

Chapter 5: Navigation

5.0 Navigation

To ensure marine safety and security, the United States Coast Guard (USCG) Bridge Program has the approval authority on the location and plans for modifications to existing bridges and all new bridges over navigable waterways. USCG authority for the permitting process is primarily found in 33 United States Code (USC) 401, 491, 525-533 and the International Bridge Act of 1972.

The USCG permit considers vertical and horizontal clearances of the structure over the navigable waterway to ensure that the clearance will provide for current and foreseeable navigation needs.

5.1 USCG Coordination

A Letter of Intent (LOI) was sent to USCG on September 4, 2018, refer to Appendix A. On November 26, 2018 representatives from Federal Highway Administration (FHWA) and USCG participated in a conference call to discuss the permit and navigational study. The USCG agreed their agency would review the navigational study. FHWA sent a Cooperating Agency invitation to USCG on March 25, 2019 and USCG accepted the invitation on April 10, 2019, refer to Appendix A. The Navigation Report was submitted by FHWA on October 24, 2019 and USCG provided a preliminary determination that the proposed clearances will meet the reasonable needs of navigation for the waterways, refer to Appendix Q.

5.2 Existing Bridge Clearances

Table 5-1 shows the existing bridges over Mackay Creek have a horizontal clearance of 60 feet and a vertical clearance of 24.9 feet according to the National Bridge Inventory (NBI). Both bridges are stringer/multi-beam or girder with one span in the main unit and 54 approach spans. The Mackay Creek eastbound bridge, built in 1956, is a concrete deck with a width of 39.4 feet out to out. The bridge deck is in satisfactory condition and the bridge superstructure and substructure are in poor condition. The Mackay Creek westbound bridge, built in 1983, is a concrete deck with a width of 39.4 feet out to out. The bridge is in satisfactory condition. Mackay Creek is approximately six miles in length and tidally influenced but is not part of the Intracoastal Waterway.

Mackay Creek runs parallel to Skull Creek on the west side of Pinckney Island National Wildlife Refuge (PINWR) and flows from the Port Royal Sound into the Intracoastal Waterway.

Table 5-1 Creek Crossings in the US 278 Navigation Project Study Area (PSA)

Bridge	Route	Bridge Type	Horizontal Clearance	Vertical Clearance
Mackay Creek	US 278 EBL	Fixed	60.0 ft	24.9 ft
Mackay Creek	US 278 WBL	Fixed	60.0 ft	24.9 ft
Skull Creek	US 278 EBL	Fixed	125.0 ft	64.9 ft
Skull Creek	US 278 WBL	Fixed	125.0 ft	64.9 ft

FHWA LTBP InfoBridge - National Bridge Inventory 2018

Table 5-1 shows the existing bridges over Skull Creek have a horizontal clearance of 125 feet and a vertical clearance of 64.9 feet according to the NBI. Both bridges are stringer/multi-beam or girder with five spans in the main unit. The eastbound bridge has 27 approach spans and the westbound bridge has 21 approach spans. The Skull Creek bridges, both built in 1982, have a concrete deck with a width of 39.4 feet out to out. The bridges are in satisfactory condition. Skull Creek is approximately 6 miles in length, tidally influenced, and part of the Intracoastal Waterway. Skull Creek flows from the Port Royal Sound to the Calibouge Sound on the east side of PINWR.

Figure 5-1 shows National Oceanic and Atmospheric Administration (NOAA) recorded tide and water level datums at PINWR, Mackay Creek SC (Station ID 8668944), Ribaut Island, Skull Creek SC (Station ID 8668918) and Skull Creek South SC (Station ID 8669133), refer to Table 5-2.

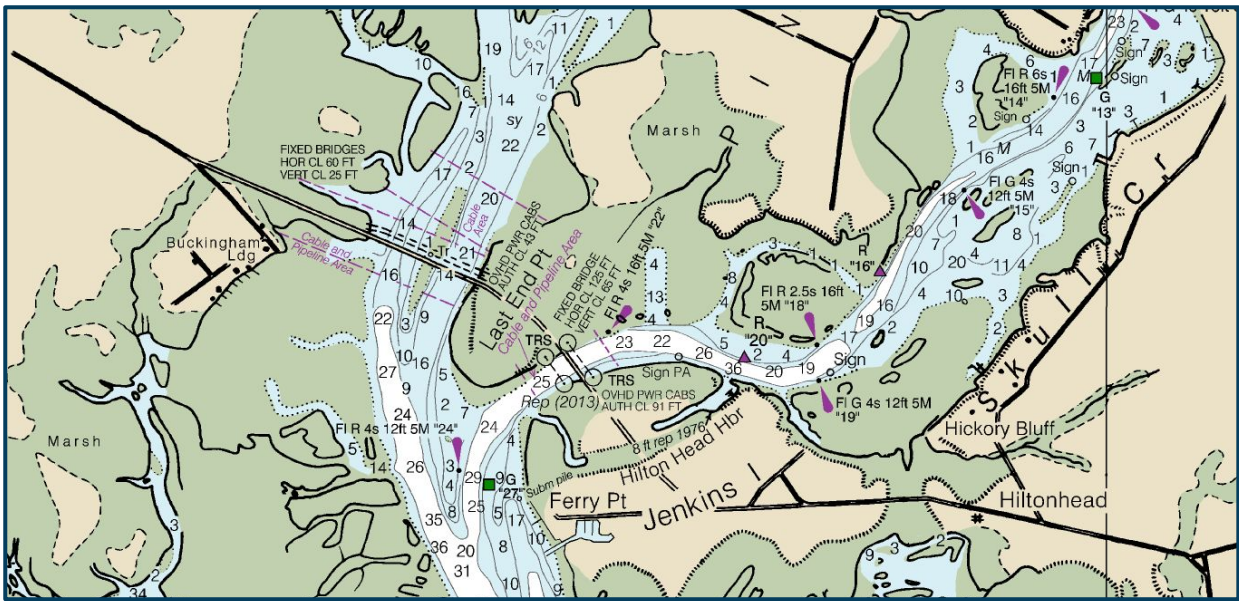


Figure 5-1 NOAA Nautical Chart #11516

Table 5-2 Tides/Water Level Datums

Station ID	Mean High Water (MHW)	Mean Low Water (MLW)	Mean Tide Level (TL)	Mean Diurnal Tide Level (DTL)
8668944	N/A	N/A	N/A	N/A
8668918	7.03 ft	0.20 ft	3.62 ft	3.70 ft
8669133	7.50 ft	0.23 ft	3.86 ft	3.95 ft
Skull Creek	US 278 WBL	Fixed	125.0 ft	64.9 ft

FHWA LTBP InfoBridge - National Bridge Inventory 2018

5.3 Proposed Bridge Clearances

According to the NBI the existing horizontal clearances are 60 feet at Mackay Creek and 125 feet at Skull Creek. The proposed horizontal clearances are 60 feet at Mackay Creek and 125 feet at Skull Creek. The vertical clearance of the existing bridges would not decrease in the proposed project and would not prohibit a vessel from travelling along Mackay Creek or Skull Creek. The proposed vertical clearance for the bridges over Mackay Creek is 25 feet from Mean High Water (MHW). The proposed vertical clearance for the bridges over Skull Creek is 65 feet from MHW.

5.4 Navigation Study Summary

The proposed bridge clearances were coordinated with USCG through the Navigation Study. The Navigation Study is based on current facts and if circumstances of the project change during the USCG permit application or public notice process it may be amended. The recreational and commercial usage, as well as navigational safety were considered in the Navigational Study

Mackay Creek and Skull Creek are used primarily by recreational vessels. Public boat ramps and private docks were identified along both creeks. There are approximately 53 residential docks and six marine related businesses near the PSA.

The C.C. Haigh, Jr. Boat Landing is located on PINWR and managed by an agreement with Beaufort County. The landing is located off US 278 on PINWR and offers a two-lane launch, floating docks, parking lot and picnic area. Fishing is allowed off the docks.

USCG, South Carolina Department of Natural Resources (SCDNR), Beaufort County Office of Emergency Management, and Hilton Head Island Fire and Rescue all conduct emergency operations in Mackay Creek and Skull Creek. Beaufort Water Search and Rescue (BWSAR), a volunteer organization, also assists these agencies in emergency response.

5.5 Federal and State Navigation Permits Required

A USCG Bridge Permit is required in compliance with Section 9 of the Rivers and Harbors Act of 1899 and the General Bridge Act of 1946. During final design, a USCG Bridge Permit application will be completed.

A South Carolina Department of Health and Environmental Control (SCDHEC) navigable waters permit is required for construction in/above state navigable waters. A separate application for the SCDHEC navigable waters will not be required, as it will be included in the Section 401 and Section 404 Clean Water Act permits.

5.6 Navigation During Construction

During construction there is potential for temporary closure. *If a closure is necessary, it would be advertised 30 days in advance and the navigation channel would be accessible to the maximum feasible extent.* Waterway users would experience minimal impacts and mitigation is not recommended.

South Carolina Department of Transportation (SCDOT) would mandate existing horizontal and vertical clearances be maintained throughout construction with any required encroachments be properly coordinated and temporary in nature to ensure there would be no unreasonable interference with navigation.

Upon completion of the new bridge and the shifting of traffic onto the new bridge, the existing bridge would be removed in its entirety. The piers and substructures of the existing bridge would be removed to the natural river bottom in accordance with SCDOT standard specifications Section 202.4.2.4.

Based on all of the information presented herein and in the Navigation Study, SCDOT determined that the project design would meet the reasonable needs of navigation.