



United States Power Squadrons Geodetic Mark Recovery Program Standard Operating Procedures

(Revised 02/2024)

(Supersedes 6/2023)



This document describes the geodetic marker recovery cooperative charting program. The reporting options are described. Included is a discussion on the purpose and reporting frequency. Suggested preparations and materials for conducting a hunt are presented so that you will be well prepared in advance of a hunt. The requirements for conducting a hunt and credits awarded for approved reports are also described in detail. After a hunt is completed, you will want to complete the appropriate form that make submitting a report a rewarding experience. All reports should be submitted to the Cooperative Charting Committee using the submittal form on the Cooperative Charting website. The data for the report is to be provided on the appropriate form that will be uploaded along with pictures or other associated documents. A member of the Cooperative Charting Committee will review the report, submit the data to NGS and assign the appropriate number of credits if approved. If errors are found or the information is incomplete, the submitter will be advised of what actions are needed to gain acceptance.

The Cooperative charting year will be from 01 January to 31 December and reports must be submitted within 30 days of the observation. Reports submitted after the end of the year will be credited in the following year. If a report is submitted within 30 days and it is rejected because of missing or incorrect data, the observer may submit a follow up report with correct data and the 30 day limit will not apply.

The credits are listed below:

Geographical mark (tower, cupola, antenna, etc.)

If found intact 0

If found missing or destroyed 10

Geodetic mark not recovered/not found 2

Geodetic mark found missing or destroyed 10

Geodetic mark found good or poor 10

Bonus, not recovered in the past 5 years 4

Bonus, not recovered in the past 25 years 25

Bonus, last reported as not recovered/not found 25

The credits awarded will be tracked by the Committee and used to recognize individuals, squadrons and districts as listed below:

Individual Honor Roll Requirement	Calculated annually
Squadron Honor Roll Requirement	Calculated annually
District Honor Roll Requirement	Calculated annually
#1 Individual	Based on percentage of honor roll requirement
#1 Squadron	Based on percentage of honor roll requirement
#1 District	Based on percentage of honor roll requirement

Some Recommended Materials

GPS device with WAAS or DGPS enabled

Digital camera, GPS enabled

Maps (electronic or paper)

Pencil and paper

Paper towels

Scrub brush

Small shovel

Long screwdriver

Metal detector

Rags

Pruning clippers

Battery operated weed trimmer

Socket set

Manual pump

National Geodetic Survey Web Map https://geodesy.noaa.gov/datasheets/ngs_map/ (Type in Marker Name or Zip code.)

Marker history at NGS Benchmark Viewer by ScaredyCatFilms:

<http://benchmarks.scaredycatfilms.com/index.php>

Marker history at Android smart phone free download: BenchMap 2.4.0

GPS photo tagging low-cost download for Android or iPhone: Solocator

The purpose of the program is to report on the condition of the geodetic marks listed in the National Geodetic Survey (NGS) database. Geodetic marks are located all over the country and are set by various agencies; not all marks are listed with NGS. We only report on the condition of the geodetic marks listed in NGS's database.

Geodetic Marker Recovery Reports

Geodetic marks can be reported every 24 months from the last Power Squadron recovery or 12 months from the last non-Power Squadron recovery unless there is a change in status from "not recovered/not found" to "found". Changes in status may be reported at any time. A mark may not be reported as "not found" if the previous recovery was "not found" or "destroyed". Up to 6 observers and five marks can be included in each report; all required fields must be completed on the submittal form.

Report Requirements

Attach the following to the report.

The minimum requirement for Cooperative Charting Committee (CoChC) credit is a close-up photo of the marker if found, or a photo of the marker location if not found. The required photo must contain position coordinates as well as a date/time stamp. For further detail, special situations, optional photos, and NGS file naming protocol, see the Photographic Details and Options section below. Any other supporting documentation, if applicable.

Procedure

Confirm the following conditions about each marker that you check.

Good – no evidence of tampering, subsidence, frost heave, etc.

Poor (disturbed, mutilated, requires maintenance) – damage or movement excessive for the designated stability and/or accuracy. Include a description of the condition in the comment section of the report.

Destroyed – irrefutable evidence of destruction.

Not recovered/not found – existence doubtful or recovery is unlikely without extraordinary effort. Include a description of the condition in the comment section of the report and the effort made to recover the mark and why it could not be found such as road construction, building addition, bridge replacement, etc.

Photograph Details and Options

As mentioned in the Report Requirements above, one of the requirements of the geodetic marker recovery program is a close-up digital photo of a marker or the marker location if not found, and the required photo must contain the position coordinates as well as a date/time stamp. The position and date stamp can either be imprinted on the photo or in the photo properties. Close-up photos are required for small marks like disks, bolts, rods and the like. For larger marks like boundary monuments, the required photo can be horizontal. For encased rods with lids, the photo should be taken with the lid open and the rod showing. Besides the required photo, additional photos are recommended – one at eye level looking down on the mark, and another horizontally across the mark.

The required and optional photos may be uploaded to NGS's database by the CoChC if they are labeled according to NGS rules. If the photograph labeling does not follow NGS requirements, the photographs will not be uploaded, but the required photo will still satisfy the CoChC geodetic marker recovery requirements. All photographs must be 4 MB or smaller.

There are 3 ways to photograph a marker and/or marker location:

- Digital picture using GPS enabled device (tablet, Android, iPhone, GPS enabled camera, etc.)

- Note: The GPS functionality is found in the photo file properties and it is highly advisable to verify the GPS in the device is activated and operating prior to starting a hunt.

- Digital picture with a handheld GPS clearly showing latitude, longitude, date and time.

- Digital picture with latitude, longitude, date and time visible on the photograph.

NGS Photo Naming Convention

The required close-up photo must be labeled using one of the following naming formats.

PID- **DESIGNATION**- **TYPE**- **DATE**.jpg

Credit Only

AB1234-SMITH_RM_2-0-20190930.jpg close up photo of NGS mark AB1234 use "0" as TYPE

Credit and Uploading (recommended)

AB1234-SMITH_RM_2-1-20190930.jpg close up photo of NGS mark AB1234 use "1" as TYPE

NGS will accept 3 types of photos:

- Close up (1) – photo taken directly above the mark

- Eye level (2) – photo taken directly above the mark from eye level

- Horizontal (3DIR) – photo highlighting the mark location

Provide each photo as an individual digital file, using the file name to identify the content.

The approved NGS naming format is: **PID**- **DESIGNATION**- **TYPE**- **DATE**.jpg

- PID** is the NGS ID for the mark.

- DESIGNATION** is the official name for the mark, up to 25 characters.

- TYPE** (1) for close-up, (2) for eye level, and (3DIR) for horizontal, with DIR indicating the direction.

- DATE** is the date photographed, in YYYYMMDD format.

Use dashes "-" to separate the fields. Spaces are not permitted in the file name. Use an underscore "_" in lieu of spaces within fields. These separators are required to minimize UNIX file handling problems.

Reminder: any photos submitted not following NGS's approved format will not be uploaded to NGS's database.

Example: Mark AB1234, with designation SMITH RM 2, recovered on 30 September 2019

AB1234-SMITH_RM_2-1-20190930.jpg	close up photo of NGS mark AB1234
AB1234-SMITH_RM_2-2-20190930.jpg	eye level photo of NGS mark AB1234
AB1234-SMITH_RM_2-3N-20190930.jpg	directional photo of NGS mark AB1234 facing north
AB1234-SMITH_RM_2-3SW-20190930.jpg	directional photo of NGS mark AB1234 facing southwest
AB1234-SMITH_RM_2-3ENE-20190930.jpg	directional photo of NGS mark AB1234 facing east-northeast

Revision History

02/29/2024: NGS Web Map Link update

06/2023: Added to the Report Requirements section: the minimum requirement for Cooperative Charting Committee (CoChC) credit is a close-up photo of the marker, if found, or a photo of the marker location, if not found. Also added, the required photo must contain position coordinates as well as a date/time stamp. Also added, for further detail, special situations, optional photos and NGS file naming protocol, see the Photographic Details and Options section below. Changed the Photograph Options heading to Photographic Details and Options. Added to the Photograph Details and Options section: as mentioned in the Report Requirements above, one of the requirements of the geodetic marker recovery program is a close-up digital photo of a marker or the marker location if not found, and the required photo must contain the position coordinates as well as a date/time stamp. The position and date stamp can either be imprinted on the photo or in the photo properties. Close-up photos are required for small marks like disks, bolts, rods and the like. For larger marks like boundary monuments, the required photo can be horizontal. For encased rods with lids, the photo should be taken with the lid open and the rod showing. Besides the required photo, additional photos are recommended – one at eye level looking down on the mark, and another horizontally across the mark. Also added, the required and optional photos may be uploaded to NGS's database by the CoChC if they are labeled according to NGS rules. If the photograph labeling does not follow NGS requirements, the photographs will not be uploaded, but the required photo will still satisfy the CoChC geodetic marker recovery requirements. Added to the NGS Photo Naming Convention section: the required close-up photo must be labeled using one of the following naming formats.

PID- DESIGNATION- TYPE- DATE.jpg

Credit Only

AB1234-SMITH_RM_2-0-20190930.jpg	close up photo of NGS mark AB1234 use "0" as TYPE
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Credit and Uploading (recommended)

AB1234-SMITH_RM_2-1-20190930.jpg	close up photo of NGS mark AB1234 use "1" as TYPE
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Deleted from the NGS Photo Naming Convention reminder sentence: but still satisfy our geodetic marker recovery requirements.

03/2020: Deleted the end-of-the-year-report 15 January allowance. Added the end-of-the-year-reports will be credited in the following year if submitted after the end of the year.