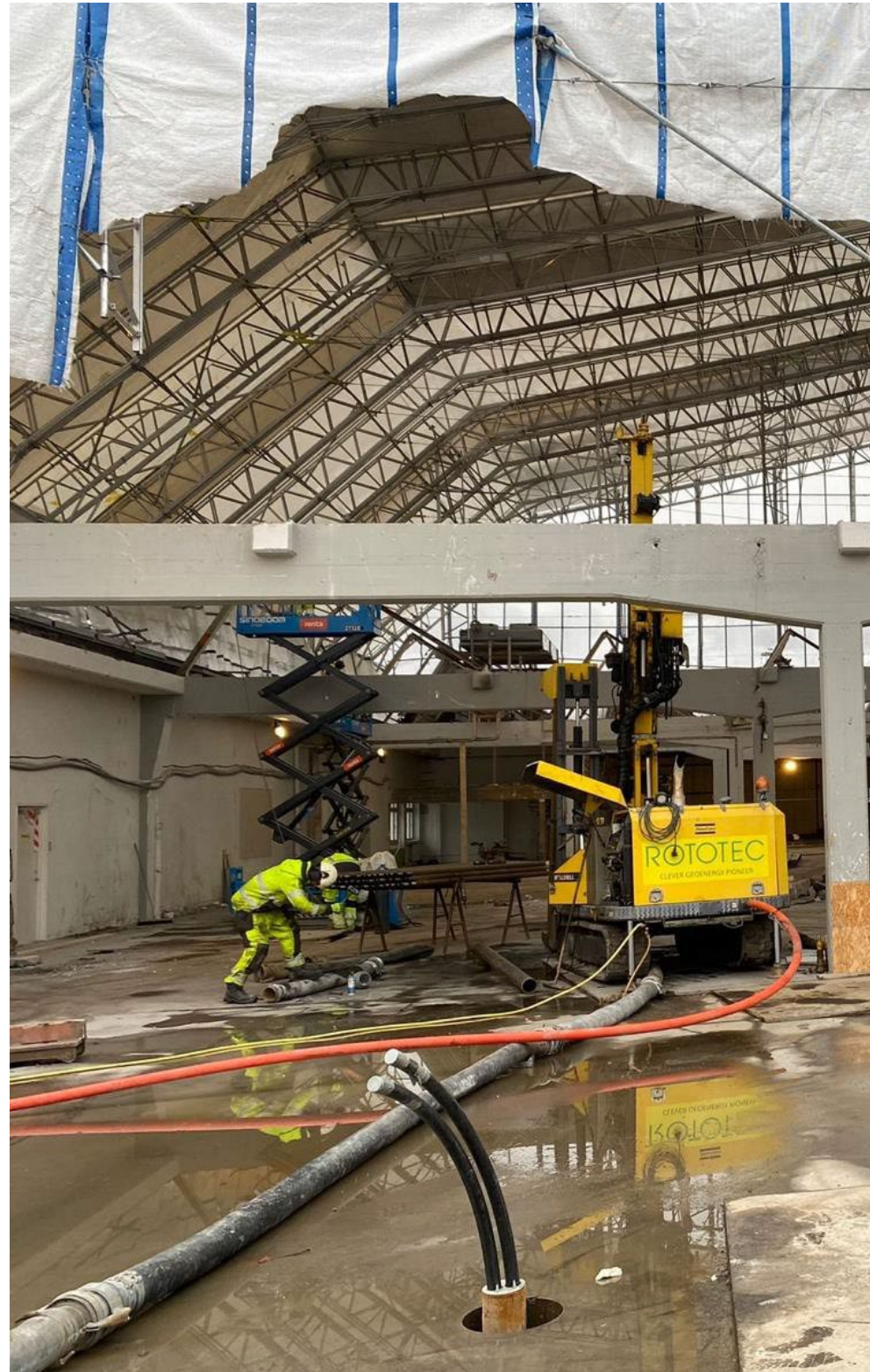


# Urban Drilling: Boreholes in the Basement





# Urban Drilling: Boreholes on First Floor



ROTOTEC  
CLEVER GEOENERGY PIONEER

# Urban Drilling: Boreholes in the City





Allied Geothermal



# Geothermal Drilling Solutions





# Geothermal Drilling Solutions

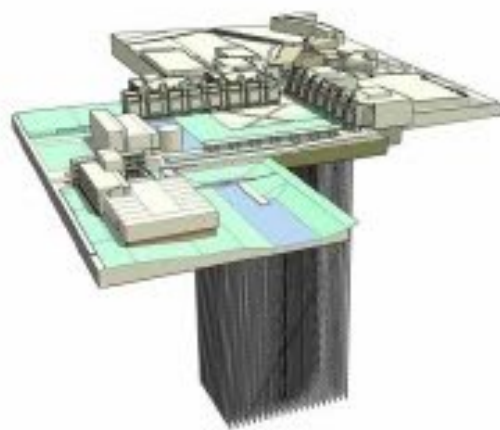


**GROUNDHEAT**

# DISTRICT GEOTHERMAL SINCE 1985

*Some Key Geothermal Projects*

Largest in N. America  
2005: Oshawa, Canada



Largest in Europe  
2014: Rome, Italy



Largest in Canada  
2018: Waterloo, Ontario



**COMING SOON**  
**ThermaStor Solutions**



The Well

Vatenfall



Palm Island

Noventa Shaft



Hydro One



Data Centre

1999 Theatre - USA



First Geothermal  
Performing Arts

2008 Ikea - Italy



First Ikea  
Outside of Sweden

2010 Walmart - Canada



First Walmart  
Geothermal Worldwide

**DRILLING → INSTALLATIONS → DESIGN BUILD → ENGINEERED → PROJECT MANAGEMENT → SINCE 1985**

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