



City of Seattle Habitat Test Panels and Troughs Study

- **Why are we looking at these alternatives?**
- **Development of design concepts?**
- **What are Habitat Panels and Troughs?**
- **Monitoring?**



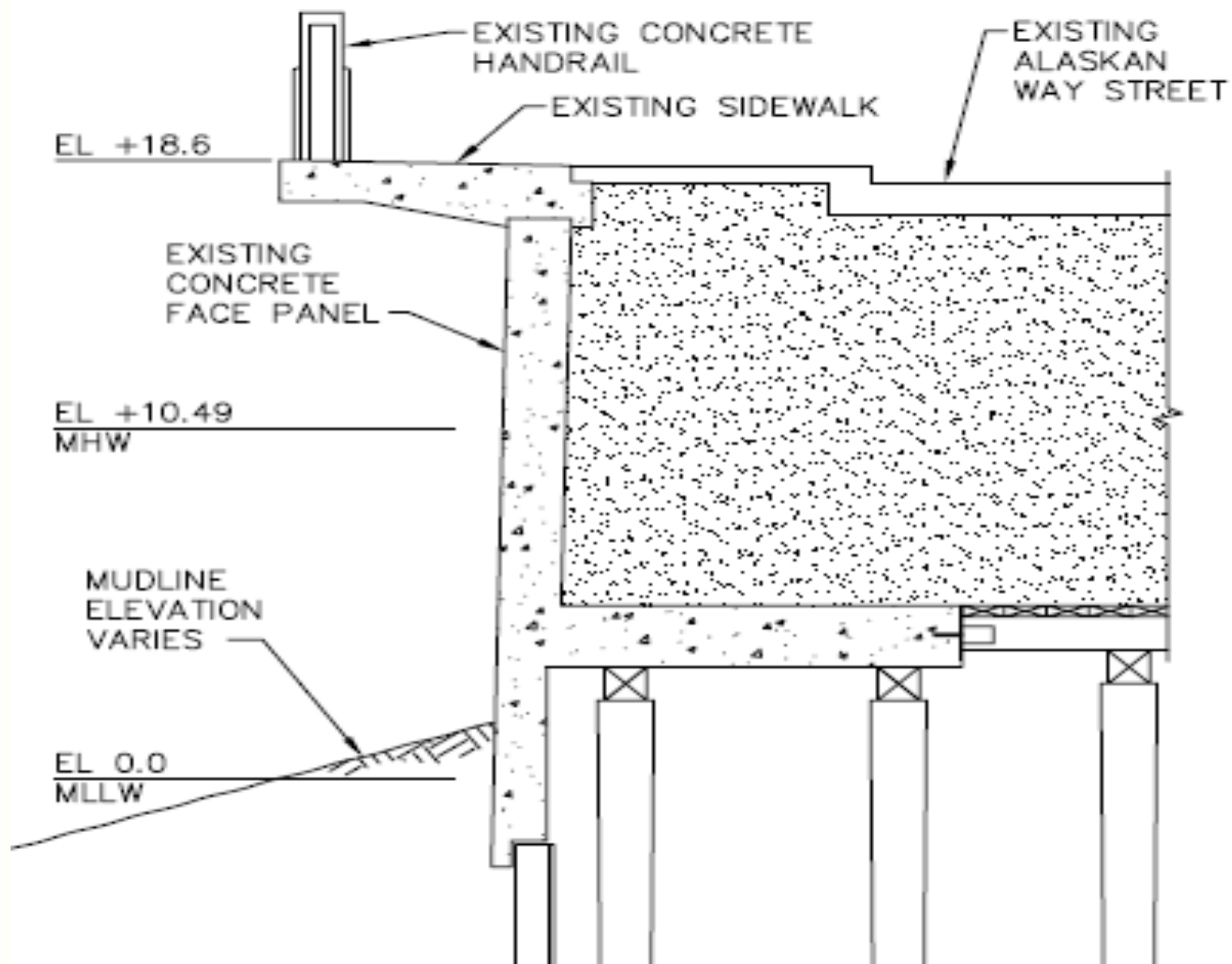
Alaskan Seawall

Original Shoreline

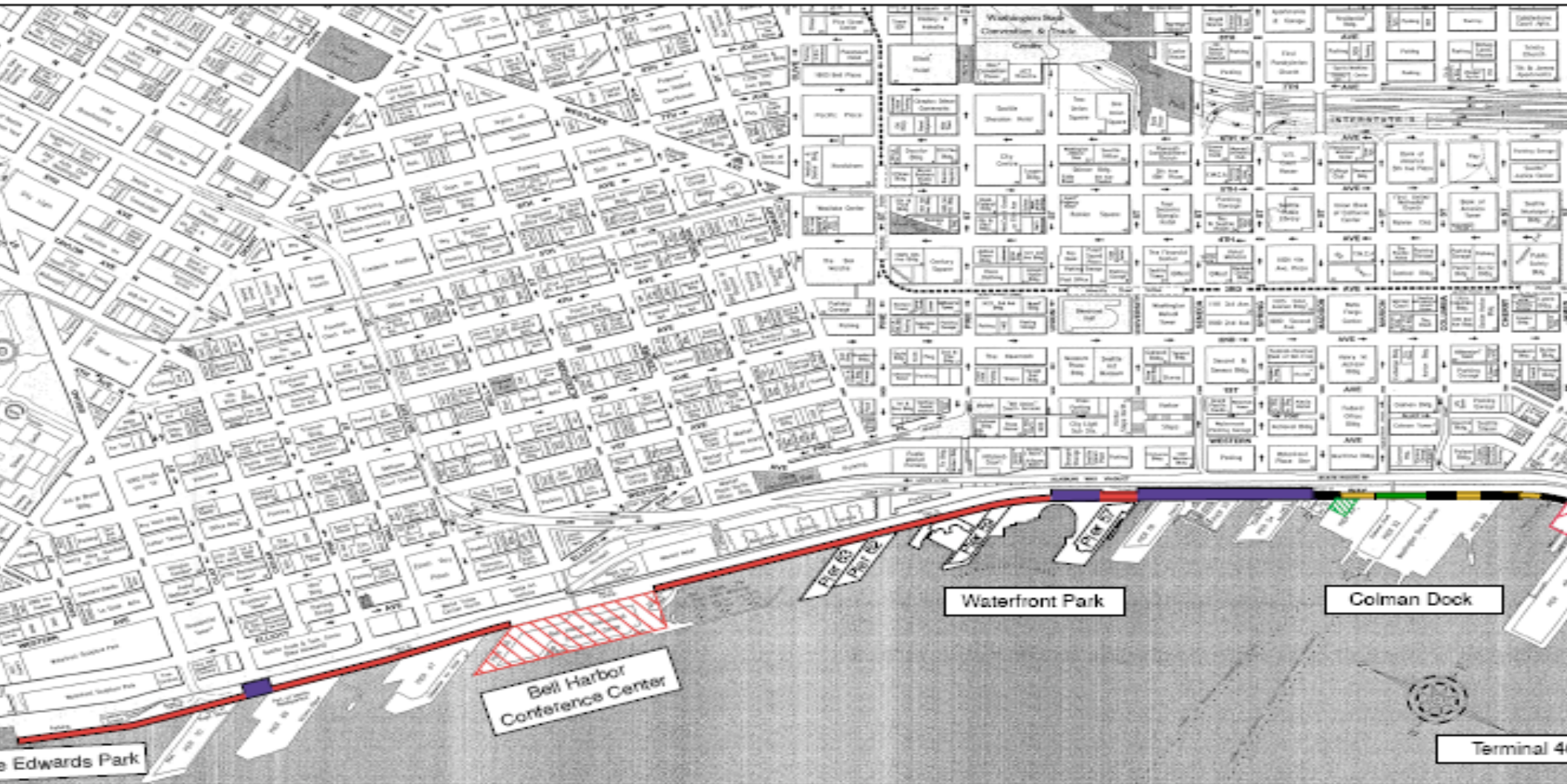
Elliott Bay

Railroad Avenue in the Early 1930s





Why Keep Seattle's Seawall's



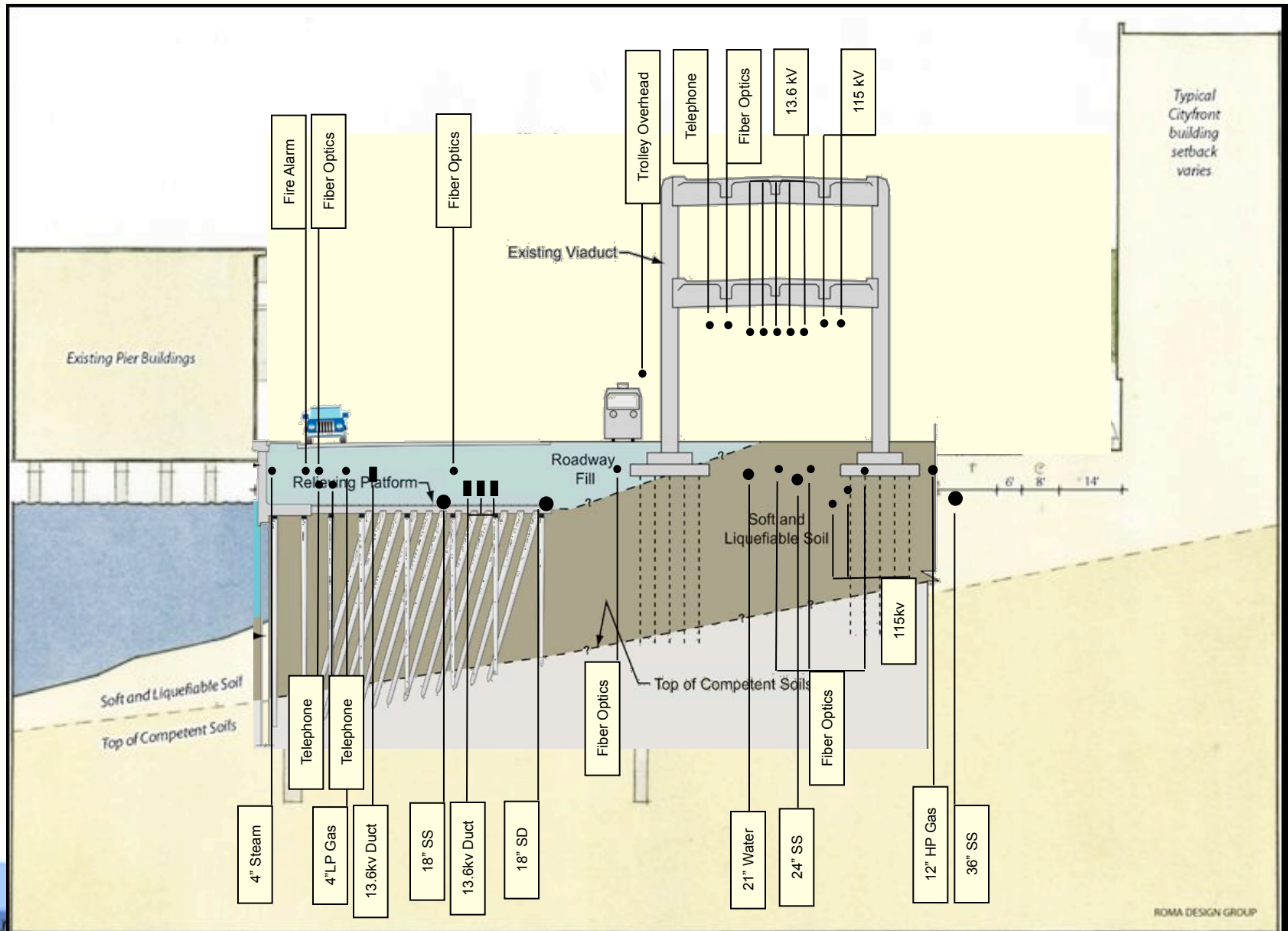
LEGEND



City of Seattle Facilities

- 1916 Pile Supported Gravity Wall
- Pile Supported Sidewalks Rebuilt in 1987
- Pile Supported Sidewalks Built in 1964
- 1934 Seawall/Relieving Platform Type "A"
- 1934 Seawall/Relieving Platform Type "B"

Existing Utilities and Transportation



Planning/ Strategy History

- Salmon listed (1999) and how we do work would change
- City recognized need for more science to inform our work
- Developed monitoring method for armored shorelines (rip rap, vertical bulkheads)
 - Documented that salmon are present and tend to stack up along seawall
 - A variety of salmon from all areas of the sound come to Seattle
- Policy Documents
 - City of Seattle Restore our Waters Initiative/PSP
 - Waterfront Concept Plan
 - Need to consider making improvements to the marine edge

Development of design concepts

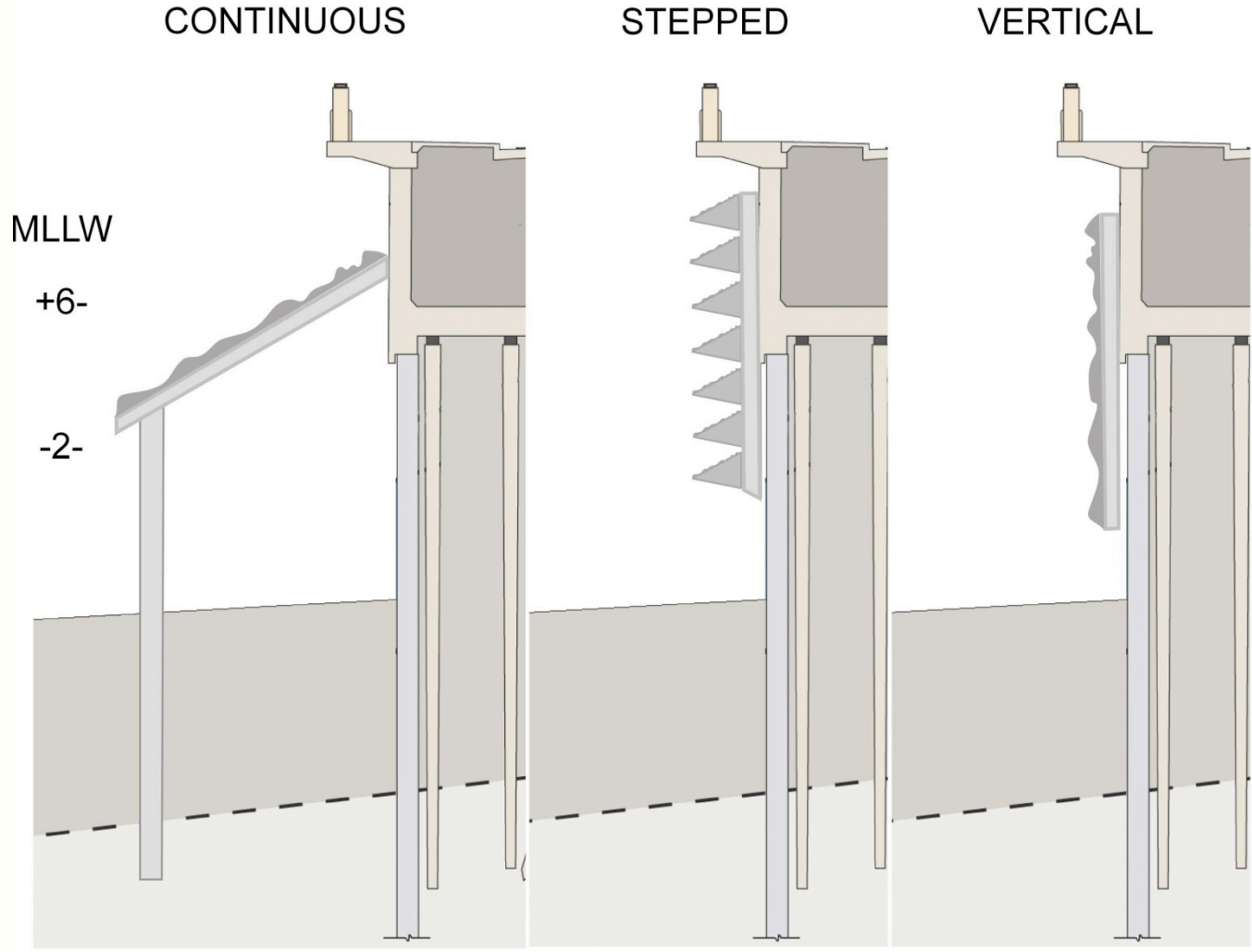
Seawall is deteriorating and was damaged during Nisqually EQ

- Seattle Department of Transportation (SDOT) - lead for seawall replacement
City's Goal: Improved ecological function and enhanced habitat
- **Partnering with other agencies**
 - Army Corps of Engineers – Feasibility Study
 - Seattle Waterfront Ecology Team (WET) City Dept's
 - U of W Wetland Ecosystem Team (WET) & Luce Fellows
- **Discussions with scientists on design of new seawall interface**
 - Review of best available science
 - Identified gap in data on vertical seawall treatments
 - Developed concepts for test panels
 - Involved permitting agencies during design
- **Submitted Grant Applications**
 - Washington Seagrant (UW)
 - King Conservation District
 - Radical Salmon (King County)

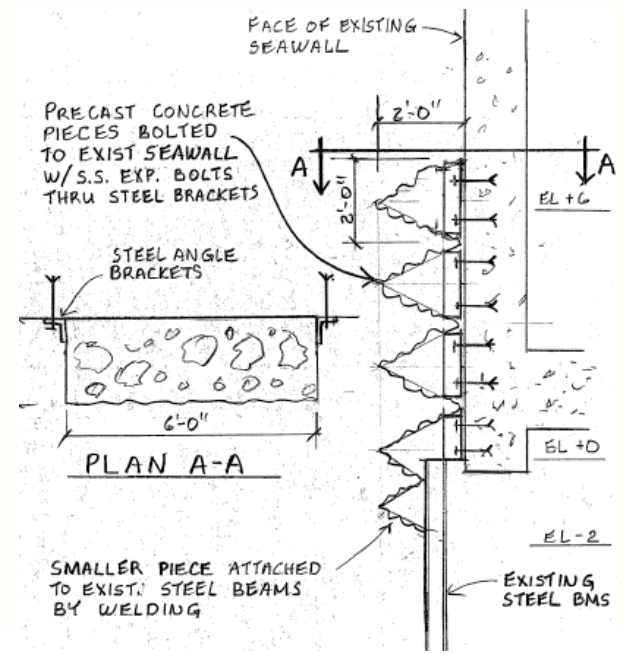
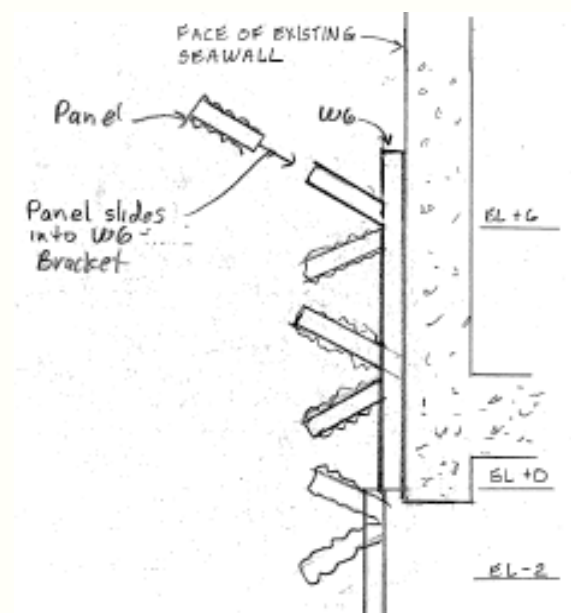
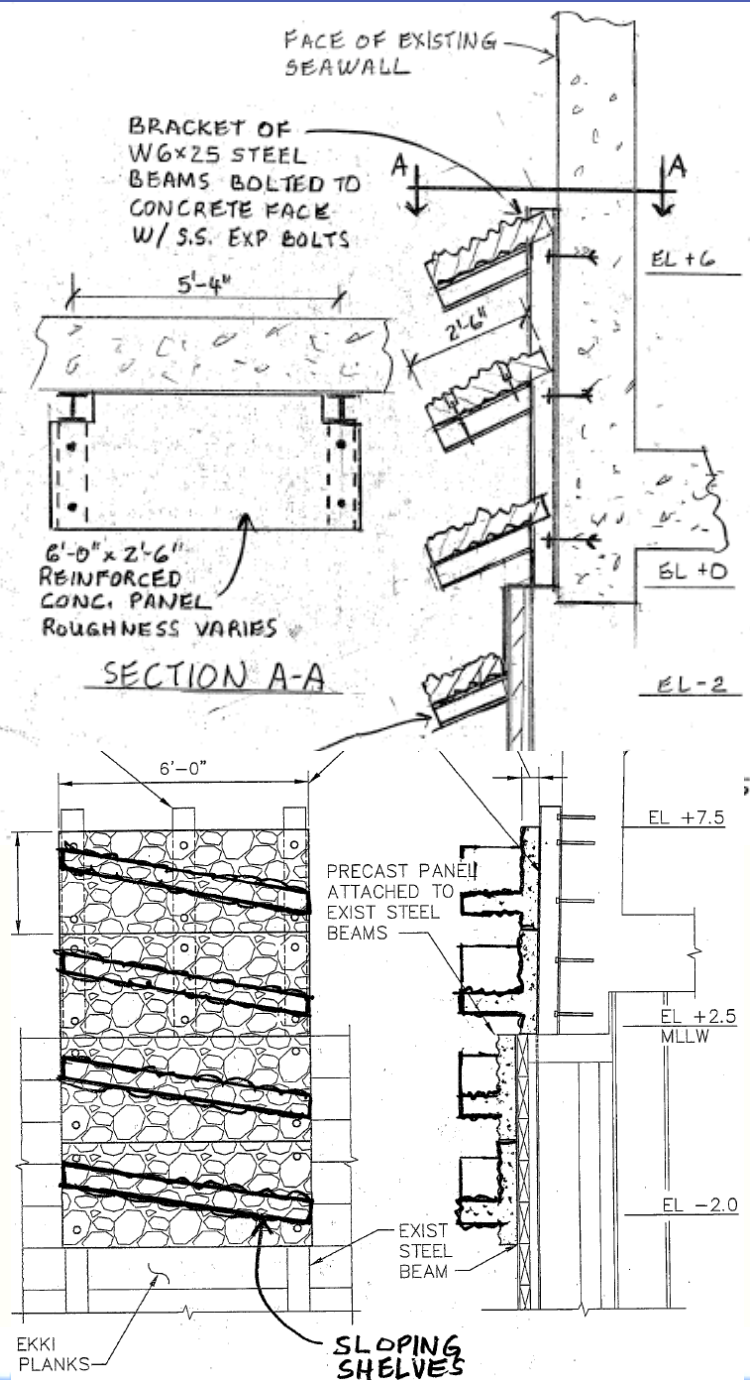
What are they?

SDOT & UW are researching a combination of shapes and textures to determine their ability to improve the ecological function in the intertidal zone. +0 to +7.5

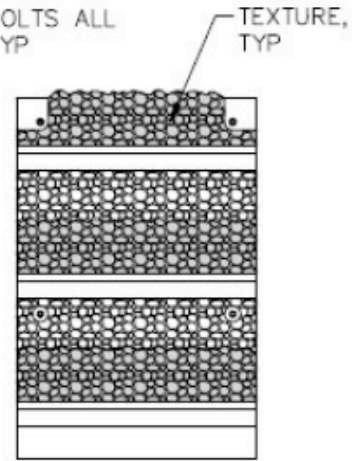
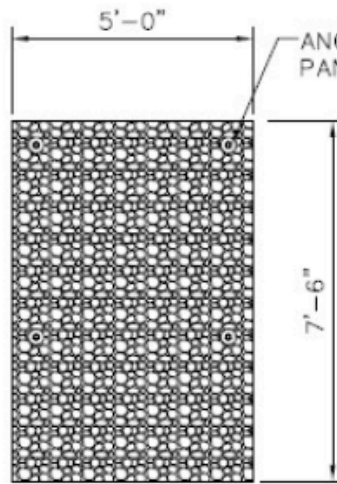
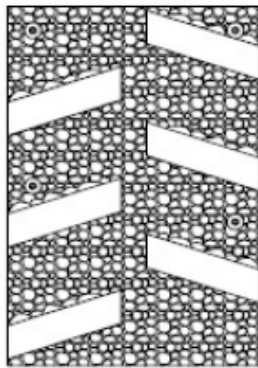
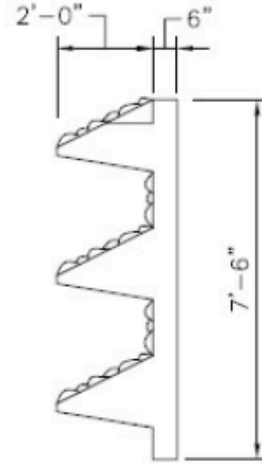
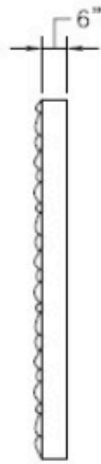
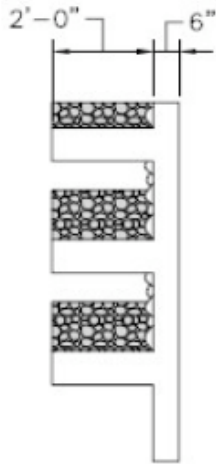
- **Habitat Panels** – 5' wide by 7.5' tall consisting of three shapes and two textures of each shape – six different features. Installed at three locations.
- **Troughs** – 6' x 2' x 24" deep with three types, two with substrate and one as a tidepool.



Original Concepts proposed for AWVSWR by Don Weitkamp, Parametrix



Habitat Panels

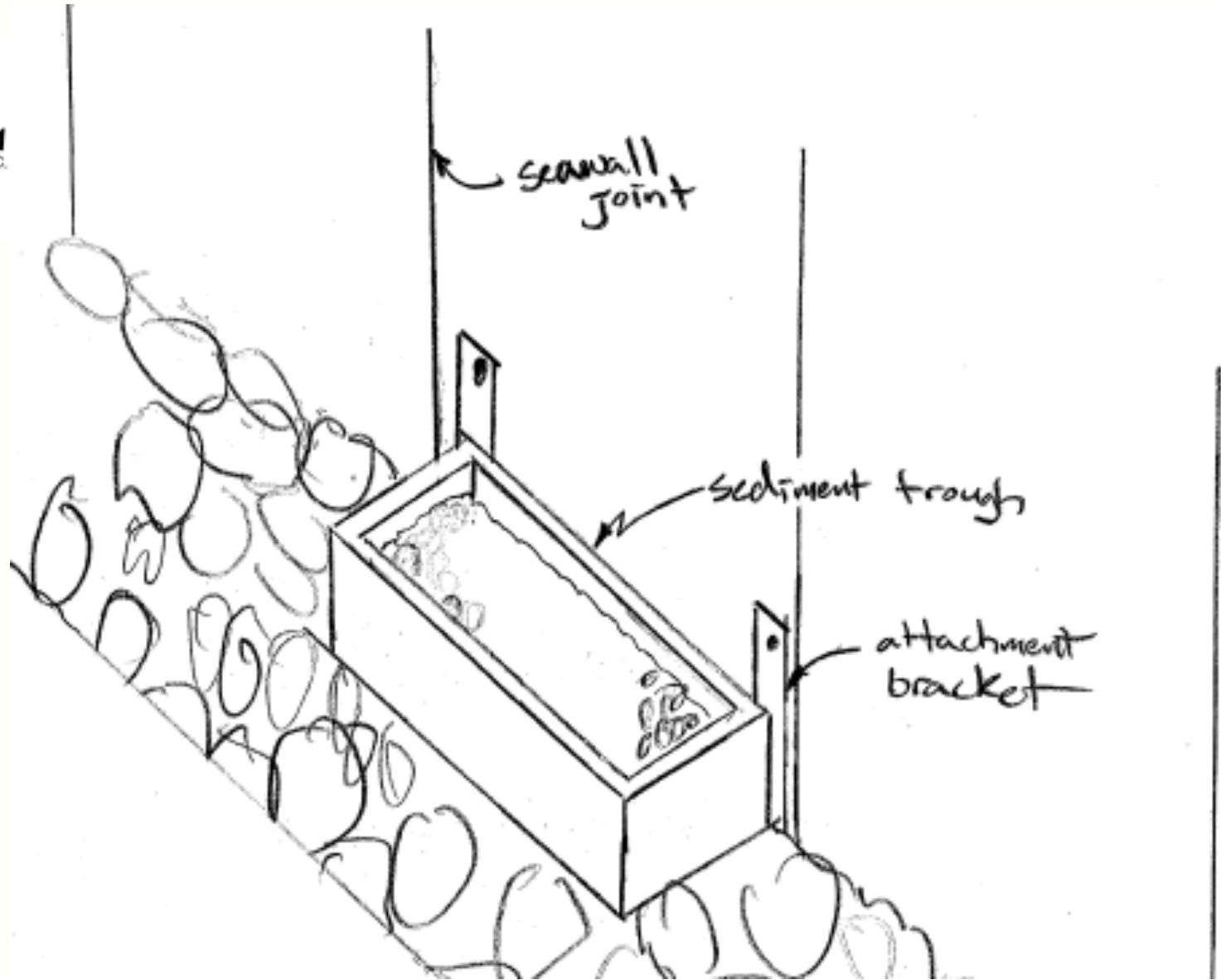


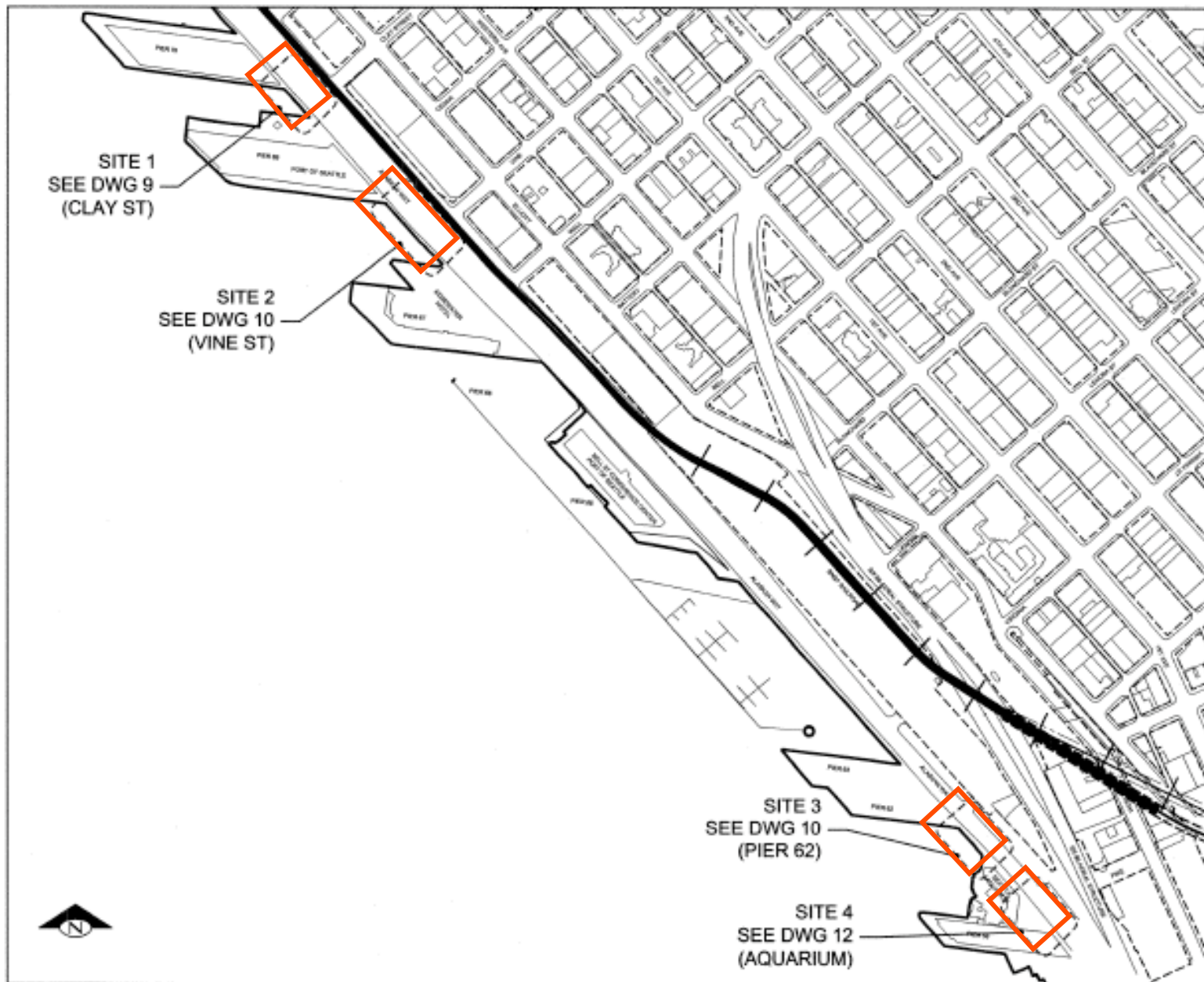
TYPE A (FIN)

TYPE B (FLAT)

TYPE C (WEDGE)

Habitat Trough





LOCATION MAP





Site 1 – Clay St Panels only



Site 2 – Vine St Panels and Troughs



Site 3 – Pine St (Aquarium) Panels and Troughs



Site 4 – (Aquarium Triangle) Troughs Only











February 2008



March 2008



June 2008

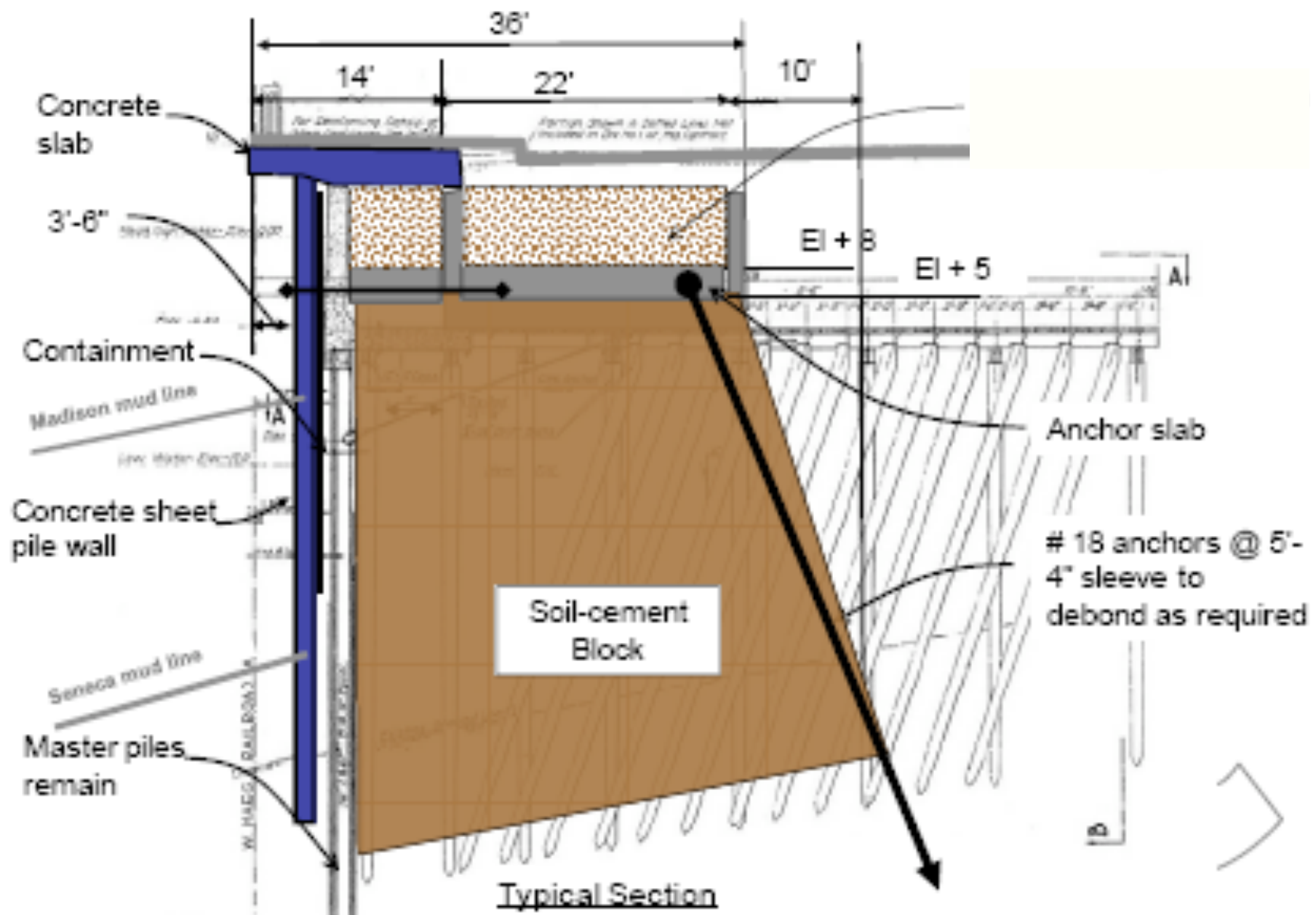


August 2008





Monitoring in first season – panels are performing as expected. Too early to make any predictions at this time.



Cantilever slab

Remove existing face panels

Concrete facing

New slope

Secant pile wall – 8.2' dia drilled shafts at 7'-8" o.c.

#18 bar anchors @ 4' o.c' in 8" pipe casing sleeve to debond

Embed stage 1 shafts to El – 31

Embed stage 2 shafts to El. -61

