

Extreme Sea Level Flood Mapping Pabai & Anor v Commonwealth of Australia (VID622/2021)





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1 Introduction

Dr Matthew Barnes has been retained by the Australian Government Solicitor (acting on behalf of the Commonwealth of Australia) in the Pabai & Annor v Commonwealth of Australia (VID622/2021) class action before the Federal Court of Australia.

The letters of engagement and questions responded to in this report are provided in Annex A. The questions and responses relate to the development of maps that show the extent of inundation at Boigu, Saibai, Poruma and Warraber associated with extreme sea levels that have been derived by others. The structure of this report follows the questions posed:

- Section 2: Basis of expertise
- Section 3: Description of the mapping process, including key assumptions and uncertainties
- Section 4: Inundation maps for Boigu, Saibai, Poruma and Warraber based on extreme sea level scenarios
- Section 5: Interpretation of mapping provided in the Bettington Report

The opinions expressed in this report are those of Matthew Barnes. The following BMT staff members assisted with the preparation of this report:

- Dr Julian Manning (Senior Spatial Scientist) and Mr Jay Patel (Spatial Analyst) assisted with data processing and the preparation of mapping.
- Dr Phillip Haines (Senior Principal Engineer) provided a final review of this report.

Acknowledgement

I have read and complied with the Federal Court Expert Evidence Practice Note (GPN-EXPT) and the Harmonised Expert Witness Code of Conduct. I agree to be bound by them and I have complied with them in preparing this report.

The opinions in this report are based wholly or substantially on my specialised knowledge arising from my training, study and experience.

I declare that I have made all the inquiries which I believe are desirable and appropriate (save for any matters identified explicitly in the report), and that no matters of significance which I regard as relevant have, to my knowledge, been withheld from the Court.

BMT

Dr Matthew Barnes

spett to

APAC Coastal Programme Manager / QLD Coastal Team Leader



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2 Basis of expertise for Dr Matthew Barnes

My tertiary qualifications include:

- Bachelor of Engineering Technology (Coastal Resource Management) from Deakin University, Victoria, Australia (2002)
- Master of Science (Applied Marine Science, Coastal Engineering Pathway) from University of Plymouth, Devon, United Kingdom (2004)
- Doctor of Philosophy in Civil (Coastal) Engineering from University of Queensland, Queensland, Australia (2009)

Since 2007 I have worked as a coastal engineering consultant. In 2010 I joined BMT, a maritime-oriented global consultancy. I currently hold the positions of Queensland Coastal Team Leader and Asia Pacific (APAC) Coastal Programme Manager. In these roles I lead or oversee the delivery of projects within port and coastal areas in support of strategic planning, development and operations. My areas of expertise include:

- Numerical modelling of coastal and estuarine processes
- Storm tide and coastal erosion assessment and mapping
- Climate change adaptation
- Coastal protection structures and beach nourishment
- Dredging studies and dredge plume modelling
- Coastal zone development approval

Some notable career highlights relevant to the questions answered in this report include:

- Development of the 'how to choose an appropriate spatial scale for coastal hazard mapping' guide for CoastAdapt and the National Climate Chage Adaptation Research Facility established by the Australian Government.
- Recognition in 2018 as one of the Most Innovative Engineers (Engineers Australia) for work related to coastal hazard adaptation.
- Coordinating and providing technical input to several coastal hazard adaptation strategies throughout Australia.

My current BMT curriculum vitae is provided in Annex B and includes a list of recent projects and peer-reviewed publications.



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3 Extreme sea level inundation mapping process

3.1 Introduction

The extreme sea level inundation mapping for Boigu, Saibai, Poruma and Warraber has followed the workflow illustrated below. Each stage of this process is described in this Section of the report. The extreme sea level inundation maps are presented in Section 4.



Some key definitions and abbreviations regarding 'datums' and 'Digital Elevation Models' that are used throughout this report are described below.

Datum

Modelling and mapping of flood extents requires elevation datasets (e.g. water level, topographic¹ and bathymetric²) to be of a consistent datum. The datum for altitude measurement in Australia is known as the Australian Height Datum (AHD).

In coastal science and engineering tidal datums are also commonly used, with elevation datasets sometimes obtained with reference to 'Port' (or 'Chart') Datum, Lowest Astronomical Tide (LAT) or Mean Sea Level (MSL).

An illustration of diurnal tidal planes and commonly used datums is shown in Figure 3.1. Also shown is a Permanent Mark (or survey control mark) that provides the reference point where the position and elevation is accurately known. It is noted that Figure 3.1 shows close alignment between AHD and MSL. This is true for most mainland coastal areas in Australia but not for islands in the Torres Strait (e.g. Metters and Pedderson 2011; SEA 2011)

The extreme sea levels referred to in this report are relative to AHD. Some topographic datasets were obtained in another datum, or the datum was uncertain, and appropriate adjustments to AHD was completed using survey control marks (as described in this Section of the report).

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¹ Topographic datasets provide information about the elevation of land.

² Bathymetric datasets provide information about the elevation of underwater terrain (such as the seabed).



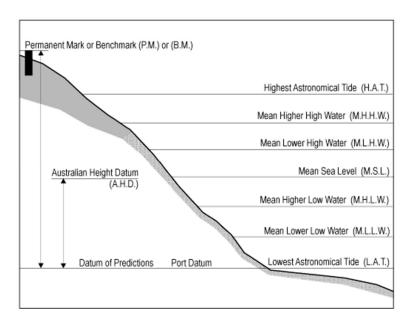


Figure 3.1 Illustration of dirunal tidal planes, Australian Height Datum (AHD) and permanent mark (Maritime Safety Queensland 2023)

Digital Elevation Model

A Digital Elevation Model (DEM) is three-dimensional model of the ground surface elevation. A DEM may be developed from elevation data obtained from ground survey, airborne techniques such as LiDAR (Light Detection and Ranging) or photogrammetry, or satellite. A DEM is needed to support the modelling and mapping of flood and coastal inundation depths and extents.

3.2 Collation of topographic datasets and survey control mark reports

The available topographic survey datasets for Boigu, Saibai, Poruma and Warraber are broadly described as either:

- Site-specific ground survey datasets obtained onsite by a surveyor. For each island these datasets
 covered limited sections of shoreline, often where seawalls have been constructed. These datasets
 were provided by the Torres Strait Island Regional Council (pursuant to the subpoena dated 20 April
 2023). Details of the survey instruments and technologies used were not provided.
- High resolution elevation data captured using LiDAR technology (airborne laser scanning acquired from a fixed wing aircraft). These datasets were obtained by the Queensland Government between 2009 and 2011 and accessed via the Elvis Elevation and Depth Foundation Spatial Data website: https://elevation.fsdf.org.au/. For each island, two datasets were obtained:
 - Classified las (laser strikes classified as 'ground')
 - 1-metre resolution Digital Elevation Model (DEM)

The metadata details provided with the downloaded LiDAR suggests uncertainty with respect to the height datum. This issue has been examined and the approach for adjusting the LiDAR data to AHD using the survey control mark information is described in this Section of the report.

The survey control mark locations and reports were accessed via the Queensland Government Queensland Globe website: https://qldglobe.information.qld.gov.au/. Survey control marks (typically a

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small bolt in concrete) provide an accurate measure of position and height at that location. For each island, survey control mark information was used to check the accuracy and reliability of the available topographic datasets and guide the adjustment of the datasets to AHD where this was required.

The topographic and survey control datasets and their primary purpose are listed in the tables below. The use of these datasets for developing the Digital Elevation Model for each island is described below.

Boigu

The Boigu topographic datasets are listed in Table 3.1. The ground survey was undertaken in 2019 (month uncertain) and elevations were provided relative to AHD. The metadata details provided with the downloaded LiDAR suggests uncertainty with respect to the height datum. The height datum is therefore listed as uncertain.

The survey control mark datasets are listed in Table 3.2. The report for each survey mark is provided in Annex C.

Table 3.1 Boigu datasets used to develop the Digital Elevation Model

Dataset	Height datum	Purpose
X_SV_DETAIL SURVEY.dwg (survey date: 2019)	AHD (m)	DEM for flood mapping
LiDAR Boigu Island 2009 Classified las	Uncertain	QA/QC with survey control marks
LiDAR Boigu Island 2009 1 metre Digital Elevation Model	Uncertain	DEM for flood mapping

Table 3.2 Boigu survey control marks

Mark number	AHD height (m)	Purpose
119880	3.201	Checking LiDAR
133973	3.29	Checking LiDAR
140483	2.706	Checking LiDAR
177940	3.085	Checking ground survey
177941	3.163	Checking ground survey
186491	2.99	Checking ground survey & LiDAR
186493	2.646	Checking LiDAR
189642	3.081	Checking LiDAR
189643	2.468	Checking LiDAR



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Saibai

The Saibai topographic datasets are listed in Table 3.3. The date of the ground survey is uncertain but may have been undertaken between 2015 and 2017 to support seawall planning, design and construction. The ground survey elevations were provided relative to AHD. The metadata details provided with the downloaded LiDAR suggests uncertainty with respect to the height datum. The height datum is therefore listed as uncertain.

The survey control mark datasets are listed in Table 3.4. The report for each survey mark is provided in Annex D.

Table 3.3 Saibai datasets used to develop the Digital Elevation Model

Dataset	Height datum	Purpose
X_60283674_SAIBAI_SURVEY.dwg (survey date: uncertain, possibly between 2015 and 2017)	AHD (m)	DEM for flood mapping
LiDAR Saibai Island 2009 Classified las	Uncertain	QA/QC with survey control marks
LiDAR Saibai Island 2009 1 metre Digital Elevation Model	Uncertain	DEM for flood mapping

Table 3.4 Saibai survey control marks

Mark number	AHD height (m)	Purpose
177956	3.01	Checking ground survey
177954	3.069	Checking LiDAR
177952	4.733	Checking ground survey
173503	2.264	Checking LiDAR
173502	3.353	Checking ground survey
173501	2.793	Checking ground survey
123153	2.983	Checking ground survey & LiDAR
123152	2.989	Checking LiDAR
112444	2.747	Checking LiDAR



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Poruma

The Poruma topographic datasets are listed in Table 3.5. The ground survey was undertaken in March 2020 and elevations were provided relative to Lowest Astronomical Tide (LAT). The metadata details provided with the downloaded LiDAR suggests uncertainty with respect to the height datum. The height datum is therefore listed as uncertain.

The survey control mark datasets are listed in Table 3.6. The report for each survey mark is provided in Annex E.

Table 3.5 Poruma datasets used to develop the Digital Elevation Model

Dataset	Height datum	Purpose
PR142018-2.dwg; PR142018-3.dwg (survey date: March 2020)	LAT (m)	DEM for flood mapping
LiDAR Coconut Island (Poruma) 2011 Classified las	Uncertain	QA/QC with survey control marks
LiDAR Coconut Island (Poruma) 2011 1 metre Digital Elevation Model	Uncertain	DEM for flood mapping

Table 3.6 Poruma survey control marks

Mark number	AHD height (m)	Purpose
140484	2.524	Checking ground survey
140886	4.078	Checking LiDAR
156559	3.094	Checking ground survey
156560	2.318	Checking ground survey
156562	5.227	Checking LiDAR
156563	5.267	Checking LiDAR
177937	2.633	Checking ground survey & LiDAR
700846	8.033	Checking ground survey



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Warraber

The Warraber topographic datasets are listed in Table 3.7. The ground survey was undertaken in March 2021 and elevations were provided relative to AHD. The metadata details provided with the downloaded LiDAR suggests uncertainty with respect to the height datum. The height datum is therefore listed as uncertain.

The survey control mark datasets are listed in Table 3.8. The report for each survey mark is provided in Annex F.

Table 3.7 Warraber datasets used to develop the Digital Elevation Model

Dataset	Height datum	Purpose
PR148460-1_2d.dwg (survey date: March 2021)	AHD (m)	DEM for flood mapping
LiDAR Sue Island (Warraber) 2010 Classified las	Uncertain	QA/QC with survey control marks
LiDAR Sue Island (Warraber) 2010 1 metre Digital Elevation Model	Uncertain	DEM for flood mapping

Table 3.8 Warraber survey control marks

Mark number	AHD height (m)	Purpose
089040	3.516	Checking ground survey
126629	2.037	Checking ground survey
137967	4.148	Checking LiDAR
137968	3.187	Checking ground survey
146550	3.204	Checking LiDAR
156564	2.953	Checking LiDAR
177936	3.549	Checking ground survey
177935	6.605	Checking LiDAR



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3.3 Checking topographic datasets against survey control marks

The elevation at each survey control mark was used for comparison with the topographic datasets. The purpose of this check was to:

- Assess the accuracy and reliability of the stated height datum of each ground survey dataset (either AHD or LAT),
- Estimate a value (offset) for adjusting the Poruma ground survey dataset height datum from LAT to AHD, and
- Estimate the value (offset) for adjusting the LiDAR datasets height datum to AHD.

The results of the topography survey checks are provided in Annex C (Boigu), Annex D (Saibai), Annex E (Poruma) and Annex F (Warraber) with the key outcomes discussed in Section 3.5.

3.4 Adjustment of topographic datasets to Australian Height Datum

Based on the comparison with the survey control mark heights relative to AHD, the following adjustments to topographic datasets were made:

- LiDAR Boigu Island 2009 1 metre Digital Elevation Model: +0.55 m vertical offset
- LiDAR Saibai Island 2009 1 metre Digital Elevation Model: +0.75 m vertical offset
- PR142018-2.dwg; PR142018-3.dwg (Poruma): +2.02 m vertical offset
- LiDAR Coconut Island (Poruma) 2011 1 metre Digital Elevation Model: +0.52 m vertical offset
- LiDAR Sue Island (Warraber) 2010 1 metre Digital Elevation Model: +0.55 m vertical offset

The positive adjustment (+) indicates that the original dataset was raised to align with AHD. No adjustment to the ground survey datasets at Boigu, Saibai and Warraber was deemed necessary.

The vertical offset (adjustment) was based on the average difference between the height of the survey control marks and the topographic survey dataset. The vertical offset was then applied uniformly to the topographic survey DEM. In some instances, the difference between a survey control mark and the topographic survey dataset was large (in the case of the ground survey datasets) or inconsistent with the differences observed at other survey control mark locations (in the case of the LiDAR datasets). The results at these survey control mark locations were not included in the averaging and not considered further. The discarded survey control marks are summarised below. Annex C (Boigu), Annex D (Saibai), Annex E (Poruma) and Annex F (Warraber) provide a summary of the retained survey control marks and the basis for the adopted vertical offsets.

It is acknowledged that the vertical offsets presented here provide 'best-estimates' for adjusting the LiDAR datasets to AHD and therefore a consistent datum with the survey control marks, ground survey datasets and water levels. The broader uncertainties regarding the island connections to AHD (e.g. Metters and Pedderson 2011; SEA 2011) have not been considered in this report.

3.5 Combining of datasets to develop a Digital Elevation Model for each location

For each island, the ground survey and adjusted LiDAR survey data were combined to create a single DEM. This involved 'stamping' the ground survey onto the adjusted LiDAR survey which means the ground survey data takes precedence in the limited areas where it is available. This ensures that any new seawalls or other structures captured by the ground survey are included in the DEM. In cases

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where there has been significant shoreline change in the period (~10 years) between the LiDAR capture and ground survey there is an obvious discontinuity between datasets. This is most evident at the eastern and western extents at Poruma and northeastern and southwestern shoreline sections at Warraber.

The DEMs are shown in Figure 3.2 to Figure 3.5 and key features are described below.

Boigu

Key features of the Boigu Digital Elevation Model (Figure 3.2) include:

- The community is located on land with an elevation around 3.0 m AHD.
- The ground survey dataset elevation compared well with survey control marks 177941 and 18491 with the difference less than ±0.05 m.
- The average difference between the LiDAR dataset elevation and survey control marks 186491, 133973, 119880, 189642, 189643 and 186493 was +0.55 m (standard deviation 0.05 m). An offset of 0.55 m was therefore applied to the Boigu LiDAR dataset to adjust the elevations to AHD.
- Larger differences were observed between the topography dataset elevation and survey control
 marks 140483, 177940 and 177941 was greater than ±0.10 m. These survey control marks were
 not considered further.

Saibai

Key features of the Saibai Digital Elevation Model (Figure 3.3) include:

- The community is located on land with an elevation around 3.0 m AHD.
- The ground survey dataset elevation compared well with survey control marks 173501 and 123153 with the difference less than ±0.05 m. The Saibai ground survey dataset elevations were therefore considered representative of AHD.
- The average difference between the LiDAR dataset elevation and survey control marks 123153, 123152, 177954, 112444 and 173503 was +0.75 m (standard deviation 0.05 m). An offset of 0.75 m was therefore applied to the Saibai LiDAR dataset to adjust the elevations to AHD.
- Larger differences were observed between the topography dataset elevation and survey control marks 173502, 177956 and 177952. These survey control marks were not considered further.

Poruma

Key features of the Poruma Digital Elevation Model (Figure 3.4) include:

- The community is located to the west of the airstrip on land with an elevation around 4.0 m AHD.
- The ground survey dataset elevation was provided relative to Lowest Astronomical Tide (LAT).
 Comparison with survey control marks 140484, 156559, 156560 and 177937 suggested an average difference of 2.02 m (standard deviation 0.07 m). An offset of 2.02 m was therefore applied to the Poruma ground survey dataset to adjust the elevations to AHD.
- The average difference between the LiDAR dataset elevation and survey control marks 177937, 140886, 156563 and 156562 was +0.52 m (standard deviation 0.02 m). An offset of 0.52 m was therefore applied to the Poruma LiDAR dataset to adjust the elevations to AHD.



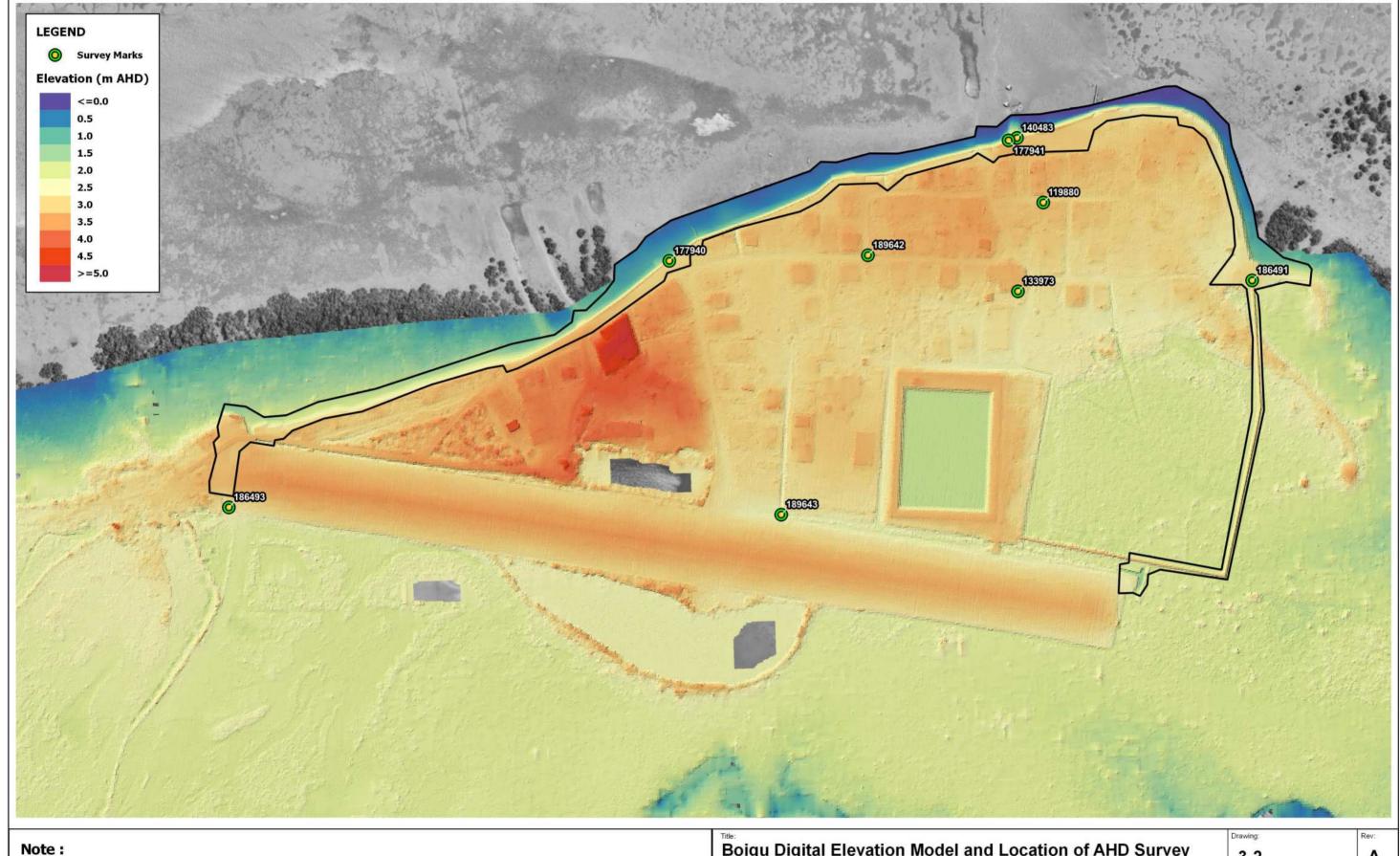
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• A larger difference was observed between the topography dataset elevation and survey control mark 700846. This survey control mark was not considered further.

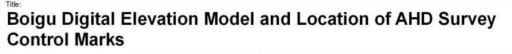
Warraber

Key features of the Warraber Digital Elevation Model (Figure 3.5) include:

- The community is located to the east of the airstrip on land with an elevation around 3.0 m AHD.
- The ground survey dataset elevation compared well with survey control marks 126629, 137968 and 177936 with the difference less than ±0.02 m. The Warraber ground survey dataset elevations were therefore considered representative of AHD.
- The average difference between the LiDAR dataset elevation and survey control marks 177935, 156564, 146550 and 137967 was +0.55 m (standard deviation 0.06 m). An offset of 0.55 m was therefore applied to the Warraber LiDAR dataset to adjust the elevations to AHD.
- A larger difference was observed between the topography dataset elevation and survey control mark 089040. This survey control mark was not considered further.





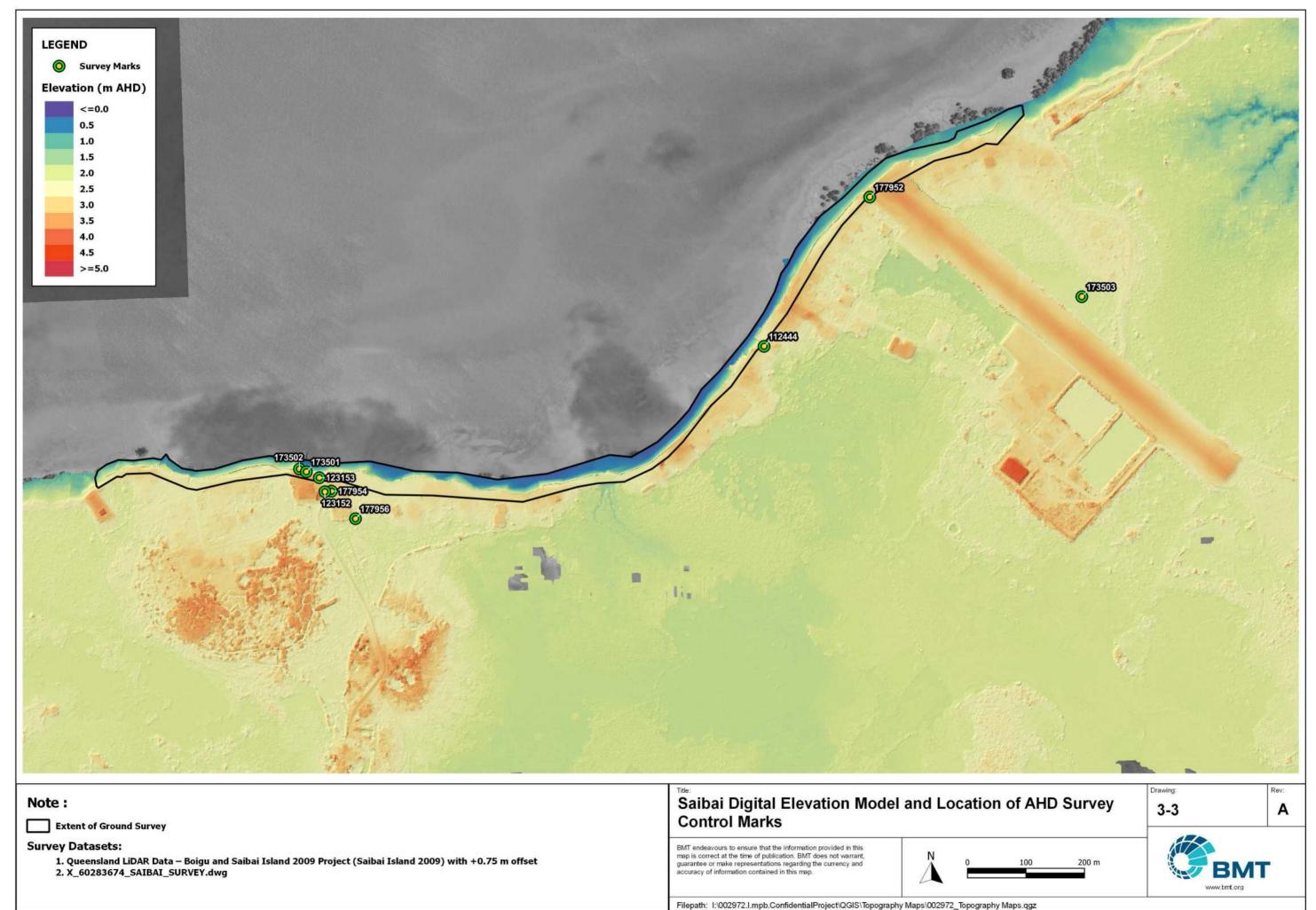


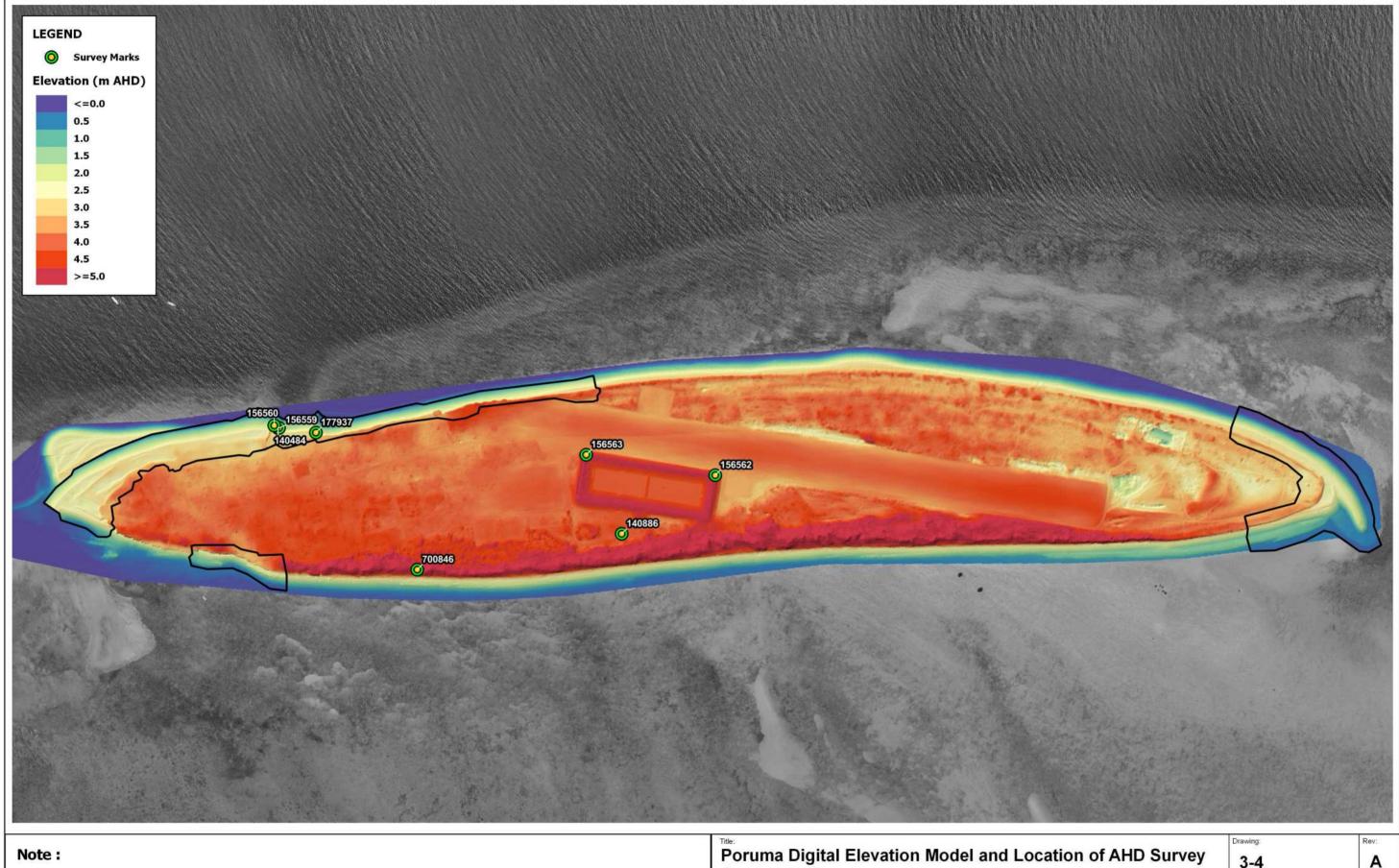
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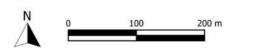






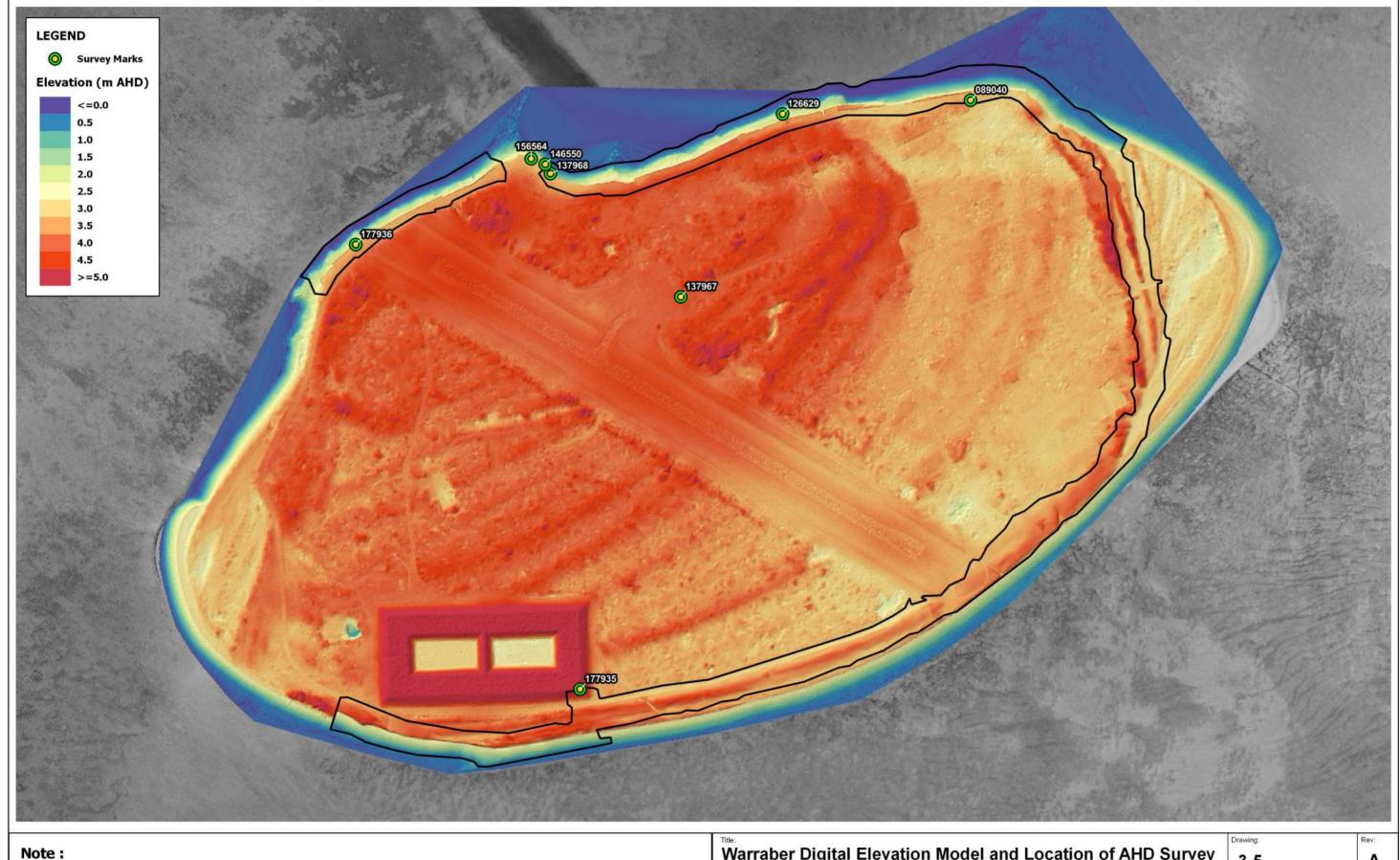
Control Marks

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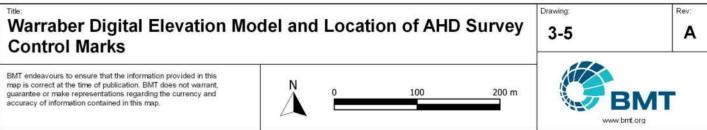




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3.6 Mapping of extreme sea level flooding relative to the Digital Elevation Model

The extreme sea level flood mapping is presented in Section 4. The mapping approach involves extrapolating the peak water level (m AHD) conditions across the adjacent coastal land, with ground elevations defined by the DEMs presented in Figure 3.2 (Boigu), Figure 3.3 (Saibai), Figure 3.4 (Poruma) and Figure 3.5 (Warraber). This approach is commonly known as a 'bathtub' or 'bucket fill' mapping. It is noted that the mapped inundation levels and extents do not explicitly account for the dynamic action of waves or wind shear stresses over land. These processes can influence inundation levels and extents under certain conditions which may lead to the inundation of areas beyond those shown in the mapping.

Effort has been made to only map inundation in areas with a hydraulic connection to the sea. The mapping also assumes that there is sufficient time and water available from the overtopping of coastal barriers to fill potential holding basins up to the given water level. In this respect, the mapped inundation areas may be over predicted in certain areas.

Any benefit of seawalls or other structures designed to limit the extent of overtopping and inundation by removing a hydraulic connection to the sea are only resolved if the structure has been captured by the ground survey datasets. The benefit of seawalls or other structures not included in the ground survey datasets will not be represented in the mapping.

More detailed modelling and mapping to simulate overtopping of the coastal barriers and overland flow requires accurate and reliable datasets, such as up-to-date and high-resolution topographic and bathymetric datasets. This information is not currently available at the locations of interest.

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4 Extreme sea level inundation mapping

The extreme sea level inundation mapping is presented in this Section of the report. A table summarising the maps is also provided for each island. To assist with interpretation of the mapping the following is noted:

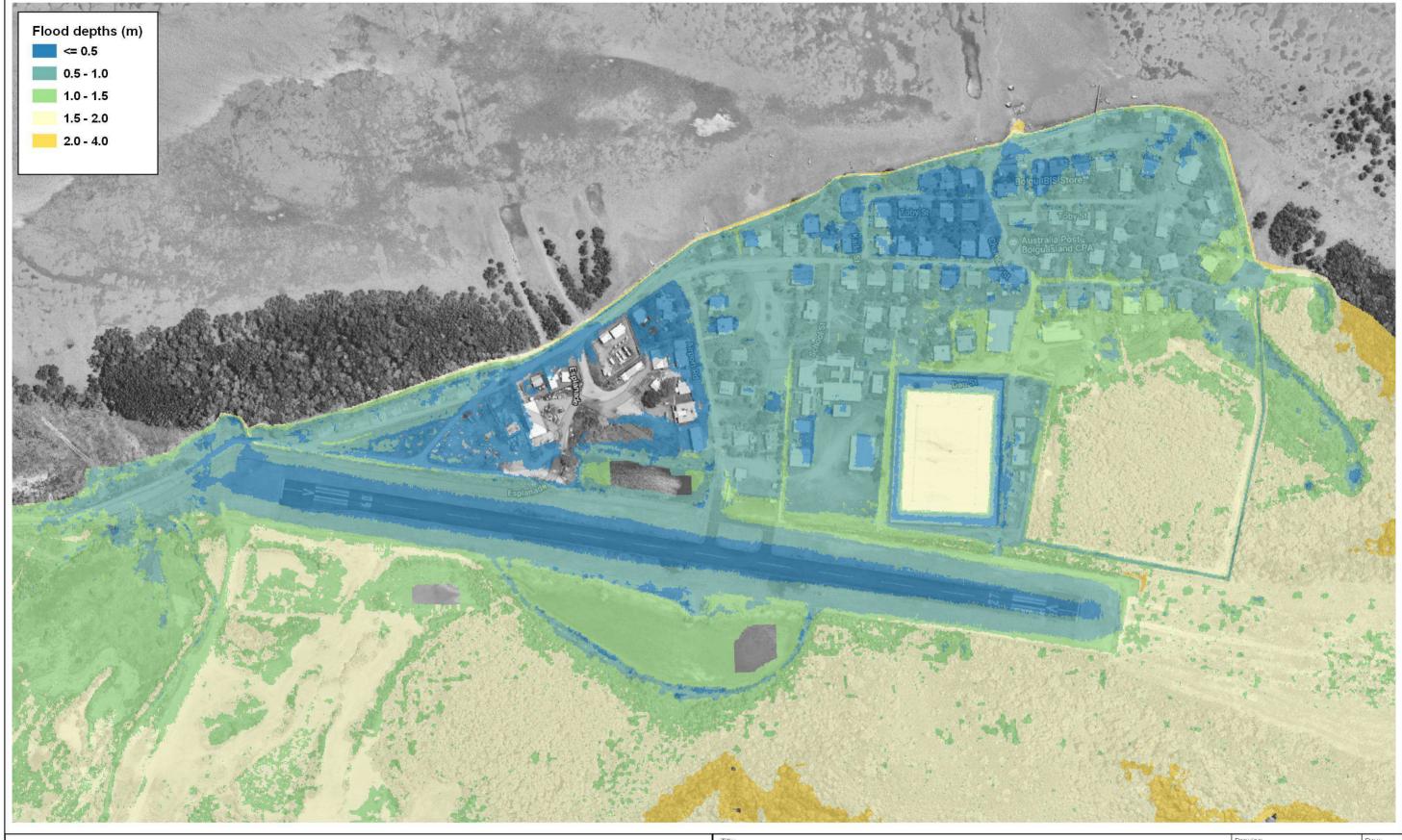
- Each map provides details of the inundation depth and extent relative to the extreme sea level (water level). The difference between the DEM and water level provides the variation in inundation depth.
- Greyscale aerial imagery is used in the background of each map. Land areas where the greyscale imagery is visible indicates no coastal inundation.
- For each island, the same DEM based on the available topographic datasets is used for all sea level scenarios. No adjustments to the DEM have been made to represent historical or future topographic conditions.
- The mapping is based on the data presented in this report. Validation of the results to historical inundation events has not been completed.

Boigu

Table 4.1 provides a summary of maps that show the extent of inundation associated with extreme sea levels at Boigu. The maps are presented on the following pages.

Table 4.1 Boigu extreme sea level inundation map summary

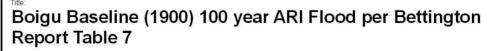
Map number	AHD water level (m)	Map label
a.i	3.73	Boigu Baseline (1900) 100 year ARI Flood per Bettington Report Table 7
a.ii	2.48	Alternative Boigu Baseline (1900) 100 year ARI Flood
a.iii	3.94	Boigu Current (2023) 100 year ARI Flood per Bettington Report Table 8
a.iv	2.69	Alternative Boigu Current (2023) 100 year ARI Flood
a.v	3.40	Boigu Township Inundation Event per Bettington Report Table 9
a.vi	4.09	Boigu 2050 SSP 1-2.6 100 year ARI flood per Bettington Report Table 12
a.vii	2.84	Alternative Boigu 2050 SSP 1-2.6 100 year ARI flood
a.viii	4.07	Boigu 2050 SSP 1-1.9 100 year ARI flood per Bettington Report Table 11
a.ix	2.82	Alternative Boigu 2050 SSP 1-1.9 100 year ARI flood
a.x	4.35	Boigu 2100 SSP 1-2.6 100 year ARI flood per Bettington Report Table 16
a.xi	3.10	Alternative Boigu 2100 SSP 1-2.6 100 year ARI flood
a.xii	4.29	Boigu 2100 SSP 1-1.9 100 year ARI flood per Bettington Report Table 15
a.xiii	3.04	Alternative Boigu 2100 SSP 1-1.9 100 year ARI flood



Water Level = 3.73 m AHD

Survey Datasets:

Queensland LiDAR Data – Boigu and Saibai Island 2009 Project (Boigu Island 2009) with +0.55 m offset
 X_SV_CONTOURS.dwg; X_SV_DETAIL SURVEY.dwg; X_SV_PL_DETAILED_SURVEY_SEAWALL.dwg



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Water Level = 2.48 m AHD

Survey Datasets:

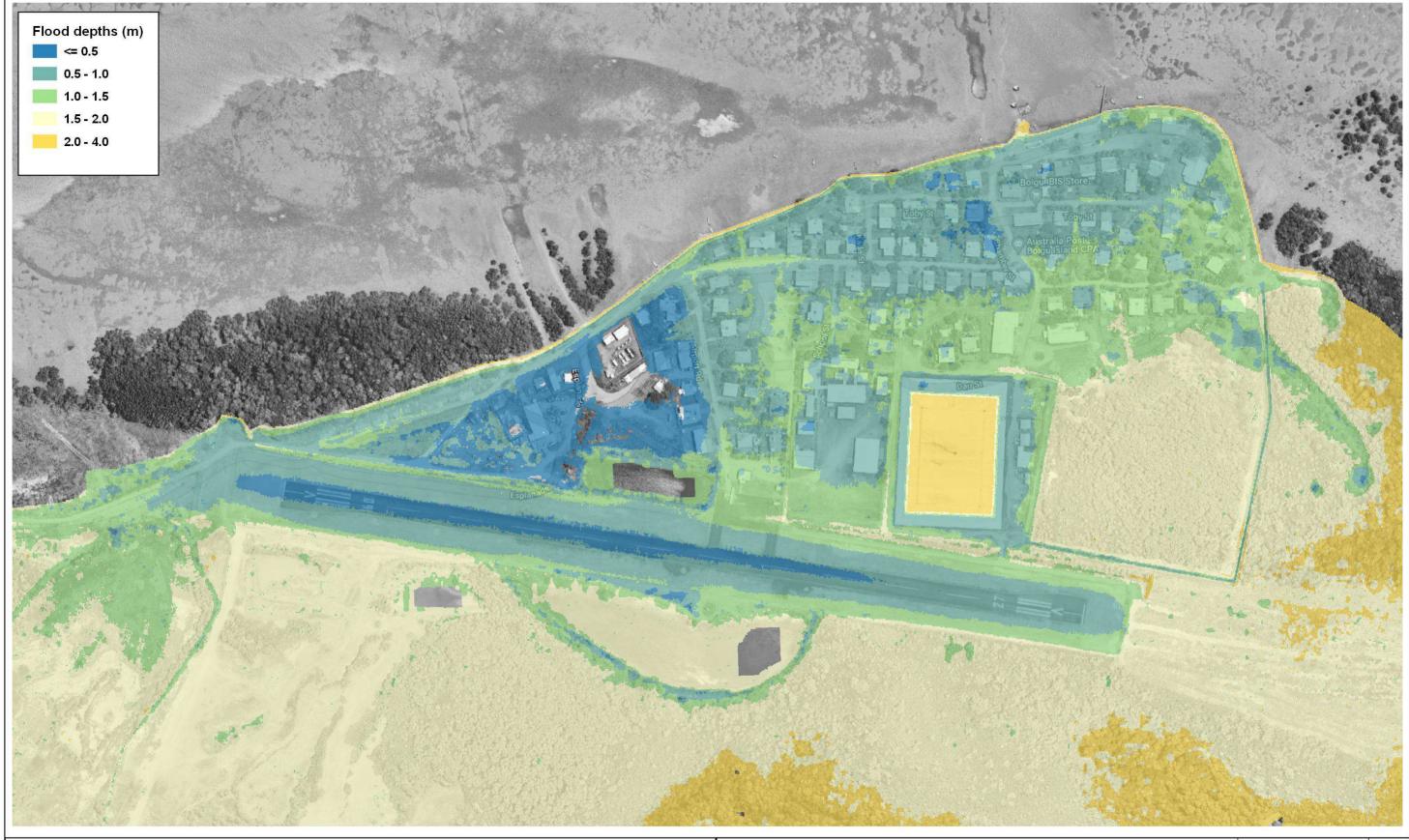
Queensland LiDAR Data – Boigu and Saibai Island 2009 Project (Boigu Island 2009) with +0.55 m offset
 X_SV_CONTOURS.dwg; X_SV_DETAIL SURVEY.dwg; X_SV_PL_DETAILED_SURVEY_SEAWALL.dwg

Alternative Boigu Baseline (1900) 100 year ARI Flood

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

a.ii

Filepath: I:\002972.l.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_new.qgz



Water Level = 3.94 m AHD

Survey Datasets:

1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Boigu Island 2009) with +0.55 m offset 2. X_SV_CONTOURS.dwg; X_SV_DETAIL SURVEY.dwg; X_SV_PL_DETAILED_SURVEY_SEAWALL.dwg

Boigu Current (2023) 100 year ARI Flood per Bettington Report Table 8

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a.iii



Filepath: I:\002972.I.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_Old update.qgz



Water Level = 2.69 m AHD

Survey Datasets:

Queensland LiDAR Data – Boigu and Saibai Island 2009 Project (Boigu Island 2009) with +0.55 m offset
 X_SV_CONTOURS.dwg; X_SV_DETAIL SURVEY.dwg; X_SV_PL_DETAILED_SURVEY_SEAWALL.dwg

Alternative Boigu Current (2023) 100 year ARI Flood

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.





Filepath: I:\002972.I.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_new.qgz



Water Level = 3.4 m AHD

Survey Datasets:

1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Boigu Island 2009) with +0.55 m offset 2. X_SV_CONTOURS.dwg; X_SV_DETAIL SURVEY.dwg; X_SV_PL_DETAILED_SURVEY_SEAWALL.dwg

Boigu Township Inundation Event per Bettington Report Table 9

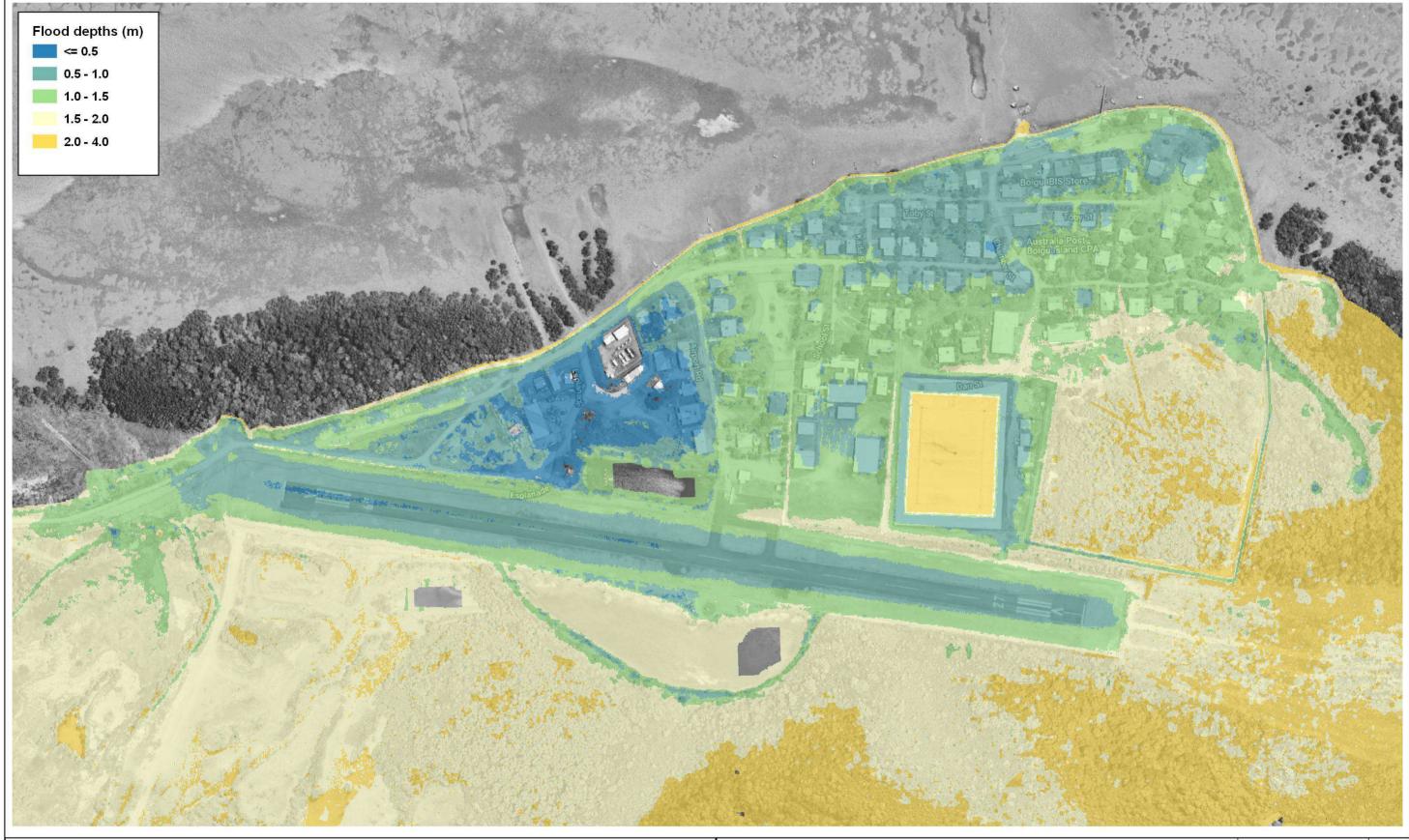
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



a.v



Filepath: I:\002972.I.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_Old update.qgz



Water Level = 4.09 m AHD

Survey Datasets:

1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Boigu Island 2009) with +0.55 m offset 2. X_SV_CONTOURS.dwg; X_SV_DETAIL SURVEY.dwg; X_SV_PL_DETAILED_SURVEY_SEAWALL.dwg

Boigu 2050 SSP 1-2.6 100 year ARI Flood per Bettington Report Table 12

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a.vi



Filepath: I:\002972.I.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_Old update.qgz



Water Level = 2.84 m AHD

Survey Datasets:

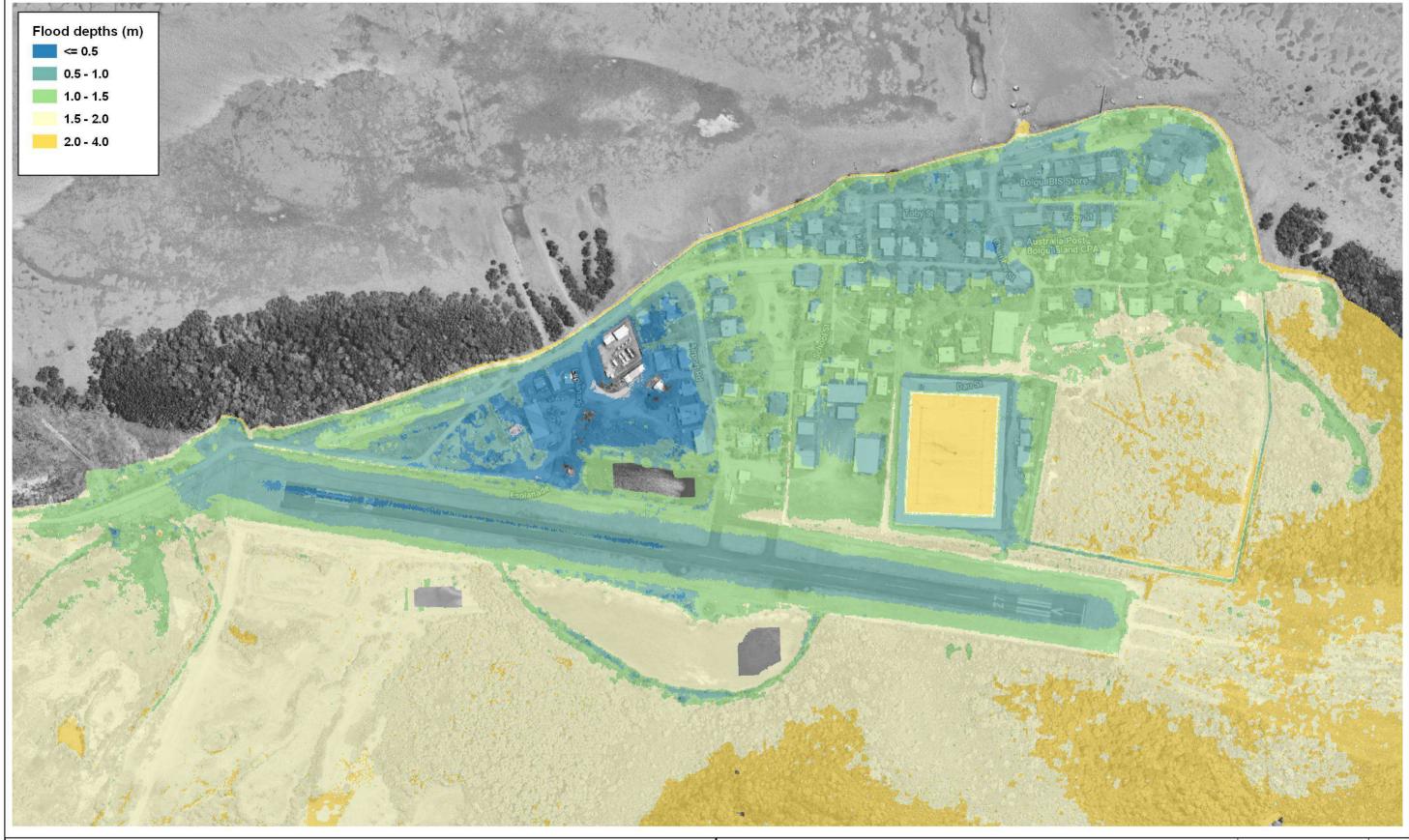
Queensland LiDAR Data – Boigu and Saibai Island 2009 Project (Boigu Island 2009) with +0.55 m offset
 X_SV_CONTOURS.dwg; X_SV_DETAIL SURVEY.dwg; X_SV_PL_DETAILED_SURVEY_SEAWALL.dwg

Alternative Boigu 2050 SSP 1-2.6 100 year ARI Flood

a.vii

Filepath: I:\002972.I.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_new.qgz

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Water Level = 4.07 m AHD

Survey Datasets:

1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Boigu Island 2009) with +0.55 m offset 2. X_SV_CONTOURS.dwg; X_SV_DETAIL SURVEY.dwg; X_SV_PL_DETAILED_SURVEY_SEAWALL.dwg

Boigu 2050 SSP 1-1.9 100 year ARI Flood per Bettington Report Table 11

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



a.viii



Filepath: I:\002972.l.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_new.qgz



Water Level = 2.82 m AHD

Survey Datasets:

Queensland LiDAR Data – Boigu and Saibai Island 2009 Project (Boigu Island 2009) with +0.55 m offset
 X_SV_CONTOURS.dwg; X_SV_DETAIL SURVEY.dwg; X_SV_PL_DETAILED_SURVEY_SEAWALL.dwg

Alternative Boigu 2050 SSP 1-1.9 100 year ARI Flood

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

0	70	140 m



Filepath: I:\002972.I.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_new.qgz



Water Level = 4.35 m AHD

Survey Datasets:

1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Boigu Island 2009) with +0.55 m offset 2. X_SV_CONTOURS.dwg; X_SV_DETAIL SURVEY.dwg; X_SV_PL_DETAILED_SURVEY_SEAWALL.dwg

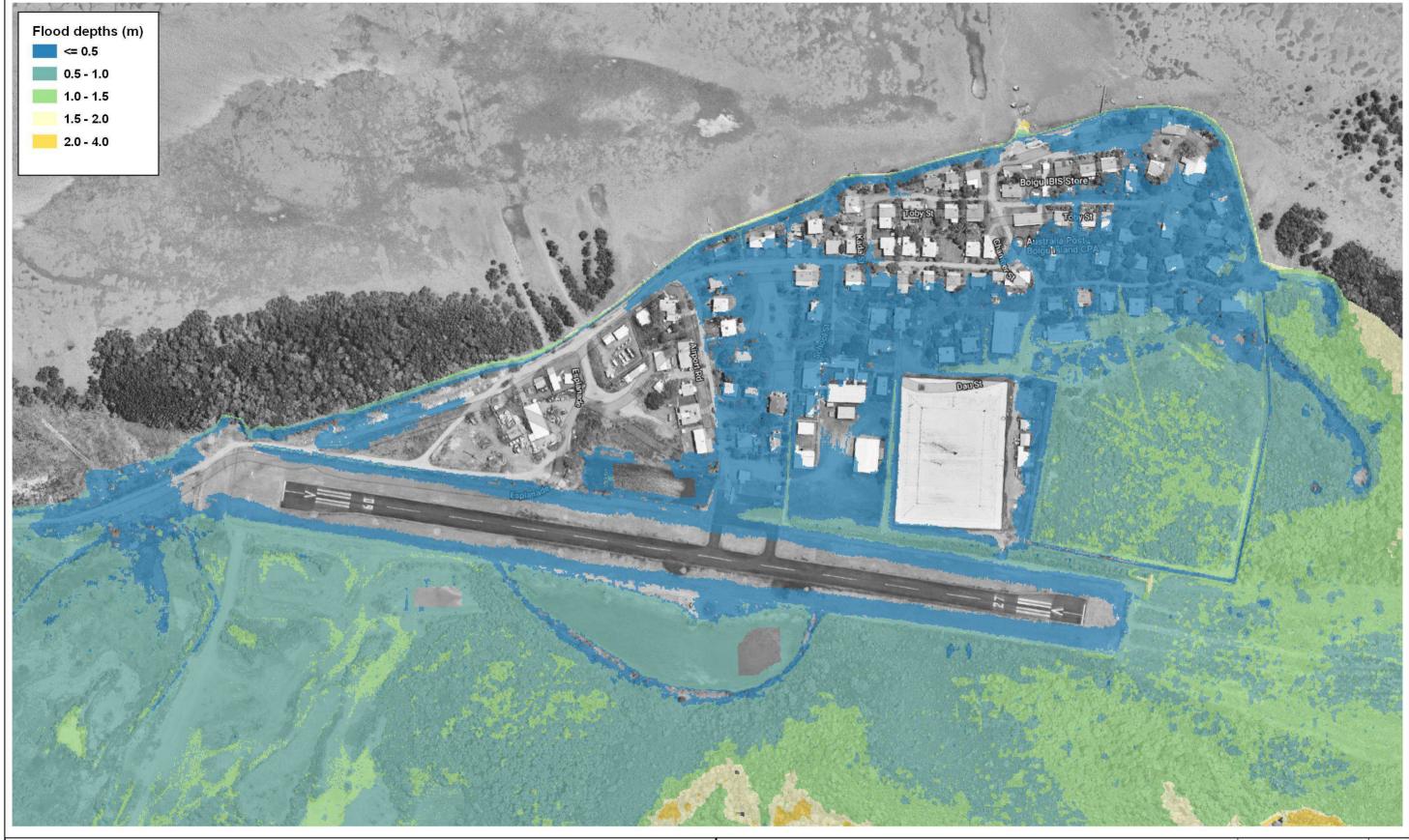
Boigu 2100 SSP 1-2.6 100 year ARI Flood per Bettington Report Table 16

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



a.x

Filepath: I:\002972.I.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_Old update.qgz



Water Level = 3.10 m AHD

Survey Datasets:

1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Boigu Island 2009) with +0.55 m offset 2. X_SV_CONTOURS.dwg; X_SV_DETAIL SURVEY.dwg; X_SV_PL_DETAILED_SURVEY_SEAWALL.dwg

Alternative Boigu 2100 SSP 1-2.6 100 year ARI Flood

a.xi

Filepath: I:\002972.l.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_new.qgz

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Water Level = 4.29 m AHD

Survey Datasets:

1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Boigu Island 2009) with +0.55 m offset 2. X_SV_CONTOURS.dwg; X_SV_DETAIL SURVEY.dwg; X_SV_PL_DETAILED_SURVEY_SEAWALL.dwg

Boigu 2100 SSP 1-1.9 100 year ARI Flood per Bettington Report Table 15

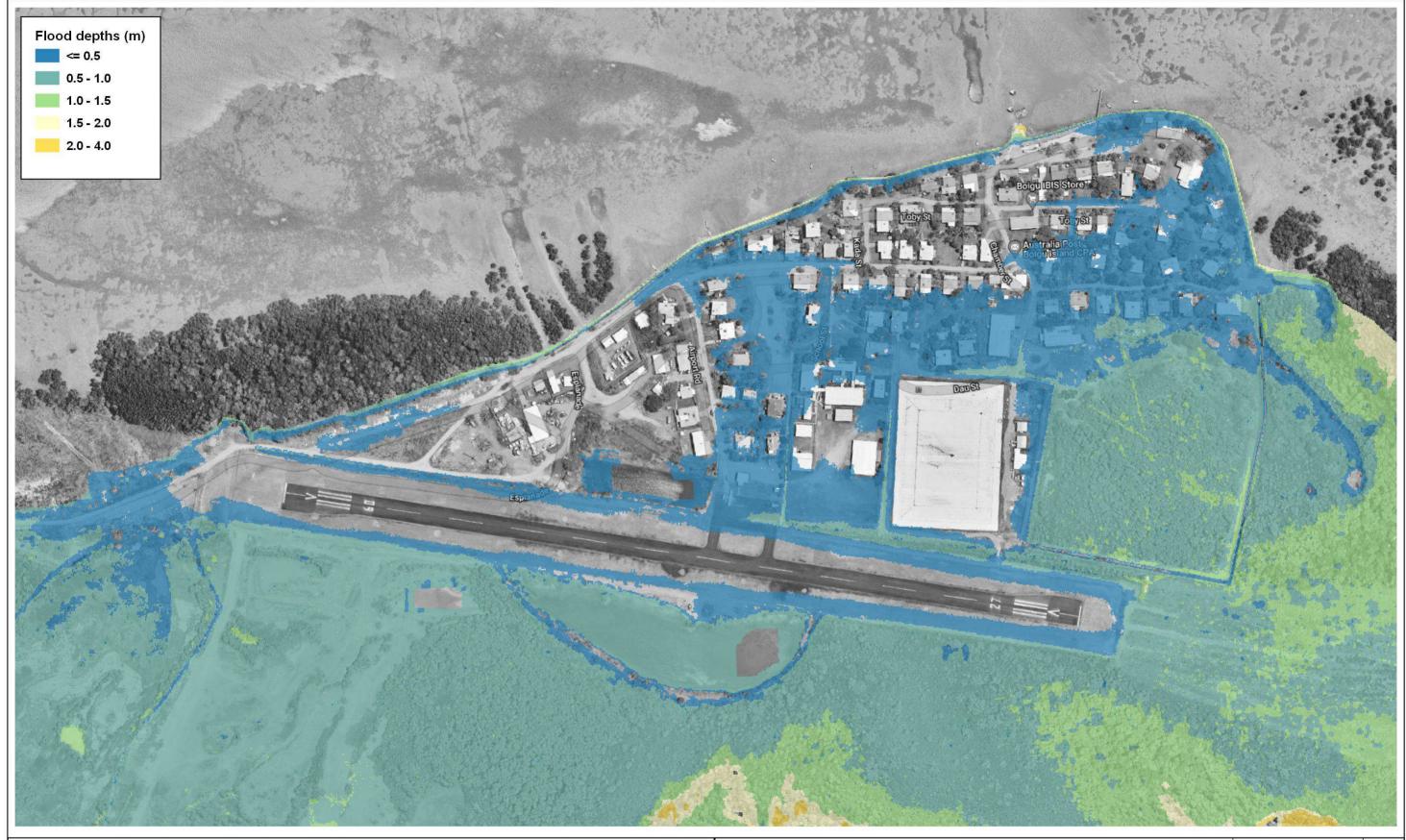
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a.xii	
Prawing:	Rev:



Filepath: I:\002972.l.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_new.qgz



Water Level = 3.04 m AHD

Survey Datasets:

Queensland LiDAR Data – Boigu and Saibai Island 2009 Project (Boigu Island 2009) with +0.55 m offset
 X_SV_CONTOURS.dwg; X_SV_DETAIL SURVEY.dwg; X_SV_PL_DETAILED_SURVEY_SEAWALL.dwg

Alternative Boigu 2100 SSP 1-1.9 100 year ARI Flood

a.xiii



Filepath: I:\002972.l.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_new.qgz

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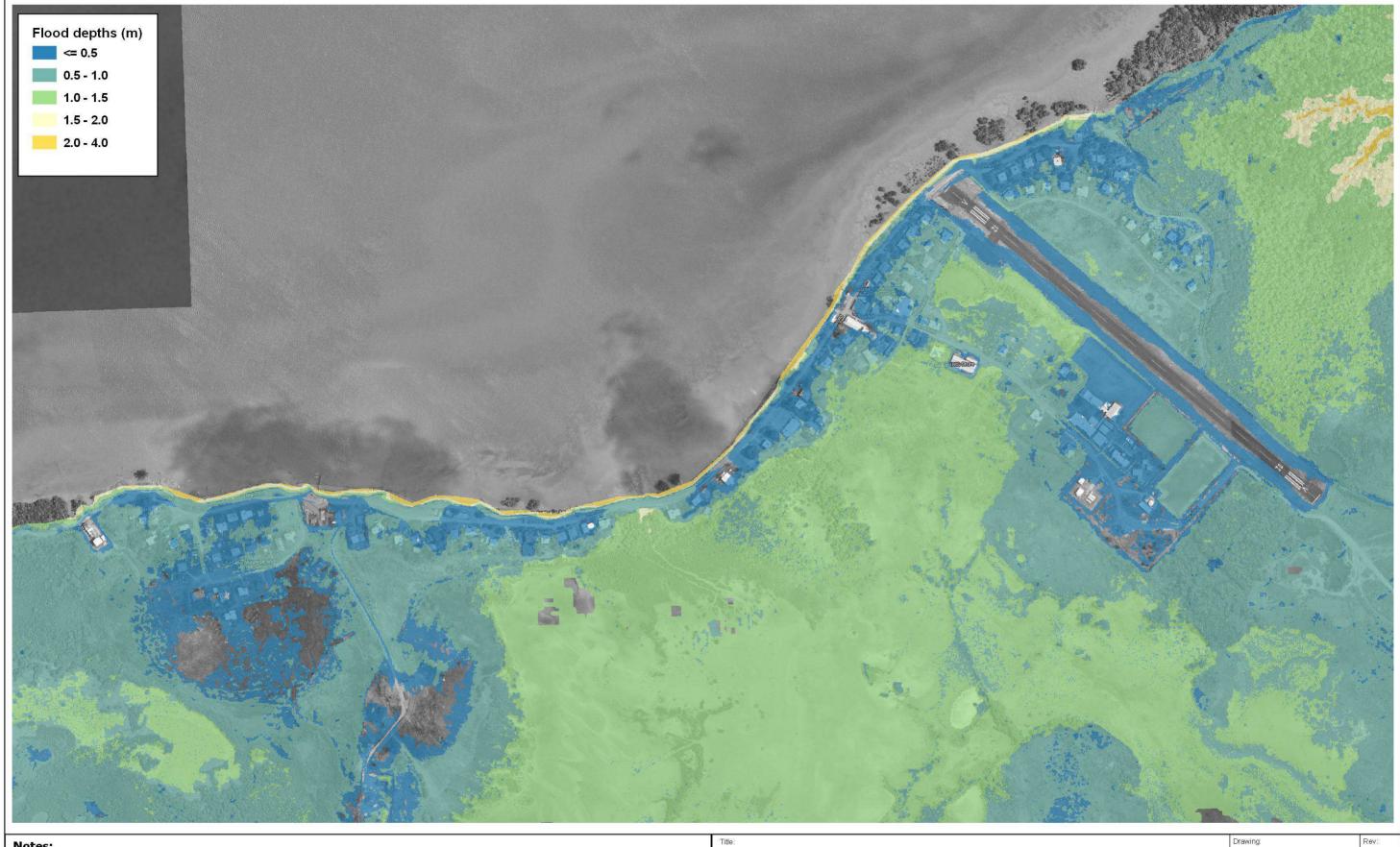
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Saibai

Table 4.2 provides a summary of maps that show the extent of inundation associated with extreme sea levels at Saibai. The maps are presented on the following pages.

Table 4.2 Saibai extreme sea level inundation map summary

Map number	AHD water level (m)	Map label
b.i	3.11	Saibai Baseline (1900) 100 year ARI Flood per Bettington Report Table 7
b.ii	2.09	Alternative Saibai Baseline (1900) 100 year ARI Flood
b.iii	3.32	Saibai Current (2023) 100 year ARI Flood per Bettington Report Table 8
b.iv	2.30	Alternative Saibai Current (2023) 100 year ARI Flood
b.v	2.80	Saibai Township Inundation Event per Bettington Report Table 9
b.vi	3.47	Saibai 2050 SSP 1-2.6 100 year ARI flood per Bettington Report Table 12
b.vii	2.45	Alternative Saibai 2050 SSP 1-2.6 100 year ARI flood
b.viii	3.45	Saibai 2050 SSP 1-1.9 100 year ARI flood per Bettington Report Table 11
b.ix	2.43	Alternative Saibai 2050 SSP 1-1.9 100 year ARI flood
b.x	3.73	Saibai 2100 SSP 1-2.6 100 year ARI flood per Bettington Report Table 16
b.xi	2.71	Alternative Saibai 2100 SSP 1-2.6 100 year ARI flood
b.xii	3.67	Saibai 2100 SSP 1-1.9 100 year ARI flood per Bettington Report Table 15
b.xiii	2.65	Alternative Saibai 2100 SSP 1-1.9 100 year ARI flood

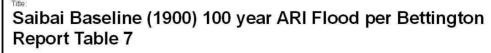




Water Level = 3.11 m AHD

Survey Datasets:

1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Saibai Island 2009) with +0.75 m offset 2. X_60283674_SAIBAI_SURVEY.dwg

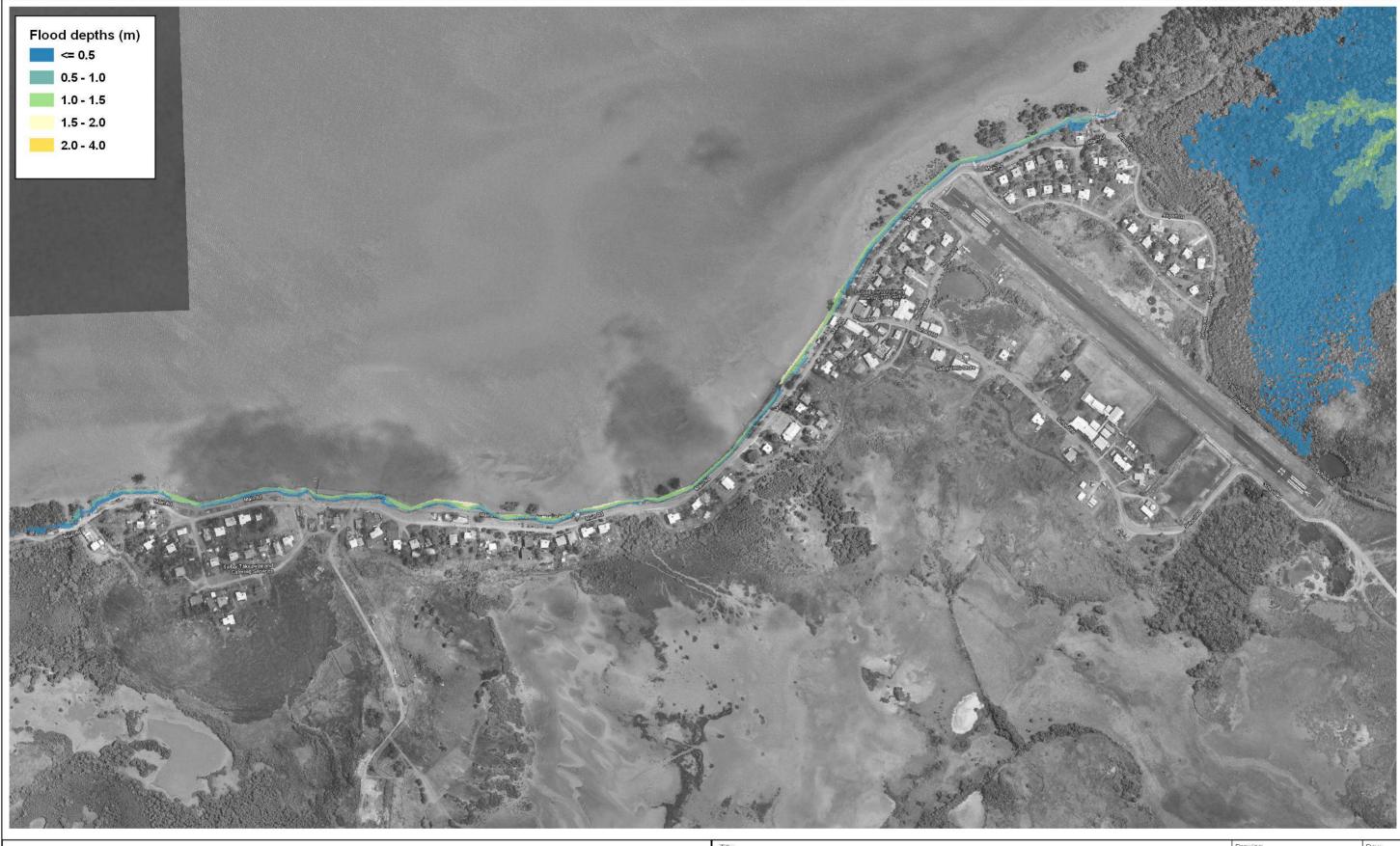


BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



b.i

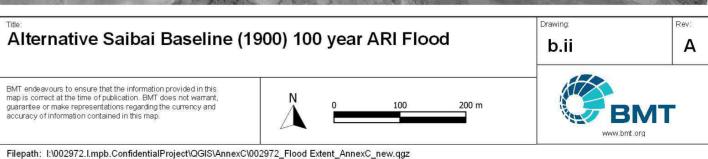
Filepath: I:\002972.I.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_Old update.qgz

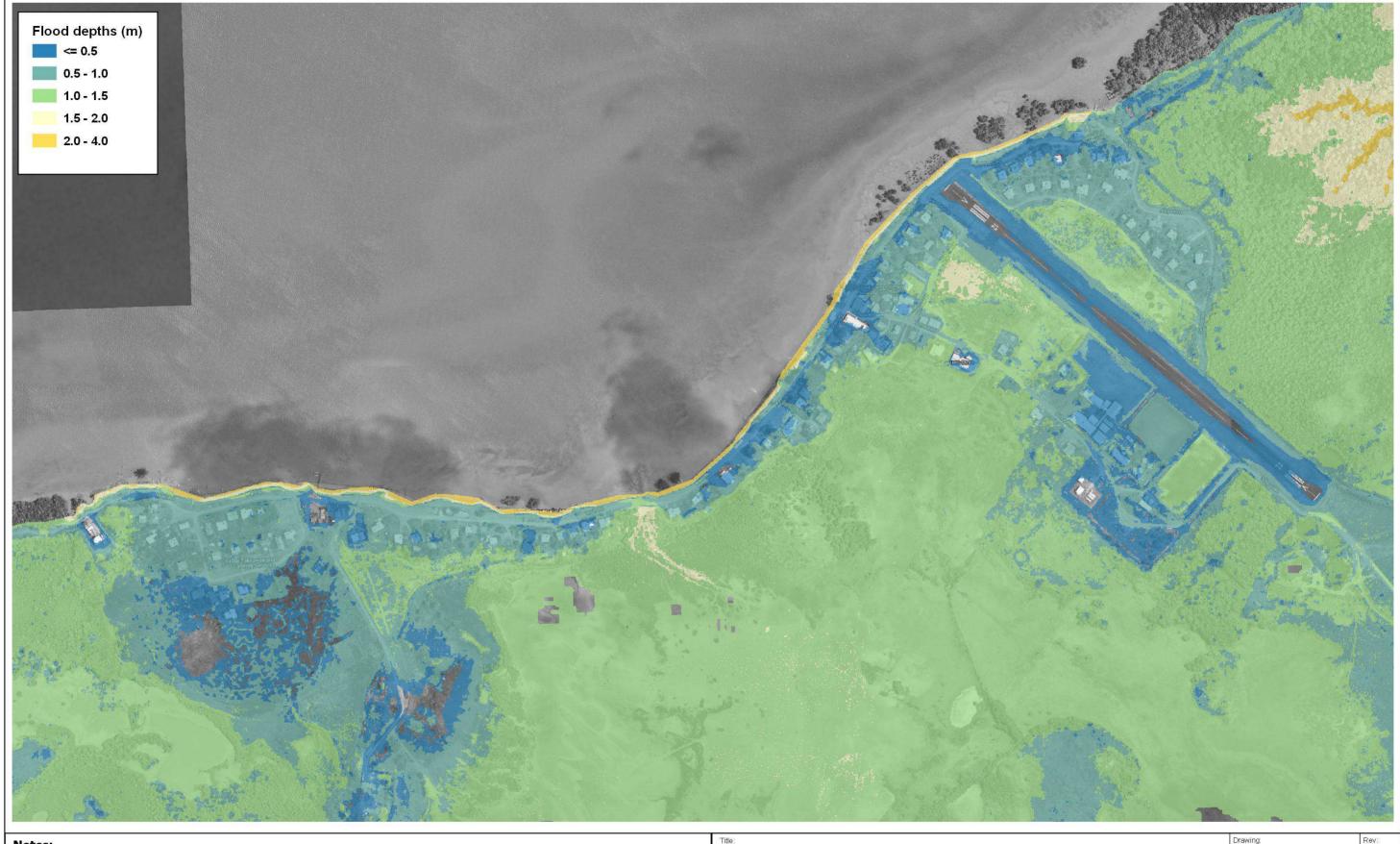


Water Level = 2.09 m AHD

Survey Datasets:

Queensland LiDAR Data – Boigu and Saibai Island 2009 Project (Saibai Island 2009) with +0.75 m offset
 X_60283674_SAIBAI_SURVEY.dwg





Water Level = 3.32 m AHD

Survey Datasets:

1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Saibai Island 2009) with +0.75 m offset 2. X_60283674_SAIBAI_SURVEY.dwg

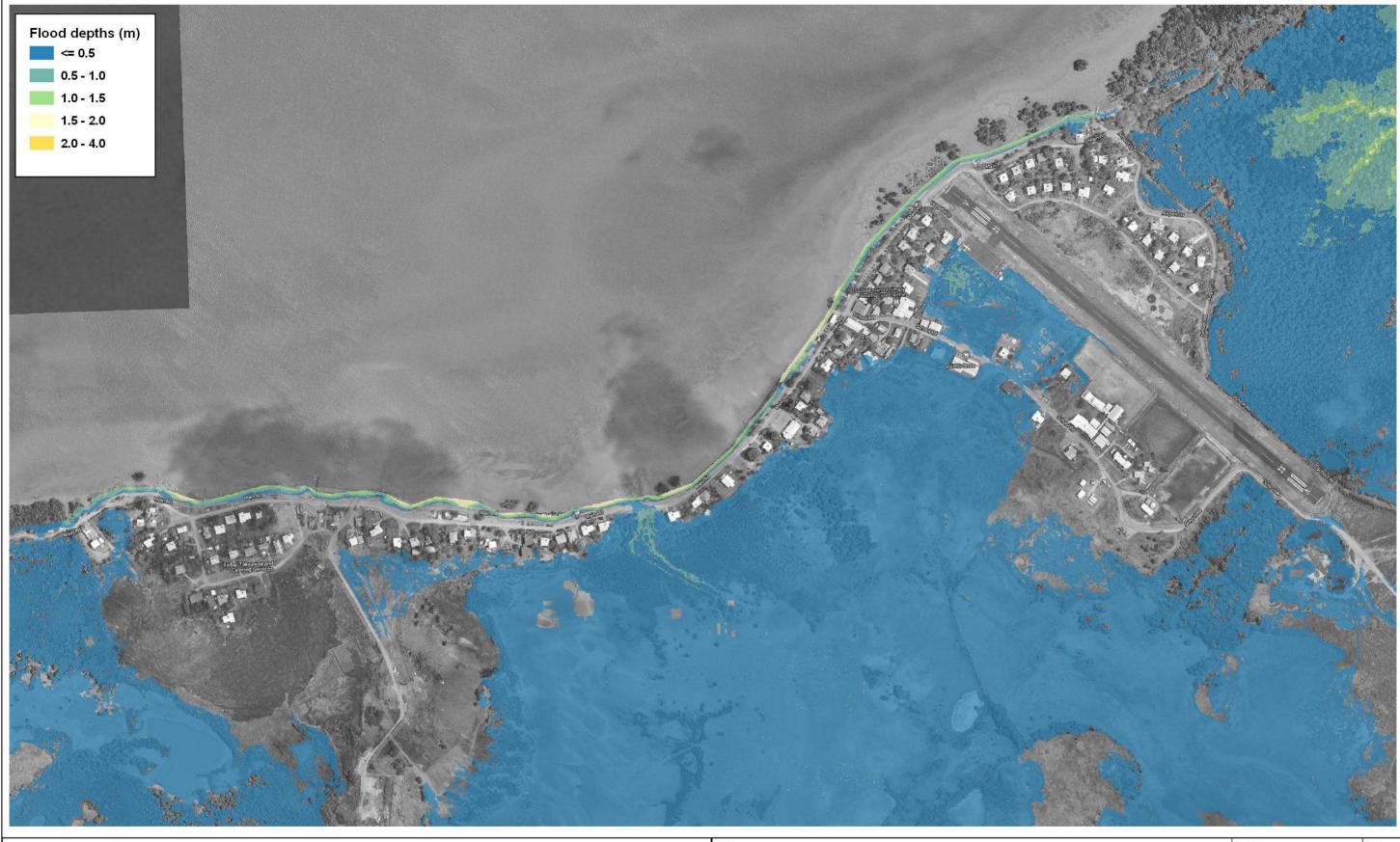
Title:	
Saibai Current (2023) 100 year ARI Flood per Bettir	ngton
Report Table 8	_

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



b.iii

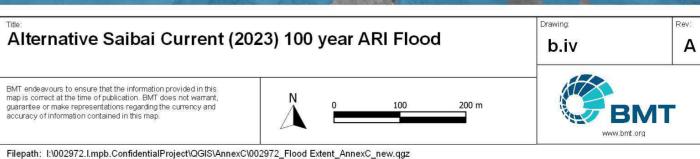


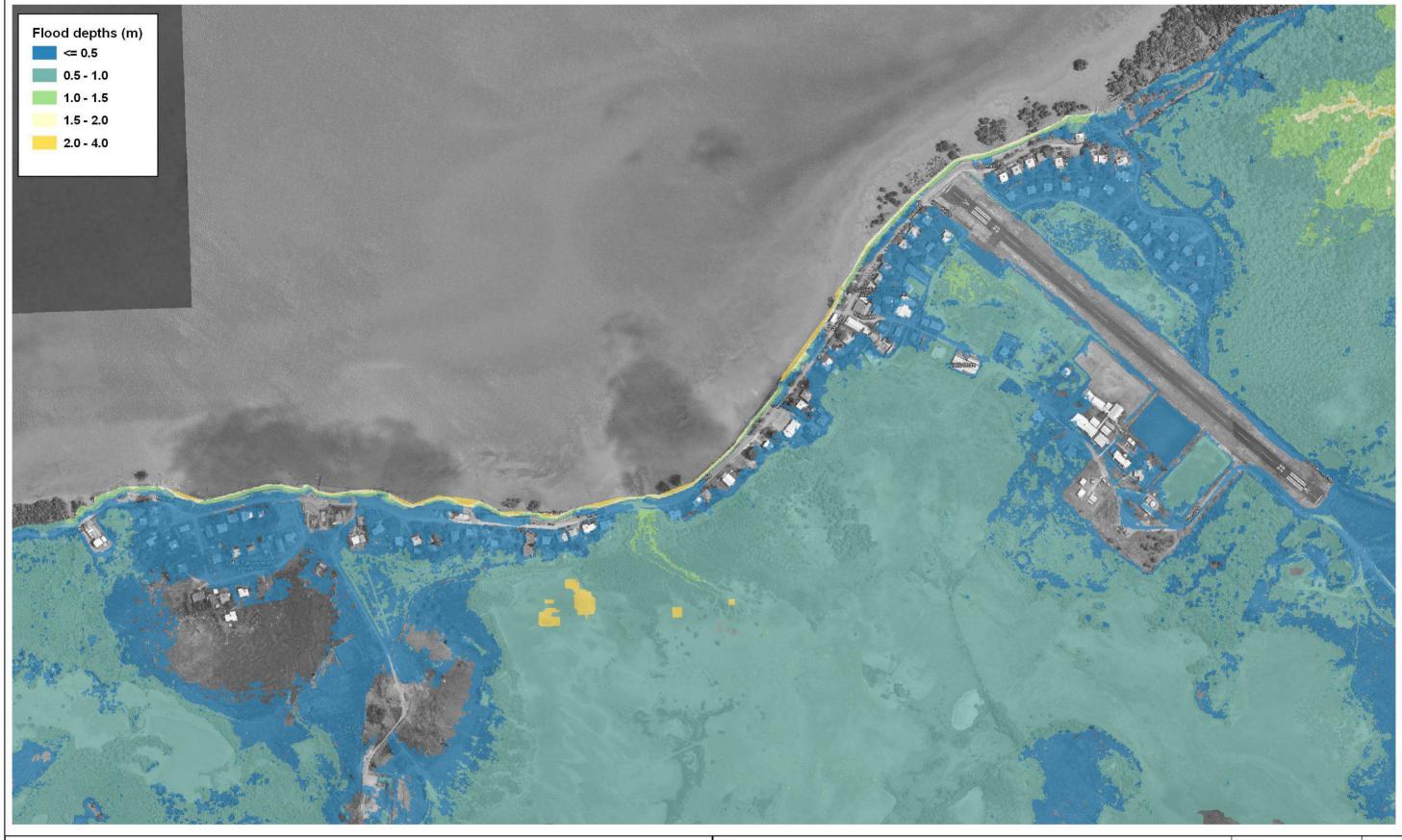


Water Level = 2.30 m AHD

Survey Datasets:

1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Saibai Island 2009) with +0.75 m offset 2. X_60283674_SAIBAI_SURVEY.dwg





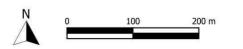
Water Level = 2.80 m AHD

Survey Datasets:

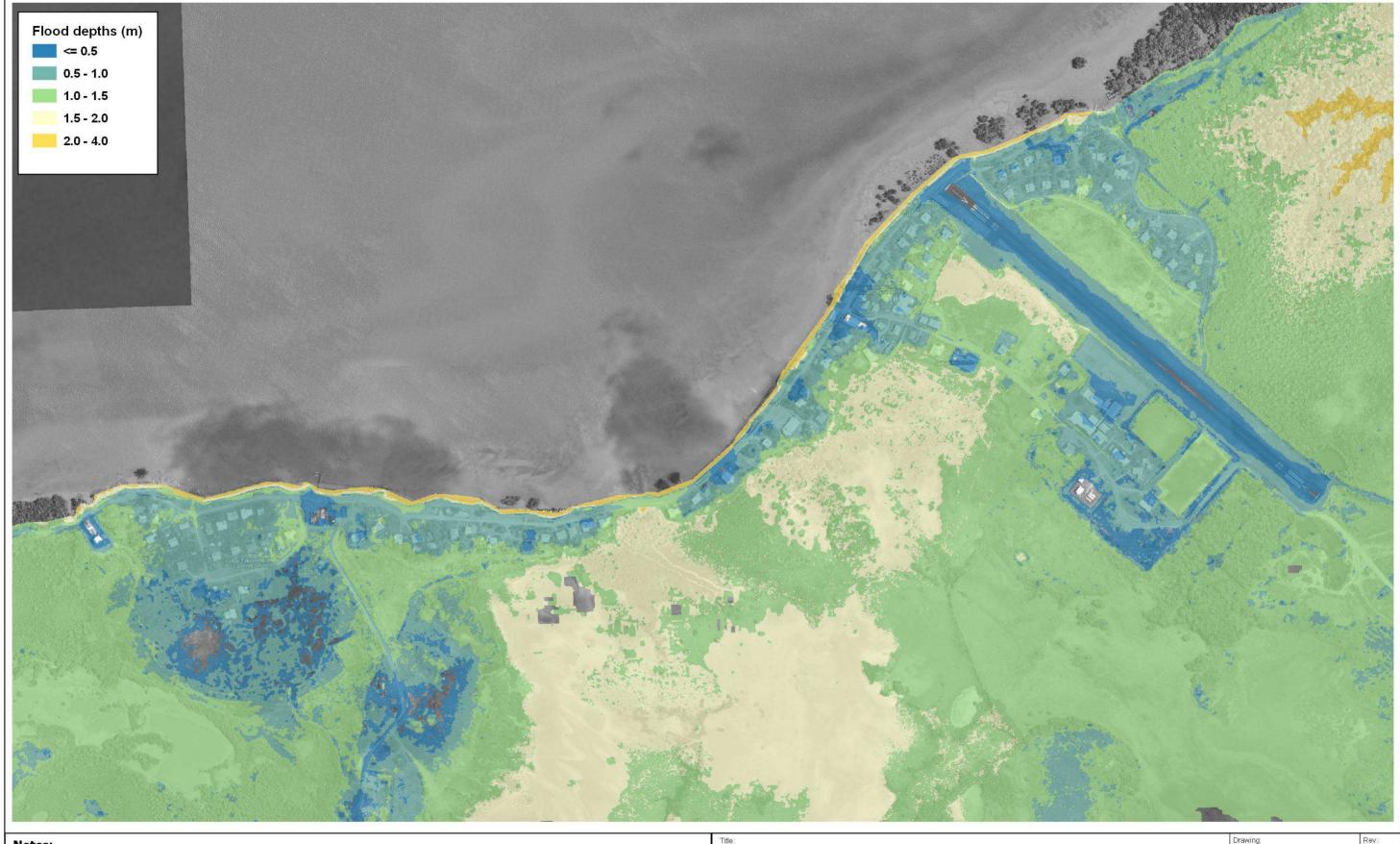
Queensland LiDAR Data – Boigu and Saibai Island 2009 Project (Saibai Island 2009) with +0.75 m offset
 X_60283674_SAIBAI_SURVEY.dwg

Title:
Saibai Township Inundation Event per Bettington Report
Table 9

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b.v



Water Level = 3.47 m AHD

Survey Datasets:

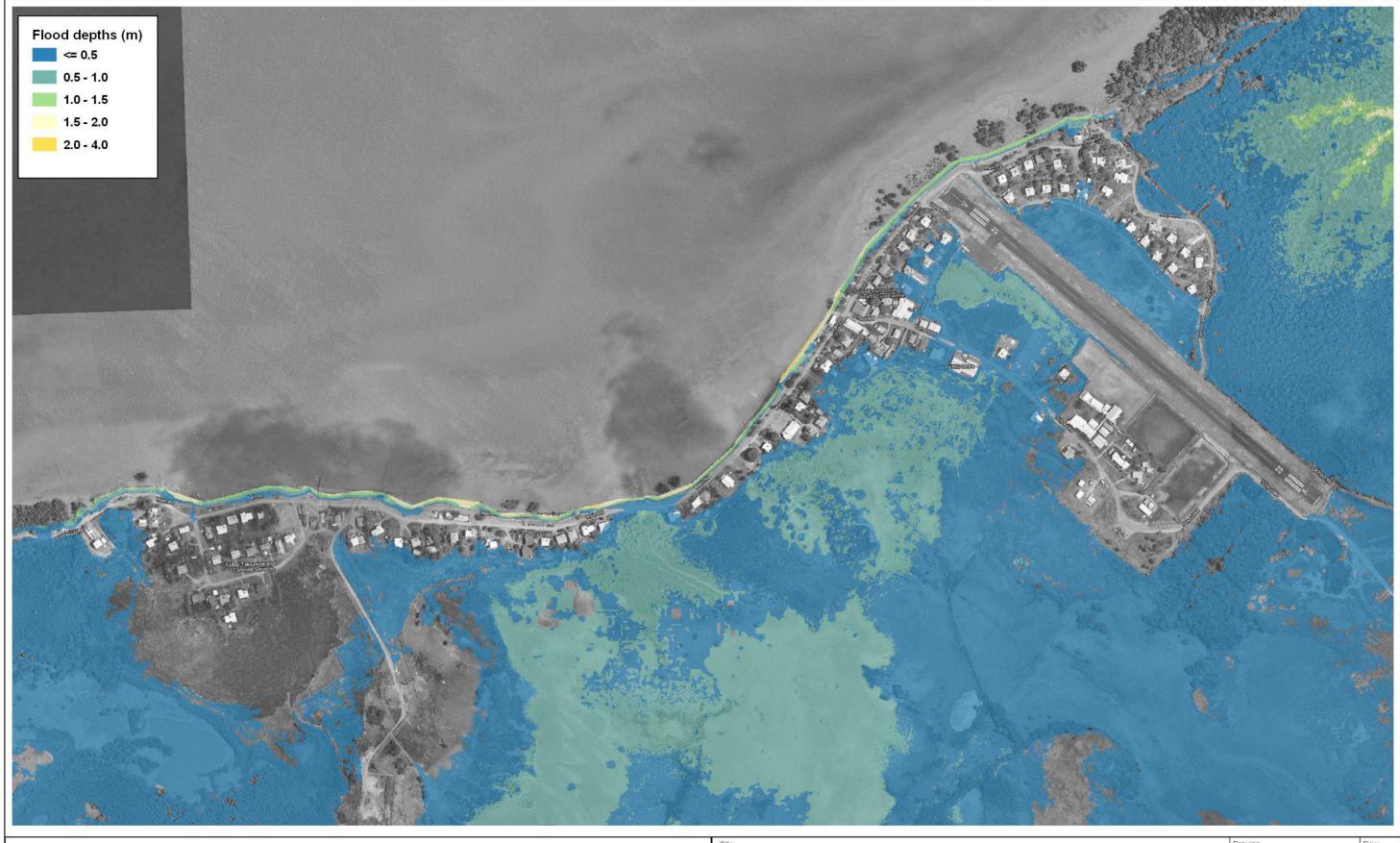
1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Saibai Island 2009) with +0.75 m offset 2. X_60283674_SAIBAI_SURVEY.dwg

Title:	
Saibai 2050 SSP 1-2.6 100 year ARI F	lood per Bettington
Report Table 12	

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



b.vi



Water Level = 2.45 m AHD

Survey Datasets:

1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Saibai Island 2009) with +0.75 m offset 2. X_60283674_SAIBAI_SURVEY.dwg

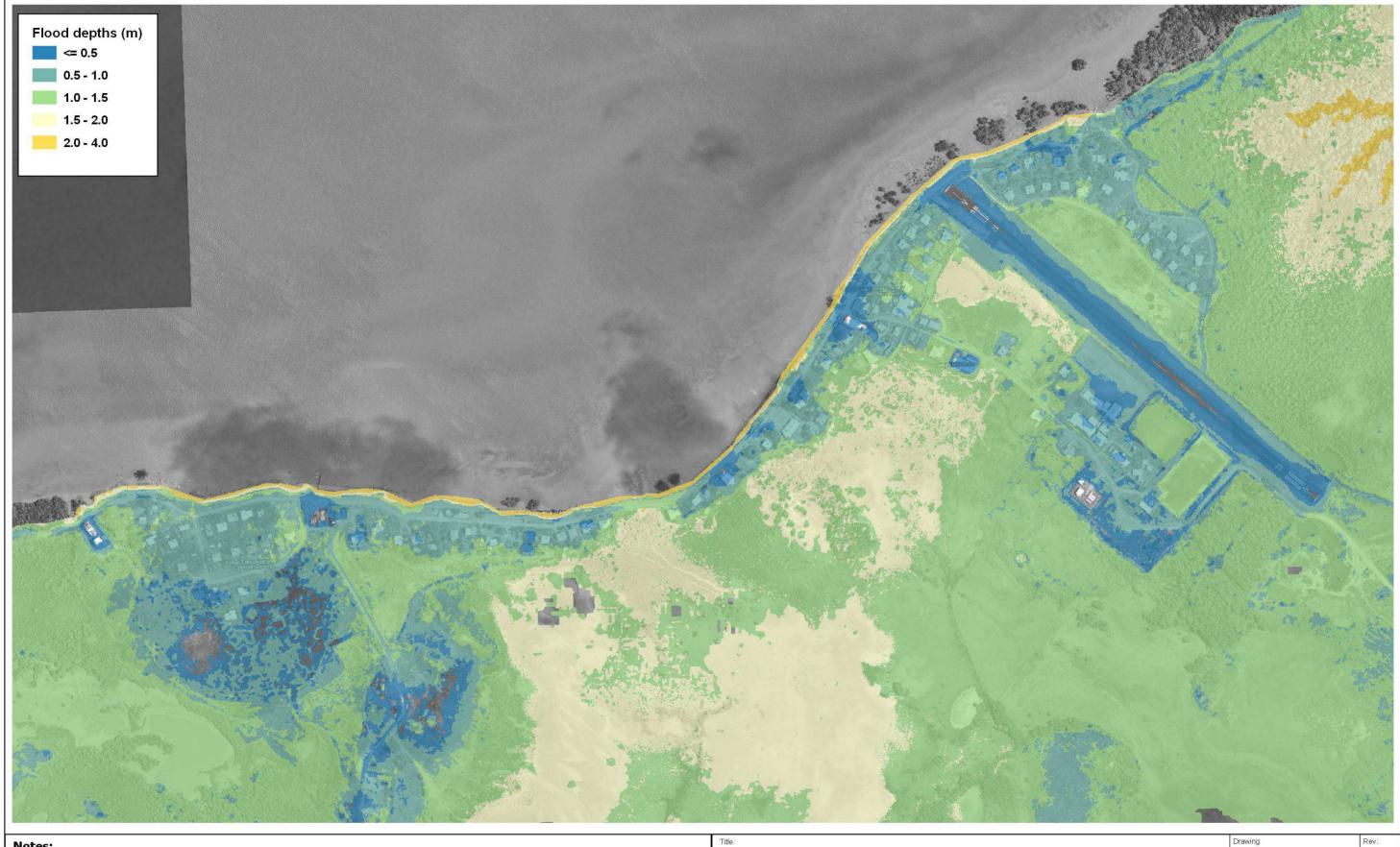


b.vii

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Water Level = 3.45 m AHD

Survey Datasets:

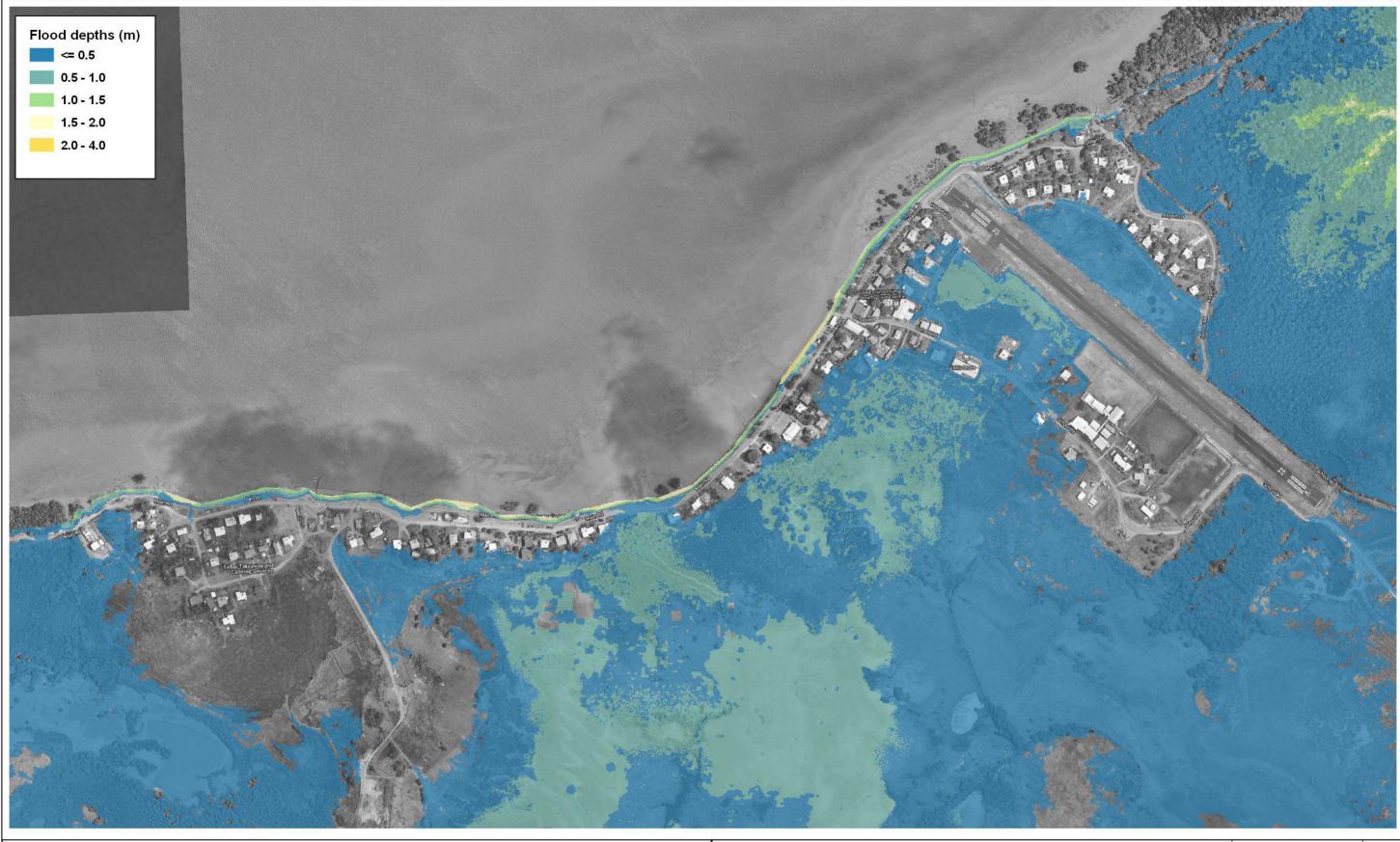
1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Saibai Island 2009) with +0.75 m offset 2. X_60283674_SAIBAI_SURVEY.dwg

Saibai 2050 SSP 1-1.9 100 year ARI Flood per Bettington Report Table 11

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



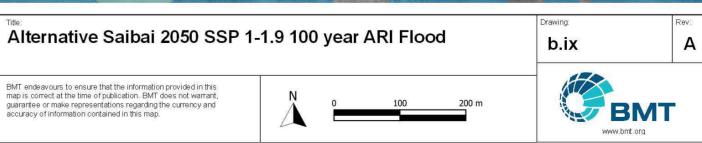
b.viii

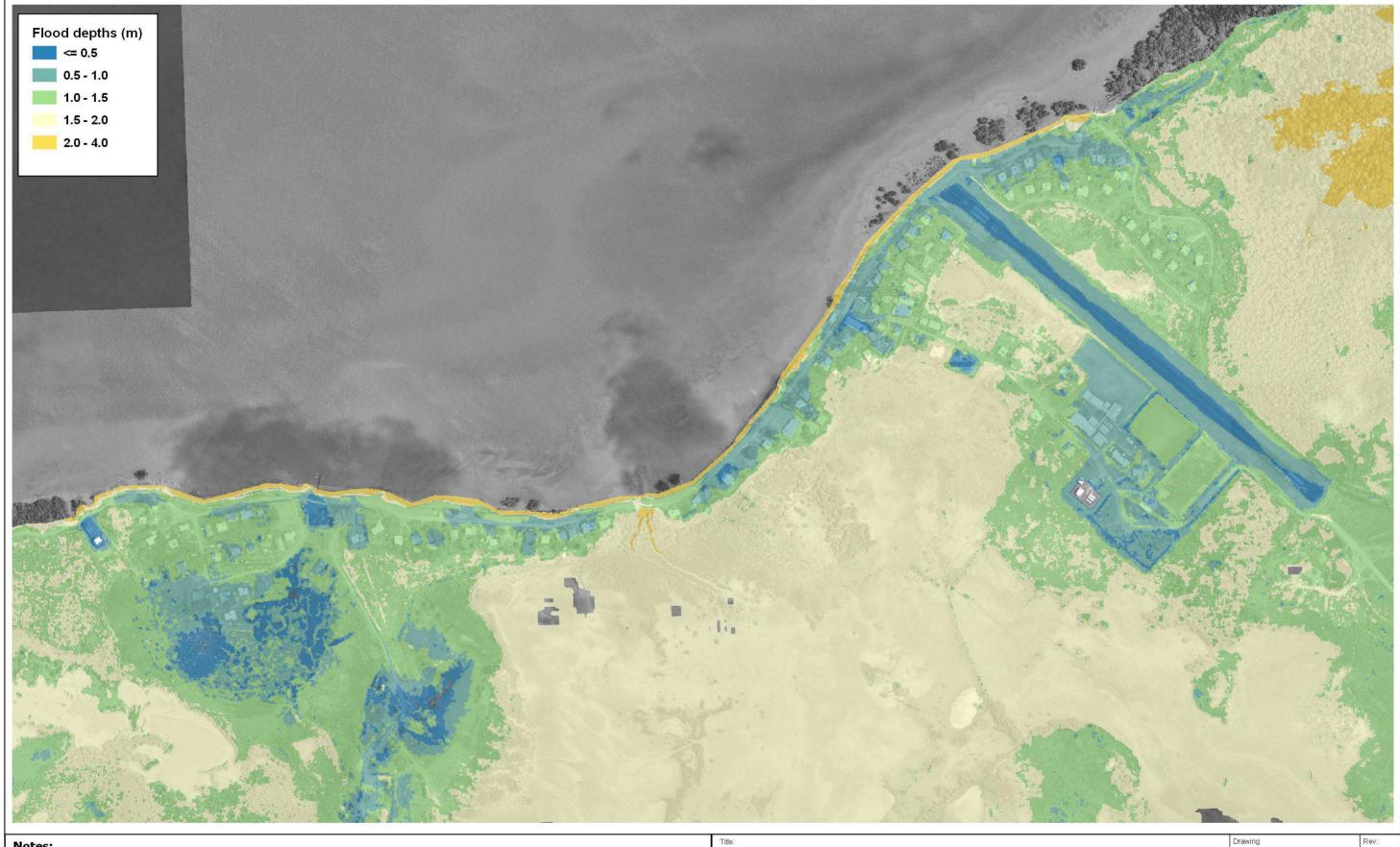


Water Level = 2.43 m AHD

Survey Datasets:

1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Saibai Island 2009) with +0.75 m offset 2. X_60283674_SAIBAI_SURVEY.dwg







Water Level = 3.73 m AHD

Survey Datasets:

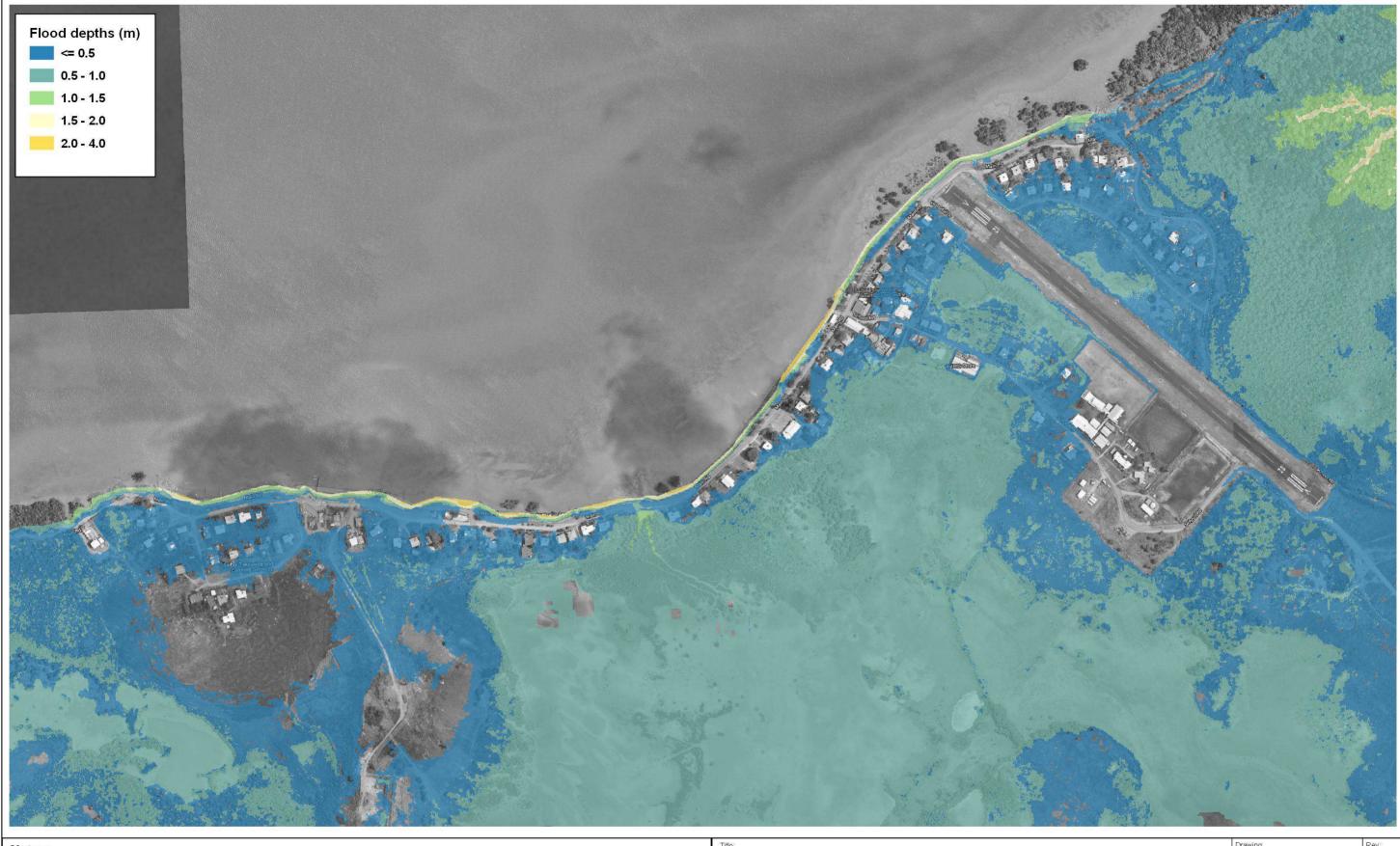
1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Saibai Island 2009) with +0.75 m offset 2. X_60283674_SAIBAI_SURVEY.dwg

Saibai 2100 SSP 1-2.6 100 year ARI Flood per Bettington Report Table 16

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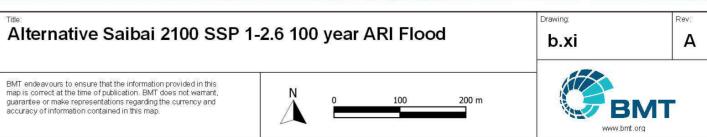
b.x

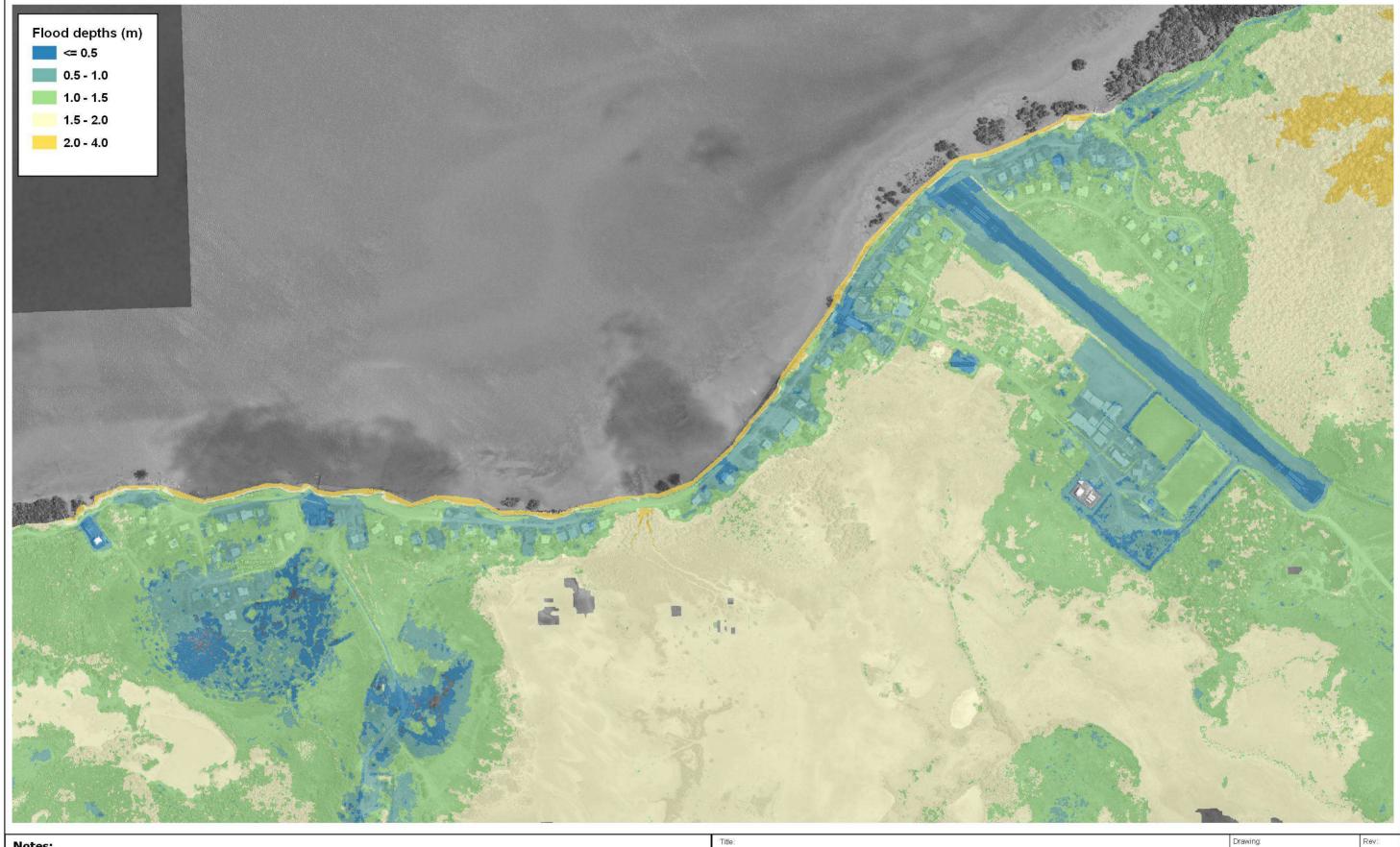


Water Level = 2.71 m AHD

Survey Datasets:

1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Saibai Island 2009) with +0.75 m offset 2. X_60283674_SAIBAI_SURVEY.dwg







Water Level = 3.67 m AHD

Survey Datasets:

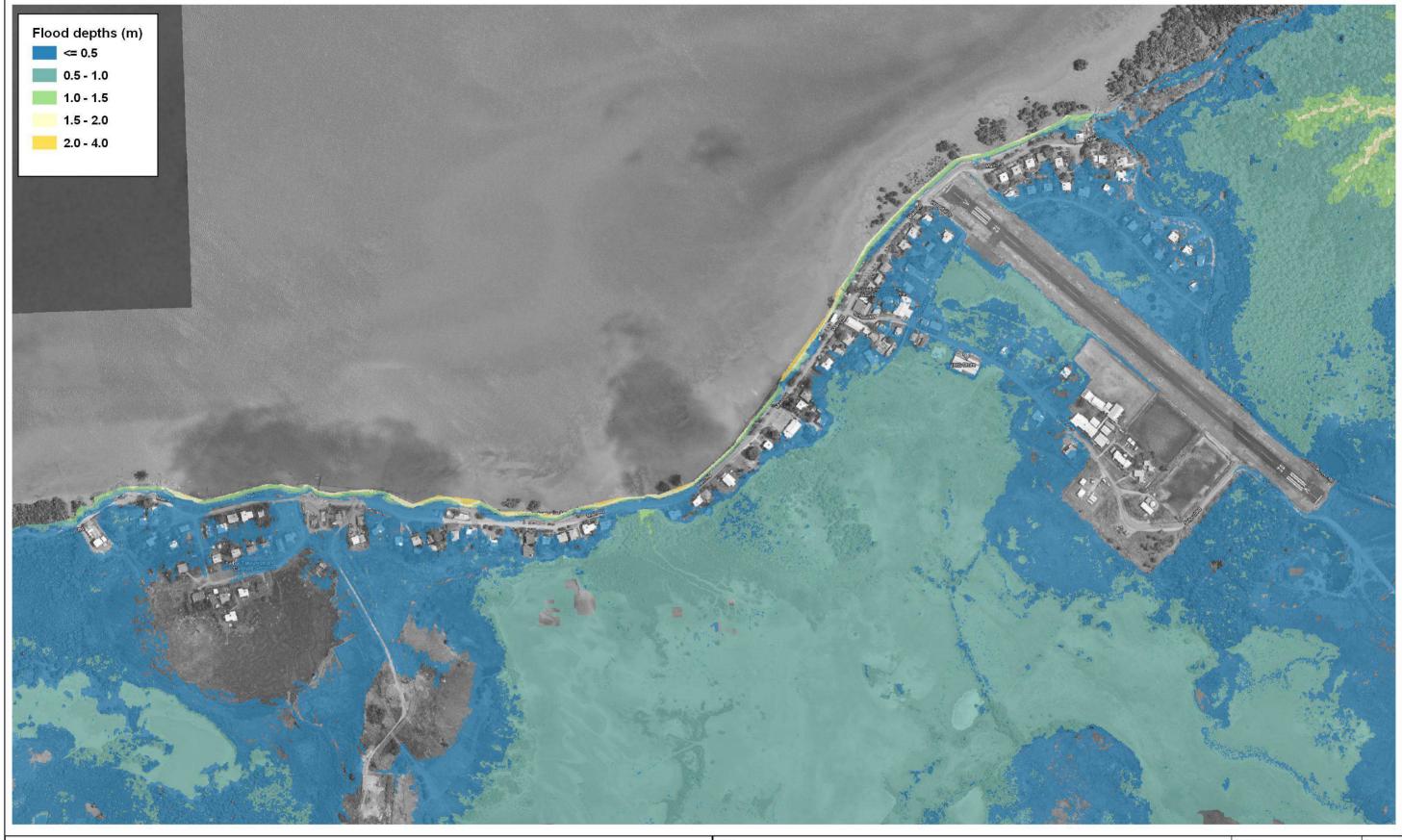
1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Saibai Island 2009) with +0.75 m offset 2. X_60283674_SAIBAI_SURVEY.dwg

Saibai 2100 SSP 1-1.9 100 year ARI Flood per Bettington Report Table 15

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b.xii



Water Level = 2.65 m AHD

Survey Datasets:

1. Queensland LiDAR Data — Boigu and Saibai Island 2009 Project (Saibai Island 2009) with +0.75 m offset 2. X_60283674_SAIBAI_SURVEY.dwg

Alternative Saibai 2100 SSP 1-1.9 100 year ARI Flood

b.xiii

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Expert Report of Matthew Barnes

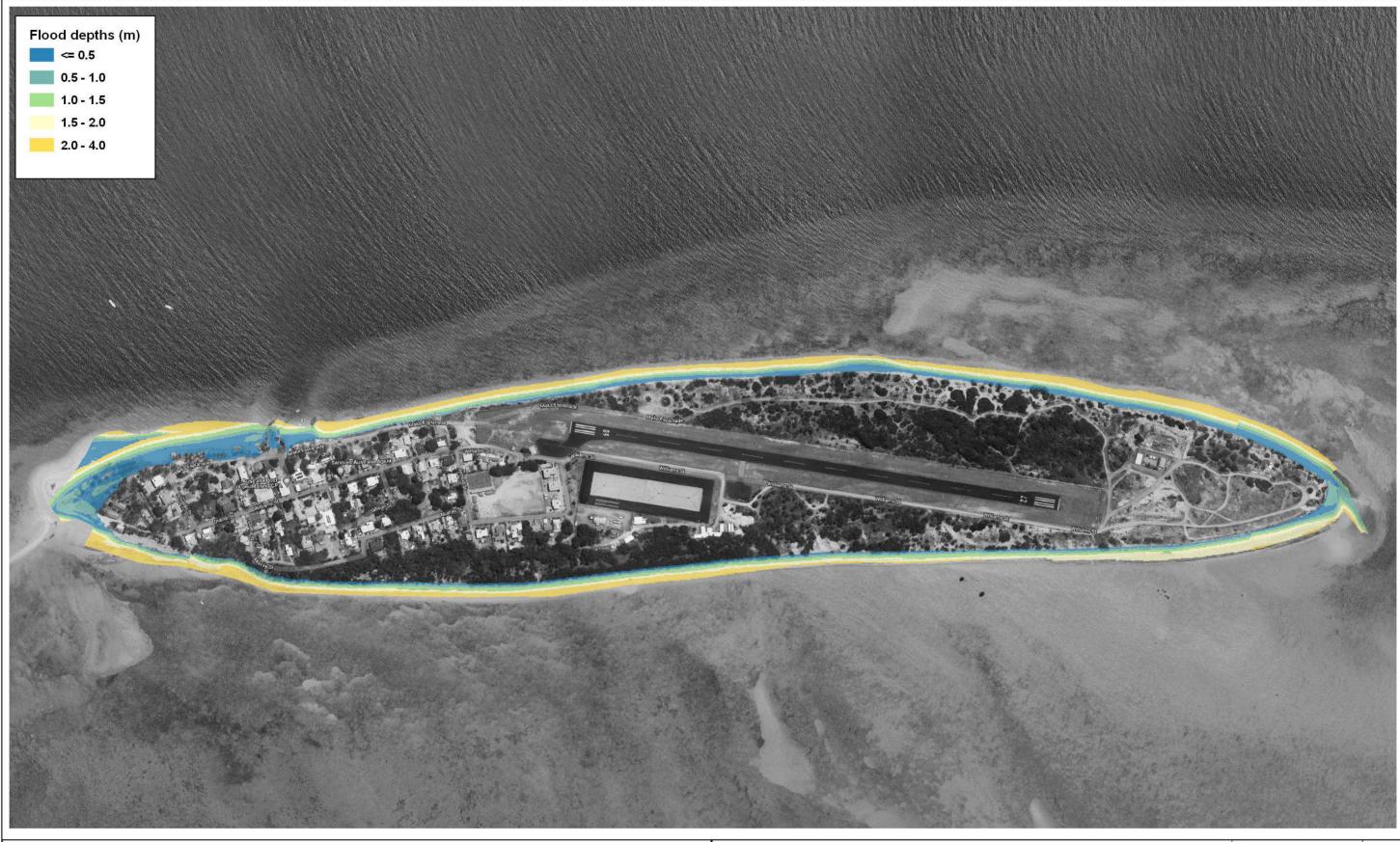
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Poruma

Table 4.3 provides a summary of maps that show the extent of inundation associated with extreme sea levels at Poruma. The maps are presented on the following pages.

Table 4.3 Poruma extreme sea level inundation map summary

Map number	AHD water level (m)	Map label
c.i	3.05	Poruma Baseline (1900) 100 year ARI Flood per Bettington Report Table 7
c.ii	2.39	Alternative Poruma Baseline (1900) 100 year ARI Flood
c.iii	3.26	Poruma Current (2023) 100 year ARI Flood per Bettington Report Table 8
c.iv	2.60	Alternative Poruma Current (2023) 100 year ARI Flood
C.V	3.60	Poruma Township Inundation Event per Bettington Report Table 9
c.vi	3.41	Poruma 2050 SSP 1-2.6 100 year ARI flood per Bettington Report Table 12
c.vii	2.75	Alternative Poruma 2050 SSP 1-2.6 100 year ARI flood
c.viii	3.39	Poruma 2050 SSP 1-1.9 100 year ARI flood per Bettington Report Table 11
c.ix	2.73	Alternative Poruma 2050 SSP 1-1.9 100 year ARI flood
C.X	3.67	Poruma 2100 SSP 1-2.6 100 year ARI flood per Bettington Report Table 16
c.xi	3.01	Alternative Poruma 2100 SSP 1-2.6 100 year ARI flood
c.xii	3.61	Poruma 2100 SSP 1-1.9 100 year ARI flood per Bettington Report Table 15
c.xiii	2.95	Alternative Poruma 2100 SSP 1-1.9 100 year ARI flood



Water Level = 3.05 m AHD

Survey Datasets:

1. Queensland LiDAR Data – Torres Strait Islands 2011 Project (Coconut Island 2011) with +0.52 m offset 2. PR142018-2.dwg; PR142018-3.dwg

Poruma Baseline (1900) 100 year ARI Flood per Bettington Report Table 7

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



c.i





Water Level = 2.39 m AHD

Survey Datasets:

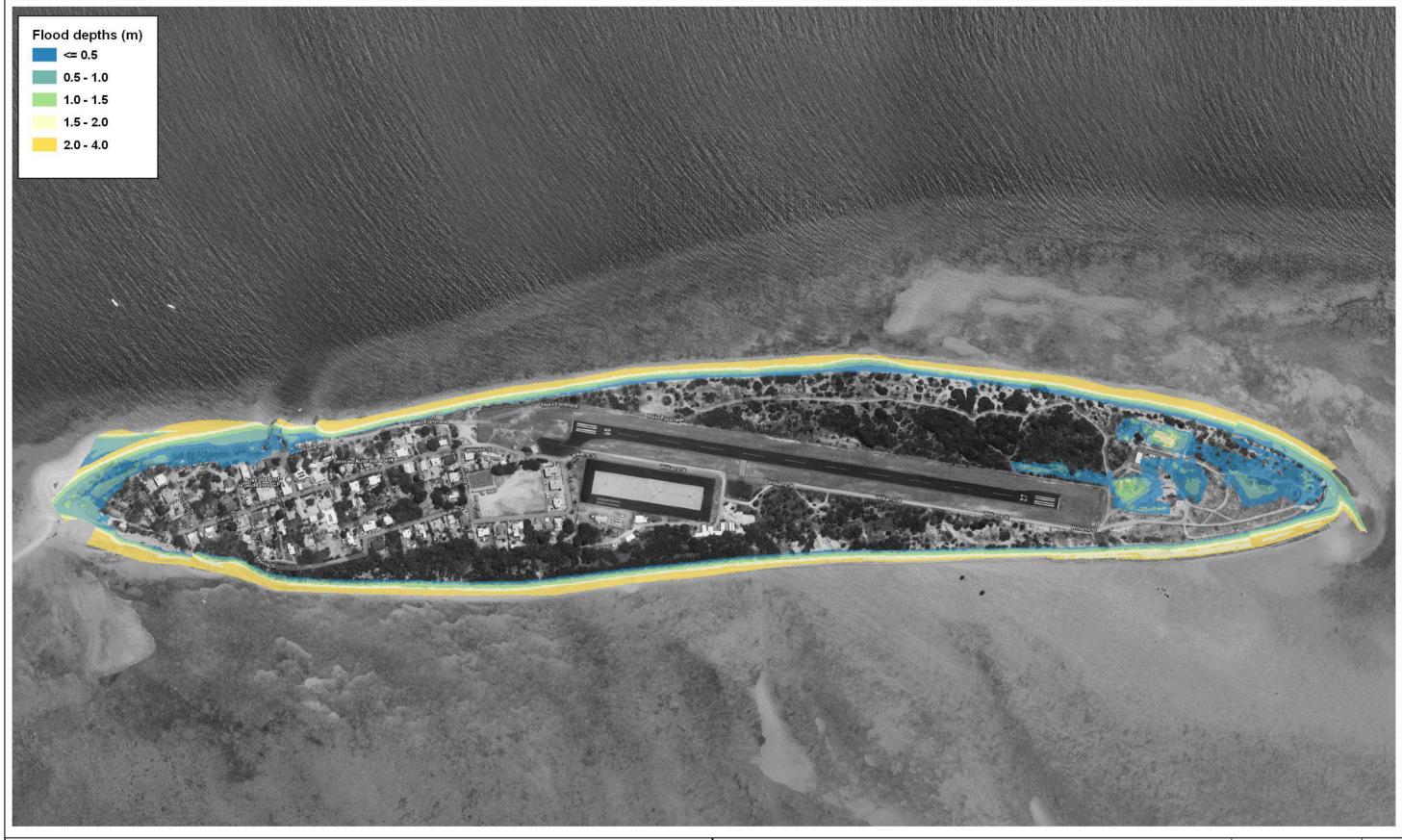
1. Queensland LiDAR Data – Torres Strait Islands 2011 Project (Coconut Island 2011) with +0.52 m offset 2. PR142018-2.dwg; PR142018-3.dwg

Alternative Poruma Baseline (1900) 100 year ARI Flood

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

c.ii





Water Level = 3.26 m AHD

Survey Datasets:

1. Queensland LiDAR Data – Torres Strait Islands 2011 Project (Coconut Island 2011) with +0.52 m offset 2. PR142018-2.dwg; PR142018-3.dwg

Poruma Current (2023) 100 year ARI Flood per Bettington Report Table 8

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c.iii	Α
rawing:	Rev





Water Level = 2.60 m AHD

Survey Datasets:

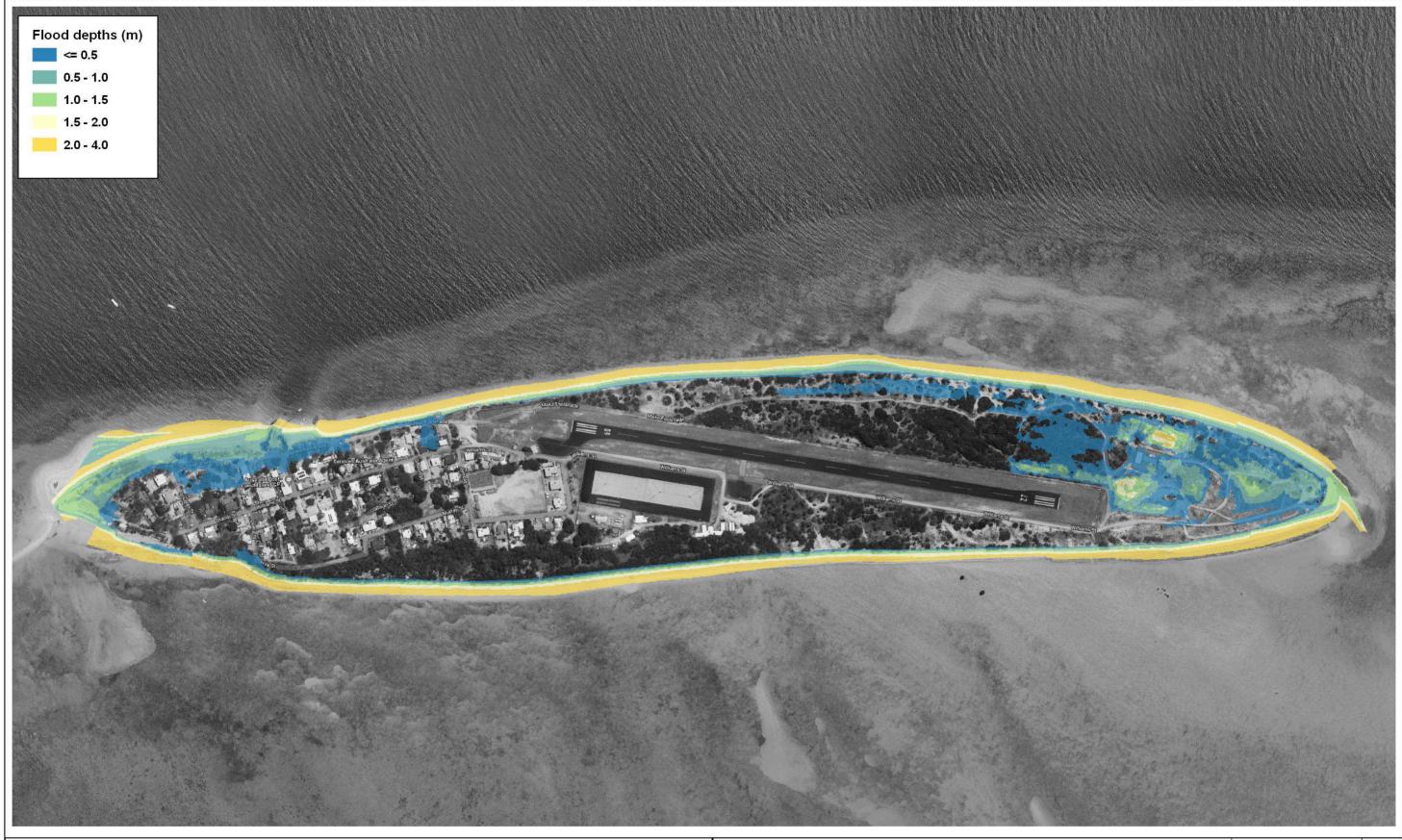
1. Queensland LiDAR Data – Torres Strait Islands 2011 Project (Coconut Island 2011) with +0.52 m offset 2. PR142018-2.dwg; PR142018-3.dwg

Alternative Poruma Current (2023) 100 year ARI Flood

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



c.iv



Water Level = 3.60 m AHD

Survey Datasets:

1. Queensland LiDAR Data – Torres Strait Islands 2011 Project (Coconut Island 2011) with +0.52 m offset 2. PR142018-2.dwg; PR142018-3.dwg

Poruma Township Inundation Event per Bettington Report Table 9

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.







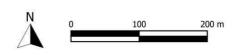
Water Level = 3.41 m AHD

Survey Datasets:

1. Queensland LiDAR Data – Torres Strait Islands 2011 Project (Coconut Island 2011) with +0.52 m offset 2. PR142018-2.dwg; PR142018-3.dwg

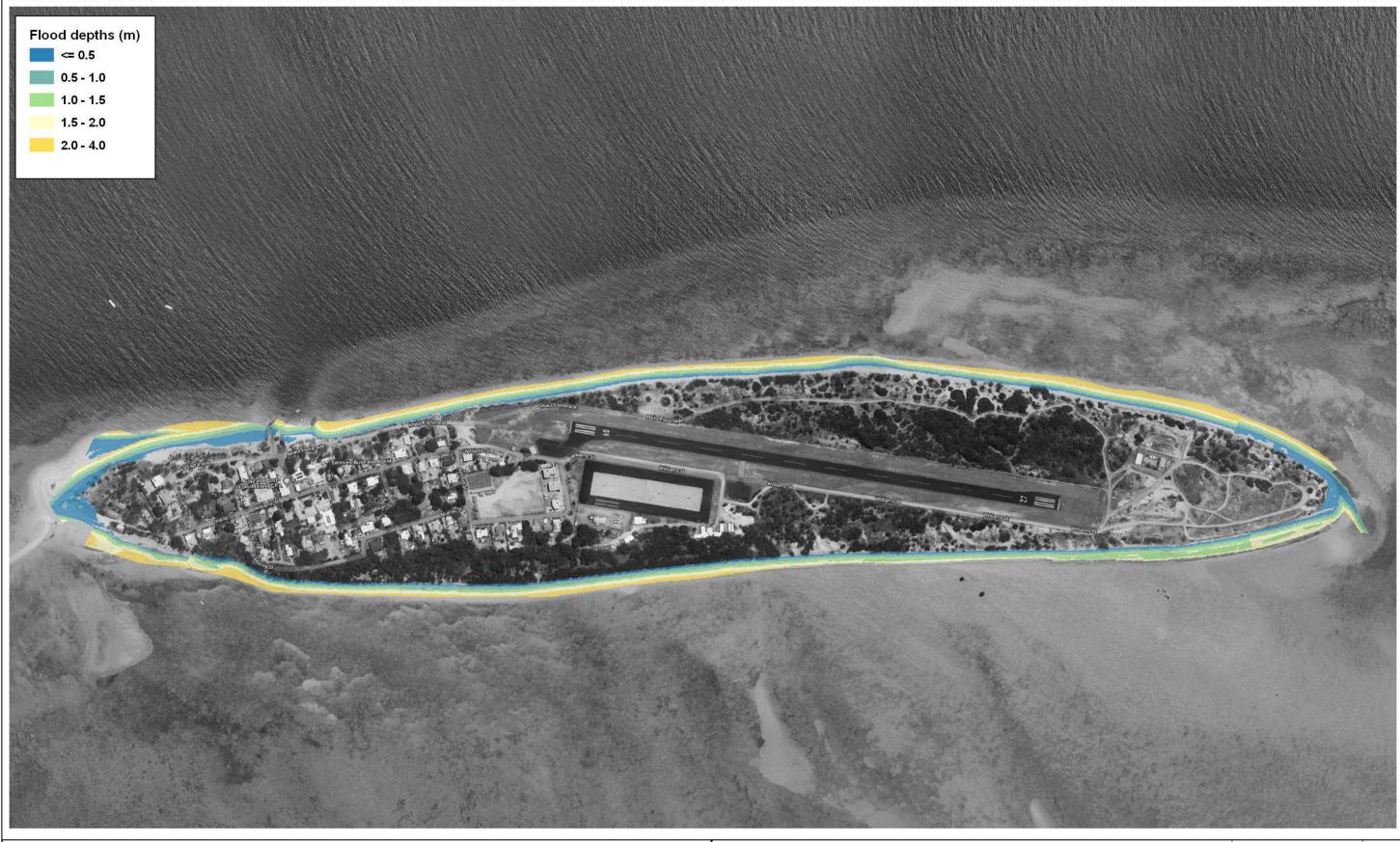
Poruma 2050 SSP 1-2.6 100 year ARI Flood per Bettington Report Table 12

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Water Level = 2.75 m AHD

Survey Datasets:

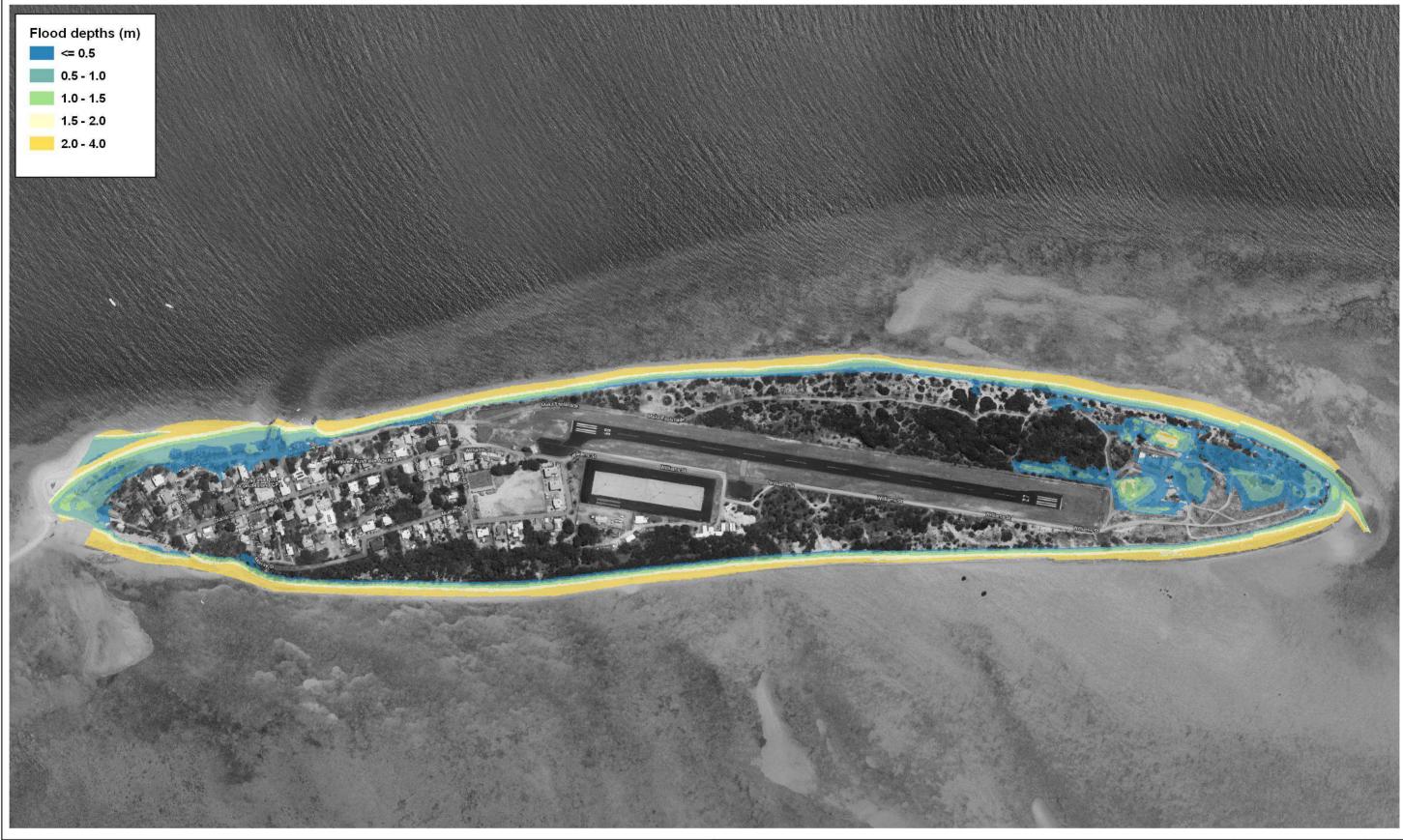
1. Queensland LiDAR Data – Torres Strait Islands 2011 Project (Coconut Island 2011) with +0.52 m offset 2. PR142018-2.dwg; PR142018-3.dwg

Alternative Poruma 2050 SSP 1-2.6 100 year ARI Flood

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Ņ	0	100	200 m





Water Level = 3.39 m AHD

Survey Datasets:

1. Queensland LiDAR Data – Torres Strait Islands 2011 Project (Coconut Island 2011) with +0.52 m offset 2. PR142018-2.dwg; PR142018-3.dwg

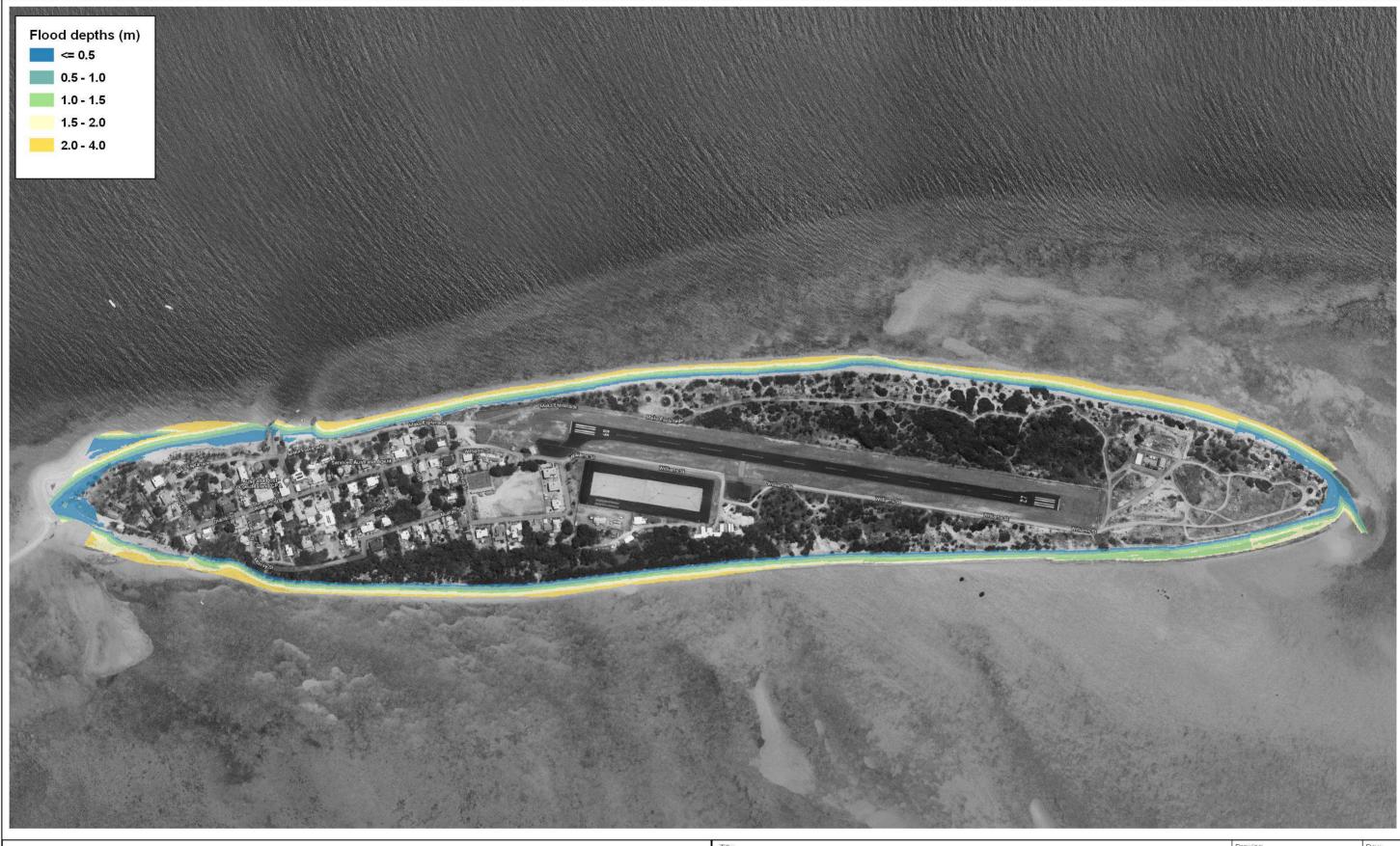
Poruma 2050 SSP 1-1.9 100 year ARI Flood per Bettington Report Table 11

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



c.viii





Water Level = 2.73 m AHD

Survey Datasets:

1. Queensland LiDAR Data – Torres Strait Islands 2011 Project (Coconut Island 2011) with +0.52 m offset 2. PR142018-2.dwg; PR142018-3.dwg

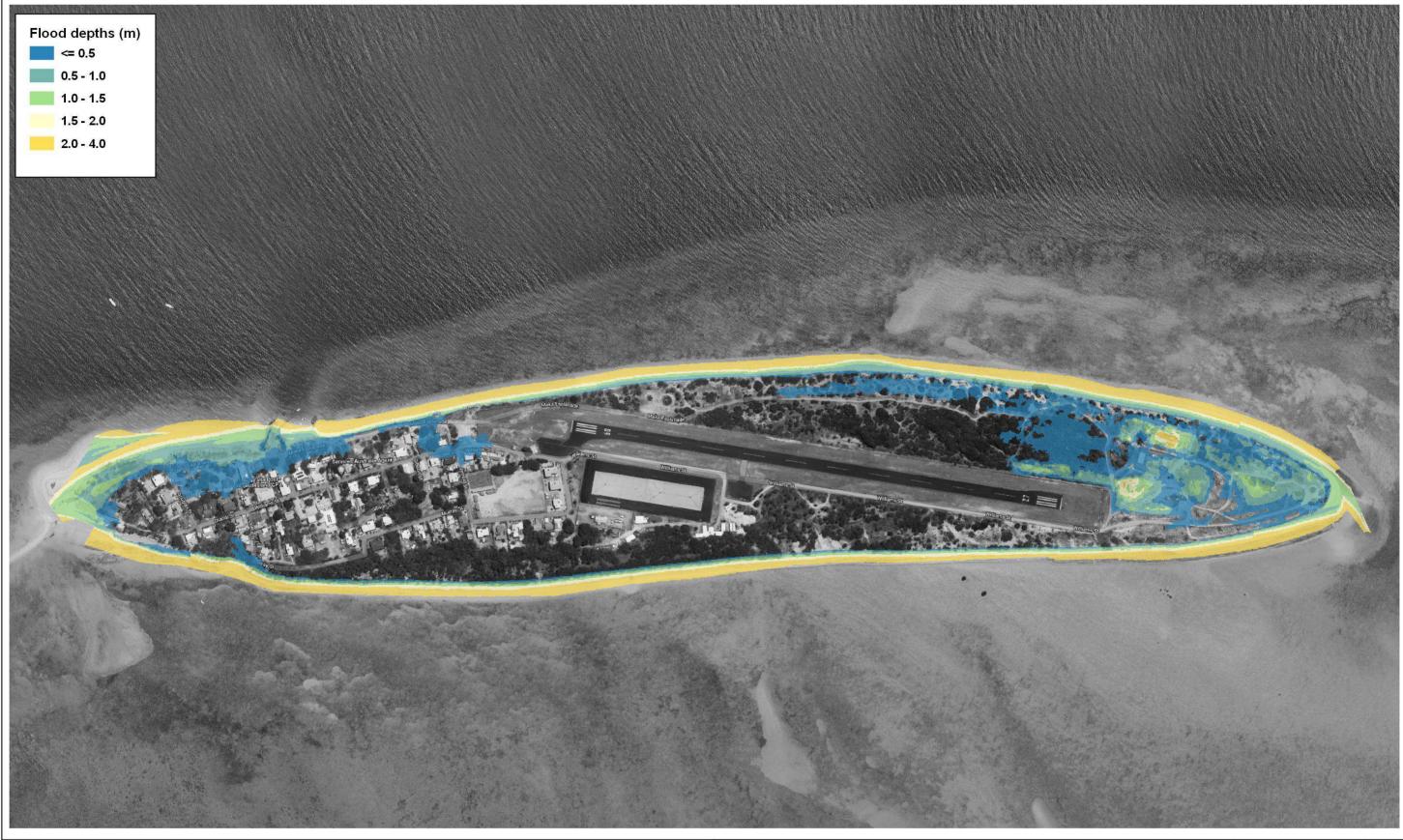
Alternative Poruma 2050 SSP 1-1.9 100 year ARI Flood

c.ix



Filepath: I:\002972.I.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_new.qgz

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Water Level = 3.67 m AHD

Survey Datasets:

1. Queensland LiDAR Data – Torres Strait Islands 2011 Project (Coconut Island 2011) with +0.52 m offset 2. PR142018-2.dwg; PR142018-3.dwg

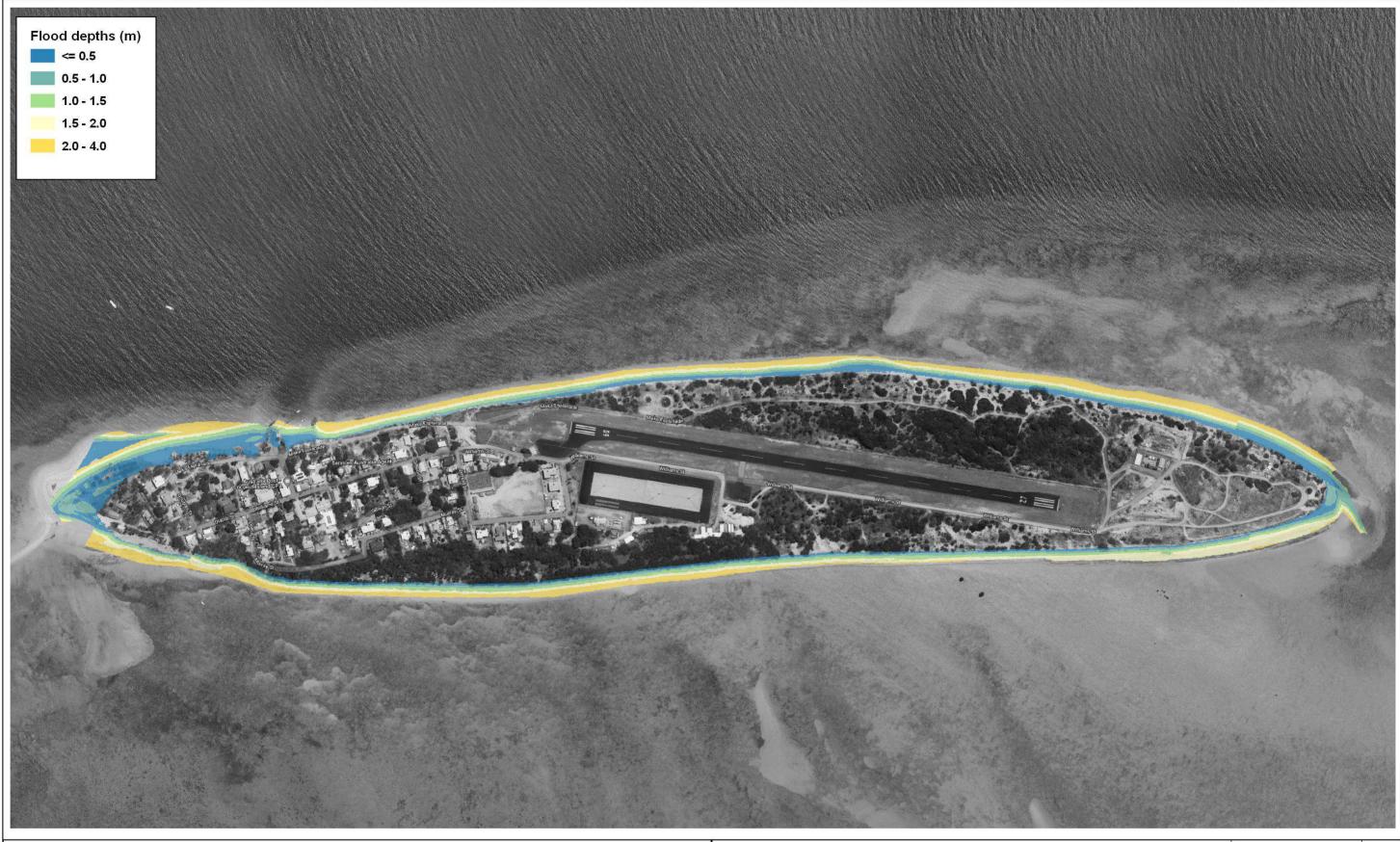
Poruma 2100 SSP 1-2.6 100 year ARI Flood per Bettington Report Table 16

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



C.X





Water Level = 3.01 m AHD

Survey Datasets:

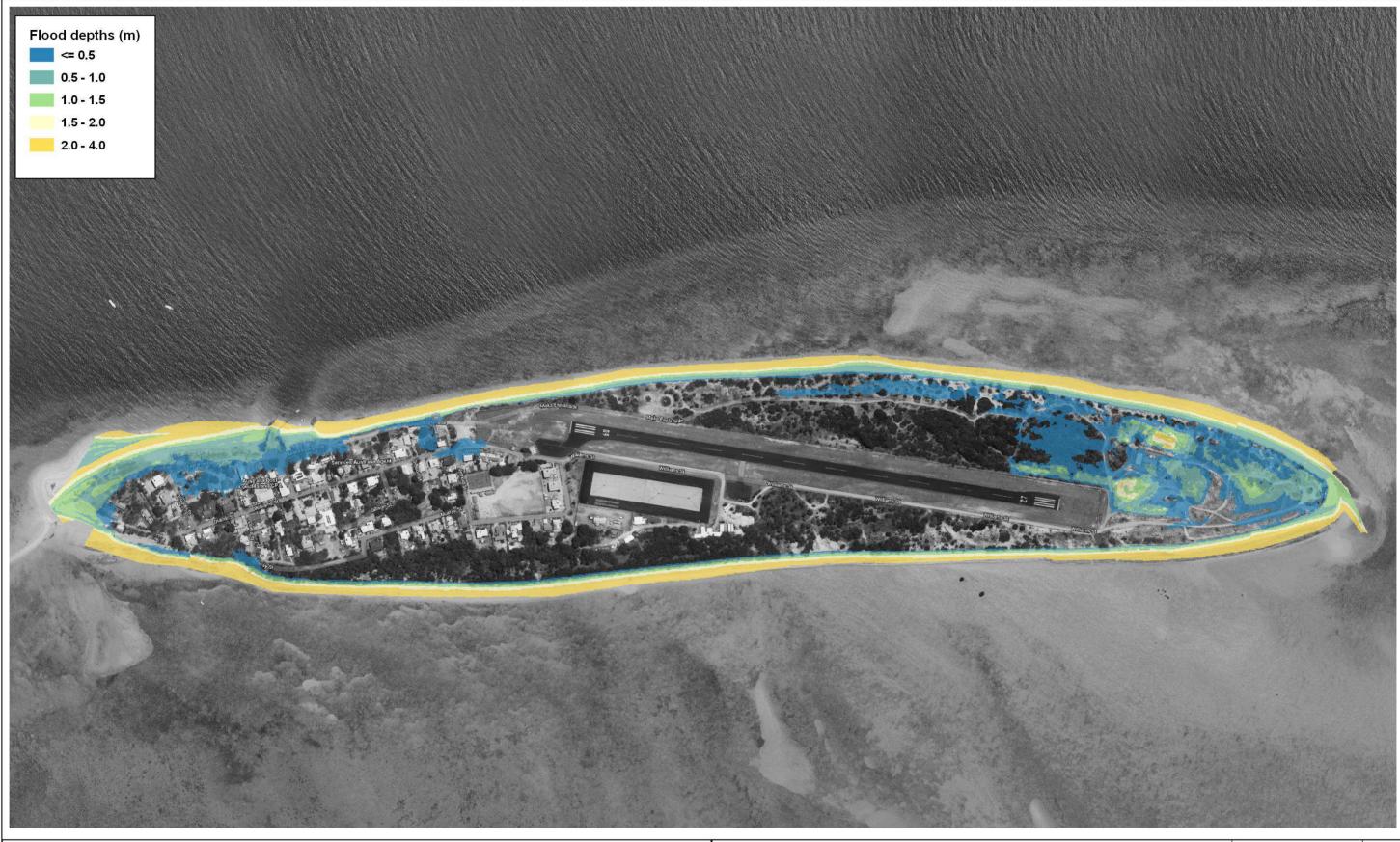
1. Queensland LiDAR Data – Torres Strait Islands 2011 Project (Coconut Island 2011) with +0.52 m offset 2. PR142018-2.dwg; PR142018-3.dwg

Alternative Poruma 2100 SSP 1-2.6 100 year ARI Flood

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.







Water Level = 3.61 m AHD

Survey Datasets:

1. Queensland LiDAR Data – Torres Strait Islands 2011 Project (Coconut Island 2011) with +0.52 m offset 2. PR142018-2.dwg; PR142018-3.dwg

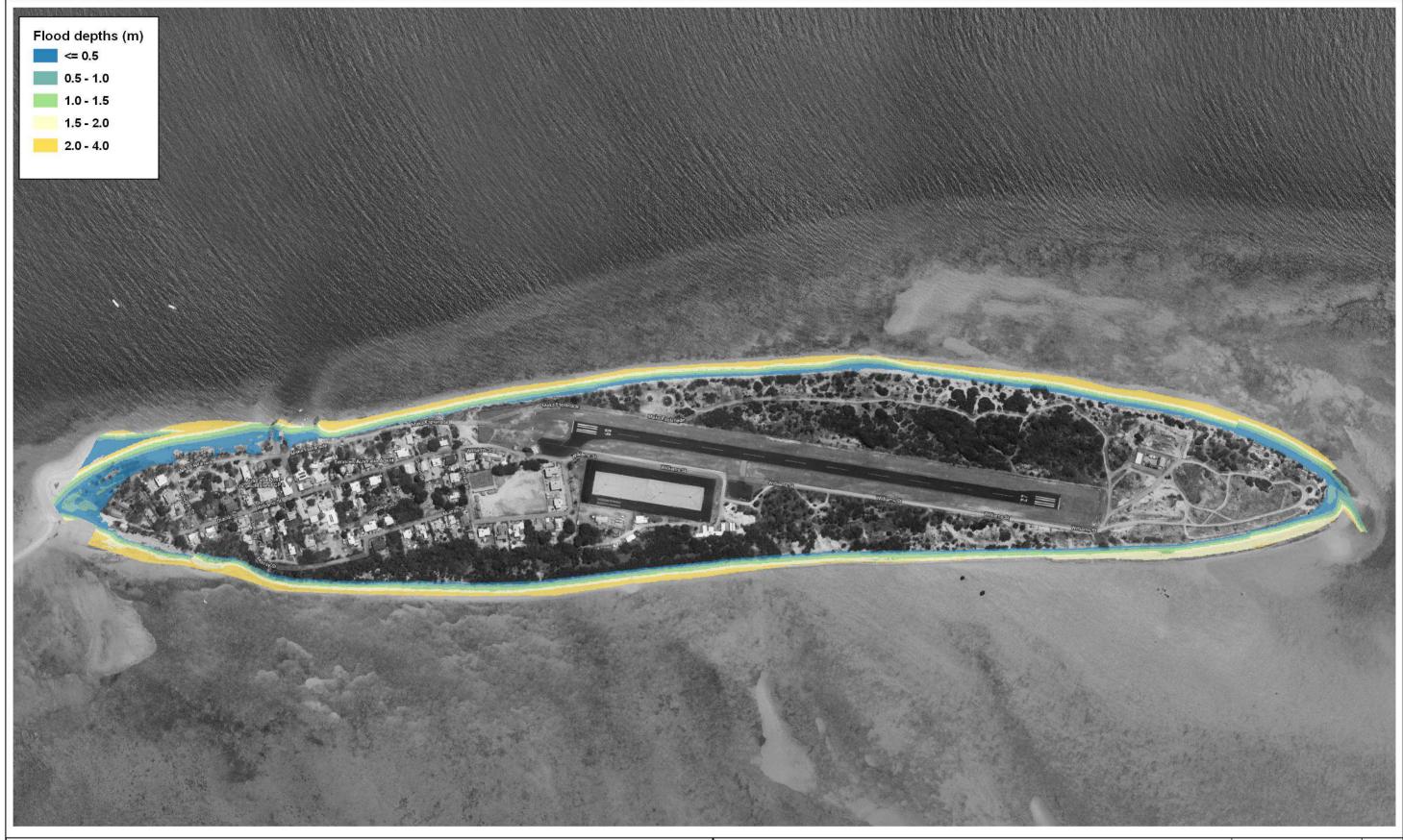
Poruma 2100 SSP 1-1.9 100 year ARI Flood per Bettington Report Table 15

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



c.xii





Water Level = 2.95 m AHD

Survey Datasets:

1. Queensland LiDAR Data – Torres Strait Islands 2011 Project (Coconut Island 2011) with +0.52 m offset 2. PR142018-2.dwg; PR142018-3.dwg

Alternative Poruma 2100 SSP 1-1.9 100 year ARI Flood

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



c.xiii





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Warraber

Table 4.4 provides a summary of maps that show the extent of inundation associated with extreme sea levels at Warraber. The maps are presented on the following pages.

Table 4.4 Warraber extreme sea level inundation map summary

Map number	AHD water level (m)	Map label
d.i	3.27	Warraber Baseline (1900) 100 year ARI Flood per Bettington Report Table 7
d.ii	2.50	Alternative Warraber Baseline (1900) 100 year ARI Flood
d.iii	3.48	Warraber Current (2023) 100 year ARI Flood per Bettington Report Table 8
d.iv	2.71	Alternative Warraber Current (2023) 100 year ARI Flood
d.v	3.50	Warraber Township Inundation Event per Bettington Report Table 9
d.vi	3.63	Warraber 2050 SSP 1-2.6 100 year ARI flood per Bettington Report Table 12
d.vii	2.86	Alternative Warraber 2050 SSP 1-2.6 100 year ARI flood
d.viii	3.61	Warraber 2050 SSP 1-1.9 100 year ARI flood per Bettington Report Table 11
d.ix	2.84	Alternative Warraber 2050 SSP 1-1.9 100 year ARI flood
d.x	3.89	Warraber 2100 SSP 1-2.6 100 year ARI flood per Bettington Report Table 16
d.xi	3.12	Alternative Warraber 2100 SSP 1-2.6 100 year ARI flood
d.xii	3.83	Warraber 2100 SSP 1-1.9 100 year ARI flood per Bettington Report Table 15
d.xiii	3.06	Alternative Warraber 2100 SSP 1-1.9 100 year ARI flood





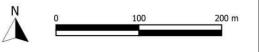
Water Level = 3.27 m AHD

Survey Datasets:

Queensland LiDAR Data – Torres Strait Islands 2011 Project (Sue Island 2010) with +0.55 m offset
 PR148460-1_2d.dwg

Warraber Baseline (1900) 100 year ARI Flood per Bettington Report Table 7

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



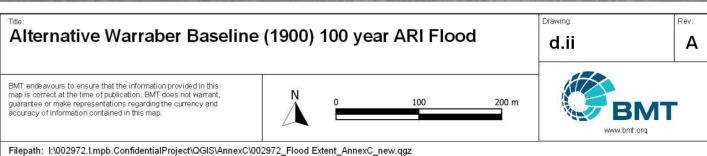




Water Level = 2.5 m AHD

Survey Datasets:

Queensland LiDAR Data – Torres Strait Islands 2011 Project (Sue Island 2010) with +0.55 m offset
 PR148460-1_2d.dwg





Water Level = 3.48 m AHD

Survey Datasets:

Queensland LiDAR Data – Torres Strait Islands 2011 Project (Sue Island 2010) with +0.55 m offset
 PR148460-1_2d.dwg

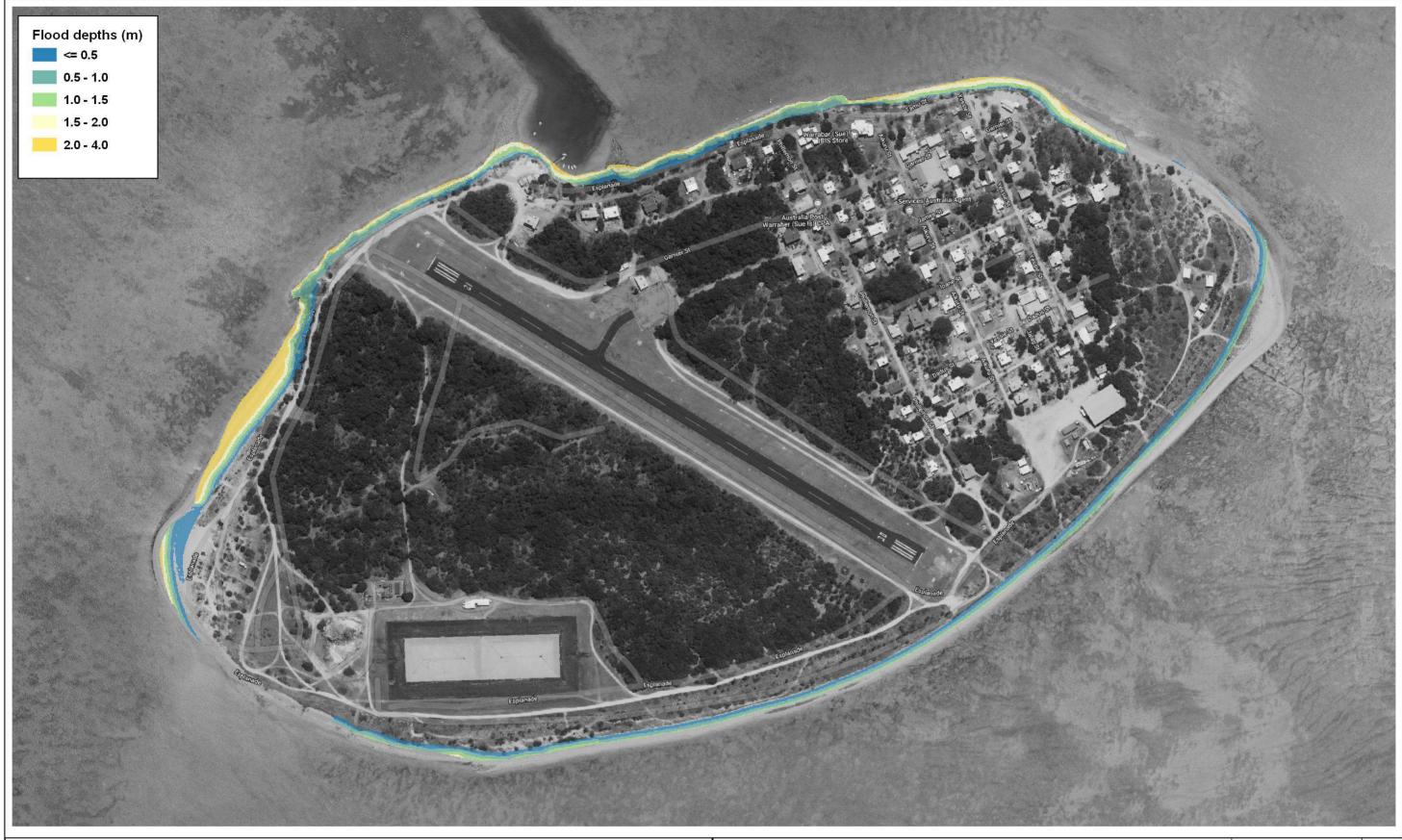
Warraber Current (2023) 100 year ARI Flood per Bettington Report Table 8

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



d.iii

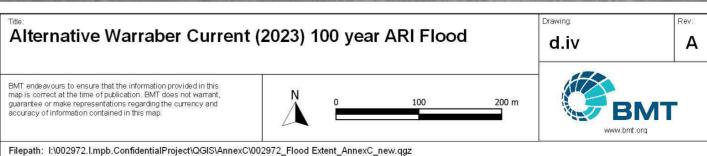




Water Level = 2.71 m AHD

Survey Datasets:

Queensland LiDAR Data – Torres Strait Islands 2011 Project (Sue Island 2010) with +0.55 m offset
 PR148460-1_2d.dwg







Water Level = 3.50 m AHD

Survey Datasets:

Queensland LiDAR Data – Torres Strait Islands 2011 Project (Sue Island 2010) with +0.55 m offset
 PR148460-1_2d.dwg

Warraber Township Inundation Event per Bettington Report Table 9

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.







Water Level = 3.63 m AHD

Survey Datasets:

Queensland LiDAR Data – Torres Strait Islands 2011 Project (Sue Island 2010) with +0.55 m offset
 PR148460-1_2d.dwg

Warraber 2050 SSP 1-2.6 100 year ARI Flood per Bettington Report Table 12

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



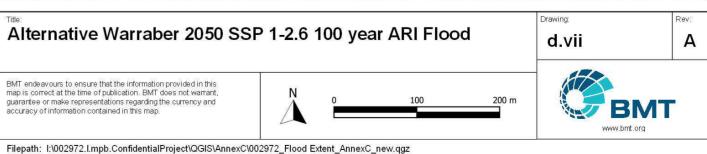
d.vi



Water Level = 2.86 m AHD

Survey Datasets:

Queensland LiDAR Data – Torres Strait Islands 2011 Project (Sue Island 2010) with +0.55 m offset
 PR148460-1_2d.dwg





Water Level = 3.61 m AHD

Survey Datasets:

Queensland LiDAR Data – Torres Strait Islands 2011 Project (Sue Island 2010) with +0.55 m offset
 PR148460-1_2d.dwg

Warraber 2050 SSP 1-1.9 100 year ARI Flood per Bettington Report Table 11

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d.viii



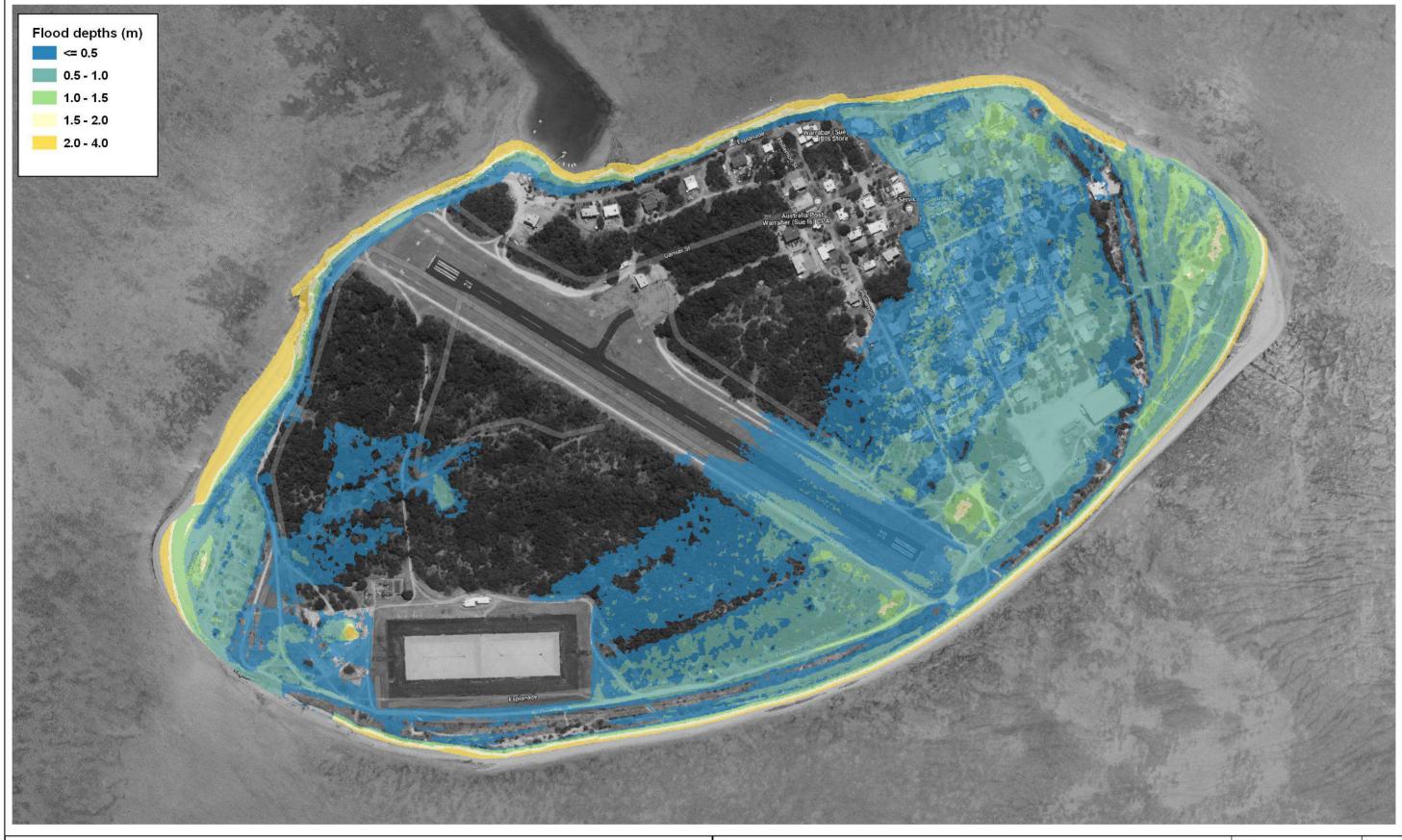


Water Level = 2.84 m AHD

Survey Datasets:

Queensland LiDAR Data – Torres Strait Islands 2011 Project (Sue Island 2010) with +0.55 m offset
 PR148460-1_2d.dwg

Alternative Warraber 2050 SSP 1-1.9 100 year ARI Flood d.ix BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map. Filepath: I:\002972.I.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_new.qgz



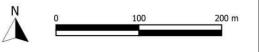
Water Level = 3.89 m AHD

Survey Datasets:

Queensland LiDAR Data – Torres Strait Islands 2011 Project (Sue Island 2010) with +0.55 m offset
 PR148460-1_2d.dwg

Warraber 2100 SSP 1-2.6 100 year ARI Flood per Bettington Report Table 16

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d.x

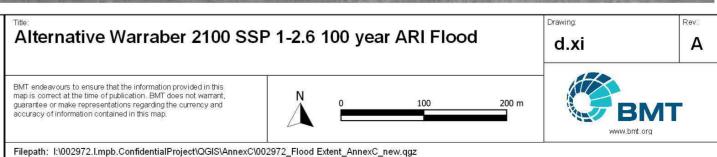


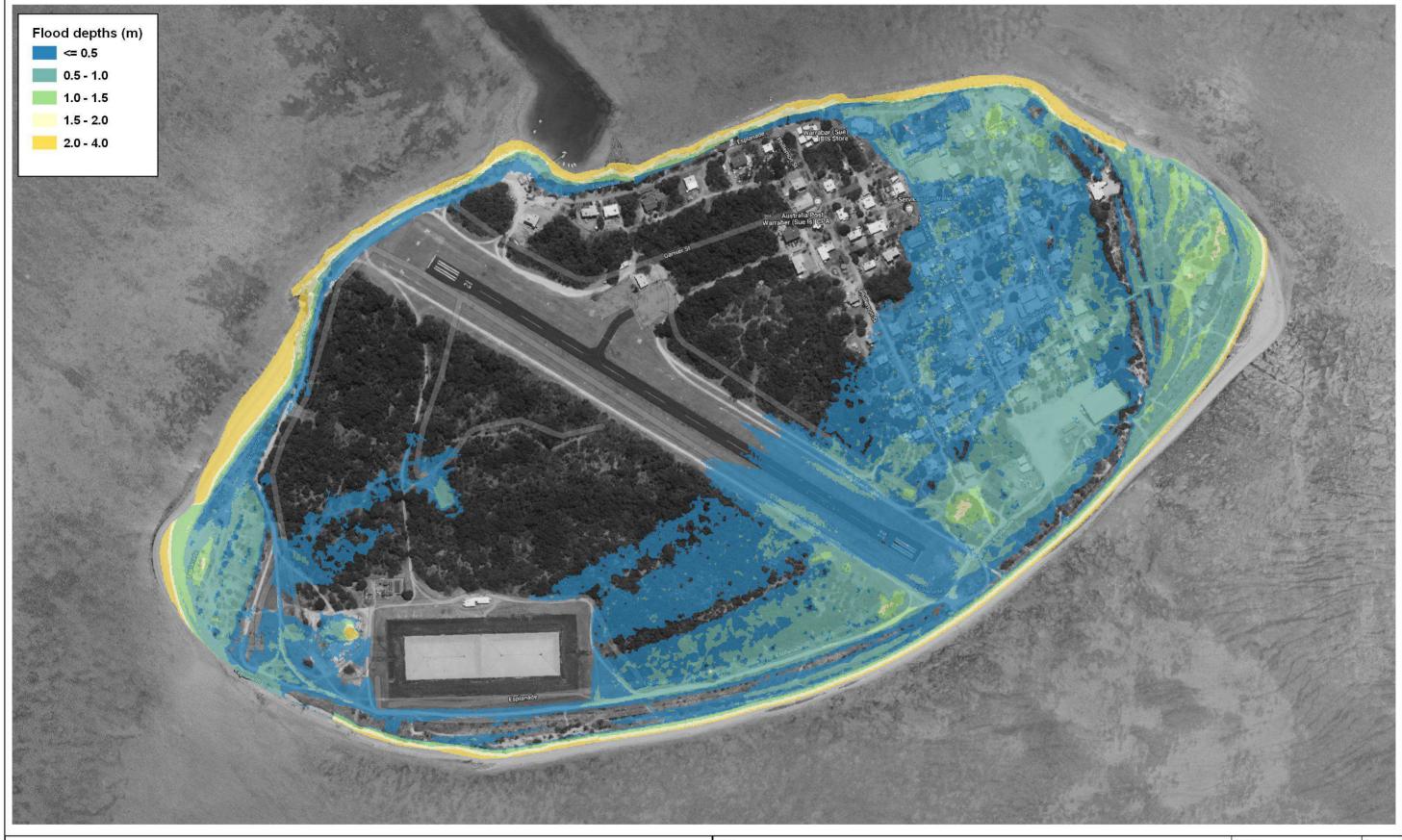
Notes:

Water Level = 3.12 m AHD

Survey Datasets:

Queensland LiDAR Data – Torres Strait Islands 2011 Project (Sue Island 2010) with +0.55 m offset
 PR148460-1_2d.dwg





Notes:

Water Level = 3.83 m AHD

Survey Datasets:

Queensland LiDAR Data – Torres Strait Islands 2011 Project (Sue Island 2010) with +0.55 m offset
 PR148460-1_2d.dwg

Warraber 2100 SSP 1-1.9 100 year ARI Flood per Bettington Report Table 15

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



d.xii



Filepath: I:\002972.l.mpb.ConfidentialProject\QGIS\AnnexC\002972_Flood Extent_AnnexC_new.qgz

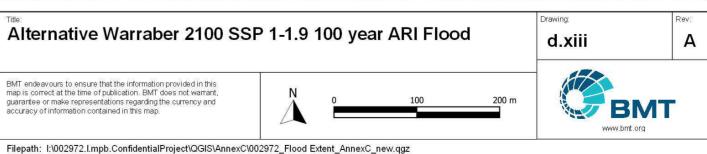


Notes:

Water Level = 3.06 m AHD

Survey Datasets:

Queensland LiDAR Data – Torres Strait Islands 2011 Project (Sue Island 2010) with +0.55 m offset
 PR148460-1_2d.dwg





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5 Interpretation of mapping provided in the Bettington Report

The Bettington Report includes inundation extent mapping based on the derived extreme sea levels. The mapping methodology is not described in the Bettington Report but the following assumptions and observations have been made:

- There is no description of the ground survey or LiDAR datasets or how they have been adjusted
 and applied to estimate a consistent datum and develop a DEM. This is a critical aspect of any
 inundation modelling and mapping exercise, but particularly when combining datasets with datum
 uncertainties (as examined throughout this report).
- There is no description or presentation of the DEMs that underpin the inundation extent mapping presented in the Bettington Report.
- The Bettington Report mapping appears to follow a 'bathtub' or 'bucket fill' approach that involves extrapolation of the extreme water level over ground elevations defined by a DEM. A similar mapping approach is presented in this report.
- The Bettington Report mapping appears to show all areas of land with an elevation below the water level, including areas where there is no hydraulic connection to the sea. Evidence of this is in Figure 14 (Poruma Baseline) where inundation is shown along the airstrip, and Figure 15 (Warraber Baseline) where inundation is shown to the west of the airstrip and within the bunded water storage area. Survey control mark 177935 shows the water storage bund crest elevation at 6.605 m AHD which is well above the extreme sea levels considered in the Bettington Report.
- Any benefit of seawalls or other structures designed to limit the extent of overtopping and inundation by removing a hydraulic connection to the sea will not be resolved by the Bettington Report mapping approach.

Due to the absence of key information regarding the application of topographic survey datasets and the development of the DEM for each island, it is not possible to comment on the validity of the Bettington Report mapping approach.



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6 References

Maritime Safety Queensland (2023, October 5) Diurnal tidal planes. Queensland Government. https://www.msq.qld.gov.au/tides/tidal-planes/diurnal-tidal-planes

Metters, D.R. and Petterson, R.I. (2011). A coherent tidal datum for the Torres Strait. The International Hydrographic Review, 5 (2011): 33-42.

SEA (2011) Torres Strait Extreme Water Level Study. Prepared for Torres Strait Regional Authority by Systems Engineering Australia Pty Ltd, Jul, 387pp.



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Annex A Letters of engagement and questions for report



Our ref. 21008585

31 August 2023

Australian Government Solicitor

Level 10, 60 Martin Place Sydney NSW 2000 GPO Box 2727 Sydney NSW 2001 T 02 9581 7777 www.ags.gov.au

Matthew Barnes Programme Manager Coastal / Team Leader Coastal QLD **BMT**

By email: Redactions for public file

Canberra Sydney Melbourne Brisbane Perth Adelaide Hobart Darwin

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Dear Mr Barnes

Pabai & Anor v Commonwealth of Australia (VID622/2021) | Provisional engagement letter

PROVISIONAL ENGAGEMENT

- We confirm we act for the Commonwealth of Australia (the Commonwealth) in the 1. above class action before the Federal Court of Australia.
- 2. The applicants (Pabai Pabai and others) commenced this class action on 26 October 2021 on their own behalf and on behalf of all persons who at any time during the period from about 1985 and continuing, are of Torres Strait Islander descent and suffered loss and damage as a result of the alleged acts and omissions of the Commonwealth (Group Members).
- 3. The proceeding relates to the impacts of climate change in the Torres Strait. In summary, the applicants allege that the Commonwealth:
 - a) owes a legal duty to Torres Strait Islanders to take reasonable steps to protect Torres Strait Islanders, their traditional way of life and the marine environment in and around the Torres Strait from the current and projected impacts of climate change, and breached that duty by (amongst other things) failing to identify a GHG emissions reduction target consistent with the 'best available science'; or
 - b) further or alternatively, owes a legal duty to Torres Strait Islanders to take reasonable steps to avoid causing property damage, loss of fulfilment of Ailan Kastom and other damage arising from a failure to implement or adequately implement adaptation measures to prevent or minimise the impacts of climate change in the Torres Strait, and breached that duty.
- The Commonwealth (amongst other things) denies that it owes the pleaded duties of 4. care, and denies that it breached any such duties of care.
- 5. We are instructed to engage you, on a provisional basis, as an expert in this matter.

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- 6. The provisional engagement will consist of an initial conference between you and the Commonwealth's legal team. The purpose of this conference will be to determine the capacity, if any, in which you may be able to act as an independent expert retained by the Commonwealth in this proceeding.
- 7. Following that conference, the Commonwealth may offer you an ongoing engagement as an independent expert in this proceeding.
- 8. We confirm that any engagement would be with you as an individual independent expert. Any opinions expressed by you should be your own.
- 9. We enclose the following documents by way of general reading for you before the conference with us:
 - a. The Federal Court's Expert Evidence Practice Note (GPN-EXPT). This Practice Note sets out guidelines for expert witnesses to follow in proceedings before the Court. Please read these guidelines carefully. You are requested to follow this Practice Note in your dealings with us.
 - b. The expert report of Stuart Bettington, filed by the applicants in these proceedings.

OTHER MATTERS

- 10. Your communications with us are confidential and subject to the Commonwealth's legal professional privilege.
- 11. To ensure that the Commonwealth retains legal professional privilege in relation to your work, we request that you comply with the following communication and information management protocol during the course of this engagement:
 - Unless instructed otherwise, communications (written or oral) should be with Dejan Lukic, Grace Ng and Jacqueline Yates of the Australian Government Solicitor.
 - b. This letter, any other materials provided to you, and any working notes prepared by you, should also be maintained in a file clearly marked 'Confidential and subject to legal professional privilege for the Commonwealth of Australia'.
- 12. Subject to any orders of any court, our instructions, and any information obtained and working notes prepared by you in relation to this matter (including this engagement) must not be disclosed to any other person.
- 13. If you have any questions please contact us.

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Yours sincerely

Grace Ng Senior Lawyer T 02 9581 7320 grace.ng@ags.gov.au



Our ref. 21008585

8 September 2023

Dr Matthew Barnes APAC Coastal Programme Manager BMT Commercial Australia Pty Ltd Level 5, 348 Edward Street BRISBANE QLD 4000

By email Redactions for public file

Australian Government Solicitor

Level 10, 60 Martin Place Sydney NSW 2000 GPO Box 2727 Sydney NSW 2001 T 02 9581 7777 www.ags.gov.au

Canberra Sydney Melbourne Brisbane Perth Adelaide Hobart Darwin

PRIVILEGED & CONFIDENTIAL

Dear Dr Barnes

Pabai & Anor v Commonwealth of Australia (VID622/2021) | Engagement as independent expert

1. We refer to our provisional engagement letter dated 31 August 2023. We confirm we are instructed to engage you as an independent expert in the above class action before the Federal Court of Australia.

BRIEFING MATERIALS AND INSTRUCTIONS

- 2. **Annexure A** contains a list of documents briefed to you.
- 3. At this stage, you are required to undertake a review of the documents briefed at Annexure A.
- 4. We will in due course send you a letter with specific questions for you to address in a written expert report. We anticipate those questions will relate to the modelling of flooding and inundation on the Torres Strait Islands.
- 5. Any expert evidence to be relied on by the Commonwealth is due to be filed by 6 October 2023. Please let us know if you consider it will not be possible to meet that date and we will consider what arrangements can be made.
- 6. You may also be required to give oral evidence before the Court. The hearing is listed from 6 to 27 November 2023, in Melbourne. We will advise you closer to the date if you will be required to give oral evidence and, if so, on which dates.

YOUR ROLE AS AN EXPERT

7. We enclose in Annexure A the Federal Court of Australia Expert Evidence Practice Note (GPN-EXPT) (Practice Note) and Part 23 of the *Federal Court Rules 2011* (Cth). These documents set out guideline for expert witnesses to follow in proceedings before the Court. Please read these guidelines carefully. You are

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requested to follow these guidelines in your dealings with us, and in preparing your report.

- 8. We draw your attention to the following sections of the Practice Note:
 - a. Section 4 'Role and Duties of the Expert Witness': Paragraph 4.1 provides that your role is to provide relevant and impartial evidence in your area of expertise. You should never mislead the Court or become an advocate for the Commonwealth (as the retaining party).
 - b. Section 4 'Role and Duties of the Expert Witness': Paragraph 4.4 provides that every expert witness giving evidence must read and agree to be bound by the Expert Witness Code of Conduct. You are required to strictly comply with the terms of the Expert Witness Code of Conduct. Please ensure your report/s contains an acknowledgment that you have read and agree to be bound by the Expert Witness Code of Conduct.
 - c. Section 5 'Contents of an Expert's Report and Related Material': Paragraph 5.2 sets out the requirements for the contents of any report, in addition to those requirements set out in the Expert Witness Code of Conduct.

CONFIDENTIALITY AND LEGAL PROFESSIONAL PRIVILEGE

- 9. Your communications with us are confidential and subject to the Commonwealth's legal professional privilege.
- 10. To ensure that the Commonwealth retains legal professional privilege in relation to your work, we request that you comply with the following communication and information management protocol during the course of this engagement:
 - a. Unless instructed otherwise, communications (written or oral) should be with Dejan Lukic, Grace Ng, Emily Nance, Zoe Maxwell and Jacqueline Yates of the Australian Government Solicitor.
 - b. This letter, any other materials provided to you, and any working notes prepared by you, should also be maintained in a file clearly marked 'Confidential and subject to legal professional privilege for the Commonwealth of Australia'.
 - c. Include on the front page of any draft report and any other document produced in the course of this engagement the following wording: 'Confidential and subject to legal professional privilege for the Commonwealth of Australia'.
- 11. Subject to any orders of any court, our instructions, and any information obtained and working notes prepared by you in relation to this matter (including this engagement) must not be disclosed to any other person.

ANY ASSISTANCE IN PREPARING YOUR REPORT

12. The opinions which you provide must be your own opinions. In the event that you require assistance from others in preparing your report it will be necessary for you to identify those individuals and the assistance provided to you.

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NEXT STEPS

- 13. Please begin considering the materials in your brief. As noted above, we will in due course provide you with some specific questions to answer.
- 14. If you have any questions please contact us.

Yours sincerely

Grace Ng Senior Lawyer T 02 9581 7320 grace.ng@ags.gov.au



ANNEXURE A - BRIEFED DOCUMENTS

TAB	DOCUMENT	DATE
1.	Provisional engagement letter, enclosing:	31 August 2023
	Federal Court's Expert Evidence Practice Note (GPN-EXPT)	25 October 2016
	b. Applicants' second further amended statement of claim (SFASOC)	11 April 2023
	c. Respondent's defence to the SFASOC	9 May 2023
	d. Applicants' amended concise statement	15 May 2023
	e. Respondent's amended concise statement in response	29 May 2023
2.	Part 23 of the Federal Court Rules 2011	13 January 2023
3.	Expert report of Stuart Bettington (sealed)	3 August 2023
4.	Survey data produced by the Torres Strait Island Regional Council (pursuant to the subpoena dated 20 April 2023 requiring production of "electronic copies of all topographic and hydrographic survey data captured or prepared for the seawall and flood mitigation works on the islands of Saibai, Boigu, Poruma, Warraber, Iama, and Masig (in AutoCAD or equivalent format).")	26 May 2023

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Our ref. 21008585

27 September 2023

Dr Matthew Barnes APAC Coastal Programme Manager BMT Commercial Australia Pty Ltd Level 5, 348 Edward Street BRISBANE QLD 4000

By email: Redactions for public file

Australian Government Solicitor

Level 10, 60 Martin Place Sydney NSW 2000 GPO Box 2727 Sydney NSW 2001 T 02 9581 7777 www.ags.gov.au

Canberra Sydney Melbourne Brisbane Perth Adelaide Hobart Darwin

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Dear Dr Barnes

Pabai & Anor v Commonwealth of Australia (VID622/2021) | Engagement as independent expert

- 1. We refer to our engagement letter dated 8 September 2023 (engagement letter).
- 2. We confirm we would like you to prepare an expert report for the purpose of the above class action that answers the questions set out in **Annexure B** to this letter.
- 3. In answering those questions, please consider, as you consider relevant, the materials provided in Tabs 1(b)-1(e), 3 and 4 of **Annexure A** to the Engagement Letter.
- 4. Again, we refer you to the Federal Court of Australia Expert Evidence Practice Note (GPN-EXPT) and Part 23 of the *Federal Court Rules 2011* (Cth), provided at Tab 1(a) of **Annexure A** to the Engagement Letter. We reiterate that you are required to follow these guidelines in your dealings with us, and in preparing your expert report.

NEXT STEPS

- 5. Please proceed to prepare your written report.
- 6. As noted previously, any expert evidence to be relied on by the Commonwealth is due to be filed by <u>6 October 2023</u>. Please let us know if you consider it will not be possible to meet that date and we will consider what arrangements can be made.
- 7. If you consider there are further materials or information you require in order to answer those questions, please let us know.

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8. If you have any questions please contact us.

Yours sincerely

Jacqueline Yates

Senior Lawyer

T 02 9581 7724 F 02 9581 7445

jacqueline.yates@ags.gov.au



ANNEXURE B - QUESTIONS FOR REPORT

Basis of expertise

1. Please describe your academic qualifications, professional background and experience that is relevant to your answering the questions in the letter of instruction. You may wish to do so by reference to a current curriculum vitae.

Flood mapping

Please produce maps showing the extent of inundation that would occur on the following islands at the following extreme sea levels. Please also explain how the flood mapping process is undertaken, any assumptions that underpin the flood mapping process, and any uncertainties that should be noted in using flood maps to determine the likely extent of flooding at a given extreme sea level. To the extent possible, please also explain any assumptions and uncertainties that should be noted in relation to the flood maps produced in Mr Bettington's report dated 3 August 2023 (the Bettington Report).

a. Boigu

- 3.73m AHD (please label as follows: Boigu Baseline (1900) 100 year ARI Flood per Bettington Report Table 7);
- ii. 2.48m AHD (please label as follows: Alternative Boigu Baseline (1900)100 year ARI Flood);
- iii. 3.94m AHD (please label as follows: Boigu Current (2023) 100 year ARI Flood per Bettington Report Table 8);
- iv. 2.69m AHD (please label as follows: Alternative Boigu Current (2023)100 year ARI Flood);
- v. 3.4m AHD (please label as follows: Boigu Township Inundation Event per Bettington Report Table 9);
- vi. 4.09m AHD (please label as follows: Boigu 2050 SSP 1-2.6 100 year ARI flood per Bettington Report Table 12);
- vii. 2.84m AHD (please label as follows: Alternative Boigu 2050 SSP 1-2.6 100 year ARI flood);
- viii. 4.07m AHD (please label as follows: Boigu 2050 SSP 1-1.9 100 year ARI flood per Bettington Report Table 11);
- ix. 2.82m AHD (please label as follows: Alternative Boigu 2050 SSP 1-1.9 100 year ARI flood);
- x. 4.35m AHD (please label as follows: Boigu 2100 SSP 1-2.6 100 year ARI flood per Bettington Report Table 16);
- xi. 3.10m AHD (please label as follows: Alternative Boigu 2100 SSP 1-2.6 100 year ARI flood);

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- xii. 4.29m AHD (please label as follows: Boigu 2100 SSP 1-1.9 100 year ARI flood per Bettington Report Table 15);
- xiii. 3.04m AHD (please label as follows: Alternative Boigu 2100 SSP 1-1.9 100 year ARI flood);

b. Saibai

- 3.11m AHD (please label as follows: Saibai Baseline (1900) 100 year ARI Flood per Bettington Report Table 7);
- 2.09m AHD (please label as follows: Alternative Saibai Baseline (1900)
 100 year ARI Flood);
- 3.32m AHD (please label as follows: Saibai Current (2023) 100 year
 ARI Flood per Bettington Report Table 8);
- iv. 2.30m AHD (please label as follows: Alternative Saibai Current (2023)100 year ARI Flood);
- v. 2.80m AHD (please label as follows: Saibai Township Inundation Event per Bettington Report Table 9);
- vi. 3.47m AHD (please label as follows: Saibai 2050 SSP 1-2.6 100 year ARI flood per Bettington Report Table 12);
- vii. 2.45m AHD (please label as follows: Alternative Saibai 2050 SSP 1-2.6 100 year ARI flood);
- viii. 3.45m AHD (please label as follows: Saibai 2050 SSP 1-1.9 100 year ARI flood per Bettington Report Table 11);
- ix. 2.43m AHD (please label as follows: Alternative Saibai 2050 SSP 1-1.9 100 year ARI flood);
- x. 3.73m AHD (please label as follows: Saibai 2100 SSP 1-2.6 100 year
 ARI flood per Bettington Report Table 16);
- xi. 2.71m AHD (please label as follows: Alternative Saibai 2100 SSP 1-2.6 100 year ARI flood);
- xii. 3.67m AHD (please label as follows: Saibai 2100 SSP 1-1.9 100 year ARI flood per Bettington Report Table 15);
- xiii. 2.65m AHD (please label as follows: Alternative Saibai 2100 SSP 1-1.9 100 year ARI flood);

c. Poruma

- 3.05m AHD (please label as follows: Poruma Baseline (1900) 100 year ARI Flood per Bettington Report Table 7);
- 2.39m AHD (please label as follows: Alternative Poruma Baseline (1900) 100 year ARI Flood);

Australian Government Solicitor

- 3.26m AHD (please label as follows: Poruma Current (2023) 100 year
 ARI Flood per Bettington Report Table 8);
- iv. 2.60m AHD (please label as follows: Alternative Poruma Current (2023) 100 year ARI Flood);
- v. 3.60m AHD (please label as follows: Poruma Township Inundation Event per Bettington Report Table 9);
- vi. 3.41m AHD (please label as follows: Poruma 2050 SSP 1-2.6 100 year ARI flood per Bettington Report Table 12);
- vii. 2.75m AHD (please label as follows: Alternative Poruma 2050 SSP 1-2.6 100 year ARI flood);
- viii. 3.39m AHD (please label as follows: Poruma 2050 SSP 1-1.9 100 year ARI flood per Bettington Report Table 11);
- ix. 2.73m AHD (please label as follows: Alternative Poruma 2050 SSP 1-1.9 100 year ARI flood);
- x. 3.67m AHD (please label as follows: Poruma 2100 SSP 1-2.6 100 year ARI flood per Bettington Report Table 16);
- xi. 3.01m AHD (please label as follows: Alternative Poruma 2100 SSP 1-2.6 100 year ARI flood);
- xii. 3.61m AHD (please label as follows: Poruma 2100 SSP 1-1.9 100 year ARI flood per Bettington Report Table 15);
- xiii. 2.95m AHD (please label as follows: Alternative Poruma 2100 SSP 1-1.9 100 year ARI flood);

d. Warraber

- 3.27m AHD (please label as follows: Warraber Baseline (1900) 100 year ARI Flood per Bettington Report Table 7);
- 2.50m AHD (please label as follows: Alternative Warraber Baseline (1900) 100 year ARI Flood);
- iii. 3.48m AHD (please label as follows: Warraber Current (2023) 100 yearARI Flood per Bettington Report Table 8);
- iv. 2.71m AHD (please label as follows: Alternative Warraber Current (2023) 100 year ARI Flood);
- v. 3.5m AHD (please label as follows: Warraber Township Inundation Event per Bettington Report Table 9);
- vi. 3.63m AHD (please label as follows: Warraber 2050 SSP 1-2.6 100 year ARI flood per Bettington Report Table 12);
- vii. 2.86m AHD (please label as follows: Alternative Warraber 2050 SSP 1-2.6 100 year ARI flood);

Australian Government Solicitor

- viii. 3.61m AHD (please label as follows: Warraber 2050 SSP 1-1.9 100 year ARI flood per Bettington Report Table 11);
- ix. 2.84m AHD (please label as follows: Alternative Warraber 2050 SSP 1-1.9 100 year ARI flood);
- x. 3.89m AHD (please label as follows: Warraber 2100 SSP 1-2.6 100 year ARI flood per Bettington Report Table 16);
- xi. 3.12m AHD (please label as follows: Alternative Warraber 2100 SSP 1-2.6 100 year ARI flood);
- xii. 3.83m AHD (please label as follows: Warraber 2100 SSP 1-1.9 100 year ARI flood per Bettington Report Table 15); and
- xiii. 3.06m AHD (please label as follows: Alternative Warraber 2100 SSP 1-1.9 100 year ARI flood).

AGS matter no: 21008585



Expert Report of Matthew Barnes **BMT (OFFICIAL)**

Annex B Current curriculum vitae





Dr. Matthew Barnes

CAREER OVERVIEW

Matt has a strong coastal engineering and marine science background with 20 years' experience in research and environmental consulting. He has been recognised as one of Australia's Most Innovative Engineers for work related to the implementation of 'trigger-based' coastal management and adaptation strategies and embedding these concepts into planning approvals.

Matt is the APAC Coastal Programme Manager and oversees the delivery of projects within port and coastal areas in support of strategic planning and development. The technical assessments typically inform port expansion Environmental Impact Statements, Shoreline Erosion Management Plans, coastal hazard and climate change adaptation studies, and the design of coastal structures. Matt is solutions focused and is driven by supporting clients from initial scoping through to execution of approved plans.

POSITION

APAC Coastal Programme Manager

YEARS OF EXPERIENCE

20

ACADEMIC QUALIFICATIONS

PhD in Coastal Engineering from University of Queensland (2009)

MSc in Applied Marine Science from University of Plymouth, UK (2004)

BTech in Engineering (Coastal Resource Management) from Deakin University (2002)

EMPLOYMENT HISTORY

2010 to date APAC Coastal Programme Manager, BMT

2007 to 2010 Coastal Engineer, WorleyParsons

Services Pty Ltd

2005 to 2009 PhD Research, Coastal Engineering Research Centre, University of

Queensland

AREAS OF EXPERTISE

- Numerical Modelling of Coastal and Estuarine Processes
- Coastal Hazard Assessment and Mapping
- Climate Change Adaptation
- Coastal Protection Structures and Beach Nourishment
- Dredging Studies and Dredge Plume Modelling
- Coastal Zone Development Approval

CAREER HIGHLIGHTS

- Coordinating and providing technical input to several coastal hazard adaptation strategies throughout Australia
- Technical input into major EIS studies for the Port of Cairns, Port Curtis and Sunshine Coast Airport Expansion Project.

BMT www.bmt.org

SPECIFIC PROJECTS

Natural Hazards and Coastal Management

- Flinders Parade Cliff Projection and Beach Nourishment (2023)
- Charlish Park Seawall Revitalisation (2023)
- Hook Island Coastal Hazard Assessment (2022)
- Beachmere Shoreline Management Project (2021)
- City of Gold Coast Seawall Review (2021)
- Fraser Coast Region Coastal Hazard Adaptation Strategy
 Phase 1 to 8 (2021)
- Cairns Region Shoreline Erosion Management Plan (2021)
- Noosa Shire Council Shoreline Erosion Management Plan (2020)
- Gold Coast Shoreline Erosion Forecast Model (2020)
- Gympie Region Coastal Hazard Adaptation Strategy -Phase 1, 2 & 3 (2018)
- Maroochydore Beach Management Economic Evaluation (2018)
- Lakes Entrance Growth and Adaptation Strategy (2018)
- Holloways Beach Coastal Management Options Assessment (2018)
- Bowen Water Hazards Study (2017)
- Noosa Shire Council Coastal Hazard Adaptation Plan Phase 2 & 3 (2017)
- Torres Shire Council Coastal Hazard Adaptation Strategy

 Phase 1 & 2 (2017)
- Cairns Regional Council Coastal Hazard Adaptation Strategy – Phase 1 & 2 (2017)
- Cairns Erosion Prone Area Hazard & Risk Assessment (2017)
- Turtle Sands Mixed Used Development Coastal Erosion Assessment and Management Plan (2017)
- Cassowary Coast Coastal Hazards Assessments (2016)
- Sunshine Coast Regional Sand Sourcing Study (2015)
- Golden Beach and Bribie Island Breakthrough Plan (2014)
- Northern Moreton Bay Shoreline Erosion Management Plan – Stage 1 (2014)
- Maroochydore Beach Nourishment Feasibility Study and Approval Application (2012)
- Sunshine Coast Shoreline Erosion Management Plan (2010–2013)
- Bundaberg, Mackay, Cairns Region Storm Tide Studies (2010-2013)

Port and Dredging Related Assessments

- Shute Harbour Marina Development Peer Review (2023)
- Osborne Naval Shipyard Dredge Volume and Dredge Plume Assessment (2023)
- Devonport Quaylink EIS Dredge Plume Assessment Peer

Review (2022)

- Moreton Bay Sand Study (2021)
- Cairns Long Term Maintenance Dredging Management Plan (2020)
- Yorkeys Knob and Newell Beach Recreational Boating Facility Options Assessment (2018)
- Design Refinement Modelling for Lower Brisbane River Infrastructure (2018)
- Mooloolah River Breakwater Metocean Design Parameters (2018)
- 3D Hydrodynamic Modelling for Brisbane River Infrastructure Projects (2012 to 2023)
- Mooloolaba Foreshore Revitalisation Project (2017)
- Molongle Creek Boat Ramp Channel Alignment Assessment (2017)
- East Trinity Ecotourism Project (2017)
- Lower Yarra River Dredge Management Plan (2016)
- Sepik and Frieda River Ship Navigation Simulations (2015)
- Cairns Shipping Development Project EIS (2014)
- Investigations of Capital Works Options at Mooloolah River Entrance (2014)
- Sunshine Coast Airport Expansion EIS (2013)
- Burrum Heads Boat Ramp Coastal Processes Investigation (2012)
- SmartShip Australia Ship Navigation Simulations (2012)

KEY PAPERS/PUBLICATIONS

Couper, Z.S., Devlin, T., Chorley, J. and Barnes, M.P (2019). "Modelling Complex Flow Fields for Structural Design Refinement", Coasts and Ports, Auckland, Australia, September 2019.

Barnes, M.P., Visser, J. and Fisk, G. (2017). "Implementation of Trigger-Based Coastal Management Strategies", Coasts and Ports, Cairns, Australia, June 2017.

Jovanovic, D., **Barnes, M.P.,** Teakle, I., Bruce, L. and McCarthy, D. (2015). "3D Hydrodynamics and Vertical Mixing in a Stratified Estuary", MODSIM, Gold Coast, Australia.

Barnes M.P., Teakle, I., Voisey, C. and Wood, P. (2015). "Assessment of Capital Works Options to Mitigate Shoaling at the Mooloolaba Harbour Entrance", Coasts and Ports, Auckland, New Zealand.

Barnes, M.P. and Baldock, T.E. (2009). "A Lagrangian model for boundary layer growth and bed shear stress in the swash zone", Coastal Engineering, 56(4).

Barnes, M.P., O'Donoghue, T., Alsina, J.M. and Baldock, T.E. (2009). "Direct shear stress measurements in bore-driven swash", Coastal Engineering, 56(8).



Expert Report of Matthew Barnes **BMT (OFFICIAL)**

Annex C Boigu results of survey checks and survey control mark reports

Table C.1. Boigu ground survey checks with survey control mark

Control mark number	GDA94 Easting (m)	GDA94 Northing (m)	AHD height (m)	Ground survey height* (m)	Difference (m)
140483	634123.707	8979545.384	2.706	2.825	-0.119
177940	633808.192	8979445.797	3.085	2.862	0.223
177941	634116.104	8979543.481	3.163	3.166	-0.003
186491	634330.203	8979410.486	2.99	2.96	0.03

^{*}taken from 1 m grid DEM created from: X_SV_DETAIL SURVEY.dwg

Table C.2. Boigu LiDAR survey checks with survey control mark

Control mark number	GDA94 Easting (m)	GDA94 Northing (m)	AHD height (m)	LiDAR survey height^ (m)	Difference (m)
186491	634330.203	8979410.486	2.99	2.464	0.526
133973	634119.901	8979407.811	3.29	2.659	0.631
119880	634145.292	8979486.659	3.201	2.687	0.514
189642	633986.444	8979444.731	3.081	2.567	0.514
189643	633900.803	8979214.811	2.468	1.892	0.576
186493	633405.709	8979238.187	2.646	2.133	0.513
Average differen	ice (m)				0.546
Standard deviati	on (m)				0.048

[^]based on the average height of classified las points within 1 m radius of survey control mark



Lineage

Survey Control Mark Report

Last Visitad

ADMINISTRATIVE DETAILS Mark Number 119880

Alternate Names Town

Local Authority TOPPES STRAIT ISLAND REGIONAL

04-Mar-2016

EAP.ZUUU.UUU1.UU90

Locality Description BOIGU ISLAND

Related Information

Mark Type OTHER METAL BOLT Installed By POWI ANDS

Installed Date 16-Aug-2000 Sketch Available Vac Mark Condition GOOD Num Connections

GDA2020 COORDINATES

Datum Latitude 9º 13' 48.06599" S

MGA2020 Easting 634146.217m 142º 13' 16.16999" F MGA2020 Northing 8979488.155m Longitude

Hrz Posn Uncertainty 0.017m MGA2020 Zone 54 Ellipsoidal Height 77.082m MGA2020 Point Scale 0.99982269

Vrt Posn Uncertainty 0.038m MGA2020 Grid Conv. 0º 11' 45"

GPS Published 18-May-2023 Fixed By Adjustment OLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

Latitude 9º 13' 48.11480" S MGA94 Easting 634145.292m

142º 13' 16.13982" E 8979486.659m Longitude MGA94 Northing MGA94 Zone 54 Ellipsoidal Height 77.196m

AHD HEIGHT

Lineage Derived Height

SP273190

SP258861

SP267922

SP241283

SP151784

SP135866

SP116839

copyright information.

3.201m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By

Origin Mark TORRES STRAIT ISLANDS CONTROL Source

04-Mar-2016

02-Apr-2014

05-Feb-2014

29-Oct-2010

20-Jun-2002

16-Aug-2000

16-Aug-2000

Model: AUSGEOID98 INTERPOLATED / N Value: 73.418m

SURVEY CONNECTIONS

NI N Section

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Report created 03-Oct-2023 Page 1 of 3

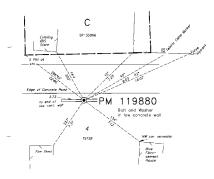
$\mathsf{EAP}.\mathsf{ZUUU}.\mathsf{UUU}\mathsf{1}.\mathsf{UU9}\mathsf{1}$

SCS119860 V1 Page 1 of 2 Not To Scale

QUEENSLAND - DEPARTMENT OF NATURAL RESOURCES

PERMANENT MARK SKETCH PLAN

Bearings are . .Magaetic . . (Magnetic, AMG) Distances are metres Stoich plon to be completed in accordance with the Department's DA documents "Completion of Permanent Mark Sketch Plans"



Suited to GPS Yes/No Date 16 /8 /00

SCOB DETAILS ON REVERSE ARE TO BE COMPLETED I sortify that the paradonet mork sketch has been prepared in accordance with the "the Survey Co. prohotion Act of 1952-1989."

Dote . 13/7/01 Signoture Wath Mack)

ROMANDS SURVEYS PTY LTD (ACN 014)025 260)

The SCRP, is the as thresholds ensure the countriers and beints information that countries in the state for appearing a management and the state of the state of

EAP.2000.0001.0096

Department of Natural Resources

Survey Control Database - Permanent Mark Data Sheet

Registered Number:
Administrative Data
Alternolive None 1: Vestolled by (Vel) 070 (02.5200) Alternolive None 2: Date Hilbard Alternolive None 2: Date Hilbard Alternolive None 2: Date Hilbard More Special 30 and Hamilton 105 More Special 30 and Hamilton 105 More Condition 1000 Control 1000 Control 1000 Map Reference 7729-42231.
Vertical Control Data
Height: Vertical (Zourocy-Order. Class. Vertical (Zoing III - Regel No: Height: Dolum: Vertical Origin IZ - Regel No: Height: Dolum: Vertical Origin IZ - Regel No: Model: Dolum: Fixed By: Dolum: Model:
Horizontal Cantral Data
Loftude Longitude Distum: CPA 94 Earling 5.95-2318 F. Northing 8.879-499 7 M Zone 5.4 Loftude Distum: Conflict Distum: Conflict Lottice Mer Phing; Zone
Moi/2 Origin. Conglusée Delum. Cetting. Longlusée Delum. Enting. Zone. Horizontol Agustment. Horizontol Agustment. Horizontol Agustment. Foxed By , Sinded , Doller.
Cadastral Connection Data
Connected on Codostrol Plan No:
Connected on Colours to Profit No.
Comments
Commence
Details completed by: C. Scotchings. ROMANDS SURVEYS PTY LTD (ACN 010 025 28)



Survey Control Mark Report

ADMINISTRATIVE DETAILS

EAP.2000.0001.0099

Alternate Names Town

Local Authority TORRES STRAIT ISLAND REGIONAL

Locality Description BOIGU ISLAND Related Information

Mark Number

Lineage

Origin Mark

SP258861

Mark Type

133973

OTHER STEEL BOLT Installed By C & B CONS Last Visitad 02-Apr-2014

Installed Date 17-Sep-2001 Sketch Available Vac Mark Condition GOOD Num Connections 5

GDA2020 COORDINATES

Datum Latitude 9º 13' 50.63570" S

MGA2020 Easting 634120.826m 142º 13' 15.34685" F MGA2020 Northing 8979409.306m Longitude

Hrz Posn Uncertainty 0.017m MGA2020 Zone 54 Ellipsoidal Height 77.155m MGA2020 Point Scale 0.99982260

Vrt Posn Uncertainty 0.036m MGA2020 Grid Conv. 0º 11' 45"

GPS Published 18-May-2023 Fixed By Adjustment OLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

Latitude 9º 13' 50.68448" S MGA94 Easting 634119.901m

142º 13' 15.31668" E Longitude MGA94 Northing 8979407.811m 77.269m MGA94 Zone 54 Ellipsoidal Height

AHD HEIGHT

Lineage Derived

Height 3.290m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By

TORRES STRAIT ISLANDS CONTROL Source

02-Apr-2014

Model: AUSGEOID98 INTERPOLATED / N Value: 73.416m

SURVEY CONNECTIONS

NI N Section

05-Feb-2014 SP267922 29-Oct-2010 SP241283 SP151783 20-Jun-2002 DP145573 04-Oct-2001

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Report created 03-Oct-2023 Page 1 of 3

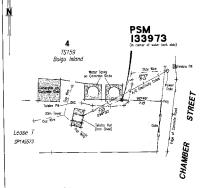


DEPARTMENT OF NATURAL RESOURCES & MINES

PERMANENT MARK SKETCH PLAN

REGD NO. __ 133973_ __

Bearings are _____MG_____(Magnetic, AMG) Bintances are metred Seaton pion to be completed in occurdance with the Department's QA decument; Campulant of Permanent Mark Seator Plans.



Mark Type _Stainless Stant Bol1_

Scale 1:200

	Suited to GPS	SCDB DETAILS ON REVERSE ARE TO BE COMPLETED
	Yes/Ne- Yes	owtify that the permanent mark sketch has been prepared in accordance with the "The Survey Co-ordination Act of 1952-1959".
ı	Cate	Dole 22-10-01 _ Sground Singer (Spensed) 25/4/
	OCT 2001	Registered Surveyor (Cicensed) 26/4/

Department of Natural Resources & Mines

Survey Control Database - Permanent Mark Data Sheet

Administrativo Data			
			CONSULTANTS PTY LTD
Alternative Name I:		installed By:	
Alternative Name 2:		Date Installed:	
Alternative Name 3:		Date Last Visited:	
Mark Type:Stainless Stee	l Bolt	PSA:	
Mark Condition: Good		Locality Description	_BOIGU ISLAND_
Parish: CRMAN		City or Town: Map Reference:	
Local Authority: BOIGU COMMUNITY	COUNCIL	Map Reference:	<u>73</u> 79_3 <u> </u> 4
Vertical Control Data			
Height: Datum:	Verti	cal Accuracy - Order.	Closs
Vertical Origin — Regd No:	He	ight: Da	tum:
Geo-Sphd N:	Datum:_	Model:	
Fixed By:	_	Date: _	
Horizontal Control Data			
Latitude:	_ Longitude		Datum: AGD_84
Easting: 533.992	_ Northing:	8 979 235	Zone:54
Horiz Origin: Lat:		Long:	Datum:
Horizontal Adjustment:			=
Herizontal Acquiracy - Order	Class: _	_ <u>PE</u> Fixe	d By: Hond Heid GPS

Comments

Connected on Codostrol Plan No.: SP145573



Details completed by: CAR CONSULIANTS PTYLTD Phone: ... (07)40311336

Cadastral Connection Data



634124.632m



Survey Control Mark Report

ADMINISTRATIVE DETAILS

MGA2020 Easting

Mark Number 140483 Alternate Names ME079 Town

Local Authority BOIGU ISLAND RAMP

TORRES STRAIT ISLAND REGIONAL

Locality Description Mark Type

Installed By

Related Information

STAND

PAN Last Visitad 02-Apr-2014

Installed Date 03-Feb-1988 Sketch Available No Mark Condition GOOD Num Connections 2

GDA2020 COORDINATES Lineage Datum

Latitude 9º 13' 46.15666" S

142º 13' 15.45614" F MGA2020 Northing 8979546.879m Longitude Hrz Posn Uncertainty 0.016m MGA2020 Zone 54

Ellipsoidal Height 76.556m MGA2020 Point Scale 0.99982262 Vrt Posn Uncertainty 0.036m MGA2020 Grid Conv. 0º 11' 45"

GPS Published 18-May-2023 Fixed By Adjustment QLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

Latitude 9º 13' 46.20544" S MGA94 Easting 634123.707m

142º 13' 15,42598" E 8979545.384m Longitude MGA94 Northing MGA94 Zone 54 Ellipsoidal Height 76.670m

AHD HEIGHT

Lineage Derived Height

2.706m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By NI N Section

Origin Mark TORRES STRAIT ISLANDS CONTROL Source

Model: AUSGEOID98 INTERPOLATED / N Value: 73.419m

SURVEY CONNECTIONS

SP258861 02-Apr-2014 01-Dec-2007 SP123880

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Report created 03-Oct-2023 Page 1 of 1



Survey Control Mark Report

ADMINISTRATIVE DETAILS

Mark Number 177940 Alternate Names

BOI1

Town

TOPPES STRAIT ISLAND REGIONAL

Locality Description BOIGU ISLAND

Related Information Mark Type

MINI MARK

Last Visitad

Local Authority

04-Mar-2016

633809.116m

EAP.ZUUU.UUU1.U1U3

Installed By NPW NAMBOUR Installed Date 12-May-2008 GOOD

Mark Condition

Sketch Available Vac Num Connections 3

GDA2020 COORDINATES Lineage Datum

Latitude Longitude Ellipsoidal Height

9º 13' 49,43374" S 142º 13' 05.12897" F Hrz Posn Uncertainty 0.016m 76.931m

MGA2020 Northing 8979447.292m MGA2020 Zone 54 MGA2020 Point Scale 0.99982157

MGA2020 Easting

Vrt Posn Uncertainty 0.034m Published 18-May-2023 Adjustment OLD ANJ 23.05 MGA2020 Grid Conv. 0º 11' 44" GPS Fixed By

Latitude 9º 13' 49 48252" S

MGA94 Easting 633808.192m 8979445.797m MGA94 Northing

142º 13' 05.09884" E Longitude 77.045m Ellipsoidal Height

MGA94 Zone

NI N Section

GDA94 TRANSFORMED COORDINATES

54

AHD HEIGHT

SURVEY CONNECTIONS

Lineage Derived Height

Published

Source

Origin Mark

3.085m Vertical Uncertainty Class D / 5th ORDER 23-Mar-2009 GPS Fixed By

TORRES STRAIT ISLANDS CONTROL

Model: AUSGEOID98 INTERPOLATED / N Value: 73.411m

04-Mar-2016

SP273190 SP258861 02-Apr-2014 20_0<t-2010 SP241283

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Report created 03-Oct-2023 Page 1 of 3 CS177940 V1 Page 1 of 2 No: To Scale Form 6 - Version 2 Survey and Mapping Infrastructure Act 2003 DEPARTMENT OF NATURAL RESOURCES & WATER PERMANENT MARK SKETCH PLAN REGD NO. 177940 Province use Magnetic (Magnetic MCA) Decome on more Sketch Plan to be completed in accordance with the Department's QA document: Completion of Permanent Mark Sketch Plans' BOIGU ISLAND TORRES 75159 77940 (S/S Mini Mark) . 98° PP No 19.75 --- O'AR 3' ARMY RD 0.33 School Principal's Residence S/S Mini Mark Not to Scale Mark Type. Surted to GFS SCDB DETAILS ON REVERSE ARE TO BE COMPLETED YesNe rtify that the persuasees mark storich has been prepared in a with the Survey and Manning Infra-treature Act 2000 Van 12/05/200 DWITH JULY 08

Department of Natural Resources and Water Survey Control Database - Permanent Mark Data Sheet

Administrative Data	
Alternative Name I	Installed By NRW Nambour
Alternative Name 2	Date Installed 12/05/2008
Alternative Name 3	Date Last Visited
Alternative Name 3. Mini Mark Mark Type Mini Mark	Local DescriptionBolgu Island
	City or Town
Local Authority Torres Streit Island R	egionai
Vertical Control Data	
HeightDatumVe	rtical Accuracy - Order
Vertical Origin - Regn No	Height Datum
Geo-Sohd N	.DatumModel
Fixed By	Date
Horizontal Control Data	
Latitude L	ongitude
Latitude L Easting 533809 N Horiz Origin Lat 1	ong Datum
Latitude L Easting 533809 N Horiz Origin Lat 1	ong Datum
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Latitude Latitude Latitude S33809 L Control Color Colo	Class Fixed ByHittplii.GPS
Leitische I. Bestring	Class Fixed ByHittelii.GPS



Survey Control Mark Report

Local Authority

Num Connections

177941 BOI

NRW NAMBOUR

12-May-2008

OLD ANJ 23.05

DAMAGED

ADMINISTRATIVE DETAILS Town

TORRES STRAIT ISLAND REGIONAL

EAP.ZUUU.UUU1.U1U0

Locality Description

BOIGU ISLAND

Related Information Mark Type MINI MARK

Stem of mark remains vide SP258861

Installed By Installed Date Mark Condition

Mark Number

Alternate Names

Last Visitad 04-Mar-2016 Sketch Available Vac 2

Lineage

GDA2020 COORDINATES Datum

Latitude 9º 13' 46,21944" S

MGA2020 Easting 634117.030m 142º 13' 15.20724" F MGA2020 Northing 8979544.977m Longitude

Hrz Posn Uncertainty 0.016m MGA2020 Zone 54 Ellipsoidal Height 77.012m MGA2020 Point Scale 0.99982259 MGA2020 Grid Conv. 0º 11' 45"

Vrt Posn Uncertainty 0.034m GPS Published 18-May-2023 Fixed By

Adjustment

GDA94 TRANSFORMED COORDINATES

Latitude 9º 13' 46.26822" S MGA94 Easting 634116.104m 142º 13' 15,17707" E 8979543.481m Longitude MGA94 Northing

77.126m Ellipsoidal Height

MGA94 Zone 54

Lineage Derived

AHD HEIGHT 3.163m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By

Height Origin Mark Source

TORRES STRAIT ISLANDS CONTROL Model: AUSGEOID98 INTERPOLATED / N Value: 73.419m

SURVEY CONNECTIONS

NI N Section

SP273190 SP258861

04-Mar-2016 02-Apr-2014

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Report created 03-Oct-2023 Page 1 of 3

Form 6 - Version 2 Survey and Manning Infrastructure Act 2003 DEPARTMENT OF NATURAL RESOURCES & WATER

PERMANENT MARK SKETCH PLAN

REGD NO. 177941 Magnetic (Mugnetic, MGA) Distance on motors Sketch Plan in he completed in accordance with the Department's QA document. "Correlation of Permanent Mark Sketch Plans" TORRES STRAIT (Royal Aust. Navy Hydrographic Service ME079 Std. Bress Pleque) PM 177941 (S/S Mini Mark) Large Fig BOIGU ISLAND (centre) TS159 conut Palms NW Cor Hardi-plank Bldg (Police Station) S/S Mini Mark Not to Scale Mark Type. Some to GPS SCDB DETAILS ON REVERSE ARE TO BE COMPLETED Yest o I certify that the permanent mark sketch has been proposed in at with the Survey and Mapping techniqueum Act 2005.

The SCTR is the authoritative origins for coordinate and neight information the amount of the end of the introduction or construction of the master of the contract of the co

DWHAL JULY 08

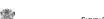
12/05/2008

CS177941 V1 Page 1 of 2 No: To Scale

EAP.2000.0001.0100

Department of Natural Resources and Water

Registered Number	
Administrative Data	
Alternstive Name 1 Alternstive Name 2 Alternstive Name 3 Mark Typ S.S. Mini Mark. Mark Condition S.C. Mark Mark Condition ORNAN Local Authority Torres St. Island Regional	Installed By MRW Nambour Date Installed 12/05/2008 Date Last Visited. Local Description. Bioliqui Island. City or Town. Map Reference. 7373-42224
Vertical Control Data	
HeightVertical Ac	ecuracy - OrderClass
Vertical Origin - Rogn No	HeightDatum
Geo-Sphd N	Model
Horizontal Control Data	
Latitude Longitud Basting 634117 Northing Horiz Origin Lat Long	8979546 Datum. Datum. Datum.
Horizontal Adjustment	Fixed By HHeld GPS
Cadastral Connection Data	
Connected on Cadastral Plan No	
Comments	<u>.</u>
	SCDB 🗹
Details completed by	Chkd. 7/98
	Phone Date #1/8/2



ADMINISTRATIVE DETAILS

Alternate Names Related Information

Mark Number

Installed By

Town

Local Authority

TOPPES STRAIT ISLAND REGIONAL

186491 Locality Description BOIGU ISLAND

Suited to GNSS 10/07/2013 Mark Type

STAND ALISNORTH

Last Visitad Sketch Available

04-Mar-2016

EAP.2000.0001.0109

Installed Date 23-May-2013 Mark Condition GOOD

Vac Num Connections 3

GPS

54

GDA2020 COORDINATES Derived Lineage

142º 13' 22.20722" E

Latitude 9º 13' 50.52515" S

142º 13' 22.23736" F Longitude Hrz Posn Uncertainty 0.070m

MGA2020 Easting 634331.127m MGA2020 Northing 8979411.982m MGA2020 Zone

Ellipsoidal Height Vrt Posn Uncertainty MGA2020 Point Scale 0.99982330 MGA2020 Grid Conv. 0º 11' 46"

Published 18-Jan-2020 Adjustment

Fixed By TRANSFORMED TO GDA2020

GDA94 TRANSFORMED COORDINATES Latitude 9º 13' 50.57396" S

MGA94 Easting 634330.203m MGA94 Northing 8979410.486m

Longitude Ellipsoidal Height

AHD HEIGHT

MGA94 Zone

Lineage Derived Height

2.990m Vertical Uncertainty Class D / 5th ORDER

Published 28-May-2013 Fixed By GPS Origin Mark 177940 NI N Section

Source

SURVEY CONNECTIONS

SP273190 04-Mar-2016 SP258861 02-Apr-2014 05-Feb-2014 SP267922

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Form 6 - Version 4 Survey and Mapping Infrastructure Act 2003

PERMANENT SURVEY MARK PLAN

REGISTERED NO. 186491.....

Rearings are __MGA04 [200NE 51]______ (Magnetic, MGA) Distances are secret



Suited to ONSS	DETAILS ON REVERSE ARE TO BE COMPI	ÆTED
YearNo		
YES	Prepared by Brian Lane [AUSNORTH Consultants]	Date 16/07/2013
1	(registered person or public authority)	

Sance with the Figuretreen's Specification Conscious of Permanent Nature Marie History

EXP.2000.0001.0111

Survey Control Register - Permanent Survey Mark Data Sheet

Administrative Data	
Afternative Name 1: Afternative Name 2: Afternative Name 3: Mark type: STANDARD BRASS PLAQUE. Particle (MMAN) Location description: TOWNSHIP EASTERN EXTERNS	Installed by: AUSNORTH Consultants. Thate installed: 2305/2013 Date list violed: 0405/2013 Locality: BOIGU ISLAND City or from: BOIGU ISLAND Local givernment: Times Narial Island RC. 8, NORTH OF CONC SEA WALL
Note: The Survey Control Register is the authoritative so The vertical and horizontal data below may not be	
Vertical Control Data	
*Height: 2,990 *Datum: AHD Vertica	al Accuracy - "Order 4th "Class B
Vertical Origin - Regd No: PSM 177940 Height:	3.085 *Datum: AHD
Geo-Sphd N: Datum:	
Fixed By: Averaged Long-Period RTK GPS Network Ob	servations Dute: 28/05/2013
Horizontal Control Data	
Latitude: 9°13'50.5739" S 1.ongitude: 142°1	3°22.2073" E *Datum: GDA94
Easting: 634 330.203 'Northing: 8979 41	10.487
*Horiz Origin: PSM 177940 *Lat: 9°13'49.4824 S	*Long: 142°13'05.1008 F. *Datum: GDA94
l forizontal Adjustment: Torres Strait Islands Control	*Date
Horizontal Accuracy - Order 2nd Class B	*Fixed By: Averaged Long-Period F GPS Network Observations
· · · · · · · · · · · · · · · · · · ·	
Cudastral Connection Data	
·	d Land Boundary Framework Project
Cudastral Connection Data *Connected on Cadastral Plan No.: SP258861 Beigu Islan Comments	
Cudustral Connection Data	



GPS



Mark Number

Survey Control Mark Report

ADMINISTRATIVE DETAILS

186493 Alternate Names

Town Local Authority TORRES STRAIT ISLAND REGIONAL

Fixed By

Locality Description CNR S/W AFRODROMF RES

Related Information Suited to GNSS 10/07/2013

Mark Type STAND

Installed By ALISNORTH Last Visitad 04-Mar-2016 Installed Date 23-May-2013 Sketch Available Vac Mark Condition GOOD Num Connections 2

GDA2020 COORDINATES

Derived Lineage Latitude 9º 13' 56.23702" S

MGA2020 Easting 633406.633m 142º 12' 51.96416" F MGA2020 Northing 8979239.682m Longitude

Hrz Posn Uncertainty 0.070m MGA2020 Zone 54 Ellipsoidal Height MGA2020 Point Scale 0.99982024

Vrt Posn Uncertainty MGA2020 Grid Conv. 0º 11' 42"

Published 18-Jan-2020 Adjustment TRANSFORMED TO GDA2020

GDA94 TRANSFORMED COORDINATES

Latitude 9º 13' 56.28580" S MGA94 Easting 633405.709m

142º 12' 51.93403" E 8979238.187m Longitude MGA94 Northing MGA94 Zone 54 Ellipsoidal Height

AHD HEIGHT

Lineage Derived Height 2.646m Vertical Uncertainty Class D / 5th ORDER

Published 28-May-2013 Fixed By GPS Origin Mark 177940 NI N Section

SURVEY CONNECTIONS

SP258861 02-Apr-2014

04-Mar-2016

Source

SP273190

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Form 6 - Version 4 Survey and Mapping Infrastructure Act 2003

PERMANENT SURVEY MARK PLAN



This form is to be completed in accordance with the Department's Specification Completion of Permanent Natury Stark Plant

Survey Control Register - Permanent Survey Mark Data Sheet

Administrative Data	
Alternative Name 1: Alternative Name 2: Alternative Name 3: Mark type: STANDARD BRASS PLAQUE. Particle ORNAN ORNAN Location description: SOUTHWEST CORNER OF AER	Installed by: AUSNORTH Consultants Date installed: 2305/2013 Date last visited: 9406/2013 Locality: BOIGU ISLAND City or Town: BOIGU ISLAND Local government: Torses Strait Island RC ODROME RESERVE
Note: The Survey Control Register is the authoritative so The vertical and horizottal data below stray not be	ource for coordinate and height information. the current information regarding this mark.
Vertical Control Data	
Height: 2.646	al Accuracy - Order 4th Class B
Vertical Origin - *Regd No: PSM 177940 *Height:	3,085 *Datum: AHD
Geo-Sphil N: Datum:	
Fixed By: Averaged Long-Period RTK GPS Network Of	
1 And Dy. 21 chapter Long-1 and Relation in retards of	Date and Later a
Horizontal Control Data	
Horizontal Control Data *Lanjade: 9°13'56,2858" S	2°51.9340" F "Datum: GDA94
*Laritude: 9°13'56,2858" S	38,187 *Zone: 54
"Latitude: 9°13' 56.2858" S	38,187
*Laritude: 9°13'56,2858" S	38.187
Latitude: 9°13'56 2858" S. "Longitude: 142°1 "Easting: 633 405,708. "Northing: 8979 2 "Horiz Origin: PSM 177940." Jat. 9°13'10-4824 S. Ilsorizoatal Adjustment: Torras Strait islands Control.	38,187 Zone: 54 Long: 142°13°05.1008 € Datum: GDA94 *Date:
Latinude 913 56 2858" S. Looginule: 142*1 Enting: 633-405,708 Northing: 8979 2 Febra Origin: FSM 173940 1,34: 913-94-8324 S. Horizontal Adjournment: Torms Street Islands Control Librarontal Accounts; 'Order 2nd (Usass H	Zone: 54 Zone: 54 Long: 142*13*05.108 E Datum: GDA94 Thate: The State The St
**Latinder 9*13*56.2858* S. **Longitude: 142*1 **Earling 833.400.708. **Northing 979*2 **Verize Origin: PSM 177940 **Lat 9*13*404342 ** *Verize Origin: PSM 177940	"Zone: 54 "Long: 142"13'05.1008 E 'Datum: GDA94 "Isne: 142"13'05.1008 E 'Datum: GDA94 "Fixed By: Averaged Long-Per [10th Nithouts Observed and Lond Heundary Francowerk Project
Latinder 9*13*56,2858 S. **Longituder: 142**! **Earling 833 400,708. **Northings 9979 2** **Horizo Origin: IPSM 177940 ** Jase 9*13** 944852 4 S. ** **Lorizotal Adjournent: Tornes Stems Influenced Control	38.187 Zone: \$4 *Long: 142*13*05.1008 E * Dutame GDA94 **Date: **Fixed By: Averaged Long-Perf (IPS Network Observats) Id Land Heundary Framework Project





Lineage

Survey Control Mark Report

ADMINISTRATIVE DETAILS

Local Authority

Mark Number 189642 Alternate Names Town

TORRES STRAIT ISLAND REGIONAL

Locality Description ARMY/KADA ST BOIGU ISLAND

Derived

Related Information Suited to GNSS 10/07/2013

Mark Type MINI MARK

Installed By ALISNORTH Last Visitad 04-Mar-2016 Installed Date 23-May-2013 Sketch Available Vac

54

Mark Condition GOOD Num Connections 2

GDA2020 COORDINATES

Latitude 9º 13' 49.44864" S

MGA2020 Easting 633987.369m 142º 13' 10.96979" E MGA2020 Northing 8979446.226m Longitude Hrz Posn Uncertainty 0.070m MGA2020 Zone 54

Ellipsoidal Height MGA2020 Point Scale 0.99982216 Vrt Posn Uncertainty MGA2020 Grid Conv. 0º 11' 44"

GPS Published 18-Jan-2020 Fixed By

Adjustment TRANSFORMED TO GDA2020

GDA94 TRANSFORMED COORDINATES

Latitude 9º 13' 49-49742" S MGA94 Easting 633986.444m 142º 13' 10.93966" E Longitude MGA94 Northing 8979444.731m

Ellipsoidal Height

AHD HEIGHT

MGA94 Zone

Lineage Derived

Height 3.081m Vertical Uncertainty Class D / 5th ORDER

Published 28-May-2013 Fixed By GPS Origin Mark 177940 NI N Section

Source

SURVEY CONNECTIONS

SP273190 04-Mar-2016 SP258861 02-Apr-2014

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Form 6 - Version 4 Survey and Mapping Infrastructure Act 2003

PERMANENT SURVEY MARK PLAN

REGISTERED NO. 189642_

Harrings are ... MISAN (20No 54)........ (Magnetic, MGA) Distunces are meters



Salvan core

-1	- 1	30000 10 0.433	DETAILS ON REVERSE ARE TO BE COMPLETED
		Yes/No YES	Prepared by Trian Lanc [ALISNORTH Consultants]

The Covershood Survey Control Degister in the authorable yearch, the pro-climate and height information. The coordinate engineering information continued on this document may not be the outrest information regarding the mark.

EXP.2000.0001.0117

Survey Control Register - Permanent Survey Mark Data Sheet

Registered Number:189642

Administrative Data	
Alternative Name 1: Alternative Name 2: Merrative Name 2: MINI MARK (Steel Boit/Washer) Faish Mark condition: EXCELLENT ORNAN Location description: NOW TH EASTERN INTERSECTIO	Installed by: AUSNORTH Consulants Date installed: 24057013 Date last visited: 9406/2013 Locality: BOIGU ISLAND City or Town: BOIGU ISLAND Local government: Towns Smit Island RC DN (CONC PAVEMENT) KADA & ARMY ST
Note: The Survey Control Register is the authoritative so. The vertical and horizontal data below may not be	
Vertical Control Data	
Height: 3.081 *Datum: AHD Vertica	al Accuracy - Order 4th Class B
Vertical Origin = "Regd No: PSM 177940 "Eleight:	3.085 *Datum: AHD
Geo-Sphd N: Datum:	
Fixed By: Averaged Long-Period RTK GPS Network Ob	servations *Date: 28/05/2013
Hurizontal Control Data	
1.atitude: 9°13°49.4974" S Longitude: 142°15	3°10,9397" E *Datum: GDA94
Easting: 633 986.444 Northing: 8979 44	14.731 *Zone: 54
Horiz Orlgin: PSM 177940 Lat: 9°13'49.4824 S	"Long: 142°13"05.1008 E "Datum: GDA94
Horizontal Adjustment: Tomes Strait Islands Control	*Date:
Herizontal Accuracy - Order 2nd Class: B	*Fixed By: Averaged Long-Period RT GPS Network Observations
Cadaxtral Connection Data	
*Connected on Cadastral Plan No.: SP258861 Briga Islam	d Land Boundary Pramework Project
Comments	
Details completed by: Name Brian Lane	





Mark Number

Installed By

Lineage

Alternate Names

Survey Control Mark Report

ADMINISTRATIVE DETAILS Town

Related Information

S/W CNR LOT 5 ON TS159

Local Authority TORRES STRAIT ISLAND REGIONAL

189643 Locality Description Suited to GNSS 10/07/2013

Derived

Mark Type MINI MARK

ALISNORTH Last Visitad

04-Mar-2016

GPS

Installed Date 23-May-2013 Sketch Available Vac Mark Condition GOOD Num Connections 2

GDA2020 COORDINATES

Latitude 9º 13' 56.94305" S

MGA2020 Easting 633901.728m 142º 13' 08.18936" F MGA2020 Northing 8979216.307m Longitude Hrz Posn Uncertainty 0.070m MGA2020 Zone

Ellipsoidal Height MGA2020 Point Scale 0.99982188 Vrt Posn Uncertainty MGA2020 Grid Conv. 0º 11' 44"

Published 18-Jan-2020

Adjustment TRANSFORMED TO GDA2020

GDA94 TRANSFORMED COORDINATES Latitude 9º 13' 56.99186" S MGA94 Easting 633900.803m

142º 13' 08.15923" E Longitude MGA94 Northing 8979214.811m MGA94 Zone 54 Ellipsoidal Height

AHD HEIGHT

Fixed By

Lineage Derived

Height 2.468m Vertical Uncertainty Class D / 5th ORDER

Published 28-May-2013 Fixed By GPS Origin Mark 177940 NI N Section

Source

SURVEY CONNECTIONS

SP273190 04-Mar-2016 SP258861 02-Apr-2014

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Form 6 - Version 4 Stovey and Magning Infrastructure Act 2003

PERMANENT SURVEY MARK PLAN

REGISTERED NO. 189643.....

Terwings areMEA94 (2016): 54] (Magnotic, MGA) Distances are ments



The Covershood Survey Control Degister in the authorable yearch, the pro-climate and height information. The coordinate engineering information continued on this document may not be the outrest information regarding the mark.

EAP.2000.0001.0120

Survey Control Register - Permanent Survey Mark Data Sheet

Registered Number: 189643

Administrative Data	
Alternative Name (;	Installed by: AUSNORTH Consultants
Alternative Name 2:	Date installed: 23/05/2013
Alternative Name 3:	Date last visited: 04/06/2013
Mark type: MINT MARK (Steel Boit/Washer)	Locality: BOIGU ISLAND
Mark condition: EXCELLENT	*Local government: Torres Strait Island RC
Location description: SOUTH FASTERN CORNER AER	ODROME TAXIWAY IN CONC DRAIN
Note: The Survey Control Register is the authoritative sor The vertical and horizontal data below many not be	
Vertical Control Data	
Height: 2.468 'Datum: AHD Vertica	*
Vertical Origin - Regd No: PSM 177940 Height: 3	
Geo-Sphd N: Datum:	
Fixed By: Averaged Long-Period RTK GPS Network Ob	*Date: 28/05/2013
Harizontal Control Data	
Lecitude: 9°13'56.9919" S	
*Hasting: 633 900.803 *Northing: 8979 21	
Horix Origin: PSM 177940 *Lat: 9°13'49.4824 S	•
Horizoptal Adjustment: Torres Strait Islands Control	
Horizontal Accuracy - Order 2nd *Class: B	*Fixed By: Averaged Long-Period RTI GPS Network Observations
Cadastral Connectiun Data	
*Connected on Cadastral Plan No.: 51'258861 Boigu Island	1 Land Boundary Framework Project
Confector of Camada Fina Fox 37 2500 Fishing Confe	
Comments	
Details completed by: Name Brian Lauc	Date 10/07/2013



Expert Report of Matthew Barnes **BMT (OFFICIAL)**

Annex D Saibai results of survey checks and survey control mark reports

Table D.1. Saibai ground survey checks with survey control mark

Control mark number	GDA94 Easting (m)	GDA94 Northing (m)	AHD height (m)	Ground survey height* (m)	Difference (m)
SCR173502	677175.283	8962702.278	3.353	3.200	0.153
SCR173501	677186.674	8962697.194	2.793	2.843	-0.050
SCR123153	677208.177	8962686.439	2.983	3.017	-0.034

^{*}taken from 1 m grid DEM created from: X_60283674_SAIBAI_SURVEY.dwg

Table D.2. Saibai LiDAR survey checks with survey control mark

Control mark number	GDA94 Easting (m)	GDA94 Northing (m)	AHD height (m)	LiDAR survey height^ (m)	Difference (m)
123153	677208.177	8962686.439	2.983	2.237	0.746
123152	677216.753	8962662.568	2.989	2.263	0.726
177954	677208.177	8962686.439	2.983	2.366	0.703
112444	677963.793	8962881.755	2.747	1.909	0.839
173503	678501.138	8962946.814	2.264	1.526	0.738
Average difference (m) 0.750				0.750	
Standard deviation (m) 0.052			0.052		

[^]based on the average height of classified las points within 1 m radius of survey control mark





ADMINISTRATIVE DETAILS

Mark Number 112444

Alternate Names BALBALBAMIZ Town

GIII MELAWAI Local Authority TORRES STRAIT ISLAND REGIONAL

Last Visitad

SAIRAI WOVEN HUT SAIBAI GARDEN NEAR WOVEN HUT Locality Description

Related Information

Mark Type S/PIC

Installed By J READER 10-Dec-2013 Installed Date 22-Nov-1995 Sketch Available Yes Mark Condition GOOD Num Connections 2

GDA2020 COORDINATES

Datum Lineage Latitude 9º 22' 42.86064" S MGA2020 Easting 677964.717m

142° 37' 14.30890" E MGA2020 Northing 8962883.248m Longitude Hrz Posn Uncertainty 0.018m MGA2020 Zone Ellipsoidal Height 76.941m MGA2020 Point Scale 0.99999194

Vrt Posn Uncertainty 0.043m MGA2020 Grid Conv 0º 15' 51" Published 18-May-2023 Fixed By GPS

Adjustment QLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

9º 22' 42,90938" S Latitude MGA94 Easting 677963.793m 142º 37' 14.27884" E MGA94 Northing 8962881.755m

Longitude Ellipsoidal Height 77.055m MGA94 Zone 54

AHD HEIGHT

Derived

Lineage 2.747m Height Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 Fixed By GPS

Origin Mark NLN Section Source TORRES STRAIT ISLANDS CONTROL

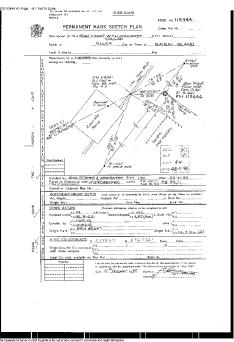
Model: AUSGEOID98 INTERPOLATED / N Value: 73.748m

SLIPVEY CONNECTIONS

SP248422 10-Dec-2013 SP253561 12-Mar-2012

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EAP.2000.0001.0123



The Conenstand Survey Control Register is the authorative course for coordinate and height information. The coordinate and height information contained on this becament may not be the current information requesting this mark





ADMINISTRATIVE DETAILS

Mark Number 123152 Alternate Names POOR FOR GNSS

SAIRAI SHEDROI T

Town Local Authority

TORRES STRAIT ISLAND REGIONAL

Locality Description SAIBAI ISLAND BEHIND SHED

Related Information

STAND C&R 15-Mar-2001 GOOD

Last Visitad

24-Sep-2009

677217.678m

677216.753m

8962664.060m

Mark Type Installed By Installed Date Mark Condition

Sketch Available Vac 2

Lineage

GDA2020 COORDINATES

Latitude 9º 22' 50.10679" S Longitude

Vrt Posn Uncertainty 0.042m

Datum 142º 36' 49.85802" F Hrz Posn Uncertainty 0.020m

77.182m

MGA2020 Easting MGA2020 Northing MGA2020 Zone MGA2020 Point Scale 0.99998865 Fixed By

Num Connections

54 MGA2020 Grid Conv. 0º 15' 47" GPS

Ellipsoidal Height Published Adjustment

Latitude

Longitude

Published

Source

Origin Mark

Ellipsoidal Height

18-May-2023 QLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES 9º 22' 50.15550" S MGA94 Easting

77.296m

142° 36' 49.82792" E

8962662.568m MGA94 Northing MGA94 Zone 54

AHD HEIGHT

Lineage Derived Height

2.989m 23-Mar-2009 Vertical Uncertainty Class D / 5th ORDER Fixed By NI N Section

GPS

TORRES STRAIT ISLANDS CONTROL Model: AUSGEOID98 INTERPOLATED / N Value: 73.742m

SURVEY CONNECTIONS

SP230804 SP130205

24-Sen-2009 03-Apr-2001

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QUEENSLAND - DEPARTMENT OF NATURAL RESOURCES

PERMANENT MARK SKETCH PLAN

REGD NO. ___123152_



Bearings are <u>Mognetic</u> (Magnetic, AMG) Distances are metres.

Settle plate to be consisted in occarcious with the Department's QA document:

"Originates of Perments Mark Selects Place." 3 TS:57 SAIBALISLAND 59/39205 **PSM**

Mork "ype __ _ Standard _ _ _

Scale 1:300

SCOR DETAILS ON REVERSE ARE TO BE COMPLETED I certify that the permanent mark sketch has been prepared in each the "The Survey Co-ordination Act of 1257 1889.

stata.

The SGRE is the authoritative to one the contract and be obtainformation to be account and for information to the contract and the contract an

EAP.2000.0001.0120

Department of Natural Resources

Survey Control Database - Permanent Mark Data Sheet Registered Number: _____123152_____

Alternative Nome	2:	Installed By: Date Installed: Date Last Visited:	86 CONSULTANTS PTY LTD _ACN 055.931096
Mark Type: Mark Candition:	Stendard	PSA: Locality Description	:SAIRALISLAND
Parish: Lacal Authority:	GlAKA Salhai:Community:Council	City or Town: Map Reference:	
Vertical Control	Data		
Height:	Vertical Accuracy - Orde	r Class	Datum:
Vertical Origin:	Regd No:	Height:	Datum:
Geo-	- Sphd N:	Dotum:	Model:
	Fixed By:	Dote:	1 M W V 1 M M M
Horizontal Contro			
	Lotitude:	Langitude:	Datum:
	Easting:	Northing;	Zone:
Horiz. Origin:	Latitude:	Longitude:	Datum:
	Easting:	Northing:	Zone:
Horizontal Adjust	ment:		
Horizontal Accura	icy - Order Cias		
Cadastral Connec	ction Data		7
Connected on Cas	dostral Plan No/s.: SPI3920	5	
Comments			scon [
			СНК
			DATE

Administrative Data



ADMINISTRATIVE DETAILS Town

Mark Number 123153 Alternate Names

BOLT IN RD CONC JOIN SAIRAI POAD ROLT ESPLANADE/SAIRALISLAND

Local Authority TORRES STRAIT ISLAND REGIONAL

 $\mathsf{E}\mathsf{A}\mathsf{P}.\mathsf{Z}\mathsf{U}\mathsf{U}\mathsf{U}.\mathsf{U}\mathsf{U}\mathsf{U}\mathsf{I}.\mathsf{U}\mathsf{I}\mathsf{Z}\mathsf{I}$

Locality Description Related Information

Lineage

Mark Type STAND

C&R Last Visitad

24-Sep-2009

677209.101m

54

Installed By Installed Date 15-Mar-2001 Sketch Available Vac Mark Condition DAMAGED Num Connections 2

GDA2020 COORDINATES

Latitude 9º 22' 49,33110" S

Datum 142º 36' 49.57333" F Longitude Hrz Posn Uncertainty 0.018m

MGA2020 Northing 8962687.931m MGA2020 Zone 54

MGA2020 Easting

Ellipsoidal Height 77.187m MGA2020 Point Scale 0.99998861 Vrt Posn Uncertainty 0.040m MGA2020 Grid Conv. 0º 15' 47" Published 18-May-2023 Fixed By GPS

Adjustment QLD ANJ 23.05

77.301m

GDA94 TRANSFORMED COORDINATES

MGA94 Zone

Latitude 9º 22' 49.37981" S MGA94 Easting 677208.177m 142º 36' 49.54327" E 8962686.439m Longitude MGA94 Northing

AHD HEIGHT

Lineage Derived Height

Ellipsoidal Height

2.983m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By Origin Mark NI N Section

TORRES STRAIT ISLANDS CONTROL Source

Model: AUSGEOID98 INTERPOLATED / N Value: 73.743m

SURVEY CONNECTIONS

SP230804 24-Sen-2009 SP130205 03-Apr-2001

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QUEENSLAND - DEPARTMENT OF NATURAL RESOURCES

PERMANENT MARK SKETCH PLAN

REGD NO. ___123153____



PSM 123153

General Month of M

Mark Type____Standard .___

Scale 1:300

Suited to SPS

Yes Alley Yes

Dote

15/03/01

SCDB DETAILS ON REVERSE ARE TO BE COMPLETED

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with the "the Survey Co-ordination had at 18(2-1899)"

Date 3/4/01 Synot.re # 50 Beginned Surveyor L. consol

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EAP.2000.0001.0129

Department of Natural Resources

Survey Control Database - Permanent Mark Data Sheet

Begistered Number:____123153____

	:	Date Installed:	ONSULTANTS PTY LTD ACN 055-931 096 15/03/01
Mark Type: Mark Condition:	Standard	PSA: Locality Description:	SAIBALISLAND
Parish: Local Authority:	GIAKA Salbai Community Council	City or Town: Map Reference:	
Vertical Control L)eta		
Height:	. Vertical Accuracy - Orde	r Closs	Dolum:
Vertical Origin:	Regd No:	Height:	Datum:
Geo-	-Sphc N:	Datum;	Model:
	Fixed By:	Date:	
Horizontal Contro	J Date		
	Lotitude:	Longitude:	Datum:
	Easting:	Northing:	Zone:
Horiz. Origin:	Latituce:	Longitude:	Datum:
	Easting:	. Nortning:	Zone:
Horizontal Adjustr	ment:		
Harizontal Accura	cy - Grder Clus	s: Fixed By:	
Cadastral Connec	tion Data		,
Connected or Coo	lastra Plan No/s.: SPI3920	5	
			SCDB
	a by: C&B CONSULTANTS P		DATE

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Administrative Date



Mark Number

Mark Type

Survey Control Mark Report

SAIBAI JETTY ABUTMENT Locality Description

Alternate Names

Related Information

Installed By NPW Installed Date 01-Jan-2000

Mark Condition GOOD

173501

173502 JETTY ABUT

SAIBAI SS JETTYSCREW

SAIRAI JETTY RM1

9º 22' 48.98420" S

142° 36' 48.86698" E

Datum Lineage

Hrz Posn Uncertainty 0.017m Ellipsoidal Height 76.981m Vrt Posn Uncertainty 0.039m

Published 18-May-2023 QLD ANJ 23.05

Adjustment

Latitude

Longitude

9º 22' 49.03295" S Latitude 142º 36' 48.83688" E Longitude

77.095m

23-Mar-2009

TORRES STRAIT ISLANDS CONTROL

Model: AUSGEOID98 INTERPOLATED / N Value: 73.743m

Ellipsoidal Height

Derived Lineage Height 2.793m

Published Origin Mark Source

SP296838 30-Aug-2017 SP230804 24-Sep-2009

ADMINISTRATIVE DETAILS

Town Local Authority

TOPPES SHIPE

EAP.2000.0001.0130

OTHER STEEL BOLT IN CONC OF STRUCTURE Last Visited 30-Aug-2017

Sketch Available Yes Num Connections 2

GDA2020 COORDINATES

MGA2020 Easting 677187.599m MGA2020 Northing 8962698.687m MGA2020 Zone

MGA2020 Point Scale 0.99998852 MGA2020 Grid Conv 0º 15' 47" Fixed By GPS

GDA94 TRANSFORMED COORDINATES MGA94 Easting

> MGA94 Northing MGA94 Zone

8962697.194m 54

677186.674m

Vertical Uncertainty Class D / 5th ORDER GPS

NLN Section

SLIPVEY CONNECTIONS

Fixed By

AHD HEIGHT

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Form 6 Survey and Mapping Infrastructure Act 2003 DEPARTMENT OF NATURAL RESOURCES & WATER

PERMANENT MARK SKETCH PLAN

REGD NO. ____173501____

Sketch plan to be completed in accordance with the Department's GA document; "Completion of Permanent Mark Sketch Plane"

"Saibai Jetty Abutment"

Bearings are __Mognetic__(Magnetic, M(sA) Bistances are metres

Torres Strait1.0 -11/1/2 plastic treads PM 173501 (No tag) (SES book in conc _ no tog) PM 173502 ... stainless steel screw in concrete at south end of jetty mesh steel grate western end of concrete road FS 31 SAIBAI ISLAND (PMs 17350) & 173502 are Tide Gauge RMs)

Mark Typs Steel bolt in conc. of structure

Not - to - Scale

١	ı	Suited to QPS	SCDB DETAILS ON REVERSE ARE TO BE COMPLETED
		Yes/No Yes	certify that the permanent mark sketch has been prepared in opcordance with the "Survey and Mapping Infrastructure Act 2007.
I		Date 16/5/2008	0ote 2/12/2005 Signoture VIW./1100051





Lineage

Adjustment

Survey Control Mark Report

ADMINISTRATIVE DETAILS

Mark Number 173502 Alternate Names SAIBAI BARGERAMP RM2 Town SAIRAI TIDE RM 2 TORRES STRAIT ISLAND REGIONAL Local Authority

Locality Description Related Information

SAIRAL CONC FOOTING NEAR RAMP

Mark Type OTHER STEEL BOLT IN CONC AT SURFACE Installed By HINKNOWN Last Visitad 24-Sep-2009

Installed Date 01-Jan-2000 Sketch Available Vac Mark Condition GOOD Num Connections 1

GDA2020 COORDINATES

Datum

QLD ANJ 23.05

Latitude 9º 22' 48.82048" S MGA2020 Easting 677176.207m

142º 36' 48.49286" F MGA2020 Northing 8962703.770m Longitude Hrz Posn Uncertainty 0.017m MGA2020 Zone 54

Ellipsoidal Height 77.541m MGA2020 Point Scale 0.99998847 Vrt Posn Uncertainty 0.039m MGA2020 Grid Conv. 0º 15' 47"

Published 18-May-2023 Fixed By GPS

Latitude 9º 22' 48.86918" S MGA94 Easting 677175.283m

142° 36' 48,46280" E Longitude MGA94 Northing 8962702.278m MGA94 Zone 54 Ellipsoidal Height 77.655m

AHD HEIGHT

GDA94 TRANSFORMED COORDINATES

Lineage Derived

Height 3.353m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By Origin Mark NI N Section

TORRES STRAIT ISLANDS CONTROL Source

Model: AUSGEOID98 INTERPOLATED / N Value: 73.744m

SURVEY CONNECTIONS

24-Sep-2009

SP230804

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Form 6 Survey and Mapping Infrastructure Act 2003 DEPARTMENT OF NATURAL RESOURCES & WATER

PERMANENT MARK SKETCH PLAN

REGD NO. 173502

"SAIBAI ISLAND BARGE RAMP"

Bearings are __Mognetic __ (Magnetic, MGA) Distances are metres Seeth plon to be completed in accordance with the Department's GA document: Completion of Permanent News States Press;

Torres Strait



PM173502 is SAIBAI TIDE RM 2

Mark Type STEEL BOLT IN CONC AT SURFACE

Not - to - Scale

١	Suited to OPS	SCDB DETAILS ON REVERSE ARE TO BE COMPLETED
ļ	Yes/No Yes Jule	1 certify that the permanent most sketch has been presoned in occordance with the Servey and Mapping Internstructure Act 1902 Date 2/12/2009 Signature MW. Module to
- 1	16/05/2008	

The Coversional Survey Control Register is the authorable yourse for proclamate and height information like coordinate and height information contained on the document may not be the outrest information regarding this mark





Lineage

Survey Control Mark Report

ADMINISTRATIVE DETAILS

Mark Number 173503 Alternate Names Town

SAIBAI RASC C548 SAIRAI WINDSOCK

TORRES STRAIT ISLAND REGIONAL Local Authority

18-Mar-2014

Locality Description SAIBAI MUDFLAT NEAR WINDSOCK

Related Information

Mark Type OTHER BRONZE PLAQUE IN CONC AT SURFACE

Installed By PASC Last Visitad Installed Date 01-Jan-1970 Sketch Available

Vac Mark Condition GOOD Num Connections 5

GDA2020 COORDINATES

Latitude 9º 22' 40.66234" S

Datum

MGA2020 Easting 678502.062m 142º 37' 31.91023" F MGA2020 Northing 8962948.306m Longitude MGA2020 Zone 54

Hrz Posn Uncertainty 0.017m Ellipsoidal Height 76.460m MGA2020 Point Scale 0.99999431 Vrt Posn Uncertainty 0.039m MGA2020 Grid Conv. 0º 15' 54"

Published 18-May-2023 Fixed By GPS Adjustment OLD ANJ 23.05

Latitude 9º 22' 40.71104" S MGA94 Easting 678501.138m

142° 37' 31.88017" E 8962946.814m Longitude MGA94 Northing 76.574m MGA94 Zone 54 Ellipsoidal Height

AHD HEIGHT

GDA94 TRANSFORMED COORDINATES

Lineage Derived Height

2.264m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By Origin Mark NI N Section

TORRES STRAIT ISLANDS CONTROL Source

Model: AUSGEOID98 INTERPOLATED / N Value: 73.750m

SURVEY CONNECTIONS

18-Mar-2014 SP267930 SP267929 05-Feb-2014 SP248422 10-Dec-2013 SP253561 12-Mar-2012 SP241281 03-Nov-2010

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Form 6 Survey and Mapping Infrastructure Act 2003 DEPARTMENT OF NATURAL RESOURCES & WATER

PERMANENT MARK SKETCH PLAN

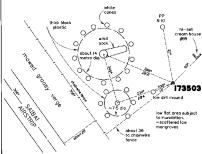
REGD NO. ___173503____

"Saibai Island Windsock"

Bearings are _______(Magnetic, ____(Magnetic, MGA) Distances are metres Sketch plus to be quadeled in accordance with the Department's OA document; Consideration of Permanent Work Sector Planci

Note: PMI73503 is RASC Plaque "C548"

swampy area



Mark Type Branze plaque in conc. at surface
(Stamped "C548" - SCDB # Not stamped)

Not - to - Scale

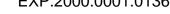
SUBB DETAILS ON REVERSE ARE TO BE COMPLETED

Ten/No yes

Cete 2 12 2005

Sub 2005

Sub





ADMINISTRATIVE DETAILS
Mark Number 177952

Alternate Names AIRPORT MONUMENT Town
SAIBAI AIRPORT Local Authority TORRES STRAIT ISLAND REGIONAL

Fixed By

GPS

SBI2
Locality Description TOP OF SAIBAI AIRPORT MONUMENT

Locality Description Related Information

Lineage

Published

Source

SP267930

Mark Type MINI MARK

Installed By MALLET/ROSS Last Visited 18-Mar-2014

Installed Date 16-May-2008 Sketch Available Yes
Mark Condition GOOD Num Connections 6

GDA2020 COORDINATES

Latitude 9° 22' 34.85647" S MGA2020 Easting 678151.176m

 Longitude
 1.42° 37' 20.38292° E
 MGA2020 Northing
 8963128.303m

 Hrz Posn Uncertainty
 0.017m
 MGA2020 Zone
 54

 Ellipsoidal Height
 78.395m
 MGA2020 Point Scale 0.99999276

Adjustment QLD ANJ 23.05

18-May-2023

Datum

GDA94 TRANSFORMED COORDINATES

Latitude 9º 22' 34.90518" S MGA94 Easting 678150.252m

 Longitude
 142° 37' 20.35286" E
 MGA94 Northing
 8963126.811m

 Ellipsoidal Height
 79.049m
 MGA94 Zone
 54

AHD HEIGHT

 Lineage
 Derived

 Height
 4.733m
 Vertical Uncertainty
 Class D / 5th ORDER

Published 23-Mar-2009 Fixed By GPS

 Published
 23-Mar-2009
 Fixed By

 Origin Mark
 NLN Section

TORRES STRAIT ISLANDS CONTROL
Model: AUSGEOID98 INTERPOLATED / N Value: 73.756m

SLIBVEY CONNECTIONS

SURVET CONVECTIONS

 SP248422
 10-Dec-2013

 SP248421
 20-May-2013

 SP253561
 12-Mar-2012

 SP241281
 03-Nov-2010

 SP230811
 11-Oct-2009

18-Mor-2014

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Form 6 Survey and Mapping Infrastructure Act 2003 DEPARTMENT OF NATURAL RESOURCES & WATER

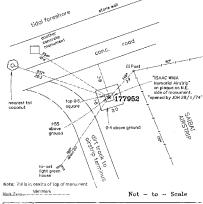
PERMANENT MARK SKETCH PLAN

REGB NO. 177952
"SAIBAI AIRPORT MONUMENT"

Bearings are __mognetic__(Megnetic, MGA) Distances are metres

Sketch plan to be completed in occardance with the Department's GA document.

Completion of Permanent Mark Sketch Flora



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SCDB DETAILS ON REVERSE ARE TO BE COMPLETED

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16/05/2009

Page 3 of 3

Department of Natural Resources & Water

Survey Control Database - Permanent Mark Data Sheet

Registered Number:____177952____

	· · · · · · ·
Administrative Data	
Alternative Name 1: _Airport Monument. Alternative Name 2: _ Solibai Airport _ Alternative Name 3: Mini Mark _ Mark Type: Mini Mark _ Mark Condition: Good _ Parish: Gilda Local Authority:Tortes Strait_IslangtRegional	Installed By: Natural Beasurces & Water Date Installed: IS/20/2008 Date Lost Visited: VS/2000 Local Description/DS of Sabbil Aliport Monume City or Town. Map Reference:
Vertical Control Data	
Height:Datum:A.H.DVer	tical Accuracy - OrderClass
Vertical Origin - Regd No:	leight: Datum: A.B.D
Geo-Sphd N: Dotum:	Model: Date:
Horizontal Control Data	
Easting: Northing Horiz Origin: Lat:	te:
Harizontal Ad Justment: Class: Class: _	
Cadastrai Connection Data	
Connected on Cadastral Plan No.:	
Comments	
Octails completed by:David Mallet	
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ADMINISTRATIVE DETAILS Mark Number 177954

Alternate Names SAIBAI GUN GUN BOYS Town SAIRAI WASHRAY Local Authority TORRES STRAIT ISLAND REGIONAL

SBI SAIRAI WASHRAY NEAR DEPOT Locality Description

Related Information

Lineage

Adjustment

Mark Type MINI MARK

Installed By MALLET/POSS Last Visitad 05-Feb-2014 Installed Date 15-May-2008 Sketch Available Yes

Mark Condition GOOD Num Connections 3

GDA2020 COORDINATES

Latitude 9º 22' 50.08825" S MGA2020 Easting 677228.731m 142º 36' 50.22022" E MGA2020 Northing 8962664.579m Longitude

Hrz Posn Uncertainty 0.017m MGA2020 Zone Ellipsoidal Height 77.258m MGA2020 Point Scale 0.99998870 MGA2020 Grid Conv 0º 15' 47"

Published 18-May-2023

Vrt Posn Uncertainty 0.039m

Datum

9º 22' 50.13696" S Latitude MGA94 Easting 677227.807m

142º 36' 50.19016" E MGA94 Northing Longitude 8962663.086m Ellipsoidal Height 77.372m MGA94 Zone 54

AHD HEIGHT

Derived

QLD ANJ 23.05

Lineage Height 3.069m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 Fixed By GPS

Origin Mark NLN Section Source TORRES STRAIT ISLANDS CONTROL

Model: AUSGEOID98 INTERPOLATED / N Value: 73.742m

SLIPVEY CONNECTIONS

Fixed By

GDA94 TRANSFORMED COORDINATES

GPS

SP267929 05-Feb-2014 SP241282 03-Nov-2010 SP230804 24-Sep-2009

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Department of Natural Resources & Water

Survey Control backbase - Fermanent wark back Sheet				
Registered Number: 177954				
Administrative Data				
Alternative Norme 1: SABBA MASH BAY. Alternative Norme 2: MACHINERS PVI. Alternative Norme 3: SABBA USA USA USA USA USA USA USA USA USA US				
Vertical Control Data				
Helght:Datum:A.H.DVertical Accuracy - OrderClass				
Vertical Origin — Regd No: Height: Datum:A.H.D				
Geo-Sphid N: Model: Fixed By: Date:				
Horizontal Control Dets				
Lotitude: Lorgitude: Datum: MS& Easting: Northing: Zone: 54 Horiz Origin: Lat: Long: Joatum: MSA MGA MGA MGA MGA				
Horizontol Adjustment: Class: Fixed By:				
Cadastral Connection Data				
Connected on Cadastral Plan No.:				
SCOB G				
DATE VIZAS				

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ADMINISTRATIVE DETAILS

Mark Number 177956

Alternate Names COUNCIL WORK DEPOT Town SAIRAI MANHOI F Local Authority

TORRES STRAIT ISLAND REGIONAL SRI1

SAIBAI SEWER MANHOLE Locality Description

Related Information

Lineage

Ellipsoidal Height

Source

SP267929

Mark Type MINI MARK

Installed By MALLET/POSS Last Visitad 05-Feb-2014 Installed Date 15-May-2008 Sketch Available Yes

Mark Condition GOOD Num Connections 4

GDA2020 COORDINATES Datum

Latitude 9º 22' 51.63398" S MGA2020 Easting 677267.576m 142º 36' 51.50052" E MGA2020 Northing 8962616.910m

Longitude Hrz Posn Uncertainty 0.017m MGA2020 Zone Ellipsoidal Height 77.197m MGA2020 Point Scale 0.99998887

Vrt Posn Uncertainty 0.039m MGA2020 Grid Conv 0º 15' 48" Published 18-May-2023 Fixed By GPS

Adjustment QLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

9º 22' 51.68269" S Latitude MGA94 Easting 677266.652m 142º 36' 51.47046" E MGA94 Northing 8962615.418m Longitude

77.311m

05-Feb-2014

AHD HEIGHT Derived Lineage

Height 3.010m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 Fixed By GPS

Origin Mark NLN Section

TORRES STRAIT ISLANDS CONTROL

Model: AUSGEOID98 INTERPOLATED / N Value: 73.741m

SLIPVEY CONNECTIONS

MGA94 Zone

54

SP248421 20-May-2013 03-Nov-2010 SP241282 SP230804 24-Sep-2009

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EAP.2000.0001.0144

Department of Natural Resources & Water

Survey Control Database - Permanent Mark Data Sheet

Registered Number:	177956	_	
Administrative Data			
Alternative Name 1: Counc Alternative Name 2: Saik Alternative Name 3: Saikai Mark Type:	al Manhale Swamp Edge tlaimark Good	Installed By:Noturel Re Date Installed:15/ Date Last Visited:R4/ Local Description: Salhai S City or Town: Map Reference:	05/2008 9/2009 Sewer Manhole
Vertical Control Data			
Height:Dotum	n:A.H.D Vertic	cal Accuracy - Order	Class
Vertical Origin — Regd No: .	Hel	ight:Datum:_	A.H.D
Geo-Sphd N:		Model: Date:	
Horizontal Control Data			
Easting:	Northing: .	Long:	Zone:54
Horizontal Adjustment: Horizontal Accuracy = Ore	der Class:	Fixed By: _	
Cadastral Connection Date			
Connected on Cadastral Pi	on No.:		
			SCOS E
Dotails completed by:	David Mallet	Phone: 4688 106	COLALS ETAG

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Expert Report of Matthew Barnes **BMT (OFFICIAL)**

Annex E Poruma results of survey checks and survey control mark reports

Table E.1. Poruma ground survey checks with survey control mark

Control mark number	GDA94 Easting (m)	GDA94 Northing (m)	AHD height (m)	Ground survey height* (m)	Difference (m)
140484	726187.126	8888408.598	2.524	4.48	1.956
156559	726188.654	8888408.832	3.085	5.075	1.981
156560	726181.454	8888412.704	3.163	4.394	2.076
177937	726243.817	8888399.698	2.633	4.717	2.084

^{*}taken from 1 m grid DEM created from: PR142018-2.dwg; PR142018-3.dwg

Table E.2. Poruma LiDAR survey checks with survey control mark

Control mark number	GDA94 Easting (m)	GDA94 Northing (m)	AHD height (m)	LiDAR survey height^ (m)	Difference (m)
177937	726243.817	8888399.698	2.633	2.102	0.531
140886	726698.711	8888230.287	4.078	3.581	0.497
156563	726649.637	8888351.299	5.267	4.741	0.526
156562	726842.886	8888313.367	5.227	4.692	0.535
Average differer	nce (m)				0.522
Standard deviati	ion (m)				0.017

[^]based on the average height of classified las points within 1 m radius of survey control mark



Survey Control Mark Report

ADMINISTRATIVE DETAILS

MGA2020 Easting

Alternate Names Town Local Authority

140484

TORRES STRAIT ISLAND REGIONAL

EAP.2000.0001.0140

Locality Description COCONUT ISLAND BOAT RAMP

Mark Number

Installed Date

Lineage

Lineage

Related Information Installed By

Mark Type STAND

P ALIST NAVY Last Visitad 17-Sep-1991 Sketch Available

19-Aug-2014 Vac

726188.045m

54

Mark Condition GOOD Num Connections 11

GDA2020 COORDINATES

Latitude 10° 02' 57.98738" S

Datum

143º 03' 49.44564" F MGA2020 Northing 8888410.084m Longitude Hrz Posn Uncertainty 0.017m MGA2020 Zone 54

Ellipsoidal Height 76.786m MGA2020 Point Scale 1.00023311 Vrt Posn Uncertainty 0.040m MGA2020 Grid Conv. 0º 21' 37"

GPS Published 18-May-2023 Fixed By Adjustment QLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

Latitude 10° 02' 58.03595" S MGA94 Easting 726187.126m 8888408.598m Longitude 143° 03' 49,41576" E MGA94 Northing

76.899m Ellipsoidal Height

AHD HEIGHT

MGA94 Zone

NI N Section

Height 2.524m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By

Derived Origin Mark TORRES STRAIT ISLANDS CONTROL Source

Model: AUSGEOID98 INTERPOLATED / N Value: 73.830m

SURVEY CONNECTIONS

SP270862 SP151788 04-Sep-2002 19-Aug-2014 15234514 01- Jul-2014 SP148521 26-Feb-2002 BC843600 SP253569 15-Mar-2012 07-May-1992 SP253568 15-Mar-2012

SP253567 14-Mar-2012 SP253566 14-Mar-2012 SP248114 09-Aug-2011 SP246917 09-Jun-2011

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QUEENSLAND - DEPARTMENT OF NATURAL RESOURCES AND MINES

PERMANENT MARK SKETCH PLAN

REGD NO. ___140484__

CORAL SEA

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		V -3
Yes/No		Yes
Date	_	
,	34	-2002

SCDB DETAILS ON REVERSE ARE TO BE COMPLETED

1 cert'ly that the permanent mork sketch has been prepared in accordance
with the "The Survey Co-projection Act of 1959-4889".

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The experimental or cross a light mark is the countrier of the countriers and countriers are considered.

note__23-10-2002___

Department of Natural Resources and Mines Survey Control Database - Permanent Mark Data Sheet

Registered Number: ____140484____

Administrative D	nta		
Alternative Name	I:Mecmoid Six	Installed By:	Unknown
	2:	Date Installed:	7:5:1992
	3:	Date Last Visited:	/3:6:02
		Date Last Vigitor.	
Mark Type:	Standard	PSA:	
Mark Condition;	Good	Locality Description	Boat_Ramp
Parish:	Giaka	City or Town:	Coconut Island
Local Authority:	Coconut Is Comm C	Map Reference:	7577-44133
Vertical Control	Data		
Height:	Vertical Accuracy = Orde	sr Class	Datum:
Vertical Origin:	Regd No:	Height:	Datum: , ,
Geo	-Sphd N:	Datum:	Model:
	Fixed By:	Date:	
Horizontel Contr	ol Data		
	Lotitude:	Longitude:	Datum: _AG
	Easting:	Northing: _8.886	1240Zone:5
Horiz. Origin:	Lotitude:	Longitude:	Oatum:
	Easting:	Northing:	Zone:
Horizontal Adjusti	ment:		
	cy - Order Closs		
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Comments			
			SCDB

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Details completed by: ____R.J.Grandison_____ Phone:____30398568_

03/94 '02 FED 15:28 PAY 61 2 42215657

KAN HYDRO OFFICE

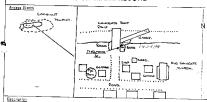
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ROYAL AUSTRALIAN NAVY HYDROGRAPHIC SERVICE

BENCH MARK RECORD



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Mark Number

Lineage

Survey Control Mark Report

ADMINISTRATIVE DETAILS

Alternate Names Related Information Gone vide SP270862 on 19/08/2014

Town Local Authority

TORRES STRAIT ISLAND REGIONAL

EAP.2000.0001.0100

Locality Description COCONUT ISLAND

Mark Type

STAND

Datum

140886

Installed By C&R Installed Date

Last Visitad 19-Aug-2014

19-Mar-2001 Sketch Available Vac Mark Condition NOT FOUND Num Connections 2

GDA2020 COORDINATES

Latitude 10° 03' 03.68464" S

143º 04' 06.27866" F Longitude Hrz Posn Uncertainty 0.018m

MGA2020 Easting 726699.630m MGA2020 Northing 8888231.774m MGA2020 Zone 54

Ellipsoidal Height 78.357m MGA2020 Point Scale 1.00023598 Vrt Posn Uncertainty 0.041m MGA2020 Grid Conv. 0º 21' 40"

GPS Published 18-May-2023 Fixed By Adjustment OLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

Latitude 10° 03' 03.73320" S MGA94 Easting 726698.711m 143° 04' 06.24878" E 8888230.287m Longitude MGA94 Northing

78.470m Ellipsoidal Height

MGA94 Zone 54

AHD HEIGHT

Lineage Derived Height

4.078m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By Origin Mark NI N Section

TORRES STRAIT ISLANDS CONTROL Source

Model: AUSGEOID98 INTERPOLATED / N Value: 73.843m

SURVEY CONNECTIONS

SP270862 19-Aug-2014 10-Mor-2001 SP130203



QUEENSLAND - DEPARTMENT OF NATURAL RESOURCES

PERMANENT MARK SKETCH PLAN

REGD NO. ____140886.___



Bearings are __MO@natic __(Magnetic, AMG) Distances are metres Sketch pase to be completed in occordance with the Department's OA document: Completin at Permanent little Stanch House 3 RC843608 75166 Caccout Island SMITOSON

Mork Type__ Euseh Mark in Ball

Scale 1:500

Fre-/No No Date 19/03/0 SCDH DETAILS ON REVERSE ARE TO BE COMPLETED

[cert/y that the permanent most statist has been presented in accuration with the "The Survey Co-mutantion Act of 1925-1926".

[Jacks.]

E70E7B09

Department of Natural Resources

Survey Control Database - Permanent Mark Data Sheet Registered Number: ____140886_____

Alternative Name	:	Installed By:	ACM 055 93: L96
Alternative Name i	2:	Date installed:	19_/03_/01
Alternative Name :	3:	Date Last Visited:	
Mark Type: Mark Condition:	Standard	PSA: Locality Description	COCONLITISLAND.
Porish: Local Authority:	GIAKA Pocuma Community Council	City or Town: Map Reference:	
Vertical Control	Pata		
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Vertical Origin:	Regd No:	Height:	Datum:
Geo-	-Sphd N:	Datum:	Model:
	Fixed By:	Dote:	
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	Fasting:	Northing:	Zone:
Horiz. Origin:	Latituce:	Longitude:	Detum:
	Easting:	Northing:	Zone:
Horizontal Adjusti	ment:		
Horizontal Accura	cy - Order Class	: Fixed	Ву:
Cadastral Connec	tion Data		
Connected on Coo	lastral Plan No/s.: SPJ39203		
Comments			
			SCDB
			DATE
Details completed	by: C&3 CONSULTANTS PT	للا Phone:	1Z)4D3J 1336

Administrative Data



Mark Number

Alternate Names

Survey Control Mark Report

Locality Description Related Information

Mark Type STAND

156559

GOOD

Datum

COCONUT ISLAND

SO5

Installed By **PAN HYDRO** Installed Date 01-Jan-2004

Mark Condition Lineage

Latitude 10° 02' 57.97939" S 143º 03' 49.49572" F Longitude Hrz Posn Uncertainty 0.017m Ellipsoidal Height 77.360m

Vrt Posn Uncertainty 0.041m Published 18-May-2023 Adjustment QLD ANJ 23.05

Latitude 10° 02' 58.02799" S 143° 03' 49,46587" E Longitude

77.473m Ellipsoidal Height

Lineage Derived Height 3.094m Published 23-Mar-2009

Origin Mark Source

SP270862 19-Aug-2014 01-101-2014 15234514

ADMINISTRATIVE DETAILS

Town Local Authority

TORRES STRAIT ISLAND REGIONAL

EAP.ZUUU.UUU 1.U 103

19-Aug-2014 Sketch Available Vac

726189.572m

54

GPS

8888410.320m

Num Connections 2 GDA2020 COORDINATES

Last Visitad

MGA2020 Easting MGA2020 Northing MGA2020 Zone MGA2020 Point Scale 1.00023312

MGA2020 Grid Conv. 0º 21' 37" Fixed By

GDA94 TRANSFORMED COORDINATES MGA94 Easting 726188.654m MGA94 Northing

8888408.832m 54

MGA94 Zone Fixed By

AHD HEIGHT

TORRES STRAIT ISLANDS CONTROL

Vertical Uncertainty Class D / 5th ORDER GPS NI N Section

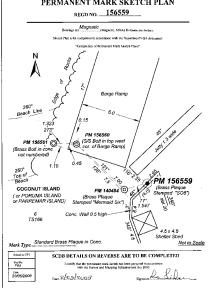
Model: AUSGEOID98 INTERPOLATED / N Value: 73.830m

SURVEY CONNECTIONS

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Form 6 - Version 2 Survey and Mapping Infrastructure Act 2003 DEPARTMENT OF NATURAL RESOURCES & WATER

PERMANENT MARK SKETCH PLAN



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Department of Natural Resources and Water Survey Control Database - Permanent Mark Data Sheet

Administrative Data	Royal Aust Navy
Alternative Name 1 SO5	Installed By Hydrographic Services Date Installed Unknown
Alternative Name 1	Date Installed Unknown
	Date Last Visited 20/05/2008
Alternative Name 3	Local Description. Coconut Island
	City or Town
	Map Reference
Local Authority Tomes Strait is Regional	-
Vertical Control Data	
HeightVertical Accu	racy - Order
Vertical Origin - Regn NoHei	
Geo-Sphd N	Model Date
Horizontal Control Data	
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Survey Control Mark Report

ADMINISTRATIVE DETAILS

MGA2020 Easting

EAP.ZUUU.UUU1.U100

01- Jul-2014

726182.374m

156560 Alternate Names Town

Local Authority TOPPES SHIPE

Locality Description COCONUT ISLAND Related Information

Mark Number

Lineage

Mark Type OTHER BOLT IN CONC

Installed By NPW NAMBOUR Last Visitad

Installed Date 20-May-2008 Sketch Available Vac Mark Condition GOOD Num Connections 1

GDA2020 COORDINATES

Datum Latitude 10° 02' 57.85490" S

143º 03' 49.25858" F MGA2020 Northing 8888414.191m Longitude

Hrz Posn Uncertainty 0.017m MGA2020 Zone 54 Ellipsoidal Height 76.580m MGA2020 Point Scale 1.00023308

Vrt Posn Uncertainty 0.040m MGA2020 Grid Conv. 0º 21' 37" GPS

Published 18-May-2023 Fixed By Adjustment QLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

Latitude 10° 02' 57.90350" S MGA94 Easting 726181.454m

Longitude 143° 03' 49.22870" E MGA94 Northing 8888412.704m 76.693m MGA94 Zone 54 Ellipsoidal Height

AHD HEIGHT

Lineage Derived Height

IS234514

copyright information.

2.318m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By

Origin Mark TORRES STRAIT ISLANDS CONTROL Source

01-Jul-2014

Model: AUSGEOID98 INTERPOLATED / N Value: 73.830m

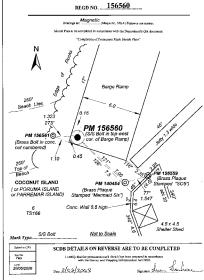
SURVEY CONNECTIONS

NI N Section

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Form 6 - Version 2 Survey and Mapping Infrastructure Act 2003 DEPARTMENT OF NATURAL RESOURCES & WATER

PERMANENT MARK SKETCH PLAN



Department of Natural Resources and Water

Survey Control Database - Permanent Mark Data Sheet

Registered Number156560		
Administrative Data	•	
Alternative Name 3	Installed By MRW Nam Date Installed 20/05/20 Date Last Visited Local Description C00009 City or Town Map Reference 7577-4	it Island
Vertical Control Data		•
HeightVertical Accuracy	/ - OrderClass	
Vertical Origin - Regn NoHeight.	Detum	
Geo-Sphd NDatum	Model Date	
Horizontal Control Data		
Latitude Longitude Northing 58:	Datum. Datum.	54
Horizontal Adjustment	Fixed By H/Held GF	ès
Cadastral Connection Data		
Connected on Cadastral Plan No		
Comments		
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Details completed by NRW Nambour Pt		Chkd DGB



Survey Control Mark Report

EAP.2000.0001.0109

726843.806m

ADMINISTRATIVE DETAILS

Alternate Names Town

Local Authority TORRES STRAIT ISLAND REGIONAL

MGA2020 Easting

Locality Description COCONUT ISLAND Related Information

Mark Number

Mark Type MINI MARK

156562

Installed By NRW NAMBOUR Last Visited 19-Aug-2014
Installed Data 20-May-2008 Sketch Available Ves

 Installed Date
 20-May-2008
 Sketch Available
 Yes

 Mark Condition
 GOOD
 Num Connections
 2

GDA2020 COORDINATES Lineage Datum

Latitude 10° 03' 00.95170" S

Longitude 143° 04' 10.99499" E MGA2020 Northing 8888314.855m
Htz Posn Uncertainty 0.017m MGA2020 Zone 54

 Hrz Posn Uncertainty
 0.017m
 MGA2020 Zone
 54

 Ellipsolidal Height
 79.504m
 MGA2020 Point Scale 1.00023679

 Vg Posn Uncertainty
 0.040m
 MGA2020 Grid Conv. 0º 21' 41"

 Vrt Posn Uncertainty
 0.040m
 MGA2020 Grid Conv
 0° 21' 4'

 Published
 18-May-2023
 Fixed By
 GPS

Adjustment QLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

Latitude 10° 03' 01.00030" S MGA94 Easting 726842.886m Longitude 143° 04' 10.96511" E MGA94 Northing 8888313.367m

Ellipsoidal Height 79.617m MGA94 Zone 54

AHD HEIGHT

Lineage Derived Height 5,227m

5.227m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 Fixed By GPS

Origin Mark NI Source TORRES STRAIT ISLANDS CONTROL

Model: AUSGEOID98 INTERPOLATED / N Value: 73.846m

SURVEY CONNECTIONS

NI N Section

SP270862 19-Aug-2014 SP258352 13-Nov-2012

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Form 6 - Version 2 Survey and Mapping Infrastructure Act 2003 DEPARTMENT OF NATURAL RESOURCES & WATER

PERMANENT MARK SKETCH PLAN

REGD NO. 156562

Planeings are Magnetic MGA) Distance are metres.

Sketch I'lun to be completed in accordance with the Department's QA decrescent



Mark Type S/S Bott in conc.

SCUB DETAILS ON REVERSE ARE TO BE COMPLETED

Saled to 12% Yes/Se Yes Date 20/05/2006

I certify that the permanent mark shotch has been prepared in accordat with the Survey and Mapping Infrastruature Act 2003.

12 ch manue 8005/00/100

Not to Scale

Department of Natural Resources and Water Survey Control Database - Permanent Mark Data Sheet

156562

Registered Number	
Administrative Data	
	Installed Dr. NRW Nambour
Alternative Name 1	Installed By
Alternative Name 2	Date Last Vicited
Alternative Name 3. Mark Type	Date Last Visited
Mark Type	City or Town
Mark Condition. Good	City or Town
Perish Giaka Local Authority Torres Strait Is Regional	Map Reference
Local Authority. 101788. Strant. 18. 1388/04/16	
Vertical Control Data	
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Vertical Origin - Regn NoH	eightDatum
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Connected on Cadastral Plan No	
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Details completed by NRW Nambour	Phone
	Onte. 11/0/2018





Mark Number

Survey Control Mark Report

ADMINISTRATIVE DETAILS

Related Information

Town Local Authority

TORRES STRAIT ISLAND REGIONAL

Alternate Names Locality Description COCONUT ISLAND

156563

Last Visitad

Mark Type MINI MARK

Installed By NRW NAMBOUR Installed Date 20-May-2008 Sketch Available Mark Condition GOOD Num Connections

19-Aug-2014 Vac

2

GDA2020 COORDINATES Lineage Datum

Latitude 10° 02' 59.75711" S 143º 04' 04.64246" F Longitude

MGA2020 Easting 726650.557m MGA2020 Northing 8888352.785m

Hrz Posn Uncertainty 0.018m Ellipsoidal Height 79.542m Vrt Posn Uncertainty 0.040m

MGA2020 Zone 54 MGA2020 Point Scale 1.00023571 MGA2020 Grid Conv. 0º 21' 40"

Published 18-May-2023 Adjustment QLD ANJ 23.05

GPS Fixed By

Latitude

GDA94 TRANSFORMED COORDINATES 10° 02' 59.80567" S MGA94 Easting 726649.637m

Longitude Ellipsoidal Height

143º 04' 04.61258" E 8888351.299m MGA94 Northing MGA94 Zone 54 79.655m

AHD HEIGHT

Lineage Height

Derived 5.267m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009

GPS Fixed By NI N Section

TORRES STRAIT ISLANDS CONTROL Source

Model: AUSGEOID98 INTERPOLATED / N Value: 73.841m

SURVEY CONNECTIONS

SP270862 SP258352

Origin Mark

19-Aug-2014 13-Nov-2012

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Form 6 - Version 2 Survey and Mapping Infrastructure Act 2003 DEPARTMENT OF NATURAL RESOURCES & WATER

PERMANENT MARK SKETCH PLAN

REGD NO. __156563

Bearings are Magantic (Magnetic, MGA) Distance are metres Slottch Plan to be completed in accordance with the Department's QA document

"Completion of Permanent Mark Sketch Plans"

Poruma Airstrip



S/S Bolt in Conc. Not to Scale Mark Type.

Salind to GFS SCDB DETAILS ON REVERSE ARE TO BE COMPLETED I verify that the permanent mark sketch has been prepared in a with the Survey and Manning Infrastructure Art 200 Yes 20/05/2004 210912008

Department of Natural Resources and Water

Survey Control Database - Permanent Mark Data Sheet

156563

Administrative Data		
Alternative Name 1	Installed By NRW Nac Date Installed 2005/20 Date Last Visited. Local Description. CC0072 City or Town. Map Reference	t Island
Vertical Control Data		
HeightVertical A	curacy - Order	
Vertical Origin - Regn NoI	leight	
Geo-Sphd N	Model Date	-
Horizontal Control Data Latinude Longitud Easting 720949 Northing. Horiz Origin Lat Long	8888350 Zone. Datum	
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Connected on Cadastral Plan No	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Comments		
		SCDB 📝
	Phone	Chkd 2058





Survey Control Mark Report

ADMINISTRATIVE DETAILS

GDA2020 COORDINATES

Mark Number 177937 Alternate Names POI1 Town

Local Authority

TOPPES SHIPE

Locality Description COCONUT ISLAND Related Information

Installed By

Mark Type MINI MARK

NRW NAMBOUR Last Visitad 19-Aug-2014

Installed Date 19-May-2008 Sketch Available Mark Condition GOOD Num Connections

Vac 1

Lineage Datum

Latitude 10° 02' 58.26534" S 143º 03' 51.30875" E Longitude

MGA2020 Easting 726244.737m MGA2020 Northing 8888401.186m MGA2020 Zone 54

Hrz Posn Uncertainty 0.017m Ellipsoidal Height 76.897m Vrt Posn Uncertainty 0.040m

MGA2020 Point Scale 1.00023343 MGA2020 Grid Conv. 0º 21' 37"

Published 18-May-2023 Adjustment QLD ANJ 23.05

GPS Fixed By

54

Latitude 10° 02' 58.31394" S 143° 03' 51.27887" E Longitude

MGA94 Easting 726243.817m 8888399.698m MGA94 Northing MGA94 Zone

77.010m

AHD HEIGHT

GDA94 TRANSFORMED COORDINATES

Lineage Derived Height 2.633m

Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By NI N Section

Origin Mark Source

Ellipsoidal Height

TORRES STRAIT ISLANDS CONTROL Model: AUSGEOID98 INTERPOLATED / N Value: 73.831m

SURVEY CONNECTIONS

SP270862

19-Aug-2014

S177937 V1 Page 1 of 2 Not To Scale Form 6 - Version 2 Survey and Mapping Infrastructure Act 2003 DEPARTMENT OF NATURAL RESOURCES & WATER PERMANENT MARK SKETCH PLAN 177937 REGD NO. .. Magnetic Sketch Plan to be completed in accordance with the Department's QA document "Completion of Persuancest Mark Sketch Plans" N Torres Strait Top of Barge Ramp 273 PM 177937 abt 70 0 aht 5m wide Coral Rock Grove Bank of Beach Abt 7.0 from PM to top of Beach 260 Top of Beach COCONUT ISLAND (or PORUMA ISLAND Track or PARREMAR ISLAND) TS166 NE cor. pevers 253 NW cor. Mark Type S/S Bolt in Conc Not to Scale Public Toilets pavers Spired to GPS

Yestio I certify that the permanent mark sketch has been propered in a Yes

SCDB DETAILS ON REVERSE ARE TO BE COMPLETED

Department of Natural Resources and Water Survey Control Database - Permanent Mark Data Sheet

177937

Registered Number	
Administrative Data	
	Terretted Dr. NRW Nambour
Alternative Name I	Installed By NRW Nambour Date Installed 19/05/2008
Alternative Name 2	Date I and Visited
Alternative Name 3	Date Last Visited
Mark Type	City or Town
Mark Condition. Good Parish. Giaka	City or Town
Local Authority. Tottes Strait Is. Regional	Map Resented
Local Authornycommenstmgp-9700	
Vertical Control Data	
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Fixed By	Date
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Comments	

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N/2M/ Nombour	
Details completed by NRW Nambour	Phone
	Triac (Appart)



726389.755m

54



Lineage

Ellipsoidal Height

Survey Control Mark Report

ADMINISTRATIVE DETAILS

Mark Number 700846 Alternate Names COCONUT ISLAND

C 242 Town COCONITIES Local Authority

TORRES STRAIT ISLAND REGIONAL

Locality Description Related Information

Mark Type STAND

Last Visitad 19-Aug-2014

MGA2020 Easting

Installed By PASC Installed Date 01-Jan-1968 Sketch Available Vac Mark Condition GOOD Num Connections 1

GDA2020 COORDINATES

Datum Latitude 10° 03' 05,13432" S

143º 03' 56.11374" E MGA2020 Northing 8888189.174m Longitude Hrz Posn Uncertainty 0.017m MGA2020 Zone 54

Ellipsoidal Height 82.300m MGA2020 Point Scale 1.00023424 Vrt Posn Uncertainty 0.040m MGA2020 Grid Conv. 0º 21' 38"

GPS Published 18-May-2023 Fixed By Adjustment QLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

MGA94 Zone

Latitude 10º 03' 05.18288" S MGA94 Easting 726388.835m 143° 03' 56.08386" E Longitude MGA94 Northing 8888187.687m

AHD HEIGHT Lineage Derived

Height 8.033m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By

Origin Mark NI N Section TORRES STRAIT ISLANDS CONTROL Source

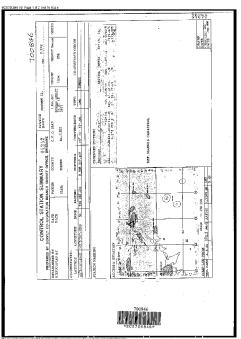
82.413m

Model: AUSGEOID98 INTERPOLATED / N Value: 73.835m

SURVEY CONNECTIONS

SP270862 19-Aug-2014

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The Covereint Survey Control Register is the authorative course for coordinate and height information.

The coordinate and height information contained on this negative is away as the outried information respective man-



Expert Report of Matthew Barnes **BMT (OFFICIAL)**

Annex F Warraber results of survey checks and survey control mark reports

Table F.1. Warraber ground survey checks with survey control mark

Control mark number	GDA94 Easting (m)	GDA94 Northing (m)	AHD height (m)	Ground survey height* (m)	Difference (m)
SCR089040	700145.955	8871454.82	3.516	3.141	0.375
SCR126629	699911.698	8871446.449	2.037	2.044	-0.007
SCR137968	699620.319	8871383.205	3.187	3.167	0.020
SCR177936	699375.016	8871304.092	3.549	3.553	-0.004

^{*}taken from 1 m grid DEM created from: PR148460-1_2d.dwg

Table F.2. Warraber LiDAR survey checks with survey control mark

Control mark number	GDA94 Easting (m)	GDA94 Northing (m)	AHD height (m)	LiDAR survey height^ (m)	Difference (m)
177935	699633.154	8870741.217	6.605	5.975	0.630
156564	699597.166	8871402.529	2.953	2.391	0.562
146550	699614.34	8871395.004	3.204	2.703	0.501
137967	699776.619	8871224.027	4.148	3.620	0.528
Average difference (m)					0.555
Standard deviation (m)					0.056

[^]based on the average height of classified las points within 1 m radius of survey control mark



700146.873m



Mark Number

Lineage

Alternate Names

Survey Control Mark Report

ADMINISTRATIVE DETAILS

Related Information

Town Local Authority

MGA2020 Easting

TORRES STRAIT ISLAND REGIONAL

89040 Locality Description WARRABER ISLAND

GI Nail in top of low concrete post

Mark Type R/INF

ALISTIC Last Visitad 03- Jun-2015

Installed By Installed Date 01-Jun-1989 Sketch Available Vac Mark Condition GOOD Num Connections 6

> GDA2020 COORDINATES Datum

Latitude 10º 12' 14,74571" S

142º 49' 37.53138" F MGA2020 Northing 8871456.310m Longitude Hrz Posn Uncertainty 0.020m MGA2020 Zone 54

Ellipsoidal Height 77.078m MGA2020 Point Scale 1.00009571 Vrt Posn Uncertainty 0.043m MGA2020 Grid Conv. 0º 19' 26"

Published 18-May-2023 Fixed By GPS Adjustment OLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

Latitude 10º 12' 14.79438" S MGA94 Easting 700145.955m 142° 49' 37.50150" E Longitude MGA94 Northing 8871454.820m

MGA94 Zone 54 Ellipsoidal Height 77.191m

AHD HEIGHT

Lineage Derived Height

SP270859

SP243810

SP180031

RC158819 SP150204

SP143316

copyright information.

3.516m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By Origin Mark NI N Section

TORRES STRAIT ISLANDS CONTROL Source

03-Jun-2015

24-Feb-2011

05-Apr-2005 04-Mar-2003

02-Apr-2002

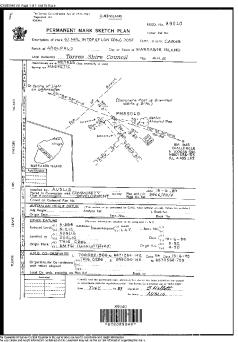
26-Jun-2001

Model: AUSGEOID98 INTERPOLATED / N Value: 73.131m

SURVEY CONNECTIONS

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Mark Number

Lineage

SP180031

DP172485

RC158819

copyright information.

Survey Control Mark Report

ADMINISTRATIVE DETAILS

Alternate Names Town

Local Authority TOPPES SHIPE

Locality Description WARRABER ISLAND Related Information

Mark Type OTHER METAL BOLT IN ROCK

126629

Installed By C&R Last Visitad 03- Jun-2015 Installed Date Sketch Available

30-May-2001 Vac Mark Condition GOOD Num Connections 9

GDA2020 COORDINATES

Datum Latitude 10º 12' 15.06121" S

MGA2020 Easting 699912.616m 142º 49' 29.83714" F MGA2020 Northing 8871447.938m Longitude

Hrz Posn Uncertainty 0.017m MGA2020 Zone 54 Ellipsoidal Height 75.587m MGA2020 Point Scale 1.00009455

Vrt Posn Uncertainty 0.036m MGA2020 Grid Conv. 0º 19' 24"

Published 18-May-2023 Fixed By GPS Adjustment QLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

Latitude 10º 12' 15.10985" S MGA94 Easting 699911.698m

142° 49' 29.80726" E Longitude MGA94 Northing 8871446.449m 75.700m MGA94 Zone 54 Ellipsoidal Height

AHD HEIGHT

Lineage Derived

Height 2.037m Vertical Uncertainty Class D / 5th ORDER Published 23-Mar-2009 GPS Fixed By

Origin Mark NI N Section TORRES STRAIT ISLANDS CONTROL

05-Apr-2005

17-May-2004

04-Mar-2003

Source Model: AUSGEOID98 INTERPOLATED / N Value: 73.125m

SURVEY CONNECTIONS

SP270859 03-Jun-2015 SP143316 26-Jun-2001 SP276810 07-Feb-2015 24-Feb-2011 SP243809 SP202805 30-Mar-2007

SP150204 02-Anr-2002 © The State of Queensland (Department of Resources) 2023. The State does not warrant that the copyright information provided to the client by this system is free from error. The State shall not be liable for any loss, damage or injury suffered by the client or any other person by the client's use of the

SCS129929 V1 Page 1 of 2 Not To Scale

QUEENSLAND - DEPARTMENT OF NATURAL RESOURCES

PERMANENT MARK SKETCH PLAN

REGD NO.___126629___



Bearings are ___ A.M.G. __ (Magnetic, AMG) Bistances are metres Sketch plan to be completed in accordance with the Separtment's 24 occurrent; Completion of Permanent Mark Search Plans? PSM 126629 15/7/ Scale 1:200

SCOB DETAILS ON REVERSE ARE TO BE COMPLETED

I comply that the permoteral mark seatch and cases respond in control for
all line the Survey Co-condition Act of 1832-1985.

run Mangle Tunnen Sullayor 15/

Department of Natural Resources

Survey Control Database - Permanent Mark Data Sheet

Registered Number:	126629	
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Administrative Data	
Authoritative Data	C&B CONSULTANTS PTY LTD
Alternative Name I:	Installed By: ACN 055 931 D96
Alternative Name 2:	Date Installed: 30/05/01
Alternative Name 3:	Dote Lost Visited:
Mark Type: Bolt in Rock	PSA:
Mark Condition:Good	Locality Description: Warcober (stand
Parish:Adolphus	City or Town:
Local Authority: Warraber Island Council	Map Reference:7477-13243
Vertical Control Data	
Height:Dctum:,Verti	ical Accuracy - OrderClass
Vertical Origin – Regd No: He	rignt:Dalum:
Geo-Sohd N: Deturn:_	Model:
Fixed By:	Dote:
_ ',	****
Horizontal Control Data	
Latitude: Longitude	
Easting: Northing:	7
Horiz Origin: Lat:	Long Datum:
Horizontal Adjustment:	
Harizontal Accuracy - Order Class:	Fixec By:
Cadastral Connection Data	
Connected on Codostrol Plan No.: _ SP143316_	
	faces [Z]-1
Comments	IND DIE
	I
	John Lillian
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Betails completed by: C&B Consultonis Ply U ACN 055 931 096	d_ Phone:07403)36

The Committee Statistics of the Region to the authorized powers to the Charles of Statistics of the Charles of



Mark Number

Lineage

Alternate Names

Survey Control Mark Report

ADMINISTRATIVE DETAILS Town

Related Information

Local Authority

TORRES STRAIT ISLAND REGIONAL

137967 Locality Description WARRABER ISLAND - MINI MARK

Mark Type R/INF

Installed By DITARDENT Installed Date 17-May-2004 Mark Condition GOOD

Last Visitad 03- Jun-2015 Sketch Available Vac Num Connections

2

54

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GDA2020 COORDINATES

Datum Latitude 10º 12' 22.32439" S Longitude

MGA2020 Easting 699777.537m 142º 49' 25.44074" F MGA2020 Northing 8871225.517m Hrz Posn Uncertainty 0.017m MGA2020 Zone 54

Ellipsoidal Height 77.702m MGA2020 Point Scale 1.00009388 Vrt Posn Uncertainty 0.036m MGA2020 Grid Conv. 0º 19' 24"

GPS Published 18-May-2023 Fixed By Adjustment QLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

Latitude 10º 12' 22.37303" S MGA94 Easting 699776.619m 142° 49' 25,41086" E Longitude MGA94 Northing 8871224.027m

Ellipsoidal Height 77.815m

AHD HEIGHT

MGA94 Zone

Lineage Derived Height

4.148m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By Origin Mark NI N Section

TORRES STRAIT ISLANDS CONTROL Source

Model: AUSGEOID98 INTERPOLATED / N Value: 73.122m

SURVEY CONNECTIONS

SP270859 03-Jun-2015 DP172485 17-May-2004

copyright information.

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SCS137967 V* Page 1 of 2 Not To Scale

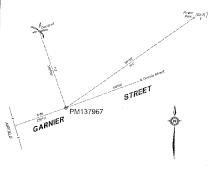


DEPARTMENT OF NATURAL RESOURCES, MINES & ENERGY

PERMANENT MARK SKETCH PLAN

REGD NO.____137967____

Bearings are ____EMC____(Wagnetic, MGA) Distances are metres Sketch plan to be completed in socondards with the Department's CA document;
Carpolation of Personner Many States Acces.



Mark Type MiNJ MARK ____ Scale 1:100

Suited to GPS 17/5/200 SCOB DETAILS ON REVERSE ARE TO BE COMPLETED certify that the permonent mark sketch has been proposed in occardence with the "The Survey Comordination Act of 1812—869". simon To Clared W

21/1:/01

The SCRR is the authoritative so one for cover note and be obtiniously on the cover has been highered under any experience of options of the cover two or the relief streets or other necessary transitions, or investmentations and information regarding this mark.

Department of Natural Resources, Mines & Energy

Survey Control Database - Permanent Mark Data Sheet

Registered Number: 137967	_
Administrative Data	
Alternative Name 1: Alternative Name 2: Alternative Name 3: Mint Mark 3: Mark Type: Mint Mark Mark Condition: Good Parish: ADOUP dus Local Authority Sue Island Community Council	Installed By
Vertical Control Data	
Height:	al Accuracy - OrderClass
Vertical Origin - Regd No: Hele	ght:
Geo-Sphd N: Detum: Fixed By:	Model: Date:
Huricontal Control Data	
Latitude: Langitude: Essting: Northing: Horiz Origin: Lat:	Zone: Zone:
Horizontol Adjustment: Class: Class:	Fixed By:
Cadastral Connection Data	
Connected on Codostral Plan No.:	
Comments	

350

Dotails completed by: ____David Tardent ___ Phone: (07) 5533 0327 _



Mark Number

Survey Control Mark Report

ADMINISTRATIVE DETAILS

Related Information

Town Local Authority

TORRES STRAIT ISLAND REGIONAL

Alternate Names Locality Description

MINI MARK - WARRABER ISLAND

17-May-2004

GOOD

137968

R/INF TARDENT

Last Visitad Sketch Available

24-Feb-2011 Vac 2

EAP.ZUUU.UUU1.U10U

Mark Type Installed By Installed Date Mark Condition Lineage

GDA2020 COORDINATES

Datum Latitude 10º 12' 17.17290" S

142º 49' 20.27644" F Longitude

Hrz Posn Uncertainty 0.018m Ellipsoidal Height 76.723m

TORRES STRAIT ISLANDS CONTROL

Model: AUSGEOID98 INTERPOLATED / N Value: 73.117m

Vrt Posn Uncertainty 0.037m Published 18-May-2023

Adjustment QLD ANJ 23.05

Latitude 10º 12' 17.22154" S 142° 49' 20.24656" E Longitude

Ellipsoidal Height 76.836m

Lineage Derived

Height 3.187m Published 23-Mar-2009

Origin Mark Source

DP172485

SP243809 24-Feb-2011

17-May-2004

MGA2020 Easting 699621.237m MGA2020 Northing 8871384.694m

Num Connections

MGA2020 Zone 54 MGA2020 Point Scale 1.00009311 MGA2020 Grid Conv. 0º 19' 23"

GPS Fixed By

GDA94 TRANSFORMED COORDINATES MGA94 Easting 699620.319m 8871383,205m MGA94 Northing

54

AHD HEIGHT

Vertical Uncertainty Class D / 5th ORDER Fixed By

MGA94 Zone

GPS NI N Section

SURVEY CONNECTIONS

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S03137908 V1 Page 1 of 2 Not To Scale



DEPARTMENT OF NATURAL RESOURCES, MINES & ENERGY

PERMANENT MARK SKETCH PLAN

REGD NO.____137968____

Bearings are.___SMG____(Hagnetic, MGA) Distances are metres Sketch plan to be completed in accordance with the Department's GA document; "Completion of Personnel Book Stellin Flanc" ETT PM137968 (Mark placed in expension joint) Picnic _MINIMARK__ Scale I: 100

Suited to OPS 17/5/2004

SCDB DETAILS ON REVERSE ARE TO BE COMPLETED I serbly that the permanen; make sketch has been prepared in conorconce with the Title Survey To ordination Act of 1952 1989.

Date: 10-6-04

821/1

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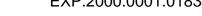
Department of Natural Resources, Mines & Energy

Survey Control Database - Permanent Mark Data Sheet

Administrative Data		
Alternative Name I: Alternative Name 2: Alternative Name 3: Mork Type: Mork Type: Mork Condition: ADQUEHUS: Local Authority: Sue Island Community Council	Installed By	WARRABER (SUE) ISLAM
Vertical Control Date		
Height:Datum:	al Accuracy — Order	Closs
Vertical Origin - Regd No: Heio	ght: Dol	ım:
Geo-Sphd N: Dotum: Fixed By:		·
Hozizontal Control Bata		
Latitude: Long'tude: Easting: Northing: Horiz Origin: Lat:	Long:	Zone:
torizontal Adjustment: Class: Class:		
Cadastral Connection Data		
Connected on Cadastral Plan No.: DEI72485 .		
omments		ясрв
		СНК
		DATE

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The resolution of experiences records retarble decaded to the first same interests appropriate the





Survey Control Mark Report

ADMINISTRATIVE DETAILS

Last Visitad

26-04-2017

Mark Number 146550 Alternate Names Town

Local Authority TORRES SHIRE

Locality Description WARRABER ISLAND

Related Information

Mark Type MINI MARK
Installed By UNKNOWN

Installed Date 01-Jan-2002 Sketch Available Yes

Mark Condition GOOD Num Connections 3

GDA2020 COORDINATES
Lineage Datum

Latitude 10° 12' 16.79000" S MGA2020 Easting 699615.258m Longitude 142° 49' 20.07782" E MGA2020 Northing 8871396.493m

 Hrz Posn Uncertainty
 0.017m
 MGA2020 Zone
 54

 Ellipsoidal Height
 76.747m
 MGA2020 Point Scale 1.00009308

Vrt Posn Uncertainty 0.035m MGA2020 Grid Conv 0º 19' 23"

 Published
 18-May-2023
 Fixed By
 GPS

 Adjustment
 QLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

Latitude 10° 12' 16.83864" S MGA94 Easting 699614.340m

Longitude 142° 49' 20.04794" E MGA94 Northing 8871395.004m

AHD HEIGHT

76.860m

Lineage Derived

Height 3.204m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 Fixed By GPS
Orion Mark NI N Section

Source TORRES STRAIT ISLANDS CONTROL

Model: AUSGEOID98 INTERPOLATED / N Value: 73.117m

SURVEY CONNECTIONS

MGA94 Zone

54

 SP302206
 26-Oct-2017

 SP270859
 03-Jun-2015

 SP243809
 24-Feb-2011

Ellipsoidal Height

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Report created 03-Oct-2023 Page 1 of 3

Mark Type	VS Mini Mark in Conc.	Not to Scale
Sulted to GPS	SCDB DETAILS ON REV	ERSE ARE TO BE COMPLETED

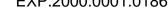
22/05/2008

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CAC Mini Made in Cons

Department of Natural Resources and Water Survey Control Database - Permanent Mark Data Sheet

Registered Number 140550		
Administrative Data		
Alternative Name 1 Alternative Name 2 Alternative Name 2 Alternative Name 2 Alternative Name 2 Mark Type	Installed By. UOKIEWR Date Installed Date Last Visited 2205/2208 Local Description. The Three Sisters City or Town. Map Reference 7477-13243	
Vertical Control Data	•	
HeightVertical Accura	acy - OrderClass	
Vertical Origin - Regn NoHeig	htDatum	
Geo-Sphd NDatum	Model	
Horizontal Control Data		
Latitude	Datum	
Horizontal Adjustment	Pixed By. HAttekt GPS	
Cadastral Connection Data		
Connected on Cadastral Plan No		
Comments		
	Chk.4.2495	
Details completed by NRW Nambour	Phone Date 12/9198	





Mark Number

Lineage

Survey Control Mark Report

ADMINISTRATIVE DETAILS

156564 Alternate Names WBI1

Town Local Authority

TORRES STRAIT ISLAND REGIONAL

26-04-2017

Locality Description WARRABER ISLAND

Related Information

Mark Type OTHER BOLT IN CONC Installed By NPW NAMBOUR

Datum

OLD ANJ 23.05

76.610m

Installed Date 22-May-2008 Sketch Available Vac Mark Condition GOOD Num Connections 2

GDA2020 COORDINATES

Last Visitad

Latitude 10º 12' 16.54826" S

MGA2020 Easting 699598.082m 142º 49' 19.51219" F MGA2020 Northing 8871404.018m Longitude

Hrz Posn Uncertainty 0.016m MGA2020 Zone 54 Ellipsoidal Height 76.497m MGA2020 Point Scale 1.00009299

Vrt Posn Uncertainty 0.035m MGA2020 Grid Conv. 0º 19' 22" GPS Published 18-May-2023 Fixed By

Adjustment

Latitude 10º 12' 16.59690" S MGA94 Easting 699597.166m

142° 49' 19,48235" E 8871402.529m Longitude MGA94 Northing

AHD HEIGHT

GDA94 TRANSFORMED COORDINATES

MGA94 Zone

NI N Section

54

Lineage Derived Height

Ellipsoidal Height

2.953m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By

Origin Mark TORRES STRAIT ISLANDS CONTROL Source

Model: AUSGEOID98 INTERPOLATED / N Value: 73.117m

SURVEY CONNECTIONS

SP302206 26-Oct-2017 SP270850 03- Jun-2015

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Report created 03-Oct-2023 Page 1 of 3

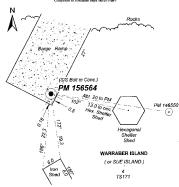
Form 6 - Version 2 Survey and Mapping Infrastructure Act 2003 DEPARTMENT OF NATURAL RESOURCES & WATER

PERMANENT MARK SKETCH PLAN

REGD NO. 156564

Descrings are Magnetic (Magnetic, MGA) Distance are nucleon

Sketch Plan to be completed in accordance with the Department's QA document



Mark Type S/S Bolt in Conc.

Not to Scale

į	Satural to GPS	SCDB DETAILS ON REVERSE ARE	TO BE COMPLETED
	YerNe Yes	I carriefy that the permanent mark shretch has been p with the Survey and Mapoins; in its small	reported in accordance se Act 2003.
	Dese 22/05/2008	Dan 2/09/3008	Summe La Siel

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Department of Natural Resources and Water

Survey Control Database - Permanent Mark Data Sheet

156564

Registered Number			
Administrative Data			
		NRW Ne	mhour
Alternative Name 1	Inst	lled By NRW Na Installed 22/05/2	2008
Alternative Name 2	Date	Installed	
Alternative Name 3	Date	Last Visited I Description.The .T.	hree Sisters
Mark Type S/S Boit in Conc.	Loca	i Description	III. W. D.
Mark Condition GGGG Parish Adolphus	Cny	or Town	3243
Parish Avoignes Local Authority Torres Strait Is Regiona	, Map	Reference	25,17
Local Authority 10/10/5 Strait is 115/2/01/6	'		
Vertical Control Data	,		
HeightVertics	al Accuracy - O	derClass.	
Vertical Origin - Regn No			
Geo-Sphd NDat	bım	Model	
Fixed By		Date	
Horizontal Control Data			
T etitude Lang	ritude	Dat	um
Latitude Long Easting 699599 North	ing 88714	06 Zor	ie54
Horiz Origin Lat Long	<u> </u>	Datum	***************************************
			•••••
Horizontal Adjustment			
Horizontal Accuracy - Order Clas	85	Fixed ByH/HRH	I.GPS.
Cadastral Connection Data			
Connected on Cadastral Plan No			
Comments		-	
			oons EX
Details completed by NRW Nambour			Chkd Z39 5
Details completed by	Phone.		Date 11/8/2005





Mark Number

Mark Type

Lineage

Survey Control Mark Report

ADMINISTRATIVE DETAILS

Alternate Names Town

Local Authority TORRES STRAIT ISLAND REGIONAL

699634.071m

Locality Description WARRABER ISLAND

177935

Related Information

MINI MARK

MGA2020 Easting

Installed By NPW NAMBOUR Last Visitad 03- Jun-2015 Installed Date 23-May-2008 Sketch Available Vac Mark Condition GOOD Num Connections 1

GDA2020 COORDINATES

Datum Latitude 10º 12' 38.06305" S

142º 49' 20.81701" F MGA2020 Northing 8870742.706m Longitude Hrz Posn Uncertainty 0.017m MGA2020 Zone 54

Ellipsoidal Height 80.150m MGA2020 Point Scale 1.00009317 Vrt Posn Uncertainty 0.036m MGA2020 Grid Conv. 0º 19' 23"

GPS Published 18-May-2023 Fixed By Adjustment QLD ANJ 23.05

GDA94 TRANSFORMED COORDINATES

Latitude 10º 12' 38.11169" S MGA94 Easting 699633.154m 142° 49' 20,78713" E 8870741.217m

Longitude MGA94 Northing MGA94 Zone 54 Ellipsoidal Height 80.263m

AHD HEIGHT

Lineage Derived Height

03-Jun-2015

6.605m Vertical Uncertainty Class D / 5th ORDER

Published 23-Mar-2009 GPS Fixed By

Origin Mark Source

SP270859

TORRES STRAIT ISLANDS CONTROL Model: AUSGEOID98 INTERPOLATED / N Value: 73.119m

SURVEY CONNECTIONS

NI N Section

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Report created 03-Oct-2023 Page 1 of 3 CS177996 V1 Page 1 of 2 Not To Scale

Form 6 - Version 2 Survey and Mapping Infrastructure Act 2003 DEPARTMENT OF NATURAL RESOURCES & WATER

PERMANENT MARK SKETCH PLAN

REGD NO. 177935

Magnetic (Magnetic, MUA) Distance are metres.

Skelds Plan to be wasplated an accordance with the Department's QA discussion



Solution (IP2)

SCDB DETAILS ON REVERSE ARE TO BE COMPLETED

Versile

Versile

Lording both the generators made depth has been proposed in naturalization
and the Solvens and Manghold Management Association.

The SCORD is the earther before source for encodinate and beinty information in the second content of the seco

1002/09/2008

Mini Mark

Not to Scale

Mark Type..

23/05/200

EAP.2000.0001.0191

Department of Natural Resources and Water

Survey Control Database - Permanent Mark Data Sheet

177025

Administrative Data Alternative Name 1 Alternative Name 2 Alternative Name 2 Alternative Name 3 Min Mark Local Description. He Three Steet Adolphus Map Reference. L'417.13245 Local Authority, Torres. SHERE IS., ENGIGNAL Vertical Control Data Height Datum. Vertical Accuracy - Order Class. Vertical Origia - Regn No. Height Datum. Geo-Spids N Datum. Model Fried By. Datum. Model Fried By. Datum. Datum. Horizontal Control Data Longinde. Datum. Model Fried By. Datum. Ser70749 Fried By. Datum. Parting Ser70749 Accuracy - Order. Ser. SHERE IS., ENGIGNAL Fried By. Fried By. Height Ser. Ser. Ser. Ser. Ser. Ser. Ser. Ser.	Registered Number		
Alternative Name 2. Alternative Name 2. Alternative Name 3. Date Installed. 2.350562005. Date Installed. 2.350562005. Date Installed. 2.350562005. Date Installed. 2.350562005. Map Reference. 2411.13245. Map Reference. 2411.13245. Map Reference. 2411.13245. Map Reference. 2411.13245. Local Authority, Torres, Stitud Ss., Figsignal. Vertical Control Data Height. Datum. Vertical Accuracy - Order. Class. Vertical Origin - Regn No. Height. Datum. Model. Frond By. Barriag. 599594. Long. Barriag. 599594. Long. Barriag. 599594. Long. Datum. Datum. Long. Datum. Street By. History GPS. Cadastral Connected on Cadastral Flan No. Comments		Administrative Data	
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Alternative Name 3	Date Installed 23/05/2008		
Mark Condition. GOOD Perish And Delicina City of Town. Map Reference. 1411/13249. Local Authority. JOSTES. 381821.5s. 189800001 Vertical Control Data Height Delum. Vertical Accuracy - Order Datas. Vertical Origin - Regn No. Height Datum. Goo-Sphot N. Datum. Model. Free Sty Delum. Model. Free Sty Delum. Model. Free Sty Delum. Delum. Delum. Horizontal Control Data Letinude. Letinude. Basing. 8870749. Zone. 54 Horizontal Adjustment. Long. Datum. Horizontal Adjustment. Free By 1481691. GPS. Cadastral Connection Data Connected on Cadastral Flan No.	Date Last Visited		
Mark Condition. GOOD Perish And Delicina City of Town. Map Reference. 1411/13249. Local Authority. JOSTES. 381821.5s. 189800001 Vertical Control Data Height Delum. Vertical Accuracy - Order Datas. Vertical Origin - Regn No. Height Datum. Goo-Sphot N. Datum. Model. Free Sty Delum. Model. Free Sty Delum. Model. Free Sty Delum. Delum. Delum. Horizontal Control Data Letinude. Letinude. Basing. 8870749. Zone. 54 Horizontal Adjustment. Long. Datum. Horizontal Adjustment. Free By 1481691. GPS. Cadastral Connection Data Connected on Cadastral Flan No.	Local Description. The Three Sisters	Mort Time Mini Mark	
Lead Authority, Totres, Stress 18s. Erestional Vertical Control Data	City or Town	Mark Condition Good	
Lead Authority, Totres, Stress 18s. Erestional Vertical Control Data	Map Reference	Parish Adolphus	
Height	Regional	Local Authority Torres Strait Is. I	
Vertical Origis - Regn No.		Vertical Control Data	
Geo-Sphd N	Vertical Accuracy - Order	HeightDatum	
Horizontal Control Data Latitude. Longitude Datum Lesting. S98534. Longitude SECT40 Zone. 64 Horizontal Adjustment Long. Datum Horizontal Adjustment Class. Fixed By. Historial SFS. Cadastral Connected on Cadastral Plan No. Comments	HeightDatum	Vertical Origin - Regn No	
Horizontal Control Data Latitude. Longitude Datum Lesting. S98534. Longitude SECT40 Zone. 64 Horizontal Adjustment Long. Datum Horizontal Adjustment Class. Fixed By. Historial SFS. Cadastral Connected on Cadastral Plan No. Comments	Datum Model	Gan_Sohd N	
Horizontal Control Data Letisole Longitude Datum. Baring 999524 Northing 8870740 Zone 64. Horiz Origin Lat Long Datum. Horizontal Adjustment Class Fixed By Historical Accuracy - Order Class. Cadastral Connected on Cadastral Plan No. Comments	Date	Fired By	
Letitole Lengindo Dutum. Baring 699594 Northing 8870749 Zone 64. Horiz Origin Lat Long Datum. Horizontal Algustanest Long Fixed By Hiller GPS. Cadastral Connection Data Connected on Cadastral Plan No.			
Herizonial Adjustment Herizonial Accuracy - Order. Class. Fixed By. Histolia GPS Cadastral Connection Data Connected on Cadastral Plan No. Comments	Long Datum	Latitude	
Horizonial Accuracy - Order. Class. Fixed By. J. H. 258. Cadastral Connection Data Connected on Cadastral Plan No. Comments			
Connected on Cadastral Plan No	Class Fixed By H/Held GPS	Horizontal Accuracy - Order	
Connected on Cadastral Plan No			
Comments		Cadastral Connection Data	
	**************************************	Connected on Cadastral Plan No	
		Commente	
Scor F		Comments	
	SCDB 🗹		
Chkd.229	Chkd. #298		
Details completed by NRW Nambour Phone 1995	mbour Phone uisland	Details completed byNRW.No	





Survey Control Mark Report

ADMINISTRATIVE DETAILS

Mark Number 177936 Alternate Names WBI Town

Local Authority

TORRES STRAIT ISLAND REGIONAL

Locality Description WARRABER ISLAND

Related Information

Mark Type

Lineage

Mark Condition

MINI MARK GOOD

Last Visitad

Installed By NRW NAMBOUR Installed Date 22-May-2008 Sketch Available Vac

GDA2020 COORDINATES

Latitude 10º 12' 19.79248" S

Datum 142º 49' 12.23234" F Longitude Hrz Posn Uncertainty 0.016m

Ellipsoidal Height 77.085m Vrt Posn Uncertainty 0.035m Published

18-May-2023 Adjustment OLD ANJ 23.05

Latitude 10º 12' 19.84111" S

Longitude Ellipsoidal Height

MGA94 Easting 142° 49' 12.20246" E MGA94 Northing MGA94 Zone

TORRES STRAIT ISLANDS CONTROL

77.198m

Lineage Derived Height 3.549m 23-Mar-2009

Published Origin Mark Source

SP270859

Model: AUSGEOID98 INTERPOLATED / N Value: 73.111m

03-Jun-2015

03- Jun-2015 Num Connections 1

MGA2020 Easting 699375.934m MGA2020 Northing 8871305.581m

MGA2020 Zone 54 MGA2020 Point Scale 1.00009190

MGA2020 Grid Conv. 0º 19' 21" GPS Fixed By

GDA94 TRANSFORMED COORDINATES

699375.016m 8871304.092m 54

AHD HEIGHT

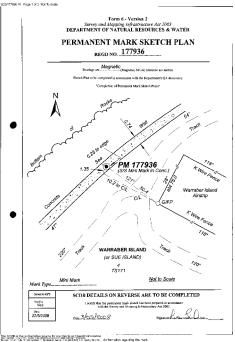
Vertical Uncertainty Class D / 5th ORDER GPS Fixed By

NI N Section

SURVEY CONNECTIONS

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Report created 03-Oct-2023 Page 1 of 3

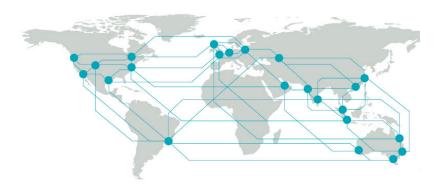


Department of Natural Resources and Water Survey Control Database - Permanent Mark Data Sheet

Registered Number177936	•
Administrative Data	
Alternstive Name 1 Alternstive Name 2 Alternstive Name 2 Alternstive Name 3 Mark Type Mark Type Mark Type Sood Parish Josephilis Local Authority, Torres Strak is Regional	Installed By NRW Nambour Date Installed 22/05/2008. Date Last Visited. Local Description. The Three Sisters City or Town. Map Reference 7477-13243.
Vertical Control Data	
HeightVertical Acc	
Vertical Origin - Regn NoH	eightDatum
Geo-Sphd N	Model
Horizontal Control Data	
Latitude Longitude Easting 699376 Northing Horiz Origin Lat Long	8871306 Datum
Horizontal Adjustment	Fixed ByHitteld GES.
Cudastral Connection Data	
Connected on Cadastral Plan No	
Comments	
	SCDB 🗹
	Chkd.A.XX
Details completed by NRW Nambour	Phone. Date 19/8/208



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