## G. Vertical and Horizontal Control

The vertical datum for this project is Mean Lower Low Water. The vertical control method used was .

A Vdatum separation model (SEP) with GNSS Vertical Referencing Method was applied to vertically transform the data to the ellipsoid (NAD83). However, transformation to the ellipsoid using this method was unsuccessful for several lines due to anomalies with the GPS system during bad weather. This resulted in several lines with major vertical offsets from the rest of the ellipsoidally referenced surface. Therefore, these lines were subsequently processed in CARIS using the same work flow utilized in NF-17-09. Tides were

applied using a TCARI grid and the data was vertically referenced to Mean Low Low Water (MLLW) using Vdatum.

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 18.

The following DGPS Stations were used for horizontal control:

| DGPS Stations |
| --- |
| Atlantic City, NJ-8534720 |
| Cape May, NJ-8536110 |
| Lewes, DE-8557380 |
| Sandy Hook, NJ-8531680 |
| Montauk, NY-8510560 |

The list referring to "DGPS Stations" are actually NWLON stations that provided residuals for this project.

The horizontal datum for this project is North American Datum 1983. The projected coordinate system for this survey UTM NAD83, Zone 18N. Data were acquired with Marinestar correction on ITRF2014. The difference between ITRF2014 and NAD83(2011) in this area is approximately a meter horizontally. Navigation and attitude data were adjusted in PosPac to NAD83 by exporting a custom SBET using NAD83 (2011) 2017.756 mapping frame.