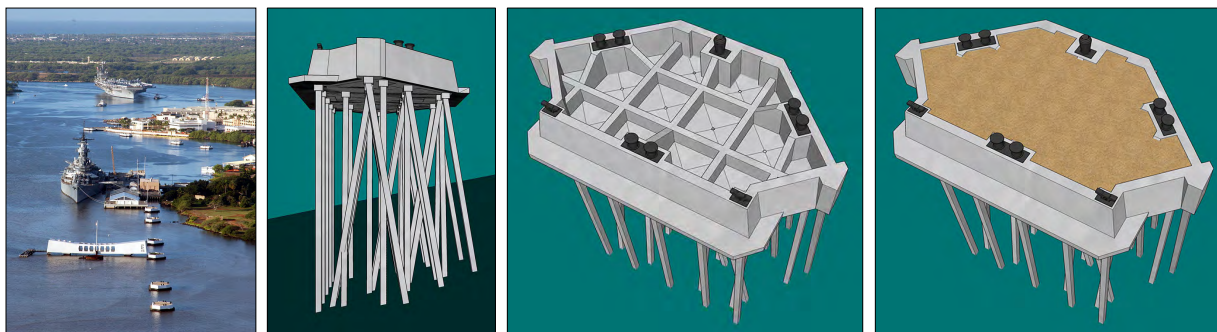




## Restoration of Pearl Harbor's Battleship Row Mooring Quays

*Training military service members for civilian workforce & management positions while preserving the site where America entered World War II*



### Pearl Harbor Mooring Quay History & Current Conditions

2016 marks the 75<sup>th</sup> anniversary of the attack on Pearl Harbor, a time vividly impressed upon the American mind and heart. Standing solemnly with the USS *Arizona* memorial, the Battleship Row mooring quays serve as quiet reminders of American strength and tenacity in the face of devastating loss following the surprise attack by Japanese Naval air forces on December 7, 1941.

The construction of the mooring quays was the result of a need for additional berthing space for the Pacific Fleet prior to WWII. Sixteen concrete mooring quays formed pairs designated F-1 through F-8, North and South (Example F-7N), located on Ford Island's southeast side. They are now known as the famed "Battleship Row".

“The vital need for additional berthing space for capital ships at Pearl Harbor necessitated the development of 16 fixed moorings to relieve congestion at the existing piers. The moorings are of the interrupted quay wall type and are the first of this kind constructed. They provide berths similar to those at a pier at a greatly reduced cost. They economize on space and provide practically double the berthing for an equal area as compared to anchored moorings, and consequently affect a material savings in dredging required. The total cost of the project was \$540,000, of which the sum of \$39,863.45 was utilized for force account projects including the pay of administrative employees, the provision of bow and stern mooring floats, and for miscellaneous district work and materials.” - *US Navy Document*.

The partial destruction of the Pacific Fleet on December 7<sup>th</sup> sent shock wave around the world. The sinking of the *Arizona* resulted in the largest loss of life suffered by a United States Navy warship in American history. Despite the devastation, the nation quickly responded with the

mooring quays playing a significant role in post-attack salvage. From the quays, American salvage workers accomplished unprecedented feats in the recovery of sunken battleships. Workers raised the USS *California*, USS *West Virginia*, and righted and refloated the USS *Oklahoma*. Extensive salvage work was performed on the USS *Arizona*. The quays were the foundations of the recovery, which lead ships like the *West Virginia* fighting throughout the remainder of World War II.

Today, the Mooring Quays mark the location of the attack that ignited a social, political and economic change that still resonates in the 21<sup>st</sup> century. The USS *Arizona* Memorial serves as a reminder of the loss life and the failure of peace. Perhaps the mooring quays serve as symbolic tombstones to the ships that suffered horrific crew losses during the attack on Battleship Row.

President George Bush Jr. established World War II Valor in the Pacific by proclamation 8327 in 2008. The entire proclamation includes nine sites with significant historical connection to World War II in the pacific theater. The site at Pearl Harbor encompasses the USS *Arizona*, USS *Utah*, and USS *Oklahoma* memorials, in addition to the mooring quays. Due to their historical significance, the mooring quays are also part of the Pearl Harbor National Historic Landmark District, on the National Register of Historic Places, and part of the National Monument, which represents the highest protections our nation bestows on cultural heritage.

Present day initial above and below water visual inspection has revealed that 1941 battle damage to the quays was somewhat minimal as a result of their strong design and buffering provided by the ships that received the brunt of the attack. Impact of the ships against the quays during the attack was minimized by the now extant quay bumper system that served to somewhat soften the blows. Larger damaged areas did occur as a result of impact by pieces of steel blasted from the USS *Arizona* when it exploded. After being included in the 2008 Presidential Proclamation, the National Park Service has systematically assessed the integrity of the concrete structures and performed basic maintenance as resources have allowed. Time and exposure to the aggressive, chloride-rich environment, however, has left the quays in need of full preservation treatment to halt further deterioration that could lead to structural compromise if not addressed. Further evaluation will confirm the extent of battle damage and subsequent deterioration and guide the mooring quay restoration effort beginning in 2016.

*Mooring Quay images, drawings, and digital model images on following pages*

## Images, Modern



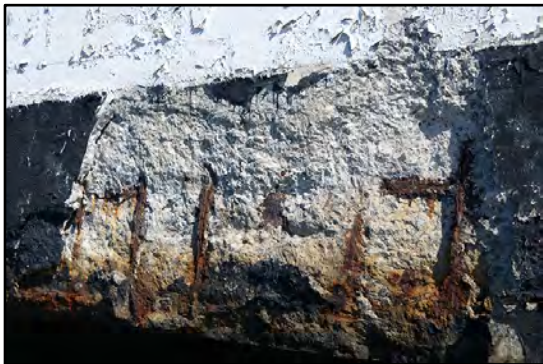




## Images, Historic

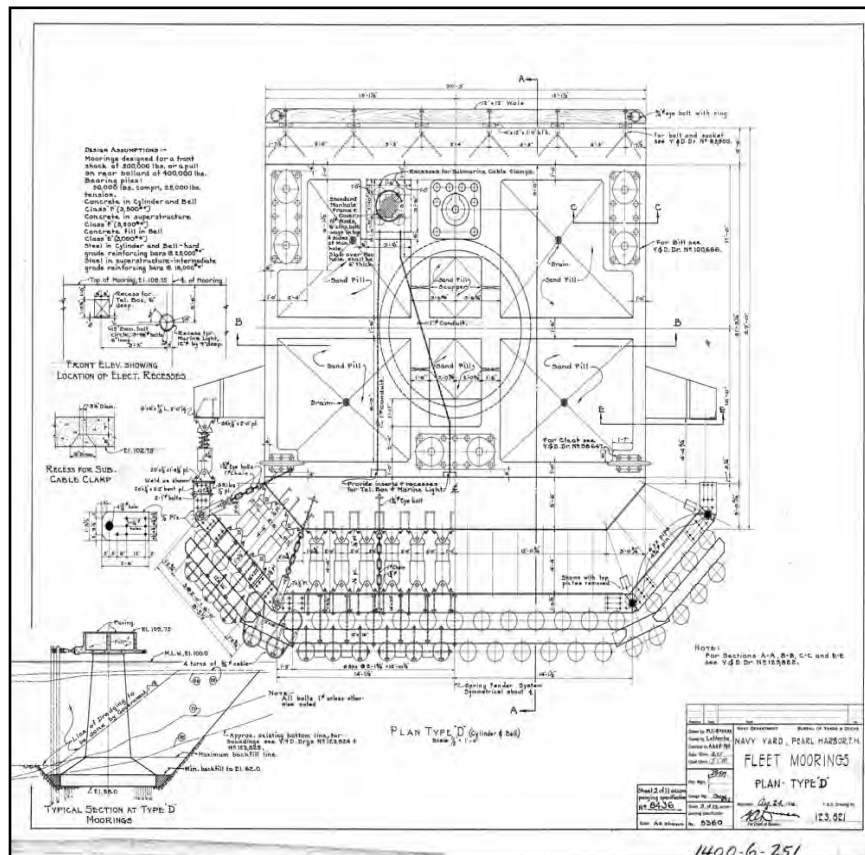
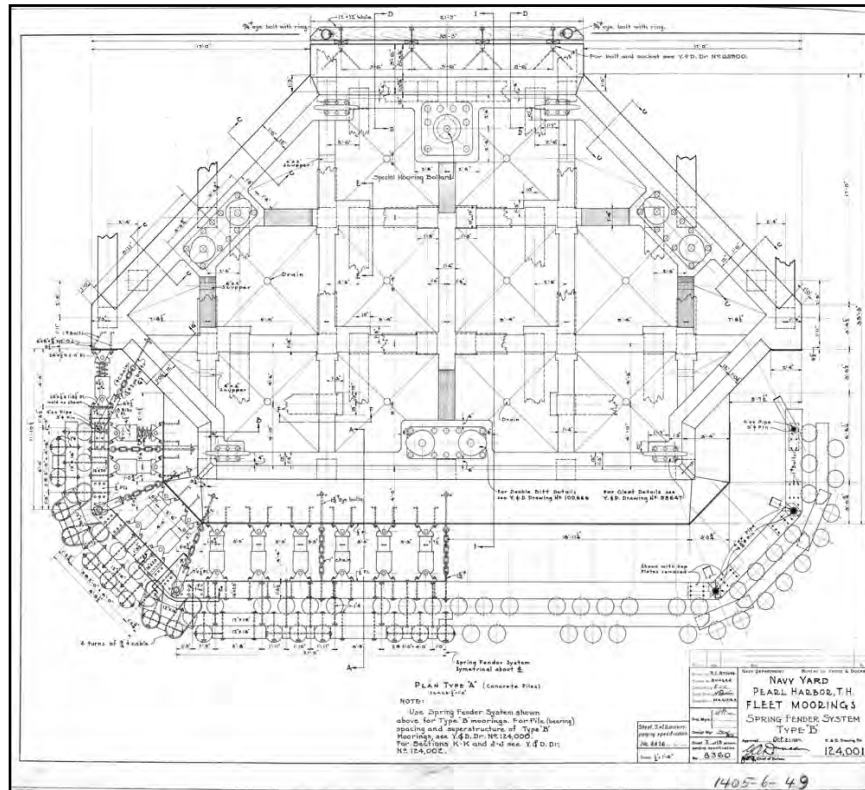


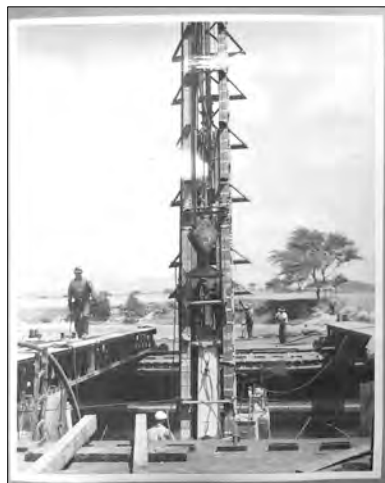
## Images, Current Conditions





# Original Construction Drawings and Photos









## Contemporary Digital Model - developed by CPI for use in restoration planning

