

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

Additional information discussing the vertical or horizontal control for this survey can be found in the accompanying HVCR.

### **C.1 Vertical Control**

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

#### ERS Methods Used:

ERS via VDATUM

#### Ellipsoid to Chart Datum Separation File:

VDATUM\_Outline\_Shape\_xyNAD83-MLLW\_geoid12b.csar

Reduction to MLLW was accomplished using ERS methodology via VDATUM. The VDATUM model was provided by NOAA prior to operations and had an uncertainty specified as 10.4 cm. The VDATUM model was validated during this survey using comparisons with NWLON gauge data and found to be acceptable for tidal reduction. See the HVCR for validation reports.

As discussed previously in this report, verified tidal data from nearby NWLON station Matagorda Bay Entrance (station 8773701) was used to correct one survey line which did not have GPS altitude data available. The line compared to 0.1 m in average to overlapping VDATUM-corrected data.

## **C.2 Horizontal Control**

The horizontal datum for this project is North American Datum 1983.

The projection used for this project is Projected UTM 14.

The following PPK methods were used for horizontal control:

### Smart Base

Applanix Smart Base (ASB) was used as a comparison against Trimble PP-RTX results, and generally compared to 0.10 m or better.

Positions were post-processed in Applanix POSPac MMS software using Trimble PP-RTX as the correction source. RMS errors were generally at 0.10 m or better, both horizontally and vertically.

WAAS was used for real-time positioning only, and was replaced in post-processing with PP-RTX solutions for final MBES data (except for one line noted earlier in this report). However SSS positions were not post-processed and are therefore based on WAAS positioning.