



Doc Owner: **Environment and Community Coordinator**

Doc No:

CHAIN VALLEY COLLIERY
Built Features Management Plan
S4 Miniwall Panel
ENVIRONMENTAL MANAGEMENT PLAN

Reviewers	Katie Weekes EMM Consulting Pty Ltd
	Chris Armit EMM Consulting Pty Ltd
Authorised by:	Chris Armit
	Environment & Community Coordinator
	Delta Coal
Date:	12 May 2020

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 1 of 26

DOCUMENT UNCONTROLLED WHEN PRINTED

Contents

1	Introduction	3
1.1	Purpose and Scope	3
1.2	Background	3
1.3	Consultation	4
2	Statutory Requirements	7
2.1	Key Legislation, Policy and Guidelines	7
2.2	Development Consent SSD-5465 Requirements	7
3	Built Features Management	8
3.1	Identification	8
3.2	Pelican Rock Navigational Marker NLM045	8
3.3	Houses, other associated structures, Jetties, moorings, roads and services along the Summerland Point Foreshore	9
4	Subsidence Predictions and Management Procedures	11
4.1	Subsidence Predictions	11
4.1.1	Pelican Rock Navigational Marker	11
4.1.1	Houses, other associated structures, Jetties, moorings, roads and services along the Summerland Point Foreshore ..	11
4.2	Subsidence Management	11
5	Subsidence Monitoring	12
5.1	Pre and post mining inspections of the Pelican Rock Navigational Marker	12
5.2	Pre and post mining surveying of the Pelican Rock Navigational Marker	12
6	Subsidence Remediation	12
7	Reporting	12
7.1	Regular Reporting	12
7.2	Annual Review	12
7.3	Incident or Non-Compliance Reporting	13
8	Stakeholder Management, Response and Training	13
8.1	Complaint Protocol	13
8.2	Independent Review	13
8.3	Dispute Resolution	14
8.4	Training, Awareness and Competence	14
9	Audit and Review	15
9.1	Review and Improvement	15
9.2	Auditing	15
10	Records and Document Control	15
10.1	Records	15
10.2	Document Control	16
11	Roles and Responsibilities	16
12	References	17
13	Definitions	19
	Appendix 1: Consultation	20
	Appendix 2: Development Consent Summary	23
	Appendix 3: Pre-mining Assessment - Pelican Rock Navigational Marker (NLM045)	26

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 2 of 26

DOCUMENT UNCONTROLLED WHEN PRINTED

1 Introduction

1.1 Purpose and Scope

The purpose of this Built Features Management Plan (BFMP) is to outline the process for management of built features within the subsidence affected zone associated with S4 miniwall. The primary objectives of the document are to:

- ensure compliance with SSD-5465 and relevant mining lease conditions and Extraction Plan approvals;
- identify all existing surface and subterranean infrastructure that may be potentially impacted by the extraction of Miniwall S4;
- outline the process for developing monitoring and management protocols with the respective asset owners;
- describe the review and reporting requirements as well as the relevant frequencies and duration of monitoring; and
- allocate roles and responsibilities within the CVC Management structure such that all actions emanating from this document have specific task owners.

The scope of this document includes all land and subterranean man-made features that are located within the projected subsidence affected zone associated with S4 Miniwall Panels.

The timing of this management plan is such that the actions emanating from within shall be initiated prior to the commencement of S4 Miniwall extraction and will continue for a minimum of 12 months after the completion of the S4 extraction.

Data collected under this management plan shall be supplied to all relevant stakeholders and any exceedance of predicted subsidence effects or impacts shall be reported as soon as practicable. Prior to ceasing ongoing monitoring, all captured data is to be assessed for stability and mutual agreement to the cessation of monitoring reached between all relevant stakeholders and Delta Coal (DC).

A formal Environmental Management System (EMS) has been developed as a systematic and structured approach to managing environmental issues at the operation. This has been developed in general accordance with the requirements of the international standard ISO 14001.

This BFMP is an element of the Chain Valley Colliery (CVC) Environmental Management System (EMS).

1.2 Background

Chain Valley Colliery (CVC) is an underground coal mine located on the southern side of Lake Macquarie approximately 60 km south of Newcastle and 80 km north of Sydney (see Figure 1). The pit-top is located approximately 1 km south-east of the township of Mannering Park at the southern extent of Lake Macquarie.

In August 1960, J&A Brown and Abermain Seaham Collieries Ltd commenced clearing the present site with drift and shaft sinking starting a few months later. Production of coal from the Wallarah Seam, commenced with the first delivery to the adjacent Delta Electricity's Vales Point Power Station (VPPS) in April 1963.

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 3 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

LakeCoal was formed in 2001 to acquire BHP Billiton’s 80% share in the Wallarah Coal Joint Venture (WCJV), the remaining 20% share was owned by Sojitz. In October 2006, Peabody Energy, a US listed company acquired LakeCoal Pty Limited.

In November 2009 LDO Coal Pty Limited purchased LakeCoal Pty Limited. LDO Coal is a consortium consisting of LD Operations, AMCI and private investors. In March 2011 the 20% share in the WCJV which Sojitz held was acquired by LDO Coal shareholders through the entity Fassi Coal Pty Ltd. The WCJV had operated the Wallarah, Moonee and Chain Valley underground coal mines and the Catherine Hill Bay Coal Preparation Plant, all located at the southern end of Lake Macquarie. At the time of LakeCoal’s acquisition by LDO Coal, both the Wallarah and Moonee mines were closed.

In 2013 the owners of Mannering Colliery (MC) and CVC entered into an agreement which enabled LakeCoal to operate the MC until 2022. LakeCoal became the operator of MC effective 17 October 2013, with the underground link between CVC and MC completed in October 2017.

Great Southern Energy Pty Ltd (trading as Delta Coal) took over as owner and operator of CVC and as operator of MC on 1 April 2019. Prior to the purchase by Great Southern Energy Pty Ltd, CVC was owned and operated by LakeCoal Pty Ltd (LakeCoal). LakeCoal also operated MC under an agreement with the owners of the mine; Centennial Mannering Pty Limited, a wholly owned subsidiary of Centennial Coal Company (Centennial).

Mining is currently undertaken at CVC, with the coal being transported underground to MC where the coal is crushed and screened and sent directly to VPPS.

1.3 Consultation

Roads and Maritime Services (RMS), who are the managers of the Pelican Rock navigational marker, have been previously consulted on the development of the S2/S3 Built Features management plan and have provided guidance on the serviceability limits of the marker. This has greatly assisted in the development of this plan.

DPIE provided comments and iterations during the development of the S2/S3 Built Features Management Plan. The S2 and S3 Extraction Plan of which the S2/S3 Built Features Management Plan was approved by DPIE on 2 July 2019.

The DPIE-Resources Regulator was provided a copy of the S2/S3 Built Features Management Plan with no comments.

Lake Macquarie Marine Rescue were consulted on the Pelican Rock Navigational Marker and the interaction associated with miniwalls S2 and S3. They provided reference to the applicable RMS contacts.

All DC workers affected by the requirements of this management plan shall have access to a copy of this document and associated documents via the workplace document control system for review purposes.

MC and CVC have a combined Community Consultation Committee (CCC) made up of various members from the surrounding communities. The planned development of the S2, S3 and S4 miniwall panels and the predicted subsidence effects and impacts have been discussed during all of the 2019 quarterly CCC meetings.

The resultant monitoring and inspection report prior, during and subsequent to the S2, S3 and S4 development will continue to be presented and discussed at future CCC meetings. In the event of an unexpected subsidence impact and/or an exceedance of predicted subsidence effects or impacts, the CCC members will be notified as soon as practicable.

Home owners along the shoreline have received a letter in April 2019 detailing the mining operations and proposed foreshore subsidence monitoring and most owners, where house are inhabited, have been amendable to allowing access to their property to conduct this monitoring.

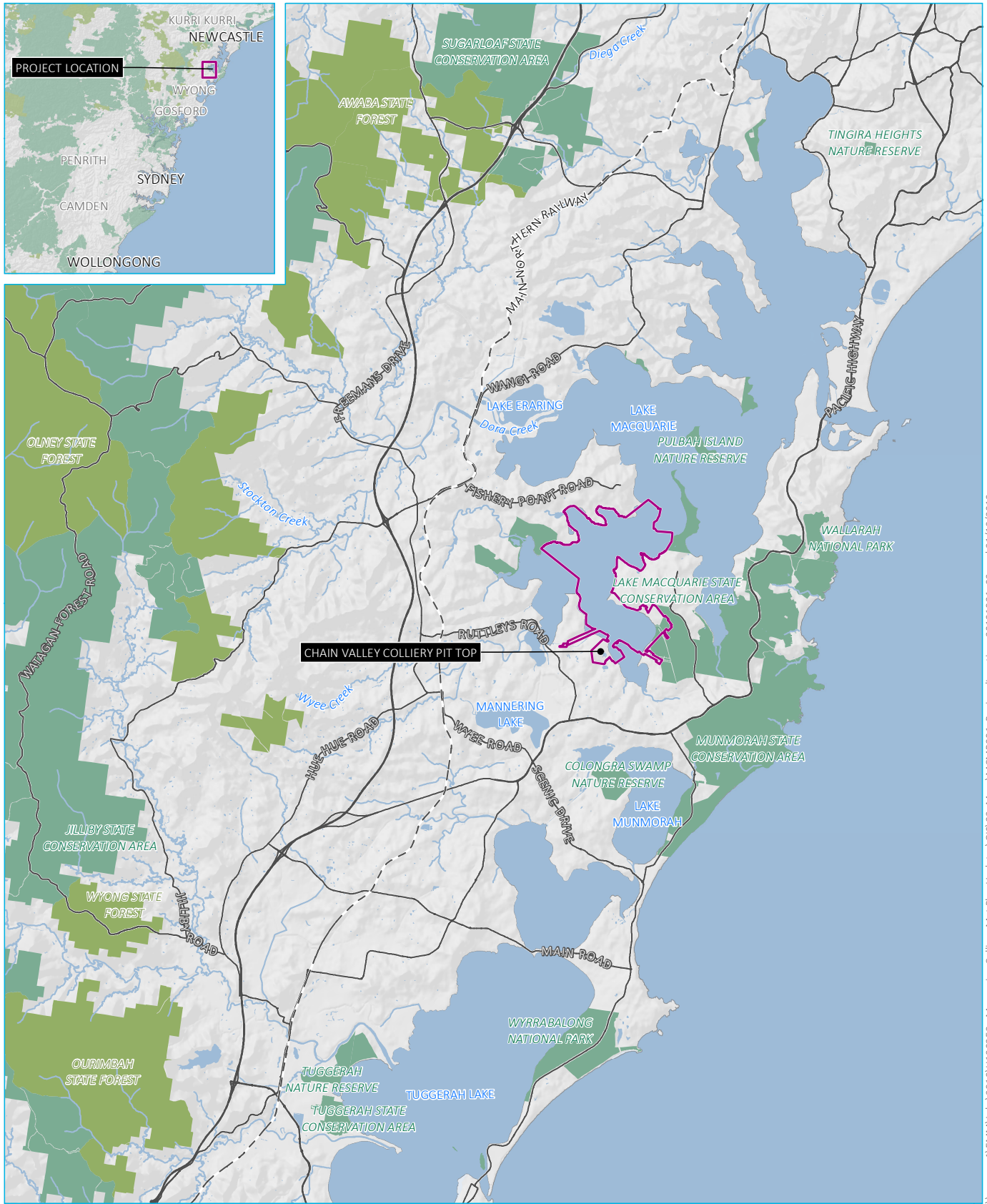
Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 4 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

A copy of the S4 Built Features Management Plan was emailed to the below regulators and stakeholders on 20 November 2019. A summary of the comments received during this round of review, and amendments subsequently made to the document prior to finalisation are detailed in **Table 2**. Evidence of consultation is provided in **Appendix 1**.

Table 1: Consultation Summary

Stakeholder	Comments	Response/Action
NSW DPIE-Resource Assessments	<ul style="list-style-type: none"> Comments received 5 May 2020. Typographical error Section 1.2 Detail on reporting more targeted against impacts to built features Section.7.1 	<ul style="list-style-type: none"> See Appendix 1
Lake Macquarie City Council (LMCC)	<ul style="list-style-type: none"> No identified features for LMCC jurisdiction for Central Coast council. Appendix 1. 	<ul style="list-style-type: none"> Nil required
DPIE - Resources Regulator Subsidence Engineer	<ul style="list-style-type: none"> Critical control is mine design, include Wallarah seam workings in adjacent workings Appendix 1. 	<ul style="list-style-type: none"> Added Figure 6 – Wallarah seam Workings and protection barriers
RMS	<ul style="list-style-type: none"> Letter received on 8 December 2019. Project identified as having minimal impact to safety on vessels navigating in the area of Pelican Rock Navigational Marker. Appendix 1. 	<ul style="list-style-type: none"> See Appendix 1
Community Consultative Committee	<ul style="list-style-type: none"> No comments received as of the 11 March 2020. 	<ul style="list-style-type: none"> Nil required

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 5 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				



Source: EMM (2019); DFSI (2017); GA (2011); CVC (2019)



- KEY**
- Chain Valley Colliery development consent boundary
 - Rail line
 - Main road
 - Watercourse/drainage line
 - Waterbody
 - NPWS reserve
 - State forest

CVC regional context

Chain Valley Colliery
Figure 1



\\emmsvr1\EMM\Jobs\2019\190358 - Mannering Colliery Mgt Plan Updates\GIS\02_Maps\WCM\001_RegionalLocation_20191021_02.mxd 21/10/2019

2 Statutory Requirements

2.1 Key Legislation, Policy and Guidelines

Both State and Commonwealth environmental legislation applies to DC's operation and activities. A number of legislative requirements, government policies and guidelines are applicable. Key items relevant to this management plan are:

- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act);*
- *Protection of the Environment Operations Act 1997 (POEO Act);*
- *Environmental Planning and Assessment Act 1979 (EP&A Act);*
- *Mining Act 1992;*
- *National Parks and Wildlife Act 1974;*
- *Biodiversity Conservation Act 2016;*
- Department of Primary Industries (2013), *Policy and guidelines for fish habitat conservation and management;* and
- ANZECC 2000, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.*

Delta lands are within the LMCC and Central Coast Council local government areas (LGAs).

2.2 Development Consent SSD-5465 Requirements

This BFMP has also been completed to satisfy the requirement of Condition 7(g), Schedule 4 of Development Consent SSD-5465 (Modification 2).

Built features related requirements of SSD-5465, including specific requirements that are to be addressed in this plan, and where they are addressed, are detailed in **Appendix 2**.

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 7 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

3 Built Features Management

3.1 Identification

A surface field mapping exercise has been undertaken by DC above the S2, S3 and S4 Miniwalls with the intent of identifying all surface-built features which could be potentially affected by the completion of the underground drivage and miniwall extraction. The following sections list the identified built features as well as a description of each. A pre-mining assessment of the Pelican Rock Navigational Marker is provided in **Appendix 3**.

3.2 Pelican Rock Navigational Marker NLM045

The Pelican Rock Navigational Marker NLM045 (Isolated Danger) is located above Tailgate S2 (TGS2) as per the attached plan and is physically numbered 045 with dimensions as per **Figure 2**.

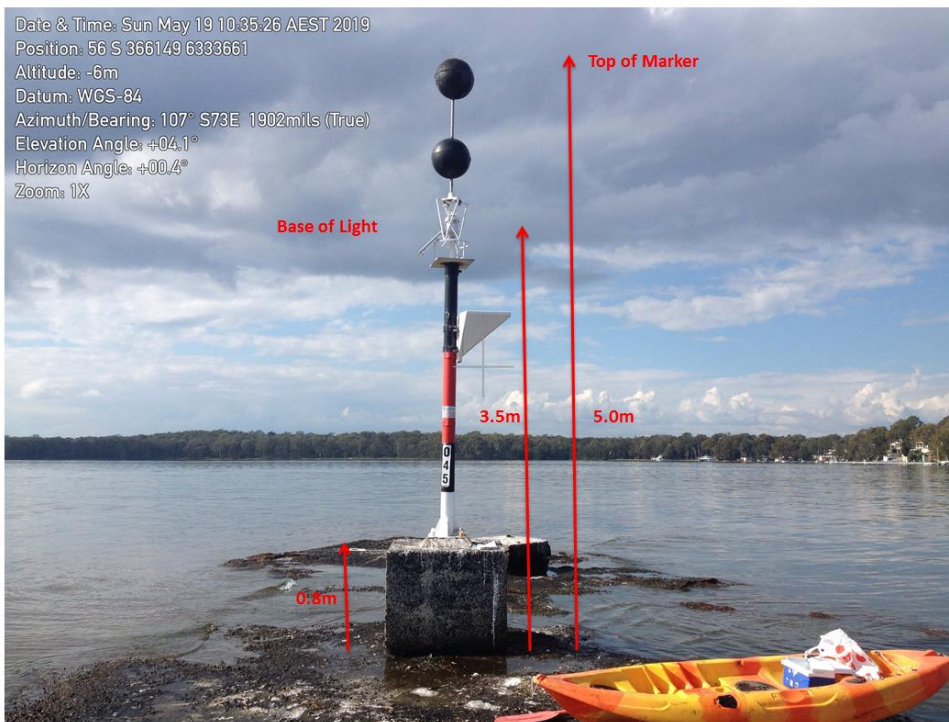


Figure 2: Pelican Rock Navigational Marker NLM045

The navigational marker on Pelican Rock falls into the category of ‘Other buoys and signs – Isolated danger’ (see **Figure 3**). The Isolated Danger sign indicates specific dangers with generally safe waters all around (eg a wreck). It is advised to sailors to pass them on any side but not to pass too close. If lit, it shows a white light flashing in groups of two (RMS, 2019).

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 8 of 26

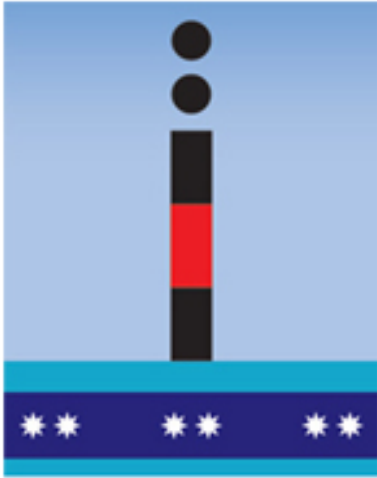


Figure 3: Other Buoys and Signs – Isolated Danger

3.3 Houses, other associated structures, Jetties, moorings, roads and services along the Summerland Point Foreshore

Many of the built features along the foreshore can be seen in **Figure 4** (photo) and **Figure 5** (plan). These include houses, other associated structures, jetties, moorings, roads and services. There are workings adjacent in the stratigraphically overlying Wallarah seam as shown in **Figure 6** (plan).



Figure 4: Aerial Photography of the Built Features along the Foreshore at Summerland Point

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 9 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

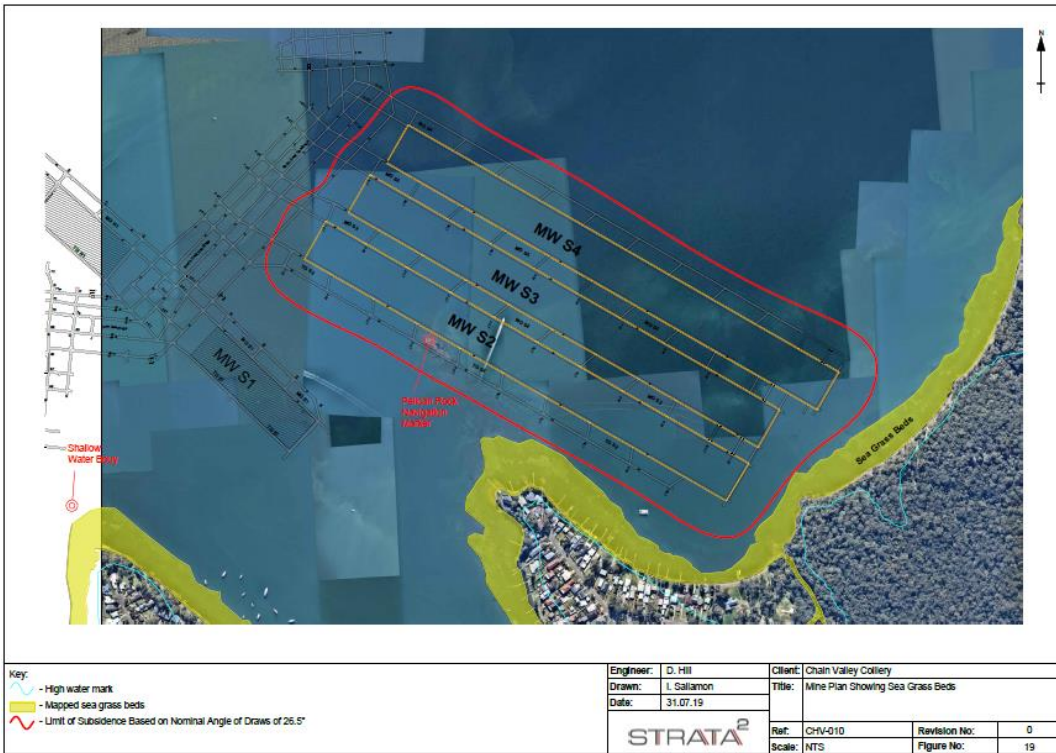


Figure 5: S2, S3 and S4 Miniwall (MWS2, MWS3 and MWS4) Surface Features (Strata2, 2019)

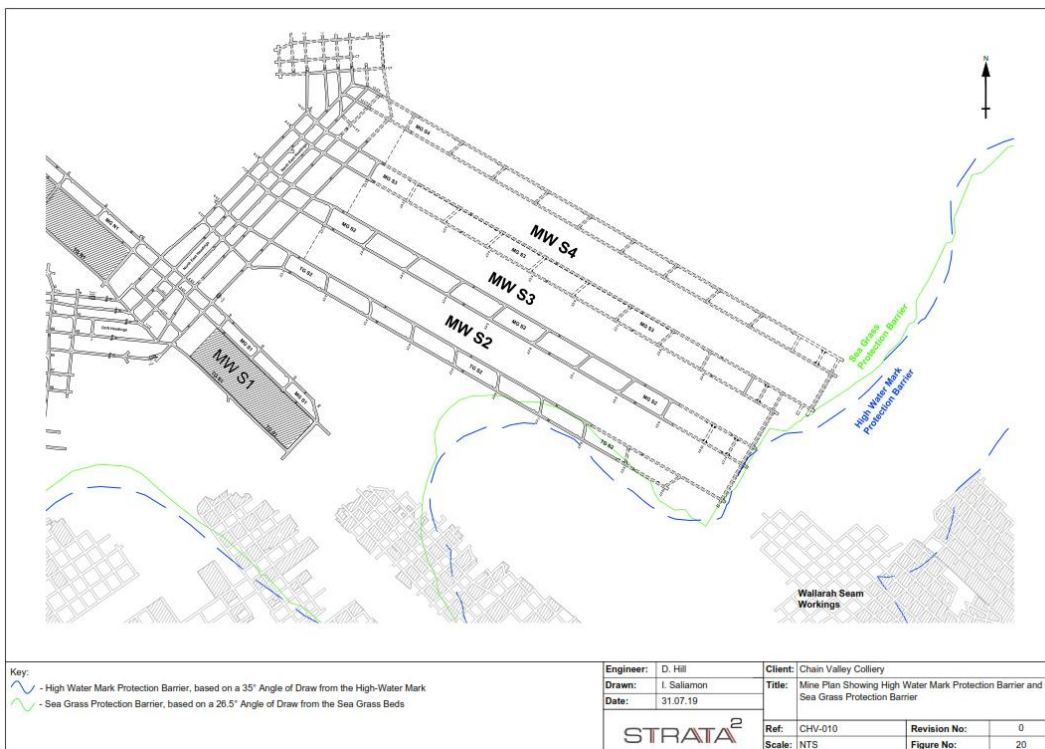


Figure 6: S2, S3 and S4 Miniwall (MWS2, MWS3 and MWS4) Protection Barriers and Wallarah seam workings location (Strata2, 2019)

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 10 of 26

DOCUMENT UNCONTROLLED WHEN PRINTED

4 Subsidence Predictions and Management Procedures

4.1 Subsidence Predictions

Subsidence effect predictions have been undertaken for the S2, S3 and S4 Miniwalls by Strata 2 Ground Control Consulting. (Strata2, 2019). A site-specific geotechnical model has been developed by Strata2, taking into consideration the design of the S2, S3 and S4 geometries, a review of previous subsidence performances, and an assessment of pillar behaviour as well as roof and floor stability in the Fassifern Seam workings.

These predicted subsidence effects have then be used in conjunction with the location of the identified surface built features to predict the subsidence effects at each identified feature.

4.1.1 Pelican Rock Navigational Marker

The predicted vertical subsidence for the navigational marker due to MWS2, MWS3 and MWS4 is 130 mm and tilt values remains <4 mm/m. The predicted subsidence has been provided to RMS and the resources regulator. Subsidence monitoring and management strategies have been developed for the marker.

4.1.1 Houses, other associated structures, Jetties, moorings, roads and services along the Summerland Point Foreshore

The predicted vertical subsidence at the mapped sea grass beds, and hence at the lake foreshore is less than 20 mm. It is unlikely, therefore that there would be adverse impacts on the surface features located above the sea grass beds (i.e. jetties and moorings) or along the lake foreshore, including houses, other associated structures, roads and services.

The state survey control marks located near MWS2, MWS3 and MWS4 could experience low-level horizontal movements. NSW Spatial services will be notified so that the affected state survey marks can be managed and re-established after the active subsidence, as required.

4.2 Subsidence Management

Subsidence management is mainly controlled via the geotechnical assessment and mine design process. There are no built features located directly below the S2, S3 and S4 miniwall panels with adequate subsidence barriers in place for the identified nearby built features. There is a Subsidence Management Trigger Action Response Plan (TARP) which details adaptive management strategies.

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 11 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

5 Subsidence Monitoring

The subsidence monitoring is outlined in the Subsidence Monitoring Program.

5.1 Pre and post mining inspections of the Pelican Rock Navigational Marker

Pre and post S2 extraction, S3 extraction and S4 extraction inspections will be undertaken to characterise the existing built feature and identify any changes post mining.

5.2 Pre and post mining surveying of the Pelican Rock Navigational Marker

A pre and post Miniwall S2 extraction, post S3 extraction and post S4 extraction subsidence survey monitoring will be undertaken to measure that the RMS navigational marker serviceability criteria of <500 mm vertical subsidence and <5 degrees tilt is within those limits.

6 Subsidence Remediation

The subsidence remediation is outlined in brief in the Rehabilitation Management Plan. DC commits to mitigating, repairing, replacing or compensating for built features damaged by mining operations unless the owner agrees otherwise. The timely repair is also required from a public safety aspect. This is detailed further in the Public Safety Management Plan.

7 Reporting

7.1 Regular Reporting

In accordance with Schedule 6, Condition 8, the Applicant shall provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of the development consent.

The subsidence monitoring results will be reviewed as survey reports are received to confirm compliance/non-compliance with the applicable conditions specified in the development consent and above in Section 5 and the applicable stakeholders will be notified.

7.2 Annual Review

In accordance with Schedule 6, Condition 4, the Applicant shall review the environmental performance of the development to the satisfaction of the Secretary, by the end of March each year, or other timing as may be agreed by the Secretary.

The Annual Review will also include a summary of monitoring results during the past year, discussion with reference to the impact assessment criteria, and any relevant details related to comparisons between actual results and predictions in the Environmental Impact Statement. The Annual Review will be forwarded to the relevant authorities including DPIE, and EPA. The Annual Review will also be forwarded to members of the Community Consultative Committee (CCC) and local Councils (Central Coast and Lake Macquarie). It will also be placed on the company's website along with a summary of environmental monitoring results.

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 12 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

7.3 Incident or Non-Compliance Reporting

If monitoring reveals that, as a result of mining activities, greater than minor impacts have occurred, then DC will investigate the cause of the non-compliance. As detailed in Schedule 6, Condition 7 of the development consent, relevant agencies will be notified by phone or email at the earliest opportunity of an incident that causes or threatens to cause material harm to the environment. For all other incidents, relevant agencies will be notified by phone or email as soon as practicable.

The investigation into the incident will consider any activities, plant operations or other factors that may have caused or contributed substantially to the non-compliance. The written report will be provided to any affected landowner and/or existing tenants, including tenants of mine owned properties, to the DPIE, EPA and any other relevant stakeholders within 7 days of the date of the incident or being made aware of the incident (such as receiving monitoring data). The investigation will consider any activities or other factors that may have generated the non-compliance.

The report will:

- describe the date, time and nature of the observation;
- identify the cause (or likely cause) of the damage;
- describe what action has been taken to date; and
- describe the proposed measures to address the damage and prevent further such occurrences.

DC will implement any recommendations in order to prevent future occurrences. Any incident or complaint will be recorded and fully investigated to find root causes and corrective actions implemented where necessary.

8 Stakeholder Management, Response and Training

8.1 Complaint Protocol

DC has a 24-hour telephone hotline (1800 115 277) through which members of the public can lodge complaints, concerns, or to raise issues associated with the operation. This service aims to promptly and effectively address community concerns and environmental matters.

All complaints are recorded and responded to and if, for some reason, no action is taken then the reason why is recorded. The information recorded in the complaint register includes:

- date and time the complaint was lodged;
- personal details provided by the complainant;
- nature of the complaint;
- action taken or, if no action was taken, the reason why; and
- follow up contact with the complainant.

8.2 Independent Review

As detailed in Condition 2, Schedule 5 of SSD-5465, an Independent Review can be requested by a landowner who “*considers the development to be exceeding the relevant criteria in Schedule 3*”.

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 13 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary's decision the Applicant shall:

- (a) *commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to:*
 - *consult with the landowner to determine his/her concerns;*
 - *conduct monitoring to determine whether the development is complying with the relevant criteria in Schedule 3; and*
 - *if the development is not complying with these criteria then identify the measures that could be implemented to ensure compliance with the relevant criteria; and*
- (b) *give the Secretary and landowner a copy of the independent review.*

8.3 Dispute Resolution

If any disputes are not adequately addressed by the complaints handling process then they will be handled by the Environment and Community Coordinator. If the response of CVC is not considered to satisfactorily address the concern of the complainant, a meeting may be convened with the complainant, Mine Manager together with the Environment and Community Coordinator to determine any further options to reduce potential impacts.

Any actions agreed from the meeting will be implemented by CVC. After implementation of the proposed actions the complainant will be contacted and advice sought as to the satisfaction or otherwise with the measures taken.

If no agreed outcome is determined or the complainant is still not satisfied by the action taken, then an Independent Review may be requested by the complainant. If determined to be warranted by the Secretary, an independent review will be undertaken in accordance with the process identified in Schedule 5 of SSD-5465.

8.4 Training, Awareness and Competence

Training is an essential component of the implementation phase of this BFMP. The Environment and Community Coordinator will ensure that training and awareness processes are implemented to manage, identify and minimise potential impacts of CVC and to ensure personnel are aware of their roles and responsibilities in terms of built features management.

Generally training at CVC consists of induction training for new starters and contractors along with environmental awareness training at two-year intervals and ongoing "toolbox" training for all permanent employees as required.

As the document owner, the Environment and Community Coordinator is the contact point for any person that does not understand this document or their specific requirements, and will provide guidance and training to any person that requires additional training regarding this BFMP.

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 14 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

9 Audit and Review

9.1 Review and Improvement

This document shall be reviewed, and if necessary revised, within 3 months of the following:

- the submission of an Annual Review;
- the submission of an incident report;
- the submission of an independent environmental audit; and
- following any modification to the development consent.

As outlined in **Section 7.2**, the Annual Review will include a review of the seasonal monitoring program and mine plans to ensure that any reference sites that have been impacted by mining reclassified as impacted impact sites, and replacement reference sites identified and sampled. Survey methods will be reviewed every two years to refine the sampling program if required. Improvements identified during reviews or audits will be incorporated into the BFMP.

9.2 Auditing

Where required, audits shall be carried out by personnel who have the necessary qualifications and experience to make an objective assessment of the issues. The extent of the audit, although pre-determined, may be extended if a potentially serious deviation from this document is detected.

DC has an external independent Environmental Audit every three years. Due to the timing and relatively small geometry of the miniwall panels, a review of the finalised document will not be required as mining will have been completed within a year from authoring.

10 Records and Document Control

10.1 Records

Generally, the Environment and Community Coordinator will maintain all Environmental Management System records which are not of a confidential nature. Records that will be maintained include:

- monitoring data;
- environmental inspections and auditing results;
- environmental incident reports;
- the complaints register; and
- licences and permits.

All records will be stored so that they are legible, readily retrievable and protected against damage, deterioration and loss. Records will be maintained for a minimum of 4 years or as otherwise required under any legislation, licence, lease, permit or approval.

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 15 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

10.2 Document Control

This document and all others associated with the Environmental Management System shall be maintained in a document control system which is in compliance with the site Document Control Standard which is available to all site personnel. Any proposed change to this document will be via the Environment and Community Coordinator. A copy of this document is available on the DC website. Document revision details are provided in **Table 2**.

Table 2: Document Revision Details

Version	Date	Details of Revision	Company	Reviewed by/ Authorised by
0	20/11/2019	Utilised and updated the existing approved S2/S3 BFMP document to reflect Miniwall S4 information	Delta Coal EMM Consulting	Katie Weekes Chris Armit
1	10/03/2020	Updated for consultation	Delta Coal EMM Consulting	Katie Weekes Chris Armit
2	12/05/2020	Updated for DPIE Consultation	Delta Coal	Chris Armit

11 Roles and Responsibilities

All employees and contractors at CVC are responsible for environmental management. However, various positions in the organisation have roles, responsibilities and authorities for managing environmental aspects, action plans, programs and controls.

Roles and responsibilities specific to completing the requirements of this plan are identified in **Table 3**.

Table 3: Built Features Management Plan Roles and Responsibilities

Role	Responsibilities
Manager of Mining Engineering (Mine Manager)	<ul style="list-style-type: none"> Ensure that adequate financial and personnel resources are made available for the implementation of the BFMP. Maintain overall responsibility for environmental compliance with Mining Lease, EPL, development consent and other mining approvals as they pertain to the management of built features Ensure that adequate training is provided to staff to minimise impacts to built features.
Technical Services Manager	<ul style="list-style-type: none"> Oversee the implementation of the BFMP for S4 miniwall panels.
Mine Surveyor	<ul style="list-style-type: none"> Identify all built features within the S4 miniwall footprint. Ensure that all survey monitoring is conducted and reported appropriately to stakeholders. Report triggers and monitoring to applicable stakeholders.

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 16 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

Role	Responsibilities
Environment Compliance Officer	<ul style="list-style-type: none"> • Write the BFMP in consultation with relevant government agencies and stakeholders. • Undertake reviews of this document • Undertake or coordinate the required audits of this document, in accordance • Develop management actions in consultation with regulatory agencies as/if required from the monitoring results. • Compile the Annual Review (including a summary of the built features monitoring). • Conduct pre and post mining inspections. • Report triggers and monitoring to applicable stakeholders. • Organise remediation if required. • Notify relevant agencies if there are any exceedances in impact thresholds. • Ensure complaint handling and response is undertaken.
All employees and contractors	<ul style="list-style-type: none"> • Comply with the requirements of this BFMP. • Immediately notify Environment and Community Coordinator of possible incident.

12 References

Documents referenced in the preparation of the BFMP are detailed in **Table 4**.

Table 4: References

Reference	Title
Australian Standards	<p>AS/NZS ISO 14001:2004, <i>Environmental management systems – Requirements with guidance for use</i></p> <p>AS/NZS ISO 14004:2004, <i>Environmental management systems – General guidelines on principles, systems and support techniques</i></p> <p>ANZECC 2000, <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i></p>
Government Department	<p>Roads and Maritime Services, 2019. https://www.rms.nsw.gov.au/maritime/safety-rules/rules-regulations/navigation-marks-and-signs.html</p> <p>SSD-5465 Development Consent SSD-5465 (Modification 2), 16 December 2015</p> <p>NSW EPA Environment Protection Licence: EPL 1770, 2 April 2019</p>
Delta Coal documents	EMS Environmental Management Strategy.

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 17 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

Reference	Title
External documents	Strata Ground Control Consulting, 2019. <i>S4 Panel: Geotechnical Environment, Subsidence Estimates and Impacts</i> , prepared for Delta Coal Chain Valley Colliery

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 18 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

13 Definitions

Built Features Any building or work erected or constructed on land or water, and includes dwellings and infrastructure such as any formed road, street, path, walk, marina or driveway; any pipeline, water, sewer, telephone, gas or other service main

CVC Chain Valley Colliery

DA Development approval

DC Delta Coal

DP&E Department of Planning & Environment (former)

DPIE Department of Planning, Industry and Environment

DPI Fisheries Department of Primary Industries – Fisheries NSW

EMS Environment Management System

EPA NSW Environment Protection Authority

EPL Environmental Protection License

EP&A Act *Environmental Planning and Assessment Act 1979*

LMCC Lake Macquarie City Council

MC Mannering Colliery

POEO Act *Protection of the Environment Operations Act 1997*

OEH Office of Environment and Heritage

ROM Run-of-mine

Secretary Secretary of the Department of Planning and Environment, or nominee

SSD-5465 Development Consent SSD-5465 (for the Chain Valley Colliery Mining Extension 1 Project)

TARP Trigger Action Response Plan

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 19 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

Appendix 1: Consultation

From: Chris Armit
To: 'Nathan Koch'; 'Ray Ramage'; 'Karen Mason'
Cc: 'Sonia Mckay'; 'Mike Baldwin'; 'Brett Boehm'; 'Fazal Khan'; 'Margaret MacDonald-Hill'; 'Katie Weekes'; 'Colin Phillips'
Subject: CVC MWS4 Built Features Management Plan - Lake Macquarie (NLM045)

Sent: Wed 20/11/2019 6:15

Message Draft Miniwall S4 Built Features Management Plan 191120.pdf (5 MB) Open PDFs in Adobe Acrobat

Hi All,

Please find attached the draft Chain Valley Colliery Miniwall S4 Built features management plan for your review and comment.

It is an extension and update of the S2/S3 Built features management plan which had the Pelican Rock Navigational Marker as the main nearby built feature. This S4 miniwall is further away again from the navigational marker and is adjacent to the S3 Miniwall panel (See management plan for reference drawing).

By ways of an update development mining has occurred under the Pelican Rock navigation marker with no impact to nav marker serviceability. The S2 miniwall (miniwall closest to the NLM045) is planned to extract past the marker towards the end of December to early January. Miniwall S3 is currently planned for extraction in Feb 2020 and Miniwall S4 is currently planned for extraction in June 2020.

If you have any questions please don't hesitate to call.

Regards,
Chris



Chris Armit
Environmental and Community Coordinator
Phone: 02 4358 0800
Mobile: 0409 070 233

Chain Valley Colliery
Off Construction Rd (Off Ruttleys Rd)
Manning Park NSW 2259

From: Chris Armit
To: 'Ray Ramage'
Cc: Phil Steuart; Gang Li; Tim Chisholm; David Hill; Chris Nicholas; 'Colin Phillips'
Subject: RE: CVC MWS4 Built Features Management Plan - Lake Macquarie (NLM045)

Sent: Mon 25/11/2019 11:00

Thanks for your feedback Ray, appreciate it.
I'll get Tim to include the Wallarah workings in the BFMP figure.
The S4 EP will also include Dave Hill's subsidence prediction report.
Cheers,
Chris

From: Ray Ramage [mailto:ray.ramage@planning.nsw.gov.au]
Sent: Monday, 25 November 2019 10:19 AM
To: Chris Armit
Cc: Phil Steuart; Gang Li
Subject: RE: CVC MWS4 Built Features Management Plan - Lake Macquarie (NLM045)

Chris,

Thanks for the update, particularly the info on tiltmeters.

I have reviewed the built features management plan for the purposes of consultation under SSD-5465.

The only comment I would make is that as houses & moorings along the shoreline have been identified and the critical control for these is mine layout and associated predicted angle of draw it would be beneficial to include the Wallarah Seam workings (refer in Fig 5 of the BFMP). It has been discussed at length in the past that the overlying workings have the potential to create subsidence outside the angle of draw.

Regards

Ray Ramage
Senior Mine Safety Officer (Subsidence Engineering)
Resources Regulator | Department of Planning, Industry and Environment
T 02 40636485 | M 0422 551 293 | E ray.ramage@planning.nsw.gov.au
8 Hartley Drive, Thornton NSW 2322

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 20 of 26

DOCUMENT UNCONTROLLED WHEN PRINTED



8 December 2019

Chris Armit
Environmental and Community Coordinator
Chain Valley Colliery
Off Construction Rd (Off Ruttleys Rd)
Manning Park NSW 2259

email: CArmit@deltacoal.com.au

Dear Mr Armit

CVC MWS4 Built Features Management Plan - Lake Macquarie (NLM045)

Thank you for your correspondence dated 20 November 2019 requesting comment on the draft Chain Valley Colliery Miniwall S4 Built features management plan and specifically the Pelican Rock Navigational Marker as the main nearby built feature.

Transport for NSW (TfNSW) Maritime is responsible for the ongoing maintenance of safe navigation throughout NSW under the Marine Safety Act 1998. As such, proposals like this are reviewed to ensure that any disruption to navigation for vessels is minimised as much as is practical.

The project documentation provided has been assessed as having minimal impact on the safety of navigation to vessels operating in this area and Maritime has no objections to the proposed works nor any concerns with the built features management plan.

TfNSW Maritime advises the following for your reference:

1. Any works impacting on navigation during the construction phase must seek TfNSW Maritime support 21 days prior to works commencing. A full scope of works including dates is to be provided to navigationadvicenorth@rms.nsw.gov.au.
2. All associated work boats to comply with the relevant NSW Marine Legislation for survey, registration and safety equipment, and comply with the Marine Safety (Domestic Commercial Vessels) National Law Act 2012.
3. Vessels must exhibit lights and shapes in accordance with International Regulations for Preventing Collisions at Sea.

For more information, please contact me at navigationadvicenorth@rms.nsw.gov.au or my contact details below.

Yours sincerely

Lynda Hourigan
Project Officer North
Maritime

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 21 of 26

DOCUMENT UNCONTROLLED WHEN PRINTED

Date: 05/05/2020
 From Colin Phillips
 To: Chris Armit

The Department's review of the Extraction Plan for Chain Valley Colliery Miniwall S4 has identified several areas requiring clarification or correction. I would be grateful if you would attend to the identified matters, revise the Extraction Plan and re-submit it to the Department via the Planning Portal. The attachment contains the Department's review.

The most important matter is reproduced below:

Appendix 13 Subsidence Report. Section 6.3 states that the High Water Mark is defined by the 2.44 m AHD land contour. This is incorrect. The High Water Mark is on the Lake shore, not 9 feet higher. This misinterpretation flows through to Figure 21 where it is shown with the lakeside boundary of the HWMSB as expressed in the seam being the intersection of a line drawn at 35 degrees from the 2.44 m AHD contour to the Fassifern seam. This line needs to be drawn from the lake shore to the seam. This then brings into play the question of whether the calculation of the lake side HWMSB edge has been correctly calculated. On the methodology presented in the Appendix 13, the calculations are most likely incorrect and will have implications as to the boundary of second workings in the vicinity of the proposed starting position of Miniwall S4.

Please investigate this matter and revise these aspects of the Miniwall S4 Extraction Plan before resubmitting to the Department for consideration

DPIE Resource Assessments - Benthic Communities Management plan related comments	Response
6. Appendices 6, 8 and 9. In Section 1.2 of the Benthic Communities MP, Public Safety MP and Built Features MP the first line of text is almost completely repeated in the second line of text.	Section 1.2 removed
9. Appendix 9 Built Features MP – Should Section 7.1 be more targeted to reporting against any impacts to built features?	Section 7.1 updated

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 22 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

Appendix 2: Development Consent Summary

Chain Valley Colliery Development Consent SSD-5465 Summary

This BFMP has been prepared in accordance to Schedule 3, Condition 21 of SSD-5465, which states the requirements of the BFMP and what it must address. **Table A2** outlines the requirements of the BFMP and where this document addresses these requirements.

Table A2: Requirements from Chain Valley Colliery Development consent SSD-5465

Condition No.	Requirement	Relevant section of this document				
	Schedule 2 Administrative Conditions					
18	<p>Updating and Staging Strategies, Plans or Programs</p> <p><i>The Applicant must regularly review the strategies, plans and programs required under this consent and ensure that these documents are updated to incorporate measures to improve the environmental performance of the development and reflect current best practice in the mining industry. To facilitate these updates, the Applicant may at any time submit revised strategies, plans or programs for the approval of the Secretary.</i></p> <p><i>With the agreement of the Secretary, the Applicant may also submit any strategy, plan or program required by this consent on a staged basis. With the agreement of the Secretary, the Applicant may prepare a revision or stage of any strategy, plan or program required under this consent without undertaking consultation with all parties nominated under the applicable condition in this consent.</i></p> <p>Notes:</p> <ul style="list-style-type: none"> While any strategy, plan or program may be submitted on a staged basis, the Applicant must ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times. If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program. 	Section 8				
	Schedule 3 Environmental Conditions – Underground Mining					
25	<p><i>The Applicant shall rehabilitate the site to the satisfaction of the DRE. This rehabilitation must be general consistent with the proposed rehabilitation strategy described in the EIS, and comply with the objectives in Table 7.</i></p> <p><i>Table 7: Rehabilitation Objectives</i></p> <table border="1"> <thead> <tr> <th>Feature</th> <th>Objective</th> </tr> </thead> <tbody> <tr> <td>Built features damaged by mining operations</td> <td> <ul style="list-style-type: none"> Repair to pre-mining condition or equivalent unless: <ul style="list-style-type: none"> the owner agrees otherwise; or the damage is fully restored, repaired or compensated under the <i>Mine Subsidence Compensation Act 1961</i>. </td> </tr> </tbody> </table>	Feature	Objective	Built features damaged by mining operations	<ul style="list-style-type: none"> Repair to pre-mining condition or equivalent unless: <ul style="list-style-type: none"> the owner agrees otherwise; or the damage is fully restored, repaired or compensated under the <i>Mine Subsidence Compensation Act 1961</i>. 	Section 4 and 6
Feature	Objective					
Built features damaged by mining operations	<ul style="list-style-type: none"> Repair to pre-mining condition or equivalent unless: <ul style="list-style-type: none"> the owner agrees otherwise; or the damage is fully restored, repaired or compensated under the <i>Mine Subsidence Compensation Act 1961</i>. 					
	Schedule 4 Specific Environmental Conditions					
4	Performance Measures- Built Features	This document				

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 23 of 26

	<p>The Applicant shall ensure that the development does not cause any exceedance of the performance measures in Table 9 to the satisfaction of the Secretary.</p> <p><i>Table 9: Subsidence Impact Performance Measures – Built Features</i></p> <table border="1"> <thead> <tr> <th>Built Features</th> <th>Performance Measure</th> </tr> </thead> <tbody> <tr> <td>Trinity Point Marina Development Other built features</td> <td> <ul style="list-style-type: none"> Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repaired, replaced or fully compensated. </td> </tr> <tr> <th>Public Safety</th> <td></td> </tr> <tr> <td>Public Safety.</td> <td>Negligible additional risk.</td> </tr> </tbody> </table> <p>Notes:</p> <ul style="list-style-type: none"> The Applicant will be required to define more detailed performance indicators for each of these performance measures in Built Features Management Plans or a Public Safety Management Plan (see Condition 7 below). Measurement and/or monitoring of compliance with performance measures and performance indicators is to be undertaken using generally accepted methods that are appropriate to the environment and circumstances in which the feature or characteristic is located. These methods are to be fully described in the relevant management plans. In the event of a dispute over the appropriateness of proposed methods, the Secretary will be the final arbiter. The requirements of this condition only apply to the impacts and consequences of mining operations undertaken following the date of this development consent. Requirements regarding safety or serviceability do not preclude preventative actions or mitigation being taken prior to or during mining in order to achieve or maintain these outcomes. Requirements regarding safety or serviceability do not preclude preventative actions or mitigation being taken prior to or during mining in order to achieve or maintain these outcomes. 	Built Features	Performance Measure	Trinity Point Marina Development Other built features	<ul style="list-style-type: none"> Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repaired, replaced or fully compensated. 	Public Safety		Public Safety.	Negligible additional risk.	
Built Features	Performance Measure									
Trinity Point Marina Development Other built features	<ul style="list-style-type: none"> Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repaired, replaced or fully compensated. 									
Public Safety										
Public Safety.	Negligible additional risk.									
5	<p>Any dispute between the Applicant and the owner of any built feature over the interpretation, application or implementation of the subsidence performance measures in Table 9 is to be settled by the Secretary, following consultation with the MSB and the DRE. Any decision by the Secretary shall be final and not subject to further dispute resolution under this consent.</p>	Noted								
7	<p>Extraction Plan</p> <p>(g) include a Built Features Management Plan, which has been prepared in consultation with DRE and the owners of affected public infrastructure, to manage the potential subsidence impacts and/or environmental consequences of the proposed second workings, and which:</p> <ul style="list-style-type: none"> addresses in appropriate detail all items of public infrastructure and other public infrastructure and all classes of other built features; has been prepared following appropriate consultation with the owner/s of potentially affected feature/s; recommends appropriate remedial measures and includes commitments to mitigate, repair, replace or compensate all predicted impacts on potentially affected built features in a timely manner. <p>The Applicant shall implement the approved management plan as approved from time to time by the Secretary.</p> <p>Notes:</p> <ul style="list-style-type: none"> To identify the underground mining areas approved under this consent referred to in this condition, see Appendix 3. This condition does not limit secondary extraction under a Subsidence Management Plan approved as at the date of this consent. 	This document								

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 24 of 26

8	<p><i>The Applicant shall ensure that the management plans required under conditions 7(g)-(j) above include: (a) an assessment of the potential environmental consequences of the Extraction Plan, incorporating any relevant information that has been obtained since this consent; and (b) a detailed description of the measures that would be implemented to remediate predicted impacts</i></p>	<p>Section 4 and 6</p>
---	--	-------------------------------

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 25 of 26
DOCUMENT UNCONTROLLED WHEN PRINTED				

Appendix 3: Pre-mining Assessment - Pelican Rock Navigational Marker (NLM045)

Review Date	Next Review Date	Revision No	Document Owner	Page
		0	Environment and Community Coordinator Chain Valley Colliery	Page 26 of 26

DOCUMENT UNCONTROLLED WHEN PRINTED

21 May 2019

Dave McLean
Mine Manager
Chain Valley Colliery
Manning Park, NSW

Re: Pre-mining assessment of Pelican Rock and associated Navigational Marker

Dear Dave,

1 Introduction

This letter has been prepared to inform the mine manager of the pre-mining assessment of the Pelican Rock Navigational Marker which was undertaken on 19th May 2019 and provides a brief description of the location and built feature details of the existing Pelican Rock navigational marker, the subsidence predictions and public safety impact.

2 Location

The Pelican Rock Navigational Marker (Isolated Danger) is located above Tailgate S2 (TGS2) as per the attached plan and is physically numbered 045 with dimensions as per Photo 1.

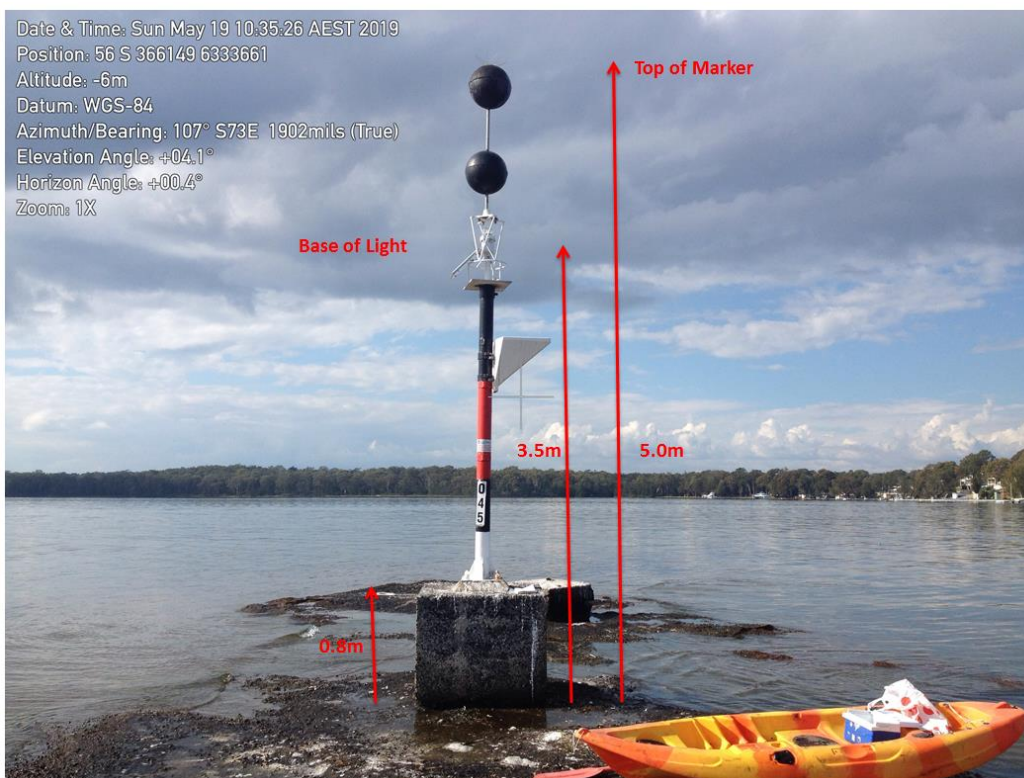
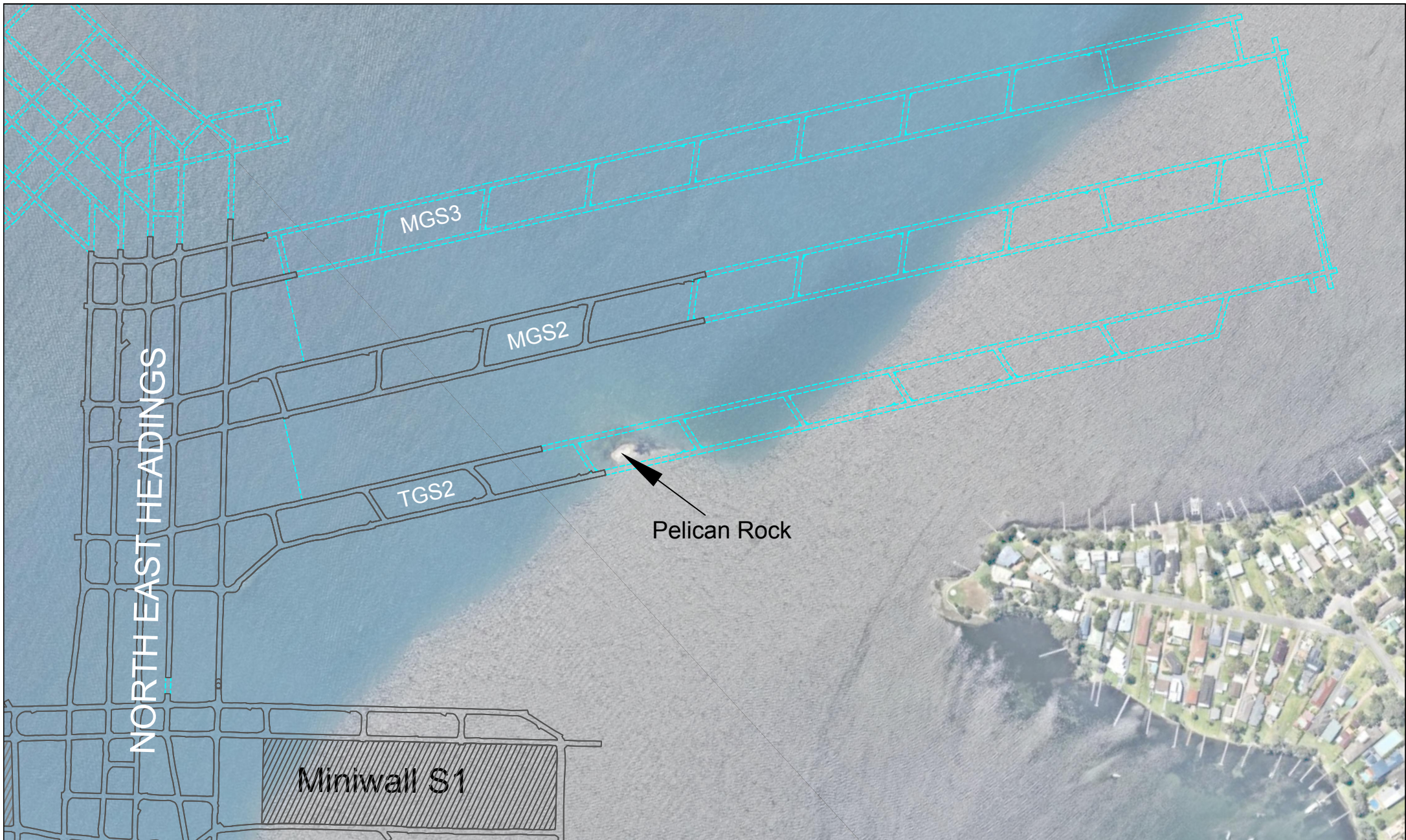


Photo 1. Pelican Rock Navigational Marker



DELTA COAL
 CHAIN VALLEY COLLIERY
 FASSIFERN SEAM

SCALE:	1:5000 @ A4	DATE:	20 May 2019
DRAWN:	R Tubridy	DRG NO:	C4p0616
CHECKED:	-	REV NO:	0
SIGNED:	-	SIZE:	A4





In terms of geological setting, the navigational marker and concrete block sit on a relatively flat, pebbly conglomerate outcrop which forms the navigational hazard (Photo 2). There were no signs of fresh cracking or deterioration on the outcrop or built feature which was inspected during high tide on the 19th May 2019. The Pelican rock outcrop extents seem to be more controlled by jointing on the northern side. During the High tide inspection the feature appeared generally flat and oval in general shape.

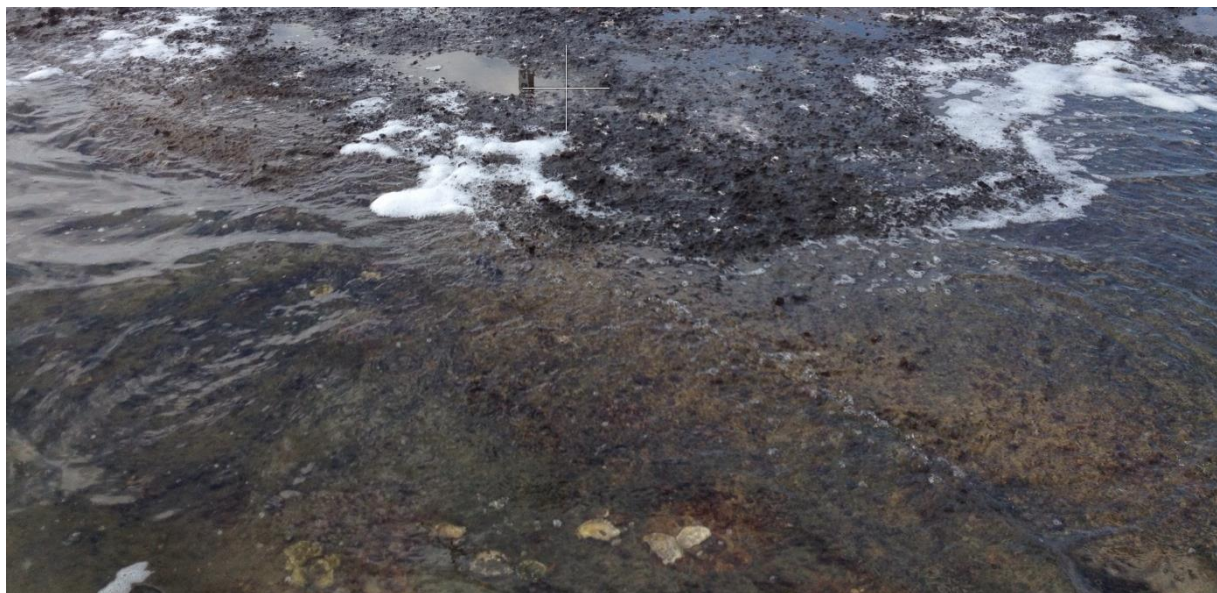


Photo 2. Pebbly Conglomerate outcrop which forms Pelican Rock

3 Built Feature Details

The New South Wales Transport Department – Roads Maritime Services (RMS) maintains a system of buoys, poles and lights is used to assist safe navigation on water. Each type of mark has a unique combination of colour, shape, topmark and light. The navigational marker on Pelican Rock falls into the category of **Other buoys and signs – Isolated danger**. The Isolated danger sign indicates specific dangers with generally safe waters all around (eg a wreck). It is advised to sailors to pass them on any side but not to pass too close. If lit, it shows a white light flashing in groups of two.

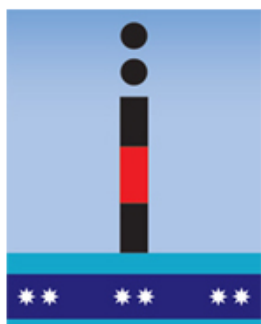


Figure 1. Other buoys and signs – Isolated danger



Photo 3. Current condition of the marker fixing to the concrete block

It appears as there was a previous marker to the south east of the current marker as there is a 500mm high concrete block remaining with a steel pipe in it. The current marker appears in a stable and fit state. The navigational lights were not observed due to the daytime inspection.

4 Subsidence predictions

Mine Subsidence Engineering Consultants (MSEC) prepared the Subsidence Prediction and Impact Assessment report for Miniwall Panels S2 and S3 in 2019. The following excerpt is taken from the subsidence prediction and impact assessment report.

The Pelican Rock Navigation Marker is located on the rock outcrop that extends into Lake Macquarie from Summerland Point. The marker is outside but immediately adjacent to the tailgate of MWS2. The predicted vertical subsidence for the navigation marker is 90 mm. The predicted subsidence should be provided to Roads and Maritime Services so that management strategies can be developed for the marker, if required.

5 Public Safety impact

The isolated danger, navigational marker is an important safety sign for people travelling by boat near the Pelican Rock outcrop, especially whilst travelling during the night time. RMS has been provided the Extraction Plan for S2/S3 Miniwalls and subsidence monitoring program. As of the 19th May 2019 there has been no correspondence back from RMS. Given the above subsidence predictions <90mm there is little risk of vertical subsidence being an issue given the heights of the navigational markers (Photo 1).



6 Conclusion

In conclusion this memo is a completed record of the pre-mining assessment of Pelican Rock Navigational Marker. It is recommended that a post mining assessment is conducted after S2 and S3 Mini wall Panels are extracted to close out the impact to this feature.

Yours sincerely,

Chris Armit
Environment and Community Coordinator

7 References

<https://www.rms.nsw.gov.au/maritime/safety-rules/rules-regulations/navigation-marks-and-signs.html>

James Barbato (2019) S2 and S3 Miniwall Panel Extraction Plan Subsidence Assessment