

# Caisson Mooring Systems Tacoma Narrows Bridge, Tacoma, WA

Ben C. Gerwick, Inc. was retained by Tacoma Narrows Constructors to develop and design the innovative mooring system utilized for installation of the two caissons for the new Tacoma Narrows Bridge. The two caissons are 180' by 30' wide and between 130' and 145' tall. The caissons are built in lifts on-site as floating structures using spread moorings to keep them in place over the set-down areas.

Each of the two caissons to be installed requires 16 mooring lines mounted at the top of the caisson and anchored at 600' radius from the center, and another 16 lines mounted along the base of the caisson with anchors placed at 240' radius from the center. Each anchor is fitted with two 1000-kip bridge strand mooring lines.

Ben C. Gerwick, Inc. completed the detailed design of the components for the spread mooring system, including mooring lines, four-sheave and eight-sheave tandem blocks, pile-driven plate anchors, plate anchor pile guide



Aerial view of the two caissons moored alongside the existing bridge comprising the foundations for the new bridge.

supports and follower, fixed attachments for the lower 16 anchors on each caisson, and an innovative sliding attachment system that allows the upper 16 anchoring points on each caisson to maintain their sub-surface positions as the caissons are constructed and set down.

Year of Completion: 2003

Construction Cost: \$3M

Client:

Tacoma Narrows Constructors



Installation of pile-driven plate anchor.

#### Services Performed:

- Detailed Design of Mooring Systems
- Development of Fixed Mooring Attachments
- Development of Unique Sliding Attachment System for Mooring Points on Caissons
- Detailed Design of Pile-Driven Plate Anchors
- Specifications for Installation and Testing of Anchors