



**DRONE & HYDROGRAPHIC SURVEY
FOR REJUVENATION OF
LAKES, RIVERS, CANALS &
RESERVOIRS**

About Phans4:

Phans4 consulting is an inspection and testing agency employs qualified personnel who specialize in inspecting and testing civil equipment, Our experts are well qualified in relevant fields with international approved certifications to perform tests and inspections. They undergo continuous training to stay updated on the latest inspection techniques, testing methods, and regulatory requirements, Familiarity with Regulations and Codes. They all have experience working in relevant industries such as manufacturing, oil and gas, petrochemicals, power generation, or any other field involving civil equipment.



DRONE & HYDROGRAPHIC SURVEY FOR WATER BODIES

Phans4 consulting Approach and Method Statement for Conducting Hydrographic Survey of Water Bodies, Reservoirs and Lakes

Our Services:

PURPOSE:

The survey aims to gather accurate and detailed information about the underwater topography, including depth profiles, obstructions, and other relevant features.



PRE-SURVEY PREPARATION:

Before conducting the hydrographic survey, the following preparatory steps should be taken

- Review the survey objectives and requirements provided by the client or project specifications.
- Determine the survey area boundaries and establish the coordinate system to be used.
- Ensure that all necessary survey equipment, such as a survey boat or vessel, GNSS receivers, echosounders & data processing software, are in place & functioning correctly.
- Check the weather conditions and forecast for suitable surveying conditions.
- Obtain necessary permits or permissions from relevant authorities, if required.



SURVEY EQUIPMENT SETUP:

Set up the survey equipment according to the manufacturer's guidelines and established best practices. This typically involves the following steps:



- Install and configure the GNSS receivers for accurate positioning and reference.
- Calibrate and configure the echosounder or multibeam sonar system for depth measurements.
- Establish communication between the survey boat or vessel and the equipment to ensure real-time data collection and monitoring.
- Conduct a pre-survey equipment check to verify proper functioning and accuracy.

SURVEY EXECUTION:

Carry out the hydrographic survey using the following procedures:

1. Establishment of Bench Mark.
2. Establishment of Horizontal control and marking the selected points on banks
3. Establishment of Vertical Control
4. Position Fixing



- Start the survey boat and travel safely to the survey area.
- Activate GNSS receivers, echosounder, and sensors for data collection.
- Systematically cover the survey area using predefined transect lines or a grid pattern to capture topographic data.
- Maintain consistent speed and spacing between transects for accurate data interpolation.
- Continuously monitor equipment and data quality, making adjustments as needed.
- Take additional measurements at specific points of interest or for detailed analysis.
- Collect additional field observations or relevant data, like water quality parameters or underwater obstructions, to meet survey objectives.

DATA PROCESSING & ANALYSIS:

After completing the survey, process the collected data using appropriate software and analysis techniques:

- Transfer the raw survey data from the data recording devices to a computer or data processing system.
- Apply necessary corrections and filtering to remove noise and artifacts from the data.
- Conduct data interpolation and bathymetric modeling to generate a visual representation of the water body's topography, including depth contours, shapes, and features.
- Analyze the processed data to identify potential hazards, underwater structures, or areas of interest.
- Prepare a comprehensive survey report, including maps, charts, and tabular data, highlighting the key findings, observations, and recommendations.



HEALTH, SAFETY, & ENVIRONMENTAL CONSIDERATIONS

Throughout the entire survey process, prioritize health, safety, and environmental considerations:

- Ensure that all survey personnel are properly trained in waterborne operations and equipped with appropriate personal protective equipment (PPE).
- Follow safety protocols for operating survey boats or vessels, including adherence to speed limits, navigation rules, and emergency procedures.
- Minimize the impact on the environment by avoiding sensitive areas, utilizing eco-friendly equipment, and complying with local environmental regulations.



QUALITY CONTROL AND ASSURANCE:

Throughout the entire survey process, prioritize health, safety, and environmental considerations:

- Ensure that all survey personnel are properly trained in waterborne operations and equipped with appropriate personal protective equipment (PPE).
- Follow safety protocols for operating survey boats or vessels, including adherence to speed limits, navigation rules, and emergency procedures.
- Minimize the impact on the environment by avoiding sensitive areas, utilizing eco-friendly equipment, and complying with local environmental regulations.



PROJECT DELIVERABLES:

- Upon completion of the hydrographic survey, provide the following deliverables to the client or relevant stakeholders:
- Final survey report containing detailed findings, analysis, and recommendations.
- Digital, georeferenced datasets in formats specified by the client, such as GIS-compatible files or point cloud data.
- Visual representations of the survey data, such as depth contour maps, 3D models, or orthophotos, as required.
- Any additional documentation or records associated with the survey, including field notes, images, and calibration reports.



Topographic map at suitable Scale, Contours Map at 0.5m interval, Digital Elevation Model (DEM), DGPS and Leveling Network raw and processed data, Digital Ortho Imagery, in tiles and seamlessly mosaiced over the survey area.

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