



Water Resources Development Grant Program

Guidelines For Taking Geotagged Digital Photos

Purpose

This document was originally created to provide instructions to grantees for providing geotagged digital photos to the DWR Grant Manager as an alternative to DWR staff conducting site visits during the COVID-19 pandemic. The two primary objectives of taking geotagged digital photos are 1.) to ensure that all project area components have been sufficiently documented by the grantee in lieu of a site visit; and 2.) enables the DWR Grant Manager to verify and overlay photo locations using ArcGIS or other geographic information system (GIS) software. Geotagged drone imagery may be substituted for or supplement manual photos; please consult with DWR Grant Manager prior to submitting drone imagery.

General Guidelines For All Photos

- File Size:** please check your phone or camera's settings and set to a moderate resolution to ensure that the photo resolution (quality) is adequate, but the photo's file size is not too large by taking a test photo and checking its file size. Generally a file size of 2.5mb – 5mb per photo is ideal.
- Contextual photos: ensure that they are taken of each of the project components listed on the grantee's scaled site plan and described in the grantee's application and/or any subsequent DEQ contract amendments.
- Orientation: take all photos with the camera oriented in a landscape (not portrait) position. An exception to this rule would be if taking a photo of a tall vertical structure or point of interest.
- Photopoints: take at least two photos, in opposite directions, at every photo location.
- Timing: Pre-Application photos must be taken within six months of the application date. Grant close out photos must be taken within six months of 100% project completion.
- Safety: please be aware of, and do not risk one's personal safety. Potential hazards include slips, trips & falls; stinging insect nests, extreme weather and property trespassing.

Stream Restoration Projects

Pre-Application

- Photopoints: take photos along entire stream reach of both stable and degraded areas.
- Structures: take photos of all existing structures such as culverts, hardened fords, bridges and dams.

Post Construction

- Photopoints
 - Take at least two photos at every photopoint, one facing upstream and one facing downstream.
 - Take as many photos as possible within the stream channel if conditions are safe.
- Structures
 - Take photos of all in-stream structures constructed/installed, including educational signage. An additional photo shall be taken across an instream crossing (bridge, ford, culvert).
 - Take photos of all out-of-stream structures within the riparian area constructed/installed. For livestock exclusion fencing please take photos in both directions of the fencing along the upstream, midstream and downstream portions of the reach.
- Riparian Buffer:
 - Take photos along both sides of the stream along the upstream, midstream and downstream portions of the reach.
 - Take at least one zoomed-in (close-up) photo of plantings along both sides of the stream along the upstream, midstream and downstream portions of the reach that show enough detail to determine the species and condition of the plantings in a small area.



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Water-Based Recreation Projects

Pre-Application

- Trails: lightly flag trees or place pin flags along proposed trail alignments if not in obvious rights-of ways prior to taking photos. Take at least two photos along every approximately (~)100 feet of trail facing opposite directions along the proposed trail alignment.
- If area is inaccessible take one photo looking into the proposed trail entrance and another photo looking out from the proposed trail entrance and repeat at the proposed trail end.
- Structures: take a photo from each end of the proposed area of the recreational structure.

Post Construction

- Trails: take two photos at the trail beginning (one facing into the trail and one facing out), at least two photos along every ~100 feet of trail facing opposite directions along the proposed alignment and two photos at the trail end (one facing into the trail and one facing out).
- Structures: take a photo from each end of the recreational structure, a photo of the entire structure (where possible and not in water) and a photo of any educational signage. Also take photos of recreational support infrastructure such as driveways, parking lots, buildings or other structures.

Water Management Projects

Pre-Application

- Photopoints: take at least four photos at the proposed location of each stormwater control measure (SCM) or water management structure: one photo facing upgradient showing drainage area draining to proposed SCM, and one photo facing downgradient away from proposed SCM, one photo looking across the proposed SCM location in one direction, and a final photo looking across the proposed SCM location in the opposite direction.

Post Construction

- Photopoints: take at least four photos at the proposed location of each stormwater control measure (SCM) or water management structure: one photo facing upgradient showing drainage area draining to SCM inlet, and one photo facing downgradient away from SCM at SCM outlet, one photo looking across the SCM location in one direction, and a final photo looking across the SCM location in the opposite direction.
- Structures: take photos of the inlet, outlet, support infrastructure and any educational signage.

To Enable Photo Geotagging

Most smartphones that are less than 5 years old have the capability of geotagging photos if the gps/geotag setting is turned on; additionally all gps-enabled cameras can geotag photos in their gps mode. Please be aware that the coordinates embedded in photos taken by smartphones may not be as accurate as those taken with a gps-enabled camera.

Below are links with instructions for how to take geotagged photos with smartphones. Please contact the DWR Grant Administrator if additional assistance is needed.

Android

Newer: [How To Enable Location Tags In Camera On Samsung Galaxy Phones](#)

Older: [Geotagging With Android Smartphones](#)

iPhone & iPad

Newer: [How to add or change a photo's geolocation on your iPhone or iPad](#)

Older: [How to Geotag Photos on Your iPhone](#)



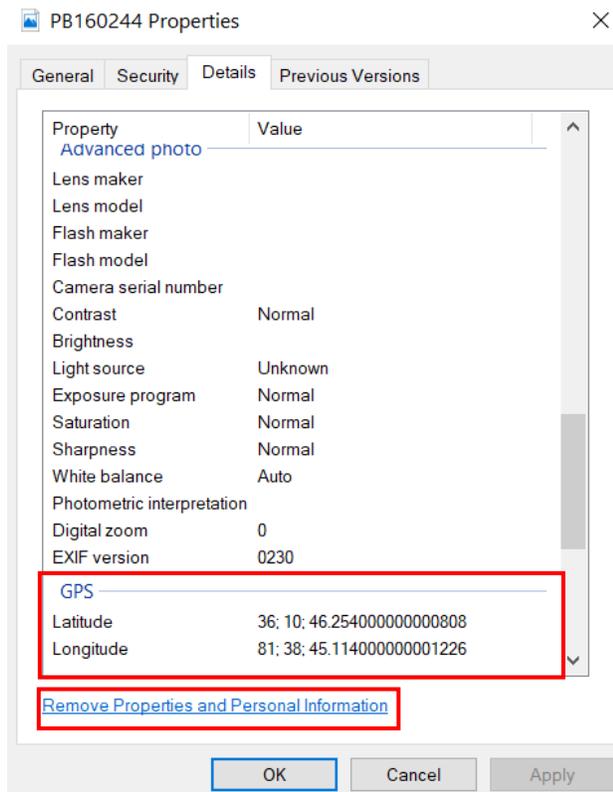
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HEIC Files

Please export geotagged photos taken with iPhone in a JPEG file format since geotagged photos exported as HEIC files cannot currently be viewed or processed. For more information about converting HEIC files to JPEG see <https://blog.photobucket.com/how-to-convert-a-heic-image-to-a-jpg#:~:text=Open%20your%20HEIC%20file%20with,Save%20to%20complete%20the%20conversion.>

To Determine Whether A Digital Photo Is Geotagged

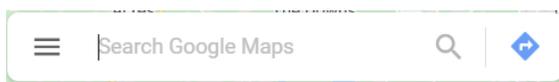
Save photos to a computer> Right-click on the filename of the photo> Properties> Details tab> scroll down and look for a GPS section with Latitude & Longitude coordinates. If this GPS section does not appear the photo is most likely not geotagged.



Safety Note: please remember to disable the geotagging function if you do not want the recipient of your photos to be able to determine the location of where your photo was taken. To remove geotagging from a photo, click the *Remove Properties & Personal Information* link highlighted above.

To Verify The Location Of A Photo Using Google Maps

Enter coordinates in the Search area (see graphic below) with the following format:
##.#####N, ## ## ##.###W. For Example: enter 36 12 34.56789N, 75 12 34.56789W





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Photo File Transfer to DWR

- Use an approved file-sharing website (Google Drive, Microsoft OneDrive, SharePoint, Dropbox, etc.) to upload photos.
- Create folders for projects that involve multiple treatments and upload photos to the specific folder. Example: multiple streams, SCMs, multiple trails, recreational structures, etc.
- Email DWR Grant Manager ([Amin.Davis@ deq.nc.gov](mailto:Amin.Davis@deq.nc.gov)) a link to where the photos can be viewed and downloaded as part of the application submittal or project close out process.

The DWR Grant Manager will review all of the photos taken to determine if they were taken in accordance with this guidance document and adequately document the project area. The DWR Grant Manager will contact the grantee regarding this determination and if any additional actions are needed associated with project review or close-out.