

Centre Based Child Care Facility Thorncliffe Avenue, Thornton Thornton Brentwood Pty Ltd

Statement of Environmental Effects Staged Subdivision

Catalyst Project Consulting Pty Ltd





Prepared for: Brentwood Projects Pty Ltd ATF Brentwood Projects Unit Trust

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1. Introduction

This Statement of Environmental Effects (SEE) has been prepared on behalf of Brentwood Projects Pty Ltd ATF Brentwood Projects Unit Trust

This SEE will accompany a Development Application (DA) seeking consent for a one hundred and thirty two (132) place, single storey centre based child care facility (heron referred to as the Centre), including associated parking, landscaping & service infrastructure.

It is proposed to provide the Centre within Lot 611 of the Stage 3 subdivision previously approved under DA11-932, approved on 27 March 2018. The current Stage 3 subdivision application was approved under DA/2020/507, and is currently under construction. It has been agreed by Dean Turner from Landlink and Cindy Littlewood from Maitland City council to lodge the proposed DA for the Centre prior to subdivision approval.

A detailed description of the proposed development is provided in Section 3.0.

The Architectural Plans are included in Appendix A of this report.

This report has determined that the proposal is generally compliant with the relevant State and various Maitland City Council Planning Instruments.



2. Site Analysis

2.1 Site Description – Current

The master lot, approved under DA/2020/507, is currently know as Lot 428 DP 1262858 located at Sunset Drive, Thornton. Please see Figure 1 below for an aerial photo of the current master lot. This Master lot has previously been approved as Stage 3 of a overall Masterplan under DA11-932, and recently approved for seventy-nine (79) residential lots and one (1) superlot under DA/2020/507, for which MCC provided Operational Approval on 5 February 2021.



Figure 1 – Aerial photo of Master Lot

2.2 Site Description – Proposed

It is proposed to include the Centre on a future lot, currently known as Lot 611 under DA/2020/507. While this lot has not yet been constructed or registered, it is understood that an agreement between Dean Turner of Landlink and Cindy Littlewood of MCC has meant that assessment of the proposed childcare centre can occur prior to final registration of the proposed allotment on which the Centre will be situated.

The allotment will have an over all area of 3,155m².



The propose allotment will be relatively flat, and adjoins Raymond Terrace Road to the north. A road widening buffer of 2m has been applied to the proposed allotment, while a landscape setback of 10m from the current road reserve and 8.125m to the eave line has been provided.

The proposed site will be cleared of vegetation, and will be subject to all requirements applied to under DA/2020/507 prior to the commencement of construction.



Figure 2 – Proposed Centre Allotment within Torrens Title Subdivision DA2020/507

2.3 Locality

The site is bordered by:

- Existing low density residential development to the north, south and east of the site; and
- Semi-rural residential development on R1 zoned land to the west.

Thornton is generally characterised by a broad range of land uses from industrial to residential, with low density residential housing being the dominant land use in the immediate area adjacent to the subject site.

The subject site is located within close proximity to A&D Lawrence Oval, Wirraway Park, Thornton train station, bus stops, Thornton Shopping Centre, and St Aloysius Primary School, St Bede's Catholic College Thornton Public School.



2.4 Infrastructure

The site will serviced by water, sewer, NBN and electricity. It will also adjoin proposed roadway which will be an extension of Thorncliffe Avenue.

Nearby public transport includes buses, with approximately 5 bus stops within 350m of the subject site along John Arthur Ave and Thomas Coke Drive. Further bus stops have been implemented across the Masterplanned subdivision under DA11-932 & DA/2020/507.

Thornton Train Station is located approximately 1.7 km from the site.

3. Proposed Development

This DA seeks consent for a centre-based child care facility, incorporating:

- 7 room for children and associated amenities totalling
- 3 separate outdoor play areas totalling 1,233m²
- Staff amenities including disabled toilet
- Storage and activity rooms
- Reception area
- Staff, meeting and office space
- Kitchen and pantry
- 24 car parking spaces (including one disabled space) and 11 street parking spaces
- Bicycle parking
- Bin and outdoor storage

The overall facility totals 920.23m² in floor area, which is further discussed in Section 4 below. Please see Figures 4 & 5 below for the proposed site and elevation plans for

Table 1 below show the proposed breakdown of proposed age groups to be:

AGE GROUP	NUMBERS	FLOOR AREA (M ²)
0 – 2	32	109.45
2 – 3	40	131.46
3 – 5	60	199.41
TOTAL	132	440.32

Table 1 – Child Numbers & Floorspace

The proposed operation hours for this centre are Monday to Saturday, 6:30am to 6:30pm.



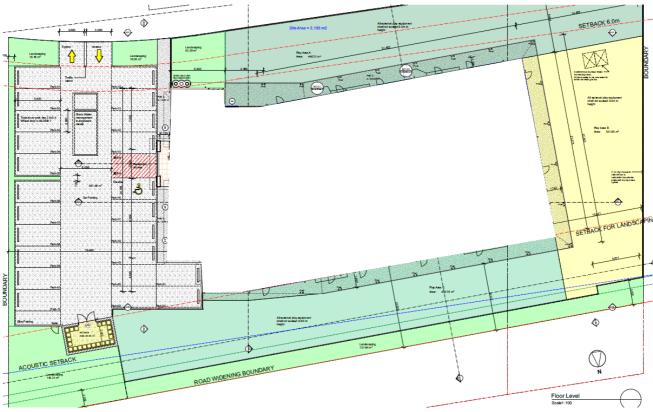


Figure 3 – Site Plan

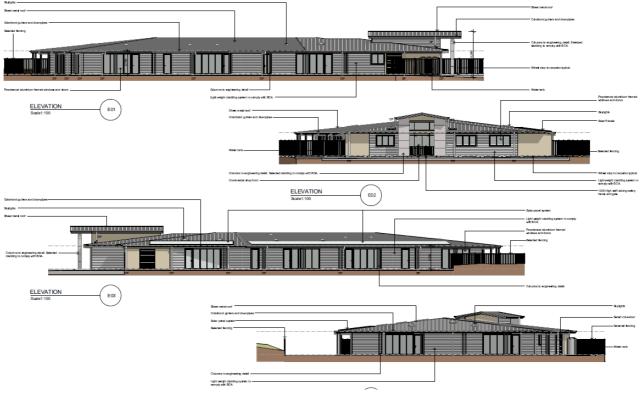


Figure 4 – Elevation Plans



The Centre has been designed to match the building form of the future residential development adjacent to the subject site and reflect the nearby low density one and two storey residential dwellings.

As shown in Figures 4 & 5 above, the proposed development provides extensive landscaped areas for outdoor play. Please refer to Appendix B for a copy of the Landscape Plan.

The proposed development includes the provision of an underground underground rainwater harvesting. Please refer to Appendix H

A Traffic & Parking Assessment Report, included in Appendix C, has found that there is anticipated to be minimal impact on the local road network. There are thirty four (34) parking spaces available for sue at the proposed Centre. It is proposed to provide twenty three (23) car parking spaces, two of which are stacked. A further eleven (11) on-street parking spaces are available to the site frontage. Further, there is one (1) disabled space to be provided, along with the associated shared zone. Bicycle parking has been provided as part of the overall parking strategy for the site.

As detailed above there are 34 parking spaces available for the development, which aligns with the requirements of the Maitland City Council Development Control Plan (DCP). It is important to note that the DCP calls for the provision of 1 parking space every 4 children in Part C.11 Appendix A of the DCP (which identifies parking numbers); <u>however</u> the parking requirement in Part C.2 Subclause 2.2 which is shown below supersedes the parking rates developed in Part C.11:

"Minimum onsite parking shall be provided in accordance with Child Care Centre parking requirements in NSW Road & Traffic Authority's, Guide to Traffic Generating Developments current at the time (currently at the rate of one space for every four children in attendance. Note that the minimum parking requirements in the RTA guide is inclusive of client and staff parking"

The current updated traffic surveys developed by Transport for NSW (previously Roads & Maritime Services) in 2015 found that parking demands were also impacted by centre size with larger centres seeing lower overall parking demands. Based on this more recent data a centre with 132 places would see peak parking demands of 1 space per 6 enrolments. This would equate to a peak parking demand for the proposed development of 22 spaces.

As detailed in the Architectural & Civil Plans, it is proposed to provide 34 parking spaces, with 23 of these spaces being on site. Therefore, the proposed centre complies with the requirements applied by both TfNSW and Council's DCP in relation to the provision of onsite parking.

Traffic counts and the associated assessment broken down in the Traffic & Parking Assessment Report confirms there is significant capacity for the road network to accommodate the proposed traffic anticipated to be generated by the Centre.



The site is proposed to be provided with several acoustic treatments, based on acoustic testing and noise reporting included in the Noise Assessment Report (refer to Appendix D). The proposed measures are shown in Figure 5 below and include 1.8, 2.1m & 2.5m high acoustic barrier fencing.



Figure 5 – Proposed Acoustic Fencing Plan

As requested in the Pre-DA Meeting with MCC, an Air Quality Assessment Report has been prepared for the proposed Centre. Testing carried out on site has found that there is limited risk applied to the proposed Centre in relation to the adjacent, classified road (being Raymond Terrace Road). Please refer to Appendix E for this Report.

Infrastructure, including water, sewage, telecommunications (NBN), and electricity, are either already found on the site, or are directly adjacent to the lot and will be extended to service the proposed allotments and the future building development.

3.1 Ongoing Operation and Management

As detailed above, it is proposed to operate the centre from the hours of 6:30am to 6:30pm, Monday to Saturday.

Waste removal will occur during operating hours.



Operational guidelines will need to be established to ensure that all staff vehicle movements, waste removal and deliveries are keeping vehicular noise and conversation to a minimum when attending site, particularly in the mornings.

It is proposed to have food preparation provided within the kitchen facility within the Centre. Specific details for the spatial layout of the kitchen and neighbouring pantry will be included in the Construction certificate design.

It is anticipated that there will be approximately 17 full and part time staff required to operate the facility.



4. Legislative Controls

4.1 State Environmental Planning Policies

4.1.1 SEPP No.55 – Remediation of Land

Clause 7 of State Environmental Planning Policy No.55 – Remediation of Land requires the consent of the authority to consider whether land is contaminated during the development application process.

Any areas of surface contamination or illegal dumping will be required to be remediated and rectified prior to the registration of the proposed subject site under DA2020/507. The clearance of the allotment will mean that the site is suitable for use as a childcare centre.

4.1.2 SEPP No.64 – Advertising and Signage

No signage is proposed as part of the proposed development. Provision of any signage will be subject to a separate DA should it be provided in the future.

4.1.3 SEPP (Educational Establishments & Child Care Facilities) 2017

The SEPP aims to:

- streamline the planning system for education and child care facilities including changes to exempt and complying development;
- make NSW the first state to bring national laws regulating early childhood education and care into a state planning system;
- bring the Department of Education into the planning process and give child care providers and developers upfront information about all national and state requirements for new child care services
- streamline the delivery of new schools and upgrading existing facilities with a focus on good design; and
- assist TAFEs and Universities to expand and adapt their specialist facilities in response to the growing need, and to maintain our reputation for providing world class tertiary education, while allowing for more flexibility in the use of their facilities.

This proposal complies with the SEPP, please see Appendix G for details of the developments compliance with the SEPP.

4.1.4 SEPP (Infrastructure) 2017

The Infrastructure SEPP assists the NSW Government, private infrastructure providers, local councils and the communities they support by simplifying the process for providing infrastructure like hospitals, roads, railways, emergency services, water supply and electricity delivery.



The site is located adjacent to a classified Road, being Raymond Terrace Road. However, given there is no proposed access to Raymond Terrace Road, along with reasonable widening provisions made in the design, most notably the setback for the potential future road widening, it is not considered to be any impact or requirement for the proposal under the SEPP in relation to the roadway.

it is noted that the proposed development is to be serviced by newly created infrastructure provided to the not yet created allotment, including the electrical and water supply systems addressed in the SEPP. Noting that there are no special considerations required for the proposed Centre, the SEPP does not apply in his instance.



4.2 Maitland Local Environmental Plan 2021

Under the provisions of the Maitland Local Environmental Plan (LEP) 2011, the site is zoned R1 General Residential. The zone objectives are:

- To provide for the housing needs of the community.
- To provide for a variety of housing types and densities.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents

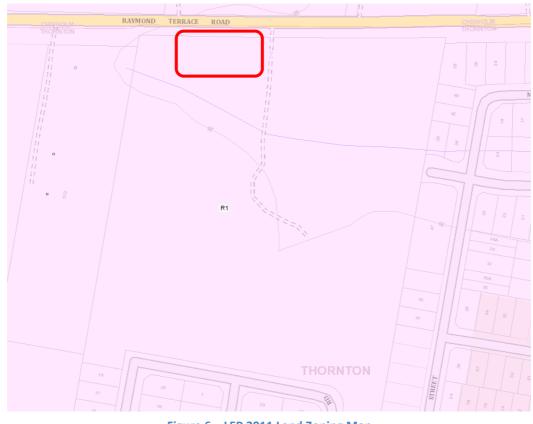


Figure 6 – LEP 2011 Land Zoning Map

The proposal is considered to be consistent with the zone objectives for the following reasons:

- The centre provides a facility and service that is critical the day to day needs of the residents in the local area; and
- The proposal provides a suitable design, including scale and density of development to the general residential environment.

The proposed development can be defined as a 'centre-based child care facility' and is permissible, subject to development consent.



Other Relevant Clauses

PART 4 PRINCIPAL DEVELOPMENT STANDARDS

Clause 4.3 Height of buildings

The LEP does not apply a specific height for buildings across the subject site or neighbouring properties, with the objectives of the clause being:

(a) to ensure that the height of buildings complements the streetscape or the rural character of the area in which the buildings are located,

(b) to protect the heritage character and significance of buildings and avoid an adverse effect on the integrity of heritage items,

(c) to ensure that the height of buildings protects the amenity of neighbouring properties in terms of visual bulk, access to sunlight, privacy and views.

The Centre has a maximum proposed height of 5.39m, as shown in Appendix A. It is considered that the proposed development achieve the above objectives in that:

- The Centre will complement the future surrounding streetscape, and complements those residential developments further removed from the subject site to the north, south and west;
- There is no impact on any heritage items;
- The bulk and scale of the proposed Centre complements the surrounding locality.

Therefore the height of the Centre should be supported.

Clause 4.4 Floor space ratio

Similar to Clause 4.3 above, there is no floor space ratio (FSR) applied to the subject site under the LEP, with the objective of this Clause being:

(a) to ensure development is compatible with the streetscape and character of the area by providing an appropriate correlation between the size of a site and the extent of any development on that site.

The proposed development complements the existing residential development adjacent to the subject site, does not provide an overdevelopment of the allotment, and should therefore be supported.

PART 5 MISCELLANEOUS PROVISIONS

Clause 5.10 Heritage Conservation

No European Heritage Items have been found in or adjacent to the area.

It is noted that the subdivision development approved under DA/2020/507, which is currently under construction, required a full Aboriginal Heritage Impact Permit (AHIP) prior to any construction works being commenced; therefore it is consider that the proposed development will not impact any Aboriginal heritage items or places.



PART 6 URBAN RELEASE AREAS

Clause 6.1 Arrangements for designated State public infrastructure

A Satisfactory Arrangements Certificate has been provided to MCC for the masterplanned subdivision. Therefore it is considered that a SAC does not need to be provided for this development.

Clause 6.2 Public utility infrastructure

There will be public utility infrastructure in the area including sewer, water, electricity and NBN available for the proposed development. The provision of these services will be required as part of construction of the proposed subdivision under DA/2020/507.

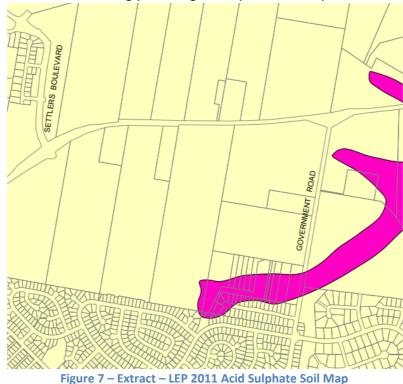
Clause 6.3 Development control plan

The site is considered part of the Thornton North Urban Release Area. However, no specific items within the Urban Release Area DCP that applies to the proposed Centre, and the guidelines of this DCP have been applied to the subdivision in which the Centre is proposed.

PART 7 ADDITIONAL LOCAL PROVISIONS

Clause 7.1 Acid sulfate soils

The site is included within the class 5 acid sulphate soil area identified in the LEP Acid Sulphate Soil Map (see Figure 11 below). No extensive in-ground works are required under this proposal. Therefore, it is unlikely the water table will be affected, and accordingly a management plan is not required.





Clause 7.2 Earthworks

Limited earthworks are required to deliver the proposed Centre. All appropriate measures will be implemented during construction to ensure all earthworks are executed in an acceptable manner.

Clause7.3 Flood planning

The site is considered not to be affected by flooding, therefore this clause does not apply.

Clause 7.4 Riparian land and watercourses

The subject site is not considered to contain riparian land or a dedicated watercourse.

4.2.1 Maitland Development Control Plan

Refer to Appendix F for the DCP Assessment Table. While there are some minor non-conformances in relation to the DCP guidelines, the proposed development is generally compliant with the DCP provisions. As Council are aware, the DCP is a guideline only, and the proposal should be supported given the general compliance, suitability of the proposed subdivision taking into account the constraints of the locality and subject site and overall design performance.

4.2.2 Other Policies, Strategies and Controls

Mine Subsidence Compensation Act 1961

The proposed development is not located within Mine Subsidence District and therefore approval from the Mine Subsidence Board is not required.

Water Management Act 2000

Under Part 3 of Chapter 3 a person must obtain a permit for water use approval, water management work approval or activity approval.

Given the proposed development is not close proximity to a watercourse, concurrence from the Office of water will not be required.

Rural Fires Act 1997 & Planning for Bushfire Protection

The subject site is located within a designated bushfire prone area. However, it is noted that the bushfire threat, which has been removed during the clearing of the subject land under the recent development activity, means that the actual bushfire threat is not present at the site. Therefore, it is considered that the proposed Centre can be approved with no specific bushfire assessment or treatment.



Biodiversity Conservation Act 2016

The BC Act aims to conserve biological diversity and promote ecologically sustainable development. This is to be achieved by preventing the extinction and promoting the recovery of threatened species, populations and ecological communities

The proposed site will be clear of vegetation. Therefore, any BDAR reporting or ecological investigations are not required.



5. Section 4.15(C) Review

5.1 4.15(C)(a)(i) - The Provisions of any Environmental Planning Instrument

The proposal has been prepared having regard for the relevant environmental planning instruments. Please refer to Section 4.2 for further details.

5.2 (a)(iii) The Provisions of any Development Control Plan

The proposal has been prepared having regard for relevant DCP requirements. Please refer to Section 4.3 and Appendix H for further details.

5.3 (b) The Likely Impacts of That Development

5.3.1 Environmental Impacts

Ecological Values & Tree Preservation

There are no anticipated ecological impacts created by the proposed Centre, as the site is already cleared of trees and vegetation. Landscaping details are included in Appendix B.

Scenic Values

The proposed development does not create any view loss to or from any grand views or vistas.

Acoustic Impact

The Noise Assessment Report is included in Appendix D of this report, and indicates the acoustic impacts both to and from the proposed Centre will be mitigated with the provision of acoustic fence barriers.

Erosion and Sediment Control

An Erosion and Sediment Control Plan has been prepared for the proposed Centre and is included in Appendix H.

Traffic & Parking

As detailed in the Traffic Impact Assessment, the proposed development does not create any substantial negative impacts on the local road network, and a suitable level of parking is available to the centre and immediately adjacent in the street. Please refer to Appendix C for further details.

5.3.2 Social & Economic Impacts

Positive social and economic impacts include:



- Provision of an essential service to the local community;
- Suitable design, bulk and scale integration of the Centre into the current and future residential development in the locality;
- Short term, construction phase employment; and
- Long term, operation phase employment.

No adverse social and economic impacts are anticipated.

5.3.3 Heritage

There are no known European heritage items on or near the site. The subject site has been identified as containing Aboriginal items of heritage significance, however will have been addressed via an AHIP prior to the creation of the subject site.

5.3.4 Infrastructure

The site is serviced by power, telecommunication, sewer and water.

Stormwater Management detailed for proposed stormwater drainage and detention is included in the Civil Engineering Plans included in Appendix H.

5.3.5 Transport, Parking, Access and Servicing

The proposed development will not cause any adverse traffic or parking issues. While the proposed parking rates provided by the are lower than the desirable rates in the DCP, the overall number of parks can be achieved by including street parking along the site frontage. Further, the 2015 parking rates provided by TfNSW for centre based child care facilities indicates that the proposed Centre provides a suitable number of parks, and should therefore be supported.

There are no anticipate adverse impacts to the local and surrounding road network.

Please refer to the Traffic & Parking Report included in Appendix C for further details.

5.3.6 Amenity

The proposal delivers a similar development to that already existing in the locality. No adverse impacts on the amenity of the site or surrounding properties are anticipated.

5.4 (c) The Suitability of the Site for the Development

This report has determined that there are no constraints that would restrict the proposed development. The site is therefore suitable for the proposed Centre.



5.5 (e) Public Interest

The public interest is best served by promoting sustainable development that is rational, orderly and economic. The proposal will generate positive social, environmental and economic benefits. Accordingly, the proposal is considered to be in the public interest.



6. Conclusion

This SEE has been prepared having regards for the requirements and guidelines of Section 4.15C of the Environmental Planning & Assessment Act 1979 and satisfies all relevant planning legislative requirements.

Assessment of the proposal confirms that the development:

- Provides an essential service and facility that meets the day to day needs of current and future residents of Thornton;
- Does not create any adverse environmental impacts;
- Complies with the Maitland LEP requirements;
- Generally complies with the DCP guidelines. Where it does not strictly comply, justification is provided; and
- Generates positive social and economic benefits for the community in the short and long term.

The proposal represents rational, orderly, economic and sustainable use of the land and should therefore be supported.



7. Appendices

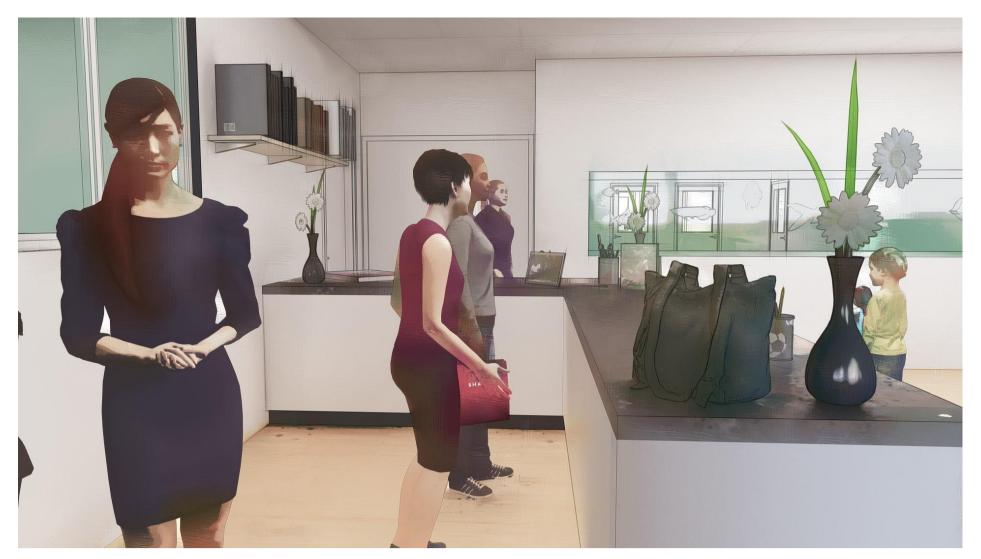
- Appendix A: Architectural Plans
- Appendix B: Landscape Plan
- Appendix C: Traffic & Parking Assessment Report
- Appendix D: Noise Assessment Report
- Appendix E: Air Quality Assessment Report
- Appendix F: DCP Assessment Table
- Appendix G: SEPP Childcare Planning Guideline Table
- Appendix H: Civil & ESCP



Appendix A:

Architectural Plans

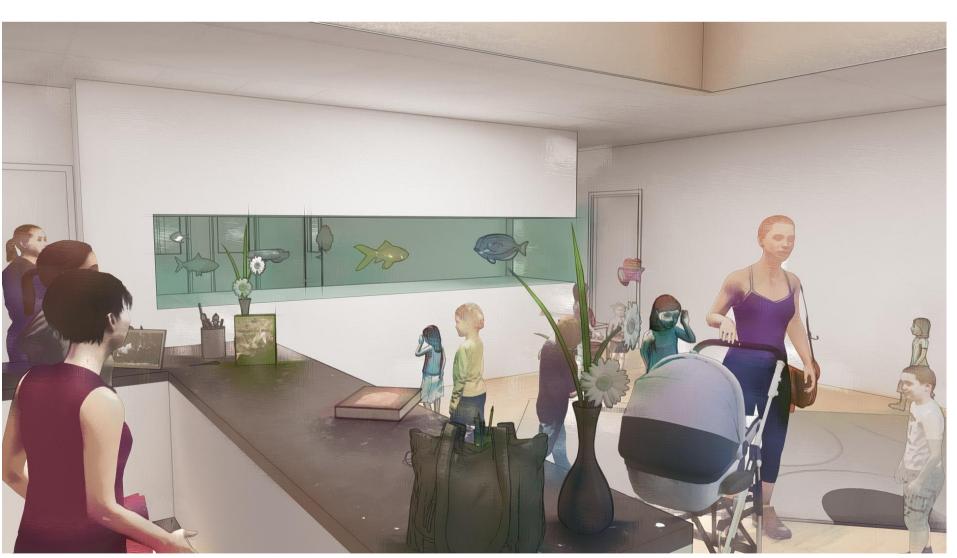
Proposed Childcare Centre Lots 611 **DP10419** Thornton



Internal Foyer - Reception Desk



Internal Foyer - Reception Area



Internal Foyer - Reception Desk

Note: Artist impression ONLY. Exact colours and playground equipment shall vary from what has been depected in the renders

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20 Meters @ 1:100



Perspective - Cazrpark & Entry





Perspective - Play Area

			Client	Landlink Property	Title				
Μ	Issued for Development Application - General Amend	16.06.21	Project		C	over Sł	neet		
L	Issued for Development Application - General Amend	14.05.21		Proposed Childcare Centre					
К	Issued for Development Application	12.05.21	-	Lot 611					
J	Plans Update - Elev. Section and Electrical	21.04.21							
I	Plans Update - Pre DA Drawings	20.04.21		DP10419	Scales	1:100 U	NO	Date	Aug 2020
Н	Sketch Plan - Redesign Carparking	19.03.21		Thornton					
G	Sketch Plan - Redesign	20.01.21	-		Drawn	Dellar	Designed	Absolute	Revision
F	Preliminary DA / Issued for Estimation	07.10.20			Job Numh	er	Drawing No)	M
Issue	Description	Date	-		Job Numb	20036		01	111

Perspective - Driveway Entry

NOTES

1/ All dimensions are in millimeters unless noted otherwise. 2/ Work to figured dimensions. Do not scale from drawings.

3/Check all dimensions prior to construction report any discrepancies to the builder. prior to any construction or fabricating any item. 4/ This drawing to be read in conjunction with the total documentation package, including all other consultants drawings, written specifications and such other written instructions as may be issued during the course of the contract.

GENERAL

The builder shall confirm all levels & dimensions on site prior to construction. The builder/owner shall give all notices, obtain permits & pay all fees / insurances required. Reference code for all work shall be the Building Code of Australia. Building setout to be by a registered surveyor. Termite protection treatment in accordance with AS 3660.1.

CONCRETOR

All work shall be in accordance with AS 3600. All footings, slabs to engineers/ councils approval prior to pouring concrete. Footings designed in accordance with AS2870 for a class 'M' site.

TIMBER FRAMING

All work shall be in accordance with AS 1684 The National Timber Framing Code. All external timber to be F7 kiln dried treated pine. unless noted otherwise. External fixings to be hot dip galv. Internal timber framing to be MGP 10 (F5) minimum grade. fb - denotes hardwood floorboards to owners spec. 19mm all purpose structaflor elsewhere All bracing and tie down details to be in accordance with N.S.W timber framing manual.

BRACING & TIE DOWN REQUIREMENTS

Designed for wind speed = 33m/s. Terrain Cat. 3. Partial Shielding Wall bracing panels to be 'type B' or equivalent. A minimum of 2 bracing units in each external wall u.n.o. All bracing and tie down details to be in accordance with the N.S.W timber framing manual.

LININGS

10mm gyprock to walls & ceilings 9mm villaboard to wet area walls & ceilings

MASONRY

All work shall be in accordance with AS 3700. Clay bricks to be 20MPa. All mortar to be M3 classification minimum. vbcj - denotes vertical brick control joint. Provide proprietary 'MET' ties accross joints every 4th course fill joint with approved sealant.

DRAINAGE & PLUMBING

Dispose of stormwater to council requirements. Provide socked aggroflex subsurface drains to all landscaped fill areas, connected to existing stormwater. Plumbing contractor to determine location & number of downpipes required to adequately drain the roof. All plumbing work shall comply with Hunter Water Board requirements. Location of all existing services to be confirmed prior to construction.

ELECTRICIAN

All work in accordance with AS 3000. Exact type & & location of light fittings, switches & power outlets shall be determined on site during progress of work.

PAINTER

Finished colours & stain finishes to the owners spec.

GLAZING

New windows & doors shall be aluminium-timber, type & manufacture to owners requirements. All work in accordance with AS 2047-1996.

STEELWORK

All work in accordance with AS 4100 Steel Structures Code. All steel sizes & connections to engineers details. All external steelwork to be hot dip galvanised, paint finish.

EROSION & SEDIMENT CONTROL

All work to be carried out in accordance with the department of conservation & land management urban erosion & sediment control.

RUBBISH CONTROL

All works to be carried out in strict accordance with the Department of Conservation and Land Management Urban Erosion and Sediment Control. Rev. 1992.







Note: Artist impression ONLY. Exact colours and playground equipment shall vary from what has been depected in the renders



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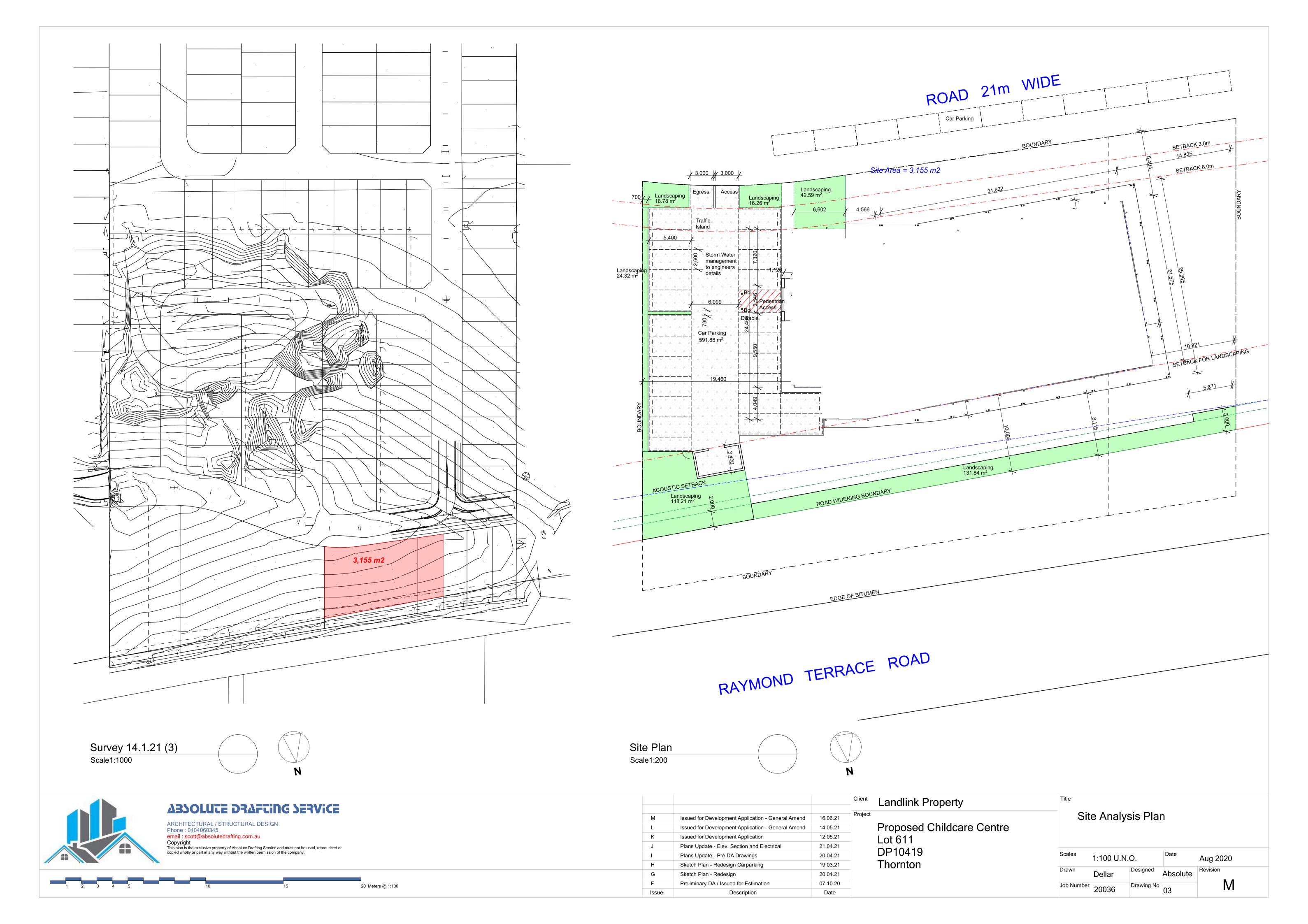


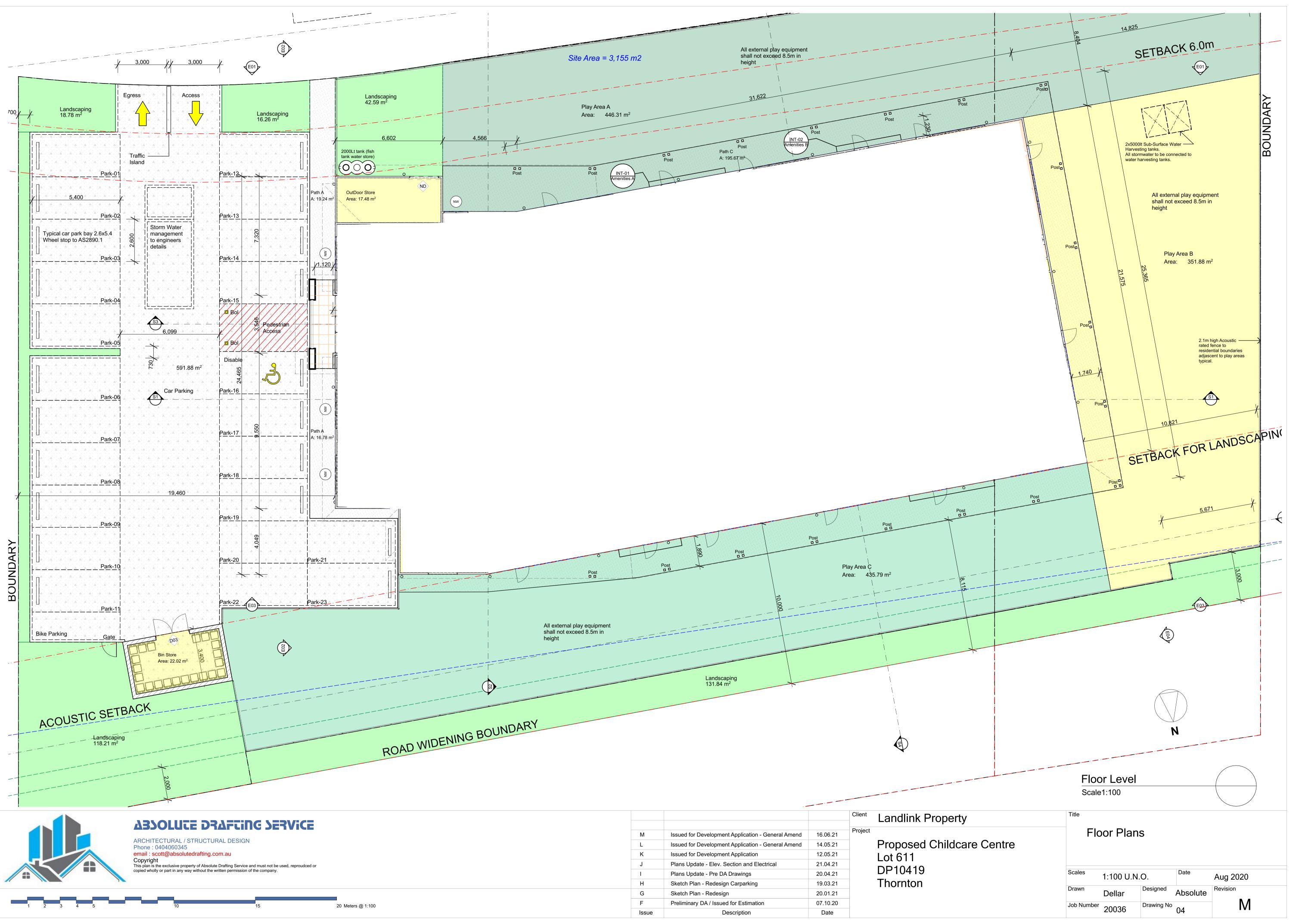




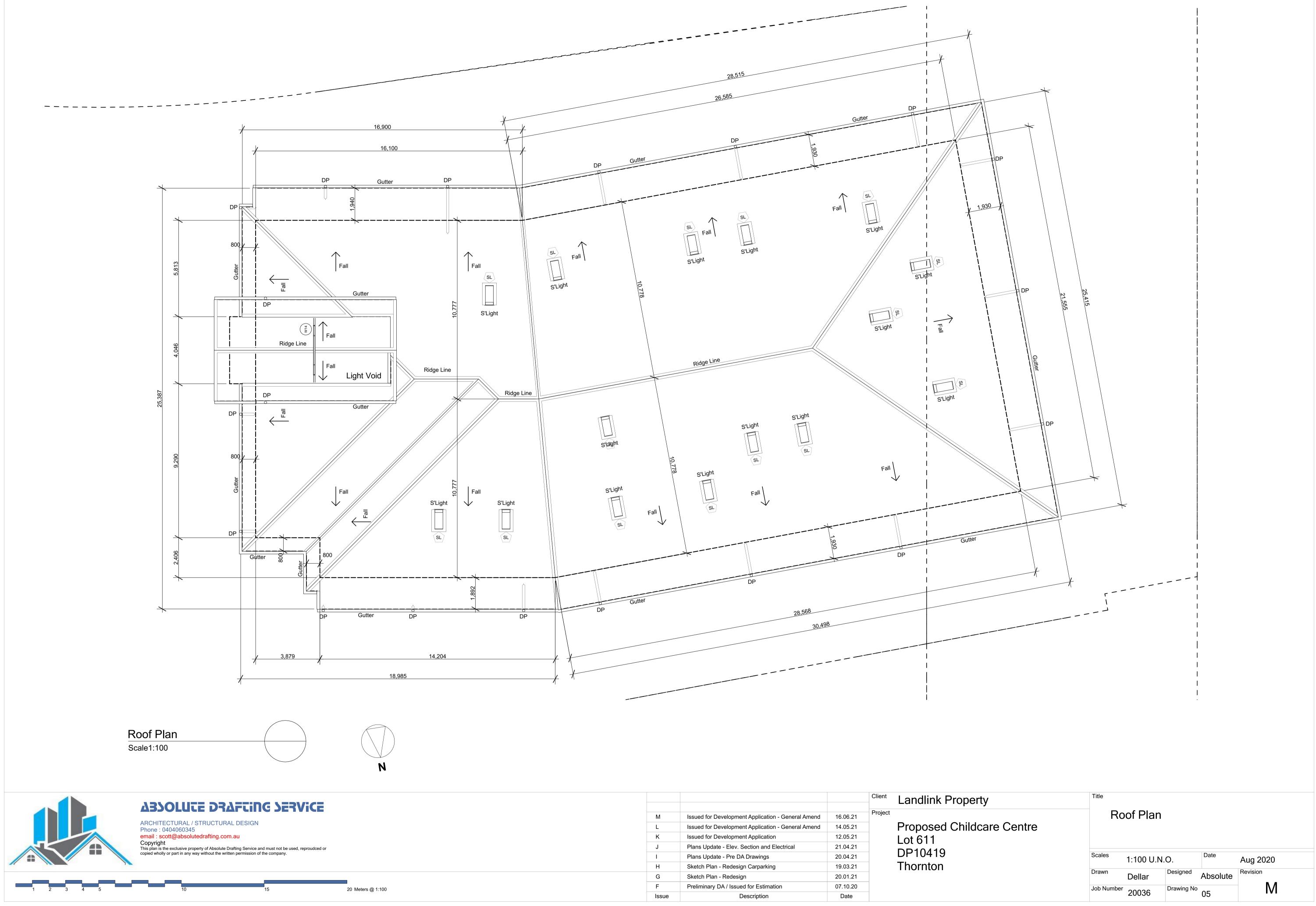
			Client	Landlink Property
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L	Issued for Development Application - General Amend	14.05.21	_	Proposed Childcare Cer
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F	Preliminary DA / Issued for Estimation	07.10.20		
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	Scales	1:100 U.N.	0.	Date	Aug 2020
	Drawn	Dellar	Designed	Absolute	Revision
	Job Number	20036	Drawing No	02	M



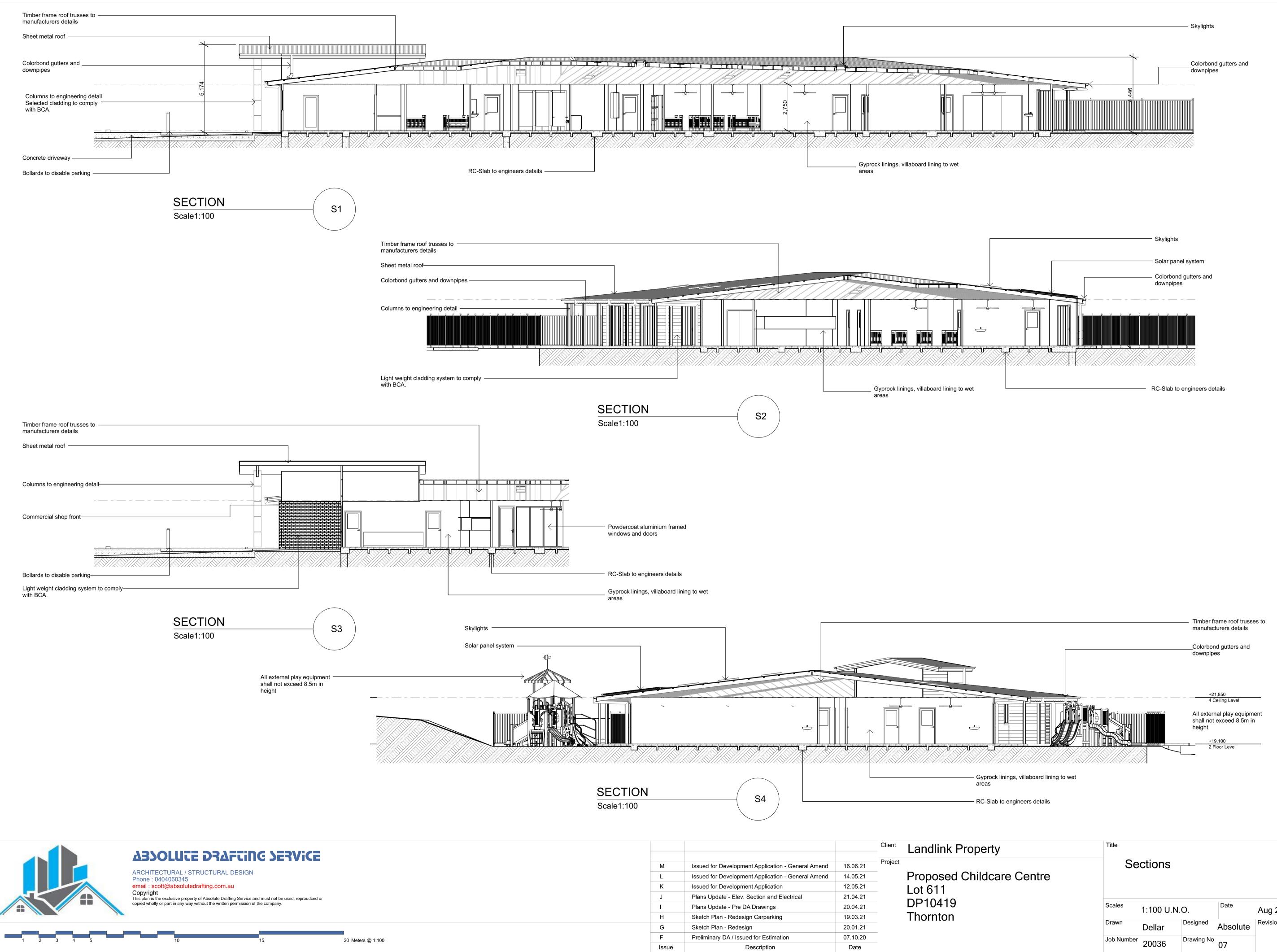


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G	Sketch Plan - Redesign	20.01.21		
F	Preliminary DA / Issued for Estimation	07.10.20		
Issue	Description	Date		



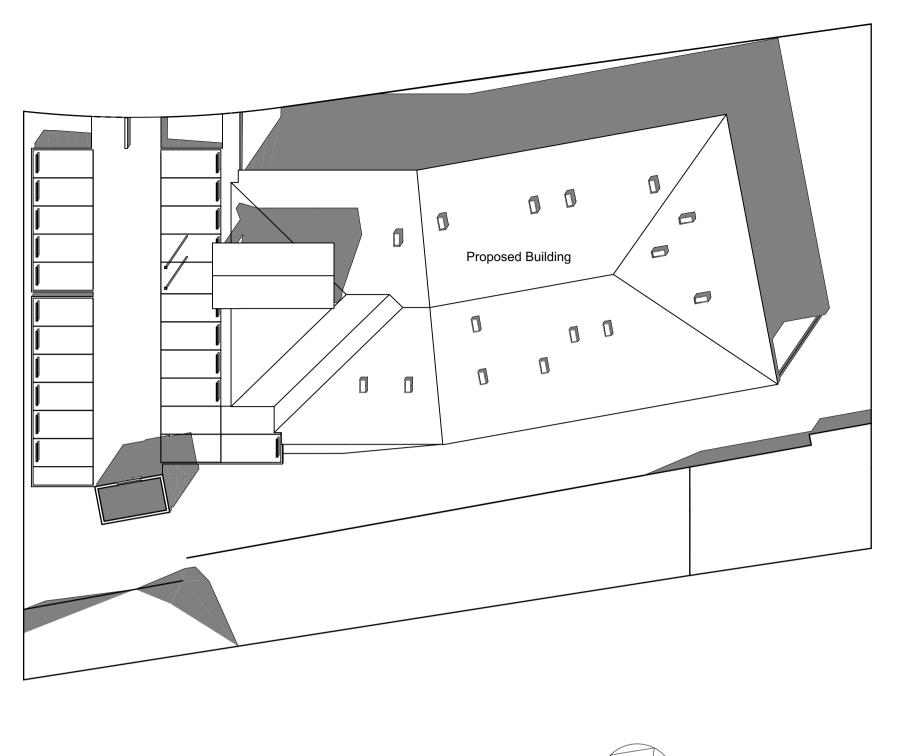
			Client	Landlink Property
М	Issued for Development Application - General Amend	16.06.21	Project	
L	Issued for Development Application - General Amend	14.05.21		Proposed Childcare Cer
K	Issued for Development Application	12.05.21		Lot 611
J	Plans Update - Elev. Section and Electrical	21.04.21		
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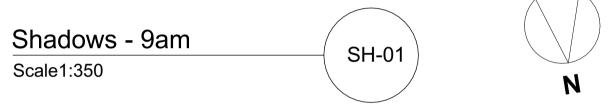






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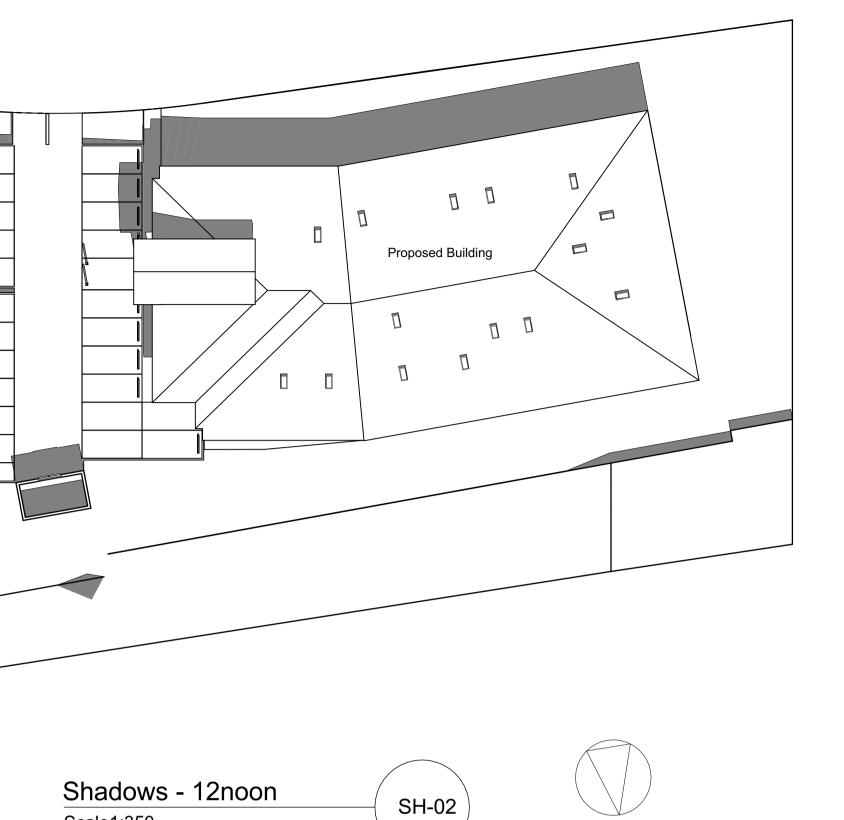


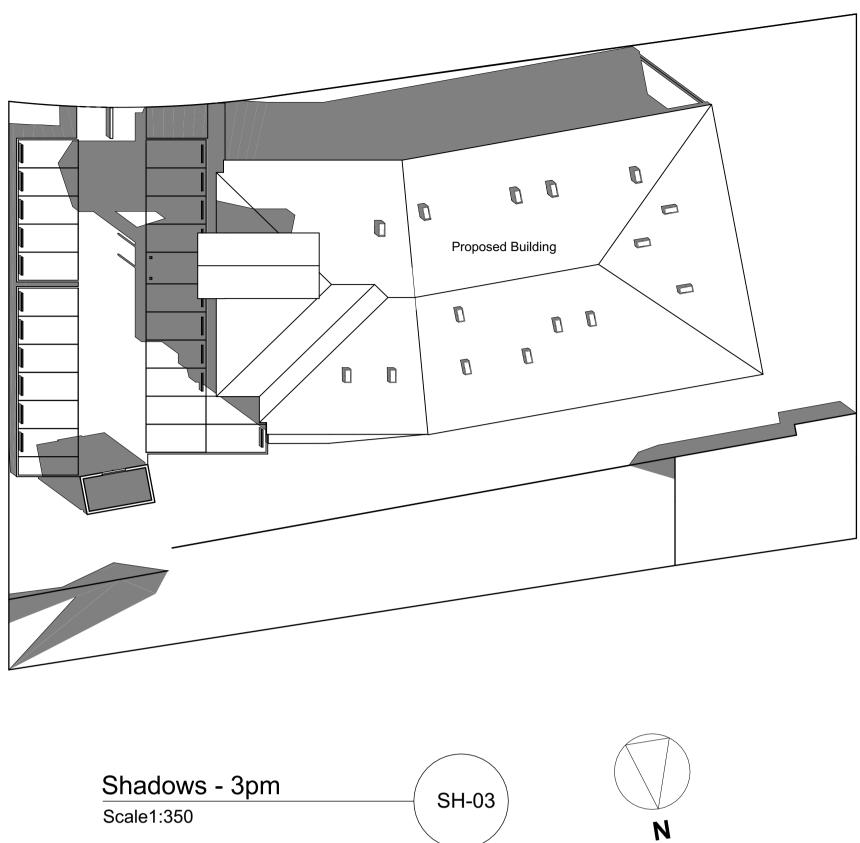
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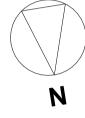
ARCHITECTURAL / STRUCTURAL DESIGN Phone : 0404060345 email : scott@absolutedrafting.com.au Copyright This plan is the exclusive property of Absolute Drafting Service and must not be used, reproudced or copied wholly or part in any way without the written permission of the company.

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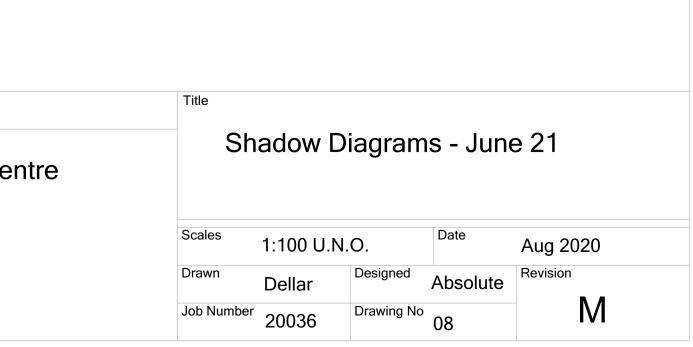




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			Client	Landlink Property
М	Issued for Development Application - General Amend	16.06.21	Project	
L	Issued for Development Application - General Amend	14.05.21	_	Proposed Childcare Cen
К	Issued for Development Application	12.05.21		Lot 611
J	Plans Update - Elev. Section and Electrical	21.04.21	_	
I	Plans Update - Pre DA Drawings	20.04.21	_	DP10419
Н	Sketch Plan - Redesign Carparking	19.03.21	-	Thornton
G	Sketch Plan - Redesign	20.01.21		
F	Preliminary DA / Issued for Estimation	07.10.20		
Issue	Description	Date	1	







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			Client Landlink Property
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G	Sketch Plan - Redesign	20.01.21	
F	Preliminary DA / Issued for Estimation	07.10.20	
lssue	Description	Date	

Electrical Legend

Φ	LIGHT POINT CEILING MOUNTED.
$\mathbf{\Phi}^{\scriptscriptstyle H}$	HANGING LIGHT POINT CEILING MOUNTED.
⁼ ⊕-I	LIGHT POINT EXTERNAL WALL MOUNTED.
Ф І	LIGHT POINT WALL MOUNTED.
+	RECESSED DOWNLIGHT
÷	RECESSED DOWNLIGHT - EXTERNAL SOFFIT
Ø	BOX LIGHT
	SKIRTING LIGHTS
A	DOUBLE 10AMP' POWER OUTLET 300mm ABOVE FLOOR
-в	DOUBLE 15AMP' POWER OUTLET 300mm ABOVE FLOOR
-c	DOUBLE 10AMP' POWER OUTLET 1050mm ABOVE FLOOR
D	DOUBLE 10AMP' POWER OUTLET 1500mm ABOVE FLOOR
Ε	DOUBLE 10AMP' POWER OUTLET 1050mm ABOVE FLOOR
F	SINGLE 20AMP' POWER OUTLET 1050mm ABOVE FLOOR
WP	WEATHERPROOF GPO
ି	SINGLE SWITCH POINT
ର୍ଦ	MULTIPLE SWITCH POINT
° ℃	SWITCH POINT WITH DIMMER
	DOUBLE DATA CABLE POINT
	SMOKE DETECTOR. HARD WIRED.
Ø ™	TELEVISION 75 OHM' SOCKET POINT.CONFIRM HEIGHT WITH
🔺 РН	TELEPHONE OUTLET
00 F	'FANTASTIC' CEILING MOUNTED LIGHT/EXHAUST FITTING
X	GAS CONNECTION
○ EF	CEILING EXHAUST FAN
🛞 RF	RAINGEHOOD EXTRACTION FAN

CEILING FAN

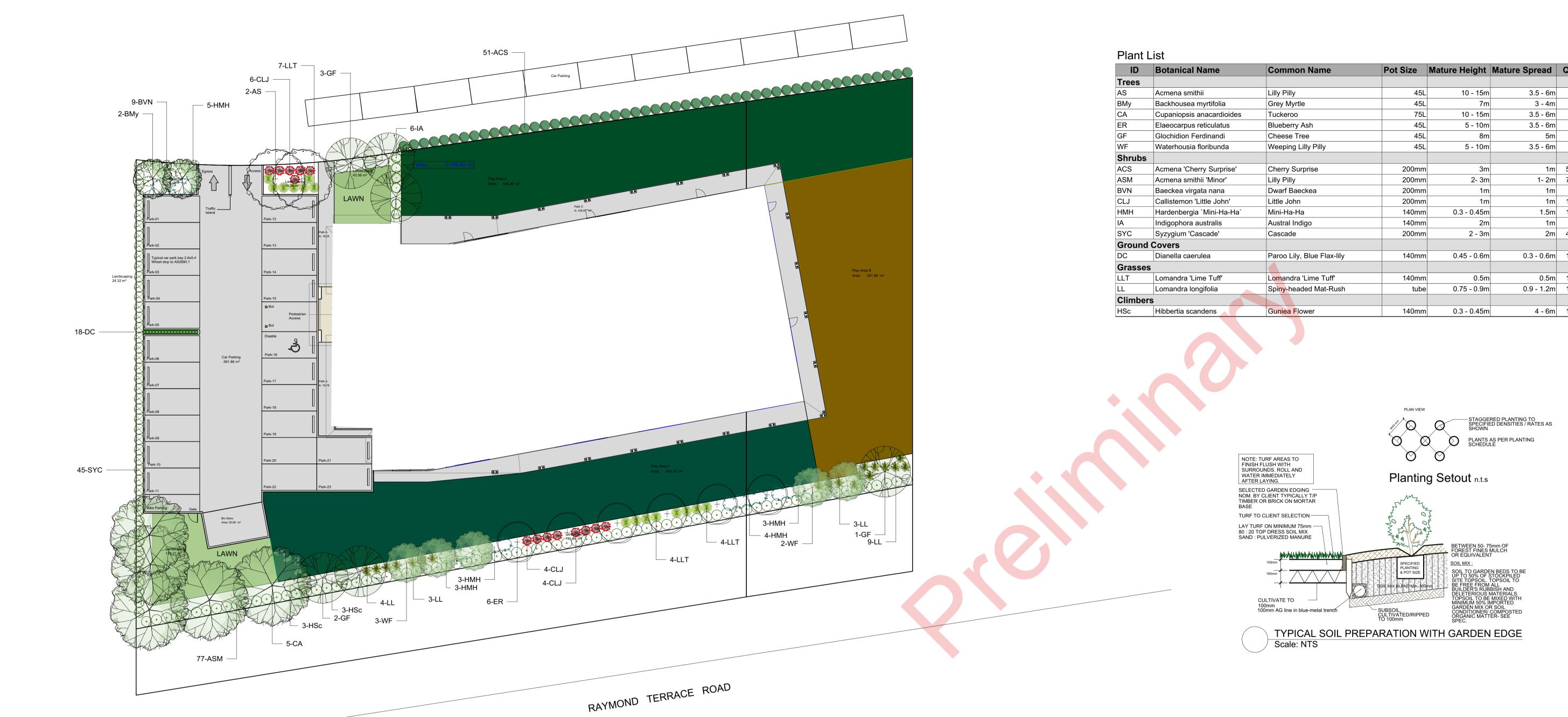
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Ele	ectrical F	Plan		
Scales	1:100 U.N.	О.	Date	Aug 2020
Drawn	Dellar	Designed	Absolute	Revision
Job Number	20036	Drawing No	09	Μ



Appendix B:

Landscape Plan



ANDSCAPE WORK SPECIFICATION

PRELIMINARIES

Project:

1.01 GENERAL

- The following general conditions should be considered prior to the commencement of landscape works: The landscape plans should be read in conjunction with the architectural plans, hydraulic
- plans, service plans and survey prepared for the proposed development. All services including existing drainage should be accurately located prior to the
- commencement of landscape installation. Any proposed tree planting which falls close to services will be relocated on site under the instruction of the landscape architect.
- Installation of conduit for required irrigation, electrical and other services shall be completed prior to the commencement of hardscape works and hardstand pours.
- All outdoor lighting specified by architect or client to be installed by qualified electrician Anomalies that occur in these plans should be brought to our immediate attention. Where an Australian Standard applies for any landscape material testing or installation

1.02 PROTECTION OF ADJACENT FINISHES

technique, that standard shall be followed.

The Contractor shall take all precautions to prevent damage to all or any adjacent finishes Specified Soil Mix - Turf by providing adequate protection to these areas / surfaces prior to the commencement of The specified soil mix for all turf areas shall be a min 75mm layer of imported soil mix the Works

1.03 PROTECTION OF EXISTING TREES

Existing trees identified to be retained shall be done so in accordance with AS 4970-2009. Site Topsoil Where general works are occurring around such trees, or pruning is required, a qualified Arborist shall be engaged to oversee such works and manage tree health. Existing trees designated on the drawing for retention shall be protected at all times during toxic to plants. The topsoil must have a pH of between 5.5 and 7. the construction period. Any soil within the drip-line of existing trees shall be excavated and removed by hand only. No stockpiling shall occur within the root zone of existing trees 2.02 INSTALLATION to be retained.

Any roots larger in diameter than 50mm shall only be severed under instruction by a qualified arborist. Roots smaller than 50mm diameter shall be cut cleanly with a saw.

1.8m high temporary fencing shall be installed around the base of all trees to be retained Tests shall be taken in several areas where planting is proposed, and site soil modified to prior to the commencement of landscape works. The location of this fencing will be as per ensure conditions are appropriate for planting as stated above. the TPZ defined by the consulting Arborist. If no Arborists report is available, install fence around the drip line of these trees, or a minimum of 3m from the trunk. The fencing shall be Note that a soil test conducted by "SESL Australia" or approved equal shall be prepared for Plant true to type, Good vigour and health, free from pest & disease, free from injury. maintained for the full construction period.

1.04 EROSION & POLLUTION CONTROL

The Contractor shall take all proper precautions to prevent the erosion of soil from the subject site. The contractor shall install erosion & sediment control barriers and as required out with stakes or another form of marking, ready for inspection and approval. Locate all by council, and maintain these barriers throughout the construction period. Note that the services. sediment control measures adopted should reflect the soil type and erosion characteristics of the site.

Erosion & pollution control measures shall incorporate the following: - Construction of a sediment trap at the vehicle access point to the subject site.

- Sediment fencing using a geotextile filter fabric in the location indicated on the erosion control plan or as instructed on site by the landscape architect. - Earth banks to prevent scour of stockpiles

LANDSCAPE PLAN

Scale: 1:200

Sandbag kerb sediment traps - Straw bale & geotextile sediment filter.

- Exposed banks shall be pegged with an approved Jute matting in preparation for mass planting

Refer to "Sitewise Reference Kit" as prepared by DLWC & WSROC (1997) for construction Cultivate all subgrades to a minimum depth of 150mm in all planting beds and all turf techniques

SOIL WORKS

2.01 MATERIALS

Specified Soil Conditioner - Mass planting in natural ground

The specified soil conditioner for mass planting shall be an organic mix, equal to "Soil conditioner", as supplied by Oz Landscaping Supplies. Note that for sites where soil testing indicates toxins or extremes in pH. or soils that are extremely poor, allow to excavate and supply 300mm of imported soil mix.

consisting of 80% washed river sand (reasonably coarse), and 20% composted organic matter equivalent to mushroom compost or soil conditioner, or other approved lawn top dress.

Site topsoil is to be clean and free of unwanted matter such as gravel, clay lumps, grass, weeds, tree roots, sticks, rubbish and plastics, and any deleterious materials and materials soil levels, in preparation for planting and turfing.

All testing is to be conducted in accordance with AS 4419-2003 Soils for landscaping and garden use for an in depth soil analysis for pre-planting and diagnostic assessment of the

all commercial, industrial and multi-unit residential sites. The successful landscape contractor shall implement the recommendations of this test.

b) Set Out of Individual Trees & Mass Planting Areas

All individual tree planting positions and areas designated for mass planting shall be set

c) Establishing Subgrade Levels

Subgrade levels are defined as the finished base levels prior to the placement of the specified material (i.e. soil conditioner). The following subgrade levels shall apply: Mass Planting Beds - 300mm below existing levels with specified imported soil mix. - Turf areas - 100mm below finished surface level. Note that all subgrades shall consist of a relatively free draining natural material, consisting c) Mulch acceptable.

d) Subgrade Cultivation

areas, ensuring a thorough breakup of the subgrade into a reasonably coarse tilth. Grade subgrades to provide falls to surface and subsurface drains, prior to the placement of the final specified soil mix.

e) Drainage Works Install surface and subsurface drainage where required and as detailed on the drawing.

Drain subsurface drains to outlets provided, with a minimum fall of 1:100 to outlets and / or service pits.

f) Placement and Preparation of Specified Soil Conditioner & Mixes. - Trees in turf & beds - Holes shall be twice as wide as root ball and minimum 100mm deeper - backfill hole with 50/50 mix of clean site soil and imported "Organic Garden Mix" as supplied by Oz Landscape Supplies or approved equal. - Mass Planting Beds - Install specified soil conditioner to a compacted depth of 100mm Place the specified soil conditioner to the required compacted depth and use a rotary hoe to thoroughly mix the conditioner into the top 300mm of garden bed soil. Ensure thorough mixing and the preparation of a reasonably fine tilth and good growing medium in preparation for planting. Turf Areas - Install specified soil mix to a minimum compacted depth of 75mm Place the specified soil mix to the required compacted depth and grade to required finished c) Staking and Tying

PLANTING

3.01 MATERIALS

Ross Clark's book.

a) Quality and Size of Plant Material In General, the principles & standards outlined in "Specifying Trees - a guide to assessment of tree quality" by Ross Clark will be demanded in the quality of all planting stock specified. These principles include, but are not limited to:

Above - Ground Assessment: The following plant quality assessment criteria should be followed: self-supporting, good stem taper, has been pruned correctly, is apically dominant, has even crown symmetry, free from included bark & stem junctions, even trunk position in pot, good stem structure Below - Ground Assessment: Good root division & direction, rootball occupancy, rootball depth, height of crown, non-suckering For further explanation and description of these assessment criteria, refer to

All Plant material shall be to the type and size specified. No substitutions of plant material shall be permitted without written prior approval by the Landscape Architect. No plant shall adjacent surfaces. be accepted which does not conform to the standards listed above.

b) Fertilizers Fertilizers shall be approved slow release fertilisers suitable for the proposed planting types. Note that for native plants, specifically Proteaceae family plants including Grevillea

species, low phosphorus fertilizers shall be used.

of site topsoil placed previously by the Civil Contractor. No builders waste material shall be Mulch shall be leaf litter mulch equal to "Forest Blend" as supplied by ANL. Mulch shall be

completely free from any soil, weeds, rubbish or other debris.

Turf shall be "Kakadu" Buffalo or equivalent (unless stated otherwise), free from any weeds

and other grasses, and be in a healthy growing condition.

3.02 INSTALLATION a) Setting Out

All planting set out shall be in strict accordance with the drawings, or as directed. Note that surface requirements, while providing a useable, hardwearing, practical surface. proposed tree planting located near services should be adjusted at this stage. Notify Landscape Architect for inspection for approval prior to planting

All plant material shall be planted as soon after delivery as possible. Planting holes for

each plant type. Ensure that plants are set plumb vertically and root balls set to the

trees shall be excavated as detailed and specified. Plant containers shall be removed and

discarded, and the outer roots gently teased from the soil mass. Immediately set plant in

hole and backfill with specified soil mix, incorporating the approved quantity of fertiliser for

consolidated finished grades detailed on the drawings. Compact the backfilled soil and

saturate by hand watering to expel any remaining air pockets immediately after planting.

Trees shall be of a quality that, when planted, are freestanding, without the aid of stakes or ties, else they will be rejected.

d) Mulching

b) Planting

Mulch should be spread so that a compacted thickness of 75mm is achieved after settlement in all planting beds and around each individual plant. Apply immediately following planting and watering in, ensuring that a 50mm radius is maintained around the trunk of each plant. In all planter boxes, mulch to finish between 25-50mm below top of planter. There shall be no mixing of soil and mulch material.

e) Turfing

Moisten soil prior to the turf being laid. Turf shall be neatly butt jointed and true to grade to finish flush with adjacent surfaces. Incorporate a lawn fertilizer and thoroughly water in. until this has occurred. Allow for top dressing of all turf areas. All turf shall be rolled immediately following installation

f) Garden edging

Client).

The Contractor shall install garden edging to all mass planting beds adjoining turf or gravel mulched areas, and where required. The resultant edge shall be true to line and flush with Garden Edging: to be Treated Pine Timber edging (Unless otherwise specified by

) Root Barrier

Ensure root barrier is installed to all edges/junctions beween the garden bed and adjacent hard surfaces including but not limited to retaining walls, carparking, paths, underground pipes and tanks and buildings within a 3m radius of the trunk of any proposed trees. Root barrier: Equivalent to treemax root barrier. Install root barrier to manufacturer's instructions.

HARDSCAPE WORKS

4.01 GENERAL

The Contractor shall undertake the installation of all hardscape works as detailed on the

drawing, or where not detailed, by manufacturers specification.

a) Paving

Refer to typical details provided, and applicable Australian Standards. Permeable paving may be used as a suitable means of satisfying Council permeable In most instances, the client shall nominate the appropriate paving material to be used.

Australian Standards shall be adhered to in relation to all concrete, masonry & metal work. Some details are typical and may vary on site. All hardscape works shall be setout as per the drawings, and inspected and approved by the Landscape Architect prior to installation. All workmanship shall be carried out in a tradesman-like manner. Any queries or problems that arise from hardscape variations should be bought to the attention of the Landscape Architect.

IRRIGATION WORKS

5.01 GENERAL (PERFORMANCESPECIFICATION)

New irrigation systems to planting areas shall be a Commercial Grade Irrigation System conforming to AS 3500 & the latest Sydney Water Code

The irrigation system shall be installed prior to all planting works. It shall incorporate a commercially available irrigation system, with dripper lines for all trees, and suitable jet sprinkler heads for the shrub species specified. It shall also incorporate a suitable back flow prevention device for the scale of works, an in-line filter, check valves, and suitable high and low density poly hose fittings and PVC piping to achieve flow rates suitable for specified planting.

The landscape contractor shall check the existing pressure available from the ring mains and size irrigation piping to suit. Supply shall be from local hose cock where available. All piping and fittings are to be buried 50mm below the finished soil levels in garden bed areas, and secured in position at 5m centre with galv wire pins. Sizing of pipes shall be Keep turf moist until roots have taken and sods/rolls cannot be lifted. Keep all traffic off turf done so as to ensure that the working pressure at the end of the line does not decrease by more than 5%.

Upon completion of installation, the system shall be tested and all components are to be satisfactorily functional and operational prior to approval. Should any defect develop, or the capacity or efficiency of the system decline during the agreed maintenance system, then these faults shall be immediately rectified.

Detailed drawings of the entire proposed irrigation system shall be made available to the client for records and future maintenance of the system.

6.01 GENERAL

Watering all planting and lawn areas / irrigation maintenance. Removing weeds, pruning and general plant maintenance. Replacement of damaged, stolen or unhealthy plants. Make good areas of soil subsidence or erosion.

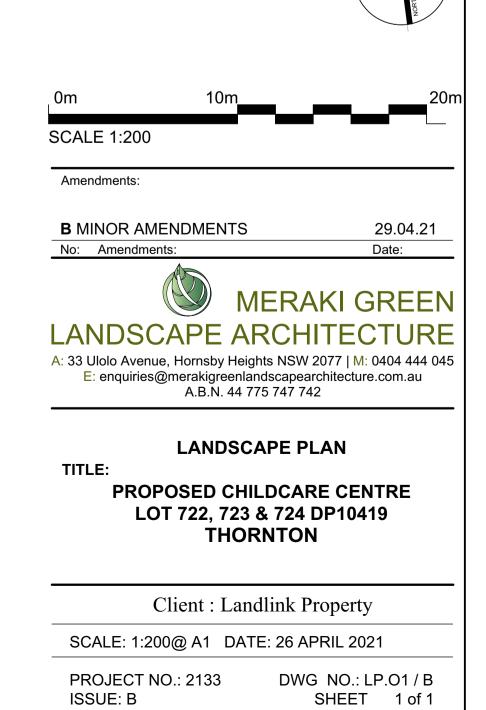
The consolidation and maintenance period shall be 12 months beginning from the approved completion of the specified construction work (Practical Completion) except in the case of street trees, which shall be maintained for a period of 24 months. A qualified landscape maintenance contractor shall undertake the required landscape maintenance works. Consolidation and maintenance shall mean the care and maintenance of Contracted works by accepted landscaping or horticultural practices, ensuring that all plants are in optimum growing conditions and appearance at all times, as well as rectifying any defects that become apparent in the contracted works. This shall include, but not be limited to, the following items where and as required: - Clearing litter and other debris from landscaped areas. - Topping up of mulched areas. Spray / treatment for Insect and disease control. - Fertilizing with approved fertilizers at correct rates - Mowing lawns & trimming edges each 14 days in summer or 18 days in winter - Maintenance of all paving, retaining and hardscape elements. On the completion of the maintenance period, the landscape works shall be inspected and

signed over to the client.

	Common Name	Pot Size	Mature Height	Mature Spread	Qty
	Lilly Pilly	45L	10 - 15m	3.5 - 6m	2
а	Grey Myrtle	45L	7m	3 - 4m	2
ioides	Tuckeroo	75L	10 - 15m	3.5 - 6m	5
us	Blueberry Ash	45L	5 - 10m	3.5 - 6m	6
li	Cheese Tree	45L	8m	5m	6
da	Weeping Lilly Pilly	45L	5 - 10m	3.5 - 6m	5
orise'	Cherry Surprise	200mm	3m	1m	51
or'	Lilly Pilly	200mm	2- 3m	1- 2m	77
a	Dwarf Baeckea	200mm	1m	1m	9
nn'	Little John	200mm	1m	1m	14
la-Ha`	Mini-Ha-Ha	140mm	0.3 - 0.45m	1.5m	18
	Austral Indigo	140mm	2m	1m	6
	Cascade	200mm	2 - 3m	2m	45
	Paroo Lily, Blue Flax-lily	140mm	0.45 - 0.6m	0.3 - 0.6m	18
	Lomandra 'Lime Tuff'	140mm	0.5m	0.5m	15
	Spiny-headed Mat-Rush	tube	0.75 - 0.9m	0.9 - 1.2m	19
	Guniea Flower	140mm	0.3 - 0.45m	4 - 6m	10

CONSOLIDATION AND MAINTENANCE

at the satisfaction of the superintendent or landscape architect, the responsibility will be





Appendix C:

Traffic & Parking Assessment Report



Ground Floor, 161 Scott Street Newcastle NSW 2300 Ph: (02) 4032 7979 admin@secasolution.com.au

7 May 2021

P2078 LL Thornton Childcare Centre

Landlink 28-30 Bolton Street Newcastle 2300

Attn: Alicia Compton

Dear Alicia,

Proposed Childcare Centre, Thorncliffe Avenue, Thornton, NSW. Thorncliffe Ave on lot 612 and 611

We have now completed our site work and review of the documentation provided for the proposed childcare centre on lots 612 and 611 Thorncliffe Avenue, Thornton and provide the following assessment of parking demands, traffic generation and access arrangements for the development. This assessment has been completed with regard to the relevant requirements outlined in the Maitland Development Control Plan (2011) (MDCP), with reference to the Guide to Traffic Generating Developments (GtTGD) and Australian Standard AS2890.1: Off-street Car Parking Facilities.

Background

The subject site is located on Lots 611 and 612 on a western extension of Thorncliffe Avenue at Thornton as shown below in Figure 1.

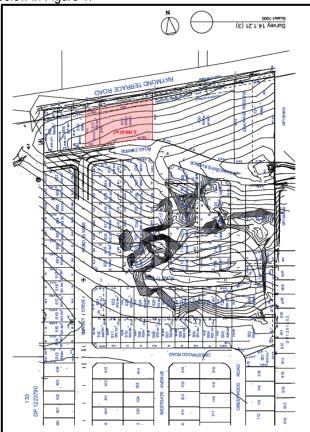




Figure 1 – Subject site in the context of the local road network

The subject site consists of three lots which are currently vacant. The surrounding land to the east and south is low density residential development.

The site has frontages to the new road/Thorncliffe Avenue as well as Raymond Terrace Road however all access will be provided off Thorncliffe Avenue only.

Road Hierarchy

Raymond Terrace Road is the major road passing through the locality. If forms part of the state road network (MR104) and provides the primary link between Raymond Terrace to the east and East Maitland to the west. In the vicinity of the site it currently operates under the posted speed limit of 80km/hr and generally provides a single lane of travel in each direction with sealed shoulders that caters for vehicle breakdowns. At the intersection with Government Road there is a cyclist lane marking on the southern side of the road however no other cycling facilities are provided at this location. There is no kerb and guttering in the vicinity of the site, reflective if its current rural nature. Widening at key intersections provide additional capacity however there are no turn lanes provided at the intersection with Government Road. Street lighting is provided at this intersection, however there are no pedestrian footpaths.

Government Road is a local road which connects with Raymond Terrace Road via a T-intersection which allows for all turning movements. It operates as a collector road through the various housing estates that have been developed along its length and allows for one lane of travel in each direction, with a sealed pavement width that varies between 9-10.5 metres along the majority of its length with widening on the approach to various roundabouts that have been installed to provide for the efficient connection to the surrounding urban development associated



with Thornton North. There is minimal kerb and guttering provided along Government Road and generally only footpaths where roundabouts have been developed. In the vicinity of Thorncliffe Drive there is a shared path which ends just to the north of the intersection whilst to the south the shoulders are marked as cycling lanes. Government Road has a posted speed limit of 50km/hr.

Thorncliffe Avenue is a local road which connects with Government Road via a single lane circulating roundabout. It operates as a trunk collector or spine road through the housing estate and allows for one lane of travel in each direction, with a sealed pavement width in the order of 10.8 metres. Parking is permitted along its length. Kerb and guttering is provided along both sides of Thorncliffe Avenue with a 2.5m wide shared path on the northern side. There is no posted speed limit at the entry to the estate however the urban speed limit of 50km/hr is considered appropriate.

Sunset Drive is a local street providing a pavement with a width in the order of 11 metres allowing for two-way traffic movements. It provides access to residential dwellings with kerb and guttering and a footpath on the western side. Street lighting is provided. Sunset Drive will be extended to form a connection with Thorncliffe Avenue to the north.

The surrounding local roads provide access to further residential development in the area.

Current Road Network Operation

Seca Solution has undertaken morning and afternoon traffic surveys at the intersection of Thorncliffe Avenue and Government Road on Tuesday 30th March 2021 7.00-9.30AM and 3.00-6.00PM. Based on the traffic surveys completed, the peak periods for vehicle movements were determined as 8am-9am and 4:30pm-5:30pm, with the corresponding turning movements at the intersection of Government Road and Thorncliffe Avenue shown in Figure 3 and 3.

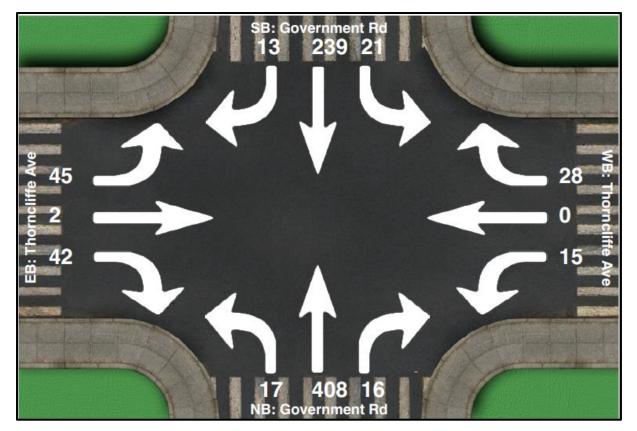


Figure 2 – Existing traffic flows at the intersection of Government Road and Thorncliffe Avenue during AM peak hour

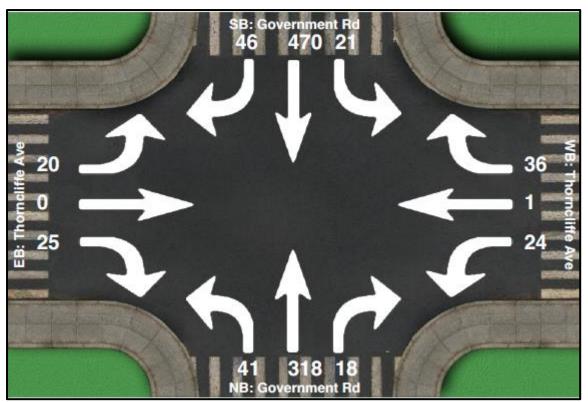


Figure 3 – Existing traffic flows at the intersection of Government Road and Thorncliffe Avenue during PM peak hour

The two-way flows along Thorncliffe Avenue west of Government Road are 119 vehicles in the AM (89 eastbound) and 133 vehicles in the PM (88 westbound). Thorncliffe Avenue, as a trunk collector road operates with a capacity of 900 vehicles per hour (vph) whilst Sunset Drive would operate with an environmental capacity 500 vph maximum, 300 vph desirable. Whilst traffic flows were not recorded on Sunset Drive observations on site indicate they are minimal, primarily associated with construction workers accessing the subdivision land. It can be seen that both roads operate within their operational capacity.

Traffic flows along Government Road and Raymond Terrace Road are much higher, and as part of the development of Thornton North there has been extensive network traffic modelling completed which has identified appropriate road upgrades to maintain capacity along these important road links.

Observations at the intersections of Thorncliffe Avenue/Government Road indicates that this intersection operates very well with minimal delays and adequate spare capacity.

Car Parking

On-street carparking is available along the local roads in the vicinity of the site with typical restrictions associated with driveways and intersections. It is anticipated that this will be the same on the new roads.

The demands for this parking appear low with most sites providing parking within individual lots.

Other Developments

Ongoing development to the west and south will see the release of further residential lots. Modelling has been undertaken as part of the approvals for these land releases with ongoing upgrades to roads provided for in S7.11 contributions. This includes the subject site.



Proposed Development

The proposed development is for the construction of a childcare centre with the capacity to provide care for up to 132 children. The centre will operate as a long day care centre, providing a wide spread of drop off and pick up times for parents and carers. The plans for the development show provision for 23 parking spaces on site, along with 11 parallel parking spaces on street along the site frontage.

A concept plan for the proposed childcare centre is included in Attachment B.

Access

The driveways will provide for separate entry and exit with a central island separating these movements. These driveways meet the required width of 3 metres for separated driveways under AS2890.1, for a car park with less than 25 spaces accessed off a local road. The carpark circulation will allow for two-way movement.

As the roads are not yet constructed sight lines cannot be confirmed however it is anticipated that suitable sight lines can be achieved along the frontage road. Sight distance requirements for an access driveway are prescribed by Australian Standard AS2890.1:2004 Parking Facilities (Off-street Car Parking), which requires a minimum sight distance of 45 metres for the posted speed limit of 50 km/hr, with a desirable sight distance of 69 metres. Allowing for the width of the site to the right of the driveway this minimum distance can be achieved and potentially the desirable distance. It is noted that the plans show traffic calming and provide possible priority for traffic on Sunset Drive. The bend in this location will further assist with the sight lines given that vehicles would be travelling at less than 50km/hr to negotiate this bend. Sight lines to the left (east) of the site appear to be available along Thorncliffe Avenue which currently provides a straight and level alignment. This should enable appropriate visibility for vehicles exiting the site or approaching along these roads.

It is anticipated that this length of road shall see the extension of the existing pedestrian pathway and so the centre will be able to connect with this from its internal path. This will also provide for parents/carers taking children in and out of cars parked along the street frontage. There is also an entry from the car park, utilising the shared space.

Parking

A total of 23 parking spaces are to be provided within the proposed carpark on site, one of which is accessible.10-11 spaces are being accommodated on street along the site frontage.

MDCP specifies a carparking requirement for a childcare centre of 1 car space for every four children in attendance. Allowing for illness and holidays it is assumed that 95% of children could be in attendance. This however makes no allowance for siblings travelling together which is particularly likely give the broad spread of ages allowed for in centres such as this. Assuming that 95% of children are in attendance at any one time the parking requirement would be 32 parking spaces.

The parking as proposed would provide for this.

These rates are similar to the historic RTA rates which were developed in 1992 and make no allowance for the type of childcare facility nor its operating hours. The longer hours of operation for the centre, compared to a traditional day care or preschool, allows for children to be dropped off or picked up over an extended period, reducing the peak parking requirements. This is consistent with observations of similar childcare developments completed by Seca Solution. Updated traffic surveys undertaken on behalf of the RMS (now TfNSW) in 2015 found that parking demands were also impacted by centre size with larger centres seeing lower overall parking demands. Based on this more recent data a centre with 132 places would see peak parking demands of 1 space per 6 enrolments. This would equate to a peak parking demand for the proposed development of 22 spaces.

The provision of 23 parking spaces on site, is therefore suitable to meet the parking demands for the proposed development with the on street parking providing for periods of absolute peak demand or to provide for those parents who prefer to walk into the childcare centre rather than make use of the off-street parking provided.

The provision of two stacked parking spaces is appropriate for use by staff as these can be managed within the centre.

The MDCP nominates parking for a childcare centre to be designed to meet the following:

Parking area dimensions and parking layout shall comply with Australian standard 2890.1 – 2004 User Class 3 (being 2.6 metres wide). A minimum aisle width of 6.5m shall be provided.

This can be achieved with the design of the parking area for the subject site.

Servicing

Servicing for the site will be minimal with the main requirements being associated with waste collection.

This will occur within the site outside of the centre's opening hours to enable the garbage truck to enter and exit the site in a forward direction, using the carpark as required to manoeuvre within the site.

Deliveries to the site will otherwise be during the day, outside of peak pick up and drop off times with such deliveries typically in a van size vehicle which can park within the site carpark.

Traffic Analysis

Traffic Generation

The Guide to Traffic Generating Developments specifies the following traffic generation rates for a long day care centre:

- Morning commuter peak hour trips 0.8 trips per child in attendance.
- Evening commuter peak hour trips 0.7 trips per child in attendance.
- No daily rates specified.

Allowing for the maximum capacity of 132 children attending the centre each day, the proposal could generate up to:

- 106 trips during the morning peak period
- 93 trips during the evening peak period.

The above rates do not include discounts for absenteeism nor for shared trips for siblings enrolled in the centre. Allowing up to 10% for absenteeism and shared trips with siblings, the proposed development could generate:

- 96 vehicle trips in the morning peak hour and
- 84 vehicle trips during the afternoon peak hour.

Daily trips would be based on 4 trips per day per child in attendance to allow for drop off and pick up and 2 trips per staff (upto 20 staff). Total daily trips for the childcare centre would be 516 (258 inbound 258 outbound).

Whilst the centre is likely to appeal to local residents within the subdivision, a large percentage of the traffic generated by the proposal is expected to be diverted trips being passing traffic associated with parents and carers who live in the surrounding area dropping off their children as part of their commute or local workers travelling along Raymond Terrace Road to work. These vehicles would already be travelling in the locality of the site as part of their journey to work etc and would therefore have a negligible impact upon the broader road network.

Given this, the extent of *additional* traffic movements generated by the development would be much lower than allowed for above.



To provide a robust assessment the majority of traffic associated with 90% attendance will be assessed as development traffic.

Traffic Distribution

Traffic is expected to be either travelling:

- 1. Within the immediate residential area
- 2. Heading north or south along Government Road
- 3. Travelling east or west along Raymond Terrace Road

All traffic shall have an origin/destination of Government Road split equally to the north and south with traffic then approaching/leaving the centre along Thorncliffe Avenue.

The main intersection impacted by the flows will be the intersection of Government Road and Thorncliffe Avenue.

Table 1 - Distribution of traffic in AM and PM	

	AN	1	PM	
Origin / Destination	INBOUND	OUTBOUND	INBOUND	OUTBOUND
To / From the north	24	24	21	21
To / From the south	24	24	21	21
Total	48	48	42	42

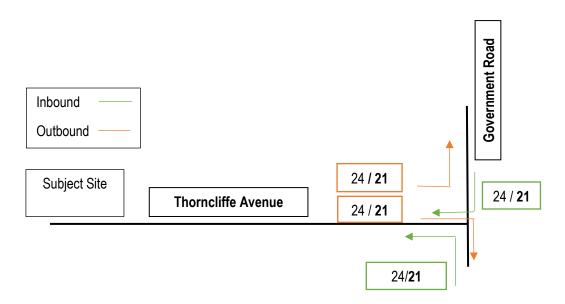


Figure 3 – Distribution of development traffic including diverted trip (AM/PM)

Impact on Daily Traffic Flows

The development could result in an increase in peak hour flows along Thorncliffe Avenue with some additional traffic potentially on Sunset Drive. Traffic flows on Thorncliffe Avenue could increase by an additional 96 trips two way in the AM and 84 trips two way in the PM. Thorncliffe Avenue is currently well within its capacity as an urban road with the development increasing flows to 215 vehicle movements (137 eastbound/ 78 southbound) in the morning peak and 217 in the afternoon peak (87 eastbound/130 westbound).

On Government Road, the majority of these motorists are expected to already be travelling along this route however if these trips were additional then flows on Government Road would increase by 48 trips two way to either the north or south of the Thorncliffe Avenue roundabout in the morning and 42 two way in the afternoon. Thus flows north of the roundabout would increase to 802vph (505 northbound/ 297 southbound) in the morning and 953 vph two way (395 northbound/558 southbound). Government Road would therefore continue to operate at Level of Service C being less than 600 vph per direction.

Peak Hour Impact on Intersections

Given that many of the development trips are expected to be diverted from Government Road the development will result in only a relatively small increase in vehicle movements at the intersection of Government Road and Thorncliffe Avenue. This roundabout intersection has been developed to accommodate the demands of the surrounding estates and has adequate spare capacity to accommodate the additional trips diverted from Government Road.

Observations on site completed by Seca Solution as part of this project work show that this intersection currently works well with acceptable delays and congestion. It is considered that the traffic movements associated with the subject site shall have a minor impact upon the operation of this intersection.

Sidra modelling of this intersection has been undertaken and the results are provided below.

Level of service	Delay (seconds)	Queue (metres)
A/A	4.6 / 4.9	15.1 / 13.3
A/A	8.3 / 9.8	1.5 / 2.9
A/A	4.7 / 4.9	9.1 / 19.7
A/A	8.7 / 8.4	3.8 / 1.8
	A / A A / A A / A	A/A 4.6/4.9 A/A 8.3/9.8 A/A 4.7/4.9

Note: AM / APM peak results

The above results confirm the roundabout currently works very well with minor delays / queues. The intersection was then modelled allowing for the additional traffic associated with the subject site and the results are presented below.

A/A		
A/A	4.8 / 5.0	16.6 / 14.7
A/A	8.6 / 10.1	1.6 / 3.1
A/A	5.2 / 5.2	10.6 / 22.5
A/A	8.9 / 8.4	6.2 / 3.6
	A/A	A / A 8.6 / 10.1 A / A 5.2 / 5.2

The above results demonstrate that the additional traffic associated with the development shall have a minor and acceptable impact upon the operation of this roundabout.

The roundabout was then assessed for the future 2031 design year, allowing for 3% background growth along Government Road and 2% on all traffic movements. The results of this assessment are provided below.

Table 4 - Sidra modelling, future 2031 situation Government Road and Thorncliffe Avenue plus development traffic demands

Approach	Level of service	Delay (seconds)	Queue (metres)
Government Road south	A / A	4.9 / 5.3	24.8 / 21.5
Darlaston Avenue	A/A	9.2 / 11.8	2.2 / 4.9
Government Road north	A/A	5.3 / 5.3	15.1 / 35.2
Thorncliffe Avenue	A/A	10.0 / 9.1	9.1 / 5.0
Note: AM / APM neak results	,,,,,		0117 010

Note: AM / APM peak results



The above results demonstrate that the additional traffic associated with the development shall have a minor and acceptable impact upon the operation of this roundabout to the future design year of 2031 and beyond.

Conclusion

Overall, the proposed childcare centre will have a minimal and acceptable impact upon traffic and parking in the local area with no impediment to approval.

The Maitland DCP indicates that 32 parking spaces are desirable which can be provided with 23 on site parking spaces and 10-11 spaces on street along the site frontage. It is noted that this type of childcare centre (long day care) typically sees parking demands spread over a wider time period, thereby lowering the peak parking demand on site at any one time. Applying the updated parking surveys undertaken by TfNSW in 2015 for a centre of this size sees a parking rate of 1 space per 6 children with a parking demand for 22 spaces. The provision of 23 car spaces on site will meet this requirement with the kerb side parking for those who may prefer not to use the carpark.

The proposed access and circulation through the car park can be provided in a manner consistent with the requirements of AS2890 with a 3m wide entry and a 3m wide exit separated by a concrete island.

Traffic demands will consist of mostly diverted traffic from the surrounding areas, primarily using Government Road with some trips diverted from Raymond Terrace Road. The roundabout intersection of Government Road and Thorncliffe Avenue has been designed to accommodate the demands associated with the residential subdivisions with adequate capacity to provide for these diverted trips. This has been confirmed by Sidra modelling. Thorncliffe Avenue in turn has adequate capacity for these additional two way trips whilst Sunset Drive also can accommodate additional demands from trips throughout the subdivision.

Please feel free to contact our office on 4032 7979 should you require any additional information.

Yours sincerely

1)]

Sean Morgan Director



Attachment A – Site Photos



Photo 1 – Looking east along Thorncliffe Avenue towards intersection with Government Road

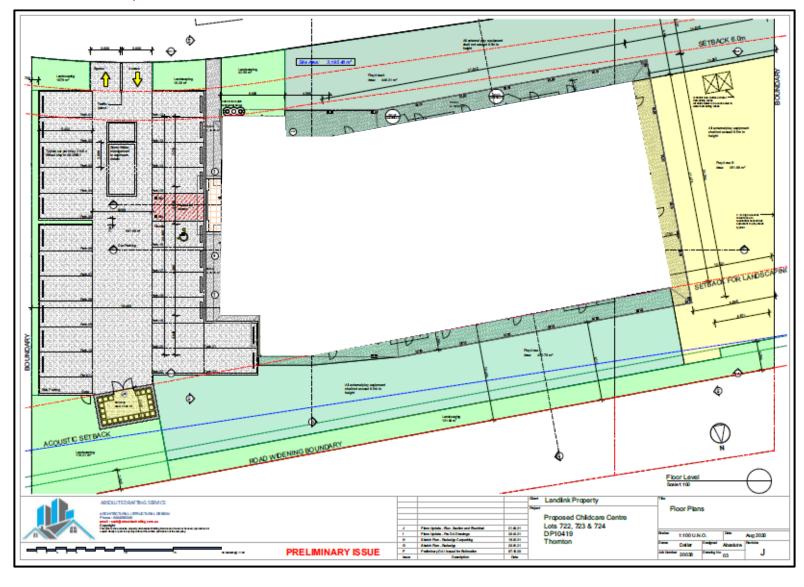


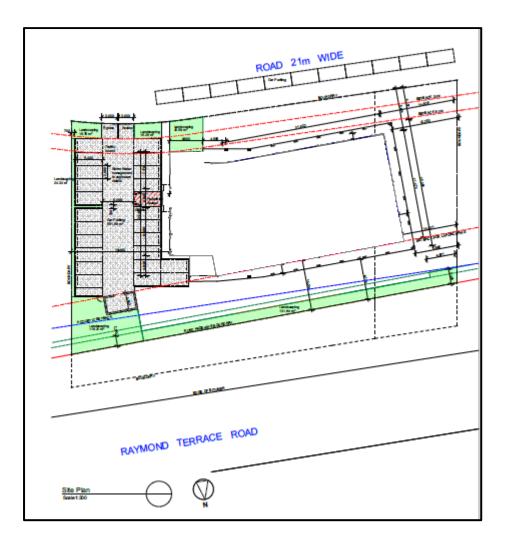
Photo 2 – Roundabout intersection of Thorncliffe Avenue and Government Road



Photo 3 – View west along Thorncliffe Avenue showing typical cross section

Attachment B: Concept Plan









Appendix D:

Noise Assessment Report



Project No: 201937R

Noise Assessment Proposed Child Care Centre Thorncliffe Avenue, Thornton, NSW

Prepared for:

Landlink 28 to 30 Bolton Street Newcastle NSW 2300

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an

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March 2021

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APPENDICES

Appendix I

Appendix II

NOISE LOGGER CHARTS

NOISE SOURCE and ACOUSTIC BARRIER LOCATIONS

1.0 - INTRODUCTION

This report presents the results, findings and recommendations arising from an acoustic assessment of the proposed operation of a child care centre at Lots 722, 723 and 724, D.P. 10419, Thorncliffe Avenue, Thornton, NSW. The proposal is to construct a purpose built child care centre on the site.

The investigation was requested by Landlink Property Pty Ltd to support a Development Application to Maitland City Council (MCC).

Under the proposal the centre will cater for up to 132 children with normal operating hours being Monday to Friday between 6.30 am and 6.30 pm.

Modern child care centres function as early learning facilities rather than simply for child minding. As such, there is emphasis on the guided development of children with organised activities and set objectives. Typically, children will be distributed throughout play areas in supervised groups. From an acoustic point of view this means there is no unrestricted play time during which children could create excessive noise. Activities are supervised at all times by qualified and trained staff members.

The Department of Family and Community Services ensures that child care centres comply with the Children's Services Regulation 2004. Under this regulation services must comply with the NSW Cancer Council guidelines which state "Care should be taken to minimise the time spent outdoors between 11 am and 3 pm daylight saving time (10 am and 2 pm Eastern Standard Time), when daily UVR levels are generally at their peak".

As a result of these guidelines children are not typically outside during the hours outlined or if they are then usually for relatively short periods. The time spent outdoors is also subject to weather conditions.

The indoor areas of the buildings will be mechanically ventilated. For security reasons all doors and windows will remain closed whilst the children are indoors.

A car park will be located at the eastern side of the site with access from Thorncliffe Avenue.

2.0 - TERMS AND DEFINITIONS

Table 1 contains the definitions of commonly used acoustical terms andis presented as an aid to understanding this report.



	TABLE 1			
	DEFINITION OF ACOUSTICAL TERMS			
Term	Definition			
dB(A)	The quantitative measure of sound heard by the human ear, measured by the A-			
	Scale Weighting Network of a sound level meter expressed in decibels (dB).			
SPL	Sound Pressure Level. The incremental variation of sound pressure above and			
	below atmospheric pressure and expressed in decibels. The human ear			
	responds to pressure fluctuations, resulting in sound being heard.			
STL	Sound Transmission Loss. The ability of a partition to attenuate sound, in dB.			
Lw	Sound Power Level radiated by a noise source per unit time re 1pW.			
Leq	Equivalent Continuous Noise Level - taking into account the fluctuations of noise			
	over time. The time-varying level is computed to give an equivalent dB(A) level			
	that is equal to the energy content and time period.			
L1	Average Peak Noise Level - the level exceeded for 1% of the monitoring period.			
L10	Average Maximum Noise Level - the level exceeded for 10% of the monitoring period.			
L90	Average Minimum Noise Level - the level exceeded for 90% of the monitoring			
	period and recognised as the Background Noise Level. In this instance, the L90			
	percentile level is representative of the noise level generated by the surrounds of			
	the residential area.			

3.0 - NOISE CRITERIA

3.1 Child Care Centre

In the absence of specific council DCP's in NSW, there are no detailed regulations or guidelines that cover the operation of a child care centre. The facility will operate as a commercial enterprise and, as such, guidance for the assessment of noise impacts has been taken from the Noise Policy for Industry (NPfI). Guidance is also taken from the Association of Australian Acoustical Consultants (AAAC) "Child Care Centre Noise Assessment Technical Guideline".

The NPfI advises that noise emissions from commercial premises should ideally not exceed the ambient background noise levels by more than 5 dB, with a maximum recommended level of ambient background level + 10 dB at residential receivers.

The issue of noise emissions from child care centres was included in a discussion paper prepared by the Southern Sydney Regional Organisation of Councils (SSROC) in 2005. As stated in the discussion paper, an assessment of 13 Land and Environment Court cases relating to child care centres revealed the following quotation from a Court judgement:



Council may require that a suitably qualified acoustic consultant undertake an acoustic assessment, which includes recommended noise attenuation measures.

Noise readings (measured at any point on the boundary of the site between the proposed Child Care Centre and adjoining property), should not exceed 10 dB(A) above the background noise levels during the hours of operation of the Centre. The noise measurements are to be measured over a 15-minute period and are to be undertaken in accordance with the requirements of the NSW Department of Environment and Conservation (now OEH).

The setting of 'background + 10dB' as a maximum noise limit does not conflict with OEH recommendations as set out in the NPI and will be adopted in this assessment. (For a theoretical assessment, the recommendations apply to noise *calculations* instead of noise *readings*).

The assessable noise level is a 15-minute 'average' (Leq) level and is applicable to the total of all noise emissions from within the site boundary, including children playing, cars on the on-site section of the access driveway and the car park itself.

A criterion of 'background + 5dB' will be applied to constant daytime noise sources (i.e. mechanical plant), in line with the normal OEH requirement, to allow for the 'background + 10dB' emissions from the playground and car park without significantly exceeding the overall criterion.

The SSROC discussion paper also noted that:

Noise from children playing was a common issue before the court. The court generally imposed a condition that noise not exceed background noise + 10dB.

In order to achieve this standard, several acoustic reports submitted to the court recommended that the time spent by children in the outdoor play areas be limited. Some consents limited outdoor play to 2 hours per half day.

In order to establish suitable noise limits, ambient noise monitoring was conducted at the site between 11 and 18 March 2020, as part of the assessment of noise impacts for the proposed subdivision in which the child care centre is to be located.

A Rion EL 215 noise logger was located in the free field on the vacant block adjacent to Raymond Terrace Road at a distance of approximately 12m from the edge of the closest lane of traffic. This



location had full line of sight to both lanes of traffic on Raymond Terrace Road.

The logger was programmed to continuously register environmental noise levels over 15 minute intervals with internal software calculating and storing L_n percentile noise levels for each sampling period.

Observations made during a site investigation indicated that the acoustic environment of the area was dominated by traffic noise from nearby roads. The logger data shows that the noise levels in the area increase relatively sharply from early morning, corelating to an increase in commuter traffic.

The proponent has indicated that the facility will only operate from Monday to Friday, during the day, early evening and night (early morning) time periods.

Procedures in the NPfI detail that, in setting noise criteria for a particular project, the background noise levels need only be considered for those times when the project entity will be operating.

For the current assessment, the child care centre will only operate at night during the period from 6.30 to 7.00am. The background noise level for "night time" shown in **Table 2** represents the measured logger data for that period only.

All further discussion on night time noise levels and the derivation of a noise criterion for that period is also based on the data for that period only.

Table 2 shows a summary of the relevant measured data (in light of the discussion above). The data is shown graphically in **Appendix I**. A full set of logged data is not included in this report but is available on request.

TABLE 2				
LOGGED NOISE LEVELS				
Ambient Noise Levels dB(A)				
Percentile	Day	Evening	Night	
L ₉₀	52	41	54 ¹	
L _{eq}	68	64	62	

1 - see text in relation to "night time"

As indicated above, the noise levels shown in Table 2 were measured in March 2020 for the assessment of traffic noise impacts on the, then, proposed subdivision. That assessment was detailed in Spectrum Acoustics report number 201937R/28883, dated March, 2020. The assessment concluded that a 2.1m acoustic barrier should be



constructed along the boundary of the site with Raymond Terrace Road.

With the barrier in place there would be a 9 dB(A) reduction in traffic noise at the facade of the closest proposed residences to Raymond Terrace Road. Applying his noise reduction to the measured levels would give the adopted noise levels shown in **Table 3**. It should be noted that the reduction in the background noise (L90) would be less than 9 dB (A), but applying this will afford a degree of conservatism to the overall assessment of impacts.

TABLE 3 ADOPTED NOISE LEVELS				
Ambient Noise Levels dB(A)				
Percentile	Day	Evening	Night	
L ₉₀	43	32	44 ¹	
L _{eq}	59	55	53	

1 - 6.30 to 7.00 am, see text

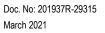
In relation to determining noise goals for the operation of mechanical plant at the site the NPfI sets out two separate sets of criteria designed to ensure developments meet environmental noise objectives. The first criteria account for intrusive noise and the others apply to the protection of amenity of particular land uses. A new development is assessed by applying both criteria to the situation and adopting the more stringent of the two.

Amenity criteria are dependent upon the nature of the receiver area and the existing level of industrial noise. The most potentially affected receiver area is best described as "suburban". The adopted amenity criterion is, therefore, equal to the recommended amenity limit for a suburban area.

Table 4 specifies the noise criteria determined for the site.

TABLE 4						
	NOISE CRITERIA					
		Day	Evening	Night		
Location	Criterion	(7am-6pm)	(6pm-10pm)	(10pm-7am)		
	Intrusiveness dB(A),Leq(15-min.) ¹	48	37	49		
Thornton	Amenity dB(A),Leq(15 min) ²	53	43	38		
	Project Noise Trigger Levels	48 (15 min.)	37 (15 min)	49 (15 min)		

1 Rating Background Level (RBL) + 5dB. RBL is the median value of each ABL (Assessment Background Level) over the entire monitoring period. The ABL is a single figure representing the "L₉₀ of the L_{90's}" for each separate day of the monitoring period. 2. Project amenity noise level (ANL) is suburban ANL (NPI Table 2.1) minus 5 dB(A) plus 3 dB(A) to convert from a period level to a 15-minute level.



The project noise trigger levels (applicable to mechanical plant) are, therefore,

Day	48 dB(A) Leq (15 min)
Evening	37 dB(A) Leq (15 min)
Night	49 dB(A) Leq (15 min)

As per the discussion detailed above in relation to the limited duration of the noise events from children in the playground and the car park noise emissions from these will be assessed against the shorter duration criterion of "background + plus 10" or;

Day	53 dB(A) Leq (15 min)
Evening	42 dB(A) Leq (15 min)
Night	54 dB(A) Leq (15 min)

3.2 Road Traffic

In relation to traffic generated by the development, the NSW Road Noise Policy (RNP) as adopted by Roads and Maritime Services (RMS) NSW, recommends various criteria for different road developments and uses.

Traffic generated by the current proposal will travel along local roads (initially Thorncliffe Avenue and then onto the local road network). An extract from Table 3 of the RNP relating to land use developments with the potential to create traffic on local roads is shown in **Table 5**.

TABLE 5						
TRAFFIC NOISE CRITERIA						
Situation	Recommende	ed Criteria				
	Day - (7am - 10pm)	Night (10pm – 7am)				
6. Existing residences affected by	55 Leq(1hr)	50 Leq (1 hr)				
additional traffic on existing local roads	External	External				
generated by land use developments						

4.0 - NOISE ASSESSMENT

4.1 Child Care Centre

To assess potential noise impacts from the proposed child care centre, noise levels were taken from the Spectrum Acoustics technical database. This contains measurements made at existing child care





facilities that are similar in acoustic nature to the proposed child care centre.

The database contains noise measurements made in outdoor play areas as well as indoor areas. All sound levels have been measured with a Bruel & Kjaer Type 2260 Precision Sound Level Analyser with calibration performed before and after the survey.

One set of outdoor measurements was made over a 15 minute interval during a morning activity session whilst 15 children aged up to 3 years old were in an outdoor playground. The measurements were made from the veranda of the facility at the end of the playground. The noise source (i.e. the children) was in motion about the area with an average distance of approximately 15m from the sound level meter.

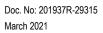
Similar measurements were made over 15 minute intervals during a morning activity session whilst 15 children aged between about 2 and 6 years old were in an outdoor playground. Measurements were made near the ends of the playground, which had dimensions of approximately 5 x 15 m. The noise source (i.e. the children) was in motion about the area with an average distance of approximately 8m from the sound level meter.

Calculated Leq sound power levels based on the measured noise levels are shown in **Table 6**. As can be seen the two measured levels are very similar.

TABLE 6									
MEASURED NOISE LEVELS dB(A) Leq (15 min)									
		Octave Band Centre Frequency (Hz)							
Source	dB(A)	63	125	250	500	1K	2K	4K	8K
15 x < 3 y.o.	88	63	68	74	81	83	82	78	72
15 x 2 to 6 y.o.	88	61	69	77	81	84	81	74	64

Under the proposal children will, at times, play in the outdoor areas. Potential noise issues arise primarily when children are engaged in outdoor play activities. When outdoors, loud vocalisations generally indicate a distressed or over excited child. Under these circumstances the normal practise is to take the child inside, or away from other children, to calm them.

The proposed layout of the child care centre is shown in Figure 1.





SPECTRUM ACOUSTICS

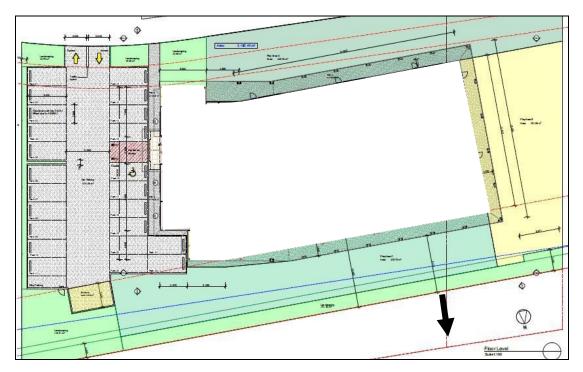


Figure 1 – Proposed Site Layout (north as marked)

Figure 1 shows that there are to be three outdoor plays on the south, west and north sides of the building.

Regulations governing the operation of child care centres mean that children are rarely outside together in large groups. The children are typically outside in small supervised groups at various times throughout the day. Children are seldom in the playground in large numbers and with free choice of activities.

The centre will cater for up to 132 children. Of these it is proposed that 32 will be younger than two years old, 40 will be between two and three years old and 60 will be three or older.

There are existing and proposed residential lots to the south, west and east.

As detailed previously, the management of the children in the playgrounds is such that particularly noisy events are quickly controlled and emissions minimised. Whilst many of the children may be in the play areas at some times, it is unlikely that all of them will be creating noise at the same time.

For logistical reasons it is unlikely that all children will be in the same play areas at the same time. To consider a worst case it was assumed that between 90 and 100 children aged between two and six years old were playing at various parts of the three outdoor play areas.



A scenario where ten groups of children with sound power levels of 86 dB(A) Leq (15min) (i.e. representing eight to ten children making a noise) were considered to be located at various representative locations in the playground as shown as sources 1 to 10 in **Appendix II**.

The calculation of potential impacts has been carried out to the most potentially affected receiver locations at the boundary of the nearest residences in Thorncliffe Avenue (at Lot 610 to the west and Lot 613, across the road to the south).

The above was considered to represent a worst case scenario for noise prediction of a 15 minute Leq. That is, the various measurements shown in Table 6 were deliberately taken whilst all children in the playground were engaged in activities. At other times, children are variously sitting quietly or listening to instruction etc.

The noise sources were propagated to the receiver locations, taking into account loss for distance and barrier effects of proposed fences, to predict the sound pressure levels at the boundary. The received noise from each source was logarithmically added to determine the total received noise from the playground.

The noise criteria are external, and they apply at the property boundaries. The calculation of barrier insertion loss, therefore, determined to a single reception point at 3m inside the neighbouring yard, but the distance loss is determined to the boundary (as per procedures in the NPfI). The reception point is considered representative of a location near the neighbouring residence.

For the calculation, a source height of 1.1m was used to approximate the height of a child. The calculations were performed to a theoretical receiver located at the boundary of the nearest receivers in each direction. The ground level of the receivers was assumed to be the same as that of the play area.

Preliminary calculations determined that noise control in the form of an acoustic barrier would be necessary to achieve compliance. A barrier height of 2.5m was used in all of the determination of impacts at Lot 610 and 1.8m for Lot 613, as shown in the following tables.

The predicted received noise levels are then compared to the adopted noise goals to determine noise impacts.

Table 7 shows the total theoretical received noise level at the boundary of the residence to the west at Lot 610. The assessed scenario is of the six noise sources at various locations that are most exposed to the receiver, with a barrier in place on the boundary of the site.



PLAYGROUND NOISE – LOT 610 (WEST) BOUNDARY (dB(A) Leq (15 min))									
		Octave Band Centre Frequency, Hz							
Propagation Elements	dB(A)	63	125	250	500	1k	2k	4k	8k
Source 4 Lw Leq (15 min)	86	61	66	72	79	81	80	76	70
Distance loss (20m)		34	34	34	34	34	34	34	34
Barrier Loss (2.5m)		6	7	9	11	14	17	20	23
Received Noise 4	38	21	24	29	34	33	29	22	13
Source 5 Lw Leq (15 min)	86	61	66	72	79	81	80	76	70
Distance loss (14 m)		31	31	31	31	31	31	31	31
Barrier Loss (2.5m)		6	7	9	11	14	17	20	23
Received Noise 5	41	24	28	32	37	36	32	25	16
Source 6 Lw Leq (15 min)	86	61	66	72	79	81	80	76	70
Distance loss (10 m)		28	28	28	28	28	28	28	28
Barrier Loss (2.5m)		6	8	9	12	15	18	21	24
Received Noise 6	43	26	30	34	39	38	34	27	18
Source 7 Lw Leq (15 min)	86	61	66	72	79	81	80	76	70
Distance loss (6 m)		24	24	24	24	24	24	24	24
Barrier Loss (2.5m)		7	8	10	13	16	19	22	24
Received Noise 7	47	30	34	38	42	41	37	30	22
Source 8 Lw Leq (15 min)	86	61	66	72	79	81	80	76	70
Distance loss (16 m)		32	32	32	32	32	32	32	32
Barrier Loss (2.5m)		6	7	9	11	14	17	20	23
Received Noise 8	40	23	27	31	36	35	31	24	15
Source 9 Lw Leq (15 min)	86	61	66	72	79	81	80	76	70
Distance loss (25m)		36	36	36	36	36	36	36	36
Barrier Loss (2.5m)		6	7	9	11	14	17	20	23
Received Noise 9	36	18	22	26	31	30	26	19	10
Combined Total	50								
Noise Goal - Day	53								

The results show that, with a 2.5m barrier in place along the western boundary of the playgrounds, the total received noise, at Lot 610, will be 50 dB(A), Leq (15 min) which will comply with the noise criterion adopted for the operation of the playgrounds.

Table 8 shows the total theoretical received noise level at the boundaryof the most potentially affected residence to the south at Lot 613Thorncliffe Avenue (i.e., across the road from the child care centre).

These calculations assume there is a minimum 1.8m high acoustic barrier on the southern boundary of the child care centre site.

	UND NOISE – Lot 613 (SOUTH) BOUNDARY (dB(A) Leq (15 min)) Octave Band Centre Frequency, Hz								
Propagation Elements	dB(A)	63	125	250	500	1k	2k	4k	8k
Source 4 Lw Leg (15 min)	86	61	66	72	79	81	80	76	70
Distance loss (55 m)		43	43	43	43	43	43	43	43
Barrier Loss (1.8m)		5	5	5	5	6	6	8	9
Received Noise 4	37	13	18	24	31	32	31	26	18
Source 5 Lw Leg (15 min)	86	61	66	72	79	81	80	76	70
Distance loss (47 m)		41	41	41	41	41	41	41	41
Barrier Loss (1.8m)		5	5	5	6	6	7	8	10
Received Noise 5	38	14	19	25	32	34	32	26	18
Source 6 Lw Leg (15 min)	86	61	66	72	79	81	80	76	70
Distance loss (36 m)		39	39	39	39	39	39	39	39
Barrier Loss (1.8m)		5	5	5	6	7	8	10	12
Received Noise 6	40	17	22	27	34	35	33	27	19
Source 7 Lw Leq (15 min)	86	61	66	72	79	81	80	76	70
Distance loss (40 m)		40	40	40	40	40	40	40	40
Barrier Loss (1.8m)		5	5	5	6	6	7	9	11
Received Noise 7	39	16	21	26	33	35	33	27	19
Source 8 Lw Leq (15 min)	86	61	66	72	79	81	80	76	70
Distance loss (26 m)		36	36	36	36	36	36	36	36
Barrier Loss (1.8m)		5	6	6	7	9	11	14	16
Received Noise 8	41	19	24	30	36	36	33	26	17
Source 9 Lw Leq (15 min)	86	61	66	72	79	81	80	76	70
Distance loss (26 m)		36	36	36	36	36	36	36	36
Barrier Loss (1.8m)		5	6	6	7	9	11	14	16
Received Noise 9	41	19	24	30	36	36	33	26	17
Source 10 Lw Leq (15 min)	86	61	66	72	79	81	80	76	70
Distance loss (31 m)		38	38	38	38	38	38	38	38
Barrier Loss (1.8m)		5	5	6	6	7	9	11	14
Received Noise 10	40	18	23	29	35	36	33	27	19
Combined Total	48								
Noise Goal - Day	53								

The results in Table 8 show that, with a 1.8m high barrier on the boundary, the received noise, at Lot 613, will be 48 dB(A) Leq (15 min) which will comply with the noise criterion adopted for the operation of the playgrounds.

The proposed location of acoustic barriers is shown in Appendix II.

It is noted that the worst case assessment is based on all groups of children all generating the maximum sound emissions at the same time. It is considered unlikely that this will occur often throughout any given day, or for extended periods during the day.



During the evening (i.e. between 6.00 and 6.30 pm) the only activity in the playgrounds will be that of children being picked up. Noise emissions from any activity during the evening will be significantly lower than that for day time and, as such, no further assessment is considered warranted.

The playgrounds will not be in use at night.

The proponent has indicated that the facility will not have a designated crying room. Nor will there be any loud amplified music played throughout the facility.

Any music that is played will be at low levels and only played inside the building with all windows and doors closed. Similarly, whilst the children are inside the building the windows and doors will, typically, be closed for security reasons. Any noise emissions from play activities inside the building will, therefore, be adequately attenuated by the elements of the building and not result in any adverse noise impacts at any receivers.

4.2 Traffic Noise Ingress

In the absence of specific criteria in relation to the potential for traffic noise impacts at the site, guidance has been taken from the AAAC guideline which states;

The Leq (1 hr) intrusive noise level from road, rail traffic or industry at any location within the indoor play or sleeping areas of the Centre during the hours when the centre is operating shall not exceed 40 dB(A).

The Leq (1hr) intrusive noise level from road, rail traffic or industry at any location within the outdoor play or activity area during the hours when the Centre is operating shall not exceed 55 dB(A).

The data presented in Table 3 shows that, with a 2.1m acoustic barrier on the boundary the day time traffic noise level would be 59 dB(A) Leq (15 hr).

The plans for the site show a 2m landscaping zone along the roadside boundary of the centre. Additional calculations (presented in the Spectrum Acoustics report number 201937R/28883) showed that, with the acoustic barrier in place on the boundary, the traffic noise level would decrease to 56 dB(A) at 5m from the boundary (which would effectively be 3m into the playground.

In other parts of the play grounds the noise would be lower than this (i.e., being further removed from the traffic noise sources and/or shielded by elements of the building).



The noise levels used for the prediction of potential impacts from the playground (Tables 7 and 8) were 86 dB(A) Leq (15 min) for a group of children playing.

This would equate to a sound pressure level of just over 64 dB(A) at a distance of 5m from the source. This means that, whilst children are outdoors playing, the noise level would generally be at about 60 to 65 dB(A) Leq throughout most of the playground and at higher levels in some parts.

Traffic noise at 56 dB(A) would, therefore, be up to 9dB(A) lower than this and would be unlikey to create adverse reactions amongst the children.

Tables presented in the Environmental Noise Management Manual indicate that the façade of a single glazed, masonry building will attenuate approximately 25 dB(A) of traffic noise. This will provide adequate traffic noise reduction and achieve a satisfactory internal acoustic amenity in the building.

4.3 Car Park

The car park on the eastern side of the centre will be used for staff parking and by people picking up and dropping off children at the centre.

Noise in car parks typically comes from people walking to and from cars, doors opening and closing etc., as well as vehicles moving at slow speeds. Each noise event is characterised by a brief peak which when averaged out over a 15 minute period has a relatively low Leq.

The impact of each noise event on any single receiver is also variable depending upon the location of individual cars within a car park and as they move in and out. In addition to this, staff arriving or departing a child care centre would normally be expected to do so in a quiet and orderly fashion.

Noise measurements made in the car park of a child care facility were taken from the Spectrum Acoustics technical database. The noise from a series of vehicles arriving and departing the car park and parents bringing their children into the centre was measured over a representative period to ascertain a typical noise level from these activities.

The measurements were made at varying distances from each car to approximate the situation in relation to an adjacent residence over a 15 minute interval. That is, at any time throughout each 15 minute interval various parking spaces in the driveway, at different distances from the nearest residences, will be in use.



A noise level of 53 dB(A) Leq was measured, at an average distance of 7m, over a relatively busy 5 minute period where six vehicles used the car park. This equates to an Leq sound power level of 78 dB(A) for six car parks in use.

The proposed centre will have 23 car parking spaces, approximately half of which will be for use of staff. All staff will not arrive and depart at the same as each other. Similarly, people dropping off and picking up children will do so at varying times and rates with the peak times being first thing in the morning and during the late afternoon. For most of the day there will be very little activity in the car park.

To determine potential impacts the car park noise was considered to be from four "banks" of up to six car parks with an Lw of 78 dB(A) Leq (15 min), as described above. Car park numbers shown in the tables of results are as shown in Appendix II).

Potential impacts from car park noise have been calculated to the nearest potentially affected receiver boundary to the east, with the results shown in **Table 9**. The barrier insertion loss is for a 1.8m high acoustic fence on the boundary (as indicated in Appendix II).

TABLE 9 CAR PARK NOISE – LOT 730 (EAST) BOUNDARY - (dB(A) Leq (15 min))							
Propagation Element	dB(A)						
Car Park Annotation	CP 1 (10m)	CP 2 (10m)	CP 3 (18m)	CP 4 (20m)			
Car Park Noise	78	78	78	78			
Distance loss	28	28	33	34			
Barrier Loss	9	9	9	8			
SPL at boundary	41 41 36 36						
Combined SPL	45						
Noise Goal - Day	53						

The results in Table 9 show that, under the assessed conditions, with a 1.8m high barrier in place on the boundary of Lot 730, the received noise will be 45 dB(A) Leq (15 min) which will comply with the noise criterion adopted for the operation of the car park.

Table 10 details the results of the assessment of car park noise at the boundary of Lot 708 (to the south across Thorncliffe Avenue). There is no barrier in this direction.





TABLE 10 CAR PARK NOISE – LOT 708 (SOUTH) BOUNDARY - (dB(A) Leq (15 min))							
Propagation Element	dB(A)						
Car Park Annotation	CP 1 (31m)	CP 2 (47m)	CP 3 (31m)	CP 4 (47m)			
Car Park Noise	78	78	78	78			
Distance loss	38	41	38	41			
SPL at boundary	40 37 40 37						
Combined SPL	45						
Noise Goal - Day	53						

The results in Table 10 show that, under the assessed conditions, the received noise, at Lot 708, will be 45 dB(A) Leq (15 min) which will comply with the noise criterion adopted for the operation of the car park.

The calculations in Tables 9 and 10 are based on the use of the car park during a particularly busy period during the day. The car park will also be in use at night and in the evening, but that use will be with a significantly lower number of vehicle movements.

For example, a 50% reduction in car park usage, in a 15 minute period, would result in compliance with the most stringent evening time criterion of 42dB(A) at both receivers.

4.4 Mechanical Plant

The centre will be mechanically ventilated with split system air conditioners. The location for the condenser units for these is yet to be finalised.

Due to the size and configuration of the building it is likely, however, that the condensers could be located at the car park end of the building, near car park number "4", as shown in Appendix II.

Condenser units for this type of application, typically, have sound power levels in the range 65 to 70 dB(A) when they are operating at full capacity.

For three condensers operating at 70 dB(A), this would equate to a combined Lw of 75 dB(A) Leq.

Locating the condensers at the front of the building would also result in acoustic shielding from the barrier fence around the car park.

If the condensers are located near car park "4", they would be over 50m from the nearest boundary to the east, at Lot 730. **Table 11** shows a sample calculation of the a/c noise, based on the assumptions detailed above.



TABLE 11 RECEIVED NOISE LEVEL, A/C CONDENSERS (dB(A) Leq (15 min))						
Propagation Element dB(A)						
3 x condensers	75					
Distance loss (50m)	42					
Barrier loss	8					
SPL at boundary	25					
Noise Goal - Evening	37					

The results in Table 11 show that, under the assessed conditions, there will be no adverse noise impacts due to the worst case operation of the air conditioners (i.e., during the evening).

Locating the condensers at the front of the building would also result in acoustic shielding from the barrier fence around the car park.

It is considered reasonable that there the a/c plant can be located such that it doesn't create adverse impacts. It is recommended that the final type and location of the mechanical plant to be used should be approved by an acoustic consultant prior to installation.

4.5 Road Traffic

Equation 1 outlines the mathematical formula used in calculating the Leq,T noise level for intermittent traffic noise.

$$L_{eq}, T = L_{b} + 10\log\left[1 + \frac{ND}{T}\left(\frac{10^{(L \max - Lb) / 10} - 1}{2.3} - \frac{(L_{\max} - L_{b})}{10}\right)\right]$$

Equation 1

Where

 L_b is background noise level, dB(A) L_{MAX} is vehicle noise, dB(A) T is the time for each group of vehicles (min) N is number of vehicle trips D is duration of noise of each vehicle (min)

Vehicles arriving and departing the site will do so via Thorncliffe Avenue. Vehicle movements during a typical day will involve the arrival and departure of parents dropping off and picking up children and of staff.

A scenario of 120 vehicle movements in an hour has been used for the assessment (i.e. representing 60 vehicles in and out of the car park). This is based on a conservative assumption and has not necessarily been reflected in any traffic studies for the project.



Noise levels from the vehicles have been assessed to a theoretical point 1m from the facade of residences at a nominal distance of 10m from the centre of traffic. Results are shown in **Table 12**.

TABLE 12 ROAD TRAFFIC NOISE – (Leq (1 hour))					
Element	dB(A)				
No. of Vehicles (peak hourly period)	120				
Lw per vehicle (at 50 kph)	90				
Distance Loss (10m)	28				
Received Noise (from eqn. 1)	50				
Noise Goal - Day	55				

The results shown in Table 12 indicate that noise from traffic generated by the proposal will not exceed the RMS criterion.

5.0 - DISCUSSION AND RECOMMENDATIONS

5.1 Child Care Centre

Noise from the outdoor playgrounds will not exceed the site noise goal with acoustic barriers (fences) in place at the location and heights shown in Appendix II.

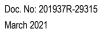
An acoustic barrier is one which is impervious from the ground to the recommended height with a minimum surface density of 15 kg/m². No significant gaps should remain in the barrier to allow the passage of sound below the recommended height.

Staff at the centre must be made aware of the need to maintain noise at appropriate levels and move quickly to minimise possible outbursts. Potentially noisy activities should be located in areas that are furthest from boundaries and or are screened from these by intervening structures. Staff should be made aware of the potential for impact noise as objects are hit on hard surfaces and move quickly to avoid such instances.

There will be no adverse impacts as a result of any other of the assessed activities in the child care centre.

5.2 Traffic Noise Ingress

There will be no adverse noise impacts due to the ingress of traffic noise into the play areas or the building of the child care centre.



5.3 Car Park

Calculations have shown that, with acoustic barriers (fences) in place at the location and heights shown in Appendix II, noise from the car park will not exceed the adopted noise goal during peak periods of use.

Staff should be made aware of the need to minimise noise from their use of the car park.

5.4 Mechanical Plant

Calculations have shown that by locating the mechanical plant near the front of the building there should be no adverse impacts as a result of its operation under the assessed conditions. It is recommended that the final selection and location of all mechanical plant be approved by an acoustic consultant prior to installation.

Care must be taken to avoid creating solid connections between air conditioning systems and any part of the building as vibrations from the operation of the system can create structure borne noise. Resilient mounts and fittings should be used for all mechanical plant items.

5.5 Road Traffic

Calculations have shown that noise from traffic using the centre will not exceed the relevant criterion.

6.0 - CONCLUSION

An acoustical assessment of theoretical noise emissions has been carried out for a proposed child care centre at Lots 722, 723 and 724, D.P. 10419, Thorncliffe Avenue, Thornton, NSW.

The noise impacts at the nearest residential boundaries have been assessed, due to the operation of the child care centre, car park and traffic.

Calculations were carried out assuming minimum 2.5m and 1.8m fences acting as an acoustic barrier were in place around the playground a minimum 1.8m barrier was in place along the eastern side of the car park.

Results of all calculations showed that with these fences in place there will be no exceedance of the adopted noise goals under the assessed conditions.

With a 2.1m barrier in place along the northern boundary of the site there will be no adverse noise impacts due to traffic noise ingress (from traffic on Raymond Terrace Road).



Other recommendations have been made in regards to ensuring noise from other parts of the facility are kept to acceptable levels. These are:

Staff should be made aware of the need to respect the amenity of neighbours and minimise noise whilst using the car park; and

Staff at the centre must be made aware of the need to maintain noise at appropriate levels and move quickly to minimise possible outbursts. Potentially noisy activities should be located in areas that are furthest from boundaries and or are screened from these by intervening structures.

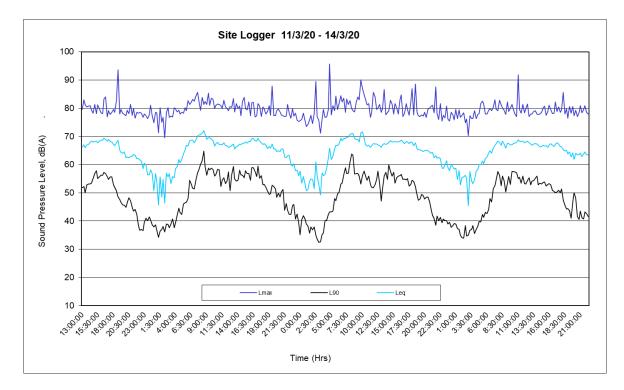
Results of this assessment have shown that the relevant noise level criteria will not be exceeded, provided these recommendations are implemented and, therefore, there is no acoustic reason can be seen why the development should not be approved.

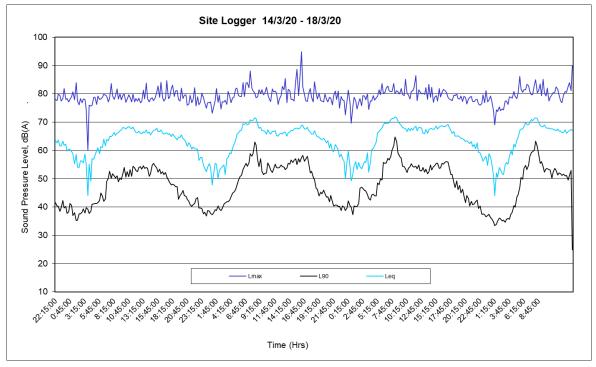
APPENDIX I

NOISE LOGGER CHARTS











APPENDIX II

NOISE SOURCE and ACOUSTIC BARRIER LOCATIONS



SPECTRUM ACOUSTICS







Appendix E:

Air Quality Assessment Report

JM Environments 0427 893 668 37 Tooke St COOKS HILL NSW 2300 ABN 67 166 341 288



JME21022-2 21 SUNSET DRIVE THORNTON



Preliminary Ambient Air Quality Assessment 24 May 2021

For and on behalf of JM Environments



James McMahon PhD (Chem) Principal Environmental Scientist Certified Environmental Practitioner No 1235 Site Contamination Specialist No SC41110 Licensed Asbestos Assessor LAA001286

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Revision	Details	Date	Amended By	Issued To
	JME21022-2 21 Sunset Drive Thornton Preliminary Ambient Air Quality Assessment.pdf	24 May 2021	ЈМс	AC

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EXECUTIVE SUMMARY

This report presents the findings of a Preliminary Ambient Air Quality Assessment (PAAQA) of 21 Sunset Drive, Thornton NSW undertaken by JM Environments (JME). The PAAQA was commissioned by LandLink Pty Ltd (LandLink). The site is identified as a portion of Lot 428 DP1262858. The site location is shown in Figure 1.

LandLink are planning to redevelop the site as a childcare facility. The purpose of this assessment is to provide a support for the development application for the redevelopment.

The objective of this assessment is to assess the ambient air quality of the site.

The proposed scope of work was prepared in accordance with the following guidelines and documents:

• Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (Department of Environment and Conservation (2005));

The scope of work was:

- Supply, install and collect 2 summa canisters to collect ambient air samples of an eight-hour period.
- Supply and install a directional dust deposition gauge to collect depositional dust over a four-week period;
- Laboratory analysis of the collected air samples; and
- Preparation of an Ambient Air Assessment report.

Based on the analytical data presented within the report, JME considers that the proximity of the classified road to the site does not pose a significant risk of health impacts via inhalation of volatile organic compounds or particulates generated by car exhausts by potential users of the childcare centre. The analytical results infer that future significant increases in road traffic would be unlikely to pose a significant risk of health impacts via inhalation car exhausts by potential users of the childcare centre.

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Appendix A: Laboratory Documentation

ACRONYMS

ACM	asbestos containing material
AEC	Area of Environmental Concern
ASS	acid sulfate soils
BTEX	benzene, toluene, ethylbenzene and xylenes
BTEXN	benzene, toluene, ethylbenzene, xylenes and naphthalene
CLM Act	NSW Contaminated Land Management Act 1997
COC	Contaminant of Concern
CSM	conceptual site model
DP	Deposited Plan
EPA	Environment Protection Authority
JME	JM Environments
NEPM	National Environment Protection (assessment of Site Contamination) Measure 1999 (updated 2013)
ОСР	Organochlorine pesticides
РАН	polycyclic aromatic hydrocarbons
PCA	Preliminary Contamination Assessment
PCB	Polychlorinated biphenyls
POEO Act	NSW Protection of the Environment Operations Act 1997
TRH	total recoverable hydrocarbons
VOC	volatile organic compounds

1 INTRODUCTION

This report presents the findings of a Preliminary Ambient Air Quality Assessment (PAAQA) of 21 Sunset Drive, Thornton NSW undertaken by JM Environments (JME). The PAAQA was commissioned by LandLink Pty Ltd (LandLink). The site is identified as a portion of Lot 428 DP1262858. The site location is shown in Figure 1 (attached).

LandLink are planning to redevelop the site as a childcare facility. The purpose of this assessment is to provide a support for the development application for the redevelopment.

2 SCOPE OF WORK

2.1 Objectives

The objective of this assessment is to assess the ambient air quality of the site.

2.2 Scope of Work

The proposed scope of work was prepared in accordance with the following guidelines and documents:

• Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (Department of Environment and Conservation (2005));

The proposed scope of work is:

- Supply, install and collect 2 summa canisters to collect ambient air samples of an eight-hour period.
- Supply and install a directional dust deposition gauge to collect depositional dust over a four-week period;
- Laboratory analysis of the collected air samples; and
- Preparation of an Ambient Air Assessment report.

3 SITE IDENTIFICATION

General site information is provided in Table 1. The site location is shown in Figure 1.

Site Address:	21 Sunset Drive Thornton NSW
Site Area:	Approximately 3,195m ²
Site Identification	Portion of Lot 428 DP1262858.
	Local Government Area of Maitland
	Parish of Gosforth
	County of Northumberland
Current Land Use:	Rural residential
Previous Land Use:	Rural residential
Proposed Land Use:	Childcare

TABLE 1 - SUMMARY OF SITE DETAILS

4 AMBIENT AIR SAMPLING

4.1 Site Location and Topography

The site is located on the southern side of Raymond Terrace Road which the Maitland Local Environmental Plan (2011) defines as "a classified road". A topographic map (maps.six.nsw.gov.au) indicates that the site lies mid top lower slope of a shallow gully and gently slopes down to the south. The site's elevation is approximately 15m-20m AHD.

4.2 Air Pollutants

Based on the site's proximity to a classified road, the pollutants of concern were those related to vehicle exhaust, namely:

- Benzene, toluene, ethylbenzene and xylene (BTEX);
- Total recoverable hydrocarbons (TRH); and
- Particulates.

4.3 Sampling Methods

BTEX and TRH were sampled using two Summa Cannisters fitted with passive samplers calibrated for an 8 hour sampling run.

Particulates were sampled using a direction dust gauge in to assess the particulate loading from the road compared to the surrounding background.

4.4 Sampling Locations and Timing

The Summa Cannister were attached to the existing barbed wire fence approximately 1m from the road and 1.2m above the ground (see photographs 1 and 2). Sampling was undertaken from approximately 10am to 6 pm, 13 April 2021.

The dust deposition gauge was mounted on to a 2m tall stand and placed approximately 5m inside the barbed wire fence (see photograph 3). Sampling was undertaken from 13 April – 10 May 2021.



Photograph 1: Summa Cannister "West"

Photograph 2: Summa Cannister "East"



Photograph 3: Dust Deposition Gauge 13 April 2021

5 METEOROLOGY

Maitland Airport All Weather Station (AWS) is located approximately 15km west north west of site. Wind speed and direction for 13 April 2021 at the Maitland Airport AWS {station 061428) was purchased from the Bureau of Meteorology. The wind direction and speed at half hour intervals between 10am and 6pm is summarised in Figure 2 below.

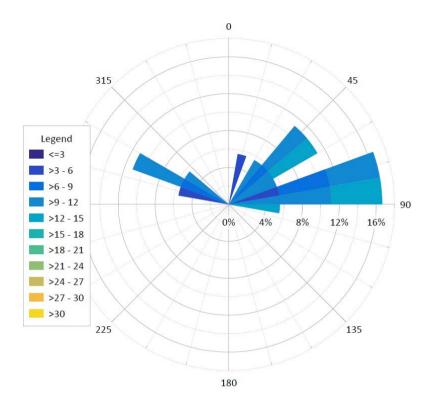


Figure 2: Windrose for 10am 6pm 13 April.

Figure 2 shows that wind direction during the Summa Canister sample had mainly some northerly aspect to it and fumes generated from car exhaust would move toward the samplers.

6 LABORATORY ANALYSIS

The Summa Cannisters were transported to SGS Australia Pty Ltd (SGS) under chain of custody conditions. The Summa Cannister were analysed by SGS for BTEX and TRH. SGS utilised the USEPA TO15 (Air Toxics) method to analyse the air samples. SGS is NATA accredited for the BTEX analysis.

The directional dust gauge samples were delivered to ALS Environmental Laboratories (ALS). ALS are NATA accredited for the analysis of directional dust gauges.

7 RESULTS AND DISCUSSION

7.1 Meteorology

7.2 Ambient Air Assessment Criteria

The ambient air assessment criteria were established from the NSW EPA Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (AMMAAP) and are summarised in Table 2.

Pollutant	Units	Averaging Period	Impact Assessment Criteria		
Benzene	mg/m ³	1 hour	0.029		
Toluene	mg/m ³	I hour	0.36		
Ethylbenzene	mg/m ³	I hour	8.0		
Xylenes	mg/m ³	I hour	0.19		
TRH	No criterion	No criterion	No criterion		
Deposited Dust	g/m²/month	1 year	2ª, 4 ^b		

TABLE 2 - AMBIENT AIR ASSESSMENT CRITERIA

a. Maximum increase in deposited dust level.

b. Maximum total deposited dust level.

7.3 Quality Control and Quality Assurance

Summa Cannisters supplied by SGS were certified as clean and the evacuated. Prior to deploying and collecting the Summa Cannisters, their vacuums was checked by a JME environmental scientist. Both "East" and "West" cannister had a field vacuum reading of >-30 inches Hg. At the completion of the sampling, the "East" cannister had a field vacuum reading of -6inches Hg, indicating there were no significant leaks in the sampling train. The "West" cannister had a field vacuum reading of 0 inches Hg indicating a potential leak in the sampling train which may lead to lower concentrations of analytes in the sample.

The SGS report indicates that the uncertainty in the analytical results is $\pm 20\%$. The Summa Cannister were analysed within the recommended holding times.

7.4 Summa Cannister Results

The Summa Cannister Results are summarised in Table 3 below. The laboratory results were reported in parts per billion per volume (ppbv) and were converted to AMMAAP guidelines units (mg/m³) using the USA Environmental Protection Agency's *EPA On-line Tools for Site Assessment Calculation* website at standard temperature (25°C) and pressure (101.3kPa).

Pollutant	Impact	East Can	nister	West Cannister				
	Assessment	ppbv	mg/m ³	pbbv	mg/m ³			
	Criteria							
Benzene	0.029 mg/m ³	<0.4	<0.00016	<0.4	<0.00016			
Toluene	0.36 mg/m ³	7.7	0.0036	4.2	0.002			

TABLE 2 - AMBIENT AIR ASSESSMENT CRITERIA

Ethylbenzene	8.0 mg/m ³	0.4	0.0002	<0.4	< 0.0002	
Xylenes	0.19 mg/m ³	1.7	0.0009	1.3	0.0007	
TRH	No criterion	<100	-	<100	-	
Deposited Dust	2ª, 4 ^b					

a. Maximum increase in deposited dust level.

b. Maximum total deposited dust level.

As shown in Table 3, the analytical results for common pollutants found in vehicle exhausts are at least orders of magnitude below the adopted guideline values.

7.5 Dust Deposition Results

8 CONCLUSION AND RECOMMENDATIONS

Based on the analytical data presented above, JME considers that the proximity of the classified road to the site does not pose a significant risk of health impacts via inhalation of volatile organic compounds or particulates generated by car exhausts by potential users of the childcare centre. The analytical results infer that future significant increases in road traffic would be unlikely to pose a significant risk of health impacts via inhalation car exhausts by potential users of the childcare centre.

REFERENCES

Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (Department of Environment and Conservation (2005))

USEPA TO15 Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters And Analyzed By Gas Chromatography/ Mass Spectrometry (GC/MS)

AS/NZS 3580.10.2:2013 Methods for sampling and analysis of ambient air Determination of particulate matter - Impinged matter - Gravimetric method

USA Environmental Protection Agency's *EPA On-line Tools for Site Assessment Calculation* website

LIMITATIONS

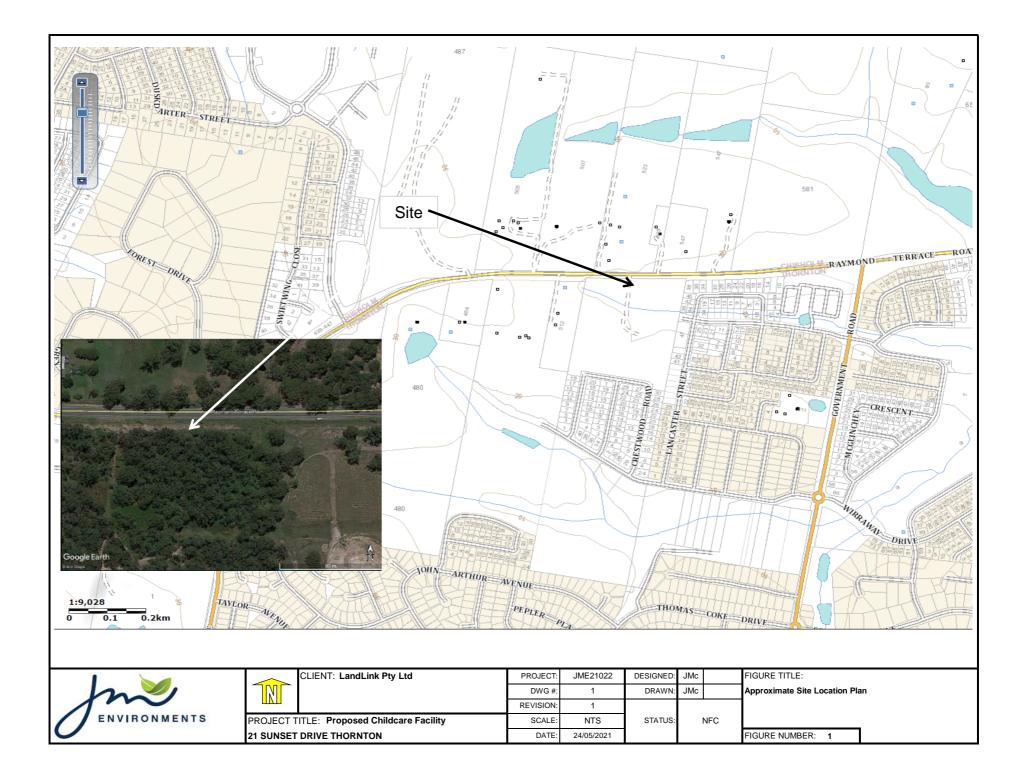
In preparing this report, current guidelines for assessment of air quality were followed. This work has been conducted in good faith, in accordance with JM Environments' understanding of the client's brief and general accepted practice for environmental consulting.

This report was prepared for the LandLink Pty Ltd with the objective of assessing the potential impact of car exhaust generated by vehicles using Raymond Terrace Road on the air quality at a proposed childcare centre. It is important to note that roadside air quality is transient in nature and can vary from day to day. The results reported in this report are specific to a certain period of time and may not reflect the air quality at all other times. No warranty, expressed or implied, is made as to the information and professional advice included in this report. The report is not intended for other parties or other uses, with the exception of Maitland City Council for the purpose of supporting the Development Application for the proposed childcare. Anyone using this document does so at their own risk and should satisfy themselves concerning its applicability and, where necessary, should seek expert advice in relation to the particular situation at the time.

JM Environments 0427 893 668 37 Tooke St COOKS HILL NSW 2300 ABN 67 166 341 288



Figures



Appendix A

Laboratory Documentation

															West	East	Lab ID Lab Sample ID	Samples intact: Yes/No	Reliquinshed by:	Reliquinshed by: J McMahon	au.samplereceipt.sydney@sgs.com	Felephone No: (UZ) 85940400 Email:	Facsimile No: (02) 85940499	Alexandria NSW 2015	SGS Environmental Services Sydney	000	000
																	Water	Tem	Date	Date	Telep	Cont		Address:	Com		
																	Soil	Temperature	Date /Time	/Tim	Telephone	Contact Name:		ess:	Company Name:		5
															×	×	Other	ure	n l	e 14/		ame:			Name		Í
																	Preservative			4/21					R	5	
																	No. of Containers			Date /Time 14/4/21 10pm						PP C	
															×	×	ВТЕХ/ТРН				0427 893 668	James McMahon	COOKS HILL NSW 2300	37 Tooke St	JM Environments	SPO 33496	
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el Thornton COC No Del	Project Name:
Storam not will som	Company:
2·	<u></u>
(61 2) 8594 0400 Facsimile Number: (61 2) 8594 0499	
anister Sampling and Custody Record Template) ant :e Xiuna44A Telephone Number:
Approved: P. Bamford	
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1 of 1 of 2.8.8.1/oot.atsignet bicody Record Terroring and Custody Record Terrorited bottop 1 of 1



SAMPLE RECEIPT ADVICE

CLIENT DETAIL	S	LABORATORY DETA	NLS	
Contact	James McMahon	Manager	Huong Crawford	
Client	JM ENVIRONMENTS	Laboratory	SGS Alexandria Environmental	
Address	37 TOOKE STREET COOKS HILL NSW 2300	Address	Unit 16, 33 Maddox St Alexandria NSW 2015	
Telephone	0427 893 668	Telephone	+61 2 8594 0400	
Facsimile	(Not specified)	Facsimile	+61 2 8594 0499	
Email	james@jmenvironments.com	Email	au.environmental.sydney@sgs.com	
Project	JME21022 Thornton	Samples Received	Mon 19/4/2021	
Order Number	JME21022	Report Due	Wed 21/4/2021	
Samples	2	SGS Reference	SP033496	

_ SUBMISSION DETAILS

This is to confirm that 2 samples were received on Monday 19/4/2021. Results are expected to be ready by COB Wednesday 21/4/2021. Please quote SGS reference SP033496 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	NA
Samples received in correct containers	Yes	Sample counts by matrix	2 Canister
Date documentation received	19/4/2021	Type of documentation received	COC
Number of eskies/boxes received	NA	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	NA
Sufficient sample for analysis	Yes	Turnaround time requested	Two Days

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS -

Due date listed is indicative only and may be subject to changes. Please contact your SGS representative for an update on the job status and anticipated completion date.

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SGS Australia Pty Ltd ABN 44 000 964 278 Environment, Health and Safety

Unit 16 33 Maddox St PO Box 6432 Bourke Rd BC Alexandria NSW 2015 Alexandria NSW 2015 Australiat +61 2 8594 0400Australiaf +61 2 8594 0499

0 www.sgs.com.au



SAMPLE RECEIPT ADVICE

SP033496

CLIENT DETAILS

Client JM ENVIRONMENTS

Project JME21022 Thornton

-	SUMMARY	OF ANALYSIS	
	No.	Sample ID	VOCs in Air by Passivated Cannister Collection
	001	East C 4511	6
	002	West C 4292	6

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document. The numbers shown in the table indicate the number of results requested in each package. Please indicate as soon as possible should your request differ from these details . Testing as per this table shall commence immediately unless the client intervenes with a correction .



ANALYTICAL REPORT



 CLIENT DETAILS Contact Client Address 	James McMahon	LABORATORY DETAI	Huong Crawford
	JM ENVIRONMENTS	Manager	SGS Alexandria Environmental
	37 TOOKE STREET	Laboratory	Unit 16, 33 Maddox St
	COOKS HILL NSW 2300	Address	Alexandria NSW 2015
Telephone	0427 893 668	Telephone	+61 2 8594 0400
Facsimile	(Not specified)	Facsimile	+61 2 8594 0499
Email	james@jmenvironments.com	Email	au.environmental.sydney@sgs.com
Project	JME21022 Thornton	SGS Reference	SP033496 R0
Order Number	JME21022	Date Received	19 Apr 2021
Samples	2	Date Reported	20 Apr 2021

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

All samples were analysed within 30 days. Uncertainty is at +/- 20 %.

SIGNATORIES -

from

Minh NGUYEN Technical Development Mananger

SGS Australia Pty Ltd ABN 44 000 964 278 Environment, Health and Safety

Unit 16 33 Maddox St PO Box 6432 Bourke Rd Alexandria NSW 2015 Alexandria NSW 2015

5 Australia 5 Australia t +61 2 8594 0400 f +61 2 8594 0499 www.sgs.com.au



ANALYTICAL REPORT

		Sample Number Sample Matrix Sample Date Sample Name	Canister 13 Apr 2021	SP033496.00 Canister 13 Apr 2021 West C 4292
Parameter	Units	LOR		
VOCs in Air by Passivated Cannister Collection GCMS Monocyclic Aromatic Hydrocarbons	Method: AN449/	USEPA TO15	Tested: 19/4/2021	
Benzene	ppbv	0.4	<0.4	<0.4
Toluene	ppbv	0.4	7.7	4.2
Ethylbenzene	ppbv	0.4	0.4	<0.4
m/p-xylene	ppbv	0.8	1.1	0.8
o-xylene	ppbv	0.4	0.6	0.5

Surrogates

4-Bromofluorobenzene (Surrogate)	%	-	102	101



MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample. DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : the absolute difference of the two results divided by the average of the two results as a percentage. Where the DUP RPD is 'NA', the results are less than the LOR and thus the RPD is not applicable.

VOCs in Air by Passivated Cannister Collection GCMS Method: ME-(AU)-[ENV]AN449/USEPA TO15

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	DUP %RPD	LCS %Recovery
Benzene	LB222886	ppbv	0.4	0%	92%
Toluene	LB222886	ppbv	0.4	5%	108%
Ethylbenzene	LB222886	ppbv	0.4	0%	92%
m/p-xylene	LB222886	ppbv	0.8	0%	94%
o-xylene	LB222886	ppbv	0.4	18%	95%

Surrogates

Parameter	QC	Units	LOR	DUP %RPD	LCS
	Reference				%Recovery
4-Bromofluorobenzene (Surrogate)	LB222886	%	-	11%	113%



METHOD SUMMARY

SP033496 R0

- METHOD -

METHODOLOGY SUMMARY

AN449/USEPA TO15

Air samples are collected in clean passivated 3 or 6 litre canisters. A measured volume of the air sample is taken through a solid multisorbent concentrator and the VOC's are trapped. After elimination of much of the water and carbon dioxide the VOC's are focused in a small volume then released by thermal desorption, separated by capillary gas chromatography and identified and quantitated by Mass Spectrometry.



FOOTNOTES .

IS Insufficient sample for analysis. LOR Limit of Reporting LNR Sample listed, but not received. Raised or Lowered Limit of Reporting î↓ NATA accreditation does not cover the QFH QC result is above the upper tolerance performance of this service QFL QC result is below the lower tolerance ++ Indicative data, theoretical holding time exceeded. The sample was not analysed for this analyte *** Indicates that both * and ** apply. NVI Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received. Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- a. 1 Bq is equivalent to 27 pCi
- b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: <u>www.sgs.com.au/en-gb/environment-health-and-safety</u>.

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STATEMENT OF QA/QC PERFORMANCE

CLIENT DETAILS		LABORATORY DETAI	ILS
Contact Client Address	James McMahon JM ENVIRONMENTS 37 TOOKE STREET COOKS HILL NSW 2300	Manager Laboratory Address	Huong Crawford SGS Alexandria Environmental Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	0427 893 668	Telephone	+61 2 8594 0400
Facsimile	(Not specified)	Facsimile	+61 2 8594 0499
Email	james@jmenvironments.com	Email	au.environmental.sydney@sgs.com
Project	JME21022 Thornton	SGS Reference	SP033496 R0
Order Number	JME21022	Date Received	19 Apr 2021
Samples	2	Date Reported	20 Apr 2021

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document. This QA/QC Statement must be read in conjunction with the referenced Analytical Report. The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

Samples clearly labelled	Yes	Complete documentation received	Yes	
Sample container provider	SGS	Sample cooling method	NA	
Samples received in correct containers	Yes	Sample counts by matrix	2 Canister	
Date documentation received	19/4/2021	Type of documentation received	COC	
Number of eskies/boxes received	NA	Samples received in good order	Yes	
Samples received without headspace	Yes	Sample temperature upon receipt	NA	
Sufficient sample for analysis	Yes	Turnaround time requested	Two Days	

SGS Australia Pty Ltd ABN 44 000 964 278

SAMPLE SUMMARY

Environment, Health and Safety

Unit 16 33 Maddox St PO Box 6432 Bourke Rd Alexandria NSW 2015 Alexandria NSW 2015 t +61 2 8594 0400 www.sgs.com.au f +61 2 8594 0499

Australia

Australia

20/4/2021



HOLDING TIME SUMMARY

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in Green when within suggested criteria or Red with an appended dagger symbol (†) when outside suggested criteria. If the

VOCs in Air by Passivated Cannister Collection GCMS Method: ME-(AU)-[ENV]AN449/USEPA								
Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
East C 4511	SP033496.001	LB222886	13 Apr 2021	19 Apr 2021	13 May 2021	19 Apr 2021	13 May 2021	20 Apr 2021
West C 4292	SP033496.002	LB222886	13 Apr 2021	19 Apr 2021	13 May 2021	19 Apr 2021	13 May 2021	20 Apr 2021



SURROGATES

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in Green when within suggested criteria or Red with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOCs in Air by Passivated Cannister Collection GCMS Method: ME-(AU)-[ENV]AN449/USE						
Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %	
4-Bromofluorobenzene (Surrogate)	East C 4511	SP033496.001	%	60 - 130%	102	
	West C 4292	SP033496.002	%	60 - 130%	101	



METHOD BLANKS

SP033496 R0

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in Green when within suggested criteria or Red with an appended dagger symbol (†) when outside suggested criteria.

Sample Number Parameter Units LOR



Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in Green when within suggested criteria or Red with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

VOCs in Air by F	Passivated Cannister	Collection GCMS
------------------	----------------------	-----------------

VOCs in Air by Pa	OCs in Air by Passivated Cannister Collection GCMS Method: ME-(AU)-[ENV]AN449/USEPA 1						SEPA TO15		
Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SP033496.002	LB222886.005	Monocyclic	Benzene	ppbv	0.4	<0.4	<0.4	200	0
		Aromatic	Toluene	ppbv	0.4	4.2	4.0	32	5
			Ethylbenzene	ppbv	0.4	<0.4	<0.4	200	0
			m/p-xylene	ppbv	0.8	0.8	0.8	43	0
			o-xylene	ppbv	0.4	0.5	0.6	48	18
		Surrogates	4-Bromofluorobenzene (Surrogate)	%	-	100	110	30	11



Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in Green when within suggested criteria or Red with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Air by Pa	ssivated Canniste	r Collection GCMS		Method: ME-(AU)-[ENV]AN449/USEPA T						
Sample Number	r .	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %		
LB222886.002	Monocyclic	Benzene	ppbv	0.4	2.3	2.5	70 - 130	92		
	Aromatic	Toluene	ppbv	0.4	2.7	2.5	70 - 130	108		
		Ethylbenzene	ppbv	0.4	2.3	2.5	70 - 130	92		
		m/p-xylene	ppbv	0.8	4.7	5	70 - 130	94		
		o-xylene	ppbv	0.4	2.4	2.5	70 - 130	95		
	Surrogates	4-Bromofluorobenzene (Surrogate)	%	-	110	100	70 - 130	113		



MATRIX SPIKES

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in Green when within suggested criteria or Red with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spikes were required for this job.



Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in Green when within suggested criteria or Red with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.



Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- 2 RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- 6 LOR was raised due to sample matrix interference.
- ⁽⁷⁾ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- Image: Image:
- Recovery failed acceptance criteria due to sample heterogeneity.
- [®] LOR was raised due to high conductivity of the sample (required dilution).
- t Refer to relevant report comments for further information.

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ANALYTICAL REPORT

Customer:	James McMahon JM Environments
Your Reference:	TRH Analysis of 2 air samples
SGS Report Number:	SP033496
Date of Receipt of Sample:	14/04/2021
Date of Analyses:	19/04/2021

Sample/work Description: Two Air Samples for volatile TRH

This work has been carried out in accordance with your instructions. The results and associated information are contained in the following pages of the report. Should you have any queries regarding this report please contact the undersigned.

M. Mynyer

Reported by: Minh Nguyen

Date: 20/04/2021

etestate

Report authorised by: Peter Novella

Date: 20/04/2021

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 SGS Australia Pty Ltd
 Environment, Health & Safety
 Unit 16, 33 Maddox St Alexandria 2015 NSW
 Australia

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 www.au.sgs.com



Sample Description:

Two air samples collected in 6L canister were received by SGS on 14/04/2021. The samples were logged in as follows:

Table 1: Sample ID

SGS Alexandria Sample ID	Your reference
SP033496-1	East, C4511
SP033496-2	West, C4292

Method Used:

The samples were pressurized and analysed using US EPA TO15 method.

Analytical Results:

Table 2: TRH Analytical results

Analytes	units	33496-1	33496-2
TRH C5-C12	ppb v/v	<100	<100

 SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph. 05 8784 8555 E. semples styrlow@alsgobal com DTOWNSVILLE 14-15. Desmo Court Bohe CLU 3818 Dh. 07 4796 0500 E. townsville amformmanigalegibelation UWOLLONCONG 99 Kenny Street Wollowgorg NSW 2500 Ph. 02 4225 3125 E. portkembla@alsglobal com 	For Exerciser USE ONER (Circle)	coloristications of the second s	Tenjoerature on Receipt 1911 - 1921 - 1927		RECEIVED BY:		DATE/TIME:			ute price) Additional Information	Comments on likely contaminant levels, ditutions, or samples requiring specific QC analysis etc.							Environmental Division	Newcastle Work Order Between	EN2103886			
DIREWCASTLE 57855 Maithan R.d. Viayfield West NSW 2204 Ph: 02 4014 55005 Examples newcasile@alsegboal.com DOWRA 4/13 Geary Place North Newra NSW 2541 Ph: 024422 2058 E: novra@alsejloeal.com DPERTH 10 Hod Way Melaga VAA 6090 Ph: 08 9209 7655 E: samples perth@alsglobul.com		COC SEQUENCE NUMBER (Circle)	3 4 5 6 7	2 3 4 5 6 1	RECEIVED BY: RELINQUISHED BY:		DATE/TIME: DATE/TIME:	1015/21 15:08		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (fileid filtered bottle required).													
DIMANCANY TO FRIPTONY FOR MARCANY DU 740 Ph: 07 41844 0177 E: mackay@alagbaa.form DMEELBOURANE 2-4 Weatal Road Springwale VIC 3171 Ph: 03 6364 6006 E: smithes, malkourangelagbab.tic.com DMUDGEE 75 Syntay Road Nurgee NSV 2860 Ph: 02 6372 6736 E: mudgee mali@alag1ebal.com	Standard TAT (List due date): □ Non Standard or urgent TAT (List due date):		ö		RELINGUISHED BY: RI			an 308.		NOILY	ее 5 соителиеяс соителиеяс				~								TOTAL
DACE TO TROPE 21 Burner Road Porcents AS 5005 FT-06 85550 0690 E: adeiene@Brasjonal com DBR155ANE 22 Shand Street Sterfond QLD 4053 Ph: 07 7327 Start 2 are anti-servisetare@Brasjonal.com DCLA057TONE 42 Calimonicath Drive Criticion QLD 4680 Ph: 07 7471 6600 E: gladstone@ateglobal.com	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g Uttra Trace Ormanics)	ALS QUOTE NO .:		* O427 8-3 600	OBILE:	EDD FORMAT (or default):	-	> mervironnests	2	THE CONTINUER INFORM	MATRIX TYPE & PRESERVATIVE codes below/	4	}-			- A -							
	DOK HULL			John CONTACT PH:	SAMPLER MOBILE	EDD FORMA	ses are listed):	es are listed) COMMIN	ISPOSAL:	AUS Material	DATE / TIME		18/4 -1010	13/4-10/ 5	13/4-10/5	13/4 -24 5	,						
CHAIN OF CUSTODY CUSTODY Please tick →	NUTONMENTS	217107	M.67107	JU		(YES / NO)	Email Reports to (will default to PM if no other addresses are listed):	Email Invoice to (will default to PM if no other addresses are listed) $\mathcal{C}\mathcal{M}\mathcal{M}\mathcal{N}$	COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL	Signos vatero (SAMPLE ID		50,02	East	West	South							
Enuronmental	CLIENT: JM C	PROJECT:	ORDER NUMBER:	PROJECT MANAGER: JOHN	SAMPLER:	COC emailed to ALS? (YES / NO)	Email Reports to (will c	Email Invoice to (will d	COMMENTS/SPECIAL	asi)	LAB ID	Ť	7	2	~	t.							



CERTIFICATE OF ANALYSIS

Work Order	EN2103886	Page	: 1 of 2	
Client	: JM ENVIRONMENTS	Laboratory	: Environmental Division N	ewcastle
Contact	: MR JAMES MCMAHON	Contact	:	
Address	: 37 TOOKE STREET	Address	: 5/585 Maitland Road May	field West NSW Australia 2304
	COOKS HILL NSW 2300			
Telephone	:	Telephone	: +61 2 4014 2500	
Project	: JME17107	Date Samples Received	: 10-May-2021 15:08	AMILIU.
Order number	: JME17107	Date Analysis Commenced	12-May-2021	
C-O-C number	:	Issue Date	19-May-2021 17:00	NATA
Sampler	:			
Site	:			
Quote number	: SYBQ/292/17			Accreditation No. 825
No. of samples received	: 4			Accredited for compliance with
No. of samples analysed	: 4			ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Zoran Grozdanovski	Laboratory Operator	Newcastle - Inorganics, Mayfield West, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

 \sim = Indicates an estimated value.

- Sample exposure period is 27 days which is outside the typical exposure period of 30 +/- 2 days as per AS3580.10.1.
- Directional dust analysis as per AS3580.10.2-2013. Samples passed through a 1mm sieve prior to analysis. NATA accreditation does not apply for results reported in g/m².mth as sampling data was provided by the client.

Analytical Results

Sub-Matrix: DEPOSITIONAL DUST (Matrix: AIR)			Sample ID	North 13/04/21 - 10/05/21	East 13/04/21 - 10/05/21	West 13/04/21 - 10/05/21	South 13/04/21 - 10/05/21	
		Sampli	ng date / time	10-May-2021 00:00	10-May-2021 00:00	10-May-2021 00:00	10-May-2021 00:00	
Compound	CAS Number	LOR	Unit	EN2103886-001	EN2103886-002	EN2103886-003	EN2103886-004	
				Result	Result	Result	Result	
EA142I: Total Solids								
Total Solids		0.1	g/m².month	0.3	0.4	0.7	0.3	
Total Solids (mg)		1	mg	4	5	9	4	



QUALITY CONTROL REPORT

Work Order	: EN2103886	Page	: 1 of 3	
Client		Laboratory	: Environmental Division Nev	vcastle
Contact	: MR JAMES MCMAHON	Contact	:	
Address	: 37 TOOKE STREET COOKS HILL NSW 2300	Address	: 5/585 Maitland Road Mayfe	eld West NSW Australia 2304
Telephone	:	Telephone	: +61 2 4014 2500	
Project	: JME17107	Date Samples Received	: 10-May-2021	
Order number	: JME17107	Date Analysis Commenced	12-May-2021	
C-O-C number	:	Issue Date	19-May-2021	
Sampler	:			Hac-MRA NATA
Site	:			
Quote number	: SYBQ/292/17			Accreditation No. 825
No. of samples received	: 4			Accredited for compliance with
No. of samples analysed	: 4			ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories

Zoran Grozdanovski

Laboratory Operator

Position

Accreditation Category

Newcastle - Inorganics, Mayfield West, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key: Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

• No Laboratory Duplicate (DUP) Results are required to be reported.



Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: AIR				Method Blank (MB)	Laboratory Control Spike (LCS) Report						
	Report	Spike	Spike Recovery (%)	Spike Recovery (%) Acceptable Li							
Method: Compound CAS	S Number	LOR	Unit	Result	Concentration	LCS	Low	High			
EA142I: Total Solids (QCLot: 3673655)											
EA142I: Total Solids (mg)		1	mg	<1	64.65 mg	92.8	70.0	130			

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

• No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



	QA/QC Complianc	e Assessment to assist witl	h Quality Review
Work Order	: EN2103886	Page	: 1 of 4
Client		Laboratory	: Environmental Division Newcastle
Contact	: MR JAMES MCMAHON	Telephone	: +61 2 4014 2500
Project	: JME17107	Date Samples Received	: 10-May-2021
Site	:	Issue Date	: 19-May-2021
Sampler	:	No. of samples received	: 4
Order number	: JME17107	No. of samples analysed	: 4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- NO Method Blank value outliers occur.
- <u>NO</u> Duplicate outliers occur.
- <u>NO</u> Laboratory Control outliers occur.
- <u>NO</u> Matrix Spike outliers occur.
- For all regular sample matrices, <u>NO</u> surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

• NO Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

• <u>NO</u> Quality Control Sample Frequency Outliers exist.



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Atrix: AIR Evaluation: × = Holding time breach ; ✓ = Within holding time.									
Method		Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA142I: Total Solids									
Directional Dust Gauge - Unpreserved (EA142I)									
North - 13/04/21 - 10/05/21,	East - 13/04/21 - 10/05/21,	10-May-2021				12-May-2021	06-Nov-2021	 ✓ 	
West - 13/04/21 - 10/05/21,	South - 13/04/21 - 10/05/21								



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: AIR				Evaluation	n: 🗴 = Quality Co	ontrol frequency r	to twithin specification ; \checkmark = Quality Control frequency within specification.
Quality Control Sample Type		Co	ount		Rate (%)		Quality Control Specification
Analytical Methods	Method	00	Reaular	Actual	Expected	Evaluation	
Laboratory Control Samples (LCS)							
Total Solids (TS)	EA142I	1	4	25.00	5.00	\checkmark	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Solids (TS)	EA142I	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page	: 4 of 4
Work Order	: EN2103886
Client	: JM ENVIRONMENTS
Project	: JME17107



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Total Solids (TS)	EA142I	AIR	In house: Referenced to AS 3580.10.2. A gravimetric procedure reporting Total Solids in deposited dust.



Appendix F:

DCP Assessment Table



	C.2 – Chil	dcare Centres	
SECTION	PREFERRED SOLUTION	COMPLIANCE	COMMENT
1.5 Other Licensi	na Reauirements		1
The construction expansion of exist conversion of exist also require a li Department of Co Children and Youn 1998 and the Child essential that app Council early in eliminate potentia proposal satisfies relevant legislation	of new child care centres, the isting child care centres or the ing buildings into child care centres cence to operate from the NSW mmunity Services (DoCS) under the g Persons (Care and Protection) Act dren's Services Regulation 2004. It is plicants liaise both with DoCS and the planning process in order to I design flaws and ensure that the the requirements of any other , LEP, DCP, Guidelines or Policies.	Yes	The proposed Centre design has been reviewed and had input from a child care operator to ensure design flaws have been avoided.
Children's Services site plan of the pr provided is drawn b the meaning of t accredited by the B	dvised that Regulation 16 of the Regulation 2004 requires that the emises at which the service is to be by a person who is an architect within the Architects Act 2003 or who is uilding Designers Association of NSW the design of the class of buildings	Yes	The proposed Centre has been designed by an accredited building designer – please refer to the Architectural Plans for contact details.
1.6 Community N	leeds		
successful child car assessment. A feas to be offered by the relevant to the nee undertaken by the	nent in planning a commercially e centre is a community needs ibility study, ensuring that the service e proposed child care centre will be ds of the community should be applicant in the preliminary stage of to ensure the ultimate success of the	Yes	Suitable feasibility studies have been conducted by the applicant to ensure both the funding and ongoing operation of the centre is successful.
2.1 Location			
such as shopping co	ximity to community focal points entres, educational establishments – or primary schools, community ion facilities.	Yes	As detailed in Section 2 above, the subject site is located in close proximity to various community and social facilities.
within easy and saf transport.	e walking distance of public	Yes	Several bus stops are or have recently been developed under the masterplanned subdivision in which the proposed Centre is situated and adjacent to.
located on corner s space.	ites or sites that are adjacent to open	No – justification provided	While the proposed Centre is not on a corner site or adjacent to open space, the significant size of the subject site means that there is sufficient landscaping and amenity provided to the Centre.
have minimal comr	rsidential areas) on properties which non boundaries so as to reduce noise s on adjoining neighbours	Yes	The positioning of the proposed centre in the residential area means that there are only two boundaries with other allotments. Further, these boundaries



		will be acoustically treated.
situated on sites with a minimum gradient. Steep sites have the potential to amplify impact on adjoining properties whilst constraining the availability of level play areas.	Yes	As shown in the Architectural Plans in Appendix A, the propose site has minimal gradient and allows for suitable integration of play areas.
Should it be proposed to locate a child care centre within the location of existing telecommunications infrastructure, applicants are advised to refer to the NSW Telecommunication Facilities Guideline including Broadband (NSW Department of Planning, July 2010) to ensure compliance with location requirements.	Yes	The site will be serviced by NBN infrastructure.
To ensure that child care centres provide a safe and healthy environment for staff and children, Council will not consider any application that proposes the location of a child care centre: - within 200m of a service station unless the application is supported by a preliminary hazard analysis (PHA) under State Environmental Planning Policy 33 and a risk assessment (biophysical and societal) taking into account the sensitivity of the use. - within 125m of a classified road (as defined in the MLEP 2011) without the submission of a report detailing the results of air quality and noise level testing. - within 100m of heavy industry (as defined in the MLEP 2011) without the submission of a report detailing the results of air quality and noise level testing. - within 100m of rural industries, swamps or creeks - within 100m or in view of a sex services premises or restricted premises - within an aircraft noise exposure level area from the aerodrome that is 20ANEF or greater - within 100m of above ground high voltage transmission lines, unless the application is supported by a hazard risk assessment which addresses the potential impacts on human health.	Yes	The Centre is located within 125m of a classified road, with Raymond Terrace Road. The Noise Assessment Report and Air Quality Report are included in Appendices D & E respectively and confirm the Centre will not be adversely affected by Raymond Terrace Road.
Whilst child care centres are a permitted land use in a number of residential zones under the Maitland LEP 2011, they are also a commercial activity which in turn must not result in any adverse impacts upon the residential environment. In this regard Council will limit the size, location, operating hours and other matters as necessary to ensure that a proposed child care centre is consistent the zone objectives, that is, the proposal is compatible with the character of the area and of domestic scale and character.	Yes	The proposed Centre, coupled with the tabled mitigation measures (specifically the acoustic fencing), and operating hours means that the proposed Centre should be supported in the residential zone.
2.2 Parking & Accessibility	1	-
A child care centre will not be supported in any area which has significant impact on amenity within a neighbourhood area. A Statement of Environmental Effects must consider the impacts of the child care establishment on the local community.	Yes	This SEE consideres the impact of the proposed Centre on the neighbouring community, including the traffic and parking. Further, please refer to the Traffic &
		Parking Report included in Appendix C



		for details.
Proposed child care centres located within a 500m radius of an existing child care establishment must include an assessment of the cumulative impact, including the requirement of a traffic study.	N/A	There are no other centres within 500m of the proposed Centre.
Minimum onsite parking shall be provided in accordance with Child Care Centre parking requirements in NSW Road & Traffic Authority's, Guide to Traffic Generating Developments current at the time.	Yes	 The Centre proposes to provide 23 carparking spaces (including a disabled space) onsite and a further 10 to 11 spaces on the street frontage adjacent to the subject site, seeing a total of 33 parking spaces available for the Centre. The DCP calls for the provision of 1 space every 4 children. With 132 children proposed, the application of this rate would required 32 parking spaces. The proposed parking strategy complies with the DCP rate, while not being able to provide all parks onsite. TfNSW's Guide to Traffic Generating Developments from 1992 also require 32 parking spaces. However, updated traffic surveys undertaken on behalf of the RMS (now TfNSW) in 2015 found that parking demands were also impacted by centre size with larger centres seeing lower overall parking demands. Based on this more recent data a centre with 132 places would see peak parking demands of 1 space per 6 enrolments. This would equate to a peak parking demand for the proposed development of 22 spaces. Therefore, the proposed parking strategy for the Centre should be supported. Please refer to Appendix C for the Traffic & Parking Report for further details.
Where requested by Council, a traffic and car park study should be provided demonstrating that the level of traffic generation by the child care centre is within the technical and environmental capacity of the existing road system. The traffic study should take into account major traffic generating developments (including other child care centres) within the affected area.	Yes	Please refer to Appendix C for the Traffic & Parking Report that shows the traffic generation and impact on the surrounding road network. As shown in this report, the road network has capacity to accommodate the Centre with no specific mitigation being required.
Access and facilities for the disabled are to be provided in accordance with the Australian Standard AS 1428	Yes	A disabled space and associated shared zone have been allowed for the Centre.



	1	
Part 1 and Chapter C.1: Accessible Living in this DCP.		
One of the allotted vehicle parking spaces shall be provided for disabled parking / service vehicles close to the main entrance of the child care centre.		
Design of the car park surface and borders should incorporate adequate facility for people with prams or mobility aids.	Yes	The propose carpark and adjacent areas will be constructed from asphalt and concrete and will be suitable for prams and mobility aids.
Parking area dimensions and parking layout shall comply with Australian standard 2890.1 – 2004 User Class 3 (being 2.6 metres wide). A minimum aisle width of 6.5m shall be provided.	Yes	Please refer to the Architectural Plans and Traffic & Parking Report for details.
Where 90 degree on-site parking is provided adjacent to the building, pathway access between the car spaces and the building entry point. In such cases vehicle wheel stops must be provided.	Yes	90 degree parking is proposed. Wheelstops, and pedestrian access via the shared zone and pedestrian walkways will allow suitable ingress and egress to the centre.
Carparks should be provided with separate entrance and exit driveways (adequately signposted) and separated by a distance that ensures safe, reasonable operation of the car park.	Yes	Separate entry and exit driveways are proposed as part of the entre.
A footpath must be provided not less than one (1) metre wide across the frontage of the child care establishment building and extend the full length of the car park where the footpath connects directly to the car park.	Yes	A footpath, with a minimum width of 1.12m is provided along the entre frontage where the building meets the carparking.
Pedestrian access between public street frontage to the child care centre site and the building should be segregated from vehicle movement areas.	Yes	The vehicle and pedestrian access points to the site from Thorncliffe Avenue are separated.
A minimum of two (2) parallel car parking spaces should be provided adjacent to the child care centres building entrance to enhance convenience and safety for parents and children.	No – justification provided	10-11 parallel parking spaces are available on the street frontage, however due to the minimal space available at the front of the site given the nature of the allotment, no parallel parking is available onsite.
Parking areas shall not be located within the building line setback unless the depth of landscaping between the street boundary and the car park is a minimum of 3.0m and the landscaping effectively screens the parking areas from the street. It must be demonstrated that car parking areas will not negatively impact on the streetscape and will not compromise the domestic scale and character of residential areas.	Yes	Approximately 3m landscaped setback is provided from the street frontage to the parking area. Screening is proposed to be formed by the planting, and it is therefore considered that the streetscape will not be adversely impacted.
Design of site elements and access ways between site elements are to cater for the needs of all users, particularly those with disabilities.	Yes	The disabled park and associated shared space have been included at the entry to the Centre to allow for the shortest travel distance from the carpark into the reception area.
2.3 Acoustic Privacy		
Where Council is of the opinion that noise has the	Yes	Please refer to Appendix D for a copy of



		Project Consulting
potential to adversely affect the amenity of neighbouring premises, it may direct the applicant to submit with the Development Application a report prepared by an accredited acoustic consultant demonstrating that the LAeq(15 minute) noise level emitted from the site (including playground activity noise and indoor activity noise) does not exceed the Rating Background Level by more than 5dBA at the proposed site and predicted noise traffic levels are below the level set by the EPA in its Environmental Criteria for Road Traffic Noise.		the Noise Assessment Report by Spectrum Acoustics, who are an accredited acoustic consultant.
Where necessary, selected noise treatments such as acoustic cladding, windows and flooring or the provision of acoustic fencing or landscaping to shield nearby premises from the noise should not impact adversely upon the amenity of surrounding properties or the streetscape and character of the locality.	Yes	Acoustic fencing is proposed as part of the development, to both treat sources of noise within and external to the subject site.
Where necessary, selected noise treatments such as acoustic cladding, windows and flooring or the provision of acoustic fencing or landscaping to shield nearby premises from the noise should not impact adversely upon the amenity of surrounding properties or the streetscape and character of the locality.	Yes	Acoustic fencing is proposed to all boundaries of the site to ensure that there are no adverse impacts to the amenity of the adjacent properties.
Outdoor playgrounds for the child care centre should not be located adjacent to the living/bedroom areas of adjoining residents and consideration should be given to noise minimisation related to hard- paved areas and pathways within the children's play area. All external pedestrian gates shall be fitted with appropriate door closers to provide a slow and regulated closing of the gate to prevent the generation of impact sound.	Yes	There are no current neighbours to the facility. Regardless, as detailed above, there are acoustic fences proposed to be provided to the entirety of the site.
For proposals that are located on or within close proximity to a main or arterial road, and/or railway line, a noise assessment must be submitted with the development application which demonstrates that the LAeq(1 hour) ambient noise level at any location within the boundary of the centre during the hours when the centre is operating shall not exceed the "Recommended Maximum" noise level indicated for "school playground" in the table "Amenity criteria" nominated in the EPA's NSW Industrial Noise Policy".	Yes	Please refer to Appendix D for a copy of the Noise Assessment Report.
2.4 Site Layout, Building Form & Appearance		
In established residential areas, development proposals for new buildings must have due regard to aspects such as scale, height, bulk, form, density and appearance to ensure that development is appropriate to its surroundings and will maintain and enhance the streetscape character and the general amenities of the locality.	N/A	The Centre will be in a newly constructed subdivision and does not have any adjacent neighbours. Regardless, the proposed design provides a suitable scale, bulk and density to ensure that it does not clash with future residential land uses to be provided adjacent to the subject site.
A development application will need to demonstrate	Yes	The site layout, particularly in relation



		Project Consultin
that the site layout would not adversely affect adjoining or opposite properties by way of noise, light, smell or general activities.		to the proposed front, side and rear setbacks, considered the neighbouring allotments. There are no adverse noise, light or smell impacts anticipated by the development, taking into account the proposed mitigation measures proposed as part of this DA.
A detailed site analysis plan must be provided with any development application showing the location and proximity of adjoining areas of private open space and habitable room windows to any residential properties.	N/A	The Centre will be in a newly constructed subdivision and does not have any neighbours on adjacent properties. Regardless, significant levels of landscaping and acoustic fencing is proposed to mitigate any impact to the neighbouring properties.
The front setback of a child care centre in a new residential area should be 6m. In all other areas or in older residential areas the front set back should be the average of the existing setbacks of the two properties on either side of the site.	Yes	The front setback for the Centre is proposed to be 8.404m from Thorncliffe Avenue.
The design and layout of the child care centre must respond to the character of the existing neighbourhood and streetscape. Existing residential character of the locality must be maintained through the use of appropriate finishes material, landscaping, fencing and plantings.	Yes	The Centre will be in a newly constructed subdivision. Regardless, the proposed design has been developed to suit the future residential nature of the adjacent properties, and includes significant levels of landscaping, planting and fencing. Further, materials have been nominated for the centre, please refer to Appendix A.
The child care centre must have a domestic scale and character from public view in all residential zones.	Yes	The low rise nature of the centre, coupled with the abovementioned design factors, will ensure the centre has a domestic scale and character when viewed by the public.
The design of buildings should relate to the slope of the land to minimise earthworks and disturbance to the land.	Yes	There are minimal earthworks required as part of this proposed development.
2.5 Landscape & Planting		
Development Applications for child care centres must include a detailed landscaping and planting scheme showing existing and proposed planting (including a schedule of species). Appropriate landscaping / planting is to be used to provide screening and privacy to dwellings and private open space areas on adjoining sites; to soften car parking areas and to enhance the visual amenity of the development in the streetscape.	Yes	Please see the Landscape Plan included in Appendix B of this report.
Existing vegetation and other natural features, particularly mature trees shall be preserved on the site wherever possible.	N/A	The site is located within subdivision currently under construction and will not contain any vegetation.
Appropriate use of planting along the street frontage is encouraged to complement the neighbourhood	Yes	Planting to the street frontage is provided to integrate the centre into the future residential land use that will



streetscape.	adjoin the subject site.



Appendix G:

Childcare Planning Guideline



N	ISW Department of Planning & Environment -	- Childcare Planning Guideline
SECTION	CONSIDERATION	COMMENT
1.3 – What are the planning objectives?	The planning objectives of this Guideline are to: - promote high quality planning and design of child care facilities in accordance with the physical requirements of the National Regulations - ensure that child care facilities are compatible with the existing streetscape, context and neighbouring land uses - minimise any adverse impacts of development on adjoining properties and the neighbourhood, including the natural and built environment	The proposed Centre development complies with the objectives of the Guideline. It is noted that the Guideline generally takes precedence of a DCP.
2 – Design quality principles	- Context - Built form - Adaptive learning spaces - Sustainability - Landscape - Amenity - Safety	The Centre design and relevant inputs are consider to meet all of the principles raised by the Guidelines. Please refer to this SEE and associated appendices for details of this compliance.
C1 – Objective: To ensure that appropriate zone considerations are assessed when selecting a site.	For proposed developments in or adjacent to a residential zone, consider: - the acoustic and privacy impacts of the proposed development on the residential properties - the setbacks and siting of buildings within the residential context - traffic and parking impacts of the proposal on residential amenity.	Noise and acoustic privacy has been considered in this application. Please refer to Appendix D for the Noise Assessment Report. The Centres setbacks have been considered the residential context, please refer to Appendix A for the Architectural Plans. The traffic and parking impacts to the surrounding properties and road network is considered to be acceptable for the future residential area. Please refer to Appendix C for further details.
C2 – Objective: To ensure that the site selected for a proposed child care facility is suitable for the use.	 When selecting a site, ensure that: the location and surrounding uses are compatible with the proposed development or use the site is environmentally safe including risks such as flooding, land slip, bushfires, coastal hazards there are no potential environmental contaminants on the land, in the building or the general proximity, and whether hazardous materials remediation is needed the characteristics of the site are suitable for the scale and type of development proposed having regard to: size of street frontage, lot configuration, dimensions and overall size number of shared boundaries with residential 	 The subject site is considered suitable for the proposed centre as it: Supports the surrounding current and future residential land uses and is compatible with this form of land use Is not impacted by flooding, landslip, bushfire or coastal hazards Is not impacted by environmental contamination Allows for suitable integration of the Centre into the future residential area Provides suitable levels of parking and drop off areas (both within the site and on the adjacent street frontage) Fronts to Thorncliffe Avenue, which is consider a local road Is not located within close proximity to any incompatible social activities



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	 the development will not have adverse 	
	environmental impacts on the surrounding	
	area, particularly in sensitive environmental	
	or cultural areas	
	 where the proposal is to occupy or retrofit an 	
	existing premises, the interior and exterior	
	spaces are suitable for the proposed use	
	- there are suitable drop off and pick up areas,	
	and off and on street parking	
	- the type of adjoining road (for example	
	classified, arterial, local road, cul-de-sac) is	
	appropriate and safe for the proposed use	
	- it is not located closely to incompatible social	
	activities and uses such as restricted premises,	
	injecting rooms, drug clinics and the like,	
	premises licensed for alcohol or gambling such	
	as hotels, clubs, cellar door premises and sex	
	services premises.	
C2 Objective	A child care facility should be located:	
C3 – Objective:	- near compatible social uses such as schools	Please refer to Section 2 of this SEE for details.
To ensure that	and other educational establishments, parks	
sites for child	and other public open space, community	The proposed Centre is located within close
care facilities	facilities, places of public worship	proximity to Thornton Public School, St Bede's
are	- near or within employment areas, town	College & St Aloysius Primary School, along with
appropriately	centres, business centres, shops	several other education establishments within a
located.	- with access to public transport including rail,	few kilometres of the Centre.
locatea.	buses, ferries	
	-	The site is serviced by bus and train public
	- in areas with pedestrian connectivity to the	transport infrastructure and is close proximity to
	local community, businesses, shops, services	Thornton and Chisholm's towns centres.
	and the like.	
C4 – Objective:	A child care facility should be located to avoid	
To ensure that	risks to children, staff or visitors and adverse	
sites for child	environmental conditions arising from	
care facilities	proximity to:	
do not incur	- heavy or hazardous industry, waste transfer	The site is not in close proximity to any of the
risks from	depots or landfill sites	potentially harmful landuses detailed in C4 of the
	- LPG tanks or service stations	Guideline.
environmental,	- water cooling and water warming systems	
health or safety	- odour (and other air pollutant) generating	
hazards.	uses and sources or sites which, due to	
	prevailing land use zoning, may in future	
	accommodate noise or odour generating uses	
C5 – Objective:	The proposed development should:	The proposed development complies with
To ensure that	- contribute to the local area by being designed	Guideline C5 in that it provides a built form that
the child care	in character with the locality and existing	is similar to the adjacent residential areas and
facility is	streetscape	future residential development to be provided in
	 reflect the predominant form of surrounding 	the immediate locality. Details of the built form,
compatible with	land uses, particularly in low density residential	-
the local		landscaping integration of the carnarking area
	areas	landscaping, integration of the carparking area and proposed materials can be found in the
character and	areas - recognise predominant streetscape qualities,	and proposed materials can be found in the
character and surrounding	areas	
	areas - recognise predominant streetscape qualities,	and proposed materials can be found in the



C6 – Objective: To ensure clear delineation between the child care facility and public spaces.	that respond to and integrate with the existing streetscape - use landscaping to positively contribute to the streetscape and neighbouring amenity - integrate car parking into the building and site landscaping design in residential areas. Create a threshold with a clear transition between public and private realms, including: - fencing to ensure safety for children entering and leaving the facility - windows facing from the facility towards the public domain to provide passive surveillance to the street as a safety measure and connection between the facility and the community - integrating existing and proposed landscaping with fencing.	A clear delimitation between public space and the Centre's operational area will be made by the provision of landscaping and acoustic fencing. These items not only serve the purpose of providing amenity to the Centre and adjoining properties but also provide safety measures for the Centre. Further, there is significant amount of glazing provided from the rooms out to the play areas, which allows significant amounts of passive surveillance by staff members.
		The Centre will not be accessible to the public, and will be fences with 1.8-2.5m high acoustic fences – with the main entrance being the only way for people to move into and out of the facility.
C9 & C10 – Objective: To ensure that front fences and retaining walls respond to and	Front fences and walls within the front setback should be constructed of visually permeable materials and treatments. Where the site is listed as a heritage item, adjacent to a heritage item or within a conservation area front fencing should be designed in accordance with local heritage provisions.	Due to the nature of the site and future residential use of the neighbouring sites, all fances are required to be acoustic barriers for both the north (Raymond Terrace Rd), south (Thorncliffe Ave), east and west (residential) frontages.
complement the context and character of the area and do not dominate the public domain.	High solid acoustic fencing may be used when shielding the facility from noise on classified roads. The walls should be setback from the property boundary with screen landscaping of a similar height between the wall and the boundary.	As detailed in the Guideline, fences are set back from the front and rear boudnaries to provide landscaping areas to screen and soften the fencing.
C11 – Objective: To respond to the streetscape and site, while optimising solar	Orient a development on a site and design the building layout to: - ensure visual privacy and minimise potential noise and overlooking impacts on neighbours by: • facing doors and windows away from private	The proposed Centre has considered the Guidelines and provided suitable visual and acoustic privacy for future neighbouring dwellings. However it is noted that are no current neighbours.
access and opportunities for shade.	 Juding users and windows away from private open space, living rooms and bedrooms in adjoining residential properties placing play equipment away from common boundaries with residential properties locating outdoor play areas away from 	Play areas have been focused on the frontage facing away from potential neighbouring properties, while acoustic barriers are proposed to all boundaries.
	residential dwellings and other sensitive uses - optimise solar access to internal and external play areas - avoid overshadowing of adjoining residential	Solar access for neighbouring properties will be possible, given the proposed setbacks allowed to the Centre. Minimal cut and fill is required to create the



	properties - minimise cut and fill - ensure buildings along the street frontage define the street by facing it - ensure that where a child care facility is located above ground level, outdoor play areas are protected from wind and other climatic conditions.	proposed development, in that the site is relatively flat.
C12 – Objective: To ensure that the scale of the child care facility is compatible with adjoining development and the impact on adjoining buildings is minimised.	The following matters may be considered to minimise the impacts of the proposal on local character: - building height should be consistent with other buildings in the locality - building height should respond to the scale and character of the street - setbacks should allow for adequate privacy for neighbours and children at the proposed child care facility - setbacks should provide adequate access for building maintenance - setbacks to the street should be consistent with the existing character.	The proposed centre provides a low scale development which is considered consistent with the character of the locality. Building height and setbacks will allow for suitable privacy for the Centre and potential future neighbours, while the setbacks will be easily accessible for access and maintenance.
C13 & C14 – Objective: To ensure that setbacks from the boundary of a child care facility are consistent with the predominant development within the immediate context.	Where there are no prevailing setback controls minimum setback to a classified road should be 10 metres. On other road frontages where there are existing buildings within 50 metres, the setback should be the average of the two closest buildings. Where there are no buildings within 50 metres, the same setback is required for the predominant adjoining land use. On land in a residential zone, side and rear boundary setbacks should observe the prevailing setbacks required for a dwelling house.	The Centre has a proposed setback from Raymond Terrace Road of 10m, which incorporates landscaping and acoustic fencing. No prevailing setbacks existing in the immediate locality however the setbacks provided are considered acceptable for a residential zone.
C15 – Objective: To ensure that the built form, articulation and scale of development relates to its context and buildings are well designed to contribute to an area's character.	The built form of the development should contribute to the character of the local area, including how it: - respects and responds to its physical context such as adjacent built form, neighbourhood character, streetscape quality and heritage - contributes to the identity of the place - retains and reinforces existing built form and vegetation where significant - considers heritage within the local neighbourhood including identified heritage items and conservation areas - responds to its natural environment including local landscape setting and climate - contributes to the identity of place.	The proposed Centre is consistent with the low scale built form of the Thornton area. The materials and colours align with the local context. Further, the provision of the Centre will contribute to the identity and sense of place for the locality.



C16 – Objective: To ensure that buildings are designed to create safe environments for all users.	Entry to the facility should be limited to one secure point which is: - located to allow ease of access, particularly for pedestrians - directly accessible from the street where possible - directly visible from the street frontage - easily monitored through natural or camera surveillance - not accessed through an outdoor play area.	Entry to the Centre is limited to one secure entry point, which is easily monitored by passive surveillance from the reception area. Further, no access to the centre is provided directly to any outdoor play area.
C17 – Objective: To ensure that child care facilities are designed to be accessible by all potential users.	Accessible design can be achieved by: - providing accessibility to and within the building in accordance with all relevant legislation - linking all key areas of the site by level or ramped pathways that are accessible to prams and wheelchairs, including between all car parking areas and the main building entry - providing a continuous path of travel to and within the building, including access between the street entry and car parking and main building entrance. Platform lifts should be avoided where possible - minimising ramping by ensuring building entries and ground floors are well located relative to the level of the footpath.	Accessibility to and within the building is provided in line with the relevant design constraints. A continuous path of travel, via ramped pathways, asphalt and concrete in the parking area and pedestrian entry, is provided linking the external entry with areas to the Centre itself. The design of the proposed Centre aims to reduce or eliminate impediments to movement as described in the Guidelines. Please refer to Appendix A for details.
C18 & 19 – Objective: To provide landscape design that contributes to the streetscape and amenity.	Appropriate planting should be provided along the boundary integrated with fencing. Screen planting should not be included in calculations of unencumbered outdoor space. Use the existing landscape where feasible to provide a high quality landscaped area by: - reflecting and reinforcing the local context - incorporating natural features of the site, such as trees, rocky outcrops and vegetation communities into landscaping. Incorporate car parking into the landscape design of the site by: - planting shade trees in large car parking areas to create a cool outdoor environment and reduce summer heat radiating into buildings - taking into account streetscape, local character and context when siting car parking areas within the front setback - using low level landscaping to soften and screen parking areas.	The Landscape Plan included in Appendix B considered items C18 & C19 of the Guideline in that it provides screening to and from the carparking, reflects the local context and anticipates the local streetscape. Further details for the sites overall landscaping strategy will be provided at Construction Certificate stage.



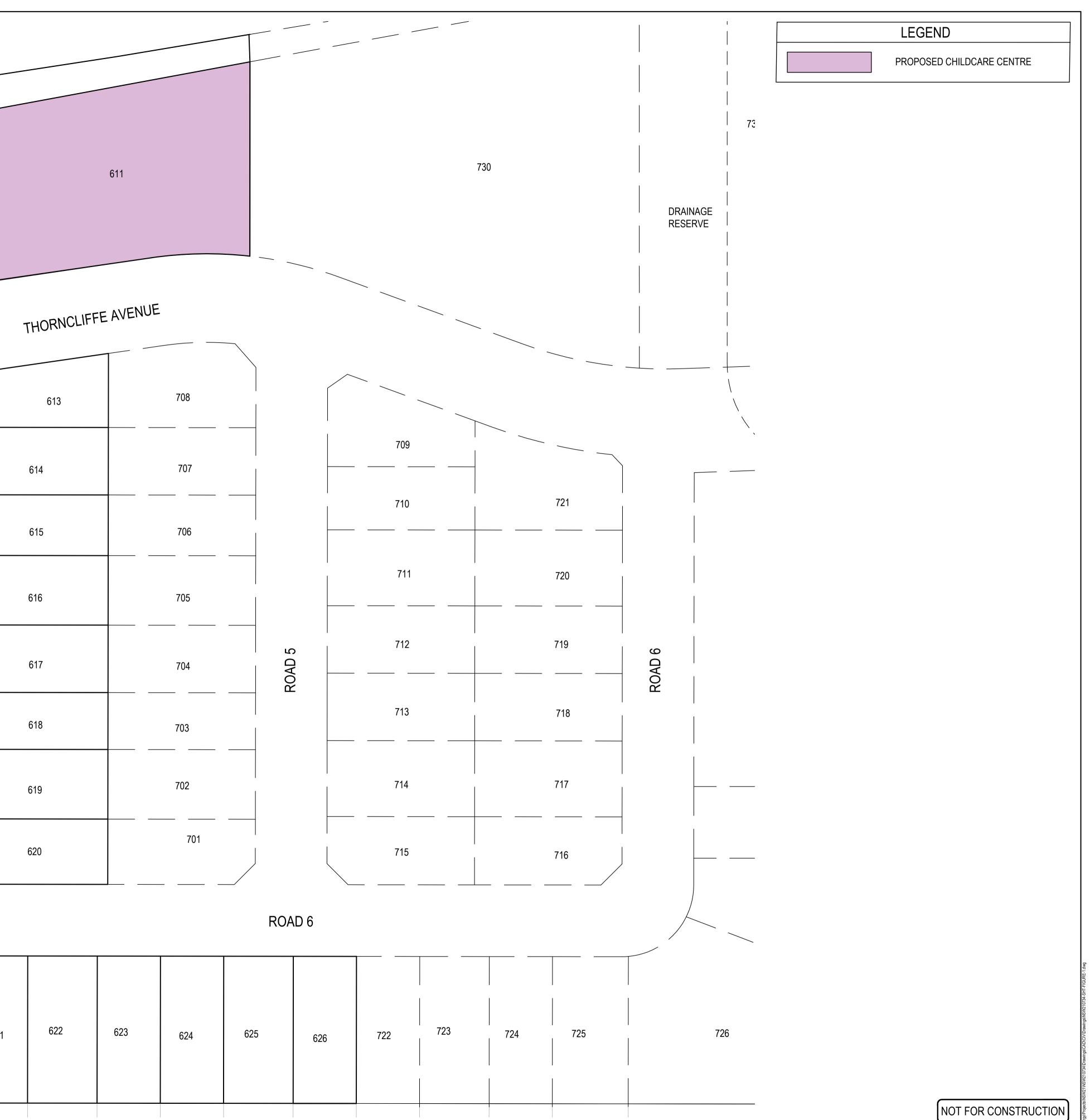
Appendix H:

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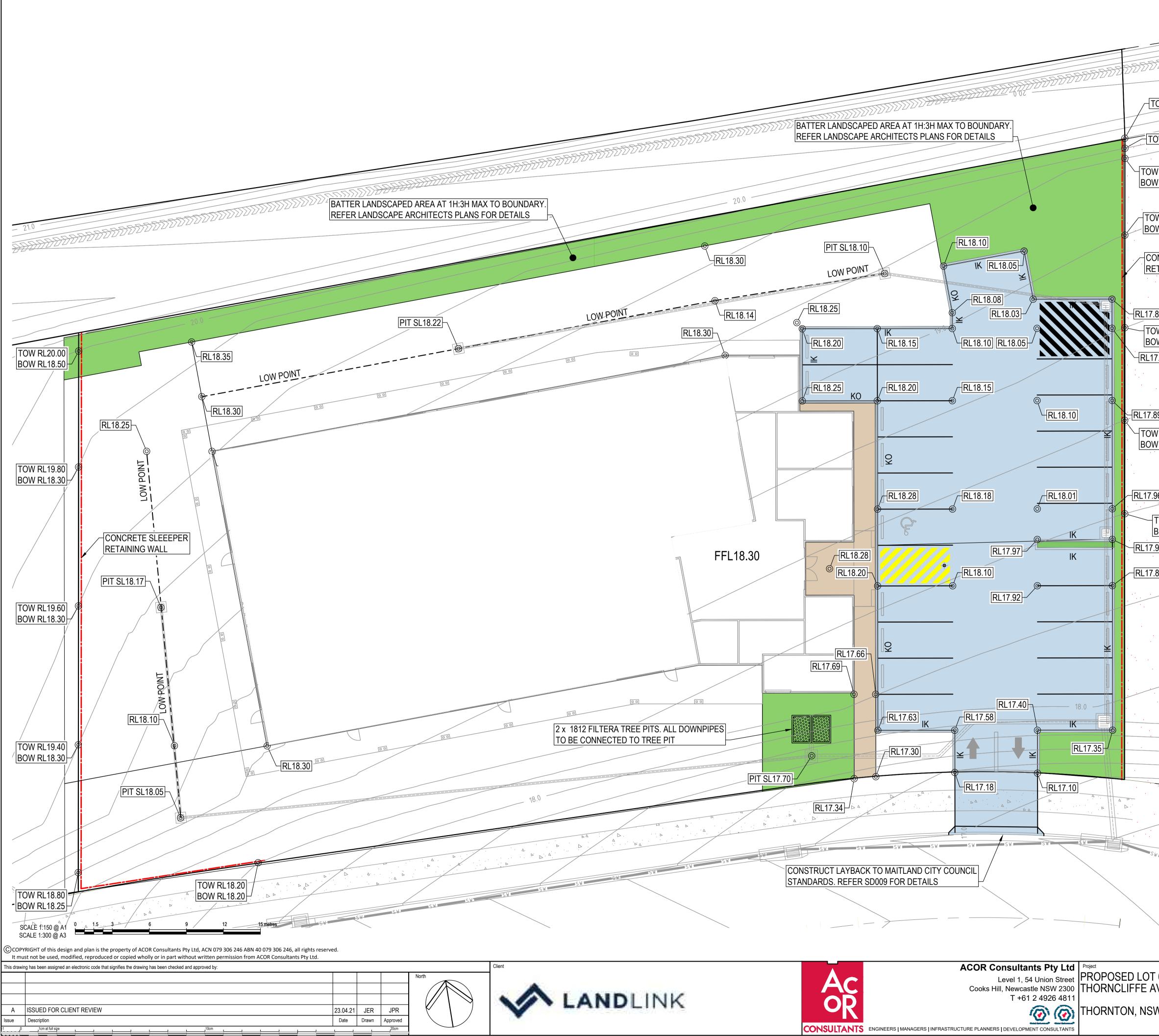






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PROPOSED CONCRETE CARPARK

PROPOSED CONCRETE FOOTPATH

PROPOSED LANDSCAPED AREA

PROPOSED RETAINING WALL

PROPOSED INTEGRAL KERB, KERB ONLY

EXISTING SURFACE CONTOURS

NOTE: ALL DOWN PIPES TO CONNECT TO TREE PIT.

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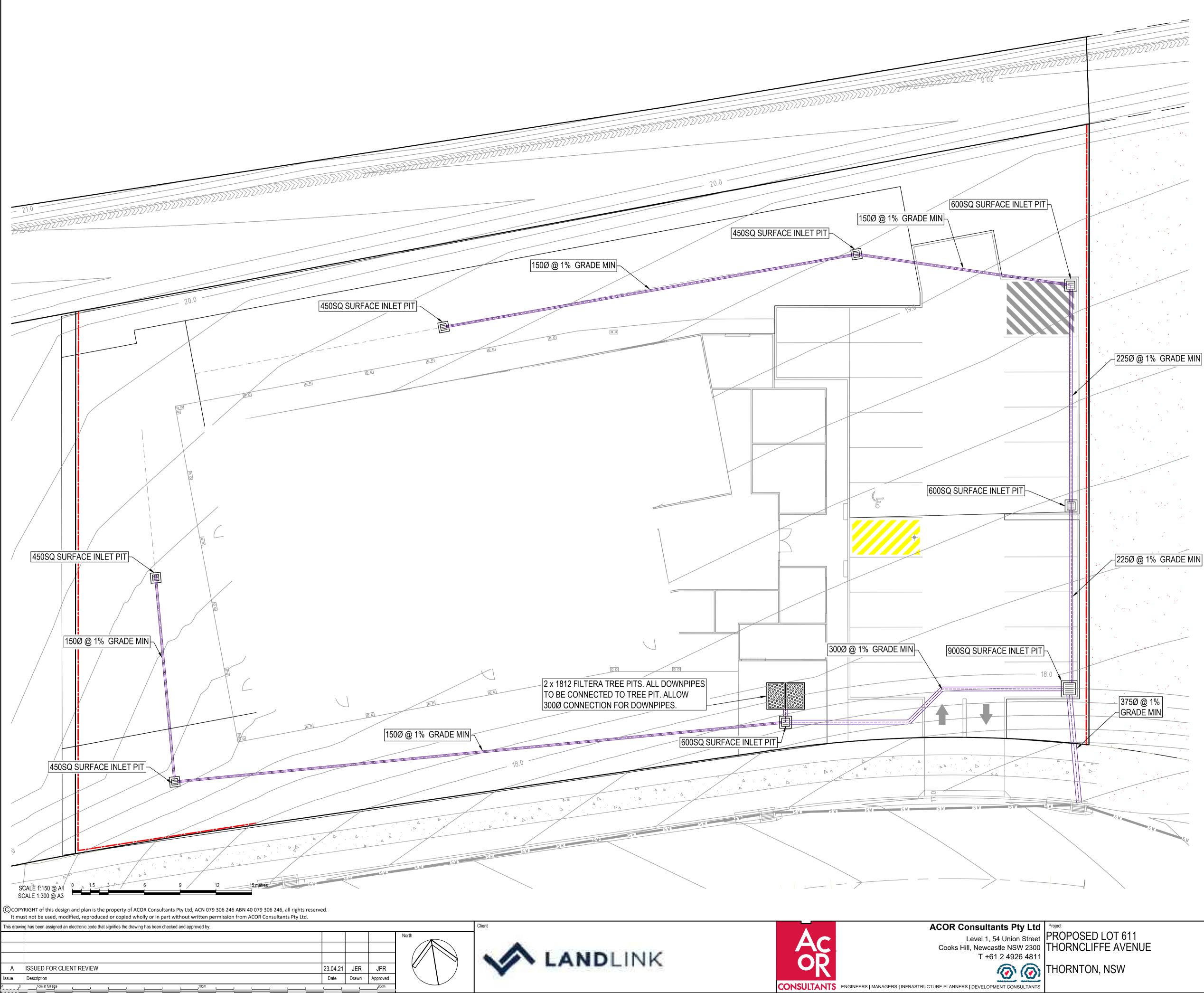
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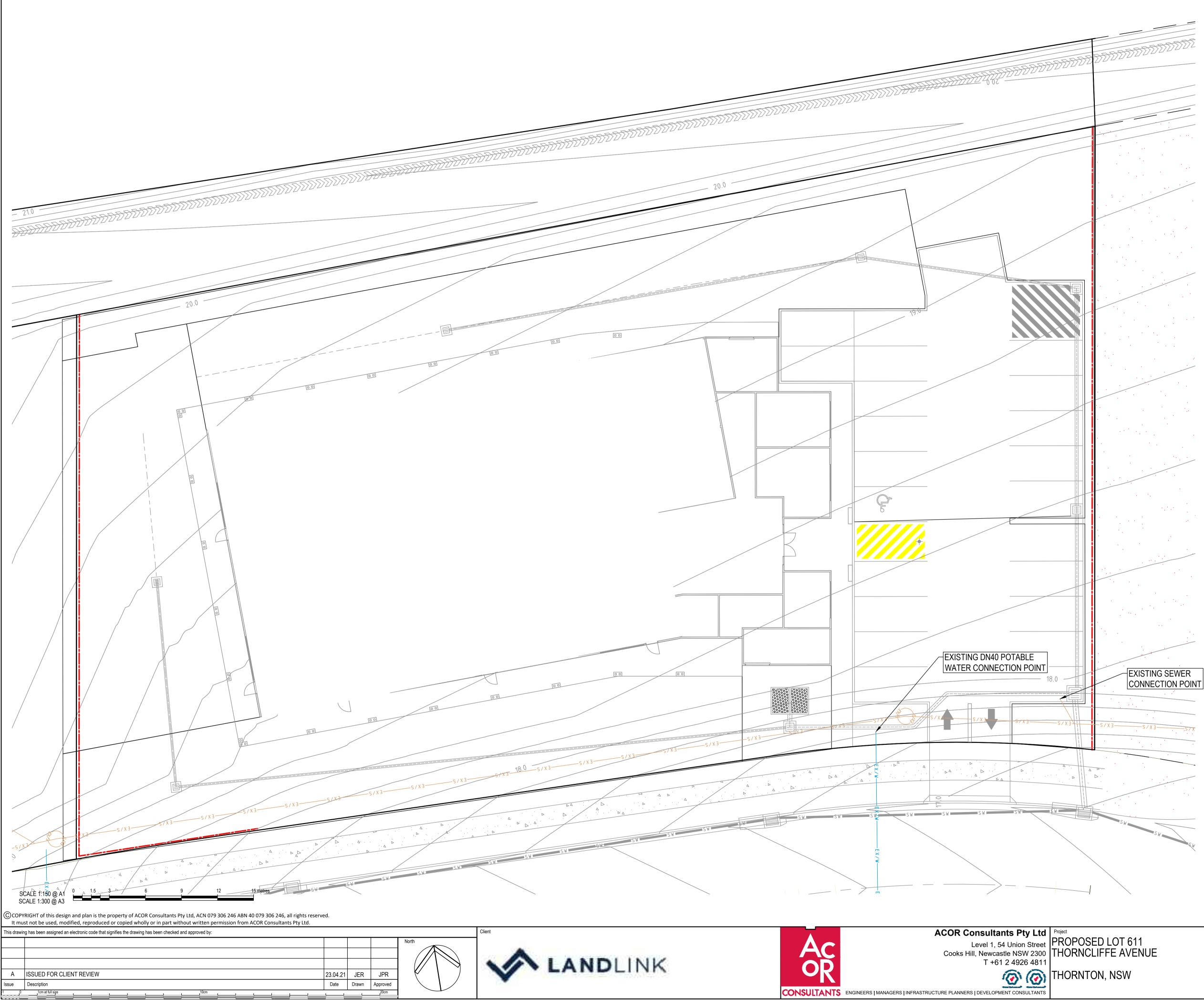
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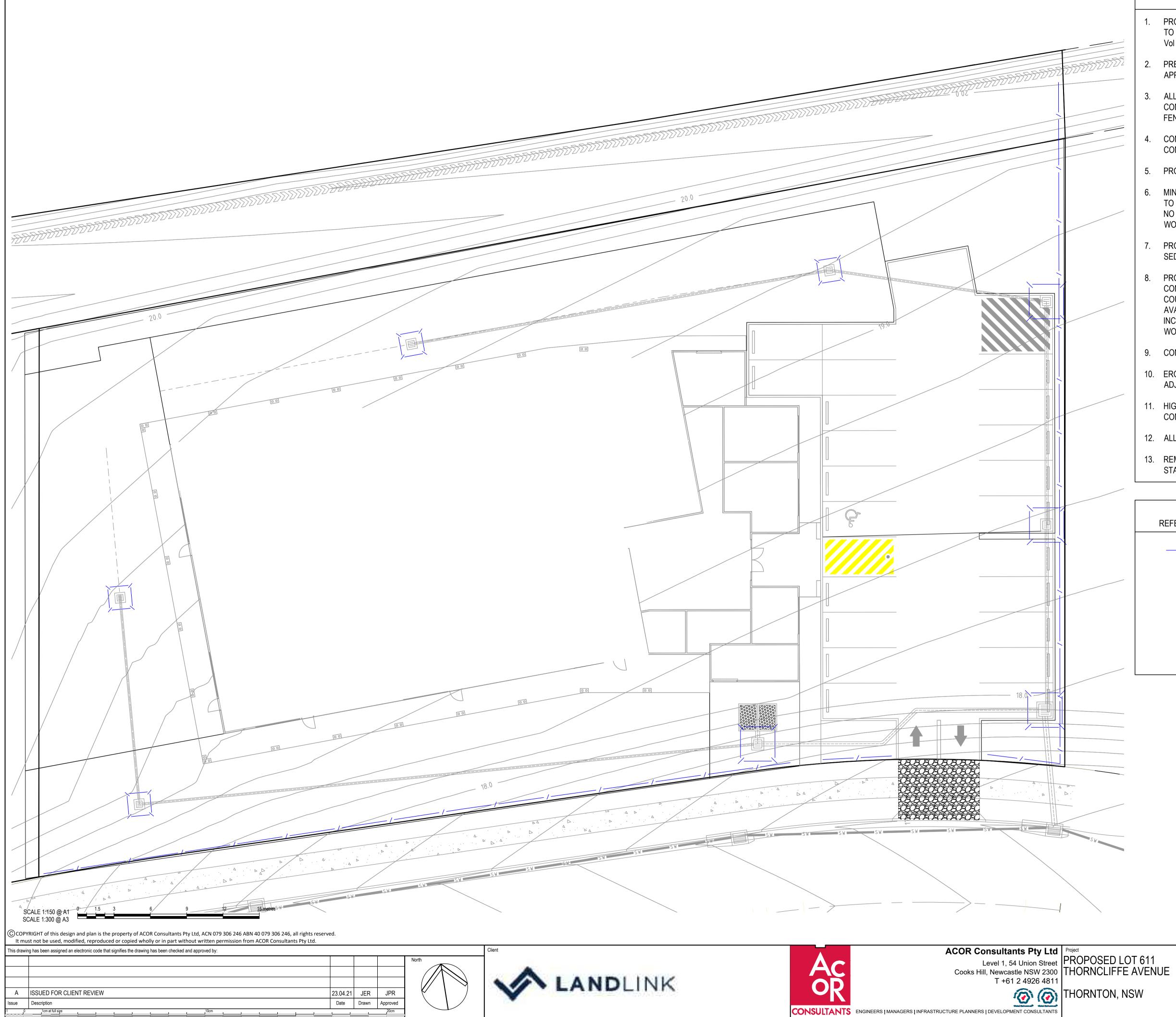
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EROSION AND SEDIMENT CONTROL NOTES

- 1. PROVIDE EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION TO COUNCIL STANDARDS AND CONFORMING TO LANDCOM SOILS & CONSTRUCTION Vol 1, 4th EDITION, MARCH 2004.
- 2. PREPARE EROSION AND SEDIMENT CONTROL PLAN AND OBTAIN COUNCIL APPROVAL PRIOR TO WORKS.
- 3. ALL PERIMETER CONTROL DEVICES ARE TO BE INSTALLED PRIOR TO WORK COMMENCING AND BE MAINTAINED DURING CONSTRUCTION. LOCATE SEDIMENT FENCE WITHIN WORKS BOUNDARY.
- CONTRACTOR TO DEFINE ACCESS, STOCKPILE AND OTHER AREAS PRIOR TO WORK COMMENCING.
- 5. PROVIDE A SINGLE POINT OF ACCESS TO THE SITE.
- 6. MINIMISE SITE DISTURBANCE AND REDUCE STOCKPILING TO A LEVEL NECESSARY TO CONSTRUCT THE WORKS. STOCKPILE AREAS, CONSTRUCTION ACCESSES AND NO GO AREAS TO BE DEFINED AND CONFIRMED PRIOR TO COMMENCEMENT OF WORK. FENCE NO GO AREAS.
- 7. PROVIDE MEASURES AT STOCKPILES TO DIVERT CLEAN WATER AND COLLECT SEDIMENT DOWNSTREAM, LOCATE STOCKPILES AWAY FROM STORMWATER FLOWS.
- 8. PROVIDE AND MAINTAIN PERMANENT GRASSING AS SOON AS POSSIBLE AFTER CONSTRUCTION, STAGE WORKS AS NECESSARY, GRASS SPECIES SHALL BE TO COUNCIL REQUIREMENTS. GRASS TURF TABLEDRAINS AND SWALES. MULCH (IF AVAILABLE FROM SITE CLEARING) AND SEED ALL OTHER DISTURBED AREAS INCLUDING TRENCHES, WHICH HAVE NOT BEEN TURFED. ON COMPLETION OF WORKS PROVIDE STRIP TURFING. SEE GENERAL NOTES.
- 9. CONTROL DUST BY WINDBREAKS, WATERING ETC.
- 10. EROSION AND SILT PROTECTION MEASURES ARE TO BE MAINTAINED AT ALL TIMES. ADJUST TO SUIT STAGING AND PROGRESS.
- 11. HIGH EROSION AREAS, INCLUDING BATTERS TO BE STABILISED WITHIN 7 DAYS OF COMPLETING OF WORKS AND EARLIER IF DIRECTED BY SUPERINTENDENT.
- 12. ALL STABILISED WORKS ARE TO BE MAINTAINED UNTIL COMPLETION OF WORKS.
- 13. REMOVE TEMPORARY MEASURES AFTER COMPLETION OF CONSTRUCTION AND STABILISATION OF WORKS.

LEGEND

REFER TO LANDCOM: SOILS AND CONSTRUCTION Vol 1, 4th EDITION, MARCH 2004							
	/	SEDIMENT FENCE TO SD 6-8					
		GEOTEXTILE INLET FILTER TO SD 6-12					
		STABILISED SITE ACCESS TO SD 6-14					

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