



Ministry of Northern Development and
Mines

**Georeferencing Standards for
Unpatented Mining Claims**

Global Positioning System (GPS) Information Unpatented Mining Claims

Introduction

This guideline sets out the standards that are satisfactory to the Minister for collecting and submitting Global Positioning System (GPS) georeferenced information as part of the Application to Record a ground staked mining claim in unsurveyed territory or to provide ground truthed locational GPS data for an existing ground staked mining claim in unsurveyed territory.

The submission of GPS locational data is intended as a step towards clarifying claim locations in advance of the planned move to fully electronic, on-line map staking.

Applications to Record a ground staked mining claim in unsurveyed territory:

All Applications to Record for a ground staked mining claim in unsurveyed territory, for claims staked on or after **November 1, 2012**, must include GPS georeferenced coordinates for all claim corner, witness and directional posts. The Application to Record will require you to provide the coordinates and related information for the claims and you will be required to certify that the coordinates and information comply with standards satisfactory to the Minister, as set out in this guideline.

Ground truthing existing ground staked mining claims in unsurveyed territory:

For **existing** ground staked mining claims in unsurveyed territory that were staked prior to **November 1, 2012**, the claims may be eligible for one year of assessment credit for providing GPS locational data. The GPS georeferenced locational data would have to meet the standards set out in this guideline and you would be required to provide a supporting technical report as outlined in this guideline as part of the submission for assessment work credit.

Data Collection Requirements

Following is an outline of the standard methodology to be used for the collection of all georeferenced coordinate data for a ground staked mining claim in unsurveyed territory. It is a minimum standard.

1. GPS Claim Fabric Targets (*what needs to be georeferenced*)

- The coordinate locations of all corner posts (CP), or witness posts (WP) for the corner posts, need to be recorded
- The coordinate locations of all directional posts (DP) need to be recorded
Directional posts are where the claim boundary changes direction
- The claim boundaries will be considered as straight lines between the corner posts and directional posts
- In the case of ground truthing **existing** claims; where a post cannot be located, the estimated location of the post along with supporting evidence should be submitted

2. Receiver Type Used

- Should be a unit capable of differential correction
- Must be a unit capable of locational averaging.
- Must be [WAAS](#) capable
- Unit must be capable of an accuracy of +/- 5m as per the manufacturer's device parameters.

3. Required GPS Parameter Settings / Readings

- NAD83
- UTM Coordinates
- Enable differential correcting
- Minimum of 50 locational positional fixes over a period of 150 seconds must be taken (averaging).

4. Camera Type and Settings

- Camera must have a resolution of 6 mega pixels or greater (good for a 4"x 6" picture)
- Resolution should be set to the highest possible for the best picture
- Digital pictures should be in JPEG format.

The submission of photographs are only required as part of the technical report for providing GPS locational data for **existing** ground staked mining claims in unsurveyed territory. However it is recommended that as a best practice, photographs should be taken to provide supporting evidence for the GPS data submitted with an Application to Record a ground staked claim in unsurveyed territory.

Field Data Collection Methodology

Obtain Post Coordinate Data (waypoint):

- Locate the subject post (e.g. Corner Post - CP, Witness Post - WP, Directional Post - DP)
- Ensure the GPS receiver has sufficient time to connect with available satellites
- Place the GPS receiver on top of the post
- Try to be north of the post when collecting the data so the receiver has an unobstructed (body not in way) southerly view thereby increasing the chance of obtaining a good satellite signal
- Ensure that the GPS receiver is set to NAD83 and the correct UTM zone has been inputted
- Ensure you take at least 50 positional fixes over a period of 150 seconds
- Ensure the differential correction ability of the receiver is enabled
- Take a photograph(s) of the post ensuring the following is clearly captured:
 - The post together with the satellite screen of the GPS Receiver, showing the location coordinates (see *figure 1* below for picture examples and refer to the picture taking tips inset section).
 - The claim tag, with the claim and tag number clearly readable
 - Any inscription that may be present on the post

Note: be sure to review your pictures in the field to ensure the required information is readable.

Picture Taking Tips:

1. *Turn the GPS receiver backlight on when photographing the satellite page as this provides better contrast and therefore a clearer picture.*
2. *Turn the camera flash off when taking the picture to reduce glare from the GPS receiver screen.*
3. *Beware of unwanted reflections on the GPS receiver screen that may obscure the data information.*
4. *Take close-up pictures if necessary.*

What is WAAS?

WAAS stands for Wide Area Augmentation System. It is a system of ground based stations and satellites that provide corrections to the GPS signal and improve position accuracy. The ground based stations are located across the U.S. and parts of Canada and monitor GPS satellite data. This correction accounts for satellite and clock drift as well as any atmospheric conditions that would cause signal delays.

UTM Zones Description

The Universal Transverse Mercator (UTM) system is a specialized application of the Transverse Mercator projection. The globe is divided into 60 north and south zones, each spanning 6° of longitude. Each zone has its own central meridian.

The province of Ontario intersects four of these zones.

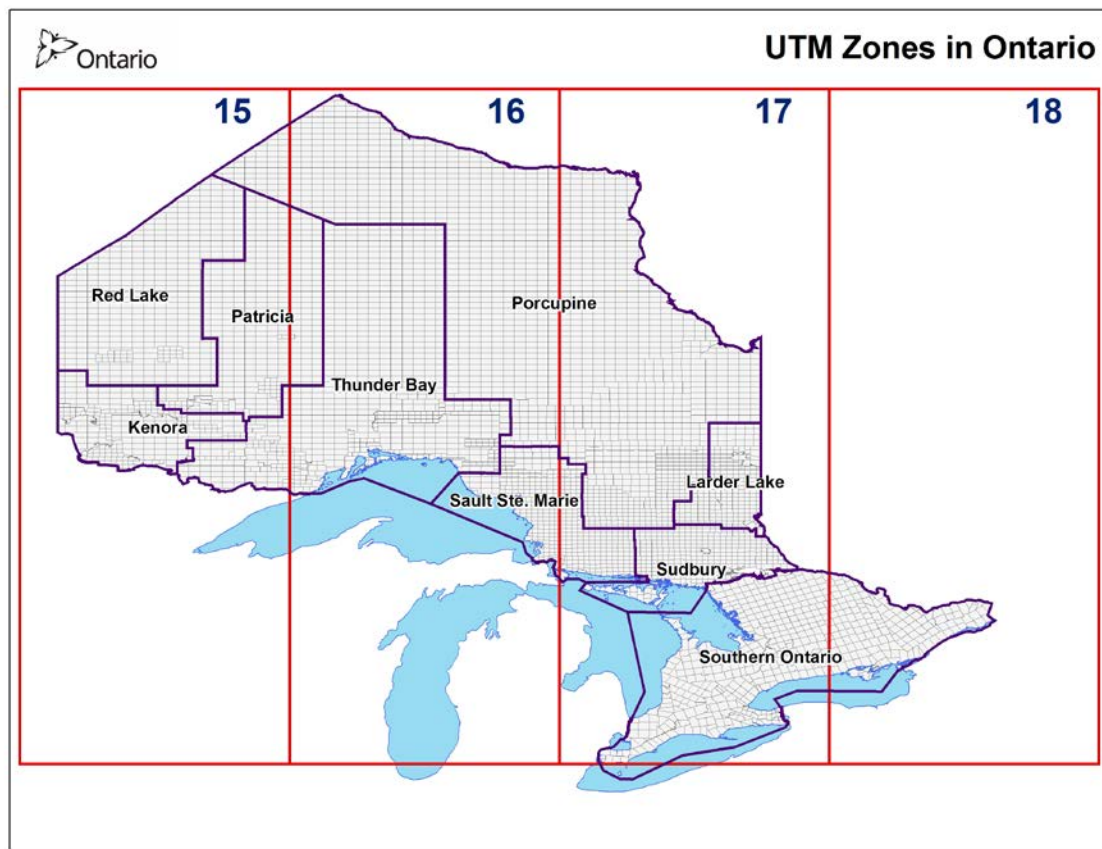


Figure 1: UTM Zones in Ontario

Submission of Technical Report and Supporting Data

A technical report containing the information as outlined below is required for the granting of assessment work credit for GPS georeferenced data for **existing** ground staked mining claims in unsurveyed territory (claims staked prior to November 1, 2012).

1. Make and model of the GPS receiver used.
2. Photographs of each post located, clearly showing the claim tag, post inscription, and GPS receiver screen shot as applicable.



FIGURE 1: Example of a photograph of the claim post tag together with the satellite screen of the GPS receiver showing the GPS location coordinates.

3. A map at an appropriate scale showing:
 - All post locations
 - The coordinates for each post including UTM zone
 - Each post correctly labelled with the type of post (CP- corner post, WP – witness post, DP – directional post, MP – missing post), tag and claim number, waypoint number as per the GPS receiver
 - Map scale
 - North arrow
 - Any appropriate topographical features
 - Any adjacent claim fabric information (posts, lines etc)

4. Supporting information as necessary (evidence) for all missing posts
5. All photographs, each labelled with the photo number, claim number, type of post (CP, WP, DP), and waypoint number
6. Any additional information pertinent to the location of the subject claim(s)
7. A completed GPS Claim Coordinate Data Sheet (see page 7 of this guide)
8. A completed Assessment Work Performed on Mining Lands form (No. 0241E)

PLEASE NOTE: The submission of the technical report and data for assessment work credit may be subject to requirements for verification, clarification or possible rejection pursuant to the Assessment Work Regulation.



GPS Claim Coordinate Data Sheet

NTS Map Number _____

UTM Zone _____

Datum _____

Mining Division _____

Claim Number	UTM Coordinates	Post Number and Type	Photo Number	Notes

Further Information

For further Information, please contact:

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