



BORG Manufacturing Pty. Ltd.

Traffic Impact Assessment

65-75 Dunheved Circuit, St Mary's

30 January 2019

ENGINEERING
PLANNING
PROJECT MANAGEMENT
SURVEYING
CERTIFICATION

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|-------------|----------|
| Project No. | SY180157 |
| Author | AJ |
| Checked | GB |
| Approved | GB |

| Rev No. | Status | Date | Comments |
|---------|--------|----------|----------|
| 1 | DRAFT | 18/01/19 | |
| 2 | FINAL | 30/01/19 | |
| | | | |

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Appendix A – Swept Path Analysis

Abbreviations

| | |
|--------------------|--|
| DCP | Development Control Plan |
| AS/NZS2890.1 | Australian Standards, 'AS/NZS 2890.1:2004 Off-Street Car Parking' |
| AS2890.2 | Australian Standards, 'AS 2890.2:2002 Off-Street Commercial Vehicle Facilities' |
| AS/NZS2890.6 | Australian Standards, 'AS/NZS 2890.6:2002 Off-Street Parking for People with Disabilities' |
| RMS | Roads and Maritime Services |
| vph | Vehicles per hour |
| HRV | Heavy Rigid Vehicle |
| MRV | Medium Rigid Vehicle |
| SRV | Small Rigid Vehicle |

1 Introduction

Barker Ryan Stewart have been engaged by BORG Manufacturing Pty Ltd to prepare a Traffic Impact Assessment in accordance with the pre-lodgement advice issued by Penrith City Council dated 28 May 2018, and 'Guide to Traffic Generating Developments' to accompany a Development Application for the proposed warehouse development at 65-75 Dunheved Circuit, St Mary's.

The purpose of this report is to assess and address traffic, vehicular access, and parking impacts generated by the proposed development. This can be briefly outlined as follows:

- The expected traffic generation to/from the proposed development
- The impact of the proposed development on the road network.
- Vehicle parking requirement and provisions.
- Access and design requirements.

This Traffic Impact Study concludes that the subject site is suitable for the proposed development in relation to traffic impact, car parking provision, and vehicle access.

Penrith City Council Pre-Lodgment Advice

| Pre-Lodgement Advice | Comment |
|--|--|
| The application shall be supported by a traffic report prepared by a suitably qualified person addressing, but not limited to, traffic generation, access, car parking, and manoeuvring | |
| The application must demonstrate that access, car parking, and manoeuvring details comply with AS2890 Parts 1, 2 & 6 and Council's Development Control Plan | Site access has been design for B-Double vehicles and loading dock access has been confirmed for 19m AV's and 8.8m MRV's, and confirmed via swept path analysis. Parking has been designed for user class 2 and accessible parking is provided a 2.4m wide shared area. |
| The proposed development shall be designed to be serviced by a B-Double Vehicle | Swept path analysis confirms site access and internal manoeuvrability for B-doubles. |
| A separate access driveway is to be provided for staff and visitor car parking. Car parking areas for staff and visitors shall be separate from areas required for heavy vehicle manoeuvring | This pre-lodgement advice was based on a superseded set of plans. The current plan permits combined light and heavy vehicle access, however the main car park area is separated from heavy vehicle loading area to improve safety. |
| The application shall be supported by turning paths in accordance with AS2890 clearly demonstrating satisfactory manoeuvring on-site and forward entry and exit to and from the public road | Swept path analysis has been undertaken for site access using a B-Double confirming forward site entry and exit. Loading dock access is confirmed access for 19m AV's, and 8.8m MRV's. |

2 Existing Conditions

2.1 Site Location

The site is located at 65-75 Dunheved Circuit, St Mary's and comprises of Lot 1 DP1175850. The site is bound by industrial development to the north and Dunheved Circuit to the east, vacant land to the south, and Links Road to the west.



Figure 3.1: Aerial Photo of Site

2.2 Existing Development

The site occupied by an industrial development and a restaurant located near the site frontage. Two access driveway serves access to the site, the southern driveway provides access to the restaurant car park and to the rear of the site. The northern driveway provides access to the industrial development on the eastern side of the site.

2.3 Existing Road Conditions

Forrester Road

To the south of Ropes Crossing Boulevard / Forrester Road / Link Road roundabout, Forrester Road has two lanes in each direction and median separated, while to the north of that roundabout it is undivided and has one lane in each direction. It is sign posted as 60km/hr south of the roundabout and 70km/hr north of the roundabout.

Ropes Crossing Boulevard

Ropes Crossing Boulevard is a divided road with a single lane in each direction. It has a posted speed limit of 50km/hr and on-street parking.

Links Road

Links Road has an 8m wide carriageway with kerb and gutter on both sides of the road to the East of Dunheved circuit and kerb and gutter on one side of the road to the west. It is undivided but operates as a two-lane road. Both sides of the road are subject to no parking at all times. The speed limit on this road is 60km/h.

Dunheved Circuit

Dunheved Circuit is a local road providing access to a large number of industrial developments within the Dunheved Business Park. It has a 9m wide carriageway in the vicinity of the site with kerb and gutter on both sides. It is undivided but operates as a two-lane road, one in each direction. The road varies between no parking and unrestricted on street parking conditions. The speed limit on this road is 60km/h.

3 Proposed Development

3.1 Development Description

The proposal includes the construction of warehouse facilities to supplement the warehouse capabilities at the existing Borg Manufacturing plant at Somersby, Central Coast. The plant manufactures and distributes decorative melamine board products countrywide and the new warehouse in Saint Mary's would assist with the distribution of these products to the Sydney region and beyond. No sales are expected to occur from the Saint Mary's warehouse, as it will be used to receive, store and distribute further products to customers. The proposal also includes a smaller warehouse that could be lease to a smaller company, and consists of the following:

- Warehouse 1 16,950m² GFA
- Warehouse 2 5,000m² GFA
- Office 261m² GFA

The larger warehouse is anticipated to operate 24 hours a day, 7 days a week with around 45 staff (20 warehouse / office employees and 25 truck drivers). The smaller warehouse is expected to be operated by 10 staff.

3.2 Access, Parking and Circulation

Access to the proposed development will be provided by Dunheved Circuit at the two driveways as follows:

- Northern Driveway 10m wide shared driveway
- Southern Driveway 8m wide shared driveway

The northern driveway will provide entry only movement whilst the southern driveway will provide exit movement, hence the general traffic flow around the site will be in an anticlockwise direction.

Vehicles can access the site from either direction, however trucks leaving the site will be required to exit in a northbound direction due to the limited carriageway width available on Dunheved Circuit to the south of the site. It is expected that signage and traffic management plan will be required to ensure truck drivers leave the site to the north. Clear visibility is available at the exit driveway, with 69m sightline available to the north and south as required by the Australian Standard.

The proposed development will also provide 133 parking spaces (including two accessible space), comprising of 57 spaces within the car park and 76 provisional spaces.

The access, parking and circulation area generally complies with *AS/NZS 2890.1-2004 Parking Facilities – Off Street Car Parking* and *AS 2890.2-2002 Parking Facilities – Off Street Commercial Vehicle Facilities* suitable for vehicles up to 26m B-doubles. Swept path analysis at Appendix A demonstrates access and circulation for 26m B-doubles, access to loading bays for 19m AV's and 8.8m MRV's.

4 Car Parking Assessment

4.1 Parking requirement and provision

The parking requirement has been assessed against the Penrith Council DCP and the RMS Guide for warehouse developments. As such, the applicable parking rates are outlined below:

- RMS Guide 1 space per 300m² GFA (warehouse)
 1 space per 40m² GFA (office)
- Penrith DCP 1 space per 100m² GFA (warehouse)
 1 space per 40m² GFA (office)

Application of the above parking rates requires the development to provide the following parking provision:

- RMS Guide 79 spaces
- Penrith DCP 226 spaces

In response, the development provides 133 parking spaces (including two accessible parking space), of which 57 are located within the main car park area and 76 provisional spaces. Although a shortfall of 93 spaces occurs in comparison to Penrith DCP, the development exceeds the RMS Guide parking demand by 54 spaces.

The operation of both warehouses will require up to 55 staff in total across the whole site. The main car parking area near the site frontage would be able to accommodate all workers within the development. It should be noted that shift workers would not be rostered to work at the same time hence the peak parking demand would occur during the shift crossover period where all shift workers may be present. Accordingly, the parking demand is expected to be accommodated on-site with no reliance on on-street parking.

Penrith DCP does not require accessible parking spaces, however two have been provided.

The proposed development parking demand is expected to be accommodated on-site with no reliance on on-street parking, and it is supportable under traffic planning grounds.

5 Traffic Assessment

5.1 Development Traffic Generation

The traffic generation assessment has been undertaken on the basis of traffic generation rates provided by the RMS Guide and first principals. The RMS Guide provides traffic generation rates as follows:

| AM | | PM | |
|-----------|-------------------------------------|-----------|-------------------------------------|
| Warehouse | 0.5 trips per 100m ² GFA | Warehouse | 0.5 trips per 100m ² GFA |
| Office | 1.6 trips per 100m ² GFA | Office | 1.2 trips per 100m ² GFA |

Accordingly, application of the above traffic generation rates to the proposed development is presented in the table below.

Table 1: RMS Guide Traffic Generation

| Land Use | Yield | AM Traffic Generation | PM Traffic Generation |
|--------------|--------------------------------|-----------------------|-----------------------|
| Warehouse | 21,950m ² GFA | 110 | 110 |
| Office | 261m ² GFA | 4 | 3 |
| Total | 17,211m² GFA | 114 | 113 |

The proposed development is expected to generate approximately 114 trips and 113 trips during the AM and PM peak hour, respectively. However, based on first principals the development would generate up to 30 trips during both AM and PM peak hours due to the commuting warehouse / office staff, and would likely be the traffic generated by the development. Truck drivers will commute to the site based on their shift times.

It should be noted that shift changeover time would occur outside peak hours (approximately 5am and 2pm) therefore traffic generated by the development is not anticipated to significantly impact the external road network.

This equates to an additional vehicle on the external road network every 2 minutes and therefore the development is considered supportable under traffic generation grounds.

6 Conclusion/Recommendations

This Traffic Impact Study has been prepared in accordance with the requirements of the pre-lodgement advice dated 28 May 2018, Penrith Council DCP, the Road and Maritime Services (RMS) '*Guide to Traffic Generating Developments*' to accompany a Development Application to Penrith Council for the construction of a warehouse facility to supplement the existing Borg Manufacturing plant at Somersby, Central Coast. The development is located on 65-75 Dunheved Circuit, St Mary's. The operation of the development would require 60 staff in total comprising of 30-40 shift workers and 20 truck drivers.

Council's DCP and the RMS Guide requires the development to provide 226 parking spaces and 79 parking spaces, respectively. In response, the development provides 133 spaces that are designed in compliance with the Australian Standards, of which 57 are located within the main car parking area and 76 are provisional spaces. Shift workers are not rostered at the same time, hence peak parking demand would occur during the shift crossover period. The parking assessment concluded that the main car parking area would accommodate all parking demand on-site with no reliance upon on-street parking. Penrith Council DCP does not require accessible spaces however two have been provided.

Approximately 30 trips per hour is expected to be generated from the development, which corresponds to an additional vehicle every 2 minutes to the external road network. However, these trips are expected to occur during shift changeover time which is outside of peak hours and therefore the traffic generated by the development is not likely to impact on the operation of the external road network. As such, the development is supportable under traffic generation grounds.

Swept path analysis demonstrates site access and internal circulation for vehicles up to 26m B-doubles and loading dock access for 19m AV's and 8.8m MRV's. These facilities are also considered practical and safe ensuring that all traffic generated by the development can enter and exit the site in a forward direction. Traffic will operate anticlockwise around the site, with entry provided by the northern driveway and exit provided by the southern driveway. Trucks would be required to leave the site to the north due to the limited carriageway width available on Dunheved Circuit to the south of the site. It is expected that signage and traffic management plans would be required to inform truck drivers to leave to the north.

The Traffic Impact Study concludes that the subject site is suitable for the proposed development in relation to the impact of traffic, car parking provision, vehicle and pedestrian access and safety considerations.

7 References

Australian Standards, '*AS/NZS 2890.1:2004 Off-Street Car Parking*'.

Australian Standards, '*AS 2890.2:2002 Off-Street Commercial Vehicle Facilities*'.

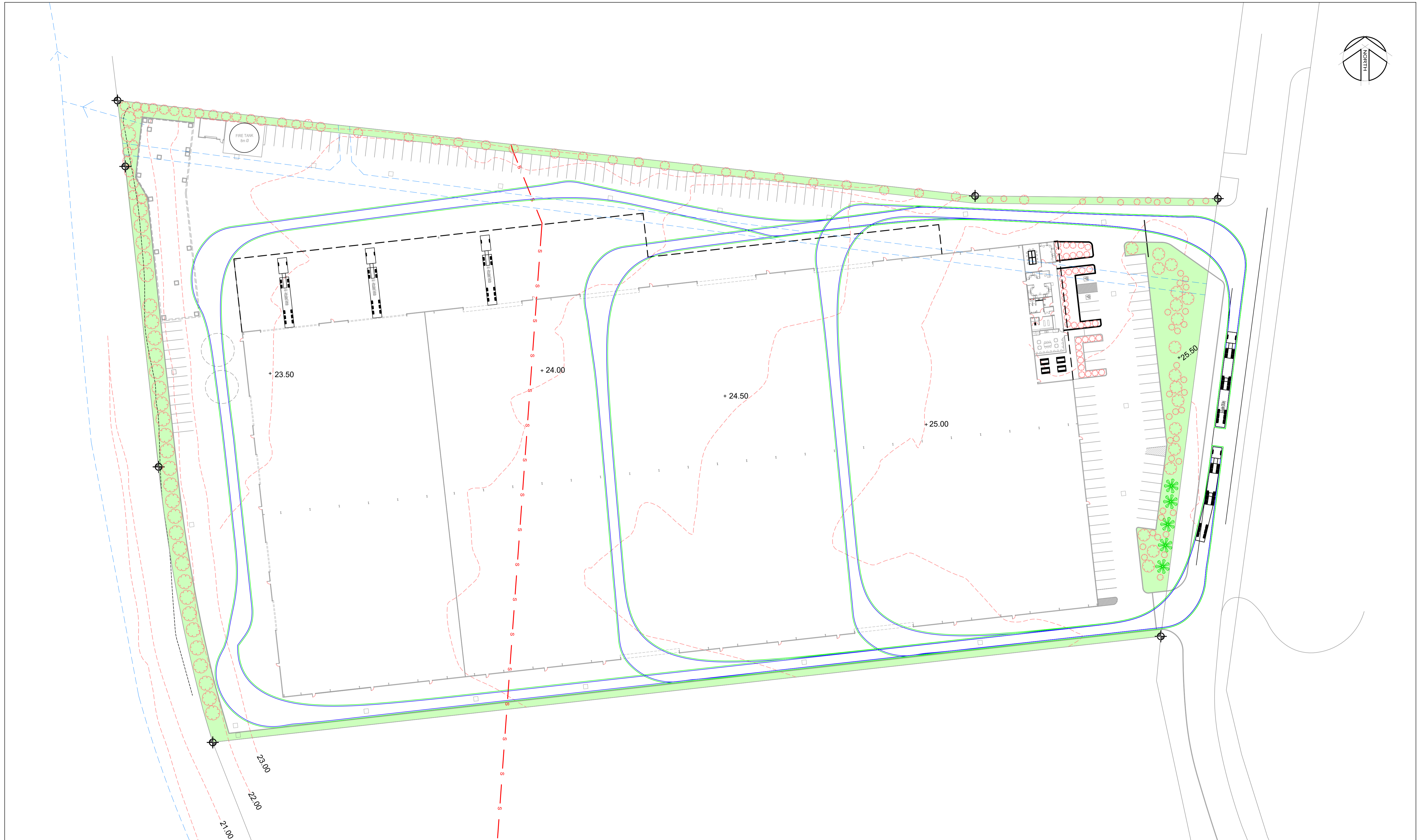
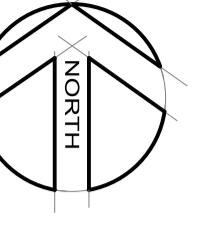
Australian Standards, '*AS/NZS 2890.6:2002 Off-Street Parking for People with Disabilities*'.

Roads and Maritime Services, '*Guide to Traffic Generating Developments*' Version 2.2 dated October 2002.

Penrith Council's DCP

Appendix A

Swept Path Analysis



| No | DATE | AMENDMENT |
|----|------------|--------------|
| A | 13/12/2018 | FIRST ISSUE |
| B | 18/01/2019 | SECOND ISSUE |
| C | 23/01/2019 | THIRD ISSUE |



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PROPOSED WAREHOUSE DEVELOPMENT
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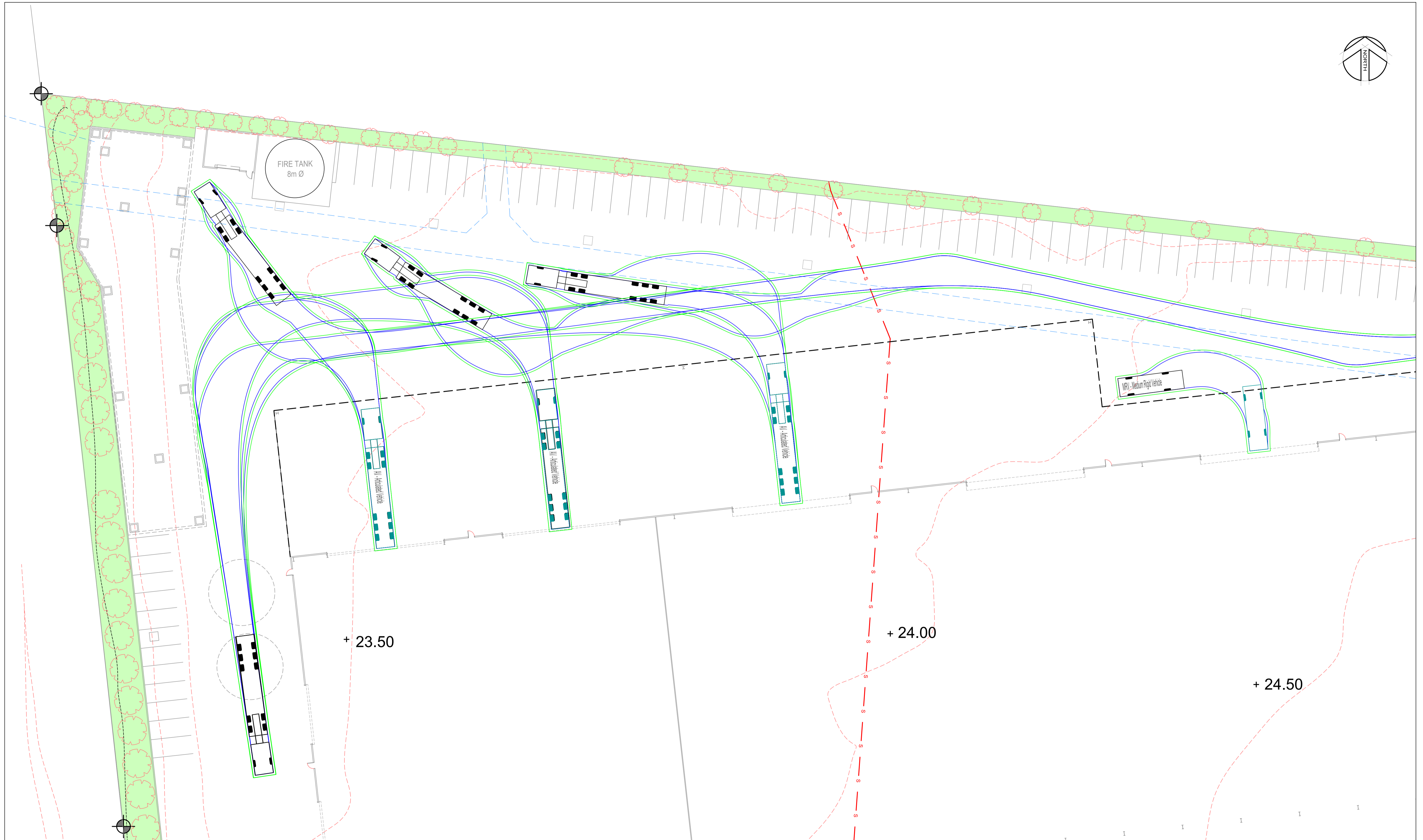
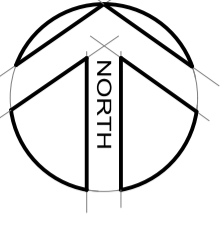
ACCESS AND CIRCULATION

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Drawn: AAJ
Checked: AAJ

Scales: Plan
Horiz.
Vert.
X-Sect.

Datum: A.H.D.

Plan No.
SY180157TR01
File Ref.
SY180157-D01A
SHEET 1 OF 2 SHEETS
REV. **C**



| No | DATE | AMENDMENT |
|----|------------|--------------|
| A | 13/12/2018 | FIRST ISSUE |
| B | 18/01/2019 | SECOND ISSUE |
| C | 23/01/2019 | THIRD ISSUE |



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LOADING BAY ACCESS

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Drawn: AAJ
Checked: AAJ

Scales: Plan
Horiz.
Vert.
X-Sect.

Datum: A.H.D.

Plan No.
SY180157TR02

File Ref.
SY180157-D01A

SHEET 2 OF 2 SHEETS

REV. **C**

