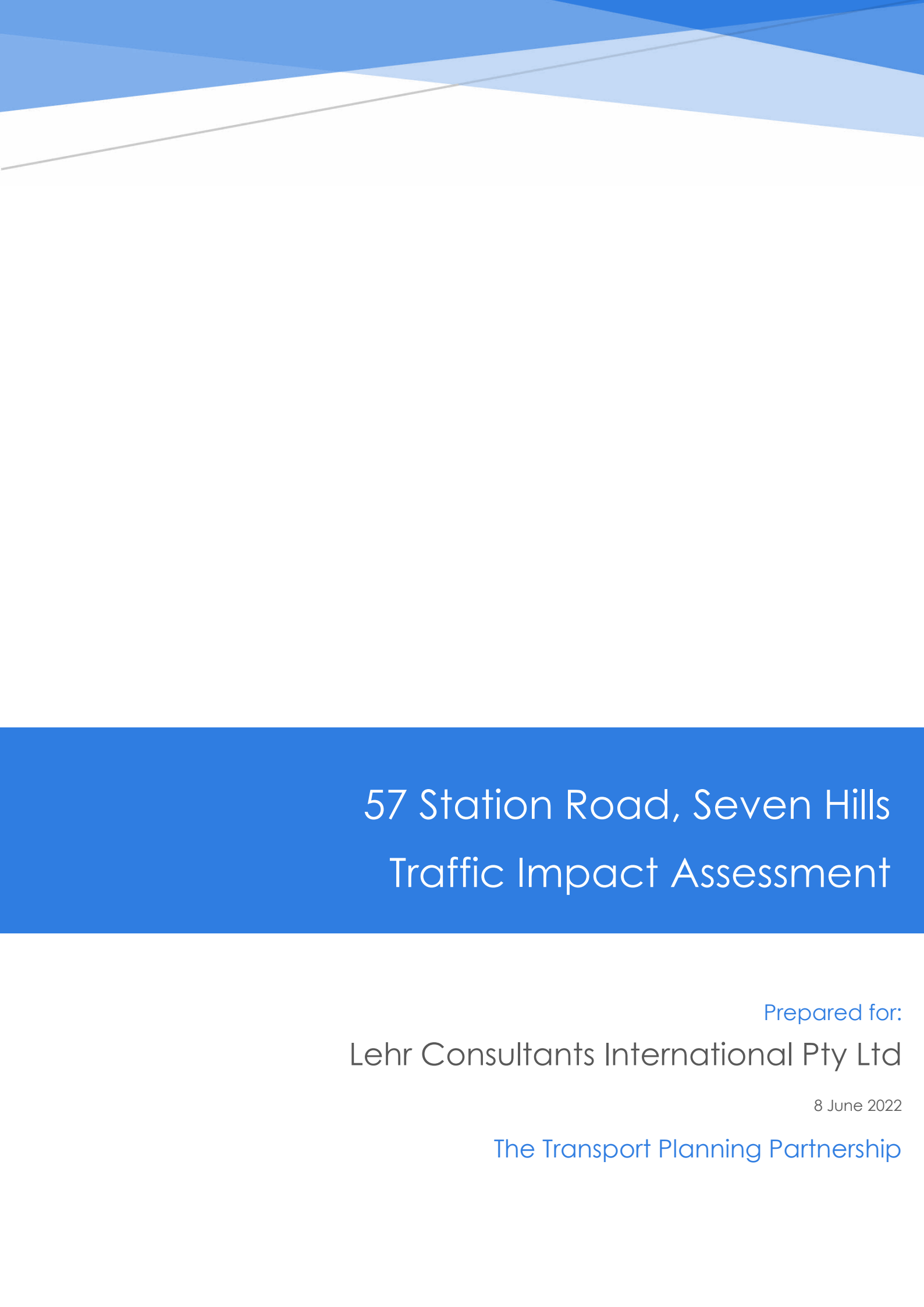




# 57 Station Road, Seven Hills Traffic Impact Assessment

Prepared for:  
Lehr Consultants International Pty Ltd

8 June 2022

The Transport Planning Partnership

# 57 Station Road, Seven Hills Traffic Impact Assessment

Client: Lehr Consultants International Pty Ltd

Version: V05

Date: 8 June 2022

TPP Reference: 20407

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## Quality Record

| Version | Date     | Prepared by                    | Reviewed by   | Approved by  | Signature                                                                            |
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## Table of Contents

|       |                                                |    |
|-------|------------------------------------------------|----|
| 1     | Introduction .....                             | 1  |
| 2     | Existing Conditions .....                      | 3  |
| 2.1   | Site Context .....                             | 3  |
| 2.2   | Surrounding Road Network .....                 | 4  |
| 2.3   | Public Transport Facilities .....              | 6  |
| 2.4   | Pedestrian and Cyclist Infrastructure .....    | 7  |
| 2.5   | Existing Traffic Volume .....                  | 8  |
| 3     | Proposed Development.....                      | 9  |
| 3.1   | Proposal Description .....                     | 9  |
| 3.2   | Hours of Operation and Workforce .....         | 10 |
| 3.3   | Site Access Arrangements.....                  | 11 |
| 3.4   | Car Parking.....                               | 12 |
| 4     | Operation Stage .....                          | 13 |
| 4.1   | Car Parking.....                               | 13 |
| 4.1.1 | Accessible Parking.....                        | 16 |
| 4.1.2 | Parking and Site Access Layout .....           | 16 |
| 4.2   | Traffic Generation.....                        | 17 |
| 4.3   | Traffic Modelling .....                        | 20 |
| 4.3.1 | Trip Distribution on Surrounding Network.....  | 20 |
| 4.3.2 | Directional Split at Site Access .....         | 21 |
| 4.3.3 | Level of Service Criteria .....                | 21 |
| 4.4   | Background Traffic Growth .....                | 22 |
| 4.5   | Cumulative Traffic Impacts .....               | 22 |
| 4.6   | Modelled Scenarios.....                        | 22 |
| 4.7   | Traffic Modelling Results .....                | 23 |
| 4.7.1 | Station Road / McCoy Street Intersection ..... | 23 |
| 4.7.2 | Station Road / Site Access Intersection .....  | 24 |
| 4.8   | Loading and Waste Collection.....              | 25 |
| 5     | Green Travel Plan.....                         | 27 |
| 5.1   | Introduction .....                             | 27 |
| 5.4   | Initiatives .....                              | 29 |
| 6     | Summary and Conclusion .....                   | 30 |

## Tables

|                                                                    |    |
|--------------------------------------------------------------------|----|
| Table 1.1: Secretary's Environmental Assessment Requirements ..... | 2  |
| Table 2.1: Existing Bus Services .....                             | 6  |
| Table 2.2: Station Road Traffic Flows .....                        | 8  |
| Table 3.1: Staff Shift Times .....                                 | 11 |
| Table 4.1: DCP Car Parking Requirement .....                       | 13 |
| Table 4.2: First Principles Car Parking Demand .....               | 14 |
| Table 4.3: Intersection Level of Service Criteria .....            | 21 |
| Table 4.4: SIDRA Modelling Results .....                           | 25 |

## Figures

|                                                      |    |
|------------------------------------------------------|----|
| Figure 2.1: Subject Site and Surrounds .....         | 4  |
| Figure 2.2: Surrounding Road Network .....           | 5  |
| Figure 2.3: Site Nearby Public Transport .....       | 6  |
| Figure 2.4: Existing Cycling Infrastructure .....    | 7  |
| Figure 3.1: Proposed Site Layout .....               | 10 |
| Figure 3.2: People On-site .....                     | 11 |
| Figure 4.1: Journey to Work (Seven Hills Area) ..... | 14 |
| Figure 4.2: Peak Hourly Site Trip Generation .....   | 18 |

## APPENDICES

- A. TRAFFIC SURVEY DATA
- B. ARCHITECTURAL PLANS
- C. SWEPT PATH ANALYSIS
- D. SIDRA MODELLING MOVEMENTS SUMMARY OUTPUTS
- E. TRANSPORT ACCESS GUIDE

# 1 Introduction

The Transport Planning Partnership (TPPP) has prepared this Traffic Impact Assessment (TIA) report on behalf of Lehr Consultants International (LCI) to accompany a State Significant Development Application (SSD-33781208) to be submitted to the Department of Planning and Environment (DPE). The application is for a proposal which seeks to construct a new data storage premise at 57 Station Road, Seven Hills (Lot B in DP 404669).

The proposed development will have a total power consumption of 19.2 megawatts (MW) which exceeds 10 MW, and therefore, is considered to be a State Significant Development (SSD) in accordance with the State Environmental Planning Policy (Transport and Infrastructure) 2021.

The proposed data centre has been designed as a two staged development:

- Stage 1: SYD09 – 1.2 MW capacity data hall
- Stage 2: SYD08 – 19.2 MW capacity two storey ballard data hall.

Development approval was granted for Stage 1 (SYD09) (DA-21-01058) which is to be located in the front half of the site. It will comprise a single-storey data centre, and two new site access driveways to replace the existing driveways. Construction of Stage 1 of the development is currently underway.

The approved data centre at the front of the site, SYD09, is known as a Rapid Deployment data centre. These are smaller structures which enable an operator to provide a service in a particular geography as quickly as possible, with shorter approval and construction timeframes. SYD09 has a data storage capacity of 1.2 MW, though ultimately a much greater capacity is required by the operator.

The proposed development, SYD08, will act as an expansion of SYD09, providing the same function by supporting data storage for the same operator. SYD09 will rely heavily on the proposed building for operational support, ultimately resulting in the site operating as a single campus with shared facilities such as carparking.

This TIA pertains to Stage 2 (SYD08) of the development, which will be located at the rear of the site.

This report addresses aspects of the Secretary's Environmental Assessment Requirements (SEARs) pertaining to traffic, parking, transport, and accessibility. Table 1.1 presents the SEARs and where these items have been addressed in this report. According to the NSW Government Major Project website, there are no further requirements by Transport for NSW and Blacktown City Council.

**Table 1.1: Secretary's Environmental Assessment Requirements**

| Condition 9                                                                                                                                                                                                                                                                                                  | Addressed In                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Provide a transport and accessibility impact assessment, which includes: <ul style="list-style-type: none"> <li>details of all traffic types and volumes likely to be generated during construction and operation, including a description of key access and haul routes</li> </ul>                          | Section 3.3 & 4.2                             |
| <ul style="list-style-type: none"> <li>an assessment of the predicted impacts of this traffic on road safety and the capacity of the road network, including consideration of cumulative traffic impacts at key intersections (using industry standard modelling).</li> </ul>                                | Section 4.3                                   |
| <ul style="list-style-type: none"> <li>plans demonstrating how all vehicles likely to be generated during construction and operation and awaiting loading, unloading or servicing can be accommodated on the site to avoid queuing in the street network.</li> </ul>                                         | Section 4.8                                   |
| <ul style="list-style-type: none"> <li>details and plans of any proposed internal road network, loading dock provision and servicing, on-site parking provisions, and sufficient pedestrian and cyclist facilities, in accordance with the relevant Australian Standards.</li> </ul>                         | Section 4.1 & 4.8                             |
| <ul style="list-style-type: none"> <li>swept path analysis for the largest vehicle requiring access to the development</li> </ul>                                                                                                                                                                            | Appendix C                                    |
| <ul style="list-style-type: none"> <li>details of road upgrades, infrastructure works, or new roads or access points required for the development if necessary</li> </ul>                                                                                                                                    | Section 3.1 & 3.3                             |
| Provide a Construction Traffic Management Plan detailing predicted construction vehicle movements, routes, access and parking arrangements, coordination with other construction occurring in the area, and how impacts on existing traffic, pedestrian and bicycle networks would be managed and mitigated. | Separate Construction Traffic Management Plan |
| Provide a Green Travel Plan or equivalent.                                                                                                                                                                                                                                                                   | Section 5                                     |

## 2 Existing Conditions

### 2.1 Site Context

The subject site is located at 57 Station Road, Seven Hills (Lot B DP 404669) which has an area of approximately 2.57 hectares (ha). The site is located within the Blacktown City Council local government area and is zoned as IN1 – General Industrial according to the Blacktown Local Environmental Plan (LEP) 2015.

The site is a corner lot with frontages on Station Road (south) and McCoy Street road reserve (east). To the north of the site is Blacktown Creek and to the south of the site is the Main Western Railway. Neighbouring industrial developments are located along the north-west boundary of the site and McCoy Park is located south-east of the site.

The site is currently occupied by a range of buildings and other structures, including shipping containers, which were associated with the previous industrial use(s) of the site. The buildings occupy an area of approximately 3,000 m<sup>2</sup>. A HV transmission tower is also located on the land. Currently vehicular access is available via three two-way driveways off Station Road.

Stage 2 of the development (the Proposal) is located within the rear half of the site, while Stage 1 (DA-21-01058) is located within the front half of the site. Figure 2.1 illustrates the Proposal site and nearby surrounds.

**Figure 2.1: Subject Site and Surrounds**



## 2.2 Surrounding Road Network

**Station Road** is a two-way, two-lane divided road linking Prospect Highway to the north and Fitzwilliam Road (and Old Windsor Road) to the south. In the vicinity of the subject site, there is a posted speed limit of 60 km/h and No Stopping restrictions on both sides of the road. The width of the carriageway is 12.5 m, which includes a painted median of 1.5 m width.

**McCoy Street** is a local access road adjacent to the subject site. It provides access to McCoy Park, and roughly 14 angled on-street car parking spaces.

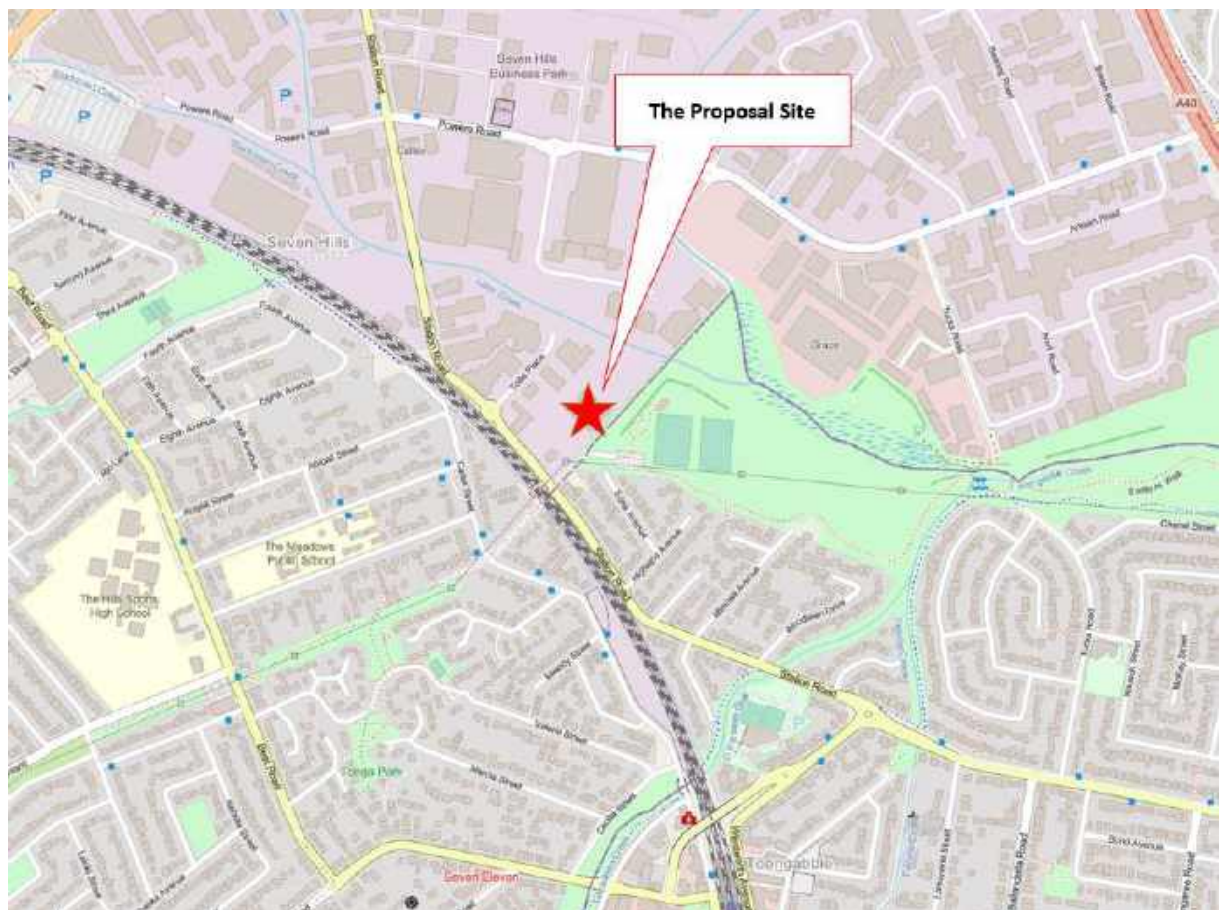
**Tollis Place** is two lane, two-way road, connecting with Station Road via a roundabout, located approximately 60m north of the subject site. It has a posted speed limit of 50 km/hr with unrestricted parking available on both sides of the road.

In the wider road network context, **Prospect Highway** is a six-lane, two-way arterial road that is located north of the subject site. It is the main east-west arterial connection in the vicinity. It is classified as a State road and intersects with other State roads, Seven Hill Road, Abbott Road and Johnson Avenue at a signalised junction. It provides the link to other main highways towards the north, including the M2 Motorway, M7 Motorway, and old Windsor Road. It has a posted speed limit of 60 km/h with clearway conditions.

To the south of the site, Station Road adjoins **Fitzwilliam Road** which intersects with **Old Windsor Road** further in the east direction. It is a key arterial road in Sydney spanning between Kellyville and Northmead. Generally, the carriageway is configured as a four-lane, two-way road having a posted speed limit of 80 km/h and clearway conditions. The North-West T-way runs alongside the entire length of Old Windsor Road.

Figure 2.2 shows the site within the broader surrounding road network.

**Figure 2.2: Surrounding Road Network**



## 2.3 Public Transport Facilities

The closest bus stop is located on Carter Street which is 300 m walking distance from the subject site. This bus stop is located south of the railway line and is accessed by the pedestrian overpass across the railway line. Bus routes 705 and 711 Blacktown to Parramatta service this bus stop. The frequency of services is summarised in Table 2.1.

The subject site is located at the midpoint between Seven Hills train station and Toongabbie train station. However, Toongabbie train station is slightly closer, located a 1 km walk in the south direction (13-minute walk) while Seven Hills station is 1.7 km away (22-minute walk). Both train stations are serviced by the T1 North Shore & Western Line and T5 Cumberland Line.

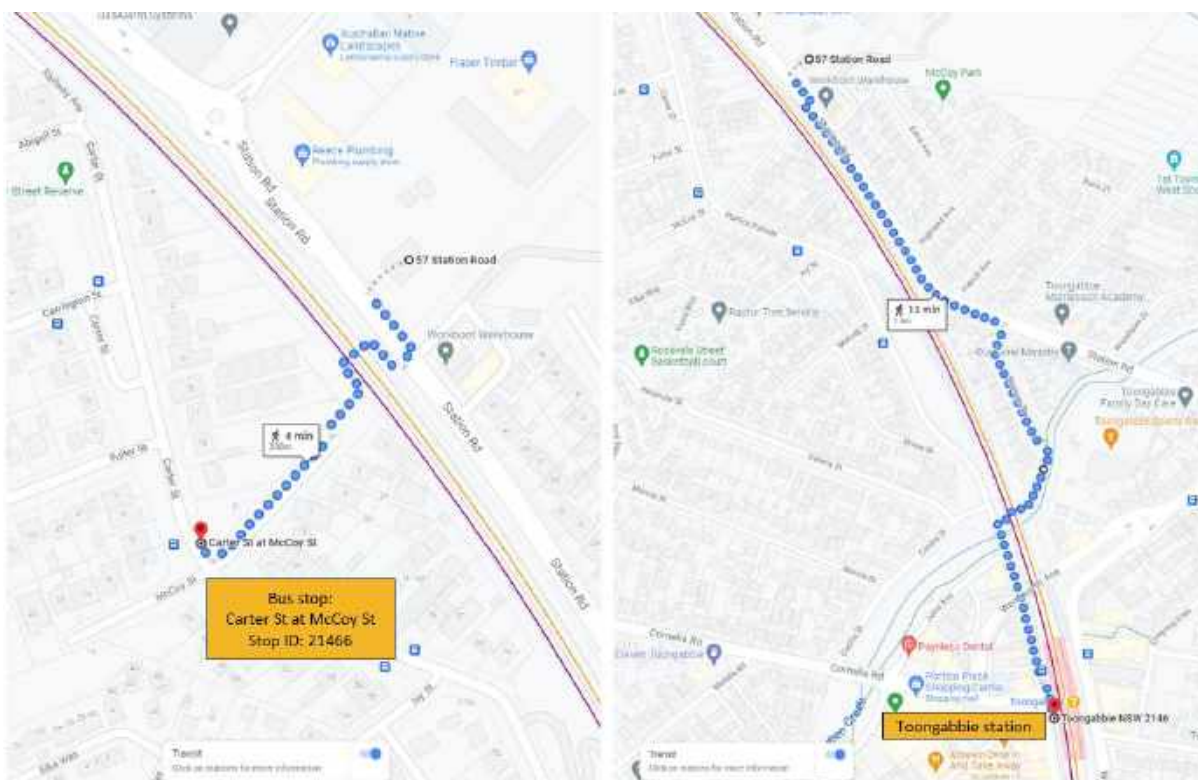
Figure 2.3 shows the site's proximity to the nearby public transport infrastructure.

**Table 2.1: Existing Bus Services**

| Bus Route | Route Description                          | Frequency                                             |
|-----------|--------------------------------------------|-------------------------------------------------------|
| 705       | Blacktown to Parramatta via Seven Hill     | Peak: every 30 minutes<br>Off-peak: every 1 hour      |
| 711       | Blacktown to Parramatta via Wentworthville | Peak: every 15 – 30 minutes<br>Off-peak: every 1 hour |

Information Source: Transport for NSW

**Figure 2.3: Site Nearby Public Transport**



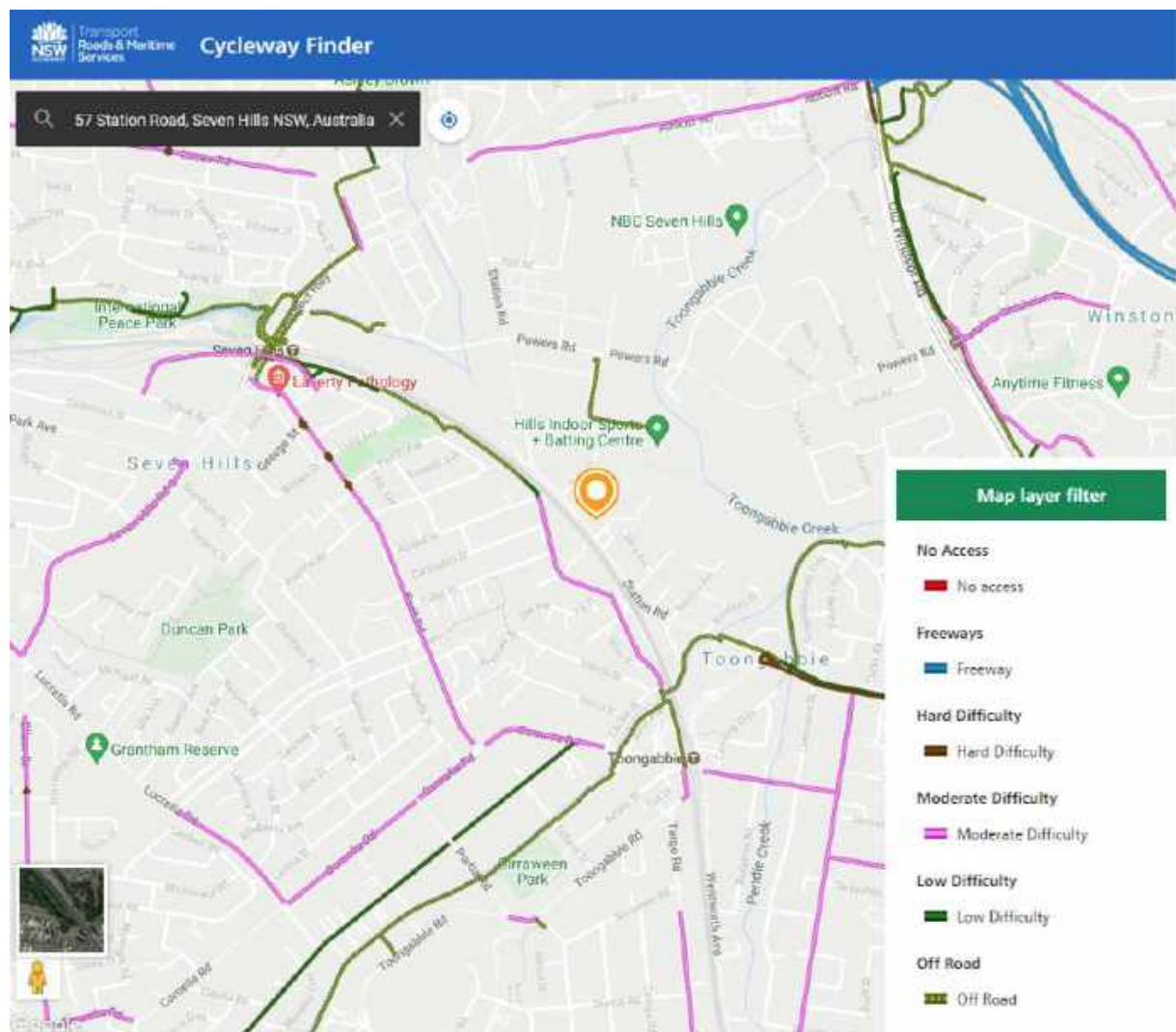
Basemap Source: Google Maps, accessed online 03/02/22

## 2.4 Pedestrian and Cyclist Infrastructure

There is an established footpath on the north side of Station Road (development side), and kerb ramps at McCoy Street. A zebra pedestrian crossing is located south of McCoy Street, which leads directly towards the pedestrian overpass across the railway line.

Within the immediate vicinity of the site, there are no dedicated cycleways. In the broader areas, there is mixture of on-road and off-road cycling paths as shown in Figure 2.4.

**Figure 2.4: Existing Cycling Infrastructure**



Basemap Source: Transport for NSW Cycleway Finder, accessed online 03/02/22

## 2.5 Existing Traffic Volume

Traffic turning movement surveys were carried out on Tuesday, 8 February 2022 at the following nearby intersections:

- Station Road – Tollis Place (roundabout)
- Station Road – Wentworth Avenue – Fitzwilliam Road (roundabout)
- Station Road – McCoy Street (priority)
- Station Road – Site Access Driveway.

On this day, the traffic surveys were carried out in the morning and evening periods between 6:00 am – 9:00 am and 4:00 pm – 7:00pm.

The road network peak periods are identified as the 60-minute period in morning and evening with the greatest traffic volumes recorded at the surveyed locations. From the survey data, the road network peak periods have been identified as follows:

- AM peak period: 7:30 am – 8:30 am.
- PM peak period: 4:15 pm – 5:15 pm.

An automatic tube count (ATC) was undertaken on Station Road near the subject site for a period of one week to record traffic flows 24 hours per day. The survey was conducted between 8 February to 14 February 2022 (inclusive). The survey was conducted after the return of school when traffic is considered to have returned back to normal.

Table 2.2 presents the peak hourly traffic flows for Station Road in each direction and combined.

The turning movement survey data and ATC survey data are contained in Appendix A.

**Table 2.2: Station Road Traffic Flows**

| Period                   | Two-way Traffic Flow |
|--------------------------|----------------------|
| AM Peak Hour, 7am – 8am  | 1,756                |
| PM Peak Hour, 4pm – 5pm  | 1,909                |
| Average Weekday (5 days) | 23,034               |
| Average Daily (7 days)   | 20,980               |

According to the RTA Guide to Traffic Generating Developments (2002), the road capacity threshold for Station Road, which is a two-lane two-way divided road, is 2,000 cars per hour (two-way). The ATC survey data shows that Station Road is operating below the capacity threshold.

## 3 Proposed Development

### 3.1 Proposal Description

The Proposal seeks approval to construct a two-storey data hall in the back half of the site at 57 Station Road, Seven Hills. The proposal will also include the installation of an external plant yard, internal circulation roads and on-site car parking. The indicative site layout is shown in Figure 3.1 while the full set of architectural plans for the are contained in Appendix B.

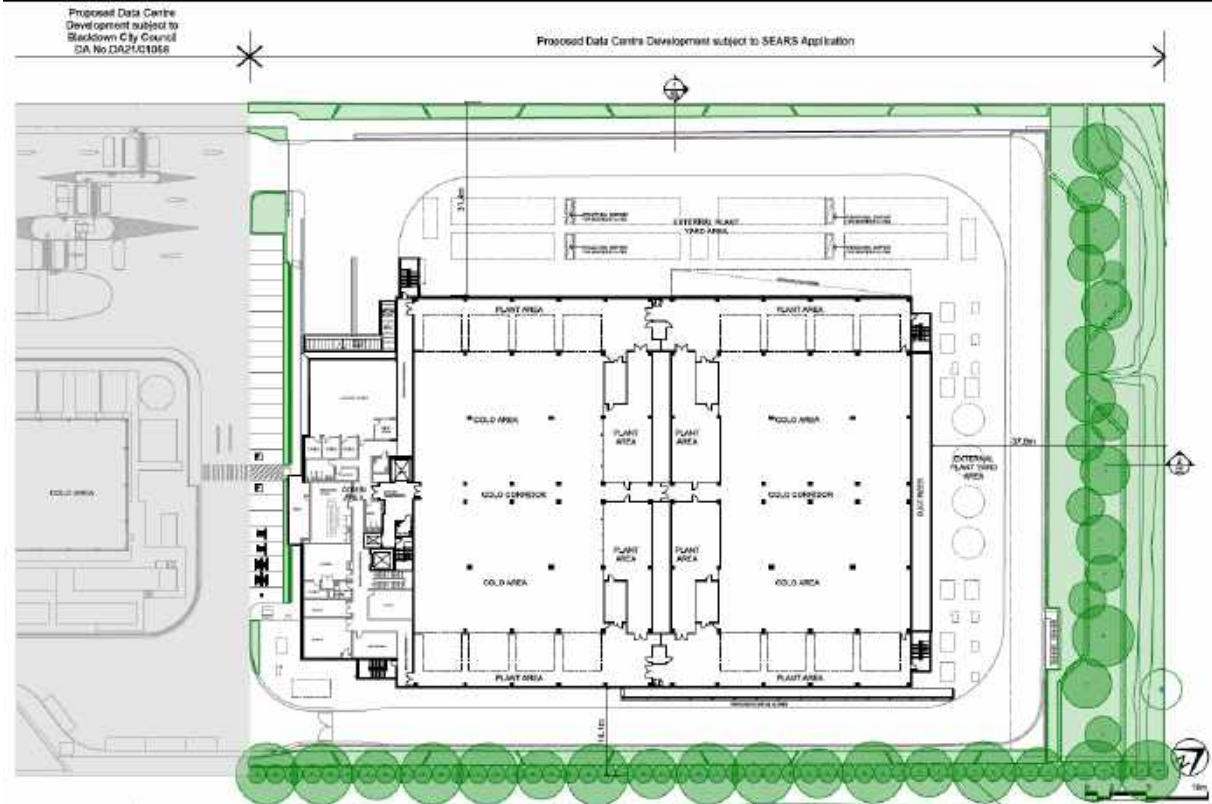
An overview of the Proposal is as follows:

- Construction of a new two-storey 19.2 MW data centre at the rear of the Site including ancillary office space. A total floor area of 8,076 m<sup>2</sup>.
- Provision of external plant in plant yards to the west, north and south of the proposed data hall, as well as rooftop plant, which will be screened.
- Provision of nine (9) new generators, for a site total of 12 generators.
- Capacity for up to 289,000L of diesel fuel storage.
- Operation to take place 24 hours a day, 7 days a week.
- New vehicular circulation to provide access to Station Road, connecting into new driveways already approved under DA-21-01058.
- Parking for 31 vehicles
- Landscaping works.

The majority of the data hall would be used for accommodating the data storage infrastructure (server racks), while the remaining indoor space will be allocated for amenities, electrical room, and office space.

The Proponent has advised that the entire workforce would include 59 employees across three shift-times throughout the day/ night.

**Figure 3.1: Proposed Site Layout**



## 3.2 Hours of Operation and Workforce

The proposed development, SYD08, will act as an expansion of SYD09, providing the same function by supporting data storage for the same operator. SYD09 will rely heavily on the proposed building for operational support, ultimately resulting in the site operating as a single campus.

The campus is proposed to operate 24-hours per day, 7 days a week. Staff would be employed across various shifts throughout the daytime and night time. The Proponent has advised the staff shift times would be as presented in Table 3.1.

Visitors/ contractors could be on-site any time between 9am and 5pm.

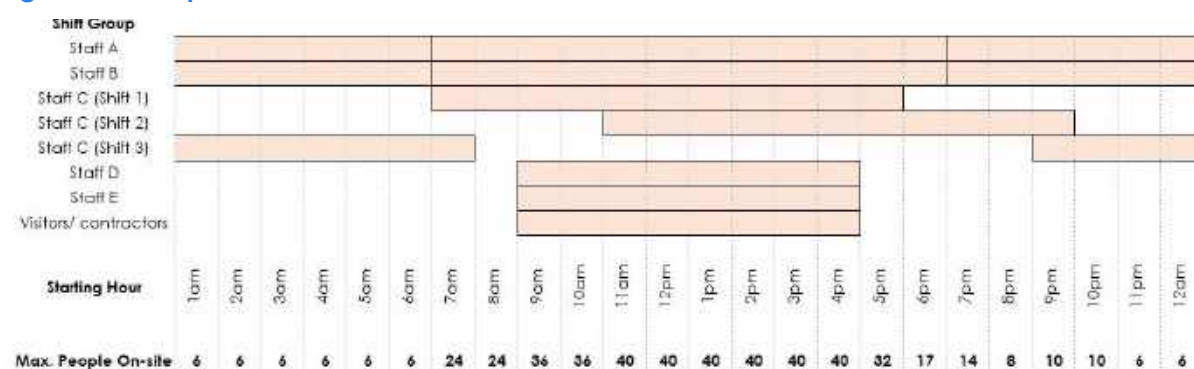
**Table 3.1: Staff Shift Times**

| Shift Group | Shift 1 | Shift 2   | Shift 3 |
|-------------|---------|-----------|---------|
| Staff A     | 7am-7pm | 7pm-7am   | -       |
| Staff B     | 7am-7pm | 7pm-7am   | -       |
| Staff C     | 7am-6pm | 11am-10pm | 9pm-8am |
| Staff D     | 9am-5pm | -         | -       |
| Staff E     | 9am-5pm | -         | -       |

As part of the operation for the entire campus (SYD08 plus SYD09), there would be up to 36 staff at the busiest time of the day. During this period, there could also be up to 4 visitors/contractors on-site. Thus, there would be a maximum of 40 people on-site at one time. Across a 24-hour period, the anticipated staffing and visitation would be as presented in Figure 3.2.

It is noted that whilst the “Visitors/ contractors” Group appears on the shift chart, visitors and contractors would not be employed under a “shift work” arrangement as the Staff Groups would be. Rather, they could be on-site any time between 9am and 5pm.

**Figure 3.2: People On-site**



### 3.3 Site Access Arrangements

There will be two access driveways for the subject site which will be constructed as part of the Approved DA (DA-21-0108). All vehicular access will be via Station Road.

The main site access will be a two-way driveway which is located closer to the northern boundary of the site. As part of day-to-day operation, vehicles would enter and exit the site using this driveway. It will be controlled via boom gates, which can be opened via swipe card. Visitors/ contractors and delivery drivers will need to confirm their ID with the security at the gatehouse prior to access within the site. The second site access driveway will be a gated emergency access.

### 3.4 Car Parking

As described in Section 3.2, the proposed SYD08 development will act as an expansion of SYD09, providing the same function by supporting data storage for the same operator. Ultimately, the site will operate as a single campus with shared facilities such as carparking. Some staff currently operating out of SYD09 will be relocated to SYD08 upon opening which will result in SYD09 operating with four (4) staff at any one time, and SYD08 operating with 32 staff at any one time.

A first-principles approach has been used to determine the required parking for the development site as a whole, which will operate as a single campus. Applying the DCP rates for the entirety of the development would result in a likely oversupply of parking for a data centre use. Hence, a more appropriate assessment of parking demand has been carried out based on staffing numbers, local travel patterns, and potential mode share targets. Full details of the car parking assessment are presented in Section 4.1.

## 4 Operation Stage

### 4.1 Car Parking

Having due regard to the objectives and guidelines as set by Council for industrial developments, the provision for car parking of the proposed development has been assessed in accordance with the Blacktown Development Control Plan (DCP) 2015.

A first-principles approach has also been used to determine the required parking for the development site as a whole, which will operate as a single campus. Applying the DCP rates for the entirety of the development would result in a likely oversupply of parking for a data centre use. Hence, a more appropriate assessment of parking demand has been carried out based on staffing numbers, local travel patterns, and potential mode share targets.

The Blacktown DCP stipulates parking requirements for different land uses, however, there is no parking requirement rate specifically for data centre uses. Therefore, the proposed development has been considered under the category of 'light industry, general industry and warehouse or distribution' uses.

According to the DCP, a minimum car parking provision of 122 spaces would be required for the proposed development. The DCP parking calculations are presented Table 4.1.

**Table 4.1: DCP Car Parking Requirement**

| Land Use     | Gross Floor Area (m <sup>2</sup> ) | DCP Parking Rate                  | Car Parking Requirement |
|--------------|------------------------------------|-----------------------------------|-------------------------|
| Data Hall    | 8076.2 m <sup>2</sup>              | 1 space per 75 m <sup>2</sup> GFA | 108 spaces              |
| Office       | 545.5 m <sup>2</sup>               | 1 space per 40 m <sup>2</sup> GFA | 14 spaces               |
| <b>Total</b> |                                    |                                   | <b>122 spaces</b>       |

Notes:  
Gross Floor Area (GFA)

As presented in Section 3.2, the maximum number of staff and visitors/ contractors estimated to be on-site would be 40 people for the whole campus.

According to TfNSW's Journey to Work data (2016), around 84% of people who work in the Seven Hills area travel to work by car (as the driver), while the remaining proportion of people travel as a car passenger, or by public transport, walking, or cycling. An excerpt of the journey to work data is presented in Figure 4.1. Applying this rate to the maximum number of people on-site generates a demand for 34 parking spaces.

**Figure 4.1: Journey to Work (Seven Hills Area)**

| ≤ DZN (POW)                                          | 113070001 | Total   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------|
| MTW16P Method of Travel to Work (16 travel modes)    |           |         |
| Train                                                                                                                                                                                                                                                                                                   | 4.19%     | 4.19%   |
| Bus                                                                                                                                                                                                                                                                                                     | 1.02%     | 1.02%   |
| Car, as driver                                                                                                                                                                                                                                                                                          | 84.19%    | 84.19%  |
| Car, as passenger                                                                                                                                                                                                                                                                                       | 5.58%     | 5.58%   |
| Motorbike/scooter                                                                                                                                                                                                                                                                                       | 0.59%     | 0.59%   |
| Bicycle                                                                                                                                                                                                                                                                                                 | 0.34%     | 0.34%   |
| Walked only                                                                                                                                                                                                                                                                                             | 0.62%     | 0.62%   |
| Ferry                                                                                                                                                                                                                                                                                                   | 0.00%     | 0.00%   |
| Tram                                                                                                                                                                                                                                                                                                    | 0.00%     | 0.00%   |
| Taxi                                                                                                                                                                                                                                                                                                    | 0.18%     | 0.18%   |
| Truck                                                                                                                                                                                                                                                                                                   | 2.16%     | 2.16%   |
| Other Mode                                                                                                                                                                                                                                                                                              | 0.28%     | 0.28%   |
| Worked at home                                                                                                                                                                                                                                                                                          | 0.55%     | 0.55%   |
| Total                                                                                                                                                                                                                                                                                                   | 100.00%   | 100.00% |

Data Source : Census of Population and Housing, 2016, TableBuilder  
For further information see [About this data](#), [Data Confidentiality](#)

Implementation of green travel initiatives, as outlined in Chapter 5 of this report, aims to promote more sustainable travel by those travelling to the site. As detailed in Chapter 5, a car modal shift target of 7.5% has been adopted for the site. As such, the on-site car parking provision has been provided at a rate of 76.5% of the maximum number of people on-site at any one time (40) which generates a parking demand for 31 car parking spaces on-site.

A breakdown of the car parking demand associated with the SYD09, and SYD08, is presented in Table 4.2. It is calculated that 30 parking spaces will be required. Notwithstanding, it is proposed to supply 31 car parking spaces on-site.

**Table 4.2: First Principles Car Parking Demand**

| Site         | Max. On-site at One Time                                   | Car Mode Share (with Green Travel Plan) | Parking Demand |
|--------------|------------------------------------------------------------|-----------------------------------------|----------------|
| SYD08        | Staff x 32<br>Visitor/ Contractors x 4<br>SYD08 Total = 36 | 0.765% x 36                             | 28 spaces      |
| SYD09        | Staff x 4                                                  | 0.765% x 4                              | 3 spaces       |
| Campus Total |                                                            |                                         | 31 spaces      |

DA-21-01058 was approved with a requirement for 16 car parking spaces to be provided across the site, which was based on Blacktown DCP parking rates which could be provided on the site at that time. The Conditions of Consent required that 11 spaces were to be permanent, and five (5) spaces were to be provisional and only made permanent in the instance that eleven spaces did not satisfy demand.

This assessment has identified the need for the campus as a whole to ultimately provide car parking spaces, with demand for three (3) spaces arising from the approved SYD09 and 28 spaces from SYD08. This therefore satisfies both the existing Conditions of Consent, as more than 16 car parking spaces remain provided for the site, as well as satisfying the parking demands for the operation as a whole.

In addition, there are examples of data centre developments across NSW listed on the NSW Planning Portal website which have been approved on the basis that a first principles approach for estimating parking demand is the more appropriate method. A description of two recently approved data centre developments most similar in nature to the Proposal are provided below.

#### **Robert Road Data Centre, Eastern Creek**

The development application (SSD-10330) sought to construct an additional three data centre buildings on-site. Collectively, the four (4) buildings would operate as a single campus, comprising a total GFA of approximately 92,617 m<sup>2</sup>, including 46,466 m<sup>2</sup> GFA for warehouse and 5,279 m<sup>2</sup> GFA for office area.

According to the Blacktown DCP, the four buildings required a total of 587 car parking spaces. However, this would be excessive for the development and did not consider the nature of the data centre operating differently to a general warehouse development. The parking demand of the development was calculated based on the number of staff and visitors on the campus as opposed to the GFA, which was approved at 90 parking spaces.

#### **Sirius Road Data Centre, Lane Cove**

The development application (SSD-9741) was approved in 2019 for the construction of data centre with offices, comprising a total GFA of approximately 39,500 m<sup>2</sup>. Located within the Lane Cove Council local government area, it was required to provide 123 car parking spaces according to the DCP. The development, however, adopted a first-principles approach which considered number of staff, visitors, and mode share. On this basis, the development was approved for 76 car parking spaces.

The two data centre development applications mentioned above show that data centres operate in different ways from a typical warehouse/ industry development. The number of required parking spaces, adopting DCPs' warehouse / industrial rate is generally considered excessive for the parking demand which a data centre would generate.

Further to the above, it is noted that in 2021 DPE published “Building Business Back Better” – Explanation of Intended Effect (EIE), which documents reforms to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 to accelerate capital investment. Part F of the publication contains information regarding data centre developments and associated car parking requirements. It stipulates a minimum site car parking rate of 1 space per 450 m<sup>2</sup>, which has been the rate adopted in other recently approved data centre development applications.

Accordingly, a GFA of 8,076 m<sup>2</sup> for SYD08 generates a minimum requirement for 18 car parking spaces. As part of the proposed development (SYD08), there would be an additional 10 car parking spaces which satisfies such requirement. Considering the campus as a whole, SYD08 and SYD09 collectively comprise a total GFA of 8,706 m<sup>2</sup>. Therefore, the single campus would require a minimum of 19 car parking spaces. The campus proposes a total of 31 car parking spaces which also meets this requirement.

#### 4.1.1 Accessible Parking

Blacktown DCP refers to the Building Code of Australia to determine the accessible parking requirements for a development. The proposed development is classified as a Class 5 building which is defined as an office building used for professional or commercial purposes, excluding buildings of Class 6, 7, 8 or 9. BCA requires Class 5 buildings to provide one accessible space for every 100 car parking spaces or part thereof.

For SYD08, a minimum of one accessible space is required to be provided on-site. It is proposed to provide two (2) accessible spaces which would be located near the SYD08 building entrance (admin area).

For SYD09, which generates a minimum requirement for one (1) accessible space, there would be one (1) accessible space provided on-site. It is noted that under DA-21-01058, an accessible parking space was proposed adjacent to the SYD09 office, which will be provided to satisfy the accessible parking space requirement in this assessment.

#### 4.1.2 Parking and Site Access Layout

The proposed parking layout has been reviewed in accordance with the design requirements set out in AS2890.1, AS2890.2 and AS2890.6.

All car parking spaces are designed as 90-degree spaces with 2.5 m width and 5.5 m length. This includes accessible parking spaces with an adjacent shared area of the same dimensions. A minimum aisle width of 6.3 m is provided adjacent to the parking spaces. Based on this, the proposed car parking spaces and aisles are compliant with the minimum dimensions for as stipulated in AS2890.1:2004, and accessible parking as stipulated in AS2890.6:2009.

The access driveways are to be maintained as per the Approved DA for SYD09.

In detail, the western driveway has a kerb-to-kerb width of 6 m which is adequate to accommodate two-way car access as per AS2890.1. The eastern driveway is designed with 9 m entry lane width and 6.51 m exit lane width. A 1.5 m median island is provided to separate the entry and exit lanes. Further into the site, the entry lane splits into two lanes with 5.3 m and 6.4 m width, and the exit lane tapers to 4.2 m width. The proposed truck lane widths are compliant with AS2890.2 requirements.

A swept path analysis of the longest vehicle to access the site (19 m semi-trailer) has been undertaken to assess manoeuvrability at the site access and on site. The swept path analysis demonstrates that the main site access driveway and site layout could accommodate the proposed truck movements. Swept path diagrams are contained in Appendix C.

## 4.2 Traffic Generation

Existing and future trip generation of the subject site have been estimated using trip rates for 'Business parks and industrial estates' as stipulated by the TfNSW Technical Direction TDT 2013/04a. Trip generation of the proposed development has been based on the following rates for industrial land uses:

- 0.52 trip per 100 m<sup>2</sup> for AM peak.
- 0.57 trip per 100 m<sup>2</sup> for PM peak.

Application of 'business parks and industrial estates' trip rates has been deemed most appropriate for the subject site on the basis that the site is zoned as "'IN1 - General Industrial' as per the Blacktown LEP 2015. RTA trip rates for 'office and commercial', which include developments such as "*computers/ high tech, health, finance/ banking, insurance, accounting/ management, [and] legal*" would not be appropriate for the subject site. Categorically, the proposed development does not align with such land uses.

According to the RTA Guide to Traffic Generating Developments (2002), a 'business park' typically contains developments with elements of "*industrial, manufacture, research, warehousing, office space, retail, commercial, refreshment and recreational activity. They are generally located in industrial areas and the uses within the park are generally to a scale appropriate for the anticipated workforce and zoning. The business parks selected for the survey ranged in size from some 7,300 m<sup>2</sup> to some 38,200 m<sup>2</sup>*".

The proposed development aligns more closely with the elements of a business park as defined in the RTA Guide, and the size of the site falls within the range of surveyed developments used to determine the business park trip rate.

It is understood that the back portion of the site was previously used as a timber yard, known as 'Fraser Timber', and included a large central two storey building with another two storey 'L-shaped' building wrapping around it. Based on an approximate GFA of 3,500 m<sup>2</sup> (as measured on Nearmap historic aerial imagery), the former site is estimated to have generated:

- 18 trips in the AM peak hour.
- 20 trips in the PM peak hour.

The proposed development, having a GFA of 8,076 m<sup>2</sup>, is estimated to generate:

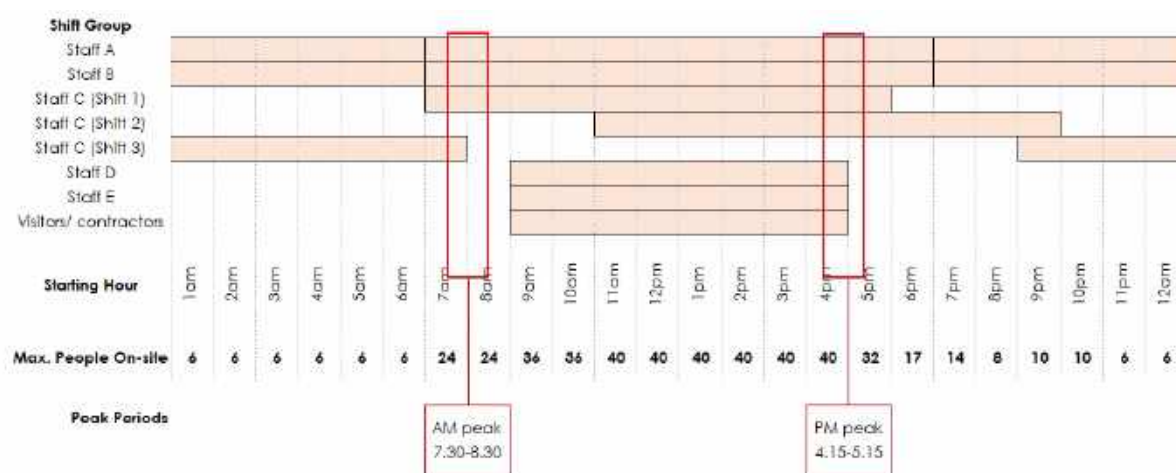
- 42 trips in the AM peak hour.
- 46 trips in the PM peak hour.

However, as with the car parking assessment, a first principles approach would be better suited to determine the likely trip generation associated with the Proposal. This approach generates a more realistic and practical trip generation for the proposed development in accordance with the proposed shift times and maximum number of people on-site.

Figure 3.2, which illustrates the maximum number of people on-site across a 24-hour period, has been overlaid with the road network peak periods and reproduced in Figure 4.2. Within the red peak hour boxes are the shift groups that would either be starting or ending their shift i.e. travelling to/from the site. Figure 4.2 indicates the following:

- During the AM peak hour, Staff Group C (Shift 3) would be ending their shift.
- During the PM peak hour, Staff Groups D and E would be ending their shift.
- Whilst the "Visitors/ contractors" Group appears to finish during the PM peak hour on the shift chart, visitors and contractors would not be employed under a "shift work" arrangement as the Staff Groups would be. Rather, they could be on-site any time between 9am and 5pm.

**Figure 4.2: Peak Hourly Site Trip Generation**



The Proponent has advised that the staffing numbers per shift group is confidential information and therefore could not be presented in this report. Notwithstanding, the Proponent has also informed that there would be approximately 8 vehicles exiting the site in each of the identified peak periods i.e. 8 vehicle trips.

The Proponent has advised that there would be up to 10 deliveries each day generally during the site's core business hours (7am-7pm). To assess the worst-case scenario, it has been assumed that 50% of these deliveries would occur in each peak period.

Based on the proposed waste collection and delivery schedule advised by the Proponent (detailed in Section 4.8), delivery vehicles would comprise the following mix:

- 60% heavy vehicles, such as waste collection trucks.
- 40% light vehicles, such as courier vans.

This would be in-line with the loading and waste collection schedule as detailed in Section 4.8 where it is stated that 6 out of 10 deliveries/ collections would be waste collection and fuel deliveries, which would typically be undertaken using heavy vehicles. The remaining 4 out of 10 vehicles are related to rack deployments and small courier deliveries which are expected to be carried out using light vehicles such as vans. Whilst Section 4.8 presents the number of deliveries on a weekly basis, a similar split has been used to estimate the general split of deliveries on a daily basis.

Therefore, the delivery/ collection vehicle trip generation during each peak hour is anticipated as follows:

- 3 heavy vehicles (6 trips), plus
- 2 light vehicles (4 trips).

Overall, the total peak hourly site trip generation in a worst-case scenario is estimated as follows:

- 8 staff light vehicles exiting the site (8 trips), plus
- 3 heavy vehicles entering then exiting the site in the same hour (6 trips), plus
- 2 light vehicles entering then exiting the site in the same hour (4 trips).

At the time of the February 2022 traffic surveys, the former development was demolished and so its traffic flows were not captured by the survey. As such, traffic modelling in this assessment considers the full trip generation of the Proposal i.e. 18 trips in each peak period.

Notably, the peak hourly trip generation of the Proposal (18 trips per hour) is estimated to be the same as the former development (18 trips in the AM peak and 20 trips in the PM peak).

## 4.3 Traffic Modelling

### 4.3.1 Trip Distribution on Surrounding Network

Vehicles would access the subject site from the arterial road network via the signalised intersection of Prospect Highway/ Abbott Road/ Station Road. Vehicles travelling from the south and the east would access the site using Old Windsor Road and Fitzwilliam Road.

The traffic surveys show a directional split along the site frontage, which includes Station Road eastbound and Station Road westbound. The future site-generated trips have been apportioned based on the existing trip distribution, which is as follows:

- AM Peak:
  - At site access:
    - 47% Station Road east approach.
    - 53% Station Road west approach.
  - Intersection of Seven Hills Road/ Fitzwilliam Road/ Wentworth Avenue:
    - 31% Fitzwilliam Road east approach.
    - 36% Wentworth Avenue south approach.
    - 32% Station Road west approach.
- PM Peak:
  - At site access:
    - 54% Station Road east approach.
    - 46% Station Road west approach.
  - Intersection of Seven Hills Road/ Fitzwilliam Road/ Wentworth Avenue.
    - 32% Fitzwilliam Road east approach.
    - 32% Wentworth Avenue south approach.
    - 36% Station Road west approach.

### 4.3.2 Directional Split at Site Access

Based on the activities on the site during the peak periods as described above, the trip directional split would be as follows:

- 8 staff light vehicles exiting the site. i.e. 8 outbound trips.
- 3 heavy vehicles entering then exiting the site in the same hour. i.e. 3 inbound trips plus 3 outbound trips.
- 2 light vehicles entering then exiting the site in the same hour i.e. 2 inbound trips plus 2 outbound trips.

### 4.3.3 Level of Service Criteria

TfNSW uses level of service as a performance measure to indicate the operating efficiency of a given intersection. The level of service ranges from A to F. Level of service between A and D indicate the intersection is operating within capacity. With LoS A providing exceptionally good performance to LoS D indicating satisfactory performance, LoS E and F indicate the intersection is operating at or near capacity and generally would require intersection improvement works to maintain reasonable performance.

The level of service is directly related to the average delay experienced by vehicles travelling through the intersection. At signalised intersections, the average delay is the volume of weighted average delay over all movements. For roundabouts and priority (give way and stop sign) controlled intersections, the average delay relates to the movement with the highest average delay per vehicle.

Table 4.3 shows the criteria that TfNSW adopt in assessing the level of service at intersections.

**Table 4.3: Intersection Level of Service Criteria**

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

## 4.4 Background Traffic Growth

Future traffic growth has been estimated based on the Sydney's Strategic Travel Forecast Model (STFM) provided by TfNSW. The STFM is a strategic transport planning model that considers population and employment growths and is used for higher level of assessment of major infrastructure proposals, transport strategies and policy decision making.

The STFM provides future year traffic volume to determine the relative traffic growth between years of application to the baseline traffic to provide estimations for future year traffic conditions.

STFM growth rates from 2022-2025 has been applied to the relevant intersections in the local road network to determine future base volumes.

## 4.5 Cumulative Traffic Impacts

DPIE's Major Projects website and Council's online DA tracker have been reviewed for projects within the vicinity which are proposed or have been approved. At the time of preparing this TIA, both sources indicate that there are no relevant projects to be considered in the cumulative traffic assessment.

## 4.6 Modelled Scenarios

The following scenarios have been modelled using SIDRA Intersection, an industry-standard software package that analyses the operating characteristics of intersections:

- Scenario 0 – Existing conditions (base case).
- Scenario 1 – Future conditions with background traffic growth only i.e. no development traffic (opening development year, 2025).
- Scenario 2 – Future conditions with background traffic growth plus development traffic (opening development year, 2025).

Development traffic refers to the vehicle trips estimated to be generated by the proposed development operation. In this case, it takes into consideration the campus as a whole i.e. the operation of both SYD08 and SYD09 sites.

## 4.7 Traffic Modelling Results

The SIDRA modelling results indicate the modelled nearby intersections currently operate at an acceptable level of service (LoS) C or better.

Having consideration for background traffic growth and site-generated trips in future scenarios, these intersections would continue to operate at a good level of service.

However, there is an exception for the Station Road/ McCoy Street intersection. The worst performing movement at this intersection has a LoS E and LoS F in the AM peak and PM peak periods, respectively. Detailed analysis of the operation at this intersection is provided herein.

### 4.7.1 Station Road / McCoy Street Intersection

#### **S0 – Existing Conditions**

It is important to recognise that the LoS E in the AM peak period is as a result of the right-turn movement out of McCoy Street north approach onto Station Road. There is one vehicle turning right-out of McCoy Street across the one-hour period. In reality, circulating vehicles at the roundabouts located either side of McCoy Street (at Tollis Place and Wentworth Avenue) would cause gaps in traffic flow on Station Road which would allow the vehicle to exit McCoy Street.

The next worst approach is the right-turn movement from Station Road east approach onto McCoy Street. This movement operates at LoS B under existing and future conditions in the peak periods. Thus, it is apparent that the right-turn movement out of McCoy Street is the cause of the overall poor level of service for the intersection, and therefore, is considered as not giving a true representation of the performance of this intersection as a whole. As such, the second worst movement has been reported in the SIDRA results summary in Table 4.2.

In the PM peak period, the overall intersection LoS F is also due to the right-turn movement out of the McCoy Street approach. This occurs on the basis that SIDRA software does not process turning movements with a zero value and, during the surveyed peak hour, there were no vehicles turning right onto Station Road. However, in order to perform this analysis, one vehicle trip has been input in SIDRA for the right-turn movement which generates the poor performance. Reporting this movement as the 'worst movement' for the intersection is considered to inaccurately present the actual intersection performance. As such, the second worst movement has been reported in Table 4.4.

### **S1 – Future Base Case (Background Traffic Growth Only)**

The second worst movement has been reported in the construction period for a like-for-like comparison with existing conditions.

### **S2 – Future Base Case + Development**

Similarly, the second worst movement has been reported in the construction period for a like-for-like comparison with existing conditions and future base case conditions.

## **4.7.2 Station Road / Site Access Intersection**

### **S0 – Existing Conditions**

As the site is currently vacant, there were no turning movements in or out of the site. Therefore, the site access not been modelled under existing conditions.

### **S1 – Future Base Case (Background Traffic Growth Only)**

In this scenario, the development is not considered and there would be no turning movements in or out of the site. Therefore, the site access not been modelled under existing conditions.

### **S2 – Future Base Case + Development**

Having consideration for the site-generated vehicles, the Station Road / Site Access intersection would operate at LoS F as a result of the 8 staff vehicles and 5 service vehicles exiting the site onto Station Road. However, this does not provide a true representation of the actual intersection performance as circulating vehicles at the roundabouts located either side of the site access (at Tollis Place and Wentworth Avenue) would cause gaps in traffic flow on Station Road which would allow the construction vehicles to exit site.

The next worst movement would be the right-turn movement into the site from Station Road, operating at a LoS B in both peak hours. In each peak hour, there would be 5 service vehicles entering site (2-3 vehicles turning into the site from either direction). In reality, this would not result in any impacts to traffic flow on Station Road as there would be gaps in the traffic flow caused by the upstream roundabout at Tollis Street. Furthermore, there would be sufficient space within the traffic lane and painted median along the site frontage for the through movement on Station Road to pass the vehicles entering the site. The width of the north-west traffic lane including median is 7.0m which would adequately accommodate the width of two passing vehicles.

Therefore, reporting the above-mentioned movements as the 'worst movement' for the intersection is considered to inaccurately present the actual intersection performance. As such, the next worst movement has been reported in Table 4.4

SIDRA modelling results for the road network peak periods are summarised in Table 4.4 while the detailed SIDRA movement summary outputs are contained in Appendix D.

**Table 4.4: SIDRA Modelling Results**

| Intersection                                    | Peak Period | Scenario 0        |                   | Scenario 1        |                   | Scenario 2    |     |
|-------------------------------------------------|-------------|-------------------|-------------------|-------------------|-------------------|---------------|-----|
|                                                 |             | Ave Delay (s)     | LoS               | Ave Delay (s)     | LoS               | Ave Delay (s) | LoS |
| Station Rd/<br>Tollis Pl                        | AM          | 16                | B                 | 18                | B                 | 18            | B   |
|                                                 | PM          | 21                | B                 | 23                | B                 | 23            | B   |
| Station Rd/<br>Site Access                      | AM          | N/A <sup>a)</sup> | N/A <sup>a)</sup> | N/A <sup>a)</sup> | N/A <sup>a)</sup> | 19            | B   |
|                                                 | PM          | N/A <sup>a)</sup> | N/A <sup>a)</sup> | N/A <sup>a)</sup> | N/A <sup>a)</sup> | 33            | C   |
| Station Rd/<br>McCoy St                         | AM          | 17                | B                 | 26                | B                 | 26            | B   |
|                                                 | PM          | 26                | B                 | 33                | C                 | 34            | C   |
| Station Rd/<br>Fitzwilliam Rd/<br>Wentworth Ave | AM          | 17                | B                 | 19                | B                 | 19            | B   |
|                                                 | PM          | 20                | B                 | 28                | B                 | 29            | C   |

Notes:

a) Not applicable as the site is currently vacant, there were no turning movements in or out of the site. Therefore, the site access not been modelled under existing conditions.

## 4.8 Loading and Waste Collection

A loading dock comprising (3) loading bays is proposed on the north side of the data hall building. These bays would be used for receiving deliveries. Routine services, such as waste collection, will also be carried out through this loading dock.

Deliveries and waste collections are expected as follows:

- Waste collection:
  - General waste: 1 per week.
  - Comingled recycling: 1 per week.
  - Cardboard: 1 per week.
  - Soft plastic, e-waste (cabling), timber pallets: as required.
- Fuel delivery (for generators) - 1 per week.
- Full rack deployments: 1-2 per week.
- Small courier deliveries – Approx. 3 per week.

Vehicles would enter the site in a forward direction, and then reverse into the loading bays. Then, vehicles would exit the loading dock in a forward direction using the internal circulation road to exit the site. The longest vehicle which the loading dock can accommodate would be a 19 m semi-trailer.

A swept path analysis has been undertaken of the 19 m semi-trailer which demonstrates adequate vehicle accessibility on-site. The swept path analysis is provided in Appendix C.

Unloading of fuel would occur in bunker that is positioned adjacent to the generators on the north side of the data hall building. Fuel would be delivered by a heavy/medium/small rigid vehicle, pending availability at the time. It would reverse into the bunker and exit forward out, following the internal circulation road towards the site exit.

## 5 Green Travel Plan

### 5.1 Introduction

Travel demand management is a term for strategies to encourage a modal shift from single-occupant private vehicle trips and influence the way people move to/from a site to deliver better environmental outcomes to encourage sustainable travel and reduce traffic and parking impacts within communities.

A key element of travel demand management is the preparation of a Green Travel Plan (GTP). The primary purpose of GTPs is to encapsulate a strategy for managing travel demand that embraces the principles of sustainable transport. In its simplest form, GTPs encourage travel using transport modes that have low environmental impacts, for example active transport modes including public transport, walking and cycling, and encourages better management of car use.

### 5.2 Drivers of the Travel Plan

There are a number of social, environmental, and economic drivers for developing and implementing a GTP for developments as detailed below.

- **Car Parking:** Car parks utilise valuable land resources and impact amenity. If the area continues to grow and there is no modal shift towards non-car transport modes, the car parking demand could increase significantly. As such, the provision of car parking must reflect the site's proximity to public transport to influence a modal shift to sustainable transport modes. Furthermore, the cost to provide parking is significant and therefore, there are strong economic imperatives to reduce car parking demand by incentivising non-car travel modes.
- **Environmental Impacts:** The transport sector (road, rail, air and ship) is Australia's third largest source of greenhouse gas emissions (GHG), accounting for 18 % of emissions in Australia in 2015 (Climate Council of Australia, 2016). Mitigating this impact is a key driver of the GTP. Within Australia, the transport sector has the highest rate of growth of GHG emissions per year having risen by 51 % since 1990 with private vehicles responsible for almost half of transport emissions. In comparison, travel modes such as walking and cycling have the lowest emissions while public transportation has significantly lower impact than private vehicles.

- **Health Benefits:** The use of sustainable transport modes can have wide-ranging health benefits due to a corresponding reduction in greenhouse gas emissions and increase in physical activity from walking and cycling. The shift from private cars to sustainable transport “can yield much greater immediate health “co-benefits” than improving fuel and vehicle efficiencies” (World Health Organisation, 2011). The potential benefits can include reduced respiratory diseases from better air quality, prevention of heart disease, some cancers, type 2 diabetes and some obesity-related risks.
- **Social Equity:** Transport has a fundamental role in supporting social equity, that is the equitable distribution of services, amenities, and opportunities. The provision of sustainable transport modes can provide a more affordable alternative to car use.

### 5.3 Mode Shift Target

Historically, a modal shift between 3-5% is considered to be achievable based on knowledge of local and international GTPs, and as stated by experts in Land Environment Court proceedings.

Notably, the Sirius Road Data Centre in Lane Cove (see Section 4.1) was approved with a mode shift target of 10% through the implementing a Sustainable Travel and Access Plan with a Transport Access Guide (TAG). This would identify aspects such as local bus stop locations and bus timetables, the nearest train stations and taxi ranks, local cycle routes, encourage car-sharing and carpooling for work-related journeys, and provide priority parking for staff who carpool. Similar sustainable transport measures will be implemented as part of the proposed development through the implementation of a Green Travel Plan initiatives (this Chapter) and site-specific TAG (contained in Appendix E).

Further to the above, it is important to point out the Sirius Road Data Centre is located within the Lane Cove Business Park which is served by buses that run in certain periods of the day only (6:00 am - 9:30 am and 5:00 pm - 7:30 pm). Furthermore, the sloping terrain between the Lane Cove Business Park and surrounding residential areas or Epping Road bus services would increase the level of difficulty for reaching the site by walking and cycling. In comparison, the proposed development is located near two train stations and several bus stops which run services throughout the day. The terrain surrounding the subject site is predominately flat which enables the proposed development to be easily accessible by walking and cycling.

As a minimum, the Proponent aims to achieve a car mode shift target of 7.5% for the development. The proposed target is mid-range between the historical industry standard and the recent target set by a similar development.

## 5.4 Initiatives

The Proponent has proposed to dedicate two (2) of the 31 car parking spaces on-site as carpool/ car share bays to deduce car dependency and move away from single occupancy car trips.

In addition, it is proposed to dedicate two (2) parking spaces for low-emissions vehicles, and one (1) parking space for electric vehicles (EVs) with a charging station also provided for this space.

Bike racks for four (4) bicycles will be provided on-site which is available to staff and visitors. Also, a bathroom with shower will be provided for staff for end-of-trip use.

A Transport Access Guide (TAG) is a concise presentation of how to reach a site using low-energy forms of transport - public transport, walking or cycling. A site-specific TAG has been developed which shows walking routes, distance and walk-times to nearby public transport. Also, the TAG shows the location of carpool, low-emission vehicles and EV car parking spaces on-site. The TAG would be distributed to staff before their first day at work and to visitors/ contractors prior to visiting the site so that people can plan their journey by non-car means. The TAG is contained in Appendix E.

Further travel strategies that could be considered to encourage more green travel include:

- Public transport: Provide easy-to-read train and bus service timetables and public transport maps on noticeboards in the workplace where they will be visible to all employees (e.g. staff lunch room).
- Carpooling: Senior Management can help match employees living in the same area to travel together to/from work. Given there will be a small group of employees at the facility, it may be acceptable to display a map of the general travel routes which staff use on the way to/from work to encourage carpooling.
- Active travel: Implement a '10,000 steps per day initiative'. Employees who have achieved the 10,000 step goal over a set period could be rewarded.

## 6 Summary and Conclusion

This transport impact assessment report relates to the proposed development for a data centre located at 57 Station Road, Seven Hills.

The key findings from this assessment are provided below:

- The proposed development comprises the construction of a two-storey data centre building, circulation road, external plant yard and car parking spaces.
- The subject site will be operating as a single campus with the front site (SYD09) (DA-21-01058), with shared facilities. Majority of staff at the front site will be relocated to the subject site upon completion.
- The subject site will be sharing two access driveways with the front site, which was approved as part of DA-21-01058.
- According to the Blacktown DCP, 122 car parking spaces would be required to be provided for the proposed development. However, this is considered excessive. Instead, it would be more appropriate to base car parking requirements on peak staffing and visitation.
- It is proposed to provide a total of 31 car parking spaces, including three (3) accessible spaces, which will be utilised by the campus as a whole i.e. SYD08 with SYD09 (DA-21-01058). This is considered sufficient to accommodate the anticipated future parking demand at the subject site.
- Three (3) loading bays have been proposed on-site which would accommodate the 10 deliveries per day expected on a daily basis.
- Notably, the peak hourly trip generation of the Proposal (18 trips per hour) is estimated to be the same as the former development (18 trips in the AM peak and 20 trips in the PM peak periods).
- SIDRA modelling results indicate that the future road network operation would be comparable with existing conditions, and would not result in any adverse impacts to the safety and operation of key nearby intersections.

Overall, the traffic and parking implications of the proposed development are considered satisfactory.

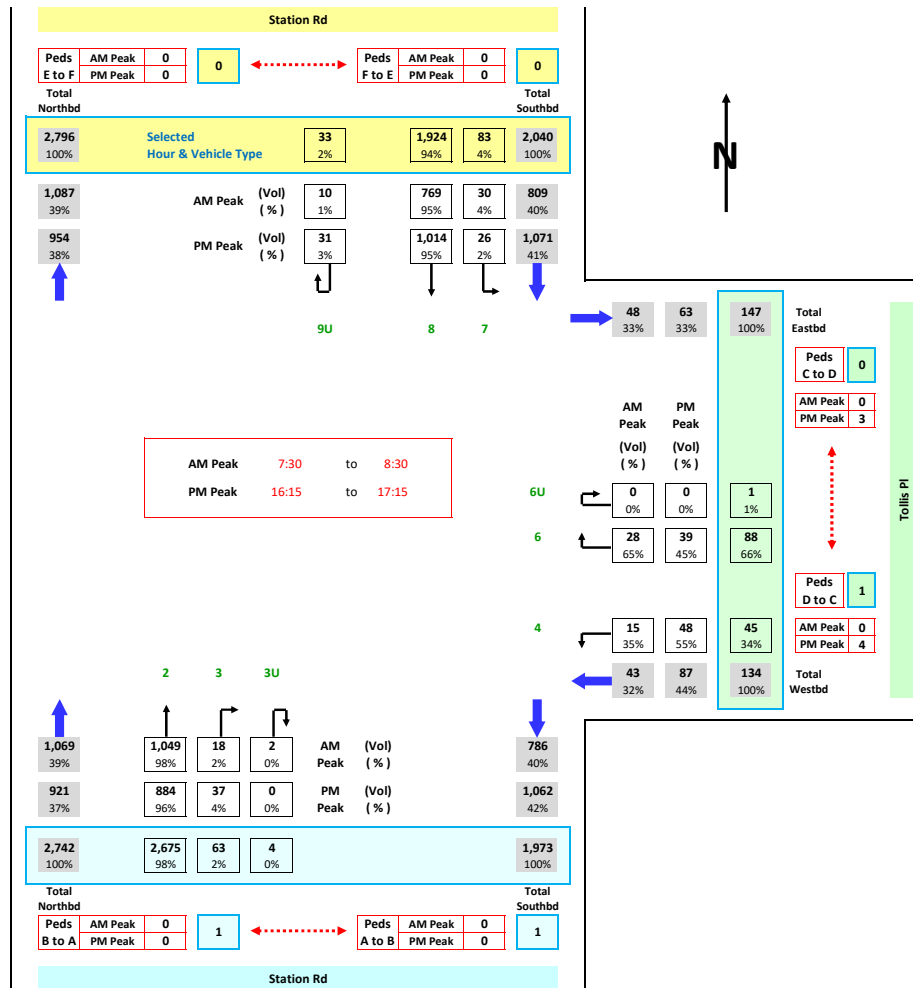
# Appendix A

## Traffic Survey Data

Job No. : AUNSW2575  
Client : The Transport Planning Partnership Pty Ltd  
Suburb : Seven Hills  
Location : 1. Station Rd / Tollis Pl

Day/Date : Tuesday, 8th February 2022  
Weather : Fine  
Description : Classified Intersection Count  
Intersection Diagram

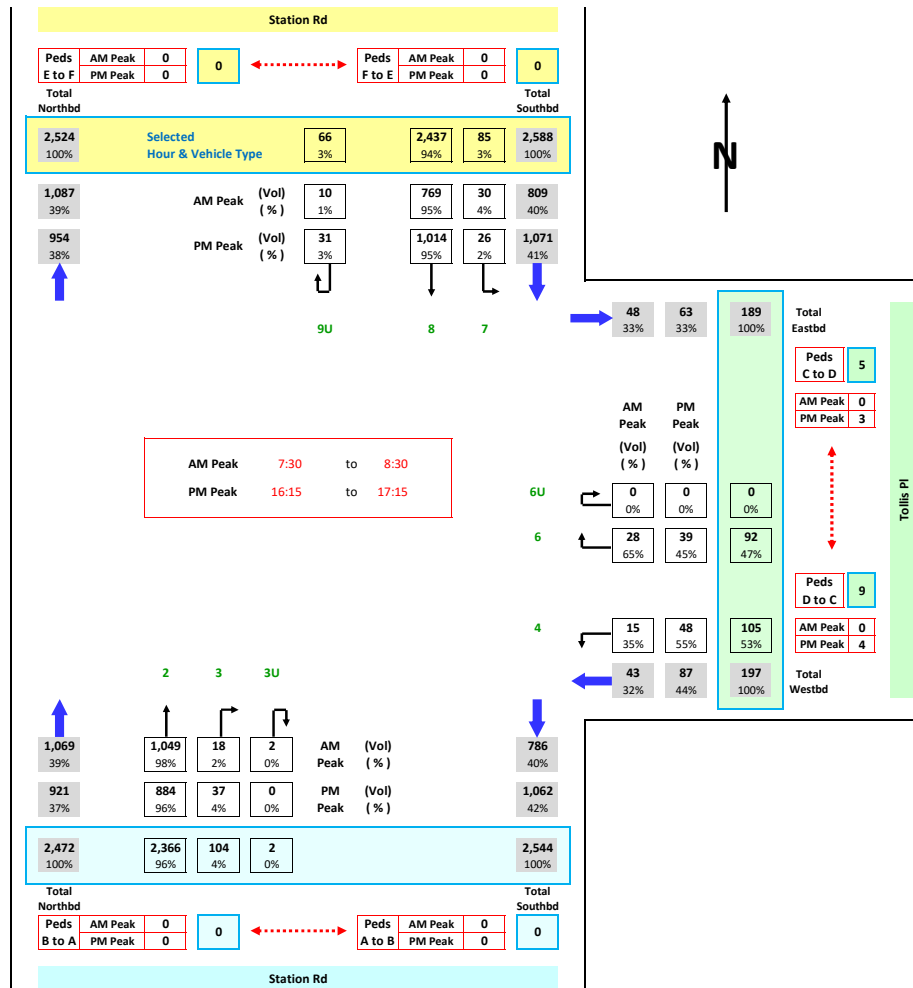
Hour Starting:  Vehicle Type:



Job No. : AUNSW2575  
Client : The Transport Planning Partnership Pty Ltd  
Suburb : Seven Hills  
Location : 1. Station Rd / Tollis Pl

Day/Date : Tuesday, 8th February 2022  
Weather : Fine  
Description : Classified Intersection Count  
Intersection Diagram

Hour Starting  Vehicle Type

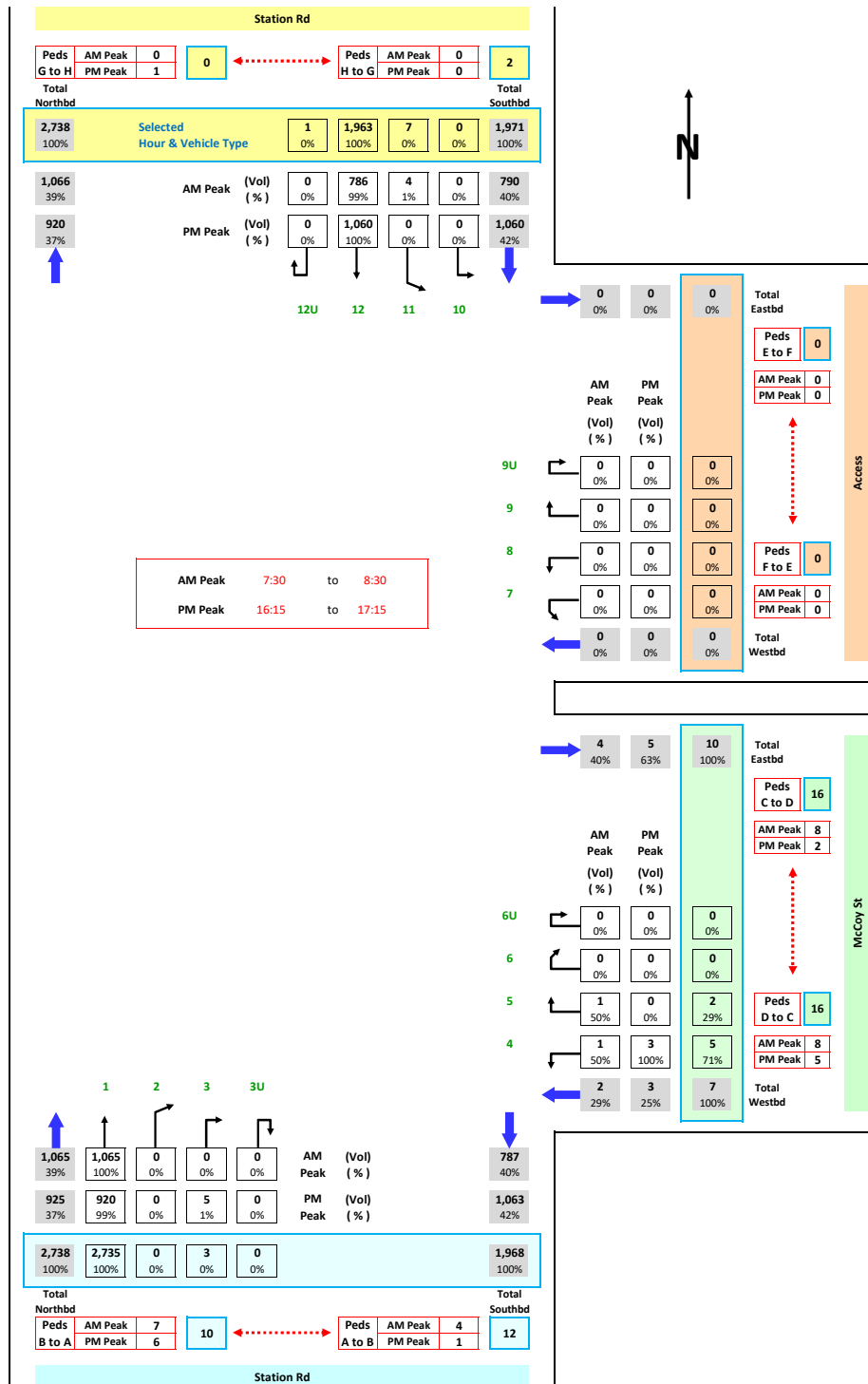


Job No. : AUNSW2575  
Client : The Transport Planning Partnership Pty Ltd  
Suburb : Seven Hills  
Location : 2. Station Rd / McCoy St / Site Access Driveway

Day/Date : Tuesday, 8th February 2022  
Weather : Fine  
Description : Classified Intersection Count  
Intersection Diagram



Hour Starting: AM Totals  
Vehicle Type: All Vehicles

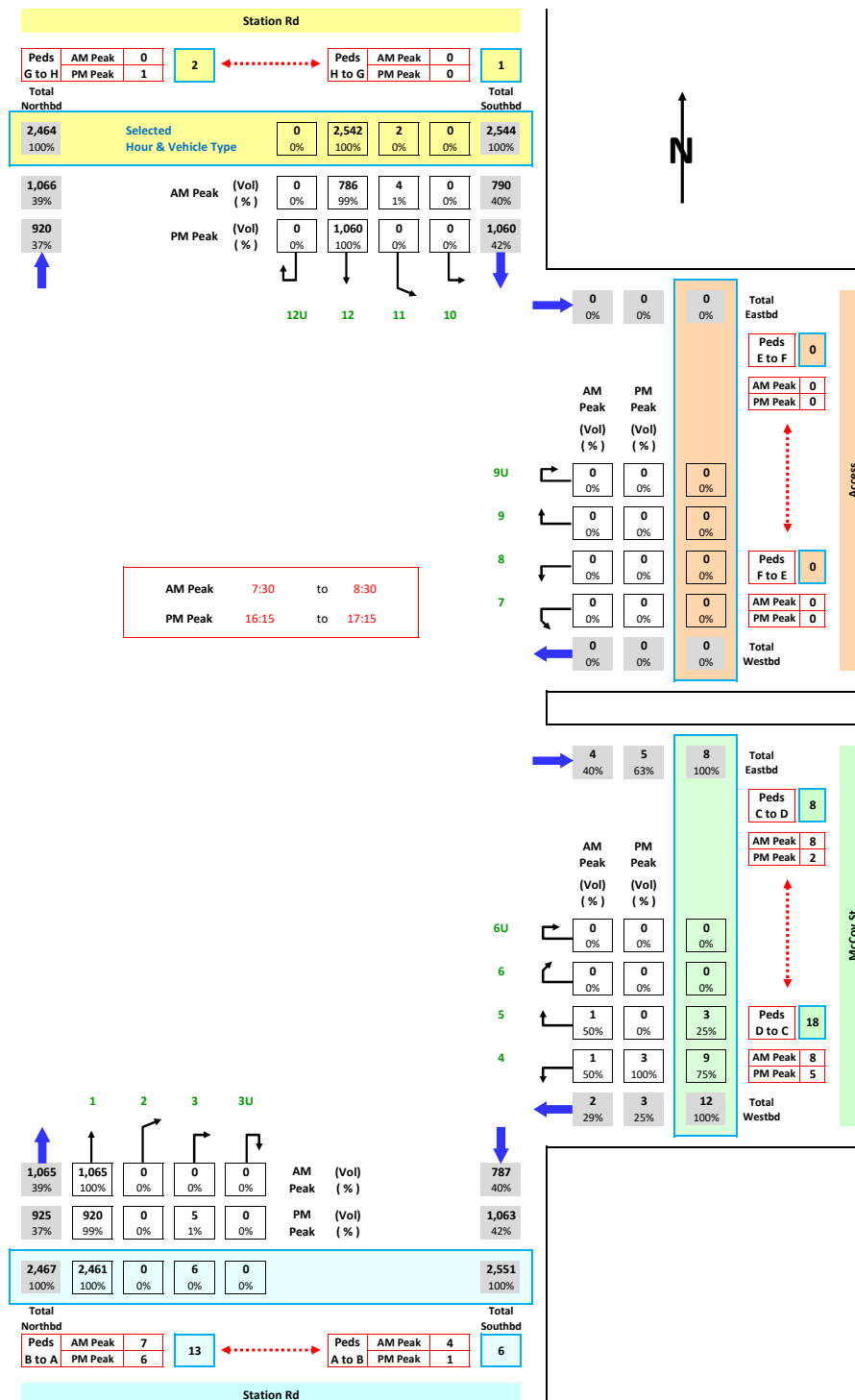


Job No. : AUNSW2575  
Client : The Transport Planning Partnership Pty Ltd  
Suburb : Seven Hills  
Location : 2. Station Rd / McCoy St / Site Access Driveway

Day/Date : Tuesday, 8th February 2022  
Weather : Fine  
Description : Classified Intersection Count  
Intersection Diagram



Hour Starting: PM Totals  
Vehicle Type: All Vehicles

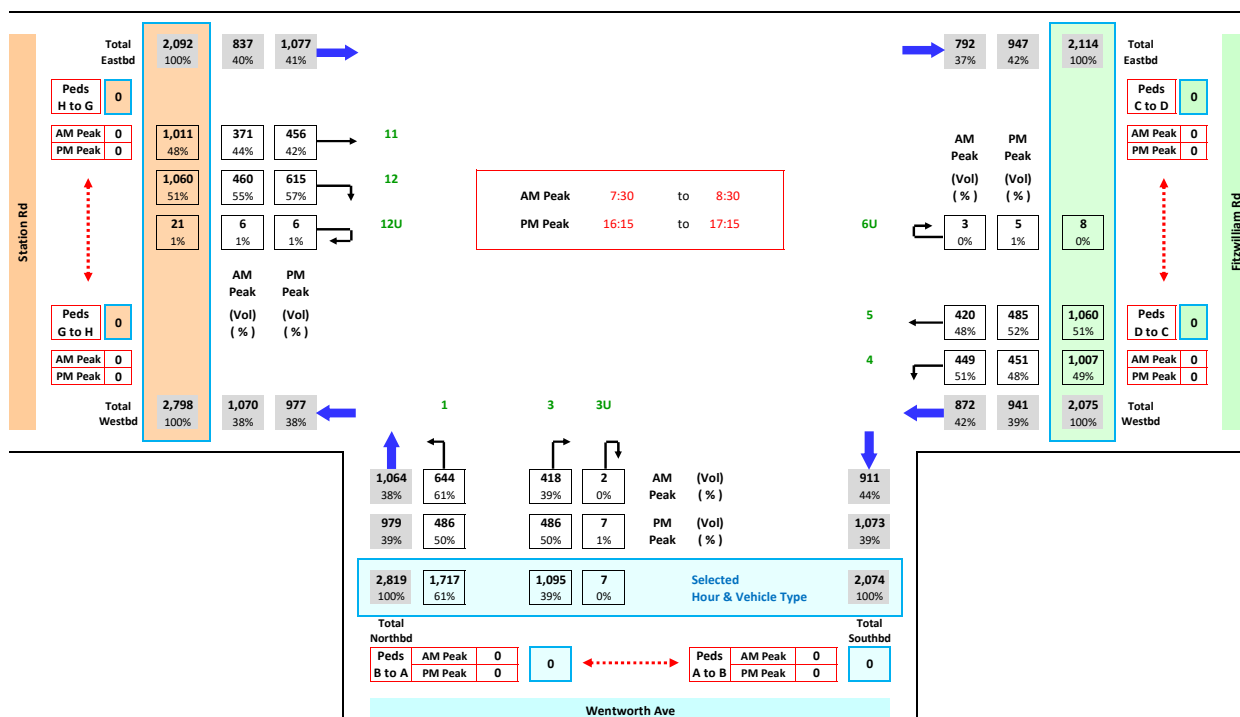


Job No. : AUNSW2575  
Client : The Transport Planning Partnership Pty Ltd  
Suburb : Seven Hills  
Location : 3. Station Rd / Wentworth Ave / Fitzwilliam Rd



Day/Date : Tuesday, 8th February 2022  
Weather : Fine  
Description : Classified Intersection Count  
Intersection Diagram

Hour Starting: AM Totals  
Vehicle Type: All Vehicles

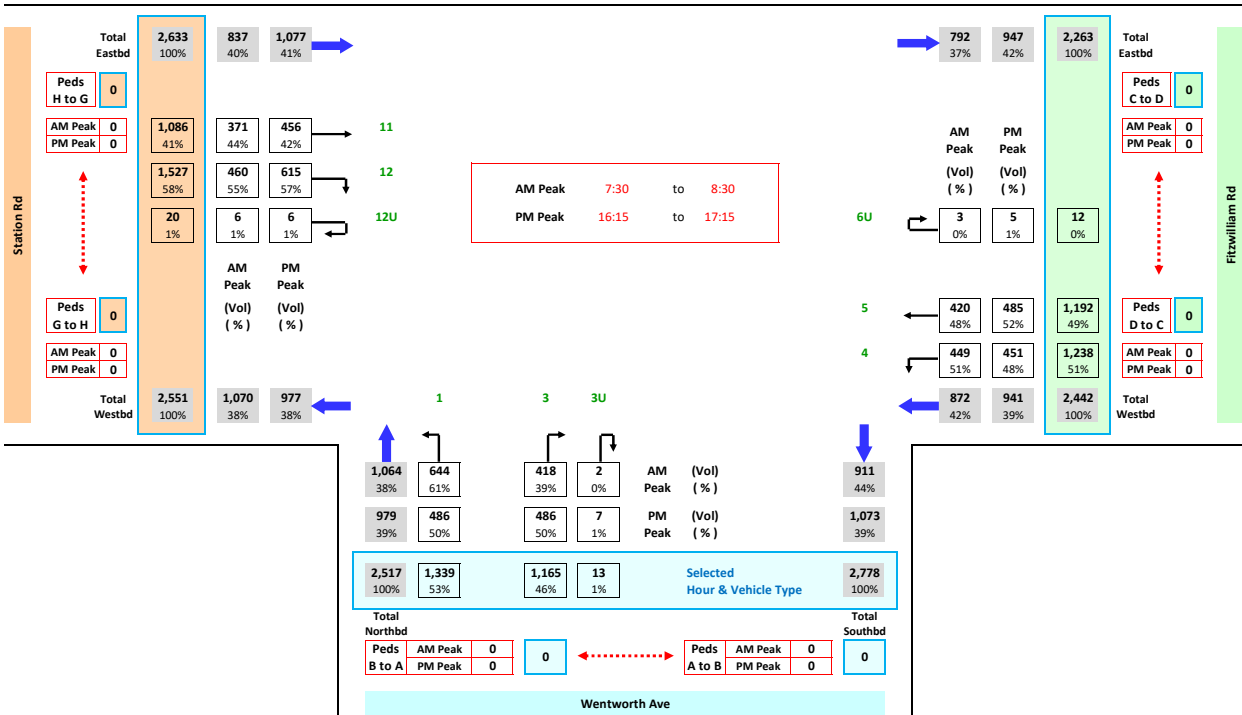


Job No. : AUNSW2575  
Client : The Transport Planning Partnership Pty Ltd  
Suburb : Seven Hills  
Location : 3. Station Rd / Wentworth Ave / Fitzwilliam Rd



Day/Date : Tuesday, 8th February 2022  
Weather : Fine  
Description : Classified Intersection Count  
Intersection Diagram

Hour Starting: PM Total  
Vehicle Type: All Vehicles



|             |                                        |
|-------------|----------------------------------------|
| Job No      | Seven Hills AUNSW2575                  |
| Client      | TTPP                                   |
| Site        | ATC1 - Station Rd (in front of No. 57) |
| Location    | 0                                      |
| Site No     | 1                                      |
| Start Date  | 8-Feb-22                               |
| Description | Volume Summary                         |
| Direction   | Combined                               |



| Hour<br>Starting | Day of Week |       |       |        |        |        |        | W'Day<br>Ave<br><b>23034</b> | 7 Day<br>Ave<br><b>20980</b> |
|------------------|-------------|-------|-------|--------|--------|--------|--------|------------------------------|------------------------------|
|                  | Mon         | Tue   | Wed   | Thu    | Fri    | Sat    | Sun    |                              |                              |
|                  | 14-Feb      | 8-Feb | 9-Feb | 10-Feb | 11-Feb | 12-Feb | 13-Feb |                              |                              |
| AM Peak          | 1769        | 1760  | 1785  | 1809   | 1789   | 1554   | 1001   |                              |                              |
| PM Peak          | 1875        | 1951  | 1988  | 1891   | 1898   | 1549   | 1142   |                              |                              |
| 0:00             | 108         | 96    | 101   | 94     | 118    | 230    | 211    | 103                          | 137                          |
| 1:00             | 57          | 65    | 69    | 56     | 67     | 118    | 108    | 63                           | 77                           |
| 2:00             | 43          | 38    | 62    | 69     | 58     | 84     | 85     | 54                           | 63                           |
| 3:00             | 69          | 71    | 65    | 77     | 82     | 57     | 61     | 73                           | 69                           |
| 4:00             | 193         | 203   | 216   | 218    | 196    | 82     | 52     | 205                          | 166                          |
| 5:00             | 659         | 665   | 661   | 673    | 629    | 244    | 127    | 657                          | 523                          |
| 6:00             | 1324        | 1248  | 1345  | 1307   | 1198   | 548    | 245    | 1284                         | 1031                         |
| 7:00             | 1769        | 1760  | 1757  | 1809   | 1685   | 758    | 327    | 1756                         | 1409                         |
| 8:00             | 1731        | 1692  | 1785  | 1769   | 1789   | 946    | 520    | 1753                         | 1462                         |
| 9:00             | 1344        | 1274  | 1317  | 1331   | 1277   | 1216   | 817    | 1309                         | 1225                         |
| 10:00            | 1120        | 1047  | 1121  | 1138   | 1252   | 1401   | 898    | 1136                         | 1140                         |
| 11:00            | 1093        | 1071  | 1017  | 1151   | 1147   | 1554   | 1001   | 1096                         | 1148                         |
| 12:00            | 1099        | 1175  | 1117  | 1182   | 1428   | 1549   | 1142   | 1200                         | 1242                         |
| 13:00            | 1227        | 1245  | 1269  | 1166   | 1368   | 1378   | 1007   | 1255                         | 1237                         |
| 14:00            | 1523        | 1533  | 1559  | 1579   | 1623   | 1269   | 940    | 1563                         | 1432                         |
| 15:00            | 1714        | 1821  | 1909  | 1891   | 1898   | 1194   | 919    | 1847                         | 1621                         |
| 16:00            | 1875        | 1951  | 1988  | 1845   | 1886   | 1090   | 941    | 1909                         | 1654                         |
| 17:00            | 1745        | 1731  | 1758  | 1721   | 1633   | 1038   | 918    | 1718                         | 1506                         |
| 18:00            | 1223        | 1254  | 1382  | 1252   | 1273   | 913    | 763    | 1277                         | 1151                         |
| 19:00            | 893         | 881   | 927   | 957    | 906    | 695    | 710    | 913                          | 853                          |
| 20:00            | 713         | 686   | 761   | 764    | 671    | 529    | 665    | 719                          | 684                          |
| 21:00            | 516         | 484   | 543   | 585    | 569    | 506    | 505    | 539                          | 530                          |
| 22:00            | 371         | 317   | 373   | 381    | 470    | 454    | 362    | 382                          | 390                          |
| 23:00            | 188         | 189   | 200   | 206    | 329    | 337    | 177    | 222                          | 232                          |
| Total            | 22597       | 22497 | 23302 | 23221  | 23552  | 18190  | 13501  | 23034                        | 20980                        |

|      |       |       |       |       |       |       |       |       |       |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 7-19 | 17463 | 17554 | 17979 | 17834 | 18259 | 14306 | 10193 | 17818 | 16227 |
| 6-22 | 20909 | 20853 | 21555 | 21447 | 21603 | 16584 | 12318 | 21273 | 19324 |
| 6-24 | 21468 | 21359 | 22128 | 22034 | 22402 | 17375 | 12857 | 21878 | 19946 |
| 0-24 | 22597 | 22497 | 23302 | 23221 | 23552 | 18190 | 13501 | 23034 | 20980 |

## Appendix B

### Architectural Plans

SYD08 DATA CENTRE

CIVIL SERVICES



CIVIL DRAWING LIST

|                   |                                      |
|-------------------|--------------------------------------|
| NSW202013_C101.01 | COVER SHEET AND DRAWING LIST         |
| NSW202013_C101.02 | LEGENDS SHEET                        |
| NSW202013_C101.03 | NOTES                                |
| NSW202013_C101.05 | DETAILS SHEET 1                      |
| NSW202013_C101.06 | DETAILS SHEET 2                      |
| NSW202013_C101.07 | DETAILS SHEET 3                      |
| NSW202013_C101.08 | DETAILS SHEET 4                      |
| NSW202013_C101.10 | GENERAL ARRANGEMENT AND PHASING PLAN |
| NSW202013_C103.01 | CIVIL WORKS PLAN                     |
| NSW202013_C103.10 | STORMWATER CATCHMENT PLAN            |
| NSW202013_C103.11 | WATER BALANCE CATCHMENT PLAN         |
| NSW202013_C105.01 | SOIL AND WATER MANAGEMENT PLAN       |
| NSW202013_C107.01 | VEHICLE TURN PATHS PLAN              |

|     |                |          |    |     |
|-----|----------------|----------|----|-----|
| B   | ISSUE FOR SSDA | 22.03.22 | RG | MB  |
| A   | ISSUE FOR SSDA | 14.03.22 | RG | MB  |
| No. | Description    | Date     | By | CHK |

Lead Consultant / MEP / Structures

**LCI**

LCI CONSULTANTS  
(AUSTRALIA) PTY LTD

LEVEL 4, 73 WALKER STREET,  
NORTH SYDNEY, NSW, 2060  
ABN: 52 124 107 973

Architect

Project No: 50736, send chattershot new 1515  
1 (02) 9565 0000  
acorn.dem.com.au

Civil

**Ac OR**

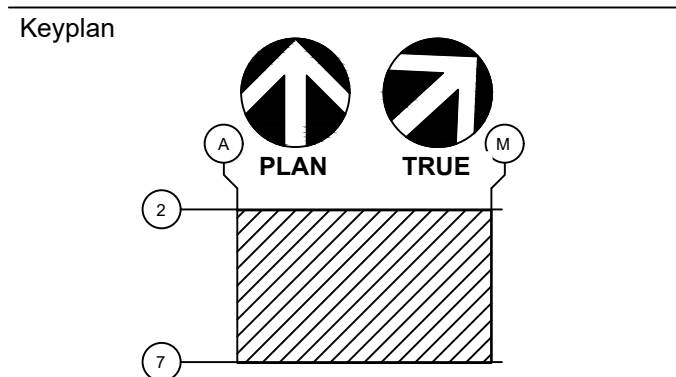
CONSULTANTS

Client

**LCI**

LCI CONSULTANTS  
(AUSTRALIA) PTY LTD

LEVEL 4, 73 WALKER STREET,  
NORTH SYDNEY, NSW, 2060  
ABN: 52 124 107 973



Project  
SYD08 DATA CENTRE  
57 STATION ROAD  
SEVEN HILLS, NSW 2147

Drawing Title  
COVER SHEET AND DRAWING LIST

DIAL BEFORE YOU DIG

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

IMPORTANT: THE CONTRACTOR IS TO MAINTAIN A CURRENT SET OF "DIAL BEFORE YOU DIG" DRAWINGS ON SITE AT ALL TIMES.

|             |                   |
|-------------|-------------------|
| Status      | ISSUE FOR SSDA    |
| Scale @ A0  | N/A               |
| Project No. | NSW202013         |
| Drawing No. | NSW202013_C101.01 |

COMMERCIAL IN CONFIDENCE

## SIGN POST

NOTES

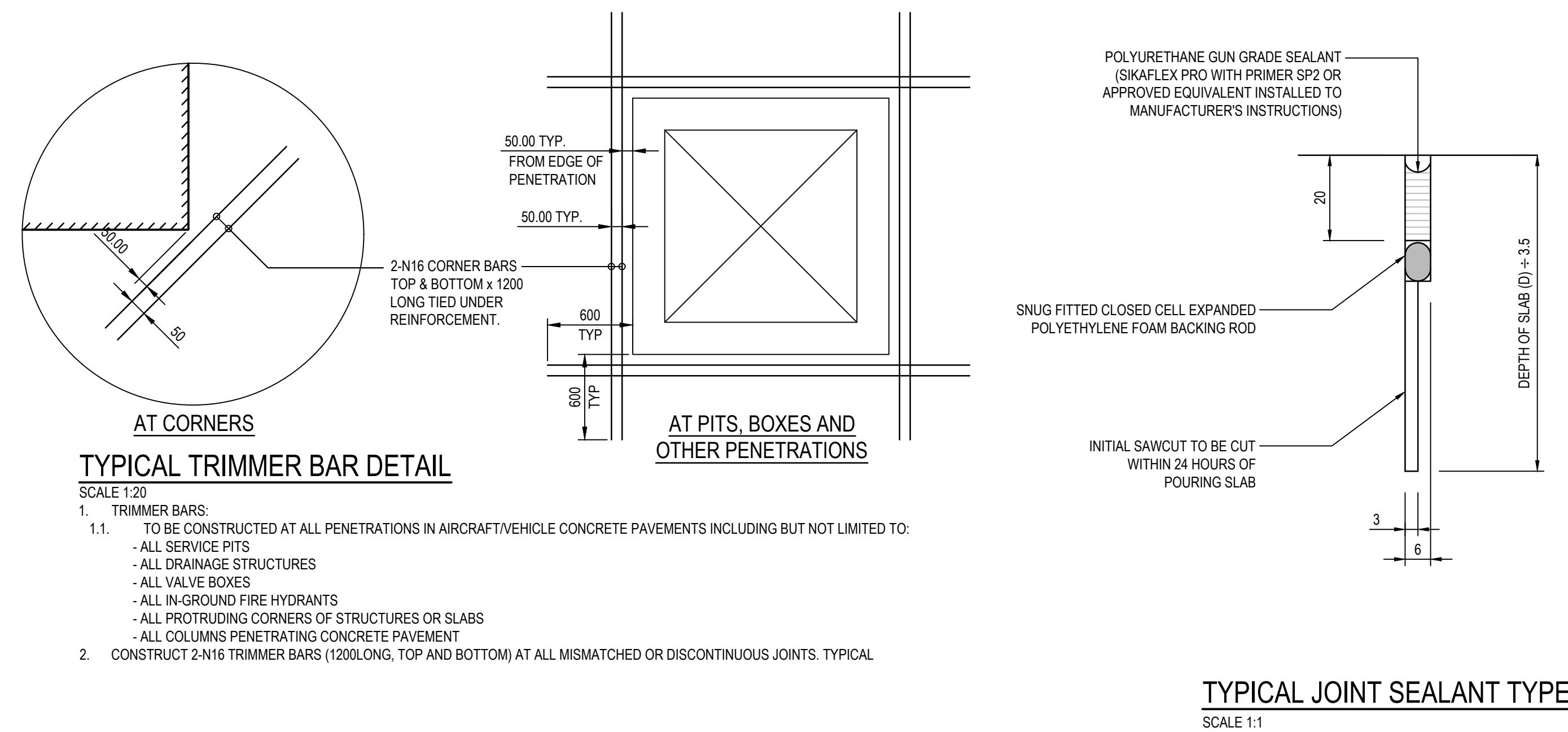
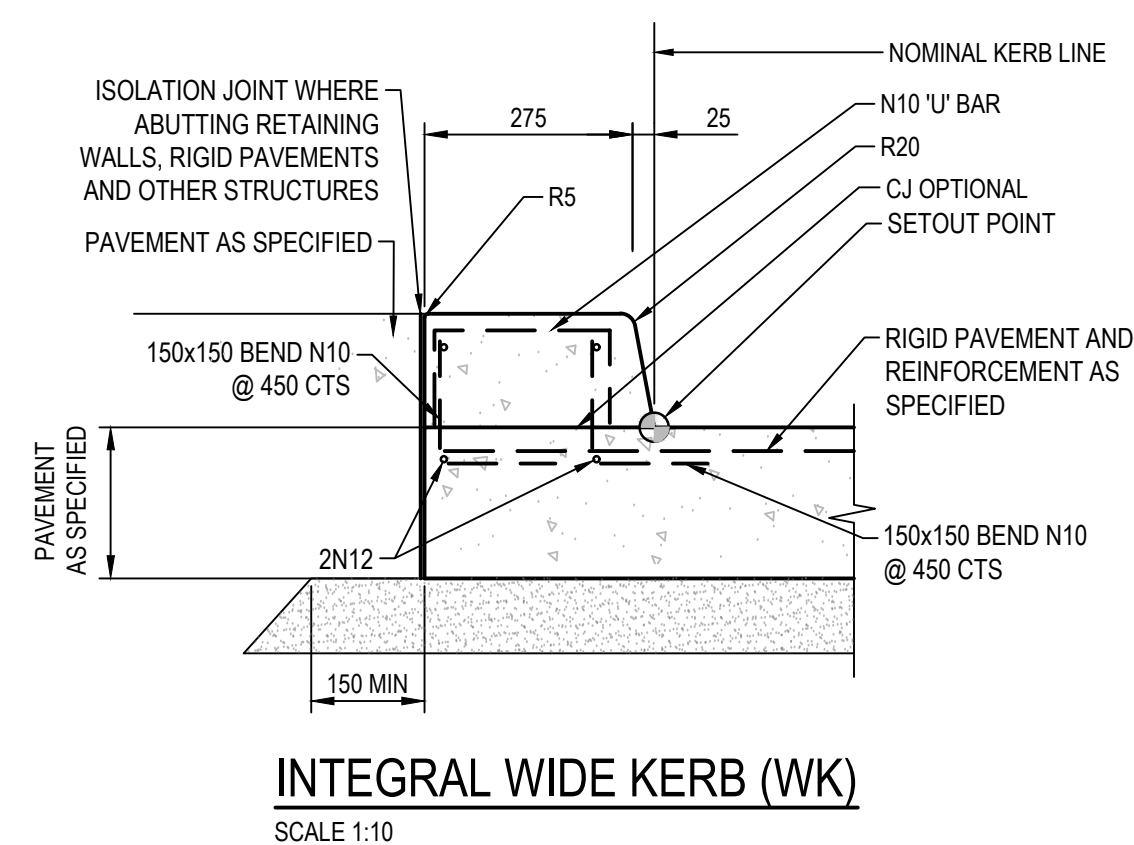
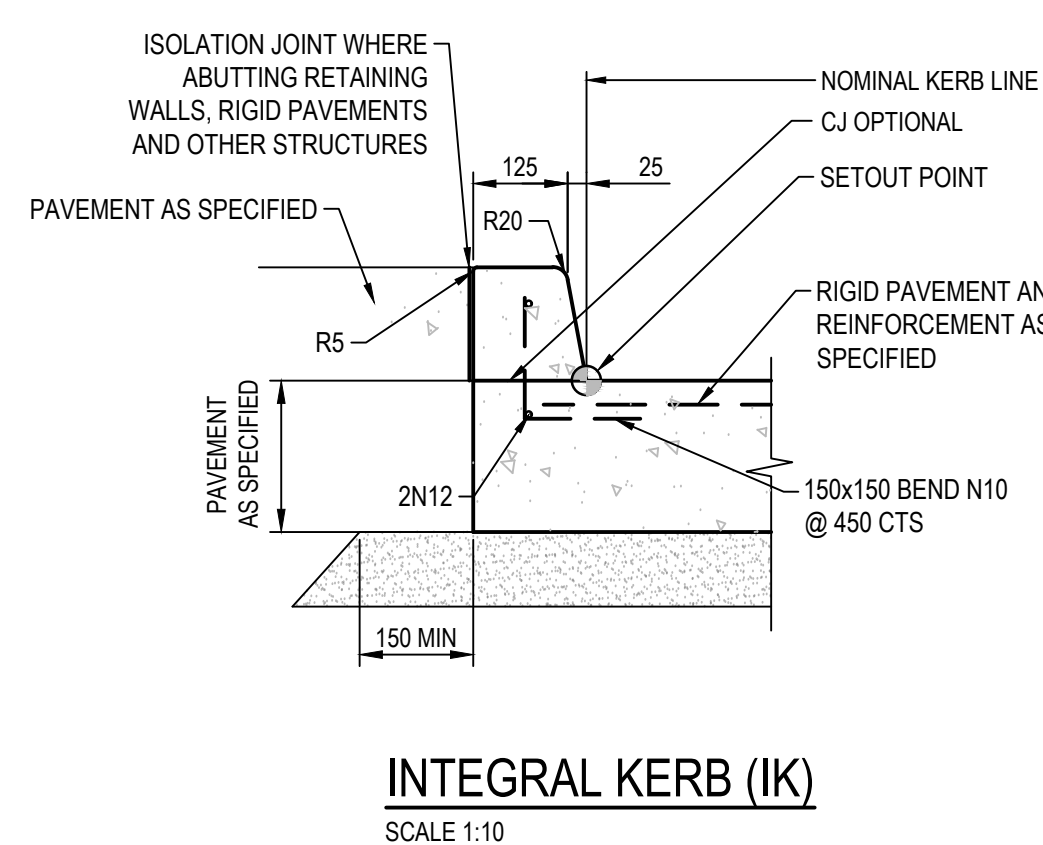
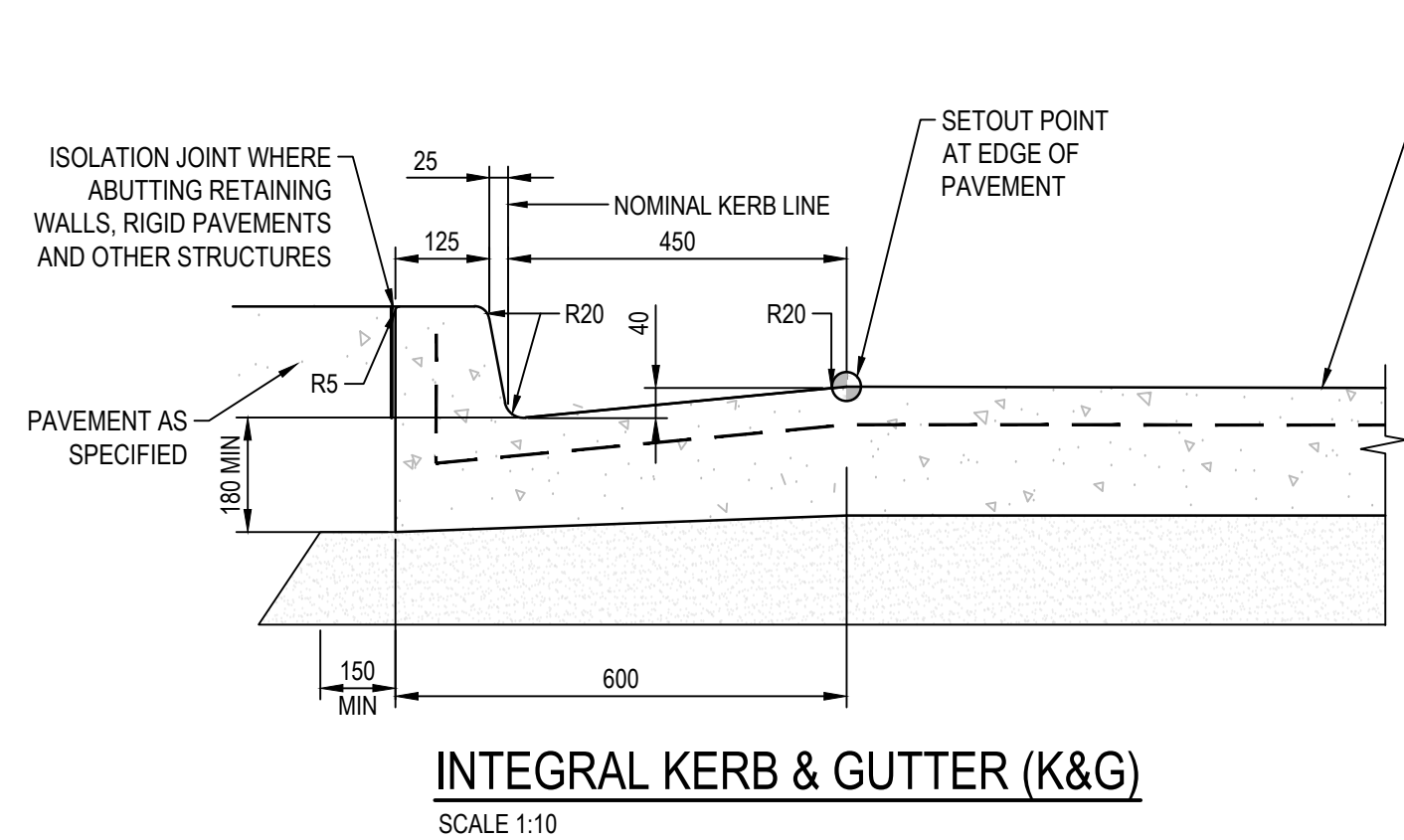
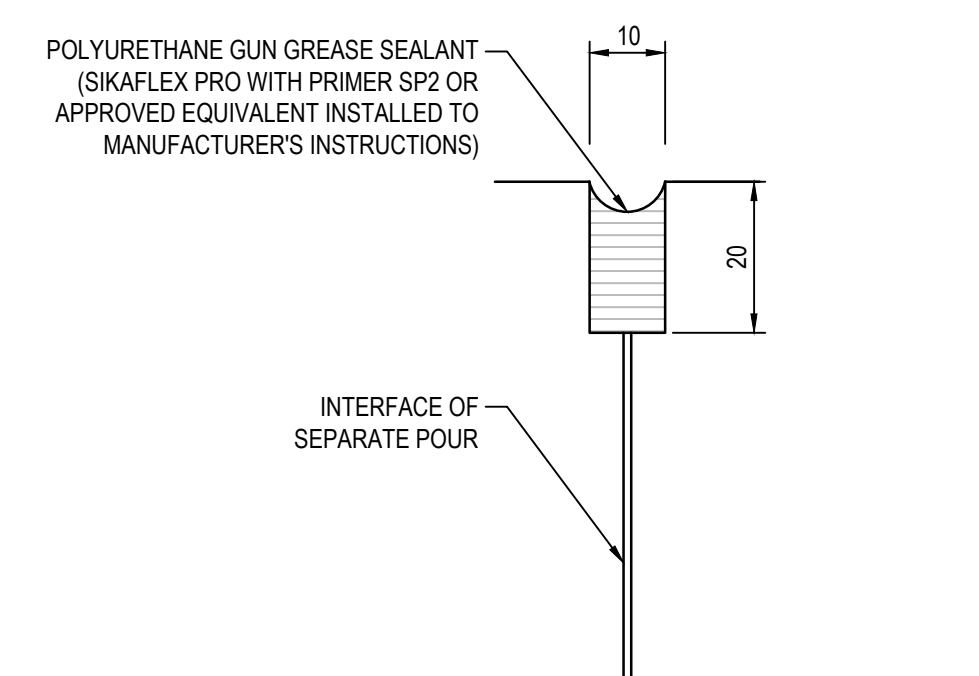
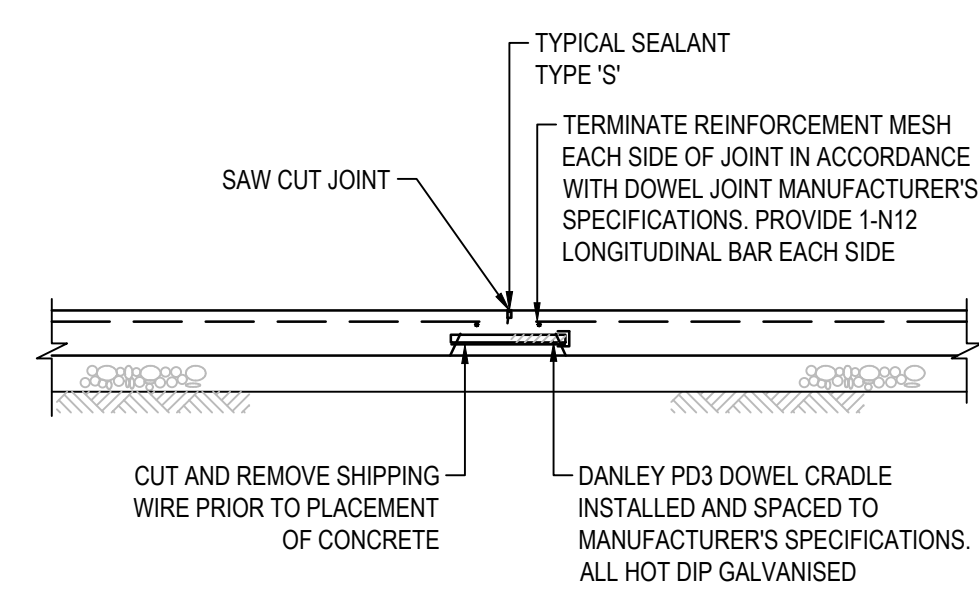
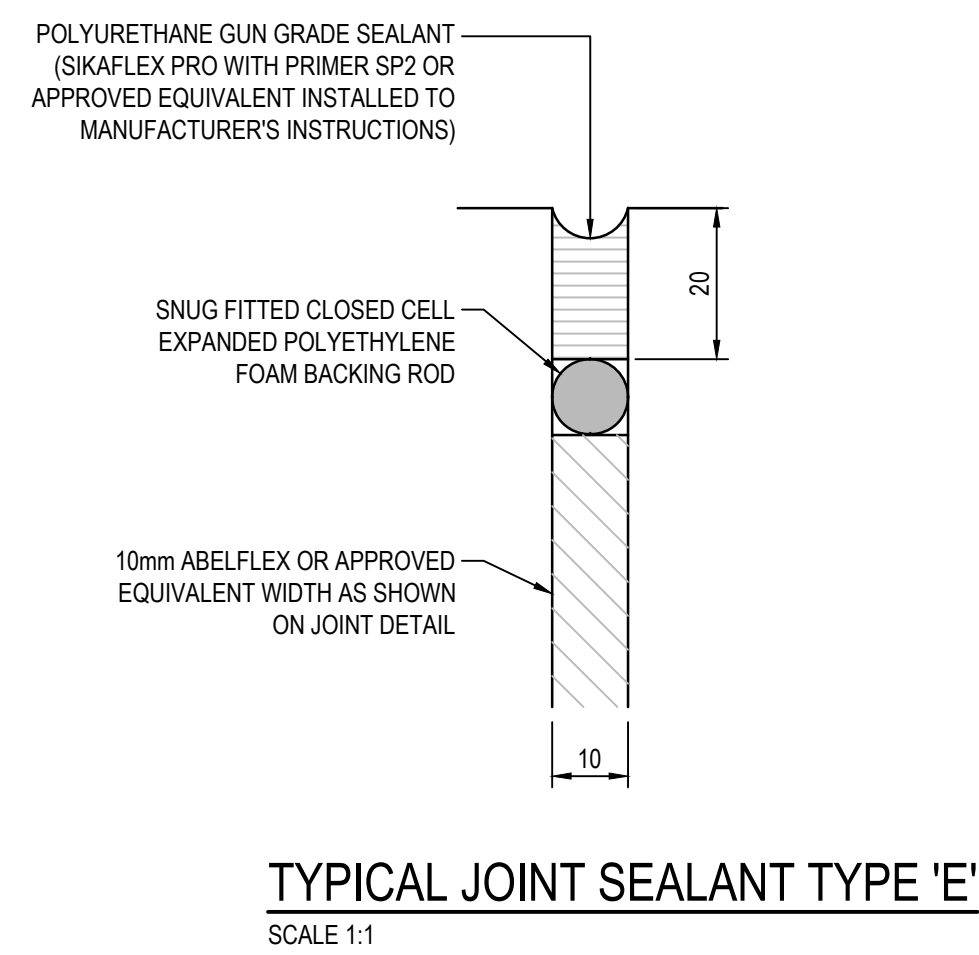
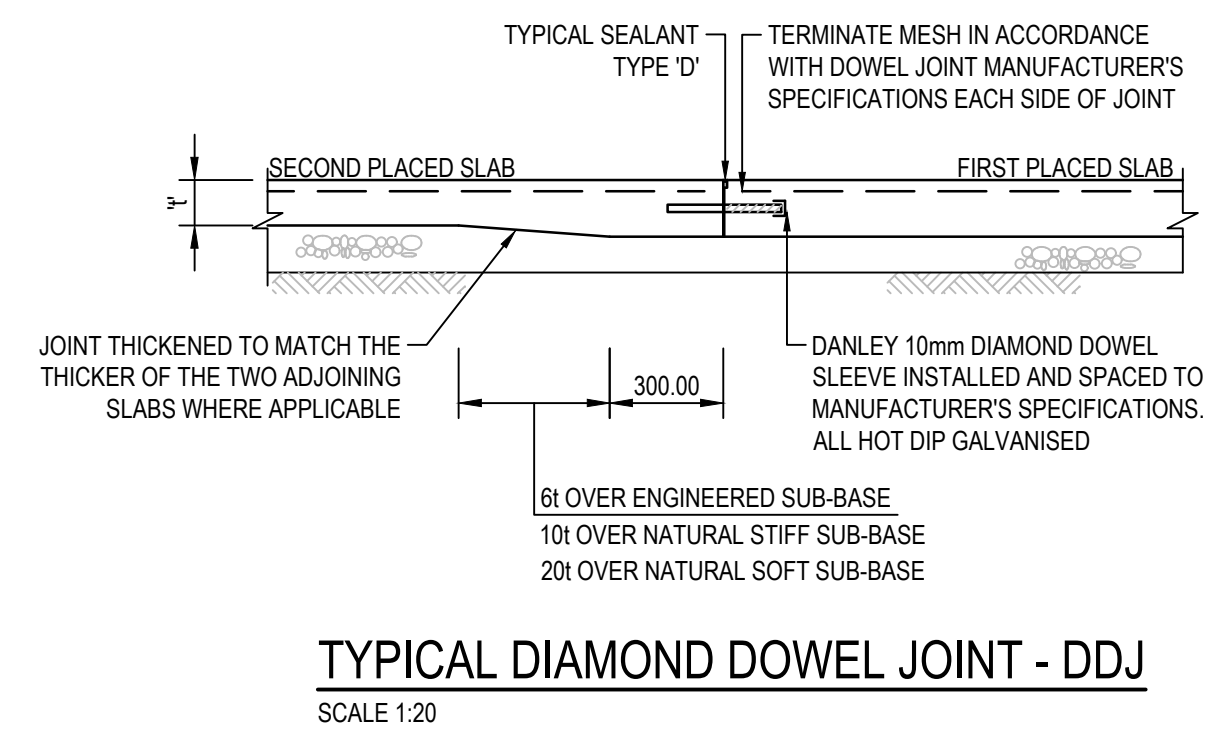
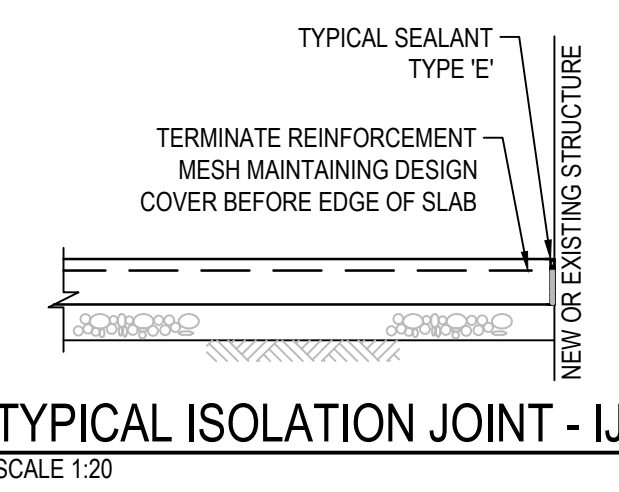
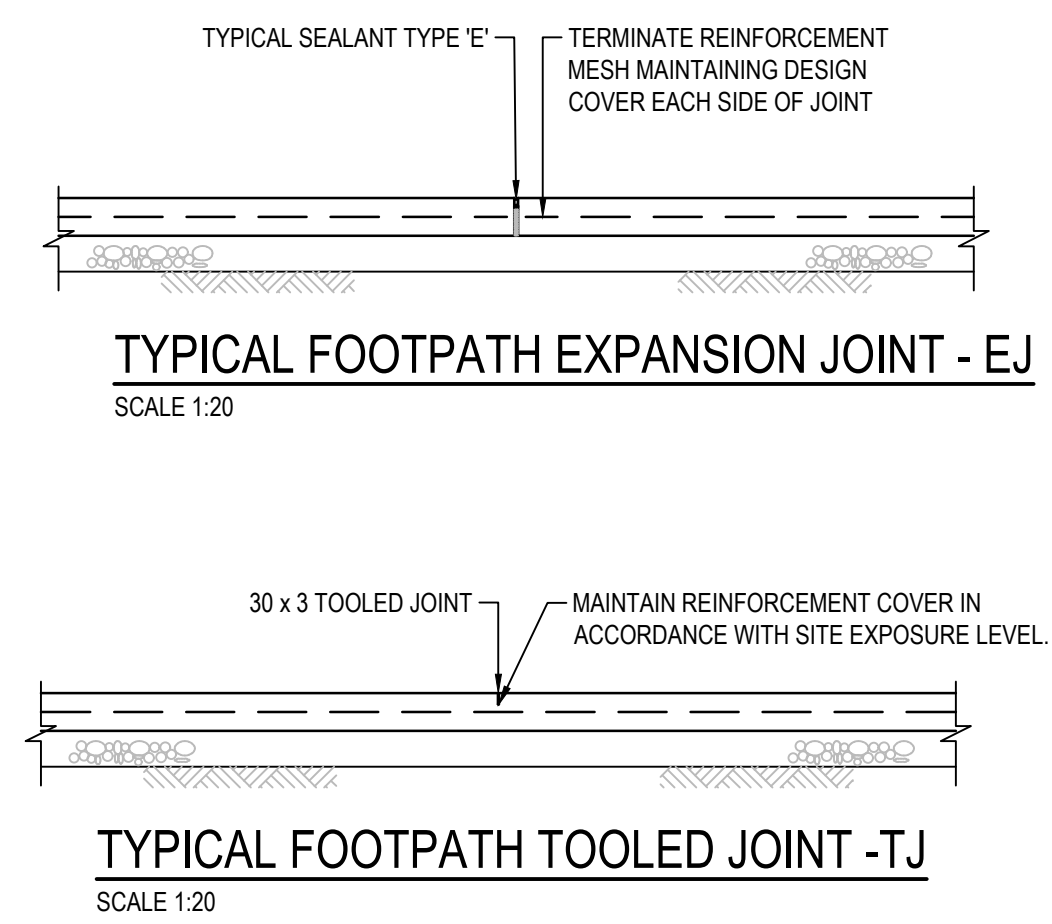
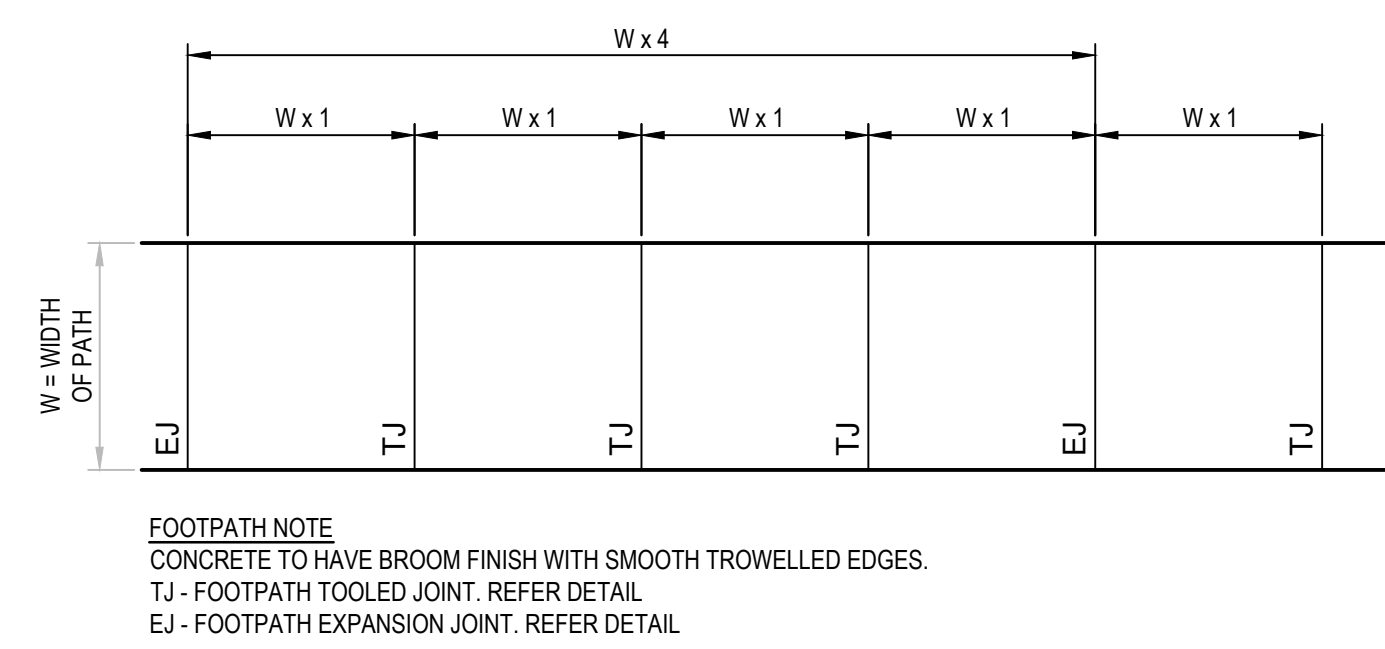
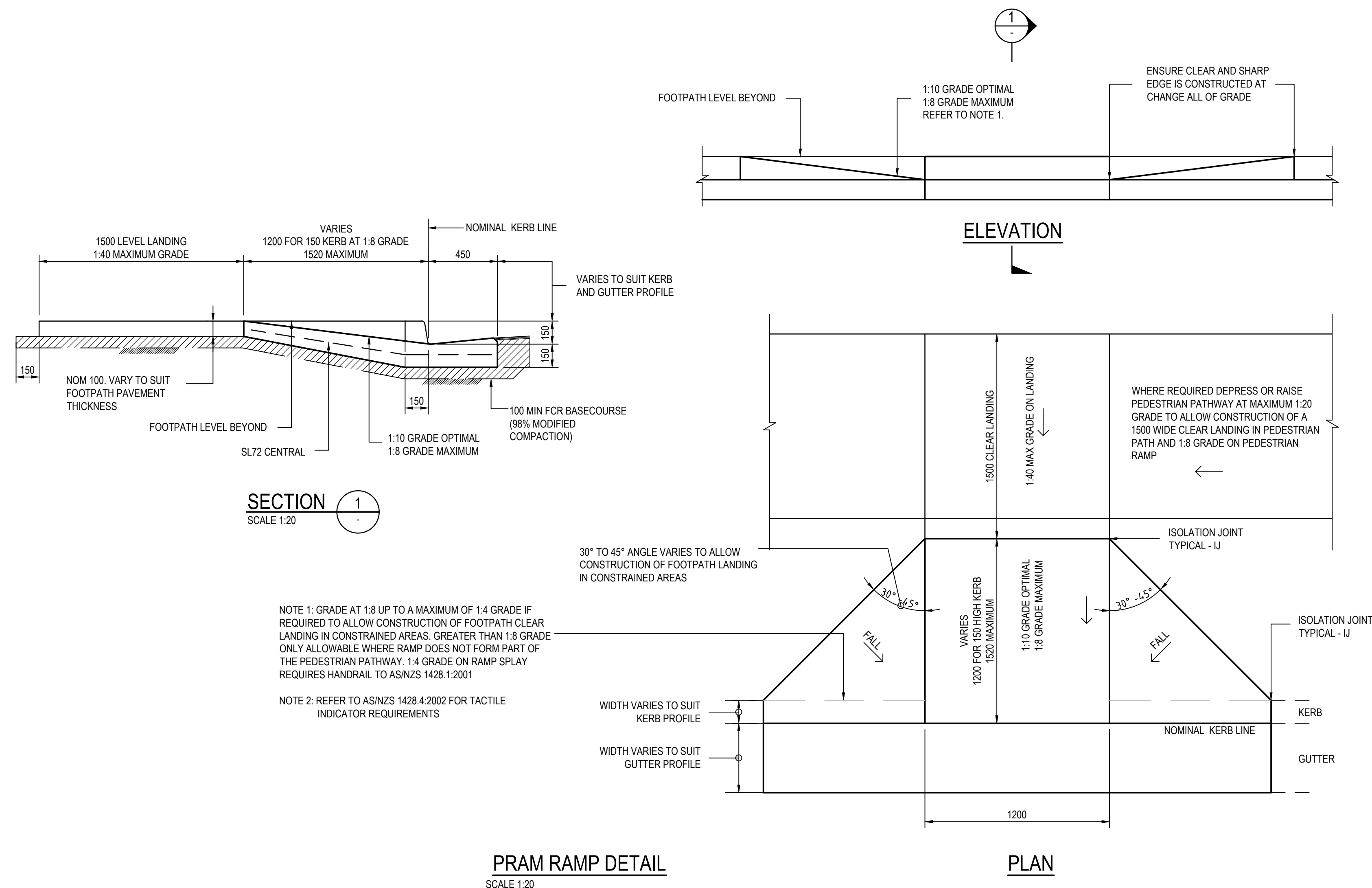
1. ALL PAVEMENT MARKING AND SIGNAGE SHALL BE IN ACCORDANCE WITH AS1742, 1743, 2890 AND RMS QA SPECIFICATIONS.

|                                                                                     |                              |
|-------------------------------------------------------------------------------------|------------------------------|
|  | SEDIMENT FENCE               |
|  | PIT INLET TRAP               |
|  | SAND BAG SEDIMENT TRAP       |
|  | ROCK CHECK DAM               |
|  | STABILISED CONSTRUCTION EXIT |
|  | CUT OFF DRAIN                |
|  | STOCKPILE                    |

Drawing No. NSW202013\_C101.02 B

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|     |                |          |    |     |
|-----|----------------|----------|----|-----|
| B   | ISSUE FOR SSDA | 22.03.22 | RG | MB  |
| A   | ISSUE FOR SSDA | 14.03.22 | RG | MB  |
| No. | Description    | Date     | By | Chk |

Lead Consultant / MEP / Structures

 **LCI**

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Client

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(AUSTRALIA) PTY LTD

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NORTH SYDNEY, NSW, 2060  
ABN: 92 124 107 973

Keyplan

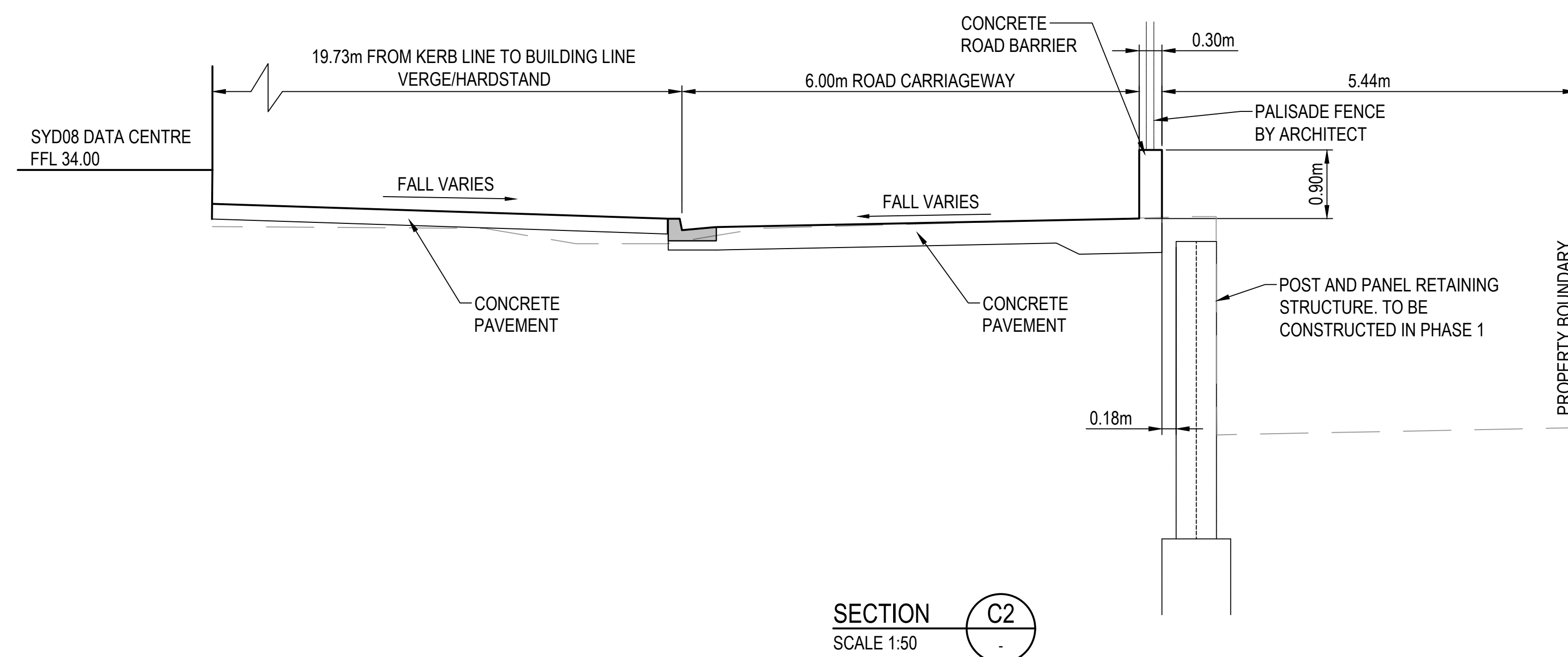
The keyplan diagram consists of a central rectangle with diagonal hatching. Above the rectangle, there are two circular symbols. The left circle contains a black arrow pointing straight up, with the word 'PLAN' written below it. The right circle contains a black arrow pointing diagonally up and to the right, with the word 'TRUE' written below it. To the left of the rectangle, there are two small circles labeled 'A' and 'Z'. To the right, there is a small circle labeled 'M'. Below the rectangle, there is a small circle labeled '7'.

Project  
SYD08 DATA CENTRE  
57 STATION ROAD  
SEVEN HILLS, NSW 2147

---

Drawing Title  
DETAILS  
SHEET 1

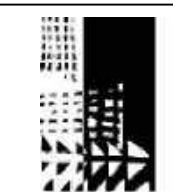
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| Status      | ISSUE FOR SSDA    |   |
| Scale @ A0  | AS SHOWN          |   |
| Project No. | NSW202013         |   |
| Drawing No. | NSW202013_C101.05 | B |



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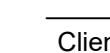


Architect

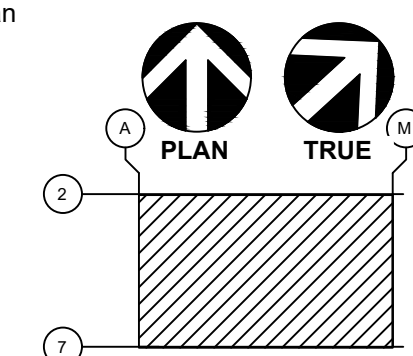


p: po box 5036 west chatswood nsw 1515  
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### Keyplan



Project  
SYD08 DATA CENTRE  
57 STATION ROAD  
SEVEN HILLS, NSW 2147

Drawing Title  
DETAILS  
SHEET 2

Status **ISSUE FOR SSDA**

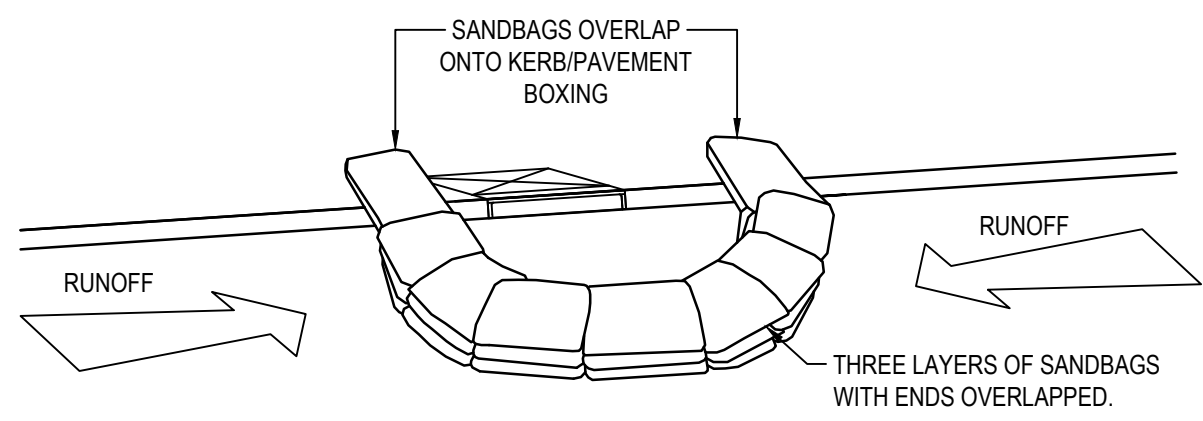
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Project No. NSW202013

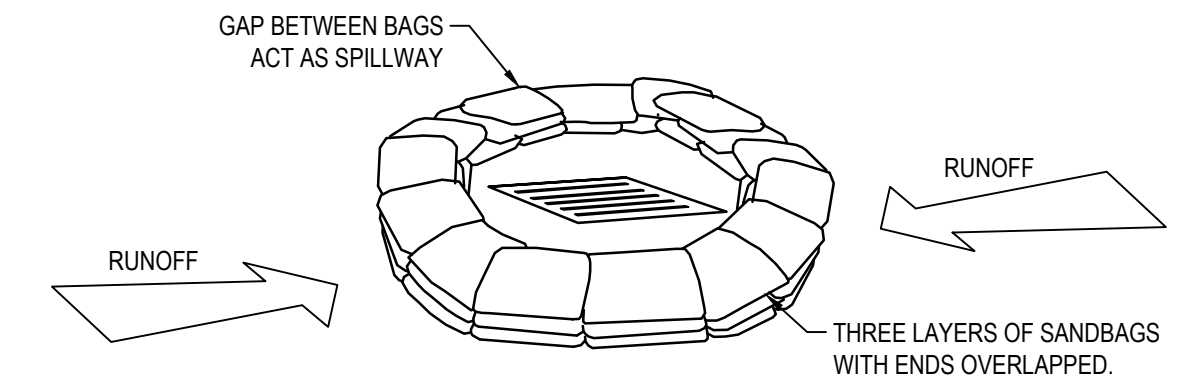
Drawing No. NSW202013\_C101.06

1

COMMERCIAL IN CONFIDENCE

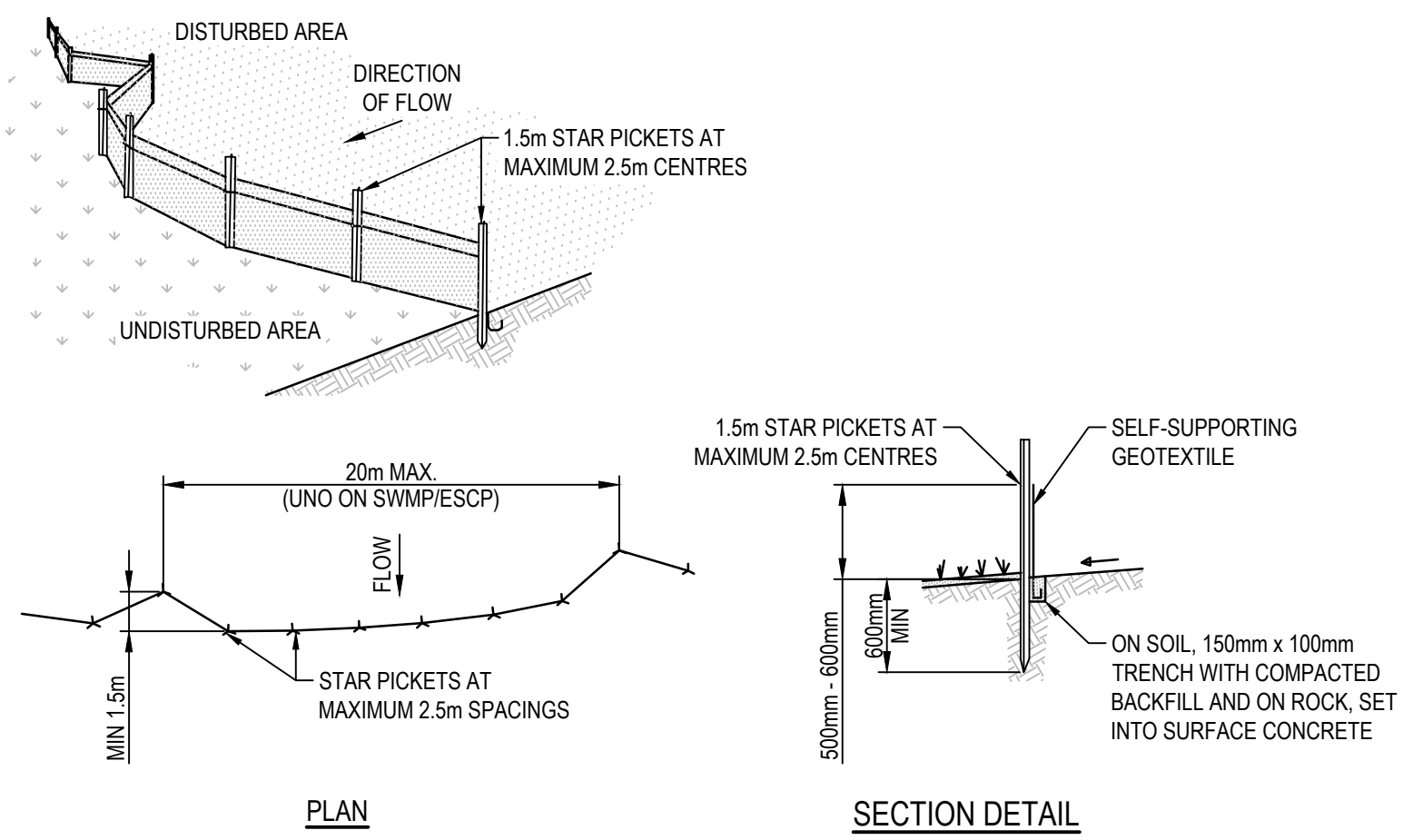


SANDBAG SEDIMENT TRAP - AT KERB SAG PIT



SANDBAG SEDIMENT TRAP - AT OTHER THAN KERB SAG PIT

SANDBAG SEDIMENT TRAP DETAILS  
N.T.S.



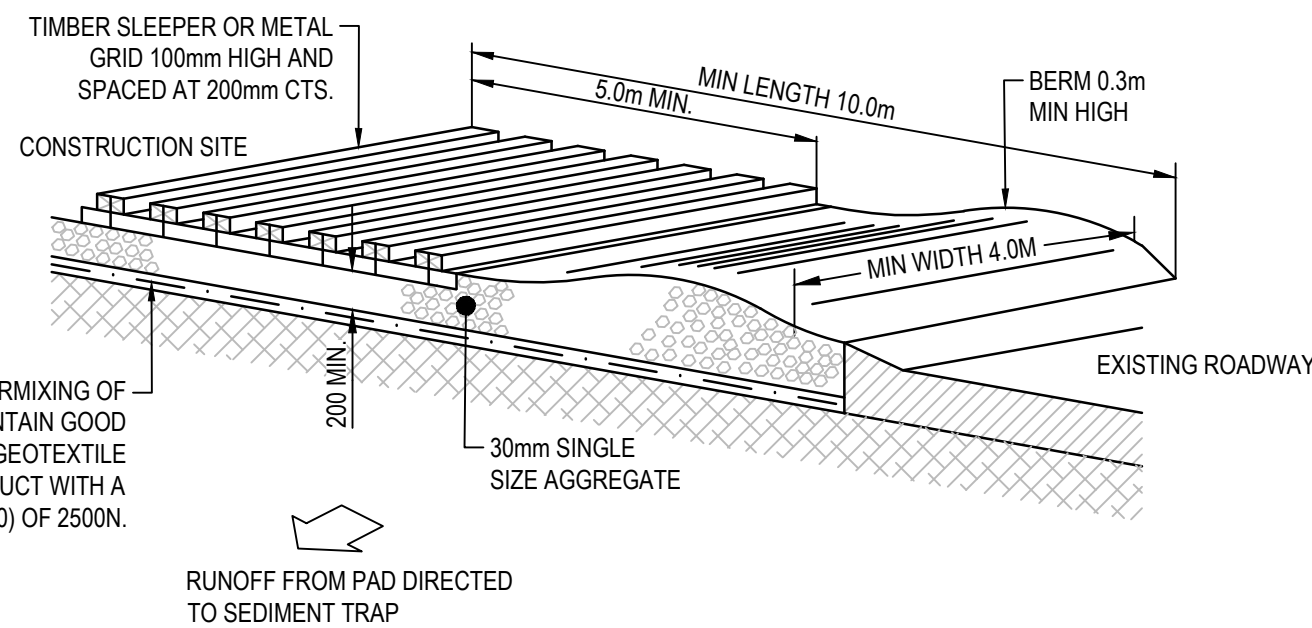
CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. DRIVE 1.5m LONG STAR PICKETS INTO GROUND, 2.5 METRES APART (MAX). ENSURE STAR PICKETS ARE FITTED WITH SAFETY CAPS.
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. BACKFILL TRENCH OVER BASE OF FABRIC.
5. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
6. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.

SEDIMENT CONTROL FENCE

N.T.S.

NOTE  
ENSURE THAT ALL UTILITY ASSETS ARE MAINTAINED AND PROTECTED AT ALL TIMES IN THE VICINITY OF THE TEMPORARY CONSTRUCTION EXIT.



CONSTRUCTION NOTES

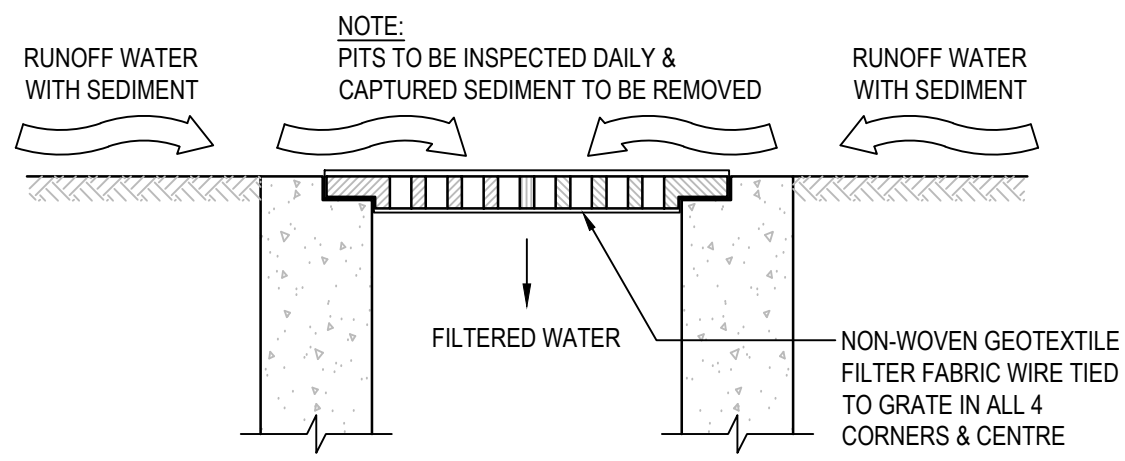
1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING 30mm SINGLE SIZE AGGREGATE.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR OTHER SEDIMENT TRAP WHERE THE SEDIMENT IS COLLECTED AND REMOVED.

MAINTENANCE NOTES

THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH PREVENTS TRACKING OR FLOWING OF SEDIMENT OFF THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL GRAVEL AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED OFF THE CONSTRUCTION SITE MUST BE REMOVED IMMEDIATELY.

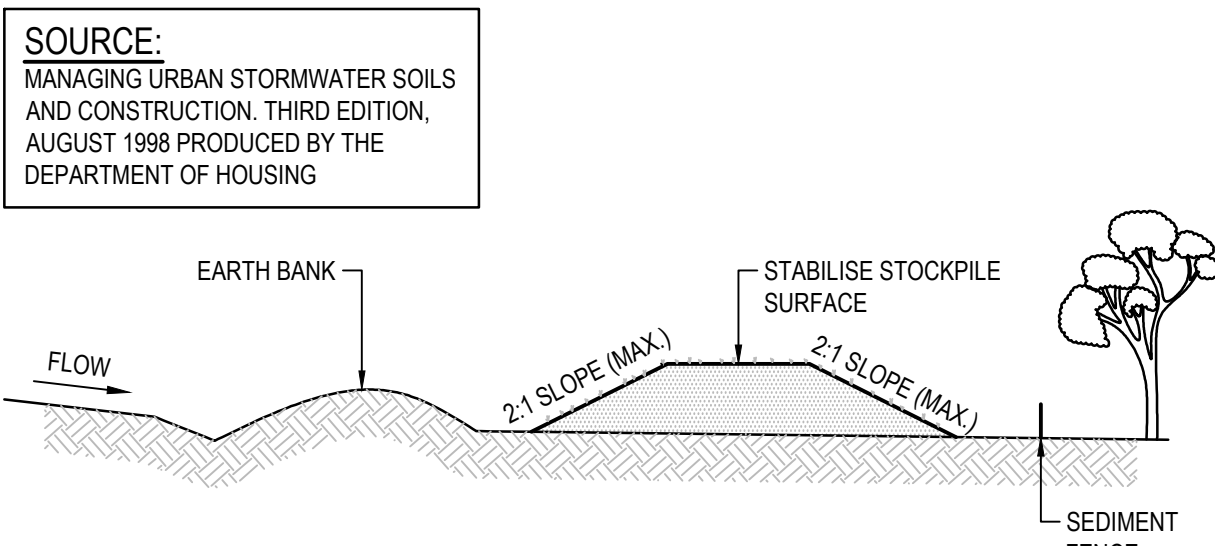
TEMPORARY STABILISED CONSTRUCTION EXIT

N.T.S.



INLET TRAP

N.T.S.  
NOTE  
TO BE USED IN PAVED AREAS WHERE TRAFFIC ACCESS IS REQUIRED

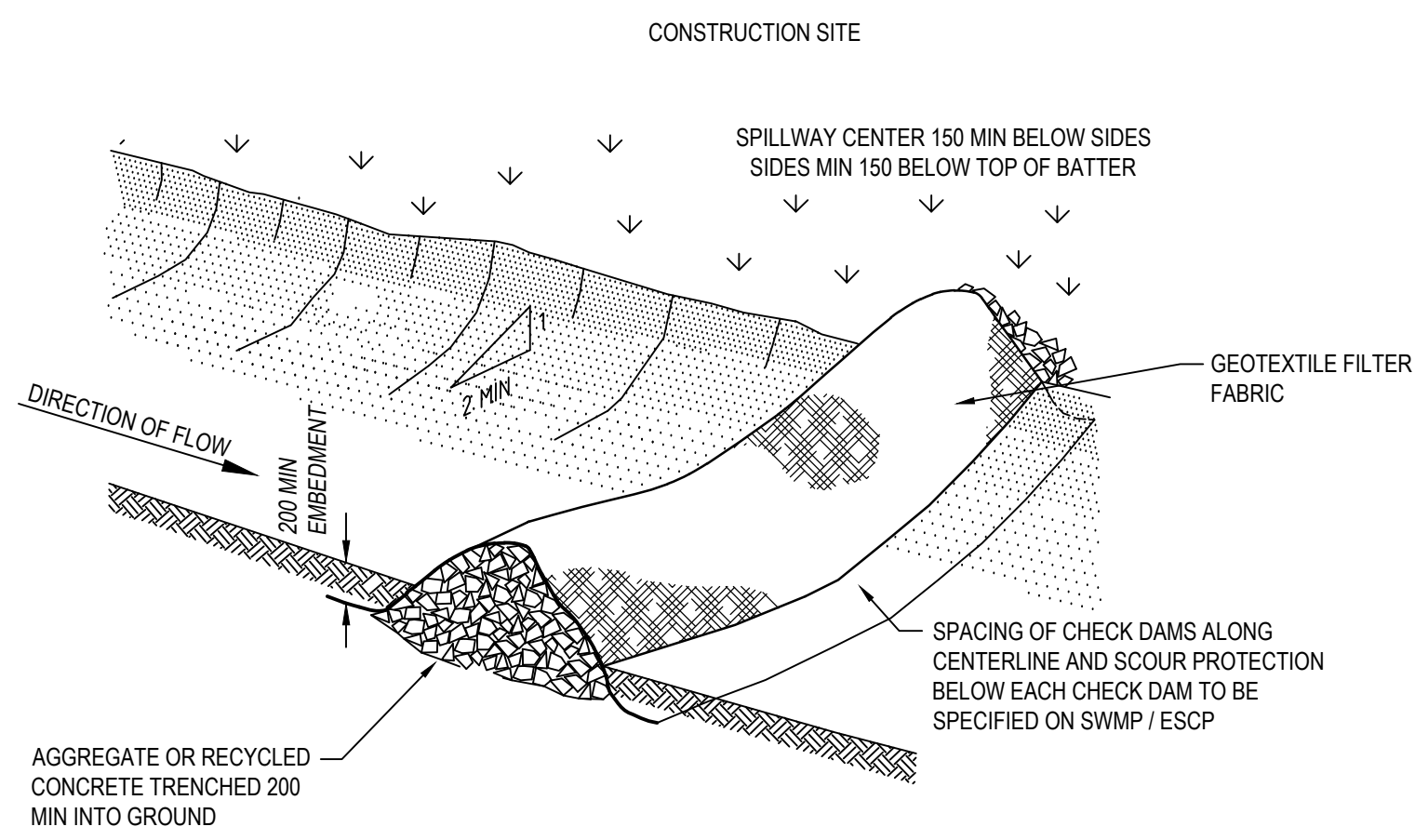


CONSTRUCTION NOTES

1. LOCATE STOCKPILE AT LEAST 5 METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOWS, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS A LOW, FLAT, ELONGATED MOUND.
3. WHERE THERE IS SUFFICIENT AREA TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METERS IN HEIGHT.
4. REHABILITATE IN ACCORDANCE WITH THE SWMP/ESCP.
5. CONSTRUCT EARTH BANK (STANDARD DRAWING 5-2) ON THE UPSLOPE SIDE TO DIVERT RUN OFF AROUND THE STOCKPILE AND A SEDIMENT FENCE (STANDARD DRAWING 6-7) 1 TO 2 METRES DOWNSLOPE OF STOCKPILE.

STOCKPILES

N.T.S.



CHECK DAM - ROCK

SCALE 1:20

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|     |                |          |    |     |
|-----|----------------|----------|----|-----|
| B   | ISSUE FOR SSDA | 22.03.22 | RG | MB  |
| A   | ISSUE FOR SSDA | 14.03.22 | RG | MB  |
| No. | Description    | Date     | By | CHK |

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Architect



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T: (02) 9565 0000  
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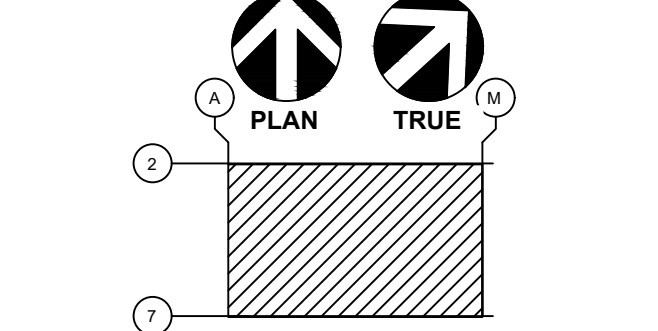
Civil



Client



Keyplan



Project  
SYD08 DATA CENTRE  
57 STATION ROAD  
SEVEN HILLS, NSW 2147

Drawing Title  
DETAILS  
SHEET 3

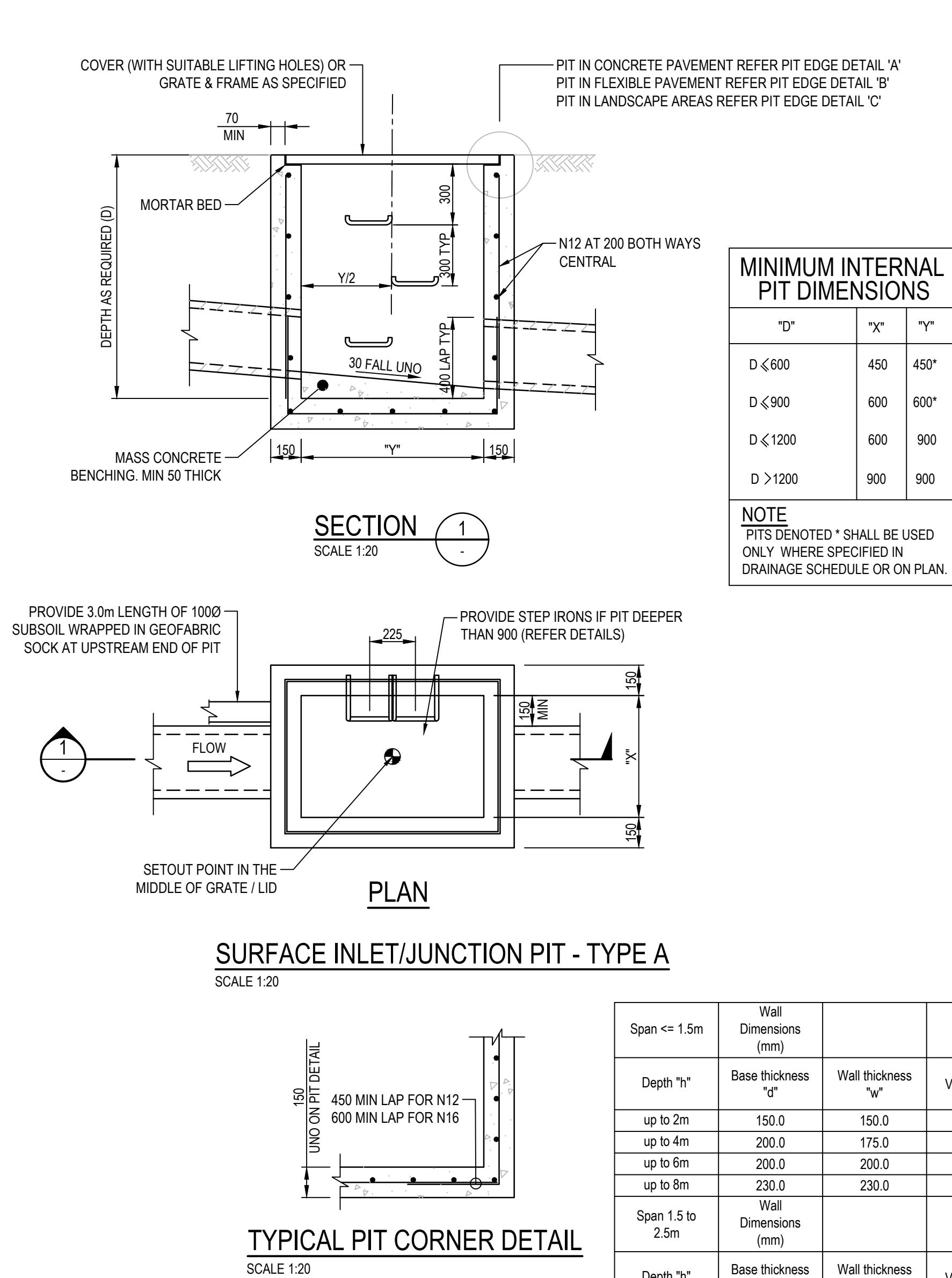
Status  
ISSUE FOR SSDA

Scale @ A0  
AS SHOWN

Project No.  
NSW202013

Drawing No.  
NSW202013\_C101.07

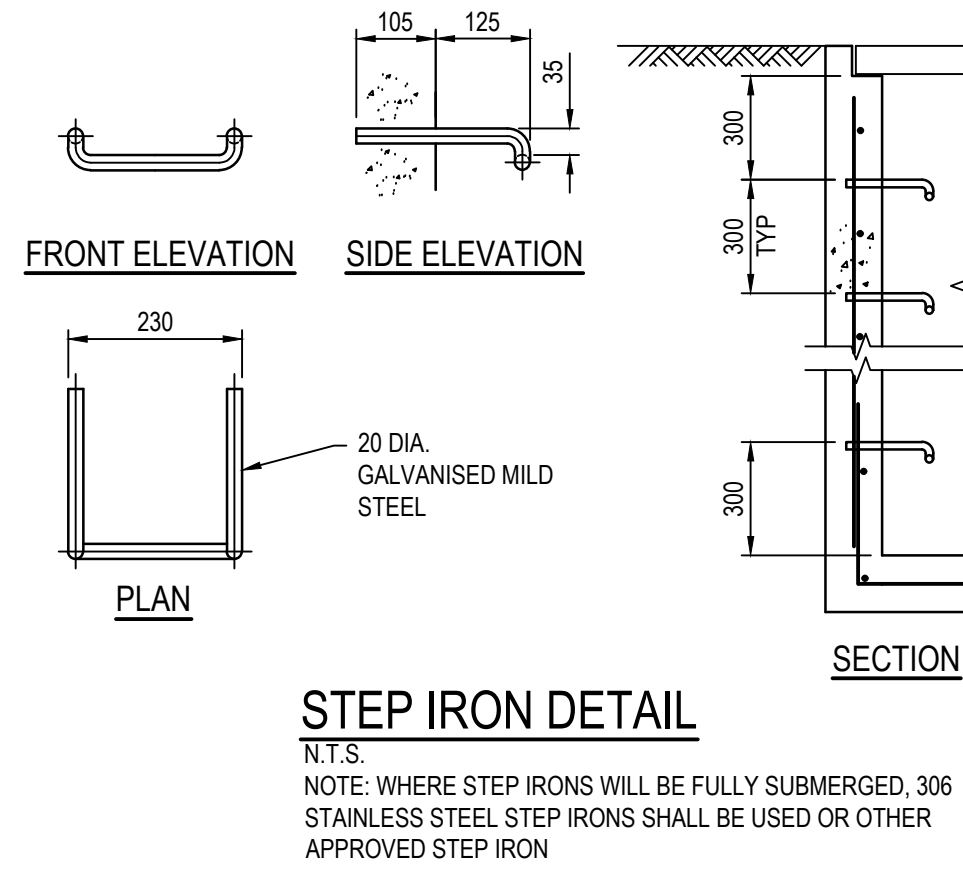
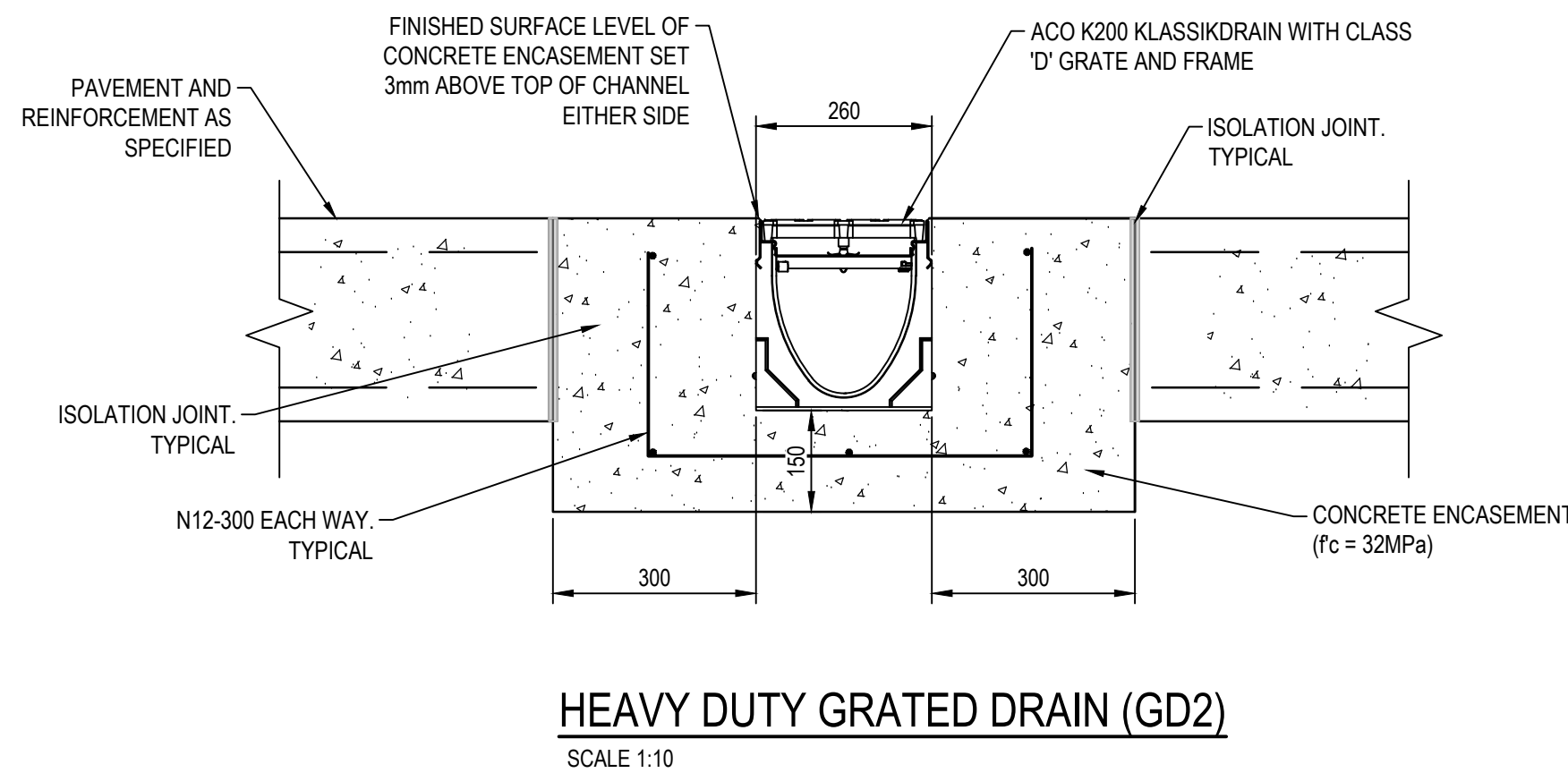
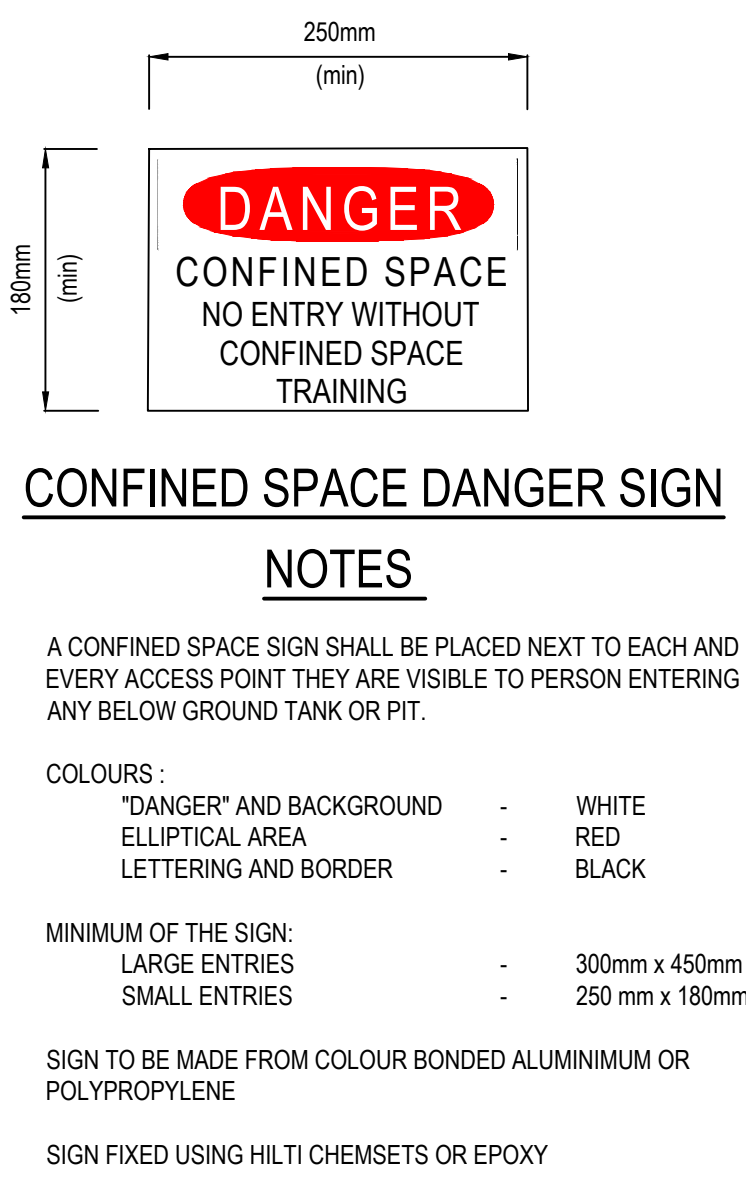
B



| Span <= 1.5m     | Wall Dimensions (mm) |                    |                 |            |                |
|------------------|----------------------|--------------------|-----------------|------------|----------------|
| Depth "h"        | Base thickness "g"   | Wall thickness "w" | Vertical reinf. | Hor reinf. | Base Reinf. BW |
| up to 2m         | 150.0                | 150.0              | N12@200         | N12@200    | N12@200        |
| up to 4m         | 200.0                | 175.0              | N12@200         | N12@200    | N12@200        |
| up to 6m         | 200.0                | 200.0              | N12@200         | N12@200    | N12@200        |
| up to 8m         | 230.0                | 230.0              | N16@200         | N16@200    | N16@200        |
| Span 1.5 to 2.5m | Wall Dimensions (mm) |                    |                 |            |                |
| Depth "h"        | Base thickness "g"   | Wall thickness "w" | Vertical reinf. | Hor reinf. | Base Reinf. BW |
| up to 2m         | 150.0                | 200.0              | N12@200         | N12@200    | N12@200        |
| up to 4m         | 200.0                | 200.0              | N16@200         | N16@200    | N16@200        |
| up to 6m         | 230.0                | 230.0              | N16@200         | N16@200    | N16@200        |
| up to 8m         | 250.0                | 250.0              | N16@200         | N16@200    | N16@200        |

PIT DIMENSION TABLE

NOTE: FOR PIT DIMENSIONS AND REINFORCEMENT REFER TABLE ABOVE



|     |                |          |    |     |
|-----|----------------|----------|----|-----|
| B   | ISSUE FOR SSDA | 22.03.22 | RG | MB  |
| A   | ISSUE FOR SSDA | 14.03.22 | RG | MB  |
| No. | Description    | Date     | By | CHK |

Lead Consultant / MEP / Structures

**LCI**

LCI CONSULTANTS (AUSTRALIA) PTY LTD

LEVEL 4, 73 WALKER STREET, NORTH SYDNEY, NSW 2060  
ABN: 52 124 107 973

Architect

P:\proj\13/202022\13-10-18\Drawings\SSDA\NSW202013\_0108\_C101.08.dwg

1: (C2) 1946 0000  
4/20/2022 10:00:00

Civil

**dem**

**Ac OR**

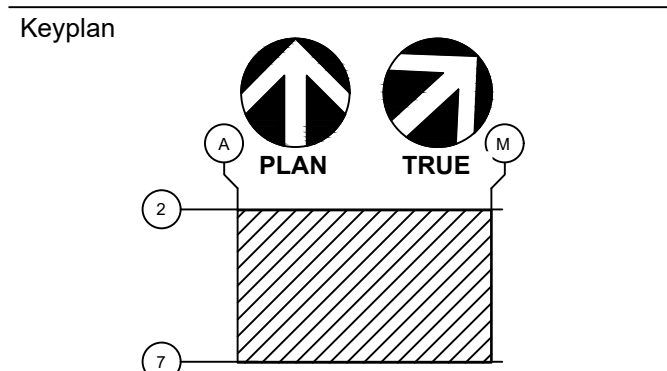
CONSULTANTS

Client

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LEVEL 4, 73 WALKER STREET, NORTH SYDNEY, NSW 2060  
ABN: 52 124 107 973



Project

**SYD08 DATA CENTRE**

57 STATION ROAD

SEVEN HILLS, NSW 2147

Drawing Title

DETAILS

SHEET 4

|             |                   |
|-------------|-------------------|
| Status      | ISSUE FOR SSDA    |
| Scale @ A0  | AS SHOWN          |
| Project No. | NSW202013         |
| Drawing No. | NSW202013_C101.08 |

PHASE 1

APPROVED WORKS TO BE CONSTRUCTED AS PART OF THE DEVELOPMENT  
CONSENT DA-21-01058 ISSUED BY BLACKTOWN CITY COUNCIL

PHASE 1  
CONSTRUCTED UNDER SYD09 DEVELOPMENT  
APPLICATION NUMBER DA-21-01058

PHASE 1  
STORMWATER INFRASTRUCTURE CONSTRUCTED UNDER  
SYD09 DEVELOPMENT APPLICATION NUMBER DA-21-01058

PHASE 1  
RETAINING WALL

PHASE 2

PHASE 2  
ROADWAYS AND GENERAL HARDSTAND

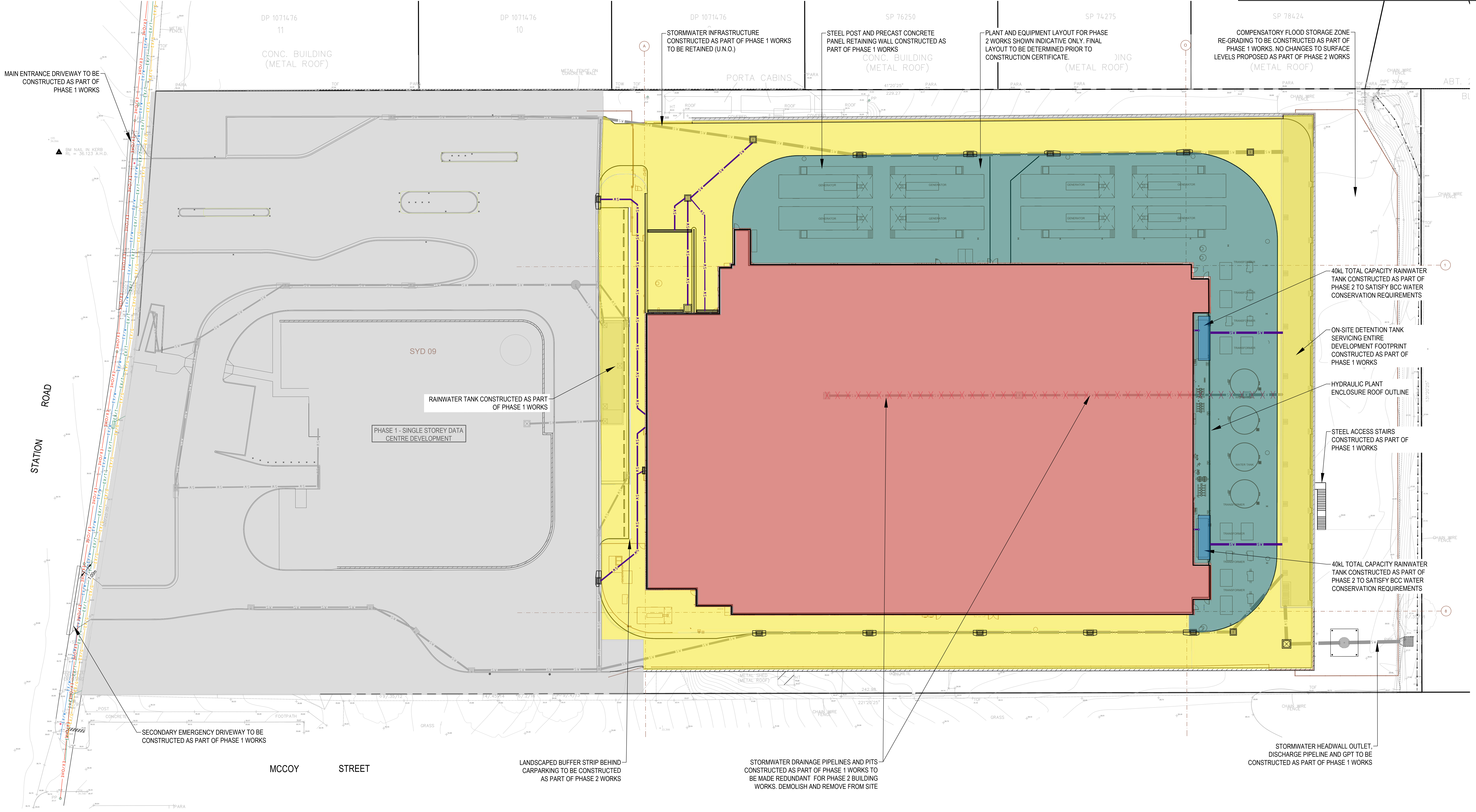
PHASE 2  
PLANT AND GENERATOR YARD HARDSTAND

PHASE 2  
DATA CENTRE BUILDING

PHASE 2  
STORMWATER AND DRAINAGE PITS AND PIPELINES

PHASE 1  
REDUNDANT STORMWATER INFRASTRUCTURE TO  
BE DECOMMISSIONED AS PART OF PHASE 2 WORKS

PHASING LEGEND



|     |                |          |    |     |
|-----|----------------|----------|----|-----|
| B   | ISSUE FOR SSDA | 22.03.22 | RG | MB  |
| A   | ISSUE FOR SSDA | 14.03.22 | RG | MB  |
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ABN: 52 124 107 973

Keyplan

PLAN

TRUE

1

2

3

4

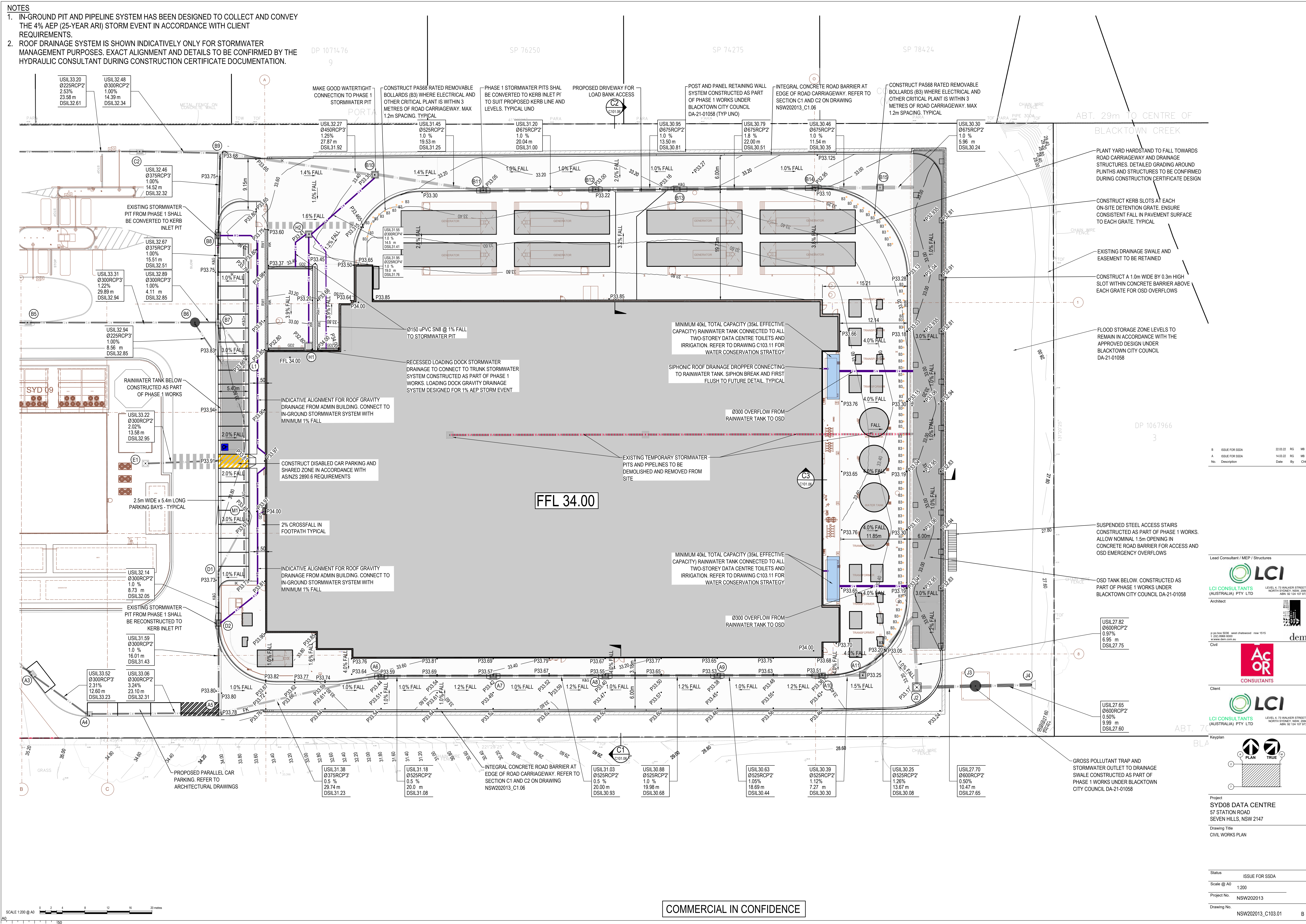
Project  
SYD08 DATA CENTRE  
57 STATION ROAD  
SEVEN HILLS, NSW 2147

Drawing Title  
GENERAL ARRANGEMENT AND PHASING PLAN

|             |                   |
|-------------|-------------------|
| Status      | ISSUE FOR SSDA    |
| Scale @ A0  | 1:250             |
| Project No. | NSW202013         |
| Drawing No. | NSW202013_C101.10 |

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Notes: 1. IN-GROUND PIT AND PIPELINE SYSTEM HAS BEEN DESIGNED TO COLLECT AND CONVEY THE 4% AEP (25-YEAR ARI) STORM EVENT IN ACCORDANCE WITH CLIENT REQUIREMENTS. 2. ROOF DRAINAGE SYSTEM IS SHOWN INDICATIVELY ONLY FOR STORMWATER MANAGEMENT PURPOSES. EXACT ALIGNMENT AND DETAILS TO BE CONFIRMED BY THE HYDRAULIC CONSULTANT DURING CONSTRUCTION CERTIFICATE DOCUMENTATION.



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|     |                |          |    |     |
|-----|----------------|----------|----|-----|
| B   | ISSUE FOR SSDA | 22.03.22 | RG | MB  |
| A   | ISSUE FOR SSDA | 14.03.22 | RG | MB  |
| No. | Description    | Date     | By | CHK |

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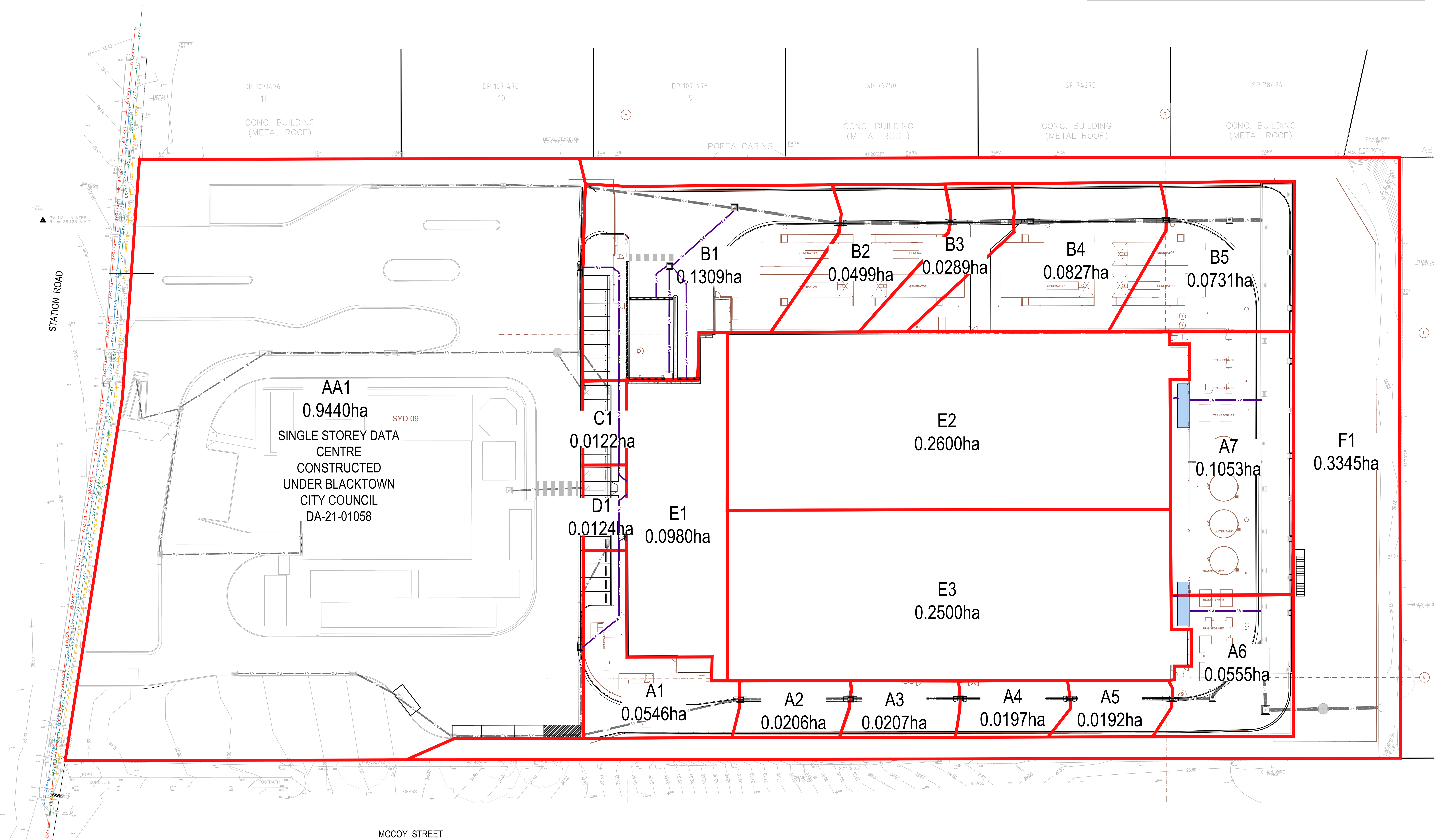
Keyplan

PLAN TRUE

Project: SYD08 DATA CENTRE  
57 STATION ROAD  
SEVEN HILLS, NSW 2147  
Drawing Title: CIVIL WORKS PLAN

|             |                   |
|-------------|-------------------|
| Status      | ISSUE FOR SSDA    |
| Scale @ A0  | 1:200             |
| Project No. | NSW202013         |
| Drawing No. | NSW202013_C103.01 |

| NAME         | AREA (Ha) | BYPASS OR OSD | REMARKS                                                          |
|--------------|-----------|---------------|------------------------------------------------------------------|
| AA1          | 0.9440    | OSD           | DATA CENTRE CONSTRUCTED UNDER BLACKTOWN CITY COUNCIL DA-21-01058 |
| A1           | 0.0531    | OSD           |                                                                  |
| A2           | 0.0206    | OSD           |                                                                  |
| A3           | 0.0207    | OSD           |                                                                  |
| A4           | 0.0197    | OSD           |                                                                  |
| A5           | 0.0192    | OSD           |                                                                  |
| A6           | 0.0555    | OSD           |                                                                  |
| A7           | 0.1053    | OSD           |                                                                  |
| B1           | 0.1309    | OSD           |                                                                  |
| B2           | 0.0499    | OSD           |                                                                  |
| B3           | 0.0289    | OSD           |                                                                  |
| B4           | 0.0827    | OSD           |                                                                  |
| B5           | 0.0731    | OSD           |                                                                  |
| C1           | 0.0122    | OSD           |                                                                  |
| D1           | 0.0124    | OSD           |                                                                  |
| E1           | 0.0980    | OSD           |                                                                  |
| E2           | 0.2600    | OSD           | ROOF TO RAINWATER TANK                                           |
| E3           | 0.2500    | OSD           | ROOF TO RAINWATER TANK                                           |
| F1           | 0.3338    | BYPASS        |                                                                  |
| TOTAL TO OSD | 2.2362    |               | TOTAL CATCHMENT TO OSD                                           |
| EXTERNAL     | 0.3338    | BYPASS        | EXTERNAL AREA TO RETAINING WALL                                  |
| TOTAL        | 2.5700    |               | TOTAL SITE CATCHMENT INCLUDING BYPASS                            |



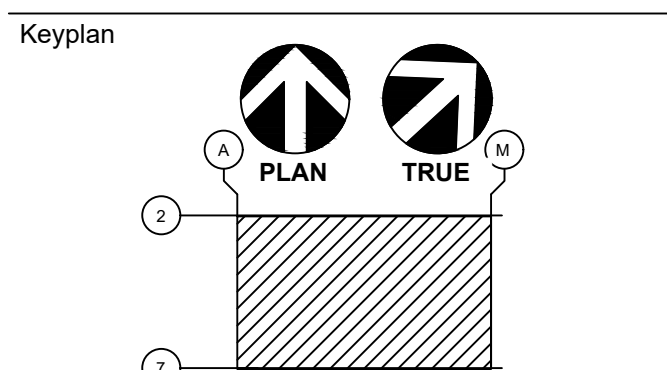
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| B   | ISSUE FOR SSDA | 18.03.22 | RG | MB  |
| A   | ISSUE FOR SSDA | 14.03.22 | RG | MB  |
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Project  
SYD08 DATA CENTRE  
57 STATION ROAD  
SEVEN HILLS, NSW 2147

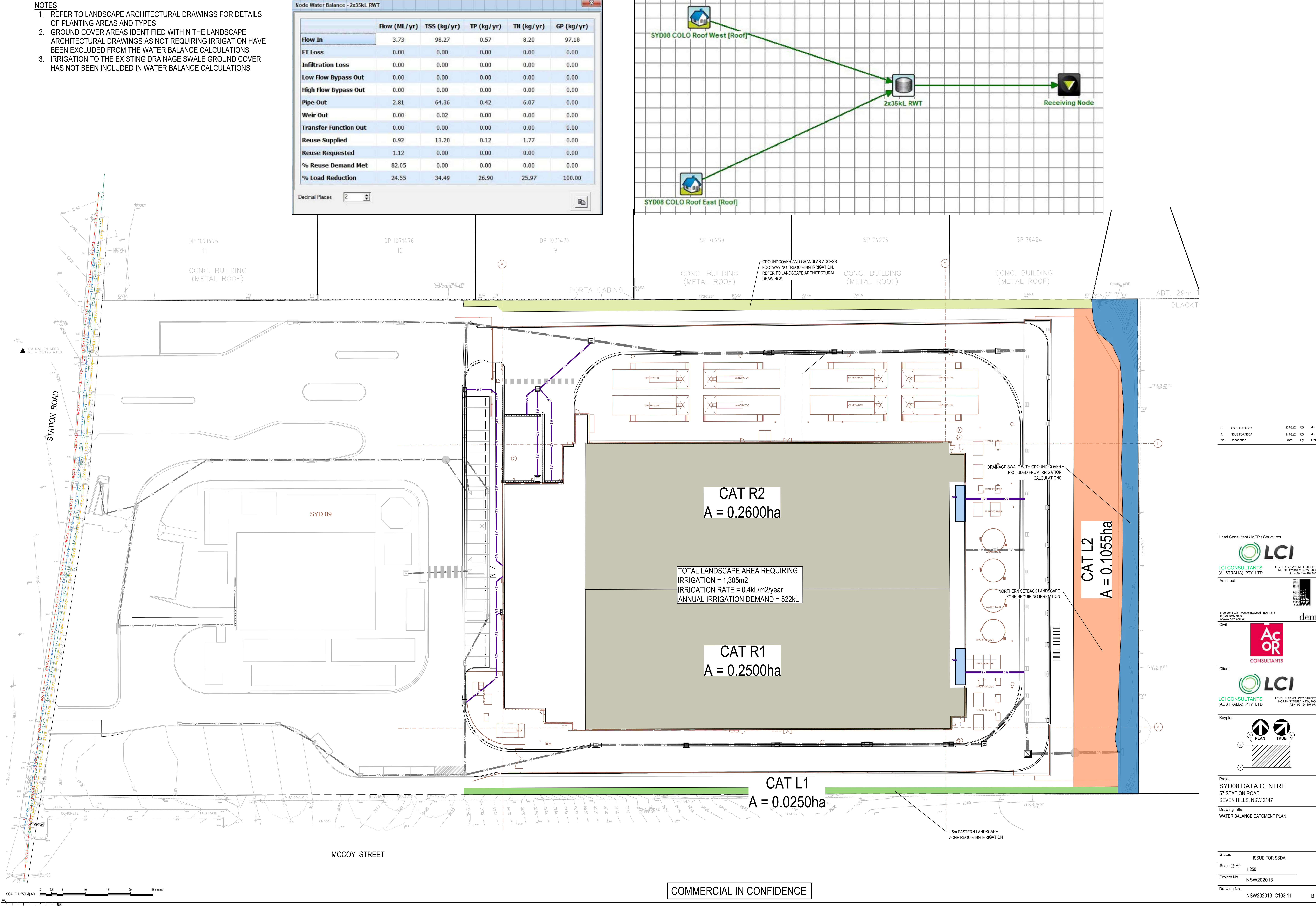
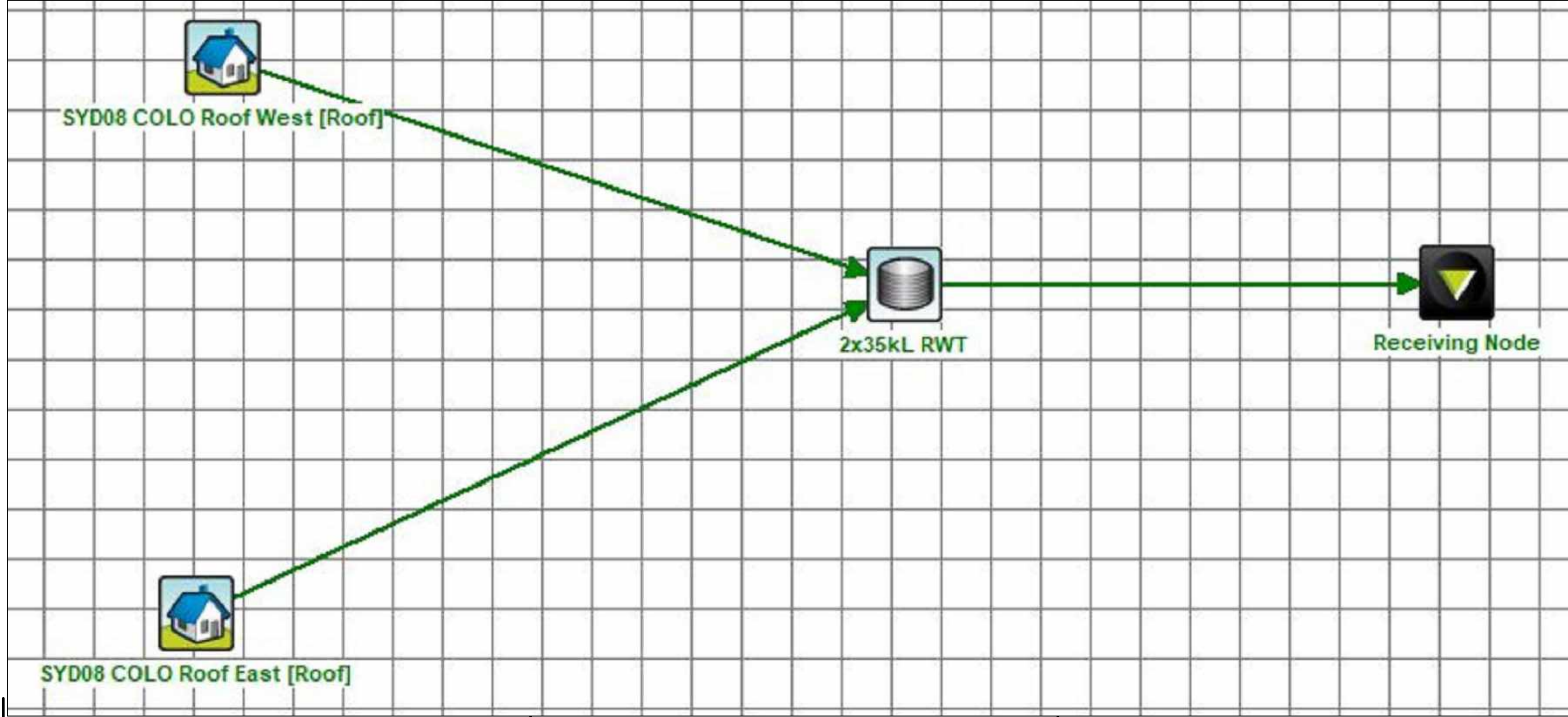
Drawing Title  
STORMWATER CATCHMENT PLAN

Status  
ISSUE FOR SSDA  
Scale @ A0  
1:250  
Project No.  
NSW202013  
Drawing No.  
NSW202013\_C103.10  
C

- NOTES
- REFER TO LANDSCAPE ARCHITECTURAL DRAWINGS FOR DETAILS OF PLANTING AREAS AND TYPES
  - GROUND COVER AREAS IDENTIFIED WITHIN THE LANDSCAPE ARCHITECTURAL DRAWINGS AS NOT REQUIRING IRRIGATION HAVE BEEN EXCLUDED FROM THE WATER BALANCE CALCULATIONS
  - IRRIGATION TO THE EXISTING DRAINAGE SWALE GROUND COVER HAS NOT BEEN INCLUDED IN WATER BALANCE CALCULATIONS

|                                 |              |             |            |            |            |
|---------------------------------|--------------|-------------|------------|------------|------------|
| Node Water Balance - 2x35kL RWT |              |             |            |            |            |
|                                 | Flow (ML/yr) | TSS (kg/yr) | TP (kg/yr) | TN (kg/yr) | GP (kg/yr) |
| Flow In                         | 3.73         | 98.27       | 0.57       | 8.20       | 97.18      |
| ET Loss                         | 0.00         | 0.00        | 0.00       | 0.00       | 0.00       |
| Infiltration Loss               | 0.00         | 0.00        | 0.00       | 0.00       | 0.00       |
| Low Flow Bypass Out             | 0.00         | 0.00        | 0.00       | 0.00       | 0.00       |
| High Flow Bypass Out            | 0.00         | 0.00        | 0.00       | 0.00       | 0.00       |
| Pipe Out                        | 2.81         | 64.36       | 0.42       | 6.07       | 0.00       |
| Weir Out                        | 0.00         | 0.02        | 0.00       | 0.00       | 0.00       |
| Transfer Function Out           | 0.00         | 0.00        | 0.00       | 0.00       | 0.00       |
| Reuse Supplied                  | 0.92         | 13.20       | 0.12       | 1.77       | 0.00       |
| Reuse Requested                 | 1.12         | 0.00        | 0.00       | 0.00       | 0.00       |
| % Reuse Demand Met              | 82.05        | 0.00        | 0.00       | 0.00       | 0.00       |
| % Load Reduction                | 24.55        | 34.49       | 26.90      | 25.97      | 100.00     |

Decimal Places 2



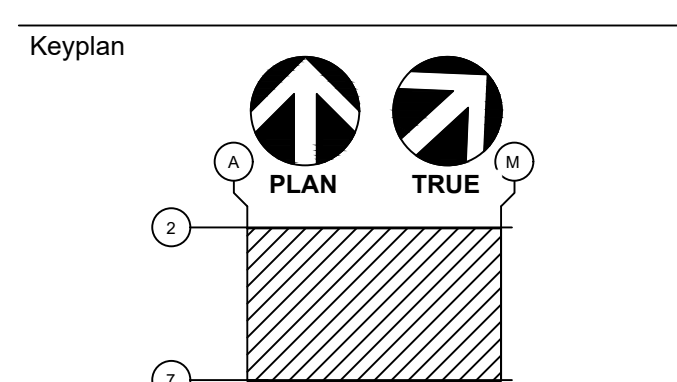
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| B   | ISSUE FOR SSQA | 22.03.22 | RG | MB  |
| A   | ISSUE FOR SSQA | 14.03.22 | RG | MB  |
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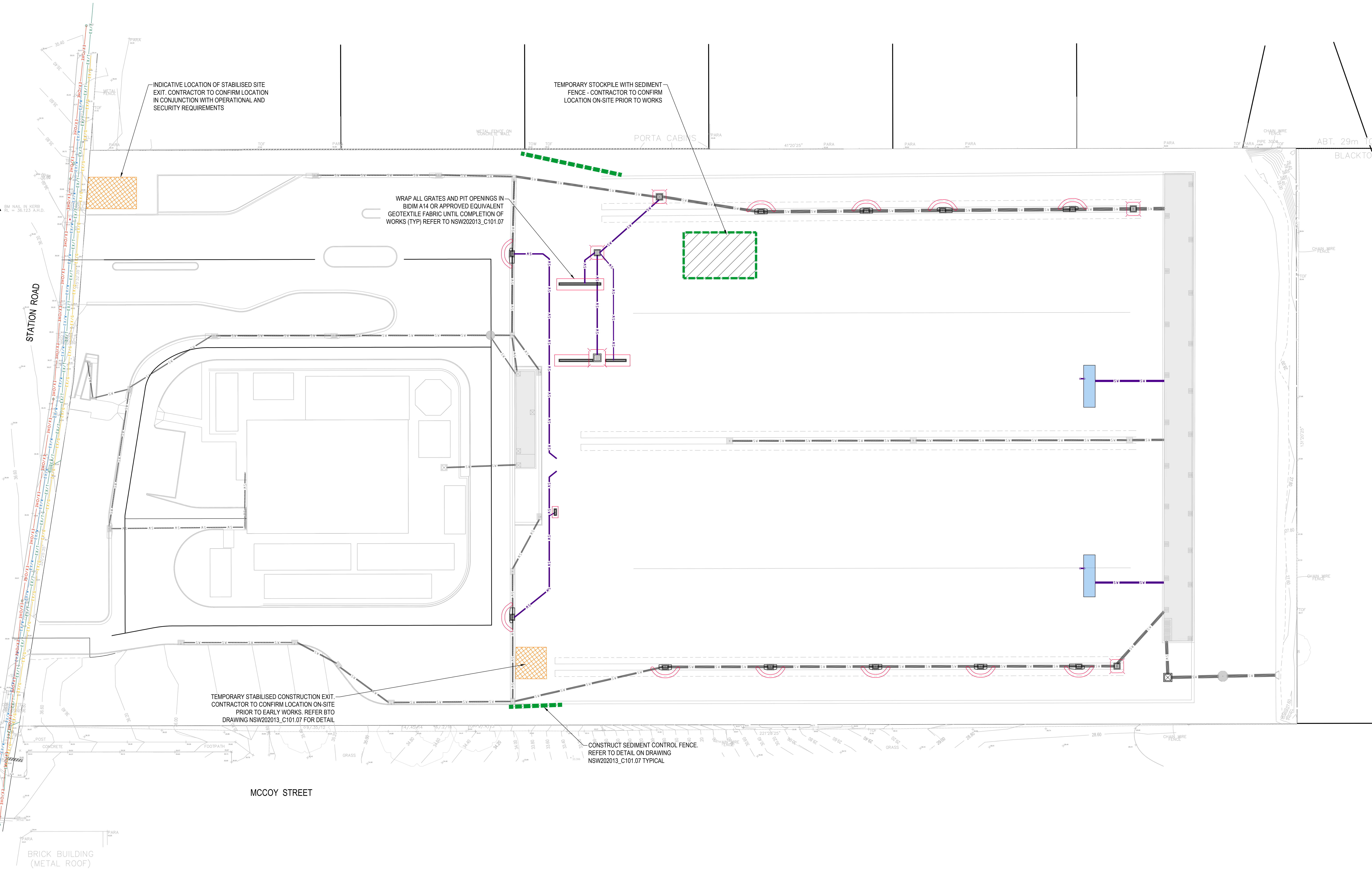
Project  
SYD08 DATA CENTRE  
57 STATION ROAD  
SEVEN HILLS, NSW 2147  
Drawing Title  
WATER BALANCE CATCHMENT PLAN

Status  
ISSUE FOR SSQA  
Scale @ A0  
1:250  
Project No.  
NSW202013  
Drawing No.  
NSW202013\_C103.11

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RUSLE SOIL LOSS CALCULATION  
IN ACCORDANCE WITH LANDCOM'S MANAGING URBAN  
STORMWATER VOLUME 1, A RUSLE CALCULATION HAS BEEN  
COMPLETED FOR THE SITE TO DETERMINE THE NEED FOR A  
SEDIMENT BASIN. SECTION 6.3.2 STATES A SEDIMENT BASIN IS  
NOT REQUIRED SHOULD THE AVERAGE ANNUAL SOIL LOSS FROM  
SITE (A) BE LESS THAN 150m³ / YEAR.

$A = R K L S P C$   
 $A = 2500 \times 0.038 \times 0.64 \times 1.3 \times 1.0$   
 $A = 60.8\text{m}^3 / \text{Ha} / \text{YEAR}$   
DISTURBED SITE ARE = 2.18Ha  
 $A = 132.5\text{m}^3 / \text{YEAR}$   
THEREFORE A SEDIMENT BASIN IS NOT REQUIRED FOR THE SITE



|     |                |          |    |     |
|-----|----------------|----------|----|-----|
| B   | ISSUE FOR SSDA | 22.03.22 | RG | MB  |
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SYD08 DATA CENTRE

57 STATION ROAD

SEVEN HILLS, NSW 2147

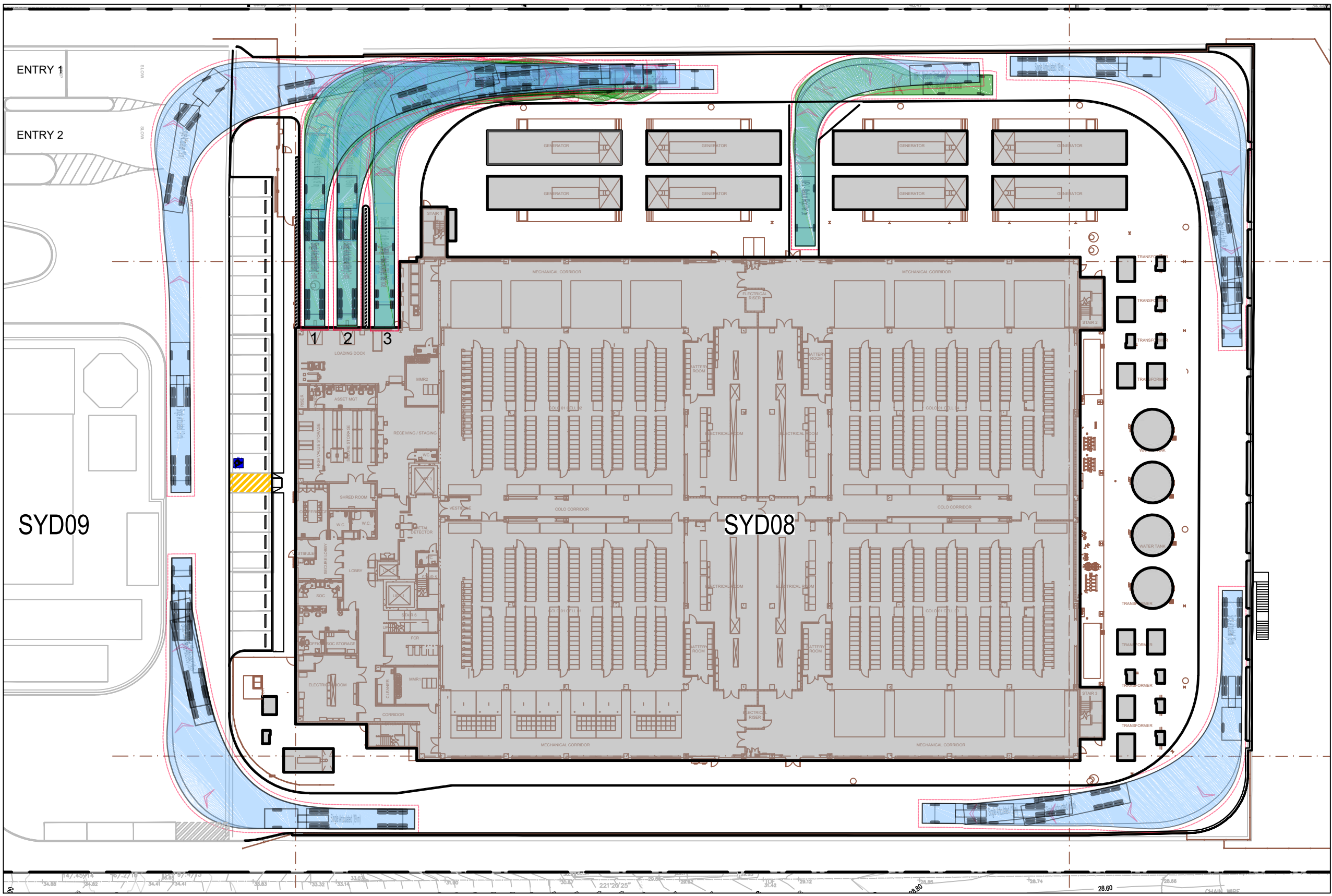
Drawing Title

SOIL AND WATER MANAGEMENT PLAN

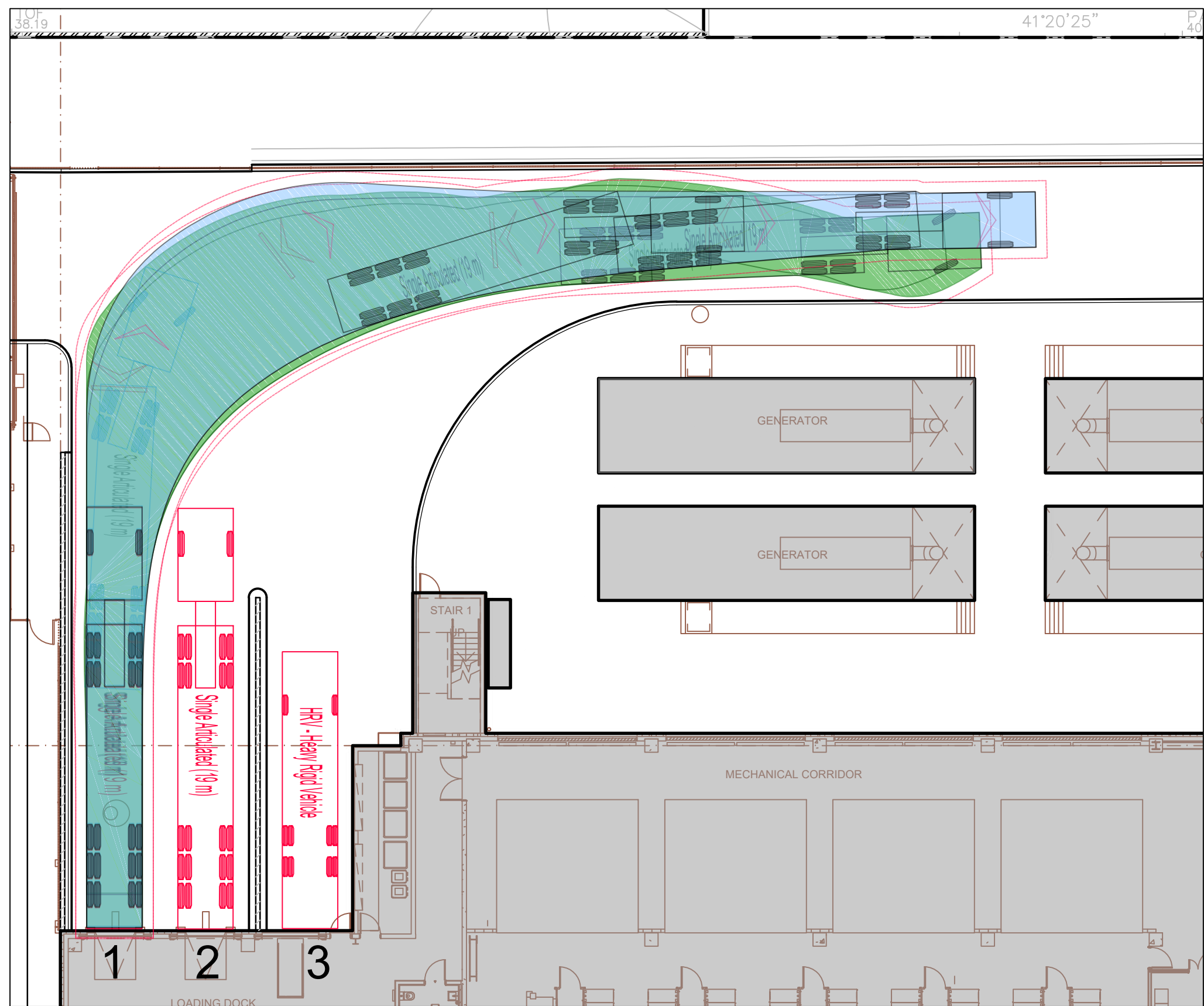
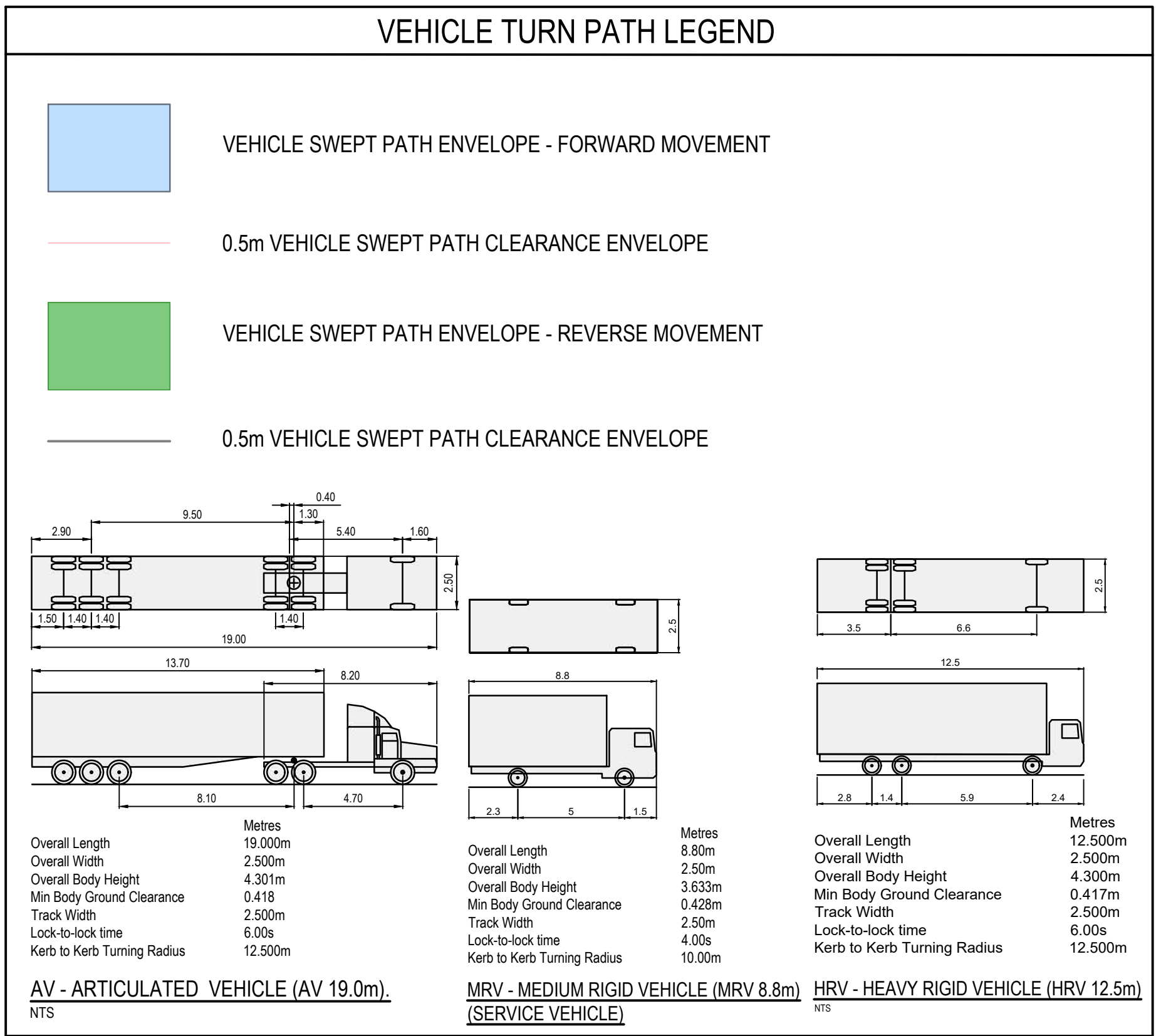
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| Status      | ISSUE FOR SSDA    |
| Scale @ A0  | 1:250             |
| Project No. | NSW202013         |
| Drawing No. | NSW202013_C105.01 |

## Appendix C

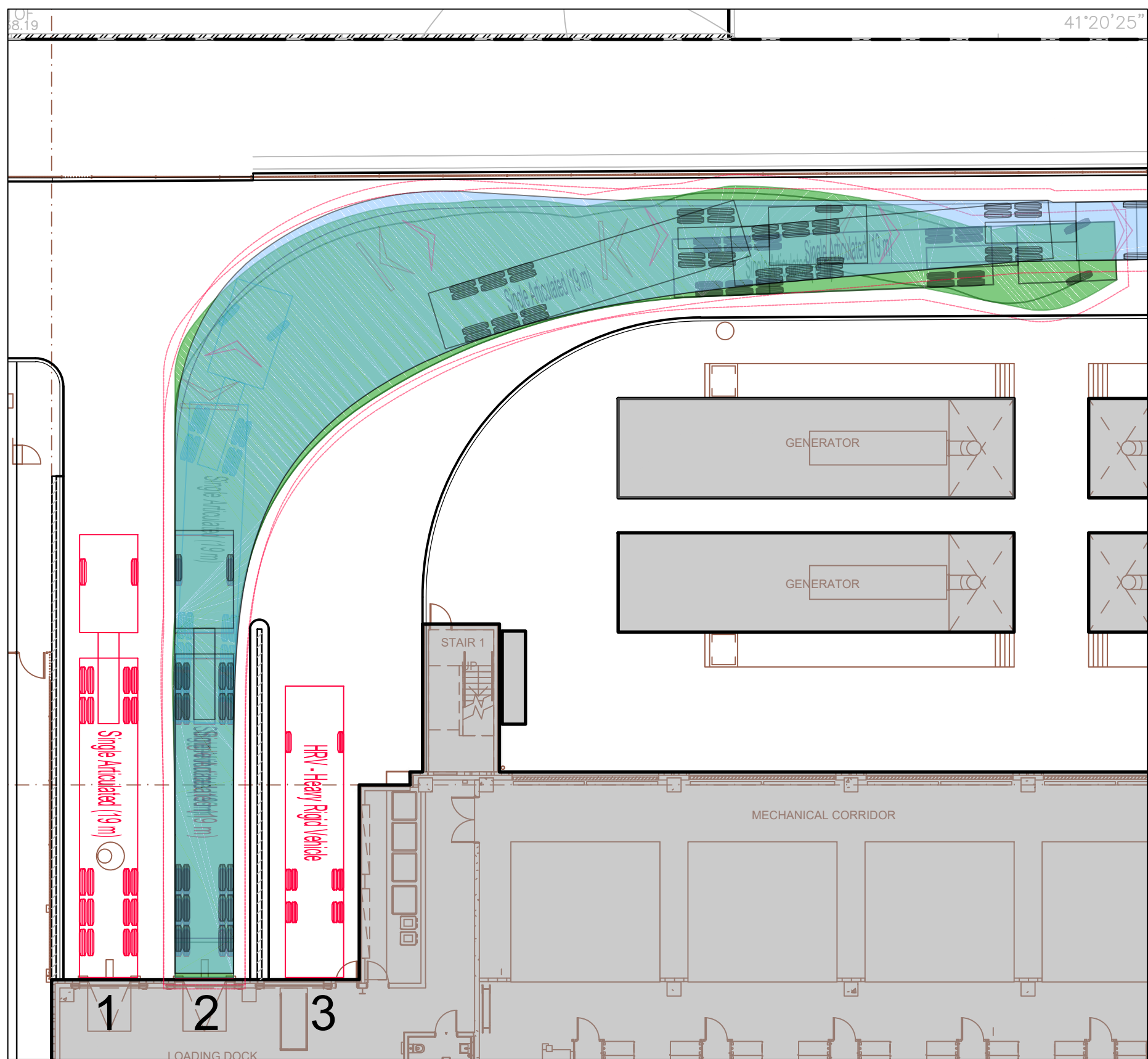
### Swept Path Analysis



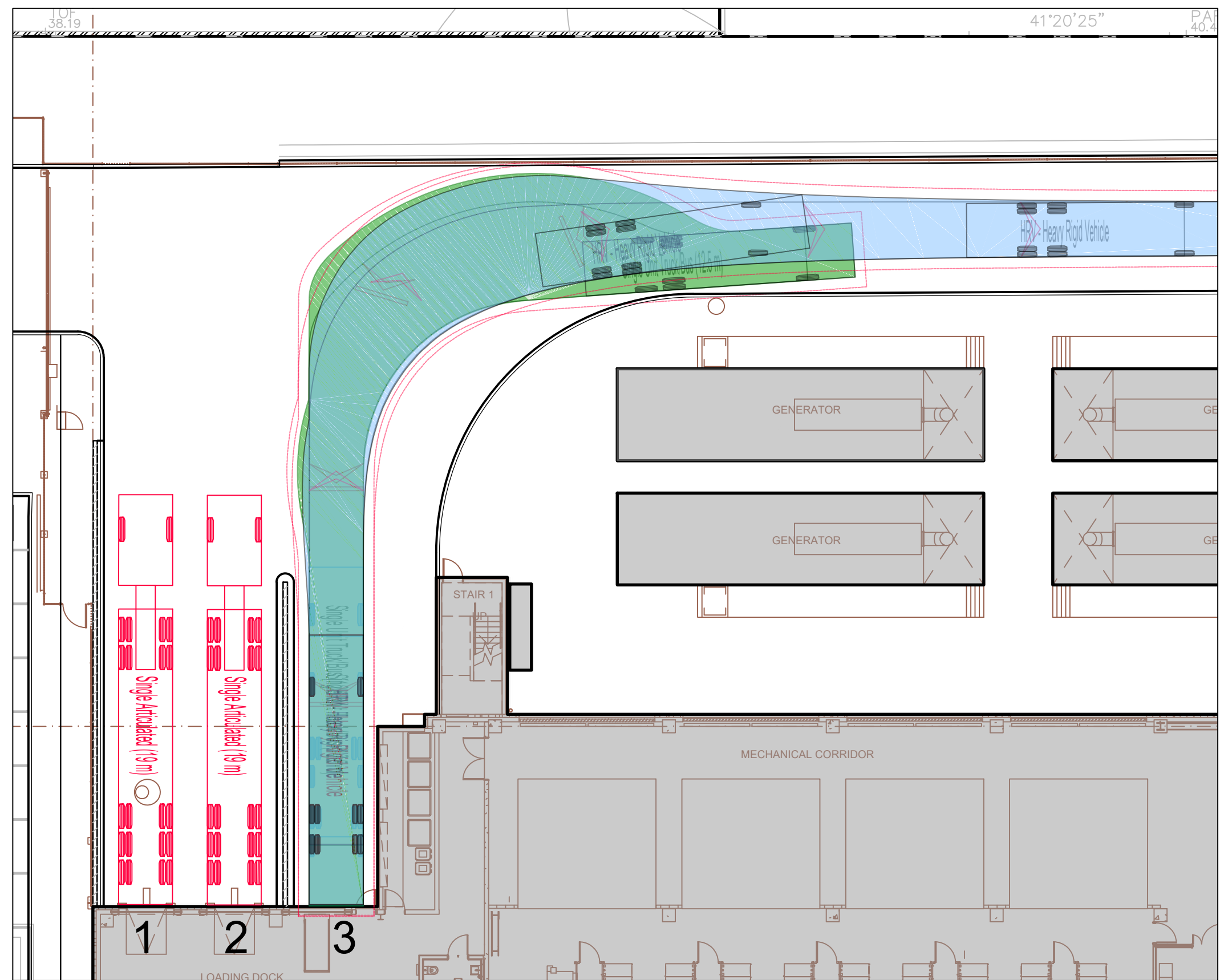
TURN PATH PLAN 1  
SITE PLAN ALL TURN PATHS  
1:500



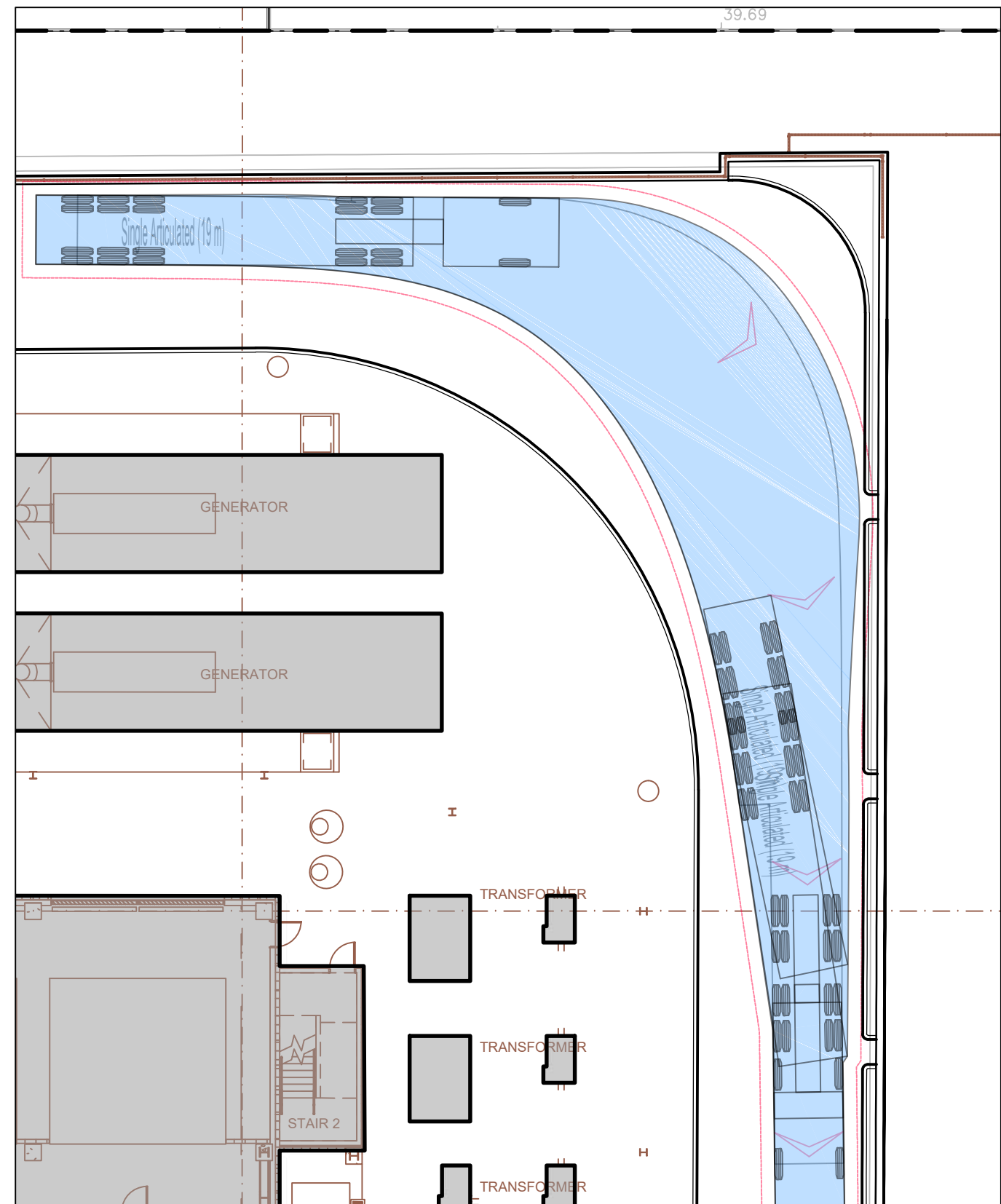
TURN PATH PLAN 2  
DOCK No 1 (RECESSED) 19m AV FORWARD AND REVERSE MANOEUVRE



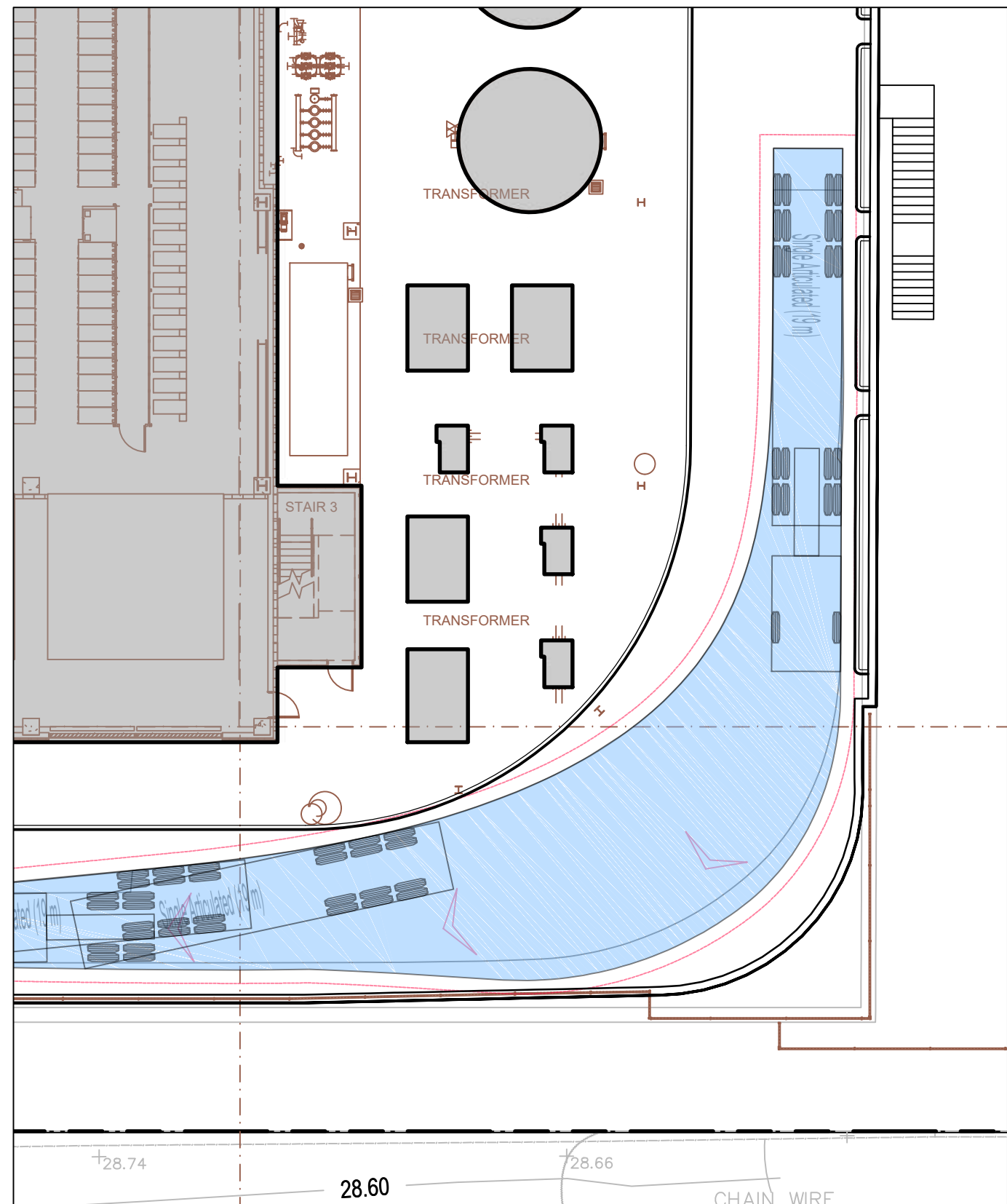
TURN PATH PLAN 3  
DOCK No 2 (RECESSED) 19m AV FORWARD AND REVERSE MANOEUVRE



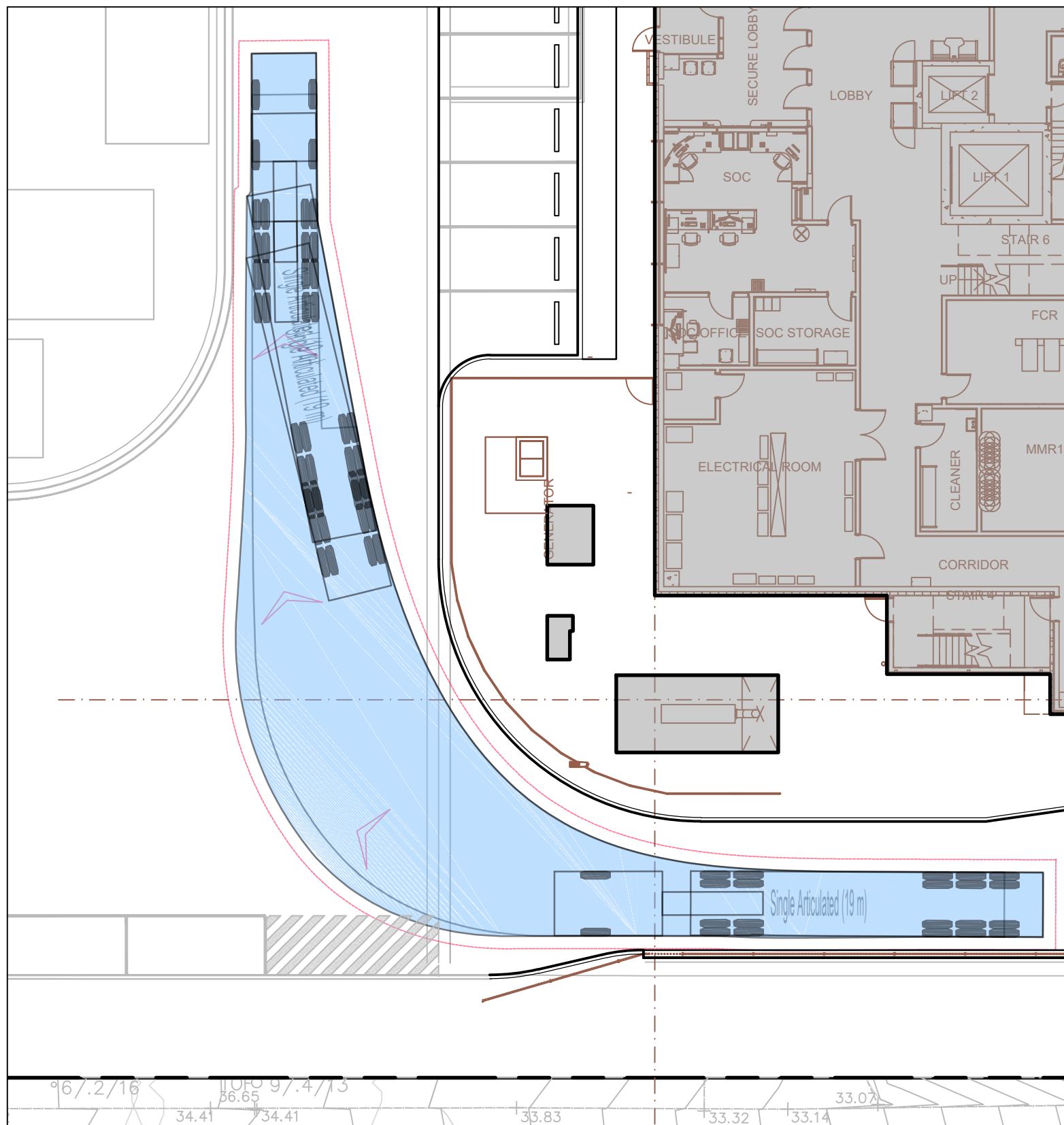
TURN PATH PLAN 4  
DOCK No 3 (AT GRADE) 12.5m HRV FORWARD AND REVERSE MANOEUVRE



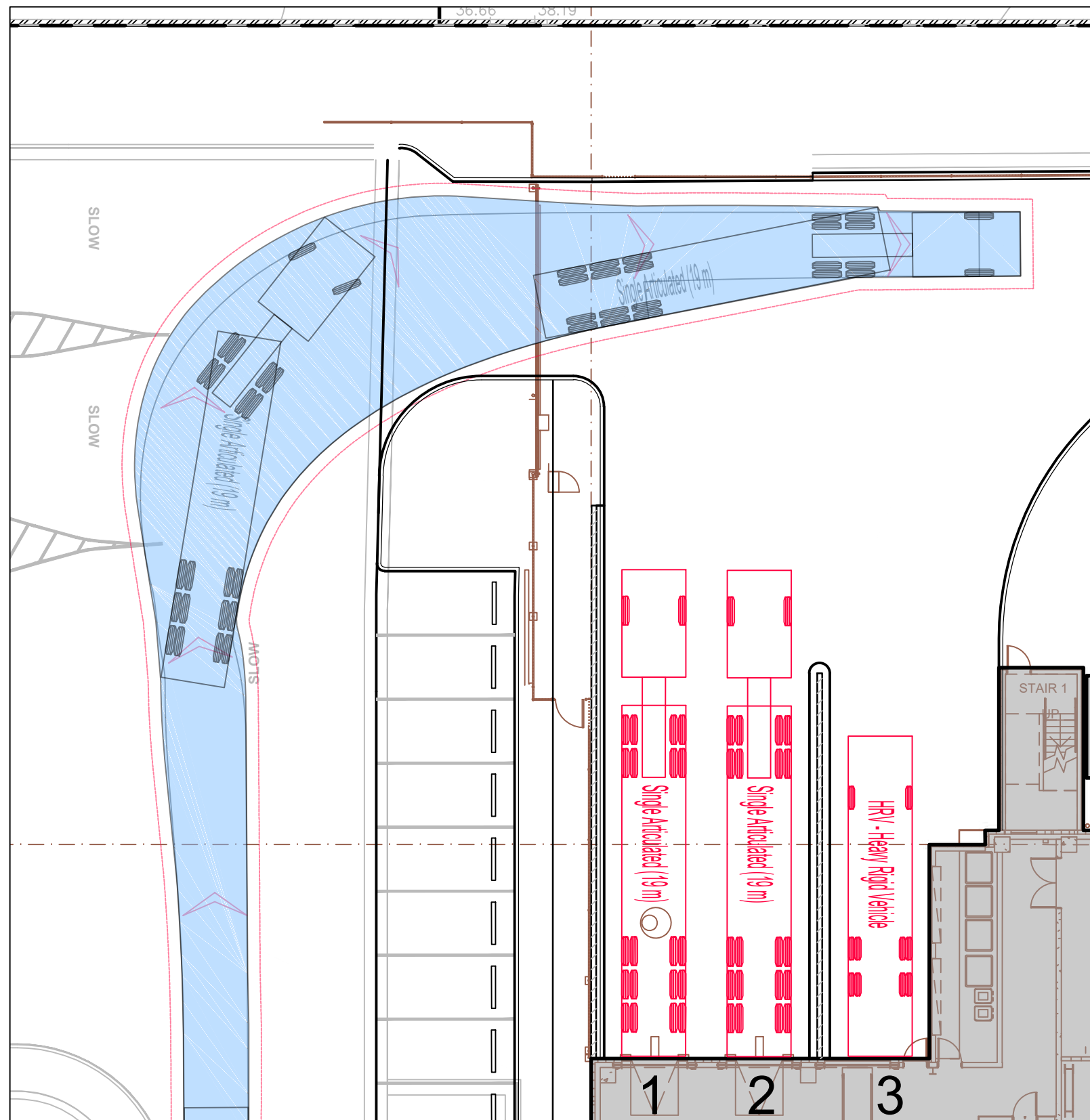
TURN PATH PLAN 5  
19m AV FORWARD MANOEUVRE NORTH WEST CORNER



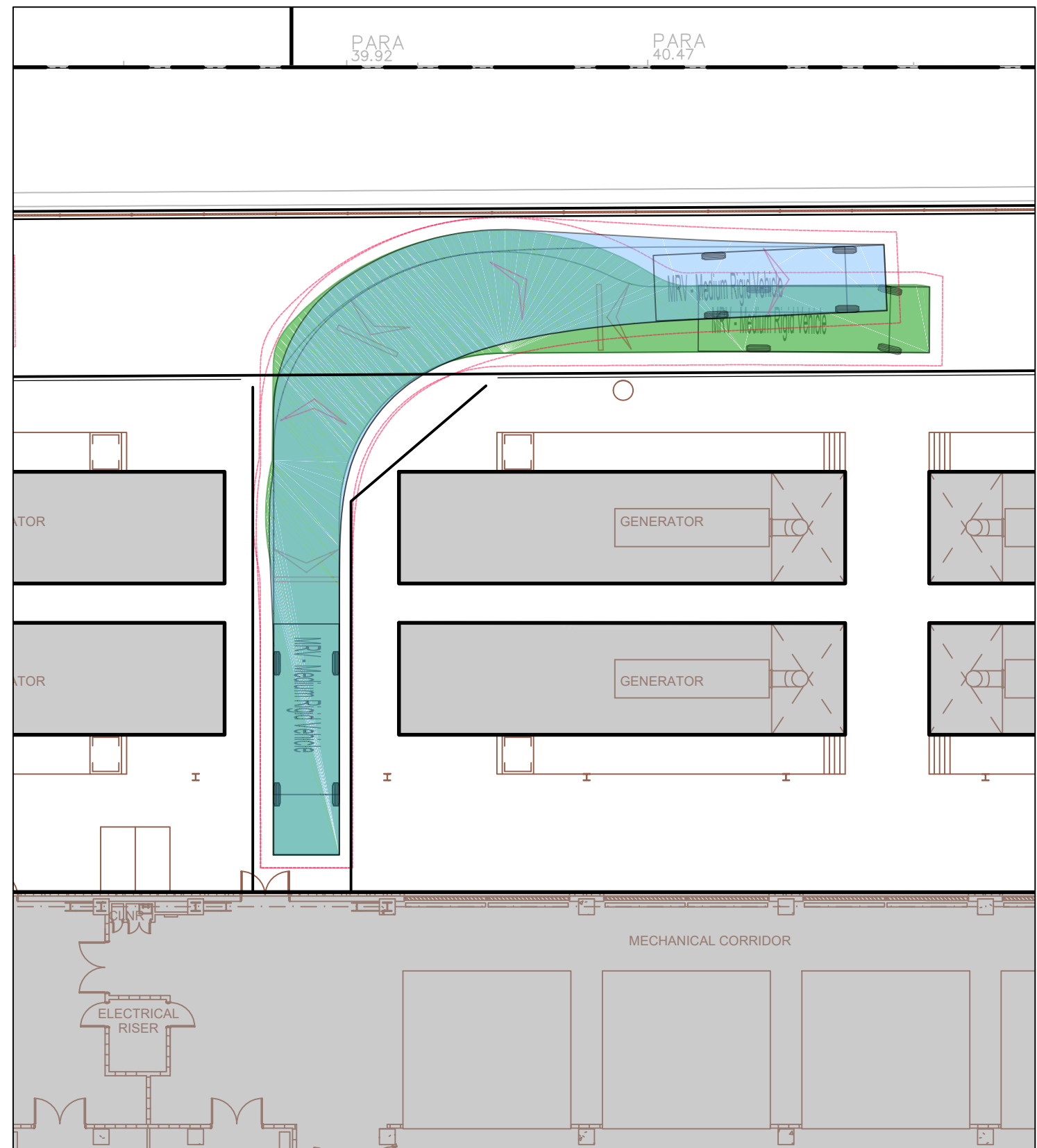
TURN PATH PLAN 6  
19m AV FORWARD MANOEUVRE SOUTH EAST CORNER



TURN PATH PLAN 7  
19m AV FORWARD MANOEUVRE TO SYD09



TURN PATH PLAN 8  
19m AV FORWARD MANOEUVRE TO SYD08 FROM SYD09.



TURN PATH PLAN 8  
LOADBANK DRIVEWAY  
8.8m MRV FORWARD AND REVERSE MANOEUVRE

|     |                |          |    |     |
|-----|----------------|----------|----|-----|
| B   | ISSUE FOR SSDA | 22.03.22 | RG | MB  |
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Keyplan  
PLAN TRUE  
Project  
SYD08 DATA CENTRE  
57 STATION ROAD  
SEVEN HILLS, NSW 2147  
Drawing Title  
VEHICLE TURN PATHS PLAN  
SHEET 1

|             |                   |
|-------------|-------------------|
| Status      | ISSUE FOR SSDA    |
| Scale @ A0  | 1:200 UNO         |
| Project No. | NSW202013         |
| Drawing No. | NSW202013_C107.01 |

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## Appendix D

### SIDRA Modelling Movements Summary Outputs

# MOVEMENT SUMMARY

 **Site: 101 [EB AM - Station Rd / Tollis PI (Site Folder: Existing Base)]**

2022 Modelling by Sokan 7:30-8:30

Site Category: (None)

Roundabout

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| East: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 2                            | T1   | 1049          | 56         | 1104          | 5.3    | 0.730     | 3.7         | LOS A            | 6.9               | 50.7     | 0.27      | 0.43                | 0.27             | 52.9        |
| 3                            | R2   | 18            | 1          | 19            | 5.6    | 0.730     | 7.4         | LOS A            | 6.9               | 50.7     | 0.27      | 0.43                | 0.27             | 44.6        |
| 3u                           | U    | 2             | 0          | 2             | 0.0    | 0.730     | 9.3         | LOS A            | 6.9               | 50.7     | 0.27      | 0.43                | 0.27             | 33.3        |
| Approach                     |      | 1069          | 57         | 1125          | 5.3    | 0.730     | 3.8         | LOS A            | 6.9               | 50.7     | 0.27      | 0.43                | 0.27             | 52.8        |
| North: Tollis PI             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 4                            | L2   | 15            | 4          | 16            | 26.7   | 0.075     | 11.0        | LOS A            | 0.4               | 3.4      | 0.72      | 0.78                | 0.72             | 30.1        |
| 6                            | R2   | 28            | 5          | 29            | 17.9   | 0.075     | 14.7        | LOS B            | 0.4               | 3.4      | 0.72      | 0.78                | 0.72             | 44.7        |
| 6u                           | U    | 1             | 0          | 1             | 0.0    | 0.075     | 15.8        | LOS B            | 0.4               | 3.4      | 0.72      | 0.78                | 0.72             | 38.5        |
| Approach                     |      | 44            | 9          | 46            | 20.5   | 0.075     | 13.5        | LOS A            | 0.4               | 3.4      | 0.72      | 0.78                | 0.72             | 41.3        |
| West: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 7                            | L2   | 30            | 8          | 32            | 26.7   | 0.536     | 4.8         | LOS A            | 2.9               | 21.0     | 0.10      | 0.44                | 0.10             | 49.4        |
| 8                            | T1   | 769           | 37         | 809           | 4.8    | 0.536     | 4.6         | LOS A            | 2.9               | 21.0     | 0.10      | 0.44                | 0.10             | 50.4        |
| 9u                           | U    | 10            | 0          | 11            | 0.0    | 0.536     | 10.4        | LOS A            | 2.9               | 21.0     | 0.10      | 0.44                | 0.10             | 56.1        |
| Approach                     |      | 809           | 45         | 852           | 5.6    | 0.536     | 4.7         | LOS A            | 2.9               | 21.0     | 0.10      | 0.44                | 0.10             | 50.5        |
| All Vehicles                 |      | 1922          | 111        | 2023          | 5.8    | 0.730     | 4.4         | LOS A            | 6.9               | 50.7     | 0.21      | 0.44                | 0.21             | 51.5        |

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

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

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

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

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Project: X:\20407 57 Station Road, Seven Hills\07 Modelling Files\Model\20407-S01V01-220602-Model.sip9

# MOVEMENT SUMMARY

▼ Site: 101 [EB AM - Station Rd / McCoy St (Site Folder: Exisiting Base)]

2022 Modelling by Sokan 7:30-8:30

Site Category: (None)

Give-Way (Two-Way)

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| East: Station Road           |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 2                            | T1   | 1065          | 56         | 1121          | 5.3    | 0.548     | 0.0         | LOS A            | 0.1               | 0.4      | 0.00      | 0.00                | 0.01             | 59.9        |
| 3                            | R2   | 1             | 0          | 1             | 0.0    | 0.548     | 17.1        | LOS B            | 0.1               | 0.4      | 0.00      | 0.00                | 0.01             | 55.4        |
| Approach                     |      | 1066          | 56         | 1122          | 5.3    | 0.548     | 0.0         | NA               | 0.1               | 0.4      | 0.00      | 0.00                | 0.01             | 59.9        |
| North: McCoy St              |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 4                            | L2   | 1             | 0          | 1             | 0.0    | 0.023     | 8.3         | LOS A            | 0.1               | 0.4      | 0.91      | 0.91                | 0.91             | 27.8        |
| 6                            | R2   | 1             | 0          | 1             | 0.0    | 0.023     | 65.2        | LOS E            | 0.1               | 0.4      | 0.91      | 0.91                | 0.91             | 8.0         |
| Approach                     |      | 2             | 0          | 2             | 0.0    | 0.023     | 36.8        | LOS C            | 0.1               | 0.4      | 0.91      | 0.91                | 0.91             | 17.8        |
| West: Station Road           |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 7                            | L2   | 4             | 1          | 4             | 25.0   | 0.406     | 5.6         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 13.5        |
| 8                            | T1   | 786           | 41         | 827           | 5.2    | 0.406     | 0.0         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.7        |
| Approach                     |      | 790           | 42         | 832           | 5.3    | 0.406     | 0.1         | NA               | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.4        |
| All Vehicles                 |      | 1858          | 98         | 1956          | 5.3    | 0.548     | 0.1         | NA               | 0.1               | 0.4      | 0.00      | 0.00                | 0.01             | 59.6        |

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

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11:43:37 AM

Project: X:\20407 57 Station Road, Seven Hills\07 Modelling Files\Model\20407-S01V01-220602-Model.sip9

# MOVEMENT SUMMARY

 **Site: 101 [EB AM - Station Rd / Fitzwilliam Rd / Wentworth Ave (Site Folder: Exisiting Base)]**

2022 Modelling by Sokan 7:30-8:30

Site Category: (None)

Roundabout

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| South: Wentworth Ave         |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 10                           | L2   | 644           | 35         | 678           | 5.4    | 0.738     | 10.8        | LOS A            | 8.9               | 64.9     | 0.90      | 0.99                | 1.16             | 32.1        |
| 12                           | R2   | 418           | 12         | 440           | 2.9    | 0.553     | 12.9        | LOS A            | 4.4               | 31.6     | 0.77      | 0.90                | 0.86             | 38.4        |
| 12u                          | U    | 2             | 1          | 2             | 50.0   | 0.553     | 16.8        | LOS B            | 4.4               | 31.6     | 0.77      | 0.90                | 0.86             | 35.0        |
| Approach                     |      | 1064          | 48         | 1120          | 4.5    | 0.738     | 11.6        | LOS A            | 8.9               | 64.9     | 0.85      | 0.95                | 1.04             | 35.0        |
| East: Fitzwilliam Rd         |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 1                            | L2   | 449           | 9          | 473           | 2.0    | 0.527     | 8.0         | LOS A            | 4.2               | 29.9     | 0.77      | 0.84                | 0.84             | 41.3        |
| 2                            | T1   | 420           | 21         | 442           | 5.0    | 0.536     | 8.4         | LOS A            | 4.2               | 31.0     | 0.77      | 0.84                | 0.86             | 35.1        |
| 3u                           | U    | 3             | 0          | 3             | 0.0    | 0.536     | 14.5        | LOS B            | 4.2               | 31.0     | 0.77      | 0.84                | 0.86             | 45.0        |
| Approach                     |      | 872           | 30         | 918           | 3.4    | 0.536     | 8.2         | LOS A            | 4.2               | 31.0     | 0.77      | 0.84                | 0.85             | 38.5        |
| West: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 8                            | T1   | 371           | 14         | 391           | 3.8    | 0.461     | 6.3         | LOS A            | 3.1               | 22.7     | 0.70      | 0.75                | 0.72             | 42.2        |
| 9                            | R2   | 460           | 23         | 484           | 5.0    | 0.533     | 10.8        | LOS A            | 4.2               | 30.7     | 0.74      | 0.85                | 0.80             | 36.0        |
| 9u                           | U    | 6             | 0          | 6             | 0.0    | 0.533     | 12.7        | LOS A            | 4.2               | 30.7     | 0.74      | 0.85                | 0.80             | 24.2        |
| Approach                     |      | 837           | 37         | 881           | 4.4    | 0.533     | 8.9         | LOS A            | 4.2               | 30.7     | 0.73      | 0.81                | 0.77             | 38.3        |
| All Vehicles                 |      | 2773          | 115        | 2919          | 4.1    | 0.738     | 9.7         | LOS A            | 8.9               | 64.9     | 0.79      | 0.87                | 0.90             | 37.0        |

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

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

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

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

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# MOVEMENT SUMMARY

 Site: 101 [EB PM - Station Rd / Tollis PI (Site Folder: Existing Base)]

2022 Modelling by Sokan 16:15-17:15

Site Category: (None)

Roundabout

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| East: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 2                            | T1   | 884           | 21         | 931           | 2.4    | 0.658     | 3.8         | LOS A            | 4.9               | 35.3     | 0.30      | 0.46                | 0.30             | 52.8        |
| 3                            | R2   | 37            | 3          | 39            | 8.1    | 0.658     | 7.6         | LOS A            | 4.9               | 35.3     | 0.30      | 0.46                | 0.30             | 43.6        |
| 3u                           | U    | 1             | 0          | 1             | 0.0    | 0.658     | 9.4         | LOS A            | 4.9               | 35.3     | 0.30      | 0.46                | 0.30             | 32.9        |
| Approach                     |      | 922           | 24         | 971           | 2.6    | 0.658     | 4.0         | LOS A            | 4.9               | 35.3     | 0.30      | 0.46                | 0.30             | 52.6        |
| North: Tollis PI             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 4                            | L2   | 48            | 1          | 51            | 2.1    | 0.192     | 14.9        | LOS B            | 1.3               | 9.3      | 0.89      | 0.90                | 0.89             | 26.9        |
| 6                            | R2   | 39            | 4          | 41            | 10.3   | 0.192     | 19.7        | LOS B            | 1.3               | 9.3      | 0.89      | 0.90                | 0.89             | 42.2        |
| 6u                           | U    | 1             | 0          | 1             | 0.0    | 0.192     | 20.9        | LOS B            | 1.3               | 9.3      | 0.89      | 0.90                | 0.89             | 34.6        |
| Approach                     |      | 88            | 5          | 93            | 5.7    | 0.192     | 17.1        | LOS B            | 1.3               | 9.3      | 0.89      | 0.90                | 0.89             | 35.8        |
| West: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 7                            | L2   | 26            | 5          | 27            | 19.2   | 0.721     | 4.8         | LOS A            | 5.8               | 41.9     | 0.22      | 0.44                | 0.22             | 49.4        |
| 8                            | T1   | 1014          | 26         | 1067          | 2.6    | 0.721     | 4.8         | LOS A            | 5.8               | 41.9     | 0.22      | 0.44                | 0.22             | 49.6        |
| 9u                           | U    | 31            | 1          | 33            | 3.2    | 0.721     | 10.6        | LOS A            | 5.8               | 41.9     | 0.22      | 0.44                | 0.22             | 55.4        |
| Approach                     |      | 1071          | 32         | 1127          | 3.0    | 0.721     | 4.9         | LOS A            | 5.8               | 41.9     | 0.22      | 0.44                | 0.22             | 49.9        |
| All Vehicles                 |      | 2081          | 61         | 2191          | 2.9    | 0.721     | 5.0         | LOS A            | 5.8               | 41.9     | 0.29      | 0.47                | 0.29             | 50.4        |

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

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

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

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

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# MOVEMENT SUMMARY

Site: 101 [EB PM - Station Rd / McCoy St (Site Folder: Exisiting Base)]

2022 Modelling by Sokan 16:15-17:15

Site Category: (None)

Give-Way (Two-Way)

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| East: Station Road           |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 2                            | T1   | 920           | 24         | 968           | 2.6    | 0.479     | 0.5         | LOS A            | 0.5               | 3.4      | 0.04      | 0.00                | 0.06             | 59.0        |
| 3                            | R2   | 5             | 0          | 5             | 0.0    | 0.479     | 26.1        | LOS B            | 0.5               | 3.4      | 0.04      | 0.00                | 0.06             | 54.6        |
| Approach                     |      | 925           | 24         | 974           | 2.6    | 0.479     | 0.6         | NA               | 0.5               | 3.4      | 0.04      | 0.00                | 0.06             | 59.0        |
| North: McCoy St              |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 4                            | L2   | 3             | 0          | 3             | 0.0    | 0.036     | 13.4        | LOS A            | 0.1               | 0.6      | 0.91      | 0.96                | 0.91             | 30.6        |
| 6                            | R2   | 1             | 0          | 1             | 0.0    | 0.036     | 80.0        | LOS F            | 0.1               | 0.6      | 0.91      | 0.96                | 0.91             | 8.8         |
| Approach                     |      | 4             | 0          | 4             | 0.0    | 0.036     | 30.1        | LOS C            | 0.1               | 0.6      | 0.91      | 0.96                | 0.91             | 25.1        |
| West: Station Road           |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 7                            | L2   | 1             | 0          | 1             | 0.0    | 0.535     | 5.6         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 13.6        |
| 8                            | T1   | 1060          | 27         | 1116          | 2.5    | 0.535     | 0.0         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.6        |
| Approach                     |      | 1061          | 27         | 1117          | 2.5    | 0.535     | 0.1         | NA               | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.5        |
| All Vehicles                 |      | 1990          | 51         | 2095          | 2.6    | 0.535     | 0.4         | NA               | 0.5               | 3.4      | 0.02      | 0.00                | 0.03             | 59.2        |

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

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# MOVEMENT SUMMARY

 **Site: 101 [EB PM - Station Rd / Fitzwilliam Rd / Wentworth Ave (Site Folder: Exisiting Base)]**

2022 Modelling by Sokan 16:15-17:15

Site Category: (None)

Roundabout

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| South: Wentworth Ave         |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 10                           | L2   | 486           | 10         | 512           | 2.1    | 0.643     | 10.1        | LOS A            | 6.3               | 44.8     | 0.88      | 0.97                | 1.07             | 33.0        |
| 12                           | R2   | 486           | 7          | 512           | 1.4    | 0.617     | 13.5        | LOS A            | 5.9               | 41.7     | 0.87      | 0.95                | 1.02             | 37.8        |
| 12u                          | U    | 7             | 0          | 7             | 0.0    | 0.617     | 15.5        | LOS B            | 5.9               | 41.7     | 0.87      | 0.95                | 1.02             | 39.1        |
| Approach                     |      | 979           | 17         | 1031          | 1.7    | 0.643     | 11.8        | LOS A            | 6.3               | 44.8     | 0.87      | 0.96                | 1.04             | 35.8        |
| East: Fitzwilliam Rd         |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 1                            | L2   | 451           | 9          | 475           | 2.0    | 0.716     | 14.1        | LOS A            | 7.9               | 56.0     | 0.98      | 1.13                | 1.34             | 34.5        |
| 2                            | T1   | 485           | 14         | 511           | 2.9    | 0.721     | 13.6        | LOS A            | 8.3               | 59.6     | 0.99      | 1.12                | 1.35             | 29.7        |
| 3u                           | U    | 5             | 0          | 5             | 0.0    | 0.721     | 19.7        | LOS B            | 8.3               | 59.6     | 0.99      | 1.12                | 1.35             | 38.5        |
| Approach                     |      | 941           | 23         | 991           | 2.4    | 0.721     | 13.8        | LOS A            | 8.3               | 59.6     | 0.98      | 1.13                | 1.34             | 32.2        |
| West: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 8                            | T1   | 456           | 13         | 480           | 2.9    | 0.633     | 9.4         | LOS A            | 5.9               | 42.3     | 0.86      | 0.95                | 1.05             | 37.8        |
| 9                            | R2   | 615           | 15         | 647           | 2.4    | 0.764     | 15.6        | LOS B            | 9.7               | 69.4     | 0.96      | 1.07                | 1.30             | 31.0        |
| 9u                           | U    | 6             | 0          | 6             | 0.0    | 0.764     | 17.5        | LOS B            | 9.7               | 69.4     | 0.96      | 1.07                | 1.30             | 20.4        |
| Approach                     |      | 1077          | 28         | 1134          | 2.6    | 0.764     | 13.0        | LOS A            | 9.7               | 69.4     | 0.92      | 1.02                | 1.19             | 33.4        |
| All Vehicles                 |      | 2997          | 68         | 3155          | 2.3    | 0.764     | 12.9        | LOS A            | 9.7               | 69.4     | 0.92      | 1.03                | 1.19             | 33.8        |

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

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

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

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

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# MOVEMENT SUMMARY

 **Site: 101 [FB AM - Station Rd / Tollis PI (Site Folder: Future Base 2025 )]**

2022 Modelling by Sokan  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| East: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 2                            | T1   | 1151          | 61         | 1212          | 5.3    | 0.800     | 3.8         | LOS A            | 10.0              | 73.0     | 0.34      | 0.42                | 0.34             | 52.5        |
| 3                            | R2   | 18            | 1          | 19            | 5.6    | 0.800     | 7.5         | LOS A            | 10.0              | 73.0     | 0.34      | 0.42                | 0.34             | 43.9        |
| 3u                           | U    | 2             | 0          | 2             | 0.0    | 0.800     | 9.4         | LOS A            | 10.0              | 73.0     | 0.34      | 0.42                | 0.34             | 32.6        |
| Approach                     |      | 1171          | 62         | 1233          | 5.3    | 0.800     | 3.9         | LOS A            | 10.0              | 73.0     | 0.34      | 0.42                | 0.34             | 52.4        |
| North: Tollis PI             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 4                            | L2   | 15            | 4          | 16            | 26.7   | 0.090     | 13.7        | LOS A            | 0.5               | 4.3      | 0.80      | 0.83                | 0.80             | 27.8        |
| 6                            | R2   | 28            | 5          | 29            | 17.9   | 0.090     | 17.3        | LOS B            | 0.5               | 4.3      | 0.80      | 0.83                | 0.80             | 42.7        |
| 6u                           | U    | 1             | 0          | 1             | 0.0    | 0.090     | 18.2        | LOS B            | 0.5               | 4.3      | 0.80      | 0.83                | 0.80             | 35.8        |
| Approach                     |      | 44            | 9          | 46            | 20.5   | 0.090     | 16.1        | LOS B            | 0.5               | 4.3      | 0.80      | 0.83                | 0.80             | 39.1        |
| West: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 7                            | L2   | 30            | 8          | 32            | 26.7   | 0.634     | 4.8         | LOS A            | 4.3               | 31.4     | 0.13      | 0.43                | 0.13             | 49.3        |
| 8                            | T1   | 921           | 44         | 969           | 4.8    | 0.634     | 4.7         | LOS A            | 4.3               | 31.4     | 0.13      | 0.43                | 0.13             | 50.3        |
| 9u                           | U    | 12            | 0          | 13            | 0.0    | 0.634     | 10.4        | LOS A            | 4.3               | 31.4     | 0.13      | 0.43                | 0.13             | 56.0        |
| Approach                     |      | 963           | 52         | 1014          | 5.4    | 0.634     | 4.7         | LOS A            | 4.3               | 31.4     | 0.13      | 0.43                | 0.13             | 50.3        |
| All Vehicles                 |      | 2178          | 123        | 2293          | 5.6    | 0.800     | 4.5         | LOS A            | 10.0              | 73.0     | 0.26      | 0.44                | 0.26             | 51.1        |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Vehicle movement LOS values are based on average delay per movement.  
Intersection and Approach LOS values are based on average delay for all vehicle movements.  
Roundabout Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Queue Model: SIDRA Standard.  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

▽ Site: 101 [FB AM - Station Rd / McCoy St (Site Folder: Future Base 2025 )]

2022 Modelling by Sokan  
Site Category: (None)  
Give-Way (Two-Way)

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| East: Station Road           |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 2                            | T1   | 1169          | 61         | 1231          | 5.2    | 0.602     | 0.1         | LOS A            | 0.1               | 0.6      | 0.01      | 0.00                | 0.01             | 59.9        |
| 3                            | R2   | 1             | 0          | 1             | 0.0    | 0.602     | 25.9        | LOS B            | 0.1               | 0.6      | 0.01      | 0.00                | 0.01             | 55.4        |
| Approach                     |      | 1170          | 61         | 1232          | 5.2    | 0.602     | 0.1         | NA               | 0.1               | 0.6      | 0.01      | 0.00                | 0.01             | 59.9        |
| North: McCoy St              |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 4                            | L2   | 1             | 0          | 1             | 0.0    | 0.053     | 10.7        | LOS A            | 0.1               | 0.9      | 0.96      | 0.98                | 0.96             | 17.8        |
| 6                            | R2   | 1             | 0          | 1             | 0.0    | 0.053     | 144.5       | LOS F            | 0.1               | 0.9      | 0.96      | 0.98                | 0.96             | 5.1         |
| Approach                     |      | 2             | 0          | 2             | 0.0    | 0.053     | 77.6        | LOS F            | 0.1               | 0.9      | 0.96      | 0.98                | 0.96             | 11.5        |
| West: Station Road           |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 7                            | L2   | 4             | 1          | 4             | 25.0   | 0.485     | 5.6         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 13.5        |
| 8                            | T1   | 941           | 49         | 991           | 5.2    | 0.485     | 0.0         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.6        |
| Approach                     |      | 945           | 50         | 995           | 5.3    | 0.485     | 0.1         | NA               | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.4        |
| All Vehicles                 |      | 2117          | 111        | 2228          | 5.2    | 0.602     | 0.1         | NA               | 0.1               | 0.9      | 0.00      | 0.00                | 0.01             | 59.5        |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Queue Model: SIDRA Standard.  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 101 [FB AM - Station Rd / Fitzwilliam Rd / Wentworth Ave (Site Folder: Future Base 2025 )]**

2022 Modelling by Sokan  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| South: Wentworth Ave         |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 10                           | L2   | 679           | 37         | 715           | 5.4    | 0.837     | 15.2        | LOS B            | 13.1              | 96.1     | 1.00      | 1.17                | 1.52             | 27.7        |
| 12                           | R2   | 441           | 13         | 464           | 2.9    | 0.629     | 14.5        | LOS B            | 5.8               | 41.6     | 0.86      | 0.99                | 1.04             | 36.7        |
| 12u                          | U    | 2             | 1          | 2             | 50.0   | 0.629     | 18.6        | LOS B            | 5.8               | 41.6     | 0.86      | 0.99                | 1.04             | 33.6        |
| Approach                     |      | 1122          | 51         | 1181          | 4.5    | 0.837     | 14.9        | LOS B            | 13.1              | 96.1     | 0.94      | 1.10                | 1.33             | 31.6        |
| East: Fitzwilliam Rd         |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 1                            | L2   | 498           | 10         | 524           | 2.0    | 0.660     | 11.1        | LOS A            | 6.8               | 48.4     | 0.91      | 1.01                | 1.15             | 37.6        |
| 2                            | T1   | 465           | 23         | 489           | 4.9    | 0.677     | 12.0        | LOS A            | 6.9               | 50.7     | 0.92      | 1.05                | 1.20             | 31.2        |
| 3u                           | U    | 3             | 0          | 3             | 0.0    | 0.677     | 18.1        | LOS B            | 6.9               | 50.7     | 0.92      | 1.05                | 1.20             | 40.4        |
| Approach                     |      | 966           | 33         | 1017          | 3.4    | 0.677     | 11.5        | LOS A            | 6.9               | 50.7     | 0.92      | 1.03                | 1.17             | 34.7        |
| West: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 8                            | T1   | 445           | 17         | 468           | 3.8    | 0.575     | 7.8         | LOS A            | 4.9               | 35.1     | 0.80      | 0.86                | 0.91             | 40.2        |
| 9                            | R2   | 551           | 28         | 580           | 5.1    | 0.661     | 12.7        | LOS A            | 6.7               | 49.1     | 0.85      | 0.95                | 1.03             | 33.7        |
| 9u                           | U    | 7             | 0          | 7             | 0.0    | 0.661     | 14.6        | LOS B            | 6.7               | 49.1     | 0.85      | 0.95                | 1.03             | 22.5        |
| Approach                     |      | 1003          | 45         | 1056          | 4.5    | 0.661     | 10.6        | LOS A            | 6.7               | 49.1     | 0.83      | 0.91                | 0.97             | 36.1        |
| All Vehicles                 |      | 3091          | 129        | 3254          | 4.2    | 0.837     | 12.4        | LOS A            | 13.1              | 96.1     | 0.90      | 1.02                | 1.16             | 33.9        |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Vehicle movement LOS values are based on average delay per movement.  
Intersection and Approach LOS values are based on average delay for all vehicle movements.  
Roundabout Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Queue Model: SIDRA Standard.  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 101 [FB PM - Station Rd / Tollis PI (Site Folder: Future Base 2025 )]**

2022 Modelling by Sokan  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| East: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 2                            | T1   | 943           | 22         | 993           | 2.3    | 0.700     | 3.9         | LOS A            | 5.8               | 41.4     | 0.33      | 0.46                | 0.33             | 52.6        |
| 3                            | R2   | 37            | 3          | 39            | 8.1    | 0.700     | 7.6         | LOS A            | 5.8               | 41.4     | 0.33      | 0.46                | 0.33             | 43.3        |
| 3u                           | U    | 1             | 0          | 1             | 0.0    | 0.700     | 9.5         | LOS A            | 5.8               | 41.4     | 0.33      | 0.46                | 0.33             | 32.6        |
| Approach                     |      | 981           | 25         | 1033          | 2.5    | 0.700     | 4.0         | LOS A            | 5.8               | 41.4     | 0.33      | 0.46                | 0.33             | 52.4        |
| North: Tollis PI             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 4                            | L2   | 48            | 1          | 51            | 2.1    | 0.218     | 17.1        | LOS B            | 1.5               | 10.8     | 0.93      | 0.94                | 0.93             | 25.3        |
| 6                            | R2   | 39            | 4          | 41            | 10.3   | 0.218     | 21.9        | LOS B            | 1.5               | 10.8     | 0.93      | 0.94                | 0.93             | 40.7        |
| 6u                           | U    | 1             | 0          | 1             | 0.0    | 0.218     | 23.0        | LOS B            | 1.5               | 10.8     | 0.93      | 0.94                | 0.93             | 32.8        |
| Approach                     |      | 88            | 5          | 93            | 5.7    | 0.218     | 19.3        | LOS B            | 1.5               | 10.8     | 0.93      | 0.94                | 0.93             | 34.2        |
| West: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 7                            | L2   | 26            | 5          | 27            | 19.2   | 0.766     | 4.9         | LOS A            | 7.4               | 53.3     | 0.26      | 0.44                | 0.26             | 49.2        |
| 8                            | T1   | 1082          | 28         | 1139          | 2.6    | 0.766     | 4.8         | LOS A            | 7.4               | 53.3     | 0.26      | 0.44                | 0.26             | 49.4        |
| 9u                           | U    | 33            | 1          | 35            | 3.0    | 0.766     | 10.6        | LOS A            | 7.4               | 53.3     | 0.26      | 0.44                | 0.26             | 55.2        |
| Approach                     |      | 1141          | 34         | 1201          | 3.0    | 0.766     | 5.0         | LOS A            | 7.4               | 53.3     | 0.26      | 0.44                | 0.26             | 49.6        |
| All Vehicles                 |      | 2210          | 64         | 2326          | 2.9    | 0.766     | 5.1         | LOS A            | 7.4               | 53.3     | 0.32      | 0.47                | 0.32             | 50.1        |

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

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

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

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

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Project: X:\20407 57 Station Road, Seven Hills\07 Modelling Files\Model\20407-S01V01-220602-Model.sip9

# MOVEMENT SUMMARY

▽ Site: 101 [FB PM - Station Rd / McCoy St (Site Folder: Future Base 2025 )]

2022 Modelling by Sokan  
Site Category: (None)  
Give-Way (Two-Way)

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| East: Station Road           |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 2                            | T1   | 982           | 26         | 1034          | 2.6    | 0.514     | 0.7         | LOS A            | 0.7               | 4.8      | 0.05      | 0.00                | 0.07             | 58.7        |
| 3                            | R2   | 5             | 0          | 5             | 0.0    | 0.514     | 33.1        | LOS C            | 0.7               | 4.8      | 0.05      | 0.00                | 0.07             | 54.2        |
| Approach                     |      | 987           | 26         | 1039          | 2.6    | 0.514     | 0.8         | NA               | 0.7               | 4.8      | 0.05      | 0.00                | 0.07             | 58.6        |
| North: McCoy St              |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 4                            | L2   | 3             | 0          | 3             | 0.0    | 0.054     | 15.8        | LOS B            | 0.1               | 0.9      | 0.94      | 0.97                | 0.94             | 25.7        |
| 6                            | R2   | 1             | 0          | 1             | 0.0    | 0.054     | 123.2       | LOS F            | 0.1               | 0.9      | 0.94      | 0.97                | 0.94             | 7.4         |
| Approach                     |      | 4             | 0          | 4             | 0.0    | 0.054     | 42.7        | LOS D            | 0.1               | 0.9      | 0.94      | 0.97                | 0.94             | 21.1        |
| West: Station Road           |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 7                            | L2   | 1             | 0          | 1             | 0.0    | 0.571     | 5.6         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 13.6        |
| 8                            | T1   | 1131          | 29         | 1191          | 2.6    | 0.571     | 0.1         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.5        |
| Approach                     |      | 1132          | 29         | 1192          | 2.6    | 0.571     | 0.1         | NA               | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.4        |
| All Vehicles                 |      | 2123          | 55         | 2235          | 2.6    | 0.571     | 0.5         | NA               | 0.7               | 4.8      | 0.02      | 0.00                | 0.03             | 58.9        |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Queue Model: SIDRA Standard.  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 101 [FB PM - Station Rd / Fitzwilliam Rd / Wentworth Ave (Site Folder: Future Base 2025 )]**

2022 Modelling by Sokan  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| South: Wentworth Ave         |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 10                           | L2   | 521           | 11         | 548           | 2.1    | 0.739     | 13.0        | LOS A            | 8.6               | 61.6     | 0.97      | 1.10                | 1.31             | 29.7        |
| 12                           | R2   | 522           | 8          | 549           | 1.5    | 0.706     | 15.9        | LOS B            | 8.0               | 56.4     | 0.95      | 1.06                | 1.23             | 35.5        |
| 12u                          | U    | 8             | 0          | 8             | 0.0    | 0.706     | 17.8        | LOS B            | 8.0               | 56.4     | 0.95      | 1.06                | 1.23             | 36.6        |
| Approach                     |      | 1051          | 19         | 1106          | 1.8    | 0.739     | 14.5        | LOS B            | 8.6               | 61.6     | 0.96      | 1.08                | 1.27             | 33.0        |
| East: Fitzwilliam Rd         |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 1                            | L2   | 498           | 10         | 524           | 2.0    | 0.852     | 22.5        | LOS B            | 12.8              | 90.9     | 1.00      | 1.31                | 1.79             | 28.0        |
| 2                            | T1   | 535           | 15         | 563           | 2.8    | 0.854     | 21.6        | LOS B            | 13.5              | 96.6     | 1.00      | 1.31                | 1.78             | 23.7        |
| 3u                           | U    | 6             | 0          | 6             | 0.0    | 0.854     | 27.8        | LOS B            | 13.5              | 96.6     | 1.00      | 1.31                | 1.78             | 31.2        |
| Approach                     |      | 1039          | 25         | 1094          | 2.4    | 0.854     | 22.1        | LOS B            | 13.5              | 96.6     | 1.00      | 1.31                | 1.78             | 26.0        |
| West: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 8                            | T1   | 486           | 14         | 512           | 2.9    | 0.718     | 11.8        | LOS A            | 7.8               | 56.1     | 0.94      | 1.08                | 1.26             | 34.5        |
| 9                            | R2   | 656           | 16         | 691           | 2.4    | 0.863     | 21.2        | LOS B            | 14.6              | 104.2    | 1.00      | 1.25                | 1.68             | 26.5        |
| 9u                           | U    | 6             | 0          | 6             | 0.0    | 0.863     | 23.0        | LOS B            | 14.6              | 104.2    | 1.00      | 1.25                | 1.68             | 17.3        |
| Approach                     |      | 1148          | 30         | 1208          | 2.6    | 0.863     | 17.2        | LOS B            | 14.6              | 104.2    | 0.98      | 1.18                | 1.50             | 29.2        |
| All Vehicles                 |      | 3238          | 74         | 3408          | 2.3    | 0.863     | 17.9        | LOS B            | 14.6              | 104.2    | 0.98      | 1.19                | 1.52             | 29.2        |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Vehicle movement LOS values are based on average delay per movement.  
Intersection and Approach LOS values are based on average delay for all vehicle movements.  
Roundabout Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Queue Model: SIDRA Standard.  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

 **Site: 101 [FB + D AM - Station Rd / Tollis PI (Site Folder: Future Base + Dev Traffic )]**

2022 Modelling by Sokan  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| East: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 2                            | T1   | 1158          | 63         | 1219          | 5.4    | 0.805     | 3.8         | LOS A            | 10.3              | 75.3     | 0.35      | 0.42                | 0.35             | 52.4        |
| 3                            | R2   | 18            | 1          | 19            | 5.6    | 0.805     | 7.5         | LOS A            | 10.3              | 75.3     | 0.35      | 0.42                | 0.35             | 43.8        |
| 3u                           | U    | 2             | 0          | 2             | 0.0    | 0.805     | 9.4         | LOS A            | 10.3              | 75.3     | 0.35      | 0.42                | 0.35             | 32.5        |
| Approach                     |      | 1178          | 64         | 1240          | 5.4    | 0.805     | 3.9         | LOS A            | 10.3              | 75.3     | 0.35      | 0.42                | 0.35             | 52.4        |
| North: Tollis PI             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 4                            | L2   | 15            | 4          | 16            | 26.7   | 0.090     | 13.7        | LOS A            | 0.5               | 4.3      | 0.80      | 0.83                | 0.80             | 27.7        |
| 6                            | R2   | 28            | 5          | 29            | 17.9   | 0.090     | 17.4        | LOS B            | 0.5               | 4.3      | 0.80      | 0.83                | 0.80             | 42.7        |
| 6u                           | U    | 1             | 0          | 1             | 0.0    | 0.090     | 18.3        | LOS B            | 0.5               | 4.3      | 0.80      | 0.83                | 0.80             | 35.8        |
| Approach                     |      | 44            | 9          | 46            | 20.5   | 0.090     | 16.2        | LOS B            | 0.5               | 4.3      | 0.80      | 0.83                | 0.80             | 39.1        |
| West: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 7                            | L2   | 30            | 8          | 32            | 26.7   | 0.637     | 4.8         | LOS A            | 4.3               | 31.9     | 0.13      | 0.43                | 0.13             | 49.3        |
| 8                            | T1   | 924           | 46         | 973           | 5.0    | 0.637     | 4.7         | LOS A            | 4.3               | 31.9     | 0.13      | 0.43                | 0.13             | 50.3        |
| 9u                           | U    | 12            | 0          | 13            | 0.0    | 0.637     | 10.4        | LOS A            | 4.3               | 31.9     | 0.13      | 0.43                | 0.13             | 56.0        |
| Approach                     |      | 966           | 54         | 1017          | 5.6    | 0.637     | 4.7         | LOS A            | 4.3               | 31.9     | 0.13      | 0.43                | 0.13             | 50.3        |
| All Vehicles                 |      | 2188          | 127        | 2303          | 5.8    | 0.805     | 4.5         | LOS A            | 10.3              | 75.3     | 0.26      | 0.44                | 0.26             | 51.1        |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Vehicle movement LOS values are based on average delay per movement.  
Intersection and Approach LOS values are based on average delay for all vehicle movements.  
Roundabout Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Queue Model: SIDRA Standard.  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

▽ Site: 101 [FB + D AM - Station Rd / Site Access (Site Folder: Future Base + Dev Traffic )]

2022 Modelling by Sokan  
Site Category: (None)  
Give-Way (Two-Way)

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| East: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 5                            | T1   | 1170          | 61         | 1232          | 5.2    | 0.653     | 0.1         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.2        |
| 6                            | R2   | 2             | 1          | 2             | 50.0   | 0.009     | 19.4        | LOS B            | 0.0               | 0.3      | 0.83      | 0.86                | 0.83             | 17.2        |
| Approach                     |      | 1172          | 62         | 1234          | 5.3    | 0.653     | 0.1         | NA               | 0.0               | 0.3      | 0.00      | 0.00                | 0.00             | 59.0        |
| North: Site Access           |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 7                            | L2   | 6             | 1          | 6             | 16.7   | 1.246     | 622.2       | LOS F            | 5.0               | 41.9     | 1.00      | 1.25                | 1.98             | 0.6         |
| 9                            | R2   | 7             | 2          | 7             | 28.6   | 1.246     | 1023.2      | LOS F            | 5.0               | 41.9     | 1.00      | 1.25                | 1.98             | 0.5         |
| Approach                     |      | 13            | 3          | 14            | 23.1   | 1.246     | 838.1       | LOS F            | 5.0               | 41.9     | 1.00      | 1.25                | 1.98             | 0.5         |
| West: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 10                           | L2   | 3             | 2          | 3             | 66.7   | 0.526     | 4.3         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 25.3        |
| 11                           | T1   | 938           | 48         | 987           | 5.1    | 0.526     | 0.0         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.5        |
| Approach                     |      | 941           | 50         | 991           | 5.3    | 0.526     | 0.0         | NA               | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.3        |
| All Vehicles                 |      | 2126          | 115        | 2238          | 5.4    | 1.246     | 5.2         | NA               | 5.0               | 41.9     | 0.01      | 0.01                | 0.01             | 38.6        |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Queue Model: SIDRA Standard.  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

▽ Site: 101 [FB + D AM - Station Rd / McCoy St (Site Folder: Future Base + Dev Traffic )]

2022 Modelling by Sokan  
Site Category: (None)  
Give-Way (Two-Way)

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| East: Station Road           |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 2                            | T1   | 1171          | 62         | 1233          | 5.3    | 0.603     | 0.1         | LOS A            | 0.1               | 0.7      | 0.01      | 0.00                | 0.01             | 59.9        |
| 3                            | R2   | 1             | 0          | 1             | 0.0    | 0.603     | 26.3        | LOS B            | 0.1               | 0.7      | 0.01      | 0.00                | 0.01             | 55.3        |
| Approach                     |      | 1172          | 62         | 1234          | 5.3    | 0.603     | 0.1         | NA               | 0.1               | 0.7      | 0.01      | 0.00                | 0.01             | 59.9        |
| North: McCoy St              |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 4                            | L2   | 1             | 0          | 1             | 0.0    | 0.054     | 10.9        | LOS A            | 0.1               | 0.9      | 0.97      | 0.98                | 0.97             | 17.5        |
| 6                            | R2   | 1             | 0          | 1             | 0.0    | 0.054     | 148.6       | LOS F            | 0.1               | 0.9      | 0.97      | 0.98                | 0.97             | 5.1         |
| Approach                     |      | 2             | 0          | 2             | 0.0    | 0.054     | 79.7        | LOS F            | 0.1               | 0.9      | 0.97      | 0.98                | 0.97             | 11.3        |
| West: Station Road           |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 7                            | L2   | 4             | 1          | 4             | 25.0   | 0.488     | 5.6         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 13.5        |
| 8                            | T1   | 947           | 50         | 997           | 5.3    | 0.488     | 0.0         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.6        |
| Approach                     |      | 951           | 51         | 1001          | 5.4    | 0.488     | 0.1         | NA               | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.4        |
| All Vehicles                 |      | 2125          | 113        | 2237          | 5.3    | 0.603     | 0.2         | NA               | 0.1               | 0.9      | 0.00      | 0.00                | 0.01             | 59.5        |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Queue Model: SIDRA Standard.  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 101 [FB + D AM - Station Rd / Fitzwilliam Rd / Wentworth Ave (Site Folder: Future Base + Dev Traffic )]**

2022 Modelling by Sokan  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| South: Wentworth Ave         |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 10                           | L2   | 681           | 38         | 717           | 5.6    | 0.841     | 15.4        | LOS B            | 13.3              | 97.7     | 1.00      | 1.17                | 1.53             | 27.5        |
| 12                           | R2   | 441           | 13         | 464           | 2.9    | 0.630     | 14.5        | LOS B            | 5.8               | 41.7     | 0.86      | 0.99                | 1.04             | 36.7        |
| 12u                          | U    | 2             | 1          | 2             | 50.0   | 0.630     | 18.6        | LOS B            | 5.8               | 41.7     | 0.86      | 0.99                | 1.04             | 33.6        |
| Approach                     |      | 1124          | 52         | 1183          | 4.6    | 0.841     | 15.1        | LOS B            | 13.3              | 97.7     | 0.94      | 1.10                | 1.34             | 31.5        |
| East: Fitzwilliam Rd         |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 1                            | L2   | 498           | 10         | 524           | 2.0    | 0.664     | 11.2        | LOS A            | 6.9               | 49.1     | 0.92      | 1.02                | 1.16             | 37.4        |
| 2                            | T1   | 465           | 23         | 489           | 4.9    | 0.682     | 12.1        | LOS A            | 7.0               | 51.4     | 0.93      | 1.06                | 1.21             | 31.0        |
| 3u                           | U    | 3             | 0          | 3             | 0.0    | 0.682     | 18.2        | LOS B            | 7.0               | 51.4     | 0.93      | 1.06                | 1.21             | 40.2        |
| Approach                     |      | 966           | 33         | 1017          | 3.4    | 0.682     | 11.7        | LOS A            | 7.0               | 51.4     | 0.92      | 1.04                | 1.19             | 34.5        |
| West: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 8                            | T1   | 447           | 17         | 471           | 3.8    | 0.578     | 7.8         | LOS A            | 4.9               | 35.5     | 0.80      | 0.86                | 0.91             | 40.1        |
| 9                            | R2   | 555           | 29         | 584           | 5.2    | 0.667     | 12.8        | LOS A            | 6.8               | 50.0     | 0.86      | 0.95                | 1.04             | 33.6        |
| 9u                           | U    | 7             | 0          | 7             | 0.0    | 0.667     | 14.6        | LOS B            | 6.8               | 50.0     | 0.86      | 0.95                | 1.04             | 22.5        |
| Approach                     |      | 1009          | 46         | 1062          | 4.6    | 0.667     | 10.6        | LOS A            | 6.8               | 50.0     | 0.83      | 0.91                | 0.98             | 36.0        |
| All Vehicles                 |      | 3099          | 131        | 3262          | 4.2    | 0.841     | 12.6        | LOS A            | 13.3              | 97.7     | 0.90      | 1.02                | 1.17             | 33.7        |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Vehicle movement LOS values are based on average delay per movement.  
Intersection and Approach LOS values are based on average delay for all vehicle movements.  
Roundabout Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Queue Model: SIDRA Standard.  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

 **Site: 101 [FB + D PM - Station Rd / Tollis PI (Site Folder: Future Base + Dev Traffic )]**

2022 Modelling by Sokan

Site Category: (None)

Roundabout

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| East: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 2                            | T1   | 950           | 24         | 1000          | 2.5    | 0.705     | 3.9         | LOS A            | 5.9               | 42.3     | 0.34      | 0.46                | 0.34             | 52.6        |
| 3                            | R2   | 37            | 3          | 39            | 8.1    | 0.705     | 7.6         | LOS A            | 5.9               | 42.3     | 0.34      | 0.46                | 0.34             | 43.3        |
| 3u                           | U    | 1             | 0          | 1             | 0.0    | 0.705     | 9.5         | LOS A            | 5.9               | 42.3     | 0.34      | 0.46                | 0.34             | 32.6        |
| Approach                     |      | 988           | 27         | 1040          | 2.7    | 0.705     | 4.0         | LOS A            | 5.9               | 42.3     | 0.34      | 0.46                | 0.34             | 52.4        |
| North: Tollis PI             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 4                            | L2   | 48            | 1          | 51            | 2.1    | 0.219     | 17.2        | LOS B            | 1.5               | 10.9     | 0.93      | 0.94                | 0.93             | 25.2        |
| 6                            | R2   | 39            | 4          | 41            | 10.3   | 0.219     | 22.1        | LOS B            | 1.5               | 10.9     | 0.93      | 0.94                | 0.93             | 40.6        |
| 6u                           | U    | 1             | 0          | 1             | 0.0    | 0.219     | 23.1        | LOS B            | 1.5               | 10.9     | 0.93      | 0.94                | 0.93             | 32.6        |
| Approach                     |      | 88            | 5          | 93            | 5.7    | 0.219     | 19.4        | LOS B            | 1.5               | 10.9     | 0.93      | 0.94                | 0.93             | 34.1        |
| West: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 7                            | L2   | 26            | 5          | 27            | 19.2   | 0.769     | 4.9         | LOS A            | 7.5               | 54.2     | 0.26      | 0.44                | 0.26             | 49.2        |
| 8                            | T1   | 1085          | 30         | 1142          | 2.8    | 0.769     | 4.8         | LOS A            | 7.5               | 54.2     | 0.26      | 0.44                | 0.26             | 49.4        |
| 9u                           | U    | 33            | 1          | 35            | 3.0    | 0.769     | 10.6        | LOS A            | 7.5               | 54.2     | 0.26      | 0.44                | 0.26             | 55.2        |
| Approach                     |      | 1144          | 36         | 1204          | 3.1    | 0.769     | 5.0         | LOS A            | 7.5               | 54.2     | 0.26      | 0.44                | 0.26             | 49.6        |
| All Vehicles                 |      | 2220          | 68         | 2337          | 3.1    | 0.769     | 5.1         | LOS A            | 7.5               | 54.2     | 0.32      | 0.47                | 0.32             | 50.1        |

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

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

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

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

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

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

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# MOVEMENT SUMMARY

▽ Site: 101 [FB + D PM - Station Rd / Site Access (Site Folder: Future Base + Dev Traffic )]

2022 Modelling by Sokan  
Site Category: (None)  
Give-Way (Two-Way)

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| East: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 5                            | T1   | 982           | 26         | 1034          | 2.6    | 0.539     | 0.1         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.5        |
| 6                            | R2   | 2             | 1          | 2             | 50.0   | 0.016     | 32.6        | LOS C            | 0.0               | 0.5      | 0.91      | 0.96                | 0.91             | 12.1        |
| Approach                     |      | 984           | 27         | 1036          | 2.7    | 0.539     | 0.1         | NA               | 0.0               | 0.5      | 0.00      | 0.00                | 0.00             | 59.1        |
| North: Site Access           |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 7                            | L2   | 6             | 1          | 6             | 16.7   | 1.259     | 625.8       | LOS F            | 5.1               | 42.8     | 1.00      | 1.23                | 1.97             | 0.6         |
| 9                            | R2   | 7             | 2          | 7             | 28.6   | 1.259     | 1022.0      | LOS F            | 5.1               | 42.8     | 1.00      | 1.23                | 1.97             | 0.4         |
| Approach                     |      | 13            | 3          | 14            | 23.1   | 1.259     | 839.2       | LOS F            | 5.1               | 42.8     | 1.00      | 1.23                | 1.97             | 0.5         |
| West: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 10                           | L2   | 3             | 2          | 3             | 66.7   | 0.623     | 4.3         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 25.2        |
| 11                           | T1   | 1130          | 29         | 1189          | 2.6    | 0.623     | 0.0         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.3        |
| Approach                     |      | 1133          | 31         | 1193          | 2.7    | 0.623     | 0.1         | NA               | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.2        |
| All Vehicles                 |      | 2130          | 61         | 2242          | 2.9    | 1.259     | 5.2         | NA               | 5.1               | 42.8     | 0.01      | 0.01                | 0.01             | 38.6        |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Queue Model: SIDRA Standard.  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

▼ Site: 101 [FB + D PM - Station Rd / McCoy St (Site Folder: Future Base + Dev Traffic )]

2022 Modelling by Sokan  
Site Category: (None)  
Give-Way (Two-Way)

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| East: Station Road           |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 2                            | T1   | 984           | 27         | 1036          | 2.7    | 0.516     | 0.7         | LOS A            | 0.7               | 5.0      | 0.05      | 0.00                | 0.07             | 58.6        |
| 3                            | R2   | 5             | 0          | 5             | 0.0    | 0.516     | 33.8        | LOS C            | 0.7               | 5.0      | 0.05      | 0.00                | 0.07             | 54.2        |
| Approach                     |      | 989           | 27         | 1041          | 2.7    | 0.516     | 0.9         | NA               | 0.7               | 5.0      | 0.05      | 0.00                | 0.07             | 58.6        |
| North: McCoy St              |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 4                            | L2   | 3             | 0          | 3             | 0.0    | 0.055     | 16.1        | LOS B            | 0.1               | 1.0      | 0.94      | 0.97                | 0.94             | 25.3        |
| 6                            | R2   | 1             | 0          | 1             | 0.0    | 0.055     | 127.5       | LOS F            | 0.1               | 1.0      | 0.94      | 0.97                | 0.94             | 7.3         |
| Approach                     |      | 4             | 0          | 4             | 0.0    | 0.055     | 44.0        | LOS D            | 0.1               | 1.0      | 0.94      | 0.97                | 0.94             | 20.8        |
| West: Station Road           |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 7                            | L2   | 1             | 0          | 1             | 0.0    | 0.574     | 5.6         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 13.6        |
| 8                            | T1   | 1137          | 30         | 1197          | 2.6    | 0.574     | 0.1         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.5        |
| Approach                     |      | 1138          | 30         | 1198          | 2.6    | 0.574     | 0.1         | NA               | 0.0               | 0.0      | 0.00      | 0.00                | 0.00             | 59.4        |
| All Vehicles                 |      | 2131          | 57         | 2243          | 2.7    | 0.574     | 0.5         | NA               | 0.7               | 5.0      | 0.02      | 0.00                | 0.03             | 58.9        |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Queue Model: SIDRA Standard.  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 **Site: 101 [FB + D PM - Station Rd / Fitzwilliam Rd / Wentworth Ave (Site Folder: Future Base + Dev Traffic )]**

2022 Modelling by Sokan  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID                       | Turn | INPUT VOLUMES |            | DEMAND FLOWS  |        | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE |          | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
|                              |      | [ Total veh/h | HV ] veh/h | [ Total veh/h | HV ] % |           |             |                  | [ Veh. veh        | Dist ] m |           |                     |                  |             |
| South: Wentworth Ave         |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 10                           | L2   | 521           | 11         | 548           | 2.1    | 0.741     | 13.2        | LOS A            | 8.7               | 62.1     | 0.97      | 1.11                | 1.32             | 29.6        |
| 12                           | R2   | 522           | 8          | 549           | 1.5    | 0.709     | 16.0        | LOS B            | 8.0               | 56.8     | 0.95      | 1.06                | 1.24             | 35.4        |
| 12u                          | U    | 8             | 0          | 8             | 0.0    | 0.709     | 17.9        | LOS B            | 8.0               | 56.8     | 0.95      | 1.06                | 1.24             | 36.6        |
| Approach                     |      | 1051          | 19         | 1106          | 1.8    | 0.741     | 14.6        | LOS B            | 8.7               | 62.1     | 0.96      | 1.08                | 1.28             | 32.9        |
| East: Fitzwilliam Rd         |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 1                            | L2   | 498           | 10         | 524           | 2.0    | 0.858     | 23.3        | LOS B            | 13.1              | 93.4     | 1.00      | 1.32                | 1.83             | 27.5        |
| 2                            | T1   | 537           | 16         | 565           | 3.0    | 0.863     | 22.7        | LOS B            | 14.0              | 100.8    | 1.00      | 1.33                | 1.84             | 23.1        |
| 3u                           | U    | 6             | 0          | 6             | 0.0    | 0.863     | 28.9        | LOS C            | 14.0              | 100.8    | 1.00      | 1.33                | 1.84             | 30.4        |
| Approach                     |      | 1041          | 26         | 1096          | 2.5    | 0.863     | 23.0        | LOS B            | 14.0              | 100.8    | 1.00      | 1.33                | 1.83             | 25.4        |
| West: Station Rd             |      |               |            |               |        |           |             |                  |                   |          |           |                     |                  |             |
| 8                            | T1   | 488           | 14         | 514           | 2.9    | 0.722     | 11.9        | LOS A            | 7.9               | 56.8     | 0.94      | 1.08                | 1.27             | 34.4        |
| 9                            | R2   | 660           | 17         | 695           | 2.6    | 0.869     | 21.7        | LOS B            | 15.0              | 107.4    | 1.00      | 1.26                | 1.71             | 26.1        |
| 9u                           | U    | 6             | 0          | 6             | 0.0    | 0.869     | 23.5        | LOS B            | 15.0              | 107.4    | 1.00      | 1.26                | 1.71             | 17.1        |
| Approach                     |      | 1154          | 31         | 1215          | 2.7    | 0.869     | 17.5        | LOS B            | 15.0              | 107.4    | 0.98      | 1.19                | 1.52             | 28.9        |
| All Vehicles                 |      | 3246          | 76         | 3417          | 2.3    | 0.869     | 18.3        | LOS B            | 15.0              | 107.4    | 0.98      | 1.20                | 1.54             | 28.8        |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Vehicle movement LOS values are based on average delay per movement.  
Intersection and Approach LOS values are based on average delay for all vehicle movements.  
Roundabout Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Geometric Delay is included).  
Queue Model: SIDRA Standard.  
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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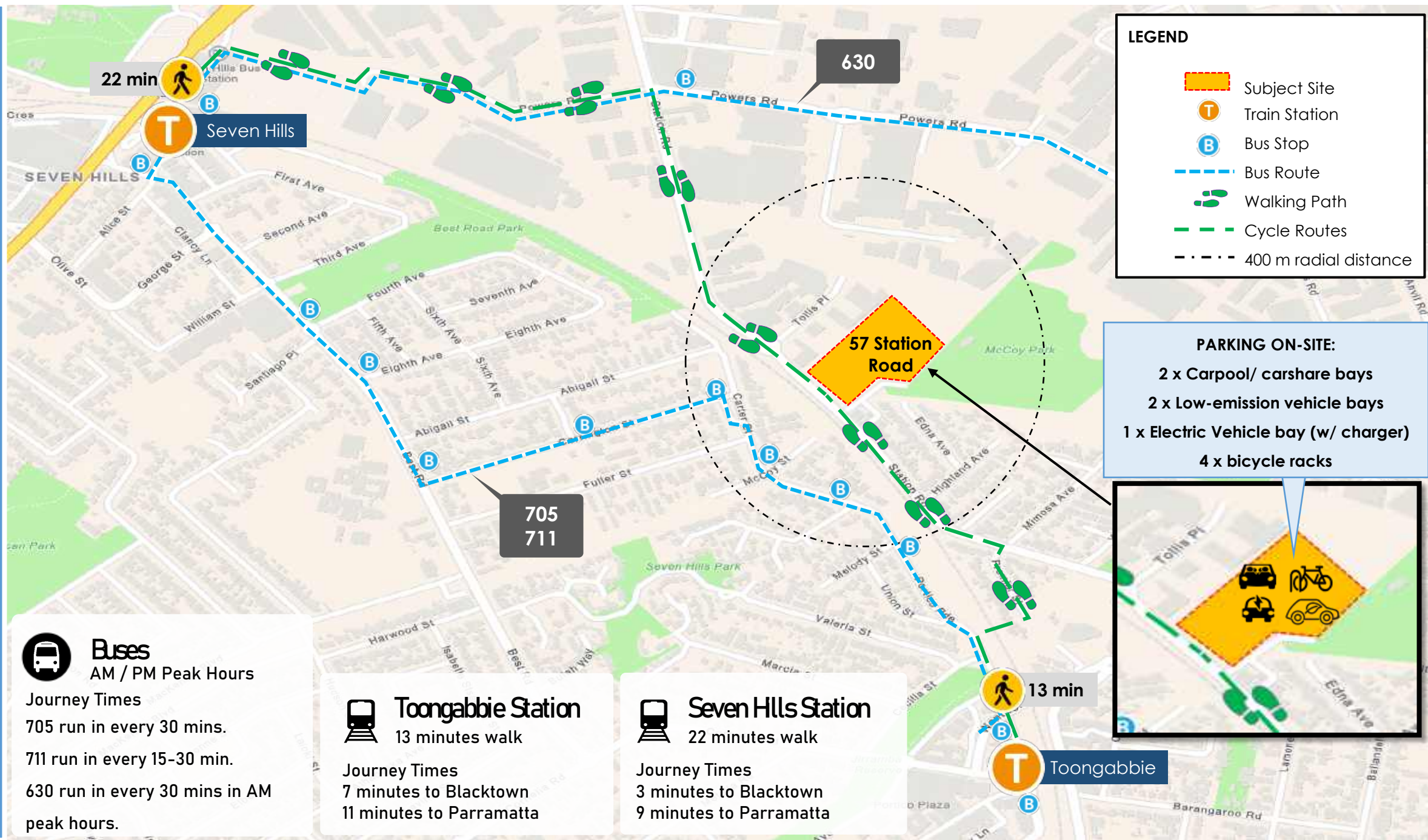
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Project: X:\20407 57 Station Road, Seven Hills\07 Modelling Files\Model\20407-S01V01-220602-Model.sip9

## Appendix E

### Transport Access Guide

# TRANSPORT ACCESS GUIDE



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