DU PROCEDURE FOR GPS SHORELINE SURVEY

PRELIMINARY PROCEDURE
Ducks unlimited uses Nikon total station or Trimble survey grade RTK-GPS equipment to collect all topographic data.

Discuss survey objectives with the design engineer before starting the actual field survey.

Always approach the topographic survey with the design objectives in mind so that unforeseen challenges can be addressed in the early stages of the survey.

Communicate with the design engineer the status and progress of the topographic survey so that adjustments can be made during the survey process.

SURVEY PROCEDURE
Set an initial control point – for the GPS base station or total station
Establish multiple control points/benchmarks (ideally surrounding project area - nearly impossible on shoreline projects).

Permanent offsite control will be established so that it can be referenced during the projects topographic Survey, construction and post construction monitoring.

Ducks Unlimited will set a permanent control point for the GPS base station to occupy initially to collect raw GPS data for minimum of 4 hours. After collecting raw GPS data for a minimum of 4 hours DU will submit this data to NGS OPUS website to that the initial control point position will be solved X,Y,Z, in State Plane Coordinate system (horizontally), units in US Survey feet and in NAVD 88 (vertically). Physical existing benchmarks will be measured to verify the OPUS solution.

During the course of the survey all permanent existing benchmarks and established control points will be observed multiple times for redundancy and to ensure accurate collection of all data.

Collect survey data starting with MHW and if possible MLW

All water elevations will have time and date to correlate with existing water level gauges

Install water level monitors (Pezometers) to collect actual onsite water level data. (If needed)

Show direct correlations between survey datum and historical water level data collected by NOAA.

Collect elevation data in cross sections not to exceed 50' spacing – data shall include upland, MHW, slopes, drop-offs, and MLW. **Data should always extend beyond the intended work zone in all directions**

BIOLOGICAL BENCHMARKS

Observe biological benchmarks – collect elevation data where individual plant species are abundant (EX. Spartina patens zone vs. Spartina alterniflora zone)

Locate any existing SAV zones.

Note actual field conditions and historical data for predominant wind directions and typical high energy storm direction and storm intensity.

QUALITY CONTROL

Always survey beyond project limits on all sides

Utilize NOAA Tidal data into engineered restorations

Trimble software along with survey practice and procedures insure precision with the data collection process.

PRELIMINARY DESIGN

Create existing topographical surface in AutoCAD to use for restoration designs and calculating earthwork volumes.