

**CULTURAL HERITAGE
DESKTOP ASSESSMENT,
ZONE 5 BYPASS CHANNEL,
PORT HEDLAND**

A1786866



TABLE OF CONTENTS

- 1. DOCUMENT AMENDMENT TABLE 2
- 2. OBJECTIVE 2
 - 2.1 Project Description2
 - 2.2 Scope5
- 3. RESULTS OF DATABASE SEARCHES 5
 - 3.1 Maritime Heritage.....5
 - 3.2 Aboriginal Heritage5
- 4. DISCUSSION 6
 - 4.1 Results of Environmental Survey6
- 5. CONCLUSION10
- 6. REFERENCES.....10

1. DOCUMENT AMENDMENT TABLE

VERSION	PREPARED BY	DATE	AMENDMENT DETAILS
1.0	Daniel Harris	16/08/2025	Draft preparation
1.2	Daniel Harris	23/09/2025	Final edits

2. OBJECTIVE

This report presents the results of a desktop assessment of the potential for cultural heritage to be encountered during activities undertaken for the proposed Zone 5 Bypass Channel at the Port of Port Hedland. The assessment was conducted in accordance with Section 4.2 of Pilbara Ports Cultural Heritage Management Plan (**CHMP**), which details the management process Pilbara Ports will undertake when a proposed activity has been identified as having the potential to impact cultural heritage (Pilbara Ports CHMP is available on our website at [Cultural Heritage Management](#)).

2.1 Project Description

Port Hedland currently operates as a single channel entry/exit port that is tidally restricted. The proposed addition of a bypass channel will alleviate any pressures and safety concerns that could arise should a vessel become grounded in the current channel.

The current channel has been divided into six zones defined by characteristics such as bathymetry, channel slopes and sea conditions (Figure 1). Zone 5 has been identified as a high-risk section for potential vessel groundings, where a grounded vessel may need to offload its cargo in order to release itself. The proposed new Bypass Channel will start at beacons 30/31, approximately 5.4 km from the coast of Port Hedland and will be around 200m wide and 8 km long. There are three sections of the proposed Channel that have been identified as requiring capital dredging, designated Zone 5A (I), Zone 5A (II) and Zone 5A (III) (Figure 2). The seabed in these sections ranges in depth from approximately 10 m to 13 m (Figure 2).

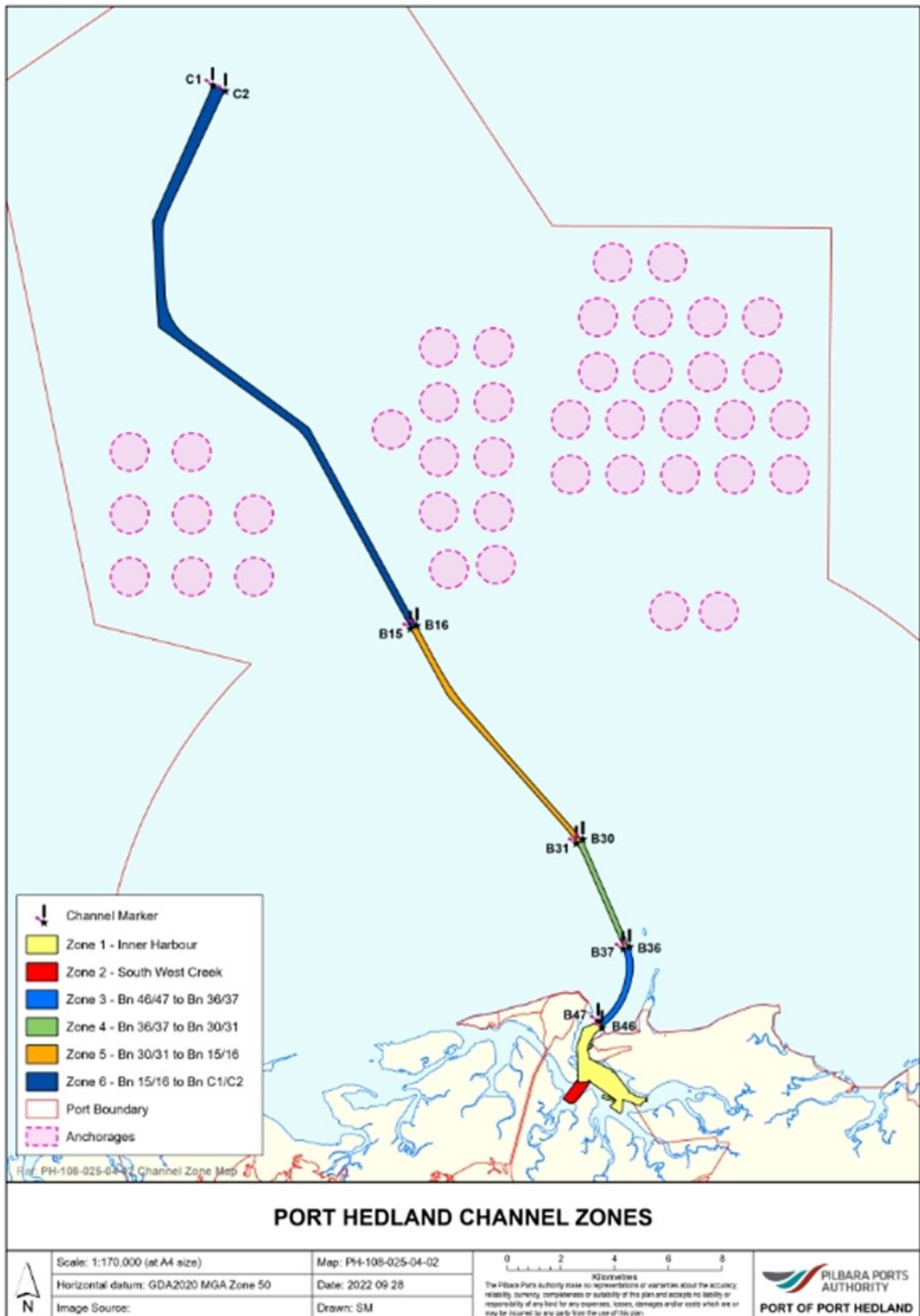


Figure 1. Overview of current shipping channel at Port Hedland

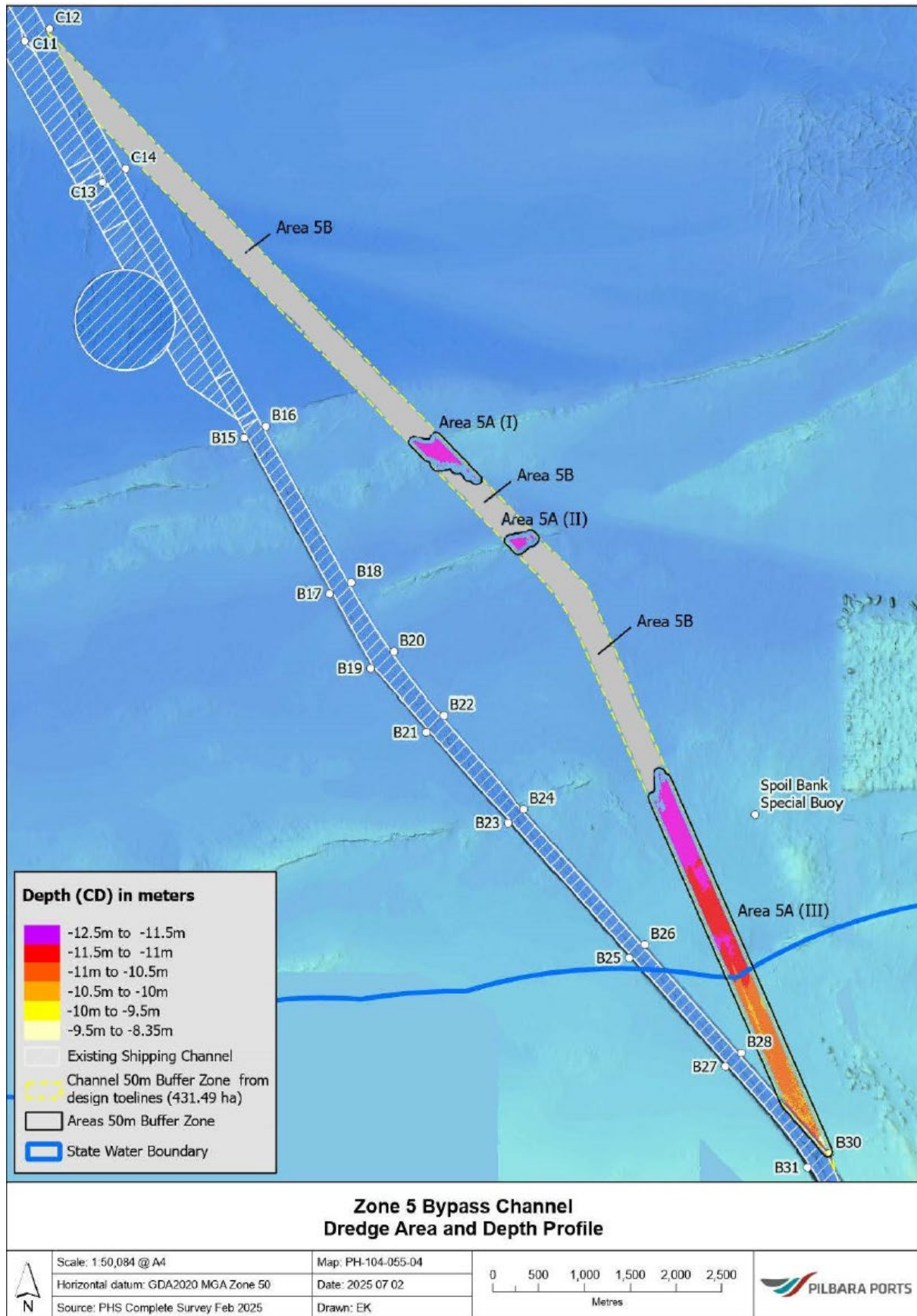


Figure 2. Proposed Zone 5 Bypass Channel and identified capital dredging areas.

2.2 Scope

This desktop assessment involved searches of both historical (post-Colonisation) and Aboriginal publicly available cultural heritage databases, as well as reference to documents contained in Pilbara Ports internal document management system. External sources of information that were interrogated include:

- the Western Australian Museum (**WAM**) Shipwreck database;
- the Department of Climate Change, Energy, the Environment and Water (**DCCEEW**) Australasian Underwater Cultural Heritage database; and
- the Department of Planning, Lands and Heritage (**DPLH**) Aboriginal Cultural Heritage Information System (**ACHIS**).

Internal sources of information that were interrogated include:

- Bathymetry (2025) – Pilbara Ports internally maintained bathymetry dataset. The dataset covers the entirety of the current shipping channel and extends east and west to incorporate dredged material spoil grounds
- Harper, S. (2017) – unpublished PhD thesis presenting research undertaken on Aboriginal rock art within the Port Hedland area
- MScience (2025a) – report of results from fieldwork to assess and characterise sediment within the Zone 5 Bypass Channel area in accordance with Pilbara Ports Sampling and Analysis Plan (SAP)
- MScience (2025b) – report of a survey to identify the composition and distribution of benthic communities and habitats within the Zone 5 Bypass Channel area.

3. RESULTS OF DATABASE SEARCHES

This section presents the results of the searches of available databases.

3.1 Maritime Heritage

Searches of the publicly available databases has shown that there are no presently known shipwrecks or other underwater cultural heritage within the vicinity of the proposed Bypass Channel. The closest documented and confirmed offshore shipwreck, the *Min Pin Liu*, is located approximately 16 km north-west of the northern most extent of the Bypass Channel.

Pilbara Ports bathymetry data also reveals no evidence for shipwrecks or other sizeable potential underwater cultural heritage (Figure 2). The dataset is of a sufficient resolution (1 m) to capture features of this scale.

3.2 Aboriginal Heritage

Searches of the ACHIS maintained by DPLH show there is no recorded Aboriginal heritage site in the vicinity of the proposed Bypass Channel or anywhere off the coast of Port Hedland. It should be noted that there has been no published survey or research targeting Aboriginal underwater cultural heritage in the Port Hedland area.

However, recent research has identified the potential for formerly terrestrial Aboriginal cultural heritage sites to have survived inundation from rising sea levels following the end of the last ice-age. This field of cultural heritage research is in its infancy, and little

underwater cultural heritage has been identified within Pilbara Ports waters. The potential for such to exist on the seabed within the footprint of the Zone 5 Bypass Project is a factor that has triggered the requirement for this assessment.

4. DISCUSSION

4.1 Results of Environmental Survey

As evidenced by the recently undertaken environmental survey, the proposed Zone 5 Bypass Channel is comprised primarily of featureless sediment (MScience 2025b:21, Figure 3). Extrapolating from the current terrestrial landscape and known cultural heritage sites of the Port Hedland area, it can be assumed that this geomorphology would most typically contain heritage site types such as artefact scatters and shell middens. If once present as terrestrial archaeological sites in the proposed Bypass Channel, these site types would quickly become heavily disturbed and destroyed during the process of inundation and high-energy water movement during storm events.

Site types that would potentially be more durable and resistant to the effects of inundation, such as engraved rock art, are typically found on low lying calcarenite bedrock ridges in the Port Hedland area (Harper 2017:14). Of the three areas identified as requiring capital dredging, two potential examples of this geographic feature in the proposed Bypass Channel were identified from bathymetry data and have been designated Zone 5A (I) and Zone 5A (II) (MScience 2025b:3, Figure 2). Imagery and core samples captured during the survey of the proposed Channel by divers show these features to be covered by sediment and sparse marine growth (MScience 2025a:13-14). Verification of the underlying substrate at these locations will be provided by forthcoming geotechnical investigations.

- Zone 5A (I) lies at a depth of approximately 15.5 m. Samples taken at Zone 5A (I) indicated the underlying substrate is likely to be consolidated clay, not limestone, and the sediment layer to be approximately 30 cm deep (MScience 2025a:13, Figures 3 and 4). It is assessed that there is no potential for extant cultural heritage at this location.
- Zone 5A (II) lies at a depth of approximately 16.5 m. Samples taken at Zone 5A (II) indicated the underlying substrate is likely to be limestone pavement, potentially indicating that this feature is analogous to current terrestrial limestone bedrock, and that the overlying sediment layer at this area is approximately 15 cm deep (MScience 2025a:13, Figures 3 and 5).
- Zone 5 (III) lies at depths ranging from approximately 10 m to 13 m. Samples taken at Zone 5A (III) indicated the underlying substrate is likely to be consolidated clay, not limestone, and the sediment layer to be approximately 30 cm deep (MScience 2025a:13, Figures 3 and 6). It is assessed that there is no potential for extant cultural heritage at this location.

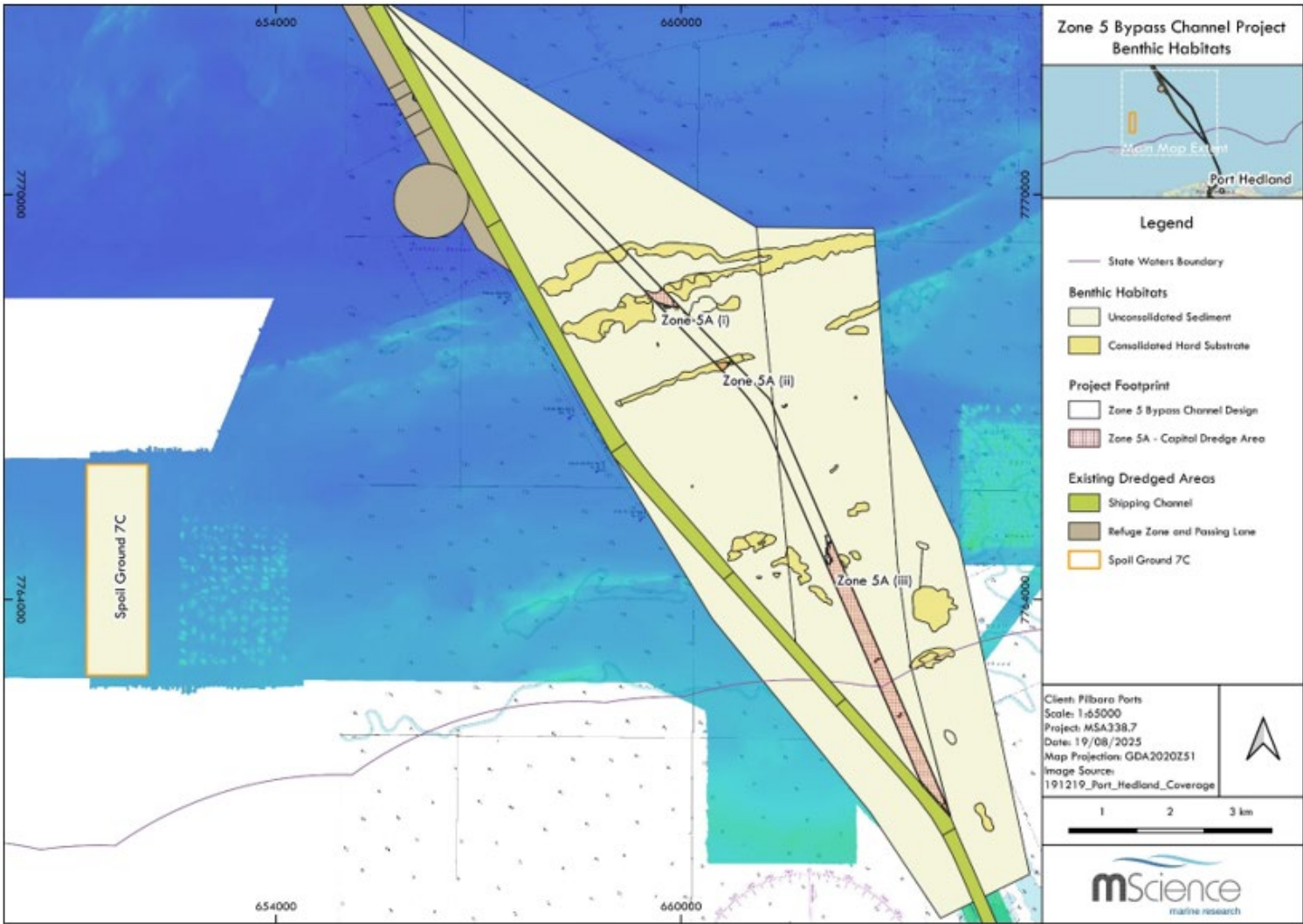


Figure 3. Overview of Bypass Channel benthic habitats and geomorphology (MScience 2025b)


Site Habitat Description (Observed by the Diver)	Seafloor Image at location
Thin veneer of coarse sand with shell fragments likely overlying consolidated clay	

Figure 4. Zone 5A (I) image and sample results (MScience 2025a)



Thin veneer of coarse sand likely overlying hard consolidated substrate (limestone pavement) supporting medium density mixed communities*	
Thin veneer of coarse sand likely overlying hard consolidated substrate (limestone pavement) supporting medium density mixed communities*	

Figure 5. Zone 5A (II) image and sample results (MScience 2025a)



Site Habitat Description (Observed by the Diver)	Seafloor Image at location
Thin veneer of coarse sand and gravel with shell fragments likely overlying consolidated clay	
Thin veneer of coarse sand and gravel with shell fragments likely overlying consolidated clay	

Figure 6. Zone 5A (III) image and sample results (MScience 2025a)

5. CONCLUSION

Prior to around 6,800 BP, when sea levels reached their current level, the shoreline was approximately 120 km north of its present position at Port Hedland (Harper 2017:16) and the area of the Bypass Channel was part of a broad coastal plain. Features such as Zone 5A (I) and Zone 5A (II) may be remnants of past shorelines created during the gradual encroachment of the rising sea level post – Last Glacial Maximum (LGM). Consideration must be given, then, to the extreme erosional forces these features would have been subjected to, particularly during storm and cyclonic events. Terrestrial calcarenite typical of the Port Hedland area is relatively soft and has a higher weathering rate than other rock types in the Pilbara, such as the granophyre rock of Murujuga (Harper 2017:15). The feature at Zone 5A (II) would have experienced high energy waves and scouring by water-borne sediment movement for a prolonged period. It is probable that the establishment of marine growth subsequent to submergence would also exacerbate the erosion of the limestone surface. It is highly likely that any engraved imagery that may have been present prior to the rise in sea levels post-LGM would have eroded away during inundation and the intervening millennia.

Based on the results of this desktop assessment it is considered that there is a very low probability of any extant cultural heritage being present within the proposed Zone 5 Bypass Channel. Should any materials or evidence for cultural heritage be encountered during the activities undertaken for the Zone 5 Bypass Channel, Pilbara Ports and its contractors will adhere to the relevant management procedures detailed in Pilbara Ports CHMP.

6. REFERENCES

Harper, S. 2017 *Inside the Outline - Understanding Inclusive and Exclusive Identity in Marapikurrinya (Port Hedland) Rock Art*. Unpublished PhD Thesis, The University of Western Australia.

MScience 2025a *Port of Port Hedland Zone 5 Bypass Channel Project - Sampling and Analysis Plan Implementation Report*. Unpublished report prepared for Pilbara Ports.

MScience 2025b *Port of Port Hedland Zone 5 Bypass Channel Project – Benthic Habitat Assessment*. Unpublished report prepared for Pilbara Ports.