

September 26, 2024

243703

David Ryan, PE
Town Engineer
Town of Nags Head
PO Box 99
Nags Head, NC 27959

Re: Town of Nags Head – 2024 Fall Beach Monitoring Survey

David,

McKim & Creed would like to present our proposal for professional surveying services in connection with the referenced project. We understand the scope of work to include a fall survey of 112 predetermined beach profile lines based on the files and email from Moffat & Nichol dated 09.24.2024.

For the requested fall survey, the profiles will extend landward to the limits of the Summer 2024 survey and extend seaward to a distance that is approximately three thousand five hundred feet offshore or -30 ft NAVD 88, whichever is achieved first.

This fall survey includes 112 beach profile monitoring lines between stations 495+00 and 1110+00 (≈12 Miles).

Scope of Work

- All survey work will be performed to the Standards of Practice for Land Surveying in North Carolina.
- Hydrographic surveys will be performed to meet or exceed the minimum performance standards for the Corps of Engineers Hydrographic Surveys, USACE specifications manual EM 1110-2-1003.
- Horizontal data will be referenced to NC Grid NAD83/2011 or to existing control datum and Vertical datum will be NAVD88.

- Over land data will be captured using Trimble R8/R10 dual frequency GNSS receivers beginning at the Landward toe of the Primary dune and extend out to the surf zone at wading depth (wading will occur at low tide). Land survey crews will have survey grade GNSS receivers mounted on fixed height rover poles that are equipped with topo shoes (flat rod tips that do not sink in the sand). The data collectors are clamped onto the pole; the system is lightweight and ideal for one person. To move up and down the beach efficiently, we will use Side by Side utility vehicles (Kawasaki Mule). Crew trucks are painted with our company logo, field crews wear highly visible orange/yellow shirts and vests.
- Hydrographic surveys will be collected from -30 ft NAVD88 to the surf zone (during the high tide cycle) to achieve overlapping data as weather/sea conditions allow. Our survey vessels range from 22' to 28' in length and are equipped with Inertial Navigation systems that include survey grade dual frequency sonar, IMU, VRS RTK GNSS and sound velocity probes, all of which compensates for heave, pitch, roll, heading and the speed of sound, to calculate position and depth. Prior to beginning work, we perform a bar check to ensure the accuracy of our sonar and we perform sound velocity checks periodically during the survey.
- We will provide the following deliverables:
 - XYZ files of the Land, Wade, and Hydro data
 - BMAP file
 - Field Survey Report

Accuracy

- Land: The integrated GNSS system (Trimble R8) that we use is rated at a precision of .02' horizontal and .05' vertically. Based on the conditions and stability of the sand, we can provide an accuracy of 0.1' horizontally and less than 0.2' vertically.
- Hydro: Our equipment is well within the requirements of the USACE Hydrographic Survey Standards. Our soundings will be accurate to within 3' horizontal and 0.25' vertically.

Assumptions

The Town of Nags Head will apply for a permit to enter the Park in case the one used in the Summer 2024 is not accepted.

Schedule

We estimate the data collection to start beginning of November, depending on weather, and take approximately 2 weeks to collect all data sets. We can provide the final deliveries and reports within 2-3 weeks of completion of field work.

For services described in the above Scope of Work, the lump sum fee will be **\$44,790.00** (*forty-four thousand seven-hundred and ninety dollars*) inclusive of reimbursable expenses.

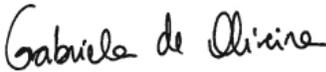
2024 Fall Survey (112 Profiles) \$44,790.00

This proposal is submitted contingent upon the negotiation of a contract with mutually acceptable terms and conditions prior to the commencement of any work.

We appreciate the opportunity to provide this proposal to you and look forward to working on the project with you.

Sincerely,

McKIM & CREED, INC.



Gabriela De Oliveira
Hydrographic Project Manager