

## **C. Vertical and Horizontal Control**

Per Section 5.1.2.3 of the Field Procedures Manual (2014 ed), no Horizontal and Vertical Control Report has been generated for H13245.

## C.1 Vertical Control

The vertical datum for this project is Mean Lower Low Water.

### ERS Datum Transformation

The following ellipsoid-to-chart vertical datum transformation was used:

Method	Ellipsoid to Chart Datum Separation File
ERS via ERTDM	R320FA2019_ERTDM_NAD83-MLLW.csar

*Table 13: ERS method and SEP file*

ERS methods were used as the final means of reducing H13245 to MLLW for submission.

## C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD 83).

The projection used for this project is Universal Transverse Mercator (UTM) Zone 3.

The following PPK methods were used for horizontal control:

- RTX

Vessel kinematic data were post-processed using Applanix POSPac processing software and RTX positioning methods described in the DAPR. Smoothed Best Estimate of Trajectory (SBET) and associated error (RMS) data were applied to all MBES data in CARIS HIPS and SIPS.

### WAAS

The Wide Area Augmentation System (WAAS) was used for real-time horizontal control during data acquisition. During real-time acquisition, 2805 and 2807 received correctors from the Wide Area Augmentation System (WAAS) for increased accuracies similar to USCG DGPS stations. WAAS and SBETs were the sole methods of positioning for H13245 as no DGPS stations were available for realtime horizontal control.