



TOWN OF EDISTO BEACH BAY CREEK PARK PIER REPAIRS

Issued for Construction

October 6, 2023

Prepared for:



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BACKGROUND

The Bay Creek Park Pier is located at the northeast corner of the Bay Creek Park site in Edisto Beach and provides public access for fishing along the tidally influenced Bay Creek. The pier extends from a steel sheet pile bulkhead and was constructed with a timber deck, superstructure, and substructure. Please see Figure 1 below for a satellite view of Bay Creek Park and Figure 2 on the following page for a layout of the pier and reference locations.

The approach boardwalk extends from the sidewalk to the pier head and has an overall footprint of 67-ft in the north-south direction by 6-ft in the east-west direction. The pier head has an overall footprint of 10-ft in the north-south direction by 56-ft in the east-west direction. The landside boardwalk is “L” shaped and connects the west edge of the approach boardwalk to the sidewalk. The approach boardwalk has an overall length of 47-ft and width of 8-ft.

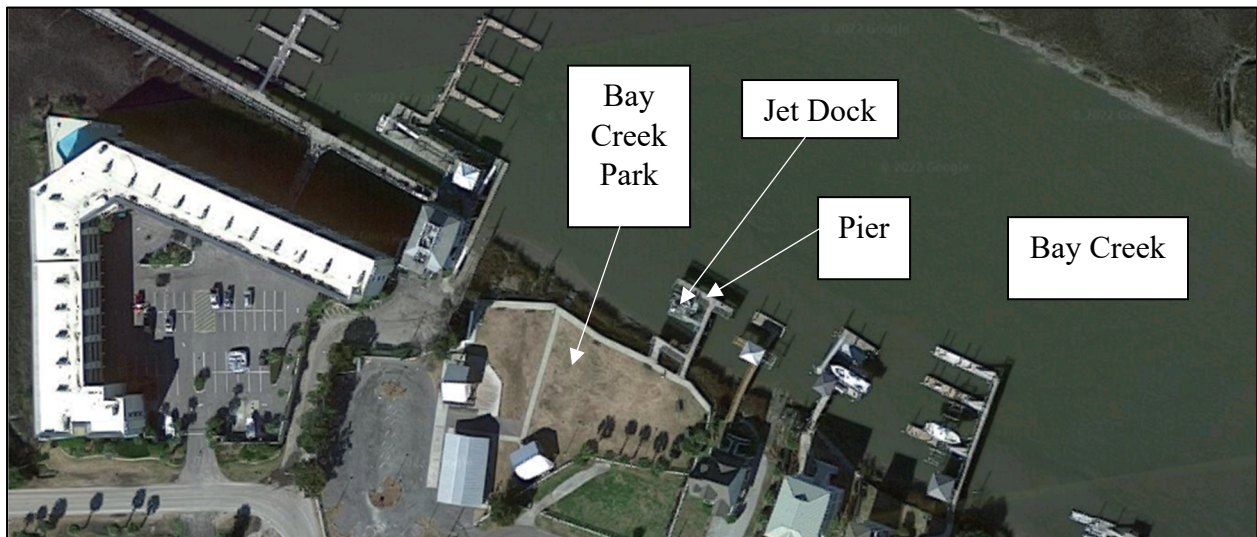


Figure 1 – Satellite View of Bay Creek Park

The deck was typically constructed with 2x6 timber boards which were fastened to the stringers of the superstructure with galvanized framing nails. The superstructure was typically constructed with 2-2x10 stringers spaced at 16-in on-center, except at the following locations:

- Approach boardwalk between Pile lines 5 and 6 – 2x10 stringers spaced at 16-in on-center.
- Landside boardwalk between Pile lines I and G – 2-2x10 stringers spaced at 8-in on-center.
- Landside boardwalk between Pile line 10 and the sheet pile bulkhead – 2x10 stringers spaced at 16-in on-center.

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The stringers are supported by a substructure constructed with pile caps, round piles, and lateral cross-bracing; each stringer appears to be connected to a pile cap with Simpson Strong Tie H2.5A galvanized hurricane ties. The pile caps at the pier head were constructed with 4x12 members; two members were typically installed at each interior pile bent (one on either side of each pile) and one member was typically installed at each exterior pile bent.

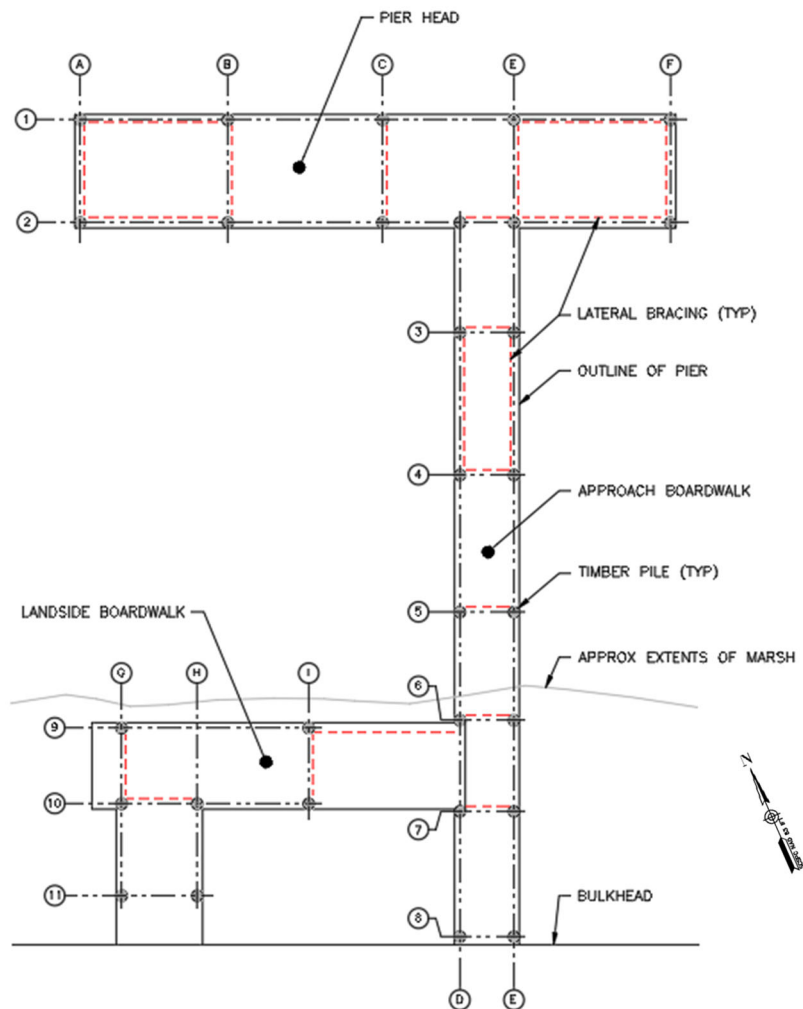


Figure 2 – Pier Layout

The pile caps at the approach boardwalk and landside boardwalks were constructed with 3x12 members. Two members were typically installed at each pile bent, except between piles D-2 and E-2, G-9 and G-10, G-10 and H-10, and G-11 and H-11, where a single member was installed. The pile cap members at the approach boardwalk and landside boardwalk appeared to have been replaced during a previous maintenance program. The pile caps were typically supported by 12-in diameter timber piles, except at the following locations:

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- It appears that 8-in diameter piles were installed at E-3, E-4, E-5, D-6, E-6, G-9, G-10, G-11, H-10, H-11, I-9, and I-10.

Lateral cross-bracing constructed with 3x8 members was installed at a number of locations in each of the north-south and east-west directions (see dashed lines on Figure 2 for specific locations). The braces were installed on either side of the piles and were attached with 3/4-in diameter stainless steel thru-bolts.

Timber guard railing was installed along the perimeter of the pier. The railing extended up to 42 1/4-in above the deck and was constructed with 4x4 posts, a sloped 2x8 top rail, a 2x6 top horizontal, and four lower horizontal 2x4 rails. The horizontals were fastened to the posts with 1/2-in diameter thru-bolts.

A jet dock was installed between the pier head and landside boardwalk that has an overall footprint of 20-ft in the north-south direction by 20-ft in the east-west direction. Two 12-in diameter timber guide piles extended through the dock to the mudline. Access between the approach boardwalk and the jet dock was provided via an aluminum gangway installed between pile bents 3 and 4.

REPAIR SCOPE

The following scope of work references the “Issued for Construction” set of documents prepared by GEL Engineering, LLC, dated October 6, 2023. Please refer to the documents for more information.

Following are GEL’s recommendations regarding the deck:

- Remove all existing 2x6 decking and replace in-kind. Refer to S2.2 for extents of deck and 2/S4.1 for attachment to existing stringers.

Bid alternate: Remove and replace all existing decking with composite. Refer to S1.0.

- Repair the damaged electrical conduit along the west face of the approach boardwalk. Refer to S3.5 for location.

Following are GEL’s recommendations regarding the railing:

- Remove all existing 2x8 top rails and replace in-kind. Refer to Sheet S2.2 for extents.
- Install blocking at all intermediate post locations per 3 and 4/S4.1. Refer to S3.5 and S3.6 for locations.
- Remove one (1) existing 4x4 post and replace in-kind at the pier head. Refer to see S3.4 for location. Install similarly to details 3 and 4/S4.1.

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- Allowance: Replace all missing nuts and washers at railing posts with new stainless-steel nuts and washers. Refer to S1.0 for allowance quantity.

Following are GEL's recommendations regarding the superstructure:

- Remove all existing stringer-to-pile cap connection hardware and replace with stainless steel H2.5A Hurricane Ties by Simpson Strong Tie, or an approved equal. Refer to S3.2 and S3.3.

Following are GEL's recommendations regarding the substructure:

Note: Prior to ordering repair materials, the Contractor shall perform an underwater inspection of the structure to determine the condition of the submerged components to the mud line. A report must be provided to the Owner and the Engineer-of-Record summarizing the findings. Based on the underwater conditions, the Engineer may recommend to the Owner additional structural pile jackets beyond the base bid; refer to S1.0 for allowances and bid alternates.

- Unless otherwise noted, provide a non-structural pile jacket at all pile locations per detail 1/S4.0; refer to S3.0 and S3.1 for pile locations.
- Provide a structural pile jacket at three (4) piles per detail 2/S4.0; refer to S3.0 and S3.1 for specific pile locations.

Bid alternate: Provide a structural jacket at all piles per 2/S4.0.

Allowance: Provide price for structural jacket in lieu of non-structural jacket on a per-pile basis.

- Remove all existing 3x8 "X" bracing and replace in-kind. Refer to Sheet 2.0 for existing substructure construction and "X" bracing locations. Refer to 5/S4.1 for "X" bracing replacement details.
- Sister one (1) existing pile cap with a 3x12 per detail 1/S4.1. Refer to S3.0 for specific location.
- Remove all existing 4x12 pile caps at pier head and replace in-kind. Attach to existing through-bolts and provide new stainless-steel nuts and washers. Refer to Sheet S3.0 for specific locations.

Contractor option: Leave pile caps in place and install 12x12 blocking at each pile and sister each pile cap with a 3x12; see S3.0 and 6/S4.1.

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- Install FX 763 epoxy by Denso to top of pile to fill voids. Following curing, apply topcoat with Archco 15 acrylic by Denso; install both products per manufacturer recommendations. Refer to Sheet S3.0 and S3.1 for specific locations.

Allowance: Perform repair at 5 additional locations.

Respectfully submitted,
GEL Engineering, LLC

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