

Voluntary Enforceable Undertaking

Environmental Protection Act 1994 (Qld)

Heidelberg Materials Australia Pty Ltd
ACN 009 679 734

13 December 2024

The commitments in this undertaking are offered to the Administering Authority
by the above person or entity.

Facts and circumstances

A. Heidelberg Materials Australia

- (a) Heidelberg Materials Australia is the holder of the EA, which authorises ERA 16(2)(c) – extraction other than by dredging in a year more than 1,000,000t of material; 16(3)(c) – screening in a year more than 1,000,000t of material; ERA 54(1) – operating a facility for receiving and mechanically reprocessing, in a year, more than 5,000t of inert, non-putrescible waste or green waste only; and ERA 62(1)(a) – operating a facility for receiving, sorting, dismantling, bailing or temporarily storing scrap metal, non-putrescible waste or green waste only.
- (b) Heidelberg Materials Australia has offered the **undertaking** as a way to remedy the alleged contraventions outlined in clause 3 of the **undertaking**.
- (c) In consideration of these facts and circumstances the department has accepted the undertaking as it considers:
 - (i) The alleged contraventions are not indictable offences;
 - (ii) The undertaking will secure compliance with the **Act**;
 - (iii) The undertaking will enhance the protection of the environment; and
 - (iv) The **undertaking** complies with the requirements of the **Guideline**.

B. Circumstances of the alleged contraventions

- (a) Heidelberg Materials Australia operates the site under the EA, which permits the extraction, screening and stockpiling of aggregate rock.
- (b) On 9 January 2024, Heidelberg Materials Australia notified the department that a release of earthen material had occurred at the site as the result of a bund wall failure along the northern end of the sales floor area. The earthen material was a mixture of aggregate rock, predominately 'manufactured sand' and road base; quarry material stockpiled in the sales floor area.
- (c) Significant rainfall events between 24 December 2023 and 3 January 2024 had unexpected consequences for a section of the northern bund at the site which resulted in the deposition of earthen material on land described as Lot 400 SP174766 and a section of Coombabah Creek immediately adjacent to Lot 400 SP174766.
- (d) The incident impacted environmental values of the terrestrial and aquatic environment including high ecological value waters of the Lowland Freshwaters of Coombabah Creek and adjacent regulated vegetation of Matters of State Environmental Significance. Aggregate material was observed to be up to 1m deep in some areas, covering vegetation within an area approximately 4,000m², extending up to approximately 130m downstream of the release locations.
- (e) As soon as becoming aware of the incident, Heidelberg Materials Australia took immediate steps to prevent further deposition of material and remediate the impacted area including the commissioning of specialist consultants in the areas of stormwater engineering, environmental management, ecology and rehabilitation.
- (f) On 30 January 2024, the department issued a Clean-up notice to Heidelberg Materials Australia which required immediate actions to prevent further release of contaminants to land and water; the removal of quarry material from impacted land and water; and the rehabilitation and remediation of impacted areas.
- (g) On 18 September 2024, the department issued a letter of finalisation in accordance with section

363H of the EP Act which stated Heidelberg Materials Australia had satisfied the requirements of the Clean-up notice.

- (h) In addition to meeting the Clean-up notice requirements, Heidelberg Materials Australia has invested significant resources to implement additional stormwater management measures across the site as detailed in Appendix C subsection (3).
- (i) Following the completion of works under the Clean-up notice, Heidelberg Materials Australia and the department are of the view that there remains a disparity between what was achievable through onsite restoration and the state of the environment prior to the rainfall events of early January 2024.
- (j) In consultation with the department, Heidelberg Materials Australia have committed to a donation of funds to the City of Gold Coast which will contribute to an ecological restoration project for areas adjacent to the Coombabah Creek Reserve over a three (3) year period and result in additional benefit to both the community and the environment. As a guarantee that Heidelberg Materials Australia delivers on its financial commitment to the restoration project, Heidelberg Materials Australia have elected to apply for a Voluntary Enforceable Undertaking.

C. Consequences of the alleged contraventions

- (a) As a result of the alleged contraventions:
 - (i) The environmental values of the terrestrial and aquatic environment including high ecological value waters of Coombabah Creek and adjacent regulated vegetation of Matters of State Environmental Significance have been impacted by the deposition of earthen material; and
 - (ii) While Heidelberg Materials Australia conducted remediation and restoration works in the areas impacted by the **incident**, full restoration through natural regeneration is not expected for 10 years or more.

D. Actions taken to prevent recurrence of the alleged contraventions

At a cost of approximately \$900,000, Heidelberg Materials Australia implemented the following initiatives to prevent the occurrence of a similar incident, Heidelberg Materials Australia has:

- (a) Re-engineered the northern bund area of the site to ensure stormwater will be directed away from the area in future. The batter in this area has been stabilised using hydro-mulch with a native seed mix selected through consultation with specialist ecologists to ensure the resultant vegetation is consistent with that present in the surrounding landscape and appropriate for the site context.
- (b) Increased catchment storage prior to authorised release point F2 which included relocation of plant and equipment storage facility, ascertained an alternate aggregate truck tip off area to eliminate contamination and constructed an additional sediment basin to improve water quality prior to release. Removed the pump station adjacent to Coombabah Creek.
- (c) Reconfigured material handling and storage of materials. This has included removal and relocation of manufactured sand stockpiles from the incident area.
- (d) Redesigned surface water infrastructure surrounding the workshop catchment to report to sediment basin F3 for treatment prior to release.
- (e) Heidelberg Materials Australia has commissioned a registered professional engineer of Queensland (RPEQ) to undertake a review of the stormwater management devices and water storage capacity for the whole quarry operation. This review has recommended a range of

improvements, which Heidelberg Materials Australia has commenced implementing with oversight from the department. These measures include,;

- (i) update site monitoring and maintenance protocols with respect to stormwater controls;
- (ii) increase size of on site sediment basins to improve water retention;
- (iii) improve sediment control devices around the site;
- (iv) install a high efficiency sediment basin with automated flocking system; and
- (v) maintain key diversion drainage on site.

E. Statement of regret

Heidelberg Materials Australia genuinely regrets the circumstances leading to the alleged contravention. Heidelberg Materials Australia has identified the cause of the alleged contravention, has taken immediate action to avoid reoccurrence and the alleged contravention has ceased.

F. Statement of commitment that the behaviour, activities, and other factors which caused or led to the alleged contraventions has ceased and will not reoccur

Heidelberg Materials Australia has reviewed the full cause and effect of factors which resulted in the unforeseen impacts to the northern bund as a result of significant rainfall events. Matters specifically associated with the northern bund area have been resolved. More broadly, Heidelberg Materials Australia have carried out a stormwater management review across the site and commits to continue to implement recommendations and actions to prevent the alleged contraventions from reoccurring to the maximum extent practicable.

After the incident, learnings were communicated to the broader operational management teams to ensure stormwater management is prioritised across quarry sites. An information alert related to the importance of perimeter bunding construction, annually reviewing stormwater management assets and the use of drone technology to verify onsite conditions will be shared with the business when the undertaking is signed.

G. Why Undertaking is a more appropriate response to the alleged contraventions than court proceedings

- (a) Heidelberg Materials Australia and the department have been working together since January 2024 to ensure that the best environmental outcome can be achieved post deposition of material on Lot 400 SP174766 and the section of Coombabah Creek immediately adjacent to Lot 400 SP174766. A Voluntary Enforceable Undertaking provides an avenue to continue to support environmental outcomes in response to any alleged contraventions of the EP Act and can be proposed as an alternative to prosecution.
- (b) Prosecution is not considered in the best interest of either party considering the outcomes achieved to date, facilitated by way of a proactive approach by the department and a willingness by Heidelberg Materials Australia to do what is necessary to ensure that:
 - (i) the deposited material is removed to the maximum extent practical;
 - (ii) the area is rehabilitated; and
 - (iii) additional preventative measures are employed to assist in avoiding similar circumstances in the future.

- (iv) The cost to Heidelberg Materials Australia for the remediation has already been significant and demonstrates the seriousness with which Heidelberg Materials Australia has treated the alleged contravention and its consequences.
- (v) Heidelberg Materials Australia has no motivation or intention to obtain a financial or material benefit from the alleged contravention.
- (vi) Heidelberg Materials Australia has demonstrated its ability deliver on its commitments under the Clean-up notice issued by the department.
- (vii) The agreement by Heidelberg Materials Australia in entering this Undertaking is a commitment by Heidelberg Materials Australia to continue to take active steps to address any disparity between what was achievable through onsite restoration and the state of the environment prior to the rainfall events of early January 2024. The ongoing contribution over the next three (3) year period will result in a benefit to the environment and the community that would otherwise unlikely be achieved via a fine or prosecution.

The enforceable undertaking

1) Interpretation

- (a) The following definitions apply in this document.

Act means the *Environmental Protection Act 1994* (Qld).

AQP means appropriately qualified person who has professional qualifications, training, skills, and experience relevant to ecological restoration and rehabilitation. The person or persons, must be able to give authoritative assessment, advice and analysis using the relevant protocols, standards, methods and/or literature.

Alleged contravention means the contravention/s or alleged contraventions contemplated in section 507 (1) and 508 (2) of the Act as outlined in clause 3 of the **undertaking**.

Heidelberg Materials Australia means Heidelberg Materials Australia Pty Ltd (ACN 009 679 734).

department means Chief Executive administering the *Environmental Protection Act 1994*.

EA means environmental authority EPPR00984013 authorises the above **ERAs** 16(2)(c), 16(3)(c), 54(1) and 62(1)(a) at the **site**.

ERA means an environmentally relevant activity as prescribed under Schedule 2 of the *Environmental Protection Regulation 2019* (Qld).

Guideline means the *Guideline – Enforceable undertakings under the Environmental Protection Act 1994* ESR/2016/2272 Version 2.02

Incident means the release of quarry material described in clause B.

Site means the Heidelberg Materials Australia Nerang quarry at Hymix Road, Nerang also known as Lot 2 on RP131027, Lot 2 on RP167082, Lot 400 on SP174766, Lot 571 on FTY1816, and Lot 64 on WD939.

Facts and Circumstances means the issues and circumstances raised by Heidelberg Materials Australia as being appropriate to take into consideration when deciding that the **undertaking** is appropriate and the department is able to accept it, as outlined above.

Rehabilitation Plan means the Nerang Quarry – Rehabilitation and Restoration Plan, 29 February 2024; BAAM Ecological Consultants.

Undertaking means this voluntary enforceable **undertaking** made pursuant to Chapter 10, Part 5 of the **Act**, including any attachments.

- (b) The **Act** prevails to any inconsistency between the **undertaking** and the **Act**.
- (c) If there is any inconsistency between the **undertaking** and its appendixes or any other document referred to in the **undertaking**, the **undertaking** prevails to the extent of any inconsistency.

2) Objectives

- (a) The objectives of this **undertaking** are to enhance the protection of the environment and secure compliance with the **Act** to:
 - (i) improve environmental performance of Heidelberg Materials Australia with respect to stormwater management;
 - (ii) deliver benefits to the environment and local community by assisting the City of Gold Coast in the delivery of three ecological restoration projects aimed to improve the riparian environment along Coombabah Creek and assist in offsetting impacts that occurred upstream as a result of the alleged contraventions;
 - (iii) promoting the benefits of environmental stewardship within Heidelberg Materials Australia by conducting a corporate planting day as part of the Coombabah Creek restoration works;
 - (iv) ensuring the successful rehabilitation of land and waters impacted by the incident in January 2024; and
 - (v) promoting the objects of the Act.

3) Alleged contraventions

- (a) It is alleged Heidelberg Materials Australia has committed the following contraventions:
 - (i) Causing environmental harm, contrary to section 437(2), 438(2) or 440 of the **Act** which was caused by the release of earthen material from the quarry identified on 9 January 2024, until the environment is restored to a pre-impacted state; and
 - (ii) Depositing a prescribed water contaminant to waters, contrary to section 440ZG of the **Act**. The prescribed water contaminant was clay, gravel, sediment, stones and similar organic or inorganic material and the deposit was caused by the release to the Coombabah Creek identified on 9 January 2024 and remedied by 21 May 2024.
 - (iii) Contravention of conditions G4 and L1 of the EA by unlawfully releasing contaminants to land and waters, contrary to section 430(3) of the **Act**; the contravention relates to the failure of a bund wall resulting in the release of quarry material to land and the bed and banks of Coombabah Creek identified on 9 January 2024.

4) Terms of the Undertaking

Heidelberg Materials Australia undertakes to achieve the objectives outlined in clause 4, by carrying out the following:

- (a) Within 60 days of the date of this **undertaking** being executed, pay \$119,806.86 to the department for the department to use on rehabilitation works on the Coombabah Creek Restoration Project in accordance with Appendix A.
- (b) Continuing to implement the Maintenance Schedule and the Rehabilitation Monitoring and Reporting of the Rehabilitation Plan in accordance with Appendix B until June 2026 at an anticipated cost of \$47,000.
- (c) Contributing to the Coombabah Creek Restoration Project and internal education by participating in a corporate planting day at a location to be determined; and
- (d) By 30 September 2025, implement the Summary of Recommendations on site as outlined in Appendix C Stormwater Management Review subsection (3)(b) (or more recent version as agreed to by the department).

5) Acknowledgements

Heidelberg Materials Australia acknowledges that:

- (a) it has read and understood the **Guideline**;
- (b) this **undertaking** will be published on the department's website and may be referred to or referenced in other ways;
- (c) the department's acceptance of this **undertaking** means that the department:
 - (i) will not commence proceedings against Heidelberg Materials Australia for the alleged contraventions described in clause 3, as long as Heidelberg Materials Australia is fully complying, or has fully complied, with the **undertaking**;
 - (ii) the department's acceptance of this **undertaking** does not affect the department's power to:
 - (A) bring proceedings against Heidelberg Materials Australia;
 - (B) issue penalty infringement notices; or
 - (C) take any other enforcement action against Heidelberg Materials Australia, in relation to any other contravention or alleged contravention of the Act,that is not the subject of this undertaking;
- (d) this **undertaking** in no way derogates from the rights and remedies available to any other person or entity arising from any conduct described in this **undertaking** or arising from subsequent conduct;
- (e) any failure to meet the due date for an action under the terms of this **undertaking** may result in the matter being escalated and may lead to enforcement action;
- (f) the department may undertake other compliance monitoring activities to verify compliance with a term of this **undertaking**;

- (g) Heidelberg Materials Australia agrees to cooperate with the department in any investigation or compliance activity in respect of the **undertaking** such as site access and provision of documents upon reasonable notice;
- (h) Heidelberg Materials Australia has offered this **undertaking** in the approved form and consistent with the **Guideline**.

6) Ability to comply with the Undertaking

- (a) By executing this **undertaking** Heidelberg Materials Australia certifies that it has the financial ability to comply with the terms proposed for the **undertaking**. At the request of the Department, Heidelberg Materials Australia will provide evidence by way of the Heidelberg Materials Australia consolidated financial statements to support this declaration.
- (b) In the event of Heidelberg Materials Australia entering administration or negotiations for sale of the entity, Heidelberg Materials Australia will advise the department of the relevant circumstances and its capacity to comply with the outstanding terms of this **undertaking**.
- (c) In the event that the Heidelberg Materials Australia or the site is sold, or there are significant movements in shareholdings of Heidelberg Materials Australia, Heidelberg Materials Australia will advise any future shareholders owners or operators of the site of the existence of this **undertaking** and provide a copy of that correspondence to the department.

7) Contact details

- (a) Any written notification to the department pursuant to this **undertaking** is to be provided to:
Kate Harbert
Director Compliance
Department of Environment, Tourism, Science and Innovation
Level 32, 400 George St, Brisbane, Queensland 4000
Kate.harbert@des.qld.gov.au, GoldCoast.es@des.qld.gov.au
- (b) Any written notification to Heidelberg Materials Australia pursuant to this **undertaking** is to be provided to:
Phil Cole
Supply Chain Manager Aggregates
Heidelberg Materials Australia Pty Ltd
10 The Boulevard, Brisbane Airport, Queensland 4008
Phil.cole@heidelbergmaterials.com

8) Execution

The commitments in this undertaking are offered to the Chief Executive administering the *Environmental Protection Act 1994* by Heidelberg Materials Australia and are effective once signed by Heidelberg Materials Australia and the Chief Executive administering the *Environmental Protection Act 1994* and the Chief Executive administering the *Environmental Protection Act 1994* gives Heidelberg Materials Australia notice of the decision to accept the undertaking.

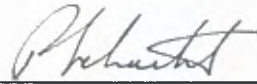
SIGNED, SEALED AND DELIVERED for and on behalf of Heidelberg Materials Australia Pty Ltd
ACN 009 679 734 in accordance with section 127 of the *Corporations Act 2001*



(signature of ~~director~~/secretary)

Victoria Vincent

(name of ~~director~~/secretary)



(signature of director)

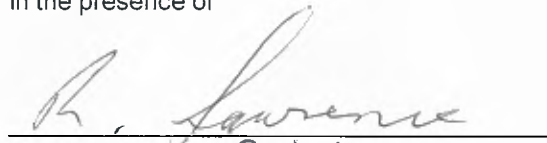
Philip Schacht

(name of director)

18 December 2024

(date)

Accepted by Rob Lawrence on behalf of the Chief Executive administering the *Environmental Protection Act 1994*
in the presence of


Signature of witness Rob Lawrence


Rob Lawrence signature of witness

Kate Harbert

Name of witness (print)

Appendix A

Coombabah Creek Riparian Restoration Project Plan			
	Line Item	Description	Total Cost \$ (excl GST)
Year 1	1.0	Assisted natural regeneration (primary weed treatment)	
	1.1	Coombabah Creek Reserve riparian restoration (Lot	\$16,317.20
	1.2	Upper Coombabah Creek Reserve riparian restoration	\$32,375.00
	2.0	Planting - Corporate planting day (Location yet to be determined)	
	2.1	Herbicide preparation of site - two applications	\$330.00
	2.2	Supply labour and equipment to dig planting holes (1000)	\$1,330.00
	2.3	Supply, deliver, dig hole and plant including water crystals, fertiliser and water - native plants (Standard 120mm tube) 1000	\$3,940.00
	3.0	Plant Establishment/Maintenance	
	3.1	Monthly Establishment 1 plant (1 to 3 months)	\$4,290.00
	Total		\$58,582.20
Year 2	4.0	Assisted natural regeneration (follow-up weed treatment)	
	4.1	Coombabah Creek Reserve riparian restoration	\$8,720.00
	4.2	Upper Coombabah Creek Reserve riparian restoration	\$19,425.00
Total			\$28,145.00
Year 3	5.0	Assisted natural regeneration (follow-up weed treatment)	
	5.1	Coombabah Creek Reserve riparian restoration	\$5,232.00
	5.2	Upper Coombabah Creek Reserve riparian restoration	\$13,597.50
Total			\$18,829.50
MISC	N/A	Contingency 10%	\$10,555.67
	N/A	CPI restoration activities rate increase at an average of 3.5% per year (starting year 1)	\$3,694.49
Total Cost			\$119,806.86

Appendix B

MAINTENANCE SCHEDULE

Over a total period of 24 months, maintenance of the entire rehabilitation area should be undertaken by a suitable rehabilitation contractor, as per **Table 8** below.

Table 8: Maintenance schedule

Timing	Maintenance Task
First 3 months after planting	Control weeds – Check for weeds monthly and control as required, taking care not to damage planted and regenerating native species, including grasses and forbs. General Site Maintenance – e.g. remove any rubbish found on site; check for signs of further contamination from displaced quarry material.
3-24 months after planting	Control weeds – After the first 3 months, conduct weed checks at 3 month intervals and control as required, taking care not to damage planted and regenerating native species, including grasses and forbs. Watering – Continue to water each seedling as necessary until seedlings are established (approximately 3 – 6 months). Any replacement seedlings should be watered weekly during the first month following planting, then water as necessary until seedlings are established (approximately 3 – 6 months after planting). Replacement Planting – Replace dead or senescent plants according to the methods detailed in this plan and continue replacement planting until 95% survival rate achieved. General Site Maintenance – Remove any rubbish dumped on site; check for signs of further contamination with quarry material.

Daily Reporting by Rehabilitation Contractor

From commencement to completion of rehabilitation planting works (including follow-up maintenance), the rehabilitation contractor will provide fortnightly reports to AQP for each day of works for the first three months, detailing activities undertaken, areas treated, and any issues encountered and include representative photos illustrating works completed and/or any concerns. After the initial 3 month treatment, the rehabilitation contractor will provide monthly reports to AQP period of all maintenance activities. The AQP will review the contractor reports to ensure rehabilitation and restoration works have been undertaken in accordance with this Plan and assess the requirement for additional management.

Bi-monthly Monitoring

In accordance with Part B (8) of the Clean-up Notice, the AQP will ensure bi-monthly (every two months) monitoring of the quarry material removal and rehabilitation activities. Monitoring is to include:

- written assessment of the effectiveness of erosion and sediment control measures implemented; and
- written assessment of progress towards implementing the removal of quarry material; and
- photographs from established monitoring points within the catchment.

Photograph monitoring points are indicated on **Figure 1**. These have been established in Rehabilitation Zone 1 where retrieval works have commenced. All monitoring points will be marked permanently with star-pickets to be easily located during monitoring events and for consistent repetition of photos. Four photos will be taken from the top of the star picket facing north, east, south, and west to get a 360° view of the rehabilitation area and surrounds at each monitoring event. Canopy monitoring will be two photos in the same direction during each event, capturing the Rehabilitation Zone.

In addition to the monitoring requirements above, rehabilitation will be monitored through the assessment of site attributes at monitoring plots established within the rehabilitation zones for comparison with the control sites.

Indicative site condition monitoring plot locations are given in **Figure 1**.

Records of the bi-monthly assessments will be provided to Hanson to allow submission of the assessment report to the Clean-up Notice administering authority (currently DESI) within 14 days of the assessment being conducted, as required under point 9 of the Clean-up Notice. Monitoring reports will be provided to Hanson every two months for 24 months following commencement of the rehabilitation works.

REHABILITATION MONITORING AND REPORTING

Commencement

As required under Part C (13) of the Clean-Up Notice, implementation of this rehabilitation plan is to commence by 9:00 am on 18 April 2024. It is expected that restoration, particularly weed management, will commence immediately after material retrieval.

Quaternary Vegetation Assessment Locations

Nerang Quarry

27°57'12"S 153°19'6"E

27°57'12"S 153°19'19"E



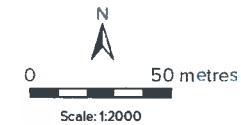
27°57'22"S 153°19'6"E

27°57'22"S 153°19'19"E

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NERANG QUARRY

STORMWATER MANAGEMENT REVIEW

Prepared for: Hanson Construction Materials Pty Ltd

Date: 29 November 2024

File Reference: 1048.810.002

DOCUMENT CONTROL

PROJECT / DETAILS REPORT

Document Title:	Nerang Quarry – Stormwater Management Review (Summary Report)
Principal Author:	Mark Folker
Client:	Hanson Construction Materials Pty Ltd
Reference Number:	1048.810.002

DOCUMENT STATUS

Issue	Description	Date	Author	Reviewer
1	Original Issue	26.06.24	M. Folker	M. Benham
2	Updated timeframes and details	29.11.24	M. Folker	M. Folker

DISTRIBUTION RECORD

Recipient	Method
Hanson Construction Materials Pty Ltd	Electronic

GROUNDWORK PLUS**Phone:** 1800 GW PLUS (1800 497 587)**Email:** info@groundwork.com.au**Website:** groundwork.com.au **ABN****13 609 422 791****QLD/NSW**

6 Mayneview Street, Milton Qld 4064

PO 1779, Milton BC Qld 4064

Phone: +61 7 3871 0411**Fax:** +61 7 3367 3317**SA/WA/NT**

2/3 16 Second St, Nuriootpa SA 5355 PO

Box 854, Nuriootpa SA 5355

Phone: +61 8 8562 4158**VIC/TAS**

PO Box 438, Altona VIC 3018

Phone: 0437 523 282**Geotechnical Laboratory**

Unit 78/109 Leitchs Road, Brendale Qld 4500

Phone: 0417 615 217

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Surface Water Layout Plan 2024

(Drawing No. 1048.DRG.058)

1 Introduction

1.1 Overview

Groundwork Plus have been engaged by Hanson Construction Materials Pty Ltd (**Hanson**) to undertake a Stormwater Management Review for the Nerang Quarry, located at Hymix Rd, Nerang QLD 4211, properly described as Lot 2 on Plan RP167082, Lot 571 on Plan FTY1816, Lot 400 on Plan SP174766, Lot 64 on Plan WD939 and Lot 2 on Plan RP131207 (herein referred to as the **site**).

1.1.1 Objective and Background

The objective of the Stormwater Management Review is to identify potential stormwater management improvements for site operations, based on an updated catchment assessment.

1.1.2 Prescribed ERA Activities and Environmental Authority (EA)

The operation includes the following Prescribed Environmentally Relevant Activity (ERA) thresholds in accordance with the *Environmental Protection Regulation 2019 (EP Reg)*:

- ERA 16 threshold (2) (c) – Extracting (other than by dredging) in a year, the following quantity of material – more than 1,000,000 tonnes.
- ERA 16 threshold (3) (c) – Screening, in a year, the following quantity of material – more than 1,000,000 tonnes.
- ERA 33 – Crushing, milling, grinding or screening > 5000t per year
- ERA 62 – Waste transfer station operation > 30t of 30m3 per day

The ERAs are carried out under an Environmental Authority (**EA**) issued by the Department of Environment, Science and Innovation (**DESI**), reference EPPR00984013.

1.2 Site Details

The location details of the site for the activities are summarised in **Table 1 – Summary of Land**.

Table 1 – Summary of Land

Property Description	Lot 2 on Plan RP167082, Lot 571 on Plan FTY1816, Lot 400 on Plan SP174766, Lot 64 on Plan WD939 and Lot 2 on Plan RP131207
Address	Hymix Rd, Nerang QLD 4211

1.3 Scope of the Stormwater Management Review

The scope of this stormwater management includes the following items:

- Identify the updated surface water catchments based on supplied UAV data;
- Review EA condition constraints and requirements;
- Review each respective catchment to identify stormwater management improvement opportunities in accordance with EA and industry standards; and
- Recommended implementation and maintenance strategy for identified stormwater management measures and systems.

2 Stormwater Management Review

2.1 Updated Surface Water Catchments

Refer to **Figure 1 - Surface Water Layout Plan 2024** which outlines the overall site stormwater management layout plan including catchments and recommended infrastructure improvements to be discussed, based on supplied UAV survey dated 16 April 2024.

A summary of the current surface water catchments are shown below in **Table 2 – Surface Water Catchment Details**.

Table 2 – Surface Water Catchment Details

Catchment	Area (Ha)	Stormwater Management Infrastructure	Discharge Point
C1	5.70	Roadside drain	F1
C2	6.08	Sediment Basin SB2	F2
C3	5.79	Sediment Basin SB3	F3
C3A	3.42	Silt trap and settlement ponds	
C3B	0.95	Silt trap	
C4	8.41	Sediment Dam SD4A & SD4B	F4
C4A	8.62	Sediment Basin SB4	
C5	71.02	Quarry Pit	Quarry Pit
C6	41.86	Cleanwater Storage Dam (Future)	B2

The stormwater management review has addressed each individual catchment with recommendations in the following sections.

2.2 Operating Conditions

The site's existing EA (P-EA-100499343) prescribes conditions relating to site release water quality discharge which are summarised in **Table 3 – Surface Water Operating Conditions**. There are currently no retention volume criteria for stormwater capture and sediment storage in the EA, and surface water management is guided by the water release limits prescribed in Condition WT1 of the EA.

Table 3 – Surface Water Operating Conditions

<u>Condition Number</u>	<u>EA Condition Details</u>																																																						
Schedule - Water																																																							
WT1	The only contaminants to be released to surface waters are settled treated stormwater runoff from areas of the site not likely to be contaminated with waste materials to waters in accordance with Table 3 – Surface water release limits and the associated monitoring requirements. Table 3—Surface Water Release Limits <table><tr><th colspan="3">Release Point(s) Description (GDA94 decimal degrees) *</th><th>Quality characteristic (units)</th><th>Limit</th><th>Limit Type</th><th>Minimum Monitoring Frequency</th></tr><tr><th></th><th>Latitude</th><th>Longitude</th><th></th><th></th><th></th><th></th></tr><tr><td rowspan="2">F1</td><td rowspan="2">-27.955651</td><td rowspan="2">153.323882</td><td>pH (pH units)</td><td>6.5 – 9.0</td><td>Range</td><td rowspan="7">Weekly upon release</td></tr><tr><td>Suspended solids (mg/L)</td><td>50.0 or 10% above background whichever is greater</td><td>Maximum</td></tr><tr><td>F2</td><td>-27.955334</td><td>153.323113</td><td rowspan="3">Turbidity (NTU)</td><td rowspan="3">60.0 or 10% above background level whichever is greater</td><td colspan="2" rowspan="3">Maximum</td></tr><tr><td>F3</td><td>-27.957535</td><td>153.317849</td></tr><tr><td>F4</td><td>-27.960254</td><td>153.317063</td></tr><tr><td>B1</td><td>-27.960167</td><td>153.315874</td><td rowspan="2">Dissolved Oxygen (mg/L)</td><td rowspan="2">6.0</td><td colspan="2" rowspan="2">Minimum</td></tr><tr><td>B2</td><td>-27.966084</td><td>153.313959</td></tr><tr><td></td><td></td><td></td><td>Visible Oil and Grease</td><td>No visible oil and grease</td><td></td><td></td></tr></table> * Decimal degrees to be provided to a minimum of 4 decimal places	Release Point(s) Description (GDA94 decimal degrees) *			Quality characteristic (units)	Limit	Limit Type	Minimum Monitoring Frequency		Latitude	Longitude					F1	-27.955651	153.323882	pH (pH units)	6.5 – 9.0	Range	Weekly upon release	Suspended solids (mg/L)	50.0 or 10% above background whichever is greater	Maximum	F2	-27.955334	153.323113	Turbidity (NTU)	60.0 or 10% above background level whichever is greater	Maximum		F3	-27.957535	153.317849	F4	-27.960254	153.317063	B1	-27.960167	153.315874	Dissolved Oxygen (mg/L)	6.0	Minimum		B2	-27.966084	153.313959				Visible Oil and Grease	No visible oil and grease		
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2.3 Maintenance and Monitoring Protocol

An inspection and maintenance program should be implemented as detailed in **Table 4 - Inspections and Maintenance of Erosion and Sediment Control Devices**. A summary schedule of the various inspections, performance criteria and responses that shall be performed on site is shown below.

Table 4 - Inspections and Maintenance of Erosion and Sediment Control Devices

Device	Minimum Frequency	Performance Criteria	Required Actions
Sediment Basins	Monthly, prior to wet season and/or >10mm rainfall forecast	adequate freeboard volume available, excess sediments removed prior to wet season (basin should not lose more than 30% capacity)	captured water to be reused on site and/or treated as required to meet release limits in EA prior to any site release at authorised release points
Diversion Drain in Catchment C2	Monthly, and every time new UAV is available, prior to >10mm rainfall forecast	➤ Diversion Drain C2 must be maintained to following: - Width 4m' - Depth > 667mm' - Batters 1 in 3; and - Longitudinal Grade >1%	- Every time a new UAV is flown, check performance criteria - Visually inspect for silt / sediment build up, slumping, and failures - Regrade as regularly as needed to ensure parameters are met
Inspect all other drainage lines including catch drains, Contour drains and diversions	Annually, prior to wet season	erosion in areas adjacent to water conveyancing structures	eroded areas shall be rehabilitated / rip rapped as soon as practicable
		overtopping of water conveyancing structures (i.e. clean water diversion drains) (identified by the scouring of the drain batters perpendicular to the direction of flow)	eroded areas shall be repaired and stabilised
Spill response stations	Monthly and following use	equipment is properly maintained	- maintain equipment - replace used equipment
Maintenance / refuelling area	Monthly	fuel, oil spills	clean up fuel spills and investigate source
		equipment maintenance	maintain equipment maintenance records
		fuel storage integrity maintained	investigate and repair potential leaks

3 Summary of Recommendations

Refer to **Table 7 – Summary of Recommendations** for details of all review recommendations. A timeframe has been included for Hanson to reference in planning of works.

Table 7 – Summary of Recommendations

Catchment	Action Required	Timeframe
C1	➤ Maintain existing diversion drain by periodically desilting and reinstating rock check dams;	Ongoing
	➤ Regular street sweeping of sealed roads as necessary to minimise sediment transport;	Weekly
	➤ Inspect routinely for scouring (including lateral scour from southern ridge line); and	Weekly / After Rainfall Event
	➤ Shift stockpiles in upper (southern) catchment and regrade disturbed area to drain to Catchment C3	April 2025
	➤ Install silt trap on LV track to the south of the quarry entry road	April 2025
C2	➤ Refer to recommended site monitoring and maintenance protocol in Section 2.3 and ensure that Diversion Drain C2 is constructed to following minimum required parameters: ○ Width 4m' ○ Depth > 667mm' ○ Batters 1 in 3; and ○ Longitudinal Grade >1%	Completed
	➤ Increase area of settling for Sediment Basin SB2 to 2,000m ² and volume to approximately 1.5ML with reference to the following parameters: ○ Depth 2m ○ Batters 1 in 2 ○ Side Batters 1 in 2 ○ Longitudinal batters 1 in 4 ○ Pump / pipe outlet to be considered	Completed
	➤ Continue to monitor captured surface water to ensure system is adequate for meeting EA release limits.	Ongoing

Catchment	Action Required	Timeframe
	➤ Ensure key diversion drainage is maintained with reference to details shown on Figure 1 – Surface Water Layout Plan (2024).	Ongoing
C3	➤ Desilt “Silt Trap” and settlement ponds in Catchment C3A, increasing the volume of silt trap as much as is feasible ➤ Install rock chute southern inflow into Silt Trap ➤ Install additional Silt Trap in Catchment C3B in northern corner, and direct overflows to diversion drain to SB3 ➤ Construct SB3A (2.0ML volume) with outlet to SB3 which will act as initial sediment capture and dosing location for High Efficiency Sediment (HES) basin system ➤ Avoid using SB3 for process water, and set up new water reticulation system via Sediment Dam SD4B to reticulation tanks via new pump pipeline ➤ Dewater and desilt SB3 to restore 8ML volume capacity (minimum 6.0ML required) ➤ Install freeboard marker to indicate 2.5 depth below spillway to retain 6ML settling volume to meet 1 in 5y HES Basin Type-2B criteria. ➤ Bund off overflows from truck fill point to SB3 and direct via roadside drain ➤ Ensure key diversion drainage is maintained with reference to details shown on Figure 1 – Surface Water Layout Plan (2024).	Ongoing / Monthly Completed December 2024 December 2024 December 2024 August 2025 August 2025 December 2024 Ongoing
C4	➤ Desilt SB4 to increase to 9ML capacity (batters 1 in 2, depth 4m) ➤ Install freeboard markers as follows: ○ 2.0m below spillway for SB4 ○ 2.0m below spillway for SD4A ○ 1.0m below spillway for SD4B	Completed – hit bedrock Completed

FIGURES

