UTILIZING UNMANNED AERIAL SYSTEMS FOR CONSTRUCTION EARTHWORK, BORROW PITS, AND STOCKPILES

The Photogrammetry Unit now has the capability of utilizing Unmanned Aerial Systems (UAS) to acquire aerial imagery and subsequently produce terrain data for construction earthwork, borrow pits, and stockpiles. The UAS process for developing **orthophoto imagery, terrain data and volume calculations** from the imagery acquired follows a similar workflow to that of conventional photogrammetry with a manned aircraft as outlined in this section of the Construction Manual.

UAS is ideal for **certain situations** such as smaller areas having little to no vegetation on the site. UAS aerial surveying is likely to be more cost effective than ground-based surveying techniques for construction earthwork, borrow pits, and possibly stockpiles. It all depends on the site size and site characteristics. However, there are some limitations involved with utilizing the UAS system, so coordination with the Photogrammetry Unit and Location & Surveys Unit is necessary to determine which approach, manned aircraft, UAS flights, or a combination, will best serve the project's needs.

The Photogrammetry Unit is currently partnering with other NCDOT Units to develop a program that would facilitate regional UAS data acquisition within the Divisions, with photogrammetric data processing being completed by the Photogrammetry Unit.

For additional information pertaining to UAS usage, limitations, restrictions and use cases please visit the **Aerial Surveying with Drones** page on the NCDOT Photogrammetry Connect site.