A. Vertical Control

The time meridian for this project was 000° longitude. All measurements were made in Universal Time, Coordinated (UTC). No measurements were made using local time. The local time meridian for the project was 135° west longitude and local time Alaska was offset from UTC by nine hours (Alaska Daylight Time = UTC - 9 hours).

Two subordinate gauges were installed to provide preliminary tide processing for the project area. TerraSond, Ltd. installed a bubbler-style tide gauge at Point Possession, AK (945-5866) and contracted with John Oswald and Associates (JOA) to install a radar-type gauge at North Foreland, AK (945-5869). JOA was also contracted to process the subordinate tide data and also to deliver final verified tides and zones along with an ellipsoid to mean lower low water model. The Pt. Possession Station Gauge 1, during quality control checks, was fond to be reading inaccurately. A visit to the site followed and the orifice was found to be flipped over. This affected data from July 26 2008 thru July 31 2008. Two separate final deliverable tide products were created from this one previous to July 26th and one following July 31st. Refer to Appendix I for tide station information.

The large tidal range of up to 32 feet and strong currents of Cook Inlet led TerraSond to process the final soundings on the NAD83 ellipsoid and then apply an offset to the data to Mean Lower Low Water (MLLW). Therefore, all final sounding data were adjusted for tidal influence using Post Processed Kinematic (PPK) GPS data reduced to MLLW using an ellipsoid to MLLW model. This led to a much better match-up between adjacent lines and much higher percentage of soundings meeting IHO Order 1 during crossline analysis then conventional verified, zoned tides.

To derive an ellipsoid to MLLW model, a large network static survey was performed by TerraSond and JOA. The network static survey comprised of nine sites that were geographically distributed across Cook Inlet that each had bench marks referencing MLLW. See Figure 1 below.