

Civil Engineering Report

Review of Environmental Factors

Gillieston Public School Redevelopment and New Public Preschool

Prepared for: Department of Education c/- Johnstaff

Document no: NA221454-GPS-ACOR-00-RP-C

Revision no: E



Disclaimer

This Report has been prepared in accordance with the scope of services described in the agreement between ACOR Consultants and the Client. The Report relies upon data, surveys, measurements and results based on instructions from, and in consultation with, the Client. Except as otherwise stated, ACOR Consultants has not attempted to verify the accuracy or completeness of any information provided by the Client. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that changes may be required to the Report. Changes in circumstances or facts, the passage of time, manifestation of latent conditions or impacts of future events may also impact on the accuracy, completeness or currency of the information or material set out in this Report. This Report has been prepared solely for use by the Client, ACOR Consultants Pty Ltd and its related body corporates accepts no responsibility for its use by any third parties without the specific authorisation of ACOR Consultants. ACOR Consultants reserves the right to alter, amend, discontinue, vary or otherwise change any information, material or service at any time without subsequent notification. All access to, or use of, the information or material is at the user's risk and ACOR Consultants Pty Ltd and its related body corporates accepts no responsibility for the results of any actions taken on the basis of information or material provided, nor for its accuracy, completeness or currency. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this Report, to the extent permitted by law.

Revisions

Revision	Description	Date	Prepared by	Approved by
0A	Preliminary	27.09.2024	JPR	UK
B	For Approval	17.10.2024	JPR	UK
C	For Approval	19.11.2024	JPR	JK
D	For Approval	03.12.2024	BW	JPR
E	Final	15.01.2025	AB	JK

Review Panel

Division/ office	Name
NEWCASTLE	Josh Rhodes

COPYRIGHT

This document, including the concepts and information contained within it, are the property of ACOR Consultants Pty Ltd or any of its related or associated entities. Use or copying of this document in whole or in part without the written permission of ACOR Consultants Pty Ltd constitutes an infringement of copyright. No part of this document may be copied, reproduced, adapted, transmitted or stored in a retrieval system in any form or by any means without written permission or unless otherwise permitted under the Copyright Act 1968. Removal or modification of any copyright or other proprietary protection from this document will be a breach of copyright.

© ACOR Consultants Pty Limited

All intellectual property and copyright reserved.

Table of Contents

1	Executive summary	5
2	Activity.....	6
2.1	Civil Engineering Infrastructure Scope.....	7
3	Site Description	8
4	Background	10
5	Proposed Activity	11
6	Site Grading	12
6.1	Existing Site.....	12
6.2	Proposed Site Grading.....	12
6.3	Bulk Earthworks.....	12
6.4	Vehicle Access.....	13
6.5	Carparking.....	13
6.6	Footpaths and Pedestrian Access	13
7	Stormwater Quantity Management.....	14
7.1	Stormwater Conveyance.....	14
7.2	Stormwater Detention.....	14
7.3	External Detention and Culvert.....	15
8	Stormwater Quality - Operational Phase	16
8.1	Objectives.....	16
8.2	Operational Phase Water Quality Management	16
8.3	Stormwater Quality modelling Results	17
9	Stormwater Quality - Construction Phase.....	18
9.1	General.....	18
9.2	Pre-Construction Erosion and Sediment Control	18
9.3	During Construction Erosion and Sediment Control	18
10	Existing Authority Wastewater and Potable Water Infrastructure	19
10.1	Wastewater	19
10.2	Potable Water Service.....	20
11	Mitigation Measures.....	21

Appendices

Appendix A REF Design Plans	23
-----------------------------------	----

List of Figures

Figure 1 - Cadastral Map (Source: NSW Spatial Viewer, 2024).....	8
Figure 2 - Aerial Map (Source: Near Map, 2024).....	9
Figure 3 - ADW Johnson Proposed Wastewater connection	19
Figure 4 - Hunter Water – Water Supply Mains.....	20

List of Tables

Table 1 - Pre Developed vs Post developed (no Detention) Peak Flows	14
Table 2 - Pre Developed vs Post developed (with Detention) Peak Flows	15
Table 3 - Pre Developed vs Post developed (with Detention) Peak Flows	15
Table 4 - Stormfilter Removal Efficiencies.....	17
Table 5 - Water Quality Results	17

1 Executive summary

ACOR Consultants Pty Ltd (ACOR Consultants), in the capacity of the project Civil Services Engineering Consultant is currently reviewing and analysing the environmental and functional requirements as well as the performance standards to be met by the civil services.

This Civil Design Report has been prepared to set the basis for planning and delivery phases of the civil infrastructure requirements for the Gillieston Public School redevelopment and new Public Preschool. The list below captures identified key elements of the design progression thus far:

- Site Grading including building pads, playground areas, car park, driveways and internal footpaths
- Earthworks and retaining structures
- Stormwater Management including:
 - Conveyance
 - Stormwater Detention
 - Stormwater Quality
- Erosion and Sediment Control.
- External Road works including:
 - Bus bay on Gillieston Road
 - Kiss and Drop Allowance on Northview Street.
- Authority wastewater and potable water servicing the site.

2 Activity

ACOR Consultants have been engaged by the Department of Education as the civil infrastructure engineering consultant on the Maitland (Gillieston) Public School.

The Gillieston Public School have been identified by the NSW Department of Education (DoE) as requiring redevelopment. The proposed Gillieston Public School Redevelopment and New Public Preschool is driven by service need including increase in expected student enrolments and the and removing demountable structure and replacement with permanent teaching spaces.

The Gillieston Public School Redevelopment and New Public Preschool comprises the following activity:

- Demolition and removal of existing temporary structures.
- Site preparation activity, including demolition, earthworks, tree removal.
- Construction of new:
 - 32 permanent general learning spaces and 3 support teaching spaces
 - Administration and staff hubs
 - Hall, canteen and library
 - Out of school hours care
 - Public preschool (standalone building for 60 places)
 - Covered Outdoor Learning Areas (COLAs)
 - Outdoor play areas, including games courts and yarning circle
 - New at-grade car parking
 - Extension of the existing drop-off / pick-up area and new bus bay
 - Realignment of the existing fencing
 - Associated stormwater infrastructure upgrades
 - Associated landscaping
 - Associated pedestrian and road upgrade activity

2.1 Civil Engineering Infrastructure Scope

The civil engineering infrastructure for the project is as follows:

- Site Grading including:
 - building pads;
 - playground areas;
 - car park;
 - driveways and
 - internal footpaths.
- Earthworks and retaining structures
- Stormwater Management including:
 - Conveyance;
 - Stormwater Detention;
 - Stormwater Quality.
- Erosion and Sediment Control.
- External Road works including:
 - Bus bay on Gillieston Road
 - Kiss and Drop Allowance on Northview Street.

3 Site Description

The Site is identified as 100 Ryans Road and 19 Northview Street, Gillieston Heights, legally described as Lot 51 DP 1162489 and Lot 2 DP1308605 respectively.

The Site is located within the Maitland Local Government Area (LGA) and is zoned RU2 Rural Landscape and R1 General Residential zone under the provisions of the Maitland Local Environmental Plan 2011 (MLEP2011).

Existing attributes of the subject site are noted as follows:

- The subject site exhibits an area of approximately 23,385m² and is located in the suburb of Gillieston Heights;
- The subject site has a frontage to Ryans Road to the east, Gillieston Road to the north, and Northview Street to the south;
- In its existing state, the subject site comprises the existing Gillieston Public School. Existing school buildings are primarily located in the west portion of the subject site with a large area of open space situated in the eastern portion. There are limited permanent structures located on the subject site with thirteen (13) existing demountable classrooms currently occupying the subject site. Permanent buildings consist of the Main Administration Building, Original Brick Cottage, Library and GLS building located in the centre of the subject site; and
- Carparking is provided from Gillieston Road for staff. Pedestrian access is available via this main entrance from Gillieston Road and via a separate pedestrian-only access gates on Northview Street and Ryans Road.

The existing site context is shown in Figure 1 and Figure 2.

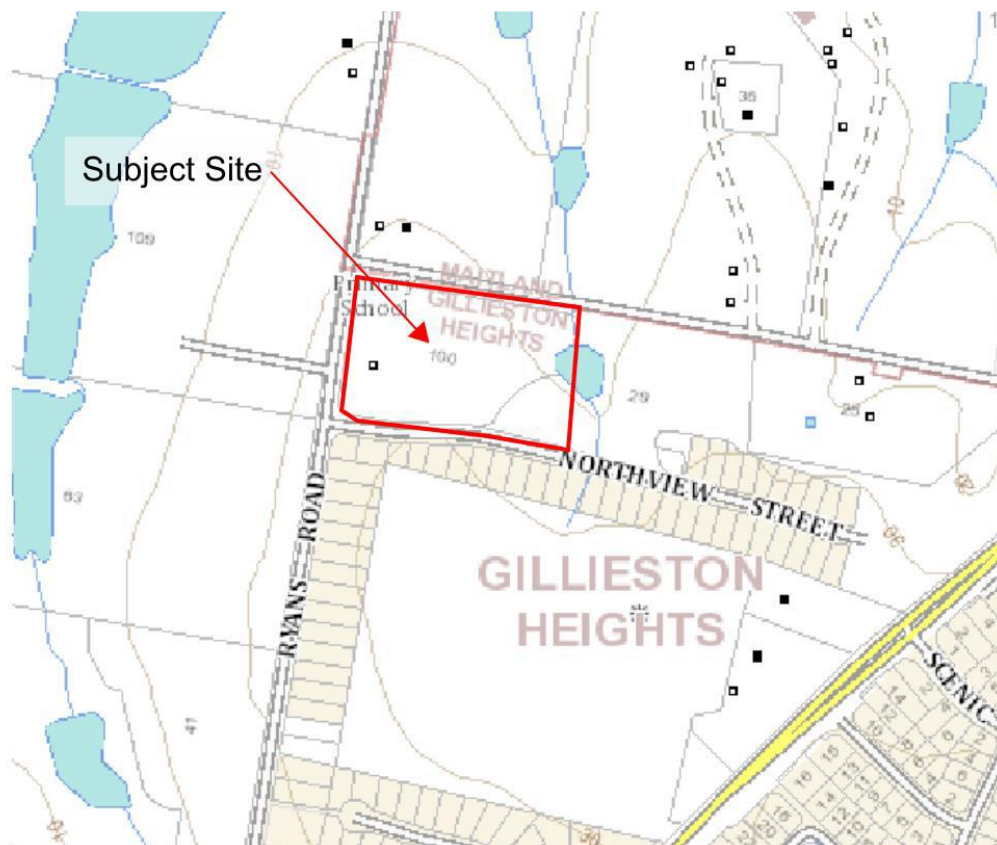


Figure 1 - Cadastral Map (Source: NSW Spatial Viewer, 2024)

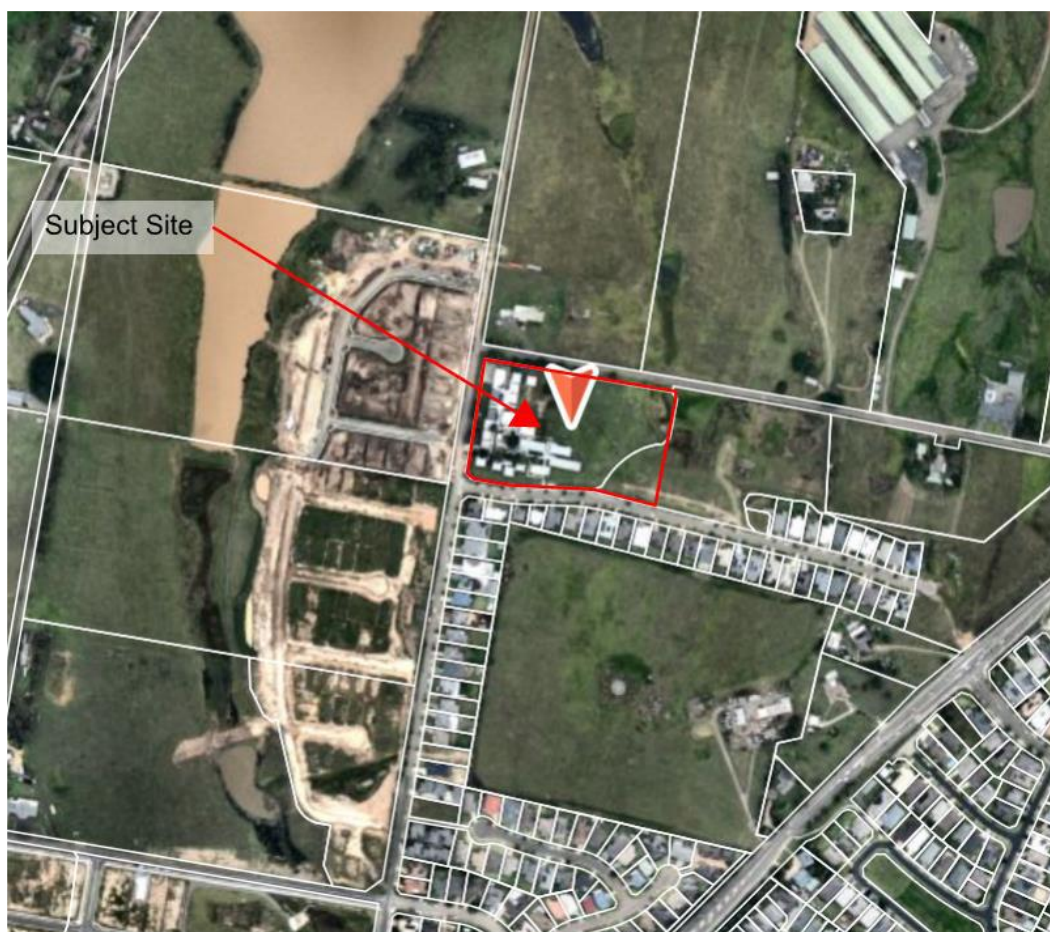


Figure 2 - Aerial Map (Source: Near Map, 2024)

4 Background

Gillieston Heights is progressively being developed into an urban neighbourhood with areas surrounding the subject site being part of a greenfield land release. These new homes will place substantial demand for primary school student places in the area. The existing primary school does not have sufficient capacity to cater for the increase in demand. Accordingly, there is a need to respond to population growth in the area and otherwise there is the potential to lead to a decline in education outcomes. The proposed redevelopment of the existing school will ensure the growing primary school and pre-school educational needs of the incoming population are met.

5 Proposed Activity

The proposed activity seeks consent for the following:

- Demolition of select existing structures;
- Site preparation activity, including demolition, earthworks, tree clearing;
- Increase the capacity of the School;
- Construction of:
 - 32 general learning spaces and 3 support teaching spaces
 - administration and staff hubs
 - hall, canteen and out of school hours care
 - library
 - public preschool
 - covered Outdoor Learning Areas (COLAs)
 - outdoor play areas, including games courts and yarning circle
 - new at grade parking
 - extension of the existing drop-off / pick-up area and bus bay
 - realignment of the existing fencing
 - associated stormwater infrastructure
 - associated landscaping
 - pedestrian and associated road upgrade activity to adjoining roads

6 Site Grading

6.1 Existing Site

The existing school site falls in two directions. The western catchment of the site, which has the majority of the existing development drains to the west to Ryans Road while the majority of the site drains to the east. The eastern draining catchment is where most of the proposed activity will be located.

The existing site has demountable buildings on the western side with limited existing infrastructure to the east. The site falls steeply over approximately 13.5 m from a height of 28.5 m in the northwest to approximately 15 m in the northeast.

6.2 Proposed Site Grading

The western catchment of the site will generally remain the same with the removal of the demountable buildings and the existing car park.

Significant regrading is proposed on the eastern catchment including several retaining walls through the site as well as a wall on the eastern side of the proposed carpark. Walls internal to the site are a maximum of 2.0 m high with the walls on the eastern side of the carpark up to 3.0 m high.

Drawing C-050001 shows the proposed site grading of the new site. Drawings C-050001 and C-060001 to C-060004 show the proposed site sections.

Drawings C-100001 shows the retaining wall locations. The total area of retaining walls is approximately 530 m².

6.3 Bulk Earthworks

Bulk earthworks volumes have been determined for the site based on the following assumptions:

- Design surface to existing.

The earthworks cut to fill volumes for the site are:

- Cut: 3,100 m³
- Fill: 14,200 m³
- Balance: 11,100 m³

These volumes do not account for topsoil and unsuitable strip, building foundations, pavements, bulking of the soil, retaining wall volumes, or services trench volumes. Drawing C-040001 shows the current cut to fill isopach.

Volumes are currently indicative and subject to change as the design of the site progresses and additional geotechnical information is received.

6.4 Vehicle Access

The verge crossing (between the kerb line and the boundary) of both driveways will be designed in accordance with Maitland City Council (MCC) Specifications and Australian Standards (AS/NZS 2890) requirements to always provide two-way vehicle access in and out of the site. Sight lines from the driveway in accordance with AS/NZS 2890.1 will be achieved.

6.5 Carparking

An on-site car park has been designed in accordance with the Architects layout. The car park will primarily be used by staff and parent drop off and will be designed in accordance with the requirements of AS/NZS 2890.1 – Off-Street Car Parking and AS2890.6 – Off-street Parking for People with Disabilities.

6.6 Footpaths and Pedestrian Access

A pedestrian pathway is proposed to link the new school building and the COLA/Preschool. Pathways through the school have been designed to be DDA compliant with maximum grades of 7%.

7 Stormwater Quantity Management

Stormwater quantity management for the activity has been addressed covering both conveyance and detention.

7.1 Stormwater Conveyance

Minor system stormwater conveyance for the activity will be via a traditional pit and pipe system. Stormwater will be collected from the site and discharged to water quality and detention facilities in the car park before discharging into the existing 900 mm diameter pipe under Gillieston Road.

The minor stormwater conveyance system through the activity will consist of a pit and pipe network sized to convey the 5% Annual Exceedance Probability (AEP) (20-year Annual Recurrence Interval [ARI]) flows with a drainage design in accordance with the EFSG Guidelines, Maitland City Council standards and the requirements of AS/NZS 3500.3 Plumbing and drainage, Part 3: Stormwater drainage.

Major system stormwater conveyance for the proposed activity will be via overland flow. This will be via the internal, car park, hardstand and landscaped areas. The major stormwater system will have the capacity to convey the peak flows from a 1% AEP storm event, containing flows within the site and providing freeboard to the buildings. In the event of pipe or pit blockages, overland flow paths will be detailed to convey surface runoff away from building openings and into the constructed external stormwater network.

Refer to Stormwater Management Plan C-080001 for the internal stormwater layout.

7.2 Stormwater Detention

A DRAINS model was developed to compare the predeveloped and post developed peak flows leaving the site. The existing site has a fraction impervious of approximately 10%. The proposed activity has a fraction impervious of 50%. The results of the DRAINS modelling comparing pre and post site peak flows without detention is shown in Table 1.

Table 1 - Pre Developed vs Post developed (no Detention) Peak Flows

AEP (%)	PreDev (m ³ /s)	Post Dev (m ³ /s)	Increase (m ³ /s)	Increase
20%	0.270	0.452	0.182	67%
10%	0.376	0.597	0.221	59%
5%	0.457	0.733	0.276	60%
2%	0.601	0.830	0.229	38%
1%	0.738	1.01	0.272	37%

As can be seen from the results above, detention is required to reduce the peak flows from site to below the post developed peak flows.

An underground detention tank with a volume of 280 m³ with a 310 mm diameter low flow orifice at RL 16.05, 950 mm wide by 150 mm high medium flow orifice at RL 17.45, and a 1.8m long high flow weir at RL 17.95 are proposed for the activity. The outlet from the detention tank will discharge into the existing 900 mm diameter pipe under Gillieston Road. The upstream invert of this pipe is RL14.935m.

The results of the predeveloped vs developed peak flows with detention are shown in Table 2.

Table 2 - Pre Developed vs Post developed (with Detention) Peak Flows

AEP (%)	PreDev (m³/s)	Post Dev (m³/s)	Reduction (m³/s)	Increase
20%	0.270	0.247	0.023	-8.5%
10%	0.376	0.312	0.064	-17%
5%	0.457	0.414	0.043	-9.4%
2%	0.601	0.570	0.031	-5.1%
1%	0.738	0.699	0.039	-5.3%

As can be seen from the results in Table 2, the proposed detention tank will reduce the peak flows from the site to below the predeveloped peak flows.

7.3 External Detention and Culvert

Additional detention and a new culvert under Gillieston Road will be required to offset the volume of storage lost due to the filling of the school site while providing a new conveyance route for the upstream stormwater due to the retaining walls on the school's eastern boundary. The external works will be required to be completed as part of the first stage of construction prior to commencement of new Learning Building (refer to Gillieston Public School Staging Rev 7) to allow the existing stormwater easement in the northeastern corner of the school site to be extinguished.

A 2.4 m wide x 0.9 m high Rectangular Concrete Box Culvert (RCBC) is proposed to convey upstream stormwater under Gillieston Road. As the culvert is not located within the sag of the road, local regrading of the existing surface levels is required to direct upstream flows to the culvert entrance.

As a result of the lost detention storage caused by the filling of the school site, a temporary basin with a total volume of 3325 m³ with 4 x 600 RCP outlet pipes at RL 10.90 and a 10m long spillway at RL 12.30 is proposed to the north of the Gillieston Road culvert crossing. The outlet from the basin discharges water towards Wentworth Swamps. Refer to for the external stormwater plans on drawings C-130001 to C-13-0003.

A DRAINS model was developed to compare the predeveloped and post developed peak flows (including school site detention and runoff) to assess the effectiveness of the proposed basin, the results from the modelling are presented in Table 3.

Table 3 - Pre Developed vs Post developed (with Detention) Peak Flows

AEP (%)	PreDev (m³/s)	Post Dev (m³/s)	Reduction (m³/s)	Increase
20%	1.88	1.88	0.00	-0.0%
10%	2.22	2.16	0.06	-2.7%
5%	2.51	2.47	0.04	-1.6%
2%	2.98	2.83	0.15	-5.0%
1%	3.75	3.75	0.00	-0.0%

It is evident from the results presented in Table 3 that the proposed culvert and temporary detention will successfully attune the peak post developed flows to, or below the predeveloped flows.

8 Stormwater Quality - Operational Phase

8.1 Objectives

The objectives of the stormwater quality management for the site are:

- Meet the water quality objectives of Maitland City Council for the operational phase of the site by using best practice stormwater treatment measures. The water quality reductions required by Maitland City Council are:
- % Reduction to the pollutants from the developed site of:
 - 80% reduction in Total Suspended Solids (TSS)
 - 45% reduction in Total Phosphorus (TP)
 - 45% reduction in Total Nitrogen (TN)
 - 90% reduction in litter/gross pollutants

8.2 Operational Phase Water Quality Management

The MUSIC model version 6 was used to assess the pollutant generation from the activity and the performance of the stormwater quality treatment train. MUSIC modelling was undertaken in accordance with the Maitland City Council MUSIC Modelling Guidelines contained in Council's DCP and the NSW MUSIC Modelling Guidelines (WBM, 2015).

A treatment train consisting of rainwater reuse for irrigation on site, surface inlet pit baskets (Ocean Protect OceanGuard or equivalent) and Filter Cartridges (Ocean Protect Stormfilters or approved equivalent) has been adopted to meet the water quality objectives for the site. Details of the treatment measures are discussed below.

- Rainwater tanks. A rainwater tank is proposed to be installed to enable reuse of the roof runoff for toilet flushing inside the main building as well as irrigation. A rainwater tank with capacity of 34kL was adopted for the main school building, while a 34kL tank is proposed for the hall and preschool buildings together. Annual reuse for irrigation from both tanks was estimated to be 550 kL/year.
- Ocean Protect Ocean Guard Pit Filter baskets or approved equivalent. Ocean Guards capture gross pollutants, sediments and attached nutrients down to a size of 200 microns. The MUSIC node for the Ocean Guards was provided by Ocean Protect. Table 3 shows the removal efficiencies of Ocean Guard units.

Table 3 - Ocean Guard Removal Efficiencies

Inflow (m ³ /s)	Gross Pollutant removal (%)	TSS Removal	TP Removal (%)	TN Removal (%)
0.02	100	30	30	10

- Ocean Protect Stormfilters or approved equivalent. Ocean Protect StormFilter will be installed upstream of the detention tank, in a tank of their own. The Stormfilters are filter cartridges that remove TSS, TN and TP from the stormwater prior to leaving the tank. Ocean Protect provided the MUSIC treatment node for the filter cartridges. Table 4 shows the removal efficiencies of the Stormfilters.

Table 4 - Stormfilter Removal Efficiencies

Inflow (m3/s)	Gross Pollutant removal (%)	TSS Removal	TP Removal (%)	TN Removal (%)
0.009	100	34	86.1	55.9

8.3 Stormwater Quality modelling Results

Table 5 shows the results from the MUSIC modelling.

Table 5 - Water Quality Results

Pollutant	Source Load (kg/yr)	Residual Load (kg/yr)	Reduction	MCC Requirements	Compliant
	(m ³ /s)	(m ³ /s)	(%)	(%)	(Y/N)
TSS	1150	213	81.5	80	Y
TP	2.44	0.896	63.2	45	Y
TN%	19	10.1	46.6	45	Y
Gross Pollutants	195	0	100	90	Y

As can be seen from Table 5, the proposed stormwater treatment train of rainwater reuse, pit baskets and Stormfilters reduced the pollutants leaving the site to below the MCC requirements.

9 Stormwater Quality - Construction Phase

9.1 General

During the construction phase of the activity, an Erosion and Sediment Control Plan will be implemented to minimise the water quality impacts. The erosion and sediment controls will be in accordance with Landcom's Managing Urban Stormwater: Soils and Construction Volume 1, 4th Edition (Landcom, 2004) and the requirements of Maitland City Council. Erosion and sediment controls will be required preconstruction, during construction and post construction until the site is stabilized. The expected erosion and sediment control measures will include stabilized site access, sediment fence, gully pit sediment barriers and a temporary sediment basin (if applicable).

9.2 Pre-Construction Erosion and Sediment Control

Due to the topography of the site, the preconstruction erosion and sediment controls will be limited to stabilized site access, sediment fence and a temporary sediment basin until the initial bulk earthworks is undertaken. The proposed detention tank may be used as a sediment basin while construction is being undertaken. Drawing C-030001 details the preliminary erosion and sediment control plans for the activity.

9.3 During Construction Erosion and Sediment Control

During the construction phase of the activity, the erosion and sediment controls will consist of installed sediment fence, a constructed sediment basin and gully pit sediment barriers.

Regular inspection and maintenance of the erosion and sediment controls is required during the construction process.

As the soils on site are clay, a sediment basin volume was calculated using the Blue Book for type F soils. During construction, if the soils are found to be dispersive, the contractor will need to provide a flocculating agent to ensure discharge from the basin meets the requirements of the Blue Book.

10 Existing Authority Wastewater and Potable Water Infrastructure

10.1 Wastewater

ADW Johnston have design a site wastewater system consisting of 150mm gravity drainage for the existing school, DN1500 Pre-packaged Pumpstation, DN75 HDPE rising main and connection into existing HWC gravity sewer drainage system. Adjacent to the pre-packaged pumpstation, an 150mm capped stub connection is being installed for connection of the proposed Buildings A, B and C. It is assumed the size of the infrastructure and connecting pipelines are based on Equivalent Tenements whereas the internal drainage system sizing will be based on Australian Standards AS/NZS 3500.

It appears gravity fall is achievable for connection from the proposed building(s) internal fixtures to this point. Figure 3 shows the proposed wastewater system for the site by ADW Johnson.

A Section 50 Application to Developer Services has been applied for based on Hunter Water Advice Letter 09 July 2024 – HW Ref: HW2017- 1215/18/65. On completion of the construction hydraulic design documentation, this will need to be submitted for hydraulic assessment to HWC for their approval and allocation of water meters for the site.

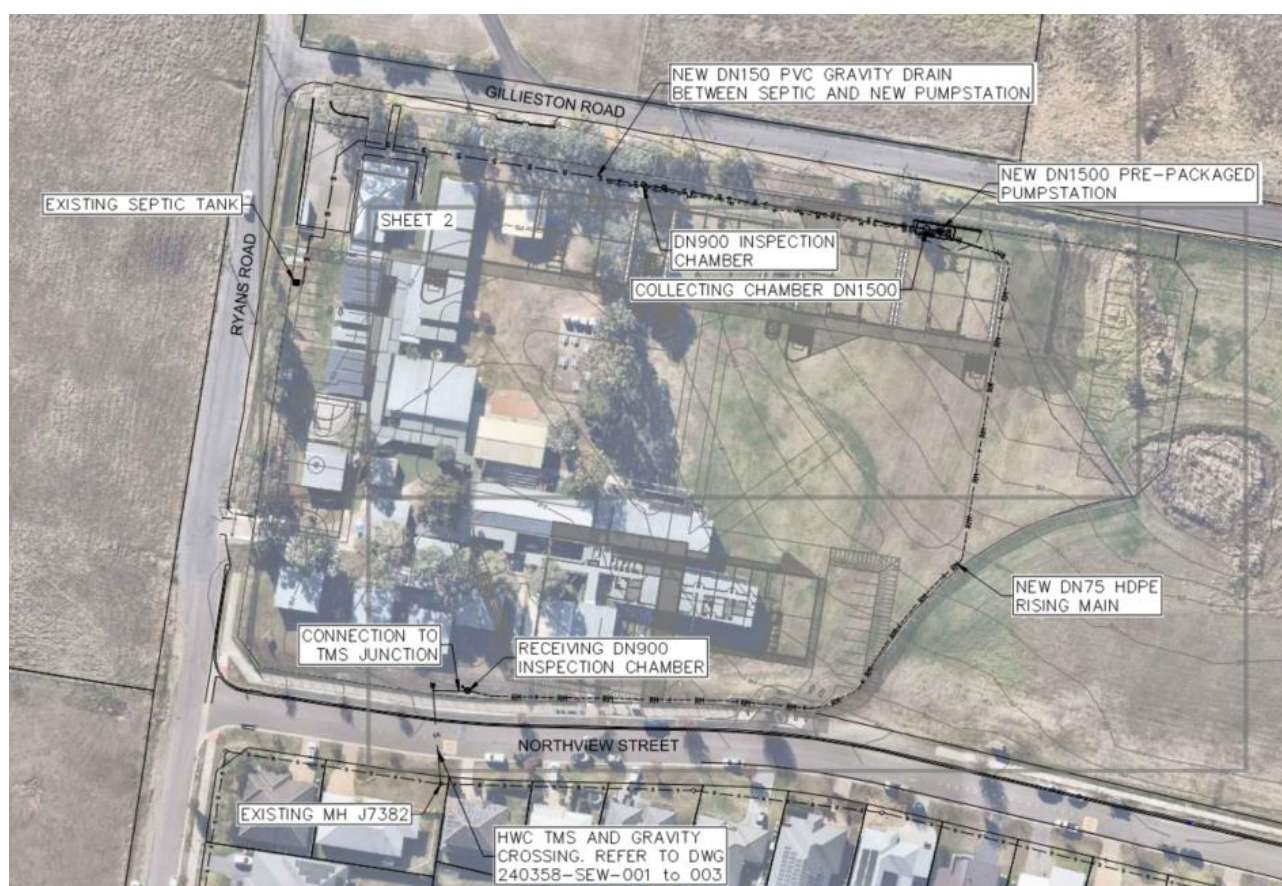


Figure 3 - ADW Johnson Proposed Wastewater connection

10.2 Potable Water Service

An existing 250mm diameter PVC -O service is located in Northview Street installed within the roadway as shown below in Figure 4 where previous enabling works have designed for the future residential community. Based on the proposed location of the water meter assembly connections, connection shall be made to the services within Northview Street.

We have received confirmation by the local Authority the water main has suitable pressure and flow for connection to the proposed activity; however, it appears from cursory investigations that although the existing water main size is sufficient to serve the proposed development, pumps will be required for the fire system. The design of these pumps will be undertaken during the proceeding design stages.

A Section 50 Application to Developer Services has been applied for based on Hunter Water Advice Letter 09 July 2024 – HW Ref: HW2017- 1215/18/65. On completion of the construction hydraulic design documentation, this will need to be submitted for hydraulic assessment to HWC for their approval and allocation of water meters for the site.

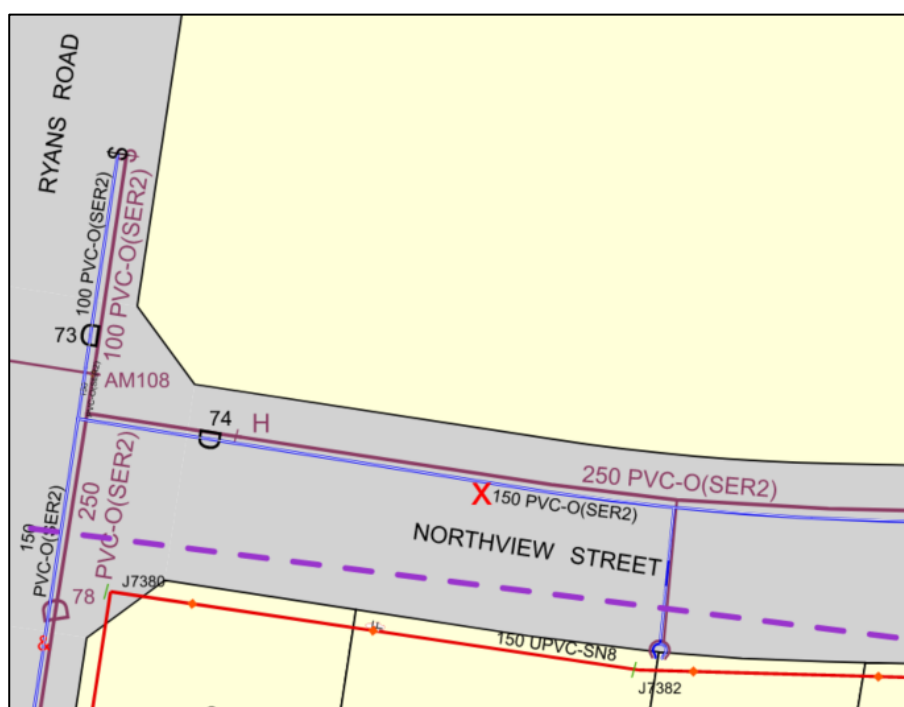


Figure 4 - Hunter Water – Water Supply Mains

11 Mitigation Measures

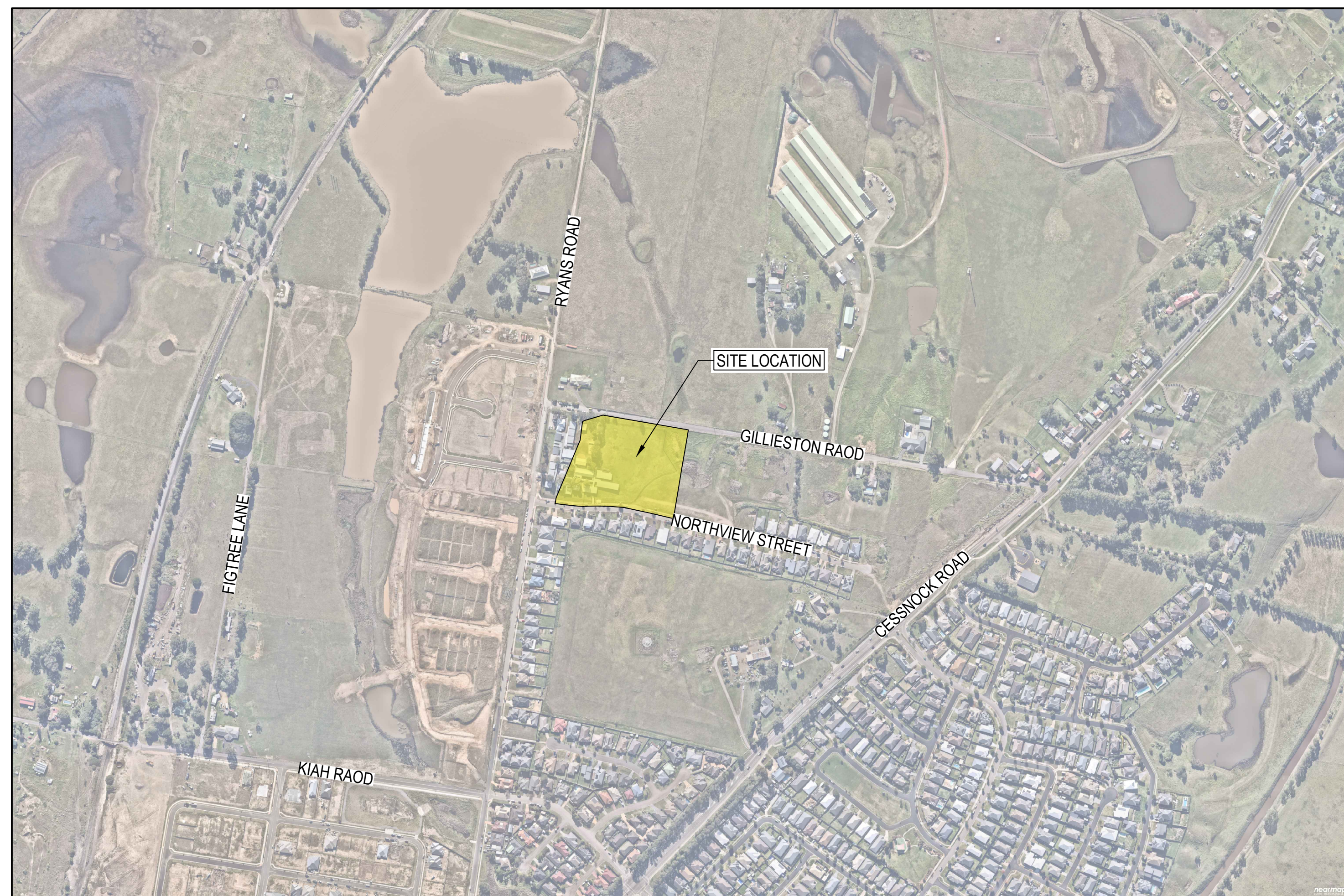
This report discusses the civil engineering elements for the proposed new primary school at Gillieston, NSW. The table below summaries the civil engineering items and the mitigation measures to address these items. By implementing these mitigation measures, there will be minimal environmental impacts resulting from the activity.

Project Stage	Item	Mitigation Measures	Relevant Section of Report
Design (D), Construction (C), Operation (O)			
D	<i>Bulk Earthworks and site grading</i>	<i>The site has been graded to incorporate the building, playgrounds, paths and carparks</i>	Section 6.2 and 6.3
D	<i>Carparking - Access</i>	<i>Access has been provided from both Gillieston Road and Northview Street in accordance with AS2890</i>	Section 6.4
D	<i>Car parking</i>	<i>The carpark has been graded to meet DDA requirements an AS2890.6</i>	Section 6.5
D	<i>Footpaths and Pedestrian Access</i>	<i>Footpaths around the site have been design in accordance with DDA with a maximum grade of 7%</i>	Section 6.6
D	<i>Stormwater Conveyance</i>	<i>A pit and pipe network to cater for the 5% AEP (20 year ARI) storm event has been designed. Major storms will be conveyed via overland flow.</i>	Section 7.1
D	<i>Stormwater detention</i>	<i>Stormwater detention has been provided to reduce the peak flows form the developed site to or below the predeveloped peak flows.</i>	Section 7.2
D	<i>External Detention</i>	<i>Detention requirements to be further developed with the adjoining neighbour, and where applicable, Maitland City Council.</i>	Section 7.3
D	<i>Stormwater Quality</i>	<i>Stormwater quality treatment measures have been designed to meet the requirements of Maitland City Council</i>	Section 8.

<i>C</i>	<i>Stormwater Quality – Construction Phase – Erosion and Sediment Control</i>	<i>Construction phase water quality measures have been designed in accordance with Managing Urban Stormwater</i>	Section 9
<i>D</i>	<i>Waste Water and Potable Water authority service</i>	<i>An application has been lodged with Hunter Water to confirm their requirements for wastewater and potable water servicing for the site.</i>	Section 10

Appendix A REF Design Plans

NSW SCHOOL INFRASTRUCTURE GILLIESTON PUBLIC SCHOOL DEVELOPMENT APPLICATION

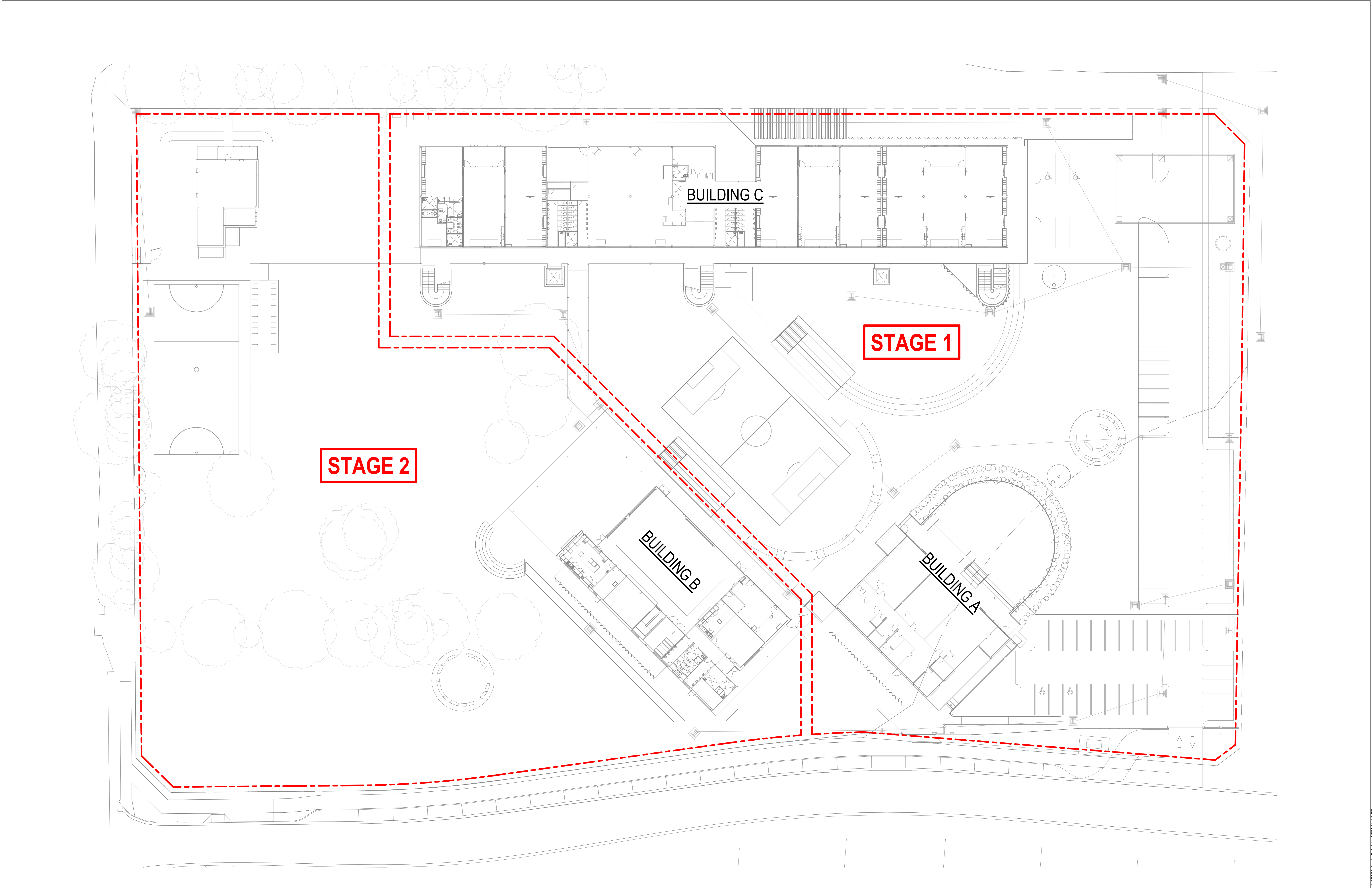


LOCALITY PLAN
NOT TO SCALE

DRAWING NUMBER	DRAWING TITLE
GPS-ACOR-00-XX-DR-C-010001	COVER SHEET AND DRAWING INDEX
GPS-ACOR-00-XX-DR-H-000050	STAGE PLAN
GPS-ACOR-00-XX-DR-C-010101	CONSTRUCTION NOTES
GPS-ACOR-00-XX-DR-C-030001	EROSION AND SEDIMENT CONTROL PLAN
GPS-ACOR-00-XX-DR-C-030101	EROSION AND SEDIMENT CONTROL NOTES - SHEET 1
GPS-ACOR-00-XX-DR-C-030102	EROSION AND SEDIMENT CONTROL NOTES - SHEET 2
GPS-ACOR-00-XX-DR-C-030201	EROSION AND SEDIMENT CONTROL DETAILS
GPS-ACOR-00-XX-DR-C-040001	ISOPACH PLAN
GPS-ACOR-00-XX-DR-C-050001	GENERAL ARRANGEMENT AND GRADING PLAN
GPS-ACOR-00-XX-DR-C-060001	SITE SECTIONS - SHEET 1
GPS-ACOR-00-XX-DR-C-060002	SITE SECTIONS - SHEET 2
GPS-ACOR-00-XX-DR-C-060003	SITE SECTIONS - SHEET 3
GPS-ACOR-00-XX-DR-C-060004	SITE SECTIONS - SHEET 4
GPS-ACOR-00-XX-DR-C-080001	STORMWATER MANAGEMENT PLAN
GPS-ACOR-00-XX-DR-C-080501	STORMWATER DETAILS
GPS-ACOR-00-XX-DR-C-090001	PAVEMENT AND JOINTING PLAN
GPS-ACOR-00-XX-DR-C-090101	PAVEMENT AND JOINTING DETAILS
GPS-ACOR-00-XX-DR-C-100001	RETAINING WALL PLAN
GPS-ACOR-00-XX-DR-C-100101	RETAINING WALL ELEVATIONS - SHEET 1
GPS-ACOR-00-XX-DR-C-100102	RETAINING WALL ELEVATIONS - SHEET 2
GPS-ACOR-00-XX-DR-C-100103	RETAINING WALL ELEVATIONS - SHEET 3
GPS-ACOR-00-XX-DR-C-100104	RETAINING WALL ELEVATIONS - SHEET 4
GPS-ACOR-00-XX-DR-C-100105	RETAINING WALL ELEVATIONS - SHEET 5
GPS-ACOR-00-XX-DR-C-100201	RETAINING WALL DETAILS
GPS-ACOR-00-XX-DR-C-100202	RETAINING WALL NOTES
GPS-ACOR-00-XX-DR-C-110001	PROPOSED NORTHERN BASIN PLAN
GPS-ACOR-00-XX-DR-C-110101	PROPOSED NORTHERN BASIN SECTIONS
GPS-ACOR-00-XX-DR-C-110201	PROPOSED NORTHERN BASIN DRAINAGE DETAILS



 PRINT IN COLOUR	<p>Client:</p>	<p>Architect:</p>	<p>ACOR Consultants Pty Ltd The Forum, Level 1 Suite 1 240-244 Pacific Highway Charlestown NSW 2290 T +61 2 4926 4811</p>	<p>Project: GILLIESTON PUBLIC SCHOOL</p> <p>100 RYANS ROAD GILLIESTON HEIGHTS, NSW, 2321</p>		<p>Drawing Title: CIVIL SERVICES COVER SHEET AND DRAWING INDEX</p>	
				<p>Drawn by: MDM Designed by: SJO Q.A. Check by: JPR Date: 03.12.24 Scale @ A1: 1:5000</p>		<p>Project No.: NS221454 Drawing No.: GPS-ACOR-00-XX-DR-C-010001 Issue: C</p>	
				<p>NOT FOR CONSTRUCTION</p>			



<table><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>B</td><td>ISSUED FOR DA</td><td>17.10.24</td><td>MDM</td><td>JPR</td><td></td></tr><tr><td>A</td><td>DRAFT SCHEMATIC DESIGN</td><td>29.08.24</td><td>MDM</td><td>JPR</td><td></td></tr><tr><td>Issue</td><td>Description</td><td>Date</td><td>Drawn</td><td>Approved</td><td></td></tr></table>																															B	ISSUED FOR DA	17.10.24	MDM	JPR		A	DRAFT SCHEMATIC DESIGN	29.08.24	MDM	JPR		Issue	Description	Date	Drawn	Approved		<p>North</p> <p>Scale</p> <p>SCALE BAR 1:300</p> <p>PRINT IN COLOUR</p>	<p>Client</p>	<p>Architect</p>	<p>ACOR Consultants Pty Ltd The Forum, Level 1, Suite 1 240-244 Pacific Highway Charlestown NSW 2290 T: +61 2 4926 4811</p>	<p>Project</p> <p>GILLIESTON PUBLIC SCHOOL NSW SCHOOL INFRASTRUCTURE</p> <p>100 RYANS ROAD GILLIESTON HEIGHTS</p> <p>NOT FOR CONSTRUCTION</p>	<table><tr><td colspan="5">Drawing Title HYDRAULIC SERVICES STAGE PLAN</td></tr><tr><td>Drawn AP</td><td>Designed AP</td><td>Q.A. Check SW</td><td>Date 17.10.24</td><td>Scale @ A1 1 : 300</td></tr><tr><td colspan="2">Project No. NS221454</td><td colspan="2">Drawing No. GPS-ACOR-00-XX-DR-H-000050</td><td>Issue B</td></tr></table>	Drawing Title HYDRAULIC SERVICES STAGE PLAN					Drawn AP	Designed AP	Q.A. Check SW	Date 17.10.24	Scale @ A1 1 : 300	Project No. NS221454		Drawing No. GPS-ACOR-00-XX-DR-H-000050		Issue B
B	ISSUED FOR DA	17.10.24	MDM	JPR																																																																	
A	DRAFT SCHEMATIC DESIGN	29.08.24	MDM	JPR																																																																	
Issue	Description	Date	Drawn	Approved																																																																	
Drawing Title HYDRAULIC SERVICES STAGE PLAN																																																																					
Drawn AP	Designed AP	Q.A. Check SW	Date 17.10.24	Scale @ A1 1 : 300																																																																	
Project No. NS221454		Drawing No. GPS-ACOR-00-XX-DR-H-000050		Issue B																																																																	

© COPYRIGHT of this design and plan is the property of ACOR Consultants Pty Ltd, ACN 079 306 246 ABN 40 079 306 246, all rights reserved. It must not be used, modified, reproduced or copied wholly or in part without written permission from ACOR Consultants Pty Ltd.

19/10/2024 9:43:05 AM
Autodesk Docs\NS221454 - Gillieston Public School\NS221454_P03_P234.rvt

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

GENERAL NOTES	
1.	THE DRAWING DIMENSIONS SHALL NOT BE OBTAINED BY SCALING.
2.	NO ADDITIONAL OR P.C. WORKS SHALL BE UNDERTAKEN WITHOUT THE SUPERINTENDENTS APPROVAL. CONFIRM COUNCIL INSTRUCTIONS WITH SUPERINTENDENT.
3.	THE CONTRACTOR MUST ENSURE SUPERINTENDENT APPROVAL OF MATERIALS, PRIOR TO DELIVERY TO SITE.
4.	DIVERSION OF WATER AND THE PROTECTION OF WORKS IS THE CONTRACTORS RESPONSIBILITY.
5.	THE CONTRACTOR HAS SOLE RESPONSIBILITY TO EXERCISE CARE AND TAKE PRECAUTIONS TO ENSURE CONSTRUCTION ACTIVITIES DO NOT AFFECT ADJACENT PROPERTIES, ACCESS OR STRUCTURES. MAINTAIN EMBANKMENTS AND STRUCTURES IN STABLE CONDITION DURING CONSTRUCTION ENSURING NO PART IS OVERSTRESSED. TEMPORARY STRUCTURES, FORMWORK, TEMPORARY BRACING, SHORING AND THE LIKE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6.	THE CONTRACTOR WILL BE RESPONSIBLE FOR THE FULL QA DOCUMENTATION OF THE PROJECT TO ENSURE WORKS MEET THE RELEVANT SECTIONS OF AUSPEC FOR ROADS, DRAINAGE, WATER AND SEWER. A COMPLETE ITP PLAN SHALL BE SUBMITTED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO WORKS COMMENCING ON SITE.
7.	CONTRACTOR IS TO VERIFY THE LOCATION OF ALL SERVICES WITH EACH RELEVANT AUTHORITY. ANY DAMAGE TO SERVICES SHALL BE REPAIRED BY THE CONTRACTOR OR THE RELEVANT AUTHORITY AT THE CONTRACTOR'S EXPENSE. SERVICES SHOWN ON THESE PLANS ARE ONLY THOSE EVIDENT AT THE TIME OF SURVEY.
8.	UNDERTAKE WORKS TO PRINCIPLES OF AS 9001. SUBMIT WORK METHOD STATEMENT TO SUPERINTENDENT. HOLD POINTS SHALL APPLY TO: - APPROVAL OF WORK METHOD STATEMENT - APPROVAL OF TRAFFIC CONTROL PLAN - LOCATION OF INGROUND SERVICES - SETOUT OF EACH AREA OF WORKS - CERTIFICATION OF SUBGRADE - STORMWATER PIPEWORK PRIOR TO BACKFILL - CONDUITS PRIOR TO BACKFILL - WORK AS EXECUTED SURVEY - GEOTECHNICAL CERTIFICATION.
9.	CONTRACTOR TO PROVIDE ALL SURVEY SETOUT, AND WAE FROM DATA. REFER SURVEY INFORMATION BY ADW JOHNSON REF No: 240375(1)-DET-001-A DATED: 06.09.2022
10.	ALL WORKS ARE TO BE SETOUT BY A REGISTERED SURVEYOR.
11.	ALL LEVELS SHALL BE OBTAINED FROM ESTABLISHED BENCH MARKS ONLY. STANDARD DATUM FOR ALL DRAWINGS IS AUSTRALIAN HEIGHT DATUM (A.H.D.).
12.	A TRAFFIC CONTROL PLAN TO AS 1742.3 IS TO BE SUBMITTED TO COUNCIL FOR APPROVAL PRIOR TO WORKS COMMENCING.
13.	SCOUR PROTECTION, SUB SOIL DRAINAGE AND UNSUITABLE SUB-GRADE REPLACEMENT SHALL BE AT THE DIRECTION OF THE SUPERINTENDENT.
14.	SUBSOIL DRAINAGE TO BE PROVIDED AS PER APPROVED PLANS.

EXISTING SERVICES AND FEATURES	
1.	THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION, REMOVAL AND DISPOSAL IF REQUIRED OF ALL EXISTING SERVICES IN AREAS AFFECTED BY WORKS WITHIN THE CONTRACT AREA AS DIRECTED OTHERWISE BY THE SUPERINTENDENT.
2.	THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED.
3.	EXISTING BUILDINGS, EXTERNAL STRUCTURES, AND TREES SHOWN ON THESE DRAWINGS ARE FEATURES EXISTING PRIOR TO ANY DEMOLITION WORKS.
4.	CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT.
5.	INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO THE PRINCIPAL. CONTRACTOR TO GAIN APPROVAL OF SUPERINTENDENT FOR TIME OF INTERRUPTION.

EARTHWORKS AND PAVEMENT NOTES	
1.	ALL DISTURBED AREAS SHALL BE 100mm TOPSOILED, GRASS SEEDED, MULCHED OR TURFED AS SOON AS PRACTICABLE, AND BATTERS AND BERMS TREATED IMMEDIATELY AFTER CONSTRUCTION OF SEWERAGE AND STORMWATER. AREAS OF DISTURBANCE SHALL BE APPROVED BY THE SUPERINTENDENT. REFER EROSION AND SEDIMENT CONTROL PLAN.
2.	GRASS TO BE TO LANDSCAPE ARCHITECT SPECIFICATION. GRASS/TURF TO BE MAINTAINED BY CONTRACTOR AT ALL TIMES INCLUDING PERIODS OF INSUFFICIENT RAIN AND REPLACED AS REQUIRED.
3.	A SINGLE CONTINUOUS STRIP OF GRASS TURF SHALL BE PLACED AROUND THE PERIMETER OF ALL INLET PITS, EACH SIDE OF FOOTPAVING, TOP OF EXCAVATED BATTERS AND DIAGONALLY TO STEEP GRADES EXCEEDING 10% AND AS DIRECTED IMMEDIATELY AFTER THE COMPLETION OF FOOTPATH GRADING AND CONSTRUCTION OF PITS RESPECTIVELY. TURFING/LANDSCAPE GRASS SHALL ALSO BE PLACED TO THE FULL WIDTH OF SWALE DRAINS UPON COMPLETION.
4.	REMOVE TOPSOIL, FILLS, SLOPEWASH & DELETERIOUS MATERIAL. GEOTECHNICAL ENGINEER TO CONFIRM SPOIL & UNSUITABLE.
5.	EXCAVATED MATERIAL SHALL BE SELECTED TO PLACE BETTER QUALITY AT FILL SUBGRADES. REPLACEMENT OF CUT SUB-GRADES MAY BE INSTRUCTED BY THE SUPERINTENDENT AS EARTHWORKS OPERATION.
6.	THE CONTROL TESTING OF EARTHWORKS SHALL BE IN ACCORDANCE WITH THE GUIDELINES IN AS 3798. WHERE IT IS PROPOSED TO USE TEST METHOD AS 1289 EB.1 OR AS 1289 EB.2 TO DETERMINE THE FIELD DENSITY, A SAND REPLACEMENT METHOD SHALL BE USED TO CONFIRM THE RESULTS AS DIRECTED.
7.	EARTHWORKS, PREPARATIONS, SUB-GRADE TO BE CONFIRMED BY GEOTECHNICAL ENGINEER. SUBMIT GEOTECHNICAL ENGINEER'S CERTIFICATE OF WORKS ON COMPLETION. REFER GEOTECHNICAL REPORTS BY: STANTEC REF No: 304100928 DATED: 08.02.2023
8.	WHERE THE SLOPE OF THE NATURAL SURFACE EXCEEDS ONE IN FOUR (1V:4H) BENCHES ARE TO BE CUT TO PREVENT SLIPPING OF THE PLACED FILL MATERIAL AS REQUIRED BY THE GEOTECHNICAL ENGINEER TO STANDARD PRACTICE.
9.	ALL BATTERS ARE TO BE SCARIFIED TO ASSIST WITH ADHESION OF TOP SOIL TO BATTER FACE.
10.	REMOVE EXCESS SPOIL AND DEMOLISHED MATERIAL FROM SITE TO LOCATION AND DETAIL DETERMINED BY THE CONTRACTOR AT CONTRACTORS COST.

STORMWATER NOTES	
1.	PVC-U PIPEWORK INSTALLATION TO AS 2566 AND MANUFACTURER'S STANDARDS AND SPECIFICATIONS.
2.	PVC-U PIPE BEDDING SHALL BE IN ACCORDANCE WITH AS 2566 AND MANUFACTURER'S STANDARDS AND SPECIFICATIONS.
3.	MINIMUM GRADE TO STORMWATER LINES TO BE 1% (U.N.O.).
4.	CONTRACTOR TO SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
5.	ALL PIPE JUNCTIONS UP TO AND INCLUDING 450 DIA. AND TAPERS SHALL BE VIA PURPOSE MADE FITTINGS.
6.	ALL CONNECTIONS TO EXISTING DRAINAGE PITS SHALL BE MADE IN A TRADESMAN-LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED TO ENSURE A SMOOTH FINISH.
7.	WHERE SUBSOIL DRAINAGE LINES PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED PVC-U SEWER GRADE PIPE SHALL BE USED.
8.	PROVIDE 3.0m LENGTH OF 100 DIA. SUBSOIL DRAINAGE PIPE WRAPPED IN FILTER SOCK, AT UPSTREAM END OF EACH PIT.
9.	ENSURE ADEQUATE TRENCH FOUNDATION AND BEDDING COMPACTION SPECIFICALLY ADJACENT TO DRAINAGE STRUCTURES AND PROTECTION TO PIPES FROM CONSTRUCTION TRAFFIC. CRACKED STORMWATER PIPES WILL NOT BE ACCEPTED.
10.	ALL INLET PIT GRATINGS AND PRECAST INLETS SHALL BE CONSTRUCTED TO COUNCILS STANDARD DRAWINGS.
11.	ALL PITS DEEPER THAN 0.9m BUT LESS THAN 1.2m TO BE MINIMUM INTERNAL WIDTH 600 x 900 UNO. ALL PITS DEEPER THAN 1.2m TO BE MINIMUM INTERNAL WIDTH 900SQ UNO AND ARE TO BE CONSTRUCTED WITH STEP IRONS IN ACCORDANCE WITH AS 1657 AND DETAILS.
12.	CARE TO BE TAKEN BY CONTRACTOR WHEN COMPACTING OVER BURIED PIPES.

SAFETY IN DESIGN	
1.	THE DESIGN SAFETY ASSESSMENT HAS BEEN CARRIED OUT WITH REFERENCE TO CURRENT WHS REGULATIONS FOR DESIGN TO BE SAFE SO FAR AS REASONABLY PRACTICABLE. HAZARD AND RISK IDENTIFICATION IS BASED ON INFORMATION AVAILABLE TO THE DESIGNER AT THE TIME OF THE DESIGN.
2.	ASSESSMENT IS LIMITED TO THE SCOPE OF ACOR'S COMMISSION INCLUDING: <ul style="list-style-type: none">• BULK EARTHWORKS• STORMWATER DRAINAGE• RETAINING STRUCTURES
3.	IDENTIFIED HAZARDS ARE THOSE WHICH ARE AFFECTED BY THE DESIGN, AND ARE WITHIN THE CONTROL OF THE DESIGNER.
4.	HAZARDS AND RISK RELATING TO CONSTRUCTION, OPERATION, MAINTENANCE AND DEMOLITION MUST BE CONSIDERED BY THE OWNER, MANAGER, BUILDER, USER, MAINTAINER AND DEMOLISHER. ALL SUCH ENTITIES ARE ASSUMED TO BE QUALIFIED, COMPETENT AND EXPERIENCED.
5.	SEEK ADVICE WHERE ACTIVITIES ARE OUTSIDE THE FIELD OF EXPERIENCE OF THE OPERATOR/BUILDER/MAINTAINER, INCLUDING BUT NOT LIMITED TO QUALIFIED STRUCTURAL AND GEOTECHNICAL ENGINEERS.
6.	ATYPICAL HAZARDS ON THIS PROJECT INCLUDE THE CONSTRUCTION OF A RETAINING WALLS IN EXCESS OF 4 METRES. THIS WILL NEED TO BE CONSTRUCTED IN SEVERAL LIFTS WITH THE APPROPRIATE SAFETY BARRIERS AND EQUIPMENT INSTALLED AND WORN BY THE CONTRACTORS. REFER TO SID REPORT.

NAME&CREDENTIALS				North
C	ISSUED FOR DA	03.12.24	MDM	JPR
B	ISSUED FOR DA	17.10.24	MDM	JPR
A	DRAFT SCHEMATIC DESIGN	29.08.24	MDM	JPR
Issue	Description	Date	Drawn	Approved

PRINT IN COLOUR

Client	Architect
	 <small>Nominated Architect Justin Harrison (B160) ABN 32 131 584 845</small>







ACOR Consultants Pty Ltd
The Forum, Level 1
Suite 1 240-244 Pacific Highway
Charlestown NSW 2290
T +61 2 4926 4811

Project		Drawing Title	
GILLIESTON PUBLIC SCHOOL		CIVIL SERVICES CONSTRUCTION NOTES	
Drawn	Designed	O.A. Check	Date
MDM	SJO	JPR	03.12.24
Project No.		Scale @ A1	
NS221454		N.T.S.	
Drawing No.		Issue	
GPS-ACOR-00-XX-DR-C-010101		C	

NOT FOR CONSTRUCTION



LEGEND

	DESIGN CONTOURS 1.0m INTERVALS
	DESIGN CONTOURS 0.2m INTERVALS
	SEDIMENT FENCE TO SD 6-8
	GEOTEXTILE INLET FILTER TO SD 6-12
	STABILISED SITE ACCESS TO SD 6-14
	MESH AND GRAVEL INLET FILTER TO SD 6-14

[illegible]

EROSION AND SEDIMENT CONTROL NOTES									
GENERAL: 1. SWMP REFERS TO SOIL AND WATER MANAGEMENT PLAN. 2. SEDIMENT, INCLUDES, BUT IS NOT LIMITED TO, CLAY, SILT, SAND, GRAVEL, SOIL, MUD, CEMENT, AND CERAMIC WASTE THAT CAN BE WASHED FROM SITE. 3. ANY REFERENCE TO THE BLUE BOOK REFERS TO MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION. LANDCOM, 2004. 4. ANY REFERENCE TO THE IECA WHITE BOOKS (2008) REFERS TO IECA 2008. BEST PRACTICE EROSION AND SEDIMENT CONTROL. BOOKS 1-6. INTERNATIONAL EROSION CONTROL ASSOCIATION (AUSTRALASIA). PICTON NSW. 5. ANY MATERIAL DEPOSITED IN ANY CONSERVATION AREA FROM WORKS ASSOCIATED WITH THE DEVELOPMENT SHALL BE REMOVED IMMEDIATELY BY MEASURES INVOLVING MINIMAL GROUND AND/OR VEGETATION DISTURBANCE AND NO MACHINERY, OR FOLLOWING DIRECTIONS BY COUNCIL AND/OR WITHIN A TIMEFRAME ADVISED BY COUNCIL.. THE ESCP: 6. THE ESCP AND ITS ASSOCIATED ESC MEASURES SHALL BE CONSTANTLY MONITORED, REVIEWED, AND MODIFIED AS REQUIRED TO CORRECT DEFICIENCIES. COUNCIL HAS THE RIGHT TO DIRECT CHANGES IF, IN ITS OPINION, THE MEASURES THAT ARE PROPOSED OR HAVE BEEN INSTALLED ARE INADEQUATE TO PREVENT POLLUTION. 7. PRIOR TO ANY ACTIVITIES ONSITE, THE RESPONSIBLE PERSON(S) IS TO BE NOMINATED. THE RESPONSIBLE PERSON(S) SHALL BE RESPONSIBLE FOR THE ESC MEASURES ONSITE. THE NAME, ADDRESS AND 24 HOUR CONTACT DETAILS OF THE PERSON(S) SHALL BE PROVIDED TO COUNCIL IN WRITING. COUNCIL SHALL BE ADVISED WITHIN 48 HOURS OF ANY CHANGES TO THE RESPONSIBLE PERSON(S), OR THEIR CONTACT DETAILS, IN WRITING. 8. AT LEAST 14 DAYS BEFORE THE NATURAL SURFACE IS DISTURBED IN ANY STAGE, THE CONTRACTOR SHALL SUBMIT TO THE CERTIFIER, A PLAN SHOWING ESC MEASURES FOR THAT STAGE. THE DEGREE OF DESIGN DETAIL SHALL BE BASED ON THE DISTURBED AREA (UNLESS NOTED OTHERWISE). 9. AT ANY TIME, THE ESC MEASURES ONSITE SHALL BE APPROPRIATE FOR THE AREA OF DISTURBANCE AND ITS CHARACTERISTICS INCLUDING SOILS (IN ACCORDANCE WITH THOSE REQUIRED FOR THE SITE AS PER DCP). 10. THE IMPLEMENTATION OF THE ESCP SHALL BE SUPERVISED BY PERSONNEL WITH APPROPRIATE QUALIFICATIONS AND/OR EXPERIENCE IN ESC ON CONSTRUCTION SITES. 11. THE APPROVED ESCP SHALL BE AVAILABLE ON-SITE FOR INSPECTION BY COUNCIL OFFICERS WHILE WORK ACTIVITIES ARE OCCURRING. 12. THE APPROVED ESCP SHALL BE UP TO DATE AND SHOW A TIMELINE OF INSTALLATION, MAINTENANCE AND REMOVAL OF ESC MEASURES. 13. ALL ESC MEASURES SHALL BE APPROPRIATE FOR THE SEDIMENT TYPE(S) OF THE SOILS ONSITE, IN ACCORDANCE WITH THE BLUE BOOK, IECA WHITE BOOKS OR OTHER CURRENT RECOGNISED INDUSTRY STANDARD FOR ESC FOR AUSTRALIAN CONDITIONS. 14. ADEQUATE SITE DATA, INCLUDING SOIL DATA FROM A NATA APPROVED LABORATORY, SHALL BE OBTAINED TO ALLOW THE PREPARATION OF AN APPROPRIATE ESCP, AND ALLOW THE SELECTION, DESIGN AND SPECIFICATION OF REQUIRED ESC MEASURES. 15. ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE APPROVED ESCP (AS AMENDED FROM TIME TO TIME) UNLESS CIRCUMSTANCES ARISE WHERE: a) COMPLIANCE WITH THE ESCP WOULD INCREASE THE POTENTIAL FOR ENVIRONMENTAL HARM; OR b) CIRCUMSTANCES CHANGE DURING CONSTRUCTION AND THOSE CIRCUMSTANCES COULD NOT HAVE BEEN FORESEEN; OR c) COUNCIL DETERMINES THAT UNACCEPTABLE OFF-SITE SEDIMENTATION IS OCCURRING AS A RESULT OF A LAND-DISTURBING ACTIVITY. IN EITHER CASE, THE PERSON(S) RESPONSIBLE MAY BE REQUIRED TO TAKE ADDITIONAL, OR ALTERNATIVE PROTECTIVE ACTION, AND/OR UNDERTAKE REASONABLE RESTORATION WORKS WITHIN THE TIMEFRAME SPECIFIED BY THE COUNCIL. 16. ADDITIONAL ESC MEASURES SHALL BE IMPLEMENTED, AND A REVISED ESCP SUBMITTED FOR APPROVAL TO THE CERTIFIER (WITHIN FIVE BUSINESS DAYS OF ANY SUCH AMENDMENTS) IN THE EVENT THAT: a) THERE IS A HIGH PROBABILITY THAT SERIOUS OR MATERIAL ENVIRONMENTAL HARM MAY OCCUR AS A RESULT OF SEDIMENT LEAVING THE SITE; OR b) THE IMPLEMENTED WORKS FAIL TO ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES SPECIFIED IN THESE CONDITIONS; OR c) SITE CONDITIONS SIGNIFICANTLY CHANGE; OR d) SITE INSPECTIONS INDICATE THAT THE IMPLEMENTED WORKS ARE FAILING TO ACHIEVE THE "OBJECTIVE" OF THE ESCP. 17. A COPY OF ANY AMENDED ESCP SHALL BE FORWARDED TO AN APPROPRIATE COUNCIL OFFICER, WITHIN FIVE BUSINESS DAYS OF ANY SUCH AMENDMENTS.									

EROSION AND SEDIMENT CONTROL NOTES									
SITE ESTABLISHMENT INCLUDING CLEARING AND MULCHING: 18. NO CLEARING SHALL BE UNDERTAKEN UNLESS PRECEDED BY THE INSTALLATION OF ADEQUATE DRAINAGE AND SEDIMENT CONTROL MEASURES, UNLESS SUCH CLEARING IS REQUIRED FOR THE PURPOSE OF INSTALLING SUCH MEASURES, IN WHICH CASE, ONLY THE MINIMUM CLEARING REQUIRED TO INSTALL SUCH MEASURES SHALL OCCUR. 19. BULK TREE CLEARING AND GRUBBING OF THE SITE SHALL BE IMMEDIATELY FOLLOWED BY SPECIFIED TEMPORARY EROSION CONTROL MEASURES (E.G. TEMPORARY GRASSING OR MULCHING) PRIOR TO COMMENCEMENT OF EACH STAGE OF CONSTRUCTION WORKS. 20. TREES AND VEGETATION CLEARED FROM THE SITE SHALL BE MULCHED ONSITE WITHIN 7 DAYS OF CLEARING. 21. APPROPRIATE MEASURES SHALL BE UNDERTAKEN TO CONTROL ANY DUST ORIGINATING DUE TO THE MULCHING OF VEGETATION ONSITE. 22. ALL OFFICE FACILITIES AND OPERATIONAL ACTIVITIES SHALL BE LOCATED SUCH THAT ANY EFFLUENT, INCLUDING WASH-DOWN WATER, CAN BE TOTALLY CONTAINED AND TREATED WITHIN THE SITE. 23. ALL REASONABLE AND PRACTICABLE MEASURES SHALL BE TAKEN TO ENSURE STORMWATER RUNOFF FROM ACCESS ROADS AND STABILISED ENTRY/EXIT SYSTEMS, DRAINS TO AN APPROPRIATE SEDIMENT CONTROL DEVICE. 24. SITE EXIT POINTS SHALL BE APPROPRIATELY MANAGED TO MINIMISE THE RISK OF SEDIMENT BEING TRACKED ONTO SEALED, PUBLIC ROADWAYS. 25. STORMWATER RUNOFF FROM ACCESS ROADS AND STABILISED ENTRY/EXIT POINTS SHALL DRAIN TO AN APPROPRIATE SEDIMENT CONTROL DEVICE. 26. THE APPLICANT SHALL ENSURE AN ADEQUATE SUPPLY OF ESC, AND APPROPRIATE POLLUTION CLEAN-UP MATERIALS ARE AVAILABLE ON-SITE AT ALL TIMES. 27. ALL TEMPORARY EARTH BANKS, FLOW DIVERSION SYSTEMS, AND SEDIMENT BASIN EMBANKMENTS SHALL BE MACHINE-COMPACTED, SEEDED AND MULCHED WITHIN TEN (10) DAYS OF FORMATION FOR THE PURPOSE OF ESTABLISHING A VEGETATIVE COVER, OR LINED APPROPRIATELY. 28. SEDIMENT DEPOSITED OFF SITE AS A RESULT OF ON-SITE ACTIVITIES SHALL BE COLLECTED AND THE AREA CLEANED/REHABILITATED AS SOON AS REASONABLE AND PRACTICABLE. 29. CONCRETE WASTE AND CHEMICAL PRODUCTS, INCLUDING PETROLEUM AND OIL-BASED PRODUCTS, SHALL BE PREVENTED FROM ENTERING ANY INTERNAL OR EXTERNAL WATER BODY, OR ANY EXTERNAL DRAINAGE SYSTEM, EXCLUDING THOSE ON-SITE WATER BODIES SPECIFICALLY DESIGNED TO CONTAIN AND/OR TREAT SUCH MATERIAL. APPROPRIATE MEASURES SHALL BE INSTALLED TO TRAP THESE MATERIALS ONSITE. 30. BRICK, TILE OR MASONRY CUTTING SHALL BE CARRIED OUT ON A PERVIOUS SURFACE (E.G. GRASS OR OPEN SOIL) AND IN SUCH A MANNER THAT ANY RESULTING SEDIMENT-LADEN RUNOFF IS PREVENTED FROM DISCHARGING INTO A GUTTER, DRAIN OR WATER. APPROPRIATE MEASURES SHALL BE INSTALLED TO TRAP THESE MATERIALS ONSITE. 31. NEWLY SEALED HARD-STAND AREAS (E.G. ROADS, DRIVEWAYS AND CAR PARKS) SHALL BE SWEEP THOROUGHLY AS SOON AS PRACTICABLE AFTER SEALING/SURFACING TO MINIMISE THE RISK OF COMPONENTS OF THE SURFACING COMPOUND ENTERING STORMWATER DRAINS. 32. STOCKPILES OF ERODIBLE MATERIAL SHALL BE PROVIDED WITH AN APPROPRIATE PROTECTIVE COVER (SYNTHETIC OR ORGANIC) IF THE MATERIALS ARE LIKELY TO BE STOCKPILED FOR MORE THAN 10 DAYS. 33. STOCKPILES, TEMPORARY OR PERMANENT, SHALL NOT BE LOCATED IN AREAS IDENTIFIED AS NO-GO ZONES (INCLUDING, BUT NOT LIMITED TO, RESTRICTED ACCESS AREAS, BUFFER ZONES, OR AREAS OF NON-DISTURBANCE) ON THE ESCP. 34. NO MORE THAN 150m OF A STORMWATER, SEWER LINE OR OTHER SERVICE TRENCH SHALL TO BE OPEN AT ANY ONE TIME. 35. SITE SPOIL SHALL BE LAWFULLY DISPOSED OF IN A MANNER THAT DOES NOT RESULT IN ONGOING SOIL EROSION OR ENVIRONMENTAL HARM. 36. WHEREVER REASONABLE AND PRACTICABLE, STORMWATER RUNOFF ENTERING THE SITE FROM EXTERNAL AREAS, AND NON-SEDIMENT LADEN (CLEAN) STORMWATER RUNOFF ENTERING A WORK AREA OR AREA OF SOIL DISTURBANCE, SHALL BE DIVERTED AROUND OR THROUGH THAT AREA IN A MANNER THAT MINIMISES SOIL EROSION AND THE CONTAMINATION OF THAT WATER FOR ALL DISCHARGES UP TO THE SPECIFIED DESIGN STORM DISCHARGE. SITE MANAGEMENT INCLUDING DUST: 37. PRIORITY SHALL BE GIVEN TO THE PREVENTION, OR AT LEAST THE MINIMISATION, OF SOIL EROSION, RATHER THAN THE TRAPPING OF DISPLACED SEDIMENT. SUCH A CLAUSE SHALL NOT REDUCE THE RESPONSIBILITY TO APPLY AND MAINTAIN, AT ALL TIMES, ALL NECESSARY ESC MEASURES.									

EROSION AND SEDIMENT CONTROL NOTES									
38. MEASURES USED TO CONTROL WIND EROSION SHALL BE APPROPRIATE FOR THE LOCATION AND PREVENT SOIL EROSION AND EMISSIONS FROM SITE AT ALL TIMES, INCLUDING WORKING HOURS, OUT OF HOURS, WEEKENDS, PUBLIC HOLIDAYS, AND DURING ANY OTHER SHUTDOWN PERIODS. 39. THE APPLICATION OF LIQUID OR CHEMICAL-BASED DUST SUPPRESSION MEASURES SHALL ENSURE THAT SEDIMENT-LADEN RUNOFF RESULTING FROM SUCH MEASURES DOES NOT CREATE A TRAFFIC OR ENVIRONMENTAL HAZARD. 40. ALL DISTURBED AREAS SHALL BE STABILISED IN ACCORDANCE WITH TIME LINES IN THE BLUE BOOK. 41. ALL REASONABLE AND PRACTICABLE MEASURES SHALL BE TAKEN TO PREVENT, OR AT LEAST MINIMISE, THE RELEASE OF SEDIMENT FROM THE SITE. 42. SUITABLE ALL-WEATHER MAINTENANCE ACCESS SHALL BE PROVIDED TO ALL SEDIMENT CONTROL DEVICES. 43. SEDIMENT CONTROL DEVICES, OTHER THAN SEDIMENT BASINS, SHALL BE DE-SILTED AND MADE FULLY OPERATIONAL AS SOON AS REASONABLE AND PRACTICABLE AFTER A SEDIMENT-PRODUCING EVENT, WHETHER NATURAL OR ARTIFICIAL, IF THE DEVICE'S SEDIMENT RETENTION CAPACITY FALLS BELOW 75% OF ITS DESIGN RETENTION CAPACITY. 44. ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING DRAINAGE CONTROL MEASURES, SHALL BE MAINTAINED IN PROPER WORKING ORDER AT ALL TIMES DURING THEIR OPERATIONAL LIVES. 45. WASHING/FLUSHING OF SEALED ROADWAYS SHALL ONLY OCCUR WHERE SWEEPING HAS FAILED TO REMOVE SUFFICIENT SEDIMENT AND THERE IS A COMPELLING NEED TO REMOVE THE REMAINING SEDIMENT (E.G. FOR SAFETY REASONS). IN SUCH CIRCUMSTANCES, ALL REASONABLE AND PRACTICABLE SEDIMENT CONTROL MEASURES SHALL BE USED TO PREVENT, OR AT LEAST MINIMISE, THE RELEASE OF SEDIMENT INTO RECEIVING WATERS. ONLY THOSE MEASURES THAT WILL NOT CAUSE SAFETY AND PROPERTY FLOODING ISSUES SHALL BE EMPLOYED. SEDIMENT REMOVED FROM ROADWAYS SHALL BE DISPOSED OF IN A LAWFUL MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM. 46. SEDIMENT REMOVED FROM SEDIMENT TRAPS AND PLACES OF SEDIMENT DEPOSITION SHALL BE DISPOSED OF IN A LAWFUL MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM. SEDIMENT BASINS - INSTALLATION, MAINTENANCE AND REMOVAL INCLUDING SEDIMENT TRAPS: 47. AS-CONSTRUCTED PLANS SHALL BE PREPARED FOR ALL CONSTRUCTED SEDIMENT BASINS AND ASSOCIATED EMERGENCY SPILLWAYS. SUCH PLANS SHALL VERIFY THE BASIN'S DIMENSIONS, LEVELS AND VOLUMES COMPLY WITH THE APPROVED DESIGN DRAWINGS. THESE PLANS MAY BE REQUESTED BY THE CERTIFIER OR COUNCIL. 48. SEDIMENT BASINS SHALL BE CONSTRUCTED AND FULLY OPERATIONAL PRIOR TO ANY OTHER SOIL DISTURBANCE IN THEIR CATCHMENT. 49. INSTALL AN INTERNAL GATED VALVE, OR SIMILAR, IN ANY OUTLET PIPE ONCE PIPES INSTALLED, OR INSTALL A SACRIFICIAL PIPE FROM BASIN THROUGH WALL TO EXTERNAL OUTLET POINT. THE VALVE SHALL BE CONNECTED TO A RISER MADE FROM SLOTTED PIPE IN THE BASIN. THE VALVE MAY BE OPENED ONCE CAPTURED WATER MEETS WATER QUALITY REQUIREMENTS. THE FINAL SETUP FOR TEMPORARY INTERNAL OUTLET STRUCTURES TO BE CONFIRMED PRIOR TO CONSTRUCTION WITH COUNCIL. THIS SETUP WILL ENABLE DISCHARGE OF TREATED WATER FROM SITE WITHOUT NEED FOR PUMPING. 50. A SEDIMENT STORAGE LEVEL MARKER POST SHALL BE WITH A CROSS MEMBER SET JUST BELOW THE TOP OF THE SEDIMENT STORAGE ZONE (AS SPECIFIED ON THE APPROVED ESCP). AT LEAST A 75mm WIDE POST SHALL BE FIRMLY SET INTO THE BASIN FLOOR. 51. THE SITE MANAGER SHALL OBTAIN THE RELEVANT APPROVALS FROM THE RELEVANT ORGANISATIONS TO DISCHARGE TREATED WATER FROM ANY EXISTING BASINS. ORGANISATIONS MAY INCLUDE, BUT NOT BE LIMITED TO, HUNTER WATER, AND COUNCIL. 52. WHERE MORE THAN ONE STAGE IS TO BE DEVELOPED AT ONE TIME, OR BEFORE THE PRECEDING STAGE IS COMPLETE, THE SEDIMENT BASIN(S) FOR THESE STAGES SHALL HAVE SUFFICIENT CAPACITY TO CATER FOR ALL AREA DIRECTED TO THE BASIN(S). 53. PRIOR TO ANY FORECAST WEATHER EVENT LIKELY TO RESULT IN RUNOFF, ANY BASINS/TRAPS SHALL BE DEWATERED TO PROVIDE SUFFICIENT CAPACITY TO CAPTURE SEDIMENT LADEN WATER FROM THE SITE. 54. SUFFICIENT QUANTITIES OF CHEMICALS/AGENTS TO TREAT CAPTURED WATER SHALL BE PLACED SUCH THAT WATER ENTERING THE BASIN MIXES WITH THE CHEMICAL/AGENTS AND IS CARRIED INTO THE BASIN TO SPEED UP CLARIFICATION. 55. ANY BASIN SHALL BE DEWATERED WITHIN THE X-DAY RAINFALL DEPTH USED TO CALCULATE THE CAPACITY OF THE BASIN, AFTER A RAINFALL EVENT. 56. SUFFICIENT QUANTITIES OF CHEMICALS/AGENTS TO TREAT TURBID WATER SHALL BE SECURELY STORED ON-SITE TO PROVIDE FOR AT LEAST THREE COMPLETE									

EROSION AND SEDIMENT CONTROL NOTES									
TREATMENTS OF ALL BASINS REQUIRING CHEMICALLY TREATMENT ONSITE. 57. PRIOR TO THE CONTROLLED DISCHARGE (E.G. DE-WATERING ACTIVITIES) FROM SITE INCLUDING EXCAVATIONS AND/OR SEDIMENT BASINS, THE FOLLOWING WATER QUALITY OBJECTIVES SHALL BE ACHIEVED: A) TOTAL SUSPENDED SOLIDS (TSS) TO A MAXIMUM 50 MILLIGRAMS/L; B) WATER PH BETWEEN 6.5 AND 8.5, UNLESS OTHERWISE REQUIRED BY THE COUNCIL; C) TURBIDITY (MEASURED IN NTUS) TO A MAXIMUM OF 60 NTU); AND D) EC LEVELS NO GREATER THAN BACKGROUND LEVELS. 60. THE DEVELOPMENT APPROVAL MAY REQUIRE TESTING OF ADDITIONAL WATER QUALITY ELEMENTS PRIOR TO DISCHARGE. E.G. INCLUDING BUT NOT LIMITED TO METALS, ORGANIC SUBSTANCES, CHEMICALS OR BACTERIOLOGICAL INDICATORS. 61. A SAMPLE OF THE RELEASED TREATED WATER SHALL BE KEPT ONSITE IN A CLEAR CONTAINER WITH THE SAMPLE DATE RECORDED ON IT. 62. WATER QUALITY SAMPLES SHALL BE TAKEN AT A DEPTH NO LESS THAN 200MM BELOW THE WATER SURFACE OF THE BASIN. 63. NO ALUMINIUM BASED PRODUCTS MAY BE USED TREAT CAPTURED WATER ONSITE WITHOUT THE PRIOR WRITTEN PERMISSION FROM AN APPROPRIATE COUNCIL OFFICER. THE APPLICANT SHALL HAVE A DEMONSTRATED ABILITY TO USE SUCH PRODUCTS CORRECTLY AND WITHOUT ENVIRONMENTAL HARM PRIOR TO ANY APPROVAL. 64. THE CHEMICAL/AGENT USED IN TYPE D AND TYPE F BASINS TO TREAT CAPTURED WATER CAPTURED IN THE BASIN SHALL BE APPLIED IN CONCENTRATIONS SUFFICIENT TO ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES WITHIN THE X-DAY RAINFALL DEPTH USED TO CALCULATE THE CAPACITY OF THE BASIN, AFTER A RAINFALL EVENT. 65. ALL MANUFACTURERS' INSTRUCTIONS SHALL BE FOLLOWED FOR ANY CHEMICALS/AGENTS USED ONSITE, EXCEPT WHERE APPROVED BY THE RESPONSIBLE PERSON OR AN APPROPRIATE COUNCIL OFFICER. 66. THE APPLICANT SHALL ENSURE THAT ON EACH OCCASION A TYPE C BASIN WAS NOT DE-WATERED PRIOR TO BEING SURCHARGED BY A FOLLOWING RAINFALL EVENT, A REPORT IS PRESENTED TO AN APPROPRIATE COUNCIL OFFICER WITHIN 5 DAYS IDENTIFYING THE CIRCUMSTANCES AND PROPOSED AMENDMENTS, IF ANY, TO THE BASIN'S OPERATING PROCEDURES. 67. SETTLED SEDIMENT SHALL BE REMOVED AS SOON AS REASONABLE AND PRACTICABLE FROM ANY SEDIMENT BASIN IF: a) IT IS ANTICIPATED THAT THE NEXT STORM EVENT IS LIKELY TO CAUSE SEDIMENT TO SETTLE ABOVE THE BASIN'S SEDIMENT STORAGE ZONE; OR b) THE ELEVATION OF SETTLED SEDIMENT IS ABOVE THE TOP OF THE BASIN'S SEDIMENT STORAGE ZONE; OR c) THE ELEVATION OF SETTLED SEDIMENT IS ABOVE THE BASINS SEDIMENT MARKER LINE. 68. SCOUR PROTECTION MEASURES PLACED ON SEDIMENT BASIN EMERGENCY SPILLWAYS SHALL APPROPRIATELY PROTECT THE SPILLWAY CHUTE AND ITS SIDE BATTERS FROM SCOUR, AND SHALL EXTEND A MINIMUM OF 3M BEYOND THE DOWNSTREAM TOE OF THE BASIN'S EMBANKMENT. 69. SUITABLE ALL-WEATHER MAINTENANCE ACCESS SHALL BE PROVIDED TO ALL SEDIMENT CONTROL DEVICES. 70. MATERIALS, WHETHER LIQUID OR SOLID, REMOVED FROM ANY ESC MEASURE OR EXCAVATION DURING MAINTENANCE OR DECOMMISSIONING, SHALL BE DISPOSED OF IN A MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION, WATER POLLUTION OR ENVIRONMENTAL HARM. 71. ALL SEDIMENT BASINS SHALL REMAIN FULLY OPERATIONAL AT ALL TIMES UNTIL THE BASIN'S DESIGN CATCHMENT ACHIEVES 70% GROUND COVER OR SURFACE STABILISATION ACCEPTABLE TO COUNCIL. 72. THE ESC MEASURES INSTALLED DURING THE DECOMMISSIONING AND REHABILITATION OF A SEDIMENT BASIN SHALL COMPLY WITH SAME STANDARDS SPECIFIED FOR THE NORMAL CONSTRUCTION WORKS. 73. A SEDIMENT BASIN SHALL NOT BE DECOMMISSIONED UNTIL ALL UP-SLOPE SITE STABILISATION MEASURES HAVE BEEN IMPLEMENTED AND ARE APPROPRIATELY WORKING TO CONTROL SOIL EROSION AND SEDIMENT RUNOFF.. 74. IMMEDIATELY PRIOR TO THE CONSTRUCTION OF THE PERMANENT STORMWATER TREATMENT DEVICE, APPROPRIATE FLOW BYPASS CONDITIONS SHALL BE ESTABLISHED TO PREVENT SEDIMENT-LADEN WATER ENTERING THE DEVICE.									



<table><tr><td colspan="4">Version / Date</td><td colspan="4">North</td><td colspan="4">Scale</td><td colspan="4">Client</td><td colspan="4">Architect</td><td colspan="4">Project</td><td colspan="4">Drawing Title</td></tr><tr><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4">CIVIL SERVICES</td></tr><tr><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4">EROSION AND SEDIMENT CONTROL NOTES</td></tr><tr><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4">SHEET 1</td></tr><tr><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4">Drawn</td></tr><tr><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4">Designed</td></tr><tr><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4">O.A. Check</td></tr><tr><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4">Date</td></tr><tr><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4">Scale @ A1</td></tr><tr><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4">1:500</td></tr><tr><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4">Project No.</td></tr><tr><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4">Drawing No.</td></tr><tr><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4">Issue</td></tr><tr><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td><td colspan="4">C</td></tr></table>																												Version / Date				North				Scale				Client				Architect				Project				Drawing Title																												CIVIL SERVICES																												EROSION AND SEDIMENT CONTROL NOTES																												SHEET 1																												Drawn																												Designed																												O.A. Check																												Date																												Scale @ A1																												1:500																												Project No.																												Drawing No.																												Issue																												C			
Version / Date				North				Scale				Client				Architect				Project				Drawing Title																																																																																																																																																																																																																																																																																																																																																																																																											
																								CIVIL SERVICES																																																																																																																																																																																																																																																																																																																																																																																																											
																								EROSION AND SEDIMENT CONTROL NOTES																																																																																																																																																																																																																																																																																																																																																																																																											
																								SHEET 1																																																																																																																																																																																																																																																																																																																																																																																																											
																								Drawn																																																																																																																																																																																																																																																																																																																																																																																																											
																								Designed																																																																																																																																																																																																																																																																																																																																																																																																											
																								O.A. Check																																																																																																																																																																																																																																																																																																																																																																																																											
																								Date																																																																																																																																																																																																																																																																																																																																																																																																											
																								Scale @ A1																																																																																																																																																																																																																																																																																																																																																																																																											
																								1:500																																																																																																																																																																																																																																																																																																																																																																																																											
																								Project No.																																																																																																																																																																																																																																																																																																																																																																																																											
																								Drawing No.																																																																																																																																																																																																																																																																																																																																																																																																											
																								Issue																																																																																																																																																																																																																																																																																																																																																																																																											
																								C																																																																																																																																																																																																																																																																																																																																																																																																											

EROSION AND SEDIMENT CONTROL NOTES

REVEGETATION/STABILISATION:

75. TEMPORARY STABILISATION MAY BE ATTAINED USING VEGETATION, NON REWETTABLE SOIL POLYMERS, OR PNEUMATICALLY APPLIED EROSION CONTROLS.

76. AT THE COMPLETION OF FORMATION IN ANY SECTION, ALL DISTURBED AREAS SHALL BE STABILISED IN ACCORDANCE WITH TIME LINES IN THE BLUE BOOK.

77. THE CITY OF NEWCASTLE SEED MIX SHALL BE USED UNLESS STATED ON THE ESCP/SWMP.

78. THE PH LEVEL OF TOPSOIL SHALL BE APPROPRIATE TO ENABLE ESTABLISHMENT AND GROWTH OF SPECIFIED VEGETATION PRIOR TO INITIATING THE ESTABLISHMENT OF VEGETATION.

79. NON REWETTABLE BINDER SHALL BE USED IN ALL HYDROMULCH/HYDROSEED/POLYMER MIXES ON SLOPES OR WORKS ADJACENT TO A WATER COURSE.

80. SOIL AMELIORANTS SHALL BE ADDED TO THE SOIL IN ACCORDANCE WITH AN APPROVED LANDSCAPE PLAN, VEGETATION MANAGEMENT PLAN, AND/OR SOIL ANALYSIS.

81. SURFACE SOIL DENSITY, COMPACTION AND SURFACE ROUGHNESS SHALL BE ADJUSTED PRIOR TO SEEDING/PLANTING IN ACCORDANCE WITH AN APPROVED LANDSCAPE PLAN, VEGETATION MANAGEMENT PLAN, AND/OR SOIL ANALYSIS.

82. PROCEDURES FOR INITIATING A SITE SHUTDOWN, WHETHER PROGRAMMED OR UN-PROGRAMMED, SHALL INCORPORATE REVEGETATION OF ALL SOIL DISTURBANCES UNLESS OTHERWISE APPROVED BY COUNCIL. THE STABILISATION WORKS SHALL NOT RELY UPON THE LONGEVITY OF NON-VEGETATED EROSION CONTROL BLANKETS, OR TEMPORARY SOIL BINDERS.

SITE MONITORING AND MAINTENANCE:

83. THE APPLICANT SHALL ENSURE THAT APPROPRIATE PROCEDURES AND SUITABLY QUALIFIED PERSONNEL ARE ENGAGED TO PLAN AND CONDUCT SITE INSPECTIONS AND WATER QUALITY MONITORING THROUGHOUT THE CONSTRUCTION AND MAINTENANCE PHASE.

84. ALL ESC MEASURES SHALL BE INSPECTED AND ANY MAINTENANCE UNDERTAKEN IMMEDIATELY:

- A) AT LEAST DAILY (WHEN WORK IS OCCURRING ON-SITE); AND
B) AT LEAST WEEKLY (WHEN WORK IS NOT OCCURRING ON-SITE); AND
C) WITHIN 24HRS OF EXPECTED RAINFALL; AND
D) WITHIN 18HRS OF A RAINFALL EVENT THAT CAUSES RUNOFF ON THE SITE.

85. WRITTEN RECORDS SHALL BE KEPT ONSITE OF ESC MONITORING AND MAINTENANCE ACTIVITIES CONDUCTED DURING THE CONSTRUCTION AND MAINTENANCE PERIODS, AND BE AVAILABLE TO COUNCIL OFFICERS ON REQUEST.

86. ALL ENVIRONMENTALLY RELEVANT INCIDENTS SHALL BE RECORDED IN A FIELD LOG THAT SHALL REMAIN ACCESSIBLE TO ALL RELEVANT REGULATORY AUTHORITIES.

87. ALL WATER QUALITY DATA, INCLUDING DATES OF RAINFALL, DATES OF TESTING, TESTING RESULTS AND DATES OF WATER RELEASE, SHALL BE KEPT IN AN ON-SITE REGISTER. THE REGISTER IS TO BE MAINTAINED UP TO DATE FOR THE DURATION OF THE APPROVED WORKS AND BE AVAILABLE ON-SITE FOR INSPECTION BY ALL RELEVANT REGULATORY AUTHORITIES ON REQUEST.

88. AT NOMINATED INSTREAM WATER MONITORING SITES, A MINIMUM OF 3 WATER SAMPLES SHALL BE TAKEN AND ANALYSED, AND THE AVERAGE RESULT USED TO DETERMINE QUALITY.

								North
C	ISSUED FOR DA		03.12.24	MDM	JPR			
B	ISSUED FOR DA		17.10.24	MDM	JPR			
A	DRAFT SCHEMATIC DESIGN		29.08.24	MDM	JPR			
Date	Description		Date	Drawn	Approved			

	North
--	-------

	North	Scale
--	-------	-------

	ISSUED FOR DA	17.10.24	MDM	JPR
A	DRAFT SCHEMATIC DESIGN	29.08.24	MDM	JPR

PRINT IN COLOUR

Client _____




Architect




SHAC

Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846

Nominated Architect Justin Hamilton (6160) | ABN 32 131 584 846

ACOR Consultants Pty Ltd
The Forum, Level 1
Suite 1 240-244 Pacific Highway
Charlestown NSW 2290
T +61 2 4926 4811

 **CONSULTANTS**

ACOR Consultants Pty Ltd

The Forum, Level 1
Suite 1 240-244 Pacific Highway
Charlestown NSW 2290
T +61 2 4926 4811



Project	
---------	--

GILLIESTON PUBLIC SCHOOL

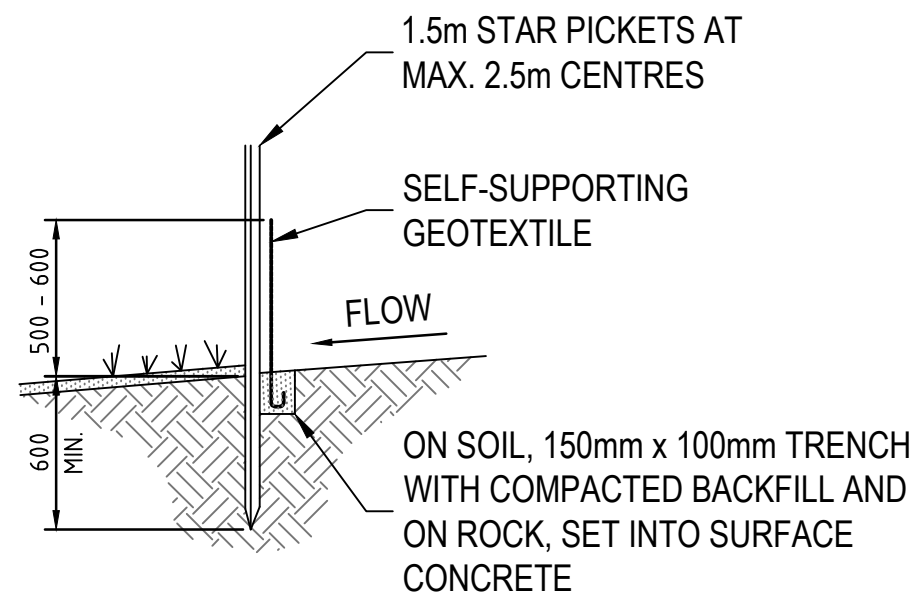
100 RYANS ROAD
GILLIESTON HEIGHTS, NSW, 2321

NOT FOR CONSTRUCTION

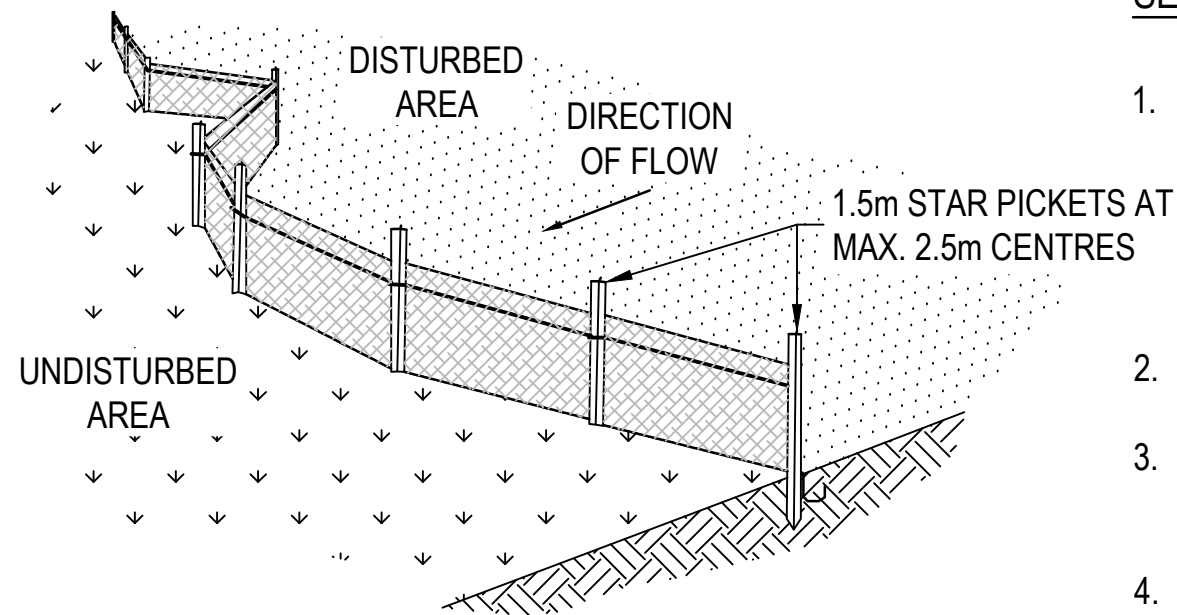
Drawing Title
 CIVIL SERVICES
 EROSION AND SEDIMENT CONTROL NOTES
 SHEET 2

Drawn MDM	Designed SJO	Q.A. Check JPR	Date 03.12.24	Scale @ A1 1:500
Project No. NS221454	Drawing No. GPS-ACOR-00-XX-DR-C-030102			Issue C





SECTION DETAIL

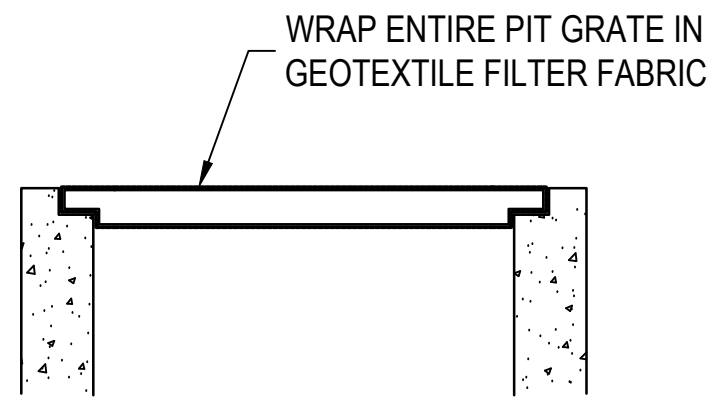


PLAN

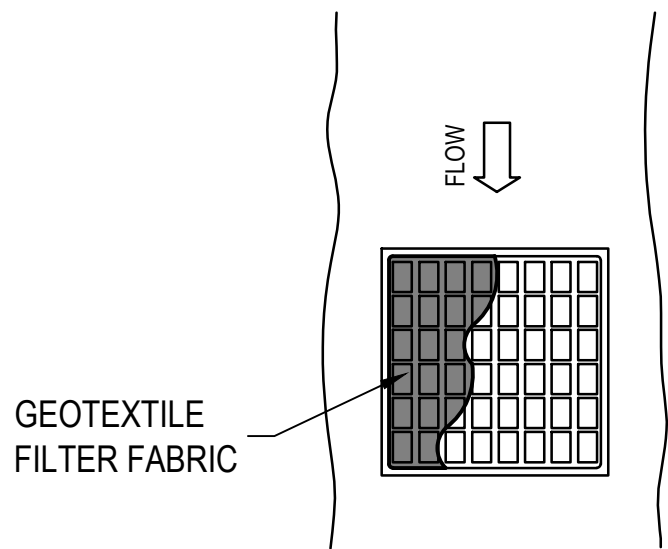
SEDIMENT CONTROL FENCE DETAIL (TO SD6-8)
NOT TO SCALE

SEDIMENT FENCE CONSTRUCTION NOTES:

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO 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 50L PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10 YR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5m LONG STAR PICKETS INTO GROUND AT 2.5m INTERVALS (MAX) AT THE DOWN SLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. 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.
5. 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.
- 6.



SECTION DETAIL

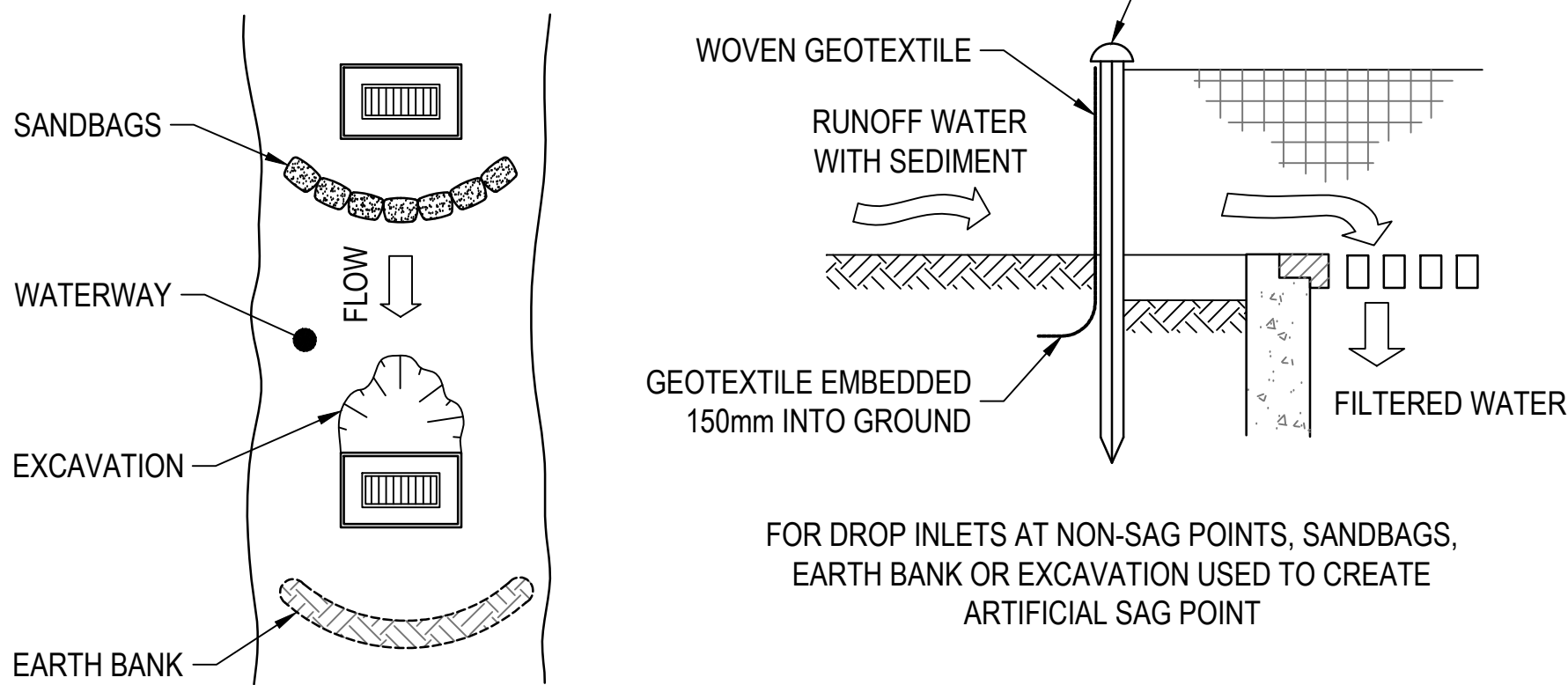
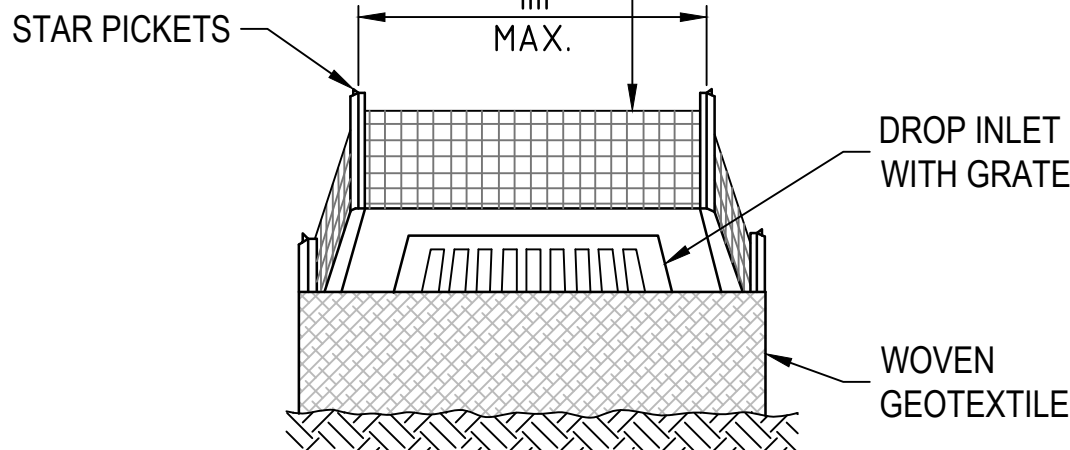


PLAN DETAIL

GEOTEXTILE WRAPPED GRATE

NTS

WIRE OR STEEL MESH (14 GAUGE x 150mm OPENINGS) WHERE GEOTEXTILE IS NOT SELF-SUPPORTING

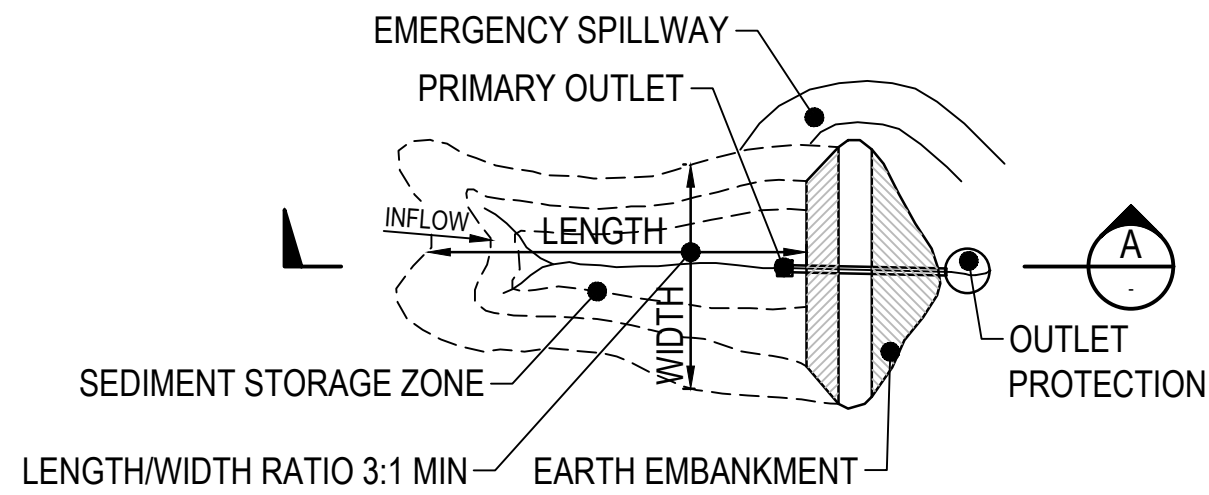


GEOTEXTILE INLET FILTER CONSTRUCTION NOTES:

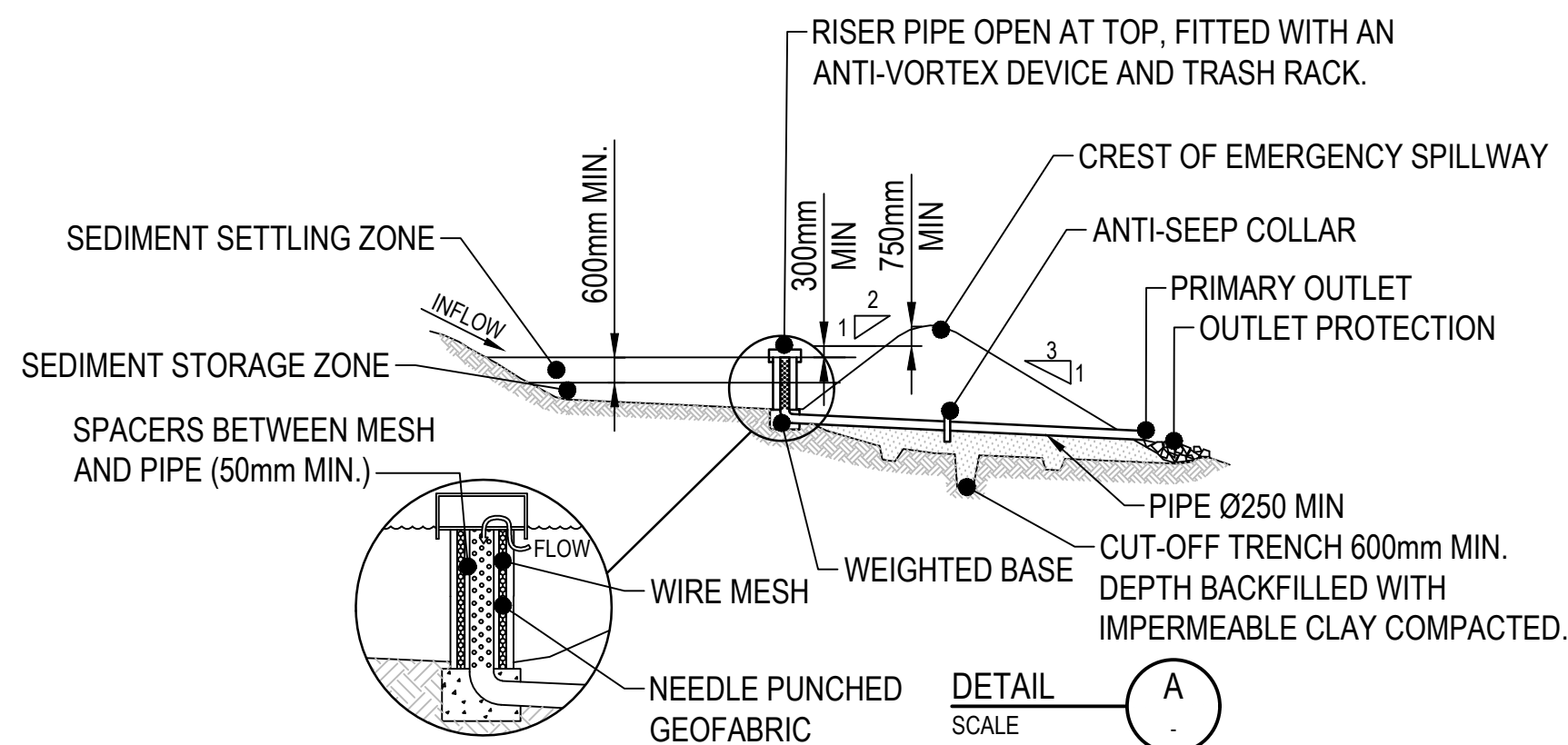
1. FABRICATE A SEDIMENT BARRIER FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1m CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

GEOTEXTILE INLET FILTER DETAIL (TO SD6-12)

NOT TO SCALE



PLAN VIEW

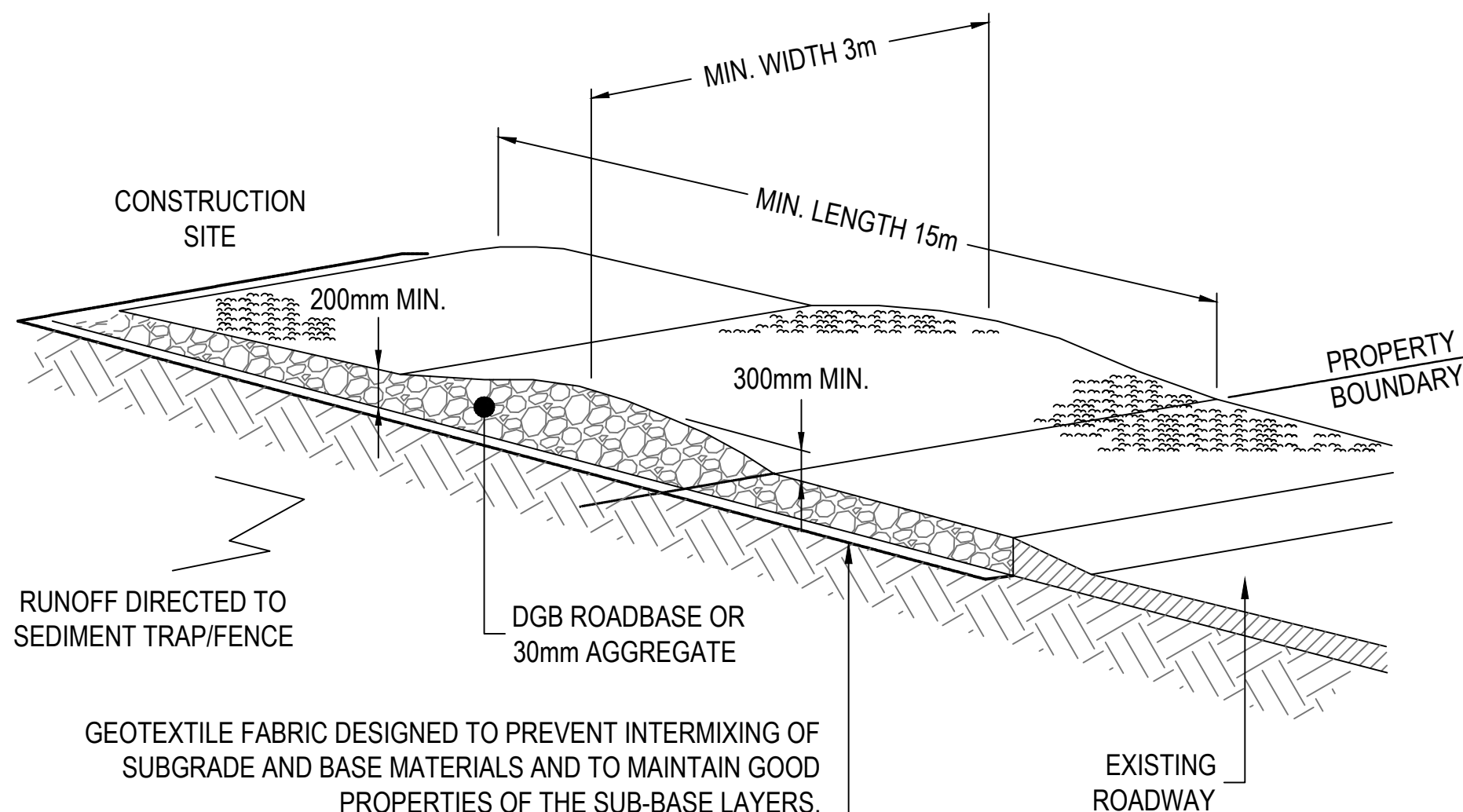


PERFORATED RISER

EARTH BASIN - DRY (SD 6-3)

CONSTRUCTION NOTES

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. FORM A CUT OFF TRENCH UNDER THE CENTRELINE OF THE EMBANKMENT 600mm DEEP AND 1200mm WIDE, EXTENDING TO A POINT ON THE WATERCOURSE WALL ABOVE THE RISER SILL LEVEL.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL ACCORDING TO THE SWMP THAT IS FREE FROM ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100mm TO HELP BOND THE COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. INSTALL THE PIPE OUTLET WITH SEEPAGE COLLARS AS SPECIFIED IN THE SWMP AND STANDARD DRAWING 6-3B.
8. FORM BATTER GRADES AT 2(H):1(V) UPSTREAM AND 3(H):1(V) DOWNSTREAM OR AS SPECIFIED IN THE SWMP.



STABILISED SITE ACCESS DETAIL (TO SD6-14)

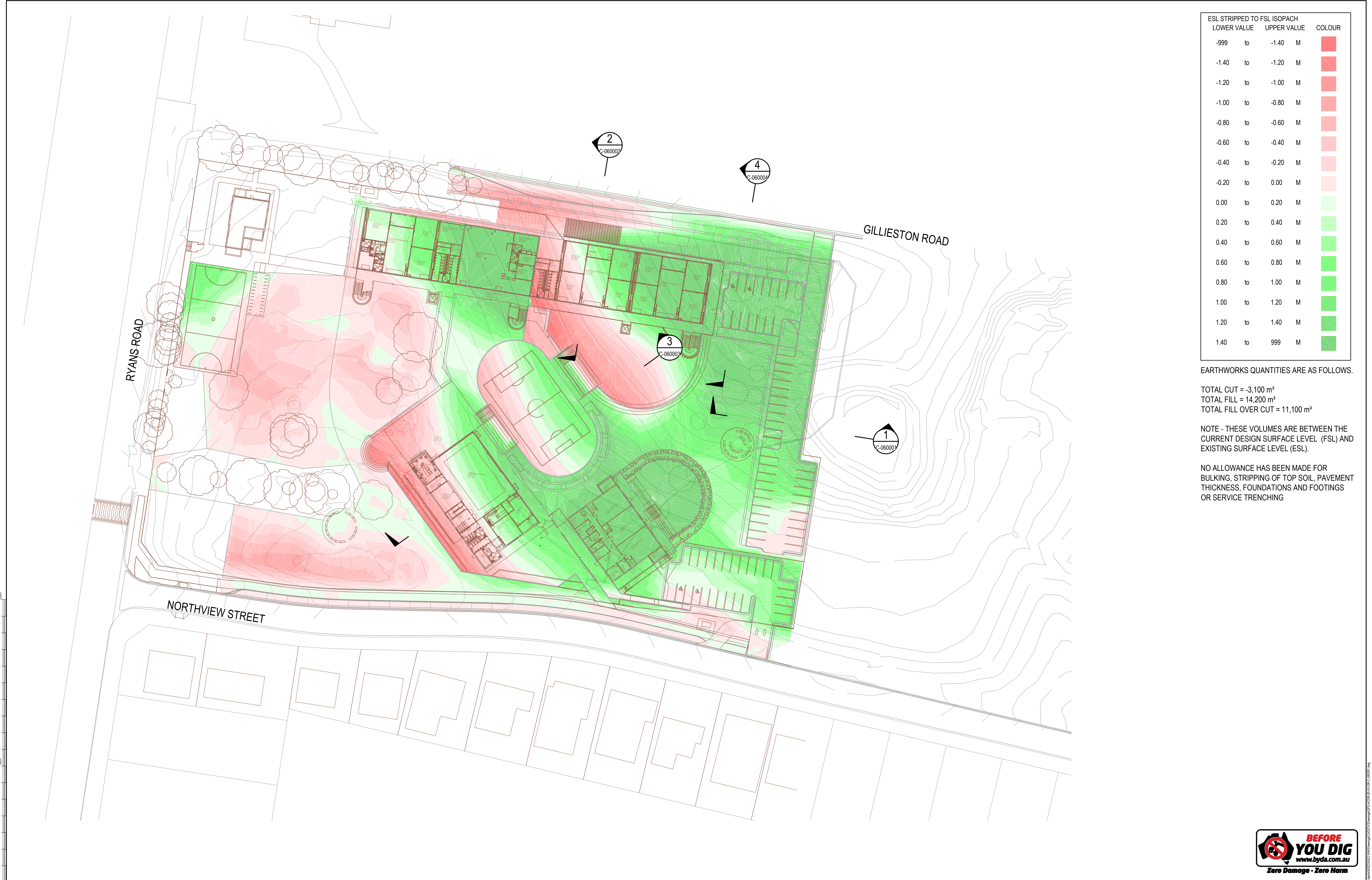
NOT TO SCALE

STABILISED SITE ACCESS CONSTRUCTION NOTES:

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15m LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3m WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.



				North	Scale	Client	Architect	Project	Drawing Title	CIVIL SERVICES EROSION AND SEDIMENT CONTROL DETAILS																
										Drawn	Designed	G.A. Check	Date	Scale @ A1												
										MDM	SJO	JPR	03.12.24	N.T.S.												
										Project No.					Drawing No.	Issue										
C ISSUED FOR DA				03.12.24	MDM	JPR	ACOR Consultants Pty Ltd The Forum, Level 1 Suite 1 240-244 Pacific Highway Charlestown NSW 2290 T +61 2 4926 4811				GILLIESTON PUBLIC SCHOOL 100 RYANS ROAD GILLIESTON HEIGHTS, NSW, 2321				NS221454				GPS-ACOR-00-XX-DR-C-030201				C			
B ISSUED FOR DA				17.10.24	MDM	JPR	SHAC Nominated Architect Justin Harrison (RVO) ABN 12 311 564 945				AcOR CONSULTANTS				NOT FOR CONSTRUCTION											
A DRAFT SCHEMATIC DESIGN				29.08.24	MDM	JPR																				
Issue				Date	Drawn	Approved	PRINT IN COLOUR																			



ESL STRIPPED TO FSL ISOPACH				COLOUR
LOWER VALUE		UPPER VALUE		
-999	to	-1.40	M	[Red]
-1.40	to	-1.20	M	
-1.20	to	-1.00	M	
-1.00	to	-0.80	M	
-0.80	to	-0.60	M	[Light Red]
-0.60	to	-0.40	M	
-0.40	to	-0.20	M	
-0.20	to	0.00	M	
0.00	to	0.20	M	[Light Green]
0.20	to	0.40	M	
0.40	to	0.60	M	
0.60	to	0.80	M	
0.80	to	1.00	M	[Green]
1.00	to	1.20	M	
1.20	to	1.40	M	
1.40	to	999	M	

EARTHWORKS QUANTITIES ARE AS FOLLOWS.

TOTAL CUT = -3,100 m³
TOTAL FILL = 14,200 m³
TOTAL FILL OVER CUT = 11,100 m³

NOTE - THESE VOLUMES ARE BETWEEN THE CURRENT DESIGN SURFACE LEVEL (FSL) AND EXISTING SURFACE LEVEL (ESL).

NO ALLOWANCE HAS BEEN MADE FOR BULKING, STRIPPING OF TOP SOIL, PAVEMENT THICKNESS, FOUNDATIONS AND FOOTINGS OR SERVICE TRENCHING

C	ISSUED FOR DA	03.12.24	MDM	JPR
B	ISSUED FOR DA	17.10.24	MDM	JPR
A	DRAFT SCHEMATIC DESIGN	29.08.24	MDM	JPR
Issue	Description	Date	Drawn	Approved

North

Scale

SCALE BAR 1:500 @A1 1:1000 @A3

PRINT IN COLOUR

Client

Architect

Nominated Architect Justin Harrison (B160) | ABN 52 131 584 845

ACOR CONSULTANTS

ACOR Consultants Pty Ltd
The Forum, Level 1
Suite 1 240-244 Pacific Highway
Charlestown NSW 2290
T +61 2 4926 4811

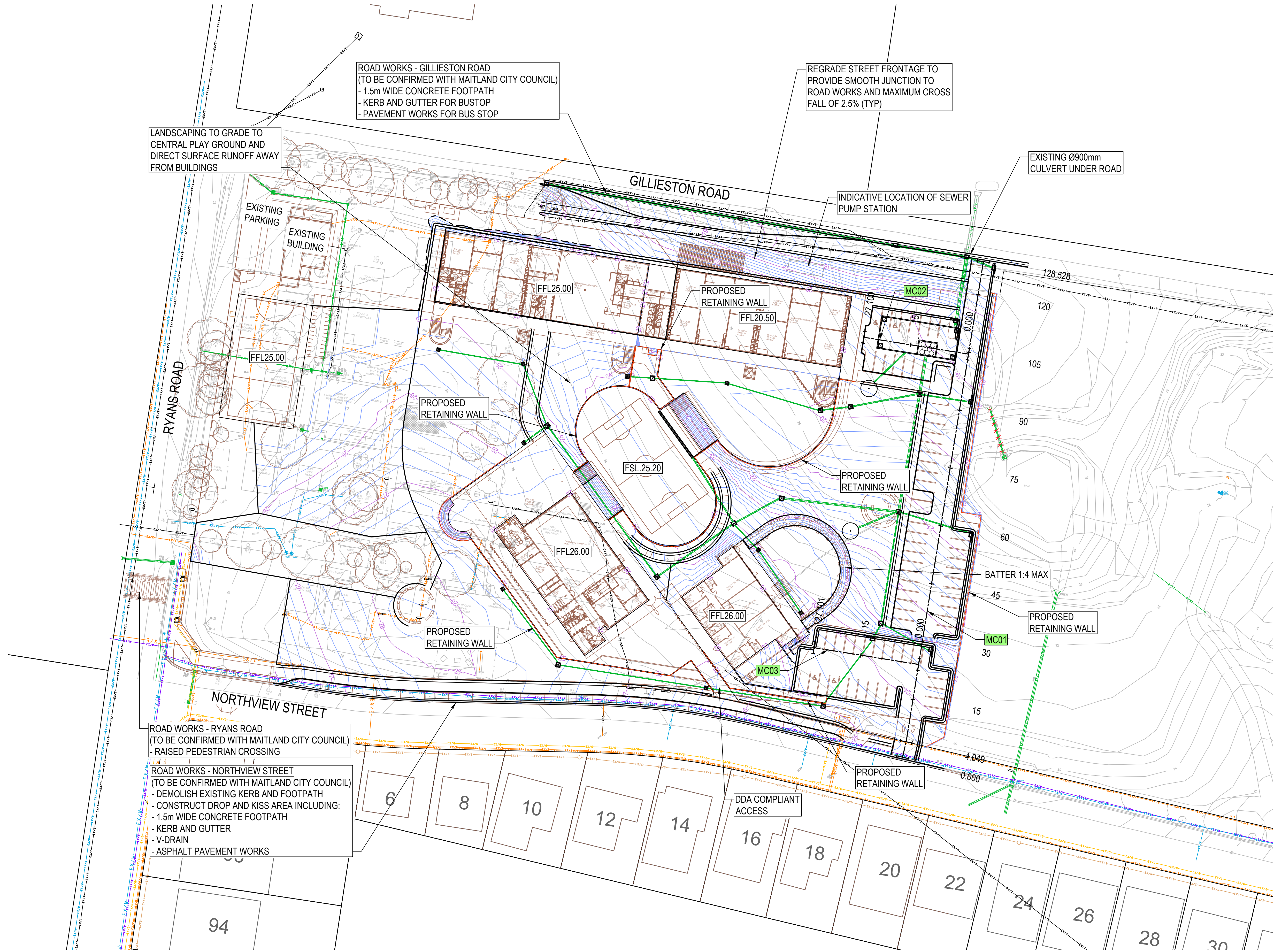
Project
GILLIESTON PUBLIC SCHOOL

100 RYANS ROAD
GILLIESTON HEIGHTS, NSW, 2321

NOT FOR CONSTRUCTION

Drawing Title CIVIL SERVICES ISOPACH PLAN		O.A. Check JPR		Date 03.12.24	Scale @ A1 1:500
Drawn MDM	Designed SJO				
Project No. NS221454	Drawing No. GPS-ACOR-00-XX-DR-C-040001			Issue C	

© COPYRIGHT of this design and plan is the property of ACOR Consultants Pty Ltd. ACN 079 306 246 ABN 40 079 306 246, all rights reserved. It must not be used, modified, reproduced or copied wholly or in part without written permission from ACOR Consultants Pty Ltd.



LEGEND

DESIGN CONTOURS
1.0m INTERVALS

DESIGN CONTOURS
0.2m INTERVALS

RETAINING WALL

PROPOSED STORMWATER PIT

PROPOSED STORMWATER PIPE

EXISTING STORMWATER PIPE

EXISTING ELECTRICITY LINE

EXISTING COMMUNICATIONS LINE

EXISTING POTABLE WATER MAIN

EXISTING RECYCLED WATER MAIN

EXISTING GAS MAIN

EXISTING INFRASTRUCTURE TO BE REMOVED

LANDSCAPING TO GRADE TO
CENTRAL PLAY GROUND AND
DIRECT SURFACE RUNOFF AWAY
FROM BUILDINGS

ROAD WORKS - GILLIESTON ROAD
(TO BE CONFIRMED WITH MAITLAND CITY COUNCIL)
- 1.5m WIDE CONCRETE FOOTPATH
- KERB AND GUTTER FOR BUSTOP
- PAVEMENT WORKS FOR BUS STOP

REGRADE STREET FRONTAGE TO
PROVIDE SMOOTH JUNCTION TO
ROAD WORKS AND MAXIMUM CROSS
FALL OF 2.5% (TYP)

INDICATIVE LOCATION OF SEWER
PUMP STATION

EXISTING Ø900mm
CULVERT UNDER ROAD

ROAD WORKS - RYANS ROAD
(TO BE CONFIRMED WITH MAITLAND CITY COUNCIL)
- RAISED PEDESTRIAN CROSSING

ROAD WORKS - NORTHVIEW STREET
(TO BE CONFIRMED WITH MAITLAND CITY COUNCIL)
- DEMOLISH EXISTING KERB AND FOOTPATH
- CONSTRUCT DROP AND KISS AREA INCLUDING:
- 1.5m WIDE CONCRETE FOOTPATH
- KERB AND GUTTER
- V-DRAIN
- ASPHALT PAVEMENT WORKS

DDA COMPLIANT
ACCESS



North

Scale

SCALE BAR 1:500 @A1 1:1000 @A3

Client

Architect

Nominated Architect Justin Harrison (B190) | ABN 32 131 584 845

ACOR Consultants Pty Ltd

The Forum, Level 1
Suite 1 240-244 Pacific Highway
Charlestown NSW 2290
T +61 2 4926 4811

Project

GILLIESTON PUBLIC SCHOOL

100 RYANS ROAD
GILLIESTON HEIGHTS, NSW, 2321

Drawing Title

CIVIL SERVICES
GENERAL ARRANGEMENT AND GRADING PLAN

Drawn

MDM

Designed

SJO

O.A. Check

JPR

Date

03.12.24

Scale @ A1

1:500

Project No.

NS221454

Drawing No.

GPS-ACOR-00-XX-DR-C-050001

Issue

C

NOT FOR CONSTRUCTION

Issue

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

Issue

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

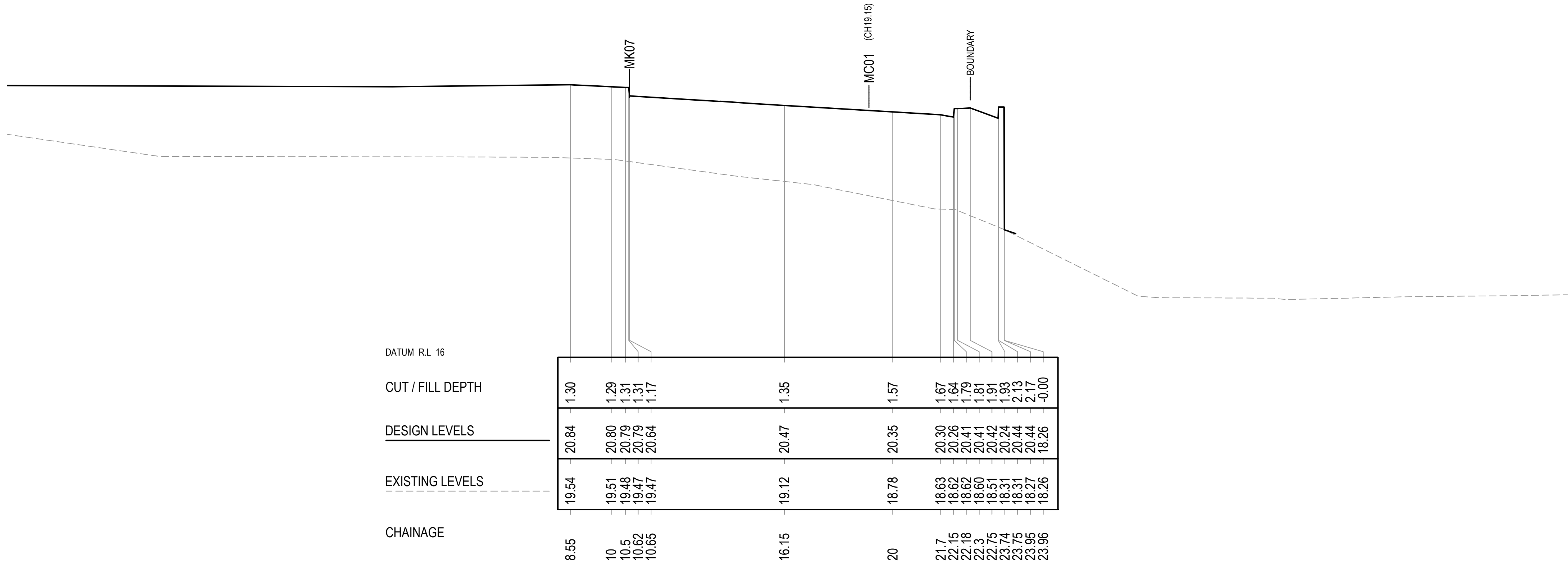
27

28

29

30

© COPYRIGHT of this design and plan is the property of ACOR Consultants Pty Ltd. ACN 079 306 246 ABN 40 079 306 246. All rights reserved. It must not be used, modified, reproduced or copied wholly or in part without written permission from ACOR Consultants Pty Ltd.



SECTION 1
A1 Horizontal Scale 1 : 100
A1 Vertical scale 1 : 50



C	ISSUED FOR DA	03.12.24	MDM	JPR	
B	ISSUED FOR DA	17.10.24	MDM	JPR	
A	DRAFT SCHEMATIC DESIGN	29.08.24	MDM	JPR	
Issue	Description	Date	Drawn	Approved	

North

Scale

0 1 2 4 6m

SCALE BAR 1:100 @A1 1:200 @A3

0 0.5 1 2 3m

SCALE BAR 1:50 @A1 1:100 @A3

PRINT IN COLOUR

Client

Architect

Notified Architect Justin Harrison (5160) | ABN 32 131 584 845

ACOR Consultants Pty Ltd

The Forum, Level 1
Suite 1 240-244 Pacific Highway
Charlestown NSW 2290
T +61 2 4926 4811

Project

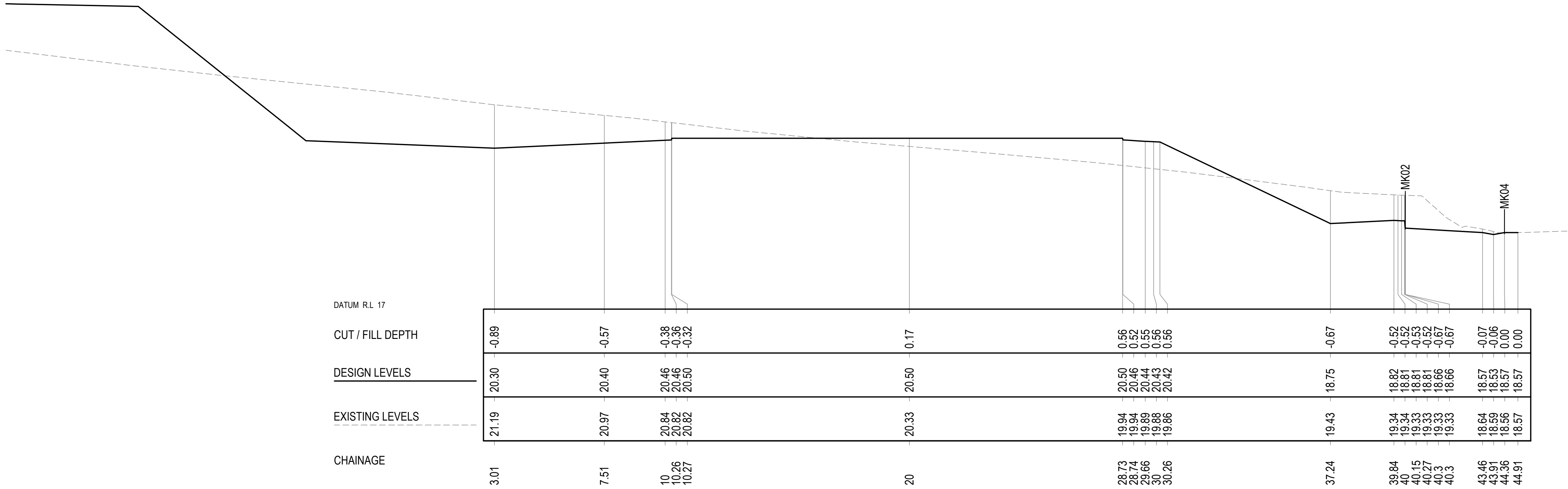
GILLIESTON PUBLIC SCHOOL

100 RYANS ROAD
GILLIESTON HEIGHTS, NSW, 2321

NOT FOR CONSTRUCTION

Drawing Title CIVIL SERVICES SITE SECTIONS SHEET 1				
Drawn MDM	Designed SJO	O.A. Check JPR	Date 03.12.24	Scale @ A1 AS SHOWN
Project No. NS221454	Drawing No. GPS-ACOR-00-XX-DR-C-060001	Issue C		

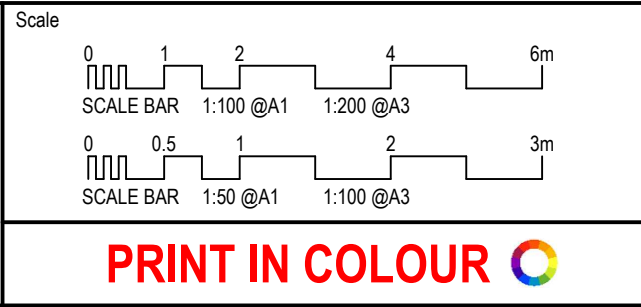
20m
10m
0
-10m
-20m



SECTION 2
A1 Horizontal Scale 1 : 100
A1 Vertical scale 1 : 50

Issue	Description	Date	Drawn	Approved
C	ISSUED FOR DA	03.12.24	MDM	JPR
B	ISSUED FOR DA	17.10.24	MDM	JPR
A	DRAFT SCHEMATIC DESIGN	29.08.24	MDM	JPR

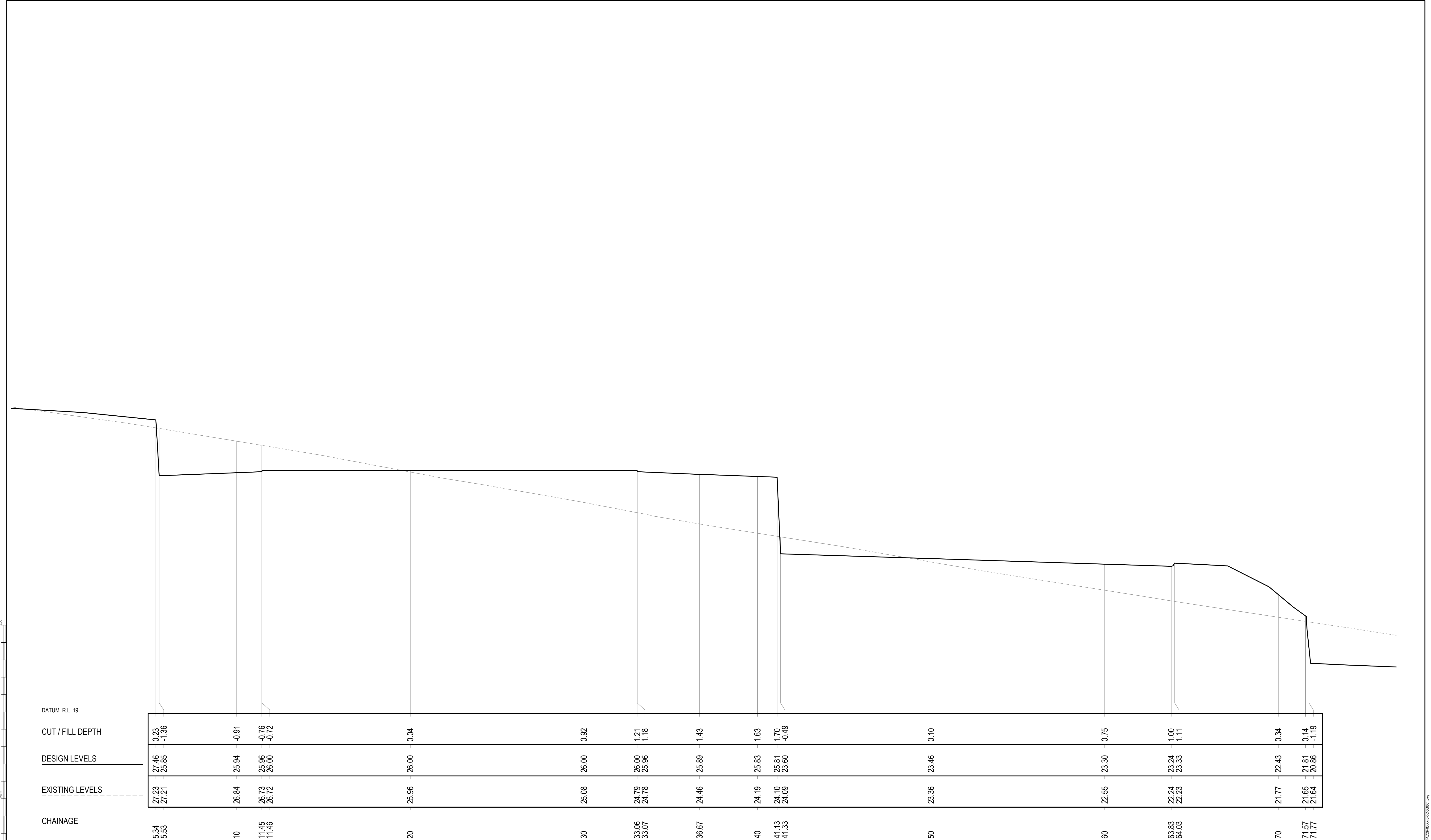
North



Project
GILLIESTON PUBLIC SCHOOL
100 RYANS ROAD
GILLIESTON HEIGHTS, NSW, 2321

Drawing Title CIVIL SERVICES SITE SECTIONS SHEET 2				
Drawn MDM	Designed SJO	O.A. Check JPR	Date 03.12.24	Scale @ A1 AS SHOWN
Project No. NS221454	Drawing No. GPS-ACOR-00-XX-DR-C-060002	Issue C		





SECTION 3
A1 Horizontal Scale 1 : 100
A1 Vertical scale 1 : 50



Issue	Description	Date	Drawn	Approved
C	ISSUED FOR DA	03.12.24	MDM	JPR
B	ISSUED FOR DA	17.10.24	MDM	JPR
A	DRAFT SCHEMATIC DESIGN	29.08.24	MDM	JPR

North

Scale

SCALE BAR 1:100 @A1 1:200 @A3

SCALE BAR 1:50 @A1 1:100 @A3

PRINT IN COLOUR

Client

Architect

ACOR Consultants Pty Ltd

The Forum, Level 1
Suite 1 240-244 Pacific Highway
Charlestown NSW 2290
T +61 2 4926 4811

Project

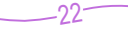
GILLIESTON PUBLIC SCHOOL


100 RYANS ROAD
GILLIESTON HEIGHTS, NSW, 2321


NOT FOR CONSTRUCTION


Drawing Title CIVIL SERVICES SITE SECTIONS SHEET 3			
Drawn MDM	Designed SJO	O.A. Check JPR	Date 03.12.24
Project No. NS221454	Drawing No. GPS-ACOR-00-XX-DR-C-060003	Scale @ A1 AS SHOWN	Issue C


LEGEND

DESIGN CONTOURS
1.0m INTERVALS

DESIGN CONTOURS
0.2m INTERVALS

PROPOSED STORMWATER PIPE

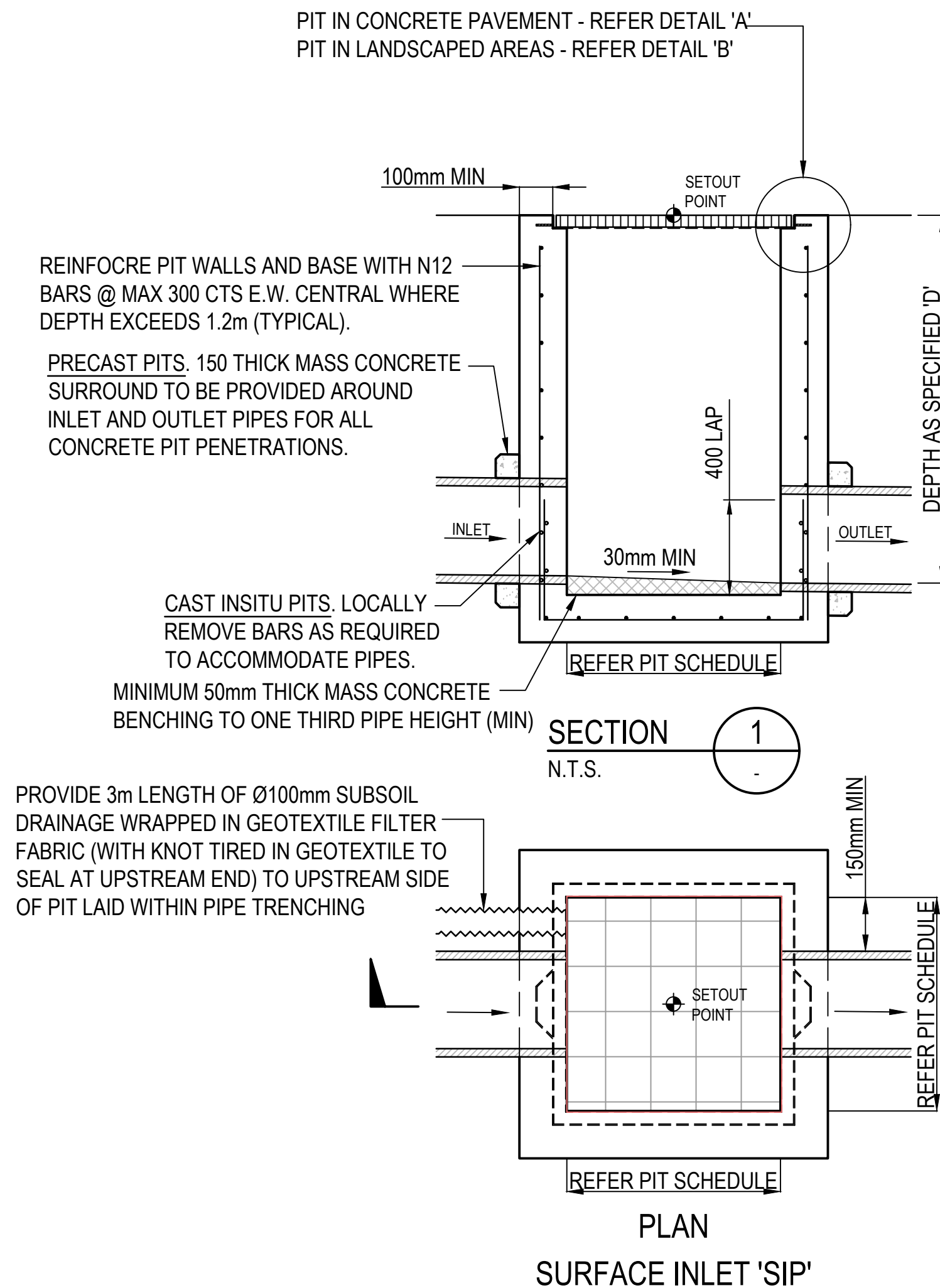
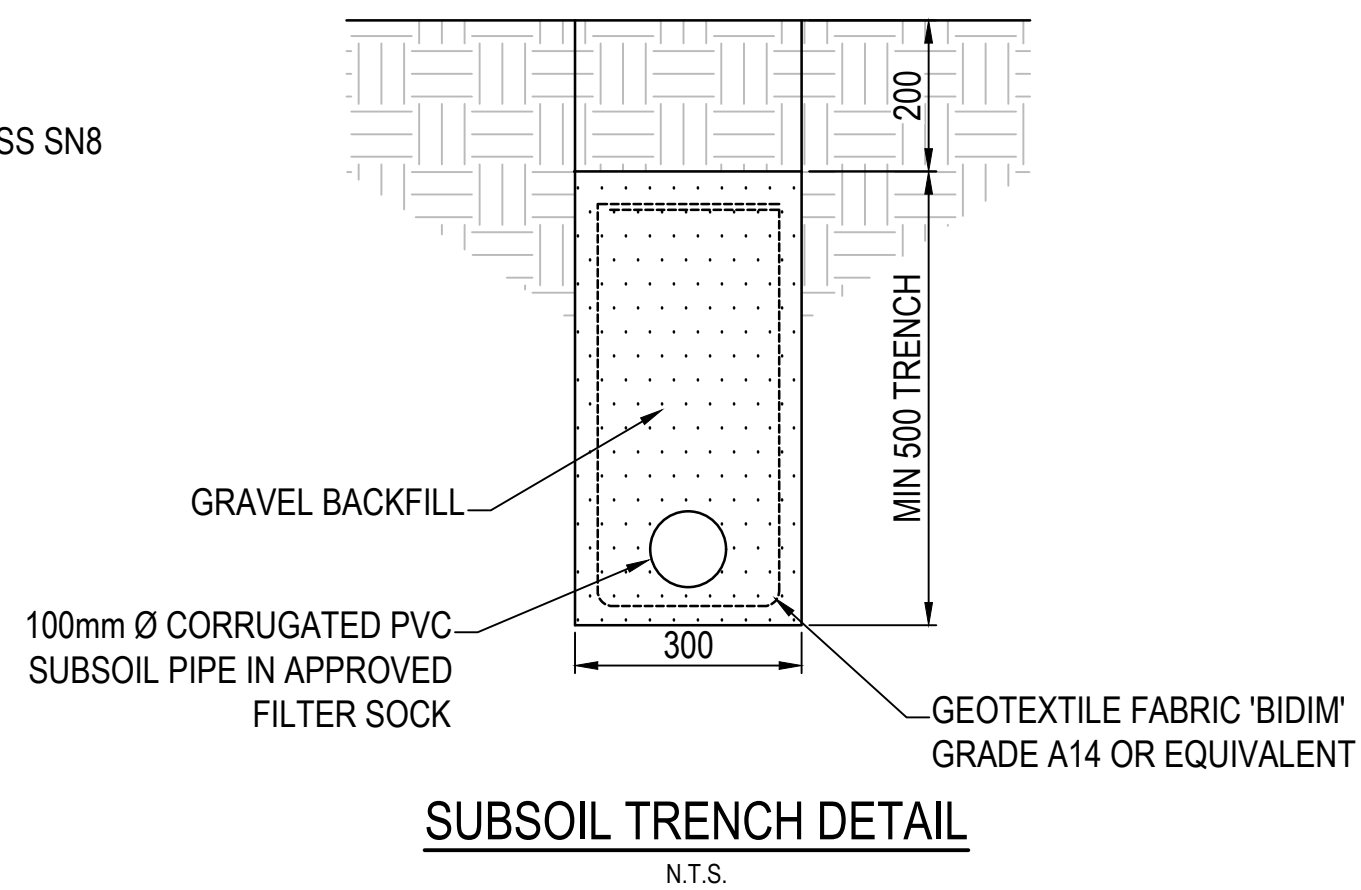
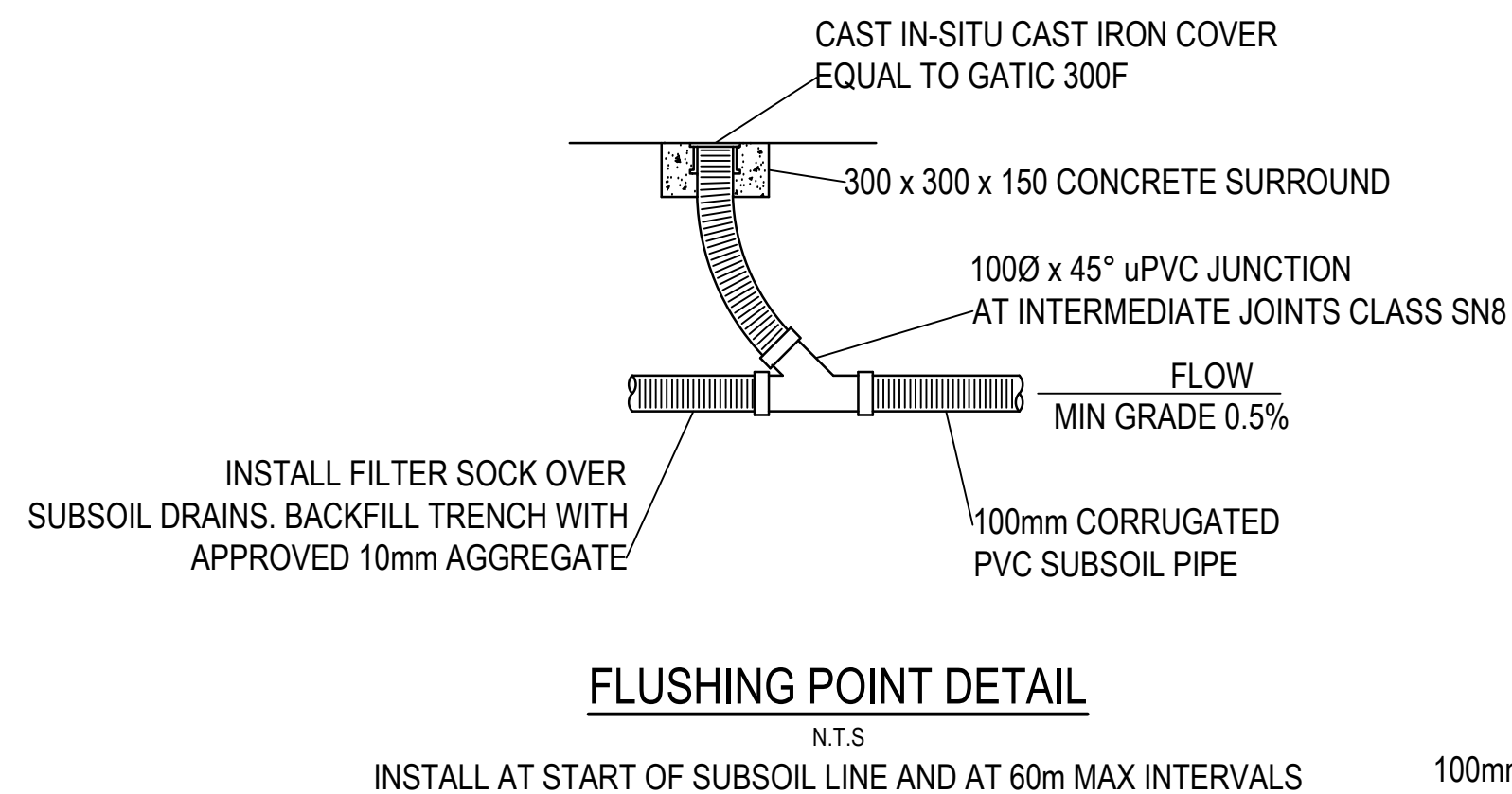
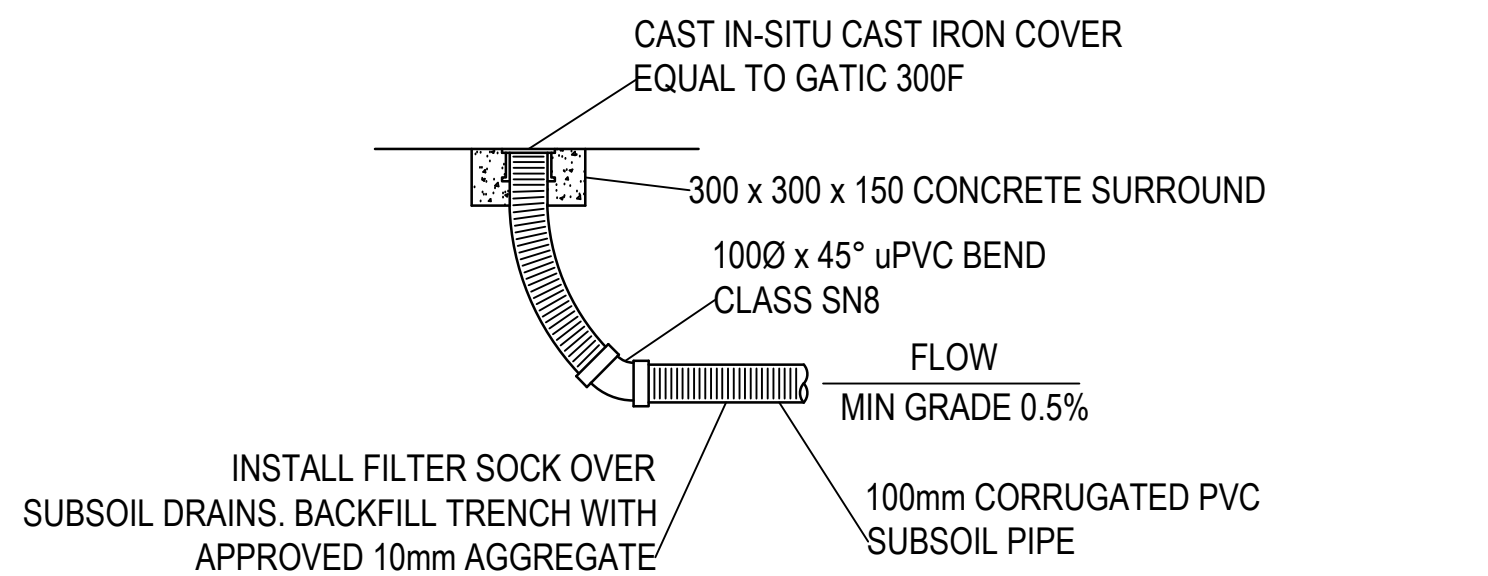
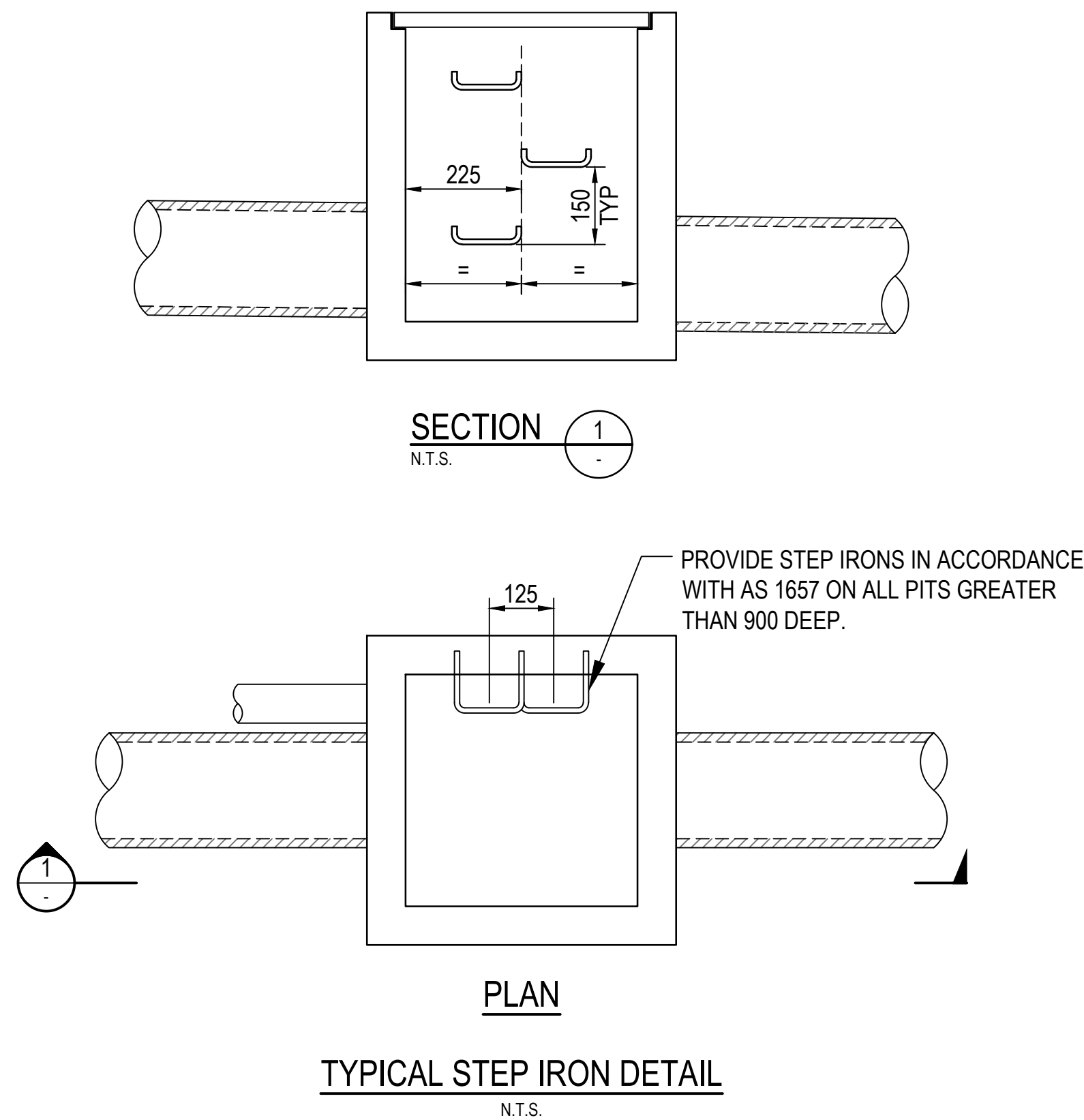
PROPOSED STORMWATER PIT

PROPOSED STORMWATER SWALE

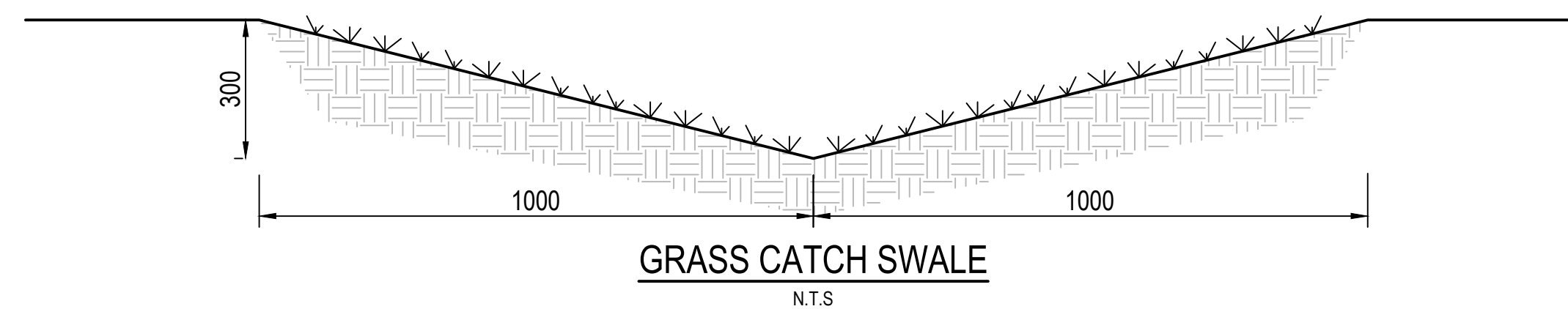
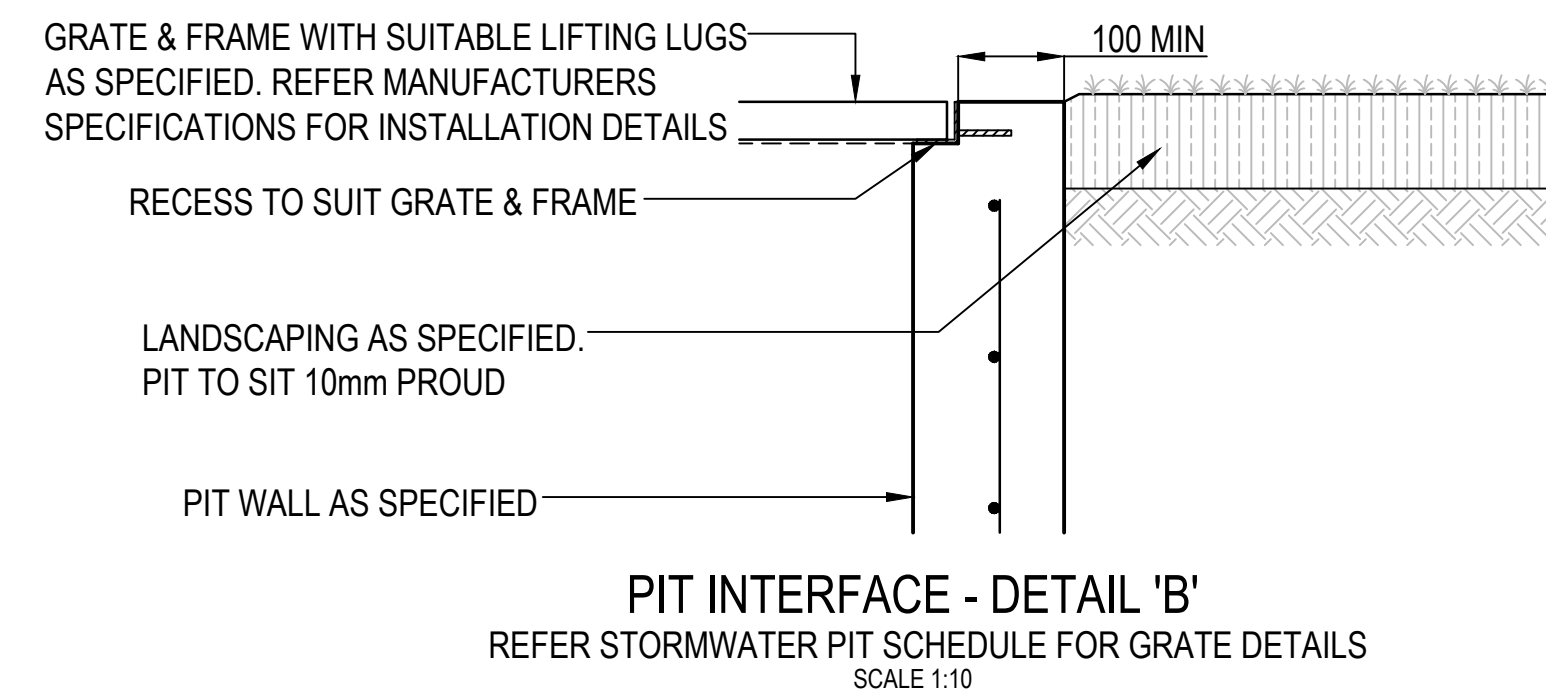
NOTE:
ALL PITS TO HAVE OCEAN PROTECT OCEAN
GUARD OR APPROVED EQUIVALENT



<table><tr><td>C</td><td>ISSUED FOR DA</td><td>03.12.24</td><td>MDM</td><td>JPR</td></tr><tr><td>B</td><td>ISSUED FOR DA</td><td>17.10.24</td><td>MDM</td><td>JPR</td></tr><tr><td>A</td><td>DRAFT SCHEMATIC DESIGN</td><td>29.08.24</td><td>MDM</td><td>JPR</td></tr><tr><td>Issue</td><td>Description</td><td>Date</td><td>Drawn</td><td>Approved</td></tr></table>					C	ISSUED FOR DA	03.12.24	MDM	JPR	B	ISSUED FOR DA	17.10.24	MDM	JPR	A	DRAFT SCHEMATIC DESIGN	29.08.24	MDM	JPR	Issue	Description	Date	Drawn	Approved	<p>North</p> 		<p>Scale</p> <p>0 5 10 20 30m</p> <p>SCALE BAR 1:500 @A1 1:1000 @A3</p> <p>PRINT IN COLOUR</p>		<p>Client</p> 		<p>Architect</p> <p>SHAC</p> <p>Nominated Architect Justin Harrison (B160) ABN 32 131 584 845</p>		<p>ACOR Consultants Pty Ltd</p> <p>The Forum, Level 1 Suite 1 240-244 Pacific Highway Charlestown NSW 2290 T +61 2 4926 4811</p> 		<p>Project</p> <p>GILLIESTON PUBLIC SCHOOL</p> <p>100 RYANS ROAD GILLIESTON HEIGHTS, NSW, 2321</p> <p>NOT FOR CONSTRUCTION</p>		<table><tr><td colspan="5">Drawing Title CIVIL SERVICES STORMWATER MANAGEMENT PLAN</td></tr><tr><td>Drawn MDM</td><td>Designed SJO</td><td>O.A. Check JPR</td><td>Date 03.12.24</td><td>Scale @ A1 1:500</td></tr><tr><td>Project No. NS221454</td><td>Drawing No. GPS-ACOR-00-XX-DR-C-080001</td><td colspan="3">Issue C</td></tr></table>					Drawing Title CIVIL SERVICES STORMWATER MANAGEMENT PLAN					Drawn MDM	Designed SJO	O.A. Check JPR	Date 03.12.24	Scale @ A1 1:500	Project No. NS221454	Drawing No. GPS-ACOR-00-XX-DR-C-080001	Issue C		
C	ISSUED FOR DA	03.12.24	MDM	JPR																																																				
B	ISSUED FOR DA	17.10.24	MDM	JPR																																																				
A	DRAFT SCHEMATIC DESIGN	29.08.24	MDM	JPR																																																				
Issue	Description	Date	Drawn	Approved																																																				
Drawing Title CIVIL SERVICES STORMWATER MANAGEMENT PLAN																																																								
Drawn MDM	Designed SJO	O.A. Check JPR	Date 03.12.24	Scale @ A1 1:500																																																				
Project No. NS221454	Drawing No. GPS-ACOR-00-XX-DR-C-080001	Issue C																																																						



- PIT STRUCTURE TO BE 150mm THICK MINIMUM (UNLESS SHOWN OTHERWISE)
- REFER TO PIT INTERFACE DETAIL 'F' FOR CORNER REINFORCEMENT IF MESH IS USED IN LIEU OF N12-300 EACH WAY
- PROVIDE STEP IRONS IN ACCORDANCE WITH AS1657 WHEN PIT DEPTHS ARE GREATER THEN 1200mm
- SPARGE INTERNAL PIT FACE AT ALL PIPE CONNECTIONS AND PENETRATIONS.
- SHAPE BASE OF PIT TO DIRECT FLOWS TOWARDS OUTLET. PROVIDE A MINIMUM 30mm SMOOTH DROP FROM INLET TO OUTLET
- PROVIDE ADEQUATE LEVEL OF COMPACTION AROUND PIT. REFER TO SPECIFICATION FOR REQUIREMENTS.



North				Scale				Client				Architect				Project				Drawing Title			
																GILLIESTON PUBLIC SCHOOL				CIVIL SERVICES STORMWATER DETAILS			
																100 RYANS ROAD GILLIESTON HEIGHTS, NSW, 2321				Drawn			
																				MDM			
																				Designed			
																				SJO			
																				O.A. Check			
																				JPR			
																				Date			
																				03.12.24			
																				Scale @ A1			
																				N.T.S.			
																				Issue			
																				C			
																				Project No.			
																				NS221454			
																				Drawing No.			
																				GPS-ACOR-00-XX-DR-C-080501			
																				NOT FOR CONSTRUCTION			

LEGEND

DESIGN CONTOURS
1.0m INTERVALS

DESIGN CONTOURS
0.2m INTERVALS

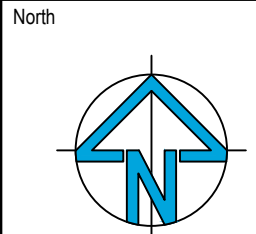
PROPOSED AC PAVEMENT

PROPOSED DRIVEWAY

PROPOSED FOOTPATH



C	ISSUED FOR DA	03.12.24	MDM	JPR
B	ISSUED FOR DA	17.10.24	MDM	JPR
A	DRAFT SCHEMATIC DESIGN	29.08.24	MDM	JPR
Issue	Description	Date	Drawn	Approved



Scale

0 5 10 20 30m

SCALE BAR 1:500 @A1 1:1000 @A3


PRINT IN COLOUR

Client



Education
School Infrastructure

Architect



Nominated Architect Justin Harrison (B160) | ABN 32 131 584 845



ACOR Consultants Pty Ltd

The Forum, Level 1
Suite 1 240-244 Pacific Highway
Charlestown NSW 2290
T +61 2 4926 4811



Project

GILLIESTON PUBLIC SCHOOL

100 RYANS ROAD
GILLIESTON HEIGHTS, NSW, 2321

NOT FOR CONSTRUCTION

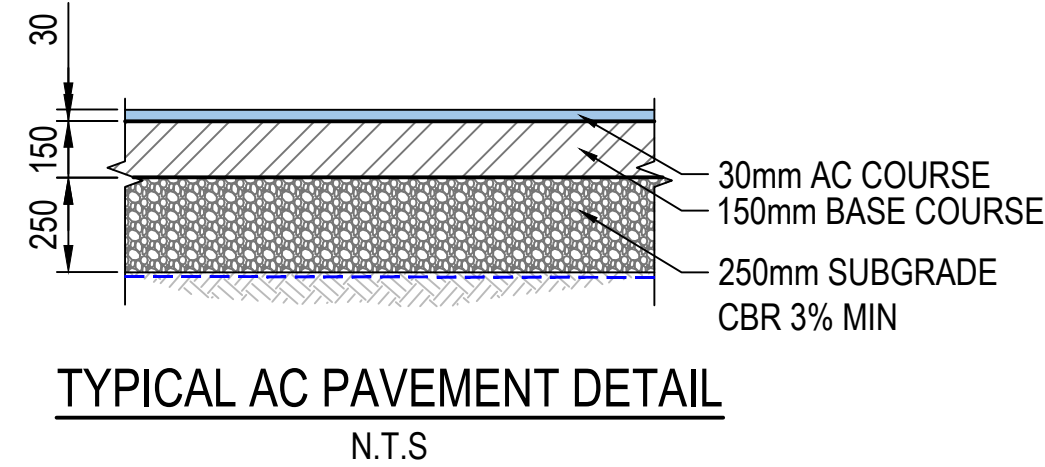
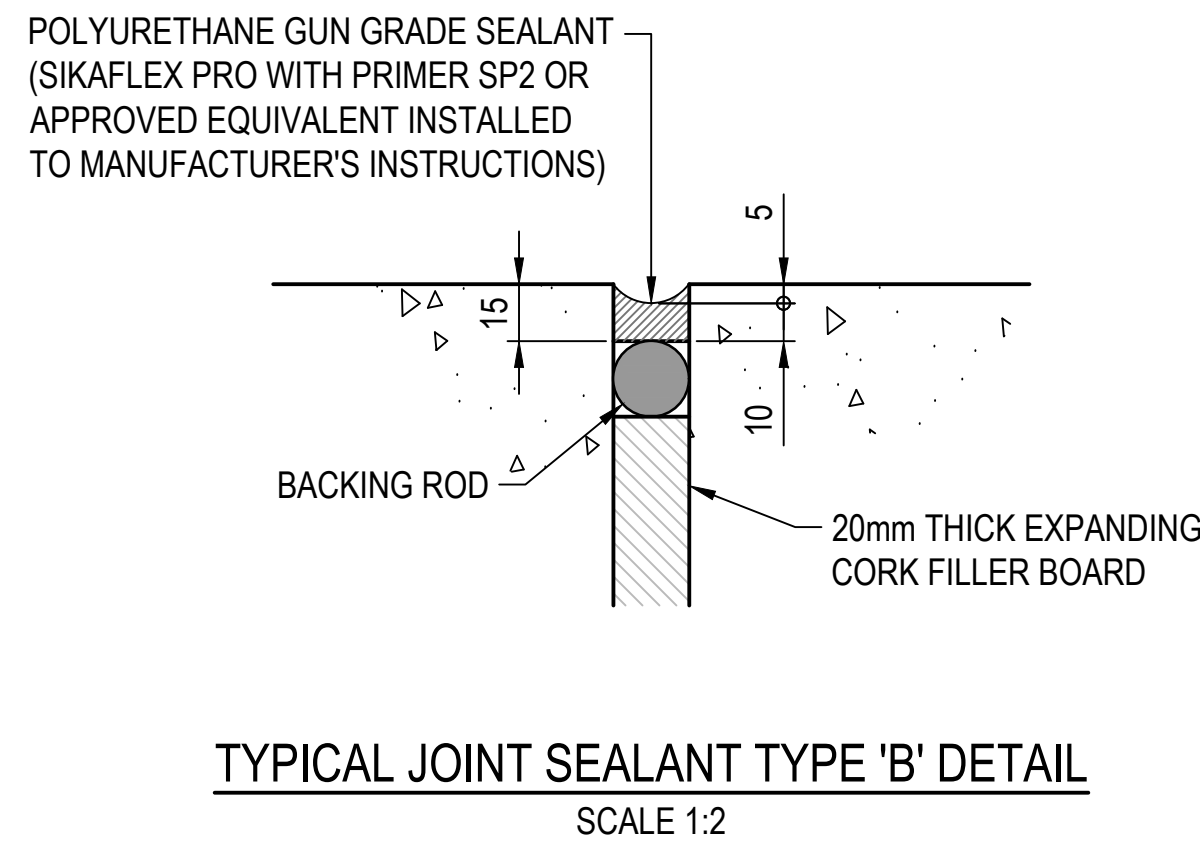
Drawing Title CIVIL SERVICES PAVEMENT AND JOINTING PLAN				
Drawn MDM	Designed SJO	O.A. Check JPR	Date 03.12.24	Scale @ A1 1:500
Project No. NS221454	Drawing No. GPS-ACOR-00-XX-DR-C-090001	Issue C		



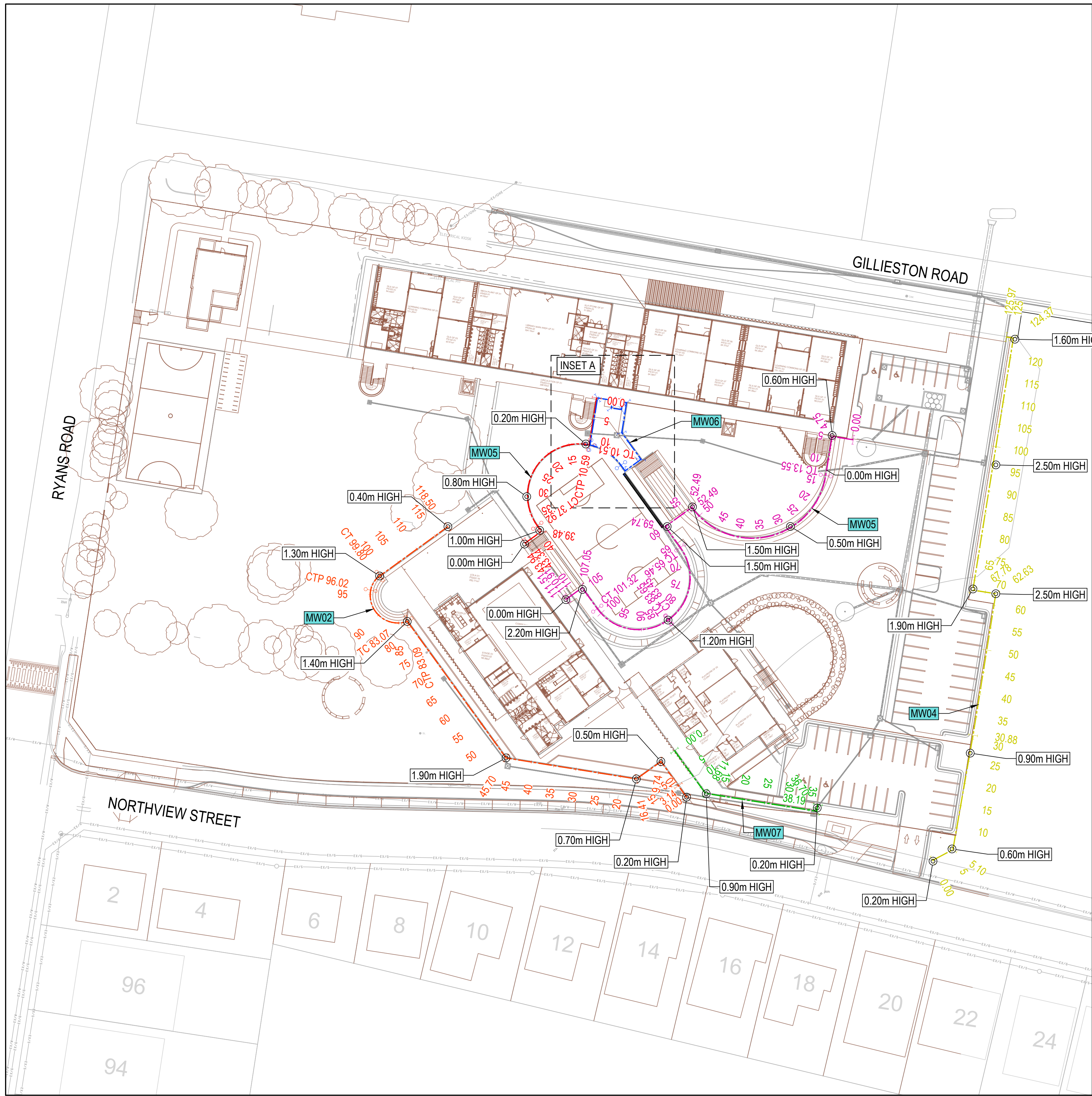
1. ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH AS 3600, CURRENT EDITIONS WITH AMENDMENTS EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
2. CONCRETE TO COMPLY WITH THE FOLLOWING:
28 DAY COMPRESSIVE STRENGTH - $F_c = 32\text{MPa}$
28 DAY FLEXURAL STRENGTH $F_{ef} = 4.5\text{MPa}$
MAX 28 DAY SHRINKAGE - 600 MICROSTRAIN
3. READYMIX CONCRETE SUPPLY SHALL COMPLY WITH AS1379.
4. PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS10120.
5. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING.
6. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON MILD STEEL PLASTIC TIPPED CHAIRS, PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1 METRE CENTRES BOTH WAYS. BARS SHALL BE TIED AT ALTERNATE INTERSECTIONS. IN EXPOSURE CONDITIONS GREATER THAN B1 USE ONLY PLASTIC CHAIRS.
7. CONCRETE SIZES SHOWN DO NOT INCLUDE THICKNESSES OF APPLIED FINISHES.
8. THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENOUS 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 WITH MECHANICAL VIBRATORS.
9. CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SERVICES CONTINUOUSLY WET FOR A PERIOD OF 3 DAYS, AND PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF 7 DAYS FOLLOWED BY A GRADUAL DRYING OUT. APPROVED SPRAYED ON CURING COMPOUNDS THAT COMPLY WITH AS3799 MAY BE USED WHERE FINISHES WILL NOT BE AFFECTED (REFER MANUFACTURER'S SPECIFICATION). POLYHTENE SHEETING OR WET HESSIAN MAY BE USED TO RETAIN CONCRETE MOISTURE WHERE NOT PROTECTED FROM WIND AND TRAFFIC.
10. THE ENGINEER SHALL BE GIVEN 24 HOURS NOTICE FOR REINFORCEMENT INSPECTION AND CONCRETE SHALL NOT BE DELIVERED UNTIL FINAL APPROVAL OBTAINED.
11. REINFORCEMENT SYMBOLS:

'R' DENOTES ROUND BAR, 250MPa GRADE, NORMAL DUCTILITY
'SL' DENOTES SQUARE MESH, DEFORMED BAR, 500MPa GRADE, LOW DUCTILITY
'RL' DENOTES RECTANGULAR MESH, DEFORMED BAR, 500MPa GRADE, LOW DUCTILITY

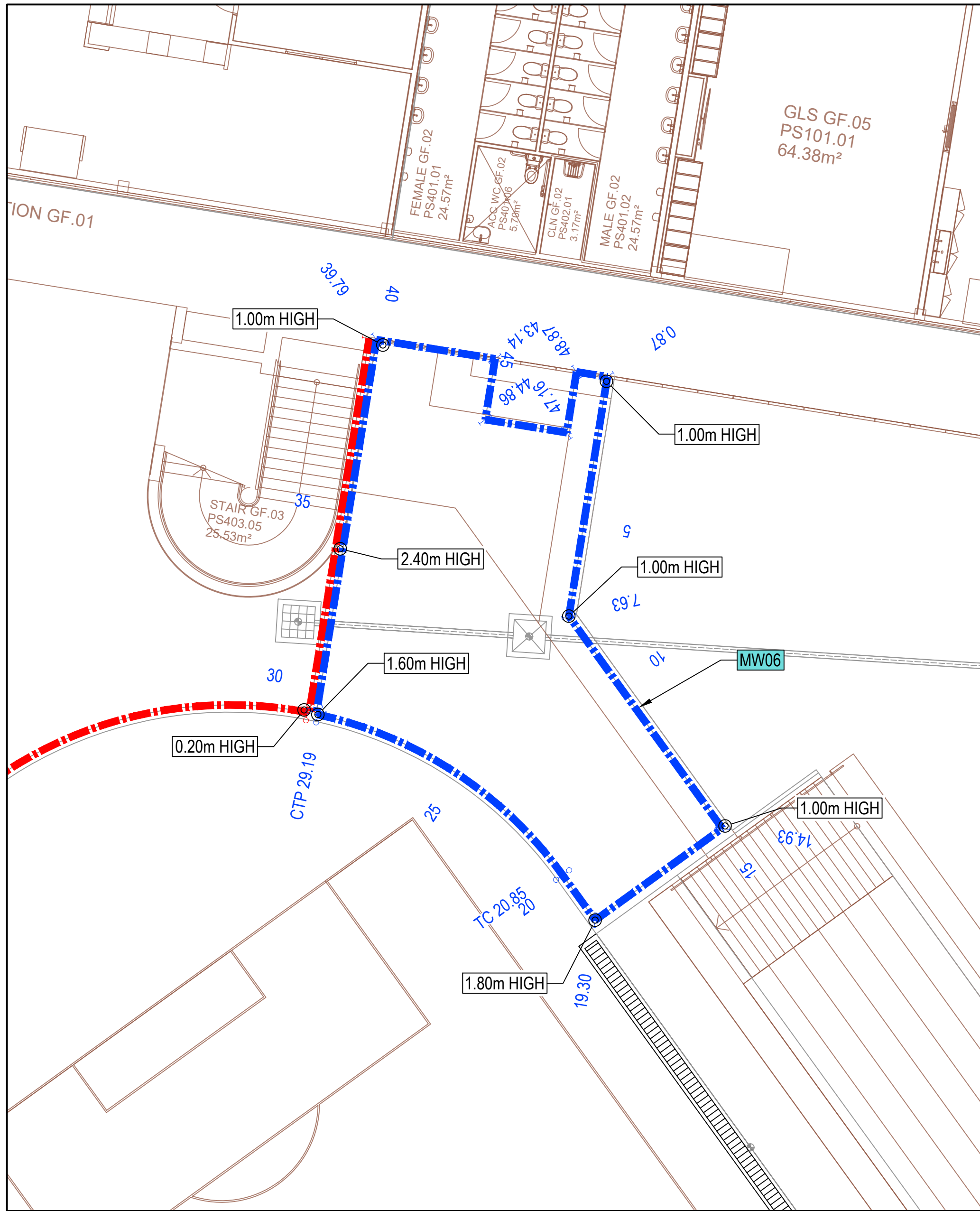
1. ALL WORK IN ACCORDANCE WITH "GUIDE TO RESIDENTIAL STREETS AND PATHS" BY CEMENT & CONCRETE ASSOC. OF AUST.
2. SURFACE FINISH SHALL BE LIGHT BROOM OR HESSIAN BAG U.N.O. ISOLATION JOINTS AROUND S.W. PITS.
3. ISOLATION JOINTS AND N12 TRIMMER BARS AROUND S.W. PITS.
4. KERB AND PAVEMENT JOINTING TO ALIGN.
5. CONCRETE JOINTING AS SHOWN ON PLAN OR AT 5m MAX. CENTRES - TYPICAL ALL CONCRETE ROADS.
6. EXPANSION JOINTS (EJ) AS SHOWN ON PLAN OR AT 30m INTERVALS MAX.
7. SEALANT TO BE POLYSULPHIDE OR EQUIVALENT INSTALLED TO MANUFACTURER'S SPECIFICATION.
8. FILLER TO BE ABLEFLEX OR EQUIVALENT INSTALLED TO MANUFACTURER'S SPECIFICATION.
9. SAWCUTS TO BE CARRIED OUT WITHIN 24hrs OF POUR. UNLESS OTHERWISE APPROVED BY THE ENGINEER.



© COPYRIGHT of this design and plan is the property of ACOR Consultants Pty Ltd, ACN 079 306 246 ABN 40 079 306 246, all rights reserved. It must not be used, modified, reproduced or copied wholly or in part without written permission from ACOR Consultants Pty Ltd.



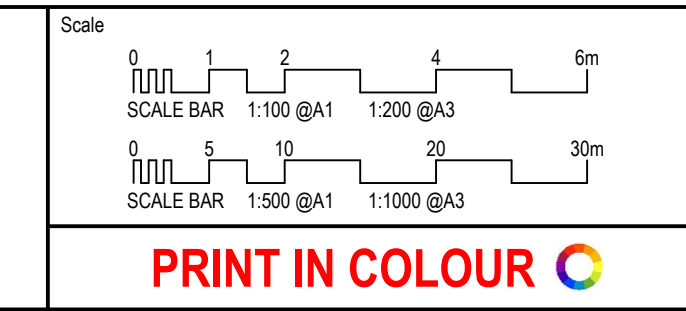
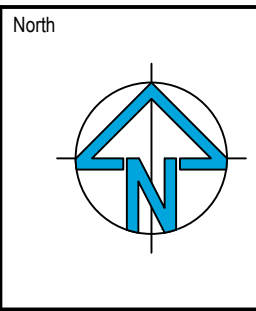
RETAINING WALL PLAN
SCALE 1:500



INSET A - MW06
SCALE 1:100

LEGEND	
	DESIGN CONTOURS 1.0m INTERVALS
	DESIGN CONTOURS 0.2m INTERVALS
	RETAINING WALL - MW02
	RETAINING WALL - MW03
	RETAINING WALL - MW04
	RETAINING WALL - MW05
	RETAINING WALL - MW06
	RETAINING WALL - MW07
	RETAINING WALL CONTROL LABEL

Issue	Description	Date	Drawn	Approved
C	ISSUED FOR DA	03.12.24	MDM	JPR
B	ISSUED FOR DA	17.10.24	MDM	JPR
A	DRAFT SCHEMATIC DESIGN	29.08.24	MDM	JPR

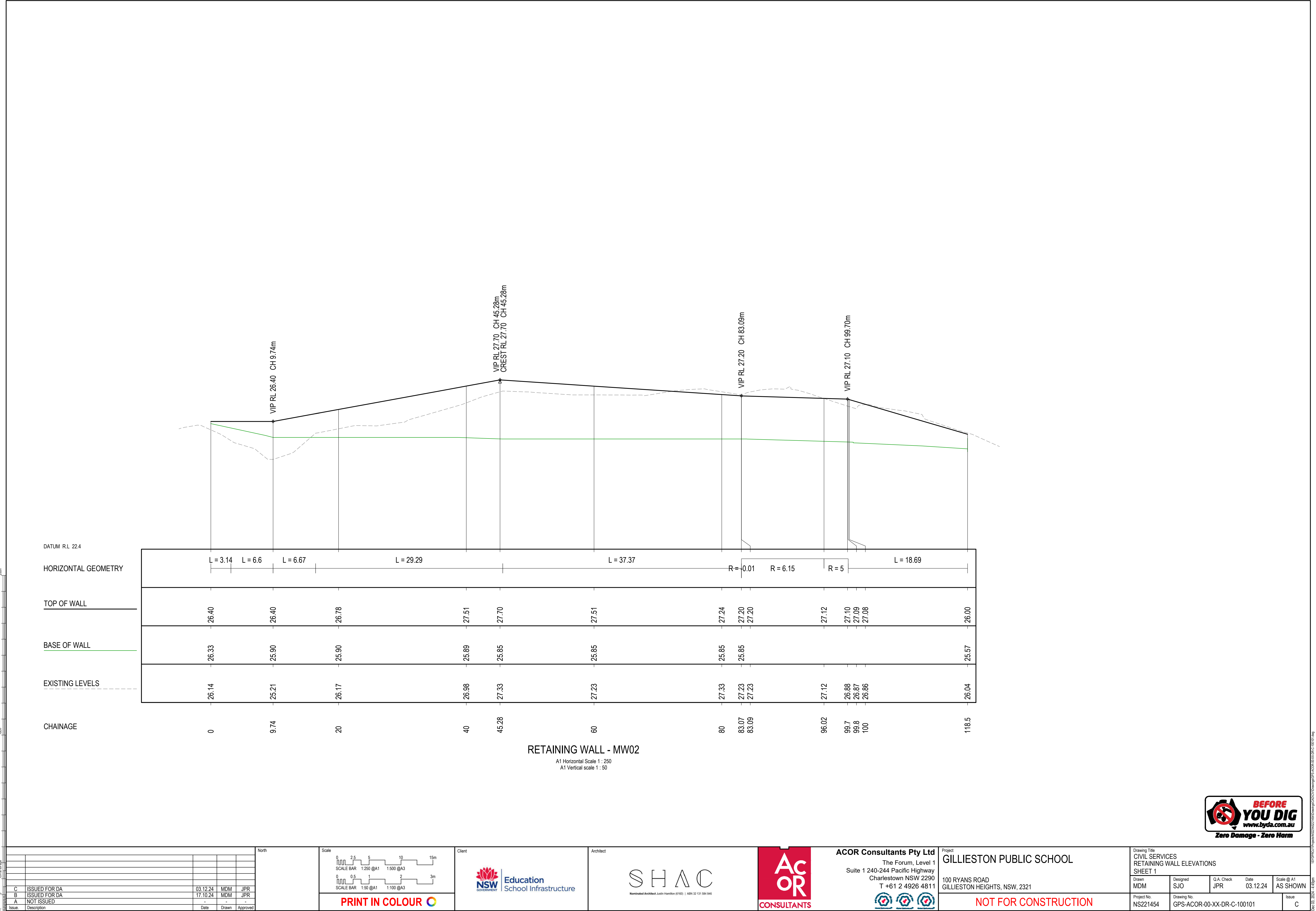


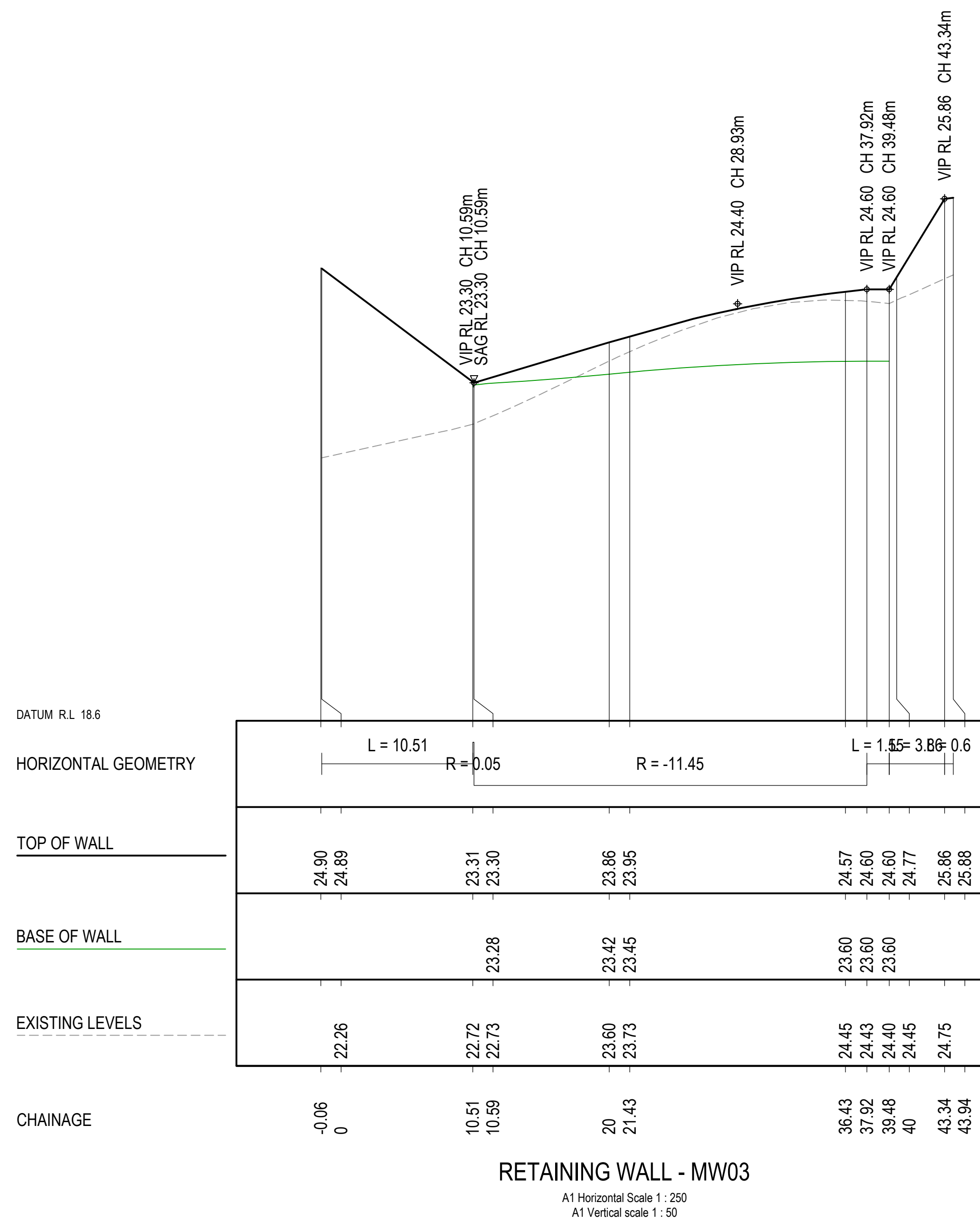
ACOR Consultants Pty Ltd
The Forum, Level 1
Suite 1 240-244 Pacific Highway
Charlestown NSW 2290
T +61 2 4926 4811

Project
GILLIESTON PUBLIC SCHOOL
100 RYANS ROAD
GILLIESTON HEIGHTS, NSW, 2321

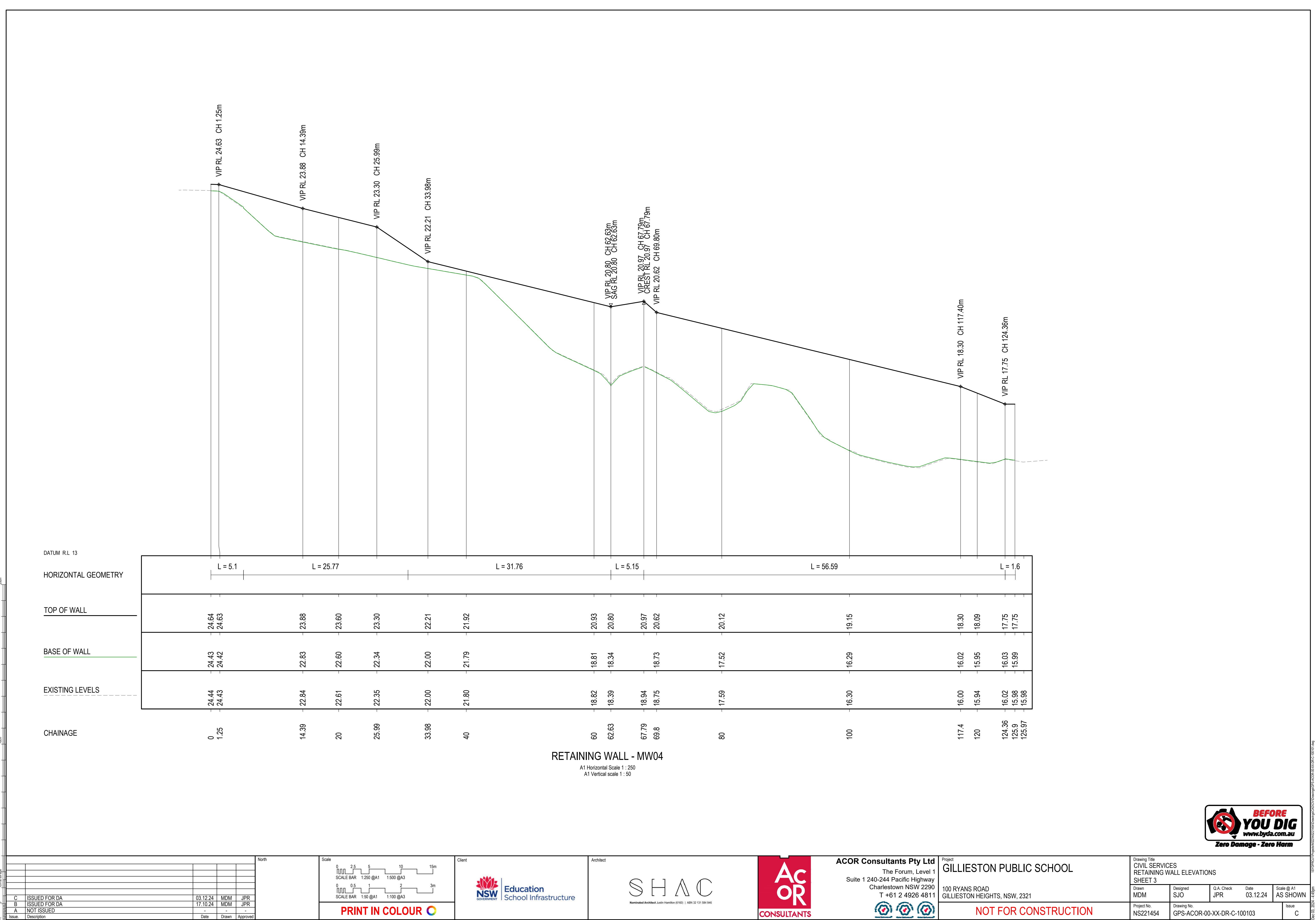
Drawing Title CIVIL SERVICES RETAINING WALL PLAN				
Drawn MDM	Designed SJO	O.A. Check JPR	Date 03.12.24	Scale @ A1 AS SHOWN
Project No. NS221454	Drawing No. GPS-ACOR-00-XX-DR-C-100001	Issue C		

NOT FOR CONSTRUCTION





<table><tr><td>C</td><td>ISSUED FOR DA</td><td>03.12.24</td><td>MDM</td><td>JPR</td></tr><tr><td>B</td><td>ISSUED FOR DA</td><td>17.10.24</td><td>MDM</td><td>JPR</td></tr><tr><td>A</td><td>NOT ISSUED</td><td></td><td></td><td></td></tr><tr><td>Issue</td><td>Description</td><td>Date</td><td>Drawn</td><td>Approved</td></tr></table>					C	ISSUED FOR DA	03.12.24	MDM	JPR	B	ISSUED FOR DA	17.10.24	MDM	JPR	A	NOT ISSUED				Issue	Description	Date	Drawn	Approved	<p>North</p> 		<p>Scale</p> 		<p>Client</p> 		<p>Architect</p>  <p>Nominated Architect 2 Justice Harrison (5150) ABN 32 131 064 545</p>		<p>Project</p> <p>ACOR Consultants Pty Ltd The Forum, Level 1 Suite 1 240-244 Pacific Highway Charlestown NSW 2290 T +61 2 4926 4811</p> 		<p>GILLIESTON PUBLIC SCHOOL 100 RYANS ROAD GILLIESTON HEIGHTS, NSW, 2321</p> <p>NOT FOR CONSTRUCTION</p>		<p>Drawing Title CIVIL SERVICES RETAINING WALL ELEVATIONS SHEET 2</p> <table><tr><td>Drawn MDM</td><td>Designed SJO</td><td>Q.A. Check JPR</td><td>Date 03.12.24</td><td>Scale @ A1 AS SHOWN</td></tr></table> <p>Project No. NS221454</p> <p>Drawing No. GPS-ACOR-00-XX-DR-C-100102</p> <p>Issue C</p>				Drawn MDM	Designed SJO	Q.A. Check JPR	Date 03.12.24	Scale @ A1 AS SHOWN
C	ISSUED FOR DA	03.12.24	MDM	JPR																																									
B	ISSUED FOR DA	17.10.24	MDM	JPR																																									
A	NOT ISSUED																																												
Issue	Description	Date	Drawn	Approved																																									
Drawn MDM	Designed SJO	Q.A. Check JPR	Date 03.12.24	Scale @ A1 AS SHOWN																																									



Issue	Description	Date	Drawn	Approved
C	ISSUED FOR DA	03.12.24	MDM	JPR
B	ISSUED FOR DA	17.10.24	MDM	JPR
A	NOT ISSUED	-	-	-

North

Scale

Client

Architect

ACOR Consultants Pty Ltd

The Forum, Level 1
Suite 1 240-244 Pacific Highway
Charlestown NSW 2290
T +61 2 4926 4811

Project

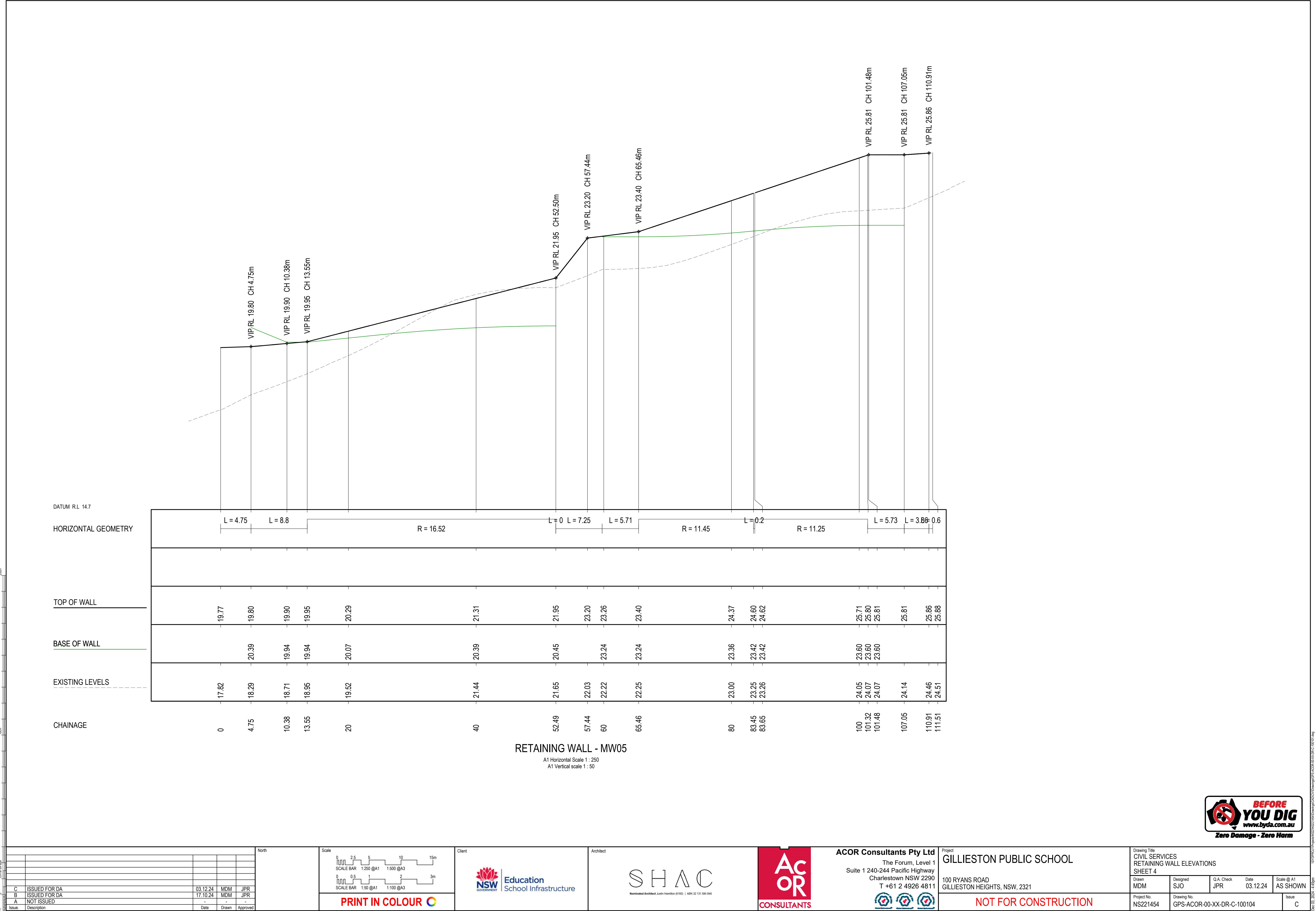
GILLIESTON PUBLIC SCHOOL

100 RYANS ROAD
GILLIESTON HEIGHTS, NSW, 2321

Drawn	Designed	O.A. Check	Date	Scale @ A1
MDM	SJO	JPR	03.12.24	AS SHOWN

Project No.	Drawing No.	Issue
NS221454	GPS-ACOR-00-XX-DR-C-100103	C

NOT FOR CONSTRUCTION



<div><div>1</div><div>0</div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div><div>6</div><div>7</div><div>8</div><div>9</div><div>10</div><div>11</div><div>12</div><div>13</div><div>14</div><div>15</div><div>16</div><div>17</div><div>18</div><div>19</div><div>20</div><div>21</div><div>22</div><div>23</div><div>24</div><div>25</div><div>26</div><div>27</div><div>28</div><div>29</div><div>30</div><div>31</div><div>32</div><div>33</div><div>34</div><div>35</div><div>36</div><div>37</div><div>38</div><div>39</div><div>40</div><div>41</div><div>42</div><div>43</div><div>44</div><div>45</div><div>46</div><div>47</div><div>48</div><div>49</div><div>50</div><div>51</div><div>52</div><div>53</div><div>54</div><div>55</div><div>56</div><div>57</div><div>58</div><div>59</div><div>60</div><div>61</div><div>62</div><div>63</div><div>64</div><div>65</div><div>66</div><div>67</div><div>68</div><div>69</div><div>70</div><div>71</div><div>72</div><div>73</div><div>74</div><div>75</div><div>76</div><div>77</div><div>78</div><div>79</div><div>80</div><div>81</div><div>82</div><div>83</div><div>84</div><div>85</div><div>86</div><div>87</div><div>88</div><div>89</div><div>90</div><div>91</div><div>92</div><div>93</div><div>94</div><div>95</div><div>96</div><div>97</div><div>98</div><div>99</div><div>100</div><div>101</div><div>102</div><div>103</div><div>104</div><div>105</div><div>106</div><div>107</div><div>108</div><div>109</div><div>110</div><div>111</div><div>112</div><div>113</div><div>114</div><div>115</div><div>116</div><div>117</div><div>118</div><div>119</div><div>120</div><div>121</div><div>122</div><div>123</div><div>124</div><div>125</div><div>126</div><div>127</div><div>128</div><div>129</div><div>130</div><div>131</div><div>132</div><div>133</div><div>134</div><div>135</div><div>136</div><div>137</div><div>138</div><div>139</div><div>140</div><div>141</div><div>142</div><div>143</div><div>144</div><div>145</div><div>146</div><div>147</div><div>148</div><div>149</div><div>150</div><div>151</div><div>152</div><div>153</div><div>154</div><div>155</div><div>156</div><div>157</div><div>158</div><div>159</div><div>160</div><div>161</div><div>162</div><div>163</div><div>164</div><div>165</div><div>166</div><div>167</div><div>168</div><div>169</div><div>170</div><div>171</div><div>172</div><div>173</div><div>174</div><div>175</div><div>176</div><div>177</div><div>178</div><div>179</div><div>180</div><div>181</div><div>182</div><div>183</div><div>184</div><div>185</div><div>186</div><div>187</div><div>188</div><div>189</div><div>190</div><div>191</div><div>192</div><div>193</div><div>194</div><div>195</div><div>196</div><div>197</div><div>198</div><div>199</div><div>200</div><div>201</div><div>202</div><div>203</div><div>204</div><div>205</div><div>206</div><div>207</div><div>208</div><div>209</div><div>210</div><div>211</div><div>212</div><div>213</div><div>214</div><div>215</div><div>216</div><div>217</div><div>218</div><div>219</div><div>220</div><div>221</div><div>222</div><div>223</div><div>224</div><div>225</div><div>226</div><div>227</div><div>228</div><div>229</div><div>230</div><div>231</div><div>232</div><div>233</div><div>234</div><div>235</div><div>236</div><div>237</div><div>238</div><div>239</div><div>240</div><div>241</div><div>242</div><div>243</div><div>244</div><div>245</div><div>246</div><div>247</div><div>248</div><div>249</div><div>250</div><div>251</div><div>252</div><div>253</div><div>254</div><div>255</div><div>256</div><div>257</div><div>258</div><div>259</div><div>260</div><div>261</div><div>262</div><div>263</div><div>264</div><div>265</div><div>266</div><div>267</div><div>268</div><div>269</div><div>270</div><div>271</div><div>272</div><div>273</div><div>274</div><div>275</div><div>276</div><div>277</div><div>278</div><div>279</div><div>280</div><div>281</div><div>282</div><div>283</div><div>284</div><div>285</div><div>286</div><div>287</div><div>288</div><div>289</div><div>290</div><div>291</div><div>292</div><div>293</div><div>294</div><div>295</div><div>296</div><div>297</div><div>298</div><div>299</div><div>300</div><div>301</div><div>302</div><div>303</div><div>304</div><div>305</div><div>306</div><div>307</div><div>308</div><div>309</div><div>310</div><div>311</div><div>312</div><div>313</div><div>314</div><div>315</div><div>316</div><div>317</div><div>318</div><div>319</div><div>320</div><div>321</div><div>322</div><div>323</div><div>324</div><div>325</div><div>326</div><div>327</div><div>328</div><div>329</div><div>330</div><div>331</div><div>332</div><div>333</div><div>334</div><div>335</div><div>336</div><div>337</div><div>338</div><div>339</div><div>340</div><div>341</div><div>342</div><div>343</div><div>344</div><div>345</div><div>346</div><div>347</div><div>348</div><div>349</div><div>350</div><div>351</div><div>352</div><div>353</div><div>354</div><div>355</div><div>356</div><div>357</div><div>358</div><div>359</div><div>360</div><div>361</div><div>362</div><div>363</div><div>364</div><div>365</div><div>366</div><div>367</div><div>368</div><div>369</div><div>370</div><div>371</div><div>372</div><div>373</div><div>374</div><div>375</div><div>376</div><div>377</div><div>378</div><div>379</div><div>380</div><div>381</div><div>382</div><div>383</div><div>384</div><div>385</div><div>386</div><div>387</div><div>388</div><div>389</div><div>390</div><div>391</div><div>392</div><div>393</div><div>394</div><div>395</div><div>396</div><div>397</div><div>398</div><div>399</div><div>400</div><div>401</div><div>402</div><div>403</div><div>404</div><div>405</div><div>406</div><div>407</div><div>408</div><div>409</div><div>410</div><div>411</div><div>412</div><div>413</div><div>414</div><div>415</div><div>416</div><div>417</div><div>418</div><div>419</div><div>420</div><div>421</div><div>422</div><div>423</div><div>424</div><div>425</div><div>426</div><div>427</div><div>428</div><div>429</div><div>430</div><div>431</div><div>432</div><div>433</div><div>434</div><div>435</div><div>436</div><div>437</div><div>438</div><div>439</div><div>440</div><div>441</div><div>442</div><div>443</div><div>444</div><div>445</div><div>446</div><div>447</div><div>448</div><div>449</div><div>450</div><div>451</div><div>452</div><div>453</div><div>454</div><div>455</div><div>456</div><div>457</div><div>458</div><div>459</div><div>460</div><div>461</div><div>462</div><div>463</div><div>464</div><div>465</div><div>466</div><div>467</div><div>468</div><div>469</div><div>470</div><div>471</div><div>472</div><div>473</div><div>474</div><div>475</div><div>476</div><div>477</div><div>478</div><div>479</div><div>480</div><div>481</div><div>482</div><div>483</div><div>484</div><div>485</div><div>486</div><div>487</div><div>488</div><div>489</div><div>490</div><div>491</div><div>492</div><div>493</div><div>494</div><div>495</div><div>496</div><div>497</div><div>498</div><div>499</div><div>500</div><div>501</div><div>502</div><div>503</div><div>504</div><div>505</div><div>506</div><div>507</div><div>508</div><div>509</div><div>510</div><div>511</div><div>512</div><div>513</div><div>514</div><div>515</div><div>516</div><div>517</div><div>518</div><div>519</div><div>520</div><div>521</div><div>522</div><div>523</div><div>524</div><div>525</div><div>526</div><div>527</div><div>528</div><div>529</div><div>530</div><div>531</div><div>532</div><div>533</div><div>534</div><div>535</div><div>536</div><div>537</div><div>538</div><div>539</div><div>540</div><div>541</div><div>542</div><div>543</div><div>544</div><div>545</div><div>546</div><div>547</div><div>548</div><div>549</div><div>550</div><div>551</div><div>552</div><div>553</div><div>554</div><div>555</div><div>556</div><div>557</div><div>558</div><div>559</div><div>560</div><div>561</div><div>562</div><div>563</div><div>564</div><div>565</div><div>566</div><div>567</div><div>568</div><div>569</div><div>570</div><div>571</div><div>572</div><div>573</div><div>574</div><div>575</div><div>576</div><div>577</div><div>578</div><div>579</div><div>580</div><div>581</div><div>582</div><div>583</div><div>584</div><div>585</div><div>586</div><div>587</div><div>588</div><div>589</div><div>590</div><div>591</div><div>592</div><div>593</div><div>594</div><div>595</div><div>596</div><div>597</div><div>598</div><div>599</div><div>600</div><div>601</div><div>602</div><div>603</div><div>604</div><div>605</div><div>606</div><div>607</div><div>608</div><div>609</div><div>610</div><div>611</div><div>612</div><div>613</div><div>614</div><div>615</div><div>616</div><div>617</div><div>618</div><div>619</div><div>620</div><div>621</div><div>622</div><div>623</div><div>624</div><div>625</div><div>626</div><div>627</div><div>628</div><div>629</div><div>630</div><div>631</div><div>632</div><div>633</div><div>634</div><div>635</div><div>636</div><div>637</div><div>638</div><div>639</div><div>640</div><div>641</div><div>642</div><div>643</div><div>644</div><div>645</div><div>646</div><div>647</div><div>648</div><div>649</div><div>650</div><div>651</div><div>652</div><div>653</div><div>654</div><div>655</div><div>656</div><div>657</div><div>658</div><div>659</div><div>660</div><div>661</div><div>662</div><div>663</div><div>664</div><div>665</div><div>666</div><div>667</div><div>668</div><div>669</div><div>670</div><div>671</div><div>672</div><div>673</div><div>674</div><div>675</div><div>676</div><div>677</div><div>678</div><div>679</div><div>680</div><div>681</div><div>682</div><div>683</div><div>684</div><div>685</div><div>686</div><div>687</div><div>688</div><div>689</div><div>690</div><div>691</div><div>692</div><div>693</div><div>694</div><div>695</div><div>696</div><div>697</div><div>698</div><div>699</div><div>700</div><div>701</div><div>702</div><div>703</div><div>704</div><div>705</div><div>706</div><div>707</div><div>708</div><div>709</div><div>710</div><div>711</div><div>712</div><div>713</div><div>714</div><div>715</div><div>716</div><div>717</div><div>718</div><div>719</div><div>720</div><div>721</div><div>722</div><div>723</div><div>724</div><div>725</div><div>726</div><div>727</div><div>728</div><div>729</div><div>730</div><div>731</div><div>732</div><div>733</div><div>734</div><div>735</div><div>736</div><div>737</div><div>738</div><div>739</div><div>740</div><div>741</div><div>742</div><div>743</div><div>744</div><div>745</div><div>746</div><div>747</div><div>748</div><div>749</div><div>750</div><div>751</div><div>752</div><div>753</div><div>754</div><div>755</div><div>756</div><div>757</div><div>758</div><div>759</div><div>760</div><div>761</div><div>762</div><div>763</div><div>764</div><div>765</div><div>766</div><div>767</div><div>768</div><div>769</div><div>770</div><div>771</div><div>772</div><div>773</div><div>774</div><div>775</div><div>776</div><div>777</div><div>778</div><div>779</div><div>780</div><div>781</div><div>782</div><div>783</div><div>784</div><div>785</div><div>786</div><div>787</div><div>788</div><div>789</div><div>790</div><div>791</div><div>792</div><div>793</div><div>794</div><div>795</div><div>796</div><div>797</div><div>798</div><div>799</div><div>800</div><div>801</div><div>802</div><div>803</div><div>804</div><div>805</div><div>806</div><div>807</div><div>808</div><div>809</div><div>810</div><div>811</div><div>812</div><div>813</div><div>814</div><div>815</div><div>816</div><div>817</div><div>818</div><div>819</div><div>820</div><div>821</div><div>822</div><div>823</div><div>824</div><div>825</div><div>826</div><div>827</div><div>828</div><div>829</div><div>830</div><div>831</div><div>832</div><div>833</div><div>834</div><div>835</div><div>836</div><div>837</div><div>838</div><div>839</div><div>840</div><div>841</div><div>842</div><div>843</div><div>844</div><div>845</div><div>846</div><div>847</div><div>848</div><div>849</div><div>850</div><div>851</div><div>852</div><div>853</div><div>854</div><div>855</div><div>856</div><div>857</div><div>858</div><div>859</div><div>860</div><div>861</div><div>862</div><div>863</div><div>864</div><div>865</div><div>866</div><div>867</div><div>868</div><div>869</div><div>870</div><div>871</div><div>872</div><div>873</div><div>874</div><div>875</div><div>876</div><div>877</div><div>878</div><div>879</div><div>880</div><div>881</div><div>882</div><div>883</div><div>884</div><div>885</div><div>886</div><div>887</div><div>888</div><div>889</div><div>890</div><div>891</div><div>892</div><div>893</div><div>894</div><div>895</div><div>896</div><div>897</div><div>898</div><div>899</div><div>900</div><div>901</div><div>902</div><div>903</div><div>904</div><div>905</div><div>906</div><div>907</div><div>908</div><div>909</div><div>910</div><div>911</div><div>912</div><div>913</div><div>914</div><div>915</div><div>916</div><div>917</div><div>918</div><div>919</div><div>920</div><div>921</div><div>922</div><div>923</div><div>924</div><div>925</div><div>926</div><div>927</div><div>928</div><div>929</div><div>930</div><div>931</div><div>932</div><div>933</div><div>934</div><div>935</div><div>936</div><div>937</div><div>938</div><div>939</div><div>940</div><div>941</div><div>942</div><div>943</div><div>944</div><div>945</div><div>946</div><div>947</div><div>948</div><div>949</div><div>950</div><div>951</div><div>952</div><div>953</div><div>954</div><div>955</div><div>956</div><div>957</div><div>958</div><div>959</div><div>960</div><div>961</div><div>962</div><div>963</div><div>964</div><div>965</div><div>966</div><div>967</div><div>968</div><div>969</div><div>970</div><div>971</div><div>972</div><div>973</div><div>974</div><div>975</div><div>976</div><div>977</div><div>978</div><div>979</div><div>980</div><div>981</div><div>982</div><div>983</div><div>984</div><div>985</div><div>986</div><div>987</div><div>988</div><div>989</div><div>990</div><div>991</div><div>992</div><div>993</div><div>994</div><div>995</div><div>996</div><div>997</div><div>998</div><div>999</div><div>1000</div><div>1001</div><div>1002</div><div>1003</div><div>1004</div><div>1005</div><div>1006</div><div>1007</div><div>1008</div><div>1009</div><div>1010</div><div>1011</div><div>1012</div><div>1013</div><div>1014</div><div>1015</div><div>1016</div><div>1017</div><div>1018</div><div>1019</div><div>1020</div><div>1021</div><div>1022</div><div>1023</div><div>1024</div><div>1025</div><div>1026</div><div>1027</div><div>1028</div><div>1029</div><div>1030</div><div>1031</div><div>1032</div><div>1033</div><div>1034</div><div>1035</div><div>1036</div><div>1037</div><div>1038</div><div>1039</div><div>1040</div><div>1041</div><div>1042</div><div>1043</div><div>1044</div><div>1045</div><div>1046</div><div>1047</div><div>1048</div><div>1049</div><div>1050</div><div>1051</div><div>1052</div><div>1053</div><div>1054</div><div>1055</div><div>1056</div><div>1057</div><div>1058</div><div>1059</div><div>1060</div><div>1061</div><div>1062</div><div>1063</div><div>1064</div><div>1065</div><div>1066</div><div>1067</div><div>1068</div><div>1069</div><div>1070</div><div>1071</div><div>1072</div><div>1073</div><div>1074</div><div>1075</div><div>1076</div><div>1077</div><div>1078</div><div>1079</div><div>1080</div><div>1081</div><div>1082</div><div>1083</div><div>1084</div><div>1085</div><div>1086</div><div>1087</div><div>1088</div><div>1089</div><div>1090</div><div>1091</div><div>1092</div><div>1093</div><div>1094</div><div>1095</div><div>1096</div><div>1097</div><div>1098</div><div>1099</div><div>1100</div><div>1101</div><div>1102</div><div>1103</div><div>1104</div><div>1105</div><div>1106</div><div>1107</div><div>1108</div><div>1109</div><div>1110</div><div>1111</div><div>1112</div><div>1113</div><div>1114</div><div>1115</div><div>1116</div><div>1117</div><div>1118</div><div>1119</div><div>1120</div><div>1121</div><div>1122</div><div>1123</div><div>1124</div><div>1125</div><div>1126</div><div>1127</div><div>1128</div><div>1129</div><div>1130</div><div>1131</div><div>1132</div><div>1133</div><div>1134</div><div>1135</div><div>1136</div><div>1137</div><div>1138</div><div>1139</div><div>1140</div><div>1141</div><div>1142</div><div>1143</div><div>1144</div><div>1145</div><div>1146</div><div>1147</div><div>1148</div><div>1149</div><div>1150</div><div>1151</div><div>1152</div><div>1153</div><div>1154</div><div>1155</div><div>1156</div><div>1157</div><div>1158</div><div>1159</div><div>1160</div><div>1161</div><div>1162</div><div>1163</div><div>1164</div><div>1165</div><div>1166</div><div>1167</div><div>1168</div><div>1169</div><div>1170</div><div>1171</div><div>1172</div><div>1173</div><div>1174</div><div>1175</div><div>1176</div><div>1177</div><div>1178</div><div>1179</div><div>1180</div><div>1181</div><div>1182</div><div>1183</div><div>1184</div><div>1185</div><div>1186</div><div>1187</div><div>1188</div><div>1189</div><div>1190</div><div>1191</div><div>1192</div><div>1193</div><div>1194</div><div>1195</div><div>1196</div><div>1197</div><div>1198</div><div>1199</div><div>1200</div><div>1201</div><div>1202</div><div>1203</div><div>1204</div><div>1205</div><div>1206</div><div>1207</div><div>1208</div><div>1209</div><div>1210</div><div>1211</div><div>1212</div><div>1213</div><div>1214</div><div>1215</div><div>1216</div><div>1217</div><div>1218</div><div>1219</div><div>1220</div><div>1221</div><div>1222</div><div>1223</div><div>1224</div><div>1225</div><div>1226</div><div>1227</div><div>1228</div><div>1229</div><div>1230</div><div>1231</div><div>1232</div><div>1233</div><div>1234</div><div>1235</div><div>1236</div><div>1237</div><div>1238</div><div>1239</div><div>1240</div><div>1241</div><div>1242</div><div>1243</div><div>1244</div><div>1245</div><div>1246</div><div>1247</div><div>1248</div><div>1249</div><div>1250</div><div>1251</div><div>1252</div><div>1253</div><div>1254</div><div>1255</div><div>1256</div><div>1257</div><div>1258</div><div>1259</div><div>1260</div><div>1261</div><div>1262</div><div>1263</div><div>1264</div><div>1265</div><div>1266</div><div>1267</div><div>1268</div><div>1269</div><div>1270</div><div>1271</div><div>1272</div><div>1273</div><div>1274</div><div>1275</div><div>1276</div><div>1277</div><div>1278</div><div>1279</div><div>1280</div><div>1281</div><div>1282</div><div>1283</div><div>1284</div><div>1285</div><div>1286</div><div>1287</div><div>1288</div><div>1289</div><div>1290</div><div>1291</div><div>1292</div><div>1293</div><div>1294</div><div>1295</div><div>1296</div><div>1297</div><div>1298</div><div>1299</div><div>1300</div><div>1301</div><div>1302</div><div>1303</div><div>1304</div><div>1305</div><div>1306</div><div>1307</div><div>1308</div><div>1309</div><div>1310</div><div>1311</div><div>1312</div><div>1313</div><div>1314</div><div>1315</div><div>1316</div><div>1317</div><div>1318</div><div>1319</div><div>1320</div><div>1321</div><div>1322</div><div>1323</div><div>1324</div><div>1325</div><div>1326</div><div>1327</div><div>1328</div><div>1329</div><div>1330</div><div>1331</div><div>1332</div><div>1333</div><div>1334</div><div>1335</div><div>1336</div><div>1337</div><div>1338</div><div>1339</div><div>1340</div><div>1341</div><div>1342</div><div>1343</div><div>1344</div><div>1345</div><div>1346</div><div>1347</div><div>1348</div><div>1349</div><div>1350</div><div>1351</div><div>1352</div><div>1353</div><div>1354</div><div>1355</div><div>1356</div><div>1357</div><div>1358</div><div>1359</div><div>1360</div><div>1361</div><div>1362</div><div>1363</div><div>1364</div><div>1365</div><div>1366</div><div>1367</div><div>1368</div><div>1369</div><div>1370</div><div>1371</div><div>1372</div><div>1373</div><div>1374</div><div>1375</div><div>1376</div><div>1377</div><div>1378</div><div>1379</div><div>1380</div><div>1381</div><div>1382</div><div>1383</div><div>1384</div><div>1385</div><div>1386</div><div>1387</div><div>1388</div><div>1389</div><div>1390</div><div>1391</div><div>1392</div><div>1393</div><div>1394</div><div>1395</div><div>1396</div><div>1397</div><div>1398</div><div>1399</div><div>1400</div><div>1401</div><div>1402</div><div>1403</div><div>1404</div><div>1405</div><div>1406</div><div>1407</div><div>1408</div><div>1409</div><div>1410</div><div>1411</div><div>1412</div><div>1413</div><div>1414</div></div>
--

RETAINING WALL - REINFORCED CONCRETE BLOCKWORK

- RW1.

ALL WORKMANSHIP SHALL COMPLY WITH AS 4679 AND AS 3700.
- RW2.

RETAINING WALL FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING PRESSURE AS NOTED ON DRAWINGS. THIS FOUNDATION MATERIAL SHALL BE UNIFORM AND BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF ANY FOOTING REINFORCEMENT.
- RW3.

REFER TO "REINFORCED CONCRETE BLOCKWORK" NOTES FOR ADDITIONAL SPECIFICATIONS.
- RW4.

TEMPORARY BATTERS TO BE AS PER GEOTECHNICAL ENGINEERS REPORTS.
- RW5.

PROVIDE CLEAN-OUT BLOCKS AT THE BASE OF EACH POUR LIFT. REINFORCED CORES SHALL BE CLEANED OF MORTAR PROTRUSIONS BEFORE GROUTING
- RW6.

HORIZONTAL REINFORCEMENT IN WALLS IS TO BE SPICED 600 AS REQUIRED.
- RW7.

REFER TO TYPICAL DETAILS FOR FOOTING STEPS, INTERSECTION / CORNER DETAILS, AND VERTICAL CONTROL JOINT DETAILS.
- RW8.

COVER TO REINFORCEMENT IN BLOCK RETAINING WALLS SHALL BE MAINTAINED BY THE USE OF PLASTIC "BLOCKAID" REINFORCEMENT LOCATION BRACKETS (OR APPROVED EQUIVALENT) AT THE INTERSECTION OF ALL HORIZONTAL AND VERTICAL REINFORCEMENT.
- RW9.

ALL CORES ARE TO BE FULLY GROUTED. GROUT SHALL BE IN ACCORDANCE WITH AS 3600 AND COMPLY WITH THE FOLLOWING :-
CHARACTERISTIC STRENGTH f_c = 20 MPa AT 28 DAYS.
MAXIMUM AGGREGATE SIZE = 10 mm.
SLUMP = 230 mm.
- RW10.

PROVIDE WATERPROOFING MEMBRANES AS REQUIRED BY ARCHITECTURAL SPECIFICATIONS. DESIGN, EXTENT AND CERTIFICATION OF MEMBRANE IS TO BE PROVIDED BY WATERPROOFING SPECIALIST.
- RW11.

RETAINING WALLS ARE DESIGNED BASED ON THE ASSUMPTION THAT A FUNCTIONING DRAINAGE SYSTEM IS EFFECTIVE IN REMOVING HYDRAULIC PRESSURE . PROVIDE CONTINUOUS AG DRAINS BEHIND THE ENTIRE EXTENT OF THE RETAINING WALL. THE DRAINAGE SYSTEM IS TO BE DESIGNED FOR LONG TERM PERFORMANCE EQUAL TO THAT OF THE DESIGN LIFE OF THE WALL. THE DESIGN AND DOCUMENTATION OF THIS SYSTEM IS BY OTHERS AND IS TO INCLUDE DETAILS OF EFFLUX POINTS FOR THE DRAINAGE AND ACCESS / MAINTENANCE POINTS.
- RW12.

BACKFILL BEHIND THE WALL IS TO BE CLASSIFIED AS FREE DRAINING GRANULAR MATERIAL. FREE DRAINING GRANULAR MATERIAL SHALL BE A NON-COHESIVE WELL GRADED GRANULAR MATERIAL COMPRISING SOUND STONE PARTICLES WHICH DO NOT BREAK DOWN UNDER COMPACTION, WETTING OR EXPOSURE TO AIR. THE MATERIAL PROPERTIES SHALL COMPLY WITH THOSE SPECIFIED IN TABLE BELOW.
- | FREE DRAINING GRANULAR MATERIAL PROPERTIES | | |
|--|---------|-------|
| PROPERTY | LIMIT | VALUE |
| STONE SIZE | MAXIMUM | 20 mm |
| % PASSING 0.15 mm SIEVE | MAXIMUM | 5 % |
| PLASTICITY INDEX | MAXIMUM | 8 |
- RW13.

PROVIDE GEOTEXTILE SEPARATION LAYER BETWEEN FREE DRAINING GRANULAR MATERIAL AND RETAINED FILL MATERIAL.
- RW14.

COMPACTION OF BACKFILL BEHIND WALLS - COMPACTION SHALL BE BY MECHANICAL PLATE VIBRATOR TO A MINIMUM OF 100% STANDARD COMPACTION. - BACKFILLING IS NOT TO TAKE PLACE UNTIL APPROVAL HAS BEEN GIVEN BY THE ENGINEER.
- RW15.

PROVIDE VERTICAL CONTROL JOINTS IN ALL WALLS AT A MAXIMUM OF 8000 mm CENTRES UNLESS INDICATED OTHERWISE ON THE STRUCTURAL DRAWINGS.
- RW16.

WHERE EVER POSSIBLE, SURFACE WATER SHALL BE DIRECTED AWAY FROM THE TOP OF THE WALL AND NOT BE ALLOWED TO POND BEHIND THE TOP OF THE WALL OR ENTER THE SUBSURFACE DRAINAGE SYSTEM.

REINFORCED CONCRETE BLOCKWORK

- RB1.

ALL WORKMANSHIP SHALL COMPLY WITH AS 3700, AND THE SPECIFICATIONS.
- RB2.

ALL BLOCKS SHALL CONFORM TO AS 2733.
- RB3.

THE DESIGN STRENGTH OF CONCRETE MASONRY SHALL BE AS FOLLOWS :-

ELEMENT	BLOCK STRENGTH GRADE	MORTAR MIX CEMENT:LIME:SAND
WALLS	15	M3 MORTAR (NORMAL) 1 : 1 : 6 M4 MORTAR (EXPOSURE GRADE) 1 : 0.5 : 4.5
- RB4.

LAY BOTTOM COURSE OF BLOCKS ON FULL MORTAR BED. ALL PERPENDS SHALL BE FULLY FILLED WITH MORTAR, EXCEPT WHERE REQUIRED FOR WEEPHOLES.
- RB5.

CLEAN OUT BLOCKS SHALL BE PROVIDED AT THE BASE OF ALL REINFORCED CORES. REINFORCED CORES SHALL BE CLEANED OF MORTAR PROTRUSIONS BEFORE GROUTING.
- RB6.

ALL REINFORCED CORES SHALL BE FILLED WITH GROUT. THE GROUT FILLING SHALL BE THOROUGHLY COMPACTED BY MECHANICAL VIBRATOR OR RODDING. UNREINFORCED CORES NEED NOT BE FILLED UNLESS OTHERWISE NOTED.
- RB7.

GROUT COVER TO REINFORCEMENT IN BLOCK RETAINING WALLS SHALL BE MAINTAINED BY THE USE OF PLASTIC "BLOCKAID" REINFORCEMENT LOCATION BRACKETS (OR APPROVED EQUIVALENT) AT THE INTERSECTION OF ALL HORIZONTAL AND VERTICAL REINFORCEMENT.
- RB8.

GROUT SHALL BE IN ACCORDANCE WITH AS 3600 AND COMPLY WITH THE FOLLOWING :-

CHARACTERISTIC STRENGTH f_c = 20 MPa AT 28 DAYS.
MAXIMUM AGGREGATE SIZE = 10 mm.
SLUMP = 230 mm.
- RB9.

MAXIMUM CONTINUOUS POUR HEIGHT SHALL BE 3600 mm, STOP POUR 50 mm BELOW TOP OF BLOCK TO PROVIDE KEY FOR THE FOLLOWING POUR.
- RB10.

BUILDER IS TO PROVIDE TEMPORARY PROPPING TO WALLS WHERE REQUIRED FOR STABILITY DURING CONSTRUCTION.
- VERTICAL JOINTS
- RB11.

PROVIDE VERTICAL CONTROL JOINTS IN ALL WALLS AT A MAXIMUM OF 8000 mm CENTRES OR AT SLAB JOINTS UNLESS INDICATED OTHERWISE ON THE STRUCTURAL DRAWINGS
- HORIZONTAL JOINTS
- RB12.

PROVIDE HORIZONTAL JOINT REINFORCEMENT EVERY THIRD COURSE FOR SOLID OR CORE FILLED BLOCKS
- RB13.

REFER TO TYPICAL "REINFORCED BLOCK WALL JUNCTION DETAILS" FOR REINFORCEMENT REQUIREMENTS AT CORNERS AND INTERSECTIONS.
- RB14.

REFER TO THE ARCHITECTS SPECIFICATIONS FOR ALL WATERPROOFING DETAILS OF WALLS AS REQUIRED.
- RB15.

REFER TO "RETAINING WALL NOTE" FOR ADDITIONAL INFORMATION ON BACKFILLING AND DRAINAGE SYSTEMS BEHIND RETAINING WALLS.
- RB16.

REFER TO TYPICAL DETAILS FOR BOND BEAM LINTELS.
- RB17.

MASONRY WALLS MUST NOT BE CONSTRUCTED ON SUSPENDE CONCRETE UNTIL ALL TEMPORARY SUPPORTS ARE REMOVED AND ALL MASONRY TO BE LAID HAS BEEN STACKED ADJACENT TO PROPOSED POSITION.

CONCRETE NOTES

- C1.

ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH AS 3600 CURRENT EDITIONS WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
- C2.

ALL CONCRETE SUPPLY SHALL COMPLY WITH AS1379. CONCRETE PROPERTIES AND COVER TO REINFORCING.

ELEMENT	COVER (mm)		f_c (MPa) (28 DAYS)	MAX 56 DAY SHRINKAGE
SLAB ON GROUND	EXTERNAL	T 40 B 50	32	800
	INTERNAL	T 20 B 50	32	
STRIP FOOTINGS	50		40	800
PAD FOOTINGS	50		40	800
SUSPENDED SLABS AND BEAMS	EXTERNAL	T 40 B 40	40	650
	INTERNAL	T 20 B 20	40	
COLUMNS	EXTERNAL	40	40	800
	INTERNAL	40	40	
CONCRETE WALLS	EXTERNAL	40	40	800
	INTERNAL	20	40	

MAXIMUM AGGREGATE SIZE

=

20

SLUMP DURING PLACEMENT

=

80

EXPOSURE CLASSIFICATION

=

A1 INTERNAL

=

B1 EXTERNAL

STRUCTURAL STEELWORK

- S1.

ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH STEEL STRUCTURE - AS 4100 AND WELDING - AS 1554 EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENT.
- S2.

STEEL COMPONENTS SHALL CONFORM TO THE FOLLOWING TABLE U.N.O.

COMPONENT	AUS. STAND.	GRADE
PLATE	3678	250
HOT ROLLED SECTIONS	3679	300
CHS > 80 mm DIA.	1163	C350
CHS < 80 mm DIA.	1163	C250
RHS & SHS	1163	C350
PURLINS & GIRTS	1397	450
WELDED BEAMS & COLUMNS	3679	300
FLAT BARS & RODS.	3679	250
- S3.

BOLT DESIGNATION

ALL BOLTS TO BE 8.8/S UNLESS NOTED OTHERWISE

4.6/S COMMERCIAL BOLTS OF GRADE 4.6 TO AS 1111 SNUG TIGHTENED.
8.8/S HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS 1252 SNUG TIGHTENED.
8.8/TB HIGH STRENGTH BOLTS OF GRADE 8.8 TO AS 1252 FULLY TENSIONED TO AS 4100 AS A BEARING JOINT.
8.8/TF HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS 1252 FULLY TENSIONED TO AS 4100 AS A FRICTION JOINT WITH CONTACT SURFACES LEFT UNCOATED.
- S4.

ALL BOLTS SHALL BE M20 GRADE 8.8/S U.N.O.
ALL STUDS SHALL BE M20 GRADE 4.6/S U.N.O.
NO STEEL TO STEEL CONNECTION TO HAVE LESS THAN 2 BOLTS.
- S5.

ALL PLATES TO BE 10 mm THICK U.N.O.
- S6.

UNLESS NOTED OTHERWISE, ALL FILLET WELDS SHALL BE
6mm CONTINUOUS FOR PLATES LESS THAN OR EQUAL TO 12 PL
8mm CONTINUOUS FOR 16 PL
10mm CONTINUOUS FOR 20 PL AND ABOVE.

ELEMENT	WELD CATEGORY
ALL	SP

ALL BUTT WELDS TO BE COMPLETE PENETRATION BUTT WELDS. ELECTRODES TO BE E48XX U.N.O. WELD CATEGORY AS TABULATED ABOVE.
- S7.

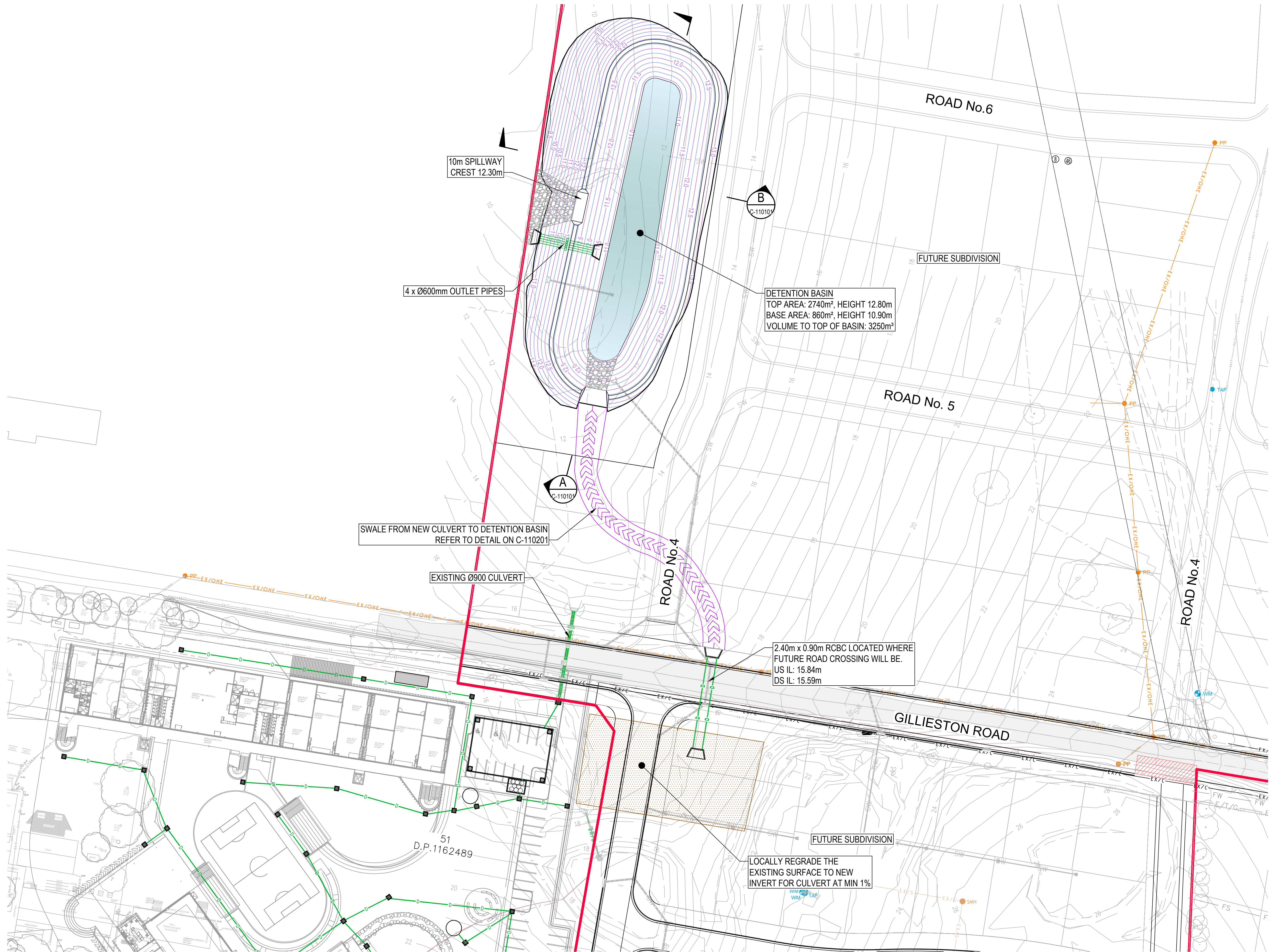
THE CONTRACTOR SHALL MAKE THE NECESSARY ALLOWANCES FOR COORDINATING ALL ARCHITECTURAL & STRUCTURAL ELEMENTS IN THE PREPARATION OF STRUCTURAL STEELWORK SHOP DRAWINGS & SUBSEQUENT FABRICATION & ERECTION. CONNECTION DETAILS SHOWN ON STRUCTURAL DRAWINGS ARE TYPICAL ONLY. WHERE A DETAIL IS NOT SHOWN THE FABRICATOR / SHOP DETAILER SHALL PREPARE DETAILS IN ACCORDANCE WITH AS4100 & THE AISC PUBLICATIONS 'DESIGN OF STRUCTURAL CONNECTIONS' & 'STANDARDISED STRUCTURAL CONNECTIONS'. THESE DETAILS SHALL TAKE DUE ACCOUNT OF ARCHITECTURAL & SERVICE REQUIREMENTS & SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. THE ENGINEER WILL SUPPLY LOADS AS REQUIRED. ALL COSTS & TIME IMPLICATIONS ASSOCIATED WITH THESE WORKS ARE TO BE ALLOWED FOR BY THE CONTRACTOR.
- S8.

STRUCTURAL STEELWORK SHALL HAVE THE FOLLOWING TREATMENT:-

ELEMENT	SURFACE PREPARATION	PROTECTIVE COATING
INTERIOR MEMBERS	BLAST CLEAN TO CLASS 2 (AS 1627)	ZINC PHOSPHATE PRIMER FILM THICKNESS 0.075mm
EXPOSED TO WEATHER INCLUDING ALL STIFFENERS	PICKLE (AS 1627 PART 5)	HOT DIP GALVANISED REFER TO SPECIFICATIONS.



				North		Scale		Client		Project		Drawing Title	
								 Education School Infrastructure		The Forum, Level 1 Suite 1 240-244 Pacific Highway Charlestown NSW 2290 T +61 2 4926 4811		GILLISTON PUBLIC SCHOOL	
								 <small>Nominated Architect Justin Harrison (P102) ABN 52 131 044 846</small>		 CONSULTANTS		100 RYANS ROAD GILLISTON HEIGHTS, NSW, 2321	
												Retaining Wall Notes	
												Scale @ A1 N.T.S.	
												Date 03.12.24	
												Issue C	
												Drawing No. NS221454	
												GPS-ACOR-00-XX-DR-C-100202	
												NOT FOR CONSTRUCTION	



LEGEND

- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER PIT
- PROPOSED STORMWATER SWALE
- FUTURE STORMWATER PIPE
- DUMPED ROCK SCOUR PROTECTION

EARTHWORKS CUT / FILL VOLUMES

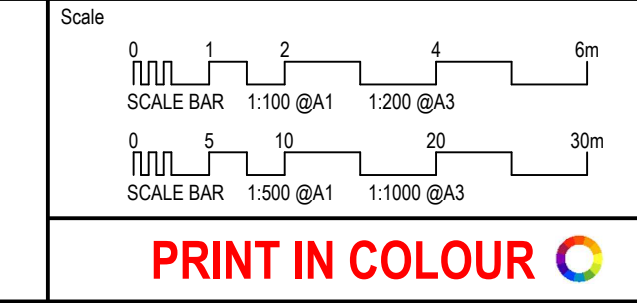
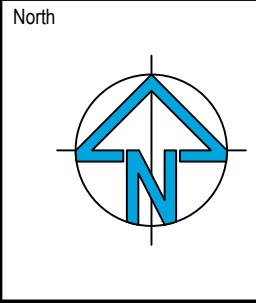
CULVERT ENTRANCE
CUT: -260m³
FILL: 50m³
BALANCE: -210m³ CUT OVER FILL

BASIN
CUT: -931m³
FILL: 2564m³
BALANCE: 1633m³ FILL OVER CUT

VOLUMES DO NOT ALLOW FOR STRIPPING OR CLAY CORE OF DETENTION BASIN



C ISSUED FOR DA		03.12.24		MDM	JPR
B NOT ISSUED					
A NOT ISSUED					
Issue	Description	Date	Drawn	Approved	



Client

Architect

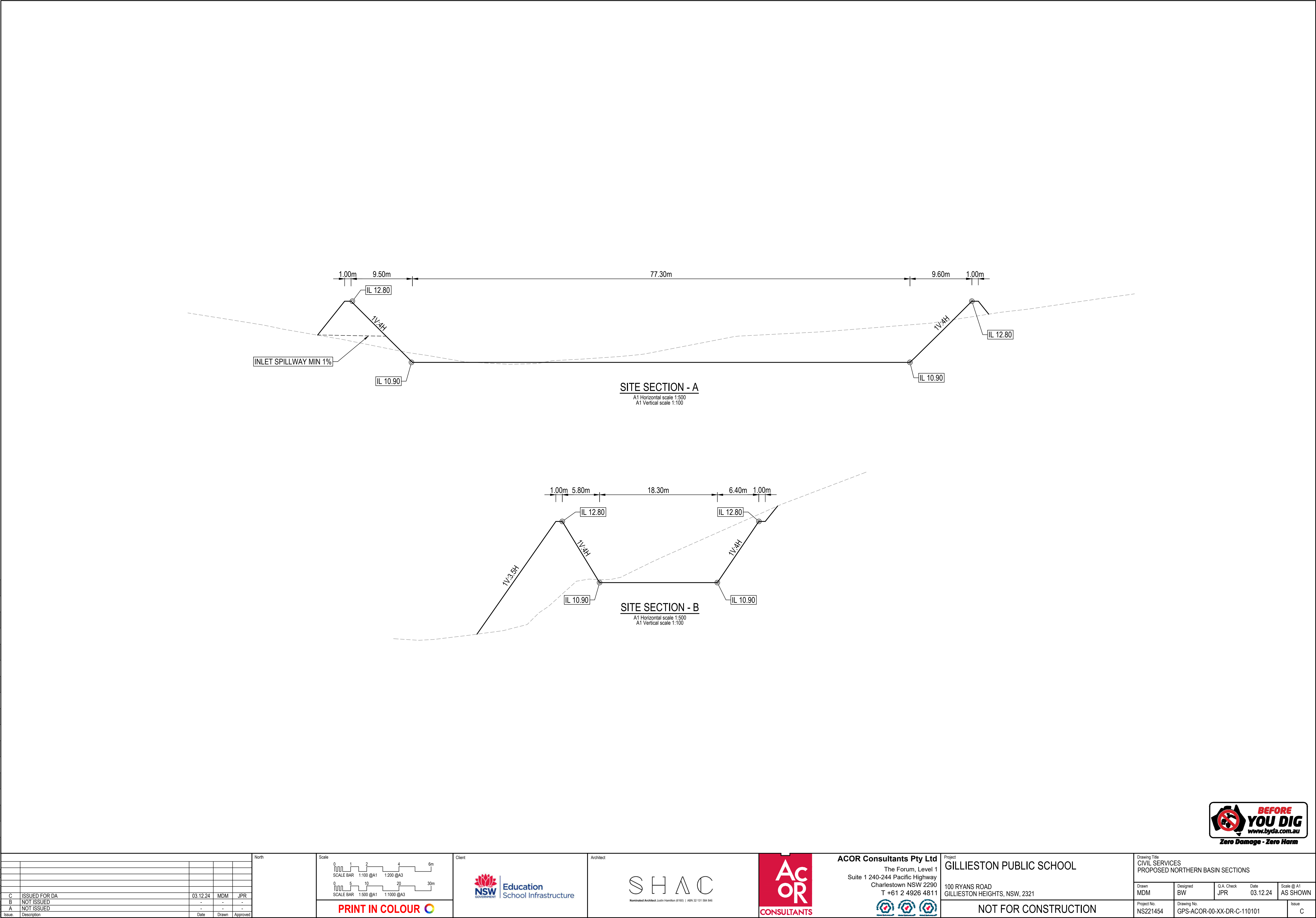
Nominated Architect Justin Harrison (B560) | ABN 32 131 584 545

ACOR Consultants Pty Ltd
The Forum, Level 1
Suite 1 240-244 Pacific Highway
Charlestown NSW 2290
T +61 2 4926 4811

Project
GILLIESTON PUBLIC SCHOOL
100 RYANS ROAD
GILLIESTON HEIGHTS, NSW, 2321

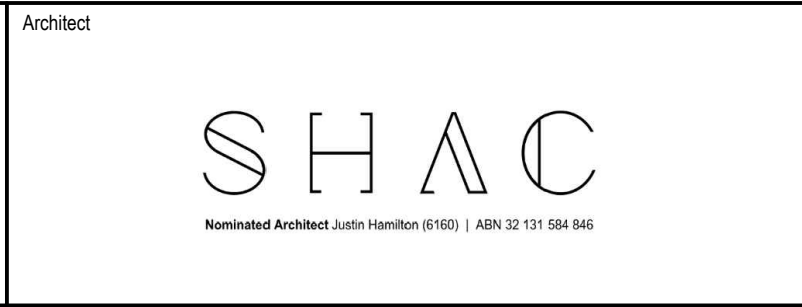
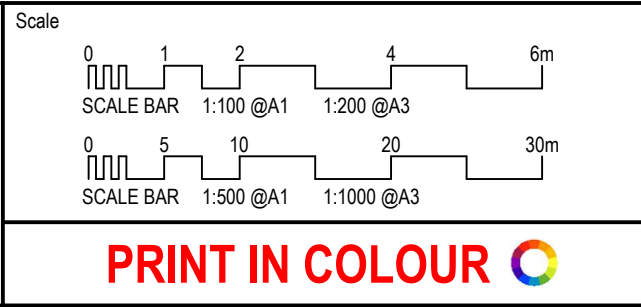
NOT FOR CONSTRUCTION

Drawing Title CIVIL SERVICES PROPOSED NORTHERN BASIN PLAN					
Drawn MDM	Designed BW	O.A. Check JPR	Date 03.12.24	Scale @ A1 1:500	Issue C
Project No. NS221454	Drawing No. GPS-ACOR-00-XX-DR-C-110001				



C	ISSUED FOR DA	03.12.24	MDM	JPR	
B	NOT ISSUED	-	-	-	
A	NOT ISSUED	-	-	-	
Issue	Description	Date	Drawn	Approved	

North



ACOR Consultants Pty Ltd
The Forum, Level 1
Suite 1 240-244 Pacific Highway
Charlestown NSW 2290
T +61 2 4926 4811

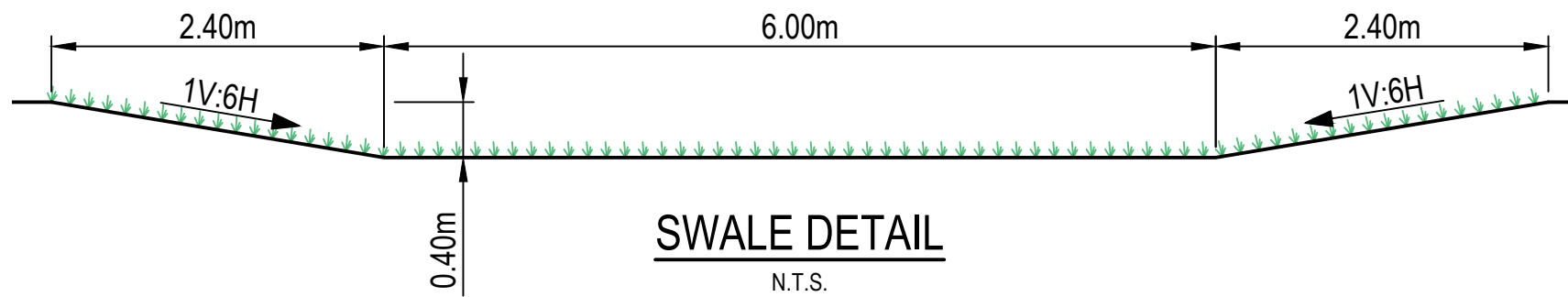
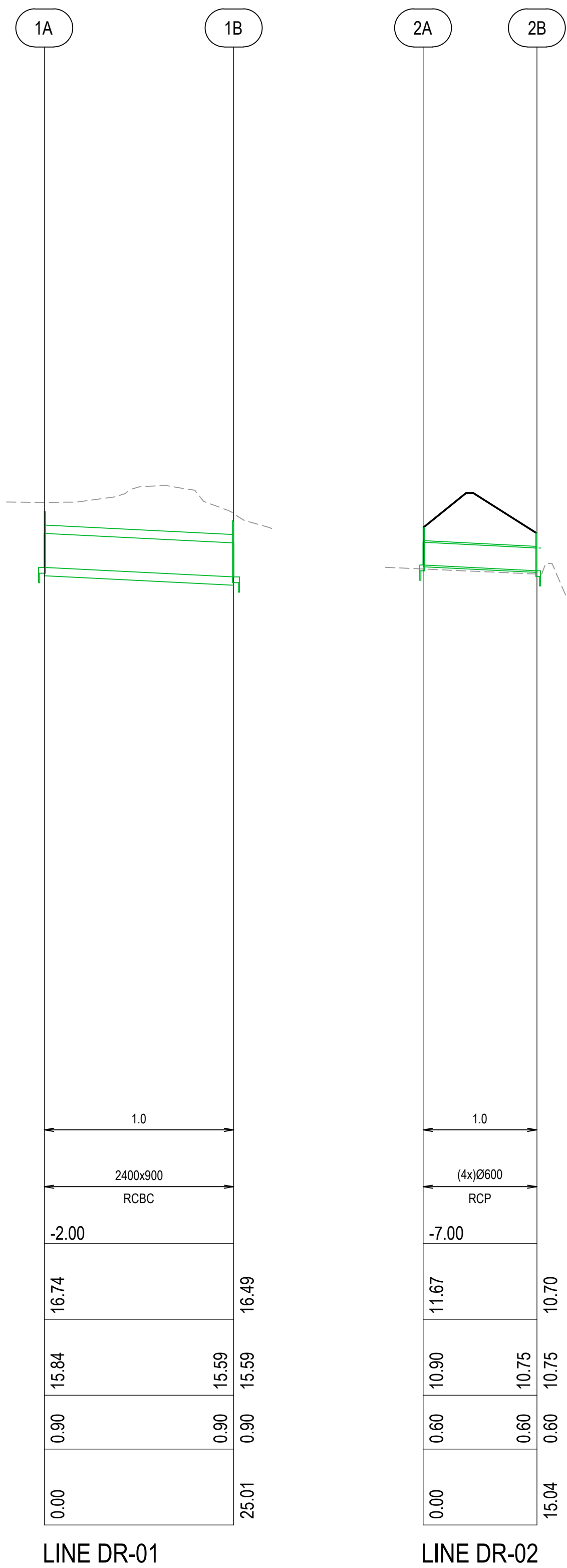
Project
GILLIESTON PUBLIC SCHOOL
100 RYANS ROAD
GILLIESTON HEIGHTS, NSW, 2321

NOT FOR CONSTRUCTION

Drawing Title CIVIL SERVICES PROPOSED NORTHERN BASIN SECTIONS				
Drawn MDM	Designed BW	O.A. Check JPR	Date 03.12.24	Scale @ A1 AS SHOWN
Project No. NS221454	Drawing No. GPS-ACOR-00-XX-DR-C-110101	Issue C		



LINE
CONNECTION



Issue	Description	Date	Drawn	Approved
C	ISSUED FOR DA	03.12.24	MDM	JPR
B	NOT ISSUED	-	-	-
A	NOT ISSUED	-	-	-

Scale

0 1 2 4 6m

SCALE BAR 1:100 @A1 1:200 @A3

0 5 10 20 30m

SCALE BAR 1:500 @A1 1:1000 @A3

PRINT IN COLOUR

Client

NSW GOVERNMENT Education School Infrastructure

Architect

SHAC

Nominated Architect Justin Hamilton (B160) | ABN 32 131 584 845

AcOR CONSULTANTS

ACOR Consultants Pty Ltd

The Forum, Level 1

Suite 1 240-244 Pacific Highway

Charlestown NSW 2290

T +61 2 4926 4811

Project

GILLIESTON PUBLIC SCHOOL

100 RYANS ROAD

GILLIESTON HEIGHTS, NSW, 2321

NOT FOR CONSTRUCTION

Drawing Title CIVIL SERVICES PROPOSED NORTHERN BASIN DRAINAGE DETAILS				
Drawn MDM	Designed BW	Q.A. Check JPR	Date 03.12.24	Scale @ A1 AS SHOWN
Project No. NS221454	Drawing No. GPS-ACOR-00-XX-DR-C-110201			Issue C