

## C. Vertical and Horizontal Control

Per Section 5.1.2.3 of the 2014 Field Procedures Manual, no Horizontal and Vertical Control Report has been generated for H13334.

### 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:

<b>Method</b>	<b>Ellipsoid to Chart Datum Separation File</b>
ERS via VDATUM	Relentless_Search_Area_NAD83_Vdatum_MLLW.csar

*Table 12: ERS method and SEP file*

ERS methods were used as the final means of reducing H13334 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 10.

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

During real-time acquisition, S220 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 H13334 as no DGPS stations were available for real-time horizontal control.