



**BULA
WELCOME**



FIJI GEODETIC NETWORK

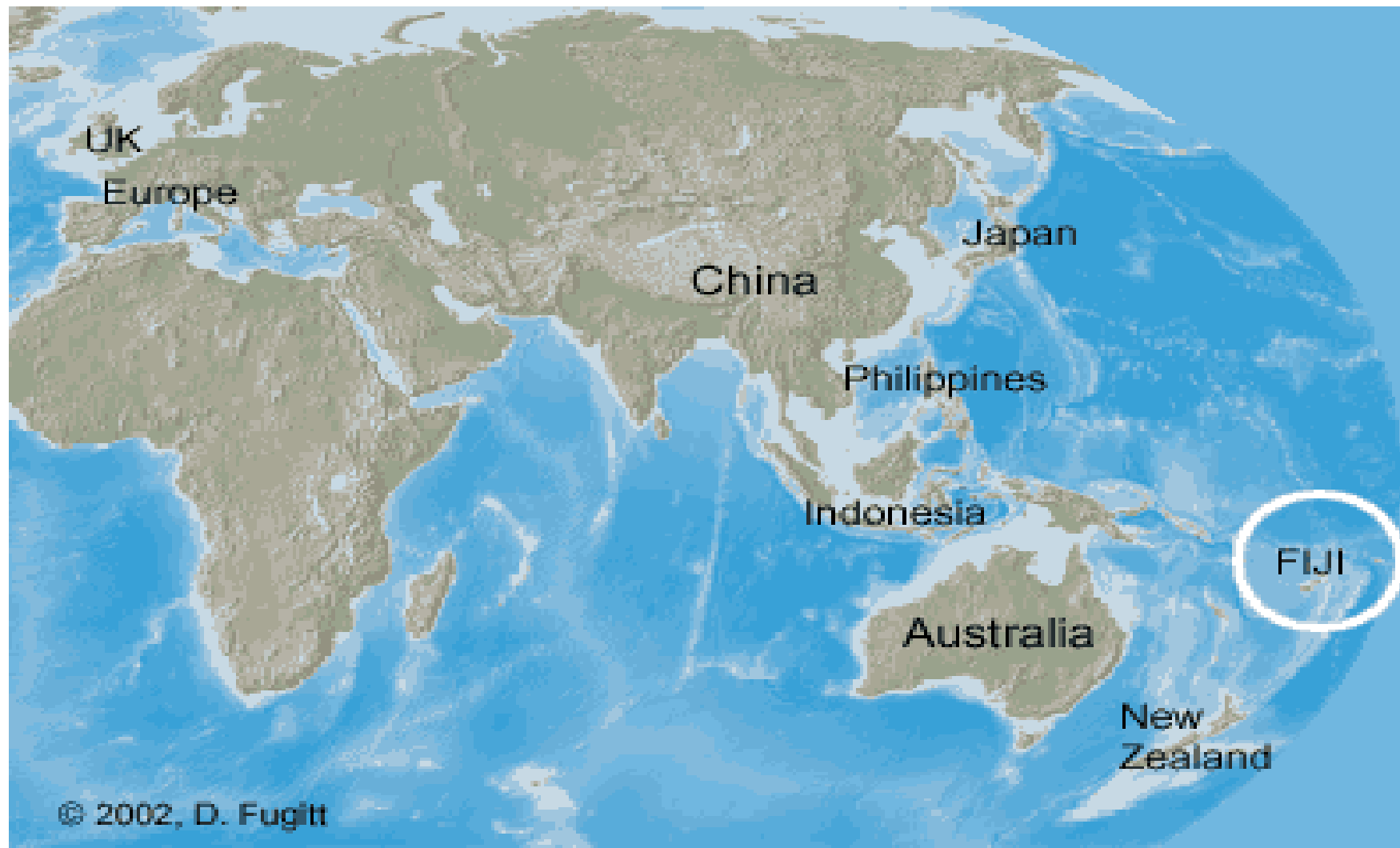
Asakaia Tabuabisataki

Principal Surveyor

Ministry of Lands and Mineral Resources

Fiji

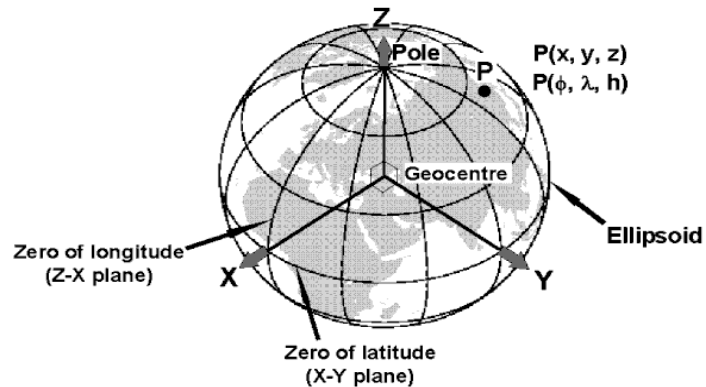
Where is Fiji?



LAND STATISTICS

- Lat 17° 45' S, Long 175° 00' E
- Population – 858,038
- Land Area – 18,274 sq km (300+ islands)
 - iTaukei land – 16,081 sq km (88%)
 - Freehold – 1,462 sq km (8%)
 - State land – 731 sq km (4%)

From the whole to the part...



The current positioning system
 In Fiji is based on the reference
 Ellipsoid WGS 72 - Projection
 Transverse Mercator, referred to as
 The Fiji Geodetic Datum 1986 and
 The Mean Sea Level as the Elevation
 Datum.

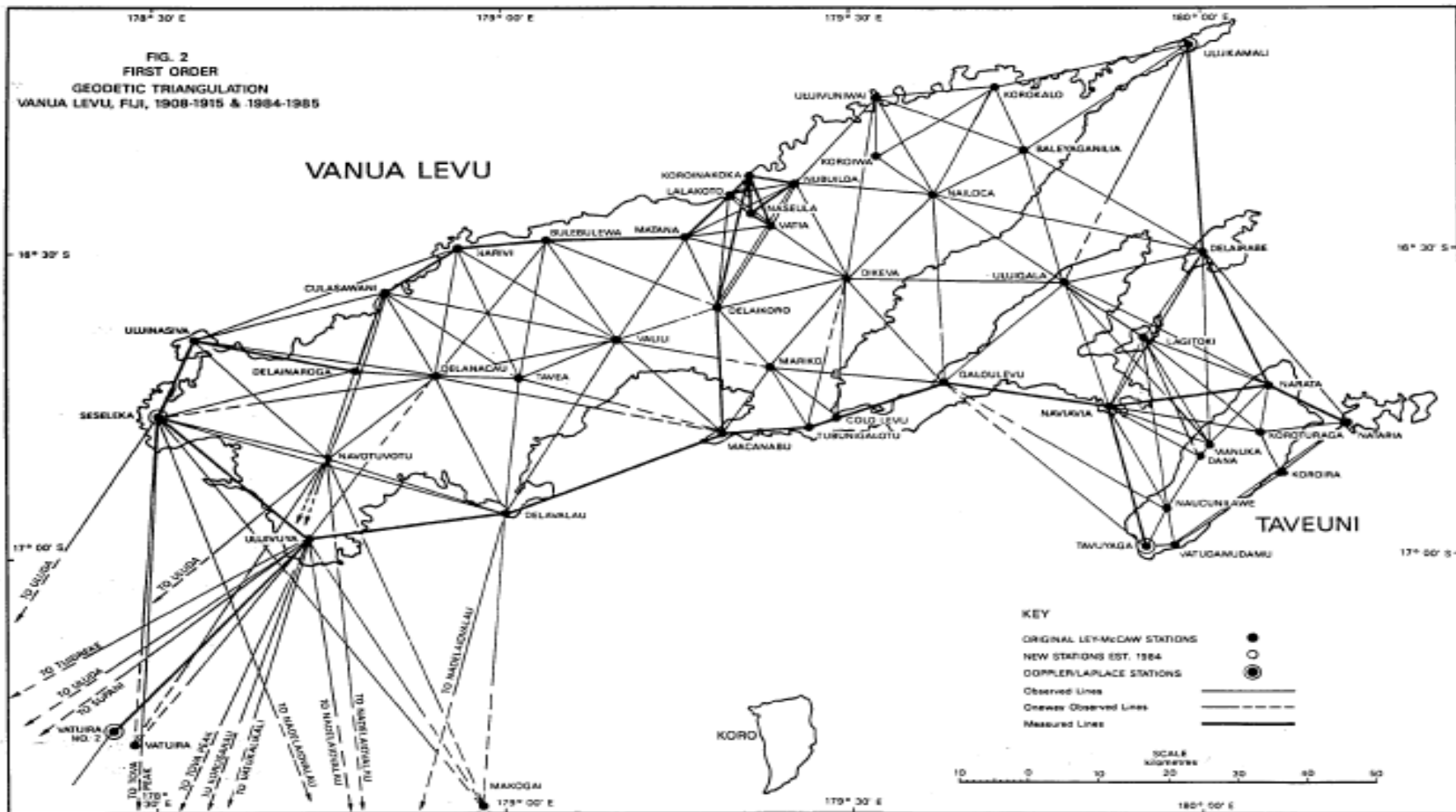
FIJI GEODETIC DATUM

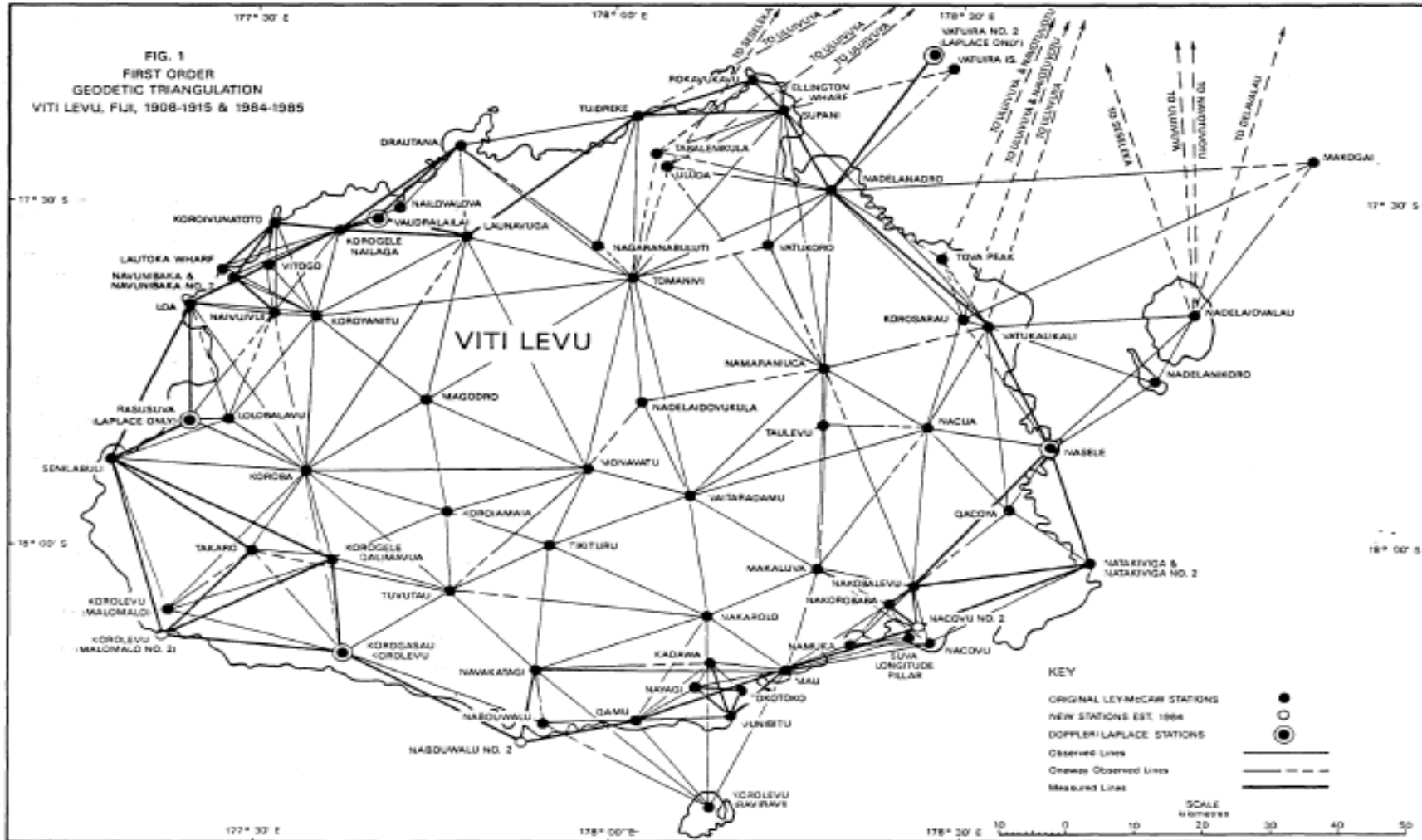
In 1978, the New Zealand Government undertook a review of survey and mapping activities in Fiji and recommended for the establishment of a Datum for Fiji and in 1983, New Zealand established a local reference datum for Fiji called the **Fiji Geodetic Datum 1986 (FGD86)** which is base on the **World Geodetic Systems 1972 (WGS72)**.

Among the many recommendations in their report is to enhancing and updating the existing control networks and the establishment of a datum capable of not only, meeting existing requirements but also those of any future land information system.

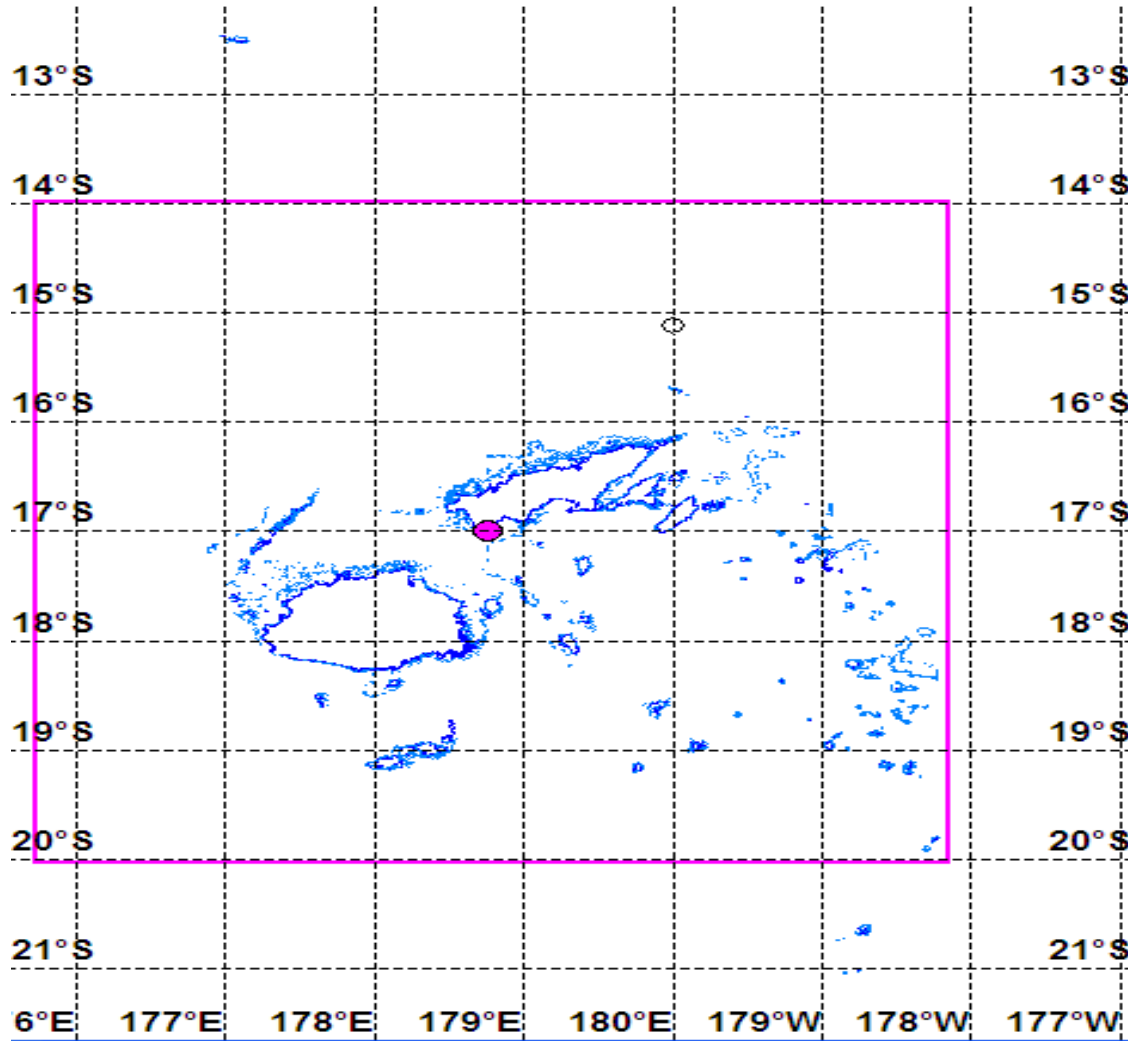
THE DEFINITION AND ADJUSTMENT OF THE FIJI GEODETIC DATUM -1986

J. Hannah and J. Maseyk
 Department of Survey and Land Information, Wellington, New
 Zealand





FIJI MAP GRID



- Fiji Islands
- Geodetic Datum
 - GRID
- ~ Fiji Group ~

Conclusive indicators necessitating CHANGE

- **Fiji Geodetic Datum 1986 is outdated compare to international standard.**
- **Inability to relate the actual sea level to landforms in real-time**
- **Inability to monitor relative tectonic plate movement using ground based controls**
- **The high costs related to the establishment of lower order ground control using conventional methods**
- **The availability of space based navigation and positioning systems with it's compatible required resources at manageable costs (Positional Infrastructure - PI)**
- **Has poor accuracy with a significant difference of over 20 meters.**

The Proposed Geodetic Datum Change

- There has never been a better time for Fiji to effect the inevitable geodetic datum change from the current to the space based positioning system using the reference ellipsoid under the International Terrestrial Reference Frame (ITRF)
- If facilitated, the proposed change will ensure that internationally compatible systems will govern our positioning control framework in terms of the positioning infrastructure (PI) required
- ❖ Recent advances in satellite positioning technology and its widespread societal adoption in both developing and developed countries, reinforces the need for Fiji to adopt an International Recognized Geodetic Datum.
- ❖ This will ensure Fiji's compatibility across various geographic information systems at
 - ❖ national
 - ❖ regional and
 - ❖ global level.

Con't

- **Fiji's move to a recognized international standard would enable our full commitment to address issues such as :**
 - **Sea level rise and climate change monitoring;**
 - **Natural hazard and disaster management;**
 - **Sustainable management and development of earth resources;**
 - **Safer air, land and sea navigation;**
 - **Spatial data interoperability; and**
 - **Land management**



Location based service - vehicles





Position based service - GPS in cont'd



COMMITMENT

- United Nations General Assembly: 11th March 2015
 - Resolution 69/266 – A global geodetic reference frame for sustainable development; in its 80th plenary meeting held 26th February 2015
- Cabinet Paper - CP(15) 169 29th August 2015
- Cabinet Decision 207 – Modernising Fiji's Geodetic Datum; 29th August 2015

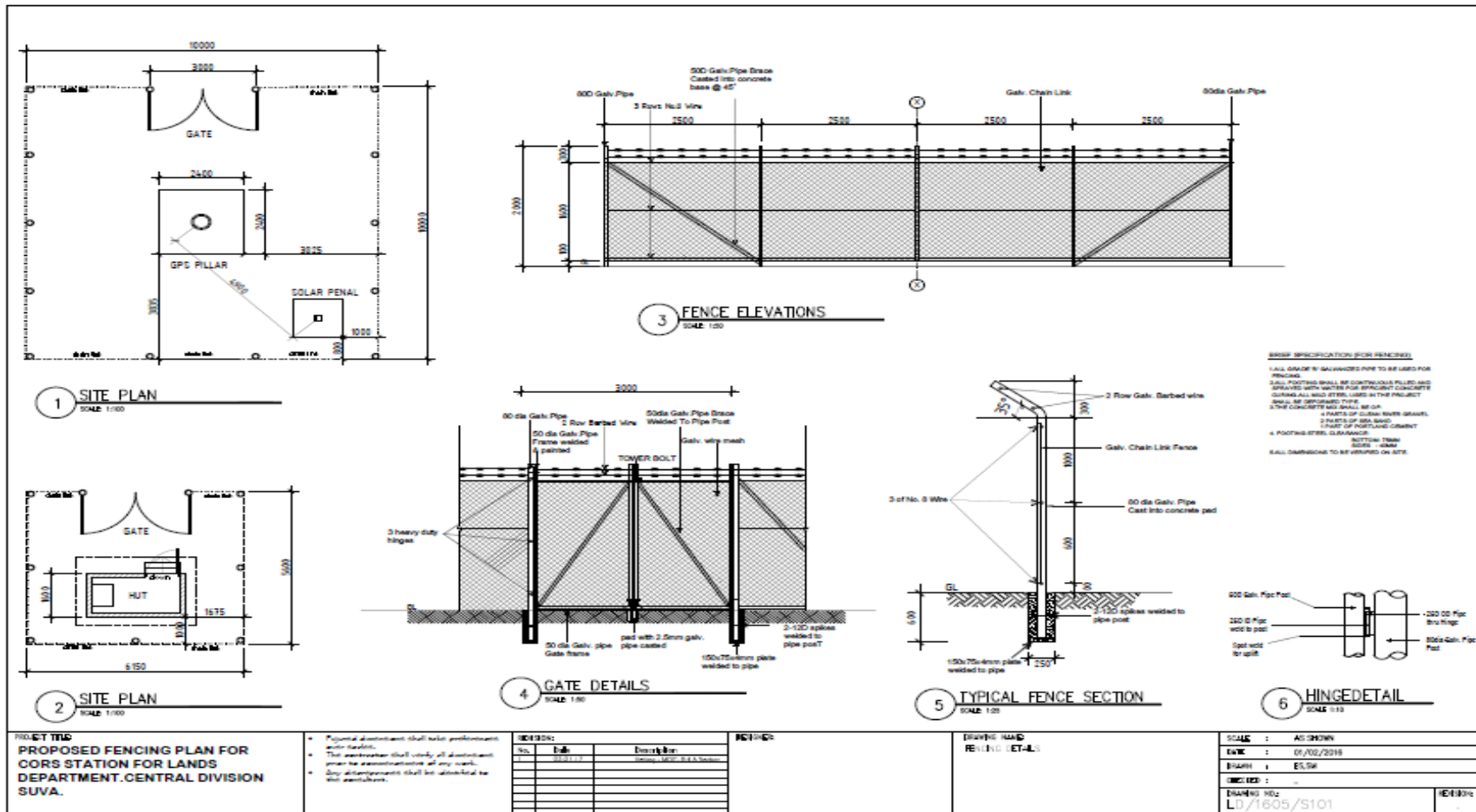
FEASIBILITY STUDY - Completed

- Site must be secure
- Does not have interference with the GPS/GNSS frequencies and not close to any telecommunication mast – 360⁰ sky clearance
- Sites should access 24/7 power supply and have back up power supply (e.g main power – FEA and Solar with battery back up)
- Have internet connection for data transmission to the Server
- Accessible by authorized personnel

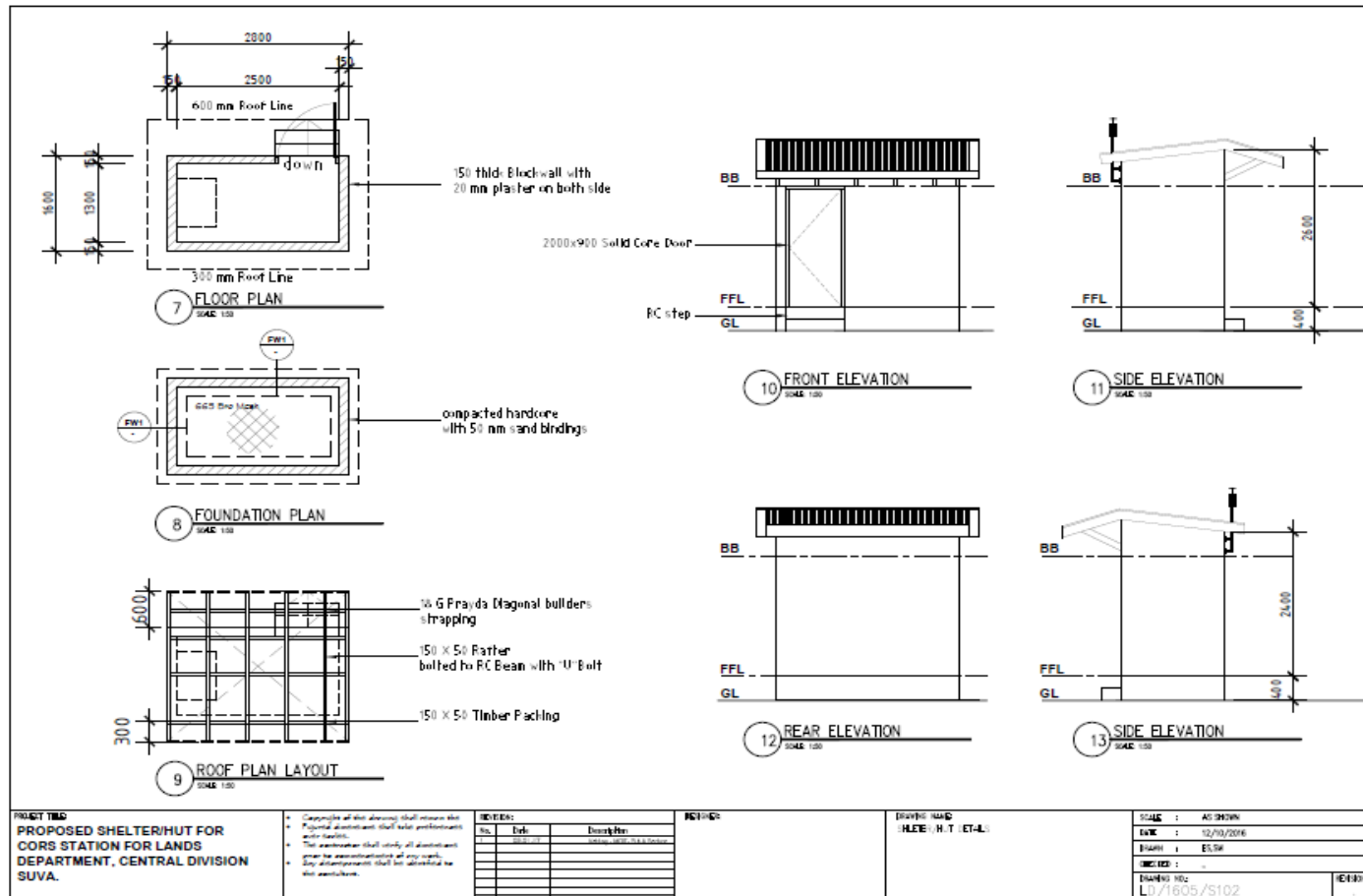
Continuous Operating Reference Stations - CORS

- Structural Drawings – Huts and Pillars
 - completed and examined
 - Bill Of Quantities (BOQ)
 - Procurement of building materials

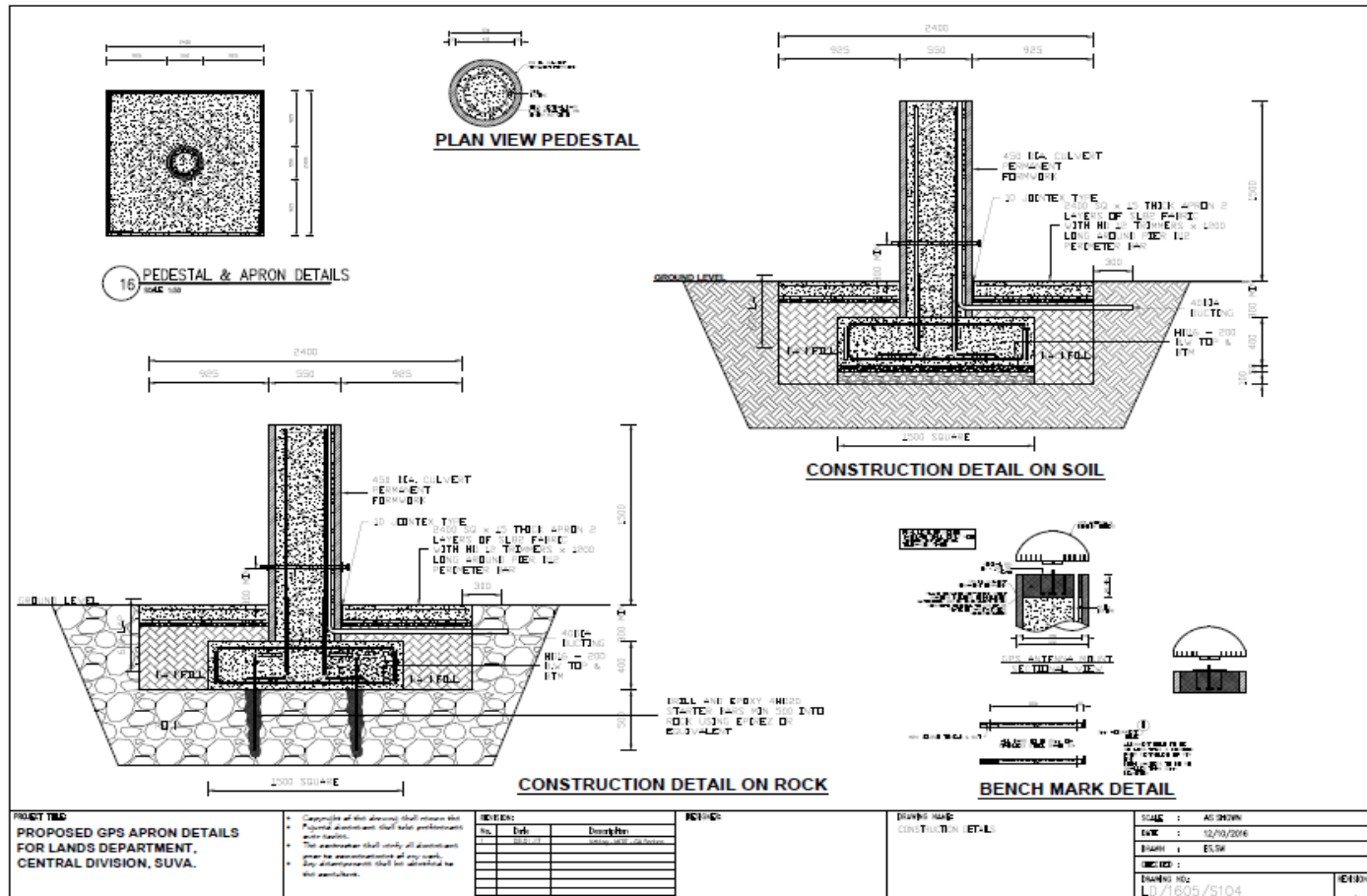
Fence Plan



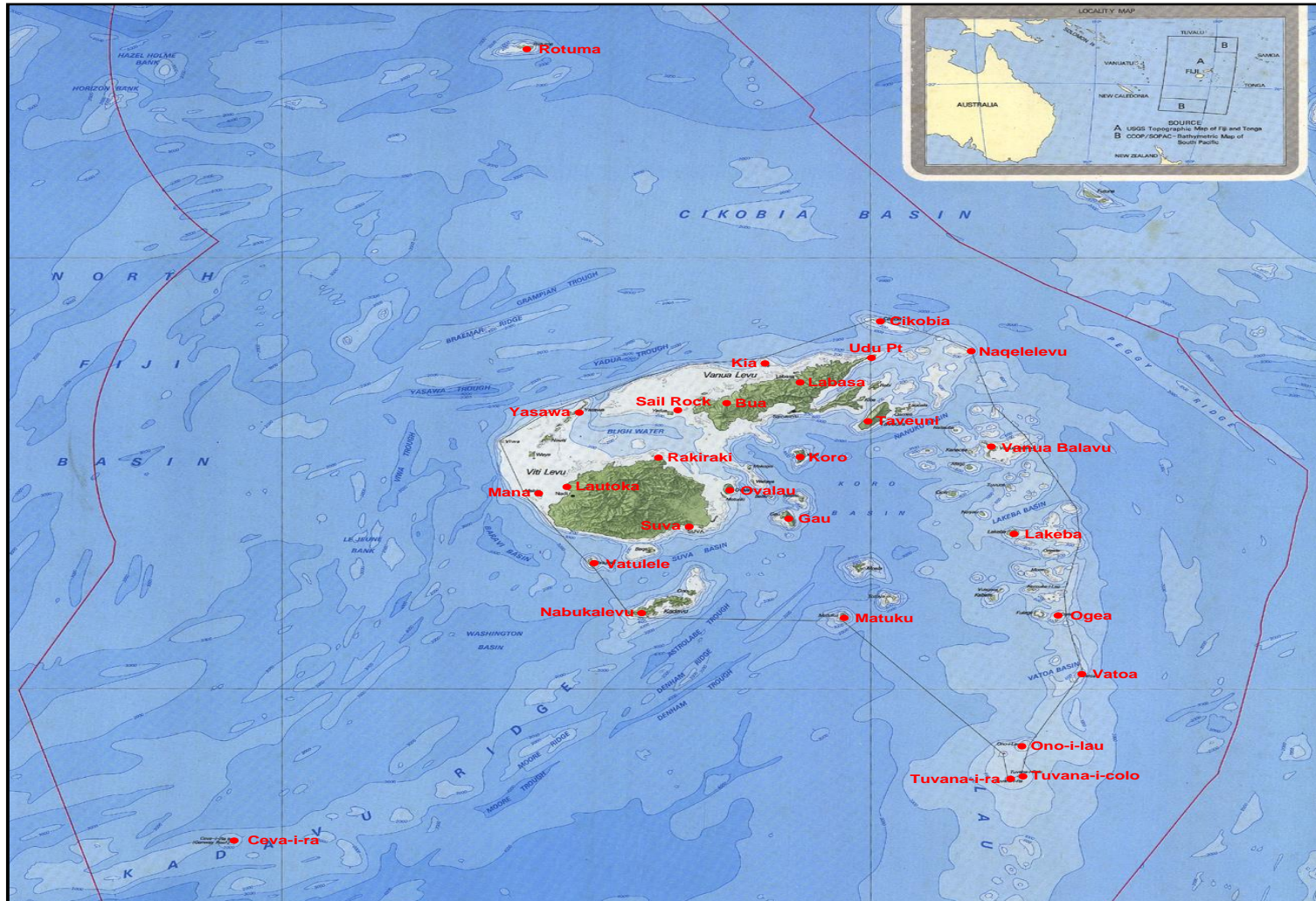
Shelter/Hut for the CORRS Plan



Pillar Plan



Fiji Islands GPS Survey Control Network Station





THANK YOU