WLPP No.	Addendum Report – 2 to WLPP Item 1 - 3 November 2020
DA No.	DA-2020/572
Proposal	Residential - multi dwelling housing - demolition of existing warehouse storage facility and construction of 12 x two storey dwellings.
Property	481-485 Princes Highway, WOONONA NSW 2517 Lot 1 DP 86796
Applicant	MMJ Wollongong
Responsible Team	Development Assessment and Certification – City Wide Planning Team (SG)

ADDENDUM REPORT

This report should be read in conjunction with the Council Assessing Officer's reports as presented to Wollongong Local Planning Panel on the 3 November 2020 and electronically on 17 February 2021.

1 BACKGROUND AND EXECUTIVE SUMMARY

Reason for consideration by Local Planning Panel - Determination

The proposal has been referred to the WLPP for **determination** pursuant to part 2 of Schedule 2 of the Local Planning Panels Direction, as the Development Application is considered contentious development, having received more than 10 unique submissions by way of objection.

Background

This matter was reported to the WLPP meeting on 3 November 2020 and subsequent Addendum on 17 February 2021. A copy of the Panel's recommendation to the addendum is included at Attachment 1. The Panel determined to defer the development application to allow the applicant an opportunity to address the issues raised by the Panel as follows:

The Panel requires the above information to be provided to Council within twenty-eight (28) days following which a supplementary report will be provided to the Panel for determination. The matter will be determined electronically unless otherwise stated by the Chair.

Proposal

The proposal seeks consent for the demolition of the existing warehouse storage facility and the construction of multi dwelling housing comprising 12 x two (2) storey dwelling houses each with double garages and associated landscaping and infrastructure.

The applicant has provided additional information in response to the issues raised by the Panel, as well as other matters raised by Council, as detailed in Section 2 of this report.

Permissibility

The site is zoned R2 Low Density Residential pursuant to the Wollongong Local Environmental Plan (WLEP) 2009. The proposal is defined as multi dwelling housing and is permissible on land to which the WLEP 2009 applies. Demolition is ancillary work to facilitate the proposal and is permitted pursuant to Clause 2.7 of the WLEP 2009.

Planning Controls

The following planning controls apply to the proposal:

State Environmental Planning Policies:

- SEPP No. 55 – Remediation of Land
- SEPP (Building Sustainability Index: BASIX) 2004
- SEPP (Koala Habitat Protection) 2020
- SEPP (Infrastructure) 2007

Local Environmental Planning Policies:

- Wollongong Local Environmental Plan (WLEP) 2009

Development Control Plans:

- Wollongong Development Control Plan (WDCP) 2009

Other policies

- Wollongong City Wide Development Contributions Plan 2020
- Wollongong Community Participation Plan 2019

While there are no plans changes listed by the applicant the Panel has recommended built form changes which have been included as conditions of consent. An assessment of the additional information against the relevant planning controls is provided at Attachment 7.

For the original assessment refer to Council Assessing Officer's report as presented on the 3 November 2020 and Addendum report as presented on 17 February 2021 to the Wollongong Local Planning Panel.

Consultation

The amended proposal was not publicly exhibited due to the minor nature of the amendments.

Details of the additional documentation were referred to Council's Environment Officer. Satisfactory referral advice was provided.

Consultation of the proposal as presented to Wollongong Local Planning Panel on the 17 February 2021 and 3 November 2020 is outlined in the Council Assessing Officer's Addendum and original Assessment Report.

Conclusion

At the WLPP meeting of 3 November 2020 and subsequent electronic meeting on 17 February 2021, the Panel determined to defer the development application to allow the applicant an opportunity to address a number of concerns as described in Section 1 of this report.

The applicant has submitted additional information in response to the recommendations of the WLPP from 17 February 2021. Council's Assessing Officer is of the view that the amended proposal has satisfactorily addressed the concerns raised by the WLPP.

It is therefore considered that the proposed development is appropriate given the nature and characteristics of the site and is unlikely to result in significant adverse impacts on the character and amenity of the surrounding area, providing for the orderly development of land in the locality.

Recommendation

DA-2020/572 be approved subject to the conditions provided at Attachment 8.

2 APPLICANT'S RESPONSE TO THE WLPP RECOMMENDATIONS

The applicant has provided additional information in response to the concerns raised by the Panel including:

- Email responses from MMJ detailing the applicant's response to WLPP Panel recommendations – see Attachment 2
- Site Auditors Report
- Site Auditors Statement
- Construction Environmental Management Plan
- Unexpected Finds Protocol
- Agreement to modify plans with panel recommendations

3 COUNCIL'S ASSESSING OFFICER'S COMMENTS

Matters Raised by the Panel:

Council's Assessing Officer has reviewed the Panel's recommendations from the 17 February 2021 Electronic WLPP meeting and the Applicant's response to the issues raised and provides the following comments.

The reasons for the decision of the Panel were:

- *The Panel remains unsatisfied with the responses in respect of contamination on the site and its responsibilities in SEPP55.*

  The Panel requires:

  1. *A report which identifies whether there are any contaminants on the site.*
  2. *If there are contaminants, are they of such a type of quantity to require site remediation.*
  3. *If there are no contaminants or contaminants that are not harmful to the use of the site for residential purposes, then a clear and unequivocal statement as such.*
  4. *If there are contaminants and they are potentially harmful to the use of the site for residential purposes either by virtue of their type or volume that the method of disposal be identified and detailed. If a RAP is required, then this is to be identified and detailed so it can form a condition of consent.*

Comments:

Point 1 - The applicant has submitted a Site Auditors Report and a Site Auditors Statement prepared by GHD which has been considered by Council's Environment Officer who provided the following comment:

Further to additional DSI report Andrew Kolrusch, Site Auditor has issued a non-statutory SAS and SAR dated March 2021. The SAR has reviewed both DSI reports and concluded that:

- *These two document DSI and supplementary DSI report) does comply with NSW EPA Consultants Guidelines for Contaminated Site Assessment;*
- *Based on the soil analysis results the site poses no risk and suitable for proposed development without site remediation work.*

- *A SAS has been issued dated March 2021 stating that site is suitable for proposed development.*

In addition, applicant for due diligence purpose has submitted construction environmental management plan (CEMP) and unexpected find protocol (UFP) prepared by Environmental Consulting Services dated March 2021 that will be implemented during the construction phase.

The submission of an SAS, SAR, CEMP and UFP has addressed the SEPP 55 and WDCP Chapter E-20 requirements and a condition is recommended with regard to the implementation of CEMP and UFP refer to condition 61 at Attachment 8.

Point 2 - A Construction Environmental Management Plan prepared by Environmental Consulting Services Pty Ltd. dated 10 March 2021 has been submitted and is considered satisfactory regarding appropriate waste disposal. The documents will form part of the amended conditions of consent refer to condition 52 at Attachment 8.

Point 3 – The Site Auditors Statement prepared by GHD dated 12 March 2021 states the site is suitable for residential purposed.

Point 4 – An Unexpected Finds Protocol prepared by Environmental Consulting Services Pty Ltd. dated 5 March 2021 has been submitted and is considered satisfactory. The documents will form part of the amended conditions of consent refer to condition 61 at Attachment 8.

It is the Council's Assessing Officer's view that the applicant and additional condition has addressed the Panel's recommendations.

- *A further report/reports to be provided to Council within 28 days following which a supplementary report will be provided to the Panel for determination. The matter will be determined electronically unless otherwise stated by the chair.*

Comment:

It is the Council's Assessing Officer's view that the applicant has addressed the Panel's recommendations.

- *If there are no contaminants and or the contaminants are not harmful to the sites future use, then draft condition 9 is not required and should be removed by Council.*

Comment:

Condition 9 relating to Site Auditor's Report and Site Auditor's Statement has been deleted from the draft conditions. It is the Council's Assessing Officer's view that the applicant has addressed the Panel's recommendations.

- *Notwithstanding the above, the Panel also considered the other matters raised in its deferral of 3 November 2020 as follows:*
    - *The proposed turning head satisfies the Panels concern noting that advice from Council's engineer identified that it is not required.*
    - *The proposed pergola however is in a location that might distract from the use of said turning head and so the panel requests that the pergola be relocated to cover the proposed path through the park from the Princes Highway. This could form a condition of consent in the supplementary report.*
    - *The proposed motorbike parking space be deleted and replaced with landscaping. Its location is not ideal in respect of its juxtaposition with unit 1 and Councils traffic engineer*

has advised that it is not strictly required. This could form a condition of consent in the supplementary report.

- *The proposed planting between units 6/7, 4/5, and 2/3 be low level to ensure sight lines are maintained for drivers reversing from their garages. This could form a condition in any supplementary report.*

Comment:

The applicant has agreed to the recommended plan changes listed above and this has been included as a condition of consent. See Revised condition 9 and 23 at Attachment 8. It is the Council's Assessing Officer's view that the condition adequately addresses the Panel's recommendations.

Consultation

Public Notification

The amended proposal was not publicly exhibited due to the minor nature of the amendments.

Details of the amended proposal and additional documentation were referred to Council's Environment and Traffic Officers. Satisfactory referral advice was provided.

Consultation of the proposal as presented to Wollongong Local Planning Panel on the 3 November 2020 and subsequent electronic meeting held on 17 February 2021 is outlined in the Addendum Report and Council Assessing Officer's Report.

Internal Referrals

Details of the amended proposal were referred to Council's Environment Officer.

Environment Officer

The applicant has submitted an Interim Site Auditors Report, Site Auditors Statement Advice, by GHD Pty Ltd and a Construction Environmental Management Plan and Unexpected Finds Protocol by Environmental Consulting Services Pty Ltd.

Additional information was referred to Council's Environment Officer for comment.

Councils Environment Officer provided a conditionally satisfactory response. Noting the SAR and SAS provided are non-statutory as stated the site is suitable for Residential use and therefore SAR and SAS are no longer required. The condition of consent relating to this requirement has been removed from the consent.

Traffic Officer

Council's Traffic Officer has previously reviewed the amended plans and additional information submitted for the electronic meeting held on 17 February 2021. As the previous amended plans were considered compliant, by the Traffic Officer, and no other revisions were submitted the application was not re-referred.

External Referrals

The amended proposal was not referred to Transport for NSW Roads (formerly RMS) as the proposal remains substantially the same development as the original referral to TfNSW.

CONCLUSION

At the Electronic meeting of 17 February 2021, the Panel determined to defer the development application to allow the applicant an opportunity to address outstanding concerns as described in Section 1 of this report. Responding to the recommendations of the WLPP the applicant has submitted additional information. Council's Assessing Officer is of the view that the amended proposal has satisfactorily addressed the concerns previously raised.

The site is zoned R2 Low Density Residential pursuant to the Wollongong Local Environmental Plan (WLEP) 2009. The proposal is defined as multi dwelling housing and is permissible on land to which the WLEP 2009 applies. Demolition is ancillary work to facilitate the proposal and is permitted pursuant to Clause 2.7 of the WLEP 2009.

All relevant internal and external referrals are conditionally satisfactory and there are no outstanding issues.

Some of the issues raised in submissions though technically unresolved, are considered to be adequately addressed either through design or by way of conditions. Any remaining issues are not considered to be sufficient to refuse the application

It is therefore considered that the proposed development is appropriate given the nature and characteristics of the site and is unlikely to result in significant adverse impacts on the character and amenity of the surrounding area, providing for the orderly development of land in the locality.

RECOMMENDATION

DA-2020/572 be approved subject to the conditions provided at Attachment 8 of this report.

ATTACHMENTS

1 WLPP recommendations from electronic meeting 17 February 2021.

2 Email response prepared by MMJ dated & 18 February and 16 March 2021 detailing the applicant's response to WLPP Panel recommendations.

3 Site Auditors Report dated March 2021 prepared by GHD Pty Ltd.

4 Site Auditors Statement dated 12 March 2021 prepared by GHD Pty Ltd.

5 Construction Environmental Management Plan dated 10 March 2021 by Environmental Consulting Services Pty Ltd.

6 Unexpected Finds Protocol dated 5 March 2021 by Environmental Consulting Services Pty Ltd.

7 Assessment WDCP 2009 Compliance table.

8 Amended Conditions of Consent.

Attachment 1

DETERMINATION AND STATEMENT OF REASONS

WOLLONGONG CITY COUNCIL – WOLLONGONG LOCAL PLANNING PANEL (WLPP)

DATE OF DETERMINATION	17 February 2021
PANEL MEMBERS	Sue Francis (Chair), Larissa Ozog, Robert Montgomery, Trish McBride (Community Representative)

Transaction of business outside of meetings pursuant to Clause 26 of Schedule 2 of the *Environmental Planning and Assessment Act, 1979.*

MATTER DETERMINED

DA-2020/572 – Lot 1 DP 86796, 481-485 Princes Highway, Woonona (as described in detail in schedule 1).

On 3 November 2020 the Panel determined to defer the development application as described in Schedule 1 pursuant to section 4.16 of the *Environmental Planning and Assessment Act 1979*. This matter is re-submitted for determination for electronic determination as per previous Panel recommendations.

PANEL CONSIDERATION AND DECISION

The Panel considered the matters listed at item 7, and the material presented at the meeting and the matters observed at site inspections listed at item 8 in Schedule 1.

The Panel determined to again defer determination of the development application as described in Schedule 1 pursuant to section 4.16 of the *Environmental Planning and Assessment Act 1979*.

The decision was unanimous

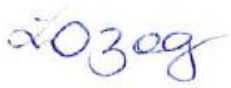
REASONS FOR THE DECISION

The reasons for the decision of the Panel were:

- The Panel remains unsatisfied with the responses in respect of contamination on the site and its responsibilities un SEPP55. The Panel requires:-
    1. A report which identifies whether there are any contaminants on the site
    2. If there are contaminants, are they of such a type of quantity to require site remediation.
    3. If there are no contaminants or contaminants that are not harmful to the use of the site for residential purposes, then a clear and unequivocal statement as such.
    4. If there are contaminants and they are potentially harmful to the use of the site for residential purposes either by virtue of their type or volume that the method of disposal be identified and detailed. If a RAP is required, then this is to be identified and detailed so it can form a condition of consent.
- A further report/reports to be provided to Council within 28 days following which a supplementary report will be provided to the Panel for determination. The matter will be determined electronically unless otherwise stated by the chair.
- If there are no contaminants and or the contaminants are not harmful to the sites future use, then draft condition 9 is not required and should be removed by Council.
- Notwithstanding the above, the Panel also considered the other matters raised in its deferral of 3 November 2020 as follows:-
    1. The proposed turning head satisfies the Panels concern noting that advice from Council's engineer identified that it is not required.
    2. The proposed pergola however is in a location that might distract from the use of said turning head and so the panel requests that the pergola be relocated to cover the proposed path through the park from the Princes Highway. This could form a condition of consent in the supplementary report.
    3. The proposed motorbike parking space be deleted and replaced with landscaping. Its location is not ideal in respect of its juxtaposition with unit 1 and Councils traffic engineer

has advised that it is not strictly required. This could form a condition of consent in the supplementary report.

4. The proposed planting between units 6/7, 4/5, and 2/3 be low level to ensure sight lines are maintained for drivers reversing from their garages. This could form a condition in any supplementary report

PANEL MEMBERS	
 Sue Francis (Chair)	 Larissa Ozog
 Robert Montgomery	 Trish McBride (Community Representative)

SCHEDULE 1		
1	DA NO.	DA-2020/572
2	PROPOSED DEVELOPMENT	Residential - multi dwelling housing - demolition of existing warehouse storage facility and construction of 12 x two storey dwellings.
3	STREET ADDRESS	481-485 Princes Highway, Woonona.
4	APPLICANT	MMJ Wollongong
5	REASON FOR REFERRAL	Under Schedule 2 of the Local Planning Panels Direction of 30 June 2020, the proposal is categorised as contentious development under 2(b) of the Schedule as over 10 unique submissions were received. The supplementary information and addendum report is submitted to the panel as per recommendations from the WLPP meeting on 3 November 2020.
6	RELEVANT MANDATORY CONSIDERATIONS	· Environmental planning instruments: 1. State Environmental Planning Policy No 55 – Remediation of Land 2. State Environmental Planning Policy – (Building Sustainability Index: BASIX) 2004 3. State Environmental Planning Policy (Infrastructure) 2007 4. State Environmental Planning Policy (Koala Habitat Protection) 2019 5. Wollongong Local Environment Plan 2009 · Wollongong City Wide Development Contributions Plan 2019 · Development control plans: 1. Wollongong Development Control Plan 2009 · Provisions of the *Environmental Planning and Assessment Regulation 2000*: o Clause 92 – demolition and provisions of AS2601 · The likely impacts of the development, including environmental impacts on the natural and built environment and social and economic impacts in the locality · The suitability of the site for the development · Any submissions made in accordance with the *Environmental Planning and Assessment Act 1979* or regulations · The public interest, including the principles of ecologically sustainable development
7	MATERIAL CONSIDERED BY THE PANEL	· Council assessment report dated: Addendum Report 17 February 2021 and, original 3 November 2020. · Written submissions during public exhibition: 21 (original proposal) · Verbal submissions at the public meeting: 2 (original meeting 3/11/2020)
8	SITE INSPECTIONS BY THE PANEL	Site inspection 3 November 2020. Attendees: o Panel members: Sue Francis (Chair), Larissa Ozog, Robert Montgomery, Trish McBride (Community Representative) o Council assessment staff: Sharyn Grant, John Wood
9	COUNCIL RECOMMENDATION	Approve
10	DRAFT CONDITIONS	Attached to the council assessment report

Attachment 2

Luke Rollinson

From: Luke Rollinson
Sent: Tuesday, 16 March 2021 7:19 AM
To: Sharyn Grant
Cc: John Wood; Town Planning; Town Planning Archive; Mark Riordan
Subject: RE: WLPP Decision : 481-485 Princes Hwy Woonona DA-2020/572
Attachments: Panel Commentary and Decision - Addendum Report Descision - 481-485 Princes Highway Woonona (DA-2020-572).pdf; Unexpected Finds Protocol.100.pdf; Woonona CEMP.100.pdf; SAS 063-12536991.pdf

Importance: High

Hi Sharyn,

I refer to the attached panel decision and our previous response below. Whilst we maintain our position below, in addition we provide:

1. Unexpected Finds Protocol Report (UPF) by ECS
2. Construction Environmental Management Plan (CEMP) by ECS
3. SAS and SAR by Andrew Kohlrusch of GHD confirming the site is deemed suitable for residential land use, without the need for the above-mentioned UPF or CEMP documents.

Attached is the UPF, CEMP, and SAS. The SAR will be sent via separate cover email due to size. A copy of all these documents will be uploaded to the NSW Planning Portal this morning.

As per the SAS, the consent authority can be satisfied that the land is not contaminated for the purposes of SEPP55, and is suitable for the proposed residential use.

In light of the above, draft Condition 9 of Attachment 5 draft conditions for DA-2020/572 should be deleted.

In relation to the other matters raised by the panel, we accept conditions to be imposed for the pergola relocation, motorbike park deletion/landscaping replacement, and low level plantings requested.

We request the matter be reported back to WLPP internally with Council to resolve a favourable determination at the earliest convenience.

Cheers, Luke.

Luke Rollinson
Director of Town Planning & Advisory, MMJ Real Estate, Wollongong
02 4229 5555 | 02 4226 2040 | Mobile: 0414 965 984
luke.rollinson@mmj.com.au | www.mmj.com.au
6-8 Regent Street, PO Box 1167, Wollongong NSW 2500

From: Luke Rollinson <luke.rollinson@mmj.com.au>
Sent: Thursday, 18 February 2021 5:19 PM
To: Sharyn Grant <SGrant2@wollongong.nsw.gov.au>
Cc: Mark Riordan <MRiordan@wollongong.nsw.gov.au>; Linda Davis <ldavis@wollongong.nsw.gov.au>; John Wood <jwood@wollongong.nsw.gov.au>; bweinert@fairlinecorp.com.au; John Taylor <jack@jtas.com.au>
Subject: RE: WLPP Decision from yesterday's electronic meeting
Importance: High

Hello Sharyn,

We refer to the attached addendum report decision in relation to the proposed multi dwelling housing development at 481-485 Princes Highway in Woonona, and respond on behalf of our client's demand for an urgent reassessment and/or reconsideration of the contamination matters.

It is our client's view that the panel is factually incorrect or ill-advised with regards to the documentation already provided, and its satisfaction of the determination responsibilities under SEPP 55. In respect of the panel specific points within their decision for Dot Point 1, we reply as follows:

1. *"A report which identifies whether there are any contaminants on the site"* – The December 2020 ECS report (attached) stated that all identified chemicals of concern tested in soils collected on the site were at concentrations less than investigation levels relevant to a residential development. The GHD Interim audit advice issued on 23 December 2020 confirmed that the report had been reviewed, had been prepared in a manner consistent with NSW EPA guidelines, and that chemical testing and statistical assessment demonstrated that none of the identified chemicals of concern exceeded residential investigation levels. The report(s) clearly address this point.

2. *"If there are contaminants, are they of such a type of quantity to require site remediation" –* The December 2020 ECS report referred to and stated that *The previous investigation considered the Site suitable for the anticipated residential development* on the proviso that certain conditions were met. The December 2020 report then stated that the additional works demonstrated that these conditions were no longer necessary, due to the findings/results of the supplementary investigation. The GHD Interim audit advice issued on 23 December 2020 stated that no further assessment or remediation was necessary. The report(s) clearly address this point.

3. *"If there are no contaminants or contaminants that are not harmful to the use of the site for residential purposes, then a clear and unequivocal statement as such."* – The GHD Interim audit advice issued on 23 December 2020 clearly states (following review of the two ECS investigation reports) that *no further assessment or remediation is necessary* and *On the basis of the information reviewed by the auditor, a site audit statement can be prepared stating that the site is suitable for residential land use*. It is clear from the report(s) provided that there are no contaminants which are harmful to the use of the site for residential purposes. The report(s) clearly address this point.

4. *"If there are contaminants and they are potentially harmful to the use of the site for residential purposes either by virtue of their type or volume that the method of disposal be identified and detailed. If a RAP is required, then this is to be identified and detailed so it can form a condition of consent."* – The GHD Interim audit advice issued on 23 December 2020 states *no further assessment or remediation is necessary*. No RAP is required. The report(s) clearly address this point.

In light of the above, consideration is given to Clause 7 of SEPP 55, and it is our position that:-

- The consent authority has adequate information to enable them to consider whether the land is contaminated under *Subclause (1).* It is not. The GHD Interim audit advice states - *For the purposes of SEPP55, the consent authority can be satisfied that the land is not contaminated.*
- Various reports specifying the findings of contamination investigations on the land concerned have been carried out in accordance with the contaminated land planning guidelines and supplied to the consent authority under *Subclause (2).* This is confirmed by the auditor who considers that the assessment reports prepared by ECS have been prepared in a manner consistent with relevant NSW EPA made or endorsed guidelines. These reports have been supplied to Council.
- The ECS site assessment reports provided and GHD Interim audit advice confirm that no further assessment or remediation is necessary. On this basis it is considered the consent authority should not warrant any further investigation under *Subclause (3)*.

On this basis it is considered that the consent authority can be satisfied under SEPP 55 that the subject site is not contaminated and does not require any remediation work to enable the proposed residential use. The primary objects of SEPP 55 are:

> *(1) The object of this Policy is to provide for a Statewide planning approach to the remediation of contaminated land.*
> *(2) In particular, this Policy aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment—*
> > *(a) by specifying when consent is required, and when it is not required, for a remediation work, and*
> > *(b) by specifying certain considerations that are relevant in rezoning land and in determining development applications in general and development applications for consent to carry out a remediation work in particular, and*
> > *(c) by requiring that a remediation work meet certain standards and notification requirements.*

It is clear from the expert reports and advices provided that the land does not require remediation, and thus, the proposed development does not conflict with the objects of this Policy.

Notwithstanding this and conservatively, even though the site conditions identify that the land is suitable for residential use, as with any proposed residential redevelopment an unexpected finds protocol (UFP) can be implemented/conditioned during construction if unexpected contamination is encountered. This process will be safeguarded by the auditor during the demolition and construction process and form part of the site audit statement and site audit report prior to occupancy.

With regards to the other matters raised by the panel, we have no objections to the recommendations, and trust that they can be conditioned as part of the development consent.

Respectfully, our client requests reconsideration of this deferral determination as a matter of urgency.

Please for free to contact me should you require any further information and/or discussion.

Regards, Luke.

Luke Rollinson
Director of Town Planning & Advisory, MMJ Real Estate, Wollongong
02 4229 5555 | 02 4226 2040 | Mobile: 0414 965 984
luke.rollinson@mmj.com.au | www.mmj.com.au
6-8 Regent Street, PO Box 1167, Wollongong NSW 2500

From: Sharyn Grant <SGrant2@wollongong.nsw.gov.au>
Sent: Thursday, 18 February 2021 10:51 AM
To: Luke Rollinson <luke.rollinson@mmj.com.au>
Subject: WLPP Decision from yesterday's electronic meeting

Hello Luke

The decision from yesterday's electronic WLPP meeting is now available on Council's website. I have attached a copy for your information. Unfortunately it was deferred though I think the information requested is relatively easy to provide.

Kind Regards

Sharyn Grant
Development Project Officer
Post Locked Bag 8821 Wollongong DC NSW 2500
Phone +61 2 4227 7111 ● **Fax** +61 2 4227 7277
Email council@wollongong.nsw.gov.au ● **www.wollongong.nsw.gov.au**

Emerald Park Estate Pty Ltd

481 to 485 Princes Highway Woonona

Site audit report

March 2021

Table of contents

Table index

Figure index

Appendices

Glossary

Abbreviation	Definition
ACM	Asbestos containing material
AHD	Australian Height Datum
ANZG	Australian and New Zealand Guidelines
Auditor	Accredited Contaminated Site Auditor under *NSW Contaminated Land Management Act 1997*
BTEX	Benzene, toluene, ethylbenzene and xylenes
CLM Act	*Contaminated Land Management Act 1997*
COPC	Contaminants of potential concern
CSM	Conceptual site model
DA	Development application
DP	Deposited plan
EPA	Environment Protection Authority
EIL	Ecological investigation level
ESL	Ecological screening level
GME	Groundwater monitoring event
HIL	Health investigation level
HSL	Health screening level
km	Kilometre
LNAPL	Light non-aqueous phase liquids
LOR	Limit of reporting
m	Metre
mbgl	metres below ground level
mg/kg	milligrams per kilogram
NEPC	National Environment Protection Council
NEPM	National Environmental Protection Measure
OEH	Office of Environment and Heritage
OCP	Organochlorine pesticide
OPP	Organophosphorus pesticide
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
SWL	Standing water level
TRH	Total recoverable hydrocarbons
µg/L	Micrograms per litre
VOC	Volatile organic compound

1. Introduction

1.1 Site audit details

Andrew Kohlrusch of GHD Pty Ltd (the auditor) was engaged by Emerald Park Estate Pty Ltd (Emerald) to conduct an environmental site audit of the environmental investigation works conducted at 481 to 485 Princes Highway Woonona (hereafter referred to as 'the site'). The site is identified as Lot 1 in DP 86796. A surveyed site plan is provided in Appendix A.

This site audit report (SAR) has been prepared to support land use change of the site from commercial to residential. The proposed development includes the demolition of the existing commercial buildings and construction of 12 two storey residential dwellings. The development will include landscaped areas and driveways on grade and garages for each residence. A copy of the proposed development plans is included in Appendix A.

Table 1 presents the site audit details.

Table 1 Site audit details

Site auditor	Mr. Andrew Kohlrusch
NSW EPA site auditor accreditation no.	0403
NSW EPA site audit statement no.	063-12536991
Audit category	Non-statutory at the time of preparing this site audit report
Legal property description	Lot 1 in DP 86796 The lot is shown on the survey plan presented in Appendix A
Council	Wollongong City Council
Site area	2,940 m^2
Site owner	Fairlinecorp Pty Ltd
Current land use	Commercial premises comprising of a storage warehouse – currently unoccupied
Proposed land use	Residential (town houses)

1.2 Purpose of this report

A site audit as defined in Part 1 Section 4 of the *Contaminated Land Management Act 1997 (*CLM Act) means a review:

(a) that relates to management (whether under this Act or otherwise) of the actual or possible contamination of land; and

(b) that is conducted for the purpose of determining any one or more of the following matters:

(i) the nature and extent of any contamination of the land;

(ii) the nature and extent of any management of actual or possible contamination of the land;

(iii) whether the land is suitable for any specified use or range of uses;

(iv) what management remains necessary before the land is suitable for any specified use or range of uses;

(v) the suitability and appropriateness of a plan of management, long-term management plan or a voluntary management proposal.

The purpose of this audit is to certify that the site has been assessed in a manner consistent with NSW Environment Protection Authority (EPA) guidance. This has been achieved by assessing whether the investigation reports prepared by Environmental Consulting Services Pty Ltd (ECS) were prepared in accordance with applicable guidelines made or endorsed by the NSW EPA under Section 105 of the CLM Act. Discussion regarding the regulatory context is present in Section 1.5**.**

This SAR has been prepared in accordance with the *Guidelines for the NSW Site Auditor Scheme (3rd edition)* issued on 20 October 2017 by EPA (the 'Auditor Guidelines').

1.3 Scope of audit

This SAR has been prepared following review of information presented in two environmental site assessments (ESAs) and whether they adequately demonstrated the proposed development area is suitable for residential use.

The reports reviewed are:

- ECS (2020a), *Environmental site assessment – 481 - 485 Princes Highway Woonona NSW 2517*. Dated 29 May 2020 (hereafter referred to as 'the ESA').
- ECS (2020b), *Addition environmental site assessment – 481 - 485 Princes Highway Woonona NSW 2517*. Dated 16 December 2020 (hereafter referred to as 'the additional ESA').

The outcome of the review of the two ESAs is presented in interim audit advices (IAAs) letters presented in Appendix B.

1.4 Site visit

On 1 March 2021, the auditor and his assistant (Davide Menozzi) conducted a site visit in the company of Mr Tom Simovic, representing the client. The site was unoccupied and there was no access constraints.

The site was entirely paved and mostly covered by a large warehouse. A small office was observed in the south-eastern corner of the site. An asphalt access driveway and loading area were located along the southern boundary with a retaining wall running on part of the boundary line. A second retaining wall was observed between the asphalt driveway and the south-eastern end of the warehouse, where the driveway rises compared to the building floor. A concrete paved forecourt occupied the eastern portion of the site. A small, landscaped area was to the west of the main building with a retaining wall along the western boundary.

The main building was fully paved with concrete. The building was subdivided to create multiple storage units of variable dimensions. As most of the site is paved, it was not possible to directly observe the underlying soils. However, at the time of the inspection four open bore holes were noted within the main building. The soil observed comprised yellow backfill sand underlined by stiff, brown clay with red mottles. This is in line with the soil description documented in the ESA reports. The spoil from an electricity pole recently installed in the south-eastern corner of the site was observed and comprised brown clay.

The site is located on the crest of a hill with the general topography of the site sloping down either to the south-east or north-west. The area in the vicinity of the site comprised a mix of residential and commercial premises. The land immediately to the south of the site was occupied by Pendlebury Park. Princes Highway and Gordon Street run immediately to the west and east of the site respectively.

1.5 Regulatory context

1.5.1 Wollongong City Council

A development application (identified as DA-2020/572) has been submitted to Wollongong City Council (WCC) that sets out the proposed redevelopment and concept design of the site under the current land zoning. Given that the site is proposed to be redeveloped for residential use, WCC required a site auditor's report (this SAR) and site audit statement (SAS) prior to issuing consent for the development. The auditor therefore considered this audit was non statutory.

1.6 SAR structure

This SAR documents the audit of the relevant environmental works conducted by the consultants presented in the referenced reports shown in Section 1.3. Where the auditor has provided comments on the work completed by the consultants these are highlighted in blue shaded dialogue boxes.

The remainder of this report is organised as follows:

Section 2	Proposed development
Section 3	Site history
Section 4	Chemicals of concern
Section 5	Site setting
Section 6	Assessment criteria and conceptual site model
Section 7	Detailed site investigations (2020)
Section 8	Quality assurance and quality control
Section 9	Compliance with regulatory guidelines
Section 10	Other considerations
Section 11	Compliance with EPA Consultant guidelines
Section 12	Auditor's conclusions
Section 13	Disclaimer

1.7 Limitations of this report

The information and opinions given in this SAR are based on reviewing information presented in the documentation referenced in Section 1.3 and other supporting information provided by Emerald and the consultant.

The auditor has not carried out any independent investigations in relation to the condition of the site. This audit is subject to the limitations presented in Section 12 of this report.

The auditor assumes no responsibility or liability for any errors or omissions in the information provided in the reports reviewed or that the consultant did not confer any reliance on the reports to the auditor.

The purpose of this SAR is to assess if the reports referenced in Section 1.3 have been prepared in accordance with the guidelines made or endorsed by the NSW EPA. No other warranties, expressed or implied, are made.

This SAR relates only to below ground contamination at the site but does comment on identified or potential off-site impacts from surface water, groundwater or soil vapour. It does not comment on the evaluation of geotechnical issues or any other issues associated with the site.

1.8 Guidelines used

This SAR was prepared with reference to the following statutory legislations, guidelines and/or standards which have been endorsed for use by NSW EPA:

- NSW EPA, 2020. Contaminated sites: Guidelines for Consultants Reporting on Contaminated sites (the Consultant Guidelines).
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Canberra ACT, Australia and New Zealand Governments and Australian state and territory governments (ANZG, 2018).
- NSW EPA, 2017. Contaminated Land Management: Guidelines for the New South Wales Site Auditor Scheme (3rd edition) (the Auditor Guidelines).
- NSW EPA, 2015a. Contaminated Sites: Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997.
- NEPC, 2013. National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended by the National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1), National Environment Protection Council, May 2013 (the NEPM).
- NSW DEC, 2007. Guidelines for the Assessment and Management of Groundwater Contamination (the Groundwater Guidelines).
- NSW EPA, 1995. Sampling Design Guidelines.
- NHMRC, NRMMC (2011) Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy. National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra.

2. Proposed development

The proposed development as described in DA-2020/572 comprises:

- Demolition of the existing warehouse building.
- Construction of 12 two-storey dwellings houses each with double garages and associated landscaping and infrastructure.
- Construction of a new common driveway area, visitor car parking spaces and communal open space areas.
- On-site stormwater detention within the driveway area with drainage to the street.
- Associated landscaping including deep soil zone.

The development application DA-2020/572 has been lodged by MMJ Wollongong (MMJ Real Estate Pty Ltd) to Wollongong City Council.

A copy of the proposed development plans is included in Appendix A.

3. Site history

A site history review was presented by ECS (2020a). Information is summarised below.

3.1 Aerial photographs and certificates of title

Historical aerial photographs and certificates of title indicated the site had been used for commercial / industrial purposes since at least 1961 and potentially from the 1920s. Activities undertaken on site included the storage and distribution of bricks and concrete products as well as the manufacture of metal roofing products.

More recently, between 2003 and 2020, the site was used as a storage facility. ECS stated that the warehouse was used to store mainly household goods and small machinery.

Data gaps in the site history were identified by ECS (2020a) particularly as no information was available regarding activities at the site between 1948 and 1978, and between 1993 and 2003. ECS indicated that, based on the building configuration and site observations, commercial use involving concrete or steel manufacturing was the most likely activity that took place during these periods.

3.2 NSW EPA contaminated land records

A search of the NSW EPA Contaminated Land Records undertaken by ECS (2020a) indicated there were no notices issued for the site or at neighbouring properties in Woonona. The nearest sites were two properties located in Bulli which had been notified to the EPA. One of these sites, Bulli Scrap Yard at 7 Molloy Street located approximately one kilometre to the north of the site, was regulated under the CLM Act. ECS noted that this property is down gradient and at least one kilometre away from the site and concluded that it is unlikely that contamination would impact the site.

3.3 Section 10.7 planning certificate

ECS (2020a) reported that the Section 10.7 planning certificate does not indicate the presence of known contamination at the site.

In the auditor's opinion the site history presented by ECS (2020a) provided a sufficient indication of current and past site activities with the primary potential for contamination being steel manufacturing and the presence of fill material across the site.

The auditor notes that the site and surrounding properties are not listed on the NSW EPA contaminated land records.

4. Chemicals of concern

Based on the potential contamination sources identified by ECS (2020a), the following chemicals of concern were selected for the intrusive investigation:

- Total recoverable hydrocarbons (TRH).
- Benzene, toluene, ethylbenzene, xylene (BTEX).
- Polycyclic aromatic hydrocarbons (PAHs).
- Polychlorinated biphenyls (PCBs).
- Organochlorine pesticides (OCP) and organophosphate pesticides (OPP).
- Heavy metals.
- Asbestos containing materials (ACM).

These were also selected as COPC for the additional ESA. The nominated potentially affected media for both investigation stages comprised:

- Soil.
- Groundwater (including light non-aqueous phase liquids (LNAPL) if present).

The auditor considered that based on the site history and the understanding of the type of activities that took place between 1948 and 1978, and 1993 and 2003, the suite of analytes selected for the site characterisation was appropriate.

5. Site setting

The following information has been sourced from ECS (2020a and 2020b).

5.1 Site identification

The site identification information is summarised in Table 2. The site layout is provided in Figure 1, Appendix A.

Table 2 Site location

Item	Details
Site address:	481-485 Princes Highway, Woonona NSW 2517
Site area:	Approximately 2,940 m^2
Lot, section and deposit plan (DP):	Lot 1 in DP 86796
Site owner:	Fairlinecorp Pty Ltd
Current land use:	Commercial – currently unoccupied
Proposed land use:	Residential
Current land use zoning:	R2 – Low Density Residential

5.2 Site description

The site description provided by ECS (2020a) was in line with the auditor's account provided in Section 1.4. Additional or complementary information was provided by the consultant as follows:

- The site is in a residential area. Commercial developments were reported along the Princes Highway to the south of the site.
- The main building covered approximately 70 percent of the site's area.
- The site is bounded by a performing arts studio and residential property to the north, Gordon Street to the east, Princes Highway to the west, and a park to the south. The site is trapezoid in shape with the following boundary lengths:
  - Northern boundary of 80 m.
  - Eastern boundary to Gordon Street of 40 m.
  - Southern boundary of 81 m.
  - Western boundary of 32 m.

5.3 Topography and drainage

ECS (2020a) reported that the site is located on a ridge at an elevation of approximately 30 m relative to Australian Height Datum (AHD). The area around the site slopes downwards to the north and to the south. The slope across the site is from the south east corner down towards the north west corner.

The auditor noted that the elevation of the site and the general continuity of the topography of the neighbouring properties and the site suggest that filling would be unlikely.

Notably, the consultant stated that excavations had been undertaken at the site to create a level area under the main building with a low wall retaining the landscaped area along the Princes Highway. Based on the ground surface levels on the site, ECS considered that construction of the main building would have included the excavation and removal of soil across the eastern half and minor filling at the western end.

The nearest surface water body is Collins Creek which is located approximately 140 m to the north of the site. Collins Creek discharges into Bulli Beach and the Tasman Sea.

ECS stated that stormwater at the site is expected to flow to the drainage system on Princes Highway and then discharge to the north towards Collins Creek.

5.4 Geology

The local geology reported by ECS (2020a) comprises undifferentiated sedimentary formations consisting of interbedded sandstones, shales, mudstones, and coal.

Soil landscapes for the site described in the 1:100 000 Sheet Survey are the Gwyneville soil landscape which is characterised by '*Undulating to steep hills (local relief 10 – 70 m, slope gradients 3 - 25%). Landform elements include broad to moderate ridges (250 – 800 m), steeply inclined to moderately inclined foot slopes, and isolated rises on the coastal plain*'. The dominant soil types are sandy loams overlying light to heavy clays.

Investigations carried out by ECS (2020a and 2020b) recorded the presence of a thin layer (about 0.1 m) of backfill sand over natural clayey soils beneath the concrete slab within the main building's footprint. To the south and along the driveway ECS reported shallow fill up to 0.4 m followed by natural clay. Beneath the parking area on the eastern portion of the site the geology consisted of natural clay. Boreholes BH1, BH2 and BH5 (see Figure 1) were extended to underlying weathered shale which was encountered at depths of 3.5 m, 2.5 m, and 3 m respectively. Coal was observed at depths of 5 m, 6 m, and 6 m respectively.

5.5 Hydrogeology

Groundwater beneath the site was encountered at depths between 2.5 and 3.7 m below ground level (m bgl). ECS (2020a) did not undertake a survey of the monitoring wells; however, based on measured groundwater depths the flow direction was anticipated to be to the east.

ECS reported that a search of the Australian Groundwater Explorer database showed there were five registered bores within 500 m of the site, four of which were located approximately 330 m to the north of the site, while the fifth bore was approximately 500 m to the south-east. ECS (2020a) noted that the bores to the north and the one to the south-east appeared to be related to bowling clubs at the Woonona Bulli RSL Memorial Club and the Woonona Bowling and Recreation Club, respectively. The consultant did not report the use of the registered bores. GHD undertook an independent search and noted that the bores to the north were registered for monitoring purposes while the one to the south-east for 'other' purposes.

5.6 Acid sulfate soils

ECS (2020a) stated that the site is located within 500 m of an area mapped as low probability of acid sulfate soils (ASS) (i.e. Class 5). This was based on the ASS risk map provided by the *Wollongong Local Environmental Plan 2009*. The Department of Land and Water Conservation (DLWC) 1:25,000 Bulli ASS Risk map (1997) showed the site is in an area of no known occurrence of ASS.

The auditor notes that the elevation of the site (approximately 30 m AHD) would have precluded the generation of acid sulfate soils.

The information presented by ECS in the ESA reports provided an appropriate description of the site setting and the surrounding properties. Surrounding land uses reported in the reviewed reports were consistent with the auditor's observation made during site visit.

Five groundwater bores are registered within a 500 m radius of the site. All bores are located cross gradient (i.e. to the north) relative to the site. Four bores are registered for monitoring

purposes while one for ‘other’ purposes. The auditor noted that reticulated potable water is supplied in the area. As such, abstraction for drinking water purposes is not considered plausible.

The nearest surface body is Collins Creek which is located approximately 140 m to the north of the site. Further discussion regarding receptors is presented within the conceptual site model (CSM) in Section 6.3 of this SAR.

The auditor considered that the information provided by ECS in its ESA and additional ESA was sufficient and largely in accordance with the Schedule B2 of the ASC NEPM and the Consultant Guidelines.

6. Assessment criteria and conceptual site model

ECS (2020a and 2020b) reported that the environmental investigation works have been completed with reference to investigation and screening levels listed in the following documents:

- The National Environment Protection Council (NEPC) (2013) National Environment Protection (Assessment of Site Contamination) Measure 1999 (the ASC NEPM)
- Australian Drinking Water Guidelines 6, 2011 – Australian Government, National Health and Medical Research Council (NHMRC) and Natural Resource Management Ministerial Council (NRMMC).
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Canberra ACT, Australia and New Zealand Governments and Australian state and territory governments (ANZG, 2018).

Screening criteria adopted for the environmental investigation works are described in the sections below.

6.1 Soil validation criteria

The soil analytical data obtained during the ESA (ECS, 2020a) and addition ESA (ECS, 2020b) were compared to the following criteria:

- ASC NEPM (2013) soil health investigation levels (HILs) for residential with garden/accessible soil and residential with minimal opportunities for soil access (HIL A and HIL B).
- ASC NEPM (2013) soil health screening levels (HSLs) for vapour intrusion for low to high density residential land use (HSL A and HSL B). Based on the subsurface conditions encountered, ECS adopted the HSLs for a clayey soil type.
- ASC NEPM (2013) ecological investigation levels (EILs) and ecological screening levels (ESLs) for urban residential and public open space land use. Notably, added contaminant limits were derived by ECS using soil data obtained from the NSW Government's eSpade database (https://www.environment.nsw.gov.au/eSpade2WebApp). Gwynneville soil landscape was selected as it is expected to reflect on-site conditions.

No soil aesthetic criteria were adopted.

6.2 Groundwater validation criteria

The groundwater analytical data obtained during the ESA were compared to the following criteria:

- ASC NEPM (2013) groundwater HSLs for vapour intrusion for low to high density residential land use (HSL A and HSL B). Based on the subsurface conditions encountered, ECS adopted the HSLs for a clayey soil type.
- Australian Drinking Water Guidelines 6, 2011.
- ANZG (2018) toxicant default guideline values (DGVs) for fresh water at 95% species protection.

The auditor considered ECS presented appropriate criteria for the investigation sampling programs considering the site-specific soil profile, groundwater depth and the end land use scenario (i.e. residential).

The auditor noted that the use of ASC NEPM criteria is to consider statistical analysis of data sets, namely the calculation of the 95% upper confidence limit (UCL) of the arithmetic mean of the concentrations, individual sample concentrations less than 250% of the investigation levels and the standard deviation less than 50% of the investigation levels. The consultant adopted the 95% UCL as the main statistical analysis. The auditor considered it appropriate.

6.3 Conceptual site model

The ESA (ECS, 2020a) presented a pre-sampling conceptual site model (CSM) of the potential sources of contamination, the receptors that may be affected by exposure to site contaminants and the pathways by which exposure could occur (also referred to as SPR linkages).

The contamination sources presented in the ESA are:

- Former steel manufacturer/fabricator.
- Hazardous building material.
- Fill material.
- Spills and leaks from parked vehicles.

The identified receptors were:

- Construction and demolition workers involved in the proposed development.
- Future occupants of the site.
- Environment at and around the site.

Pathways by which receptors could be affected included:

- Leaching of contaminants from the surface to the deeper soil and groundwater.
- Leaching of contaminants to stormwater.
- Direct contact and ingestion of contaminated soils.
- Inhalation of dust.
- Soil vapour intrusion into buildings and subsequent inhalation.

Table 3 presents the pre-sampling CSM SPR linkages which were assessed in terms of likelihood to occur (e.g. unlikely, possible or likely).

Table 3 Conceptual site model and assessment of SPR linkages

Sources	Receptor	Pathways	Comment
Historical use of the site and its layout and construction	Development worker	Direct contact	Possible during development
		Inhalation of dust or vapours	Possible during development
		Ingestion	Possible during development
	Site occupant after development	Direct contact	Unlikely. Development covers most of the Site
		Inhalation of dust	Unlikely. Development covers most of the Site
		Inhalation of vapours	Possible through vapour intrusion in sub floor
		Ingestion	Unlikely. Development covers most of the Site
	Environment	Stormwater	Possible during development
		Groundwater	Possible through ongoing leaching/migration

The pre-sampling CSM provided in the ESA (ECS, 2020a) contained the key elements as recommended in the ASC NEPM. ECS identified the relevant contaminants of potential concern, and reviewed and evaluated the available information. The ESA report identified the potential sources of contamination and how potential receptors may be exposed, either in the present or the future.

The auditor considered that based on the information provided, the potentially complete pathways between the possible sources and receptors had been appropriately identified.

7. Detailed site investigations (2020)

Two investigations were conducted by ECS between March and December 2020. They are summarised below. The auditor understands no previous environmental investigations had been carried out at the site.

7.1 Initial investigation ECS (2020a)

An ESA was undertaken by ECS in March 2020 with the objective of evaluating the potential for contamination at the site resulting from past activities and to assess the site suitability for residential use. The scope and findings of the ESA are summarised in the following sections.

7.1.1 Scope

ECS (2020a) stated that the scope of work comprised:

- Site inspection and a desktop study including:
  - Review of published information such as topographic, geological, soil landscape, and acid sulfate soil.
  - Review of specific information for assessing the potential for contamination to exist at the site including historical title records, aerial photographs; searches of groundwater bore databases and search of the NSW EPA databases.
- Drilling seven bore holes (BH1 to BH7) and conversion of BH1, BH2 and BH5 to three groundwater monitoring wells.
- Manual test pitting at two locations, TP1 and TP2, within the landscaped area in the western portion of the site.
- Sampling of soil at nine locations (BH1 to BH7 and TP1 and TP2) and at various depths.
- Sampling of groundwater at three locations by purging approximately three well volumes before collecting samples with a stainless-steel bailer.
- Analysis of 12 primary soil samples and three primary groundwater samples for heavy metals, TRH, BTEX, PAHs, OCP, OPP and PCBs. Three fill samples were analysed for asbestos identification.

Sampling locations are shown in Figure 1 on the following page. In a letter issued by ECS on 12 March 2021 and provided in Appendix C, the consultant stated sampling points were located by measuring their distance from site features (e.g. building corners).

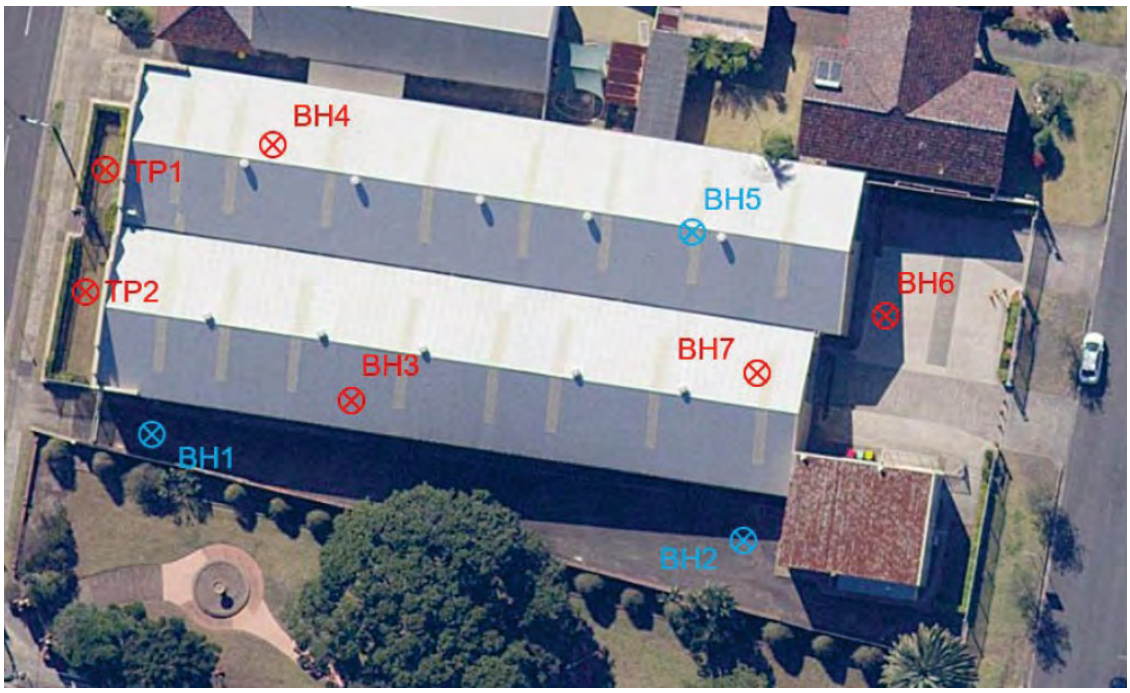


Figure 1 Sampling locations (ECS, 2020a)

7.1.2 Desktop study

The ESA stated that the site had been used for residential purposes by various owners between 1895 to potentially the 1960s based on aerial photographs. Between 1923 and 1948 the site was owned by individuals described as brickmakers. Hence, it was considered that the site could had been used for storage and distribution of bricks. In the 1960s the warehouse was constructed and since 1978 the site was owned by various companies. During this period the site was likely used for steel manufacturing and concrete related works. The most recent use is known to have been for domestic storage units.

7.1.3 Site inspection

ECS (2020a) noted fill material had likely been imported during site development to level the property, particularly near the western boundary of the site. Staining was observed on concrete floors within the main building and around an open drain in one of the storage units. Evidence of machinery and drums storage was reported on the concrete floor within the main building.

The consultant indicated there was no evidence of the presence of underground storage tanks. Remnants of a gantry style crane within the main building was observed; labels suggested that the past use of the building was related to metal manufacturing.

7.1.4 Soil observations

Bore holes were advanced to a maximum depth of 7.5 m below ground level (bgl) using a drill rig equipped with solid flight augers. Test pits were advanced using a shovel. Soil samples were collected directly from the auger or from the shovel. Care was taken to minimise cross contamination during sampling and sample storage and transport.

The soil profile observed by ECS (2020a) comprised:

- Main building area: approximately 0.1 m of backfill sand over natural clayey soils.
- Southern portion: up to 0.4 m of fill (road base gravel) underlain by natural clay.
- Eastern portion: natural clay.

- Western landscaped area: topsoil followed by clay.

Bore holes BH1, BH2 and BH5 (Figure 1) were extended to underlying weathered shale which was encountered at depths of 3.5 m, 2.5 m, and 3 m respectively. Coal was observed at depths of 5 m, 6 m, and 6 m respectively. At these locations groundwater monitoring wells were installed. Monitoring wells were developed following installation and left to stabilise for approximately two weeks.

7.1.5 Groundwater monitoring well construction

The construction of the groundwater monitoring wells installed by ECS (2020a) is summarised in Table 4.

Table 4 Groundwater monitoring well construction

Well ID	Screened section	Unit screened
BH1	2.5 to 5.5 m bgl	Clay, shale and coal
BH2	3.5 to 6.5 m bgl	Shale and coal
BH5	3.0 and 6.0 m bgl	Shale

ECS stated that the screened section was installed across the water table. The auditor noted that industry standard practices were generally adopted in the monitoring well construction.

7.1.6 Groundwater observations

Groundwater gauging data showed that the water table ranged between 2.5 m bgl and 3.7 m bgl. Monitoring wells were not surveyed; hence, an accurate groundwater flow direction could not be inferred. Based on measured groundwater depths, ECS stated that groundwater flows to the east. The auditor did note that given the topography of the area (a distinct downward slope to the north), groundwater flow would likely be more to the north than the east (as the land to the east of the site had a higher elevation than the site).

Field parameters were not collected. The presence of phase separated hydrocarbons was not commented by ECS (2020a).

7.1.7 Laboratory analysis

Primary soil and groundwater samples were analysed by Eurofins Environment Testing Australia Pty Ltd (Eurofins; accreditation number 1261) with secondary samples analysed by Australian Laboratory Services Pty Ltd (ALS; accreditation number: 825). All laboratories are accredited by the National Association of Testing Authorities (NATA) of Australia for the analyses performed.

Twelve primary soil samples and two duplicate soil samples (one inter- and one intra laboratory duplicates) were analysed for heavy metals, TRH, BTEX, PAHs, OCP, and PCBs. In addition, three fill samples collected from BH1, BH2 and BH4 were analysed for asbestos identification.

Three primary groundwater samples and one intra-laboratory duplicate sample were analysed for heavy metals, TRH, BTEX, PAHs.

7.1.8 Analytical results

Soil

Soil samples recorded contaminant concentrations lower than the adopted assessment criteria except for two samples. Exceptions are presented in Table 5.

Table 5 Soil exceedances of adopted criteria

Soil sample ID	Depth and description	Contaminant exceeding criteria and concentration (mg/kg)	Criterion exceeded
BH2 S1	0.3 m bgl; fill – road base, grey	Copper 190 mg/kg	EIL of 60 mg/kg
		Zinc 200 mg/kg	EIL of 70 mg/kg
BH4 S1	0.3 m bgl; fill – clay and some brick fragments	Arsenic 110 mg/kg	EIL of 100 mg/kg HIL of 100 mg/kg.

As per ASC NEPM, ECS (2020a) calculated the 95% upper confidence limit (UCL) for arsenic concentrations for the entire data set. Arsenic was the only analyte exceeding the adopted health-based assessment criterion (HIL). The 95% UCL was 34.4 mg/kg which is lower than the adopted assessment criterion of 100 mg/kg.

ECS noted that metals were encountered in the fill samples but not in the underling natural soil. Because of the limited number of fill samples, the 95% UCL for fill material was not calculated for arsenic, copper, and zinc.

Asbestos was not detected.

Groundwater

The ESA reported that of the three groundwater wells monitored the groundwater from BH2 had chemicals at concentrations greater than the adopted assessment criteria. Exceedances of the ANZG (2018) criteria were detected in the inter-laboratory duplicate sample identified as 'T' for chromium, copper, lead, and zinc. The consultant noted that concentrations in the groundwater collected from wells BH1 and BH5 were below the adopted criteria.

The auditor noted one additional exceedance of the zinc ANZG (2018) criterion for intra-laboratory duplicate sample 'D'.

Exceedances are summarised in Table 6.

Table 6 Groundwater exceedances of the adopted criteria

Sample ID	Primary sample	Screened depth interval and unit	Contaminant exceeding criteria and concentration	Concentration in primary sample (BH2)	Criterion exceeded
T Inter-laboratory duplicate	BH2	3.5 to 6.5 m bgl Shale – weathered rock, grey Coal - black	Chromium (VI) 20 µg/L	<1 µg/L	1 µg/L ANZG (2018)
			Copper 70 µg/L	<1 µg/L	1.4 µg/L ANZG (2018)
			Lead 27 µg/L	<1 µg/L	3.4 µg/L ANZG (2018)
			Zinc 37 µg/L	1 µg/L	8 µg/L ANZG (2018)
D Intra-laboratory duplicate	BH2		Zinc 16 µg/L	1 µg/L	8 µg/L ANZG (2018)

7.1.9 Conclusions

ECS (2020a) concluded that the site was suitable for residential land use.

In soil, arsenic was detected at a concentration above the human health and environment assessment criteria at one location, BH4 S1. As the 95% UCL calculated for the arsenic data set was below the assessment criterion, no further assessment was required.

In groundwater, hexavalent chromium, copper, lead and zinc concentrations exceeded the ANZG (2018) ecological criteria for fresh water at one location, BH2. Concentrations were considered by ECS unlikely to pose unacceptable risks in groundwater to aquatic ecosystems and were indicative of background levels.

ECS (2020a) provided the following recommendations:

- *'During redevelopment of the Site, following demolition of the existing improvements, the Site surface should be inspected. Any stained areas or deep areas of fill should be characterised from a contamination point of view.*
- *A Construction Environmental Management Plan (CEMP) should be developed and implemented to mitigate potential exposure risked during the development of the Site and an Unexpected Finds Protocol included in the CEMP.*
- *Should deep foundations be proposed below the water table, additional sampling and analysis of groundwater is recommended to confirm the groundwater quality. Excavated waste material should be classified in accordance with the NSW EPA Waste Classification Guidelines and disposed of to an appropriate and licenced facility'.*

The auditor considered that the ESA carried out by ECS was appropriate and in general accordance with the NSW EPA guidance.

The ESA included a quality assurance and quality control (QAQC) program to verify that results were representative of site conditions. This is discussed further in Section 8.

Auditor comments relating to the ESA are provided in IAA 02, Appendix B.

The conclusions of IAA 02 recommend inspecting and sampling beneath the footprint of the main building following its demolition. This would provide additional information regarding the conditions of soils that could not be inspected or accessed during the investigation and

inform environmental management procedures, if required, during future development. This was address by ECS (2020b) as described below.

7.2 Additional investigation ECS (2020b)

Following the ESA (ECS, 2020a), ECS completed an additional ESA to address recommendations provide by IAA 02. The objective of the investigation was to assess whether contamination was present beneath the main building's footprint.

The report (ECS, 2020b) is summarised below.

7.2.1 Scope

ECS (2020b) stated that the scope of work comprised:

- Drilling four bore holes, namely WA, WB, WC and WD, within the main building using a hand auger.
- Sampling near surface soil.
- Analysis of four primary soil samples for heavy metals, TRH, BTEX, and PAHs.

Sampling locations are shown in Figure 1 along with locations previously sampled by ECS (2020a).

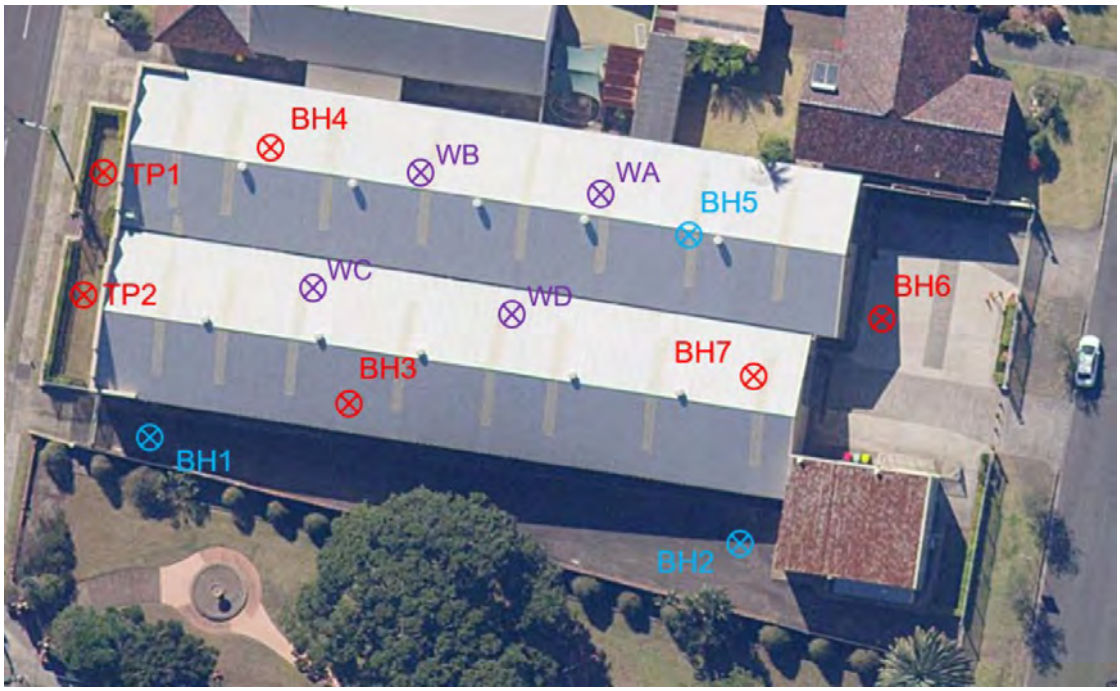


Figure 2 Sampling points – locations WA, WB, WC and WD were sampled as part of ECS (2020b) investigations.

7.2.2 Soil observations

The conditions encountered by ECS (2020b) generally consisted of approximately 0.1 m of concrete pavement over yellow backfill sand followed by natural clay. At one location, WB, the layer of backfill sand was not observed.

Table 7 presents the observed soil profile and the samples collected as part of this investigation.

Table 7 Soil profile within the main building footprint

Borehole ID	Depth (m)	Description	Sample collected
WA	0 - 0.1	CONCRETE	-
	0.1-0.15	SAND – Yellow well graded, no staining or odours	-
	0.15 – 0.3	CLAY – Red brown, dense, no staining or odours.	WA & WX
WB	0 - 0.1	CONCRETE	-
	0.1 – 0.3	CLAY – Brown, medium dense, no staining or odours.	WB
WC	0 - 0.1	CONCRETE	-
	0.1 – 0.2	SAND – Yellow well graded, no staining or odours	-
	0.2 – 0.3	CLAY – Red brown, dense, no staining or odours.	WC
WD	0 - 0.1	CONCRETE	-
	0.1-0.15	SAND – Yellow well graded, no staining or odours	-
	0.15 – 0.3	CLAY – Red brown, dense, no staining or odours.	WD

7.2.3 Laboratory analysis

Four primary soil samples and one intra-laboratory duplicate sample were analysed by Eurofins for heavy metals, TRH, BTEX and PAHs. Eurofins is NATA accredited for the analyses performed. No inter-laboratory duplicate samples were collected.

7.2.4 Analytical results

ECS (2020b) stated that samples recorded contaminant concentrations less than the adopted assessment criteria with one exception. Sample WD had a concentration of total chromium (130 mg/kg) above the HIL criterion for hexavalent chromium (100 mg/kg). The consultant noted that total chromium is the sum of tetravalent chromium, for which no HIL criterion is available, and hexavalent chromium. The HIL for hexavalent chromium was adopted for assessment purposes.

As per ASC NEPM, the 95% UCL of total chromium was calculated using all surface samples collected within the building footprint and samples from boreholes BH3, BH4, BH5 and BH7 presented in ECS (2020a). The 95% UCL of chromium concentrations was 90 mg/kg and was lower than the adopted assessment criterion.

7.2.5 Conclusions

ECS (2020b) confirmed the validity of conclusions presented by ECS (2020a) and that the site is suitable for residential land use. In addition, ECS stated that:

- A site inspection following demolition of the buildings is not required.
- A construction environmental management plan (CEMP) is not required.
- Standard environment health and safety management procedures shall be implemented during construction works

The auditor considered that the ESA carried out by ECS was appropriate and in general accordance with NSW EPA made or endorsed guidelines.

It is noted that the NSW EPA *Sampling Design Guidelines* recommend nine sampling points for an area of 0.3 ha (or 3,000 m^2). The site area is 2,940 m^2. ECS sampled 13 locations which exceeds the minimum sample density required.

The ESA included a quality assurance and quality control (QAQC) program to verify that results were representative of site conditions. This is discussed further in Section 8 and Appendix D.

Auditor comments relating to the ESA are provided in IAA 03, Appendix B.

The IAA 02 concluded that no further assessment and no remediation is necessary. For the purposes of *State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55), the consent authority can be satisfied that the land is not contaminated.

The auditor noted that ECS assumed throughout its assessment that future development does not require the construction of foundations extending as deep as the groundwater table). If excavations were required, assessment should be undertaken to evaluate waste water management options.

8. Quality assurance and quality control

The quality assurance and quality control (QAQC) procedures relevant to the ESA programs conducted by ECS were assessed with reference to Section 4.1.3 of the Auditor Guidelines.

The field and laboratory QAQC measures presented by ECS in its ESA and additional ESA reports have been reviewed in accordance with the NSW EPA guidelines to ensure the integrity of the data set used to assess the site.

A copy of the auditor's assessment of QAQC measures presented by ECS (2020a and 2020b) is provided within Appendix D.

The auditor considered that an adequate level of QAQC was adopted by ECS during the ESA programs (ECS, 2020a and 2020b).

The laboratory analyses have been conducted by NATA registered laboratories, and the contaminants of concern are consistent with those commonly encountered at sites used for steel manufacturing and as storage facilities or may be present in fill. The potential presence of hazardous building materials and uncontrolled fill was considered in the selection of analytes.

The auditor considered that the data presented in the ESA and additional ESA reports were sufficiently precise, accurate, representative, complete, and comparable.

The auditor noted that trip blank, trip spikes and rinsate blanks were not collected for the soil and groundwater sampling programs. ECS was questioned via email about these matters and comments were provided (as presented in Appendix B). The auditor's opinion on these quality control samples is summarised in the following paragraphs.

- Trip blanks and trip spikes are used to assess cross-contamination and concentration variation in matrices (i.e. soil and water) of volatile organic compounds (VOCs) during transport and handling. No VOCs – comprising BTEX and the TRH F1 and F2 fractions – were detected in soil and groundwater. During sampling, no odours, staining or other evidence of contamination were noted by ECS. Accordingly, it is the auditor's opinion that the absence of trip blanks and trip spikes did not affect data quality.
- Similarly, rinsate blanks are utilised to determine the potential for contamination resulting from field activities. All COPCs in soil and groundwater were below the adopted assessment criteria with marginal exceptions. There was little evidence of heterogenous fill with anthropogenic materials. The auditor also considered that rinsate blanks are primarily a means of assessing cross contamination between samples – given that there was little evidence of COPC in the soil and groundwater, cross contamination could not have occurred.
- Field screening methods were not used by ECS. The auditor noted that these methods are largely utilised as a guide to assist in sample selection and are not a definitive requirement for site characterisation. Given that no substantial odours and staining were noted during fieldworks, the auditor does not consider field screening essential. It is the auditor's opinion that the number of samples, their locations (i.e. distribution), contaminants of concern, and the use of NATA accredited laboratories (which have their own QAQC systems) are the critical components of the investigations.

Overall, the auditor considered the quality of data and their presentation are of an adequate standard to support the conclusions that ECS met regarding the suitability of the site.

9. Other considerations

9.1 Ecological considerations

The potential risks to ecological receptors from site contamination were considered by ECS to be low and acceptable. Ecological criteria (ANZG, 2018) for some heavy metals in groundwater were exceeded at one groundwater sampling location; however, ECS stated that contaminant levels were most likely indicative of background concentrations and unlikely to pose unacceptable risks to aquatic ecosystems at the groundwater discharge zone. This has been discussed in Section 7. The auditor also recognises that groundwater criteria are to be applied at the point of discharge which in this case is approximately 140 metres to the north. Given attenuation and dispersion, the concentrations of heavy metals in groundwater at the site would reduce with distance from the site.

9.2 Aesthetic impacts

Aesthetics impacts were not considered as part of the ECS's investigation. However, no odours, staining or substantial volumes of anthropogenic material were observed during intrusive investigations(It was noted that brick fragments were observed at sampling location BH4 (Figure 1, but no other locations encountered such material). Overall, it is the auditor's opinion that aesthetic impacts are unlikely to affect site use and the development drawings indicate that much of the site will be paved or covered by buildings with dedicated landscaped areas.

9.3 Chemical mixtures

Risks associated with chemical mixtures were not explicitly assessed by ECS. Given the nature of the contaminants of concern and their concentrations, it was not considered by the auditor that chemical mixtures for residual contaminants were an issue at the site.

9.4 Potential migration of contaminants

Based on the contaminant concentrations identified at the site by ECS (2020a and 2020b), the potential for migration of contaminants in soil or groundwater – and also soil vapour – from the site is considered low. This statement is based on the concentrations of volatile hydrocarbons measured in the soil and groundwater samples being generally below the laboratory level of reporting or orders of magnitude less that the relevant ASC NEPM HSLs.

10. Compliance with EPA Consultant Guidelines

Table 8 evaluates the key components of detailed site investigations as required in the NSW EPA *Consultants reporting on contaminated land – Contaminated land guidelines 2020* (Consultant Guidelines) to the information provided in ECS (2020a). The auditor considers the ESA equivalent to a detailed site investigation as defined in the Consultant Guidelines. ECS (2020b) is an additional ESA to provide complementary data to ECS (2020a). As such, compliance with the NSW EPA guidelines was verified only for ECS (2020a) while ECS (2020b) was referenced as it was an addendum to the initial investigation report.

Table 8 ESA (ECS, 2020a) compliance with Consultants Guidelines

Consultant Guidelines	ESA section	Auditor comments
Document control	Page number two	Date, version number, author and reviewer were presented. The report commissioner was provided in the introduction section.
Executive summary	Executive summary	An executive summary was presented, including background, objectives of the investigation, scope of work, key findings, observations, and sampling results, as well as conclusions and recommendations.
Objectives and scope of work	Section 1.0	The objectives of the investigation and a detailed scope of works were presented.
Site identification	Section 2.0	A summary of site identification (Lot and DP) as well as a site map were presented. Sufficient information in general agreement with the ASC NEPM Field Checklist was provided throughout the report.
Site history	Sections 5.0 to 5.5	A summary of site history including previous land uses, title search and review of historical aerial photograph was presented. Sufficient information in general agreement with the ASC NEPM Field Checklist was provided throughout the report.
Site condition and surrounding environment	Sections 2.2 to 2.3, and Sections 3.0 to 3.3	A description of the site and surrounding site conditions, and relevant details used to develop a conceptual understanding of contaminant pathways were presented. Applicable and sufficient information was provided in general agreement with the ASC NEPM Field Checklist.

Consultant Guidelines	ESA section	Auditor comments
Sampling and analysis quality plan and sampling methodology	Section 4.0, and Sections 7.0 to 7.3	Data quality objectives (DQOs) including procedures to be undertaken if the data do not meet the expected DQOs were presented. An adequate strategy to achieve the objectives, methodologies and a sampling and analysis plan based on *Sampling Design Guidelines* were provided.
Assessment criteria	Section 8.0	Tables listing the adopted assessment criteria and associated references, as well as the rational for their selection was discussed.
Results	Sections 9.0 to 9.2	Tables of analytical result including essential details and assessment criteria; bore hole and test pit logs; statistical calculations (i.e. 95% UCL) and a discussion of results were provided. A site plan showing sampling location was included.
Quality assurance/quality control data evaluation	Section 9.3	A copy of the auditor's assessment of QAQC measures presented by ECS (2020a and 2020b) is provided within Appendix D.
Conceptual site model	Sections 3.0 to 3.3, and Sections 6.0 to 6.3	A conceptual site model in general agreement with the Consultant Guidelines was presented.
Site characterisation	Sections 9.0 to 9.2	A site characterisation was appropriately discussed.
Conclusions and recommendations	Section 10.0	A summary of findings, conclusions addressing the objectives and recommendations were provided.

11. Auditor's conclusions

Based on the information presented in the ESAs (ECS, 2020a and ECS, 2020b), it is the auditor's opinion that they contained the key elements required for a detailed site assessment as outlined in the Consultants Guidelines and the Auditor Guidelines. ECS stated in the initial assessment of the site (ECS, 2020a) that:

the Site is considered suitable for the anticipated residential development provided the following recommendations are carried out:

- *During redevelopment of the Site, following demolition of the existing improvements, the Site surface should be inspected. Any stained areas or deep areas of fill should be characterised from a contamination point of view.*
- *A Construction Environmental Management Plan (CEMP) should be developed and implemented to mitigate potential exposure risked during the development of the Site and an Unexpected Finds Protocol included in the CEMP.*
- *Should deep foundations be proposed below the water table, additional sampling and analysis of groundwater is recommended to confirm the groundwater quality. Excavated waste material should be classified in accordance with the NSW EPA Waste Classification Guidelines and disposed of to an appropriate and licenced facility.*

Following completion of the additional site assessment, ECS (2020b) confirmed that there was no longer a need to inspect the site following demolition of the building and no requirement for a CEMP.

In evaluating the suitability of the site, the decision-making process for assessing urban redevelopment sites (Appendix A of the Auditor Guidelines) has been followed. In using this process, the auditor has considered the information presented in this SAR. Table 9 presents this assessment.

Table 9 Decision making process for assessing urban redevelopment sites

EPA's requirements	Auditor 's comments
All site assessment, remediation and validation reports follow the applicable guidelines.	The site assessments (ECS, 2020a and ECS 2020b; and relevant supporting documentation) were deemed by the auditor to have considered the key elements of the Consultant Guidelines.
Aesthetic issues relating to soils have been adequately addressed.	ECS has not identified aesthetic issues, as discussed in this SAR in Section 9.2.
Soils have been assessed against health-based investigation levels and potential migration of contamination from soils to groundwater has been considered.	ECS compared the data gathered during the ESA program with suitable investigation levels presented in NSW EPA endorsed or made guidelines. The auditor considered there is sufficient evidence in the ESA reports to demonstrate there are no sources of contamination that could affect groundwater quality to a degree that could cause unacceptable exposure risks.
Groundwater (where relevant) has been assessed against health-based investigation levels and, if required, any	ECS compared the groundwater results to suitable health-based guidelines - although it is noted that groundwater is not likely to be

EPA's requirements	Auditor 's comments
potential impacts to buildings and structures from the presence of contaminants considered	extracted at the site for beneficial purposes given the area is supplied by mains water. The auditor considered the evidence presented in ECS (2020a) was sufficient to demonstrate that groundwater quality is unlikely to cause unacceptable exposure risks to the environment or human health.
Hazard ground gases (where relevant) have been assessed against relevant health-based investigation levels and screening values	Potential vapour intrusion risks related to in residential settings are not relevant given concentrations of all measured volatile compounds in soil were orders of magnitude less than relevant HSLs.
Any issues relating to local area background soil concentrations that exceed relevant investigation levels have been adequately addressed in the site assessment reports	Not applicable.
The impacts of chemical mixtures have been assessed	Risks associated with chemical mixtures were not specifically assessed by ECS. However, given the type of contaminants of concern and that soil samples had concentrations less than the nominated assessment criteria, it is unlikely there would be a risk associated with chemical mixtures.
Any potential ecological risks have been assessed	ECS assessed potential ecological risks in ECS (2020a). No complete linkages were identified.
Any evidence of, or potential for, migration of contaminants from the site has been appropriately addressed, including potential risks to off-site receptors, and reported to the site owner or occupier	The potential migration of contaminants was considered by ECS (2020a). The auditor discussed the migration of contaminants in Section 9.4 of this SAR.
The site management strategy (where relevant) is appropriate including post-remediation environmental plans	ECS (2020b) concluded that no construction environmental management plan is required. In addition ECS (2020b), concluded that an inspection of the site following demolition of the building is not necessary. No data collected by ECS suggested that a site management strategy was necessary.

12. Disclaimer

This site audit report has been prepared in accordance with relevant provisions of the CLM Act 1997. This SAR represents the auditor's opinion of the suitability and appropriateness of the reports listed in Section 1.3 and demonstrates ECS (2020a) and ECS (2020b) have been prepared in accordance with the NSW EPA guidelines, based on the condition of the site at the date the document was prepared.

This SAR:

- Has been prepared by Andrew Kohlrusch and his support team as indicated in the appropriate sections of this report ("GHD") for Emerald Park Estate Pty Ltd.
- May be used and relied on by Emerald Park Estate Pty Ltd.
- May be used by and provided to the NSW EPA and the relevant planning authority for the purpose of meeting statutory obligations in accordance with the relevant sections of the EP Act 1997.
- May be provided to other third parties but such third parties use of or reliance on the report is at their sole risk, as this SAR must not be relied on by any person other than those listed above without the prior written consent of GHD.
- GHD and its servants, employees and officers (including the auditor) otherwise expressly disclaim responsibility to any person other than Emerald Park Estate Pty Ltd arising from or in connection with this SAR.
- To the maximum extent permitted by law, all implied warranties, and conditions in relation to the services provided by GHD and the SAR are excluded unless they are expressly stated to apply in this SAR.

The services undertaken by the auditor, his team and GHD in connection with preparing this SAR:

- Were undertaken in accordance with current profession practice and by reference to relevant guidelines made or approved by the NSW EPA.
- The opinions, conclusions and any recommendations in this report are based on assumptions made by the auditor, his team and GHD when undertaking services and preparing the SAR ("Assumptions" or limitations), as specified throughout this SAR.
- GHD and the auditor expressly disclaim responsibility for any error in, or omission from, this SAR arising from or in connection with any of the Assumptions being incorrect.
- Subject to the paragraphs in this section of the SAR, the opinions, conclusions and any recommendations in this SAR are based on conditions encountered and information reviewed at the time of preparation of this SAR and are relevant until such times as the conditions or relevant legislations changes, at which time, GHD expressly disclaims responsibility for any error in, or omission from, this SAR arising from or in connection with those opinions, conclusions and any recommendations.
- The auditor and GHD have prepared this SAR on the basis of information provided by ECS and others who provided information to GHD (including Government authorities), which the auditor and GHD have not independently verified or checked ("Unverified Information") beyond the agreed scope of work.
- The auditor and GHD expressly disclaim responsibility in connection with the Unverified Information, including (but not limited to) errors in, or omissions from, the SAR, which were caused or contributed to by errors in, or omissions from, the Unverified Information.

- The opinions, conclusions and any recommendations in this SAR are based on information obtained from, and testing (if undertaken as specified in this SAR) undertaken at or in connection with, specific sampling points and may not fully represent the conditions that may be encountered across the entire Emerald Park Estate Pty Ltd properties.
- Although reasonable care has been used to assess the extent to which the data collected from site is representative of the overall site condition and its beneficial uses, investigations undertaken in respect of this SAR are constrained by the particular infrastructure and buildings as discussed in this SAR. As a result, not all relevant site features and conditions may have been identified in this SAR.
- Site conditions (including any the presence of hazardous substances and/or further contamination) may change after the date of this SAR. The auditor and GHD expressly disclaim responsibility:
  - Arising from, or in connection with, any change to the site conditions.
  - To update this SAR if the site conditions change.
- These Disclaimers should be read in conjunction with the entire SAR and no excerpts are taken to be representative of the findings of this SAR.

Appendices

Appendix A - Figures

This appendix contains:

1. Site survey plan
2. Proposed plan
3. Elevations (proposed plan)
4. Ground floor plan (proposed plan)
5. Level 1 plan (proposed plan)
6. Overall external site elevations (proposed plan)

CAUTION

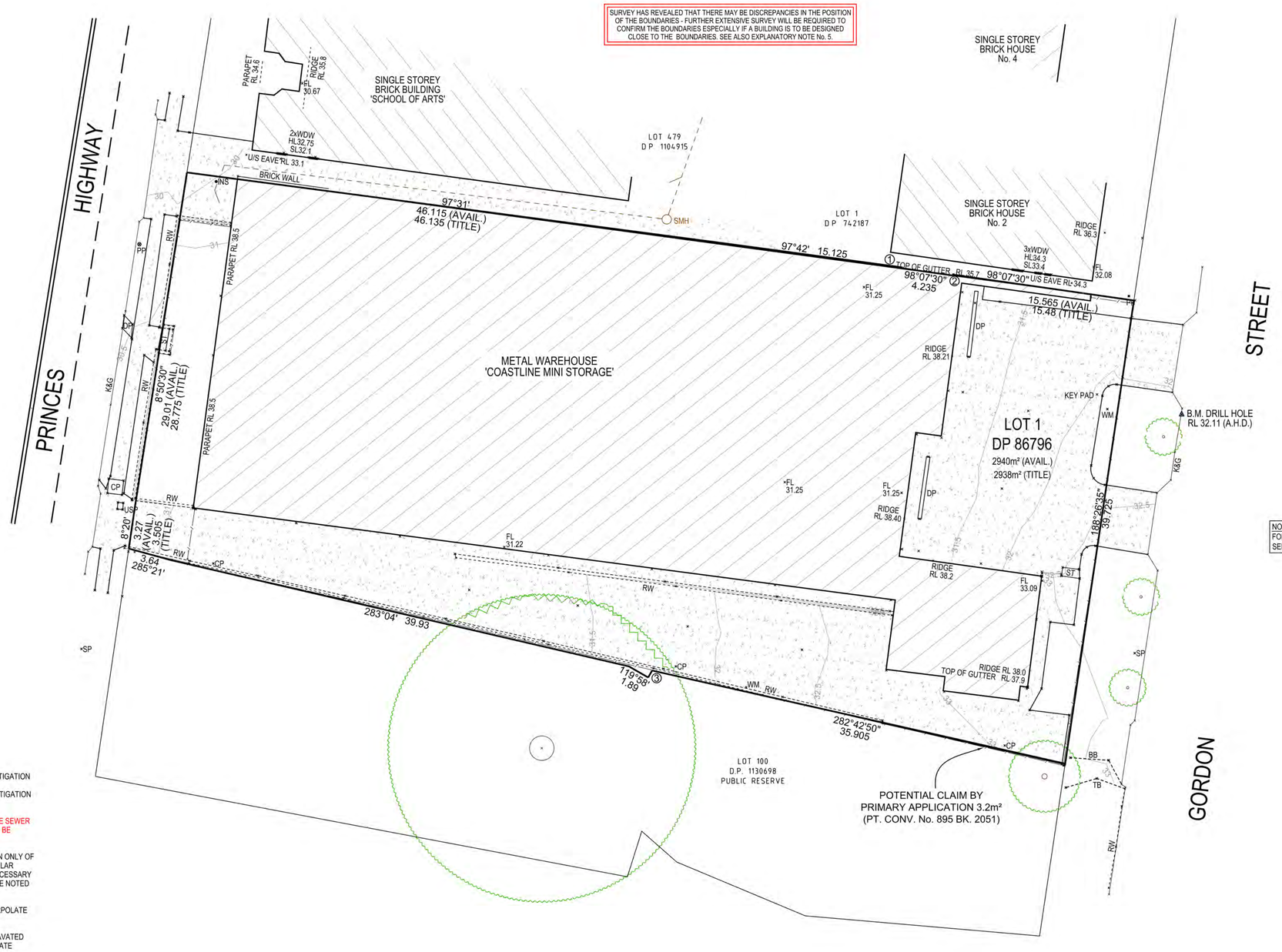
www.dialbeforeyoudig.com.au
DIAL 1100 BEFORE YOU DIG

ONLY APPARENT SERVICES HAVE BEEN LOCATED BY SURVEY. NO SEARCH OF PUBLIC UTILITIES HAS BEEN CARRIED OUT TO DETERMINE THE LOCATION OF ANY UNDERGROUND SERVICES SUCH AS TELSTRA, POWER, GAS, SEWER OR WATER, AS SUCH BEFORE CARRYING OUT ANY EXCAVATION, CONTACT DIAL 1100 IF YOU NEED TO DIAL 1100 BEFORE YOU PROCEED.

CAUTION:
THE NORTH POINT ORIENTATION SHOWN HEREON HAS BEEN TAKEN FROM UNDERLYING CADASTRAL PLANS ONLY. NO ATTEMPT HAS BEEN MADE TO DETERMINE ITS RELATIONSHIP TO EITHER CURRENT MAGNETIC NORTH OR TRUE NORTH.

MGA

SURVEY HAS REVEALED THAT THERE MAY BE DISCREPANCIES IN THE POSITION OF THE BOUNDARIES - FURTHER EXTENSIVE SURVEY WILL BE REQUIRED TO CONFIRM THE BOUNDARIES ESPECIALLY IF A BUILDING IS TO BE DESIGNED CLOSE TO THE BOUNDARIES. SEE ALSO EXPLANATORY NOTE No. 5.



NOTE:
FOR SPOT LEVEL INFORMATION SEE THE 3D DIGITAL MODEL

LEGEND

BB	BOTTOM OF BANK
CP	COMMUNICATIONS PIT
DP	DRAINAGE PIT
FL	FLOOR LEVEL
HL	HEAD LEVEL OF WINDOW - APPROXIMATE ONLY
INS	INSPECTION OPENING
K&G	KERB & GUTTER (0.2 HIGH)
PB	PLANTER BOX
PP	POWER POLE
RL	REDUCED LEVEL
RW	RETAINING WALL
SMH	SEWER MAINTENANCE HOLE (BY HYDRA SKETCH ONLY)
SP	SIGN POST
SL	SILL LEVEL OF WINDOW - APPROXIMATE ONLY
ST	STAIRS
TB	TOP OF BANK
USP	UNCLASSIFIED SERVICE PIT
U/S	UNDERSIDE
WM	WATER METER
WDW	WINDOW LOCATION - APPROXIMATE ONLY

DENOTES HARDSTAND AREA

DENOTES APPROXIMATE LOCATION OF SEWER MAIN

EXPLANATORY NOTES

1. ONLY APPARENT SERVICES HAVE BEEN LOCATED BY SURVEY. NO SEARCH OF PUBLIC UTILITIES OR SUB-SURFACE INVESTIGATION HAS BEEN CARRIED OUT TO DETERMINE THE LOCATION OF ANY UNDERGROUND SERVICES SUCH AS COMMUNICATIONS, ELECTRICITY, GAS, WATER OR SEWER. SEE THE ATTACHED DIAL BEFORE YOU DIG CAUTION IN THIS PLAN SPACE. NO INVESTIGATION OF LOCATION OF ANY FOOTINGS OR FOUNDATIONS HAS BEEN CARRIED OUT.

PLEASE NOTE THAT A HYDRA SKETCH HAS BEEN OBTAINED FROM SYDNEY WATER, AND THIS HAS BEEN USED TO SHOW THE SEWER LINE ON THE PLAN. WE CAUTION THAT THE SEWER LOCATION AS SHOWN IS APPROXIMATE ONLY & A "SEWER PEGOUT" MAY BE REQUIRED TO DETERMINE A MORE PRECISE LOCATION.

2. SPOT LEVELS & CONTOURS REPRESENT GENERAL GROUND LEVEL ONLY. THEY GIVE AN APPROXIMATE REPRESENTATION ONLY OF THE SHAPE AND LEVELS OF THE GROUND SURFACE. CONTOURS DO NOT REPRESENT THE PRECISE LEVEL AT ANY PARTICULAR POINT EXCEPT WHERE A SPOT LEVEL IS SHOWN. SHOULD CRITICAL DESIGN FACTORS BE IN EXISTENCE THEN IT MAY BE NECESSARY TO OBTAIN SUPPLEMENTARY LEVELS TO CONFIRM DESIGN CONSTRAINTS OR PARTICULARS. (TO THIS EXTENT IT SHOULD BE NOTED THAT THE CONTOUR INTERVAL IS 0.5 m)

3. CONTOURS ARE INTERPOLATED FROM SPOT LEVELS AS SHOWN & SHOULD BE USED AS A GUIDE ONLY. DO NOT RE-INTERPOLATE CONTOURS.

4. THE DTM MESH SUPPLIED IS NOT TO BE USED FOR VOLUME CALCULATIONS, AND MAY NOT REFLECT THE DEPTH OF EXCAVATED SURFACES OR VARIATION IN GROUND LEVEL UNDER ANY BUILDINGS/STRUCTURES. SPOT LEVELS MAY BE SHOWN TO INDICATE GROUND FEATURES AND THESE SPOT LEVELS MAY NOT BE INCLUDED IN THE DEFINITION OF THE DTM MESH.

5. PLEASE NOTE THAT NO BOUNDARY DEFINITION SURVEY HAS BEEN UNDERTAKEN FOR THIS PLAN AND NO BOUNDARIES HAVE BEEN MARKED. BOUNDARIES ARE SHOWN IN APPROXIMATE LOCATION ONLY. DIMENSIONS AS SHOWN ON THE PLAN HAVE ONLY BEEN TAKEN FROM A COPY OF THE DEPOSITED PLAN AND NOT VERIFIED BY FIELD SURVEY. THE DIMENSIONS CAN ONLY BE VERIFIED BY UNDERTAKING A COMPREHENSIVE BOUNDARY DEFINITION SURVEY TO ESTABLISH THE AVAILABLE DIMENSIONS OF THE PROPERTY.

6. RELATIONSHIP OF IMPROVEMENTS AND TREES TO BOUNDARIES IS DIAGRAMMATIC ONLY AS THEY HAVE NOT BEEN ACCURATELY DETERMINED. WHERE OFFSETS ARE CRITICAL THEY SHOULD BE CONFIRMED BY FURTHER SURVEY. THE CO-ORDINATES OF BUILDING CORNERS WERE DETERMINED BY TOPOGRAPHIC SURVEY AND THEREFORE ARE APPROXIMATE ONLY.

7. TREE CANOPIES & TRUNKS IF SHOWN ARE POSITIONED FOR DIAGRAMATIC PURPOSES ONLY. THE CANOPY & TRUNK SIZES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY.

8. ROOF LEVELS ARE ONLY SHOWN TO THE NEAREST 0.1m AND ARE ACCURATE TO ±0.05m.

9. ORIGIN OF LEVELS IS AUSTRALIAN HEIGHT DATUM (A.H.D.) DERIVED FROM SSM 12987, RL 22.611 (AHD, SOURCE - SCIMS).

10. THIS PLAN & ACCOMPANYING DIGITAL MODEL HAS BEEN PREPARED FOR BRIAN WEINART - ITS USE IS LIMITED TO SITE ANALYSIS MATTERS & MUST BE USED FOR NO OTHER PURPOSE OR BY ANY UNAUTHORIZED THIRD PARTY. THE CONTENTS REMAINS THE INTELLECTUAL PROPERTY OF LANDTEAM.

11. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE README FILE ON THE ACCOMPANYING DIGITAL TRANSFER AND THE PDF FILE ATTACHED.

No.	BEARING	DIST.
1	188°07'30"	0.075
2	8°07'30"	0.075
3	209°58'	0.68

NOTE:
THE LEVELS & LOCATIONS SHOWN FOR ROOF RIDGE, ROOF GUTTER AND WINDOWS ARE APPROXIMATE ONLY DUE TO METHOD OF COLLECTION

SCALE 1:200

0 3 6 9 12

Metres

ISSUE	AMENDMENT	DRAWN	DATE
A	INITIAL ISSUE	JAK	15/1/2020

LandTeam Australia Pty Ltd
ABN 35 300 283 592
Wollongong Office
5/97 Shellharbour Road
Postal: PO Box 353
WARILLA NSW 2528
p: (02) 4296 7055
f: (02) 4297 1163
e: wollongong@landteam.com.au
www.landteam.com.au

FILE NAME : 213194 TS01-A.dwg

BRIAN WEINART

A1 SHEET

DETAIL & CONTOUR SURVEY PLAN
LOT 1 IN D.P. 86796
No. 481-485 PRINCES HIGHWAY, WOONONA

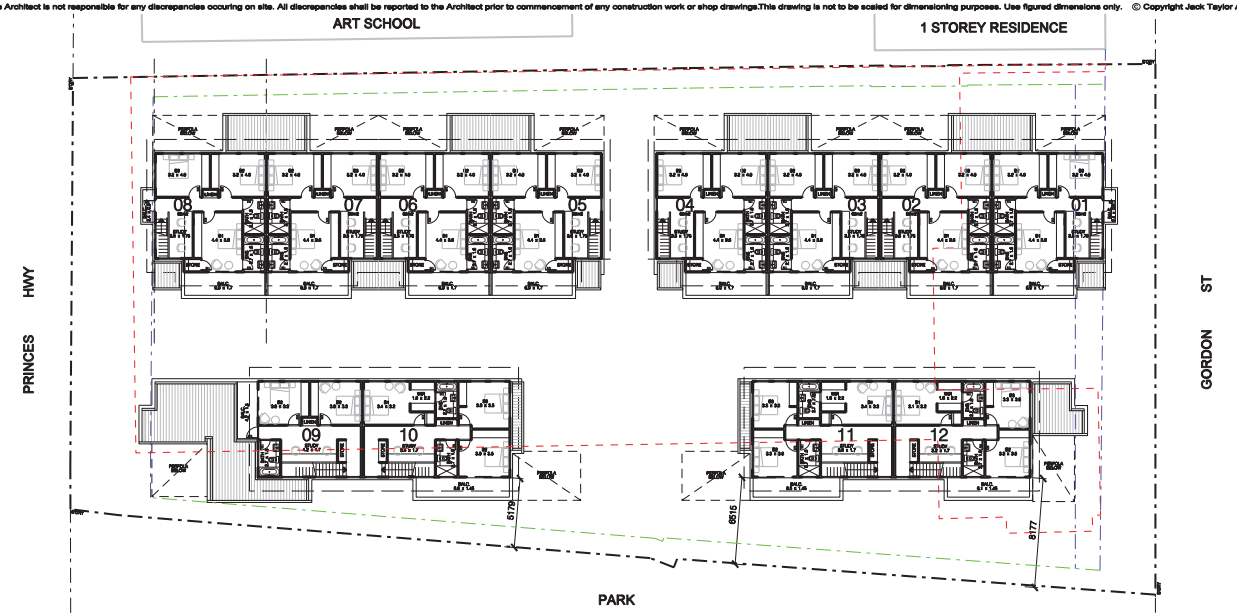
SURVEYED: BK/RF
DRAWN: JAK
CHECKED: R.VDZ
ISSUE A

DRAWING No. 213194-TS01

SHEET 1 OF 1 SHEET(S)

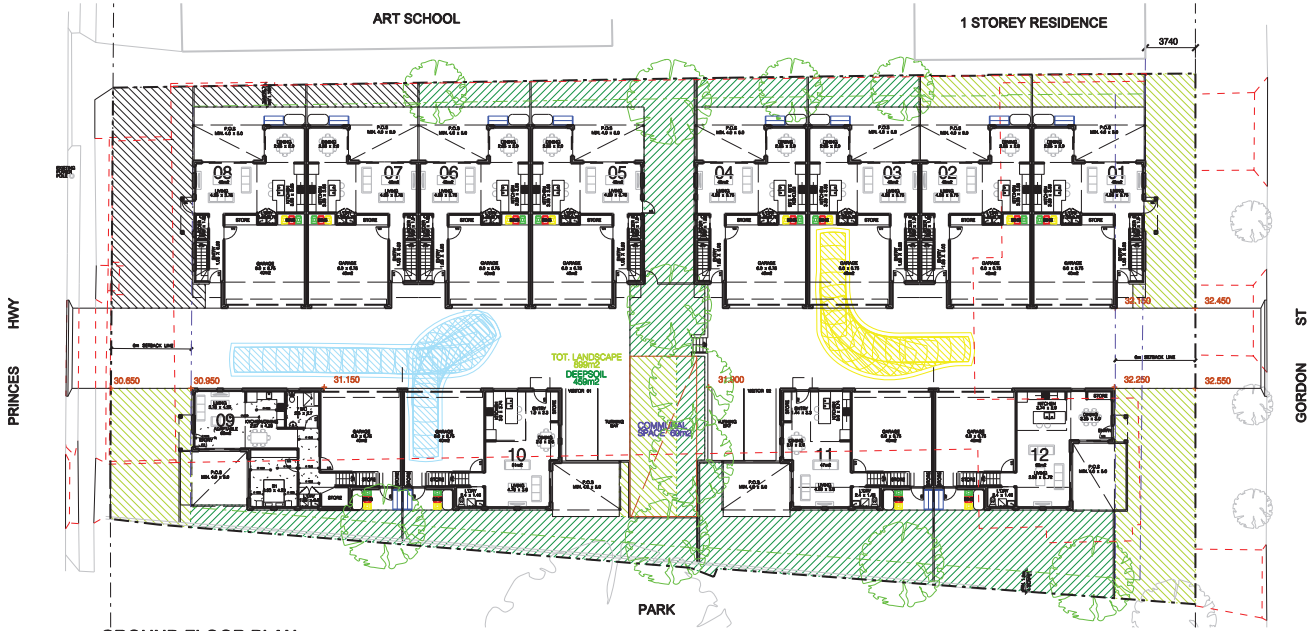
DATUM AHD | CONTOUR INTERVAL 0.5m | DATE SURVEYED 10 & 11/12/19

SOFTWARE: MAGNET



LEVEL 1 PLAN

AREA SUMMARY				
SITE			2939.9	
UNIT	GF(m2)	L1 (m2)	TOTAL ((m2)	CAR SPACE
1	49	69	118	2
2	49	69	118	2
3	49	69	118	2
4	49	69	118	2
5	49	69	118	2
6	49	69	118	2
7	49	69	118	2
8	49	69	118	2
9	68	54	122	2
10	51	77	128	2
11	47	74	121	2
12	52	72	124	2
		TOT. AREA:	1439	
		FSR:	0.49	
		AREA	% OF SITE	
LANDSCAPING		899	30.5792714	
DEEPSOIL		459	15.61277594	
COMMUNAL SPACE		60		



GROUND FLOOR PLAN

D/A

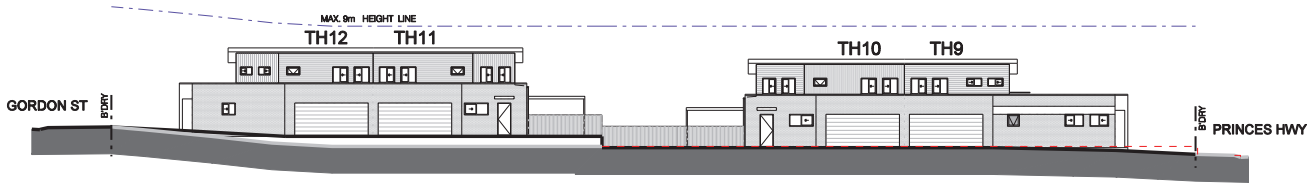
ARCHITECT
urban design masterplanning architecture
JACK TAYLOR ARCHITECTS Pty Ltd
ACN 876 874 469
NSW Architects Board Registration # 7042
19/291 Pacific Highway
North Sydney NSW 2060
AUSTRALIA
T +61 2 9955 9955
F +61 2 9955 7529
E jack@tpa.com.au
drawing and content within are copyright to JACK TAYLOR ARCHITECTS Pty Ltd

PROJECT
RESIDENTIAL DEVELOPMENT
481 - 485 PRINCES HIGHWAY
WOONONA NSW 2517
FOR
FAIRLINECORP PTY. LTD.

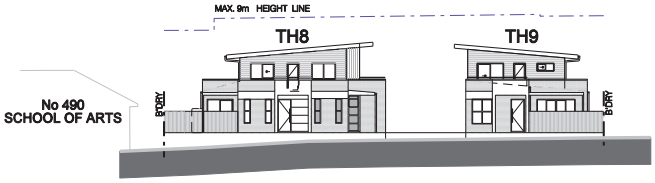
REVISION NO.	DATE	AMENDMENT	NO.	DATE	AMENDMENT
01	17.12.19	ISSUED FOR PRE DA MEETING			

DRAWING NAME
PROPOSED PLANS

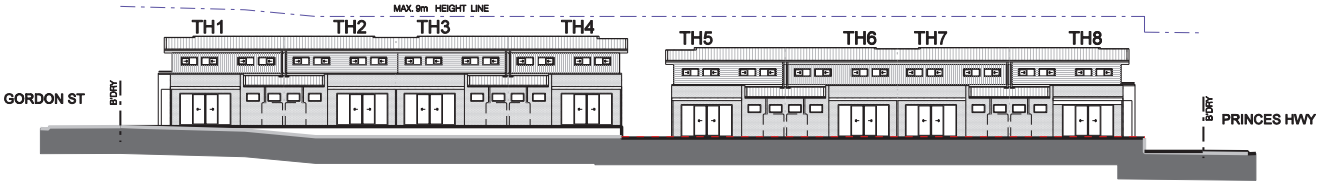
PROJECT NUMBER 20105
SCALE 1:200 @ A1, 1:400 @ A3
DRAWING NUMBER AR 0012
REVISION 01
NORTH



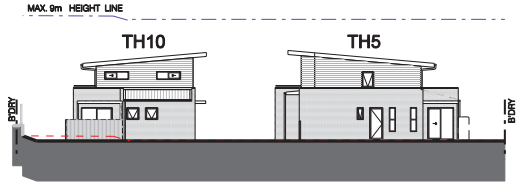
NORTH ELEVATIONS INTERNAL



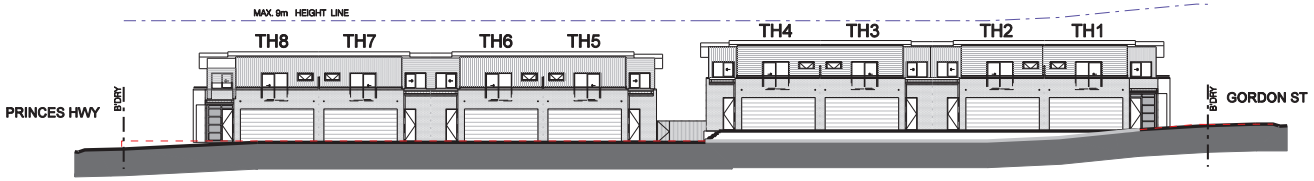
EAST ELEVATIONS (PRINCES HWY)



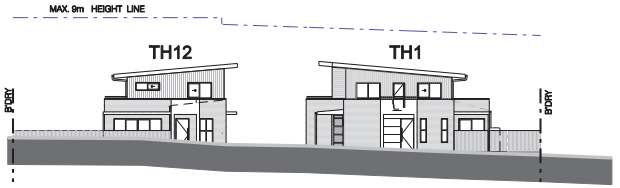
NORTH ELEVATIONS



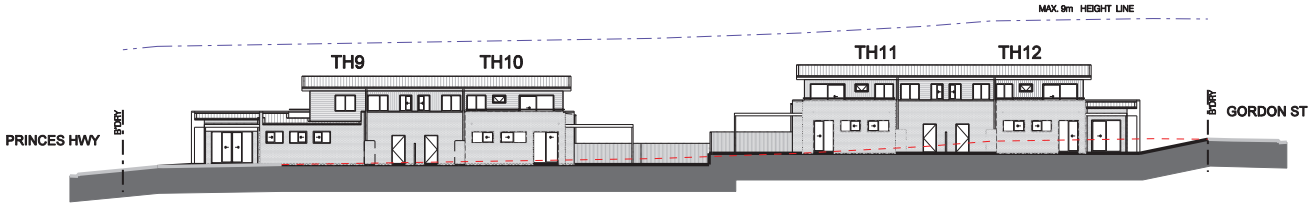
EAST ELEVATIONS INTERNAL



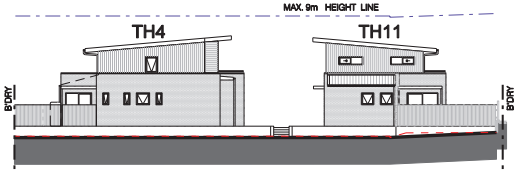
SOUTH ELEVATIONS INTERNAL



WEST ELEVATIONS (GORDON ST)



SOUTH ELEVATIONS



WEST ELEVATIONS INTERNAL

D/A

ARCHITECT
urban design masterplanning architecture
JACK TAYLOR ARCHITECTS Pty Ltd
ACN 075 874 489
NSW Architects Board Registration # 7042
10/281 Pacific Highway
North Sydney NSW 2060
AUSTRALIA
T +61 2 9955 9595
F +61 2 9955 7929
E jack@jta.com.au
drawing and concept ideas are copyright to JACK TAYLOR ARCHITECTS Pty Ltd

PROJECT
RESIDENTIAL DEVELOPMENT
481 - 485 PRINCES HIGHWAY
WOONONA NSW 2517
FOR
FAIRLINECORP PTY. LTD.

REVISION NO.	DATE	AMENDMENT	NO.	DATE	AMENDMENT
01	18.12.19	ISSUED TO PLANNER			

DRAWING NAME
ELEVATIONS

PROJECT NUMBER	SCALE
20105	1:200 @ A1 1:400 @ A3
DRAWING NUMBER	REVISION
AR 0015	01

NORTH

AREA SCHEDULE					
TH Number	Groundfloor (m²)	Level 1 (m²)	Total (m²)	External GF (m²)	External L1 (m²)
TH 1	49.5	69.5	119	40.56	1.9
TH 2	49.5	69.5	119	38.72	0
TH 3	49.5	69.5	119	38.35	0
TH 4	49.5	69.5	119	37.59	0
TH 5	49.5	69.5	119	57.4	0
TH 6	49.5	69.5	119	40.44	0
TH 7	49.5	69.5	119	39.34	0
TH 8	49.5	69.5	119	51.77	1.9
TH 9	70.5	50	120.5	60.55	8.6
TH 10	49.5	64	113.5	76.16	13.4
TH 11	70	54	124	76.27	14.25
TH 12	49.7	73.5	123.2	87.17	15
		Total (m²) :	1433.2		
		Site (m²) :	2939.9		

	Groundfloor (m²)	Level 1 (m²)	Total (m²)
GFA	644.75	810.7	1455.45
		FSR :	0.495067859
Landscaping Total		Total (m²) :	912.66
		% of Total Site	31.04391306
Deepsoil		Total (m²) :	233.97
		% of Total Landscaping	25.63605286
		% of Total Site	7.95843396
		More than 6m width through rear of site	
Landscape behind building line			522.7
		% Site	17.77951631
		% of land scape	57.27214954
Car Parking Resident		@2.0 per + 125sqm dwelling	24
Car Parking Visitor		@0.2 per dwelling	2.4
Total Required			26.4
		Total Provision	
		Resident	12
		Visitor	3
Bike Parking Resident		@1 per 3 dwellings	6
Bike Parking Visitor		@1 per 12 dwellings	2
Communal Open Space		@5m2 per dwelling	60m2

Storage						
TH Number	GF (m²)	L1 (m²)	Total (m²)	GF (m³)	L1 (m³)	Total (m³)
TH 1	3.08	2.00	5.08	7.39	4.80	12.19
TH 2	3.28	2.00	5.28	7.87	4.80	12.67
TH 3	3.08	2.00	5.08	6.78	4.80	11.58
TH 4	3.08	2.00	5.08	7.08	4.80	11.88
TH 5	3.08	2.11	5.19	7.39	5.06	12.46
TH 6	3.28	2.11	5.39	7.87	5.06	12.94
TH 7	3.08	2.11	5.19	7.39	5.06	12.46
TH 8	3.28	2.11	5.39	7.87	5.06	12.94
TH 9	2.55	2.70	5.25	6.12	6.48	12.60
TH 10	5.30	1.54	6.84	12.72	3.70	16.42
TH 11	2.65	2.39	5.04	7.91	5.74	13.65
TH 12	2.65	2.40	5.05	4.62	5.76	10.38

ARCHITECT
urban design
masterplanning
architecture
JACK TAYLOR ARCHITECTS Pty Ltd
ACN 076 874 489
NSW Architects Board Registration # 7042
10/281 Pacific Highway
North Sydney NSW 2060
AUSTRALIA
T +61 2 9956 8655
F +61 2 9956 7929
E jack@jtas.com.au

PROJECT
RESIDENTIAL DEVELOPMENT 481 - 485 PRINCES HIGHWAY WOONONA NSW 2517

FOR
EMERALD PARK ESTATE PTY. LTD.

REVISION

NO.	DATE	AMENDMENT	NO.	DATE	AMENDMENT
01	04.03.20	ISSUED TO CONSULTANTS			
02	23.03.20	ISSUED TO CONSULTANTS			
03	01.04.20	ISSUED TO CONSULTANTS			
04	09.04.20	ISSUED TO CONSULTANTS			
05	17.04.20	PARK ACCESS, BRICK PIER & NOTATION TO REPLACE FENCE ADDED			
A	01.05.20	ISSUED FOR DA			

DRAWING NAME
GROUND FLOOR PLAN O/A

PROJECT NUMBER: 20105
SCALE: 1:200 @ A1, 1:400 @ A3
DRAWING NUMBER: AR 0101
REVISION: A
NORTH

AREA SCHEDULE				
TH Number	Groundfloor (m²)	Level 1 (m²)	Total (m²)	External GF (m²) / L1 (m²)
TH 1	49.5	69.5	119	40.56 / 1.8
TH 2	49.5	69.5	119	38.72 / 0
TH 3	49.5	69.5	119	38.35 / 0
TH 4	49.5	69.5	119	37.59 / 0
TH 5	49.5	69.5	119	57.45 / 0
TH 6	49.5	69.5	119	40.44 / 0
TH 7	49.5	69.5	119	39.34 / 0
TH 8	49.5	69.5	119	51.77 / 1.8
TH 9	70.5	50	120.5	60.55 / 8.6
TH 10	49.5	64	113.5	76.16 / 13.4
TH 11	70	54	124	76.27 / 14.25
TH 12	49.7	73.5	123.2	87.17 / 15
		Total (m²) :	1433.2	
		Site (m²) :	2939.9	
	Groundfloor (m²)	Level 1 (m²)	Total (m²)	
GFA	644.75	810.7	1455.45	
		FSR :	0.495067859	
Landscaping Total		Total (m²) :	912.66	
		% of Total Site	31.04391306	
Deepsoil		Total (m²) :	233.97	
		% of Total Landscaping	25.63605286	
		% of Total Site	7.95843396	
		More than 6m width through rear of site		
Landscape behind building line			522.7	
		% Site	17.77951631	
		% of land scape	57.27214954	
Car Parking Resident		@2.0 per < 125sqm dwelling	24	
Car Parking Visitor		@0.2 per dwelling	2.4	
Total Required			26.4	
		Total Provision		
		Resident	12	
		Visitor	3	
Bike Parking Resident		@1 per 3 dwellings	6	
Bike Parking Visitor		@1 per 12 dwellings	2	
Communal Open Space		@5m2 per dwelling	60m2	

Storage						
TH Number	GF (m²)	L1 (m²)	Total (m²)	GF (m²)	L1 (m²)	Total (m²)
TH 1	3.08	2.00	5.08	7.39	4.80	12.19
TH 2	3.28	2.00	5.28	7.87	4.80	12.67
TH 3	3.08	2.00	5.08	6.78	4.80	11.58
TH 4	3.08	2.00	5.08	7.08	4.80	11.88
TH 5	3.08	2.11	5.19	7.39	5.06	12.46
TH 6	3.28	2.11	5.39	7.87	5.06	12.94
TH 7	3.08	2.11	5.19	7.39	5.06	12.46
TH 8	3.28	2.11	5.39	7.87	5.06	12.94
TH 9	2.55	2.70	5.25	6.12	6.48	12.60
TH 10	5.30	1.54	6.84	12.72	3.70	16.42
TH 11	2.65	2.39	5.04	7.91	5.74	13.65
TH 12	2.65	2.40	5.05	4.62	5.76	10.38

LEGEND

- DCP PRESCRIBED LANDSCAPING
- DCP PRESCRIBED DEEP SOIL PLANTING ZONE
- DCP PRESCRIBED 4mx5m PRIVATE OPEN SPACE
- MISC. LANDSCAPING NOT INCLUDED IN CALCULATIONS
- TPZ ENCROACHMENT
- DCP PRESCRIBED STORAGE
- EXISTING TREES TO BE REMOVED SHOWN DOTTED
- EXISTING STRUCTURE TO BE REMOVED SHOWN DOTTED
- EXISTING STRUCTURE TO BE RETAINED
- PROPOSED WORKS

D/A

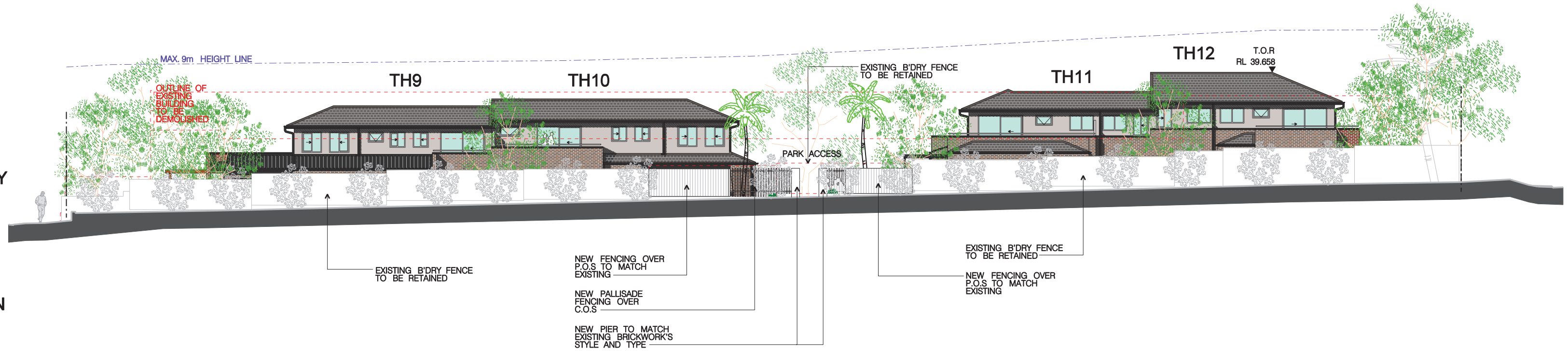
ARCHITECT
urban design masterplanning architecture
JACK TAYLOR ARCHITECTS Pty Ltd
ACN 075 874 488
NSW Architects Board Registration # 7042
10/281 Pacific Highway
North Sydney NSW 2060
AUSTRALIA
T +61 2 9929 6955
F +61 2 9929 7529
E jack@jta.com.au

PROJECT
RESIDENTIAL DEVELOPMENT
481 - 485 PRINCES HIGHWAY
WOONONA NSW 2517
FOR
EMERALD PARK ESTATE PTY. LTD.

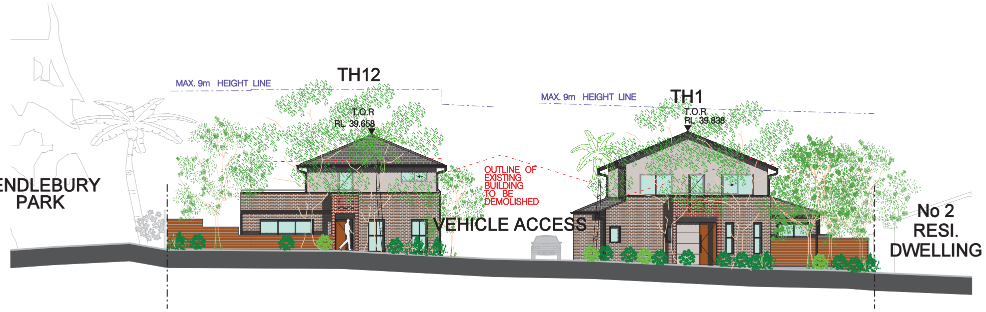
REVISION NO.	DATE	AMENDMENT	NO.	DATE	AMENDMENT
01	04.03.20	ISSUED TO CONSULTANTS			
02	23.03.20	ISSUED TO CONSULTANTS			
03	01.04.20	ISSUED TO CONSULTANTS			
04	09.04.20	ISSUED TO CONSULTANTS			
A	01.06.20	ISSUED FOR DA			

DRAWING NAME
LEVEL 1 PLAN O/A

PROJECT NUMBER 20105
SCALE 1:200 @ A1, 1:400 @ A3
DRAWING NUMBER AR 0102
REVISION A
NORTH

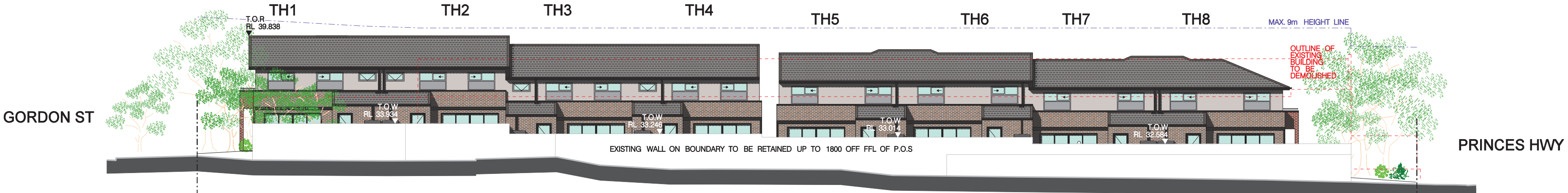


SOUTH ELEVATION



EASTH ELEVATION - GORDON STREET

WEST ELEVATION - PRINCES HIGHWAY



NORTH ELEVATION

D/A

ARCHITECT
urban design
masterplanning
architecture

JACK TAYLOR ARCHITECTS Pty Ltd
ACN 076 874 489
NSW Architects Board Registration # 7042
10/281 Pacific Highway
North Sydney NSW 2060
AUSTRALIA
T +61 2 9956 8655
F +61 2 9956 7929
E jack@jtas.com.au

PROJECT
RESIDENTIAL DEVELOPMENT
481 - 485 PRINCES HIGHWAY
WOONONA NSW 2517
FOR
EMERALD PARK ESTATE PTY. LTD.

REVISION

NO.	DATE	AMENDMENT	NO.	DATE	AMENDMENT
A	01.05.20	ISSUED FOR DA			

DRAWING NAME
OVER ALL EXTERNAL SITE ELEVATIONS

PROJECT NUMBER: 20105
SCALE: 1:150 @ A1, 1:300 @ A3
DRAWING NUMBER: AR 0111
REVISION: A
NORTH
N

Appendix B - Interim audit advice documents

31 July 2020

Brian Weinert
Emerald Park Estate Pty Ltd
Suite 601/12 Century Circuit
Baulkham Hills NSW 2153

Our ref: P507_Council letter

Your ref:

Dear Brian

481 – 485 Princes Highway, Woonona

Interim audit advice 01 - Detailed Site Investigation

1 Introduction

Andrew Kohlrusch of GHD Pty Ltd (the auditor) was engaged by Emerald Park Estate Pty Ltd to conduct an audit of the environmental works being conducted at 481-485 Princes Highway Woonona (the site). It is understood that this audit is a requirement of Wollongong City Council for the development of 12 two-storey residences at the aforementioned site. The audit will be conducted as per the requirements of the *Contaminated Land Management Act* 1997 and will include reviews and commentary on reports based on comparison to requirements of guidelines made or endorsed by the NSW EPA.

2 Contaminated site characterisation

The site has recently been the environmental site assessment, the results of which were presented in the following report prepared by Environmental Consulting Services (ECS):

- *Environmental Site Assessment 481 – 485 Princes Highway Woonona NSW 2517* (the ESA report)

The ESA report stated that up until the 1960s, the site had been used for residential purposes. Since the 1960s there has been a large building covering much of the site. Companies that have owned the site since this time have been involved in steel fabrication and concrete product storage and distribution. The most current land use has been as a storage facility.

The assessment conducted by ECS comprised soil sampling from seven boreholes and two test pits distributed across the site. Groundwater wells were installed at three of the borehole locations. Soil and groundwater samples were tested for a selection of chemicals including heavy metals, hydrocarbon compounds, organochlorine pesticides and asbestos.

The investigation revealed the presence of a thin layer of fill primarily comprising levelling sand underlain by stiff to hard clay. The soil data was compared to investigation levels relevant to a standard residential land use scenario (as defined by NSW EPA). All results were less than the nominated investigation levels with the exception of one arsenic result. Statistical assessment of the arsenic data set demonstrated that the material is suitable for the proposed residential land use. Groundwater had some heavy metals that exceeded nominated investigation levels, but these were deemed to represent regional groundwater quality.

The ESA report recommended that following demolition of the site buildings an inspection of the site surface should be conducted along with appropriate characterisation of material that appears to be contaminated (such as deep fill or stained areas). A Construction Environmental Management Plan (CEMP) that presents protocols for unexpected finds was also recommended.

3 Auditor commentary

The auditor considers that the investigation of the site has generally been conducted in a manner consistent with NSW EPA made or endorsed guidelines and that the data has shown that the likelihood of contamination from former site activities to be low. Given the presence of a building across much of the site, the ESA recommendation of an inspection following demolition of the site buildings, complemented with additional characterisation if warranted, is a prudent step to verify the findings of the ESA. The results of this inspection and additional sampling should be presented in an investigation report prepared as per the NSW EPA *Consultants reporting on contaminated sites* (2020).

The preparation and implementation of a CEMP is an appropriate measure to manage unexpected finds such as fill or underground services that may be revealed following removal of the flooring of the building and other hard surfaces.

4 Concluding remark

This letter should be regarded as interim advice to the overall review and site audit process and should not be considered a Site Audit Statement under the *CLM Act, 1997*. This interim audit advice letter will subsequently be referred to and provided as an Annex to the final Site Audit Statement and Site Audit Report.

If you have any further queries, please do not hesitate to contact the undersigned directly on 9239 7187

Sincerely
GHD Pty Ltd

Andrew Kohlrusch
Principal Environmental Scientist

9 November 2020

Brian Wienert
Emerald Park Estate Pty Ltd
Suite 601/12 Century Circuit
Baulkham Hills NSW 2153

Our ref: 12536991 – IAA02

Your ref:

Dear Brian

481 – 485 Princes Highway, Woonona

Interim audit advice 02 - site contamination management

1 Introduction

Andrew Kohlrusch of GHD Pty Ltd (the auditor) was engaged by Emerald Park Estate Pty Ltd to conduct an audit of the environmental works being conducted at 481-485 Princes Highway Woonona (the site). It is understood that this audit is a requirement of Wollongong City Council (WCC) for the development of 12 two-storey residences at the aforementioned site. The audit is being conducted as per the requirements of the *Contaminated Land Management Act* 1997 and will include reviews and commentary on reports based on comparison to requirements of guidelines made or endorsed by the NSW EPA.

It is understood that the following determination (in relation to site contamination) has been made by the Wollongong Local Planning Panel in considering the development application (*Determination and Statement of Reasons* 3 November 2020).

The Panel must be satisfied that the proposal is suitable for its use having regard to SEPP 55. At present it is not. Further assessment is required together with a Remediation Action Plan and verification from a site auditor is to be provided.

2 Site contaminated management

The site has recently been the subject of an environmental site assessment, the results of which were presented in the following report prepared by Environmental Consulting Services (ECS):

- *Environmental Site Assessment 481 – 485 Princes Highway Woonona NSW 2517* (the ESA report)

With reference to interim audit advice 01 issued by the auditor on 31 July 2020, the auditor considered that the site investigation as presented in the ESA report had conducted in a manner consistent with NSW EPA made or endorsed guidelines. The data presented in the ESA report has shown that the likelihood of contamination from former site activities to be low (consistent with the identified historical information). The ESA report did not identify any soil or groundwater contamination requiring remediation and no remedial action plan (RAP) was recommended.

It was acknowledged however in the ESA report that owing to the presence of a building across much of the site, an inspection following demolition of the site building should be conducted and complemented

with additional characterisation, if warranted. The auditor agrees that this is a prudent step to verify the findings of the ESA. The results of this inspection and additional sampling should be presented in an investigation report prepared as per the NSW EPA *Consultants reporting on contaminated sites* (2020).

A Construction Environmental Management Plan (CEMP) that presents protocols for unexpected finds was also recommended in the ESA report. The preparation and implementation of a CEMP is an appropriate measure to manage unexpected finds such as fill or underground services that may be revealed following removal of the flooring of the building and other hard surfaces.

3 Concluding remark

The auditor considers that at this point, there is no contamination that requires remediation, but the approach to inspect (and sample if necessary) the footprint of the building will ensure that there are steps to consider contamination assessment and management (if required) as part of the development. If contamination is identified, Council should be informed that the contaminated material will be managed as part of the CEMP. If contamination is identified and warrants management and/or remediation, a validation report should be prepared as per the NSW EPA *Consultants reporting on contaminated sites* verifying that contaminated soil/groundwater has been remediated. The validation report should be reviewed by a NSW EPA site auditor who will then prepare a site audit statement and site audit report confirming the suitability of the site for the proposed land use.

This letter should be regarded as interim advice to the overall review and site audit process and should not be considered a Site Audit Statement under the *CLM Act, 1997*. This interim audit advice letter will subsequently be referred to and provided as an Annex to the final Site Audit Statement and Site Audit Report.

If you have any further queries, please do not hesitate to contact the undersigned directly on 9239 7187

Sincerely
GHD Pty Ltd

Andrew Kohlrusch
Principal Environmental Scientist

23 December 2020

Brian Weinert
Emerald Park Estate Pty Ltd
Suite 601/12 Century Circuit
Baulkham Hills NSW 2153

Our ref: 12536991 – IAA03

Your ref:

Dear Brian

481 – 485 Princes Highway, Woonona

Interim audit advice 03 - site contamination assessment

1 Introduction

Andrew Kohlrusch of GHD Pty Ltd (the auditor) was engaged by Emerald Park Estate Pty Ltd to conduct an audit of the environmental investigation works being conducted at 481-485 Princes Highway Woonona (the site). It is understood that this audit is a requirement of Wollongong City Council (WCC) for the development of 12 two-storey residences at the aforementioned site. The audit is being conducted as per the requirements of the *Contaminated Land Management Act* 1997 and will include reviews and commentary on reports based on comparison to requirements of guidelines made or endorsed by the NSW EPA.

It is understood that the following determination (in relation to site contamination) has been made by the Wollongong Local Planning Panel in considering the development application (*Determination and Statement of Reasons* 3 November 2020).

The Panel must be satisfied that the proposal is suitable for its use having regard to SEPP 55. At present it is not. Further assessment is required together with a Remediation Action Plan and verification from a site auditor is to be provided.

2 Site contaminated assessment

The site has been the subject of two environmental site assessments, the results of which were presented in the following report prepared by Environmental Consulting Services (ECS):

- *Environmental Site Assessment 481 – 485 Princes Highway Woonona NSW 2517* (the May 2020 ESA report), and
- *Addition* (sic) *Environmental Site Assessment 481 – 485 Princes Highway Woonona NSW 2517* (the December 2020 ESA report)

2.1 May 2020 ESA report

The May 2020 ESA report indicated that the site was assessed as follows:

- Soil samples were collected from seven boreholes and two test pits distributed across the site.

- Groundwater wells were installed at three of the borehole locations.
- Soil and groundwater samples were tested for a selection of chemicals including heavy metals, hydrocarbon compounds, organochlorine pesticides and asbestos.

The key findings of the assessment were:

- There was a thin layer of sandy fill (levelling sand) across the site. This was underlain by natural, stiff clay.
- Statistical analysis of the soil data set and comparison of the statistical data to NSW EPA investigation levels for residential sites demonstrated that there was no contaminated soil requiring remediation and/or management.

ECS recommended that inspection of the soils underneath the building slab should be conducted following demolition and preparation of a construction environmental management plan (CEMP).

With reference to interim audit advice 01 issued by the auditor on 31 July 2020, the auditor considered that the May 2020 ESA report had been conducted in a manner consistent with NSW EPA made or endorsed guidelines. The data presented in the ESA report demonstrated that the likelihood of contamination from former site activities to be low (consistent with the identified historical information).

2.2 December 2020 ESA report

In response to correspondence issued by the Wollongong Local Planning Panel on 3 November 2020 that it considered further assessment was required, an additional assessment of the site was conducted by ECS in December 2020.

The December 2020 ESA report indicated that the site was assessed as follows:

- Soil samples were collected from four additional boreholes drilled within the footprint of the existing building.
- One soil sample from each of the boreholes was tested for a selection of chemicals including heavy metals, hydrocarbon compounds.

The key findings of the assessment were:

- There was a thin (150mm) layer of sandy fill (levelling sand) recorded at each of the borehole locations. This was underlain by natural, stiff clay. This observation was consistent with the findings presented in the May 2020 ESA report.
- Statistical analysis of the soil data set and comparison of the statistical data to NSW EPA investigation levels for residential sites demonstrated that there was no contaminated soil requiring remediation and/or management. The auditor noted that the range of recorded heavy metal soil concentrations were similar in both the May 2020 ESA report and the December 2020 ESA report. All other analysed chemicals were not detected.

The December 2020 ESA report concluded that there is no longer a need to inspect the site following demolition and that a CEMP is not warranted.

3 Concluding remark

The auditor considers that the assessment reports prepared by ECS have been prepared in a manner consistent with relevant NSW EPA made or endorsed guidelines and the following comments are made:

- The site has been assessed as per relevant NSW EPA guidelines in terms of the number and distribution of sampling locations and the tested chemicals.
- The chemical testing results (or statistical data sets) for both sampling programs were all less than the NSW EPA criteria for the proposed development.
- No further assessment or remediation is necessary.
- For the purposes of SEPP55, the consent authority can be satisfied that the land is not contaminated. On the basis of the information reviewed by the auditor, a site audit statement can be prepared stating that the site is suitable for residential land use.

This letter should be regarded as interim advice to the overall review and site audit process and should not be considered a Site Audit Statement under the *CLM Act, 1997*. This interim audit advice letter will subsequently be referred to and provided as an Annex to the final Site Audit Statement and Site Audit Report.

If you have any further queries, please do not hesitate to contact the undersigned directly on 9239 7187

Sincerely
GHD Pty Ltd

Andrew Kohlrusch
Principal Environmental Scientist

ENVIRONMENTAL CONSULTING SERVICES

12 March 2021

Mr Davide Menozzi
GHD
Level 11, 200 Crown Street
Wollongong NSW 2500

Dear Davide

Re: ADDITION ENVIRONMENTAL SITE ASSESSMENT
481 - 485 Princes Highway, Woonona NSW 2517

Environmental Consulting Services (ECS) is pleased to provide this additional information regarding the *Addition Environmental Site Assessment* conducted at 481 - 485 Princes Highway,Woonona NSW 2517.

Issue	Response
Rinsate blanks, trip blanks and trip spikes	The field quality assurance / quality control (QA/QC) procedures adopted during this assessment included: field decontamination protocols; sample labelling storage and handling methodologies. Field decontamination involved rinsing of sampling equipment with potable water. All samples were labelled in the field with the sample location recorded. The QA/QC procedures did not include the preparation of a rinse sample or trip blank. It is acknowledged that rinse samples assist in the identification of cross contamination introduced during sampling procedures and that a trip blank may help identify the introduction of contaminants during sample handing and thus both assist in the identification of false positive (ie contaminated) results. Whilst the omission of these samples needs to be considered during data evaluation, it is considered that, because of the low concentrations of VOCs, the lack of these QC samples has not unduly affected the usability or representativeness of the data. In addition a trip spike was not prepared and tested during this investigation. The tripe spike would show where sample handling has resulted in the loss of volatile contaminants. In this investigation to minimise the loss of volatile contaminants laboratory prepared sample jars and vials were used and filled as far as practical to minimise headspace. Samples were also chilled as soon as practical whilst on Site during collection. Given the low concentrations of volatiles the absence of a trip spike has not unduly affected the usability or representativeness of the data. The analytical laboratory also conducted a QA/QC program. This program included; the analysis of one blank sample and one spiked sample with every batch of samples tested; the repeat analysis of approximately 10% of the samples; and sending a triplicate sample to a different laboratory for quality assurance. The results of this laboratory QA/QC program are included within the laboratory reports.

Field screening	The conceptual site model noted the potential for the use of the Site for metal fabrication may result in the spillage or leakage of machine oils on the ground surface and impacts from metals wastes. Volatile organic chemicals may have been used at the site in small quantities for cleaning purposes but the quantities are expected to have been small and the mechanism for contamination through surface spills or leaks. The mechanism for contamination (spills/leaks) would allow the volatile chemicals to evaporate. Thus the actual potential for volatile contaminants beneath the pavements at the site was considered negligible. On this basis screening using a PID was not undertake. It is noted that organic odours were not encountered during the investigation.
Sampling points	Sampling points were measured of site features (building corners)
Sampling field forms	Field forms were limited to borehole logs.
Methodologies	Soil sample methodologies were consistent with the DSI. That is standard practices were undertaken throughout the project.

It is noted that the additional sampling is equivalent to a duplicate evaluation of surface material. This duplication provides additional certainty of the conditions at the Site.

Yours sincerely

Simon Caples

Appendix C – Summary of results

Environmental Site Assessment – Summary of Soil Results

Sample Number	BH1 S1	BH1 S2	BH2 S1	BH2 S2	BH3 S1	BH4 S1	BH4 S2	SAC	
								HIL/HSL	EIL/ESL
Heavy Metals									
Arsenic	2.9	11	5	21	14	**110**	29	100	100
Cadmium	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	20	
Chromium	18	84	9	52	65	53	81	100 (VI)	400 (III)
Copper	18	15	190	< 5	< 5	7.2	< 5	6 000	190
Lead	< 5	28	100	22	27	44	22	300	1100
Mercury	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.4	< 0.1	40	
Nickel	< 5	17	9.3	< 5	< 5	19	5.8	400	170
Zinc	11	39	200	< 5	< 5	25	5.3	7 400	400
Total Recoverable Hydrocarbons (TRH)									
Naphthalene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5	
TRH F1	< 20	< 20	< 20	< 20	< 20	< 20	< 20	50	180
TRH F2	< 50	< 50	< 50	< 50	< 50	< 50	< 50	280	120
Monocyclic Aromatic Hydrocarbons									
Benzene	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.7	65
Toluene	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	480	105
Ethylbenzene	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NL	125
Xylene (Total)	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	110	45
Polycyclic Aromatic Hydrocarbons (PAH)									
Benzo(a)pyrene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	3	0.7
Total PAH	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	300	
Organochlorine Pesticides									
DDT+DDE+DDD	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	240	180 (DDT)
Aldrin & dieldrin	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	6	
Chlordane	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	50	
Endosulfan	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	270	
Endrin	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	10	
Heptachlor	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	6	
HCB	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	10	
Methoxychlor	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	300	
Toxaphene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	20	
Polychlorinated Biphenyls									
PCBs	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1	

Notes: All measurements in mg/kg
Bold type represents level above SAC (EIL)

Environmental Site Assessment – Summary of Soil Results (continued)

Sample Number	BH5 S1	BH6 S1	BH7 S1	TP1	TP2	D	T	SAC	
								HIL/HSL	EIL/ESL
Heavy Metals									
Arsenic	18	11	4.1	10	28	8.9	11	100	100
Cadmium	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	20	
Chromium	57	31	21	30	55	27	39	100 (VI)	190 (III)
Copper	< 5	< 5	< 5	5.9	< 5	9.2	12	6 000	60
Lead	26	20	21	28	24	38	44	300	110
Mercury	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	40	
Nickel	< 5	< 5	< 5	5.6	5.1	< 5	5.8	400	30
Zinc	6.8	< 5	< 5	23	8	31	37	7 400	70
Total Recoverable Hydrocarbons (TRH)									
Naphthalene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5	
TRH F1	< 20	< 20	< 20	< 20	< 20	< 20	< 20	50	180
TRH F2	< 50	< 50	< 50	< 50	< 50	< 50	< 50	280	120
Monocyclic Aromatic Hydrocarbons									
Benzene	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.7	65
Toluene	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	480	105
Ethylbenzene	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NL	125
Xylene (Total)	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	110	45
Polycyclic Aromatic Hydrocarbons (PAH)									
Benzo(a)pyrene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	3	0.7
Total PAH	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	300	
Organochlorine Pesticides									
DDT+DDE+DDD	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	240	180 (DDT)
Aldrin & dieldrin	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	6	
Chlordane	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	50	
Endosulfan	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	270	
Endrin	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	10	
Heptachlor	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	6	
HCB	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	10	
Methoxychlor	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	300	
Toxaphene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	20	
Polychlorinated Biphenyls									
PCBs	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1	

Notes: All measurements in mg/kg
Bold type represents level above SAC (EIL)

Environmental Site Assessment – Summary of Water Results

Contaminant	BH1	BH2	BH5	D	T	Site Assessment Criteria		
						ANZECC	NEPM	Drinking
Monocyclic Aromatic Hydrocarbons								
Benzene	< 1	< 1	< 1	< 1	< 1	950	5000	1
Toluene	< 1	< 1	< 1	< 1	< 2	--	NL	800
Ethylbenzene	< 1	< 1	< 1	< 1	< 2	--	NL	600
Xylene	< 3	< 3	< 3	< 3	< 2	200[4]/350[5]	NL	300
Total Recoverable Hydrocarbons								
Naphthalene	< 10	< 10	< 10	< 10	< 5	16	NL	--
TRH F1	< 20	< 20	< 20	< 20	< 20	--	NL	--
TRH F2	< 50	< 50	< 50	< 50	< 100	--	NL	--
Heavy Metals								
Arsenic	2	< 1	< 1	< 1	4	13	--	10
Cadmium	< 0.2	< 0.2	< 0.2	< 0.2	< 0.1	0.2	--	2
Chromium (VI)	< 1	< 1	< 1	< 1	**20**	1	--	50
Copper	< 1	< 1	< 1	< 1	**70**	1.4	--	2000
Lead	< 1	< 1	< 1	< 1	**27**	3.4	--	10
Mercury	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.6	--	1
Nickel	< 1	2	< 1	3	8	11	--	2
Zinc	< 5	1	< 5	16	**37**	8	--	--
Polycyclic Aromatic Hydrocarbons								
Benzo(a)pyrene	< 1	< 1	< 1	< 1	< 1	--	--	0.01
Total PAH	< 1	< 1	< 1	< 1	< 1	--	--	--

Notes: All results in µg/L
All samples filtered in the laboratory for metals except for sample T.

Additional Environmental Site Assessment – Summary of Soil Results

Sample Number	WA	WB	WC	WD	WX	SAC	
						HIL/HSL	EIL/ESL
Heavy Metals							
Arsenic	18	59	29	34	24	100	100
Cadmium	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	20	
Chromium (Total)	70	46	88	**130**	95	100 (VI)	400 (III)
Copper	< 5	15	< 5	8.3	9.2	6 000	190
Lead	29	55	25	44	33	300	1100
Mercury	< 0.1	0.1	< 0.1	< 0.1	< 0.1	40	
Nickel	< 5	12	5.6	< 5	< 5	400	170
Zinc	37	39	7.2	23	45	7 400	400
Total Recoverable Hydrocarbons (TRH)							
Naphthalene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	5	
TRH F1	< 20	< 20	< 20	< 20	< 20	50	180
TRH F2	< 50	< 50	< 50	< 50	< 50	280	120
Monocyclic Aromatic Hydrocarbons							
Benzene	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.7	65
Toluene	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	480	105
Ethylbenzene	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NL	125
Xylene (Total)	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	110	45
Polycyclic Aromatic Hydrocarbons (PAH)							
Benzo(a)pyrene	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	3	0.7
Total PAH	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	300	

Notes: All measurements in mg/kg
Bold type represents level above SAC (EIL)

Appendix D - QAQC Evaluation

Appendix D - Quality assurance and quality control review

Client: Emerald Park Estate Pty Ltd
Site: 481-485 Princes Highway in Woonona
Reports: ECS (2020a), *Environmental site assessment – 481 - 485 Princes Highway Woonona NSW 2517*.
ECS (2020b), *Addition environmental site assessment – 481 - 485 Princes Highway Woonona NSW 2517*.

Item	ECS (2020a)	ECS (2020b)
Quality assurance program		
Statement of pre-determined DQOs for field and laboratory procedures, including quantitative DQOs	Yes Presented in section 4.	Yes Presented in section 4.
DQOs state the problem, identify goals of the study, identify information inputs, define the boundaries of the study, develop an analytical approach, specify performance or acceptance criteria and outline the plan for obtaining data	Yes The auditor noted the absence of temporal boundaries. This is not considered to materially affect the conclusion of the SAR.	Yes The auditor noted the absence of temporal boundaries. This is not considered to materially affect the conclusion of the SAR.
Quality plan designed to achieve DQOs assessing accuracy, precision, comparability, representativeness and completeness of data	Yes Quality assurance and quality control section presented in section 9.3.	Yes Quality assurance and quality control assessment presented in section 7.1.
Procedures for assessing chemical data to determine if DQOs are met, including quantitative DQOs (e.g. standard deviation, % recovery, RPDs)	Yes	Yes
Procedures that describe the actions if DQOs not met	Yes Presented in DQOs in section 9.3.	Yes Presented in section 7.1.
Sampling and analytical program		
Site investigation objectives and a brief background provided	Yes	Yes
Summary of CSM provided	Yes Presented in section 6.	Yes Presented in Section 3.
Data gap analysis provided that reviews existing information	Yes Data gaps referred mainly to the site history as no previous reports were available.	Yes The report has the objective of filling data gaps identified by ECS (2020a). For existing information

Item	ECS (2020a)	ECS (2020b)
		and data gaps the report refers to ECS (2020a).
Preparation of a site specific health and safety plan and other necessary pre-mobilisation tasks	No The auditor considered this requirement as not relevant to the audit given it is not focused on health and safety procedures.	No The auditor considered this requirement as not relevant to the audit given it is not focused on health and safety procedures.
Assessment includes all relevant environmental media (e.g. soil, dust, surface water, groundwater, air, sediments and biota)	Yes Soil and groundwater were assessed.	Yes Soil beneath the main building was assessed.
Sampling is representative of the site, based on selection of appropriate sampling points stated in sampling plan. Included are details of analytes to be monitored, sampling pattern/frequency, and number of samples, location and depth of sampling points	Yes The sampling design is detailed in section 7. Sampling points and frequency were selected based on the NSW EPA *Sampling Design Guidelines* (1995).	Yes The sampling design was presented in ECS (2020a). ECS (2020b) aims at providing additional data and filling knowledge gaps identified in the previous study.
Acceptability of sample collection, handling and transportation in accordance with written procedures	Yes Standard industry methods were used.	Yes Sampling, handling and transportation methods were not clearly described. However, the report stated that appropriate field sampling methodologies were utilised. Methods were detailed in ECS (2020a). In addition, the laboratory noted that samples were correctly preserved, stored in appropriate containers with minimal headspace, received within holding times and showing attempt to chill.
Sample analyses use appropriate methodologies in NATA (or equivalent) accredited laboratories for each analyte & matrix	Yes Samples sent to NATA accredited laboratories for analysis.	Yes Samples sent to NATA accredited laboratories for analysis.
Appropriate sampling methods & procedures, field screening methods and analysis methods are outlined	Yes The auditor noted that a photoionisation detector was not used as field screening method.	Yes Sampling methods and procedures were not clearly stated. However, the report indicated that appropriate field sampling methodologies were utilised. Methods were detailed in ECS (2020a). The auditor noted that a photoionisation detector

Item	ECS (2020a)	ECS (2020b)
		or similar screening methods were not used.
Detection limits for each chemical of potential concern are appropriate for use in assessment of risk	Yes Detection limits were less than nominated assessment levels.	Yes Detection limits were less than nominated assessment levels.
For dynamic/reactive sampling, methods for analysing and interpreting field data are outlined	Non applicable.	Non applicable.
Field QAQC		
Use of standardised field sampling forms	Yes Chain of custody forms and bore hole logs provided.	Yes Chain of custody forms were used. No sampling forms and bore hole logs were provided. However, soil conditions encountered were summarised in Table 5.1.
Sampling team	Yes Noted on COC forms and bore hole logs.	Yes Noted on COC forms and bore hole logs.
Sampling methods including type of container used, labelling process, order and degree of filling, preservation, labelling, logging, custody	Yes Described in section 7.	Yes Sampling methods were not clearly described. However, the report stated that appropriate field sampling methodologies were adopted. Methods were detailed in ECS (2020a). The laboratory documentation noted that samples were stored in appropriate containers with minimal headspace, correctly preserved, received within holding times and showing attempt to chill. Chain of custody documentation was provided.
Decontamination procedures between sampling	Yes Described in section 7.3.	Yes Described in section 5.1.
Logs for each sample, including time, date, location, sampler, duplicate location & type, chemical analyses to be performed, sample preservation method, site observations & weather	Yes Sufficient details were provided in bore hole logs and throughout the report. Weather conditions were not commented. Given the matrices assessed and that the site was mostly paved, it is considered unlikely that weather would materially	Yes Sufficient details were provided throughout the report. Bore hole logs were not provided but subsurface conditions were summarised in Table 5.1, which included appropriate information. Weather conditions were not commented. Given

Item	ECS (2020a)	ECS (2020b)
	affect data quality.	sampling comprised collection of soil beneath the main building, the auditor considers unlikely that weather would materially affect data quality.
COC for each sample, including sampler, sample nature, collection date, analyses to be performed, preservation method, dispatch time, condition of samples at dispatch and courier(s)	Yes	Yes
Sample duplication/splitting techniques	Yes Splitting methodologies were not described. However, ECS stated that appropriate field sampling techniques were adopted and provided a written response to auditor queries on the QC program.	Yes Splitting methodologies were not described. However, ECS stated that appropriate field sampling techniques were adopted and provided a written response to auditor queries on the QC program.
Quality control samples, including:		
— background samples	Non applicable	Non applicable
— field duplicate samples	Yes	Yes
— split samples	Yes	No
— rinsate blanks	No	No
— field blanks	No	No
— trip blanks	No	No
— laboratory prepared trip spike samples	No	No
Background sample results	Non applicable	Non applicable
Results of QC samples eg field blanks, background, rinsates, trip blanks	Yes Presented in section 9.3. Only results for metals were provided as all other contaminant concentrations were below the laboratory limit of reporting (LOR).	Yes Calculated RPDs were presented in Table 7.2. Only values for metals were provided as all other contaminant concentrations were below the LOR.
Laboratory prepared trip spikes for volatile analytes and accompanying results	No Not collected.	No Not collected.
Field instrument calibrations (when used)	Not applicable as field instruments that require calibration, such as water quality meter or	No, not applicable as Filed instruments that require calibration, such as PID, were not used.

Item	ECS (2020a)	ECS (2020b)
	photoionisation detector (PID), were not used.	
Tabulate field parameter measurements	Not applicable Field parameters were not recorded.	Not applicable Field parameters were not recorded.
Laboratory QAQC		
Copy of completed COC including acknowledgment of receipt, conditions of samples on receipt and identity of samples included in shipments	Yes Listed on certificate of analysis	Yes Listed on certificate of analysis
Record of holding times and compliance with methods	Yes Listed on laboratory certificates of analysis	Yes Listed on laboratory certificates of analysis
Analytical methods used		
– Laboratory accreditation for methods used	Yes Listed on certificate of analysis	Yes Listed on certificate of analysis
– Performance in interlaboratory trials for methods used, where available	Not provided by laboratories. However, they were accredited by NATA.	Not provided by the laboratory. However, Eurofins was accredited by NATA.
Description & % recovery of surrogates & spikes	Yes	Yes
Instrument detection limits and MDLs	No They are not presented by the laboratories reports. Notably, laboratories were accredited by NATA and provided LOR lower than the adopted assessment criteria..	No They are not presented by the laboratory reports. Notably, Eurofins was accredited by NATA and provided LOR lower than the adopted assessment criteria.
Matrix or PQLs and limit of reporting for each analyte in each media	Yes	Yes
Quality control samples:		
– duplicates	Yes	Yes However, laboratory duplicate samples were not part of ECS's batch. This is commonly accepted for laboratory QAQC.
– method blanks	Yes	Yes
– surrogates	Yes	Yes

Item	ECS (2020a)	ECS (2020b)
– matrix spikes	Yes	Yes
Laboratory standard charts	No They were not provided by the laboratories. Their absence has no material effect on data quality.	No They were not provided by Eurofins. Their absence has no material effect on data quality.
◗ **QAQC data evaluation**		
Evaluation of QAQC with DQOs including: documentation completeness, data completeness, data comparability (see below), data representativeness	Yes Section 9.3	Yes Section 7.1
Precision & accuracy of sampling & analysis for each analyte in each matrix, advising reliability, unreliability or qualitative value of data	Yes	Yes
Data comparability including bias assessment, e.g. different personnel, methodologies, times, spatial and temporal changes etc	No Based on the information presented by ECS the auditor considers that the absence of this information has no material effect on data quality.	No Based on the information presented by ECS the auditor considers that the absence of this information has no material effect on data quality.
Results of intra and interlaboratory QC checks	Yes Presented in section 9.3. Only results for metals were provided as all other contaminant concentrations were below the laboratory LOR.	Yes Presented in section 7.1. Only results for metals were provided as all other contaminant concentrations were below the LOR. One intra-laboratory duplica sample was collected. No inter-laboratory duplicate samples were collected.
Names of laboratories and details of their accreditation	Yes	Yes
Discussion of appropriateness of non-standard test methods (incl. sample prep; method source and validation)	Not applicable All analytical methods were standard methods.	Not applicable All analytical methods were standard methods.
PQLs and MDLs for all relevant matrices	Yes	Yes.
Acceptance limit(s) for each QC test (e.g. RPDs, recoveries) included	Yes Listed on laboratory reports.	Yes Listed on laboratory reports.
Acceptance limits for each calibration standard	Yes Details reported by the laboratories.	Yes Details reported by the laboratories.
Results for all data tabulated according to each type of soil, fill, groundwaters, surface water and sediments, with appropriate statistical	Yes	Yes

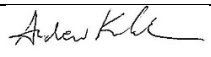
Item	ECS (2020a)	ECS (2020b)
analysis.	Presented in section 9.2	Presented in section 7.0.
QC results relevant to the sample analyses	Yes	Yes
QAQC analytical methods		
Field Methods		
Applicability and appropriateness of field screening methods discussed.	Not aplicable No field screening was carried out other than visual assessment.	Not aplicable No field screening was carried out other than visual assessment.
Adequacy of calibration of field monitoring equipment and validation of field measurements	Not applicable as no field screening was performed..	Not applicable as no field screening was performed..
Laboratory screening methods		
Applicability and limitations of analytical screening techniques appropriately discussed	Non applicable	Non applicable
Analytical screening method performance expressed, and based on acceptable false negative rate	Non applicable	Non applicable
Methods specific for contaminants		
Sensitivity of analytical methods appropriate for assessment of risk	Yes	Yes
Precision and accuracy criteria in quality plan meet performance of 95% of laboratories in recognised inter-laboratory trials	Not presented and considered not applicable for this assessment.	Not presented and considered not applicable for this assessment.

GHD

Level 15
133 Castlereagh Street
T: 61 2 9239 7100 F: 61 2 9239 7199 E: sydmail@ghd.com

12536991-SAR

Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	D. Menozzi	A Kohlrusch		A Kohlrusch		12 March 2021

NSW Site Auditor Scheme

Site Audit Statement

A site audit statement summarises the findings of a site audit. For full details of the site auditor's findings, evaluations and conclusions, refer to the associated site audit report.

This form was approved under the *Contaminated Land Management Act 1997* on 12 October 2017.

For information about completing this form, go to Part IV.

Part I: Site audit identification

Site audit statement no. 063 – 12536991

This site audit is a:

☐ ~~statutory audit~~

☑ non-statutory audit

within the meaning of the *Contaminated Land Management Act 1997*.

Site auditor details

(As accredited under the *Contaminated Land Management Act 1997*)

Name Andrew Kohlrusch

Company GHD Pty Ltd

Address 133 Castlereagh Street, Sydney

Postcode 2000

Phone 0447 695 055

Email andrew.kohlrusch@ghd.com

Site details

Address 481-485 Princes Highway Woonona NSW

Postcode 2517

Property description

(Attach a separate list if several properties are included in the site audit.)

Lot 1 in DP 86796

Local government area: Wollongong City Council

Area of site (include units, e.g. hectares): 2,940 m^2

Current zoning: R2 – Low Density Residential under *Wollongong Local Environmental Plan 2009*

Regulation and notification

To the best of my knowledge:

☐ ~~**the site is** the subject of a declaration, order, agreement, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985,* as follows: (provide the no. if applicable)~~

- ☐ ~~Declaration no.~~
- ☐ ~~Order no.~~
- ☐ ~~Proposal no.~~
- ☐ ~~Notice no.~~

☒ **the site is not** the subject of a declaration, order, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985*.

To the best of my knowledge:

☐ ~~the site **has** been notified to the EPA under section 60 of the *Contaminated Land Management Act 1997*~~

☒ the site **has not** been notified to the EPA under section 60 of the *Contaminated Land Management Act 1997*.

Site audit commissioned by

Name Brian Weinert

Company Emerald Park Estate Pty Ltd

Address Suite 601/12 Century Circuit, Norwest Central, Baulkham Hills NSW

Postcode 2153

Phone

Email bweinert@fairlinecorp.com.au

Contact details for contact person (if different from above)

Name

Phone

Email

Nature of statutory requirements (not applicable for non-statutory audits)

☐ Requirements under the *Contaminated Land Management Act* 1997 (e.g. management order; please specify, including date of issue)

☐ Requirements imposed by an environmental planning instrument (please specify, including date of issue)

☐ Development consent requirements under the *Environmental Planning and Assessment Act 1979* (please specify consent authority and date of issue)

☐ Requirements under other legislation (please specify, including date of issue)

Purpose of site audit

☒ **A1** To determine land use suitability

Intended uses of the land: Residential

~~OR~~

~~☐ **A2** To determine land use suitability subject to compliance with either an active or passive environmental management plan~~

~~Intended uses of the land:~~

~~OR~~

~~(Tick all that apply)~~

~~☐ **B1** To determine the nature and extent of contamination~~

~~☐ **B2** To determine the appropriateness of:~~

~~☐ an investigation plan~~

~~☐ a remediation plan~~

~~☐ a management plan~~

~~☐ **B3** To determine the appropriateness of a **site testing plan** to determine if groundwater is safe and suitable for its intended use as required by the *Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017*~~

~~☐ **B4** To determine the compliance with an approved:~~

~~☐ **voluntary management proposal** or~~

~~☐ **management order** under the *Contaminated Land Management Act 1997*~~

~~☐ **B5** To determine if the land can be made suitable for a particular use (or uses) if the site is remediated or managed in accordance with a specified plan.~~

~~Intended uses of the land:~~

Information sources for site audit

Consultancies which conducted the site investigations and/or remediation:

Environmental Consulting Services (ECS)

Titles of reports reviewed:

ECS (2020a), *Environmental site assessment – 481 - 485 Princes Highway Woonona NSW 2517*. Dated 29 May 2020.

ECS (2020b), *Addition environmental site assessment – 481 - 485 Princes Highway Woonona NSW 2517*. Dated 16 December 2020 (hereafter referred to as 'the additional ESA').

Other information reviewed, including previous site audit reports and statements relating to the site:

No other reports or statements were available for the site.

Site audit report details

Title: *Emerald Park Estate Pty Ltd, 481 to 485 Princes Highway Woonona – Site audit report*

Report no. 12536991 - SAR Date 12/03/2021

Part II: Auditor's findings

Please complete either Section A1, Section A2 or Section B, not more than one section. (Strike out the irrelevant sections.)

- Use **Section A1** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **without the implementation** of an environmental management plan.
- Use **Section A2** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **with the implementation** of an active or passive environmental management plan.
- Use **Section B** where the audit is to determine:
    - (B1) the nature and extent of contamination, and/or
    - (B2) the appropriateness of an investigation, remediation or management plan[1], and/or
    - (B3) the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or
    - (B4) whether the terms of the approved voluntary management proposal or management order have been complied with, and/or
    - (B5) whether the site can be made suitable for a specified land use (or uses) if the site is remediated or managed in accordance with the implementation of a specified plan.

[1] For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

Section A1

I certify that, in my opinion:

The **site is suitable** for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

☐ ~~Residential, including substantial vegetable garden and poultry~~

☐ ~~Residential, including substantial vegetable garden, excluding poultry~~

☒ Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry

☒ Day care centre, preschool, primary school

☒ Residential with minimal opportunity for soil access, including units

☒ Secondary school

☒ Park, recreational open space, playing field

☒ Commercial/industrial

☐ ~~Other (please specify):~~

OR

☐ ~~I certify that, in my opinion, the **site is not suitable** for any use due to the risk of harm from contamination.~~

Overall comments:

The site is deemed suitable for residential land use as defined in the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPC 2013).

Section A2

I certify that, in my opinion:

Subject to compliance with the **attached** environmental management plan[2] (EMP), the site is suitable for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

☐ Residential, including substantial vegetable garden and poultry

☐ Residential, including substantial vegetable garden, excluding poultry

☐ Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry

☐ Day care centre, preschool, primary school

☐ Residential with minimal opportunity for soil access, including units

☐ Secondary school

☐ Park, recreational open space, playing field

☐ Commercial/industrial

☐ Other (please specify):

_____

EMP details

Title _____

Author _____

Date _____ No. of pages _____

EMP summary

This EMP (attached) is required to be implemented to address residual contamination on the site.

The EMP: (Tick appropriate box and strike out the other option.)

☐ requires operation and/or maintenance of **active** control systems[3]

☐ requires maintenance of **passive** control systems only[3].

[2] Refer to Part IV for an explanation of an environmental management plan.
[3] Refer to Part IV for definitions of active and passive control systems.

~~Purpose of the EMP:~~

~~Description of the nature of the residual contamination:~~

~~Summary of the actions required by the EMP:~~

~~How the EMP can reasonably be made to be legally enforceable:~~

~~How there will be appropriate public notification:~~

~~Overall comments:~~

Section B

Purpose of the plan[4] which is the subject of this audit:

I certify that, in my opinion:

(B1)

☐ The nature and extent of the contamination **has** been appropriately determined

☐ The nature and extent of the contamination **has not** been appropriately determined

AND/OR (B2)

☐ The investigation, remediation or management plan **is** appropriate for the purpose stated above

☐ The investigation, remediation or management plan **is not** appropriate for the purpose stated above

AND/OR (B3)

☐ The site testing plan:

☐ **is** appropriate to determine

☐ **is not** appropriate to determine

if groundwater is safe and suitable for its intended use as required by the *Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017*

AND/OR (B4)

☐ The terms of the approved voluntary management proposal* or management order** (strike out as appropriate):

☐ **have** been complied with

☐ **have not** been complied with.

*voluntary management proposal no.

**management order no.

AND/OR (B5)

☐ The site **can be made suitable** for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

☐ Residential, including substantial vegetable garden and poultry

☐ Residential, including substantial vegetable garden, excluding poultry

[4] For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

- ☐ Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry
- ☐ Day care centre, preschool, primary school
- ☐ Residential with minimal opportunity for soil access, including units
- ☐ Secondary school
- ☐ Park, recreational open space, playing field
- ☐ Commercial/industrial
- ☐ Other (please specify):

IF the site is remediated/managed* in accordance with the following plan (**attached**):

*Strike out as appropriate

Plan title

Plan author

Plan date No. of pages

SUBJECT to compliance with the following condition(s):

Overall comments:

Part III: Auditor's declaration

I am accredited as a site auditor by the NSW Environment Protection Authority (EPA) under the *Contaminated Land Management Act 1997.*

Accreditation no. 0403

I certify that:

- I have completed the site audit free of any conflicts of interest as defined in the *Contaminated Land Management Act 1997,* and
- with due regard to relevant laws and guidelines, I have examined and am familiar with the reports and information referred to in Part I of this site audit, and
- on the basis of inquiries I have made of those individuals immediately responsible for making those reports and obtaining the information referred to in this statement, those reports and that information are, to the best of my knowledge, true, accurate and complete, and
- this statement is, to the best of my knowledge, true, accurate and complete.

I am aware that there are penalties under the *Contaminated Land Management Act 1997* for wilfully making false or misleading statements.

Signed 

Date 12 March 2021

Part IV: Explanatory notes

To be complete, a site audit statement form must be issued with all four parts.

How to complete this form

Part I

Part I identifies the auditor, the site, the purpose of the audit and the information used by the auditor in making the site audit findings.

Part II

Part II contains the auditor's opinion of the suitability of the site for specified uses or of the appropriateness of an investigation, or remediation plan or management plan which may enable a particular use. It sets out succinct and definitive information to assist decision-making about the use or uses of the site or a plan or proposal to manage or remediate the site.

The auditor is to complete either Section A1 or Section A2 or Section B of Part II, **not** more than one section.

Section A1

In Section A1 the auditor may conclude that the land is *suitable* for a specified use or uses OR *not suitable* for any beneficial use due to the risk of harm from contamination.

By certifying that the site is *suitable*, an auditor declares that, at the time of completion of the site audit, no further investigation or remediation or management of the site was needed to render the site fit for the specified use(s). **Conditions must not be** imposed on a Section A1 site audit statement. Auditors may include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section A2

In Section A2 the auditor may conclude that the land is *suitable* for a specified use(s) subject to a condition for implementation of an environmental management plan (EMP).

Environmental management plan

Within the context of contaminated sites management, an EMP (sometimes also called a 'site management plan') means a plan which addresses the integration of environmental mitigation and monitoring measures for soil, groundwater and/or hazardous ground gases throughout an existing or proposed land use. An EMP succinctly describes the nature and location of contamination remaining on site and states what the objectives of the plan are, how contaminants will be managed, who will be responsible for the plan's implementation and over what time frame actions specified in the plan will take place.

By certifying that the site is suitable subject to implementation of an EMP, an auditor declares that, at the time of completion of the site audit, there was sufficient information satisfying guidelines made or approved under the *Contaminated Land Management Act 1997*

(CLM Act) to determine that implementation of the EMP was feasible and would enable the specified use(s) of the site and no further investigation or remediation of the site was needed to render the site fit for the specified use(s).

Implementation of an EMP is required to ensure the site remains suitable for the specified use(s). The plan should be legally enforceable: for example, a requirement of a notice under the CLM Act or a development consent condition issued by a planning authority. There should also be appropriate public notification of the plan, e.g. on a certificate issued under s.149 of *the Environmental Planning and Assessment Act 1979*.

Active or passive control systems

Auditors must specify whether the EMP requires operation and/or maintenance of active control systems or requires maintenance of passive control systems only. Active management systems usually incorporate mechanical components and/or require monitoring and, because of this, regular maintenance and inspection are necessary. Most active management systems are applied at sites where if the systems are not implemented an unacceptable risk may occur. Passive management systems usually require minimal management and maintenance and do not usually incorporate mechanical components.

Auditor's comments

Auditors may also include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section B

In Section B the auditor draws conclusions on the nature and extent of contamination, and/or suitability of plans relating to the investigation, remediation or management of the land, and/or the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or whether the terms of an approved voluntary management proposal or management order made under the CLM Act have been complied with, and/or whether the site can be made suitable for a specified land use or uses if the site is remediated or managed in accordance with the implementation of a specified plan.

By certifying that a site *can be made suitable* for a use or uses if remediated or managed in accordance with a specified plan, the auditor declares that, at the time the audit was completed, there was sufficient information satisfying guidelines made or approved under the CLM Act to determine that implementation of the plan was feasible and would enable the specified use(s) of the site in the future.

For a site that *can be made suitable*, any **conditions** specified by the auditor in Section B should be limited to minor modifications or additions to the specified plan. However, if the auditor considers that further audits of the site (e.g. to validate remediation) are required, the auditor must note this as a condition in the site audit statement. The condition must not specify an individual auditor, only that further audits are required.

Auditors may also include **comments** which are observations in light of the audit which provide a more complete understanding of the environmental context to aid decision-making in relation to the site.

Part III

In **Part III** the auditor certifies their standing as an accredited auditor under the CLM Act and makes other relevant declarations.

Where to send completed forms

In addition to furnishing a copy of the audit statement to the person(s) who commissioned the site audit, statutory site audit statements must be sent to

- the **NSW Environment Protection Authority**:
  nswauditors@epa.nsw.gov.au or as specified by the EPA

  AND
- the **local council** for the land which is the subject of the audit.

Attachment 5

ENVIRONMENTAL CONSULTING SERVICES

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

481 - 485 Princes Highway
Woonona NSW 2517

ENVIRONMENTAL CONSULTING SERVICES PTY LTD
10 FORT STREET, PETERSHAM NSW 2049 | P 0415 225 474 | ABN 75 073 668 425

Disclaimer

Register of Amendments		
Revision	**Date**	**Description**
1	10.03.2021	Issued for use

Document Approval		
Prepared by	**Date**	**Signed**
Simon Caples **Principal Consultant**	10.03.2021	

Environmental Consulting Services Pty Ltd

Address: 10 Fort Street
Petersham NSW 2050

Phone: 0415 225 474
Email: simon@ecsgroup.com.au

TABLE OF CONTENTS

1.0 INTRODUCTION

It is proposed to demolish the existing improvements on the site at 481-485 Princes Highway in Woonona (the 'Site') and to construct a 12 residential dwellings. This Construction Environmental Management Plan (CEMP) identifies the environmental protection measures that will be implemented during the project.

These measures are aimed at:

- Preventing and/or minimising potentially adverse environmental impacts from the project activities;
- Preventing and/or minimising potentially adverse impacts to personnel involved in the demolition and construction work; and
- Maintaining compliance with environmental legislative and regulatory requirements.

The CEMP consolidates normal industry standards that are implemented during demolition and constructions activities. This CEMP does not replace the existing procedures but rather summarize relevant procedures for use during the project.

1.1 Background

The Site is located in a predominantly residential area on the Princes Highway in Woonona. The property details are also described in Table 1.1.

Table 1.1 – Site Identification

Attribute	Detail
Site Address	481 - 485 Princes Highway, Woonona NSW 2517
Lot & Deposited Plan	Lot 1 in DP 86796
Current Land Use	Commercial
Proposed Land Use	Residential
Local Government Authority	Wollongong City Council
Current Zoning	R2 – Low Density Residential
Site Area (m^2)	2,940
Geographical Location (approximate centre)	Latitude: -34.346007965 Longitude: 150.904670434

The Site is currently vacant, but the previous use was as storage units. There is a large factory style building covers approximately 70 percent of the Site and there is also a smaller building attached to the rear (east) of the factory building that was used as an office. There is a concrete paved driveway and parking area in the rear of the Site off Gordons Street and an asphalt driveway along the southern boundary of the Site extending from the Princes Highway to Gordon Street refer to Figure 1.1.

Figure 1.1 – Existing Site Layout

1.2 Project Description

The development of the Site comprises of the demolition of all existing improvements and the civil works associated with construction of 12 residential dwelling. The ground level plan of the proposed development is included in Appendix 1.

1.3 Scope of Document

The document presents the project's environmental commitment, management planning, works procedures and implementation. It provides an overview of the measures that will be taken to ensure that potential environmental hazards and the associated risks will be minimised or mitigated during the demolition and civil works of the project.

The CEMP has been prepared in accordance with the requirements of:

- New South Wales (NSW) Department of Infrastructure, Planning and Natural Resources Guideline for the Preparation of Environmental Management Plans (2004).

All personnel (and including contractors) will adopt this CEMP or develop their own project specific CEMP to manage the environmental risks specifically related to their scope of work on the project.

Compliance with this CEMP is mandatory for all personnel and contractors carrying out demolition and/or construction activities.

1.4 Objectives of the CEMP

The intent of this CEMP is to achieve the following overarching objectives are to:

- Ensure that all personnel and contractors clearly understand their environmental obligations and receive appropriate training to perform their duties in a competent manner;
- Comply with relevant State and local environmental requirements; and
- Comply with relevant Australian and other recognised standards.

2.0 ROLES AND RESPONSIBILITIES

Overall responsibility for the implementation of the management procedures that are summerised in this CEMP rests with Site Owner. All personnel and contractors will meet the requirements of this CEMP and associated procedures.

Key project personnel including; the Project Manager, Construction Supervisors, and each Contractor's supervisor will ensure that all management actions are undertaken to a satisfactory standard and that all personnel are aware of their responsibilities with respect to environmental matters. A general outline of responsibilities in relation to environmental management is provided below:

Project Manager

- Overall accountability for the environmental management of the Project.
- Overall responsibility for development, implementation, maintenance and compliance with this CEMP.
- Manage investigations into environmental issues or of Unexpected Finds.
- Review and sign off on this CEMP and subsequent revisions.

Construction Supervisors

- Accountable for construction related environmental matters within the scope of their work packages.
- Ensure the requirements of this CEMP are implemented in relation to their work packages.

Environmental Consultant

- Principal point of advice in relation to the environmental performance of the Project.
- Monitor the implementation of environmental management plans.
- Assist with the management of environmental issues of Unexpected Finds.

3.0 INDUCTION

The project must have an induction program that all personnel and contractors are required to complete prior to undertaking any work. The induction will include the requirement for mandatory compliance with this CEMP by all personnel involved in demolition and/or civil activities and include procedures for environmental issues or Unexpected Finds.

4.0 TRAINING

Relevant personnel and contractors must have the experience and necessary training to carry out the tasked required for the implementation of this CEMP. This will include awareness of environmental factors, Site conditions and include the appropriate use and maintenance of equipment.

Contractors will implement appropriate training to ensure their personnel are aware of their environmental responsibilities, including requirements set out in their works-specific CEMP.

5.0 INCIDENT MANAGEMENT

All Environmental Incidents or Unexpected Finds need to be managed to mitigate impacts to human health and the environment. Management includes the identification of actual of potential incidents or finds and the actions required to mitigate impacts. The objectives of Incident Management are to:

- Ensure timely identification and reporting of incidents or finds to the Project Manager and regulators including; the NSW Environment Protection Authority (EPA), WorkCover NSW, and the Local Council.
- Minimise and control the potential impacts by requiring identification of risks and the development of planned actions to minimise and manage risks.
- Ensure that management is properly implemented by trained personnel.

Where a potential or an actual incident is identified, or an Unexpected Find is encountered, an investigation must be undertaken. This investigation must assess the potential risks associated with the incident or find and establish management actions and controls.

Following the investigation and management of incidents or finds a closure report must be completed. The closure report should include the following information:

- Time, date, nature, duration and location of the incident/find.
- The nature, the estimated quantity or volume and the concentration of any pollutants involved, if known.
- The circumstances in which the incident occurred (including the cause of the incident if known).
- Action taken or proposed to be taken to deal with the incident and resulting environmental risk.

6.0 MANAGEMENT OF COMPLAINTS

The management of complaints during the project needs to include reporting of all complaints to the Project Manage and maintain record of all complaints including:

- The date and time of the complaint.
- The method by which the complaint was made.
- Any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect.
- The nature of the complaint.
- The action taken by in relation to the complaint, including any follow-up contact with the complainant. If no action was taken, the reasons why no action was taken.

The complaints record must be kept for the duration of the project.

7.0 IMPLEMENTATION

Potential environmental aspects and impacts associated with demolition and/construction activities are summarised in Appendix 2. Establishment of the level of risk to the environment associated with these aspects and impacts, has been determined by using the following criteria:

- The likelihood that a potential environmental impact will occur, if the activity is not managed;
- The consequence to the environment if the impact were to occur; and
- Applying the risk matrix (Table 7.1) to assess the level of risk associated with each construction activity.

Table 7-1 show the risk matrix for the demolition and civil works and Table 7.2 the risk rating applied to identified environment aspects and impacts.

Table 7.1 - Risk Matrix Table

	Likelihood					
Consequence	Practically Impossible	Highly Unlikely	Unlikely	Possible	Quite Likely	Common Occurrence
Catastrophic	High	Severe	Severe	Severe	Severe	Severe
Massive	Moderate	High	Severe	Severe	Severe	Severe
Major	Low	Moderate	High	High	Severe	Severe
Moderate	Low	Low	Moderate	Moderate	High	High
Minor	Negligible	Low	Low	Low	Moderate	Moderate
Slight	Negligible	Negligible	Low	Low	Low	Low

Table 7.2 - Risk Rating

Rating	Classification
Severe	Significant damage, medium to long term or permanent effect, off site impact, significant cost (> $1m) to repair
High	Extensive damage, medium to long term effect, off site impact, moderate to high cost (> $100k) to repair
Moderate	Moderate damage, short to medium term effect, off-site impacts repairable at low to moderate cost
Low	Discernible impact, short term effect, site impact only, repairable at little cost
Negligible	No discernible impact, no action required

The key environmental impacts relating to the work being carried out are identified in summary table 1 of Aspects and Impacts in Appendix 2. In accordance with the above risk matrix and risk ratings the summary table in Appendix 2 indicates that the highest level of risk associated with a demolition and civil activities is categorised as “Low”.

8.0 ENVIRONMENTAL PROCEDURES

Specific control measures required to undertake the demolition and civil works are set out in Appendix 3. These measures will be complied with by all personnel and contractors as relevant. All activities must be carried out in a competent manner. Suitable equipment, facilities, training, work practices and other necessary precautions will be taken to minimise impacts to the environment.

All plant and equipment installed used for the project must be maintained in a proper and efficient condition and operated in a proper and efficient manner.

All personnel and contractors will implement reasonable and practicable measures to avoid or minimise impacts to the environment that may arise from the project. All personnel and contractors will ensure that work is performed in a way that minimises impacts on the natural environment and complies with this CEMP and related procedures, relevant legislation, regulations and rules.

APPENDIX 1

BASIX NOTES

WATER
(NOTE: THE FOLLOWING REQUIREMENTS ARE FOR EACH INDIVIDUAL DWELLING UNLESS NOTED OTHERWISE) - REFER BASIX REPORT FOR FULL DETAILS

FIXTURES
ALL SHOWERHEADS - MINIMUM 3 STAR (>7.5 BUT <= 9L/MIN) WATER RATING
ALL TOILETS - MINIMUM 4 STAR WATER RATING
ALL KITCHEN TAPS - MINIMUM 4 STAR WATER RATING
ALL BATHROOM TAPS - MINIMUM 5 STAR WATER RATING

ALTERNATIVE WATER SOURCE - RAINWATER TANK
THE RAINWATER TANKS MUST MEET, AND BE INSTALLED IN ACCORDANCE WITH, THE REQUIREMENTS OF ALL APPLICABLE REGULATORY AUTHORITIES
TOWNHOUSE 1 TO 8
A 1500 LITRE (MIN) WATER TANK CONFIGURED TO COLLECT RUN-OFF FROM 50M2 (MIN) OF ROOF AREA MUST BE INSTALLED FOR EACH DWELLING
THE RAINWATER TANKS MUST BE CONNECTED TO: AT LEAST ONE OUTDOOR TAP
TOWNHOUSE 9 TO 12
A 2000 LITRE (MIN) WATER TANK CONFIGURED TO COLLECT RUN-OFF FROM 50M2 (MIN) OF ROOF AREA MUST BE INSTALLED FOR EACH DWELLING
THE RAINWATER TANKS MUST BE CONNECTED TO: AT LEAST ONE OUTDOOR TAP & ALL TOILETS

ENERGY
(NOTE: THE FOLLOWING REQUIREMENTS ARE FOR EACH INDIVIDUAL DWELLING UNLESS NOTED OTHERWISE) - REFER BASIX REPORT FOR FULL DETAILS

HOT WATER
GAS INSTANTANEOUS 5 STAR ENERGY RATING
HEATING
THE LIVING AREAS MUST NOT INCORPORATE ANY HEATING SYSTEM, OR ANY DUCTING WHICH IS DESIGNED TO ACCOMMODATE A HEATING SYSTEM
THE BEDROOMS MUST NOT INCORPORATE ANY HEATING SYSTEM, OR ANY DUCTING WHICH IS DESIGNED TO ACCOMMODATE A HEATING SYSTEM
COOLING
THE LIVING AREAS MUST NOT INCORPORATE ANY COOLING SYSTEM, OR ANY DUCTING WHICH IS DESIGNED TO ACCOMMODATE A COOLING SYSTEM
THE BEDROOMS MUST NOT INCORPORATE ANY COOLING SYSTEM, OR ANY DUCTING WHICH IS DESIGNED TO ACCOMMODATE A COOLING SYSTEM
VENTILATION
THE FOLLOWING EXHAUST SYSTEMS MUST BE INSTALLED FOR EACH DWELLING:
BATHROOMS - INDIVIDUAL FAN DUCTED TO FAÇADE OR ROOF, MANUAL SWITCH ON/OFF
KITCHEN - INDIVIDUAL FAN DUCTED TO FAÇADE OR ROOF, MANUAL SWITCH ON/OFF
LAUNDRY - INDIVIDUAL FAN DUCTED TO FAÇADE OR ROOF, MANUAL SWITCH ON/OFF
LIGHTING
THE PRIMARY TYPE OF ARTIFICIAL LIGHTING MUST BE LIGHT EMITTING DIODE (LED) LIGHTING IN ALL ROOMS.
ALTERNATE ENERGY
A PHOTOVOLTAIC SYSTEM WITH THE CAPACITY TO GENERATE AT LEAST 1.4 PEAK KILOWATTS OF ELECTRICITY MUST BE INSTALLED FOR TOWNHOUSE 9, 10, 11 AND 12. THE SYSTEM MUST BE CONNECTED TO THE DEVELOPMENT'S ELECTRICAL SYSTEM. A PHOTOVOLTAIC SYSTEM IS NOT REQUIRED FOR ALL OTHER TOWNHOUSES
OTHER
A GAS COOKTOP & ELECTRIC OVEN MUST BE INSTALLED IN EACH KITCHEN
A FIXED OUTDOOR CLOTHES DRYING LINE MUST BE INSTALLED FOR EACH TOWNHOUSE

GLAZING
TOWNHOUSE 1 AND 8
ALL AWNING WINDOWS AND GLAZED HINGED DOORS
ALM-005-03 A DEFAULTS
U-VALUE 4.10 (NOTE: </= U-VALUE)
SHGC 0.47 (NOTE: WITHIN 10% OF SHGC)
GLASS - ARGON FILL, HIGH SOLAR GAIN LOW-E
FRAME - ALUMINIUM, ALM-005 GROUP A DG ARGON FILL
ALL FIXED WINDOWS, SLIDING WINDOWS AND GLAZED SLIDING DOORS
ALM-006-03 A DEFAULTS
U-VALUE 4.1 (NOTE: </= U-VALUE)
SHGC 0.52 (NOTE: WITHIN 10% OF SHGC)
GLASS - ARGON FILL, HIGH SOLAR GAIN LOW-E
FRAME - ALUMINIUM, ALM-006 GROUP B DG ARGON FILL
TOWNHOUSE 2, 3, 4, 5, 6, 7 AND 12
ALL AWNING WINDOWS AND GLAZED HINGED DOORS
ALM-001-01 A DEFAULTS
U-VALUE 6.70 (NOTE: </= U-VALUE)
SHGC 0.57 (NOTE: WITHIN 10% OF SHGC)
GLASS - SINGLE CLEAR
FRAME - ALUMINIUM, ALM-001 GROUP A SG
ALL FIXED WINDOWS, SLIDING WINDOWS AND GLAZED SLIDING DOORS
ALM-002-01 A DEFAULTS
U-VALUE 6.70 (OR LESS THAN)
SHGC 0.70 (+ OR - 10%)
GLASS - SINGLE CLEAR
FRAME - ALUMINIUM, ALM-002 GROUP B SG
TOWNHOUSE 9 AND 11
ALL AWNING WINDOWS AND GLAZED HINGED DOORS
ALM-001-03 A DEFAULTS
U-VALUE 5.40 (NOTE: </= U-VALUE)
SHGC 0.49 (NOTE: WITHIN 10% OF SHGC)
GLASS - SINGLE HIGH SOLAR GAIN LOW-E
FRAME - ALUMINIUM, ALM-001 GROUP A SG
ALL FIXED WINDOWS, SLIDING WINDOWS AND GLAZED SLIDING DOORS
ALM-002-03 A DEFAULTS
U-VALUE 5.40 (NOTE: </= U-VALUE)
SHGC 0.58 (NOTE: WITHIN 10% OF SHGC)
GLASS - SINGLE HIGH SOLAR GAIN LOW-E
FRAME - ALUMINIUM, ALM-002 GROUP B SG
TOWNHOUSE 10
ALL BEDROOM, ENSUITE, BATH, L'DRY AND P'DER AWNING WINDOWS AND GLAZED HINGED DOORS
ALM-001-01 A DEFAULTS
U-VALUE 6.70 (NOTE: </= U-VALUE)
SHGC 0.57 (NOTE: WITHIN 10% OF SHGC)
GLASS - SINGLE CLEAR
FRAME - ALUMINIUM, ALM-001 GROUP A SG
ALL BEDROOM, ENSUITE, BATH, L'DRY AND P'DER FIXED WINDOWS, SLIDING WINDOWS AND GLAZED SLIDING DOORS
ALM-002-01 A DEFAULTS
U-VALUE 6.70 (OR LESS THAN)
SHGC 0.70 (+ OR - 10%)
GLASS - SINGLE CLEAR
FRAME - ALUMINIUM, ALM-002 GROUP B SG
ALL OTHER AWNING WINDOWS AND GLAZED HINGED DOORS
ALM-001-03 A DEFAULTS
U-VALUE 5.40 (NOTE: </= U-VALUE)
SHGC 0.49 (NOTE: WITHIN 10% OF SHGC)
GLASS - SINGLE HIGH SOLAR GAIN LOW-E
FRAME - ALUMINIUM, ALM-001 GROUP A SG
ALL OTHER FIXED WINDOWS, SLIDING WINDOWS AND GLAZED SLIDING DOORS
ALM-002-03 A DEFAULTS
U-VALUE 5.40 (NOTE: </= U-VALUE)
SHGC 0.58 (NOTE: WITHIN 10% OF SHGC)
GLASS - SINGLE HIGH SOLAR GAIN LOW-E
FRAME - ALUMINIUM, ALM-002 GROUP B SG

INSULATION
(NOTE: THE FOLLOWING REQUIREMENTS ARE FOR EACH INDIVIDUAL DWELLING UNLESS NOTED OTHERWISE)

EXTERNAL WALLS:
WALLS BETWEEN GARAGES - R4.0
WALLS BETWEEN TOWNHOUSES - R4.0
GARAGE FRONT WALL - NO INSULATION REQUIRED
ALL OTHER EXTERNAL WALLS - R2.7
INTERNAL WALLS:
WALLS BETWEEN GARAGE AND DWELLING - R2.7
TOWNHOUSE 10 - WALL BETWEEN L'DRY AND KITCHEN - R2.7
TOWNHOUSE 10 - WALLS BETWEEN P'DER AND KITCHEN/LIVING/DINING/STAIR - R2.7
ALL OTHER INTERNAL WALLS - NO INSULATION REQUIRED
EXTERNAL FLOORS (GROUND FLOOR) :
TOWNHOUSE 11 - GROUND FLOOR - WAFFLE POD SLAB
ALL OTHER GROUND FLOOR FLOORS - NO INSULATION REQUIRED
INTERNAL CEILINGS/FLOORS
ALL INTERNAL CEILINGS/FLOORS ABOVE GARAGES - R5.0
ALL OTHER INTERNAL CEILINGS/FLOORS - NO INSULATION REQUIRED
EXTERNAL CEILINGS:
TOWNHOUSE 8 - ALL EXTERNAL CEILINGS (I.E BELOW ROOF) - R6.0
ALL OTHER TOWNHOUSES - ALL EXTERNAL CEILINGS (I.E BELOW ROOF) - R5.0
ROOF:
METAL ROOF (TIMBER FRAME CONSTRUCTION) - R1.0 BULK, REFLECTIVE SIDE DOWN (ANTICON/PERMASTOP OR SIMILAR) (NOTE - R5.0 CEILING INSULATION REQUIRED)
DECK FORMING ROOF OVER GROUND FLOOR - NO INSULATION REQUIRED (NOTE - R5.0 CEILING INSULATION REQUIRED)
TILED ROOF - NO INSULATION REQUIRED (NOTE - R5.0 CEILING INSULATION REQUIRED)

GENERAL NOTES
WEATHERSEALS REQUIRED TO ALL EXTERNAL DOORS INCLUDING INTERNAL ACCESS TO GARAGE

INSULATION MUST BE INSTALLED IN ACCORDANCE WITH NCC AND RELEVANT AUSTRALIAN STANDARDS

THE NUMBER OF DOWNLIGHTS THAT HAVE BEEN INPUT TO THE NATHERS THERMAL COMFORT ASSESSMENT TO MODEL CEILING INSULATION LOSS IS AS PER JACK TAYLOR ARCHITECTS MARK-UP DATED 08.04.2020 (TO BE SEALED LED DOWNLIGHTS).

ONE SEALED EXHAUST FAN HAS BEEN INPUT FOR EACH KITCHEN, BATHROOM, LAUNDRY, ENSUITE, P'DER AND WC.

ACOUSTIC NOTES:
Glazing other than those specified in Table 2 may be of standard thickness with a minimum Rw 25.

Table 2 Recommended Window Schedule – Residential Units

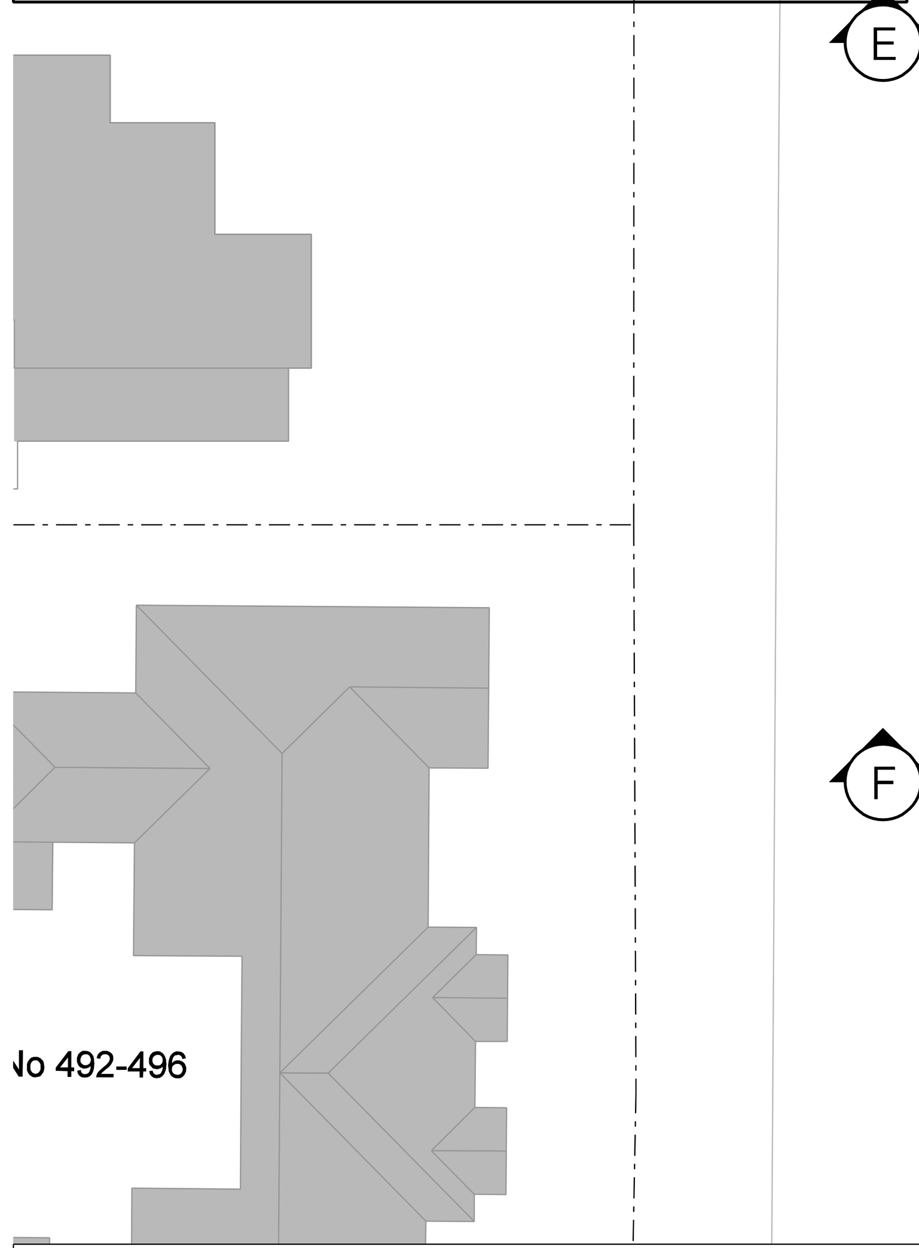
Block / Unit / Glazing	Min R_w	Example Glazing Specification
Unit 8		
Living / Dining / Kitchen (all)	**32**	6.38 mm laminated glass
Bedrooms (all)	**29**	5 mm float glass
Unit 9		
Living / Dining / Kitchen (all)	**32**	6.38 mm laminated glass
Bedroom (all)	**32**	6.38 mm laminated glass
Unit 7		
Living / Dining (all)	**32**	6.38 mm laminated glass
Bedrooms (all)	**29**	5 mm float glass
Unit 10		
Living / Dining / Kitchen (all)	**29**	5 mm float glass
Bedrooms (all)	**29**	5 mm float glass
Units 1, 2, 3, 4, 5, 6, 11 & 12		
Living / Dining / Kitchen (all)	**29**	5 mm float glass

All windows and glazed doors in Table 2 should be fitted with acoustic seals comprising foam weather seals (e.g. Q-Lon from Schlegel or similar).

RECOMMENDED CONSTRUCTION

WALLS
EXTERNAL WALLS OF BRICK VENEER OR OTHER MASONRY CONSTRUCTION WILL BE ACCEPTABLE, AND CEMENT COMPOSITE EXTERNAL CLADDING, FOR EXAMPLE HARDIES 'SCYON', 'LINEA', 'STRIA', OR CSR 'CEMENTAL' OR APPROVED EQUIVALENT WITH SIMILAR MINIMUM MASS (MIN 13 KG/M2):-
INTERNAL PLASTERBOARD WALL LINING MAY BE OF 10 MM THICK (MINIMUM) STANDARD PLASTERBOARD CONSTRUCTION WITH THE EXCEPTION OF THE FOLLOWING:-
UNITS 8 AND 9, ALL BEDROOMS SHOULD BE COMPRISE ONE LAYER OF 13 MM THICK (MINIMUM) STANDARD, OR 10 MM THICK SOUND RATED, PLASTERBOARD,
MINIMUM 50 MM THICK GLASSWOOL OR POLYESTER INSULATION IN ALL EXTERNAL WALL CAVITIES (MIN DENSITY 11 KG/M3).

CEILING AND ROOF SYSTEM
CONCRETE TILE OR METAL DECK ROOF WITH 10 MM THICK STANDARD PLASTERBOARD CEILING BELOW, AND MINIMUM 50 MM THICK GLASSWOOL INSULATION (MINIMUM 11 KG/M3) IN THE CEILING CAVITY WILL BE ACCEPTABLE.



AREA SCHEDULE					
TH Number	Groundfloor (m²)	Level 1 (m²)	Total (m²)	External GF (m²)	External L1 (m²)
TH 1	47	69.5	116.5	43.78	1.9
TH 2	46	69.5	115.5	42.31	0
TH 3	46	69.5	115.5	41.98	0
TH 4	47	69.5	116.5	56.91	0
TH 5	47	69.5	116.5	46.34	0
TH 6	46	69.5	115.5	44.91	0
TH 7	46	69.5	115.5	43.9	0
TH 8	45	69.5	114.5	55.91	1.9
TH 9	70.5	50	120.5	61.54	7.6
TH 10	49.5	64	113.5	78.05	11.6
TH 11	70	54	124	76.27	13.9
TH 12	46.5	71	117.5	86	15.2
		Total (m²) :	1401.5		
		Site (m²) :	2939.9		

	Groundfloor (m²)	Level 1 (m²)	Total (m²)
GFA	656.43	809.21	1465.64
		FSR :	0.498533964
Landscaping Total		Total (m²) :	946.65
		% of Total Site	32.20007483
Deepsoil		Total (m²) :	195.86
		% of Total Landscaping	20.68980088
		% of Total Site	6.662131365
		More than 6m width through rear of site	
Landscape behind building line			539.12
		% Site	18.33803871
		% of land scape	56.95029842
Car Parking Resident		@2.0 per + 110sqm dwelling	24
Car Parking Visitor		@0.2 per dwelling	2.4
Total Required			26.4
		Total Provision	
		Resident	12
		Visitor	3
Bike Parking Resident		@1 per 3 dwellings	6
Bike Parking Visitor		@1 per 12 dwellings	2
Communal Open Space		@5m2 per dwelling	60m2

Storage						
TH Number	GF (m²)	L1 (m²)	Total (m²)	GF (m³)	L1 (m³)	Total (m³)
TH 1	0.90	4.10	5	1.00	9.84	10.84
TH 2	0.90	4.10	5	1.00	9.84	10.84
TH 3	0.90	4.10	5	1.00	9.84	10.84
TH 4	0.90	4.10	5	1.00	9.84	10.84
TH 5	0.90	4.10	5	1.00	9.84	10.84
TH 6	0.90	4.10	5	1.00	9.84	10.84
TH 7	0.90	4.10	5	1.00	9.84	10.84
TH 8	0.90	4.10	5	1.00	9.84	10.84
TH 9	1.86	2.70	4.56	4.46	6.48	10.94
TH 10	3.86	1.54	5.4	9.26	3.70	12.96
TH 11	2.65	2.39	5.04	7.91	5.74	13.65
TH 12	2.65	2.40	5.05	4.62	5.76	10.38

LEGEND
- DCP PRESCRIBED LANDSCAPING
- DCP PRESCRIBED DEEP SOIL PLANTING ZONE
- DCP PRESCRIBED 4mx5m PRIVATE OPEN SPACE
- MISC. LANDSCAPING NOT INCLUDED IN CALCULATIONS
- TPZ ENCROACHMENT
- DCP PRESCRIBED STORAGE
- EXISTING TREES TO BE REMOVED SHOWN DOTTED
- EXISTING STRUCTURE TO BE REMOVED SHOWN DOTTED
- EXISTING STRUCTURE TO BE RETAINED
- PROPOSED WORKS

GRAY ST

D/A

ARCHITECT
urban design
masterplanning
architecture
JACK TAYLOR ARCHITECTS Pty Ltd
ACN 076 874 489
NSW Architects Board Registration # 7042
10/281 Pacific Highway
North Sydney NSW 2060
AUSTRALIA
T +61 2 9956 8655
F +61 2 9956 7929
E jack@jtas.com.au

PROJECT
RESIDENTIAL DEVELOPMENT
481 - 485 PRINCES HIGHWAY
WOONONA NSW 2517
FOR
EMERALD PARK ESTATE PTY. LTD.

REVISION

NO.	DATE	AMENDMENT	NO.	DATE	AMENDMENT
01	04.03.20	ISSUED TO CONSULTANTS			
02	23.03.20	ISSUED TO CONSULTANTS			
03	01.04.20	ISSUED TO CONSULTANTS			
04	09.04.20	ISSUED TO CONSULTANTS			
05	17.04.20	PARK ACCESS, BRICK PIER & NOTATION TO REPLACE FENCE ADDED			
A	01.05.20	ISSUED FOR DA			
B	12.08.20	REVISED TO COMMENTS FROM COUNCIL			
C	06.11.20	REVISED AS CLOUDED			
D	11.11.20	REVISED AS CLOUDED			

DRAWING NAME
GROUND FLOOR PLAN O/A

PROJECT NUMBER 20105
SCALE 1:200 @ A1 1:400 @ A3
DRAWING NUMBER AR 0101
REVISION D
NORTH

APPENDIX 2

Table - Aspects and impacts associated with demolition and civil activities

Category	Aspect	Impact	Control	Likelihood	Consequence	Residual Risk
Site Management	Poor practice	Potential for impact to waters	Site Inspection and audit	Highly Unlikely	Slight	Negligible
Demolition	Noise emissions	Noise emissions exceed specified levels or disrupt residents.	Construction Noise and Vibration Management Plan. Out-Of-Hours Work Protocol	Possible	Minor	Low
	Disturbance of asbestos	Asbestos material are damaged	Hazardous Material Survey and Unexpected Find Protocol	Possible	Minor	Low
	Dust generation	Dust exceed specified air quality standards	Air Quality Management Plan	Possible	Minor	Low
Excavation work	Noise emissions	Noise emissions exceed specified levels or disrupt residents.	Construction Noise and Vibration Management Plan. Out-Of-Hours Work Protocol	Possible	Minor	Low
	Disturbance of asbestos	Asbestos material are damaged	Hazardous Material Survey and Unexpected Find Protocol	Possible	Minor	Low
	Dust generation	Dust exceed specified air quality standards	Air Quality Management Plan	Possible	Minor	Low
Equipment operation	Emission of pollutants and dust	Pollutants exceed specified air quality standards or dust generated.	Air Quality Management Plan	Highly Unlikely	Slight	Negligible
	Hours operated	Noise outside regular work hours disrupts neighbours.	Out-Of-Hours Work Protocol	Highly Unlikely	Minor	Low
Washing of plant equipment on site	Washing not conducted in designated areas.	Potential for impact to waters	Wash in designated areas, isolated from storm water drains.	Highly Unlikely	Slight	Negligible
On site refuelling of equipment	Spills and/or leaks from refueling	Potential for impacts to waters	Establish temporary bunk and spill kit	Highly Unlikely	Moderate	Low
Storage of hazardous dangerous goods	Spills and/or leaks from inadequate storage areas and secondary containment	Potential for impacts to waters	All goods stored in bunded location. Spill kit to be available onsite.	Unlikely	Minor	Low
Traffic	Transport of materials, vehicle traffic flow and parking.	Disruption of local traffic and increased traffic congestion. Worker/vehicle conflicts and safety risks.	Construction Traffic and Access Management Plan	Unlikely	Minor	Low

APPENDIX 3

Water and Sediment Quality

Element	Water and Sediment Quality
Performance Objectives	*To prevent the pollution of water and the generation of sediment discharge.* *To minimise the environmental impact of any spills and excessive turbidity that occur.*
Management Actions	▪ Contractors will maintain the site in a clean and tidy state. ▪ Fabrication will be undertaken off-site as far as possible. ▪ Equipment will be maintained in good working order to minimise the risk of leaks and spills. ▪ Pre start checks will be undertaken prior to commencement of demolition and excavation work to ensure equipment is operating correctly. ▪ Appropriate sediment fencing to be established around the site perimeter and at stormwater drainage grate/inlets. ▪ All spills will be stopped at the source and contained as soon as possible. ▪ Spilt material will be recovered, where possible, and contaminated spill recovery materials will be collected and disposed at an appropriate licensed facility. ▪ In the event of a spill, incident or emergency, construction activities in the immediate area will cease immediately. ▪ In the event of a spill, incident or emergency, the Project Manager is to be informed and if required, emergency services (000), will be contacted immediately. ▪ Following a spill, accident or emergency situation, the Contractor will undertake any relevant required repairs and modify their working methods as appropriate.
Performance Indicators	▪ Sewdiment controls established and maintained. ▪ No sediment discharge from the Site. ▪ Regular maintenance of construction equipment scheduled and carried out by the relevant Contractor.
Monitoring	▪ Visual inspections of sediment controls will be carried out daily. ▪ The Contractors will carry out regular inspections of its works areas.
Corrective Action	▪ Where sediment is discharged sediment controls and work practices must be reviewed.

Noise and Vibration

Element	Noise and Vibration
Performance Objective	*To minimise disturbance to sensitive receivers from airborne noise.*
Management Actions	▪ All demolition and civil activities will be restricted to the standard working hours set out in the Interim Construction Noise Guidelines (ICNG), being • 0700 and 1800 Mondays to Fridays; • 0800 to 1300 Saturdays; and • at no time on Sundays or public holidays. ▪ Fabrication will be undertaken off-site as far as possible. ▪ Regular maintenance of construction equipment will be scheduled and carried out by the relevant Contractor. ▪ All feasible and reasonable noise mitigation measures will be implemented during demolition and civil works. ▪
Performance Indicators	▪ Works carried out within the required hours.
Monitoring	▪ Work hours are monitored daily.
Corrective Action	▪ If high noise generating works are shown to exceed noise limits, or if noise complaints are received, additional mitigation will be implemented by the Contractor, such as: • Acoustic screening for high noise equipment. • Implement periodic breaks in undertaking high noise generating works.

Air and Odour Emissions

Element	Air and Odour Emissions
Performance Objective	*To prevent a decrease in regional air quality and to prevent visible emissions of dust from the site.*
Management Actions	▪ All feasible and reasonable mitigation measures will be implemented to ensure that demolition and civil work is carried out in a manner that minimises dust emissions from the site. ▪ Dust control measures will be implemented wherever relevant throughout works. ▪ Material stockpiles that have the potential to generate dust will be covered. ▪ Material loads that have the potential to generate dust will be covered during transport. ▪ Dust generating activities will not be carried out during periods of high wind. ▪ Regular maintenance of construction equipment will be scheduled and carried out by the relevant Contractor. ▪ Vehicles and equipment, including generators, will be turned off when not in use.
Performance Indicators	▪ No air quality or odour complaints received.
Monitoring	▪ Contractors will carry out regular visual monitoring to identify areas generating visible dust emissions from the site. ▪ Contractors will carry out regular visual monitoring to identify equipment producing excessive visible emissions.
Corrective Action	▪ Where visible dust emissions from the site are observed, feasible and reasonable dust mitigation measures will be identified and implemented, such as: • Sources of dust emissions will be covered, or if required, wet down, such that emissions of visible dust from the site cease. • Cessation of dust generating works, as appropriate, such that emissions of visible dust from the site cease. ▪ Equipment observed to be creating excessive air quality emissions will be replaced or serviced within 48 hours.

Construction Traffic

Element	Marine and Construction Traffic
Performance Objective	*To minimise traffic interactions and appropriately manage traffic interfaces.*
Management Actions	▪ Designated construction access route for the delivery of materials and removal of wastes. ▪ All feasible and reasonable mitigation measures will be implemented to ensure that material is not tracked onto public roads. ▪ All vehicles will observe the sign-posted speed limits. ▪ Vehicles will only be parked in designated areas.
Performance Indicators	▪ No collisions caused or vehicle incidents by project vehecles.
Monitoring	▪ The demolition and civil contractor will monitor compliance with the management and routes of vehicles.
Corrective Action	▪ Collisions will be managed in accordance with standard accident procedures.

Waste and Resource Management

Element	Waste and Resource Management
Performance Objectives	*To minimise the wastes generated and resources used and maximise opportunities for reduction, reuse and recycling.* *To store, handle, transport, and employ resources/dispose of waste in a manner that does not lead to environmental harm, pollution or contamination.*
Management Actions	▪ All liquid and/or non-liquid waste generated on the site will be assessed and classified in accordance with Waste Classification Guidelines (DECCW, 2009) and where removed from the site is only directed to a waste management facility lawfully permitted to accept the materials. ▪ Resource use and waste generation will be minimised and all waste will be reused, recycled or disposed of in accordance with best practice and relevant legislation. ▪ Personnel and contractors will maintain the site in a clean and tidy state. ▪ The following waste hierarchy will be implemented: • Avoid waste by identifying appropriate materials and effective procurement. • Reduction of waste by optimising construction and operation methods. • Reuse waste by identifying sources that can utilise the waste. • Recycle waste by identifying facilities that are able to recycle waste. • Recover energy from waste. • Dispose of waste at an appropriate licensed facility. ▪ Resource use will be minimised wherever practicable throughout construction. ▪ Responsible construction practices will be implemented to prevent mismanagement of waste. ▪ The Contractor will carry out regular inspections of site activities and waste management area. ▪ The Contractor will establish and maintain a waste collection and storage area within its work area. ▪ No burning of waste is allowed under any circumstances. ▪ All waste containers will have secure lids in place to prevent water ingress and access to animals.
Performance Indicators	▪ No litter present in construction areas.

Element	Waste and Resource Management
	▪ Appropriate segregation of recyclable material from general waste.
Monitoring	▪ The Contractor will record the types, volumes and management measures (i.e. reuse / recycling / disposal etc) for wastes generated from its construction activities.* ▪ The Contractor will carry out regular inspections of its works areas to ensure wastes, chemicals and hazardous materials are appropriately stored.
Corrective Action	▪ Any spills will be managed. ▪ Waste reduction education will be undertaken if excessive volumes of waste are found to be regularly removed from site.

Hazardous Substances

Element	Hazardous Substances
Performance Objectives	*To prevent the release of hazardous substances to the environment.*
Management Actions	▪ All hazardous and controlled materials and wastes will be stored in a controlled manner. ▪ All fuel and hydraulic oils would be stored in secure, bunded areas and precautions would be taken during any refuelling or oil transfer operations to avoid oil entering the marine environment. ▪ Containment facilities will be capable of containing 110% of the stored or handled volume. ▪ All storage and handling equipment for fuels, lubricants and chemicals will be maintained in good working condition. ▪ Material Safety Data Sheets (SDS) will be maintained on site for all hazardous and potentially hazardous substances, including fuels and chemicals, in a readily accessible location.
Performance Indicators	▪ No release of hazardous substances to waterways. ▪ Appropriate storage of hazardous substances.
Monitoring	▪ A Hazardous Materials Register will be maintained to monitor volumes and types of hazardous substances on site. ▪ Visual inspections will be undertaken at least weekly for evidence of spills where hydrocarbons are stored or used.
Corrective Action	▪ Any spills will be managed in accordance with industry and regulatory standards

ENVIRONMENTAL CONSULTING SERVICES

UNEXPECTED FIND PROTOCOL

481 - 485 Princes Highway
Woonona NSW 2517

ENVIRONMENTAL CONSULTING SERVICES PTY LTD
10 FORT STREET, PETERSHAM NSW 2049 | P 0415 225 474 | ABN 75 073 668 425

Disclaimer

Register of Amendments		
Revision	**Date**	**Description**
1	05.03.2021	Issued for use

Document Approval		
Prepared by	**Date**	**Signed**
Simon Caples **Principal Consultant**	05.03.2021	

Environmental Consulting Services Pty Ltd

Address: 10 Fort Street
Petersham NSW 2050

Phone: 0415 225 474
Email: simon@ecsgroup.com.au

TABLE OF CONTENTS

1.0 INTRODUCTION

Environmental Consulting Services Pty Ltd (ECS) was engaged by Emerald Park Estate Pty Ltd to prepare an Unexpected Finds Protocol (UFP) for the property at 481-485 Princes Highway in Woonona (the Site).

This UFP has been developed for implementation during construction activities associated with the proposed development of the Site. This UFP must be implemented during the required demolition, excavation and civil activities. It has been prepared to ensure appropriate management of building materials, natural soils or fill which may contain undefined level chemical, asbestos or other anthropogenic materials.

The history of the Site usage does not indicate a significant potential for unexpected finds however, there may be asbestos material within the structure of the existing building that will be encountered during demolition or unexpected materials/conditions under the existing pavements.

Unexpected finds may require additional assessment or management. It is imperative that the potential for such material to impact Site workers and future Site occupants is minimised during the demolition and redevelopment activities.

2.0 CHARACTERISTICS OF 'UNEXPECTED FINDS'

Common characteristic that may be observed during the redevelopment of the Site include:

- Cement sheeting material within the fabric of the existing buildings. It is noted that an asbestos surver has been undertaken of the existing buildings however, there could be additional asbestos building materials concealed within the structures;
- Material beneath the existing pavements across the Site containing anthropogenic material such as building rubble, plastics, metal or imported fill;
- Material with an obvious unnatural odour such as fuel, solvent, burnt odours;
- Material that is noticeably stained or discoloured;
- Asbestos or potential Asbestos Containing Material (ACM);
- Material with fibres visible; or
- Any material that has evidently been dumped at the site.

3.0 IMPLEMENTATION OF THIS PROTOCOL

3.1 General

Prior to the commencement of demolition or civil works at the Site, all personnel should be required to attend an induction that presents occupational health and safety requirements for the development that includes presentation of this UFP. The induction should:

- Specify the expected conditions at the Site and highly the potential for health and safety risk associated with unexpected finds;
- Establish a procedure for the identification and reporting of unexpected finds;
- Set levels of responsibility for its implementation of the UFP. Levels of responsibility must include a requirement for all personnel to report unexpected finds to the Site Manager or Principal Contractor; and
- The requirements for the Site Manager or Principal Contractor to investigate and manage the unexpected finds.

Monitoring for unexpected finds must be undertaken on a continuous basis during demolition activities and during the removal of pavements across the Site. After the completion of all demolition activities monitoring should be undertaken on a daily basis when excavation activities are being undertaken. If an unexpected find is encountered during Site works, the following implementation process must be enacted.

3.2 Implementation Process

1. Cease disturbance of the affected portion of the Site and evacuate the immediate area.
2. Contact the Site Manager or Principal Contractor and the appointed Environmental Representative (ER).
3. The Site Manager or Principal Contractor and the ER are to conduct an assessment of the location, character and extent of the unexpected find.
4. Any potential high risk areas identified during the assessment must be isolated and secured against unintended access.
5. Temporary encapsulation (sealing) of the high risk area should be undertaken where necessary to ensure no airborne spread of contamination. This may involve cover with clean soil, plastic sheeting or similar.

6. Dust mitigation measures should be implemented where required such as wetting the soil and drainage controls should be arranged where there is a potential for runoff to occur (runoff should be minimised).
7. Warning signs should be placed in the vicinity of the unexpected find.
8. If the site Manager or Principal Contractor and ER considers that the material warrants further investigation, the area is to be barricaded to provide an exclusion zone.
9. If necessary, environmental controls should be established to minimise the potential for migration of contaminants from the impacted area.
10. The Site Manager or Principal Contractor should complete UFP form (refer to Section 4.0) and issue to all relevant stakeholders.
11. Further visual assessment, sample collection and analysis should be undertaken by a qualified environmental consultant (who may also be the ER).
12. Evaluation of analytical data with respect to specific health screening levels is to be undertaken. Where significant contamination is identified a specific remediation strategy must be developed. If soils are found to be suitable to remain on the Site, a work instruction will be provided by the ER to this effect. A waste classification must be provided prior to any offsite disposal of material.
13. If the material is subsequently found to contain asbestos, an appropriately licensed contractor must be engaged to remove this material.
14. Affected areas will be reopened for works following a clearance of the location and issuance of a clearance report by ER.

3.3 Notes

1. Any suspected asbestos containing should be left in place and not disturbed. The Site Manager, Principal Contractor or ER will organise appropriate environmental professionals for further investigation purposes.
2. It is essential that material of differing compositions are not mixed.
3. All sampling for validation, waste classification or characterisation purposes will be carried out in accordance with the following documents:

    i. *Contaminated Sites: Sampling Design Guidelines* (NSW EPA, 1995);
    ii. *National Environment Protection (Assessment of Site Contamination) Measure* (NEPC, 2013);
    iii. *Contaminated Sites: Guidelines for Assessing Service Station Sites* (NSW EPA, 1994);
    iv. *Waste Classification Guidelines* (NSW EPA, 2014).

4. Any unexpected finds encountered should be listed on a UFP register, which should include the action taken and the status of the unexpected find. A suitable register is included in Section 5.0.
5. Once an unexpected find has been identified and a UFP form filled in the Site Manager or Principal Contractor and ER should liaise with the client as to the appropriate means of managing the situation. This should include discussions around the handling, treatment and disposal of material, OH&S considerations and how the affected area will be validated and reopened for works.
6. Prior to closing out an unexpected find it will be important to ensure the appropriate documentation is obtained, such as: photographs, the UFP form, waste classification letter(s) and a validation report or letter.
7. A UFP form should be completed on each day of the remedial works as part of the daily Site records. The form should include the name, company and the position of the person undertaking the field observations.

4.0 UNEXPECTED FINDS PROTOCOL FORM

To be completed by the Site Manager/Principal Contractor/Environmental Representative

Date		Site Manager		
Site Activities				
Personnel on Site				
Daily Summary				
1	Suspect material encountered during daily activities (if YES, compete 2 to 5)		Yes	No
2	ER contacted		Yes	No
3	UFP Reference Number (label occurrences sequentially 1, 2, 3, etc.).			
Description of Material Encountered				
4	Asbestos or suspected ACM present		Yes	No
5	Description of material			
6	Material isolated		Yes	No
7	Location of unexpected find (attach sketch/plan if required)			
8	Photographed		Yes	No
Completed by		Signature		

5.0 UNEXPECTED FINDS REGISTER

UFP Number	Date	Material	Actions	Status (Open/Close)

ATTACHMENT 7: Assessment Proposal

STATE ENVIRONMENTAL PLANNING POLICY NO. 55 – REMEDIATION OF LAND

7 Contamination and remediation to be considered in determining development application

(1) A consent authority must not consent to the carrying out of any development on land unless:

(a) it has considered whether the land is contaminated, and

(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and

(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

The applicant has submitted additional information including a Site Auditors Report and A Site Auditors Statement prepared by GHD Pty Ltd. Council's Environment Officer has made the following comments:

Further to additional DSI report Andrew Kolsch, Site Auditor has issued a non-statutory SAS and SAR dated March 2021. The SAR has reviewed both DSI reports and concluded that:

- *these two document DSI and supplementary DSI report) does comply with NSW EPA Consultants Guidelines for Contaminated Site Assessment;*
- *Based on the soil analysis results the site poses no risk and suitable for proposed development without site remediation work.*
- *A SAS has been issued dated March 2021 stating that site is suitable for proposed development.*

In addition, the applicant for due diligence purposes, has submitted a construction environmental management plan (CEMP) and unexpected find protocol (UFP) prepared by Environmental Consulting Services dated March 2021 that will be implemented during construction phase.

The submission of a SAS, SAR, CEMP and UFP has addressed the SEPP 55 and WDCP Chapter E-20 requirements and two conditions were recommended with regard to the implementation of the CEMP and UFP.

As a result of the information submitted conditions of consent have been amended. As such it is considered Clause 7 matters are satisfied.

STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007

Considered in Council Assessing Officers original report.

STATE ENVIRONMENTAL PLANNING POLICY (KOALA HABITAT) 2020

The City of Wollongong is identified within Schedule 1 as land to which this Policy applies. Wollongong is located within the South Coast Koala Management Area.

Part of the subject site is mapped as being within the Site Investigation Area for Koala Plans of Management pursuant to the SEPP Maps. This mapping is provided as a tool for Council in developing Koala Plans of Management and does not apply to the development application process. Council does not have an approved Koala Plan of Management for the land at the time of preparing this report, and as such, no further consideration of this SEPP is required.

STATE ENVIRONMENTAL PLANNING POLICY (BUILDING SUSTAINABILITY INDEX: BASIX) 2004

The original BASIX certificate submitted is still considered applicable, see original Council Assessing Officer Report.

WOLLONGONG LOCAL ENVIRONMENTAL PLAN 2009

Part 1 Preliminary

Clause 1.4 Definitions

Multi dwelling housing means 3 or more dwellings (whether attached or detached) on one lot of land, each with access at ground level, but does not include a residential flat building.

Part 2 Permitted or prohibited development

Clause 2.2 – Zoning of land to which Plan applies

The zoning map identifies the land as being zoned R2 Low Density Residential, as demonstrated by Figure 2 below.

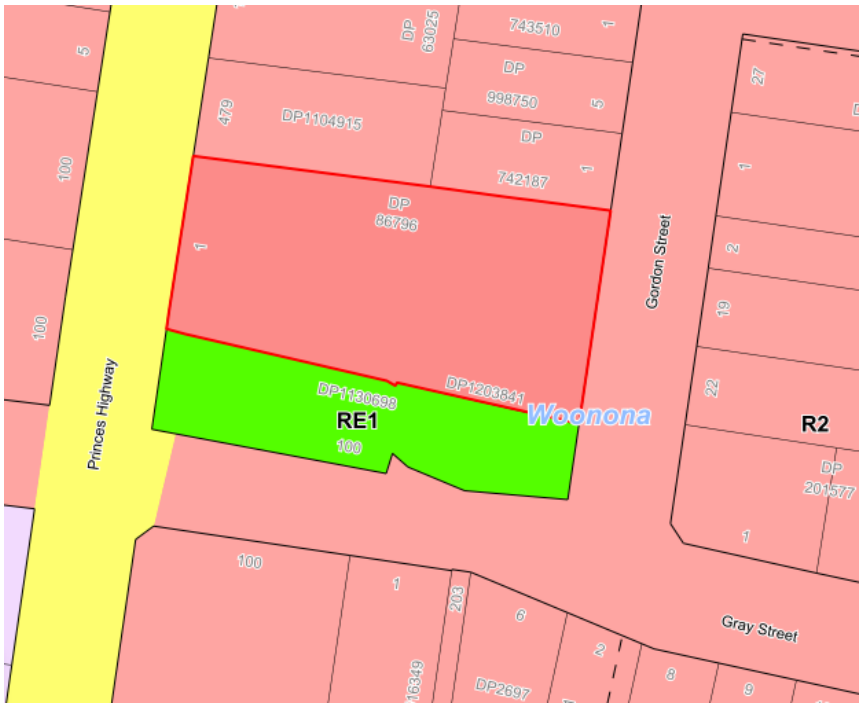


Figure 2: *WLEP 2009 zoning map*

Clause 2.3 – Zone objectives and land use table

The objectives of the zone are as follows:

- *To provide for the housing needs of the community within a low-density residential environment.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*

The proposal would be considered satisfactory with regard to the above objectives as it would provide for additional housing opportunities in a low-density environment.

The land use table permits the following uses in the zone:

> *Attached dwellings; Bed and breakfast accommodation; Boarding houses; Boat launching ramps; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Environmental facilities; Exhibition homes; Exhibition villages; Group homes; Health consulting rooms; Home-based child care; Hospitals; Hostels; Information and education facilities; Jetties;* ***Multi dwelling housing****; Neighbourhood shops; Places of public worship; Recreation areas;*

Recreation facilities (indoor); Recreation facilities (outdoor); Residential flat buildings; Respite day care centres; Roads; Semi-detached dwellings; Seniors housing; Shop top housing; Signage; Veterinary hospitals

The proposal is categorised as ***Multi dwelling housing*** as defined above and is permissible in the R2 zone with development consent.

Clause 2.7 Demolition requires development consent

Consent for the demolition of the existing warehouse storage structures are sought as part of the subject application. Condition 40 has been included in the draft conditions of consent that requires a construction management plan be prepared to maintain public safety, minimise disruption to pedestrian and vehicular traffic and to protect services and structures during demolition and construction. Additionally, condition 46 Dilapidation Report has been amended to ensure public and private infrastructure and building condition is note prior to any site works commencing. As a result of the electronic meeting held 17 February 2021 additional information was submitted including a Construction Environmental Management Plan and an Unexpected Finds Protocol which are considered satisfactory refer to condition 61, provided at Attachment 8.

Part 4 Principal development standards

Clause 4.3 Height of buildings

No proposed change to the height of the dwellings. The proposed maximum building height of 7.6m does not exceed the maximum of 9m permitted for the site.

Clause 4.4 Floor space ratio

The amended plans indicate a minor reduction is gross floor area from 1470m^2 to 1465.64m^2 . This is a result of the minor plan changes to facilitate waster storage in the garage areas of Unit 2, 3, 6 and 7. In turn the FSR is reduced from 0.50:1 to 0.498:1 considered satisfactory, details indicated below in the table. The maximum FSR for the site is 0.50:1.

Maximum FSR permitted for the zone:	**0.5:1**	
Combined Site area:	2939.9m^2	
Combined gross floor areas:		
Units 1, 2, 3 and 4	Ground floor	194m^2
	First floor	280m^2
Units 5, 6, 7 and 8	Ground floor	194m^2
	First floor	282m^2
Units 9 and 10	Ground floor	129m^2
	First floor	144m^2
Units 11 and 12	Ground floor	128m^2
	First floor	115m^2
Exclusions	36m2 x 12 (garages) = 432m^2	
GFA	1466m^2	
FSR	1466m^2 / 2939.95m^2 **0.498:1**	

Part 5 Miscellaneous provisions

5.11 Heritage Conservation

No proposed regarding heritage impacts from the original assessment.

The site is situated between two heritage items to the north is the Woonona Bulli School of Arts and to the south is Pendlebury Park. A heritage report was submitted with the proposal and Council's Heritage Officer previously provided satisfactory comment.

Part 6 Urban release areas

Not applicable.

Part 7 Local provisions – general

Clause 7.1 Public utility infrastructure

No proposed change see original Council Assessing Officer Report and Addendum Report.

Clause 7.5 Acid Sulfate Soils

See original Council Assessing Officer Report and Addendum Report.

Clause 7.6 Earthworks

The inclusion of Construction Management Plan, reference condition 41 of conditions provided at Attachment 8, requires the plan to detail excavation phases including proposed methods of support for excavations.

Clause 7.14 Minimum site width

See original Council Assessing Officer Report and Addendum Report.

WDCP 2009 compliance table

CHAPTER A2: ECOLOGICALLY SUSTAINABLE DEVELOPMENT

Development controls to improve the sustainability of development throughout Wollongong are integrated into the relevant chapters of this DCP.

Generally speaking, the proposal could be considered to be consistent with the principles of Ecologically Sustainable Development.

CHAPTER B1: RESIDENTIAL DEVELOPMENT

This Chapter applies to all land zoned in the LGA as residential. Section 4 provides general residential controls which apply to all dwelling houses, dual occupancies, secondary dwellings, ancillary structures and semi-detached dwellings. Section 5 provides controls that must also be taken into consideration for development for the purposes of Multi-Dwelling Housing.

4. General Residential controls

Controls/objectives	Comment	Compliance
4.11 Storage Facilities	No changes proposed from original application. The proposed development will provide adequate storage with each proposed dwelling. Consisting of 1 x 2 bedroom dwelling and 11 x 3 bedroom dwellings.	Yes
4.12 Site Facilities	No changes proposed from original application.	Yes

	The necessary site facilities have been indicated on plans and are considered satisfactory.	
4.13 Fire Brigade Servicing	No changes proposed from original application. Condition 28 is recommended in this regard, as provided at Attachment 8.	Yes
4.14 Services	No changes proposed from original application. The site currently has access to utility services. Draft conditions are recommended with regard to services.	Yes
4.15 View sharing	No changes proposed from original application. The proposal would not be envisaged to result in any significant impact on existing view corridors, given the context of the site and surrounding area.	Yes
4.16 Retaining walls	No changes proposed from original application. The existing retaining walls situated on the boundary between the site and Pendlebury Park are proposed to be retained with minor alteration of parts included.	Yes

5 Attached dwellings and multi - dwelling housing

Controls/objectives	*Comment*	*Compliance*
5.1 Minimum Site Width Requirement	No changes proposed from original application. The proposal involves multi dwelling housing. The subject site has a variable width of 32m adjoining the Princes Highway and 41m in width adjoining Gordon Street. The existing site width is considered satisfactory.	Yes
5.2 Number of Storeys	No changes proposed from original application. The proposed units are all two (2) storeys and considered satisfactory.	Yes
5.3 Front Setbacks	Minor change to Unit 12. Unit 1 and Unit 12 seek variations to the 6m setback to the property boundary from Gordon Street. Unit 1 seeks a setback of 3.74m in line with the neighbouring property at 2 Gordon St, Woonona. A small porch area is proposed to encroach on this setback. The porch area is approximately 900mm.	Variation sought. Considered capable of support.

	Unit 12 proposes a setback 7.525m however within this is the POS for Unit 12, setback at 3.4m from the boundary, and a visitor parking space. The street has a variable mix of setbacks. The porch encroachment provides built form articulation and entry presentation to the street. Additional separation from the entrance of Unit 12 and visitor car parking space 01. The variation is considered capable of support refer to previous assessment report.	
5.4 Side and Rear Setbacks • 0.8 x ceiling height min	No changes proposed from original application. Proposed side and rear setbacks are generally compliant, as indicated by Table 2 below. Unit 9 has a 43cm encroachment, non-compliance, into the lower level side setback however the objectives are still considered achieved as this area is bounded by the neighbouring park and there are minimal foreseeable impacts as a result.	Yes

	Required setbacks		**Proposed setbacks**	
Unit 1	Ground floor	2.16m	Ground floor	3.15m
	First floor	4.16m	First floor	5.98m
Unit 2	Ground floor	2.16m	Ground floor	3m
	First floor	4.16m	First floor	5.8m
Unit 3	Ground floor	2.16m	Ground floor	3m
	First floor	4.16m	First floor	5.8m
Unit 4	Ground floor	2.16m	Ground floor	2.93m
	First floor	4.16m	First floor	5.65m
Unit 5	Ground floor	2.16m	Ground floor	3.4m
	First floor	4.16m	First floor	6.3m
Unit 6	Ground floor	2.16m	Ground floor	3.2m
	First floor	4.16m	First floor	6.1m
Unit 7	Ground floor	2.16m	Ground floor	3.1m
	First floor	4.16m	First floor	6m
Unit 8	Ground floor	2.16m	Ground floor	3.02m
	First floor	4.16m	First floor	5.74m
Unit 9	Ground floor	2.16m	Ground floor	1.73m

	First floor	4.16m	First floor	4.23m to balcony 6.25m to ext. wall
Unit 10	Ground floor	2.16m	Ground floor	4.88m
	First floor	4.16m	First floor	4.6m to balcony 6.84m to ext. wall
Unit 11	Ground floor	2.16m	Ground floor	2.14m
	First floor	4.16m	First floor	4.03m to balcony 5.71m to ext. wall
Unit 12	Ground floor	2.16m	Ground floor	3.23m
	First floor	4.16m	First floor	3.48m to balcony 7.5m to ext. wall

5.5 Building Character and Form	Minor change to the frontage of Unit 12 addressing the Gordon Street frontage. Additional landscape and separation included between entry and visitor car parking space 01. Additional condition added to address built form changes recommended by panel in electronic meeting held 17 February 2021 to relocate the proposed awning/ pergola. A condition, relating to built form changes required, as a result of the electronic meeting held on 17 February 2021 have been included in consent provided at Attachment 8.	Yes
5.6 Access/ Driveway Requirements	No plans have been revised however the panel recommendations from the electronic meeting held on 17 February 2021 have been conditioned to include: • Motorbike parking is to be deleted from plans and the proposed awning is to be relocated outside of the turning bay area. See 5.7 below. Previously Council's Traffic Officer has reviewed the revised plans and supplementary swept paths and provided satisfactory comment.	Yes

5.7 Car Parking Requirements		
	As a result of the electronic meeting held on 17 February 2021 the WLPP recommendations included the deletion of motorbike parking from the plans. The applicant has agreed with the recommendation. This is a technical non-compliance to Council controls which requires 1 motorcycle space per 15 dwellings. As recommended by the panel the deletion will increase amenity for future occupants.	No. Technical variation.
	As a result of the plan changes required a condition of consent, refer to revised condition 9, has been included in conditions, provided at Attachment 8.	
5.8 Landscaping Requirements		
	Landscaped Area Proposed: 30% and considered compliant.	Yes
	See further discussion at Chapter E6 below.	
5.9 Deep Soil Planting	No changes proposed from original application.	
	A variation was previously ought due to mor encroachments of a fence and path.	Variation sought. Capable of being supported.
	The proposed development satisfies the objectives of Council's Deep Soil Planting controls and policies. Previously considered capable of support.	
5.10 Communal Open Space	No changes proposed from original application.	
	Communal Opens space is considered satisfactory.	Yes
5.11 Private Open Space	No changes proposed from original application.	
	No proposed changes to the POS areas proposed. Gates for waste bin storage and access area now indicated on plans for Units 1, 4, 5 and 8 of Unit 12.	Yes
5.12 Solar Access Requirements		
	Revised plans include shadow diagrams which demonstrate that the proposal would not result in unreasonable overshadowing impacts on any adjoining properties.	Yes

5.13 Additional Control for Multi Dwelling Housing - Dwelling Mix and Layout	No changes proposed from original application. The proposal is for a 12 dwelling multi dwelling housing development. The proposal includes 11 x 3-bedroom units and 1 x 2-bedroom unit.	Yes
5.14 Additional Control for Multi Dwelling Housing - Adaptable Housing • Required for greater than six (6) dwellings.	No changes proposed from original application. Units 9 and 11 which have been designed to be capable of adaptation.	Yes
5.15 Additional Control for Multi Dwelling Housing – Crime Prevention through Environmental Design	No changes proposed from original application. See chapter E2 comments below.	Yes

CHAPTER D1: CHARACTER STATEMENTS

The proposal is considered to be consistent with the existing and desired future character for the locality as follows:

- The development would assist in providing an additional mix of housing types, within reasonable walking distance to Woonona Town Centre.
- Adequate landscaped area and deep soil zone areas are proposed as part of the development, as discussed above.
- Heritage impacts on the adjoining buildings and park have been considered and are subject to conditions.

CHAPTER E1: ACCESS FOR PEOPLE WITH A DISABILITY

Previous assessment:

It is considered that disabled access to the proposed development is acceptable in this circumstance. The submitted Access Consultant's Report has been reviewed and conditions are recommended as provided at Attachment 8.

CHAPTER E2: CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN

No proposed change to previous assessment

Control/objective	*Comment*	*Compliance*
3.1 Lighting	Conditions are recommended with regard to the lighting of entries.	Yes
3.2 Natural surveillance and sightlines	Minor re-design of the front of Unit 12 has improved the separation of visitor parking from the entrance. Unit 1 and 12 have been designed to front Gordon Street units 8 and 9 provide passive surveillance to the Princes Highway. Units 9, 10, 11 and 12 also provide passive surveillance of the adjoining Pendlebury park.	Yes
3.3 Signage	The proposal does not include any signage	N/A
3.4 Building design	The building design minimises areas of concealment or entrapment.	Yes
3.5 Landscaping	Landscaping proposed is considered appropriate and minimises areas of concealment or entrapment.	Yes
3.6 Public open space and parks.	There is no public open space proposed or required. Access to the park is provided via a resident entry gate. This will assist with passive surveillance to the park.	Yes
3.7 Community facilities	There are no community facilities located within the development as proposed. Communal open space provided is satisfactory.	N/A
3.8 Bus stops and taxi ranks	There are a number of bus stops located in the vicinity of the development.	Yes

CHAPTER E3: CAR PARKING, ACCESS, SERVICING/LOADING FACILITIES AND TRAFFIC MANAGEMENT

The plans and swept paths have been previously reviewed by Council's Traffic Officer who has not raised any concerns subject to conditions of consent.

Multi dwelling housing

Car parking	*Rate*	*Calculation*	*Required*	*Provided*	*Compliant*	*Comment*
Resident:	1 space per dwelling <70sqm 1.5 spaces per dwelling 70-110sqm 2 spaces per dwelling >110sqm	0 0 2 x 12	24	24	Yes	No proposed change.
Visitor:	0.2 per dwelling	0.2 x 12	3 (rounded)	3	Yes	No proposed change. Swept paths provided. Dimensions included on plans.

Bicycle Parking:	1 bicycle space per 3 dwellings (residents) and 1 bicycle space per 12 dwellings (visitor)	12/3 12/12	4 (rounded) 1	5	Yes	Relocated toward Unit 1.
Motorbike Parking:	1 motorcycle space per 15 dwellings	12/15	1 (rounded)	0	No	To be deleted from plans as per panel recommendation.

As a result of the electronic meeting held on 17 February 2021 the WLPP recommendations included the deletion of motorbike parking from the plans. The applicant has agreed with the recommendation and as such a condition of consent, refer to revised condition 9, has been included relating to plan changes provided at Attachment 8.

Previous assessment:

Councils Traffic Officer has assessed the revised plans and provided conditionally satisfactory referral advice.

Each dwelling is provided with a double garage, and 3 visitors car parking spaces are proposed off the central driveway area, satisfying the provisions of this Chapter.

Waste storage has been revised to be incorporated into the garage areas of units 2, 3, 6 and 7 however garage dimensions remain compliant with Council controls.

CHAPTER E6: LANDSCAPING

As a result of the electronic meeting held on 17 February 2021 the WLPP recommendations included the deletion of motorbike parking from the plans and re-instatement of landscape bed and the recommendation of low growing plants for internal planter beds. The applicant has agreed with the recommendation and as such a condition of consent has been included relating to plan changes, refer to condition 9 and 23 for plan changes. See Attachment 8.

Previous Assessment:

Councils Landscape Officer has assessed the revised plans and provided conditionally satisfactory referral advice.

Overall, Councils Landscape Officer considers the proposal satisfactory, subject to conditions as provided at Attachment 8. The proposed landscaped area, deep soil zone and communal open space areas proposed comply with the WDCP 2009, as discussed within Chapter B1. The proposal is not considered to be inconsistent with the provisions of this Chapter.

CHAPTER E7: WASTE MANAGEMENT

Previous assessment:

Council's Traffic Officer has assessed the proposal against the requirements of this Chapter. Waste storage has been revised to be incorporated into the garage areas of units 2, 3, 6 and 7 however, garage dimensions remain compliant with Council controls. No proposed change to waste management and collection.

A Site Waste Minimisation and Management Plan was submitted with the application and waste servicing arrangements are satisfactory. Waste collection is split between the Princes Highway and Gordon Street.

CHAPTER E11: HERITAGE CONSERVATION

Previous assessment:

Council's Heritage Officer has assessed the proposal against the requirements of this Chapter. A heritage report was submitted with the application and considered to be satisfactory. The site adjoins two heritage items the Woonona/ Bulli School of Arts and Pendlebury Park. Conditions of consent are recommended regarding protection of both sites during demolition and construction works as provided at Attachment 8.

CHAPTER E14: STORMWATER MANAGEMENT

Previous assessment:

No proposed change to stormwater plans. The previous assessment by Council's Stormwater Officer and conditions recommended previously are still considered valid. Conditions are provided at Attachment 8.

CHAPTER E19: EARTHWORKS (LAND RESHAPING WORKS)

A Site Auditors Statement and Site Auditors Report has been submitted as additional information as a result of the electronic WLPP meeting held on 17 February 2021. The information has been considered by Councils Environment Officer. As a result, conditions have been revised. Conditions are provided at Attachment 8.

Previous assessment:

As a result of the WLPP meeting held on 3 November 2020 the panel requested a dilapidation report be conditioned for adjoining public and private properties. Previously condition 55 dilapidation report was included but only referred to public infrastructure. This condition has been revised and relocated to condition 46 as provided at Attachment 8.

CHAPTER E21: DEMOLITION AND ASBESTOS MANAGEMENT

As a result of the electronic WLPP meeting held on 17 February 2021 a Construction Environmental Management Plan and a Unexpected Finds Protocol have been submitted. Conditions of consent have been revised accordingly. Conditions are provided at Attachment 8.

Previous assessment:

No proposed change to demolition conditions. A construction management plan has been included as an additional condition, reference condition 41. This condition requires the submission of a plan prior to the issue of the Construction Certificate to protect services, infrastructure and adjoining properties. Conditions are provided at Attachment 8.

CHAPTER E22: SOIL EROSION AND SEDIMENT CONTROL

Previous assessment:

No proposed change to conditions in this regard, conditions of consent are provided at Attachment 8.

ATTACHMENT 8 –Conditions for DA-2020/572

Approved Plans and Specifications

1 The development shall be implemented substantially in accordance with the details and specifications set out on Project No. 20105 Drawing no. AR 0101-D dated 11 November 2020, AR 0102-B, AR 0151-C, AR 0152-C, AR 0153-C, AR 0154-C, AR 0202-C, AR 0203-C, AR 0204-C, AR 301-C, AR 302-C, AR 303-C, AR 304-C, AR 305-C dated 6 November 2020, AR 0112-1 dated 12 August 2020 and AR 0011-A dated 11 May 202 prepared by JACK TAYLOR ARCHITECTS Pty Ltd. and any details on the application form, and with any supporting information received, except as amended by the conditions specified and imposed hereunder.

General Matters

2 **Adjoining structures**

Prior to demolition or site preparation works any structures attached to the existing warehouse building require consultation with property owners prior to being removed. Vegetation and other structures in close proximity to the boundary shall be protected.

3 **Building Work - Compliance with the Building Code of Australia**

All building work must be carried out in compliance with the provisions of the Building Code of Australia.

4 **Construction Certificate**

A Construction Certificate must be obtained from Council or a Registered Certifier prior to work commencing.

A Construction Certificate certifies that the provisions of Clauses 139-147 of the Environmental Planning and Assessment Regulation 2000 have been satisfied, including compliance with all relevant conditions of Development Consent and the Building Code of Australia.

Note: The Certifier must cause notice of its determination to be given to the consent authority, and to the council, by forwarding to it, within two (2) days after the date of the determination, the plans and documentation referred to in clause 142 (2) of the Environmental Planning and Assessment Regulation 2000.

5 **Mailboxes**

The developer must install mailboxes along street frontage of the property boundary in accordance with Australia Post Guidelines. Prominent house numbers are to be displayed, with a minimum number size of 150 mm in height for each number and letter in the alphabet. The developer must install minimum two (2 No.) reflective paint house number on face of kerb along street frontage of the property to assist emergency services/ deliveries/ visitors.

6 **Maintenance of Access to Adjoining Properties**

Access to all properties not the subject of this approval must be maintained at all times and any alteration to access to such properties, temporary or permanent, must not be commenced until such time as written evidence is submitted to Council or the Principal Certifier indicating agreement by the affected property owners.

7 **Tree Management**

The developer shall retain existing trees indicated on Landscape Concept Plan by Jack Taylor Architects Pty Ltd. Dwg. No. Da L01 Issue B dated 16 November 2020 consisting of tree numbered 1, 2, 3, 4, 5 and large Stelitzia Nicholai along southern boundary. Total number: six (6 No.)

Any branch or root pruning which has been given approval, must be carried out by a qualified arborist in accordance with Australian Standard AS4373 (2007).

All tree protection measures are to be installed in accordance with Australian standard AS4970-2009 Protection of Trees on development Sites.

Recommendations in arborist's report dated Feb 2020 by Moore Trees Author Paul Vezgoff to be implemented including and not restricted to: ensuring brick retaining wall along southern boundary is supported by piered not strip footing, establishing Tree Protection Zones (TPZs), project arborist being present during work within Structural Root Zones (SRZs) and supervising work within TPZs, site induction with reference to tree protection, referring matters to project arborist, re-routing of sub surface utilities to avoid TPZs, hand excavation within TPZ near tree roots, remedial tree pruning, deadwooding, fencing and signage, sediment buffer, stem protection, mulching and watering and root hormone application if required. Soil levels within the TPZ must remain the same.

8 **Occupation Certificate**

An Occupation Certificate must be issued by the Principal Certifier prior to occupation or use of the development. In issuing an Occupation Certificate, the Principal Certifier must be satisfied that the requirements of section 6.9 of the Environmental Planning and Assessment Act 1979, have been complied with as well as all of the conditions of the Development Consent.

Prior to the Issue of the Construction Certificate

9 **Plan Updates**

- The pergola indicated on plans shall be relocated to over the walkway to ensure there is no conflict with vehicles using the turning bay.
- The motorbike parking adjoining unit 1 shall be deleted and replaced by suitable landscaping.

These changes shall be indicated on plans prior to the issue of the Construction Certificate.

10 **ISEPP Noise Guidelines**

Implement all acoustic attenuation recommendations stated in the acoustic report prepared by Harwood Acoustics dated 12 May 2020 to ensure the dwelling/s comply with ISEPP Noise Guidelines for internal living. These recommendations shall be indicated on plans prior to the release of the Construction Certificate.

11 **Flows from Adjoining Properties**

Flows from adjoining properties shall be accepted and catered for within the site. Finished ground and top of retaining wall levels on the boundary shall be no higher than the existing upslope adjacent ground levels. The above requirements must be clearly shown on construction certificate plans prior to the release of the Construction Certificate.

12 **Heritage – Interpretation Signage**

The applicant is to prepare interpretative material to be included on a small sign located on development entrance gateway on the boundary fence to Pendlebury Park. The sign should provide a brief history of Pendlebury Park and its significance. Details of the proposed sign should be provided to Council's Heritage Staff for approval prior to release of Construction Certificate.

13 **External Finishes**

External finishes and colours shall be in accordance with approved plans. These requirements must be clearly shown on construction certificate plans prior to the release of the Construction Certificate.

14 **Present Plans to Sydney Water**

Approved plans must be submitted online using Sydney Water Tap, available through www.sydneywater.com.au to determine whether the development will affect Sydney Water's sewer and water mains, stormwater drains and/or easements, and if further requirements need to be met. The Principal Certifier must ensure that Sydney Water has issued an approval receipt prior to the issue of a Construction Certificate.
Visit www.sydneywater.com.au or telephone 13 20 92 for further information.

15 **Endeavour Energy Requirements**

The submission of documentary evidence from Endeavour Energy to the Principal Certifier is required confirming that satisfactory arrangements have been made with Endeavour Energy for the provision of electricity supplies to the development, prior to the release of the Construction Certificate.

Note: Applications should be made to Customer Connections – South Coast, Endeavour Energy PO Box 811 Seven Hills NSW 1730.

16 **Telecommunications**
The submission of documentary evidence from an approved telecommunications carrier to the Principal Certifier confirming that underground telecommunication services are available for this development is required prior to the issue of the Construction Certificate.

17 **Fencing**
The development is to be provided with fencing and screen walls at full cost to the applicant/developer in accordance with approved plans. This requirement is to be reflected on the Construction Certificate plans.

18 **Car Parking and Access**
The development shall make provision for a total of 27 car parking spaces (including 3 visitor car parking spaces and 1 space capable of adaption for people with disabilities), a minimum of 4 secure (Class B) residential bicycle spaces and 1 visitor bicycle space (Class C). This requirement shall be reflected on the Construction Certificate plans. Any change in above parking numbers shown on the approved DA plans shall be dealt with via a section 4.55 modification to the development. The approved car parking spaces shall be maintained to the satisfaction of Council, at all times.

19 The car parking areas shall incorporate 'low impact' floodlighting to ameliorate any light spillage and/or glare impacts upon surrounding properties. The final design details of the proposed floodlighting system shall be reflected on the Construction Certificate plans. The erection of the floodlighting system shall be in accordance with the approved final design.

20 A change in driveway paving is required at the entrance threshold within the property boundary to clearly show motorists they are crossing a pedestrian area. Between the property boundary and the kerb, the developer must construct the driveway pavement in accordance with the conditions, technical specifications and levels to be obtained from Council's Manager Works. This requirement shall be reflected on the Construction Certificate plans and any supporting documentation.

21 **Structures Adjacent to Driveway**
Any proposed structures adjacent to the driveway shall comply with the requirements of the current relevant Australian Standard AS2890.1 (figure 3.2 and 3.3) to provide for adequate pedestrian and vehicle sight distance. This includes, but is not limited to, structures such as signs, letterboxes, retaining walls, dense planting etc. This requirement shall be reflected on the Construction Certificate plans.

22 The depth and location of all services (ie gas, water, sewer, electricity, telephone, traffic lights, etc) must be ascertained and reflected on the Construction Certificate plans and supporting documentation.

23 **Landscaping**
The submission of a final Landscape Plan to the Principal Certifying Authority, prior to the release of the Construction Certificate. The final Landscape Plan shall address the following requirements:

a planting of indigenous plant species typical of the Illawarra Region such as: *Syzygium smithii* (formerly Acmena smithii) Lilly pilly, *Archontophoenix cunninghamiana* Bangalow palm, *Backhousia myrtifolia* Grey myrtle, *Elaeocarpus reticulatus* Blueberry ash, *Glochidion ferdinandii* Cheese tree, *Livistona australis* Cabbage palm tree, B*rachychiton acerifolius* Illawarra Flame Tree.; A further list of suitable suggested species for the Woonona area may be found in Wollongong Development Control Plan 2009 – Chapter E6: Landscaping;

b a schedule of proposed planting, including botanic name, common name, expected mature height and staking requirements as well as number of plants and pot sizes;

c planting adjacent to entrances of units 2,3,4,5,6 and 7 shall be low level species to ensure site distances are maintained.

d the location of all proposed and existing overhead and underground service lines. The location of such service lines shall be clear of the dripline of existing and proposed trees;

e any proposed hard surface under the canopy of an existing trees shall be permeable and must be laid such that the finished surface levels match the existing level. Paving for Unit 10's Private Open Space to be permeable. Permeable paving is to be installed in accordance with the manufacturer's recommendations;

f the developer shall ensure that proposed planting is child friendly and must **not** include any of the types of plants listed below: **i)** plants known to produce toxins; **ii)** plant with high allergen properties; **vi)** any weed or potential weed species;

g landscaping to utilise some feature fired brickwork to complement adjacent park;

h where turf is proposed adjacent to built structures and garden beds the applicant shall install a 110mm wide brick mowing edge with concrete footing to minimise maintenance;

i structural support for awning on adjacent property utilising boundary brickwork to not be compromised; and;

j any fill material should not cover topsoil. Topsoil shall be removed, stockpiled, ameliorated and replaced over any fill material to a minimum depth of 100mm.

The completion of the landscaping works as per the final approved Landscape Plan is required, prior to the issue of Occupation Certificate or commencement of the development.

24 The submission of certification from a suitably qualified and experienced landscape designer and drainage consultant to the Principal Certifier prior to the release of the Construction Certificate, confirming that the landscape plan and the drainage plan are compatible.

25 The implementation of a landscape maintenance program in accordance with the approved Landscape Plan for a minimum period of 12 months to ensure that all landscape work becomes well established by regular maintenance. Details of the program must be submitted with the Landscape Plan to the Principal Certifier prior to release of the Construction Certificate.

26 **Compensatory Planting**
The developer must make compensatory provision for the vegetation required to be removed as a result of the development. In this regard, one (1 No.) 75 litre container advanced mature plant stock shall be placed within the property boundary of the site in appropriate locations. The suggested species are to be selected from the following list: *Elaeocarpus reticulatus* Blueberry ash, *Livistona australis* Cabbage palm tree, or B*rachychiton acerifolius* Illawarra Flame Tree. A further list of suitable suggested species may be found in Wollongong Development Control Plan 2009 – Chapter E6: Landscaping.

27 **Tree Protection Measures**
The existing trees are to be retained upon the subject property and any trees on adjoining properties shall not be impacted upon during the excavation or construction phases of the development. This will require the installation and maintenance of appropriate tree protection measures, including (but not necessarily limited to) the following:

a Installation of Tree Protection Fencing - Protective fencing shall be 1.8 metre cyclone chainmesh fence, with posts and portable concrete footings. Details and location of protective fencing must be indicated on the architectural and engineering plans to be submitted to the Principal Certifying Authority prior to release of the Construction Certificate.

b Mulch Tree Protection Zone: Areas within a Tree Protection Zone are to be mulched with minimum 75 mm thick 100% recycled hardwood chip/leaf litter mulch.

c Irrigate: Areas within the Tree Protection Zone are to be regularly watered in accordance with the arborist's recommendations.

The submission of a final Site Plan to the Principal Certifying Authority indicating required tree protection fencing is required, prior to the release of the Construction Certificate.

28 **Provision of a Fire Hydrant**
The provision of a fire hydrant in accordance with AS2419.1 (2005) Fire Hydrant Installations and any requirements of the NSW Rural Fire Service and/or NSW Fire Brigades. The final details of

the location of the fire hydrant shall be reflected on the Construction Certificate plans prior to the issue of the Construction Certificate.

29 **Engineering Plans and Specifications - Retaining Wall Structures Greater than 1m**

The submission of engineering plans and supporting documentation of all proposed retaining walls greater than 1m to the Principal Certifier for approval prior to the issue of the Construction Certificate. The retaining walls shall be designed by a suitably qualified and experienced civil and/or structural engineer. The required engineering plans and supporting documentation shall include the following:

1 A plan of the wall showing location and proximity to property boundaries;

2 An elevation of the wall showing ground levels, maximum height of the wall, materials to be used and details of the footing design and longitudinal steps that may be required along the length of the wall;

3 Details of fencing or handrails to be erected on top of the wall;

4 Sections of the wall showing wall and footing design, property boundaries, subsoil drainage and backfill material. Sections shall be provided at sufficient intervals to determine the impact of the wall on existing ground levels. The developer shall note that the retaining wall, subsoil drainage and footing structure must be contained wholly within the subject property;

5 The proposed method of subsurface and surface drainage, including water disposal. This is to include subsoil drainage connections to an inter-allotment drainage line or junction pit that discharges to the appropriate receiving system;

6 The assumed loading used by the engineer for the wall design.

7 Flows from adjoining properties shall be accepted and catered for within the site. Finished ground and top of retaining wall levels on the boundary shall be no higher than the existing upslope adjacent ground levels.

30 **Stormwater Connection to Kerb**

Connection across footways shall be by means of one or two (maximum), sewer grade UPVC pipe(s), 100mm diameter pipes with a continuous downslope gradient to the kerb. Connection to the kerb shall be made with a rectangular, hot dipped galvanised mild steel weephole(s) shaped to suit the kerb profile, with each weephole having the capacity equal to a 100mm diameter pipe. Alternatively, a maximum of two 150mm x 100mm hot dipped galvanised steel pipes may be used across footways, with the 150mm dimension being parallel to the road surface to suit the kerb profile.

31 **Bicycle Parking Facilities**

Bicycle parking facilities must have adequate weather protection and provide the appropriate level of security as required by the current relevant Australian Standard AS2890.3 - Bicycle Parking Facilities and Austroads Guide to Traffic Management Part 11: Parking (Commentary 9: C9.2). In the absence of internal bicycle storage areas in private residential garages, the proposed external bicycle spaces are to have adequate weather protection, passive surveillance, and be secured within a lockable enclosure with access via a combination lock or communal key. This requirement shall be reflected on the Construction Certificate plans.

32 **Property Addressing Policy Compliance**

Prior to the issue of any construction certificate, the developer must ensure that any site addressing complies with Council's **Property Addressing Policy** (as amended). Where appropriate, the developer must also lodge a written request to Council's **Infrastructure Systems & Support – Property Addressing (propertyaddressing@wollongong.nsw.gov.au),** for the site addressing prior to the issue of the construction certificate. Please allow up to 3-5 business days for a reply. Enquiries regarding property addressing may be made by calling 4227 8660.

33 **Footpath Paving**

The developer is responsible for the construction of footpath paving for the entire frontage of Gordon Street. The type of paving for this development is a 1500mm wide, 100mm thick, reinforced, broom finished concrete. A nominal two percent (2%) minimum one percent (1%), maximum two and a half percent (2.5%) cross fall to be provided from property line to back of kerb. Any changes of level, ramps or stairs and associated tactile markers and handrails are to be contained with the property boundary.

The driveway entry threshold from the property boundary line to the face of kerb is to be broom finished concrete to match the footpath and be designed to withstand predicted traffic loadings.

The driveway threshold finish within property boundary line is to contrast with driveway entry.

The footpath and driveway entry on the council property must be installed to the satisfaction of WCC Manager of Works.

34 A Landscape Plan is to be submitted to Council for approval prior to the issue of the Construction Certificate showing proposed paving, footpath design levels, street tree details and location of all services.

35 **Street Trees**

The developer must address the street frontage by installing street tree planting. The number and species for this development is one (1 No.) *Melaleuca viminalis* Weeping Bottlebrush 100 litre container size, in accordance with AS 2303:2018 Tree stock for landscape use. Street trees are to be installed in accordance with Wollongong Development Control Plan 2009 – Chapter E6: Landscaping. 'Dial Before You Dig' must be consulted prior to any excavation on site. Pot holing must be carried out to determine service location. Tree pits must be adequately mulched, plants installed, and staking installed to the satisfaction of WCC Manager of Works. Staking is to consist of min. 3 x 2400 x 50 x 50mm hardwood stakes driven min 600mm into firm ground. Hessian webbing is to be utilised to secure plant stock to industry standard.

These requirements shall be reflected on the Construction Certificate plans and any supporting documentation.

36 **Sizing of Drainage**

All roof gutters, downpipes, pits, and pipelines draining roof areas and other impervious surfaces with no deliberate overflow path to the on-site stormwater detention (OSD) facility, shall be designed to cater for a 1 in 100 year ARI storm event in accordance with AS 3500.3 – Plumbing and Drainage (Stormwater Drainage). Details of gutter/downpipe/pipeline sizes and locations shall be reflected on the Construction Certificate plans.

37 **Stormwater Drainage Design**

A detailed drainage design for the development must be submitted to and approved by the Principal Certifier prior to the release of the Construction Certificate. The detailed drainage design must satisfy the following requirements:

a Be prepared by a suitably qualified civil engineer in accordance with Chapter E14 of Wollongong City Council's Development Control Plan 2009, Subdivision Policy, conditions listed under this consent, and generally in accordance with the The Stormwater Concept Plan, prepared by Land Team, Reference No. 213194-E01, revision D, dated 6/5/ 2020.

b Include details of the method of stormwater disposal. Stormwater from the development must be piped to Council's existing stormwater drainage system.

c Engineering plans and supporting calculations for the stormwater drainage system are to be prepared by a suitably qualified engineer and be designed to ensure that stormwater runoff from upstream properties is conveyed through the site without adverse impact on the development or adjoining properties. The plan must indicate the method of disposal of all stormwater and must include rainwater tanks, existing ground levels, finished surface levels on all paved areas, estimated flow rates, invert levels and sizes of all pipelines.

d Overflow paths shall be provided to allow for flows of water in excess of the capacity of the pipe/drainage system draining the land, as well as from any detention storage on the land. Blocked pipe situations with 1 in 100 year ARI events shall be incorporated in the design. Overflow paths shall also be provided in low points and depressions. Each overflow path shall be designed to ensure no entry of surface water flows into any building and no concentration of surface water flows onto any adjoining property. Details of each overflow path shall be shown on the detailed drainage design.

38 **On-Site Stormwater Detention (OSD) Design**

The developer must provide on-site stormwater detention (OSD) storage for stormwater runoff from the development. The design and details of the OSD system must be provided in conjunction with the detailed drainage design and approved by the Principal Certifier prior to the release of the Construction Certificate. The OSD design and details must satisfy the following requirements:

a Must be prepared by a suitable qualified engineer in accordance with Chapter E14 of the Wollongong DCP 2009.

b Must include details of the Site Storage Requirement (SSR) and Permissible Site Discharge (PSD) values for the site in accordance with Section 10.2.4 of Chapter E14 of the Wollongong DCP2009.

c The OSD facility must be designed to withstand the maximum loadings occurring from any combination of traffic (with consideration to residential and heavy vehicles), hydrostatic, earth, and buoyancy forces. Details must be provided demonstrating these requirements have been achieved.

d The OSD facility shall incorporate a minimum 600mm x 600mm square lockable grate for access and maintenance purposes, provision for safety, debris control screen, and a suitably graded invert to the outlet to prevent ponding.

e Must include discharge control calculations (i.e. orifice/weir calculations) generally in accordance with Section 10.2.6 and 10.4.4 of Chapter E14 of the Wollongong DCP2009.

f Details of the orifice plate including diameter of orifice and method of fixing shall be provided.

g Must include details of a corrosion resistant identification plaque for location on or close to the OSD facility. The plaque shall include the following information and shall be installed prior to the issue of the occupation certificate:

- The structure is an OSD facility, being part of the stormwater drainage network, and is not to be tampered with.
- Identification number [DA-2020/572];
- Any specialist maintenance requirements.

h Must include a maintenance schedule for the OSD system, generally in accordance with Chapter E14 of the Wollongong DCP2009.

39 **Council Footpath Reserve Works – Driveways and Crossings**

All redundant vehicular crossings and laybacks rendered unnecessary by this development must be reconstructed to normal kerb and gutter or existing edge of carriageway treatment to match the existing. The verge from the back of kerb to the boundary must be restored and the area appropriately graded, topsoiled and turfed in a manner that conforms with adjoining road reserve. The area forward of the front boundary must be kept smooth, even and free from any trip hazards. All alterations of public infrastructure where necessary are at the developer's expense.

All new driveway laybacks and driveway crossings must be designed in accordance with Wollongong City Council Standards. Any redundant line marking such as 'marked parking bays' are adjusted/removed at the developer's expense by a Council recognised contractor with the relevant insurances. Details and locations are to be shown on the Construction Certificate Plans.

40 **Development Contributions**

Pursuant to Section 4.17 of the Environmental Planning and Assessment Act 1979 and the Wollongong City-Wide Development Contributions Plan (2018), a monetary contribution of $27,300.00 (subject to indexation) must be paid to Council towards the provision of public amenities and services, prior to the release of any associated Construction Certificate.

This amount has been calculated based on the estimated cost of development and the applicable percentage rate.

The contribution amount will be subject to indexation until the date of payment. The formula for indexing the contribution is:

Contribution at time of payment = $C x (CP2/CP1)

Where:

$C is the original contribution as set out in the Consent

CP1 is the Consumer Price Index; All Groups CPI; Sydney at the time the consent was issued

CP2 is the Consumer Price Index; All Groups CPI; Sydney at the time of payment

Details of CP1 and CP2 can be found in the Australian Bureau of Statistics website – Catalogue No. 6401.0 - Consumer Price Index, Australia.

The following payment methods are available:

METHOD	HOW	PAYMENT TYPE
Online	http://www.wollongong.nsw.gov.au/applicationpayments Your Payment Reference: 1234901	• Credit Card
In Person	Wollongong City Council Administration Building - Customer Service Centre Ground Floor 41 Burelli Street, WOLLONGONG	• Cash • Credit Card • Bank Cheque
PLEASE MAKE BANK CHEQUE PAYABLE TO: Wollongong City Council (Personal or company cheques are not accepted)		

A copy of the Wollongong City-Wide Development Contributions Plan (2018) and accompanying Fact Sheet may be inspected or obtained from the Wollongong City Council Administration Building, 41 Burelli Street, Wollongong during business hours or on Council's web site at www.wollongong.nsw.gov.au

41 **Construction Management Plan**

The submission of a Construction Management Plan is to be submitted to the Principal Certifier prior to the issue of the Construction Certificate. This plan shall address what measures will be implemented for the protection of adjoining properties and traffic management of construction vehicles.

This plan is required to maintain public safety, minimise disruption to pedestrian and vehicular traffic within this locality and to protect services, during demolition, excavation and construction phases of the development. This plan shall include the following aspects:

a proposed ingress and egress points for vehicles to/from the construction site;

b proposed pedestrian management whilst vehicles are entering/exiting the construction site;

c proposed measures to be implemented for the protection of all roads and footpath areas surrounding the construction site from building activities, crossings by heavy equipment, plant and materials delivery and static load from cranes, concrete pumps and the like;
d proposed method of loading and unloading excavation machines, building materials formwork and the erection of any part of the structure within the site;
e proposed areas within the site to be used for the storage of excavated material, construction materials and waste containers during the construction period;
f proposed method of support of any excavation, adjacent to adjoining buildings or structures and the road reserve. The proposed method of support is to be certified by an accredited certifier in Civil Engineering; and
g proposed measures to be implemented, in order to ensure that no soil/excavated material is transported on wheels or tracks of vehicles or plant and deposited on the roadway.

Note: Any proposed works or placement of plant and equipment and/or materials within any road reserve will require the separate approval of Council, prior to the commencement of such works, pursuant to the provisions of the Roads Act 1993.

Prior to the Commencement of Works

42 **Appointment of Principal Certifier**

Prior to commencement of work, the person having the benefit of the Development Consent and a Construction Certificate must:

a Appoint a Principal Certifier (PC) and notify Council in writing of the appointment irrespective of whether Council or an accredited private certifier is appointed; and
b Notify Council in writing of their intention to commence work (at least two days' notice is required).

The Principal Certifier must determine when inspections and compliance certificates are required.

43 **Sign – Supervisor Contact Details**

Before commencement of any work, a sign must be erected in a prominent, visible position:

a stating that unauthorised entry to the work site is not permitted;
b showing the name, address and telephone number of the Principal Certifier for the work; and
c showing the name and address of the principal contractor in charge of the work site and a telephone number at which that person can be contacted at any time for business purposes.

This sign shall be maintained while the work is being carried out and removed upon the completion of the construction works.

44 **Temporary Toilet/Closet Facilities**

Toilet facilities are to be provided at or in the vicinity of the work site on which work involved in the erection or demolition of a building is being carried out at the rate of one toilet for every 20 persons or part of 20 persons employed at the site.

Each toilet provided must be:

a a standard flushing toilet; and
b connected to either:
  i the Sydney Water Corporation Ltd sewerage system or
  ii an accredited sewage management facility or
  iii an approved chemical closet.

The toilet facilities shall be provided on-site, prior to the commencement of any works.

45 **Structural Engineer's Details**

Structural engineer's details for all structurally designed building works such as reinforced concrete footings, reinforced concrete slabs and structural steelwork must be submitted to the Principal Certifier, prior to the commencement of any works on the site.

46 **Dilapidation Report**

A dilapidation report shall be submitted to the Principal Certifier prior to the commencement of works or demolition. The dilapidation report shall accurately reflect the condition of existing public and private infrastructure in the adjacent street(s) fronting the lots and adjoining properties.

The report shall outline measures for the protection of existing public and private infrastructure, buildings and structures during the works and include a detailed description of elements and photographic record.

Any damage to infrastructure items and / or property which is caused by the developer shall be repaired to the satisfaction of the Principal Certifier prior to the issue of the Occupation Certificate.

47 **Enclosure of the Site**

The site must be enclosed with a suitable security fence to prohibit unauthorised access, to be approved by the Principal Certifier. No building work is to commence until the fence is erected.

48 **Demolition Works**

The demolition of the existing warehouse shall be carried out in accordance with Australian Standard AS2601 (2001): The Demolition of Structures or any other subsequent relevant Australian Standard and the requirements of the SafeWork NSW.

No demolition materials shall be burnt or buried on-site. The person responsible for the demolition works shall ensure that all vehicles leaving the site carrying demolition materials have their loads covered and do not track soil or waste materials onto the road. Any unforeseen hazardous and/or intractable wastes shall be disposed of to the satisfaction of the Principal Certifier. In the event that the demolition works may involve the obstruction of any road reserve/footpath or other Council owned land, a separate application shall be made to Council to enclose the public place with a hoarding or fence over the footpath or other Council owned land.

49 **Demolition Notification to Surrounding Residents**

Demolition must not commence unless at least 2 days written notice has been given to adjoining residents of the date on which demolition works will commence.

50 **Consultation with SafeWork NSW – Prior to Asbestos Removal**

A licensed asbestos removalist must give written notice to SafeWork NSW at least five (5) days before licensed asbestos removal work is commenced.

51 **Contaminated Roof Dust**

Any existing accumulations of dust in ceiling voids and wall cavities must be removed prior to any demolition work commencing. Removal must take place by the use of an industrial vacuum fitted with a high efficiency particulate air (HEPA) filter.

52 **Waste Management**

Waste management shall be undertaken in accordance with the Construction Environmental Management Plan dated 10 March 2021 prepared by GHD Pty ltd.

The developer must provide an adequate receptacle to store all waste generated by the development pending disposal. The receptacle must be regularly emptied, and waste must not be allowed to lie or accumulate on the property other than in the receptacle. Consideration should be given to the source separation of recyclable and reusable materials.

53 **Temporary Sediment Fences**

Temporary sediment fences (e.g. haybales or geotextile fabric) must be installed on the site, prior to the commencement of any excavation, demolition or construction works in accordance with Council's guidelines. Upon completion of the development, sediment fencing is to remain until the site is grassed or alternatively, a two (2) metre strip of turf is provided along the perimeter of the site, particularly lower boundary areas.

54 **Tree Protection Implementation**

The existing trees are to be retained upon the subject property and any trees on adjoining properties shall not be impacted upon during the excavation or construction phases of the

development. This will require the installation and maintenance of appropriate tree protection measures, including (but not necessarily limited to) the following:

a Installation of Tree Protection Fencing - Protective fencing shall be 1.8 m cyclone chainmesh fence, with posts and portable concrete footings;
b Mulch Tree Protection Zone: Areas within a Tree Protection Zone are to be mulched with minimum 75 mm thick 100% recycled hardwood chip/leaf litter mulch;
c Irrigate: Areas within the Tree Protection Zone are to be regularly watered in accordance with the arborist's recommendations.

The tree protection fencing shall be installed prior to the commencement of any demolition, excavation or construction works and shall be maintained throughout the entire construction phases of the development.

55 **Supervising Arborist – Tree Inspection and Installation of Tree Protection Measures**
Prior to the commencement of any demolition, excavation or construction works, the supervising arborist must certify in writing that tree protection measures have been inspected and installed in accordance with the arborist's recommendations and relevant conditions of this consent.

56 **Notification to Council of any Damage to Council's Infrastructure**
Council must be notified in the event of any existing damage to any of Council's infrastructure including, but not limited to the road, kerb and gutter, road shoulder, footpath, drainage structures and street trees fronting the development prior to the commencement of work. Adequate protection must be provided to Council infrastructure prior to work commencing and during the construction period. Any damage to Council's assets shall be restored in a satisfactory manner prior to the issue of the Occupation Certificate.

57 **Works in Road Reserve - Minor Works**
Approval, under Section 138 of the Roads Act must be obtained from Wollongong City Council's Development Engineering Team prior to any works commencing or any proposed interruption to pedestrian and/or vehicular traffic within the road reserve caused by the construction of this development.

The application form for Works within the Road Reserve – Section 138 Roads Act can be found on Council's website. The form outlines the requirements to be submitted with the application, to give approval to commence works under the roads act. It is advised that all applications are submitted, and fees paid, 5 days prior to the works within the road reserve are intended to commence. The Applicant is responsible for the restoration of all Council assets within the road reserve which are impacted by the works/occupation. Restoration must be in accordance with the following requirements:

a All restorations are at the cost of the Applicant and must be undertaken in accordance with Council's standard document, "Specification for work within Council's Road reserve".

b Any existing damage within the immediate work area or caused as a result of the work/ occupation, must also be restored with the final works.

58 **Protection of Public Places**
If the work involved in the erection or demolition of a building involves the enclosure of a public place or is likely to cause pedestrian/vehicular traffic in a public place to be obstructed or rendered inconvenient:

1. A hoarding or fence must be erected between the work site and the public place;
2. An awning is to be erected, sufficient to prevent any substance from, or in connection with, the work falling into the public place;
3. The work site must be kept lit between sunset and sunrise if it is likely to be hazardous to persons in a public place;
4. Safe pedestrian access must be maintained at all times;
5. Any such hoarding, fence or awning is to be removed when the work has been completed.

59 **Protection of Public Infrastructure**

Council must be notified in the event of any existing damage to any of its infrastructure such as the road, kerb and gutter, road shoulder, footpath, drainage structures and street trees fronting the development site, prior to commencement of any work.

Adequate protection must be provided for Council infrastructure prior to work commencing and during building operations.

Any damage to Council's assets shall be made good, prior to the issue of any Occupation Certificate or commencement of the operation.

60 **Tree Protection**

Prior to commencement of any work on the site, including any demolition, all trees not approved for removal as part of this consent that may be subjected to impacts of this approved development must be protected in accordance with Section 4 of the Australian Standard Protection of Trees on Development Sites (AS 4970-2009).

Tree protection zones must be established prior to the commencement of any work associated with this approved development.

No excavation, construction activity, grade changes, storage of materials stockpiling, siting of works sheds, preparation of mixes or cleaning of tools is permitted within Tree Protection Zones.

During Demolition, Excavation or Construction

61 **Implementation of Construction Environmental Management (CEMP) and Unexpected Finding Protocol (UFP)**

During excavation and construction implement all the recommendations stated in construction environmental management plan (CEMP) and unexpected find protocol (UFP) prepared by Environmental Consulting Services dated March 2021 for any unexpected find management.

62 **Acoustic Glazing to Comply with the SEPP Infrastructure 2007**

Implement all the recommendations stated section 5 of acoustic assessment report prepared by Harwood Acoustic dated 12 May 2020 for building noise compliance. The following LAeq levels are not exceeded:

- in any bedroom in the building: 35dB(A) at any time between 10pm and 7am
- anywhere else in the building (other than a garage, kitchen, bathroom or hallway): 40dB(A) at any time between 10pm and 7am.
- All mechanical plans must be satisfactorily attenuated to levels complying with noise emission criteria through appropriate location and (if necessary) standard acoustic treatments such as noise screens, enclosures, in-duct treatments (silencers/lined ducting) or similar.

63 **Flows from Adjoining Properties**

Flows from adjoining properties shall be accepted and catered for within the site. Finished ground and top of retaining wall levels on the boundary shall be no higher than the existing upslope adjacent ground levels.

64 **Heritage - Unexpected Finds**

Relics are protected in NSW under the Heritage Act 1977. Relics cannot be disturbed except with a permit or exception/exemption notification. Should unanticipated relics not skeletal in nature be discovered during the course of the project, work in the vicinity must cease and an archaeologist contacted to make a preliminary assessment of the find. The Heritage Council will require notification if the find is assessed as a relic.

65 **Acid Sulfate Soils**

The Wollongong Local Environmental Plan 2009 Acid Sulfate Soils Map has identified that this property may be affected by classes 3, 4 or 5 Acid Sulfate Soils. Acid Sulfate Soils contain iron sulfides which, when exposed to air due to drainage or disturbance, may produce sulfuric acid and release toxic quantities of iron, aluminium and heavy metals. The Acid Sulfate Soils Map is an

indication only and you are advised that you may encounter acid sulfate soils during the excavation for the proposed development.
Any spoil material extracted or excavated from the foundations must be neutralised with commercial lime (calcium bicarbonate) be the addition of 10 kilograms of lime per 1 cubic metre of spoil material before it is disposed of or re-used on-site. Lime is to be added by evenly distributing over all exposed surface areas, drilled piers and footing trenches on the site, prior to pouring concrete.
Council suggests the applicant refer to the Acid Sulfate Soils Assessment Guidelines contained in the Acid Sulfate Soils Manual, prepared by NSW Acid Sulfate Management Advisory Committee, August 1998 for further information.

66 **Supervision of Engineering Works**
All engineering works associated with the development are to be carried out under the supervision of a practicing engineer and/or registered surveyor.

67 **Piping of Stormwater to Existing Stormwater Drainage System**
Stormwater for the land must be piped to Council's street kerb and gutter.

68 **No Adverse Run-off Impacts on Adjoining Properties**
The design and construction of the development shall ensure there are no adverse effects to adjoining properties, as a result of flood or stormwater run-off. Attention must be paid to ensure adequate protection for buildings against the ingress of surface run-off.

Allowance must be made for surface run-off from adjoining properties. Any redirection or treatment of that run-off must not adversely affect any other property.

69 **Protection of Public Places**
If the work involved in the erection or demolition of a building involves the enclosure of a public place or is likely to cause pedestrian/vehicular traffic in a public place to be obstructed or rendered inconvenient, or have the potential for conflict between pedestrians and vehicles:

a A hoarding or fence must be erected between the work site and the public place;
b an awning is to be erected, sufficient to prevent any substance from, or in connection with, the work falling into the public place;
c the work site must be kept lit between sunset and sunrise if it is likely to be hazardous to persons in a public place;
d safe pedestrian access must be maintained at all times;
e any such hoarding, fence or awning is to be removed when the work has been completed.

70 **Front Fence Height and Style**
All fencing on the land fronting the street must be in accordance with approved plans.

71 **Copy of Consent to be in Possession of Person carrying out Tree Removal**
The applicant must ensure that any person carrying out tree removal is in possession of this development consent and the approved landscape plan, in respect to the vegetation which has been given approval to be removed in accordance with this consent.

72 **Restricted Hours of Construction Work**
The developer must not carry out any work, other than emergency procedures, to control dust or sediment laden runoff outside the normal working hours, namely, 7.00 am to 5.00 pm, Monday to Saturday, without the prior written consent of the Principal Certifier and Council. No work is permitted on public holidays or Sundays.

Any request to vary these hours shall be submitted to the **Council** in writing detailing:

a the variation in hours required (length of duration);
b the reason for that variation (scope of works);
c the type of work and machinery to be used;
d method of neighbour notification;
e supervisor contact number;
f any proposed measures required to mitigate the impacts of the works.

The construction works noise shall comply with the Australian Standard AS 2436-2010 "Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites" and any other requirements as specified by Council or the NSW Environment Protection Authority.

Note: The developer is advised that other legislation may control the activities for which Council has granted consent, including but not limited to, the Protection of the Environment Operations Act 1997.

73 Vehicle access is to be controlled so as to prevent tracking of sediment onto adjoining roadways, particularly during wet weather or when the site has been affected by wet weather.

74 Drains, gutters, access ways and roadways must be maintained free of sediment and any other material. Gutters and roadways must be swept/scraped regularly to maintain them in a clean state.

75 Building operations such as brick cutting, the washing of tools or paint brushes, or other equipment and the mixing of mortar must not be carried out on the roadway or public footpath or any other locations which could lead to the discharge of materials into the stormwater drainage system or natural watercourse.

76 **Dust Suppression Measures**
Activities occurring during the construction phase of the development must be carried out in a manner that will minimise the generation of dust.

77 Trucks which are entering and leaving the premises and carrying loads must be sealed or covered at all times, except during loading and unloading.

78 **Asbestos – Removal, Handling and Disposal Measures/Requirements Asbestos Removal by a Licensed Asbestos Removalist**

The removal of any asbestos material must be carried out by a licensed asbestos removalist if over 10 square metres in area of non-friable asbestos, or if any type of friable asbestos in strict accordance with SafeWork NSW requirements (<http://www.safework.nsw.gov.au>).

79 **Asbestos Waste Collection, Transportation and Disposal**
Asbestos waste must be prepared, contained, transported and disposed of in accordance with SafeWork NSW and NSW Environment Protection Authority requirements. Asbestos waste must only be disposed of at a landfill site that can lawfully receive this this type of waste. A receipt must be retained and submitted to the Principal Certifier, and a copy submitted to Council (in the event that Council is not the Principal Certifier), prior to commencement of the construction works.

80 **Provision of Waste Receptacle**
The developer must provide an adequate receptacle to store all waste generated by the development, pending disposal. The receptacle must be regularly emptied, and waste must not be allowed to lie or accumulate on the property other than in the receptacle. Consideration should be given to the source separation of recyclable and re-usable materials.

81 **BASIX**
All the commitments listed in each relevant BASIX Certificate for the development must be fulfilled in accordance with Clause 97A(2) of the Environmental Planning & Assessment Regulation 2000.

A relevant BASIX Certificate means:

- A BASIX Certificate that was applicable to the development when this development consent was granted (or, if the development consent is modified under section 4.55 of the Environmental Planning & Assessment Act 1979, a BASIX Certificate that is applicable to the development when this development consent is modified); or
- if a replacement BASIX Certificate accompanies any subsequent application for a construction certificate, the replacement BASIX Certificate; and
- BASIX Certificate has the meaning given to that term in the Environmental Planning & Assessment Regulation 2000."

82 **Provision of Taps/Irrigation System**
The provision of common taps and/or an irrigation system is required to guarantee that all landscape works are adequately watered. The location of common taps and/or irrigation system must be implemented in accordance with the approved Landscape Plan.

83 **Screen planting**
To mitigate impact to adjoining dwelling a continuous hedge is to be established along southern boundary for the length of property boundary. Recommended species: *Callistemon viminalis 'Slim'*, *Photinia glabra Rubens, Viburnum tinus, Syzygium australe Aussie Southern, Syzygium, 'Resiliance', Viburnum odoratissimum Dense Fence or Waterhousea floribunda Sweeper.* Minimum spacing 1000mm. Minimum pot size 5 lt.

A further list of suitable suggested species may be found in Wollongong Development Control Plan 2009 – Chapter E6: Landscaping.

Prior to the Issue of the Occupation Certificate

84 **Acoustic to Comply with the SEPP Infrastructure 2007**
Prior to Occupation Certificate submit an acoustic compliance report to Principal Certifier prepared by a consultant who is a member of the Australian Acoustic Society (AAS) or the Associated of Australian Acoustic Consultants (AAAC). The report shall state that the dwelling internal noise levels are complying with the SEPP Inf 2007 noise guidelines.

85 **Heritage Interpretation Sign**
Prior to the release of the occupation certificate, the developer is to install the small interpretative sign in the approved location.

86 A Section 73 Certificate must be submitted to the Principal Certifier prior to occupation of the development/release of the plan of subdivision.

87 **Drainage**
The developer must obtain a certificate of Hydraulic Compliance (using Council's M19 form) from a suitably qualified civil engineer, to confirm that all stormwater drainage and on-site detention works have been constructed in accordance with the approved plans. In addition, full works-as-executed plans, prepared and signed by a Registered Surveyor must be submitted. These plans and certification must satisfy all the stormwater requirements stated in Chapter E14 of the Wollongong DCP2009. This information must be submitted to the Principal Certifier prior to the issue of the final Occupation Certificate.

88 **Restriction on use – On-site Detention System**
The applicant must create a restriction on use under the Conveyancing Act 1919 over the on-site detention system. The following terms must be included in an appropriate instrument created under the Conveyancing Act 1919 for approval of Council:

"The registered proprietor of the lot burdened must not make or permit or suffer the making of any alterations to any on-site stormwater detention system on the lot(s) burdened without the prior consent in writing of the authority benefited. The expression 'on-site stormwater detention system' shall include all ancillary gutters, pipes, drains, walls, kerb, pits, grates, tanks, chambers, basins and surfaces designed to temporarily detain stormwater as well as all surfaces graded to direct stormwater to those structures.

Name of the authority having the power to release, vary or modify the restriction referred to is Wollongong City Council."

The instrument, showing the restriction, must be submitted to the Principal Certifier for endorsement prior to the issue of the Occupation Certificate and the use of the development.

98 **Access Certification**
Prior to the occupation of the building, the Principal Certifier must ensure that a certificate from an "accredited access consultant" has been issued certifying that the building complies with the requirements of AS 1428.1.

90 **Retaining Wall Certification**
The submission of a certificate from a suitably qualified and experienced structural engineer or civil engineer to the Principal Certifier is required, prior to the issue of the Occupation Certificate or commencement of the use. This certification is required to verify the structural adequacy of the retaining walls and that the retaining walls have been constructed in accordance with plans approved by the Principal Certifier.

91 **BASIX**
An Occupation Certificate must not be issued unless accompanied by the BASIX Certificate applicable to the development. The Principal Certifier must not issue the final occupation certificate unless satisfied that selected commitments have been complied with as specified in the relevant BASIX Certificate. NOTE: Clause 154B of the Environmental Planning and Assessment Regulation 2000 provides for independent verification of compliance in relation to certain BASIX commitments.

92 **Positive Covenant – On-Site Detention Maintenance Schedule**
A positive covenant shall be created under the Conveyancing Act 1919, requiring the property owner(s) to undertake maintenance in accordance with the Construction Certificate approved On-Site Stormwater Detention System and Maintenance Schedule (application number to be referenced).

The instrument, showing the positive covenant must be submitted to the Principal Certifier for endorsement prior to the issue of the Occupation Certificate and the use of the development.

93 **On-Site Detention – Structural Certification**
The submission of a certificate from a suitably qualified practising civil and/or structural engineer to the Principal Certifier is required prior to the issue of the Occupation Certificate. This certification is required to verify the structural adequacy of the on-site detention facility and that the facility has been constructed in accordance with the approved Construction Certificate plans.

94 **Completion of Landscape Works on Council Owned or Controlled Land**
The Developer must complete all landscape works required within Council's road reserve, or other Council owned or controlled land, in accordance with the conditions of this consent. The total cost of all such landscape works shall be fully borne by the Developer and any damage to Council's assets shall be the subject of restoration works sufficient to restore the asset to its previous state and configuration previous to the commencement of works. Evidence that this requirement has been met must be satisfied prior to the issue of the Occupation Certificate.

95 **Arborist Verification – Street Tree Installation**
Prior to the issue of Occupation Certificate, the developer must supply certification in the form of a report, including photographic evidence, from an AQF Level 5 Arborist to the Principal Certifier and Wollongong City Council to verify:

- The tree stock complies with AS 2203:2018 Tree Stock for Landscape Use
- The tree pits have been constructed and the trees installed in accordance with the requirements of the Wollongong City Council City Centre Public Domain Technical Manual and Arboricultural best practice.

Operational Phases of the Development/Use of the Site

96 **Gate to Pendlebury Park**
The gate to Pendlebury Park shall be maintained in good condition. There shall be no impediment of fencing or the gate onto the park.

97 **Fire Safety Measures**
All new and existing fire safety measures shall be maintained in working condition, at all times.

98 **Loading/Unloading Operations/Activities**
All loading/unloading operations are to take place at all times wholly within the confines of the site or within the road reserve under an approved traffic control plan.

99 **Street Tree Establishment Period**

The Developer must comply with the terms of an approved landscape maintenance program for a minimum period of 12 months to ensure that all landscape works within Council's road reserve or Council owned or controlled land becomes well established by regular maintenance. The Street Tree Establishment Period shall commence from the issue of the Occupation Certificate.

The program must include the following elements: watering, weeding, litter removal, mulching, fertilising, tree guard and grate maintenance, and pest and disease control.

Details of the proposed program must be submitted with the Landscape Plan to the Principal Certifier for approval prior to release of the Construction Certificate.

Reasons

The reasons for the imposition of the conditions are:

1 To minimise any likely adverse environmental impact of the proposed development.

2 To ensure the protection of the amenity and character of land adjoining and in the locality.

3 To ensure the proposed development complies with the provisions of Environmental Planning Instruments and Council's Codes and Policies.

4 To ensure the development does not conflict with the public interest.