



Kidman Trail Infrastructure Asset Data Collection Project

FIELD DATA COLLECTION METHODOLOGY

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FIELD DATA COLLECTION METHODOLOGY

Purpose

The purpose of this document is to outline a methodology for the use of global navigation satellite systems (eg. GPS) and field data sheets in the collection of infrastructure asset data in the field.

Background

Information about the location and type of infrastructure assets can be derived from a number of disparate sources (eg. local knowledge, design drawings, existing maps etc). While the location of an infrastructure asset may often be known, frequently little, if any useful information (eg. asset type, construction materials, condition etc) has been recorded about the infrastructure. Putting in place a simple yet comprehensive methodology for field data collection goes a long way towards ensuring that useful, high quality data is collected.

The methodology outlined here aims to:

- Be **simple**;
- Be **efficient**;
- Be **easily achieved with readily available tools**;
- Result in the collection of **high quality** data.

Equipment Required

To employ this field data collection methodology, you will need the following tools:

- A hand held **Global Positioning System (GPS)** receiver (with spare batteries);
- **Clipboard**;
- **Pen**;
- Blank **field data sheets**;
- **Digital camera** (*optional – but useful*).

Assumed Knowledge

This methodology assumes that you know how to:

- Use your GPS, including...
 - collecting waypoints;
 - recording a GPS track log (optional);
 - downloading waypoints &/or track logs from your GPS to a computer;
- Use your digital camera, including...
 - setting/changing the time and date options;
 - downloading photos from you camera to a computer;
- Transfer digital data;
 - either via email as an attachment;
 - or via other media such as CD.

This document will not cover how to perform the above tasks. If you do not know how to do these things, then it is strongly recommended that you take the time to familiarise yourself with these tasks, prior to attempting to undertake any field data collection. Your knowing how to perform these tasks will hopefully make your field data collection and subsequent data processing a smooth and trouble free exercise.

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FIELD DATA COLLECTION PROCESS BRIEFLY DESCRIBED...

The process of collecting infrastructure asset data in the field should be relatively simple. Basically you will be asked to perform the following tasks:

Before you start...

1. You will need the following documents:
 - a. METHODOLOGY (This document);
 - b. Blank COVER SHEET
 - c. Blank KIDMAN TRAIL ASSET AUDIT – Trail Audit Sheet(s);
 - d. Asset Codes for use on ASSET AUDIT SHEETS;
2. You will need to get hold of:
 - a. A Global Positioning System Receiver (GPSR);
 - b. Download cable for your GPSR;
 - c. Spare batteries for your GPSR;
 - d. A Digital Camera (plus spare batteries);
 - e. A Clipboard and Pen.

To record an infrastructure asset in the field...

1. Use your GPS to mark a waypoint indicating the asset's location;
2. Take a digital photograph of the asset;
3. Record waypoint ID and asset details on the supplied **Trail Audit Sheet**;
4. REPEAT for each infrastructure asset.

At the end of the day...

1. Complete as much detail as possible on the supplied COVER SHEET. Collate the day's **Trail Audit Sheet(s)** and bundle them together with the completed COVER SHEET;
2. Download GPS data and digital photos to your PC/Laptop;
3. Transfer data from **Trail Audit Sheet(s)** into Microsoft Excel version using the supplied template;

At the end of the field data collection phase...

1. Forward all data (GPS Data, Digital Photos, Audit details in MS Excel spreadsheet, Completed ASSET AUDIT SHEETS and associated COVER SHEETS) to Horse SA for processing.

More detailed instructions on all of the above are supplied on the following pages. Please read them carefully.

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Pre Departure...

1. Run through the following pre-departure checklist...

<p>Do you have?</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Handheld GPS Unit (including <u>spare batteries</u>) <input type="checkbox"/> <u>Blank COVER SHEET(s)</u>. (<i>You'll need one COVER sheet for <u>each</u> day, region or session of field data collection</i>) <input type="checkbox"/> <u>Blank Trail Audit Sheet(s)</u>. (<i>You'll need enough blank sheets to cover the estimated number of assets being recorded. Too many is better than not enough</i>); <input type="checkbox"/> AUDIT CODE SHEET. Displays the codes (or schema) to be entered on audit sheets. (<i>Asset details are recorded using codes. This sheet provides a list of all of the codes that you will need to use</i>) <input type="checkbox"/> Clipboard and Pen(s) <input type="checkbox"/> Digital Camera (with spare batteries and possibly spare memory card)
<p>Have you...</p>	<ul style="list-style-type: none"> • Ensured that your GPS has <u>sufficient memory available</u> to store the anticipated number of waypoints (and track log if desired). If you can, delete all existing waypoints and any existing tracklogs from your GPS (unless there are ones you absolutely need to keep) to ensure a “clean” starting point. • Ensured that your digital camera has <u>sufficient memory available</u> to store the anticipated number of photographs. Note also that it's not necessary to set the resolution of your camera too high!
<p>Synchronise GPS and Camera times</p> <p><i>(This step assists greatly with post-processing of data)</i></p>	<ul style="list-style-type: none"> • If you intend to take digital photographs of assets as part of your field data collection (<i>which is recommended</i>), then you are strongly advised to set the time/date on your digital camera to match (as closely as possible) the time on your GPS. GPS units obtain their time from the satellites which make the whole system work and as a consequence keep extremely accurate time (atomic clock standard!) <p>Synchronisation is easiest done as follows...</p> <ul style="list-style-type: none"> ○ Turn on GPS (preferably outside in view of satellites). Wait until you have a good position fix; ○ Go to the ‘page’ on your GPS which shows you the time (usually also your position); ○ Turn on camera and find the settings which allow you to set/alter the date and time; ○ Ensure the date is correct; ○ Pick a time <i>a little in advance</i> of the GPS time. Easiest if you round to a whole minute (eg. 09:32:00); ○ Set your camera to the chosen time, <u>but wait</u> until the time on the GPS matches exactly (ie. catches up) before committing the change (ie. pressing ENTER or SET or whatever on your camera). <p>This should see the time/date on your camera and GPS units synchronised as closely as possible.</p>

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In the Field...

2. Turn on anything that needs turning on...

Turn on GPS	<ul style="list-style-type: none"> Give your GPS time to get a good satellite fix before you begin collecting field data.
Set up GPS track log	<ul style="list-style-type: none"> Get your GPS to record a track log. If you plan to take digital photos which you later want to have 'geotagged', a tracklog will be vital. If you can, get your GPS to run a track log (preferably a new one) from the outset.

3. On arrival at a feature you wish to record...

Use GPS to mark a waypoint	<ul style="list-style-type: none"> Use your GPS to mark a waypoint as close as possible to the feature of interest. NOTE: <i>Try and ensure that all of your waypoints are <u>uniquely named</u> ie. no two the same;</i>
Take photographs (optional but preferred)	<ul style="list-style-type: none"> One or more photographs can be taken of the feature of interest.
Enter details on FIELD DATA SHEET	<ul style="list-style-type: none"> Fill in <u>summary details</u> <i>across the top</i> of the ASSET AUDIT SHEET... <ul style="list-style-type: none"> Date; Auditors Name; Sheet No. <i>(total number of sheets can be left til later)</i> <p><i>This step needs to be repeated each time a new Asset Audit sheet is started.</i></p> Record the waypoint name in the "Waypoint ID" field on your field data sheet. This must match the name of the waypoint that you have just recorded with your GPS. Then use your field data sheet to record details of what exists at the location. If using codes, make sure you have your Trail Audit Key handy.
Repeat above steps for each object you record!	

4. After recording the last of your objects of interest...

Finalise current FIELD DATA SHEET	<ul style="list-style-type: none"> Finalise the current data sheet that you are working on.
Collate FIELD DATA SHEETS.	<ul style="list-style-type: none"> Collate all Trail Audit Sheets in order from first to last.


Continued...

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<p>Complete a COVER SHEET</p> <p>THIS IS IMPORTANT!</p>	<ul style="list-style-type: none"> Fill in as much detail as you can on a “COVER SHEET – FIELD DATA COLLECTION” (<i>once only</i>). Attach completed COVER SHEET to collated field data sheets. <i>If possible attach using a stapler or paper clip... anything to keep all field data sheets and their associated cover sheet together.</i>
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When you've completed the day's field data collection...

5. Back in the office (or wherever it suits) prepare data for processing...

<p>On your computer...</p> <p>Daily data download.</p>	<ul style="list-style-type: none"> Create an appropriate folder structure to store digital data associated with the field data collection. A structure <i>similar</i> to the following is recommended... <div style="margin-left: 20px;">  <pre> Infrastructure Asset Collection └─ Field Data Collection - 2008-04-02 └─ GPS Data └─ Photos </pre> </div> It is recommended that you create a new “Field Data Collection – YYYY-MM-DD” folder for <u>each day's</u> field data collection. <p>Whilst it is preferable to download data daily, if data collection spreads over multiple days, then come up with an appropriately named folder to download data to. Your choice.</p>
<p>Download location data from GPS (<i>daily if possible</i>)</p>	<ul style="list-style-type: none"> Download GPS waypoints (which record asset locations) and GPS tracklog from your handheld GPS device to the “GPS Data” folder on your computer; This can be done using EasyGPS software (www.easygps.com) See separate document for instructions on use of Easy GPS for this purpose.
<p>Download photos from your digital camera (<i>daily if possible</i>)</p>	<ul style="list-style-type: none"> Download photos from your digital camera to the “Photos” folder on your computer;
<p>Transfer data from Asset Audit Sheet into MS Excel spreadsheet.</p> <p><i>If possible, try to keep all materials together</i></p>	<ul style="list-style-type: none"> Copy the data that you have recorded on your Asset Audit Sheets into Microsoft Excel. The digital version of your Asset Audit Sheets created in MS Excel can be used for this purpose. Save the resulting day's data collection in the appropriate “Field Data Collection – YYYY-MM-DD” folder. Perhaps include the date in the file name eg. “Mawson Trail Asset Audit Field Data – 2008-05-13.xls”

THANK YOU FOR YOUR ASSISTANCE WITH THIS PROJECT!