

# Proposed Service Commercial Development

Application for Planning Approval



Lot 2965 (194) North West Coastal Highway & Lot 2968 (207) Place Road,  
Webborton

May 2024

## Application for planning approval

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## 2 LAND DESCRIPTION

### 2.1 LOT DETAILS AND ENCUMBRANCES

The land subject of this application for planning approval is described in **Table 1** below.

| Table 1: Lot details |                |        |       |                              |
|----------------------|----------------|--------|-------|------------------------------|
| Lot                  | Deposited Plan | Volume | Folio | Ownership                    |
| 2965                 | 217971         | 1925   | 346   | MJW Three Pty Ltd            |
| 2968                 | 217971         | 1930   | 734   | Coral Coast Nominees Pty Ltd |

The Certificates of Title are provided at **Appendix 1**.

There are no encumbrances listed on the CTs which affect the subject development.



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### **3 CONTEXTUAL CONSIDERATIONS**

The following section describes the contextual characteristics of the site and local area. Refer to **Figure 1: Aerial Photo** which illustrates the development site and surrounds.

#### **3.1 EXISTING SITE CONDITIONS**

Lot 2965 is a square lot of 3,904sqm with sole frontage to NWC Highway which contains three existing buildings previously used for commercial purposes. The site is provided with a central hardstand area used for informal parking and vehicle movement, which connects to an existing service road with two separate crossovers to NWC Highway. The site has a gentle fall from south to north, where levels vary by approximately 0.5m. A basin exists at the north-eastern corner of the lot.

Lot 2968 is an L shaped lot of 7,948sqm with sole frontage to Place Road which previously contained a landscape supply yard / garden centre with an existing building facing Place Road and external storage / vehicle manoeuvring areas at the rear. The site is provided with two existing crossovers to Place Road, the western crossover operates as left turns only and the eastern crossover operates as full movement. The site is comprised mostly of hardstand and is generally flat with minor changes in grade around the northern section.

Based on Dial Before You Dig information, both lots appear to have access to the essential urban utilities. A sewer line runs along the western boundary of Lot 2968 which provides a connection to Lot 2966.

#### **3.2 DESCRIPTION OF CONTEXT**

The development site is within the locality of Webborton which is approximately 2.5km north-east of the Geraldton city centre.

The development site forms part of a service commercial precinct comprised of approximately eight lots located north-east of the NWC Highway / Place Road intersection. The development site adjoins:

- An existing service commercial development on Lot 1 along its northern boundary which contains uses similar to those proposed, within large buildings forming a U shape and a drive-through McDonald's facility fronting NWC Highway.
- Light industrial / mixed business uses along its eastern boundary, within Lot 2975 and Lot 2969.
- A car wash on Lot 2966 along the site's southern boundary.
- A service station on Lot 2967 along the site's western boundary.

The development site has frontage to NWC Highway (western boundary), a primary distributor road currently constructed as dual carriageway (two lanes each side) with

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a skinny central median. It is noted that a realignment / upgrade of NWC Highway will occur at some time in the future. NWC Highway is a major transport route for the Mid-West region, connecting to Brand Highway further south and linking to the Gascoyne Region further north.

Existing residential lots along the western side of NWC Highway in the vicinity of the development site are affected by a future road reserve and some of these lots are owned by Main Roads.

The development site has frontage to Place Road (southern boundary), a district distributor road currently constructed as dual carriageway (two lanes each side) with an approximately 10 metre wide landscaped central median. The Place Road reserve is 40 metres wide and the southern side of the road comprises residential properties. Place Road is approximately 3.3km long and terminates in Woorree further east.

Refer to **Figure 1: Aerial Photo** on the subsequent page, which illustrates the development site and surrounds.





**Figure 1: Aerial Photo**



Drawn: Alessandro Stagno

Rev: 0

**Lot 2965 (194) North West Coastal Highway & Lot 2968 (207) Place Road, Webborton**

Source: MNG Access

Date: 27 May 2024



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# **4 PROPOSED DEVELOPMENT**

## **4.1 SERVICE COMMERCIAL DEVELOPMENT**

Refer to **Appendix 2** for development plans.

The proposal involves the demolition of the existing buildings and improvements on the development site and its replacement with a new service commercial development, including:

- A 3,500sqm building comprising bulky goods showrooms with associated back of house areas, located at the eastern side of the site encompassing existing Lot 2968 (identified as Building 1 on the site plan).
- A small 150sqm retail and 315sqm motor vehicle service centre, located along the northern boundary of Lot 2965 frontage NWC Highway (identified as Building 2 on the site plan).
- A drive-through fast food outlet comprised of a 270sqm building with dual-lane drive-through containing 13 spaces, located along the southern boundary of Lot 2965 fronting NWC Highway (identified as Building 3 on the site plan).
- The consolidation of existing access to NWC Highway to form an 11 metre wide crossover with a 2 metre wide pedestrian refuge.
- The retention of the two crossovers to Place Road, but with the western crossover shifting slightly eastward.
- A main central vehicle accessway linking between the NWC Highway crossover and the western Place Road crossover, which will form the main thoroughfare for patrons and provide access to all of the site's parking bays.
- A dedicated service lane at the rear of the showrooms (Building 1), designed to cater for the movements of service vehicles up to 19 metres in length.
- A dedicated service area at the rear of Building 2, designed to cater for the movements of service vehicles up to 12.5 metres in length.
- A dedicated loading zone at the eastern side of the fast food outlet (Building 3), designed to cater for the movements of service vehicles up to 12.5 metres in length.
- A total of 109 parking spaces (including ACROD bays) and 13 spaces within the fast food drive through, totalling 122 parking spaces.
- The provision of 1,317sqm of soft landscaping area around the site, which represents 11.12% of total site area.
- Inconspicuous bin storage areas which are positioned so as to be screened from view to the extent possible.
- Signage on each building. The site plan indicates two freestanding signs facing NWC Highway and one freestanding sign facing Place Road, to be addressed through a separate application. An assessment of signage against the City's policy is provided later in this report.

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### **4.2 LANDSCAPING**

A landscape concept plan is included with the DA drawings at **Appendix 2**. The landscaping arrangements include:

- 4-4.5m wide landscape buffer strip along NWC Highway frontage, to contain five native trees within 100L pots.
- A mixture of hedging, low ground covers, and low shrubs throughout other landscaping areas within the car park.
- Seven native trees (100L pots) planted within a 4 metre wide landscaping strip along the western boundary.
- Three native trees (100L pots) planted within a 5.5 metre wide landscaping strip at the southern side of Building 1.

The planting arrangements are intended to complement the facility's interface with the public realm and enhance the site's presentation to the street.

### **4.3 TRAFFIC AND ACCESS**

The proposed development is supported by a comprehensive Traffic Impact Assessment produced by Transcore (refer to **Appendix 3**). The TIA is prepared in accordance with the requirements of the WA Planning Commission's traffic impact assessment guidelines.

The TIA demonstrates:

- The proposed development would conservatively generate approximately 34 and 81 new trips during the typical AM and PM peak hours, respectively (accounting for passing trade).
- The net addition of traffic to the NWC Highway / Place Road intersection will not result in a change to the overall intersection level of service with only marginal increases to queues and delays in both the post-development scenario (2026) and the 10 year scenario (2036).
- Satisfactory operation of all development crossovers to NWC Highway and Place Road.
- Satisfactory movement of service vehicles through the dedicated service areas for each building, depicted on swept path plans forming part of the TIA.
- A conservative stacking / queuing capacity analysis for the drive-through fast food outlet demonstrating no impact to the internal site car park driveway system during the critical peak-hour.
- No particular transport or safety issues.

The TIA demonstrates that the proposed development is acceptable from a traffic generation point of view.

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### **4.3.1 ACCESS, CIRCULATION, AND SERVICING ARRANGEMENTS**

The access arrangements of the proposed development include:

- The consolidation of existing access to NWC Highway to form an 11 metre wide crossover with a 2 metre wide pedestrian refuge.
- The retention of the two crossovers to Place Road, but with the western crossover shifting slightly eastward.

The NWC Highway crossover and western Place Road crossover will be connected by a main internal driveway to be used by patrons and some small service vehicle traffic associated with Building 2 and Building 3. The eastern Place Road crossover is largely dedicated to service vehicles associated with Building 1, and is segregated from the rest of the site to ensure the interaction of the larger 19 metre vehicles with customers is minimised.

Servicing for Building 2 and Building 3 will undertaken by smaller 12.5m vehicles and generally be conducted outside of peak operational periods, to ensure there is no disturbance to general operations of the development.

The detachment of the site from any sensitive properties provides flexibility with servicing able to occur at most times, without adverse impact.

Patrons will have easy and comfortable vehicular access to all parking areas on the site via the main internal driveway, with a pedestrian pathway enabling connectivity to the entrance of each building.

The proposed access, circulation, and servicing arrangements are satisfactory.

### **4.4 STORMWATER MANAGEMENT**

The project civil consulting engineers, JCCE, have produced a conceptual stormwater design for the development which meets the City's standards and specifications (refer to **Appendix 4**).

The site's stormwater system is designed to capture and contain stormwater runoff as per the City's specifications through a series of soakwells, drainage pits and grates.

### **4.5 WASTE MANAGEMENT DETAILS**

Each building of the proposed service commercial development has a dedicated waste enclosure intended to service the proposed land uses. These include:

- A 7m x 2m bin store for the 2,000sqm showroom, co-located with its back of house area.
- A 3.9m x 3.3m bin store for the 1,500sqm showroom, co-located with its back of house area.



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- A 6m x 3.5m bin store for Building 2, to be shared between the small retail use and the vehicle service centre.
- An internalised waste area within the fast food outlet (Building 3), directly accessed via its dedicated loading area.

Waste collection will be undertaken by private contractor and the frequency will depend on the specific requirement of the land use.

All bin stores will be designed compliantly with relevant health regulations, with wash down facilities and a graded drain connected to the site's sewer system. The bin stores will be maintained to a high standard by the respective operators and regularly cleaned to prevent odours.

A waste management plan can be provided at building permit stage in accordance with a condition of planning approval, which confirms the specific details of the facility's waste management arrangements.

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# **5 STATUTORY PLANNING ASSESSMENT**

## **5.1 CITY OF GREATER GERALDTON LOCAL PLANNING SCHEME NO.1 (LPS1)**

### **5.1.1 ZONING AND LAND USE**

Under the City's LPS1, the development site is zoned Service Commercial. Refer to **Figure 2 – Zoning Map**.

Pursuant to Clause 3.5.1 of the scheme text, the objectives of the Service Commercial zone are:

- (a) accommodate commercial activities which, because of the nature of the business, require good vehicular access and/or large sites.
- (b) provide for a range of wholesale sales, showrooms, trades and services, which by reason of their scale, character, operational or land requirements, are not appropriate for industrial or commercial zones.
- (c) ensure development achieves relatively high amenity standards based on the level of exposure of the site and proximity to residential areas.

The development proposal involves the demolition / removal of existing development and its replacement with a brand new service commercial development, comprising bulky goods showrooms, a drive-through fast food outlet, a small motor vehicle repairs facility and a small retail component.

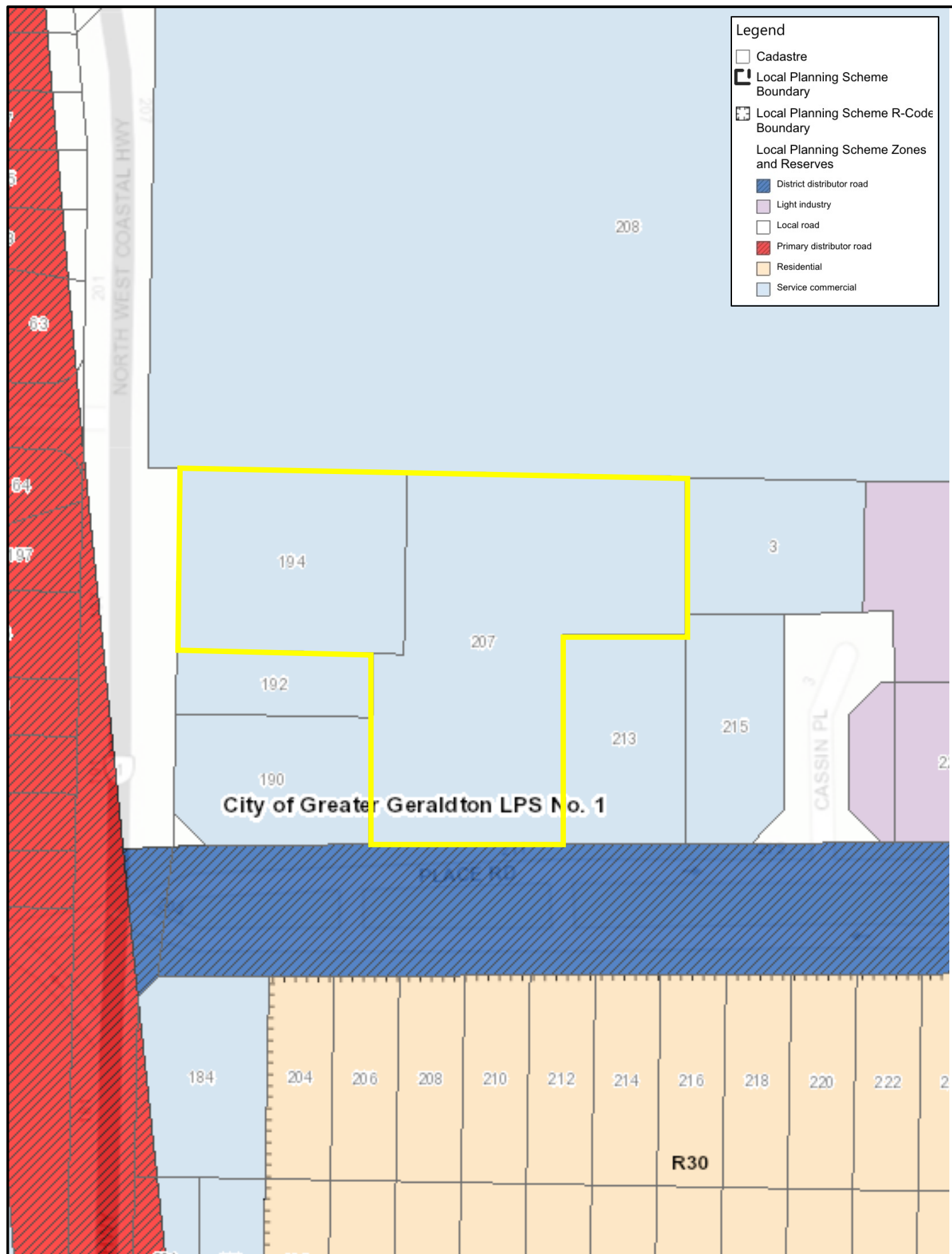
Each of the uses proposed are appropriate within a service commercial context and are intended to be established on this development site due to its 11,846sqm area and strategic location with frontage to NWC Highway and Place Road.

The arrangement of the uses on the site is executed in a logical and responsive manner, and the location of service areas enables the separation of service vehicle traffic.

The architectural design of the buildings is of a high quality, featuring articulation, varying roof heights, alternating materials and textures, and shopfront permeability for a high level of user amenity.

The development provides a compliant amount of soft landscaping and car parking, and complies with the applicable requirements of the scheme in this regard.

All of the proposed land uses are listed as 'D' discretionary uses in the Service Commercial zone, which means they are capable of approval at the discretion of the decision-maker. The development clearly aligns with the intended purpose of the Service Commercial zone, and will provide the surrounding communities and travelling public with an expanded range of commercial activities on suitably located and zoned land. The uses warrant discretion and approval.



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### 5.1.2 SERVICE COMMERCIAL ZONE SITE AND DEVELOPMENT REQUIREMENTS

Table 6 of LPS1 sets out site and development requirements for the service commercial zone. **Table 2** below provides an assessment against the relevant requirements.

| Table 2: Service commercial zone requirements                                                                                       |                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scheme requirement                                                                                                                  | Response                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Minimum setback<br/>Primary street<br/>12 metres</b>                                                                             | The proposed fast food building is set back from NWC Highway by 12 metres. The proposed retail / car service centre is set back from NWC Highway by 23.7 metres.<br><br>The proposed showroom building is set back from Place Road by 20.7 metres.                                                                                                                           |
| <b>Minimum setback<br/>Secondary street / side boundary<br/>Variable<br/>Minimum setback<br/>Rear boundary / other<br/>Variable</b> | The retail use and showroom building have a nil setback to the northern boundary.<br><br>The showroom building has a minimum setback of nil to the eastern boundary, but this expands based on the width of the service corridor.<br><br>The side / rear setbacks are acceptable in a service commercial / industrial context, noting other buildings have similar setbacks. |
| <b>Maximum plot ratio<br/>0.6</b>                                                                                                   | A total gross floor area of 4,235sqm is proposed, which results in a plot ratio of 0.357 across the entire development site.                                                                                                                                                                                                                                                 |
| <b>Maximum building height<br/>12 metres</b>                                                                                        | The showroom building has a maximum height of 12 metres and all other buildings are lower than 12 metres.                                                                                                                                                                                                                                                                    |
| <b>Minimum landscaping<br/>10%</b>                                                                                                  | The development provides a total of 1,317sqm soft landscaping area which represents 11.12% of the site area.                                                                                                                                                                                                                                                                 |

### 5.1.3 PARKING REQUIREMENTS

Clause 4.14 of LPS1 sets out parking requirements which apply to development in the scheme area.

Pursuant to *Schedule 5 – Parking Requirements* of LPS1, the parking required by the development is:

|                        |                                                                       |
|------------------------|-----------------------------------------------------------------------|
| Bulky Goods Showroom:  | 1 bay / 50sqm (70 bays required)                                      |
| Fast Food Outlet:      | 1 bay / 4 patrons plus 10 drive-through stack bays (23 bays required) |
| Motor Vehicle Repairs: | 1 bay / 50sqm (6 bays required)                                       |
| Shop:                  | 1 bay / 20 sqm (8 bays required)                                      |
| Total:                 | 107 bays required                                                     |



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The development provides 109 'on grade' marked parking spaces and 13 spaces within the drive-through which comprise 11 stacking bays and 2 waiting bays. The parking provision therefore exceeds minimum requirements and is expected to easily cater for the needs of the development.

The distribution of parking bays throughout the site is such that parking will be easily accessible from the entrance of each land use. As the development is proposed across two lots, reciprocal use of bays is encouraged as there is likely to be cross-trade and shared patronage across the uses.

Schedule 5 of LPS1 also requires bike spaces for some uses, totalling a requirement of 3 (1 for the retail use and 2 for the fast food outlet). Four bike parking racks are provided adjacent to the showroom building to service the development.

It is noted that Clause 4.14.5 of LPS1 requires a travel plan where commercial uses of 500sqm+ are proposed. In this instance, it is requested that the requirement for a travel plan be set aside. This is on the basis that:

- The development proposes uses which are of a service commercial nature and are clearly car-based and vehicle dominant. There would be little utility in a travel plan which seeks to reduce car reliance, when the nature of the uses themselves are based on the service commercial zone objectives of sites with high exposure and good vehicular access.
- The development provides a compliant parking provision which will easily cater for the needs of each of the proposed land uses. There is no impetus for producing a travel plan in relation to reducing parking demand, given the parking demand is fulfilled.

Discretion is considered to be warranted and appropriate in relation to the requirement for a travel plan.

### 5.1.4 MATTERS TO BE GIVEN DUE REGARD

**Table 3** below provides a response the relevant 'matters to be given due regard', which apply in accordance with the Deemed Provisions.

| Table 3: Matters to be given due regard                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Matter to be given due regard                                                                                                                                                                                                                                     | Response                                                                                                                                                                                                                                                                         |
| (a) the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area                                                                                                                                                   | The content of this report addresses LPS1, and demonstrates the proposal is consistent with its aims and intent.                                                                                                                                                                 |
| (g) any local planning policy for the Scheme area                                                                                                                                                                                                                 | The subsequent sections of this report address the City's local planning policy framework.                                                                                                                                                                                       |
| (m) the compatibility of the development with its setting, including —<br>(i) the compatibility of the development with the desired future character of its setting; and<br>(ii) the relationship of the development to development on adjoining land or on other | The development is proposed on land which is zoned Service Commercial and the proposed land uses are of a service commercial nature.<br>The buildings and accessways and crossovers are arranged in a logical manner on the site, and are designed to a high standard comprising |

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|                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;                                            | articulation, varying roof forms, alternating materials/textures, and integrated signage. The City's setback, landscaping, and other scheme requirements are complied with.<br><br>The development is therefore entirely compatible with the desired future character of its setting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| (n) the amenity of the locality including the following<br>(i) environmental impacts of the development;<br>(ii) the character of the locality;<br>(iii) social impacts of the development; | <p>The development will not create unacceptable environmental or amenity impacts, having regard for:</p> <ul style="list-style-type: none"><li>• The TIA which demonstrates the proposal is entirely acceptable from a traffic and access point of view.</li><li>• The stormwater documentation which demonstrates compliance with City specifications.</li><li>• The significant extent of landscaping which exceeds minimum requirements and involves the planting of trees.</li><li>• The fact this proposal will activate currently underutilised land within a service commercial precinct.</li></ul> <p>The development site is detached from sensitive land uses and its operation is unlikely to generate negative amenity impacts.</p> <p>The residential properties on the western side of NWC Highway are reserved for future highway upgrade / realignment and are mostly owned by Main Roads.</p> <p>The residential properties on the southern side of Place Road are 40m from the property boundary and with the site's existing crossovers essentially being retained (albeit with some minor modification to the western crossover), the way the crossovers are used will not be significantly different noting the site already contains an industrial land use which carries numerous light and heavy vehicles over the course of a typical day.</p> <p>In addition to the above, it is reasonable to note that properties in close proximity to a zoned Service Commercial and Industrial area would be expected to have an amenity which is different to residential properties within a suburban context.</p> |
| (p) whether adequate provision has been made for the landscaping of the land to which the application relates and whether any trees or other vegetation on the land should be preserved     | A landscape plan is included with the drawing set at <b>Appendix 2</b> . The proposed development provides 11.12% of landscaping area across the entire site which includes generous landscape buffer strips along street frontages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| (s) the adequacy of<br>(i) the proposed means of access to and egress from the site; and<br>(ii) arrangements for the loading, unloading, manoeuvring and parking of vehicles;              | <p>A TIA has been produced in support of the proposal which demonstrates the appropriateness and adequacy of proposed access arrangements.</p> <p>The TIA also includes swept path plans demonstrating the acceptable movements of fuel tankers and waste collection vehicles.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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(t) the amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety

A TIA has been produced in support of the proposal which demonstrates the development will not adversely impact the local road network.

## 5.2 FAST FOOD OUTLETS LOCAL PLANNING POLICY

The City's Fast Food Outlets LPP applies to development proposals involving a drive-through fast food outlet. An assessment against the relevant policy measures is provided below.

Under policy measure 3.1, a drive-through facility should include an onsite queue accessway to accommodate a minimum of 10 vehicles measured from the pick-up point. The proposed fast food outlet provides space for 11 vehicles measured from the pick-up point, plus an extra two waiting bays.

Under policy measure 3.2, a number of planning considerations apply which are addressed below:

- Traffic safety – the fast food outlet is positioned and laid out on the site such that the entrance to the drive-through is separated from the surrounding road network. The supporting TIA includes a queuing / stacking analysis which demonstrates the stacking capacity is sufficient during peak operational periods and will not result in vehicles queuing within the main accessway of the development.
- Minimisation of spontaneous impulse driving behaviour – as this proposal is not for a standalone fast food outlet and the facility forms part of a larger service commercial precinct, the potential instances of spontaneous driving behaviour are reduced. In addition to this, the facility is easily accessed via the site's shared internal driveway and has good sightlines.
- Limitation of pedestrian / vehicle conflict – the site has a defined pedestrian pathway which runs along the frontage of buildings with zebra crossings across parking areas.
- Impacts on the adjoining locality, with particular reference to residential areas – in this regard, it is important to note that the fast food outlet is separated from the nearest residential properties by over 50 metres and the development site does not have a direct shared boundary with any residential property. The facility will be required to meet all applicable Australian Standards and regulatory requirements in relation to its operation and management.

## 5.3 SIGNAGE LOCAL PLANNING POLICY

The development requires assessment against the City's Signage Local Planning Policy.

The proposal involves the following signage:

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- Building 1 (bulky goods showrooms): on the western elevation, three signs integrated into the façade. On the southern elevation, two signs integrated into the façade.
- Building 2 (retail and service centre): on the southern elevation, three small signs above three rollerdoors. On the western elevation, a signage panel above the entry of the service centre and a signage panel above the entry of the retail use.
- Building 3 (fast food outlet): on the north elevation, a sign above the entrance and simple lettering sign on the building. On the east elevation, simple lettering on the building. On the west elevation, two sign panels on separate parts of the building.

The signs on each building are sized according the scale and position of the building on which they are located.

For example, the signage on the bulky goods showroom building is bigger such that it is proportionate to the size of the larger showroom building, and also enabling more visibility and easier identification noting the building is located at the rear of the site. The signage on the other buildings is smaller and proportionate to the size of the relevant buildings. The signage proposed on each building serves a purpose and is designed in colours and styling befitting each building based on the specification and standard design scheme of each operator.

The proposed signage on each building is therefore consistent with the intent of the City's signage policy.

The site plan also indicates two pylon signs fronting NWC Highway (one for the overall development and one for the fast food outlet) and one pylon sign fronting Place Road. These will be addressed through a separate application.

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## **6 CONCLUSION**

This application for planning approval involves the redevelopment of Lot 2965 (194) North West Coastal Highway & Lot 2968 (207) Place Road, Webborton to establish a new service commercial development comprising bulky goods showrooms, fast food outlet, small retail, and vehicle service centre.

The information presented in this application for planning approval demonstrates the proposed development is appropriate for the site and warrants the City's support for the following reasons:

- The development is entirely consistent with the site's Service Commercial zoning under LPS1 and is suitably located to offer such services to the surrounding community and travelling public.
- The proposal will improve a currently underutilised site which is at a high-exposure location along North West Coastal Highway.
- The proposal is consistent with the applicable requirements of the planning framework, including the City's LPS1 and local planning policies.
- The facility's built form approach is of a high quality and will improve the amenity of the site and its surroundings.
- The proposal is supported by a number of expert assessments demonstrating it is acceptable from a traffic and civil design point of view.

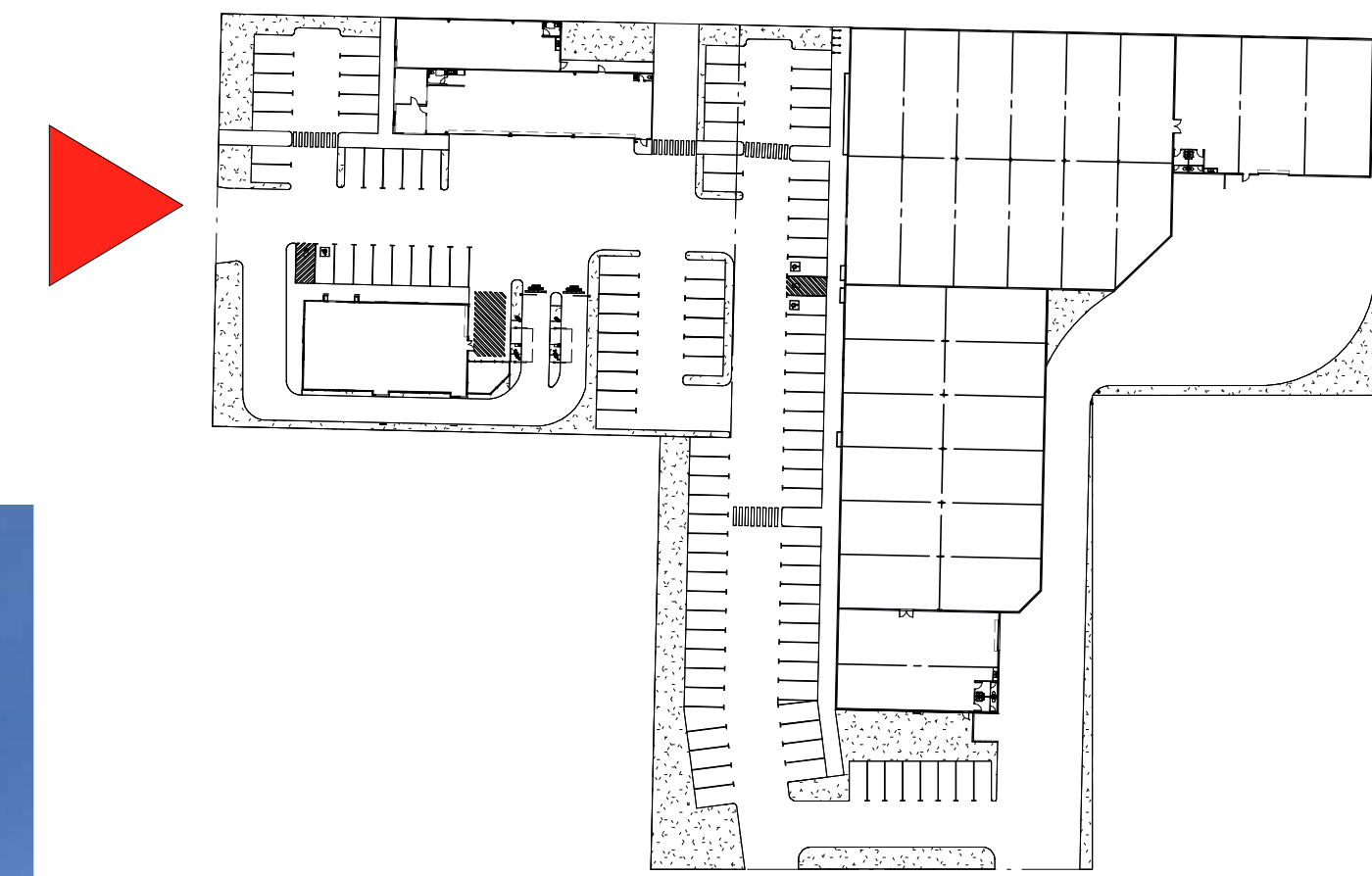
It is respectfully requested that the City of Greater Geraldton support the application and that the Regional DAP grant approval.



## **APPENDIX 2**

### **DEVELOPMENT PLANS**

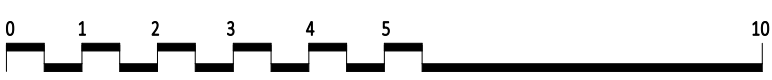
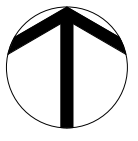








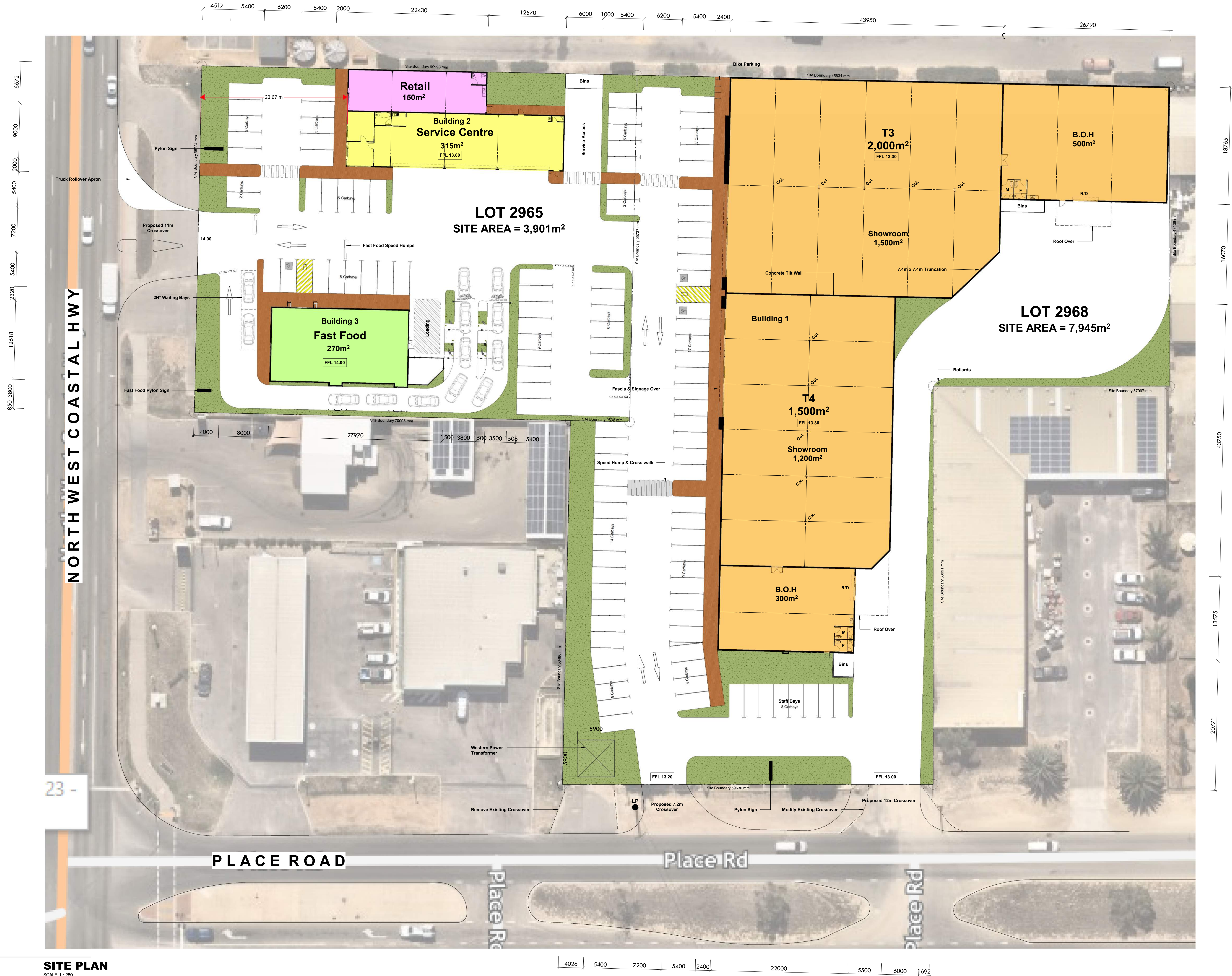
**LOCATION PLAN**  
SCALE: 1 : 250











**SITE PLAN**  
SCALE: 1 : 250

## SITE CRITERIA

|                              |                            |          |
|------------------------------|----------------------------|----------|
| <b>1. Site Area</b>          |                            |          |
| a. Lot 2965                  | 3,901m <sup>2</sup>        |          |
| b. Lot 2968                  | 7,945m <sup>2</sup>        |          |
| <b>2. Landscaping</b>        |                            |          |
| a. Lot 2965                  |                            |          |
| i. Required 10% of Site Area | 390m <sup>2</sup>          |          |
| ii. Provided                 | 522m <sup>2</sup>          | (13%)    |
| <b>Total</b>                 | 522m <sup>2</sup>          |          |
| b. Lot 2968                  |                            |          |
| i. Required 10% of Site Area | 795m <sup>2</sup>          |          |
| ii. Provided                 | 795m <sup>2</sup>          | (10%)    |
| <b>Total</b>                 | 795m <sup>2</sup>          |          |
| <b>3. Floor Area (GFA)</b>   |                            |          |
| a. Retail                    | 150m <sup>2</sup>          |          |
| b. Fast Food                 | 270m <sup>2</sup>          |          |
| c. Showroom                  | 3,500m <sup>2</sup>        |          |
| d. Service Centre            | 315m <sup>2</sup>          |          |
| <b>Total</b>                 | 4,235m <sup>2</sup>        |          |
| <b>4. Carparking</b>         |                            |          |
| i. Cars Required             |                            |          |
| a. Retail                    | 150m <sup>2</sup> @ 1/20   | 8 Cars   |
| b. Fast Food                 | 52 Seats @ 1/4             | 13 Cars  |
| c. Showrooms                 | 3,500m <sup>2</sup> @ 1/50 | 70 Cars  |
| d. Service Centre            | 315m <sup>2</sup> @ 1/50   | 6 Cars   |
| <b>Total Car required</b>    |                            | 107 Cars |
| ii. Cars Provided            |                            |          |
| a. On grade                  |                            | 109 Cars |
| b. Drive Thru                |                            | 13 Cars  |
| <b>Total Car provided</b>    |                            | 122 Cars |

**Landscaping**  
A. Soft Landscaping  
Defined as vegetative landscaping.  
Gross Floor Area - GFA  
A. All Floor Areas on this plan are shown as GROSS FLOOR AREA.  
Unless otherwise noted as Net Floor Area.  
B. Definition of Gross Floor Area is defined as:  
i. GROSS FLOOR AREA OF A TENANCY:  
Gross Floor Area of an individual Tenancy is defined as the area contained between the centre line of common tenancy walls and the outside edge of external walls.  
ii. GROSS FLOOR AREA OF A BUILDING:  
Gross Floor Area of a Building is defined as the total area contained between the outside edge of external walls.  
**Net Floor Area - NFA**  
A. Net Floor Area of a Tenancy on this plan is defined as the area between external or tenancy dividing walls.  
B. This area is inclusive of toilets if the toilets are exclusive to the Tenancy.

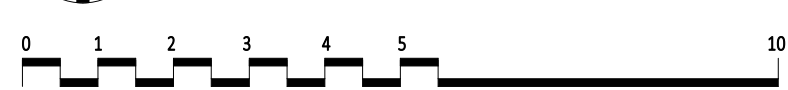
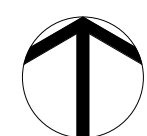
## SITE DESIGN CHECKLIST

- ☐ 1. SEWER MAINS LOCATION TO BE DETERMINED
- ☐ 2. FIRE MAINS PRESSURE TEST REQUIRED
- ☐ 3. FIRE TANKS OR PUMPS TO BE DETERMINED
- ☐ 4. WESTERN POWER TRANSFORMER LOCATION TO BE DETERMINED
- ☐ 5. CROSSOVER & ACCESS TO STREET TO BE DETERMINED BY LOCAL AUTHORITY
- ☐ 6. FULL FEATURE SITE SURVEY REQUIRED
- ☐ 7. DIAL BEFORE YOU DIG REQUIRED
- ☐ 8. BUSHFIRE ATTACK LEVEL (BAL) TO BE DETERMINED
- ☐ 9. STREET POWER POLES TO BE DETERMINED
- ☐ 10. SITE ZONING & USE TO BE DETERMINED

**NOTE:** Any of the following items that do not have an 'X' in the provided square require determination.

## LEGEND

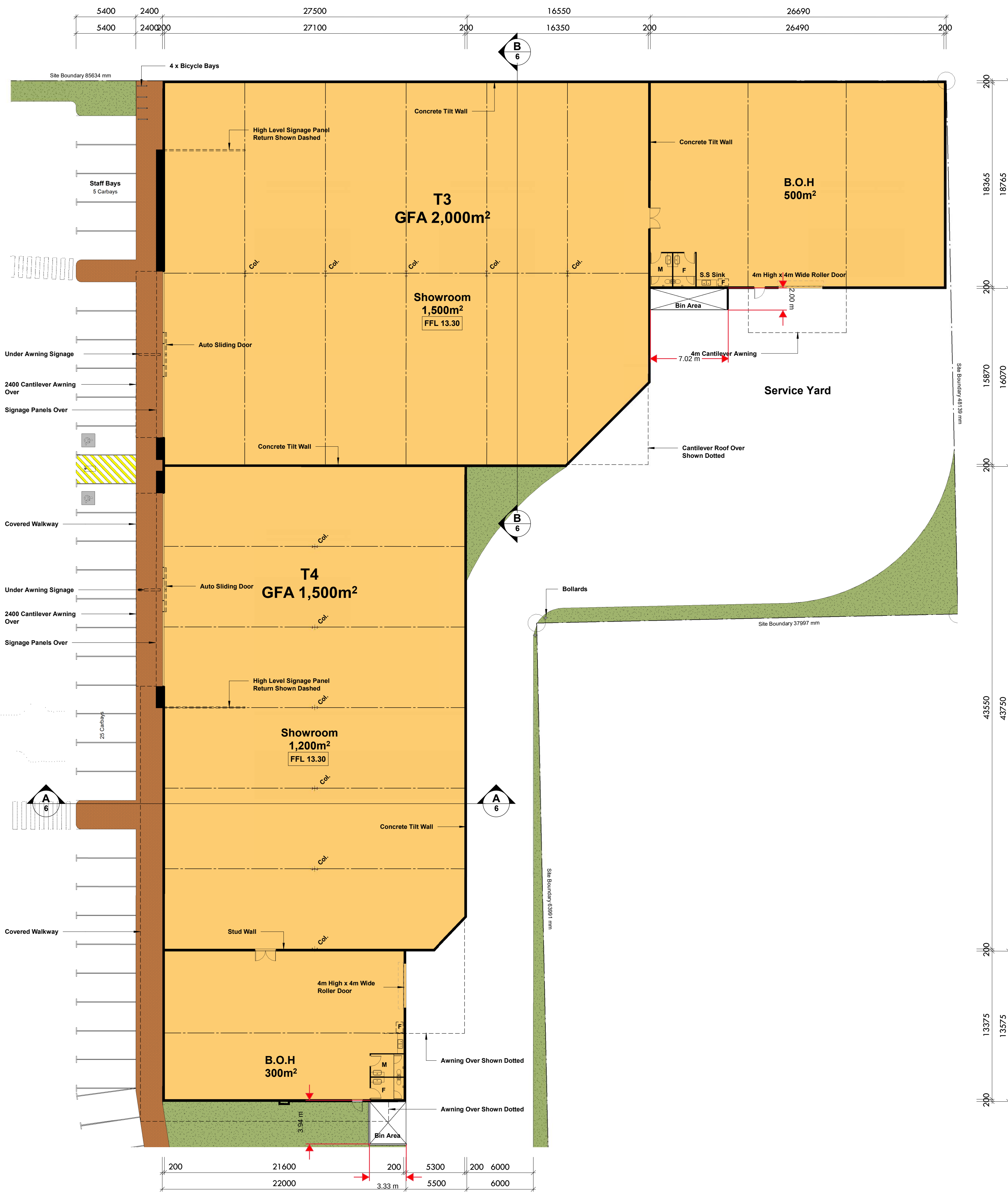
- BUILDING FOOTPRINT - SHOWROOM / WAREHOUSE / FACTORY
- BUILDING FOOTPRINT - OFFICE
- EXTENT OF CONCRETE HARDSTAND
- EXTENT OF ROADBASE HARDSTAND
- EXTENT OF BITUMEN PAVING
- EXTENT OF CERAMIC TILES
- EXTENT OF BRICK PAVING / CONCRETE PAVING
- EXTENT OF LANDSCAPING



## PROPOSED LARGE FORMAT RETAIL DEVELOPMENT

LOCATION : 207 PLACE ROAD, WEBBERTON WA 6530  
FOR : CORAL COAST NOMINEES PTY LTD



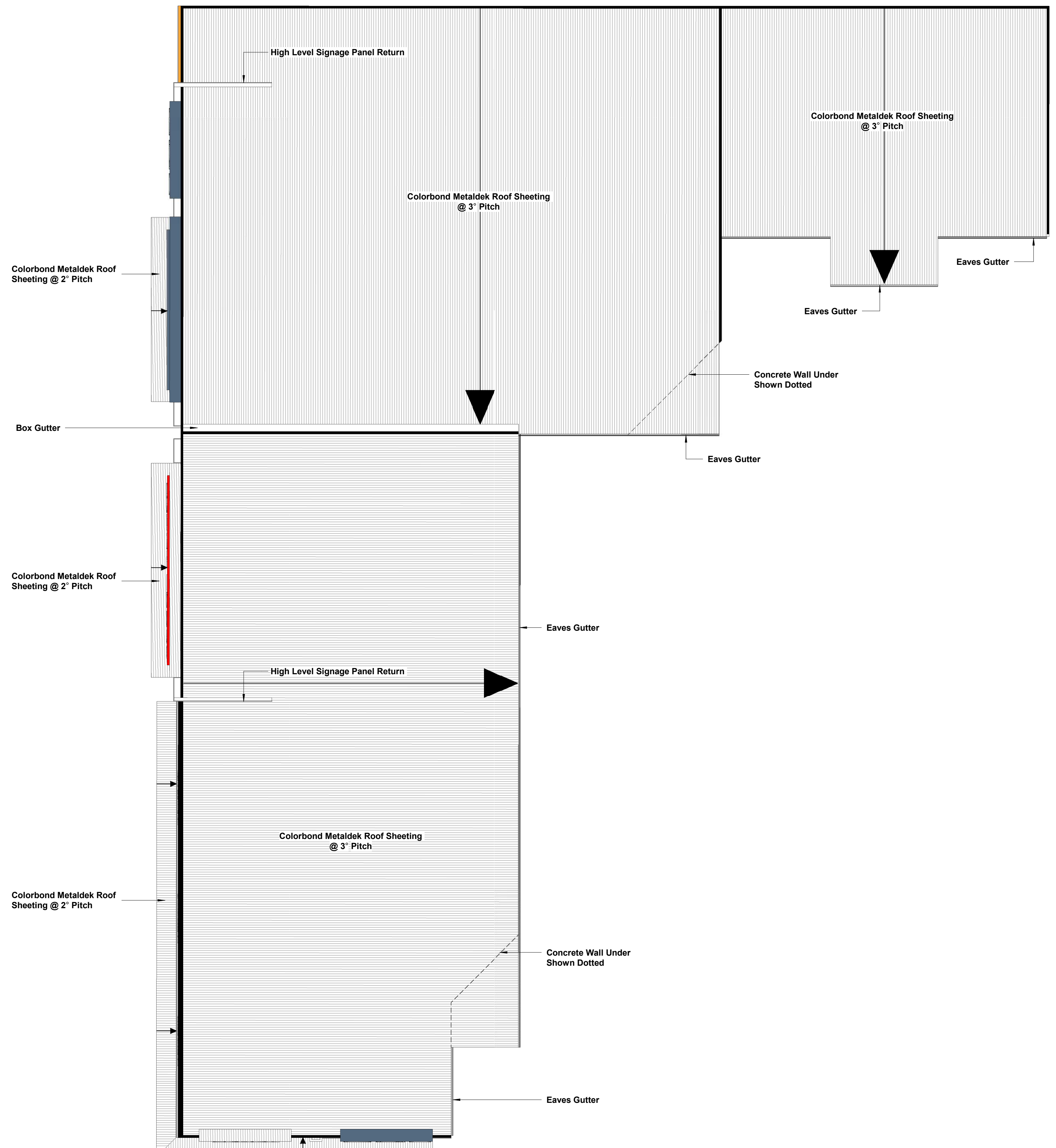


**BUILDING 1 GROUND FLOOR PLAN**

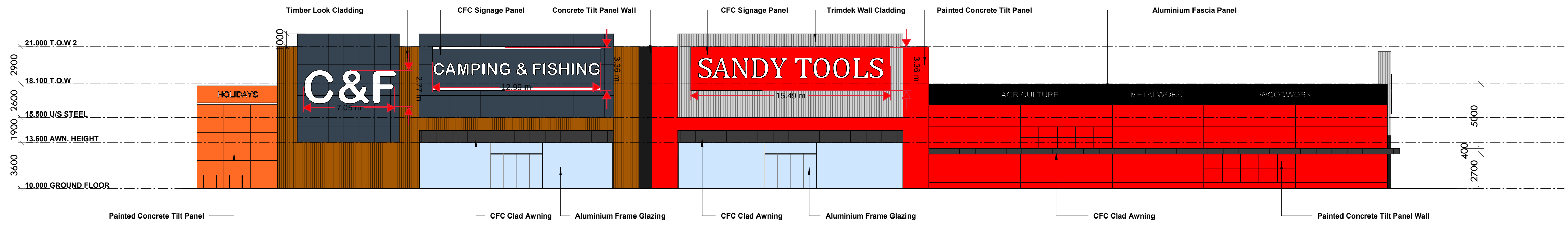
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**BUILDING 1 ROOF PLAN**

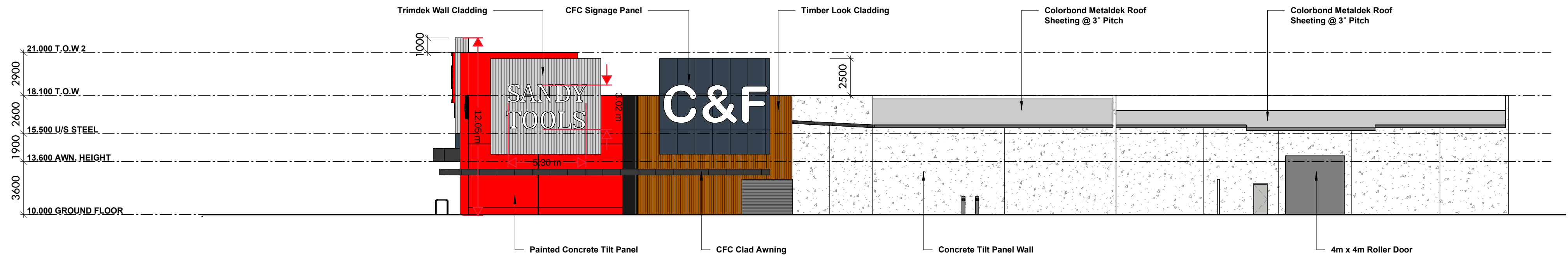
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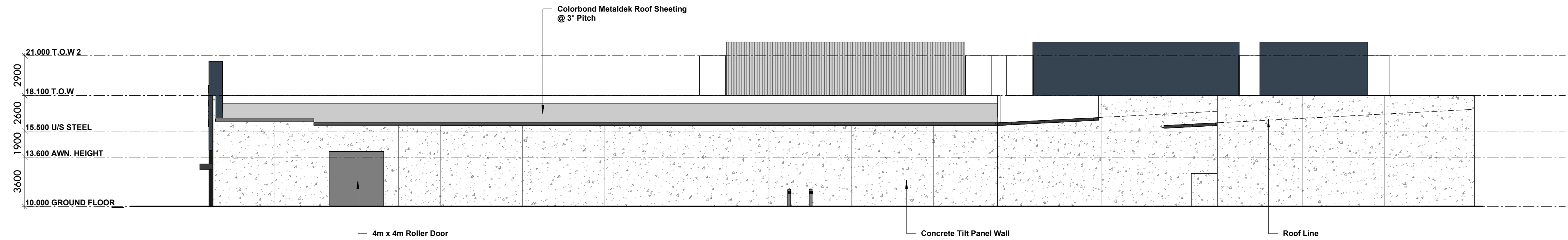




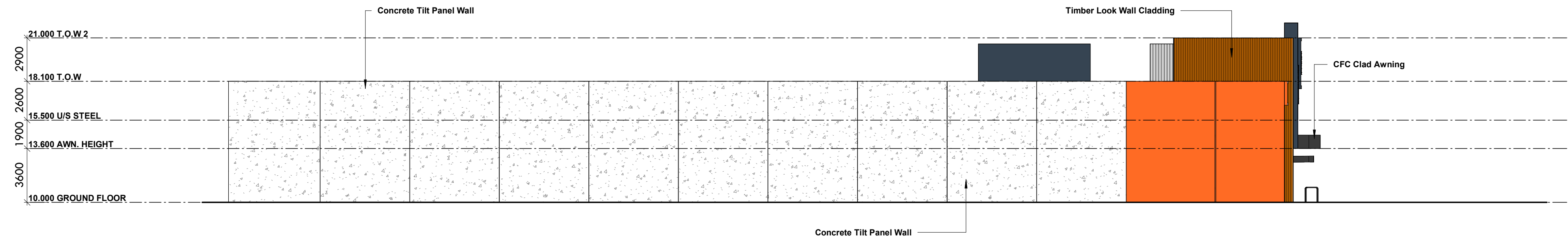
**BUILDING 1 WEST ELEVATION**  
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**BUILDING 1 SOUTH ELEVATION**  
SCALE: 1 : 200

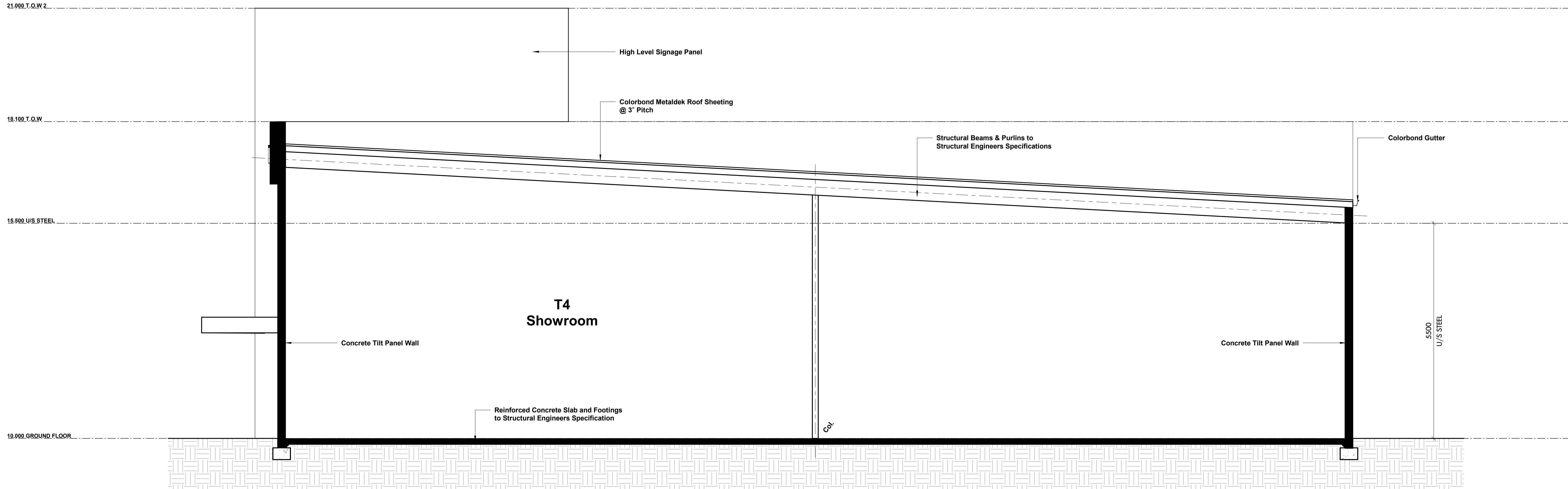


**BUILDING 1 EAST ELEVATION**  
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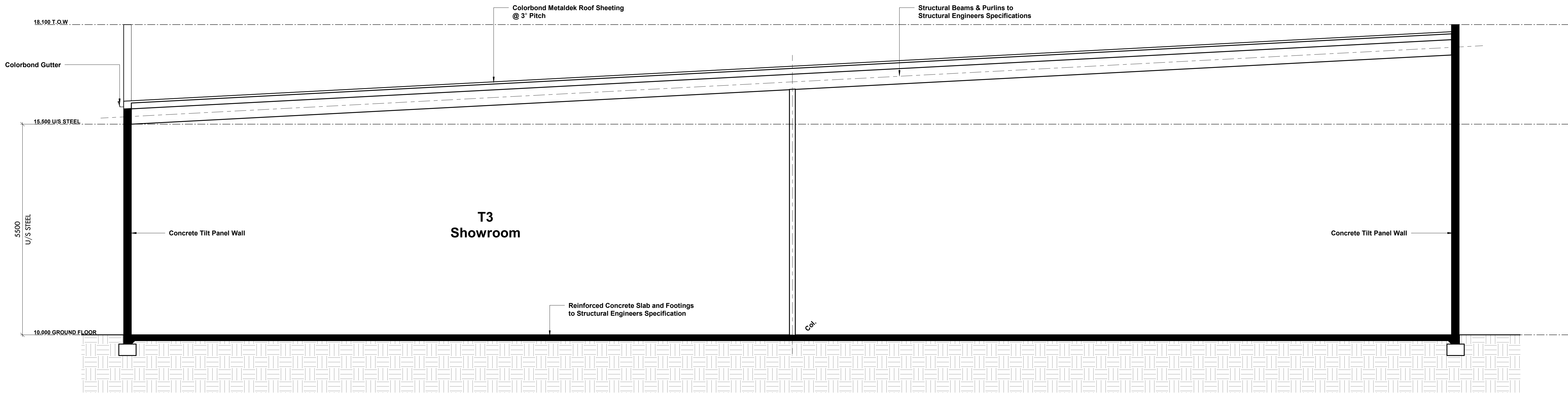


**BUILDING 1 NORTH ELEVATION**  
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**SECTION A**  
SCALE: 1 : 50



**SECTION B**  
SCALE: 1 : 50

**VEND**  
PROPERTY

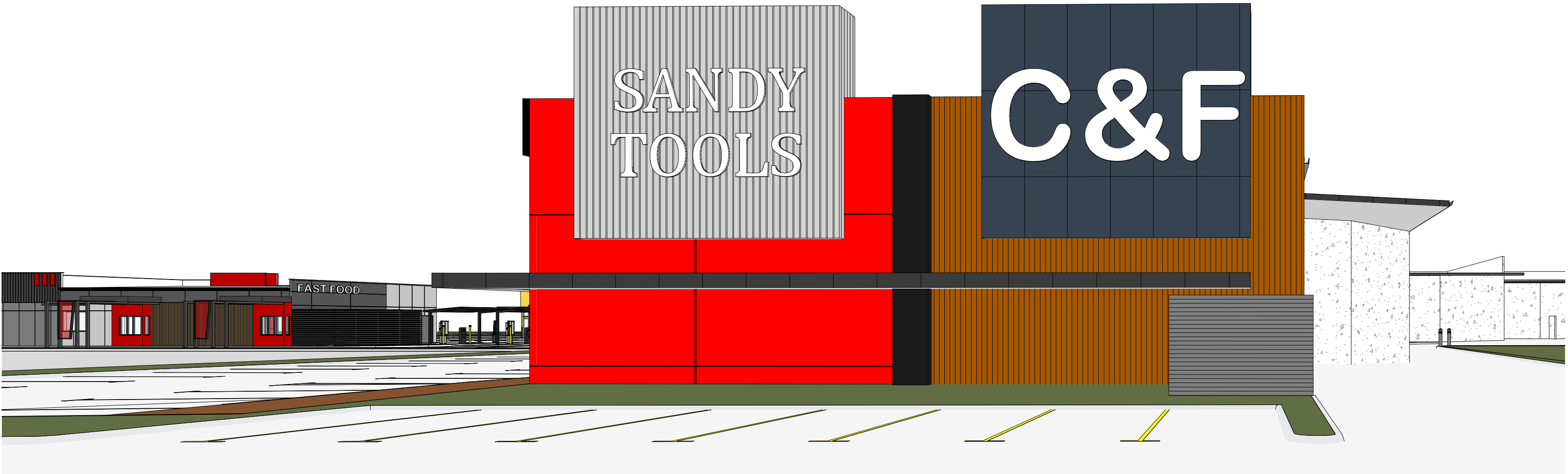
**PRELIMINARY**





**3D VIEW 1**

SCALE:



**3D VIEW 2**

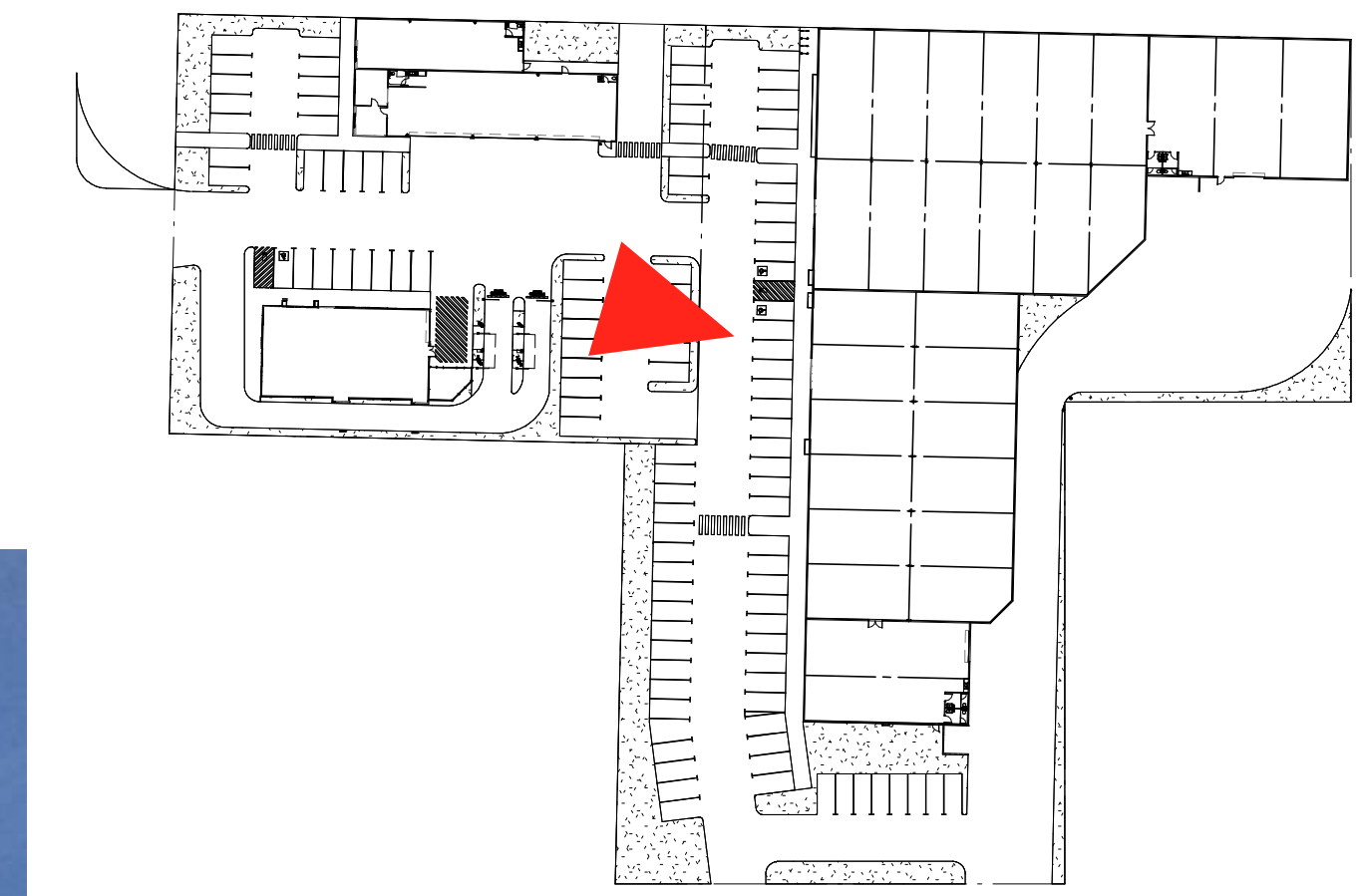
SCALE:



**3D VIEW 3**

SCALE:





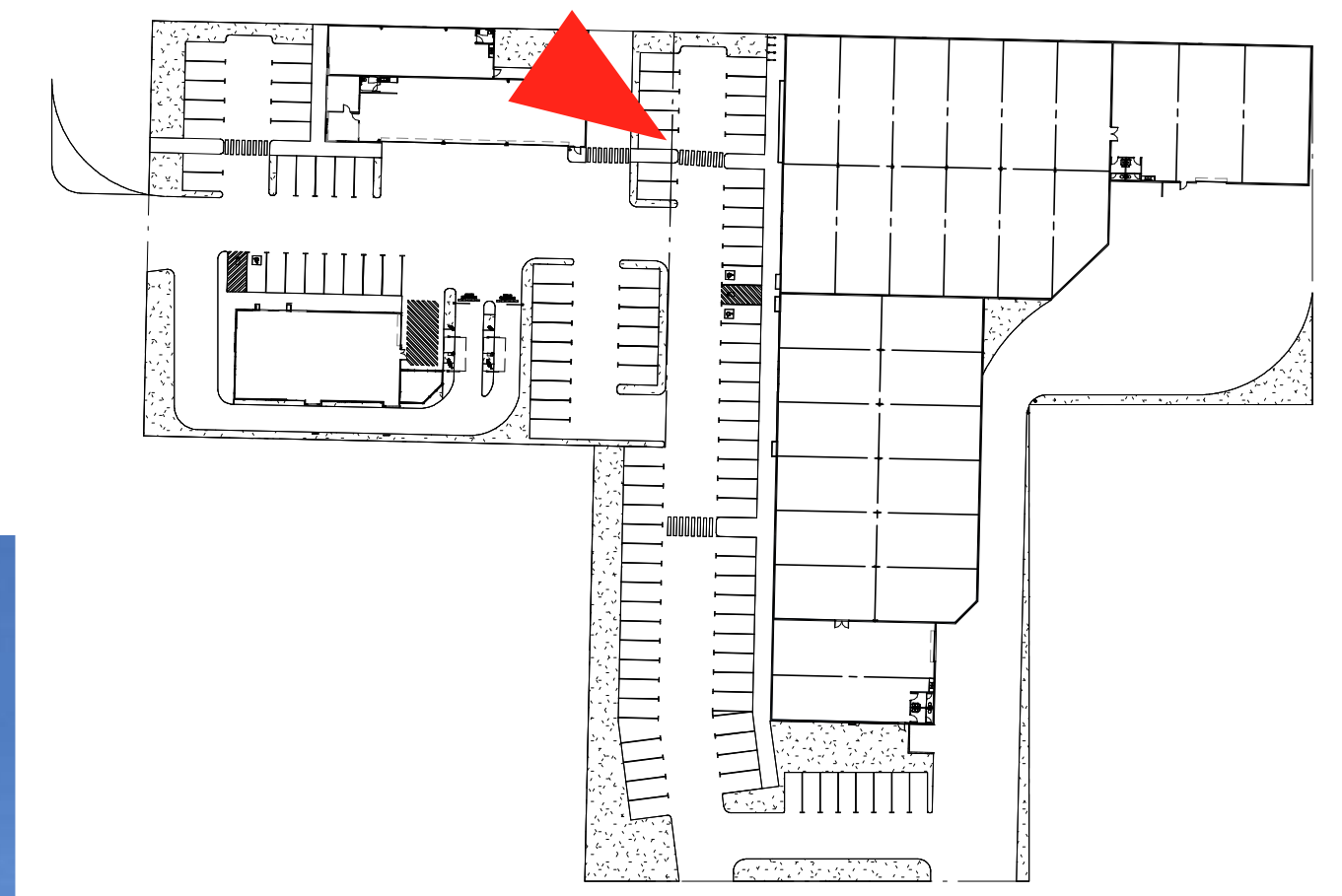












**VEND**  
PROPERTY

**PRELIMINARY**

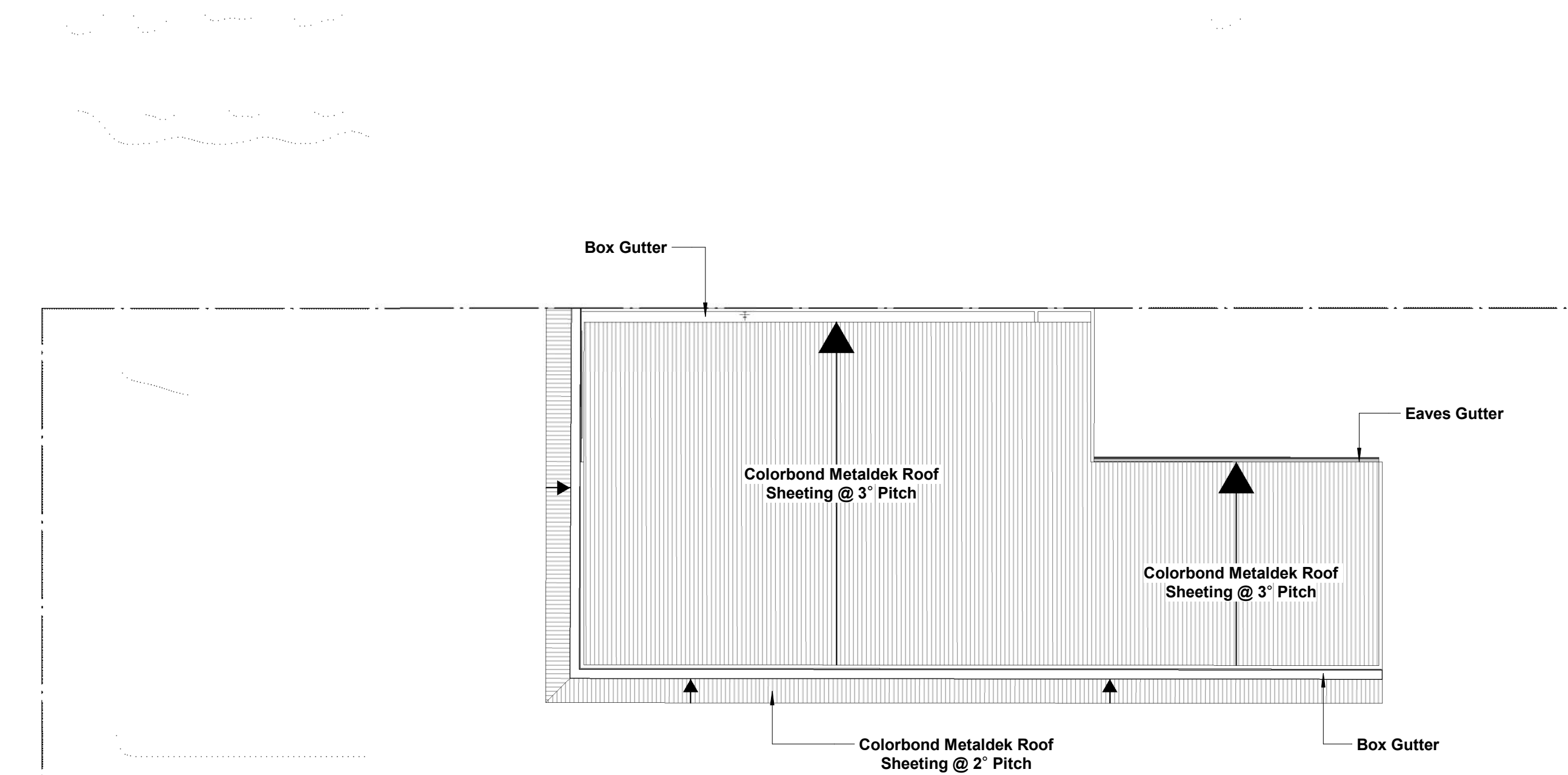
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|-----------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DATE:     | APR 2024 | PROJECT NUMBER                                                                                                                                                                         |
| REVISION: | SK007    | <b>23-9338</b>                                                                                                                                                                         |
| SHEET:    | 11       | © Meyer Shircore & Associates ACN 115 189 216<br>Suite 2, Ground Floor 437 Roberts Road, Subiaco WA 6008<br>PO Box 1294 Subiaco WA 6904<br>t: 08 9381 5511 e: msa@meyershircore.com.au |
| SCALE:    | 1 : 1000 |                                                                                                                                                                                        |



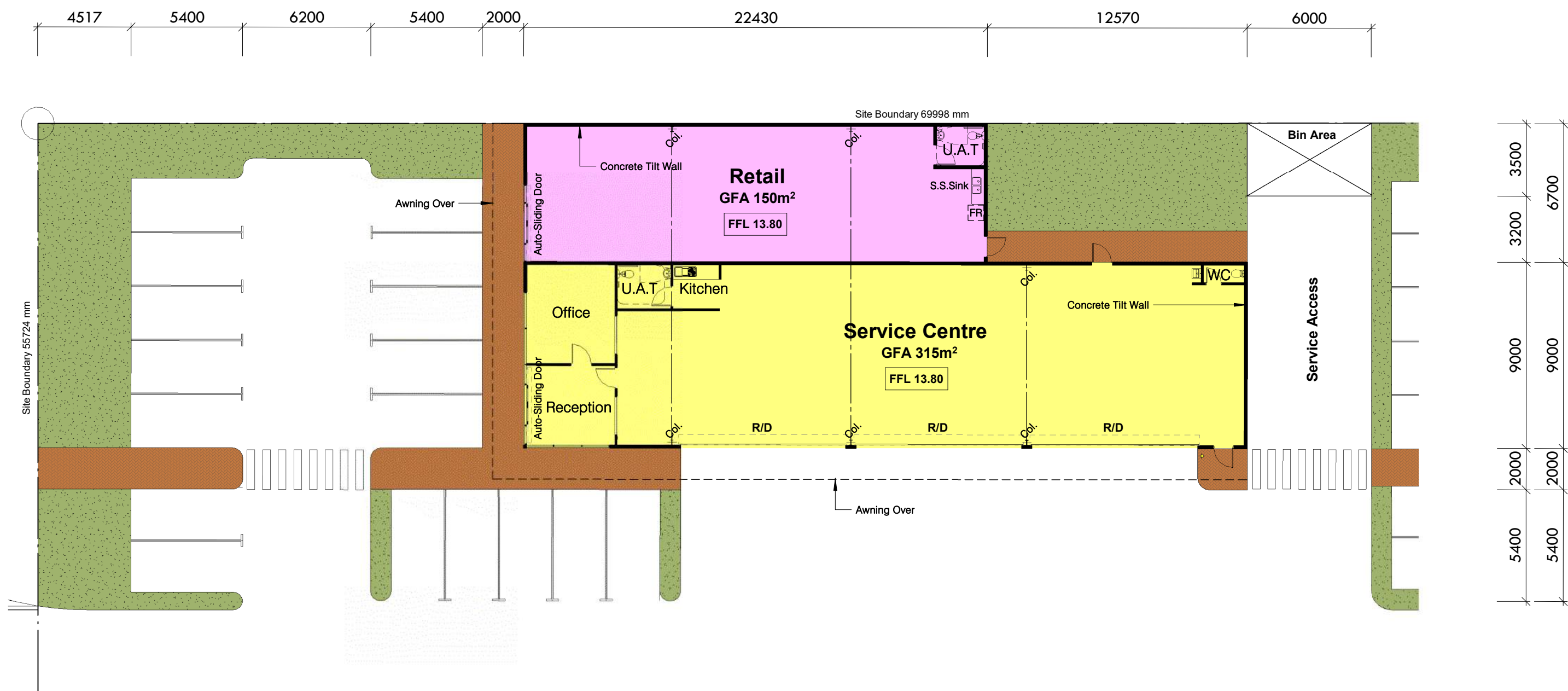
**meyer**  
**shircore**  
architects

**PROPOSED LARGE FORMAT RETAIL DEVELOPMENT**  
LOCATION : 207 PLACE ROAD, WEBBERTON WA 6530  
FOR : CORAL COAST NOMINEES PTY LTD

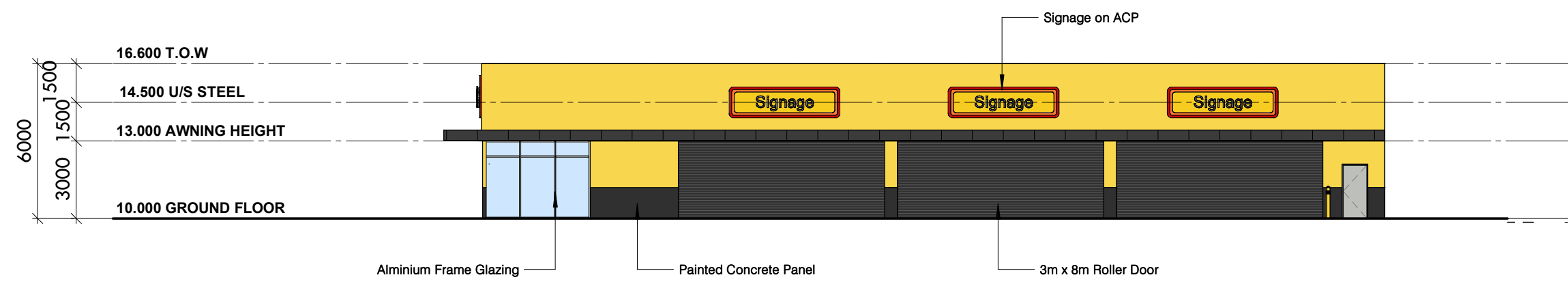




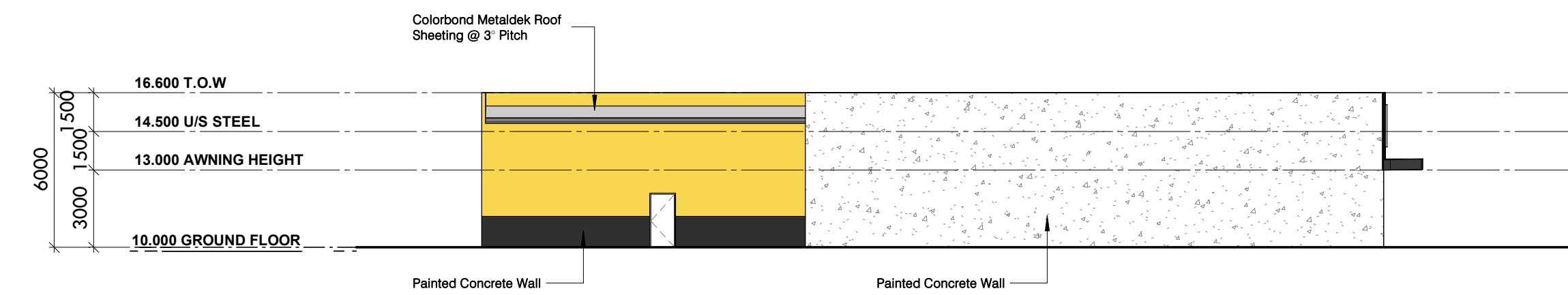
**BUILDING 2 ROOF PLAN**  
SCALE: 1 : 200



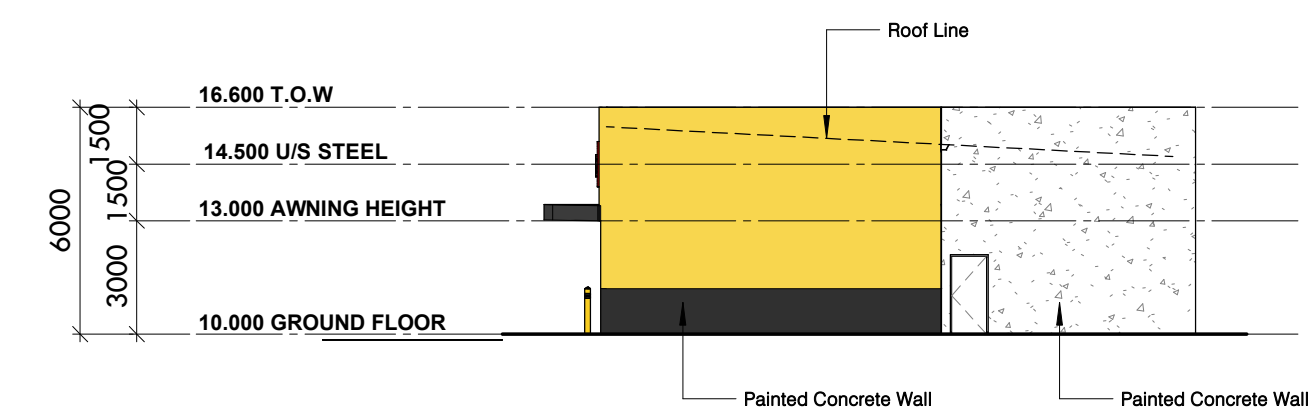
**BUILDING 2 GROUND FLOOR PLAN**  
SCALE: 1 : 200



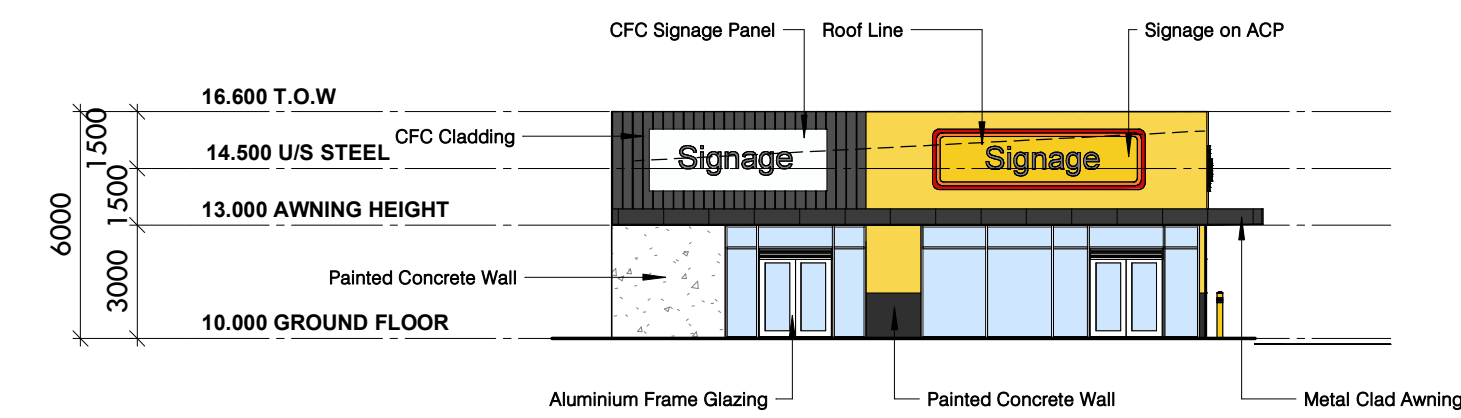
**BUILDING 2 SOUTH ELEVATION**  
SCALE: 1 : 200



**BUILDING 2 NORTH ELEVATION**  
SCALE: 1 : 200



**BUILDING 2 EAST ELEVATION**  
SCALE: 1 : 200



**BUILDING 2 WEST ELEVATION**  
SCALE: 1 : 200





**3D VIEW 4**  
SCALE:

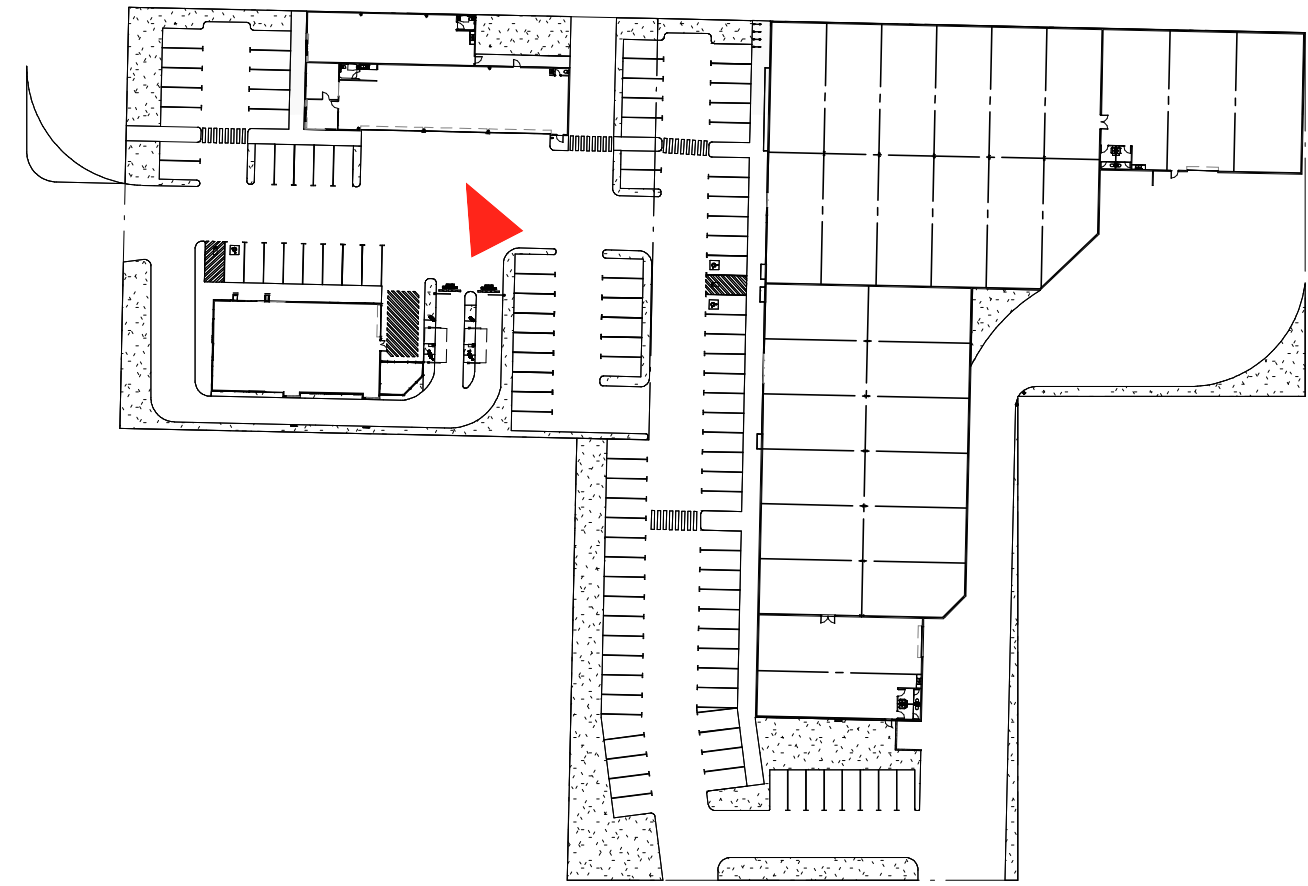


**3D View 5**  
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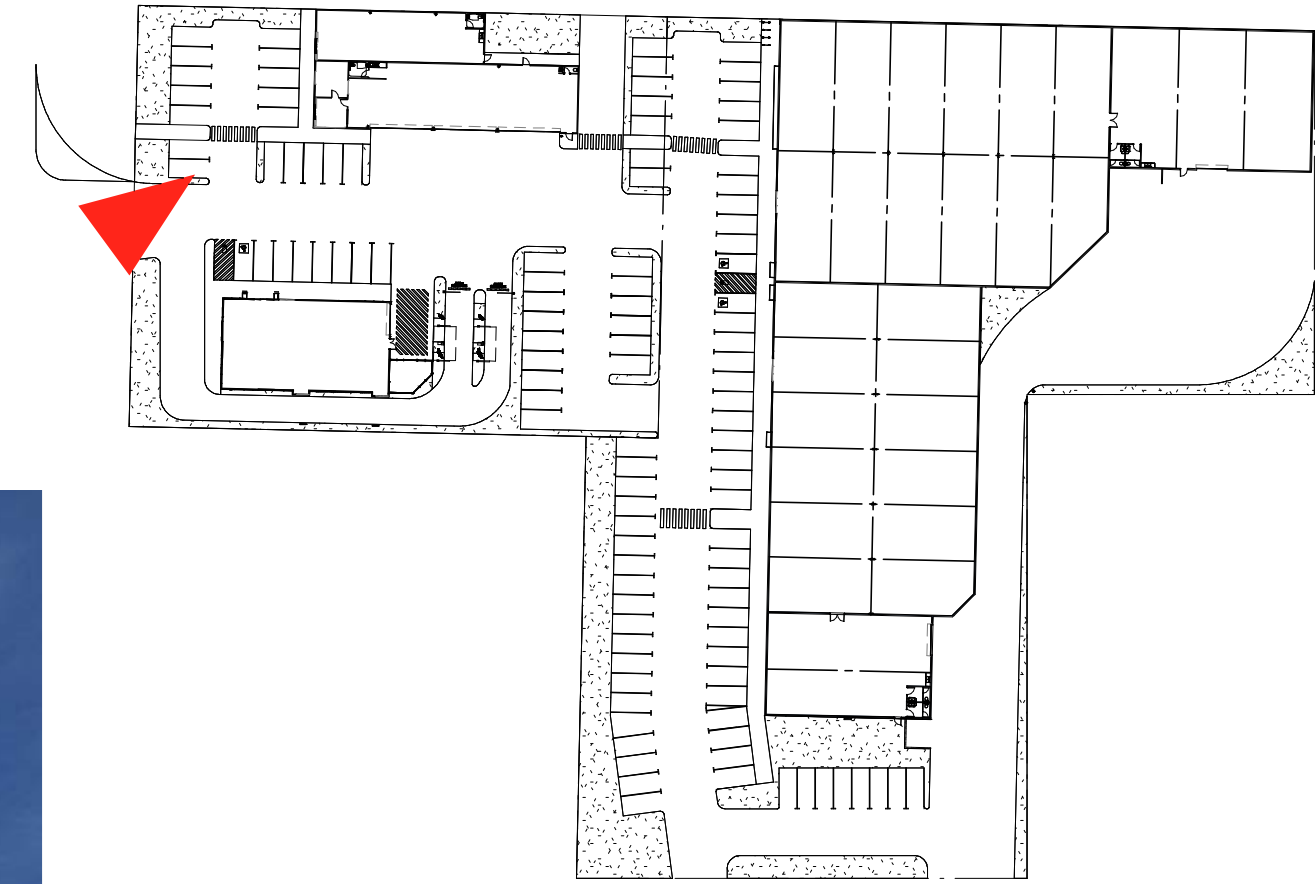


**3D View 6**  
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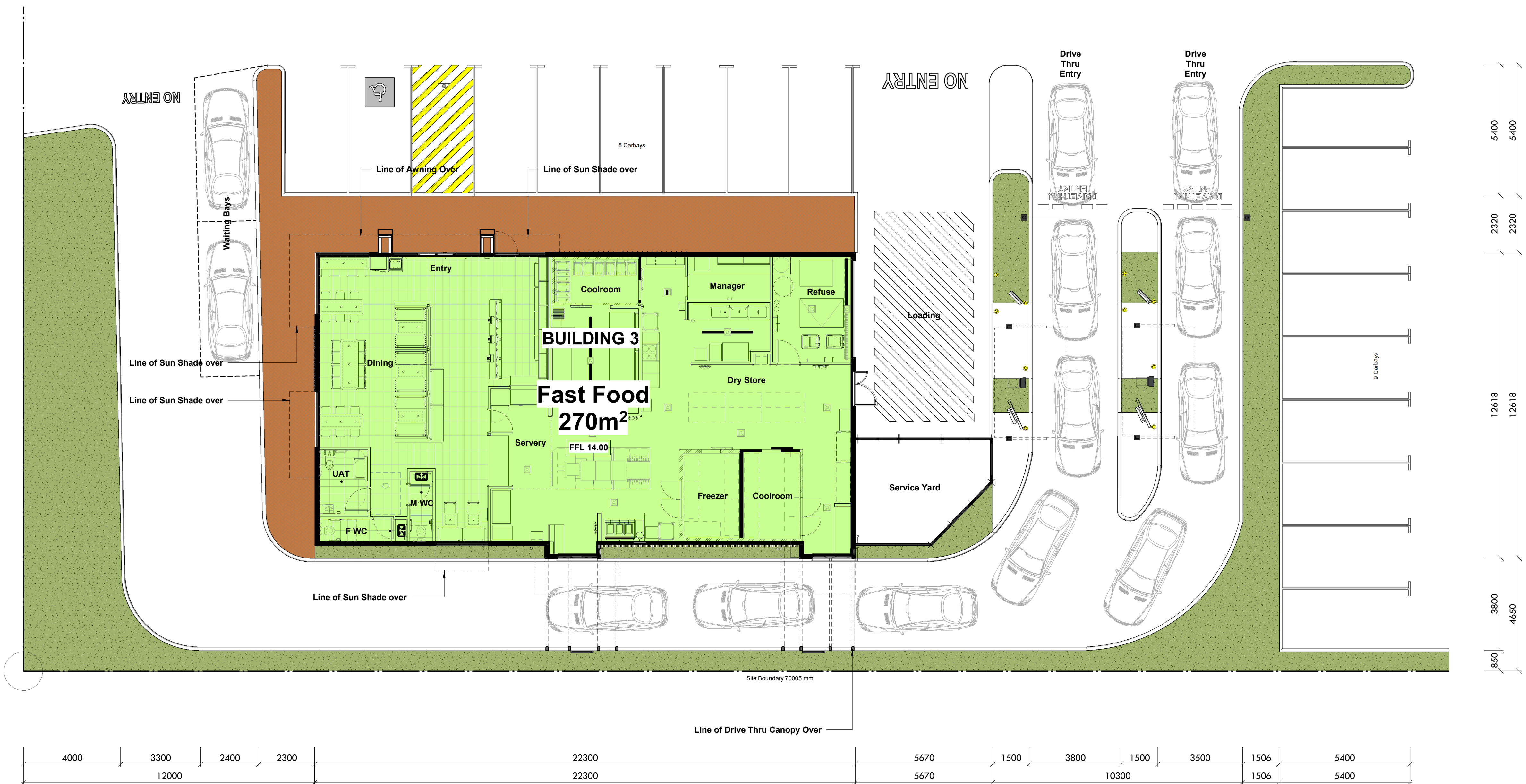






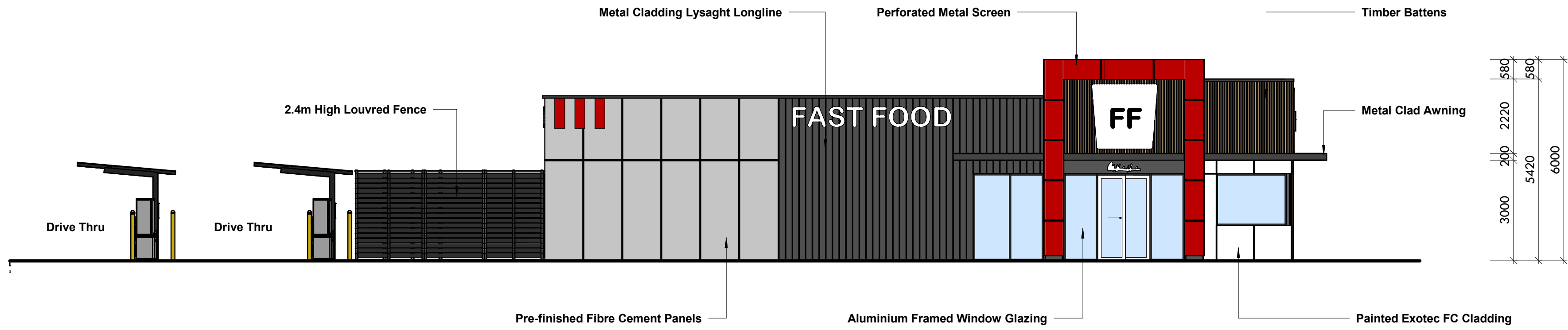




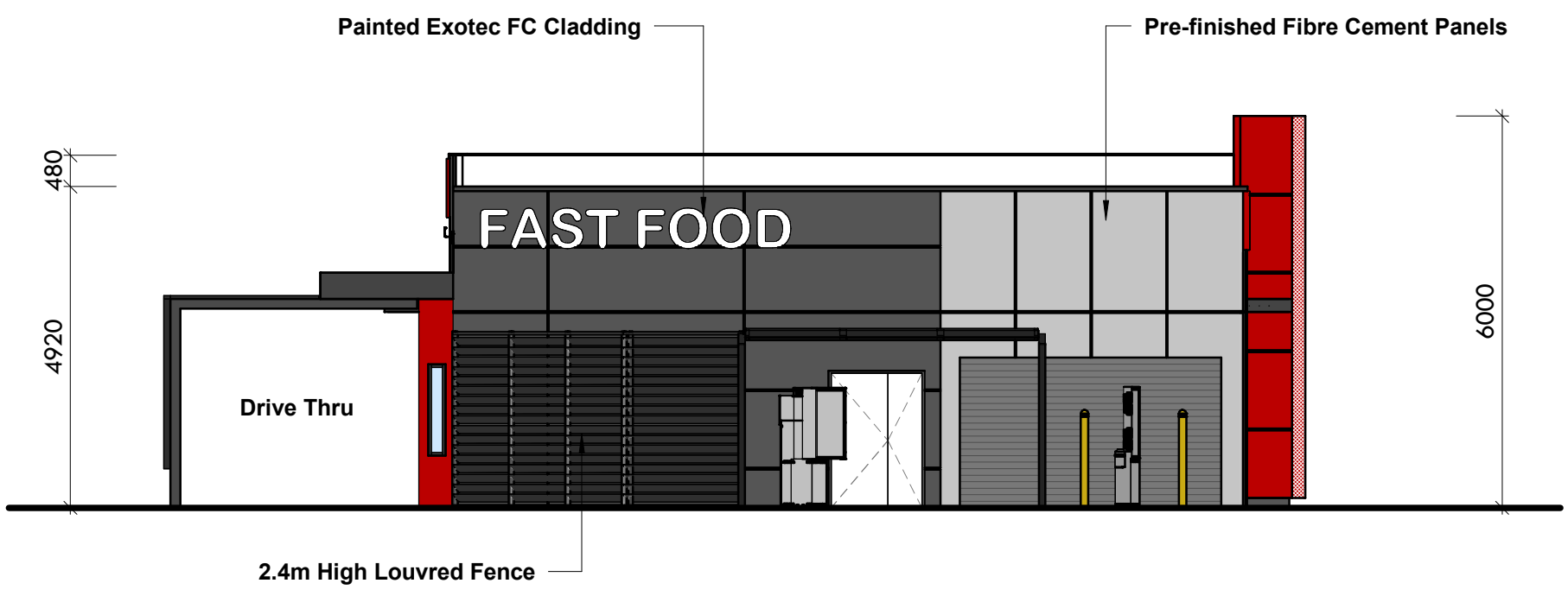


**FAST FOOD GROUND FLOOR PLAN**  
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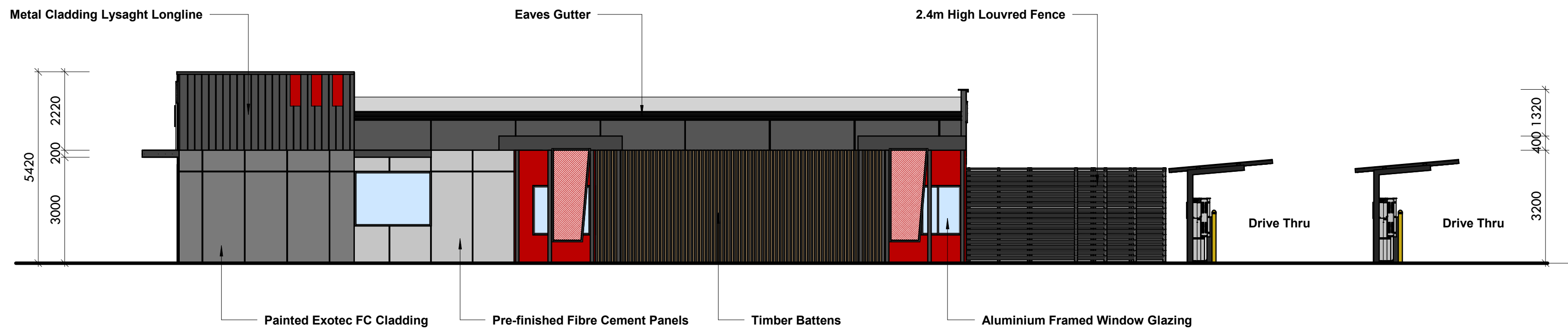




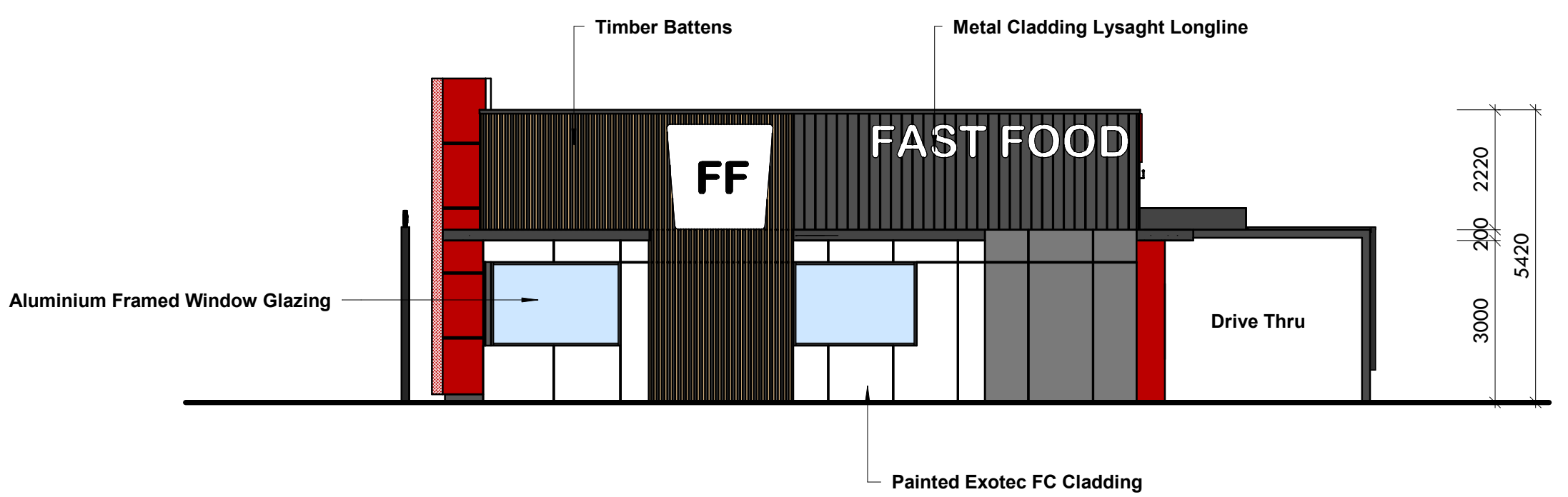
**NORTH ELEVATION**  
SCALE: 1 : 100



**EAST ELEVATION**  
SCALE: 1 : 100



**SOUTH ELEVATION**  
SCALE: 1 : 100



**WEST ELEVATION**  
SCALE: 1 : 100





3D View 8  
SCALE:

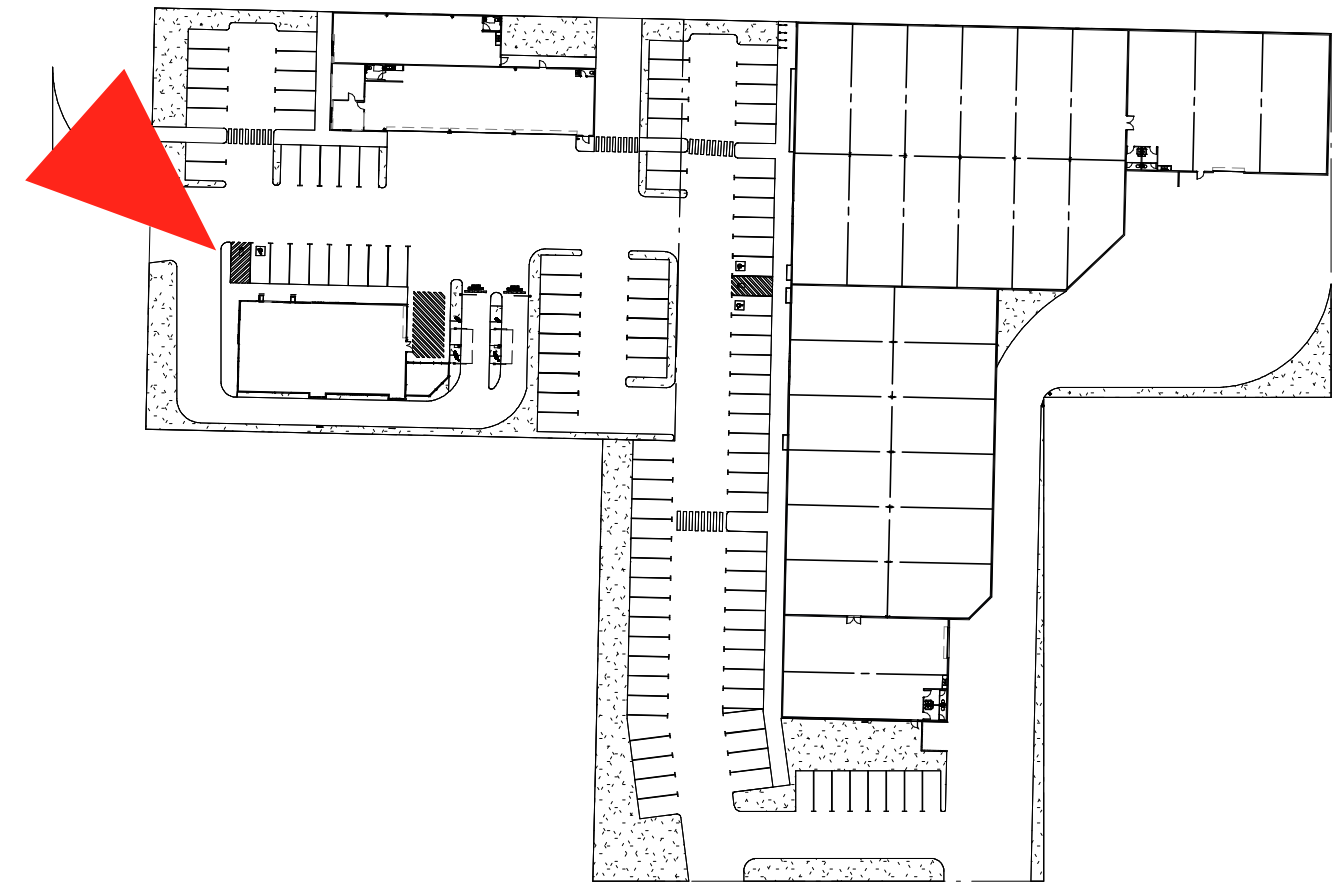


3D View 7  
SCALE:

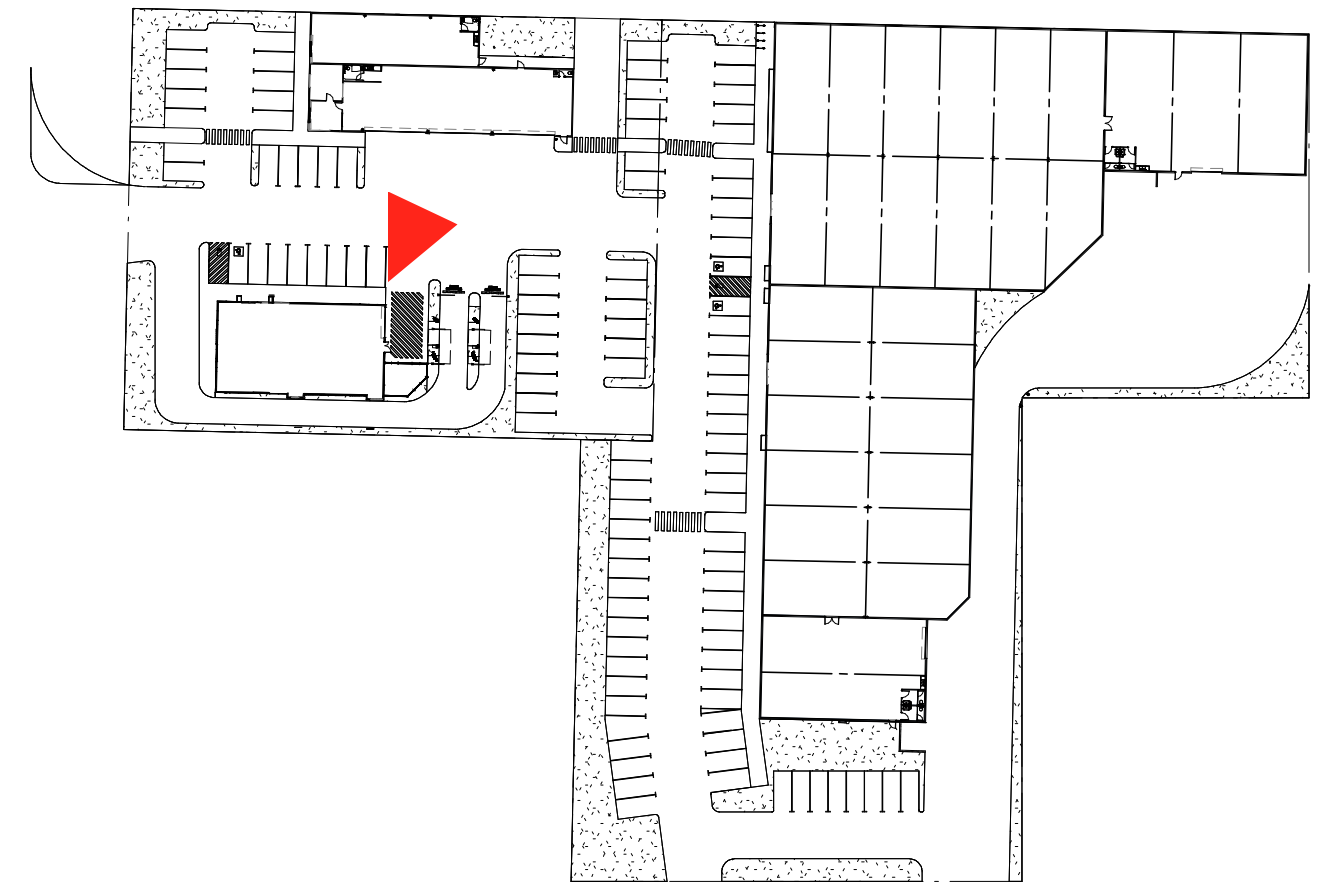


3D View 9  
SCALE:













LANDSCAPING PLAN

SCALE: 1 : 250

LANDSCAPE LEGEND

PLANTING SCHEDULE

| Symbol                                                                              | Description                         | Spacing    | Size  |
|-------------------------------------------------------------------------------------|-------------------------------------|------------|-------|
|  | MIX 01 - Groundcovers               | 3 per sqm. | 140mm |
|  | MIX 02 - Low Hedging & Groundcovers | 3 per sqm. | 140mm |
|  | MIX 03 - Low Shrubs & Groundcovers  | 3 per sqm. | 140mm |

TREE SCHEDULE

| Symbol                                                                              | Description                   | Spacing  | Size |
|-------------------------------------------------------------------------------------|-------------------------------|----------|------|
|  | TREE 01 - AGONIS FLEXUOSA     | As shown | 100L |
|  | TREE 02 - CORYMBIA FICIFOLIA  | As shown | 100L |
|  | TREE 03 - EUCALYPTUS TORQUATA | As shown | 100L |

PLANTING MIX 01



PLANTING MIX 02



PLANTING MIX 03



TREE





## **APPENDIX 3**

### **TRAFFIC IMPACT ASSESSMENT**





Engineering a better future for over 20 years!

# Proposed Mixed Commercial Development, 194 North West Coastal Highway & 207 Place Road, Webborton

## Transport Impact Assessment

PREPARED FOR:  
MJW Three Pty Ltd

May 2024



# Document history and status

| Author          | Revision | Approved by | Date approved | Revision type |
|-----------------|----------|-------------|---------------|---------------|
| Vladimir Baltic | r01      | B Bordbar   | 9/05/2024     | Draft         |
| Vladimir Baltic | r01a     | B Bordbar   | 14/05/2024    | Final         |
|                 |          |             |               |               |
|                 |          |             |               |               |
|                 |          |             |               |               |
|                 |          |             |               |               |

**File name:** t22.291.vb.r01a.docx

**Author:** Vladimir Baltic

**Project manager:** Behnam Bordbar

**Client:** MJW Tree Pty Ltd

**Project:** Mixed Commercial Development, Webberton

**Document revision:** r01a

**Project number:** t22.291

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# 1 Summary

---

This Transport Impact Assessment (TIA) report has been prepared with respect to the proposed mixed commercial development at 194 North West Coastal Highway and 207 Place Road in Webberton, City of Greater Geraldton. The relevant sites are located a short distance northeast of the existing signalised intersection of North West Coastal Highway/Place Road/Max Attrill Road.

The development proposal includes construction of a new mixed commercial development comprising two large format showrooms, one fast-food restaurant, one small-scale retail tenancy and one car service centre with associated on-site parking. As part of the development proposal, the existing two crossovers on North West Coastal Highway are proposed to be rationalised into one while no significant changes are proposed for the existing two Place Road crossovers.

The subject sites presently accommodate commercial operation and a sand/soil supply operation.

In accordance with the WAPC document *“Transport Impact Assessment Guidelines for Developments, Volume 4 – Individual Developments (2016)”* a Transport Impact Assessment is required for developments that are likely to generate high volumes of traffic and, therefore, would have a high overall impact on the surrounding land uses and transport networks.

The aim of this Transport Impact Assessment (TIA) is to estimate the traffic which will be generated by the proposed development and establish the resultant traffic pattern on the surrounding road network. This assessment will include the capacity analysis of the development crossovers on North West Coastal Highway and Place Road, as well as the adjacent, signalised intersection of North West Coastal Highway/Place Road/Max Attrill Road in its current and future (upgraded) format.

For the purpose of this TIA, Transcore liaised extensively with Main Roads WA (regional office) and the City of Greater Geraldton.



## 2 Introduction

---

The subject site combines Lots 2965 and 2968 (approximately 11,846m<sup>2</sup>), which occupy space immediately northeast of the North West Coastal Highway/Place Road/Max Attrill Road intersection, as shown in **Figure 1**.



**Figure 1: Location of the subject site**

The site is bound by North West Coastal Highway to the west, Place Road to the south and the existing service commercial precinct to the north. At present, the subject site is accessible by a total of four crossovers, as follows:

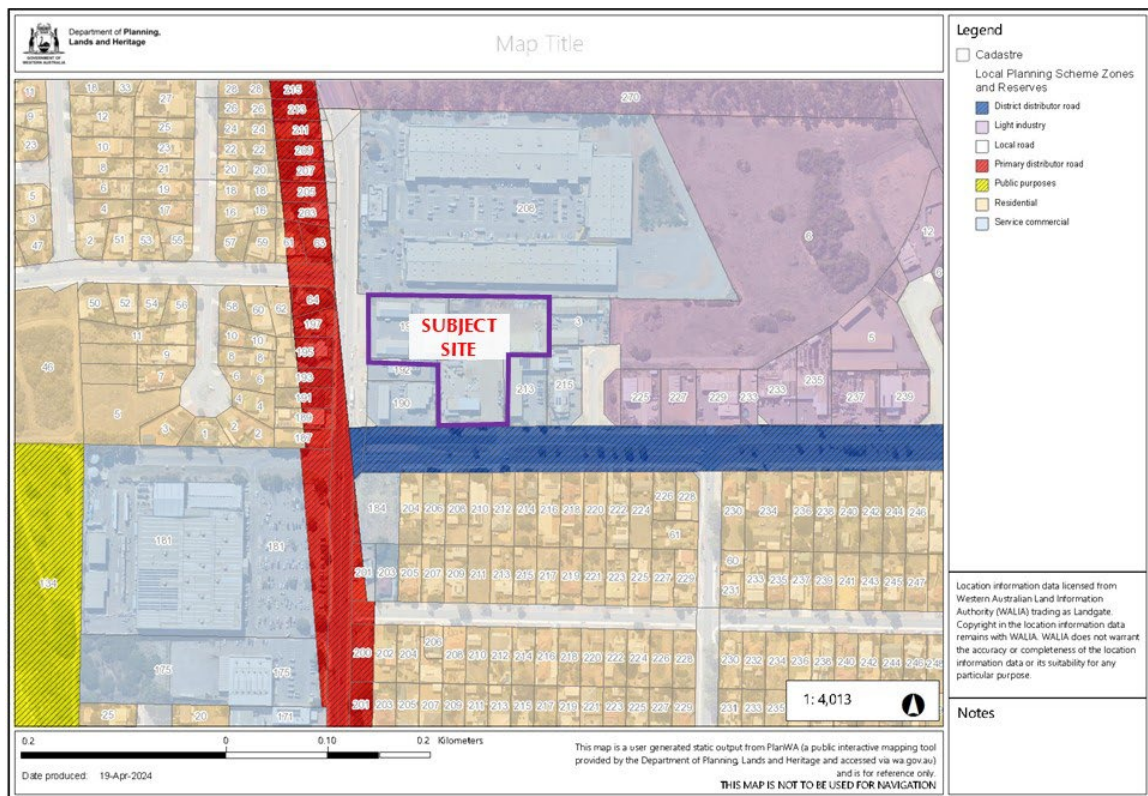
- Left-in/left-out (western) crossover on Place Road;
- Full-movement (eastern) crossover on Place Road;
- Left-in/left-out (northern) crossover on North West Coastal Highway; and,
- Full-movement (southern) crossovers on North West Coastal Highway.



The two crossovers on North West Coastal Highway are connected by a short service road. The subject site forms part of the existing commercial/retail precinct which occupies space at the eastern side of North West Coastal Highway.

The key issues that will be addressed in this report include the traffic generation of the proposed development and capacity analysis the site's crossovers and the adjacent intersection of North West Coastal Highway/Place Road/Max Attrill Road. The parking provision for the development and access to the site by all modes of transport will also be discussed.

The location of the subject site within the *Local Planning Scheme* context is illustrated in **Figure 2**. Review of the *LPS* confirms that North West Coastal Highway is a *Primary Distributor Road* while Place Road is a *District Distributor* road. The subject site is zoned as "*Service Commercial*" in the *LPS*.



**Figure 2. Site location within the Local Planning Scheme**

North West Coastal Highway is state road under care and control of Main Roads WA, while Place Road is a local road under care and control of City of Greater Geraldton.



### 3 Development Proposal

---

The development proposal for the subject site contemplates demolition of the existing structures on site and construction of a mixed commercial development with associated on-site parking. Specifically, the development proposal entails the following elements:

- One small-scale retail tenancy totalling GFA of 150m<sup>2</sup>;
- One fast-food restaurant (GFA 270m<sup>2</sup>) with a double-lane drive-through facility;
- One car service centre totalling GFA of 315m<sup>2</sup>;
- Two large-format showroom tenancies with a combined GFA of 3,500m<sup>2</sup> (inclusive of associated B.O.H. areas);

The total on-site car parking supply totals 122 car bays inclusive of 13 restaurant drive-through bays. The parking supply includes a total of three ACROD bays which are conveniently located adjacent to main entries into the restaurant and showrooms.

A separate service yard with bin storage area for the retail tenancy and car service centre is provided immediately east of the two buildings.

A designated loading bay for the restaurant is located between the restaurant building and the drive-through facility.

The service areas for the two showrooms are provided adjacent to the B.O.H. for respective tenancies and accessible via a designated crossover on Place Road. This is so that a degree of separation of patron and heavy vehicle traffic is achieved.

Refer **Appendix A** for proposed development plan.

As part of the development proposal, it is intended to generally retain the existing access system for the site albeit with the proposed rationalisation of the existing pair of crossovers on North West Coastal Highway to one access point.

No change in format of the existing two accesses on Place Road is contemplated; however, the western crossover will be shifted slightly to the east and away from the signalised intersection to accommodate a Western Power transformer.

Accordingly, the access system intended to serve the commercial development comprises the following elements:

- A restricted, left-in/left-out crossover on North West Coastal Highway approximately 85m north of Place Road;
- A restricted, left-in/left-out crossover on Place Road at the western end of the site, approximately 75m east of North West Coastal Highway intersection; and,
- A full-movement crossover on Place Road at the eastern end of the site, approximately 115m east of North West Coastal Highway intersection.



It has been advised that large size rigid service vehicles of 12.5m in length would be used for deliveries to the restaurant, retail tenancy and the car service centre, while waste collection will be likely be undertaken using 11m long rear loader waste collection trucks.

Showrooms will be serviced by a variety of large vehicles including 19.0m semi-trailers, while waste collection will likely be undertaken using 11m long rear loader waste collection trucks, as advised by the City.

The swept path assessment plans for relevant service vehicles are presented in **Appendix B**.

For the purpose of the traffic assessment, it is assumed that the proposed commercial development would be completed and fully operational by the end of 2026.



## 4 Existing Situation

---

The subject site is located northeast of the existing signalised intersection of North West Coastal Highway/Place Road. The subject sites presently accommodate commercial land uses and a sand/soil supply operation.

### 4.1 Existing Road Network

**North West Coastal Highway**, in the vicinity of the subject site, is a four-lane divided road with pedestrian footpaths on both sides of the road (only western side south of Mark Street). Refer to **Figure 3** for more details.

North West Coastal Highway is classified as *Primary Distributor* in the Main Roads WA *Functional Road Hierarchy* and operates under a posted speed limit of 60km/h in this locality.



**Figure 3: Northbound view along North West Coastal Highway**

**Place Road**, in the vicinity of the subject site, is also constructed as a four-lane divided dual carriageway with landscaped median. A pedestrian footpath is provided only on the southern side of the road. Refer to **Figure 4** for more details.



Place Road is classified as *Distributor B* in the Main Roads WA *Functional Road Hierarchy* and operates under a posted speed limit of 60km/h in this locality.

Place Road forms a four-way signalised intersection with North West Coastal Highway and Max Attrill Road.



**Figure 4: Westbound view along Place Road**

## 4.2 Existing Traffic Volume on Roads

According to the latest available traffic volumes sourced from Main Roads WA, North West Coastal Highway (south of Dean Street) carried approximately 13,199 vehicles on a typical weekday in 2022/23. The morning and afternoon peaks are between 8:00am to 9:00am and 2:45pm to 3:45pm with traffic volumes of 1,236vph and 1,234vph, respectively. Heavy vehicles comprised about 8.3% of total traffic mix.

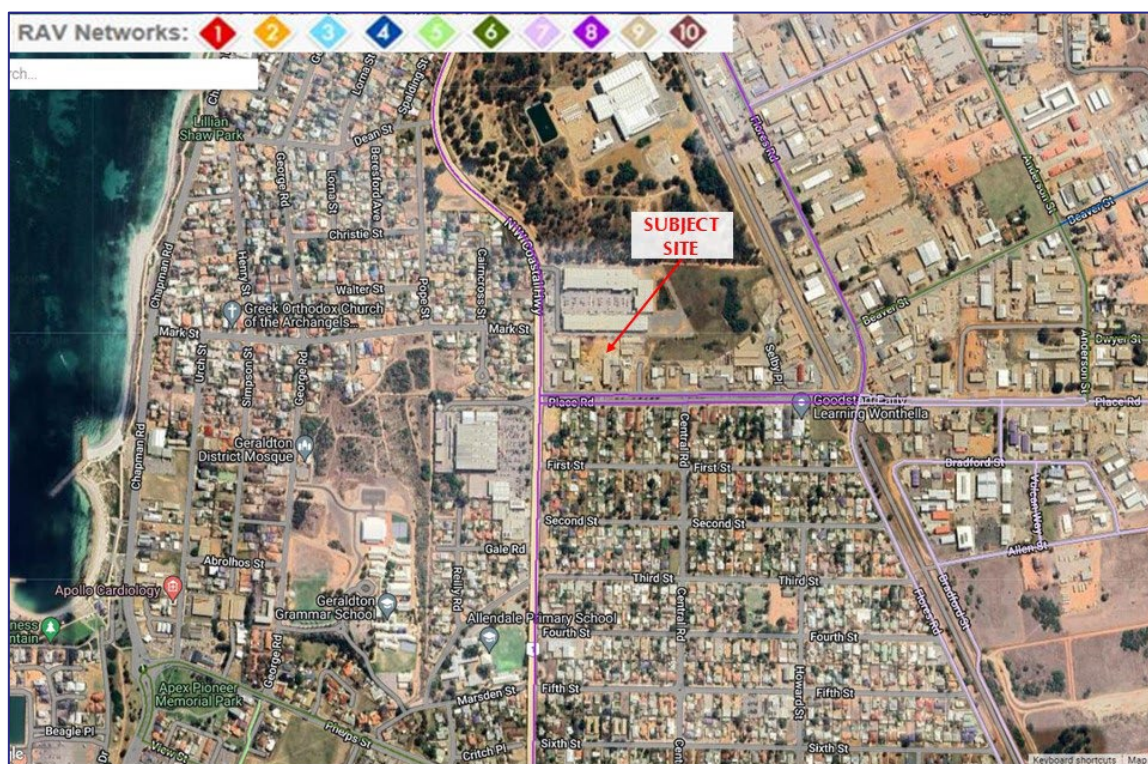
According to the latest available SCATS data sourced from Main Roads WA (September 2021), Place Road recorded morning (8:00am to 9:00am) and afternoon (3:15pm to 4:15pm) peak hour traffic volumes of 931vph and 959vph, respectively.

## 4.3 Heavy Vehicles

Restricted Access Vehicle (RAV) Network routes are designated for access by large heavy vehicle combinations, which is managed by Main Roads WA. Roads directly fronting the subject site are classified as RAV Network 8, as shown **Figure 5**.



The RAV 8 Network classification permits operation of rigid truck towing two dog trailers 36.5m in length on these roads.



**Figure 5. Existing heavy vehicle road network classification (RAV)**

## 4.4 Public Transport Access

According to the current TransGeraldton bus network map, the subject site is directly served by bus service No. 852 operating along North West Coastal Highway and Place Road. The nearest bus stops are located on Place Road in immediate proximity of the subject site and accessible via existing footpath on Place Road.

The public transport service available to the subject site is illustrated in the relevant TransGeraldton bus service map (see **Figure 6**).



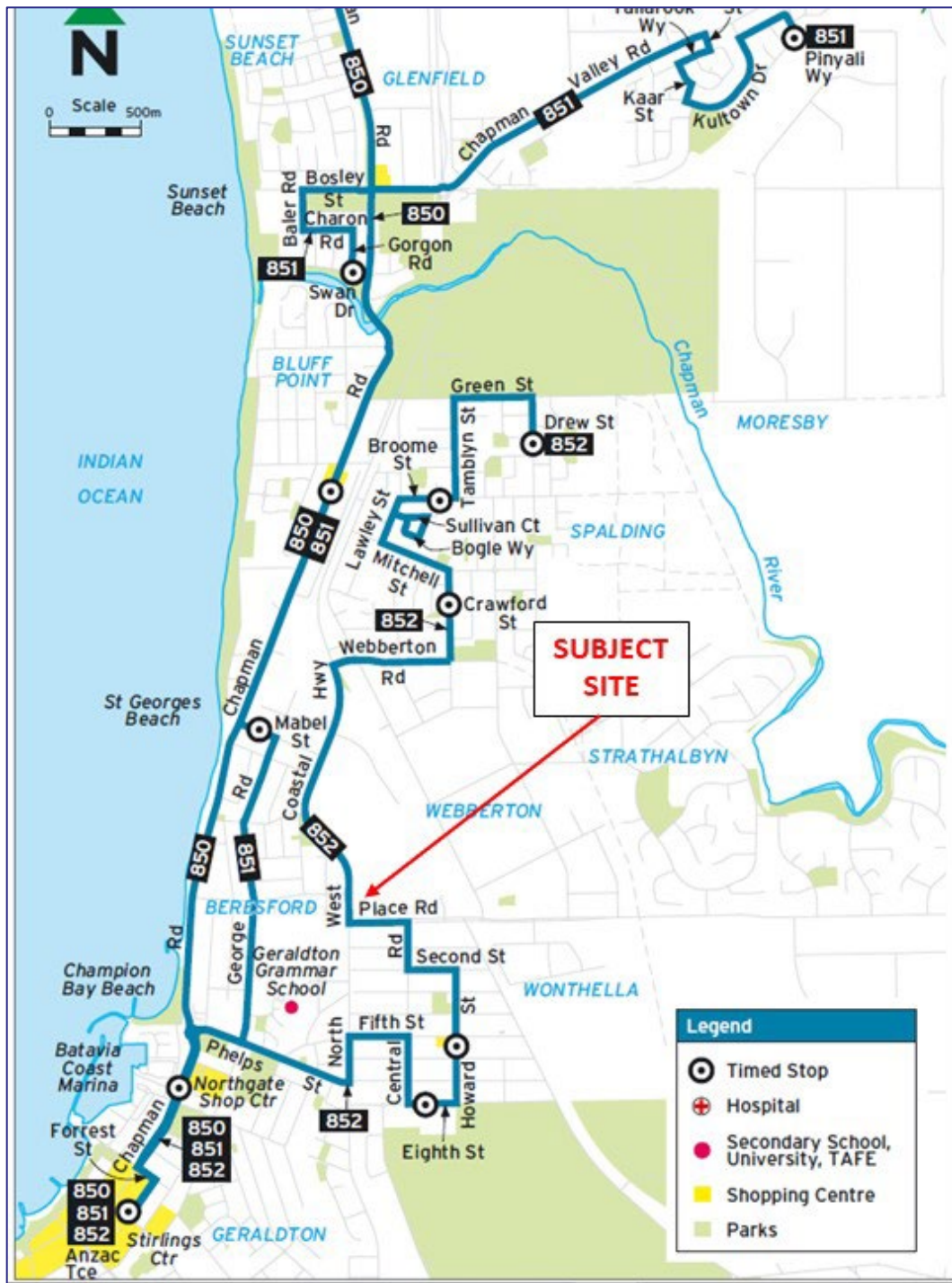


Figure 6: Public transport services (TransGeraldton Maps)

## 4.5 Pedestrian and Cyclist Facilities

Pedestrian accesses to the subject site are directly available from the existing shared paths on North West Coastal Highway and Place Road. Pedestrian crossing facilities are available at the signalised intersection of North West Coastal Highway/Place Road/Max Attrill Road.



According to the current Department of Transport “Map Your Move” Greater Geraldton Bike Maps, the subject site has direct access to the existing bike path network within the locality via the “shared path” which is in place along North West Coastal Highway and Place Road. **Figure 7** shows the existing cyclist connectivity to the subject site.



**Figure 7: Extract from Map Your Move Greater Geraldton Bicycle Network (Department of Transport)**

## 4.6 Crash Data

Information available on Main Roads WA website provides crash statistics for North West Coastal Highway/Place Road/Max Attrill Road intersection during the five-year period ending in December 2023. The crash records indicate that this intersection recorded a total of 15 road crashes with no casualties and no fatalities in the last five-year period. About 80% of recorded crashes were rear end type of crashes. More details on the crash records are provided in **Table 1**.

**Table 1. Crash history for the North West Coastal Highway/Place Road/Max Attrill Road intersection**

| Intersection                                   |          |            |       | Total Crashes | Casualty |
|------------------------------------------------|----------|------------|-------|---------------|----------|
| North West Coastal Hwy/Place Rd/Max Attrill Rd |          |            |       | 15            | 0        |
| Sideswipe                                      | Rear End | Pedestrian | Cycle | Wet           | Night    |
| 2                                              | 15       | 0          | N/A   | 0             | 1        |



## 5 Changes to Surrounding Transport Networks

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The existing North West Coastal Highway/Place Road/Max Attrill Road intersection is planned to be upgraded in order to secure additional capacity for the future growth of traffic on constituent roads and in particular the North West Coastal Highway as a regional route.

Main Roads WA has provided Transcore with the most current, 15% concept intersection upgrade plans, so to provide guidance with respect to lane allocation, signal phasing and intersection capacity assessment for this project. According to the current plans, the following key intersection upgrades are presently contemplated:

- Provision of an additional through lane on North West Coastal Highway;
- Provision of a dedicated right-turn pocket on both North West Coastal Highway approaches;
- Provision of a new left-turn slip lane on Place Road approach controlled by give-way protocol; and,
- Relocation of the existing pedestrian crossing on North West Coastal Highway south approach to North West Coastal Highway north approach.

In addition to the proposed intersection upgrade, the existing solid median on North West Coastal Highway north approach is proposed to be extended further north thus restricting some of the existing full-movement crossovers on eastern side of the highway to a left-in/left-out only format in the future.

A copy of the concept North West Coastal Highway upgrade plans provided by Main Roads WA are attached in **Appendix D**.



## 6 Integration with Surrounding Area

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The proposed development is of a service commercial character and as such is fully in line with the locality.



## 7 Traffic Assessment

### 7.1 Assessment Period

A review of the existing traffic counts for the surrounding road network and other available information suggests that the combination of the traffic expected to be generated by the subject development and the peak road network traffic periods is likely to result in the greatest demand on the road network during the typical weekday morning and afternoon peak hours between 8:00-9:00AM and 3:15-4:15PM.

As such, trip generation is estimated, and traffic analysis is undertaken for these periods, which is in line with WAPC *Transport Impact Assessment Guidelines*.

For the purpose of this assessment, year 2026 assessment is assumed for the post-development scenario.

In line with the requirements of the document “*Transport Impact Assessment Guidelines for Developments, Volume 4 – Individual Developments (2016)*” additional assessment is undertaken for a (near) 10-year post-development time horizon (i.e., 2036 in this particular case).

### 7.2 Trip Generation and Distribution

Traffic generation rates for the proposed development were established based on multiple sources such as WAPC *Transport Impact Assessment Guidelines 2016*, NSW RMS TDT 2013a/04a *Technical Direction* and Institute of Transportation Engineers – *Trip Generation Manual 11th Edition (ITE)* document publications, including the actual sales data for the restaurant operator collected at one of the outlets. Refer **Table 2** for details on applied trip rates for this development.

**Table 2. Trip generation rates for the proposed development**

| Land use / Units / Trip generation source      | Trip rates applied |         |         |
|------------------------------------------------|--------------------|---------|---------|
|                                                | Daily              | AM Peak | PM Peak |
| Retail (non-food) / GFA / WAPC                 | 40                 | 1.25    | 4.0     |
| Fast Food Restaurant / Outlet / KFC sales data | 762                | 0.0     | 52.0    |
| Car Service / GFA / ITE 11 <sup>th</sup> (943) | 17.87              | 2.06    | 2.22    |
| Showrooms (bulky goods) / GFA / TDT 04a        | 17                 | 1.62    | 2.70    |

Accordingly, it is estimated that the proposed development would generate approximately **1,474** total daily vehicle trips, including approximately **66** and **163** trips (inbound and outbound) during a typical weekday AM and PM peak hours, respectively.



Trips associated with the proposed development also comprise a portion of passing-trade trips (and diverted trips) which are trips already present on the road network. A combined passing trade factor of 49%/50% was applied in this instance for AM and PM peaks, respectively, which is in line with the *ITE Trip Generation Handbook*.

It is therefore estimated that the proposed development would generate approximately **34** and **81** new trips on the road network during the AM and PM peak weekday hours, respectively. This estimation is conservative as it does not allow for the trip generation of the existing land uses at the subject site.

With respect to the assumed distribution and assignment of the development-generated traffic, consideration was given to the location of the site (adjacent to a major district-level route), the passing trade nature of the development and the current available access and egress routes to and from the site. Accordingly, the assumed directional traffic distribution is as follows:

#### Inbound trips:

- Approximately 50% of the traffic generated from the development would arrive from North West Coastal Highway north direction;
- Approximately 5% of the traffic generated from the development would arrive from Max Attrill Road west direction;
- Approximately 20% of the traffic generated from the development would arrive from Place Road east direction; and,
- Approximately 25% of the traffic generated from the development would arrive from North West Coastal Highway south direction.

#### Outbound trips:

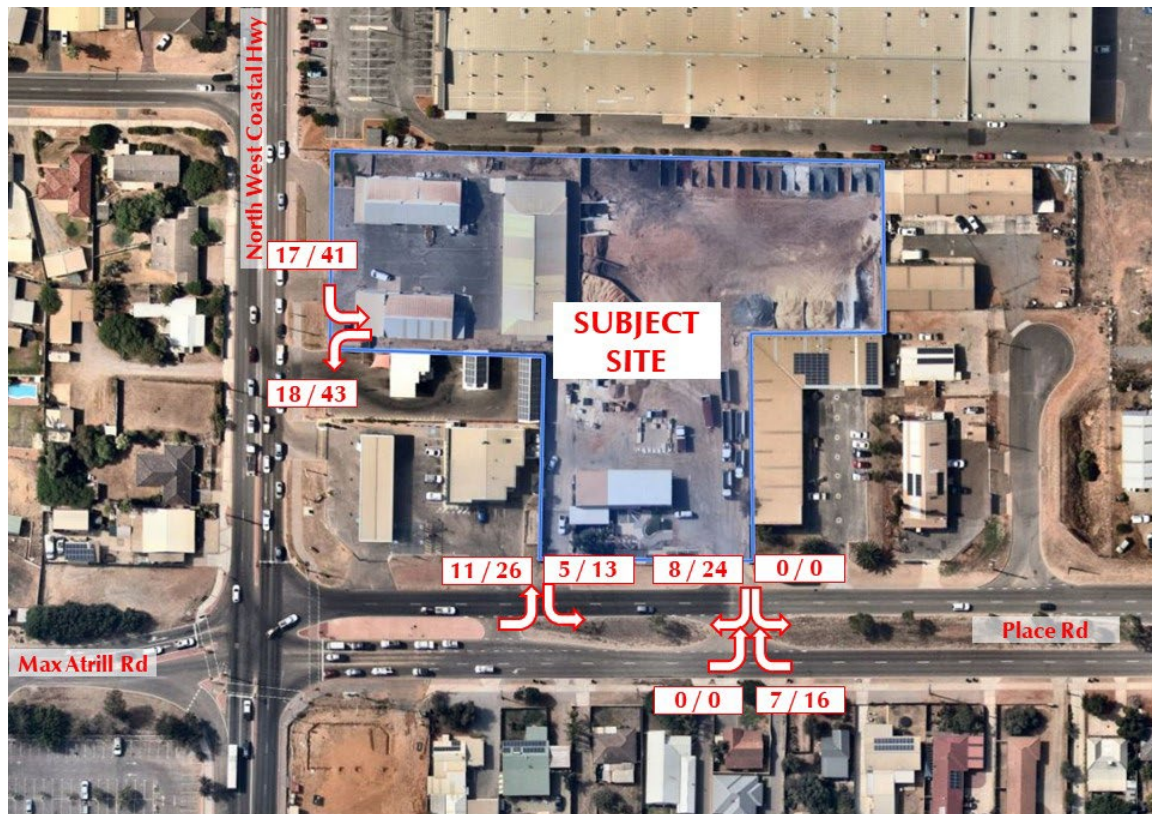
- Approximately 25% of the traffic generated from the development would depart to North West Coastal Highway north direction;
- Approximately 5% of the traffic generated from the development would depart to Max Attrill Road west direction;
- Approximately 20% of the traffic generated from the development would depart to Place Road east direction; and,
- Approximately 50% of the traffic generated from the development would depart to North West Coastal Highway south direction.

## 7.3 Traffic Flow

The traffic movements estimated to be generated by the proposed development have been manually assigned on the adjacent road network in line with the directional distribution assumptions outlined in the previous section.

The resulting year 2026 traffic movements generated by this development, during the typical weekday AM and PM peaks are shown in **Figure 9**.





**Figure 8: Estimated development generated traffic – Weekday morning/afternoon peak hour traffic**

For the purpose of this assessment, the relevant weekday AM and PM peak hour traffic movements at the intersection of North West Coastal Highway/Place Road/Max Attrill Road were established using Main Roads WA traffic survey data provided by Matrix surveyors (survey from 16 Sep 2021).

The 2036 traffic projections for the signalised intersection were established using the 1.0% annual growth for the background traffic applied for each movement and adjusted to accommodate, currently contemplated, (future) upgraded intersection layout. These traffic flows formed basis for the 10-year post-development capacity assessment of the intersection.

## 7.4 Analysis of Local Intersections & Crossovers

The assessment of the site's crossovers and the adjacent intersection of North West Coastal Highway/Place Road/Max Attrill Road was undertaken for existing (as appropriate) the post-development (year 2026) and 10-year horizon (year 2036) scenarios.

Main Roads WA provided the SIDRA modelling report for the future North West Coastal Highway/Place Road/Max Attrill Road intersection assessment used to determine the extent of the planned upgrade works. However, the modelling report



does not conform to the latest 15% intersection upgrade concept design plan for the intersection and the phasing diagram used in the capacity assessment is not conducive to the currently contemplated intersection upgrade design. Accordingly, an alternative phasing diagram in line with the future design was developed by Transcore and applied in the 10-year post-development capacity assessment of the North West Coastal Highway/ Place Road/Max Attrill Road intersection.

The capacity analysis of the crossovers and the intersection was undertaken using the SIDRA computer software package. SIDRA is an intersection modelling tool commonly used by traffic engineers for all types of intersections. SIDRA outputs are presented in the form of Degree of Saturation, Level of Service, Average Delay and 95% Queue. These characteristics are defined as follows:

- **Degree of Saturation** is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The Degree of Saturation ranges from close to zero for infrequent traffic flow up to one for saturated flow or capacity.
- **Level of Service** is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. In general, there are 6 levels of service, designated from A to F, with Level of Service A representing the best operating condition (i.e. free flow) and Level of Service F the worst (i.e. forced or breakdown flow).
- **Average Delay** is the average of all travel time delays for vehicles through the intersection.
- **95% Queue** is the queue length below which 95% of all observed queue lengths fall.

The results of the SIDRA analysis are summarised in **Appendix C** and discussed in the subsequent paragraphs.

#### **North West Coastal Highway/Place Road/Max Attrill Road Intersection**

The SIDRA analysis indicates that this intersection currently operates with overall LoS D during both AM and PM peak hour periods. The intersection currently operates at about 75% and 68% capacity levels during the AM and PM peak hour periods, respectively. Refer **Table 3** through to **Table 4** for more details.

The addition of development traffic, including the 1.0% background traffic growth on constituent roads in 2026, will not result in change to overall intersection level of service which remains at LoS D in both observed peak hour periods. The intersection at this stage operates at about 77% and 71% capacity with proportional marginal increases to queues and delays on approaches. Refer **Table 5** through to **Table 6** for more details.

Similarly, with the allowance for development-generated and 10-year background traffic growth on constituent roads (year 2036), and assuming the intersection has been upgraded as proposed, the overall LoS for the intersection remains that of LoS D in both peak periods. The intersection operates at capacity levels of about 79% in both peak hour periods. Refer **Table 7** through to **Table 8** for more details.



#### **North West Coastal Highway crossover**

This crossover is intended to operate in a restricted left-in/left-out only format. As such, capacity issues are not anticipated for this crossover and no detailed capacity assessment is therefore required.

#### **Place Road (West) crossover**

This crossover is intended to operate in a restricted left-in/left-out only format. As such, capacity issues are not anticipated for this crossover and no detailed capacity assessment is therefore required.

#### **Place Road (East) crossover**

The SIDRA analysis for post-development and 10-year horizon stages indicates overall LoS A operation with no capacity or queueing issues for this crossover, which is to be expected considering its left-in/left-out format. Refer **Table 9** through to **Table 12** for more details.

Accordingly, it can be concluded that the development crossovers and the signalised interaction will work satisfactorily with the addition of the development traffic without impacting the operations of the surrounding road network.

## **7.5 Impact on Surrounding Roads and Neighbouring Areas**

Considering the location of the subject site, its accessibility via major regional road, significant passing trade component and limited number of residential dwellings within the immediate vicinity, the traffic impact from the proposed development on the neighbouring areas will be limited.

## **7.6 Traffic Noise and Vibration**

Due to the location of the proposed development and with respect to the surrounding land uses traffic noise and vibration are relevant only to the residential areas directly fronting adjacent roads east and south of the site, which in this case is limited.

It generally requires a doubling of traffic volumes on a road to produce a perceptible 3dB(A) increase in road noise. The proposed development will not increase traffic volumes or noise on surrounding roads anywhere near this level.

## **7.7 Road Safety**

No particular safety-related issues have been identified for the proposal.



## 7.8 Fast-Food Restaurant Stacking Capacity

The fast-food restaurant includes a two-lane drive-through facility with two Customer Order Booths (COB). This facility merges into a single lane for payment and order pickup.

The proposed drive-through facility includes provision of five car stacking capacity within the drive through facility (downstream of the COBs) and additional two waiting bays, with stacking space for three cars at each COB for a total of 13 car stacking capacity within the drive-through system.

For the purpose of this analysis and based on the actual customer survey data for an average week provided by the operator, the maximum recorded peak hour weekday site activity is estimated to attract a total of 72 transactions/customers during the 6:00-7:00PM evening. These transactions/customers typically comprise 75/25 split of drive-through/park'n'sit customers. Hence, it is estimated that a total of 54 drive-through customers are to be expected at the subject restaurant during the peak weekday evening hour period.

It is estimated that the average order-taking cycle takes approximately 45-60 seconds; however, in order to ensure a robust assessment, an average order-taking cycle of 60 seconds is applied in this case, translating into a service rate of 60 vehicles per hour per COB (maximum capacity of the single COB drive through system). It is assumed that two COBs will be in operation during the peak periods, giving an order taking service rate of up to 120 vehicles per hour for the entire drive-through system. It is also assumed that cars would enter the COB with the shortest queue, therefore over the peak hour the transactions at each COB would be evenly split.

A queue length analysis was undertaken to assess the provision of storage for vehicles within the drive through lanes. For this purpose, an M/M/1 queuing model was adopted for each COB. The M/M/1 is a single-server queue model that can be used to approximate simple systems.

The queuing model adopts the following assumptions:

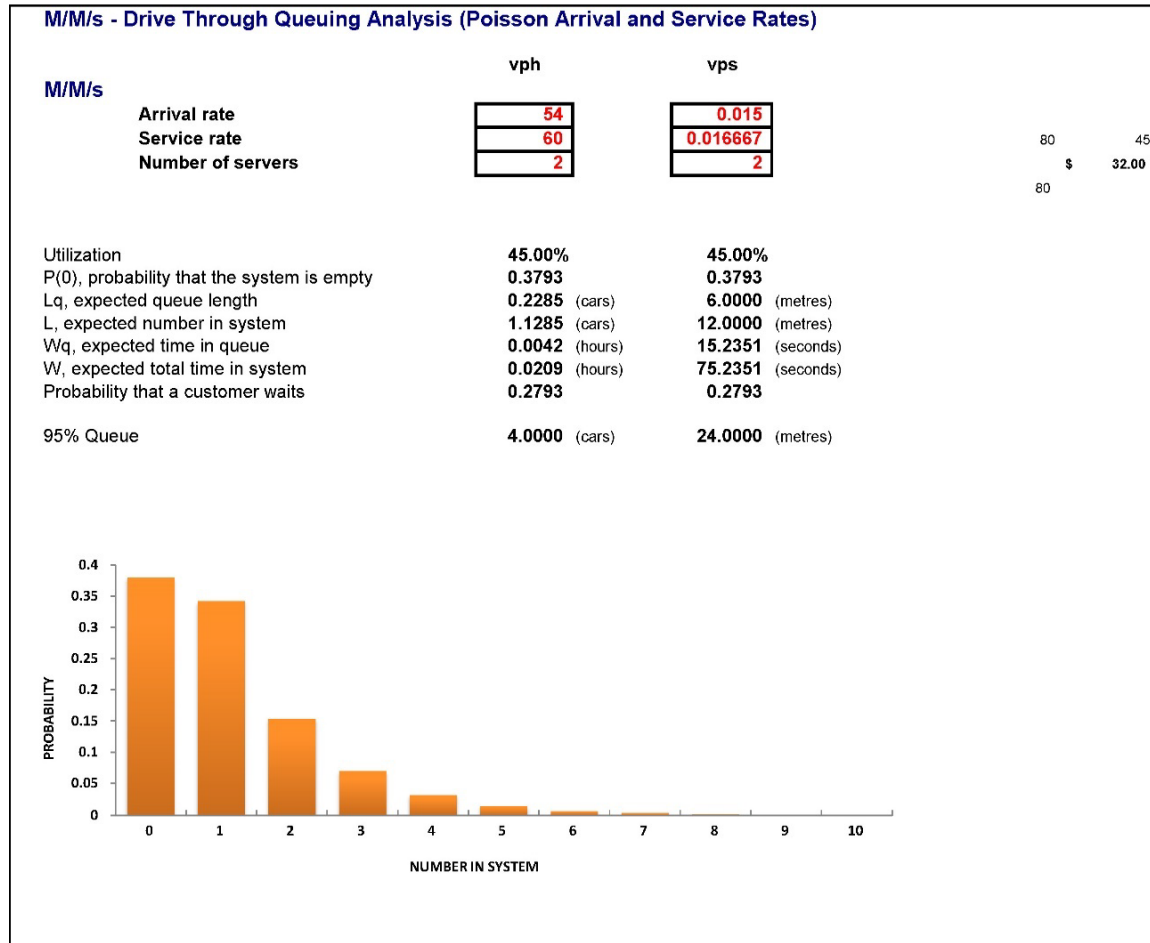
- Vehicles arrive unevenly following Poisson's probability distribution;
- Service time is exponentially distributed;
- There is one server per queue, i.e., there are two queues, one for each COB, instead of a single queue being served by two COBs;
- The capacity of the queue in which arriving users wait before being served is infinite (for the purposes of identifying queue space requirements);
- The population of users (i.e., the pool of users) available to join the system is infinite; and,
- The queue is serviced on a first come, first served basis.

The result of the peak weekday evening hour queuing analysis is detailed in **Figure 15**. In summary, typical weekday PM peak hour queuing analysis of the drive-through facility established the following for the scenario:



- The system utilisation is at 45% during the weekday evening peak hour, respectively;
- The expected time in the queue is 15sec during peak hour; and,
- The expected 95th percentile queue within the whole drive-through system is four cars during the PM peak hour, respectively.

The queue length usually adopted for a robust analysis is the 95th percentile queue.



**Figure 9. Peak weekday morning hour queueing hour analysis**

Based on the queue estimation model, it is concluded that under the typical weekday PM peak drive-through activity hour conditions the queue backing from each COB will be fully accommodated within the restaurant drive-through facility with no impact on the internal site car park driveway system.



## 8 Parking Assessment

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A total of 122 parking bays, inclusive of 13 spaces within the restaurant drive-through system, are proposed to address the parking demand at the subject site. A total of three ACROD bays are also included in the car park supply all of which are conveniently located adjacent to main entries into the restaurant and showrooms.

The statutory parking requirement for the subject development is 107 bays, comprising the following components:

- A total of 23 bays for the restaurant (inclusive of 10 drive-thru spaces and one ACROD bay);
- A total of 8 parking bays for the small-scale retail tenancy;
- A total of 6 parking bays for the car service centre; and,
- A total of 70 parking bays for the showroom tenancies.

Accordingly, the proposed on-site car parking supply is in surplus by 15 bays in accordance with the relevant parking policies.



## 9 Provision for Service Vehicles

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A dedicated loading bay, located between the restaurant building and the drive-through facility, is designed to accommodate a 12.5m rigid truck to service the KFC restaurant.

A dedicated loading bay, located east of the retail/car service building, is also provided to accommodate a 12.5m rigid truck to service the two tenancies.

In both cases, and as advised by the City, smaller, 11.0m rigid trucks will be used for waste collection operations.

The showrooms are expected to be serviced by larger vehicles with the maximum size vehicle expected to access the BOH loading docks being the 19m semi-trailers. The two BOH associated with the showrooms are accessed by the internal service road connecting to Place Road via eastern site crossover.

Appropriate turn path assessment plans for the tankers and service vehicles are attached in **Appendix B**.



## 10 Public Transport Access

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Details of the available public transport services in this locality are provided in **Section 4.4** of this report. The existing bus service operating along North West Coastal Highway and Place Road provides satisfactory level of public transport accessibility to the site, particularly during business hours.



# 11 Pedestrian and Cyclist Access

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Details of the pedestrian and cyclist facilities in this locality are provided in **Section 4.5** of the report. The existing facilities in this location provide satisfactory level of accessibility for the proposed development.



## 12 Conclusions

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This Transport Impact Assessment (TIA) report has been prepared with respect to the proposed commercial development at 194 North West Coastal Highway and 207 Place Road in Webberton, City of Greater Geraldton.

The relevant sites are located a short distance northeast of the existing signalised intersection of North West Coastal Highway/Place Road/Max Attrill Road.

The development proposal includes demolition of the existing buildings and construction of a new mixed commercial development comprising two large format showrooms, one fast-food restaurant, one small-scale retail tenancy and one car service centre with associated on-site parking.

As part of the development proposal, the existing two crossovers on North West Coastal Highway are proposed to be rationalised into one while no significant changes are proposed for the two Place Road crossovers.

It is estimated that the proposed development would generate approximately **1,474** total daily vehicle trips, including approximately **66** and **163** trips (inbound and outbound) during a typical weekday AM and PM peak hours, respectively. However, only about 50% of these trips will effectively be new trips as the proposed type of land use relies on passing trade for operation.

The comprehensive and conservative traffic modelling and assessment undertaken in this report demonstrates that the existing, and future planned, surrounding road network has and will have sufficient capacity to accommodate the development-generated traffic.

Accordingly, the traffic-related issues should not form an impediment for the approval of the proposed redevelopment.

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# Appendix A

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## PROPOSED DEVELOPMENT PLAN



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# Appendix B

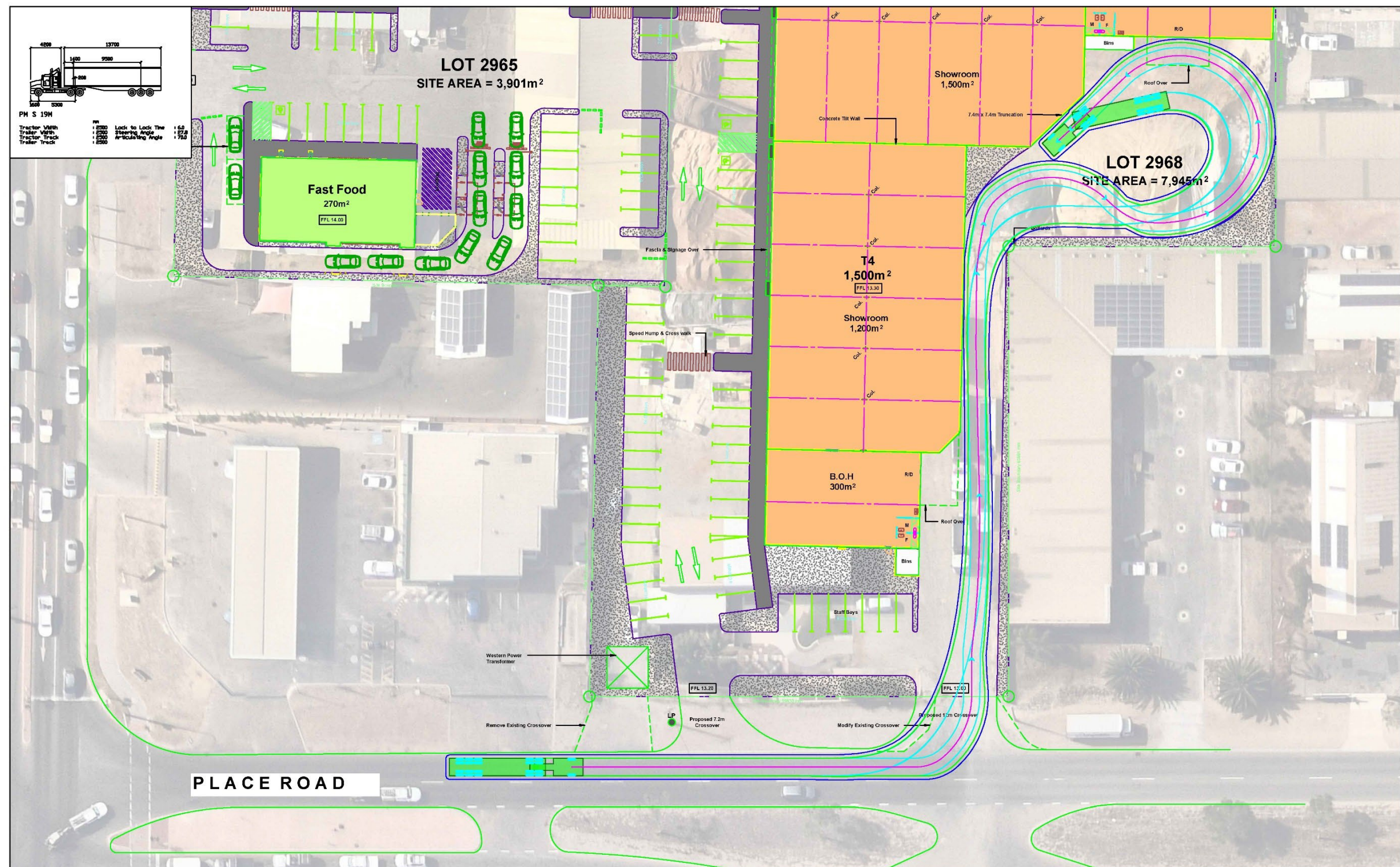
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## TURN PATH PLANS



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Lot 2965 (194) North West Coastal Hwy, Webberton  
 Austroads 2013: 19.0m Semi-trailer  
 Semi-trailer entry

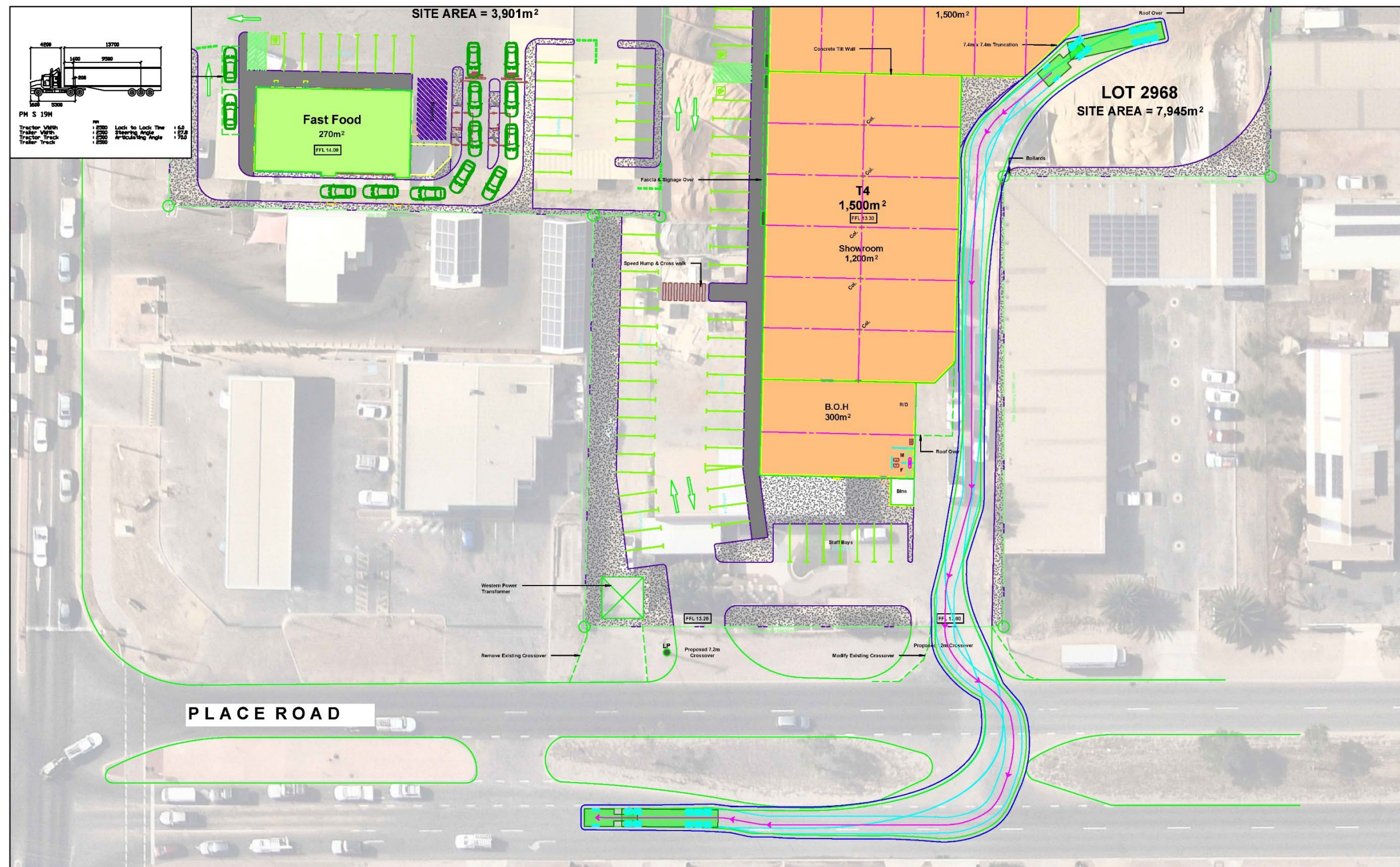
**LEGEND**  
 Vehicle Body  
 Wheel Path  
 500mm Clearance



t22.291.sk19a  
 13/05/2024  
 Scale: 1:500 @ A3







Lot 2965 (194) North West Coastal Hwy, Webberton  
 Austroads 2013: 19.0m Semi-trailer  
 Semi-trailer exit

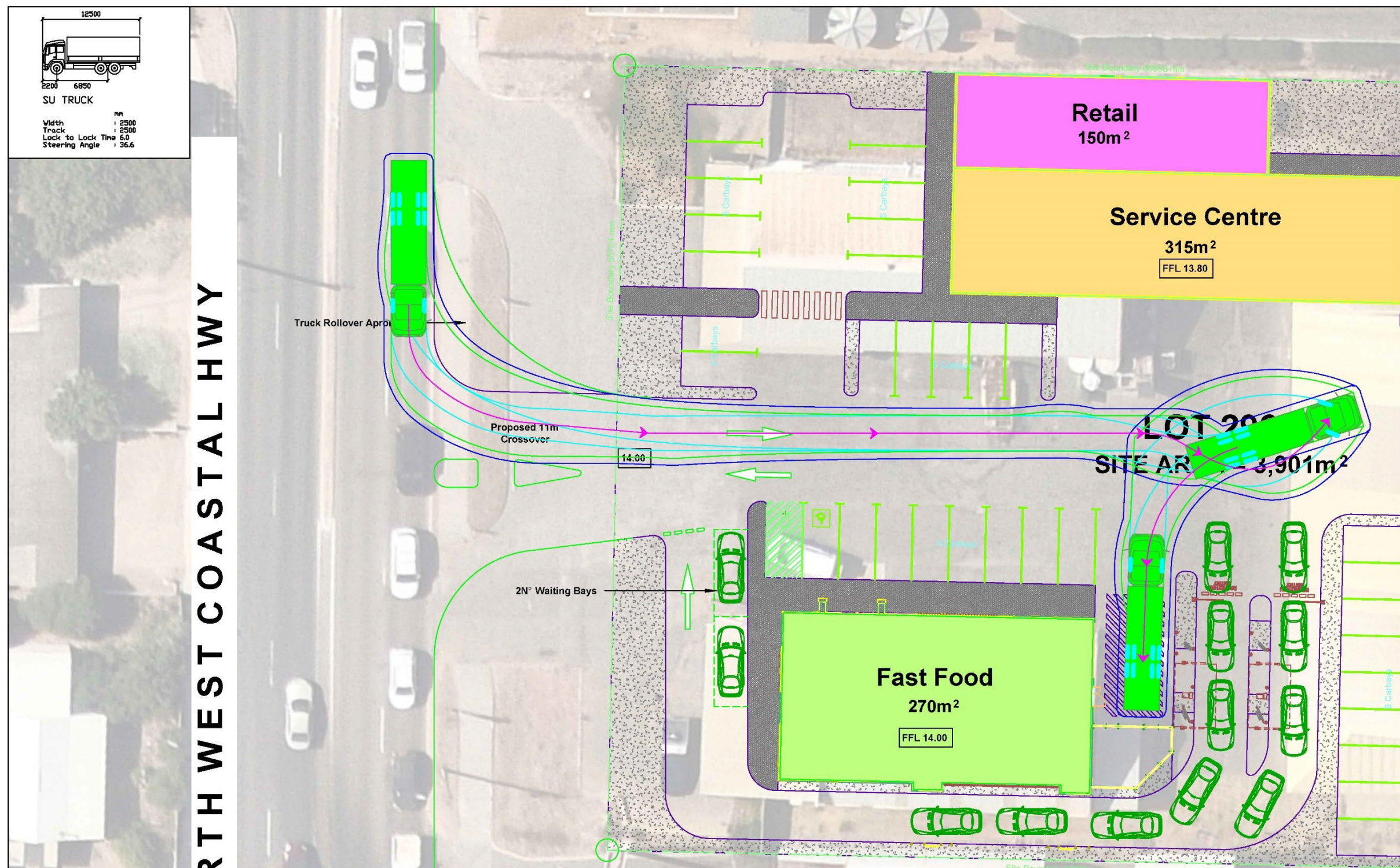
**LEGEND**  
 Vehicle Body  
 Wheel Path  
 500mm Clearance



t22.291.sk20a  
 13/05/2024  
 Scale: 1:500 @ A3







Lot 2965 (194) North West Coastal Hwy, Webberton  
 Austroads 2013: 12.5m Service Vehicle  
 Service vehicle entry - fast food outlet

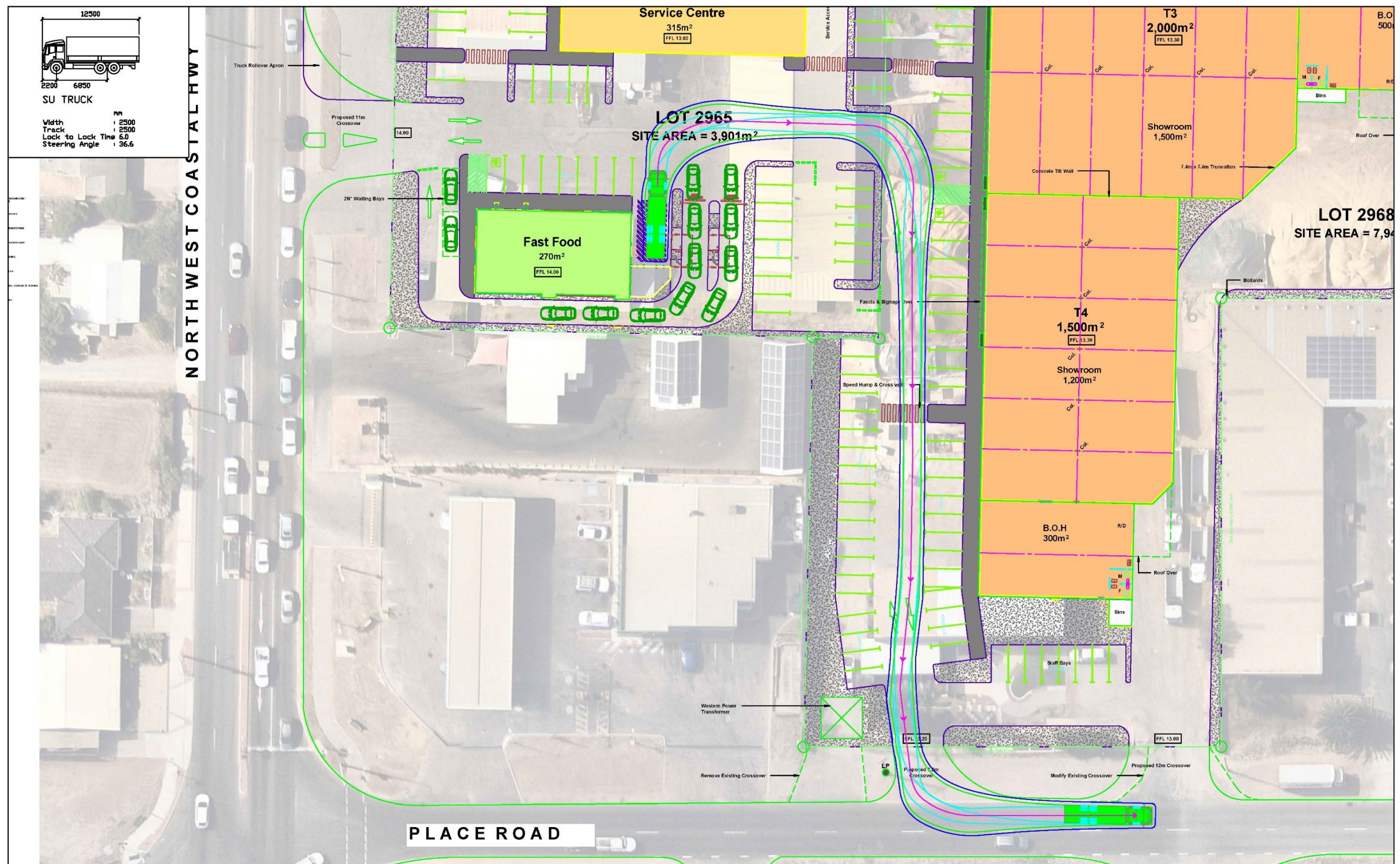
**LEGEND**  
 Vehicle Body  
 Wheel Path  
 500mm Clearance



t22.291.sk21a  
 13/05/2024  
 Scale: 1:250 @ A3







Lot 2965 (194) North West Coastal Hwy, Webberton  
 Austroads 2013: 12.5m Service Vehicle  
 Service vehicle exit - fast food outlet

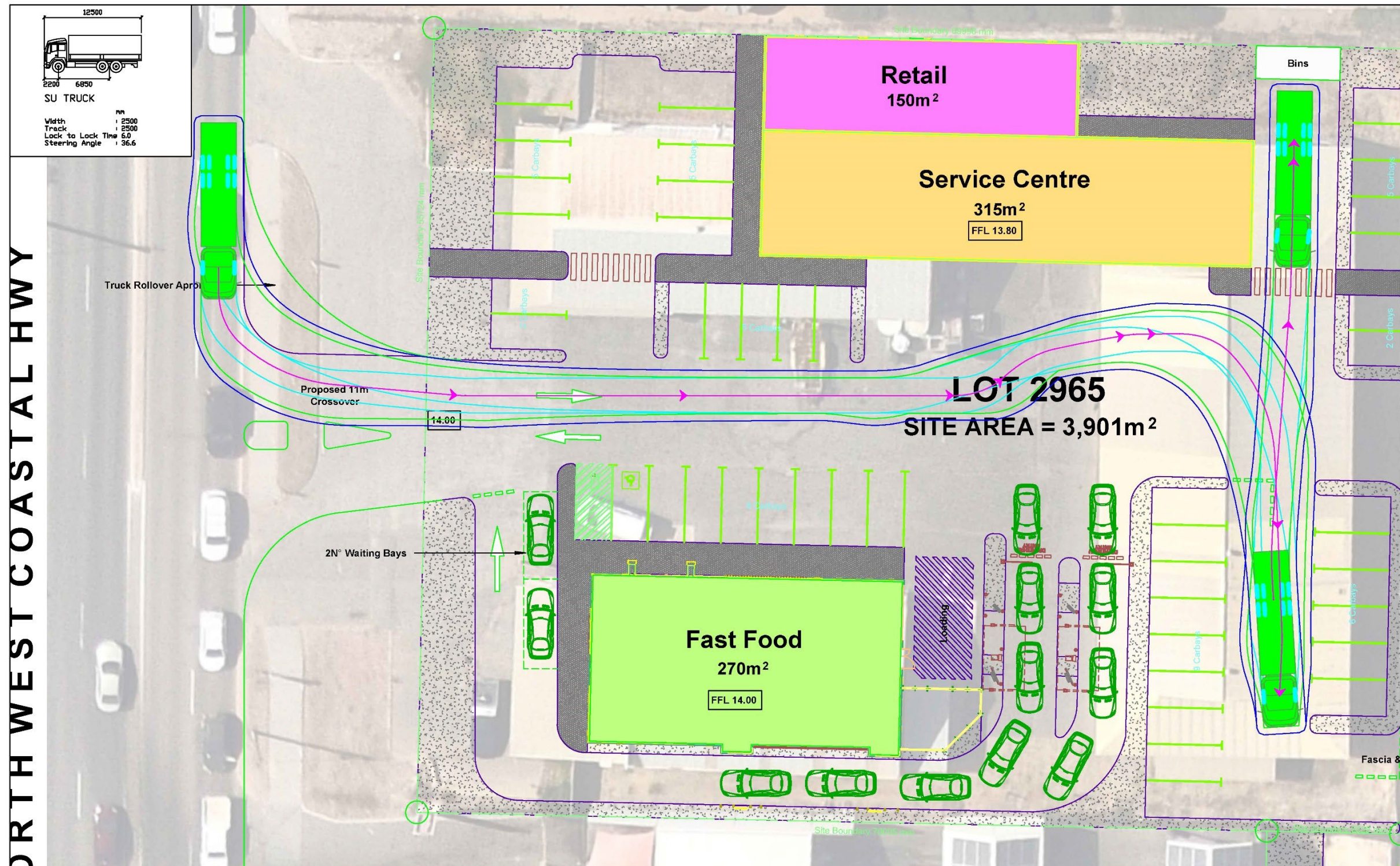
**LEGEND**  
 Vehicle Body  
 Wheel Path  
 500mm Clearance



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 13/05/2024  
 Scale: 1:500 @ A3







Lot 2965 (194) North West Coastal Hwy, Webberton  
Austroads 2013: 12.5m Service Vehicle  
Service vehicle exit - service centre

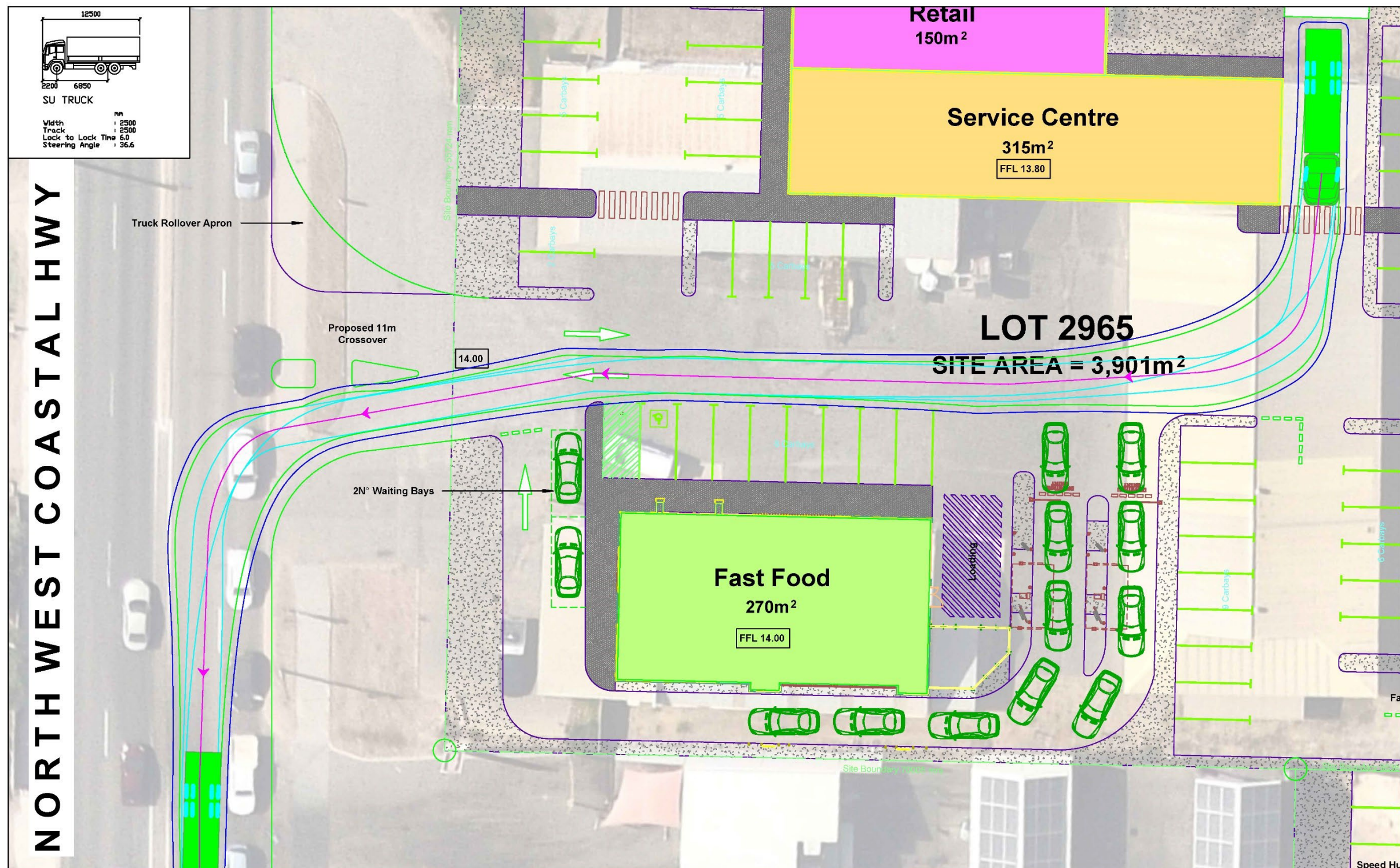
**LEGEND**  
Vehicle Body  
Wheel Path  
500mm Clearance



t22.291.sk23a  
13/05/2024  
Scale: 1:250 @ A3







Lot 2965 (194) North West Coastal Hwy, Webberton  
 Austroads 2013: 12.5m Service Vehicle  
 Service vehicle exit - service centre

**LEGEND**  
 Vehicle Body  
 Wheel Path  
 500mm Clearance



t22.291.sk24a  
 13/05/2024  
 Scale: 1:250 @ A3





# Appendix C

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## SIDRA RESULTS



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**Table 3. SIDRA Results – North West Coastal Highway/Place Road/Max Attrill Road intersection – Weekday AM peak hour (Existing situation)**

| Vehicle Movement Performance      |      |           |              |              |               |              |           |             |                  |                   |          |           |                |                     |             |
|-----------------------------------|------|-----------|--------------|--------------|---------------|--------------|-----------|-------------|------------------|-------------------|----------|-----------|----------------|---------------------|-------------|
| Mov ID                            | Turn | Mov Class | Demand Flows |              | Arrival Flows |              | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |          | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                                   |      |           | [ Total HV ] | [ Total HV ] | [ Total HV ]  | [ Total HV ] | v/c       | sec         |                  | [ Veh. veh        | Dist ] m |           |                |                     | km/h        |
| South: North West Coastal Hwy (S) |      |           |              |              |               |              |           |             |                  |                   |          |           |                |                     |             |
| 4                                 | L2   | All MCs   | 3            | 0.0          | 3             | 0.0          | 0.002     | 6.1         | LOS A            | 0.0               | 0.1      | 0.13      | 0.56           | 0.13                | 50.2        |
| 5                                 | T1   | All MCs   | 403          | 8.4          | 403           | 8.4          | 0.358     | 10.9        | LOS B            | 11.3              | 93.4     | 0.50      | 0.44           | 0.50                | 51.0        |
| 6                                 | R2   | All MCs   | 223          | 11.8         | 223           | 11.8         | 0.531     | 49.6        | LOS D            | 12.0              | 100.0    | 0.91      | 0.82           | 0.91                | 25.2        |
| Approach                          |      |           | 629          | 9.5          | 629           | 9.5          | 0.531     | 24.6        | LOS C            | 12.0              | 100.0    | 0.64      | 0.57           | 0.64                | 40.5        |
| East: Place Rd (E)                |      |           |              |              |               |              |           |             |                  |                   |          |           |                |                     |             |
| 7                                 | L2   | All MCs   | 338          | 5.9          | 338           | 5.9          | * 0.727   | 52.7        | LOS D            | 19.4              | 153.5    | 0.97      | 0.86           | 0.99                | 23.5        |
| 8                                 | T1   | All MCs   | 48           | 6.5          | 48            | 6.5          | 0.139     | 47.6        | LOS D            | 2.5               | 19.7     | 0.87      | 0.66           | 0.87                | 17.8        |
| 9                                 | R2   | All MCs   | 226          | 10.2         | 226           | 10.2         | * 0.722   | 61.5        | LOS E            | 13.7              | 113.0    | 1.00      | 0.86           | 1.05                | 21.7        |
| Approach                          |      |           | 613          | 7.6          | 613           | 7.6          | 0.727     | 55.5        | LOS E            | 19.4              | 153.5    | 0.97      | 0.84           | 1.00                | 22.4        |
| North: North West Coastal Hwy (N) |      |           |              |              |               |              |           |             |                  |                   |          |           |                |                     |             |
| 10                                | L2   | All MCs   | 120          | 7.9          | 120           | 7.9          | * 0.746   | 55.6        | LOS E            | 21.3              | 178.2    | 0.96      | 0.86           | 0.99                | 26.0        |
| 11                                | T1   | All MCs   | 681          | 7.6          | 681           | 7.6          | 0.746     | 41.4        | LOS D            | 23.8              | 203.1    | 0.96      | 0.85           | 0.97                | 35.3        |
| Approach                          |      |           | 801          | 7.6          | 801           | 7.6          | 0.746     | 43.6        | LOS D            | 23.8              | 203.1    | 0.96      | 0.85           | 0.98                | 34.1        |
| West: Place Rd (W)                |      |           |              |              |               |              |           |             |                  |                   |          |           |                |                     |             |
| 1                                 | L2   | All MCs   | 26           | 20.0         | 26            | 20.0         | 0.467     | 73.2        | LOS E            | 2.7               | 22.9     | 1.00      | 0.74           | 1.00                | 20.8        |
| 2                                 | T1   | All MCs   | 24           | 8.7          | 24            | 8.7          | * 0.467   | 67.2        | LOS E            | 2.9               | 22.9     | 1.00      | 0.74           | 1.00                | 12.9        |
| 3                                 | R2   | All MCs   | 36           | 5.9          | 36            | 5.9          | 0.467     | 72.6        | LOS E            | 2.9               | 22.7     | 1.00      | 0.75           | 1.00                | 21.8        |
| Approach                          |      |           | 86           | 11.0         | 86            | 11.0         | 0.467     | 71.3        | LOS E            | 2.9               | 22.9     | 1.00      | 0.74           | 1.00                | 19.5        |
| All Vehicles                      |      |           | 2129         | 8.3          | 2129          | 8.3          | 0.746     | 42.5        | LOS D            | 23.8              | 203.1    | 0.87      | 0.76           | 0.89                | 31.5        |

**Table 4. SIDRA Results – North West Coastal Highway/Place Road/Max Attrill Road intersection – Weekday PM peak hour (Existing situation)**

| Vehicle Movement Performance      |      |           |                                         |      |                                          |      |                      |                        |                  |                                             |       |           |                |                     |                         |
|-----------------------------------|------|-----------|-----------------------------------------|------|------------------------------------------|------|----------------------|------------------------|------------------|---------------------------------------------|-------|-----------|----------------|---------------------|-------------------------|
| Mov ID                            | Turn | Mov Class | Demand Flows<br>[ Total HV ]<br>veh/h % |      | Arrival Flows<br>[ Total HV ]<br>veh/h % |      | Deg. Satn<br><br>v/c | Aver. Delay<br><br>sec | Level of Service | 95% Back Of Queue<br>[ Veh. Dist ]<br>veh m |       | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed<br><br>km/h |
| South: North West Coastal Hwy (S) |      |           |                                         |      |                                          |      |                      |                        |                  |                                             |       |           |                |                     |                         |
| 4                                 | L2   | All MCs   | 6                                       | 16.7 | 6                                        | 16.7 | 0.005                | 11.6                   | LOS B            | 0.0                                         | 0.2   | 0.13      | 0.56           | 0.13                | 47.8                    |
| 5                                 | T1   | All MCs   | 572                                     | 4.8  | 572                                      | 4.8  | 0.522                | 20.9                   | LOS C            | 20.4                                        | 160.7 | 0.63      | 0.57           | 0.63                | 47.8                    |
| 6                                 | R2   | All MCs   | 240                                     | 7.5  | 240                                      | 7.5  | 0.576                | 51.4                   | LOS D            | 13.2                                        | 109.8 | 0.93      | 0.82           | 0.93                | 24.8                    |
| Approach                          |      |           | 818                                     | 5.7  | 818                                      | 5.7  | 0.576                | 29.8                   | LOS C            | 20.4                                        | 160.7 | 0.71      | 0.64           | 0.71                | 38.5                    |
| East: Place Rd (E)                |      |           |                                         |      |                                          |      |                      |                        |                  |                                             |       |           |                |                     |                         |
| 7                                 | L2   | All MCs   | 292                                     | 7.6  | 292                                      | 7.6  | * 0.667              | 52.4                   | LOS D            | 16.5                                        | 134.2 | 0.96      | 0.84           | 0.96                | 23.5                    |
| 8                                 | T1   | All MCs   | 49                                      | 12.8 | 49                                       | 12.8 | 0.129                | 46.4                   | LOS D            | 2.5                                         | 20.7  | 0.84      | 0.64           | 0.84                | 18.7                    |
| 9                                 | R2   | All MCs   | 256                                     | 4.9  | 256                                      | 4.9  | * 0.668              | 58.6                   | LOS E            | 14.8                                        | 114.7 | 0.97      | 0.84           | 0.97                | 23.2                    |
| Approach                          |      |           | 597                                     | 6.9  | 597                                      | 6.9  | 0.668                | 54.6                   | LOS D            | 16.5                                        | 134.2 | 0.95      | 0.82           | 0.95                | 22.7                    |
| North: North West Coastal Hwy (N) |      |           |                                         |      |                                          |      |                      |                        |                  |                                             |       |           |                |                     |                         |
| 10                                | L2   | All MCs   | 132                                     | 7.2  | 132                                      | 7.2  | * 0.677              | 56.4                   | LOS E            | 16.7                                        | 135.4 | 0.96      | 0.83           | 0.96                | 25.2                    |
| 11                                | T1   | All MCs   | 526                                     | 5.2  | 526                                      | 5.2  | 0.677                | 42.7                   | LOS D            | 20.0                                        | 161.4 | 0.95      | 0.82           | 0.95                | 34.8                    |
| Approach                          |      |           | 658                                     | 5.6  | 658                                      | 5.6  | 0.677                | 45.5                   | LOS D            | 20.0                                        | 161.4 | 0.95      | 0.82           | 0.95                | 33.1                    |
| West: Place Rd (W)                |      |           |                                         |      |                                          |      |                      |                        |                  |                                             |       |           |                |                     |                         |
| 1                                 | L2   | All MCs   | 64                                      | 8.2  | 64                                       | 8.2  | 0.679                | 73.1                   | LOS E            | 5.4                                         | 42.9  | 1.00      | 0.84           | 1.11                | 21.4                    |
| 2                                 | T1   | All MCs   | 41                                      | 10.3 | 41                                       | 10.3 | * 0.679              | 67.3                   | LOS E            | 5.5                                         | 43.0  | 1.00      | 0.84           | 1.11                | 12.9                    |
| 3                                 | R2   | All MCs   | 60                                      | 5.3  | 60                                       | 5.3  | 0.679                | 73.0                   | LOS E            | 5.5                                         | 43.0  | 1.00      | 0.83           | 1.11                | 21.9                    |
| Approach                          |      |           | 165                                     | 7.6  | 165                                      | 7.6  | 0.679                | 71.6                   | LOS E            | 5.5                                         | 43.0  | 1.00      | 0.84           | 1.11                | 19.8                    |
| All Vehicles                      |      |           | 2238                                    | 6.1  | 2238                                     | 6.1  | 0.679                | 44.1                   | LOS D            | 20.4                                        | 161.4 | 0.87      | 0.76           | 0.88                | 30.9                    |



**Table 5. SIDRA Results – North West Coastal Highway/Place Road/Max Attrill Road intersection – Weekday AM peak hour (Post-development)**

| Vehicle Movement Performance      |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
|-----------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|-----------|----------------|---------------------|-------------|
| Mov ID                            | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                                   |      |           | [ Total HV ] |      | [ Total HV ]  |      |           |             |                  | [ Veh.            | Dist ] |           |                |                     |             |
|                                   |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |           |                |                     | km/h        |
| South: North West Coastal Hwy (S) |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 4                                 | L2   | All MCs   | 3            | 0.0  | 3             | 0.0  | 0.002     | 6.1         | LOS A            | 0.0               | 0.1    | 0.13      | 0.56           | 0.13                | 50.2        |
| 5                                 | T1   | All MCs   | 407          | 8.4  | 407           | 8.4  | 0.362     | 11.0        | LOS B            | 11.4              | 94.7   | 0.50      | 0.44           | 0.50                | 50.9        |
| 6                                 | R2   | All MCs   | 238          | 11.8 | 238           | 11.8 | 0.583     | 51.1        | LOS D            | 13.1              | 109.1  | 0.93      | 0.83           | 0.93                | 24.8        |
| Approach                          |      |           | 648          | 9.6  | 648           | 9.6  | 0.583     | 25.7        | LOS C            | 13.1              | 109.1  | 0.65      | 0.58           | 0.65                | 39.9        |
| East: Place Rd (E)                |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 7                                 | L2   | All MCs   | 344          | 5.9  | 344           | 5.9  | *0.764    | 55.2        | LOS E            | 20.5              | 161.8  | 0.99      | 0.88           | 1.04                | 22.9        |
| 8                                 | T1   | All MCs   | 45           | 6.5  | 45            | 6.5  | 0.129     | 50.2        | LOS D            | 2.3               | 18.3   | 0.87      | 0.66           | 0.87                | 17.8        |
| 9                                 | R2   | All MCs   | 238          | 10.2 | 238           | 10.2 | *0.765    | 66.0        | LOS E            | 14.8              | 122.0  | 1.00      | 0.89           | 1.09                | 21.3        |
| Approach                          |      |           | 627          | 7.6  | 627           | 7.6  | 0.765     | 59.0        | LOS E            | 20.5              | 161.8  | 0.98      | 0.87           | 1.05                | 21.6        |
| North: North West Coastal Hwy (N) |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 10                                | L2   | All MCs   | 123          | 7.9  | 123           | 7.9  | *0.751    | 55.1        | LOS E            | 22.0              | 184.3  | 0.96      | 0.87           | 0.99                | 26.1        |
| 11                                | T1   | All MCs   | 704          | 7.6  | 704           | 7.6  | 0.751     | 41.0        | LOS D            | 24.5              | 209.2  | 0.96      | 0.85           | 0.97                | 35.5        |
| Approach                          |      |           | 827          | 7.6  | 827           | 7.6  | 0.751     | 43.1        | LOS D            | 24.5              | 209.2  | 0.96      | 0.86           | 0.98                | 34.3        |
| West: Place Rd (W)                |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 1                                 | L2   | All MCs   | 27           | 20.0 | 27            | 20.0 | 0.484     | 73.3        | LOS E            | 2.8               | 23.8   | 1.00      | 0.75           | 1.00                | 20.7        |
| 2                                 | T1   | All MCs   | 25           | 8.7  | 25            | 8.7  | *0.484    | 67.3        | LOS E            | 3.0               | 23.8   | 1.00      | 0.75           | 1.00                | 12.9        |
| 3                                 | R2   | All MCs   | 37           | 5.9  | 37            | 5.9  | 0.484     | 72.7        | LOS E            | 3.0               | 23.5   | 1.00      | 0.75           | 1.00                | 21.8        |
| Approach                          |      |           | 89           | 11.0 | 89            | 11.0 | 0.484     | 71.4        | LOS E            | 3.0               | 23.8   | 1.00      | 0.75           | 1.00                | 19.4        |
| All Vehicles                      |      |           | 2193         | 8.3  | 2193          | 8.3  | 0.765     | 43.6        | LOS D            | 24.5              | 209.2  | 0.88      | 0.77           | 0.90                | 31.1        |

**Table 6. SIDRA Results – North West Coastal Highway/Place Road/Max Attrill Road intersection – Weekday PM peak hour (Post-development)**

| Vehicle Movement Performance      |      |           |                                         |      |                                          |      |                      |                        |                  |                                 |             |           |                |                     |                         |
|-----------------------------------|------|-----------|-----------------------------------------|------|------------------------------------------|------|----------------------|------------------------|------------------|---------------------------------|-------------|-----------|----------------|---------------------|-------------------------|
| Mov ID                            | Turn | Mov Class | Demand Flows<br>[ Total HV ]<br>veh/h % |      | Arrival Flows<br>[ Total HV ]<br>veh/h % |      | Deg. Satn<br><br>v/c | Aver. Delay<br><br>sec | Level of Service | 95% Back Of Queue<br>[ Veh. veh | Dist ]<br>m | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed<br><br>km/h |
| South: North West Coastal Hwy (S) |      |           |                                         |      |                                          |      |                      |                        |                  |                                 |             |           |                |                     |                         |
| 4                                 | L2   | All MCs   | 6                                       | 16.7 | 6                                        | 16.7 | 0.005                | 12.1                   | LOS B            | 0.0                             | 0.2         | 0.13      | 0.56           | 0.13                | 47.8                    |
| 5                                 | T1   | All MCs   | 573                                     | 4.8  | 573                                      | 4.8  | 0.530                | 22.0                   | LOS C            | 20.8                            | 164.4       | 0.64      | 0.58           | 0.64                | 47.5                    |
| 6                                 | R2   | All MCs   | 268                                     | 7.5  | 268                                      | 7.5  | 0.664                | 53.4                   | LOS D            | 15.3                            | 126.9       | 0.96      | 0.84           | 0.96                | 24.3                    |
| Approach                          |      |           | 847                                     | 5.7  | 847                                      | 5.7  | 0.664                | 31.9                   | LOS C            | 20.8                            | 164.4       | 0.74      | 0.66           | 0.74                | 37.4                    |
| East: Place Rd (E)                |      |           |                                         |      |                                          |      |                      |                        |                  |                                 |             |           |                |                     |                         |
| 7                                 | L2   | All MCs   | 298                                     | 7.6  | 298                                      | 7.6  | *0.703               | 54.0                   | LOS D            | 17.2                            | 140.1       | 0.97      | 0.85           | 0.98                | 23.1                    |
| 8                                 | T1   | All MCs   | 44                                      | 12.8 | 44                                       | 12.8 | 0.112                | 49.6                   | LOS D            | 2.2                             | 18.2        | 0.83      | 0.63           | 0.83                | 19.0                    |
| 9                                 | R2   | All MCs   | 282                                     | 4.9  | 282                                      | 4.9  | *0.720               | 63.7                   | LOS E            | 16.7                            | 129.5       | 0.98      | 0.86           | 1.01                | 23.0                    |
| Approach                          |      |           | 624                                     | 6.8  | 624                                      | 6.8  | 0.720                | 58.1                   | LOS E            | 17.2                            | 140.1       | 0.97      | 0.84           | 0.98                | 22.0                    |
| North: North West Coastal Hwy (N) |      |           |                                         |      |                                          |      |                      |                        |                  |                                 |             |           |                |                     |                         |
| 10                                | L2   | All MCs   | 138                                     | 7.2  | 138                                      | 7.2  | *0.714               | 57.5                   | LOS E            | 18.0                            | 146.0       | 0.97      | 0.85           | 0.98                | 24.9                    |
| 11                                | T1   | All MCs   | 557                                     | 5.2  | 557                                      | 5.2  | 0.714                | 43.5                   | LOS D            | 21.4                            | 172.8       | 0.96      | 0.84           | 0.96                | 34.5                    |
| Approach                          |      |           | 695                                     | 5.6  | 695                                      | 5.6  | 0.714                | 46.3                   | LOS D            | 21.4                            | 172.8       | 0.96      | 0.84           | 0.97                | 32.9                    |
| West: Place Rd (W)                |      |           |                                         |      |                                          |      |                      |                        |                  |                                 |             |           |                |                     |                         |
| 1                                 | L2   | All MCs   | 65                                      | 8.2  | 65                                       | 8.2  | 0.700                | 73.5                   | LOS E            | 5.6                             | 44.5        | 1.00      | 0.85           | 1.13                | 21.3                    |
| 2                                 | T1   | All MCs   | 44                                      | 10.3 | 44                                       | 10.3 | *0.700               | 67.7                   | LOS E            | 5.7                             | 44.6        | 1.00      | 0.85           | 1.13                | 12.8                    |
| 3                                 | R2   | All MCs   | 61                                      | 5.3  | 61                                       | 5.3  | 0.700                | 73.4                   | LOS E            | 5.7                             | 44.6        | 1.00      | 0.85           | 1.13                | 21.8                    |
| Approach                          |      |           | 171                                     | 7.7  | 171                                      | 7.7  | 0.700                | 72.0                   | LOS E            | 5.7                             | 44.6        | 1.00      | 0.85           | 1.13                | 19.7                    |
| All Vehicles                      |      |           | 2337                                    | 6.1  | 2337                                     | 6.1  | 0.720                | 46.1                   | LOS D            | 21.4                            | 172.8       | 0.88      | 0.77           | 0.90                | 30.2                    |



**Table 7. SIDRA Results – North West Coastal Highway/Place Road/Max Attrill Road intersection – Weekday AM peak hour (10-year horizon)**

| Vehicle Movement Performance      |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
|-----------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|-----------|----------------|---------------------|-------------|
| Mov ID                            | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                                   |      |           | [ Total HV ] |      | [ Total HV ]  |      |           |             |                  | [ Veh.            | Dist ] |           |                |                     |             |
|                                   |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |           |                |                     | km/h        |
| South: North West Coastal Hwy (S) |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 4                                 | L2   | All MCs   | 3            | 0.0  | 3             | 0.0  | 0.002     | 24.9        | LOS C            | 0.1               | 0.7    | 0.56      | 0.60           | 0.56                | 36.9        |
| 5                                 | T1   | All MCs   | 447          | 8.4  | 447           | 8.4  | 0.313     | 30.0        | LOS C            | 9.3               | 76.9   | 0.72      | 0.61           | 0.72                | 41.7        |
| 6                                 | R2   | All MCs   | 260          | 11.8 | 260           | 11.8 | * 0.769   | 63.6        | LOS E            | 15.9              | 132.8  | 0.99      | 0.89           | 1.08                | 23.1        |
| Approach                          |      |           | 711          | 9.6  | 711           | 9.6  | 0.769     | 42.2        | LOS D            | 15.9              | 132.8  | 0.82      | 0.71           | 0.85                | 33.0        |
| East: Place Rd (E)                |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 7                                 | L2   | All MCs   | 379          | 5.9  | 379           | 5.9  | 0.365     | 14.9        | LOS B            | 9.9               | 78.1   | 0.46      | 0.70           | 0.46                | 39.6        |
| 8                                 | T1   | All MCs   | 49           | 6.5  | 49            | 6.5  | 0.131     | 52.1        | LOS D            | 2.5               | 19.7   | 0.85      | 0.65           | 0.85                | 18.4        |
| 9                                 | R2   | All MCs   | 261          | 10.2 | 261           | 10.2 | * 0.786   | 69.4        | LOS E            | 16.4              | 134.8  | 1.00      | 0.90           | 1.11                | 21.5        |
| Approach                          |      |           | 689          | 7.6  | 689           | 7.6  | 0.786     | 38.2        | LOS D            | 16.4              | 134.8  | 0.69      | 0.78           | 0.73                | 27.5        |
| North: North West Coastal Hwy (N) |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 10                                | L2   | All MCs   | 136          | 7.9  | 136           | 7.9  | 0.769     | 46.7        | LOS D            | 25.5              | 213.4  | 0.96      | 0.87           | 0.98                | 27.1        |
| 11                                | T1   | All MCs   | 773          | 7.6  | 773           | 7.6  | * 0.769   | 51.3        | LOS D            | 25.7              | 219.4  | 0.96      | 0.87           | 0.98                | 35.8        |
| 12                                | R2   | All MCs   | 13           | 2.0  | 13            | 2.0  | 0.039     | 63.2        | LOS E            | 0.6               | 4.9    | 0.85      | 0.60           | 0.85                | 16.9        |
| Approach                          |      |           | 921          | 7.5  | 921           | 7.5  | 0.769     | 50.8        | LOS D            | 25.7              | 219.4  | 0.95      | 0.86           | 0.98                | 31.6        |
| West: Place Rd (W)                |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 1                                 | L2   | All MCs   | 29           | 20.0 | 29            | 20.0 | 0.741     | 79.3        | LOS E            | 3.2               | 27.7   | 1.00      | 0.85           | 1.25                | 19.8        |
| 2                                 | T1   | All MCs   | 28           | 8.7  | 28            | 8.7  | * 0.741   | 73.2        | LOS E            | 3.5               | 27.7   | 1.00      | 0.85           | 1.24                | 12.2        |
| 3                                 | R2   | All MCs   | 40           | 5.9  | 40            | 5.9  | 0.741     | 78.6        | LOS E            | 3.5               | 27.3   | 1.00      | 0.84           | 1.24                | 20.9        |
| Approach                          |      |           | 98           | 10.9 | 98            | 10.9 | 0.741     | 77.2        | LOS E            | 3.5               | 27.7   | 1.00      | 0.85           | 1.24                | 18.5        |
| All Vehicles                      |      |           | 2419         | 8.3  | 2419          | 8.3  | 0.786     | 45.8        | LOS D            | 25.7              | 219.4  | 0.84      | 0.79           | 0.88                | 30.4        |

**Table 8. SIDRA Results – North West Coastal Highway/Place Road/Max Attrill Road intersection – Weekday PM peak hour (10-year horizon)**

| Vehicle Movement Performance      |      |           |              |              |               |              |           |             |                  |                   |          |           |                |                     |             |
|-----------------------------------|------|-----------|--------------|--------------|---------------|--------------|-----------|-------------|------------------|-------------------|----------|-----------|----------------|---------------------|-------------|
| Mov ID                            | Turn | Mov Class | Demand Flows |              | Arrival Flows |              | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |          | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                                   |      |           | [ Total HV ] | [ Total HV ] | [ Total HV ]  | [ Total HV ] |           |             |                  | [ Veh. ]          | [ Dist ] |           |                |                     |             |
|                                   |      |           | veh/h        | %            | veh/h         | %            | v/c       | sec         |                  | veh               | m        |           |                |                     | km/h        |
| South: North West Coastal Hwy (S) |      |           |              |              |               |              |           |             |                  |                   |          |           |                |                     |             |
| 4                                 | L2   | All MCs   | 7            | 16.7         | 7             | 16.7         | 0.005     | 31.4        | LOS C            | 0.2               | 1.9      | 0.51      | 0.61           | 0.51                | 37.0        |
| 5                                 | T1   | All MCs   | 629          | 4.8          | 629           | 4.8          | 0.556     | 48.2        | LOS D            | 17.7              | 139.9    | 0.87      | 0.75           | 0.87                | 36.9        |
| 6                                 | R2   | All MCs   | 292          | 7.5          | 292           | 7.5          | * 0.815   | 70.8        | LOS E            | 19.1              | 158.1    | 1.00      | 0.92           | 1.12                | 22.6        |
| Approach                          |      |           | 928          | 5.7          | 928           | 5.7          | 0.815     | 55.2        | LOS E            | 19.1              | 158.1    | 0.91      | 0.80           | 0.95                | 29.5        |
| East: Place Rd (E)                |      |           |              |              |               |              |           |             |                  |                   |          |           |                |                     |             |
| 7                                 | L2   | All MCs   | 326          | 7.6          | 326           | 7.6          | 0.291     | 13.3        | LOS B            | 7.6               | 62.1     | 0.40      | 0.68           | 0.40                | 40.4        |
| 8                                 | T1   | All MCs   | 45           | 12.8         | 45            | 12.8         | 0.114     | 56.2        | LOS E            | 2.3               | 19.2     | 0.83      | 0.63           | 0.83                | 18.7        |
| 9                                 | R2   | All MCs   | 307          | 4.9          | 307           | 4.9          | * 0.793   | 74.2        | LOS E            | 19.7              | 153.2    | 1.00      | 0.90           | 1.09                | 21.9        |
| Approach                          |      |           | 679          | 6.7          | 679           | 6.7          | 0.793     | 43.7        | LOS D            | 19.7              | 153.2    | 0.70      | 0.78           | 0.74                | 25.9        |
| North: North West Coastal Hwy (N) |      |           |              |              |               |              |           |             |                  |                   |          |           |                |                     |             |
| 10                                | L2   | All MCs   | 151          | 7.2          | 151           | 7.2          | 0.794     | 57.0        | LOS E            | 23.5              | 190.6    | 0.99      | 0.91           | 1.06                | 24.0        |
| 11                                | T1   | All MCs   | 609          | 5.2          | 609           | 5.2          | * 0.794   | 62.0        | LOS E            | 24.1              | 194.6    | 0.99      | 0.91           | 1.06                | 32.5        |
| 12                                | R2   | All MCs   | 16           | 2.0          | 16            | 2.0          | 0.042     | 61.2        | LOS E            | 0.8               | 6.1      | 0.82      | 0.59           | 0.82                | 17.1        |
| Approach                          |      |           | 776          | 5.5          | 776           | 5.5          | 0.794     | 61.0        | LOS E            | 24.1              | 194.6    | 0.99      | 0.90           | 1.05                | 28.4        |
| West: Place Rd (W)                |      |           |              |              |               |              |           |             |                  |                   |          |           |                |                     |             |
| 1                                 | L2   | All MCs   | 72           | 8.2          | 72            | 8.2          | 0.794     | 78.3        | LOS E            | 6.5               | 51.8     | 1.00      | 0.91           | 1.23                | 20.5        |
| 2                                 | T1   | All MCs   | 48           | 10.3         | 48            | 10.3         | * 0.794   | 72.6        | LOS E            | 6.6               | 51.9     | 1.00      | 0.91           | 1.23                | 12.2        |
| 3                                 | R2   | All MCs   | 67           | 5.3          | 67            | 5.3          | 0.794     | 78.2        | LOS E            | 6.6               | 51.9     | 1.00      | 0.91           | 1.23                | 21.0        |
| Approach                          |      |           | 187          | 7.7          | 187           | 7.7          | 0.794     | 76.8        | LOS E            | 6.6               | 51.9     | 1.00      | 0.91           | 1.23                | 18.9        |
| All Vehicles                      |      |           | 2571         | 6.1          | 2571          | 6.1          | 0.815     | 55.5        | LOS E            | 24.1              | 194.6    | 0.88      | 0.83           | 0.95                | 27.5        |



**Table 9. SIDRA Results – Place Road crossover (West) – Weekday AM Peak hour (Post-development)**

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ] | %    | [ Total HV ]  | %    | v/c       | sec         |                  | [ Veh. veh        | Dist ] |           |                |                     | km/h        |
| South: Median Storage        |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 5                            | T1   | All MCs   | 7            | 0.0  | 7             | 0.0  | 0.007     | 1.3         | LOSA             | 0.0               | 0.2    | 0.38      | 0.22           | 0.38                | 18.9        |
| Approach                     |      |           | 7            | 0.0  | 7             | 0.0  | 0.007     | 1.3         | LOSA             | 0.0               | 0.2    | 0.38      | 0.22           | 0.38                | 18.9        |
| North: Site Crossover        |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 1                            | L2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.011     | 3.3         | LOSA             | 0.0               | 0.3    | 0.43      | 0.54           | 0.43                | 49.6        |
| 2                            | T1   | All MCs   | 8            | 0.0  | 8             | 0.0  | 0.011     | 4.1         | LOSA             | 0.0               | 0.3    | 0.43      | 0.54           | 0.43                | 18.8        |
| Approach                     |      |           | 9            | 0.0  | 9             | 0.0  | 0.011     | 4.0         | LOSA             | 0.0               | 0.3    | 0.43      | 0.54           | 0.43                | 32.7        |
| West: Place Rd (W)           |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 3                            | L2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.109     | 5.5         | LOSA             | 0.0               | 0.0    | 0.00      | 0.00           | 0.00                | 12.1        |
| 4                            | T1   | All MCs   | 380          | 10.3 | 380           | 10.3 | 0.109     | 0.0         | LOSA             | 0.0               | 0.0    | 0.00      | 0.00           | 0.00                | 59.9        |
| Approach                     |      |           | 381          | 10.3 | 381           | 10.3 | 0.109     | 0.0         | NA               | 0.0               | 0.0    | 0.00      | 0.00           | 0.00                | 59.8        |
| All Vehicles                 |      |           | 398          | 9.9  | 398           | 9.9  | 0.109     | 0.1         | NA               | 0.0               | 0.3    | 0.02      | 0.02           | 0.02                | 59.4        |
| East: Place Rd (W)           |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 2                            | T1   | All MCs   | 619          | 7.6  | 619           | 7.6  | 0.176     | 0.0         | LOSA             | 0.0               | 0.0    | 0.00      | 0.01           | 0.00                | 59.8        |
| 3                            | R2   | All MCs   | 7            | 0.0  | 7             | 0.0  | 0.176     | 5.5         | LOSA             | 0.0               | 0.0    | 0.00      | 0.01           | 0.00                | 59.6        |
| Approach                     |      |           | 626          | 7.5  | 626           | 7.5  | 0.176     | 0.1         | NA               | 0.0               | 0.0    | 0.00      | 0.01           | 0.00                | 59.8        |
| North: Median Storage        |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 1                            | R2   | All MCs   | 8            | 0.0  | 8             | 0.0  | 0.008     | 1.6         | LOSA             | 0.0               | 0.1    | 0.33      | 0.32           | 0.33                | 30.4        |
| Approach                     |      |           | 8            | 0.0  | 8             | 0.0  | 0.008     | 1.6         | LOSA             | 0.0               | 0.1    | 0.33      | 0.32           | 0.33                | 30.4        |
| All Vehicles                 |      |           | 635          | 7.4  | 635           | 7.4  | 0.176     | 0.1         | NA               | 0.0               | 0.1    | 0.00      | 0.01           | 0.00                | 59.6        |

**Table 10. SIDRA Results – Place Road crossover (West) – Weekday PM Peak hour (Post-development)**

| Vehicle Movement Performance |      |           |              |     |               |     |           |             |                  |                   |        |           |                |                     |             |
|------------------------------|------|-----------|--------------|-----|---------------|-----|-----------|-------------|------------------|-------------------|--------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |     | Arrival Flows |     | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ] | %   | [ Total HV ]  | %   | v/c       | sec         |                  | [ Veh. veh        | Dist ] | m         |                |                     | km/h        |
| South: Median Storage        |      |           |              |     |               |     |           |             |                  |                   |        |           |                |                     |             |
| 5                            | T1   | All MCs   | 25           | 0.0 | 25            | 0.0 | 0.025     | 1.6         | LOS A            | 0.1               | 0.6    | 0.41      | 0.29           | 0.41                | 18.4        |
| Approach                     |      |           | 25           | 0.0 | 25            | 0.0 | 0.025     | 1.6         | LOS A            | 0.1               | 0.6    | 0.41      | 0.29           | 0.41                | 18.4        |
| North: Site Crossover        |      |           |              |     |               |     |           |             |                  |                   |        |           |                |                     |             |
| 1                            | L2   | All MCs   | 1            | 0.0 | 1             | 0.0 | 0.035     | 3.4         | LOS A            | 0.1               | 1.0    | 0.49      | 0.61           | 0.49                | 48.7        |
| 2                            | T1   | All MCs   | 25           | 0.0 | 25            | 0.0 | 0.035     | 4.8         | LOS A            | 0.1               | 1.0    | 0.49      | 0.61           | 0.49                | 16.7        |
| Approach                     |      |           | 26           | 0.0 | 26            | 0.0 | 0.035     | 4.7         | LOS A            | 0.1               | 1.0    | 0.49      | 0.61           | 0.49                | 23.1        |
| West: Place Rd (W)           |      |           |              |     |               |     |           |             |                  |                   |        |           |                |                     |             |
| 3                            | L2   | All MCs   | 1            | 0.0 | 1             | 0.0 | 0.124     | 5.5         | LOS A            | 0.0               | 0.0    | 0.00      | 0.00           | 0.00                | 12.1        |
| 4                            | T1   | All MCs   | 437          | 7.7 | 437           | 7.7 | 0.124     | 0.0         | LOS A            | 0.0               | 0.0    | 0.00      | 0.00           | 0.00                | 59.9        |
| Approach                     |      |           | 438          | 7.6 | 438           | 7.6 | 0.124     | 0.0         | NA               | 0.0               | 0.0    | 0.00      | 0.00           | 0.00                | 59.8        |
| All Vehicles                 |      |           | 489          | 6.8 | 489           | 6.8 | 0.124     | 0.4         | NA               | 0.1               | 1.0    | 0.05      | 0.05           | 0.05                | 58.8        |
| East: Place Rd (W)           |      |           |              |     |               |     |           |             |                  |                   |        |           |                |                     |             |
| 2                            | T1   | All MCs   | 599          | 6.9 | 599           | 6.9 | 0.171     | 0.0         | LOS A            | 0.0               | 0.0    | 0.00      | 0.02           | 0.00                | 59.7        |
| 3                            | R2   | All MCs   | 17           | 0.0 | 17            | 0.0 | 0.171     | 5.5         | LOS A            | 0.0               | 0.0    | 0.00      | 0.03           | 0.00                | 59.3        |
| Approach                     |      |           | 616          | 6.7 | 616           | 6.7 | 0.171     | 0.2         | NA               | 0.0               | 0.0    | 0.00      | 0.02           | 0.00                | 59.7        |
| North: Median Storage        |      |           |              |     |               |     |           |             |                  |                   |        |           |                |                     |             |
| 1                            | R2   | All MCs   | 25           | 0.0 | 25            | 0.0 | 0.023     | 1.6         | LOS A            | 0.1               | 0.4    | 0.33      | 0.34           | 0.33                | 30.4        |
| Approach                     |      |           | 25           | 0.0 | 25            | 0.0 | 0.023     | 1.6         | LOS A            | 0.1               | 0.4    | 0.33      | 0.34           | 0.33                | 30.4        |
| All Vehicles                 |      |           | 641          | 6.4 | 641           | 6.4 | 0.171     | 0.2         | NA               | 0.1               | 0.4    | 0.01      | 0.03           | 0.01                | 59.2        |



**Table 11. SIDRA Results – Place Road crossover (West) – Weekday AM Peak hour (10-year horizon)**

| Vehicle Movement Performance |      |           |                                         |                                          |                  |                    |                  |                                   |           |           |                |                     |                     |
|------------------------------|------|-----------|-----------------------------------------|------------------------------------------|------------------|--------------------|------------------|-----------------------------------|-----------|-----------|----------------|---------------------|---------------------|
| Mov ID                       | Turn | Mov Class | Demand Flows<br>[ Total HV ]<br>veh/h % | Arrival Flows<br>[ Total HV ]<br>veh/h % | Deg. Satn<br>v/c | Aver. Delay<br>sec | Level of Service | 95% Back Of Queue<br>[ Veh. veh ] | Dist<br>m | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed<br>km/h |
| South: Median Storage        |      |           |                                         |                                          |                  |                    |                  |                                   |           |           |                |                     |                     |
| 5                            | T1   | All MCs   | 7 0.0                                   | 7 0.0                                    | 0.007            | 1.4                | LOS A            | 0.0                               | 0.2       | 0.40      | 0.24           | 0.40                | 18.7                |
| Approach                     |      |           | 7 0.0                                   | 7 0.0                                    | 0.007            | 1.4                | LOS A            | 0.0                               | 0.2       | 0.40      | 0.24           | 0.40                | 18.7                |
| North: Site Crossover        |      |           |                                         |                                          |                  |                    |                  |                                   |           |           |                |                     |                     |
| 1                            | L2   | All MCs   | 1 0.0                                   | 1 0.0                                    | 0.010            | 3.3                | LOS A            | 0.0                               | 0.3       | 0.45      | 0.55           | 0.45                | 49.3                |
| 2                            | T1   | All MCs   | 7 0.0                                   | 7 0.0                                    | 0.010            | 4.4                | LOS A            | 0.0                               | 0.3       | 0.45      | 0.55           | 0.45                | 18.1                |
| Approach                     |      |           | 8 0.0                                   | 8 0.0                                    | 0.010            | 4.3                | LOS A            | 0.0                               | 0.3       | 0.45      | 0.55           | 0.45                | 32.9                |
| West: Place Rd (W)           |      |           |                                         |                                          |                  |                    |                  |                                   |           |           |                |                     |                     |
| 3                            | L2   | All MCs   | 1 0.0                                   | 1 0.0                                    | 0.120            | 5.5                | LOS A            | 0.0                               | 0.0       | 0.00      | 0.00           | 0.00                | 12.1                |
| 4                            | T1   | All MCs   | 418 10.3                                | 418 10.3                                 | 0.120            | 0.0                | LOS A            | 0.0                               | 0.0       | 0.00      | 0.00           | 0.00                | 59.9                |
| Approach                     |      |           | 419 10.3                                | 419 10.3                                 | 0.120            | 0.0                | NA               | 0.0                               | 0.0       | 0.00      | 0.00           | 0.00                | 59.8                |
| All Vehicles                 |      |           | 435 9.9                                 | 435 9.9                                  | 0.120            | 0.1                | NA               | 0.0                               | 0.3       | 0.02      | 0.02           | 0.02                | 59.5                |
| East: Place Rd (W)           |      |           |                                         |                                          |                  |                    |                  |                                   |           |           |                |                     |                     |
| 2                            | T1   | All MCs   | 682 7.6                                 | 682 7.6                                  | 0.193            | 0.1                | LOS A            | 0.0                               | 0.0       | 0.00      | 0.01           | 0.00                | 59.8                |
| 3                            | R2   | All MCs   | 7 0.0                                   | 7 0.0                                    | 0.193            | 5.5                | LOS A            | 0.0                               | 0.0       | 0.00      | 0.01           | 0.00                | 59.7                |
| Approach                     |      |           | 689 7.5                                 | 689 7.5                                  | 0.193            | 0.1                | NA               | 0.0                               | 0.0       | 0.00      | 0.01           | 0.00                | 59.8                |
| North: Median Storage        |      |           |                                         |                                          |                  |                    |                  |                                   |           |           |                |                     |                     |
| 1                            | R2   | All MCs   | 7 0.0                                   | 7 0.0                                    | 0.007            | 1.7                | LOS A            | 0.0                               | 0.1       | 0.35      | 0.34           | 0.35                | 30.1                |
| Approach                     |      |           | 7 0.0                                   | 7 0.0                                    | 0.007            | 1.7                | LOS A            | 0.0                               | 0.1       | 0.35      | 0.34           | 0.35                | 30.1                |
| All Vehicles                 |      |           | 697 7.4                                 | 697 7.4                                  | 0.193            | 0.1                | NA               | 0.0                               | 0.1       | 0.00      | 0.01           | 0.00                | 59.7                |

**Table 12. SIDRA Results – Place Road crossover (West) – Weekday PM Peak hour (10-year horizon)**

| Vehicle Movement Performance |      |           |                                         |                                          |                  |                    |                  |                                   |           |           |                |                     |                     |
|------------------------------|------|-----------|-----------------------------------------|------------------------------------------|------------------|--------------------|------------------|-----------------------------------|-----------|-----------|----------------|---------------------|---------------------|
| Mov ID                       | Turn | Mov Class | Demand Flows<br>[ Total HV ]<br>veh/h % | Arrival Flows<br>[ Total HV ]<br>veh/h % | Deg. Satn<br>v/c | Aver. Delay<br>sec | Level of Service | 95% Back Of Queue<br>[ Veh. veh ] | Dist<br>m | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed<br>km/h |
| South: Median Storage        |      |           |                                         |                                          |                  |                    |                  |                                   |           |           |                |                     |                     |
| 5                            | T1   | All MCs   | 17 0.0                                  | 17 0.0                                   | 0.018            | 1.7                | LOS A            | 0.1                               | 0.4       | 0.43      | 0.30           | 0.43                | 18.0                |
| Approach                     |      |           | 17 0.0                                  | 17 0.0                                   | 0.018            | 1.7                | LOS A            | 0.1                               | 0.4       | 0.43      | 0.30           | 0.43                | 18.0                |
| North: Site Crossover        |      |           |                                         |                                          |                  |                    |                  |                                   |           |           |                |                     |                     |
| 1                            | L2   | All MCs   | 1 0.0                                   | 1 0.0                                    | 0.030            | 3.4                | LOS A            | 0.1                               | 0.8       | 0.50      | 0.62           | 0.50                | 48.5                |
| 2                            | T1   | All MCs   | 21 0.0                                  | 21 0.0                                   | 0.030            | 5.0                | LOS A            | 0.1                               | 0.8       | 0.50      | 0.62           | 0.50                | 16.1                |
| Approach                     |      |           | 22 0.0                                  | 22 0.0                                   | 0.030            | 4.9                | LOS A            | 0.1                               | 0.8       | 0.50      | 0.62           | 0.50                | 23.4                |
| West: Place Rd (W)           |      |           |                                         |                                          |                  |                    |                  |                                   |           |           |                |                     |                     |
| 3                            | L2   | All MCs   | 1 0.0                                   | 1 0.0                                    | 0.135            | 5.5                | LOS A            | 0.0                               | 0.0       | 0.00      | 0.00           | 0.00                | 12.1                |
| 4                            | T1   | All MCs   | 477 7.7                                 | 477 7.7                                  | 0.135            | 0.0                | LOS A            | 0.0                               | 0.0       | 0.00      | 0.00           | 0.00                | 59.9                |
| Approach                     |      |           | 478 7.6                                 | 478 7.6                                  | 0.135            | 0.0                | NA               | 0.0                               | 0.0       | 0.00      | 0.00           | 0.00                | 59.8                |
| All Vehicles                 |      |           | 517 7.1                                 | 517 7.1                                  | 0.135            | 0.3                | NA               | 0.1                               | 0.8       | 0.04      | 0.04           | 0.04                | 59.1                |
| East: Place Rd (W)           |      |           |                                         |                                          |                  |                    |                  |                                   |           |           |                |                     |                     |
| 2                            | T1   | All MCs   | 658 6.9                                 | 658 6.9                                  | 0.188            | 0.1                | LOS A            | 0.0                               | 0.0       | 0.00      | 0.01           | 0.00                | 59.7                |
| 3                            | R2   | All MCs   | 17 0.0                                  | 17 0.0                                   | 0.188            | 5.5                | LOS A            | 0.0                               | 0.0       | 0.00      | 0.03           | 0.00                | 59.3                |
| Approach                     |      |           | 675 6.7                                 | 675 6.7                                  | 0.188            | 0.2                | NA               | 0.0                               | 0.0       | 0.00      | 0.02           | 0.00                | 59.7                |
| North: Median Storage        |      |           |                                         |                                          |                  |                    |                  |                                   |           |           |                |                     |                     |
| 1                            | R2   | All MCs   | 21 0.0                                  | 21 0.0                                   | 0.020            | 1.7                | LOS A            | 0.0                               | 0.3       | 0.34      | 0.36           | 0.34                | 30.2                |
| Approach                     |      |           | 21 0.0                                  | 21 0.0                                   | 0.020            | 1.7                | LOS A            | 0.0                               | 0.3       | 0.34      | 0.36           | 0.34                | 30.2                |
| All Vehicles                 |      |           | 696 6.5                                 | 696 6.5                                  | 0.188            | 0.2                | NA               | 0.0                               | 0.3       | 0.01      | 0.03           | 0.01                | 59.3                |



# Appendix D

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## NORTH WEST COASTAL HIGHWAY INTERSECTION UPGRADE PLANS (MRWA)



Engineering a better future for over 20 years!



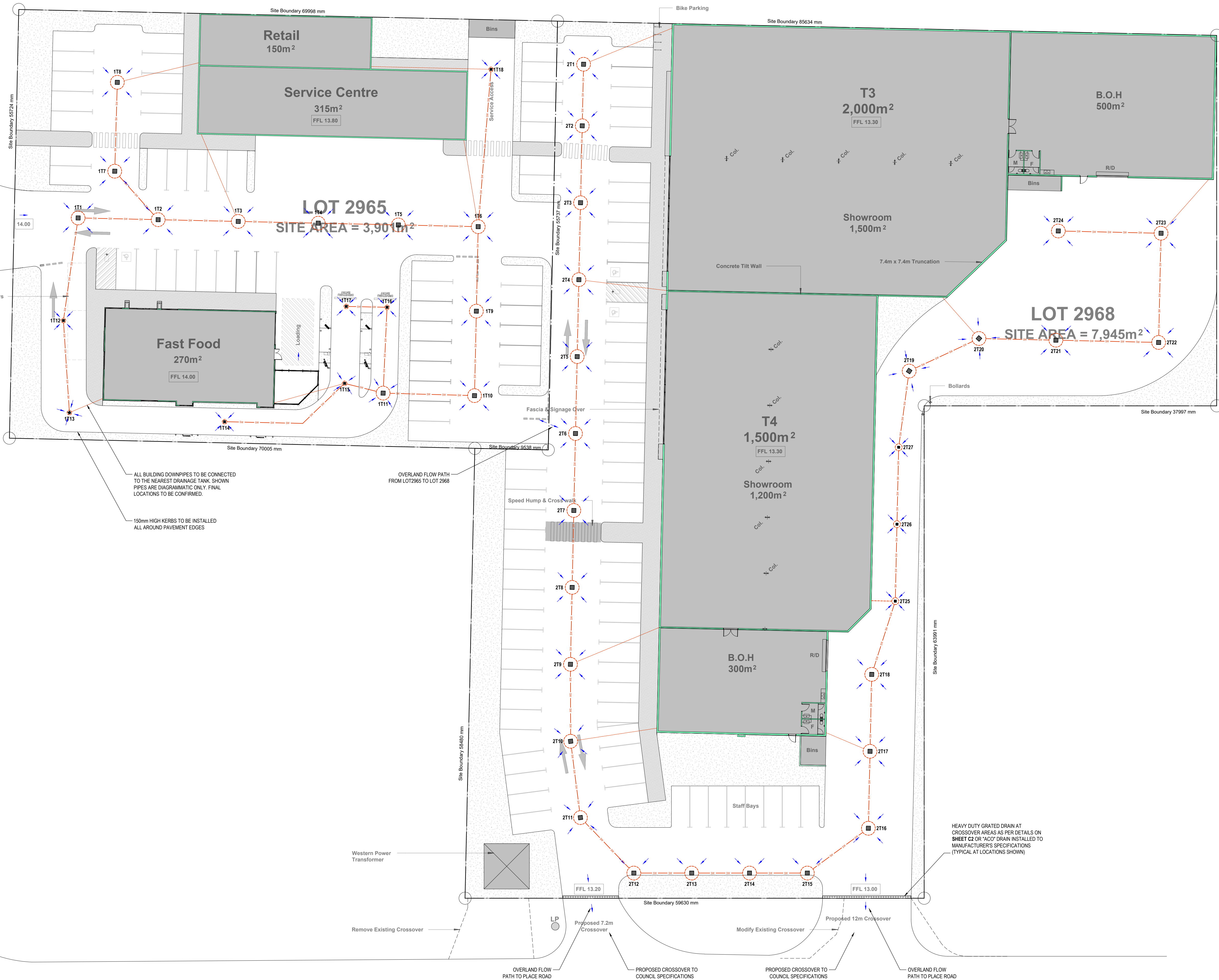




## **APPENDIX 4**

### **CIVIL STORMWATER PLANS**





- SITE DATA:**
- SITE SOIL TYPE = ASSUMED CLASS A SAND  
GROUND WATER TABLE = OVER 3.0m BELOW EXISTING GROUND LEVEL
- GENERAL NOTES:**
- DATUM IS LOCAL AND TO BE VERIFIED ON SITE.
  - CHECK ALL DIMENSIONS ON SITE. READ ALL ENGINEERING DRAWINGS IN CONJUNCTION WITH ARCHITECTURAL & SURVEY DRAWINGS. ANY DISCREPANCIES BETWEEN ENGINEERING DRAWINGS AND ARCHITECTURAL DRAWINGS SHALL BE CONFIRMED PRIOR TO COMMENCING CONSTRUCTION. DO NOT SCALE FROM THESE DRAWINGS.
  - ALL WORK TO BE IN ACCORDANCE WITH 'AS3500-2003 PLUMBING & DRAINAGE', THE 'BUILDING CODE OF AUSTRALIA' AND THE LOCAL AUTHORITY'S STANDARD SPECIFICATIONS.
  - LOT CONNECTION PIT (WHEN APPLICABLE) TO LOCAL AUTHORITY SPECIFICATIONS.
  - WHERE MANHOLES ARE LOCATED IN THE AREAS SUBJECT TO VEHICULAR LOADING, STANDARD TRAFFICABLE LIDS ARE TO BE INSTALLED & BASED TO BUILDERS DETAIL.
  - ALL DRAINAGE PIPEWORK SHALL BE PVC CLASS HD STORMWATER, UNLESS WHERE LOCATED UNDERNEATH ANY STRUCTURES PIPEWORK SHALL BE PVC SEWER CLASS S8.
  - ALIGNMENT OF PIPES SHALL BE AS SHOWN ON THE PLAN & SHALL BE TO THE PIPE OR MANHOLE CENTRELINE.
  - BEFORE CONSTRUCTION COMMENCES, THE CONTRACTOR SHALL:
    - CHECK ON SITE THE LOCATION OF THE EXISTING SERVICES WITH THE APPROPRIATE AUTHORITY. ENSURE PROPOSED STORMWATER PIPE DOES NOT CLASH WITH ANY EXISTING SERVICES.
    - ARRANGE FOR THE LOCATION AND THE LEVEL OF THE CONNECTION POINT TO EXISTING STORMWATER MANHOLE TO BE VERIFIED BY A SURVEYOR.
    - CONFIRM THAT BOUNDARY PEGS OR OTHER SURVEY REFERENCE POINTS TO BE USED IN SETTING OUT OF THE PROJECT ARE LOCATED IN THE CORRECT POSITIONS.
    - ENSURE A PERMIT & REINSTATEMENT SPECIFICATIONS ARE OBTAINED FROM THE LOCAL AUTHORITY IF EXCAVATION WILL BE IN A ROAD RESERVE OR RIGHT OF WAY.
    - ENSURE ALL DETAILS HAVE BEEN CHECKED AND THAT NO DISCREPANCIES EXIST. ALL QUERIES AND DISCREPANCIES ARE TO BE RESOLVED PRIOR TO COMMENCING WORKS.
  - ALL EXCAVATIONS SHALL BE SECURED & MADE SAFE IN ACCORDANCE WITH REQUIREMENTS OF THE OCCUPATIONAL SAFETY & HEALTH ACT OF 1984, THE OCCUPATIONAL SAFETY & HEALTH REGULATION 1996 & OF ANY RELEVANT REGULATORY BODY.
  - PROPERTIES WHICH HAVE BEEN EXCAVATED SHALL BE RETURNED TO AT LEAST A SIMILAR CONDITION TO THAT WHICH EXISTED PRIOR TO CONSTRUCTION.
  - TRENCH BACKFILL SHALL BE CLEAN GRANULAR MATERIAL, COMPACTED TO A LEVEL NOT LESS THAN THAT OF THE SURROUNDING UNDISTURBED GROUND, FOR THE FULL DEPTH OF EXCAVATION. BACKFILL UNDER ROADS SHALL BE COMPLETED TO THE REQUIREMENTS OF THE LOCAL AUTHORITY.
  - ALL CONNECTION INTO EXISTING LOCAL AUTHORITY STORMWATER ARE TO BE CARRIED OUT BY THE CONTRACTOR TO LOCAL AUTHORITY SPECIFICATIONS.
  - THIS STORM WATER DESIGN IS TO BE READ IN CONJUNCTION WITH THE BUILDERS ARCHITECTURAL DRAWINGS (PARTIALLY REPRODUCED HERE). CLIENT IS TO ENSURE LOCAL AUTHORITY HAVE APPROVED THESE DRAWINGS BEFORE BEING ISSUED FOR PRICING, TENDER & CONSTRUCTION.
- LEGEND:**
- 1500 uPVC CLASS S8 PIPE
  - 1500 uPVC CLASS S8 PIPE FROM BUILDING DOWNPIPE UNO
  - TRAFFICABLE STORMWATER TANK WITH GRATE COVER
  - TRAFFICABLE STORMWATER TANK WITH CONCRETE COVER
  - TRAFFICABLE PRECAST SUMP PIT WITH GRATE COVER
  - FALL DIRECTION
  - IL+10.00 PIPE INVERT LEVEL
  - TT+10.00 TOP OF TANK LEVEL
  - RL+10.00 PAVEMENT LEVEL
  - HP+10.00 PAVEMENT HIGH POINT
  - LP+10.00 PAVEMENT LOW POINT

**STORMWATER DRAINAGE CALCULATIONS:**  
(AS PER CITY OF GREATER GERALDTON STORMWATER DRAINAGE DISPOSAL REQUIREMENTS FOR COMMERCIAL AND INDUSTRIAL DEVELOPMENTS)

| AREA     | IMPERVIOUS AREA (sqm) | SOAKWELL SIZE (mm) | SOAKWELL QUANTITY | EQUIVALENT IMPERMEABLE AREA PER SOAKWELL (sqm) | TOTAL EQUIVALENT IMPERMEABLE AREA (sqm) |
|----------|-----------------------|--------------------|-------------------|------------------------------------------------|-----------------------------------------|
| LOT 2965 | 3430                  | 1800x1800          | 11                | 306.9                                          | 3456                                    |
| LOT 2968 | 7150                  | 900x900            | 3                 | 38.2                                           | 7480                                    |

**TANK SCHEDULE**

| TANK NUMBER | TANK SIZE        | TYPE | DETAIL | TOP OF TANK LEVEL | INLET/OUTLET PIPE INVERT LEVEL |
|-------------|------------------|------|--------|-------------------|--------------------------------|
| 1T1 - 1T11  | 18000 x 1800DEEP | SW   | A      | PAVEMENT LEVEL    | 800mm BELOW PAVEMENT LEVEL     |
| 1T12 - 1T18 | 6000 x 600DEEP   | SW   | A      | PAVEMENT LEVEL    | 600mm BELOW PAVEMENT LEVEL     |
| 2T1 - 2T24  | 18000 x 1800DEEP | SW   | A      | PAVEMENT LEVEL    | 800mm BELOW PAVEMENT LEVEL     |
| 2T25 - 2T27 | 9000 x 900DEEP   | SW   | A      | PAVEMENT LEVEL    | 800mm BELOW PAVEMENT LEVEL     |

SW = SOAKWELL, ST = SEALED TANK

|     |                       |    |             |
|-----|-----------------------|----|-------------|
| B   | RE-ISSUE FOR APPROVAL | JC | 14-MAY-2024 |
| A   | ISSUE FOR APPROVAL    | JC | 04-MAY-2024 |
| REV | DESCRIPTION           | BY | DATE        |

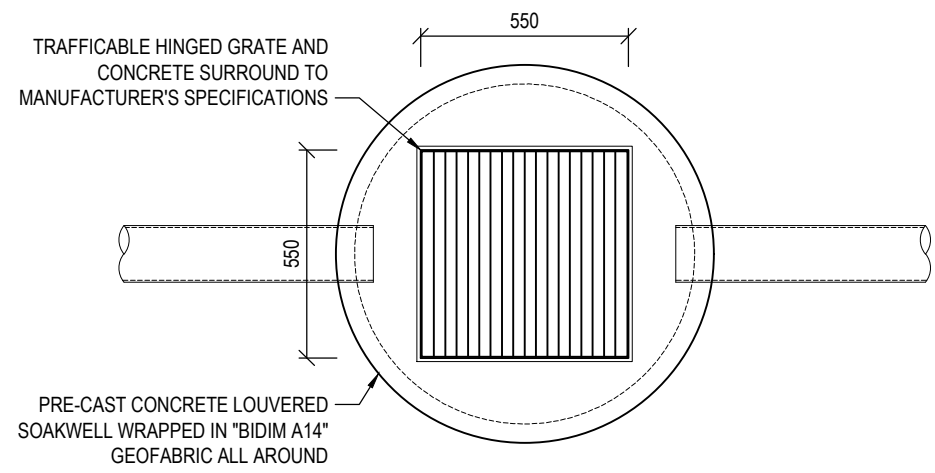
**RE-ISSUE FOR APPROVAL**

PROJECT: **PROPOSED LARGE FORMAT RETAIL DEVELOPMENT**  
207 PLACE ROAD, WEBBERTON, WESTERN AUSTRALIA

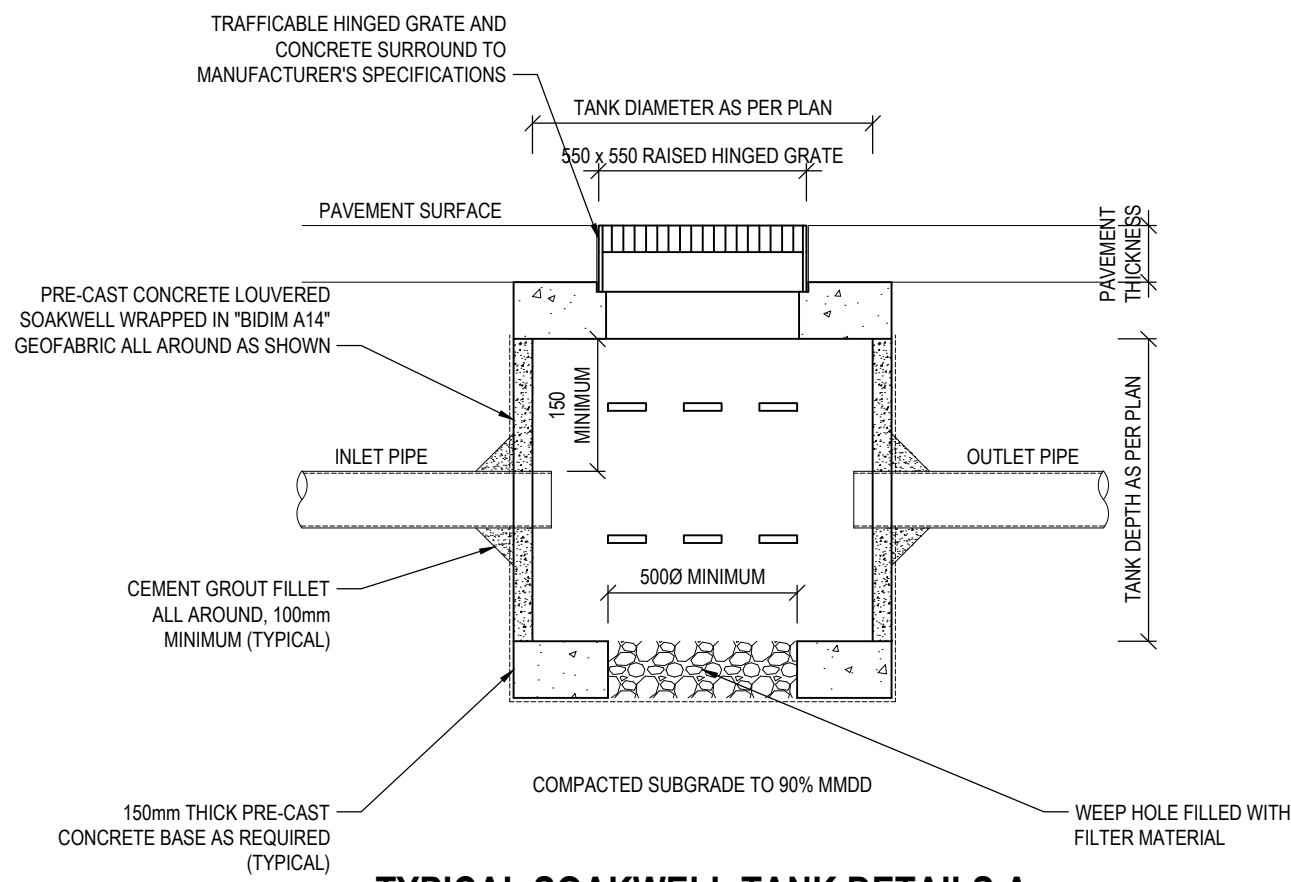
TITLE: **STORMWATER DRAINAGE PLAN AND DETAILS**

|                     |                 |                  |             |
|---------------------|-----------------|------------------|-------------|
| DRAWING: J. GABRIEL | SCALE: AS NOTED | PROJECT #: 21377 | REVISION: B |
| DESIGN: J. CUBONG   | PAPER SIZE: A1  | DRAWING #: C1    |             |

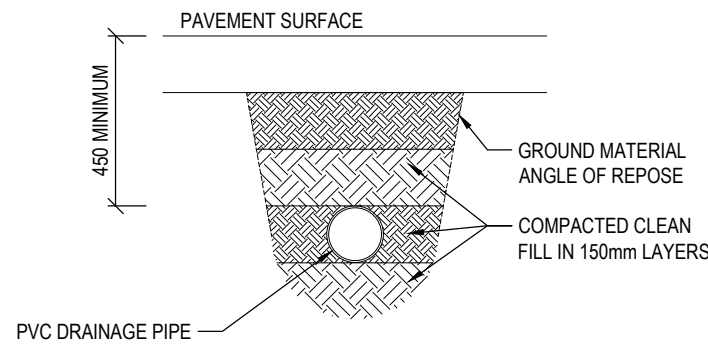




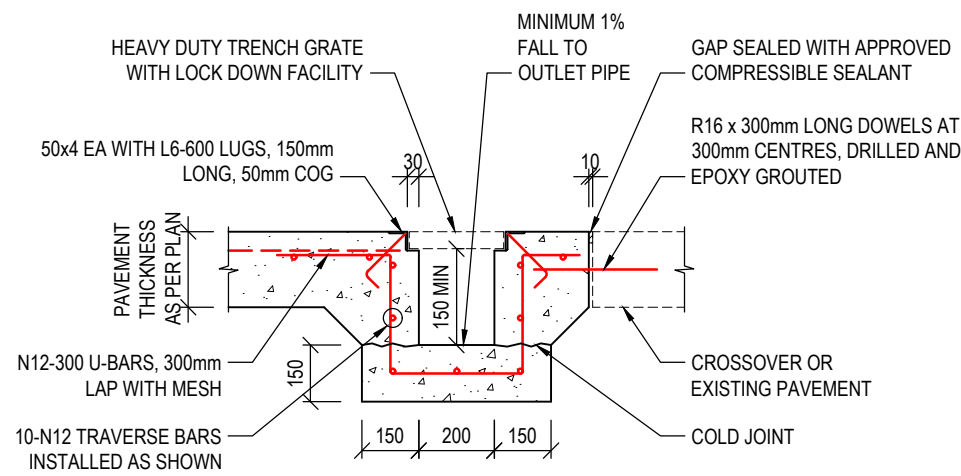
TYPICAL SOAKWELL TANK PLAN  
SCALE 1:20



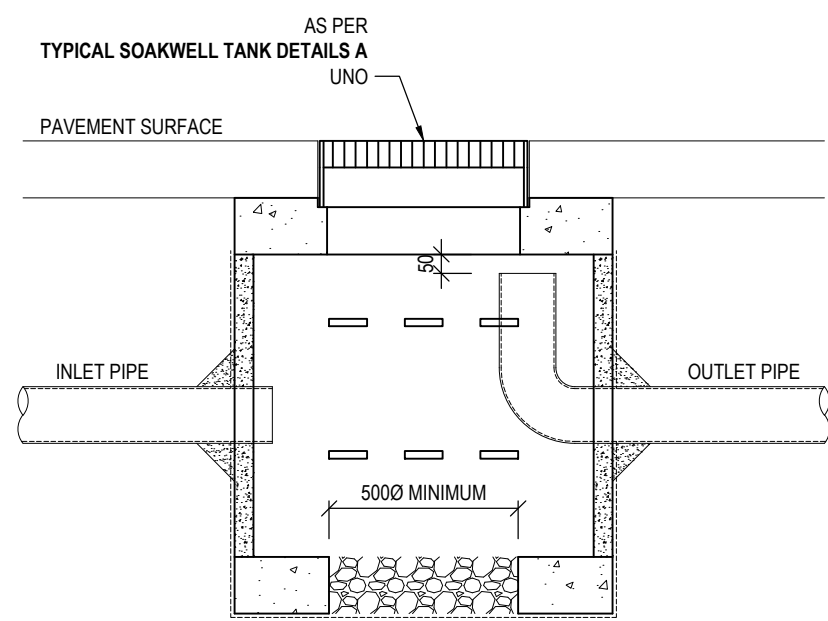
TYPICAL SOAKWELL TANK DETAILS A  
SCALE 1:20



TYPICAL PVC DRAINAGE PIPE BEDDING DETAILS  
SCALE 1:20



HEAVY DUTY GRATED DRAIN  
SCALE 1:20



TYPICAL SOAKWELL TANK DETAILS B  
SCALE 1:20

|     |                       |    |             |
|-----|-----------------------|----|-------------|
| B   | RE-ISSUE FOR APPROVAL | JC | 14-MAY-2024 |
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| REV | DESCRIPTION           | BY | DATE        |

## RE-ISSUE FOR APPROVAL

PROJECT:  
**PROPOSED LARGE FORMAT RETAIL DEVELOPMENT**  
207 PLACE ROAD, WEBBERTON, WESTERN AUSTRALIA

TITLE:  
**STORMWATER DRAINAGE DETAILS**

|                        |                    |                            |                       |
|------------------------|--------------------|----------------------------|-----------------------|
| DRAWING:<br>J. GABRIEL | SCALE:<br>AS NOTED | PROJECT #:<br><b>21377</b> | REVISION:<br><b>B</b> |
| DESIGN:<br>J. CUBONG   | PAPER SIZE:<br>A1  | DRAWING #:<br><b>C2</b>    |                       |