

19.5 QUIN ENTERPRISES PTY LTD V REDLAND CITY COUNCIL (PLANNING AND ENVIRONMENT COURT APPEAL 2959 OF 2019)

Objective Reference:

Authorising Officer: Louise Rusan, General Manager Community & Customer Services

Responsible Officer: David Jeanes, Group Manager City Planning & Assessment

Report Author: Michael Anderson, Acting Principal Planner

Attachments:

1. Decision Notice
2. Refused Plans
3. Respondent's Amended Reasons For Refusal
4. Amended Plans
5. Landscape Plans
6. Air Quality Report
7. Noise Report
8. Draft Mediation Agreement
9. Landscape Team Comment

The Council is satisfied that, pursuant to Section 275(1) of the *Local Government Regulation 2012*, the information to be received, discussed or considered in relation to this agenda item is:

(f) *starting or defending legal proceedings involving the local government.*

PURPOSE

To provide Council with an update on the Quin Enterprises Pty Ltd (Quin) v Redland City Council (Council) (Planning and Environment Court Appeal 2959 of 2019) appeal and set out the relevant information to enable Council to consider its position in the Appeal.

BACKGROUND

Quin Enterprises Pty Ltd (**Quin**) has appealed against the decision of Council to refuse a development permit for material change of use for the extension of the existing extractive industry and heavy industry (office, truck weighbridge, car parking, storage area for materials with associated landscape buffers) at 684-712 Mount Cotton Road, Sheldon and more properly described as lot 1 on RP109322 and lot 3 on SP238067. The parties have been engaged in without prejudice negotiations, both before the Planning and Environment Court (P & E Court) Alternative Dispute Resolution Registrar (ADR Registrar) and separately, seeking to negotiate a revised proposed development to address Council's reasons for refusal.

The original development application (MCU013688) was a category 3 application and was decided by the Group Manager City Planning and Assessment. The development application was refused by notice dated 26 July 2019. A copy of the decision notice is contained at **Attachment 1**.

A copy of the refused plans is contained at **Attachment 2**.

The below table sets out the relevant background to the appeal and relevant timeline of events associated with the current appeal:

DATE	KEY EVENTS
31 March 2016	A development application seeking a development permit for material change of use for the extension of the existing extractive industry and heavy industry (office, truck weighbridge, car parking and storage area for materials with associated landscape buffers) was properly made.
26 July 2019	The development application was refused.
19 August 2019	The refusal was appealed (appeal number 2959 of 2019).
04 September 2019	Application in pending proceeding filed by Appellant.
18 September 2019	Site inspection undertaken.
08 October 2019	Respondent's amended reasons for refusal issued (Attachment 3).
01 November 2019	First without prejudice mediation held before the ADR Registrar.
08 November 2019	P & E Court Review.
02 December 2019	Settlement offer.
13 December 2019	Without prejudice mediation held before the ADR Registrar.
24 January 2020	P & E Court Review.
06 March 2020	P & E Court Review.
16 March 2020	Appellant provided amended site plan.
27 March 2020	Respondent to provide response to amended site plan.
17 April 2020	Without prejudice meeting held.
27 April 2020	P & E Court Review.
25 May 2020	P & E Court Review.
18 June 2020	Amended plan submitted.
07 August 2020	Air Quality Assessment and Landscape plans submitted by Appellant.
11 August 2020	Draft Noise Report submitted by Appellant.
12 August 2020	Without prejudice mediation held before the ADR Registrar.
21 August 2020	P & E Court Review scheduled.

ISSUES

The reasons for refusal as identified in the amended reasons for refusal are as follows (refer to **Attachment 3**):

- Land use and impacts
- Character and amenity
- Bushfire
- Stormwater

Council instructed the following experts to act on behalf of Council in the mediation meetings as part of the appeal process:

- Town Planning – Jennifer Morrissey (Ethos Urban)
- Air Quality and Noise – Paul King (MWA)

As identified in the background section of this report, the mediation process has resulted in a revised proposal plan negotiated between the parties in the appeal on the relevant issues identified. A copy of the plan as originally submitted is contained at **Attachment 2** and a copy of the latest plan submitted for approval is contained at **Attachment 4**. An extract of the two plans is provided below:

<p>MT COTTON ROAD</p> <p>Lot 3 SP 23037 4 Ha ADJOINING QUARRY AND WASTE TRANSFER STATION (PERMIT NO 10004)</p> <p>SITE PLAN OPERATIONAL WORKS</p> <p>EXCAVATIONS & FILL LANDSCAPE</p>	<p>MT COTTON ROAD</p> <p>SITE 14.2 SP 23037 4 Ha QUARRY AND WASTE TRANSFER STATION (AS PER PERMIT NO 10004)</p> <p>SITE PLAN</p> <p>MODIFICATION AND EXTENSION TO QUARRY & WASTE TRANSFER STATION FROM PREVIOUS APPROVAL (SEE ONLY) FOR G. QUIN AT 1712 MT COTTON RD SHELFORD VIC 3248</p>
<p>SECTION A-A: DETAIL SECTION SHOWING EXISTING HOUSE: SCALE 1:1000</p> <p>SECTION A-A: DETAIL SECTION SHOWING EXISTING HOUSE: SCALE 1:100</p> <p>SECTION B-B: DETAIL SECTION SHOWING EXISTING HOUSE: SCALE 1:100</p> <p>SECTION & DETAIL SECTION</p> <p>EXCAVATIONS & FILL LANDSCAPED MOUND ACCESS AND RETAINING WALL FOR G. QUIN AT 1712 MT COTTON RD SHELFORD VIC 3248 JULY 2020 SCALE 1:1000 & 1:100 @ A3 DWG NO AV13400AAJ</p>	<p>SECTION A-A: DETAIL SECTION SHOWING EXISTING HOUSE: SCALE 1:1000</p> <p>SECTION A-A: DETAIL SECTION SHOWING EXISTING HOUSE: SCALE 1:100</p> <p>SECTION B-B: DETAIL SECTION SHOWING EXISTING HOUSE: SCALE 1:100</p> <p>SECTION & DETAIL SECTION</p> <p>EXCAVATIONS & FILL LANDSCAPED MOUND ACCESS AND RETAINING WALL FOR G. QUIN AT 1712 MT COTTON RD SHELFORD VIC 3248 JULY 2020 SCALE 1:1000 & 1:100 @ A3 DWG NO AV13400AAJ</p>
<p>Refused Plans</p>	<p>Amended Plans</p>

A summary of the key changes made to address the reasons for refusal are as follows:

- increase in width of part of the bund (nearest to the residential property to the South) from 10 to 20m
- no overall change to the height of the bund but a reduction in the gradient as a result of the increase in width (nearest to the residential property to the south)
- segregation of long term machinery storage area and aggregate storage area (furthest points from residential property to the south)
- addition of two internal bunds at right angles to the southern boundary bund to further screen these areas
- inclusion of a staff recreation area centrally within lot 1
- inclusion of an internal bund and re-alignment of the haul road on the side furthest from the property to the south
- inclusion of stormwater drain on the southern side of the bund to be constructed
- re-instatement of the site to levels previously approved as part of the approved rehabilitation plan
- submission of an updated landscape plan (**Attachment 5**)
- provision of revised air quality and noise reports reflecting the revised plans

Updated air quality assessment and noise reports to reflect the amended plans were submitted prior to the without prejudice meeting on 12 August 2020. Further updated reports were submitted on 17 August 2020 and a copy of the reports are contained at **Attachment 6** and **Attachment 7** respectively.

The air quality and noise reports have been reviewed by Council's appointed expert who has confirmed that the reports have been prepared using an acceptable methodology and that the outcomes of the assessment demonstrate compliance with regulatory criteria at all surrounding sensitive receivers. A few additional questions for clarification were raised and discussed at the without prejudice meeting on 12 August 2020. These matters have been addressed within the updated reports.

The noise and air quality expert acting on behalf of Council confirmed by email dated 12 August 2020 that based on the revised plans and reports a refusal of the proposal could not be supported on noise and air quality grounds, if those earlier identified matters were addressed.

At the without prejudice meeting on 12 August the ADR Registrar reiterated the comments made by Judge Kefford at the last review. This was that no further delay would be entertained and if the issues cannot be resolved, the matter should proceed to a hearing.

As an interim solution the appellant offered the preparation of a mediation agreement which sets out the required steps. It was explained that this could not be signed until the necessary authorisation was obtained. A copy of the draft Mediation Agreement is contained at **Attachment 8**.

Commentary on the reasons for refusal and how these have been addressed is provided as follows:

- **Land use and impacts** – The amended plan increases the width of the bunds and segregates the storage areas for aggregates and long term storage further from the residential property to the south. Additional bunds have been proposed within the site. The haul road has been re-sited to minimise impacts. The noise and air quality reports confirm that any potential impacts are within acceptable levels or can be conditioned to ensure impacts are suitably mitigated. This includes measures such as the preparation and approval of noise and air quality management plans, restriction on the hours of operation, water spraying of aggregate stock piles, restriction in the height and area of stock piles, stipulation of dust deposition limits and restriction in the use of recreation areas. Council's noise and air quality expert confirms that he cannot longer substantiate a refusal on these grounds.
- The southern bund has also been increased in width in proximity to the residential dwelling to the south and the gradient reduced to improve the overbearing impact on the adjoining property. From an air quality and noise perspective the height of the bund, rather than its width, is the critical factor.

Substantial landscape treatment has been shown on the landscape plan. Council's internal landscape team has expressed no objection in principle, subject to conditions requiring detailed plans to be submitted for approval.

- **Character and amenity** – Refer to comments above in respect of amenity and visual amenity. Council's landscape team raise no objection in principle (**Attachment 9**).
- **Stormwater** – As stated above the site has been restored to the original approved level and the revised plan indicates that the previously approved stormwater system (as part of the approved rehabilitation plan for the site) will be re-instated. A further drain is shown to the southern side

of the bund. It is recommended that a condition is imposed requiring the submission and approval of a stormwater management plan.

- **Bushfire** – This is the last remaining issue. Whilst no further bushfire assessment or management plan has been provided, given the nature of the proposed use, it is reasonable to secure the submission and approval of a management plan by condition.

Planning History

There is extensive planning history relevant to the site.

CONCLUSION

As illustrated by the amended plans secured through the process of the appeal, substantial changes to the development, to address the reasons for refusal, have been secured. Council's air quality and noise expert recommends that on the basis of the noise and air quality assessment reports undertaken, and subject to securing suitable conditions to mitigate the proposed use, the reasons for refusal can no longer be substantiated.

In consideration of this and the issues stated above, it is recommended Council support that the matter be settled in accordance with the latest plans and noise and air quality reports, and subject to agreement of reasonable and relevant conditions.

STRATEGIC IMPLICATIONS

Legislative Requirements

The Development Application has been assessed in accordance with the *Planning Act 2016*.

Risk Management

Part 6 of the *Planning and Environment Court Act 2016* identifies that the P & E Court may make an order for costs it considers appropriate, if a party has incurred costs in a number of circumstances. Relevantly these include:

- The P & E Court considers the proceedings were started or conducted primarily for an improper purpose, including for example, to delay or obstruct.
- The P & E court considers the proceeding to have been frivolous or vexatious (for example the Court considers a proceeding was started or conducted without reasonable prospects of success).

Financial

As set out within the report, Council's expert air quality and noise expert has recommended that a reason for refusal on these grounds can no longer be supported, subject to inclusion of reasonable and relevant conditions.

It should be noted that should Council decide to contend the appeal then there is a risk of an order of costs being made against Council.

People

There are no implications for staff associated with this report.

Environmental

Environmental impacts are discussed in the 'Issues' section of this report where relevant.

Social

There are no social implications associated with this report.

Human Rights

There are no known human rights implications associated with this report.

Alignment with Council's Policy and Plans

The assessment and officer's recommendation align with Council's policies and plans as described within the 'Issues' section of this report.

CONSULTATION

Consulted	Consultation Date	Comments/Actions
Division 9 Councillor	17-08-2020	Meeting held to provide an update briefing.
Division 6 Councillor (as Division Councillor at the time the development application was lodged but no longer due to a divisional boundary change).	17-08-2020	As above.
Legal Services	Ongoing	Prospects advice to be provided verbally.

OPTIONS

Option One

That Council resolves as follows:

1. That the content of the report be noted.
2. To delegate authority to the Chief Executive officer to instruct Council's solicitors to prepare for a hearing or in the alternative finalise and agree conditions that ought be imposed in the event that the appeal is allowed.
3. That this report and attachments remain confidential until the conclusion of the appeal, subject to maintaining the confidentiality of legally privileged and commercial in confidence information.

Option Two

That Council resolves as follows:

1. To provide a response that Council will continue to contend the development application ought to be refused for the grounds identified within the Decision Notice.
2. To instruct its solicitors to take all necessary steps to prepare the appeal to a hearing.
3. That this report and attachments remain confidential until the conclusion of the appeal, subject to maintaining the confidentiality of legally privileged and commercial in confidence information.

Option Three

That Council resolves as follows:

1. To provide a response that Council will continue to contend the development application ought to be refused on amended grounds to be identified.
2. To instruct its solicitors to take all necessary steps to prepare the appeal to a hearing.
3. That this report and attachments remain confidential until the conclusion of the appeal, subject to maintaining the confidentiality of legally privileged and commercial in confidence information.

OFFICER'S RECOMMENDATION

That Council resolves as follows:

1. **That the content of the report be noted.**
2. **To delegate authority to the Chief Executive officer to instruct Council's solicitors to prepare for a hearing or in the alternative finalise and agree conditions that ought be imposed in the event that the appeal is allowed.**
3. **That this report and attachments remain confidential until the conclusion of the appeal, subject to maintaining the confidentiality of legally privileged and commercial in confidence information.**

26 July 2019

Your Ref: N/A
Our Ref: CH
File No: MCU013688
Contact: Planning Assessment

Quin Enterprises Pty Ltd
 C/- Atha Vasdekis Town Planner
 14 Percival Terrace
 HOLLAND PARK QLD 4121

Dear Sir/Madam

Decision Notice

Sustainable Planning Act 2009

APPLICATION DETAILS

Proposed Development:	Extension of the existing Extractive Industry and Heavy Industry (office, truck weighbridge, car parking, storage area for materials with associated landscape buffers)
Application Reference No:	MCU013688
Legal Description:	Lot 1 RP 109322 & Lot 3 on SP 238067
Site Location:	684-712 Mount Cotton Road Sheldon QLD 4157

The development application for a Material Change of Use for the extension of the existing Extractive Industry and Heavy Industry (office, truck weighbridge, car parking, storage area for materials with associated landscape buffers) at the above location has been assessed and after considering all relevant matters, the application has been **Refused**. The decision was made on 23 July 2019 by Council's delegate.

REFERRAL AGENCIES

Referral Agency	Advice or Concurrence	Address
Department of Infrastructure, Local Government & Planning – SARA SEQ (South)	Concurrence	PO Box 3290 Australia Fair SOUTHPORT QLD 4215 ☎ 07 5644 3210 ✉ GCSARA@dilgp.qld.gov.au

GROUPS OF REFUSAL

It is recommended that the application for Material Change of Use to extend an existing Extractive Industry (quarry) and Heavy Industry (waste transfer station) on land described as [REDACTED] be refused on the following grounds:

Land use

1. [REDACTED] is mapped as a Resource Buffer under the Extractive Resources Overlay Code. This application seeks to expand the existing operations onto [REDACTED] and will remove the function this lot plays in acting as a buffer between the existing extractive industry located on [REDACTED] and the adjoining sensitive land use to the south. Consequently the development is considered to be contrary to overall outcome (2) (a) of the Extractive Resources Overlay Code, overall outcome (2) (a) (iv) of the Extractive Industry Code and overall outcome (2) (a) (i) (f) of the Rural Non-Urban Zone code, which seek to protect the ongoing operation of the extractive industry from uses which are sensitive to its operation.
2. Overall outcomes of the Rural Non-Urban Zone code and Extractive Industry Code seek to provide for uses that achieve a high standard of rural amenity by providing a landscape setting that complements the rural nature of development; and by mitigating impacts associated with light, noise, air and traffic to a level commensurate to a productive rural environment. It is considered that the application has failed to demonstrate that the proposed development, in particular expansion of the development onto [REDACTED] can be constructed and operated in a manner that:
 - (a) is compatible with a rural environment and scenic values of the landscape setting; and
 - (b) protects the health and amenity of the surrounding sensitive receptors.

Consequently, the development conflicts with overall outcome (2) (c) of the Rural Non-Urban Zone code, overall outcome (2) (a) (i, iv, vii) of the Extractive Industry Code and overall outcome (2) (a) & (b) of the Extractive Resources Overlay Code.

Landscape setting

3. Outcomes sought by the Extractive Industry Code, Extractive Resources Overlay code and the Rural Non-Urban Zone code seek to ensure that uses provide for the effective and efficient procurement of extractive resources, while protecting the scenic values of the landscape setting. Where attenuation measures are required to minimise noise and other potential environmental emissions, these are also to respect the landscape setting.

The 5m high vegetated earth mound proposed to be constructed along the perimeter of [REDACTED] by virtue of its height, location and form, does not represent a natural feature within the landscape, is visually prominent from the road and the wider landscape and does not protect the scenic values of the landscape setting. The development therefore conflicts with overall outcome (2)(c) of the Rural Non-Urban Zone, overall outcome (2)(a) of the Extractive Industry Code and overall outcome (2)(b)(ii) of the Extractive Resources Overlay Code.

Residential amenity

4. Specific outcome S4.2 of the Rural Non-Urban Zone Code states that the need for excavation and fill is to be minimised, by locating and designing development in a way that protects the amenity of adjoining properties. Overall outcome (2)(c)(i)(c) of the Rural Non-Urban Zone code requires development to achieve a high standard of rural amenity by having access to natural light and ventilation. Further, overall outcome (2)(iv) of the Extractive Industry use code

requires that development is sited to effectively buffer and mitigate adverse impacts on sensitive receiving environments.

The proposed 5m high vegetated earth mound to be constructed along the perimeter of Lot 1 would detrimentally impact on the amenity of the neighbouring property to the south as a result of its location, proximity, length, visual bulk and overbearing nature and would result in a loss of natural light and ventilation for this residence. It has not therefore been demonstrated that the use proposed on [REDACTED] has been located and designed in a way which would ensure the amenity of adjoining properties is protected, or that the development would provide an adequate buffer to mitigate the adverse impacts associated with the use. Consequently it is considered that the development does not comply with specific outcome S4.2 and overall outcome (2)(c)(i)(c) of the Rural Non-Urban Zone code, or overall outcome (2)(iv) of the Extractive Industry code.

Noise & Air Quality

5. Overall outcomes of the Rural Non-Urban Zone code, Extractive Resources Overlay code and Extractive Industry use code seek to ensure that uses and other development achieve a high standard of rural amenity by mitigating noise impacts associated with the development to a level commensurate with a productive rural environment.

The development has failed to demonstrate that noise impacts to sensitive receiving environments would be sufficiently mitigated to a level that is commensurate with a productive rural environment, whilst also providing for a landscape setting that complements the rural nature of locality. The development is therefore considered to conflict with Overall outcome (2)(c)(i) and Specific outcome S3.3 of the Rural Non-Urban Zone code, overall outcomes (2)(a)(i) & (iv) of the Extractive Industry use code and overall outcome (2)(b) of the Extractive Resources Overlay code.

6. Overall outcomes of the Rural Non-Urban Zone code, Extractive Industry use code and the Extractive Resources Overlay code require that uses and other development achieve a high standard of rural amenity by mitigating air quality impacts associated with the development to a level commensurate with a productive rural environment.

The development has failed to demonstrate that the air quality impacts to sensitive receiving environments would be sufficiently mitigated to a level that is commensurate with a productive rural environment, whilst also providing for a landscape setting that complements the rural nature of development. The development is therefore considered to conflict with Overall outcome (2)(c)(i) and Specific outcome S3.4 of the Rural Non-Urban Zone code, overall outcomes (2)(a)(i) & (iv) of the Extractive Industry use code and overall outcome (2)(b) of the Extractive Resources Overlay code.

Vegetation

7. Specific Outcome S2.1(6) of the Habitat Protection Overlay Code seeks the planting of one koala habitat tree per 50m² of Enhancement Link and Specific Outcome S2.1(6) requires the planting of one koala habitat tree per 200m² of Enhancement Area. The development does not propose to provide any enhancement planting and the development is therefore considered to conflict with overall outcome (2)(e) of the Habitat Protection Overlay Code, which seeks to rehabilitate significantly degraded areas and link areas of remnant and non-remnant vegetation.
8. Overall outcomes of the Extractive Industry code seek to ensure that development effectively and progressively rehabilitates land associated with the use. Specific outcome S7 of the Extractive Industry code requires rehabilitation of the use site in accordance with a rehabilitation plan that provides for revegetation of areas cleared, denuded or otherwise disturbed by extractive operations.

The development proposed on [REDACTED] would prejudice any future rehabilitation, revegetation works or enhancement planting from being implemented on the lot and it is therefore considered that the development would conflict with overall outcome (2)(vii) and specific outcome S7 of the Extractive Industry code.

Stormwater

9. Overall outcomes of the Stormwater Management code seek to ensure that development effectively manages the quantity and quality of stormwater run-off so that it does not adversely impact on the quality of receiving waters and provides adequate protection for people and property from overland flow and flooding.

Insufficient information has been provided by way of a Stormwater Management Plan, to determine whether the development would effectively manage the quantity and quality of stormwater run-off from the site and ensure no worsening or actionable nuisance to either Mount Cotton Road or surrounding properties. Consequently the application has failed to demonstrate how that the development would comply with specific outcome S1 and overall outcome (2)(a) of the Stormwater Management Code; or Chapter 6 of the Planning Scheme Policy – Infrastructure Works.

Bushfire

10. Overall outcomes of the Bushfire Overlay code require that development is sited, designed and managed to minimise the risk of bushfire to people and property. A bushfire hazard assessment and/or bushfire management plan has not been submitted with the application and the development has not therefore demonstrated that the use would be designed and managed to minimise the risk of bushfire to people and property, in accordance with overall outcome (2)(b) of the Bushfire Hazard Overlay Code.

SUBMISSIONS

There were 5 properly made submissions about the application. The name, residential or business address, postal or electronic address of the principal submitter for each properly made submission is provided:

Name of Principal Submitter	Address
[REDACTED]	

RIGHTS OF APPEAL

A copy of the rights of appeal under Section 461 and Section 462 of the *Sustainable Planning Act 2009* for Applicants is appended, together with Division 11 Part 1 (Chapter 7) of the Act which deals with the making of an Appeal to the Planning and Environment Court.

A Submitter for a development application may also appeal to the Planning and Environment Court. Information about Submitter appeal rights for the Planning and Environment Court is set out in Sections 462, 463 and 464 of the *Sustainable Planning Act 2009*.

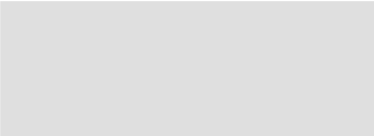
Applicants and Submitters may also have a right to appeal to the Building and Development Dispute Resolution Committee. For further details, please refer to the *Sustainable Planning Act 2009* Chapter 7, Part 2.

OTHER DETAILS

Electronic copies of this Decision Notice are also available online at www.redland.qld.gov.au under 'Online Services' PD Online or at Council offices.

If you have any further queries in relation to the above, please do not hesitate to contact Charlotte Hughes on the above number.

Yours sincerely



Chris Vize
Service Manager
Planning Assessment

Encl Copy of the rights of appeal

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Sustainable Planning Act 2009

Division 8 Appeals to court relating to development applications and approvals

461 Appeals by applicants

- (1) An applicant for a development application may appeal to the court against any of the following—
 - (a) the refusal, or the refusal in part, of the development application;
 - (b) any condition of a development approval, another matter stated in a development approval and the identification or inclusion of a code under section 242;
 - (c) the decision to give a preliminary approval when a development permit was applied for;
 - (d) the length of a period mentioned in section 341;
 - (e) a deemed refusal of the development application.
- (2) An appeal under subsection (1)(a), (b), (c) or (d) must be started within 20 business days (the ***applicant's appeal period***) after—
 - (a) if a decision notice or negotiated decision notice is given—the day the decision notice or negotiated decision notice is given to the applicant; or
 - (b) otherwise—the day a decision notice was required to be given to the applicant.
- (3) An appeal under subsection (1)(e) may be started at any time after the last day a decision on the matter should have been made.

Division 11 Making an appeal to court

481 How appeals to the court are started

- (1) An appeal is started by lodging written notice of appeal with the registrar of the court.
- (2) The notice of appeal must state the grounds of the appeal.
- (3) The person starting the appeal must also comply with the rules of the court applying to the appeal.
- (4) However the court may hear & decide an appeal even if the person has not complied with subsection (3)

482 Notice of appeal to other parties—development applications and approvals

- (1) An appellant under division 8 must give written notice of the appeal to—
 - (a) if the appellant is an applicant—
 - (i) the chief executive; and
 - (ii) the assessment manager; and
 - (iii) any concurrence agency; and
 - (iv) any principal submitter whose submission has not been withdrawn; and
 - (v) any advice agency treated as a submitter whose submission has not been withdrawn; or
 - (b) if the appellant is a submitter or an advice agency whose response to the development application is treated as a submission for an appeal—
 - (i) the chief executive; and
 - (ii) the assessment manager; and
 - (iii) any referral agency; and
 - (iv) the applicant; or
 - (c) if the appellant is a person to whom a notice mentioned in section 465(1) has been given—
 - (i) the chief executive; and
 - (ii) the assessment manager for the development application to which the notice relates; and
 - (iii) any entity that was a concurrence agency for the development application to which the notice relates; and
 - (iv) the person who made the request under section 383 to which the notice relates, if the person is not the appellant; or
 - (d) if the appellant is a person mentioned in section 466(1)—
 - (i) the chief executive; and
 - (ii) the responsible entity for making the change to which the appeal relates; and
 - (iii) the person who made the request to which the appeal relates under section 369, if the person is not the appellant; and
 - (iv) if the responsible entity is the assessment manager—any entity that was a concurrence agency for the development application to which the notice of the decision on the request relates; or
 - (e) if the appellant is a person to whom a notice mentioned in section 467 has been given—the entity that gave the notice.
- (2) The notice must be given within—485 Respondent and co-respondents for appeals under div 8 (1) Subsections (2) to (8) apply for appeals under sections 461 to 464. (2) The assessment manager is the respondent for the appeal.
- (3) If the appeal is started by a submitter, the applicant is a co-respondent for the appeal.

- (4) Any submitter may elect to become a co-respondent for the appeal.
- (5) If the appeal is about a concurrence agency's response, the concurrence agency is a correspondent for the appeal.
- (6) If the appeal is only about a concurrence agency's response, the assessment manager may apply to the court to withdraw from the appeal.
- (7) The respondent and any co-respondents for an appeal are entitled to be heard in the appeal as a party to the appeal.
- (8) A person to whom a notice of appeal is required to be given under section 482 and who is not the respondent or a co-respondent for the appeal may elect to be a co-respondent.
- (9) For an appeal under section 465—
 - (a) the assessment manager is the respondent; and
 - (b) if the appeal is started by a concurrence agency that gave the assessment manager a notice under section 385—the person asking for the extension the subject of the appeal is a co-respondent; and
 - (c) any other person given notice of the appeal may elect to become a co-respondent.
- (10) For an appeal under section 466—
 - (a) the responsible entity for making the change to which the appeal relates is the respondent; and
 - (b) if the responsible entity is the assessment manager—
 - (i) if the appeal is started by a person who gave a notice under section 373 or a pre-request response notice—the person who made the request for the change is a co-respondent; and
 - (ii) any other person given notice of the appeal may elect to become a correspondent.
- (11) For an appeal under section 467, the respondent is the entity given notice of the appeal.

483 Notice of appeals to other parties—compliance Assessment

- (1) An appellant under division 9 must, within 10 business days after the day the appeal is started, give written notice of the appeal to—
 - (a) if the appellant is a person to whom an action notice, compliance permit or compliance certificate has been given—
 - (i) the compliance assessor who gave the notice, permit or certificate; and
 - (ii) if the compliance assessor was a nominated entity of a local government and a copy of the request for compliance assessment was given to the local government under section 402—the local government; or
 - (b) if the appellant is a person to whom a notice mentioned in section 470(1) has been given—
 - (i) the entity that gave the notice; and
 - (ii) if the entity that gave the notice was a nominated entity of a local government and the written agreement of the local government was required to give the notice—the local government.
- (2) The notice must state the grounds of the appeal.

484 Notice of appeal to other parties—other matters

- (1) An appellant under division 10 must, within 10 business days after the day the appeal is started, give written notice of the appeal to—
 - (a) if the appeal is under section 471—the local government and coordinating agency for the application for approval of the master plan; or

- (b) if the appeal is under section 472 or 475—the local government; or
 - (c) if the appeal is under section 478—the entity that gave the notice the subject of the appeal; or
 - (d) if the appellant is a person to whom an enforcement notice is given—the entity that gave the notice and if the entity is not the local government, the local government; or
 - (e) if the appellant is a person dissatisfied with a decision about compensation—the local government that decided the claim; or
 - (f) if the appellant is a person dissatisfied with a decision about acquiring designated land—the designator; or
 - (g) if the appellant is a party to a proceeding decided by a building and development committee—the other party to the proceeding.
- (2) The notice must state the grounds of the appeal.

485 Respondent and co-respondents for appeals under div 8

- (1) Subsections (2) to (8) apply for appeals under sections 461 to 464.
- (2) The assessment manager is the respondent for the appeal.
- (3) If the appeal is started by a submitter, the applicant is a co-respondent for the appeal.
- (4) Any submitter may elect to become a co-respondent for the appeal.
- (5) If the appeal is about a concurrence agency's response, the concurrence agency is a correspondent for the appeal.
- (6) If the appeal is only about a concurrence agency's response, the assessment manager may apply to the court to withdraw from the appeal.
- (7) The respondent and any co-respondents for an appeal are entitled to be heard in the appeal as a party to the appeal.
- (8) A person to whom a notice of appeal is required to be given under section 482 and who is not the respondent or a co-respondent for the appeal may elect to be a co-respondent.
- (9) For an appeal under section 465—
 - (a) the assessment manager is the respondent; and
 - (b) if the appeal is started by a concurrence agency that gave the assessment manager a notice under section 385—the person asking for the extension the subject of the appeal is a co-respondent; and
 - (c) any other person given notice of the appeal may elect to become a co-respondent.
- (10) For an appeal under section 466—
 - (a) the responsible entity for making the change to which the appeal relates is the respondent; and
 - (b) if the responsible entity is the assessment manager—
 - (i) if the appeal is started by a person who gave a notice under section 373 or a pre-request response notice—the person who made the request for the change is a co-respondent; and
 - (ii) any other person given notice of the appeal may elect to become a correspondent.
- (11) For an appeal under section 467, the respondent is the entity given notice of the appeal.

486 Respondent and co-respondents for appeals under div 9

- (1) For an appeal under section 468 or 469—
 - (a) the compliance assessor is the respondent; and
 - (b) if the compliance assessor is a nominated entity of a local government and the appeal relates to a matter required by a local government—the local government is a co-respondent.
- (2) However, if the appeal is only about a matter required by the local government, the compliance assessor may apply to the court to withdraw from the appeal.
- (3) For an appeal under section 470—
 - (a) the entity that gave the notice to which the appeal relates is the respondent; and
 - (b) if the entity mentioned in paragraph (a) is a nominated entity of a local government and the local government did not agree to the request mentioned in section 470(1)—the local government is a co-respondent.
- (4) However, if the appeal is only about the local government's refusal of the request, the entity that gave the notice to which the appeal relates may apply to the court to withdraw from the appeal.

487 Respondent and co-respondents for appeals under div 10

- (1) This section applies if an entity is required under section 484 to be given a notice of an appeal.
- (2) The entity given notice is the respondent for the appeal.
- (3) However, if under a provision of the section more than 1 entity is required to be given notice; only the first entity mentioned in the provision is the respondent.
- (4) The second entity mentioned in the provision may elect to be a co-respondent.

488 How an entity may elect to be a co-respondent

An entity that is entitled to elect to be a co-respondent to an appeal may do so, within 10 business days after notice of the appeal is given to the entity, by following the rules of court for the election.

489 Minister entitled to be party to an appeal involving a State interest

If the Minister is satisfied an appeal involves a State interest, the Minister may, at any time before the appeal is decided, elect to be a party to the appeal by filing in the court a notice of election in the approved form.

490 Lodging appeal stops particular actions

- (1) If an appeal, other than an appeal under section 465, 466 or 467, is started under division 8, the development must not be started until the appeal is decided or withdrawn.
- (2) If an appeal is about a condition imposed on a compliance permit, the development must not be started until the appeal is decided or withdrawn.
- (3) Despite subsections (1) and (2), if the court is satisfied the outcome of the appeal would not be affected if the development or part of the development is started before the appeal is decided, the court may allow the development or part of the development to start before the appeal is decided.

SITE DETAILS:

RPD LOT 1 RP 109322
AREA = 2.1ha

ZONING: RURAL NON-URBAN

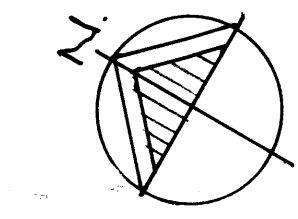
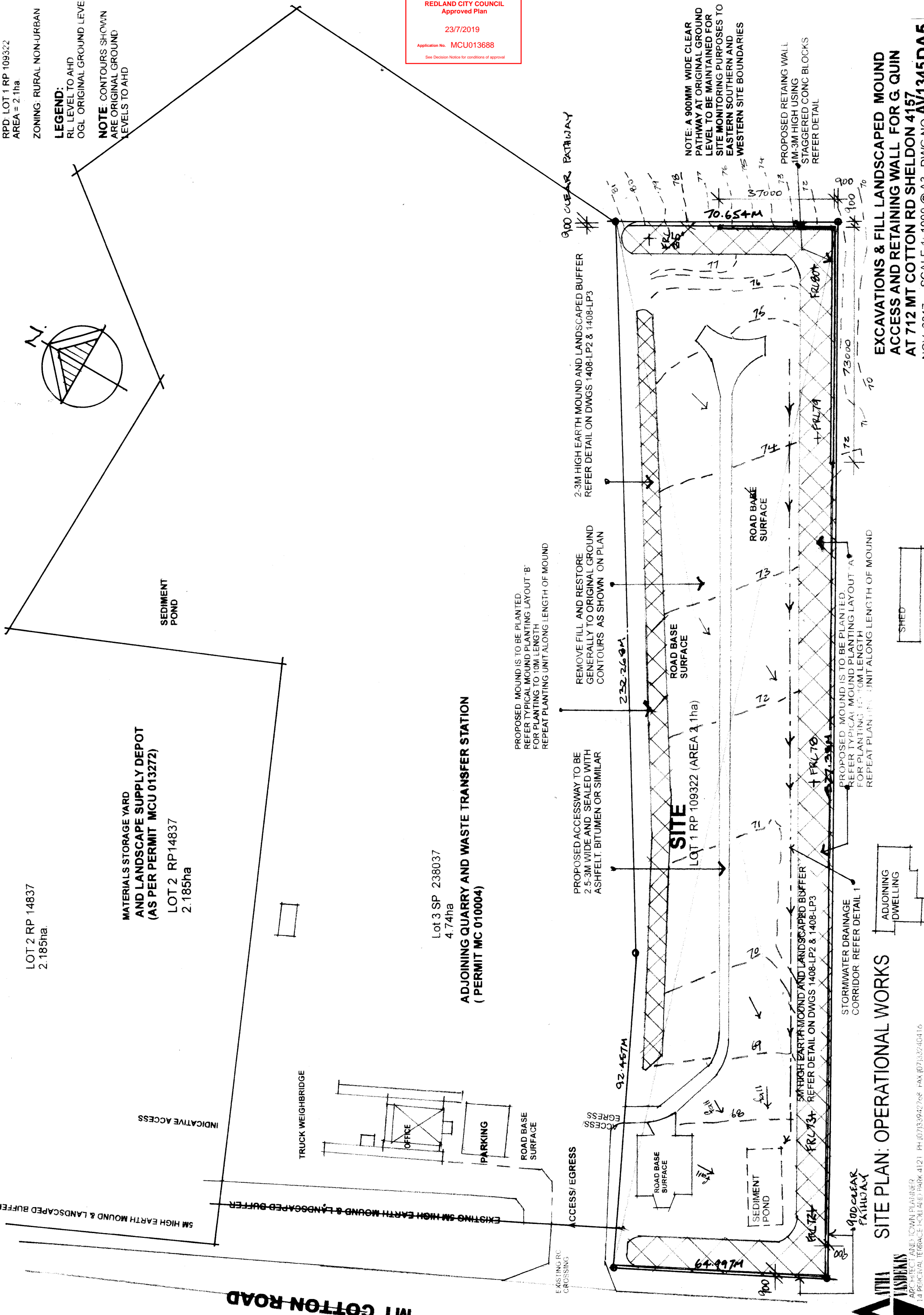
LEGEND:

RL LEVEL TO AHD
OGL ORIGINAL GROUND LEVEL

NOTE:

CONTOURS SHOWN
ARE ORIGINAL GROUND
LEVELS TO AHD

REDLAND CITY COUNCIL
Approved Plan
23/7/2019
Application No. MCU013688
See Decision Notice for conditions of approval



LOT 2 RP 14837
2.185ha

MATERIALS STORAGE YARD
AND LANDSCAPE SUPPLY DEPOT
(AS PER PERMIT MCU 013272)

LOT 2 RP14837
2.185ha

SEDIMENT
POND

Lot 3 SP 238037
4.74ha

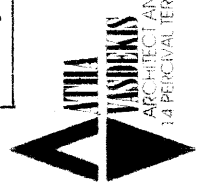
ADJOINING QUARRY AND WASTE TRANSFER STATION
(PERMIT MC 010004)

SITE
LOT 1 RP 109322 (AREA A 1ha)

OPERATIONAL WORKS

**EXCAVATIONS & FILL LANDSCAPED MOUND
ACCESS AND RETAINING WALL FOR G. QUIN
AT 712 MT COTTON RD SHELDON 4157**

NOV 2017 SCALE 1:1000 @A3 DWG NO AV1345DA5



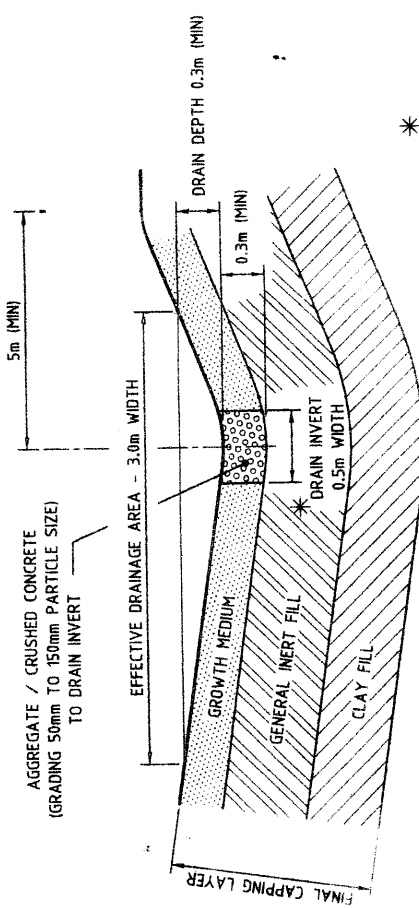
SITE DETAILS:
 RPD: LOT 1 RP 109322
 AREA = 2.1ha.

ZONING: RURAL NON-URBAN

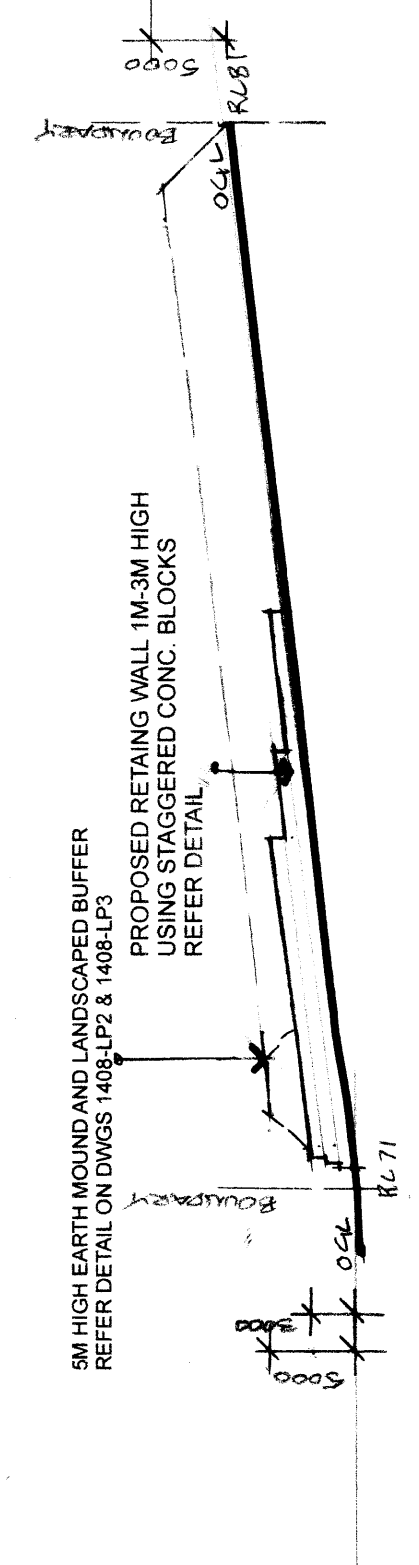
LEGEND:
 FRL FINISHED LEVEL/AHD
 OGL ORIGINAL GROUND LEVEL

NOTE: CONTOURS SHOWN
 ARE ORIGINAL GROUND
 LEVELS TO AHD

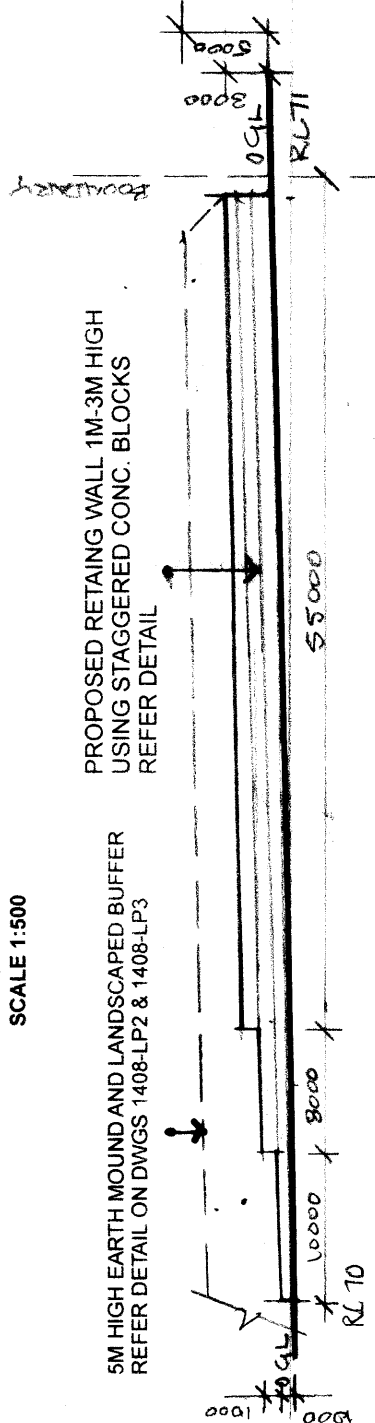
REDLAND CITY COUNCIL
 Approved Plan
 23/7/2019
 Application No. MCU013688
 See Decision Notice for conditions of approval



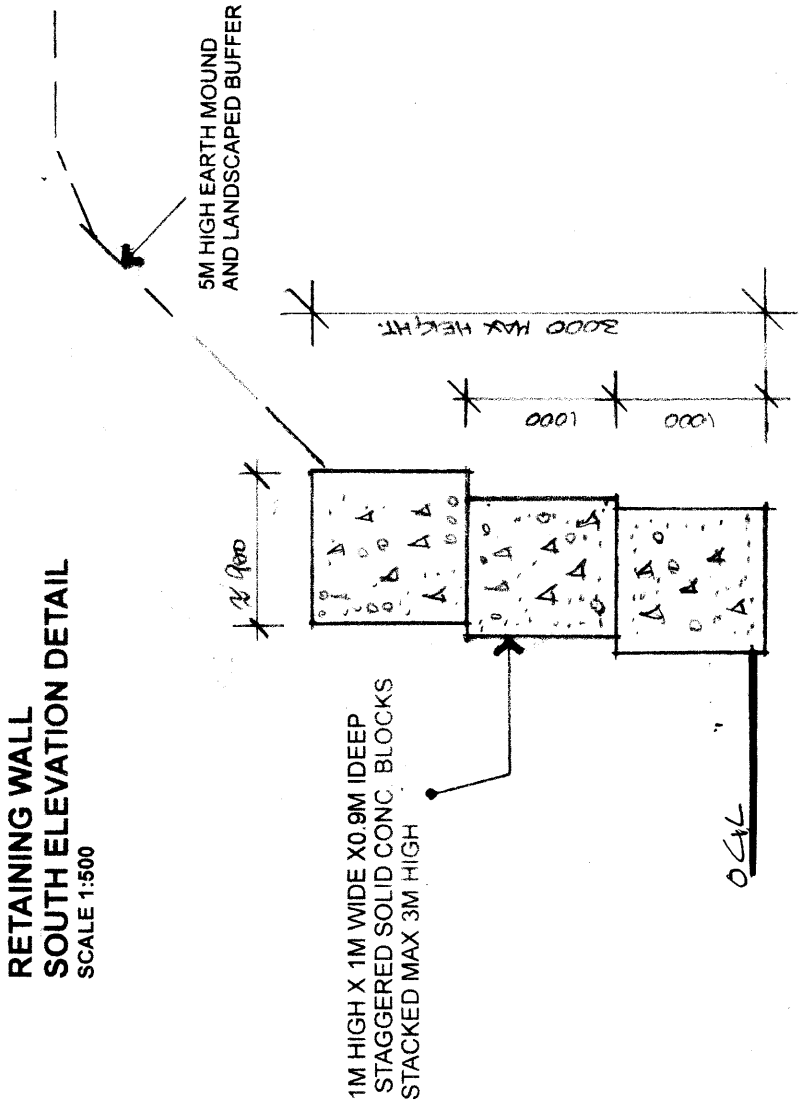
DETAIL 1 SCALE 1:50
 STORMWATER DRAINAGE CORRIDOR



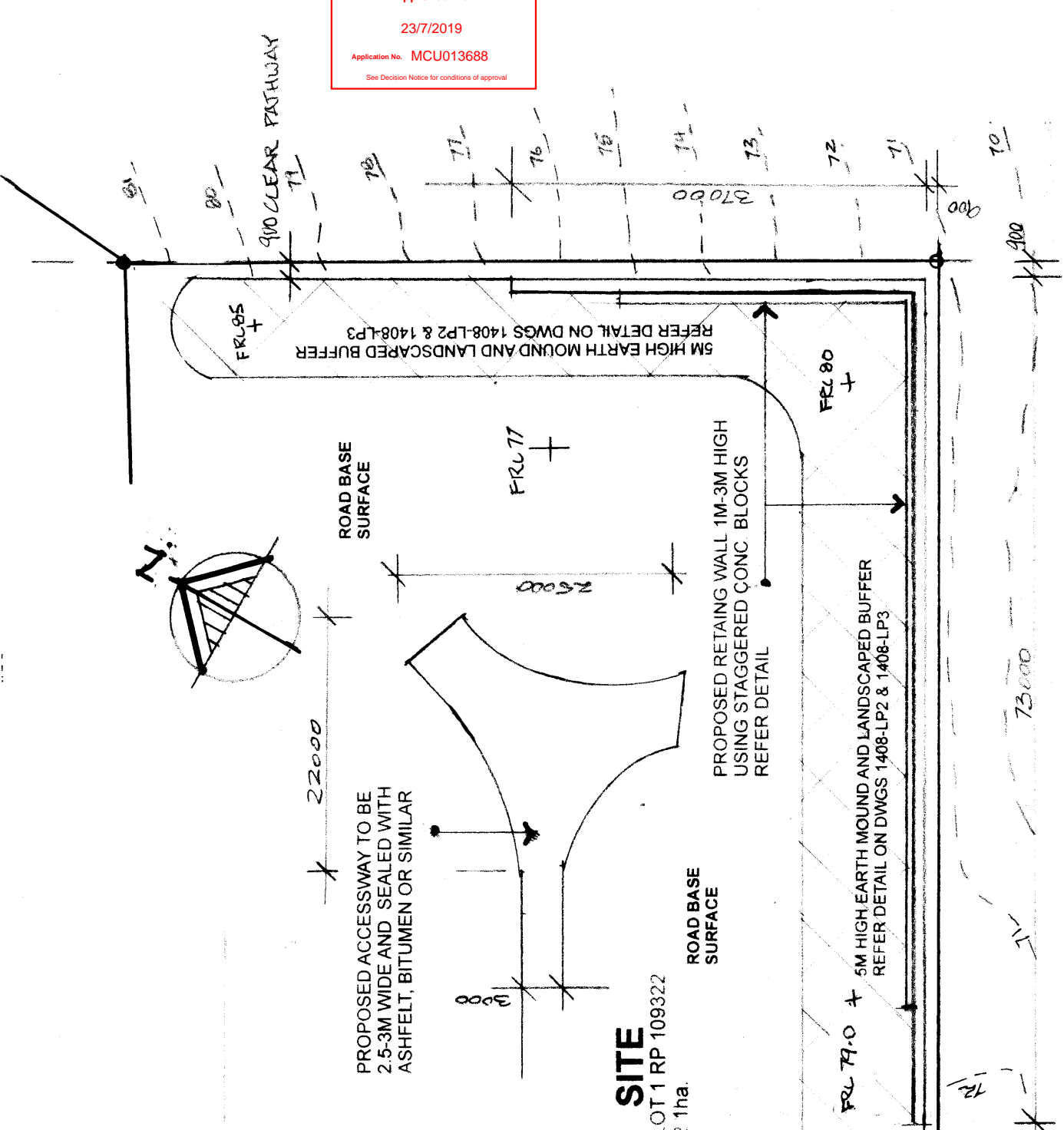
RETAINING WALL EAST ELEVATION DETAIL
 SCALE 1:500



RETAINING WALL SOUTH ELEVATION DETAIL
 SCALE 1:500



RETAINING WALL SECTION DETAIL SCALE 1:50



RETAINING WALL & SITE PLAN DETAIL SCALE 1:500

NOTE: A 900MM WIDE CLEAR PATHWAY AT ORIGINAL GROUND LEVEL TO BE MAINTAINED FOR SITE MONITORING PURPOSES TO EASTERN SOUTHERN AND WESTERN SITE BOUNDARIES

DETAIL SECTIONS AND PLANS

EXCAVATIONS & FILL LANDSCAPED MOUND ACCESS AND RETAINING WALL FOR G. QUIN AT 712 MT COTTON RD SHELDON 4157
 OCT 2017 SCALES 1:50 & 1:500 @ A3 DWG NO AV1340DA6

In the Planning and Environment Court
Held at: Brisbane

No 2959 of 2019

Between: **QUIN ENTERPRISES PTY LTD** Appellant
(ACN 095 172 991)

And: **REDLAND CITY COUNCIL** Respondent

RESPONDENT'S AMENDED REASONS FOR REFUSAL¹

Filed on: 8/10/2019

Pursuant to paragraph 2 of the Order of His Honour Judge Jones made 11 September 2019 the Respondent notifies the following matters to be relied upon to support refusal of the Appellant's proposed development:

Land use and impacts

1. The proposed development is an inappropriate land use for the site as:
 - (a) in terms of community health and wellbeing:
 - (i) it fails to ensure that an appropriate buffer and separation distance to surrounding land uses is provided, in particular to the adjoining residence to the south, thereby failing to protect the surrounding sensitive land uses from potential adverse impacts;
 - (ii) it significantly increases the proximity of the Appellant's operations to a residential house to the south, increasing the potential adverse impacts;
 - (iii) the diminution of an existing buffer, namely Lot 1, between the Appellant's current operations on Lots 2 and 3, and the adjoining residence to the south is a not socially cohesive outcome;
 - (iv) the proposed development does not incorporate siting and design measures that effectively mitigate potential adverse impacts, rather its design and siting increases potential adverse impacts;
 - (v) it fails to adequately protect the Appellant's current operations on

¹ The Council relies on non-compliance with the provisions outlined in Annexure A in support of these reasons for refusal.

**RESPONDENT'S AMENDED REASONS
FOR REFUSAL**

Filed on behalf of the Respondent

Redland City Council

General Counsel Group

Cnr Middle & Bloomfield Streets

PO Box 21 Cleveland, QLD 4163

Phone: (07) 3829 8887

Fax: (07) 3829 8765

Email: Peter.Cardiff@redland.qld.gov.au

Lots 2 and 3 and the proposed use of the subject site from surrounding sensitive uses through the provision of an adequate buffer;

- (b) in terms of protecting environmental values:
 - (i) it prevents the rehabilitation and revegetation of the whole of the degraded Lot 1 in accordance with a previous rehabilitation plan, to enable it to link areas of native vegetation and act as a buffer for bushland habitat;
 - (ii) it does not provide for the protection of the environmental values of the rural zone;
 - (iii) it prevents the establishment and maintenance of a buffer adequate to mitigate degradation from edge effects of the existing, adjacent bushland habitat areas; and
- (c) there are no existing lawful use rights which apply to the site, which support an approval.

Character and amenity

2. The proposed development fails to provide an appropriate buffer to, and effectively mitigate adverse impacts on, rural amenity and surrounding sensitive land uses in circumstances where:
 - (a) the surrounding land uses include residential, tourist accommodation and other low impact land uses;
 - (b) the proposed development reduces the buffer between the Appellant's current operations on Lots 2 and 3 and nearby sensitive land uses, in particular the adjoining residential house to the south;
 - (c) the proposed development includes a vegetated buffer that is not appropriate as due to its proximity to the residential house to the south, it results in the additional adverse amenity impacts of shading and a lack of ventilation to that adjoining residence.
3. The proposed development is not sympathetic to, nor does it enhance the rural character, landscape setting and scenic amenity of the area because it extends the Appellant's current operations into an area that ought to be kept as a vegetated buffer between the Appellant's existing operations on Lots 2 and 3 and surrounding sensitive land uses, particularly the adjoining residence to the south.

Bushfire


4. The proposed development is not supported by adequate information in the form of a Bushfire Hazard Assessment and/or Bushfire Management Plan and, accordingly, there has been a failure to demonstrate that the proposal would be designed and managed to minimise bushfire risk to people and property.

Stormwater

5. The proposed development is not supported by adequate information in the form of a Stormwater Management Plan and, accordingly, there has been a failure to demonstrate that the proposal:
- (a) will not result in increased stormwater runoff; and
 - (b) will not result in adverse impacts to people, property, the environment or receiving waters.

Advancing the purpose of the Act

6. Approving the proposed development does not advance the purpose of the Planning Act as it does not:
- (a) apply amenity in the built environment in a way that is of public benefit;²
or
 - (b) avoid or otherwise minimise the adverse environmental effects of development.³



.....
Redland City Council
Solicitor for the Respondent

² *Planning Act 2016* s.5(2)(i).

³ *Ibid* s.5(2)(j).

Annexure A

Land use and impacts

1. The proposed development does not comply with the following provisions of the Redlands Planning Scheme (**RPS**):
 - (a) Part 3.1.2(1)(a)(i)(c) and (ii)(a) and (b), Desired Environmental Outcomes – Natural Environment;
 - (b) Part 3.1.4(1)(j), Desired Environmental Outcomes – Community Health and Wellbeing;
 - (c) Part 3.1.7(1)(g), Desired Environmental Outcomes – Economic Development;
 - (d) Overall outcomes 4.21.7(2)(a)(i)(f) and 4.21.7(2)(b)(ii)(a) of the Rural Non-Urban Zone code;
 - (e) Specific outcomes S1.1, S1.2(1)(a) and (b), S2.2(1)(b) and S4.2(1)(a) – (d) of the Rural Non-Urban Zone code;
 - (f) Overall outcome 5.5.7(2)(a) of the Extractive Resources Overlay code;
 - (g) Specific outcomes S2.1(1)(b), S2.2(1)(a), (b) and (c) and S2.4 of the Extractive Resources Overlay code;
 - (h) Overall outcomes 5.7.7(2) (a) – (e) of the Habitat Protection Overlay code;
 - (i) Specific outcomes S2.1(6)(b) and (c), S2.1(7)(a) and S8 of the Habitat Protection Overlay code;
 - (j) Overall outcome 6.13.3(2)(a)(ii), (iii), (iv) and (vii) of the Extractive Industry use code; and
 - (k) Specific outcomes S1(2)(b), S2.1 and S7(1)(a), (b) and (c) of the Extractive Industry use code.

2. The proposed development does not comply with the following provisions of the Redland City Plan (**City Plan**):
 - (a) Part 3.4.1.10(12) – Rural zone, and 3.4.1.11(3) – Mineral and extractive resources, of the Strategic Framework;
 - (b) Part 6.2.21.2(1) and overall outcome 6.2.21.2(2)(h) of the Rural zone code;
 - (c) Performance Outcomes PO11 and PO12(3) of the Rural zone code;

- (d) Overall outcomes 8.2.4.2(d) – (h) of the Environmental significance overlay code;
- (e) Performance outcomes PO2, PO5, PO7, PO9, PO10, PO11, PO12, PO13, PO14, PO15, PO16, PO18 of the Environmental significance overlay code;
- (f) Overall outcome 8.2.5.2(2)(d) of the Extractive resources overlay code;
- (g) Performance outcome PO4 of the Extractive resources overlay code;
- (h) Overall outcome 9.2.1.2(2)(a)(ii) and (iii) and (d) of the Extractive industry use code; and
- (i) Performance outcomes PO4(1) and (2) and PO11(2) and (3) of the Extractive industry use code.

Character and amenity

3. The proposed development does not comply with the following provisions of the RPS:
- (a) Part 3.1.2(1)(d), Desired Environmental Outcomes – Natural Environment;
 - (b) Part 3.1.3(1)(a)(ii), Desired Environmental Outcomes – Character and Identity;
 - (c) Part 3.1.4(1)(j), Desired Environmental Outcomes – Community Health and Wellbeing;
 - (d) Part 3.1.7(1)(g), Desired Environmental Outcomes – Economic Development;
 - (e) Overall outcomes 4.21.7(2)(b)(i)(a), 4.21.7(2)(c)(i)(c), (d) and (e), 4.21.7(2)(c)(ii)(a) – (d) and 4.21.7(2)(d)(i)(a) – (g) of the Rural Non-Urban zone code;
 - (f) Specific outcomes S1.1, S2.1(1)(c), S2.2(1)(a) S3.3(1), S3.4, S4.2(1)(c) and (d) and S4.3(1)(b) of the Rural Non-Urban Zone code;
 - (g) Overall outcomes 5.5.7(2)(b)(i) and (ii) of the Extractive Resources Overlay code;
 - (h) Specific outcomes S2.2(1)(a) – (c) and S2.4 of the Extractive Resources Overlay code;
 - (i) Overall outcome 6.13.3(2)(a)(i) and (iv) of the Extractive Industry use code; and
 - (j) Specific outcomes S1(1)(a), S1(2)(a), S2.1, S2.2(1), S2.3(1)(b) and S2.5 of the Extractive Industry use code.

4. The proposed development does not comply with the following provisions of the City Plan:
- (a) Part 3.3.1.1(9)(h) – General, Part 3.4.1.10(10) – Rural zone, Part 3.4.1.11(2) and (3) – Mineral and extractive resources, 3.6.1.5(2) and (4) – Safety and emissions, of the Strategic Framework;
 - (b) Overall outcomes 6.2.21.2(2)(h) and (i) of the Rural zone code
 - (c) Performance outcomes PO9, PO12(1) and (2) of the Rural zone code;
 - (d) Overall outcome 8.2.5.2(2)(d) of the Extractive resources overlay code;
 - (e) Performance outcomes PO4 and PO5(1) and (2) of the Extractive resources overlay code;
 - (f) Overall outcome 9.2.1.2(2)(a)(i) and (iii) and (d) of the Extractive industry use code; and
 - (g) Performance outcomes PO1, PO2, PO3, PO11(3) and PO13 of the Extractive industry use code.

Bushfire

5. The proposed development does not comply with the following provisions of the RPS:
- (a) Part 3.1.3(1)(a)(ii), Desired Environmental Outcomes – Character and Identity;
 - (b) Overall outcome 5.3.7(2)(b) of the Bushfire Hazard Overlay code; and
 - (c) Specific outcomes S1(1), (2)(a)(ii) and (5) and S2(1) – (5) of the Bushfire Hazard Overlay code.
6. The proposed development does not comply with the following provisions of the City Plan:
- (a) Part 3.6.1.1(1), (2) and (5), Part 3.6 1.4(2) and Part 3.6.1.5(4) – Safety and resilience to hazards, of the Strategic Framework;
 - (b) Overall outcomes 8.2.2.2(2)(b), (c) and (d) of the Bushfire hazard overlay code;
 - (c) Performance outcomes PO10(2), PO11, PO12, PO13, PO15 and PO16 of the Bushfire hazard overlay code;
 - (d) Overall outcome 9.2.1.2(2)(a)(iii) of the Extractive industry use code; and

- (e) Performance outcome PO8 of the Extractive industry use code.

Stormwater

7. The proposed development does not comply with the following provisions of the RPS:
 - (a) Part 3.1.2(1)(a)(i)(d), Part 3.1.2(1)(b)(i) and (iii) and Part 3.1.2(1)d), Desired Environmental Outcomes – Natural Environment;
 - (b) Overall outcomes 4.21.7(2)(d)(i)(c) and (g) and Part 4.21.7(2)(e)(ii)(e) of the Rural Non-Urban zone code;
 - (c) Specific outcomes S4.1(1)(a), (b) and (c), S4.2(1)(b) and (c), S4.3(1)(d) and (e) and S5.2(1)(c) of the Rural Non-Urban zone code;
 - (d) Overall outcome 6.13.3(2)(a)(ii) of the Extractive Industry use code;
 - (e) Specific outcomes S1(2)(b), S2.1, S2.4(1) and (2)(a) – (d) of the Extractive Industry use code;
 - (f) Overall outcomes 8.9.3(2)(a)(i) – (iv) of the Stormwater Management code;
 - (g) Specific outcomes S1(1)(a) – (h) and (j), S2(1)(a) and (b) and S3(1)(a) and (b) of the Stormwater Management code;
 - (h) Part 11, Planning Scheme Policy 9 – Infrastructure Works, Chapter 4 – Erosion Prevention and Sediment Control; and
 - (i) Part 11, Planning Scheme Policy 9 - Infrastructure Works, Chapter 6 – Stormwater Management.

8. The proposed development does not comply with the following provisions of the City Plan:
 - (a) Part 3.4.1.11(2) – Mineral and extractive resources, Part 3.5.5.1(8) and (9) – The natural environment, Part 3.6.1.5(3) – Safety and Emissions, Part 3.7.1.2(3)(b) – (c), (5) and (8) – Total water cycle management, of the Strategic Framework;
 - (b) Overall outcomes 8.2.10.2(2)(a) – (d) of the Water resource catchments overlay code;
 - (c) Performance outcomes PO1, PO2, PO6, PO7 and PO8 of the Water resource catchments overlay code;
 - (d) Overall outcome 9.2.1.2(2)(a)(ii) of the Extractive industry use code;

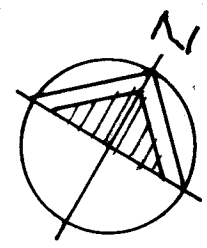
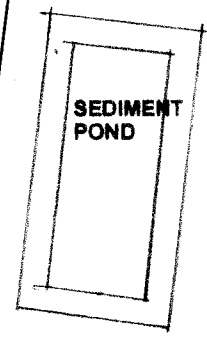
- (e) Performance outcomes PO4(2) and (3), PO10(1) and (2), PO11(1) of the Extractive industry use code;
- (f) Overall outcomes 9.3.1.2(2)(b), (c), (e), (f) and (g) of the Healthy waters code;
- (g) Performance outcomes PO3 – PO6 and PO8 – PO11(1) and (2) of the Healthy waters code, and
- (h) Schedule 6, SC6.3 Planning Scheme Policy 2 – Infrastructure Works, Chapter 1 – Healthy Waters.

SITE DETAILS:
 RPD: LOT 1 RP 109322
 AREA = 2.1ha.
 ZONING: RURAL NON-URBAN

LOT 2 RP 14837
 2.185ha.

**MATERIALS STORAGE YARD
 AND LANDSCAPE SUPPLY DEPOT
 (AS PER PERMIT MCU 013272)**
 LOT 2 RP14837
 2.185ha

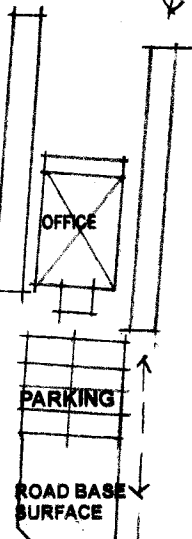
SITE Lot 3 SP 238067
 4.74ha
**QUARRY AND WASTE TRANSFER STATION
 (AS PER PERMIT MCU 10004)**



MT COTTON ROAD

EXISTING 5M HIGH EARTH MOUND & LANDSCAPED BUFFER

TRUCK WEIGHBRIDGE



ROAD BASE SURFACE

INDICATIVE ACCESS ROUTE

NOTE: REMOVE EXCESS FILL FROM CENTRAL AREA OF LOT 1 AND RESTORE GENERALLY TO ORIGINAL GROUND CONTOURS AS SHOWN ON PLAN

NOTE: WITH THE EXCEPTION OF DELIVERING AND REMOVING EITHER AGGREGATES AND GRAVELS TO THE MATERIALS DEPOSIT AREA THERE WILL BE NO OTHER EXTRACTIVE INDUSTRY ACTIVITIES CONDUCTED ON LOT 1 RP 109322.



PROPOSED ACCESSWAY TO BE 5M WIDE. STAFF PARKING AREA AND ACCESSWAY TO BE SEALED WITH ASHFELT OR BITUMEN

ORIGINAL MOUND (APPROVED DA: MCU 10004 & LW 000489) TO BE RETAINED AND MAINTAINED

AREA AFFECTED BY LAND SLIP TO BE BENCHED

ACCESS/ EGRESS

92.457 M

232.68 M

VEHICLES & MACHINERY PARKING: LONG TERM STORAGE ONLY

ROAD BASE SURFACE

STAFF RECREATION AREA (SEED AND TURF)

MATERIALS DEPOSIT AREA: OPEN STORAGE FOR AGGREGATES AND GRAVELS (NO FLAMMABLE NOXIOUS OR HAZARDOUS MATERIALS TO BE STORED)

NOTE: STORAGE AND ACTIVITIES TO LOT 1 RP 109322 SHALL BE USED AS PER THE "NOISE AND AIR QUALITY REPORT" PREPARED BY ANE

NOTE: A 900MM WIDE CLEAR PATHWAY AT ORIGINAL GROUND LEVEL TO BE MAINTAINED FOR SITE MONITORING PURPOSES TO EASTERN SOUTHERN AND WESTERN SITE BOUNDARIES

SITE LOT 1 RP 109322
 2.1ha.

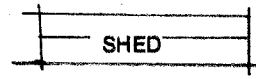
5M HIGH EARTH MOUND AND LANDSCAPED BUFFER

3M HIGH LANDSCAPED EARTH MOUND

3M HIGH MOUND

ADJOINING DWELLING

PROPOSED MOUND IS TO BE DENSLEY PLANTED AND LANDSCAPED.



STORMWATER DRAINAGE CORRIDOR: REFER DETAIL

STORMWATER DRAINAGE: GRAVEL SPOON DRAIN

SITE PLAN

MODIFICATION AND EXTENSION TO QUARRY & WASTE TRANSFER STATION (FOR ANCILLARY USES ONLY) FOR G. QUIN AT 706-712 MT COTTON RD SHELDON 4157
 JUNE 2020 SCALE 1: 1000 DWG NO AV1340DA1J

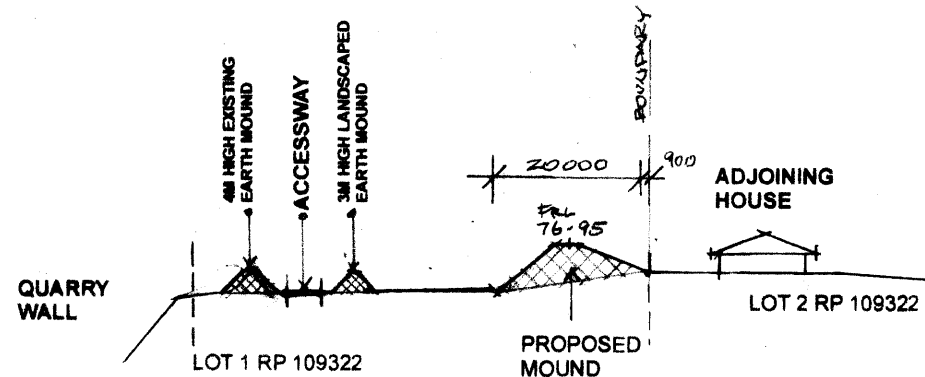
SITE DETAILS:

RPD: LOT 1 RP 109322.
AREA = 2.1ha.

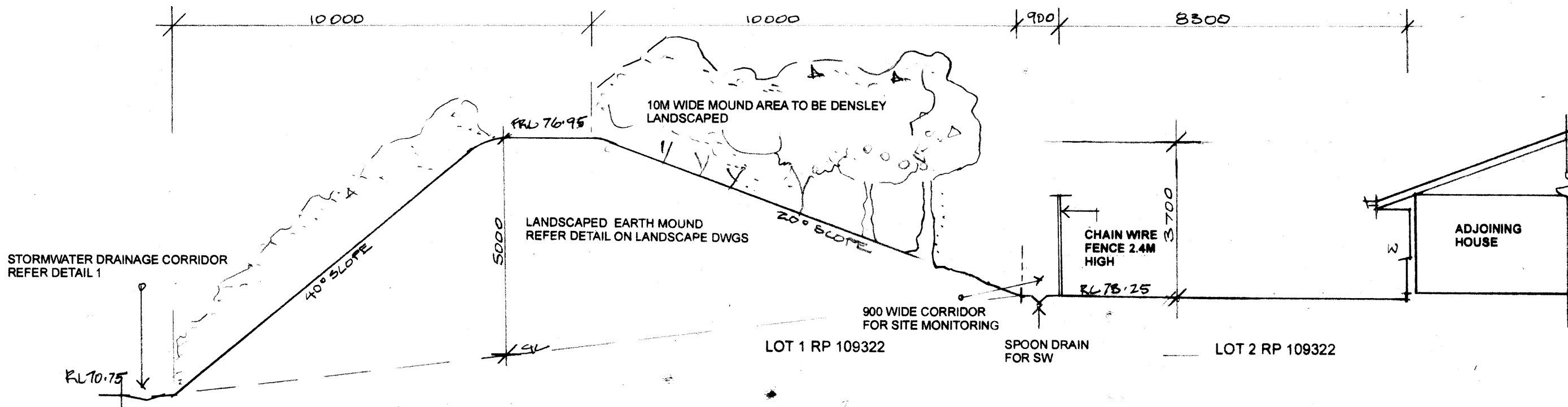
ZONING: RURAL

LEGEND:

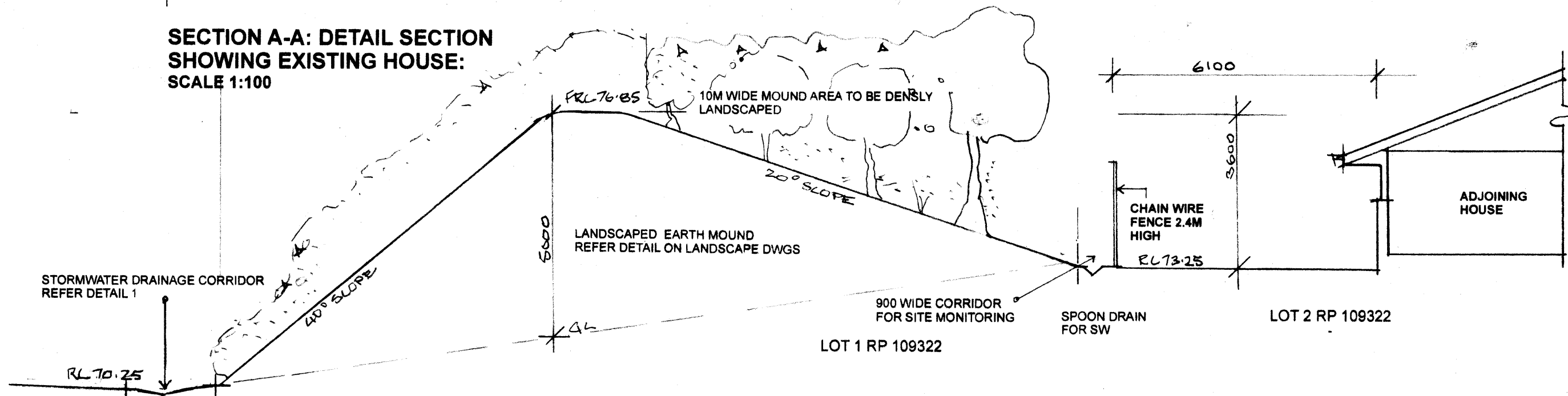
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OGL ORIGINAL GROUND LEVEL
FRL FINISHED RL TO AHD
GL GROUND LINE



SECTION A-A: DETAIL SECTION SHOWING EXISTING HOUSE: SCALE 1: 1000



SECTION A-A: DETAIL SECTION SHOWING EXISTING HOUSE: SCALE 1:100

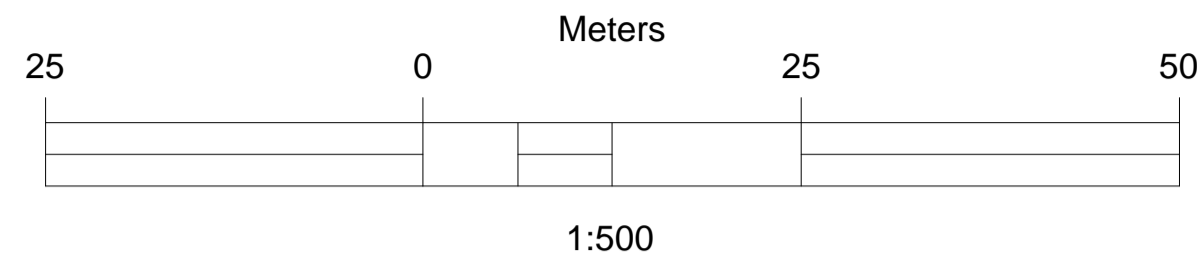


SECTION B-B: DETAIL SECTION SHOWING EXISTING HOUSE: SCALE 1:100

SECTION & DETAIL SECTION

LANDSCAPE PLAN

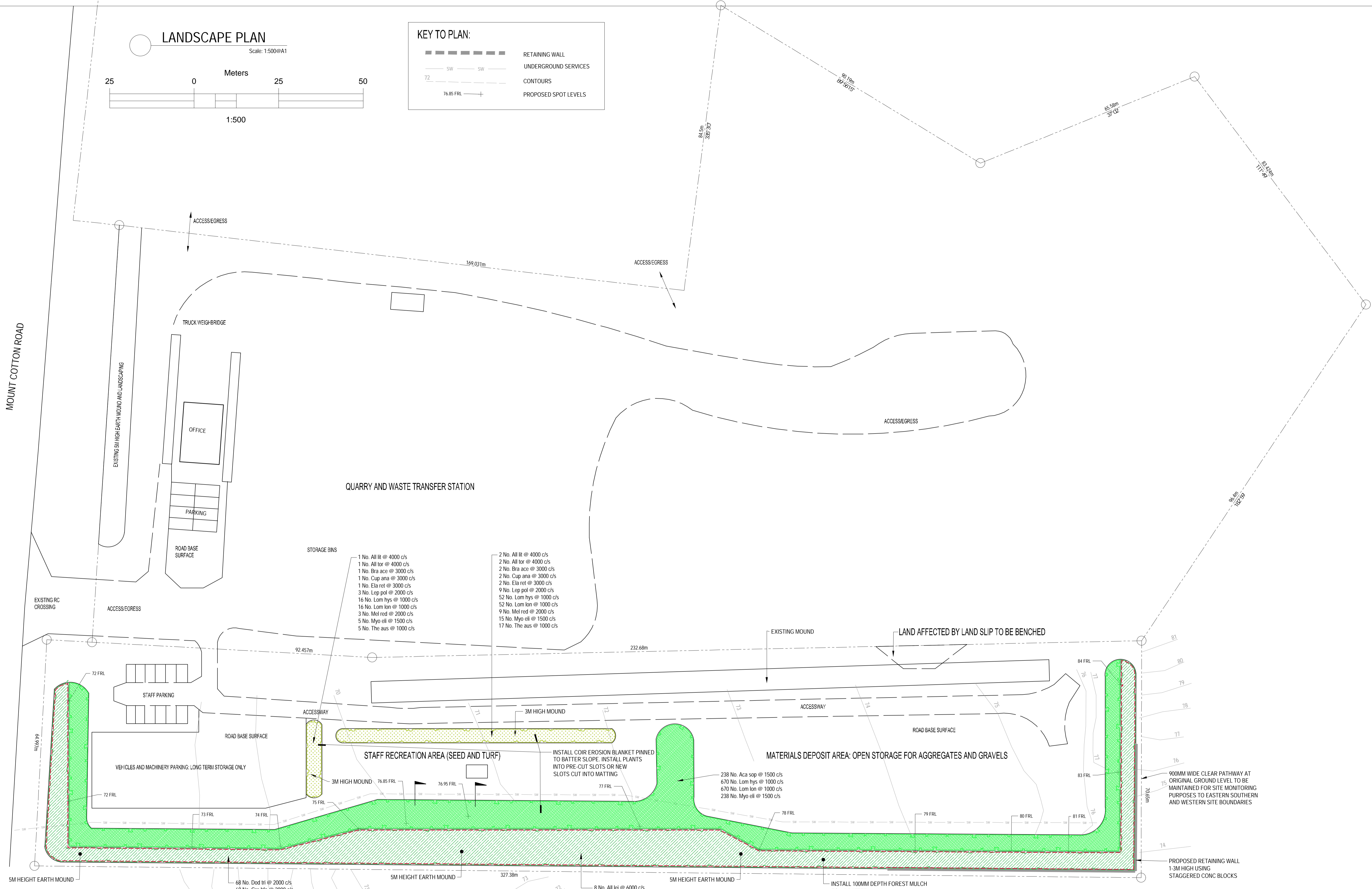
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KEY TO PLAN:

- RETAINING WALL
- UNDERGROUND SERVICES
- CONTOURS
- PROPOSED SPOT LEVELS

MOUNT COTTON ROAD



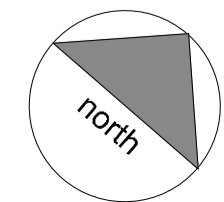
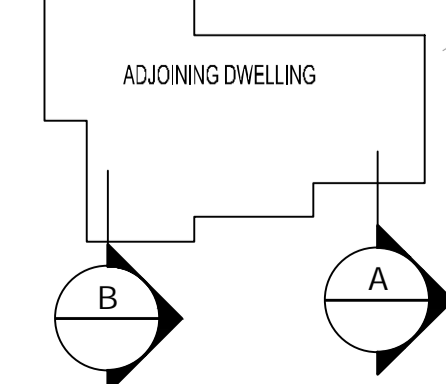
- STORAGE BINS**
- 1 No. All lit @ 4000 c/s
 - 1 No. All tor @ 4000 c/s
 - 1 No. Bra ace @ 3000 c/s
 - 1 No. Cup ana @ 3000 c/s
 - 1 No. Ela ret @ 3000 c/s
 - 3 No. Lep pol @ 2000 c/s
 - 16 No. Lom hys @ 1000 c/s
 - 16 No. Lom lon @ 1000 c/s
 - 3 No. Mel red @ 2000 c/s
 - 5 No. Myo eli @ 1500 c/s
 - 5 No. The aus @ 1000 c/s
- 2 No. All lit @ 4000 c/s
 - 2 No. All tor @ 4000 c/s
 - 2 No. Bra ace @ 3000 c/s
 - 2 No. Cup ana @ 3000 c/s
 - 2 No. Ela ret @ 3000 c/s
 - 9 No. Lep pol @ 2000 c/s
 - 52 No. Lom hys @ 1000 c/s
 - 52 No. Lom lon @ 1000 c/s
 - 9 No. Mel red @ 2000 c/s
 - 15 No. Myo eli @ 1500 c/s
 - 17 No. The aus @ 1000 c/s

- 68 No. Dod tri @ 2000 c/s
- 68 No. Gre bfo @ 2000 c/s
- 34 No. Hov acu @ 2000 c/s
- 68 No. Lep pol @ 2000 c/s
- 411 No. Lom hys @ 1000 c/s
- 411 No. Lom lon @ 1000 c/s
- 68 No. Mel pac @ 2000 c/s
- 68 No. Mel red @ 2000 c/s
- 122 No. Myo eli @ 1500 c/s
- 137 No. The aus @ 1000 c/s

- 8 No. All lei @ 6000 c/s
- 8 No. All lit @ 6000 c/s
- 8 No. All lor @ 6000 c/s
- 5 No. Ang cos @ 8000 c/s
- 5 No. Cor cit @ 8000 c/s
- 5 No. Cor tes @ 8000 c/s
- 5 No. Ela ter @ 8000 c/s
- 5 No. Euc @ 8000 c/s
- 5 No. Lop con @ 8000 c/s
- 5 No. Mel leu @ 8000 c/s

900MM WIDE CLEAR PATHWAY AT ORIGINAL GROUND LEVEL TO BE MAINTAINED FOR SITE MONITORING PURPOSES TO EASTERN SOUTHERN AND WESTERN SITE BOUNDARIES

PROPOSED RETAINING WALL 1-3M HIGH USING STAGGERED CONC BLOCKS



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ISSUE	DATE	REVISION	PROJECT #
	2/8/2020	APPROVAL	1408
PROJECT: LANDSCAPE SUPPLY DEPOT, 706-712 MOUNT COTTON RD, SHELDON QLD 4157			DWG # 1408-LP1
CLIENT: QUIN ENTERPRISES PTY LTD			REVISION A
DWG TITLE: LANDSCAPE PLAN			Design Certified by: <i>MBaldock</i>
DATE #	JULY 20	SCALE:	1:500/100
SHEET SIZE:	A1		



SECTION A
Scale: 1:100@A1



SECTION B
Scale: 1:100@A1

Buffer planting -trees

Sym.	Key	Botanic Name	Common Name	Qty.	Spacing	Pot	Percent
	All lei	Acacia leiocalyx	EARLY FLOWERING BLACK WATTLE	8	6.0 m	Tubestock	10
	All lit	Allocasuarina littoralis	BLACK SHE-OAK	8	6.0 m	Tubestock	10
	All tor	Allocasuarina torulosa	FOREST SHE-OAK	8	6.0 m	Tubestock	10
	Ang cos	Angophora costata	RUSTY GUM	5	8.0 m	Tubestock	10
	Cor cit	Corymbia citriodora	Lemon Scented Gum	5	8.0 m	Tubestock	10
	Cor tes	Corymbia tessellaris	MORETON BAY ASH	5	8.0 m	Tubestock	10
	Ela ter	Eucalyptus tereticornis	QLD BLUE GUM	5	8.0 m	Tubestock	10
	Euc	Eucalyptus microcorys	TALLOWOOD	5	8.0 m	Tubestock	10
	Lop con	Lophostemon confertus	Queensland Box	5	8.0 m	Tubestock	10
	Mel leu	Melaleuca leucadendron (broad)	BROAD LEAF WEEPING PAPER BARK	5	8.0 m	Tubestock	10

Buffer Planting Shrubs

Sym.	Key	Botanic Name	Common Name	Qty.	Spacing	Pot	Percent
	Dod tri	Dodonaea triquetra	NATIVE HOP BUSH	68	2.0 m	Tubestock	10
	Gre bfo	Grevillea banksii 'Forsterii'	BANK'S GREVILLEA	68	2.0 m	Tubestock	10
	Hov acu	Hovea acutifolia	POINTED LEAVED HOVEA	34	2.0 m	Tubestock	5
	Lep pol	Leptospermum polygalifolium	WHITE MAY	68	2.0 m	Tubestock	10
	Lom hys	Lomandra hystrix	RIVER MAT RUSH	411	1.0 m	Tubestock	15
	Lom lon	Lomandra longifolia	MAT RUSH	411	1.0 m	Tubestock	15
	Mel pac	Melaleuca pachyphyllus (green)	WALLUM BOTTLE BRUSH - GREEN	68	2.0 m	Tubestock	10
	Mel red	Melaleuca pachyphyllus (red)	WALLUM BOTTLE BRUSH - RED	68	2.0 m	Tubestock	10
	Myo eli	Myoporum ellipticum	COASTAL MYOPORUM	122	1.5 m	Tubestock	10
	The aus	Themeda australis	Kangaroo Grass	137	1.0 m	Tubestock	5

Buffer Planting 3m mound

Sym.	Key	Botanic Name	Common Name	Qty.	Spacing	Pot	Percent
	All lit	Allocasuarina littoralis	BLACK SHE-OAK	3	4.0 m	Tubestock	10
	All tor	Allocasuarina torulosa	FOREST SHE-OAK	3	4.0 m	Tubestock	10
	Bra ace	Brachychiton acerifolius	Flame Tree	3	3.0 m	Tubestock	5
	Cup ana	Cupaniopsis anacardioides	Tuckeroo	3	3.0 m	Tubestock	5
	Ela ret	Elaeocarpus reticularis	Blueberry Ash	3	3.0 m	Tubestock	5
	Lep pol	Leptospermum polygalifolium	WHITE MAY	12	2.0 m	Tubestock	10
	Lom hys	Lomandra hystrix	RIVER MAT RUSH	68	1.0 m	Tubestock	15
	Lom lon	Lomandra longifolia	MAT RUSH	68	1.0 m	Tubestock	15
	Mel red	Melaleuca pachyphyllus (red)	WALLUM BOTTLE BRUSH - RED	12	2.0 m	Tubestock	10
	Myo eli	Myoporum ellipticum	COASTAL MYOPORUM	20	1.5 m	Tubestock	10
	The aus	Themeda australis	Kangaroo Grass	22	1.0 m	Tubestock	5

Planting to embankment

Sym.	Key	Botanic Name	Common Name	Qty.	Spacing	Pot	Percent
	Aca sop	Acacia sophorae	Coastal Wattle	238	1.5 m	Tubestock	20
	Lom hys	Lomandra hystrix	RIVER MAT RUSH	670	1.0 m	Tubestock	25
	Lom lon	Lomandra longifolia	MAT RUSH	670	1.0 m	Tubestock	25
	Myo eli	Myoporum ellipticum	COASTAL MYOPORUM	238	1.5 m	Tubestock	20



Air Noise Environment
Environmental Monitoring and Assessment

Air Quality Assessment - Proposed Storage Area, Brisbane Quarries

Quin Enterprises Pty Ltd

Date of Issue: 13 August 2020

**Prepared by:
Air Noise Environment**

ABN: 13 081 834 513





Air

- Ambient Monitoring
- Auditing
- Computational Modelling
- Control Solutions
- Emission Inventories
- Expert Evidence
- Dust Assessment and Management
- Occupational Monitoring and Assessment
- Odour Monitoring and Assessment
- Research and Policy Studies
- Source Emission Monitoring



Noise

- Acoustic Design and Certification
- Computational Acoustic / Noise Modelling
- Entertainment Noise Modelling and Control
- Acoustic / Noise Control Solutions
- Acoustic Expert Evidence
- Liquor Licence Assessments
- Acoustic / Noise Monitoring
- Occupational Noise Monitoring and Control
- Acoustic / Noise Research and Policy studies
- Road Traffic and Transport Noise Studies
- Vibration Monitoring and Assessment
- Acoustic Calibrations



Environment

- Environmental Audits,
- Environmental Impact Statements,
- Environmental Management Plans and Systems,
- Environmental Policy and Compliance,
- Greenhouse Gas Emissions Inventories and Testing,
- National Pollutant Inventory, and
- National Greenhouse and Energy Reports.

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The validity and comprehensiveness of supplied information has not been independently verified and, for the purposes of this report, it is assumed that the information provided to Air Noise Environment Pty Ltd for the purposes of this project is both complete and accurate.





Executive Summary

Quin Enterprises propose to construct ancillary facilities at Brisbane Quarries, located at 706-712 Mt Cotton Road, Sheldon. The proposed development involves the construction of a truck haul route, staff recreation area, heavy machinery long term parking area and material storage area. Air Noise Environment were commissioned by Quinn Enterprises to assess potential air quality impacts on the nearby sensitive uses. The assessment has been undertaken using air dispersion modelling with a comparison of results with ambient air quality goals defined in the Environmental Protection (Air) Policy 2019.

Particulate emissions from the site are considered to be the main indicator for assessing air quality related impacts from the proposed material storage area. Particulate emissions from the haul route, material storage piles, material unloading and loading have been considered in the assessment. The nearest sensitive receptor to the proposed operations is noted to be a dwelling located approximately 6 m from the southern site boundary.

To assess the potential for air quality impacts as a result of the proposed development, computational air dispersion modelling was undertaken using the CALPUFF modelling system. The modelling has utilised meteorological data derived from CALMET, and emissions rates estimates from published emission factors (e.g. NPI, US EPA AP 42) and proposed operational data (e.g. throughputs, air emission controls). CALMET was run with prognostic data developed by TAPM and observational data from the Redland (Alexandra Hills) Bureau of Meteorology station for the year 2019. Comparison of predicted wind roses with those derived from the Redland (Alexandra Hills) station indicate that the CALMET model is predicting local wind fields accurately.

Background particulate concentrations have been reviewed for South East Queensland stations and the Springwood station has been adopted for PM_{10} and $PM_{2.5}$ concentrations as it is most representative of the subject site. As TSP is only monitored at the Cannon Hill Station, the Cannon Hill TSP background has been adopted despite the influence of the freight railway line adjacent to the station. PM_{10} concentrations measured at the boundary of the existing quarry site have also been considered.

The results of the modelling demonstrate compliance with the air quality criteria for the proposed development for all pollutants at the nearby sensitive receptors provided that Level 1 watering rates are applied to the haul route. Overall, the site represents a suitable location for the proposed materials storage area from an air quality perspective.





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1 Introduction

1.1 Scope of Study

Quin Enterprises commissioned Air Noise Environment to undertake an air quality assessment for the additional ancillary facilities at the existing quarry and waste transfer station at 706-712 Mt Cotton Road, Sheldon.

Computational modelling has been undertaken for assessing potential air quality impacts and results have been compared to criteria defined in the Queensland Government Environmental Protection Policy (Air) Policy 2019.

1.2 RCC Information Request

An air quality assessment report was previously issued by Air Noise Environment in April 2017¹ for the construction of a new office, parking area and equipment and material storage area. This updated report considers a revised site layout, which was submitted to Redland City Council for review. Redland City Council have reviewed the revised layout and sought clarification on the following in relation to air quality:

1. The ANE reporting previously prepared is out of date with respect to recent amended plans and indeed this amended plan. It would need to be updated to reflect the current plan including noise and dust predictions and be based upon realistic usage rates i.e. vehicle movements, material storage rates, dust emission etc; - This should include:

a. Vehicle movement rates to area 2 and to the vehicle storage area

The revised plan no longer includes an 'Area 2', the area previously identified as 'Area 2' is referred to as the 'Materials Deposit Area' in the revised plan. Vehicles and machinery will be parked in the long term storage area at the west of the site, however movements are expected to be minimal given vehicles and machinery are anticipated to be stored for periods of weeks to months.

b. Vehicle types

The vehicle fleet accessing the material storage area will comprise primarily of 10 cubic metre tandem tippers. The trucks hold approximately 12-13 tonnes of material (with a total weight of 23 tonnes).

c. Amount of material to be extracted from lot 1

No material is proposed to be extracted from Lot 1.

d. How material is to be excavated and where to

No material is proposed to be excavated from Lot 1.

1 Air Noise Environment, Noise and Air Quality Assessment – 706-712 Mt Cotton Road, Sheldon – FINAL, 11 April 2017, 4586-Rep-06.app.odt.





e. If excavated materials is to be located elsewhere on the wider site how this is to occurrence

No material is proposed to be excavated from Lot 1.

f. Hours of operation

Materials will be delivered and unloaded at the storage area between the hours of 7 am and 6 pm weekdays and between 7 am and 1 pm Saturdays. No deliveries or unloading are proposed for Sundays or public holidays.

g. Dust suppression methods

Haul route watering will be undertaken to minimise dust emissions. A water fogger/mister system will also be implemented to moisten stockpile materials when required.

h. Details of the materials, quantities and height of material to be stored in area 2.

Materials proposed to be stored in the material storage area include aggregates (7mm to 75 mm) and clay for capping. Material is proposed to be stored to a maximum height of 5 m. A maximum storage pile of 5,400 m³ covering an area of 2,400 m² is proposed.

1.3 Site Description

The existing Quarry and Waste Transfer Station is located at 706-712 Mount Cotton Road, Sheldon and is described as Lot 1 on RP109322 and partly on Lot 3 on SP238037. The subject site is comprised of two lots zoned Rural Non-Urban under the RCC Planning Scheme, with a total area of 6.84 Ha. Functioning as a quarry and waste transfer station, the site comprises of an office, sheds, storage bins, a truck weighbridge, excavation equipment for crushing stone and materials such as concrete. There is also the crushing, sorting, blending and recycling of timber, steel aluminium and various other metals and building materials.

The proposal is for the use of Lot 1 to store site equipment and deposit materials associated with the Waste Transfer Station. A staff recreation area will also be located at the site, which include a turfed area and small central undercover area. The staff recreation area is to be used by staff during working breaks. Contractors accessing the site may use the area also. A 5 m high landscaped earth mound is also proposed along the southern boundary of Lot 1.

The proposed truck route on Lot 1 will constructed of gravel made from bitumen. Truck speeds will also be limited to 20 km/h along the truck route.

Figure 1.1 presents the proposed site layout.



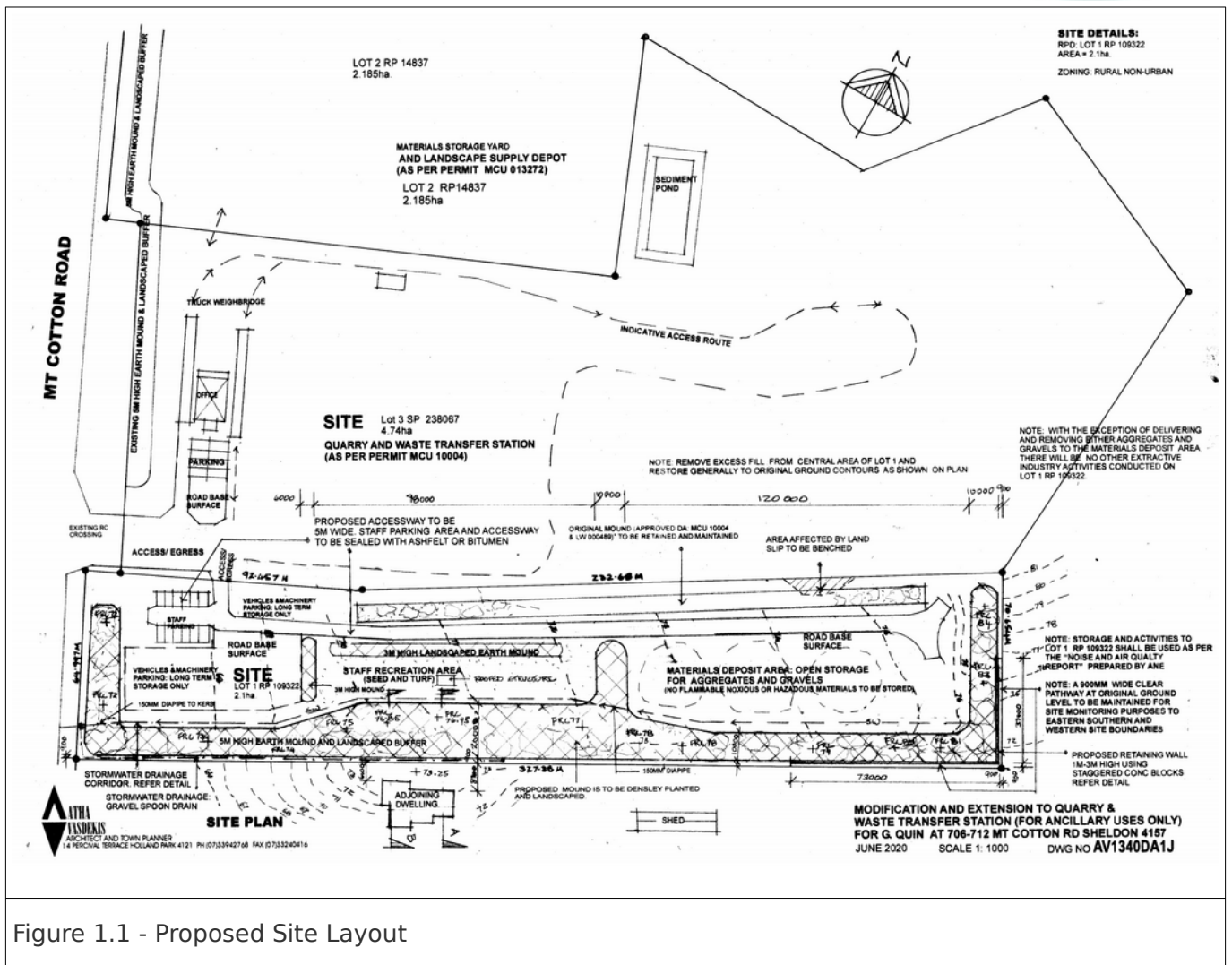


Figure 1.1 - Proposed Site Layout

1.4 Surrounding Land Uses

Existing residential uses surround the site in the southern, eastern, western and northern directions. The nearest sensitive use has been identified as a residential dwelling located on the adjoining lot to the south. The single floor dwelling is set back approximately 6 m from the southern site boundary. Commercial uses also exist nearby with a truck and vehicle depot, and a landscaping yard located within adjoining lots to the north. Figure 1.2 presents the subject site location and surrounding land uses



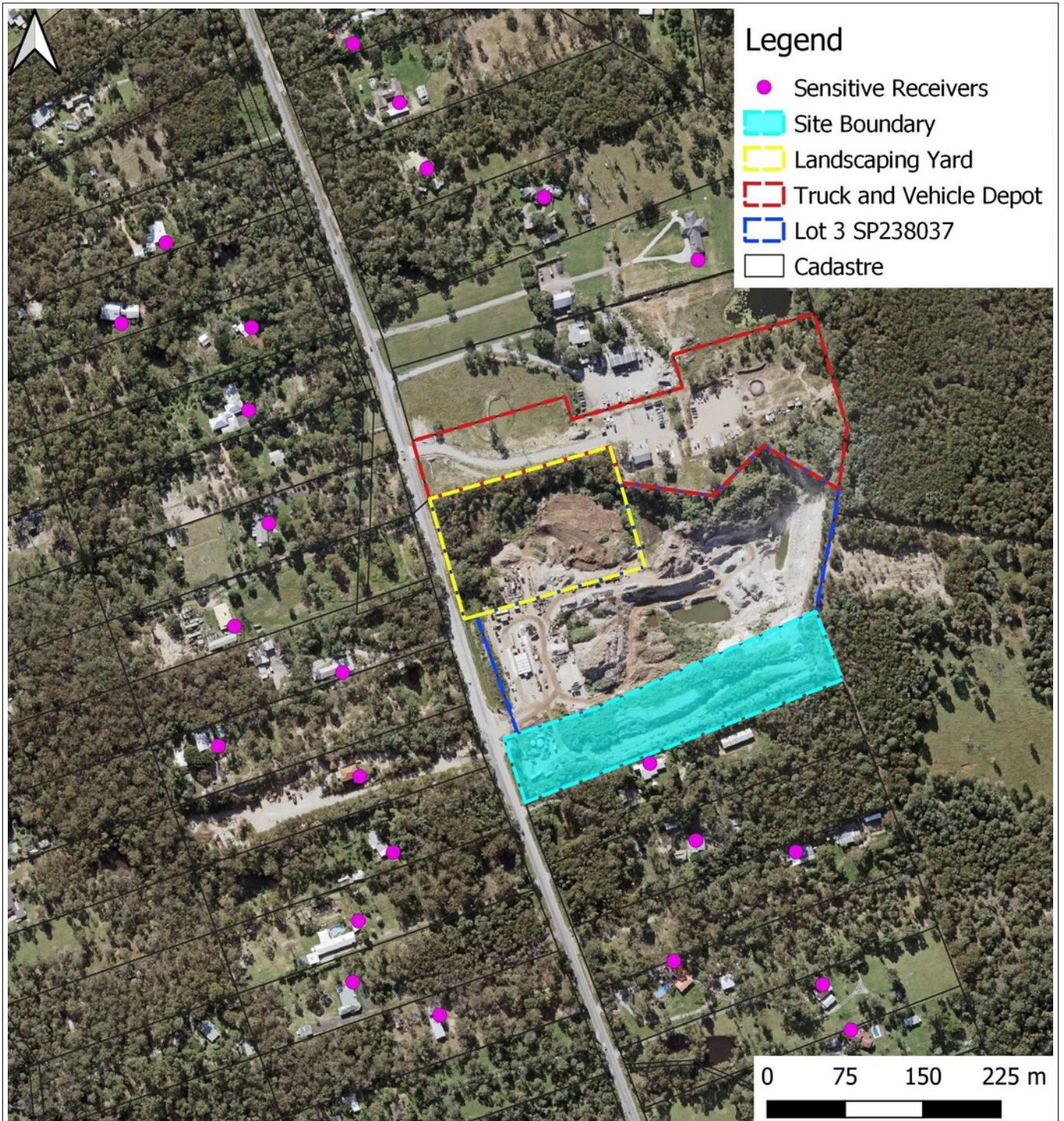


Figure 1.2 - Site Location and Surrounding Land Uses

1.5 This Report

This report presents the methodology, results and recommendations of the air quality assessment. Report sections are summarised below:



- Section 2 Assessment Criteria
- Section 3 Existing Environment
- Section 4 Modelling Approach
- Section 5 Meteorological Modelling
- Section 6 Air Emissions Data
- Section 7 Air Dispersion Modelling
- Section 8 Predicted Results
- Section 9 Additional Mitigation Options
- Section 10 Conclusion

A glossary of terms is provided in Appendix A to assist the reader.





2 Assessment Criteria

The results of the modelling have been compared to ambient air quality goals defined in the *Queensland Environment Protection Policy (Air) 2019*. Table 2.1 presents the relevant air quality goals.

Table 2.1 - Air Quality Criteria

Compound	Air Quality Criteria ($\mu\text{g}/\text{m}^3$)	Averaging Period
TSP	90	Annual
PM ₁₀	50	24-hour
	25	Annual
PM _{2.5}	25	24-hour
	8	Annual





3 Existing Environment

3.1 Onsite PM₁₀ Monitoring

3.1.1 Overview

Monitoring of PM₁₀ was undertaken during full operation of the existing quarry and waste transfer station site to determine emissions from current operations. It is noted that the previous RCC information request requires the assessment of TSP and PM₁₀ concentrations. Given the annual averaging period for TSP and the less stringent air quality goal, emissions of PM₁₀ will likely determine compliance for the proposed additional ancillary facilities.

Dust monitoring was first undertaken along the southern boundary of the site in line with the nearest receptor during January 2017. Due to a reported instrument fault, this data has not been considered in the assessment. A retest was undertaken from 24 February to 3 March 2017 along the northern boundary due to the prevailing southerly wind direction, to provide representative downwind concentrations at the site boundary.

The following sections outline the methodology and results of the monitoring.

3.1.2 Monitoring Methodology

Monitoring of PM₁₀ was undertaken along the northern site boundary from 24 February to 3 March 2017. Figure 3.1 presents the monitoring location.

A DustTrak 8532 aerosol monitor (S/N: 8530100512, Cal Due: 25/11/18) was utilised for the monitoring. An hourly averaging period was adopted with the inlet located at a height of 1.5 m above ground level. A flow calibration and zero test was completed prior to the testing.





Figure 3.1 - PM₁₀ Monitoring Location

3.1.3 Meteorological Conditions

Measured data from the nearest Bureau of Meteorology (BoM) station, Alexandra Hills, indicates a moderate to strong south to south easterly wind occurred for the majority of the monitoring period. This represents a worst case scenario given the source to receptor (monitoring position) aspect of this wind direction. Furthermore, no periods of rainfall were measured during the monitoring period.

Figure 3.2 presents a wind rose of the measured wind conditions at the Alexandra Hills station for the monitoring period.

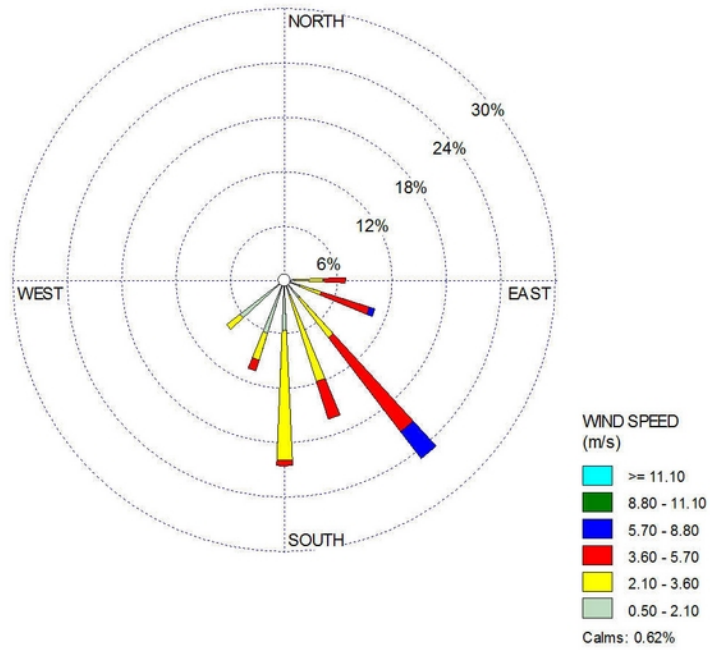


Figure 3.2- Alexandra Hills (BoM Station) – Wind Rose





3.1.4 PM₁₀ Monitoring Results

Table 3.1 presents the results of the monitoring. All of the measured 24 hour PM₁₀ concentrations are well below the EPP Air ambient goal of 50 µg/m³.

Table 3.1 - PM₁₀ Monitoring Results (24 Hour Average)

Date	24 Hour Average Measured PM ₁₀ Concentration (µg/m ³)
24/02/17	7.9
25/02/17	5.8
26/02/17	6.6
28/02/17	5.7
01/03/17	8.2
02/03/17 ^a	8.3
Average Whole Period	7.1

^a Adopted to represent worst-case

3.2 Regional Particulate Monitoring

Besides contribution from the existing site activities, ambient particulate concentrations in the Mount Cotton area are defined by local traffic and agricultural uses. Besides these sources, the only other major anthropogenic dust emission source is the Karramen Quarry located 3.5 km south west of the proposed development site.

To allow for the assessment of cumulative pollutant concentrations, background concentrations from permanent ambient monitoring station have also been considered in the assessment (in addition to the short-term on-site monitoring conducted in 2017). The Queensland Government operates a large network of ambient air monitoring sites. The nearest site is noted to be at Springwood, approximately 9 km south-west of the site. This station is located in a residential area, near major road networks and also 5.6 km west of the Karreman Quarry. Monitoring data from 2016 to 2018 has been reviewed rather than 2019 data, given that 2019 conditions were considered atypical due to the 2019 fires.

Table 3.2 presents a summary of measured background particulate concentrations at ambient air monitoring stations in Springwood, and other stations in South East Queensland. TSP is not measured at Springwood, therefore, data from Cannon Hill has been adopted.

Table 3.2 - Summary of Particulate Ambient Air Monitoring Data (2016 - 2018)

Station	Area	TSP (µg/m ³)	PM ₁₀ (µg/m ³)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	PM _{2.5} (µg/m ³)
		Annual	24-hour	Annual	24-hour	Annual
		-	70 th	-	70 th	-
Springwood	Residential	-	14.2	13.1	6.6	5.9
Brisbane CBD	Central Business District	-	17.1	16.0	-	-



Station	Area	TSP ($\mu\text{g}/\text{m}^3$)	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)
		Annual	24-hour	Annual	24-hour	Annual
		-	70 th	-	70 th	-
Cannon Hill	Residential near Railway/Industrial	27.5	18.9	17.5	8.9	7.7
Flinders View	Residential	-	20.5	20.0	-	-
Lytton	Industrial	-	22.1	18.7	6.2	5.2
Mountain Creek	Residential	-	21.0	22.9	-	-
Rocklea	Residential/Industrial	-	17.2	15.1	7.7	6.7
Southport	Residential	-	16.6	15.8	7.0	6.5
South Brisbane	Roadside (Pacific Highway)	-	18.3	17.4	9.5	8.3
Springwood	Residential	-	14.2	13.1	6.6	5.9
Woolloongabba	Roadside (Ipswich Road)	-	21.6	19.0	11.7	9.7
Wynnum North	Residential	-	18.5	17.0	5.4	4.7
Wynnum West	Residential	-	16.9	13.9	4.7	4.0





4 Modelling Approach

To assess the potential for air quality impacts, air dispersion modelling has been undertaken to predict pollutant concentrations at the nearest sensitive receptors based on the proposed operational details of the quarry.

Atmospheric dispersion modelling involves the mathematical simulation of the dispersion of air contaminants in the environment. The modelling utilises a range of information to estimate the dispersion of pollutants released from a source including:

- meteorological data for surface and upper air winds, temperature and pressure profiles, as well as humidity, rainfall, cloud cover and ceiling height information;
- emissions parameters including source location and height, source dimensions and physical parameters (e.g. exit velocity and temperature) along with pollutant mass emission rates;
- terrain elevations and land use both at the source and throughout the surrounding region;
- the location, height and width of any obstructions (such as buildings or other structures) that could significantly impact on the dispersion of the plume; and
- sensitive receptor locations and heights.

The CALPUFF modelling system has been adopted for the dispersion modelling. The CALPUFF modelling system comprises of three components, including CALMET for meteorological prediction, CALPUFF for air dispersion modelling and CALPOST for results analysis.

CALPUFF treats emissions as a series of puffs. These puffs are then dispersed throughout the modelling area and allowed to grow and bend with spatial variations in meteorology. In doing so, the model is able to retain a memory of the plume's movement throughout a single hour and from one hour to the next while continuing to better approximate the effects of complex air flows.

CALPUFF utilises the meteorological processing and prediction model CALMET to provide three dimensional wind field predictions for the area of interest. The final wind field developed by the model (for consideration by CALPUFF) includes an approximation of the effects of local topography, the effects of varying surface temperatures (as is observed in land and sea bodies) and surface roughness (resulting from varied land uses and vegetation cover in an area). The CALPUFF model is able to resolve complex terrain influences on local wind fields including consideration of katabatic flows and terrain blocking.

Post processing of modelled emissions is undertaken using the CALPOST package. This allows the rigorous analysis of pollutant predictions generated by the CALPUFF system. In particular CALPOST is able to provide an analysis of predicted pollutant concentrations for a range of averaging periods from 1 hour to 1 year.

The following sections present the methodology, assumptions and outcomes of the meteorological and air dispersion modelling (Section 5 Meteorological Modelling, Section 6 Air Emissions Data and Section 7 Air Dispersion Modelling).





5 Meteorological Modelling

5.1 Overview

CALMET has been run to predict meteorological data for the year 2019. CALMET has been run with surface observations and prognostic data set developed using TAPM. Measured data from the Redlands (Alexandra Hills) Bureau of Meteorology Station has been included in the model. The following sections provide an overview of the data utilised in the CALMET modelling, along with details of some of the key parameters selected to establish calculation limits within CALMET.

5.2 TAPM Predictions

A site specific meteorological dataset has been determined using the prognostic model TAPM (The Air Pollution Model). Prognostic models, such as TAPM, permit the development of localised meteorological datasets, based on synoptic weather conditions. The model predicts the regional flows important to dispersion, such as sea breezes and terrain induced flows, against a background of larger-scale meteorology provided by synoptic analyses. The output of this model provides a meteorological dataset suitable for introduction into a diagnostic meteorological model, such as CALMET. Where good quality prognostic data is available for a site, this methodology is the recommended approach for the modelling of contaminant concentrations using CALMET².

The 3D prognostic data was derived using TAPM (Version 4.05). The model was configured with a series of nested grids chosen to provide an appropriate communication and transfer of information from the broad synoptic to the local scale. The model was configured to use a domain consisting of 25 x 25 x 25 grid points with nesting spacings of 30 km, 10 km, 3 km and 1 km. Table 5.1 presents a summary of the TAPM settings.

Table 5.1 - TAPM Settings

Setting/Input	Value
Latitude, Longitude	-27° 34.5', 153° 13'
Easting X, Northing Y (m)	521386, 6949857
Date	2019
Grid Points	25 x 25
Outer Grid Spacing	30 km x 30 km
Vertical Grid Levels	25 grid levels 10, 25, 50, 100, 150, 200, 250, 300, 400, 500, 600, 750, 1000, 1250, 1500, 1750, 2000, 2500, 3000, 3500, 4000, 5000, 6000, 7000, 8000 All levels stored in output
Number of Grid Domains	4 (30 km, 10 km, 3 km, 1 km)

2 TRC Environmental Corporation (March 2011) 'Generic Guidance and Optimum Model Settings for the CALPUFF Modelling System for Inclusion into the 'Approved Methods for the Modelling and Assessments of Air Pollutants in NSW, Australia' prepared on behalf of the NSW Office of Environment and Heritage.



5.3 Observational Data

Meteorological data from the nearby Redland (Alexandra Hills) Bureau of Meteorology station (located 4.0 km north-east of the site), has been incorporated into the CALMET modelling. The Redland (Alexandra Hills) data set is noted to be 99.9% complete for all parameters. Where gaps occurred in the data set, they have been filled using linear interpolation. As pressure data is unavailable for the Redland (Alexandra Hills) station, pressure data from the Bureau of Meteorology Brisbane Airport Station has been included. The Brisbane Airport pressure dataset is noted to be 99.9% complete. Figure 5.1 presents the location of the Redland (Alexandra Hills) station in relation to the site.

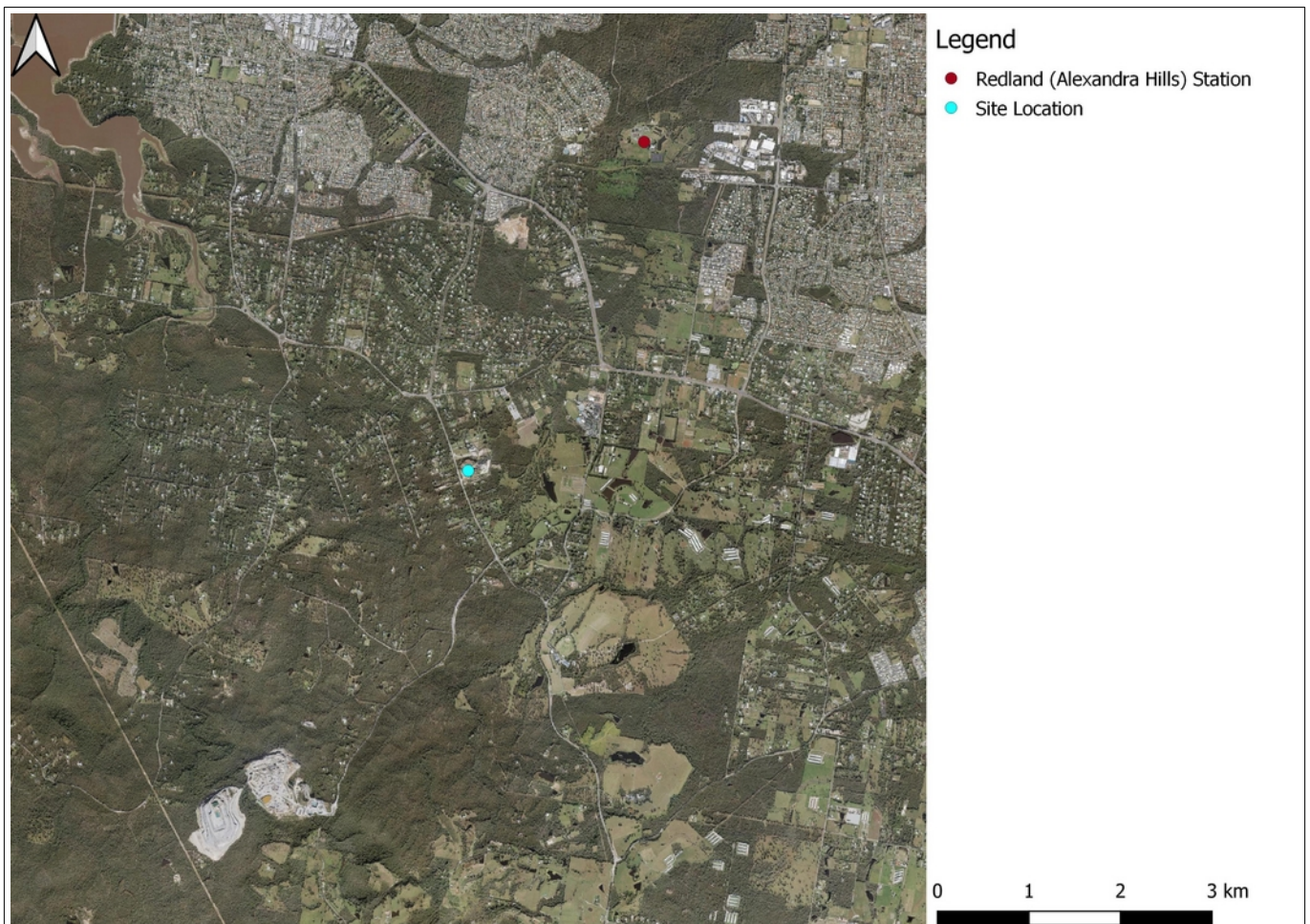


Figure 5.1 - Location of Redland (Alexandra Hills) Bureau of Meteorology Station and Proposed Development Site

To incorporate both TAPM prognostic data and measured data, CALMET was run in a hybrid mode (NOOBS=1), which combines both data sets to produce a site-specific wind field. The NOOBS=1 setting also utilises TAPM outputs for upper air data. An R1 and RMAX1 value of 4 and 6 km have been adopted for the surface station.



5.4 CALMET Predictions

5.4.1 Overview

As discussed in the previous section, a three dimensional prognostic dataset derived from the TAPM model was input to CALMET to predict meteorological conditions at the development and surrounding area. The following sections provide an overview of the data utilised in the CALMET modelling, along with details of some of the key parameters selected to establish calculation limits within CALMET.

5.4.2 Vertical Stations

For the purposes of the modelling, CALMET was initialised with a total of 10 vertical layers with layer boundaries at 20 m, 40 m, 80 m, 160 m, 320 m, 640 m, 1,200 m, 2,000 m, 3,000 m and 4,000 m respectively. The vertical levels used in the modelling were selected to provide the model with the ability to predict atmospheric conditions at a range of heights. A greater resolution of vertical heights has been adopted nearer to the ground, given the ground level sources considered in the assessment.

5.4.3 Terrain and Land Use Data

Terrain data for the area surrounding the development was obtained from the Digital Elevation Model (DEM) 5 Metre Grid of Australia derived from LiDAR model, which represents a National 5 metre (bare earth) DEM that has been derived from some 236 individual LiDAR surveys between 2001 and 2015. Data for a 10 km x 10 km area (0.1 km spacing) has been extracted for use in the modelling.

The TERRAD value in CALMET is used to determine the radius of influence for terrain features within the model domain. The TERRAD value has been calculated based on the rule 'ridge-to-ridge divided by 2, rounded up' recommended by the NSW Office of Environment and Heritage³. A TERRAD value of 6 km has been adopted after review of the surrounding terrain features.

Land use data was also created based from the Queensland Government Land Use dataset⁴ and satellite imagery and incorporated into the CALMET model. Where land use categories do not correspond with the CALMET land use input file categories, satellite imagery has been reviewed to determine the most appropriate land use category. Figures 5.2 and 5.3 presents the modelled terrain and land use in CALMET.

3 TRC Environmental Corporation (March 2011) 'Generic Guidance and Optimum Model Settings for the CALPUFF Modelling System for Inclusion into the 'Approved Methods for the Modelling and Assessments of Air Pollutants in NSW, Australia' prepared on behalf of the NSW Office of Environment and Heritage.

4 <https://www.data.qld.gov.au/dataset/land-use-mapping-series/resource/3e2e8471-cfeb-493e-a623-c79f488972ab>



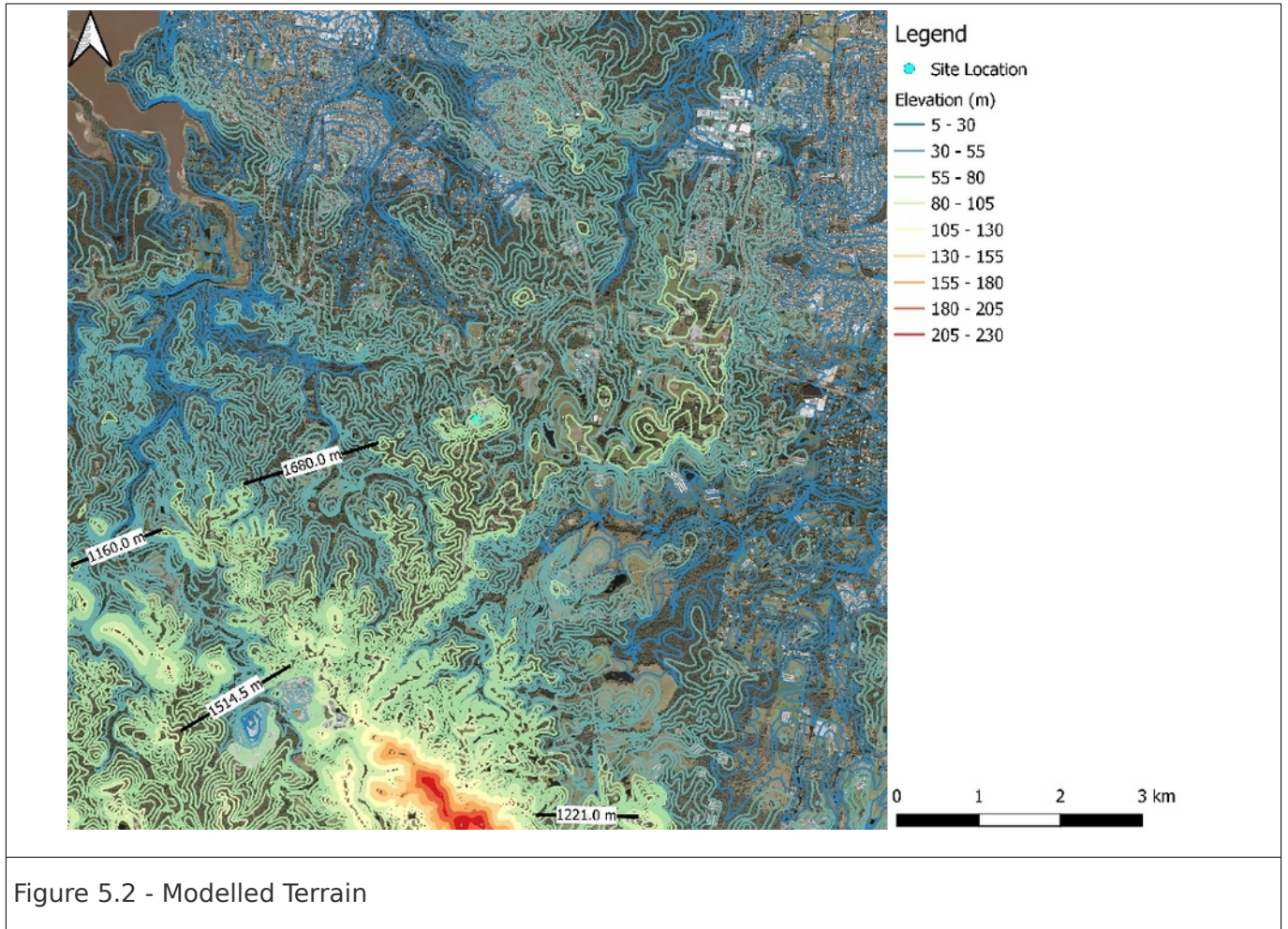


Figure 5.2 - Modelled Terrain



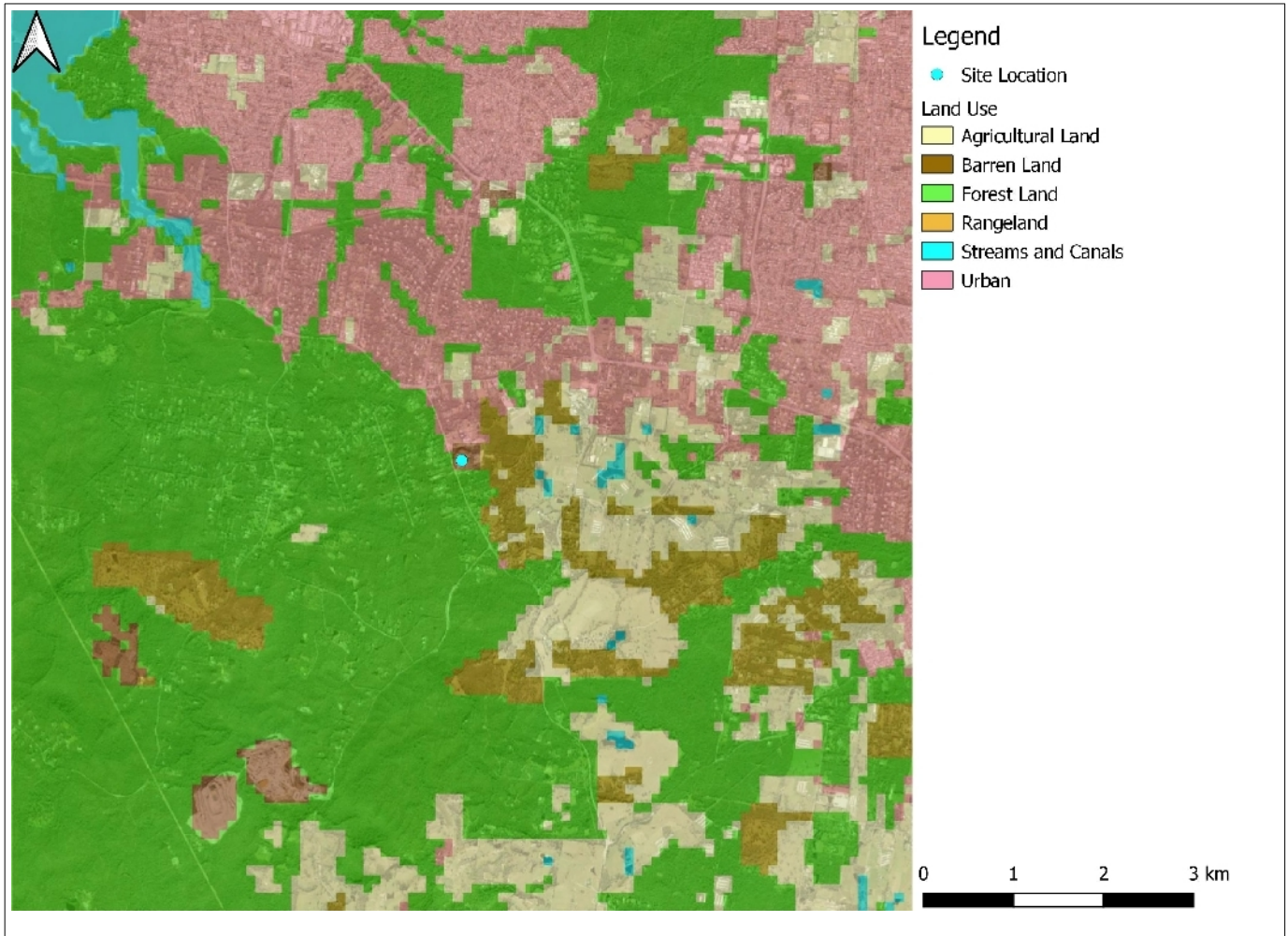


Figure 5.3 - Modelled Land Use

5.5 CALPUFF Dispersion Modelling

The CALPUFF modelling system treats emissions as a series of puffs. These puffs are then dispersed throughout the modelling area and allowed to grow and bend with spatial variations in meteorology. In doing so, the model is able to retain a memory of the plume's movement throughout a single hour and from one hour to the next while continuing to better approximate the effects of complex air flows.

CALPUFF utilises the meteorological processing and prediction model CALMET to provide three dimensional wind field predictions for the area of interest. The final wind field developed by the model (for consideration by CALPUFF) includes an approximation of the effects of local topography, the effects of varying surface temperatures (as is observed in land and sea bodies) and surface roughness (resulting from varied land uses and vegetation cover in an area). The CALPUFF model is able to resolve complex terrain influences on local wind fields including consideration of katabatic flows and terrain blocking.





5.6 CALPOST

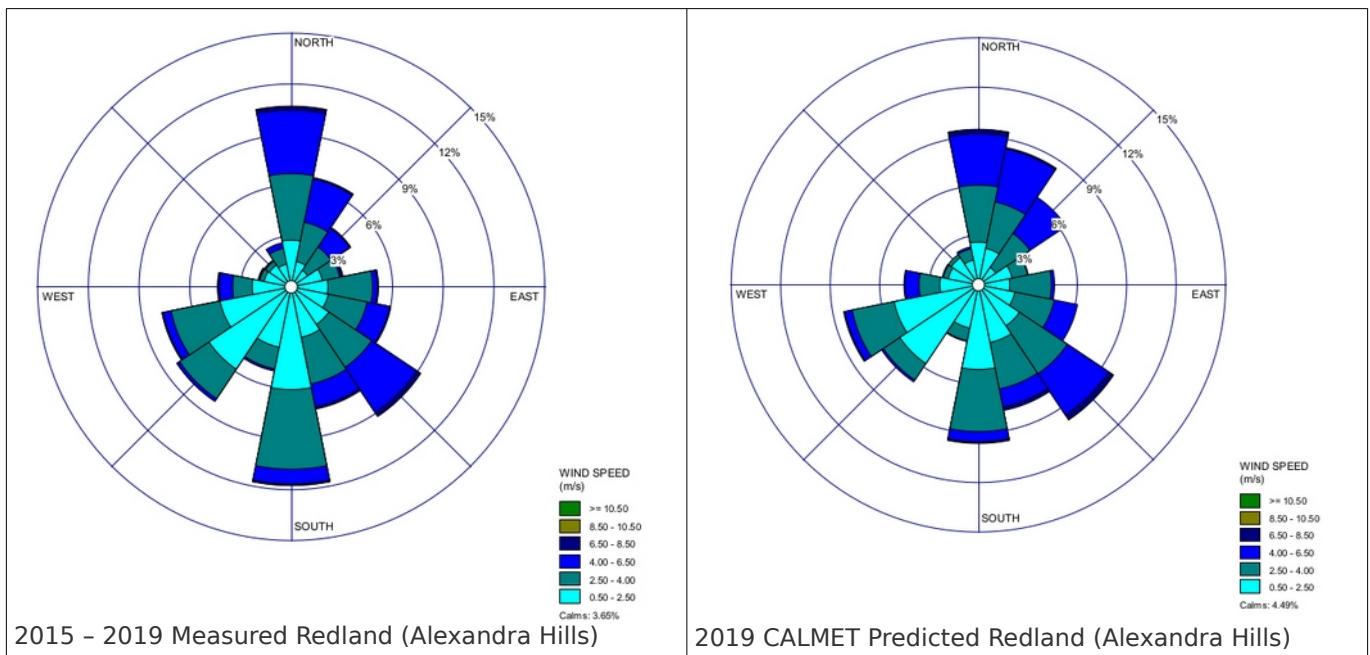
Post processing of modelled emissions is undertaken using the CALPOST package. This allows the rigorous analysis of pollutant predictions generated by the CALPUFF system. In particular CALPOST is able to provide an analysis of predicted pollutant concentrations for a range of averaging periods from 1 hour to 1 year.

5.7 Meteorological Predictions

5.7.1 Wind Predictions

For the purpose of verifying the accuracy of the CALMET modelling, predicted wind roses for the CALMET predictions for 2019 have been compared to the available wind monitoring data from 2015 to 2019 at the Redland (Alexandra Hills) Bureau of Meteorology station (located 4.0 km north east of the subject site). It is noted that monitoring began at the Redland (Alexandra Hills) station in August 2015.

Figure 5.5 shows a comparison of the predicted and measured wind roses for the Redland (Alexandra Hills) Bureau of Meteorology station.



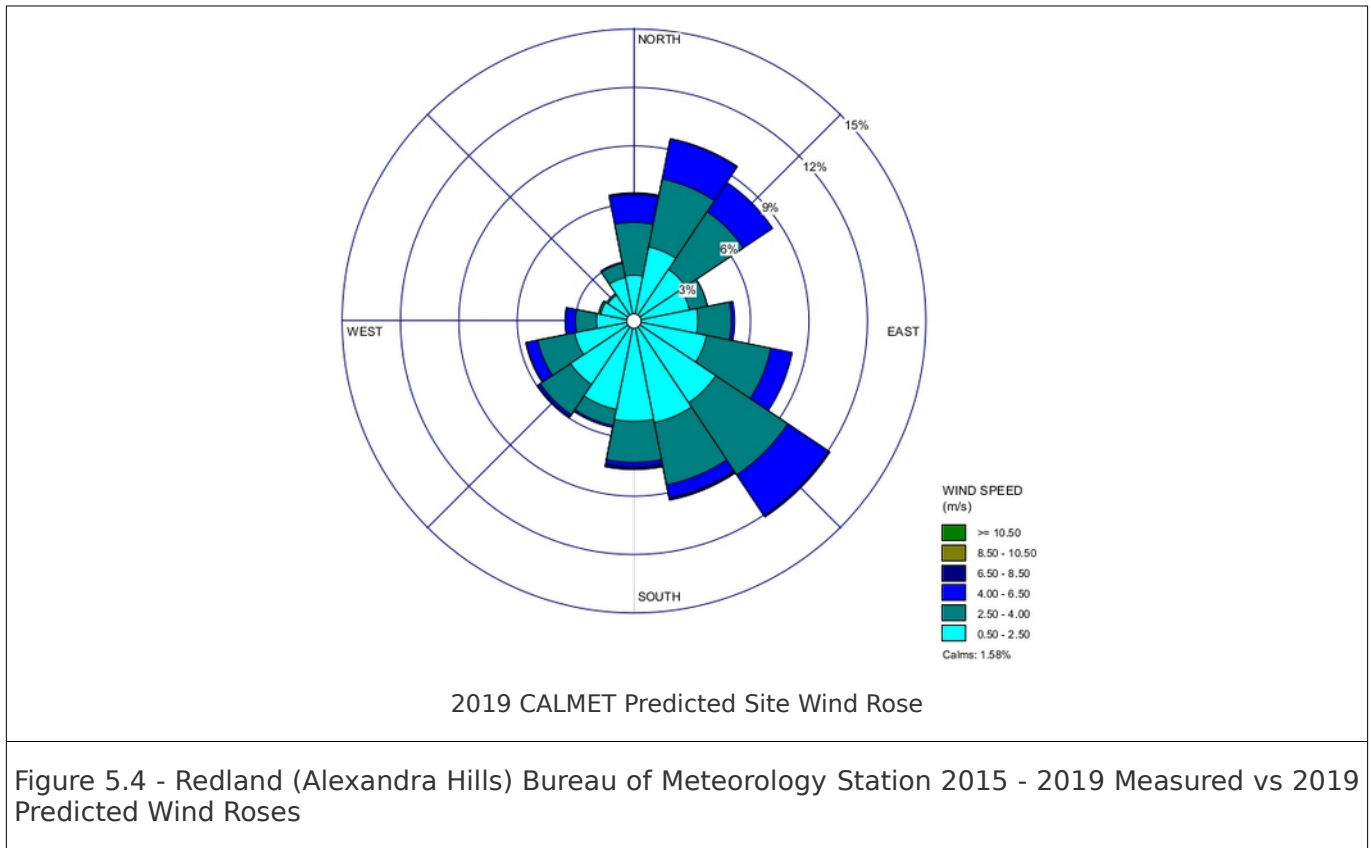


Figure 5.4 - Redland (Alexandra Hills) Bureau of Meteorology Station 2015 - 2019 Measured vs 2019 Predicted Wind Roses

The measured data set shows dominant southerly and northerly winds (and minimal north westerly components), which is also reflected in the CALMET predictions. Some differences include a higher proportion of easterlies, and a lower proportion of southerly and northerly winds. Overall, a comparison of the wind roses show that predicted and measured wind roses are comparable in terms of wind direction. In terms of source-to-receiver winds, northerly component winds (N, NNE, NE, ENE, WNW, NW and NNW) towards the existing dwellings to the south are noted to be slightly over predicted with 31.1% measured and 34.2% predicted. The predicted wind rose at the subject site shows a lower proportion of southerly and easterly flows at the subject site compared to the Redland (Alexandra Hills) station.

In terms of wind speeds, the predicted data set is accurately predicting lower speed categories (0.5 – 2.5 m/s), with 44.0% measured and 45.4% predicted. In relation to calms, the predicted data set shows a slightly higher proportion of calms (3.6% measured and 4.5% predicted). Both data sets confirm that calms are a minor feature of the area.

Overall, predicted wind conditions are considered appropriate for the assessment of potential air quality impacts from the proposed development.

5.7.2 Atmospheric Stability Class

The amount of turbulence in the ambient air has a major effect upon the rise and dispersion of emissions. The amount of turbulence in the atmosphere is often described using series of six Pasquill stability classes A, B, C, D, E and F. Of these, Class A denotes the most unstable or most turbulent



conditions and class F denotes the most stable or least turbulent conditions. Figure 5.5 provides a summary of the predicted atmospheric stability conditions for the site.

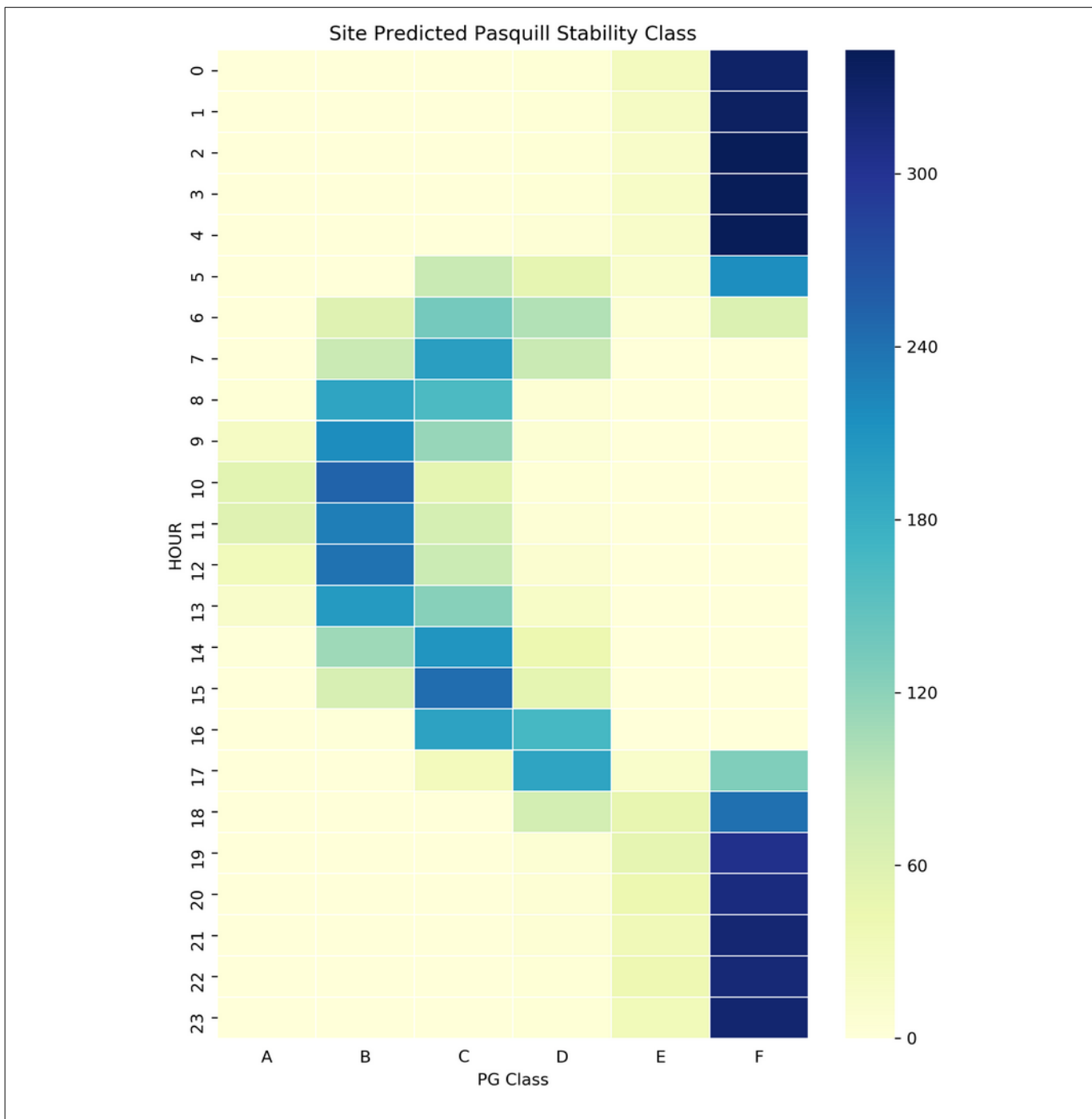


Figure 5.5 - CALMET Predicted Stability Classes by Hour

5.7.3 Mixing Heights

Figure 5.6 presents a plot showing predicted mixing heights for each hour of the day. The range and pattern of predicted mixing heights are considered typical of a rural area. As expected, higher mixing





heights occur during the day time, while lower mixing heights occur during the night period when stable conditions are dominant and temperature inversions occur.

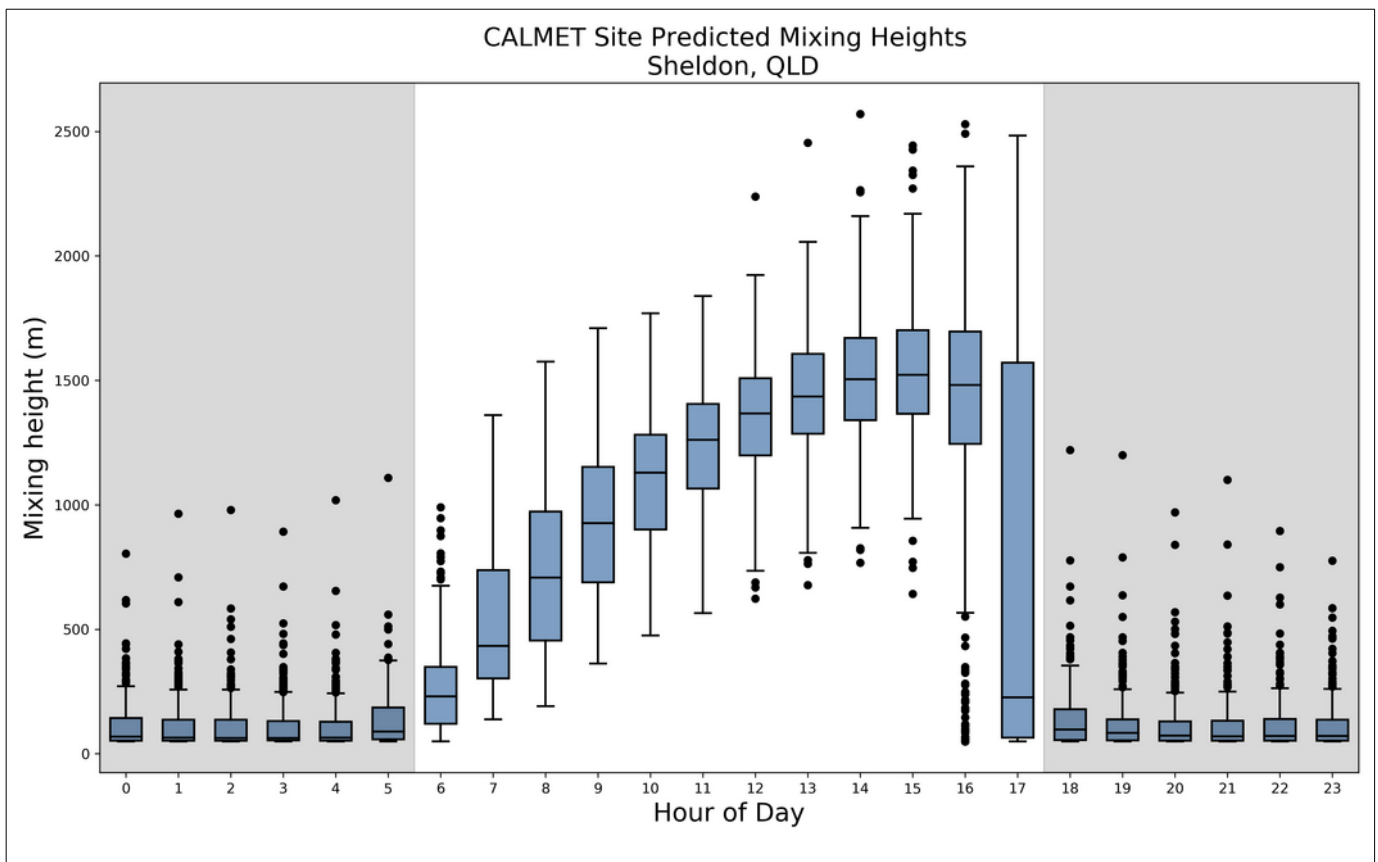


Figure 5.6 - CALMET Predicted site Mixing Heights

5.7.4 Temperature

Figure 5.7 presents a plot showing predicted temperatures for each hour of the day. The range and pattern of predicted temperatures are considered typical of a rural area. As expected, higher temperatures occur during the day time, while lower temperatures occur during the night period when there is no solar radiation. The average predicted temperature at the site is 20.3°C, which is comparable to the average measured temperatures of 20.5°C at the Redland (Alexandra Hills Station).

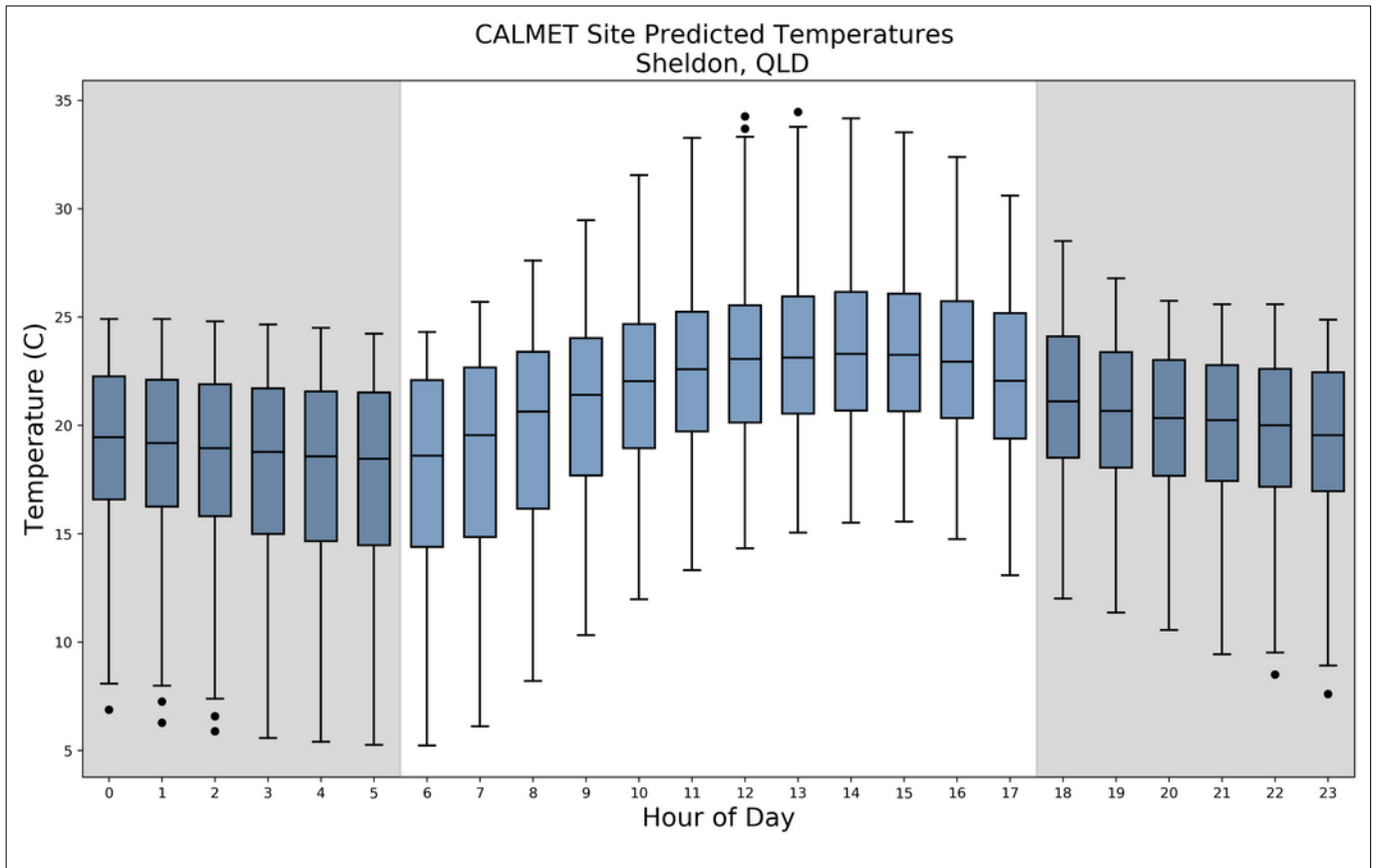


Figure 5.7 - CALMET Predicted Site Temperature

5.8 Summary of Outcomes

A review of the predicted data sets for the year 2019 indicate that the outcomes of CALMET model are suitable for predicting potential air quality impacts from the proposed development. Key meteorological parameters including wind field, stability class and temperature are considered to be representative of the subject site and surrounding area based on a comparison to measured data.



6 Air Emissions Data

6.1 Overview

The following sections present the emission factors and emission rates derived for each modelling scenario. These emission rates have been used in the CALPUFF modelling described later in Section 7.

6.2 Emission Factors

In order to predict emission rates for the relevant air emission sources, a review of available published literature relating to quarry operations has been completed. The following documents have been utilised to estimate emissions, and are referenced in Table 6.1:

1. AP 42 (5th Edition), Compilation of Air Pollutant Emission Factors, Vol. 1 Stationary Point and Area Sources, Chapter 13.2.2, Unpaved Roads.
2. AP 42 (5th Edition), Compilation of Air Pollutant Emission Factors, Vol. 1 Stationary Point and Area Sources, Chapter 13.2.4, Aggregate Handling and Storage Piles, November 2006.
3. National Pollution Inventory, Emission Estimation Technique Manual for Mining (Version 3.1), January 2012.

The following sections present details on the derivation of emission factors and rates used in the modelling.

Table 6.1 presents emission factors sourced from the US EPA AP42 and NPI literature. Assumptions in selecting or deriving emission factors are also presented in the last column of Table 6.1.





Table 6.1 - Emission Factors

Activity	Units	TSP	PM ₁₀	PM _{2.5}	Reference	Comments
Truck unloading material	kg/Mg	0.00391	0.00185	0.00028	Ref 2, Eqn 1	Assumes 1% moisture content, 2.6 m/s wind based on measured wind speed between 7 am and 6 pm from the Redland (Alexandra Hills) Bureau of Meteorology Station
Truck loading material	kg/Mg	0.00391	0.00185	0.00028	Ref 2, Eqn 1	Assumes 1% moisture content, 2.6 m/s wind based on measured wind speed between 7 am and 6pm from the Redland (Alexandra Hills) Bureau of Meteorology Station
Haul route - Product Truck	g/VKT	2714	801	80	Ref 1 Eqn 1	Silt content of 10% as per Table 13.2.2-1 of Ref 1, and average (empty, full) truck weight of 18 ton. 10% silt content represents the average of the data set provided in Ref 1. This has been adopted to represent the stone quarrying plant roads along the haul route. This is likely to overestimate emissions from the proposed truck route on Lot 1, which is to be constructed of gravel made from bitumen.
Stockpiles	kg/m ² /hr	0.00004	0.00002	0.000003	Ref 3	Emission factor for coal mining stockpiles, likely to be highly conservative.



6.3 Derived Emission Rates

6.3.1 Overview

Emission rates have been derived for based on an assumed worst-case operating day. Based on outgoing truck movement information supplied by the client for June 2018 – June 2020, the highest number of outgoing truck movements per day was 31 (based on November 2018 data). The 31 truck movements represent all outgoing movements for the site. The proposed material storage areas will only hold a small proportion of the total material on site (3 out of approximately 20 stockpiles), therefore, on a worst-case day, only a portion of the trucks are likely to access the storage area. As a conservative approach, the following has been assumed for truck movements:

- Half the number of 31 outgoing trucks will take material from the proposed material storage area (i.e. 15.5 trucks per day);
- The equivalent number of trucks (incoming to Lot 1) will transport material from the existing Lot 3.

This equates to a material input and output of approximately 200 tonnes per day (15.5 trucks x 13 tonne payload for a tandem tipper) (or 400 tonnes per day of material handled per day)

In order to predict g/s emission rates for use in the air dispersion modelling, it is necessary to multiply the emission factors presented in Table 6.1 by the relevant multiplying factors:

- kg/Mg emission factors to be multiplied by material throughputs (e.g. Mg/year);
- g/VKT emission factors to be multiplied by amount of km vehicles travel over the haul route (e.g. km/hr);
- kg/m²/hr emission factors to be multiplied by the total area of the area sources.

The following sections present details of input data used to derive emission rates from the emission factors.

6.3.2 Mitigation

With regards to mitigation, a standard watering rate (Level 1, < 2 L/m²/hr) for the haul routes has been considered. For a standard watering rate, a 50% control efficiency has been considered based on the recommendations of NPI Mining Manual.

6.3.3 Estimated Emissions

In order to derive maximum emission rates (g/s, for the maximum plant production rate) for the proposed quarry operations, the following client information has been considered:

- Material handled of 400 tonnes per day;
- Areas for stockpiles are shown in Table 6.2 and are based based on plans provided by Client;
- An average of 31 truck movements are anticipated per day over a distance of 555.5 m.

Table 6.2 presents the emission rates derived for the proposed material storage area.





Source IDs are also provided in Column 1 and have been used in the air dispersion modelling. Sources have been modelled as unit emission rates (i.e. 1 g/s, 1 g/s/m, 1 g/s/m²) in individual CALPUFF files, and the results have been factored using the derived emission rates. The results for each source have then been added in CALSUM to provide total predicted concentrations in the surrounding area.





Table 6.2 - Proposed Quarry Estimated Emission Rates (g/s) - Worst-Case Daily Throughput

Source ID	Activity	Factoring Value	Factoring Unit	Mitigation Reduction	Mitigation Description	TSP	PM ₁₀	PM _{2.5}	Operating Time
V1	Truck loading material	200.0	tonnes/hr	0%	None	0.020	0.009	0.001	7am - 6 pm
V2	Truck unloading material	200.0	tonnes/hr	0%	None	0.020	0.009	0.001	7 am - 6pm
R1	Haul Route	1.6	VKT	50%	Level 1 watering	0.054	0.016	0.012	7 am - 6pm
A1	Material Storage Area	2426.7	m ²	0%	None	0.027	0.013	0.002	24/7



6.4 Modelled Source Locations

Figure 6.1 presents the modelled source locations for the proposed material storage area. Source IDs are described in Table 6.2.



Figure 6.1 - Modelled Sources



7 Air Dispersion Modelling

7.1 Overview

The following sections present details of the CALPUFF air dispersion modelling.

7.2 Meteorological Data

Meteorological data has been derived using CALMET. Full details of the inputs and verification outcomes of the CALMET modelling are provided in Section 5.

7.3 Emissions Data

The modelling scenarios and air emissions data used in CALPUFF are provided in the previous Section 6.

7.4 Source Parameters

Volume, area and road sources have been adopted in CALPUFF to represent the range of air emission sources at the quarry. Area sources have been used for all exposed surface areas. Line sources have been used for all haul routes. All other emission sources have been modelled as volume sources. Source Locations are presented in Section 6.4. Table 7.1 to 7.3 presents the modelled source parameters.

Table 7.1 - Volume Source Parameters

Source ID	Elevation (m)	Height (m)	Initial Sigma Y (m)	Initial Sigma Z (m)
V1	76	2.0	1.0	1.0
V2	76	2.0	1.0	1.0

Table 7.2 - Area Source Parameters

Source ID	Elevation (m)	Height (m)	Initial Sigma Z (m)	Area (m ²)
A1	74	5	1.0	2427

Table 7.3 - Line Source Parameters

Source ID	Height (m)	Initial Sigma Y (m)	Initial Sigma Z (m)	Total Line Length (m)
R1	2.6	4.2	2.4	648.2





7.5 Discrete Receptors

Figure 7.1 presents the modelled discrete receptors. A total of 3 receptors have been modelled at 1.5 m above ground level to represent the nearest residential houses. A sampling grid of 400 m x 500 m with a spacing of 10 m has been included to allow for the creation of ground level plots.



Figure 7.1 - Modelled Discrete Receptors



8 Predicted Results

Table 8.1 presents the predicted results for the worst-case throughput operating day. The highest concentrations are noted to occur at Receptor 1, the sensitive receptor located directly to the south of the proposed storage area. The results of the modelling show compliance for all criteria at all receptors provided level 1 watering is applied.

A ground level concentration plot for cumulative 24 Hour PM₁₀ is presented in Figure 8.1.

Table 8.1 - Predicted Results – Worst-case Throughput

Receptor	TSP Annual	PM ₁₀ 24-hour	PM ₁₀ Annual	PM _{2.5} 24-hour	PM _{2.5} Annual
<i>Source Only</i>					
R1	2.6	16.9	0.4	2.4	0.42
R2	1.0	5.9	0.2	0.9	0.17
R3	0.5	3.3	0.1	0.5	0.07
<i>Cumulative</i>					
Adopted Background	27.5	21.3	13.1	6.6	5.9
R1	30.1	38.2	13.5	9.0	6.3
R2	28.5	27.2	13.3	7.5	6.1
R3	28.0	24.6	13.2	7.1	6.0
Criteria	90.0	50	25	25	8



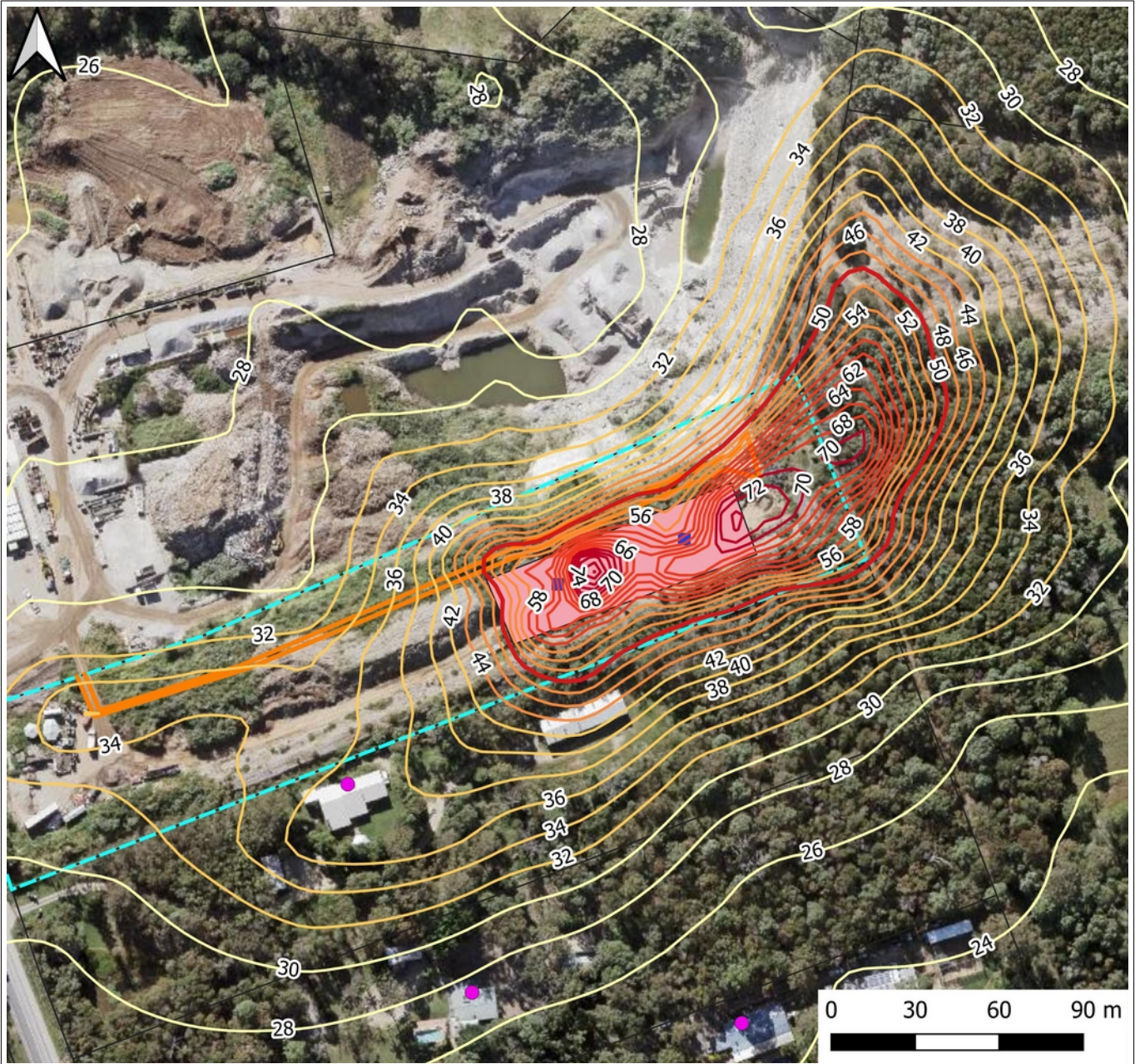


Figure 8.1 - Predicted Cumulative Ground Level PM₁₀ 24 Hour Concentrations

Height: Ground level

Location: Sheldon

Pollutant: PM₁₀

Averaging Time: 24 Hour

Units: µg/m³

Criteria: 25





9 Additional Mitigation Options

In addition to the water sprays on the haul route, a fogger/misting system is proposed for the material stockpile area as required. It is assumed that the fogger/mister would result in a 50% reduction in emissions from the material stockpile. Table 9.1 presents the predicted results for the worst-case throughput operating day where the fogger/mister system is installed. A ground level concentration plot for cumulative 24 Hour PM₁₀ is presented in Figure 9.1.

Table 9.1 - Predicted Results with Fogger/Mister system on stockpile – Worst-case Throughput

Receptor	TSP Annual	PM ₁₀ 24-hour	PM ₁₀ Annual	PM _{2.5} 24-hour	PM _{2.5} Annual
<i>Source Only</i>					
R1	2.2	15.9	0.4	2.3	0.40
R2	0.8	5.5	0.2	0.8	0.16
R3	0.4	3.0	0.1	0.4	0.07
<i>Cumulative</i>					
Adopted Background	27.5	21.3	13.1	6.6	5.9
R1	29.7	37.2	13.5	8.9	6.3
R2	28.3	26.8	13.3	7.4	6.1
R3	27.9	24.3	13.2	7.0	6.0
Criteria	90.0	50	25	25	8

As with the results presented in Section 8, the highest concentrations are noted to occur at Receptor 1. The results of the modelling show compliance for all criteria at all receptors. The results show that particulate concentrations are approximately 5% lower with water sprays on stockpiles. It is noted that the proposed 5 m earth mound along the southern boundary of Lot 1 is also expected to provide some reduction in dust emissions through the use of landscaping and planting.

In summary, the following dust mitigation measures are proposed for the site:

- haul route watering;
- haul route to be constructed from gravel (made from bitumen);
- limit vehicle speeds to 20 km/h;
- installation a fogger/mister system.



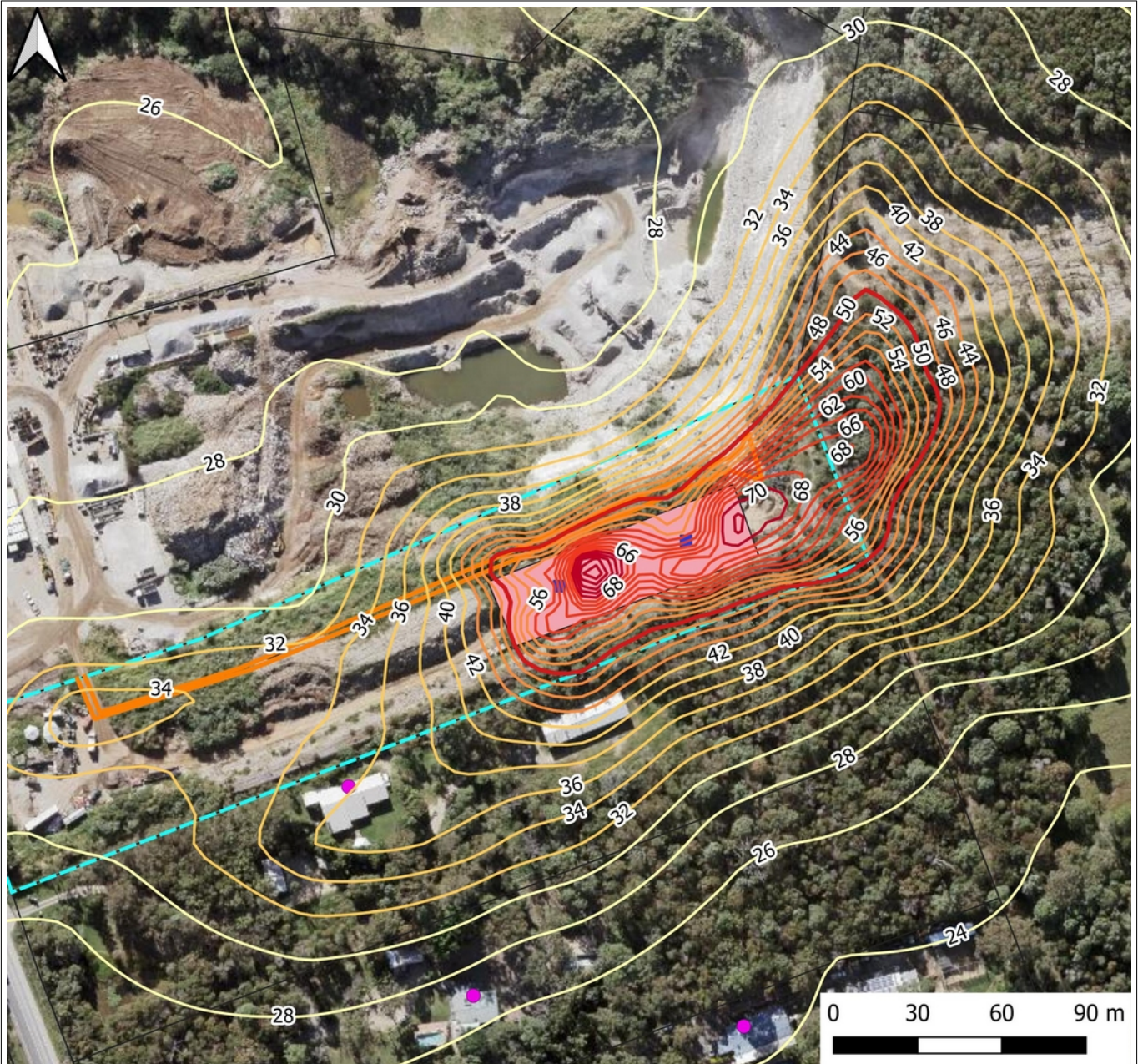


Figure 9.1 - Predicted Cumulative Ground Level PM₁₀ 24 Hour Concentrations with fogger/mister on stockpile

Height: Ground level

Location: Sheldon

Pollutant: PM₁₀

Averaging Time: 24 Hour

Units: µg/m³

Criteria: 25





10 Conclusion

An air quality assessment using air dispersion modelling has been undertaken for the proposed material storage area at the existing quarry and waste transfer station located at 706-712 Mt Cotton Road, Sheldon. To assess the potential for air quality impacts, computational air dispersion modelling has been undertaken to predict particulate (TSP, PM₁₀ and PM_{2.5}) concentrations at the nearest sensitive receptors. The conclusions of the assessment are summarised below:

- The nearest sensitive receptors are dwellings located the south of the site. The nearest dwelling is set back approximately 6 metres from the southern site boundary.
- The main air emission sources for the site include haul routes, material unloading and loading and wind erosion over the material storage areas.
- The results of the modelling, assuming Level 1 haul route watering, indicate compliance for all pollutants at the nearby sensitive receptors.
- A fogging/misting system is proposed for the material stockpile area which would further decrease the predicted concentrations at the nearby sensitive receptors. Other dust mitigation measures include limiting vehicle speeds to 20 km/h and using gravel (made from bitumen) along the haul route.

Overall, the potential for dust impacts can be effectively managed to achieve the relevant air quality goals with the above measures are in place.





Appendix A - Air Quality Glossary





APPENDIX A: GLOSSARY OF AIR QUALITY TERMINOLOGY

Conversion of ppm to mg/m ³	Where R is the ideal gas constant; T, the temperature in Kelvin (273.16 + T°C); and P, the pressure in mm Hg, the conversion is as follows: $\text{mg m}^{-3} = (P/RT) \times \text{Molecular weight} \times (\text{concentration in ppm})$ $= \frac{P \times \text{Molecular weight} \times (\text{concentration in ppm})}{62.4 \times (273.2 + T^{\circ}\text{C})}$
g/s	Grams per second
mg/m ³	Milligrams (10 ⁻³) per cubic metre.
µg/m ³	Micrograms (10 ⁻⁶) per cubic metre.
ppb	Parts per billion.
ppm	Parts per million.
PM ₁₀ , PM _{2.5} , PM ₁	Fine particulate matter with an equivalent aerodynamic diameter of less than 10, 2.5 or 1 micrometres respectively. Fine particulates are predominantly sourced from combustion processes. Vehicle emissions are a key source in urban environments.
50th percentile	The value exceeded for 50 % of the time.
NO _x	Oxides of nitrogen – a suite of gaseous contaminants that are emitted from road vehicles and other sources. Some of the compounds can react in the atmosphere and, in the presence of other contaminants, convert to different compounds (eg, NO to NO ₂).
VOC	Volatile Organic Compounds. These compounds can be both toxic and odorous.





Air Noise Environment
Environmental Monitoring and Assessment

Noise Assessment - Proposed Storage Area, Brisbane Quarries

Quin Enterprises Pty Ltd

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Air Noise Environment**

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The validity and comprehensiveness of supplied information has not been independently verified and, for the purposes of this report, it is assumed that the information provided to Air Noise Environment Pty Ltd for the purposes of this project is both complete and accurate.





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1 Introduction

1.1 Scope of Study

Quin Enterprises commissioned Air Noise Environment to undertake a noise assessment for the additional storage and ancillary facilities at the existing quarry and waste transfer station at 706-712 Mt Cotton Road, Sheldon.

The study considers the potential impacts of the proposed facilities on nearby sensitive receptors. Computational modelling has been undertaken for assessing potential noise impacts and results have been compared to criteria defined in the Queensland Environmental Protection Policy (Noise) Policy 2019.

1.2 RCC Information Request

An air and noise assessment report was previously issued by Air Noise Environment in April 2017¹ for the construction of a new office, parking area and equipment and material storage area. This updated report considers a revised site layout, which was submitted to Redland City Council for review. Redland City Council have reviewed the revised layout and sought clarification on the following in relation to air quality and noise²:

1. The ANE reporting previously prepared is out of date with respect to recent amended plans and indeed this amended plan. It would need to be updated to reflect the current plan including noise and dust predictions and be based upon realistic usage rates i.e. vehicle movements, material storage rates, dust emission etc; - This should include:

a. Vehicle movement rates to area 2 and to the vehicle storage area

The revised plan no longer includes an 'Area 2', the area previously identified as 'Area 2' is referred to as the 'Materials Deposit Area' in the revised plan. Vehicles and machinery will be parked in the long term storage area at the west of the site, however movements are expected to be minimal given vehicles and machinery are anticipated to be stored for periods of weeks to months.

b. Vehicle types

The vehicle fleet will comprise primarily of 10 cubic metre tandem tippers. The trucks hold approximately 12-13 tonnes of material (with a total weight of 23 tonnes).

c. Amount of material to be extracted from lot 1

No material is proposed to be extracted from Lot 1.

1 Air Noise Environment, Noise and Air Quality Assessment – 706-712 Mt Cotton Road, Sheldon – FINAL, 11 April 2017, 4586-Rep-06.app.odt.

2 Letter from Peter Cardiff (Redland City Council) to Tim Quirk (Thynne & Macartney), 19 May 2020, Ref: LCM8448.





d. How material is to be excavated and where to

No material is proposed to be excavated from Lot 1.

e. If excavated materials is to be located elsewhere on the wider site how this is to occurrence

No material is proposed to be excavated from Lot 1.

f. Hours of operation

Materials will be delivered and unloaded at the storage area between the hours of 7 am and 6 pm weekdays and between 7 am and 1 pm Saturdays. No deliveries or unloading are proposed for Sundays or public holidays.

g. Dust suppression methods

Haul route watering will be undertaken to minimise dust emissions. A water fogger/mister system will also be implemented to moisten stockpile materials when required.

h. Details of the materials, quantities and height of material to be stored in area 2.

Materials proposed to be stored in the material storage area include aggregates (7mm to 75 mm) and clay for capping. Material is proposed to be stored to a maximum height of 5 m. A maximum storage pile of 5400 m³ covering an area of 2,400 m² is proposed.

1.3 This Report

This report presents the methodology, results and conclusions of the noise assessment. A glossary of terms is provided in Appendix A to assist the reader.





2 Proposed Development

2.1 Site Description

The existing quarry and waste transfer station is located at 706-712 Mount Cotton Road, Sheldon and is described as Lot 1 on RP109322 and partly on Lot 3 on SP238037. The subject site is comprised of two lots zoned Rural Non-Urban under the RCC Planning Scheme, with a total area of 6.84 Ha. Functioning as a quarry and waste transfer station, the site comprises of an office, sheds, storage bins, a truck weighbridge, excavation equipment for crushing stone and materials such as concrete. There is also the crushing, sorting, blending and recycling of timber, steel aluminium and various other metals and building materials.

The proposal is for the use of Lot 1 to store site equipment (western portion) and deposit materials associated with the quarry and waste transfer station site (eastern portion). A staff recreation area will also be located between the equipment and material storage area, which will include a turfed area and small central undercover area. The staff recreation area is to be used by staff during working breaks. Up to 5 staff may be on site at any given time, however, not all staff would necessarily use the recreation area at the same time. Contractors accessing the site may use the area also.

Figure 2.1 presents the proposed site layout.



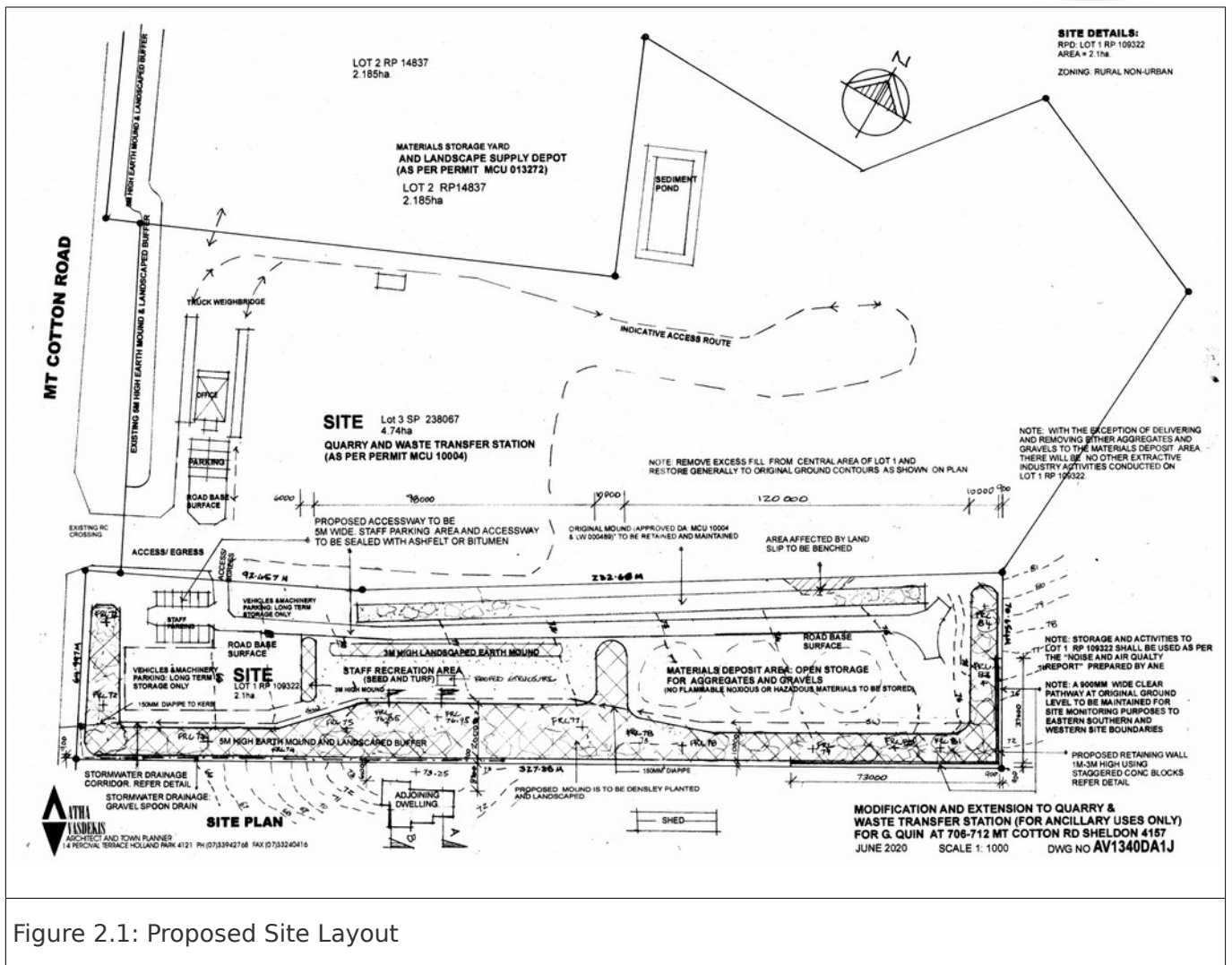


Figure 2.1: Proposed Site Layout

2.2 Surrounding Land Uses

Existing residential uses surround the site in the southern, eastern, western and northern directions. The nearest sensitive use has been identified as a residential dwelling located on the adjoining lot to the south. The single floor dwelling is set back approximately 6 m from the southern site boundary. Commercial uses also exist nearby with a truck and vehicle depot, and a landscaping yard located within adjoining lots to the north. Figure 2.2 presents the subject site location and surrounding land uses.

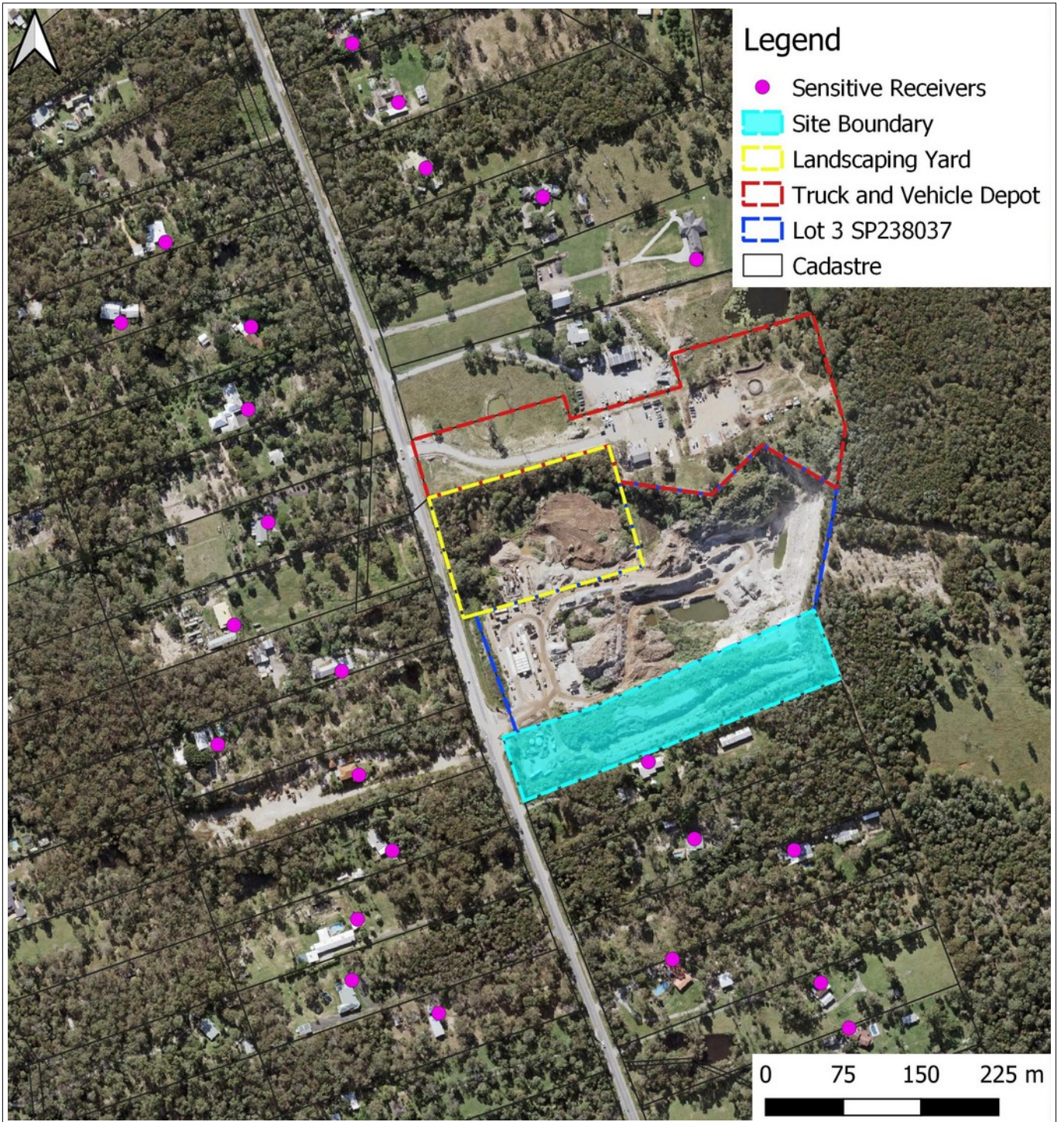


Figure 2.2: Site Location and Surrounding Land Uses





2.3 Potential Noise Sources

A review of the site layout and a review of the existing and proposed activities has identified the following key noise sources for the site:

- Existing (Lot 3):
 - Outgoing heavy vehicle movements;
 - Front end loaders (FEL);
 - Excavator;
 - Dumping of aggregate and materials;
 - Sorting of metals;
 - Pumps;
 - Screening and crushing plant;
- Proposed (Lot 1):
 - Outgoing haul truck movements (to weight bridge in Lot 3, then to Lot 1 storage area, then back to weight bridge in Lot 3, then off-site);
 - Haul trucks (from Lot 3) dumping materials within the proposed material storage area of Lot 1;
 - Front end loader operating within the proposed material storage area of Lot 1;
 - Reversing beeper;
 - Staff talking in recreation area.

All noise sources as part of the proposed development are considered to be non-continuous or intermittent in nature.

The most significant noise impacts from the proposed additional facilities is likely to come from activities associated with the materials storage area. This will include haul truck movements and the handling of materials using a front end loader. As listed above, staff talking in the recreation area represents a noise source however, noise levels are expected to be much lower and less frequent than those associated with heavy vehicles and machinery operation. The parking of heavy machinery in the long-term parking area and a staff car park are expected to have minimal noise impacts. It is noted that the heavy machinery parking noise will be limited to machinery entering or leaving the parking area and this may occur from once a week to every few months, depending on equipment needs.

Materials will be delivered and unloaded at the storage area between the hours of 7 am and 6 pm weekdays and between 7 am and 1 pm Saturdays. No deliveries or unloading are proposed for Sundays or public holidays.

The staff car park could be utilised prior to 7 am for staff arriving on site. However, the long-term heavy machinery and materials storage area operations will be limited to the day period (7 am to 6





pm).

It should be noted that a 5 m high acoustic landscaped buffer mound will shield the majority of these activities from the nearest sensitive receptors.





3 Assessment Criteria

The Redland City Plan (Version 4) Planning Scheme Policy 6: Environmental Emissions refers to the Environmental Protection (Noise) 2008 Policy (EPP Noise) for establishing noise criteria for development applications. The background creep criteria from the EPP Noise 2008 version was referred to in the April 2017 assessment. The EPP Noise was revised most recently in 2019 and while the 2019 version is not prescriptive in relation to background creep noise criteria, prevention or minimisation of background creep remains a key objective of the policy. For consistency with the 2017 assessment and in achieving the objectives of the EPP Noise 2019, the background creep methodology from the EPP Noise 2008 has been adopted for this revised assessment.

Table 3.1 presents the relevant background creep criteria for the proposed noise emissions consisting of continuous and variable noises, as adopted in the 2017 assessment. The criteria is based on the the noise monitoring results, also obtained during preparation of the noise assessment in 2017 (see Appendix B).

Table 3.1: Adopted Background Creep Criteria

Period	RBL	Continuous $L_{A90,T}$ Criteria	Variable $L_{Aeq,adj,T}$ Criteria
Day	45	45	50
Evening	36	36	41
Night	30	30	35

The main noise sources associated with the proposed facilities are considered to be non-continuous (as discussed in Section 2.3. Based on this, only the variable noise source criteria is relevant to this assessment.

In addition to the background creep criteria, reference has been made to the following:

- Internal L_{Amax} 45 dB(A) limit for assessing sleep disturbance impacts; and
- Day-time internal L_{Aeq} acoustic quality objective of 35 dB(A) for dwellings, as defined in Schedule 1 of the EPP Noise.

The above values represent internal goals. Internal noise levels can be estimated from external noise predictions assuming a 10 dB facade attenuation for opened windows (typically varies between 5-15 dB).



4 Noise Modelling

4.1 Modelling Methodology

For the purposes of predicting impacts associated with noise emissions from the proposed development on nearby sensitive receptors, noise modelling of the sources was completed using the proprietary software CadnaA (Computer Aided Noise Abatement Model) developed by DataKustik. CadnaA incorporates the influence of meteorology, terrain, ground type and air absorption in addition to source characteristics to predict noise impacts at receptor locations. The prediction method incorporated into CadnaA is in accordance with *ISO Standard 9613-2 (1996) Acoustics - Attenuation of sound during propagation outdoors*.

The model is utilised to assess the potential noise emissions from the site under a range of operating scenarios and meteorological conditions. The noise modelling also allows investigation of possible noise management solutions, in the event that non-compliance with the assessment criterion is predicted. The following sections discuss the inputs, assumptions and results of the noise modelling.

4.2 Meteorology

All predictions have been undertaken in accordance with *ISO Standard 9613-2 (1996) Acoustics - Attenuation of sound during propagation outdoors*. ISO 9613-2 predictions are relevant for light to moderate downwind conditions (1 to 5 m/s) or a well-developed moderate ground-based temperature inversion (e.g. clear, calm night).

4.3 Topography

Terrain data for the area surrounding the development was obtained from the Digital Elevation Model (DEM) 5 Metre Grid of Australia derived from LiDAR model, which represents a National 5 metre (bare earth) DEM that has been derived from some 236 individual LiDAR surveys between 2001 and 2015. Terrain data for the proposed Lot 1 development has been based on Drawing No. AV1340DA1J as provided by Atha Vasdekis. The drawing shows proposed ground heights for Lot 1 along with heights of the proposed 5 m earth mound separate the nearest houses from the proposed operations.

4.4 Noise Modelling Scenario

Two noise modelling scenarios have been considered in the assessment:

- L_{Aeq} scenario - front end loader operations, truck movements, staff talking in recreation area, truck movements (plus noise contribution from noise sources associated with existing activity on Lot 2 and Lot 3); and
- L_{AMax} scenario - car door closure for staff arriving at car park prior to 7 am.

The noise modelling also considers proposed 5 m and 3 m earthmounds at the Lot 1 development





site, and a barrier along the southern side of the recreational area roofed structure, as shown in Figure 4.1. Existing earth mounds on current premises have also been included.

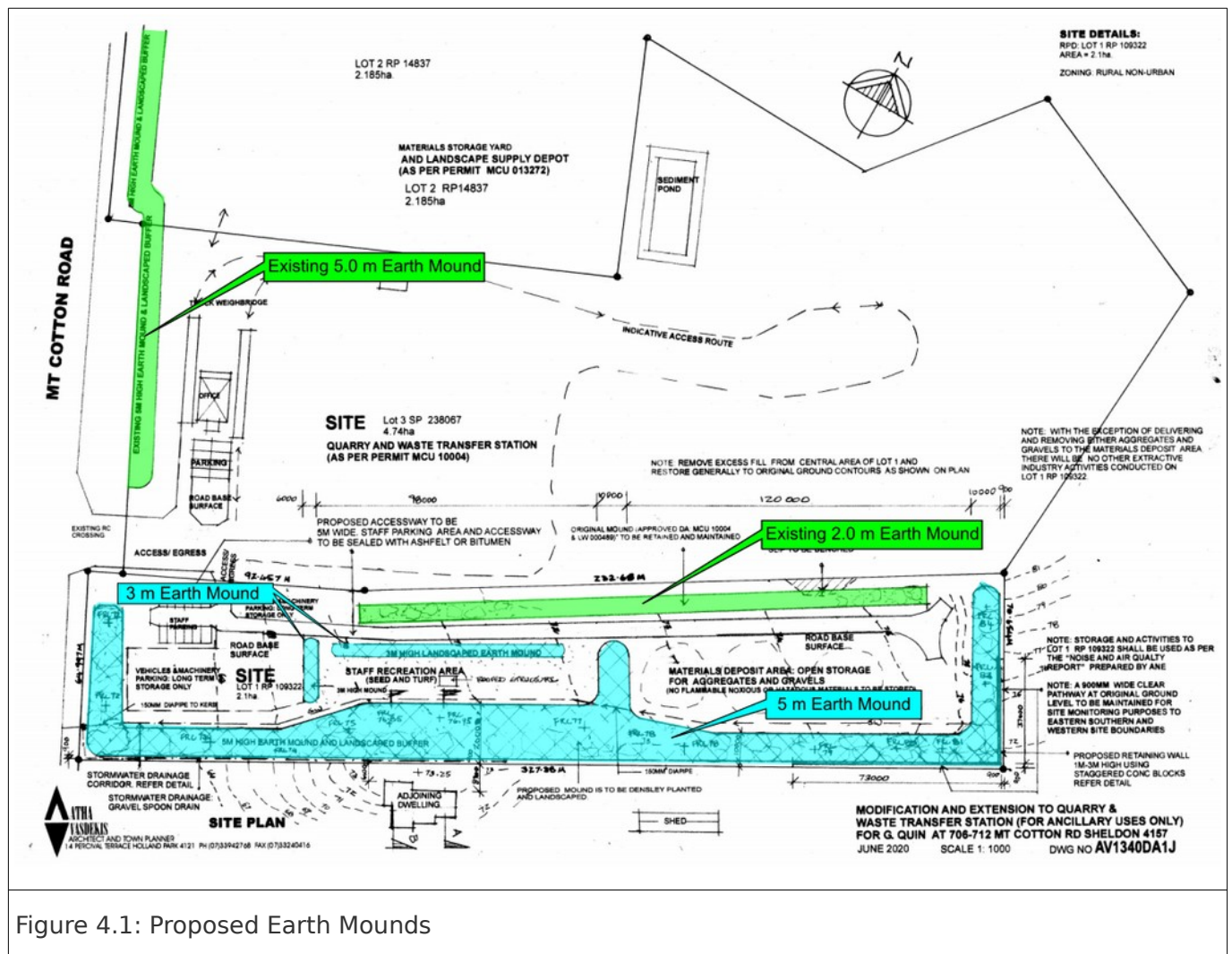


Figure 4.1: Proposed Earth Mounds

4.5 Noise Source Data

Table 4.1 presents the modelled noise source data for the various operational activities. These noise data have been sourced from measurements of existing activities at the site (including additional measurements undertaken on 3 August 2020), previous noise measurements for similar equipment types undertaken by ANE and available literature. To predict L_{Aeq} noise levels, acoustical usage factors have been assumed based on the duration and frequency of noise sources in a 1-hour period.

With regards to truck movements, based on outgoing truck movement information supplied by the client for June 2018 - June 2020, the highest number of outgoing truck movements per day was 31 (based on November 2018). The 31 truck movements represent all outgoing movements for the site. The proposed material storage areas will only hold a small proportion of the total material on site (3 out of approximately 20 stockpiles), therefore, on a worst-case day, only a portion of the trucks are likely to access the storage area. As a conservative approach, the following has been assumed for





truck movements:

- Half the number of 31 outgoing trucks will take material from the proposed material storage area on Lot 1 (i.e. 15.5 trucks per day), while the other half will take material from the existing premise;
- The equivalent number of trucks (incoming to Lot 1) will transport material from the existing Lot 3.

Over an 11 hour day, 15.5 trucks per day equates to 1.4 trucks per hour. If it is assumed all movements are limited to the first half of the day (assuming greatest activity in the morning), then a truck movement rate of 3 per hour is estimated for each truck line source.

Table 4.1: Modelled Noise Source Data

Noise Source	Frequency Spectra (SWL)									Total		Modelled Duration
	31.5	63	125	250	500	1k	2k	4k	8k	A	Lin	
Screening/ Crushing Plant ^d	116	116	107	104	104	103	103	97	88	109	120	100%
Front End Loader ^c	111	118	103	96	94	92	93	93	94	101	119	100%
Excavator	108	108	108	105	100	98	94	88	79	103	114	100%
Enclosed Pump	95	98	92	97	95	90	89	86	84	97	103	100%
Truck Dumping	95	97	94	90	94	93	89	84	81	97	102	5% ^b
L _{AMax} Truck Compression Brake ^a	93	88	86	89	108	104	103	105	102	111	115	1%
L _{AMax} Reversing Alarms	105	118	106	97	96	98	97	93	81	103	119	10%
L _{AMax} Car Door Closure ^a	94	94	88	90	89	88	88	86	84	95	100	L _{AMax} Scenario
Truck Movement	102	105	98	100	90	90	96	98	98	103	109	3 trucks per hour (Lot 3 to Lot 1) 3 trucks per hour (outgoing from Lot 1) 3 trucks per hour (outgoing from Lot 3)
Staff Talking	62	68	67	65	71	70	67	59	47	74	77	100%

^a An impulsiveness correction of +3 dB(A) has been added to the noise source.
^b Based on 3 trucks per hour unloading and less than 1 minute of unloading time per truck.
^c Based on noise measurement of front end loader manoeuvring, picking up material and loading into truck. During this time, the loader was reversing away or at right angles to the monitoring location. Noise levels were 3 dB higher when loader was reversing towards the monitoring location.
^d Based on on-site noise measurement of the crusher/screen operating simultaneously (plus excavator loading).

4.6 Noise Source Locations

Figures 4.2 and 4.3 presents the modelled noise source locations.



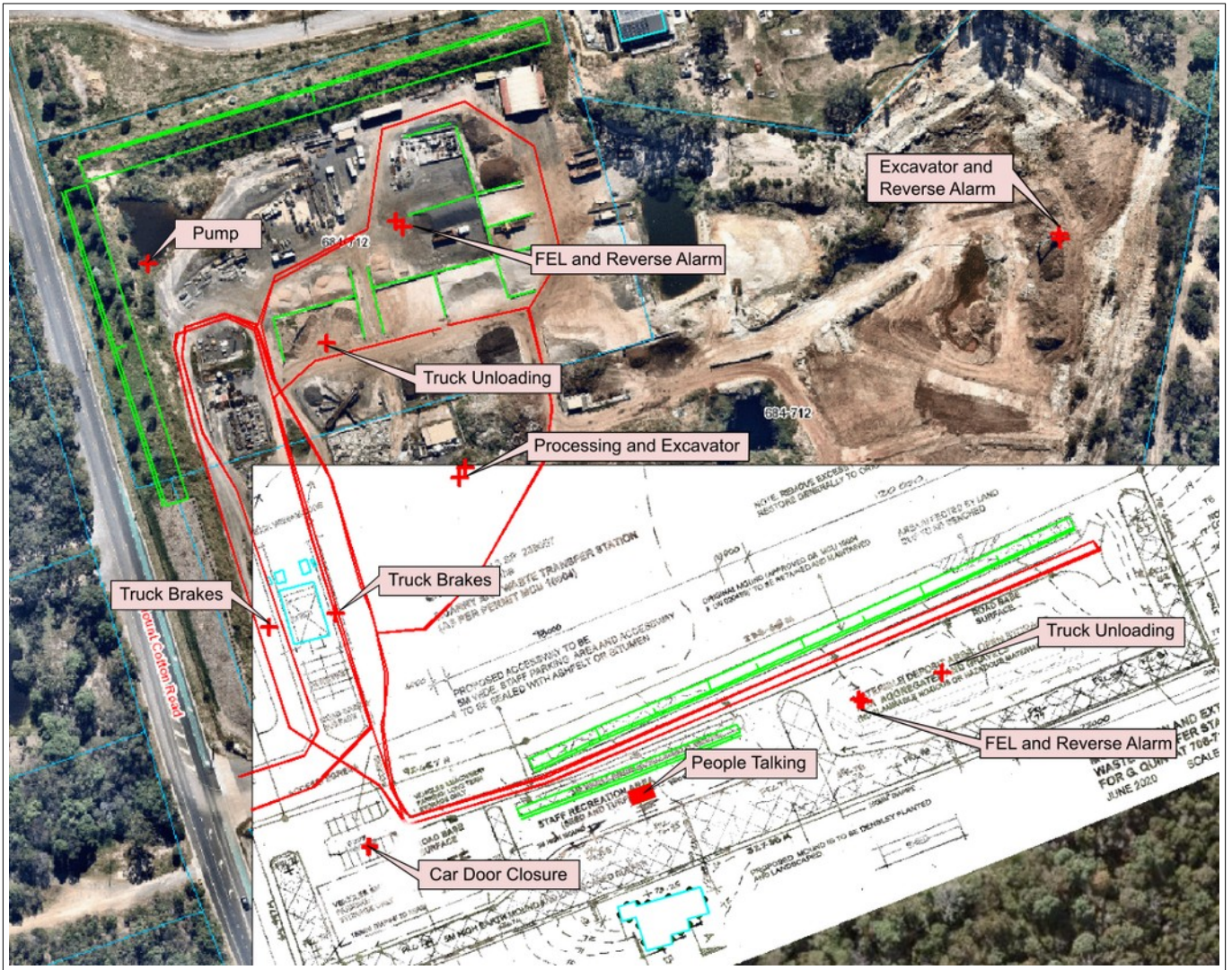


Figure 4.2: Modelled Noise Sources

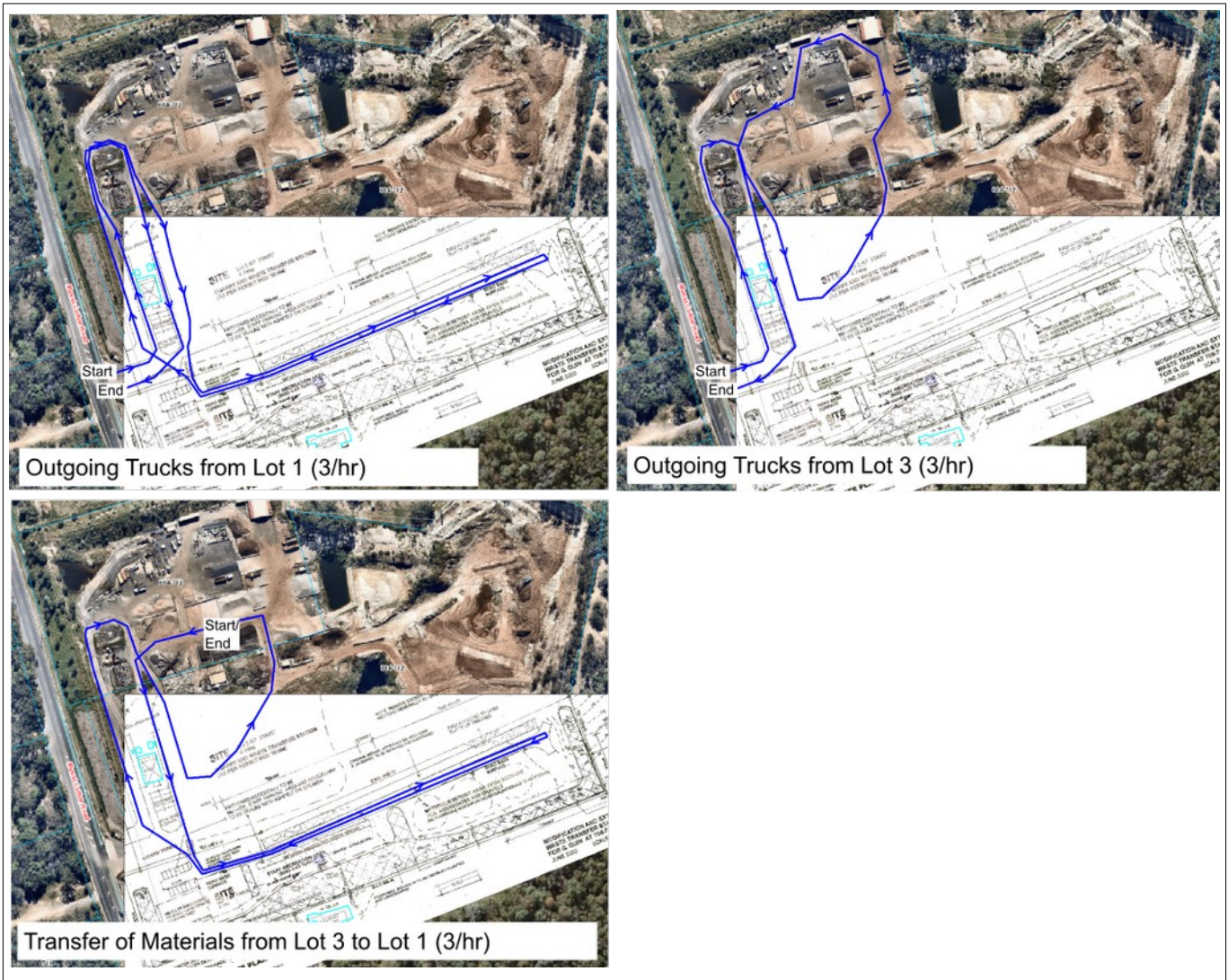


Figure 4.3: Modelled Noise Sources - Truck Movements

4.7 Modelled Receptor Locations

A total of 17 receptors have been modelled representing the nearest sensitive uses. A receptor height of 1.5 m and 4.5 m above ground level has been adopted for ground and first floor levels (where applicable). Figure 4.4 presents the location of the modelled receptors.

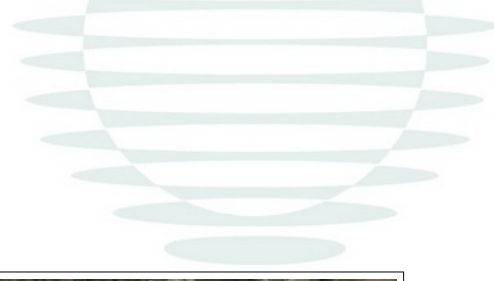


Figure 4.4: Modelled Receptors

4.8 Predicted Results

Table 4.2 presents the predicted noise results for the proposed development operations.

Table 4.2: Predicted Noise Results

Receptor No.	Predicted L_{Aeq} Noise Level dB(A)	Predicted Internal L_{AMax} Noise Level dB(A) from Car Park Activity pre-7am
1	44	26
2	36	15
3	34	7
4	37	16
5	36	17
6	37	17
7	45	26





Receptor No.	Predicted L_{Aeq} Noise Level dB(A)	Predicted Internal L_{AMax} Noise Level dB(A) from Car Park Activity pre-7am
8	41	19
9	40	21
10	44	19
11	43	18
12	43	14
13	44	13
14	40	11
15	39	10
16	41	10
17	38	11
Criteria	50	Internal 45

As indicated from the results, compliance is predicted for all modelled receptors with the 50 dB(A) background creep noise criteria. At the nearest receptor (R1), the predicted L_{Aeq} noise level is 44 dB(A). The front end loader operating at the material storage area is the dominant source (with a partial noise level contribution of 40 dB(A)). The predicted noise levels are also compliant with the L_{Aeq} acoustic quality objective of 35 dB(A) (assuming a 10 dB facade attenuation), as defined in Schedule 1 of the EPP Noise (internal day-time objective for dwellings).

The L_{AMax} predictions for potential car park activity prior to 7 am are up to 26 dB(A). This is well within the commonly adopted 45 dB(A) L_{AMax} limit.

It is noted that the highest noise levels are predicted at R7 (45 dB(A)). However, the main contributor to noise levels is from existing site activity, and the proposed development at Lot 1 (including truck movements to Lot 1) is predicted to contribute only 38 dB(A) at this receptor.

The modelling does not include shielding from any stockpiles in the material storage area. These stockpiles are expected to be above the height of the loader at times and would provide additional shielding from loader noise. Therefore, actual noise levels at Receptor R1 are likely to be lower in practice.

In order to minimise noise impacts, it is important that noise emissions from the front loader operations are managed through the following means:

- maintain material stockpiles up against the proposed boundary earth mound, such that, after the front end loader has picked up material, it will reverse in a direction away from nearest residential house;
- use a broadband reversing alarm for the front end loader;
- ensure that the front end loader is properly maintained to minimise unnecessary engine/exhaust noise;
- operate the loader in such a way as to minimise noise emissions (e.g. no dropping/impacting



shovel onto ground).

In addition to the above, the following recommendations are made:

- The proposed earth mounds as presented in Figure 4.1 and No. AV1340DA1J by Atha Vasdekis should be maintained at all times;
- Truck movements:
 - Trucks are not to use compression brakes within Lot 1;
 - Limit truck speeds to 20 km/h;
- Recreation area:
 - Limit use to the hours of 8 am to 5 pm only;
 - To minimise noise from the staff at the roofed recreation structure, a solid wall should be constructed on the southern side, to shield noise emissions to the nearest southern house
- Long-term machinery/vehicles parking area:
 - Limit use to the hours of 8 am to 5 pm only;
 - Restrict frequency of access for heavy machinery/vehicles to once a week (whether for storing an equipment item or removing one for usage).

A noise management plan is provided in Appendix C for inclusion in the overall site operational management plan.





5 Conclusion

A noise assessment has been undertaken for the proposed material storage area at the existing quarry and waste transfer station located at 706-712 Mt Cotton Road, Sheldon. To assess the potential for noise impacts, computational noise modelling has been undertaken to predict noise levels at the nearest sensitive receptors. The conclusions of the assessment are summarised below:

- The nearest sensitive receptors (R1, R2 and R3) are dwellings located the south of the site. The nearest dwelling (R1) is set back approximately 6 metres from the southern site boundary.
- The main noise emission sources for the site include truck movements and front end loader operations (loading trucks).
- The results of the modelling show predicted compliance with the noise criteria provided the earth mounds as detailed in the Figure 4.1 and Drawing No. AV1340DA1J by Atha Vasdekis.
- Noise management measures as detailed in Appendix C should be implemented to minimise noise emissions from the proposed development site.

In conclusion, compliance with the relevant noise criteria is predicted with the proposed earth mounds and recommended noise management measures in place.





Appendix A - Acoustic Glossary





APPENDIX A: GLOSSARY OF ACOUSTIC TERMINOLOGY

A-Weighting	A response provided by an electronic circuit which modifies sound in such a way that the resulting level is similar to that perceived by the human ear.
dB (decibel)	This is the scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and the reference pressure (0.00002N/m ²).
dB(A)	This is a measure of the overall noise level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
Facade Noise Level	Refers to a sound pressure level determined at a point close to an acoustically reflective surface (in addition to the ground). Typically a distance of 1 metre is used.
Free Field	Refers to a sound pressure level determined at a point away from reflective surfaces other than the ground with no significant contribution due to sound from other reflective surfaces; generally as measured outside and away from buildings.
Hertz (Hz)	A measure of the frequency of sound. It measures the number of pressure peaks per second passing a point when a pure tone is present.
L_{Aeq} Equivalent Continuous Sound Level	This is the equivalent steady sound level in dB(A) containing the same acoustic energy as the actual fluctuating sound level over the given period. For a steady sound with small fluctuations, its value is close to the average sound pressure level.
$L_{A90,T}$	This is the dB(A) level exceeded 90% of the time, T.
$L_{A10,T}$	This is the dB(A) level exceeded 10% of the time, T.
$L_{A50,T}$	This is the dB(A) level exceeded 50% of the time, T.
L_{WA}	The A-weighted sound power level in dB.





Appendix B – Background Noise Monitoring





Appendix B - Background Noise Monitoring

Background noise monitoring was undertaken from 9 June to 14 June 2016 at a location representative of the nearest sensitive receptors. The purpose of the monitoring was to determine background noise levels (unaffected by existing site operations) to establish appropriate noise criteria for the site. Existing operations at the site were not audible from the monitoring location therefore, noise levels can be considered representative of 'true' background levels.

Figure B1 presents the background noise monitoring position.

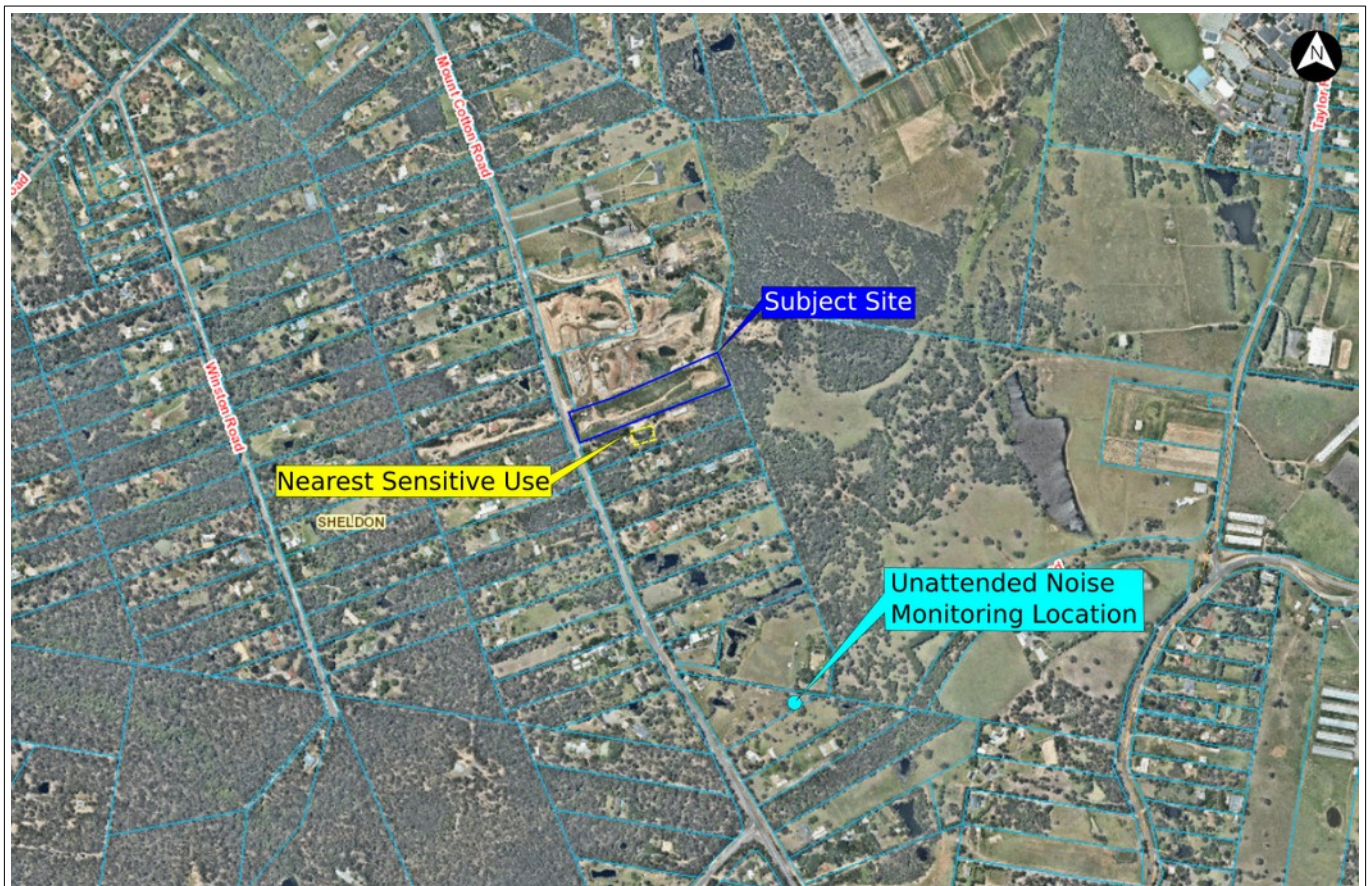


Figure B1: Background Noise Monitoring Position

Noise measurements were undertaken in accordance with the requirements of the *Australian Standard AS 1055-1997 'Acoustics - Description and measurement of environmental noise'*. The unattended noise monitoring was undertaken using a Type 1 ARL Ngara Environmental Noise Logger. A 15 minute averaging period was adopted with the microphone positioned at a height of 1.5 m. The serial numbers and calibration information are presented in Table 1.





Table B1: Noise Instrument Calibration Information

Instrument/ Serial No.	Monitoring Dates	NATA Calibration Current to:	Pre-Calibration	Post-Calibration
ARL Ngara (87808A)	09/06/16 - 14/06/16	15/05/18	94.0	94.2
Rion NC73 (11248297)	-	03/11/16	-	-

Wind and rainfall data from the nearest Bureau of Meteorology station (Alexandra Hills) indicates approximately 3.5 hours of noise data was potentially affected by rainfall. To avoid a weather-related bias, noise measurements associated with rain-affected periods have not been considered.

Monitoring Results

Table 2 presents a summary of the average noise levels for each period (day, evening and night). The noise data has been analysed in accordance with the Department of Environment and Heritage Protection (EHP) Planning for Noise Control Guideline. The ABL (Assessment Background Level) or $\min L_{A90,1\text{-hour}}$, is the 90th percentile $L_{A90,1\text{-hour}}$ of each period (calculated for each day). The Rating Background Level (RBL) is the median ABL across the whole monitoring period for the relevant period of the day. The RBL has been used to derive the noise criteria.

Table B2: Background Noise Monitoring Results

Date	Period	L_{Amax}	L_{A1}	L_{A10}	L_{A90}	L_{Aeq}	ABL
09/06/16	Evening	61.2	57.6	54.0	41.4	50.7	39.1
	Night	62.0	57.6	51.2	37.1	50.5	31.8
10/06/16	Day	65.6	60.2	56.8	47.4	54.3	44.6
	Evening	62.9	58.6	54.6	42.9	51.8	40.2
11/06/16	Night	62.1	56.7	49.7	34.0	49.1	29.6
	Day	67.0	60.0	55.7	45.9	53.6	44.9
12/06/16	Evening	61.4	57.7	53.6	38.7	50.2	35.5
	Night	59.3	54.4	47.7	30.3	45.5	26.3
13/06/16	Day	66.8	59.5	54.6	46.0	64.0	43.0
	Evening	60.5	55.7	50.8	37.5	47.7	35.2
13/06/16	Night	59.2	54.5	48.1	35.7	49.2	30.5
	Day	67.4	60.5	56.4	47.5	54.9	45.3
13/06/16	Evening	59.4	56.1	51.7	38.2	48.4	35.7
	Night	60.6	56.4	49.8	36.1	51.0	29.7
Whole Period	Day	67	60	56	47	55	45 (RBL)
	Evening	61	57	53	40	46	36 (RBL)
	Night	61	56	49	35	46	30 (RBL)





Appendix C – Noise Management Plan





NOISE MANAGEMENT PLAN

Objective/Target	To prevent noise nuisance at the nearest sensitive receptors as a result of activities on Lot 1. To comply with the requirements of the Environmental Protection Act 1994 and Environmental Protection (Noise) Policy 2019.
Performance Indicators	The objectives of this management plan are not being achieved if valid noise complaints are received by the operator, Council, or if exceedences of any noise limits defined in a Development Approval are measured.
Control Measures	<ul style="list-style-type: none"> ● Construct and maintain the proposed earthmounds as presented in Drawing No. AV1340DA1J by Atha Vasdekis. ● Front end loader operations in materials storage area: <ul style="list-style-type: none"> ● Restrict hours of front end loader operation and haul truck movements to 7 am to 6 pm. ● Maintain material stockpiles up against the proposed boundary earth mound, such that, after the front end loader has picked up material, it will reverse in a direction away from nearest residential house. ● Use a broadband reversing alarm for the front end loader. ● Ensure that the front end loader is properly maintained to minimise unnecessary engine/exhaust noise. ● Operate the loader in such away as to minimise noise emissions (e.g. no dropping/impacting shovel onto ground). ● Truck movements: <ul style="list-style-type: none"> ● Trucks are not to use compression brakes within Lot 1; ● Limit truck speeds to 20 km/h; ● Recreation area: <ul style="list-style-type: none"> ● Limit use to the hours of 8 am to 5 pm only; ● To minimise noise from the staff at the roofed recreation structure, a solid wall should be constructed on the southern side, to shield noise emissions to the nearest southern house ● Long-term machinery/vehicles parking area: <ul style="list-style-type: none"> ● Limit use to the hours of 8 am to 5 pm only; ● Restrict frequency of access for heavy machinery/vehicles to once a week (whether for storing an equipment item or removing one for usage).
Monitoring	Noise monitoring will be undertaken where necessary to further investigate a valid complaint and where standard mitigation strategies have not resolved the issues that resulted in the complaint. Monitoring shall be completed in accordance with the Queensland Noise Measurement Manual (2020).





Responsible Person	The Site Manager is responsible for ensuring the control measures are implemented, recording of observations, complaint investigation and implementation of monitoring and corrective actions where appropriate.
Reporting	If a noise complaint is received, it is necessary to complete an 'Environmental Noise Complaint Report'.



FORM 1 - COMPLAINTS HANDLING AND REPORTING

Part A - Initial Communication (To Be Completed by Complaint Recipient)

Date and Time of Complaint	
Name and Address of Complainant	
Phone Number	
Type of Communication (letter, phone call, visit, etc)	
Site Representative to whom complaint was made	Name: Signature:
Description of Complaint	
Reported frequency of occurrence	

Part B - Action Report (To Be Completed by Site Manager)

Action taken to deal with complaint	
Visit to the complainant	Yes or No
Findings of the visit	
Detailed inspection of site to determine possible source of complaint?	Yes or No
Result of Investigation	
Action taken to eliminate cause	

Part C - Finalisation (To Be Completed by Site Manager)

Was a formal response issued to the complainant?	Yes or No
Was the cause of complaint eliminated?	Yes or No
Other Comments	

Parts B and C Completed by:

.....
 (Name) (Signature) (Date)

This form must be kept in the complaints register maintained by the Site Manager.

In the Planning and Environment Court

Appeal No. 2959 of
2019

Held at: Brisbane

Between: **QUIN ENTERPRISES PTY LTD (ACN 095 172 991)** Appellant

And: **REDLAND CITY COUNCIL** Respondent

MEDIATION AGREEMENT

DATED: 12 August 2020

The Appellant and Respondent agree to resolve the appeal on the basis that:

1. By 17 August 2020, the Appellant provide the Respondent with a complete set of the proposed amended drawings and supporting reports with the amendments requested by the Respondent on 12 August 2020;
2. By 4 September 2020, the Respondent will issue to the Appellant a draft conditions package for consideration;
3. By 28 September 2020, the Appellant will provide its material in support of the "minor change" application.
4. The matter will be listed for review on 1 October 2020 for the purpose of seeking a hearing date for the minor change application and final orders.
5. The Respondent will not oppose the Appellant seeking an order that the changes proposed are "*minor changes*" and the Respondent will consent to final Judgment being entered in the appeal.

Signed:

The Appellant.....

The Respondent.....

ADR Registrar.....

From: John Stepien
Sent: Wednesday, 12 August 2020 1:02 PM
To: Michael Anderson
Cc: Rocco Petrillo; Jonathan Lamb
Subject: RE: Quin Enterprises Pty Ltd v RSC - Appeal No. 2959/19 [TM-Matter.FID713685]

Hi Michael,

Me and Rocco had a bit of a look at the proposed plan.

The landscape proposal is similar to what has been proposed in the past, earth mounds and planting. From a landscape perspective the submitted plan seems to be OK regarding the concept planting proposal.

As far as the height and width of these earth mounds whether they are acceptable, this would be determined I presume by Acoustic or Environmental reports to meet the desired outcome.

The Landscaping proposal is Concept Only. Detailed Landscape Plans would be required through the MCU process.

Regards

John Stepien

From: Michael Anderson
Sent: Wednesday, 12 August 2020 10:05 AM
To: Rocco Petrillo <Rocco.Petrillo@redland.qld.gov.au>; John Stepien <John.Stepien@redland.qld.gov.au>; Jonathan Lamb <Jonathan.Lamb@redland.qld.gov.au>
Subject: FW: Quin Enterprises Pty Ltd v RSC - Appeal No. 2959/19 [TM-Matter.FID713685]

Hi gents

Further to my email from earlier please find attached the up-dated plan received this morning.

Really sorry about this but if you have an opportunity to have a quick look at would be appreciated.

Mike

From: Clare Burgin
Sent: Wednesday, 12 August 2020 9:56 AM
To: Michael Anderson <Michael.Anderson@redland.qld.gov.au>
Subject: FW: Quin Enterprises Pty Ltd v RSC - Appeal No. 2959/19 [TM-Matter.FID713685]

For your information.

Kind Regards

Clare Burgin

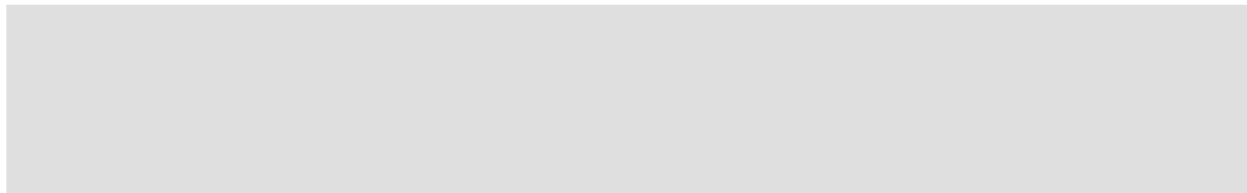
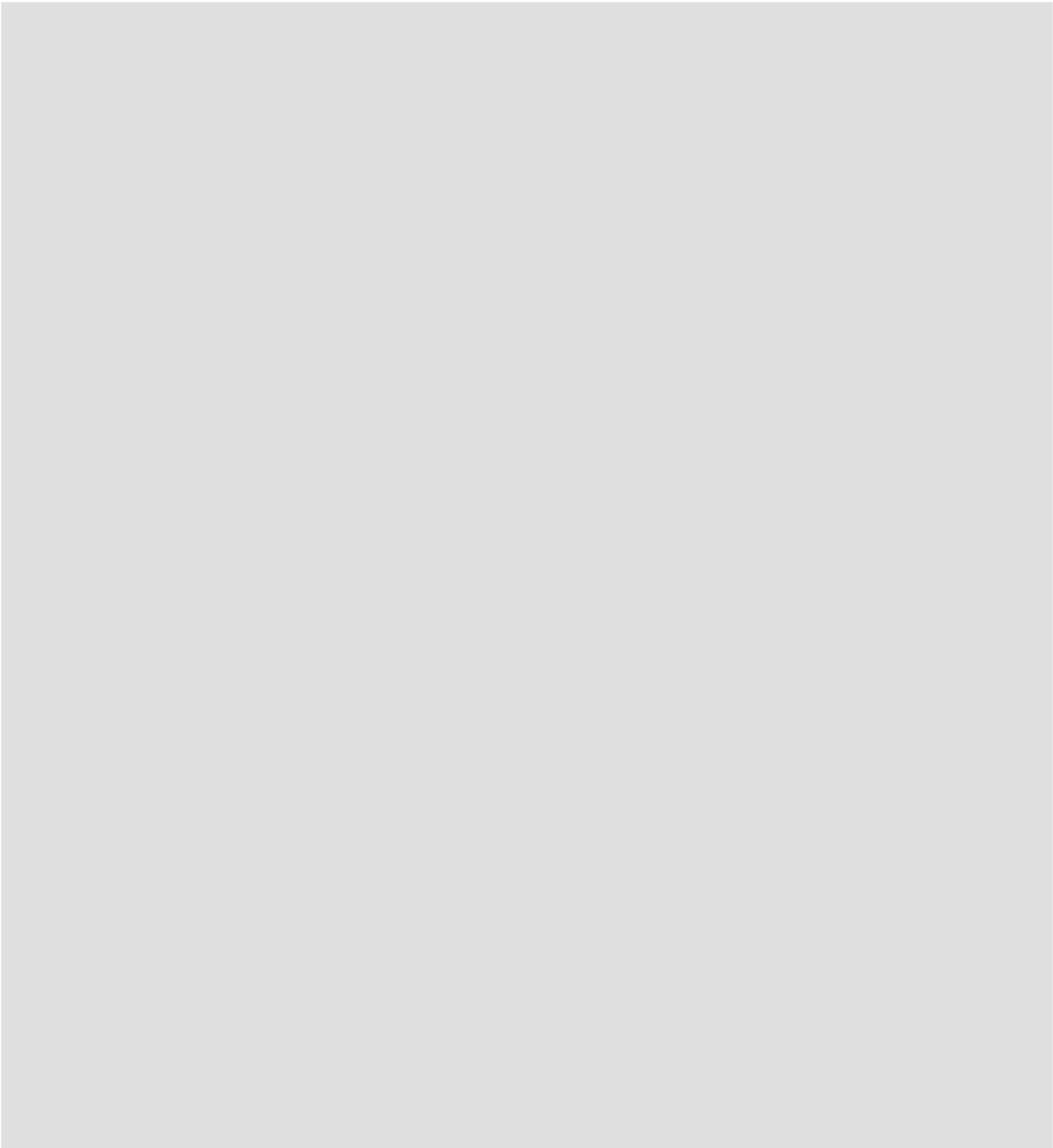
Solicitor

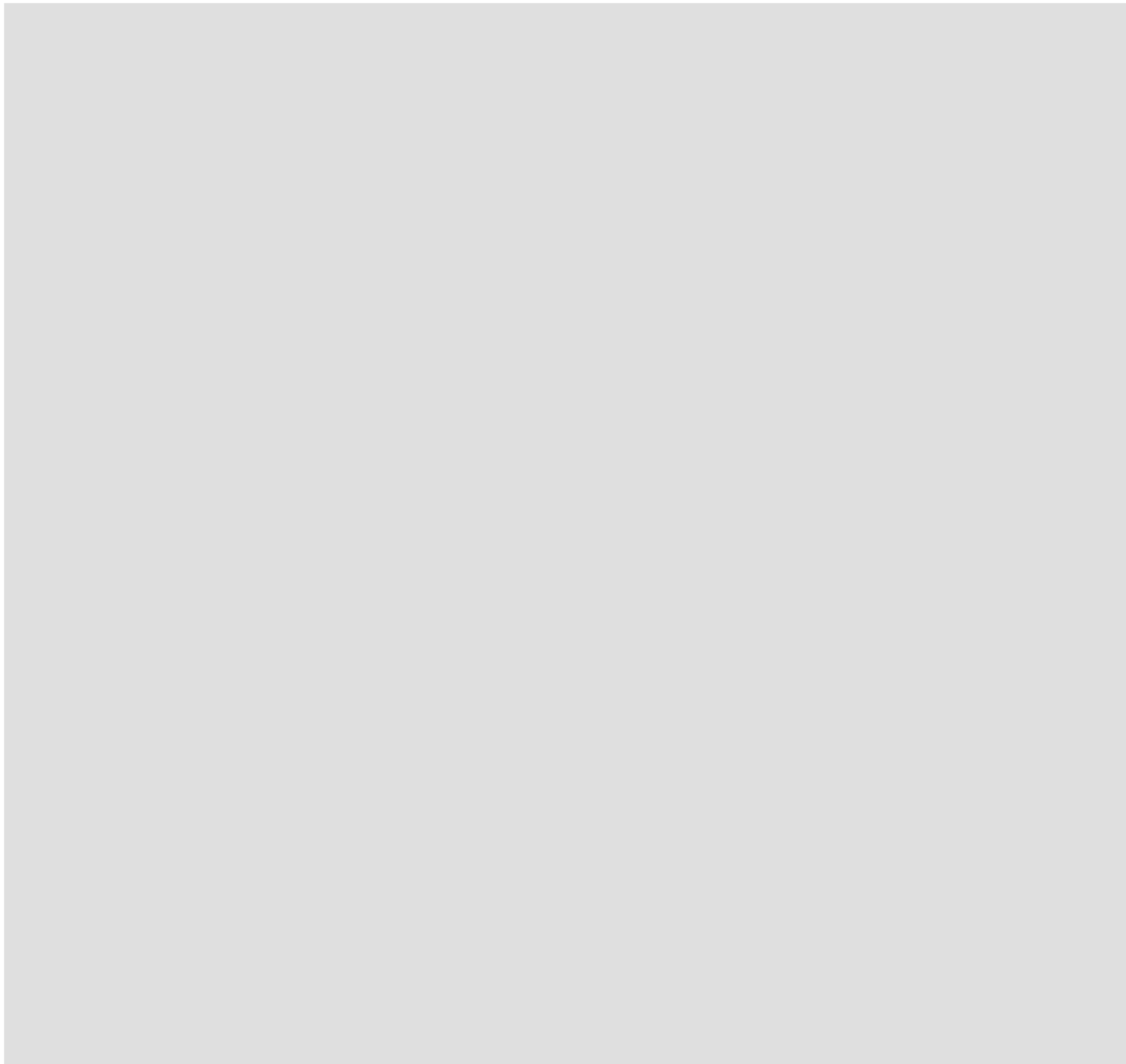
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