



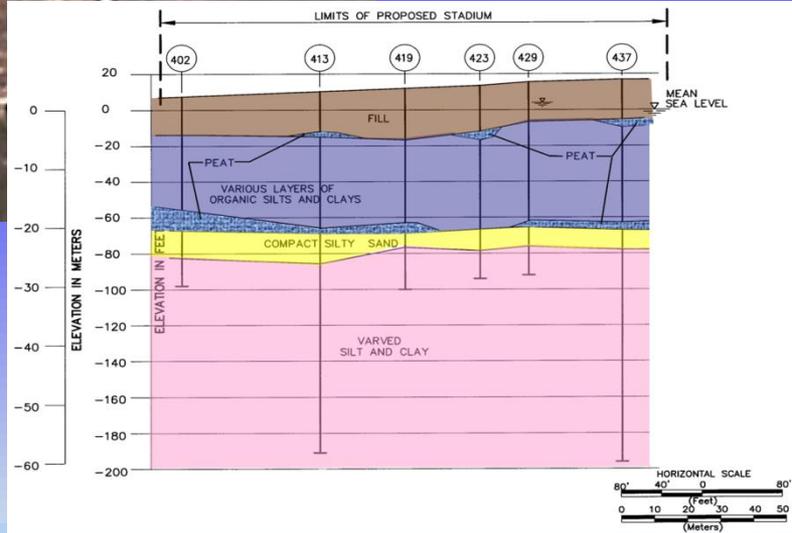
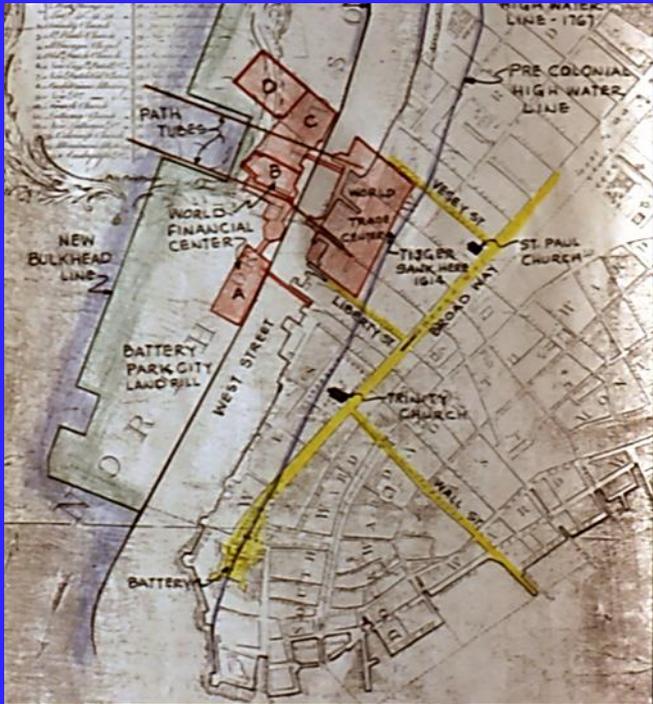
NOTHING TEMPORARY HERE: GAIN EFFICIENCY BY INTEGRATING EXCAVATION SUPPORT AS PERMANENT FOUNDATION

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CONCEPTUAL PHASE

- Desk-Top Study
 - Site Investigation
 - Identifying site characteristics
 - Providing the design team with options
-





WE NEED TO ANSWER:

- How complicated is the site?
- What are the demands of the structure?
- What are the demands of the project?
- How efficient can we make the process?





UNDERSTANDING THE OPTIONS

Traditional Methods

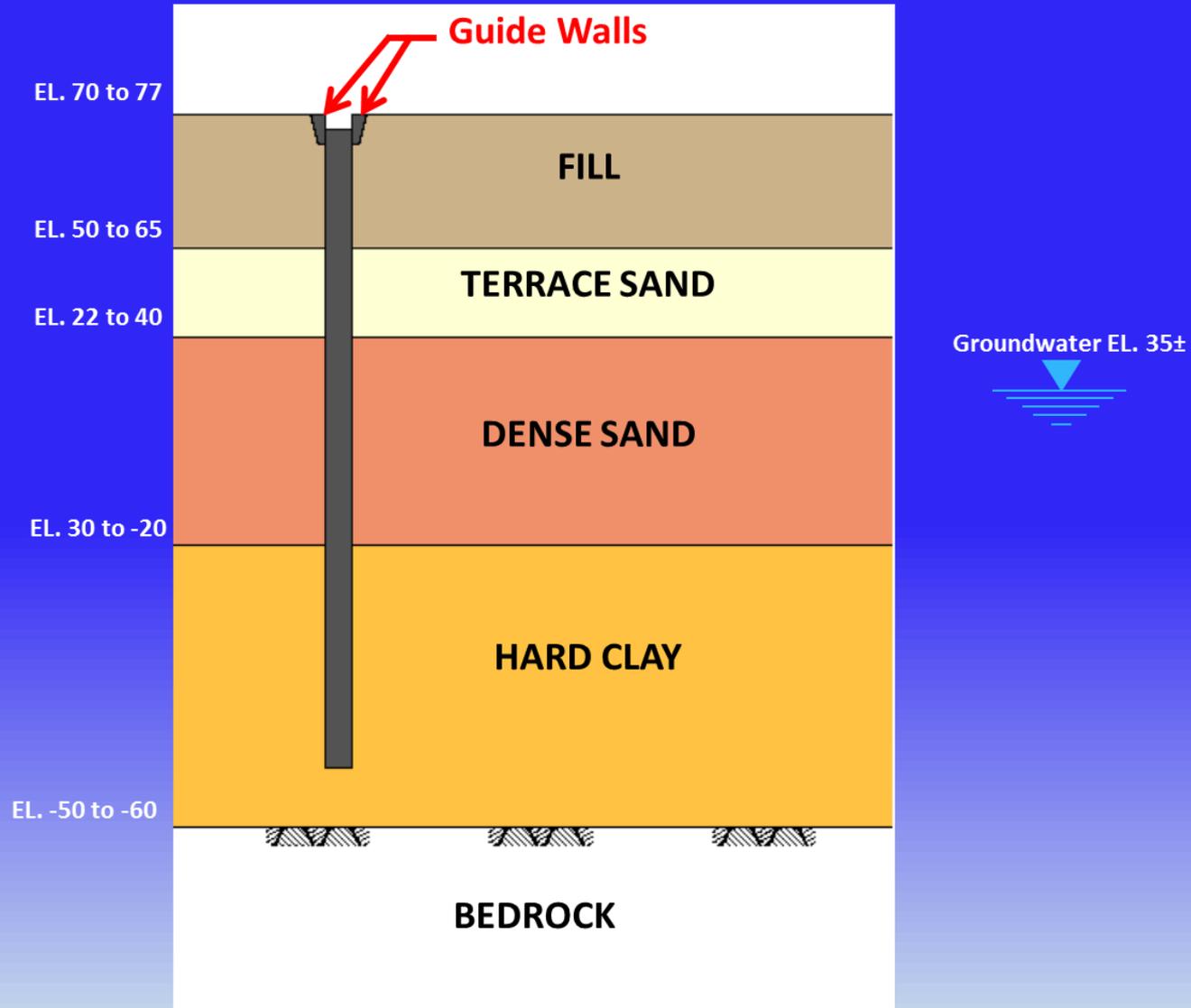


CASE STUDY

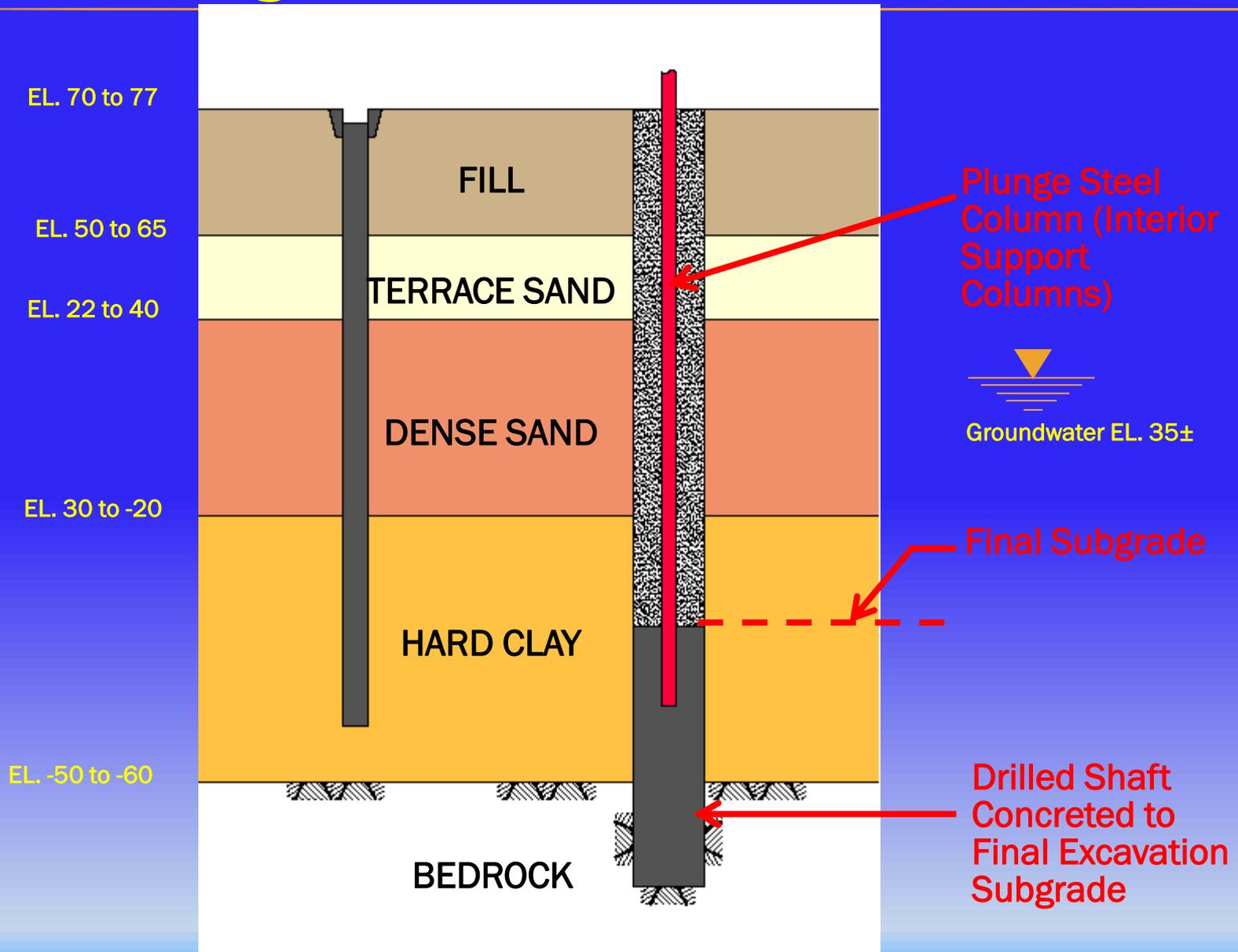
Top-Down Construction

of an integrated support-of-excavation and foundation system resulted in a successful 29.5 meter (97 feet) deep excavation.

Diaphragm Wall Construction (Supports Exterior of Building)



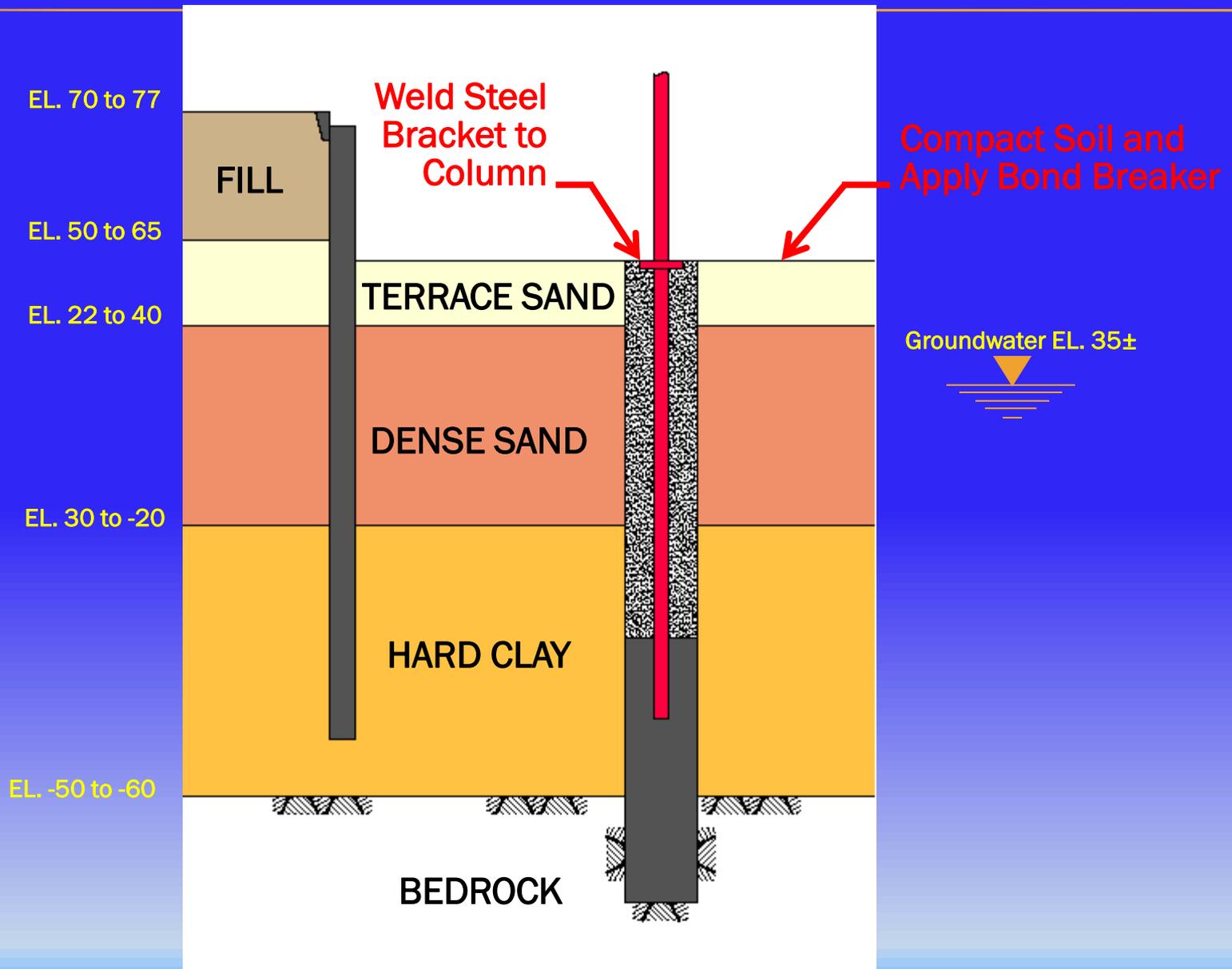
Drilled Shaft Construction and Plunge Columns Installation



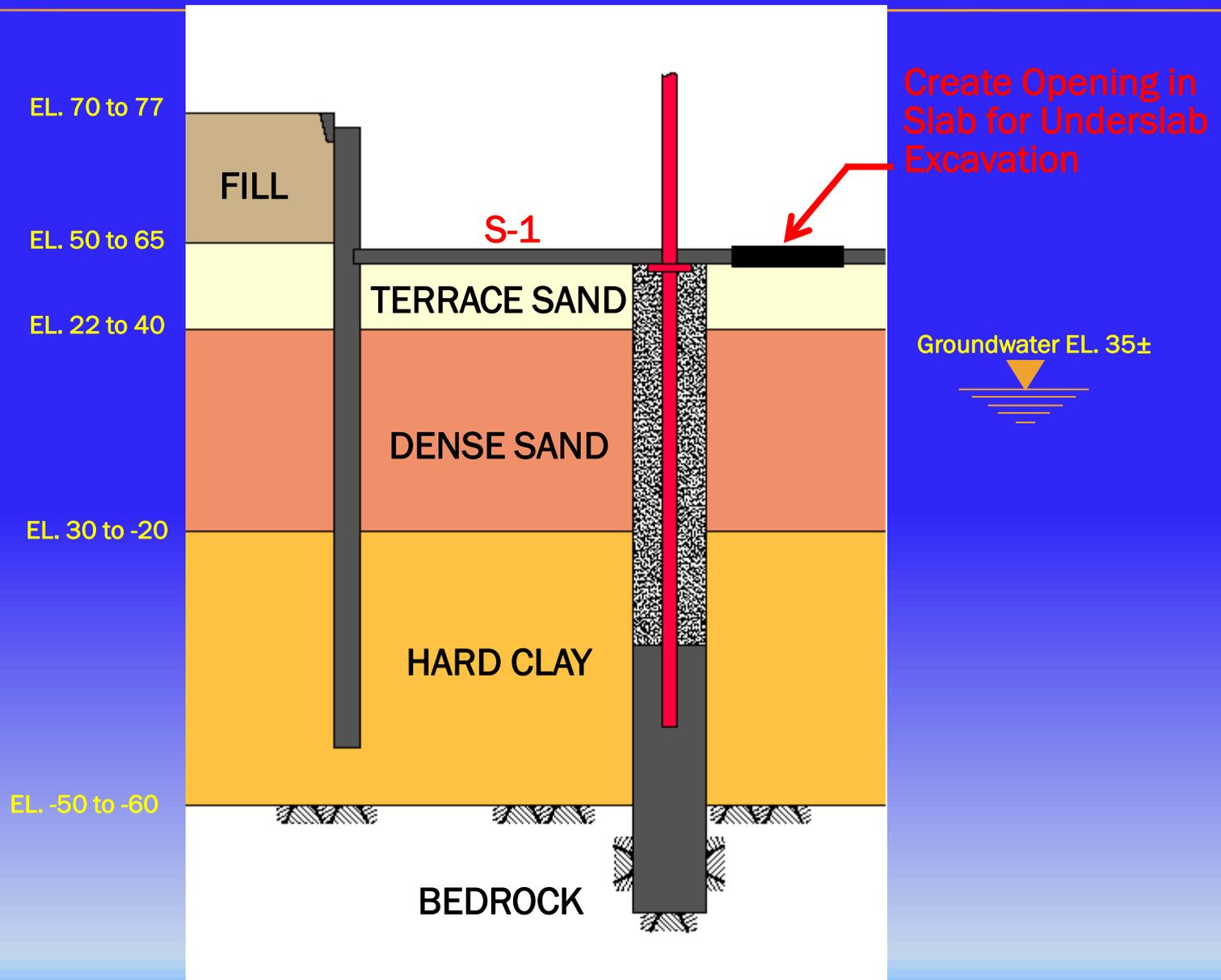
Plunge Steel Columns Installed



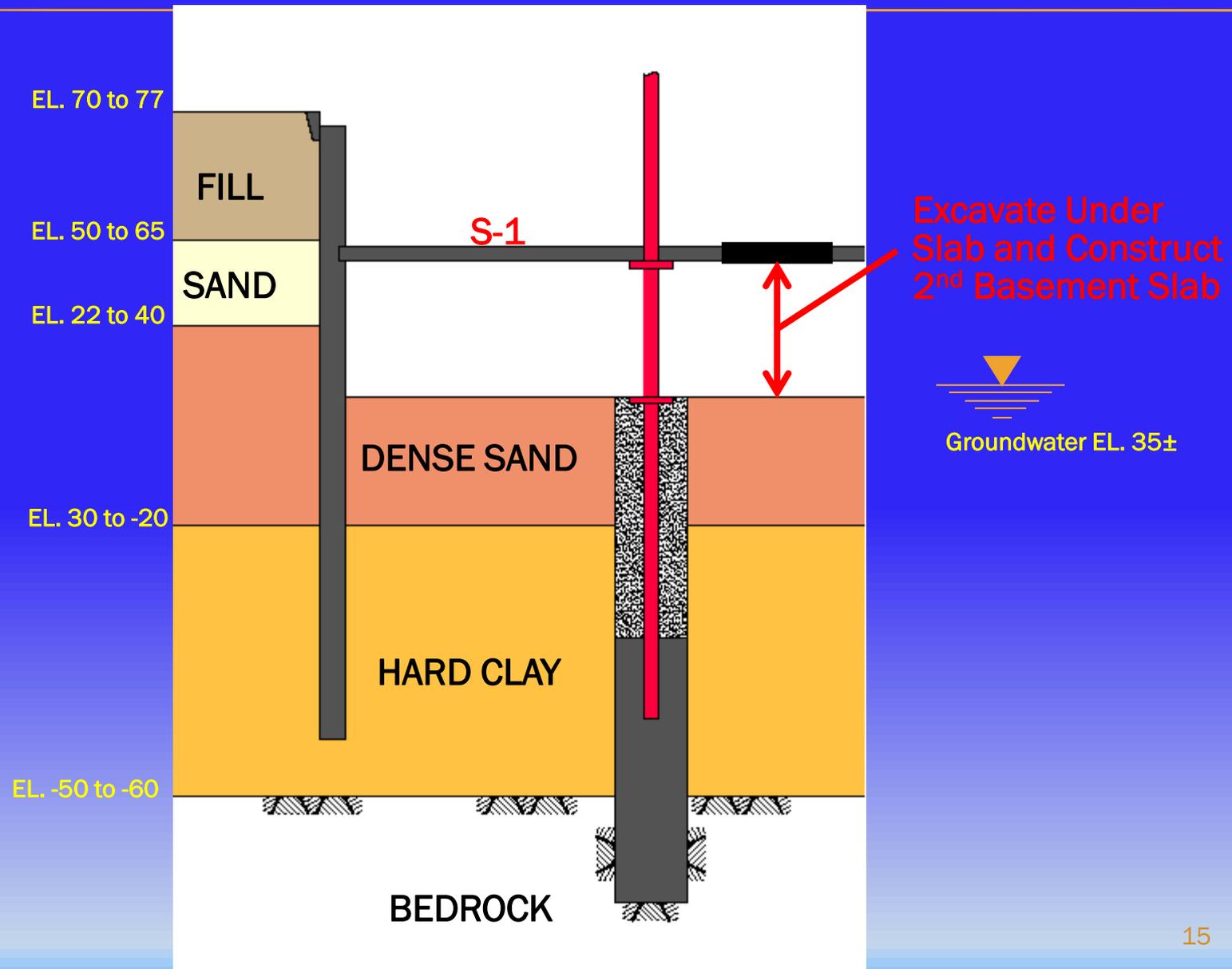
Excavation for 1st Basement Slab Construction



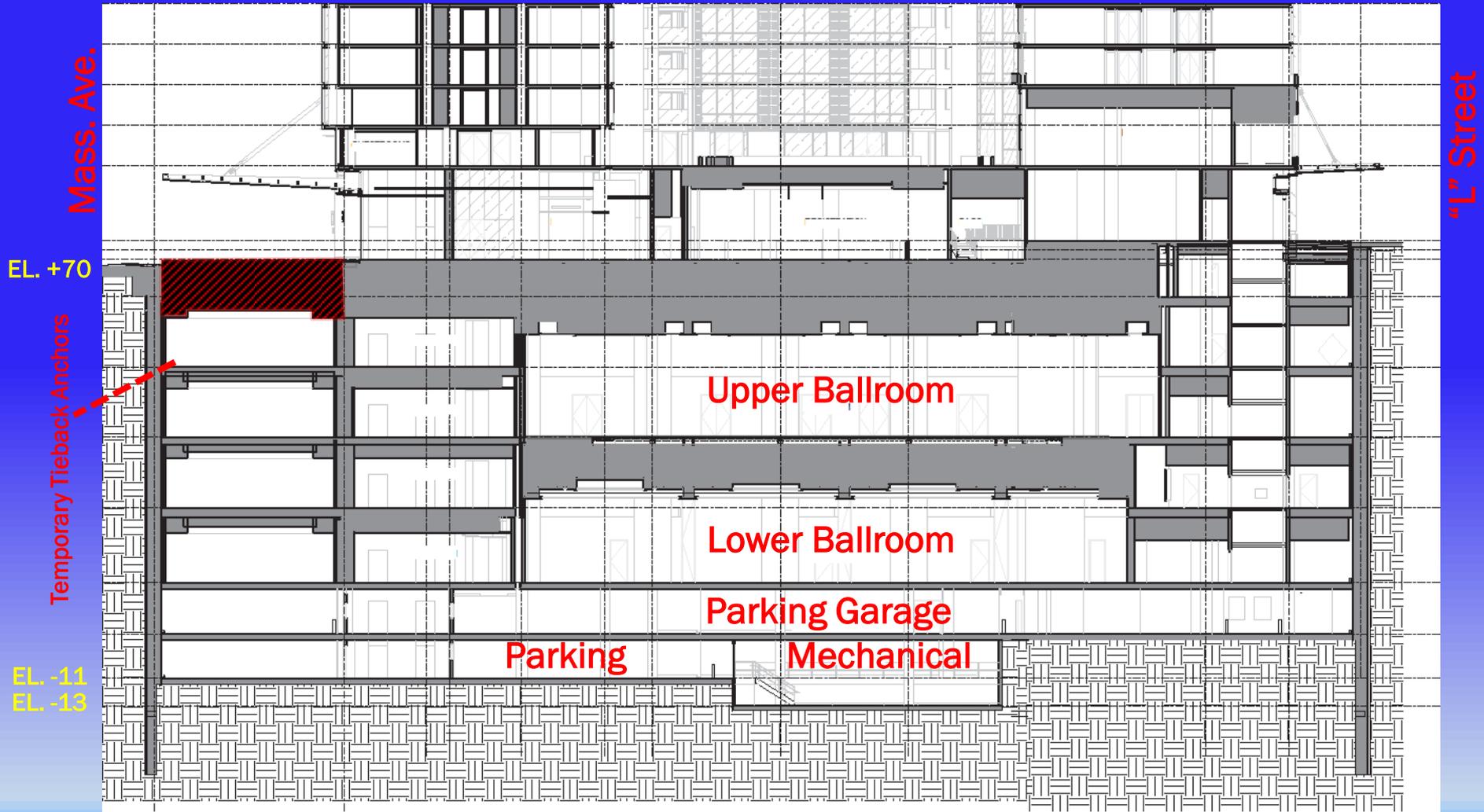
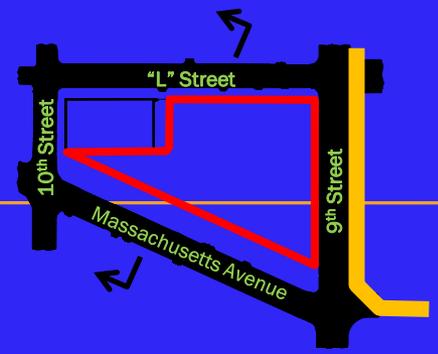
Construct 1st Basement Slab



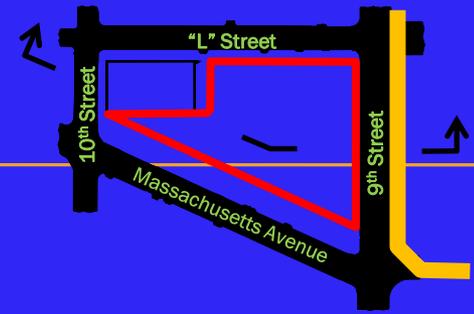
Excavation for 2nd Basement Slab Construction



Section Looking West

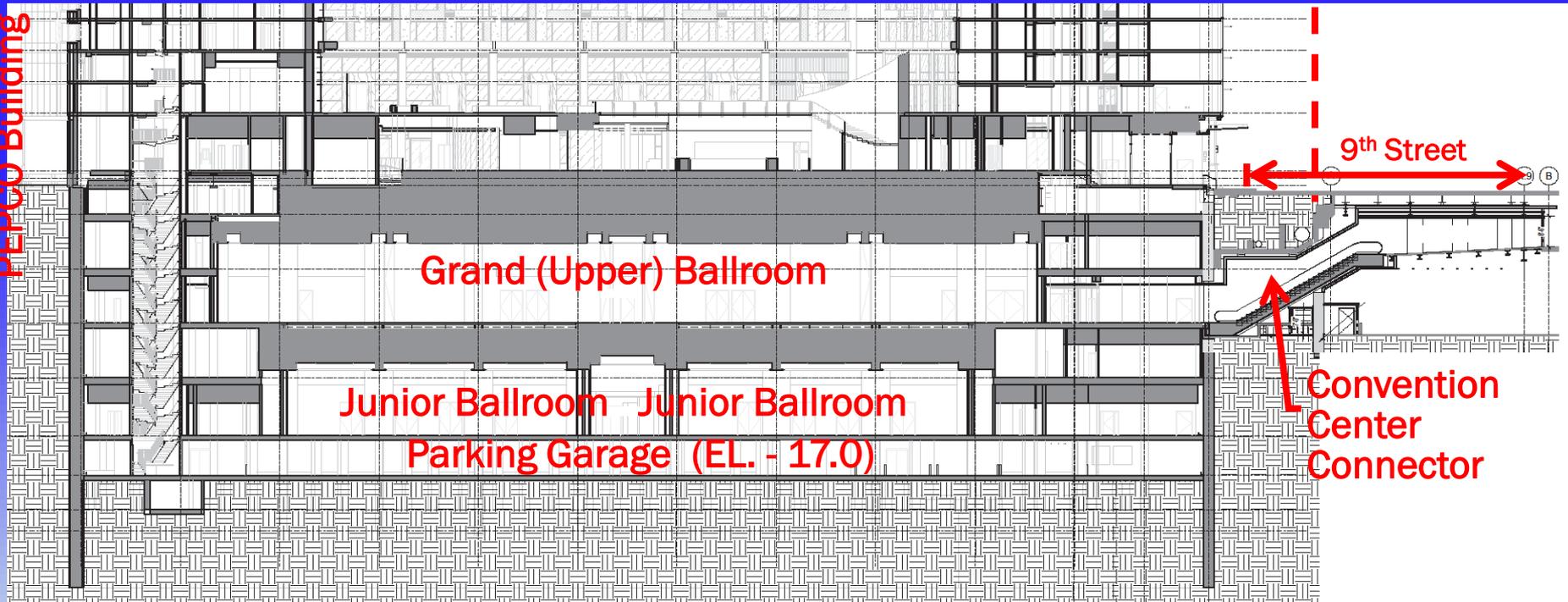


Section Looking North



Limit of Convention Center

PEPCO Building



Grand (Upper) Ballroom

Junior Ballroom Junior Ballroom

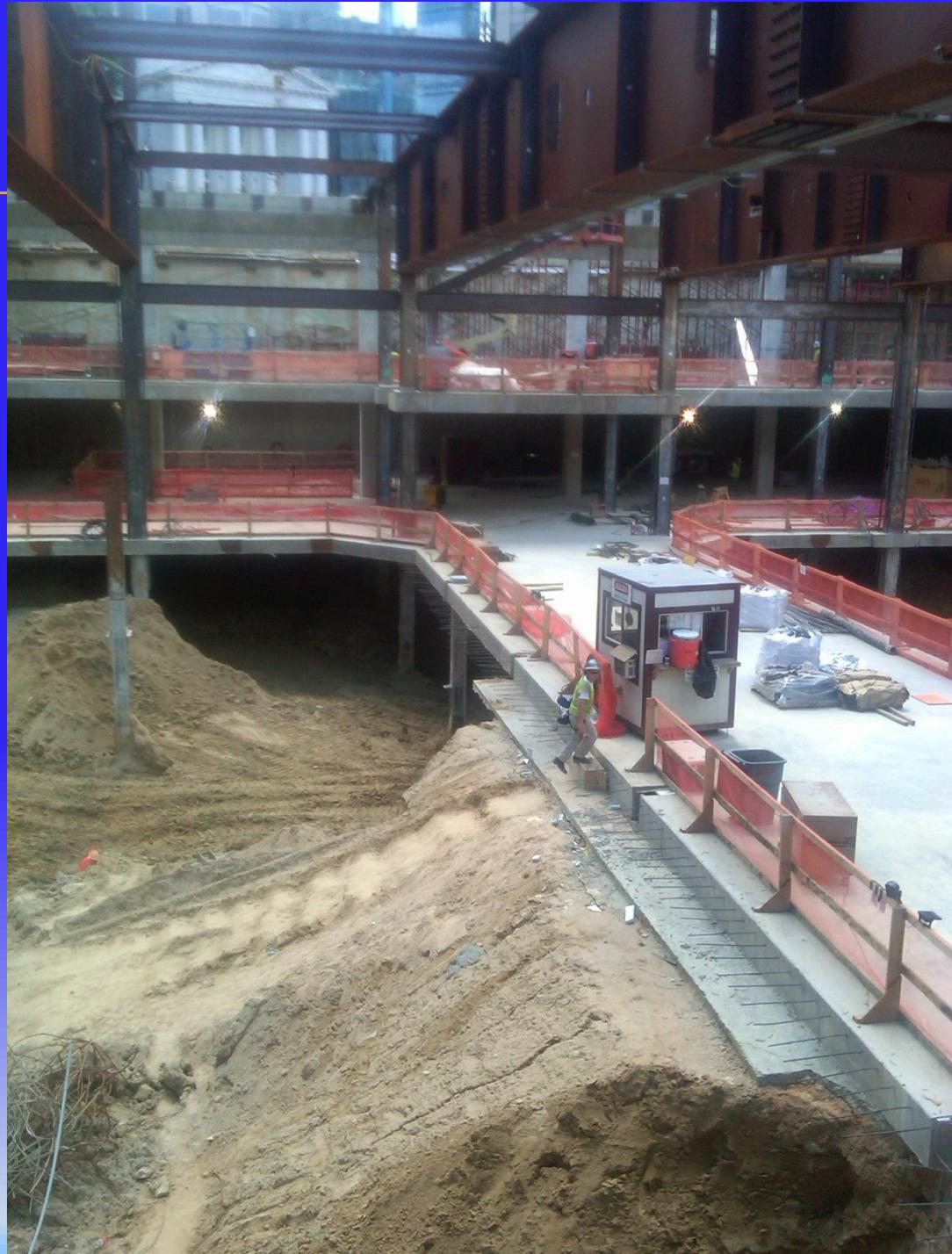
Parking Garage (EL. - 17.0)

Convention Center Connector

9th Street

Convention Center





S-1 Slab Completed

Excavation
Openings



Preparation for S-2 Slab



S-1 Slab Completed

Excavation
Opening



Preparation for S-2 Slab



Plate Girders Spanning Ballroom Below

Excavation for Grand Ballroom



Excavation and Material Supply Openings in Completed Slab



Excavator with Muck Bucket

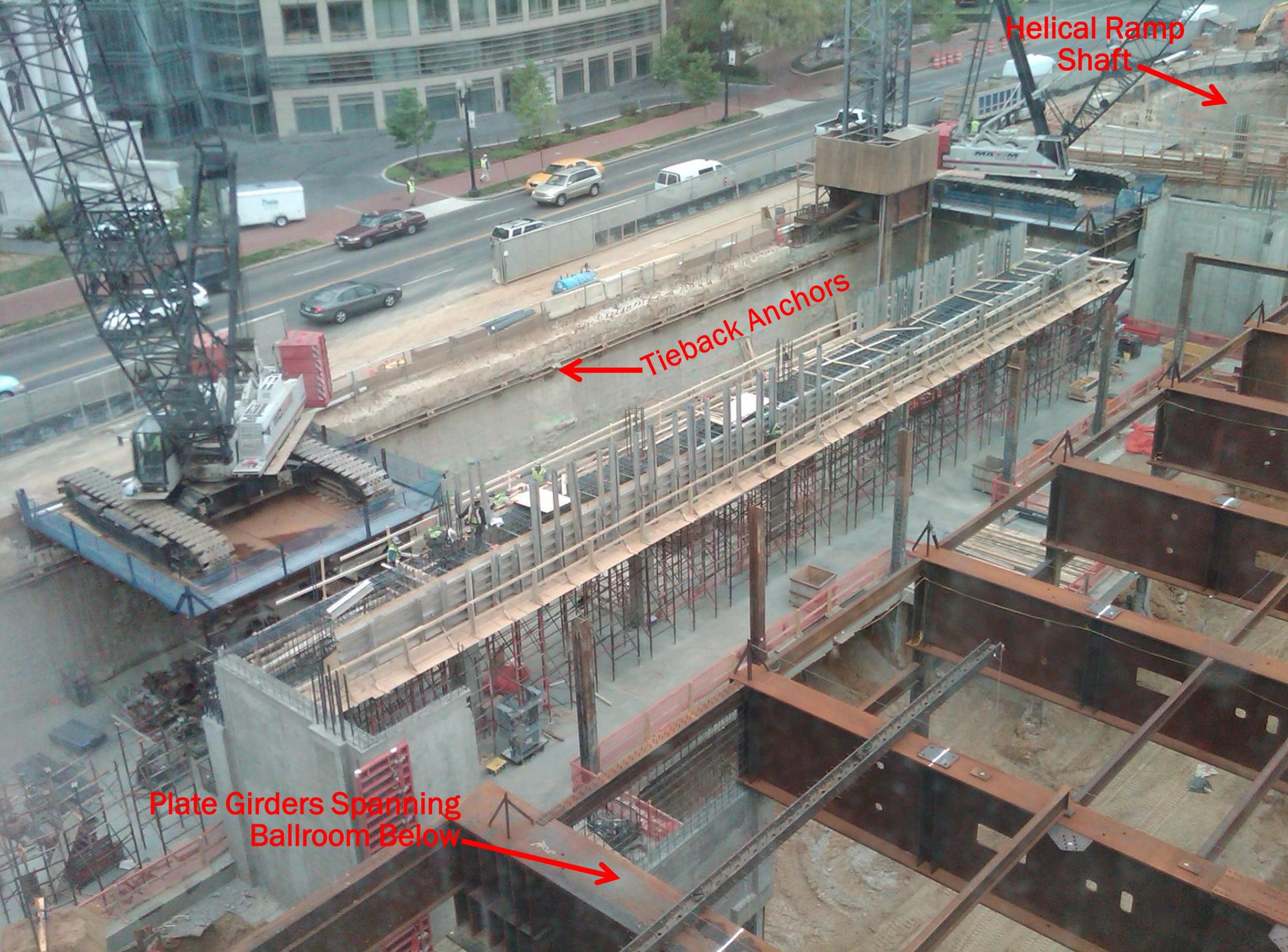


Excavation on Multiple Levels



Excavation on Multiple Levels





Helical Ramp Shaft

Tieback Anchors

Plate Girders Spanning Ballroom Below



PEPCO Building

Top-Down Method of Construction: *Sequence*

- ✓ Install slurry wall & drilled shafts / basement plunge columns
- ✓ Excavate to 1st basement level & construct basement floor as brace
- ✓ Excavate below floor; install 2nd basement floor
- ✓ Install girders above ballrooms
- ✓ Begin superstructure construction
- ✓ Continue to progressively excavate & construct permanent underground floors as bracing

Top-Down Method of Construction: *Benefits*

- ✓ Ideal for urban sites, deep excavations & wide construction sites
- ✓ Stiff bracing system minimizes impact on adjacent structures
- ✓ Avoids costly underpinning of adjacent structures
- ✓ Speeds up project completion as superstructure starts before excavation is completed
- ✓ Reduces project financing costs



Owner: Marriott International

Architect: Cooper Carry Architects/TVS Architects JV

Construction Manager: Hensel Phelps Construction Co.

Structural Engineering: Thornton Tomasetti

*Slurry Wall / Tie back anchor Subcontractor: East Coast Slurry Company /
Trevi Icos JV*

Geotechnical /

Foundation Engineering: Mueser Rutledge Consulting Engineers



Questions?