



DESIGN CONFIDENCE

Parramatta City Council

BCA Design Assessment Report

Parramatta Aquatic & Leisure Centre

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Project: Parramatta Aquatic and Leisure Centre
 Document Type: BCA Design Assessment Report
 Report Number: P219_520-3 (BCA) LB

The following report register documents the development and issue of this and each subsequent report(s) undertaken by Design Confidence.

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Revision History:

OUR REFERENCE	REMARKS	ISSUE DATE
P219_520-1 (BCA) LB	Report issued in DRAFT for review and comment	29 January 2020
P219_520-2 (BCA) LB	Report updated for draft SEE	20 March 2020
P219_520-2 (BCA) LB	Report finalised for DA submission	31 March 2020

EXECUTIVE SUMMARY

This BCA Design Assessment report has been prepared by Design Confidence at the request of Parramatta Council. With respect to the assessment undertaken, the following areas in particular need further review as the project develops –

NO.	ITEMS FOR FURTHER CONSIDERATION	RESPONSIBILITY
1.	<p>The following building elements and their components must be non-combustible –</p> <ul style="list-style-type: none"> i. External walls and common walls, including all components incorporated in them, including the façade covering, framing and insulation ii. The flooring and floor framing of lift pits; iii. Non-loadbearing internal walls where they are required to be fire-resisting. 	Project Architect
2.	<p>Concern is raised regarding the removal of the stairway which serves as a means of egress to the roof top / park via the plant room.</p> <p>It is understood that the fire safety engineer has advised that the removal of the stair is permissible, however we feel it is important that this matter be tested further to ensure that the removal does not pose an approval risk with FRNSW as the subject stairway would assist from a fire brigade intervention perspective.</p> <p>Notwithstanding the above, if the fire safety engineer is confident that the stairway is not required, and its removal does not pose an approval risk then no further comment will be raised around this matter.</p>	All
3.	<p>Architectural drawings are to be updated to include the following essential fire safety measures –</p> <ul style="list-style-type: none"> i. Hydrants ii. Portable fire extinguishers 	Project Architect
4.	<p>Confirmation is required to confirm if a fire brigade pumping appliance (truck) can access the booster assembly in its current location. AS2419.1-2005 requires the booster to be operable by fire brigade pumping appliances located within 8m.</p>	Project Architect
5.	<p>A test report from a Registered Testing Authority must be provided to certify that the façade / external walls achieve compliance with BCA FP1.4 and FV1.</p>	All

In addition to undertaking a detailed assessment of the design against the perspective requirements of the BCA a preliminary performance-based assessment has also been undertaken. The purpose of the assessment was to look at the incorporation of a performance-based design may add value in-lieu of complying with the prescriptive (DtS) provisions.

Table 2 on the following page lists scenarios where we believe the adoption of a performance design may add value to development –

NO.	DESIGN EFFICIENCIES	DTS CLAUSE	PERFORMANCE REQUIREMENT
FIRE SAFETY			
1.	Omission of protection from steel construction Permit steel construction in areas of low risk to not require a fire rating.	C1.1 & Specification on C1.1	CP1
2.	Extended Travel Distances Our initial assessment has indicated extended travel distances in the following areas: i. Lower Ground Floor <ul style="list-style-type: none"> travel distances of up to 45m to a point of choice in lieu of 20m ii. Ground Floor <ul style="list-style-type: none"> Travel distance of up to 104m to an exit after a point of choice in lieu of 40m Travel distance to a point of choice of 30m in lieu of 20m in storeroom located behind club office. 	D1.4	DP4, EP2.2
3.	Extended Distance Between Alternative Exits Extended distances between alternative exits of up to 183m in lieu of 60m on the ground floor. The worst case being when measuring through a point of choice adjacent to the outdoor pool.	D1.5	DP4, EP2.2
4.	Aggregate Egress Widths Aggregate egress widths there is a deficiency of 2.5m based on the preliminary plans assessed and projected population of 1754 people.	D1.6	DP4, EP2.2
5.	Non fire-isolated stairways Stairways serving mezzanine plantrooms discharge up to 96m to an exit in lieu of 40m and distance to road or open space of up to 115m in lieu of 80m.	D1.9	DP4, EP2.2
6.	Fire Hose Reels Omission of fire hose reels from development with a reliance of additional portable fire extinguishers	E1.4	EP1.1
7.	Fire Indicator Panel Fire Indicator Panel located in the main lobby is located >300mm above allotment entrance.	EP2.2 & AS1670.1-2018	EP2.2
AMENITIES			
8.	Sanitary facilities are to be assessed against the performance provisions of the BCA by benchmarking against test case buildings and population study report in lieu of DTS numbers.	F2.3	FP2.1

Be advised that the adoption of performance solutions for fire safety matters may be subject to consultation with the NSW Fire Brigade as part of the Construction Certificate process under Clause 144 of the Environmental Planning & Assessment Regulation 2000.

1.0 INTRODUCTION

1.1 General

This BCA Design Assessment report has been prepared at the request of Parramatta Council and relates to the new construction of a new Aquatic Centre consisting of a main outdoor pool, multiple indoor pools, a cafe and health centre.



Figure 1 - Artists impression

This report is based upon, and limited to, the information depicted in the documentation provided for assessment, and does not make any assumptions regarding 'design intention' or the like.

1.2 Purpose of report

The purpose of this report is to identify the extent to which the architectural design documentation complies with the prescriptive provisions of the Building Code of Australia (BCA) Volume 1, edition 2019.

1.3 Documentation Provided for Assessment

This assessment is based upon the Architectural documentation prepared by Grimshaw Architects and listed within Appendix 1.

1.4 Report Exclusions

It is conveyed that this report should not be construed to infer that an assessment for compliance with the following has been undertaken –

- (i) Work Health & Safety Act and Regulations;
- (ii) WorkCover Authority requirements;

- (iii) Structural and Services Design Documentation;
- (iv) The individual requirements of service authorities (i.e. Telecommunication Carriers, Sydney Water, Endeavour Energy);
- (v) The Disability Discrimination Act (DDA) 1992;
- (vi) The Accessibility Requirements of the BCA, as contained within D3, E3.6, F2.4 and F2.9 of the BCA;
- (vii) The Energy Efficiency Provisions of the BCA, as contained with Section J of the BCA.

2.0 DEVELOPMENT DESCRIPTION

2.1 General

In accordance with the Building Code of Australia, the assessment undertaken relates to the construction of a new aquatic and leisure centre.

For the purpose of the Building Code of Australia (BCA) the subject development may be described as contained below.

2.2 Building Description

Table 3– Building Characteristics

DESCRIPTION OR REQUIREMENT		
Building Classification	Lower Ground	Class 9b (Ancillary)
	Ground Floor	Class 5 (Staff office), Class 6 (Café) Class 9b (Aquatic and leisure),
	Mezzanines	Class 9b (ancillary plant)
	Outdoor Swimming Pool	Class 10b
Rise in Storeys	ALCP	Two (2)
Construction Type	ALCP	Type A
Effective Height	<12m	
Climate Zone:	Climate Zone 5	

Summary of the floor areas and relevant populations where applicable: -

PROPOSED AQUATIC AND LEISURE CENTRE	APPROX. FLOOR AREA (M ²)	APPROX. VOLUME (M ³)	CALCULATED POPULATION
Basement	1,155m ²	TBC	-
Ground Floor	6,545m ²	TBC	1,754
Mezzanine plant	390m ²	TBC	-

Notes:

1. The above population has been based on numbers provided by Warren Green Consulting.
2. The floor areas have been adjusted without ancillary areas such as sanitary facilities, corridors, shelving and or racking layouts in storage areas.

2.3 BCA Interpretation Notes

To provide the reader with additional context, the following information regarding the assessment methodology used in this assessment is provided below –

- (i) The plant area located in the lower ground, mezzanine and office on ground and first are directly related to the operation of the centre, hence they are an ancillary use to the principal use being a Class 9b;
- (ii) The Class 5 and Class 6 areas on the ground floor are less than 10% of the total floor area so therefore are considered to have a Class 9b classification
- (iii) The mezzanine plant areas have not been counted in the Rise in Storeys as are located on the top floor and only contain plant equipment;
- (iv) All fixtures and fittings have been treated as not being permanently fixed;
- (v) It is understood that neither solid fuel burning stoves and open fire places will not be provided;
- (vi) It is understood that fuel gas cylinders are not proposed to be provided;
- (vii) For AS1670.1, AS1670.3 and AS1670.4; notwithstanding A4.0(5) of the BCA, until 1 May 2022 either the current edition or the previous editions of the documents listed in Table 1.8 of AS1670.1, AS1670.3 and AS1670.4 may be used to meet the requirements of AS1670.1, AS1670.3 and AS1670.4 as applicable.

3.0 BCA ASSESSMENT SUMMARY

3.1 General

The following table summarises the compliance status of the architectural design in terms of each *applicable* prescriptive provision of the BCA and indicates a capability for compliance with the BCA.

Although, it should be recognised that instances exist where 'Prescriptive non-compliance' occurs, or 'design detail' is required.

Such instances should not necessarily be considered BCA deficiencies; but matters, which need to be considered by the design team and any assessment authority at relevant stages of design and/or assessment.

For those instances of either 'prescriptive non-compliance' or 'design detail', a detailed analysis and commentary is provided within Part 4.0 of this report.

3.2 Section B: Structure

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
B1.1	resistance to actions			✓
B1.2	determination of individual actions			✓
B1.4	materials and form of construction			✓

3.3 Section C: Fire Resistance

BCA CLAUSE		COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
C1.1	fire resisting construction			✓
C1.8	lightweight construction			✓
C1.9	non-combustible building elements			✓
C1.10	fire hazard properties			✓
C1.14	ancillary elements			✓
C2.2	general floor area & volume limitations			✓
C2.6	Vertical separation			✓
C2.10	separation of lift shafts			✓
C2.11	stairways and lifts in one shaft			✓
C2.12	separation of equipment			✓
C2.13	electricity supply system			✓
C3.2	protection of openings			✓
C3.4	methods of protection			✓
C3.10	openings in fire-isolated lift shafts			✓
C3.12	openings in floors and ceilings			✓

BCA CLAUSE	COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
C3.15	openings for service installation		✓
C3.16	construction joints		✓
C3.17	columns protected in lightweight construction		✓

3.4 Section D: Access & Egress

BCA CLAUSE	COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
D1.2	number exits required	✓	
D1.3	fire-isolated exits		✓
D1.4	exit travel distances	✓	
D1.5	distance between alternative exits	✓	
D1.6	dimensions of exits and paths of travel to exits	✓	
D1.9	travel by non-fire isolated stairways and ramps	✓	
D1.10	discharge from exits		✓
D1.13	number of persons accommodated		✓
D1.16	Plant rooms		✓
D1.17	access to lift pits		✓
D2.3	non fire-isolated stairways and ramps		✓
D2.7	installations in exits and paths of travel		✓
D2.8	Enclosure of space under stairs		✓
D2.9	Stairway width		✓
D2.13	goings and risers		
D2.14	landings		✓
D2.15	thresholds		✓
D2.16	balustrades		✓
D2.17	handrails		✓
D2.19	doorways and doors		✓
D2.20	swinging doors	✓	
D2.21	operation of latch		✓
D2.23	signage		✓

3.5 Section E: Services & Equipment

BCA CLAUSE	COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
E1.3 fire hydrants			✓
E1.4 fire hose reels		✓	
E1.6 portable fire extinguishers			✓
E2.2 general provisions			✓
E3.1 lift installations			✓
E3.3 warning against use of lifts			✓
E4.2 emergency lighting			✓
E4.5 exit signs			✓
E4.6 design and operation of exit signs			✓
E4.9 emergency and warning intercom system			✓

3.6 Section F: Health & Amenity

BCA CLAUSE	COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
F1.1 storm water design			✓
F1.4 external above ground membranes			✓
F1.5 roof coverings			✓
F1.6 sarking			✓
F1.7 waterproofing of wet areas			✓
F1.9 damp-proofing			✓
F1.10 damp-proofing of floors on the ground			✓
F1.11 provision of floor wastes			✓
F1.13 glazing			✓
F2.3 sanitary facilities		✓	
F2.5 construction of sanitary compartments			✓
F3.1 height of rooms and other spaces			✓
F4.4 artificial lighting			✓
F4.5 ventilation of rooms			✓
F4.8 position of water closets	✓		

3.7 Section G - Ancillary Provisions

BCA CLAUSE	COMPLIES	DOES NOT COMPLY	DESIGN DETAIL
G1.1 swimming pools			✓
G1.101 provision for cleaning windows			✓
G5.2 construction in bushfire prone areas			✓
G6.1 occupiable outdoor areas			✓

4.0 BCA DETAILED ASSESSMENT

4.1 General

With reference to the 'BCA Assessment Summary' contained within Part 3 of this report, the following detailed analysis and commentary is provided.

This commentary is formulated to enable the design documentation to be further progressed, for the purpose of evidencing the attainment of compliance with the relevant provisions of the BCA.

4.2 Section B – Structure

Cl. B1.1 The resistance of a building or structure must be greater than the most critical action effect determined by B1.2 & B1.4 of the BCA and AS/NZS 1170.0-2002.

Cl. B1.2 The structural design of the building must be determined in accordance with the varying "actions" considerations contained within this clause (i.e. permanent actions, imposed actions, wind / snow / earthquake actions).

Cl. B1.4 The structural resistance of materials and forms of construction must be determined in accordance with the following:

- Masonry - AS3700-2018
- Concrete construction - AS3600-2018
- Footings and slabs – AS2870-2011
- Steel construction - AS4100-1998 or AS/NZS 4600-2005
- Termite Risk Management - AS3660.1-2014
- Piling - AS2159-2009
- Glazed assemblies - AS2047-2014-amendments 1 & 2 (external), and/or AS1288-2006 (internal)

4.3 Section C – Fire Resistance

Cl. C1.1 The building elements are required to achieve the nominated FRLs as nominated within BCA Spec C1.1 as applicable, these FRLs have been summarised within Table A2.1 as contained within Appendix 2.

In addition to the FRLs contained within the Appendix A2 the following information details the construction methodology and concessions available to the subject building.

□ General notes

- (i) Any loadbearing internal wall and a loadbearing fire wall (including shafts) is required to be of concrete or masonry or fire-protected timber;
- (ii) A non-loadbearing internal wall required to achieve an FRL is required to be of non-combustible construction;
- (iii) A shaft which is not for the discharge of hot products of combustion and not load-bearing is required to be of non-combustible construction;

Cl.
C1.1
Cont'd

- (iv) The bottom of any shaft is required to be non-combustible and laid directly on the ground unless otherwise enclosed by construction having an FRL not less than that required for the walls; and
- (v) Building elements are required to achieve an FRL from both sides.

□ Concessions

- (i) In the storey immediately below the roof, the internal walls and internal columns other than fire walls and shaft walls need not achieve an FRL;
- (ii) A floor need not have an FRL if it is laid directly on the ground.

□ Method of attachment not to reduce the fire-resistance of building elements

The method of attaching or installing a finish, lining, ancillary element or service installation to a building element must not reduce the fire-resistance of that element to below that required.

As part of the value engineering, the project Fire Engineer has nominated an additional performance solution to permit some structural elements to be constructed of steel. This will need to be developed in consultation with the structural engineer.

Cl.
C1.8

Lightweight construction used in a wall system required to have an FRL or a lift, stairway or service shaft (refer to Spec. C1.1 above) must comply with this clause.

If lightweight construction is used for the fire-resisting covering of any steel column/s (refer to BCA Spec C1.1 above), then any void must be filled solid, to a height of not less than 1.2m above the floor.

Cl. C1.9

The following building elements and their components must be non-combustible –

- (i) External walls, including all components incorporated in them including the façade covering, framing and insulation;
- (ii) The flooring and floor framing of lift pits;
- (iii) Non-loadbearing internal walls where they are required to be fire-resisting.

Cl.
C1.10

The fire hazard properties for materials proposed to be provided have been summarised within Table A3.1 as contained within Appendix 3.

Cl. C1.14 An ancillary element must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible unless it is one of the elements permitted under this clause.

Cl. C2.2 The maximum floor area and volume limitations of a fire compartment as nominated in the deemed to satisfy provisions are as follows:

CLASSIFICATION		TYPE OF CONSTRUCTION		
		A	B	C
5, 9b or 9c aged care building	Max floor area (m ²)	8,000	5,500	3,000
	Max volume (m ³)	48,000	33,000	18,000
6, 7, 8 or 9a (except for patient care areas)	Max floor area (m ²)	5,000	3,500	2,000
	Max volume (m ³)	30,000	21,000	12,000

Based on the above, treating the lower ground and ground floors as separate compartments the development will comply with the above provisions, being less than 8,000m² and 48,000m³.

The Architect to confirm the enclosed areas of the ground floor complies with these maximum areas.

Cl. C2.12 If the lift motors or control panels are provided within a separate room, then the room is required to be separated from the remainder of the building by construction having an FRL of not less than 120/120/120 and have any doorway in that construction protected with a self-closing fire door having an FRL of not less than --/120/30.

Pump set/s for the fire hydrant system shall comply with AS2419.1-2005.

Cl. C2.13 If the main switchboard sustains emergency equipment operating in emergency mode, then the switchboard shall be separated with construction achieving an FRL of 120/120/120 or /120/120 (if non-loadbearing) and any access doorway shall be protected with a self-closing fire door having an FRL of -/120/30.

The emergency switchgear shall be separated from the nonemergency switchgear via a metal partition to minimise the spread of a fault from the non-emergency switchgear.

For the purposes of the above, emergency equipment includes pump(s) for sprinklers and fire hydrant booster pumps.

Cl. C3.2	<p>The proposed building does not appear to be closer than 6m to any adjoining building, in addition to this there is no boundary that would be considered to be a fire source feature.</p> <p>Therefore, there are no requirements for openings in external walls requiring protection in accordance with C3.4. Architect is to confirm boundary locations to ensure compliance.</p>
Cl. C3.4	<p>It is not foreseen that any openings in external walls requiring protection in accordance with the methods detailed within this clause. However, in the event that any openings in external walls require protection, they must be provided via any of the following methods -</p> <ul style="list-style-type: none"> (i) External wall-wetting sprinklers used with windows that are automatically closing or permanently fixed in the closed position; or (ii) Fire windows having an FRL --/60/- that are automatically closing or permanently fixed in the closed position; or (iii) External wall-wetting sprinklers used with doors that are self-closing or automatic closing; or (iv) Self-closing fire door having an FRL of --/60/30; or (v) Fire shutter achieving an FRL of --/60/--;
Cl. C3.10	<ul style="list-style-type: none"> (i) The doorways providing access to the lift shaft shall be protected by --/60/-- fire doors complying with AS1735.11-1986 and remain closed except when discharging or receiving passengers or goods; and (ii) Any lift call button, indicator panel or other panel located within the wall of the fire-isolated lift shaft must be backed by construction having an FRL of --/60/60 if it exceeds 35,000mm² in area.
Cl. C3.12	<p>Where a service passes through a floor required to achieve an FRL, that service is required to be protected by either a shaft which has been constructed in accordance with BCA Spec C1.1 (listed above) or in accordance with C3.15 (see below).</p>
Cl. C3.15	<p>Any opening(s) for service(s) (electrical, mechanical, plumbing, etc) that penetrate a building element which is required to be of fire-resisting construction is required to be protected (i.e. fire seal).</p>
Cl. C3.16	<p>Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a manner identical with a prototype tested in accordance with AS1530.4-2005 to achieve the required FRL.</p>

Cl. C3.17	Where a column protected by lightweight construction to achieve the required FRL defined by BCA Spec C1.1 (listed above) passes through a building element that is also required to have an FRL it must be installed using a method and materials identical with the prototype assembly of the construction which has achieved the required FRL.
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4.4 Section D – Access & Egress

Cl. D1.2	<p>The ground floor is required to have a minimum number of two exits due to the number of occupants.</p> <p>The lower ground floor only required a single exit given the occupancy will be less than 50.</p>
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Cl. D1.3	Fire-isolated stairs are not required within the building given the there are no internal stairs connecting more than 2 consecutive storeys.
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Cl. D1.4	<p>The locations of the proposed exits demonstrate that the travel distances to exits and points of choice to alternative exits are not within the required limitations.</p>
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The travel distances to exits should not exceed:

Class 5-9

- (i) 20m to a single exit or point of choice and where two exits are provided, a maximum of 40m to one of those exits; and
- (ii) exits shall be located to not be more than 60m apart and not closer than 9m

Our initial assessment has indicated the following travel distances:

Lower Ground Floor

- travel distances of up to 45m to a point of choice in lieu of 20m

Ground Floor

- Travel distance of up to 104m to an exit after a point of choice in lieu of 40m.
- Travel distance to a point of choice of 30m in lieu of 20m in storeroom located behind club office.

With respect to the above BCA DtS variation, the following options for resolution are provided –

- (i) Reconfigure floor plates to afford DTS travel distances; or
- (ii) Pursue a BCA Performance Solution / Fire Engineering Report which justifies that the current design complies with the relevant Performance Requirements.

Cl. D1.5 Exits shall be located to not be more than 60m apart and not closer than 9m.

Based off the preliminary floor plans, there are extended distances between exits of up to 183m in lieu of 60m. The worst case being when measured through a point of choice adjacent to the outdoor pool.

With respect to the above BCA DTS variation, the following options for resolution are provided –

- (i) Reconfigure floor plate to afford DTS distance between alternative exits; or
- (ii) Pursue a BCA Performance Solution / Fire Engineering Report which justifies that the current design complies with the relevant Performance Requirements.

Cl. D1.6 Based upon the projected population the aggregate exit width for each storey is as follows –

STOREY	POPULATION	AGGREGATE EXIT WIDTH REQUIRED	AGGREGATE EXIT WIDTH PROVIDED
Lower Ground Floor	<100	1.0m	>1m
Ground Floor	1754	12.5m	10m
Mezzanine	<100	1m (from each)	1m

Table 1 – Exit width

With respect to the above the following information is provided to assist with the ongoing development of the design, specifically the ground floor and level 1.

- (i) Where used by the public the required exit or the path of travel to an exit must not be less than 1m or more than 3m;
- (ii) Where used by the public the unobstructed width of each doorway must not be less than 1m or more than 3m (doors used by the public cannot be reduced by 250mm, hence 850mm clear is not acceptable in this instance);

Where one or more paths of travel merge, the width of the combined path of travel must be not less than the sum of the *required* widths of those paths of travel;

- (iii) The required widths of the paths of travel connecting the exits from the building to a public road or open space must not diminish in combined width until such time they reach open space or a road.
- (iv) At least half of the required number exits from each storey and at least half of the aggregate width of such exits must discharge through exits other than through the main entrance or the area immediately adjacent to the main entrance of the building.

<p>Cl. D1.6 Cont'd</p>	<p>As noted in table 1 there is a deficiency of 5.9m on the preliminary plans assessed. With respect to the above BCA DTS variation, the following options for resolution are provided –</p> <ul style="list-style-type: none"> (i) Reconfigure floor plates to afford DTS aggregate egress widths; or (ii) Pursue a BCA Performance Solution / Fire Engineering Report which justifies that the current design complies with the relevant Performance Requirements.
<p>Cl. D1.9</p>	<p>Based off our preliminary assessment the building is not provided with any internal stairs between the lower ground and ground levels. If any non-fire isolated stairs are provided they must provide a continuous means of travel by its own flights and landings at every storey served to the level at which egress to a road or open space is provided.</p> <p>The distance from any point on the floor to a point of egress to a road or open space by way of a required non-fire-isolated stairway must not exceed 80m.</p>
<p>Cl. D1.10</p>	<p>For compliance to be determined with this clause, this office requires the proposed landscaping drawings which include provision of hard standing areas (pathways and the like).</p> <p>Once received, this office will provide advice relating to the –</p> <ul style="list-style-type: none"> (i) Required widths of external pathways; and (ii) Which external pathways need to be accessible for the purpose of persons with a disability.
<p>Cl. D1.13</p>	<p>Reference should be made to the projected / proposed occupant loads detailed within Section 2.3.</p> <p>Following advice from the client the proposed population numbers at any one time has been assessed as:</p> <ul style="list-style-type: none"> (i) Participants of pool/ gym – 1036 (50/50 split male female) (ii) Spectators - 1036 (50/50 split male female) (iii) Staff – 40 (50/50 split male female) <p>The overall number of 2,073 has been taken from a population report prepared by Warren Green Consulting. The client / end user is to be provide confirmation that the numbers specified are true and correct.</p>
<p>Cl. D1.17</p>	<p>Access into the lift pit must be through the lift landing doors provided on the lowest level.</p>

Cl. D2.3 Stairways are required to be constructed in accordance with the following –

- (i) Reinforced or prestressed concrete; or
- (ii) Steel in no part less than 6m thick; or
- (iii) Timber that has a finished thickness of not less than 44mm, has an average density of not less than 800kg/m³ at a moisture content of 12% and has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue.

Cl. D2.7 Gas or other fuel services must not be installed within the required exit.

Any services or equipment (being electrical meters, distribution boards or the like) installed within the path of travel are to be enclosed by non-combustible construction or a fire-protective covering with doorways or openings suitably sealed against smoke spreading from the enclosure.

Cl. D2.9 A *required* stairway or ramp that exceeds 2 m in width is counted as having a width of only 2m unless it is divided by a handrail or barrier continuous between landings and each division has a width of not more than 2m.

At this stage no ramps within the building are proposed to be over 2m in width.

Cl. D2.13 The going, riser and steepness dimension of the stairways must be designed within the following range.

RISER (R)		GOING (G)		SLOPE RELATIONSHIP (2R+G)	
Max	Min	Max	Min	Max	Min
190	115	355	250	700	550

The risers and goings are to be constant throughout the flight and the stair treads must also have a surface or nosing strip achieving a slip-resistance classification of P3 in dry and P4 in the wet tested in accordance with AS4586-2013.

Cl. D2.14 Stair landings are to be a minimum of 750mm long and have a non-slip finish and a gradient not steeper than 1:50.

The surface or strip must achieve a slip-resistance classification of P3 in dry and P4 in wet tested in accordance with AS4586-2013.

Cl.
D2.15

❑ Internal Doorways

- (i) The threshold of any doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf.

❑ External Doorways

- (i) The threshold of the external doorways leading from the foyer on ground floor & lower ground floor must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf greater than 50mm; and
- (ii) All other doorways can incorporate a step or ramp 190mm above the finished surface of the ground, this includes the balconies.

Cl.
D2.16

Balustrades must be constructed as follow -

- (i) To a height not less than 865mm above the nosings of the stair treads or the floor of a ramp and to a height of 1000mm above the floor of any access path, balcony, landing or the like;
- (ii) Any opening does not permit a 125mm sphere to pass through it and for stairs, the space is measured above the nosings;
- (iii) For floors more than 4000mm above the surface beneath, any horizontal or near horizontal elements between 150mm and 760mm must not facilitate climbing; and
- (iv) For balustrades in fire isolated stairways used primarily for emergency purposes openings between balustrades can be up to 300mm; or where rails are used, the bottom rail must be a maximum of 150mm above the stair nosings line or from the landing floor and the opening between rails must not be more than 460mm.

Cl.
D2.17

Handrails must be fixed at a height of not more than 865mm measured above the nosings of the stair treads, ramp or landing and shall be continuous such that no obstruction on or above them will tend to break a hand hold.

Cl.
D2.19

A doorway serving as a required exit or forming part of a required exit –

- (i) Must not be fitted with a revolving door;
- (ii) Must not be fitted with a roller shutter or tilt-up door unless –
 - It serves the Class 6 part with a floor area not more than 200m²; and
 - The doorway is the only required exit from the building or part; and
 - It is held in the open position while the building part is lawfully occupied; and

Cl.
D2.19
Cont'd

- (iii) Must not be fitted with a sliding door unless –
 - It leads directly to a road or open space; and
 - The door is able to be opened manually under a force of not more than 110N; and
- (iv) If fitted with a door which is power-operated –
 - It must be able to be opened manually under a force of not more than 110N if there is a malfunction or failure of the power source; and
 - If it leads directly to a road or open space it must open automatically if there is a power failure to the door or on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door.

Cl.
D2.21

Any door in a required exit, forming part of a required exit or in the path of travel to a required exit are required to be readily operable without a key from the side that faces a person seeking egress and:

- (i) By a single hand pushing or downward action on a single device located between 900mm and 1100mm from the floor;
 - Be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and
 - Have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35mm nor more than 45mm; or
 - A single hand pushing action on a single device which is located between 900mm and 1.2m above the floor.
- (ii) Where the latch operation device referred to above is not located on the door leaf itself –
 - Manual controls to power-operated doors must be at least 25mm wide, proud of the surrounding surface and located-
 - Not less than 500mm from an internal corner; and
 - For a hinged door, between 1m and 2m from the door leaf in any position; and
 - For a sliding door, within 2m of the doorway and clear of a surface mounted door in the open position
 - Braille and tactile signage complying with Clause 2 and 6 of Specification D3.6 must identify the latch operation.
- (iii) Fitted with a fail-safe device which automatically unlocks the door upon the activation of any detection system deemed suitable in accordance with AS1670.1-2018 installed throughout the building.

4.5 Section E – Services & Equipment

Cl. E1.3	<p>A fire hydrant system complying with AS2419.1-2005 is required to serve the building.</p> <p>The current location of the booster is located next to the main pedestrian entrance. Confirmation is required to confirm if a fire brigade pumping appliance (truck) is able to access the booster assembly in its current location. AS2419.1-2005 requires the booster to be operable by fire brigade pumping appliances located within 8m.</p>
Cl. E1.4	<p>A hose reel system complying with AS2441-2005 is required to serve the building, including:</p> <ul style="list-style-type: none"> (i) Hose reels are required to be located within 4m of an exit; and (ii) All points on a floor are required to be in reach of a 4m hose stream at the end of a 36m hose length laid on the floor; (iii) Additional hose reels can be installed along the path of travel where additional coverage is required.
Cl. E1.6	<p>Portable extinguishers must be provided in accordance with Table E1.6 to cover risk classes throughout the building.</p> <p>Portable fire extinguishers complying with AS2444-2001 are required as follows:</p> <ul style="list-style-type: none"> (i) To cover Class B (if more than 50L excluding vehicle fuel tanks is stored); and (ii) To cover Class AE or E fire risks associated with emergency service switchboards; and (iii) To cover Class F fire risks involving cooking oils and fats in kitchens.
Cl. E2.2	<p>Automatic shutdown of any air handling system (other than non-ducted individual room units with a capability not more than 1000l/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS/NZS1668.1) on activation of smoke detectors complying with Clause 6 of Specification of E2.2a.</p> <p>The building is not required to be provided with any automatic smoke exhaust system or smoke and heat vents given the building is a sporting complex.</p>
Cl. E3.1	<p>The electric passenger lift installation or an electrohydraulic passenger lift installation shall comply with this clause.</p>
Cl. E3.3	<p>Warning signage "DO NOT USE LIFTS IF THERE IS A FIRE" will be required adjacent every lift call button with dimensions as detailed in this clause.</p>

- | | |
|----------|--|
| Cl. E4.2 | Emergency lighting is required in accordance with AS2293.1-2005 throughout the building. |
| Cl. E4.5 | Exit signage complying with AS2293.1-2018 are required installed above or adjacent to any doorways serving as required exits from the building and final doors from stairways. |
| Cl. E4.6 | If an exit is not readily apparent to persons occupying or visiting the building, then exit signs complying with AS2293.1-2005 must be installed in appropriate positions in corridors, hallways, lobbies and the like, indicating the direction to a required exit. |
| Cl. E4.9 | An emergency and warning intercom system for emergency purposes complying with AS1670.4-2018 is required to serve the building. |

4.6 Section F – Health & Amenity

- | | |
|-----------|---|
| Cl. F1.0 | A test report from a Registered Testing Authority must be provided to certify that the façade / external walls achieve compliance with BCA FP1.4 and FV1. |
| Cl. F1.1 | Stormwater drainage must comply with AS/NZS3500.3-2003. |
| Cl. F1.4 | Waterproofing membranes for external above ground use (i.e. balconies and roof) must comply with AS4654-2012. |
| Cl. F1.5 | Metal roof sheeting must comply with AS1562.1-1992. |
| Cl. F1.6 | Any Sarking-type materials used for weatherproofing of roofs and walls must comply with AS/NZS4200-1994. |
| Cl. F1.7 | Building elements in wet areas must be water-resistant or waterproof in accordance with Table F1.7 and comply AS 3740-2010. |
| Cl. F1.9 | Damp-proof courses must consist of a material complying with AS/NZ2904-1995 or an impervious termite shield complying with AS3660.1-2000. |
| Cl. F1.10 | A floor laid directly onto ground or fill must be provided with a vapour barrier complying with AS2870-2011. |
| Cl. F1.13 | Refer to B1.4 (above) for glazing requirements. |
| Cl. F2.3 | <p>Sanitary facilities are proposed to be assessed against the performance provisions of the BCA, rather than against the DtS provisions. A performance solution report will need to be prepared to assess and form part of the Construction Certificate application.</p> <p>Notwithstanding this please refer to Appendix 5 as it details our preliminary assessment against the DtS provisions.</p> <p>At least one shower is to be provided or each 10 participants or part thereof.</p> |

Cl. F2.5	<p>(i) The door to a full enclosed sanitary compartment must –</p> <ul style="list-style-type: none"> ▪ Open outwards; or ▪ Slide; or ▪ Be readily removable from the outside of the sanitary compartment (i.e. lift-off hinges) <p>Unless there is a clear space of at least 1.2m between the closet pan within the sanitary compartment and the hinge side edge of the doorway.</p> <p>(ii) The doors and partitions that separate adjacent sanitary compartments must extend 1.8m above the floor.</p>
Cl. F3.1	<p>Unobstructed ceiling heights are required as follows –</p> <p>(iv) A bathroom, sanitary facilities, tea preparation room, store room, car parking areas or the like – 2.1m;</p> <p>(v) A corridor, passageway or the like – 2.1m;</p> <p>(vi) Above a stairway, ramp, landing or the like – 2m;</p> <p>(vii) A corridor and part that serves / accommodates not more than 100 persons – 2.4m;</p> <p>(iii) A corridor and part that serves / accommodates more than 100 persons – 2.7m.</p>
Cl. F4.4	Where complaint natural lighting is not provided, artificial lighting is to be installed in accordance with AS/NZS1680.0-2009.
Cl. F4.5	<p>Any habitable room, sanitary compartment, bathroom, laundry and any other room occupied by a person for any purpose must have either –</p> <p>(i) Natural ventilation (i.e. opening(s) having an openable area of 5% of the room being served); or</p> <p>(ii) Mechanical ventilation complying with AS1668.2-2012.</p>

4.8 Section G – Ancillary Provisions

Cl. G1.1	A water reticulation system in the swimming pool with a depth of water more than 300mm must comply with AS1926.3.
Cl. G5.2	If the building is located in a designated bushfire prone area, the building must comply with AS3959-2018.

Cl. G6.1 The ground floor area surrounding the outdoor swimming pool open to the sky has been assessed as an occupiable outdoor area under this clause.

Any occupiable outdoor area more than 10m² is to be provided with the following applicable provisions as detailed in Part G6 –

- (i) The fire hazard properties of linings, materials or assemblies must comply with C1.10 as for an internal element, excluding properties identified in G6.2(b);
- (ii) Provision for escape, as for Part D1;
- (iii) Firefighting equipment, as for Part E1;
- (iv) Visibility in an emergency, exit signs and warning systems, as for Part E4;
- (v) Light and ventilation, as for F4.4, F4.8 and F4.9.

5.0 CONCLUSION

5.1 General

Based upon our detailed review of the proposed architectural drawings, it is the opinion of this office that the subject development is capable of complying with the performance provisions of the BCA.

Compliance would be achieved via a mixture of adopting a performance-based approach as well as complying with the relevant deemed-to-satisfy requirements as outlined within the BCA, compliance via the performance-based approach could occur without significant changes to the proposed design.

The details of the proposed performance solutions are subject to the outcome of the fire engineering brief and analysis which will be carried out in accordance with the International Fire Engineering Guidelines.

The performance solutions for the building will be developed as part of the ongoing design and consultation with the design team.

Report By



Lindsay Beard
Associate | Building Regulations
For Design Confidence (Sydney) Pty Ltd

Verified By



Luke Sheehy
Principal
For Design Confidence (Sydney) Pty Ltd

APPENDIX 1

The BCA Design Assessment was based upon the architectural documentation prepared by Grimshaw Architects, namely –

DESCRIPTION	DRAWING NUMBER	REVISION	DATE
Site Plan	A02 1001	2	06.02.2020
Lower Ground	A03 1001	2	06.02.2020
Ground Floor	A03 1002	2	06.02.2020
Mezzanine	A03-1003	2	06.02.2020
Roof	A03 1004	2	06.02.2020
Carpark	A03 1005	2	06.02.2020
Elevations	A06-1001	2	06.02.2020
Sections	A07 1001	2	06.02.2020

APPENDIX 2

The Table below represents the Fire Resistance Levels (FRLs) required in accordance with BCA 2019:

Table A1 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS

BUILDING ELEMENT	CLASS OF BUILDING — FRL: (IN MINUTES)			
	STRUCTURAL ADEQUACY/INTEGRITY/INSULATION			
	2, 3 OR 4 PART	5, 7A OR 9	6	7B OR 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any <i>fire-source feature</i> to which it is exposed is—				
For loadbearing parts—				
less than 1.5 m	90/ 90/ 90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/ 60/ 60	120/ 90/ 90	180/180/120	240/240/180
3 m or more	90/ 60/ 30	120/ 60/ 30	180/120/ 90	240/180/ 90
For non-loadbearing parts—				
less than 1.5 m	–/ 90/ 90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/ 60/ 60	–/ 90/ 90	–/180/120	–/240/180
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an <i>external wall</i> , where the distance from any <i>fire-source feature</i> to which it is exposed is—				
less than 3 m	90/–/–	120/–/–	180/–/–	240/–/–
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS—				
<i>Fire-resisting lift and stair shafts—</i>				
<i>Loadbearing</i>	90/ 90/ 90	120/120/120	180/120/120	240/120/120
<i>Non-loadbearing</i>	–/ 90/ 90	–/120/120	–/120/120	–/120/120
<i>Bounding public corridors, public lobbies and the like—</i>				
<i>Loadbearing</i>	90/ 90/ 90	120/–/–	180/–/–	240/–/–
<i>Non-loadbearing</i>	–/ 60/ 60	–/–/–	–/–/–	–/–/–
<i>Between or bounding sole-occupancy units—</i>				
<i>Loadbearing</i>	90/ 90/ 90	120/–/–	180/–/–	240/–/–
<i>Non-loadbearing</i>	–/ 60/ 60	–/–/–	–/–/–	–/–/–
<i>Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion—</i>				
<i>Loadbearing</i>	90/ 90/ 90	120/ 90/ 90	180/120/120	240/120/120
<i>Non-loadbearing</i>	–/ 90/ 90	–/ 90/ 90	–/120/120	–/120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS—				
	90/–/–	120/–/–	180/–/–	240/–/–
FLOORS	90/ 90/ 90	120/120/120	180/180/180	240/240/240
ROOFS	90/ 60/ 30	120/ 60/ 30	180/ 60/ 30	240/ 90/ 60

APPENDIX 3

The table below represents the fire hazard properties for building materials applicable to this development.

FLOOR LININGS AND FLOOR COVERINGS CRITICAL RADIANT FLUX (CRF IN KW/M2)	
Non-Sprinkler Protected Areas	2.2
Sprinkler Protected Areas	1.2
Fire-Isolated Exits & Fire Control Rooms	1.2
Lift Cars	2.2
WALL LININGS AND CEILING LININGS TESTED TO AS5637.1	
Fire-Isolated Exits & Fire Control Rooms	Group 1
Public Corridors – Walls	Group 1 or 2
Public Corridors – Ceilings	Group 1 or 2
Specific Areas – Walls	Group 1, 2 or 3
Specific Areas – Ceilings	Group 1, 2 or 3
Other Areas – Walls	Group 1, 2 or 3
Other Areas – Ceilings	Group 1, 2 or 3
Lift Cars	Group 1 or 2
NOTE	<p>In addition to achieving the group number above they too must comply with the following –</p> <ul style="list-style-type: none"> a smoke growth rate index not more than 100; or an average specific extinction area less than 250m²/kg
OTHER MATERIALS OR ASSEMBLIES	
Fire-Isolated Exits & Fire Control Rooms	Spread-of Flame Index 0 Smoke-Developed Index 2
Non-fire-isolated stairs & escalators and auditorium fixed seating	Spread-of Flame Index 0 Smoke-Developed Index 5
Sarking-type material	Flammability Index 0 (fire control rooms) Flammability Index 5 (other areas)
Other materials	Spread-of Flame Index 9 Smoke-Developed Index 8 (if the Spread-of Flame Index is more than 5)

APPENDIX 4

The proposed fire safety measures are to be provided throughout the building-

FIRE SAFETY MEASURES	PROPOSED STANDARD OF PERFORMANCE
Emergency Lighting	BCA 2019 E4.2, E4.4 & AS/NZS2293.1-2005
Exit signs	BCA 2019 E4.5, E4.6 (NSW), E4.8 & AS/NZS2293.1-2005
Fire Hydrant System	BCA 2019 E1.3 & AS2419.1-2005
Fire Hose Reel System	BCA 2019 E1.6 & AS2444.1-2005 & Fire Engineering Report prepared by Wood and Grieves
Mechanical Air Handling System (Automatic shut-down) – if any system installed is over 1,000L/s	BCA 2019 Clause E2.2, AS/NZS 1668.1 – 2015 & Fire Engineering Report prepared by Wood and Grieves
Paths of travel	EP&A Reg 2000 Clause 186 & Fire Engineering Report prepared by Wood and Grieves
Portable Fire Extinguishers	BCA 2019 E1.6 & AS2444-2001

APPENDIX 5

The number of required (DtS) sanitary facilities is set out below in Table A2 –

Table A2 – Required Sanitary Facilities

OCCUPANT POPULATION NUMBER				WC REQUIRED / PROVIDED		URINAL REQUIRED / PROVIDED		BASIN REQUIRED / PROVIDED	
Patrons - Participants	877	Male	438	22	22	44	0	44	21
		Female	438	44	25	n/a	n/a	44	23
Patrons – Spectators	877	Male	438	2	1	5	0	3	0
		Female	438	8	0	n/a	n/a	4	
Employees	40	Male	20	1	1	1	1	1	2
		Female	20	2	2	n/a	n/a	1	2
Showers		877 people		88 Showers required					

The above includes the following -

- The above facilities has been calculated off a 50% split of the population between participants and spectators
- The unisex accessible sanitary facility has been counted once for each sex
- The two pans and basins adjoining the multi-purpose community space have been nominated as female toilets

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Appendix 8: Landscape Plan

DRAWING INDEX	
LD-SK-00	Cover Page
LD-SK-01	Landscape Masterplan
LD-SK-02	Western Entry Plaza
LD-SK-03	Ring Walk & Verandah
LD-SK-04	The Park
LD-SK-05	Section A - B
LD-SK-06	Section C - D
LD-SK-07	Section E - F
LD-SK-08	Planting Palette
LD-SK-09	Planting Palette
LD-SK-10	Planting Palette



IMAGE BY ABA

**MCGREGOR
COXALL**

LANDSCAPE ARCHITECTURE
URBANISM
ENVIRONMENT
BIOCITY RESEARCH

SYDNEY
MELBOURNE
SHENZHEN
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Client
Parramatta City Council

Project Team
ABA + Grimshaw

Project Name
ALC Parramatta

Project No.
0807SYD

Address
Parramatta Park

Phase
Development Application

Sheet Title
Cover Page

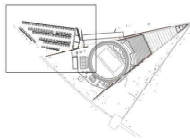
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LD-SK-00

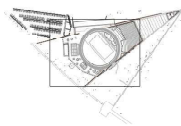
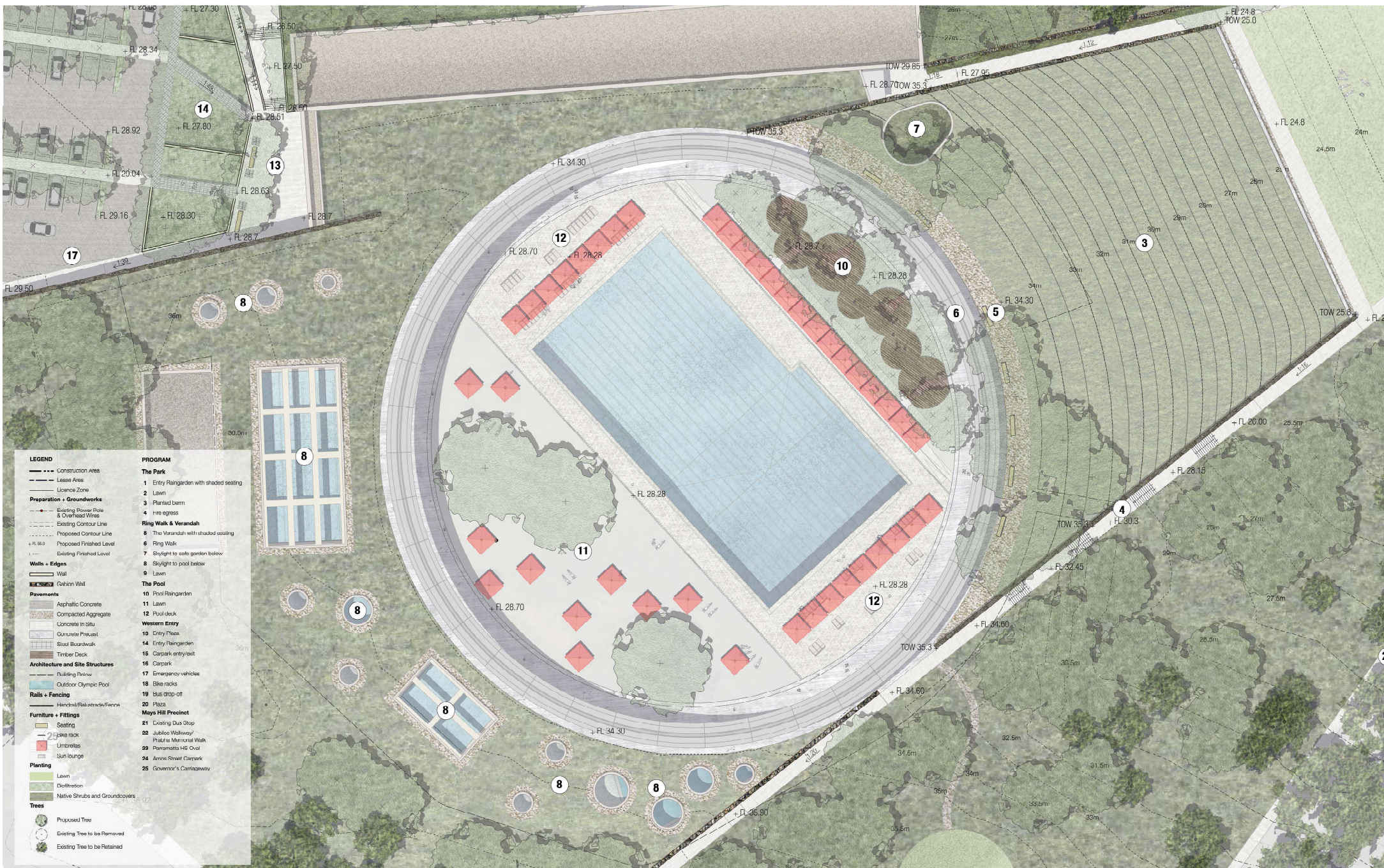
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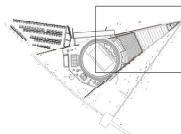


LEGEND	
	Construction Area
	Lease Area
	Licence Zone
Preparation + Groundworks	
	Existing Power Pole & Overhead Wires
	Existing Contour Line
	Proposed Contour Line
	Proposed Finished Level
	Existing Finished Level
Walls + Edges	
	Wall
	Gashin Wall
Pavements	
	Asphaltic Concrete
	Compacted Aggregate
	Concrete in Situ
	Curbstone Paveable
	Stool Boardwalk
	Timber Deck
Architecture and Site Structures	
	Building Footprint
	Outdoor Olympic Pool
Rails + Fencing	
	Handrail/Rail straddle/Fence
Furniture + Fixings	
	Seating
	Bike rack
	Umbrellas
	Sun lounge
Planting	
	Lawn
	Dioffretion
	Native Shrubs and Groundcovers
Trees	
	Proposed Tree
	Existing Tree to be Removed
	Existing Tree to be Retained

PROGRAM	
The Park	
1	Entry Ringgarden with shaded seating
2	Lawn
3	Planted berm
4	Fire access
Ring Walk & Verandah	
6	The Verandah with shaded seating
7	Ring Walk
8	Daylight to safe garden below
9	Daylight to pool below
10	Lawn
The Pool	
11	Pool Ringgarden
12	Lawn
13	Pool deck
Western Entry	
14	Entry Plaza
15	Entry Ringgarden
16	Carpark entry/exit
17	Carpark
18	Emergency vehicles
19	Bike racks
20	Bus drop-off
21	Plaza
Mays Hill Precinct	
22	Existing Dux Oval
23	Jubilee Walkway/Prattis Memorial Walk
24	Parramatta HS Oval
25	Amos Street Carpark
26	Governor's Carriageway









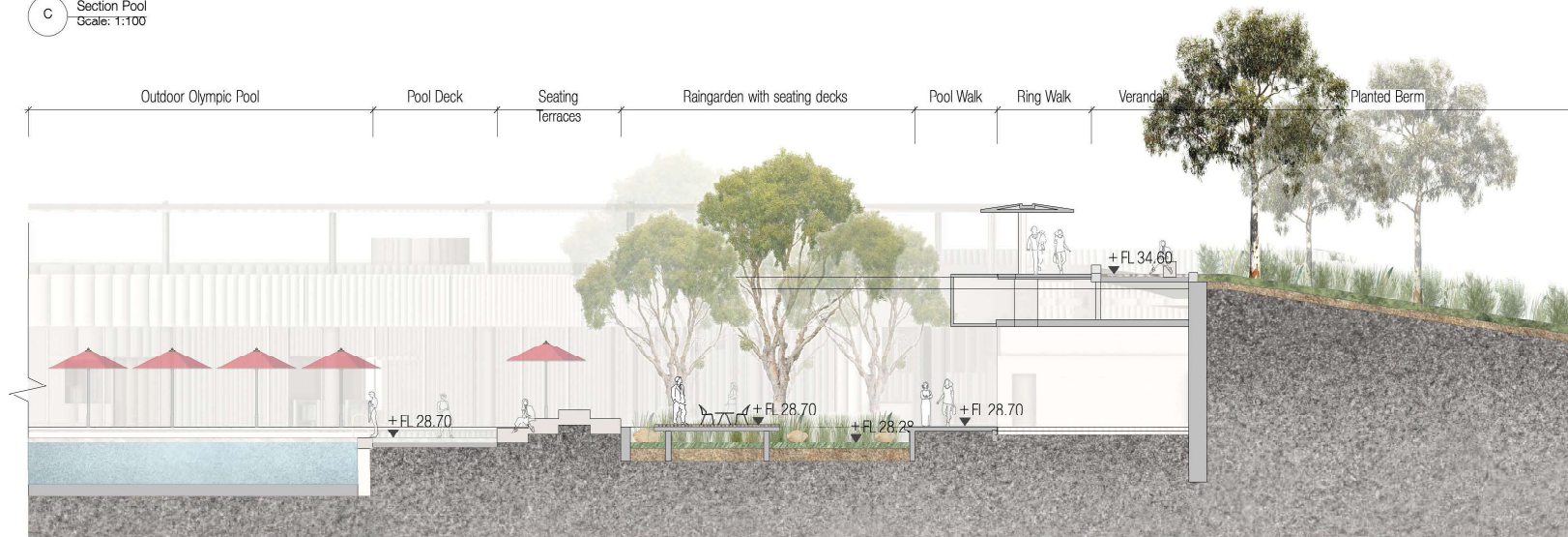
A Planted Berm
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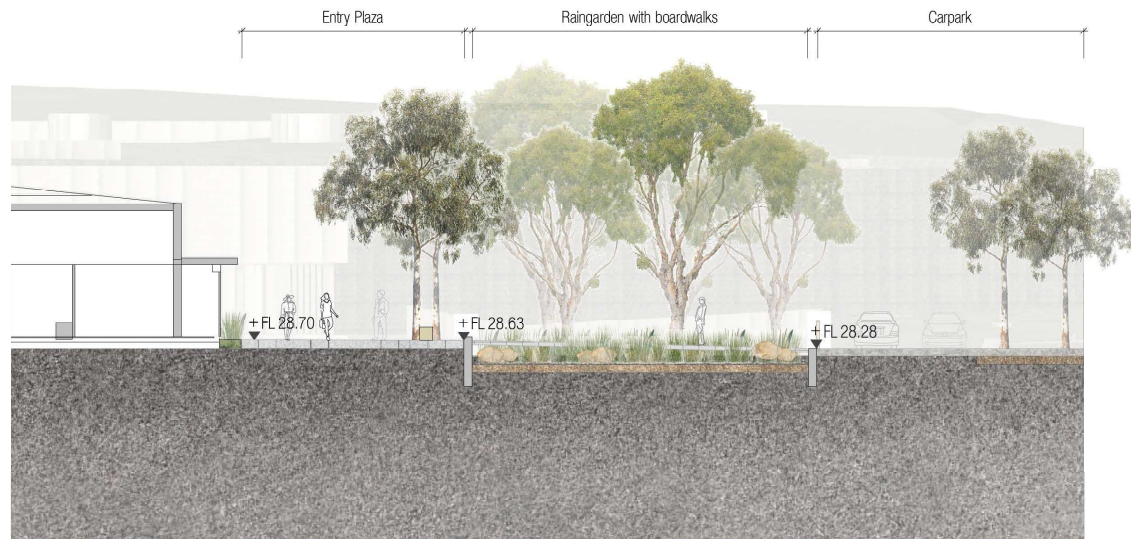
B Entry Lawn & Raingarden
Scale: 1:100



C Section Pool
Scale: 1:100



D Section Pool
Scale: 1:100



E Carpark Raingarden
Scale: 1:100



F Eastern Entry Path
Scale: 1:100

Name	SPRING			SUMMER			AUTUMN			WINTER			Fauna/ feature
	early	mid	late	early	mid	late	early	mid	late	early	mid	late	
Tree													
Acacia decurrens Early Black Wattle, Sydney Green Wattle													
Acacia implexa Hylomud, Wierpitum, Hylom, Hylom wattle													
Angophora floribunda Rough barked Apple													
Banksia ciliolata Lemon Scented Myrtle													
Casuarina cunninghamiana River Gum													
Casuarina glauca Gray Swamp Sheoak													
Elaeocarpus eumundii Smooth leaved Guandong													
Eucalyptus amplifolia Cabbage Gum													
Eucalyptus crebra Narrow leaved Ironbark													
Eucalyptus eugenioides Thicket leaved Stringybark													
Eucalyptus fibrosa Broad leaved Ironbark, Red Ironbark													
Eucalyptus moluccana Gray Box													
Eucalyptus torricornis Fossil Red Gum, Bunting gum													
Livistona australis Cabbage Tree Palm/Tan Palm													

0807SY2 PARIA AQUATIC

Name	SPRING			SUMMER			AUTUMN			WINTER			Fauna/ feature
	early	mid	late	early	mid	late	early	mid	late	early	mid	late	
Melaleuca decora White Feather Honey myrtle													
Melaleuca linearifolia Flax leaved Paperbark, Red gum (Coastal), Snow gum													
Melaleuca styphelioides Pickle leaved Tea Tree													
Tristaniopsis laurina Knarrah, Winter Gum													
Waterhousea floribunda Weeping Lily Lilly													
Shrub													
Boscia cinerea Showy Bossiaea													
Breynia oblongifolia Coffee Bush, Oblong leaved Breynia													
Bursaria spinosa Blackthorn, Boxthorn, Sweet Bursaria													
Callistemon linearis Narrow leaved Bottlebrush													
Chryscephalum apiculatum Common Fuchsia													
Davallia ulicifolia Coral Rattan Fern													
Dianella longifolia Blueberry Lily, Blue Flax Lily													
Dillwynia olibon Pickle Potted Fern, Juniper Fern Bush													
Einadia hastata Syn. <i>Rhagodia hastata</i> Berry Saltbush, Solop													

0807SY2 PARIA AQUATIC



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Client
Parramatta City Council

Project Team
ABA + Grimeshaw

Project Name
ALC Parramatta

Project No.
0807SYD

Address
Parramatta Park

Key Plan

Issue Log				
B	For Approval	KA/MR		30/3/20
Rev	Revision Description	By / Checked	Date	

Development Application
Sheet Title
Planting Palette
Sheet No.
LD-SK-08

Rev
B

Name	SPRING			SUMMER			AUTUMN			WINTER			Fauna/ feature
	early	mid	late	early	mid	late	early	mid	late	early	mid	late	
Hibbertia diffusa Wedge Cunea Flower													
Indigofera australis Australian Indigo, Austral Indigo													
Leptospermum polygalifolium Tasman, Lemon-Scented Tea Tree													
Lissanthe strigosa Pearly heath													
Pultanea microphylla Spreading Rushpines													
Rubus parvifolius Native Raspberry, Small-leaf Bramble													
Herb													
Asperula confertiflora Common woodruff													
Centella asiatica Swamp Pennywort													
Commelina cyanea Wandering Jew													
Dichondra repens Kidney Weed													
Goodenia hederacea Foxtail Goodenia													
Goodenia hederacea var. hederacea Violet-leaved Goodenia													
Oregano vulgare Oregano													
Viola hederacea Native Violet, hybrid violet													

0807SY2 PARRA AQUATIC

Name	SPRING			SUMMER			AUTUMN			WINTER			Fauna/ feature
	early	mid	late	early	mid	late	early	mid	late	early	mid	late	
Wahlenbergia gracilis Sprawling Bluebell, Australian Bluebell													
Ground Cover													
Aristida ramosa Purple Wiregrass, Wiregrass													
Aristida vagans Three-awn Speargrass													
Austrodanthonia caespitosa Common Woolly Grass													
Austrodanthonia tenuis (syn. Danthonia) Woolly Grass													
Baumea juncea Bare Toig rush													
Carex appressa Tall Sedge													
Carex inversa Knob Sedge													
Cymbopogon citratus lemongrass, oil grass													
Cymbopogon refractus Barbed Wire Grass													
Danthonia duttoniana Broomstick Woolly Grass													
Dichelaene crinita Longhair Plum Grass													
Dicholaena micrantha Shorthair Plumgrass													
Eleocharis acuta Common Spike Rush													

0807SY2 PARRA AQUATIC



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Client
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ALC Parramatta

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0807SYD















































































































































Address
Parramatta Park

Key Plan

Issue Log				
B	For Approval	KA/MR		30/3/20
Rev	Revision Description	By / Checked	Date	

Development Application
Sheet Title
Planting Palette
Sheet No.
LD-SK-09

Rev
B

Name	SPRING			SUMMER			AUTUMN			WINTER			Fauna/ feature
	early	mid	late	early	mid	late	early	mid	late	early	mid	late	
Entolasia marginata Spreading Panic, Bordered Panic	 	 	 	 	 	 	 	 	 	 	 	 	
Height: 0.75 - 0.9m Spread: 0.3 - 0.6m													
Eragrostis brownii Brown's Iron Grass	 	 	 	 	 	 	 	 	 	 	 	 	
Height: 0.3 - 0.45m Spread: -													
Gahnia sieberiana Redfruit Saw Sedge	 	 	 	 	 	 	 	 	 	 	 	 	
Height: 0.9 - 1.5m Spread: 1.2 - 2.0m													
Imperata cylindrica Blady Grass	 	 	 	 	 	 	 	 	 	 	 	 	
Height: 0.9 - 1.5m Spread: 0.3 - 0.6m													
Isolepis inundata Swamp Clubmoss	 	 	 	 	 	 	 	 	 	 	 	 	
Height: 0.45 - Spread: 0.3 - 0.6m													
Juncus articulatus Jointed rush	 	 	 	 	 	 	 	 	 	 	 	 	
Height: 0.45 - Spread: 0.3 - 0.6m													
Lomandra filiformis Wattle Matrush	 	 	 	 	 	 	 	 	 	 	 	 	
Height: 0.45 - Spread: 0.0 - 0.3m													
Lomandra longifolia Spiny-headed Matrush	 	 	 	 	 	 	 	 	 	 	 	 	
Height: 0.60 - Spread: 0.9 - 1.2m													
Lomandra multiflora Manyflowered Matrush	 	 	 	 	 	 	 	 	 	 	 	 	
Height: 0.30 - Spread: 0.0 - 0.3m													
Mimolaena stipularis Weeping Grass, Meadow Rice Grass	 	 	 	 	 	 	 	 	 	 	 	 	
Height: 0.45 - Spread: 0.6 - 0.9m													
Opilismenus aemulus Basket Grass	 	 	 	 	 	 	 	 	 	 	 	 	
Height: 0.0 - 0.30m Spread: 0.0 - 0.3m													
Themeda australis/triandra Gangaroo Grass	 	 	 	 	 	 	 	 	 	 	 	 	
Height: 0.45 - Spread: 0.3 - 0.6m													
Climber													</

Appendix 9: Construction Traffic Management Report



PRELIMINARY CONSTRUCTION TRAFFIC MANAGEMENT PLAN

**Aquatic Leisure Centre
Park Parade, Parramatta**

Reference: 20.006r02v02
Date: March 2020


TRAFFIX
TRAFFIC & TRANSPORT PLANNERS

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DOCUMENT VERIFICATION

Job Number	20.006			
Project	Aquatic Leisure Centre Parramatta			
Client	The City of Parramatta Council			
Revision	Date	Prepared By	Checked By	Signed
v02	30 March 2020	Kenneth Yuen	Ben Liddell	

TRAFFIC CONTROL PLAN CERTIFICATES

Prepare a Work Zone Traffic Management Plan			
Name	Ben Liddell	Certificate No.	0051952767



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Appendices

- Appendix A: Photographic Record
- Appendix B: Swept Path Analysis
- Appendix C: Traffic Control Plan



1. INTRODUCTION

TRAFFIX has been commissioned by The City of Parramatta Council to prepare a Preliminary Construction Traffic Management Plan (CTMP) report to accompany a Development Application (DA) in relation to a new Aquatic Leisure Centre in Parramatta (ALCP). This report should be read in conjunction with the Traffic Impact Assessment (TIA) prepared separately by TRAFFIX (reference: 20.006r01v01).

This report documents the proposed construction traffic management arrangements and methodology relating to the proposed DA works. It is envisaged that a comprehensive CTMP will be prepared in accordance with an appropriate DA condition of consent once an approval is granted and a builder has been appointed.

The report is structured as follows:

- Section 2: Outlines the CTMP requirements
- Section 3: Documents existing traffic conditions
- Section 4: Describes the overall construction program
- Section 5: Describes the proposed traffic management arrangements
- Section 6: Concludes the report



2. CTMP REQUIREMENTS

2.1 Traffic Control Plan

The Traffic Control Plans (TCPs) that are to be included in the Final CTMP, should be implemented taking due account of on-site conditions as will occur over the construction period in consultation with the appointed builder. Accordingly, construction crew are expected to respond in a pro-active manner to ensure the plan is implemented to maximum effect and with no obvious safety issues being overlooked. In particular, the following matters are considered noteworthy:

- All signs are to be placed where clear visibility is available;
- Installations should be checked intermittently during the course of the day/s.

2.2 Development Consent CTMP Requirements

In addition to the above, it is noted that the Final CTMP should be prepared in accordance with any relevant DA condition(s) of consent, to be issued upon approval of the DA by the City of Parramatta.



3. EXISTING CONDITIONS

3.1 Location and Site

The site is located at the former Parramatta Golf Course site on Park Parade, Parramatta and is owned by the Parramatta Park Trust. More specifically, it is located on the southern side of Park Parade, approximately 800 metres west of the Parramatta Railway Station. In a regional context, it is located approximately 1-kilometre west of the Parramatta Central Business District (CBD) and 20 kilometres north-west of the Sydney CBD.

The site has an irregular configuration and has a total site area of approximately 2.3 ha. It has a north-east frontage to Park Parade measuring approximately 340 metres and southern and western boundaries to recreational land measuring approximately 280 metres and 370 metres respectively.

The site currently provides a single vehicular crossing to Park Parade, approximately 370 metres north-west of the Park Parade / Argyle Street / Pitt Street signalised intersection.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2** below. Reference should also be made to the Photographic Record presented in **Appendix A** which provides an appreciation of the general character of roads and other key attributes in proximity to the site.

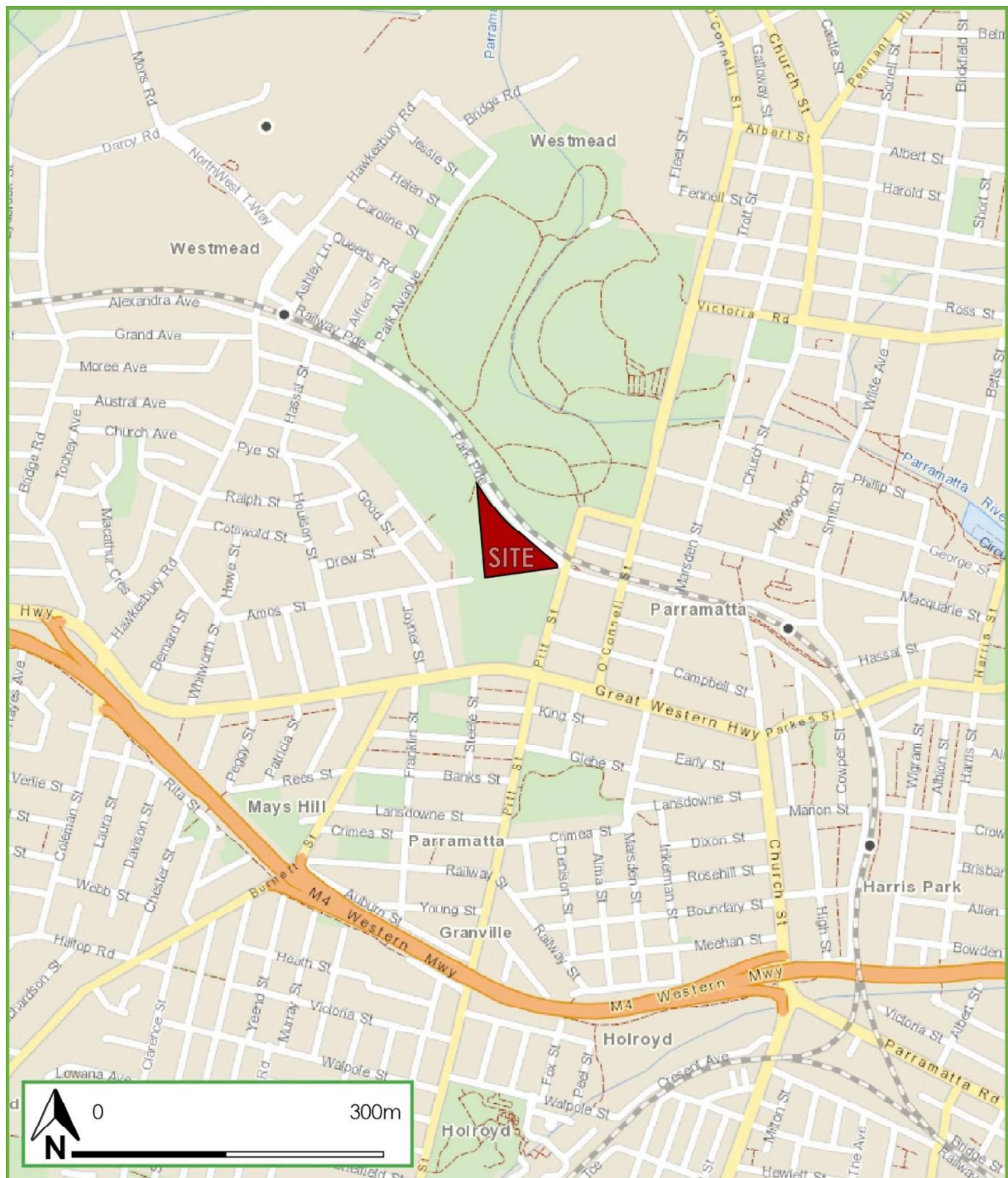


Figure 1: Location Plan



Figure 2: Site Plan



3.2 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

- **Park Parade:** an Unclassified Regional Road (RR 7481) that runs in a north-west to south-east direction between Alexandra Avenue in the north-west and Pitt Street in the south-east. Park Parade accommodates a single traffic lane in each direction separated by a designated bus lane which runs in the south-east direction only. It is subject to a 50km/hr speed zoning and kerbside parking is not permitted within the vicinity of the site.
- **Alexandra Avenue:** an Unclassified Regional Road (RR 7481) that runs in an east-west direction between Park Parade in the east and Bridge Road in the west. Within the vicinity of the site, Alexandra Avenue accommodates a single traffic lane in each direction. It is subject to 50km/h speed zoning and kerbside parking is permitted along section of the southern side of the roadway.
- **Argyle Street:** a local road that generally runs in an east-west direction between the Liverpool-Parramatta Transitway in the east and Pitt Street in the west. Within the vicinity of the site, Argyle Street is subject to a 50km/h speed zoning and accommodates a single traffic lane and a bus lane in the westbound direction and a single bus lane in the eastbound direction.
- **Hawkesbury Road:** an Unclassified Regional Road (RR 7481) that runs in a north-south direction between Hainsworth Street in the north and Great Western Highway in the south. Within the vicinity of the site, Hawkesbury Road accommodates two (2) lanes of traffic in each direction and is subject to 50km/h speed zoning and a 40km/h school zoning operates between Alexandra Avenue and Austral Avenue. Kerbside parking is permitted between 6:30am-9:30am and 3:30pm-6:30pm Monday to Friday.

It can be seen from **Figure 3** that the site is conveniently located with respect to the surrounding arterial and sub-arterial road network servicing the region. As such, traffic can be efficiently distributed throughout the surrounding network, minimising traffic impacts.

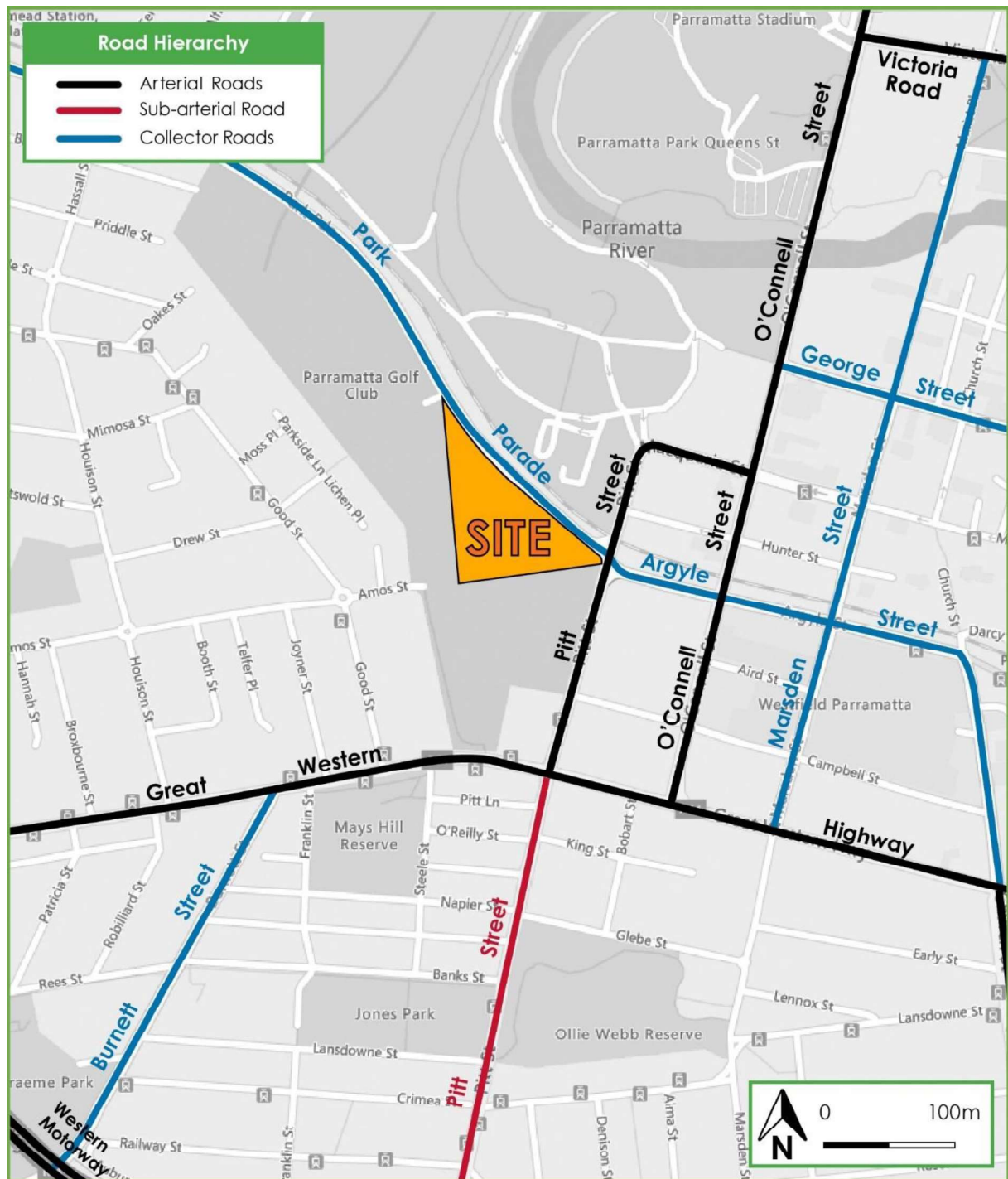


Figure 3: Road Hierarchy



3.3 Public Transport

The existing bus services that operate in the locality are shown in **Figure 4**. Standard transport planning guidelines state that a development is advantageously located to benefit bus services if it is within 400 metres walking distance of a bus stop. It is evident that the site benefits from excellent bus services with 10 bus stops located within 400 metres of the site. These services provide connections to Blacktown, Castle Hill, Rouse Hill, Liverpool and Merrylands. These bus services are summarised in **Table 1** as follows:

Table 1: Bus Routes

Bus No.	Route	Bus No.	Route
660	Castlewood to Parramatta	711	Blacktown to Parramatta
661	Blacktown to Parramatta	712	Westmead Children's Hospital to Parramatta
662	Castle Hill to Parramatta	802	Liverpool to Parramatta
663	Rouse Hill Station to Parramatta	804	Liverpool to Parramatta
664	Rouse Hill Station to Parramatta	806	Liverpool to Parramatta
665	Rouse Hill Station to Parramatta	810X	Merrylands to Parramatta
700	Blacktown to Parramatta	811X	Pemulwuy to Parramatta
705	Blacktown to Parramatta	T80	Liverpool to Parramatta
708	Constitution Hill to Parramatta	-	-

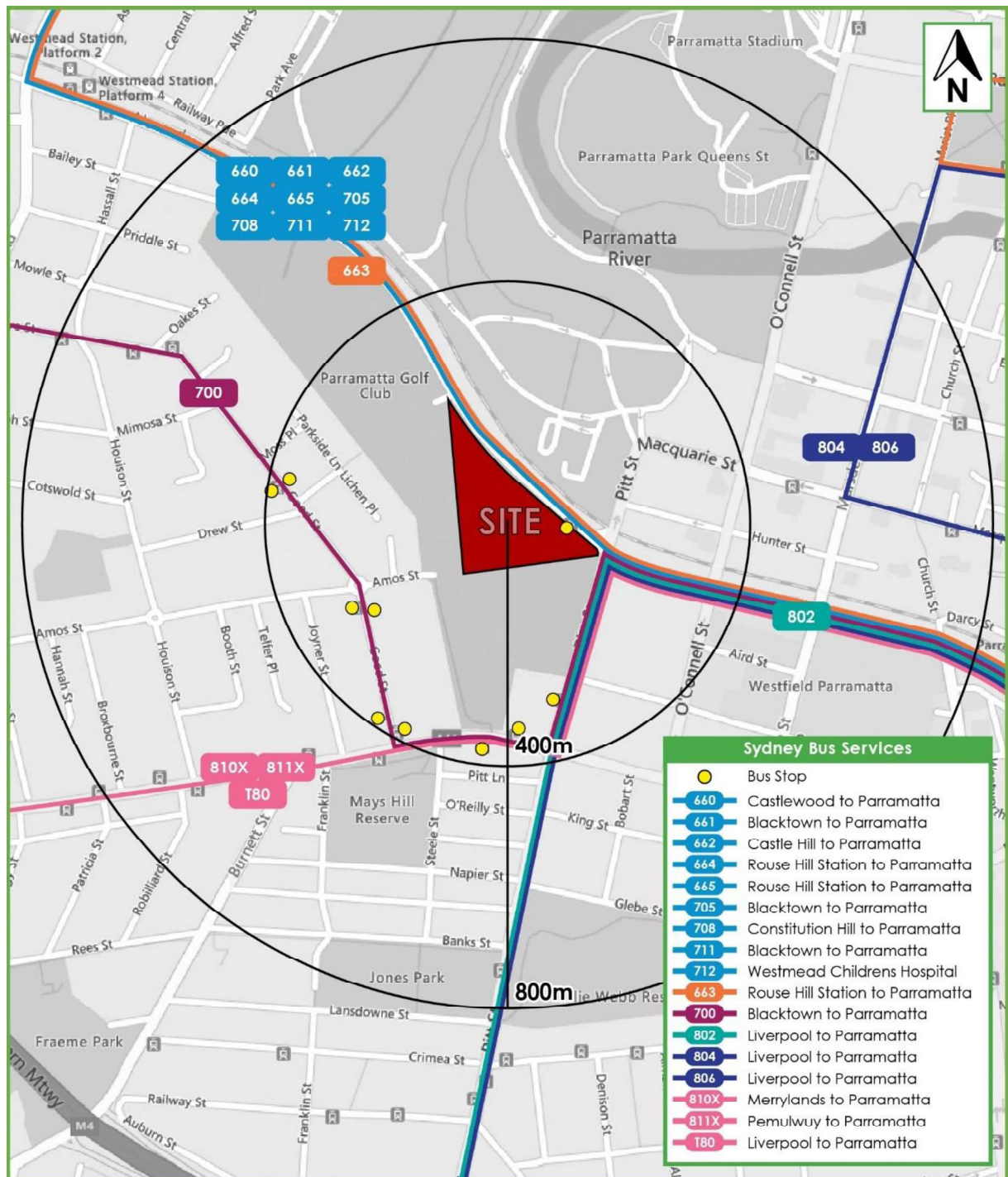


Figure 4: Public Transport



4. OVERVIEW OF CONSTRUCTION PROGRAM

4.1 Description of Proposed Works

The proposed development is located on a vacant site, therefore does not require demolition of any existing structures. The development for which approval is sought forms the basis of this preliminary CTMP and comprises the following construction works:

- 50 metre outdoor Olympic swimming pool and grandstand;
- Outdoor leisure pool;
- 25 metre indoor heated pool;
- Outdoor heated water polo pool;
- Toddler pool;
- Club room for water polo clubs;
- Function / meeting room;
- Spa facilities;
- Health club;
- Café; and
- At-grade car park containing 188 spaces.

4.2 Times of Operation

The total construction period is expected to occur for approximately 62 weeks. During the construction period, building work is likely to be carried out within the following hours, subject to confirmation upon receipt of the DA Consent:

- | | |
|----------------------------|---|
| ➤ Monday to Friday | 7:00am to 5:00pm; |
| ➤ Saturday | To be confirmed. |
| ➤ Sunday or Public Holiday | It is expected that no building activities are to be carried out at any time. |



4.3 Overview of Construction Works

The proposed stages of construction are summarised below.

4.3.1 Bulk Excavation Works

This stage will commence in November 2020, pending approval of the Final CTMP report and will involve a maximum workforce of 50 people on-site at any one time with an average of 50 people. This stage will last for approximately 43 weeks. The maximum sized truck to be utilised during this stage will be 19.6m truck and dogs. It is proposed that all bulk excavation works will occur within the site and as such, there is no requirement for work zone(s) along any public road within the vicinity of the site. Vehicular access is provided via the access driveway along Park Parade which is discussed in more detail in **Section 5.1**.

This stage will have an average of 100 truck arrivals per day (100 in, 100 out) and a maximum of 12 truck arrivals during the peak hour movements (12 in, 12 out).

4.3.2 Structure Works

This stage will commence in May 2021, pending approval of the Final CTMP report and will involve a maximum workforce of 100 people on-site at any one time with an average of 80 people. This stage will last for approximately 36 weeks. The maximum sized truck to be utilised during this stage will be 19.0m Articulated Vehicles (AV's). It is proposed that all structure works will occur within the site and as such, there is no requirement for work zone(s) along any public road within the vicinity of the site. Vehicular access is provided via the access driveway along Park Parade which is discussed in more detail in **Section 5.1**.

This stage will have an average of 50 truck arrivals per day (50 in, 50 out) and a maximum of six (6) truck arrivals during the peak hour movements (6 in, 6 out).



5. TRAFFIC MANAGEMENT ARRANGEMENTS

5.1 Site Access

Vehicular access to the site will be provided via a combined access driveway from Park Parade during all stage's construction. Reference should be made to the Swept Path Analysis presented in **Appendix B**, which demonstrates satisfactorily access during all stages of construction. It is noted that traffic control will be required at the site's access to facilitate the safe movement of vehicles and pedestrians when vehicles are required to enter and exit the site.

5.2 Truck Routes

The proposed truck routes satisfy the requirements of any standard CTMP condition, with a copy of the routes provided to all drivers prior to attending the site, making use of main roads where possible. A swept path analysis has been undertaken for the maximum sized vehicle (i.e. 20m AV's) demonstrating satisfactory entry and egress movements at the site access. This analysis is provided in **Appendix B**.

The proposed truck routes for all vehicle classifications (19.6 metre truck and dogs and 19.0 metre AV's) are presented in **Figure 5**, with the routes summarised as follows:

- Routes to the subject site (IN):
 1. Trucks will arrive on Cumberland Highway, northbound or southbound.
 2. Turn right (from south) or left (from north) onto Darcy Road, eastbound.
 3. Turn right onto Hawkesbury Road, southbound.
 4. Turn left onto Alexandra Road, southbound.
 5. Turn right into site.
- Routes from the subject site (OUT):
 1. Trucks will exit the site and turn left onto Park Parade, westbound.
 2. Continue straight along Alexandra Avenue, westbound.
 3. Turn right onto Hawkesbury Road, northbound.
 4. Turn left onto Darcy Road, westbound.
 5. Turn right onto Cumberland Highway, northbound or turn left onto Cumberland Highway, southbound.

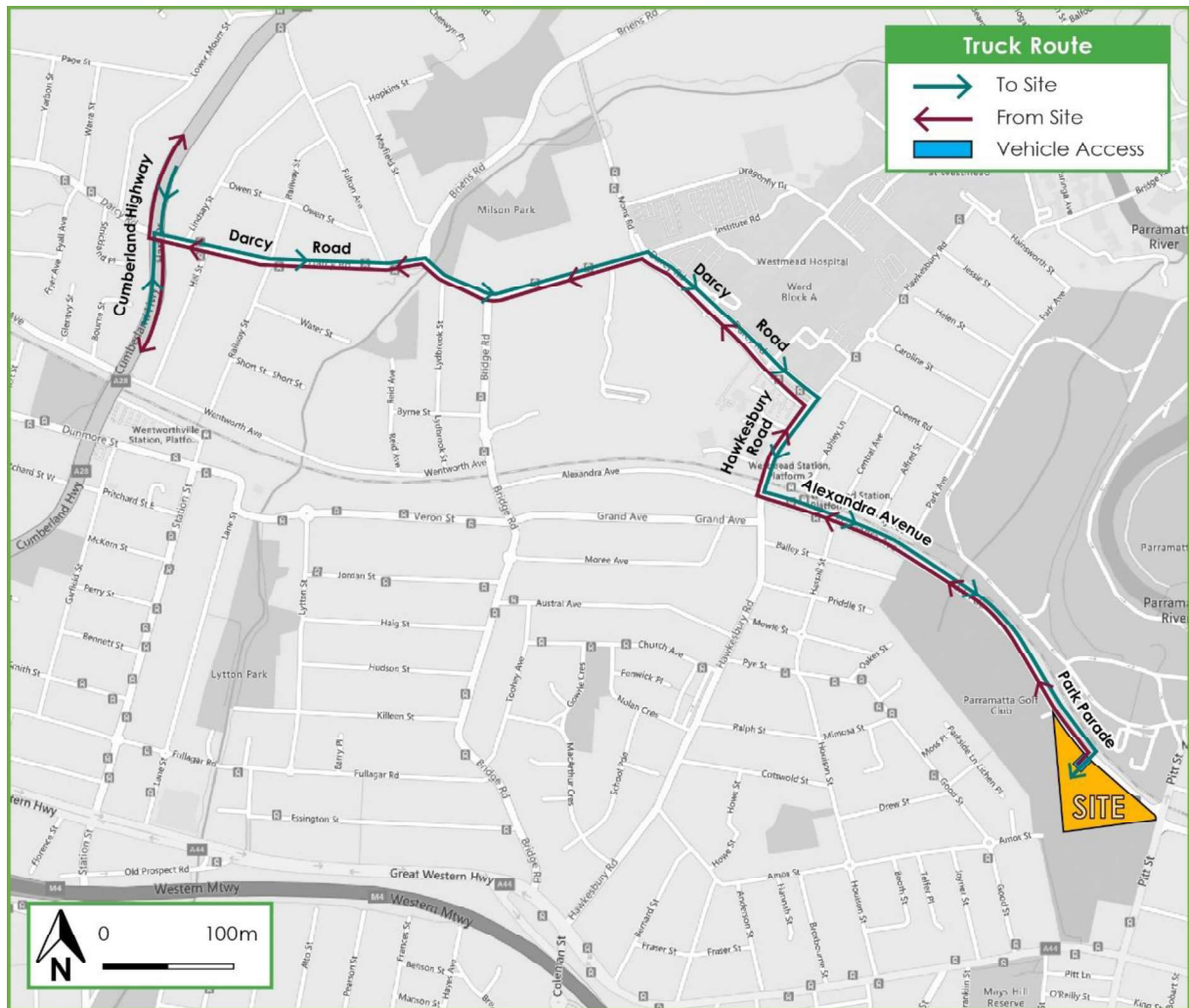


Figure 5: Truck Routes

5.3 Pedestrian Control

Construction fencing will surround all construction areas and Class A pedestrian hoarding will be provided along the pedestrian footpath for the length of the site's boundary with Park Parade. Thus, pedestrian access surrounding the site will be managed safely during all construction stages.

In addition, pedestrian access to neighbouring properties shall be maintained at all times. No building materials shall be placed, dumped or left on any Council road or footpath area at any time. Footpaths to remain in a safe condition for use by pedestrians at all times.

RMS certified Traffic Controllers would be situated at the critical vehicular access driveway in accordance with an appropriate TCP during work hours, to supervise truck entry / exit



manoeuvres. These arrangements are considered acceptable and will ensure that pedestrian safety is maintained at all times.

5.4 Crane Requirements

A hammerhead crane is likely to be in used on a daily basis during the structure stage. This crane will facilitate all loading / unloading of material, machinery plant, etc. from within the site. The movements and utilisation of this crane will be contained within the site.

5.5 Traffic Control Plan

Traffic control plan(s) are to be developed in consultation with the appointed builder and will accompany the Final CTMP to be prepared at construction certification stage. Nevertheless, a TCP showing the pedestrian management arrangements at the vehicle access is presented in **Appendix C**.

The proposed TCPs will ensure that all vehicular access and pedestrian traffic is managed safely and efficiently. The TCP's are to be designed in accordance with the requirements of the RMS *Traffic Control at Work Sites Manual* and is recommended for adoption. In addition, it is noted that copies of the TCPs are to be kept on-site at all times.

5.6 Employee Vehicles

As previously mentioned, there will be a maximum of 50 workers during the bulk excavation stages, and a maximum of 100 workers during the structure stage, at any given time. Accordingly, it is proposed that construction workers use the dedicated worker parking area on-site, noting that sufficient open space is available to accommodate a large number of light vehicles. Construction workers will also be encouraged to take advantage of the excellent public transport options available within the vicinity of the site, as discussed in **Section 4**.

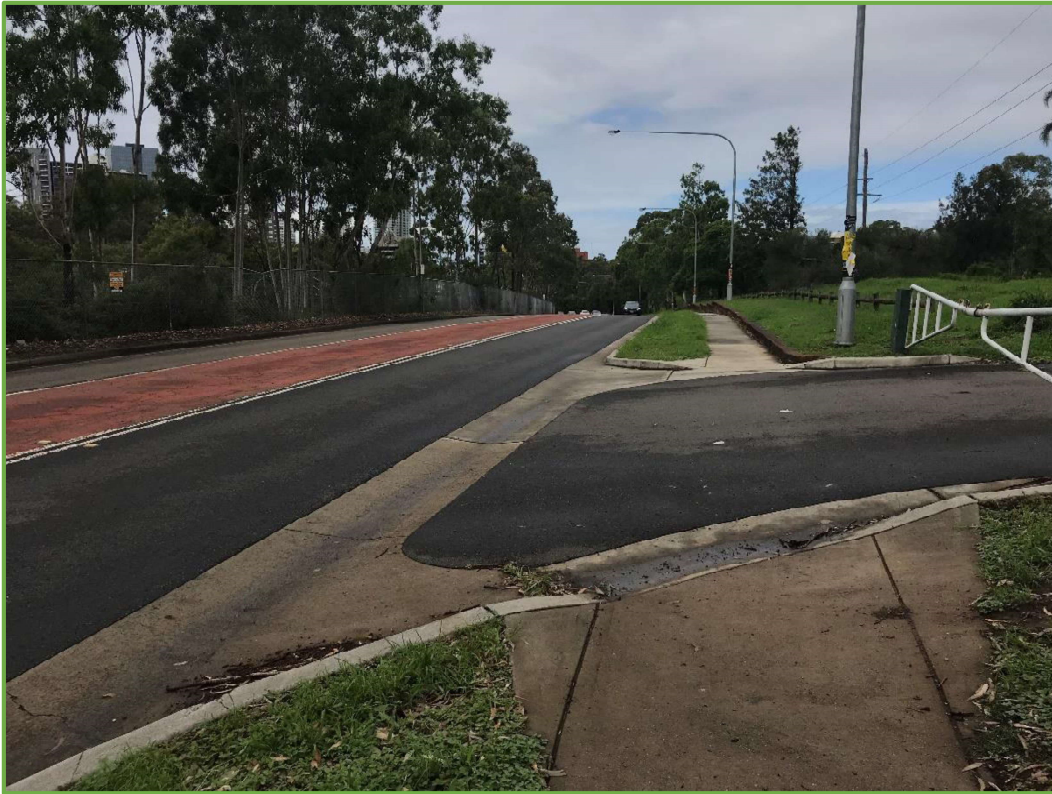


6. CONCLUSION

This Preliminary CTMP report should be read in conjunction with other documentation prepared by the applicant relating to the internal construction activities. The plan outlined above is considered satisfactory for the purposes of a DA submission, being subject to confirmation and possible amendments once a builder is engaged and the construction methodology is finalised. It is envisaged a comprehensive CTMP will be prepared by TRAFFIX once DA consent is provided at a later stage.

APPENDIX A

Photographic Record



View looking southeast along Park Parade with the subject site's access driveway to the right



View looking northwest along Park Parade with the subject site's access driveway to the left



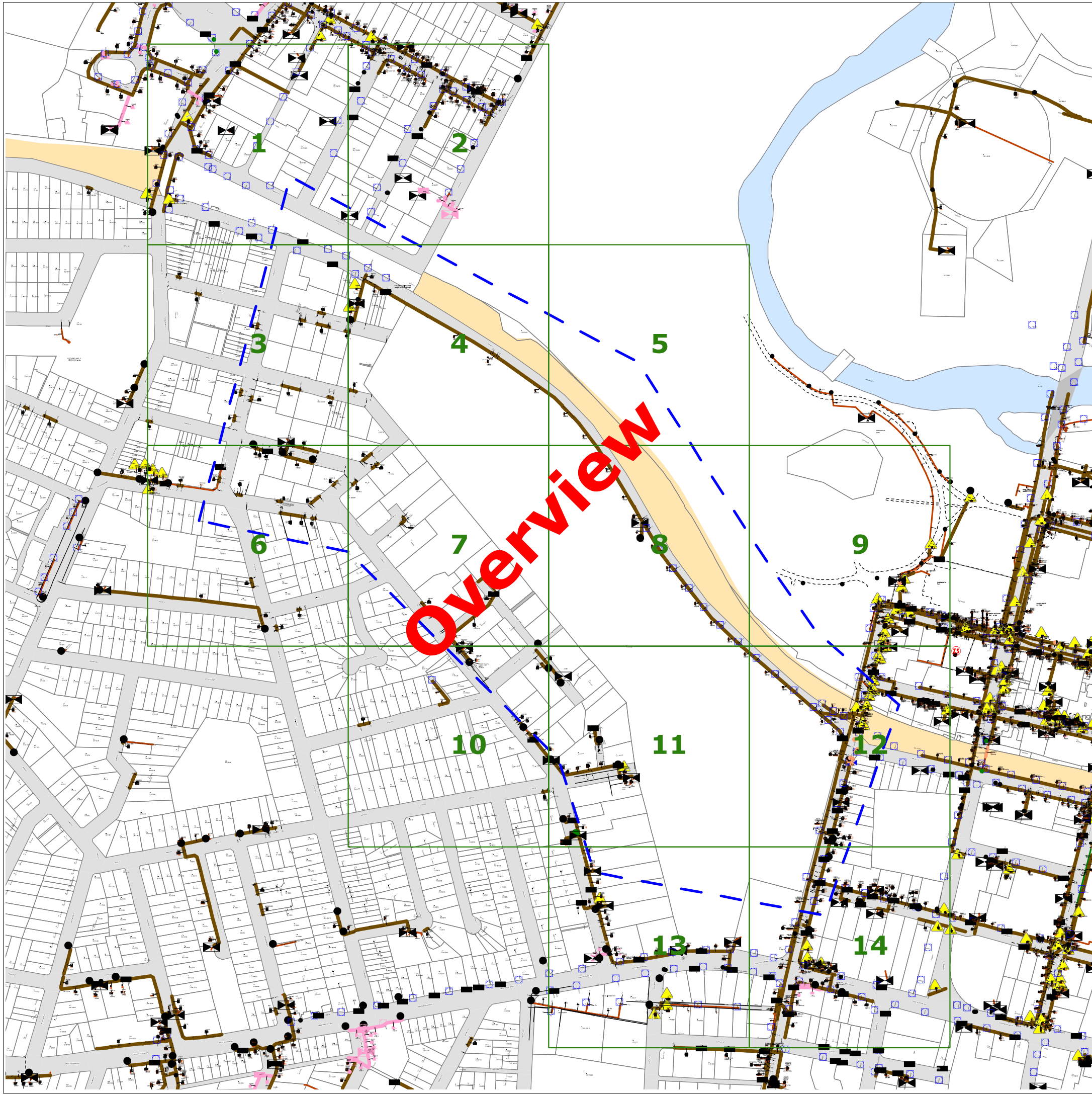
View looking southeast along Park Parade showing the available sight distance



View looking northwest along Park Parade showing the available sight distance

APPENDIX B

Swept Path Analysis



WARNING

- All electrical apparatus shall be regarded as live until proved de-energised. Contact with live electrical apparatus will cause severe injury or death.
- In accordance with the *Electricity Supply Act 1995*, you are obliged to report any damage to Endeavour Energy Assets immediately by calling **131 003**.
- The customer must obtain a new set of plans from Endeavour Energy if work has not been started or completed within twenty (20) working days of the original plan issue date.
- The customer must contact Endeavour Energy if any of the plans provided have blank pages, as some underground asset information may be incomplete.
- Endeavour Energy underground earth grids may exist and their location may not be shown on plans. Persons excavating are expected to exercise all due care, especially in the vicinity of padmount substations, pole mounted substations, pole mounted switches, transmission poles and towers.
- Endeavour Energy plans do not show any underground customer service mains or information relating to service mains within private property.
- Asbestos or asbestos-containing material may be present on or near Endeavour Energy's underground assets.
- Organo-Chloride Pesticides (OCP) may be present in some sub-transmission trenches.
- All plans must be printed and made available at the worksite where excavation is to be undertaken. Plans must be reviewed and understood by the crew on site prior to commencing excavation.

INFORMATION PROVIDED BY ENDEAVOUR ENERGY

- Any plans provided pursuant to this service are intended to show the approximate location of underground assets relative to road boundaries, property fences and other structures at the time of installation.
- Depth of underground assets may vary significantly from information provided on plans as a result of changes to road, footpath or surface levels subsequent to installation.
- Such plans have been prepared solely for use by Endeavour Energy staff for design, construction and maintenance purposes.
- All enquiry details and results are kept in a register.

DISCLAIMER

Whilst Endeavour Energy has taken all reasonable steps to ensure that the information contained in the plans is as accurate as possible it will accept no liability for inaccuracies in the information shown on such plans.

WARNING
THIS EXCAVATION IS IN THE VICINITY OF
ENDEAVOUR ENERGY TRANSMISSION, PILOT,
COMMUNICATION OR FIBRE OPTIC CABLES
PLEASE RING 9853 7121 or MOB. 0407 468 626
4 WORKING DAYS BEFORE COMMENCING WORK

LEGEND

- or ■ Street light column
- ▤ Padmount substation
- or ■ Overground pillar (O.G.Box)
- ▤ Underground pit
- Duct run
- Cable run
- ⊙ Typical duct section
- ▲ Asbestos warning



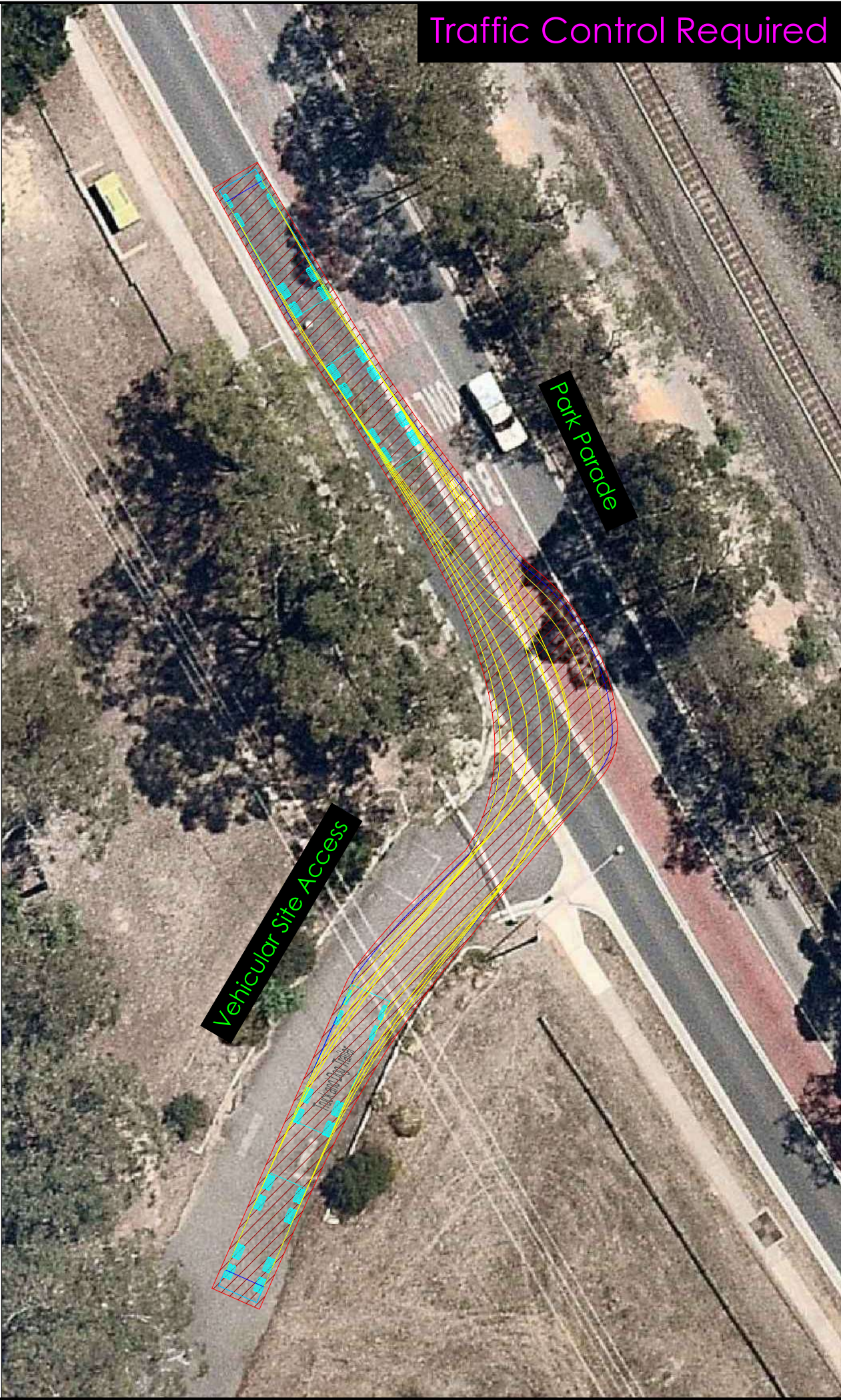
NOT TO SCALE

DBYD Sequence No.:	95356581
Issued Date:	03/03/2020

Traffic Control Required



Traffic Control Required



Notes:

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (AS/NZS 2890.1:2004 Parking facilities - Off-street car parking, and/or AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Rev.	Revision Note	By.	Date
A	Swept Path Analysis	JP	19-03-20

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect

Client

City of Parramatta Council
PO Box 32
Parramatta NSW 2124


Scale / Plan Orientation

0 3 6 9 12m
1:300 @ A3

Project Description

Aquatic Leisure Centre, Parramatta

Drawing Prepared By



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Drawing Title

Swept Path Analysis
19.6m Truck & Dog
Vehicular Site Access along Park Parade
Left: Entry Movement
Right: Exit Movement

Drawn: JP	Checked: BL	Date: 19-03-2020
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20.00602v01 TRAFFIX [2020-02-18] - Truck Routes Swept Paths.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
20.006	DA	TX.01	A



<div>Notes:</div> <div>This drawing is prepared for information purposes only. It is not to be used for construction.</div> <div>TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.</div> <div>Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (AS/NZS 2890.1:2004 Parking facilities - Off-street car parking, and/or AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.</div>			
Rev. Revision Note		By. Date	
A	Swept Path Analysis	JP	19-03-20
Swept Path Legend			
<div><div></div>Wheel Path</div> <div><div></div>Vehicle Body Envelope</div> <div><div></div>Clearance Envelope (300mm)</div>			
Architect			
Client			
City of Parramatta Council PO Box 32 Parramatta NSW 2124			
Scale / Plan Orientation			
<div><div><div></div><div></div><div></div><div></div><div></div></div><div>036912m</div><div>1:300 @ A3</div></div> <div><div></div><div></div></div>			
Project Description			
Aquatic Leisure Centre, Parramatta			
Drawing Prepared By			
<div><div><div></div><div>TRAFFIX</div><div>TRAFFIX & TRANSPORT PLANNERS</div></div><div>Suite 2.08, 50 Holt Street Surry Hills, NSW 2010 PO Box 1124 Strawberry Hills, NSW 2012 t: +61 2 8324 8700 f: +61 2 9830 4481 w: www.traffix.com.au</div></div>			
Drawing Title			
Swept Path Analysis 19.0m AV Vehicular Site Access along Park Parade Left: Entry Movement Right: Exit Movement			
Drawn: JP		Checked: BL	Date: 19-03-2020
20.006d02v01 TRAFFIX [2020-02-18] - Truck Routes Swept Paths.dwg			
Project No.	Drawing Phase	Drawing No.	Rev.
20.006	DA	TX.02	A



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Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (AS/NZS 2890.1:2004 Parking facilities - Off-street car parking, and/or AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Rev.	Revision Note	By.	Date
A	Swept Path Analysis	JP	19-03-20

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect

Client

City of Parramatta Council
PO Box 32
Parramatta NSW 2124

Scale / Plan Orientation

0481216m

1:400 @ A3

Project Description

Aquatic Leisure Centre, Parramatta

Drawing Prepared By

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Drawing Title

Swept Path Analysis
19.0m AV
Intersection of Cumberland Highway / Darcy Road.
Left in / Left out movements from Cumberland Highway to / from Darcy Road.

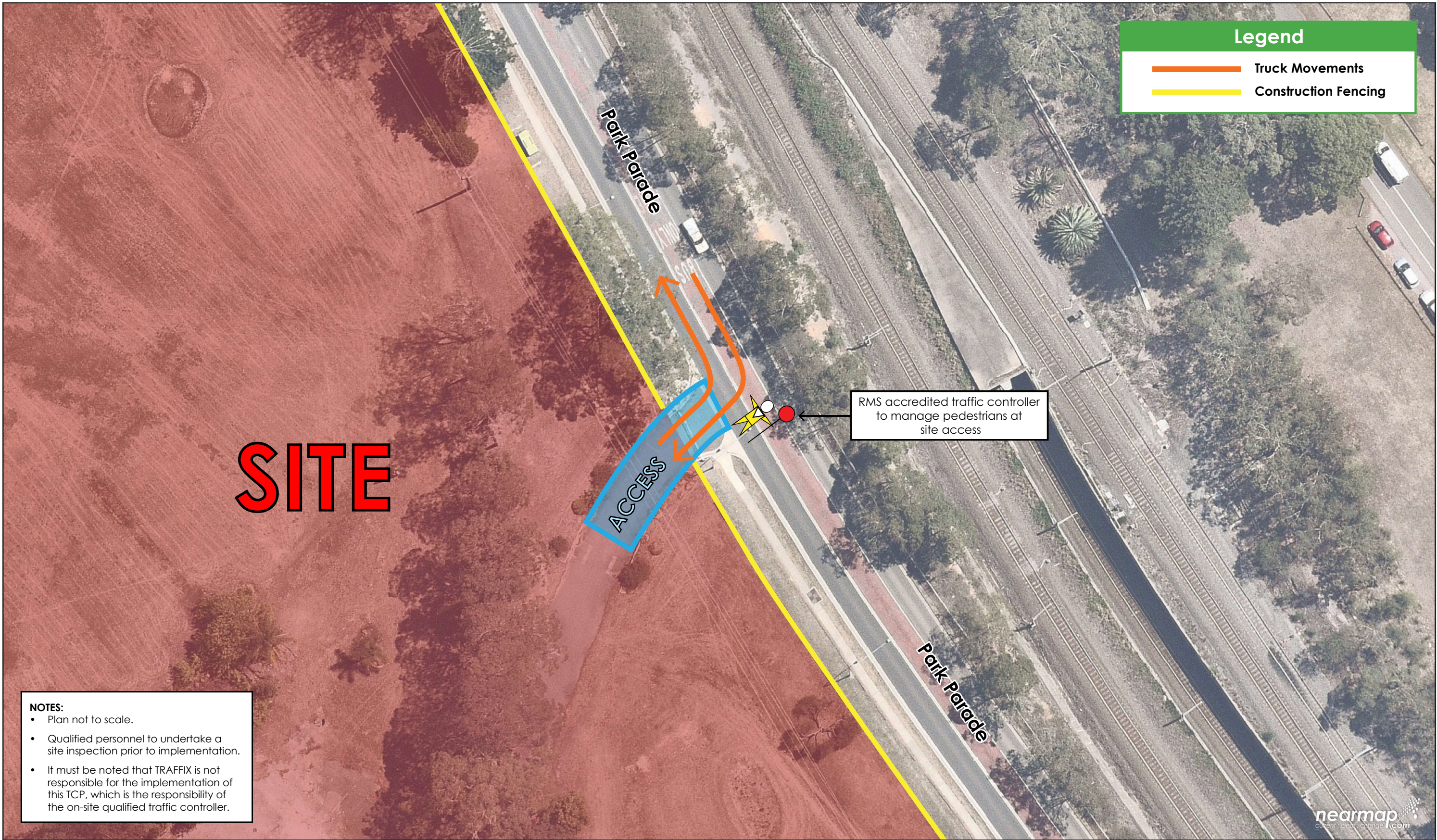
Drawn: JP	Checked: BL	Date: 19-03-2020
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20.00602v01 TRAFFIX [2020-02-18] - Truck Routes Swept Paths.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
20.006	DA	TX.03	A



APPENDIX C

Traffic Control Plan



NOTES:

- Plan not to scale.
- Qualified personnel to undertake a site inspection prior to implementation.
- It must be noted that TRAFFIX is not responsible for the implementation of this TCP, which is the responsibility of the on-site qualified traffic controller.

TCP 01 : Pedestrian Management at Vehicle Access		Date:	30.03.2020	TRAFFIC & TRANSPORT PLANNERS Suite 2.08 50 Holt Street Surry Hills NSW 2010 (02) 8324 8700 info@traffix.com.au	
Project:	Aquatic Leisure Centre Parramatta	Prepared By:	Ben Liddell		
Project Number:	20.006	Approved By:	Ben Liddell (0051952767)		
Client:	City of Parramatta Council	Signature:			

Appendix 10: Social Impact Assessment

CITY OF PARRAMATTA

Social Impact Assessment - Aquatic Leisure Centre Parramatta

26 March 2020

Creating communities, places and cities for people by people



Report: Social Impact Assessment: Proposed Aquatic Leisure Centre Parramatta

Client: City of Parramatta

Date: 20 March 2020

Authored by: Cred Consulting

Version: Final

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Executive summary

BACKGROUND

Cred Consulting is an independent social planning consultancy based in Sydney. Cred was engaged by the City of Parramatta (Council) to prepare a Social Impact Assessment (SIA) for the Aquatic Leisure Centre Parramatta (ALCP) located within the City of Parramatta Local Government Area (the LGA).

The Parramatta War Memorial Swimming Centre was closed and removed in 2017 to make way for the new Western Sydney Stadium. The ALCP is the new, expanded and upgraded facility to replace the original pool.

This SIA assesses both the positive and negative impacts of the proposed ALCP, and where negative, the mitigation measures that should be provided.

ABOUT THE SITE AND PROPOSAL

Parramatta is Sydney's second CBD and one of three cities that make up the metropolis. Parramatta is the heart of Sydney's central city; the centre of services, infrastructure and employment for Western Sydney, where more than half of Sydney's population live.

The subject site is a total area of approximately 41,450m², adjacent to Park Parade and near the corner of Pitt Street, on the eastern portion of the former golf course in Mays Hill suburb.

The proposal is for the development of a contemporary aquatic leisure centre that includes a 50 metre outdoor pool with pool-side seating and park-like space; 25 metre indoor pool providing for year-round recreational swimming and leisure programming (e.g. aqua aerobics); dedicated indoor Learn to Swim pool; kids' water playground; family-friendly change rooms and bathrooms, separate for indoor and outdoor activity; multipurpose community rooms; fitness centre, including a modern gym and program rooms (e.g. yoga and pilates); cafe with designated seating and 200+ car park spaces.

ANALYSIS OF SOCIAL IMPACTS AND MITIGATION MEASURES

Based on the documentation provide by the client, the analysis of social impacts and mitigation measures as outlined in Council's SIA Guidelines for Design Option Two (and as outlined in the supporting business case). Table 1 (on page 28)

The delivery of a new Aquatic Leisure Centre in Parramatta will have an overwhelmingly positive impact on the community, is in high demand, and can deliver health and social benefits for the community. This SIA has assessed the social benefits of this proposal and potential impacts that must be considered include:

The ALCP will meet Parramatta's future demand for aquatic leisure centres and will be an important regional facility for the Central River City.

City of Parramatta's future population is estimated to grow to 466,000 people by 2036. This proposal enables Council to meet this demand benchmark, which indicates a need for three aquatic centres to service the growing population.

Additionally, people will travel long distances to access a this regional facility and its close proximity to public transport enables access by a greater number of people.

The ALCP replaces the highly utilised PWMSC

The closure of the PWMSC in 2017 to enable the redevelopment of the Western Sydney Stadium has meant that the 160,000 annual visitors have been forced to use other facilities, or have stopped participating in activities at aquatic facilities all together.

According to the final Business case, this volume of attendance resulting and approximately \$1.3 million in revenue over the last four years. The attendance level was reported to be high when benchmarked to other outdoor aquatic leisure centres across NSW, which suggests that there is a high level of underlying demand for aquatic leisure facilities.

A cool place for hot days

We know that our summers are forecast to get hotter in the future and that areas within Western Sydney feel a great impact than the Eastern Suburbs of Sydney. Access to affordable public pools is critical to increase the liveability of the area, provide places for a range of community members to enjoy and cool down and contribute to the health and wellbeing of the community.

Improved health and wellbeing for all of the community.

Aquatic leisure centres play an important role maintaining and improving health outcomes for people of all ages, from babies right through to the elderly. Access to diverse and adequate community and recreation services and facilities such as those that will be provided in the new Aquatic Leisure Centre, is necessary for physical and mental health, well-being, personal productivity, social cohesion and social sustainability. Activities for fitness and wellbeing include lap swimming, aqua aerobics and rehabilitation.

Aquatics for play, confidence and safety

Parramatta has a significant proportion of residents who have recently arrived from overseas, some who never had to opportunity to learn to swim. To meet this need, there is an opportunity to provide Learn to Swim programs for children and adults, as well as Life saving and First Aid training and mum's and bubs classes.

There is an opportunity to provide the community with a range play options in the proposed aquatic centre such as those identified in the CIS: Cool off experiences, water play – zero depth, low depth splash pads, slides and water play space components.

Access for all, young and old

Access ramps for the 50m and 25m pools allows for all abilities to enjoy the pool facilities. Facility is also designed with single-level accessible entry and pathways.

There is forecast to be an additional 33,330 people aged over 65+ living Parramatta by 2041. Aquatic leisure can facilitate health benefits for this age group gained through swimming, exercise, leisure water activities, and a wide range of aquatic programs like aqua-aerobics

Learn to swim programs are a quintessential part of growing up as a child in Australia. There will be a need for spaces and facilities for parents to watch their child during class, or nearby cafes to wait for them to finish. Providing places for parents to meet and socialise before, after and during classes will help facilitate social connections.

Inclusive and caters to diverse needs

Swimming in a public pool isn't an option for everyone, depending on their religion. Other pools have implemented 'womens only' swimming times. Thinking about how to welcome and be inclusive of everyone is something that the new ALCP should consider.

With a high proportion of people who speak a language other than English at home reporting that they have difficulty speaking English, this may indicate a need for program delivery and signage to be culturally appropriate and targeted.

An aerial photograph of a city, likely Melbourne, Australia, featuring a large white letter 'A' overlaid on the image. The cityscape includes a mix of modern high-rise buildings and older, lower-rise structures. A large green park area with a circular amphitheater or stadium is visible in the foreground. The overall color palette is warm, with a golden-orange tint.

A

INTRODUCTION

Introduction

BACKGROUND

Cred Consulting is an independent social planning consultancy based in Sydney. Cred was engaged by the City of Parramatta (Council) to prepare a Social Impact Assessment for the Aquatic Leisure Centre Parramatta (ALCP) in the City of Parramatta Local Government Area (the LGA).

Council's SIA Guidelines provide the following definition:

Impact assessment is a method for predicting and assessing the consequences of a proposed action or initiative before a decision is made. Social Impact Assessment refers to the assessment of the social consequences of a proposed decision or action (such as development proposals, plans, policies, and projects) on affected groups of people and on their way of life, life chances, health, culture and capacity to sustain these.

This SIA assesses key changes as a result of the proposed project including:

- Key probable positive impacts
- Key probable negative impacts
- Mitigation strategies / plan to manage the probable negative impacts

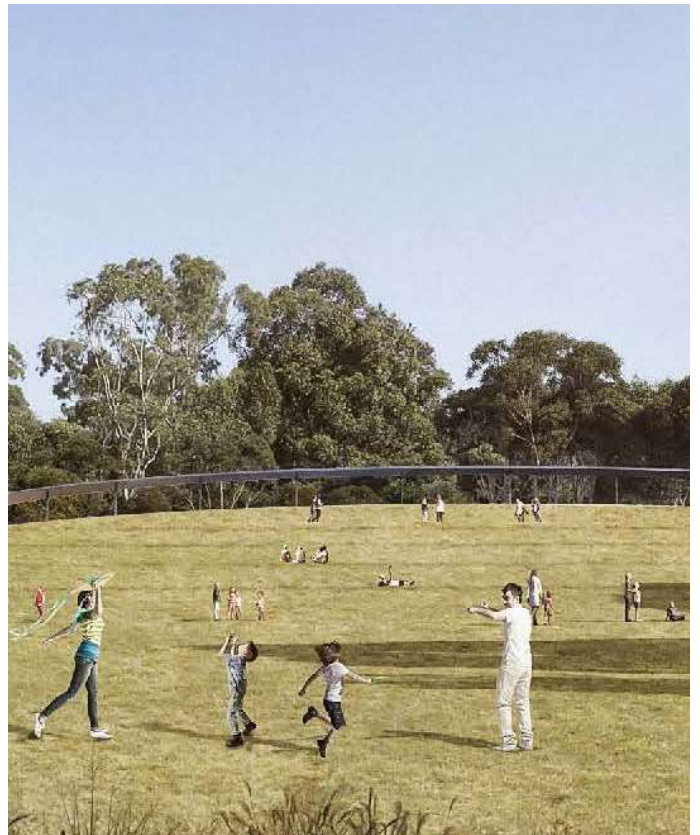
METHODOLOGY

This SIA has been undertaken using the following methodology:

- Review of local planning and policy context and implications
- Current and forecast community profile (ABS 2016) of the site, the LGA including total population, age profile, income, cultural diversity and implications relating to social needs and impacts
- Audit and mapping of aquatic facilities in the LGA and nearby councils
- Benchmarking the demand for aquatic leisure centres against planning standards
- Analysis of social impacts in accordance with the requirements of the Environment Planning and Assessment Act 1979 and the PIA Policy Statement, and
- Recommendation of mitigation measures to address identified impacts.

This report draws upon two key documents:

- Addendum to the Final Business Case A New Aquatic Leisure Centre, City of Parramatta Council, September 2018 (the Final Business Case)
- The Draft Community Infrastructure Strategy (CIS)



Architect's impressions

ABOUT THE PROPOSED DEVELOPMENT

City of Parramatta is currently planning for the development of a new contemporary aquatic leisure centre in place of the Parramatta War Memorial Swimming Centre that was required to close to make way for the new Western Sydney Stadium.

The original Parramatta War Memorial Swimming Centre (PWMSC)

Over the last 50 years, the PWMSC was owned and operated by Council, and was the largest and most popular aquatic facility in the municipality. It provided:

- 10 lane 50m heated outdoor pool
- Open grand stand seating for 400 people (with shade)
- 25 x 30m unheated outdoor utility pool (for competition water polo and diving) + Olympic Dive Tower with 1, 5, 7 and 10m platforms plus 1 and 3m boards
- 25m heated outdoor program pool and covered by permanent shade structure
- Toddler pool (outdoor) with beach entry – covered by permanent shade structure
- Twin water slides (60+ m) in bushland setting
- Program (multipurpose) room with audio visual equipment
- Swim Club/Water Polo Club clubroom
- Refurbished traditional change rooms and public amenities
- Kiosk and Reception Foyer
- Extensive/expansive outdoor space, much of it grassed/landscaped with BBQ facilities and shade structures
- Access to 140 car park spaces (part of leased land) and a further 120 additional paid car spaces in PPT car park– used as overflow to meet weekend peak summer demand.

The Proposed Aquatic Leisure Centre Parramatta (ALCP)

The ALCP proposal the the functional brief below was the result of an investigation of options for a contemporary aquatic leisure centre. This SIA was based on the proposal for the ALCP delivering the following elements:

- 50 metre outdoor pool with pool-side seating and park-like space
- 25 metre indoor pool providing for year-round recreational swimming and leisure programming (e.g. aqua aerobics)
- Dedicated indoor Learn to Swim pool
- Kids' water playground
- Family-friendly change rooms and bathrooms, separate for indoor and outdoor activity
- Multipurpose community rooms
- Fitness centre, including a modern gym and program rooms (e.g. yoga and pilates)
- Cafe with designated seating
- 200+ car park spaces

ABOUT THE SUBJECT SITE

Parramatta is Sydney's second CBD and one of three cities that make up the metropolis. Parramatta is the heart of Sydney's central city; the centre of services, infrastructure and employment for Western Sydney, where more than half of Sydney's population live.

The subject site is adjacent to Park Parade and near the corner of Pitt Street, on the eastern portion of the former golf course in Mays Hill suburb.

Council, the NSW Government, and Parramatta Park Trust have collaborated to identify a site for the new aquatic leisure centre through the completion of the Mays Hill Precinct Master Plan.

Site size

The site has a total area of approximately 41,450m².

Proximity to services and amenity

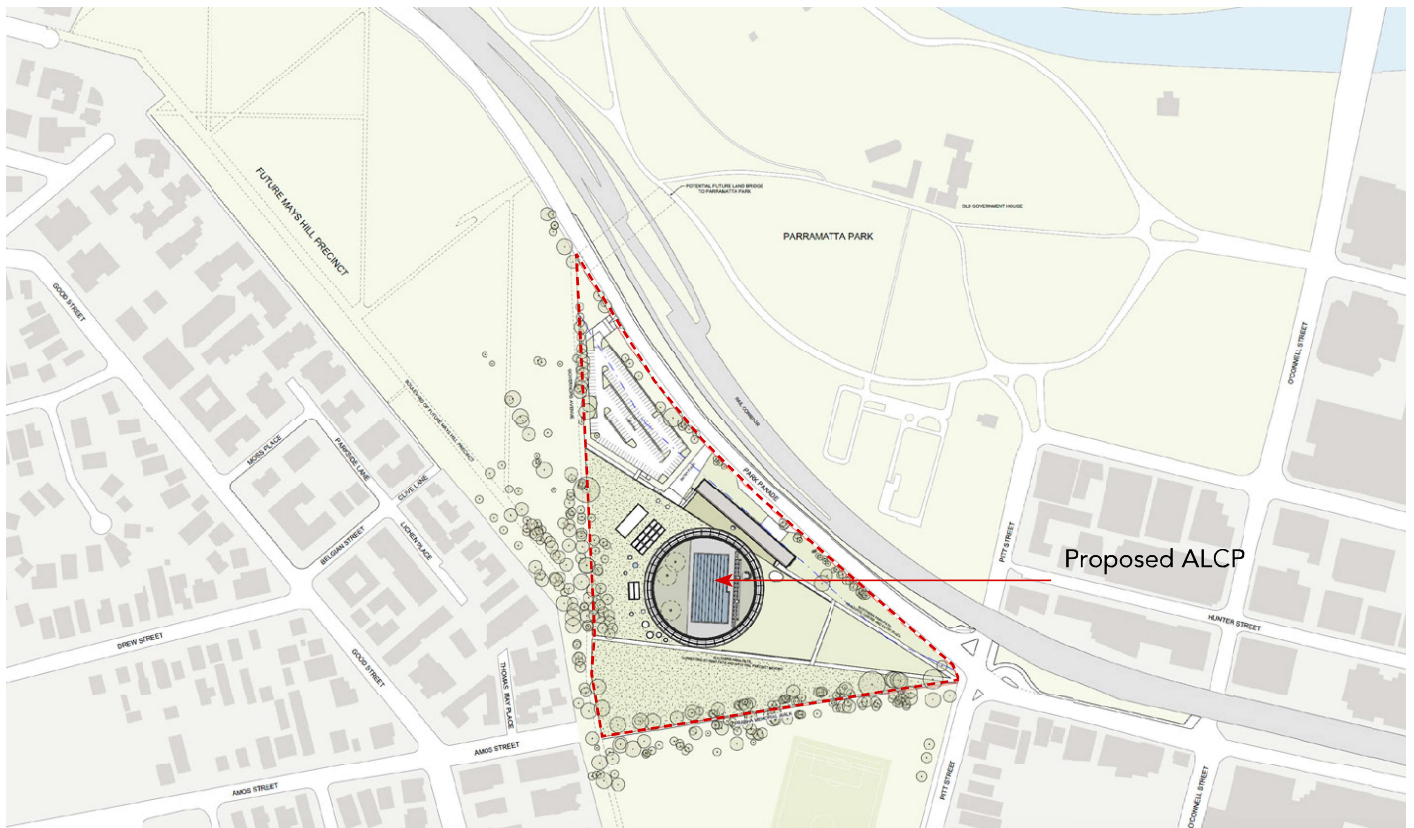
The site is also well-located to local services and amenities, including Westfield Parramatta (6 mins walk), Service NSW office (6 mins walk), Parramatta High School (5 mins walk), Parramatta Park (1 min walk), and several other privately owned and operated shops and eateries.

Proximity to public transport

The site is well-located to public transport being within:

- 12 minutes walking distance of the Parramatta train station
- 1 minute walking distance of Park Pde after Pitt St bus stop
- 2 minutes walking distance of Good St before Belgian St bus stop
- 3 minutes walking distance of Good St after Amos St, and
- 4 minutes walking distance of Pitt St T-way station bus stop.
- Within a 15 minute walking radius of the proposed Parramatta Metro Station which will provide express train services into Sydney.

Figure 1 - Site map (source: Grimshaw Architects LLP)



Site photos



View of the site from Prabha Memorial Walk route



View of the site from corner of Pitt St and Argyle St



View of the site from Park Parade



View of the site from Amos St

A large, white, stylized number '2' is positioned on the left side of the image, partially overlapping the swimming pool and the background. The background is a photograph of an outdoor swimming pool with multiple lanes, a person in the water, and a building in the distance. The entire image has a warm, orange-brown tint.

2

STRATEGIC CONTEXT

Strategic context

This chapter summaries relevant federal, state, and local plans and strategies that will shape planning for the site.

KEY FINDINGS:

- Parramatta is the core of the Central City that is part of the Three Cities. Parramatta CBD is witnessing significant development/ redevelopment to meet the demands of the forecast increased resident and worker population.
- A number of local strategic documents including the community strategic plan and socially sustainability framework shape the planning of the site to incorporate multi-purpose functions and uses to the site to meet the needs of the diverse population
- In accordance to the strategies that address the urban heat issues in the LGA, the planning and function of the site should respond to the increasing temperatures and incorporate elements that cool the area (water features, trees, etc.)

FEDERAL GOVERNMENT

National Sport and Active Recreation Policy Framework 2011

The Framework provides a mechanism for the achievement of national goals for sport and active recreation The Framework identifies the roles of Regional/ Local Government as:

- Facilitating a strategic approach to the provision of sporting and active recreation infrastructure including open space, and other needs
- Supporting and coordinating local and regional service providers (venues and programs)
- Supporting and partnering with non-government organisations that enable sport and active recreation participation
- Incorporating sport and recreation development and participation opportunities in Council plans
- Collaborating, engaging and partnering across government departments on shared policy agendas,
- **Investment in sport and active recreation infrastructure.**

STATE GOVERNMENT

Resilient Sydney, 2018

The 100 Resilient Cities initiative – pioneered by the Rockefeller Foundation - helps cities around the world become more resilient to the physical, social and economic challenges that are a growing part of the 21st century. Resilient Sydney Strategy recognises that no one organisation can solve our problems and instead looks at how we can work together, across boundaries to protect and champion the needs and interests of communities for metropolitan Sydney. This Strategy sets the direction to strengthen our ability to survive, adapt and thrive in the face of increasing global uncertainty and local shocks and stresses, and calls for business, government, academia, communities and individuals to lead and work as one city.

A Metropolis of Three Cities: The Greater Sydney Region Plan

The Greater Sydney Region Plan, A Metropolis of Three Cities is built on a vision of three cities where most residents live within 30 minutes of their jobs, education and health facilities, services and great places. The plan sets a 40-year vision (to 2056) and a 20-year plan to manage growth and change for Greater Sydney. Parramatta is located within the Central City District. The overall aim of the plan is to align growth with infrastructure, sustain local centers, boosting community services and nurturing quality lifestyle.



Greater Sydney Commission Central River City Plan

Greater Parramatta – the metropolitan centre – is the core of the Central River City. Greater Parramatta encompasses Parramatta CBD, North Parramatta and Westmead and Parramatta Park. Of the ten directions for the Central City District, the following are relevant to this SIA:

1. A city supported by infrastructure, including infrastructure supporting new developments
2. A city for people, celebrating diversity and putting people at the heart of planning
3. A city of great places including designing places for people that are within walking distance of open space
4. A well connected city, developing a more accessible and walkable city
5. A city in its landscape, valuing green spaces and landscaping including increasing the amount of urban tree canopy to cool our streets.

Better Placed (Government Architects of NSW, 2017)

Better Placed is an integrated design policy for the built environment of NSW and seeks to place good design at the centre of all development processes from project definition to concept design through to construction and maintenance. Better Placed is based around seven distinct objectives that together seek to create a 'well-designed built environment that is healthy, responsive, integrated, equitable and resilient':

- Better fit: contextual, local and of its place
- Better performance: sustainable, adaptable and durable
- Better for the community: inclusive, connected and diverse
- Better for people: safe, comfortable and liveable
- Better working: functional, efficient and fit for purpose
- Better value: creating and adding value, and
- Better look and feel: engaging, inviting and attractive.

Office of Sport District Sports Facility Plans

The Office of Sport is working in collaboration with key partners, including councils, to develop a Sport and Recreation Participation Strategy and a Sport and Recreation Facility Plan for each Greater Sydney district.

Common opportunities include:

- Various site-specific opportunities in each LGA
- Partnerships with schools both public and private
- Increasing synthetic fields and multi-use specs
- Using non-traditional facilities for sport use
- Developing a district/regional booking system
- Increasing use at off-peak times
- New and expansion of indoor facilities
- Increasing opportunities at golf courses and private recreation sites, and
- Standardising terminology and benchmarking.

Women in Sport Strategy, Office of Sport

The Women in Sport Strategy focus areas include participation; places and spaces; leveraging investment; and leadership. 'Places and spaces' acknowledges that facilities influence participation.

The strategy encourages facility providers to apply a gender lens to the design of regionally significant facilities. Appropriate facilities are those that exhibit universal design principles, prioritise safety, have family friendly social spaces and are clean and easy to access.

Improving the quality of existing surfaces, lighting and amenities is identified as the minimal critical strategy to reduce immediate barriers for women and girls. Equitable allocation of playing spaces, training venues and other resources was also identified as a key need.

COUNCIL

Community Strategic Plan (2018-2038)

The Parramatta Community Strategic Plan (CSP) identifies the community's main priorities and aspirations for the future and plans strategies for achieving these goals. The Vision of Parramatta is to become Greater Sydney's Central city that is liveable, productive and sustainable for all members of the diverse community. The objectives of the CSP that is relevant to the project include:

- 1.1 Invest in services and facilities for our growing community
- 1.3 Support people to live active and healthy lives
- 2.1 Design our City so that it is usable by people of all ages and abilities
- 2.3 Make our City more enjoyable and safe for walking and cycling
- 3.1 Protect and enhance our natural environment
- 3.4 Provide green spaces for recreation, relaxation and enjoyment
- 3.5 Prepare for and lessen the impacts of extreme weather events
- 3.6 Promote energy and water efficiency, renewable energy sources, and reduced emissions and waste
- 4.4 Recognise that Parramatta has always been a gathering place and our diversity is our strength
- 5.3 Plan and deliver a vibrant, attractive and safe CBD and local centres
- 5.4 Ensure major centres have a thriving day and night time economy
- 6.2 Support collaboration and partnerships to deliver key outcomes for our City
- 6.5 Manage the Council's assets and financial resources in a responsible manner and provide the best possible services for the community

City of Parramatta Environmental Sustainability Strategy 2017

The Environmental Sustainability Strategy outlines the key environmental sustainability directions and priorities as the Council grows, so that all of its residents, workers and visitors feel the benefits of the growing City, while meeting the bigger goal of building Australia's next great city. Goals identified as part of the Environmental Sustainability Strategy that are relevant to this proposal are:

- Protect, enhance and increase our parks and green spaces to make them a community feature
- Increase canopy cover to 40% by 2050 (based on 2016 levels)

Socially Sustainable Parramatta Framework

The framework aims to advancing social sustainability within the LGA and sets out a new way of working for City of Parramatta Council which puts people first, and identifies specific ways that the opportunities of growth can be shared equitably for all people. The socially sustainable goals relevant to this proposal include:

- **All people can lead healthy active lives:** Improve health outcomes, starting with people experiencing disadvantage in our community (*of which the aquatic centre is an identified action*)
- **We trust each other, are welcoming and feel good about being here together:** Facilitate social connections to foster socially and culturally diverse, inclusive and empowered communities.
- **All people can learn, share and grow:** Facilitate formal and informal learning opportunities at all ages, to help people improve their circumstances, reach their full potential and share their knowledge, creativity and culture.
- **Children are our future:** Work to ensure every child in Parramatta is healthy, nurtured, happy and will thrive.

Active Parramatta

The Active Parramatta initiative by Council strives to provide healthy and active opportunities for residents, workers and visitors to improve their health and wellbeing, and encourage active participation. Relevant objectives include:

- Improve community cohesion by using health and active participation to reduce barriers
- Increase participation to improve the communities' health and well-being
- Improve the quality and participation of local sporting clubs
- Provide literacy and educational programs to connect residents with their communities

Cool Parramatta

The LGA has more hotter days in comparison to Sydney. The Cool Parramatta toolkit was developed by Council to provide its residents tips and ways to stay cool when the temperature rises. The Aquatic Leisure Centre proposal is in alignment with the Cool Parramatta agenda of lowering Parramatta resident's body temperatures during hot days and nights.

Culture and Our City

Council's Cultural Plan sets a way forward for cultural and social success in the face of unprecedented rapid growth. Relevant actions identified as part this strategy include:

- 1.29 Prioritise the use of public space for online activation, increasing shared spaces for people to work, socialise, collaborate or make
- 2.7 Expand the range of everyday activations in our public spaces
- 2.20 Provide a fantastic experience for our sporting fans that extends their connection with Parramatta and invites them to return
- 2.28 Broker underutilised spaces for after-hours innovation, events and activations
- 3.19 Identify partners, funding sources and possible sites for the new exhibition spaces
- 4.7 Deliver the Civic Link cultural spine as a vibrant space in the heart of the Council

The proposed Aquatic Leisure Centre fits in with this strategy of creating more spaces for social interaction and expression thereby leading to a cohesive community.



Draft Community Infrastructure Strategy (CIS)

The CIS outlines Council's long term direction for community infrastructure provision. It focuses on community infrastructure over which Council has primary responsibility, plays a role in delivering, or seeks to advocate for on behalf of the community.

The strategy identifies and assesses existing community infrastructure in the LGA. It identifies contemporary challenges we have for providing quality community infrastructure and key opportunities and direction for our 12 high growth areas.

Specifically, the aquatic network chapter includes an analysis of the existing aquatic network, aquatic facility benchmarks, summary of the networks strengths and challenges, community needs, trends, community engagement outcomes and future directions.

Importantly, the strategy recommends to 'Continue to work with partners to support delivery of a contemporary Aquatic Leisure Centre offering at Mays Hill.'

Goals identified as part of the Socially Sustainable Parramatta Framework that are relevant to this proposal are:

- Children are our future - Work to ensure every child in Parramatta is healthy, nurtured, happy and will thrive.
- All people can learn, share and grow - Facilitate formal and informal learning opportunities at all ages, to help people improve their circumstances, reach their full potential and share their own knowledge, creativity and culture.
- Green, inclusive and safe places to share - Design, build and maintain public spaces and neighbourhoods that are green, safe and inclusive for all.
- All people have access to the resources they need to live healthy, active lives - Improve health outcomes, starting with disadvantaged groups in our community.
- We trust each other, are welcoming, and feel good about being here - Facilitate social connections to foster strong, culturally diverse, inclusive and empowered communities.



COMMUNITY PROFILE & PREVIOUS ENGAGEMENT

Current community profile

This sections summarises the current (pre-development) community profile of the LGA as a whole, as well as Parramatta suburb, utilising data from the 2016 ABS Census obtained from Profile.id and Atlas.id.

KEY FINDINGS:

- With a much high density population living in high-rise and medium rise buildings, there is a need for outdoor recreation in the suburb and the LGA.
- Parramatta has a very diverse population which results in a need for varied types of recreation. This will shape the planning and uses of the site.
- A high lone person count and families living with children further substantiates a need for outdoor recreational spaces that will aid social interaction and cohesion in the LGA.

LGA POPULATION CHARACTERISTICS

The subject site is located in the suburb of Parramatta. In 2018, the LGA was home to 251,311 people (estimated), an increase of 48,106 people since 2011.

Overall compared to Greater Sydney, the LGA is characterised by higher cultural diversity; more families with children; more languages other than English spoken at home; and higher median weekly household incomes. Key statistics compared to Greater Sydney include:

- A much higher proportion of young work force aged between 25 to 34 (20.2% compared to 16.1%)
- A higher proportion of couples with children (38.3% compared to 35.3%), and a higher proportion of one couples with young children (23.1% compared to 18.8%)
- 26.7% of the households earned a high income and 14.3% were low income households, compared with 28.3% and 15.1% respectively for Greater Sydney
- A significantly higher proportion of high-density housing (33.8% compared to 23.5%)
- A significantly higher proportion of households that were rented (39.6% compared to 32.6%)
- A higher SEIFA score, indicating lower levels of relative disadvantage (1039.0 compared to 1018.0)
- A larger percentage of persons with Bachelor or Higher degrees (37.2% compared to 28.3%); A smaller percentage of persons with No qualifications (32.2% compared to 37.7%); A smaller percentage of persons with Vocational qualifications (11.5% compared to 15.1%)
- A larger percentage of persons who traveled by train (21.5% compared to 16.2%)
- A significantly higher population of people born overseas (49.5% compared to 36.7%), and
- A significantly higher proportion of languages other than English spoken at home (52% compared to 35.8%)
- A significantly higher proportion of people who speaks another language, and English not well or not at all (6.4% compared to 5.8%)
- A lower proportion of Aboriginal and Torres Islander population (0.7% compared to 1.5%)
- A slightly lower proportion of people needing assistance (4.1% compared to 4.9%), but significant total number of 9,291 people.

Forecast population

This section summarises and forecast (post-development) population growth, based on Forecast.ID projections.

KEY FINDINGS:

- The City of Parramatta population estimate for 2020 is 272,814, and is forecast to grow to 487,037 by 2041.
- In 2016, the dominant age structure for persons in the City of Parramatta was ages 30 to 34, which accounted for 11.1% of the total persons.
- The largest increase in persons between 2016 and 2036 is forecast to be in ages 30 to 34, which is expected to increase by 22,101 and account for 10.9% of the total persons.
- The largest 5 year age group in 2036 is 30 to 34 years, with a total of 48,166 persons.
- There will be a slight increase in the proportion of older adults aged 65+ between 2016 to 2041 of 12.6%. This is equivalent to an additional 33,330 people in this age group.

FUTURE POPULATION GROWTH

All across the LGA, urban renewal and development is underway or planned which will dramatically increase the number of people living in there as well as the density and the way people live

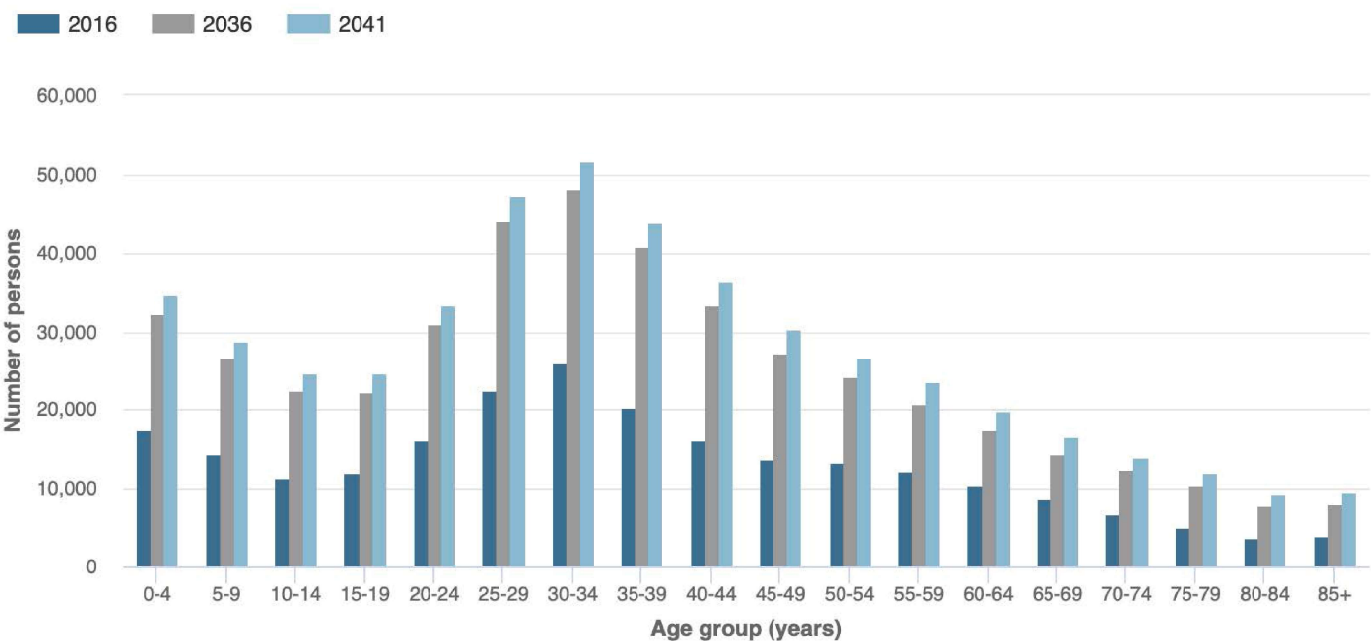
Between 2016 and 2041, the population for the City of Parramatta is forecast to increase by 252,591 persons (107.74% growth), at an average annual change of 2.97%.

Table 4 - Change to the population of the suburb of Parramatta that the aquatic leisure centre will cater to in the future (Forecast.ID, Parramatta LGA)

2016	2041	% CHANGE
234,446	487,037	+252,591 (78.52%)

Forecast age structure - 5 year age groups

City of Parramatta - Total persons



Population and household forecasts, 2016 to 2041, prepared by .id the population experts, November 2019.

Summary of previous engagement

This section summarises previous engagement undertaken by the City of Parramatta and Parramatta Park Trust.

KEY FINDINGS:

- Evidence suggests that the proposal for a new aquatic facility is supported by stakeholders, user groups and the wider community.
- Community consultation outcomes have informed the development of the aquatic facility options.
- An accessible and affordable spaces and programs are a priority for the community.
- Community and stakeholders have identified the need for the ALCP to:
 - Maximise Accessibility and Inclusiveness
 - Diversity and a Wide Range of Services
 - Aim to Achieve Very High Levels of Usage
 - Deliver as a Priority in the Shortest Possible Time
 - User Affordability
 - Financial Sustainability
 - Provision of Existing Services (replace those that were provided at Parramatta War Memorial Swimming Centre
 - Mays Hill Precinct Integration

SUMMARY OF PREVIOUS ENGAGEMENT PROCESSES

Through 2016-2018, there appears to have been extensive Council-led consultation with stakeholders and the broader community, to inform planning for the new aquatic leisure centre. This included:

- Working with Parramatta Park Trust to develop feasibility options and a master plan for the Mays Hill Precinct, to identify a preferred location and design principles for the new aquatic leisure centre.
- The Trust completed extensive consultation with the community on the master plan, including on preferred location for the new aquatic leisure centre. The Trust is currently working with Council on a lease for the site and coordinating activities related to the design, approvals and construction of the new centre;
- General community engagement, including:
 - Surveying of community representative segments and users of the previous aquatic leisure centre, including online survey, focus groups, intercept surveys, phone survey, and targeted activities with youth and non-English speaking background (NESB) groups;
 - Stakeholder briefings with key user groups (including Parramatta Memorial Swimming Club and Parramatta Water Polo Club), schools, NSW Department of Education, Catholic Education Parramatta Diocese, and state sporting agencies (including Swimming NSW, Water Polo NSW, NSW Institute of Sport and Basketball NSW); and
- Stakeholder workshop with a selection of former customers, interested community members, local members, representatives of key user groups and highly interested community organisations

Final Business Case: A New Aquatic Leisure Centre, September 2018

As part of the business case development, in November 2017 further consultation with stakeholders 'confirmed that the concept of a contemporary facility would be broadly welcomed and that the community believes it needs recreation offerings that support the current and future Parramatta; one they see as a growing, modern, and significant place.'

2017 FEASIBILITY STUDY

As part of the consultation informing the 2017 Feasibility Study, key stakeholders highlighted the following¹:

Guiding Principles:

- **Maximise Accessibility and Inclusiveness:** to ensure that the Centre is easy to access and from a design perspective incorporates contemporary universal design elements to meet stakeholder needs.
- **Diversity and a Wide Range of Services:** to develop a Centre that provides a mix of programs and services that cater for the diverse needs of the Parramatta community.
- **Focus on Servicing the Local Catchment:** the primary target market for the Centre is the local catchment which is projected to be in excess of 388,760 residents within a 5km radius by 2036.
- **Aim to Achieve Very High Levels of Usage:** to maximise community benefit, the design should facilitate a very high level of participation in leisure, recreational and sporting activities.
- **Maximise Capacity for Future Growth:** where possible ensure that the design considers accommodating the projected future population growth in the area.
- **Deliver as a Priority in the Shortest Possible Time:** to ensure that the project is delivered in an efficient and effective manner with the objective of providing community services as soon as practicable.
- **User Affordability:** to provide a range of pricing options that accommodate the diverse needs of the Parramatta community and in so doing provide excellent value for money.
- **Financial Sustainability:** to maximise the financial performance of the Centre from an operational perspective and reduce the overall Council subsidy per visit.
- **Provision of Existing Services:** to deliver a range of experiences building on those provided at the old Parramatta War Memorial Swimming Centre.
- **Mays Hill Precinct Integration,** noting the Design Principles of the Parramatta Park Trust and its Mays Hill Master Plan Report.

DRAFT COMMUNITY INFRASTRUCTURE STRATEGY

Between August – October 2017, the draft Community Infrastructure Strategy was on public exhibition. The following engagement outcomes have been taken from the CIS draft report:

Our community values:

- The important role our aquatic facilities play in our community
- Natural swimming offerings
- Our existing aquatic facilities

Our community would like to see:

- New aquatic facilities and upgrades to existing facilities
- Different types of aquatic facilities that are co-located with other facilities
- Affordable aquatic facilities that are accessible to everyone and employ universal design principles
- More information regarding the replacement of the Parramatta CBD Pool
- Natural swimming reintroduced along the Parramatta River

¹ Source: Addendum to the Final Business Case: A New Aquatic Leisure Centre City of Parramatta Council, September 2018



4

Aquatic Centre needs assessment

Existing and planned aquatic network

DEFINITIONS

The CIS defines the Parramatta Aquatic network as including:

Aquatic Facilities

Formal controlled water spaces with outdoor aquatic components, indoor aquatic components or both. They usually have ancillary amenities such as change rooms, public amenities and a café/kiosk. Such facilities may be co-located with other community, recreation, leisure and ancillary functions such as an indoor sports hall, crèche, fitness centre (including gymnasium), wellness offerings and more.

Natural Area Play/Swimming

An open body of water where a person can be immersed in water. Can be a formally or informally defined facility or location within a natural setting.

There may be degrees of control (and supervision) at times as well as varying capacity and quality of ancillary amenities and other facilities or equipment present to support natural swimming participation.

Water Play Parks

Formal play spaces within a park setting with accompanying zero depth splash pad and an array of water play and sensory equipment supported by appropriate aquatic standard plant and water treatment, designed for participants to get wet. They may exist within a larger integrated playground with wet and dry play spaces or be a dedicated offering.

EXISTING AND PLANNED AQUATIC NETWORK

Within the LGA, there are two existing aquatic centres. One is Council owned and operated and the second is owned and operated by another agency.

Existing aquatic facilities in the LGA

Epping Aquatic and Leisure Centre

Existing facility - Council owned and operated. Described as 'A Valued Neighbourhood Facility in Bushland Setting' in the and classified as a Local neighbourhood outdoor only swimming pool, with a 6 lane 50m pool, covered toddlers play pool and learn to swim pool in the CIS.

Sydney Olympic Park Aquatics Centre

Sydney Olympic Park Authority (SOPA) operates an Aquatics Centre which is a regional scale facility. It includes: one 50m pool, two 25m pools, a leisure pool, water slide, sprays and river rapid ride. Blaxland Riverside Park at Newington, also part of SOPA, is a regional destination with a water play park.

Swimming pools within schools

The Draft Community Infrastructure Strategy (Draft) identifies four swimming pools within schools and several privately owned commercial swim centres available to varying degrees to the general public, such as the Macarthur Girls High School learn to swim program.

Planned aquatic facilities

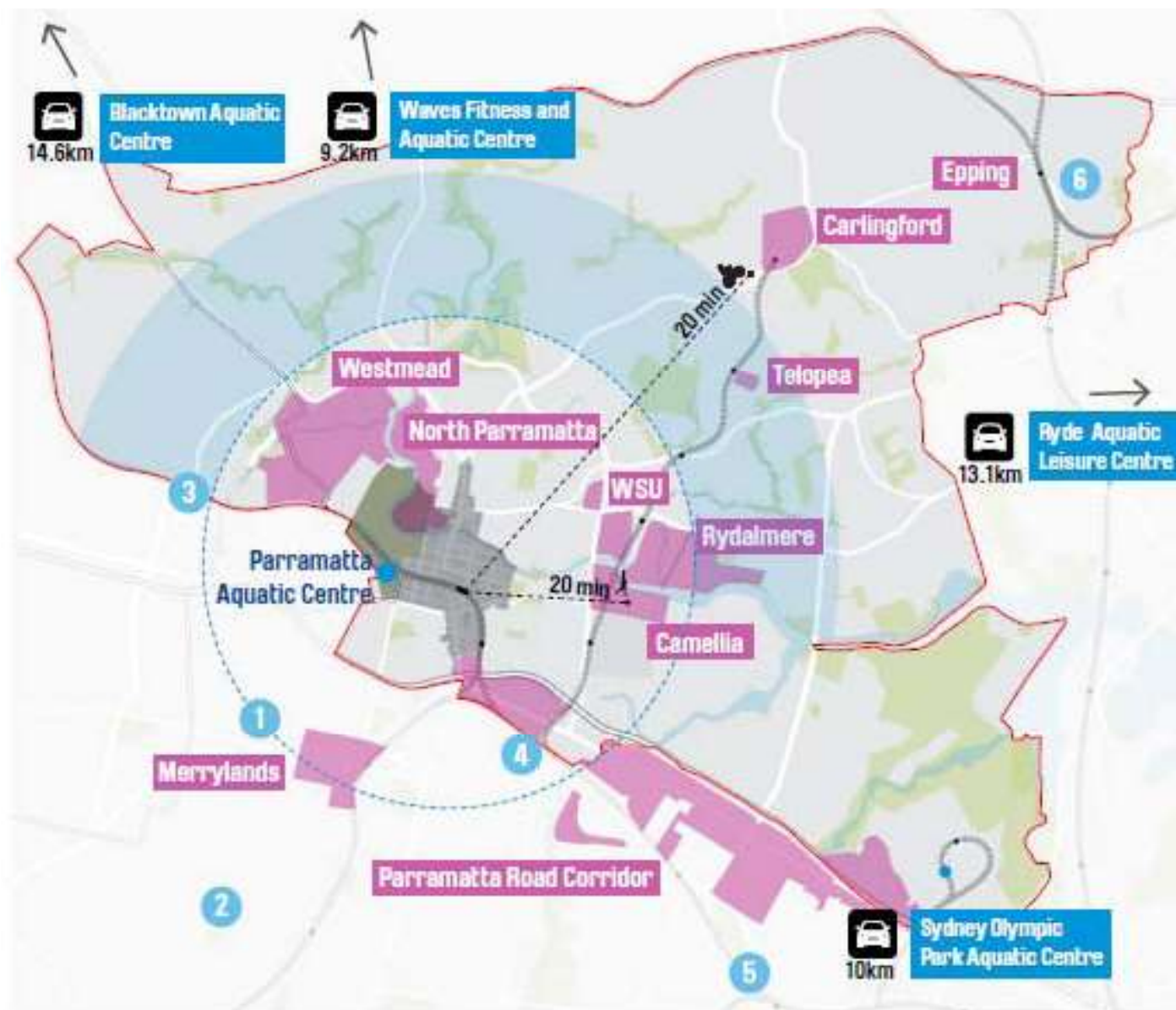
The ALCP, which will include a 10-lane 50m outdoor pool; 25m indoor pool; learn-to-swim facilities; café; fitness centre, and parking facilities.

BENCHMARKING

City of Parramatta's future population is estimated to grow to 466,000 people by 2036. Based on population benchmarking and as outlined in the Draft Community Infrastructure Strategy (Draft), this would require up to 3 aquatic facilities.

Currently the LGA is home to two aquatic leisure centres, indicating a gap of one by 2036. The planned Parramatta Leisure and Aquatic Centre, would bring the total number of aquatic leisure centres up to three, therefore helping to meet this gap.

Aquatic centre audit map



Source: City of Parramatta Council.

GENERAL AQUATIC FACILITY NEEDS SUMMARY

A growing population, a growing demand

City of Parramatta's future population is estimated to grow to 466,000 people by 2036. The benchmarks, indicate a need for three aquatic centres to service the growing population..Currently, the LGA currently has 2. The proposed Parramatta Leisure and Aquatic Centre (this project) enables Council to meet this demand benchmark.

Health and wellbeing

Aquatic leisure centres play an important role maintaining and improving health outcomes for people of all ages, from babies right through to the elderly. Access to diverse and adequate community and recreation services and facilities such as those that will be provided in the new Aquatic Leisure Centre, is necessary for physical and mental health, well-being, personal productivity, social cohesion and social sustainability. Activities for fitness and wellbeing include lap swimming, aqua aerobics and rehabilitation.

Affordable and accessible

New recreation facilities need to meet best practice in terms of being accessible to all both physically and economically. Ensure that members of the community who are living with a disability, are living in a low income household can access and afford to use the future aquatic centre.

Additionally, people will travel long distances to access a new regional facility such as the proposed aquatic centre. Ensure high quality public transport connections.

Inclusive and caters to diverse needs

Swimming in a public pool isn't an option for everyone, depending on their religion. In 2017 Auburn Ruth Everuss Aquatic Centre installed privacy so Muslim women can swim without being seen by other pool users. Other pools have implemented 'womens only' swimming times. Thinking about how to welcome and be inclusive of everyone is something that the new Parramatta Aquatic Leisure centre should consider.

Children and Families

Learn to swim programs are a quintessential part of growing up as a child in Australia. There will be a need for spaces and facilities for parents to watch their child during class, or nearby cafes to wait for them to finish. Providing places for parents to meet and socialise before, after and during classes will help facilitate social connections.

Young people aged 12 – 24 years

There is an opportunity to provide high quality aquatic facility for water sports such as competition swimming and training, school swimming carnivals and other water sport activities (such as water polo).

Working aged people

Parramatta will have a large young, working aged community, many of whom will be living in high-density apartments. This age group (and their friends/families) will need recreation space outside of their homes to meet and participate in local health and wellbeing programs at lunchtimes, outside of work hours, including evenings and weekends.

Older adults

There is forecast to be an additional 33,330 people aged over 65+ living Parramatta by 2041. Aquatic leisure can facilitate health benefits for this age group gained through swimming, exercise, leisure water activities, and a wide range of aquatic programs like aqua-aerobics.

Aquatics for play

There is an opportunity to provide the community with a range play options in the proposed aquatic centre such as those identified in the CIS: Cool off experiences, water play – zero depth, low depth splash pads, slides and water play space components.

Water safety skills & confidence

Parramatta has a significant proportion of residents who have recently arrived from overseas, some who never had to opportunity to learn to swim. To meet this need, there is an opportunity to provide Learn to Swim programs for children and adults, as well as Life saving and First Aid training and mum's and bubs classes.

Programs delivery in multiple languages

With a high proportion of people who speak a language other than English at home reporting that they have difficulty speaking English, this may indicate a need for program delivery and signage to be culturally appropriate and targeted.



Analysis of social impacts and mitigation measures

Analysis of social impacts and mitigation measures

Based on the documentation provide by the client, the table below provides an analysis of social impacts and mitigation measures as outlined in Council's SIA Guidelines for Design Option Two (and as outlined in the supporting business case). Please note that housing was omitted from the table below as it is not relevant to this proposal.

Table 1 - Analysis of social impacts and mitigation measures

Identified impact	Impact type	Mitigation Measures
Demand for aquatic facility		
The proposed new aquatic facility will be the second council owned facility within the LGA. Benchmarking indicates the need for 3 aquatic centres by 2041 to support the additional 252,591 people by 2041, bringing the total population up to 487,037. The provision of the ALCP (both in terms of the facility and its proposed scale) will support the projected population growth.	Positive	None required.
Access to and usage of community facilities and services		
Access ramps for the 50m and 25m pools allows for all abilities to enjoy the pool facilities. Facility is also designed with single-level accessible entry and pathways.	Positive	None required.
Incorporation of contemporary universal design elements and meets accessibility standards. Four sets of accessible toilets and change rooms have been provided. The allocation of disabled car parking spaces to be provided is unclear.	Positive	None required. However, ensure that the design incorporates contemporary universal design standards so all abilities can easily access the facilities. Ensure enough disabled parking to cater for 1 class at any one time.
The facility includes three programmable community rooms and a multi purpose community space.	Positive	None required. Ensure the rooms are easily bookable by the general public to ensure high utilisation levels.
Health & recreation		
As Parramatta's population grows, the number of people and families living in apartments will also grow. The new ALCP will contribute to healthier high density living through providing accessible recreational services for people to meet their physical exercise and health and wellbeing requirements for all ages.	Positive	None required.
Being a regional level facility running swimming programs, particularly ones that can cater to significant learn to swim market in Western Sydney is critical.	Positive	Ensure level of programming of Learn to Swim classes meets demand.
Dedicated first aid room provided.	Positive	None required.
Central and Western Sydney Districts have more hotter days in comparison to Eastern Sydney. Access to the ALCP will be particularly for people how don't have swimming pools or air conditioning on hot days.	Positive	None required.
Health club provided.	Positive	None required for the design. However for the operation of the club, ensure that there is oportunities for people on lower incomes area are able to access the facility.
All year round facility providing health and wellbeing outcomes to the community in all seasons and weather.	Positive	None required.

Table 1 - Analysis of social impacts and mitigation measures

Identified impact	Impact type	Mitigation Measures
Earning ability		
<p>Given that this is a government led project, there is an opportunity to ensure that local young people and workers are employed during the construction and operational phases of the ALCP.</p> <p>For example, the proposed facility will require management and maintenance staff which will increase employment opportunities in the local area.</p>	Positive	Ensure that local workers are prioritised in any hiring policy.
Provision of a cafe	Positive	None required for the design. However, investigation for this to ensure local workers are prioritised or it be run as a social enterprise to help young and disadvantaged people.
Crime and Public Safety		
It is likely that the aquatic centre will be used in the evening by families, children, older and other vulnerable residents. It is unclear from plans whether proposed entry/exit areas pedestrian pathways, and car parks safe and well lit, especially at night.	Neutral	<p>Ensure the design of the pool meets CPTED principles, with adequate lighting, particularly in the car parking areas.</p> <p>Ensure there is adequate level of staff with qualified lifeguards and water safe signage.</p>
Neighbourhood identity		
Design integrates well with the landscape by having 'sunken' elements and a green roof.	Positive	None required.
Belonging and connection		
Club rooms provided for sporting teams engender a sense of ownership and pride.	Positive	None required.
Aquatic centres are known to be places where local communities can connect with each other. Outdoor areas for relaxing and viewing aquatic activities, enhancing opportunities for social connections and family bonding time.	Positive	None required.
Needs of social groups		
The design of the Aquatic Leisure Centre is open plan does not allow for sections to be partitioned off if needed (e.g. womens only private pool sessions)	Negative	Investigate potential for the 25m pool to be screened off from the rest of the facility to cater for needs of different cultural groups, women and older people
Learn to swim pool provided	Positive	None required.
Family change rooms, parents rooms and birthday party rooms provided	Positive	None required.
Social equity (needs of disadvantaged groups / displacement)		
There is no displacement of existing uses or populations due to the project	Neutral	None required. This pool replace the PWMSC which was the largest and most popular aquatic facility in the municipality
A public aquatic facility provides access to a swimming pool during summer for lower income residential who don't have a private pool. Future pool fees should be affordable for a range of residents.	Positive.	Ensure that future pool fees should be affordable for a range of residents.

CONCLUSION

The delivery of a new Aquatic Leisure Centre in Parramatta will have an overwhelmingly positive impact on the community, is in high demand, and can deliver health and social benefits for the community.

The ALCP will meet Parramatta's future demand for aquatic leisure centres and will be an important regional facility for the Central River City.

City of Parramatta's future population is estimated to grow to 466,000 people by 2036. This proposal enables Council to meet this demand benchmark, which indicates a need for three aquatic centres to service the growing population.

Additionally, people will travel long distances to access a this regional facility and its close proximity to public transport enables access by a greater number of people.

The ALCP replaces the highly utilised PWMSC

The closure of the PWMSC in 2017 to enable the redevelopment of the Western Sydney Stadium has meant that the 160,000 annual visitors have been forced to use other facilities, or have stopped participating in activities at aquatic facilities all together.

According to the final Business case, this volume of attendance resulting and approximately \$1.3 million in revenue over the last four years. The attendance level was reported to be high when benchmarked to other outdoor aquatic leisure centres across NSW, which suggests that there is a high level of underlying demand for aquatic leisure facilities.

Improved health and wellbeing for all of the community.

Aquatic leisure centres play an important role maintaining and improving health outcomes for people of all ages, from babies right through to the elderly. Access to diverse and adequate community and recreation services and facilities such as those that will be provided in the new ALCP, is necessary for physical and mental health, well-being, personal productivity, social cohesion and social sustainability. Activities for fitness and wellbeing include lap swimming, aqua aerobics and rehabilitation.

A cool place for hot days

Our summers are forecast to get hotter and areas in Western Sydney are more impacted than suburbs in the east. Access to affordable public pools is critical to increase the liveability of the area, provide places for a range of community members to enjoy and cool down and contribute to the health and wellbeing of the community.

Aquatics for play, confidence and safety

Parramatta has a significant proportion of residents who have recently arrived from overseas, some who never had to opportunity to learn to swim. To meet this need, there is an opportunity to provide Learn to Swim programs for children and adults, as well as Life saving and First Aid training and mum's and bubs classes.

There is an opportunity to provide the community with a range play options in the proposed aquatic centre such as those identified in the CIS: Cool off experiences, water play – zero depth, low depth splash pads, slides and water play space components.

Access for all, young and old

Access ramps for the 50m and 25m pools allows for all abilities to enjoy the pool facilities. Facility is also designed with single-level accessible entry and pathways.

There is forecast to be an additional 33,330 people aged over 65+ living Parramatta by 2041. Aquatic leisure can facilitate health benefits for this age group gained through swimming, exercise, leisure water activities, and a wide range of aquatic programs like aqua-aerobics

Learn to swim programs are a quintessential part of growing up as a child in Australia. There will be a need for spaces and facilities for parents to watch their child during class, or nearby cafes to wait for them to finish. Providing places for parents to meet and socialise before, after and during classes will help facilitate social connections.

Inclusive and caters to diverse needs

Swimming in a public pool isn't an option for everyone, depending on their religion. Other pools have implemented 'womens only' swimming times. Thinking about how to welcome and be inclusive of everyone is something that the new ALCP should consider.

With a high proportion of people who speak a language other than English at home reporting that they have difficulty speaking English, this may indicate a need for program delivery and signage to be culturally appropriate and targeted.

Appendix 11: Utilities Report

Aquatic and Leisure Centre Paramatta

Services

Infrastructure

Management Plan

Prepared for: City of Parramatta

Attention: Ben Chaplin

Date: 31 Mar 2020

Prepared by: Theodore Mirabile / Saman Abdi

Ref: 38574

Wood & Grieve Engineers now part of Stantec



WOOD & GRIEVE ENGINEERS

NOW PART OF



Revision

Revision	Date	Comment	Prepared By	Approved By
A	20.03.2020	Preliminary	SAY	TMM
B	27.03.2020	For DA Submission	SAY	TMM
C	31.03.2020	Final	SAY	TMM

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1. Introduction

WGE/Stantec have been commissioned on behalf of City of Parramatta, to assist with the preparation of a services infrastructure report the development of the Aquatic and Leisure Centre Parramatta.

This report has been prepared to address all services in the vicinity of the development site

This report has been prepared based on the following information:

- Architectural drawings received from Grimshaw Architect to date
- Information received from Utilities

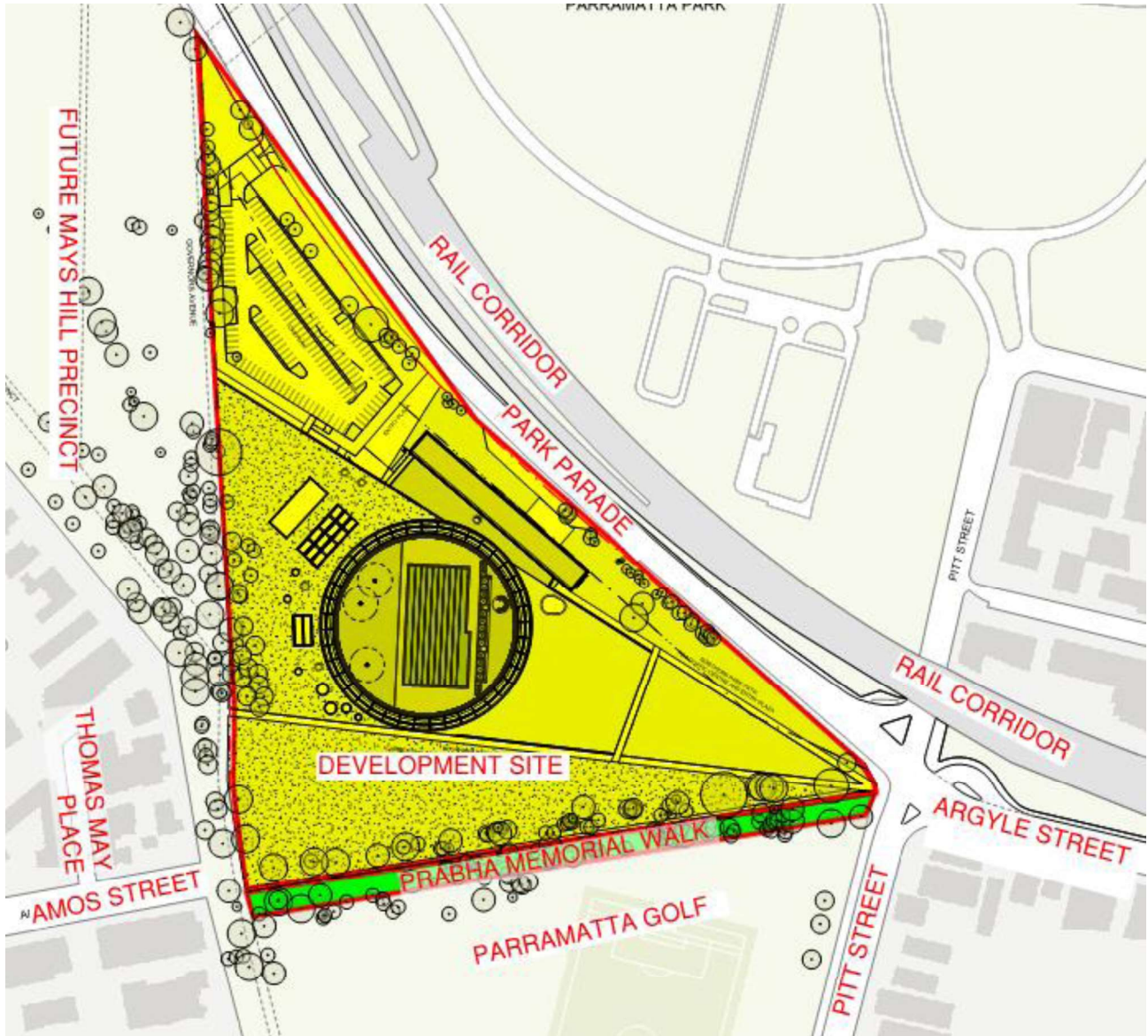
Seq. No.	Authority Name	Phone	Status
95356581	Endeavour Energy	0298534161	NOTIFIED
95356584	Jemena Gas West	1300880906	NOTIFIED
95356586	NBN Co, NswAct	1800626329	NOTIFIED
95356583	Optus and/or Uecomm, Nsw	1800505777	NOTIFIED
95356577	PIPE Networks, Nsw	1800201100	NOTIFIED
95356578	RailCorp Metro West	0298489578 / 0413006517	NOTIFIED
95356579	RailCorp Metro West	0298489578 / 0413006517	NOTIFIED
95356580	RailCorp Metro West	0298489578 / 0413006517	NOTIFIED
95356576	Roads and Maritime Services	0288370285	NOTIFIED

95356589	Sydney Trains, Network Maintenance, Operational Technology	0293795775	NOTIFIED
95356585	Sydney Water	132092	NOTIFIED
95356582	Telstra NSW, Central	1800653935	NOTIFIED
95356588	Transport for New South Wales	0428915340	NOTIFIED
95356587	Vocus Communications	0892446114	NOTIFIED



2. Development Site Location

The development site is currently a park bounded by Park Parade, Pitt Street, Parramatta Golf Club, Prabha Memorial Walk and the future Mays Hill Precinct.



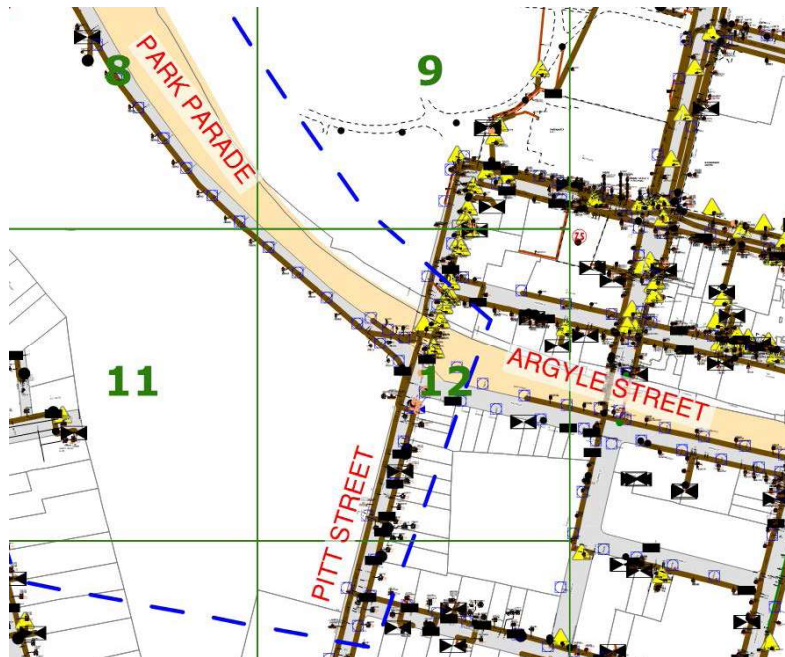
3. Existing Infrastructure

3.1 Electrical

The development site currently does not have a power supply.

Investigations completed to date have confirmed the following:

- Utility LV infrastructure is provided along Park Parade and Prabha Memorial Walk for street lighting.
- Overhead and underground HV cables are found in Park Parade serving a kiosk substation,
- Underground HV and infrastructure conduits are found in Pitt Street, Park Parade and Argyle Street.



Endeavour Energy Drawings Shown Underground Infrastructure In the Vicinity of the Development Site



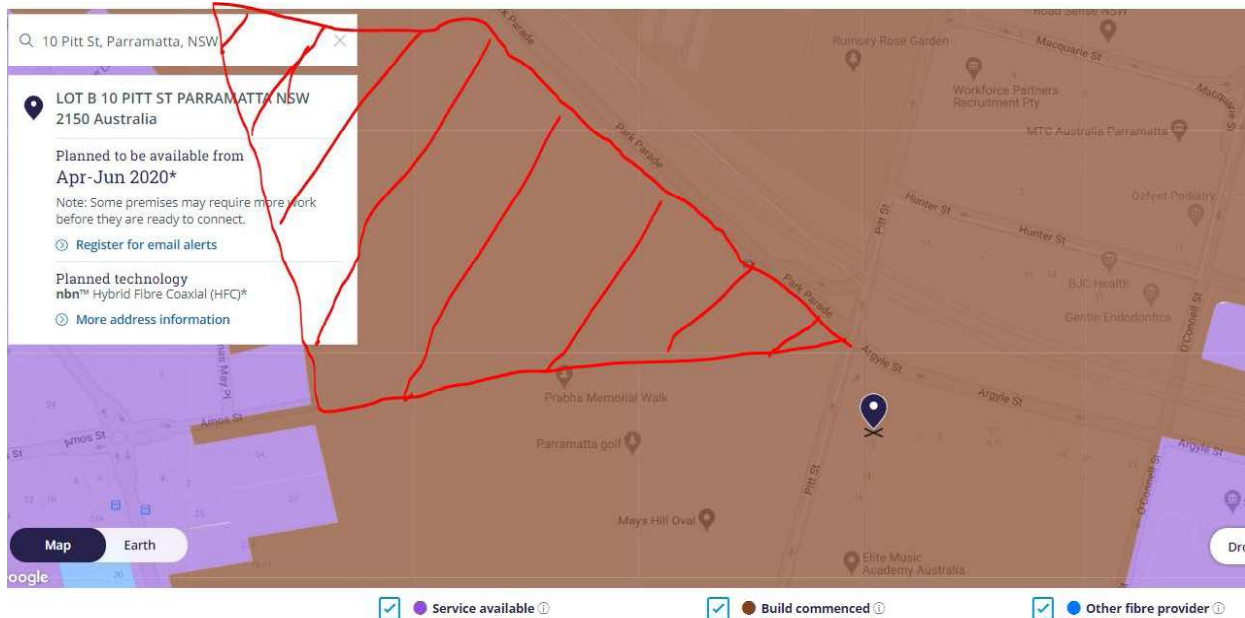
Google Map Shown Overhead HV Supply in Park Parade

Refer to the Endeavour Energy drawings in Appendix 1 for further details.

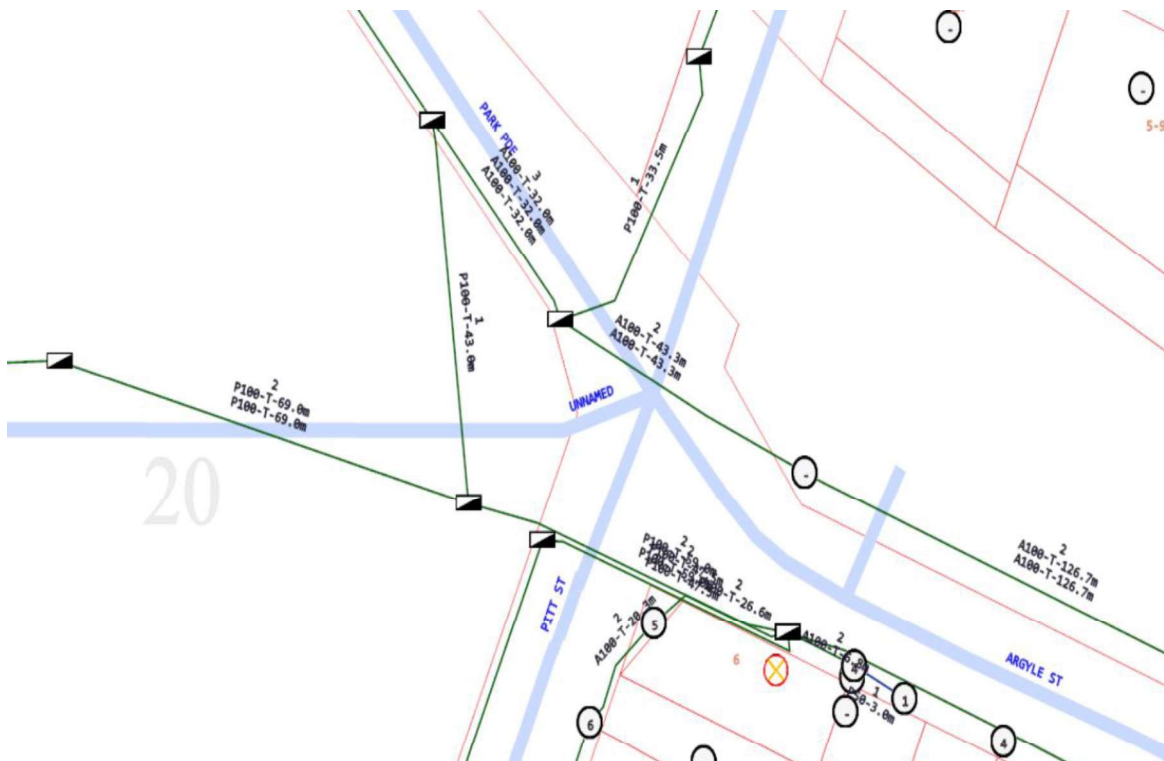
3.2 Communications

The NBN rollout map indicates that NBN services are not currently available in the area but under construction. NBN is planned to have services rolled out in the development area by mid - 2020.

Services maps indicate that existing Telstra underground services are located in Park Parade.



NBN Rollout Map



Services Map Shown Underground Telstra Services Available in Park Parade.



3.3 Cold Water, Sewer and Gas

As per the dial before dig drawings, there are no existing Sydney water and Jemena infrastructure network provided for the proposed building.



4. Proposed Infrastructure

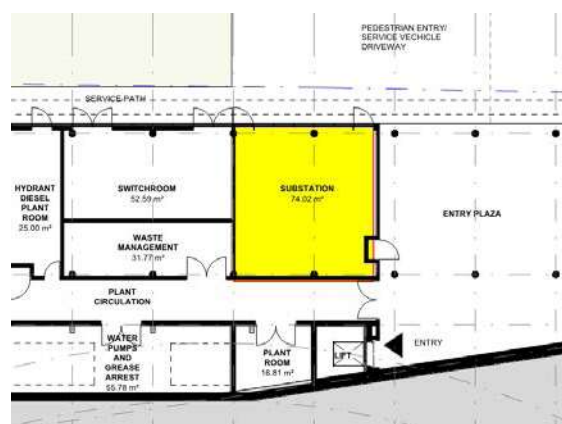
4.1 Electrical

The preliminary maximum demand calculation indicates that 4271A/ph (2959 kVA) is required to the site. To service this load the following electrical infrastructure are required:

Option 1: Chamber Substation (indoors)

- Transformers (limited to 2000A/1500kVA) – 2 off required
- Main Switchboards – 2 off required

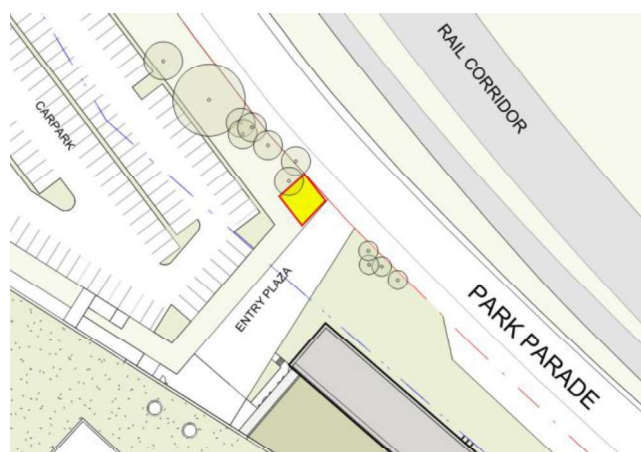
The chamber substation is the proposed option and is located on lower ground level next to the covered Entry Plaza on the eastern wing as indicated below in yellow.



Option 2: Kiosk Substations (outdoors)

- Transformers (limited to 1400A/1000kVA) – 3 off required
- Main Switchboards – 3 off required

Multiple kiosk substations are an alternate option and could be located within boundary Park Parade frontage next to the open Entry Plaza and carpark on the western end of the main building as indicated below in yellow.



Refer to Appendix 3 for substation option details

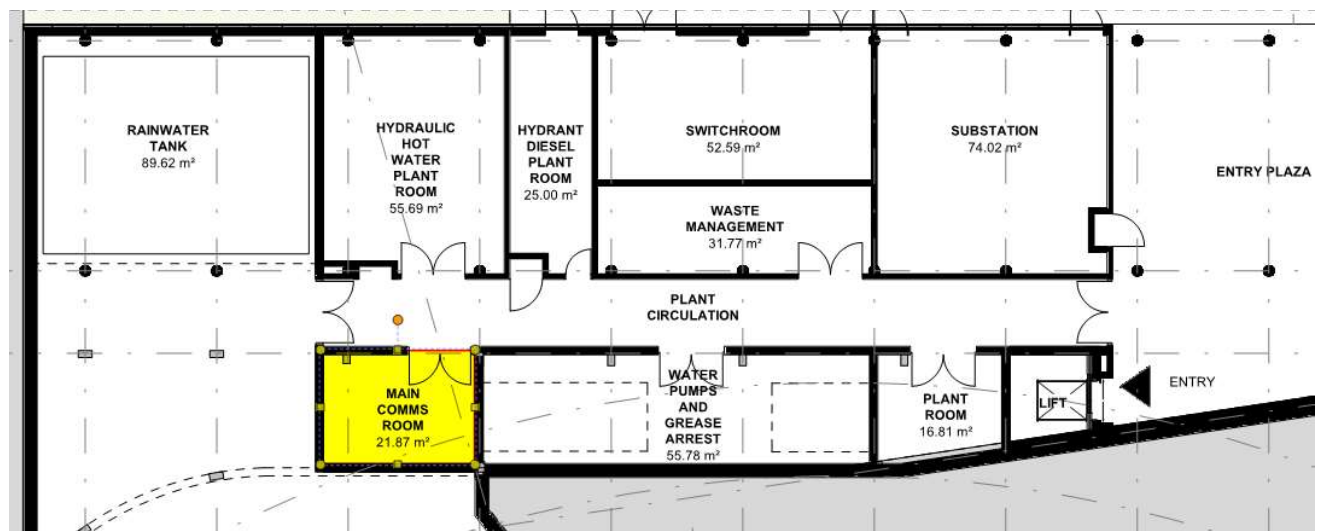


[illegible]

Services Map Shown Underground Infrastructure in Park Parade

4.2 Communications

The incoming communications services for the site have not been developed at this stage, however it is anticipated that the incoming services will be connected to a street services pit nominated by NBN/Telstra. New incoming communications can be housed in same trench as the new incoming electrical services from services room to the street frontage. The new main comms room is located on lower ground level as indicated below in yellow:



4.3 Cold water

The proposed cold-water demand for the project would be following items:

- Potable cold-water demand (for both pool and domestic usage) = 20l/s
- Fire hydrant system = 20l/s

The only cold-water main pipe close by which can provide the required flow rate is the 225mm cold water pipe in Pitt street. Refer below pressure and flow statement.

Pressure & Flow Application Number: 785060
Your Pressure Inquiry Dated: 2020-01-21
Property Address: Park Parade, Parramatta, NSW 2150

ASSUMED CONNECTION DETAILS

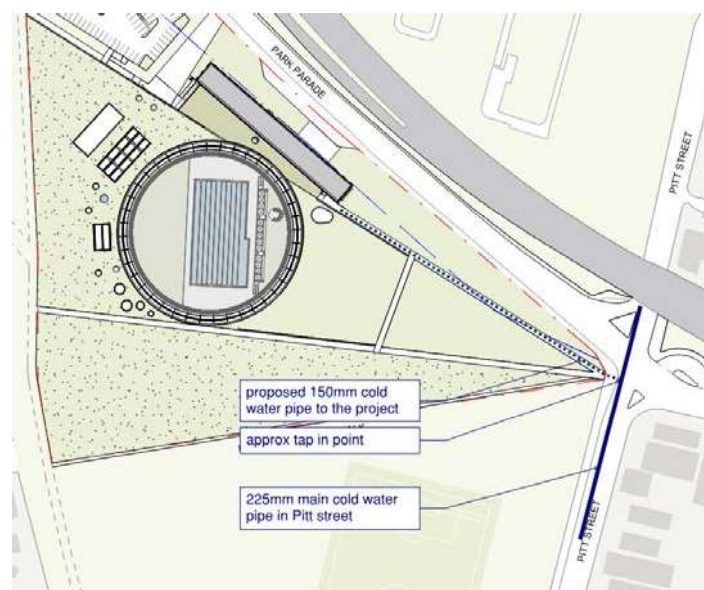
Street Name: Pitt Street	Side of Street: East
Distance & Direction from Nearest Cross Street	30 metres South from Argyle Street
Approximate Ground Level (AHD):	17 metres
Nominal Size of Water Main (DN):	225 mm (Nominated Asset ID: 9438353)

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	45 metre head
Minimum Pressure	29 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	29
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	5	31
	10	31
	15	31
	20	30
	26	30
	30	29
	40	28
	50	27
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	5	29
	10	29
	15	28
	20	28
	26	28
	30	27
	40	26
	50	25
Maximum Permissible Flow	82	19

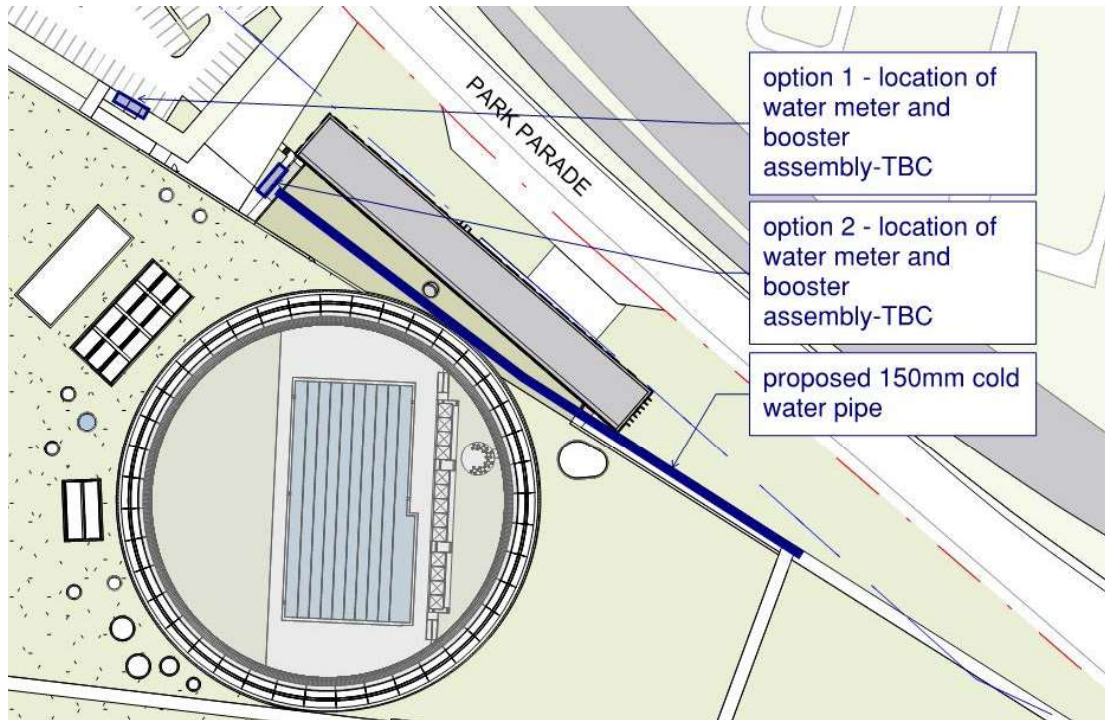
The approx. future connection/tap in for the proposed building would be as per below snapshot. The proposed 150mm cold water pipe will be tapped in the main pipe in Pitt street to serve the project cold water demand.



Location of master meter assembly yet to be confirmed by architect and landscape architect.

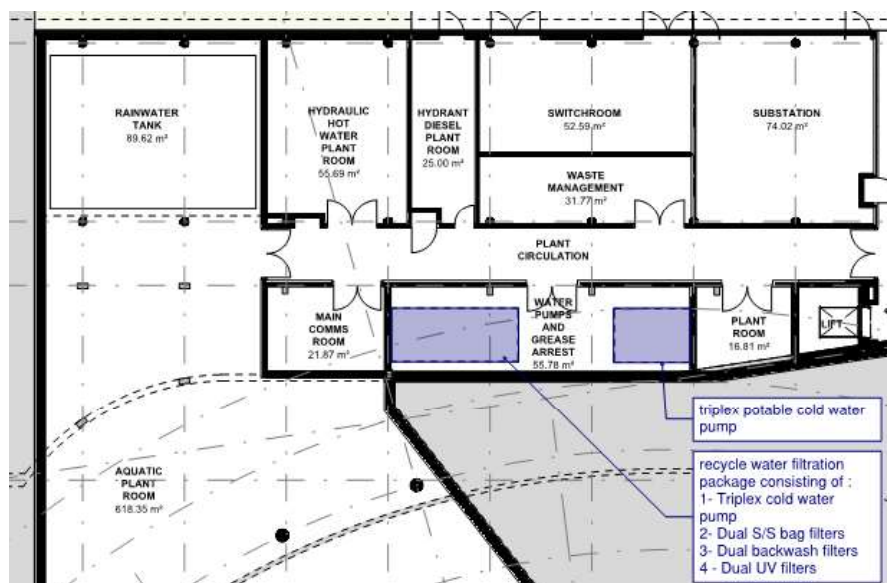
4.3.1 Cold Water master meter and fire hydrant booster assembly

We are proposing two options. Refer below snapshot. Options to be confirmed with architect and landscape architect.



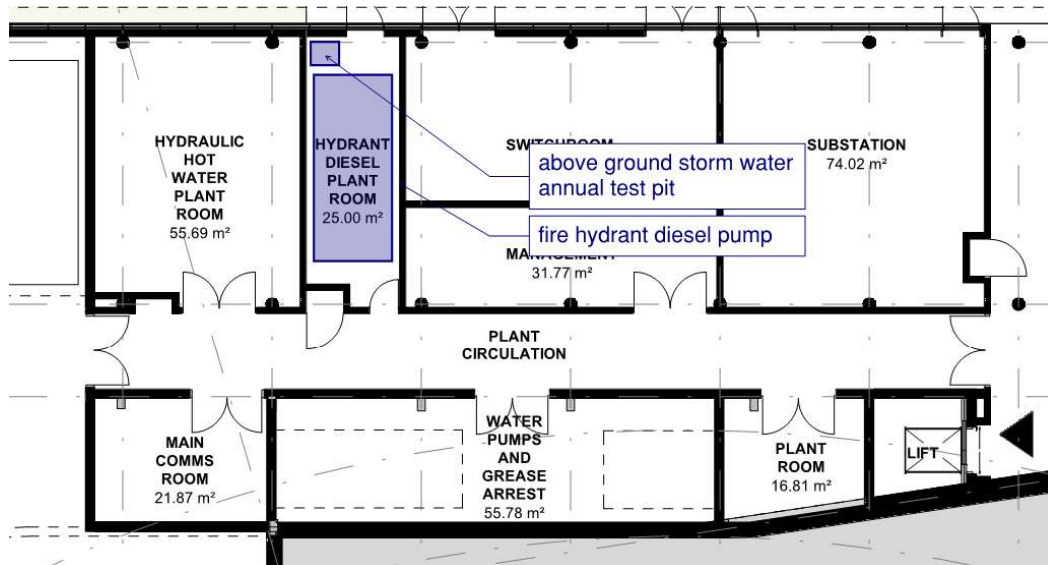
4.3.2 Cold Water pump room

We are proposing the triplex variable speed cold water pump to pressurize the cold water providing 350kPA pressure to all fixtures. The room already been allocated for the pump located in lower ground plant room.



4.3.3 Hydrant diesel pump

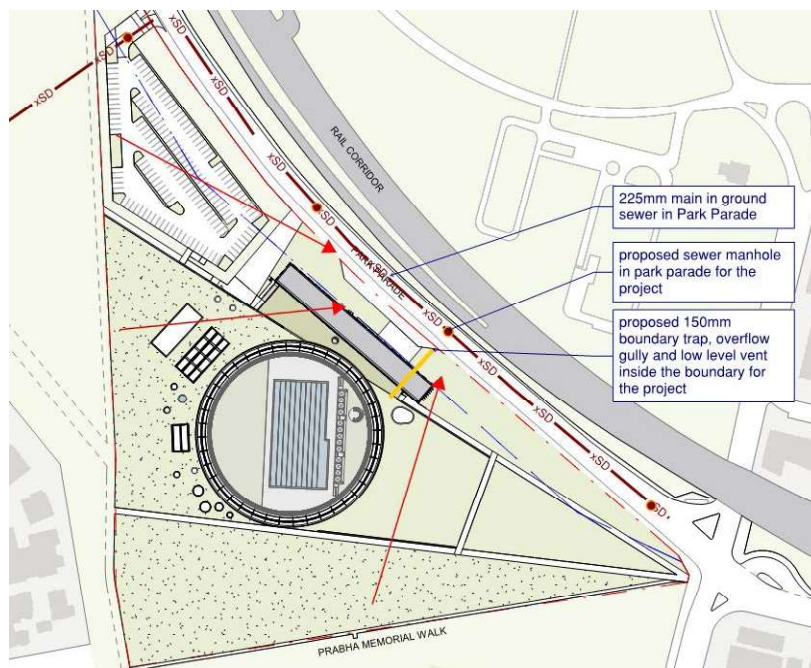
Due to having internal fire hydrants protecting the building, we are proposing the diesel pump to pressurize the system to provide minimum 700kPA pressure to the most disadvantage internal fire hydrant. The room already been allocated for the pump located in lower ground plant room. The room include the above ground annual test pit discharge the test water to the storm water system.



4.4 Sewer

As per the site topography and sloping toward the park parade street, we proposing to diver the site sewer to discharge to park parade. Currently there is an existing in ground 225mm sewer pipe in park parade which can serve the propose project.

Refer below:



We are proposing tap in 150mm sewer pipe from the building connecting to the existing manhole inside the park parade. The termination of the proposed 150mm in ground sewer pipe from the project to be terminated with 150mm Boundary trap, overflow gully and low-level vent inside the project boundary just upstream the connection.

4.5 Gas

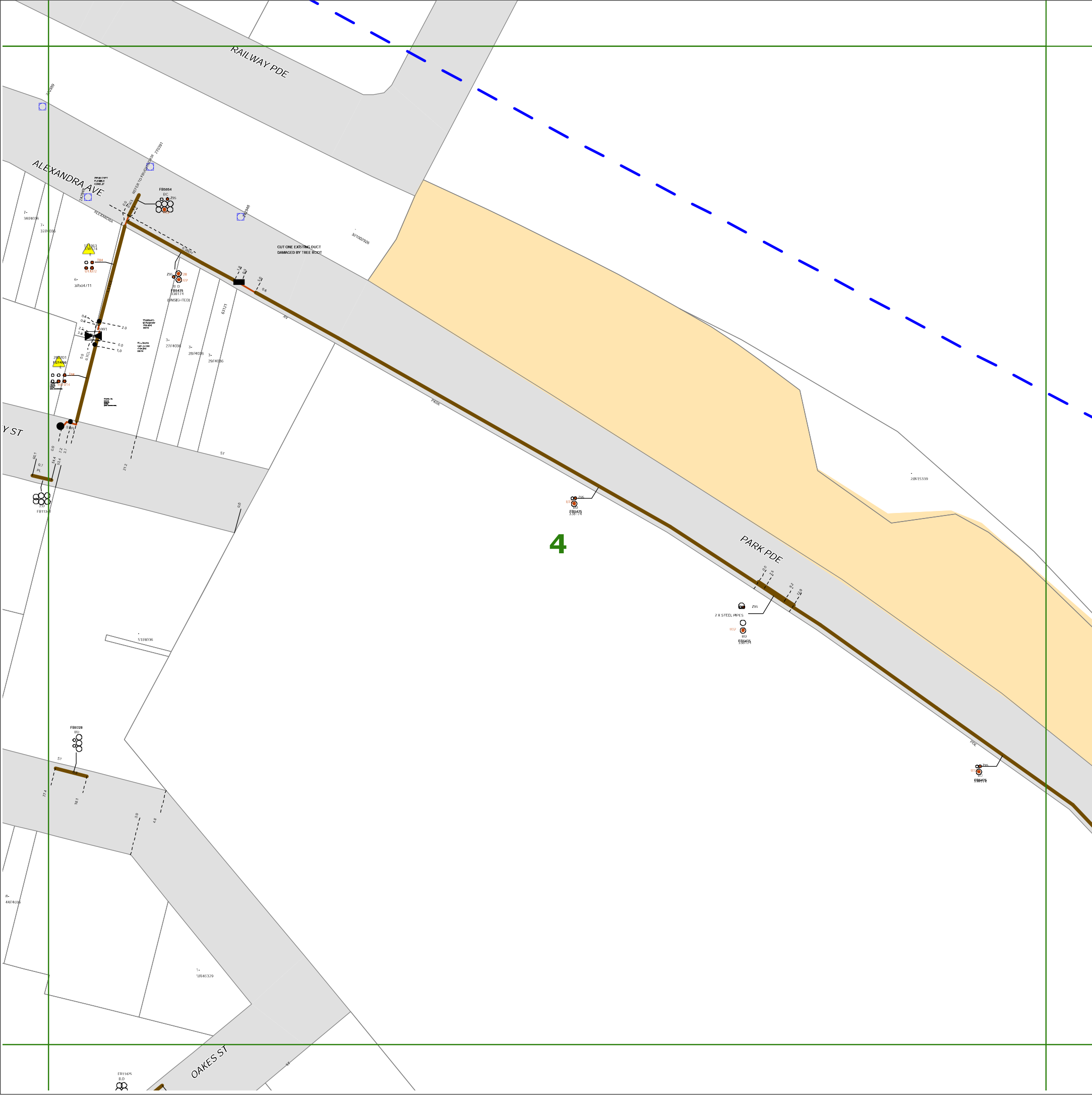
As discussed, and confirmed by client, there will be no gas to the project and all the equipment would be full electric. No allowance been made for the gas.



5. Appendices

5.1 Appendix 1 – Existing Power Infrastructure





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

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LEGEND


-  or 


Street light column
- 


Padmount substation
-  or 

Overground pillar (O.G.Box)
- 

Underground pit
- 

Duct run
- 

Cable run
- 

Typical duct section
- 

Asbestos warning



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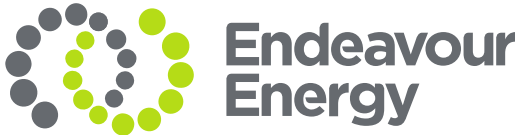
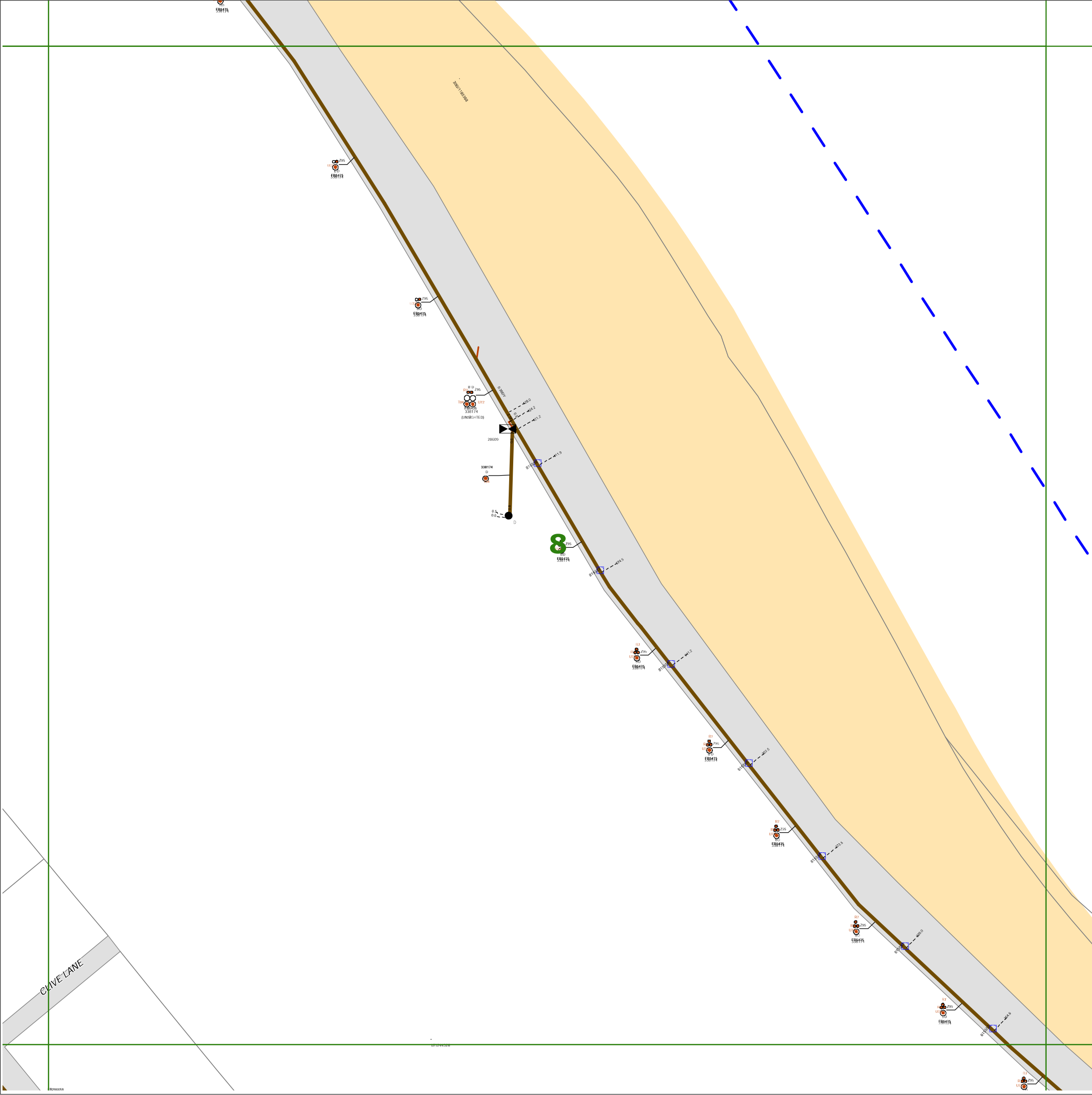
LEGEND

- or ■ Street light column
- ▤ Padmount substation
- or ■ Overground pillar (O.G.Box)
- ▤ Underground pit
- Duct run
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LEGEND

- or

Street light column

or

Padmount substation

or

Overground pillar (O.G.Box)

or

Underground pit

or

Duct run

or

Cable run

or

Typical duct section

or

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LEGEND

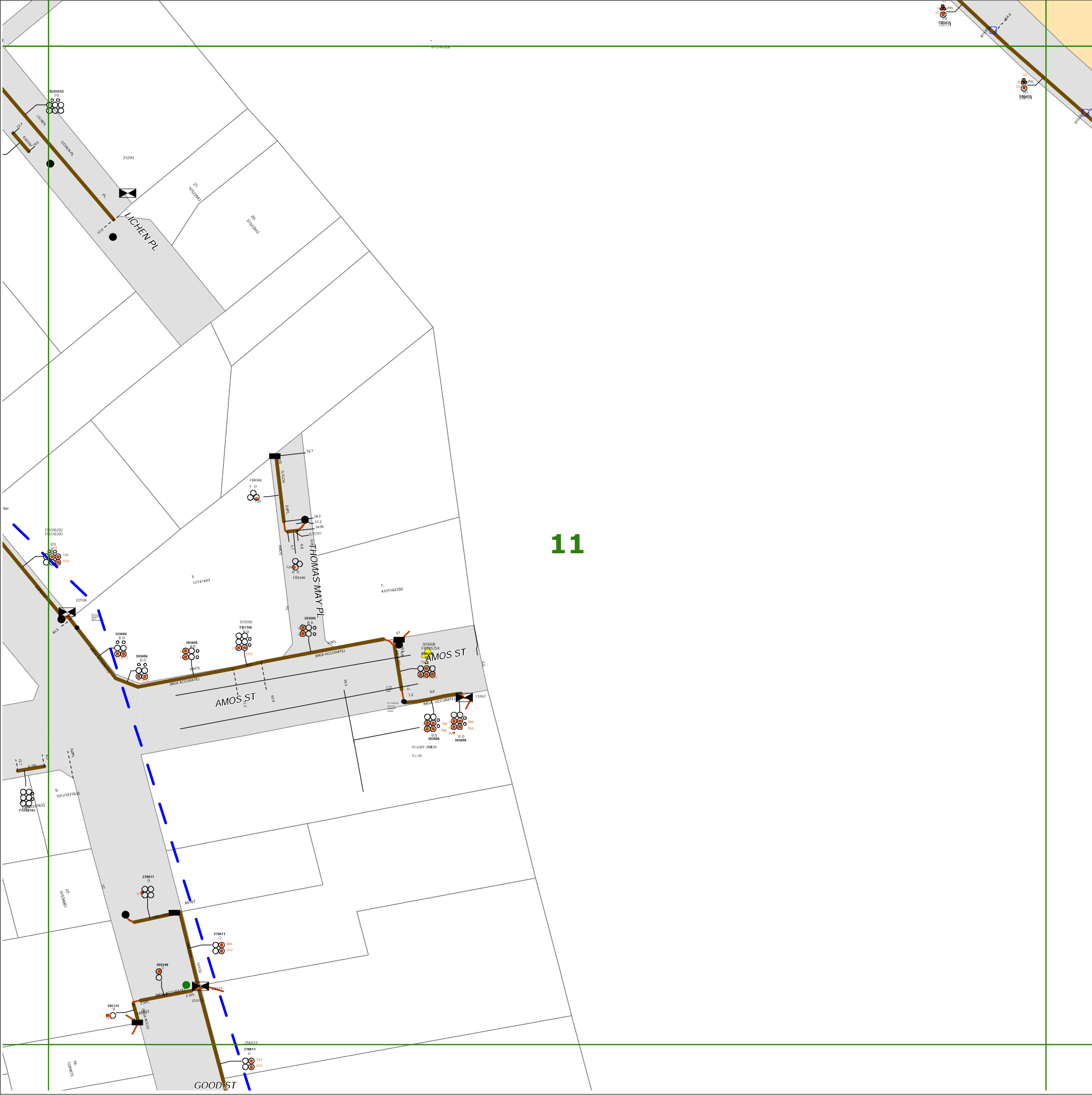
- or ■ Street light column
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- ▬ Duct run
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LEGEND


-  or 


Street light column
- 


Padmount substation
-  or 

Overground pillar (O.G.Box)
- 

Underground pit
- 

Duct run
- 

Cable run
- 

Typical duct section
- 

Asbestos warning



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5.2 Appendix 2 – Existing Communication Infrastructure





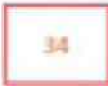




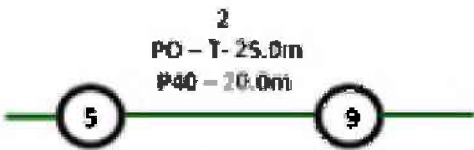






Indicative Plans

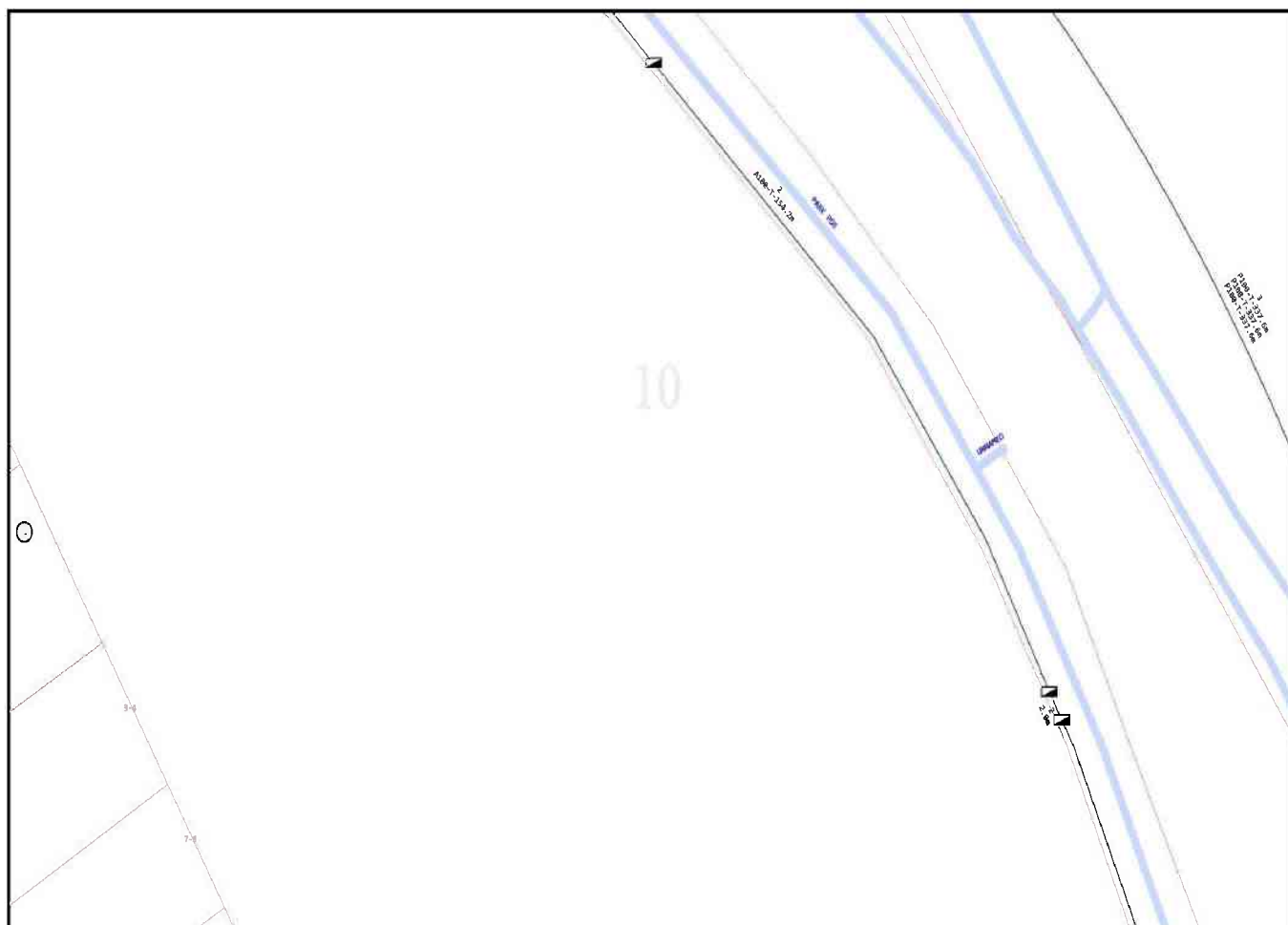
Issue Date:	02/03/2020	 DIAL BEFORE YOU DIG www.1100.com.au
Location:	Park Parade , Parramatta , NSW , 2150	

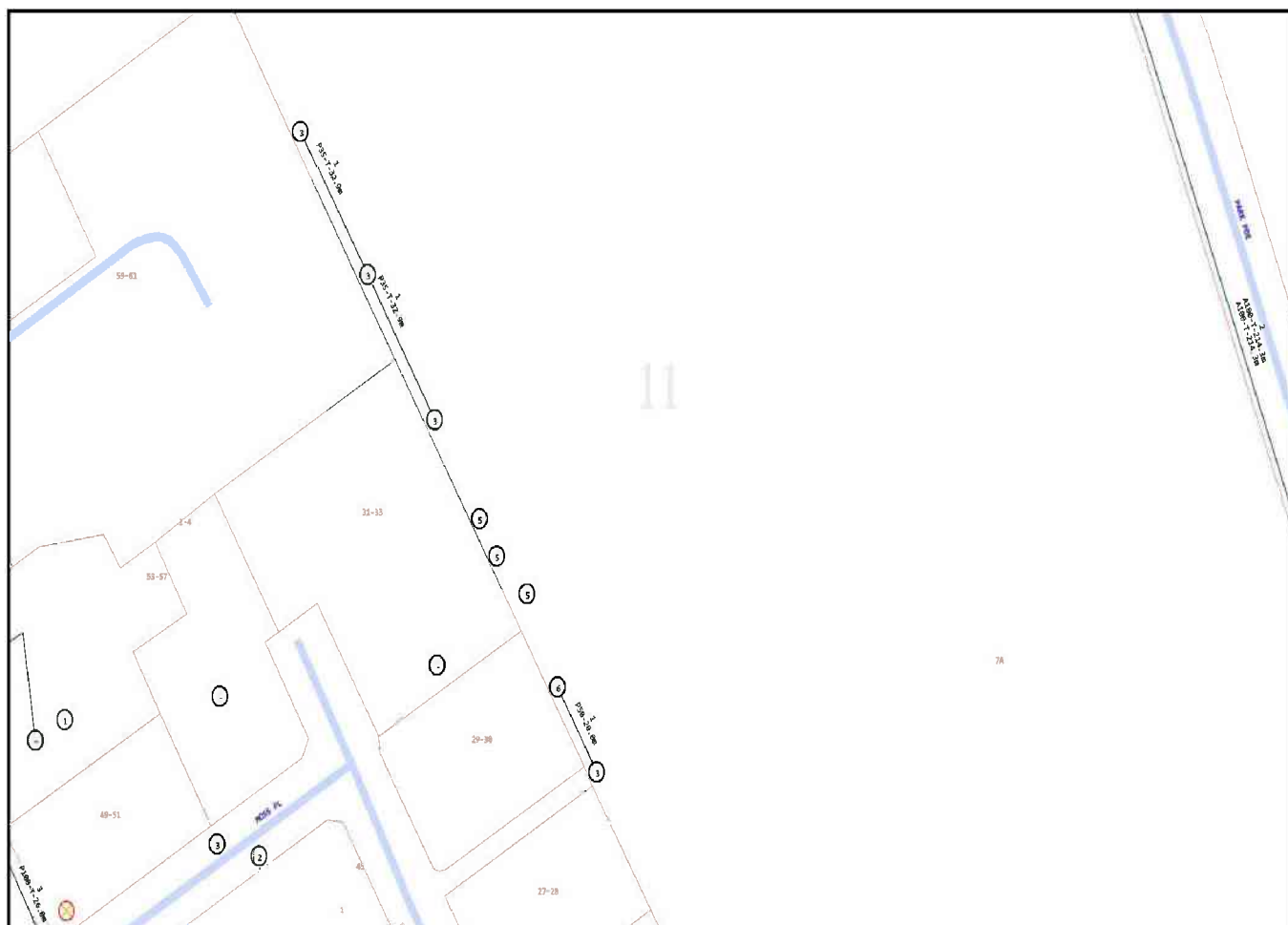
2	9	16
3	10	17
4	11	18
5	12	19
6	13	20
7	14	21

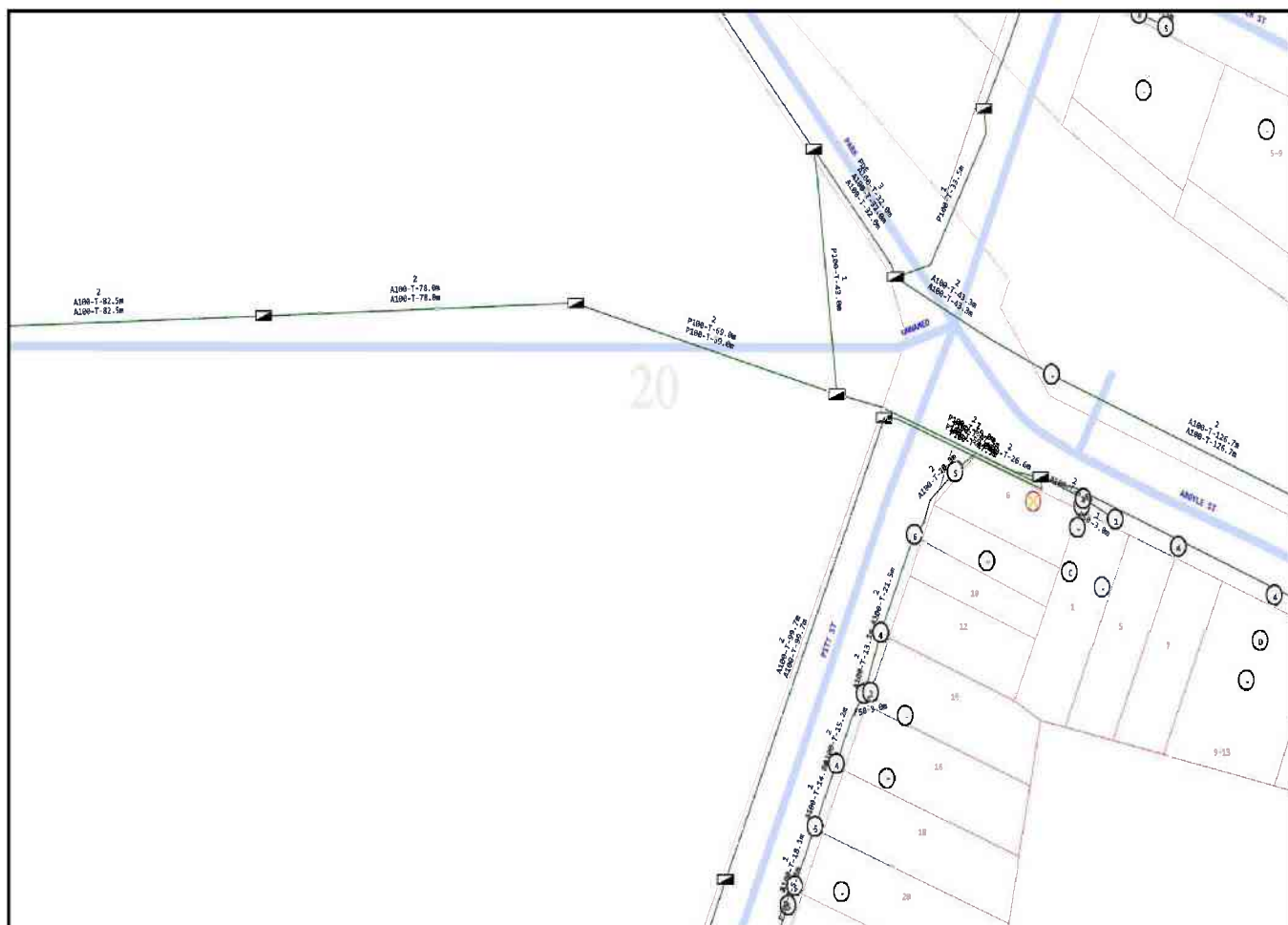


LEGEND

	Parcel and the location
	Pit with size "5"
	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 3E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
	2 Direct buried cables between pits of sizes, "5" and "9" are 10.0m apart.
	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m 







5.3 Appendix 3 – Electrical Supply Memo



Enquiries: Theodore Mirabile
Project No: 38574

To: Eoghan Kavanagh

From: Theodore Mirabile

Date: 21/02/2020

Subject: Parramatta Aquatic Centre – Electrical Supply Requirements.

The purpose of this memo is to provide high level information regarding the electrical implications of the various pool heating options. This information is based on preliminary electrical load estimates associated with segregated mechanical and pool water heating equipment as advised by the relevant consultants.

Base Case (no area reduction)

The maximum demand associated with the base case is approx. 4271A (2959kVA). To service this load the following electrical infrastructure are required:

Chamber Substation (indoors)

- Transformers (limited to 2000A/1500kVA) – 2 off required
- Main Switchboards - 2 off required

Kiosk Substations (outdoors)

- Transformers (limited to 1400A/1000kVA) - 3 off required
- Main Switchboards - 3 off required

Preferred option (30% area reduction of indoor area ONLY)

The maximum demand associated with the preferred option is approx. 4140A (2870kVA). To service this load the following electrical infrastructure are required:

Chamber Substation (indoors)

- Transformers (limited to 2000A/1500kVA) – 2 off required
- Main Switchboards - 2 off required

Kiosk Substations (outdoors)

- Transformers (limited to 1400A/1000kVA) - 3 off required
- Main Switchboards - 3 off required

Preferred option – reduced water heating (30% area reduction of indoor area with no heating of outdoor pools)

The maximum demand associated with the preferred option without water heating to the outdoor pools is approx. 3850A (2670kVA). To service this load the following electrical infrastructure are required:

Chamber Substation (indoors)

- Transformers (limited to 2000A/1500kVA) – 2 off required
- Main Switchboards - 2 off required

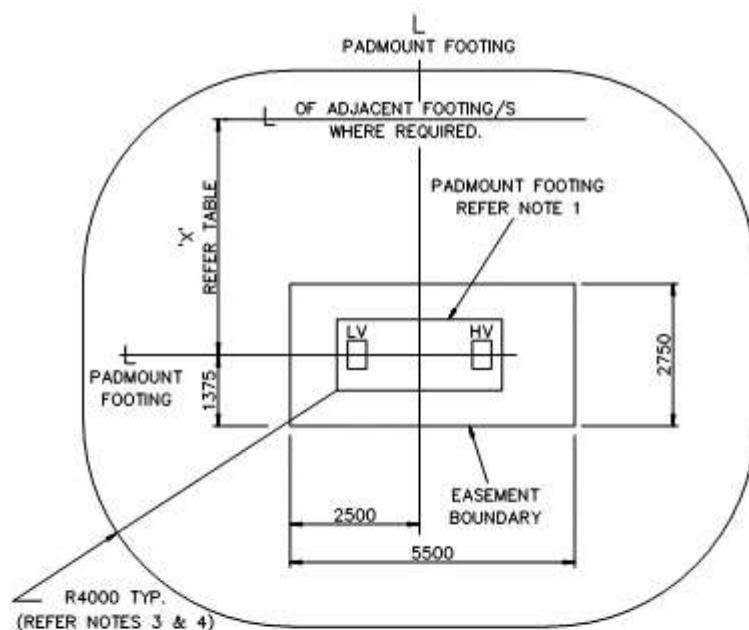
Kiosk Substations (outdoors)

- Transformers (limited to 1400A/1000kVA) - 3 off required
- Main Switchboards - 3 off required

Based on the above, while there is a reduction in the power demand of the building associated with the reduced mechanical and pool heating loads, **the reduction is not enough to remove the substation requirements for the building.**

Kiosk Substation (outdoor) Spatial Requirements

The diagram below indicates the kiosk substation spatial requirements to service the load above. 3 off kiosk substations are required.



COMMERCIAL, HIGH DENSITY & INDUSTRIAL DEVELOPMENT

- ARRANGEMENT CAN BE FOR FOOTPATH ON EITHER LV OR HV SIDE OF PADMOUNT.

MULTIPLE PADMOUNTS WITHIN THE SAME EASEMENT

NO. OF PADMOUNTS	DIMENSION 'X' OF FOOTINGS	EASEMENT WIDTH
2	1 x 2250	5000
3	2 x 2250	7250
4	3 x 2250	9500

- ALL OTHER DIMENSIONS REMAIN THE SAME.



WOOD & GRIEVE ENGINEERS

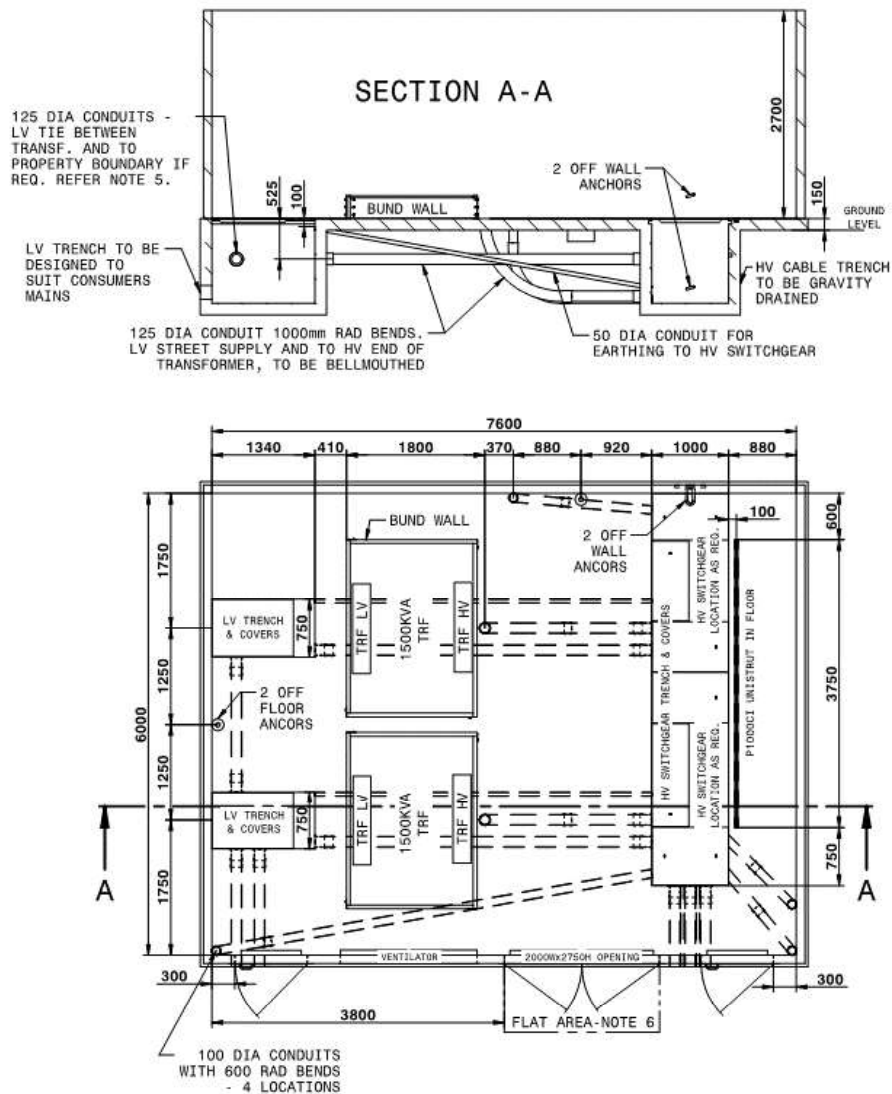
NOW PART OF



Memo

Chamber Substation (indoor) Spatial Requirements

The diagram below indicates the chamber substation spatial requirements to service the load above. 1 off chamber with 2 x 1500kVA transformers are required.



We trust that the information above explains the substation requirements for the building.

Regards,

Theodore Mirabile

For Stantec

Design with
community in mind

Level 6, Building B
207 Pacific Highway
St Leonards NSW 2065
Tel +61 +61 2 8484 7000
E sydney@wge.com.au

For more information please visit
www.wge.com.au



WOOD & GRIEVE ENGINEERS

NOW PART OF



Appendix 12: Traffic Impact Assessment



TRAFFIC IMPACT ASSESSMENT

**Aquatic Leisure Centre Parramatta
Park Parade, Parramatta**

Reference: 20.006r01v02
Date: March 2020


TRAFFIX
TRAFFIC & TRANSPORT PLANNERS

Suite 2.08, 50 Holt St
Surry Hills, NSW 2010

t: (02) 8324 8700
w: www.traffix.com.au



DOCUMENT VERIFICATION

Job Number	20.006			
Project	Aquatic Leisure Centre Parramatta			
Client	The City of Parramatta Council			
Revision	Date	Prepared By	Checked By	Signed
v02	30 March 2020	Justin Pindar	Ben Liddell	



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Appendices

Appendix A: Photographic Record
Appendix B: Architectural Plans
Appendix C: SIDRA Outputs



1. INTRODUCTION

TRAFFIX has been commissioned by The City of Parramatta Council to undertake a traffic impact assessment (TIA) in support of a development application (DA) relating to the construction of the Aquatic Leisure Centre Parramatta (ALCP) located at the former Parramatta Golf Course site. The development is located within The City of Parramatta Local Government Area (LGA) and will be assessed in accordance with the Parramatta Development Control Plan (DCP) 2011 and the Parramatta Local Environmental Plan (LEP) 2011.

This report documents the findings of our investigations and should be read in the context of the Statement of Environmental Effects (SEE) prepared separately. The development is considered a size to require referral to the Roads and Maritime Services (RMS) under the provisions of State Environmental Planning Policy (Infrastructure) 2007.

The report is structured as follows:

- ▶ Section 2: Describes the site and its location
- ▶ Section 3: Documents existing traffic conditions
- ▶ Section 4: Describes the proposed development
- ▶ Section 5: Discusses aquatic centre surveys and characteristics
- ▶ Section 6: Assesses the parking requirements
- ▶ Section 7: Assesses traffic impacts
- ▶ Section 8: Describes sustainable travel plans
- ▶ Section 9: Discusses access and internal design aspects
- ▶ Section 10: Presents the overall study conclusions



2. LOCATION AND SITE

The site is located at the former Parramatta Golf Course site on Park Parade, Parramatta and is owned by the Parramatta Park Trust. More specifically, it is located on the southern side of Park Parade, approximately 800 metres west of the Parramatta Railway Station. In a regional context, it is located approximately 1-kilometre west of the Parramatta Central Business District (CBD) and 20 kilometres north-west of the Sydney CBD.

The site has an irregular configuration and has a total site area of approximately 2.3 ha. It has a north-east frontage to Park Parade measuring approximately 340 metres and southern and western boundaries to recreational land measuring approximately 280 metres and 370 metres respectively.

The site currently provides a single vehicular crossing to Park Parade, approximately 370 metres north-west of the Park Parade / Argyle Street / Pitt Street signalised intersection.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**. Reference should also be made to the Photographic Record presented in **Appendix A** which provides an appreciation of the general character of roads and other key attributes in proximity to the site.

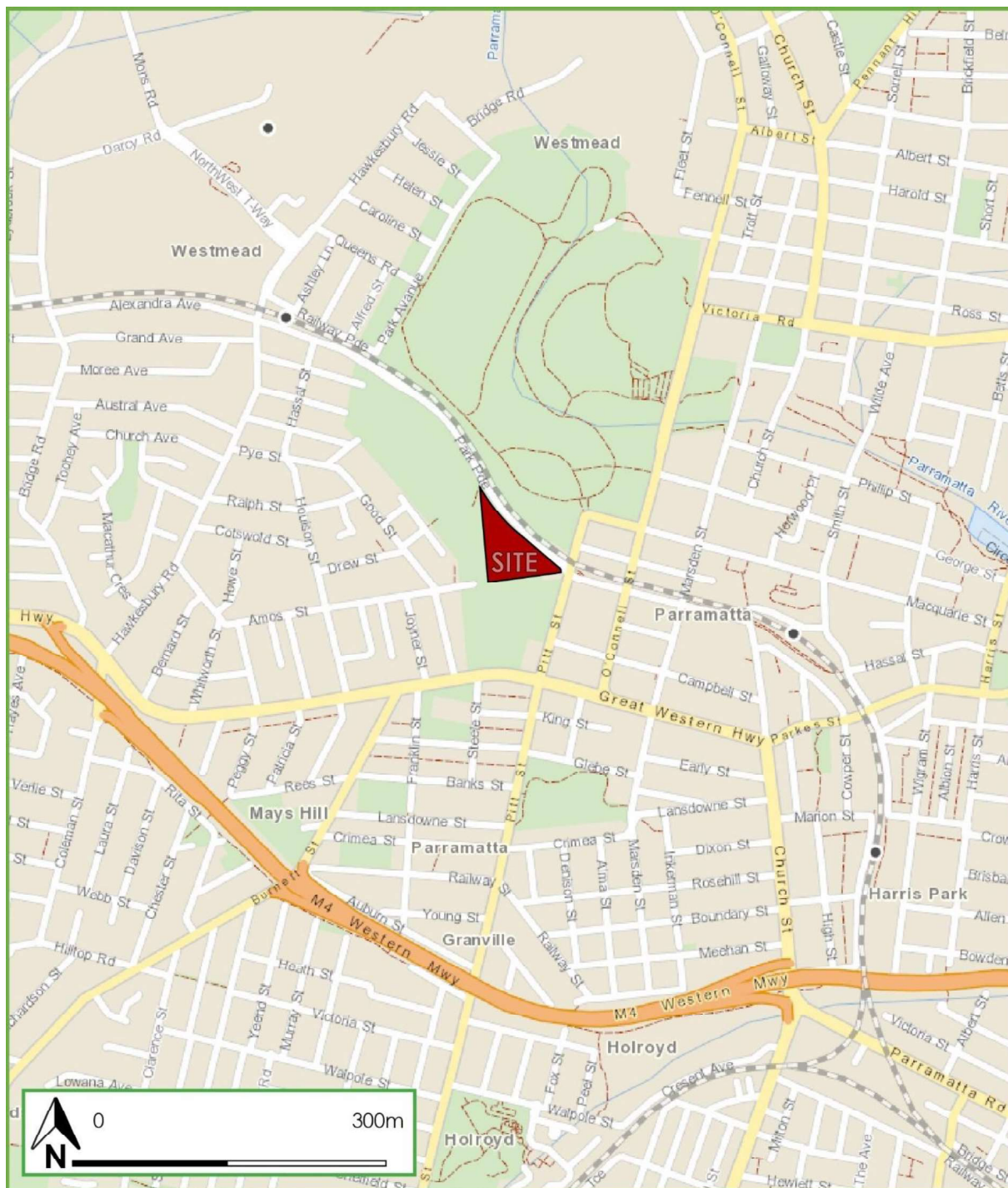


Figure 1: Location Plan



Figure 2: Site Plan



3. EXISTING TRAFFIC CONDITIONS

3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

- ▶ **Park Parade:** an Unclassified Regional Road (7481) that runs in a north-west to south-east direction between Alexandra Avenue in the north-west and Pitt Street in the south-east. Park Parade accommodates a single traffic lane in each direction separated by a designated bus lane which runs in the south-east direction only. It is subject to a 50km/h speed zoning and kerbside parking is not permitted within the vicinity of the site.
- ▶ **Alexandra Avenue:** an Unclassified Regional Road (7481) that runs in an east-west direction between Alexandra Avenue in the east and Bridge Road in the west. Within the vicinity of the site, Alexandra Avenue accommodates a single traffic lane in each direction. It is subject to a 50km/h speed zoning and kerbside parking is permitted along section of the southern side of the roadway.
- ▶ **Pitt Street:** an RMS Secondary Road (SR 2098) that runs in a north-south direction between Macquarie Street in the north and Merrylands Road in the south. Within the vicinity of the site, Pitt Street accommodates two (2) traffic lanes and a bus lane in the northbound direction and a single bus lane in the southbound direction. It is subject to 50km/h speed zoning and a 40km/h school zone operates between Argyle Street and the Great Western Highway.
- ▶ **Argyle Street:** a local road that generally runs in an east-west direction between the Liverpool -Parramatta Transitway in the east and Pitt Street in the west. Within the vicinity of the site, Argyle Street is subject to a 50km/h speed zoning and accommodates a single traffic lane and a bus lane in the westbound direction and a single bus lane in the eastbound direction.



- ▶ Hawkesbury Road: an Unclassified Regional Road (7481) that runs in a north-south direction between Hainsworth Street in the north and the Great Western Highway in the south. Within the vicinity of the site, Hawkesbury Road accommodates two (2) traffic lanes in each direction, with kerbside parking permitted between 6:30am-9:30am and 3:30pm-6:30pm Monday to Friday. It is subject to 50km/h speed zoning and a 40km/h school zone operates between Alexandra Avenue and Austral Avenue.

As can be seen from Figure 3, the site is conveniently located with respect to the local and arterial road systems serving the region; in particular, connections into the Parramatta City centre via Pitt Street.

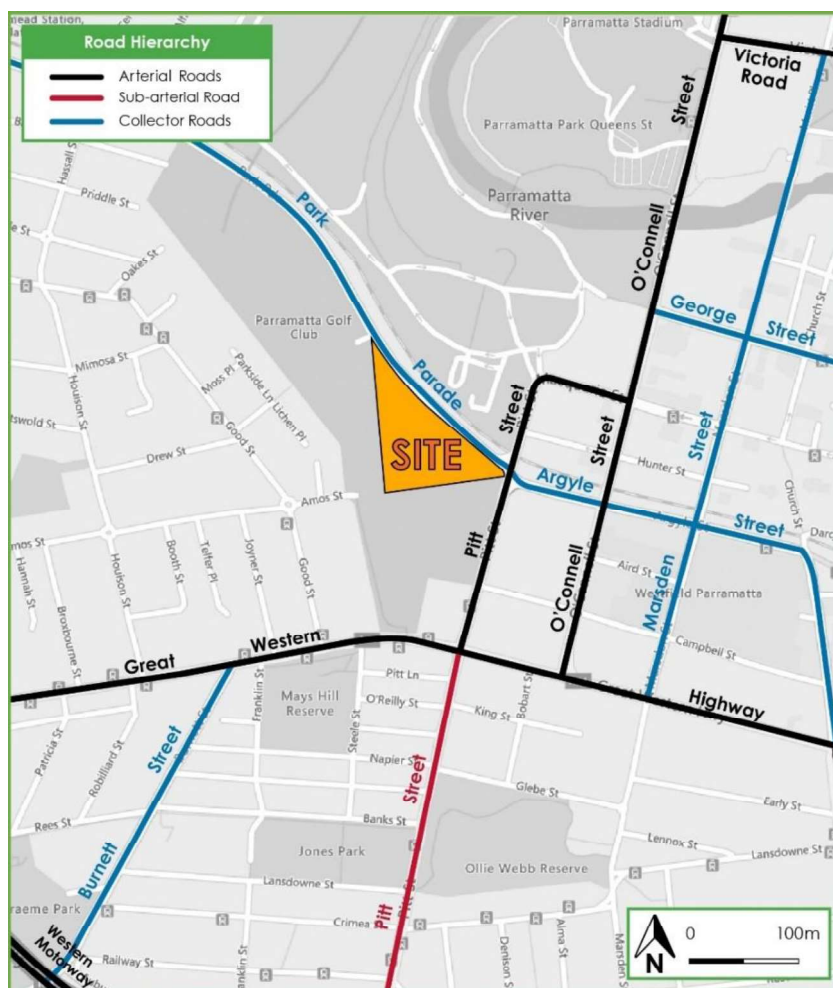


Figure 3: Road Hierarchy



3.2 Public Transport

3.2.1 Public Bus Services

The existing public transport network operating in the locality is shown in **Figure 4**. Standard transport planning guidelines state that a development is advantageously located to benefit bus services if it is within 400 metres walking distance of a bus stop. It is evident that the site benefits from excellent bus services with 10 bus stops located within 400 metres of the site. These services provide connections to Blacktown, Castle Hill, Rouse Hill, Liverpool and Merrylands. The bus routes servicing the area are shown in **Table 1** below:

Table 1: Bus Routes

Route Number	Route Name	Route Number	Route Name
660	Castlewood to Parramatta	663	Rouse Hill Station to Parramatta
661	Blacktown to Parramatta	700	Blacktown to Parramatta
662	Castle Hill to Parramatta	802	Liverpool to Parramatta
664	Rouse Hill Station to Parramatta	804	Liverpool to Parramatta
665	Rouse Hill Station to Parramatta	806	Liverpool to Parramatta
705	Blacktown to Parramatta	810X	Merrylands to Parramatta
708	Constitution Hill to Parramatta	811X	Pemulwuy to Parramatta
711	Blacktown to Parramatta	T80	Liverpool to Parramatta
712	Westmead Children's Hospital	-	-

In addition to these services, Parramatta Railway Station is located approximately 800 metres east of the site. This station provides services on the following lines:



- ▶ T1 – North Shore and Western Line;
- ▶ T2 – Inner West and Leppington Line; and
- ▶ T5 – Cumberland Line.

These services provide convenient connections to centres such as Blacktown, Lidcombe, Liverpool, and the Sydney CBD.

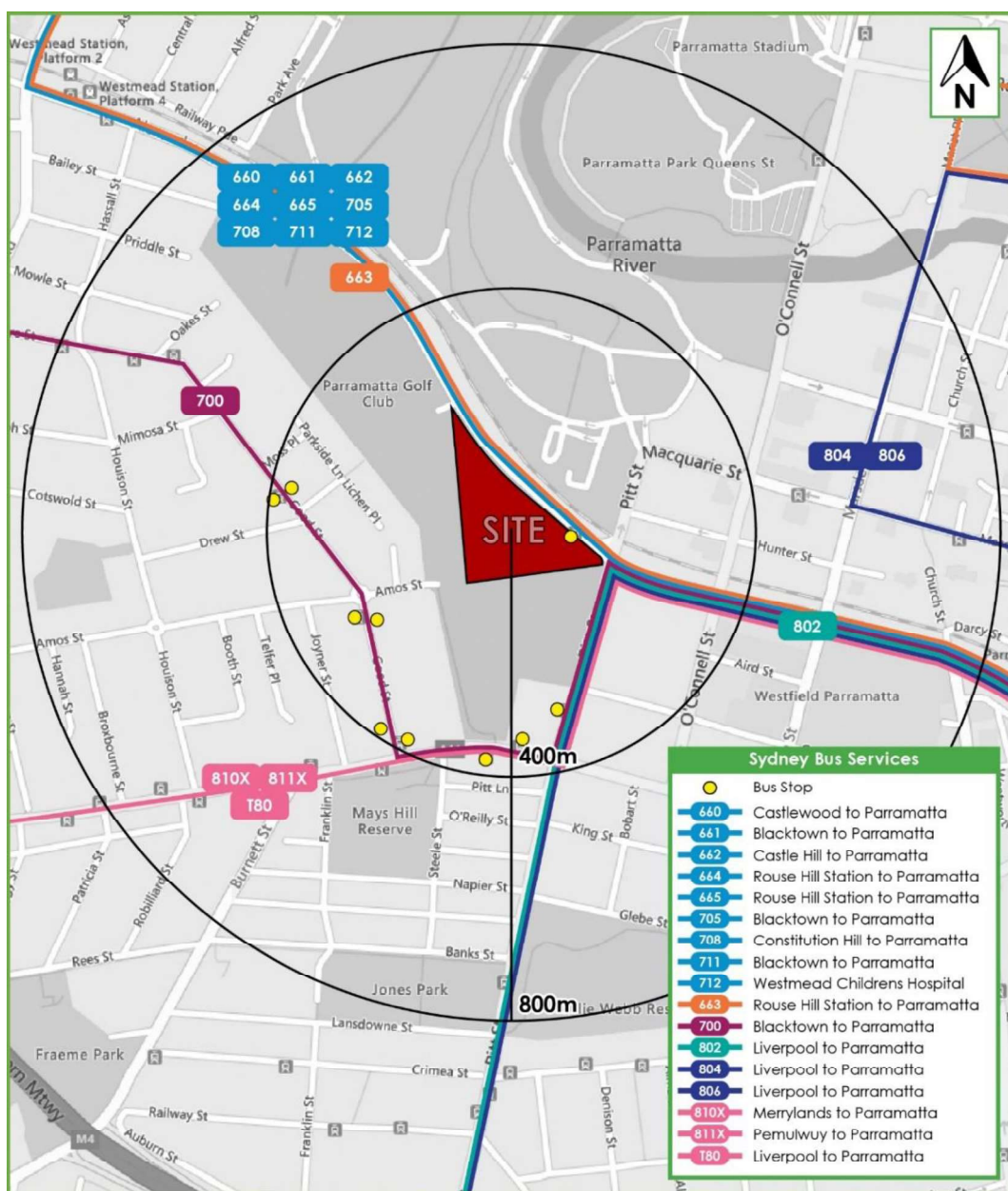


Figure 4: Public Transport Routes

3.3 Key Intersections

Two (2) key intersections have been identified in the vicinity of the site. These intersections are located at the junction of main thoroughfares that will be utilised by users associated with future developments.

3.3.1 Park Parade / Pitt Street / Argyle Street



Figure 5: Intersection of Park Parade, Pitt Street and Argyle Street

(Source: NearMap)

It can be seen from **Figure 5** that the intersection of Park Parade, Pitt Street and Argyle Street is a four-legged signalised intersection. The main attributes of each approach are outlined below:



- ▶ Park Parade (western leg)
 - An approach lane that is required to turn left onto Pitt Street;
 - An approach bus lane that is required to continue straight onto Argyle Street;
 - Two (2) departure lanes which merge into a single lane; and
 - Signalised pedestrian crossings on Park Parade and left turn slip lane.
- ▶ Pitt Street (northern leg)
 - Three (3) departure lanes; and
 - Signalised pedestrian crossing on Pitt Street.
- ▶ Argyle Street (eastern leg)
 - An approach lane;
 - A designated right turn approach lane;
 - An approach bus lane that is permitted to continue straight onto Park Parade or turn left onto Pitt Street;
 - A departure bus lane;
 - Signalised pedestrian crossing on Argyle Street; and
 - A zebra crossing on the left turn slip lane.
- ▶ Pitt Street (southern leg)
 - A shared straight/left turn approach lane;
 - An approach lane;
 - A designated right turn approach bus lane;
 - A departure bus lane; and
 - Signalised pedestrian crossing on Pitt Street.

3.3.2 Alexandra Avenue / Hawkesbury Road



Figure 6: Intersection of Alexandra Avenue and Hawkesbury Road

(Source: NearMap)

It can be seen from **Figure 6** that the intersection of Alexandra Avenue and Hawkesbury Road is a four-legged signalised intersection. The main attributes of each approach are outlined below:

- ▶ Alexandra Avenue (western leg)
 - A designated left turn approach lane;
 - An approach lane;
 - Two (2) departure lanes which merge into a single lane;
 - No right turn restriction; and
 - Signalised pedestrian crossings on Alexandra Avenue.



- ▶ Hawkesbury Road (northern leg)
 - A shared straight/left turn approach lane;
 - An approach lane; and
 - Two (2) departure lanes.
- ▶ Alexandra Avenue (eastern leg)
 - A shared straight/left-right turn approach lane;
 - A designated right turn approach lane;
 - A departure bus lane;
 - A departure lane; and
 - Signalised pedestrian crossing on Alexandra Avenue.
- ▶ Hawkesbury Road (southern leg)
 - Two (2) approach lanes;
 - Two (2) departure lanes;
 - No right turn restriction; and
 - Signalised pedestrian crossing on Hawkesbury Road.



4. DESCRIPTION OF PROPOSED DEVELOPMENT

A detailed description of the proposed development is provided in the Statement of Environmental Effects prepared separately. In summary, the Aquatic and Leisure Centre development comprises the following components:

- ▶ 50 metre outdoor Olympic swimming pool with grandstand;
- ▶ Outdoor leisure pool;
- ▶ 25 metre indoor heated pool;
- ▶ Outdoor heated water polo pool;
- ▶ Toddler pool;
- ▶ Club room for water polo clubs;
- ▶ Function/meeting room;
- ▶ Spa facilities;
- ▶ Health club;
- ▶ Café; and
- ▶ At-grade car park accommodating 204 spaces.

The parking and traffic impacts arising from the development are discussed in **Section 5** and **Section 6**. Reference should be made to the plans submitted separately to Council which are presented at reduced scale in **Appendix B**.

It is highly relevant to the assessment of traffic and parking impact, that the preferred methodology based on RMS Guidelines is to undertake a survey of a comparable facility, rather than rely on 'generic' parking requirements and traffic generation rates, which are usually intended for LGA-wide or State-wide application. This preferred methodology has been adopted and is discussed in the following section.



5. AQUATIC CENTRE SURVEYS

5.1 Context

Council's DCP, LEP or the Roads and Maritime Service Guide to Traffic Generating Developments (2002) do not provide parking or traffic generating rates for aquatic centre developments, thus TRAFFIX has commissioned interview surveys at a similar development to derive these characteristics. This approach is considered best practice and is in line with RMS guidelines and Part C.34 of Council's DCP.

The interview surveys were conducted at the Auburn Ruth Everuss Aquatic Centre, located on Church Street, Lidcombe, approximately 520 metres north-west of the Lidcombe Railway Station. The Ruth Everuss Aquatic Centre is considered a similar nature to the proposed Parramatta facility to provide a reasonable indication of typical patron travel characteristics. The Ruth Everuss Aquatic Centre is a state-of-the-art leisure facility that provides the following amenities:

- ▶ Site area of 14,510m²;
- ▶ 50 metre outdoor Olympic swimming pool with grandstand;
- ▶ 25 metre indoor heated pool;
- ▶ Outdoor heated water polo pool;
- ▶ Family splash area;
- ▶ Toddler pool;
- ▶ Fully equipped health club;
- ▶ Café/retail shop; and
- ▶ Off-street parking available on Church Street.

The swimming pool is open 6am - 8pm Monday to Sunday, whilst the Health Club is open 6am - 9pm Monday to Friday and 6am - 8pm Saturday and Sunday. The interview surveys were conducted on Friday 13 March and Saturday 14 March between 8am and 1pm, as advised by Parramatta Council that this is typically the busiest period for this type of development. The survey included a range of questions which were primarily aimed to gain an understanding of



average car occupancies and travel modes of visitors travelling to and from the facility. The key results of these surveys are discussed in the following sections.

5.2 Visitor Travel Mode Splits

Visitor travel modes splits are presented in **Table 2** and **3** below:

Table 2: Visitor Travel Mode Splits - Weekday

Travel Modes	Percentage Split
By Car (as driver)	25.3%
By Car (as passenger)	4.8%
By Car (as passenger – dropped off/picked up)	1.8%
Taxi	0%
Public Transport - Bus	60.8%
Public Transport - Train	3.6%
Cycle	0.6%
Motorcycle	0%
Walk	3%

Table 3: Visitor Travel Mode Splits - Weekend

Travel Modes	Percentage Split
By Car (as driver)	42.6%
By Car (as passenger)	48.2%
By Car (as passenger – dropped off/picked up)	5%
Taxi	0%
Public Transport - Bus	0%
Public Transport - Train	2.8%
Cycle	0%
Motorcycle	0%
Walk	1.4%

Based on the above survey results; approximately 32% of visitors utilise private vehicles to travel to/from the aquatic centre during the weekday with the remaining visitors utilising other modes of transport (including public transport and walking). During the weekend, approximately 96%



of visitors utilise private vehicles to travel to/from the aquatic centre. This reflects a significant potential for changing behaviour and improving levels of sustainable travel.

5.3 Car Parking

Visitor car parking characteristics are presented in **Table 4** and **5** below:

Table 4: Parking Location of Visitors - Weekday

Parking Location	Proportion
On-street parking – Church Street	64.3%
Off-street parking – Church Street	28.6%
Ruth Everuss Aquatic Centre	2.3%
Other	4.8%

Table 5: Parking Location of Visitors - Weekend

Parking Location	Proportion
On-street parking – Church Street	58.3%
Off-street parking – Church Street	38.3%
Ruth Everuss Aquatic Centre	1.7%
Other	1.7%

Based on the above survey results; approximately 64% of visitors during the weekday and 58% of visitors during the weekend utilised on-street parking, whilst approximately 29% of visitors and 38% of visitors utilised the off-street car park adjacent to the site on the weekday and weekend respectively.

In addition to the above, head count data and car driver travel mode splits were used to determine the peak parking demand for the site. The head count data demonstrated that a peak occupation of 132 visitors occurred on-site on Saturday between 8am and 9am. Application of the vehicle driver modal split results in a peak parking demand of 57 car parking spaces. This equates to a parking rate of 0.40 parking spaces per 100m² of site area and these were distributed to on-site and on-street locations, being the total parking demand.



5.4 Vehicle Trips

Head count data and car driver travel mode splits were also used to determine the peak traffic generation and directional splits. An average visitor stay of 90 minutes has been assumed from experience and **Table 6** below demonstrates the resultant traffic generation of the surveyed site at Auburn.

Table 6: Traffic Generation - Weekend

Time	IN	OUT	Combined
7am to 8am	23	0	23
8am to 9am	45	11	56
9am to 10am	18	28	46
10am to 11am	30	23	53
11am to 12am	2	40	42
12am to 1pm	6	8	14

As can be seen from Table 6, the development peak traffic generation occurs on a Saturday between 8am and 9am. The peak traffic generation of 56 vehicle equates to a traffic generation rate of 0.40 vehicle trips per 100m² of site area in the AM peak hour period.

5.5 Key Findings

The key findings from the interview surveys are summarised below:

- ▶ 32% of visitors utilised private vehicles to attend the facility on a weekday.
- ▶ 96% of visitors utilised private vehicles to attend the facility on Saturday.
- ▶ The facility had a peak patronage of 132 people on Saturday between 8am and 9am. This equates to a parking rate of 0.40 parking spaces per 100m² of site area.
- ▶ The facility had a peak traffic generation on Saturday between 8am and 9am of 56 vehicle trips in the AM peak hour period. This equates to a traffic generating rate of 0.40 vehicle trips per 100m² of site area in the AM peak hour period.



6. PARKING REQUIREMENTS

6.1 Car Parking Requirements

As mentioned in Section 4, the Parramatta Council DCP 2011, LEP 2011 or the Roads and Maritime Services Guide to Traffic Generating Developments (2002) do not provide parking requirements for aquatic and leisure centres. Interview surveys commissioned by TRAFFIX at the Ruth Everuss Aquatic Centre (similar development) revealed that this type of facility has a demand for 0.4 parking spaces per 100m² of site area. Application of this rate to the site area (lease area minus car park = 21,700m²) requires the proposed development to provide a minimum of 87 car parking spaces.

In response, the proposed development provides a total of 204 at-grade parking spaces, including a shared visitor/coach drop-off and pick-up parking area on the north-east boundary of the site. The provision of 204 parking spaces is considered appropriate in the circumstances for the following reasons:

- ▶ The proposed development at Parramatta is expected to draw upon a larger (regional) catchment with associated higher attendance levels.
- ▶ The surveys were undertaken in March and it may be expected that peak summer months will generate higher demands. It is considered that a demand based on the 85th percentile weekday (and weekend) days over the course of summer would be higher than the surveyed rates, so that a safety margin is warranted.
- ▶ The facility is expected to generate occasional peak demands throughout the year associated with sporting and other major events. While these may be above the normal '85th percentile' demand level, provision above this level is considered best practice. It is essentially a practical commercial consideration that will provides maximum flexibility.
- ▶ Growth in the Parramatta area generally is expected to be high, such that demands over the time are likely to increase. Hence, 'future proofing' the facility is considered appropriate.
- ▶ It is understood that there is also a business case in support of the provision of upwards of 200 parking spaces, which reflects the anticipated future needs. This is a key requirement for Council and potential operators.



In summary, the proposed 204 space at-grade car park is considered an appropriate provision for the proposed development. It will ensure that all normal parking demands are readily accommodated, that peak events are similarly accommodated; and that the facility can respond to the future needs of a growing population.

6.2 Accessible Parking

Council's DCP requires accessible parking to be provided in accordance with Table D3.5 of the Building Code of Australia (BCA). The proposed development is a Class 9b development under the BCA, thus is required to provide accessible car parking at a rate of 1 parking space per 50 car parking spaces, or part thereof. Application of this rate to the proposed 204 car parking spaces requires the development to provide a total of 4.08 (4) accessible spaces. In response, the proposed development provides four (4) accessible spaces in accordance with the requirements of the BCA.

6.3 Servicing Arrangements

The City of Parramatta requires developments serviced by Council to provide an off-street servicing area that can accommodate a 12.5m long heavy rigid vehicle (HRV). The proposed development provides a single HRV serving area on the ground floor which is accessed from the coach parking area. The servicing area will also be utilised by smaller servicing vehicles such as small rigid vehicles, vans and utilities. Servicing by Council's HRVs will require a managed approach to ensure the vehicle can enter and exit the site satisfactorily without impacting the coach drop-off area or pedestrian safety.

To satisfy any concerns, a Loading Dock Management Plan (LDMP) is invited, requiring approval prior to the release of an occupation certificate, if deemed necessary by Council. The LDMP would outline the requirements of the site in relation of deliveries and servicing activities, anticipated vehicle sizes and frequencies, noting that this detailed information will be available in the later stages of the project. The LDMP could include the following information:

- ▶ Details of all delivery and servicing activities to be carried out for all uses on-site;
- ▶ Details of how waste services will be accommodated to meet service requirements;



- ▶ Details of vehicle types required to conduct expected activities; and
- ▶ Details of frequency of vehicles accessing the dock.

In summary, the detailed information regarding the servicing arrangements with a LDMP will be provided at a later stage, based on the operational characteristics of the proposed development.

6.4 Coach Parking

The proposed development provides an off-street drop-off/pick-up area for coaches. The coach parking area runs in a clockwise direction between Park Parade and can accommodate two (2) 14.5 metre long coaches for use during larger sporting events (school swimming carnivals etc.). This area should be clearly sign posted to ensure other motorists are aware that this area is to be used by coaches only. All short term visitor drop-off/pick-ups should be undertaken in the six (6) 5-minute parking spaces within the main at-grade car park.

6.5 Emergency Vehicle Access

The at-grade car park has been designed to accommodate a standard NSW ambulance and a 10.1 metre long NSW fire truck. A designated emergency vehicle parking area is provided on the western side of the car park. These emergency parking arrangements are considered acceptable from a vehicle access perspective and should operate satisfactorily.

6.6 Motorcycle Parking

Council's DCP does not provide motorcycle parking rates for aquatic centre developments. Therefore, no motorcycle parking spaces are provided, noting that any visitors arriving by motorcycle can utilise a standard parking space.

6.7 Bicycle Parking

Council's DCP does not provide bicycle parking rates for aquatic centre developments. Therefore, reference should be made to the bicycle parking requirements outlined in Cycling Aspects of Austroads Guides 2017. The guide provides the following bicycle parking rates for indoor recreational facilities:



- ▶ 1 space per 4 employees; and
- ▶ 1 space per 200m² GFA.

Application of the above rates to the proposed 6,800m² GFA facility and 60 staff, requires the development to provide a total of 49 bicycle parking spaces, comprising 34 spaces for visitors and 15 spaces for staff. In response, the proposed development provides a total of 49 bicycle parking spaces including 13 secured spaces for staff members and 36 bicycle racks for visitors and staff members, noting that staff members working shorter shifts can utilise the bicycle racks. These arrangements are considered appropriate and inline with Austroad guidelines.



7. TRAFFIC AND TRANSPORT IMPACTS

7.1 Traffic Trip Generation

As mentioned in Section 4, the Parramatta Council DCP 2011, LEP 2011 or the Roads and Maritime Services Guide to Traffic Generating Developments (2002) do not provide traffic generation rates requirements for aquatic and leisure centres. Interview surveys commissioned by TRAFFIX at the Ruth Everuss Aquatic Centre (a comparable development) revealed that this type of facility generated 0.4 vehicle trips per 100m² of site area in the Saturday AM peak hour period. Application of this rate to the site area (lease area minus car park = 21,700m²) results in the following traffic generation:

Saturday

- ▶ 87 vehicle trips per hour during the AM peak period (70 in, 17 out); and

Friday

In order to assess the critical weekday peak periods, the Saturday peak traffic generation was adopted for both the weekday AM and PM peak hour periods. This is considered a conservative assessment noting that the surveys revealed that the weekday peak did not coincide with the network peak. This results in the following traffic generation:

- ▶ 87 vehicle trips per hour during the AM peak period (70 in, 17 out); and
- ▶ 87 vehicle trips per hour during the PM peak period (43 in, 44 out).

7.2 Trip Distribution

In order to estimate the traffic distribution to and from the subject development, the following factors were taken into consideration:

- ▶ Available traffic routes to and from the site.
- ▶ Vehicle movement restrictions at the intersection of Park Parade, Pitt Street and Argyle Street.



- ▶ Vehicle movement restrictions at the intersection of Alexandra Avenue and Hawkesbury Road.
- ▶ The impact of the dedicated bus lane on Park Parade which runs in the southbound direction between northbound/southbound traffic lanes; and
- ▶ The access driveway will be restricted to left in / left out movements only.

In this regard, traffic has been distributed at the following percentage splits:

Inbound Movements

- ▶ 20% arrive to the site from the south via Argyle Street; and
- ▶ 80% arrive to the site from the south via Pitt Street.

Outbound Movements

- ▶ 30% leave the site to the north via Park Parade and will turn right at the Alexandra Avenue/Hawkesbury Road intersection;
- ▶ 30% leave the site to the north via Park Parade and will continue straight at the Alexandra Avenue/Hawkesbury Road intersection; and
- ▶ 40% leave the site to the north via Park Parade and will turn left at the Alexandra Avenue/Hawkesbury Road intersection.

7.3 Peak Period Intersection Performance

The predicted traffic impacts of the proposed development required examination of the following scenarios:

- ▶ 2020 Base Case; and
- ▶ 2020 Base Case + Development.

Traffic surveys were undertaken of the intersections mentioned in Section 3.2, which are considered to be most critical in relation to the site. These counts were undertaken on Friday 6th March 2020 during the network peak periods, being between 7:00am – 9:00am (morning peak period) and 4:00pm – 6:00pm (evening peak period). Surveys were also undertaken on



Saturday 7th March 2020 between 8:00am – 1:00pm (development peak) as advised by Council.

The traffic volumes in these surveys formed the base case volumes for software modelling undertaken to assess intersection performance characteristics under existing traffic conditions. The SIDRA Intersection 8 model produces a range of outputs, the most useful of which are the Degree of Saturation (DOS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LOS) criteria. These performance measures can be interpreted using the following explanations:

DOS - the DOS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DOS approaches 1, it is usual to attempt to keep DOS to less than 0.9. When DOS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. For intersections controlled by roundabout or give way/stop control, satisfactory intersection operation is generally indicated by a DOS of 0.8 or less.

AVD - the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).

LOS - this is a comparative measure which provides an indication of the operating performance of an intersection as shown below:



Table 7: Intersection Performance Indicators (RMS)

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
F	More than 70	Unsatisfactory and requires additional capacity	Unsatisfactory and requires other control mode or major treatment

A summary of the modelled results are provided below in **Table 8**. Reference should also be made to the SIDRA outputs provided in **Appendix C** which provide detailed results for individual movements and approaches.



Table 8: Intersection Performances (Existing and With Development)

Intersection	Control Type	Scenario	Period	Degree of Saturation	Intersection Delay	Level of Service
Park Parade / Pitt Street / Argyle Street	Signalised	Base	Weekday AM	0.821	38.8	C
		Base + Dev		0.844	40.4	C
		Base	Weekday PM	0.834	37.2	C
		Base + Dev		0.852	39.2	C
		Base	Weekend AM	0.691	33.1	C
		Base + Dev		0.722	33.4	C
Alexandra Avenue / Hawkesbury Road	Signalised	Base	Weekday AM	0.803	42.9	D
		Base + Dev		0.826	43.9	D
		Base	Weekday PM	0.647	41.2	C
		Base + Dev		0.678	41.9	C
		Base	Weekend AM	0.570	41.3	C
		Base + Dev		0.580	41.3	C

It can be seen from **Table 8** that both intersections experience minimal increases to average delay during the Base Case Plus Development scenario. This is the scenario that reflects the criteria for assessing impacts under RMS Guidelines, That is, the EP&A Act as well as the RMS Guidelines require that a development need only be assessed for improvements that are required to support the development itself. This is a consequence of the need to identify a nexus between the development and any measures required to manage associated impacts. As can be seen in Table 8, the intersection of Park Parade, Pitt Street and Argyle Street recorded an acceptable level of service 'C' in the weekday AM and PM peak periods and during the weekend AM peak period. This represented a small increase in average delay of less than 2.0 seconds in all scenarios.

The intersection of Alexandra Avenue and Hawkesbury Road recorded an acceptable level of service 'C' in the weekday PM peak period and during the weekend AM peak period. This represented a small increase in average delay of less than 1.0 second. It is noted that the intersection of Alexandra Avenue and Hawkesbury Road currently operates at a level of



service 'D' during the AM peak period, however the intersection will continue to operate at a level of service 'D' post development, with a minimal increase to average delay of only 1.0 second.

The above analysis is also based on conservative assumptions and may be regarded as a worst-case outcome. This result also reflects the fact that aquatic centres (as a recreational facility) achieve a spread of activity throughout the entire day on all days. As such, visitors have a unique opportunity to select off-peak travel times, should this ever be required. The assessment model is also a 'car dependent' model based on existing travel behaviour, with potential to promote alternate travel modes over time and as the population within the catchment grows. This is discussed further in the following section.

In summary, the surrounding road network will experience small increases to the average delay during the AM and PM peak periods during all scenarios, however, will still provide spare capacity. In this regard, the impacts of the proposed development on the wider road network are considered acceptable with no external improvements required to support assessed development. The proposed development is therefore supportable on traffic planning grounds.



8. SUSTAINABLE TRAVEL PLANS

8.1 Green/Workplace Travel Plans

A comprehensive Green Travel Plan (GTP) and Workplace Travel Plan (WTP) can be developed for the Aquatic and Leisure Centre Parramatta visitors and staff, respectively. These plans are intended to encourage the use of public transport and alternative modes of transportation, with the primary objectives outlined as follows:

- ▶ Promote the use of sustainable transport methods, thus reducing congestion and pollution in the local area;
- ▶ Promote the Aquatic and Leisure Centre Parramatta as an innovative and environmentally aware business; and
- ▶ Provide an active environment by encouraging healthier travel options for staff and visitors, such as walking and cycling.

A comprehensive GTP and WTP is considered to be an important part of managing the transport demand generated by the development. These plans would provide relevant transport and access information, including:

- ▶ Local bus facilities and network maps; and
- ▶ Local walking and cycling routes.

Accordingly, the development of a GTP and WTP is encouraged to promote alternative modes of transport, noting that these plans are generally more effective for new developments, prior to the establishment of regular travel habits. The main objective of a GTP is to reduce private vehicle usage, consequently the travel targets must be uniquely tailored to encourage alternative modes of transport and carpool schemes.

In this regard, a formal carpool scheme for staff should be considered to reduce the impact of private vehicle usage. The development of such a scheme would assist in actively reducing the reliance on private vehicle usage of the facility.



8.2 Travel Demand Management

It is envisaged that the reductions in car-based travel modes to achieve any future nominated targets could be facilitated by the following travel demand management measures:

- ▶ A Transport Access Guide (TAG) is considered to be a useful travel tool to encourage travel by alternative means other than private cars. This TAG would illustrate the public transport routes operating in the locality and is envisaged to be distributed to staff and visitors of the facility; and
- ▶ Car sharing schemes can be encouraged for both staff and visitors, reducing the reliance on private vehicles.



9. ACCESS AND INTERNAL DESIGN ASPECTS

9.1 Site Vehicular Access

9.1.1 Access Design

The proposed development provides a total of 204 User Class 2 car parking spaces to Park Parade (a local road), thus under the requirements of Table 3.1 and 3.2 of AS 2890.1 (2004), the development is required to provide a Category 3 driveway. Category 3 driveways require a 6.0 metre wide entry lane, 4.0-6.0 metre wide exit lane and a 1-3 metre wide island divider. In response, the proposed development provides an access driveway in accordance with AS 2890.1 (2004). It is also noteworthy that the proposed access will be restricted to left in / left out vehicle movements only. This is largely due to the existing bus lane which unconventionally runs down the centre of Park Parade and the fact that vehicles cannot turn right from Hawkesbury Road onto Alexandra Avenue, suggesting limited vehicle trips from the north. It is noted that right turn movements into the site from the bus lane are permissible under the NSW Road Rules (Road Rule 158), however, to ensure uninterrupted bus services, a left in / left out restriction is considered appropriate. Measures to enforce these restrictions may include signage, a median island and a 'channelised' access driveway. It should also be noted that the access will also be designed to accommodate a 10.1m long NSW Fire Truck and driveway grades will be designed in accordance with the relevant NSW Fire Standards.

9.1.2 Access Sight Distance

The proposed driveway access location (existing access that serviced the Parramatta Golf Course) provides excellent sight distance towards the south-east, noting that the access will be restricted to a left in / left out arrangement. In addition, the topography gently slopes away from the driveway and no on-street parking is permitted along Park Parade in the vicinity of the access. Under the requirements of Figure 3.2 of AS 2890.1 (2004), a 60km/hr frontage speed (10km above posted speed limit) requires between 65 and 83 metres of sight distance. The proposed development provides 150+ metres of sight distance to the south, thus exceeding the minimum requirements of AS 2890.1 (2004). The proposed access location is also located approximately 370 metres from the signalised intersection of Park Parade, Pitt Street and Argyle Street, ensuring the operation of the signals is unhindered.



9.1.3 Proposed Coach Drop-Off/Pick-up Area

The proposed development provides an off-street drop-off/pick-up area for coaches. The coach parking area runs in a clockwise direction between Park Parade and can accommodate two (2) 14.5 metre long coaches for use during larger sporting events (school swimming carnivals etc.). This area should be clearly sign posted to ensure other motorists are aware that this area is to be used by coaches only. All short term visitor drop-off/pick-ups should be undertaken in the six (6) 5-minute parking spaces within the main at-grade car park. The proposed exit provides good visibility to the south-east, noting that a left out only restriction should be enforced.

9.2 Internal Design

9.2.1 Parking Modules

- ▶ All staff car parking spaces are to be provided with a minimum space length of 5.4m, a minimum width of 2.4m and a minimum aisle width of 5.8m. These arrangements satisfy User Class 1A (employee parking) requirements under AS 2890.1 (2004).
- ▶ All visitor car parking spaces are to be provided with a minimum space length of 5.4m, a minimum width of 2.5m and a minimum aisle width of 5.8m. These arrangements satisfy User Class 2 (sporting facility parking) requirements under AS 2890.1 (2004).
- ▶ All accessible parking spaces are to be designed in accordance with AS 2890.6 (2009), being 2.4m wide, 5.4m long and situated immediately adjacent to a dedicated shared area or the circulating aisle.
- ▶ All spaces located adjacent to obstructions of greater than 150mm in height are to be provided with an additional width of 300mm.

9.2.2 Clear Head Heights

- ▶ A minimum clear head height of 2.2m is to be provided for all areas within the at-grade car park as required by AS 2890.1 (2004).
- ▶ A minimum clear head height of 2.5m is to be provided above all accessible spaces in accordance with AS 2890.6 (2009).



- ▶ Head height clearances for roadways/loading docks accessed by services vehicles are to be provided in accordance with Table 2.1 of AS 2890.2 (2018).

9.2.3 Loading/Service Bays

- ▶ All loading bays are to be designed to accommodate the largest vehicle in accordance with AS 2890.2 (2018).
- ▶ Roadways/ramps accessed by waste/service vehicles are to be designed in accordance with Table 3.2 of AS 2890.2 (2018).
- ▶ The maximum gradient for any part of the service bay shall be 1:25 (4%) measured in any direction including directions oblique to the bay centre-line as required by AS 2890.2 (2018).

9.2.4 Other Considerations

- ▶ All bicycle parking spaces are to be designed in accordance with AS 2890.3 (2015).
- ▶ A visual splay is to be provided at the access driveway in accordance with Figure 3.3 of AS 2890.1 (2004).

9.3 Summary

In summary, the internal configuration of the car park has been designed in accordance with AS 2890.1 (2004), AS 2890.2 (2018) and AS 2890.6 (2009). It is however envisaged that a standard condition of consent could be imposed requiring compliance with these standards and as such any minor amendments considered necessary (if any) can be dealt with prior to the release of any Construction Certificate.



10. CONCLUSIONS

The following matters are noteworthy:

- ▶ TRAFFIX has been commissioned by The Parramatta City Council to undertake a traffic impact assessment (TIA) in support of a development application (DA) relating to the construction of the Aquatic Leisure Centre Parramatta (ALCP) located at the former Parramatta Golf Course site.
- ▶ The subject site has good connections to the public transport network with reliable access to regular bus services. The site is located within 400 metres of 10 bus stops, providing staff and visitors connections to destinations such as Blacktown, Castle Hill, Rouse Hill, Liverpool and Merrylands. In addition, Parramatta Railway Station is located approximately 800 metres east of the site, providing connections along the T1, T2 and T5 lines.
- ▶ The proposal seeks approval to construct a new Aquatic Leisure Centre comprising a 50m outdoor pool, outdoor leisure pool, 25m indoor pool, toddler pool, health club, café and other ancillary uses. The proposal also proposes a 204 space at-grade car park with access from Park Parade.
- ▶ Surveys of the Auburn Ruth Everuss Aquatic Centre indicate that the proposed development would generate a demand for approximately 87 parking spaces. Nevertheless, the provision of 204 parking spaces is considered appropriate for the numerous reasons discussed. These relate to seasonal factors, the commercial need to accommodate demands higher than the normal 85th percentile demand level, the expected broad and growing population catchment and operational requirements based on experience.
- ▶ SIDRA intersection modelling has been undertaken at the two (2) nearby critical intersections to determine the traffic impacts of the proposed development. The SIDRA analysis demonstrated that the intersections operate satisfactorily with minimal increases to average delay during the Base Case Plus Development scenario. The impacts of the proposed development on the wider road network are considered acceptable with no external improvements required. It is also noted that as a recreational facility, visitors have maximum flexibility to vary their travel behaviour (modes and times) to avoid any external traffic network issues that may arise from time to time.



- ▶ The assessment is considered conservative as the assessment model is a 'car dependent' model based on existing travel behaviour. There is potential to promote alternate travel modes over time and as the population within the catchment grows and this can be supported by a Green Travel Plan.
- ▶ The proposed development provides a total of 49 bicycle parking spaces including 13 secured spaces for staff members and 36 bicycle racks for visitors and staff members, noting that staff members working shorter shifts can utilise the bicycle racks. These arrangements are considered appropriate and in line with Austroad guidelines. The provision of 49 bicycle spaces is considered appropriate and will encourage the uptake of bicycle trips by staff and visitors.

This traffic impact assessment therefore demonstrates that the subject application is supportable on traffic and transport planning grounds. TRAFFIX anticipates an ongoing involvement during the development approval process.

APPENDIX A

Photographic Record



View looking south towards the intersection of Pitt Street and Park Parade



View looking south towards the intersection of Hawkesbury Road and Alexandra Avenue



View looking southeast along Park Parade with the subject site's access driveway to the right



View looking northwest along Park Parade with the subject site's access driveway to the left



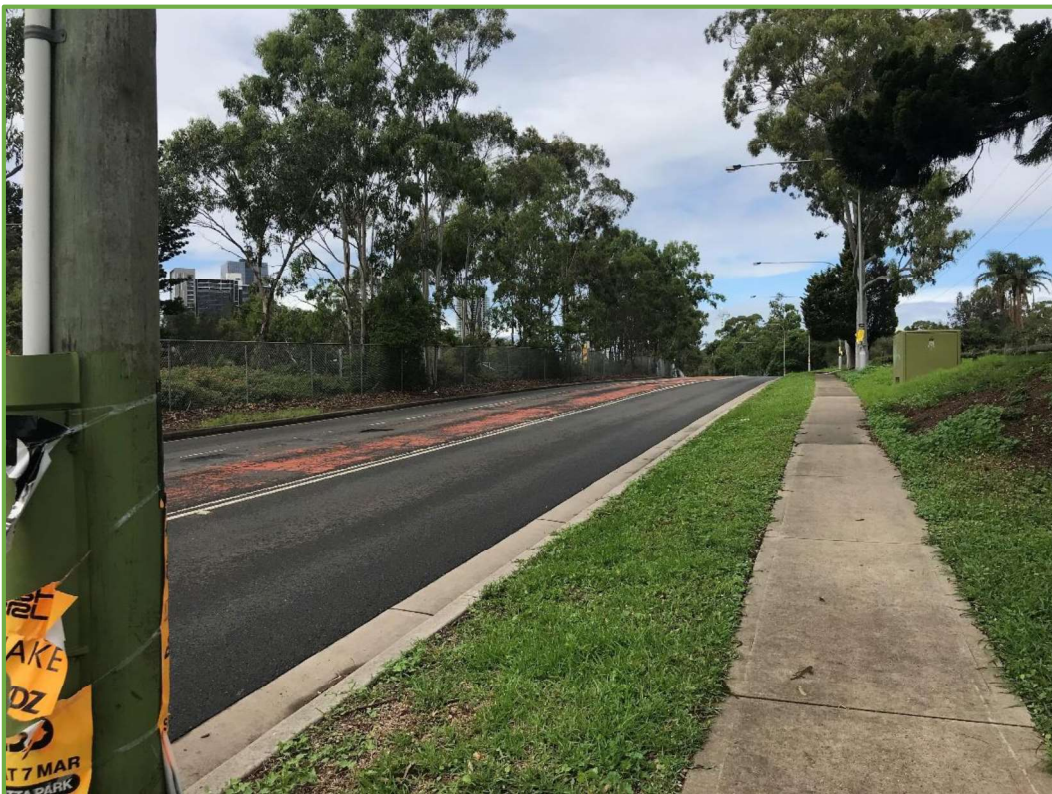
View looking southeast along Park Parade showing the available sight distance



View looking northwest along Park Parade showing the available sight distance



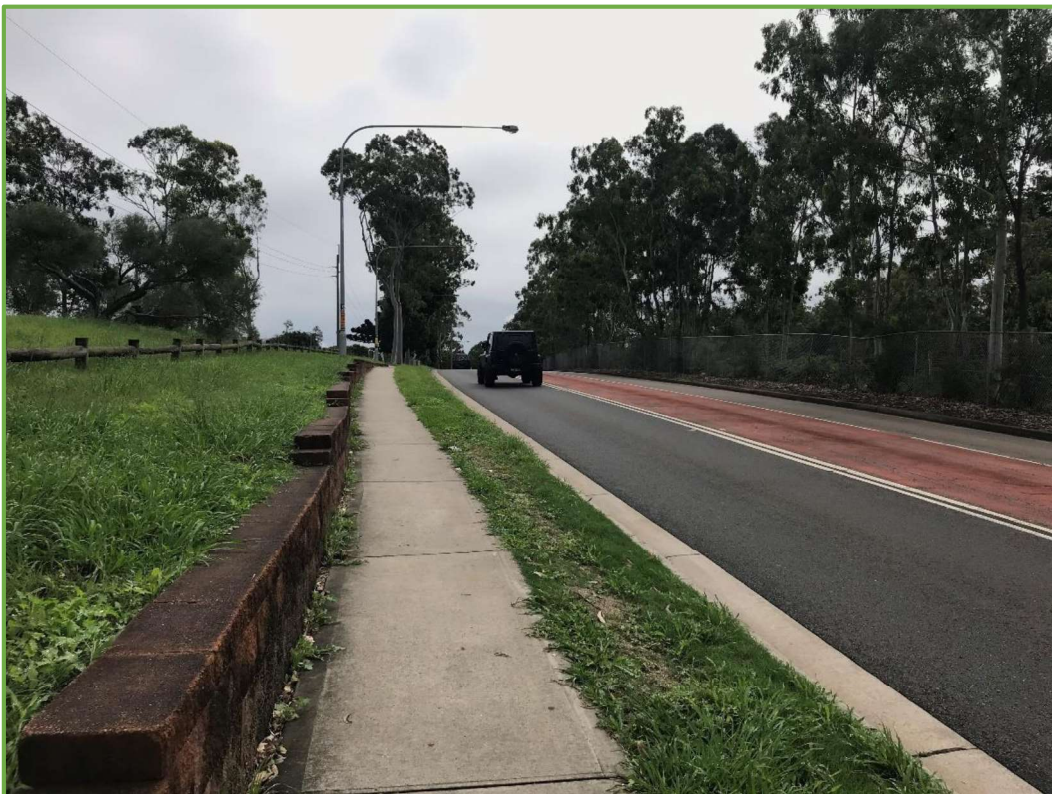
View looking northwest along Park Parade past the access driveway towards Westmead



View looking southeast along Park Parade towards the access driveway on the right



View looking southeast along Park Parade past the access driveway towards Parramatta



View looking northwest along Park Parade towards the access driveway on the left



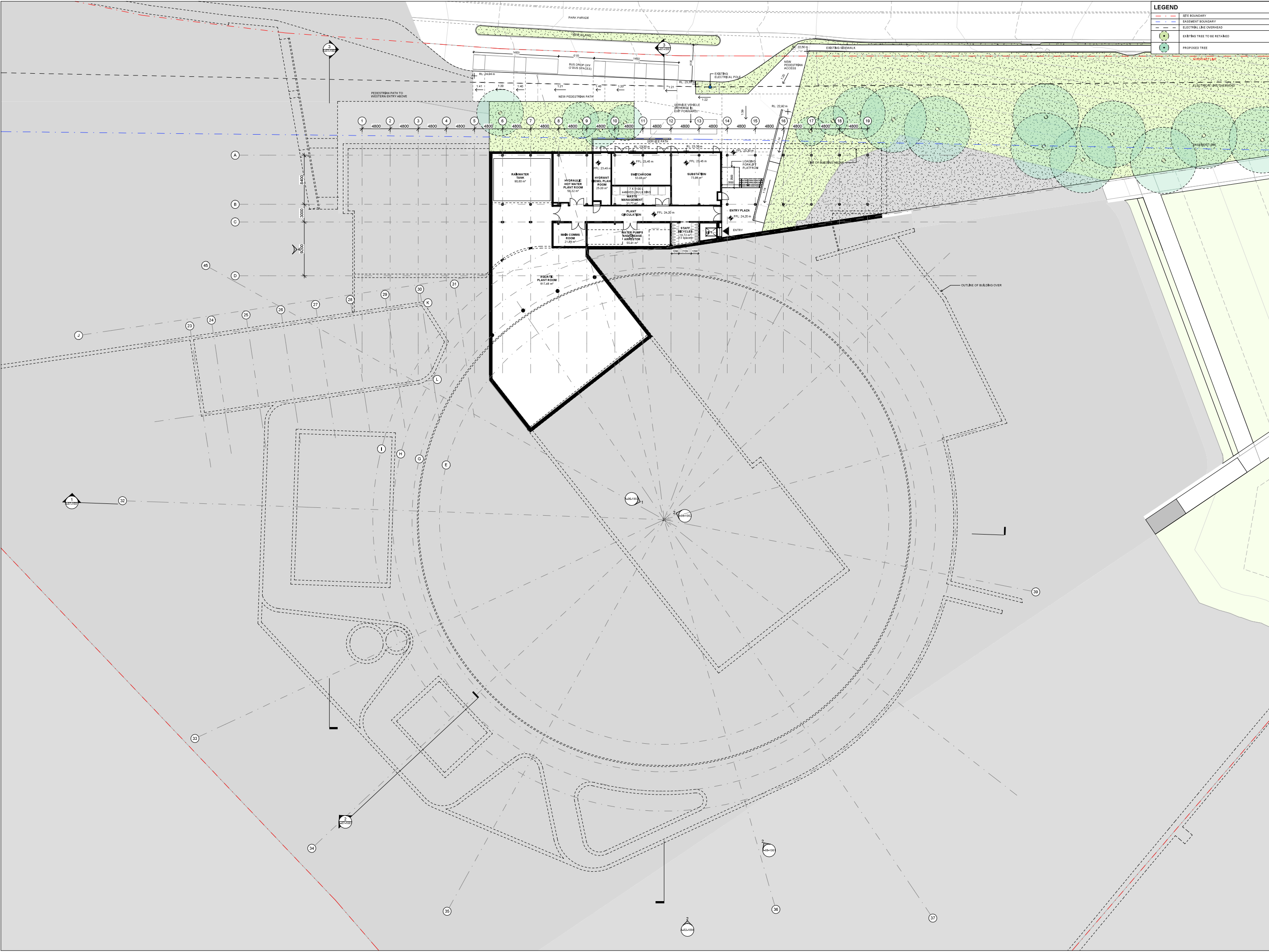
View looking at the intersection of Pitt Street and Park Parade



View looking at the intersection of Alexandra Avenue and Hawkesbury Road

APPENDIX B

Architectural Plans



ARCHITECT

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DRAWING NOTES
- Do not scale - All dimensions to be checked on site.
- Drawings to be read in conjunction with all relevant specifications.
- Any discrepancies between consultant information should be brought to the attention of the Design Team.
- Detailed information shown on architectural drawings is indicative only. Refer to structural engineer's design drawings.

DRAWING COLOUR CODED
PRINT ALL COPIES IN COLOUR

General Notes
1. This drawing is a DRAFT and issued for information and coordination purposes only.
2. This drawing is not prepared for Development Application, Tender or Construction.
3. Further design resolution and coordination with specialist consultants is required prior to the DA submission.
Specific areas requiring further design resolution and consultant input include:
1. The carpark and busways.
2. The entry plaza bus area.
3. Final amenity numbers.
4. Elements related to specialist consultant inputs.
5. Areas within the easement along Park Parade.

CLIENT
City of
Paramatta
Council

CONSULTANTS

PROJECT NAME
ALCP
Paramatta Aquatic and Leisure Centre

PROJECT NO.
18051

ADDRESS
Paramatta, NSW

REV BY DATE DESCRIPTION
1 GA 11/1/19 Concept Design Development
2 GA 06/3/20 Draft Information
3 GA 06/3/20 DRAFT DA
4 GA 25/3/20 Issue for coordination
5 GA 26/3/20 Issue for coordination

KEY PLAN

NORTH

DRAWING TITLE
LOWER GROUND

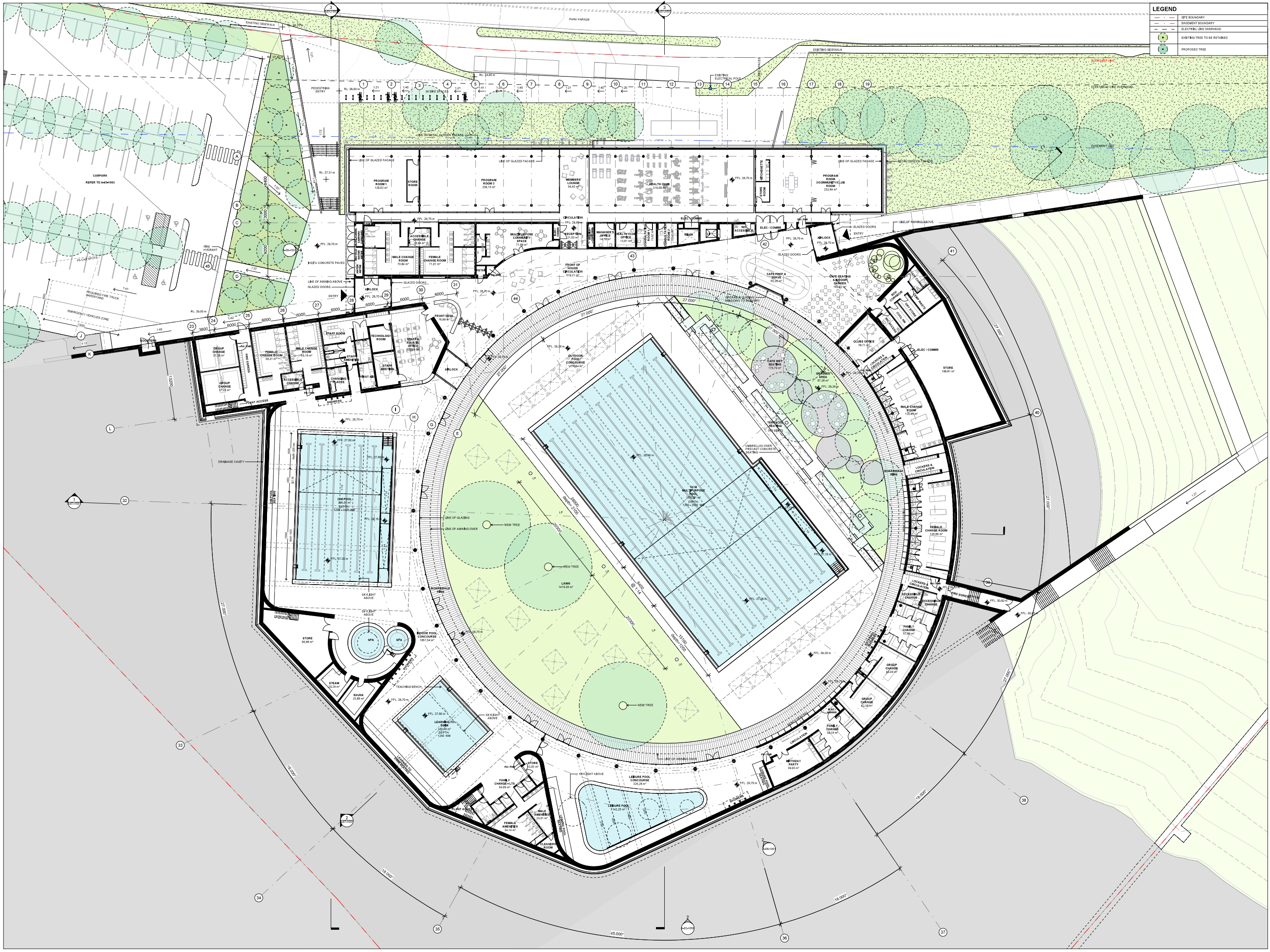
SCALE
As indicated @
A0






STATUS
DEVELOPMENT
APPLICATION

DRAWN BY DATE
EL JH AC 26/03/20

REV
5

DRAWING NO.
A-03-1001



LEGEND	
	SITE BOUNDARY
	EASEMENT BOUNDARY
	ELECTRICAL LINE OVERHEAD
	EXISTING TREE TO BE RETAINED
	PROPOSED TREE

ARCHITECT

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DRAWING NOTICES

- Do not scale - all dimensions to be checked on site.
- Drawing to be read in conjunction with all relevant Grimshaw's and specialist consultant's drawings, reports, schedules and specifications.
- Any discrepancies between consultant information should be brought to the attention of the Design Team.
- Structural information shown on architectural drawings is indicative only. Refer to structural engineer's design drawings.

**DRAWING COLOUR CODED
PRINT ALL COPIES IN COLOUR**

General Notes:

1. This drawing is a DRAFT and issued for information and coordination purposes only.
2. This drawing is not produced for Development Application, Tender or Construction.
3. Further design resolution and coordination with specialist consultants is required prior to the DA submission.

Specific areas requiring further design resolution and consultant input include:

1. The carpark and busway.
2. The entry plaza/pawn area.
3. Final amenities numbers.
4. Elements related to specialist consultant inputs.
5. Areas within the easement along Park Parade.

CLIENT
City of
Parramatta

CONSULTANTS

PROJECT NAME
ALCP

Paramatta Aquatic and Leisure Centre

PROJECT NO. ADDRESS
18051 Paramatta, NSW

REV	BY	DATE	DESCRIPTION
1	GA	11,11,19	Concept Design Development -For Information
2	GA	06,03,20	DRAFT DA
3	GA ABA	18,03,20	Issue for coordination
4	GA ABA	25,03,20	Issue for coordination
5	GA ABA	26,03,20	Issue for coordination

KEY PLAN

DRAWING TITLE
GROUND FLOOR

SCALE			STATUS	
As indicated @			DEVELOPMENT	
A0			APPLICATION	
DRW	CH	APPR	DRW DATE	REV
EL	JH	AC	26.0320	5

DRAWING NO.
A-03-1002

APPENDIX C

SIDRA Outputs

SITE LAYOUT

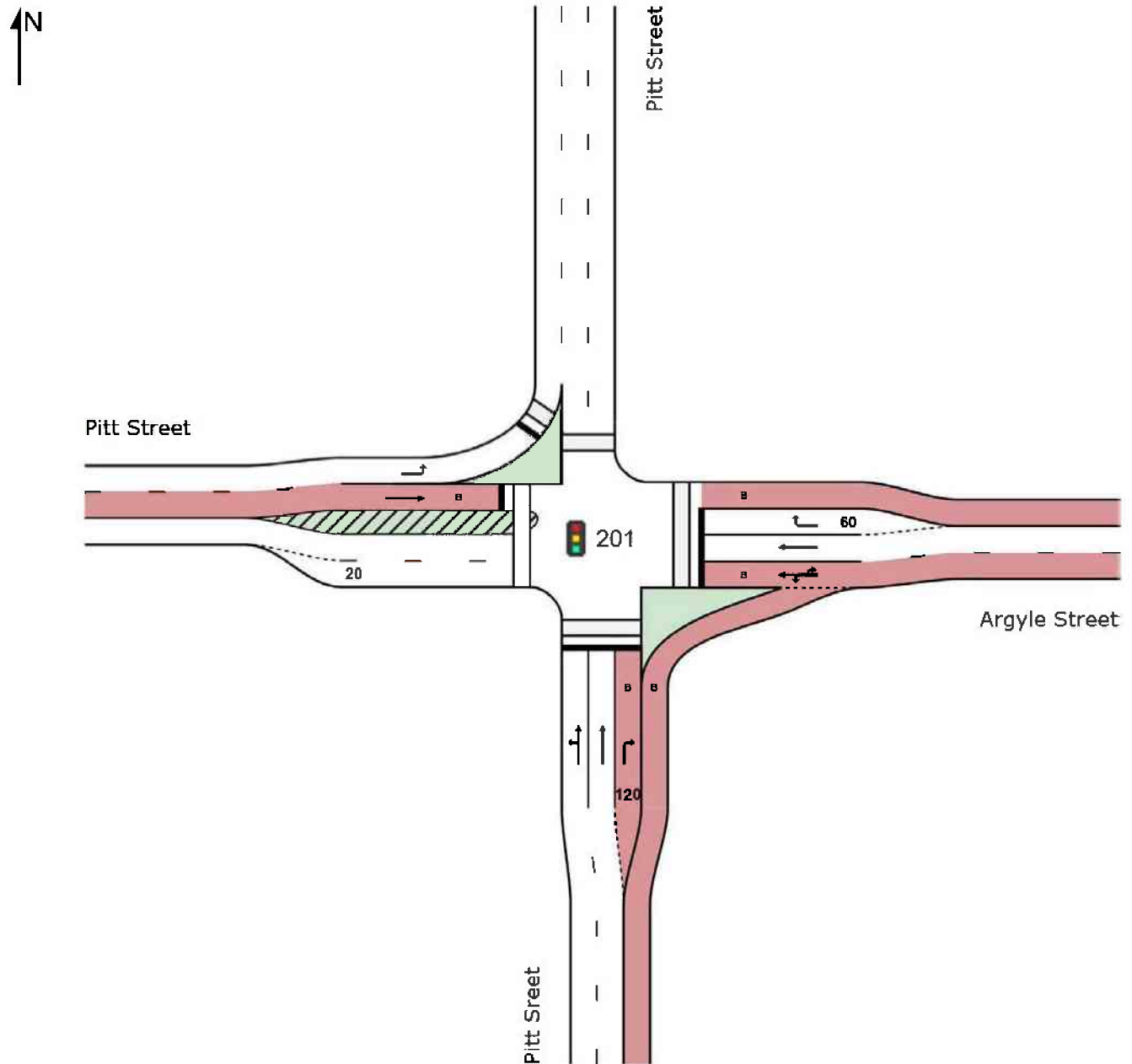
 **Site: 201 [Park Pde Pitt St Argyle St EX AM - Weekday]**

Intersection: Park Parade, Pitt Street and Argyle Street

Scenario: Existing AM

Site Category: (None)

Signals - Fixed Time Isolated



MOVEMENT SUMMARY

 **Site: 201 [Park Pde Pitt St Argyle St EX AM - Weekday]**

Intersection: Park Parade, Pitt Street and Argyle Street

Scenario: Existing AM

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Pitt Street												
1	L2	80	0.0	0.821	44.5	LOS D	33.0	234.5	0.97	0.91	1.02	39.4
2	T1	1117	2.1	0.821	38.9	LOS C	33.1	236.0	0.97	0.91	1.02	30.1
3	R2	35	100.0	0.087	32.8	LOS C	1.3	17.3	0.68	0.71	0.68	27.2
Approach		1232	4.7	0.821	39.1	LOS C	33.1	236.0	0.96	0.90	1.01	30.9
East: Argyle Street												
4	L2	22	100.0	0.366	44.0	LOS D	4.9	63.8	0.84	0.77	0.84	24.1
5	T1	368	9.7	0.760	47.3	LOS D	19.0	133.7	0.97	0.87	1.03	35.8
6	R2	17	6.3	0.189	68.4	LOS E	1.0	7.4	0.99	0.69	0.99	18.0
6u	U	47	100.0	0.366	45.2	LOS D	4.9	63.8	0.84	0.77	0.84	18.7
Approach		455	23.4	0.760	47.7	LOS D	19.0	133.7	0.96	0.85	1.00	33.8
West: Pitt Street												
10	L2	779	0.8	0.816	32.6	LOS C	38.5	271.6	0.91	0.89	0.92	43.0
11	T1	38	100.0	0.240	52.3	LOS D	2.1	27.0	0.93	0.71	0.93	34.5
Approach		817	5.4	0.816	33.5	LOS C	38.5	271.6	0.91	0.88	0.92	42.5
All Vehicles		2503	8.3	0.821	38.8	LOS C	38.5	271.6	0.94	0.89	0.98	36.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	176	54.5	LOS E	0.6	0.6	0.96	0.96	
P2	East Full Crossing	40	54.2	LOS E	0.1	0.1	0.95	0.95	
P3	North Full Crossing	27	54.2	LOS E	0.1	0.1	0.95	0.95	
P4	West Full Crossing	48	54.3	LOS E	0.2	0.2	0.95	0.95	
P4B	West Slip/Bypass Lane Crossing	48	54.3	LOS E	0.2	0.2	0.95	0.95	
All Pedestrians		340	54.4	LOS E			0.95	0.95	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 201 [Park Pde Pitt St Argyle St DEV AM - Weekday]**

Intersection: Park Parade, Pitt Street and Argyle Street

Scenario: Existing AM

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Pitt Street												
1	L2	139	0.0	0.831	44.1	LOS D	34.8	246.9	0.97	0.92	1.03	39.3
2	T1	1117	2.1	0.831	38.4	LOS C	35.0	249.3	0.97	0.92	1.03	30.2
3	R2	35	100.0	0.084	31.4	LOS C	1.3	16.8	0.67	0.71	0.67	27.8
Approach		1291	4.5	0.831	38.8	LOS C	35.0	249.3	0.96	0.91	1.02	31.6
East: Argyle Street												
4	L2	22	100.0	0.389	45.9	LOS D	5.0	65.4	0.86	0.77	0.86	23.5
5	T1	383	9.3	0.792	49.1	LOS D	20.3	143.4	0.99	0.91	1.07	35.3
6	R2	17	6.3	0.189	68.4	LOS E	1.0	7.4	0.99	0.69	0.99	18.0
6u	U	47	100.0	0.389	47.1	LOS D	5.0	65.4	0.86	0.77	0.86	18.1
Approach		469	22.6	0.792	49.4	LOS D	20.3	143.4	0.97	0.88	1.04	33.3
West: Pitt Street												
10	L2	779	0.8	0.844	37.0	LOS C	41.6	293.3	0.94	0.91	0.98	41.4
11	T1	38	100.0	0.240	52.3	LOS D	2.1	27.0	0.93	0.71	0.93	34.5
Approach		817	5.4	0.844	37.7	LOS C	41.6	293.3	0.94	0.90	0.98	41.0
All Vehicles		2577	8.1	0.844	40.4	LOS C	41.6	293.3	0.95	0.90	1.01	35.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	176	54.5	LOS E	0.6	0.6	0.96	0.96	
P2	East Full Crossing	40	54.2	LOS E	0.1	0.1	0.95	0.95	
P3	North Full Crossing	27	54.2	LOS E	0.1	0.1	0.95	0.95	
P4	West Full Crossing	48	54.3	LOS E	0.2	0.2	0.95	0.95	
P4B	West Slip/Bypass Lane Crossing	48	54.3	LOS E	0.2	0.2	0.95	0.95	
All Pedestrians		340	54.4	LOS E			0.95	0.95	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

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Scenario: Existing AM

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Pitt Street												
1	L2	52	0.0	0.813	53.4	LOS D	24.8	174.7	1.00	0.94	1.09	36.7
2	T1	808	0.7	0.813	47.8	LOS D	25.3	177.8	1.00	0.94	1.09	27.0
3	R2	35	100.0	0.124	43.3	LOS D	1.6	20.6	0.80	0.73	0.80	23.3
Approach		895	4.5	0.813	48.0	LOS D	25.3	177.8	0.99	0.93	1.08	27.7
East: Argyle Street												
4	L2	36	100.0	0.808	68.8	LOS E	8.2	106.8	1.00	0.99	1.29	17.9
5	T1	784	5.2	0.834	32.3	LOS C	38.3	268.9	0.91	0.86	0.96	41.3
6	R2	49	2.1	0.135	48.3	LOS D	2.4	17.0	0.86	0.74	0.86	22.5
6u	U	53	100.0	0.808	70.0	LOS E	8.2	106.8	1.00	0.99	1.29	13.6
Approach		922	14.2	0.834	36.7	LOS C	38.3	268.9	0.92	0.87	0.99	38.0
West: Pitt Street												
10	L2	475	0.7	0.411	17.6	LOS B	13.8	96.9	0.54	0.73	0.54	49.4
11	T1	37	100.0	0.134	39.8	LOS C	1.7	22.5	0.83	0.63	0.83	38.4
Approach		512	7.8	0.411	19.2	LOS B	13.8	96.9	0.56	0.72	0.56	48.5
All Vehicles		2328	9.0	0.834	37.2	LOS C	38.3	268.9	0.87	0.86	0.93	36.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	114	54.4	LOS E	0.4	0.4	0.95	0.95	
P2	East Full Crossing	39	54.2	LOS E	0.1	0.1	0.95	0.95	
P3	North Full Crossing	31	54.2	LOS E	0.1	0.1	0.95	0.95	
P4	West Full Crossing	73	54.3	LOS E	0.2	0.2	0.95	0.95	
P4B	West Slip/Bypass Lane Crossing	73	54.3	LOS E	0.2	0.2	0.95	0.95	
All Pedestrians		328	54.3	LOS E			0.95	0.95	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 201 [Park Pde Pitt St Argyle St DEV PM - Weekday]**

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Scenario: Existing AM

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Pitt Street												
1	L2	87	0.0	0.852	57.2	LOS E	27.1	190.4	1.00	0.98	1.15	35.5
2	T1	808	0.7	0.852	51.5	LOS D	27.8	195.8	1.00	0.98	1.14	25.9
3	R2	35	100.0	0.124	43.3	LOS D	1.6	20.6	0.80	0.73	0.80	23.3
Approach		931	4.3	0.852	51.7	LOS D	27.8	195.8	0.99	0.97	1.13	27.1
East: Argyle Street												
4	L2	36	100.0	0.808	68.8	LOS E	8.2	106.8	1.00	0.99	1.29	17.9
5	T1	795	5.2	0.845	33.5	LOS C	39.8	279.5	0.92	0.88	0.98	40.8
6	R2	49	2.1	0.135	48.3	LOS D	2.4	17.0	0.86	0.74	0.86	22.5
6u	U	53	100.0	0.808	70.0	LOS E	8.2	106.8	1.00	0.99	1.29	13.6
Approach		933	14.0	0.845	37.7	LOS C	39.8	279.5	0.92	0.88	1.01	37.7
West: Pitt Street												
10	L2	475	0.7	0.411	17.6	LOS B	13.8	96.9	0.54	0.73	0.54	49.4
11	T1	37	100.0	0.134	39.8	LOS C	1.7	22.5	0.83	0.63	0.83	38.4
Approach		512	7.8	0.411	19.2	LOS B	13.8	96.9	0.56	0.72	0.56	48.5
All Vehicles		2375	8.9	0.852	39.2	LOS C	39.8	279.5	0.87	0.88	0.96	36.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	114	54.4	LOS E	0.4	0.4	0.95	0.95	
P2	East Full Crossing	39	54.2	LOS E	0.1	0.1	0.95	0.95	
P3	North Full Crossing	31	54.2	LOS E	0.1	0.1	0.95	0.95	
P4	West Full Crossing	73	54.3	LOS E	0.2	0.2	0.95	0.95	
P4B	West Slip/Bypass Lane Crossing	73	54.3	LOS E	0.2	0.2	0.95	0.95	
All Pedestrians		328	54.3	LOS E			0.95	0.95	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 201 [Park Pde Pitt St Argyle St EX AM - Weekend]**

Intersection: Park Parade, Pitt Street and Argyle Street

Scenario: Existing AM

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Pitt Street												
1	L2	60	0.0	0.691	38.8	LOS C	24.7	174.2	0.90	0.80	0.90	41.4
2	T1	958	1.1	0.691	33.2	LOS C	25.0	176.9	0.90	0.80	0.90	32.4
3	R2	13	100.0	0.032	32.1	LOS C	0.5	6.1	0.66	0.68	0.66	27.5
Approach		1031	2.2	0.691	33.5	LOS C	25.0	176.9	0.90	0.80	0.90	33.2
East: Argyle Street												
4	L2	12	100.0	0.322	56.6	LOS E	2.8	35.8	0.93	0.76	0.93	20.4
5	T1	455	3.0	0.681	35.6	LOS C	21.7	152.1	0.90	0.79	0.90	39.9
6	R2	41	0.0	0.126	50.9	LOS D	2.0	14.3	0.88	0.74	0.88	21.8
6u	U	26	100.0	0.322	57.9	LOS E	2.8	35.8	0.93	0.76	0.93	15.6
Approach		534	9.7	0.681	38.3	LOS C	21.7	152.1	0.90	0.78	0.90	37.4
West: Pitt Street												
10	L2	422	0.5	0.441	24.9	LOS B	15.3	107.3	0.67	0.77	0.67	46.0
11	T1	15	100.0	0.100	51.9	LOS D	0.8	10.3	0.92	0.65	0.92	34.6
Approach		437	3.9	0.441	25.8	LOS B	15.3	107.3	0.68	0.76	0.68	45.6
All Vehicles		2001	4.6	0.691	33.1	LOS C	25.0	176.9	0.85	0.79	0.85	37.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	79	54.3	LOS E	0.3	0.3	0.95	0.95	
P2	East Full Crossing	33	54.2	LOS E	0.1	0.1	0.95	0.95	
P3	North Full Crossing	8	54.2	LOS E	0.0	0.0	0.95	0.95	
P4	West Full Crossing	45	54.3	LOS E	0.1	0.1	0.95	0.95	
P4B	West Slip/Bypass Lane Crossing	45	54.3	LOS E	0.1	0.1	0.95	0.95	
All Pedestrians		211	54.3	LOS E			0.95	0.95	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 201 [Park Pde Pitt St Argyle St DEV AM - Weekend]**

Intersection: Park Parade, Pitt Street and Argyle Street

Scenario: Existing AM

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Pitt Street												
1	L2	119	0.0	0.704	37.7	LOS C	25.8	182.2	0.90	0.81	0.90	41.5
2	T1	958	1.1	0.704	32.2	LOS C	26.5	187.3	0.90	0.81	0.90	32.8
3	R2	13	100.0	0.030	30.7	LOS C	0.5	6.0	0.65	0.67	0.65	28.1
Approach		1089	2.1	0.704	32.8	LOS C	26.5	187.3	0.90	0.80	0.90	34.2
East: Argyle Street												
4	L2	12	100.0	0.339	57.8	LOS E	2.8	36.3	0.94	0.76	0.94	20.1
5	T1	469	2.9	0.722	36.9	LOS C	22.9	160.9	0.92	0.81	0.92	39.4
6	R2	41	0.0	0.133	51.9	LOS D	2.1	14.5	0.89	0.74	0.89	21.6
6u	U	26	100.0	0.339	59.0	LOS E	2.8	36.3	0.94	0.76	0.94	15.3
Approach		548	9.4	0.722	39.5	LOS C	22.9	160.9	0.92	0.80	0.92	37.1
West: Pitt Street												
10	L2	422	0.5	0.456	26.3	LOS B	15.8	111.1	0.70	0.77	0.70	45.4
11	T1	15	100.0	0.100	51.9	LOS D	0.8	10.3	0.92	0.65	0.92	34.6
Approach		437	3.9	0.456	27.1	LOS B	15.8	111.1	0.70	0.77	0.70	45.0
All Vehicles		2075	4.4	0.722	33.4	LOS C	26.5	187.3	0.86	0.80	0.86	37.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	79	54.3	LOS E	0.3	0.3	0.95	0.95	
P2	East Full Crossing	33	54.2	LOS E	0.1	0.1	0.95	0.95	
P3	North Full Crossing	8	54.2	LOS E	0.0	0.0	0.95	0.95	
P4	West Full Crossing	45	54.3	LOS E	0.1	0.1	0.95	0.95	
P4B	West Slip/Bypass Lane Crossing	45	54.3	LOS E	0.1	0.1	0.95	0.95	
All Pedestrians		211	54.3	LOS E			0.95	0.95	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

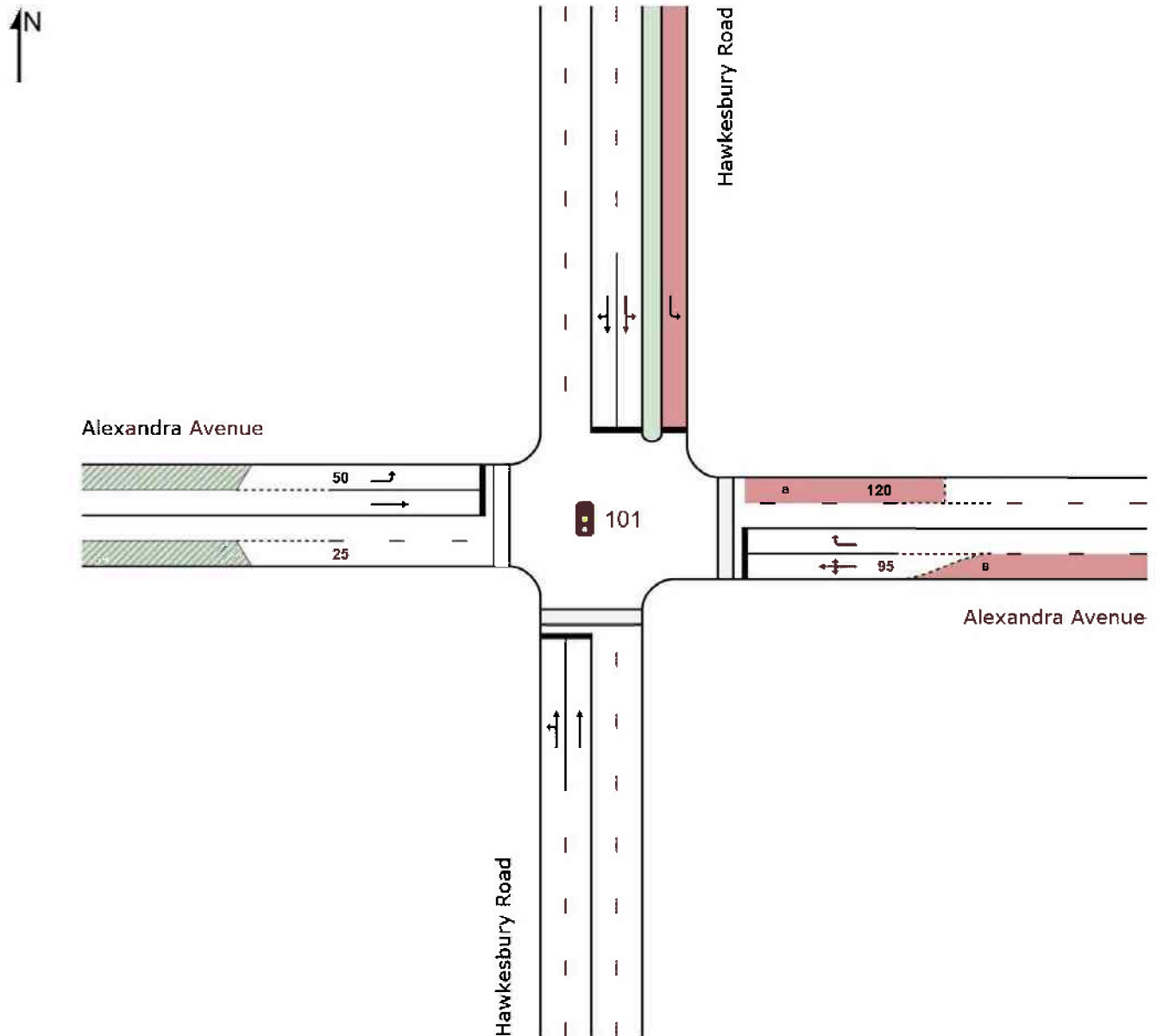
 **Site: 101 [Hawkesbury Rd Alexandra Ave EX AM - Weekday]**

Intersection: Hawkesbury Road and Alexandra Parade

Scenario: Existing AM

Site Category: (None)

Signals - Fixed Time Isolated



MOVEMENT SUMMARY



Site: 101 [Hawkesbury Rd Alexandra Ave EX AM - Weekday]

Intersection: Hawkesbury Road and Alexandra Parade

Scenario: Existing AM

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Hawkesbury Road												
1	L2	12	0.0	0.803	47.6	LOS D	26.9	190.9	0.99	0.92	1.05	27.6
2	T1	941	1.8	0.803	44.1	LOS D	27.0	191.8	0.99	0.92	1.05	13.9
Approach		953	1.8	0.803	44.2	LOS D	27.0	191.8	0.99	0.92	1.05	14.2
East: Alexandra Avenue												
4	L2	28	0.0	0.798	62.9	LOS E	12.4	90.2	1.00	0.93	1.16	14.2
5	T1	107	0.0	0.798	58.3	LOS E	12.4	90.2	1.00	0.93	1.16	24.4
6	R2	291	11.2	0.798	63.3	LOS E	12.7	97.1	1.00	0.92	1.17	10.0
Approach		426	7.7	0.798	62.0	LOS E	12.7	97.1	1.00	0.92	1.17	15.0
North: Hawkesbury Road												
7	L2	265	16.7	0.474	23.1	LOS B	16.5	117.5	0.65	0.71	0.65	21.0
8	T1	389	2.2	0.474	29.7	LOS C	16.5	117.5	0.79	0.75	0.79	17.3
9	R2	61	1.7	0.474	41.5	LOS C	11.9	85.0	0.89	0.77	0.89	27.9
Approach		716	7.5	0.474	28.3	LOS B	16.5	117.5	0.74	0.74	0.74	19.8
West: Alexandra Avenue												
10	L2	113	0.9	0.156	29.7	LOS C	4.2	29.7	0.68	0.72	0.68	30.8
11	T1	289	0.4	0.789	51.7	LOS D	16.8	118.0	0.99	0.92	1.10	26.4
Approach		402	0.5	0.789	45.5	LOS D	16.8	118.0	0.90	0.86	0.98	27.4
All Vehicles		2497	4.2	0.803	42.9	LOS D	27.0	191.8	0.91	0.86	0.97	18.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	255	54.7	LOS E	0.8	0.8	0.96	0.96	
P2	East Full Crossing	327	54.9	LOS E	1.1	1.1	0.96	0.96	
P4	West Full Crossing	100	54.4	LOS E	0.3	0.3	0.95	0.95	
All Pedestrians		682	54.8	LOS E			0.96	0.96	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 101 [Hawkesbury Rd Alexandra Ave DEV AM - Weekday]**

Intersection: Hawkesbury Road and Alexandra Parade

Scenario: Existing AM

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Hawkesbury Road												
1	L2	12	0.0	0.826	50.1	LOS D	27.8	197.3	1.00	0.95	1.09	26.9
2	T1	941	1.8	0.826	46.7	LOS D	27.9	198.2	1.00	0.95	1.09	13.4
Approach		953	1.8	0.826	46.7	LOS D	27.9	198.2	1.00	0.95	1.09	13.7
East: Alexandra Avenue												
4	L2	36	0.0	0.786	61.5	LOS E	12.5	90.2	1.00	0.92	1.14	14.4
5	T1	113	0.0	0.786	56.9	LOS E	12.5	90.2	1.00	0.92	1.14	24.7
6	R2	296	11.0	0.786	61.8	LOS E	13.0	99.7	1.00	0.91	1.15	10.2
Approach		444	7.3	0.786	60.6	LOS E	13.0	99.7	1.00	0.91	1.14	15.3
North: Hawkesbury Road												
7	L2	265	16.7	0.483	23.7	LOS B	16.8	119.9	0.66	0.72	0.66	20.7
8	T1	389	2.2	0.483	30.5	LOS C	16.8	119.9	0.80	0.76	0.80	17.0
9	R2	61	1.7	0.483	42.4	LOS C	12.0	85.7	0.89	0.77	0.90	27.6
Approach		716	7.5	0.483	29.0	LOS C	16.8	119.9	0.75	0.74	0.75	19.6
West: Alexandra Avenue												
10	L2	113	0.9	0.156	29.7	LOS C	4.2	29.7	0.68	0.72	0.68	30.8
11	T1	289	0.4	0.789	51.7	LOS D	16.8	118.0	0.99	0.92	1.10	26.4
Approach		402	0.5	0.789	45.5	LOS D	16.8	118.0	0.90	0.86	0.98	27.4
All Vehicles		2515	4.2	0.826	43.9	LOS D	27.9	198.2	0.91	0.87	0.99	18.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	255	54.7	LOS E	0.8	0.8	0.96	0.96	
P2	East Full Crossing	327	54.9	LOS E	1.1	1.1	0.96	0.96	
P4	West Full Crossing	100	54.4	LOS E	0.3	0.3	0.95	0.95	
All Pedestrians		682	54.8	LOS E			0.96	0.96	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 101 [Hawkesbury Rd Alexandra Ave EX PM - Weekday]**

Intersection: Hawkesbury Road and Alexandra Parade

Scenario: Existing AM

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Hawkesbury Road												
1	L2	57	0.0	0.598	55.0	LOS D	10.0	69.9	0.98	0.81	0.98	25.5
2	T1	306	0.3	0.598	51.6	LOS D	10.2	71.8	0.98	0.80	0.98	12.4
Approach		363	0.3	0.598	52.1	LOS D	10.2	71.8	0.98	0.80	0.98	15.4
East: Alexandra Avenue												
4	L2	39	2.7	0.588	45.2	LOS D	12.8	89.9	0.92	0.79	0.92	18.2
5	T1	274	0.0	0.588	40.6	LOS C	12.8	89.9	0.92	0.79	0.92	29.2
6	R2	214	18.2	0.473	44.0	LOS D	10.5	85.0	0.88	0.80	0.88	13.0
Approach		526	7.6	0.588	42.3	LOS C	12.8	89.9	0.91	0.80	0.91	23.5
North: Hawkesbury Road												
7	L2	234	15.3	0.647	31.7	LOS C	22.7	159.5	0.78	0.78	0.78	18.0
8	T1	599	0.7	0.647	35.6	LOS C	22.7	159.5	0.89	0.89	1.02	15.6
9	R2	82	0.0	0.647	41.3	LOS C	18.8	132.0	0.91	0.95	1.15	28.0
Approach		915	4.4	0.647	35.1	LOS C	22.7	159.5	0.86	0.87	0.97	17.6
West: Alexandra Avenue												
10	L2	51	0.0	0.065	26.7	LOS B	1.7	12.2	0.63	0.68	0.63	31.9
11	T1	218	1.0	0.613	49.3	LOS D	11.9	84.2	0.97	0.81	0.97	27.0
Approach		268	0.8	0.613	45.1	LOS D	11.9	84.2	0.91	0.78	0.91	27.7
All Vehicles		2073	4.0	0.647	41.2	LOS C	22.7	159.5	0.90	0.83	0.95	20.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	114	54.4	LOS E	0.4	0.4	0.95	0.95	
P2	East Full Crossing	162	54.5	LOS E	0.5	0.5	0.96	0.96	
P4	West Full Crossing	12	54.2	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		287	54.5	LOS E			0.96	0.96	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 101 [Hawkesbury Rd Alexandra Ave DEV PM - Weekday]**

Intersection: Hawkesbury Road and Alexandra Parade

Scenario: Existing AM

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Hawkesbury Road												
1	L2	57	0.0	0.631	56.3	LOS D	10.1	70.8	0.99	0.81	0.99	25.3
2	T1	306	0.3	0.631	52.8	LOS D	10.4	72.7	0.99	0.81	0.99	12.2
Approach		363	0.3	0.631	53.3	LOS D	10.4	72.7	0.99	0.81	0.99	15.2
East: Alexandra Avenue												
4	L2	58	1.8	0.614	44.1	LOS D	12.8	89.9	0.92	0.80	0.92	18.4
5	T1	287	0.0	0.614	39.5	LOS C	12.8	89.9	0.92	0.80	0.92	29.4
6	R2	227	17.1	0.471	42.4	LOS C	11.0	88.2	0.87	0.80	0.87	13.4
Approach		573	7.0	0.614	41.1	LOS C	12.8	89.9	0.90	0.80	0.90	23.7
North: Hawkesbury Road												
7	L2	234	15.3	0.678	33.3	LOS C	23.4	164.8	0.80	0.79	0.80	17.5
8	T1	599	0.7	0.678	37.5	LOS C	23.4	164.8	0.91	0.91	1.06	15.1
9	R2	82	0.0	0.678	43.4	LOS D	19.0	133.5	0.93	0.99	1.21	27.4
Approach		915	4.4	0.678	37.0	LOS C	23.4	164.8	0.89	0.89	1.01	17.1
West: Alexandra Avenue												
10	L2	51	0.0	0.067	27.4	LOS B	1.8	12.4	0.64	0.68	0.64	31.7
11	T1	218	1.0	0.613	49.3	LOS D	11.9	84.2	0.97	0.81	0.97	27.0
Approach		268	0.8	0.613	45.2	LOS D	11.9	84.2	0.91	0.78	0.91	27.6
All Vehicles		2119	3.9	0.678	41.9	LOS C	23.4	164.8	0.91	0.84	0.96	20.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	114	54.4	LOS E	0.4	0.4	0.95	0.95	
P2	East Full Crossing	162	54.5	LOS E	0.5	0.5	0.96	0.96	
P4	West Full Crossing	12	54.2	LOS E	0.0	0.0	0.95	0.95	
All Pedestrians		287	54.5	LOS E			0.96	0.96	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 101 [Hawkesbury Rd Alexandra Ave EX AM - Weekend]**

Intersection: Hawkesbury Road and Alexandra Parade

Scenario: Existing AM

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Hawkesbury Road												
1	L2	60	1.8	0.570	53.2	LOS D	10.0	70.6	0.97	0.80	0.97	25.9
2	T1	327	0.0	0.570	49.2	LOS D	11.0	77.3	0.97	0.80	0.97	12.9
Approach		387	0.3	0.570	49.8	LOS D	11.0	77.3	0.97	0.80	0.97	15.9
East: Alexandra Avenue												
4	L2	29	0.0	0.556	50.8	LOS D	11.9	83.2	0.95	0.79	0.95	16.8
5	T1	195	0.0	0.556	46.3	LOS D	11.9	83.2	0.95	0.79	0.95	27.6
6	R2	175	7.2	0.475	50.1	LOS D	9.1	67.7	0.93	0.80	0.93	11.8
Approach		399	3.2	0.556	48.3	LOS D	11.9	83.2	0.94	0.80	0.94	21.4
North: Hawkesbury Road												
7	L2	146	10.1	0.370	29.0	LOS C	11.4	80.2	0.71	0.72	0.71	18.4
8	T1	333	1.3	0.370	30.7	LOS C	11.4	80.2	0.78	0.72	0.78	17.1
9	R2	44	0.0	0.370	35.9	LOS C	10.2	72.3	0.80	0.72	0.80	29.8
Approach		523	3.6	0.370	30.6	LOS C	11.4	80.2	0.76	0.72	0.76	19.0
West: Alexandra Avenue												
10	L2	57	0.0	0.067	23.7	LOS B	1.8	12.7	0.59	0.68	0.59	33.2
11	T1	257	1.2	0.558	43.1	LOS D	13.2	93.6	0.93	0.78	0.93	28.6
Approach		314	1.0	0.558	39.6	LOS C	13.2	93.6	0.87	0.76	0.87	29.3
All Vehicles		1623	2.2	0.570	41.3	LOS C	13.2	93.6	0.87	0.77	0.87	21.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	255	54.7	LOS E	0.8	0.8	0.96	0.96	
P2	East Full Crossing	327	54.9	LOS E	1.1	1.1	0.96	0.96	
P4	West Full Crossing	100	54.4	LOS E	0.3	0.3	0.95	0.95	
All Pedestrians		682	54.8	LOS E			0.96	0.96	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 101 [Hawkesbury Rd Alexandra Ave DEV AM - Weekend]**

Intersection: Hawkesbury Road and Alexandra Parade

Scenario: Existing AM

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Hawkesbury Road												
1	L2	60	1.8	0.570	53.2	LOS D	10.0	70.6	0.97	0.80	0.97	25.9
2	T1	327	0.0	0.570	49.2	LOS D	11.0	77.3	0.97	0.80	0.97	12.9
Approach		387	0.3	0.570	49.8	LOS D	11.0	77.3	0.97	0.80	0.97	15.9
East: Alexandra Avenue												
4	L2	37	0.0	0.565	50.2	LOS D	12.5	87.5	0.95	0.80	0.95	16.9
5	T1	200	0.0	0.565	45.6	LOS D	12.5	87.5	0.95	0.80	0.95	27.7
6	R2	180	7.0	0.470	49.2	LOS D	9.3	69.0	0.92	0.80	0.92	12.0
Approach		417	3.0	0.565	47.6	LOS D	12.5	87.5	0.94	0.80	0.94	21.5
North: Hawkesbury Road												
7	L2	146	10.1	0.370	28.9	LOS C	11.4	80.2	0.71	0.72	0.71	18.4
8	T1	333	1.3	0.370	30.7	LOS C	11.4	80.2	0.78	0.72	0.78	17.1
9	R2	44	0.0	0.370	35.9	LOS C	10.2	72.3	0.80	0.72	0.80	29.8
Approach		523	3.6	0.370	30.6	LOS C	11.4	80.2	0.76	0.72	0.76	19.0
West: Alexandra Avenue												
10	L2	57	0.0	0.068	24.3	LOS B	1.8	12.9	0.59	0.68	0.59	32.9
11	T1	257	1.2	0.580	44.1	LOS D	13.4	94.7	0.94	0.79	0.94	28.3
Approach		314	1.0	0.580	40.5	LOS C	13.4	94.7	0.88	0.77	0.88	29.0
All Vehicles		1641	2.2	0.580	41.3	LOS C	13.4	94.7	0.88	0.77	0.88	21.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	255	54.7	LOS E	0.8	0.8	0.96	0.96	
P2	East Full Crossing	327	54.9	LOS E	1.1	1.1	0.96	0.96	
P4	West Full Crossing	100	54.4	LOS E	0.3	0.3	0.95	0.95	
All Pedestrians		682	54.8	LOS E			0.96	0.96	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Appendix 13: Waste Management Plan



Aquatic Leisure Centre Parramatta
Park Parade Parramatta

OPERATIONAL WASTE MANAGEMENT PLAN

31/03/2020
Report No. SO502
Revision D

Client

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SCOPE

This waste management plan (WMP) only applies to the **operational** phase of the proposed development; therefore the requirements outlined in this WMP must be implemented during the operational phase of the site and may be subject to review upon further expansion for, and/or changes to the development.

The waste management of the **construction** and **demolition** phases of the development are not addressed in this report. It is EFRS's understanding that a construction and demolition WMP will be completed by a separate party appointed by the developer, and submitted separately to this report. Typically, the head contractor of the site will be responsible for removing all construction-related waste offsite in a manner that meets all authority requirements.

REVISION REFERENCE

Revision	Date	Prepared by	Reviewed by	Description	Signed
A	17/03/2020	H Wilkes	A Armstrong	Draft	
B	26/03/2020	H Wilkes	A Armstrong	Amendment	
C	31/03/2020	H Wilkes	A Armstrong	Amendment	
D	31/03/2020	H Wilkes	A Armstrong	Final	

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GLOSSARY OF TERMS

TERM	DESCRIPTION
<i>Baler</i>	A device that compresses waste into a mould to form bales which may be self-supporting or retained in shape by strapping
<i>Chute</i>	A ventilated, vertical pipe passing from floor to floor of a building with openings as required to connect with hoppers and normally terminating at its lower end at the roof of the central waste room(s)
<i>Chute Discharge</i>	The point at which refuse exits from the refuse chute
<i>Chute Discharge Room</i>	A secure, enclosed area or room housing the discharge and associated equipment for the refuse chute
<i>Collection Area/Point</i>	The identified position or area where garbage or recyclables are actually loaded onto the collection vehicle
<i>Compactor</i>	A machine for compressing waste into disposable or reusable containers
<i>Composter</i>	A container/machine used for composting specific food scraps
<i>Crate</i>	A plastic box used for the collection of recyclable materials
<i>Garbage</i>	All domestic waste (Except recyclables and green waste)
<i>Green Waste</i>	All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers
<i>Hopper</i>	A fitting into which waste is placed and from which it passes into a chute or directly into a waste container. It consists of a fixed frame and hood unit (the frame) and a hinged or pivoted combined door and receiving unit
<i>L</i>	Litre(s)
<i>Liquid Waste</i>	Non-hazardous liquid waste generated by commercial premises that is supposed to be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste)
<i>LRV</i>	Large rigid vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities as heavy rigid vehicle (HRV)
<i>Mobile Garbage Bin(s) (MGB)</i>	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1000 or 1100
<i>MRV</i>	Medium rigid vehicle
<i>Putrescible Waste</i>	Component of the waste stream liable to become putrid. Usually breaks down in a landfill to create landfill gases and leachate. Typically applies to food, animal and organic products.
<i>Recycling</i>	Glass bottles and jars – PET, HDPE and PVC plastics; aluminium aerosol and steel cans; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines
<i>SRV</i>	Small rigid vehicle as in AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities, generally incorporating a body width of 2.33

INTRODUCTION

Elephants Foot Recycling Solutions (EFRS) has been engaged to prepare the following waste management plan for City of Parramatta for the operational management of waste generated by the Parramatta Aquatic and Leisure Centre.

Waste management strategies and auditing are a requirement for new developments to provide support for the building design, and promote strong sustainability outcomes for the building. It is EFRS's belief that a successful waste management strategy contains three key objectives:

- i. **Promote responsible source separation** to reduce the amount of waste that goes to landfill, by implementing convenient and efficient waste management systems
- ii. **Ensure adequate waste provisions and robust procedures** that will cater for potential changes during the operational phase of the development
- iii. **Compliance** with all relevant council codes, policies, and guidelines.

To achieve these objectives, this WMP identifies the different waste streams likely to be generated during the operational phase of the development. Associated information includes: how the waste will be handled and disposed of, details of bin sizes/quantities and waste rooms, descriptions of the proposed waste management equipment used and information on waste collection points and frequencies.

It is essential that this waste management plan is integrated into the overall management of the building and clearly communicated to all relevant stakeholders.

REPORT CONDITIONS

The purpose of this report is to document a Waste Management Plan (WMP) as part of a development application and is supplied by EFRS with the following limitations:

- Drawings, estimates and information contained in this waste management plan have been prepared by analysing the information, plans and documents supplied by the client, and third parties including Council and government information. The assumptions based on the information contained in the WMP is outside the control of EFRS;
- The figures presented in the report are an estimate only – the actual amount of waste generated will be dependent on the occupancy rate of the building/s and waste generation intensity as well as the building managements approach to educating residents and tenants regarding waste management operations and responsibilities;
- The building manager will make adjustments as required based on actual waste volumes (if waste is greater than estimated) and increase the number of bins and collections accordingly;
- The report will not be used to determine or forecast operational costs or prepare any feasibility study or to document any safety or operational procedures;
- The report has been prepared with all due care however no assurance or representation is made that the WMP reflects the actual outcome and EFRS will not be liable to you for plans or outcomes that are not suitable for your purpose, whether as a result of incorrect or unsuitable information or otherwise;
- EFRS offer no warranty or representation of accuracy or reliability of the WMP unless specifically stated;
- Any manual handling equipment recommended should be provided at the recommendation of the appropriate equipment provider who will assess the correct equipment for supply;
- Design of waste management chute equipment and systems must be approved by the supplier.
- EFRS cannot be held accountable for late changes to the design after the WMP has been submitted to Council.
- EFRS will provide specifications and recommendations on bin access and travel paths within the WMP, however it is the architect's responsibility to ensure the architectural drawings meet these provisions.
- EFRS are not required to provide information on collection vehicle head heights, internal manoeuvring and loading requirements. These variables are considered to be within the applicable Traffic Consultants domain.
- Council are subject to changing waste and recycling policies and requirements at their own discretion.

This WMP has only been finalised once the Draft Watermark has been removed. If the Draft Watermark is present, the information in the WMP is not confirmed.

DEVELOPMENT SUMMARY

The proposed development falls under the LGA of City of Parramatta, and consists of:

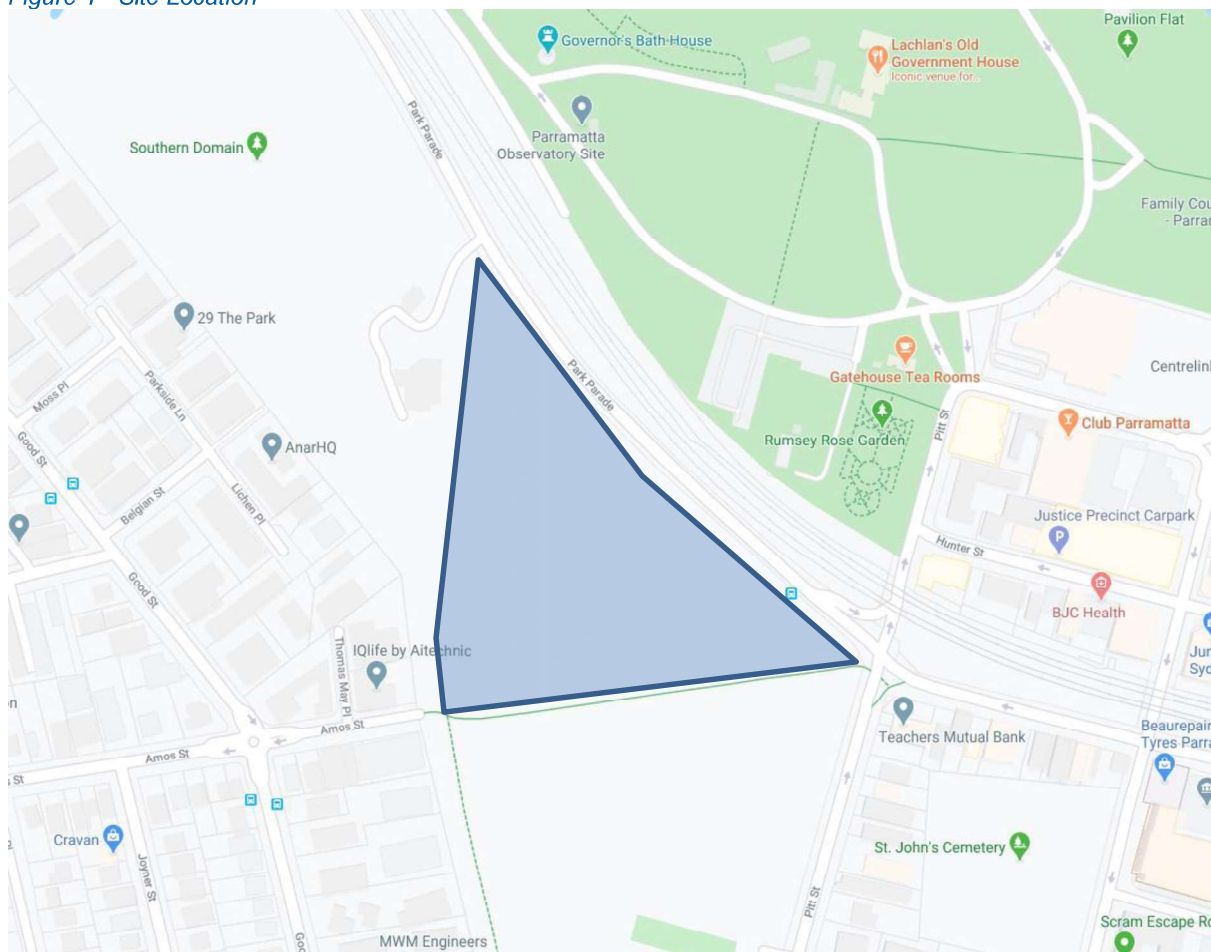
- One building with Two Levels with
 - Multipool pools including A 50m pool, a 25m pool, a learn to swim pool, leisure pool and spa facilities
 - Pool facilities including changing rooms.
 - A café area
 - Health Club and community spaces
 - Administration and staff areas

All figures and calculations are based on area schedules as advised by our client and shown on architectural drawings.

SITE LOCATION

The site is located at Park Parade Parramatta, as shown in Figure.1. The site has frontages to Park Parade, with vehicle access via Park Parade.

Figure 1 - Site Location



CITY OF PARRAMATTA

The development is within City of Parramatta jurisdiction. City of Parramatta is the amalgamation of parts of Parramatta City Council, The Hills Shire Council, Auburn City Council, Holroyd City Council and Hornsby Shire Council.

Garbage and recycling will be guided by the services and acceptance criteria of the Parramatta City Council. All waste facilities and equipment are to be designed and constructed to be in compliance with the Parramatta City Council's *Parramatta Development Control Plan 2011*, Parramatta City Council's *Waste Management Guidelines for new Development Applications 2016*, Australian Standards and statutory requirements.

COUNCIL OBJECTIVES

- To reduce the quantity of waste and encourage the recycling of waste generated by demolition and the construction of new developments.
- To encourage building design that will minimise waste generation over the lifetime of the building.
- To ensure that the disposal of waste generated by a building's occupants over its lifetime is managed appropriately, efficiently and provides for maximum recovery, recycle or reuse.
- To ensure that waste storage facilities are located appropriately and do not impact negatively on the streetscape.
- To ensure that waste can be effectively collected and managed.
- To assist in achieving Federal and State Government waste minimisation and resource recovery (landfill diversion) targets.
- To minimise the overall environmental impacts of waste, in line with the principles of Ecologically Sustainable Development (ESD).

COUNCIL REQUIREMENTS

Access – Ensure waste systems are easy to use and collection vehicles are able to access buildings to safely remove waste and recycling;

Safety – Ensure safe practises for storage, handling and collection of waste and recycling;

Pollution Prevention – Prevent stormwater pollution that may occur as a result of poor waste storage and management practises;

Noise Minimisation – Provide acoustic insulation to the waste service facilities or residential units adjacent to or above chutes, waste storage facilities, chute discharge, waste compaction equipment and waste collection vehicle access points;

Ecologically Sustainable Development (ESD) – Promote the principles of ESD through resource recovery and recycling leading to a reduction in the consumption of finite natural resources;

Hygiene – Ensure health and amenity for residents, visitors and workers in the City of Parramatta

STAKEHOLDER ROLES AND RESPONSIBILITIES

The following table demonstrates the primary roles and responsibilities of the respective stakeholders:

Table 1: Stakeholder Roles and Responsibilities

Roles	Responsibilities
Strata/Management	<ul style="list-style-type: none"> Ensuring that all waste service providers submit monthly reports on all equipment movements and waste quantities/weights; Organising internal waste audits/visual assessments on a regular basis; and Manage any non-compliances/complaints reported through waste audits.
Building Manager or Waste Caretaker	<ul style="list-style-type: none"> Ensuring effective signage, communication and education is provided to occupants, tenants and cleaners; Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities; Ensuring site safety for visitors, staff, children and contractors; Abiding by all relevant OH&S legislation, regulations, and guidelines; Assessing any manual handling risks and prepare a manual handling control plan for waste and bin transfers; Preventing storm water pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins) Cleaning and transporting of bins as required; Organising, maintaining and cleaning the general and recycled waste holding area; Organising both garbage and recycled waste pick-ups as required; Organising replacement or maintenance requirements for bins; Organising bulky goods collection when required; and Investigating and ensuring prompt clean-up of illegally dumped waste materials.
Staff, cleaners and Patrons	<ul style="list-style-type: none"> Dispose of all garbage and recycling in the allocated MGBs provided; Ensure adequate separation of garbage and recycling; and Compliance with the provisions of Council and the WMP.
Waste Contractor	<ul style="list-style-type: none"> Provide a reliable and appropriate waste collection service; Provide feedback to building managers in regards to contamination of recyclables; and Work with building managers to customise waste systems where possible.
Gardening/Landscaping Contractor	<ul style="list-style-type: none"> Removal of all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.
Building Contractors	<ul style="list-style-type: none"> Removing all construction related waste offsite in a manner that meets all authority requirements.

EDUCATION

Building management is responsible for creating and managing the waste management education process.

Educational material encouraging the correct separation of garbage and recycling items must be provided to each staff member and displayed above any waste receptacles to ensure the correct disposal of waste and recycling, including bulky goods (large cardboard, old furniture, large discarded items, etc.) and pool chemicals. It is recommended that the building caretaker provides signage in multiple languages to support correct practises and minimise the possibility of contamination in the collective waste bins.

SIGNAGE

The building manager is responsible for all waste management signage throughout the building including safety signage (see *APPENDIX B.2*). Appropriate signage must be prominently displayed on doors, walls and above all bins, clearly stating where waste and recycling will be placed.

WASTE MANAGEMENT

The waste generation rates from the NSW EPA's *Better Practice Guide for Resource Recovery in Residential Developments (2019)*, have been used to estimate the waste volumes generated at this site. Calculations are based on generic figures, and waste generation rates may differ according to actual waste management practices.

ESTIMATED WASTE VOLUMES AND PROVISIONS

The following table shows the estimated volume (L) of general waste and recycling generated by the aquatics and leisure centre. A seven-day operating week has been assumed.

Table 2. Estimated Waste and Recycling Generation

Type	NLA (m ²)	Garbage Generation Rate (L/100m ² /day)	Generated Garbage (L/week)	Recycling Generation Rate (L/100m ² /day)	Generated Recycling (L/week)
Health Club (GYM)	595	20	832.8	15	624.6
Staff & Admin offices	159	10	111.2	15	166.8
Changing & Pool Facilities	861	5	301.3	10	602.6
Café	267	100	1870.3	120	2244.3
Other	2905	5	1016.7	10	2033.5
Pools	2067	5	723.5	10	1447.1
TOTAL	6854		4855.9		7118.9
Collections & Equipment	Waste Bin Size (L)		1100	Recycling Bin Size (L)	1100
	Waste Bin for One Day		0.63	Recycling Bin for Day	0.92
	Waste Bin for Four Days		3	Recycling Bin for Four Days	4

BIN SUMMARY

Based on the estimated volume of waste and recycling generated, the recommended bin quantities and servicing frequencies are as follows:

General Waste: 3 x 1100L MGBs collected **at least twice weekly**

Recycling: 4 x 1100L MGBs collected **at least twice weekly**

It is recommended that at least 2 x 1100L MGBs for recycling are allocated for paper/cardboard, and the remaining recycling bins are allocated for commingled recyclables as required.

It is the responsibility of the building manager to monitor the number of bins required. Waste volumes may change according to the site's management, customer base and attitudes to waste disposal and recycling. The bin numbers, sizes and collection frequencies may need to be altered to suit the building operation. Seasonal peak periods i.e. public and school holidays should also be considered.

WASTE DISPOSAL PROCEDURES

Source separation receptacles for general waste and recyclables will be provided in reception areas and foyers, as well as other public spaces throughout the change rooms, café dining areas, gymnasium, aquatic centre, and outdoor areas. Bins for general waste and recyclables will also be located in staff office areas, kitchens, and/or print rooms.

On completion of each trading day or as required, nominated staff or contracted cleaners will transport all general waste and recycling to the Waste Room and place the waste and recycling into the appropriate collection bins.

CAFE

Food handling for cooked or prepared food that is served and consumed on site will produce a typical waste composition of food scraps from plates, packaging waste and some plastics. Café staff will be responsible for the café back of house waste management during daily operations.

WASTE OILS

Consideration should be given to the use of cooking oil collection systems. A single service provider may be used to reduce the amount of commercial traffic into the loading bay or around the precinct area. This should be measured against bulk delivery of oils where the same vehicle is used to remove containers of waste cooking oils (see APPENDIX B.6 for Typical Cooking Oil Collection System).

WASHROOMS

Washroom facilities should be supplied with collection bins for paper towels (if used). Sanitary bins for female restroom facilities must also be arranged with an appropriate contractor.

MANAGEMENT OF SPECIALITY WASTE STREAMS

The building manager is responsible for making arrangements for the disposal and recycling of specialised waste streams with an appropriate contractor. Specialised wastes cannot be placed in general waste as they can have adverse impacts to human health and the environment if disposed of in landfill. Staff will need to liaise with the building manager when disposing of specialised waste streams. Pool chemicals waste including empty containers must be stored separately to general waste and recycling.

Specialised waste streams include:

- Pool chemicals and chemical containers
- Other Chemical Waste
- Liquid wastes
- Toner cartridges
- Lightbulbs
- eWaste
- Batteries

MOVEMENT AND TRANSPORTATION OF BINS

The building manager is responsible for the transportation of waste and recycling receptacles from their operational locations to the bins in the waste room and returning them once emptied to resume operational use.

Transfer of waste and all bin movements should minimise manual handling. The aquatic centre management must assess manual handling risks and provide any relevant documentation to key personnel. If required the developer should contact a bin-tug, trailer or tractor consultant to provide equipment recommendations.

COLLECTION OF WASTE

As the site is a Council operated site, council will service the waste and recycling bins to an agreed schedule. This assumes bins are collected between two to seven times weekly, depending on the preference on the development. There should be no more than four days between collections.

The waste collection vehicle will enter the site from Park Parade and park in the designated service vehicle loading area on the lower ground level. The waste collection staff will collect the bins from the waste room and return the empty bins after servicing has been completed.

COLLECTION AREA

It is Elephant Foot's understanding that the collection areas have been reviewed by a traffic consultant to confirm the swept paths, load requirements and clearances for waste collections. It must be ensured that that the collection vehicle (and other trucks if required) can access and conduct collections from the proposed loading area .

WASTE ROOM AREAS

The bins in the waste room should be arranged so that all bins can be accessed without moving any other bins, this is to ensure the safety of staff accessing the bins to dispose of waste and recycling bins.

The areas allocated for waste storage and collection areas are detailed in Table 3 below. The areas provided are estimates only. Final areas will depend upon room and bin layouts.

Table 3: Waste Room Areas

Level	Waste Room Type	Equipment	Estimated Area (m ²)	Provided Area (m ²)
LG	Waste Room	3x 1100L MGBs (waste) 2x 1100L MGBs (co-mingled recycling) 2x 1100L MGBs (cardboard/paper recycling)	>21	31.77

CONSTRUCTION REQUIREMENTS

Waste rooms construction must comply with the minimum standards as outlined in the *Parramatta Development Control Plan 2011* in order to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area.

The NSW EPA's *Better Practice Guide for Resource Recovery In Residential Developments* (2019) also states that better practice bin storage areas should achieve more than the minimum compliance requirements, which are as follows:

- Ensuring BCA compliance, including ventilation. Where required, ventilation system must comply with *AS1668.4-2012 The use of ventilation and air conditioning in buildings*.
- Ensuring storage areas are well lit (sensor lighting preferred) and have lighting available 24 hours a day.
- Provision of bin washing facilities, including taps for hot and cold water provided through a centralised mixing valve. The taps must be protected from bins and be located where they can be easily accessed even when the area is at bin capacity.
- Floor constructed of concrete at least 75mm thick.
- Floor graded so that any water is directed to a sewer authority approved drainage connection to ensure washing bins and/or waste storage areas do not discharge flow into the stormwater drain.
- Provision of smooth, cleanable and durable floor and wall surfaces that extend up the wall to a height equivalent to any bins held in the area.
- Ensuring ceilings are finished with a smooth-faced non-absorbent material capable of being cleaned.
- All surfaces (walls, ceiling and floors) finished in a light colour.

ADDITIONAL CONSIDERATIONS

- Waste room floor to be sealed with a two pack epoxy;
- All corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- Tap height and light switch height of 1.6m;
- Storm water access preventatives (grate);
- All walls painted with light colour and washable paint;
- Equipment electric outlets to be installed 1700mm above floor levels;
- The room must be mechanically ventilated;
- Optional automatic odour and pest control system installed
- If 660L or 1100L bins are utilised, 2 x 820mm (minimum) double-doors should be used;
- All personnel doors are hinged, lockable and self-closing;
- Conform to the building code of Australia, Australian standards and local laws; and
- Childproofing and public/operator safety shall be assessed and ensured

VENTILATION

Bin enclosures must have their own exhaust ventilation system either;

- Mechanically - exhausting at a rate of 5L/m² floor area, with a minimum rate of 100L/s minimum; or
- Naturally - permanent, unobstructed, and opening direct to the external air, not less than one-twentieth (1/20) of the floor area

Mechanical exhaust systems shall comply with AS1668 and not cause any inconvenience, noise or odour problem.

USEFUL CONTACTS

Elephants Foot Recycling Solutions does not warrant or make representation for goods or services provided by suppliers.

SULO MGB (MGB, Public Place Bins, Tugs and Bin Hitches)
Phone: 1300 364 388

CLOSED LOOP (Organic Dehydrator)=
Phone: 02 9339 9801

ELECTRODRIVE (Bin Mover)
Phone: 1800 333 002

Email: sales@electrodrive.com.au

RUD (Public Place Bins, Recycling Bins)
Phone: 07 3712 8000

Email: Info@rud.com.au

CAPITAL CITY WASTE SERVICES (Private Waste Services Provider)
Phone: 02 9399 9999

REMONDIS (Private Waste Services Provider)
Phone: 13 73 73

SITA ENVIRONMENTAL (Private Waste Services Provider)
Phone: 13 13 35

NATIONAL ASSOCIATION OF CHARITABLE RECYCLING ORGANISATIONS INC.
(NACRO)
Phone: 03 9429 9884

Email: information@nacro.org.au

PURIFYING SOLUTIONS (Odour Control)
Phone: 1300 636 877

Email: sales@purifyingsolutions.com.au

MOVEXX (Bin Movers)
Phone: 1300 763 444

AUSCOL (Recycling Oils & Animal Fats)
Phone: 1800 629 476

Elephants Foot Recycling Solutions (Chutes, Compactors and eDiverter Systems)
44 – 46 Gibson Avenue
Padstow NSW 2211
Free call: 1800 025 073

Email: info@elephantsfoot.com.au

APPENDICES

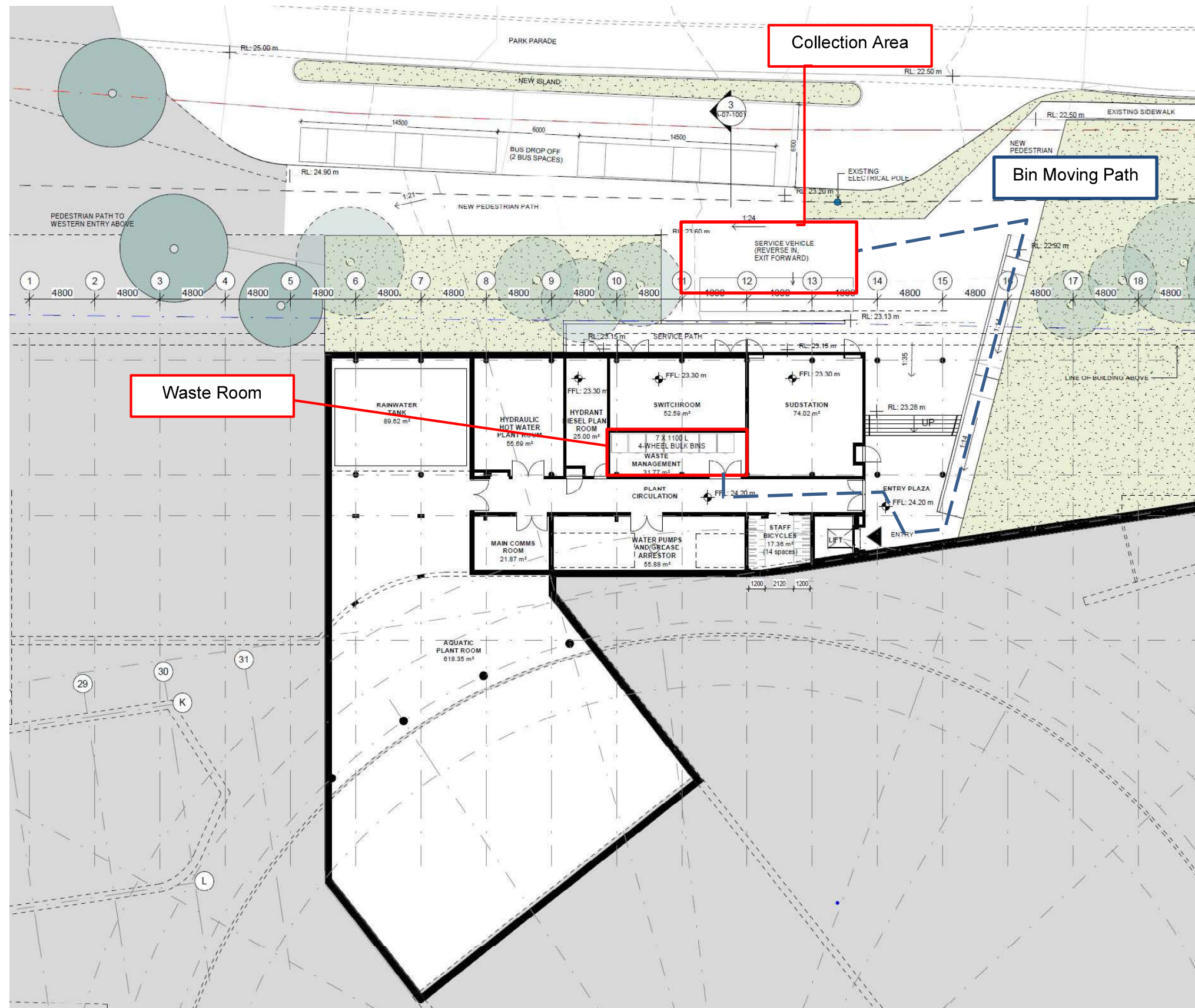
APPENDIX A ARCHITECTURAL DRAWING EXCERPTS

APPENDIX A.1 SITE PLAN



Source: Grimshaw Architects & Andrew Burges Architects, Drawing No A-02-1004 Rev 2 – Site Plan

APPENDIX A.2 LOWER GROUND – WASTE ROOM AND COLLECTION AREA



Excerpt: Grimshaw Architects & Andrew Burges Architects, Drawing No A-02-1001 Rev 4 – Lower Ground

APPENDIX B PRIMARY WASTE MANAGEMENT PROVISIONS

APPENDIX B.1 TYPICAL BIN SPECIFICATIONS

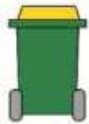
Mobile bins

Mobile bins come in a variety of sizes and are designed for lifting and emptying by purpose-built equipment.

Mobile bins with capacities of up to 1700L must comply with *AS4123.6-2006 Mobile waste containers* which specifies standard sizes and sets out the colour designations for the bodies and lids of mobile waste containers indicating the type of materials they are used to collect.

The most common bin sizes are provided below, although not all sizes are shown. The dimensions are a guide only and differ slightly between manufacturers. Some bins have flat or domed lids and are used with different lifting devices. Refer to *AS4123.6-2006* for further details.

Table G1.1: Average dimension ranges for two-wheel mobile bins




Bin capacity	80L	120L	140L	240L	360L
Height (mm)	870	940	1065	1080	1100
Depth (mm)	530	530	540	735	820
Width (mm)	450	485	500	580	600
Approximate footprint (m ²)	0.24	0.26–0.33	0.27–0.33	0.41–0.43	0.49
Approximate weight (kg)	8.5	9.5	10.4	15.5	23
Approximate maximum load (kg)	32	48	56	96	Not known

Wheelie bin

Sources include Sulo, Single Waste, Cleanaway, SUEZ, just wheelie bins and Perth Waste for two-wheel mobile bins

Table G1.2: Average dimension ranges for four-wheel bulk bins



Bin capacity	660L	770L	1100L	1300L	1700L
Height (mm)	1250	1425	1470	1480	1470
Depth (mm)	850	1100	1245	1250	1250
Width (mm)	1370	1370	1370	1770	1770
Approx footprint (m ²)	0.86–1.16	1.51	1.33–1.74	2.21	2.21
Approx weight (kg)	45	Not known	65	Not known	Not known
Approx maximum load (kg)	310	Not known	440	Not known	Not known

Dome or flat lid container

Sources include Sulo, Signal Waste, Cleanaway, SUEZ, Just Wheelie Bins and Perth Waste

SOURCE: *Better Practice Guide For Resource Recovery In Residential Developments 2019*, NSW Environmental Protection Authority

APPENDIX B.2 SIGNAGE FOR WASTE & RECYCLING BINS

Waste Signs

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by the EPA (Environmental Protection Authority).

Examples of waste wall posters (EPA supplied)



Examples of bin lid stickers (EPA supplied)



Problem Waste Signs

The EPA has also produced a range of images and signs that can be used for problem wastes, such as fluoro globes and tubes, household and car batteries, e-waste and smoke detectors. To access these resources, contact the NSW EPA. Some examples are shown below.



Safety Signs

The use of safety signs for waste resource recovery rooms must comply with *AS1319 Safety signs for occupational environments*. Safety signs must be used to regulate and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Suitable signs should be decided for each development as required.

Example safety signs



Source: New South Wales Environmental Protection Authority *Better Practice Guide for Resource Recovery* (2019)

APPENDIX B.3 TYPICAL COLLECTION VEHICLE INFORMATION

Australian Standards for turning circles for medium and heavy rigid class vehicles

Vehicle class	Overall length (m)	Design width (m)	Design turning radius (m)	Swept circle (m)	Clearance (travel) height (m)
Medium rigid vehicle	8.80	2.5	10.0	21.6	4.5
Heavy rigid vehicle	12.5	2.5	12.5	27.8	4.5

Collection vehicles

Large collection vehicles

Waste collection vehicles may be side-loading, rear-loading, front-lift-loading, hook or crane lift trucks. Vehicle dimensions vary by collection service, manufacturer, make and model. It is not possible to provide definitive dimensions, so architects and developers should consult with the local council and/or contractors.

The following characteristics represent typical collection vehicles and are provided for guidance only. Reference to *AS2890.2 Parking facilities: off street commercial vehicle facilities* for detailed requirements, including vehicle dimensions, is recommended.

Table B2.1: Collection vehicle dimensions

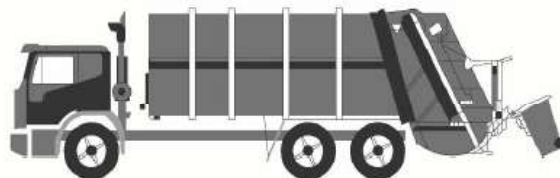
Vehicle type	Rear-loading	Side-loading*	Front-lift-loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Operational height for loading (m)	3.9	4.2	6.5	3.0	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0	13.0
Maximum payload (t)	10.0	10.8	11.0	14.5	9.5
Turning circle (m)	25.0	21.4	25.0	25.0	18

* The maximum reach of a side arm is 3 m.

Sources: JJ Richards, SUEZ, MacDonald Johnson, Cleanaway, Garwood, Ros Roca, Bingo and Edbro. Figures shown represent the maximum dimensions for each vehicle type.

Rear-loading collection vehicles

These vehicles are commonly used for domestic waste collections from MUDs and RFBs and sometimes for recycling. They can be used to collect waste stored in mobile bins or bulk bins, particularly where bins are not presented at the kerbside. They are also used for collecting bulky waste.



Rear-loading waste collection vehicle

Side-loading collection vehicles

This is the most commonly used vehicle for domestic waste, recycling and organics collections. It is only suitable for collecting mobile bins up to 360L in capacity.



Side-loading waste collection vehicle

Front-lift-loading collection vehicles

These vehicles are commonly used for collecting commercial and industrial waste. They can only collect specially designed front-lift bulk bins and not mobile bins.



Front-lift-loading waste collection vehicle

Source: New South Wales Environmental Protection Authority *Better Practice Guide for Resource Recovery* (2019)

APPENDIX B.4 TYPICAL MOTORISED BIN TUG

Battery powered tug with a 1 or 2 tonne tow capacity

**Features at a glance**

One tonne (Evo 1T) or two tonne (Evo 2T) tow capacity

Auto latching hitch

Three speed motor with emergency stop

Typical applications

The Tug Evo is suitable for airports, factories, warehouses, apartment buildings or large facilities. This powered tug is also suitable for transporting medical carts around hospitals or moving heavy specialist equipment.

Features:

- 1 or 2 tonne tow capacity of inclines up to 6 degrees
- 500kg tow capacity if inclines up to 14 degrees
- CE Compliant
- 5 km/h max speed
- 2 x 12V 42Ah MK-gel batteries with 24V smart charger.
- Powerful transaxle

Safety Features:

- Intuitive control with standard automatic safety brake, forward and reverse drive.
- Emergency stop button.

Emergency back-off button

Source: <http://electrodrive.com.au/products/tugs/tug-evo.aspx>



BT4000

Comfortable. Ergonomic. Performance.

Recently, Movexx has expanded its assortment with a new electric tug. The challenge was to build a tug that would be exceptionally comfortable, powerful, with aesthetic design while losing nothing on functionality. The modern look of your machine park ultimately also contributes to the sustainable image of your company. This has resulted in the production of the powerful BT4000. Almost all types of trailers can be moved with the BT4000, but given the strong focus on efficient LEAN processes, the machine is often used to move Milk run systems and E-frames. The electric tug has a short turning circle, making it easy to move in smaller spaces.

DESCRIPTION	ADDITIONAL INFORMATION	VIDEO
Marktsegment	<i>Airport, Healthcare & Laundry, Industry, Retail & Distribution, Waste</i>	
Aandrijving	<i>Motor 3000W, AC</i>	
Maximale trekkracht	<i>Up to 4000 kg.</i>	
Accu	<i>24V, 300Ah</i>	
Maximale snelheid	<i>16 km/h</i>	
Banden	<i>400-8 Superelastic</i>	
Gewicht	<i>680 Kg</i>	
Frame	<i>Steel, powder coated</i>	
Breedte	<i>850 mm</i>	
Lengte	<i>1981 mm</i>	
Werkhoogte dissel	<i>1279</i>	
Standaard voorzien van	<i>See datasheet</i>	
Opties	<i>See datasheet</i>	

Source: <https://movexx.com/product/bt4000/>

OPERATIONAL WASTE MANAGEMENT PLAN

APPENDIX C SECONDARY WASTE MANAGEMENT PROVISIONS

APPENDIX C.1 COOKING OIL CONTAINERS



Drums 205L



Pour in Bulk Tank

[View Brochure](#)



Oil Kaddy System

[View Brochure](#)



Eco System 700L fixed

Eco System 310L mobile

Eco Systems



Direct-Connect to Fryer

SOURCE: <http://www.auscol.com/services/collection-systems/>

APPENDIX D.4 TYPICAL SOURCE SEPARATION BINS



SOURCE: <https://www.sourceseparationsystems.com.au/>

Appendix 14: Crime Prevention Through Environmental Design (CPTED) Report



Aquatic Leisure Centre Parramatta

7 Park Parade, Parramatta

Crime Prevention Through Environmental Design Report

On behalf of
City of Parramatta



Project Director

Georgia Sedgmen



31 March 2020

Project Planner

Jordan Faeghi

Revision	Revision Date	Status	Authorised	
			Name	Signature

* This document is for discussion purposes only unless signed and dated by the persons identified. This document has been reviewed by the Project Director.

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1 Introduction

1.1 Overview

This Crime Prevention Through Environmental Design (CPTED) report supports a Development Application (DA) submitted to City of Parramatta Council (Council) in relation to the proposed Aquatic Leisure Centre Parramatta at 7 Park Parade, Parramatta.

Council are seeking development consent for the construction of a recreational facility, referred to as the Aquatic Leisure Centre Parramatta. Specifically, the proposal seeks consent for the development of:

- 1 x 50m outdoor swimming pool;
- 1 x 25m indoor swimming pool;
- 1 x learn to swim pool;
- 1 x leisure pool;
- Pedestrian pathways and bus drop-off area;
- Associated pool amenities, including café, health club and program rooms;
- 154 at-grade car spaces, including 4 accessible;
- Plant equipment rooms; and
- Associated landscaping.

1.2 Purpose of Report

The purpose of this report is to assess the proposal in terms of the key principles of CPTED and to provide recommendations that can be considered as part of detailed design for the site. It has been prepared with regard to the following documents:

- Crime prevention and the assessment of development applications – Guidelines under section 79C [now 4.15] of the Environmental Planning and Assessment Act 1979 (Department of Urban Affairs and Planning, 2001);
- "Safer by design – Crime Risk Assessment" (NSW Police Force, 2016); and
- Companion to Safer by Design Crime Risk Assessment (NSW Police Force).

The assessment undertaken in this report is based on drawings prepared by Grimshaw dated 6 March 2020 and is informed by a site visit undertaken on 19 March 2020.

1.3 About the Author

The author has completed the Safer by Design Course (Attendee ID: 51255068) by the NSW Police Force, which provides CPTED approved courses and qualifies the author to prepare this report.

1.4 Report Structure

The structure of this report is as follows:

- Chapter 1 introduces the report;
- Chapter 2 provides a brief overview of crime in the surrounding area;

- Chapter 3 provides a brief assessment of how the proposal promotes the development of a safe urban environment; and
- Chapter 4 concludes the report and provides CPTED recommendations.

A detailed assessment of the proposed development is attached and marked **Appendix A**, which aligns NSW Police requirements for assessing CPTED principles.

2 The Site

2.1 Site Location

The site is located at 7 Park Parade, Parramatta, in the local government area of City of Parramatta Council. It is legally defined as Lot 1 DP 124438 and provides a site area of 19.73 hectares.

The extent of proposed works is confined to part of the site area, being approximately 3.7 hectares and is shown in **Figure 1** below.

The site provides a primary frontage to Park Parade to the north east and secondary frontages to the Great Western Highway and Pitt Street to the south.

The site provides an undulating topography, rising to the south-west and falling to the north-west and east. It is largely absent of any built structures and features a combination of mature trees and landscaped areas interspersed with minor built structures, including a dwelling located at the north-western end of the site.



Figure 1: Site location

Source: Grimshaw Architects

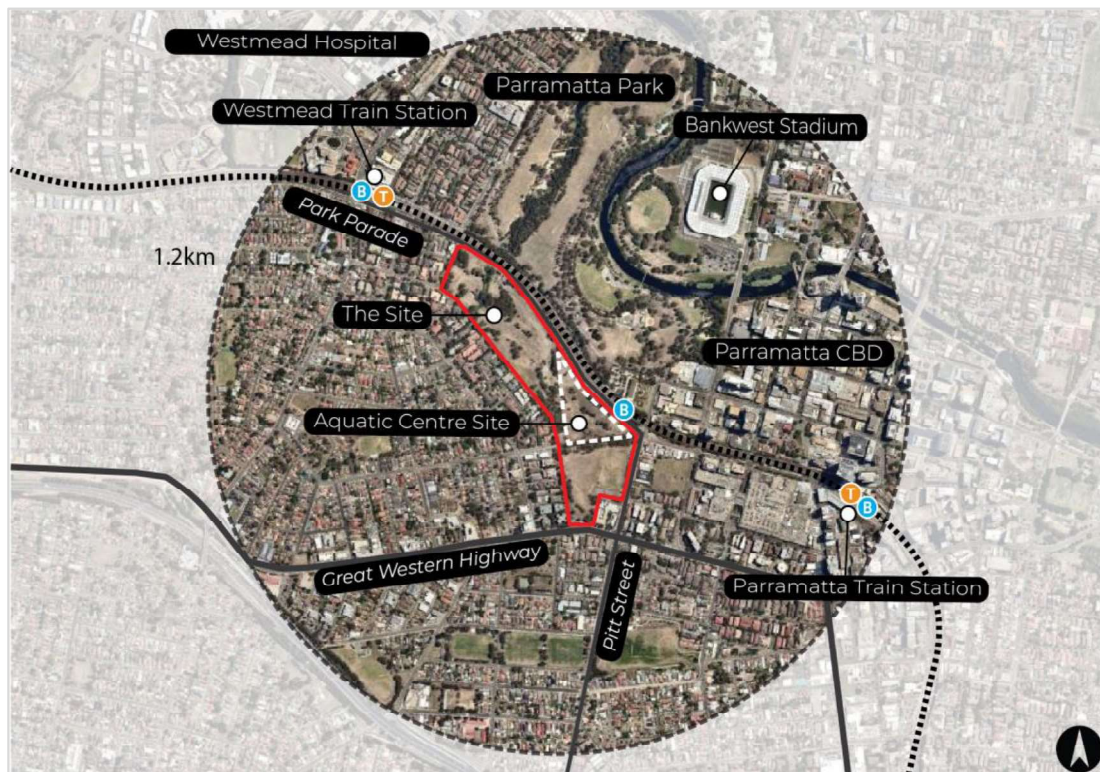


Figure 2: Site Context Map

Source: Mecone

The site is located at the western edge of the Parramatta CBD and south of Parramatta Park and Old Government House.

The surrounding area is characterised by a mix of land uses, consisting of low, medium and high-density residential dwellings to the west and south, whilst commercial and mixed-use land uses being located to the east.

Development to the north-west is the Westmead Health Precinct, one of Australia's largest health, educational, research and training precincts.

A series of photographs, depicting the site and its immediate context are provided in **Figures 3 – 8**.



Figure 3: Intersection of Pitt Street and Park Parade viewed looking north-west
Source: Mecone

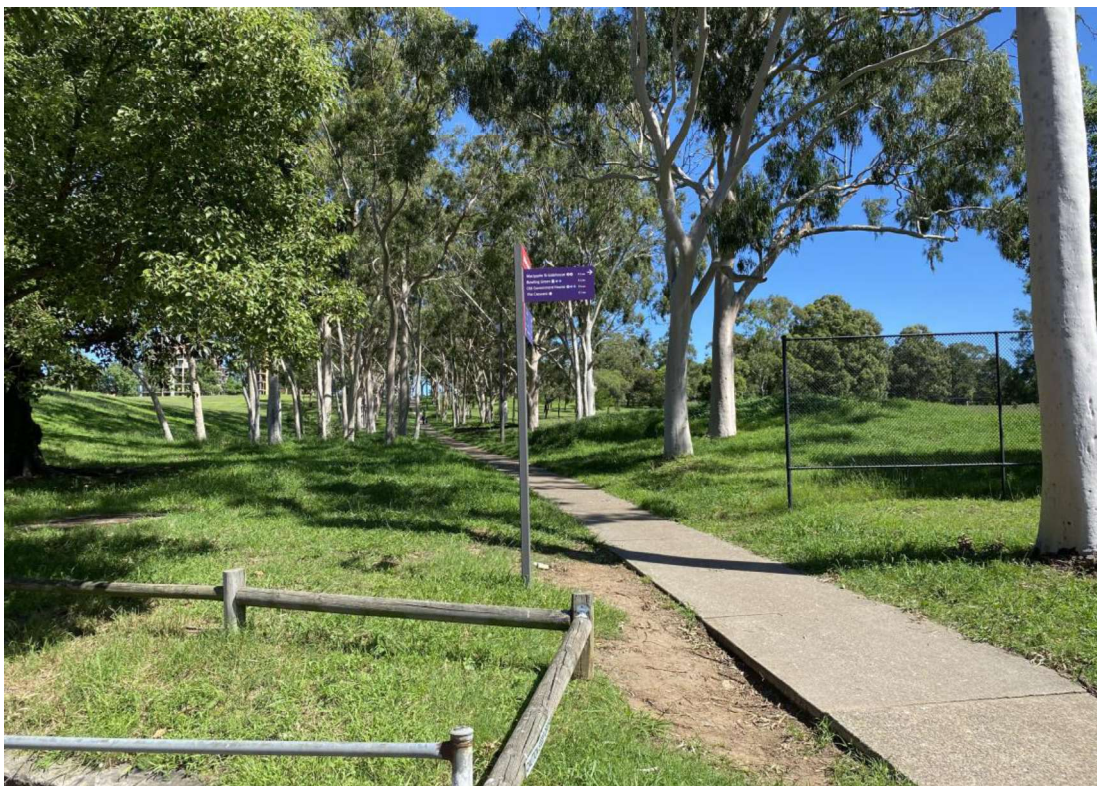


Figure 4: Jubilee Avenue looking south-west
Source: Mecone



Figure 5: View of adjacent sportsground looking north-east
Source: Mecone



Figure 6: Residential properties to the west
Source: Mecone



Figure 7: Park Parade streetscape looking east
Source: Mecone



Figure 8: Pitt Street and Argyle Street intersection looking east towards Parramatta CBD
Source: Mecone

2.2 Heritage Context

Parramatta Local Environmental Plan 2011 identifies the site as part of the larger Item I00596 'Parramatta Park and Old Government House'. The item is identified to be of State Heritage Significance.

Although the land comprises part of the larger state heritage listing, the site is outside the boundary of the World Heritage Listed Old Government House and Domain (OGHD) in Parramatta Park. Refer to **Figure 9**.

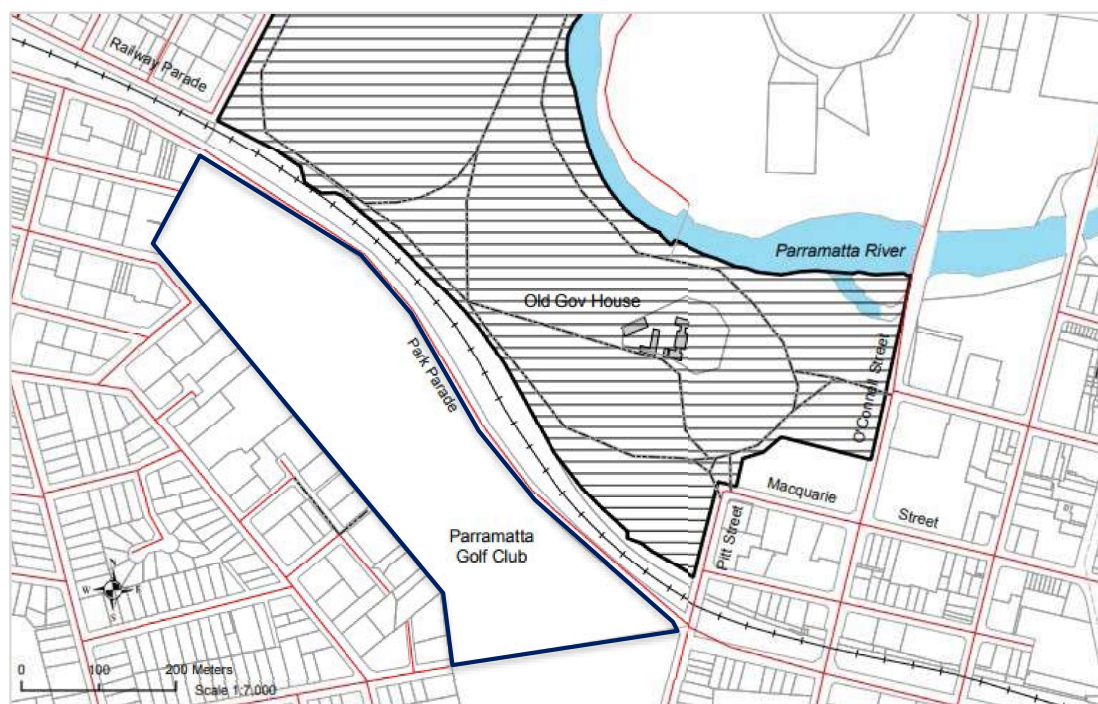


Figure 9: World Heritage Listing Map Extract with subject lot outlined blue

Source: National Heritage List

2.3 Site Description

A summary of the site, its interface and surrounding development context is provided in **Table 1**.

Table 1 – Site Description	
Item	Description
Legal Description	Lot 1 Deposited Plan 1244328
Total Area	19.73 hectares (works area 3.7 hectares)
Location	<p>The site is located on the western edge of the Parramatta Central Business District within proximity of nearby commercial, health and educational precincts in Parramatta and Westmead.</p> <p>The site adjoins Cumberland LGA to the west and south.</p>

Table 1 – Site Description

Item	Description
Site Description	<p>The lot is irregular in shape with a gently undulating topography rising to the south-west, whilst falling to the north-west and east. The site is located at the boundary of Parramatta and Westmead to the north-west.</p> <p>The site adjoins Park Parade to the north, Pitt Street to the east, Great Western Highway to the south, while also adjoining Parramatta High School to the south.</p> <p>Vegetation is interspersed across the site with a mix of vegetation types, including established native canopy trees.</p>
Previous uses	<p>The site has previously been used for the purposes of a public golf course, while also contains a dwelling located at the north-western end of the site.</p>
Surrounding Context	<p>There are a mix of uses situated within the vicinity of the site including high density CBD developments contrasted with public open space and landscaped areas.</p> <p>The site is situated adjacent to a predominately low-density residential setting to the west and south. Located beyond to the east is the Parramatta CBD, whilst Parramatta Park and Old Government House is situated to the north.</p>
Public Transport	<p>The site is located within proximity of public transport options, including Parramatta train station, located approximately 770m to the east, while also being located 300m from Westmead train station.</p> <p>The site is also serviced by regular bus services along Park Parade and Pitt Street.</p>

3 Proposal

3.1 Proposed Development

The proposal seeks development consent for the construction of the Aquatic Leisure Centre Parramatta. Specifically, the proposal seeks consent for the following works:

- 1 x 50m outdoor swimming pool;
- 1 x 25m indoor swimming pool;
- 1 x learn to swim pool;
- 1 x leisure pool;
- Pedestrian pathways and bus drop-off area;
- Associated pool amenities, including café, health club and program rooms;
- 154 at-grade car spaces, including 4 accessible;
- Plant equipment rooms; and
- Associated landscaping.

We note a separate approval is being sought with Council for early site works including excavation, tree removal and demolition.

Despite the design featuring three levels, it is largely concealed within the existing topography of Parramatta Park, thereby minimising its visual impact to Old Government House and the broader National Heritage Listed area.

It minimises the building footprint by locating the program within the landscape, ensuring high levels of pedestrian permeability continue within the park and allowing for opportunities to improve new pathways and connections.

A series of architectural extracts are provided in **Figures 10 – 14**.

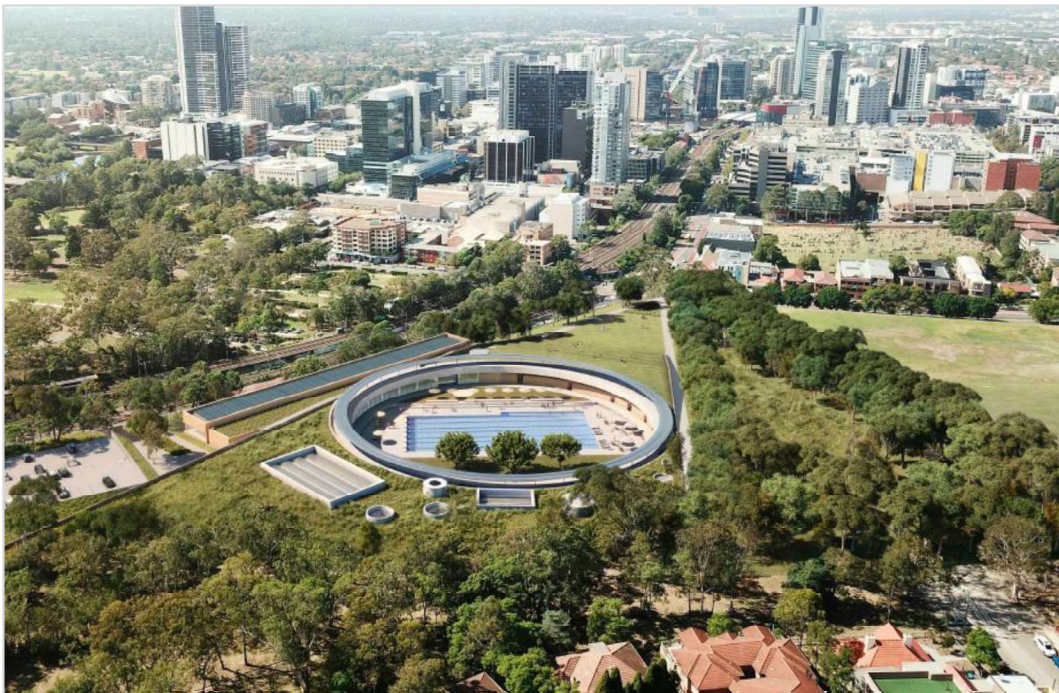


Figure 10: Aerial Render

Source: Grimshaw



Figure 11: Site Layout Plan

Source: Grimshaw

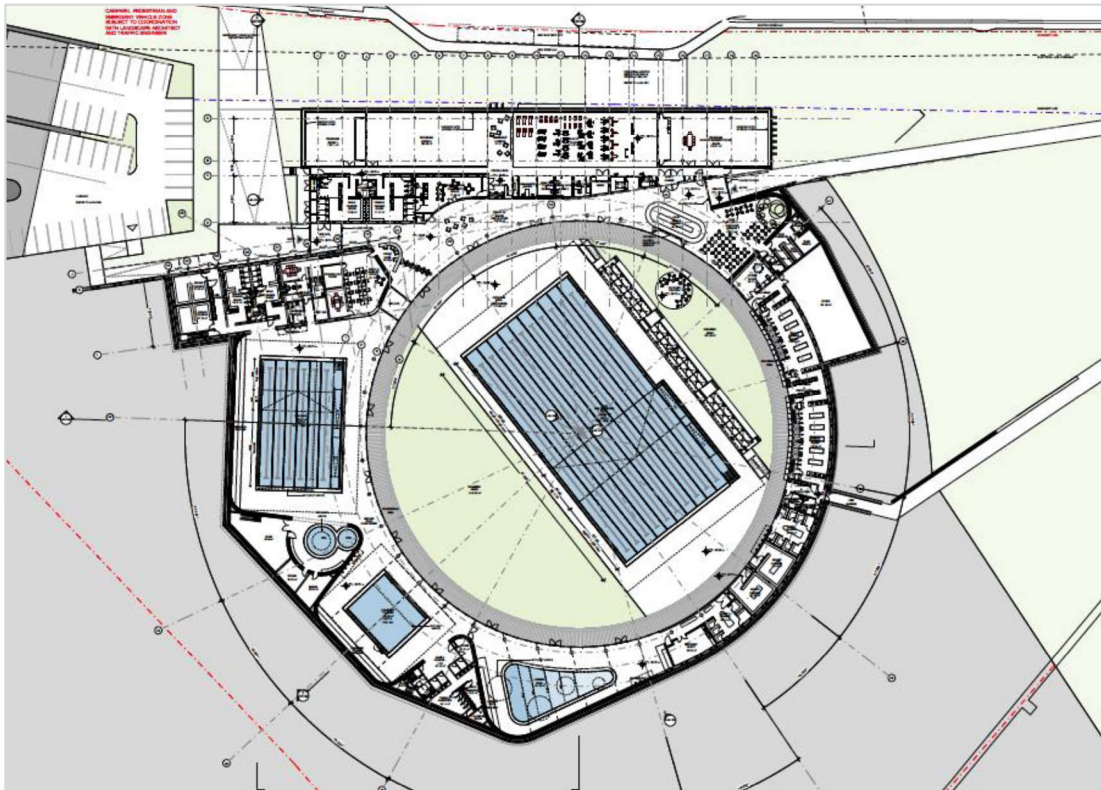


Figure 12: Level 1 Floor Plan

Source: Grimshaw

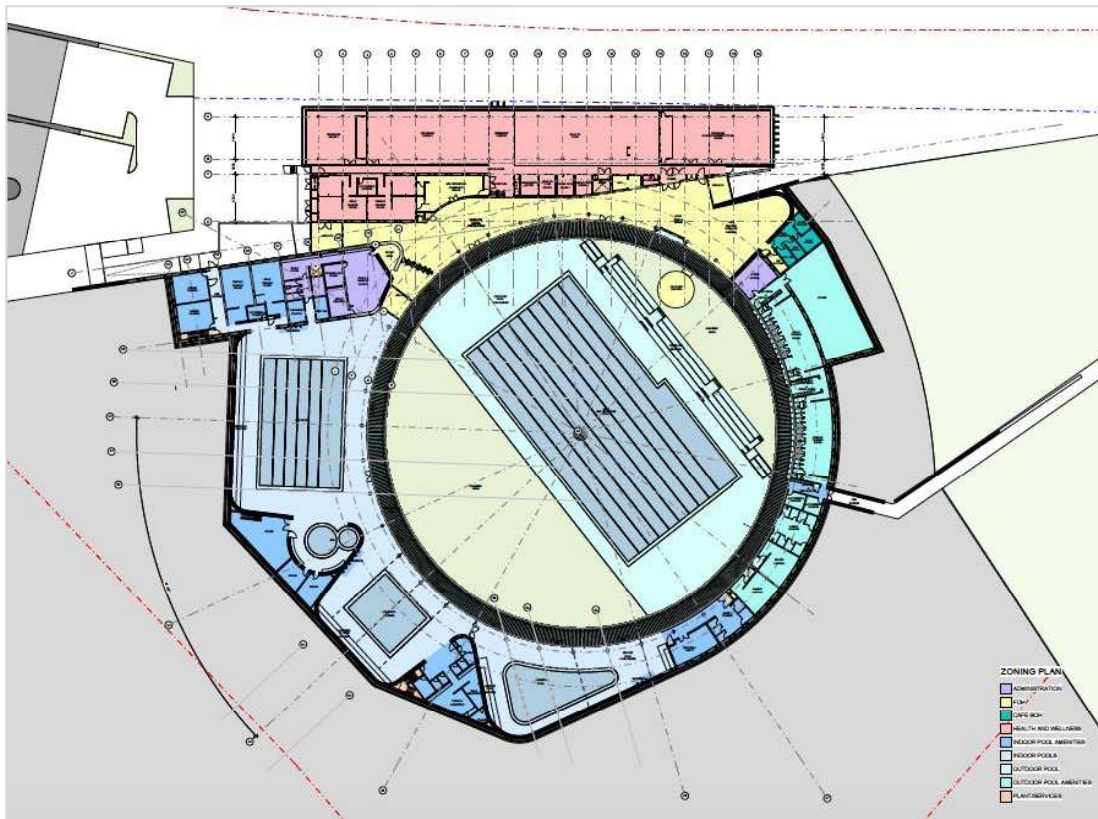


Figure 13: Building Program
Source: Grimshaw

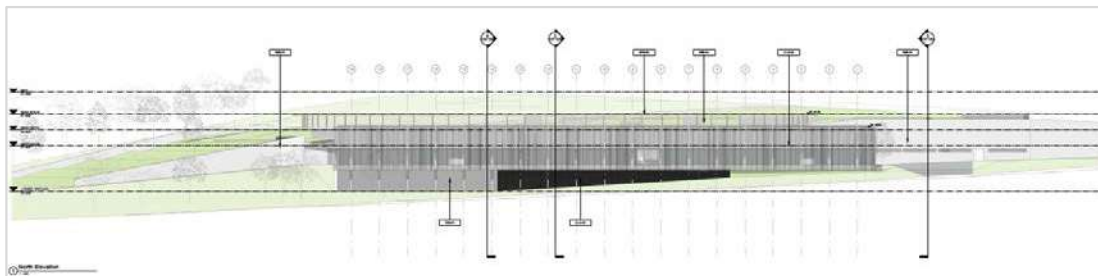


Figure 14: North Elevation
Source: Grimshaw

4 Crime Profile

The proposed development is located in the suburb of Parramatta, which is in City of Parramatta Local Government Area (LGA). The crime figures discussed in this section of the report are those crimes that have been recorded by NSW Police, and as such cannot be seen to necessarily be all crimes committed in Parramatta LGA.

Levels of reported crime are sensitive to a range of factors, including but not limited to the willingness or ability of people to report a criminal activity, the levels and nature of police activity, and actual levels of criminal activity in the area.

Measures recommended as a response to crime in the public domain would generally include:

- Secure car parking facilities;
- Passive surveillance; and
- Active surveillance.

The consideration of recommendations included in this report are intended so that the proposed development does not become attractive to perpetrators of these types of crime.

4.1 Crime Trends

Table 2 provides a breakdown of major crime rates in the suburb of Parramatta base on data from the NSW Bureau of Crime Statistics and Research (BOSCAR).

The table shows the quantity of incidents recorded over the past year (March 2019 to March 2020) as well as the incident ratio of Parramatta-to-NSW crime rates (with the NSW rate equivalent to 1).

Table 2 – Parramatta Suburb Crime Overview December 2018 – 2019		
Offence Type	Number of Incidents	Parramatta-to-NSW incident rate ratio
Murder	4	3.3
Assault – domestic violence related	767	0.8
Assault – non-domestic violence related	866	0.9
Sexual assault	136	0.7
Indecent assault, act of indecency and other sexual offences	192	0.8
Robbery without a weapon	52	1.1
Robbery with a firearm	8	1.5
Robbery with a weapon not a firearm	34	1.3

Table 2 – Parramatta Suburb Crime Overview December 2018 – 2019

Break and enter dwelling	904	1.1
Break and enter non-dwelling	265	0.8
Motor vehicle theft	338	0.8
Steal from motor vehicle	1,274	1.1
Steal from retail store	921	1.2
Steal from dwelling	534	0.9
Steal from person	229	1.8
Fraud	1,981	1.2
Malicious damage to property	1,308	0.7

Note: NSW = Ratio of 1

Compared to the rest of NSW, the suburb of Parramatta generally has a higher rate of crime in some offences, whilst a lower rate in others.

If we consider crime trends over a 24 month period (January 2018 to December 2019), most offences remained stable with the exception of the following that increased:

- Motor vehicle theft – up 23.5%;
- Steal from motor vehicle – up 20.4%; and
- Fraud – up 10%.

4.2 Crime Hotspots

Hotspots indicate areas of high crime density (number of incidents per 50m x 50m) relative to crime concentrations across NSW.

It should be noted that hotspots are common to medium and high density urban areas, such as Parramatta CBD, and do not necessarily indicate a need for extraordinary design responses.

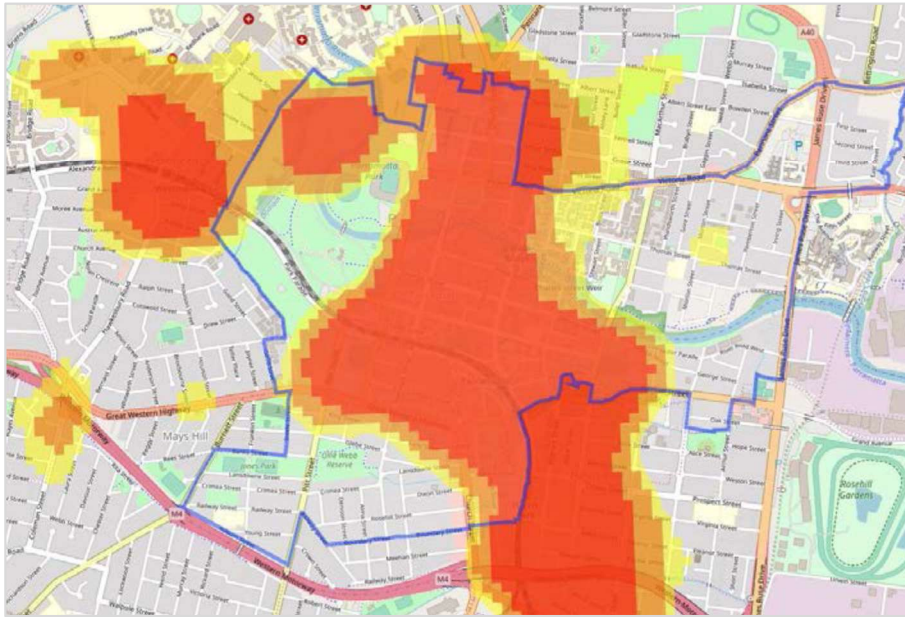


Figure 15: Hotspot Map – Robbery (all types)

Source: BOSCAR

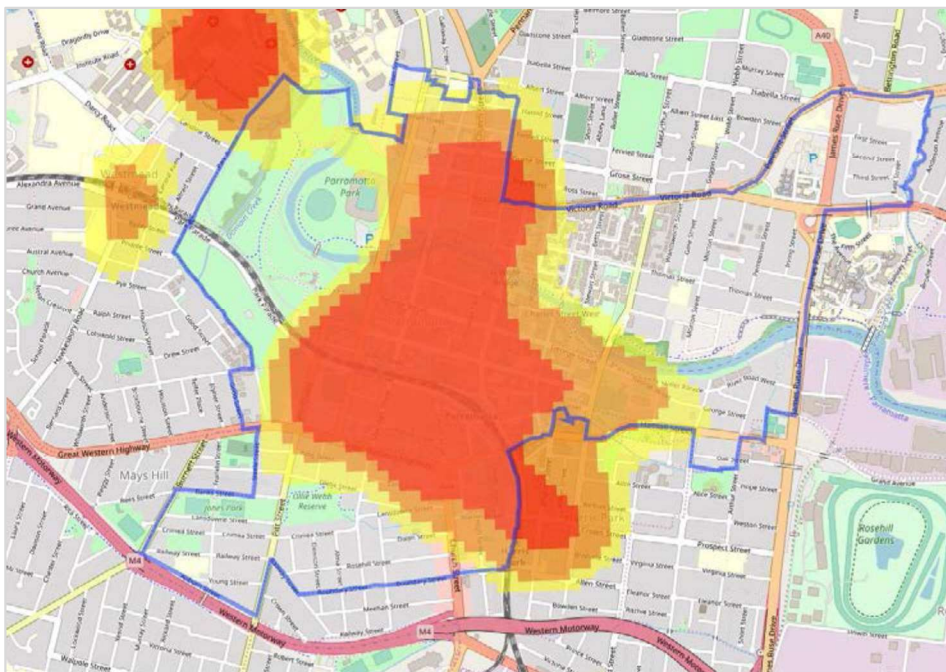


Figure 16: Hotspot Map – Non-Domestic Assault

Source: BOSCAR

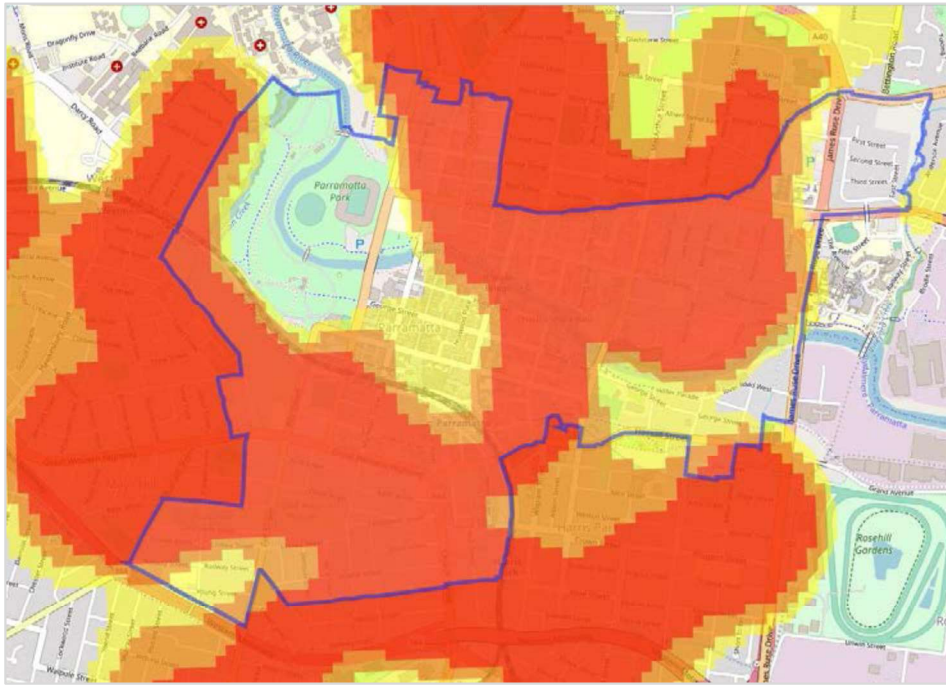


Figure 17: Hotspot Map – Break and Enter Dwelling
Source: BOSCAR

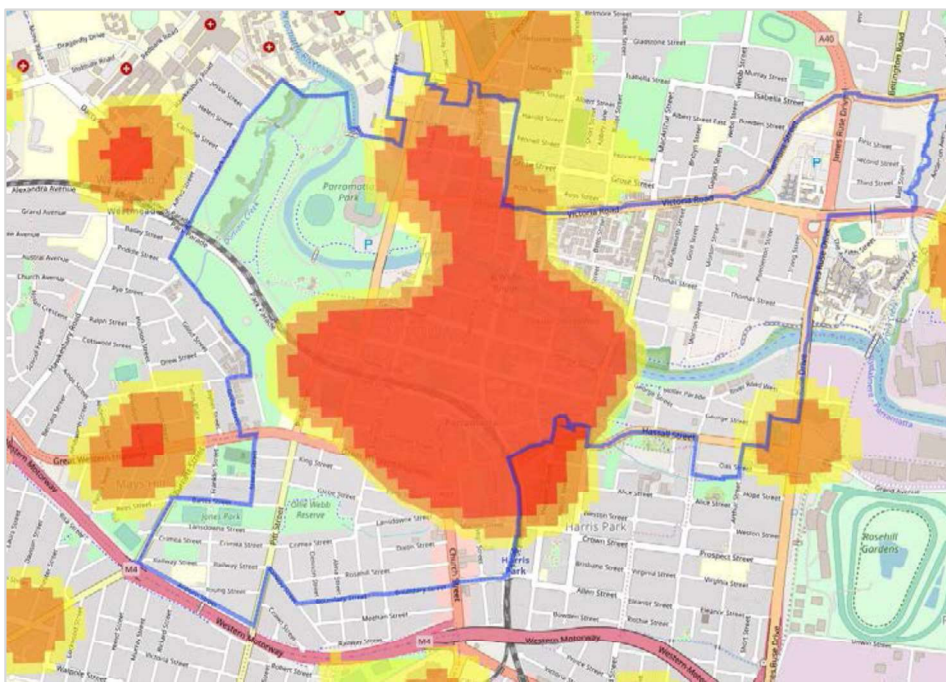


Figure 18: Hotspot Map – Break and Enter Non-Dwelling
Source: BOSCAR

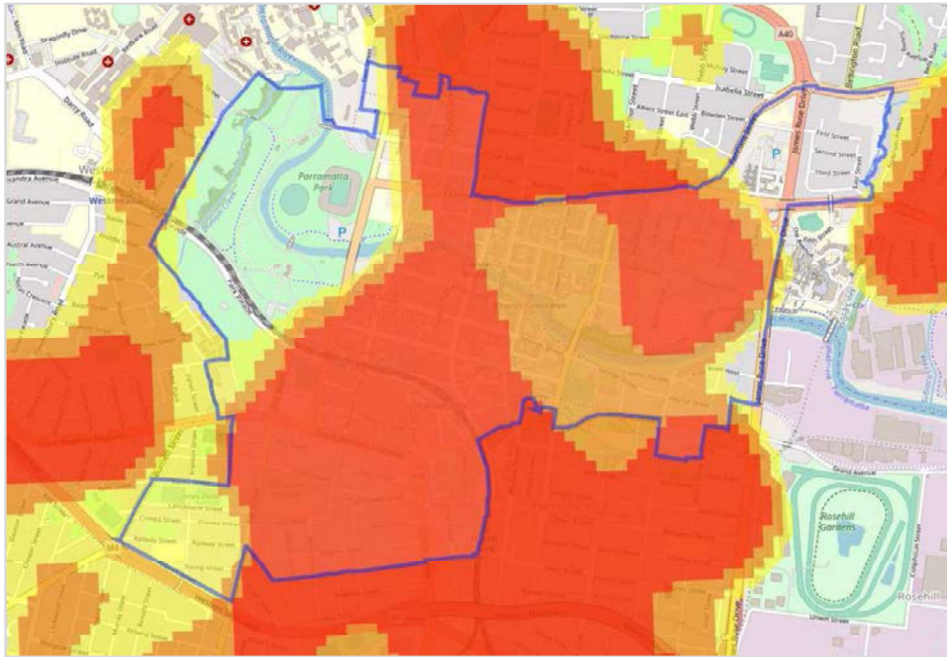


Figure 19: Hotspot Map – Motor Vehicle Theft

Source: BOSCAR

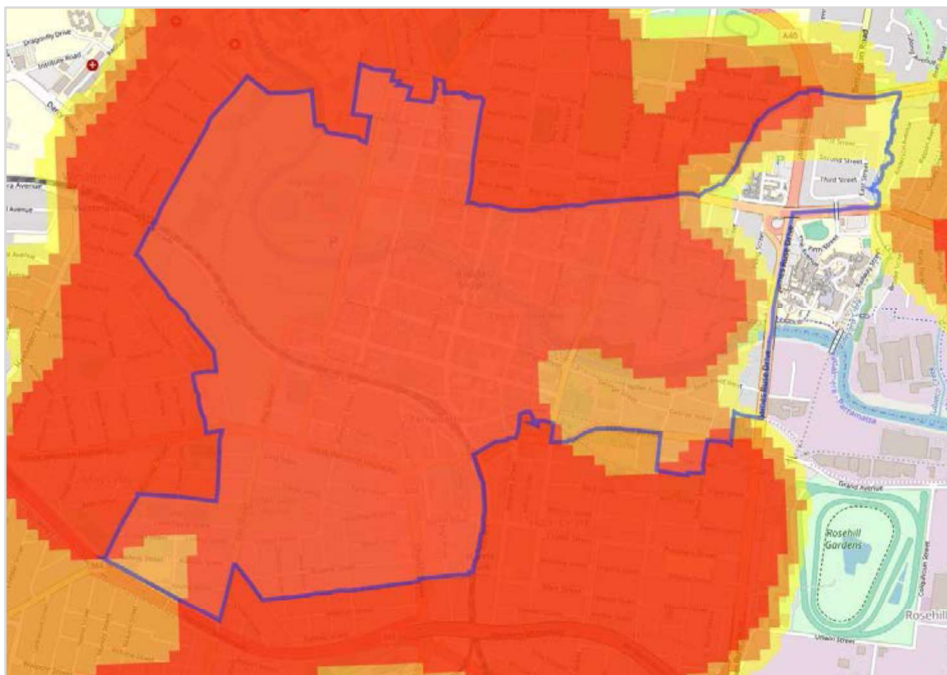


Figure 20: Hotspot Map – Steal from Motor Vehicle

Source: BOSCAR

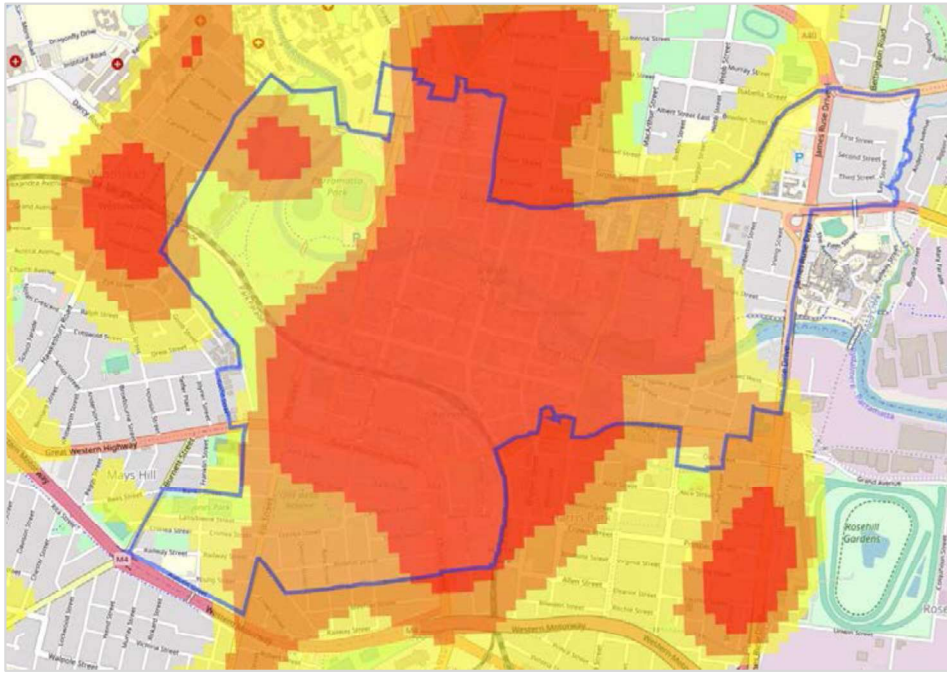


Figure 21: Hotspot Map – Malicious Damage to Property

Source: BOSCAR

Overall, the crime data for Parramatta LGA point to a stable however, relatively moderate-incident crime environment.

5 CPTED Assessment

The focus of the assessment was to identify the broader urban design factors that drive the creation of safe and secure public spaces, through the principles of territorial reinforcement, natural surveillance, access control and activity and space management.

As such, maintenance was given less attention as it requires a greater level of design in order to undertake a complete assessment. It also requires the development to be physically built in order to evaluate how well the building is maintained.

The SEE includes an assessment of the proposed works in terms of the matters for consideration as listed under Section 4.15 of the *Environmental Planning and Assessment Act 1979* (EPAA), and this CPTED report should be read in conjunction with the SEE.

5.1 CPTED Principles

This report utilises the principles of CPTED, which are based on a situational approach to crime prevention, which seek to minimise the risks for possible crime offences to occur. This is achieved by:

- Increasing the possibility of detection, challenge and capture;
- Increasing the effort required to commit crime;
- Reducing the potential rewards of crime by minimising, removing or concealing 'crime benefits'; and
- Removing conditions that create confusion about required norms of behaviour.

Notwithstanding this, the report and approach acknowledges that any design strategy proposed cannot operate effectively in isolation and is one element of a broader approach to a crime prevention strategy that includes social and community inputs and complementary strategies.

There are four key CPTED principles laid out in the CPTED guidelines:

- Surveillance;
- Access Control;
- Territorial Reinforcement; and
- Space and Activity Management.

A design evaluation of how the proposal responds to each CPTED principle is provided below.

Surveillance

NSW police defines natural surveillance as:

Natural surveillance is achieved when normal space users can see and be seen by others. This highlights the importance of building layout, orientation and location; the strategic use of design; landscaping and lighting – it is a by-product of well-planned, well-designed and well-used space.

It relates to keeping intruders under observation. Natural surveillance allows people to engage in their normal behaviour while providing maximum opportunities for observing the space around them.

This is achieved by:

- Orienting buildings, windows, entrances and exits, car parks, rubbish bins, walkways, landscape trees and shrubs, in a manner that will not obstruct opportunities for surveillance of public spaces;
- The placement of persons or activities to maximise surveillance possibilities; and
- Provide lighting for night-time illumination of car parks, walkways, entrances, exits and related areas to promote a safe environment.

Design Evaluation

Our review of the plans indicates the following in relation to natural surveillance:

- Uses within the facility are positioned such that there will be ongoing activity through all areas of the facility including the café and indoor garden, indoor pools and leisure pools;
- The building provides glazed windows internally that allow for good natural surveillance of entries and spaces; and
- The internal boardwalk ring allowing for 360 degree view of the grassed area and multi-purpose pool, allowing for constant natural and passive surveillance of recreational areas.

Recommendations

- Entries and the car park should be illuminated during night-time in accordance with the relevant standards;
- CCTV at entries, in the car park and around the external façade of the facility should be considered; and
- Landscaping should utilise low level shrubs interspersed with canopy trees to allow for sightlines at eye-level and to minimise opportunities for concealment.

Access Control

NSW Police defines access control as:

Access control treatments restrict, channel and encourage people and vehicles into, out of and around the development. Way-finding, desire-lines and formal/informal routes are important crime prevention considerations. Effective access control can be achieved by using physical and symbolic barriers that channel and group pedestrians into areas, therefore increasing the time and effort required for criminals to commit crime.

It relates to decreasing criminal accessibility. This is achieved by:

- Using footpaths, pavement, gates, lighting and landscaping to clearly guide the public to and from entrances and exits; and
- Using of gates, fences, walls, landscaping and lighting to prevent or discourage public access to or from dark or unmonitored areas.

Design Evaluation

Our review of the plans indicates the following in relation to access control:

- The facility limits pedestrian entry to two primary locations – an eastern entry from the lower park side and western entry from Governors Avenue to car park and entry. These limited entries will serve to channel people into the desired lobby areas;

- Three vehicle entrances and a drop off zone is proposed along Park Parade, which are interspersed with potential pedestrian movements and access to the facility;
- It is anticipated that appropriate signage will direct pedestrians to the entries; and
- Three main pathways are proposed off Park Parade that provide direct line of sight to the facility and the ability to move around the facility.

Recommendations

- The car park should incorporate boom gates and access control devices;
- Fire exit doors should be fitted with measures to restrict unauthorised access from the outside;
- All areas should be fitted with doors that comply with the relevant Australian Standards; and
- The emergency vehicle zone should be further considered with respect to potential pedestrian conflict utilising this area to access the facility.

Territorial Reinforcement

NSW Police defines territorial re-enforcement as:

Territorial Re-enforcement uses actual and symbolic boundary markers, spatial legibility and environmental cues to 'connect' people with space, to encourage communal responsibility for public areas and facilities, and to communicate to people where they should/not be and what activities are appropriate.

It relates to clearly defining private space from semi-public and public spaces that creates a sense of ownership.

This is achieved by:

- Enhancing the feeling of legitimate ownership by reinforcing existing natural surveillance and natural access control strategies with additional symbolic or social ones;
- Design of space to allow for its continued use and intended purpose; and
- Use of landscaping and pavement finishes, art, screening and fences to define and outline ownership of space.

Design Evaluation

Our review of the plans indicates the following in relation to territorial reinforcement:

- The facility has been designed for a specific purpose as a recreational facility with associated amenities;
- Pedestrian entrances are clearly defined around the facility and can be accessed from multiple points to reduce conflict with vehicular access;
- The location of the car park has considered the delineation of pedestrian movement with vehicles;
- While it is anticipated facility entries will be marked with signage, the elliptical design of the facility and its siting within the existing topography will require carefully considered way-finding signage within and around the building to locate users of the surrounding park into the facility; and
- The facilities materials and finishes will distinguish the development from the surrounding parkland.

Design Evaluation

- The building should incorporate appropriate way-finding signage from well considered external areas of the facility; and
- The facility should incorporate distinctive paving and landscaping to serve as transition cues to alert people they are moving between the park, surrounding street and the Aquatic Leisure Centre Parramatta.

Space and Activity Management

NSW Police defines space/activity management as:

Space/Activity Management strategies are an important way to develop and maintain natural community control. Space management involves the formal supervision, control and care of the development. All space, even well planned and well-designed areas need to be effectively used and maintained to maximise community safety. Places that are infrequently used are commonly abused. There is a high correlation between urban decay, fear of crime and avoidance behaviour.

The placing activity where the individuals can engage in an activity becomes part of the natural surveillance is known as activity support. This is achieved by:

- Locating safe activities in areas that will discourage would be offenders;
- Locating activities that increase natural surveillance; and
- Locating activities that give the perception of safety for normal users, and the perception of risk for offenders.

Design Evaluation

Activity support in the proposed development is achieved by:

- The building has been designed for a specific purpose as a recreational facility and will be maintained by City of Parramatta Council;
- It is anticipated that a management plan/strategy will be put into place to ensure proper building maintenance; and
- Future operation of the commercial tenancies within the facility will be required to implement appropriate operational management plans to ensure the building is secure and managed at all hours of operation.

Recommendations

- Consideration should be given to the use of graffiti-resistance materials;
- Graffiti management measures should be incorporated into the maintenance plan/strategy for the building;
- The building maintenance plan/strategy should also include landscaping to ensure the site displays strong ownership; and
- The facility should incorporate a robust material palette, particularly for outdoor spaces in order to reduce susceptibility to vandalism and wear and tear.

Given the above, this report is consistent in principle within the guidelines identified in the NSW Department of Urban Affairs and Planning, Crime prevention and the assessment of development applications: Guidelines under section 4.15 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

6 Conclusion

This CPTED report supports a DA for a proposed recreational facility, known as Aquatic Leisure Centre Parramatta and 7 Park Parade, Parramatta.

The proposed development has been evaluated in the context of the four key principles of CPTED and relevant data from BOSCAR.

Section 5 of this report outlines measures that will enable the design and ongoing use of the facility to align with those CPTED principles to reduce opportunities for crime. The work/measures identified are minor in scope and can be achieved by means of condition of consent or otherwise detailed in Construction Certificate documentation.

This CPTED report demonstrates that the proposed Aquatic Leisure Centre Parramatta will promote passive and natural surveillance of the public domain and facility, further activate the area and provide appropriate security measures to ensure the safety of users and the broader public

Given the above, we conclude the development is acceptable from a crime risk perspective.

Annexure A – NSW CPTED Guideline Assessment

Table 3 – NSW Police CPTED Guideline Assessment

Standard	Provisions	Compliance
Natural Surveillance	Openings in buildings are located and designed to overlook public places to maximize casual surveillance.	Entry points are capable of being visible and clearly distinguishable.
	The main entry to a building should face the street.	The main entry for the facility is along Park Parade, with additional entrances provided via pathways in Parramatta Park.
	An external entry path and the foyer to a building must be direct to avoid potential hiding places.	Paths provide no opportunity for potential hiding places and its integrated into the development.
	Entry lobby areas to and from car parking areas should be transparent allowing viewing into and from these areas.	Entrances to lobby areas are clearly defined and generally transparent.
	Landscaping must not conceal the front door to a building when viewed from the street	Able to be implemented.
	Pedestrian access should be well lit and maximize sight lines.	Pedestrian access paths are direct and provide sight lines into the development.
	Landscaping should not inhibit sight lines.	Able to be implemented.
	ATM design and location is within direct view of pedestrian paths so that they can be overlooked from vantage points.	Noted. May be incorporated into detailed design.
	The street number of a building must be visible from the street and made of a reflective material to allow visitors and emergency vehicles to easily identify the location of the	Able to be implemented.

Table 3 – NSW Police CPTED Guideline Assessment

Standard	Provisions	Compliance
	building.	
	Landscaping should be designed to maximize sight lines.	Able to be implemented.
Measures /security devices	All windows and doors on the ground floor must be made of toughened glass to reduce the opportunities for 'smash and grab' and 'break and enter' offences.	Able to be implemented.
	A security alarm system must be installed in a building.	Able to be implemented.
	Unless impracticable, access to an outdoor car park must be closed to the public outside of business hours via a lockable gate.	Able to be implemented.
	CCTV system must cover all high risk areas and including all entry areas.	Able to be implemented.
Access control	Loading docks in the vicinity of main entry areas are secured outside of business hours.	Able to be implemented.
	Access to a loading dock, or other restricted area in a building must only be accessible to tenants via a security door, intercom, code or other mechanism.	Able to be implemented.
	Clear signage should be erected indicating loading docks and other areas which cannot be accessed by the general public.	Able to be implemented.
Territoriality/ownership	Site planning provides a clear definition of territory and ownership of all private, semi-	The site and design make a clear distinction between private and public.

Table 3 – NSW Police CPTED Guideline Assessment

Standard	Provisions	Compliance
	public and public places.	
Lighting	Both natural and artificial lighting is used to reduce poorly lit or dark areas and therefore deterring crime and vandalism.	Natural and artificial light will improve visibility of the development and semi-public spaces.
	Lighting must be provided to the following areas of a building to promote safety and security and night; A – an external entry path, foyer, driveway and car park to a building b- shopfront. This may be in the form of motion sensitive lighting or timer lighting c – the underside of an awning.	Able to be implemented.
	Lift access to a car park that are intended for night use must be well lit using a vandal resistant, high mounted light fixture.	Able to be implemented.
	The lighting in a car park must confirm to Australian Standards 1158.1, 2890.1.	Able to be implemented.
	The use of lighting fixtures, and vandal resistant, high mounted light fixtures, which are less susceptible to damage in the car park and laneway areas.	Able to be implemented.
	Car parking areas should be painted in light colours which will increase levels of illumination.	Able to be implemented.
Vandalism and graffiti	Development minimizes blank walls along all street frontages.	The design avoids long expanses of blank walls and includes articulation and modulation in the façade and transparent

Table 3 – NSW Police CPTED Guideline Assessment

Standard	Provisions	Compliance
		materials to both express the building, but also avoid graffiti opportunities.



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Appendix 15: Access Report



To: Grimshaw Global
Level 2, 333 George Street
Sydney NSW 2000

Project: Aquatic and Leisure Centre in Parramatta

Report: DA Stage Access Assessment Report

Reference No: 111318-Access-r2

Date: 30/03/2020

Client Contact: Josh Henderson

Email: Josh.Henderson@grimshaw.global

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DOCUMENT CONTROL




Revision	Date	Description	
111318-Access-r1	26/03/2020	Draft Access Assessment Report	
		Prepared by	Verified by
		Cameron Clark Building Regulations Consultant A1 Accredited Certifier – BPB3400	Warwick Hunter Manager Building Regulations Cert IV Access A1 Accredited Certifier – BPB2417
111318-Access-r2	30/03/2020	DA Stage Access Assessment Report	
		Prepared by	Verified by
		Cameron Clark  Building Regulations Consultant A1 Accredited Certifier – BPB3400	Warwick Hunter  Manager Building Regulations Cert IV Access A1 Accredited Certifier – BPB2417  Access Institute Qualified Access Consultant

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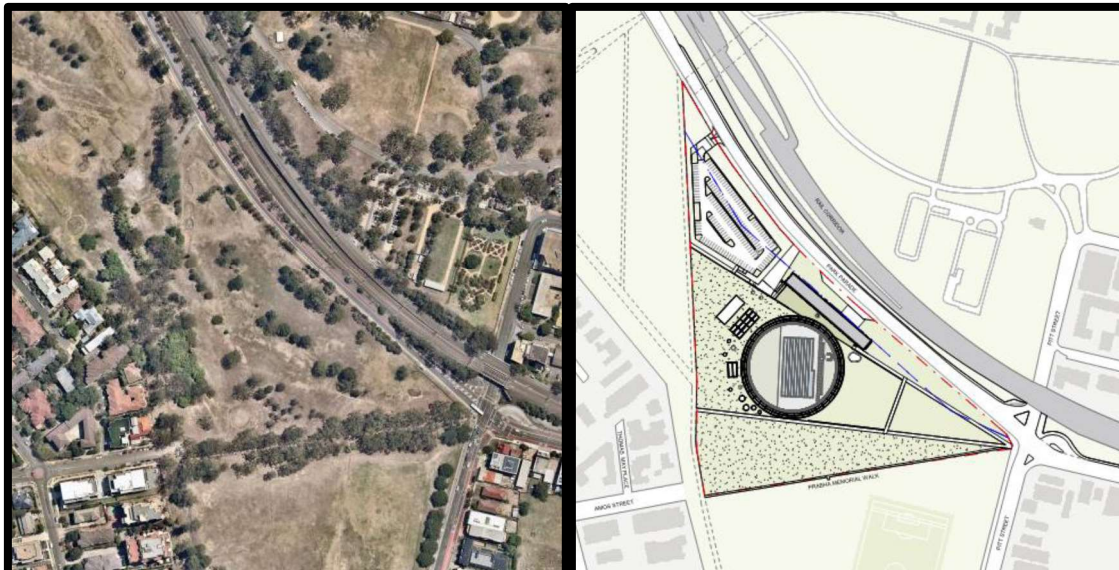
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1 BASIS OF ASSESSMENT

1.1 Location

The building development, the subject of this report, is the new Aquatic and Leisure Centre in Parramatta. The building includes Lower Ground floor ancillary building services, a Ground Floor publicly accessible swimming centre, health club, community rooms, café facilities, ancillary office spaces and the like, and Mezzanine level mechanical plant rooms.

Direct vehicular access is provided to the building from Park Parade.



1.2 Purpose

The purpose of this report is to assess the proposed / existing building against the following Deemed-to-Satisfy provisions of the Building Code of Australia 2019 (BCA2019) to clearly outline those areas where compliance is not achieved and provide recommendations to upgrade such areas to achieve relevant compliance:

- Disability Discrimination Act 1992 (DDA);
- Disability Access to Premises Standards 2010 (Premises Standards);
- Building Code of Australia 2019 (BCA2019) – Part D3 and Clauses E3.6 and F2.4;
- City of Parramatta's Parramatta Development Control Plan 2011 (DCP); and
- Applicable Australian Standards AS1428.1:2009, AS1428.4.1:2009 and AS2890.6:2009.

1.3 Limitations

This report is limited to an assessment of the access and amenity provisions for people with a disability against the provisions of the BCA2019 as outlined in 1.2 above. It is not an assessment of the proposal against all provisions of the BCA2019 and if this is required, a separate report will be necessary.

This report does not include nor imply any detailed assessment for design, compliance or upgrading for:

- The structural adequacy or design of the building;
- The inherent derived fire-resistance ratings of any existing or proposed structural elements of the building (unless specifically referred to); and
- The design basis and/or operating capabilities of any existing or proposed electrical, mechanical or hydraulic fire protection services.

This report does not include, or imply compliance with:

- The Disability Discrimination Act (it cannot be guaranteed that a complaint under the DDA will not be made, however should the building comply with BCA2019 and the Premises Standard then those responsible for the building cannot be subject to a successful complaint);
- BCA2019 Sections B, C, E, F, G, H, I, J, Parts D1 and D2;
- Demolition Standards not referred to by the BCA2019;
- Work Health and Safety Act;
- Construction Safety Act;
- Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Roads and Transport Authority, Local Council, ARTC, Department of Planning and the like;
- Conditions of Development Consent issued by the Local Consent Authority; and
- This report does not assess the safety of the particular aspects of the building but merely the minimum standards called up by the Access provisions of BCA2019.

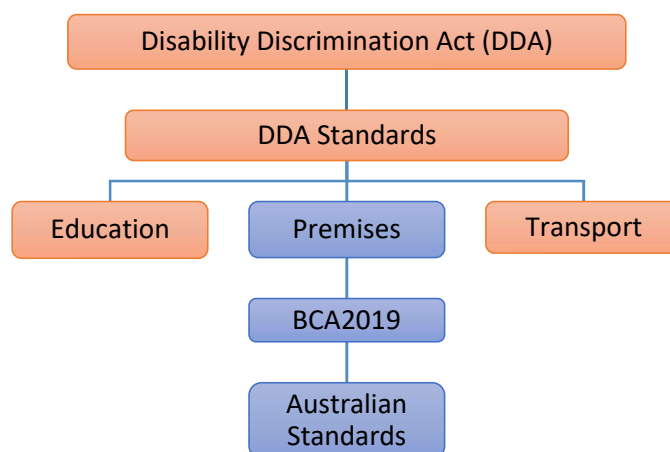
1.4 Federal Disability Discrimination Act (DDA)

Disability is broadly defined and includes disabilities which are physical, intellectual, psychiatric, neurological, cognitive or sensory (a hearing or vision impairment), learning difficulties, physical disfigurement and the presence in the body of disease-causing organisms.

All organisations have a responsibility, under the DDA, to provide equitable, dignified access to goods and services and to premises used by the public. Premises are broadly defined and would include all areas included within the subject development.

The DDA applies nationally and is complaint based. While the BCA2019 is recognised as a design standard to satisfy certain aspects of the DDA, compliance with the BCA2019 and the referenced standards does not guarantee that a complaint will not be lodged.

The graph below indicates the current relationship of the BCA2019 to the DDA.



1.5 Disability Access to Premises Standards (Premises Standards)

The aim of the Premises Standards is to provide the building and design industry with detailed information regarding the required access provisions associated with the design and construction of new buildings and upgrade to existing buildings. They do not apply to existing buildings that are not undergoing upgrade. They will only apply to elements addressed within the Standards. All other elements related to premises will still be subject to the existing provisions of the DDA.

The Premises Standards generally align with the BCA2019 and reference a range of Australian Standards relating to access and other associated matters. The Premises Standards aim to provide certainty for the building industry in relation to meeting the requirements for access in new and upgraded buildings.

The “affected part” is the accessway from the principal pedestrian entrance to the area of the new works including the entry door at principal pedestrian entrance. The relevant provisions of the Premises Standards will apply to a new part of a building, and any “affected part” of a building, if the building is Class 1b, Class 2 (if a new and short term rent accommodation is available) and Classes 3, 5, 6, 7, 8, 9 or 10 buildings.

As a new Class 8 and 9b building is included within this development, the Premises Standards will apply to this building. However, with the requirements of the Premises Standards mirroring the requirements of the BCA2019, compliance under BCA2019 will be equivalent to achieve compliance with the Premises Standards.

1.6 Design Documentation

This report has been based on the Design plans and Specifications listed in Annexure A of this Report.

2 BUILDING DESCRIPTION

For the purposes of the BCA2019 and Access Code for Buildings (Premises Standards – Schedule 1) the development may be described as follows.

2.1 Classification

Under the provisions of Clause A3.2 of BCA2019, the building has been classified as follows (*noting that a Class 6 retail café is proposed which is deemed to be less than 10% of the floor area of the storey, and thus subsumes the Class 9b building classification):

Table 1. Building Classification

Class	Level	Description
8	Lower Ground & Mezzanine	Services and Plant Rooms
9b (*6)	Ground Floor	Aquatic Leisure Centre
10b	Ground Floor	Swimming Pools

2.2 Areas Required to be Accessible

Under the provisions of Clause D3.1 of BCA2019, the following areas of the building are required to be accessible:

Table 2. Areas Required to be Accessible

Level	Area / Room	Description of BCA DtS Requirement
Lower Ground	Within and throughout the Entry Plaza, however not to and within the services areas where a BCA D3.4 exemption would be contemplated, subject to endorsement from the City of Parramatta under its DCP.	To and within all areas normally used by the occupants, unless exempted by D3.4.
Ground	Within and throughout all areas, however not to and within the Cleaners Room, Temp Waste, Dry Store, Cool Room and Café Prep & Serve where a BCA D3.4 exemption would be contemplated, subject to endorsement from the City of Parramatta under its DCP.	To and within all areas normally used by the occupants, unless exempted by D3.4. To and into swimming pools with a total perimeter greater than 40m.
Mezzanine	Not to and within the Mechanical Plant rooms where a BCA D3.4 exemption would be contemplated, subject to endorsement from the City of Parramatta under its DCP.	To and within all areas normally used by the occupants, unless exempted by D3.4.

Note: The limitations and exemptions of Clauses D3.2, D3.3 and D3.4 of the BCA2019 have been considered where applicable in the process of developing the above table.

Note: The eastern external accessways are not to be accessible as confirmed by the City of Parramatta respective to the Parramatta DCP 2011, as discussed further under Part 3.2 of this report. A Performance Solution is proposed to meet the Performance Requirements of the BCA.

3 ACCESS REQUIREMENTS FOR PEOPLE WITH DISABILITIES

3.1 Introduction

The table below is a summary of all the individual elements that relate directly to the ability of a person with a disability to access all the portions of the building required to be accessible as outlined in Part 2.2 of this report.

Accessibility has been assessed against the relevant portions of the BCA2019, Access Code for Buildings, and the related Australian Standards for each item listed below.

The abbreviations outlined below have been used in the following tables.

N/A	Not Applicable. The Deemed-to-Satisfy clause is not applicable to the proposed design.
Complies	The relevant provisions of the Deemed-to-Satisfy clause have been satisfied by the proposed design.
CRA – Refer Annexure C	'COMPLIANCE READILY ACHIEVABLE'. It is considered that there was not enough information included in the documentation to accurately determine strict compliance with the individual clause requirements. However, subject to noting the requirements of each clause, compliance can be readily achieved.
Further Information	Further Information is necessary to determine the compliance potential of the building design.
Performance Solution	Performance Solution with respect to this Deemed-to-Satisfy Provision is necessary to satisfy the relevant Performance Requirements.
DNC	Does Not Comply.
Noted	BCA Clause simply provides a statement not requiring specific design comment or confirmation.

3.2 Council's Development Control Plan Requirements (DCP)

City of Parramatta's Parramatta DCP 2011 provides Council's planning controls on the provision of Accessibility under Part 3.4.2 of the DCP. Objective O.1 of Part 3.4.2 is to *ensure that all people within the City are able to participate in community life; and access all public spaces and premises and utilise all goods, services and facilities provided in these spaces and premises*. The DCP also notes that *Access is to meet the requirements of the Disability Discrimination Act, 1992 (the DDA), the relevant Australian Standards and the Building Code of Australia (BCA)*.

When designing to *meet the requirements of the Disability Discrimination Act*, as inferred by the Parramatta DCP 2011, a building's design generally must provide access to the degree necessary as prescribed by the Premises Standards. We have been advised that the Building Code of Australia and Premises Standards are to be the compliance benchmark for the project, which are a means of meeting the obligations under the Disability Discrimination Act and thus the DCP, where such BCA requirements mirror those of the Premises Standards. This Access Assessment Report has been furnished on this basis to meet these requirements.

However, in the context of the proposed accessways to the Aquatic and Leisure Centre, this would entail that all delineated pathways within the confines of the allotment boundaries be made to satisfy the Access Standards to meet the DCP 2011. The eastern external accessways are not able to be accessible within the ambit of 'reasonably achievable' and 'cost-effective' as stipulated by the Premises Standards, due to the existing site constraints and site topography.

For this reason, in correspondence dated the 6th March 2020, considerations were raised for the City of Parramatta, as the custodian of the Development Control Plan 2011, as to whether the building design is expected to go as far as designing to *meet the requirements of the Disability Discrimination Act 1992*, including the eastern external accessways, or whether the requirements of the Building Code of Australia and Premises Standards are to be met (including the Performance Requirements and available option of a Performance Solution under the BCA).

The City of Parramatta have confirmed in email correspondence dated the 30th March 2020 that the eastern accessways are to be non-accessible and therefore will not necessarily meet the requirements of the Parramatta DCP 2011, however a Performance Solution is permissible (as identified in Part 4.2 of this Report) to ensure that compliance with the Performance Requirements of the BCA2019 are still met.

For reference, the Controls/Design Principles for Accessibility under Part 3.4.2 of the Parramatta DCP 2011 are as follows:

Table 3. Design Principles for Accessibility

Item No	Control	Comment	Compliance
P.1	The siting, design and construction of premises available to the public are to ensure an appropriate level of accessibility, so that all people can enter and use these premises. Access is to meet the requirements of the Disability Discrimination Act, 1992 (DDA), the relevant Australian Standards and the Building Code of Australia (BCA).	Based on the City of Parramatta's advice, this report has progressed on the basis of compliance with the Building Code of Australia (BCA) and the relevant Australian Standards, noting that the eastern accessways will not necessarily satisfy the requirements of the DCP2011 where these will not be accessible, however will still meet the requirements of the BCA2019 by means of a Performance Solution.	Performance Solution – Refer Part 4.2 of Report

3.3 Building Code of Australia 2019 Assessment Summary (BCA2019)

Table 4. BCA2019 Summary

CLAUSE		COMMENT	STATUS
SECTION D: ACCESS AND EGRESS			
PART D3 - ACCESS FOR PEOPLE WITH A DISABILITY			
D3.0	Deemed to Satisfy Provisions	Informational.	Noted
D3.1	General Building Access Requirements	<p>An accessway complying with AS1428.1 is required to the following, unless exempted by D3.4:</p> <p>Class 8 – To and within all areas normally used by the occupants.</p> <p>Class 9b – To and within all areas normally used by the occupants.</p> <p>To and within all other areas normally used by the occupants, except that access need not be provided to tiers or platforms of seating areas that do not contain wheelchair seating spaces.</p> <p>Class 10b – To and into swimming pools with a total perimeter greater than 40m, associated with a Class 8 or 9 building that is required to be accessible.</p> <p>Based upon our review access is able to be provided to and within the building (excluding the eastern accessways, and minor clarifications, as discussed within this report). Further design developments and assessments for compliance with AS1428.1-2009 will be undertaken through the detailed design stages to ensure compliance with the prescribed Access standards.</p> <p>As discussed under D3.2 below, a Performance Solution will be required relative to the eastern non-accessible accessways, where it has been confirmed by the City of Parramatta that these accessways will be non-accessible (refer Part 3.2 of this report for additional discussion).</p>	CRA – Refer Part 4.4 of Report
D3.2	Access to Buildings	<p>(a) An accessway must be provided to a building required to accessible –</p> <ul style="list-style-type: none"> (i) from the main points of a pedestrian entry at the allotment boundary; and (ii) from another accessible building connected by a pedestrian link; and (iii) from any required accessible carparking space on the allotment. <p>(b) In a building required to be accessible, an accessway must be provided through the principal pedestrian entrance, and –</p>	Performance Solution – Refer Part 4.2 of Report

SECTION D: ACCESS AND EGRESS

(i) through not less than 50% of all pedestrian entrances including the principal pedestrian entrance; and

(ii) in a building with a total floor area more than 500 m², a pedestrian entrance which is not accessible must not be located more than 50 m from an accessible pedestrian entrance,

except for pedestrian entrances serving only areas exempted by D3.4.

(c) Where a pedestrian entrance required to be accessible has multiple doorways—

(i) if the pedestrian entrance consists of not more than 3 doorways — not less than 1 of those doorways must be accessible; and

(ii) if a pedestrian entrance consists of more than 3 doorways — not less than 50% of those doorways must be accessible.

(d) For the purposes of (c)—

(i) an accessible pedestrian entrance with multiple doorways is considered to be one pedestrian entrance where—

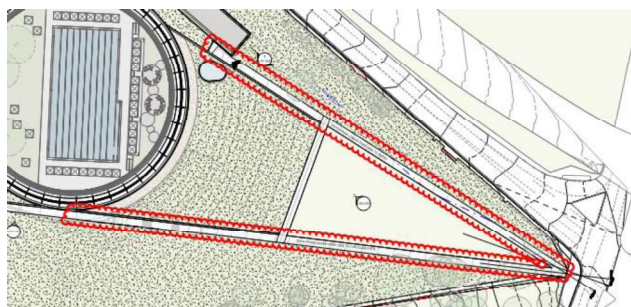
(A) all doorways serve the same part or parts of the building; and

(B) the distance between each doorway is not more than the width of the widest doorway at that pedestrian entrance (see Figure D3.2); and

(ii) a doorway is considered to be the clear, unobstructed opening created by the opening of one or more door leaves (see Figure D3.2).

(e) Where a doorway on an accessway has multiple leaves, (except an automatic opening door) one of those leaves must have a clear opening width of not less than 850 mm in accordance with AS 1428.1.

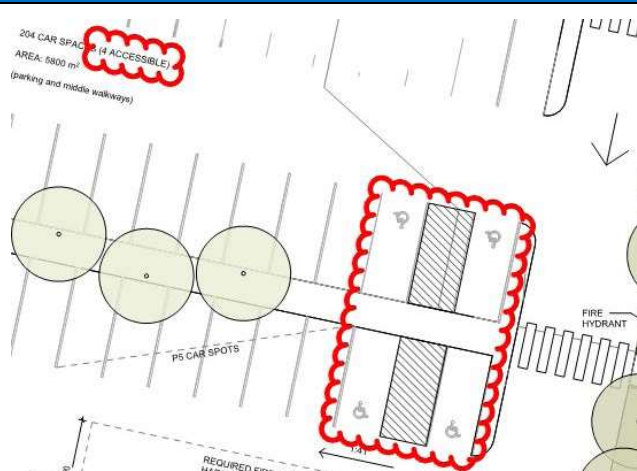
Relative to the main points of pedestrian entry (a)(i), it is noted that the eastern-most entry points at the junction of Park Parade and Pitt Street are not to be accessible due to the topographic constraints as discussed under Part 3.2 of this Report. This entry and associated accessways are identified in the below Figure.



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	<p>The City of Parramatta have confirmed that these accessways are to be non-accessible as discussed under Part 3.2 of this Report.</p> <p>On this basis, a Performance Solution is proposed rationalise that this access way need not be accessible and still meet the BCA's Performance Requirements. Appropriate wayfinding and signage will be required at the points of access to these pathways from the property boundary to ensure that any mobility impaired persons travel along Park Parade to an accessible entry, and not along the above pathways.</p> <p>Otherwise, access is to be provided to and into the building from the western pedestrian entry points at the property boundary, from the northern pedestrian entry points off Park Parade, and from the accessible carparking spaces within the carpark accessed off Park Parade.</p> <p>Access to the building entries is to comprise of a combination of ramps, walkways, and the lift serving the Lower Ground Entry Plaza providing access into the Ground Floor lobby area. The pedestrian entrances (excluding the non-accessible eastern entry discussed above) are not more than 50m apart and are generally demonstrated to comply with other compliance requirements.</p> <p>Care shall be given around the Lower Ground Floor entry, where there appear to be a myriad of falls in different directions, to ensure that the cross fall to any path of travel does not exceed 1:40. This will be assessed further throughout detailed design development.</p>	
D3.3	<p>Parts of Buildings to be Accessible</p> <ul style="list-style-type: none"> • Walkways and ramps must comply with clause 10 of AS 1428.1-2009. • Non-fire-isolated stairways must comply with Clause 11 of AS 1428.1-2009. • The passenger lift must comply with E3.6. <p>The accessways must be provided with:</p> <ul style="list-style-type: none"> • Passing spaces (1800x2000mm) complying with AS1428.1 at 20m max. intervals where direct line of sight is not available. • Turning spaces (1540x2070mm) complying with AS1428.1 within 2m of the end of accessways (including corridors or the like); and at 20m max. intervals along an accessway. • An intersection of accessways satisfies the spatial requirements for a passing and turning space. <p>Generally, access is provided into the building via the accessible entries discussed under D3.2 above. From these entrances, level transitions are provided throughout, except for the lower central main swimming pool area which is accessed via the level</p>	CRA – Refer Part 4.4 of Report

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	<p>ring-route pathway and successive walkways down to the recessed pool area.</p> <p>The building floor plan designs demonstrate compliant circulation spaces. Compliance around the specific fixture design and layout is achievable in consideration of these allocated circulation spaces and will be assessed further as the design develops.</p> <p>The areas which are not deemed to require access are outlined under D3.4 below.</p>	
D3.4 Exemptions	<p>Certain areas can be exempted under this clause if pose a health and safety risk for people with disability and/or access would be inappropriate because of the particular purpose for which the area is used (e.g. plant rooms, service areas, heavy / toxic item storage, etc.)</p> <p>The following areas within this development have been identified as potential excepted areas, subject to certifier's approval:</p> <ul style="list-style-type: none"> • Lower Ground Floor Services and Plant Rooms; • Ground Floor Cleaners Room, Cool Room, Dry Store, Temp Waste and Café Prep & Serve area. • Mezzanine Mechanical Plant rooms. 	Noted
D3.5 Accessible Car Parking	<p>Accessible carparking spaces shall comply with this Clause, AS2890.6 and AS1428.1 in the proportion required by BCA2019 and Council DCP.</p> <p>Generally, accessible carparking spaces compliant with AS2890.6 will require 2400x5400mm plus an adjacent shared zone of 2400x5400mm. Bollard, demarcation and accessible signage shall comply with AS2890.6. Vertical clearance shall be 2500mm min over the carparking and 2200mm over the accessway, compliant with AS2890.6.</p> <p>The designated accessible carparking spaces are shown to be of a sufficient size to satisfy these compliance requirements, however, Table D3.5 requires one (1) accessible carparking space for every fifty (50) carparking spaces or part thereof. For the 204 car spaces proposed, not less than five (5) shall be accessible spaces. Currently, only four (4) are proposed and an additional accessible space shall be provided to ensure compliance with the requirements of D3.5.</p>	Further Information – Refer Part 4.3 of Report

SECTION D: ACCESS AND EGRESS



D3.6 Signage

- Braille and tactile signage complying with Specification D3.6 and incorporating the international symbol of access, or deafness as appropriate, must identify each:
 - sanitary facility; and
 - any space with a hearing augmentation system; and
 - identify each door required by E4.5 to be provided with an exit sign and state “Exit” and “Level” and either:
 - (aa) the floor level number; or
 - (bb) a floor level descriptor; or
 - (cc) a combination of (aa) and (bb)
- Signage including the international symbol for deafness in accordance with AS 1428.1 must be provided within a room containing a hearing augmentation system identifying –
 - the type of hearing augmentation; and
 - the area covered within the room; and
 - if receivers are being used and where the receivers can be obtained.
- Signage to accessible sanitary facilities must identify if the facility is suitable for left or right handed use; and
- Signage to identify an ambulant accessible facility in accordance with AS 1428.1 must be located on the door of the facility.
- Where a pedestrian entrance is not accessible, directional signage incorporating the international symbol of access, in accordance with AS 1428.1 must be provided to direct a person to the location of the nearest accessible pedestrian entrance;

Where a bank of facilities is not provided with an accessible unisex sanitary facility, directional signage incorporating the international symbol of access in accordance with AS 1428.1 must be placed at the

CRA – Refer
Part 4.4 of
Report

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	<p>location of the sanitary facilities that are not accessible, to direct a person to the location of the nearest accessible unisex facility.</p> <p>Compliance is readily achievable with these requirements during the detailed design stages, noting that specific wayfinding signage will be a requirement of the Performance Solution for the non-accessible eastern entry discussed under D3.2 above.</p>	
D3.7 Hearing Augmentation	<p>(a) A hearing augmentation system must be provided where an inbuilt amplification system, other than one used only for emergency warning, is installed—</p> <ul style="list-style-type: none"> (i) in a room in a Class 9b building; or (ii) in an auditorium, conference room, meeting room or room for judicatory purposes; <p>or</p> <ul style="list-style-type: none"> (iii) at any ticket office, teller's booth, reception area or the like, where the public is screened from the service provider. <p>(b) If a hearing augmentation system required by (a) is—</p> <ul style="list-style-type: none"> (i) an induction loop, it must be provided to not less than 80% of the floor area of the room or space served by the inbuilt amplification system; or (ii) a system requiring the use of receivers or the like, it must be available to not less than 95% of the floor area of the room or space served by the inbuilt amplification system, and the number of receivers provided must not be less than— <ul style="list-style-type: none"> (A) if the room or space accommodates up to 500 persons, 1 receiver for every 25 persons or part thereof, or 2 receivers, whichever is the greater; and (B) if the room or space accommodates more than 500 persons but not more than 1000 persons, 20 receivers plus 1 receiver for every 33 persons or part thereof in excess of 500 persons; and (C) if the room or space accommodates more than 1000 persons but not more than 2000 persons, 35 receivers plus 1 receiver for every 50 persons or part thereof in excess of 1000 persons; and (D) if the room or space accommodates more than 2000 persons, 55 receivers plus 1 receiver for every 100 persons or part thereof in excess of 2000 persons. <p>(c) The number of persons accommodated in the room or space served by an inbuilt amplification system must be calculated according to D1.13.</p> <p>(d) Any screen or scoreboard associated with a Class 9b building and capable of displaying public</p>	CRA – Refer Part 4.4 of Report

SECTION D: ACCESS AND EGRESS			
		<p>announcements must be capable of supplementing any public address system,</p> <p>other than a public address system used for emergency warning purposes only.</p> <p>Compliance is readily achievable with these requirements during the detailed design stages.</p>	
D3.8	Tactile Indicators	<p>a) For a building required to be accessible, tactile ground surface indicators must be provided to warn people who are blind or have a vision impairment that they are approaching—</p> <ul style="list-style-type: none"> (i) a stairway, other than a fire-isolated stairway; and (ii) ... (iii) ... (iv) a ramp other than a fire-isolated ramp, step ramp, kerb ramp or swimming pool ramp; and (v) in the absence of a suitable barrier— <ul style="list-style-type: none"> (A) an overhead obstruction less than 2 m above floor level, other than a doorway; and (B) an accessway meeting a vehicular way adjacent to any pedestrian entrance to a building, excluding a pedestrian entrance serving an area referred to in D3.4, if there is no kerb or kerb ramp at that point, <p>except for areas exempted by D3.4. (b)</p> <p>b) Tactile ground surface indicators required by (a) must comply with sections 1 and 2 of AS/NZS 1428.4.1.</p> <p>TGSIs are also to be provided at the top and bottom of the swimming pool access stairways, however not for the ramps as these are exempted. Care shall be given around the alignment of the required TGSIs in relation to the swimming pool coping and any perimeter drainage trenches to ensure that the TGSIs placement is able to comply.</p> <p>More broadly, TGSIs shall be provided in accordance with this Clause, AS1428.1, AS1428.4.1 and AS4586/HB198 at bottom and top of stairs / ramps (except fire-isolated). Compliance is readily achievable with these requirements during the detailed design stages.</p>	CRA – Refer Part 4.4 of Report
D3.9	Wheelchair seating spaces in Class 9b Assembly Buildings	Not applicable – the proposed Terrace Seating is not deemed to be 'fixed seating' for the purposes of this Clause.	N/A
D3.10	Swimming Pools	Not less than one (1) means of accessible water entry/exit in accordance with Specification C1.10 must be provided for each swimming pool with a perimeter greater than 40m. In reviewing the proposal, it is acknowledged that an accessible means of entry/exit is proposed to all pools and spas regardless of their	CRA – Refer Part 4.4 of Report

SECTION D: ACCESS AND EGRESS		
	<p>perimeter, as is good practice for the public building. These include:</p> <ul style="list-style-type: none"> (a) Fixed ramp to the 50m Multipurpose Pool; (b) Fixed Ramp to the 25m Pool; (c) Zero depth entry to the Leisure Pool; (d) Sling-style Swimming Pool Lift to the Learning to Swim; (e) Sling-style Swimming Pool Lift to the Spas. <p>The specifics of each entry/exit are discussed further under Specification D3.10 of this report.</p> <p>Latching devices on gates and doors forming part of a swimming pool barrier need not comply with AS1428.1.</p>	
D3.11 Ramps	On accessways no series of connected ramps have a combined vertical rise of more than 3.6m (*subject to the Performance Solution identified under Part 4.2 of this report specific to the eastern accessways).	Complies
D3.12 Glazing on an Accessway	<p>On an accessway, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, must be clearly marked in accordance with AS 1428.1.</p> <p>Therefore, specific to the perimeter glazing surrounding the central ring walkway, these shall be provided with visual indicators in accordance with AS1428.1-209 for its entirety.</p>	CRA – Refer Part 4.4 of Report
SPECIFICATION D3.6 – BRAILLE AND TACTILE SIGNS		
1. Scope	Informational.	Noted
2. Location of Braille and Tactile Signs	The location of braille and tactile signs shall be in accordance with AS1428.1 and Specification D3.6.	CRA – Refer Part 4.4 of Report
3. Braille and Tactile Sign Specification	All accessible signage to comply with this Clause and AS1428.1. Tactile characters to be raised in sentence case with matt finish.	CRA – Refer Part 4.4 of Report
4. Luminance-contrast	All accessible signage shall comply with this Clause and AS1428.1. The sign background to have at least 30% luminance contrast with the 5mm width border, tactile characters and braille. Luminance contrast to be measured on the location once installed.	CRA – Refer Part 4.4 of Report
5. Lighting	Braille and tactile signs shall be appropriately illuminated, in compliance with this Clause and AS1428.1. The access pathway must have a minimum luminance contrast of not less than 30%, in accordance with AS1428.1.	CRA – Refer Part 4.4 of Report
6. Braille	Braille must be in accordance with this Clause and the criteria set out by the Australian Braille Authority.	CRA – Refer Part 4.4 of Report
SPECIFICATION D3.10 – ACCESSIBLE WATER ENTRY/EXIT FOR SWIMMING POOLS		
1. Scope	Informational.	Noted

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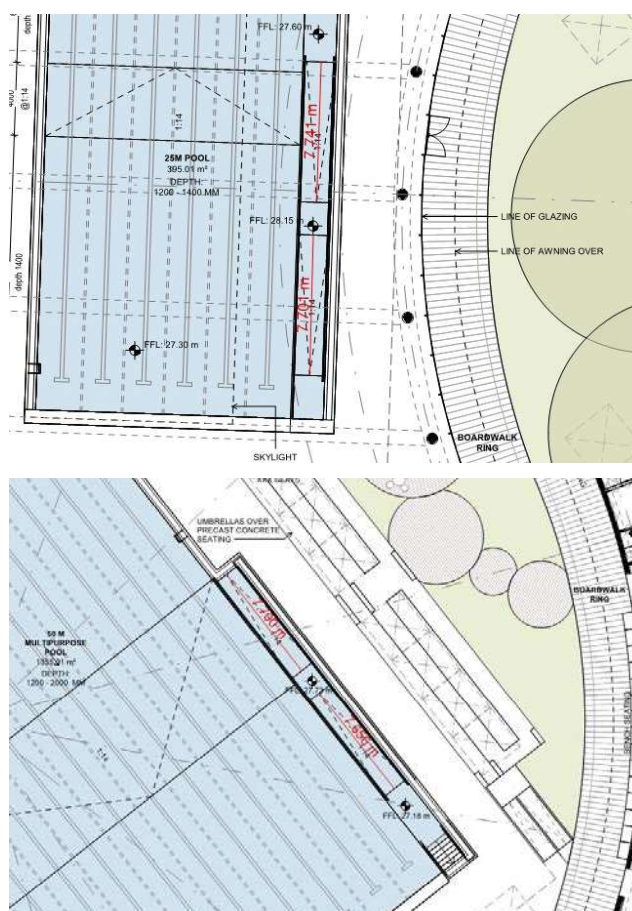
2. Fixed or Movable Ramp

Fixed ramps are proposed to the 50m Multipurpose Pool, and the 25m Pool, which shall comply with the requirements of this Clause.

The ramps are shown to have a gradient of not more than 1:14, and landings in accordance with AS1428.1-2009, and therefore will comply in this regard.

The ramps are also shown to have handrails on both sides – the handrails shall comply with AS1428.1-2009. The handrails shall be accompanied also by kerbs on both sides of the ramp complying with AS1428.1.

The ramps shall extend to a depth of not less than 900mm and not more than 1100mm below the stationary water level. Based on the gradient and lengths of the proposed ramps, and assuming the stationary water level is level with the coping edge of the swimming pool, the 25m Pool will extend to a depth of 1103mm below stationary water level, and the 50m Multipurpose Pool 1097mm below stationary water level. This shall be reviewed to ensure that the 1100mm maximum depth below stationary water level is not exceeded where this is currently very close to the threshold.



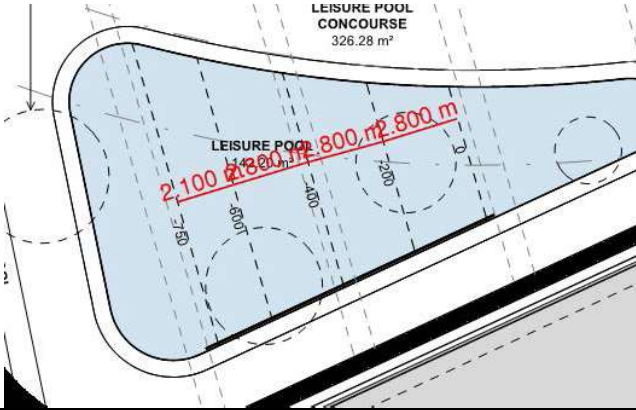
Further Information – Refer Part 4.3 of Report

3. Zero Depth Entry

A zero depth entry is proposed to the Leisure Pool.

Based on the spot levels provided for the zero depth entry ramp, this is calculated to have a gradient of not

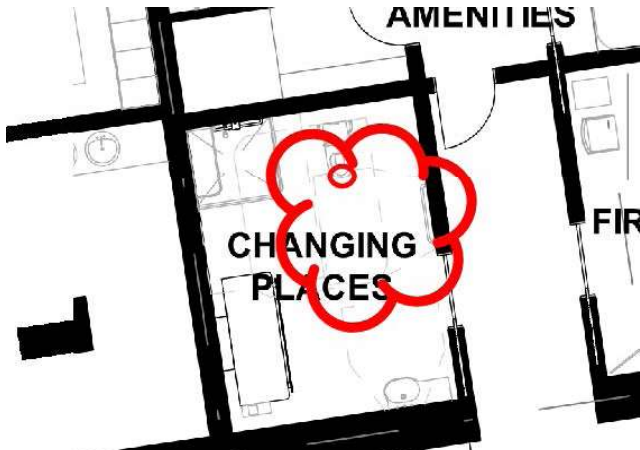
Further Information – Refer Part 4.3 of Report


SECTION D: ACCESS AND EGRESS		
	<p>greater than 1:14 and will comply in this regard. The zero depth entry must also have slip-resistant surface.</p> <p>The zero depth entry ramp is also shown to be provided with a continuous single handrail from the top to the bottom along one side. This handrail shall comply with the requirements for handrails in AS1428.1-2009.</p> <p>A level area is shown to be 1500mm long for zero depth entry point width and located at the bottom of the zero depth entry. However, the level area at the base of the ramp will only achieve a depth of 750mm based on the 1:14 gradient and the 10.5m length of the ramp and therefore will not comply. The design of the pool and zero depth entry shall be altered so that the ramp, and landing at its base, extend to a depth of between 900mm and 1100mm below the stationery water level.</p> 	
4. Platform Swimming Pool Lift	Not applicable – there is no platform swimming pool lift proposed.	N/A
5. Sling-style Swimming Pool Lift	<p>A sling-style swimming pool lift is proposed to the Learning to Swim and Spas.</p> <p>The depth of the Learning to Swim pool does not exceed 1300mm and therefore will comply in this regard. The depth of the Spa entries is currently unknown and shall be confirmed in the design to not be deeper than 1300mm at the entry.</p> <p>Sling-style swimming pool lift to comply with other provisions of this Clause and Figure 5. Specific details are not yet available to undertake a detailed assessment of the sling operation.</p>	CRA – Refer Part 4.4 of Report

SECTION D: ACCESS AND EGRESS		
6. Aquatic Wheelchair	<p>An aquatic wheelchair must comply with the following:</p> <ul style="list-style-type: none"> (a) The height of the top surface of the seat must be not less than 430mm. (b) The seat width must not be less than 480mm. (c) A footrest must be provided. (d) Armrests must be located on both sides of the seat and must be capable of being moved away from the side of the wheelchair to allow a person to transfer on and off the seat. 	CRA – Refer Part 4.4 of Report

SECTION E: SERVICES AND EQUIPMENT		
PART E3 – LIFT INSTALLATIONS		
E3.0 Deemed-to-Satisfy Provisions	Informational.	Noted
E3.6 Passenger Lifts	<p>The proposed passenger lift must be one of the types specified in Table E3.6a, have accessible features in accordance with Table E3.6b, as follows:</p> <ul style="list-style-type: none"> – Handrail complying with the provisions for a mandatory handrail in AS 1735.12. – Lift floor dimensions not less than 1100 mm wide by 1400 mm deep (lifts that travel not more than 12m) – Minimum clear door opening complying with AS 1735.12. – Passenger protection system complying with AS1735.12. – Lift car and landing control buttons complying with AS 1735.12. – Lighting in accordance with AS 1735.12. – (a) Automatic audible information within the lift car to identify the level each time the car stops; and – (b) audible and visual indication at each lift landing to indicate the arrival of the lift car; and – (c) audible information and audible indication required by (a) and (b) is to be provided in a range of between 20–80 dB(A) at a maximum frequency of 1 500 Hz. <p>Emergency hands-free communication, including a button that alerts a call centre of a problem and a light to signal that the call has been received.</p>	CRA – Refer Part 4.4 of Report

SECTION F: HEALTH AND AMENITY		
PART F2 – SANITARY AND OTHER FACILITIES		
F2.0 Deemed-to-Satisfy Provisions	Informational.	Noted

SECTION F: HEALTH AND AMENITY			
F2.4	Accessible Sanitary Facilities (including Table F2.4)	<p>In the building required to be accessible, accessible unisex sanitary compartments are proposed in accessible parts of the building in accordance with Table F2.4(a) at not less than 50% of the banks of sanitary compartments with an even distribution of left and right hand facilities, 1 accessible shower is proposed for every 10 showers, and a sanitary compartment suitable for people with ambulant disabilities is proposed at each bank of toilets – therefore compliance is achieved with regard to the number of facilities proposed in the building.</p> <p>The circulation spaces are demonstrated to comply with AS1428.1-2009. The fixtures and fittings within all accessible sanitary facilities shall comply with the requirements of AS1428.1-2009 – compliance is readily achievable with these requirements and will be further assessed during the detailed design stages.</p>	CRA – Refer Part 4.4 of Report
F2.9	Accessible Adult Change Facilities	<p>One accessible adult change facility is proposed in the accessible part of the Class 9b sports venue that contains a swimming pool that has a perimeter of not less than 70m.</p> <p>The design of the accessible adult change facility shall comply with the requirements of Specification F2.9, as discussed further under that part of this report.</p>	Further Information – Refer Part 4.3 of Report
SPECIFICATION F2.9 – ACCESSIBLE ADULT CHANGE FACILITIES			
Scope		Informational.	Noted
General Requirements		<p>The accessible adult change facility shall be constructed to comply with the respective requirements of Specification F2.9.</p> <p>The location of the proposed accessible adult change facility complies with the requirements of this Clause.</p> <p>The circulation spaces within the facility are demonstrated to comply with Figure 2 of Specification F2.9, except for the Changing Rail where the closet pan encroaches into the required circulation space. This appears to be an overlay error which may be addressed with minor corrections to the plan to ensure the closet pan is in the corner of the room.</p> 	Further Information – Refer Part 4.3 of Report

SECTION F: HEALTH AND AMENITY		
	<p>Additionally, the shower is not a requirement of an accessible adult change facility, however because it is proposed within an accessible facility it shall also be accessible. In this regard, the circulation space forward of the shower does not satisfy AS1428.1-2009 where the Change Table encroaches into the required 2350mm deep circulation space forward of the rear wall of the shower.</p>  <p>Either the shower can be deleted, or the room accessible adult change facility room increased in depth to address the shower and changing rail circulation space non-compliances. By increasing the room depth to achieve the shower circulation space of 2350mm forward of the rear wall of the shower, the closet pan encroachment will concurrently be addressed.</p>	
3. Hoist	<p>The hoist must-</p> <ul style="list-style-type: none"> (a) provide a constant charge in-line room coverage hoist system (also known as an "XY" system or gantry) including 2 parallel fixed rails and a moving traverse rail; and (b) provide coverage over the entire room; and (c) have a maximum safe working load of not less than 180kg; and (d) be capable of sustaining a static load of not less than 1.5 times the rated load; and (e) have a minimum lifting height of 2100mm. 	CRA – Refer Part 4.4 of Report
4. Toilet Pan, Seat, Backrest and Grabrails	<ul style="list-style-type: none"> (a) The toilet pan must be of the centrally located ("peninsula-type") design. (b) The toilet pan must be installed so that- <ul style="list-style-type: none"> (i) the front edge of the pan is 800mm (+/- 10mm) from the rear wall; and (ii) the top of the seat is between 460mm and 480mm above finished floor level; and 	CRA – Refer Part 4.4 of Report

SECTION F: HEALTH AND AMENITY

	<ul style="list-style-type: none"> (iii) the top of the seat is between 460mm and 480mm above finished floor level; and (iv) there is a minimum clearance of 900mm, measured horizontally, between each side of the pan and any adjacent wall or privacy screen. 	
	<p>(c) The toilet seat must-</p> <ul style="list-style-type: none"> (i) be of the full-round type (not open-fronted) with minimal contours to the top surface; and (ii) be securely fixed in position when in use; and (iii) have seat fixings that provide lateral stability to the seat when the seat is in use; and (iv) be load-rated to 150kg; and (v) have a luminance contrast of 30% against the pan, wall and floor; and (vi) remain in the fully upright position when raised. 	
	<p>(d) Hand-operated flushing controls must-</p> <ul style="list-style-type: none"> (i) be located on the centreline of the toilet, at a height of- <ul style="list-style-type: none"> (A) not less than 600mm; and (B) not more than 1100mm, above the finished floor level; and (ii) not be located within the area required for any grabrails or backrest; and (iii) have the button mounted so that it is proud of the wall surface, and activates the flushing operation before the button becomes level with the surround surface. 	
	<p>(e) An automatically activated flushing system need not comply with the requirements of (d).</p>	
	<p>(f) The backrest must-</p> <ul style="list-style-type: none"> (i) be capable of withstanding a force, in any direction, of not less than 1100N; and (ii) have a minimum height, between the lower edge of the backrest and the top of the seat, of between 120mm and 150mm; and (iii) have a vertical height, between the upper and lower edges of the 	

SECTION F: HEALTH AND AMENITY		
	<p>backrest, of between 150mm and 200mm; and</p> <p>(iv) have a width of between 350mm and 400mm; and</p> <p>(v) be positioned such that the face of the backrest achieves an angle of between 95° and 100° back from the seat, when the seat is in use.</p> <p>(g) Grabrails must be installed adjacent to each side of the pan and must be-</p> <p>(i) of the drop-down type; and</p> <p>(ii) located such that-</p> <p>(A) the top of each rail is between 800mm and 810mm above finished floor level; and</p> <p>(B) the rails are between 750mm and 770mm apart, measured centre-to-centre, and equidistant to the centreline of the pan; and</p> <p>(iii) at least 850mm long; and</p> <p>(iv) with a diameter of between 30mm and 40mm; and</p> <p>(v) securely fixed to withstand a force, in any direction, of not less than 1100N; and</p> <p>(vi) provided with a toilet paper dispenser on one side; and</p> <p>(vii) capable of being lifted up or swing away when not in use, so as to allow unimpeded access to the toilet pan.</p>	
5. Washbasin and Tap	<p>(a) The washbasin must be installed so that the rim of the basin is between 800mm and 830mm above finished floor level.</p> <p>(b) Exposed heated water supply pipes must be insulated or located so as not to pose a hazard.</p> <p>(c) Water supply or sanitary drainage pipes must not encroach on the space under the basin.</p> <p>(d) The washbasin must have an integrated shelf not less than 300mm long.</p> <p>(e) Water taps must have a single lever flicker-mixer handle or a sensor plate or the like.</p> <p>(f) Where lever handles are provided, they must be installed with a clear space of not less than 50mm between the tap and any adjacent surface.</p> <p>(g) Heater water must be provided and temperature controlled in accordance with Part B2 of NCC Volume Three.</p>	CRA – Refer Part 4.4 of Report

SECTION F: HEALTH AND AMENITY		
6. Fixtures and Fittings	<p>(a) Mirror:</p> <p>(i) A vertical mirror must be provided at the washbasin, with a reflective surface that-</p> <p>(A) is not less than 600mm wide; and</p> <p>(B) has its bottom edge not more than 900mm above finished floor level; and</p> <p>(C) has its top edge not less than 1850mm above finished floor level.</p> <p>(ii) If a second vertical mirror is provided in the facility, it must have a reflective surface that-</p> <p>(A) is not less than 600mm wide; and</p> <p>(B) has its bottom edge not less than 600mm above finished floor level; and</p> <p>(C) has its top edge not less than 1850mm above finished floor level.</p> <p>(b) Towel dispensers, hand dryers and the like:</p> <p>Towel dispensers, hand dryers, soap dispensers and the like must be operable using one hand, and must be installed with their output or operative components-</p> <p>(i) between 900mm and 1100mm above finished floor level; and</p> <p>(ii) not less than 500mm from any internal corner.</p> <p>(c) Soap dispenser:</p> <p>A soap dispenser must be installed above the integrated shelf required by Clause 5(d).</p> <p>(d) Clothing hook:</p> <p>A clothing hook must be installed so that it is located-</p> <p>(i) at a height between 1200mm and 1350mm above finished floor level; and</p> <p>(ii) adjacent to the washbasin; and</p> <p>(iii) not less than 500mm from any internal corner.</p> <p>(e) A sling hook with a minimum projection of 50mm from the wall must be installed beside the change table at a height of 1500mm above finished floor level.</p> <p>(f) Disposal bins:</p>	CRA – Refer Part 4.4 of Report

SECTION F: HEALTH AND AMENITY		
	<ul style="list-style-type: none"> (i) A sanitary disposal bin must be provided in the corner adjacent to the toilet pan. (ii) An incontinence pad disposal bin must be provided in the corner adjacent to the change table. 	
7. Change Table	<ul style="list-style-type: none"> (a) The change table must be- <ul style="list-style-type: none"> (i) permanently installed, with one of the long edges up against a wall and with a retractable safety rail on the opposite side; and (ii) motorised for the purposes of height adjustment; and (iii) height adjustable between 450mm and 900mm above finished floor level; and (iv) not less than 700mm wide; and (v) not less than 1800mm long. (b) The change table must have a maximum safe working load limit of not less than 180kg, including when raising or lowering the table. (c) The change table must not encroach on any required circulation space. (d) A dispenser for sanitary wipes must be provided. (e) A shelf not less than 400mm long and 150mm wide must be provided. <p>The change table encroaches into the circulation space of the accessible shower (which is voluntary) as discussed previously.</p>	Further Information – Refer Part 4.3 of Report
8. Changing Rails	<p>Changing rails must be installed as two horizontal and parallel rails fixed to a wall, not less than 800mm long, each with a diameter between 30 and 40mm, and-</p> <ul style="list-style-type: none"> (a) the lower rail must be installed between 800mm and 810mm above finished floor level; and (b) the upper rail must be installed between 1000mm and 1010mm above finished floor level; and (c) the rails must be able to withstand a force of not less than 1100N in any direction. <p>The closet encroaches into the circulation space of the changing rails as discussed previously.</p>	Further Information – Refer Part 4.3 of Report
9. Door and Door Controls	<p>The entrance door and associated door controls must be automated and must comply with the following:</p> <ul style="list-style-type: none"> (a) The threshold must incorporate a smooth transition without a step or lip. 	CRA – Refer Part 4.4 of Report

SECTION F: HEALTH AND AMENITY

- | | | |
|--|---|--|
| | <ul style="list-style-type: none"> (b) The minimum clear opening width must be- <ul style="list-style-type: none"> (i) 1100mm in locations where beach wheelchairs are likely to be used; or (ii) 950mm in all other locations. (c) The doorway must achieve a luminance contrast of at least 30% between- <ul style="list-style-type: none"> (i) Door leaf and door jamb; or (ii) Door leaf and adjacent wall; or (iii) Architraves (where used) and adjacent wall; or (iv) Door leaf and architrave (where used); or (v) Door jamb and adjacent wall. (d) The operation of the door must be calibrated such that- <ul style="list-style-type: none"> (i) it has a gentle opening and closing movement; and (ii) there is sufficient dwell time for a user to safely travel through the doorway. (e) The door must be fitted with a fail-safe opening mechanism that opens the door if an obstruction is detected during its closing movement. (f) Door controls must be located internally and externally- <ul style="list-style-type: none"> (i) between 900mm and 1200mm above finished floor level; and (ii) not less than 500mm from any internal corner. (g) Door control buttons must- <ul style="list-style-type: none"> (i) have a minimum diameter of 25mm; and (ii) be proud of the surrounding surface; and (iii) activate the door operation before the button becomes level with the surrounding surface; and (iv) be of a contrasting colour to the surrounding plate. (h) The surrounding plates of both internal and external door controls must include the words "Push to Open". (i) The following indicators must be provided: <ul style="list-style-type: none"> (i) "Occupied" and "Vacant" on the external plate. | |
|--|---|--|

SECTION F: HEALTH AND AMENITY		
	(ii) “Locked” and “Unlocked” on the internal plate. (j) Braille and tactile signage complying with Specification D3.6 must identify the door controls.	
10. Signage	(a) External signage must incorporate- (i) the symbol shown in Figure 10; and (ii) the words “Accessible Adult Change Facility.” (b) The symbol required by (a)(i) must have a blue (B21, ultramarine) background with the hoist and table elements shown in white. (c) Signage must be braille and tactile signage complying with Specification D3.6.	CRA – Refer Part 4.4 of Report
11. Operating Instructions	Signage provided within the facility must include the following information for the hoist and change table: (a) Operating instructions. (b) Safe working load limits.	CRA – Refer Part 4.4 of Report

SECTION H: SPECIAL USE BUILDINGS		
PART H2 – PUBLIC TRANSPORT BUILDINGS		
H2.1 Application of Part	Not applicable – the ALCP building is not deemed to be a public transport building. However, there may be elements of DSAPT 2002 which are required to be considered for the passenger use areas of the Bus Drop Off & New Side Walk, depending on the type of bus transport services (i.e. whether public transport) – to be further assessed under the detailed design stages.	Noted

4 MATTERS FOR FURTHER CONSIDERATION

4.1 General

Assessment of the architectural design documentation against the Deemed-to-Satisfy Provisions of the BCA2019 has revealed the following areas where compliance with the BCA2019 may require further consideration.

Note: Part 3.3 of this report provides a detailed assessment of the proposal against all relevant Deemed-to-Satisfy Provisions of the BCA2019. It is important that Part 3.3 of this report is read in conjunction with the items below, as some matters may not have had sufficient information provided to allow a detailed assessment to be undertaken.

4.2 Performance Based Design – Performance Solutions

There are specific areas in the development where strict Deemed-to-Satisfy BCA Compliance will not be achieved by the proposed design and site constraints. These matters may need to be address in a detailed Performance Solution Report to be prepared for this development under separate cover:

Table 5. Performance Solutions

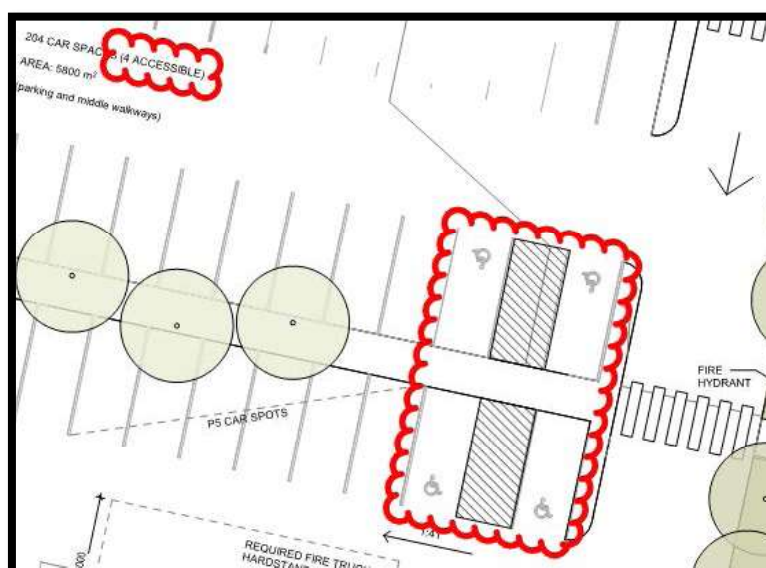
Item	Description of Performance Solution	DTS Provision
1.	To permit the eastern building accessways at the junction of Park Parade and Pitt Street to be non-accessible.	D3.1 & D3.2

4.3 Accessibility (BCA)

4.3.1 Car Parking

The designated accessible carparking spaces are shown to be of a sufficient size to satisfy these compliance requirements, however, Table D3.5 requires one (1) accessible carparking space for every fifty (50) carparking spaces or part thereof. For the 204 car spaces proposed, not less than five (5) shall be accessible spaces. Currently, only four (4) are proposed and an additional accessible space shall be provided to ensure compliance with the requirements of D3.5.

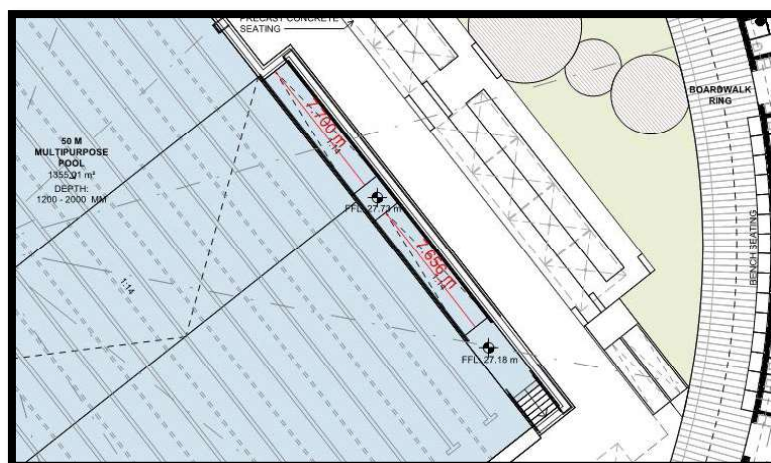
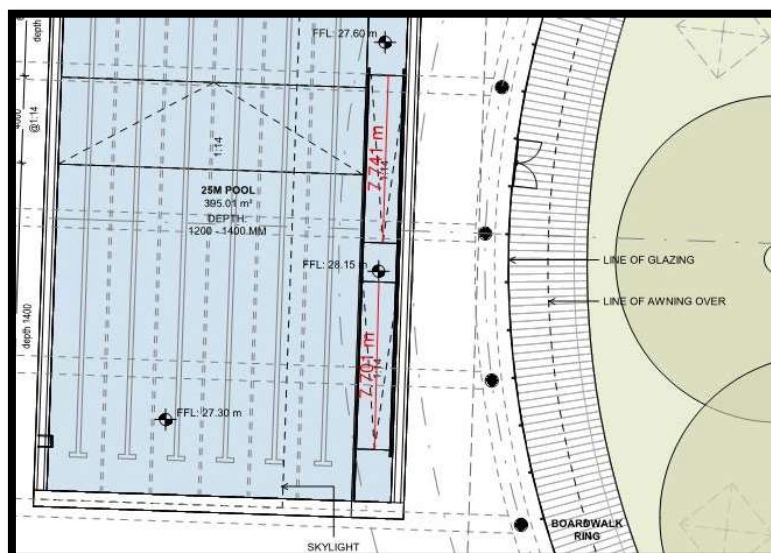
Ensure carparking spaces are provided with a level and firm surface area, with 2400x5400mm car space plus 2400x5400mm adjacent shared zone. Bollard, demarcation and signage to be provided in compliant with AS2890.6 and AS1428.1.



4.3.2 Swimming Pool Entries

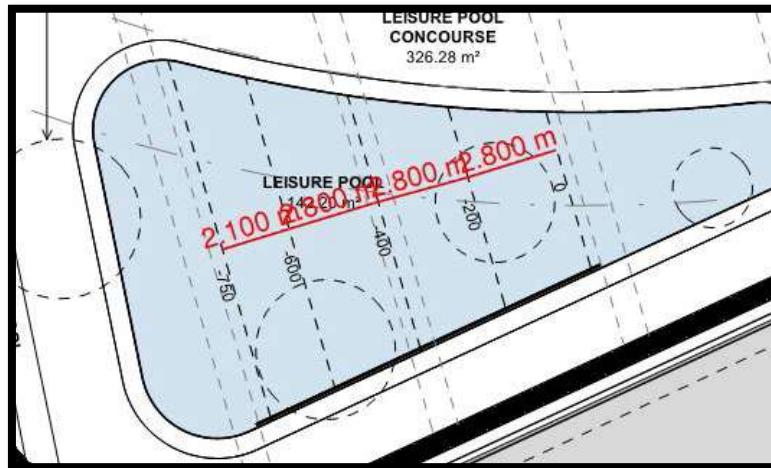
Provide swimming pool entries complying with BCA Specification D3.6. This shall be reviewed to ensure that the 1100mm maximum depth below stationery water level is not exceeded where this is currently very close to the threshold.

The fixed ramps shall extend to a depth of not less than 900mm and not more than 1100mm below the stationary water level. Based on the gradient and lengths of the proposed ramps, and assuming the stationary water level is level with the coping edge of the swimming pool, the 25m Pool will extend to a depth of 1103mm below stationary water level, and the 50m Multipurpose Pool 1097mm below stationary water level.



The zero depth entry shall have a level area at the base of the ramp between a depth of 900mm and 1100mm below the stationary water level.

The proposed ramp will only achieve a depth of 750mm based on the 1:14 gradient and the 10.5m length of the ramp and therefore will not comply. The design of the pool and zero depth entry shall be altered so that the ramp, and landing at its base, extend to a depth of between 900mm and 1100mm below the stationary water level.



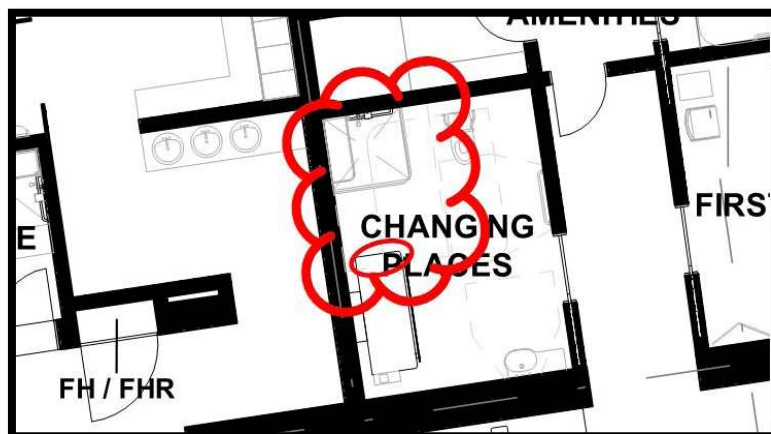
4.3.3 Accessible Adult Change Facility

Provide a Changing Rail with the circulation space required by Figure 2 Diagram c. of BCA Specification F2.9. The closet pan encroaches into the required circulation space. This appears to be an overlay error which may be addressed with minor corrections to the plan to ensure the closet pan is in the corner of the room.



Additionally, the shower is not a requirement of an accessible adult change facility, however because it is proposed within an accessible facility it shall also be accessible. In this regard, the circulation space forward of the shower does not satisfy AS1428.1-2009 where the Change Table encroaches into the required 2350mm deep circulation space forward of the rear wall of the shower.

Either the shower can be deleted, or the room accessible adult change facility room increased in depth to address the shower and changing rail circulation space non-compliances. By increasing the room depth to achieve the shower circulation space of 2350mm forward of the rear wall of the shower, the closet pan encroachment will concurrently be addressed.



4.4 Design Certification

Further due to the level of detail provided at this stage the following items are to form part of a design statement or specification:

General

1. Tactile ground surface indicators will be installed at the top and bottom of stairways / ramps (other than fire isolated stairways / ramps); and where an overhead obstruction is less than 2 metres above the floor level. Tactile ground surface indicators will comply with Sections 1 and 2 of AS1428.4.1.
2. On an accessway where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights or glazing capable of being mistaken for a doorway or opening will be clearly marked and comply with Clause 6.6 of AS1428.1-2009. A solid non-transparent contrasting line not less than 75mm wide is to extend across the full width of the glazing panel. The lower edge of the contrasting line is to be located between 900-1000mm above the plane of the finished floor level. The contrasting line is to provide a minimum of 30% luminance contrast when viewed against the floor surface or surfaces within 2 metres of the glazing on the opposite side.
3. All doorways will have a minimum luminance contrast of 30% in accordance with Clause 13.1 of AS1428.1-2009.
4. Fixtures and fittings in accessible sanitary facilities will be provided and installed in accordance Clause 15 of AS1428.1-2009.
5. Fixtures and fittings in ambulant facilities will be provided and installed in accordance Clause 16 of AS1428.1-2009.
6. Walkways will comply with Clause 10 of AS1428.1-2009.
7. For the walkways, the floor or ground surface abutting the sides of the walkway will be firm and level of a different material to that of the walkway at the same level and follow the grade of the walkway and extend horizontally for a minimum of 600mm, or be provided with a kerb or kerb rail in accordance with Clause 10.2 of AS1428.1-2009.
8. Stairways will comply with Clause 11 of AS1428.1-2009.
9. Handrails will comply with Clause 12 of AS1428.1-2009.
10. Grabrails will comply with Clause 17 of AS1428.1-2009.
11. Demarcation will be provided in the accessible car space and adjacent shared zone in accordance with Clause 3.1 and 3.2 of AS2890.6. Refer to Annexure B1 for a diagrammatic explanation.
12. Bollards will be provided in the shared disabled car space area in accordance with Clause 2.2.1(e) of AS2890.6-2009. Refer to Annexure B1 for a diagrammatic explanation.
13. Switches and power points will comply with Clause 14 of AS1428.1-2009.

-
14. Floor and ground floor surfaces on accessible paths and circulation spaces including the external areas will comply with Clause 7 of AS1428.1-2009. Any level difference over 3mm must be ramped according AS1428.1 Clause 10.5.
 15. Braille and tactile signage will comply with BCA2019 Clause D3.6.
 16. Signage will comply with Clause 8 of AS1428.1-2009.
 17. The passenger lifts will comply with BCA2019 Table E3.6b and AS1735.12.
 18. The unobstructed height of a continuous accessible path of travel will be a minimum of 2000mm and 1980mm at doorways.
 19. Door handles and the like will be in accordance with Clause 13.5 of AS1428.1-2009.
 20. The accessible adult change facility will comply with BCA2019 F2.9 and Specification F2.9.

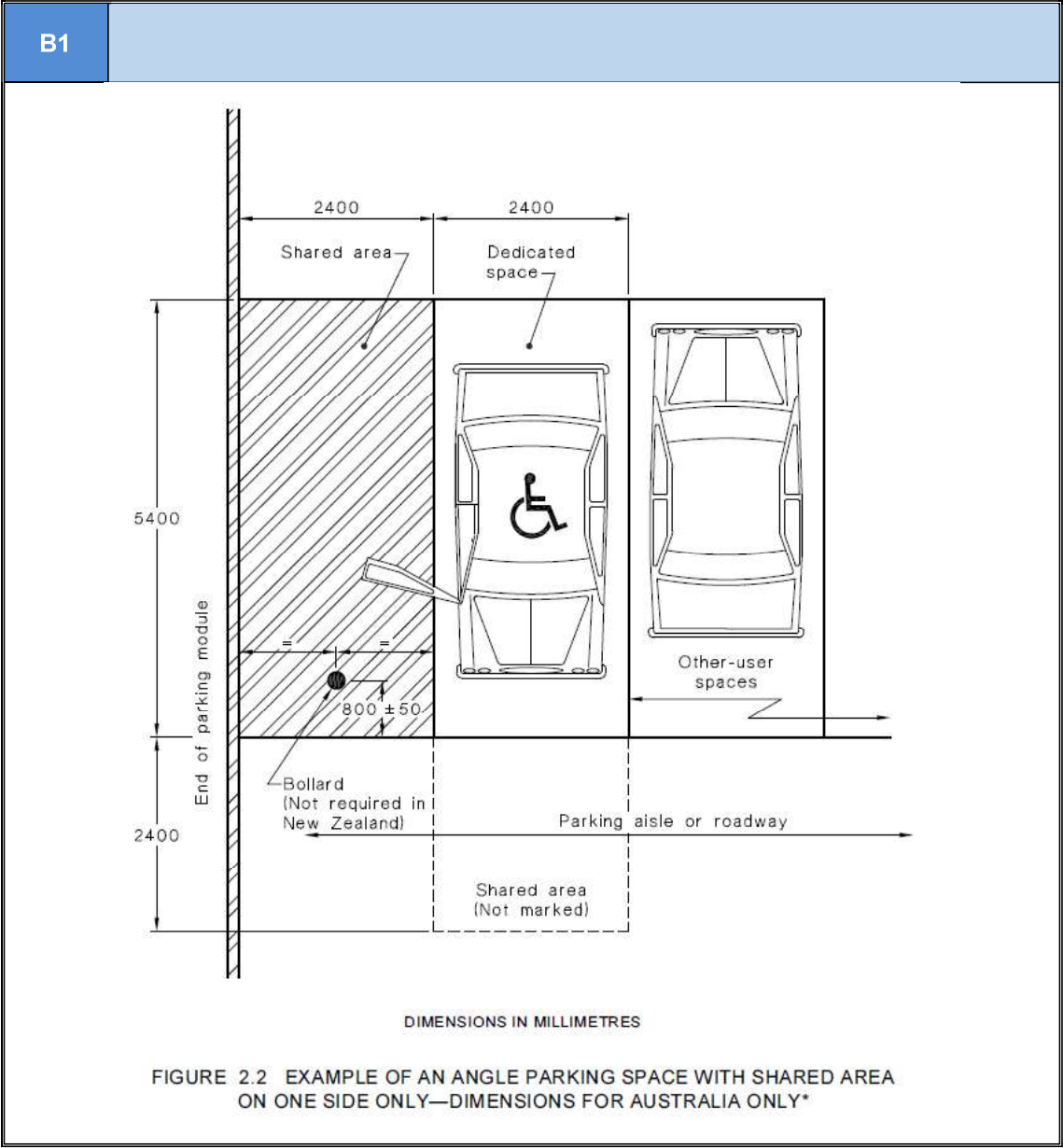
ANNEXURE A - DESIGN DOCUMENTATION

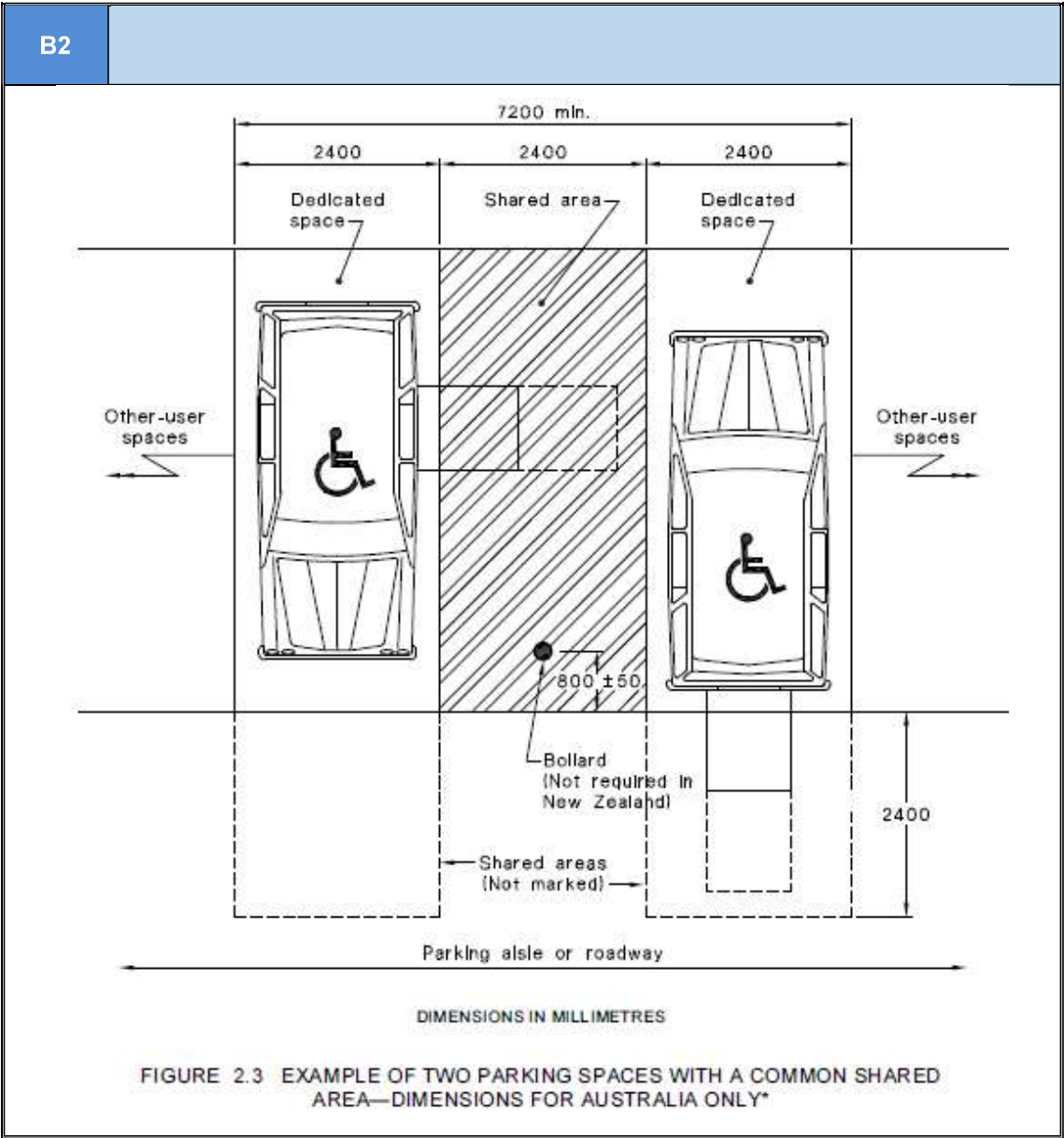
This report has been based on the following design documentation.

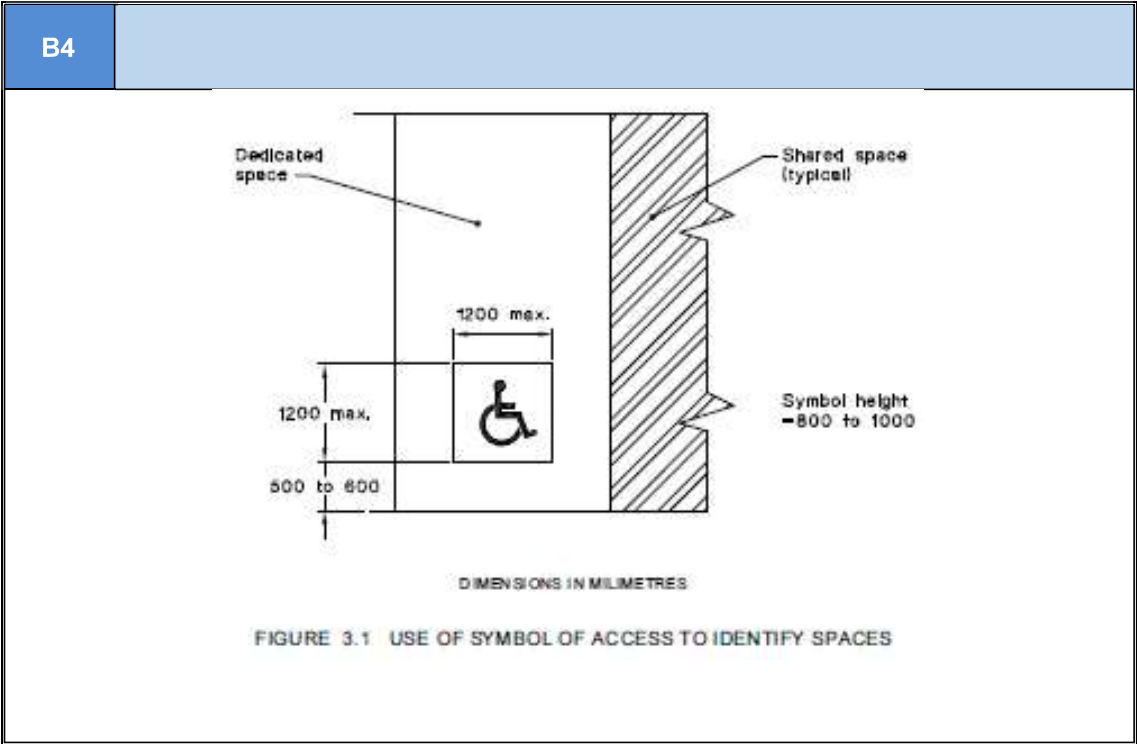
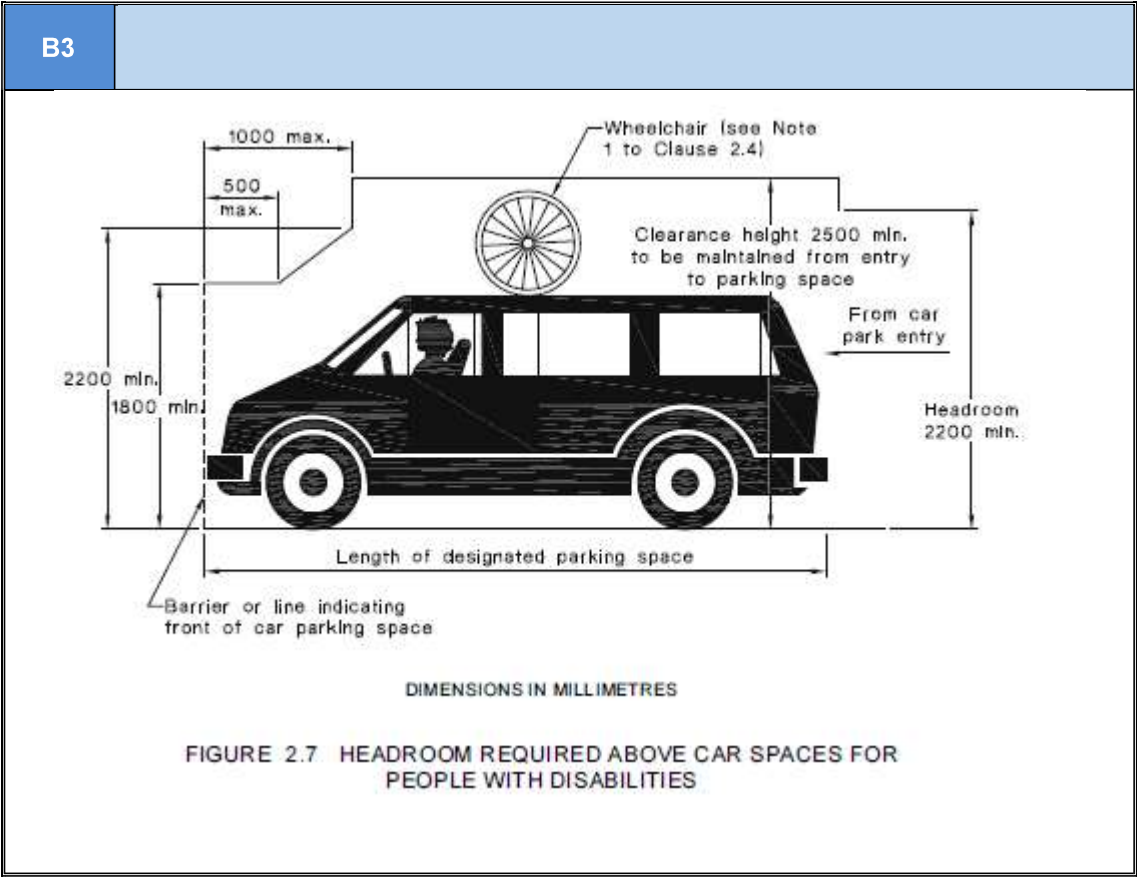
Table 6. Architectural Plans

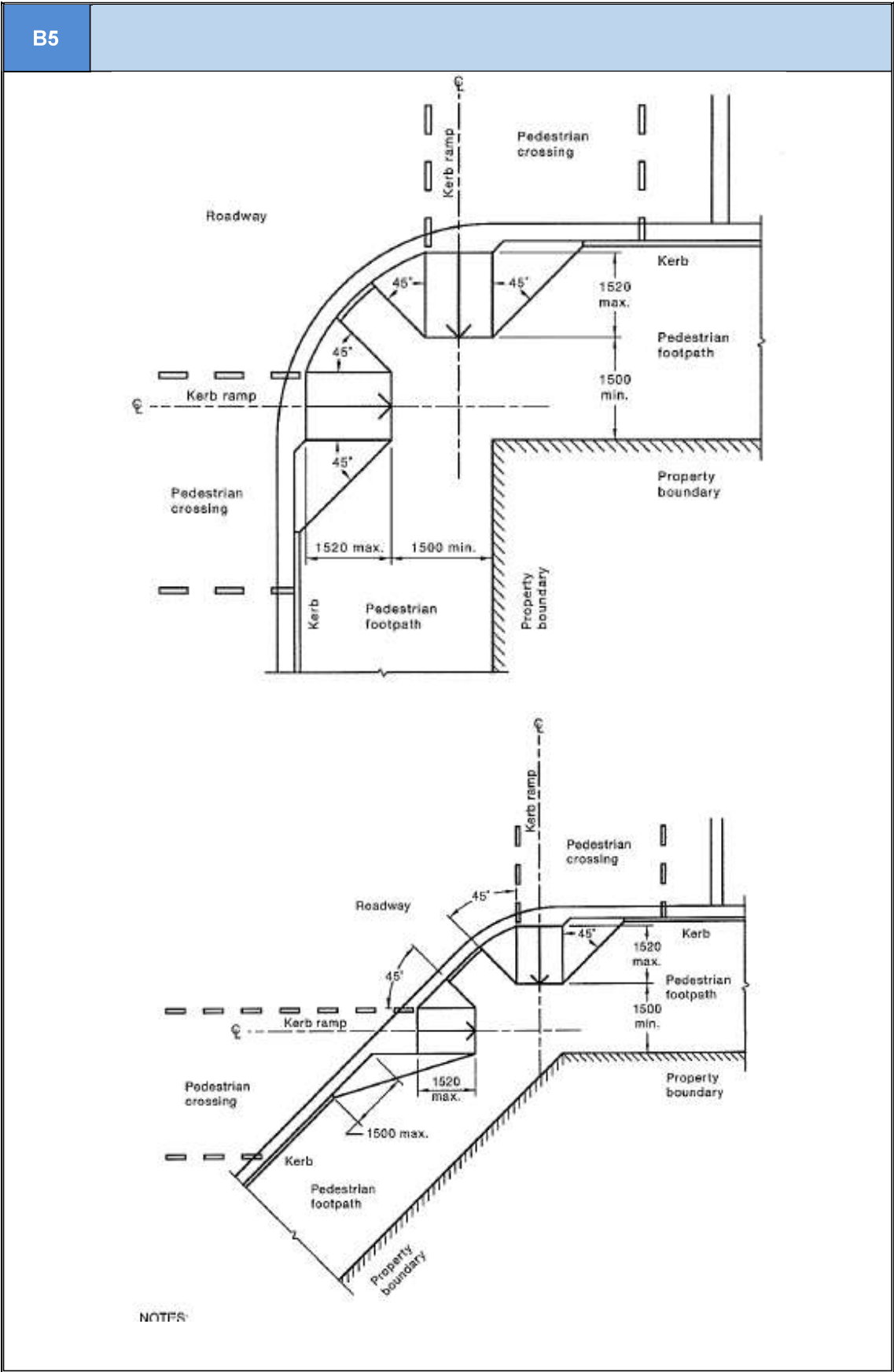
Architectural Plans Prepared by Grimshaw Architects LLP			
Drawing Number	Revision	Date	Title
A-00-1001	2	06.03.20	Cover Sheet
A-02-1004	2	06.03.20	Site Plan
A-03-1001	5	26.03.20	Lower Ground
A-03-1002	5	26.03.20	Ground Floor
A-03-1003	Not given	Not given	Mezzanine
A-03-1004	2	06.03.20	Roof
A-03-1005	2	18.03.20	Car Park

ANNEXURE B - FIGURES AND DRAWINGS SAMPLE

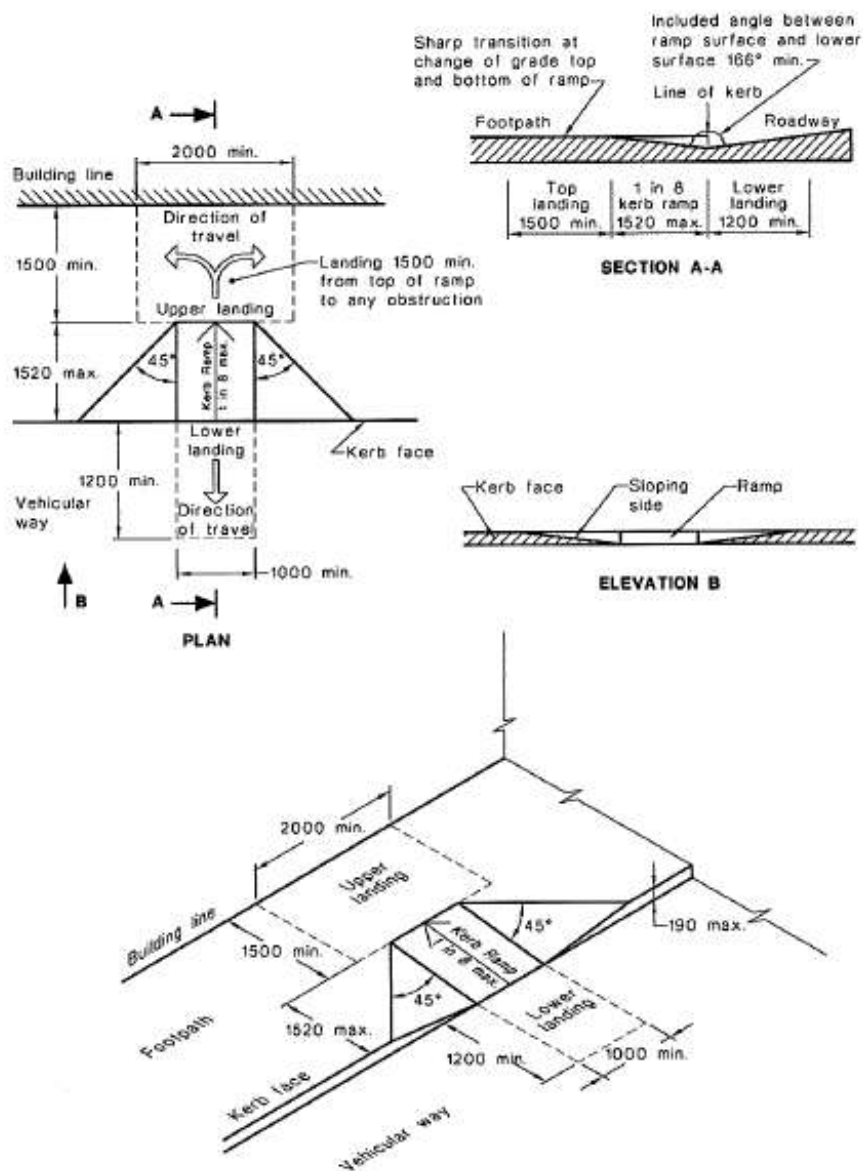








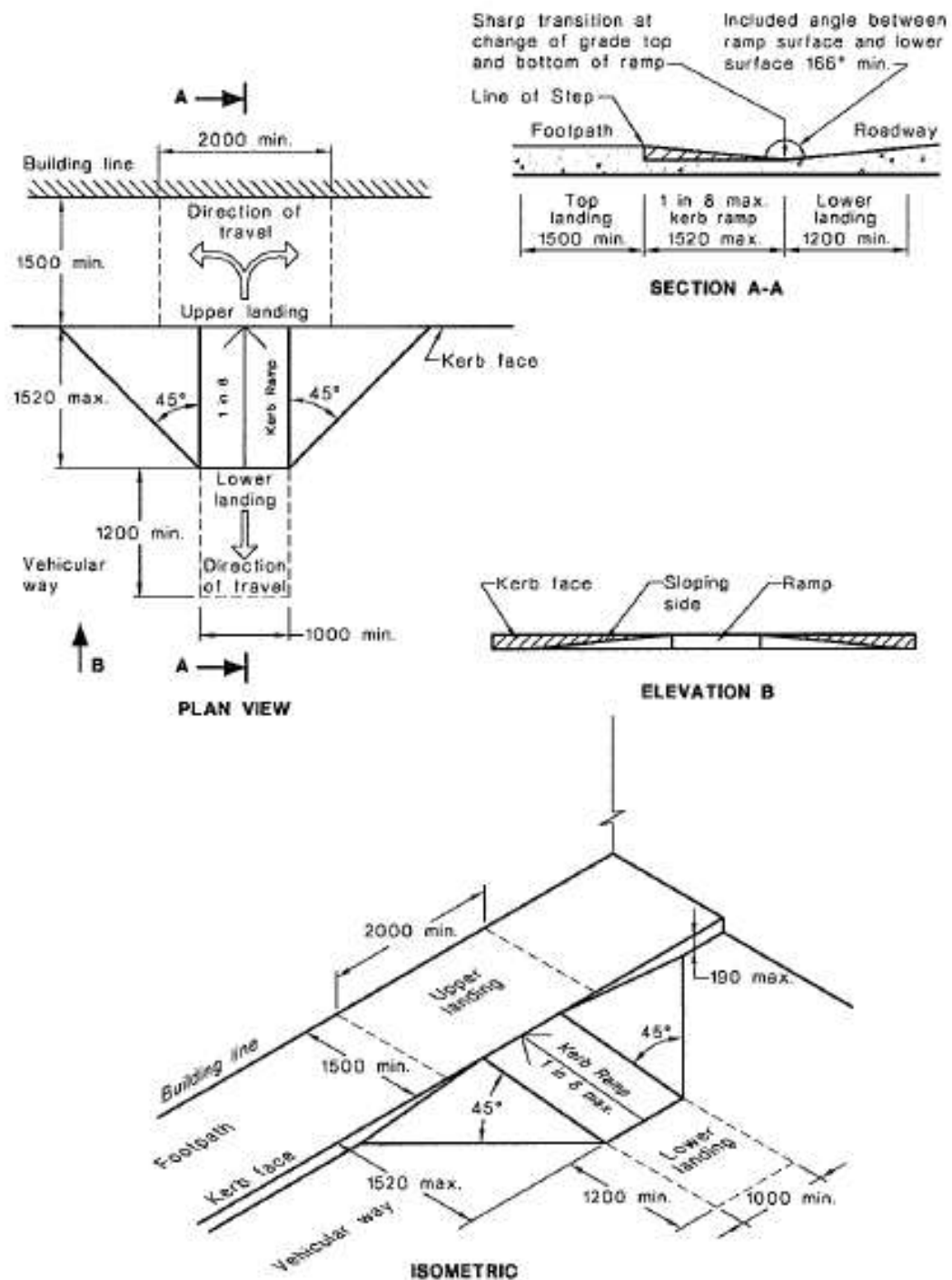
B6

**ISOMETRIC VIEW**

NOTE: Where there is no turn involved, top landing may be reduced to 1200 mm min. in length.

DIMENSIONS IN MILLIMETRES

FIGURE 24(A) INSERTED KERB RAMP



NOTE: Where there is no turn involved, top landing may be reduced to 1200 mm min. in length.

DIMENSIONS IN MILLIMETRES

FIGURE 24(B) ATTACHED KERB RAMP

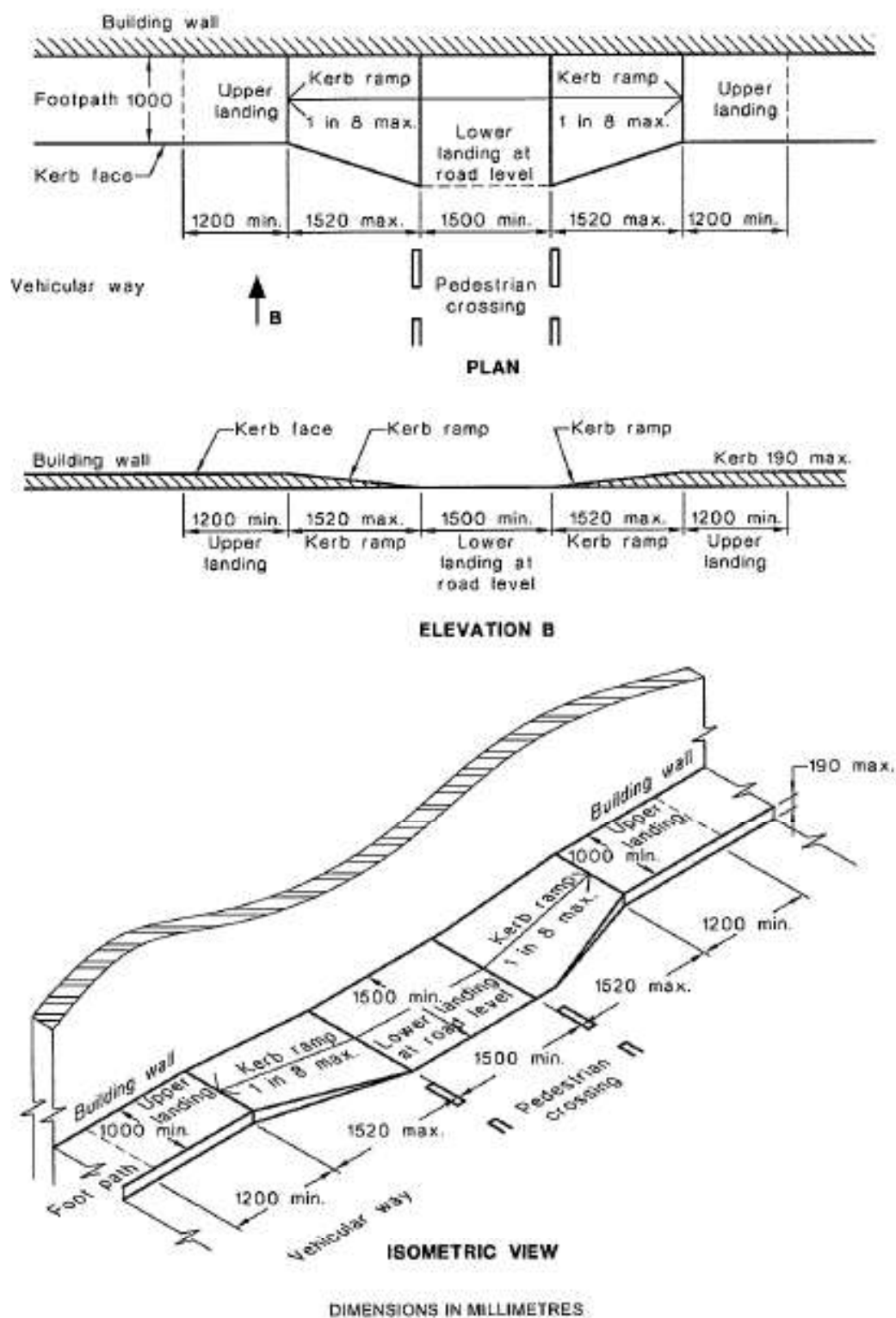
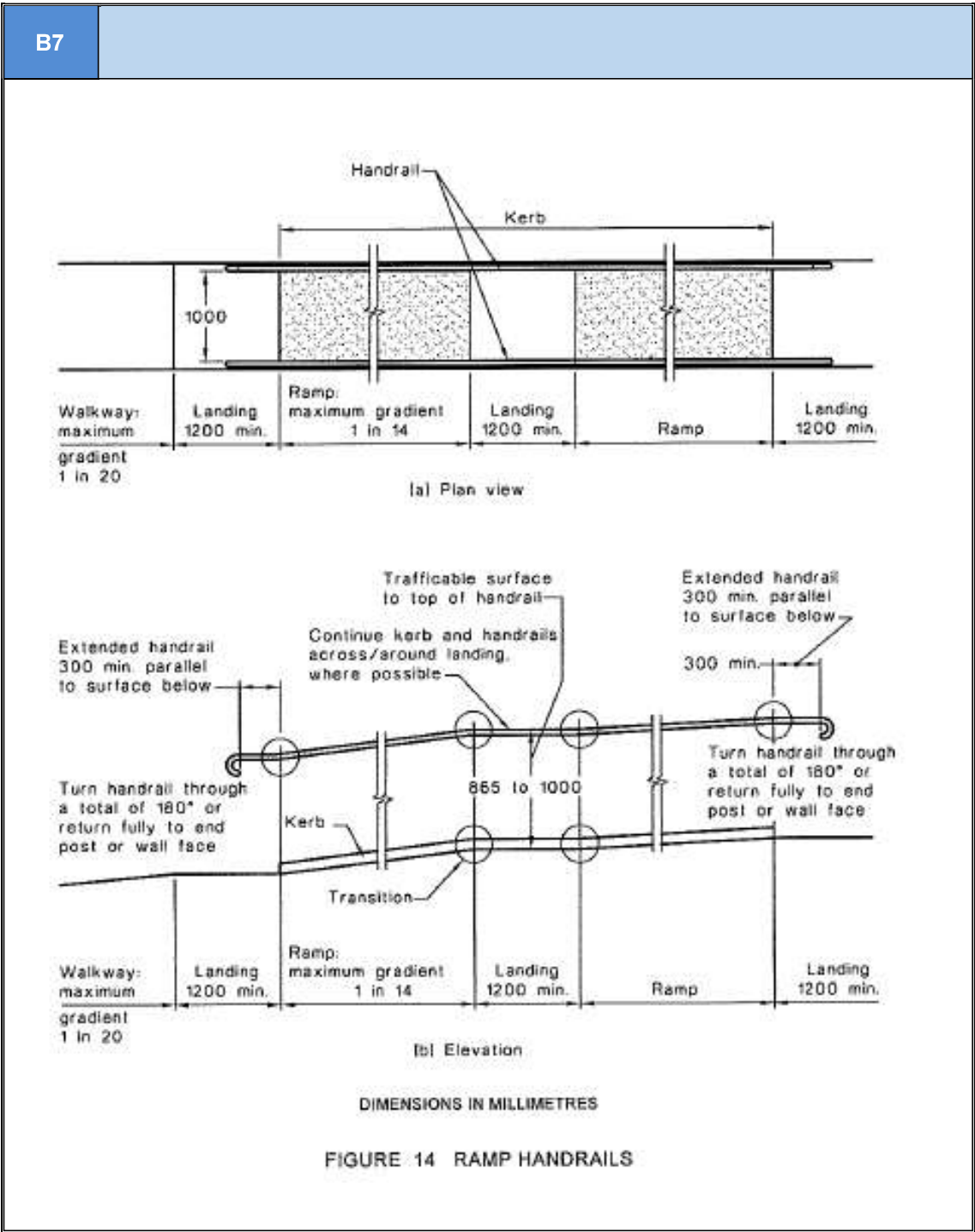


FIGURE 24(C) IN LINE KERB RAMPS—NARROW FOOTPATHS



B8

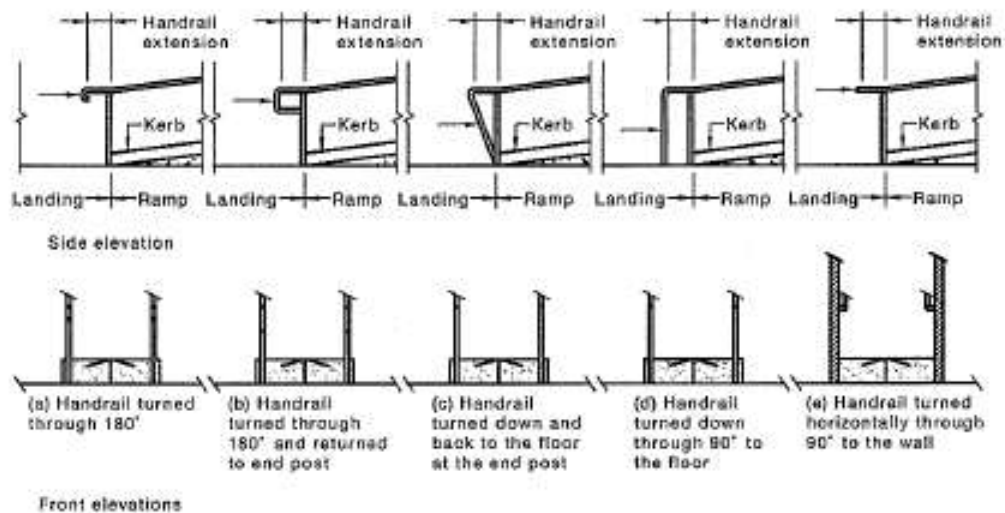
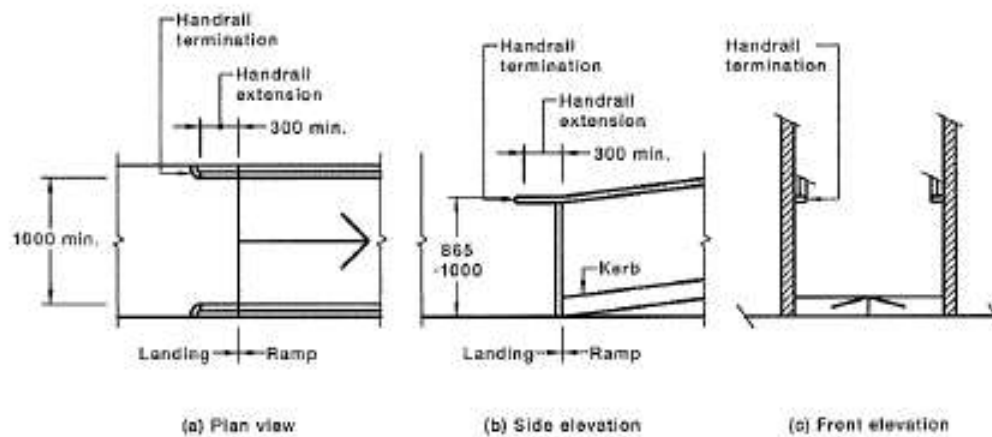


FIGURE 15(A) RAMP HANDRAILS—EXAMPLES OF HANDRAIL TERMINATIONS



DIMENSIONS IN MILLIMETRES

FIGURE 15(B) RAMP HANDRAILS—DETAIL FOR HANDRAILS TERMINATED BY TURNING HORIZONTALLY THROUGH 90° TO THE WALL

B9

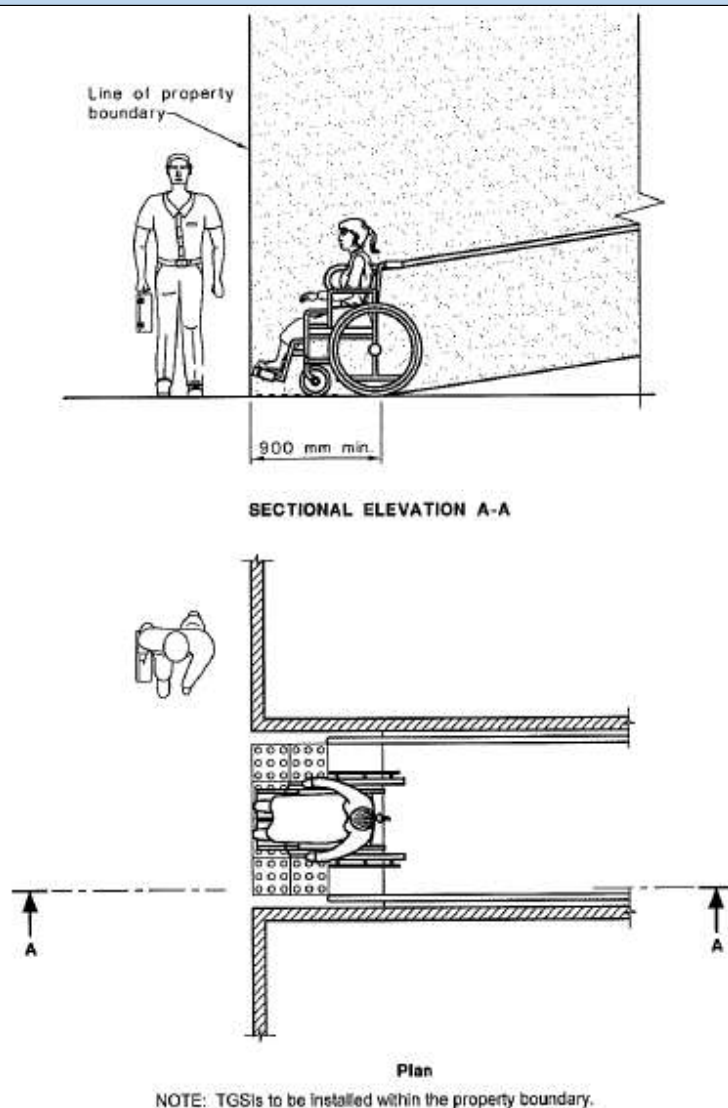
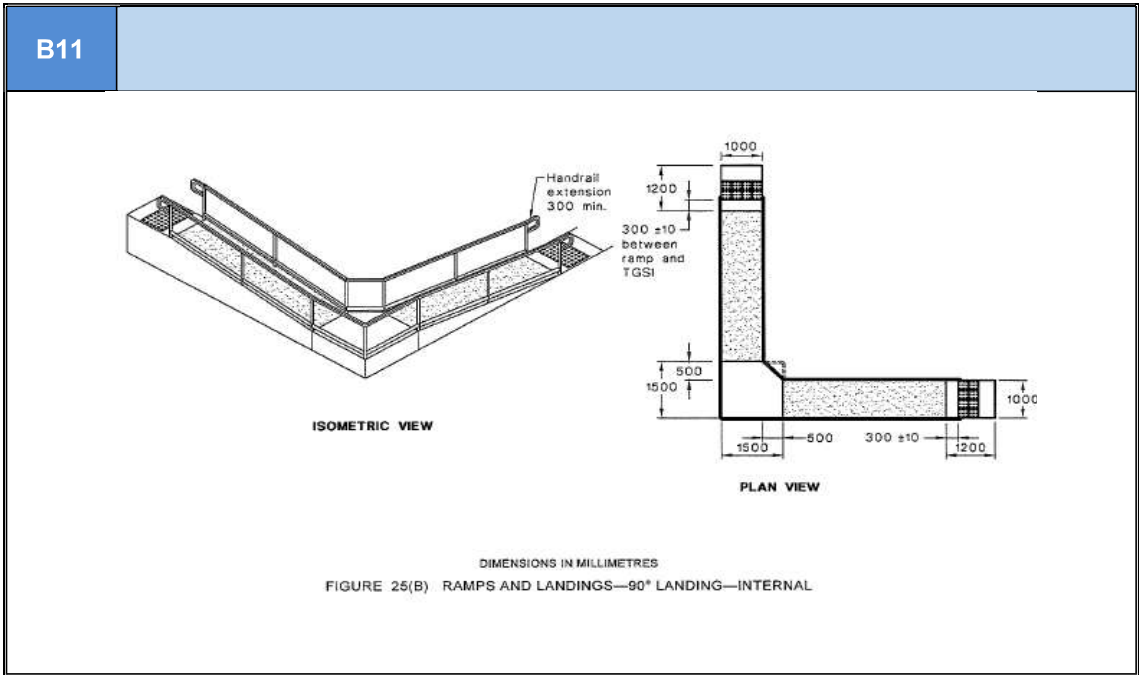
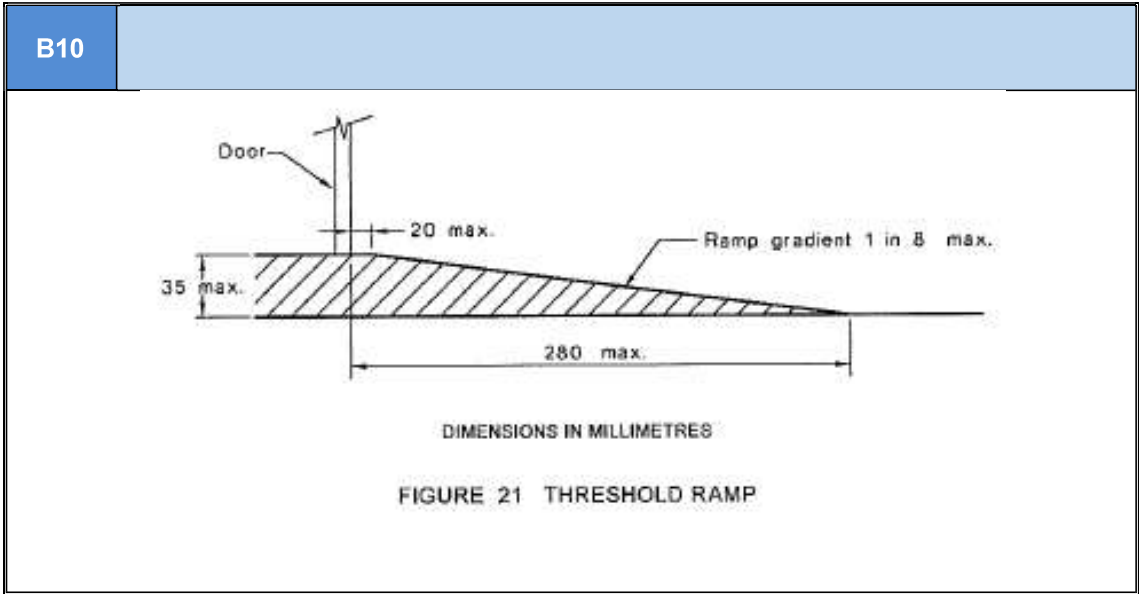


FIGURE 16 LOCATION OF RAMP AT A BOUNDARY TO PREVENT PROTRUSION OF HANDRAILS AND TACTILE GROUND SURFACE INDICATORS (TGSIs) INTO A TRANSVERSE PATH OF TRAVEL



B12

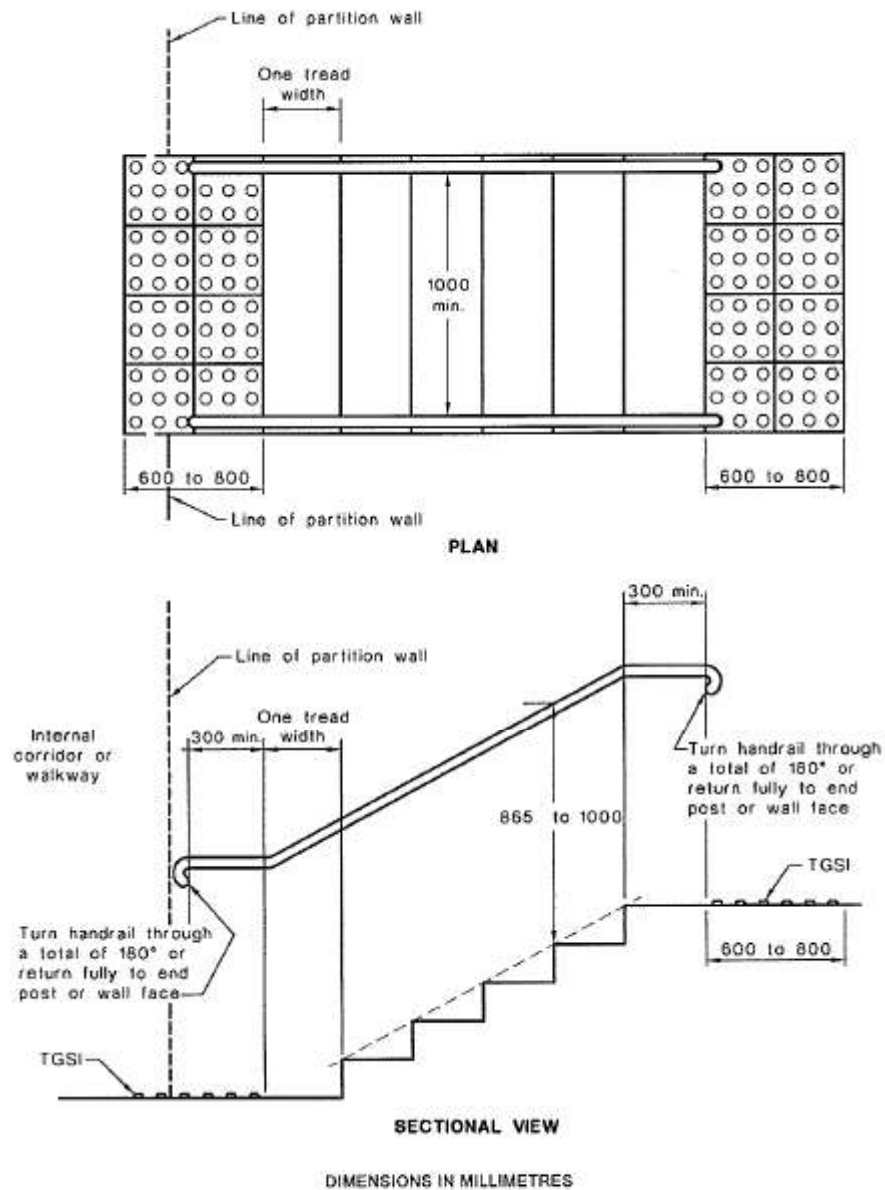
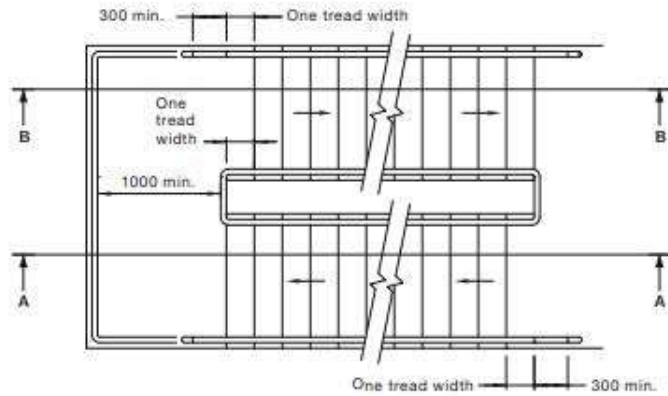


FIGURE 26(B) STAIRWAY LOCATION AND HANDRAIL EXTENSIONS AT END OF STAIRWAY OTHER THAN AT LINE OF BOUNDARY

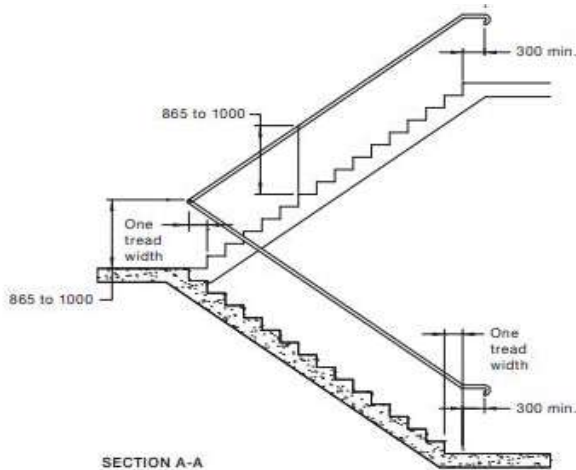
B13



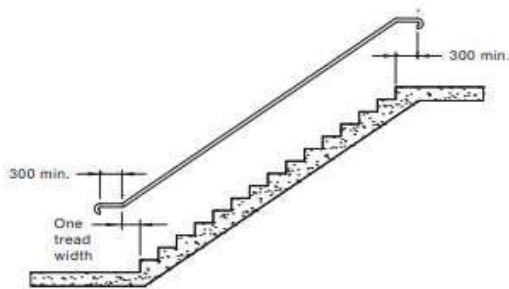
(a) Plan

DIMENSIONS IN MILLIMETRES

FIGURE 28 (in part) HANDRAILS TO STAIRS WITH INTERMEDIATE LANDINGS



SECTION A-A

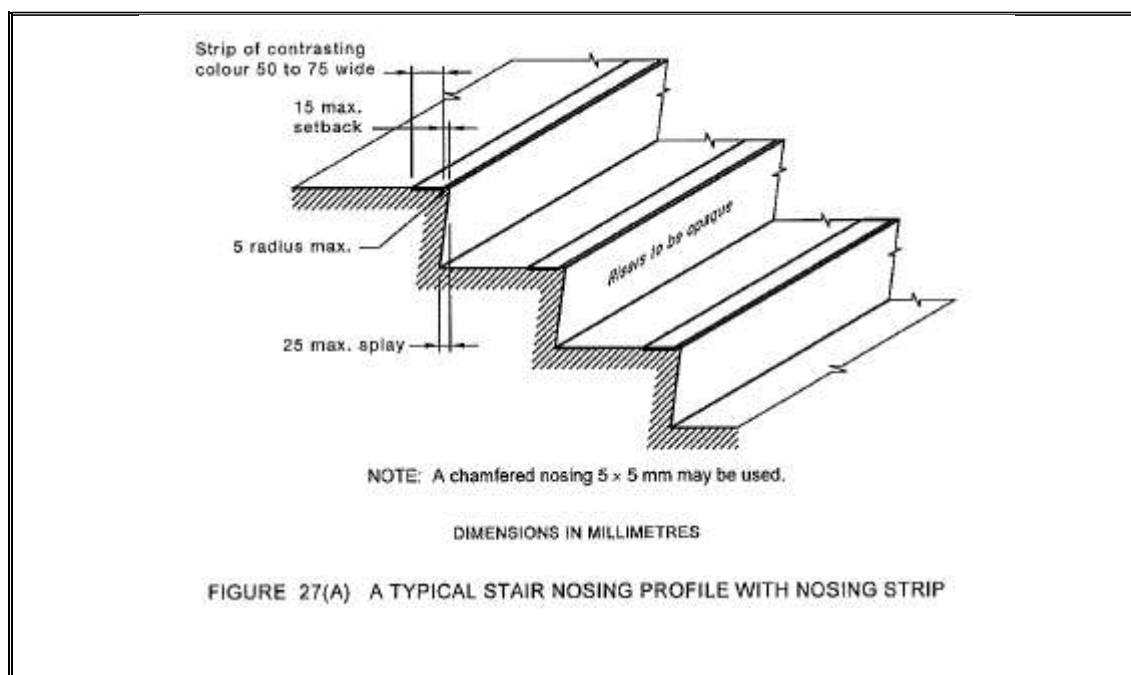


SECTION B-B

(b) Sections

DIMENSIONS IN MILLIMETRES

FIGURE 28 (in part) HANDRAILS TO STAIRS WITH INTERMEDIATE LANDINGS



Appendix 16: Design Jury Report

DESIGN EXCELLENCE //

JURY COMMENTS

Aquatic Leisure Centre Parramatta

Date of Issue:	20 March, 2019
Architects:	Andrew Burges Architects, Grimshaw Architects and McGregor Coxall
Design Competition Reference Number:	DC/3/2018
Drawing Reference Number (TRIM):	D07329028
Jury members:	Kim Crestani, City Architect, City of Parramatta Council Joshua French, Director, Parklands Development and Strategy, Parramatta Parklands Trust Peter Poulet, Central City District Commissioner, Greater Sydney Commission (Proponents Representative)

Project History

Design Competition Held:	29 March 2018
Design Excellence Awarded:	26 November 2018
Design Jury Update #1 (Presentation)	29 January, 2020
Design Jury Update #2 (Presentation)	11 March, 2020

Background

- The Design Excellence Jury was reconvened to review and comment on the design development undertaken by the Design Excellence Competition winning architects, **Andrew Burges Architects, Grimshaw Architects and McGregor Coxall**.
- This purpose of this meeting (11 March 2020) was for the design team to respond to the Jury's previous comments, dated 29 January 2020.

General Comment

- Based on the quality of the presentation and the design thinking presented, the Jury are of the view that the current Value Enhancement (VE) process is resulting in a stronger, more rationalised proposition.
- **The Jury are supportive of the design development undertaken since original Design Competition, and recommend that a Development Application be lodged with Council.**
- As part of the DA assessment, the Jury will undertake a detailed review of all submitted architectural drawings and technical reports. It is recommended that the applicant submit a Design Excellence Report that demonstrates how the proposal responds to the Jury's original Design Development conditions (see attached), and the comments provided within this advice.
- The Jury considers that the above matters are required to be resolved in order for the Development Application scheme to exhibit "Design Excellence".

- Based on the material presented at the 2nd Jury Update meeting, held on the 11 March 2020, the Jury provide the following comments:

	Design Jury Update #1 – Jury’s original comments 29 January 2020	Design Jury Update #2 – Jury response to submission 11 March, 2020
1	<p><u>User Groups</u></p> <ul style="list-style-type: none"> The Jury want to ensure that Councils client-side user groups are properly engaged throughout the design development process. Please ensure that client-side representatives are continued to be invited to all future jury presentations. Prior to the award of Design Excellence, the Jury request that written confirmation is provided from Councils Client-Side Lead that the proposal is “fit for use”, and appropriate to the needs of City of Parramatta. 	<p><u>Jury Response to submission</u></p> <ul style="list-style-type: none"> The Jury note that there has been a reduction in pool sizes and gym areas to align the functional brief to the project budget. Council’s General Manager, Social and Community Services (David Moutou) was not in attendance at the Jury Presentation provide comment on the reductions. As per the Jury’s previous comment, prior to the award of Design Excellence, the Jury request that written confirmation is provided from Councils Client-Side Lead (David Moutou) that the proposal is “fit for use”, and appropriate to the needs of City of Parramatta. This documentation should be submitted as part of the Development Application.
2	<p><u>Cost Plan</u></p> <ul style="list-style-type: none"> Representatives from Council’s Property Development Group (PDG) advised the Jury that the revised cost plan will soon be submitted. The Jury request that the updated cost plan is provided to the Jury. 	<p><u>Jury Response to submission</u></p> <ul style="list-style-type: none"> The Jury notes the receipt of the revised cost-plan that confirms that the scheme presented is in-line with the development budget.
3	<p><u>Pool Entry</u></p> <ul style="list-style-type: none"> The Jury recommend that the main pool entry from Park Parade needs to be further emphasised. The current design is more compressed and discreet than the competition scheme, and the Jury are of the view that the previous café/entry solution had a better relationship to the entry lawn. The main entry to the pool hall should be logical and overt. Lots of people will walk from Parramatta Station to the pool. Similar, the entry from the public carpark (north) needs to be integrated along the main arrival axis. The Jury also would like to better understand how access for large groups will work (i.e – swimming carnivals), and that the arrival spaces have capacity to handle such events. 	<p><u>Jury Response to submission</u></p> <ul style="list-style-type: none"> The Jury are supportive, in principle, to the current designs of the Park Entry and the Forecourt Entry. The architect confirm that they will consider the following items as part of design development: <ul style="list-style-type: none"> The potential for a strip window into the café from the Park Entry, Reduction in height and improved articulation of the northern gabion wall at the Forecourt Entry, Consideration for increased shelter (sun / rain) at Forecourt Entry, and Refinement of ground levels at entries that avoids the use of stairs.

4	<p><u>Terrace Concept</u></p> <ul style="list-style-type: none"> The Jury consider the “terrace concept” to be a very powerful concept, which has the potential to become a beautiful new public space for Parramatta. However, the Jury would like to better understand how this space interfaces with the upper level “ring” walkway, and how this space encourage the public to have a “coffee in the amphitheatre” from the pool café, and how the proposed levels and retaining walls relate to the surrounding spaces, including Park Parade and the Park. 	<p><u>Jury Response to submission</u></p> <ul style="list-style-type: none"> The Jury is supportive of the developed concept of the Front Terrace. The Front Terrace is now intended to be a non-trafficable, planted berm. The concept of “reading the ring through the trees” is powerful and will rely on the strength of the landscape approach and selected plantings. The Jury is supportive of the design approach for the café, which is now clearly “in the pool”, and becomes a “zen, unexpected space”. The Jury are supportive of the current approach to boundary fencing, that is only located around the publicly accessible “ring”. The current approach to boundary fencing needs to be maintained as the project develops.
5	<p><u>Shade + Landscaping</u></p> <ul style="list-style-type: none"> The Jury recommend that more shading is required for the outdoor pool, lawn and public terrace. The current scheme, with increased hard stand is supported, but more input from the Landscape Architect is required, and a range of shade solutions explored (including large canopy trees). 	<p><u>Jury Response to submission</u></p> <ul style="list-style-type: none"> The developed concept landscape design of the outdoor pool is supported, including the wetland garden and provision of fixed shade umbrellas. The provision of 3 x large canopy trees within the outdoor lawn is strongly supported. The Jury are supportive of the 3 x wetlands/raingardens proposed: <ul style="list-style-type: none"> Pitt Street Park Entry Raingarden (subject to consultation with PPT), Entry Forecourt Raingarden, and Wetland Garden in Aquatic Centre.
9	<p><u>Pool Hall</u></p> <ul style="list-style-type: none"> The re-planning of the main pool hall is supported, and the rationalised compressed spaces have a “taughtness” that is exciting to see. The Jury note that Council consider that the Learn to Swim pool to be very “valuable” and that the size/capacity of this pool should be maximised. The Jury note that Warren Green Consulting is advising Council on this issue. 	<p><u>Jury Response to submission</u></p> <ul style="list-style-type: none"> The Jury note that the learn to swim pool has been retained at 12m.
10	<p><u>Cut and Fill</u></p> <ul style="list-style-type: none"> The approach to balancing cut and fill is supported. However, the approach to terracing, stepping, ramping and retaining walls needs to be “fine-tuned” to the existing landscape so that as design development of the landform contains spaces within the Aquatic Centre and integrates with the adjacent Park. 	<p><u>Jury Response to submission</u></p> <ul style="list-style-type: none"> The Jury notes that this item will be addressed by the design team throughout design development. The proposal to use gabions walls is supported, however the fill/materiality should be unique to Parramatta, and be informed by the site’s heritage and landscape context. Sandstone is not the right material. The use

		<p>of recycled materials from the site's fill is encouraged.</p> <ul style="list-style-type: none"> The height and scale of the gabion walls at both the Park Entry and Entry Forecourt should be carefully considered. The Entry Forecourt gabion wall is approx. 5m tall at the moment and is an unnecessarily dominant feature of the Park Parade elevation.
11	<p><u>ESD</u></p> <ul style="list-style-type: none"> The Jury would like more details regarding the proposed Environmentally Sustainable Design measures to be delivered with this project. The Jury want to emphasise that for a public building that has been through a Design Excellence process, the ESD measures should be maximised. 	<p><u>Jury Response to submission</u></p> <ul style="list-style-type: none"> This item has not been addressed. Council's Environmental Outcomes Manager has recommended to that Council should prioritise energy and water savings. The Jury request that Council's independent ESD advisor (FLUX) undertakes a review of the ESD initiatives at DA stage.
12	<p><u>Public Art</u></p> <ul style="list-style-type: none"> The Jury strongly recommend that an artist is selected to develop the central "ring" as a public art project. 	<p><u>Jury Response to submission</u></p> <ul style="list-style-type: none"> This item will be addressed throughout design development.
13	<p><u>Views</u></p> <ul style="list-style-type: none"> The Jury request that a Park Parade elevation is provided that shows how the Wellness Centre and public carpark appears from the streetscape. A detailed visual assessment will be required at DA stage that assess human views/experiences, including from the Park into the Aquatic Centre (including skylights and infrastructure) and heritage significant view lines. 	<p><u>Jury Response to submission</u></p> <ul style="list-style-type: none"> The Jury is supportive of the refined materials palette as indicated in the Park Parade Elevation.
14	<p><u>Pedestrian Connections</u></p> <ul style="list-style-type: none"> The Jury would like the landscape plan to better illustrate how public access is provided around the site, and how it integrates with Mays Hill Master Plan. Particularly for pedestrians walking along Park Parade, the ridgeline to the south of the site, the Prabha Memorial Walk and around the public circle "ring" overlooking the outdoor pool. 	<p><u>Jury Response to submission</u></p> <ul style="list-style-type: none"> This item was partially addressed by the submission. It is recommended that a pedestrian movement diagram of the wider Mays Hill context is submitted at DA stage. Site works and landscape improvements should be contained to within the leasehold area.
15	<p><u>Carparking</u></p> <ul style="list-style-type: none"> The Jury request that the design of the carparking adjacent to Park Parade is presented and discussed at the next Jury Presentation. 	<p><u>Jury Response to submission</u></p> <ul style="list-style-type: none"> Option 01 – Integrated Kiss and rise is the Jurys preferred option. The proposal for an Entry Forecourt Raingarden is strongly supported, as it provides a strong visual separation between the carpark and the aquatic centre. The Jury recommend that parking along the north-western boundary is removed to improve the transition to the broader Mays Hill landscape within Parramatta Park.

		<ul style="list-style-type: none"> The Jury request further justification for the number of required parking spaces. It is important to understand the assumptions made by Warren Green Consulting, and for Council to explore strategies that decrease the reliance on driving to the aquatic centre.
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The Jury are supportive of the proposal as presented, and look forward to reviewing the detailed documentation once a Development Application is lodged with Council.

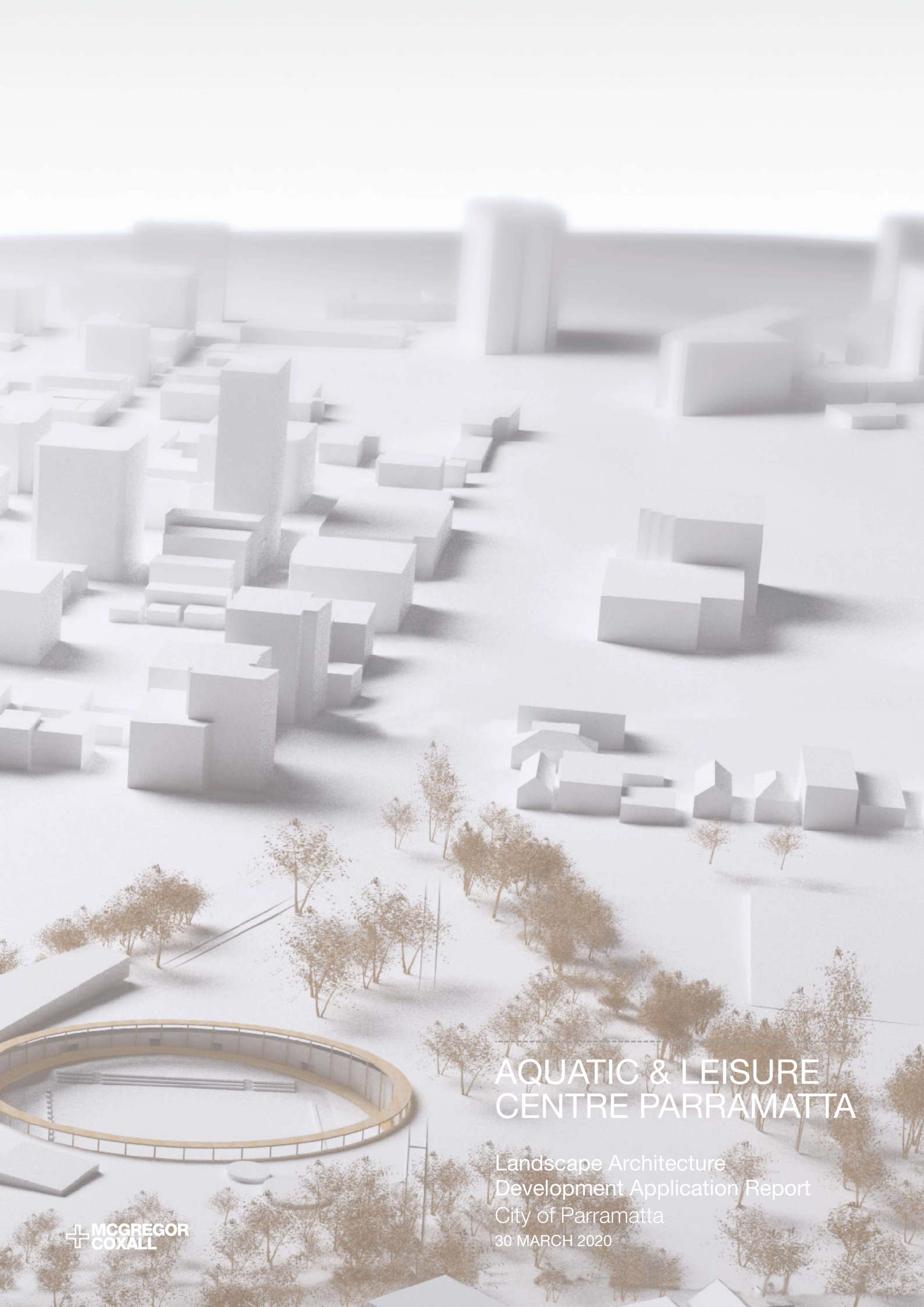
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City Architect
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Joshua French, Director, Parklands
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Peter Poulet, Central City District Commissioner,
Greater Sydney Commission
(Proponents Representative)

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Josh Henderson, Grimshaw Architects
Matthew Ritson, McGregor Coxall
Eoghan Kavanagh, Council's Property Development Group
Ben Chaplin, Council's Property Development Group
David Hands, Council's Property Development Group
Helen Papathanasiou, City of Parramatta Council
Guy Pinkerton, City of Parramatta Council
(apology) – Kim Crestani, City of Parramatta Council

Appendix 17: Landscape Report



AQUATIC & LEISURE CENTRE PARRAMATTA

Landscape Architecture
Development Application Report
City of Parramatta
30 MARCH 2020

Project Client: City of Parramatta
Project Name: Aquatic & Leisure Centre Parramatta
Project Number: 807SYD

Revision:	Status:	Date:	by:	Checked:
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DISCLAIMER

This Study is for the confidential use only of the party to whom it is addressed (the client) for the specific purposes to which it refers. We disclaim any responsibility to any third party acting upon or using the whole or part of its contents or reference thereto that may be published in any document, statement or circular or in any communication with third parties without prior written approval of the form and content in which it will appear. This Study and its attached appendices are based on estimates, assumptions and information sourced and referenced by McGregor Coxall and its sub consultants. We present these estimates and assumptions as a basis for the reader's interpretation and analysis. With respect to forecasts we do not present them as results that will actually be achieved. We rely upon the interpretation of the reader to judge for themselves the likelihood of whether these projections can be achieved or not. If financial models have been included, they have been prepared from the best information available at the time of writing, no responsibility can be undertaken for errors or inaccuracies that may have occurred both with the programming or the financial projections and their assumptions. In preparing this Study we have relied upon information concerning the subject property and/or study area provided by the client and we have not independently verified this information except where noted in this Study.

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1.0. Introduction

1.1. Background

This Landscape Architecture Development Application Report for the Aquatic and Leisure Centre Parramatta [ALCP] has been prepared in conjunction with Andrew Burges Architects and Grimshaw. The Development Application represents the progression of the Competition winning design in consultation with the City of Parramatta and the Design Excellence Jury.

1.2. Drawings

This report should be read in conjunction with the following Landscape Architectural drawings included with this Development Application:

- LD-SK-01 Landscape Masterplan
- LD-SK-02 Western Entry Plaza
- LD-SK-03 Ring Walk & Verandah
- LD-SK-04 The Park
- LD-SK-05 Section A - B
- LD-SK-06 Section C - D
- LD-SK-07 Section E - F
- LD-SK-08 Planting Palette
- LD-SK-09 Planting Palette
- LD-SK-10 Planting Palette

Figure 01. - [Opposite] View north along Jubilee Walkway/ Prabha Memorial Walk lined with Lemon Scented Gums

2.0. Site Context

The project site is located on the traditional lands of the Burramattagal who were an inland group of the Darug people. Evidence suggests the Parramatta area has been used by Aboriginal people for up to 40,000 years. In the contemporary context the site is located within the Mays Hill Precinct of the World Heritage listed Parramatta Park, one of the oldest public parks in Australia and site of the only remaining Government House.

The site is located between the suburb of Westmead and and the western fringe of the Parramatta CBD, approximately 1.2km west of Parramatta Train Station. The site is bounded by Park Parade and the T1 Western Line Rail corridor to the north, Pitt Street to the south east with Parramatta High School located adjacent the southern boundary of the project site.

The site sits on part of the former Parramatta Golf Course which operated from 1957-2015. The golf course has heavily influenced the site character with tree belts following former fairways as well as tees and greens still discernable in the landscape.

Following the closure of the golf course, the NSW Government identified the Mays Hill Precinct as the preferred location for an Aquatic and Leisure Centre to replace the Parramatta Swimming Centre, which closed to make way for the new Western Sydney Stadium on the eastern edge of Parramatta Park.

Parramatta Park Trust completed the Mays Hill Precinct Master Plan and identified the preferred site within the precinct for the Aquatic & Leisure Centre. The Master Plan set out the design principles to be used to guide the character of the centre. These included;

- Conceal the built form and fencing within landform
- Use landform to contain space
- Design entries and amenities so they interface with the park
- Locate the Aquatic Centre roof level/s below the Governor's Avenue ridgeline level so that views are of the trees and the city skyline
- Present an active interface to the Aquatic Centre from Park Parade
- Relate the Aquatic Centre entry to the Park entry and make it accessible from Jubilee Avenue
- Minimise visual impacts of carparking and bus drop off zones
- Protect the key views from the ridgeline of mays hill by setting the aquatic centre building back from the corner of Jubilee Avenue

Figure 02. - [Opposite] Context Diagram



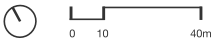
3.0. Site Analysis

3.1. Topography

The topography of the site is characterised primarily by a north east facing slope. The lowest point of the site sits at RL15 with the uppermost part at RL39. This 24m change in elevation occurs over grades ranging from relatively gentle 1 in 40 [2.5%], through to steep areas in excess of 1 in 7 [14%]. Experienced eyes can also read the colonial era furrowing of the Government Farm. The sites former use as a golf course is also evidenced by remnant tees, greens and bunkers.



Figure 03. - Existing site conditions
Figure 04. - [Opposite] View towards Parramatta CBD from upper slopes of site



3.2. Geology and Ecology

The site straddles a geological boundary between Bringelly Shale and Ashfield Shale, both part of the Wianamatta Group of Shales. Geotechnical studies indicate the Brigelly Shale overlies the Ashfield Shale. A narrow band of Minchinbury sandstone is also identified on soil mapping sheets, located between the shales.

The pre-colonial landscape of the site would have been open woodland with a grassy understorey typical of the Cumberland Plain. The ecological communities present would have been Cumberland Plain Woodland and Shale Sandstone Transition Forest, which are both listed as critically endangered in the Sydney Basin. The site contains no remnant vegetation due to clearing for past site uses, however it does contain a number of significant locally indigenous tree plantings including;

- *Eucalyptus tereticornis* [Forest Red Gum],
- *Syncarpia glomulifera* [Turpentine]

- *Eucalyptus maculata* [Spotted Gum]
- *Eucalyptus amplifolia* [Cabbage Gum]

Tree plantings with high landscape significance are also found within the Mays Hill Precinct. These trees have historically been used to provide landscape wayfinding markers or to define key entry points and include;

- *Araucaria cunninghamii* [Hoop Pine]
- *Araucaria bidwillii* [Bunya Pine]

A mature informal avenue of *Corymbia Citriodora* [Lemon Scented Gum] planted along the former Jubilee Avenue [now Prabha Memorial Walk] date back to 1937, although many trees are much younger than this and possibly self sown.

Many trees across the site have been planted in association with the former golf course, lining fairways, tees and greens. They consist of a mix of locally indigenous, native and exotic species.



Figure 05. - [Left] Governor's Carriageway with *Euc Tereticornis* [Right] View west along Jubilee Walkway/Prabha Memorial Walk

3.3. Heritage

The project site and wider Parramatta Park have significant Aboriginal and European cultural heritage values.

The Parramatta River was a significant resource for the Burragamatta people and Parramatta Park holds a number of significant geological and landscape features that show how ancient Aboriginal people lived 35,000-40,000 years ago.

The local area, including the subject site, was transformed dramatically shortly after colonisation in 1788 when agricultural pursuits began in association with the second Government Farm at Rose Hill. In 1816 Government House, within the current Parramatta Park, became Governor Macquarie's principal place of business for the colony.

Parramatta Park was established following the Parramatta Domain Act in 1857 which saw Government House, gardens and domains with no less than 200 acres handed to the people of Parramatta.

3.4. Access

The site can be accessed directly from Park Parade to the north or via the Jubilee Walkway/Prabha Memorial Walk to the east. An informal accessway follows the heritage Governor's Carriageway dating to c.1877 however, this path is interrupted by elements associated with the former golf course, including tees and a carpark. The Carriageway can also be accessed from Amos Street to the south.

The Parramatta Bike Plan identifies a number of proposed cycle routes in the immediate vicinity of the site. A regional off-road route along Park Parade, linking Parramatta and Westmead, as well as a local off-road route along Pitt Street. Both of these paths would service the ALCP well once realised.

Parramatta & Westmead Railway Stations are both approximately 1.2km from the site. A bus stop is located on Park Parade.



Figure 06. - Aerial view over Heritage Listed Parramatta Park towards Aquatic & Leisure Centre site back right

4.0. Design Philosophy

The overarching design philosophy of the competition entry consisted of three principles;

- 1. Celebrate landscape and the history of the site - linking past with future
- 2. Evoking experiences of swimming in Sydney - a pool in the landscape
- 3. Rethinking the Sydney pool typology - connecting interior with landscape

These principles have continued to drive the design as it has been developed for planning approval. Clarity is key, with the circular form of the main pool space complemented by two linear pathways that form the backbone of the site layout.

Landscape is at the fore of all experiences of the site. Each entry point is defined by landscape features and

once inside, the internal park-like setting is a core focus.

The landscape typologies utilised are simple and robust; locally native plantings, crisp lawns and functional raingardens. Paths and plaza spaces continue the material language of the internal spaces with concrete a key component. Shade is considered paramount to influence the site's microclimate and tree plantings are incorporated with seating and gathering spaces wherever possible.

The site's complex topography dictates the use of walls in a number of places. Where required, these walls are proposed to be highly textured and tactile gabion cages which will provide an opportunity to speak to the geology of the site.

The following pages explain the design strategies and site planning in further detail.



Figure 07. - [Above] Landscape Materplan [Opposite] Aerial view towards Parramatta CBD - courtesy ABA



5.0. Design Strategies

5.1. Access & Movement

Access to and movement across the site have been carefully considered to deliver an outcome that balances a wide range of desired outcomes for the project.

Two linear paths form the primary access routes through the site, complemented by additional connections at key locations.

Entry points to the ALCP are located along the Park Parade frontage at 3 locations. The main entry [1] is from the plaza which collects patrons from the carpark and drop off zone as well as pedestrians and cyclist accessing the site from the west via the Governors Carriageway. The second entry [2] is via a lift on the the lower level, under the gym, from the drop off zone on Park Parade. A third entrance [3] is accessed via the Park Parade/Pitt Street intersection and along the linear pathway through the park.

The new linear pathways intersect with an upgraded Governors Carriageway, as well as the Ring Walk which is a publicly accessible pathway.

Bicycle parking for 34 bikes is provided on Park Parade and adjacent the southern edge of the carpark. The carpark has been designed to accommodate 204 vehicles including 4 accessible spaces. There is also a dedicated emergency vehicle zone. The carpark is accessed via Park Parade.

Additional information regarding path grading is provided in the following section and diagram.

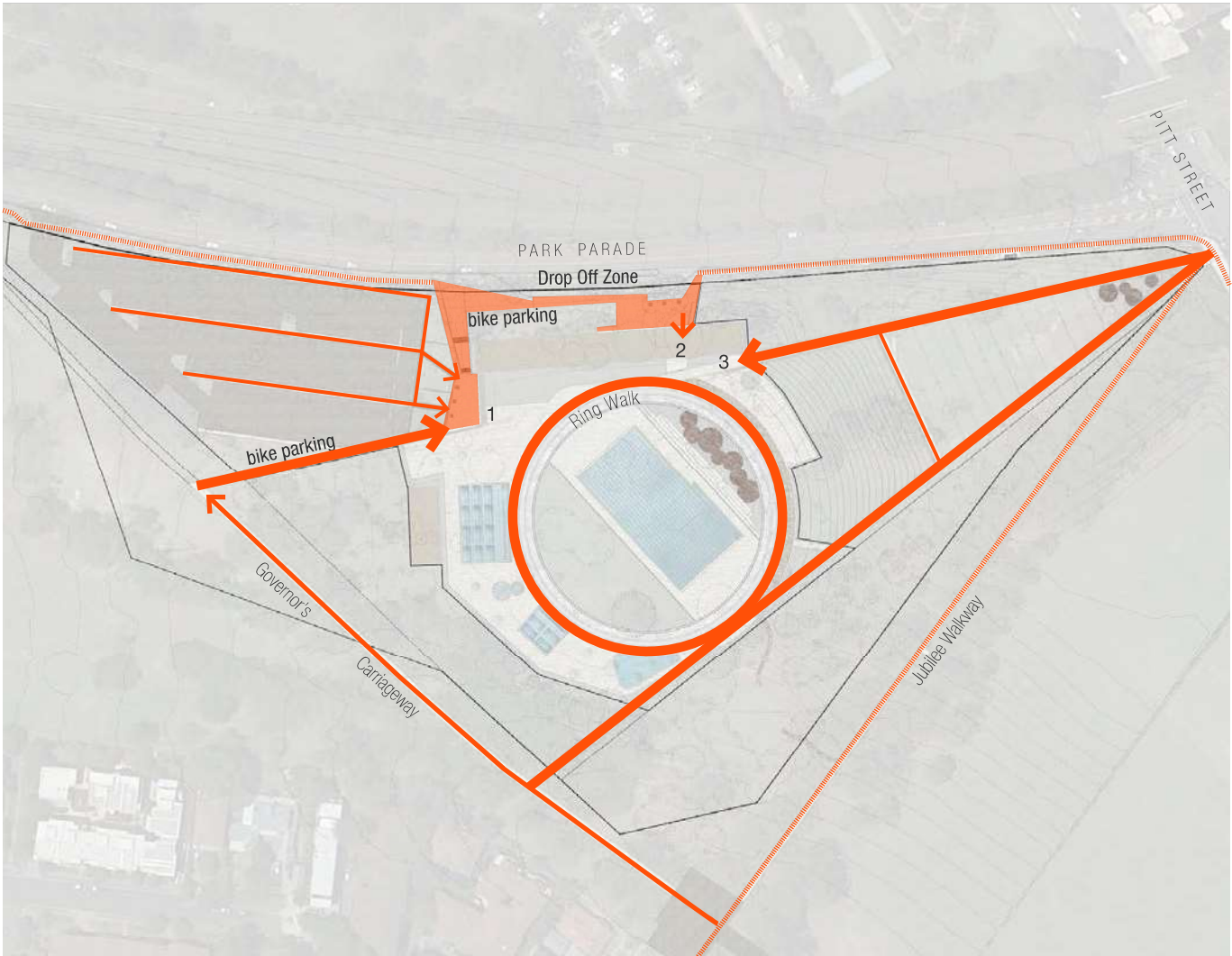


Figure 08. - Access and movement network

5.2. Grading

The site grading has been influenced by a number of factors which balance a wide range of requirements.

The existing topography presents a number of constraints in regards to grades and the design team have worked closely to reach what is believed to be the optimal balance between;

- DDA compliant access to the building
- community use of park spaces
- cut/fill ratio
- budget.

The existing topography, as well as achieving an acceptable cut/fill ratio, have heavily influenced the proposed grading.

A 1 in 4 [25%] planted berm is proposed to cover the eastern extents of the ALCP built form. This area will not be accessible to the public but provides a cloak to the building,

concealing it in the landscape. The linear paths providing access from the Pitt Street/Park Parade intersection are graded at approximately 1 in 12 [8.3%]. An existing 1 in 20 pathway along Park Parade can provide a shallower gradient to two of the ALCP entrances, where compliant ramps are located.

Where possible and suitable, excavated material will be retained on site. The planted berm plays a key role in this strategy of retaining material on site.

Where possible and in future consultation with the Parramatta Park Trust, fill material is proposed to be used to enhance the landform of the site, within the constraints of existing trees to be retained. For example where an existing golf green is located [shown orange below] this area is proposed to be further raised to better capture views to the city.

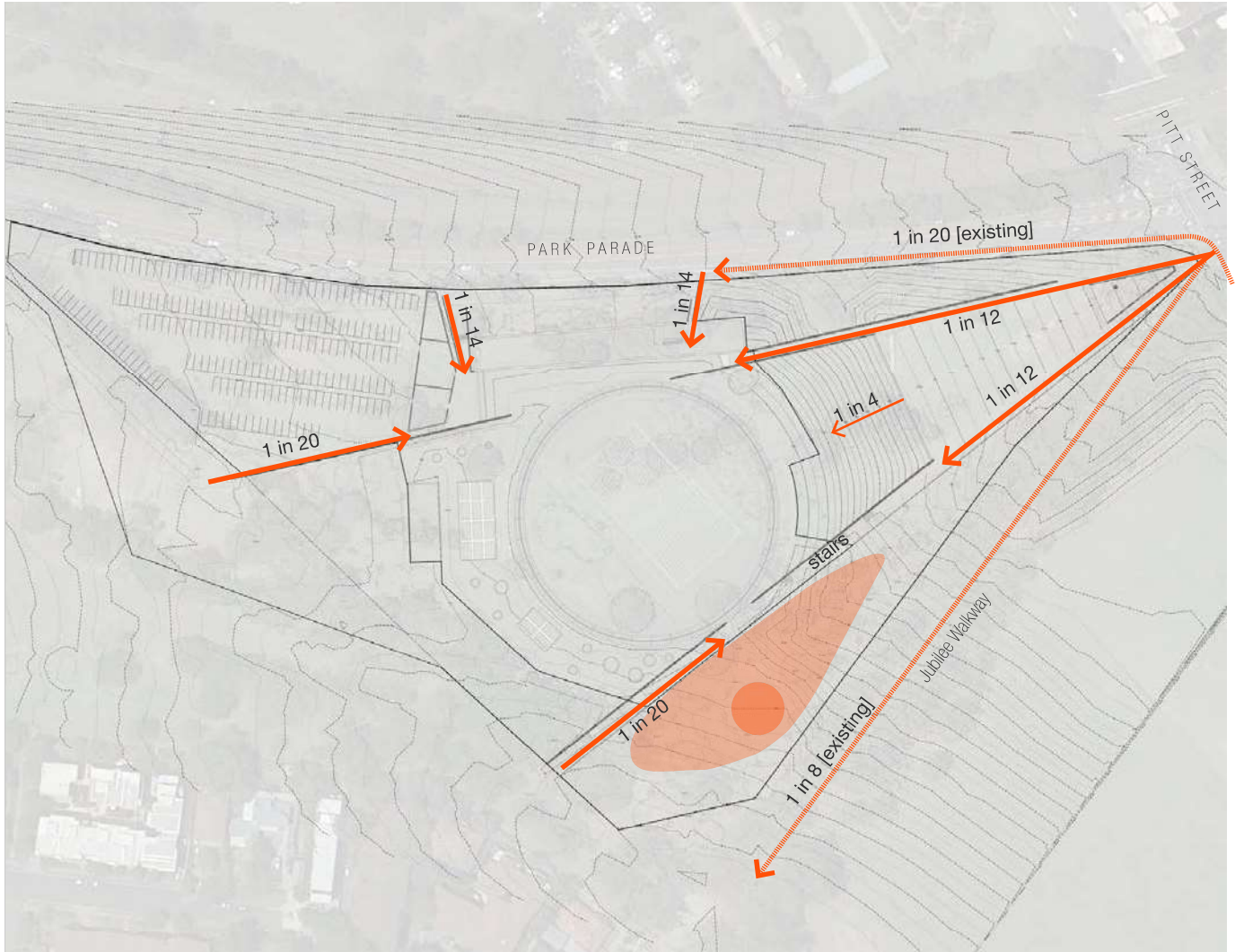


Figure 09. - Site grading

5.3. WSUD

The WSUD strategy aims to utilise water at key points in the landscape to define and enhance entry points while creating shaded, cooled microclimates. The incorporation of water also provides a connection to water on a deeper level as the community enters the site.

The strategy seeks to utilise stormwater to passively irrigate other landscape areas beyond the raingardens to maximise the benefit of every drop of rain that falls on the site. The water from the raingardens can be collected and passively distributed via subsoil lines to these additional areas to enhance growth and further influence the site microclimates.

The eastern and western entry points to the ALCP are defined by raingardens. The first is located at the eastern end of the carpark to create a threshold and buffer to the entry plaza. Patrons of the facility will cross the raingarden on raised boardwalks creating a memorable entry experience.

The second is at the entry point from the Pitt Street/Park Parade intersection. This raingarden will provide additional seating and pause point as well as the opportunity to incorporate signage and wayfinding elements.

The third raingarden is located internally within the ALCP at the eastern end of the pool deck. This raingarden is again proposed to be planted with canopy trees for the benefit of shade. There are also decks proposed to sit above the garden and provide both formal seating opportunities for the cafe and informal seating for pool patrons.

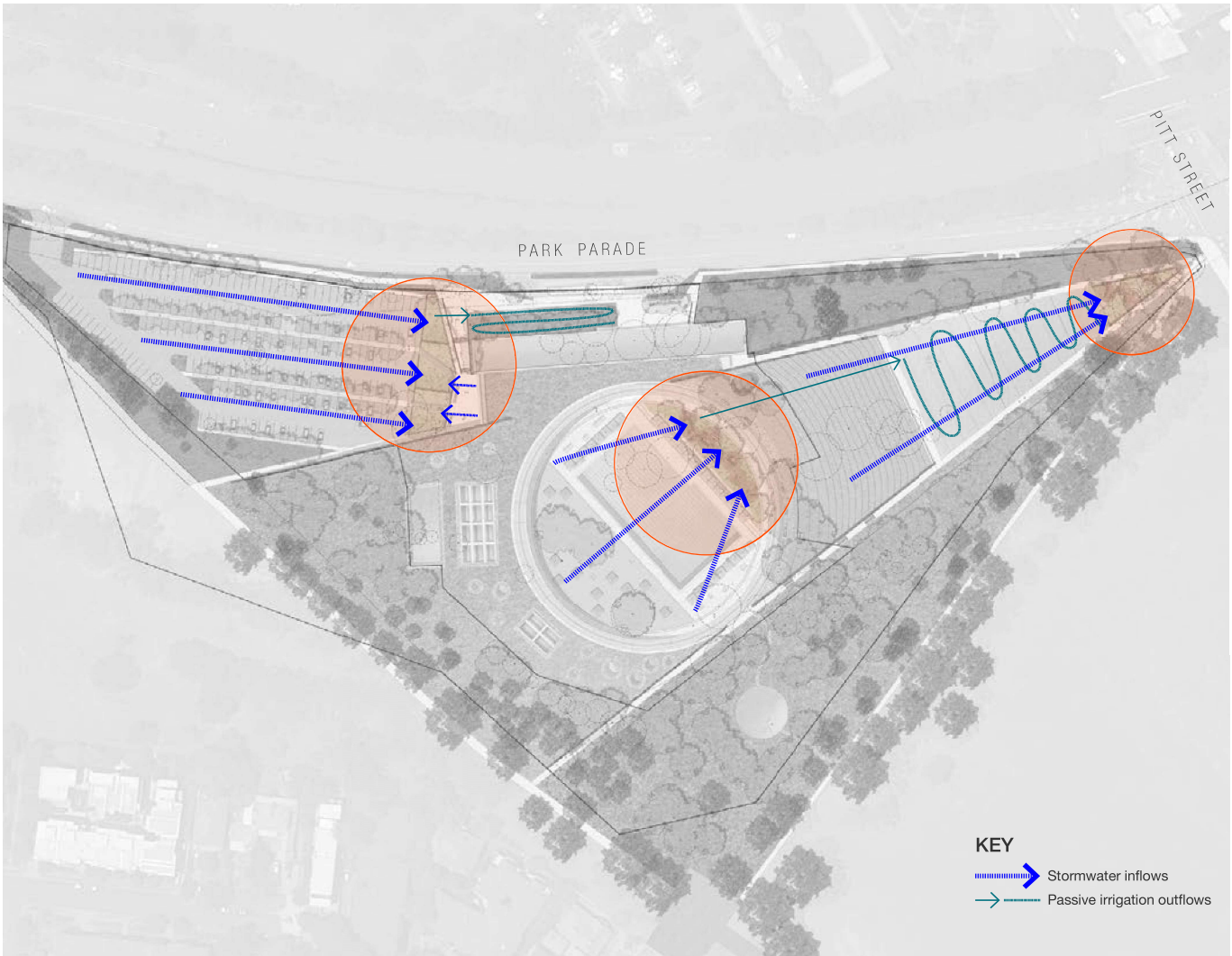


Figure 010. - WSUD Strategy

5.4. Urban Canopy

The site has a wide range of indigenous, native and exotic trees which have been planted over more than 120 years.

Most notable are the plantings along the heritage Governors Carriageway to the west of the ALCP and the informal avenue along the Jubilee Walkway/ Prabha Memorial Walk to the south east.

The design aims to enhance the value of the existing canopy by adding additional canopy, trees which will increase shading across the site, while also acting as succession planting for the existing canopy.

Tree plantings are proposed across the site and aim to provide a near continuous canopy across the eastern edge of the built form. Trees planted on the upper level will be visible from the pool deck and the trees planted around the pool deck will mature to reach up beyond the level of the Ring Walk, creating a sense of connection and continuity between the spaces.

Proposed tree plantings will predominately be from the indigenous plant communities once found on the site, including Cumberland Plain Woodland and Shale Sandstone Transition Forest, both of which are listed as critically endangered ecological communities.

Where trees are to be planted within pavement areas species will be selected to provide maximum canopy and shading potential while limiting potential damage of the pavement.

A wide range of locally native understorey shrubs, grasses and groundcovers will also be planted across the site which will vastly improve the habitat and biodiversity values of the precinct when compared to the current exotic turf cover.



Figure 011. - Urban Canopy extent

6.0. Site Planning and Program

6.1. The Park

Occupying a northeast facing slope with views to the CBD skyline, 'The Park' provides a range of new recreation opportunities for the community. These include;

- A Raingarden at the lowest part of the site adjacent the Pitt Street & Park Parade intersection. This element provides a functional entry statement for signage and wayfinding that also collects overland flow from the wider site and provides cool, shaded seating opportunities.
- A large, open lawn is bordered by walkways and native groundcover plantings, providing a clearly defined space for passive recreation.
- A landscaped berm, covered in locally native grasses and groundcovers disguises the built form, improving the ecological values of the site and providing habitat for a range of local fauna.
- Locally native planting is proposed throughout this part of the site to improve the biodiversity and habitat values of the precinct.



Figure 012. - The Park detail plan

6.2. Entry Plaza

The main entry to the ALCP will be from the western side, off Park Parade. The key components of the design are;

- A large raingarden which provides an entry threshold and buffer between the plaza and carpark. All pool patrons will experience the raingarden in some way, whether crossing over it from the carpark or by walking in its shade to access the main entry from the drop off area on Park Parade. The raingarden will influence the microclimate in this part of the site, providing shade and cooling.
- The plaza space provides a clear and legible point of entry to the building. It is intended to be as shaded as possible while providing for clear circulation and opportunities for gathering of school groups etc.
- The carpark has been designed to provide safe passage for pool patrons, particularly parents with children and those with mobility issues. Pathways are integrated between parking rows and tree planting provides shading to the walkways. These walkways

link with boardwalks over the raingarden to provide access to the entry plaza and building.

- The drop off zone on Park Parade is a shared use space providing for both pedestrian circulation and service vehicle access to critical pool infrastructure. The existing electrical infrastructure which includes poles and overhead wires are accommodated in this space.
- The existing pedestrian pathway along Park Parade is maintained wherever possible, with the new work tying in to provide clear and continuous access.
- The entire entry and plaza space is DDA compliant to ensure all members of the community are able to access the pool and interact with the key design elements.
- A lower ground access, via a lift to the pool deck, is provided at the eastern end of the drop off zone.

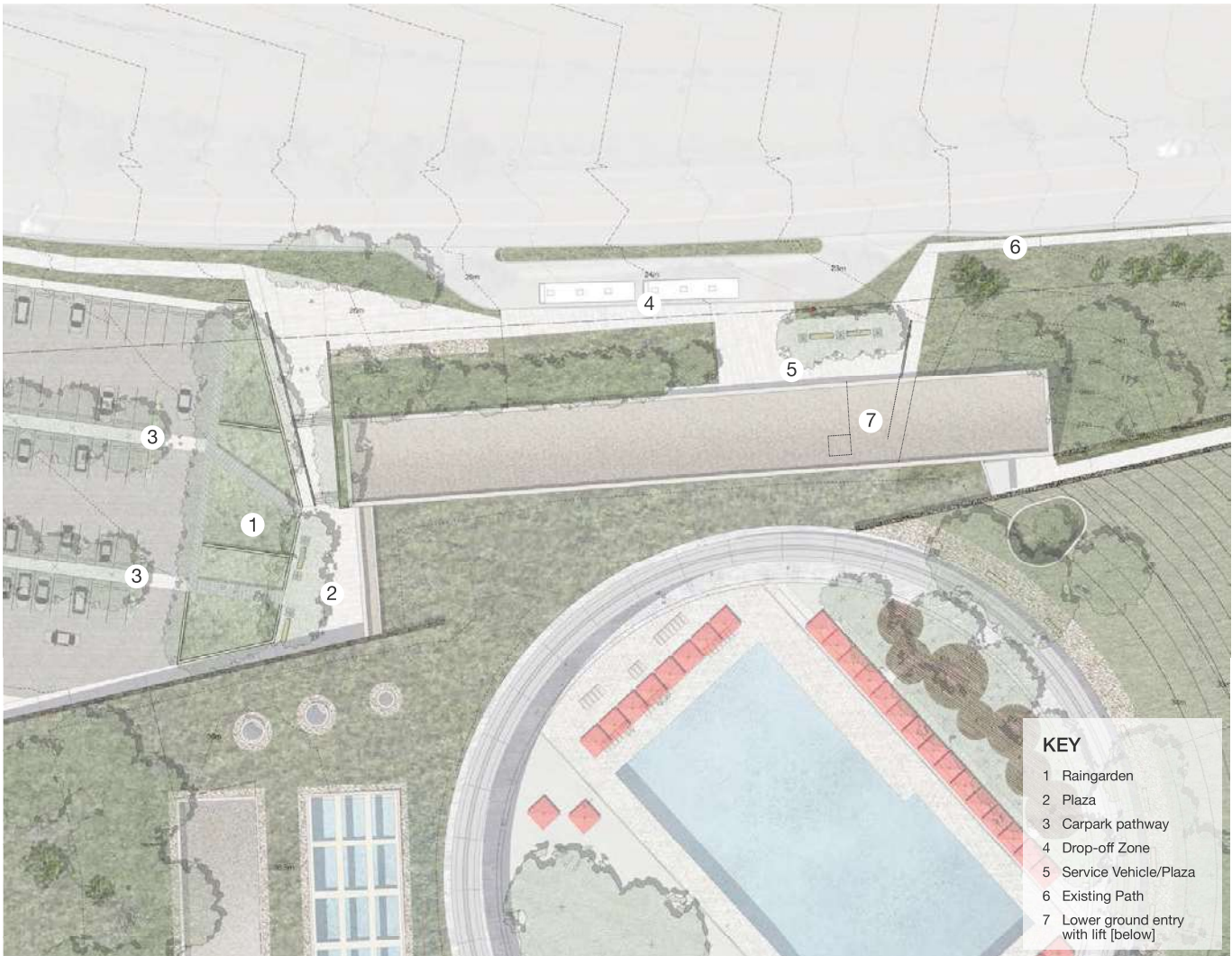


Figure 013. - Entry Plaza detail plan



6.3. The Pool

A key component of the competition winning entry was the landscape setting of the main outdoor pool. The landscape qualities of this space have been further enhanced with the addition of a raingarden on the eastern side of the pool.

The main lawn space will have three large shade trees, providing a park-like quality within the ALCP. Umbrellas can provide additional shading opportunities.

The pool deck will be a flexible space to cater for the many different modes the ALCP will be required provide. During normal daily operation umbrellas and sun lounges can adorn the pool deck providing flexible gathering opportunities. However in competition mode these can be removed if required to provide additional space for marshalling etc.

The eastern edge of the pool is flanked by formal, shaded spectator seating terraces.

Beyond the seating terraces a raingarden provides a number of benefits including;

- capturing runoff from hard surfaces and providing passive irrigation of the landscape, creating a cooling effect
- contributing to the park-like quality of the pool space and providing additional opportunities for shaded seating on decks below the tree canopy
- providing opportunities for outdoor seating for the cafe
- adding to the experience of the journey around external walkway, providing a sense of enclosure and privacy to the eastern edge where change rooms are located.

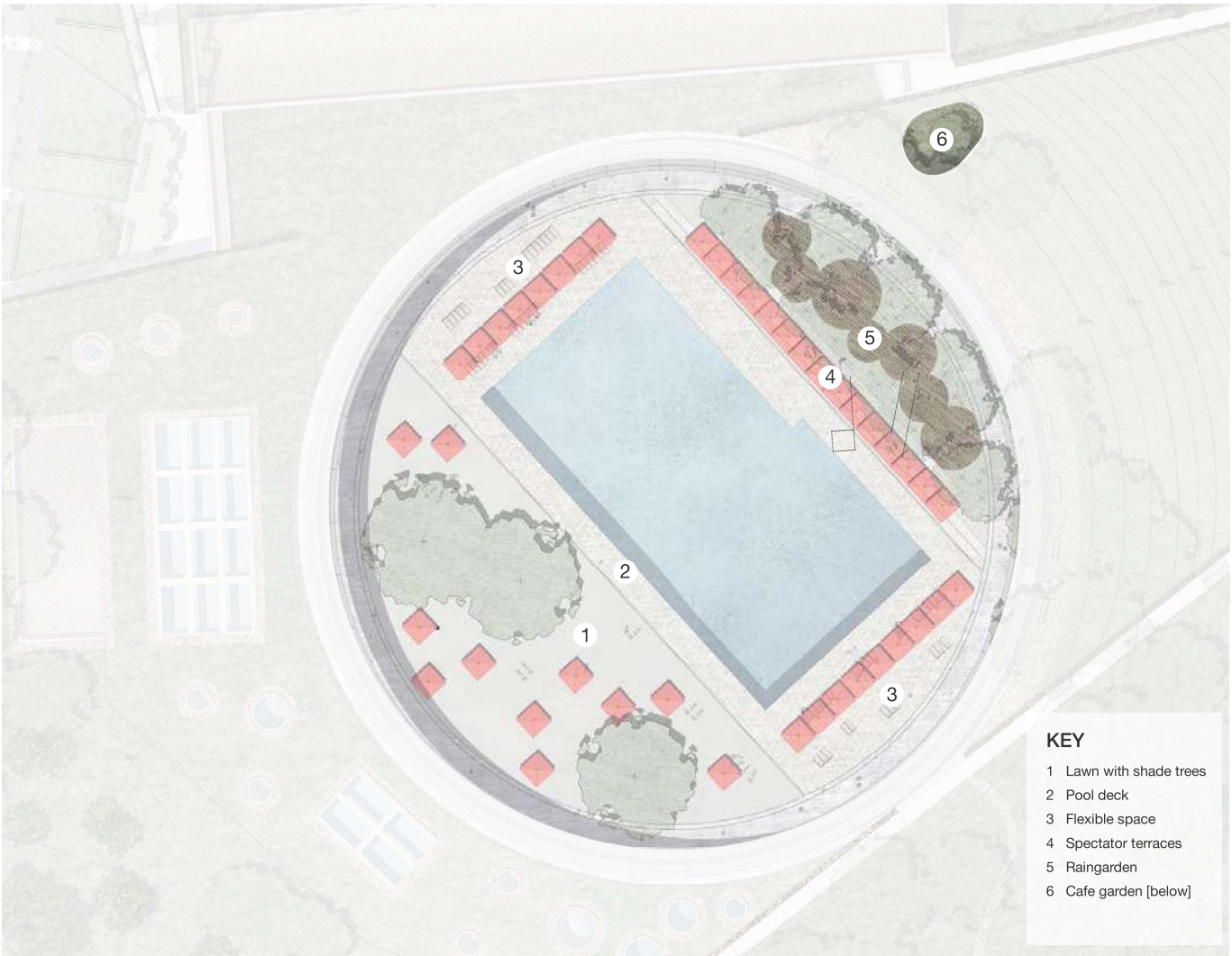


Figure 014. - The Pool detail plan

6.4. Ring Walk & Verandah

One of the key benefits of locating the pool below the existing landscape levels is the opportunity to provide a unique connection between the wider Mays Hill Precinct landscape and the pool. Typically only paying customers are able to access pool facilities however, in this instance the wider community can have direct interaction with the pool from publicly accessible walkways. The Ring Walk, which sits approximately 6m above the pool deck provides a 360 degree vantage point with views into the pool space. This unique perspective creates a new level of engagement between the pool and park spaces. Accessible from the Governors Carriageway and new path network the Ring Walk will be a valuable addition to the park providing additional opportunities for walking, jogging or simply watching the activity below.

Also at the upper level is the 'Verandah', a space which affords expansive views over the CBD to the east and the park below. Shaded seating opportunities will be provided off the main walkway providing pause points and quiet spots to read a book or take in the view.

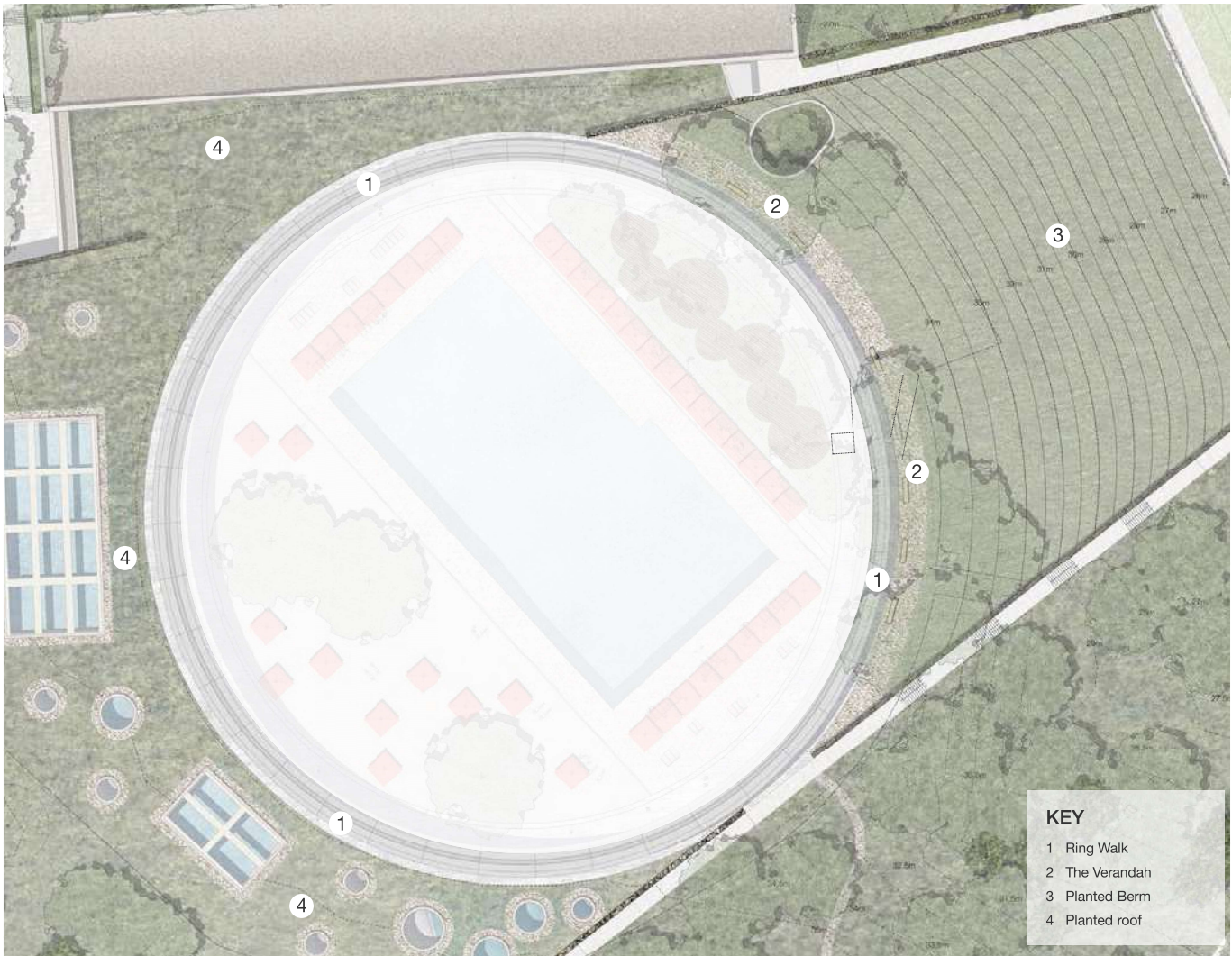


Figure 015. - Ring Walk and Verandah detail plan