

NATMAP SURVEY BEACONS IN GOOD CONDITION

AFTER 46 YEARS

Canning Stock Route Traverse Survey Station Inspection Report 2010

Background

As an aside during a recreational trip along the Canning Stock Route in July – August 2010, several survey control stations were inspected on the Well 35 to Halls Creek geodetic survey traverse. These survey stations were established and observed (by theodolite and tellurometer) in 1964 by a Natmap field party led by Reg Ford. This observing/beaconing party followed (but in reverse direction) an earlier reconnaissance of the traverse route by Natmap's HA (Bill) Johnson.

The 2010 inspections were carried out at the request of Paul Wise, retired former Natmap senior surveyor. The inspections were made on an *opportunity basis*; apart from NM/F/203, no out of the way search attempts were made to locate stations that could not readily be seen from the stock route track. In the case of NM/F/203, the inspecting party detoured a few kilometres north from the Well 43 *Billowaggi* turn off to locate this station prior to returning to the *along the wells* route. Equipment relevant to the inspections was: a Magellan eXplorist 600, hand held GPS receiver and Canon Digital IXUS 80IS, 8.0 megapixel, camera as well as 1:250,000 scale topographic maps. GPS coordinates were observed at each station and terrestrial images captured. The inspecting party comprised: former Natmappers: Laurie McLean and Lawrie O'Connor together with Dave and Lorraine Uren (Dave and Laurie served together as national servicemen in Vietnam during 1967-68).

Stations Inspected

- **NM/F/198** was inspected at about 3:00pm (WST) on Friday 6 August 2010. Coordinates observed with the GPS unit held against the beacon centre pole were: 21 degrees 48.695 minutes South, 125 degrees 34.477 minutes East. **Map sheet used:** 1:250,000 NTMS: SF51-08 Percival, Edition 2. **Station Condition:** All structural elements were observed to be in good order ie metal vanes, centre pole and bracing struts. While the map indicated the track (so called Canning Stock Route) passed to the east of the station, in fact the main track was a hundred or so metres to the west with a secondary branch (probably for the curious) running off the main track on the southern side of the sandhill right to the base of the station and then rejoining main track on the northern side.

- **NM/F/199** was inspected at about 11:10am (WST) on Saturday 7 August 2010. Coordinates observed with the GPS unit held against the beacon centre pole were: 21 degrees 38.530 minutes South 125 degrees 45.975 minutes East. **Map sheet used:** 1:250,000 NTMS: SF51-08 Percival, Edition 2. **Station Condition:** All structural elements were observed to be in good order ie metal vanes, centre pole and bracing struts.

Although a prominent land mark, this station was not plotted on the map. Instead, the map plotted NM/F/2026 which was a recovery mark in the inter-dune valley to the north of the main station (beacon). The relationship between the two marks was not known until the station summary was obtained and examined after the stock route trip was over (attached at end of photos section). NM/F/2026 was neither sighted nor looked for. The decision to plot the recovery mark rather than the prominent land mark (beacon) seems curious from a vehicle traveller's perspective.

- **NM/F/201** was inspected at about 4:00pm (WST) on Saturday 7 August 2010. Coordinates observed with the GPS unit held against the beacon centre pole were: 21 degrees 23.101 minutes South 125 degrees 49.495 minutes East. **Map sheet used:** 1:250,000 NTMS: SF51-08 Percival, Edition 2. **Station Condition:** All structural elements were observed to be in good order ie metal vanes, centre pole and bracing struts. While the map indicates the track (so called Canning Stock Route) passes to the east of the station, in fact the main track was a couple of hundred metres or so to the west, a good bush camping site was located on the northern side of the sand hill on which this station was situated.
- **NM/F/203** was inspected at about 11:30am (WST) on Sunday 8 August 2010. Coordinates observed with the GPS unit held against the beacon centre pole were: 21 degrees 11.921 minutes South 125 degrees 54.660 minutes East. **Map sheet used:** 1:250,000 NTMS: SF51-08 Percival, Edition 2. **Station Condition:** All structural elements were observed to be in good order ie metal vanes, centre pole and bracing struts. .
- **Crown Head** on the morning of Wednesday 11 August 2010, a stone cairn, centre pole and beacon vanes were observed on this topographical feature; scaled coordinates of which are: 20 degrees 15.5 minutes South 126 degrees 32.4 minutes East. **Map sheet used:** 1:250,000 NTMS: SF52-01 Cornish, Edition 2. **Station Condition:** While the observation point was on the plain below the topographical feature, structural elements of the station appeared in good order ie stone cairn, vanes and centre pole.

Comment

Most of the survey stations inspected had a Landgate standard survey mark warning plate attached to one of the bracing struts. Due credit must be accorded to the Natmappers who established these stations some 46 years ago. These stations provided an important element in Australia's national geodetic survey all those years ago. They still stand as prominent land marks on isolated features in the harsh environment of the Great Sandy Desert; each one a monument to the skill and diligence of its creators.

Laurie McLean

8 September 2010



NM/F/198 (Courtesy L.McLean)



NM/F/199 (Courtesy L.McLean)



NM/F/201 (Courtesy L.McLean)



NM/F/203 (Courtesy L.McLean in picture)



NM/F/210 Crown Head from Well 48 (Courtesy L.McLean)

NM/F/210 Cairn (Courtesy L.McLean)



NM/F/210 with satellite receiver over RM1 (Courtesy A. Porteous)

Example of Recovery Mark – Reg Ford in picture (Courtesy J. Allen)



Station position indicated during HAJ recce (Courtesy HAJ collection/Des Young)

Example of Recovery Mark – Bob Goldsworthy in picture (Courtesy OJB)

NATIONAL MAPPING COUNCIL OF AUSTRALIA
STATION SUMMARY

Serial No

Authority DIVISION OF NATIONAL MAPPING

4019

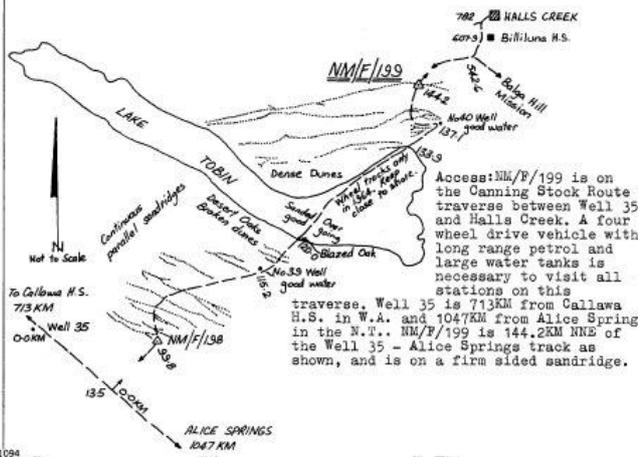
Station Number and Name: NM/F/199

Order: FIRST

Original Station Established by: Division of National Mapping Date: 1964
Existing Station Marked by: Division of National Mapping Date: 1964
Reference Books: Trig:NM3470, Telle:NM3311,NM3321,

Cadastral Location: State W.A. County/District
Parish/Hundred Allotment/Section/Portion

Access and Locality Sketch: Particulars of station marking and beacon:
Station Mark: 1.3cm copper tube cemented into top of 1.5m length of pipe buried in ground with concrete block at top.
Beacon: 3.35m x 5cm x 5cm G.I. pole with four 0.91m x 0.53m G.I. vanes set 14cm below top of measuring spike which protrudes 6cm above top of pole. The beacon is braced by four 3.05m lengths of "Rokangle".
Reference Mark: A 1.5m length of angle iron driven into the sandridge.
Recovery Mark: A recovery mark (Point B illustrated) and two base terminals (points A and C) were set out on a flat between sandridges. Points A and C are steel fence posts driven into the ground and protruding approximately 15cm. Point B is a 1.5m length of 4cm diameter water pipe protruding about 2cm above ground level, with a concrete block around the top of the pipe. Two circular trenches were dug concentrically around this recovery mark, and the spoil was piled in a mound between the trenches. A large bush tripod, painted white, was erected over recovery mark.

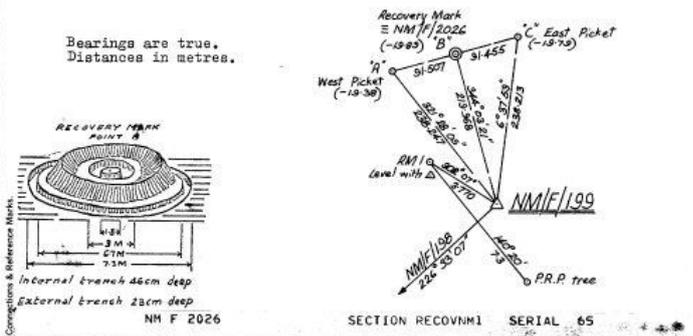


Map Name: Percival Map Number: SP 51-B Scale: 1:250,000
DATUM: Australian Geodetic Datum 1966
RECTANGULAR COORDINATES: Australian Map Grid: In Metres
GRID BEARING = ADJ AZIMUTH + CONVERGENCE HEIGHTS: In Metres on the Australian Height Datum

SOUTH LATITUDE	EAST LONGITUDE	ZONE	EASTING	NORTHING	CONVERGENCE	HEIGHT
21 38 36.8846	125 45 53.8375	51	786191.091	7604066.413	+1 1 13.80	344.8
		52	1658156.302	7603125.180	-1 11 39.49	344.8

TO	SERIAL	ADJ AZIMUTH	ADJ LENGTH
GLORY VIEW	NM F 198	9 226 33 7.11	27293.223
KANIGAN	NM F 200	11 98 30 28.96	20182.403

SECTION RECOVNM1 SERIAL 64. 219,968
PLEASE NOTE
For the latest station coordinates consult the National Geodetic Coordinates Base. Available from the Australian Surveying & Land Information Group



SOUTH LATITUDE	EAST LONGITUDE	ZONE	EASTING	NORTHING	CONVERGENCE	HEIGHT
21 38 30.0080	125 45 51.7362	51	786134.408	7604279.090	+1 1 12.71	324.6
		52	1658051.418	7603335.586	-1 11 39.91	324.6

Spot Photography: NM/F/2026 - CAP 3450 Exp 33,35.
NM/F/199 - CAP 3450 Exp 29,32,34.
Mapping Photography: F.R.P. tree - Percival SVX 1557 Run 10 Photo 5088.

Certified free of transcription errors: [Signature] Date: 8-1-75
Approved by: [Signature] Date: 30.5.75

Coordinate comparison GPS on GDA datum v Station Summary on AMG datum.
Consistent difference of about 150m (5 sec) is indicative of datum difference.

COORDINATE COMPARISON

POINT	GPS	SS	DIFF GDA-AMG
NM F 198			
21d 48m	41.70	46.73	-5.03
125d 34m	28.62	23.94	4.68
NM F 199			
21d 38m	31.80	36.88	-5.08
125d 45m	58.50	53.84	4.66
NM F 201			
21d 23m	6.06	10.98	-4.92
125d 49m	29.70	25.12	4.58
NM F 203			
21d 11m	55.26	60.25	-4.99
125d 54m	39.60	35.01	4.59

Note:

Laurie's investigation arose from his earlier trip when he showed me a photo of one of the trigs alongside 'the Canning' and we observed its good condition and wanted to know more. Reg Ford's 1978 report "The Division of National Mapping's part in the Geodetic Survey of Australia - activities based on the Melbourne Office, 1951 - 1969" provided the detail, like those who undertook the work listed below:

Halls Creek - Well 35 Traverse WA

R.A. Ford	Senior Tech. Officer Grade I
J. Allen	Field Assistant (Survey)
D. Hutton	Field Assistant (Survey)
F. Combe	Field Assistant (Survey)
J. Combe	Field Assistant
W. Bannerman	Field Assistant
R. Francis	Field Assistant
C. Golya	Field Assistant
K. Snell	Field Assistant
J. Coles	Field Assistant WRE
E. Graefling	Field Assistant WRE
J. Driscoll	Field Assistant WRE

When Laurie mentioned his 2010 trip I requested he investigate the trigs in more detail, if possible.

This investigation showed that not only are the trigs in good condition, they have not suffered from any significant vandalism even though they are obviously visited by travellers of the Canning. Hopefully this is a sign of respect by those travellers, for those who undertook the work, in such a remote place.

The stability of the sandridges is also indicated. There is little sign of erosion around these objects. The Recovery Marks were established as it was feared that over time the station on the sandridge would move or disappear and would have to be 'recovered' at some time in the future. It would now seem that the elements have affected the Recovery Marks leaving the main stations to continue to stand tall after 46 years.

Paul Wise

26 September 2010