

# INROADS:GROUP

## Proposed Residential Subdivision, 94 Wilson Drive, Marulan

### Traffic Report

Revision 2

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# Contents

<b>1.0</b>	<b>Introduction</b> .....	<b>3</b>
<b>2.0</b>	<b>Context</b> .....	<b>4</b>
2.1	Subject Site and Current Use .....	4
2.2	Planning Context .....	5
2.3	Surrounding Road Network .....	6
2.4	Public Transport Services and Accessibility .....	10
<b>3.0</b>	<b>Proposal</b> .....	<b>13</b>
3.1	External Access Points .....	14
3.2	Internal Road Network .....	15
3.3	Traffic Generation and Distribution .....	15
3.4	Traffic Impact of Proposal.....	17
<b>4.0</b>	<b>Recommendations</b> .....	<b>22</b>
4.1	Qualifications .....	22

## Appendices

### **APPENDIX A**

Stage 2 Upgrade Works (Wilson Drive) – Currently Underway

### **APPENDIX B**

Stage 3 Subdivision Plans (Proposed)

### **APPENDIX C**

Forecast Network Volumes

### **APPENDIX D**

Results of Traffic Counts – George Street / Goulburn Street Intersection

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## 1.0 Introduction

InRoads Group was engaged to undertake a Traffic Impact Assessment of a proposal for Stage 3 of the Equinox Residential Subdivision, located at 94 Wilson Drive, Marulan.

The subject site on which the proposed development is to be delivered was rezoned by Goulburn Mulwaree Council ('Council') to permit residential development following the gazettal of the *Goulburn Mulwaree Local Environmental Plan 2009*.

Stage 1 of the subdivision (involving 22 lots) was approved by Council in 2018, with construction of this stage now complete, and all lots sold. Stage 2 of the subdivision (involving an additional 126 residential lots) was approved in 2021 under DA /0334/1819, and is currently being delivered and sold in sub-stages.

The Stage 3 development (to which this report relates) comprises an additional 125 residential lots, which will bring the total yield of the subdivision to 273 residential lots. The intention is for the ultimate residential subdivision to provide in the order of 525 residential lots.

This report focuses upon the development proposed under this application (i.e. Stage 3), however consideration has also been given to the potential ultimate development in order to ensure that the Stage 3 development does not preclude or inhibit the provision of any transport infrastructure which may be required to support the ultimate development, and that the internal road network proposed to be delivered under Stage 3 will be adequate to cater for the volumes generated by the ultimate development.

This report provides relevant background information regarding the proposal, and documents the results and findings of our investigations addressing the following key traffic design elements and issues:

- The existing surrounding road network;
- Vehicular access points to the development;
- The internal road network / road hierarchy;
- Development traffic generation and distribution; and
- The anticipated traffic impacts of the proposal.

The results of our investigations addressing the above key traffic-related issues are discussed in the following sections.

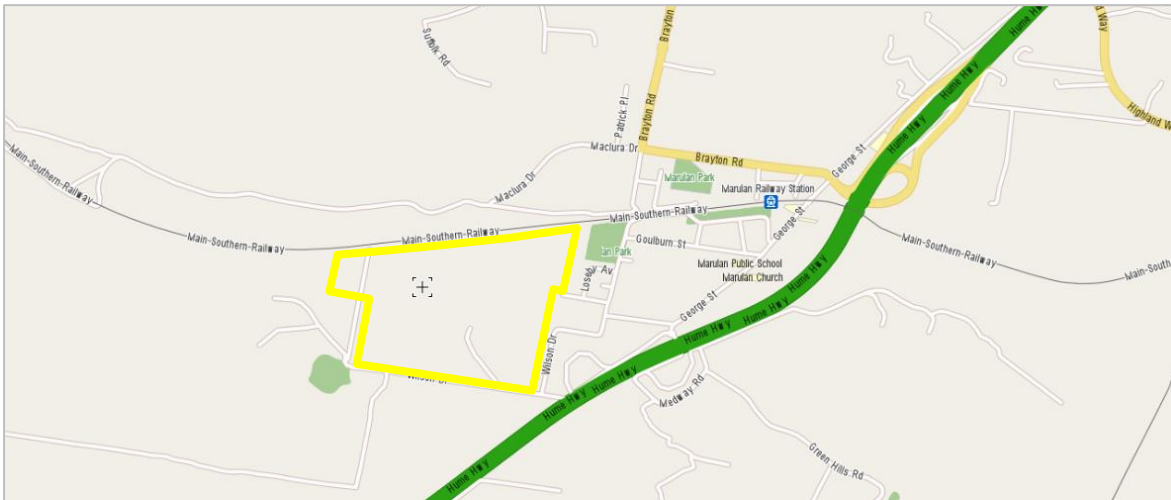
## 2.0 Context

### 2.1 Subject Site and Current Use

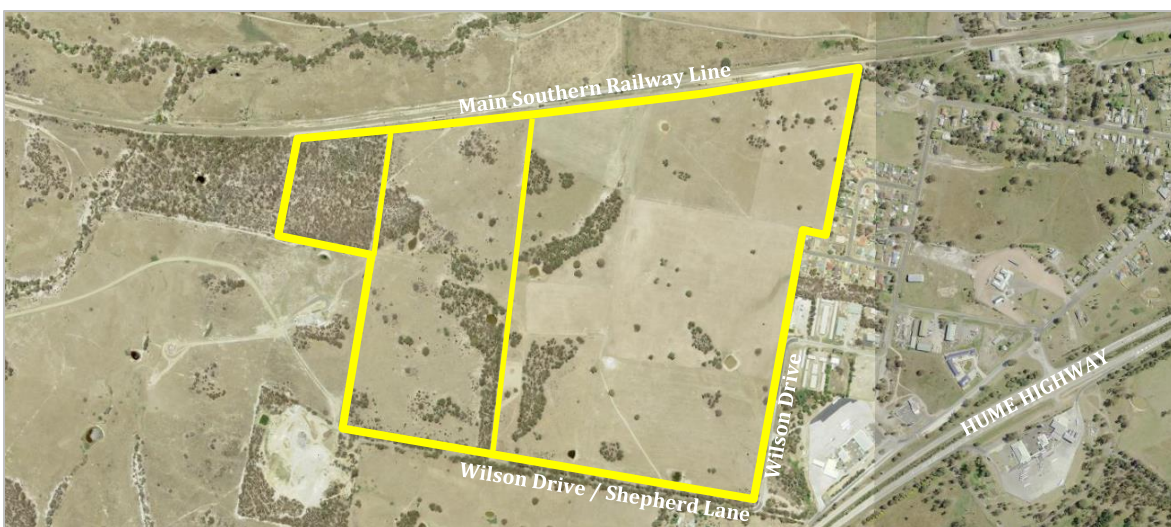
The subject site is located at 94 Wilson Drive, approximately 1km to the southwest of the Marulan Town Centre on the western side of the Hume Highway as shown in **Figure 2.1a** below.

The site is legally described as Lot 1 in DP221236, Lot 1 in DP1136538, and Lot 2 in DP1136538, and is approximately 96.4 hectares in area. It is bounded by the Main Southern Railway Line to the north, Wilson Drive (also known as Shepherd Lane) to the south, rural and industrial land to the west, and Wilson Drive, public recreation, residential and industrial land to the east.

The majority of the site was previously used for a variety of agricultural activities including cultivation of cereal crops and pasture as well as grazing for pigs, cattle, sheep, and horses.



**Figure 2.1a: Site Location**



**Figure 2.1b: Subject Site**

Source: SixMaps

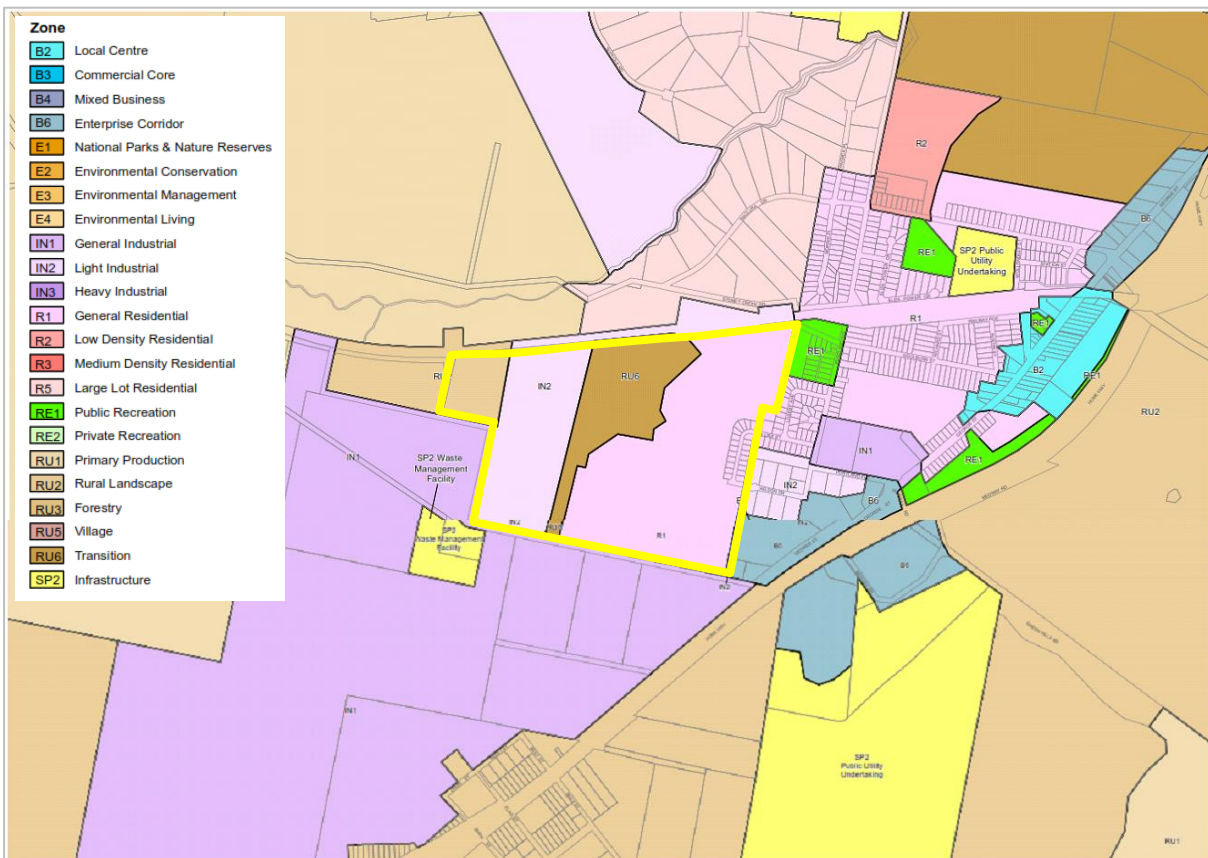
## 2.2 Planning Context

A rezoning application was submitted to the Council in 2005, and a draft master plan was subsequently prepared which proposed in the order of 560–570 residential lots on approximately 49 hectares of the site, with 23 hectares of industrial land and 19 hectares reserved for open space.

This rezoning application responded to the regional need for additional residential and industrial land. It is understood that prior to merging with the City of Goulburn, Mulwaree Shire Council prepared a ‘settlement strategy’ to identify opportunities for future housing and employment growth in the area, and it understood that the subject site was considered for rezoning in the context of that settlement strategy.

The rezoning subsequently occurred with the gazettal of the *Goulburn Mulwaree Local Environmental Plan 2009*, with the subject site (which was previously zoned Rural (urban investigation)) now zoned R1 General Residential, RU6 Transition, IN2 Light Industrial, and RU2 Rural Landscape, as shown in **Figure 2.2** below.

Importantly, the subject proposal (as discussed in the following sections) is therefore consistent with Council’s planning for Marulan.



**Figure 2.2: Land Zoning, Goulburn Mulwaree Local Environmental Plan 2009**

Source: Land Zoning Map - Sheet LZN\_003C and Sheet LZN\_003D

## 2.3 Surrounding Road Network

The Marulan road hierarchy as defined in the Goulburn Mulwaree Council DCP is as shown in **Figure 2.3** below. As shown in this diagram, the following roads are designated by Council as Collector Roads:

1. Wilson Drive (part)
2. Portland Avenue (part)
3. Medway Road
4. George Street (part)
5. Brayton Road (part)

Each of the above roads, as well as key lower order roads in proximity to the site, are described following.



**Figure 2.3: Road Hierarchy and Remnant Vegetation Map, Goulburn Mulwaree Council DCP**

### 2.3.1 Collector Roads

#### 2.3.1.1 Wilson Drive

The collector road section of Wilson Drive connects from the eastern boundary of the subject site to Portland Avenue, bending at 90 degrees to the north. It provides access to a small number of industrial developments along its length.

This section of Wilson Drive has a two-lane, two-way undivided cross-section, with a varying pavement width of approximately 6m which is adequate to accommodate two-way flow of cars. No kerbs are provided along the length of this road, which is of a rural standard and has unsealed shoulders. Kerbside parking demand is very limited, therefore the full pavement width is typically available for through traffic.

Both the existing width and the construction standard of this section of Wilson Drive appear to fall short of the 'Collector' standard of this road as designated by Council.

In accordance with the Voluntary Planning Agreement (VPA) for Stage 2 of the subdivision, the applicant is responsible for the upgrade and widening of Wilson Drive to increase the pavement width from approximately 6m (with no kerb and channel) to 9m (with kerb and channel), for the length of Wilson Drive from the eastern boundary of the subject site to Portland Avenue, including pavement works at the intersection of Portland Avenue and Wilson Drive, as shown in the plans included as **Appendix A**. These upgrade works are currently underway, and due for completion in around September 2023.

#### 2.3.1.2 Portland Avenue (east-west section)

The collector road section of Portland Avenue (the east – west section) connects from Wilson Drive at its western end to George Street at its eastern end. It provides access to a small number of industrial developments along its length, as well as the Caltex Truck Stop on the corner of George Street.

This section of Portland Avenue has a two-lane, two-way undivided cross-section, with a varying pavement width of approximately 7.5m, which is adequate to accommodate two-way flow of heavy vehicles.

No kerbs are provided along the length of this road, which is of a rural standard and has unsealed shoulders. Kerbside parking demand is very limited, therefore the full pavement width is typically available for through traffic.

Both the existing width and the construction standard of this section of Portland Avenue appear to fall short of the 'Collector' standard of this road as designated by Council.

#### 2.3.1.3 Medway Road

Medway Road is a short section of road (approximately 50m) connecting from the Hume Highway to George Street. It has a two-way, two-lane divided cross-section, with no property access along its length. Kerb and sealed shoulders are provided on Medway Road.

#### 2.3.1.4 George Street

George Street is the main road running through Marulan. It extends in a north-east to south-west direction, parallel and to the west of the Hume Highway. It commences as a northbound off-ramp from the Hume Highway to the south of the town, and terminates approximately 2km to the north of the town centre.

George Street provides direct access to the two (2) Hume Highway interchanges to the north and south of the town (i.e. Brayton Road and Medway Road respectively).

George Street generally has a two-lane, two-way undivided cross-section, and as the main road running through the town centre, provides access to residential, commercial, and industrial properties along its length, as well as community uses such as Marulan Public School.

The southern section of George Street has sealed shoulders of adequate width to accommodate kerbside parking, and the section through the town centre provides on-street angle parking.

#### 2.3.1.5 Brayton Road

The collector road section of Brayton Road extends in a generally east-west direction, connecting from the Hume Highway Northern Interchange to Stoney Creek Road / Maclura Drive where it then continues in a northerly direction. It provides access to primarily residential properties along its length.

The collector road section of Brayton Road has a two-lane, two-way undivided cross-section, with a pavement width of approximately 9.5m, which is more than adequate to accommodate two-way flow of traffic.

Kerbs are provided along the majority of the collector road section of Brayton Road, and kerbside parking is permitted clear of intersections and property access driveways in accordance with NSW road rules.

## 2.3.2 Local Roads

### 2.3.2.1 Collins Street

Collins Street connects from Portland Avenue at its eastern end travelling in a generally east-west direction, and has recently been extended to the south as part of Stage 1 of the subject subdivision.

The east-west section of Collins Street has a two-lane, two-way undivided cross-section with a pavement width of approximately 10.5m, which is adequate to accommodate two-way flow of traffic and kerbside parking. Kerb and channel is provided along both sides of this section of Collins Street, which provides access to small residential catchment.

The north-south (new) section of Collins Street has a two-lane, two-way undivided cross-section with a pavement width of 6m and verge widths of 4.5m on both sides, with an overall road reserve width of 15m (as approved under Stage 1 of the subject subdivision).

A pedestrian footpath is provided along the western side of the road, and a turning head has been constructed to accommodate vehicle turnaround at the termination of this road, prior to its extension as part of Stage 2 of the subdivision (as proposed under this application).

Collins Street will form a secondary access to the subject subdivision, as described in the following sections.

### 2.3.2.2 Portland Avenue (north-south section)

Portland Avenue (north-south section) connects from Wilson Drive at its southern end and terminates at the Main Southern Railway Line. It provides access to primarily residential properties along its length.

This section of Portland Avenue has a two-lane, two-way undivided cross-section, with a pavement width of approximately 11m, which is adequate to accommodate two-way flow of traffic and kerbside parking. Kerbs are provided along some sections of this road.

### 2.3.2.3 Goulburn Street

Goulburn Street connects from Portland Avenue at its western end to George Street at its eastern end. It provides access to primarily residential properties along its length.

Goulburn Street has a two-lane, two-way undivided cross-section, with a pavement width of approximately 11m, which is adequate to accommodate two-way flow of traffic and kerbside parking.

Kerbs are provided along the majority of Goulburn Street, and kerbside parking is permitted clear of intersections and property access driveways in accordance with NSW road rules.

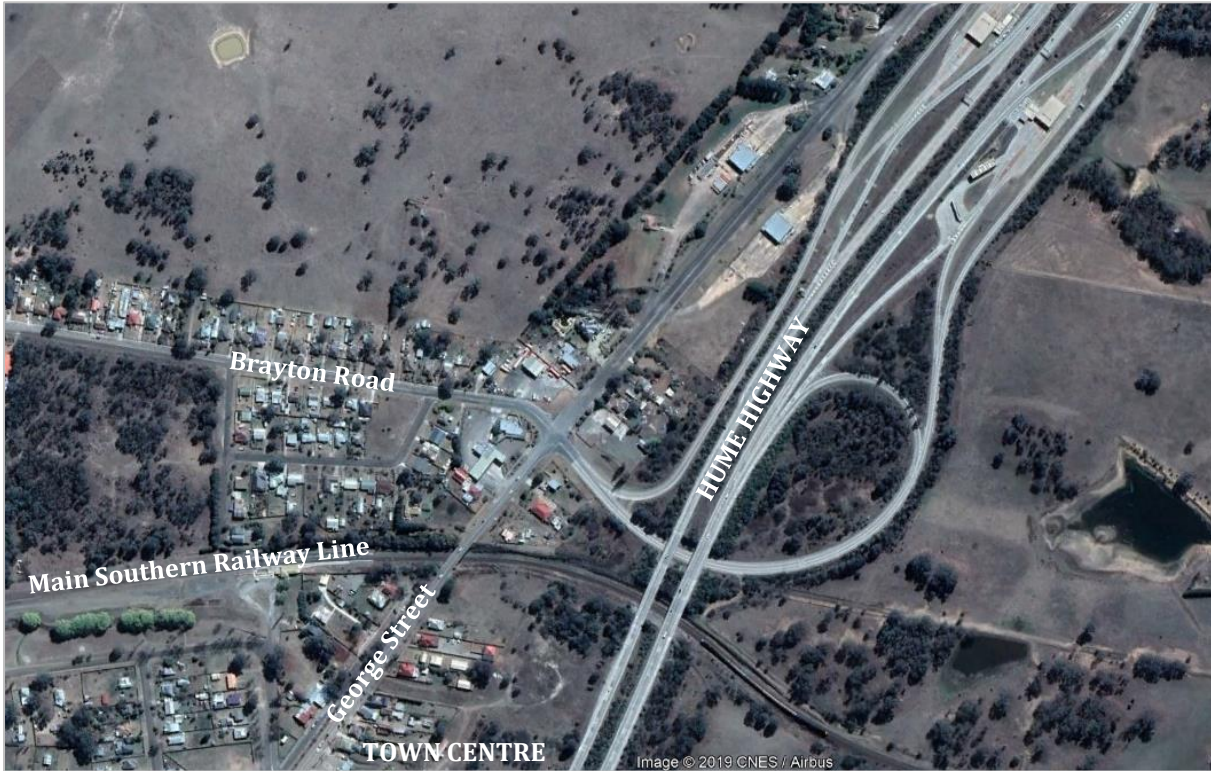
## 2.3.3 Key Intersections

### 2.3.3.1 Hume Highway Northern Interchange

The Hume Highway Northern Interchange is a high-standard, high-capacity interchange connecting to Brayton Road to the north of Marulan Town Centre, as shown in **Figure 2.3.3.1** over page.

It provides for all movements between the highway and Marulan, with the exception of the northbound exit movement (which is catered for to the south).





**Figure 2.3.3.1: Hume Highway Northern Interchange**

Source: Google Earth

**2.3.3.2 Hume Highway Southern Intersection**

The Hume Highway Southern Intersection caters for the left-in, left-out only movements between the Hume Highway and Medway Road, to the south of Marulan Town Centre. It also caters for the through movement from the service centre on the southern side of the highway, to Medway Road.

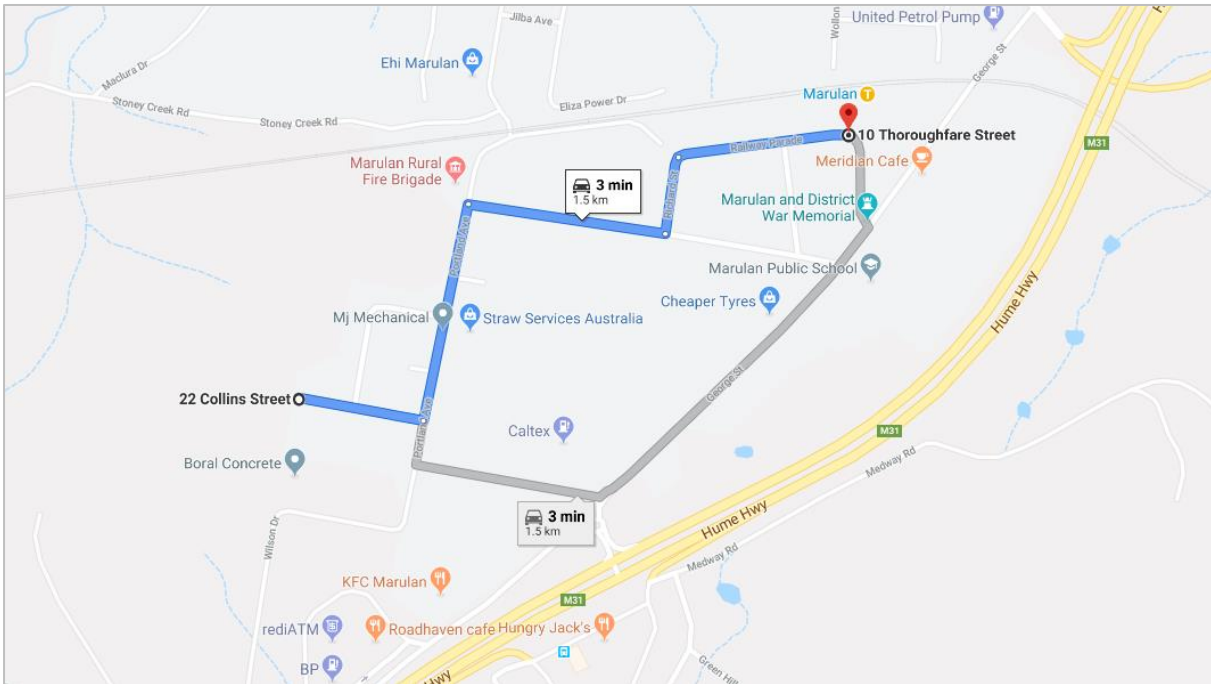


**Figure 2.3.3.2: Hume Highway Southern Intersection**

Source: Google Earth

## 2.4 Public Transport Services and Accessibility

The Main Southern Railway Line passes through Marulan, and adjoins the northern boundary of the subject site. There is a rail station at Marulan located to the north of the town centre, approximately 1.5km from the subject site as shown in **Figure 2.4a** below.



**Figure 2.4a: Travel Distance from Site to Marulan Station**

As part of the Intercity Trains Network, rail services operate on the Southern Highlands Line through Marulan connecting from Goulburn via Marulan to Moss Vale, Campbelltown and/or Sydney City (Central Station).

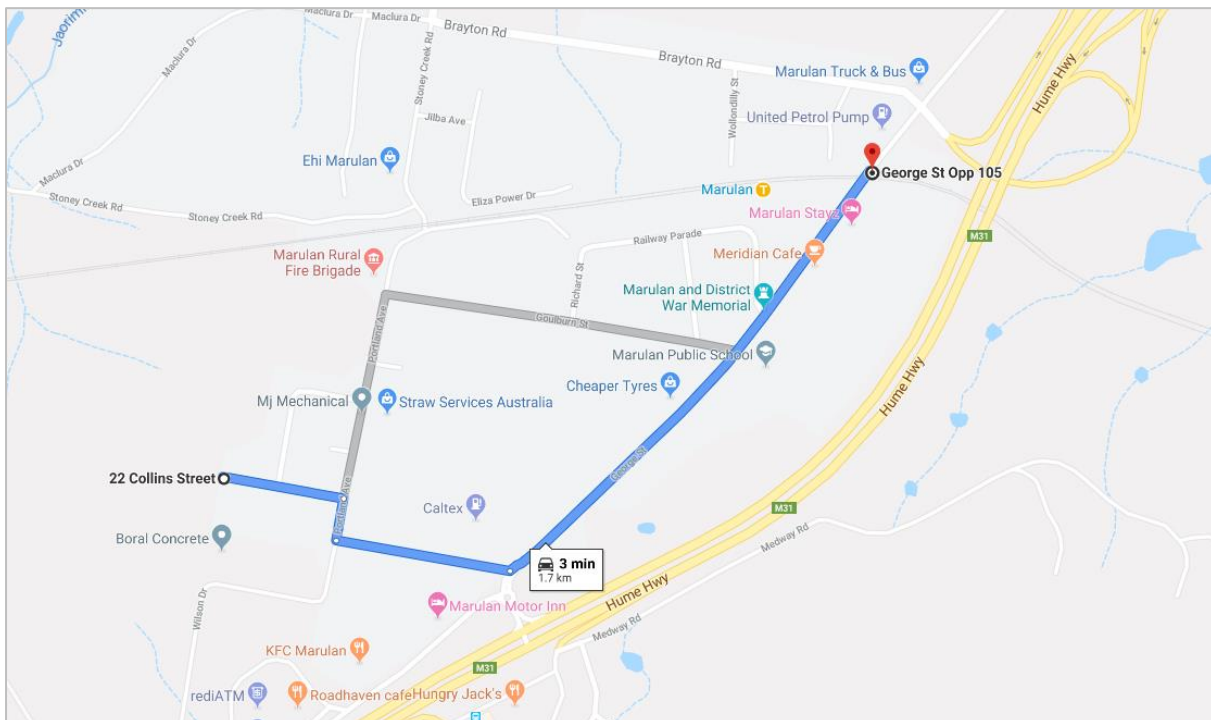
**Table 2.4** below summarises the daily train services which currently stop at Marulan Station, which are relatively limited.

**Table 2.4: Daily Train Services stopping at Marulan Station**

	Eastbound Services (Daily)	Westbound Services (Daily)
<b>Monday – Friday</b>	3 terminating at Campbelltown 1 terminating at Central 1 terminating at Moss Vale (Bus)	4 terminating at Goulburn
<b>Weekends and Public Holidays</b>	1 terminating at Central 1 terminating at Moss Vale (Bus) 1 terminating at Campbelltown (Sat only) 1 terminating at Moss Vale (Sun only)	3 terminating at Goulburn

A public bus service also operates between Goulburn and Moss Vale (SH100), stopping on George Street just north of the Main Southern Railway Line approximately 1.7km from the subject site as shown in **Figure 2.4b** below.

This bus stop is serviced by only one (1) service in each direction per day on weekdays, and one (1) service in each direction per day on weekends and public holidays.



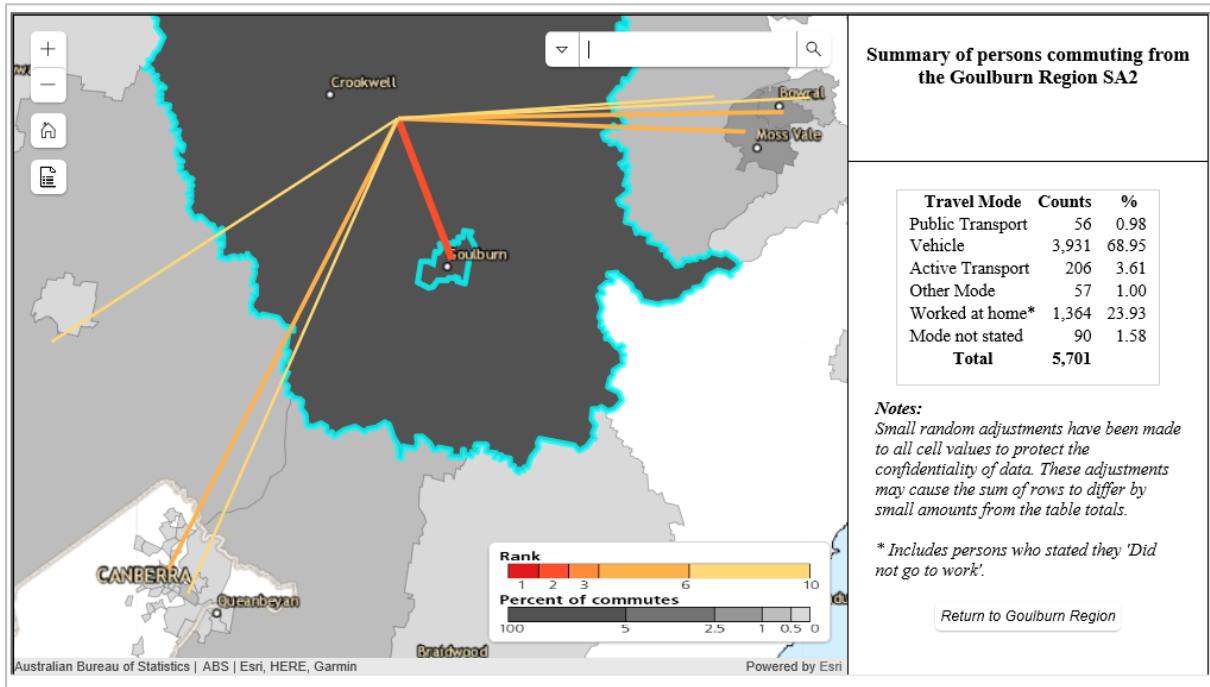
**Figure 2.4b: Travel Distance from Site to George Street Bus Stop**

Overall, the subject site, and Marulan in general, are not currently well serviced by public transport. This is reflected in the ABS Census data for the Goulburn Region (Statistical Area Level 2) as shown in **Figure 2.4c** over page, which indicates that less than 1% of persons within the region (which includes Marulan) commute using public transport.

Given the limited residential and employment density in Marulan it is understood that the limited public transport services do not currently present a significant issue for local residents and workers, however the relevant authorities may wish to investigate opportunities to extend existing bus services or increase frequency of services, prior to residential and employment density in the town (which Council's planning seeks to increase) reaching a point at which this may be warranted, or is able to be supported.

This is reflected in the Goulburn Mulwaree Council Delivery Program 2017 – 2021, which identifies the objective to 'improve public transport links to connect towns within the region and increase access to major centres' (CSP Strategy IN2).

It is also reflected in the Draft Goulburn Mulwaree Council Delivery Program 2022 – 2026, which identifies the objective to 'liaise with service providers to increase public bus coverage within the LGA' (Strategy D.1).



**Figure 2.4c: Summary of Persons Commuting from the Goulburn Region SA2**

Source: 2071.0.55.001 - Census of Population and Housing: Commuting to Work - More Stories from the Census, 2016

<https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2071.0.55.001~2016~Main%20Features~Journey%20to%20Work%20from%20Place%20of%20Usual%20Residence~55>

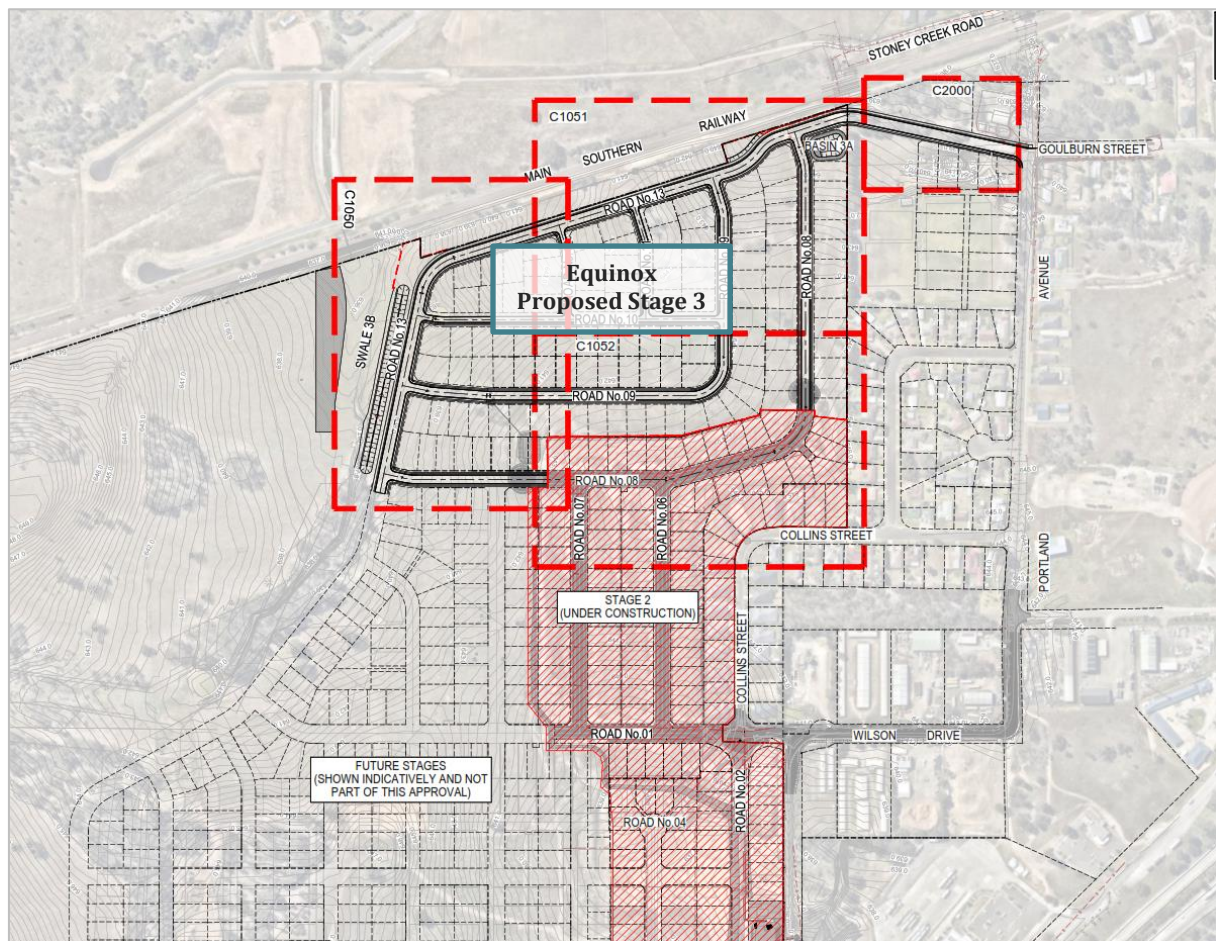
### 3.0 Proposal

As previously noted, Stages 1 and 2 of the subdivision (involving a total of 148 lots) have been approved by Council. These lots will be accessed via one of two (2) accesses onto the external road network, via the extension of Wilson Road to the west (the primary access) and the extension of Collins Street.

The development for which approval is now sought is Stage 3 of the development, to the north of approved Stage 1 and Stage 2. It will comprise 125 residential lots and 2 drainage reserve lots. Stage 3 subdivision plans are included for reference as **Appendix B**, with an extract from the general arrangement plan provided for reference as **Figure 3** below.

It is intended that the remaining residentially zoned land be subdivided in future to achieve an overall subdivision yield in the order of 525 lots, however these future stages of the subdivision would be subject to future development applications. This application relates to Stage 3 of the subdivision (125 residential lots) only.

The key traffic elements of the proposal are discussed further in the following sections.



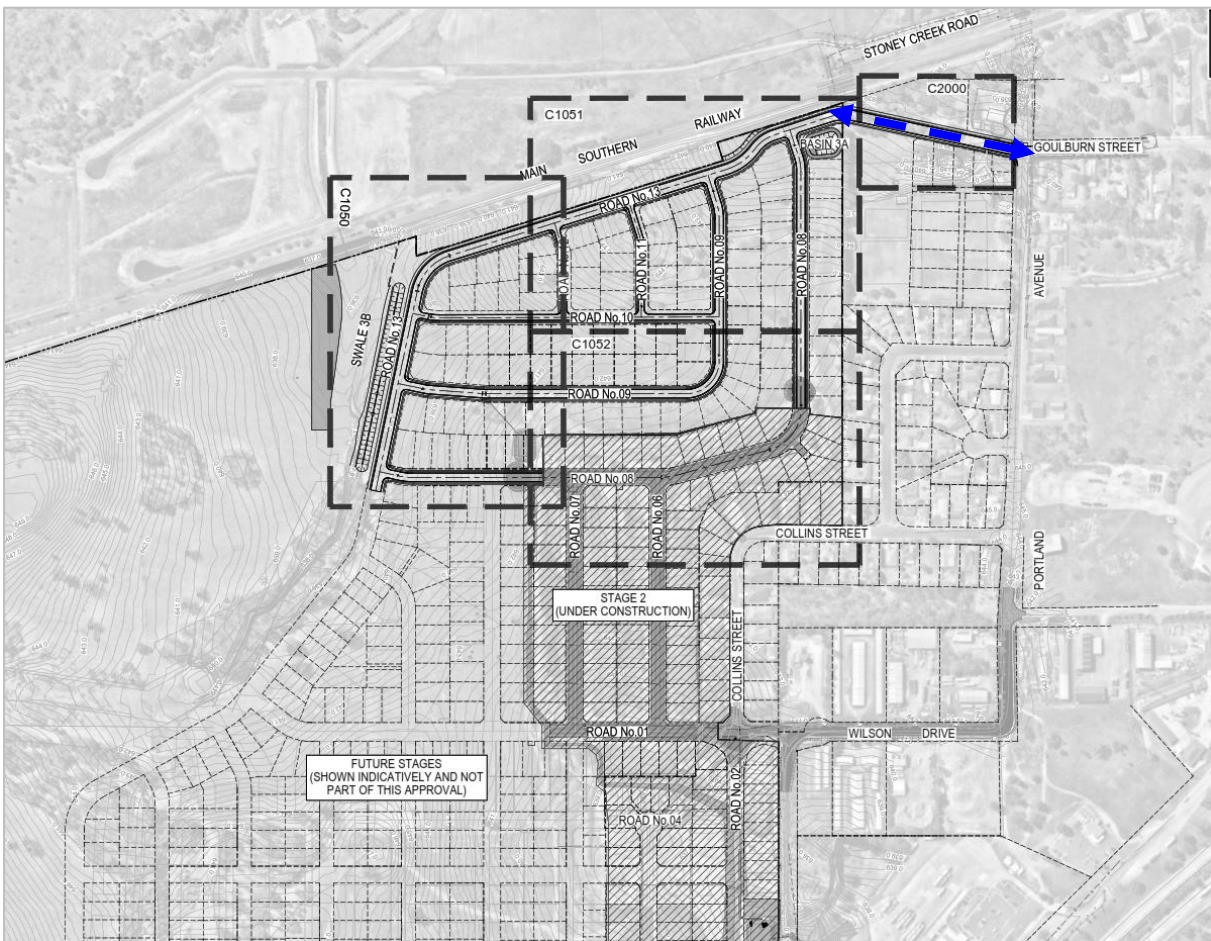
**Figure 3: Extract from Stage 3 Subdivision Plan**

### 3.1 External Access Points

As previously noted, approved Stages 1 and 2 will be accessed via one of two (2) accesses onto the external road network, via the extension of Wilson Road to the west (the primary access) and the extension of Collins Street.

Under Stage 3, it is proposed that Goulburn Street be extended to the west via the existing road corridor to the site, to provide a third access point to the subdivision. This additional (northern) access point is identified in **Figure 3.1** below. Whilst not required from a traffic capacity perspective, this additional access point will distribute traffic volumes to/from the ultimate subdivision, minimising any impact of traffic generated by the proposed development upon the local road network.

The Goulburn Street road corridor connecting from Portland Avenue to the subject site has a width of 20m. As shown in the plans of the proposal included as **Appendix B**, the proposed extension of Goulburn Street to the north-eastern corner of the subject site within this existing 20m wide road corridor will comprise an 11m wide carriageway with kerb and channel, a 2.5m wide footpath along the northern side of the road, and a 1.2m wide footpath along the southern side of the road.



**Figure 3.1: Northern External Access Point to Subdivision (Stage 3) – Goulburn Street**

### 3.2 Internal Road Network

The Stage 3 internal road network comprises roads which are 18m wide (i.e. 9m pavement width and 4.5m wide verges) and roads which are 15m wide (i.e. 6m pavement width and 4.5m wide verges), as shown in the plans included as **Appendix B**.

These proposed road widths are consistent with those for ‘Local Streets’ and ‘Access Streets’ as stipulated in Table D.1.5A of Council’s Design Specifications – Standards for Engineering Works.

No temporary turnarounds will be required for Stage 3, as there will be no terminating roads under this stage of the development.

Given Council’s Design Specifications – Standards for Engineering Works does not provide indicative traffic volumes for the various classifications of roads, reference has been made to the Australian Model Code for Residential Development (AMCORD). A summary of the relevant information from this document is provided in **Table 3.2** following.

**Table 3.2: Summary of Key Characteristics of Street Types (AMCORD)**

Street Type	AMCORD Recommended				Proposed		
	Indicative Max Traffic Volume Range (vpd)	Carriageway Width (m)	Verge Width (m)	Minimum Road Reserve Width (m)	Carriageway Width (m)	Verge Width (m)	Road Reserve Width (m)
Access Street	0 – 300	5.0	3.5	12.0	6.0	4.5	15.0
Access Street	300 – 1000	5.0 – 5.5	4.0	13.0			
Access Street	1000 – 2000	5.5 or 7.0	4.0	13.5			
Minor Collector	1000 – 3000	7.0 – 7.5	4.5	16.5	9.0	4.5	18.0

Source: Australian Model Code for Residential Development (AMCORD)

An assessment of the forecast traffic generation of the subdivision against the volume thresholds outlined in the table above has been undertaken, with the results discussed in the following section.

### 3.3 Traffic Generation and Distribution

The proposed development is a low-density residential subdivision, which is a land use typically recognised as a low traffic generator.

The RMS’ Guide to Traffic Generating Developments Updated Traffic Surveys (Technical Direction TDT 2013/04a) recommends the following trip generation rates for low-density residential dwellings in regional areas:

- Daily: 7.4 trips per dwelling
- AM Peak Hour: 0.71 trips per dwelling
- PM Peak Hour: 0.78 trips per dwelling

The application of the above trip generation rates leads to the forecast traffic volumes as outlined in **Table 3.3** below.

**Table 3.3: Forecast Traffic Generation**

	RMS Trip Generation Rate	APPROVED Stages 1 and 2 (148 lots)	PROPOSED Stage 3 (125 lots)	TOTAL Stages 1 -3 (273 lots)
<b>Daily</b>	7.4 trips per dwelling	1095 vpd	925 vpd	2020 vpd
<b>AM Peak Hour</b>	0.71 trips per dwelling	105 vph	89 vph	194 vph
<b>PM Peak Hour</b>	0.78 trips per dwelling	115 vph	98 vph	213 vph

Based upon the information in the table above, following the completion of Stage 3 of the subdivision (total 273 residential lots), it is forecast that the subdivision will generate in the order of **2,020 vehicle trips per day**. Once distributed onto the internal road network, these volumes will be well within the AMCORD thresholds for Access Streets and Minor Collectors as outlined in **Table 3.2** above.

The ultimate subdivision (which will be the subject of future development applications) is expected to comprise in the order 525 residential lots, and is therefore expected to generate in the order of **3,885 vehicle trips per day**. Once distributed onto the internal road network, it is anticipated that these volumes will be within the AMCORD thresholds for Access Streets and Minor Collectors as outlined in **Table 3.2** above.

In light of the above, the road hierarchy and road widths proposed to be delivered under Stage 3 of the development are expected to be more than adequate to cater for the traffic volumes generated by the ultimate subdivision (which will be the subject of future development applications).

Consideration has also been given to peak hour traffic impacts, consistent with standard practice. The peak hour traffic volumes in the table above are relatively low, and once distributed onto the surrounding road network, these additional traffic volumes are not expected to have any notable impact upon the performance of these roads. Notwithstanding this, in order to determine the actual increase in traffic volumes on the surrounding roads, the following distribution assumptions have been applied:

- 65% of trips generated by the subdivision will be regional trips (i.e. accessing the Hume Highway), and 35% will be local trips (i.e. not accessing the Hume Highway). This is consistent with the assumptions outlined in the Traffic Assessments prepared in support of the rezoning application;
- Of the local trips, 80% will have an origin / destination within the Marulan Town Centre area (e.g. Marulan Public School, the local supermarket), and 20% will have an origin / destination to the north-west on Brayton Road (e.g. local places of industrial employment).
- Of the regional trips, 60% will access/egress the Hume Highway using the southern intersection at Medway Road, and 40% will access/egress the Hume Highway using the northern interchange at Brayton Road;
- 60% of traffic accessing the subdivision will do so using Wilson Drive, 30% will use the new Goulburn Street extension, and 10% will use Collins Street;
- For the arrival / departure splits, consistent with standard practice:
  - At a daily level, a distribution of 50% arrivals and 50% departures has been assumed;
  - During the AM peak, a distribution of 30% arrivals and 70% departures has been assumed; and
  - During the PM peak, a distribution of 70% arrivals and 30% departures has been assumed.

A spreadsheet model has been developed using the above assumptions to forecast the additional traffic volumes expected to be generated by Stage 3 of the subdivision on the local road network, with the figures included as **Appendix C** showing these forecast traffic volumes (both Stage 3 in isolation, and Stages 1 – 3 in total). The expected impacts of these additional traffic volumes are discussed in the following section.



### 3.4 Traffic Impact of Proposal

As shown in the figures included in **Appendix C**, once distributed onto the surrounding road network, the additional traffic volumes expected to be generated by Stages 1 - 3 of the subdivision are low, and therefore not expected to have any notable impact upon the performance of the road network. Specifically:

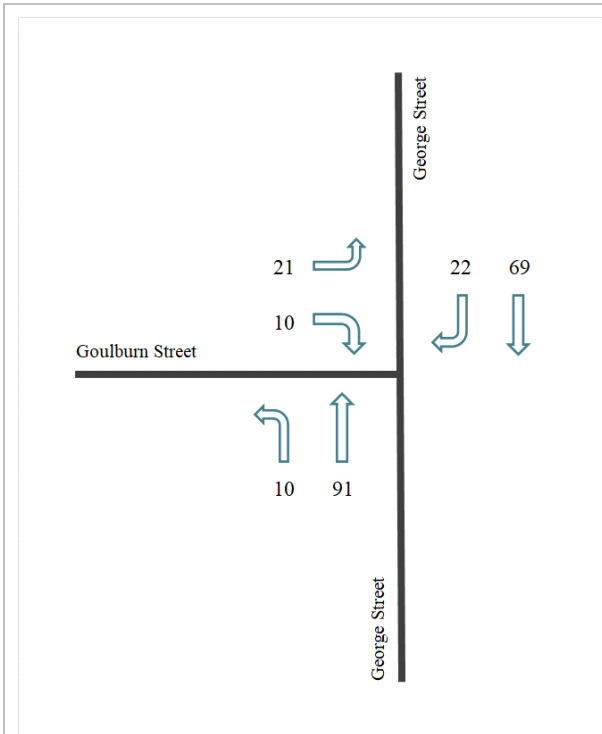
- At the Hume Highway Northern Interchange (with Brayton Road), the forecast additional traffic volumes are less than 60vph in the peak hours, or approximately one (1) additional movement per minute, on average, during the peak hours. Given this is a high-standard and high-capacity interchange, this additional traffic will have a negligible impact upon the performance of this interchange.
- At the Hume Highway Southern Intersection (with Medway Road), the forecast additional traffic volumes are 90vph or less in the peak hours. Given the movements at this intersection to/from the Hume Highway are limited to left-in and left-out only, this additional traffic will have a negligible impact upon the performance of this intersection.
- As shown in the figures included in **Appendix C**, the forecast additional traffic volumes on the local road network (including Portland Avenue, Medway Road, George Street, Goulburn Street and Brayton Road) are generally low, and would have a limited impact upon these roads or the intersections of these roads from a capacity perspective.

Importantly, it should be noted that the proposed development is consistent with the rezoning of the subject site which occurred with the gazettal of the *Goulburn Mulwaree Local Environmental Plan 2009*, and it is therefore assumed that the impact of the proposed development upon the local and State-controlled road network has been considered as part of the planning for the area.

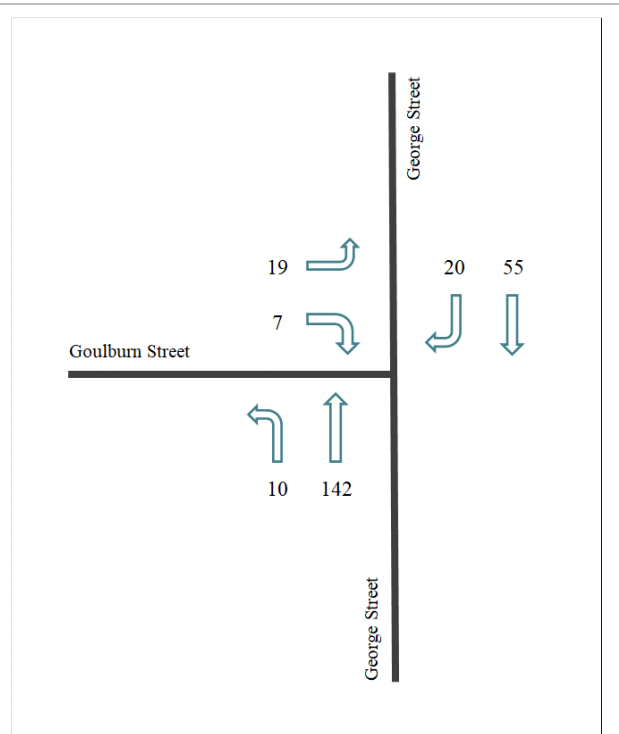
Notwithstanding the above, and given the proposal includes an additional access point onto Goulburn Street, intersection capacity analyses have been undertaken of the George Street / Goulburn Street intersection with the additional traffic forecast to be generated by the proposed development.

For the purpose of this assessment, traffic counts were undertaken at this intersection on Wednesday 25 May 2022. The detailed results of these counts are included as **Appendix D**, with the figures below showing the recorded turning movement volumes during the morning and afternoon peak periods, which occurred from 8 – 9am and from 3 – 4pm respectively.

As shown in these figures, the recorded turning movement volumes at this intersection were very low.



**Figure 3.4a: 2022 AM Peak Volumes (Recorded)**



**Figure 3.4b: 2022 PM Peak Volumes (Recorded)**

For the purpose of this assessment, it has been assumed that Stage 3 of the subdivision (in addition to approved Stages 1 and 2) will be completed and dwellings constructed on all lots by 2025. This has therefore been assessed as the year of opening, along with the 10-year design horizon (i.e. 2035).

In order to forecast future traffic volumes at the George Street / Goulburn Street intersection, it has been assumed that through traffic on George Street will grow at a rate of 3% per annum compound.

The resulting forecast future year traffic volumes are as shown in the figures below.

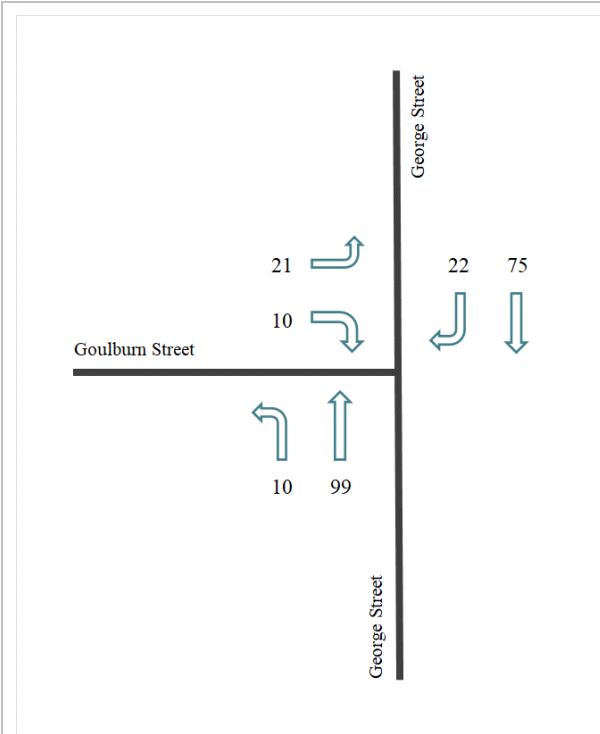


Figure 3.4c: 2025 AM Peak Volumes (Forecast)

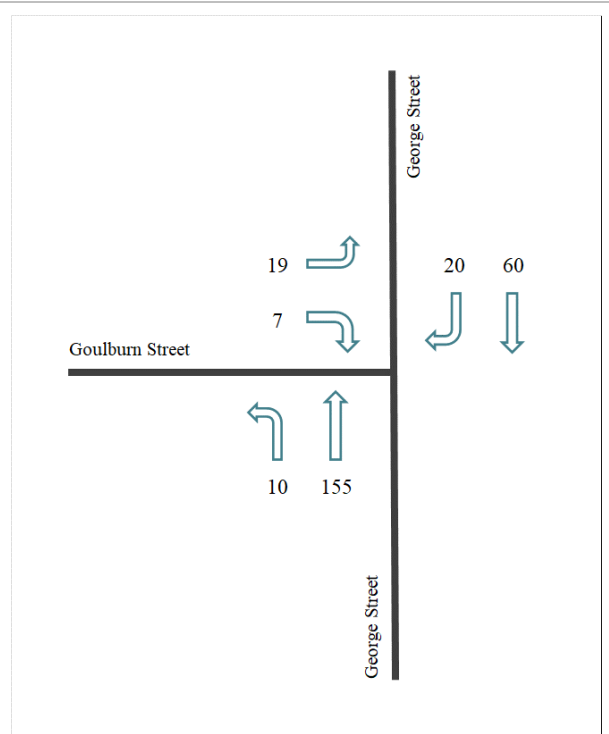


Figure 3.4d: 2025 PM Peak Volumes (Forecast)

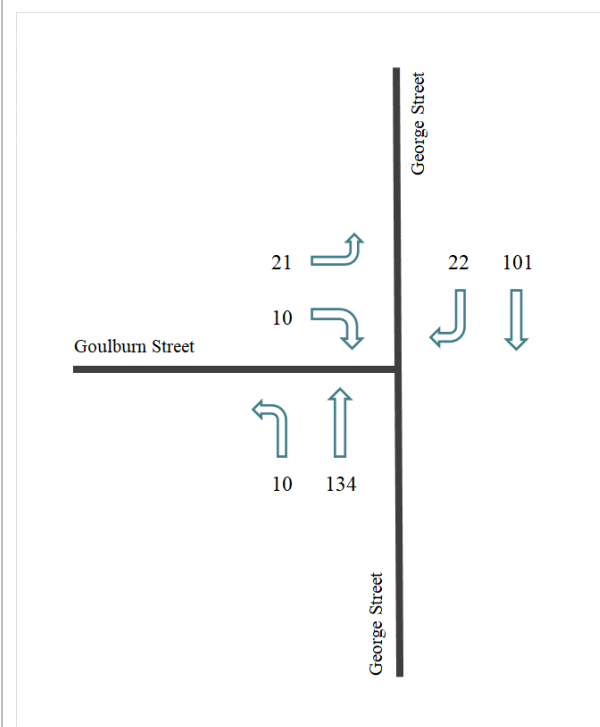


Figure 3.4e: 2035 AM Peak Volumes (Forecast)

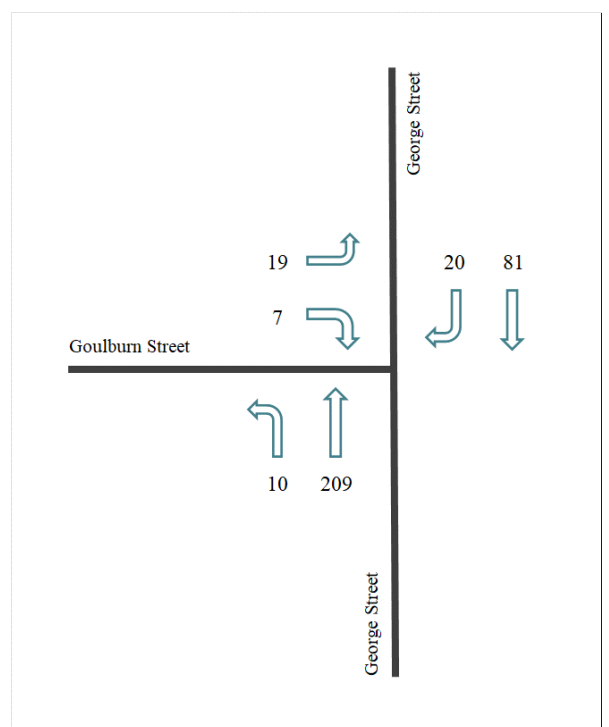
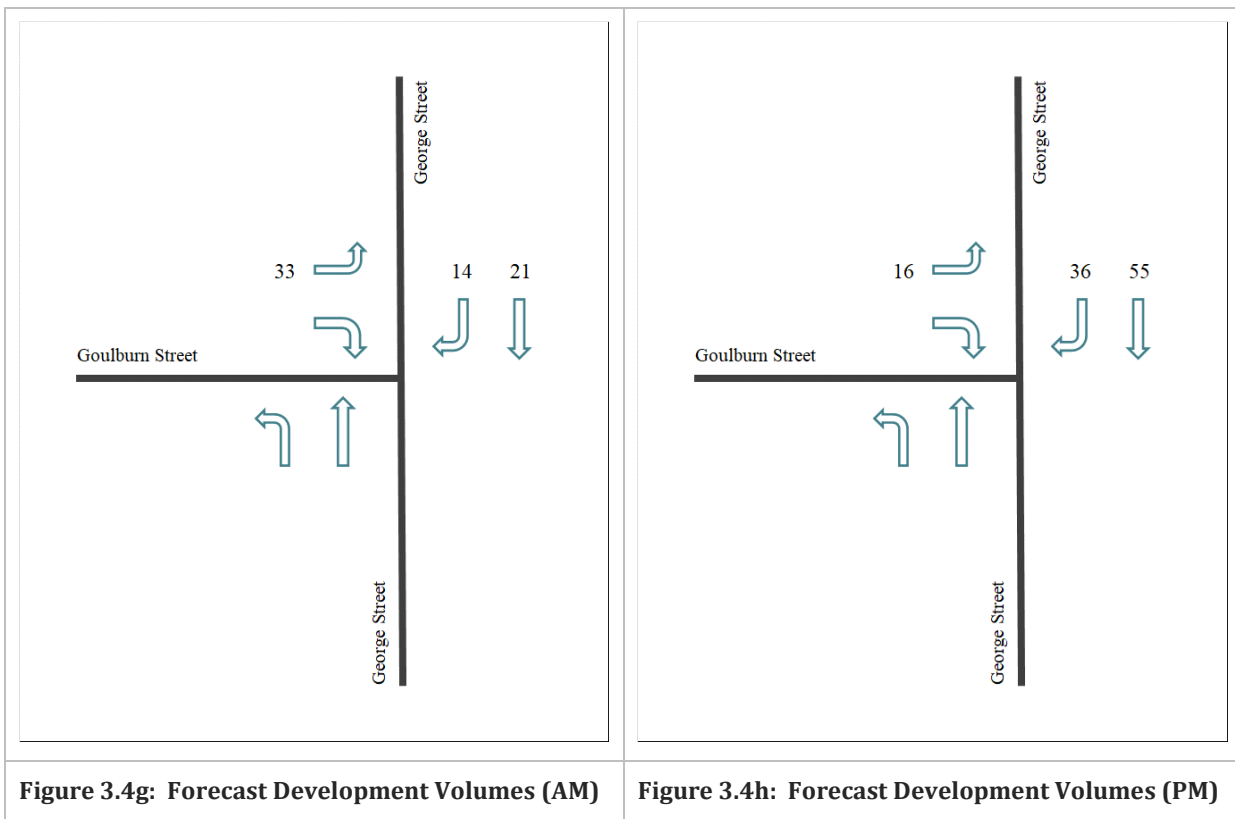


Figure 3.4f: 2035 PM Peak Volumes (Forecast)

Based upon the aforementioned assumptions, the forecast additional turning movement volumes at the George Street / Goulburn Street intersection as a result of the proposed development (Stages 1 – 3 inclusive i.e. 273 residential lots) are as shown in the figures below.



**Figure 3.4g: Forecast Development Volumes (AM)**

**Figure 3.4h: Forecast Development Volumes (PM)**

Intersection modelling has been undertaken using SIDRA, to assess the impact of the forecast additional turning movement volumes at the George Street / Goulburn Street intersection upon the operation of the intersection, from a capacity perspective.

The model produces a range of outputs, including Degree of Saturation (DOS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LOS) criteria. These performance measures can be interpreted using the following explanations:

- **Degree of Saturation (DOS):** a measure of the operational performance of intersections. For intersections controlled by give way/stop control, satisfactory intersection operation is generally indicated by a DOS of 0.8 or less.
- **Average Vehicle Delay (AVD):** a measure of the operational performance of an intersection or movement. In general, levels of acceptability of AVD depend on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).
- **Level of Service (LOS):** a comparative measure which provides an indication of the operating performance of an intersection or movement based upon the thresholds below:

**Table 3.4.2a: Level of Service Criteria (Give Way and Stop Controlled Intersections)**

Level of Service	Average Delay per Vehicle (seconds)	Description
A	Less than 14	Good operation
B	15 - 28	Acceptable delays and spare capacity
C	29 – 42	Satisfactory, but accident study required
D	43 – 56	Near capacity and accident study required
E	57 – 70	At capacity, requires other control mode
F	More than 70	Unsatisfactory, requires other control mode

The results of the intersection analyses of the George Street / Goulburn Street intersection with the traffic expected to be generated by Stages 1 – 3 of the development are summarised following:

**Table 3.2.4b: Summary of Results of Intersection Analyses – George Street / Goulburn Street Intersection**

Design Year	Peak Hour	Design Scenario	Intersection Degree of Saturation	Critical Movement Average Delay (secs)	Critical Movement Level of Service	95 <sup>th</sup> Percentile Queue (m)
2025	AM Peak Hour	Base	0.060	6.2	LOS A	1.0
		<b>With Development</b>	<b>0.078</b>	<b>6.4</b>	<b>LOS A</b>	<b>1.7</b>
	PM Peak Hour	Base	0.091	6.4	LOS A	1.0
		<b>With Development</b>	<b>0.103</b>	<b>6.9</b>	<b>LOS A</b>	<b>2.7</b>
2035	AM Peak Hour	Base	0.080	6.5	LOS A	1.1
		<b>With Development</b>	<b>0.093</b>	<b>6.7</b>	<b>LOS A</b>	<b>1.8</b>
	PM Peak Hour	Base	0.121	6.8	LOS A	1.1
		<b>With Development</b>	<b>0.121</b>	<b>7.3</b>	<b>LOS A</b>	<b>2.9</b>

The results of the analyses reveal that the George Street / Goulburn Street intersection is predicted to operate well within acceptable limits from a capacity perspective with the traffic expected to be generated by Stages 1 – 3 of the subdivision (273 residential lots), with significant spare capacity. Furthermore, the traffic generated by the proposed development will have a marginal impact upon the performance of the intersection, in terms of queuing and delays.

In summary, it is concluded that no upgrades are required to the external road network to support the proposed Stage 3 development, from a capacity perspective (with the exception of the proposed extension of Goulburn Street to the site, providing a third access point to the subdivision).

It should be noted that future stages of the development (beyond Stage 3) would be subject to future development applications, at which time Council would have the opportunity to assess the impacts of any additional development yield. It is anticipated however that the subject intersections on the local road network will have more than adequate capacity to accommodate the traffic generated by the ultimate development.

Importantly, the Stage 3 development would not preclude or inhibit the provision of any external road upgrades which may be warranted to support the ultimate development.

## 4.0 Recommendations

In light of the information contained within this report, it is considered that the proposal is satisfactory from a traffic operations perspective, and it is recommended that the development application be approved from a traffic engineering perspective.

### 4.1 Qualifications

This report has been prepared and/or approved by:

**Anne Coutts**

Director, InRoads Group

BECivil | CPEng | RPEQ | NER | FIEAust | MAITPM

## **APPENDIX A**

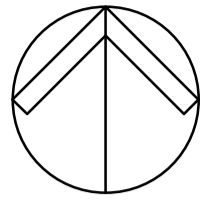
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Stage 2 Upgrade Works (Wilson Drive) – Currently Underway

# WILSON DRIVE, MARULAN

## CIVIL WORKS

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**LOCALITY PLAN**

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DRAWING SCHEDULE		
Sheet Number	Sheet Title	REV.
C-00-0001	COVER SHEET LOCALITY PLAN AND INDEX SHEET	C
C-00-0101	GENERAL NOTES AND SPECIFICATIONS	C
C-00-0111	LEGEND	C
C-00-0201	KEY PLAN	C
C-01-0001	BULK EARTHWORKS PLAN	C
C-01-1001	CUT FILL PLAN	C
C-02-0001	SITWORKS DRAINAGE PLAN SHEET 1	C
C-02-0002	SITWORKS DRAINAGE PLAN SHEET 2	C
C-02-0003	SITWORKS DRAINAGE PLAN SHEET 3	C
C-02-2001	PAVEMENT PLAN	C
C-02-6001	SITWORKS DETAILS	C
C-03-5001	STORMWATER LONGITUDINAL SECTIONS SHEET 1	B
C-03-5002	STORMWATER LONGITUDINAL SECTIONS SHEET 2	B
C-03-6001	STORMWATER DRAINAGE DETAILS SHEET 1	C
C-03-6002	STORMWATER DRAINAGE DETAILS SHEET 2	C
C-03-6003	STORMWATER DRAINAGE DETAILS SHEET 3	B
C-04-0001	ROAD SETOUT PLAN	C
C-04-3001	WILSON DRIVE 01 & 02 LONGITUDINAL SECTIONS	C
C-04-4001	WILSON DRIVE (01) CROSS SECTIONS SHEET 1	C
C-04-4002	WILSON DRIVE (01) CROSS SECTIONS SHEET 2	C
C-04-4004	WILSON DRIVE (01) CROSS SECTIONS SHEET 3	C
C-04-4005	WILSON DRIVE (01) CROSS SECTIONS SHEET 4	C
C-04-4006	WILSON DRIVE (01) CROSS SECTIONS SHEET 5	C
C-04-4007	WILSON DRIVE (02) CROSS SECTIONS SHEET 6	C
C-04-1001	ROAD KERB RETURNS - SHEET 1	B
C-04-1002	ROAD KERB RETURNS - SHEET 2	B
C-05-5001	SIGNAGE AND LINEMARKING PLAN	B
C-06-0001	EROSION AND SEDIMENT CONTROL PLAN SHEET 1	C
C-06-0002	EROSION AND SEDIMENT CONTROL PLAN SHEET 2	C
C-06-0003	EROSION AND SEDIMENT CONTROL PLAN SHEET 3	C
C-06-9001	EROSION AND SEDIMENT CONTROL DETAILS	C

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Title  
**COVER SHEET LOCALITY PLAN AND INDEX SHEET**

Scale:  
**AS SHOWN**

Drawn <b>E.F.</b>	Designed <b>B.K./H.D.</b>	Checked	Approved
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Project Number <b>S210044</b>	Drawing Number <b>C-00-0001</b>	Revision <b>C</b>
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### SERVICES LEGEND (TYP.)

G	GAS LINE
S	SEWER LINE
W	WATER LINE
E	ELECTRICAL LINE
FI	FIRE LINE
C	COMMUNICATION LINE
T	TELECOMS LINE
EXG	EXISTING GAS LINE
EXS	EXISTING SEWER LINE
EXW	EXISTING WATER LINE
EXE	EXISTING ELECTRICAL LINE
EXFI	EXISTING FIRE LINE
EXC	EXISTING COMMUNICATION LINE
EXT	EXISTING TELECOMS LINE
EXSW	EXISTING STORMWATER DRAINAGE LINE
X	REDUNDANT SERVICE LINE
?	UNKNOWN SERVICE LINE
X X X X X X X X	TO BE DEMOLISHED/REDUNDANT

### SITWORKS LEGEND

---	LIMIT OF WORKS BOUNDARY
---	SITE WORKS BOUNDARY
○-○-○-○-○	CHAIN WIRE FENCE
- / - / - / - / - /	SITE FENCE
RW01	RETAINING WALL AND NUMBER
-31.0	EXISTING CONTOUR
-31.0	DESIGN CONTOUR
▲	BM NAIL IN KERB R.L. (A.H.D.)
P56.20	PROPOSED SURFACE LEVEL
E56.20	EXISTING SURFACE LEVEL
FFL180.00	FINISHED FLOOR LEVEL
⊕ 01	SETOUT POINT
⊕ B1	BOLLARD FIXED (B1), REMOVABLE (B2)
1:4	BATTER SLOPE 1(VER.):4(HOR.)

### PAVEMENT JOINTING LEGEND

SCJ	SAWN CONTRACT JOINT
EJ	EXPANSION JOINT
DCJ	DOWELLED CONSTRUCTION JOINT
IJ	ISOLATION JOINT
CJD	DOWELLED CONTRACTION JOINT
ET	EDGE THICKENING
TB	TRIMMER BAR

### BULK EARTHWORKS LEGEND

BE 8.10	BULK EARTHWORKS LEVEL
█	BULK EARTHWORKS PLATFORM LEVEL
█	CUT AREA
█	FILL AREA
⊕	BOREHOLE LOCATION
◆	TESTPIT LOCATION

### SIGNAGE LEGEND

●	SIGN POST
●	STREET SIGN POST

### STORMWATER DRAINAGE LEGEND

SW	STORMWATER DRAINAGE LINE
SW	STORMWATER DRAINAGE (TEMPORARY)
SSD	SUBSOIL DRAINAGE LINE WITH CLEAR OUT
→	STORMWATER OVERLAND FLOWPATH
□	GRASS LINED SWALE DRAIN
□	GRATED PITS (VARIES IN SIZES)
□	JUNCTION PITS (VARIES IN SIZES)
□	KERB INLET PITS (VARIES IN TYPE & SIZES)
□	GRATED DRAIN (VARIES IN TYPE & SIZES)
□	HEADWALL (VARIES IN TYPE & SIZES)
OSD	ON-SITE DETENTION TANK (OSD)
□	STORMWATER DRAINAGE BOX CULVERT
□	STORMWATER DRAINAGE BASIN
□	STORMWATER QUALITY IMPROVEMENT DEVICE (SQID)

STORMWATER DRAINAGE LINE WITH:

SW  
 Ø375mm RCP2 .....(PIPE SIZE AND CLASS)  
 15.0m @ 1.0% .....(PIPE GRADE)  
 10m .....(PIPE LENGTH)  
 USIL: .....(UP STREAM INVERT LEVEL)  
 DSIL: .....(DOWN STREAM INVERT LEVEL)

Ø600  
 SW  
 FLOW DIRECTION  
 PIPE DIAMETER

A00  
 STORMWATER DRAINAGE STRUCTURE NUMBER  
 PIT NUMBER

SW DP  
 DOWNPIPE CONNECTION (Ø150uPVC U.N.O)

SW RP  
 RODDING POINT

HY-0000  
 CONTINUATION ON BUILDING HYDRAULICS ENGINEERING DRAWINGS

### DEMOLITION LEGEND

█	EXISTING BUILDING AND ASSOCIATED INFRASTRUCTURE TO BE DEMOLISHED AND REMOVED FROM SITE
█	EXISTING INFRASTRUCTURE TO BE DEMOLISHED AND REMOVED FROM SITE
█	EXISTING VEGETATION, INCLUDING ALL TREES AND SHRUBS TO BE CLEARED, GRUBBED, AND DISPOSED OF TO STOCKPILE

### ABBREVIATIONS (ROAD)

K&G	KERB AND GUTTER
K&T	KERB AND TOE
KO	KERB ONLY
IK	INTEGRAL KERB
MK	MOUNTABLE KERB
IMK	INTEGRAL MOUNTABLE KERB
RK&G	ROLL KERB AND GUTTER
RK&T	ROLL KERB AND TOE
LK	LAYBACK KERB
FK	FLUSH KERB
PK	PRECAST KERB
BDD	BRICK DISH DRAIN
BK	BRICK KERB
TK	TIMBER KERB
CES	CONCRETE EDGE STRIP
TES	TIMBER EDGE STRIP
BES	BRICK EDGE STRIP
PR	PRAM RAMP
VC	VEHICULAR CROSSING
FSL	FINISHED SURFACE LEVEL
ESL	EXISTING SURFACE LEVEL
FFL	FINISHED FLOOR LEVEL

### ABBREVIATIONS (STORMWATER)

S.G.G.P	SINGLE GRATED GULLY PIT
E.K.I	EXTENDED KERB INLET
G.S.I.P	GRATED SURFACE INLET PIT
G.D	GRATED DRAIN
J.P	JUNCTION PIT
MH	MANHOLE
H.W	HEADWALL
RCP	REINFORCED CONCRETE PIPE
RRJ	RUBBER RING JOINT
C2, C3, C4	PIPE CLASSIFICATIONS
RCBC	REINFORCED CONCRETE BOX CULVERT
A.D.D	APRON DISH DRAIN
G.R.P	GLASS REINFORCED POLYMER
DP	DOWNPIPE
HER	HIGH END RISER
IR	INTERMEDIATE RISER
CO	CLEAROUT
DP	DOWNPIPE
FRP	FIBRE REINFORCED POLYMER
SQID	STORMWATER QUALITY IMPROVEMENT DEVICE
SP	SURCHARGE PIT

### ABBREVIATIONS (STRUCTURAL)

SCJ	SAWN CONTRACTION JOINT
EJ	EXPANSION JOINT
DCJ	DOWELLED CONTRACTION JOINT
IJ	ISOLATION JOINT
DDJ	DIAMOND DOWELLED JOINT
DDJI	DIAMOND DOWELLED JOINT INTERFACE WITH STRUCTURE
DEJ	DOWELLED EXPANSION JOINT
TJ	FOOTPATH TOOLED JOINT
ET	EDGE THICKENING

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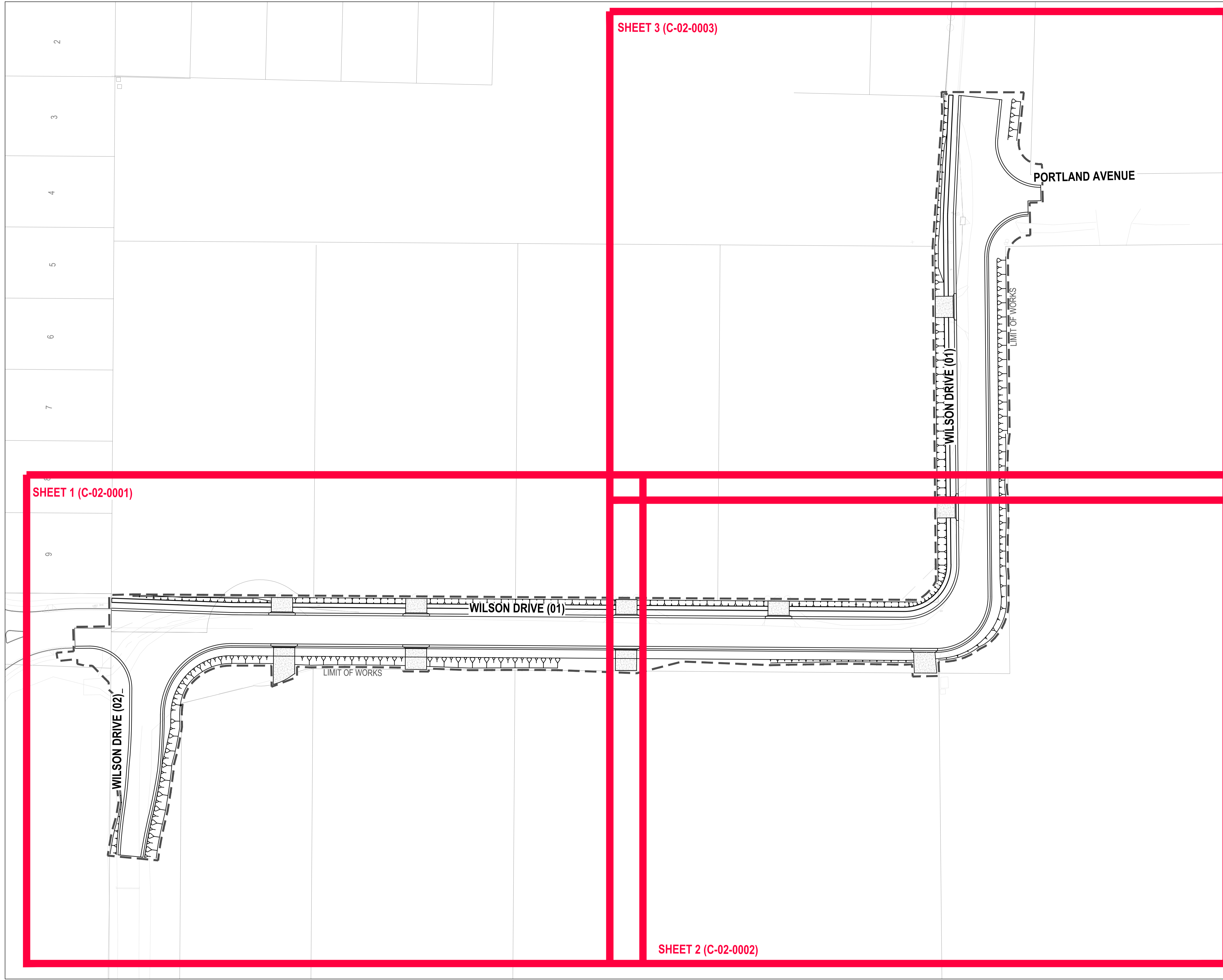
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Project Number	Drawing Number	Revision	
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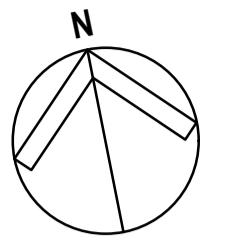


SHEET 3 (C-02-0003)

SHEET 1 (C-02-0001)

SHEET 2 (C-02-0002)

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PORTLAND AVENUE

WILSON DRIVE (01)

WILSON DRIVE (01)

WILSON DRIVE (02)

LIMIT OF WORKS

LIMIT OF WORKS

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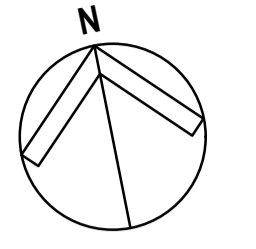
Project Number	Drawing Number	Revision
S210044	C-00-0201	C

**NOTES:**

1. BULK EARTHWORKS LEVEL NOMINATED TAKEN AT PAVEMENT SUBGRADE LEVEL.
2. ALLOWANCE OF 150mm TOPSOIL PLACEMENT TO LANDSCAPE AREAS WHEN IDENTIFYING SUBGRADE AREA FOR NON PAVEMENT AREAS.
3. BULK EARTHWORK LEVELS DO NOT TAKE INTO CONSIDERATION DETAILED EARTHWORKS FOR KERBS, SERVICES, LANDSCAPE.
4. CONTRACTOR TO BE MADE AWARE OF EXISTING INGROUND SERVICES PRIOR TO COMMENCEMENT OF EARTHWORKS VIA SERVICES SCANNING AND POT-HOLING.



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DEPTH RANGE			COLOR	
LOWER VALUE	UPPER VALUE			
-5	to	-99	m	Dark Brown
-4.5	to	-5	m	Dark Brown
-4	to	-4.5	m	Dark Brown
-3.5	to	-4	m	Dark Brown
-3	to	-3.5	m	Dark Brown
-2.5	to	-3	m	Dark Brown
-2	to	-2.5	m	Dark Brown
-1.5	to	-2	m	Dark Brown
-1	to	-1.5	m	Dark Brown
-0.5	to	-1	m	Dark Brown
0	to	-0.5	m	Dark Brown
0	to	0.5	m	Light Green
0.5	to	1	m	Light Green
1	to	1.5	m	Light Green
1.5	to	2	m	Light Green
2	to	2.5	m	Light Green
2.5	to	3	m	Light Green
3	to	3.5	m	Light Green
3.5	to	4	m	Light Green
4	to	4.5	m	Light Green
4.5	to	5	m	Light Green
5	to	999	m	Light Green

**CUT FILL VOLUMES:**  
 CUT = 1130m<sup>3</sup>  
 FILL = 590m<sup>3</sup>  
 BALANCE = -540m<sup>3</sup>

- ALLOWANCES USE IN CALCULATIONS:**
1. CUT AND FILL VALUES ARE TAKEN FROM BULK EARTHWORKS LEVELS.
  2. DOES NOT ALLOW FOR STRIPPING AND REPLACEMENT OF TOPSOIL.
  3. DOES NOT ALLOW FOR EXCAVATION OF DRAINAGE TRENCHES.
  4. DOES NOT ALLOW FOR ANY UNSUITABLE MATERIAL FOUND ANYWHERE ON SITE.

Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
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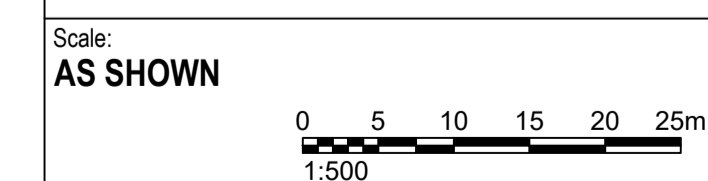


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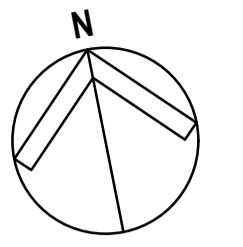
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**CUT FILL PLAN**



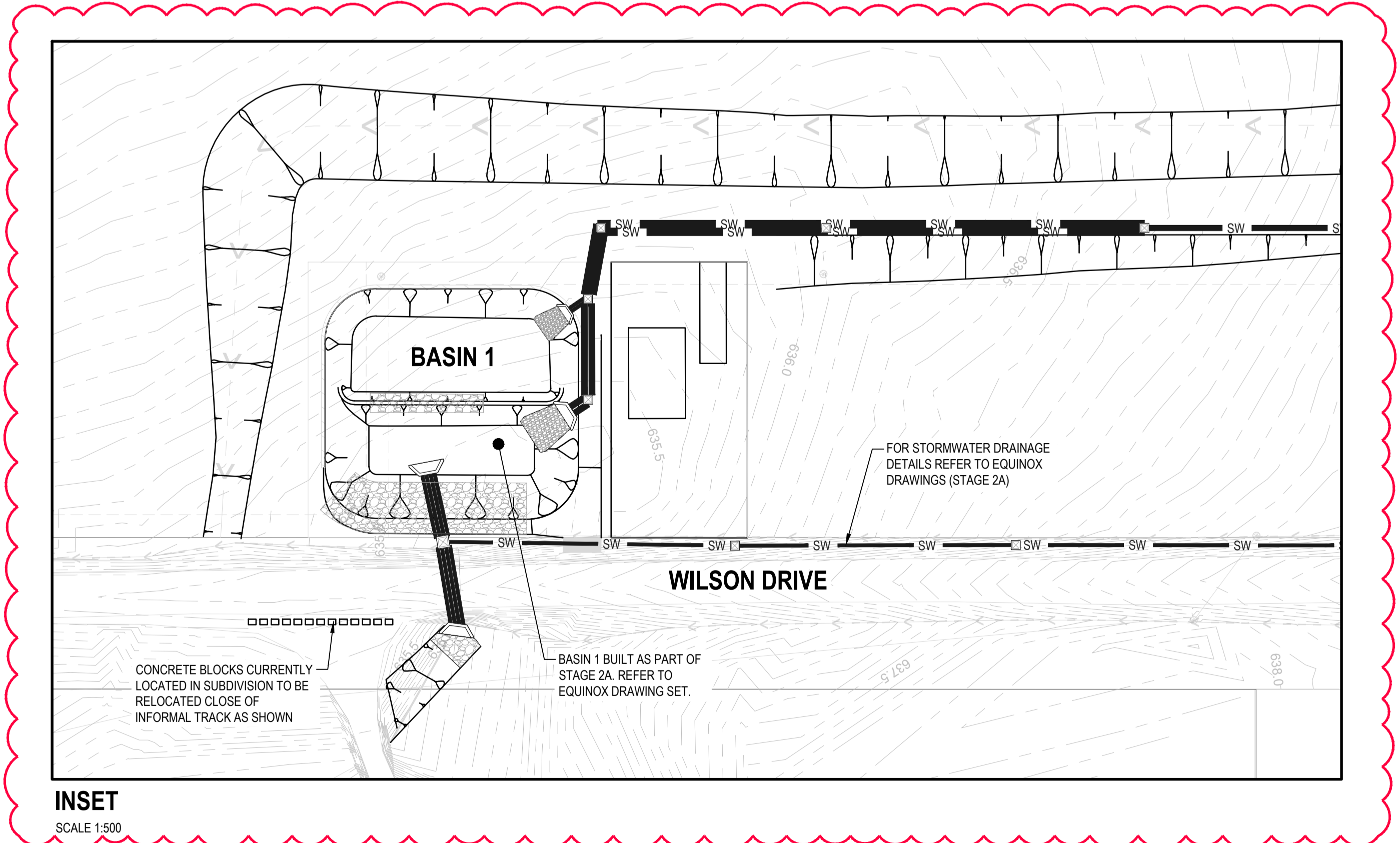
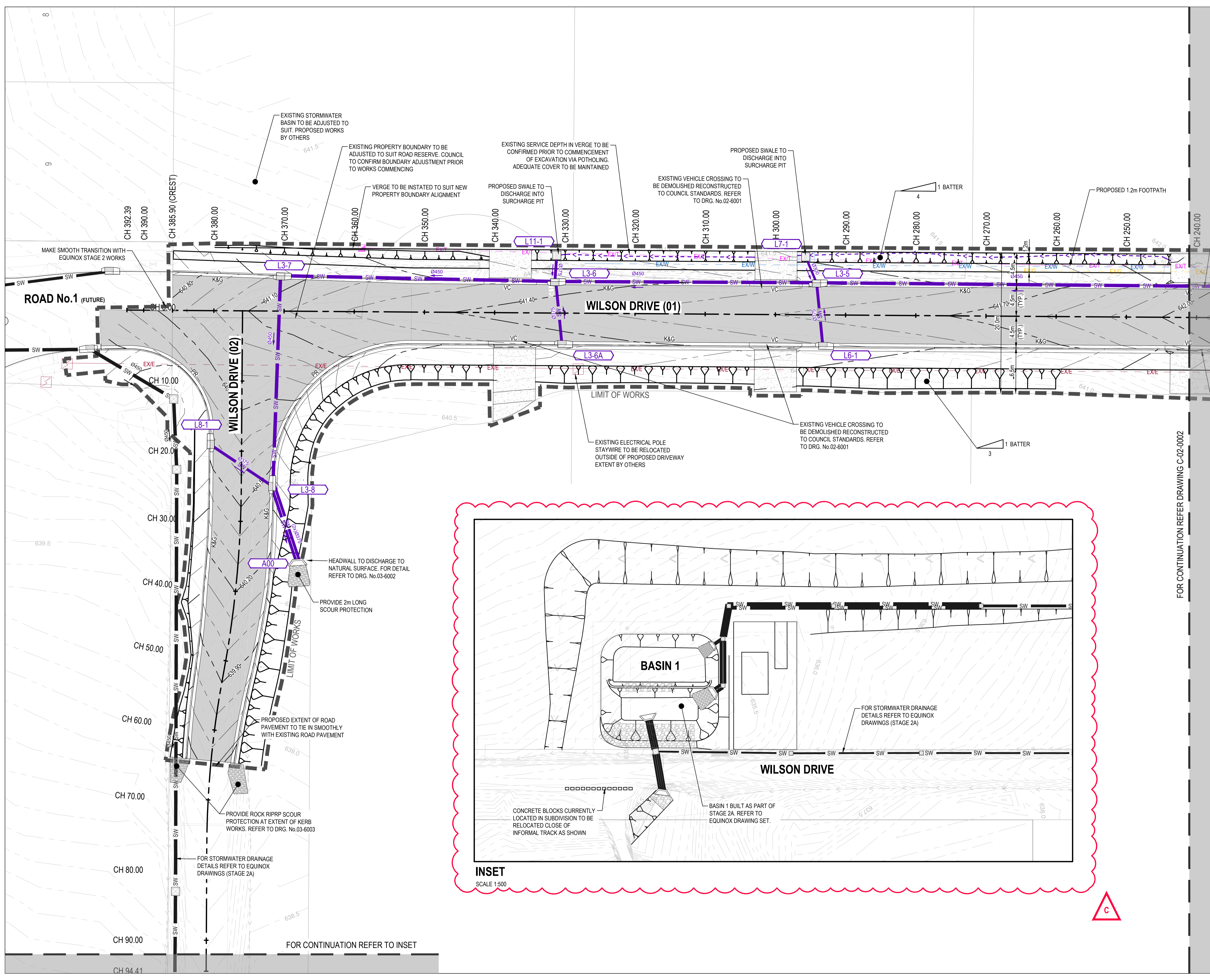
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Project Number <b>S210044</b>	Drawing Number <b>C-01-1001</b>	Revision <b>C</b>	

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File Path: K:\S2\1004 EQUINOX RESIDENTIAL ESTATE - MARULAND7\_CIVIL\BIDDRAWINGS\WILSON DRIVE\C-02-0001.DWG - SITEWORKS DRAINAGE PLAN SHEET 1.C - DATE PRINTED: 24/02/2022 5:00:43 PM



FOR CONTINUATION REFER DRAWING C-02-0002

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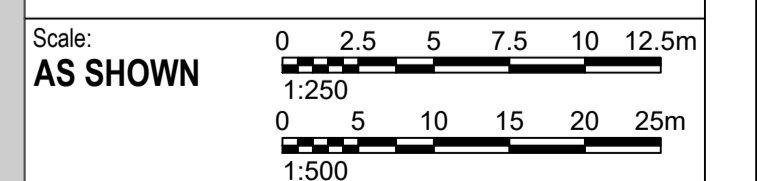
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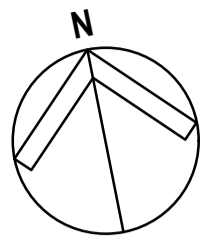
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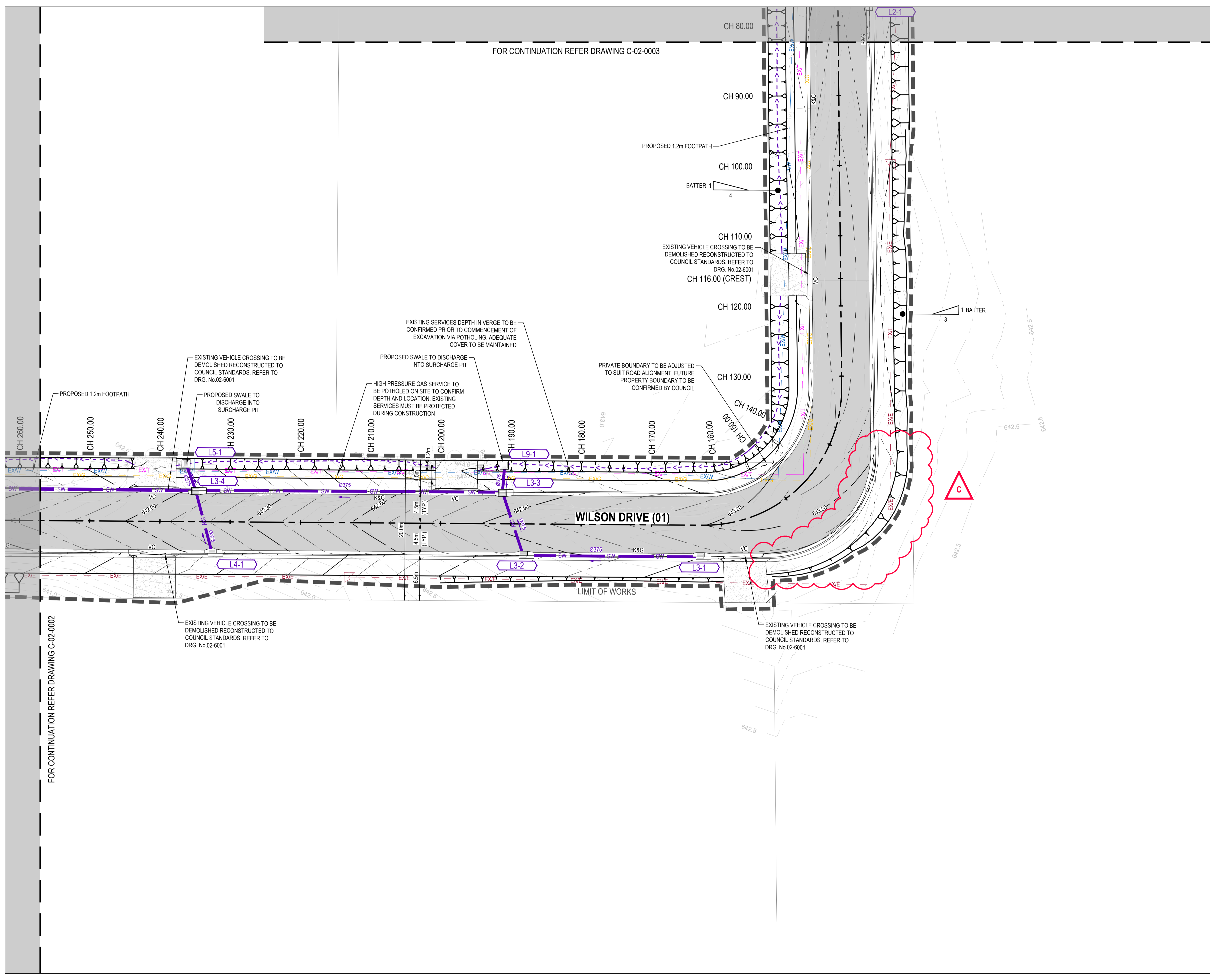
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Project Number	Drawing Number	Revision	
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FOR CONTINUATION REFER DRAWING C-02-0003



FOR CONTINUATION REFER DRAWING C-02-0002

File Path: K:\S2\10044 EQUINOX RESIDENTIAL ESTATE - MARULAND7 CIVIL\BMDRAWINGS\WILSON DRIVE\C-02-0001.DWG - SITEWORKS DRAINAGE PLAN SHEET 2-C - DATE PRINTED: 24/02/2022 5:00:49 PM

C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021
Rev	Revision Description	Date

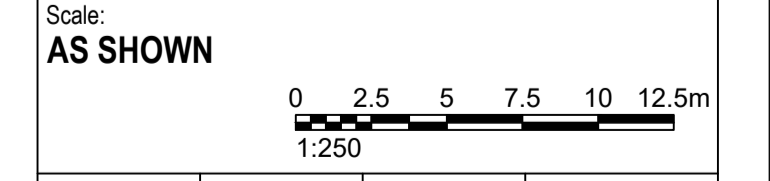
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Client  
**FDC CONSTRUCTION**

Project  
**WILSON DRIVE, MARULAN**

Title  
**SITEWORKS DRAINAGE PLAN SHEET 2**

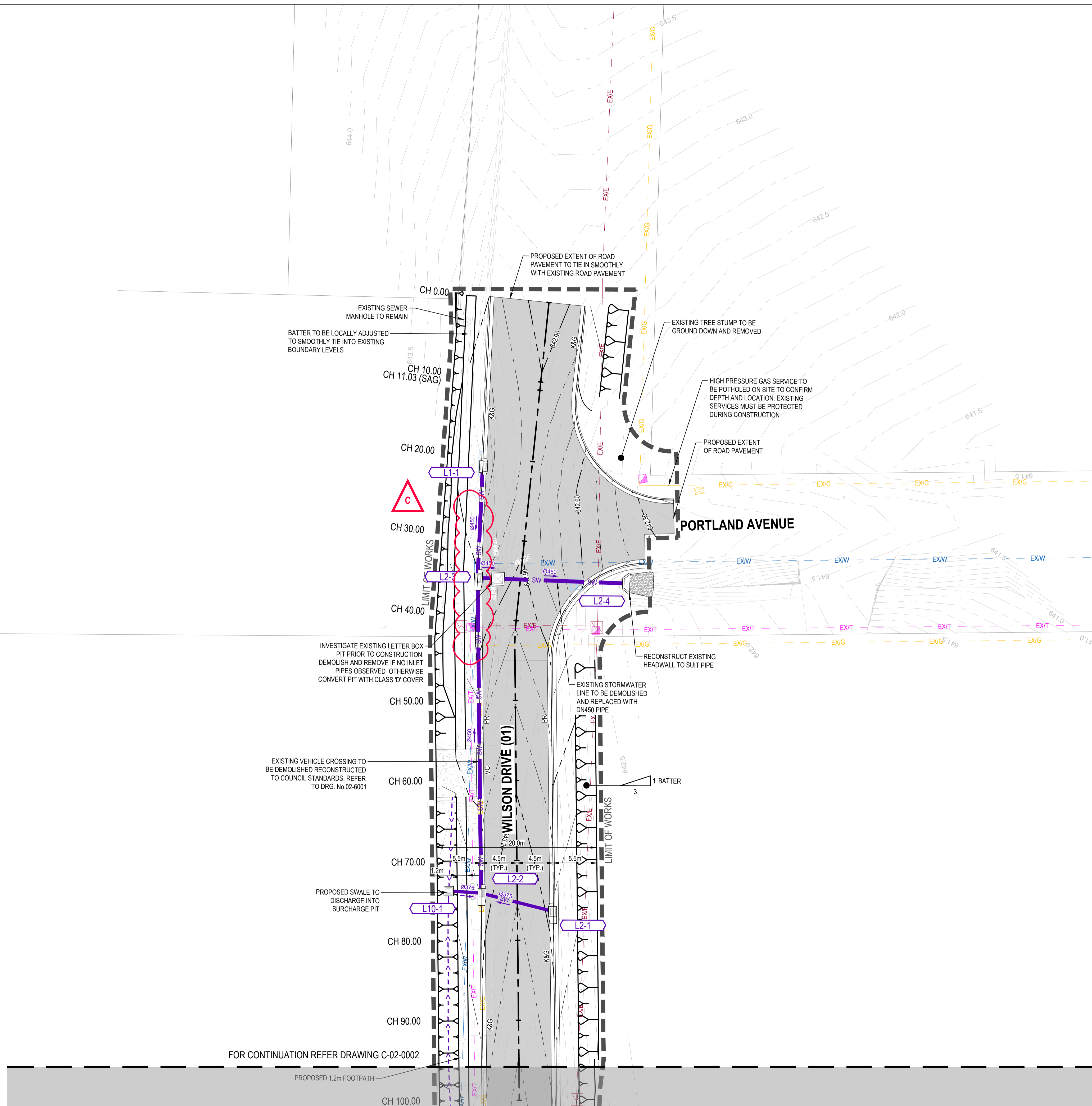


Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		
Project Number	Drawing Number	Revision	
<b>S210044</b>	<b>C-02-0002</b>	<b>C</b>	

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File Path: K:\S2\10044 EQUINOX RESIDENTIAL ESTATE - MARULAND7 - CIVIL\BMDRAWINGS\WILSON DRIVE\C-02-0001.DWG - SITEWORKS DRAINAGE PLAN SHEET 3-C - DATE PRINTED: 24/02/2022 5:00:54 PM



Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
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A	ISSUED FOR REVIEW	15.11.2021



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Client: **FDC CONSTRUCTION**

Project: **WILSON DRIVE, MARULAN**

Title: **SITEWORKS DRAINAGE PLAN SHEET 3**

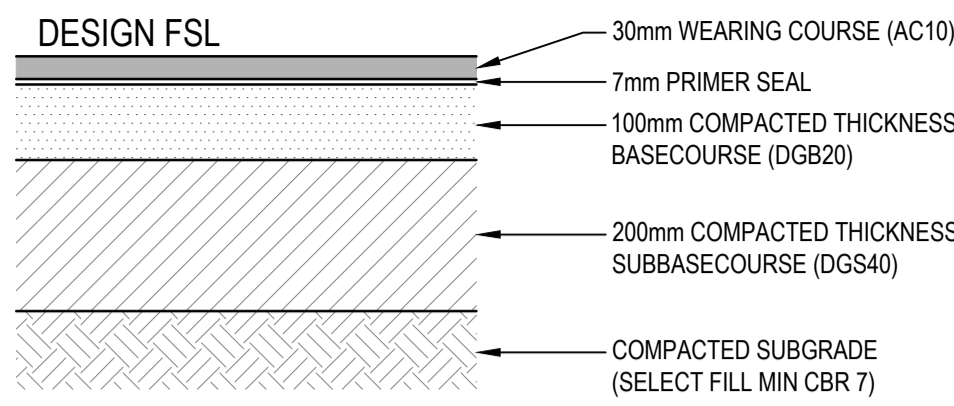
Scale: **AS SHOWN**  
 0 2.5 5 7.5 10 12.5m  
 1:250

Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		

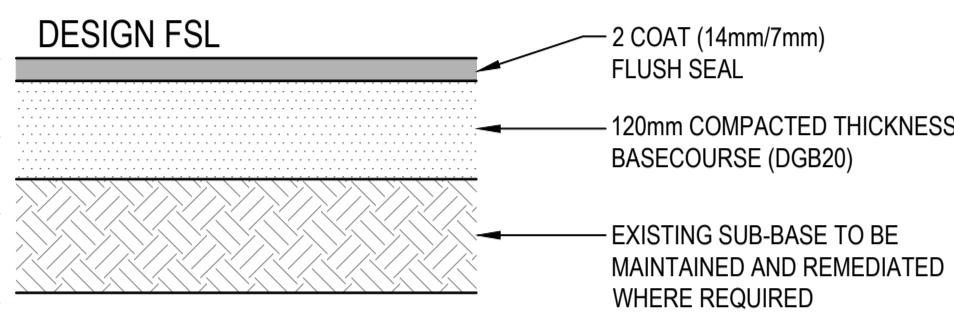
Project Number	Drawing Number	Revision
<b>S210044</b>	<b>C-02-0003</b>	<b>C</b>

FOR CONTINUATION REFER DRAWING C-02-0002

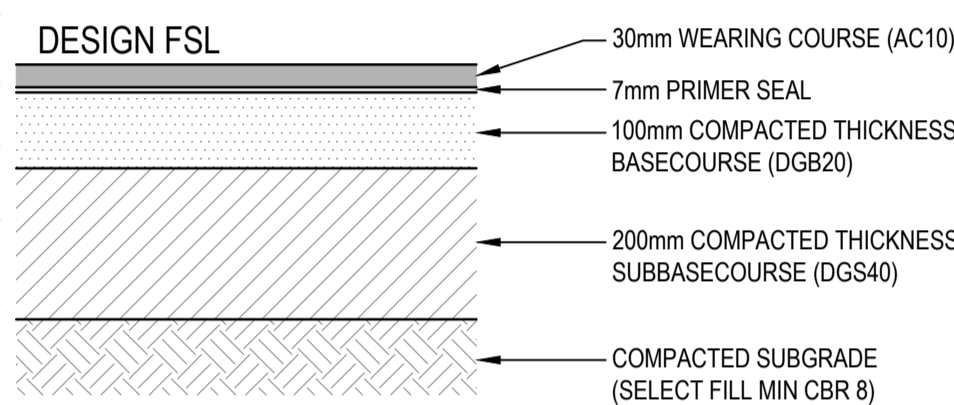




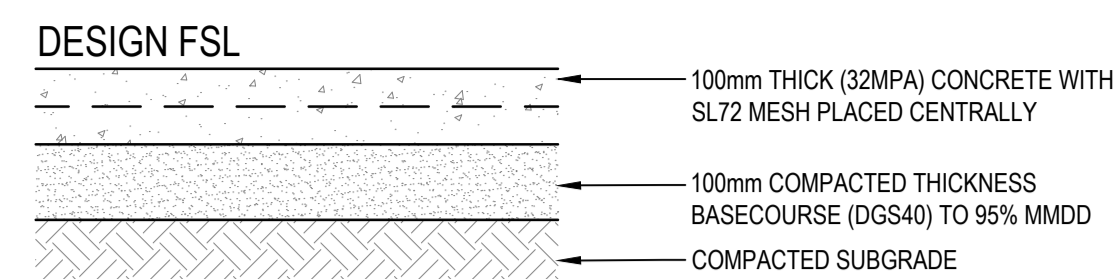
**LOCAL STREET PAVEMENT**  
(3x10<sup>3</sup> ESAs)



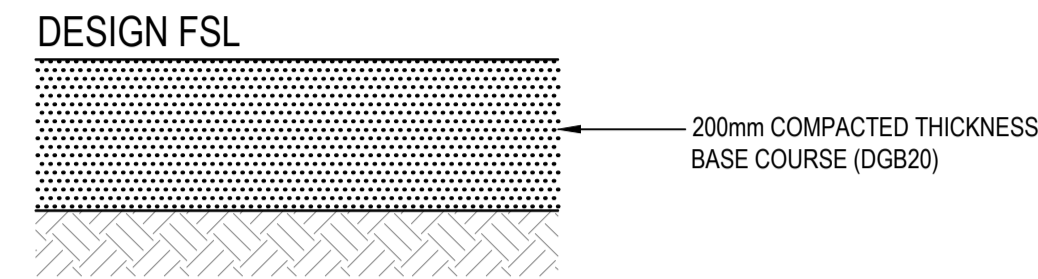
**WILSON DRIVE (RE-SHEETING PAVEMENT)**  
MILL EXISTING ASPHALT AND 100mm BASECOURSE PRIOR TO RE-SHEETING



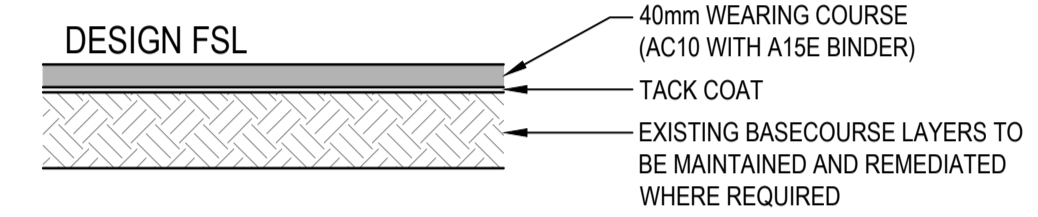
**COLLECTOR STREET PAVEMENT**  
(1x10<sup>3</sup> ESAs)



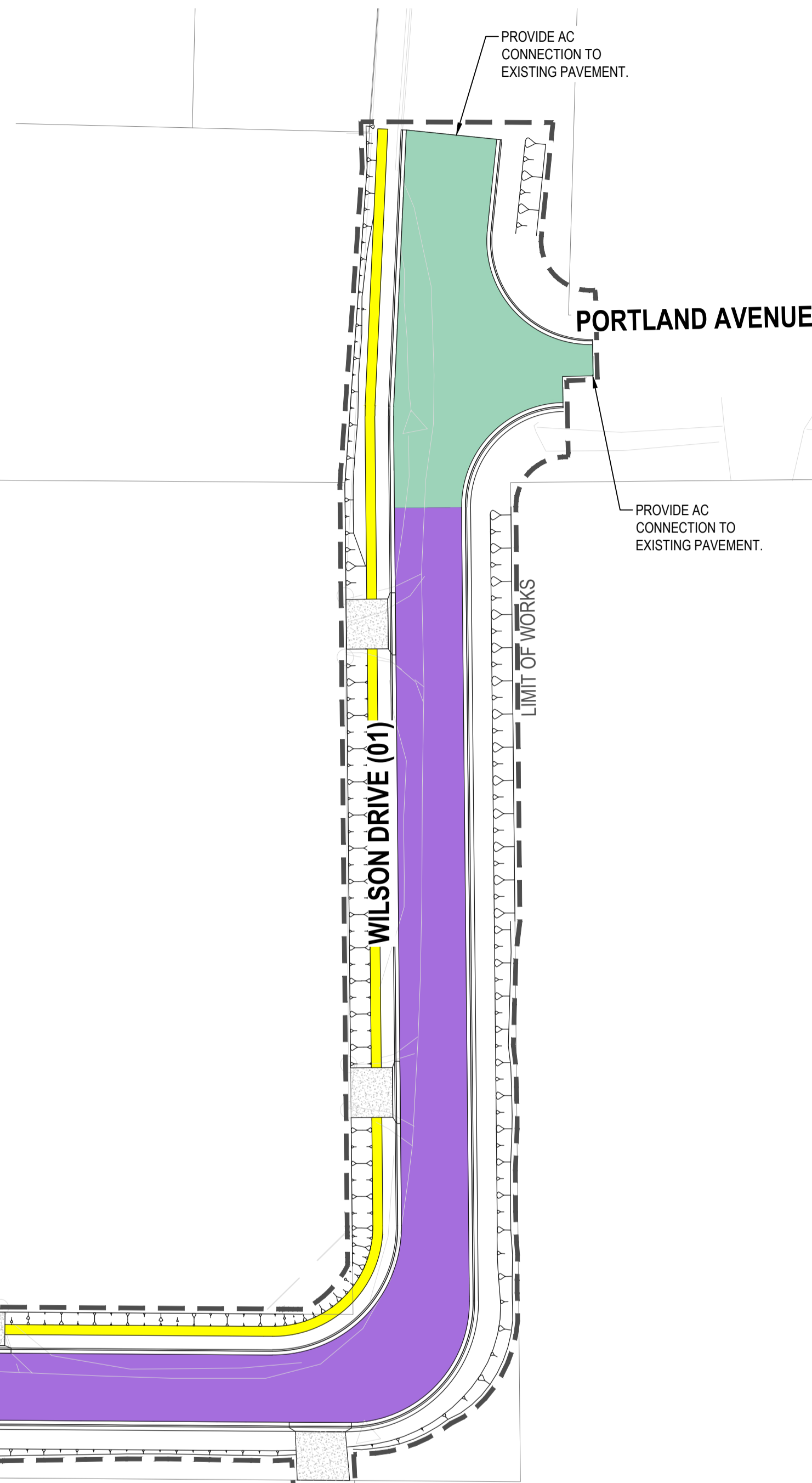
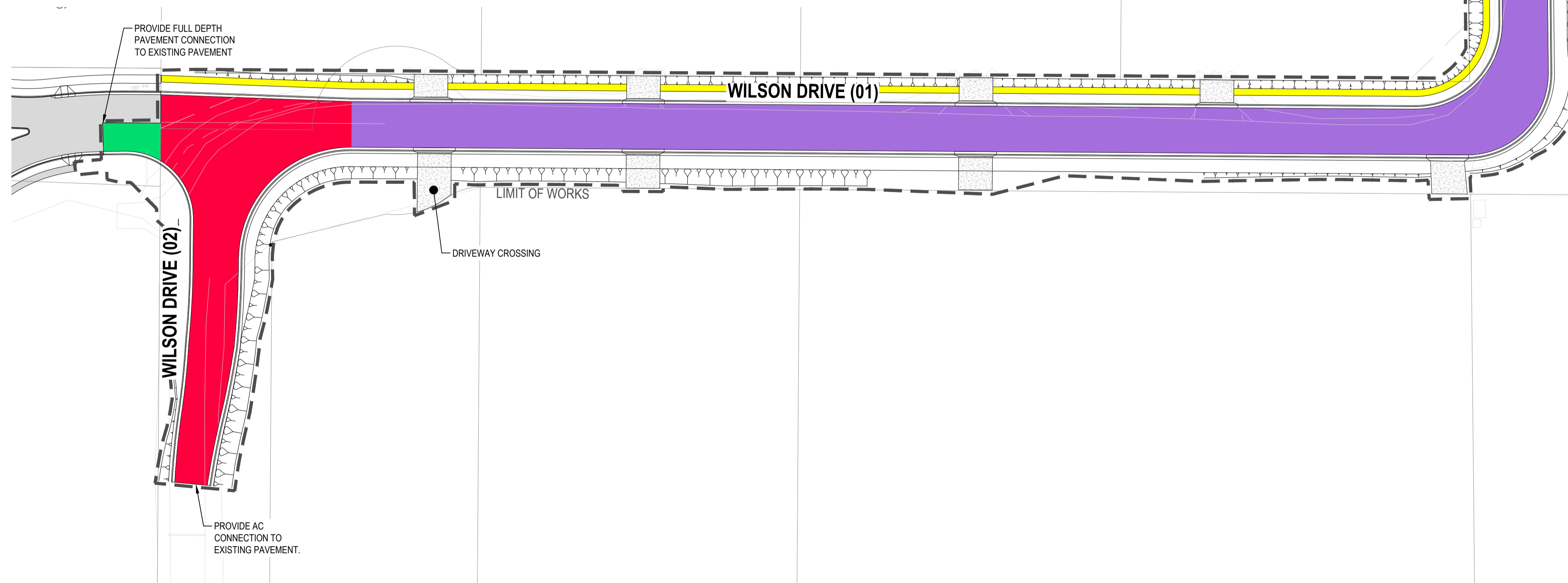
**FOOTPATH**



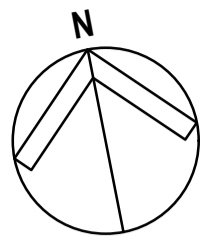
**DRIVEWAY CROSSING**



**WILSON DRIVE (INTERSECTION RE-SHEETING) MILL EXISTING ASPHALT PRIOR TO RE-SHEETING**



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Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
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Rev	Revision Description	Date
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B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021



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Client  
**FDC CONSTRUCTION**

Project  
**WILSON DRIVE, MARULAN**

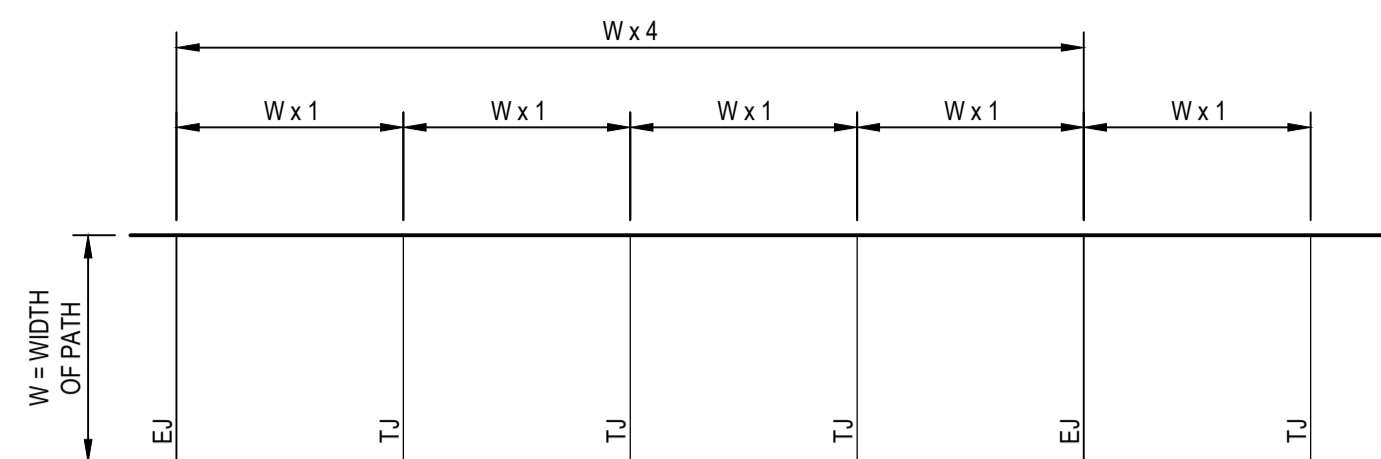
Title  
**PAVEMENT PLAN**

Scale:  
**AS SHOWN**  
0 2.5 5 7.5 10 12.5m  
1:500

Drawn <b>E.F.</b>	Designed <b>B.K./H.D.</b>	Checked	Approved
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Project Number <b>S210044</b>	Drawing Number <b>C-02-2001</b>	Revision <b>C</b>
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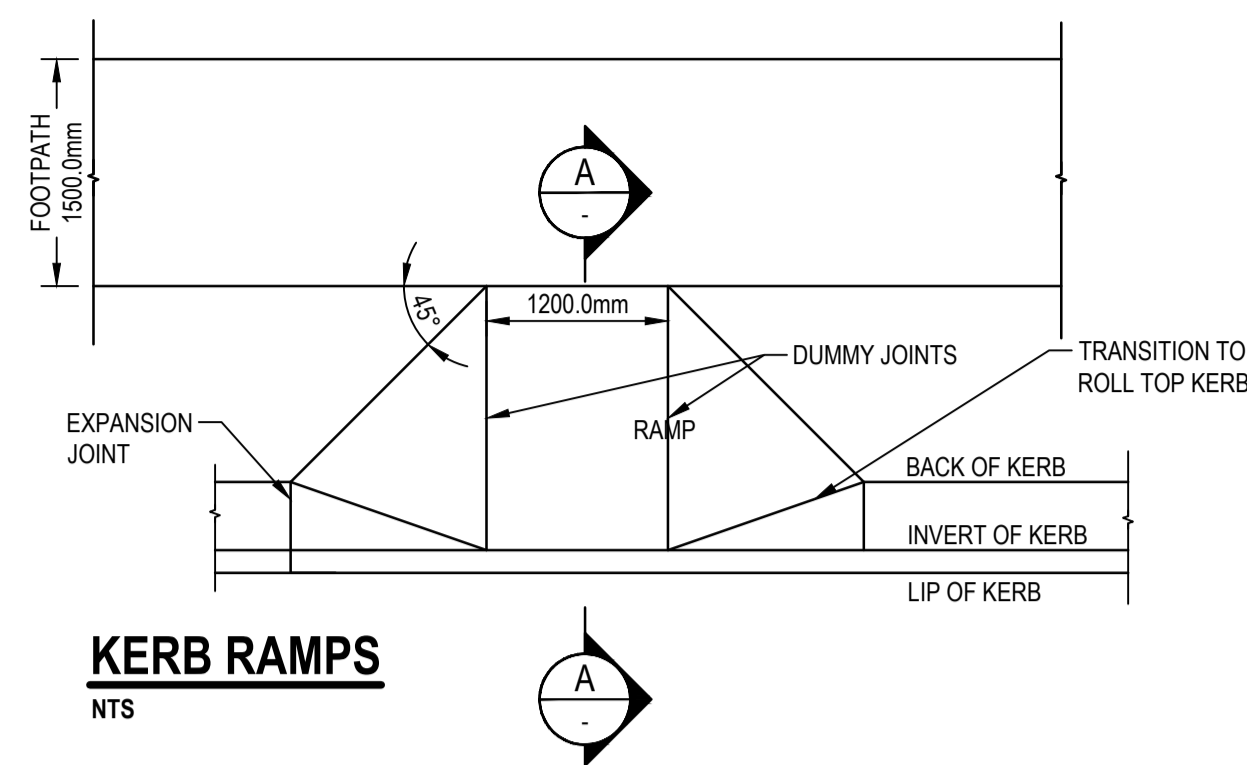


**JOINT PLAN FOR FOOTPATHS (TYP.)**

NTS

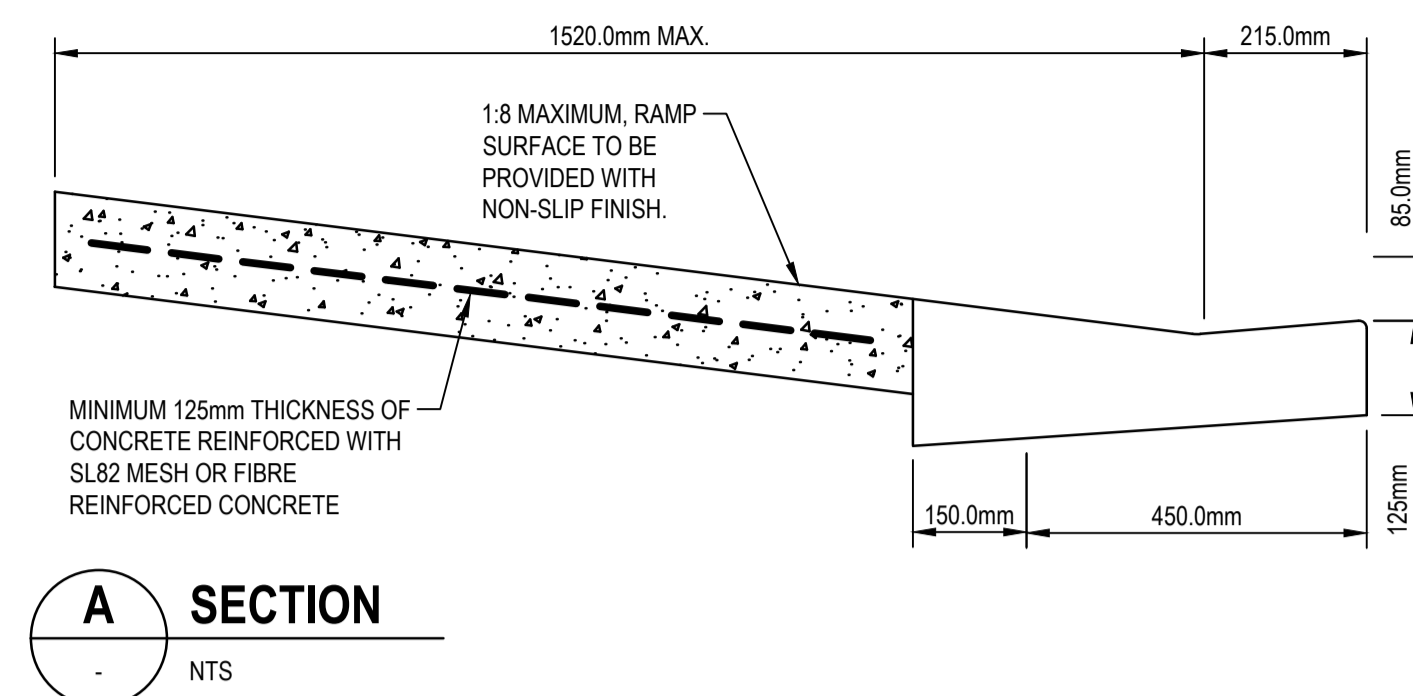
**NOTE:**

1. CONCRETE TO HAVE BROOM FINISH WITH SMOOTH TROWELLED EDGES.
2. TJ - FOOTPATH TOOLED JOINT. REFER DETAIL
3. EJ - FOOTPATH EXPANSION JOINT. REFER DETAIL



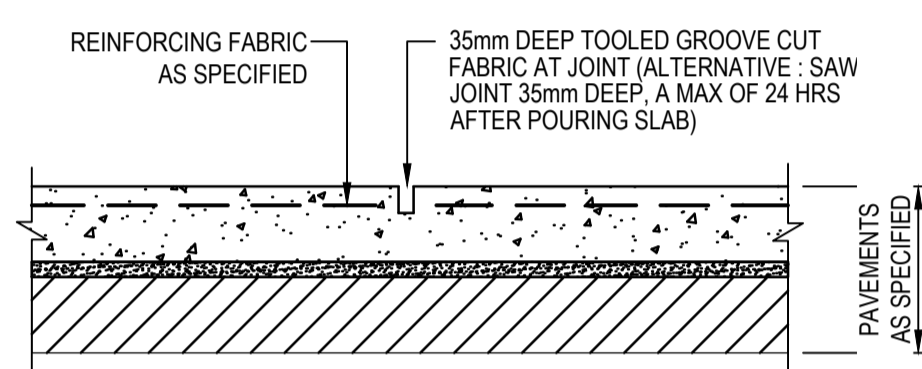
**KERB RAMPS**

NTS



**SECTION A**

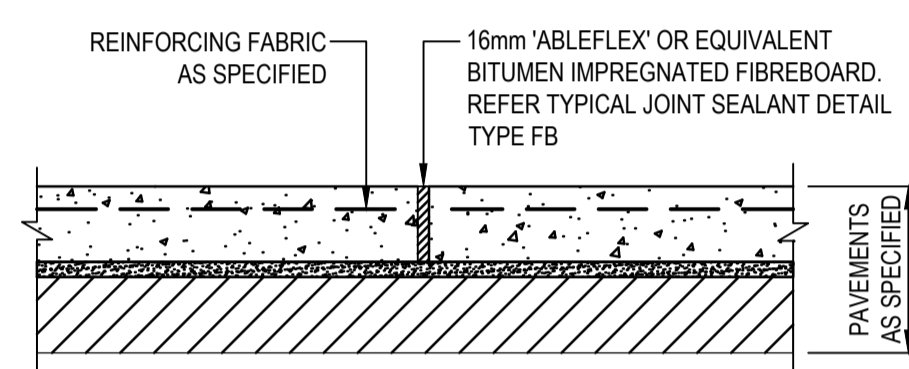
NTS



**FOOTPATH TOOLED JOINT**

SHOWN AS 'TJ' ON 'TYPICAL JOINT PLAN FOR FOOTPATHS' DETAIL

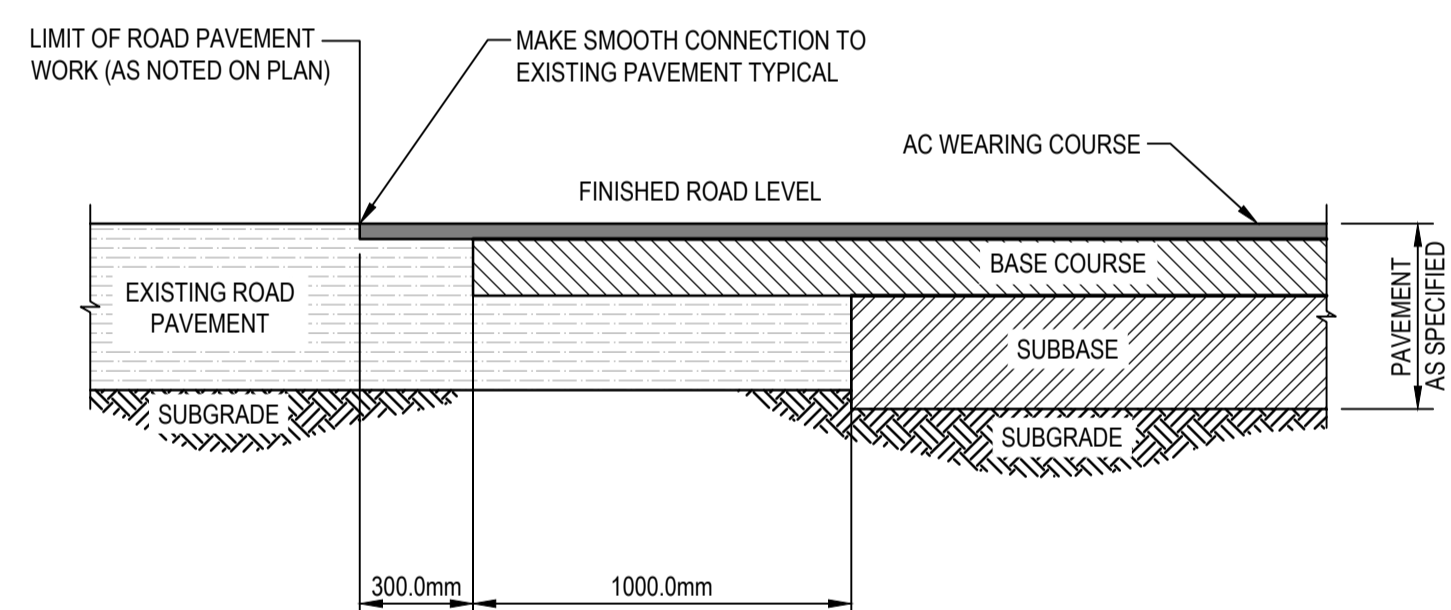
SCALE: 1:10



**FOOTPATH EXPANSION JOINT**

SHOWN AS 'EJ' ON 'TYPICAL JOINT PLAN FOR FOOTPATHS' DETAIL

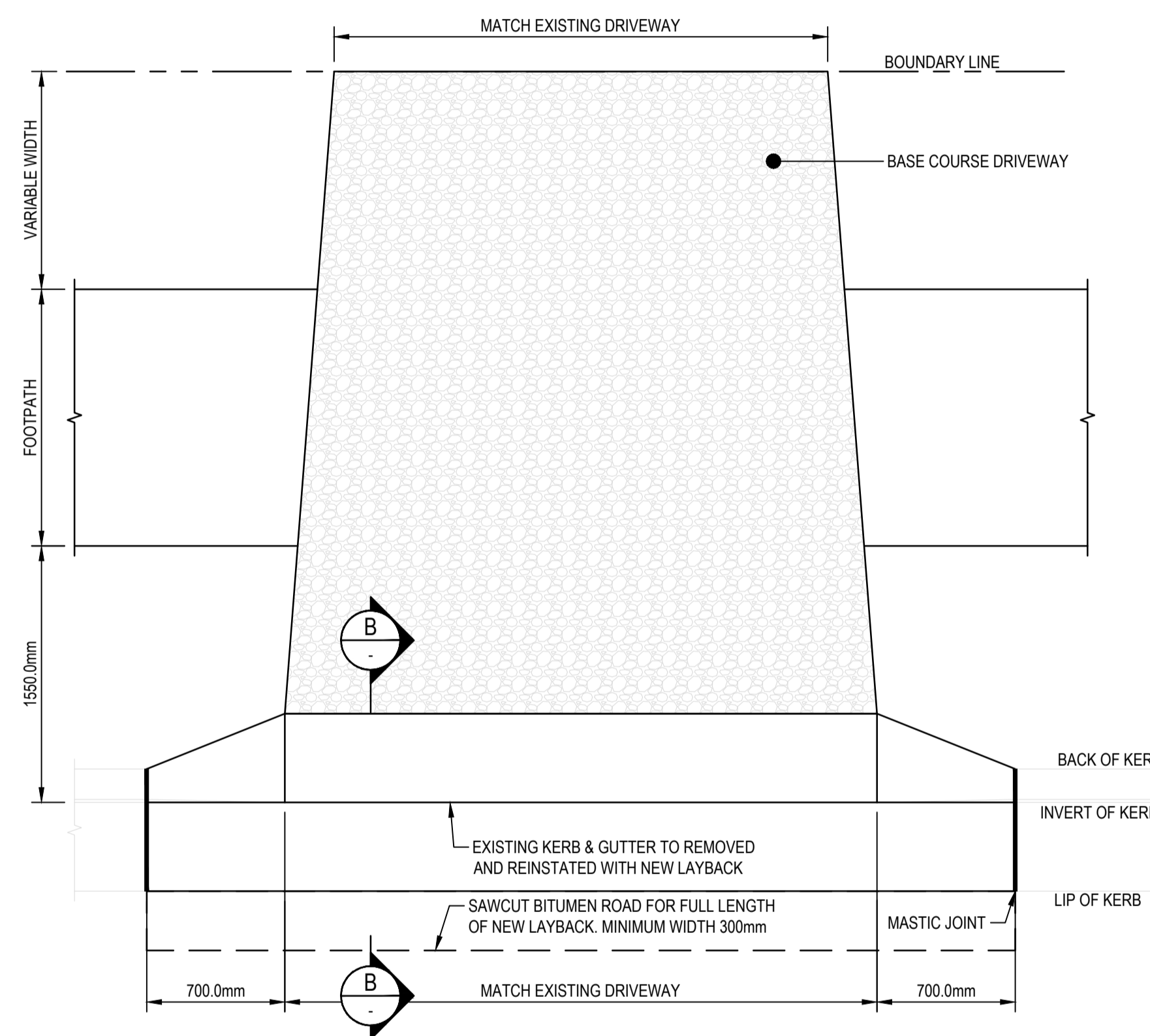
SCALE: 1:10



**TYPICAL PAVEMENT INTERFACE DETAIL**

LONGITUDINAL INTERFACE ONLY

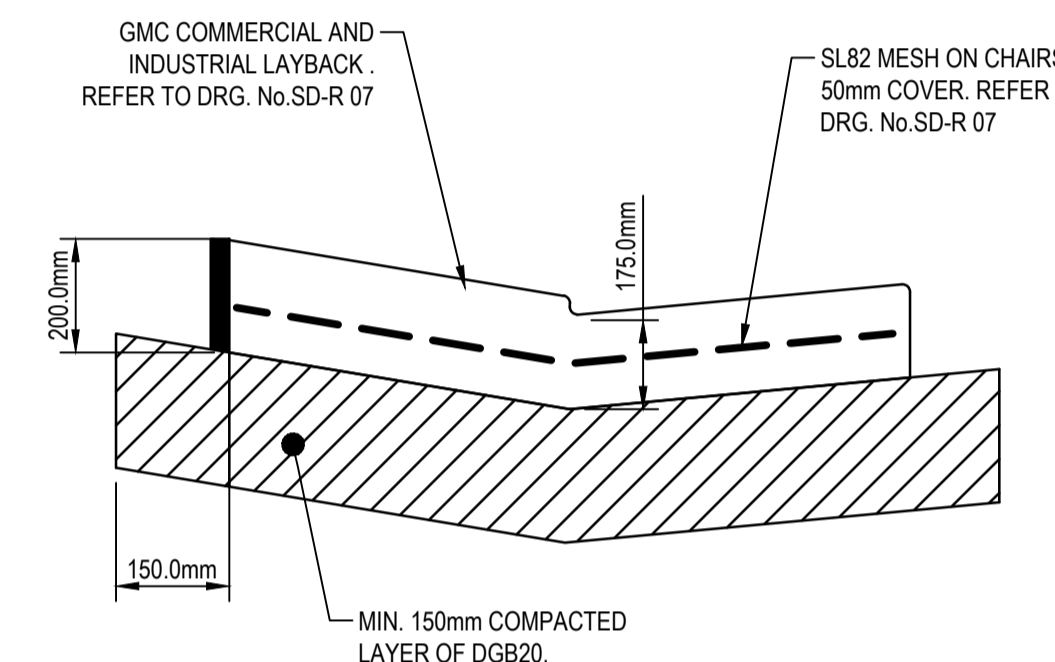
SCALE 1:20



**VEHICLE CROSSING**

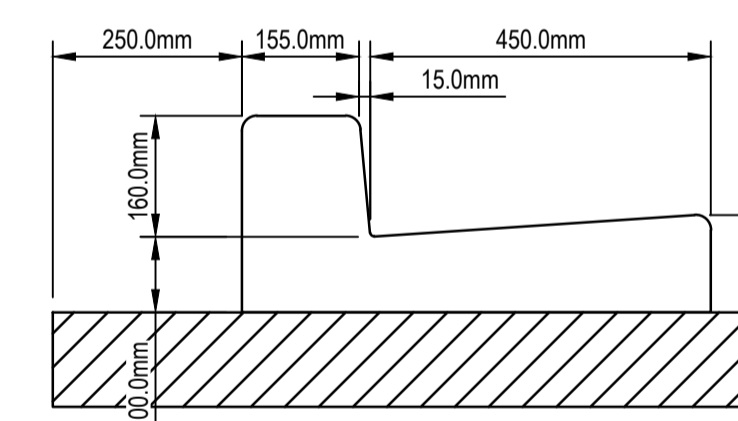
(RESIDENTIAL & INDUSTRIAL)

NTS



**SECTION B**

NTS



**GMC BARRIER KERB AND GUTTER**

REFER TO DRG. No.SD-R 05

Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
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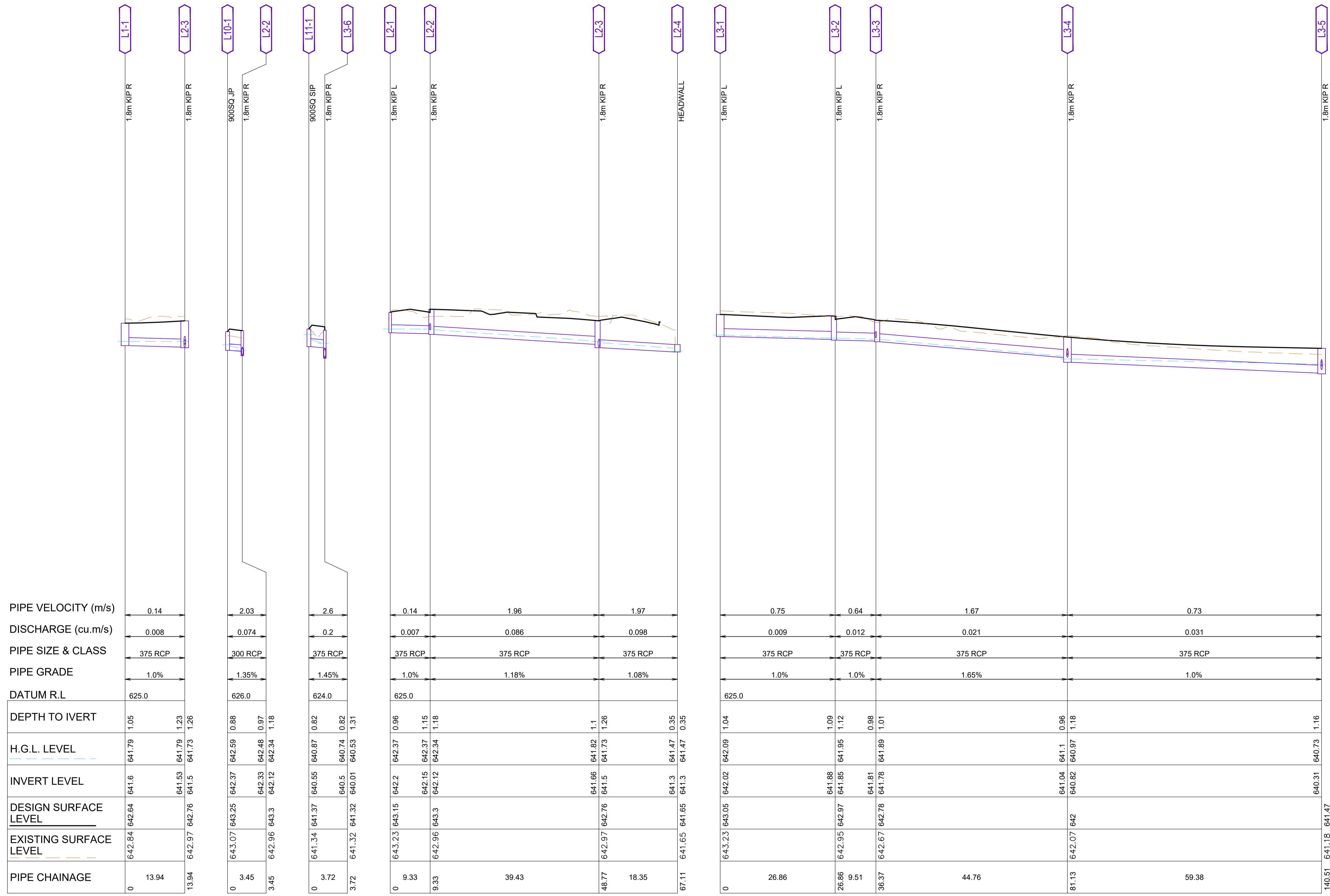
Client  
**FDC CONSTRUCTION**

Project  
**WILSON DRIVE, MARULAN**

Title  
**SITWORKS DETAILS**

Scale:  
**AS SHOWN**

Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		
Project Number	Drawing Number	Revision	
<b>S210044</b>	<b>C-02-6001</b>	<b>C</b>	



Rev	Revision Description	Date
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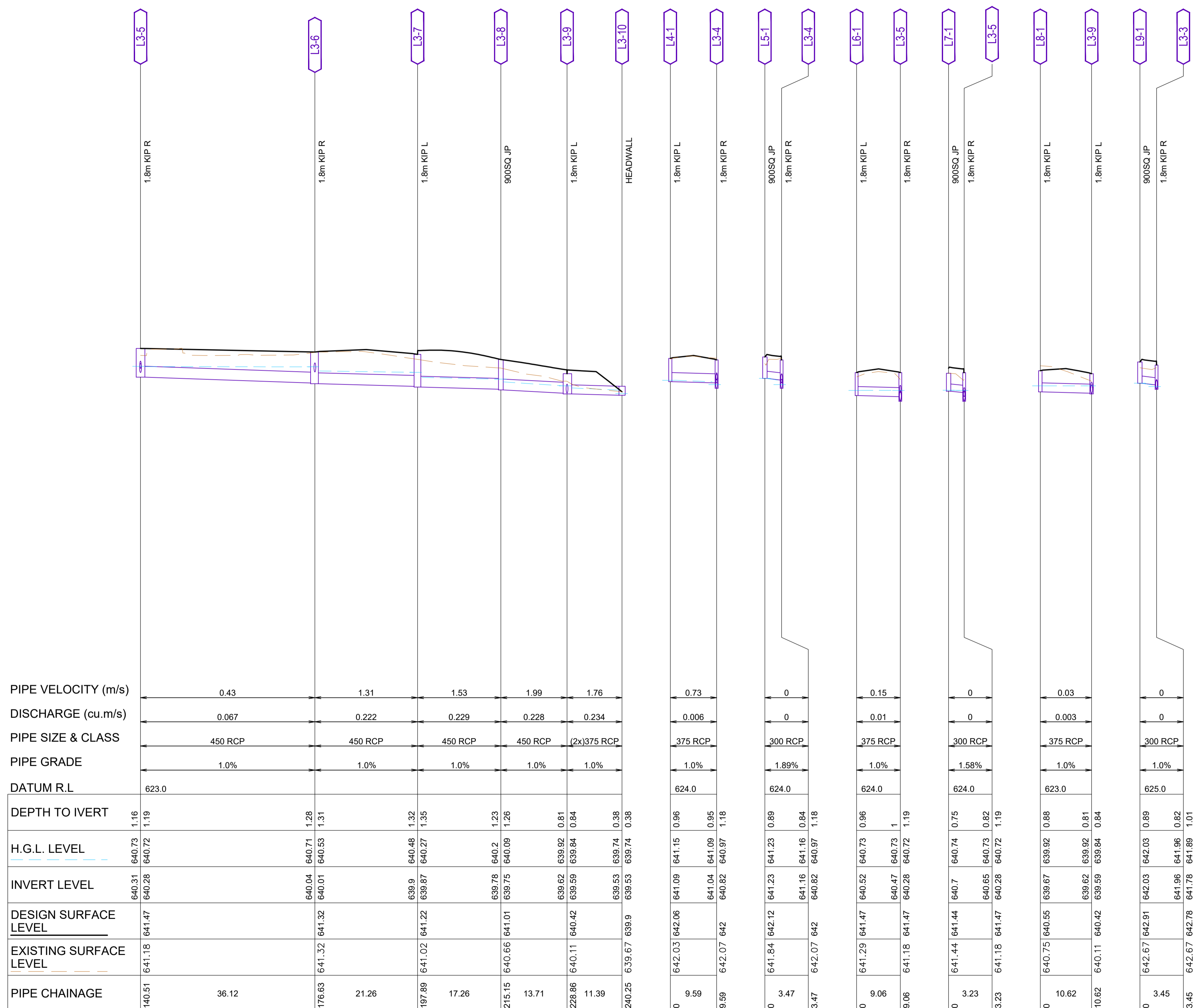
Project: **WILSON DRIVE, MARULAN**

Title: **STORMWATER LONGITUDINAL SECTIONS SHEET 1**

Scale: 1:200

Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		
Project Number	Drawing Number	Revision	
S210044	C-03-5001	B	

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LINE No. L3

LINE No. L4

LINE No. L5

LINE No. L6

LINE No. L7

LINE No. L8

LINE No. L9

Rev	Revision Description	Date
B	RE-ISSUED FOR SECTION 138	24.02.2022
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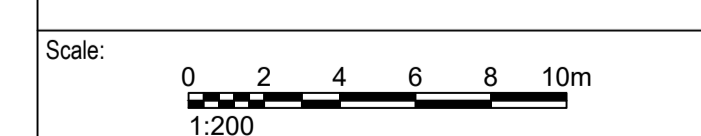
Rev	Revision Description	Date
B	RE-ISSUED FOR SECTION 138	24.02.2022
A	ISSUED FOR SECTION 138	25.11.2021

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Client: **FDC CONSTRUCTION**

Project: **WILSON DRIVE, MARULAN**

Title: **STORMWATER LONGITUDINAL SECTIONS SHEET 2**



Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		
Project Number	Drawing Number	Revision	
S210044	C-03-5002	B	



**PIT REINFORCEMENT TABLE (1.1)**

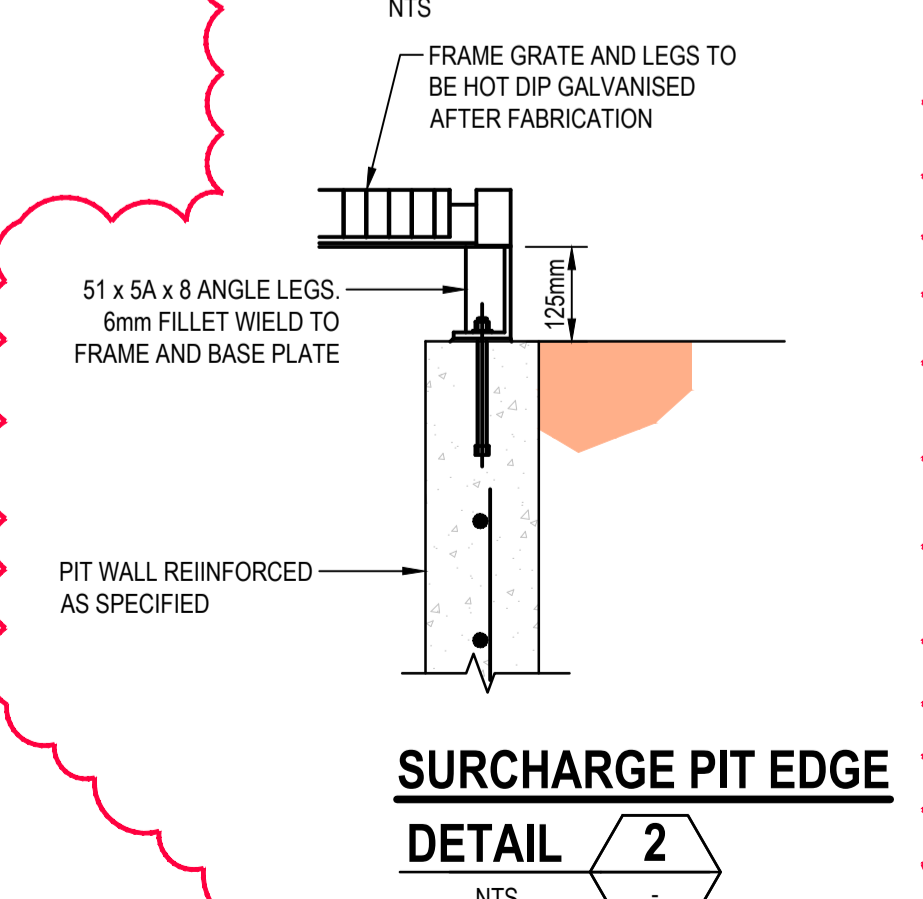
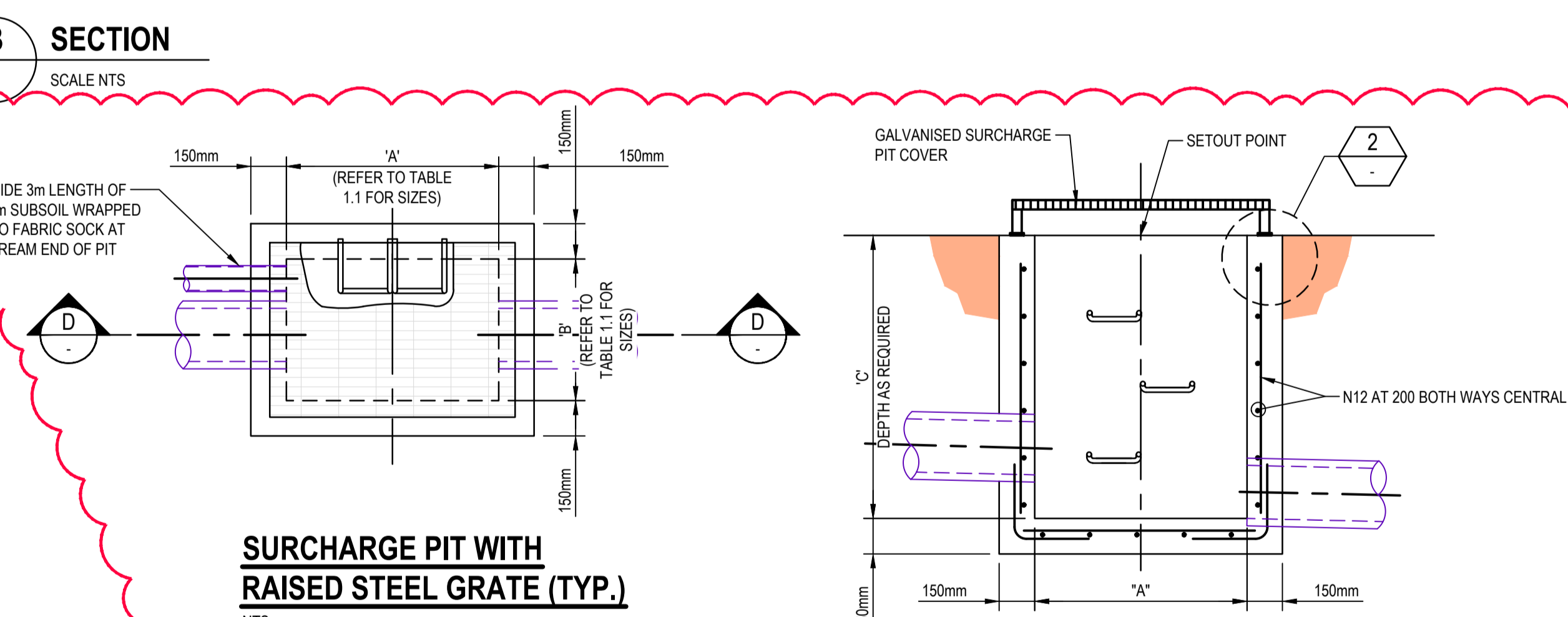
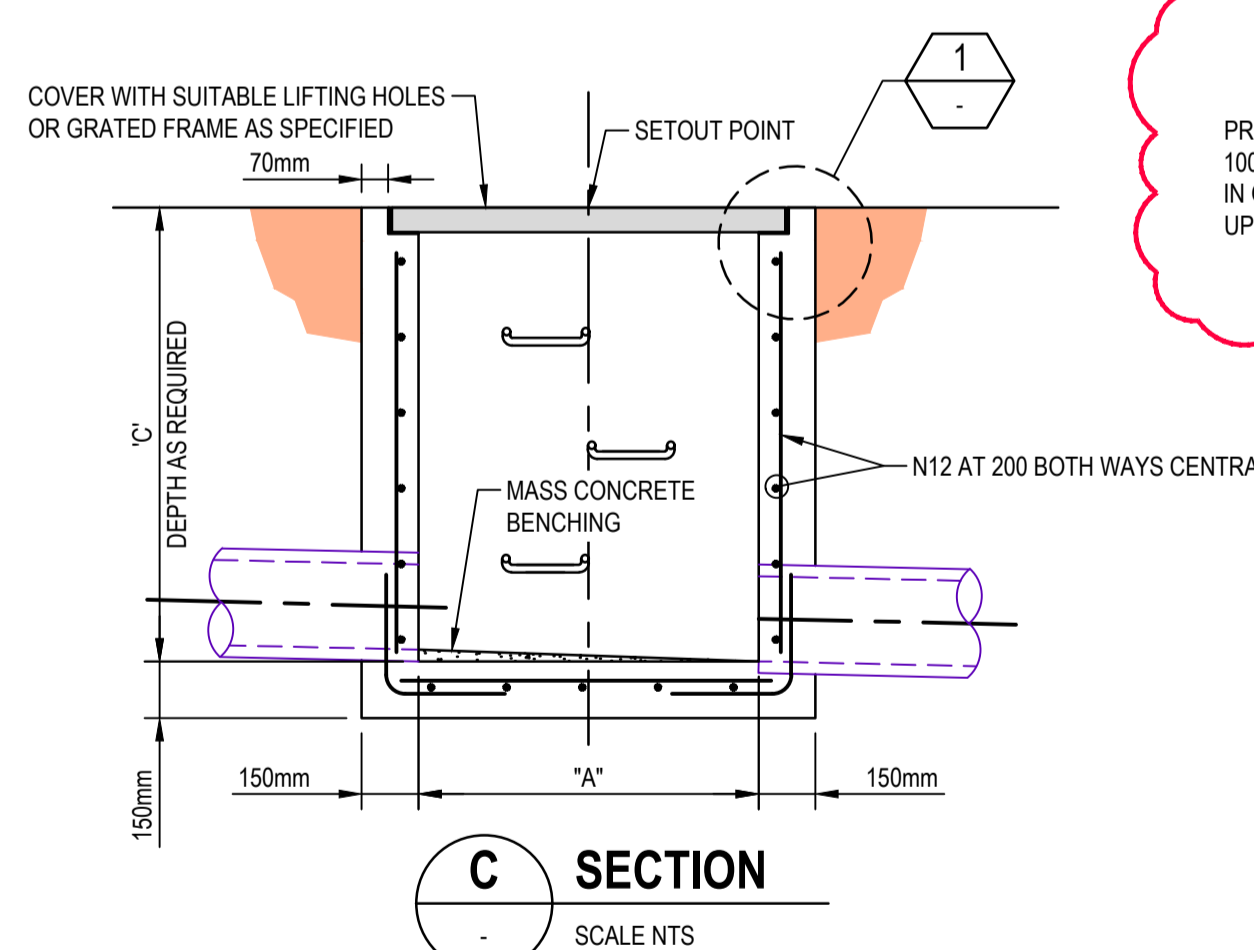
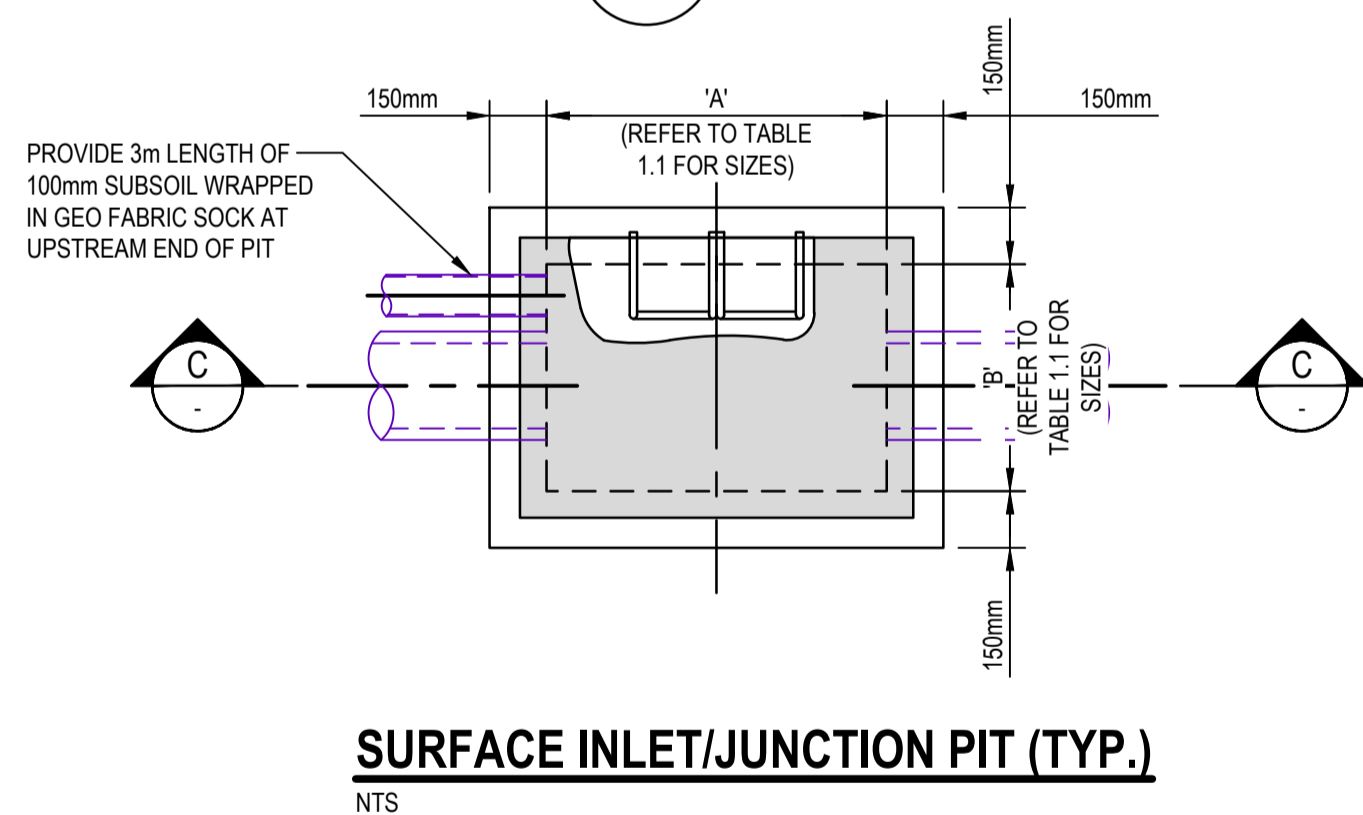
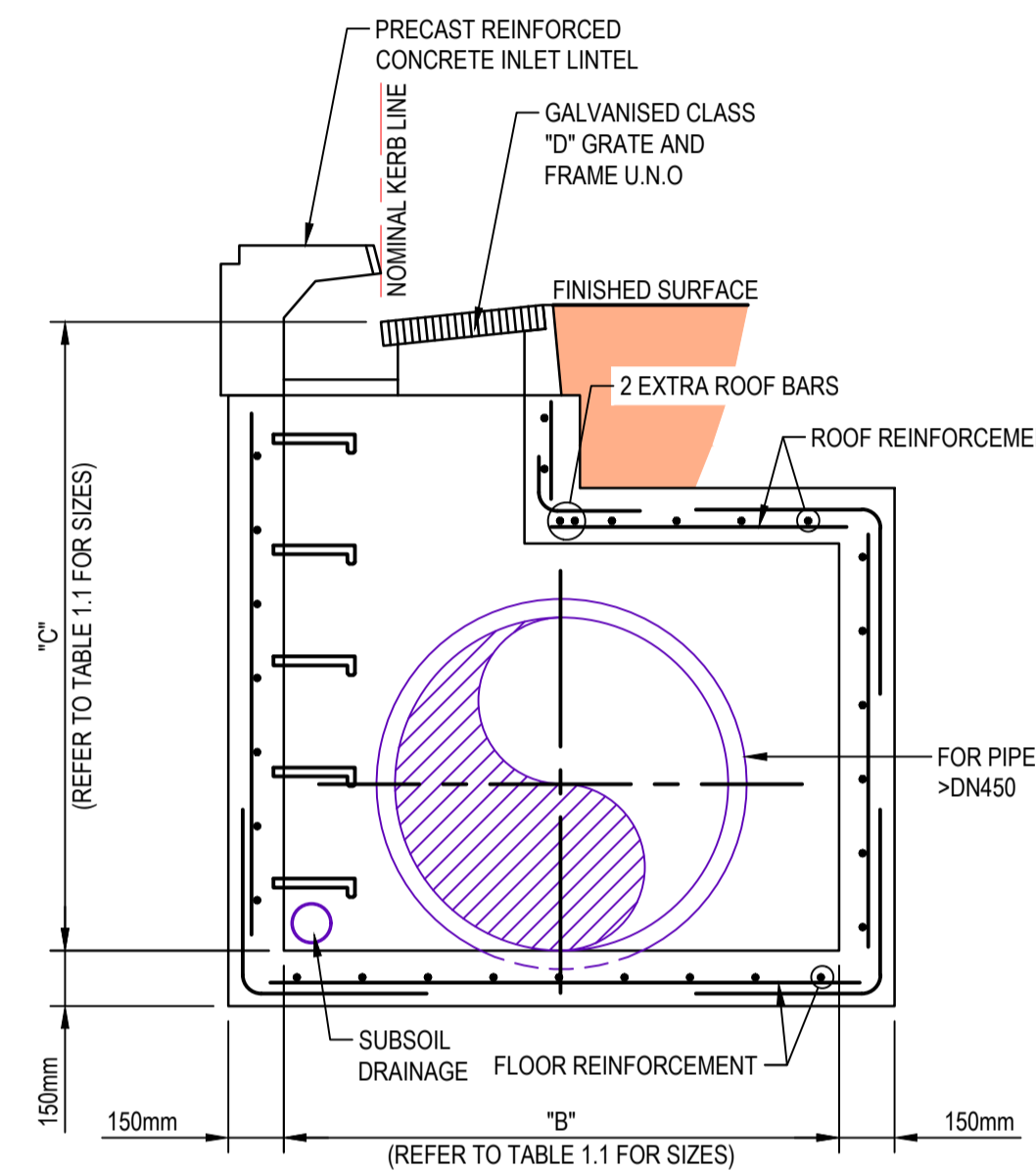
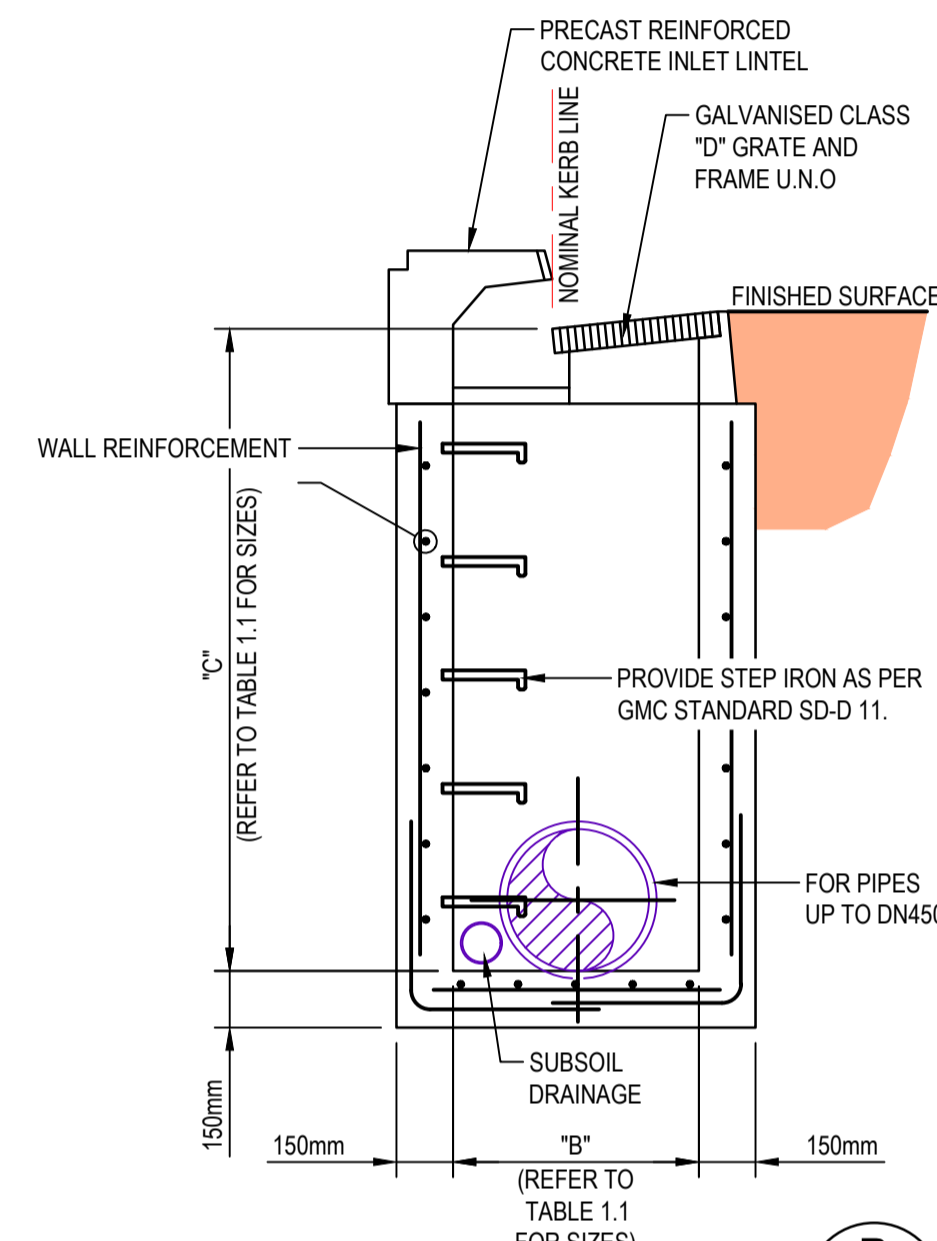
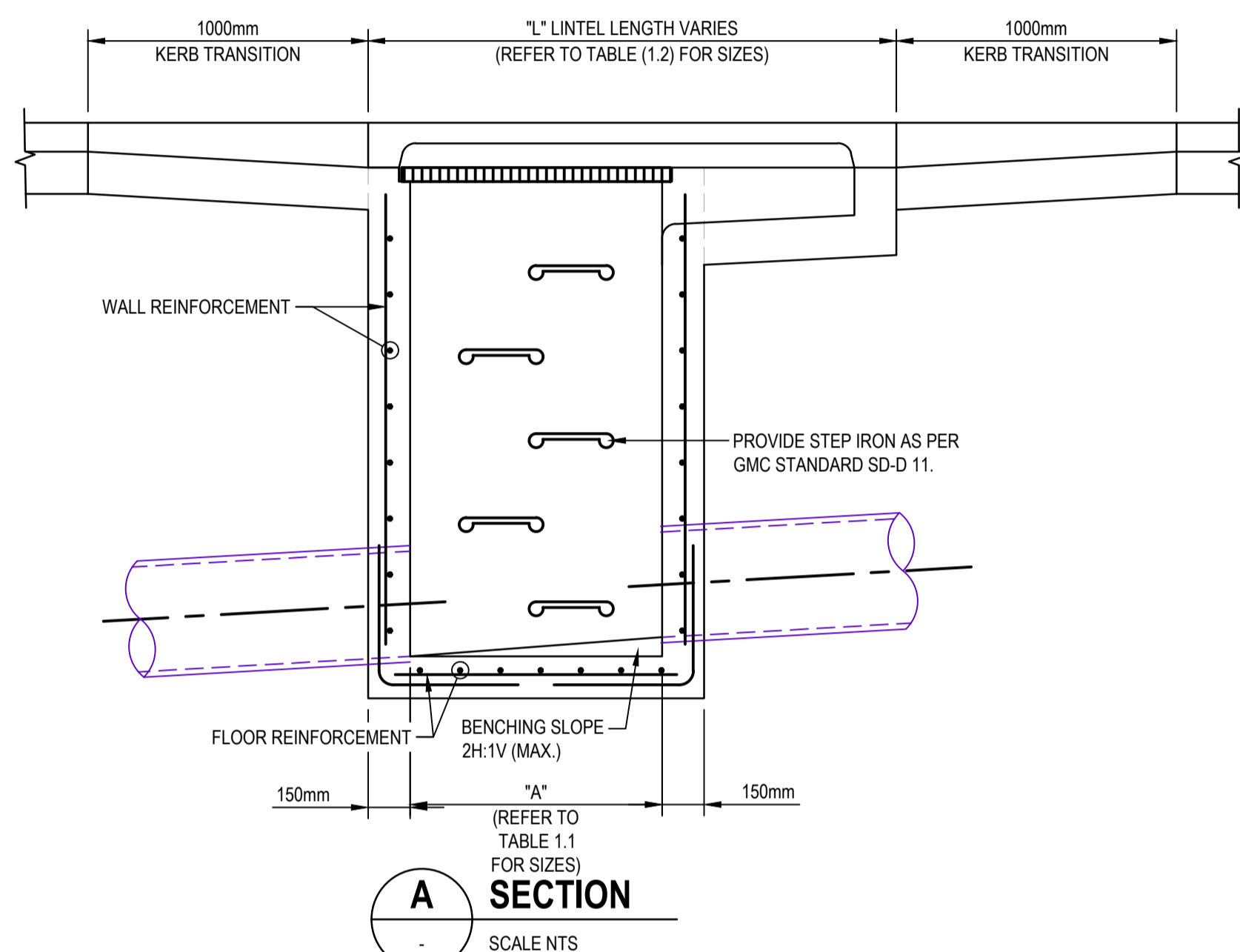
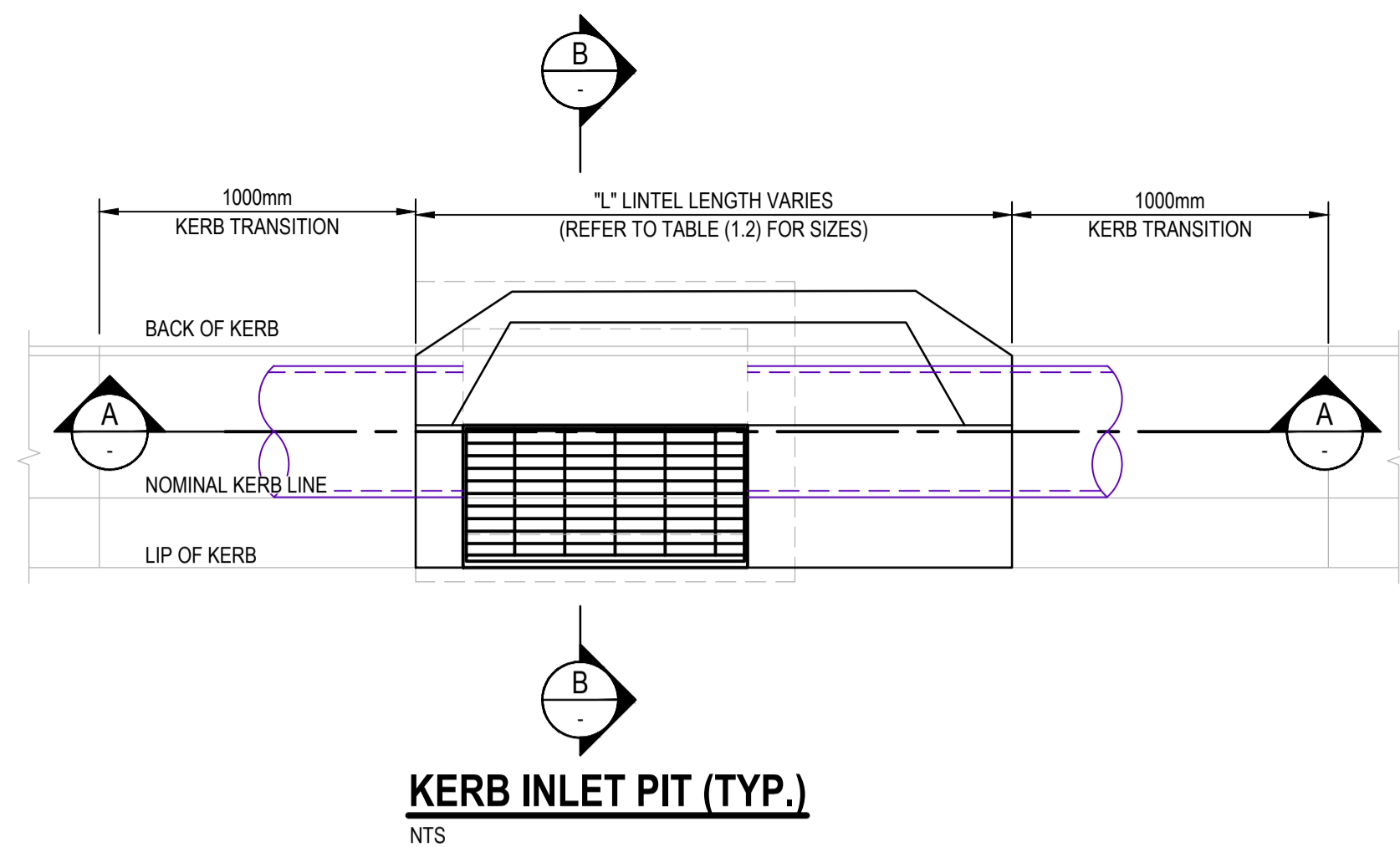
DIM "A" (mm)	DIM "B" (mm)	DIM "C" (mm)	ROOF REINFORCEMENT	WALL REINFORCEMENT	FLOOR REINFORCEMENT
600	600	1800 MAX	N12-200	N12-200	N12-200
600	600	1800 MAX	N12-200	N12-200	N12-200
900	900	2400 MAX	N12-200	N12-200	N12-200
1200	1200	2400 MAX	N16-200	N16-200	N16-200

**PRECAST INLET LINTEL SIZES TABLE (1.2)**

NOMINAL SIZE	OVERALL LENGTH "L"
900.00	1000.00
1200.00	1830.00
1800.00	2440.00
2400.00	3050.00
3000.00	3660.00
3600.00	3660.00

**NOTE:**

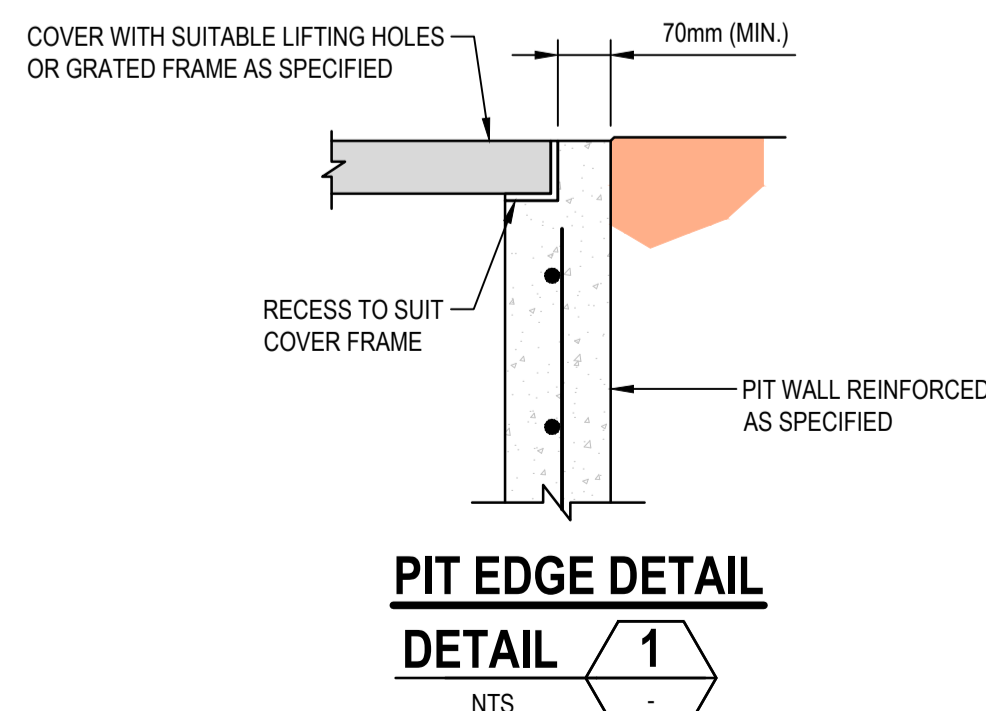
- PIT CONCRETE REQUIREMENTS (UNO):  
 $f_c$  (MIN.) = 25MPa  
 COVER (MIN.) = 30mm



**INTERNAL PIT DIMENSIONS (MIN.)**

"D"	"X"	"Y"
D < 600	450	450*
D ≤ 900	600	600*
D ≤ 1200	600	900
D > 1200	900	900

NOTE: PITS DENOTED \* SHALL BE USED ONLY WHERE SPECIFIED IN DRAINAGE SCHEDULE OR ON PLAN



Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021



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Client: **FDC CONSTRUCTION**

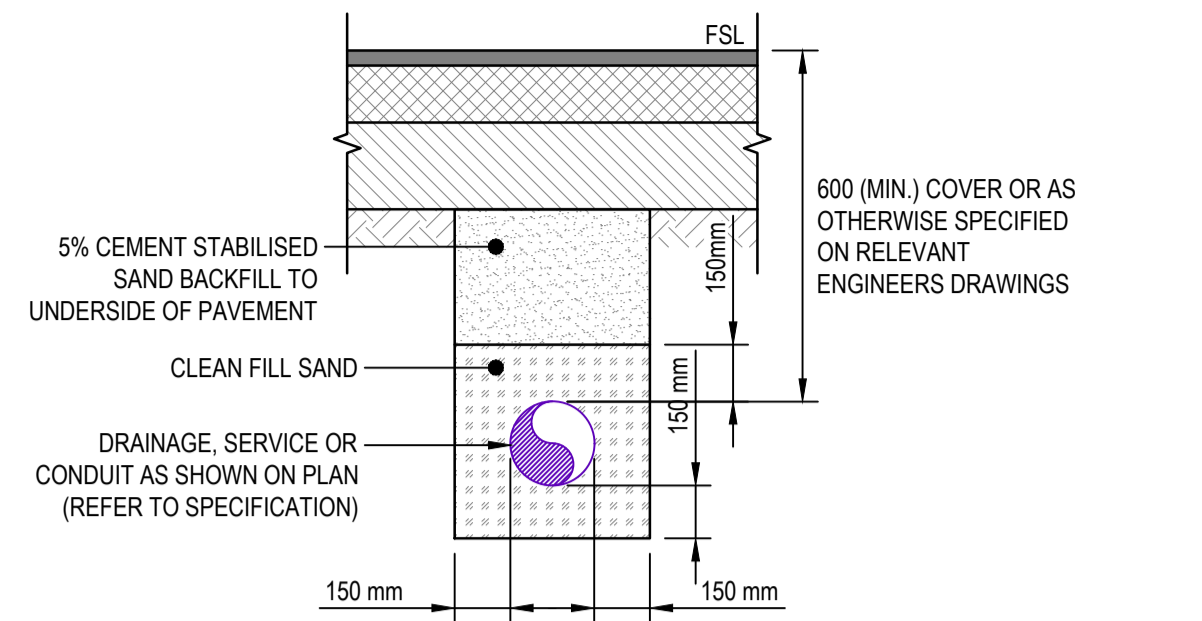
Project: **WILSON DRIVE, MARULAN**

Title: **STORMWATER DRAINAGE DETAILS SHEET 1**

Scale: **AS SHOWN**

Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		
Project Number	Drawing Number	Revision	
<b>S210044</b>	<b>C-03-6001</b>	<b>C</b>	

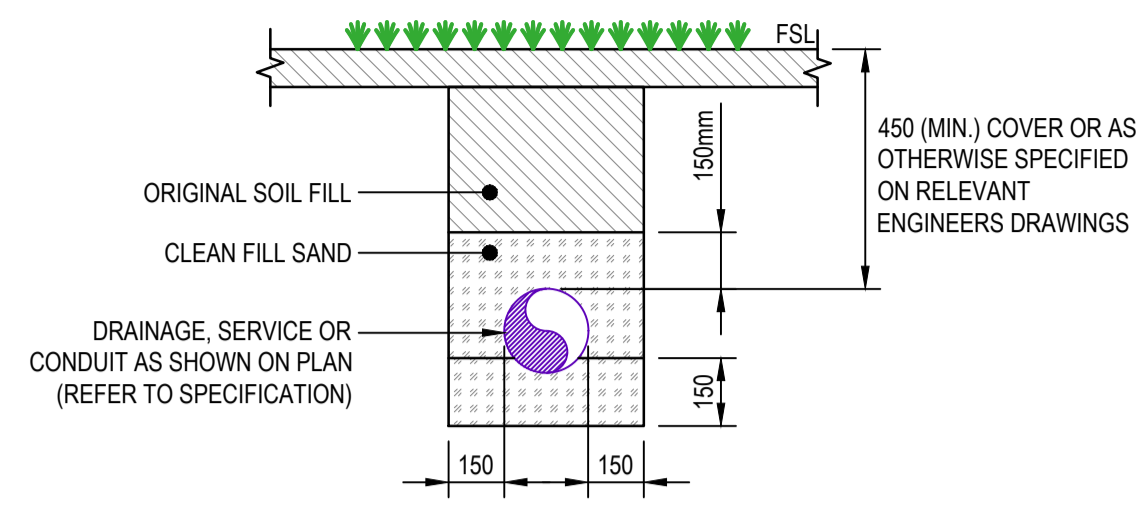
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**TYPICAL DETAIL FOR BACKFILL TO DRAINAGE SERVICES AND CONDUITS UNDER ROAD PAVEMENTS**  
SCALE: NTS

**NOTE:**

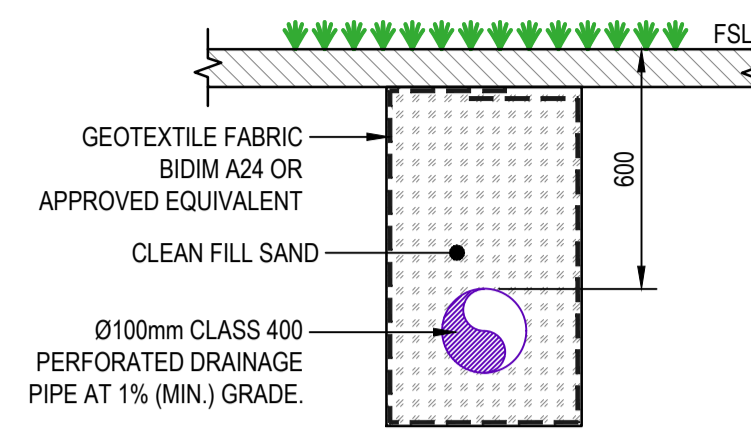
1. TYPICAL DETAIL TO BE USED FOR ALL DRAINAGE SERVICES RUNNING UNDER ROAD PAVEMENTS
2. DRAINAGE INCLUDES ALL GRAVITY SERVICES (INCLUDES CONCRETE AND PLASTIC PIPES)
3. SERVICES INCLUDES ALL PRESSURE PIPES
4. CONDUITS INCLUDES ALL ELECTRICAL, COMMUNICATIONS AND OTHER CONDUIT DUCTS
5. FOR NEW SERVICE PIPES OR CONDUITS, REFER TO PLANS FOR SIZES AND LOCATIONS
6. CEMENT STABILISED BACKFILL TO EXTEND MINIMUM 1m BEYOND EDGE OF ROAD PAVEMENT



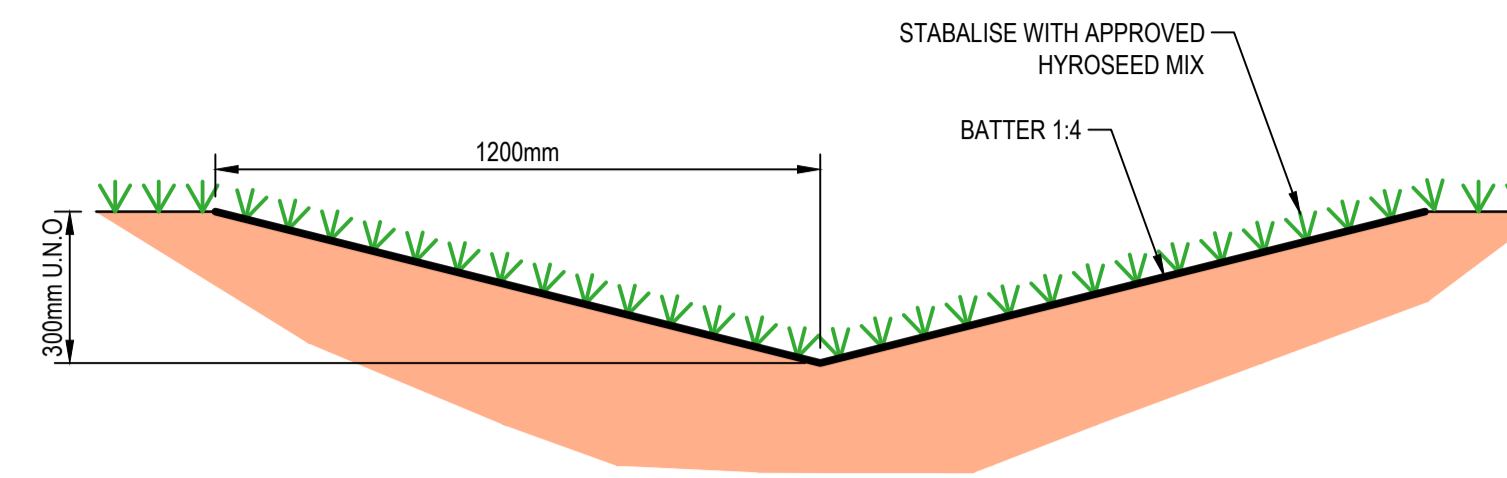
**TYPICAL DETAIL FOR BACKFILL TO DRAINAGE SERVICES AND CONDUITS IN LANDSCAPE AREAS**  
SCALE: NTS

**NOTE:**

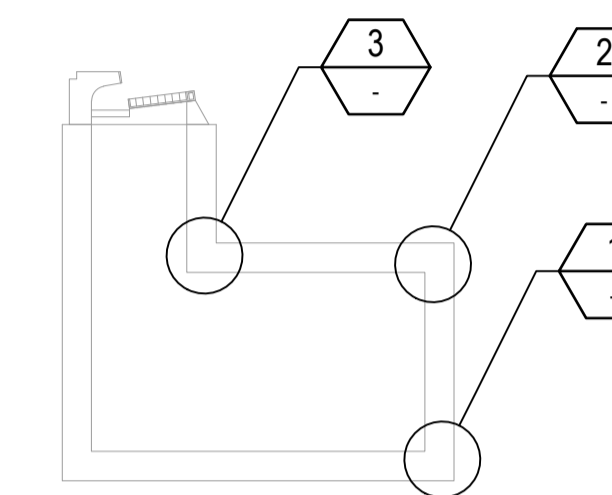
1. TYPICAL DETAIL TO BE USED FOR ALL DRAINAGE SERVICES RUNNING UNDER LANDSCAPE
2. DRAINAGE INCLUDES ALL GRAVITY SERVICES (INCLUDES CONCRETE AND PLASTIC PIPES)
3. SERVICES INCLUDES ALL PRESSURE PIPES
4. FOR NEW SERVICE PIPES OR CONDUITS, REFER TO PLANS FOR SIZES AND LOCATIONS



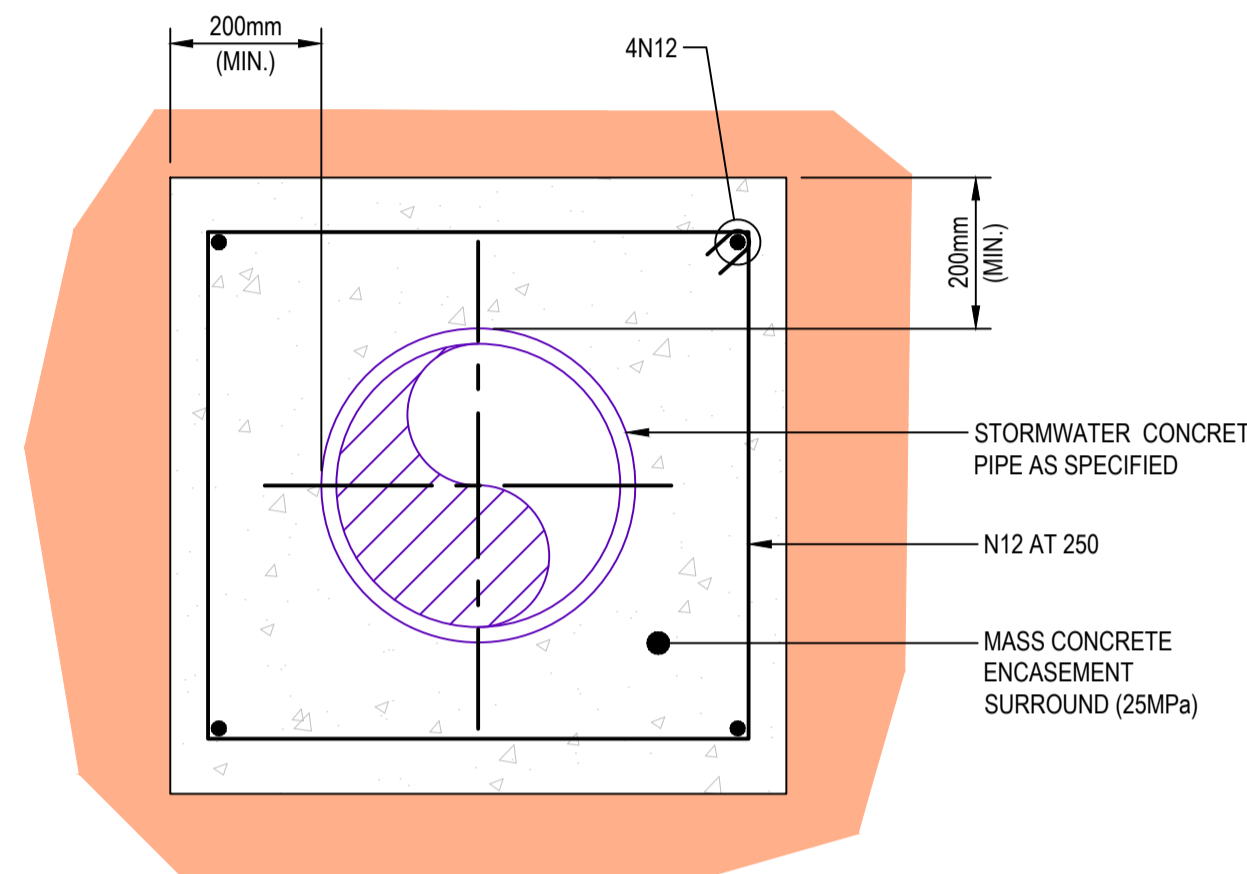
**TYPICAL SUBSOIL DRAINAGE DETAIL**  
SCALE: NTS



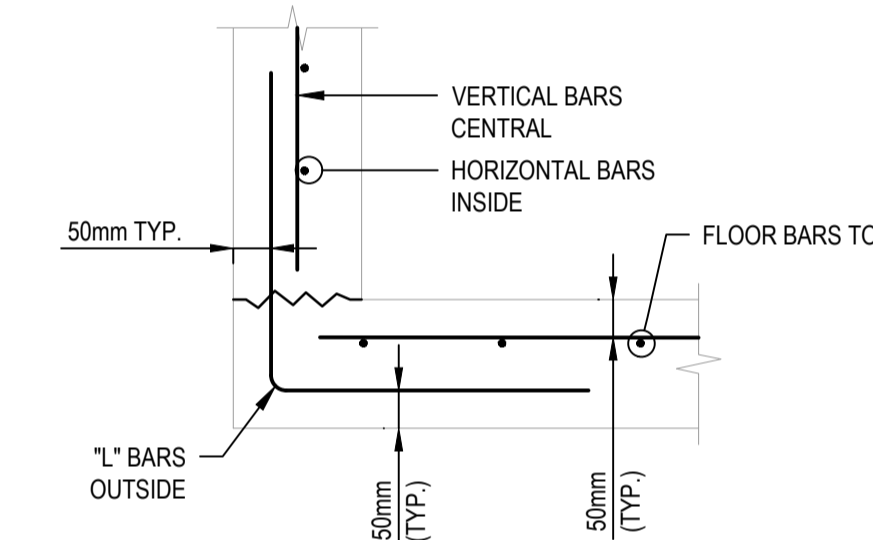
**SWALE DRAIN (TYP.)**  
SCALE: NTS



**STORMWATER PIT**  
NTS

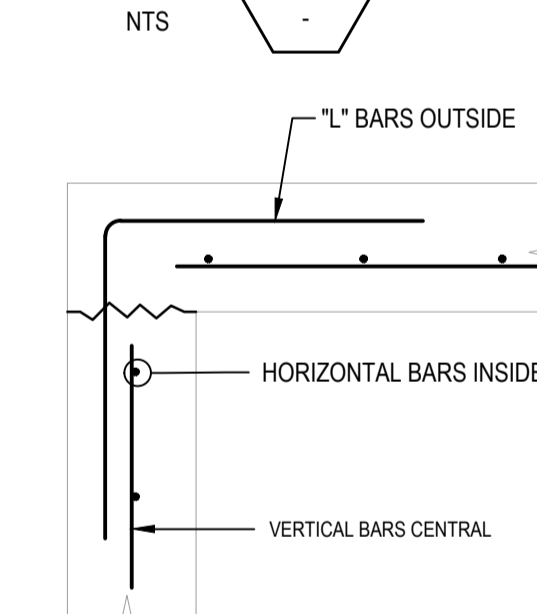


**STORMWATER CONCRETE PIPE ENCASEMENT**  
SCALE: NTS

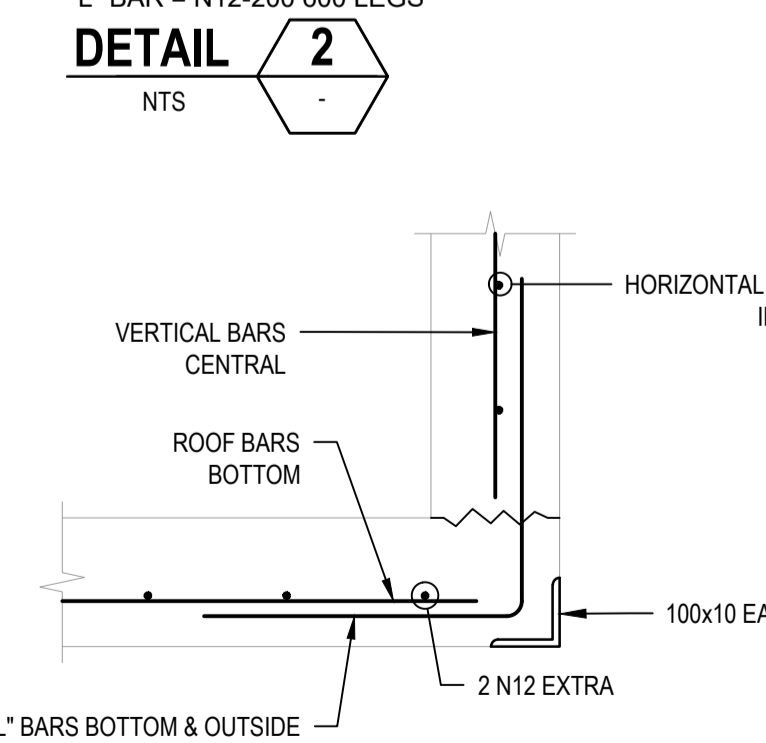


**FLOOR TO WALL**  
"L" BAR = N12-200 600 LEGS  
**DETAIL 1**  
NTS

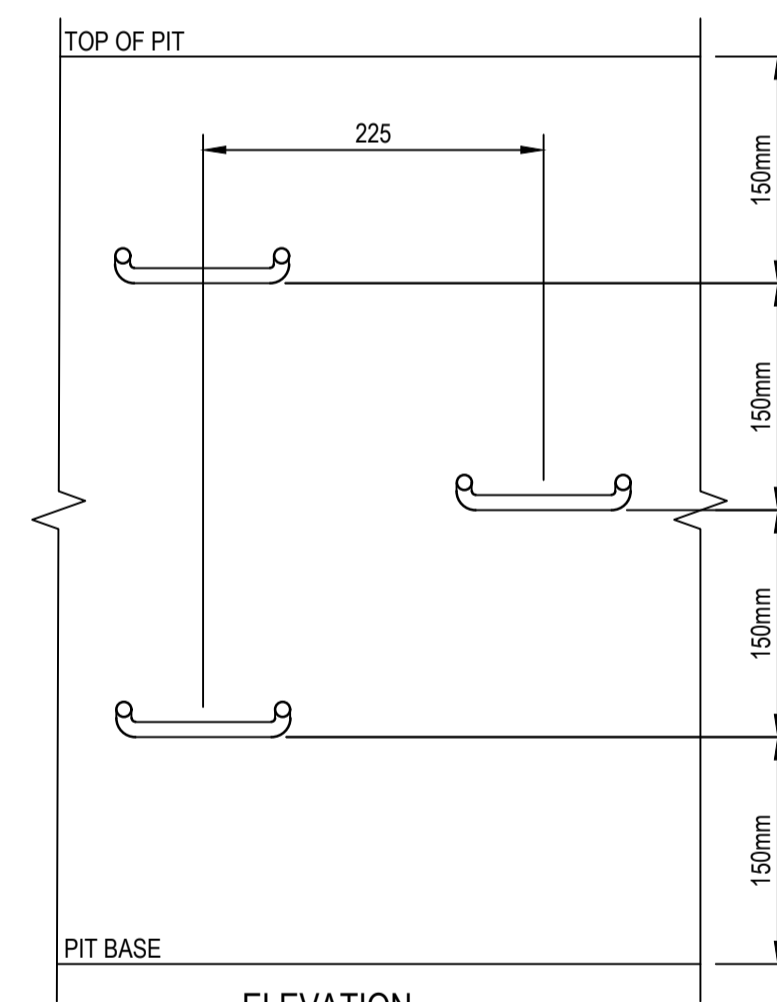
**WALL TO ROOF**  
"L" BAR = N12-200 600 LEGS  
**DETAIL 2**  
NTS



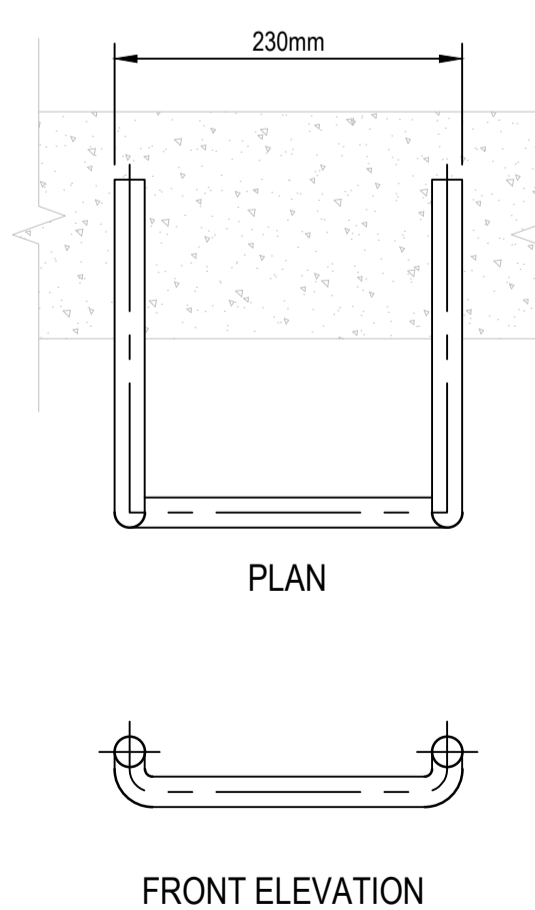
**ROOF TO ACCESS SHAFT**  
"L" BAR = N12-200 600 LEGS  
**DETAIL 3**  
NTS



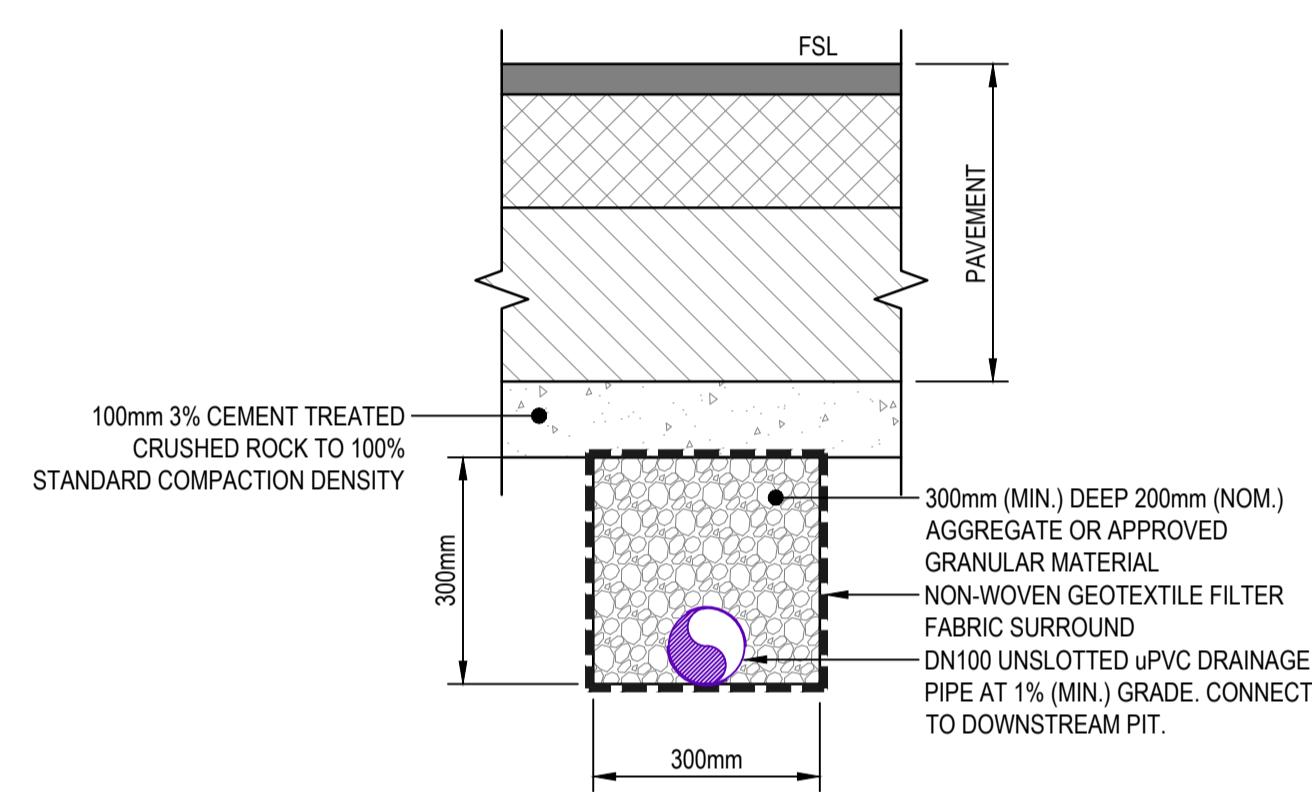
**STEP IRON PLACEMENT TO PIT WALL**  
NTS



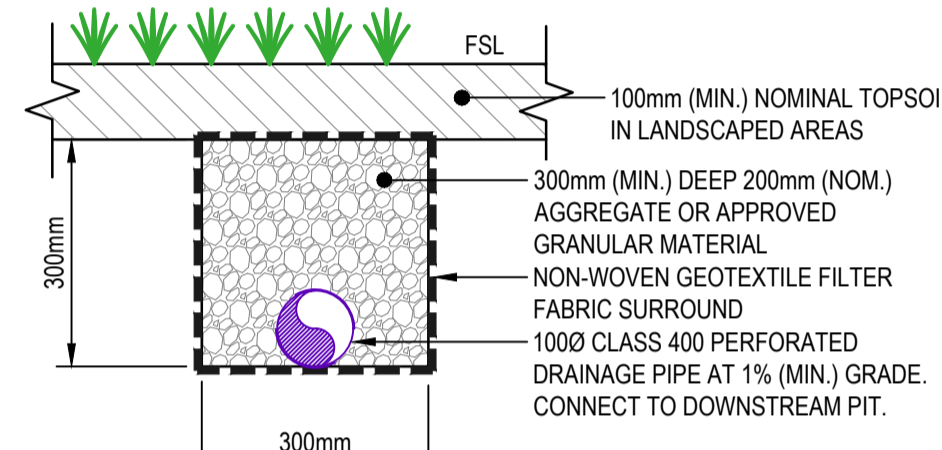
**STEP IRON PLACEMENT TO PIT WALL**  
NTS



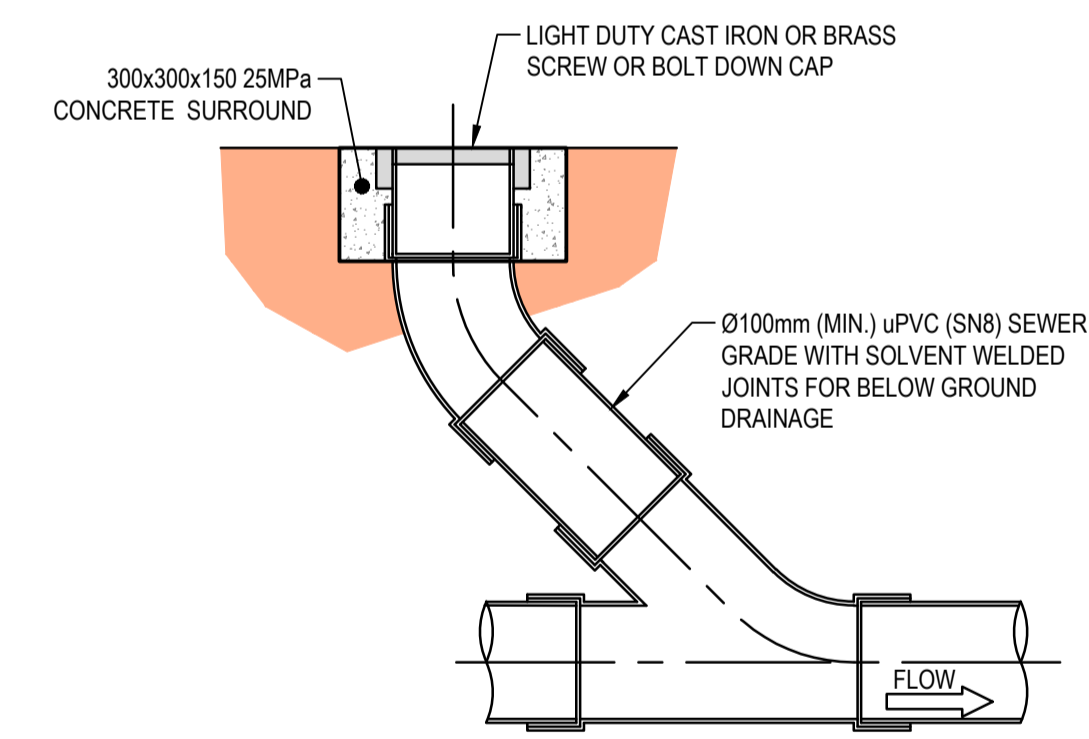
**STEP IRON**  
**DETAIL 1**  
NTS



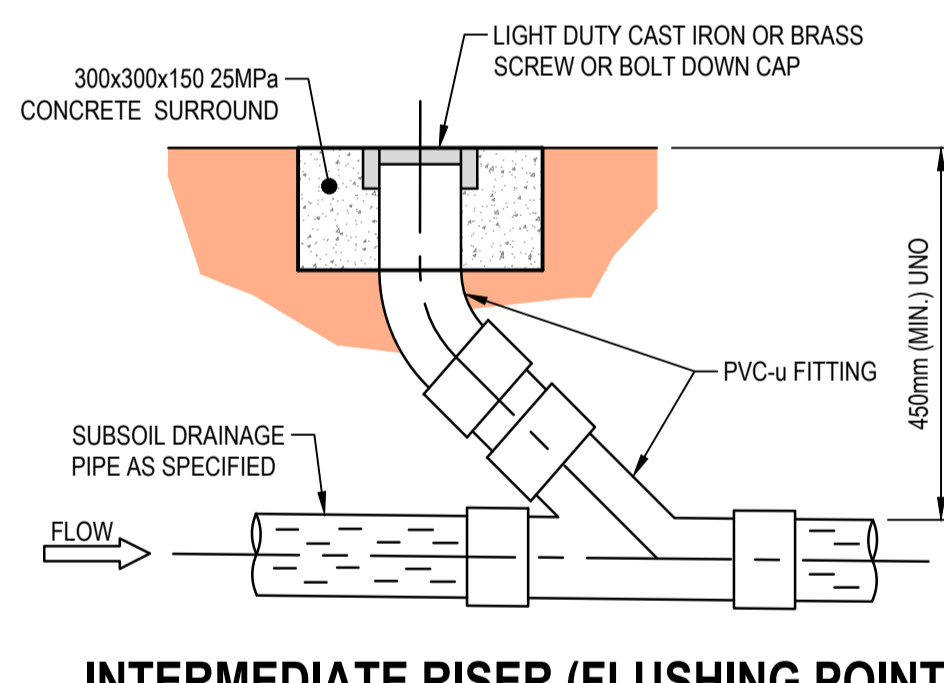
**SUBSOIL UNDER PAVEMENT**  
SCALE: NTS



**SUBSOIL IN LANDSCAPING AREAS**  
SCALE: NTS



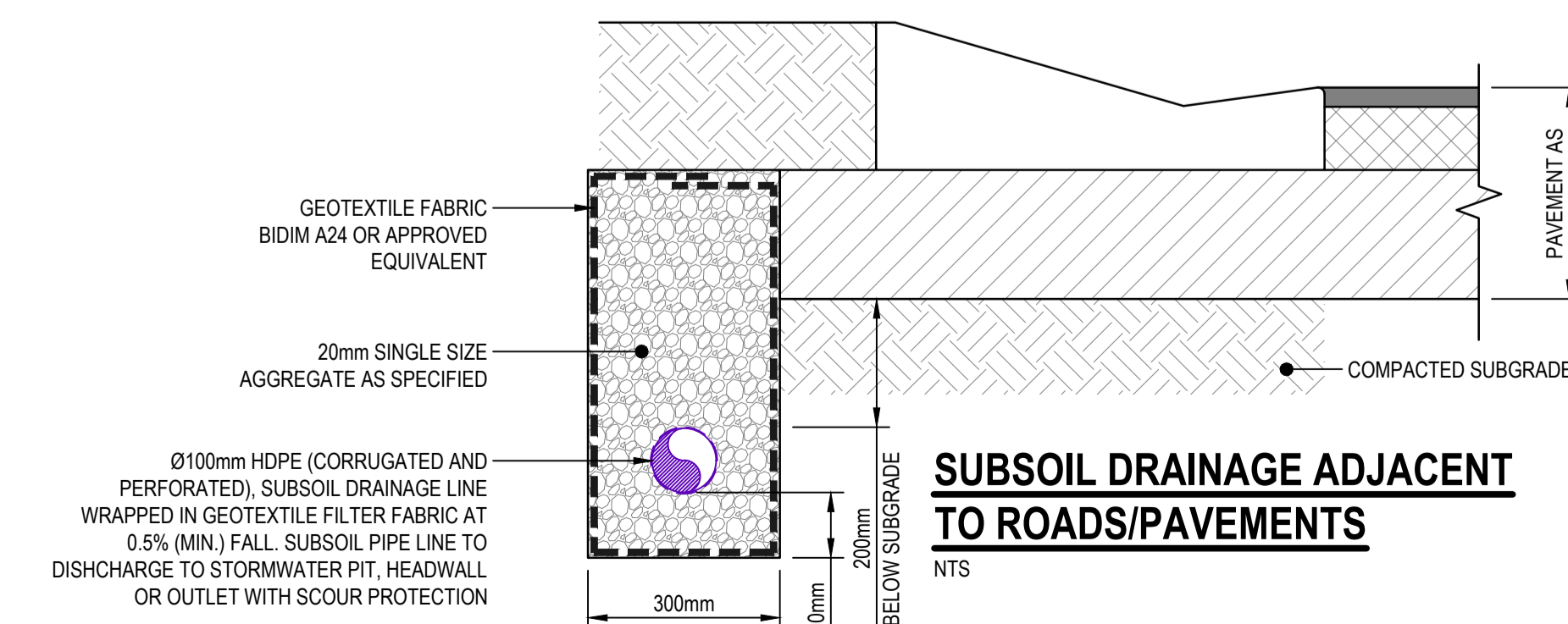
**CLEAR OUT (CO)**  
SCALE: NTS



**INTERMEDIATE RISER (FLUSHING POINT)**  
SCALE: NTS

**NOTE:**

1. SUBSOIL FLUSHING POINTS TO BE PROVIDED AT 50m MAX INTERVALS ALONG SUBSOIL LINES (UNLESS SHOWN OTHERWISE), AT CHANGES IN DIRECTION OF SUBSOIL LINES, AND AT INTERSECTIONS OF SUBSOIL LINES.



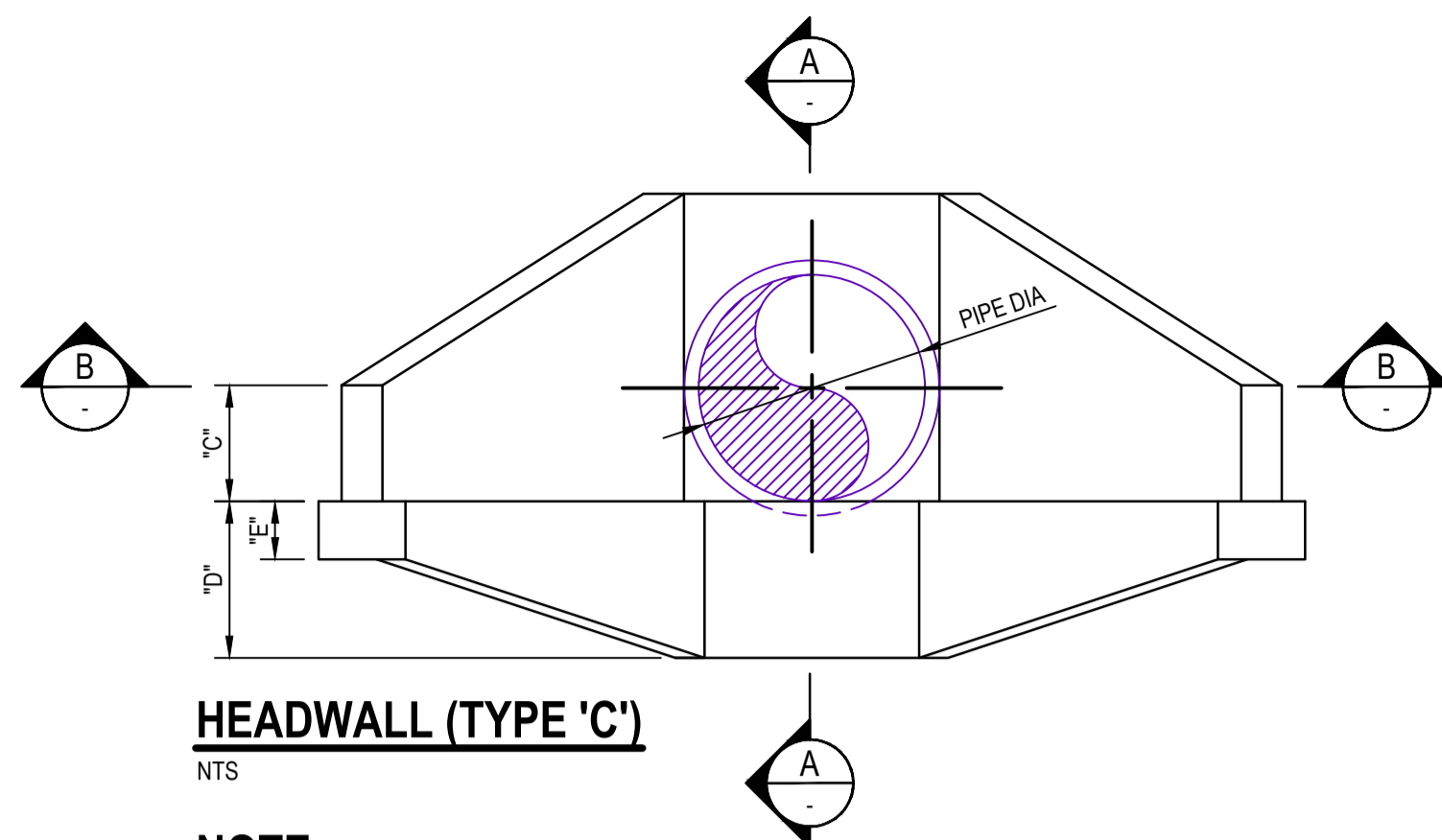
**SUBSOIL DRAINAGE ADJACENT TO ROADS/PAVEMENTS**  
NTS

Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021

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Client: **FDC CONSTRUCTION**  
 Project: **WILSON DRIVE, MARULAN**  
 Title: **STORMWATER DRAINAGE DETAILS SHEET 2**  
 Scale: **AS SHOWN**

Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		
Project Number	Drawing Number	Revision	
<b>S210044</b>	<b>C-03-6002</b>	<b>C</b>	

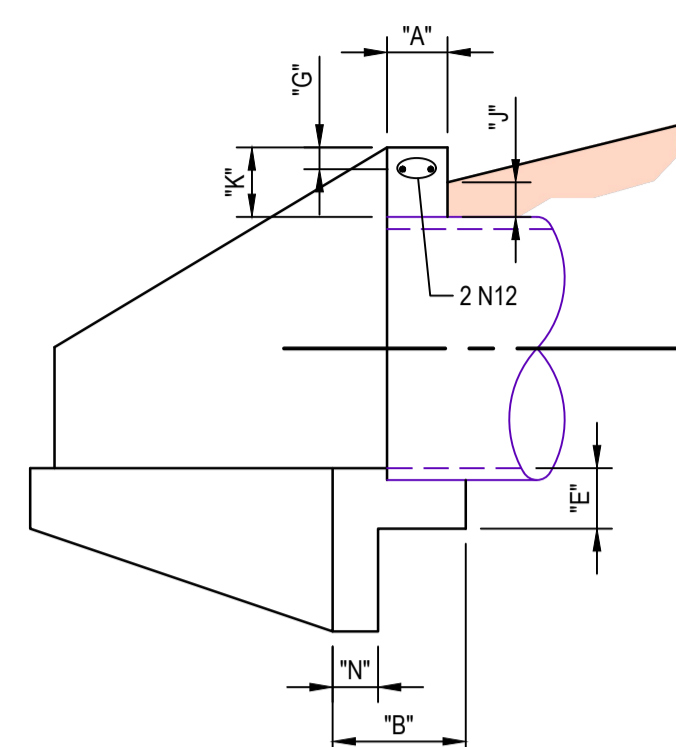


**HEADWALL (TYPE 'C')**

NTS

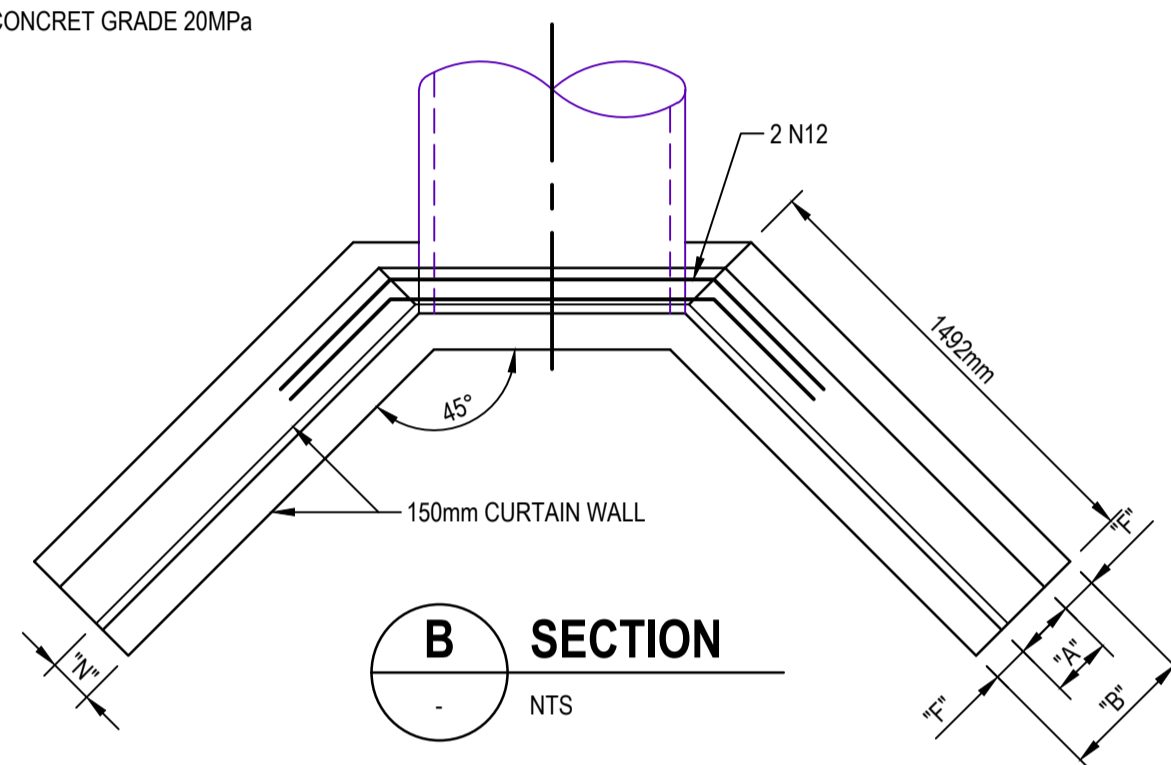
**NOTE:**

1. COMPRESSIVE STRENGTH ( $F_c$ ) FOR CAST-IN-SITU CONCRETE TO BE A MIN. OF 20MPa AT 28 DAYS.
2. SCOUR PROTECTION REQUIREMENTS PARTICULARLY FOR LARGER DIAMETER PIPE.
3. 25mm CHAMFER ON ALL EXPOSED SURFACES CONCRET GRADE 20MPa



**A SECTION**

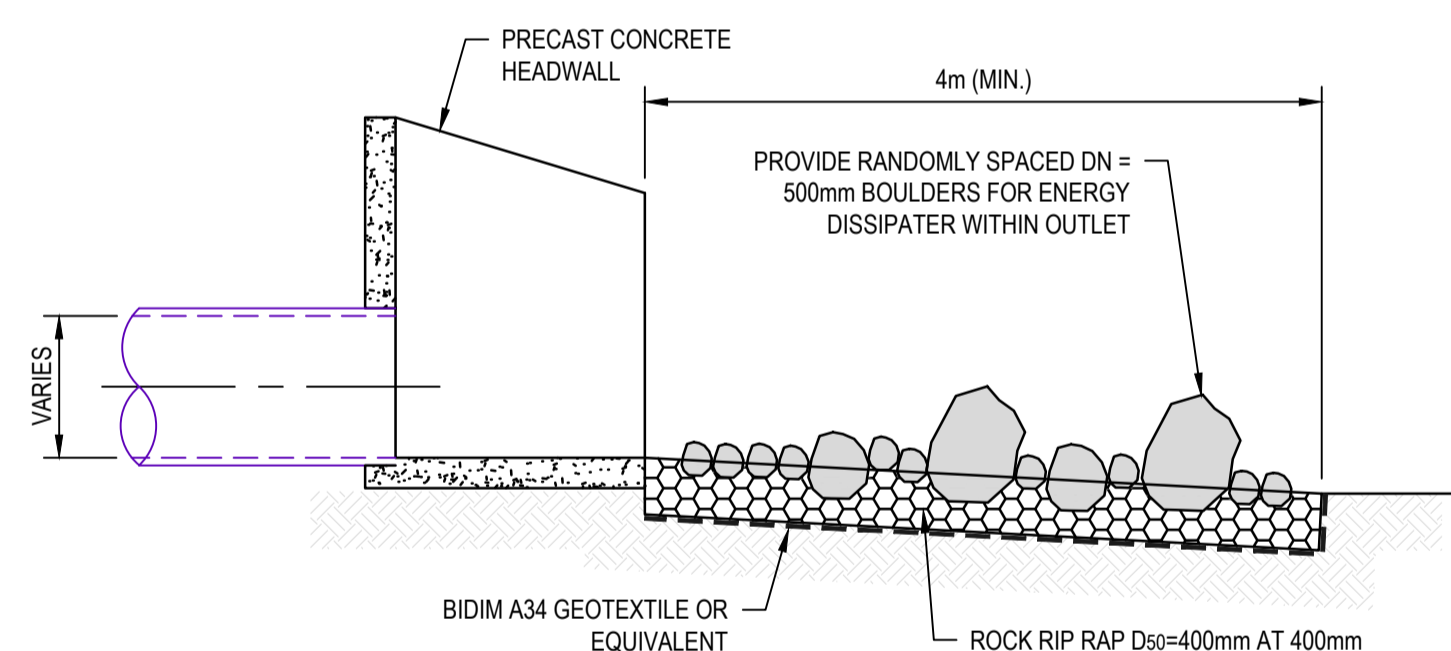
NTS



**B SECTION**

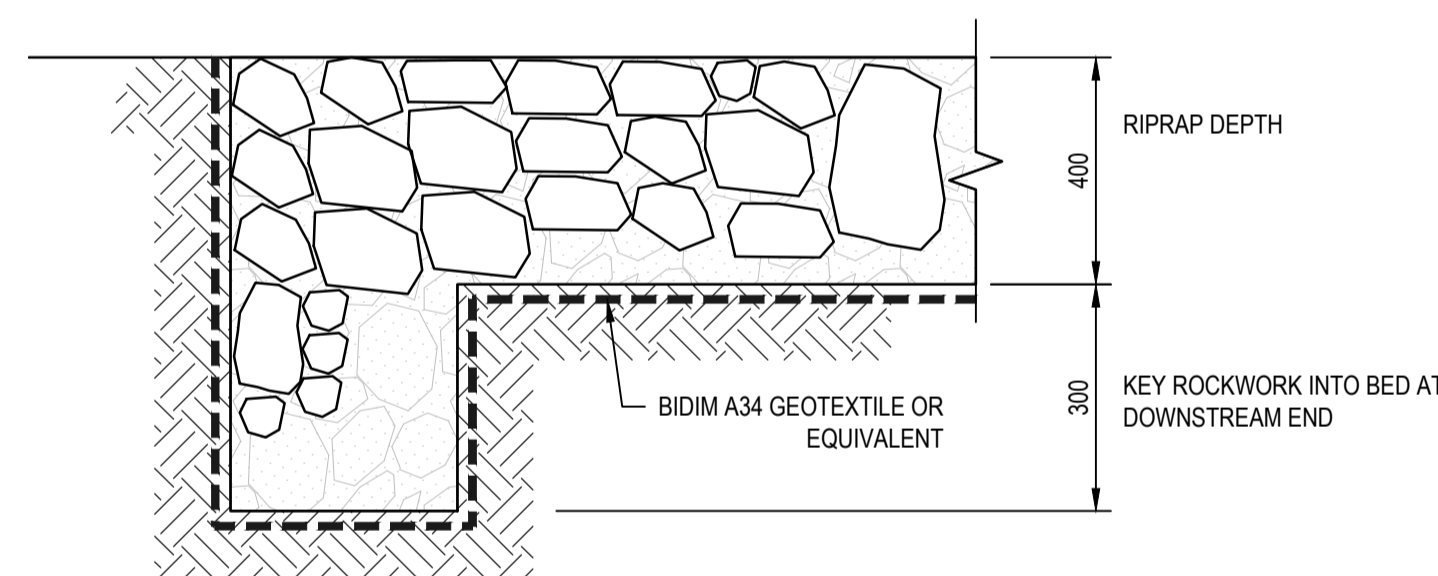
NTS

PIPE DIA.	300	375	450	525	600	675	750	825	900
A	150	150	150	150	175	175	200	200	225
B	300	300	300	300	450	450	450	450	450
C	300	300	300	300	300	300	300	300	300
D	375	375	375	375	375	530	530	530	530
E	150	150	150	150	175	175	175	175	225
F	75	75	75	75	100	100	100	100	100
G	40	40	40	40	50	50	50	50	50
H	70	70	70	70	100	100	100	100	125
J	100	100	100	100	100	100	100	100	100
K	200	200	200	200	300	300	300	300	300
W	700	700	850	1000	1100	1300	1450	1600	1750
L	800	850	950	1000	1100	1200	1250	1350	1450
REINFORCEMENT DIA.	12	12	12	12	12	12	12	12	12
LENGTH	1600	1700	1900	2000	2200	2400	2500	2700	2800



**SCOUR PROTECTION (TYP.)**

SCALE 1:20



**ROCK RIPRAP SPECIFICATIONS**

NTS

**NOTE:**

1. ALL RIPRAP MUST CONSIST OF ANGULAR RUN-OF-QUARRY DURABLE ROCK
2. ALL ROCK IS TO BE A HARD DURABLE ROCK WITH A POINT INDEX LOAD IS50 GREATER THAN 1.0MPa AS DETERMINED IN ACCORDANCE WITH AS4133.4.1 -2007
3. RIPRAP IS TO BE PLACED BY HAND AND CROW-BARRED INTO PLACE TO ENSURE FIT WITH MINIMUM VOIDS.
4. BASE OF RIPRAP TO BE LINED WITH GEOTEXTILE FABRIC (BIDIM A34)
5. ROCK SIZE  $D_{50}$  150mm  
 $D_{max}$  = 300mm

Rev	Revision Description	Date
B	RE-ISSUED FOR SECTION 138	24.02.2022
A	ISSUED FOR SECTION 138	25.11.2021



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Client  
**FDC CONSTRUCTION**

Project  
**WILSON DRIVE, MARULAN**

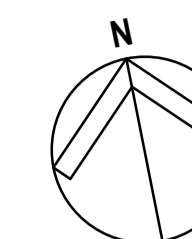
Title  
**STORMWATER DRAINAGE DETAILS SHEET 3**

Scale:  
**AS SHOWN**

Drawn <b>E.F.</b>	Designed <b>B.K./H.D.</b>	Checked	Approved
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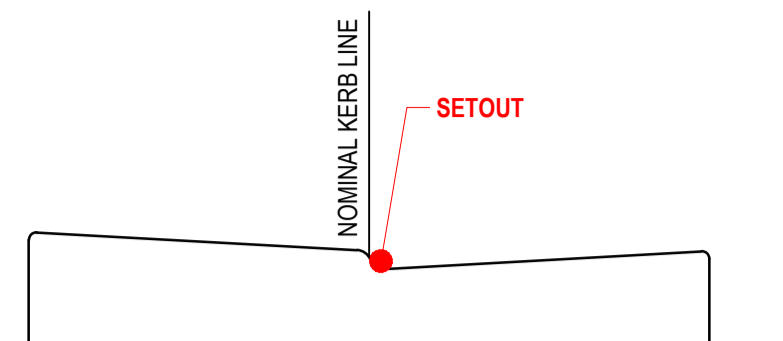
Project Number <b>S210044</b>	Drawing Number <b>C-03-6003</b>	Revision <b>B</b>
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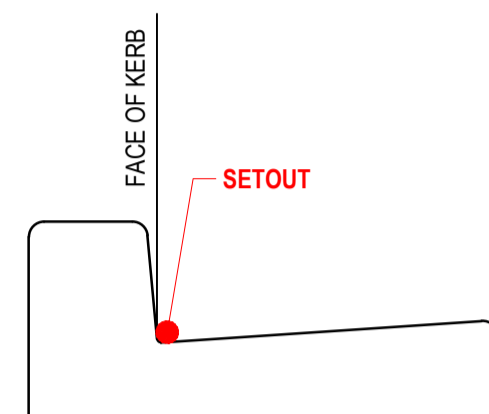


WILSON DRIVE (01) - HORIZONTAL SEGMENTS								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	774457.927	6154405.459	642.978	197°03'06.17"	LINE		40.371
	20.000	774452.062	6154386.338	642.844	197°03'06.17"			
	40.000	774446.197	6154367.217	642.990	197°03'06.17"			
TC	40.371	774446.088	6154366.862	642.994	197°03'06.17"	ARC	-25.000	2.816
CT	43.187	774445.416	6154364.129	643.025	190°35'55.00"	LINE		88.365
	60.000	774442.323	6154347.603	643.187	190°35'55.00"			
	80.000	774438.645	6154327.945	643.327	190°35'55.00"			
	100.000	774434.966	6154308.286	643.428	190°35'55.00"			
	120.000	774431.288	6154288.627	643.465	190°35'55.00"			
TC	131.552	774429.163	6154277.272	643.435	190°35'55.00"	ARC	19.500	30.959
	140.000	774425.887	6154269.557	643.389	215°25'16.83"		19.500	
	160.000	774408.572	6154261.411	643.220	274°11'10.48"		19.500	
CT	162.510	774406.087	6154261.755	643.197	281°33'45.00"	LINE		229.880
	180.000	774388.953	6154265.260	643.040	281°33'45.00"			
	200.000	774369.358	6154269.269	642.823	281°33'45.00"			
	220.000	774349.764	6154273.278	642.456	281°33'45.00"			
	240.000	774330.170	6154277.286	642.077	281°33'45.00"			
	260.000	774310.576	6154281.295	641.815	281°33'45.00"			
	280.000	774290.982	6154285.304	641.680	281°33'45.00"			
	300.000	774271.388	6154289.312	641.600	281°33'45.00"			
E	392.390	774180.873	6154307.831	640.692	281°33'45.00"			

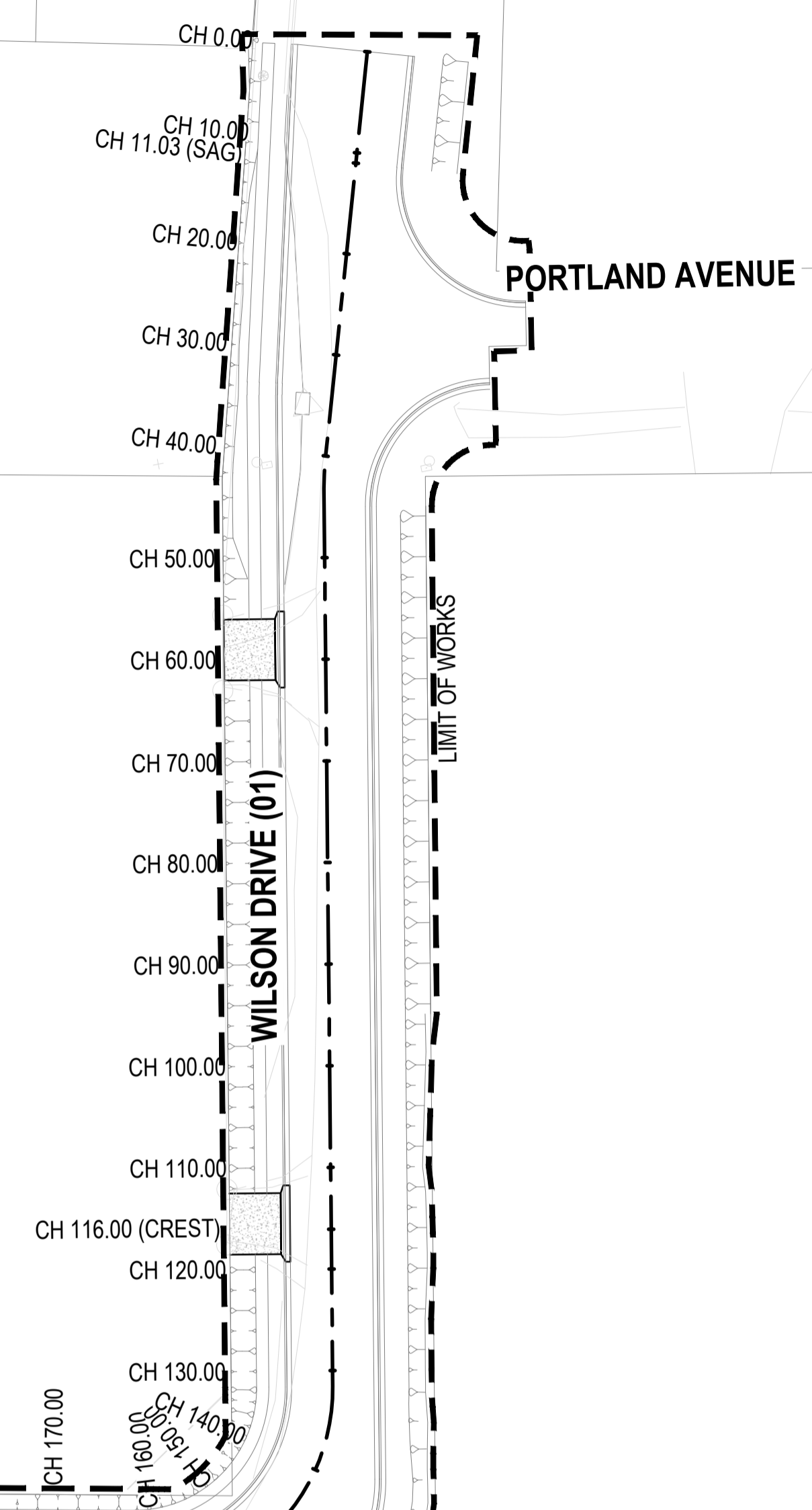
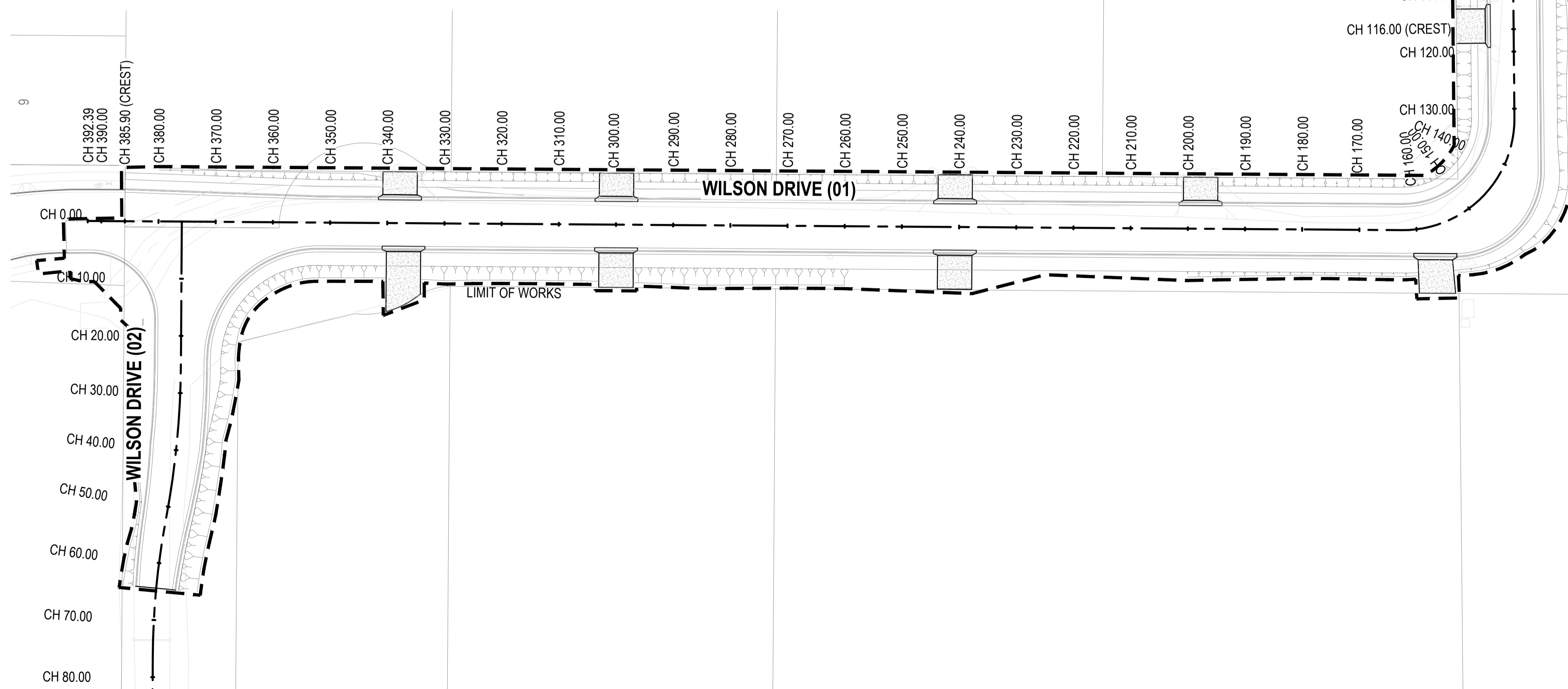
WILSON DRIVE (02) - HORIZONTAL SEGMENTS								
PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING	DEP.SEG	DEP.RAD	DEP.LEN
S	0.000	774197.012	6154304.529	640.563	191°33'50.00"	LINE		25.246
TC	25.246	774191.951	6154279.796	640.563	191°33'50.00"	ARC	150.000	26.582
CT	51.828	774184.349	6154254.361	639.929	201°43'02.77"	LINE		0.527
TC	52.354	774184.154	6154253.871	639.917	201°43'02.77"	ARC	-135.000	24.192
CT	76.546	774177.258	6154230.717	639.432	191°27'00.84"	LINE		17.864
E	94.410	774173.712	6154213.208	639.031	191°27'00.84"			



**GMC RESIDENTIAL LAYBACK KERB**  
REFER TO DRG. No.SD-R-05



**GMC BARRIER KERB AND GUTTER**  
REFER TO DRG. No.SD-R-05



C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021
Rev	Revision Description	Date



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Client  
**FDC CONSTRUCTION**

Project  
**WILSON DRIVE, MARULAN**

Title  
**ROAD SETOUT PLAN**

Scale:  
**AS SHOWN**

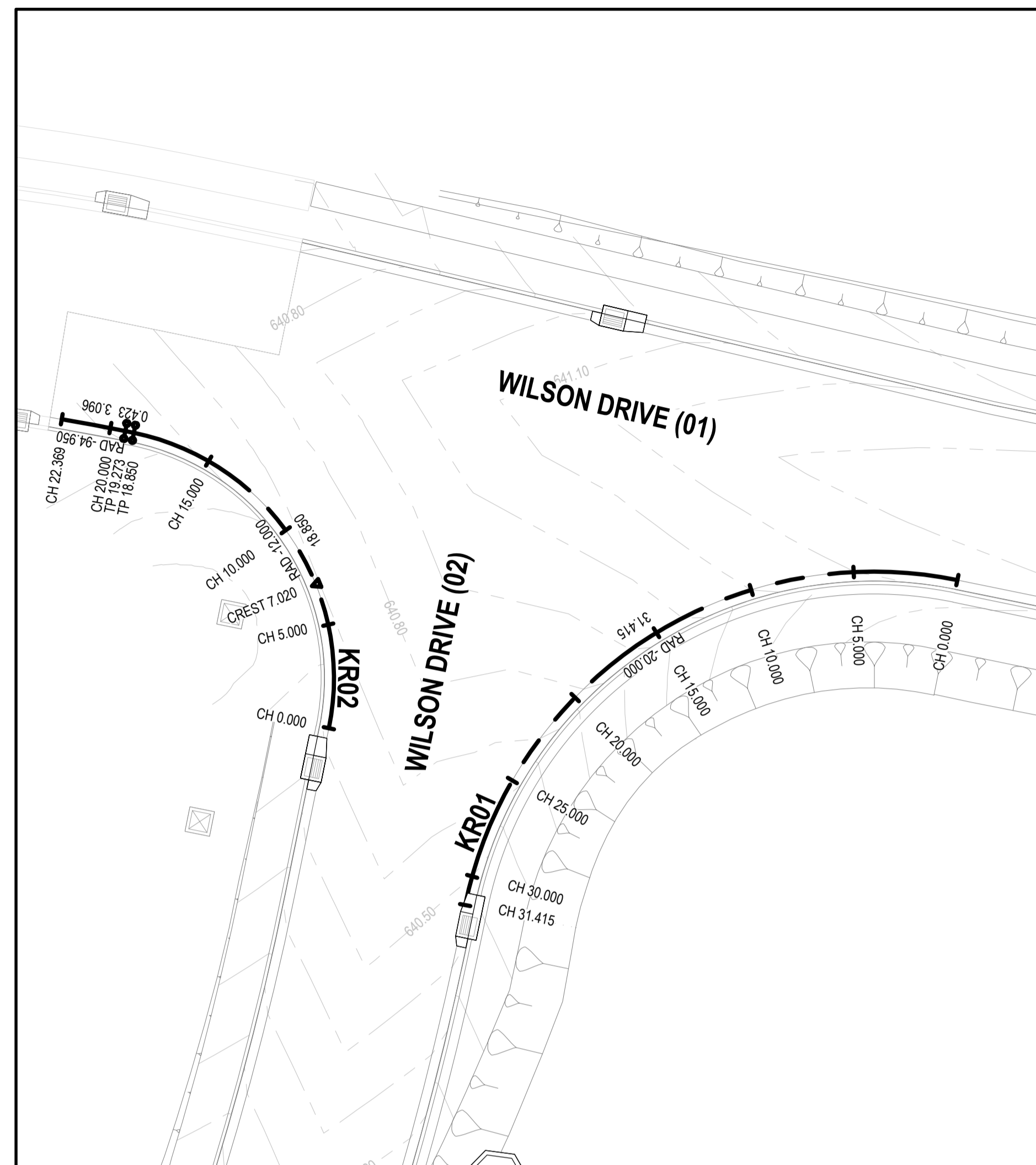
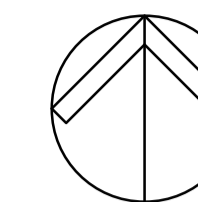


Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		

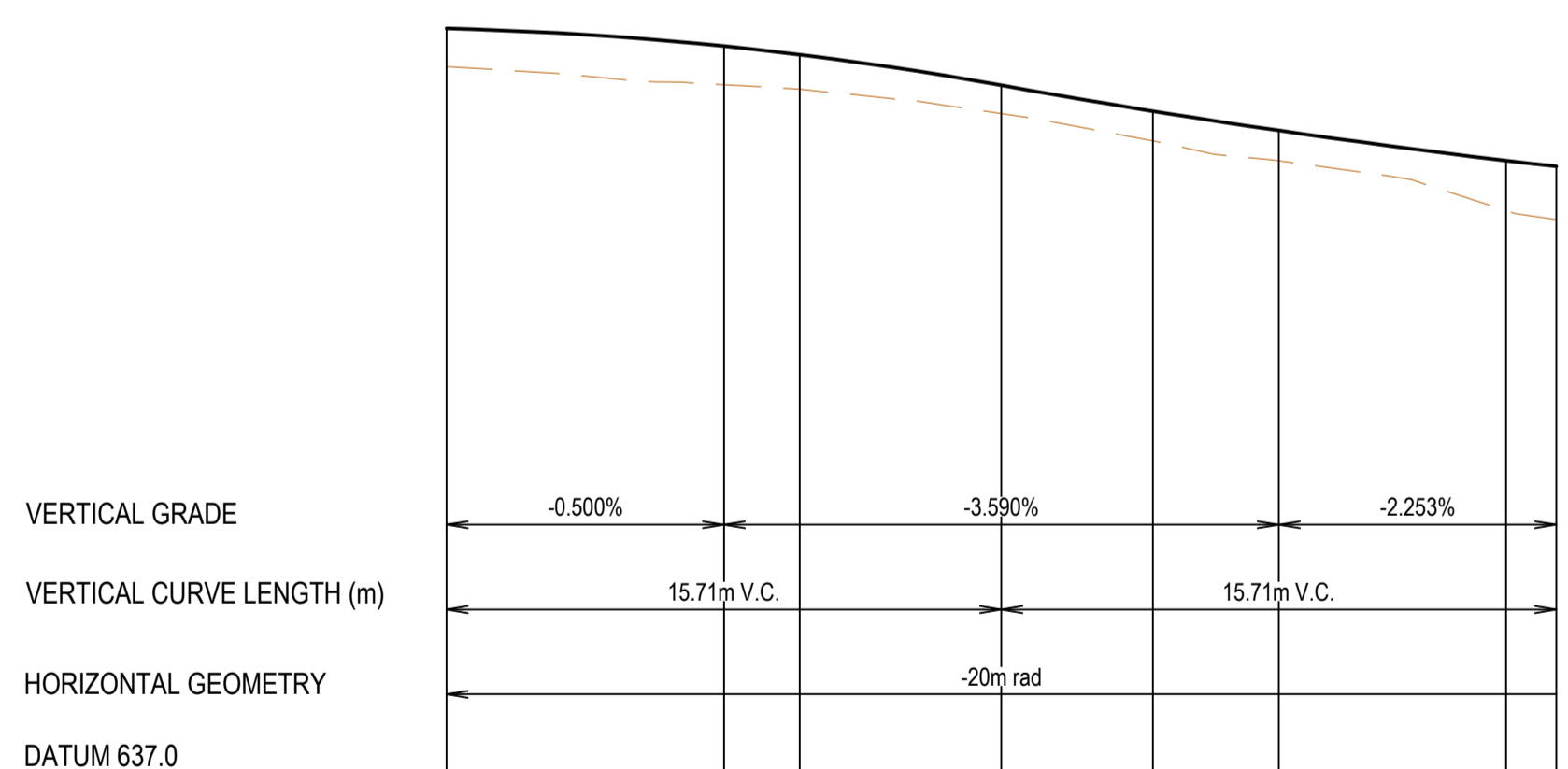
Project Number	Drawing Number	Revision
<b>S210044</b>	<b>C-04-0001</b>	<b>C</b>



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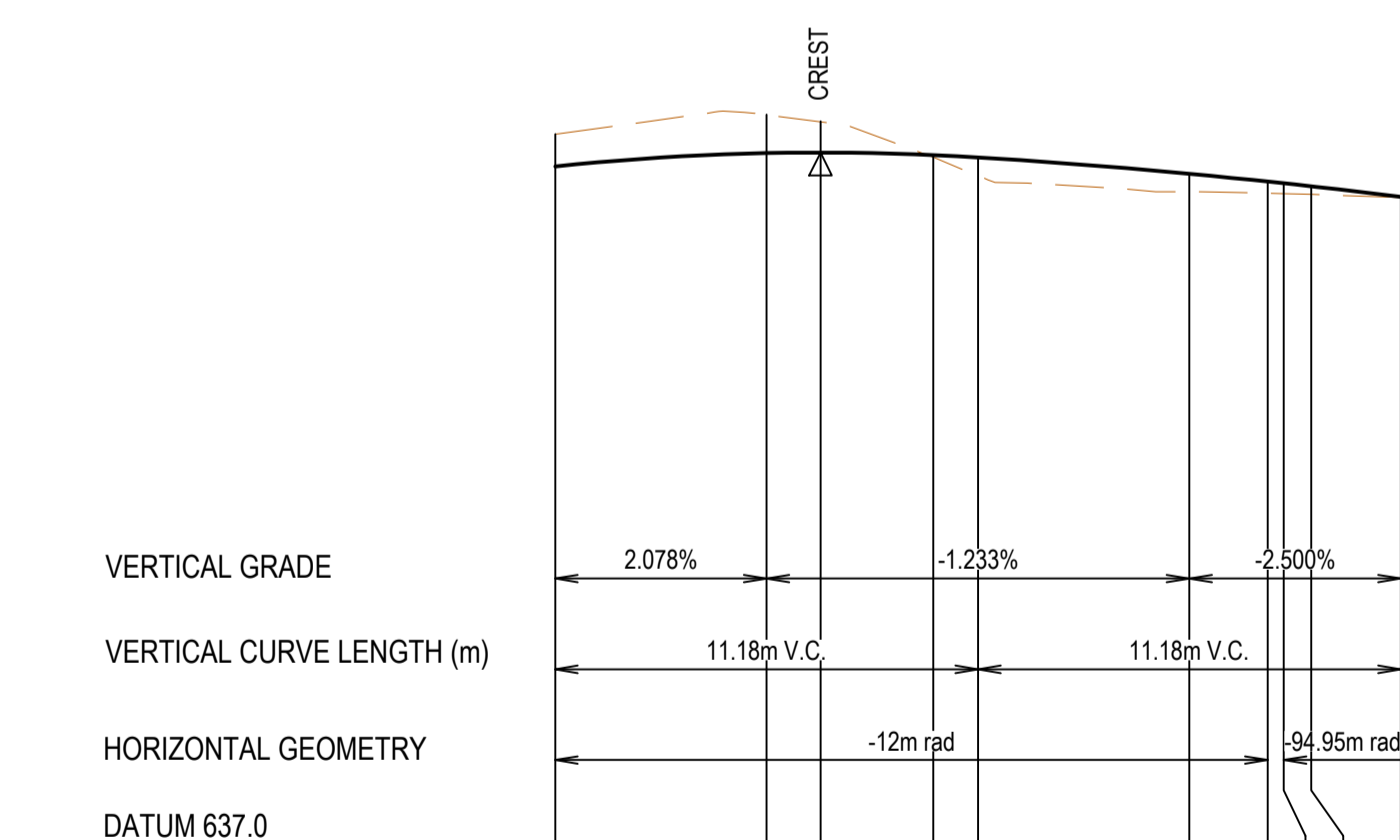
**PLAN**  
SCALE 1:200



DESIGN LEVELS	641.249	641.149	641.100	640.927	640.781	640.672	640.501	640.468
EXISTING LEVELS	641.032	640.934	640.906	640.770	640.613	640.501	640.219	640.168
CHAINAGE	0.00	7.85	10.00	15.71	20.00	23.56	30.00	31.42

**KERB RETURN - KR 01 WILSON DR**

Vertical scale 1:40  
Horizontal scale 1:200



DESIGN LEVELS	640.620	640.690	640.693	640.680	640.667	640.551	640.540	640.531	640.515	640.459
EXISTING LEVELS	640.790	640.895	640.898	640.668	640.573	640.487	640.479	640.476	640.472	640.456
CHAINAGE	0.00	5.59	7.02	10.00	11.18	16.78	18.85	19.27	20.00	22.37

**KERB RETURN - KR 02 WILSON DR**

Vertical scale 1:40  
Horizontal scale 1:200

Rev	Revision Description	Date
B	RE-ISSUED FOR SECTION 138	24.02.2022
A	ISSUED FOR SECTION 138	25.11.2021

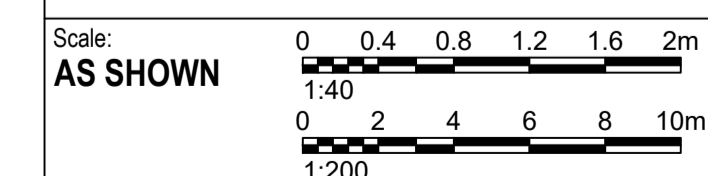


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Client  
**FDC CONSTRUCTION**

Project  
**WILSON DRIVE, MARULAN**

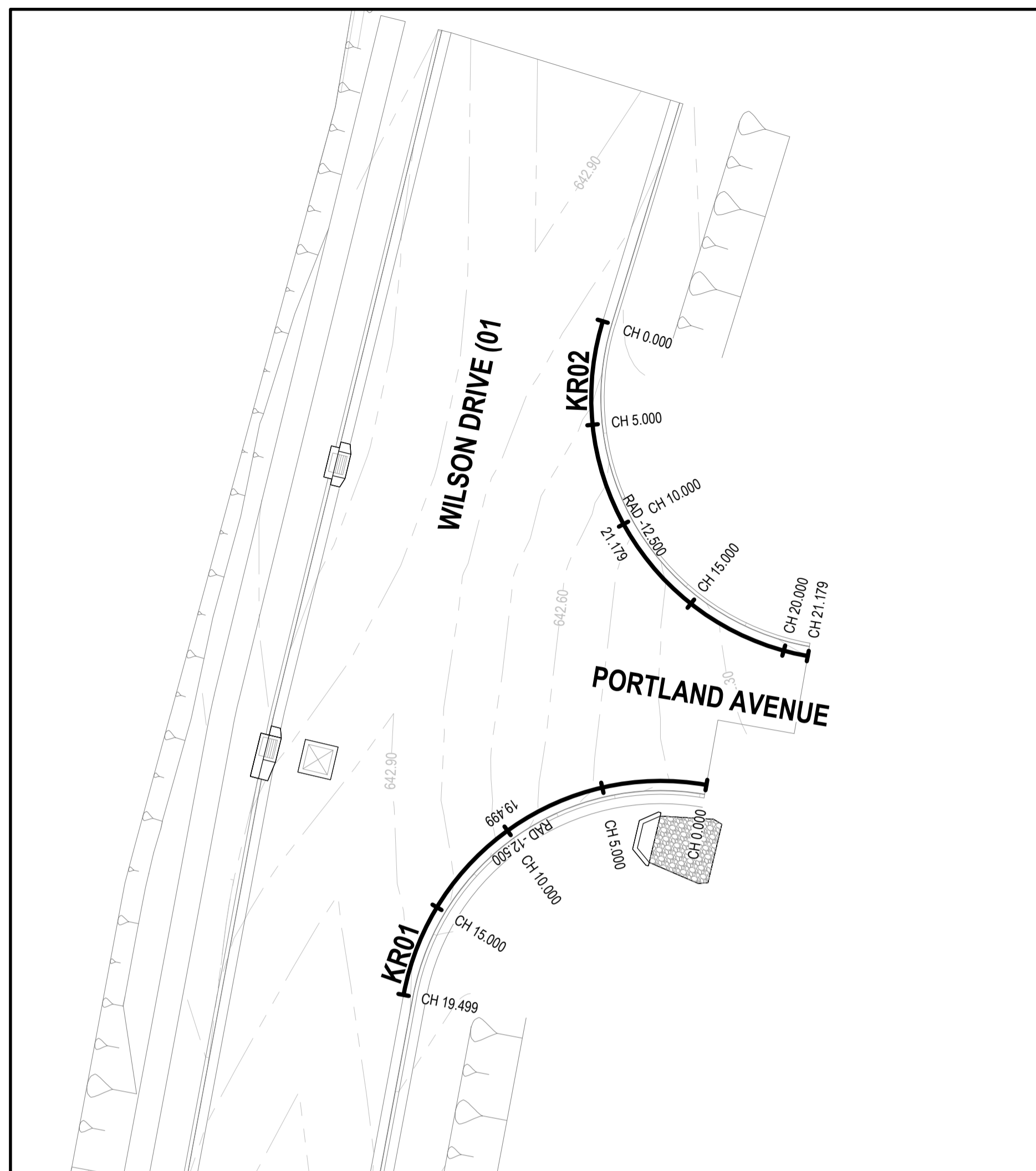
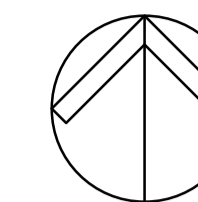
Title  
**ROAD KERB RETURNS - SHEET 1**



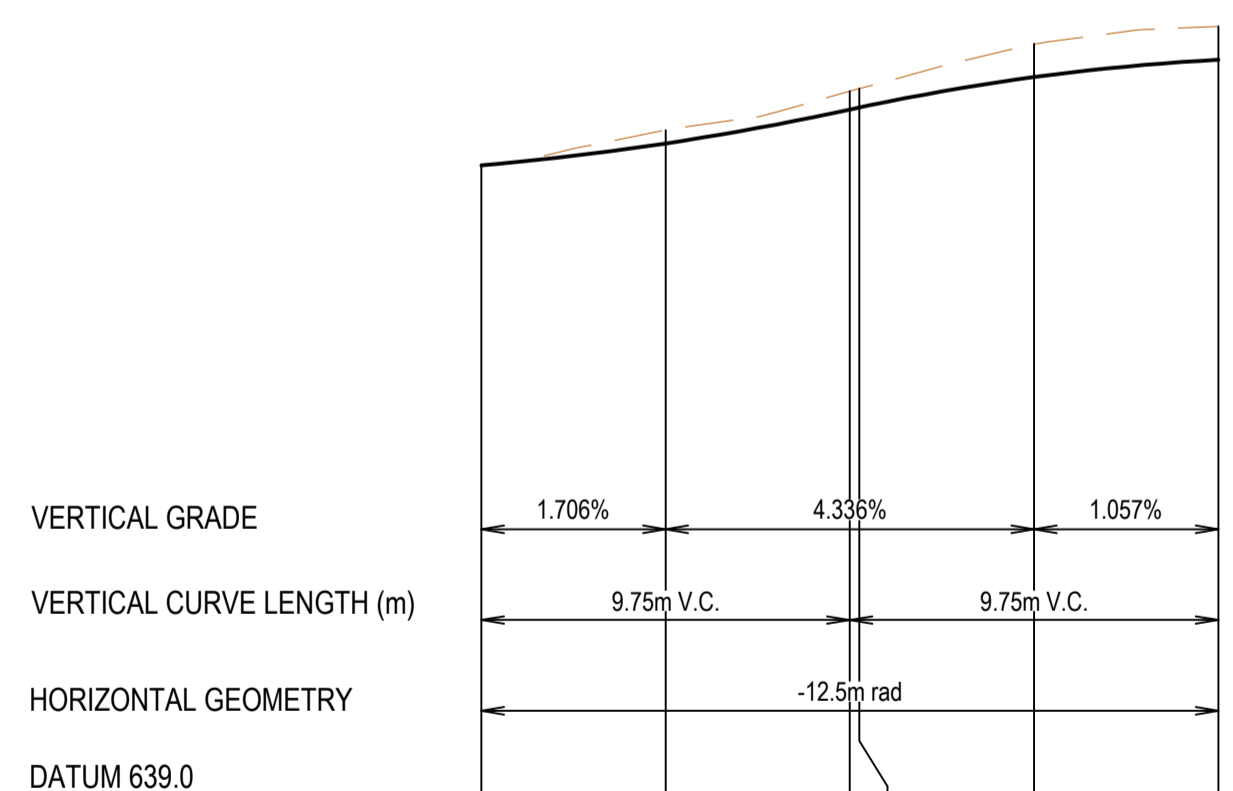
Drawn <b>E.F.</b>	Designed <b>B.K./H.D.</b>	Checked	Approved
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Project Number <b>S210044</b>	Drawing Number <b>C-04-1001</b>	Revision <b>B</b>
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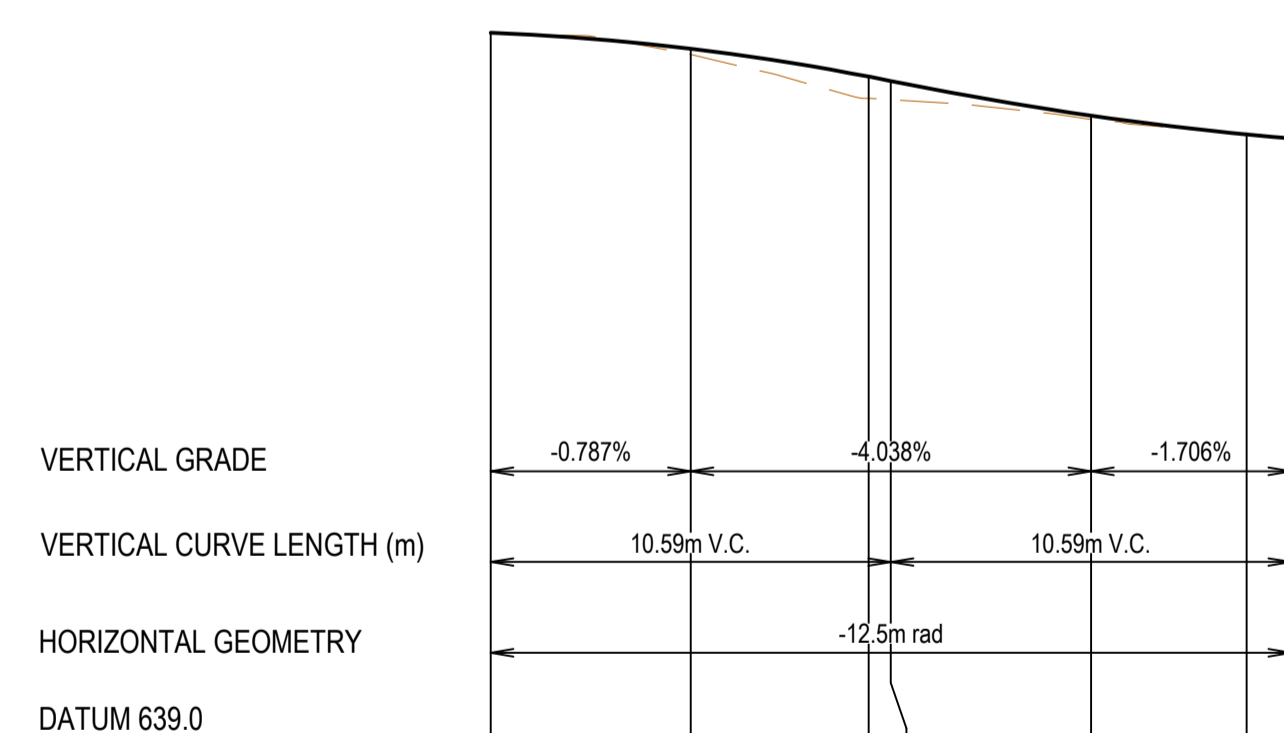
**PLAN**  
SCALE 1:200



DESIGN LEVELS	642.366	642.481	642.660	642.671	642.832	642.923
EXISTING LEVELS	642.366	642.552	642.758	642.772	643.008	643.099
CHAINAGE	0.00	4.87	9.75	10.00	14.62	19.50

**KERB RETURN - KR01 PORTLAND AVE**

Vertical scale 1:40  
Horizontal scale 1:200



DESIGN LEVELS	642.760	642.675	642.527	642.504	642.321	642.222
EXISTING LEVELS	642.758	642.646	642.412	642.408	642.303	642.227
CHAINAGE	0.00	5.29	10.00	10.59	15.88	20.00

**KERB RETURN - KR02 PORTLAND AVE**

Vertical scale 1:40  
Horizontal scale 1:200

Rev	Revision Description	Date
B	RE-ISSUED FOR SECTION 138	24.02.2022
A	ISSUED FOR SECTION 138	25.11.2021

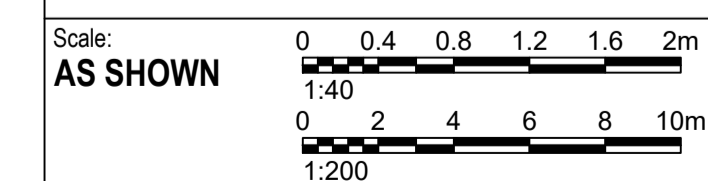


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Client  
**FDC CONSTRUCTION**

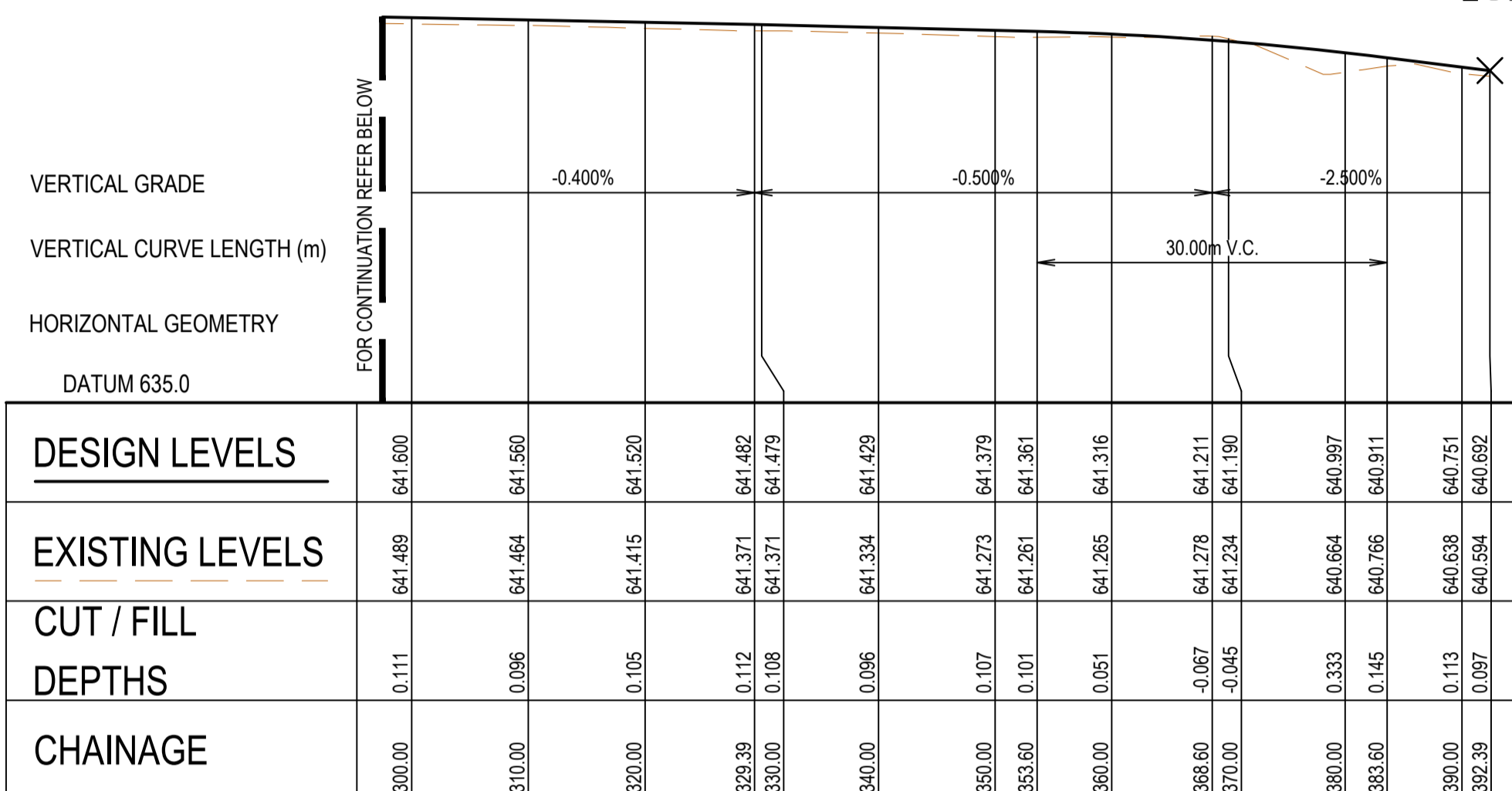
Project  
**WILSON DRIVE, MARULAN**

Title  
**ROAD KERB RETURNS - SHEET 2**



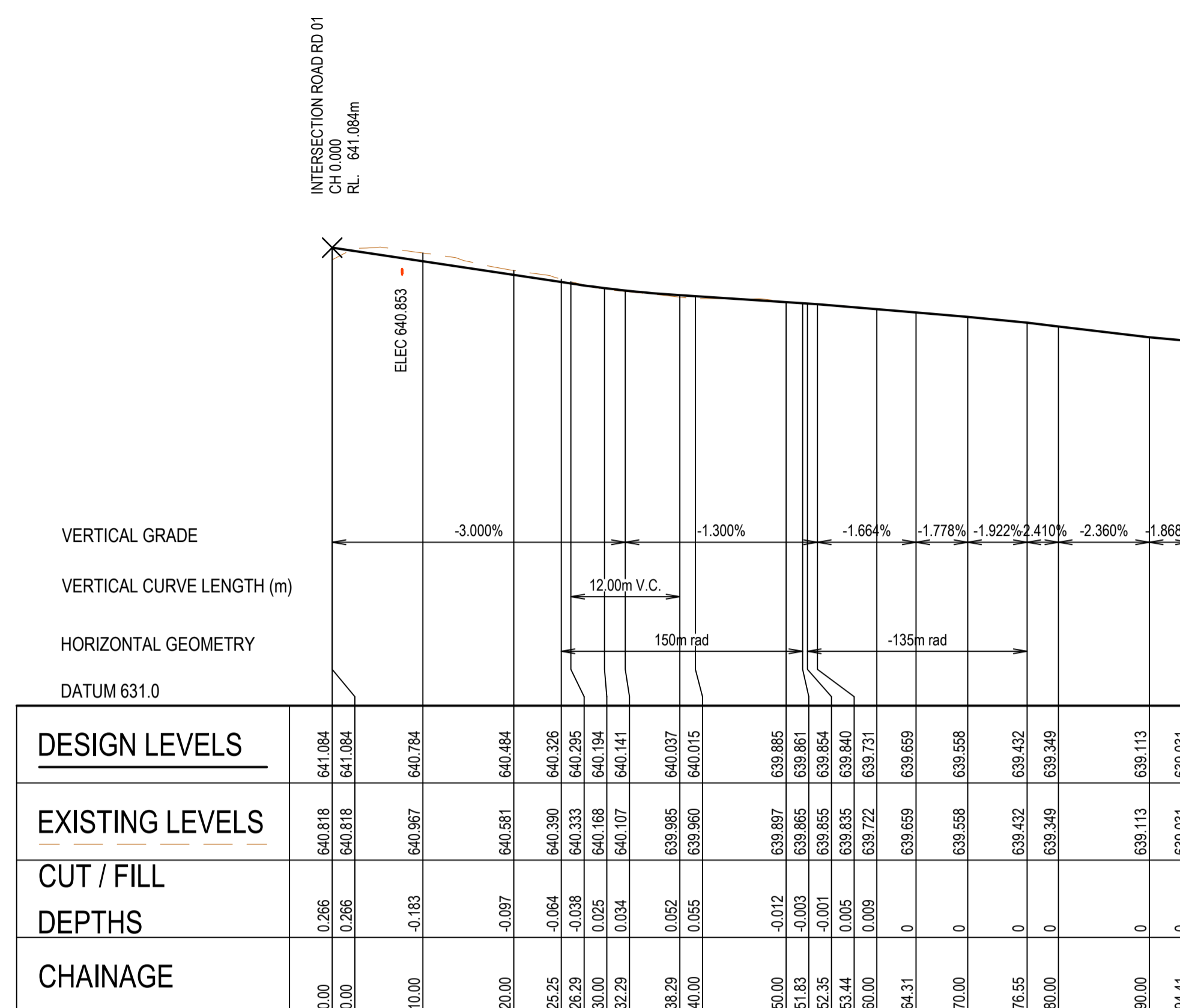
Drawn <b>E.F.</b>	Designed <b>B.K./H.D.</b>	Checked	Approved
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Project Number <b>S210044</b>	Drawing Number <b>C-04-1002</b>	Revision <b>B</b>
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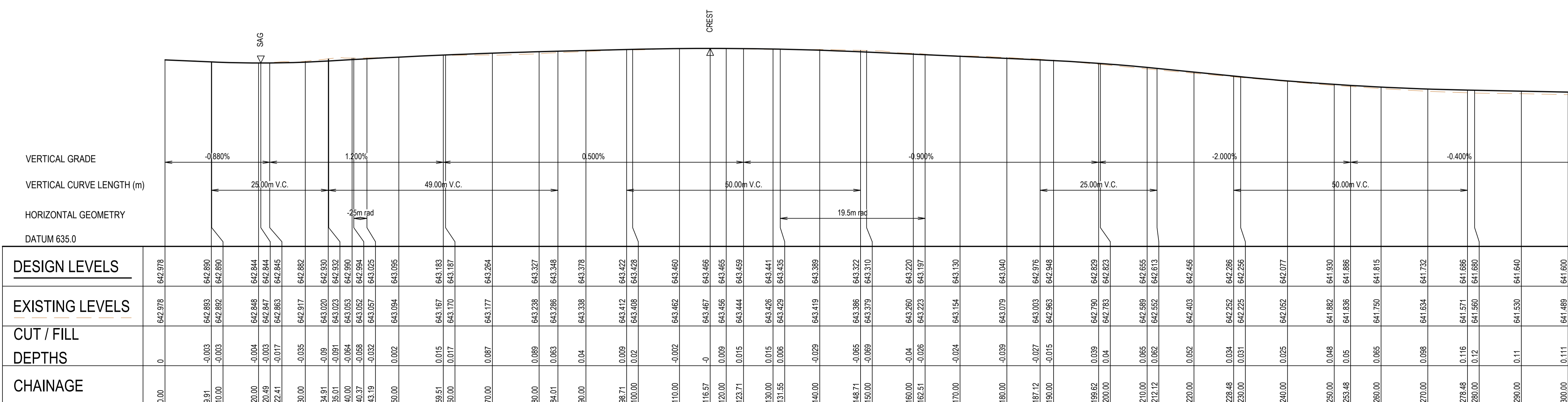
**WILSON DRIVE (01) - LONGITUDINAL SECTION**

Vertical scale 1:100  
Horizontal scale 1:500



**WILSON DRIVE (02) - LONGITUDINAL SECTION**

Vertical scale 1:100  
Horizontal scale 1:500



**WILSON DRIVE (01) - LONGITUDINAL SECTION**

Vertical scale 1:100  
Horizontal scale 1:500

C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021
Rev	Revision Description	Date

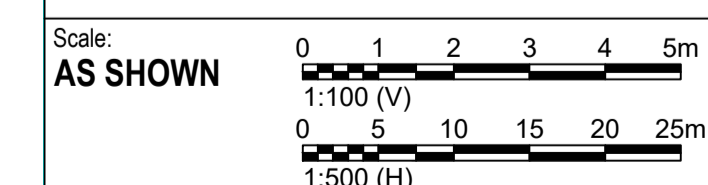


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Client: **FDC CONSTRUCTION**

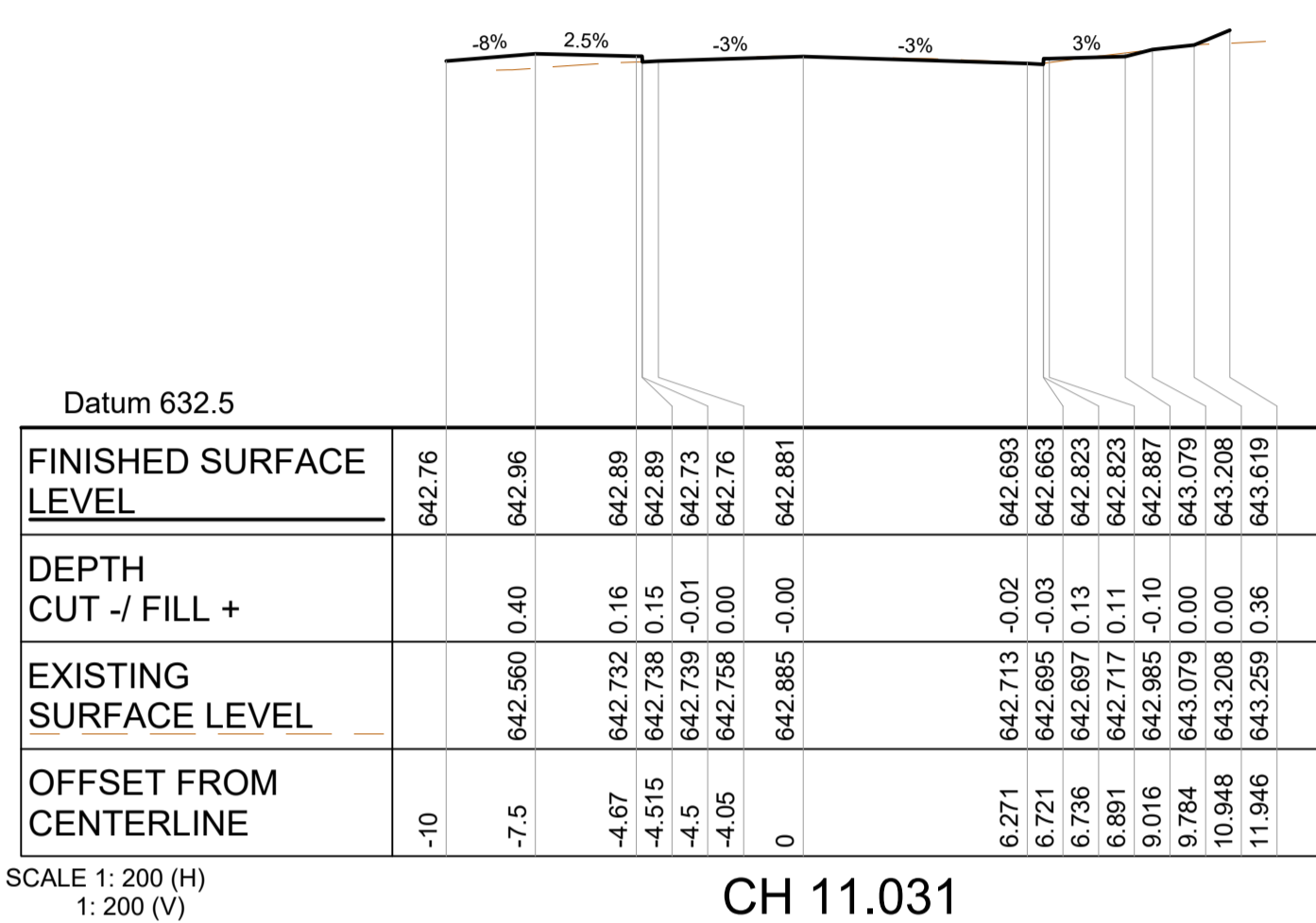
Project: **WILSON DRIVE, MARULAN**

Title: **WILSON DRIVE 01 & 02 LONGITUDINAL SECTIONS**

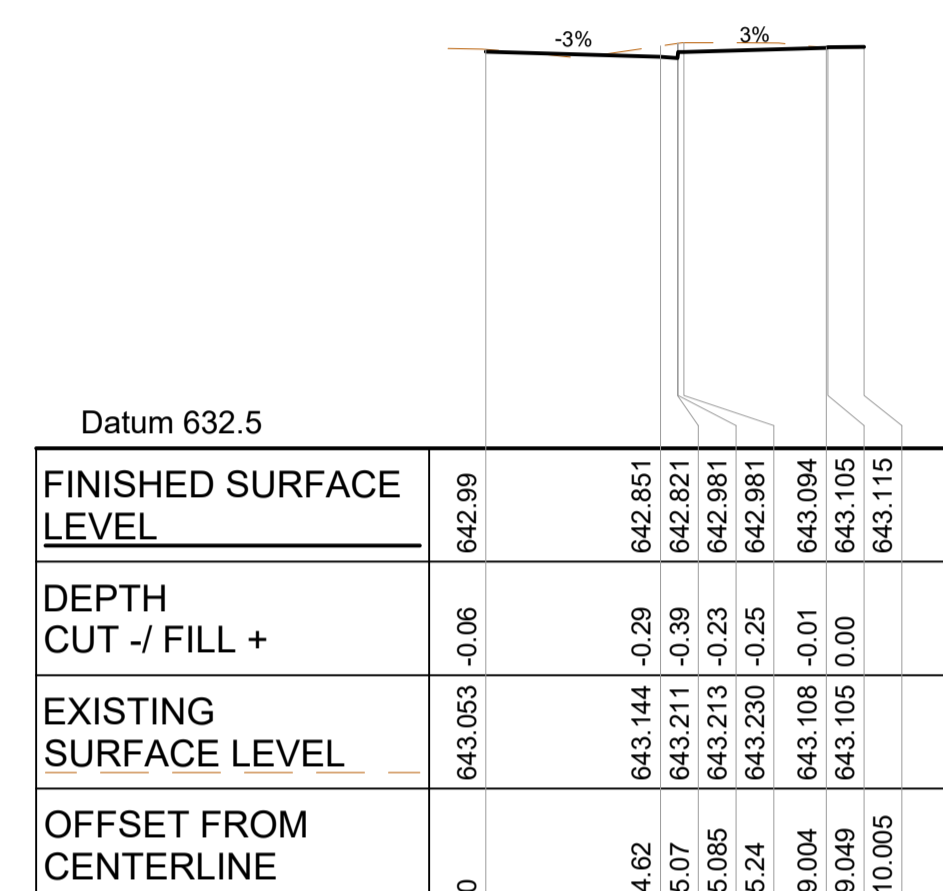


Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		

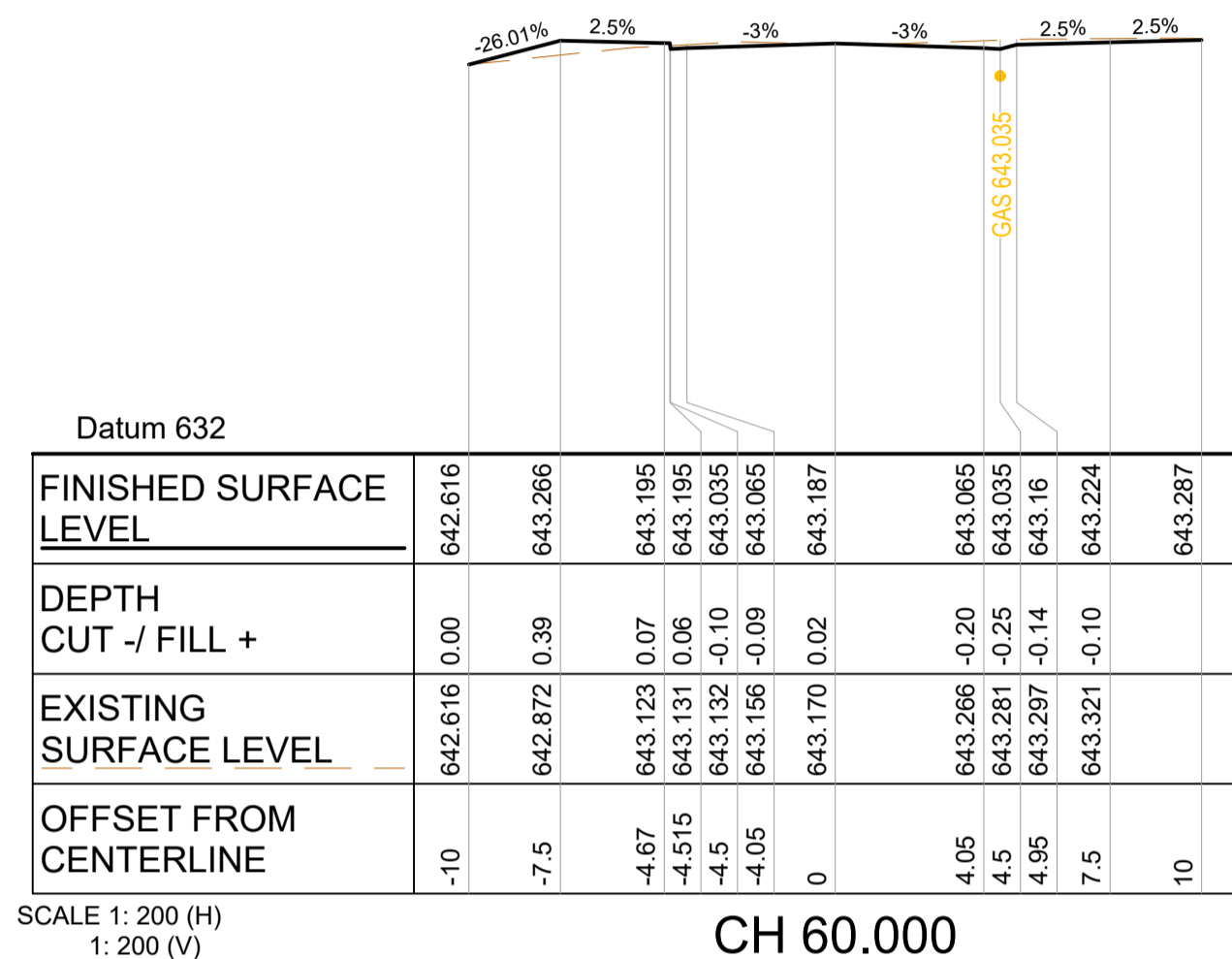
Project Number	Drawing Number	Revision
S210044	C-04-3001	C



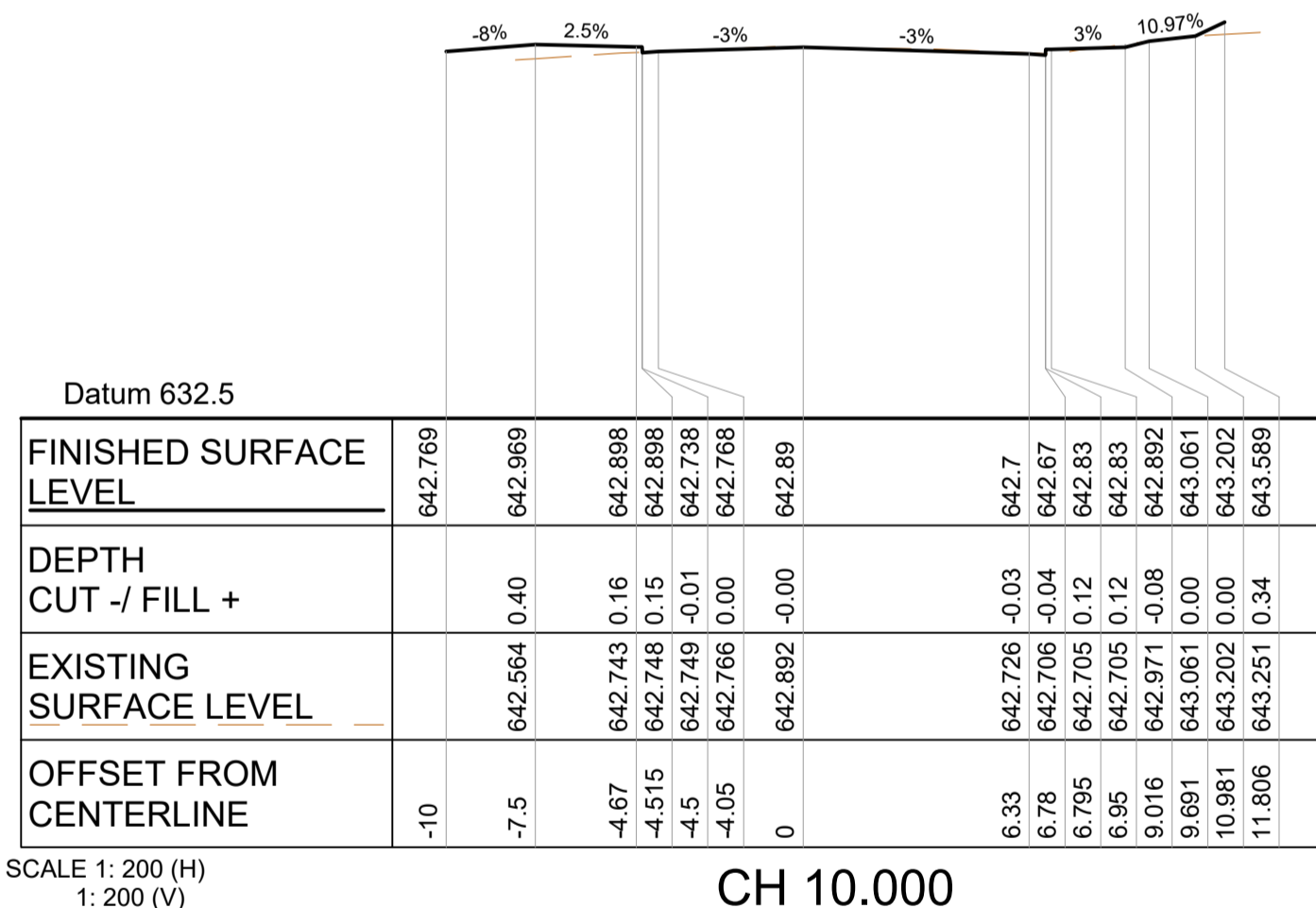
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1: 200 (V)  
CH 11.031



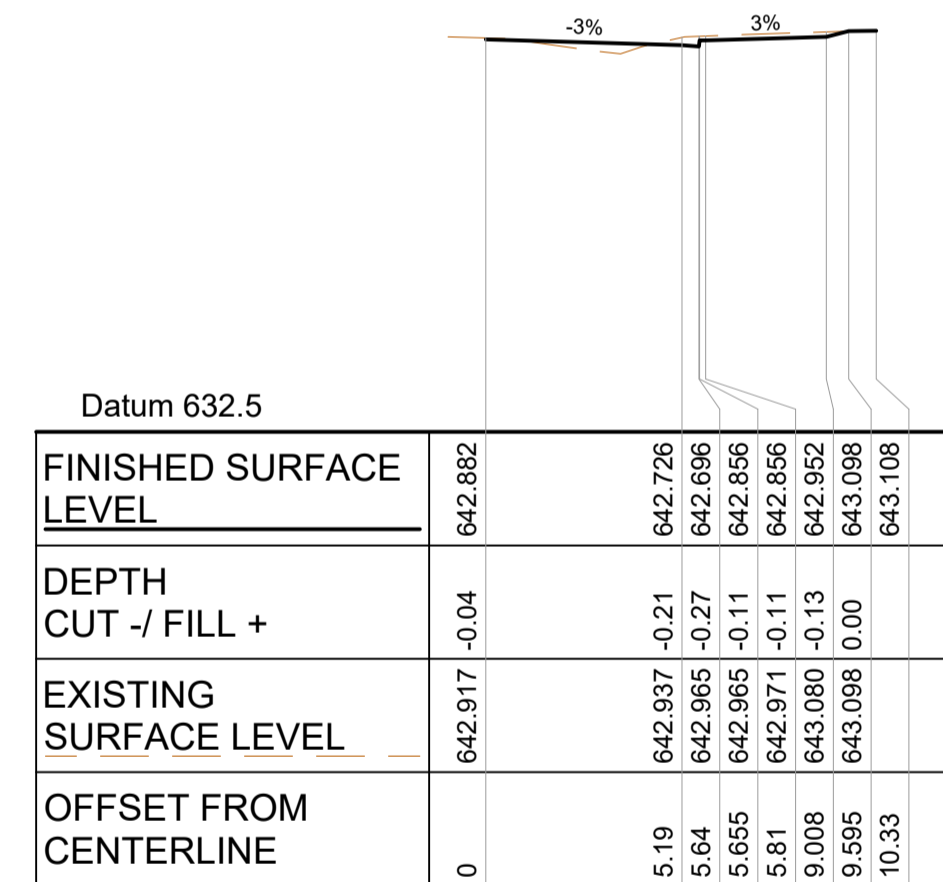
SCALE 1: 200 (H)  
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CH 40.000



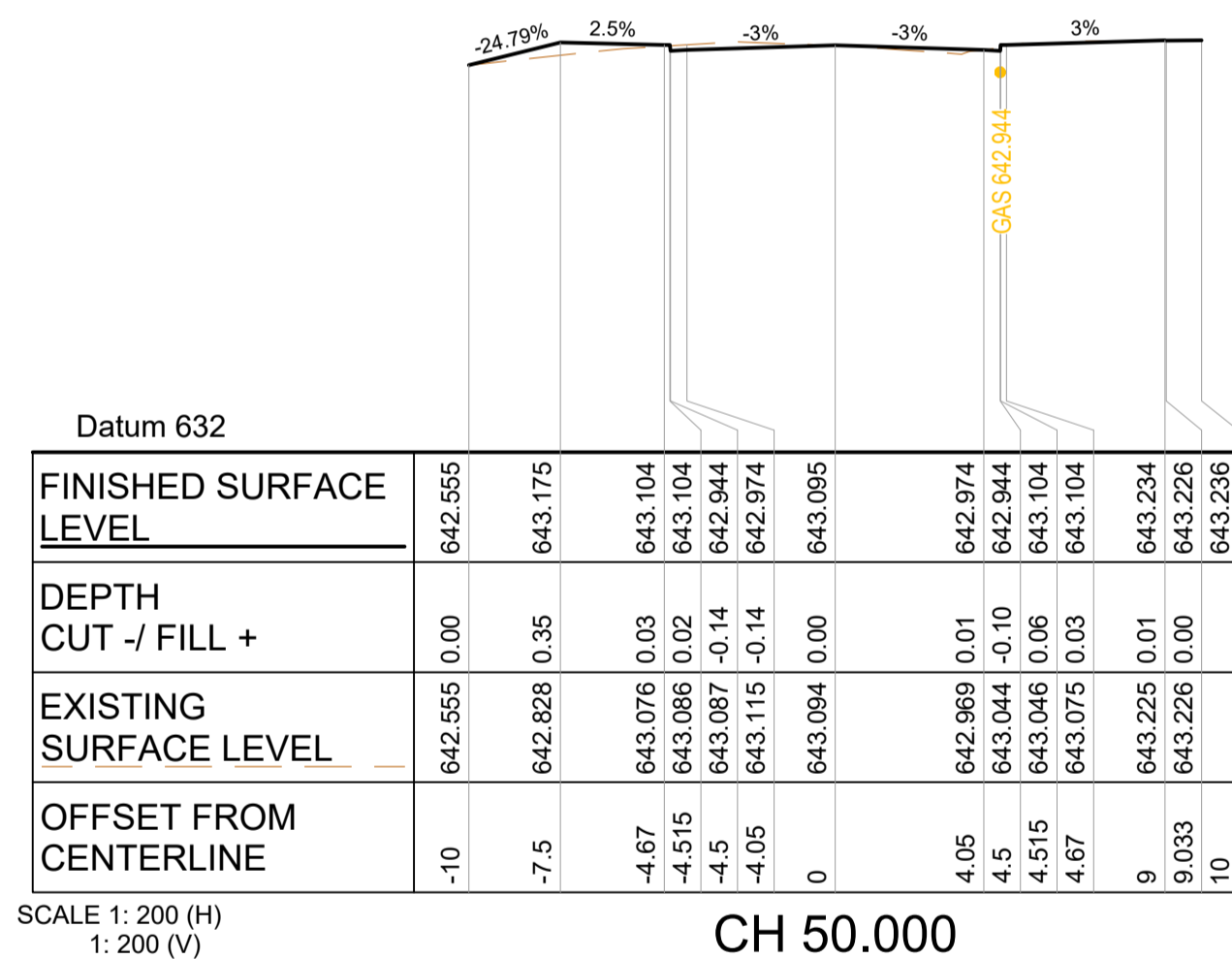
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1: 200 (V)  
CH 60.000



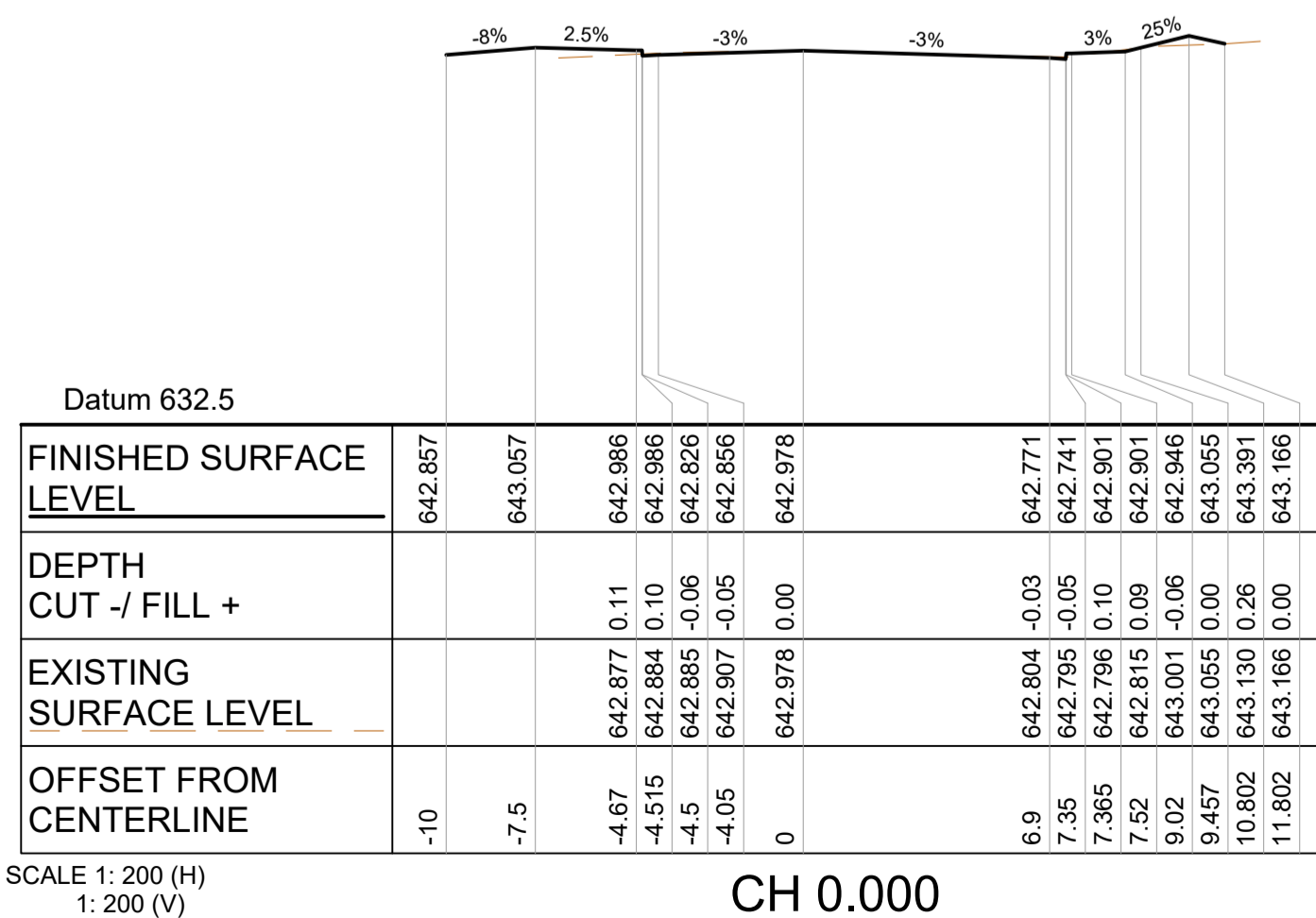
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1: 200 (V)  
CH 10.000



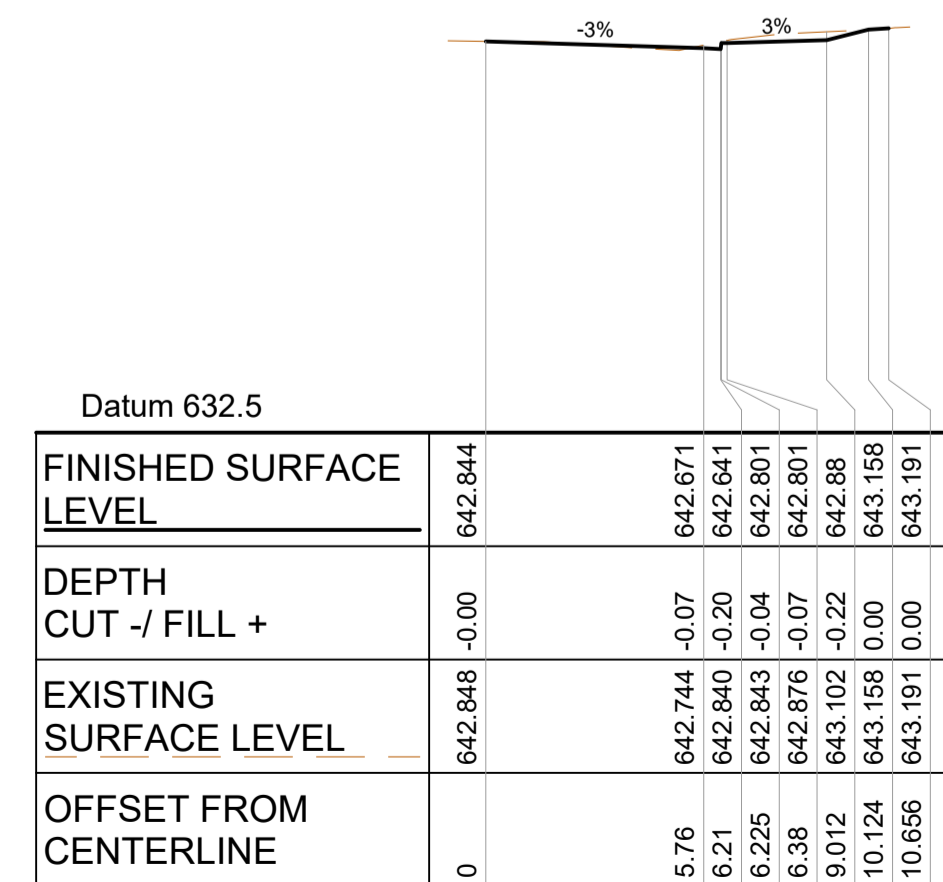
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CH 30.000



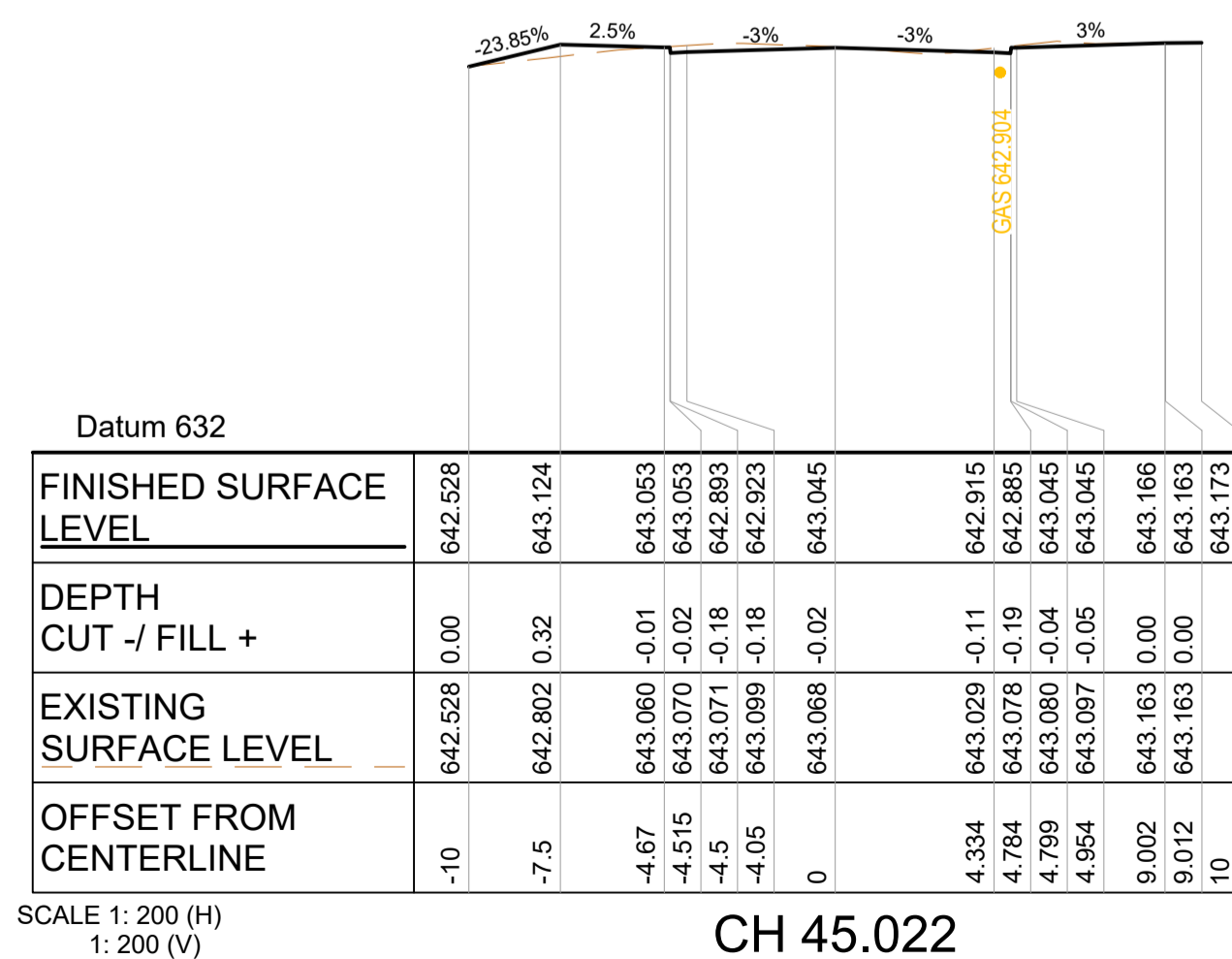
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CH 50.000



SCALE 1: 200 (H)  
1: 200 (V)  
CH 0.000



SCALE 1: 200 (H)  
1: 200 (V)  
CH 20.000



SCALE 1: 200 (H)  
1: 200 (V)  
CH 45.022

Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021

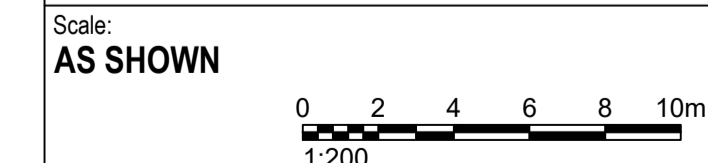


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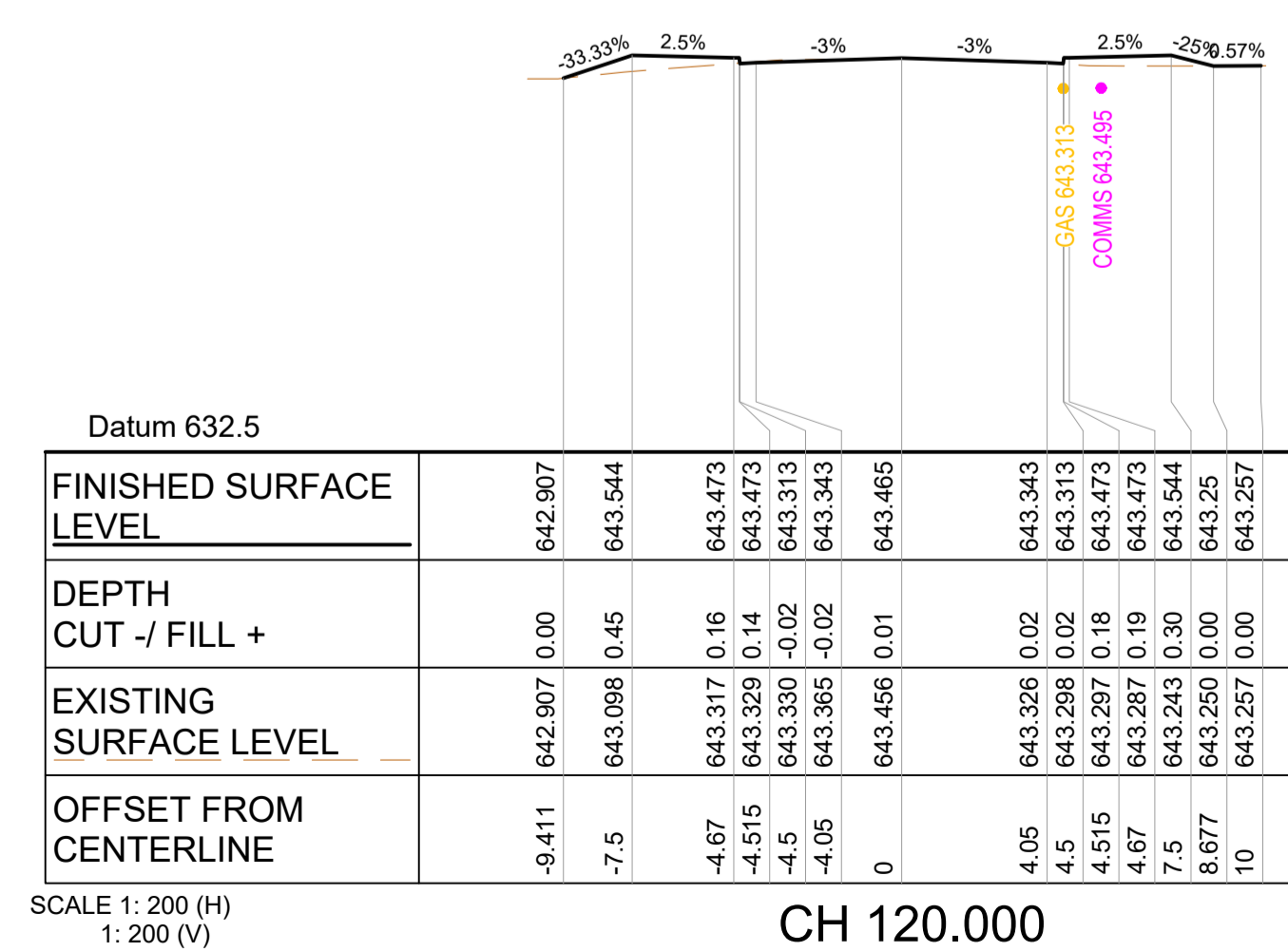
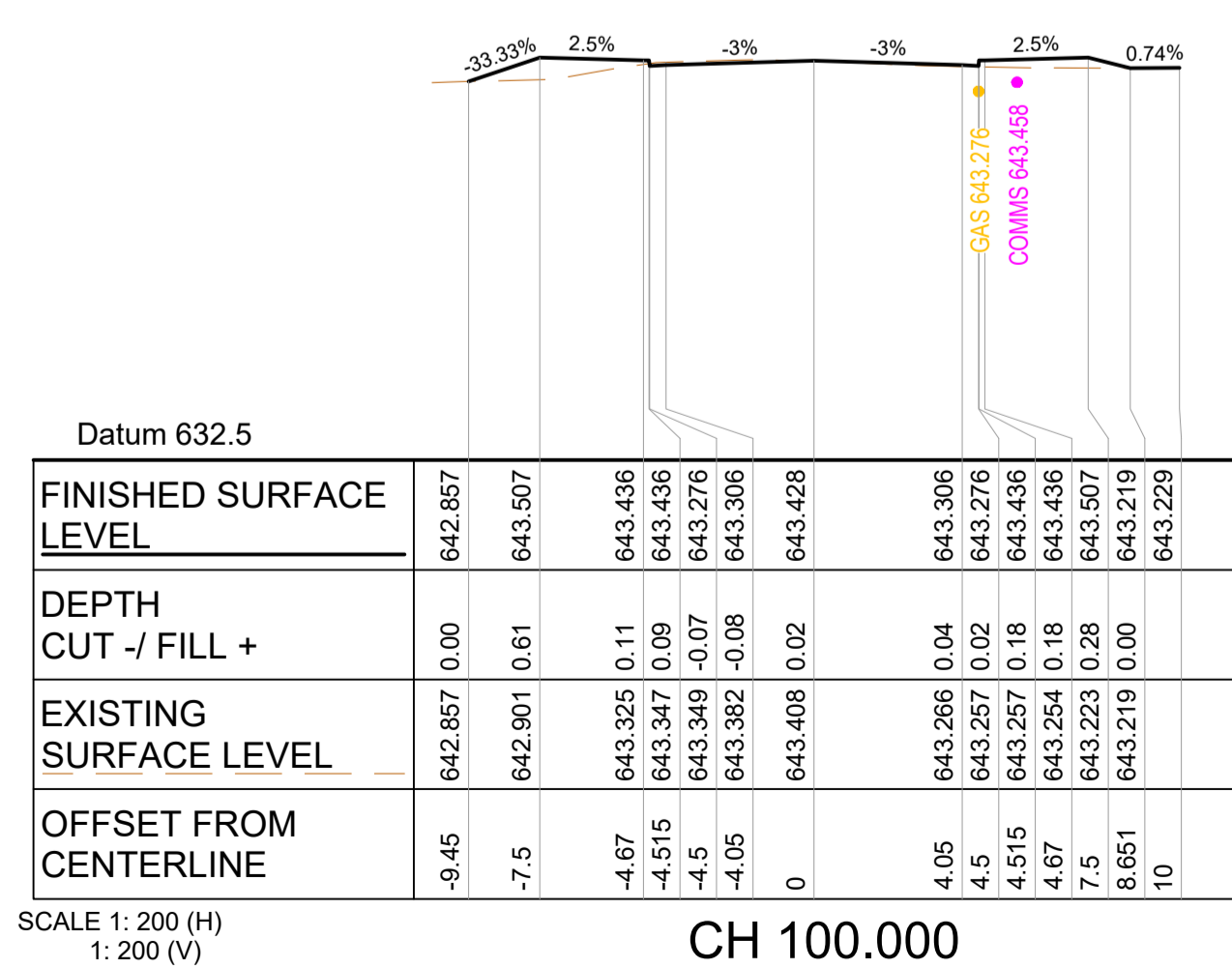
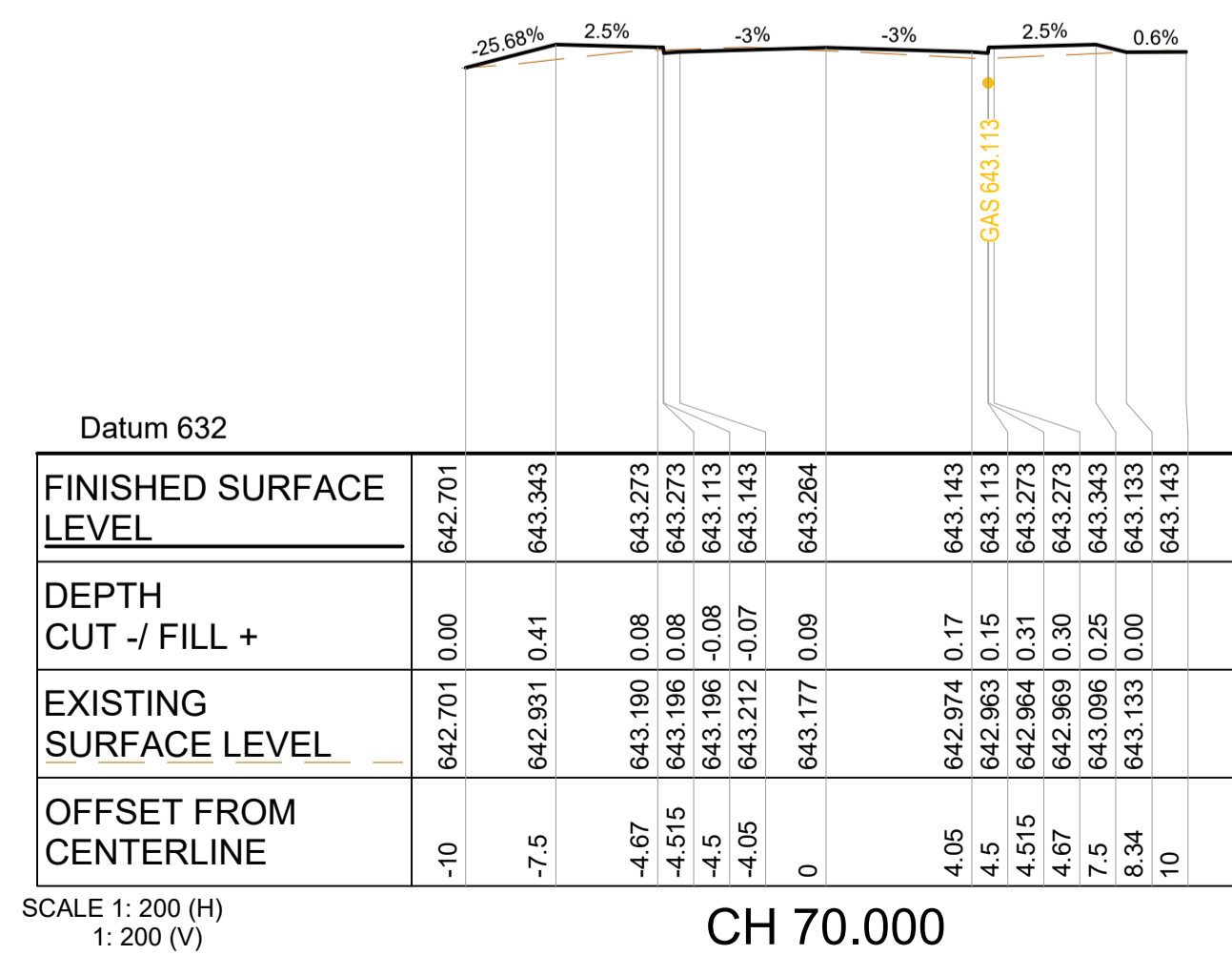
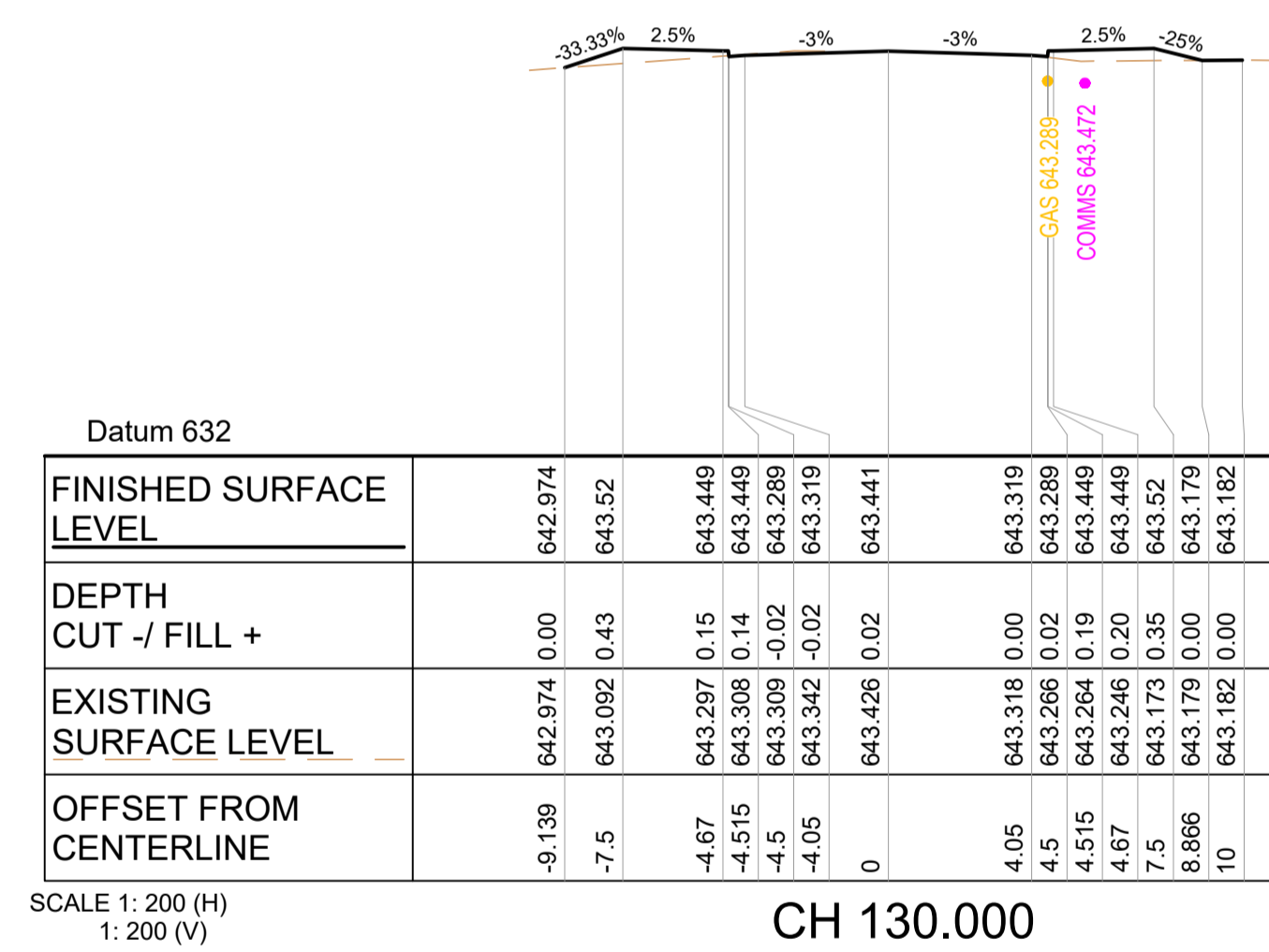
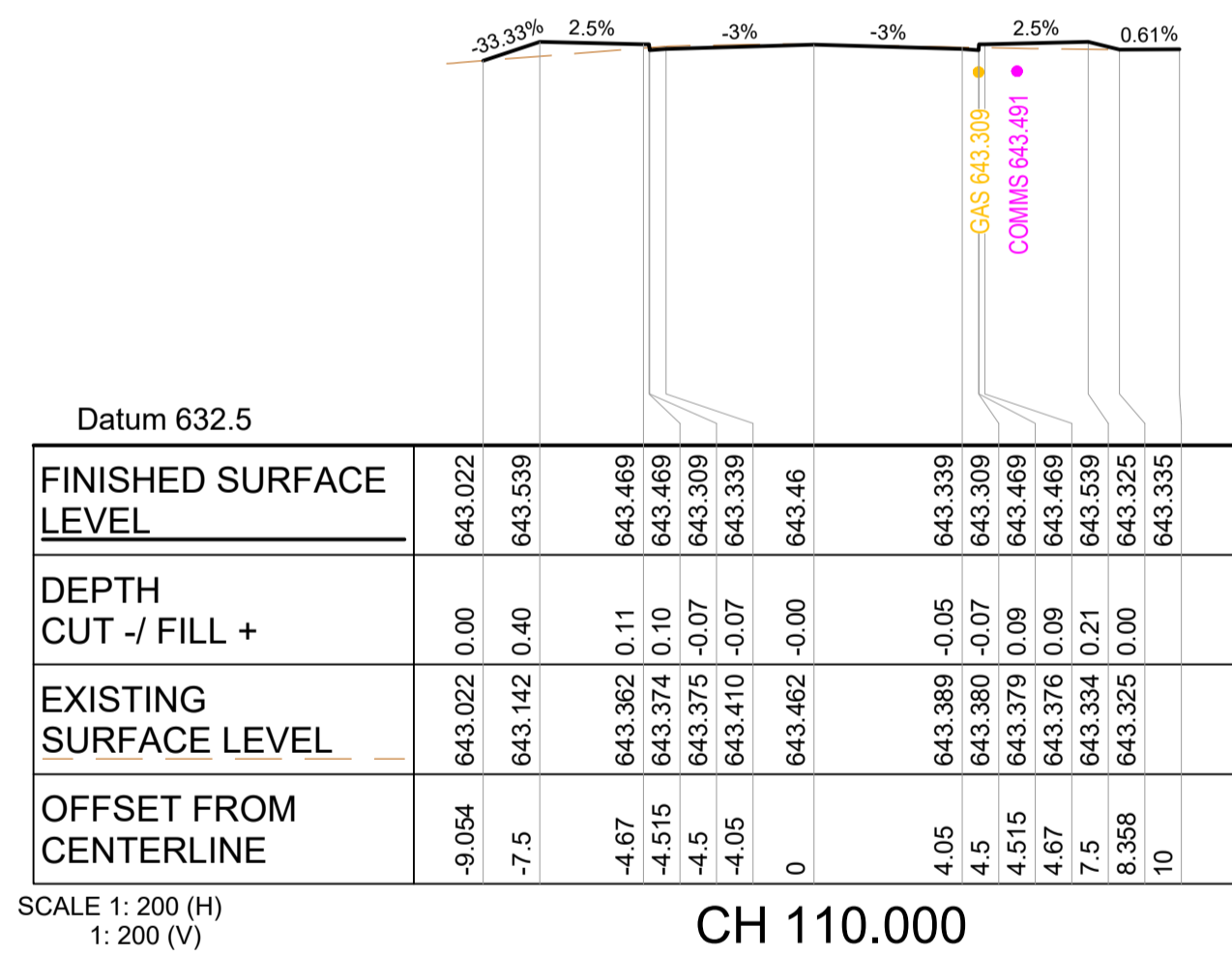
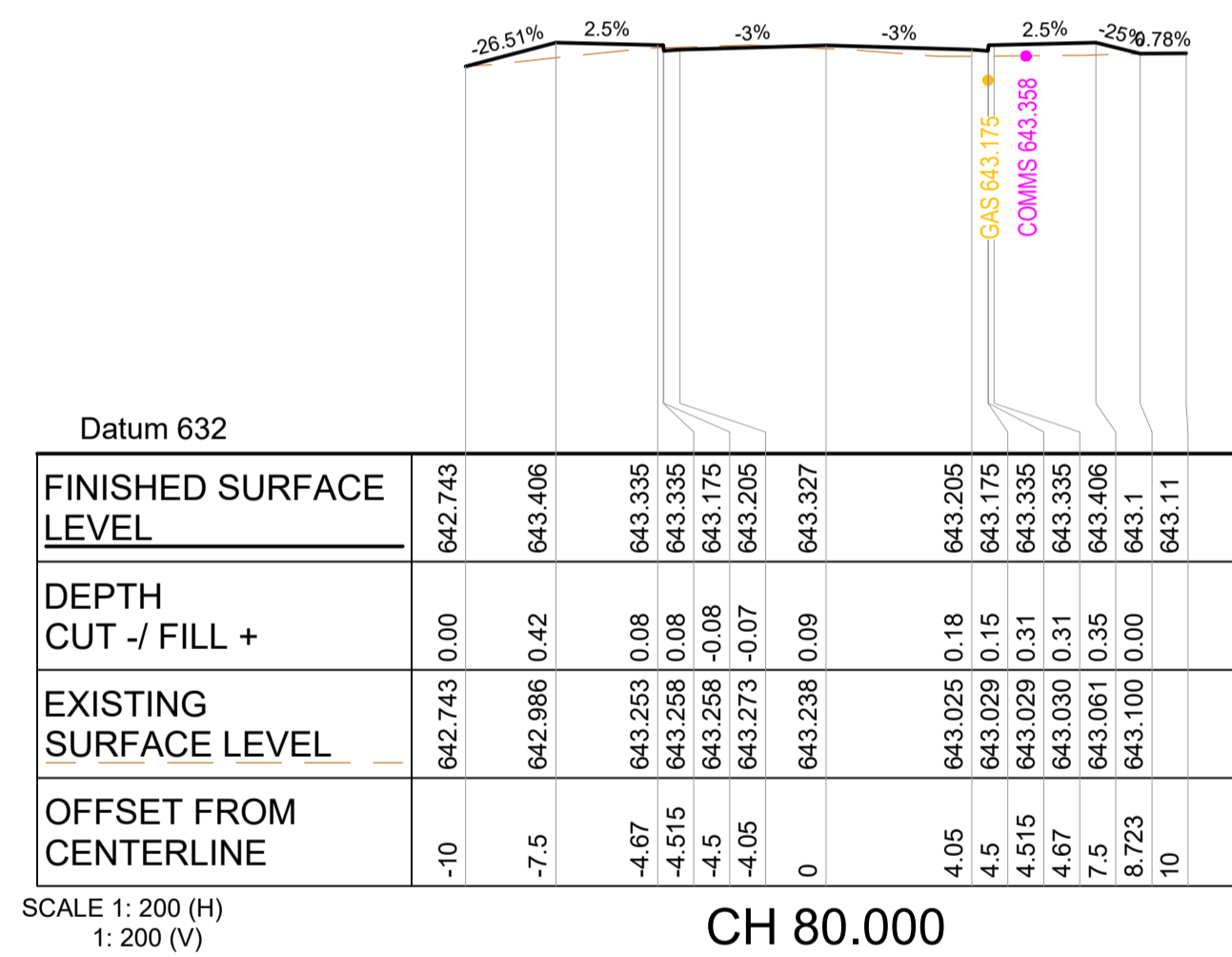
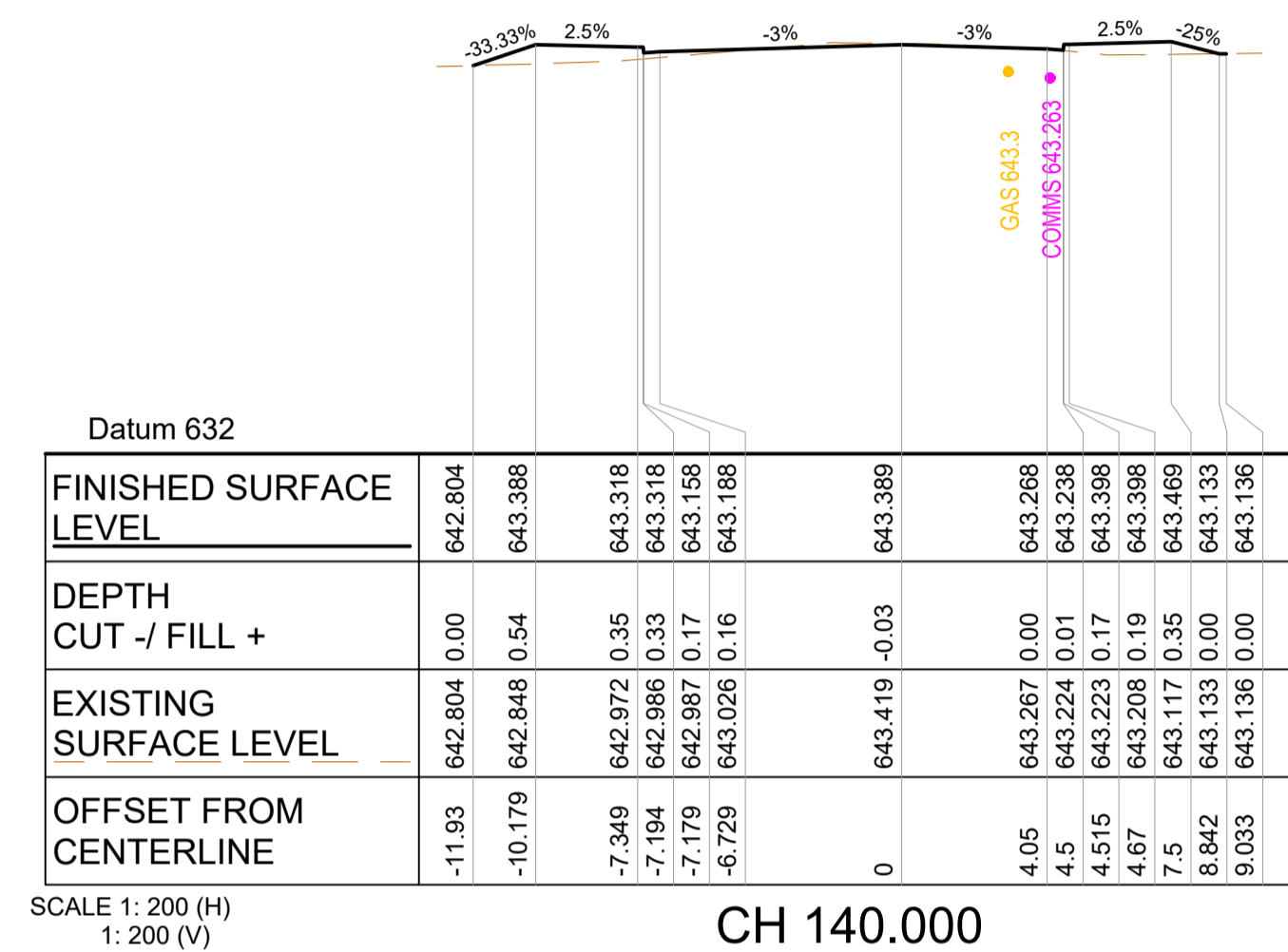
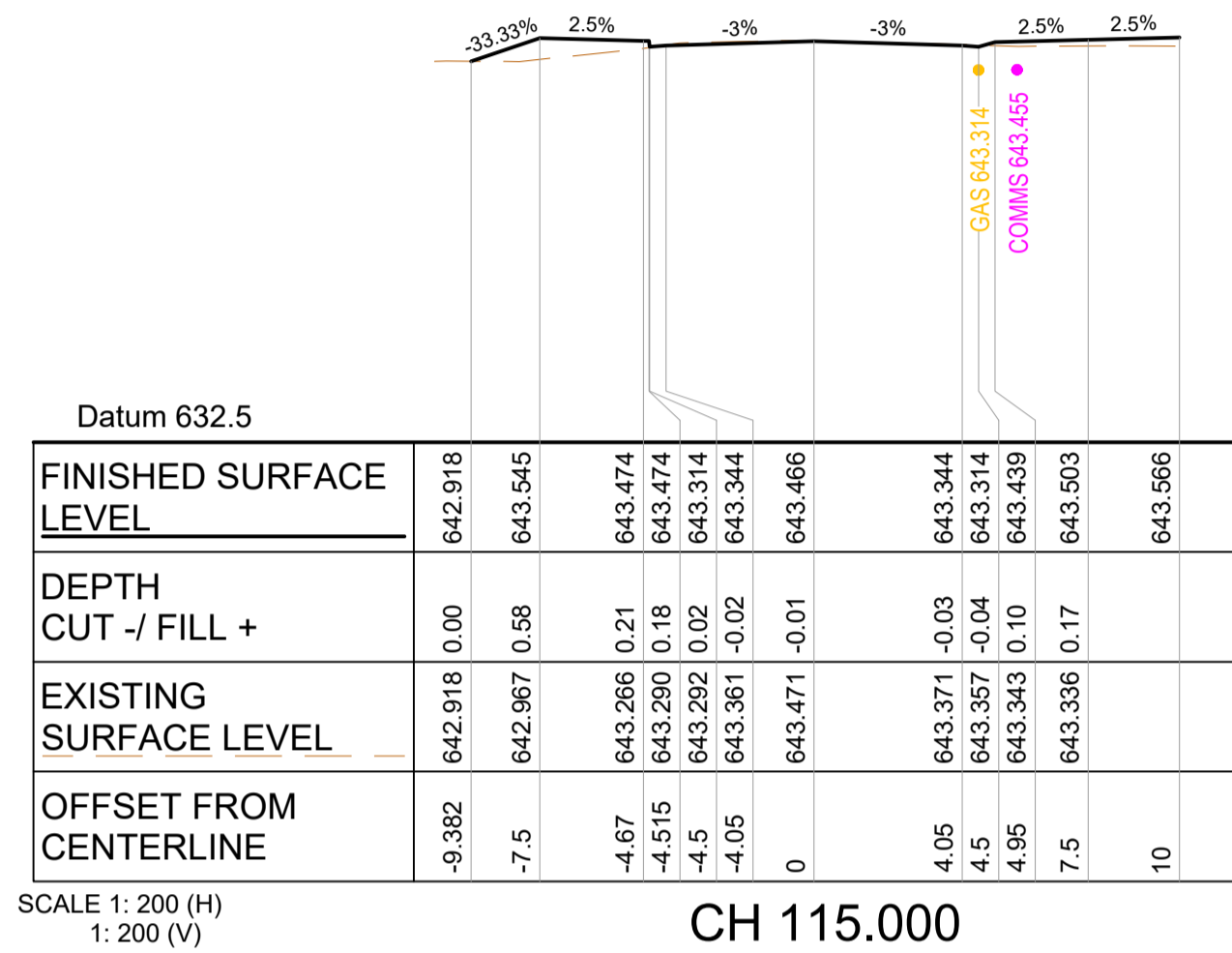
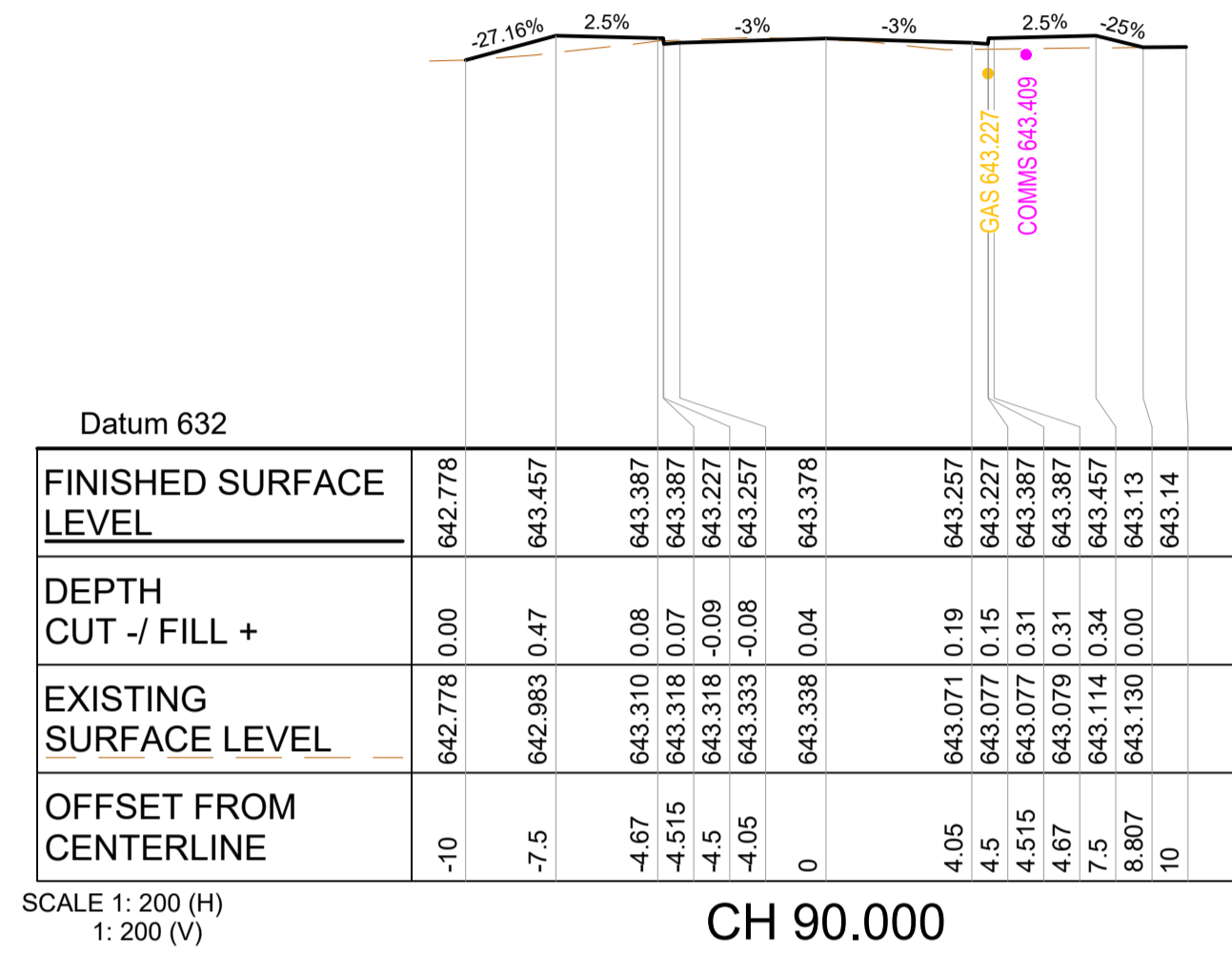
Client: FDC CONSTRUCTION

Project: WILSON DRIVE, MARULAN

Title: WILSON DRIVE (01) CROSS SECTIONS SHEET 1



Drawn: E.F.	Designed: B.K./H.D.	Checked:	Approved:
Project Number: S210044	Drawing Number: C-04-4001	Revision: C	



C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021
Rev	Revision Description	Date

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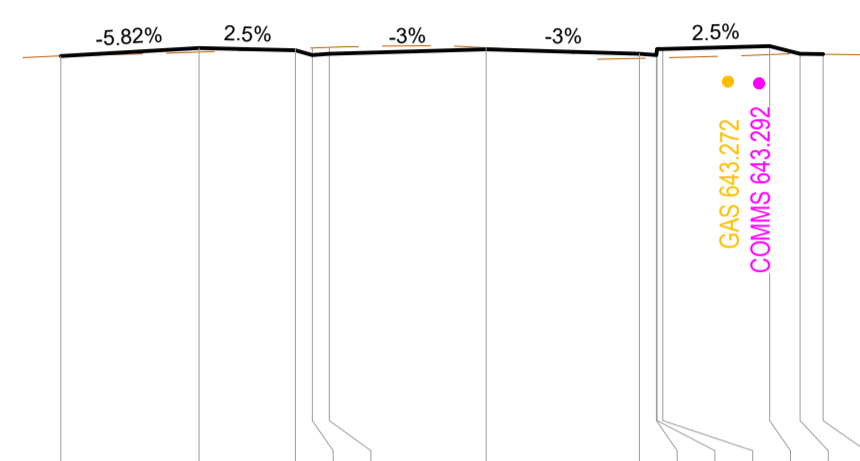
Client: **FDC CONSTRUCTION**

Project: **WILSON DRIVE, MARULAN**

Title: **WILSON DRIVE (01) CROSS SECTIONS SHEET 2**

Scale: **AS SHOWN**

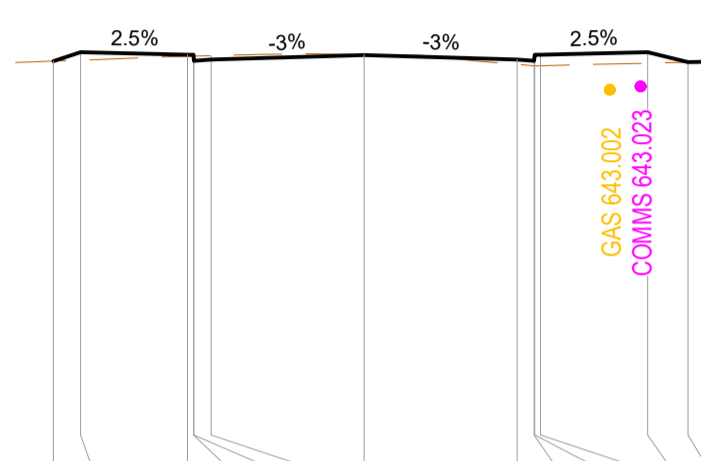
Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		
Project Number	Drawing Number	Revision	
<b>S210044</b>	<b>C-04-4002</b>	<b>C</b>	



Datum 632

FINISHED SURFACE LEVEL	643.042	643.254	643.191	643.066	643.096	643.22	643.098
DEPTH CUT -/ FILL +	0.00	0.11	-0.05	-0.19	-0.17	-0.04	0.12
EXISTING SURFACE LEVEL	643.042	643.145	643.237	643.253	643.269	643.260	642.980
OFFSET FROM CENTERLINE	-11.255	-7.599	-5.049	-4.599	-4.149	0	4.05

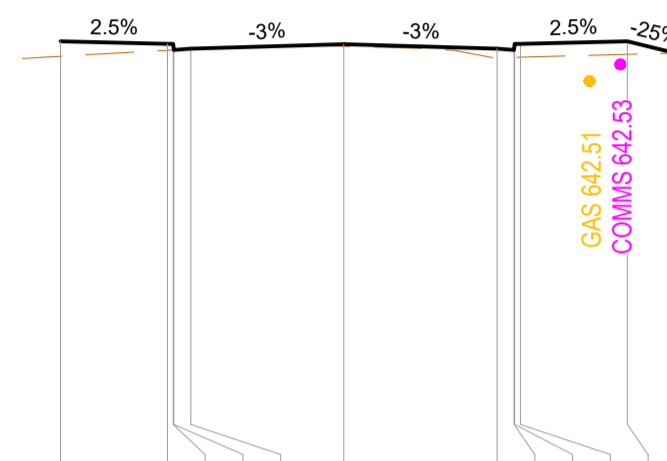
SCALE 1: 200 (H)  
1: 200 (V)  
CH 160.000



Datum 631.5

FINISHED SURFACE LEVEL	642.788	643.027	642.957	642.797	642.827	642.948	642.827
DEPTH CUT -/ FILL +	0.00	0.21	0.04	0.03	-0.11	-0.02	0.13
EXISTING SURFACE LEVEL	642.788	642.814	642.918	642.824	642.934	642.963	642.700
OFFSET FROM CENTERLINE	-8.219	-7.5	-4.67	-4.515	-4.05	0	4.05

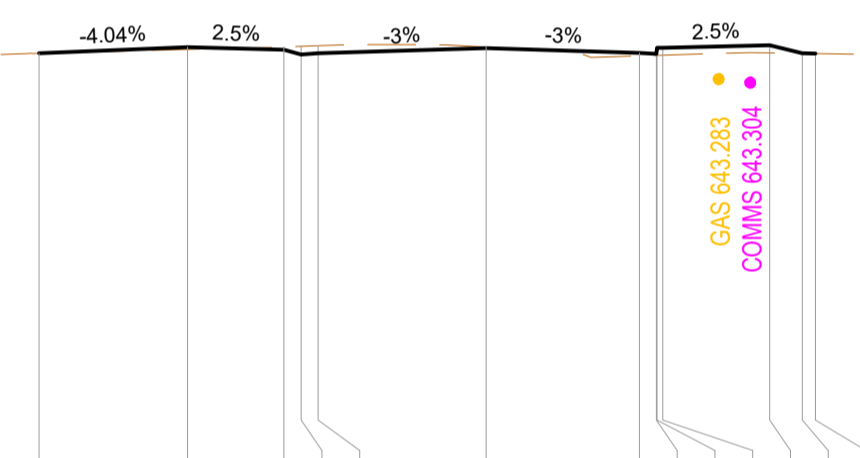
SCALE 1: 200 (H)  
1: 200 (V)  
CH 190.000



Datum 631

FINISHED SURFACE LEVEL	642.535	642.464	642.464	642.304	642.334	642.468	642.334
DEPTH CUT -/ FILL +	0.40	0.17	0.16	-0.00	0.00	0.05	0.23
EXISTING SURFACE LEVEL	642.136	642.296	642.305	642.304	642.331	642.403	642.111
OFFSET FROM CENTERLINE	-7.5	-4.67	-4.515	-4.5	-4.05	0	4.05

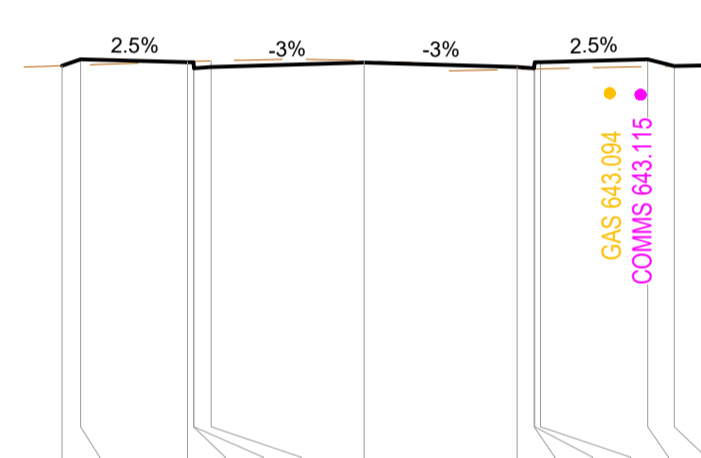
SCALE 1: 200 (H)  
1: 200 (V)  
CH 220.000



Datum 632

FINISHED SURFACE LEVEL	643.104	643.283	643.2	643.075	643.105	643.238	643.116
DEPTH CUT -/ FILL +	0.00	0.06	-0.07	-0.21	-0.20	-0.03	0.08
EXISTING SURFACE LEVEL	643.104	643.205	643.272	643.288	643.303	643.271	643.036
OFFSET FROM CENTERLINE	-11.834	-7.9	-5.35	-4.9	-4.45	0	4.05

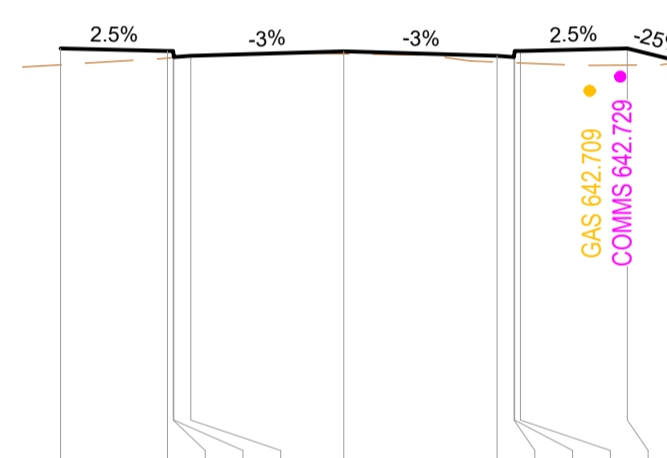
SCALE 1: 200 (H)  
1: 200 (V)  
CH 158.000



Datum 632

FINISHED SURFACE LEVEL	642.954	643.119	643.048	642.888	642.918	643.04	642.918
DEPTH CUT -/ FILL +	0.00	0.15	-0.02	-0.18	-0.16	-0.04	0.06
EXISTING SURFACE LEVEL	642.954	642.971	643.066	643.072	643.083	643.079	642.857
OFFSET FROM CENTERLINE	-7.985	-7.5	-4.67	-4.515	-4.05	0	4.05

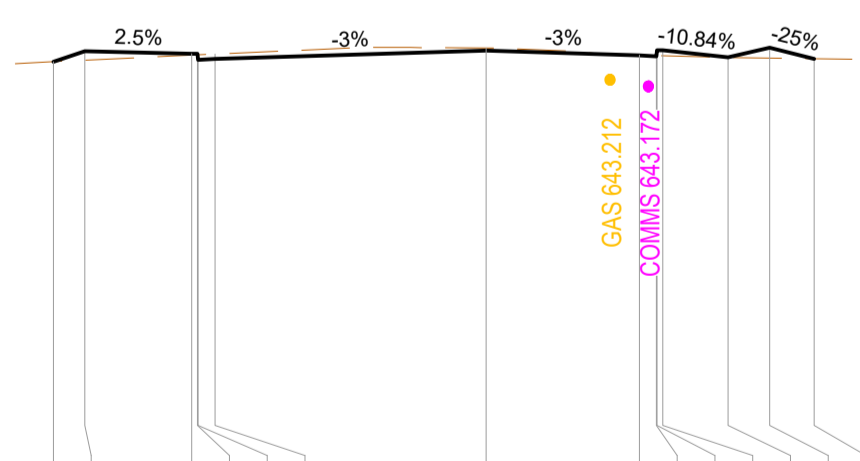
SCALE 1: 200 (H)  
1: 200 (V)  
CH 180.000



Datum 631.5

FINISHED SURFACE LEVEL	642.734	642.663	642.663	642.503	642.533	642.655	642.533
DEPTH CUT -/ FILL +	0.44	0.18	0.17	0.01	-0.00	0.07	0.16
EXISTING SURFACE LEVEL	642.299	642.480	642.484	642.496	642.536	642.589	642.371
OFFSET FROM CENTERLINE	-7.5	-4.67	-4.515	-4.05	-4.05	0	4.05

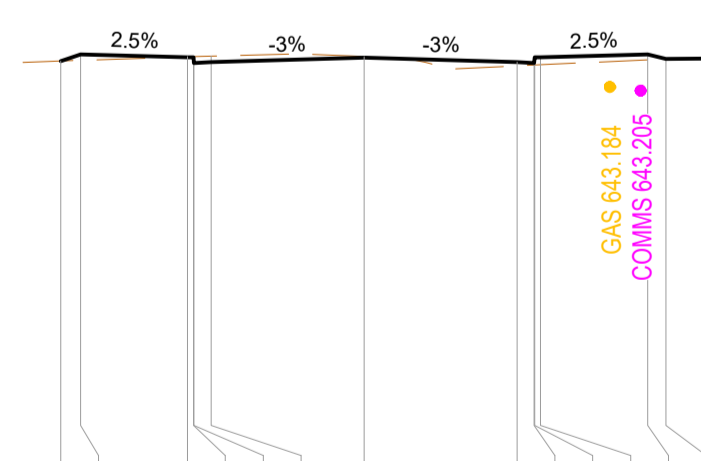
SCALE 1: 200 (H)  
1: 200 (V)  
CH 210.000



Datum 632

FINISHED SURFACE LEVEL	643.018	643.296	643.225	643.225	643.095	643.31	643.188
DEPTH CUT -/ FILL +	0.00	0.24	0.03	0.03	-0.12	-0.07	-0.01
EXISTING SURFACE LEVEL	643.018	643.058	643.191	643.198	643.220	643.379	643.184
OFFSET FROM CENTERLINE	-11.454	-10.622	-7.792	-7.627	-7.172	0	4.05

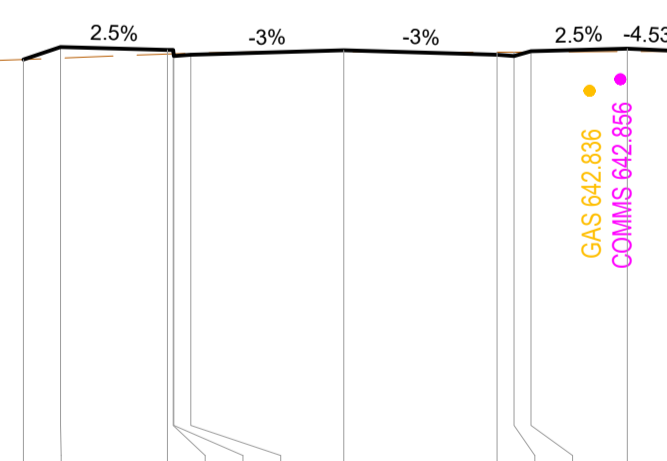
SCALE 1: 200 (H)  
1: 200 (V)  
CH 150.000



Datum 632

FINISHED SURFACE LEVEL	643.035	643.209	643.138	642.978	643.008	643.13	643.008
DEPTH CUT -/ FILL +	0.00	0.16	-0.01	-0.02	-0.18	-0.02	0.05
EXISTING SURFACE LEVEL	643.035	643.053	643.149	643.154	643.185	643.154	642.910
OFFSET FROM CENTERLINE	-8.022	-7.5	-4.67	-4.515	-4.05	0	4.05

SCALE 1: 200 (H)  
1: 200 (V)  
CH 170.000



Datum 631.5

FINISHED SURFACE LEVEL	642.576	642.903	642.832	642.672	642.702	642.823	642.702
DEPTH CUT -/ FILL +	0.00	0.29	0.11	-0.11	-0.04	0.04	-0.07
EXISTING SURFACE LEVEL	642.576	642.612	642.726	642.727	642.742	642.783	642.770
OFFSET FROM CENTERLINE	-8.482	-7.5	-4.67	-4.515	-4.05	0	4.05

SCALE 1: 200 (H)  
1: 200 (V)  
CH 200.000

Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021

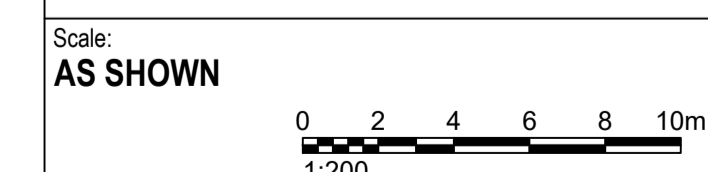


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Client: **FDC CONSTRUCTION**

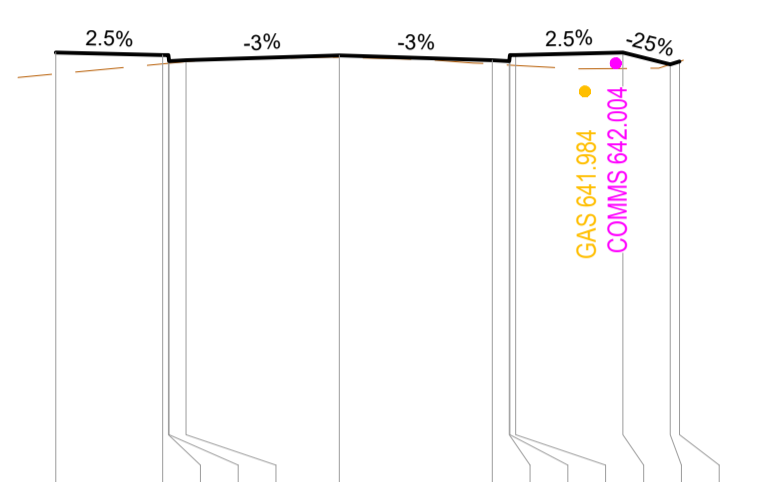
Project: **WILSON DRIVE, MARULAN**

Title: **WILSON DRIVE (01) CROSS SECTIONS SHEET 3**



Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		
Project Number	Drawing Number	Revision	
<b>S210044</b>	<b>C-04-4004</b>	<b>C</b>	

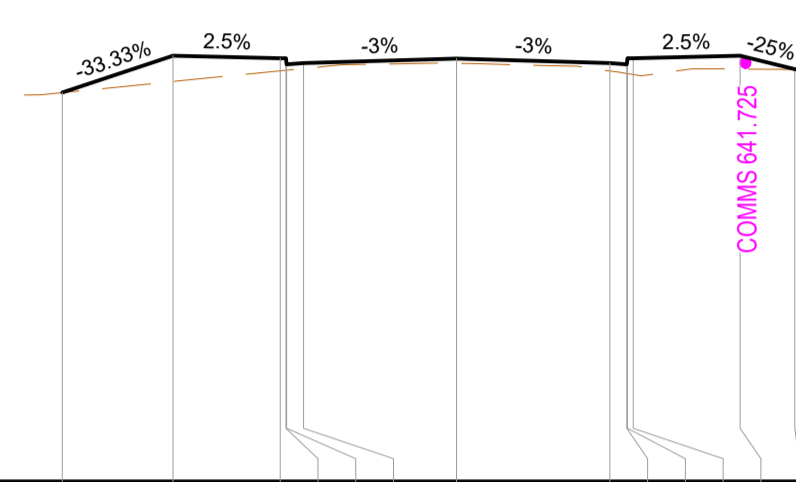
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Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
642.009	0.56	641.445	-7.5
641.938	0.23	641.707	-4.67
641.938	0.22	641.721	-4.515
641.778	0.06	641.723	-4.5
641.808	0.04	641.764	-4.05
641.93	0.05	641.882	0
641.808	0.10	641.704	4.05
641.778	0.10	641.679	4.5
641.938	0.26	641.678	4.515
642.009	0.27	641.669	4.67
641.694	0.00	641.585	7.5
641.774	0.00	641.694	8.761
641.774	0.00	641.774	9

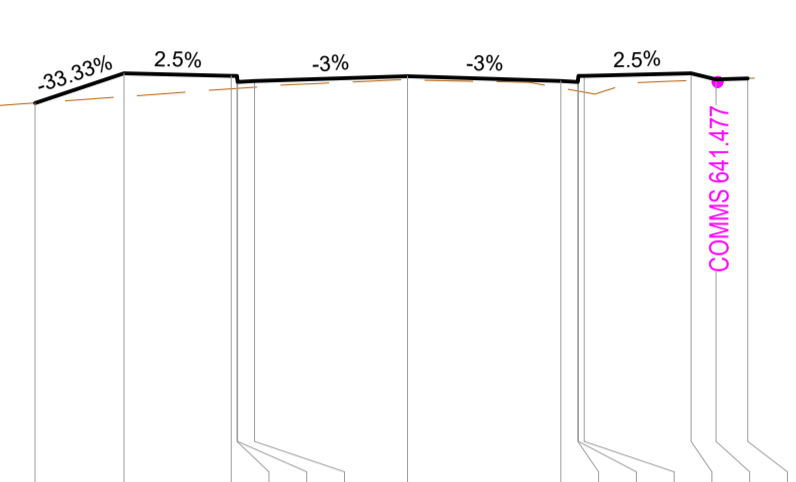
SCALE 1: 200 (H)  
1: 200 (V)  
CH 250.000



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
640.783	0.00	640.783	-10.43
641.759	0.69	641.074	-7.5
641.689	0.33	641.355	-4.67
641.689	0.32	641.370	-4.515
641.529	0.16	641.371	-4.5
641.559	0.14	641.416	-4.05
641.68	0.12	641.560	0
641.559	0.20	641.354	4.05
641.529	0.24	641.286	4.5
641.689	0.40	641.284	4.515
641.689	0.43	641.259	4.67
641.759	0.35	641.406	7.5
641.397	0.00	641.397	8.949
641.397	0.00	641.397	9

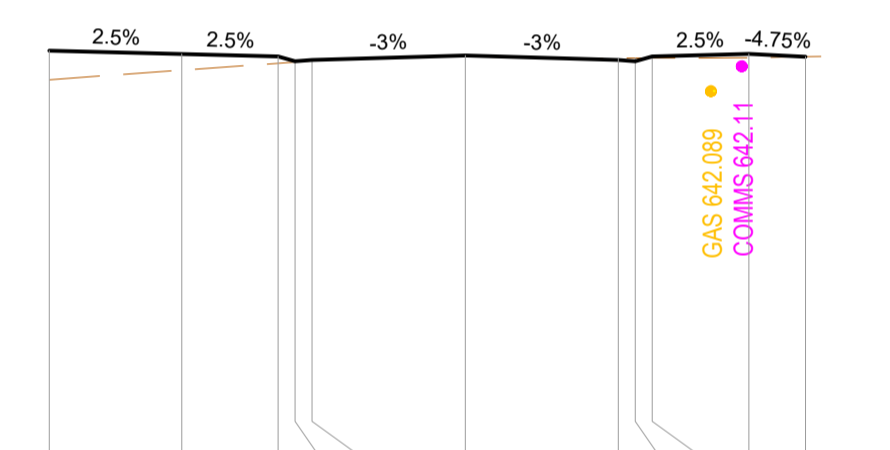
SCALE 1: 200 (H)  
1: 200 (V)  
CH 280.000



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
640.853	0.00	640.853	-9.86
641.639	0.62	641.024	-7.5
641.569	0.34	641.230	-4.67
641.569	0.33	641.241	-4.515
641.409	0.17	641.242	-4.5
641.439	0.16	641.275	-4.05
641.56	0.10	641.464	0
641.439	0.19	641.249	4.05
641.409	0.24	641.172	4.5
641.569	0.40	641.169	4.515
641.569	0.43	641.142	4.67
641.639	0.19	641.451	7.5
641.476	0.00	641.476	8.155
641.507	0.00	641.507	9

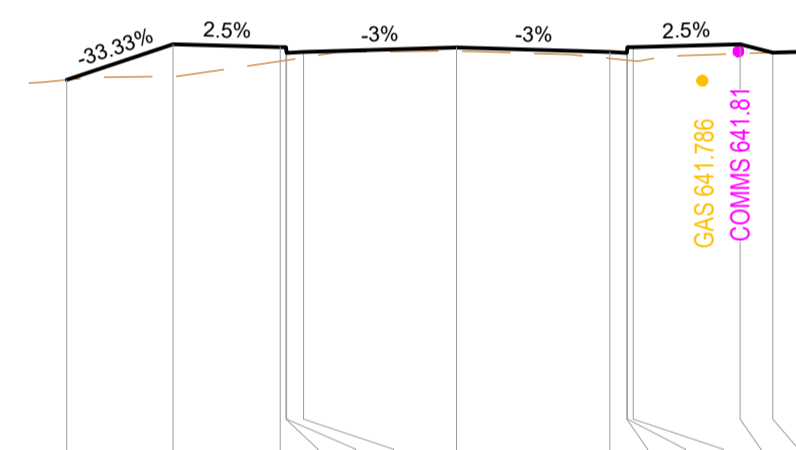
SCALE 1: 200 (H)  
1: 200 (V)  
CH 310.000



Datum 631

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
642.202	0.42	641.690	-11
642.114	0.18	641.868	-4.95
642.05	0.03	641.889	-4.5
641.925	0.03	641.930	-4.05
641.955	0.03	642.052	0
642.077	0.03	642.052	0
641.955	0.05	642.003	4.05
641.925	-0.08	642.004	4.5
642.05	0.04	642.006	4.95
642.114	0.10	642.018	7.5
642.043	0.00	642.043	9

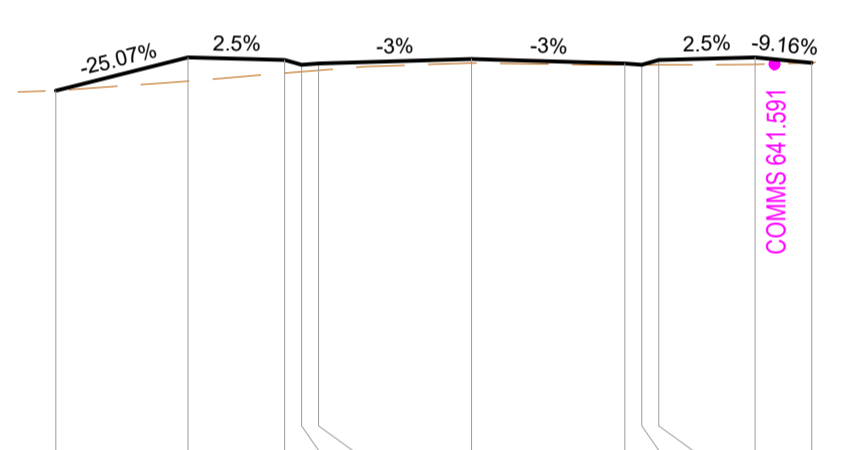
SCALE 1: 200 (H)  
1: 200 (V)  
CH 240.000



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
640.872	0.00	640.872	-10.317
641.811	0.84	640.968	-7.5
641.74	0.37	641.366	-4.67
641.74	0.36	641.390	-4.515
641.58	0.19	641.392	-4.5
641.61	0.15	641.461	-4.05
641.732	0.10	641.634	0
641.61	0.17	641.437	4.05
641.58	0.19	641.390	4.5
641.74	0.35	641.389	4.515
641.74	0.37	641.373	4.67
641.811	0.25	641.585	7.5
641.584	0.00	641.584	8.366
641.606	0.00	641.606	9

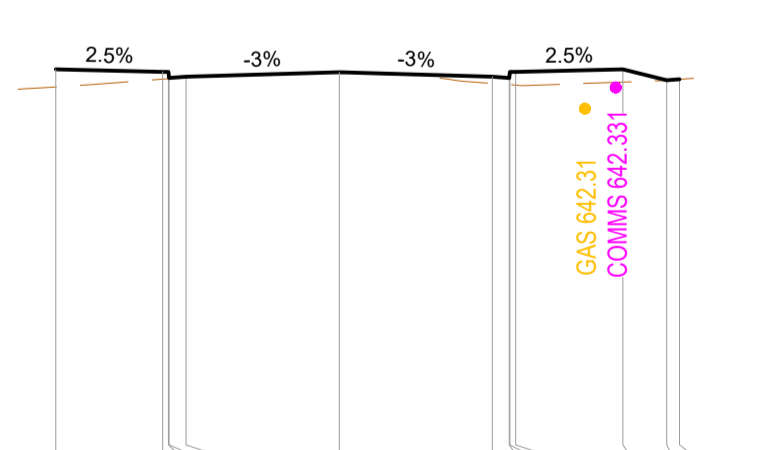
SCALE 1: 200 (H)  
1: 200 (V)  
CH 270.000



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
640.76	0.00	640.760	-11
641.637	0.62	641.014	-7.5
641.574	0.35	641.222	-4.95
641.449	0.19	641.259	-4.5
641.479	0.18	641.295	-4.05
641.6	0.11	641.489	0
641.479	0.04	641.443	4.05
641.449	0.01	641.443	4.5
641.574	0.13	641.443	4.95
641.637	0.18	641.456	7.5
641.5	0.00	641.500	9

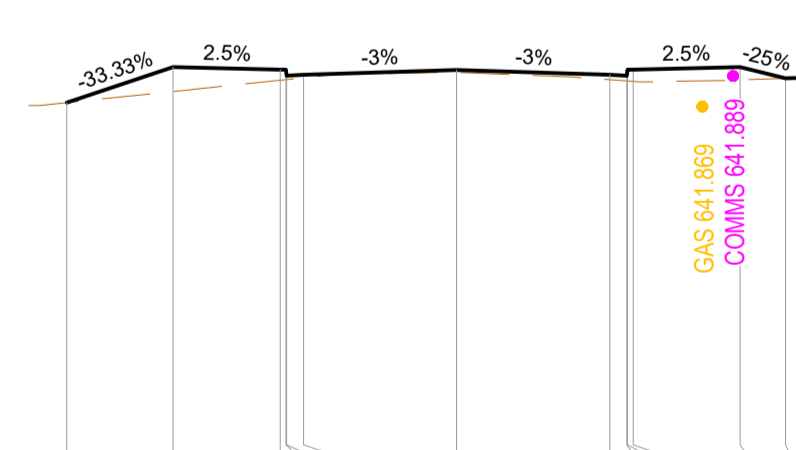
SCALE 1: 200 (H)  
1: 200 (V)  
CH 300.000



Datum 631

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
642.335	0.46	641.871	-7.5
642.265	0.19	642.071	-4.67
642.265	0.18	642.083	-4.515
642.105	0.02	642.084	-4.5
642.135	0.02	642.117	-4.05
642.256	0.03	642.225	0
642.135	0.17	641.962	4.05
642.105	0.18	641.929	4.5
642.265	0.34	641.928	4.515
642.265	0.35	641.917	4.67
642.335	0.34	641.996	7.5
642.045	0.00	642.045	8.86
642.071	0.00	642.071	9

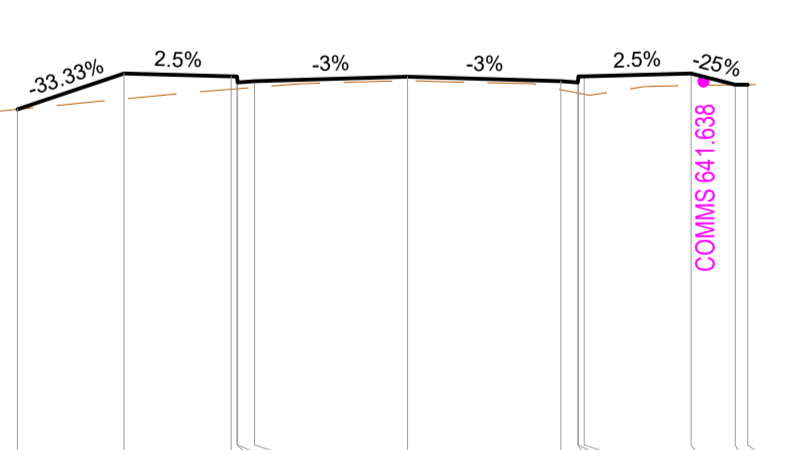
SCALE 1: 200 (H)  
1: 200 (V)  
CH 230.000



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
640.955	0.00	640.955	-10.318
641.894	0.64	641.249	-7.5
641.823	0.28	641.545	-4.67
641.823	0.26	641.561	-4.515
641.663	0.10	641.562	-4.5
641.693	0.08	641.610	-4.05
641.815	0.07	641.750	0
641.693	0.13	641.558	4.05
641.663	0.14	641.525	4.5
641.823	0.30	641.523	4.515
641.823	0.31	641.512	4.67
641.894	0.34	641.552	7.5
641.604	0.00	641.604	8.703
641.604	0.00	641.604	9

SCALE 1: 200 (H)  
1: 200 (V)  
CH 260.000



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
640.778	0.00	640.778	-10.322
641.719	0.67	641.052	-7.5
641.649	0.34	641.306	-4.67
641.649	0.33	641.319	-4.515
641.489	0.17	641.320	-4.5
641.519	0.16	641.356	-4.05
641.64	0.11	641.530	0
641.519	0.22	641.295	4.05
641.489	0.28	641.207	4.5
641.649	0.44	641.204	4.515
641.649	0.48	641.173	4.67
641.719	0.31	641.405	7.5
641.427	0.00	641.427	8.667
641.429	0.00	641.429	9

SCALE 1: 200 (H)  
1: 200 (V)  
CH 290.000

Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021



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Client: **FDC CONSTRUCTION**

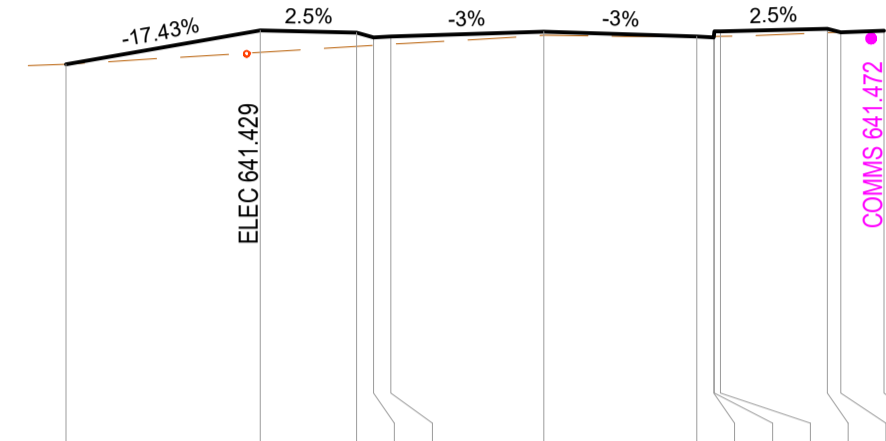
Project: **WILSON DRIVE, MARULAN**

Title: **WILSON DRIVE (01) CROSS SECTIONS SHEET 4**

Scale: **AS SHOWN**

Drawn <b>E.F.</b>	Designed <b>B.K./H.D.</b>	Checked	Approved
Project Number <b>S210044</b>	Drawing Number <b>C-04-4005</b>	Revision <b>C</b>	

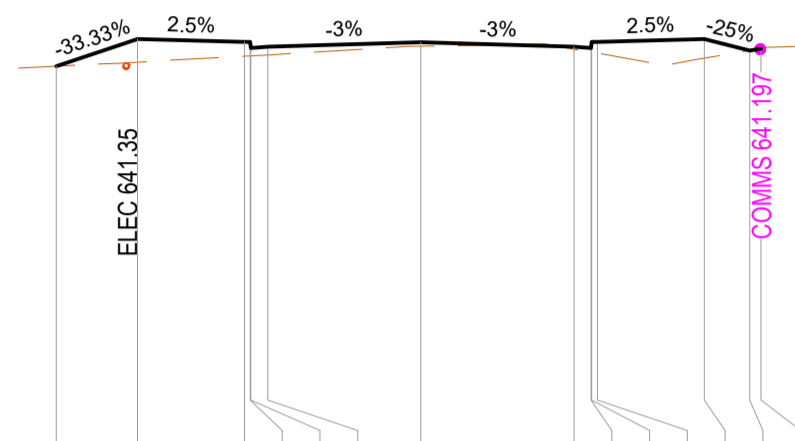
File Path: K:\S210044 EQUNOX RESIDENTIAL ESTATE - MARULAN\07 - CIVIL\DRAWINGS\WILSON DRIVE\01 - CROSS SECTIONS SHEET 4 - C - DATE PRINTED: 24/02/2022 5:04:44 PM



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
640.595	0.00	640.595	-12.642
641.492	0.58	640.911	-7.5
641.428	0.36	641.068	-4.95
641.303	0.21	641.098	-4.5
641.333	0.21	641.123	-4.05
641.454	0.10	641.357	0
641.333	0.01	641.326	4.05
641.303	-0.03	641.330	4.5
641.463	0.13	641.330	4.515
641.463	0.13	641.331	4.67
641.534	0.10	641.430	7.5
641.444	0.00	641.444	7.86
641.464	0.00	641.464	9

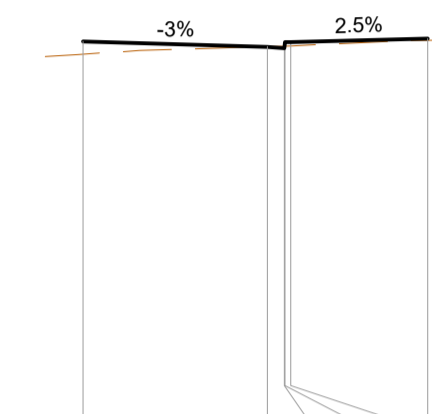
SCALE 1: 200 (H)  
1: 200 (V)  
**CH 335.000**



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
640.735	0.00	640.735	-9.644
641.449	0.61	640.832	-7.5
641.379	0.38	640.998	-4.67
641.379	0.37	641.007	-4.515
641.219	0.21	641.008	-4.5
641.249	0.22	641.032	-4.05
641.37	0.11	641.260	0
641.249	0.06	641.185	4.05
641.219	0.11	641.107	4.5
641.379	0.30	641.104	4.515
641.379	0.30	641.077	4.67
641.449	0.50	640.945	7.5
641.15	0.00	641.150	8.698
641.201	0.00	641.201	9

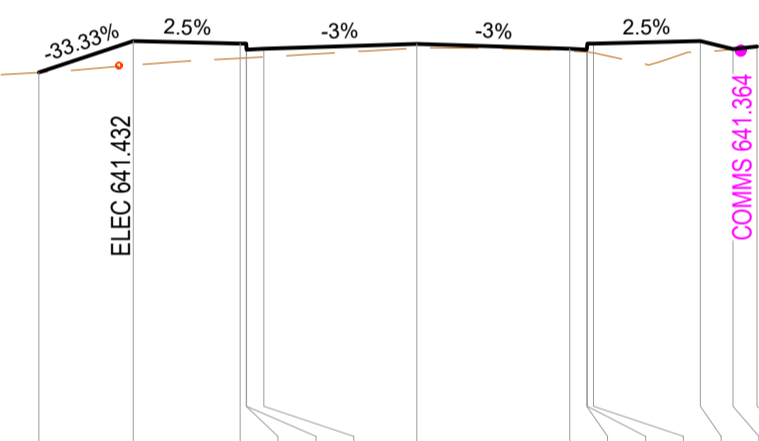
SCALE 1: 200 (H)  
1: 200 (V)  
**CH 351.867**



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
640.997	0.33	640.664	0
640.851	-0.01	640.862	4.876
640.821	-0.05	640.875	5.326
640.981	0.11	640.876	5.341
640.981	0.10	640.880	5.496
641.071	0.04	641.028	9.116

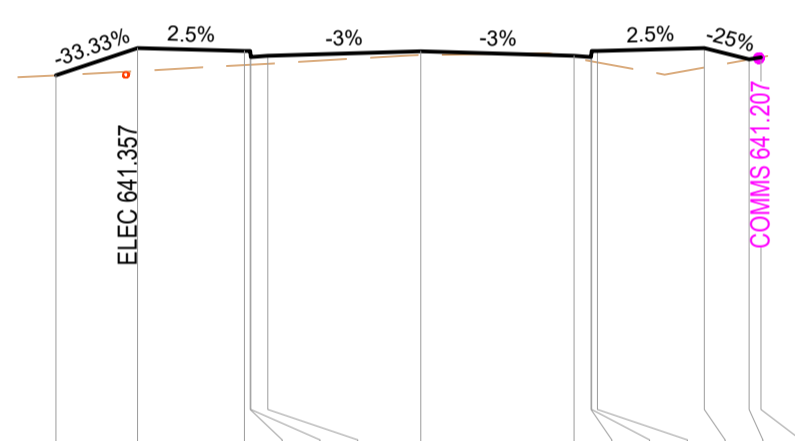
SCALE 1: 200 (H)  
1: 200 (V)  
**CH 380.000**



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
640.725	0.00	640.725	-10
641.559	0.64	640.917	-7.5
641.488	0.39	641.102	-4.67
641.488	0.38	641.111	-4.515
641.328	0.22	641.111	-4.5
641.358	0.22	641.137	-4.05
641.479	0.11	641.371	0
641.358	0.06	641.294	4.05
641.328	0.06	641.265	4.5
641.488	0.22	641.264	4.515
641.488	0.24	641.246	4.67
641.559	0.28	641.275	7.5
641.342	0.00	641.342	8.365
641.409	0.00	641.409	9

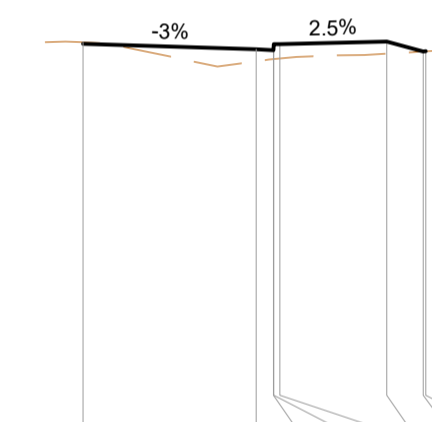
SCALE 1: 200 (H)  
1: 200 (V)  
**CH 330.000**



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
640.739	0.00	640.739	-9.659
641.459	0.60	640.856	-7.5
641.388	0.38	641.012	-4.67
641.388	0.37	641.021	-4.515
641.228	0.21	641.028	-4.5
641.258	0.21	641.046	-4.05
641.379	0.11	641.273	0
641.258	0.06	641.201	4.05
641.228	0.11	641.118	4.5
641.388	0.27	641.115	4.515
641.388	0.30	641.087	4.67
641.459	0.51	640.950	7.5
641.162	0.00	641.162	8.686
641.219	0.00	641.219	9

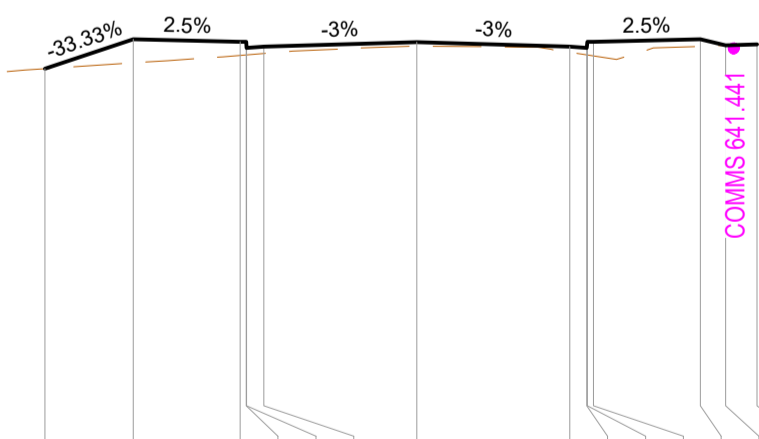
SCALE 1: 200 (H)  
1: 200 (V)  
**CH 350.000**



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
641.19	-0.04	641.234	0
641.052	0.32	640.733	4.563
641.182	0.23	640.788	5.033
641.182	0.39	640.789	5.048
641.182	0.38	640.803	5.203
641.253	0.32	640.933	8.033
640.994	0.00	640.990	9
640.994	0.00	640.994	9.068

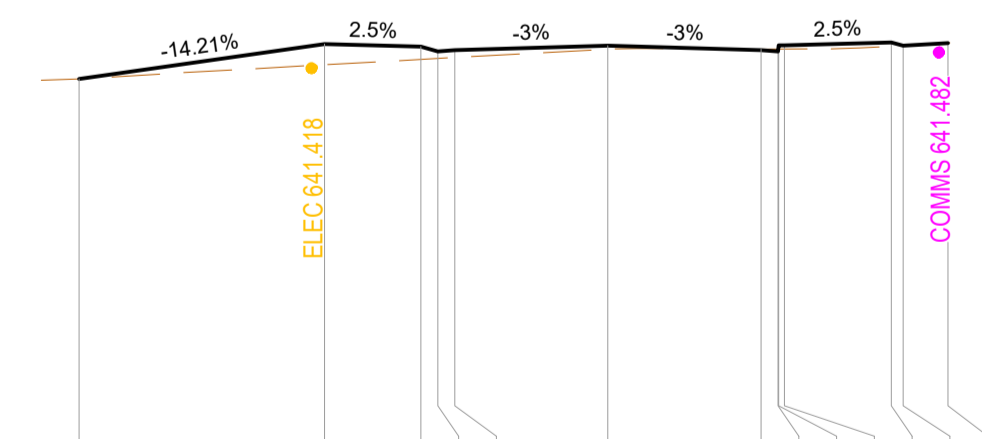
SCALE 1: 200 (H)  
1: 200 (V)  
**CH 370.000**



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
640.82	0.00	640.82	-9.839
641.589	0.63	640.971	-7.5
641.529	0.36	641.167	-4.67
641.529	0.35	641.181	-4.515
641.369	0.19	641.182	-4.5
641.399	0.18	641.220	-4.05
641.52	0.10	641.415	0
641.369	0.15	641.251	4.05
641.369	0.19	641.182	4.5
641.529	0.35	641.180	4.515
641.529	0.37	641.156	4.67
641.589	0.19	641.410	7.5
641.433	0.00	641.433	8.166
641.464	0.00	641.464	9

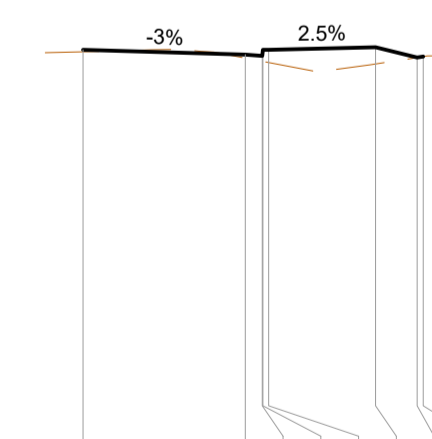
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1: 200 (V)  
**CH 320.000**



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
640.544	0.00	640.544	-13.993
641.467	0.55	640.922	-7.5
641.403	0.34	641.064	-4.95
641.278	0.19	641.089	-4.5
641.308	0.19	641.114	-4.05
641.429	0.10	641.334	0
641.308	-0.03	641.334	4.05
641.308	-0.06	641.336	4.5
641.438	0.10	641.336	4.515
641.438	0.10	641.337	4.67
641.509	0.10	641.412	7.5
641.43	0.00	641.430	7.815
641.486	0.00	641.486	9

SCALE 1: 200 (H)  
1: 200 (V)  
**CH 340.000**



Datum 630.5

FINISHED SURFACE LEVEL	DEPTH CUT -/ FILL +	EXISTING SURFACE LEVEL	OFFSET FROM CENTERLINE
641.316	0.05	641.265	0
641.187	0.09	641.096	4.289
641.157	0.15	641.010	4.739
641.317	0.31	641.008	4.754
641.317	0.34	640.978	4.909
641.388	0.45	640.941	7.739
641.112	0.00	641.112	8.841
641.137	0.00	641.137	9

SCALE 1: 200 (H)  
1: 200 (V)  
**CH 360.000**

Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021

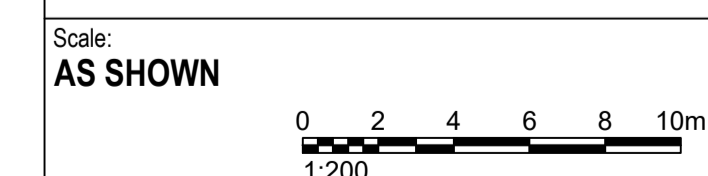


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Client: **FDC CONSTRUCTION**

Project: **WILSON DRIVE, MARULAN**

Title: **WILSON DRIVE (01) CROSS SECTIONS SHEET 5**



Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		
Project Number	Drawing Number	Revision	
<b>S210044</b>	<b>C-04-4006</b>	<b>C</b>	

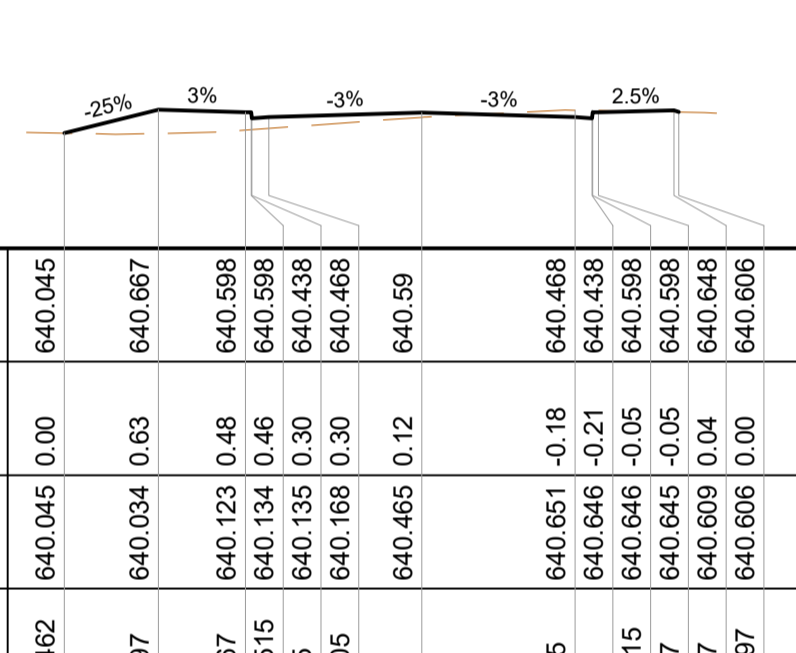




Datum 637

FINISHED SURFACE LEVEL	640.045	640.667	640.598	640.596	640.438	640.468	640.59	640.468	640.438	640.598	640.667	640.045
DEPTH CUT -/ FILL +	0.00	0.63	0.48	0.46	0.30	0.30	0.12	-0.18	-0.21	-0.05	0.63	0.00
EXISTING SURFACE LEVEL	640.045	640.034	640.123	640.134	640.135	640.168	640.465	640.651	640.646	640.645	640.606	640.045
OFFSET FROM CENTERLINE	-9.462	-6.97	-4.67	-4.515	-4.5	-4.05	0	4.05	4.515	4.67	6.97	9.462

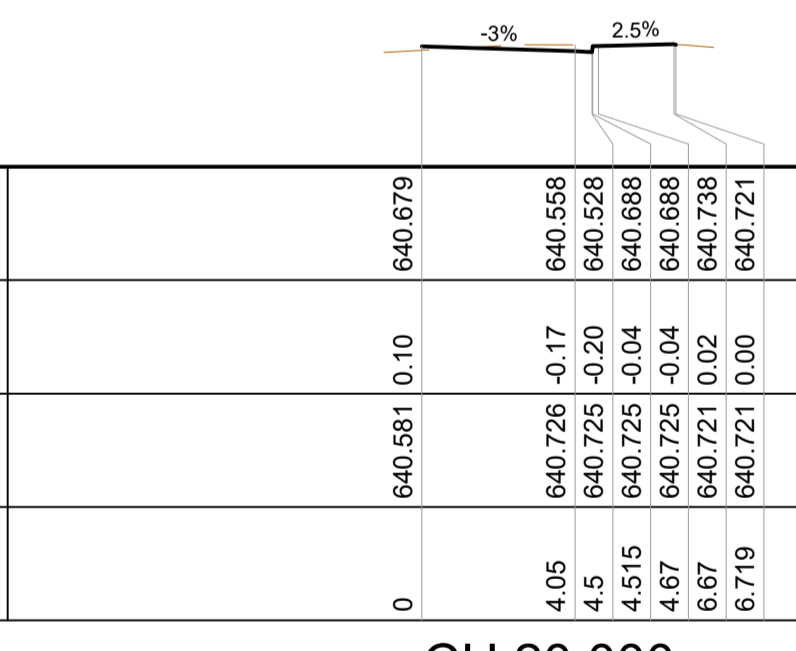
SCALE 1: 200 (H)  
1: 200 (V)  
**CH 24.050**



Datum 636

FINISHED SURFACE LEVEL	639.212	640.007	639.992	639.992	639.832	639.862	639.968	639.86	639.83	639.99	640.007	639.212
DEPTH CUT -/ FILL +	0.00	0.74	0.71	0.71	0.55	0.57	0.07	-0.10	-0.11	0.05	0.74	0.00
EXISTING SURFACE LEVEL	639.212	639.271	639.280	639.284	639.284	639.293	639.897	639.958	639.940	639.939	639.999	639.212
OFFSET FROM CENTERLINE	-7.83	-4.649	-4.149	-3.994	-3.979	-3.529	0	3.605	4.055	4.07	4.225	7.83

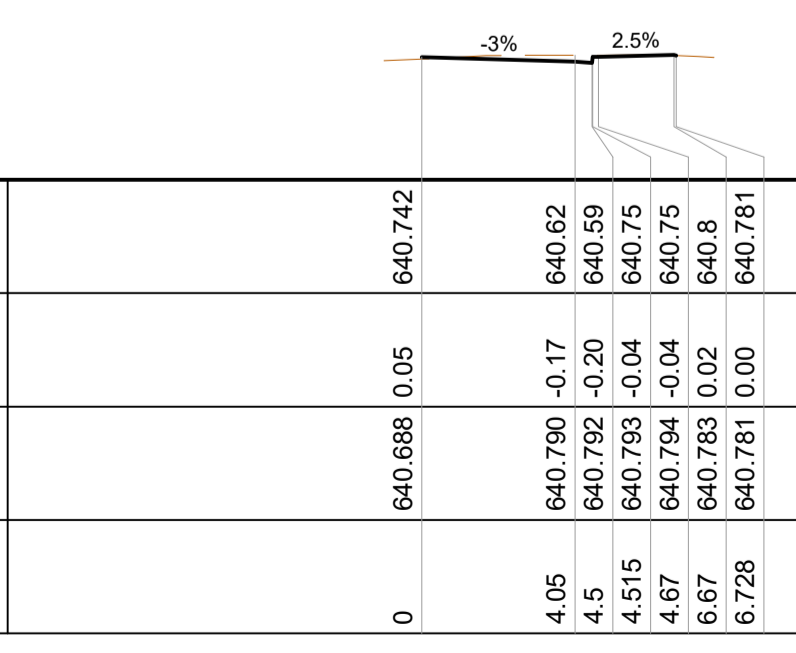
SCALE 1: 200 (H)  
1: 200 (V)  
**CH 50.000**



Datum 637.5

FINISHED SURFACE LEVEL	640.679	640.558	640.528	640.688	640.721
DEPTH CUT -/ FILL +	0.10	-0.17	-0.20	-0.04	0.00
EXISTING SURFACE LEVEL	640.581	640.726	640.725	640.725	640.721
OFFSET FROM CENTERLINE	0	4.05	4.5	4.515	6.719

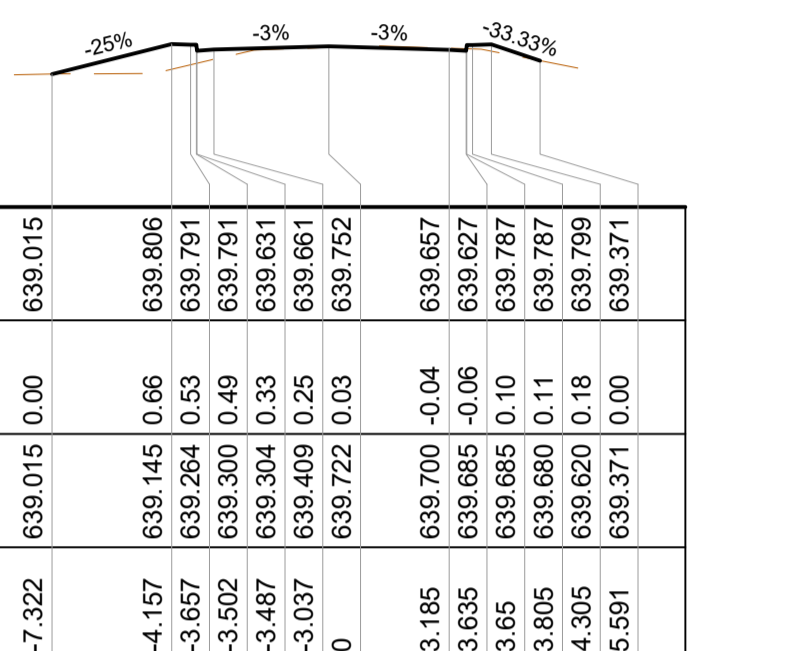
SCALE 1: 200 (H)  
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**CH 20.000**



Datum 637.5

FINISHED SURFACE LEVEL	640.742	640.62	640.59	640.75	640.781
DEPTH CUT -/ FILL +	0.05	-0.17	-0.20	-0.04	0.00
EXISTING SURFACE LEVEL	640.688	640.790	640.793	640.794	640.781
OFFSET FROM CENTERLINE	0	4.05	4.5	4.67	6.728

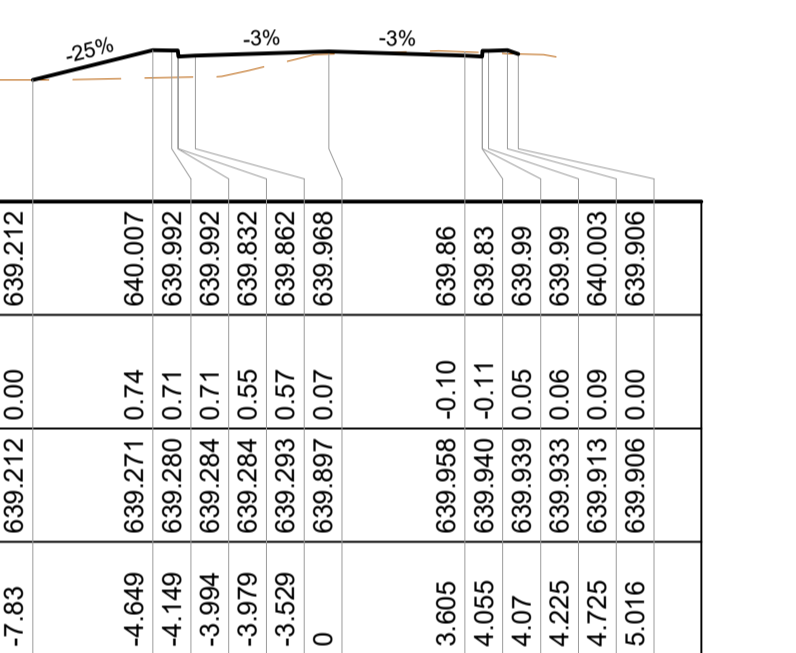
SCALE 1: 200 (H)  
1: 200 (V)  
**CH 17.051**



Datum 635.5

FINISHED SURFACE LEVEL	639.015	639.806	639.791	639.791	639.631	639.752	639.657	639.627	639.787	639.787	639.799	639.015
DEPTH CUT -/ FILL +	0.00	0.66	0.53	0.49	0.33	0.03	-0.04	-0.06	0.10	0.11	0.18	0.00
EXISTING SURFACE LEVEL	639.015	639.145	639.264	639.300	639.304	639.722	639.700	639.685	639.685	639.680	639.620	639.015
OFFSET FROM CENTERLINE	-7.322	-4.157	-3.657	-3.502	-3.467	-3.037	3.185	3.635	3.65	3.805	4.305	7.322

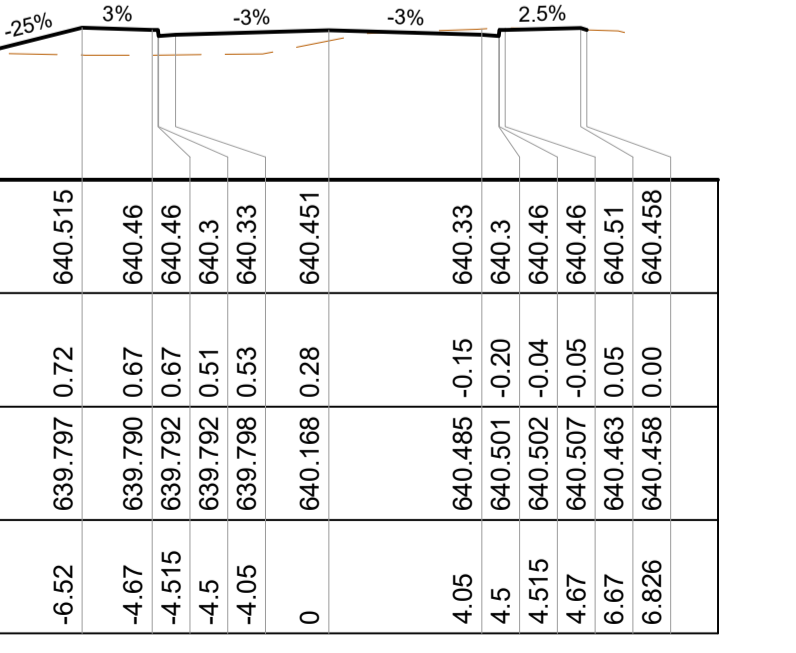
SCALE 1: 200 (H)  
1: 200 (V)  
**CH 60.000**



Datum 636.5

FINISHED SURFACE LEVEL	639.533	640.228	640.213	640.213	640.053	640.203	640.083	640.053	640.213	640.213	640.125	639.533
DEPTH CUT -/ FILL +	0.00	0.70	0.69	0.69	0.53	0.24	-0.16	-0.18	-0.02	-0.01	0.00	0.00
EXISTING SURFACE LEVEL	639.533	639.525	639.524	639.523	639.523	639.522	640.244	640.228	640.228	640.222	640.125	639.533
OFFSET FROM CENTERLINE	-7.921	-5.141	-4.641	-4.486	-4.471	-4.021	4.025	4.475	4.49	4.645	7.059	7.921

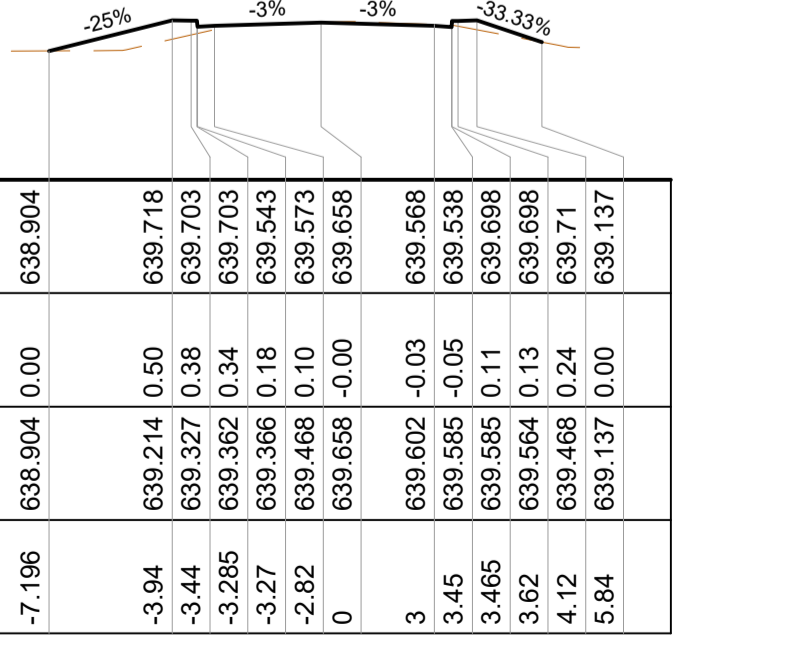
SCALE 1: 200 (H)  
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**CH 40.000**



Datum 636.5

FINISHED SURFACE LEVEL	639.848	640.515	640.46	640.46	640.33	640.451	640.33	640.46	640.46	640.515	639.848
DEPTH CUT -/ FILL +	0.00	0.72	0.67	0.67	0.51	0.28	-0.15	-0.20	-0.04	0.00	0.00
EXISTING SURFACE LEVEL	639.848	639.797	639.790	639.792	639.792	639.798	640.501	640.502	640.502	640.507	639.848
OFFSET FROM CENTERLINE	-9.191	-6.52	-4.67	-4.515	-4.5	-4.05	4.5	4.515	4.67	6.67	9.191

SCALE 1: 200 (H)  
1: 200 (V)  
**CH 30.000**



Datum 635.5

FINISHED SURFACE LEVEL	638.904	639.718	639.703	639.703	639.543	639.658	639.568	639.538	639.698	639.698	639.71	638.904
DEPTH CUT -/ FILL +	0.00	0.50	0.38	0.34	0.18	-0.00	-0.03	-0.05	0.11	0.13	0.24	0.00
EXISTING SURFACE LEVEL	638.904	639.214	639.327	639.362	639.366	639.468	639.602	639.595	639.585	639.584	639.468	638.904
OFFSET FROM CENTERLINE	-7.196	-3.94	-3.44	-3.285	-3.27	-2.82	3	3.465	3.62	4.12	5.84	7.196

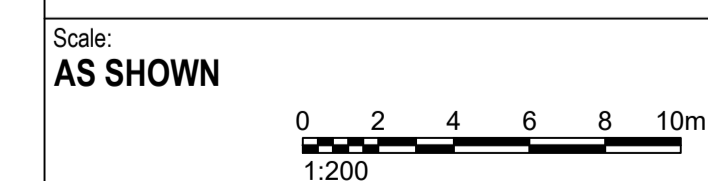
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**CH 64.410**

Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021

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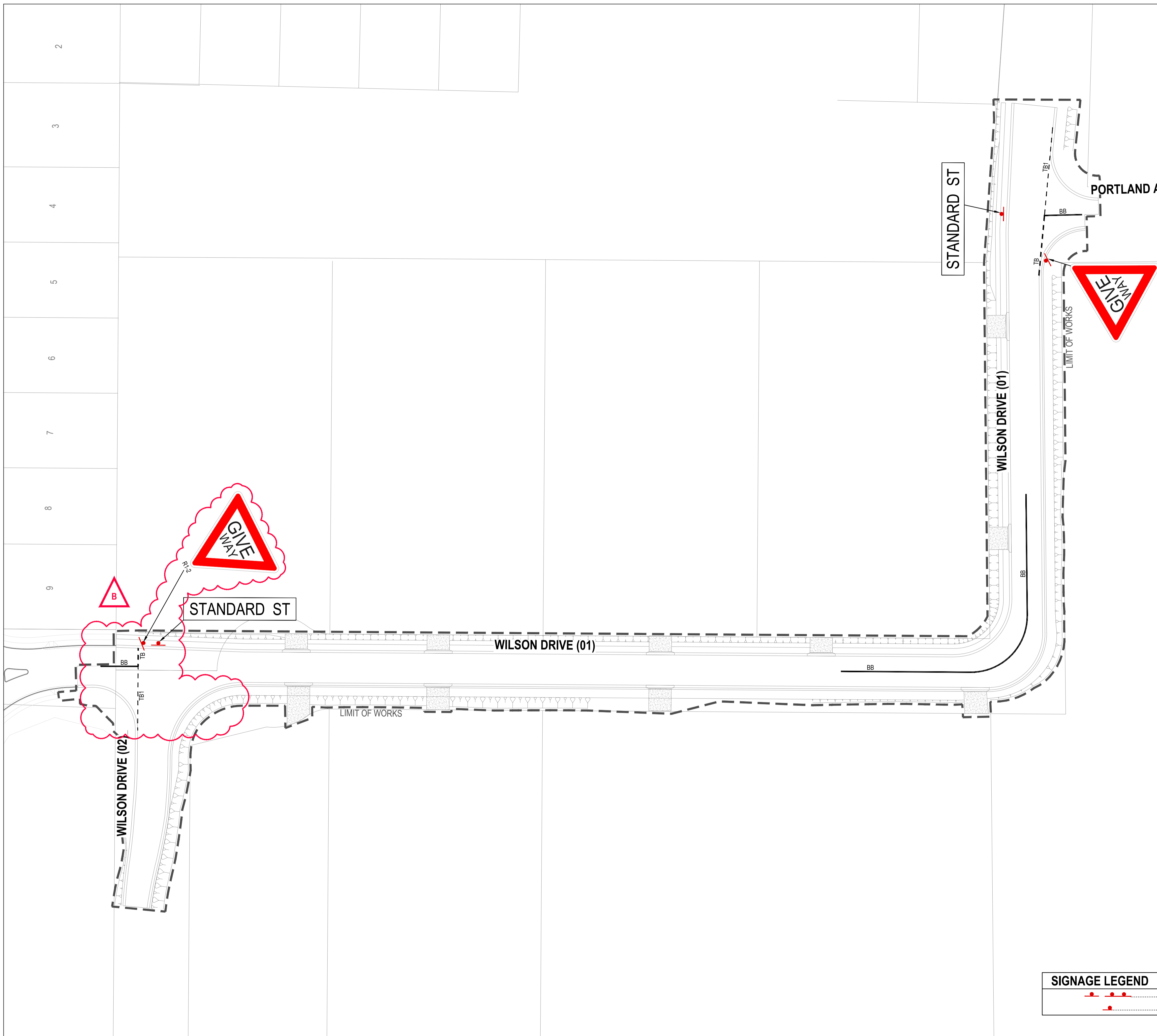
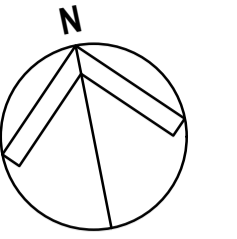
Client: **FDC CONSTRUCTION**  
 Project: **WILSON DRIVE, MARULAN**

Title: **WILSON DRIVE (02) CROSS SECTIONS SHEET 6**



Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		
Project Number	Drawing Number	Revision	
<b>S210044</b>	<b>C-04-4007</b>	<b>C</b>	

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Rev	Revision Description	Date
B	RE-ISSUED FOR SECTION 138	24.02.2022
A	ISSUED FOR SECTION 138	25.11.2021

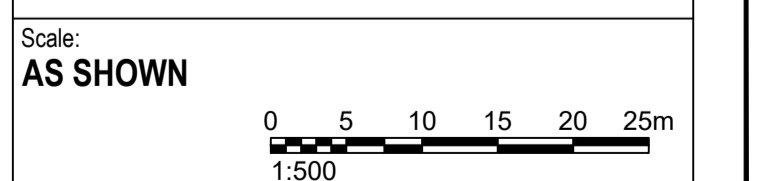


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Client:  
**FDC CONSTRUCTION**

Project:  
**WILSON DRIVE, MARULAN**

Title:  
**SIGNAGE AND LINEMARKING PLAN**



Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		

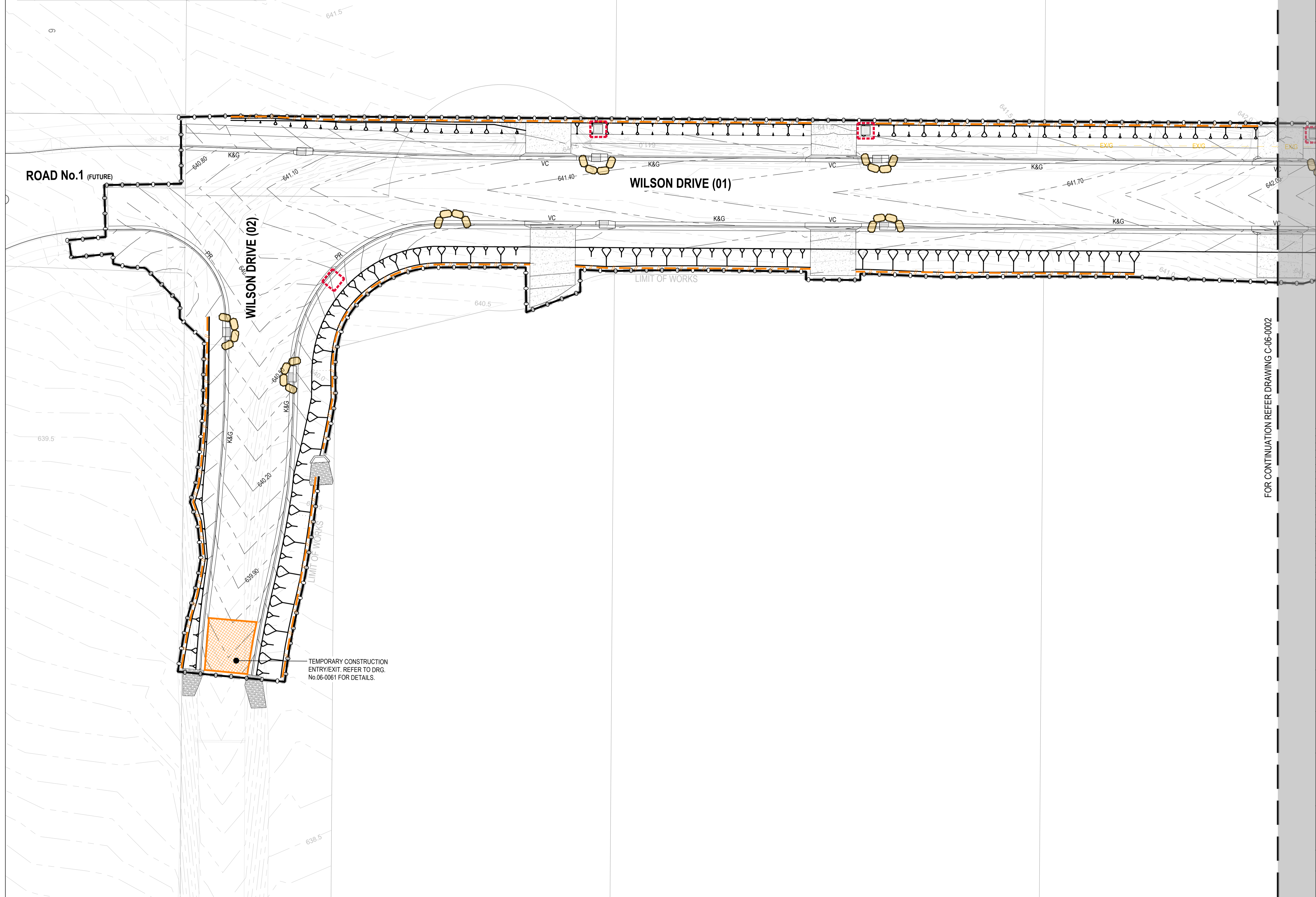
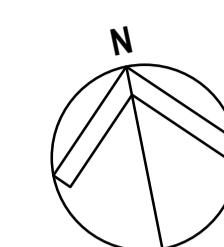
Project Number: **S210044**      Drawing Number: **C-05-5001**      Revision: **B**

SIGNAGE LEGEND	
	SIGN POST
	STREET SIGN POST

# EROSION & SEDIMENT LEGEND

- SITE FENCE
- SEDIMENT FENCE
- TEMPORARY CONSTRUCTION ACCESS
- KERB INLET PROTECTION
- GEOTEXTILE INLET SEDIMENT FILTER
- STRAW BALE SEDIMENT FILTERS

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FOR CONTINUATION REFER DRAWING C-06-0002

Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021

Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021



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**FDC CONSTRUCTION**

Project  
**WILSON DRIVE, MARULAN**

Title  
**EROSION AND SEDIMENT CONTROL PLAN SHEET 1**

Scale:  
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E.F.	B.K./H.D.		

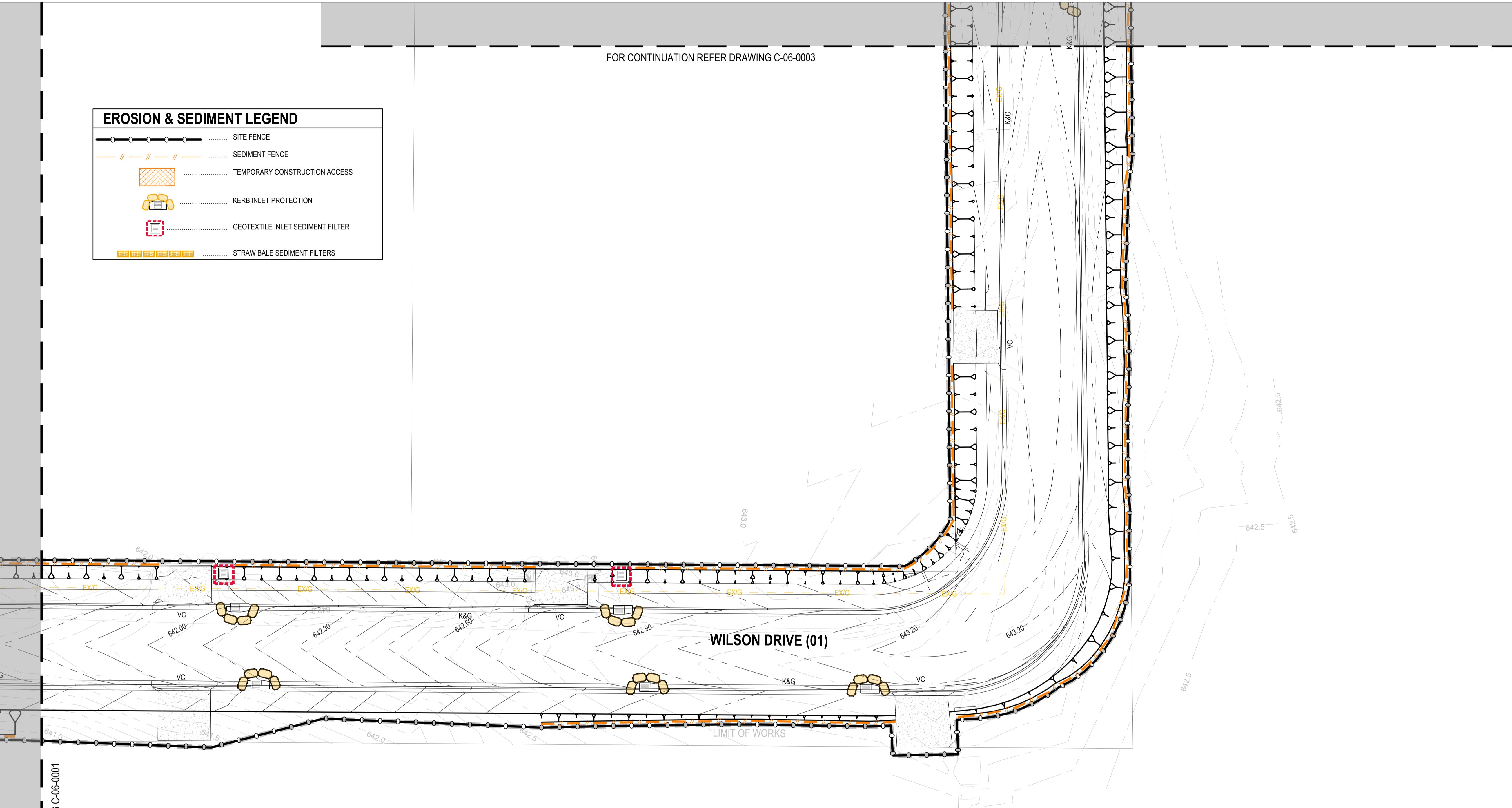
Project Number	Drawing Number	Revision
<b>S210044</b>	<b>C-06-0001</b>	<b>C</b>

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FOR CONTINUATION REFER DRAWING C-06-0003

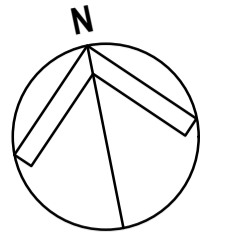
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Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021

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Client  
**FDC CONSTRUCTION**

Project  
**WILSON DRIVE, MARULAN**

Title  
**EROSION AND SEDIMENT CONTROL PLAN SHEET 2**

Scale: **AS SHOWN**

Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		

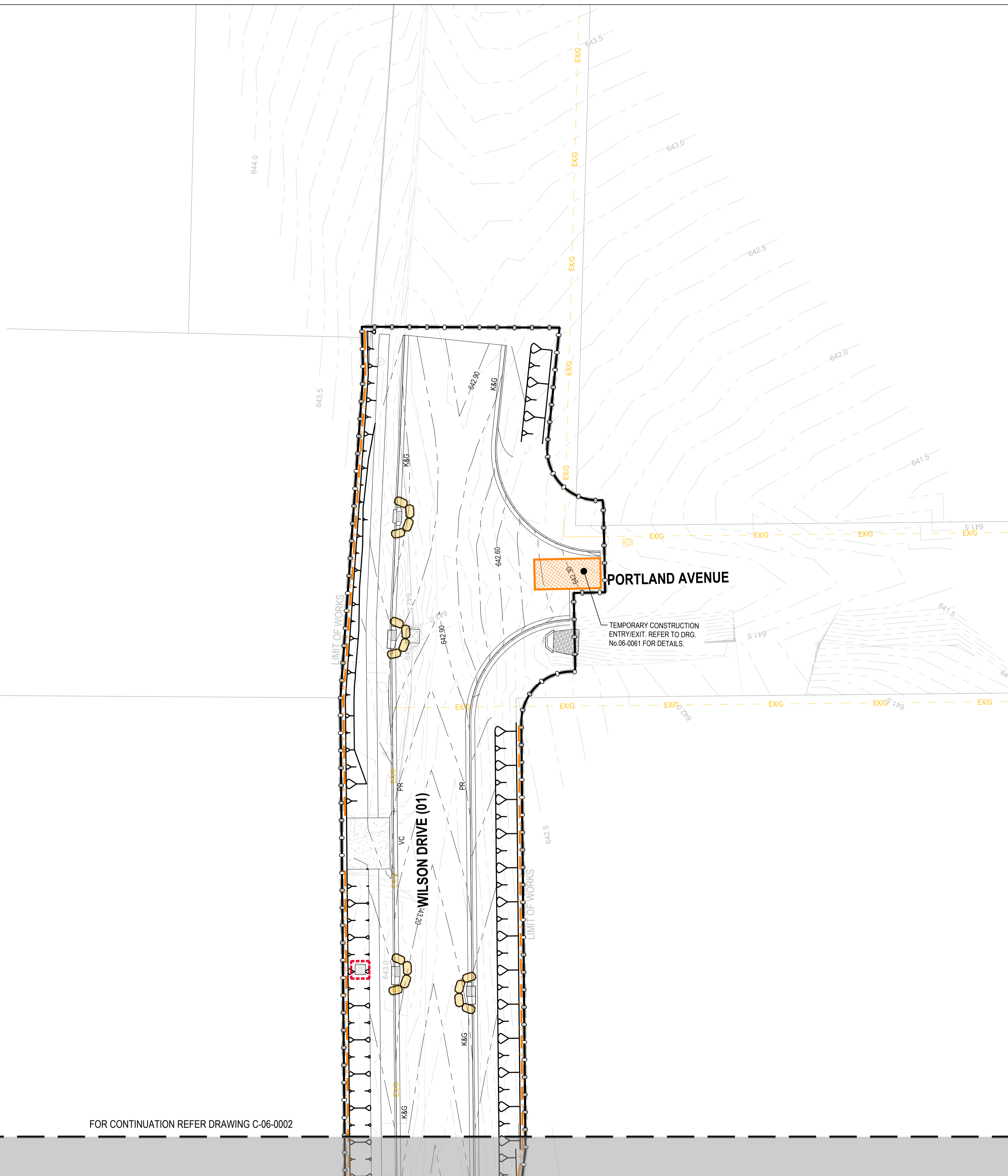
Project Number	Drawing Number	Revision
<b>S210044</b>	<b>C-06-0002</b>	<b>C</b>

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### EROSION & SEDIMENT LEGEND

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- SEDIMENT FENCE
- ..... TEMPORARY CONSTRUCTION ACCESS
- ..... KERB INLET PROTECTION
- ..... GEOTEXTILE INLET SEDIMENT FILTER
- ..... STRAW BALE SEDIMENT FILTERS



Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021

Rev	Revision Description	Date
C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021



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Client  
**FDC CONSTRUCTION**

Project  
**WILSON DRIVE, MARULAN**

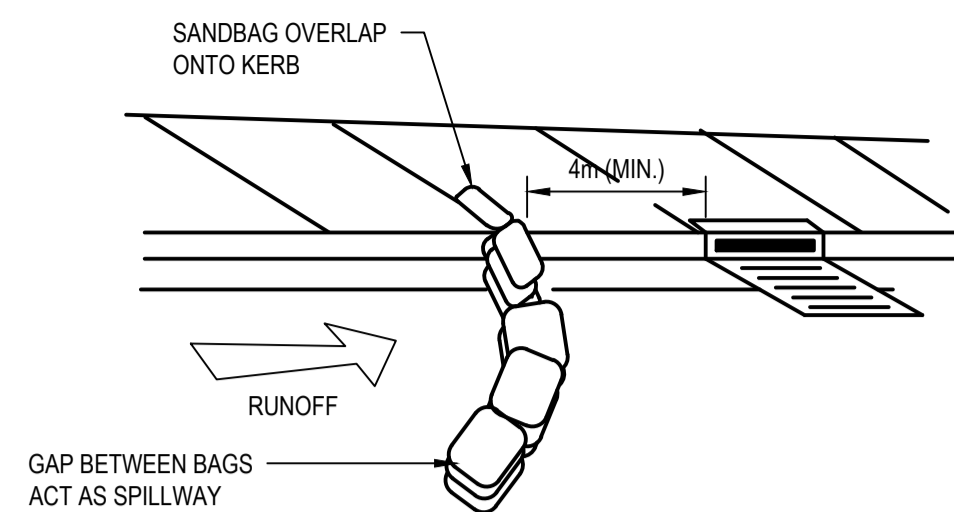
Title  
**EROSION AND SEDIMENT CONTROL PLAN SHEET 3**

Scale:  
**AS SHOWN**

Drawn <b>E.F.</b>	Designed <b>B.K./H.D.</b>	Checked	Approved
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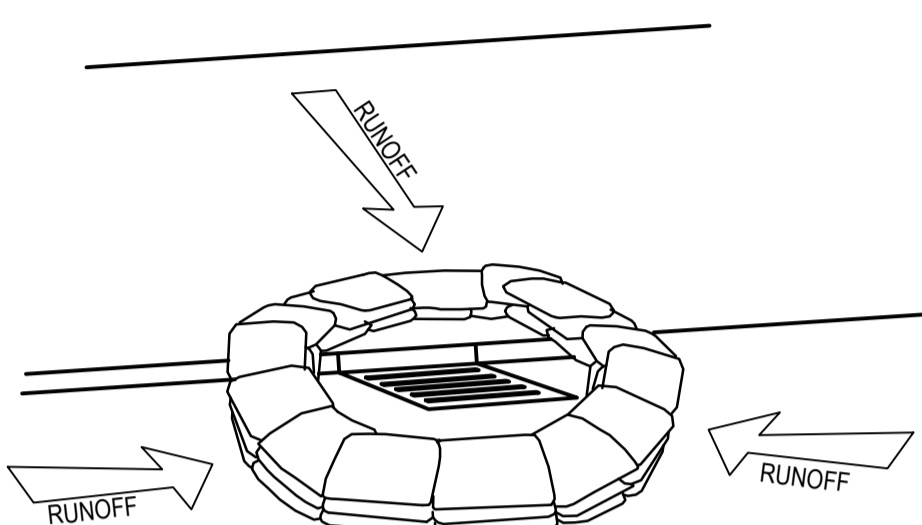
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FOR CONTINUATION REFER DRAWING C-06-0002



### KERB INLET SEDIMENT FILTER (ON GRADE)

NTS

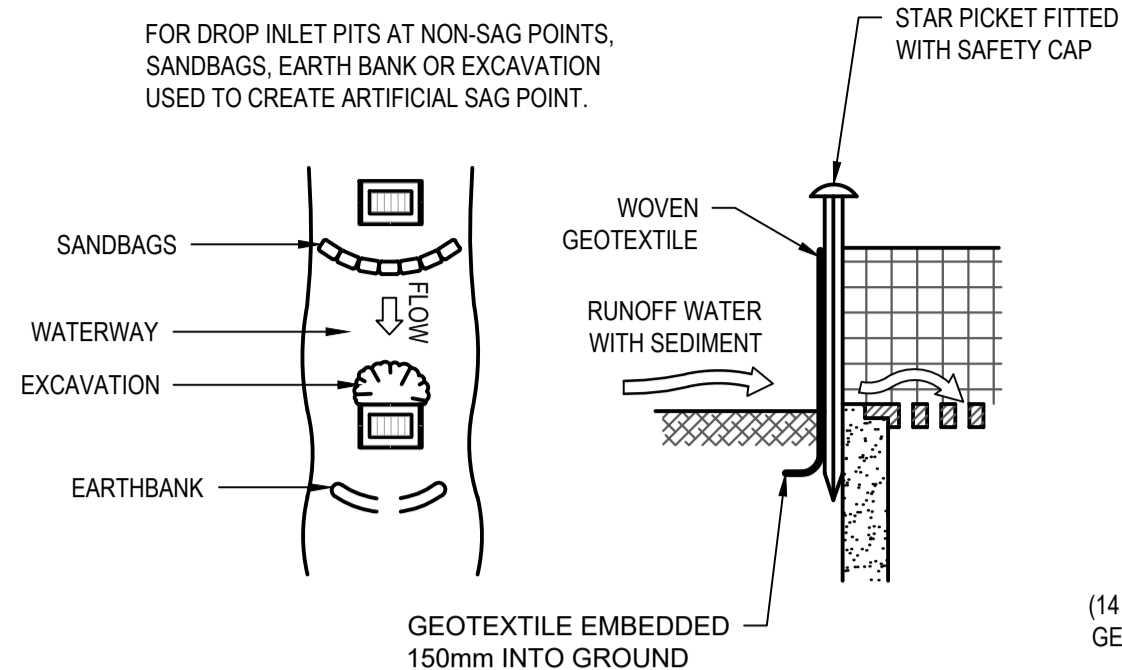


### KERB INLET SEDIMENT FILTER - SANDBAG SURROUND

NTS

### KERB INLET SEDIMENT FILTER

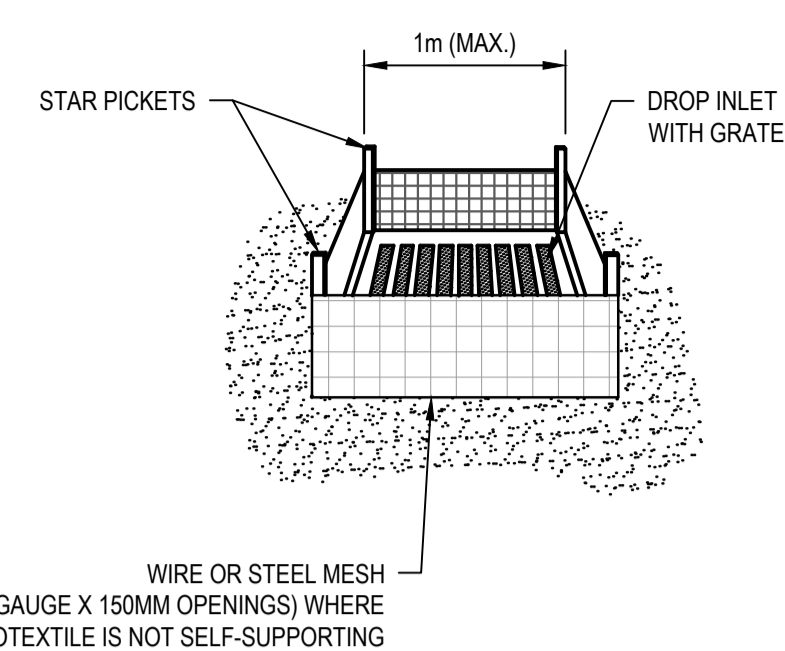
- REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
- ENSURE THAT THE INSTALLATION OF THE SEDIMENT TRAP WILL NOT CAUSE UNDESIRABLE SAFETY OR FLOODING ISSUES.
- INSTALL SEDIMENT TRAP IN ACCORDANCE WITH STANDARD DRAWING SUPPLIED WITH THE APPROVED PLAN, OR AS DIRECTED BY THE SITE SUPERVISOR.
- ENSURE THE SEDIMENT TRAP IS CONSTRUCTED UP-SLOPE OF AN ON-GRADE KERB INLET. THE SEDIMENT TRAP MUST NOT SURROUND THE KERB INLET UNLESS SPECIFICALLY DIRECTED BY THE SITE SUPERVISOR.
- ENSURE THE SEDIMENT TRAP FULLY ENCLOSES THE KERB INLET. USE APPROPRIATE SPACERS TO ENSURE THE SEDIMENT TRAP DOES NOT BLOCK THE SIDE-ENTRY INLET.
- TAKE ALL NECESSARY MEASURE TO MINIMISE THE SAFETY RISK CAUSED BY THE STRUCTURE.



### DROP INLET FILTERS

NTS

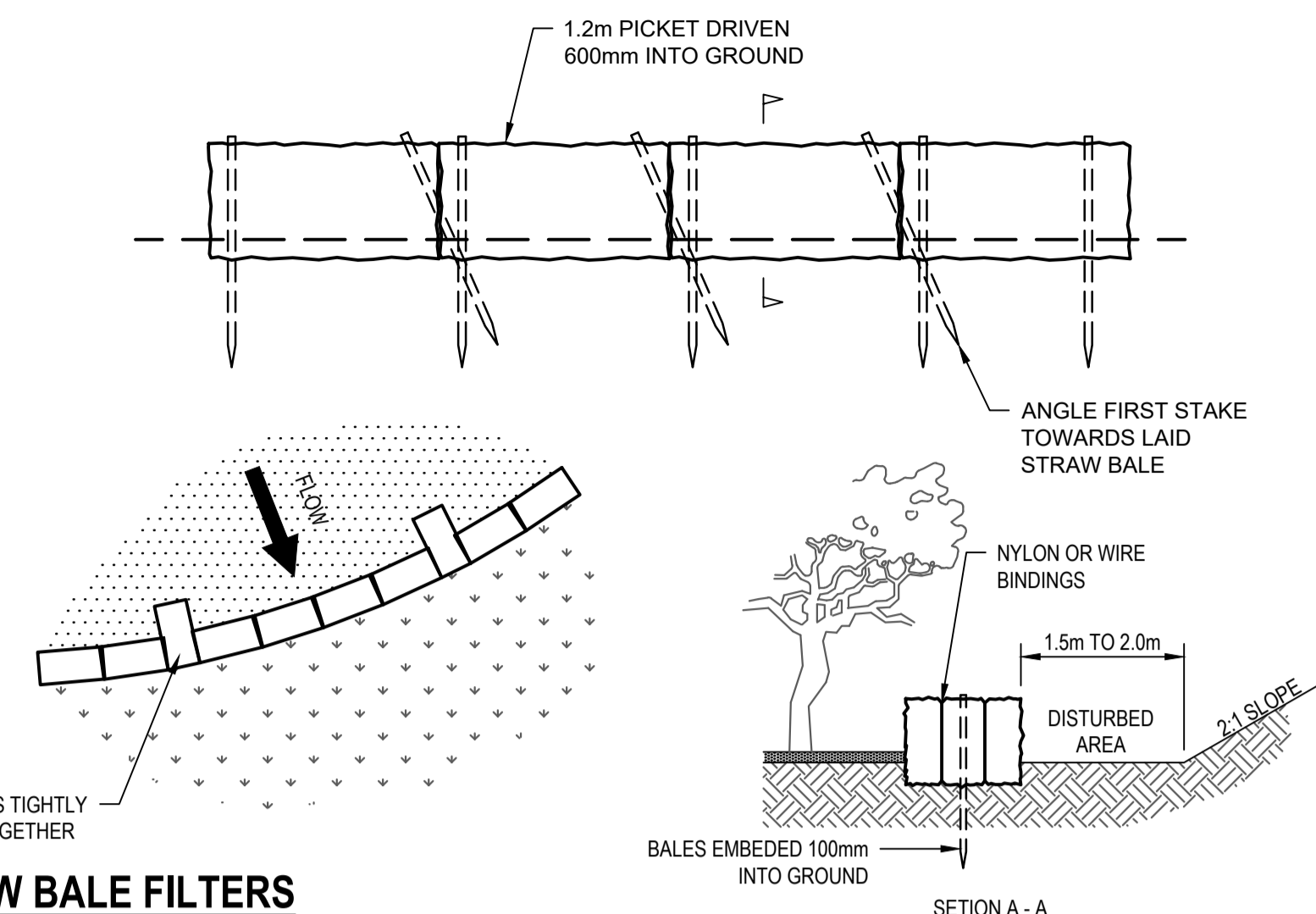
- FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OF STRAW BALES.
- FOLLOW STANDARD DRAWINGS OF STRAW BALE FILTERS AND SEDIMENT FENCES FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1m CENTERS.
- IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
- DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.



### STRAW BALE FILTERS

NTS

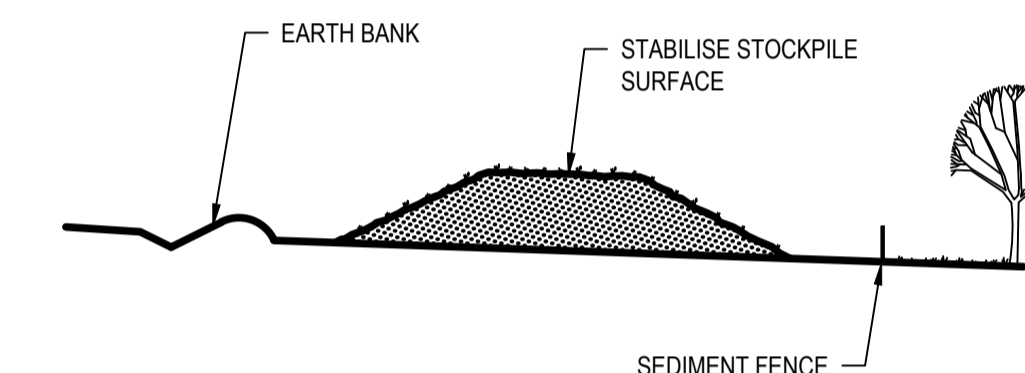
- CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DIAGRAM TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION.
- PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN THE BALES. THE STRAWS IN EACH BALE ARE TO BE ALIGNED PARALLEL TO THE GROUND.
- ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
- EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH 1.2m STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
- WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE BALES ARE PLACED 1m TO 2m DOWNSLOPE FROM THE TOE.
- ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.



### STOCKPILE

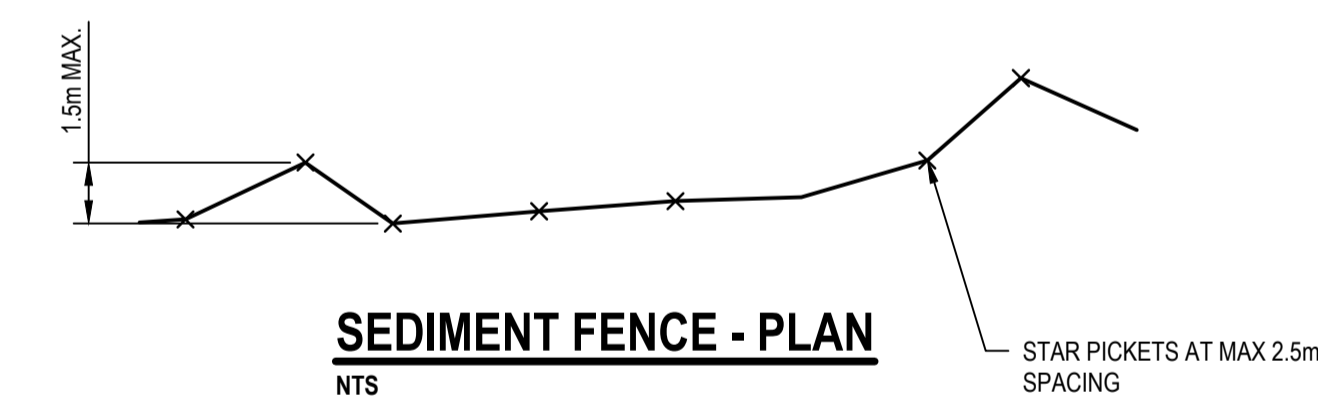
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- MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95% STANDARD PROCTOR DENSITY.
- SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
- SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.



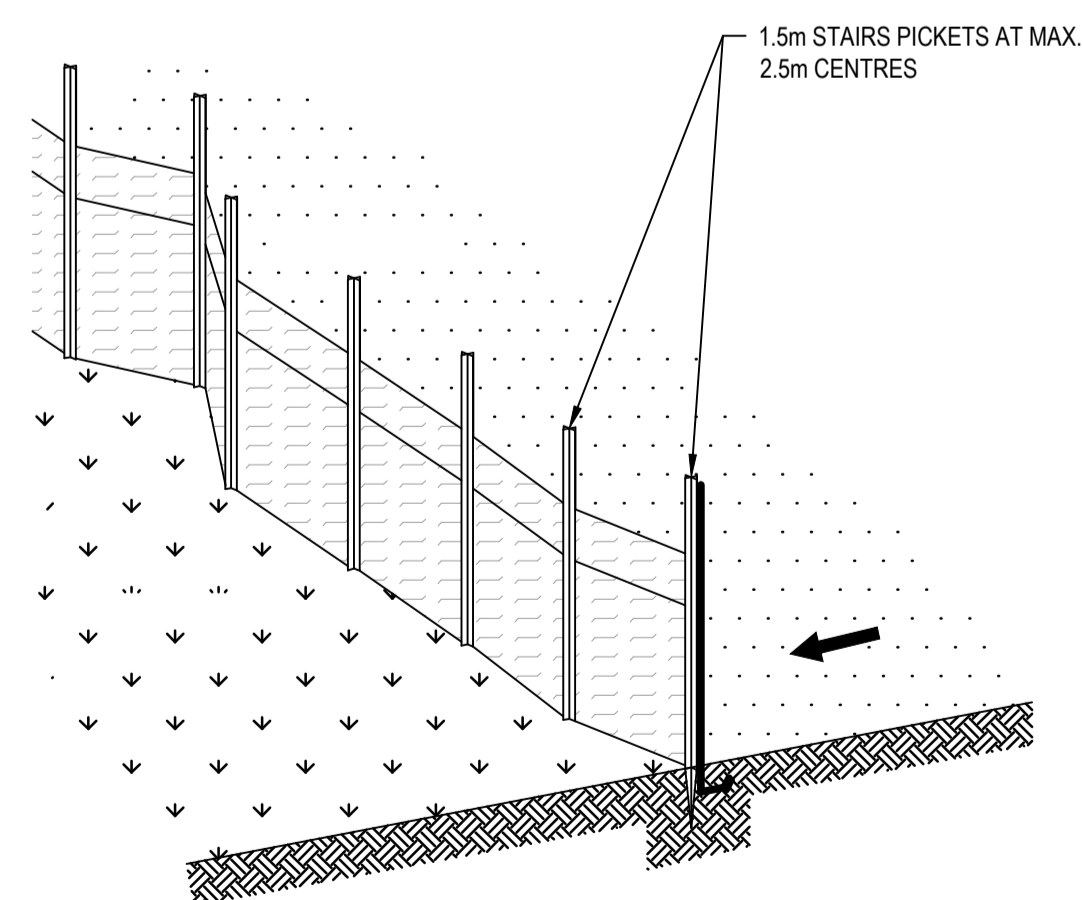
### STOCKPILE

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### SEDIMENT FENCE - PLAN

NTS



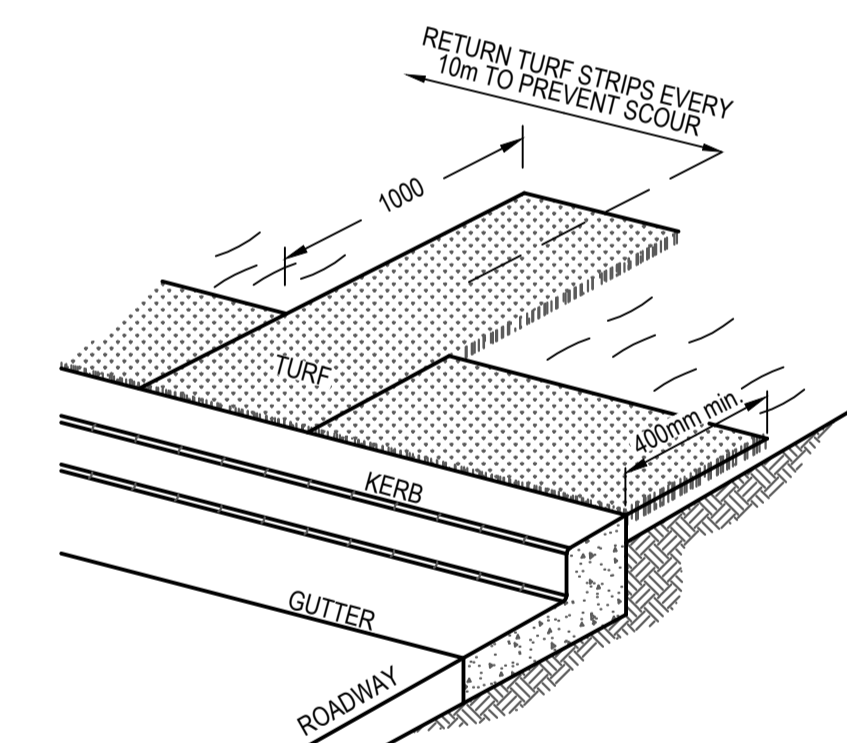
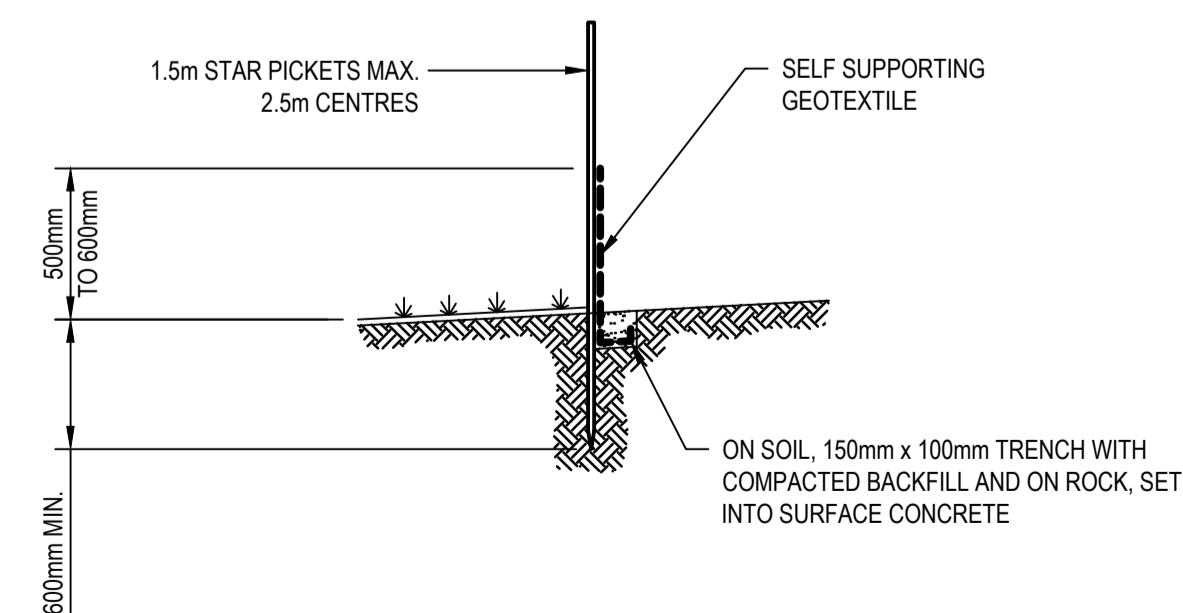
### SEDIMENT FENCE

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### SEDIMENT FENCE

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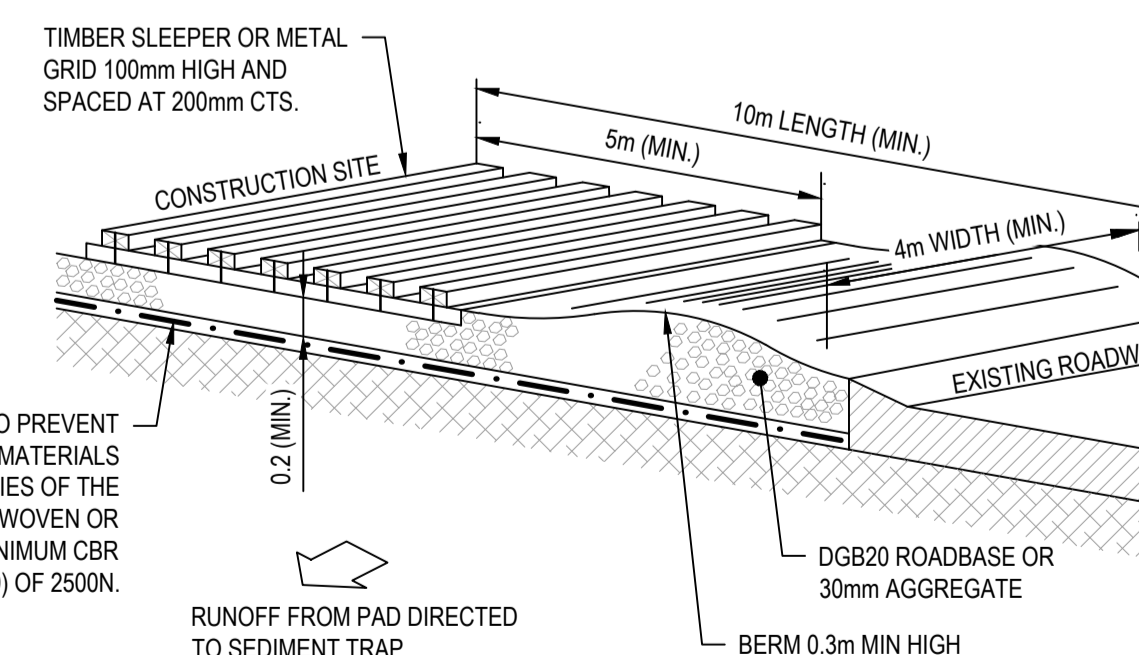
- CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BE PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING, TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 litres/sec IN THE DESIGN STORM EVENT, USUALLY THE 10 YEAR EVENT.
- CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
- DRIVE 1.5 METER LONG STAR PICKETS INTO GROUND AT 2.5 METER INTERVALS (MAX.) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
- FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS, ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES, OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
- JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
- BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.



### KERBSIDE TURF STRIP

NTS

- INSTALL A 400mm MINIMUM WIDE ROLL OF TURF ON THE FOOTPATH NEXT TO THE KERB AND AT THE SAME LEVEL AS THE TOP OF THE KERB.
- LAY 1.4m LONG TURF STRIPS NORMAL TO THE KERB EVERY 10m.
- REHABILITATE DISTURBED SOIL BEHIND THE TURF STRIP FOLLOWING THE ESCPI/SWMP.



### TEMPORARY STABILISED CONSTRUCTION EXIT

NTS

GEOTEXTILE FABRIC DESIGNED TO PREVENT INTERMIXING OF SUBGRADE AND BASE MATERIALS AND TO MAINTAIN GOOD PROPERTIES OF THE SUB-BASE LAYERS. GEOTEXTILE MAY BE WOVEN OR NEEDLE PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2500N.

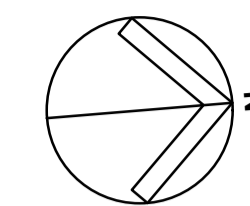
### CONSTRUCTION NOTES

- CONTRACTOR SHALL CONDUCT A DIAL BEFORE YOU DIG SEARCH PRIOR TO COMMENCEMENT OF ANY WORK.
- ENSURE THAT ALL COUNCIL AND PUBLIC UTILITY ASSETS ARE MAINTAINED AND PROTECTED AT ALL TIMES IN THE VICINITY OF THE TEMPORARY CONSTRUCTION EXIT.
- STRIP TOPSOIL AND LEVEL SITE.
- COMPACT SUBGRADE.
- COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
- CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE OR 30mm AGGREGATE.
- 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.

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C	RE-ISSUED FOR SECTION 138	24.02.2022
B	ISSUED FOR SECTION 138	25.11.2021
A	ISSUED FOR REVIEW	15.11.2021
Rev	Revision Description	Date



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▲ mail@scpconsult.com.au ▲ ABN 80 003 076 024

Client  
**FDC CONSTRUCTION**

Project  
**WILSON DRIVE, MARULAN**

Title  
**EROSION AND SEDIMENT CONTROL DETAILS**

Scale:  
0 10 20 30 40 50m  
1:1000

Drawn	Designed	Checked	Approved
E.F.	B.K./H.D.		

Project Number	Drawing Number	Revision
<b>S210044</b>	<b>C-06-9001</b>	<b>C</b>

## **APPENDIX B**

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### Stage 3 Subdivision Plans (Proposed)

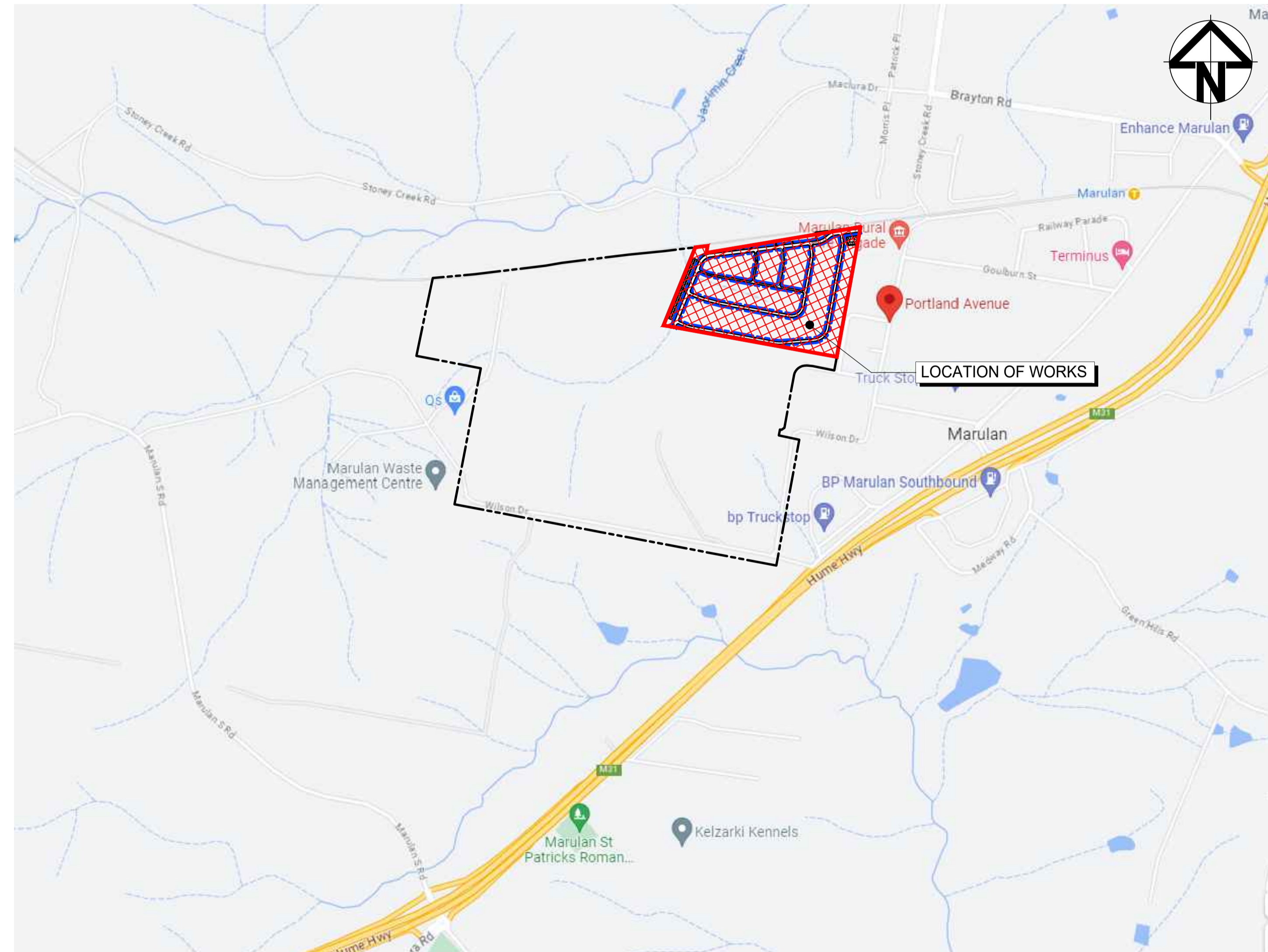
# EQUINOX - STAGE 3

## WILSON DRIVE, MARULAN

### DEVELOPMENT APPLICATION, CIVIL WORKS

#### DRAWING LIST

GENERAL	
23-1098-C1000	COVER SHEET, DRAWING LIST AND LOCALITY PLAN
23-1098-C1001	GENERAL NOTES SHEET 1
23-1098-C1002	GENERAL NOTES SHEET 2
23-1098-C1010	GENERAL ARRANGEMENT PLAN
23-1098-C1015	DEMOLITION PLAN
23-1098-C1020	TYPICAL SECTIONS SHEET 1
23-1098-C1021	TYPICAL SECTIONS SHEET 2
23-1098-C1030	CIVIL DETAILS SHEET 1
23-1098-C1031	CIVIL DETAILS SHEET 2
BULK EARTHWORKS	
23-1098-C1040	BULK EARTHWORKS CUT/FILL PLAN
23-1098-C1041	BULK EARTHWORKS SECTION
23-1098-C1042	DEMOLITION PLAN
SITWORKS AND STORMWATER DRAINAGE	
23-1098-C1050	SITWORKS AND STORMWATER PLAN SHEET 1
23-1098-C1051	SITWORKS AND STORMWATER PLAN SHEET 2
23-1098-C1052	SITWORKS AND STORMWATER PLAN SHEET 3
ROADWORKS LONGITUDINAL SECTIONS	
23-1098-C1060	ROADWORKS LONGITUDINAL SECTIONS SHEET 1
23-1098-C1061	ROADWORKS LONGITUDINAL SECTIONS SHEET 2
23-1098-C1062	ROADWORKS LONGITUDINAL SECTIONS SHEET 3
23-1098-C1063	ROADWORKS LONGITUDINAL SECTIONS SHEET 4
23-1098-C1064	ROADWORKS LONGITUDINAL SECTIONS SHEET 5
23-1098-C1065	ROADWORKS LONGITUDINAL SECTIONS SHEET 6
23-1098-C1066	ROADWORKS LONGITUDINAL SECTIONS SHEET 7
23-1098-C1067	ROADWORKS LONGITUDINAL SECTIONS SHEET 8
23-1098-C1068	ROADWORKS LONGITUDINAL SECTIONS SHEET 9
23-1098-C1069	ROADWORKS LONGITUDINAL SECTIONS SHEET 10
STORMWATER DRAINAGE	
23-1098-C1070	STORMWATER DRAINAGE CATCHMENT PLAN (PRE-DEVELOPED)
23-1098-C1071	STORMWATER DRAINAGE CATCHMENT PLAN (POST-DEVELOPED)
23-1098-C1072	BASIN 3A PLAN
23-1098-C1073	BASIN 3A SECTION
23-1098-C1074	BASIN 3B PLAN AND SECTION
WATER AND SEWER RETICULATION	
23-1098-C1080	WATER AND SEWER RETICULATION PLAN
EROSION AND SEDIMENT CONTROL	
23-1098-C1090	EROSION AND SEDIMENT CONTROL PLAN
23-1098-C1091	EROSION AND SEDIMENT DETAILS
GOULBURN STREET EXTENSION	
23-1098-C2000	GOULBURN STREET SITWORKS AND STORMWATER PLAN
23-1098-C2001	GOULBURN STREET TYPICAL SECTIONS



LOCALITY PLAN  
NTS

Bar Scales		Client		Scales		Drawn		Project		Civil Engineers and Project Managers	
				NTS		NT		EQUINOX - STAGE 3 WILSON DRIVE, MARULAN		 Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au	
				Grid GDA2020		Designed BKJC					
				Height Datum AHD		Checked AMc				Status <b>PRELIMINARY ONLY</b> NOT TO BE USED FOR CONSTRUCTION Project - Drawing No. 23-1098-C1000	
						Approved		Title			
P1 DRAFT ISSUE 09-06-23						THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&I		COVER SHEET, DRAWING LIST AND LOCALITY PLAN			



**SITWORKS NOTES**

- ORIGIN OF LEVELS:- REFER SURVEY NOTES.
- CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES TO BE REPORTED TO AT & L.
- MAKE SMOOTH CONNECTION WITH EXISTING WORKS.
- ALL TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.
- ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACKFILLED WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75)
- PROVIDE 10mm WIDE EXPANSION JOINTS BETWEEN BUILDINGS AND ALL CONCRETE OR UNIT PAVEMENTS.
- ASPHALTIC CONCRETE SHALL CONFORM TO R.M.S SPECIFICATION R116.
- ALL BASECOURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH R.M.S FORM 3051 (UNBOUND), R.M.S FORM 3052 (BOUND) COMPACTED TO MINIMUM 98% MODIFIED DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m OF BASECOURSE MATERIAL PLACED.
- ALL SUB-BASE COURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH R.M.S FORM 3051, 3051.1 AND COMPACTED TO MINIMUM 95% MODIFIED DENSITY IN ACCORDANCE WITH A.S 1289 5.2.1. FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m OF SUB-BASE COURSE MATERIAL PLACED.
- AS AN ALTERNATIVE TO THE USE OF IGNEOUS ROCK AS A SUB-BASE MATERIAL IN (9) A CERTIFIED RECYCLED CONCRETE MATERIAL COMPLYING WITH R.M.S FORM 3051 AND 3051.1 WILL BE CONSIDERED. SUBJECT TO MATERIAL SAMPLES AND APPROPRIATE CERTIFICATIONS BEING PROVIDED TO THE SATISFACTION OF AT & L.
- SHOULD THE CONTRACTOR WISH TO USE A RECYCLED PRODUCT THE CONTRACTOR IS TO SEEK ACCEPTANCE OF THE PRODUCT FROM AT&L. THE PRICE DIFFERENCE BETWEEN AN IGNEOUS PRODUCT AND A RECYCLED PRODUCT SHALL BE CLEARLY INDICATED.
- WHERE NOTED ON THE DRAWINGS THAT WORKS ARE TO BE CARRIED BY OTHERS, (eg. ADJUSTMENT OF SERVICES), THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CO-ORDINATION OF THESE WORKS.

**SURVEY NOTES**

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY LANDPARTNERS, BEING REGISTERED SURVEYORS. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. AT & L DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.

SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT AT & L.

THE FOLLOWING NOTES HAVE BEEN TAKEN DIRECTLY FROM THE ORIGINAL SURVEY DOCUMENTS.

IMPORTANT NOTE:  
TREE SIZES ARE ESTIMATES ONLY.  
ONLY VISIBLE SERVICES HAVE BEEN LOCATED IN THIS SURVEY. SERVICE AND UTILITIES SHOWN ON PLAN HAVE BEEN LOCATED BY PHYSICAL EVIDENCE ON SITE ONLY AND MAY NOT HAVE BEEN OPENED TO VERIFY THE TYPE OF UTILITY. NEITHER EXCAVATION NOR POTHOLING HAVE BEEN CARRIED OUT TO CONFIRM UNDERGROUND LOCATION. SERVICE DETAILS SHOULD BE CONFIRMED WITH THE RELEVANT SERVICE AUTHORITY DURING DESIGN AND PRIOR TO ANY CONSTRUCTION.  
ALL DIMENSIONS MUST BE VERIFIED ON SITE PRIOR TO ANY CONSTRUCTION. THE POSITION OF SURVEYED DATA HAS BEEN LOCATED AND IS SHOWN TO TOPOGRAPHIC ACCURACIES. IF CLEARANCES TO BOUNDARIES OR OTHER FEATURES ARE CRITICAL AND DIMENSIONS ARE NOT SHOWN FURTHER SURVEY MAY BE REQUIRED.  
THE TITLE BOUNDARIES SHOWN HEREON WERE NOT MARKED AT THE TIME OF SURVEY AND HAVE BEEN DETERMINED BY PLAN DIMENSIONS ONLY AND NOT BY FIELD SURVEY.  
ANY CONSTRUCTION ON OR NEAR BOUNDARIES WILL REQUIRE FURTHER SURVEY IN ORDER THAT MARKS DEFINING BOUNDARIES CAN BE PLACED.

**EXISTING UNDERGROUND SERVICES NOTES**

THE LOCATIONS OF UNDERGROUND SERVICES SHOWN IN THIS SET OF DRAWINGS HAVE BEEN PLOTTED FROM SURVEY INFORMATION AND SERVICE AUTHORITY INFORMATION. THE SERVICE INFORMATION HAS BEEN PREPARED ONLY TO SHOW THE APPROXIMATE POSITIONS OF ANY KNOWN SERVICES AND MAY NOT BE AS CONSTRUCTED OR ACCURATE.

AT & L CAN NOT GUARANTEE THAT THE SERVICES INFORMATION SHOWN ON THESE DRAWINGS ACCURATELY INDICATES THE PRESENCE OR ABSENCE OF SERVICES OR THEIR LOCATION AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN FROM ANY CAUSE WHATSOEVER.

CONTRACTORS SHALL TAKE DUE CARE WHEN EXCAVATING ONSITE INCLUDING HAND EXCAVATION WHERE NECESSARY.

CONTRACTORS ARE TO CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF EXCAVATION WORKS.

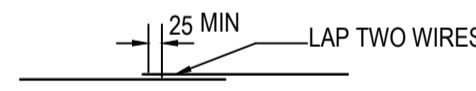
CONTRACTORS ARE TO UNDERTAKE A SERVICES SEARCH. PRIOR TO COMMENCEMENT OF WORKS ON SITE. SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.

**CONCRETE NOTES**

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 CURRENT EDITION WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
- CONCRETE QUALITY  
ALL REQUIREMENTS OF THE CURRENT ACSE CONCRETE SPECIFICATION DOCUMENT 1 SHALL APPLY TO THE FORMWORK, REINFORCEMENT AND CONCRETE UNLESS NOTED OTHERWISE.

ELEMENT	AS 3600 F <sub>c</sub> MPa AT 28 DAYS	SPECIFIED SLUMP	NOMINAL AGG. SIZE
VEHICULAR BASE	32	60	20
KERBS, PATHS, AND PITS	25	80	20

- CEMENT TYPE SHALL BE (ACSE SPECIFICATION) TYPE SL
  - PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 1379.
  - NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING BY AT & L.
  - CLEAR CONCRETE COVER TO ALL REINFORCEMENT FOR DURABILITY SHALL BE 40mm TOP AND 70mm FOR EXTERNAL EDGES UNLESS NOTED OTHERWISE.
  - ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON MILD STEEL PLASTIC TIPPED CHAIRS, PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1m CENTRES BOTH WAYS. BARS SHALL BE TIED AT ALTERNATE INTERSECTIONS.
  - THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. ALL CONCRETE INCLUDING SLABS ON GROUND AND FOOTINGS SHALL BE COMPACTED AND CURED IN ACCORDANCE WITH R.M.S SPECIFICATION R83.
  - REINFORCEMENT SYMBOLS:  
N DENOTES GRADE 450 N BARS TO AS 1302 GRADE N  
R DENOTES 230 R HOT ROLLED PLAIN BARS TO AS 1302  
SL DENOTES HARD-DRAWN WIRE REINFORCING FABRIC TO AS 1304
- NUMBER OF BARS IN GROUP     BAR GRADE AND TYPE
- 17 N 20 250
- NOMINAL BAR SIZE IN mm     SPACING IN mm
- THE FIGURE FOLLOWING THE FABRIC SYMBOL SL IS THE REFERENCE NUMBER FOR FABRIC TO AS 1304.
- FABRIC SHALL BE LAPPED IN ACCORDANCE WITH THE FOLLOWING DETAIL:



**KERBING NOTES**

- ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25MPa U.N.O IN REINFORCED CONCRETE NOTES.
  - ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON MIN. 100mm GRANULAR BASECOURSE COMPACTED TO MINIMUM 98% MODIFIED DRY DENSITY (AS 1289 5.2.1).
  - EXPANSION JOINTS (E.J) TO BE FORMED FROM 10mm COMPRESSIBLE CORK FILLER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, ON TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 12m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.
  - WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.
  - BROOMED FINISH TO ALL RAMPED AND VEHICULAR CROSSINGS. ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.
  - IN THE REPLACEMENT OF KERB AND GUTTER :- EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm U.N.O FROM THE LIP OF GUTTER. UPON COMPLETION OF THE NEW KERB AND GUTTER NEW BASECOURSE AND SURFACE TO BE LAID 900mm WIDE U.N.O.
- EXISTING ALLOTMENT DRAINAGE PIPES ARE TO BE BUILT INTO THE NEW KERB AND GUTTER WITH 100mm DIA HOLE.
- EXISTING KERB AND GUTTER IS TO BE COMPLETELY REMOVED WHERE NEW KERB AND GUTTER IS SHOWN.

**STORMWATER DRAINAGE NOTES**

- STORMWATER DESIGN CRITERIA:  
(A) AVERAGE RECURRENCE INTERVAL:  
1:100 YEARS MAJOR STORM (OVERLAND FLOW)  
1:20 YEARS MINOR STORM (PIPED NETWORK)  
(B) RAINFALL INTENSITIES:  
TIME OF CONCENTRATION 5 MINUTES  
1:100 YEARS= 182 mm/hr  
1:20 YEARS= 138 mm/hr  
(C) RUNOFF COEFFICIENTS:  
ROOF AREAS: C 100 =1.0  
EXTERNAL PAVEMENTS: C 100 =0.9
- PIPES 300 DIA. AND LARGER TO BE REINFORCED CONCRETE CLASS '3' APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O. ALL ROAD CROSSINGS TO BE CLASS '4' U.N.O.
- PIPES UP TO 300 DIA SHALL BE SEWER GRADE uPVC WITH SOLVENT WELDED JOINTS.
- EQUIVALENT STRENGTH VCP OR FRC PIPES MAY BE USED, SUBJECT TO THE APPROVAL.
- PIPES TO BE INSTALLED TO TYPE HS1 SUPPORT IN ACCORDANCE WITH AS 3725 (2007) IN ALL CASES BACKFILL TRENCH WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75)
- ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500.3 (2021).
- PRECAST PITS MAY BE USED EXTERNAL TO THE BUILDING SUBJECT TO APPROVAL BY AT & L.
- ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.
- WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.
- CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
- GRATES AND COVERS SHALL CONFORM TO AS 3996.
- AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
- ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.

**FINISHED SURFACE LEVELS**

- ALL FINISHED SURFACE LEVELS ARE ±1000mm U.N.O.

**EROSION AND SEDIMENT CONTROL NOTES**

**GENERAL INSTRUCTIONS**

- THE SITE SUPERINTENDENT/ENGINEER WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS DOCUMENTED.
- ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH
  - LOCAL AUTHORITY REQUIREMENTS
  - EPA REQUIREMENTS
  - NSW DEPARTMENT OF HOUSING MANUAL "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION", 4th EDITION, MARCH 2004.
- MAINTAIN THE EROSION CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY.
- WHEN STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SEDIMENT FENCES ARE ERECTED AROUND PITS.
- CONTRACTOR IS TO ENSURE ALL EROSION & SEDIMENT CONTROL DEVICES ARE MAINTAINED IN GOOD WORKING ORDER AND OPERATE EFFECTIVELY. REPAIRS AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED, PARTICULARLY FOLLOWING STORM EVENTS.

**LAND DISTURBANCE**

- WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE WILL BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:
  - INSTALL A WIND FENCE ALONG THE BOUNDARIES AS SHOWN ON PLAN. REFER DETAIL.
  - INSTALL A SEDIMENT FENCE ALONG THE BOUNDARIES AS SHOWN ON PLAN. REFER DETAIL.
  - CONSTRUCT STABILISED CONSTRUCTION ENTRANCE TO LOCATION AS DETERMINED BY SUPERINTENDENT/ENGINEER. REFER DETAIL.
  - INSTALL SEDIMENT BASIN AS SHOWN ON PLAN
  - INSTALL SEDIMENT TRAPS AS SHOWN ON PLAN.
- UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. WHERE POSSIBLE, PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.

**EROSION CONTROL**

- DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
- FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

**SEDIMENT CONTROL**

- STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.
- ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.
- WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.
- TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.

**OTHER MATTERS**

- ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.
  - PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE
  - ENSURING THAT NOTHING IS NAILED TO THEM
- PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS.
  - ENCROACHMENT ONLY OCCURS ON ONE SIDE AND NO CLOSER TO THE TRUNK THAN EITHER 1.5 METRES OR HALF THE DISTANCE BETWEEN THE OUTER EDGE OF THE DRIP LINE AND THE TRUNK, WHICH EVER IS THE GREATER
  - A DRAINAGE SYSTEM THAT ALLOWS AIR AND WATER TO CIRCULATE THROUGH THE ROOT ZONE (E.G. A GRAVEL BED) IS PLACED UNDER ALL FILL LAYERS OF MORE THAN 300 MILLIMETRES DEPTH
  - CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.

**EROSION AND SEDIMENT CONTROL NOTES**

**STAGING**

SUITABLE EROSION AND SEDIMENT CONTROLS SHALL BE DESIGNED, PROVIDED AND MAINTAINED BY THE CONTRACTOR THROUGHOUT ALL STAGES OF WORKS, INCLUDING AT COMPLETION OF THE BULK EARTHWORKS WHERE SHOWN ON AT&L DRAWINGS OR WHERE DIRECTED BY THE SUPERINTENDENT OR PENRITH CITY COUNCIL'S ENGINEERS. SEDIMENT AND EROSION CONTROLS ARE TO BE DESIGNED AND DOCUMENTED BY A SUITABLY QUALIFIED EXPERT ENGAGED BY THE CONTRACTOR AND APPROVED AS PART OF THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. SUCH CONTROLS SHALL BE IN ACCORDANCE WITH THE RELEVANT REQUIREMENTS IN THE LATEST VERSION OF THE MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION GUIDELINE (LANDCOM).



CONTRACTOR SHALL OBTAIN ALL CURRENT SERVICE AUTHORITY PLANS PRIOR TO COMMENCEMENT OF WORK



P1 DRAFT ISSUE		09-06-23		Bar Scales		Client		Scales		Drawn		Project		Civil Engineers and Project Managers	
Issue		Description		Date		FDC		NTS		NT		EQUINOX - STAGE 3 WILSON DRIVE, MARULAN		Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au	
								Grid		Checked		BK/JC		Status	
								Height Datum		Approved		AMc		PRELIMINARY ONLY	
								GDA2020						NOT TO BE USED FOR CONSTRUCTION	
								AHD						Project - Drawing No.	
								GDA2020						23-1098-C1001	
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## GOULBURN MULWAREE SHIRE COUNCIL

STANDARD NOTES FOR SUBDIVISION AND WORKS IN ROAD RESERVES

### NOTIFICATION AND INSPECTIONS

1. THE SUPERVISOR SHALL PROVIDE THE COUNCIL ENGINEER WITH 7-DAYS NOTICE PRIOR TO THE COMMENCEMENT OF WORK.
2. AT LEAST 48-HOURS NOTICE TO COUNCIL'S DEVELOPMENT AND ASSET ENGINEER (PHONE NUMBER 48234444) SHOULD BE GIVEN FOR INSPECTIONS. FAILURE TO NOTIFY THE NEED FOR AN INSPECTION MAY LEAD TO THE PORTION OF THE WORK NOT BEING APPROVED BY THE COUNCIL.
3. THE SUPERVISOR SHALL NOT PROCEED TO THE NEXT STAGE UNTIL THE COUNCIL ENGINEER HAS APPROVED THE PRECEDING STAGE OF WORKS.
4. IN CASES WHERE A PORTION OF THE WORKS IS NOT APPROVED, NO FURTHER WORK MAY PROCEED WHEREBY THE FAILED PORTION OF THE WORK MAY BECOME INCORPORATED INTO ANY NEW WORKS.
5. THE SUPERVISOR MUST ENSURE THAT INSPECTIONS ARE CARRIED OUT AT THE FOLLOWING STAGES OF CONSTRUCTION. COUNCIL WILL ASSUME THE ROLE OF THE PRINCIPAL CERTIFYING/ROADS AUTHORITY. ADDITIONAL INSPECTIONS MAY BE CARRIED OUT AS DIRECTED BY COUNCIL.
6. INSPECTIONS BY CERTIFYING AUTHORITY ARE REQUIRED AT THE FOLLOWING STAGES AND THE WORKS APPROVED PRIOR TO CONTINUANCE OF ANY FUTURE WORK:
  - 1) EROSION AND SEDIMENT CONTROL;
    - a. IMPLEMENTATION OF EROSION AND SEDIMENT CONTROL MEASURES BEFORE CONSTRUCTION;
  - 2) DRAINAGE;
    - a. TRENCH EXCAVATED, BEDDING MATERIAL PLACED AND PIPES/CONDUITS (SHOWING PIPE CLASS) LAID PRIOR TO BACKFILLING AND NON-COHESIVE GRANULAR BACKFILLING MATERIAL UP TO HAUNCH;
    - b. FILTER MATERIAL PLACED IN SUBSOIL DRAINS PRIOR TO BACKFILLING;
    - c. PIT WALLS, WING WALLS AND HEAD WALLS WITH REINFORCEMENT AND PLACE PRIOR TO CASTING;
    - d. CONNECTION TO EXISTING SYSTEM PRIOR TO BACKFILLING;
    - e. CHANNEL/WATERCOURSE TAIL OUT WORKS AFTER CONSTRUCTION;
  3. PAVEMENT CONSTRUCTION;
    - a. PRIOR TO WORKS COMMENCING APPROVAL OF THE MATERIAL USED IN ROAD PAVEMENTS SHALL BE OBTAINED FROM COUNCIL, INCLUDING THE SOURCE OF THE MATERIAL AND MOST RECENT MATERIAL TESTING.
    - b. SUB-GRADE ROLLER TEST (A VISUAL CHECK AND ROLLER TEST WITH 10T SMOOTH DRUM ROLLER) OR IN ACCORDANCE WITH TEST METHOD T198.
    - c. SUB BASE ROLLER TEST AT KERB ALIGNMENT (A VISUAL CHECK AND ROLLER TEST WITH 10T SMOOTH DRUM ROLLER) OR IN ACCORDANCE WITH TEST METHOD T198.
    - d. BASE COURSE BENKELMAN BEAN TEST CARRIED OUT BY NATA REGISTERED GEOTECHNICAL ENGINEER AT 10M INTERVALS.
  - 4) WEARING SURFACE
    - a. APPLICATION OF THE WEARING SURFACE SHALL NOT OCCUR WITHOUT THE APPROVAL OF COUNCIL. THE FOLLOWING SHALL BE SUBMITTED TO COUNCIL TO DEMONSTRATE COMPLIANCE WITH COUNCIL'S SPECIFICATION PRIOR TO APPROVAL TO SEAL.
      - i) COMPACTION TEST FOR SUBGRADE, SUB BASE AND BASE PRIOR TO THE PLANTING OF ANY PLANTS, APPROVAL SHALL BE OBTAINED BY COUNCIL.
      - ii) MATERIALS TESTING AND SAMPLING FOR SUB BASE AND BASE
      - iii) BENKELMAN BEAM TEST RESULTS
    - b. VISUAL INSPECTION OF THE INITIAL SEAL/PRIMER SEAL PRIOR TO APPLICATION OF THE FINAL WEARING SURFACE
    - c. CORE DRILLS OF THE WEARING SURFACE WILL BE UNDERTAKEN BY COUNCIL.
  - 5) FOOTPATH, OFF-ROAD CYCLEWAY AND SHARED WAY WORKS;
    - a. CONCRETE FOOTPATHS, CYCLEWAYS, SHARED WAYS AND PATHWAYS FORMED AND REINFORCEMENT IN PLACE PRIOR TO PLACEMENT OF CONCRETE;
  - 6) ON-SITE DETENTION SYSTEM (OSD);
    - a. STEEL AND FORMWORK FOR TANK/PIT PRIOR TO PLACEMENT OF CONCRETE;
    - b. PIPES UPSTREAM/DOWNSTREAM OF TANK/PIT PRIOR TO BACKFILLING;
  - 7) INSTALLATION OF STORMWATER QUALITY DEVICES;
    - a. PRIOR TO WORKS COMMENCING APPROVAL OF THE MATERIAL USED IN STORMWATER QUALITY DEVICES SUCH AS STORMWATER BIO FILTRATION SYSTEMS SHALL BE OBTAINED FROM COUNCIL, INCLUDING THE SOURCE OF THE MATERIAL AND MOST RECENT MATERIAL TESTING.
    - b. INSPECTION OF EACH LAYER IN THE STORMWATER QUALITY DEVICE PRIOR TO PLACEMENT OF THE NEXT LAYER.
    - c. PRIOR TO THE PLANTING OF ANY PLANTS, APPROVAL SHALL BE OBTAINED BY COUNCIL.

### GENERAL NOTES

1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH GOULBURN MULWAREE COUNCIL'S ENGINEERING DESIGN AND ENGINEERING CONSTRUCTION SPECIFICATIONS AND TO THE REQUIREMENTS OF THE CERTIFYING AUTHORITY.
2. NO TREES ARE TO BE REMOVED UNLESS APPROVAL IS GRANTED BY COUNCIL.
3. MAKE SMOOTH JUNCTIONS WITH EXISTING WORKS.
4. NO WORK IS TO BE CARRIED OUT ON COUNCIL PROPERTY OR ADJOINING PROPERTIES WITHOUT THE WRITTEN PERMISSION FROM THE OWNER/S.
5. VEHICULAR ACCESS AND ALL UTILITIES/SERVICES ARE TO BE MAINTAINED AT ALL TIMES TO ADJOINING PROPERTIES AFFECTED BY CONSTRUCTION.
6. ALL RUBBISH, BUILDINGS, SHEDS AND FENCES TO BE REMOVED TO SATISFACTION OF COUNCIL'S ENGINEER.
7. SHOULD ANY UNEXPECTED FINDS OF CONTAMINATION BE IDENTIFIED ON THE SITE, THE UNEXPECTED FINDS PROCEDURES AND PROTOCOLS SHOULD BE FOLLOWED.
8. IF ANY PREVIOUSLY UNRECORDED OR UNANTICIPATED ABORIGINAL OBJECTS ARE ENCOUNTERED DURING THE DEVELOPMENT ACTIVITIES - WORK MUST CEASE IMMEDIATELY AND THE NATURE AND EXTENT OF THE OBJECTS ASSESSED. THE APPLICANT/OWNER/BUILDER SHALL CEASE WORK IMMEDIATELY IN THE VICINITY OF THE ARTEFACT/S OR OBJECT/S AND CONTACT THE OFFICE OF ENVIRONMENT & HERITAGE AT QUEANBEYAN (COUNTRY, CULTURE & HERITAGE) AND PEJAR LOCAL ABORIGINAL LAND COUNCIL TO ARRANGE FOR THE ASSESSMENT OF THE ARTEFACTS. COUNCIL IS TO BE NOTIFIED OF THE OUTCOME OF THE INSPECTION.
9. IF ABORIGINAL OBJECTS AND/OR PLACES WILL BE DIRECTLY OR INDIRECTLY ADVERSELY AFFECTED, THE PROPONENT WILL NEED TO APPLY FOR, AND BE ISSUED WITH, AN ABORIGINAL HERITAGE IMPACT PERMIT (AHIP) BY OFFICE OF ENVIRONMENT & HERITAGE.
10. AT THE CONCLUSION OF THE CONSTRUCTION WORKS, WORK-AS-EXECUTED (WAE) DRAWINGS SHALL BE SUBMITTED, IN ACCORDANCE WITH COUNCIL'S ENGINEERING STANDARDS. WAE DRAWINGS SHALL BE PROVIDED IN HARD COPY, PDF AND DWG FORMAT ON USB (PREFERABLY) OR CD. AT THE CONCLUSION OF THE FINAL STAGE OF THIS DEVELOPMENT, A CONSOLIDATED SET OF WORK AS EXECUTED DRAWINGS AND GPS DATA SHALL BE PROVIDED ENCOMPASSING ALL THE STAGES.

## EARTHWORKS NOTES

1. EARTHWORKS ARE TO BE CARRIED OUT TO THE SATISFACTION OF THE COUNCIL. UNSUITABLE MATERIALS ARE TO BE REMOVED FROM ROADS AND LOTS PRIOR TO FILLING. THE CONTRACTOR IS TO ARRANGE AND SUBMIT TO COUNCIL, COMPACTION TESTING RESULTS FOR ALL AREAS THAT CONTAIN FILL IN EXCESS OF 200 MM.
2. COMPACTION OF EARTHWORKS SHALL CONTINUE UNTIL A DRY DENSITY RATIO OF 95% FOR SITE FILLING AND 100% FOR ROAD PAVEMENT SUBGRADES HAS BEEN ACHIEVED IN ACCORDANCE WITH TEST METHOD AS1289.5.3.1 OR AS. 1289.5.1.1. THE CONTROL TESTING OF EARTHWORKS SHALL BE IN ACCORDANCE WITH THE GUIDELINES IN AS3798 'GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS'. WHERE IT IS PROPOSED TO USE TEST METHOD AS1289.5.8.1 TO DETERMINE THE FIELD DENSITY, A SAND REPLACEMENT METHOD SHALL BE USED TO CONFIRM THE RESULTS.
3. THE SUITABLE QUALIFIED GEOTECHNICAL ENGINEER, SHALL HAVE A LEVEL 1 RESPONSIBILITY FOR ALL FILLING AS DEFINED IN APPENDIX B AS3798 'GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS', AND AT THE END OF THE WORKS SHALL CONFIRM THE EARTHWORKS COMPLY WITH THE REQUIREMENTS OF THE SPECIFICATION AND DRAWINGS IN A WRITTEN REPORT SUBMITTED TO COUNCIL.
4. IN THE EVENT THAT ANY AREAS OF POTENTIAL SITE CONTAMINATION ARE DISCOVERED DURING WORKS, WORK SHALL CEASE AND THE APPLICANT SHALL CONTACT THE COUNCIL AND ANY OTHER RELEVANT AUTHORITY. A SUITABLY QUALIFIED CONSULTANT SHALL BE ENGAGED TO INVESTIGATE THE LIKELIHOOD AND/OR EXTENT OF SITE CONTAMINATION, AND A CONTAMINATION REPORT SHALL BE PREPARED IN ACCORDANCE WITH THE PUBLICATION 'GUIDELINES FOR CONSULTANTS REPORTING ON CONTAMINATED SITES' BY THE NSW OFFICE OF ENVIRONMENT AND HERITAGE).
5. ALL BATTERS ARE TO BE SCARPED TO A DEPTH OF 50 MM TO ASSIST WITH ADHESION OF TOP SOIL TO BATTER FACE.
6. PROVIDE MINIMUM 150 MM ON FOOTPATHS, FILLED AREAS AND ALL OTHER AREAS DISTURBED DURING CONSTRUCTION. TOP SOILED AREAS TO BE STABILISED WITH APPROVED VEGETATION A MAXIMUM OF 14 DAYS AFTER TOP SOILING AND ARE TO BE WATERED TO ENSURE GERMINATION.
7. THE CONTRACTOR SHALL CONTROL SEDIMENTATION, EROSION AND POLLUTION DURING CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITION OF 'MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION' PRODUCED BY LANDCOM.

## ROADWORKS NOTES

1. SUBGRADES AND SUB BASES ARE TO BE COMPACTED IN ACCORDANCE WITH COUNCIL'S CONSTRUCTION SPECIFICATION.
2. SUBSOIL DRAINS TO BE PROVIDED ON BOTH SIDES OF ROADS (EXCEPT WHERE THERE IS STORMWATER DRAINAGE).
3. 150 X 50 H.D. GALVANISED STEEL KERB OUTLETS TO BE PLACED IN ALL KERB TYPES ON LOW SIDE OF LOTS. PROVIDE SUITABLE ADAPTOR TO ALLOW CONNECTION OF 90 MM DIAMETER STORMWATER PIPE.
4. UNLESS PERAMBULATOR CROSSINGS ARE TO BE PROVIDED IN ALL KERB RETURNS AND WHERE REQUIRED BY COUNCIL IN ACCORDANCE WITH STANDARD DRAWING SD-R 10 A AND SD-R 10 B.
5. SERVICE CONDUITS TO BE PLACED AS DIRECTED BY ALL PUBLIC UTILITY AUTHORITIES INCLUDING ESSENTIAL ENERGY AND TELSTRA.
6. PROPOSED UTILITIES AND SERVICES CROSSING EXISTING ROADS SHALL BE PROVIDED FOR USING A TRENCHLESS TECHNIQUE SO AS NOT TO DAMAGE THE EXISTING SURFACE. ALL SERVICE CONDUITS UNDER ROADS MUST BE LAID TO A MINIMUM DEPTH OF 750 MM.
7. ALL TEMPORARY ROADS MUST BE TEMPORARILY SEALED WITH A SINGLE COAT FLUSH SEAL.
8. SIGNPOSTING AND LINE MARKING SHALL CONFORM TO AS1742.2 'TRAFFIC CONTROL DEVICES FOR GENERAL USE'. RAISED RETRO-REFLECTIVE PAVEMENT MARKERS TO CONFORM TO AS1906 '111 RETRO-REFLECTIVE MATERIALS AND DEVICES FOR ROAD TRAFFIC CONTROL PURPOSES'. ALL APRONS AND KERB FACE ON CENTRAL ISLANDS OF ROUNDABOUTS AND ALL OTHER ISLANDS TO BE DELINEATED BY REFLECTIVE WHITE MARKING. INSTALLATION SHALL OCCUR IN ACCORDANCE WITH THE PLAN APPROVED BY THE LOCAL TRAFFIC COMMITTEE.
9. STREET SIGNS TO COUNCIL STANDARD MUST BE INSTALLED BY THE CONTRACTOR.

## STORMWATER NOTES

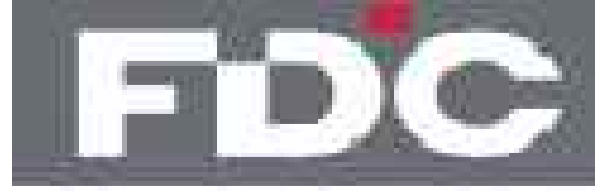

1. ALL PIPES TO BE SPIGOT AND SOCKET, RUBBER RING JOINTED.
2. ALL LONGITUDINAL PIPELINES IN ROADS MUST BE LOCATED UNDER KERB AND GUTTER AND BE BACKFILLED WITH APPROVED GRANULAR MATERIAL UNLESS OTHERWISE APPROVED BY THE COUNCIL ENGINEER.
3. DRAINAGE LINES MUST BE BACKFILLED WITH APPROVED GRANULAR MATERIAL IN TRAFFICABLE AREAS. THREE (3) METRES OF SUBSOIL DRAINAGE WRAPPED IN GEOTEXTILE STOCKING MUST BE PROVIDED TO ALL DOWNSTREAM PITS.
4. ALL GULLY PITS TO COUNCIL'S STANDARD AND LINTELS CENTRALLY PLACED AT SAG PITS.
5. ALL PITS MUST BE BENCHED AND STREAMLINED. PROVIDE SL72 REINFORCEMENT AND GALVANISED STEP IRONS IN ALL PITS OVER 1.2-METRES DEEP AS MEASURED FROM THE TOP OF GRATE TO THE INVERT OF THE PIT.
6. CONCRETE IS TO HAVE MINIMUM COMPRESSIVE STRENGTH OF 32MPA AT 28-DAYS UNLESS OTHERWISE APPROVED BY THE COUNCIL ENGINEER.
7. ALL INTERALLOTMENT DRAINAGE MUST HAVE A MINIMUM PIPE DIAMETER OF 150 MM AND A MINIMUM GRADE OF 1% UNLESS OTHERWISE APPROVED BY THE COUNCIL ENGINEER.
8. ALL INTERALLOTMENT DRAINAGE LINES MUST BE LAID CENTRALLY WITHIN DRAINAGE EASEMENTS. INSPECTION PITS MUST BE PROVIDED AT ALL CHANGES OF GRADE AND DIRECTION.
9. INTERALLOTMENT DRAINAGE LINES MUST BE INSTALLED AFTER SEWERAGE LINES HAVE BEEN INSTALLED WHERE SEWER IS PROPOSED ADJACENT TO INTERALLOTMENT DRAINAGE LINES.
10. 1% AEP OVERLAND FLOW PATHS MUST BE FORMED AND SHOWN ON 'WORKS AS EXECUTED' DRAWINGS.
11. ALL PLANS (BOTH DESIGN AND WAE) ARE TO CLEARLY DELINEATE THE EXTENT/LOCATION OF FLOOD LINES INCLUDING THE 5% AEP, 1% AEP, FLOOD PLANNING LEVEL AND PROBABLE MAXIMUM FLOOD.
12. ADEQUATE PERMANENT SCOUR PROTECTION AND SEDIMENTATION CONTROL SHALL BE PROVIDED FOR ALL DRAINAGE WORKS IN ACCORDANCE WITH COUNCIL'S REQUIREMENTS.
13. SOIL AND WATER MANAGEMENT PLANS ARE TO BE PREPARED FOR ALL DISTURBED SITES AND ADHERED TO AT ALL TIMES DURING THE CONSTRUCTION AND MAINTENANCE PERIODS.

## LANDSCAPING NOTES

1. THE DEVELOPER IS REQUIRED TO PLANT STREET TREES BEING A MAXIMUM OF ONE TREE FOR EACH LOT AND TWO TREES FOR CORNER THE SPECIES OF THE TREE SHOULD BE IN ACCORDANCE WITH THE THEMES CONTAINED IN THE GOULBURN STREET TREE MASTER PLAN AND BE APPROVED BY COUNCIL'S LANDSCAPE & HERITAGE PLANNER
2. STREET TREES SHALL BE ADVANCED SPECIMENS HAVING A CONTAINER VOLUME OF 25 LITRES AND A HEIGHT OF AT LEAST 1.5M. THE TREES SHALL BE STAKED WITH THREE 1800 MM X 50 MM SQUARE HARDWOOD STAKES AND LOOSELY SECURED WITH HESSIAN WEBBING. THE PLANTING HOLE IS TO BE TWICE THE WIDTH AND ONE AND A HALF TIMES THE DEPTH OF THE POT OF THE TREE TO BE PLANTED. THE HOLE SHALL BE FILLED WITH SOIL SUITABLE FOR TREE GROWTH BEING MADE UP OF FREE DRAINING COARSE SAND 50%, LOAM 20% AND COMPOSTED ORGANIC MATTER 30% AND HAVING A NEUTRAL PH.
3. A MINIMUM 600MM WIDE, CONTINUOUS STRIP OF CANTURF CANBERRA BLEND OR EQUIVALENT (75% TALL FINE FESCUE, 25% KENTUCKY BLUEGRASS) TURF SHALL BE PLACED BEHIND THE BACK OF ALL KERBS AND ADJACENT TO OTHER CONCRETE STRUCTURES IMMEDIATELY AFTER THE COMPLETION OF THE FOOTPATH GRADING OR OTHER ELEMENTS AS APPLICABLE, AND SHALL BE MAINTAINED AND REPLACED AS REQUIRED DURING THE CONSTRUCTION MAINTENANCE PERIOD.
4. ALL DISTURBED AREAS (INCLUDING NATURE STRIPS, BATTERS, ALLOTMENTS WITH GRADES OF 1:5 AND GREATER, AND RESERVES) ARE TO BE REINSTATED TO A CLEAN, TIDY CONDITION, TOP DRESSED (100MM LOAMY TOP SOIL FREE OF RUBBISH, DEBRIS, CLUMPS, SODS AND CLAY LUMPS), LIGHTLY COMPACTED AND HYDRO MULCHED.

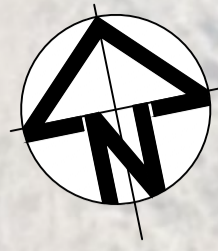
HYDROMULCH AND SEED MIX TO BE:

CANTURF CANBERRA BLEND OR EQUIVALENT (75% TALL FINE FESCUE, 25% KENTUCKY BLUEGRASS) IN THE ROAD RESERVE AND OTHER PUBLIC OPEN SPACES  
1,500KG/HA OF CELLULOSE FIBRE  
SOIL BINDER, SPECIFICALLY MANUFACTURED FOR HYDROMULCHING. USED AT MANUFACTURERS RECOMMENDED RATES. (E.G. ORGANIC GAUR TACKIFIERS @ 20 - 30 KG/HA, BASED ON, SITE CONDITIONS).  
GRASS IS TO BE ESTABLISHED PRIOR TO THE END OF THE MAINTENANCE PERIOD, UNLESS OTHERWISE AGREED IN WRITING.

		Bar Scales				Client		Scales		Drawn		Project		Civil Engineers and Project Managers	
								NTS		NT		EQUINOX - STAGE 3 WILSON DRIVE, MARULAN		 <p>Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au</p>	
								GDA2020		BK/JC					
								AHD		AMc					
P1 DRAFT ISSUE		09-06-23						Approved		Title		GENERAL NOTES SHEET 2		Status <b>PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION</b>	
Issue		Description		Date				THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&I				Project - Drawing No. <b>23-1098-C1002</b>		Issue <b>P1</b>	

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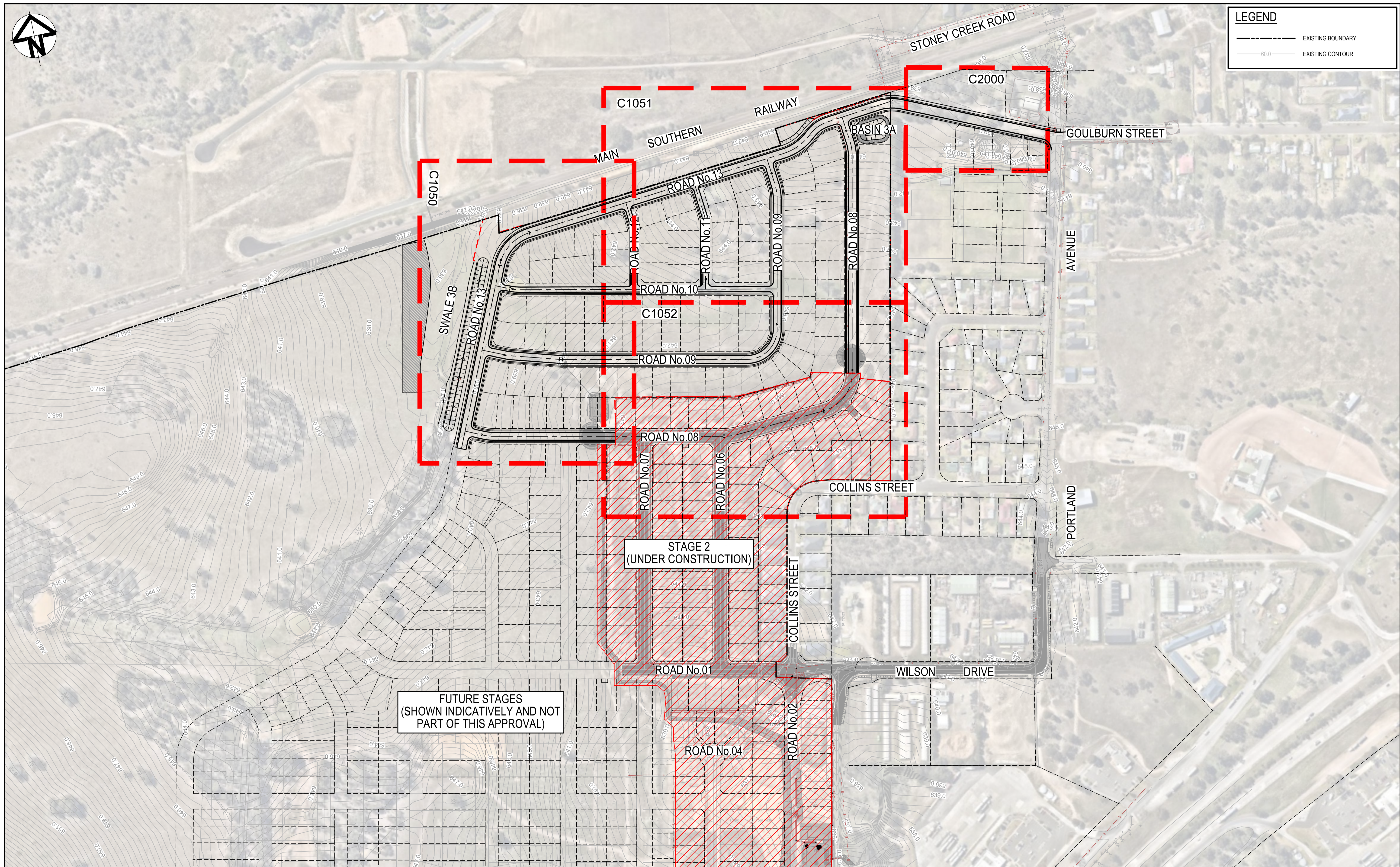
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**LEGEND**

--- EXISTING BOUNDARY

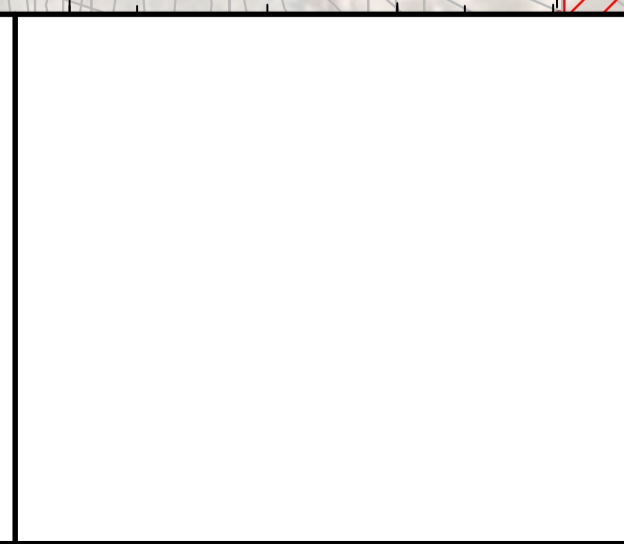
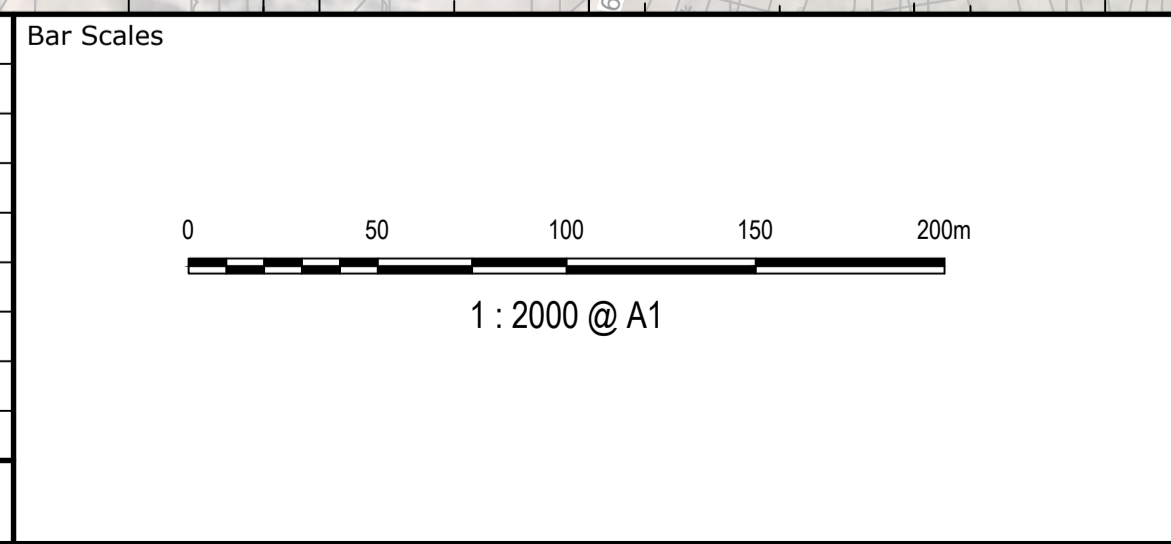
60.0 --- EXISTING CONTOUR



FUTURE STAGES  
(SHOWN INDICATIVELY AND NOT  
PART OF THIS APPROVAL)

STAGE 2  
(UNDER CONSTRUCTION)

P1	DRAFT ISSUE	09-06-23
Issue	Description	Date



Client	FDC
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Scale	1:2000	Drawn	NT
Grid	GDA2020	Designed	BKJC
Height Datum	AHD	Checked	AMc
		Approved	

GDA2020

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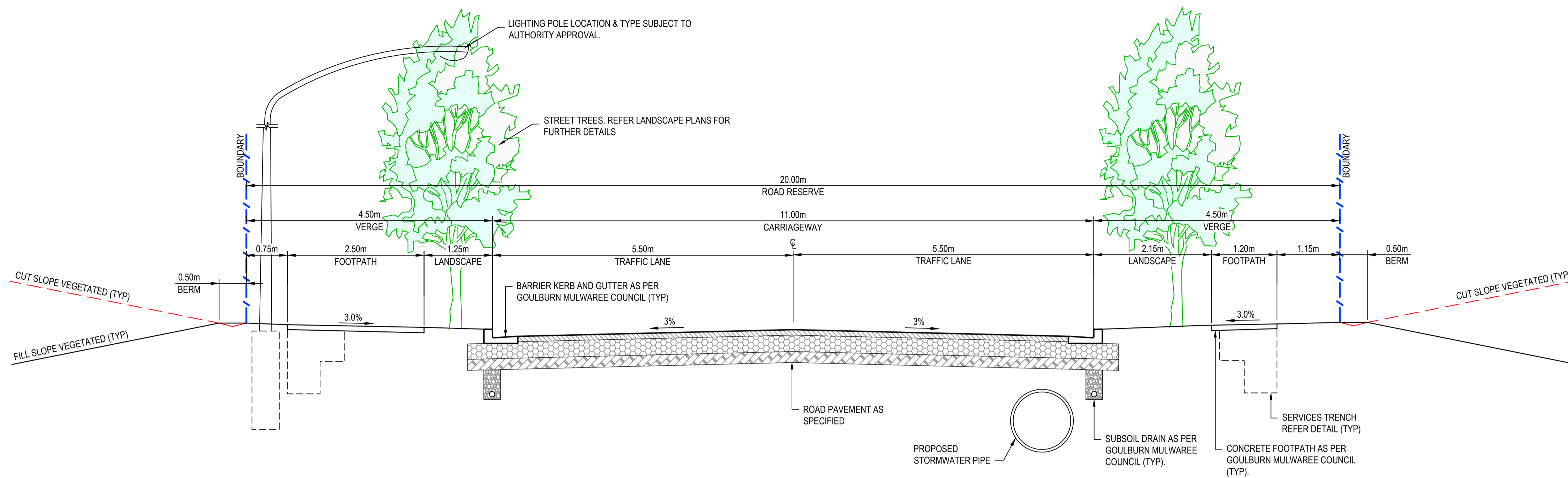
Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	GENERAL ARRANGEMENT PLAN

Civil Engineers and Project Managers

**at&i**

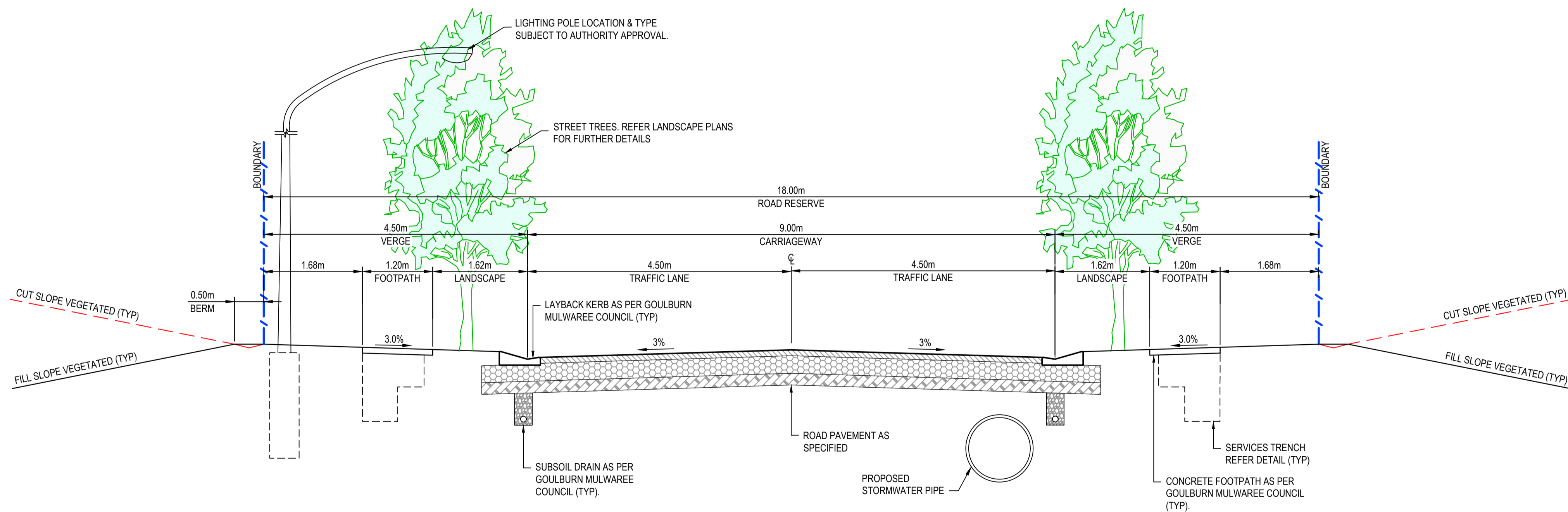
Level 7, 153 Walker Street  
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ABN 96 130 882 405  
Tel: 02 9439 1777  
Fax: 02 9923 1055  
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Project - Drawing No.	23-1098-C1010	Issue
		P1



TYPICAL SECTION (COLLECTOR STREET)

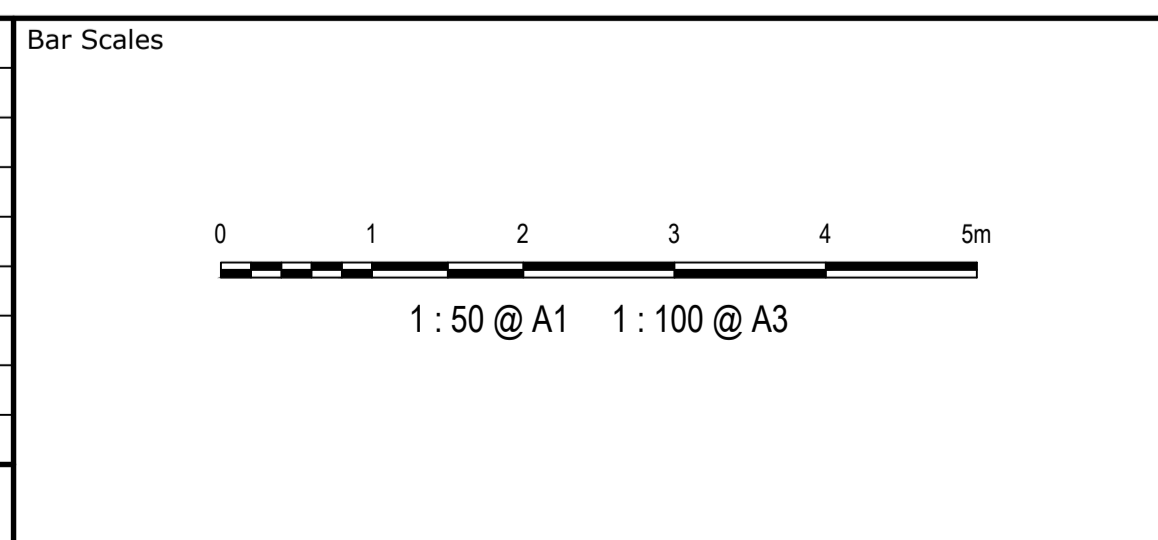
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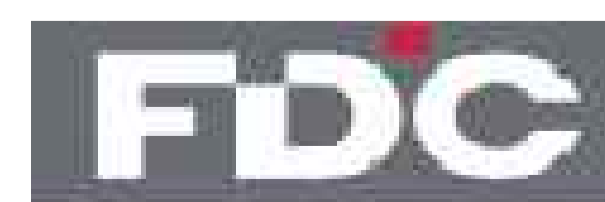
TYPICAL SECTION (LOCAL STREET)

SCALE 1:50

P1	DRAFT ISSUE	09-06-23
Issue	Description	Date



Client



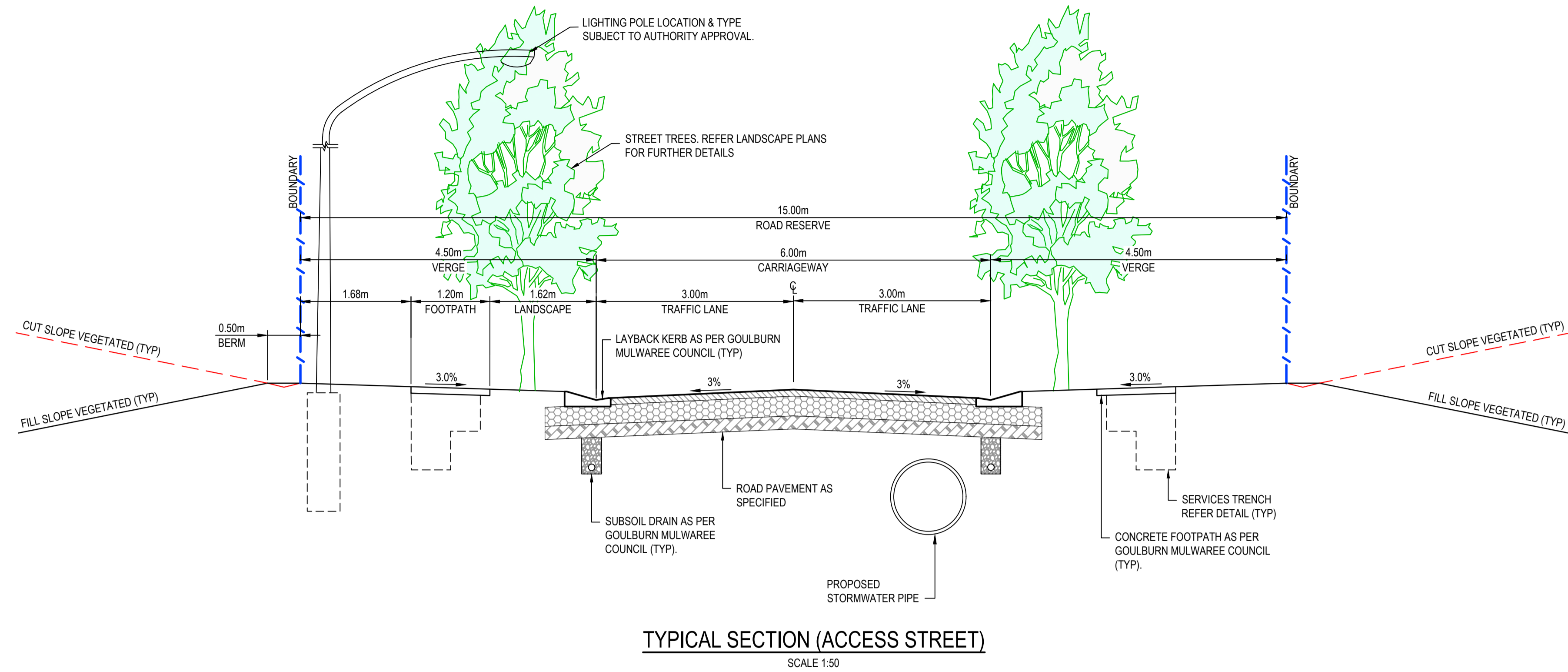
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		Designed	BK/JC
Grid	GDA2020	Checked	AMc
Height Datum	AHD	Approved	
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Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	TYPICAL SECTIONS SHEET 1

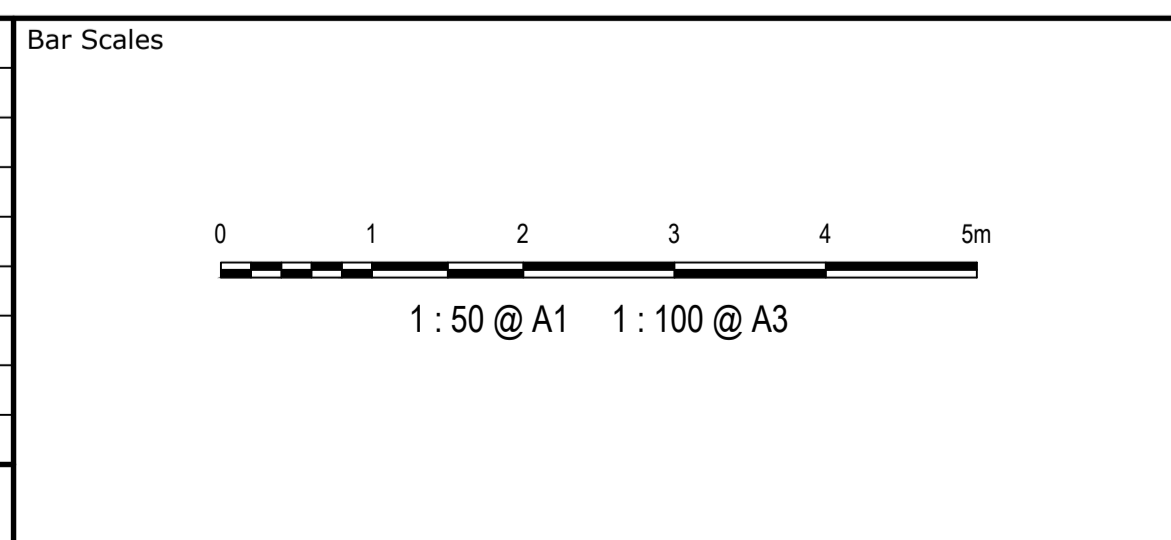
Civil Engineers and Project Managers

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Project - Drawing No.	23-1098-C1020	Issue
		P1



P1	DRAFT ISSUE	09-06-23
Issue	Description	Date



Client	FDC
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Scales	AS SHOWN	Drawn	NT
		Designed	BK/JC
Grid	GDA2020	Checked	AMc
Height Datum	AHD	Approved	
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Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	TYPICAL SECTIONS SHEET 2

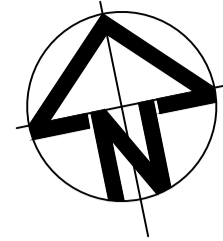
Civil Engineers and Project Managers	
<small>Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au</small>	
Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION
Project - Drawing No.	23-1098-C1021
Issue	P1

**LEGEND:**

EXISTING	
	EXISTING BOUNDARY
	EXISTING CONTOUR
PROPOSED	
	PROPOSED BOUNDARY

**EARTHWORKS VOLUMES**

A	B	C	D = A+B+C
EXISTING TOPSOIL STRIPPING VOLUME (cu.m) REFER NOTE No.1	NET CUT (cu.m)	NET FILL (cu.m)	BALANCE (cu.m)
-20,600	-37,430	36,270	-1,160

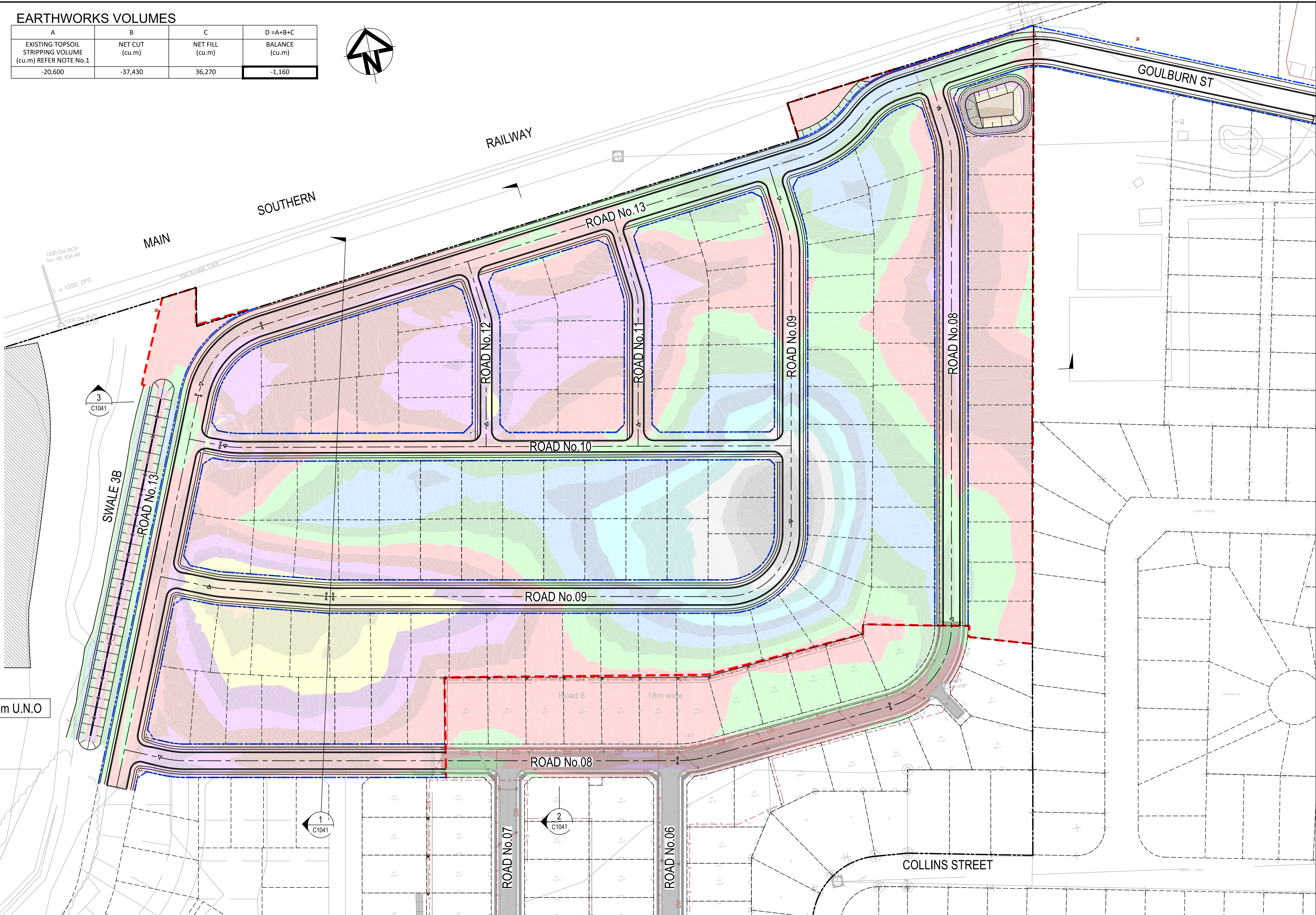


**CUT/FILL DEPTH RANGE LEGEND**

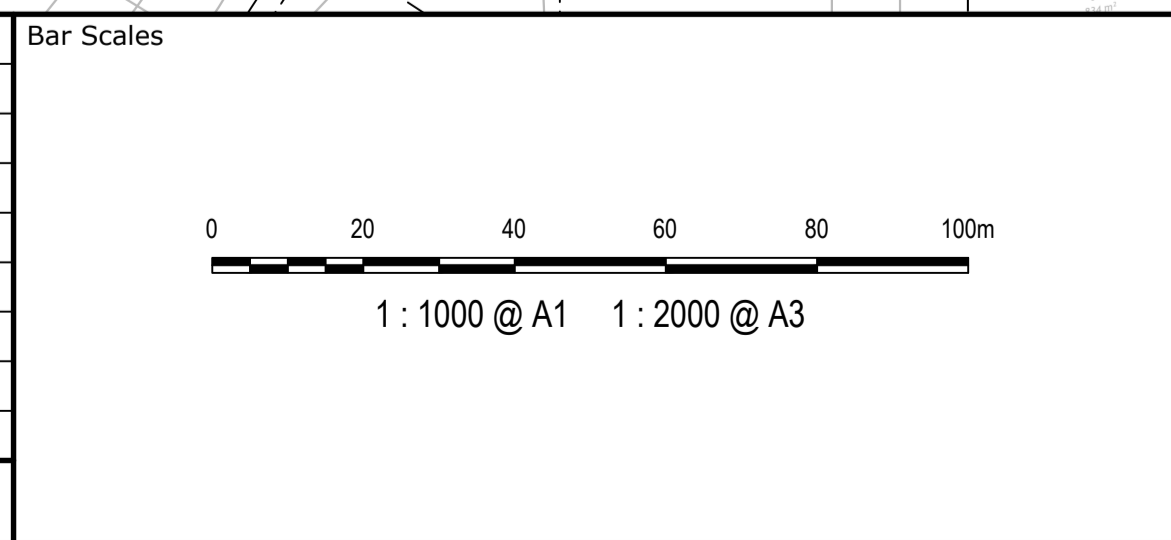
Lower_value	Upper_value	Colour
-1000	to -2.00 m	
-2.00	to -1.75 m	
-1.75	to -1.50 m	
-1.50	to -1.25 m	
-1.25	to -1.00 m	
-1.00	to -0.75 m	
-0.75	to -0.50 m	
-0.50	to -0.25 m	
-0.25	to 0.00 m	
0.00	to 0.25 m	
0.25	to 0.50 m	
0.50	to 0.75 m	
0.75	to 1.00 m	
1.00	to 1.25 m	
1.25	to 1.50 m	
1.50	to 1.75 m	
1.75	to 2.00 m	
2.00	to 1000 m	

- NOTES:**
- EXISTING TOPSOIL STRIPPED 150mm
  - ADDITIONAL EXCAVATION OF EXISTING DAMS WITHIN SITE AREA TO A DEPTH OF 1m BELOW EXISTING INVERT AND WIDTH OF EXISTING DAM EXTENT. VOLUMES ARE APPROXIMATE. EXCAVATED MATERIAL TO BE FARMED AND USED AS GENERAL FILL WITHIN FILL ZONES 2m BELOW FINAL SURFACE.
  - NEGATIVE BALANCE VOLUMES INDICATE EXCESS OF MATERIAL (EXPORT).
  - ROAD PAVEMENT DEPTH ASSUMED 350mm.
  - THE VOLUMES DO NOT TAKE INTO ACCOUNT THE FOLLOWING:
    - BULKING FACTORS OF REMOVED CUT
    - REMOVAL OF EXISTING BUILDING SLABS AND PAVEMENTS
    - REMOVAL AND/OR REMEDIATION OF ANY EXISTING UNCONTROLLED FILL
    - PROPOSED LANDSCAPING
    - STORMWATER AND UTILITY TRENCHING
    - EROSION AND SEDIMENTATION CONTROL SWALES AND BASINS.
    - ENGINEERING FILL BEHIND RETAINING WALLS.

ALL LEVELS SHOWN ± 1000mm U.N.O



P1	DRAFT ISSUE	09-06-23
Issue	Description	Date



Client

Scale	1:1000	Drawn	NT
		Designed	BK/JC
Grid	GDA2020	Checked	AMc
Height Datum	AHD	Approved	

Project: EQUINOX - STAGE 3 WILSON DRIVE, MARULAN

Civil Engineers and Project Managers

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www.atl.net.au  
info@atl.net.au

Status: PRELIMINARY ONLY  
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Project - Drawing No. 23-1098-C1040

Issue P1

Project: EQUINOX - STAGE 3 WILSON DRIVE, MARULAN

Civil Engineers and Project Managers

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Project - Drawing No. 23-1098-C1040

Issue P1

Project: EQUINOX - STAGE 3 WILSON DRIVE, MARULAN

Civil Engineers and Project Managers

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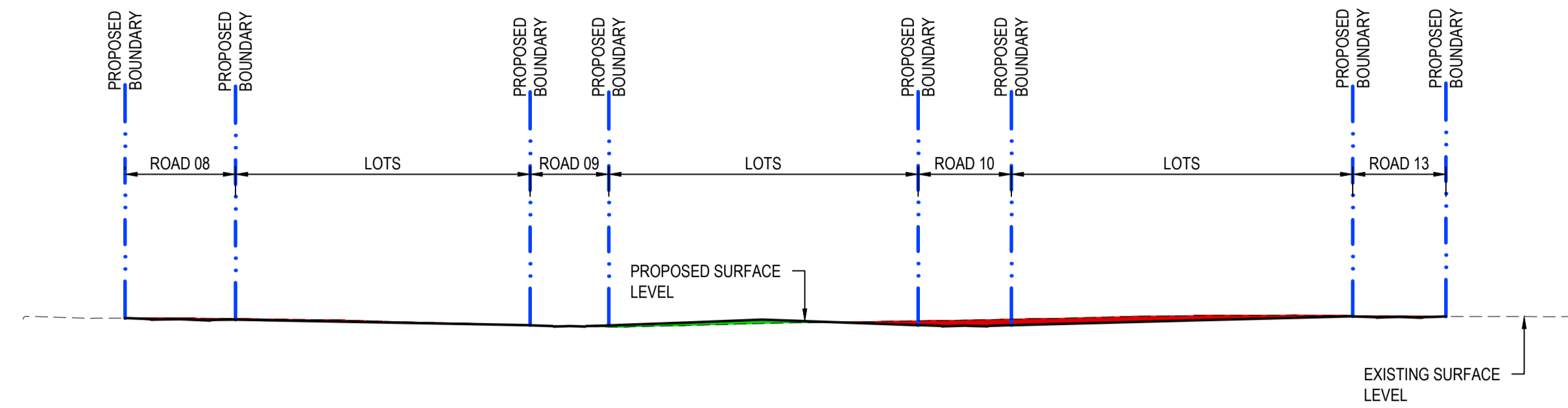
Project - Drawing No. 23-1098-C1040

Issue P1

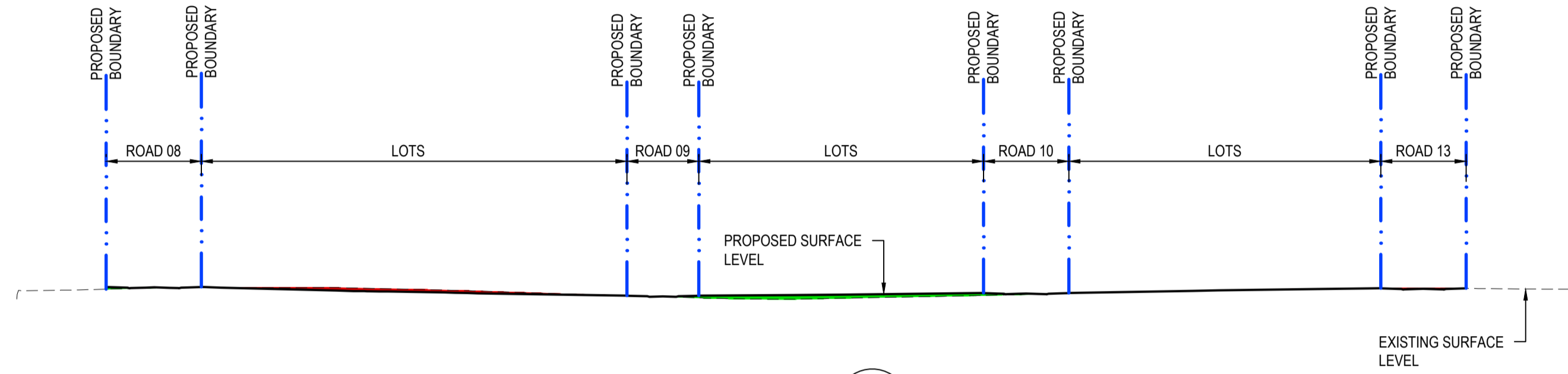
GDA2020

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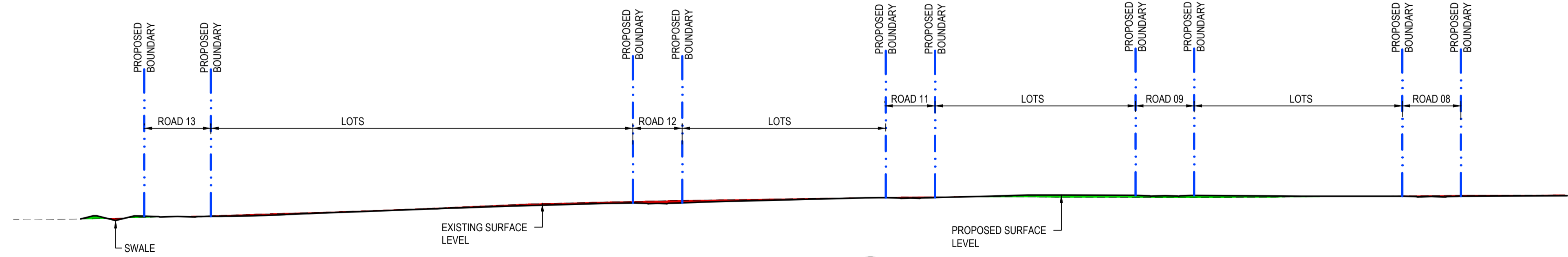
BULK EARTHWORKS CUT/FILL PLAN



SECTION 1  
1:500 (H) C1040

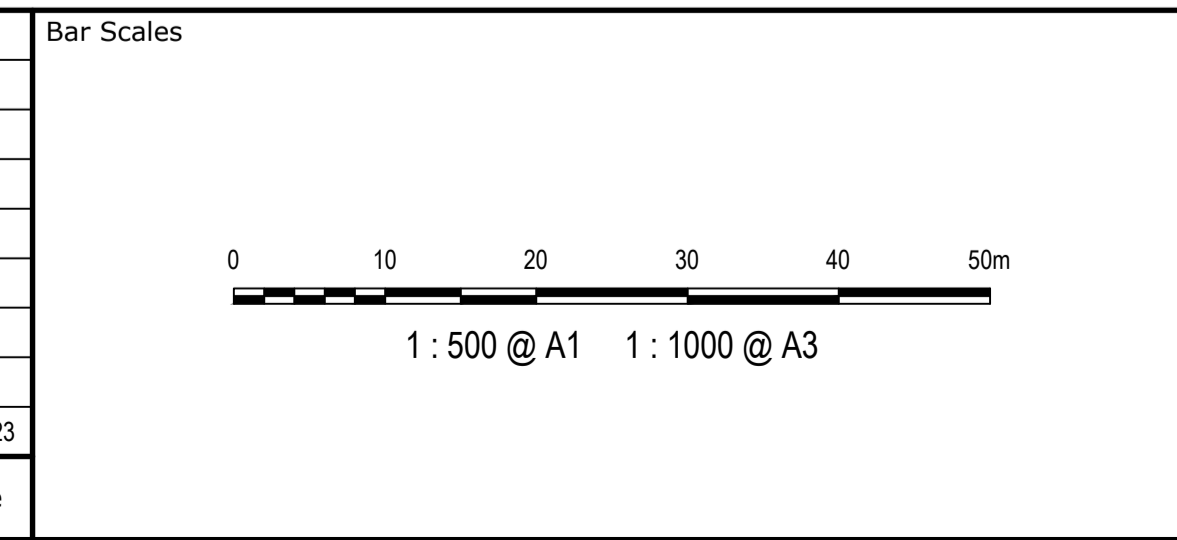


SECTION 2  
1:500 (H) C1040

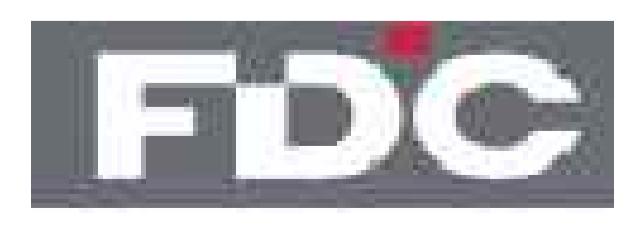


SECTION 3  
1:500 (H) C1040

P1	DRAFT ISSUE	09-06-23
Issue	Description	Date



Client



AS SHOWN	Drawn	NT
GDA2020	Designed	BK/JC
AHD	Checked	AMc
	Approved	

GDA2020

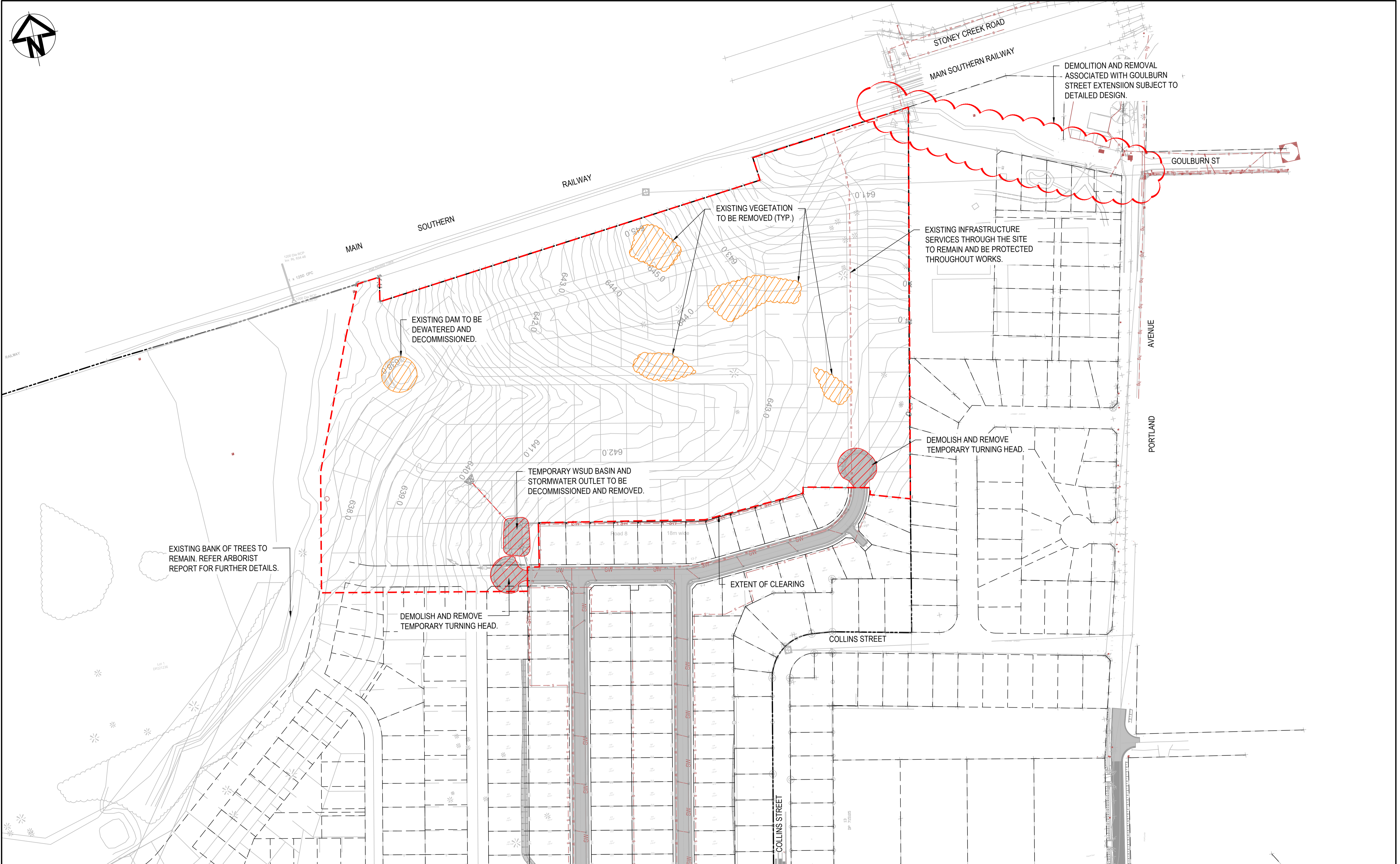
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Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	BULK EARTHWORKS SECTION

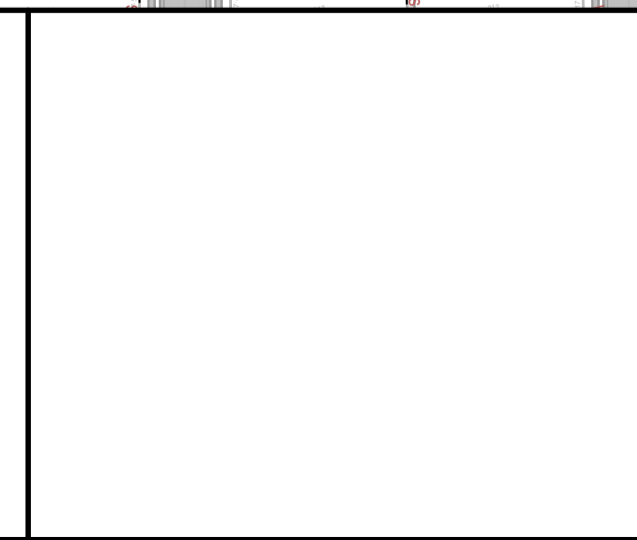
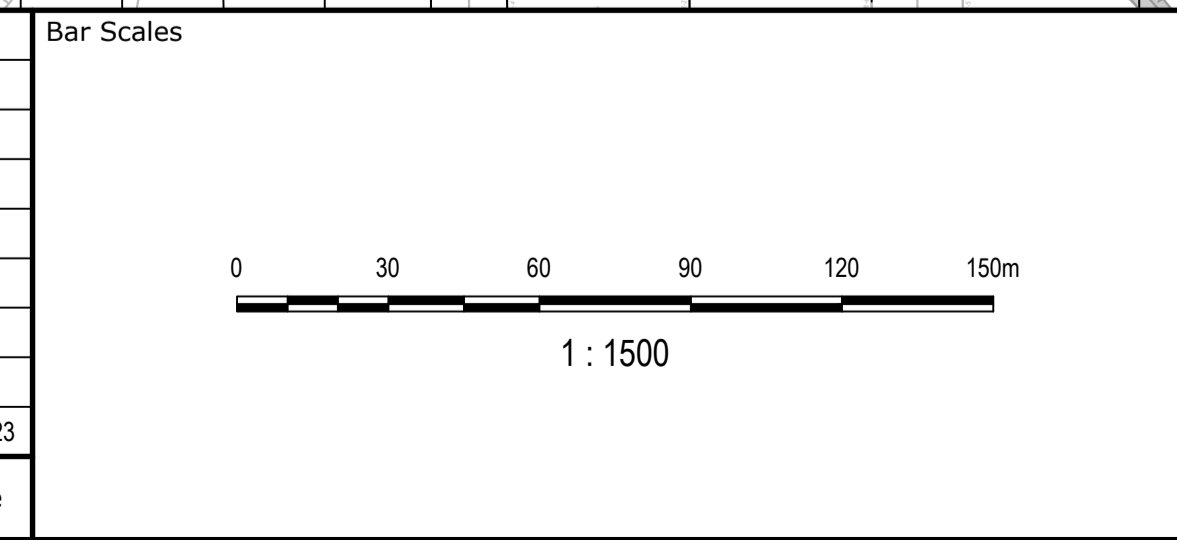
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Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No.	23-1098-C1041	Issue
		P1



P1	DRAFT ISSUE	09-06-23
Issue	Description	Date



Client

Scales	1:1500	Drawn	NT
Grid	GDA2020	Designed	BK/JC
Height Datum	AHD	Checked	AMc
		Approved	

GDA2020

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Project

**EQUINOX - STAGE 3  
WILSON DRIVE,  
MARULAN**

Title

**DEMOLITION  
PLAN**

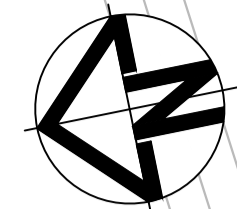
Civil Engineers and Project Managers

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ABN 96 130 882 405  
Tel: 02 9439 1777  
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Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No.	23-1098-C1042	Issue
		P1

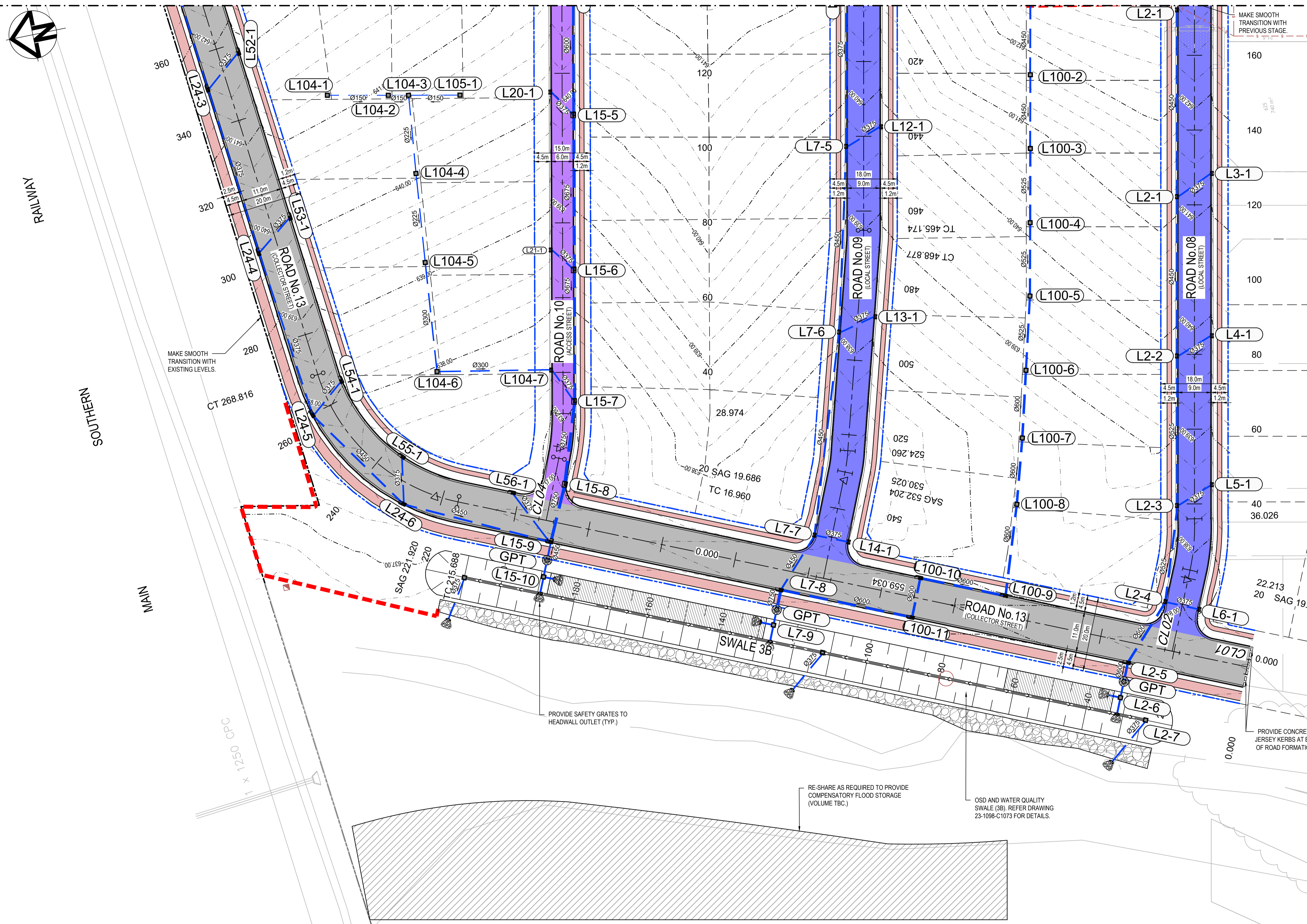


FOR CONTINUATION REFER TO DRAWING C1051 AND C1052

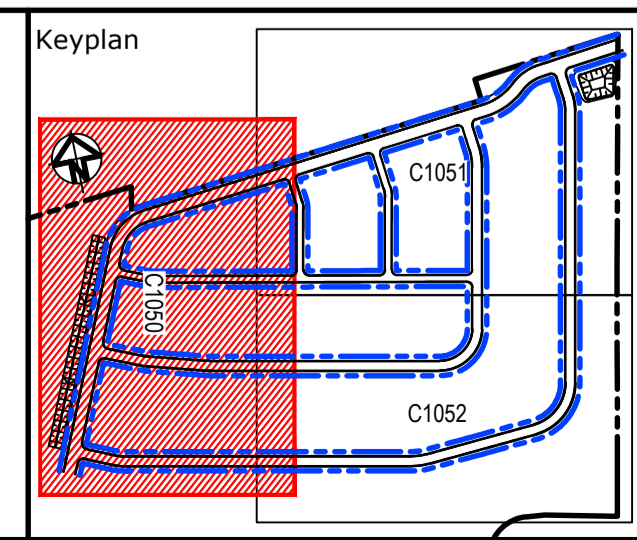
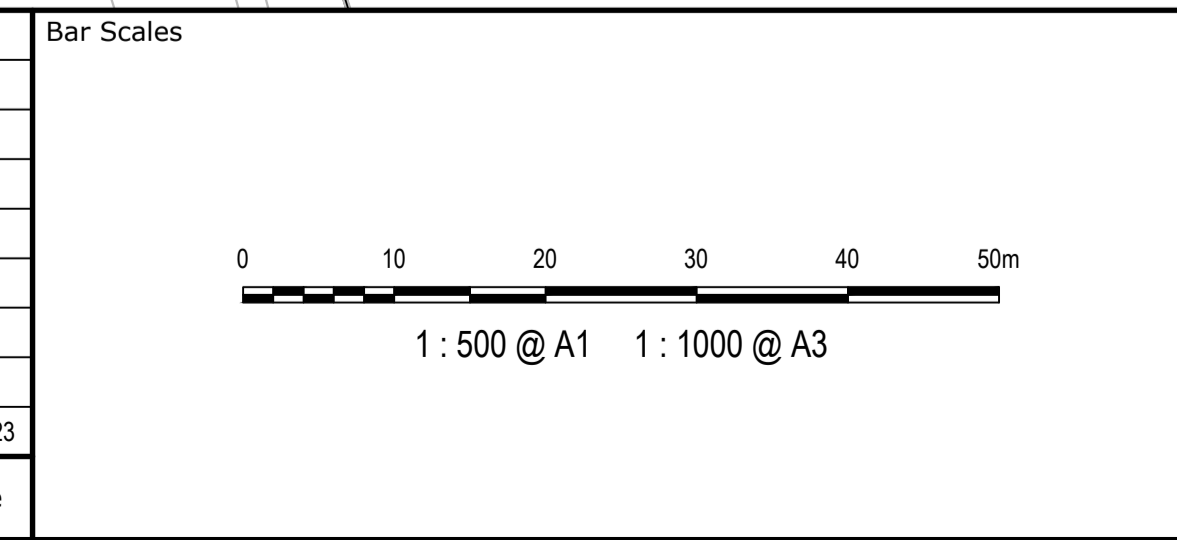


**SITWORKS LEGEND**

- EXISTING BOUNDARY
- EXISTING CONTOUR
- PROPOSED BOUNDARY
- PROPOSED EASEMENT
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED RETAINING WALL
- RW
- PROPOSED FINISHED LEVEL
- F 44.45
- PROPOSED BATTER
- CUT BATTER 1(V):3(H)
- FILL BATTER 1(V):5(H)
- U.N.O
- PROPOSED BARRIER KERB
- BK
- PROPOSED KERB
- PROPOSED STORMWATER SURFACE INLET PIT
- PROPOSED STORMWATER PIPE, SIZE AND DIRECTION
- EXISTING STORMWATER (STAGE 02)
- SW
- PROPOSED STORMWATER PIT LABEL
- AB1-1
- LOCAL STREET PAVEMENT
- COLLECTOR STREET PAVEMENT
- ACCESS STREET PAVEMENT
- PROPOSED CONCRETE FOOTPATH PAVEMENT
- EXISTING SEWER SERVICE
- EXISTING WATER
- EXISTING TELSTRA
- EXISTING STORMWATER
- EXISTING GAS
- EXISTING ELECTRICITY POLE
- EXISTING TELSTRA PIT



Issue	Description	Date
P1	DRAFT ISSUE	09-06-23



Scales	1:500	Drawn	NT
		Designed	BK/JC
Grid	GDA2020	Checked	AMc
Height Datum	AHD	Approved	

Project  
**EQUINOX - STAGE 3  
WILSON DRIVE,  
MARULAN**

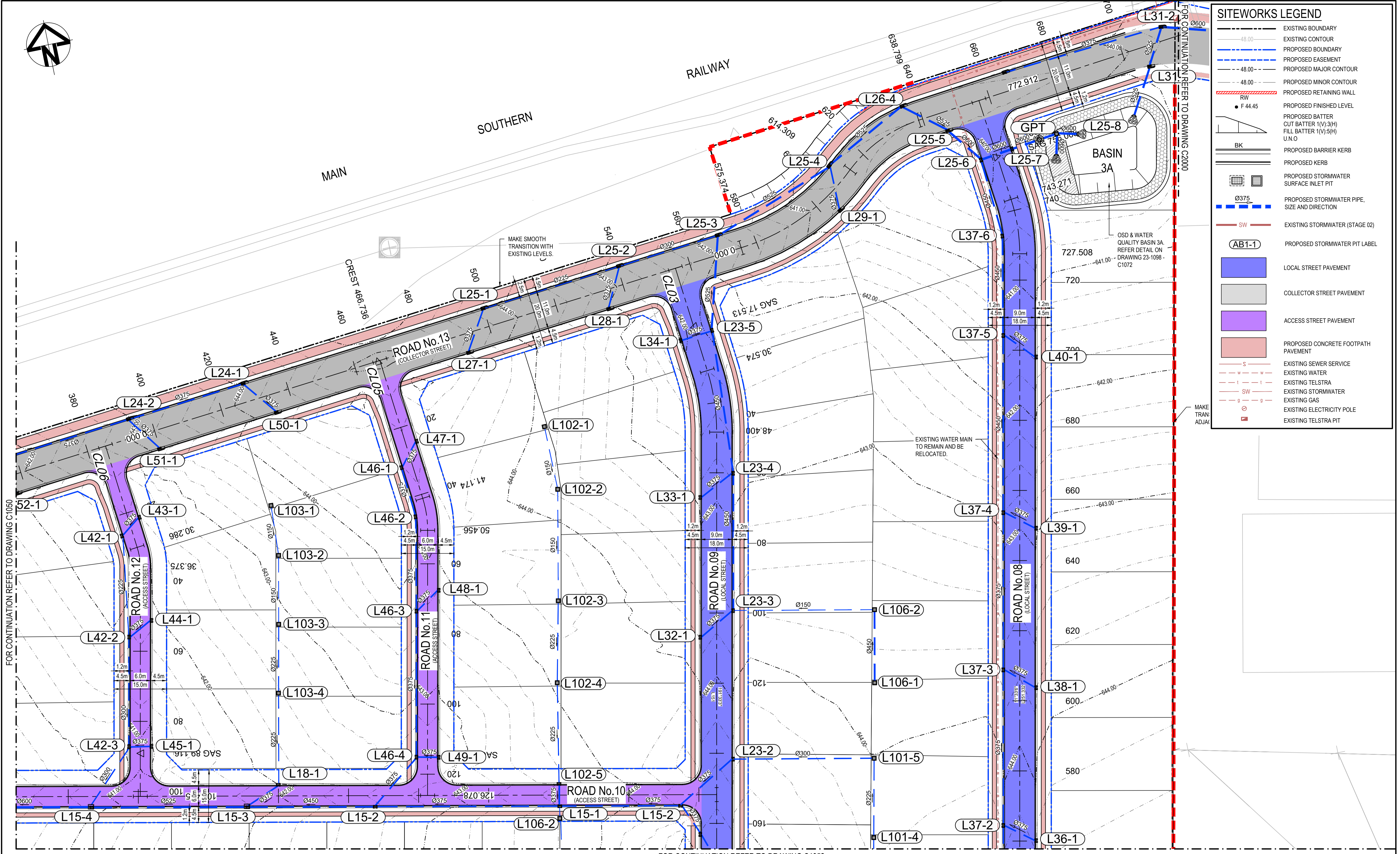
Title  
**SITWORKS AND  
STORMWATER  
PLAN  
SHEET 1**

Civil Engineers and Project Managers

Level 7, 153 Walker Street  
North Sydney NSW 2060  
ABN 96 130 882 405  
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Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No.	23-1098-C1050	Issue
		P1

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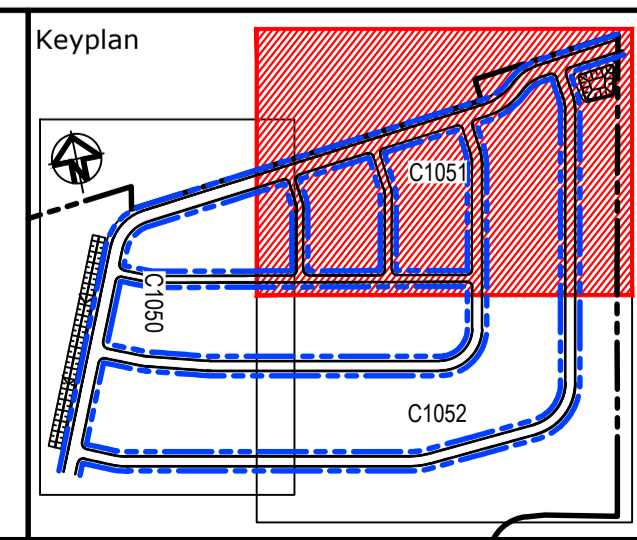
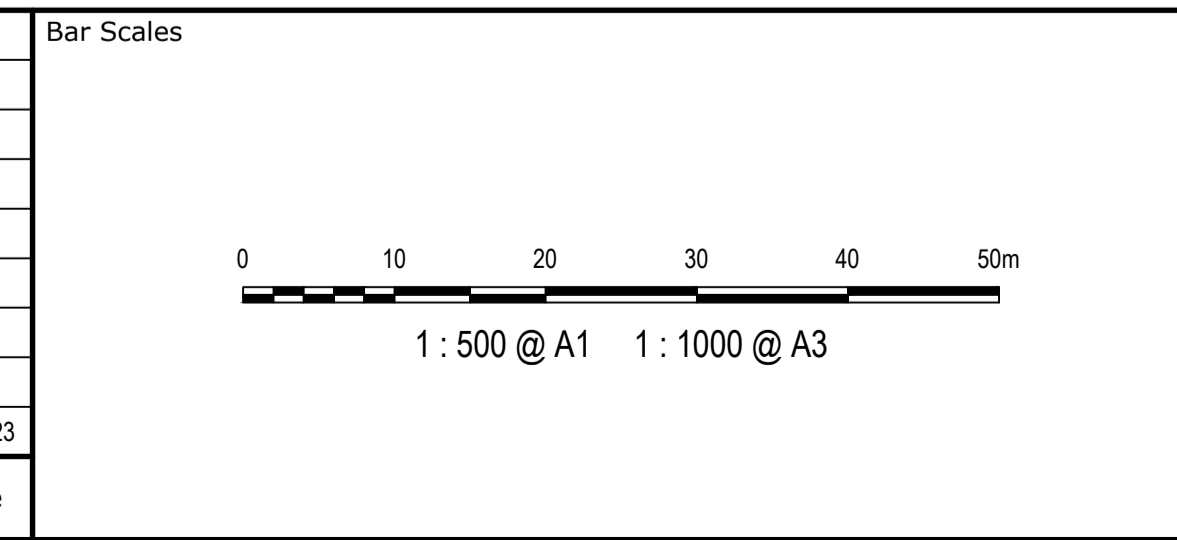
SITWORKS LEGEND	
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	EXISTING CONTOUR
	PROPOSED BOUNDARY
	PROPOSED EASEMENT
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED RETAINING WALL
	PROPOSED FINISHED LEVEL
	PROPOSED BATTER CUT BATTER 1(V):3(H) FILL BATTER 1(V):5(H) U.N.O
	PROPOSED BARRIER KERB
	PROPOSED KERB
	PROPOSED STORMWATER SURFACE INLET PIT
	PROPOSED STORMWATER PIPE, SIZE AND DIRECTION
	EXISTING STORMWATER (STAGE 02)
	PROPOSED STORMWATER PIT LABEL
	LOCAL STREET PAVEMENT
	COLLECTOR STREET PAVEMENT
	ACCESS STREET PAVEMENT
	PROPOSED CONCRETE FOOTPATH PAVEMENT
	EXISTING SEWER SERVICE
	EXISTING WATER
	EXISTING TELSTRA
	EXISTING STORMWATER
	EXISTING GAS
	EXISTING ELECTRICITY POLE
	EXISTING TELSTRA PIT

FOR CONTINUATION REFER TO DRAWING C1050

FOR CONTINUATION REFER TO DRAWING C2000

FOR CONTINUATION REFER TO DRAWING C1052

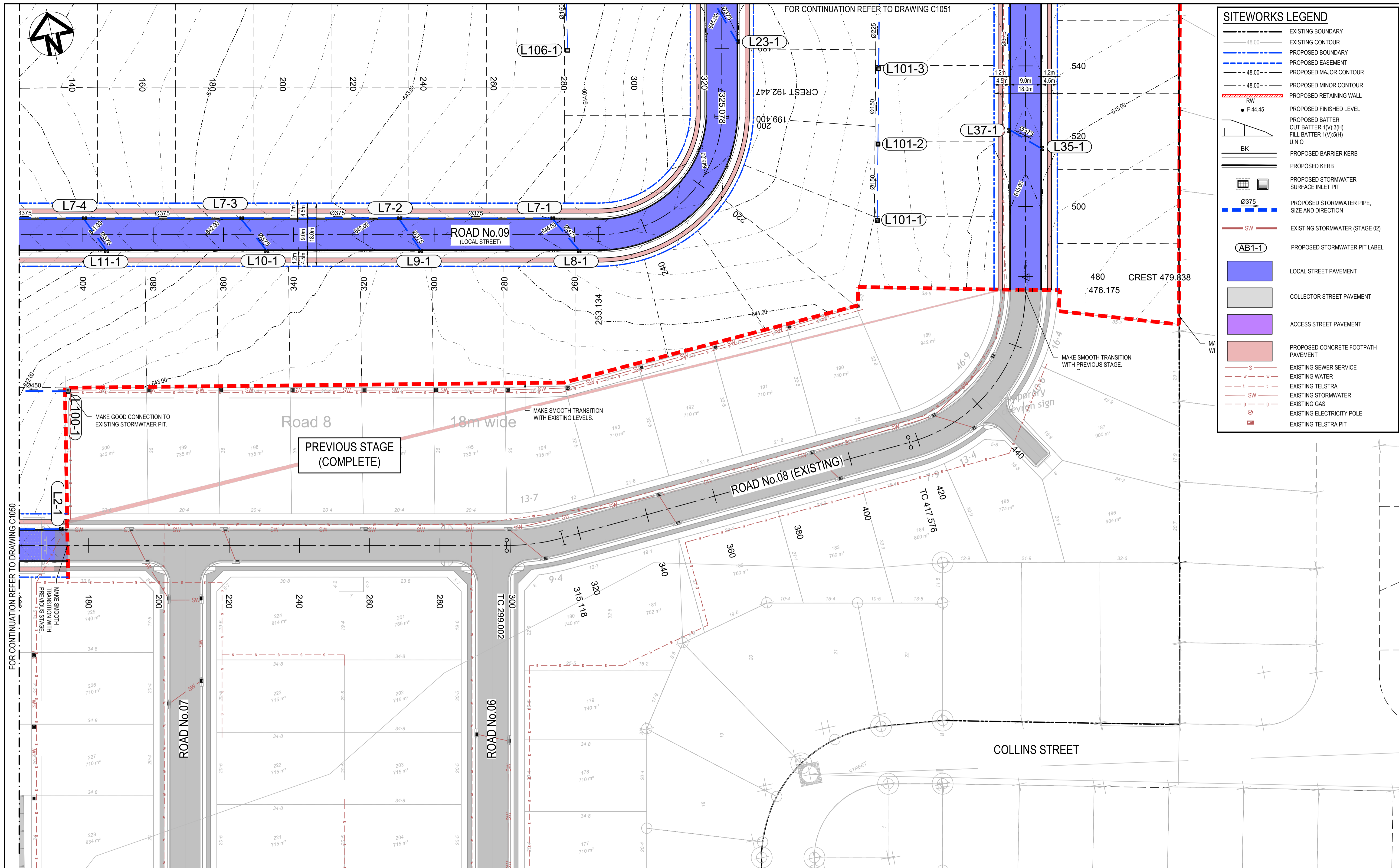
Issue	Description	Date
P1	DRAFT ISSUE	09-06-23



Scales	Drawn	Project
1:500	NT	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Grid GDA2020	Designed BK/JC	Title SITWORKS AND STORMWATER PLAN SHEET 2
Height Datum AHD	Checked AMc	
	Approved	

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<b>at&amp;</b>	
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Status <b>PRELIMINARY ONLY</b> NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No. 23-1098-C1051	Issue P1

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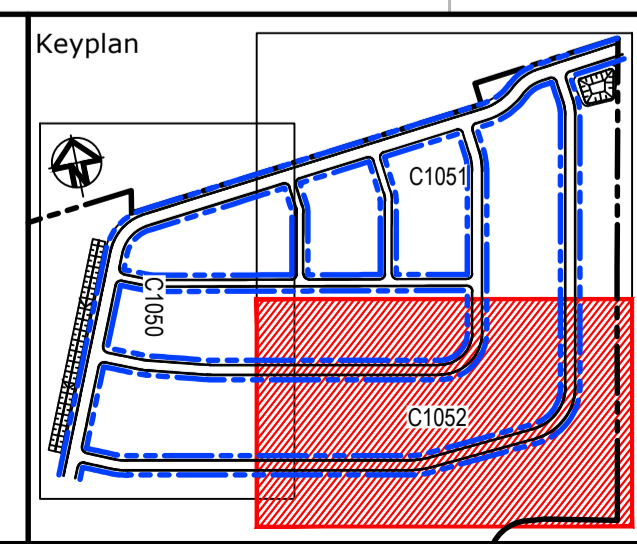
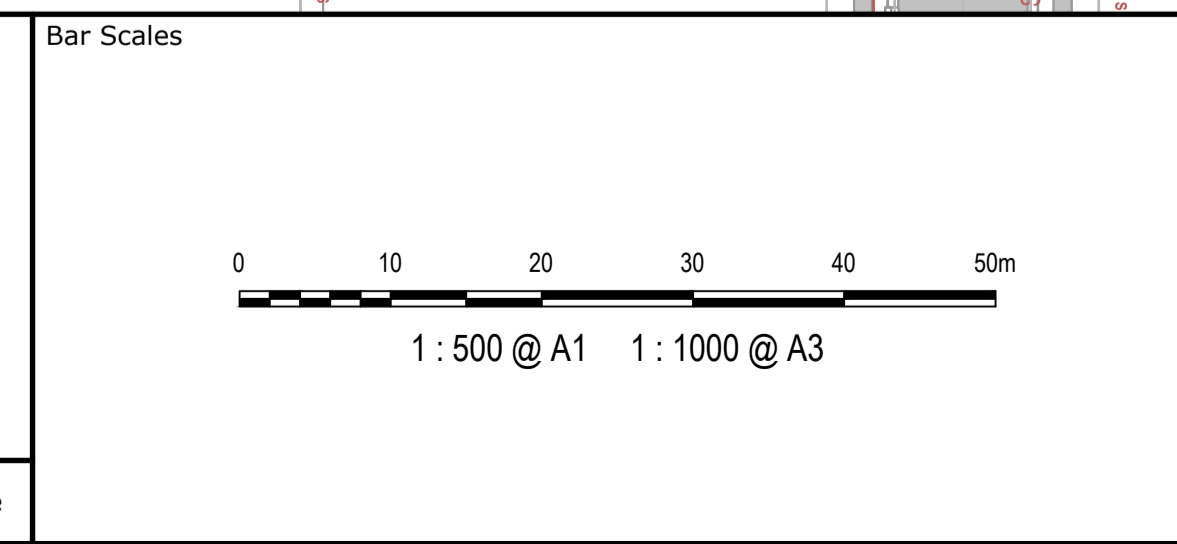
SITWORKS LEGEND	
	EXISTING BOUNDARY
	EXISTING CONTOUR
	PROPOSED BOUNDARY
	PROPOSED EASEMENT
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED RETAINING WALL
	PROPOSED FINISHED LEVEL
	PROPOSED BATTER CUT BATTER 1(V):3(H) FILL BATTER 1(V):5(H) U.N.O
	PROPOSED BARRIER KERB
	PROPOSED KERB
	PROPOSED STORMWATER SURFACE INLET PIT
	PROPOSED STORMWATER PIPE, SIZE AND DIRECTION
	EXISTING STORMWATER (STAGE 02)
	PROPOSED STORMWATER PIT LABEL
	LOCAL STREET PAVEMENT
	COLLECTOR STREET PAVEMENT
	ACCESS STREET PAVEMENT
	PROPOSED CONCRETE FOOTPATH PAVEMENT
	EXISTING SEWER SERVICE
	EXISTING WATER
	EXISTING TELSTRA
	EXISTING STORMWATER
	EXISTING GAS
	EXISTING ELECTRICITY POLE
	EXISTING TELSTRA PIT

FOR CONTINUATION REFER TO DRAWING C1050

FOR CONTINUATION REFER TO DRAWING C1051

PREVIOUS STAGE (COMPLETE)

Issue	Description	Date



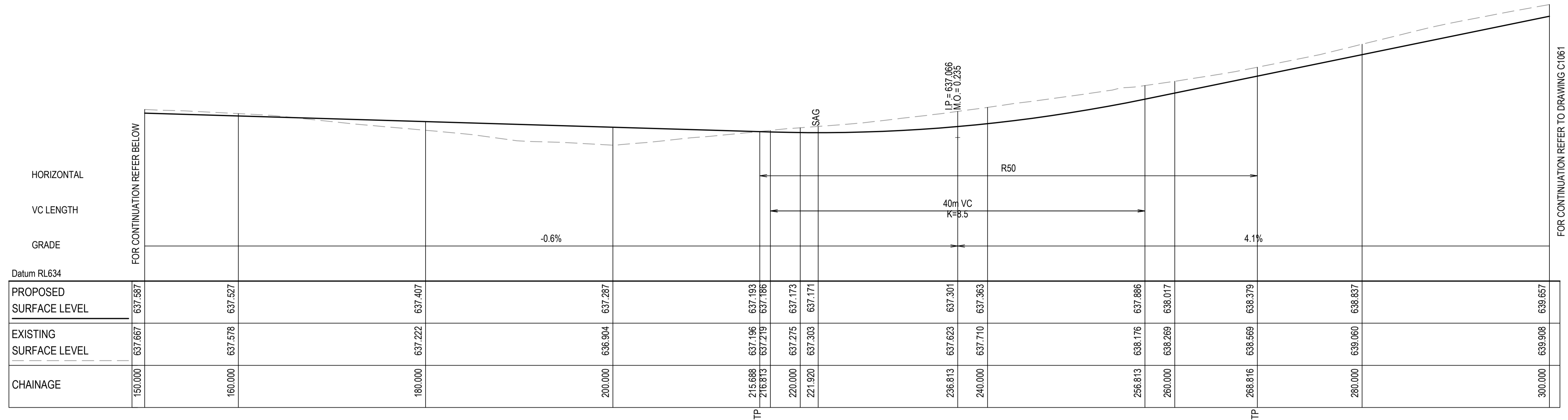
Scales	Drawn	
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Grid		
Height Datum	Approved	
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Project	
Title	

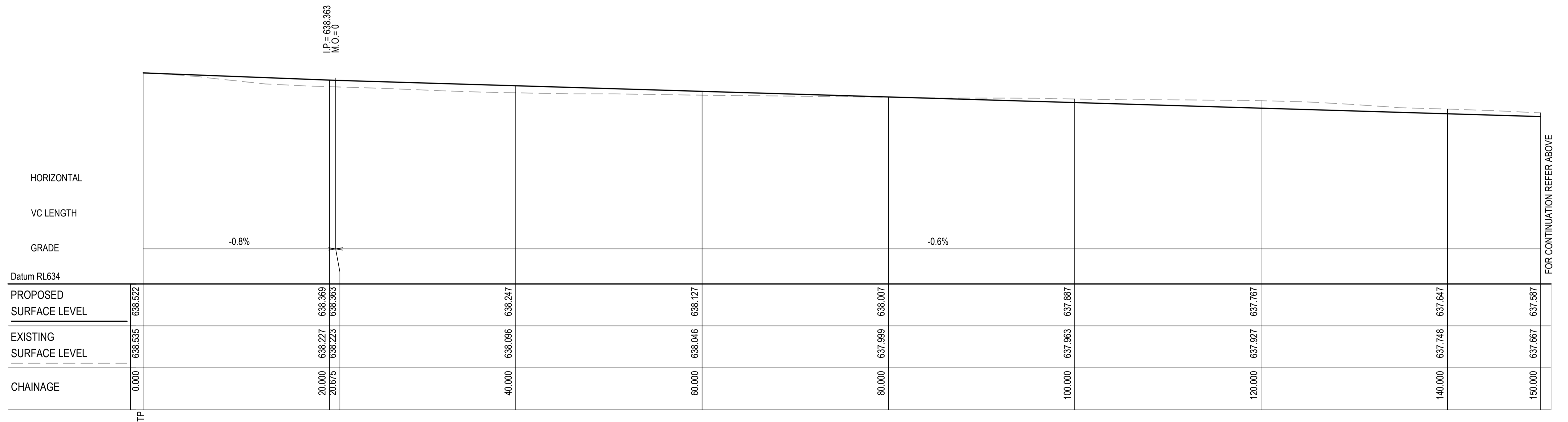
Civil Engineers and Project Managers

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www.atl.net.au  
info@atl.net.au

Status	A1
Project - Drawing No.	Issue

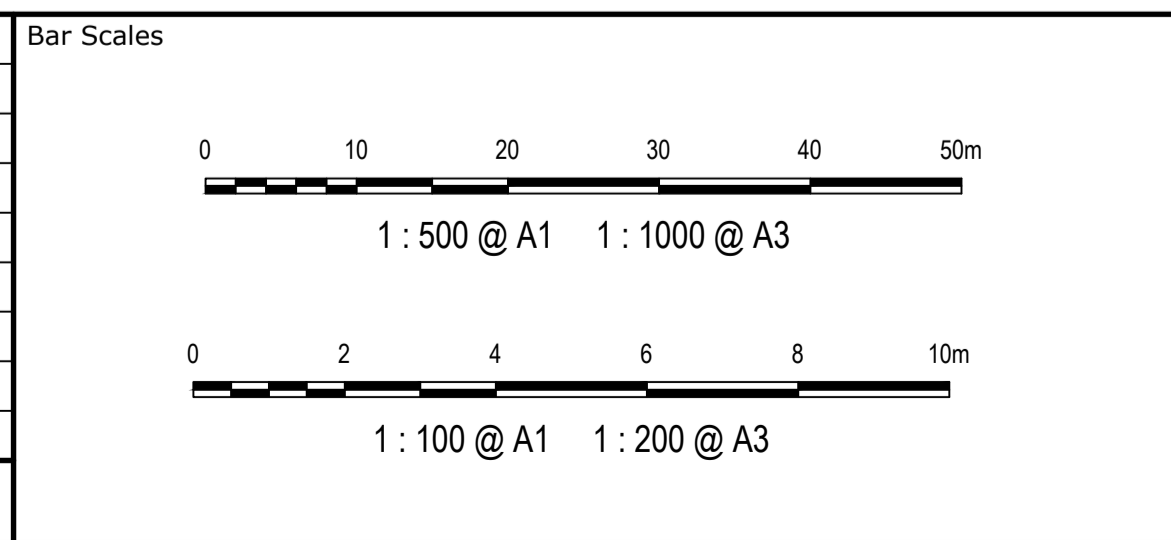


ROAD 13 LONGITUDINAL SECTION  
 SCALE 1:500 HORI.  
 1:100 VERT.



ROAD 13 LONGITUDINAL SECTION  
 SCALE 1:500 HORI.  
 1:100 VERT.

P1	DRAFT ISSUE	09-06-23
Issue	Description	Date

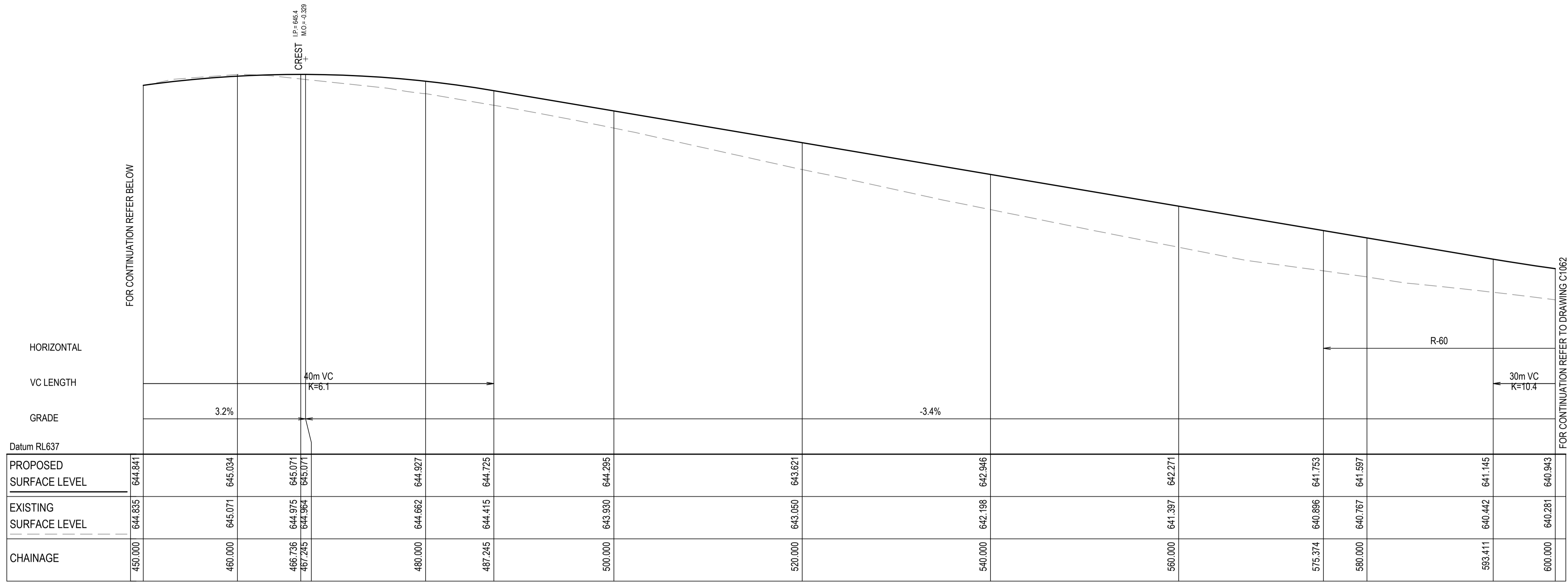


Client	FDC
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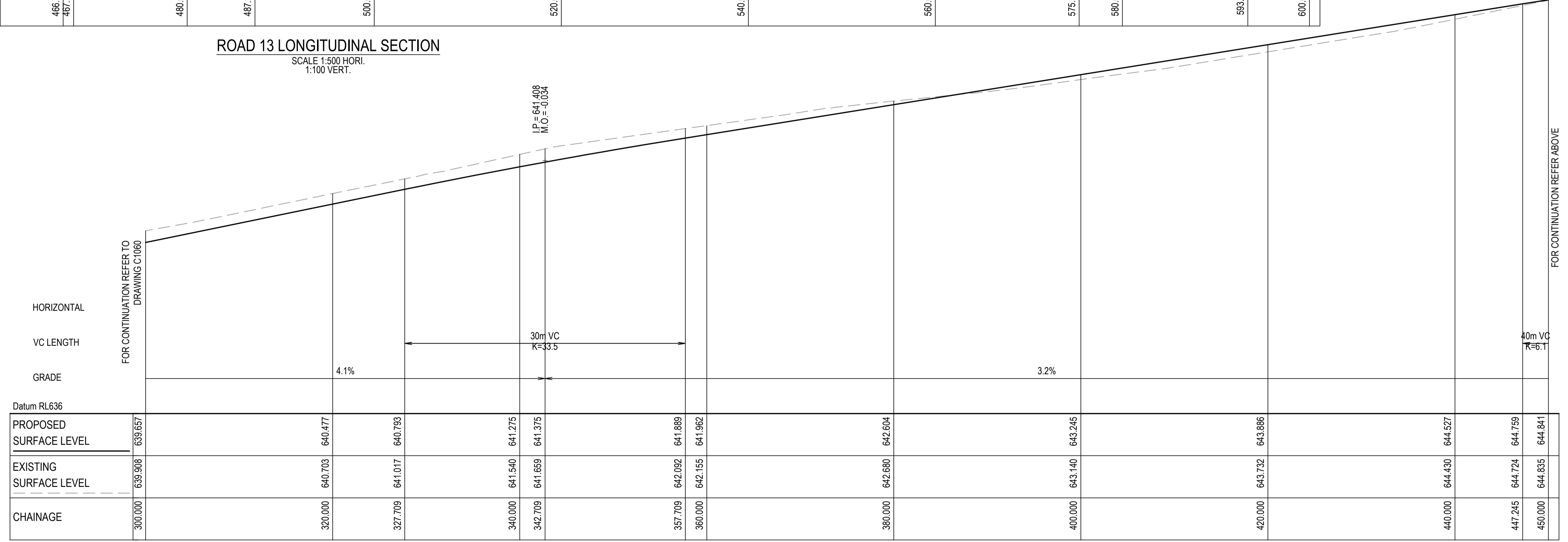
Grid	GDA2020
Height Datum	AHD
Drawn	NT
Designed	BK/JC
Checked	AMc
Approved	

Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	ROADWORKS LONGITUDINAL SECTIONS SHEET 1

Civil Engineers and Project Managers	
Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au	
Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION
Project - Drawing No.	23-1098-C1060
Issue	P1

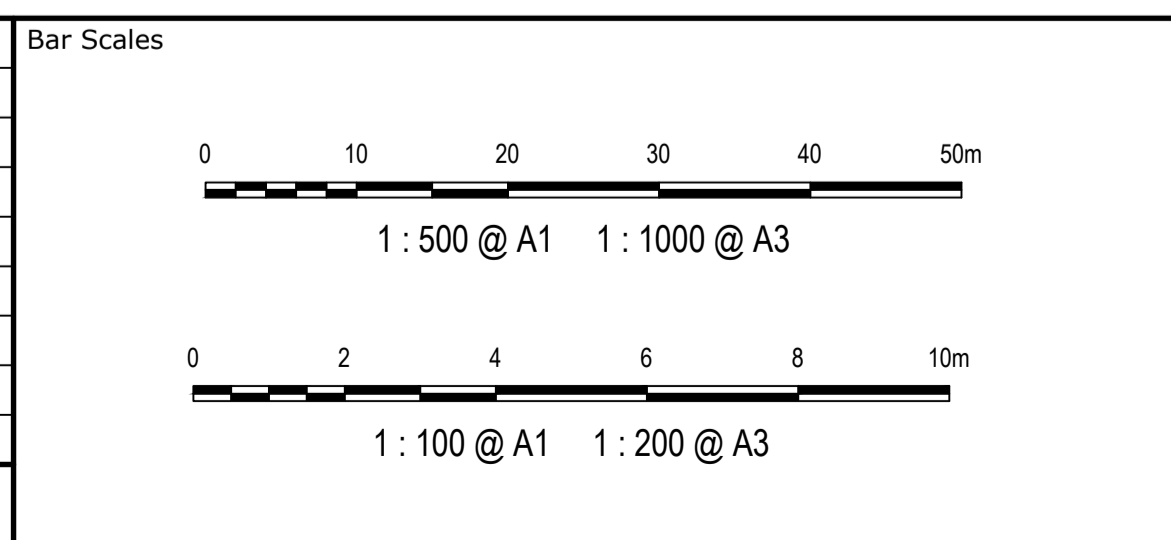


ROAD 13 LONGITUDINAL SECTION  
SCALE 1:500 HORI.  
1:100 VERT.



ROAD 13 LONGITUDINAL SECTION  
SCALE 1:500 HORI.  
1:100 VERT.

P1	DRAFT ISSUE	09-06-23
Issue	Description	Date



Client	FDC
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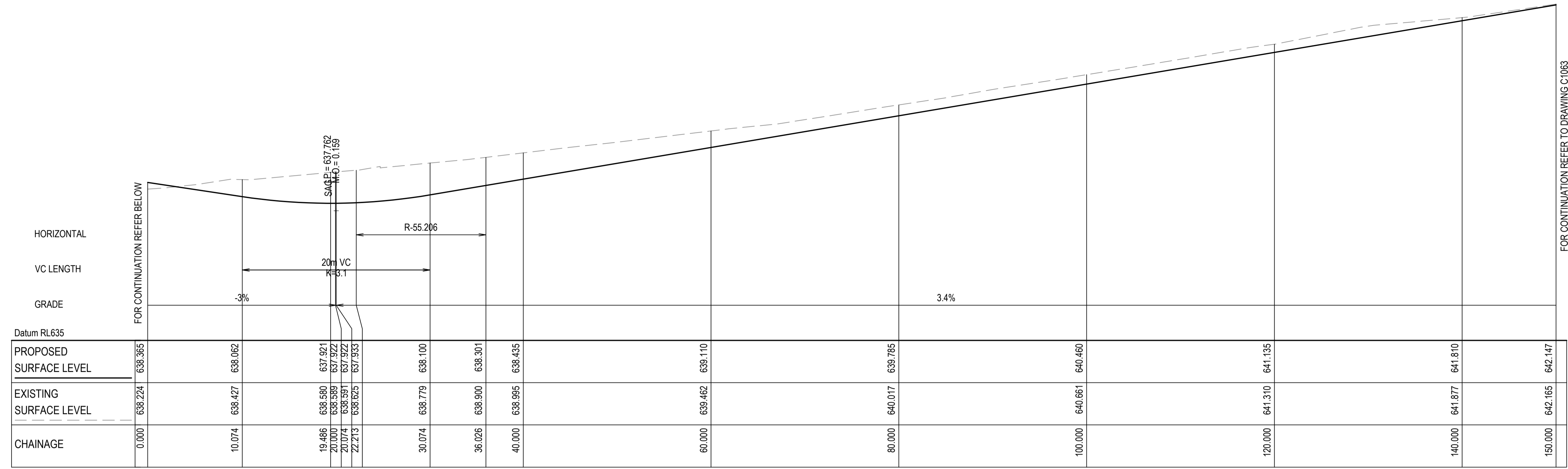
AS SHOWN	Drawn	NT
GDA2020	Designed	BK/JC
AHD	Checked	AMc
	Approved	
GDA2020		
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Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	ROADWORKS LONGITUDINAL SECTIONS SHEET 2

Civil Engineers and Project Managers

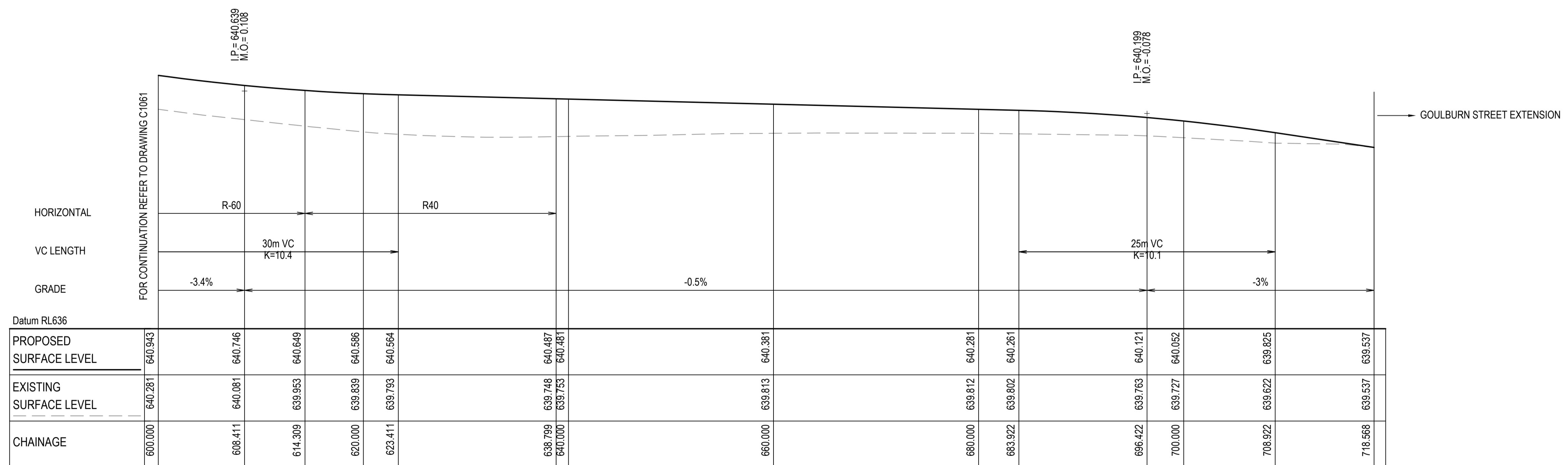
Level 7, 153 Walker Street  
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Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No.	23-1098-C1061	Issue
		P1



ROAD 08 LONGITUDINAL SECTION

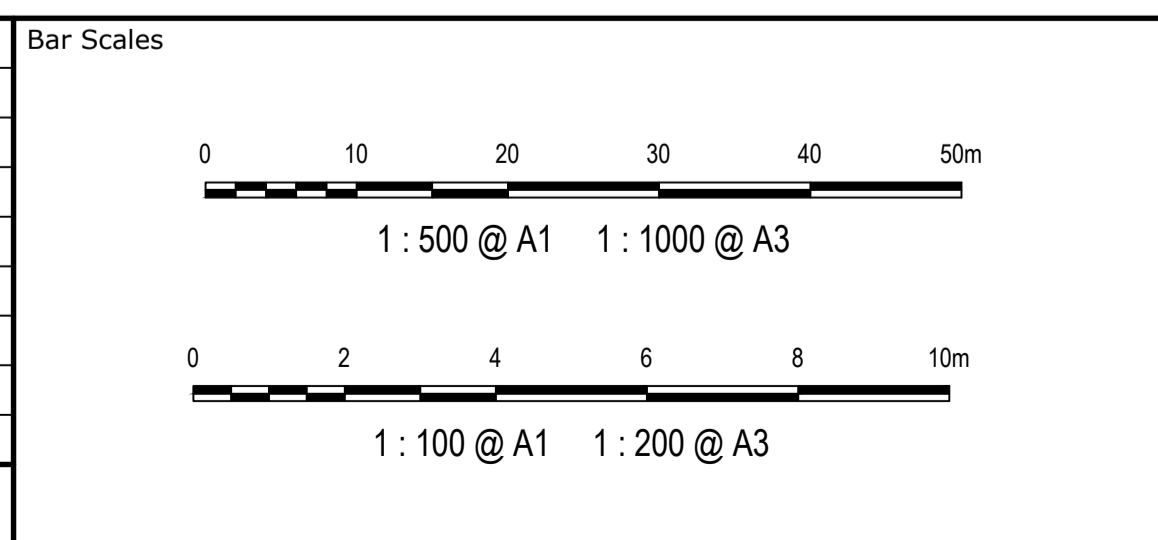
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ROAD 13 LONGITUDINAL SECTION

SCALE 1:500 HORI.  
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P1	DRAFT ISSUE	09-06-23
Issue	Description	Date

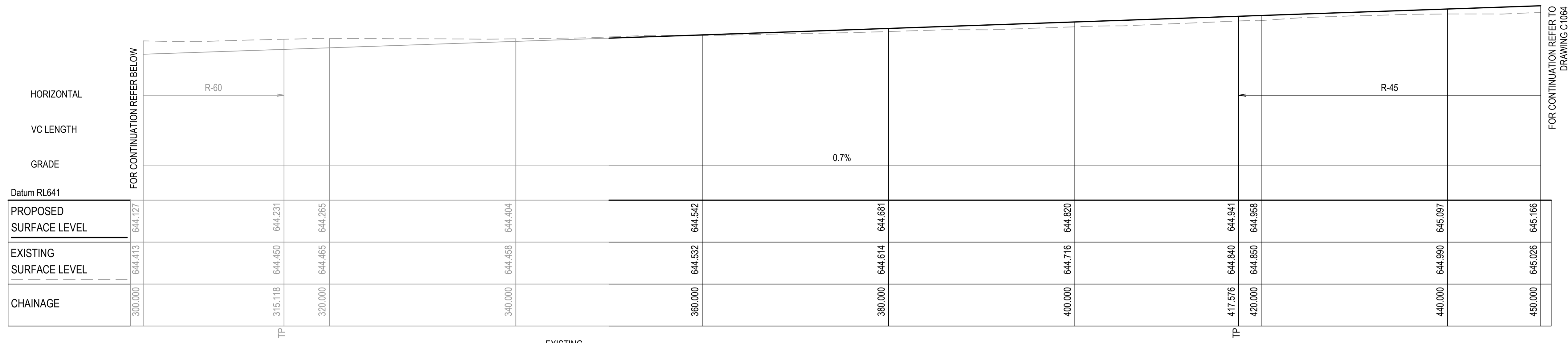


Client	FDC
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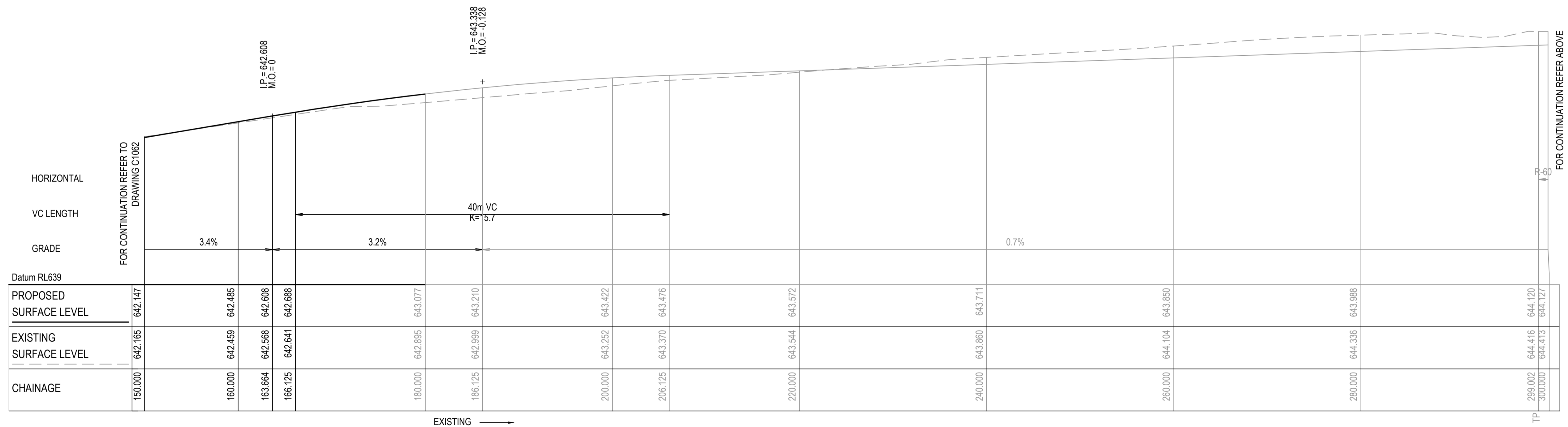
AS SHOWN	Drawn	NT
GDA2020	Designed	BK/JC
AHD	Checked	AMc
	Approved	
GDA2020		
THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&L		

Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	ROADWORKS LONGITUDINAL SECTIONS SHEET 3

Civil Engineers and Project Managers	
Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au	
Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION
Project - Drawing No.	23-1098-C1062
Issue	P1

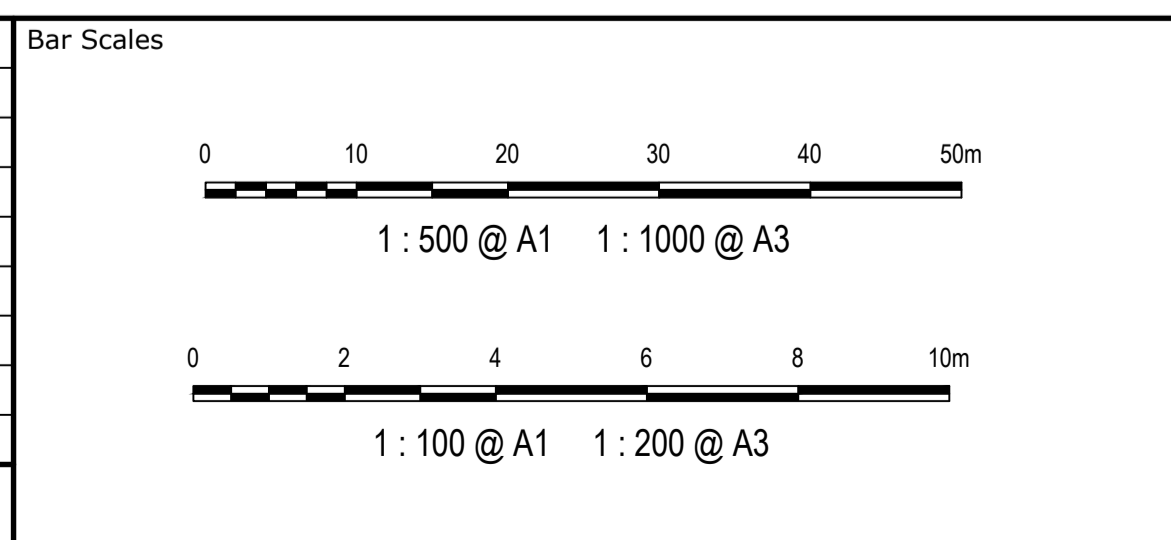


ROAD 08 LONGITUDINAL SECTION  
SCALE 1:500 HORI.  
1:100 VERT.



ROAD 08 LONGITUDINAL SECTION  
SCALE 1:500 HORI.  
1:100 VERT.

Issue	Description	Date
P1	DRAFT ISSUE	09-06-23

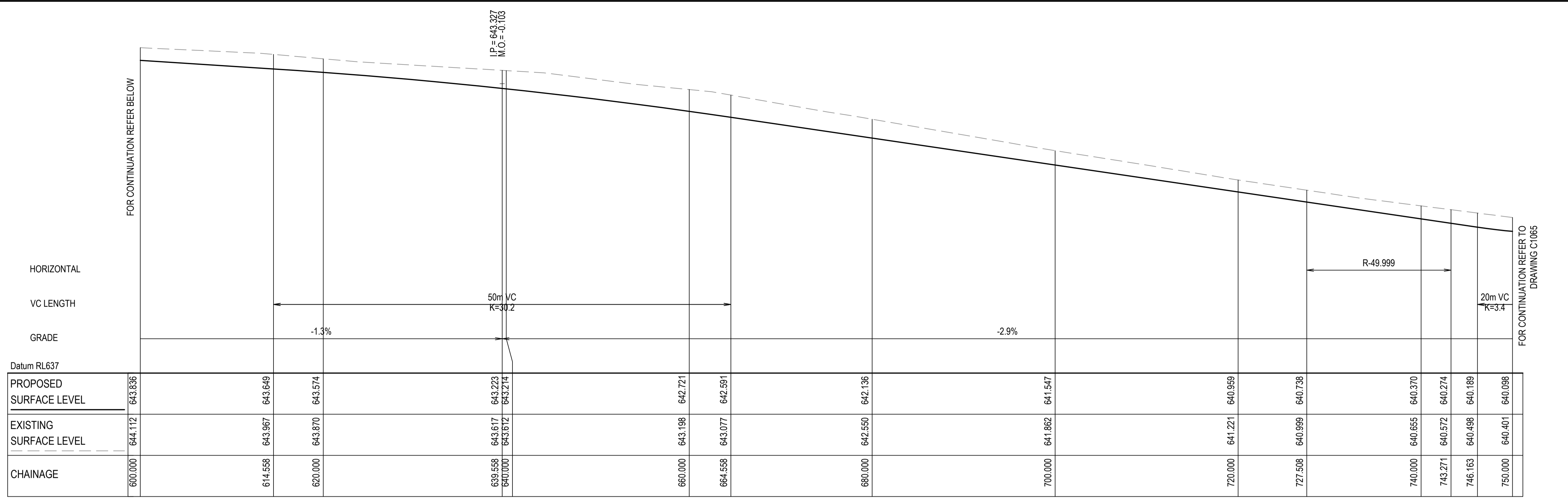


Client
FDC

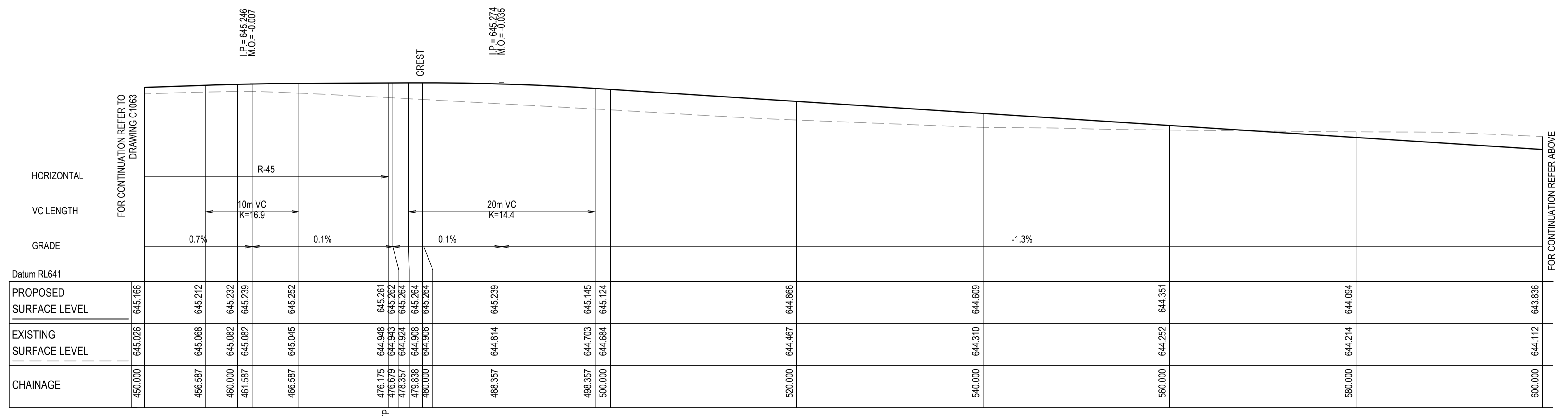
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AS SHOWN	Designed	BK/JC
Grid GDA2020	Checked	AMc
Height Datum AHD	Approved	

Project	Title
EQUINOX - STAGE 3 WILSON DRIVE, MARULAN	ROADWORKS LONGITUDINAL SECTIONS SHEET 4

Civil Engineers and Project Managers	
Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au	
Status	Issue
PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No.	Issue
23-1098-C1063	P1

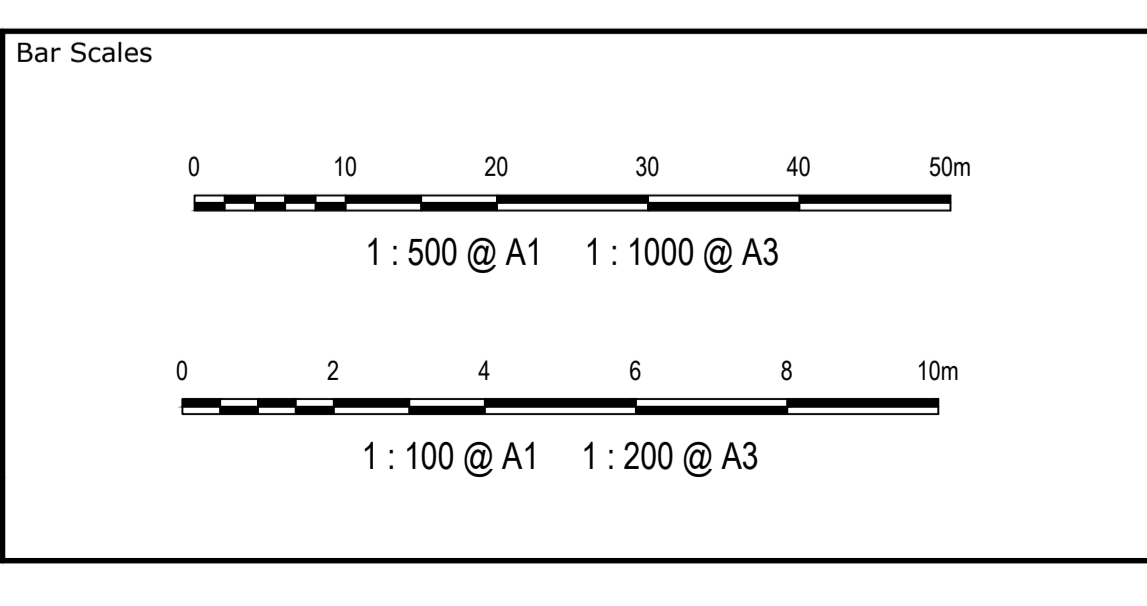


ROAD 08 LONGITUDINAL SECTION  
 SCALE 1:500 HORI.  
 1:100 VERT.



ROAD 08 LONGITUDINAL SECTION  
 SCALE 1:500 HORI.  
 1:100 VERT.

P1	DRAFT ISSUE	09-06-23
Issue	Description	Date



Client	FDC
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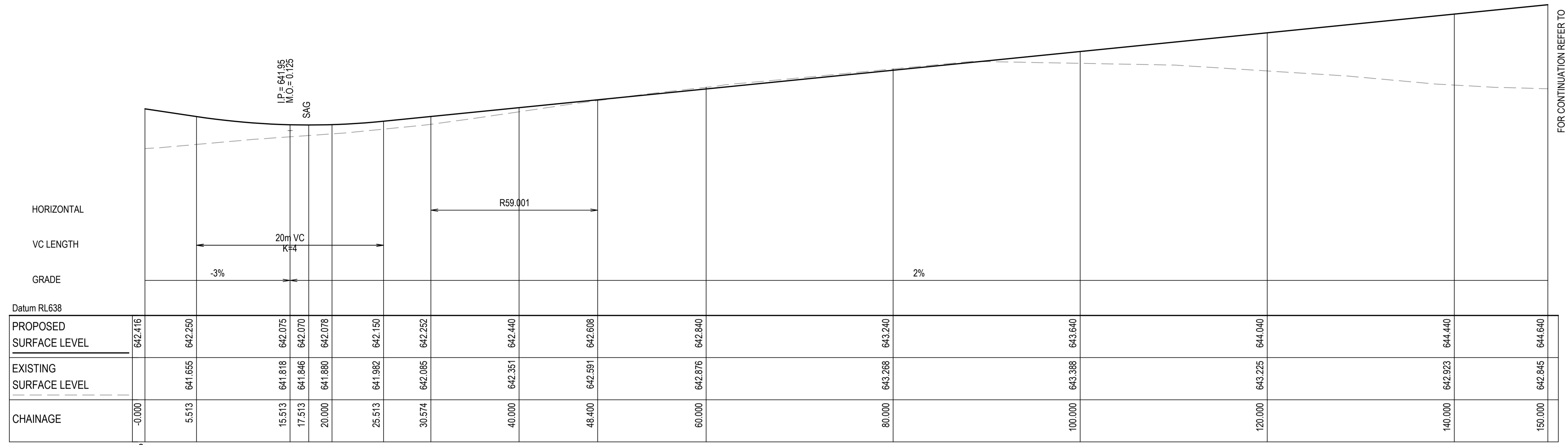
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GDA2020	Designed	BK/JC
AHD	Checked	AMc
	Approved	

Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN	
	ROADWORKS LONGITUDINAL SECTIONS SHEET 5	

Civil Engineers and Project Managers  
**at&l**  
 Level 7, 153 Walker Street  
 North Sydney NSW 2060  
 ABN 96 130 882 405  
 Tel: 02 9439 1777  
 Fax: 02 9923 1055  
 www.atl.net.au  
 info@atl.net.au

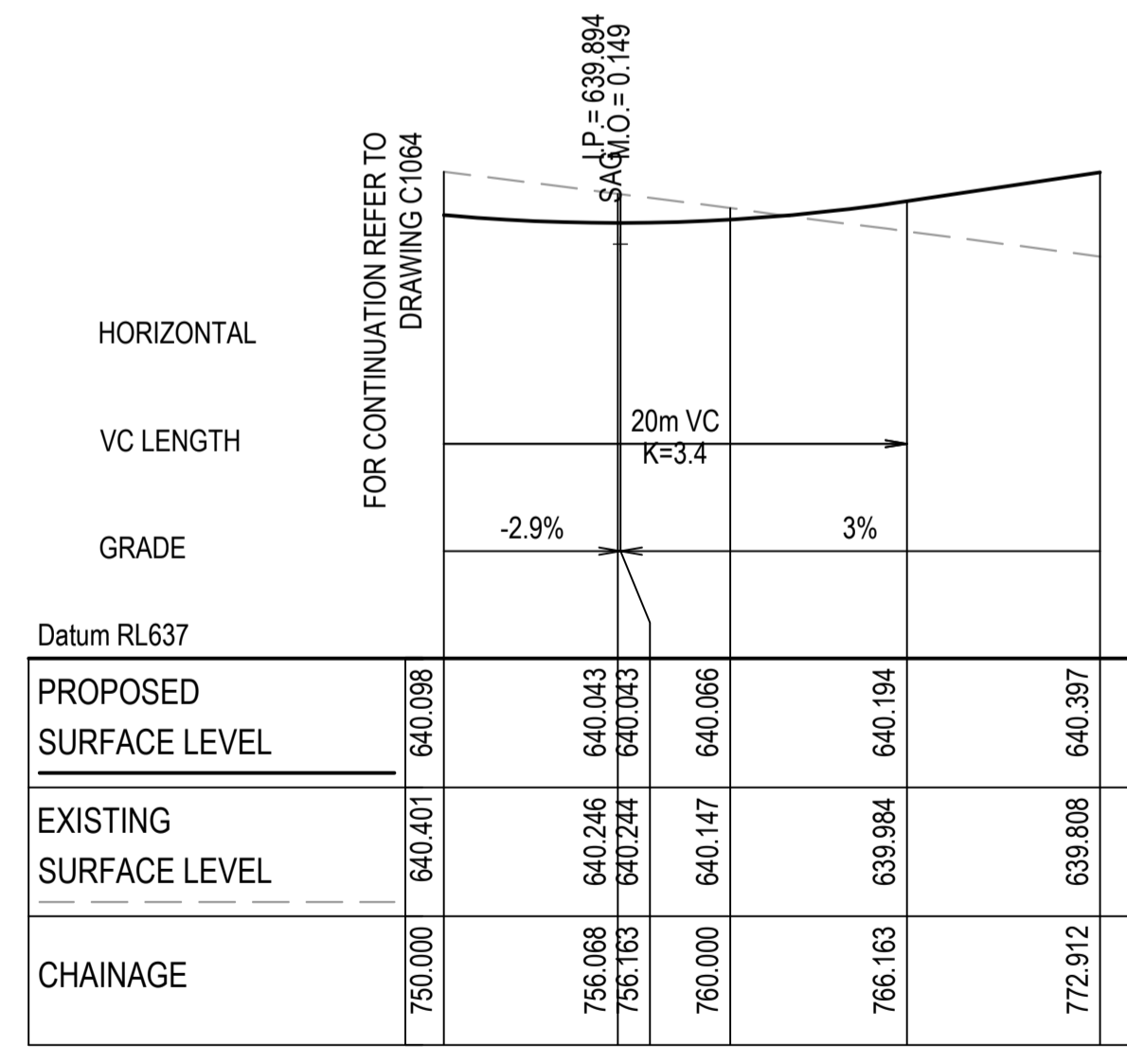
Status <b>PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION</b>	A1
Project - Drawing No. <b>23-1098-C1064</b>	Issue <b>P1</b>





**ROAD 09 LONGITUDINAL SECTION**  
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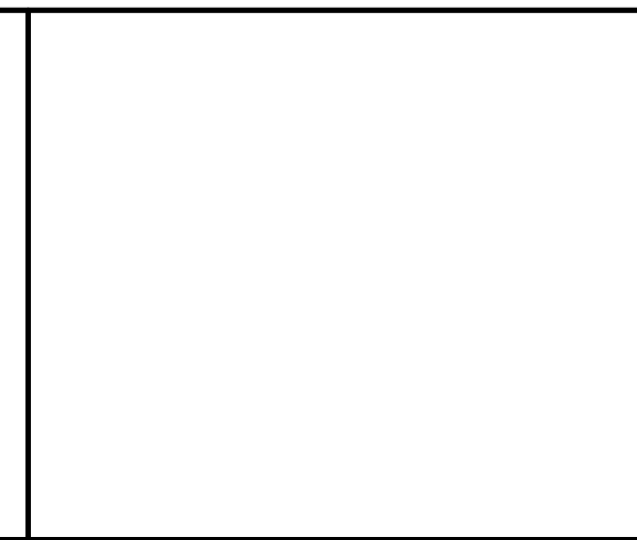
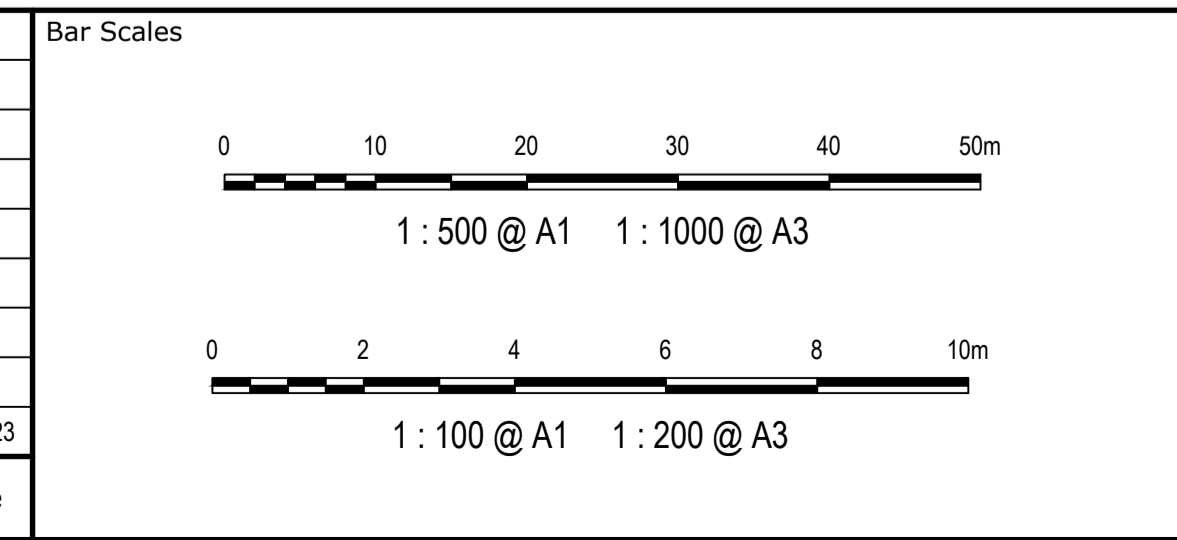
FOR CONTINUATION REFER TO  
DRAWING C1066



**ROAD 08 LONGITUDINAL SECTION**  
 SCALE 1:500 HORI.  
 1:100 VERT.

FOR CONTINUATION REFER TO  
DRAWING C1064

P1	DRAFT ISSUE	09-06-23
Issue	Description	Date



Client	FDC
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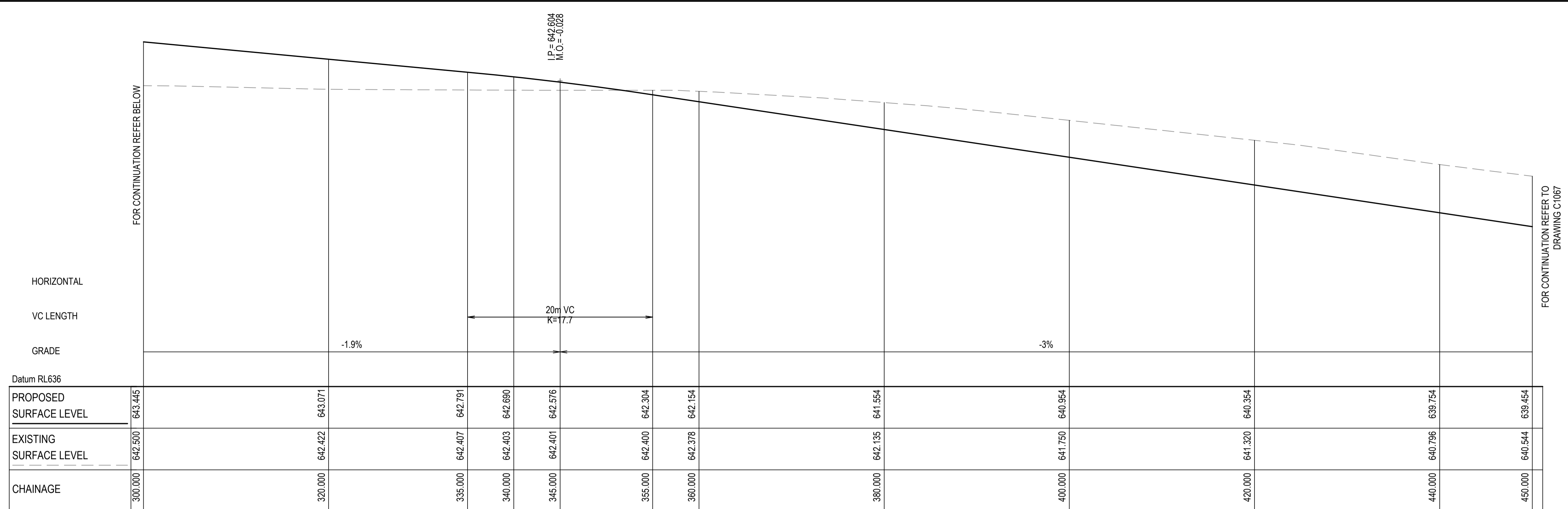
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Grid	GDA2020	Designed	BK/JC
Height Datum	AHD	Checked	AMc
		Approved	

GDA2020

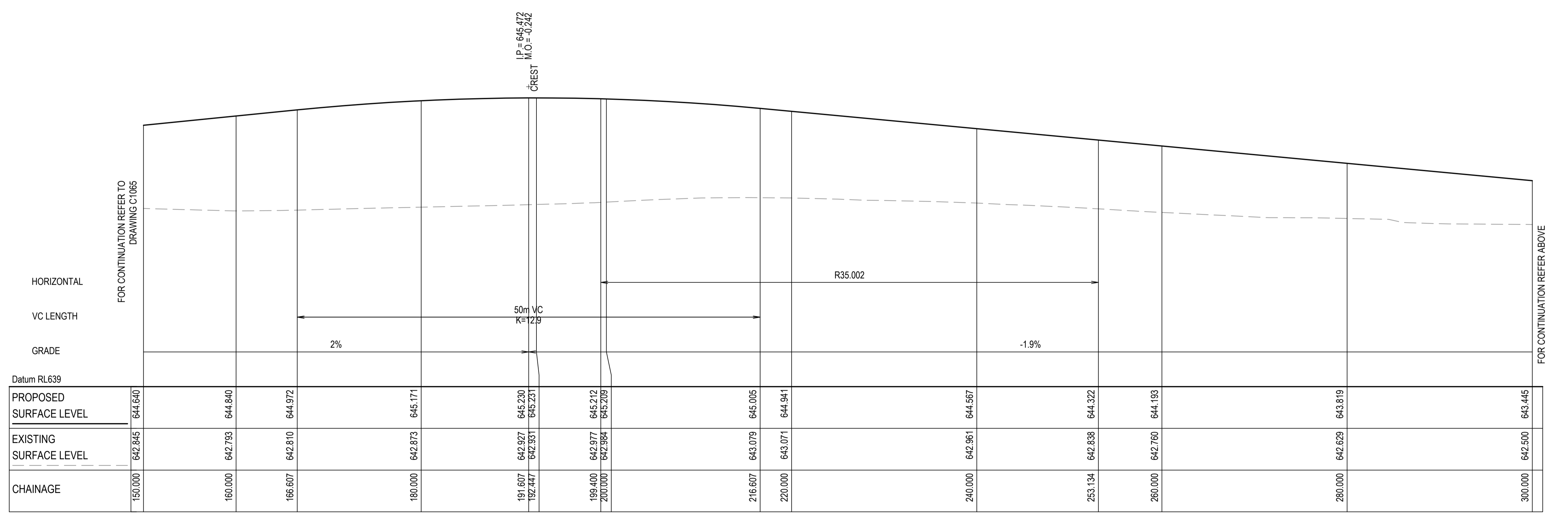
THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&L

Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	ROADWORKS LONGITUDINAL SECTIONS SHEET 6

Civil Engineers and Project Managers	
<b>at&amp;l</b>	
Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au	
Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION
Project - Drawing No.	23-1098-C1065
Issue	P1

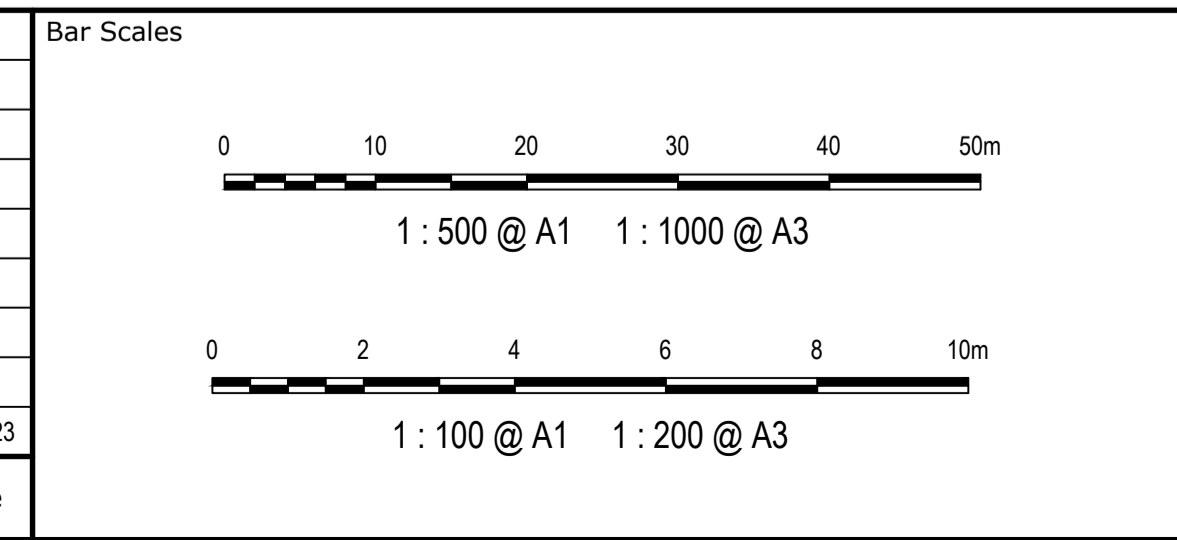


ROAD 09 LONGITUDINAL SECTION  
SCALE 1:500 HORI.  
1:100 VERT.



ROAD 09 LONGITUDINAL SECTION  
SCALE 1:500 HORI.  
1:100 VERT.

P1	DRAFT ISSUE	09-06-23
Issue	Description	Date



Client	FDC
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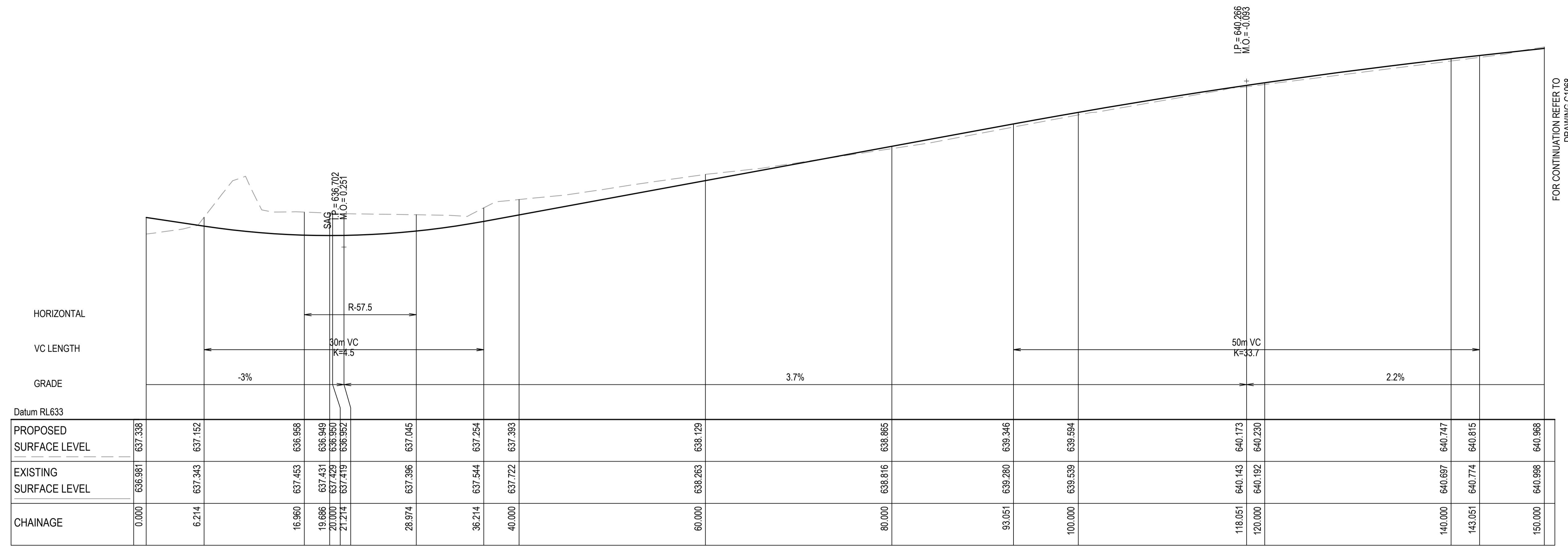
Scales	AS SHOWN	Drawn	NT
Grid	GDA2020	Checked	BK/JC
Height Datum	AHD	Approved	AMc
<small>THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&amp;I</small>			

Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	ROADWORKS LONGITUDINAL SECTIONS SHEET 7

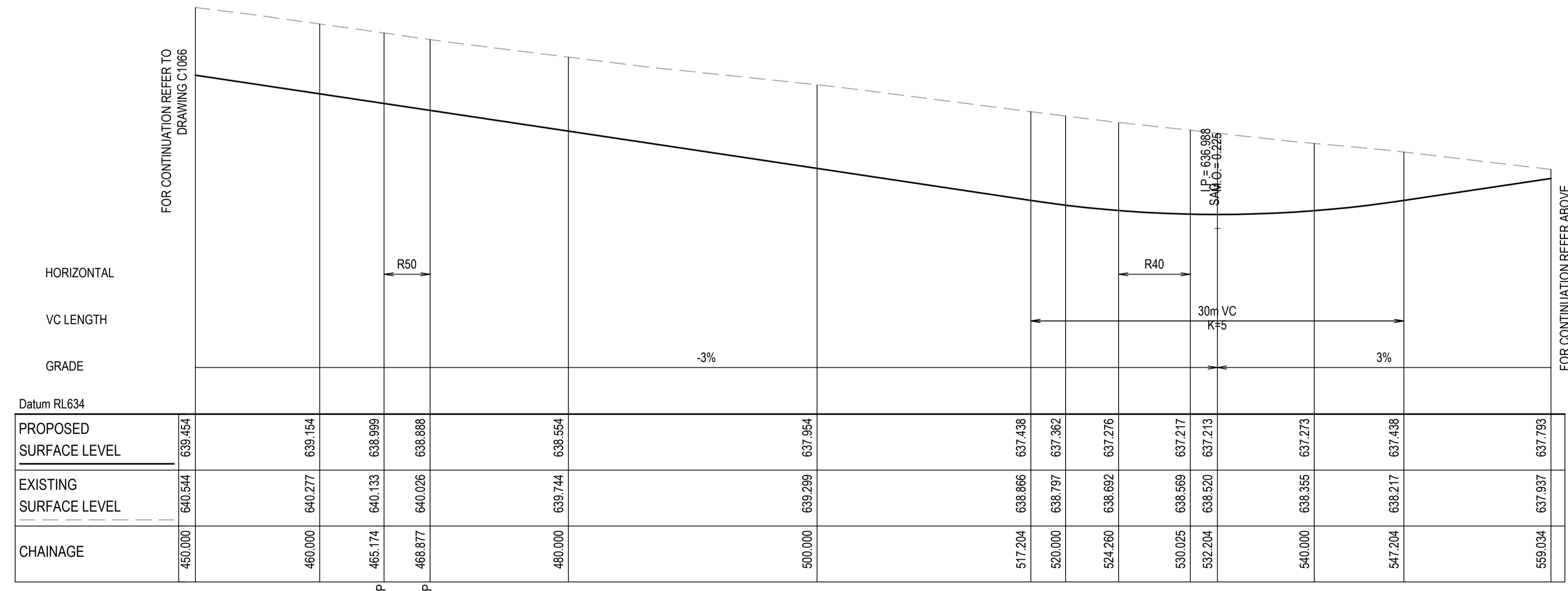
Civil Engineers and Project Managers

Level 7, 153 Walker Street  
North Sydney NSW 2060  
ABN 96 130 882 405  
Tel: 02 9439 1777  
Fax: 02 9923 1055  
www.atl.net.au  
info@atl.net.au

Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No.	23-1098-C1066	Issue
		P1

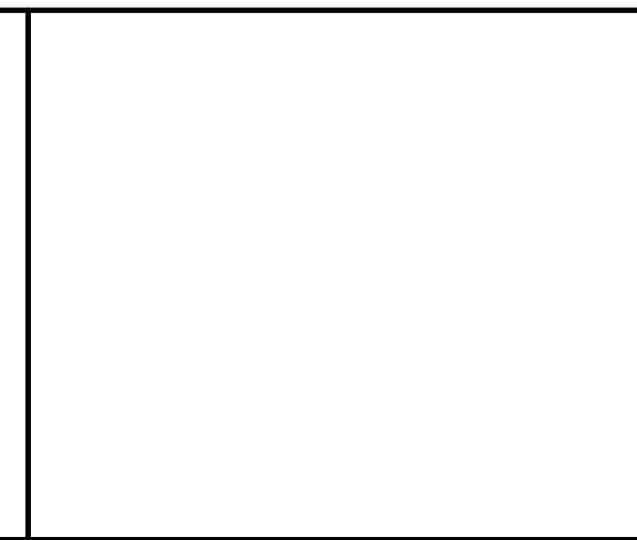
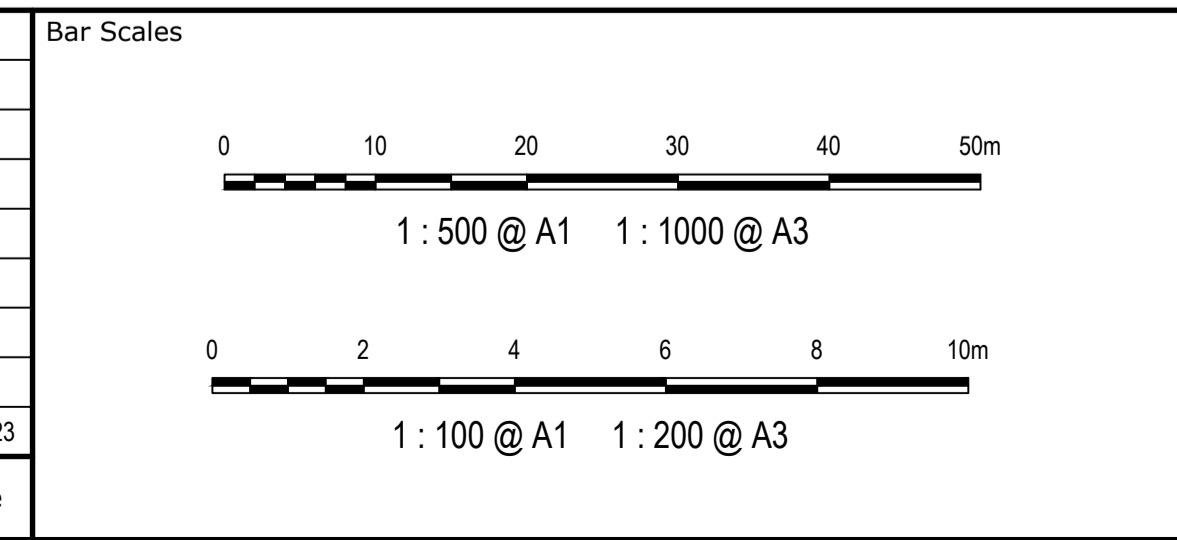


ROAD 10 LONGITUDINAL SECTION  
SCALE 1:500 HORI.  
1:100 VERT.



ROAD 09 LONGITUDINAL SECTION  
SCALE 1:500 HORI.  
1:100 VERT.

Issue	Description	Date
P1	DRAFT ISSUE	09-06-23

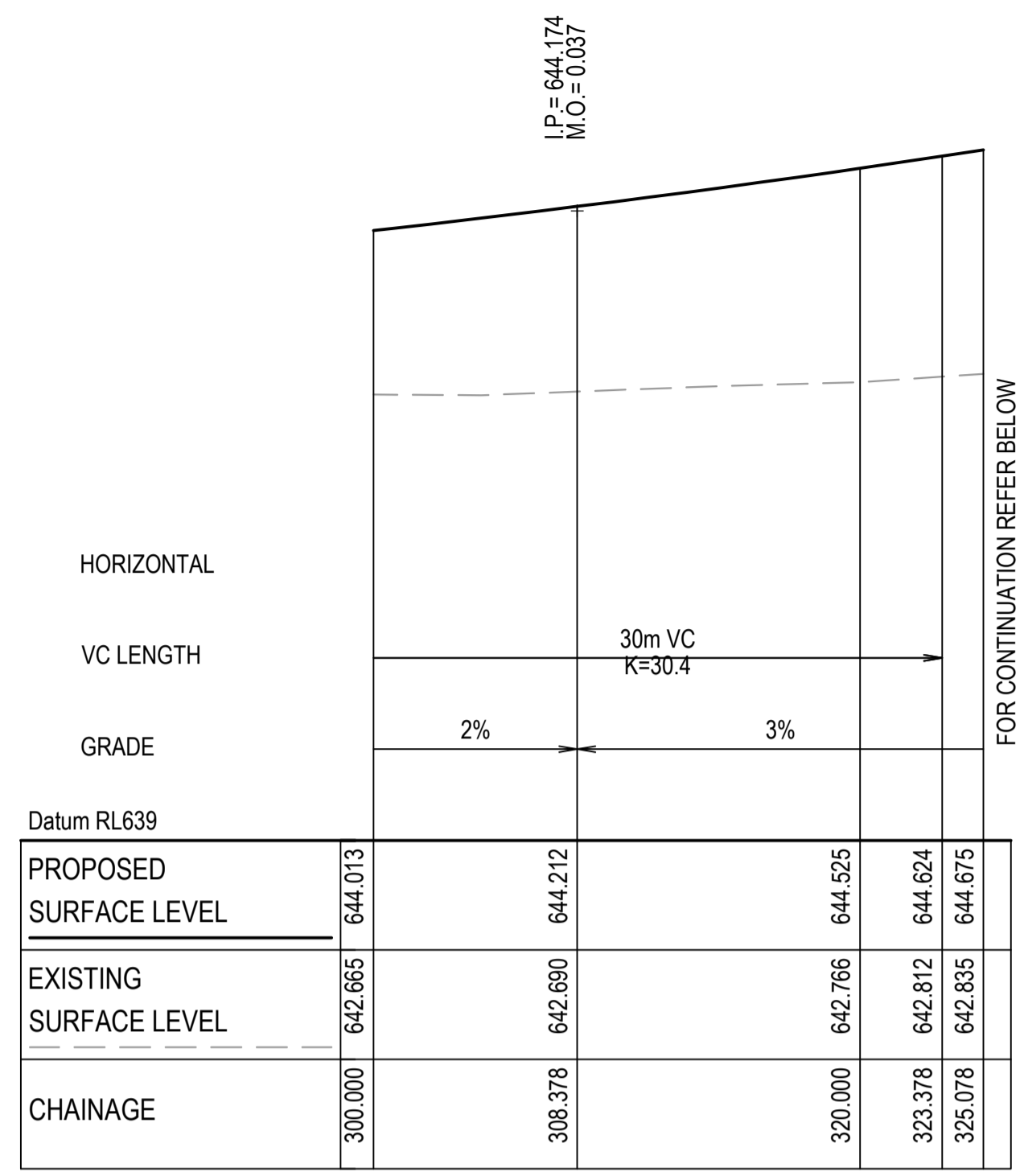


Client
FDC

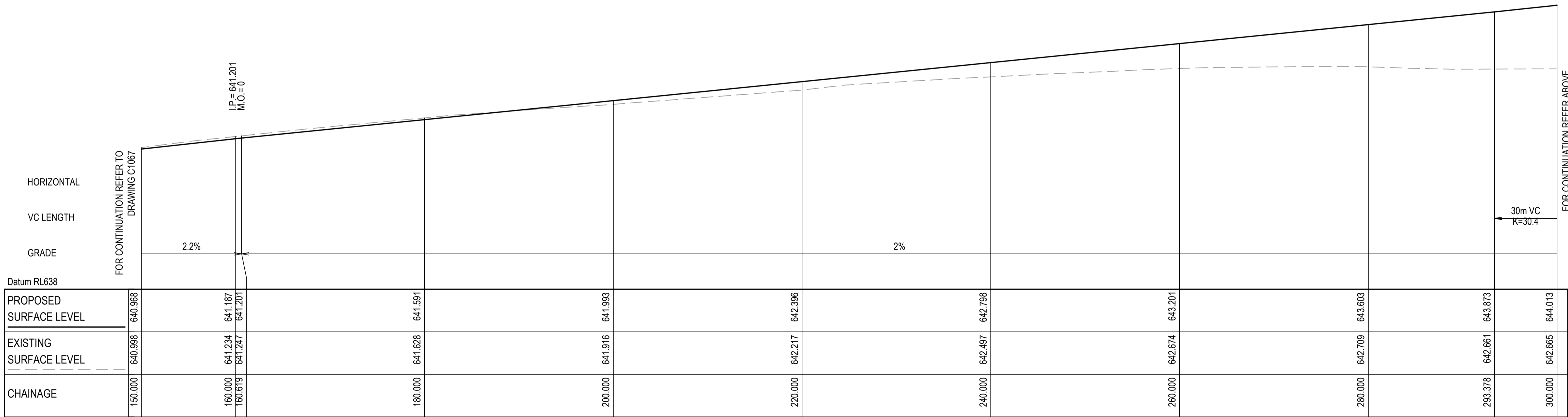
Scales	Drawn	NT
AS SHOWN	Designed	BK/JC
Grid GDA2020	Checked	AMc
Height Datum AHD	Approved	

Project	Title
EQUINOX - STAGE 3 WILSON DRIVE, MARULAN	ROADWORKS LONGITUDINAL SECTIONS SHEET 8

Civil Engineers and Project Managers	
Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au	
Status	A1
PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	Issue
Project - Drawing No. 23-1098-C1067	P1

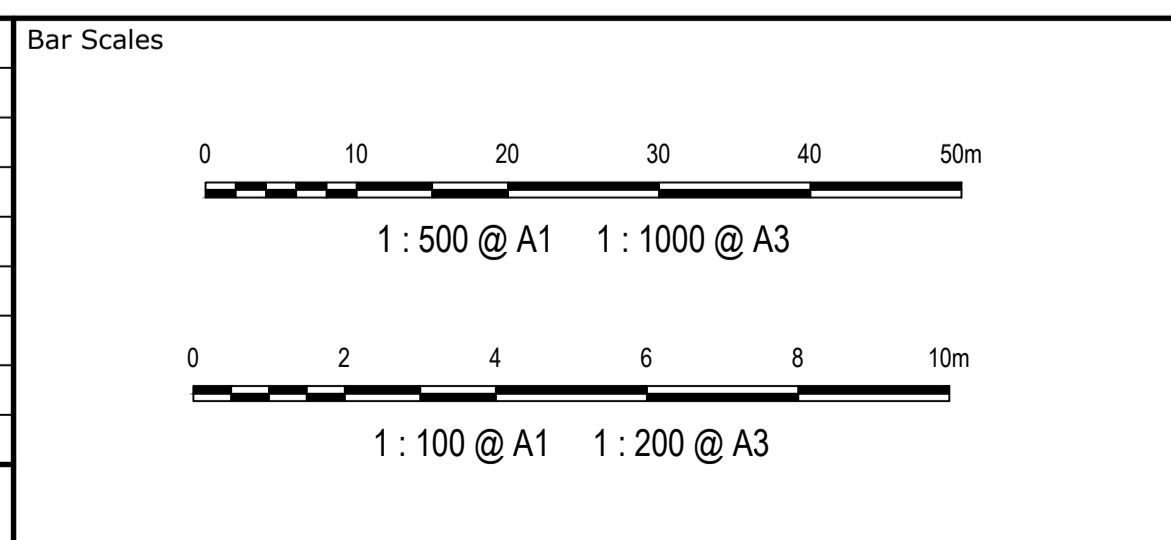


**ROAD 10 LONGITUDINAL SECTION**  
SCALE 1:500 HORI.  
1:100 VERT.



**ROAD 10 LONGITUDINAL SECTION**  
SCALE 1:500 HORI.  
1:100 VERT.

P1	DRAFT ISSUE	09-06-23
Issue	Description	Date



Client



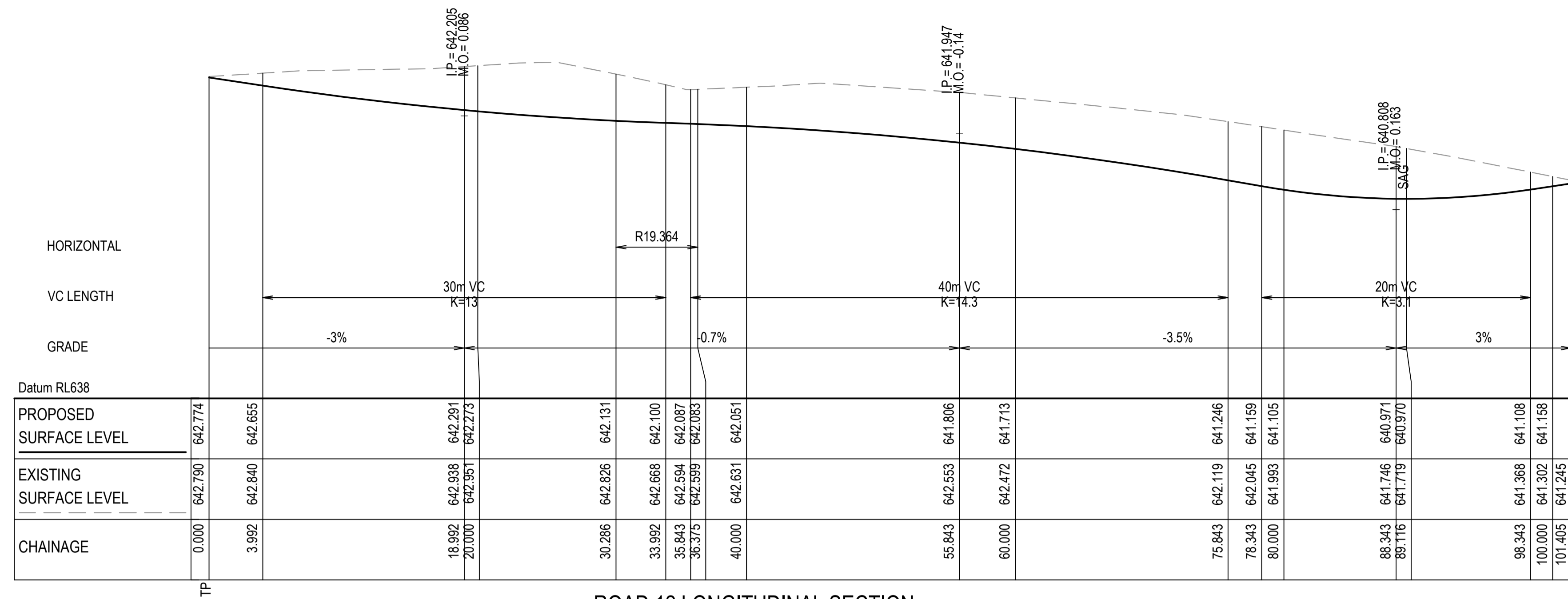
Scales	AS SHOWN	Drawn	NT
		Designed	BK/JC
Grid	GDA2020	Checked	AMc
Height Datum	AHD	Approved	
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Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	ROADWORKS LONGITUDINAL SECTIONS SHEET 9

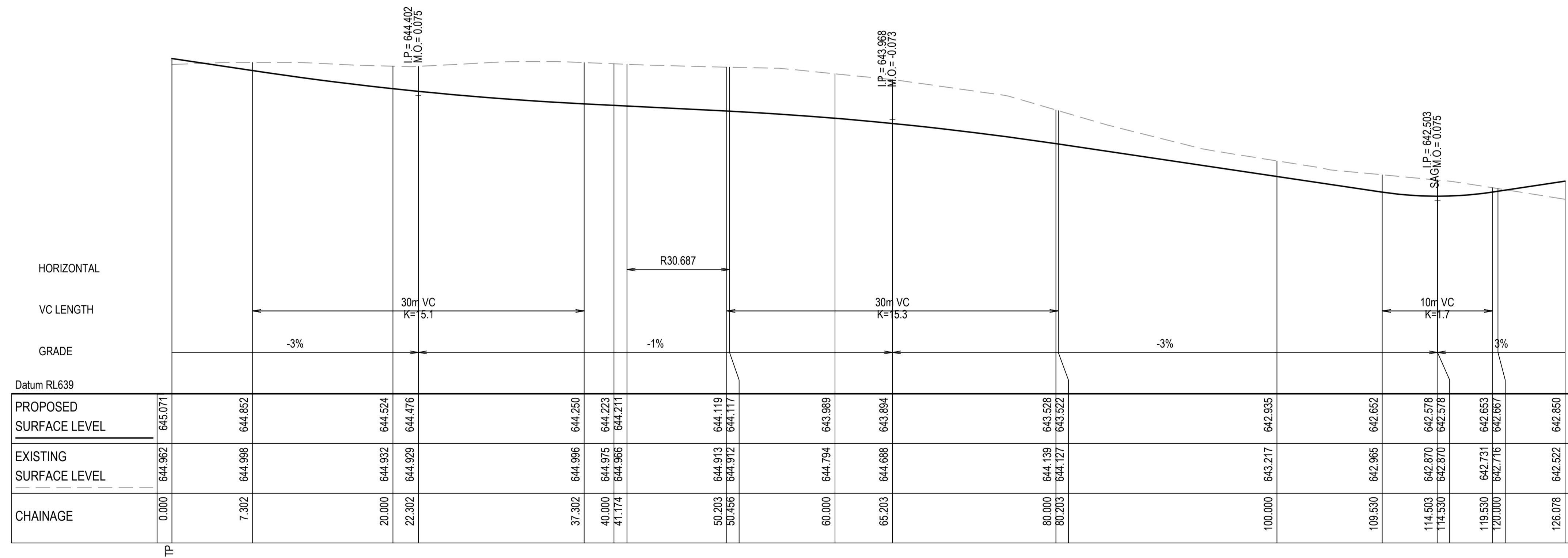
Civil Engineers and Project Managers

Level 7, 153 Walker Street  
North Sydney NSW 2060  
ABN 96 130 882 405  
Tel: 02 9439 1777  
Fax: 02 9923 1055  
www.atl.net.au  
info@atl.net.au

Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No.	23-1098-C1068	Issue
		P1

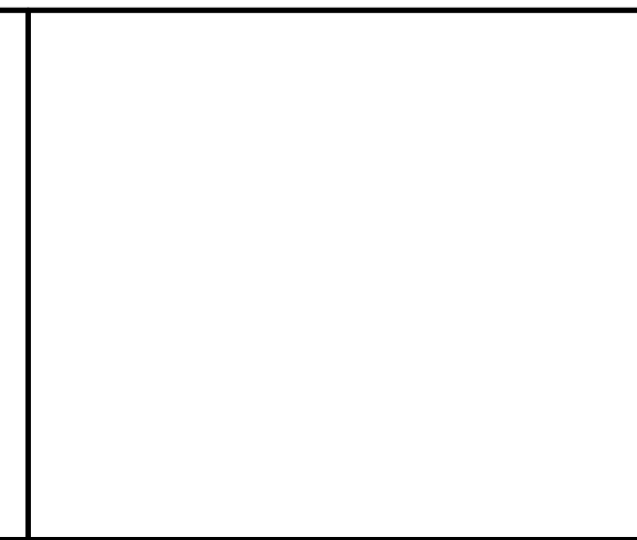
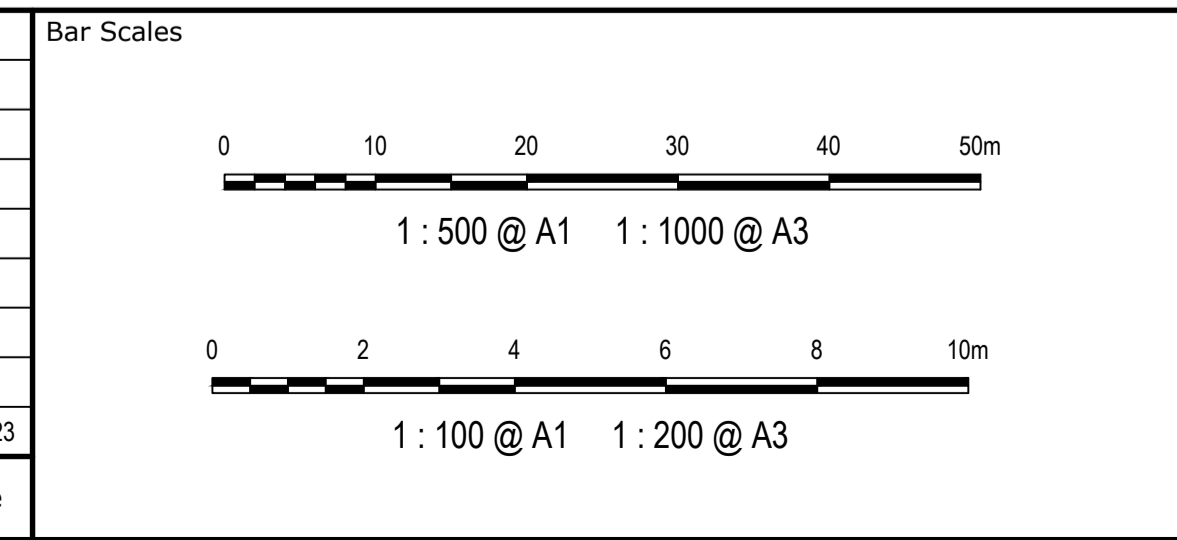


ROAD 12 LONGITUDINAL SECTION  
SCALE 1:500 HORI.  
1:100 VERT.



ROAD 11 LONGITUDINAL SECTION  
SCALE 1:500 HORI.  
1:100 VERT.

P1	DRAFT ISSUE	09-06-23
Issue	Description	Date



Scales	AS SHOWN	Drawn	NT
Grid	GDA2020	Checked	AMc
Height Datum	AHD	Approved	

Project: EQUINOX - STAGE 3  
WILSON DRIVE,  
MARULAN

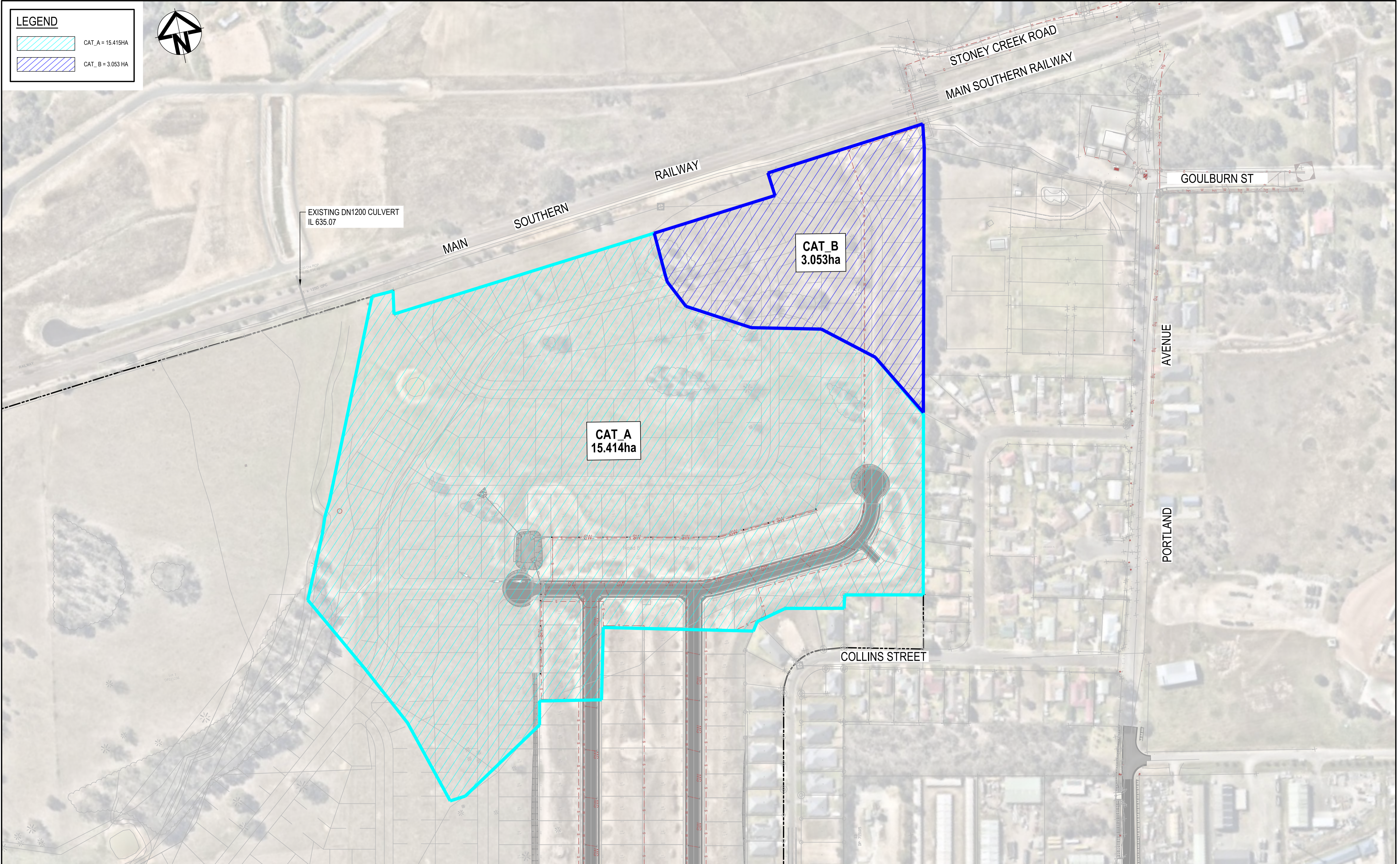
Title: ROADWORKS  
LONGITUDINAL  
SECTIONS  
SHEET 10

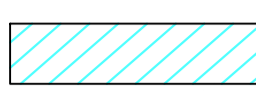

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Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No.	23-1098-C1069	Issue
Issue		P1

Civil Engineers and Project Managers

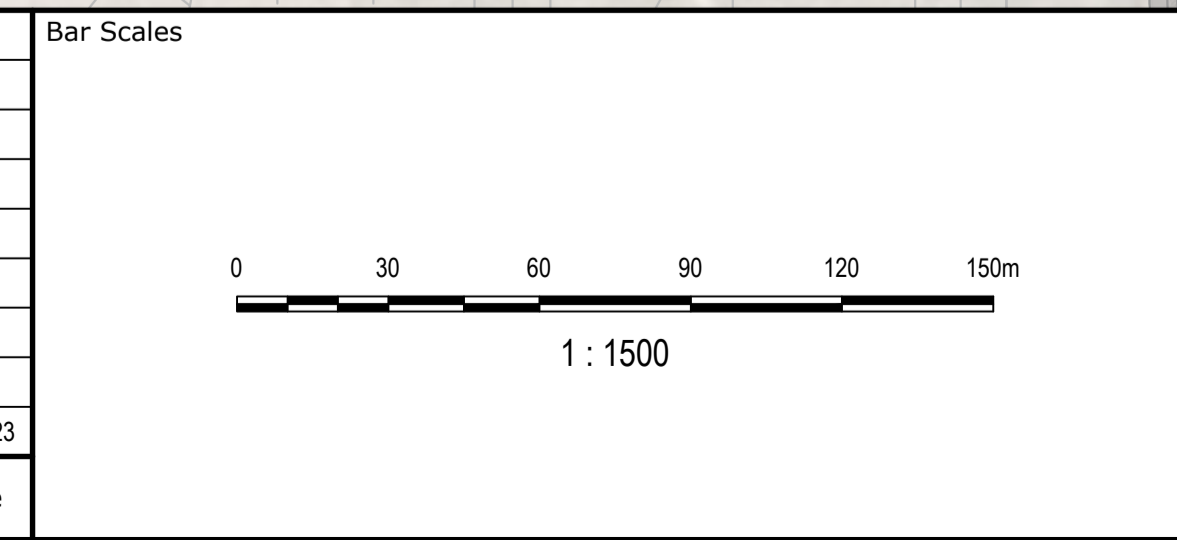
Level 7, 153 Walker Street  
North Sydney NSW 2060  
ABN 96 130 882 405  
Tel: 02 9439 1777  
Fax: 02 9923 1055  
www.atl.net.au  
info@atl.net.au



LEGEND	
	CAT_A = 15.415HA
	CAT_B = 3.053 HA



Issue	Description	Date
P1	DRAFT ISSUE	09-06-23



Client




Scales	1:1500	Drawn	NT
Grid	GDA2020	Designed	BKJC
Height Datum	AHD	Checked	AMc
		Approved	

Project  
**EQUINOX - STAGE 3  
WILSON DRIVE,  
MARULAN**


Title  
**STORMWATER DRAINAGE  
CATCHMENT PLAN  
(PRE-DEVELOPED)**

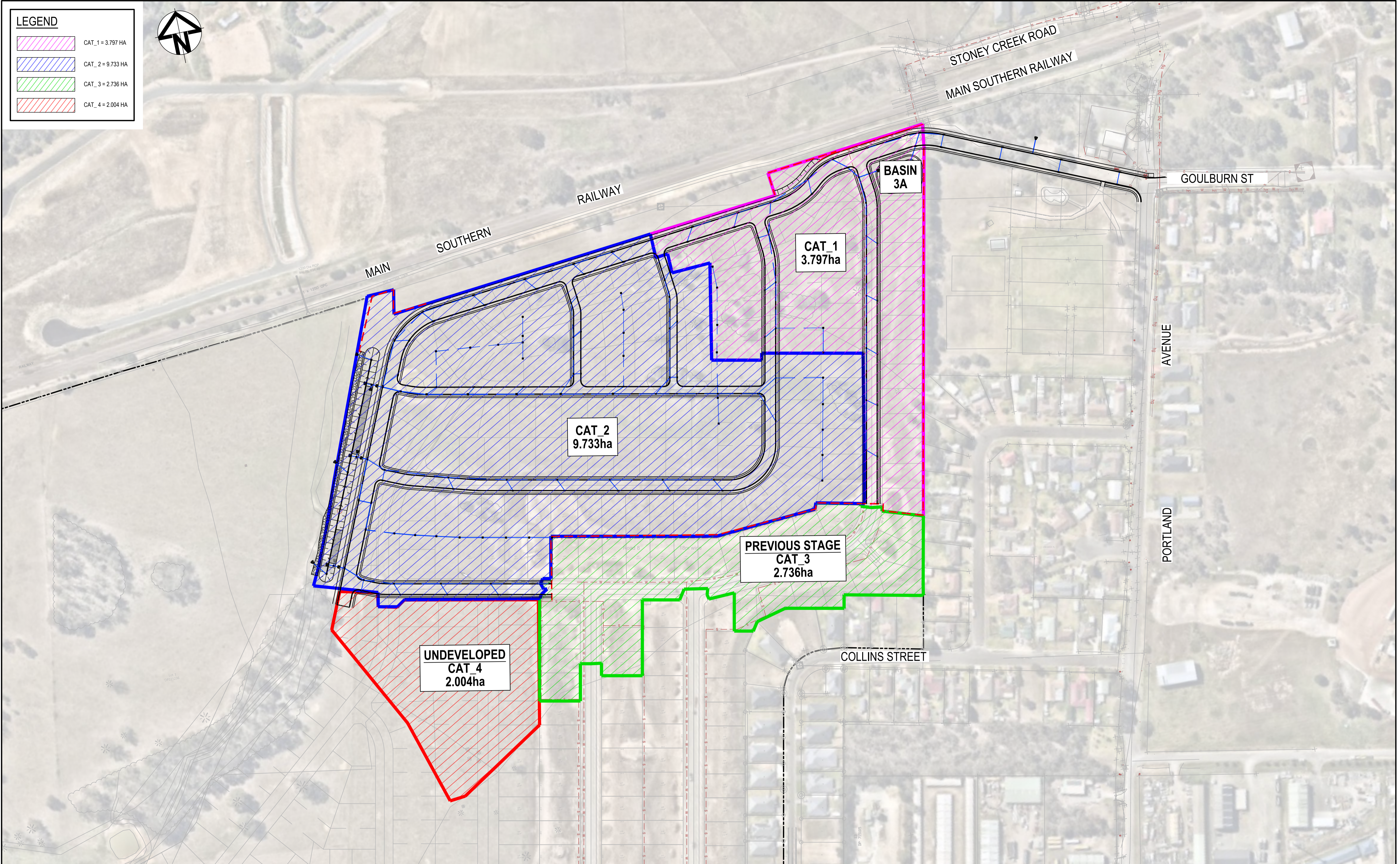
Civil Engineers and Project Managers

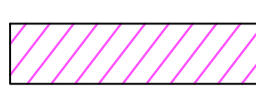
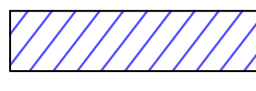
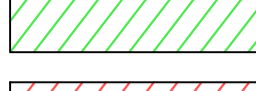
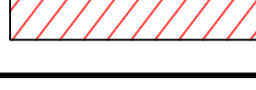


Level 7, 153 Walker Street  
North Sydney NSW 2060  
ABN 96 130 882 405  
Tel: 02 9439 1777  
Fax: 02 9923 1055  
www.atl.net.au  
info@atl.net.au

Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No.	23-1098-C1070	Issue
		P1

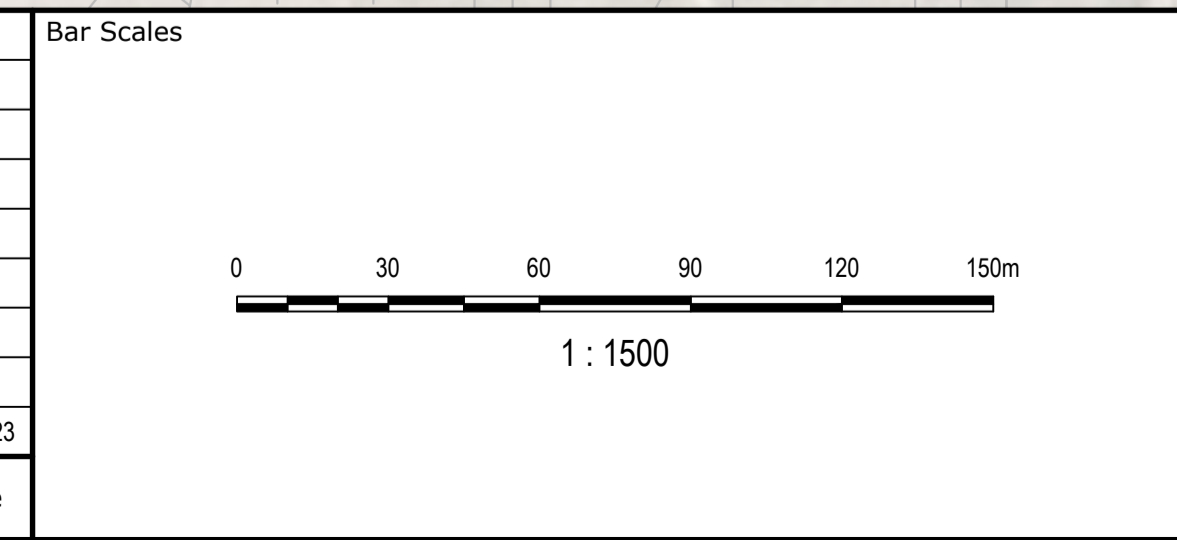
  
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LEGEND	
	CAT_1 = 3.797 HA
	CAT_2 = 9.733 HA
	CAT_3 = 2.736 HA
	CAT_4 = 2.004 HA



Issue	Description	Date
P1	DRAFT ISSUE	09-06-23



Client




Scale	1:1500	Drawn	NT
Grid	GDA2020	Designed	BK/JC
Height Datum	AHD	Checked	AMc
		Approved	

Project  
**EQUINOX - STAGE 3  
 WILSON DRIVE,  
 MARULAN**


Title  
**STORMWATER DRAINAGE  
 CATCHMENT PLAN  
 (POST-DEVELOPED)**

Civil Engineers and Project Managers

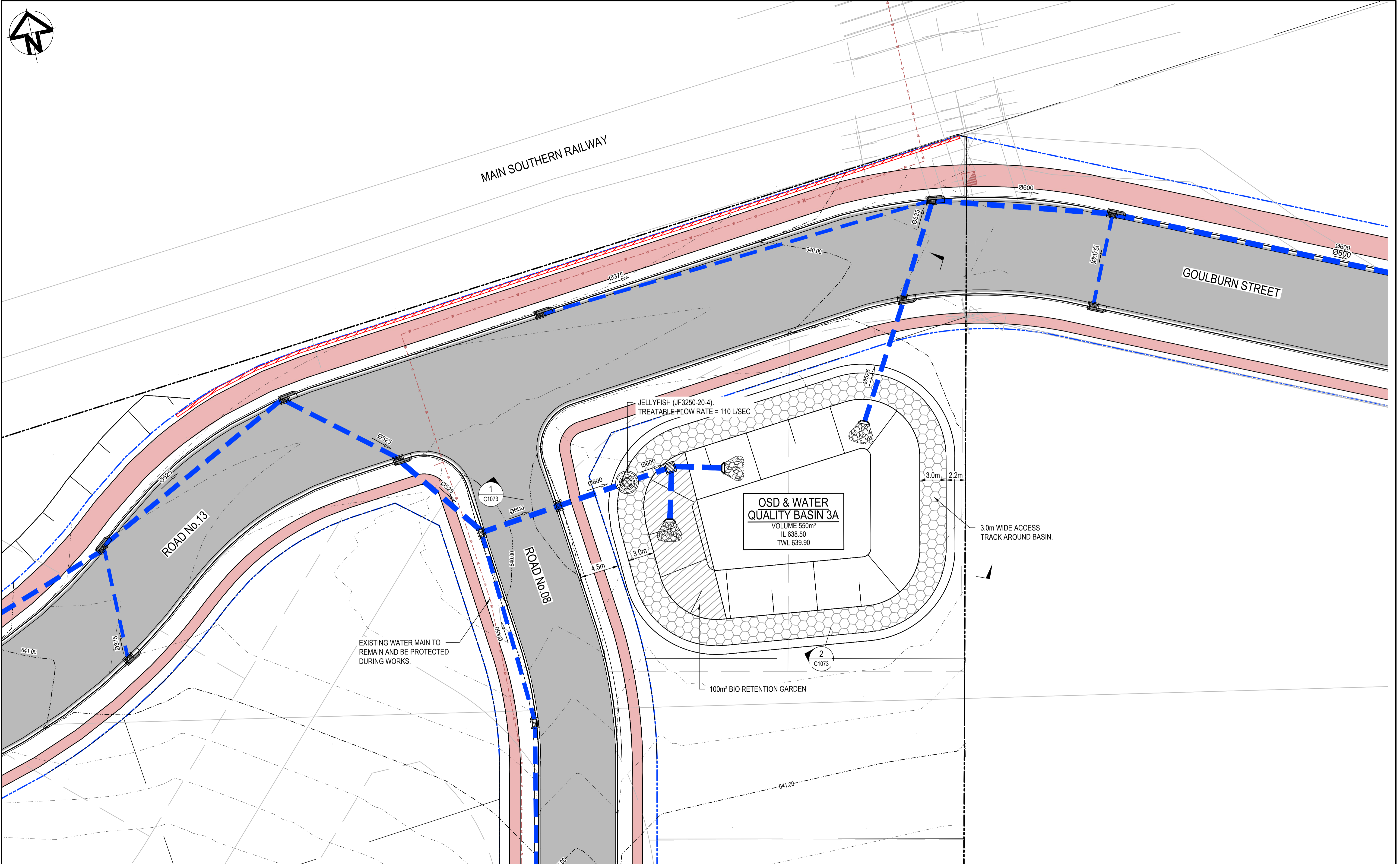


Level 7, 153 Walker Street  
 North Sydney NSW 2060  
 ABN 96 130 882 405  
 Tel: 02 9439 1777  
 Fax: 02 9923 1055  
 www.atl.net.au  
 info@atl.net.au

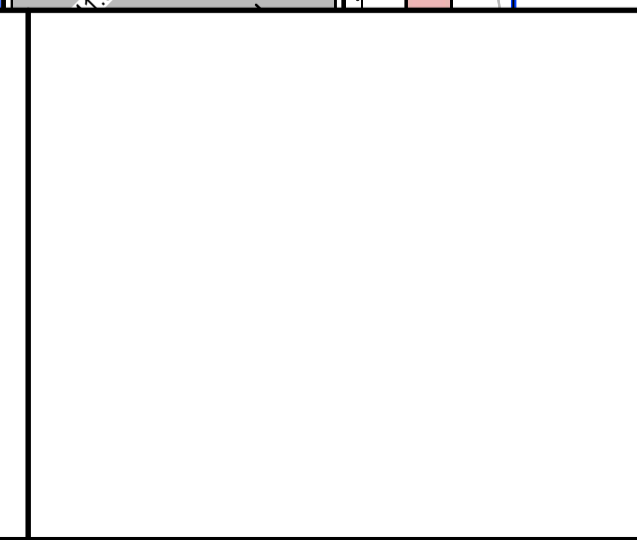
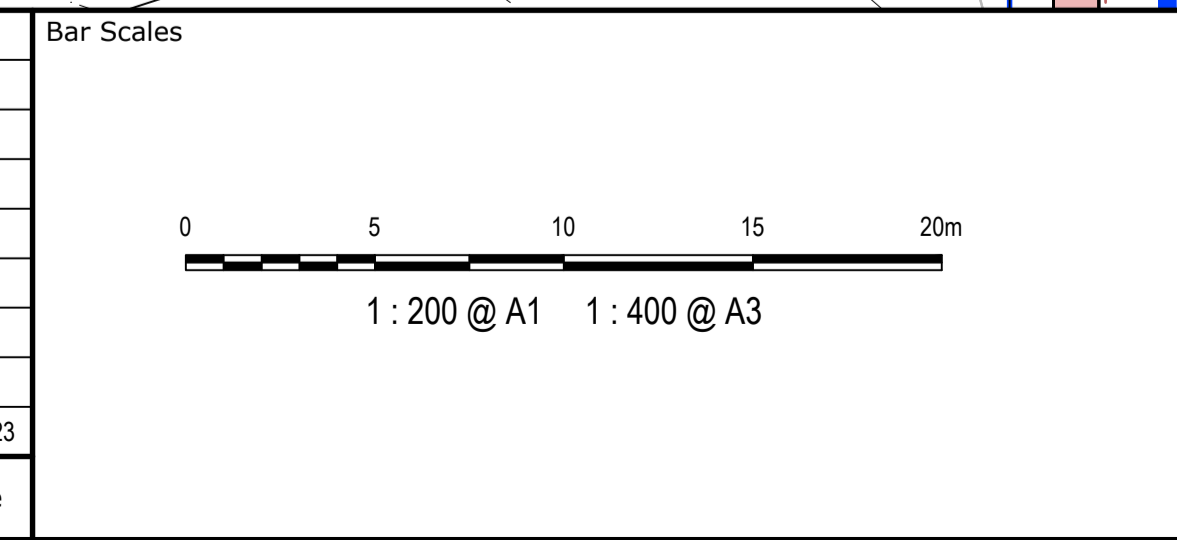
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Project - Drawing No.	23-1098-C1071	Issue
		P1



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P1	DRAFT ISSUE	09-06-23
Issue	Description	Date



Client	FDC
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Scales	1:200
Grid	GDA2020
Height Datum	AHD
Drawn	NT
Designed	BK/JC
Checked	AMc
Approved	

Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	BASIN 3A PLAN

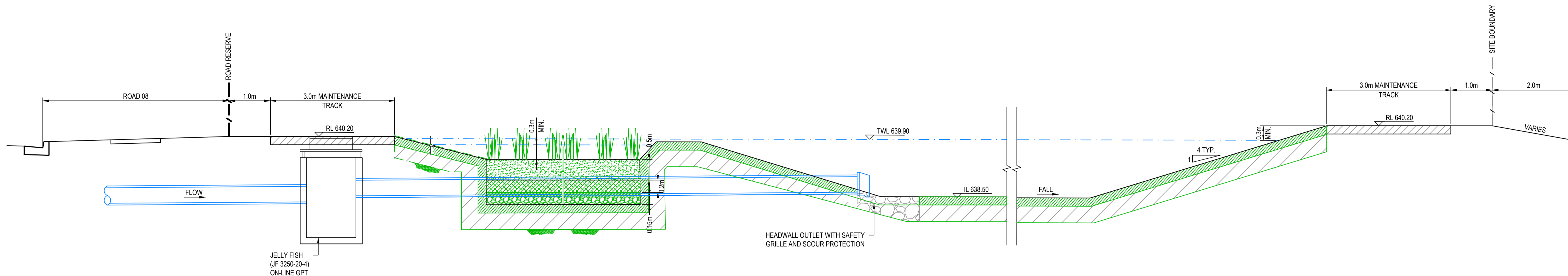
Civil Engineers and Project Managers

Level 7, 153 Walker Street  
North Sydney NSW 2060  
ABN 96 130 882 405  
Tel: 02 9439 1777  
Fax: 02 9923 1055  
www.atl.net.au  
info@atl.net.au

Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No.	23-1098-C1072	Issue
		P1

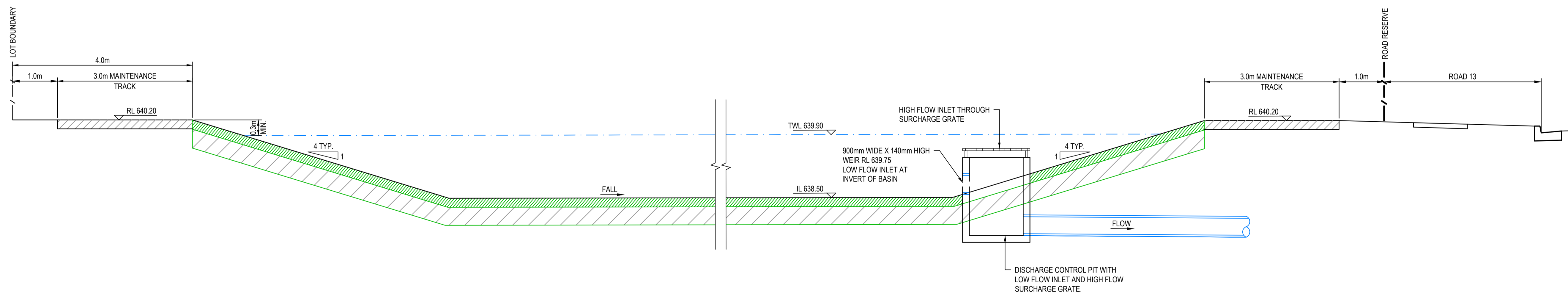
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TYPICAL SECTION OSD & WATER QUALITY BASIN 3A

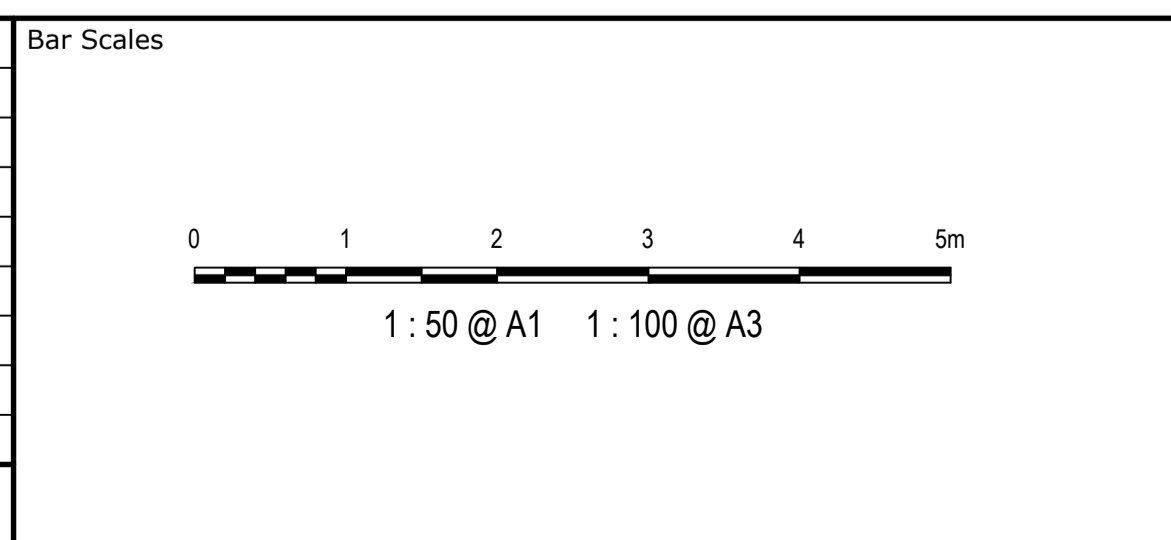
SECTION 1  
1:50 C1072



TYPICAL SECTION OSD & WATER QUALITY BASIN 3A

SECTION 2  
1:50 C1072

P1	DRAFT ISSUE	09-06-23
Issue	Description	Date

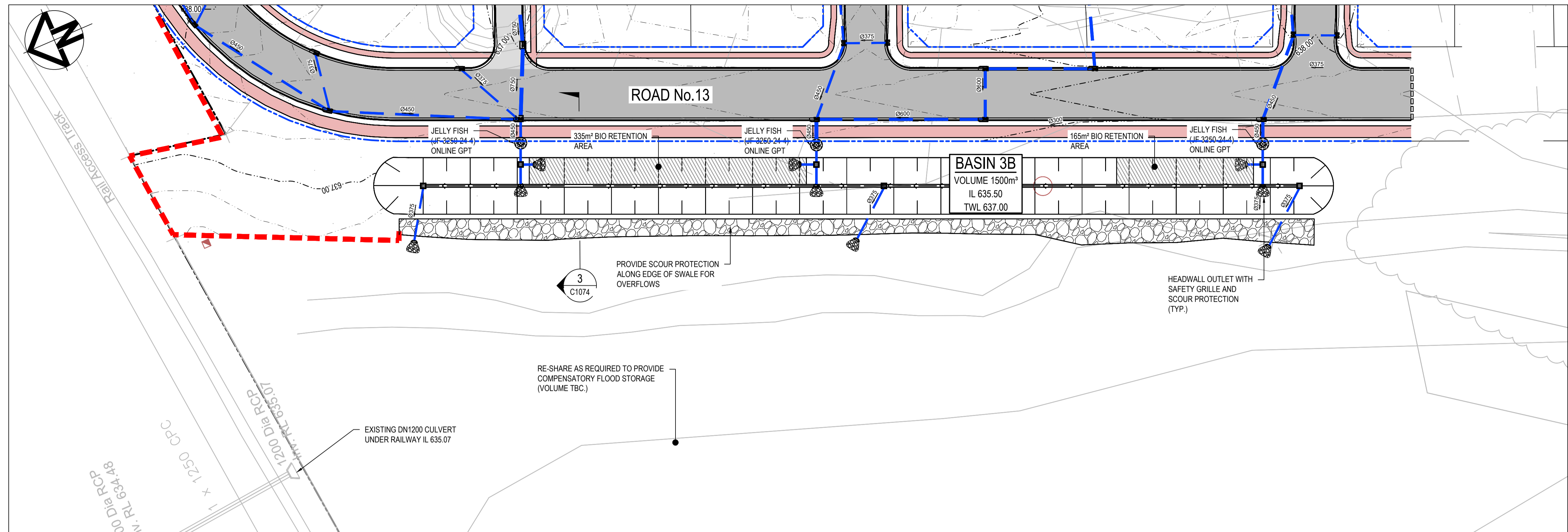


Client	FDC
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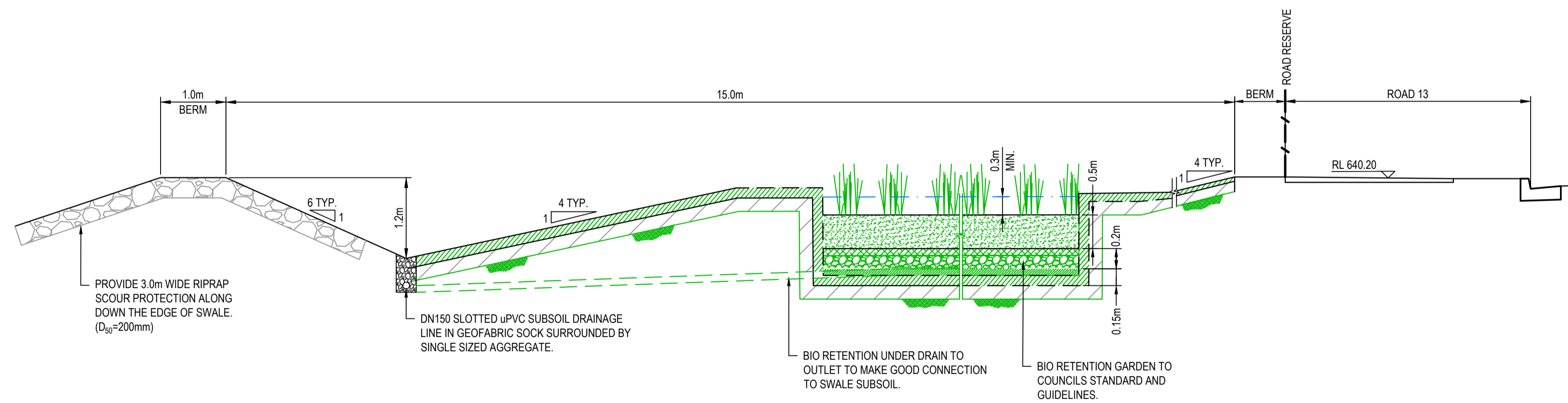
AS SHOWN	Drawn	NT
GDA2020	Designed	BK/JC
AHD	Checked	AMc
	Approved	
<small>THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&amp;L</small>		

Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	BASIN 3A SECTION

Civil Engineers and Project Managers	
<small>Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au</small>	
Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION
Project - Drawing No.	23-1098-C1073
Issue	P1



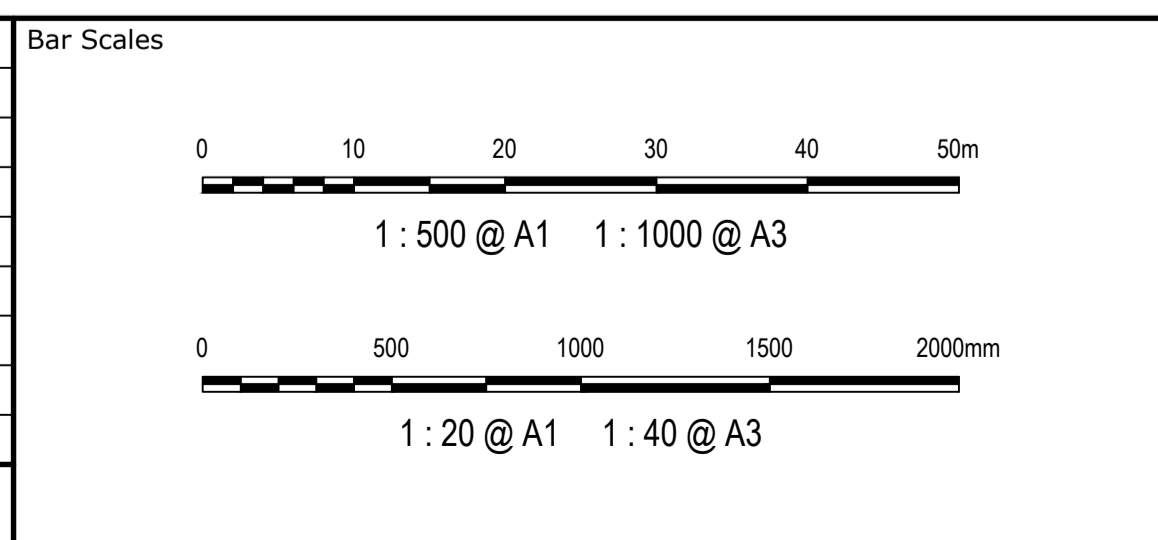
PLAN  
SCALE 1:500



TYPICAL SECTION BASIN 3B (SWALE)

SECTION 3  
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P1	DRAFT ISSUE	09-06-23
Issue	Description	Date

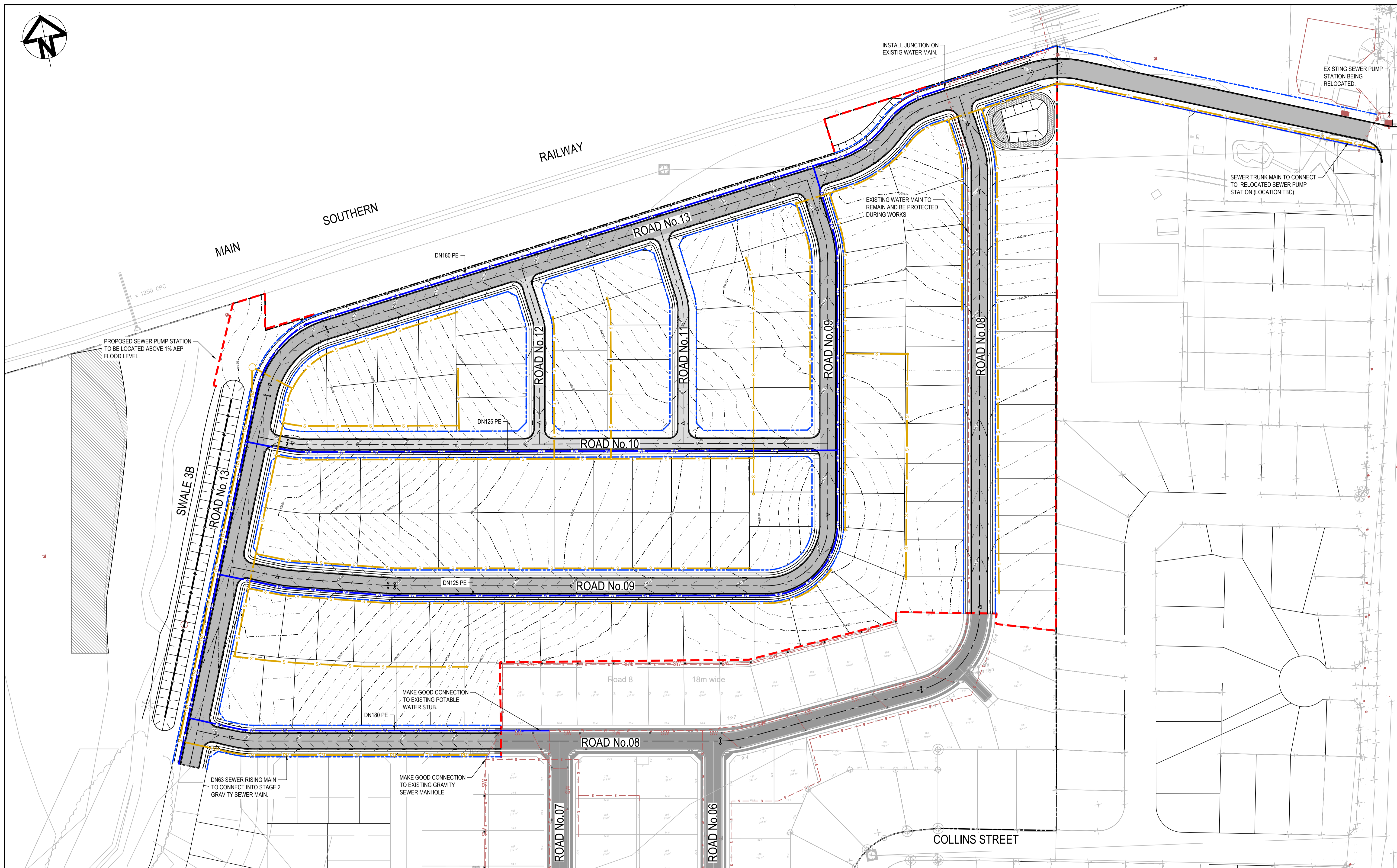
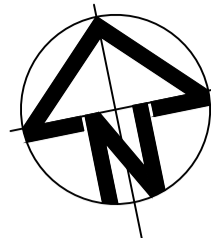


Client	FDC
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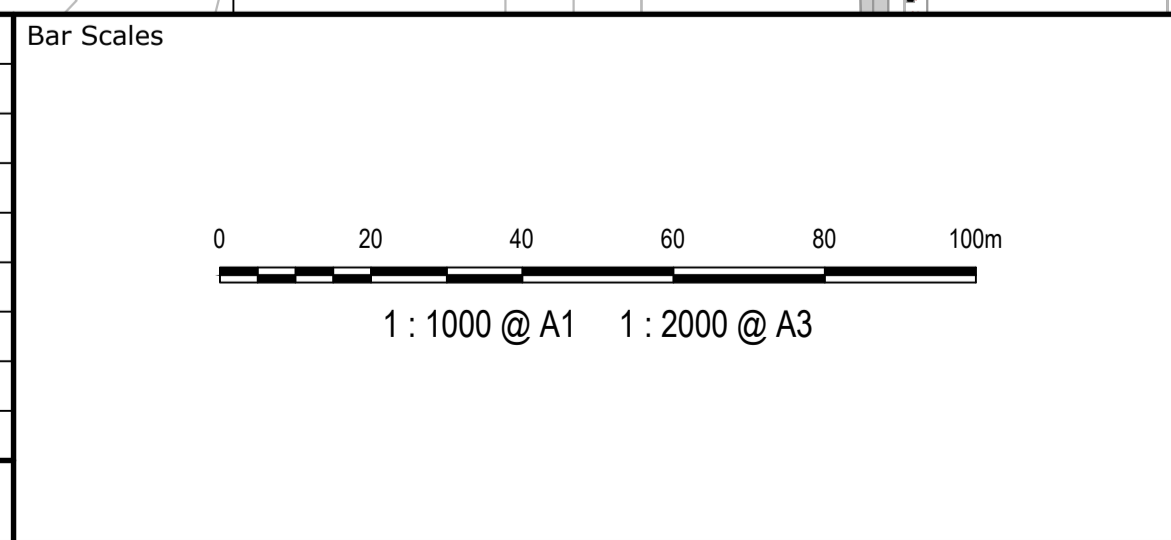
Scales	AS SHOWN	Drawn	NT
Grid	GDA2020	Designed	BK/JC
Height Datum	AHD	Checked	AMc
		Approved	
<p>THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&amp;L</p>			

Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	BASIN 3B PLAN AND SECTION

Civil Engineers and Project Managers	
<p>Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au</p>	
Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION
Project - Drawing No.	23-1098-C1074
Issue	P1



P1	DRAFT ISSUE	09-06-23
Issue	Description	Date



Client



Scale	1:1000	Drawn	NT
		Designed	BK/JC
Grid	GDA2020	Checked	AMc
Height Datum	AHD	Approved	

GDA2020

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Project  
**EQUINOX - STAGE 3  
WILSON DRIVE,  
MARULAN**

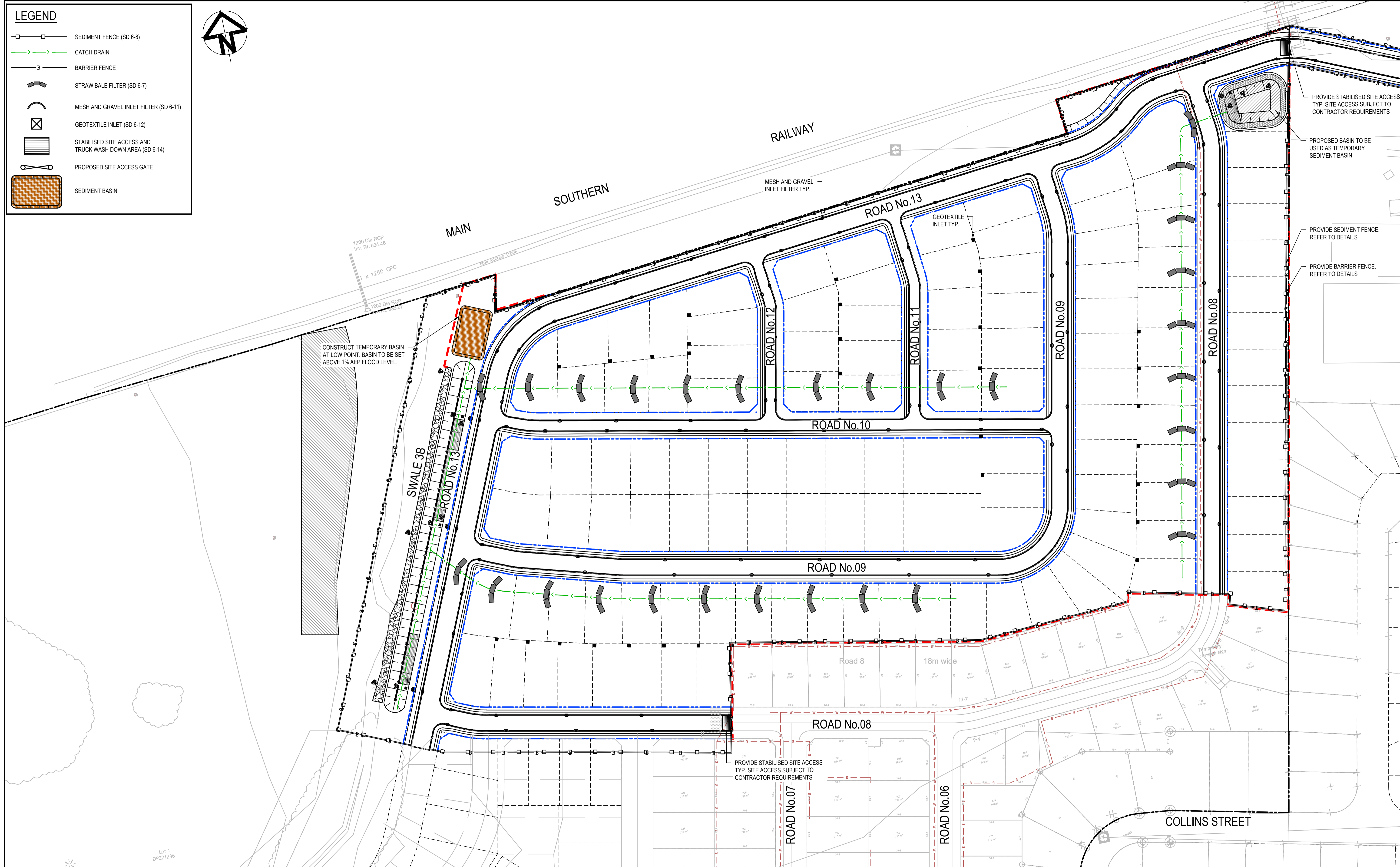
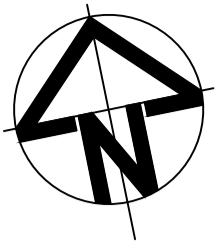
Title  
**WATER AND SEWER  
RETICULATION PLAN**

Civil Engineers and Project Managers

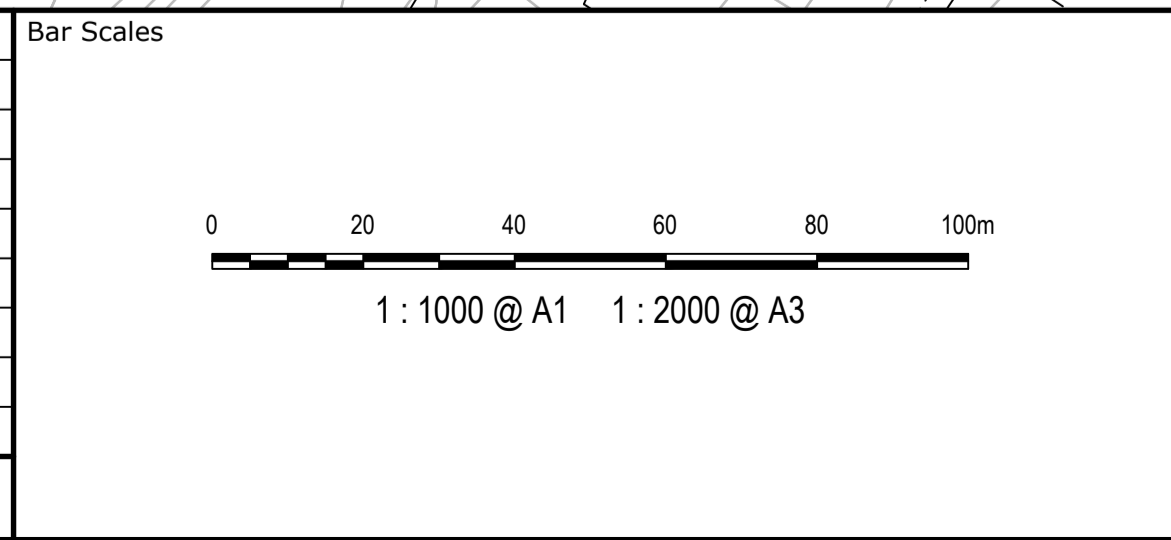
Level 7, 153 Walker Street  
North Sydney NSW 2060  
ABN 96 130 882 405  
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Fax: 02 9923 1055  
www.atl.net.au  
info@atl.net.au

Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No.	23-1098-C1080	Issue
		P1

LEGEND	
	SEDIMENT FENCE (SD 6-8)
	CATCH DRAIN
	BARRIER FENCE
	STRAW BALE FILTER (SD 6-7)
	MESH AND GRAVEL INLET FILTER (SD 6-11)
	GEOTEXTILE INLET (SD 6-12)
	STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
	PROPOSED SITE ACCESS GATE
	SEDIMENT BASIN



Issue	Description	Date
P1	DRAFT ISSUE	09-06-23



Client

Scales	1:1000
Grid	GDA2020
Height Datum	AHD

Drawn	NT
Designed	BK/JC
Checked	AMc
Approved	

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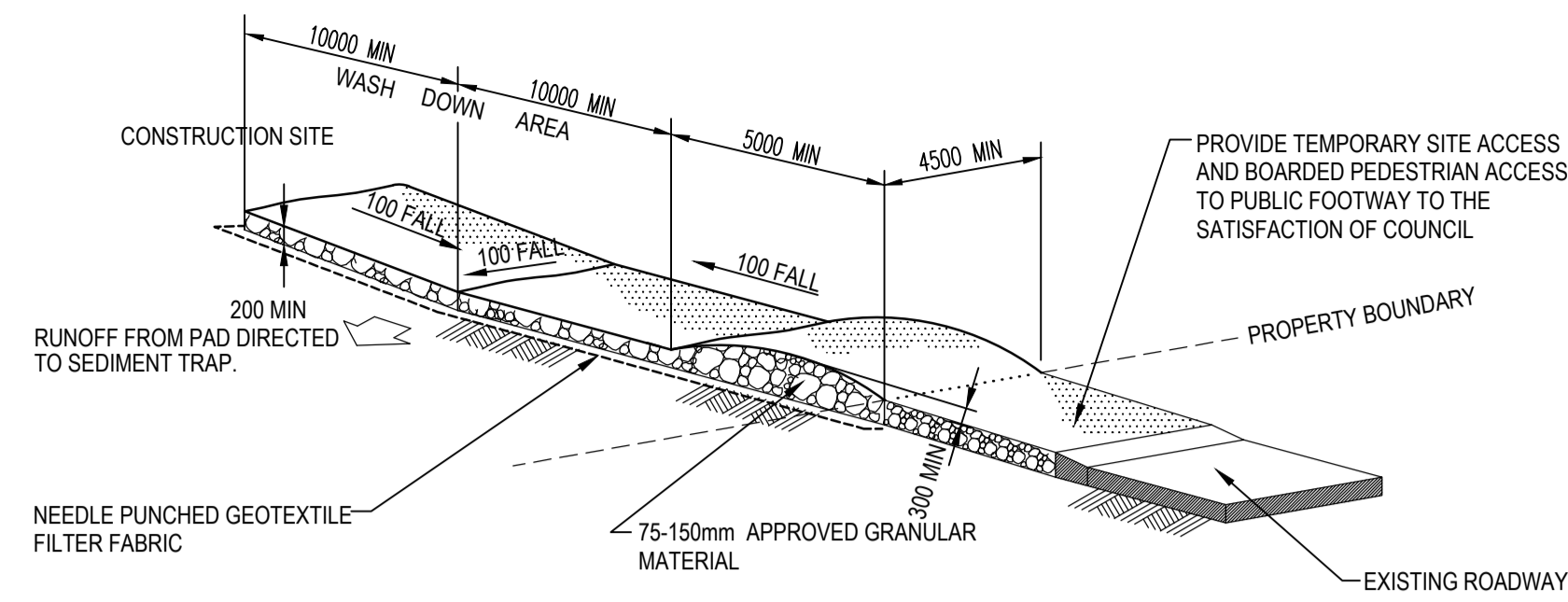
Project  
**EQUINOX - STAGE 3  
WILSON DRIVE,  
MARULAN**

Title  
**EROSION AND SEDIMENT  
CONTROL  
PLAN**

Civil Engineers and Project Managers

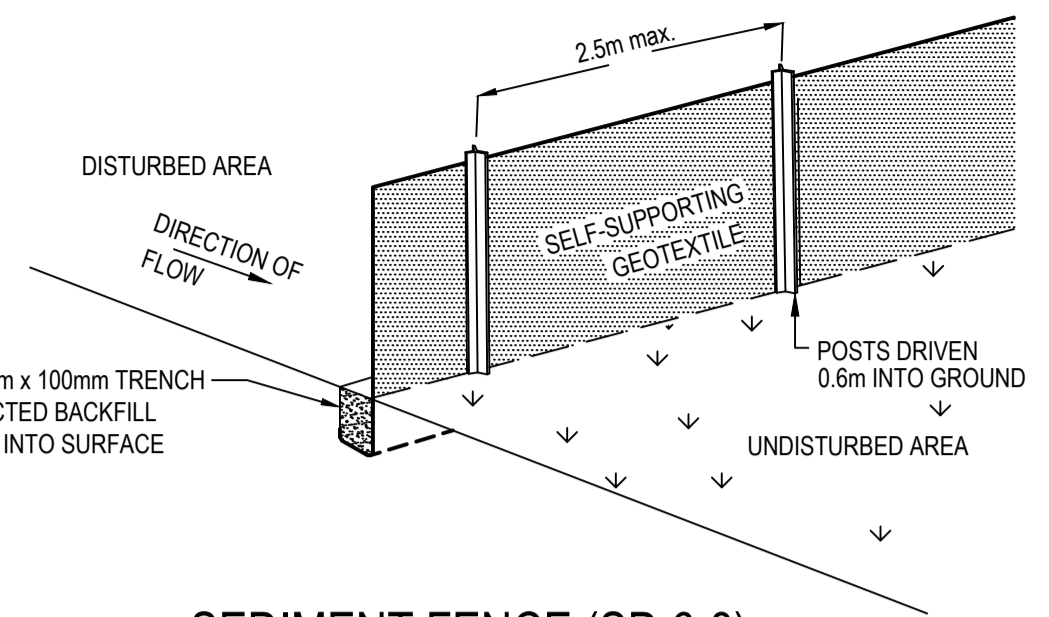
Level 7, 153 Walker Street  
North Sydney NSW 2060  
ABN 96 130 882 405  
Tel: 02 9439 1777  
Fax: 02 9923 1055  
www.at.net.au  
info@at.net.au

Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No.	23-1098-C1090	Issue
		P1



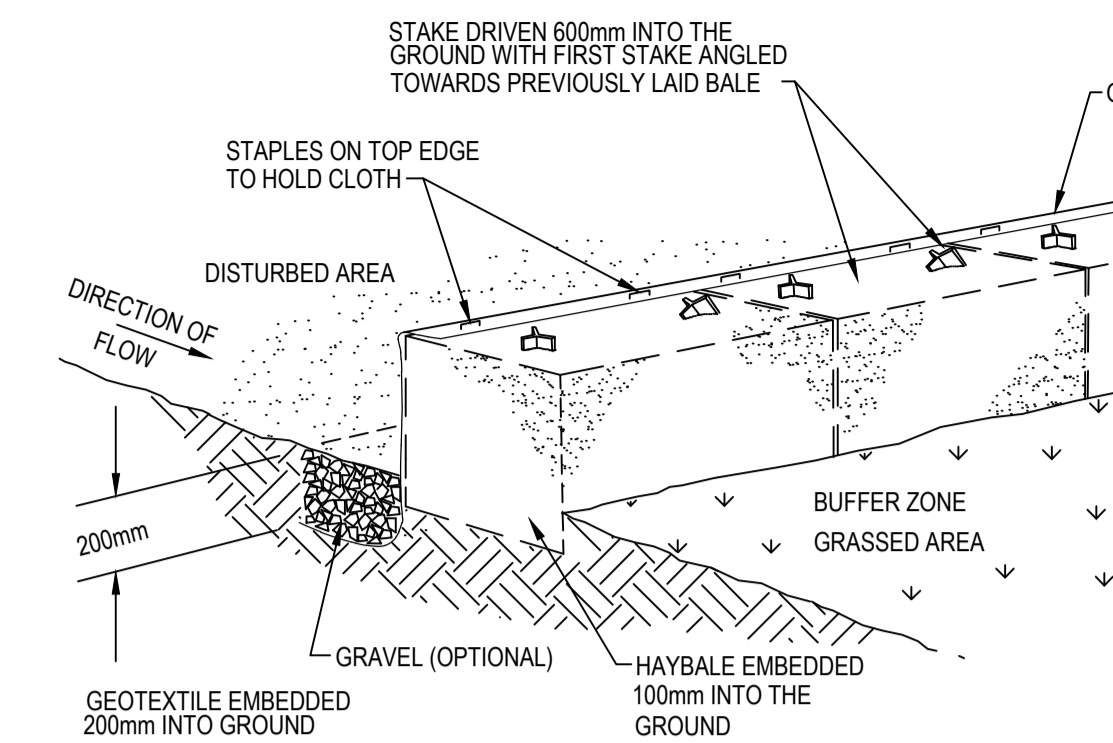
**STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA**

NTS



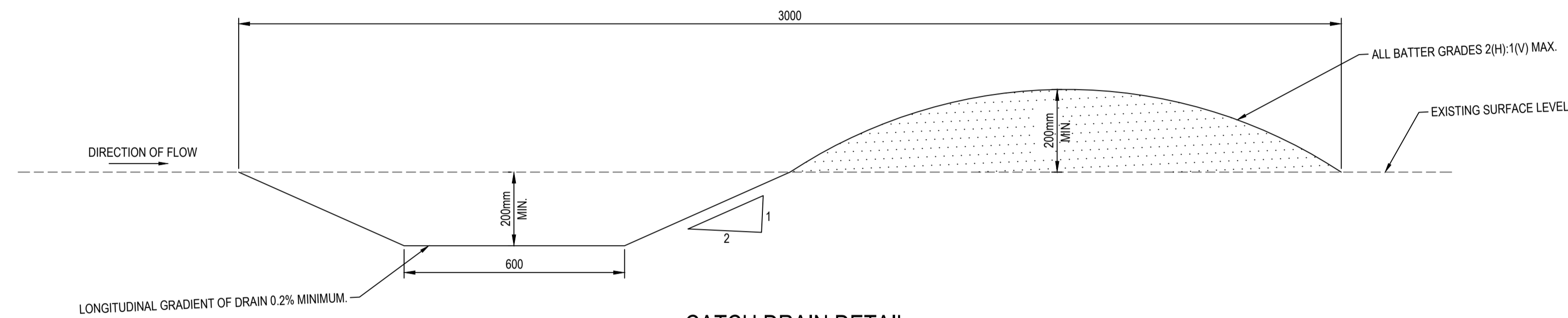
**SEDIMENT FENCE (SD 6-8)**

NTS



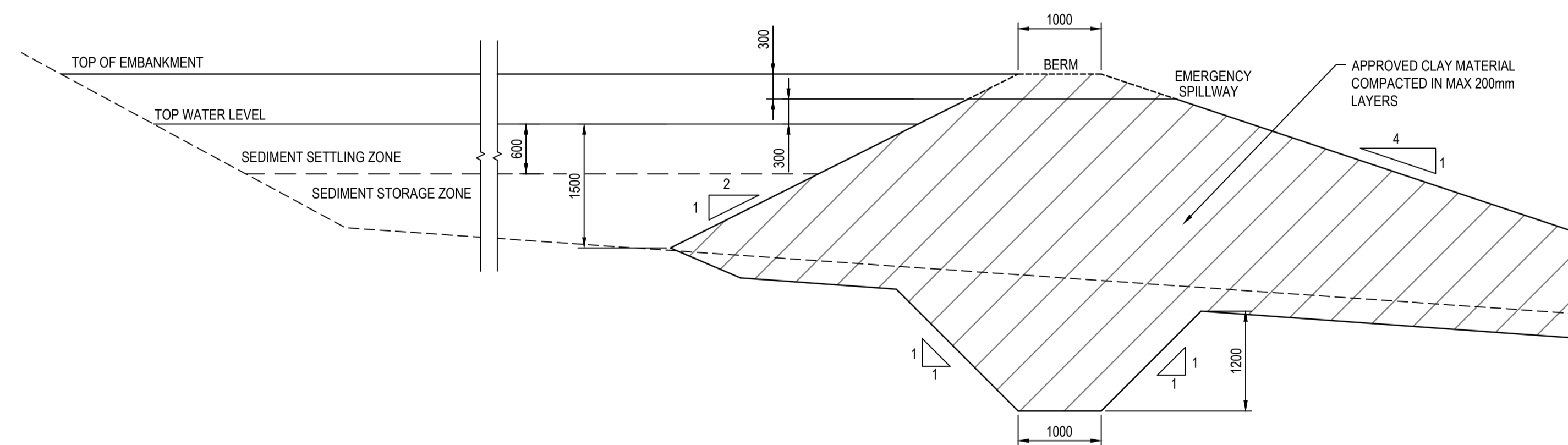
**HAYBALE AND GEOTEXTILE SEDIMENT FILTER**

NTS



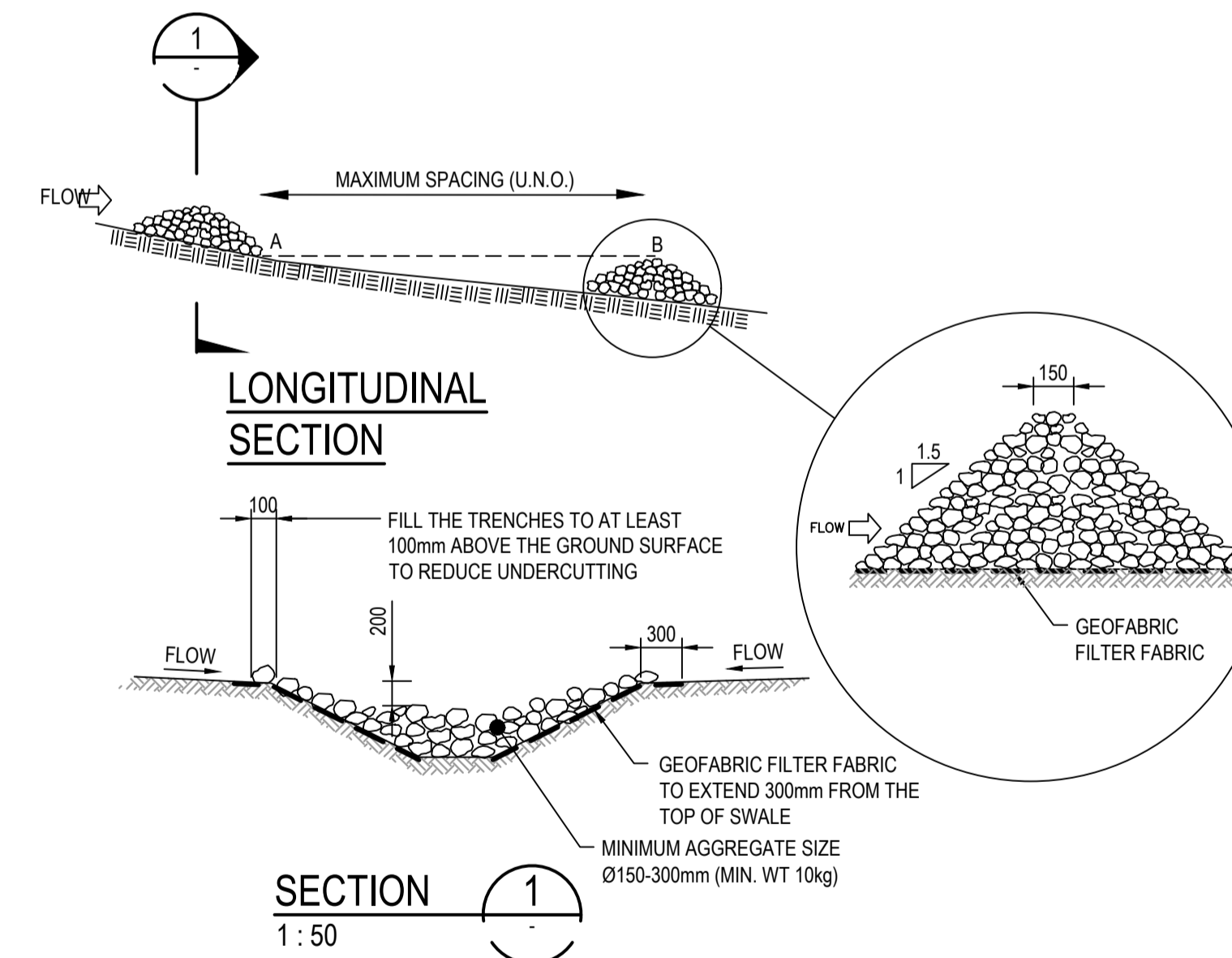
**CATCH DRAIN DETAIL**

SCALE 1:10



**SEDIMENT BASIN TYPICAL CROSS SECTION**

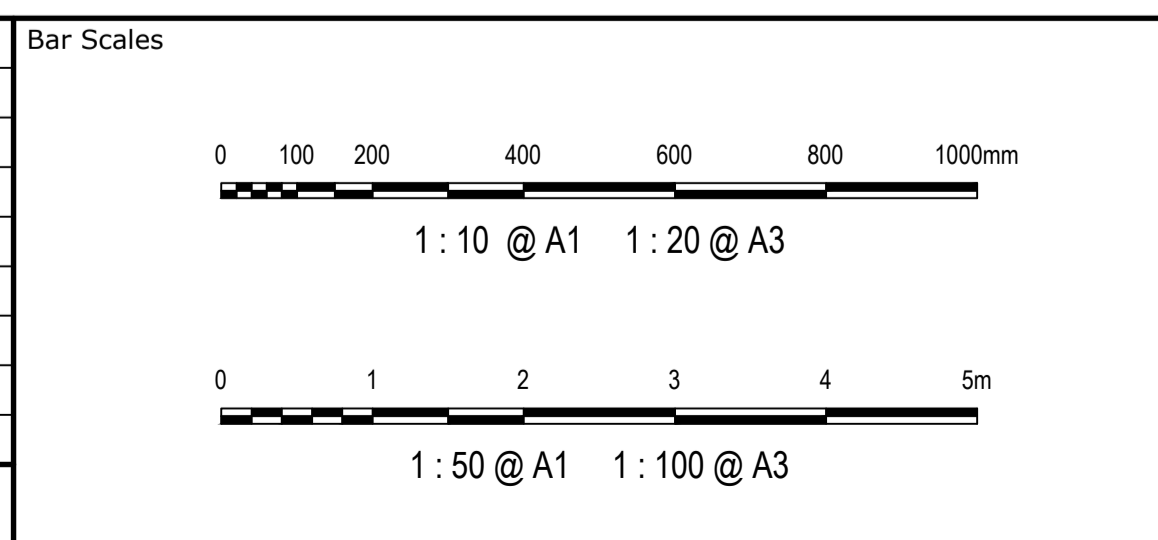
1:50



**ROCK RIFFLE CHECK DAM (SD 5-4)**

1:50

P1	DRAFT ISSUE	09-06-23
Issue	Description	Date

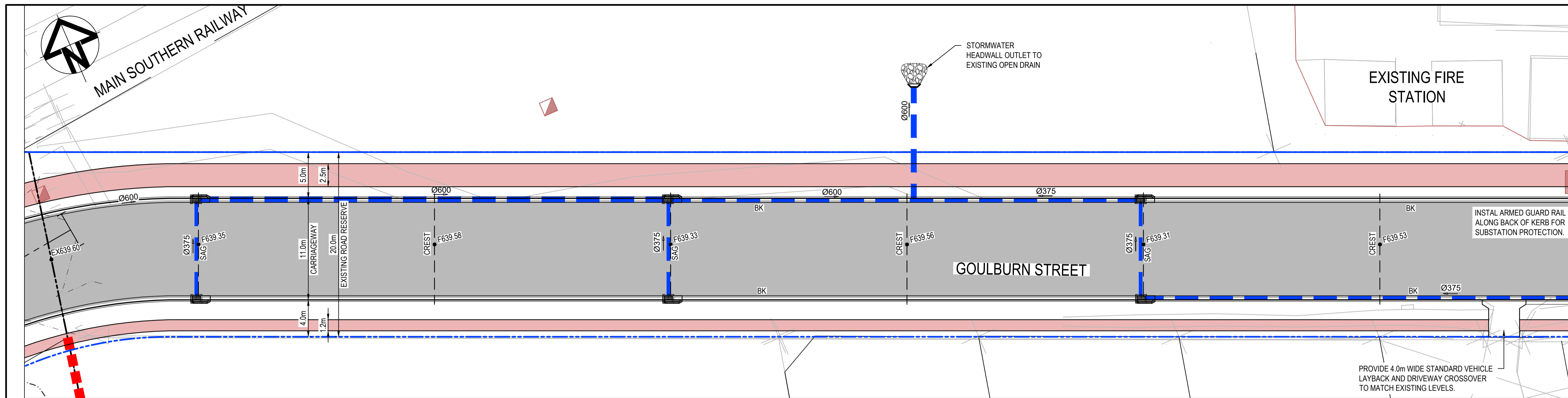


Client	FDC
--------	-----

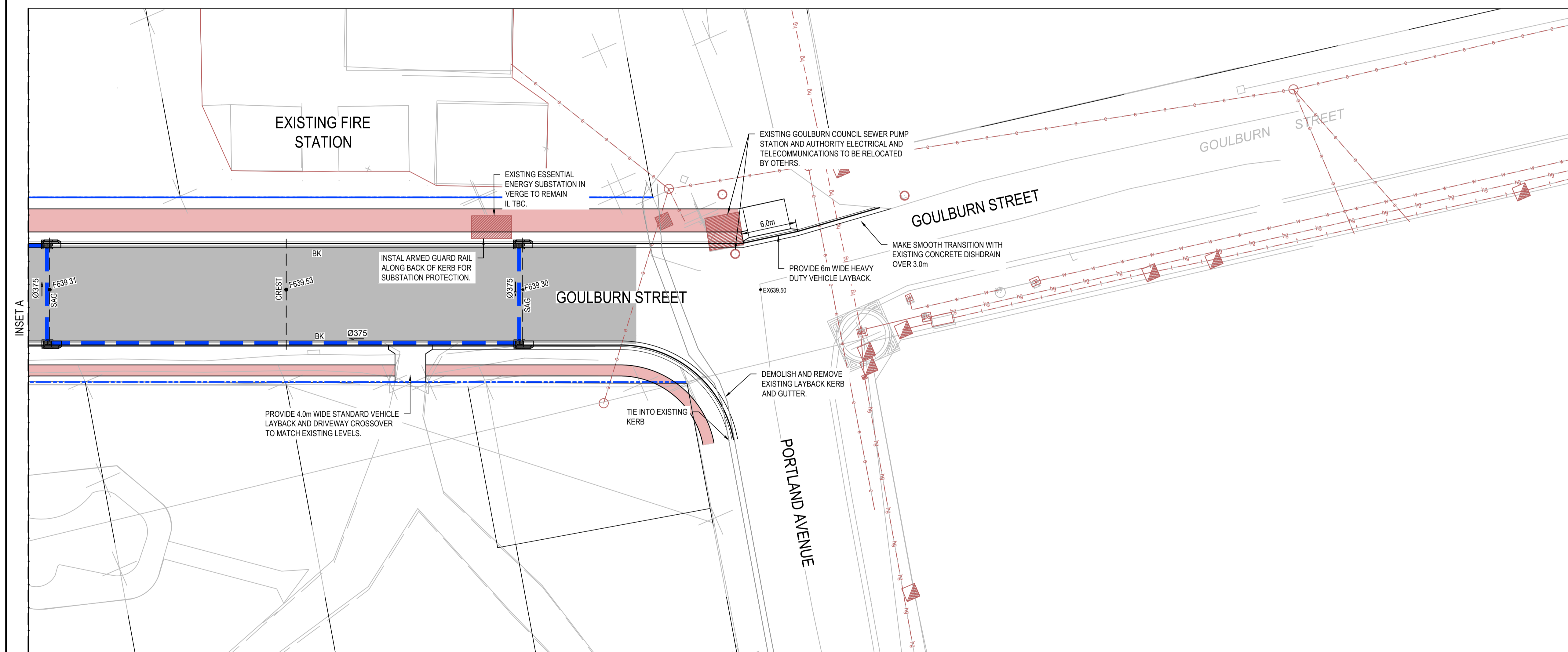
Scales	N.T.S.	Drawn	NT
		Designed	BK/JC
Grid	GDA2020	Checked	AMc
Height Datum	AHD	Approved	
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Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	EROSION AND SEDIMENT DETAILS

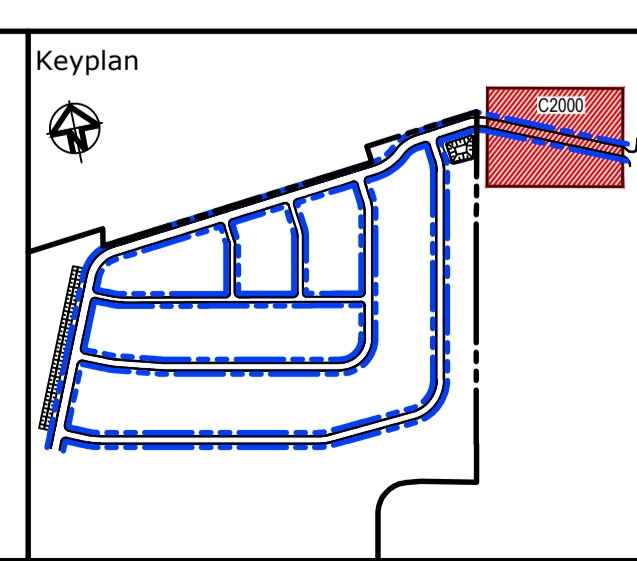
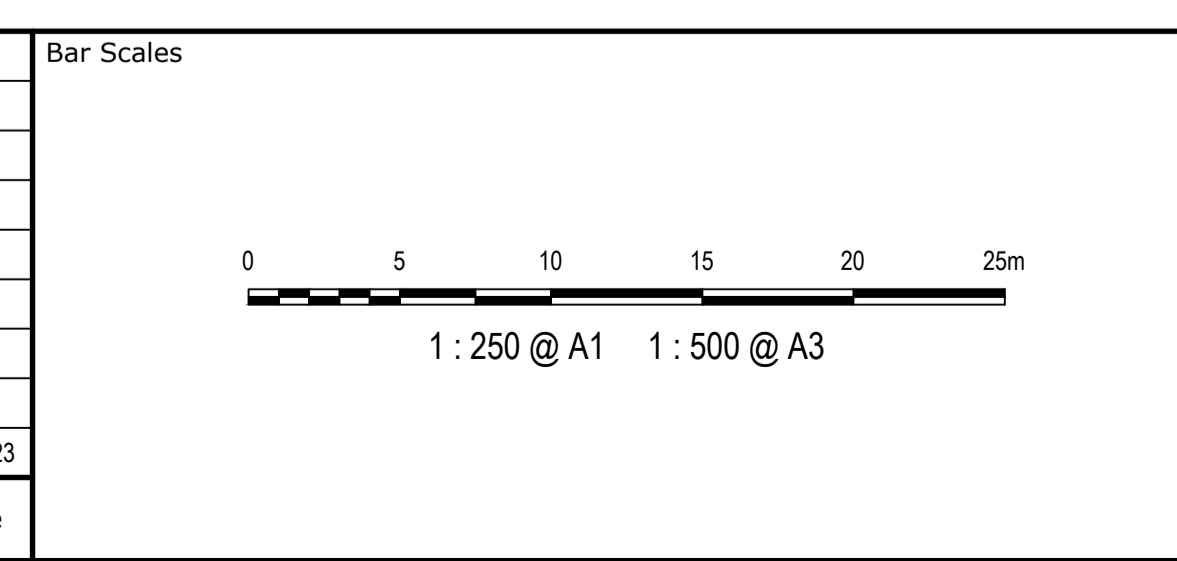
Civil Engineers and Project Managers	
<p>Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au</p>	
Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION
Project - Drawing No.	23-1098-C1091
Issue	P1



SITeworks LEGEND	
	EXISTING BOUNDARY
	EXISTING CONTOUR
	PROPOSED BOUNDARY
	PROPOSED EASEMENT
	48.00 PROPOSED MAJOR CONTOUR
	48.00 PROPOSED MINOR CONTOUR
	PROPOSED RETAINING WALL
	F 44.45 PROPOSED FINISHED LEVEL
	PROPOSED BATTER CUT BATTER 1(V):3(H) FILL BATTER 1(V):5(H) U.N.O
	PROPOSED BARRIER KERB
	PROPOSED KERB
	PROPOSED STORMWATER SURFACE INLET PIT
	Ø375 PROPOSED STORMWATER PIPE, SIZE AND DIRECTION
	SW EXISTING STORMWATER (STAGE 02)
	AB1-1 PROPOSED STORMWATER PIT LABEL
	LOCAL STREET PAVEMENT
	COLLECTOR STREET PAVEMENT
	ACCESS STREET PAVEMENT
	PROPOSED CONCRETE FOOTPATH PAVEMENT
	S EXISTING SEWER SERVICE
	W EXISTING WATER
	T EXISTING TELSTRA
	SW EXISTING STORMWATER
	G EXISTING GAS
	E EXISTING ELECTRICITY POLE
	T EXISTING TELSTRA PIT



Issue	Description	Date
P1	DRAFT ISSUE	09-06-23



Scales	1:250	Drawn	NT
		Designed	BK/JC
Grid	GDA2020	Checked	AMc
Height Datum	AHD	Approved	

GDA2020

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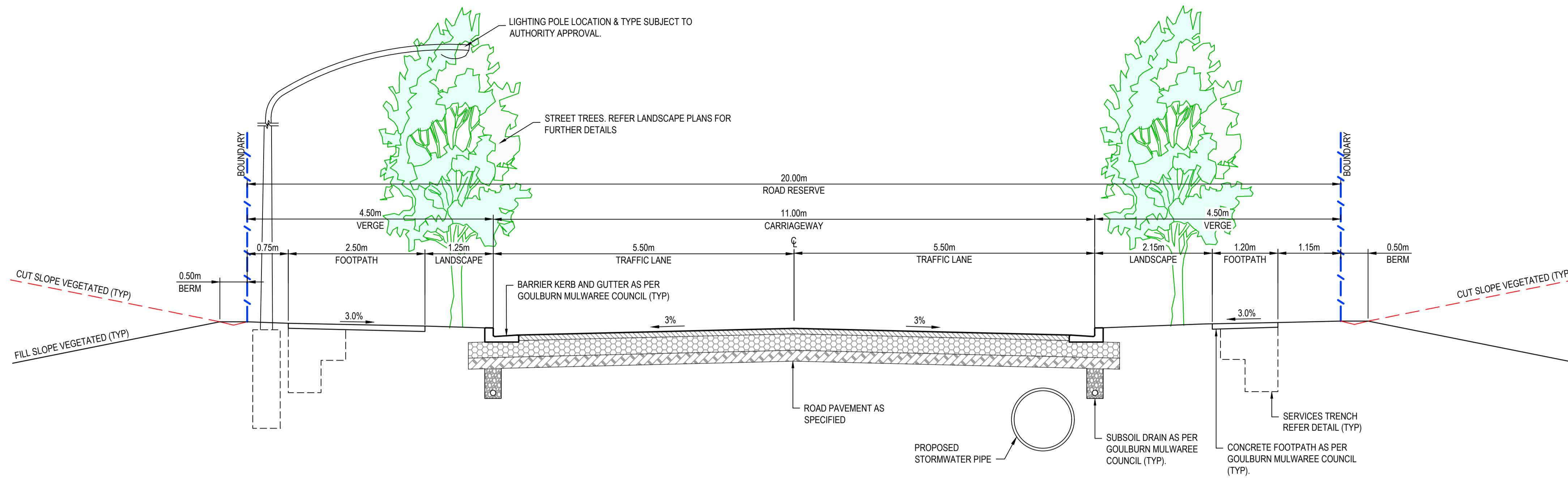
Project  
**EQUINOX - STAGE 3  
WILSON DRIVE,  
MARULAN**

Title  
**GOULBURN STREET  
SITeworks AND  
STORMWATER  
PLAN**

Civil Engineers and Project Managers

Level 7, 153 Walker Street  
North Sydney NSW 2060  
ABN 96 130 882 405  
Tel: 02 9439 1777  
Fax: 02 9923 1055  
www.atl.net.au  
info@atl.net.au

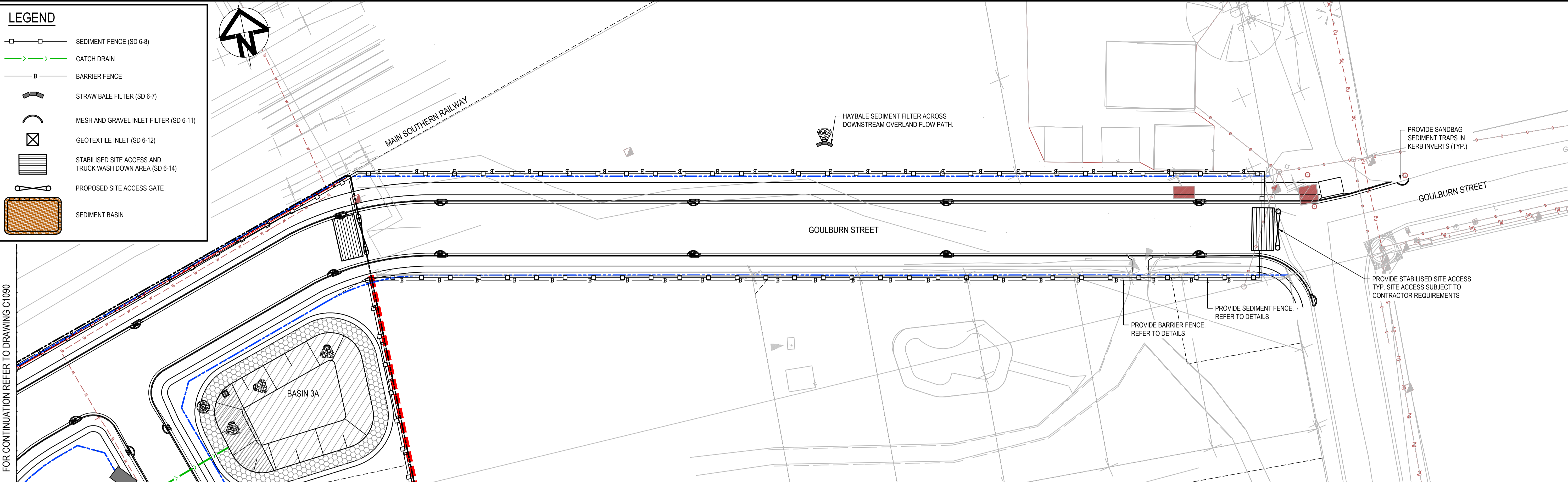
Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION	A1
Project - Drawing No.	23-1098-C2000	Issue
		P1



TYPICAL SECTION (COLLECTOR STREET)  
SCALE 1:50

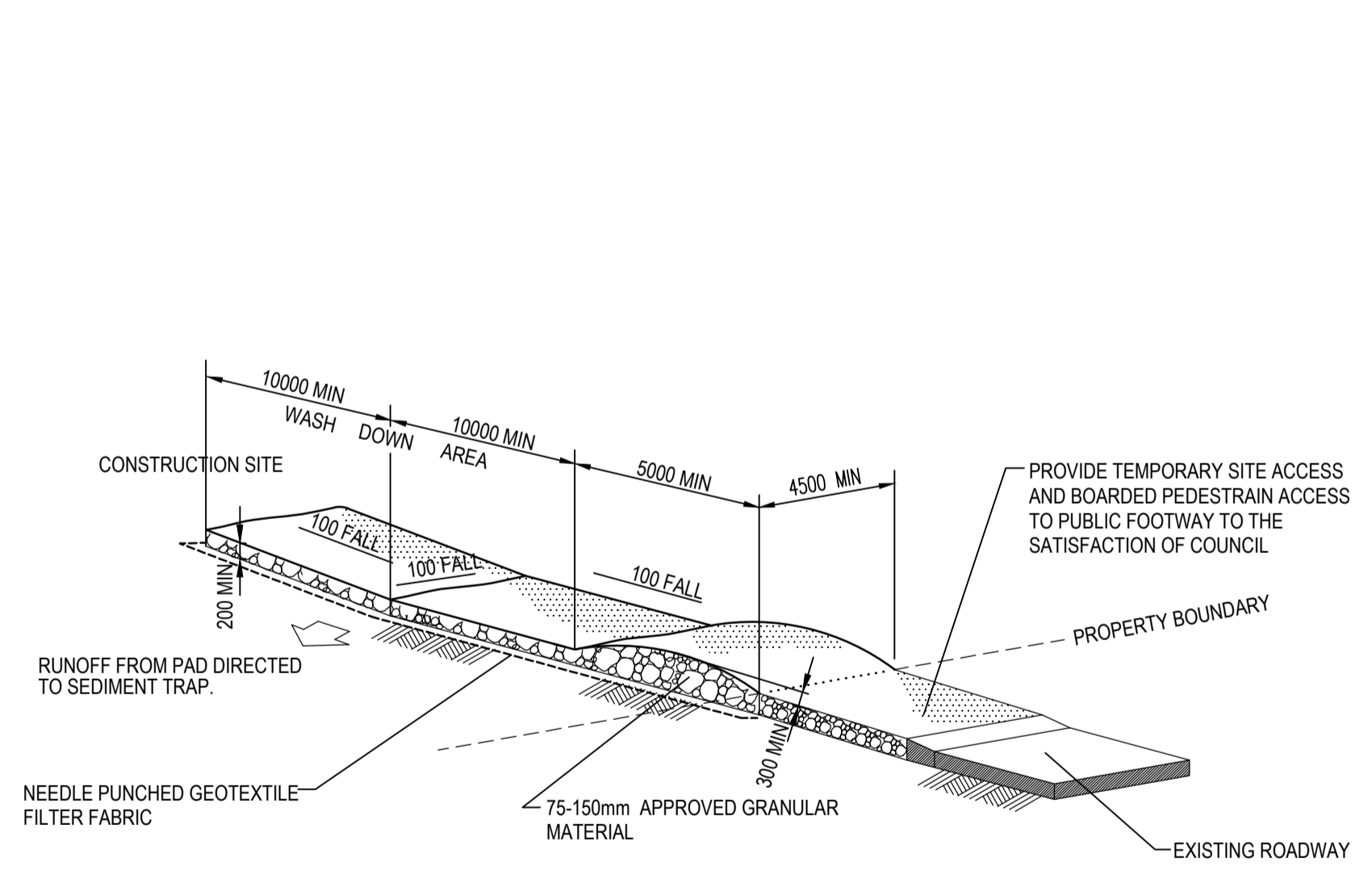
<p>Bar Scales</p> <p>1 : 50 @ A1    1 : 100 @ A3</p>		<p>Client</p>		<p>Scales</p> <p>AS SHOWN</p> <p>Grid GDA2020</p> <p>Height Datum AHD</p> <p></p> <p>THIS DRAWING CANNOT BE COPIED OR REPRODUCED IN ANY FORM OR USED FOR ANY OTHER PURPOSE OTHER THAN THAT ORIGINALLY INTENDED WITHOUT THE WRITTEN PERMISSION OF AT&amp;I</p>		<p>Drawn NT</p> <p>Designed BK/JC</p> <p>Checked AMc</p> <p>Approved</p>		<p>Project</p> <p>EQUINOX - STAGE 3 WILSON DRIVE, MARULAN</p>		<p>Civil Engineers and Project Managers</p> <p>Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.atl.net.au info@atl.net.au</p>	
<p>P1 DRAFT ISSUE 09-06-23</p>		<p>Client</p>		<p>Scales</p>		<p>Drawn NT</p>		<p>Project</p>		<p>Civil Engineers and Project Managers</p>	
<p>Issue Description Date</p>		<p>Client</p>		<p>Scales</p>		<p>Drawn NT</p>		<p>Project</p>		<p>Status</p> <p>PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION</p> <p>Project - Drawing No. 23-1098-C2001</p>	
<p>Issue Description Date</p>		<p>Client</p>		<p>Scales</p>		<p>Drawn NT</p>		<p>Project</p>		<p>Issue</p> <p>A1</p> <p>P1</p>	

LEGEND	
	SEDIMENT FENCE (SD 6-8)
	CATCH DRAIN
	BARRIER FENCE
	STRAW BALE FILTER (SD 6-7)
	MESH AND GRAVEL INLET FILTER (SD 6-11)
	GEOTEXTILE INLET (SD 6-12)
	STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
	PROPOSED SITE ACCESS GATE
	SEDIMENT BASIN

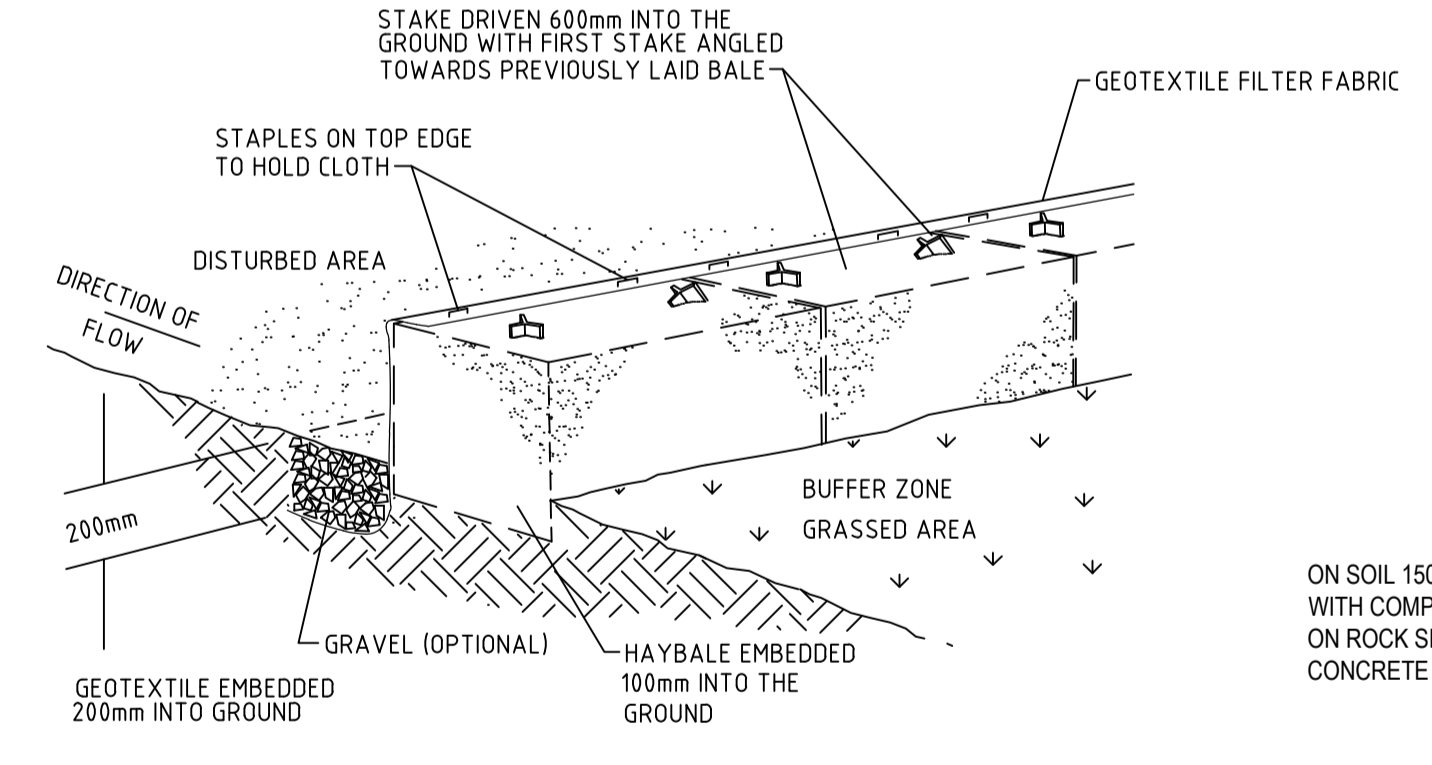


PLAN  
SCALE 1:250

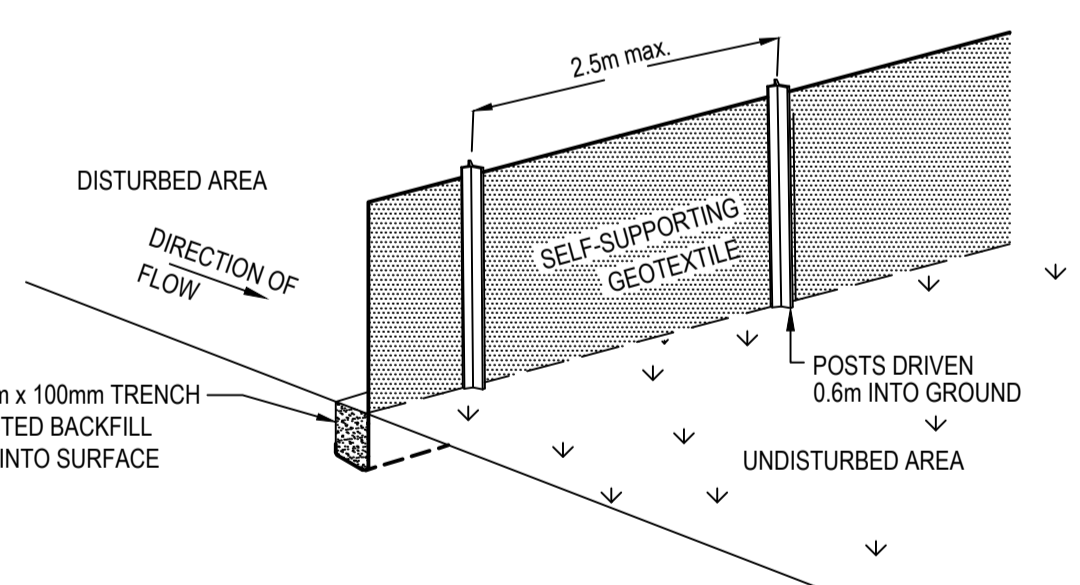
FOR CONTINUATION REFER TO DRAWING C1090



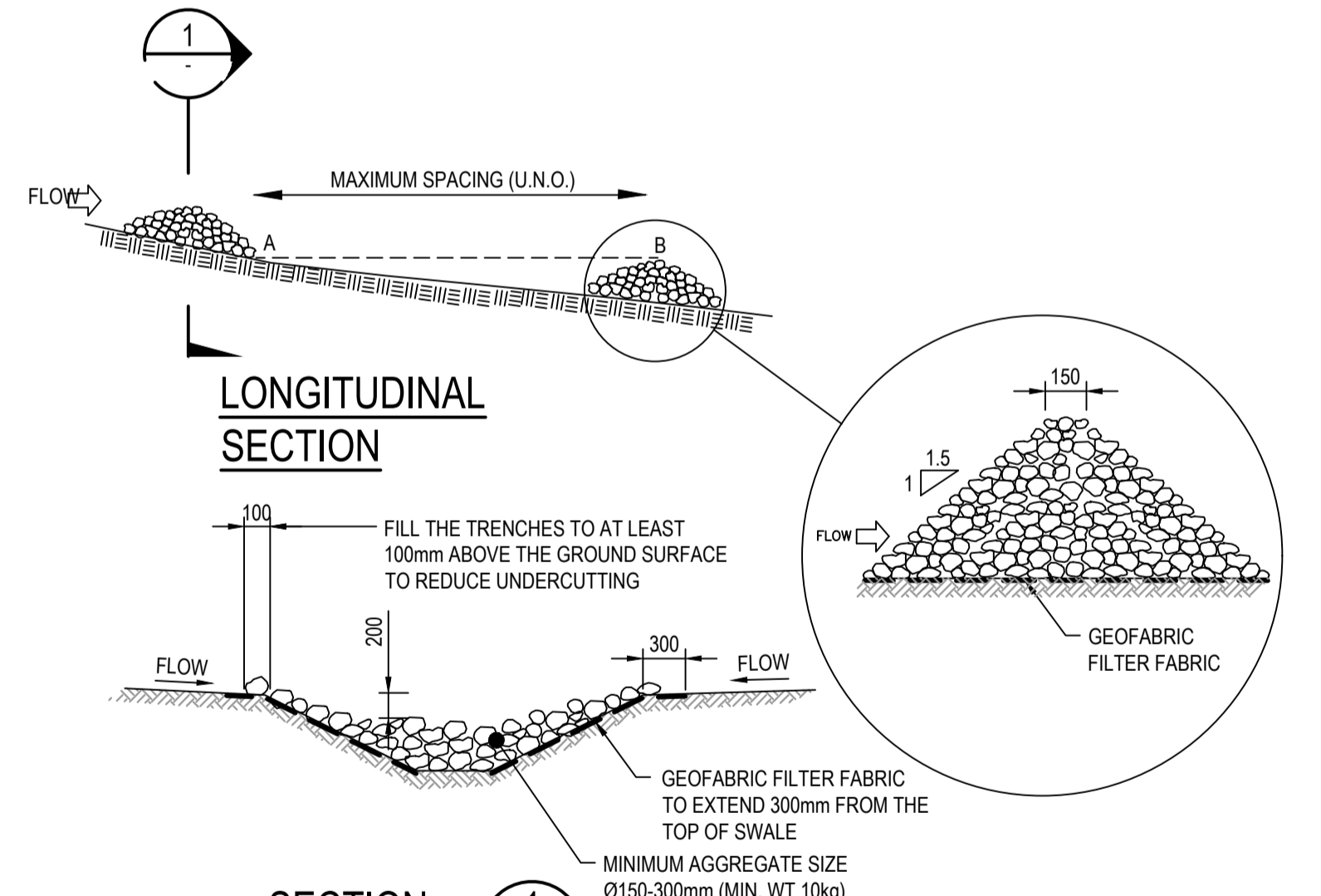
STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA  
NTS



HAYBALE AND GEOTEXTILE SEDIMENT FILTER  
NTS



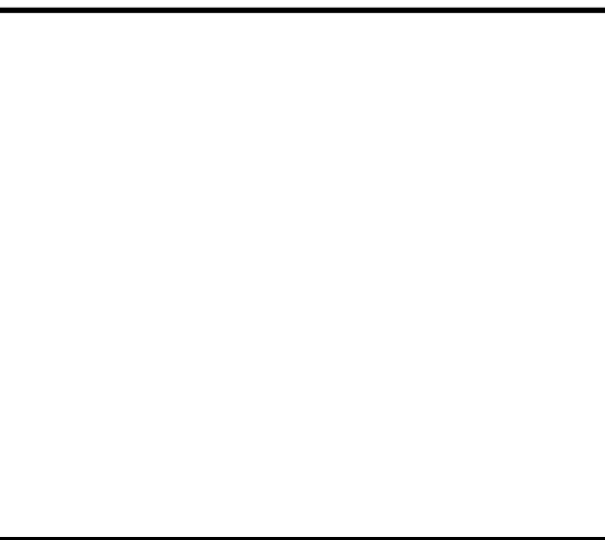
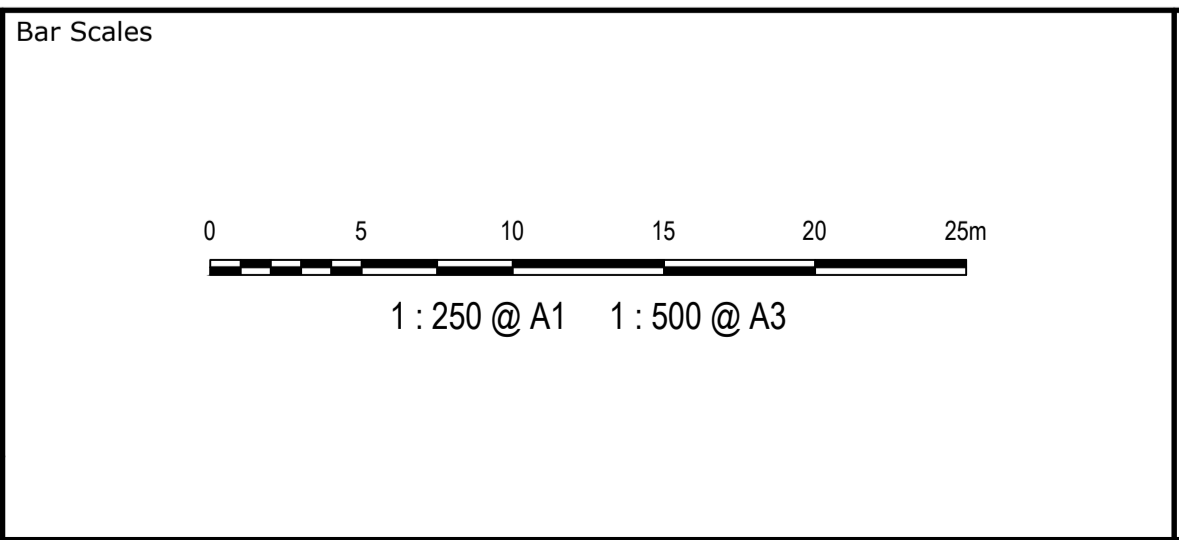
SEDIMENT FENCE (SD 6-8)  
NTS



SECTION 1  
1:50

ROCK RIFFLE CHECK DAM (SD 5-4)  
1:50

Issue	Description	Date
P1	DRAFT ISSUE	09-06-23



Client	FDC
--------	-----

Scales	1:1000	Drawn	NT
Grid	GDA2020	Designed	BK/JC
Height Datum	AHD	Checked	AMc
		Approved	

Project	EQUINOX - STAGE 3 WILSON DRIVE, MARULAN
Title	GOULBURN STREET EROSION AND SEDIMENT CONTROL PLAN AND DETAILS

Civil Engineers and Project Managers	
Level 7, 153 Walker Street North Sydney NSW 2060 ABN 96 130 882 405 Tel: 02 9439 1777 Fax: 02 9923 1055 www.at.net.au info@at.net.au	
Status	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION
Project - Drawing No.	23-1098-C2002
Issue	P1

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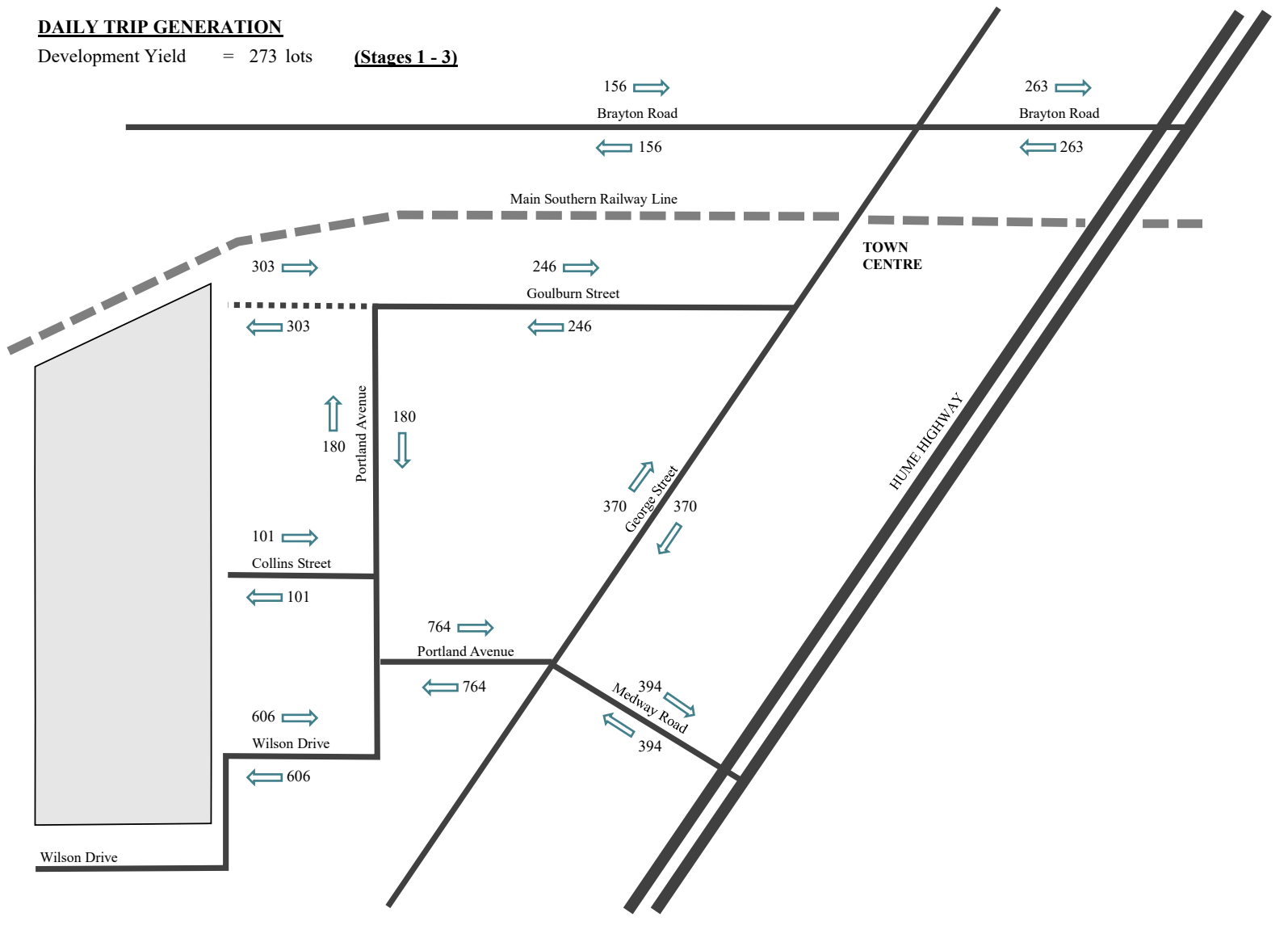
## **APPENDIX C**

---

### Forecast Network Volumes

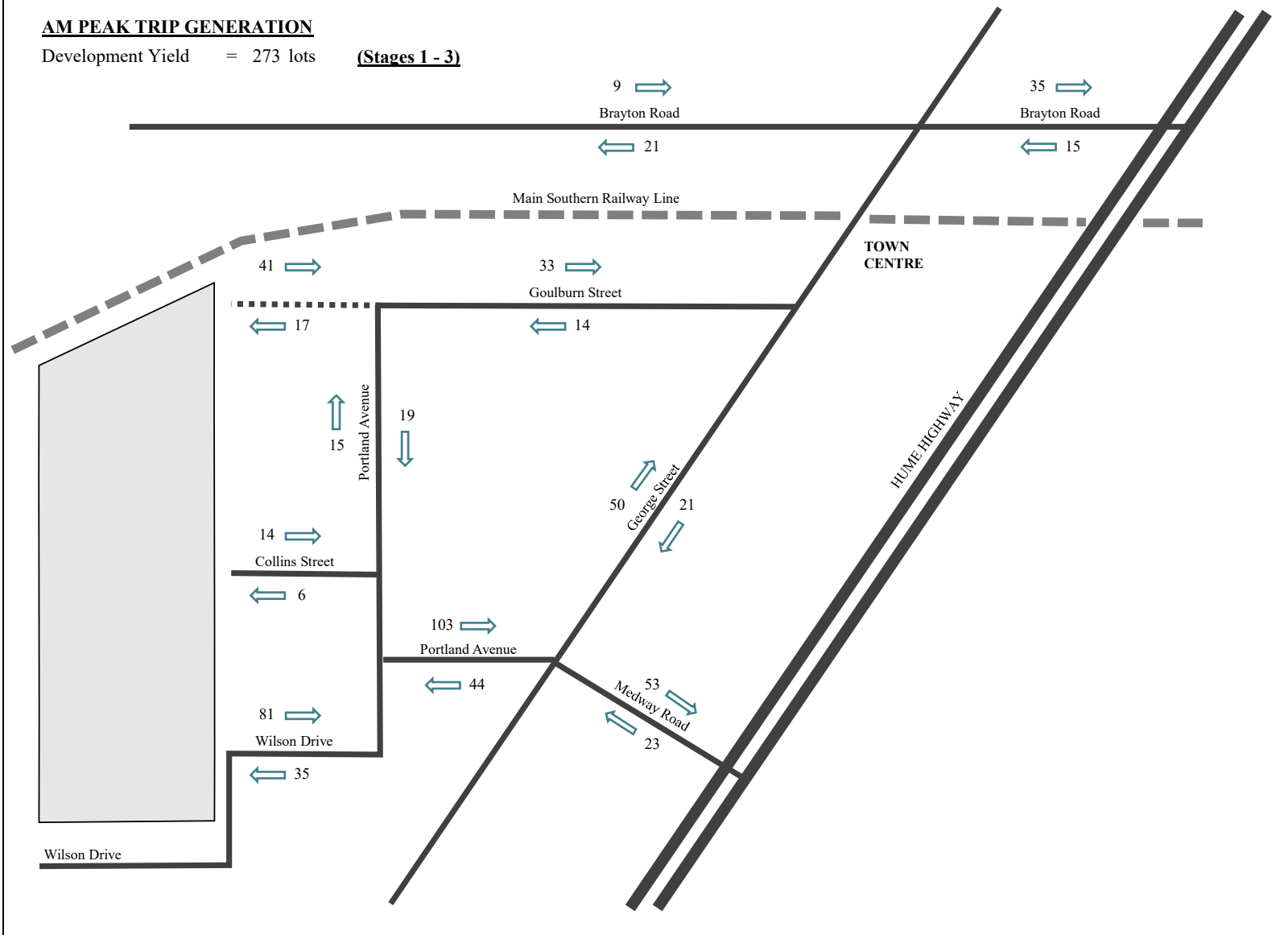
**DAILY TRIP GENERATION**

Development Yield = 273 lots (Stages 1 - 3)



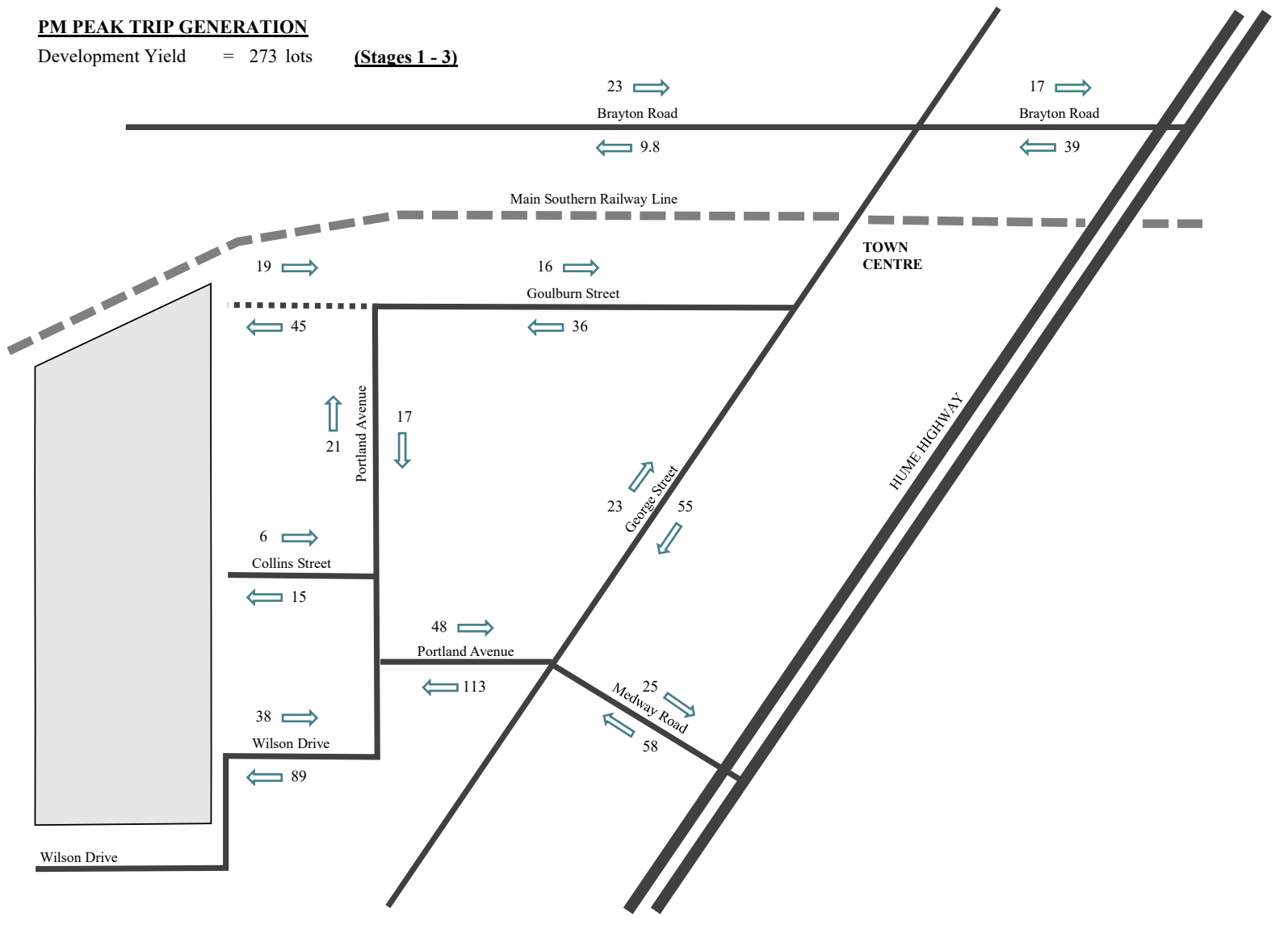
**AM PEAK TRIP GENERATION**

Development Yield = 273 lots (Stages 1 - 3)



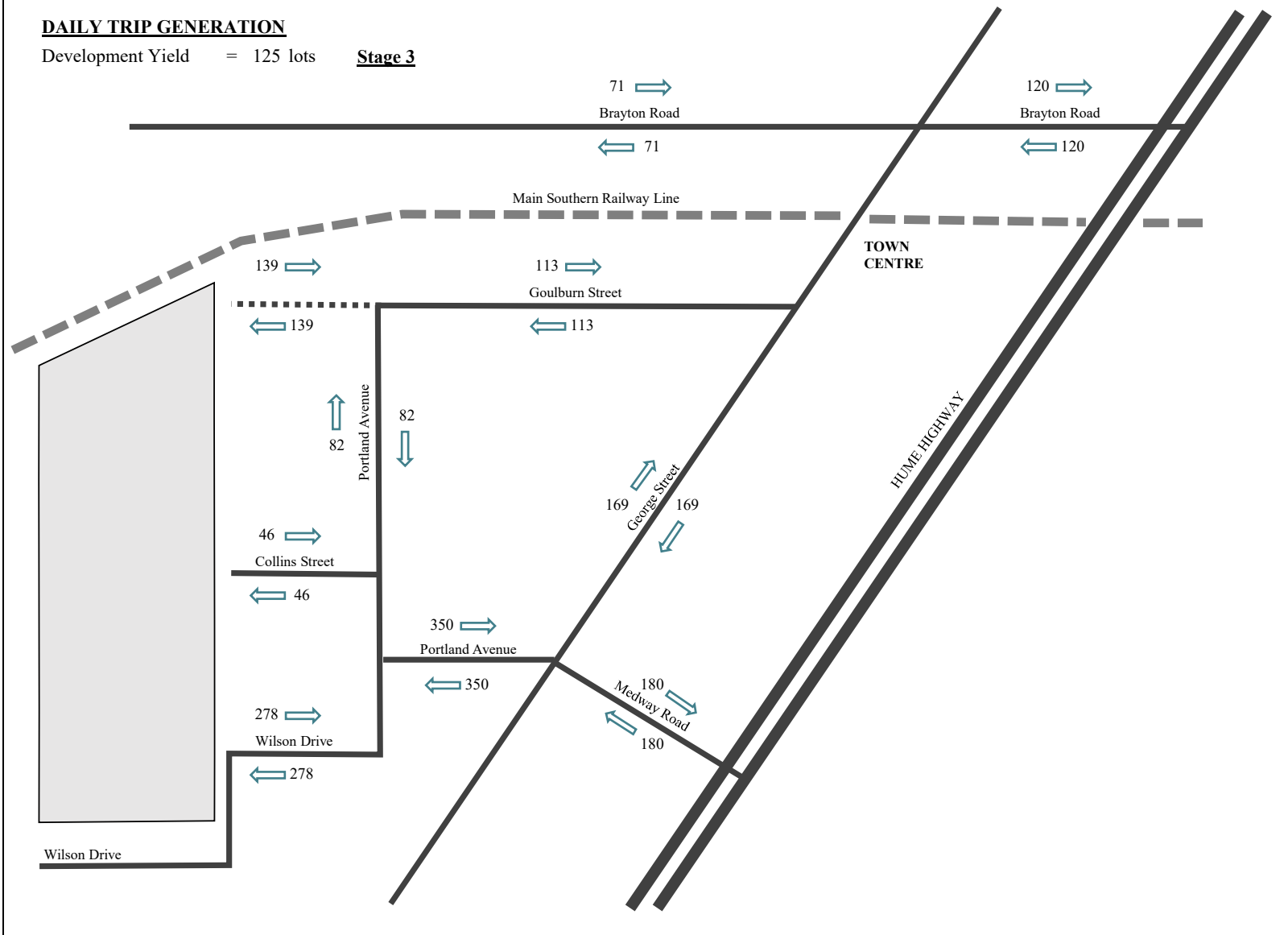
**PM PEAK TRIP GENERATION**

Development Yield = 273 lots **(Stages 1 - 3)**



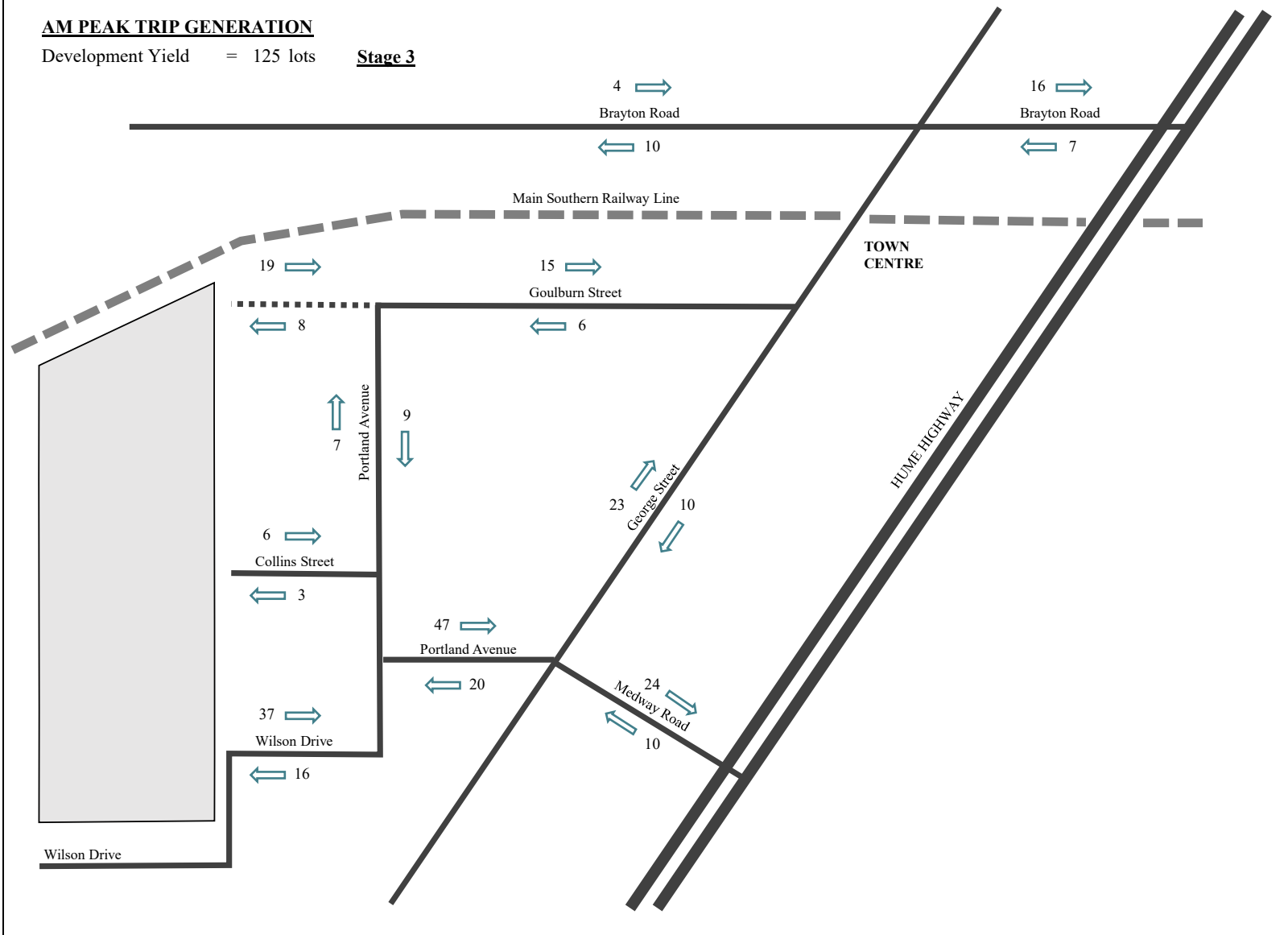
**DAILY TRIP GENERATION**

Development Yield = 125 lots **Stage 3**



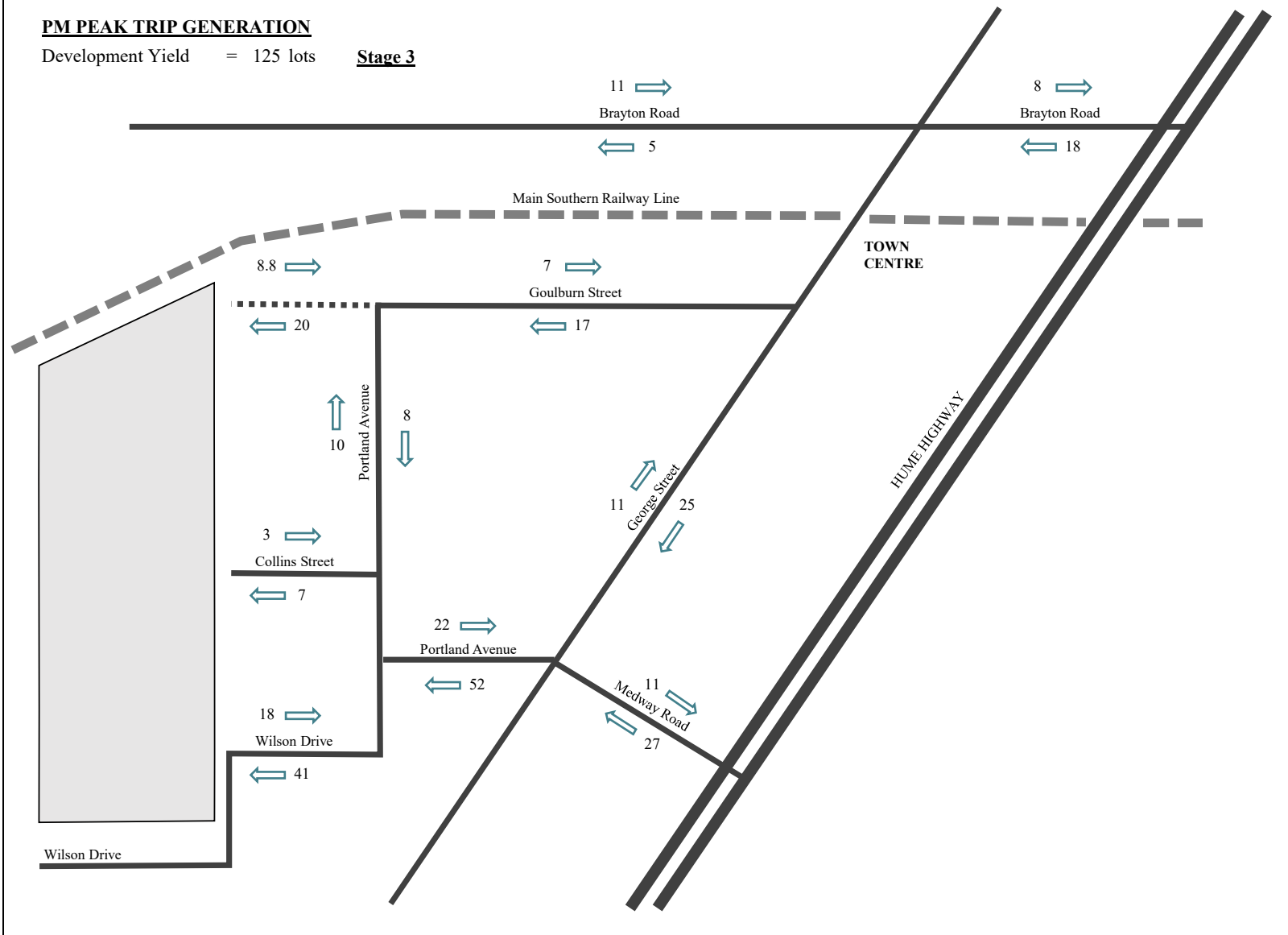
**AM PEAK TRIP GENERATION**

Development Yield = 125 lots **Stage 3**



**PM PEAK TRIP GENERATION**

Development Yield = 125 lots **Stage 3**



## **APPENDIX D**

---

Results of Traffic Counts – George Street / Goulburn Street  
Intersection



# TRANS TRAFFIC SURVEY

## TURNING MOVEMENT SURVEY



### Intersection of Goulburn St and George St, Marulan

GPS -34.712520,150.005416

Date:	Wed 25/05/22
Weather:	Fine
Suburban:	Marulan
Customer:	N/A

North:	George St
East:	N/A
South:	George St
West:	Goulburn St

Survey Period	AM: 7:00 AM-9:00 AM
	PM: 2:30 PM-5:30 PM
Traffic Peak	AM: 8:00 AM-9:00 AM
	PM: 2:30 PM-3:30 PM

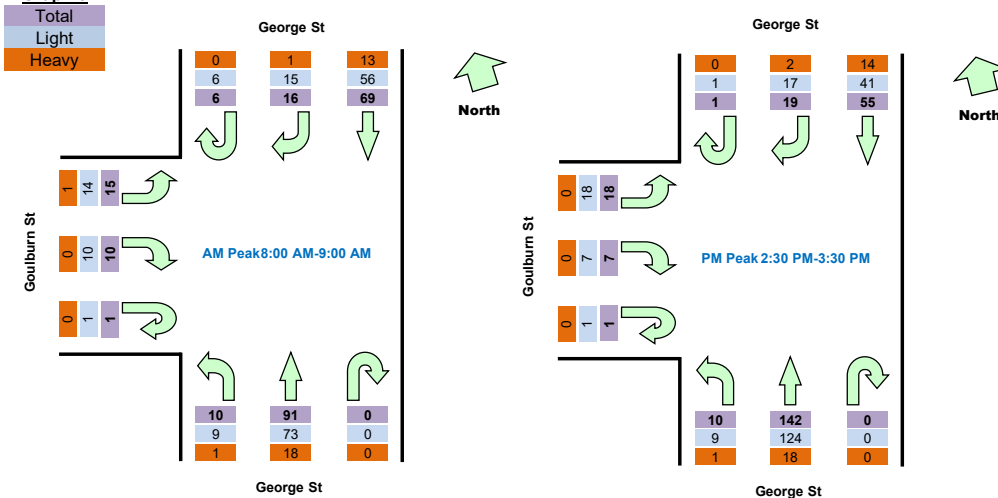
#### All Vehicles

Time		North Approach George St			South Approach George St			West Approach Goulburn St			Hourly Total	
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	Hour	Peak
7:00	7:15	0	3	2	0	16	1	0	0	5	118	
7:15	7:30	1	2	8	0	19	0	0	0	5	138	
7:30	7:45	0	4	5	0	12	2	0	0	4	142	
7:45	8:00	1	3	6	0	15	1	0	1	2	170	
8:00	8:15	0	2	14	0	20	1	0	4	6	218	Peak
8:15	8:30	0	0	15	0	18	3	0	0	3		
8:30	8:45	4	4	17	0	23	3	0	3	1		
8:45	9:00	2	10	23	0	30	3	1	3	5		
14:30	14:45	1	2	12	0	26	2	0	1	8	228	
14:45	15:00	0	5	13	0	21	6	0	0	4	245	
15:00	15:15	0	10	14	0	38	2	1	2	6	253	Peak
15:15	15:30	0	1	9	0	38	1	0	1	4	234	
15:30	15:45	1	6	22	0	33	5	0	0	2	225	
15:45	16:00	0	2	10	0	33	2	0	4	6	201	
16:00	16:15	0	5	10	0	29	2	0	2	6	215	
16:15	16:30	0	4	9	0	24	3	0	1	4	219	
16:30	16:45	0	8	3	0	23	2	0	0	9	221	
16:45	17:00	0	5	19	0	32	3	0	0	12	214	
17:00	17:15	0	12	7	0	28	1	0	2	8	186	
17:15	17:30	0	4	10	0	26	2	0	0	5		
17:30	17:45	1	4	2	0	23	2	0	1	5		
17:45	18:00	0	4	4	0	27	4	0	0	4		

Peak Time		North Approach George St			South Approach George St			West Approach Goulburn St			Peak total
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	
8:00	9:00	6	16	69	0	91	10	1	10	15	218
15:00	16:00	1	19	55	0	142	10	1	7	18	253

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

#### Graphic



#### Light Vehicles

Time		North Approach George St			South Approach George St			West Approach Goulburn St		
Period Start	Period End	U	R	SB	U	NB	L	U	R	L
7:00	7:15	0	2	2	0	14	1	0	0	5
7:15	7:30	1	2	5	0	14	0	0	0	5
7:30	7:45	0	3	5	0	9	2	0	0	3

7:45	8:00	1	2	4	0	11	1	0	1	2
8:00	8:15	0	2	11	0	15	1	0	4	6
8:15	8:30	0	0	11	0	17	2	0	0	3
8:30	8:45	4	4	14	0	18	3	0	3	1
8:45	9:00	2	9	20	0	23	3	1	3	4
14:30	14:45	1	2	9	0	23	2	0	1	8
14:45	15:00	0	5	11	0	18	6	0	0	4
15:00	15:15	0	8	8	0	29	2	1	2	6
15:15	15:30	0	1	8	0	34	1	0	1	4
15:30	15:45	1	6	16	0	30	5	0	0	2
15:45	16:00	0	2	9	0	31	1	0	4	6
16:00	16:15	0	5	9	0	25	2	0	2	5
16:15	16:30	0	4	8	0	23	3	0	1	2
16:30	16:45	0	8	2	0	20	2	0	0	8
16:45	17:00	0	5	9	0	30	3	0	0	12
17:00	17:15	0	11	6	0	26	1	0	2	7
17:15	17:30	0	3	10	0	24	2	0	0	5
17:30	17:45	1	4	1	0	19	2	0	1	5
17:45	18:00	0	4	4	0	23	4	0	0	4

Peak Time		North Approach George St			South Approach George St			West Approach Goulburn St			Peak total
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	
8:00	9:00	6	15	56	0	73	9	1	10	14	184
15:00	16:00	1	17	41	0	124	9	1	7	18	218

**Heavy Vehicles**

Time		North Approach George St			South Approach George St			West Approach Goulburn St		
Period Start	Period End	U	R	SB	U	NB	L	U	R	L
7:00	7:15	0	1	0	0	2	0	0	0	0
7:15	7:30	0	0	3	0	5	0	0	0	0
7:30	7:45	0	1	0	0	3	0	0	0	1
7:45	8:00	0	1	2	0	4	0	0	0	0
8:00	8:15	0	0	3	0	5	0	0	0	0
8:15	8:30	0	0	4	0	1	1	0	0	0
8:30	8:45	0	0	3	0	5	0	0	0	0
8:45	9:00	0	1	3	0	7	0	0	0	1
14:30	14:45	0	0	3	0	3	0	0	0	0
14:45	15:00	0	0	2	0	3	0	0	0	0
15:00	15:15	0	2	6	0	9	0	0	0	0
15:15	15:30	0	0	1	0	4	0	0	0	0
15:30	15:45	0	0	6	0	3	0	0	0	0
15:45	16:00	0	0	1	0	2	1	0	0	0
16:00	16:15	0	0	1	0	4	0	0	0	1
16:15	16:30	0	0	1	0	1	0	0	0	2
16:30	16:45	0	0	1	0	3	0	0	0	1
16:45	17:00	0	0	10	0	2	0	0	0	0
17:00	17:15	0	1	1	0	2	0	0	0	1
17:15	17:30	0	1	0	0	2	0	0	0	0
17:30	17:45	0	0	1	0	4	0	0	0	0
17:45	18:00	0	0	0	0	4	0	0	0	0

Peak Time		North Approach George St			South Approach George St			West Approach Goulburn St			Peak total
Period Start	Period End	U	R	SB	U	NB	L	U	R	L	
8:00	9:00	0	1	13	0	18	1	0	0	1	34
15:00	16:00	0	2	14	0	18	1	0	0	0	35