

TRAFFIC MANAGEMENT PLAN

DRAFT

Approvals and Reviews

Traffic Management Plan

Project	CopperString 2.0
Client	CuString Pty Ltd
Document Number	0643-JV-PLN-TMP-0005-B

Revision History

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1. Introduction

The purpose of the CopperString 2.0 project is to connect the North-West Minerals Province (NWMP) of Queensland to the National Electricity Grid. This will not only allow existing loads in the Mt Isa and Cloncurry areas to be fed from the National Electricity Market NEM, but also provide access to new mining loads and opportunity for connection of renewable generation.

1.1 Project Scope

The CopperString 2.0 Project (the Project) is an extra high voltage transmission system intended to connect the North-West Power System (NWPS) near Cloncurry and Mount Isa to the Powerlink network and National Electricity Market (NEM) at Woodstock. Figure 1 below provides an overview of the Project.

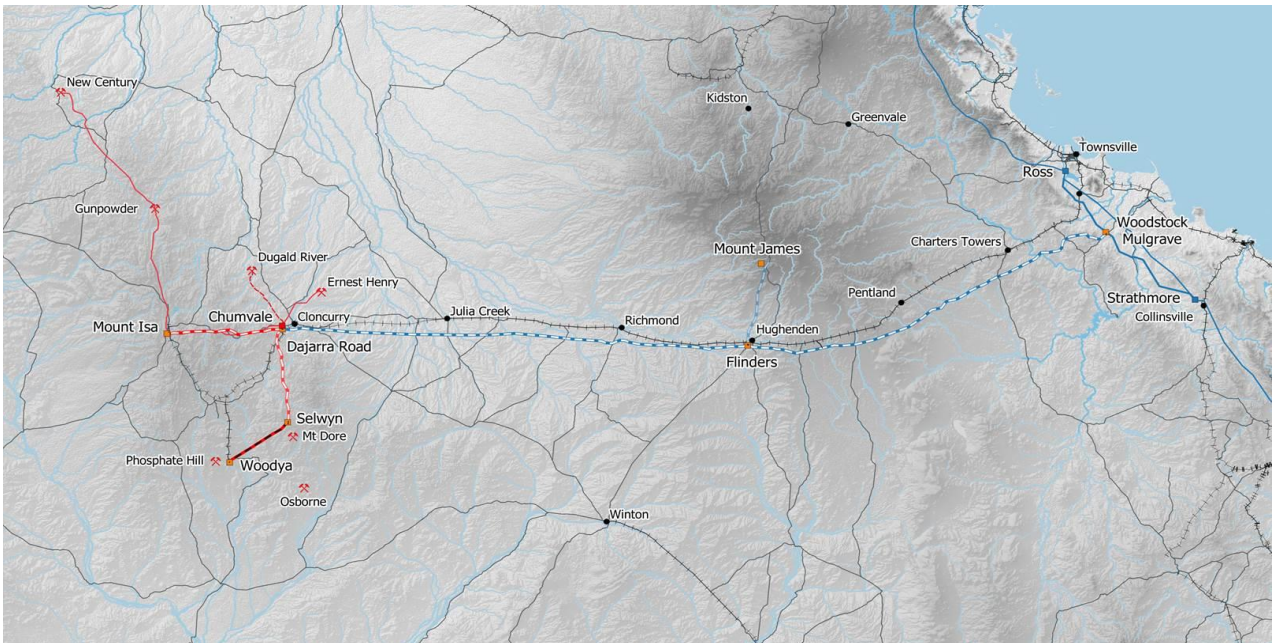


Figure 1: CopperString 2.0 Project – Proposed Transmission Lines

CopperString 2.0 will connect into the existing Powerlink 275kV lines at Mulgrave (77 kms south of Townsville) and extend some 1100km to Mt Isa via Hughenden and Cloncurry.

At Woodstock, Powerlink will provide a 275kV switching station (Mulgrave) that will cut into the existing double circuit 275kV lines between Ross and Strathmore. The Mulgrave switching station will be located adjacent to the CopperString 2.0 275/330kV substation (Woodstock).

A double circuit 330kV line (approximately 330km) will then run west to the Hughenden area where a new 330kV switching station (Flinders) will provide reactive power support for the system and a connection point for the Mount James substation approximately 80km North. The Mount James substation services the renewable generation area around Kennedy enabling zone development.

The 330kV double circuit line (approximately 400kms) will then extend to Cloncurry where a new 330/220kV substation (Dajarra Rd) will be constructed. This substation will again provide reactive power support to the system as well as allow connection at 220kV to the following:

- The existing Energy Queensland 220kV system at Cloncurry;
- A new 220kV southern spur to Mount Dore and Woodya; and
- A new 220kV line connecting Mt Isa.

The new 220kV line to Mt Isa (approximately 100kms) will complete the connection to the NWMP where a new 220/132kV substation (Mt Isa) will provide connection to the existing system.

The southern spur will consist of a new 220kV line (approximately 110kms) to a new 220/132kV substation (Selwyn). A further double circuit 132kV will run from Selwyn and connect in to Woodya (50kms). Woodya is a new 132kV switching substation servicing the Phosphate Hill area and other local loads.

Selwyn 220/132kV substation will provide 132kV feeds for loads in the Mt Dore area.

Refer to drawing 3200-0643-DP1-DWG-001 "CopperString 2.0 Overall System Single Line Diagram Initial Arrangement" for further details.

1.2 Objectives

This Traffic Management Plan (TMP) is a sub-plan to the overarching Project Execution Plan and part of a suite of plans that form the Project Management System (PMS) for the CopperString 2.0 Project. It outlines UGL and CPB Contractors' approach to providing safe and well-guided traffic solutions that ensure minimal disruption to road users and safe work areas for our people.

The TMP will be submitted for approval to the Principal in accordance with the Contract and will be monitored, updated, and controlled throughout the construction phase of the project.

The TMP forms the basis of the project's traffic management system and guides the planning, implementation and review of all changes to the road network and traffic systems during CopperString 2.0 construction phase. It has been developed to specifically address:

- Traffic management requirements
- Proposed construction phasing
- Key responsibilities and accountabilities
- Potential traffic impacts and minimisation techniques
- The traffic management document structure, management process tools and continual improvements/mitigation measures, including construction vehicle movements and construction traffic incident management
- Communication and stakeholder engagement processes and community engagement strategy (including emergency vehicles and services)
- Auditing, document review, monitoring and reporting
- Contractual obligations.

This TMP has been developed to be consistent with the construction methods and program defined in the Construction Methodology Management Plan. The requirements of the TMP will apply to all project site personnel, including UGL and CPB Contractors' workforce and subcontractors.

1.3 Minimum Traffic Requirements

Fundamental to the successful construction of the CopperString project is implementing effective traffic management strategies that will ensure the safety of road users, construction personnel and the public and eliminate or, where not possible, minimise disruption caused by construction activities.

The minimum traffic requirements for the construction phase include:

- Providing continuous, safe and efficient movement of vehicles past and/or through the construction site
- Providing a safe environment for CuString personnel, UGL and CPB Contractors' workforce and subcontractors during the works
- Providing timely, accurate and credible information to affected public, landowners, businesses and other stakeholders regarding traffic changes
- Maintaining the traffic-carrying capacity and connectivity of roads, where practicable and minimising traffic congestion, delays or disruptions
- Maintaining safe and efficient access for the community, business, and residents to their properties and public places, or providing alternative facilities
- Providing adequate guidance to other road users during the works
- Responding appropriately to traffic issues that may arise during the construction works.

1.4 KPI's and Targets

The KPIs and targets set out in **Error! Reference source not found.**1 below are designed to facilitate the seamless management of the project and will be reviewed monthly as part of project reporting.

Table 1: Objectives and targets

KPIs	Target	Actions Required
No significant traffic incidents	Zero occurrences	Monitor and record traffic incidents within or adjacent to the project site.
Provide continuous, safe and efficient movement of vehicles and safe environment for construction workforce	Full compliance in Traffic Guidance Scheme inspections Zero incidents	Undertake post implementation road safety audit within 24hrs of implementation of Traffic Guidance Scheme. Promptly rectify any safety issues identified within the post implementation road safety audit or routine safety inspections.
Timely and accurate communications/ notifications for road users /stakeholders	Zero complaints due to traffic changes	Record complaints received and action taken.
Provide continuous and safe access for local property owners	Zero occurrences of non-access	Proactively engage with community and record feedback.
No unplanned delays/ congestion during the performance of the works	Zero occurrences of unplanned delays/congestion	Monitor effectiveness of Traffic Guidance Schemes.

2. The Way We Operate

2.1 The Way We Operate

'The Way We Operate' is an overall process that guides how UGL and CPB Contractors manages our business to meet client and other stakeholder requirements. It fosters an integrated approach across all operations and functions to deliver outcomes that ensure third party certifications in relation to Australian and International standards for Safety, Health, Environment and Quality are maintained.

2.2 UGL and CPB's Management System

The UGL and CPB Construction Management System (CMS) helps achieve safe and efficient delivery of our requirements under the Contract, as well as our overall business objectives.

The CMS comprises interdependent components (refer Table 2) which operationalise our processes to achieve a fully integrated, systematic, planned and consistent approach to delivering work.

Table 2: The CMS' interdependent components

Component	Objective
Policy	A statement of strategic intent and commitment, including minimum requirements
Plans & Procedures	The steps to be undertaken to complete an activity, including the accountable roles and required tools and knowledge
Work Instruction	Detailed instructions on how to conduct a step within a procedure

Tools	Preformatted documents (forms and templates) used to collect specific data or information for a particular purpose
Knowledge	Reference material to provide context or guidance to a policy or procedure

The CMS has been developed to maintain compliance with the following external certifications:

- AS/NZS ISO 9001:2015 Quality Management
- AS/NZS ISO 14001:2004 Environment Management
- AS/NZS 4801:2001 Occupational Health & Safety
- OHSAS 18001:2007 Occupational Health & Safety
- Office of Federal Safety Commission (OFSC).

Legislation, standards and guidelines that apply to traffic management for this project include:

- Work Health and Safety Act 2011 (Qld)
- Work Health and Safety Regulation 2011 (Qld)
- Transport Operations (Road Use Management) Act 1995
- Transport Operations (Road Use Management-Accreditation and Other Provisions) Regulation 2005
- Traffic Management for Construction or Maintenance Work Code of Practice 2008
- Australian Standard 1742.3 2009 Manual of Uniform Traffic Control Devices
- Manual of Uniform Traffic Control Devices Part 3 (MUTCD Part 3)
- Manual of Uniform Traffic Control Devices Part 3 Supplement
- MRTS02 Provision for Traffic
- Austroads, including the TMR Supplements to any relevant sections
- TMR Road Planning and Design Manual
- Road Safety Barrier Systems, End Treatments and other related Road Safety Devices (accepted for use on state-controlled roads in Queensland)
- Traffic Controller Accreditation Scheme – Approved Procedure (TCASAP).

2.2.1 Project Management System

CMS documentation (which includes Corporate and Business Unit requirements) forms the foundation of each PMS and drives consistency across all projects.

Projects have the flexibility to add additional documentation specific to the contract requirements. As a result, the PMS is a combination of the CMS and project specific content.

2.2.2 Interface with Other Plans

The TMP supports the Project Execution Plan, which provides an overview of the Project's management system in accordance with the Contract. The Plan's overarching framework governs interactions between the functional management plans and sub-plans to ensure the management system's seamless implementation of the scope of works throughout project delivery.

2.3 Continual Improvement

In addition to specifying the day-to-day traffic management of a project, the TMP details activities to be performed to deliver continual improvement in traffic performance.

Continual improvement is achieved through constant measurement, evaluation, audit and review of the effectiveness of the TMP and adjustment and improvement from project quality outcomes, and updates to the CMS. UGL and CPB will conduct a lesson's learnt workshop following contract award between project teams from recent contracts to document and strategies the traffic management approach for CopperString 2.0.

During the course of undertaking the work, UGL and CPB Contractors will compile inspection records, audit results, feedback, complaints and other communications as relevant to the performance of the planned traffic management, staging and guiding schemes. This information will be used to report regularly on outcomes against planned objectives.

Furthermore, from time-to-time, and as often as deemed necessary, this information will be further reviewed, analysed and used to make improvements to our project management practices which include, including the TMP and Traffic Guidance Schemes (TGSs).

All improvements made to this plan (or other project plans) as a result of these reviews will be communicated as necessary to all relevant stakeholders.

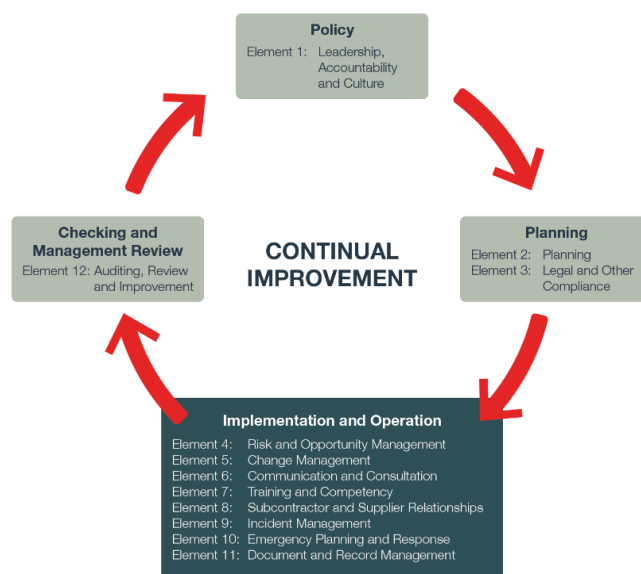


Figure 2: Continual Improvement Cycle

3. Roles and Responsibilities

3.1 Traffic Management Company Registration Details

The Traffic Management Company Registration details are outlined in Table 3 below.

Table 3: Traffic Management Company

Company Name	CPB Contractors Pty Ltd
ABN	98 000 893 667
Type of service company is providing on this project	Principal Contractor – all construction related works
Registration Certificate Number	0002
Date of Expiry of Registration	15 December 2022
Names of Nominated Traffic Officers	TBC

3.2 Traffic Coordinator (Nominated Traffic Officer)

The UGL and CPB Contractors' nominated Traffic Coordinator (allocated to a Transmission Line Senior Engineer) has proven capability in managing complex traffic management schemes and has previously been engaged as the nominated traffic officer on at least one recent project involving highway traffic volumes, multiple stages of construction, temporary pavements and traffic switches. They have also completed DTMR approved Traffic Management Design training.

All personnel will receive a full induction on arrival to the project, and be provided with a position description confirming the following in relation to traffic management:

- Roles
- Responsibilities
- Accountabilities
- Authorities.

Position descriptions will be reviewed and amended as the Project progresses and roles may change.

The Traffic Coordinator's roles and responsibilities are provided in Table 4

Table 4: Traffic Management Roles and Responsibilities

Role	Responsibilities
Traffic Coordinator / Engineer	<ul style="list-style-type: none"> • Co-ordinate activities with engineers • Develop and maintain personal contact with DTMR, Local Council, Emergency Services representatives and other stakeholders as required • Ensure stakeholders are continually updated on the progress of the work and any changes to the TMP, staging plans or TGS • Participate in regular meetings with the construction team to obtain program forecasts and ensure all TMP and TGS requirements are implemented • Establish and operate the traffic control organisation charged with setting up and operating traffic plans • Implement procedures/processes for the development/approval and implementation of TGSs • Investigate and maintain a register of all incidents/accidents and complaints received, recording action taken to address each • Coordinate all reporting functions relating to traffic management • Establish a program for suitable training of personnel in emergency procedures and traffic management, as well as addressing these issues at site inductions and tool box meetings • Ensure that only adequately trained and qualified personnel are engaged in traffic control duties • Establish a dedicated communication link with the field crews and the site superintendents/supervisors for application of the TMP, staging and TGSs • Issue controlled copies of the TMP, staging plans and TGSs to relevant workforce personnel • Ensure all traffic management personnel, plant and equipment are available to meet the requirements of the construction program • Develop work procedures to maximise the safety of the working environment for employees, road users and general public • Brief field personnel responsible for traffic management and incident/accident response activities if and when requested by the Traffic Management Centre operator • Maintain a current listing of equipment available both on and off site • Chair Traffic Management Liaison Group (TMLG) meetings, if established.

3.3 Out of Hours Representative

UGL and CPB Contractors will nominate representatives who will be available at all times to address traffic management issues outside normal working hours. The contact details for these representatives will be available to authorities, including the Queensland Police Service.

The out-of-hours representative will be responsible for coordinating and expediting immediate maintenance or repairs of any part of the work under the contract. The contact details for our nominated representatives are provided in Table below:

Table 5: Out-of-hours representatives

Contact Name	Role	Contact Details	Time Available
TBC	Transmission Line PM	TBC	All times
TBC	General Superintendent	TBC	All times
TBC	Traffic Coordinator	TBC	All times

3.4 RPEQ

UGL and CPB Contractors will engage the services of a Registered Professional Engineer of Queensland (RPEQ) to certify each TGS prior to submission, including temporary works designs and traffic modelling, as applicable. The certification process will be required prior to submission to statutory authorities for approval, as outlined in MRTS02.

3.5 Traffic Controllers

UGL and CPB Contractors will only use traffic controllers that are personally accredited under Section 21 of the Transport Operations (Road Use Management) Act 1995 and who have been issued with a DTMR Traffic Controller Accreditation Scheme accreditation identity card. All traffic controllers will be required to have this card with them at all times. A record of accreditation will be kept on file with site induction records.

3.6 Personnel Training

UGL and CPB Contractors will provide appropriate training to all personnel involved in traffic management, including training to achieve the requirements of the Traffic Management Code of Practice.

4. Traffic Management Approach

UGL and CPB Contractors will adopt a structured process for traffic management during construction of CopperString 2.0, as shown in Figure below.

It includes ongoing capture and feedback of performance outcomes to ensure continuous refinement and improvement of our work processes and approach to keeping road users and workers safe at all times.



Figure 3: A continuous improvement approach to traffic management

4.1 Commitment to Road User and Worker Safety

Our traffic management approach is based on our commitment to the safety of the workforce and road users.

Traffic will be separated from the workforce and hazards on the project site as specified in Section 6.5.11 of MRTS02. In addition, UGL and CPB Contractors' Safety Essential – 'Manage Work Near Live Traffic' defines the requirements for managing the hazards associated with working in a live traffic environment. Where the hazard cannot be eliminated, a hierarchy of control must be applied, with the highest controls used to manage risk.

The JV will implement the following safety measures to support the TGS and deliver road user and workforce safety on the project:

- Hard controls (eg. portable safety barriers) for all work areas adjacent to live traffic to provide physical separation
- 'No Go Zones' at static work sites based on type of barrier and speed of passing traffic
- A combination of truck mounted attenuators, shadow vehicles and reduced speed limits in areas where the use of a fully protected static work site/physical separation cannot be achieved or where the works encroach on 'No Go Zones'
- All workers and subcontractors will be responsible for complying with relevant procedures, reporting incidents and actively participating in pre-start briefings, toolbox talks and various training sessions.

4.2 Performance Indicators

Throughout the works, UGL and CPB Contractors will undertake traffic surveillance to monitor the effectiveness of each TGS. Surveillance will be undertaken on all roads open to the public within or adjacent to the project site.

Performance indicators have been established to measure TGS effectiveness, as outlined in Table 6.

Table 6: Performance Indicators

Performance indicator	Action	Monitoring	Reporting to:
Monitoring of traffic control devices	Confirm integrity of devices including cleanliness, performance output in daytime and nighttime, degradation, safety, placement attachment/ connection	Twice daily	Administrator upon request
Compliance with TGS	Undertake post implementation road safety audits Periodically drive through the work site to check all signs, markings and delineating devices are satisfactory and in their correct position	As required During work hours	Administrator Administrator upon request
Traffic incidents	Monitor and record all traffic incidents within or adjacent to the project site	As required	Administrator
Delays	To be monitored as per TGS and MRST02 requirements for stopping traffic durations and queue lengths.	During work hours	Administrator upon request

5. Road Occupancy Constraints During Construction

5.1 Specific Restrictions on Work

No works will occur during the following nominated events:

- During the period from the day prior to Christmas Day until New Year's Day, inclusive.

5.2 Traffic Lane Restrictions – Midblock

To maintain traffic flows during construction, UGL and CPB Contractors will maintain the minimum number of lanes at midblock sections in accordance with the requirements of Table 4.10 of the MUTCD Part 3 (refer Table 7 below).

Table 7: Desirable number of lanes for each direction

Mid-block Vehicles per hour, one direction	Within 200m of an intersection (upstream or downstream) Vehicles per hour, one direction	Desirable numbers of lanes for direction considered
Up to 1,000	Up to 500*	1
1,100 to 2,000	600 – 1,000	2
2,100 to 3,000	1,100 to 1,500	3
3,100 to 4,000	1,600 to 2,000	4

*Right turns out of the single lane may need to be prohibited depending on the proportion of heavy vehicles and the volume of opposing traffic.

Note: Volumes shown in the table may need to be reduced by the amount shown if the following apply:

- Pavement surface is rough or unsealed – reduce traffic volume by 30%
- Horizontal geometry through the restriction is reduced to a speed value of less than 40km/h – reduce volume by 50%
- Volume of heavy vehicles exceeds 10%:
 - downward, level or easy upgrade – reduce traffic volume by 20%
 - sustained upgrades >5% - reduce traffic volumes by 40%.

5.3 Traffic Lane Restrictions – Intersections

To maintain traffic flows during construction, UGL and CPB Contractors will maintain the same number of lanes as the pre-works situation at intersections, where possible. Deliveries of large plant, equipment and materials to substation and transmission line sites will be coordinated with pilot vehicles and/or traffic controls, where required to ensure safety of road users.

5.4 Single Lane Reversible Flow (Shuttle Flow)

The maximum delay to traffic under single lane, one-way traffic arrangements is outlined in Table 8.

Table 8: Maximum allowable delay times

Location	Days	Time Period	Maximum Delay Time (minutes)*
Local Roads	Working Days	Working Hours	10

*Maximum Delay Time (MDT) is defined as the additional time taken for any vehicle to travel through the construction project.

5.5 Travel Time Surveys

UGL and CPB Contractors is not required to undertake travel time surveys.

5.6 Route Alterations

In order maintain traffic flow, UGL and CPB Contractors will require alterations to the existing routes via the following means:

- Through the road under construction.
- Side-tracks are permitted, traffic may be redirected around the construction onto a side-track at the pavement tie-ins on local roads and highways, pending approval from DTMR or Local Council:
- Traffic may be redirected around the construction site onto a side-track (as per approved TGS and temporary works designs), provided that side-trafficking works:
 - Do not impact areas of environmental significance (eg. waterways, listed plant species, cultural heritage, MNES etc), and
 - Do not contravene the requirements of any environmental Approvals, and
 - Are approved by the Principal.

5.7 Excavations Adjacent to Road Under Traffic

UGL and CPB Contractors has carefully planned the staging of the works to ensure full compliance with contract requirements.

UGL and CPB Contractors will use temporary barriers to protect all excavations directly adjacent to roads under traffic which remain open longer than one shift, this will be required at substation sites during site access construction. Assurance is provided that all excavations will be free draining and will not cause localized flooding of the affected roads. This will be achieved by the cutting of drains, sediment basins and/or provision of pumps which will be manned during and after wet weather events to ensure all open excavations adjacent to or that could affect local roads will be dewatered and not cause localised flooding.

5.8 Devices

5.8.1 Direction, Information and Regulatory Sign Posting

Installation of directional, information and regulatory signposting will accompany any changes to the existing road networks.

UGL and CPB Contractors will design, supply, install and maintain all directional, information and regulatory construction signs and structures required for the work, including any modifications required to existing signs and sign structures.

Design, manufacture and installation of the signs and sign structures will be in accordance with the relevant DTMR Standards and Australian Standards.

All signposting changes will be detailed in the relevant TGS.

UGL and CPB Contractors will:

- Integrate the signage changes into the existing road network
- Liaise with all relevant authorities and agencies to determine issues, concerns, opportunities and constraints during the development of any direction signposting changes
- Submit details on any installation or changes to signposting with the relevant TGS applications. This includes scaled plans showing the locations of existing and new or modified signposting in all directions, as well as sign face and structure details
- Install and cover all new directional signs a minimum of one week prior to opening of a new construction phase
- Cover or change existing signposting that shows incorrect information during or immediately following the introduction of the new traffic arrangements
- Remove any signs that are superseded as a consequence of the works
- Re-instate all relevant directional signposting at the completion of the works.
- Submit details of all proposed temporary regulatory signs to the Administrator using Form 994.

5.8.2 Temporary Delineation

Whilst temporary delineation is not necessarily required along the alignment, temporary road closures for stringing activities will be required across local roads during daylight hours.

UGL and CPB Contractors will supply, install, operate and maintain the temporary delineation installations for the full period during which the relevant road is required.

5.8.3 Temporary Road Safety Barriers

Temporary road safety barriers and end-treatments used on the project will be compliant products as specified in the DTMR and Local Council compliant products list – road safety barrier systems, end treatments and any other related road safety devices. Devices will be installed in accordance with the relevant Standard Drawing, Manufacturers Specification and the MUTCD.

Where exposed to oncoming traffic, both the approach and departure ends of barriers will be illuminated with temporary lighting.

5.8.4 Truck Mounted Attenuators

Truck mounted attenuators may be used as a device for traffic management. All truck mounted attenuators will comply with DTMR's RoadTek Asset Services guidelines for the use of truck mounted attenuators.

5.8.5 Variable Message Signs (VMS)

UGL and CPB Contractors will provide trailer mounted VMS on the project site at areas where local public roads may be impacted by stringing works or material access requirements to site. This is to ensure adequate notification to the public has been achieved. The sign will be used to assist traffic safety and provide information to road users, where required.

- VMS will be located on the approaches to the work site where road works will be impacted and installed on specific approaches to changed traffic conditions prior to any significant traffic shifts.

6. Traffic Route Alterations / Traffic Switch Events

Traffic route alterations will only occur between 7:00pm and 5:00am, unless agreed by the relevant road authority. Queensland Police Service may be present for each traffic route alteration, where requested by the relevant road authority.

6.1 Public Notifications

UGL and CPB Contractors will comply with the public notification requirements detailed in the Contract.

6.2 Short Term Lane Closures

The timing of short-term lane closures will comply with the requirements of MRTS02 unless otherwise approved by DTMR and/or applicable Local Councils. Short term lane closures will be required for all road infrastructure upgrades for access to site along with stringing activities across local and state-controlled roads. Substation sites for early access will require short term lane closures and/or traffic control guidance whilst the site access is under construction.

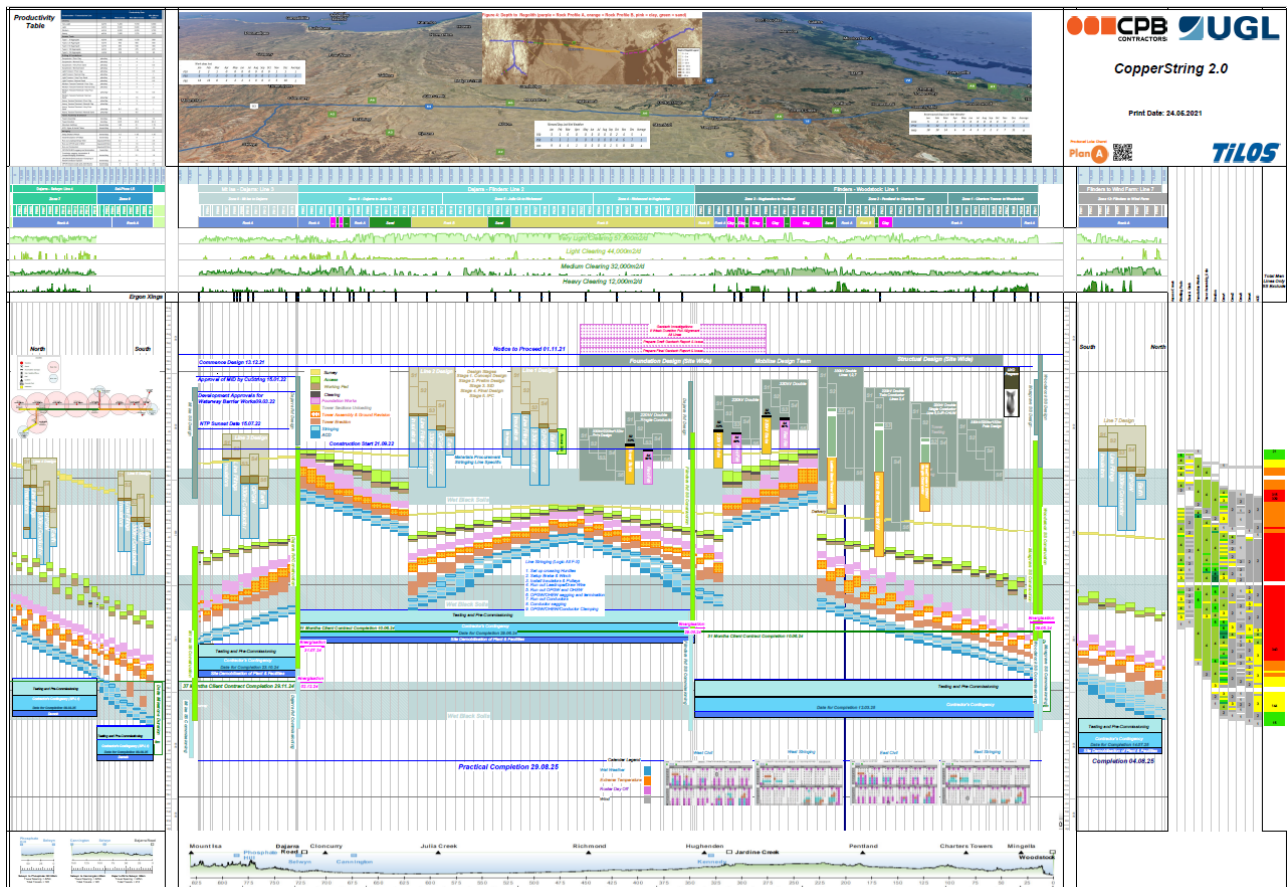
6.3 Maintenance

UGL and CPB Contractors will ensure that all debris and material is cleaned off local roads where impacted by the works. Any local roads that have site egress will have wet weather access provisions restricting the transfer of material from site to the local road. In instances where material is traversed onto any local roads, road sweepers will be engaged to ensure immediate cleaning of the road surface with appropriate traffic control and signage installed.

7. Construction Staging

The time chainage plan is located below for reference in the staging of the construction works along the project.

Figure 4: Time Chainage Construction Staging



7.1.1 Zone Description

Figure 5: Hub Staging Diagram

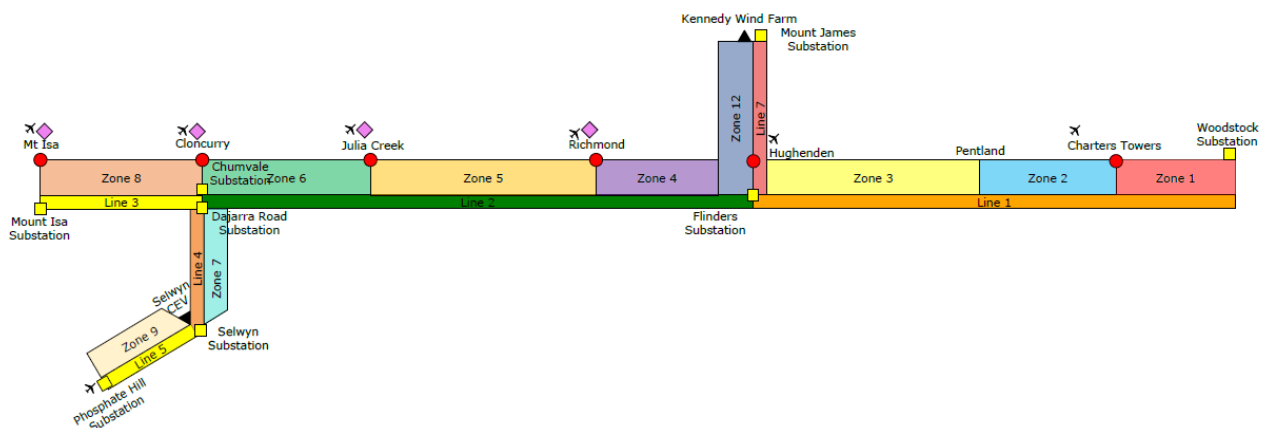
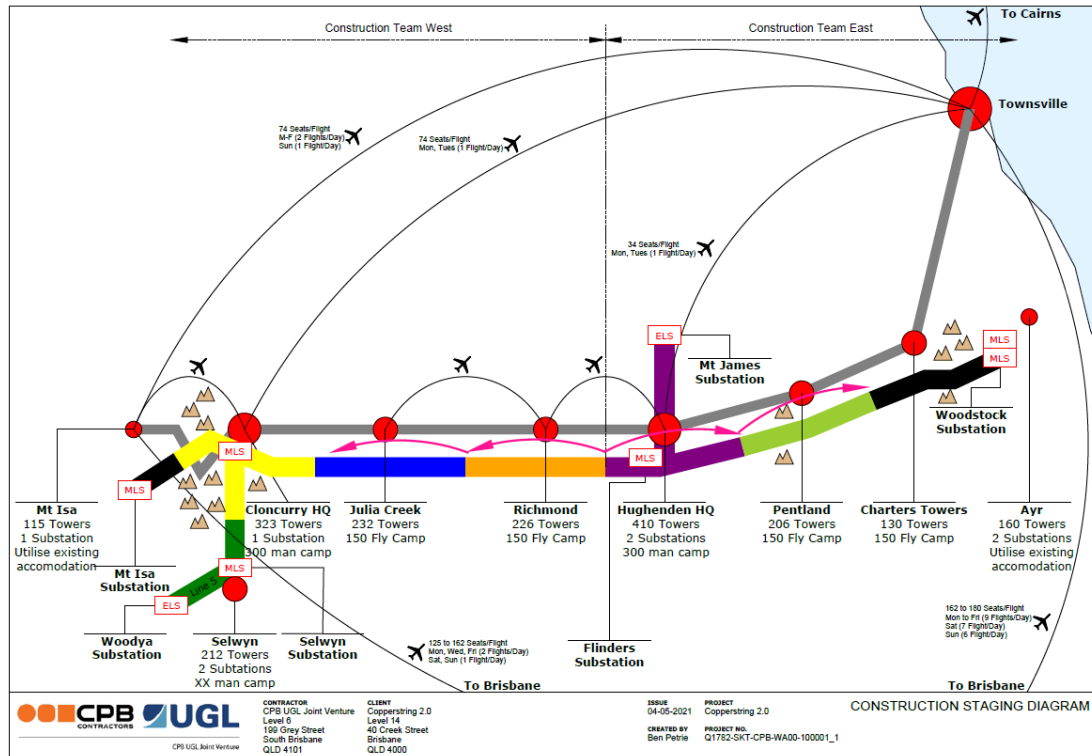


Figure 6: Project Zoning Plan

7.2 Zone 1 – Woodstock to Charters Towers

Zone 1 involves the following traffic management works:

- Site access construction
- Access track construction to Woodstock and Mulgrave Substations and transmission line
- Temporary water barrier installation for access over creeks
- Temporary traffic control for road crossings for stringing activities

- Road infrastructure upgrades for delivery of materials, plant and equipment for the turn off points from Flinders Highway
- Shoulder widening for material, plant and equipment for the turn-in points to the alignment.

Appendix C details the local and state-controlled roads impacted by the construction works with location coordinates and infrastructure upgrade works required.

Roads impacted within Zone 1, include the following:

1. Ayr Ravenswood Road (State Controlled Road)
2. Avoca Vale Road (Local Council Road)
3. Burdekin Falls Dam Road (State Controlled Road)
4. Flinders Highway (State Controlled Road)
5. Silver Valley Road (Local Council Road)
6. Amity Road (Local Council Road)
7. Lornesleigh Road (Local Council Road)
8. Cameron Downs Road (Local Council Road)
9. Gregory Developmental Road (State Controlled Road)
10. Bluff Road (Local Council Road).

7.2.1 Project Works to be Constructed

Project works within Zone 1 include the following activities:

- Mulgrave Substation Construction
- Woodstock Substation Construction
- Transmission Line

7.3 Zone 2 – Charters Towers to Pentland

Zone 2 involves the following traffic management works:

- Site access construction
- Access track construction to transmission line works
- Temporary water barrier installation for access over creeks
- Temporary traffic control for road crossings for stringing activities
- Road infrastructure upgrades for delivery of materials, plant and equipment for the turn off points from Flinders Highway
- Shoulder widening for material, plant and equipment for the turn-in points to the alignment.

Appendix C details the local and state-controlled roads impacted by the construction works with location coordinates and infrastructure upgrade works required.

Roads impacted within Zone 2, include the following:

1. Mountain View Road (Local Council Road)
2. Gregory Developmental Road (State Controlled Road)
3. Trafalgar Road (Local Council Road)
4. Flinders Highway (State Controlled Road)
5. Helenslee Road (Local Council Road)
6. Longton Road (Local Council Road).

7.3.1 Project Works to be Constructed

Project works within Zone 2 include the following activities:

- Transmission Line

7.4 Zone 3 – Pentland to Hughenden

Zone 3 involves the following traffic management works:

- Site access construction
- Access track construction to transmission line and Flinders Substation
- Temporary water barrier installation for access over creeks
- Temporary traffic control for road crossings for stringing activities
- Road infrastructure upgrades for delivery of materials, plant and equipment for the turn off points from Flinders Highway
- Shoulder widening for material, plant and equipment for the turn-in points to the alignment.

Appendix C details the local and state-controlled roads impacted by the construction works with location coordinates and infrastructure upgrade works required.

Roads impacted within Zone 3, include the following:

1. Lauderdale Road (Local Council Road)
2. Lyons Creek Road (Local Council Road)
3. Aramac Torrens Creek Road (State Controlled Road)
4. Cottonvale Penrice Road (Local Council Road)
5. Redcliffe Road (Local Council Road)
6. Hughenden Muttaborra Road (State Controlled Road)
7. Kennedy Development Road (State Controlled Road).

7.4.1 Project Works to be Constructed

Project works within Zone 3 include the following activities:

- Transmission Line
- Flinders Substation

7.5 Zone 4 – Hughenden to Richmond

Zone 4 involves the following traffic management works:

- Site access construction
- Access track construction to transmission line
- Temporary water barrier installation for access over creeks
- Temporary traffic control for road crossings for stringing activities
- Road infrastructure upgrades for delivery of materials, plant and equipment for the turn off points from Flinders Highway
- Shoulder widening for material, plant and equipment for the turn-in points to the alignment.

Appendix C details the local and state-controlled roads impacted by the construction works with location coordinates and infrastructure upgrade works required.

Roads impacted within Zone 4, include the following:

1. Flinders Highway (State Controlled Road)
2. Thornhill Tamworth Road (Local Council Road)
3. Marathon Stamford Road (Local Council Road)
4. Barabon Terranburby Road (Local Council Road).

7.5.1 Project Works to be Constructed

Project works within Zone 4 include the following activities:

- Transmission Line

7.6 Zone 5 – Richmond to Julia Creek

Zone 5 involves the following traffic management works:

- Site access construction
- Access track construction to transmission line
- Temporary water barrier installation for access over creeks
- Temporary traffic control for road crossings for stringing activities
- Road infrastructure upgrades for delivery of materials, plant and equipment for the turn off points from Flinders Highway
- Shoulder widening for material, plant and equipment for the turn-in points to the alignment.

Appendix C details the local and state-controlled roads impacted by the construction works with location coordinates and infrastructure upgrade works required.

Roads impacted within Zone 5, include the following:

1. Richmond Winton Road (State Controlled Road)
2. Pattel Drive (Local Council Road)
3. Minamere Nelia Road (Local Council Road)
4. Proa Road (Local Council Road)
5. Yorkshire Road (Local Council Road)
6. Julia Creek Kynuna Road (State Controlled Road).

7.6.1 Project Works to be Constructed

Project works within Zone 5 include the following activities:

- Transmission Line

7.7 Zone 6 – Julia Creek to Cloncurry

Zone 6 involves the following traffic management works:

- Site access construction
- Access track construction to transmission line and Dajarra Road Substation
- Temporary water barrier installation for access over creeks
- Temporary traffic control for road crossings for stringing activities
- Road infrastructure upgrades for delivery of materials, plant and equipment for the turn off points from Flinders Highway
- Shoulder widening for material, plant and equipment for the turn-in points to the alignment.

Appendix C details the local and state-controlled roads impacted by the construction works with location coordinates and infrastructure upgrade works required.

Roads impacted within Zone 6, include the following:

1. Ivellen Road (Local Council Road)
2. Oorindi McKinlay Road (Local Council Road)
3. Flinders Highway (State Controlled Road)
4. Landsborough Highway (State Controlled Road)
5. Round Oak Road (Local Council Road)
6. Chinaman Creek Dam Road (Local Council Road)
7. Barkley Highway (State Controlled Road)
8. Cloncurry Duchess Road (State Controlled Road).

7.7.1 Project Works to be Constructed

Project works within Zone 6 include the following activities:

- Transmission Line
- Dajarra Road Substation
- Connection to Chumvale and Ernest Henry Mine Substations.

7.8 Zone 7 – Cloncurry to Selwyn

Zone 7 involves the following traffic management works:

- Site access construction
- Access track construction to transmission line and Selwyn Substation
- Temporary water barrier installation for access over creeks
- Temporary traffic control for road crossings for stringing activities
- Road infrastructure upgrades for delivery of materials, plant and equipment for the turn off points from Flinders Highway
- Shoulder widening for material, plant and equipment for the turn-in points to the alignment.

Appendix C details the local and state-controlled roads impacted by the construction works with location coordinates and infrastructure upgrade works required.

Roads impacted within Zone 7, include the following:

1. Cloncurry Duchess Road (State Controlled Road)
2. Malbon Selwyn Road (Local Council Road).

7.8.1 Project Works to be Constructed

Project works within Zone 7 include the following activities:

- Transmission Line
- Selwyn Substation

7.9 Zone 8 – Cloncurry to Mt Isa

Zone 8 involves the following traffic management works:

- Site access construction
- Access track construction to transmission line and Mt Isa Substation
- Temporary water barrier installation for access over creeks
- Temporary traffic control for road crossings for stringing activities
- Road infrastructure upgrades for delivery of materials, plant and equipment for the turn off points from Flinders Highway
- Shoulder widening for material, plant and equipment for the turn-in points to the alignment.

Appendix C details the local and state-controlled roads impacted by the construction works with location coordinates and infrastructure upgrade works required.

Roads impacted within Zone 8, include the following:

1. Barkly Highway (State Controlled Road)
2. Mount Frosty Road (Local Council Road)
3. East Leichardt Road (Local Council Road)
4. Mica Creek Road (Local Council Road)
5. Powerhouse Road (Local Council Road).

7.9.1 Project Works to be Constructed

Project works within Zone 8 include the following activities:

- Transmission Line
- Mt Isa Substation

7.10 Zone 9 – Selwyn to Phosphate Hill

Zone 9 involves the following traffic management works:

- Site access construction
- Access track construction to transmission line and Phosphate Hill Substation
- Temporary water barrier installation for access over creeks
- Temporary traffic control for road crossings for stringing activities
- Road infrastructure upgrades for delivery of materials, plant and equipment for the turn off points from Flinders Highway
- Shoulder widening for material, plant and equipment for the turn-in points to the alignment.

Appendix C details the local and state-controlled roads impacted by the construction works with location coordinates and infrastructure upgrade works required.

Roads impacted within Zone 9, include the following:

1. Selwyn Chatsworth Road (Local Council Road)
2. Duchess Chatsworth Road (Local Council Road).

7.10.1 Project Works to be Constructed

Project works within Zone 9 include the following activities:

- Transmission Line
- Phosphate Hill Substation.

7.11 Zone 12 – Hughenden to Kennedy Wind Farm

Zone 12 involves the following traffic management works:

- Site access construction
- Access track construction to transmission line and Mt James Substation
- Temporary water barrier installation for access over creeks
- Temporary traffic control for road crossings for stringing activities
- Road infrastructure upgrades for delivery of materials, plant and equipment for the turn off points from Flinders Highway
- Shoulder widening for material, plant and equipment for the turn-in points to the alignment.

Appendix C details the local and state-controlled roads impacted by the construction works with location coordinates and infrastructure upgrade works required.

Roads impacted within Zone 12, include the following:

1. Flinders Highway (State Controlled Road)
2. Hughenden Riverside Road (Local Council Road)
3. Hardwicke Street (Local Council Road)
4. Little Avenue (Local Council Road)
5. Torver Valley Road (Local Council Road)
6. Hann Highway (State Controlled Road).

7.11.1 Project Works to be Constructed

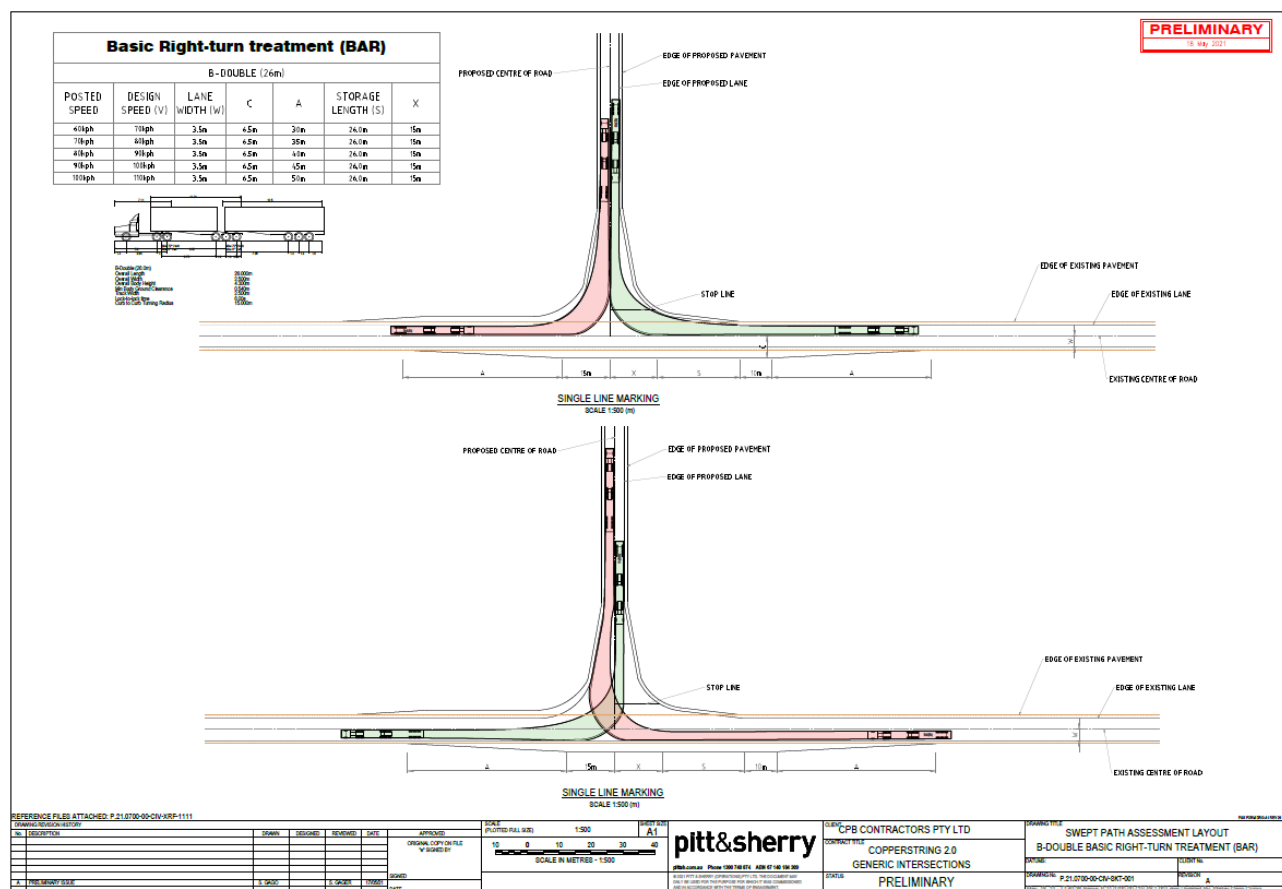
Project works within Zone 12 include the following activities:

- Transmission Line
- Mt James Substation

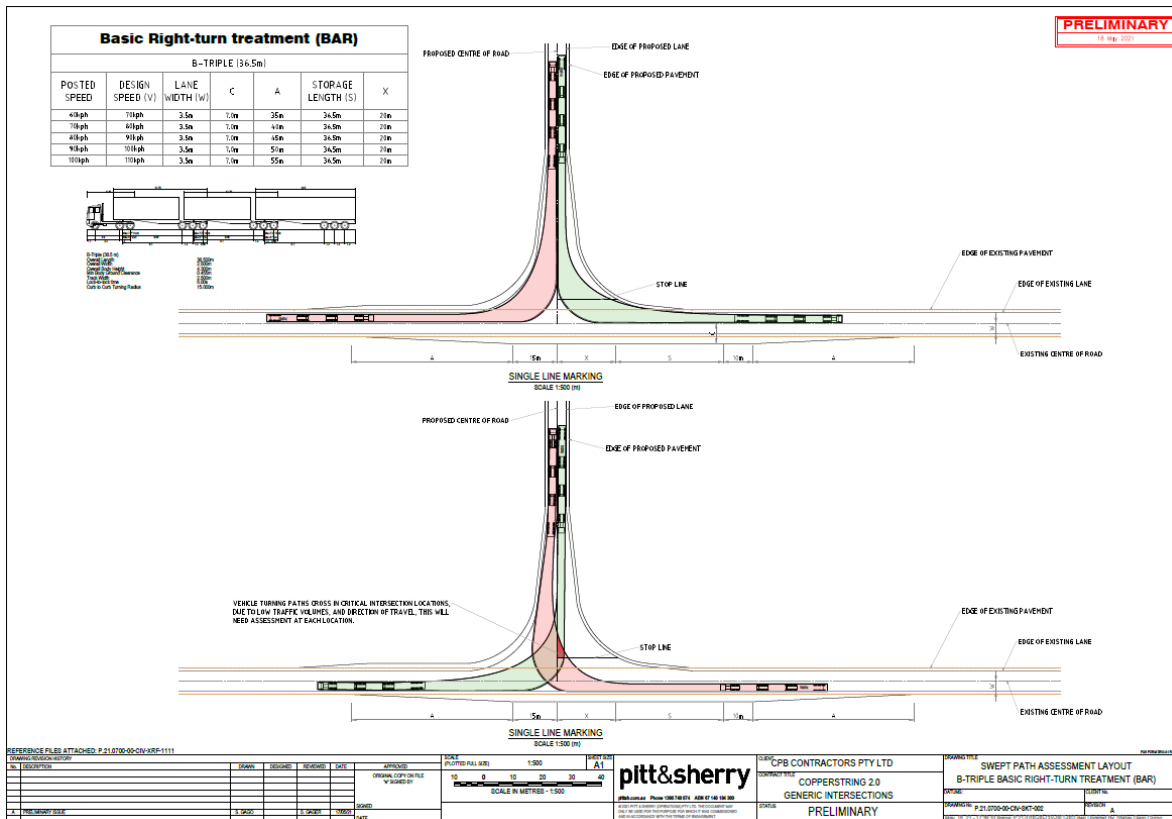
8. Preliminary Traffic Access Plans

8.1 Swept Path Assessment Layout

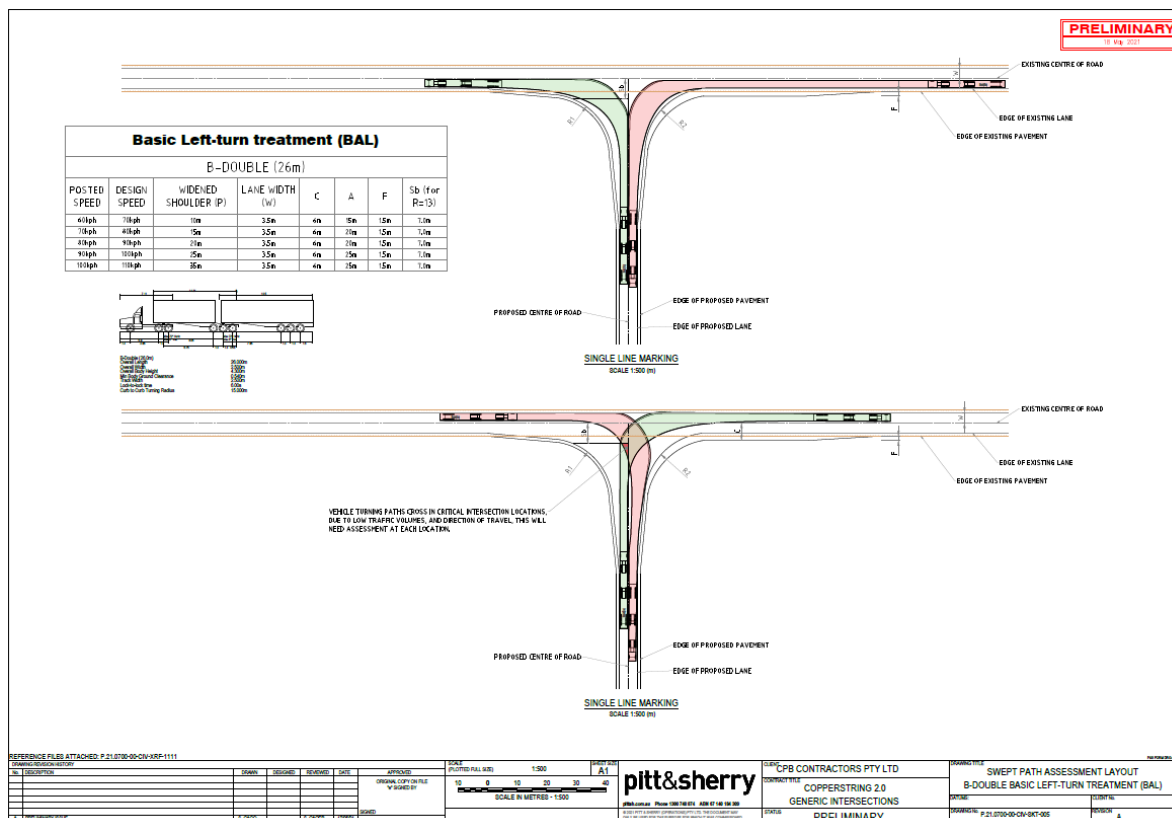
8.1.1 B-Double Right Turn Treatment



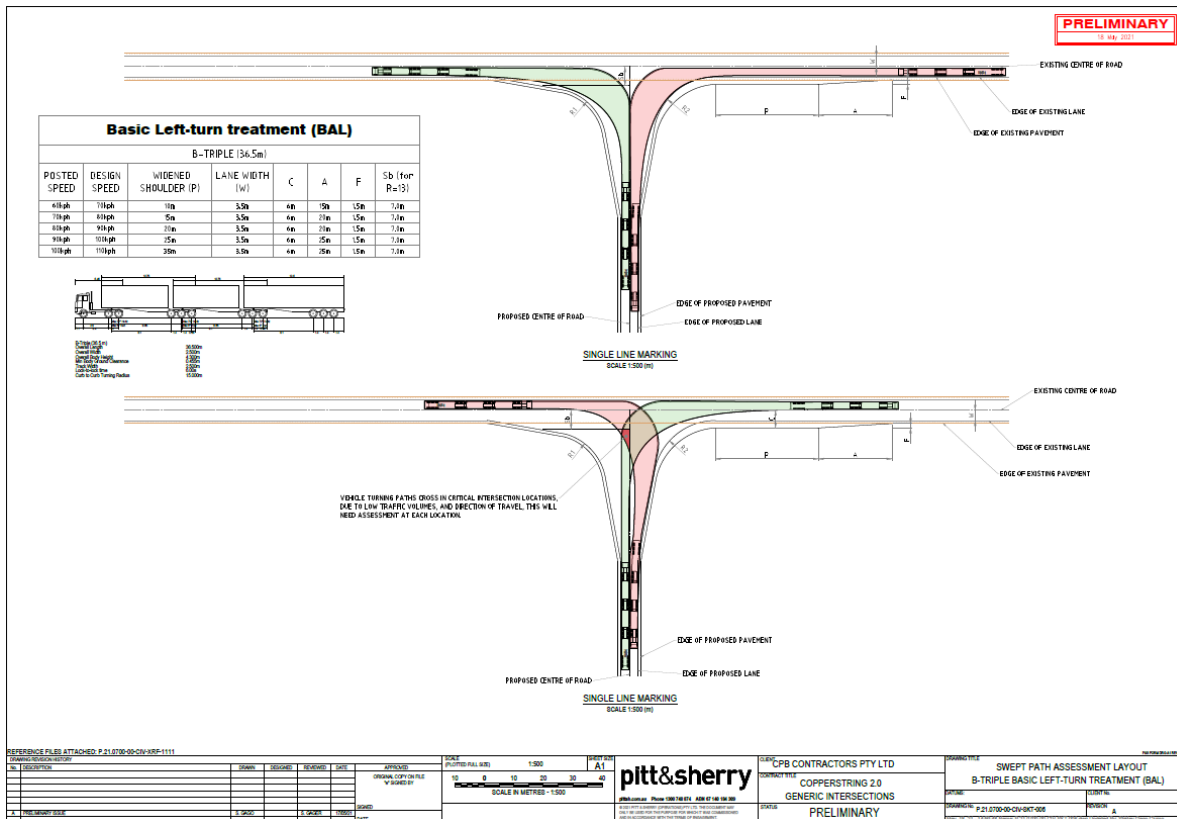
8.1.2 B-Triple Right Turn Treatment



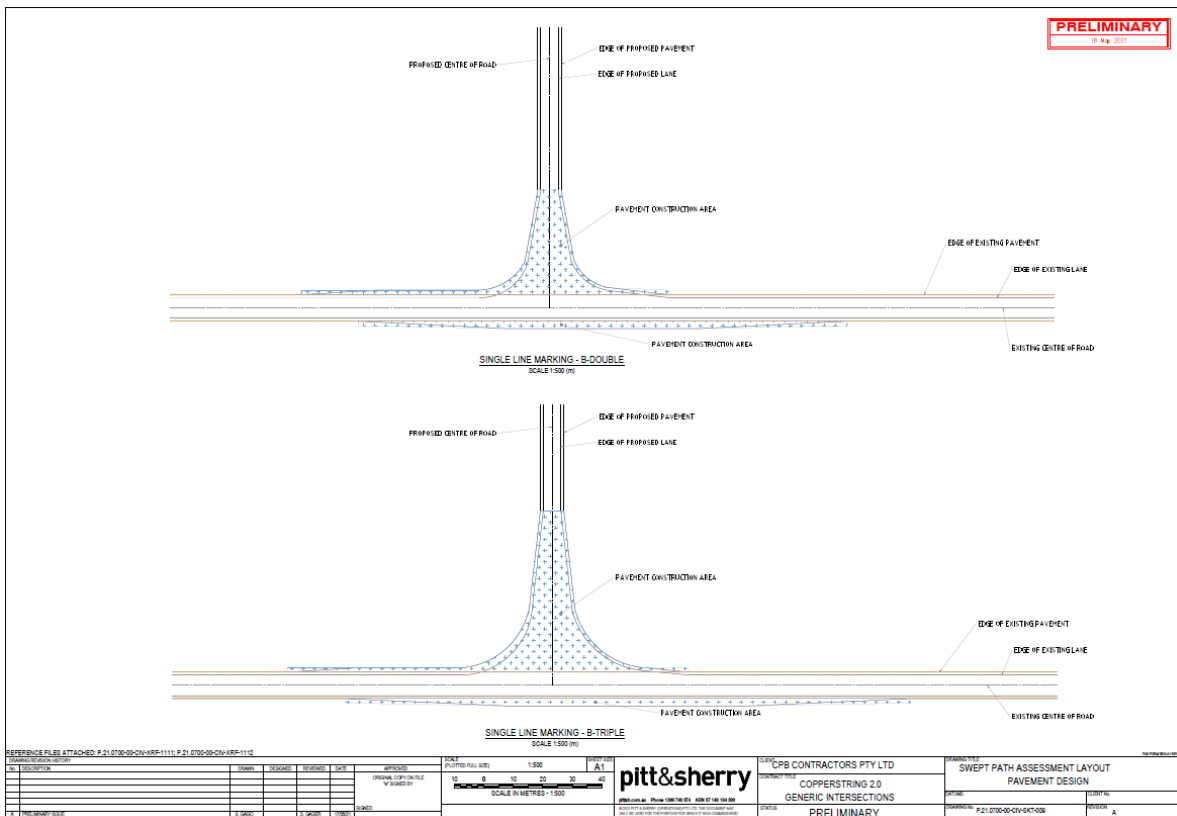
8.1.3 B-Double Left Turn Treatment

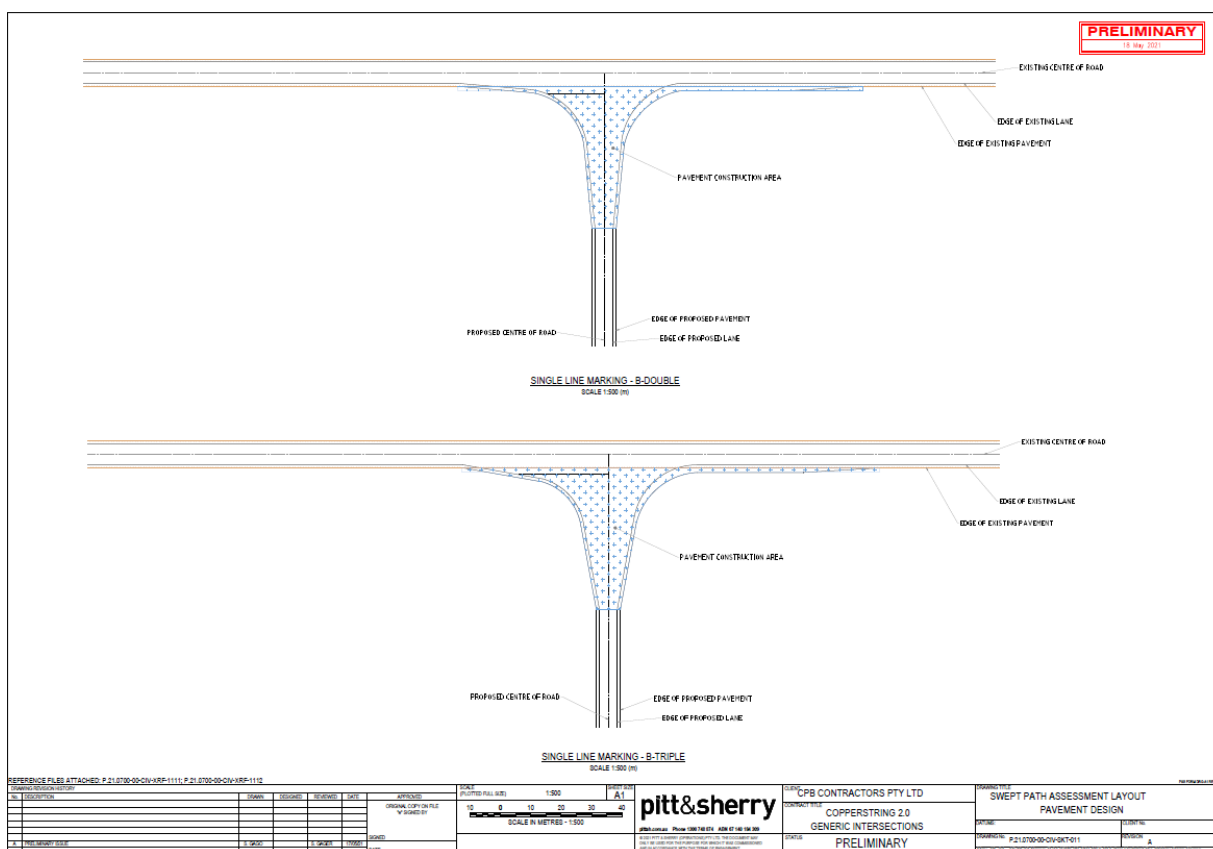
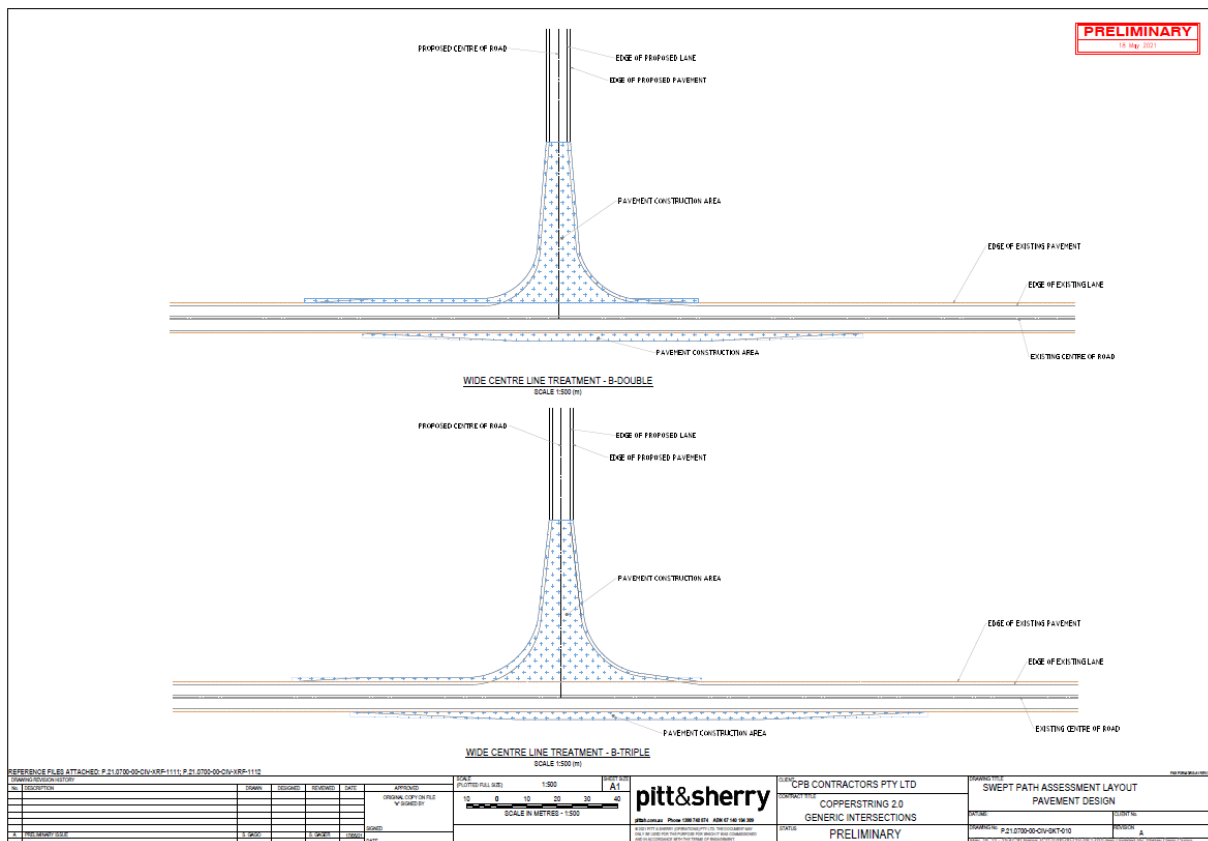


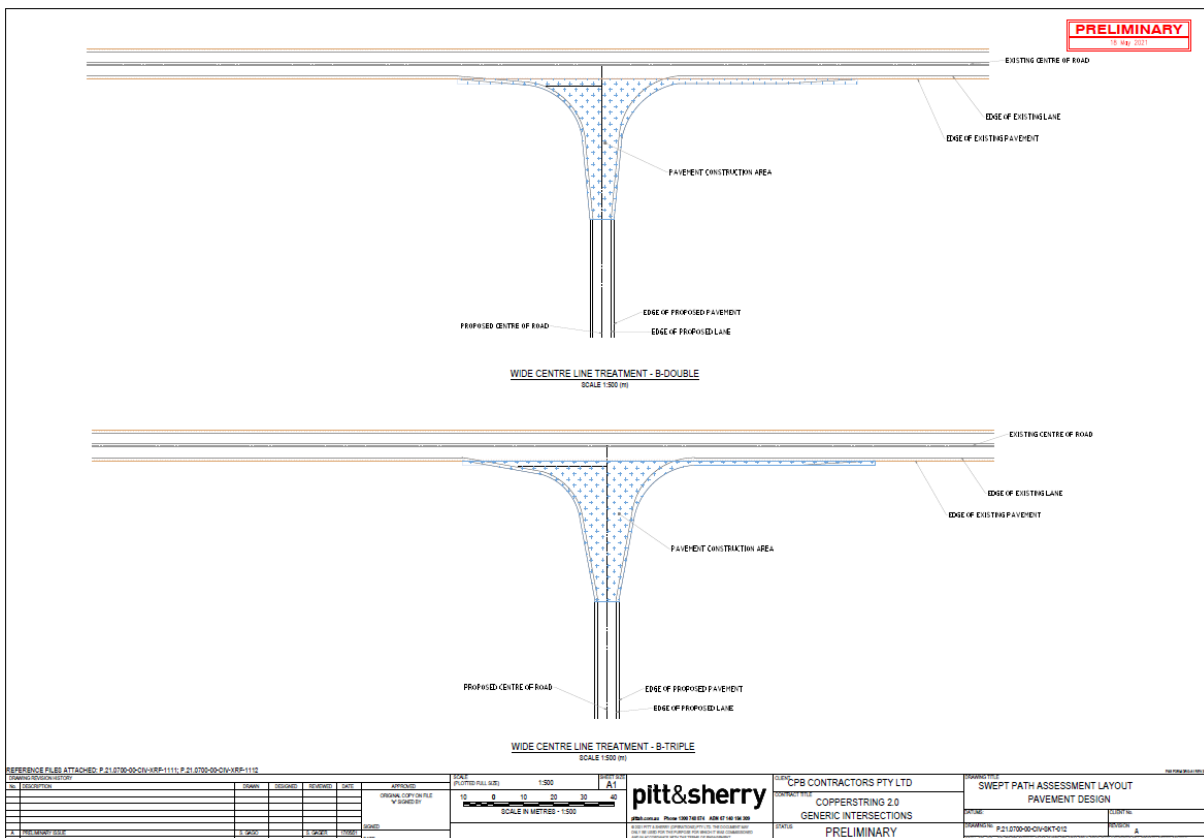
8.1.4 B-Triple Left Turn Treatment



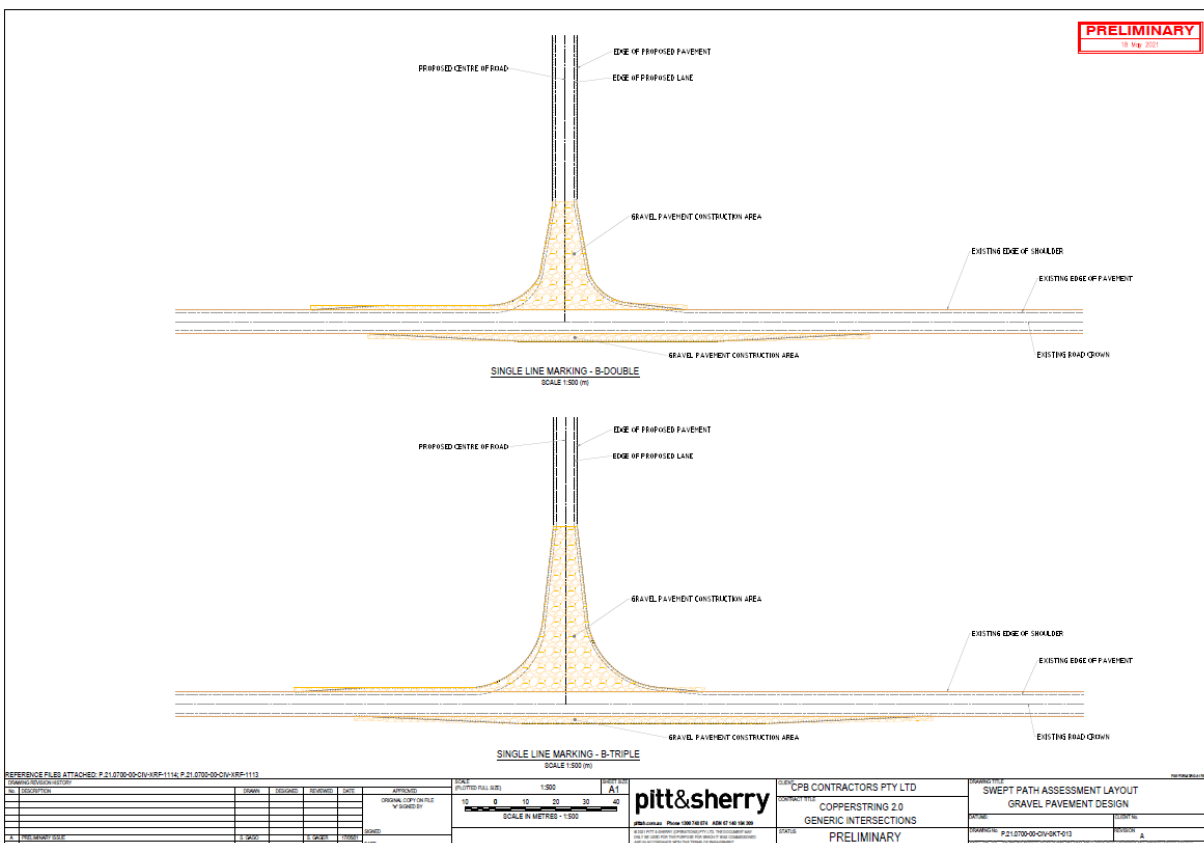
8.1.5 Pavement Design

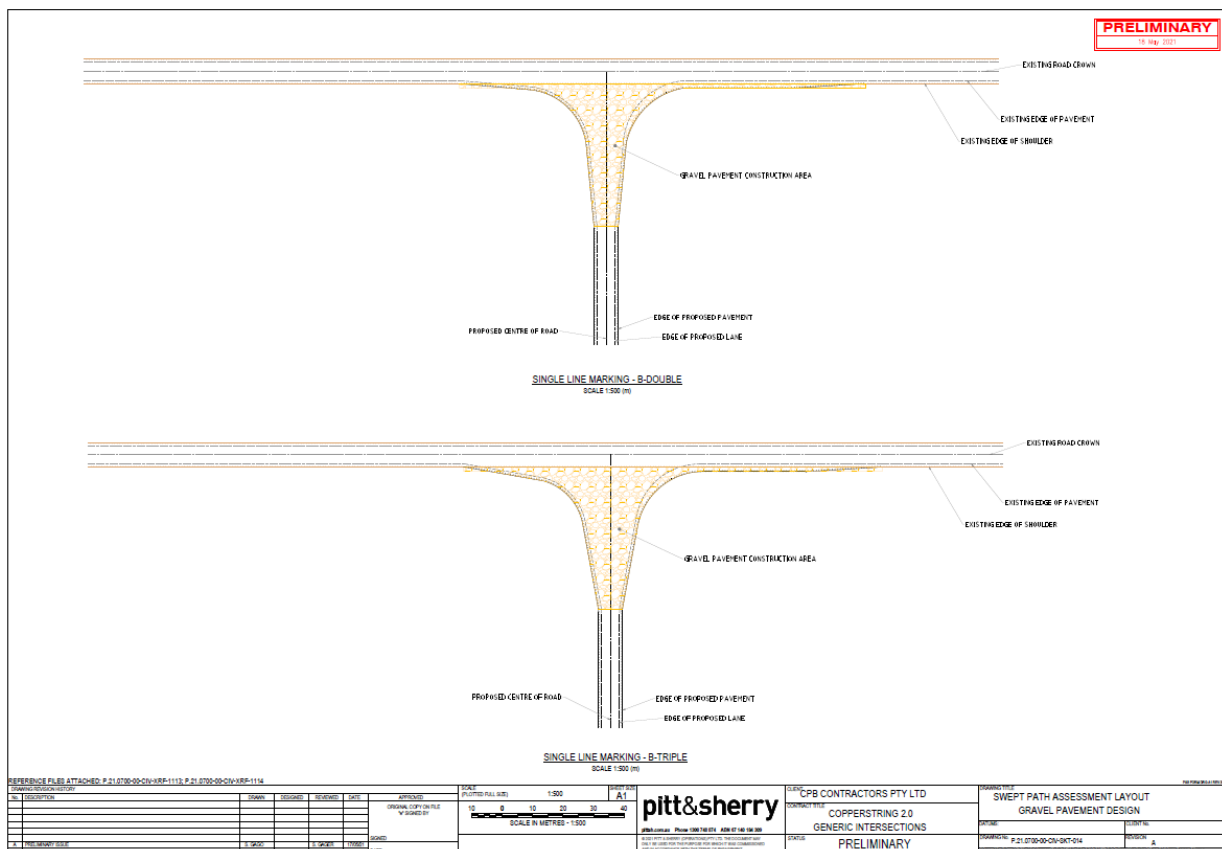




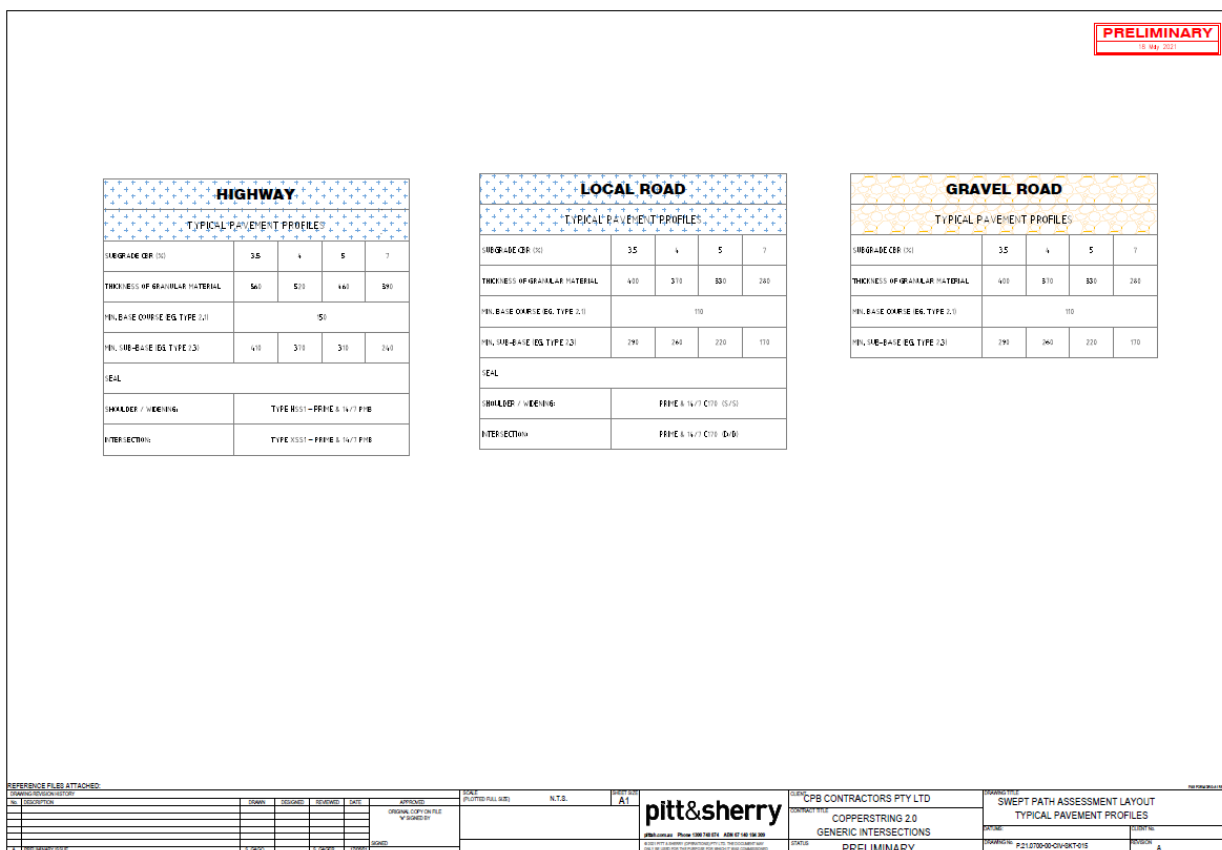


8.1.6 Gravel Pavement Design





8.1.7 Typical Pavement Profiles



9. Access

9.1 Construction Access to Compounds and Work Areas

Construction access to compounds and work areas will be fully detailed (signs, acceleration and deceleration lanes, merge and diverge tapers) within the relevant TGS. Vehicles involved in project activities will enter, operate within, or exit from a traffic flow in a manner which does not endanger or restrict other road users, and only under suitably designed and appropriate traffic control measures.

Vehicle and pedestrian access to and from each compound and work area, including the locations of entries, exits, turning restrictions, slip lanes, traffic lights and signage, will be established in line with the Contract requirements and in consultation with DTMR and/or Local Councils.

9.2 Provision for Property Access During Construction

UGL and CPB Contractors will ensure existing entrances to private property affected by the work are maintained in a useable condition throughout construction. The following guidelines will apply:

- Subject to safety considerations and physical constraints, the location of the entry will be as close as practicable to the existing entrance
- Where it is not possible to maintain the entry close to the existing entrance, alternative arrangements that are acceptable to the property owner will be made
- Reduction to the level of access to residential properties or other properties will be limited to the absolute minimum duration necessary to carry out the relevant activities
- Free movement in and out of properties will be maintained.

If performance of any part of the activities will, or is likely to, modify the level of access to any property, UGL and CPB Contractors will give notice to the owner/occupier, in accordance with procedures defined in the Community Relations Management Plan.

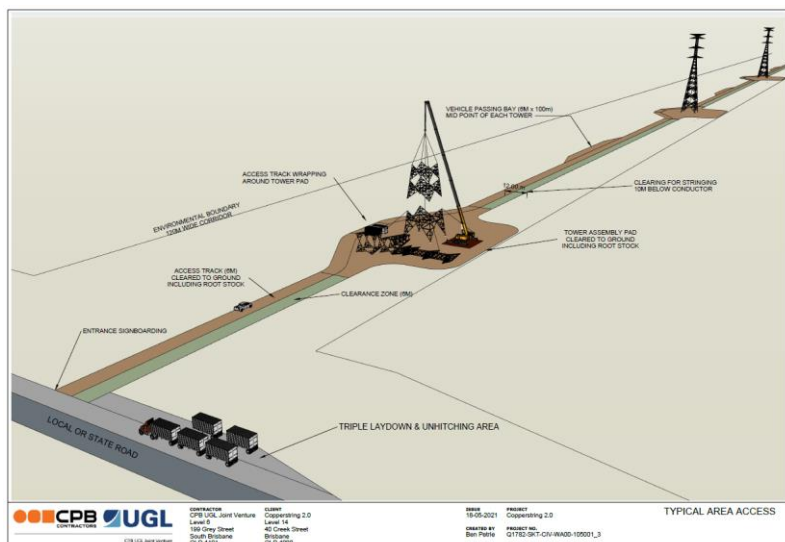
Construction of alternative accesses shall be to an equivalent or better standard than existing accesses.

9.3 Site Access

Access points will be established at key locations through the alignment site. These will interact with the existing road network, be constructed using gravel pavement and contain rumble grids to ensure material is not tracked onto the existing road network.

The planned access points interact with a number of existing roads and highways as detailed in Section 7 of this document and detailed in Appendix B.

Typical access to the transmission line is as per below plan:



Provision for shoulder widening to the existing road network to facilitate the turn-in of plant, equipment and material deliveries to the site roads intersection with the transmission line alignment is included for a B-double, with provision for a B-Triple to drop trailer on shoulder for delivery to site. All towers will be delivered directly to tower location.

9.4 Site Roads

UGL and CPB Contractors will establish hard controls to minimise the interaction between light vehicles and mobile plant. Separate light vehicle roads, where possible, or centre bunding or similar will be used.

Procedures for clear communication between light vehicles and mobile plant will be established and signs will be used to identify light vehicle access roads, active mobile plant areas and radio channels to be used.

Site road rules will be documented, communicated and enforced. Vehicle Movement Plans will be prepared for high risk/high volume areas of the site. Light vehicle requirements for site roads will be documented and vehicles sighted for compliance.

UGL and CPB Contractors will ensure that the use of vehicles with excess axle loads within the site will comply with all requirements within the EPC Contract.

10. Stakeholder Consultation and Communication

10.1 Authorities

UGL and CPB Contractors will comply with instructions given by DTMR, Local Council and/or Queensland Police Service with regard to any proposal that has an impact on traffic.

The JV will meet with identified stakeholders, including DTMR, Queensland Police Service and Local Councils prior to the commencement of construction to provide briefings on the traffic strategy and road infrastructure upgrades. Regular traffic notifications relating to changes that affect the operation of the road network or traffic systems will also be distributed.

Regular traffic notifications relating to changes that affect the operation of the road network or traffic systems will also be distributed and Queensland Police Service and Emergency Services briefings will be undertaken one week prior to any major traffic changes, where required.

10.2 Public Transport Operations

UGL and CPB will analyse the Project's impacts on public transport (including school bus routes) during construction phases and consult with the respective operators to mitigate the impacts for buses, where applicable.

10.3 Pedestrians and Cyclists

Whilst there are no designated existing pedestrian routes affecting the works, UGL and CPB throughout the staging of the works and preparing the TGS's for the works will undertake further investigation and will ensure that any routes found (designated or undesignated) or potential pedestrian accesses from properties will be evaluated and controls implemented as necessary to ensure pedestrian safety.

10.4 Over Dimension, Excess Mass and Dangerous Goods Vehicles

UGL and CPB will consult and liaise with Queensland Police Service and DTMR / Local Council on provisions for the movement of all heavy vehicles, including over dimension, excess mass and dangerous goods vehicles that have approval from other relevant authorities.

10.5 Traffic Communication

During construction, the project team will work with DTMR or Local Councils to inform the community of all major construction impacts including changed traffic conditions. The communication will be managed in accordance with the approved Community Stakeholder and Engagement Plan to ensure the community and travelling public are able to make informed travel choices.

This will include VMS boards updated with accurate and timely information in advance of the works, where required. The community and motorists will also be informed of changes via a range of integrated channels

developed in consultation with DTMR and Local Councils, including briefings, traffic advertisements (where value for money can be demonstrated), directions signage, construction notices and e-news.

UGL and CPB communication and consultation approach will ensure:

- Key stakeholder feedback is incorporated into traffic planning
- Key stakeholders including the travelling public, emergency services, the State, adjacent landowners and businesses are provided ongoing, accurate and timely information on traffic changes in a form appropriate to their needs
- Information provided enables the travelling public to optimise their travel options
- Property owners, businesses and community facility managers are consulted on traffic issues that directly impact them
- Clear protocols are in place to ensure required approvals are obtained prior to the publication or dissemination of information
- TGSs are supported by communication strategies to minimise the impact on the road and transport network
- Management of traffic incidents is supported by effective incident management communication protocols.

10.6 Notifications

UGL and CPB will aim to give CuString a minimum of 10 business day's written notice of planned changes in traffic movements and provide the community with as much notice as possible of changes or disruptions (not less than 48 hours).

10.7 Traffic Accidents and Incidents During Construction

In the event of a traffic incident within or adjacent to the project site, UGL and CPB will advise Emergency Services, and the Principal.

Should the incident occur within the project site, UGL and CPB will record all relevant details in the incident log and take time and date stamped photographs of the signs/devices present in the vicinity of the incident. A copy of the incident log will be forwarded to the Administrator within 24 hours of the incident or upon request.

Any damaged traffic control devices will be rectified within 24 hours and project resources may assist with the mitigation of the impacts of the incident as is reasonably practical.

11. Monitoring and Record Keeping

UGL and CPB will continually monitor the installed TGSs to ensure they implemented in accordance with the plan and continue to effectively guide traffic safely through the works and protect the safety of our workforce. Table 111 describes the monitoring program for the Project.

Table 11: TGS Monitoring Program

Monitoring Action	Frequency	Record
Visually check to ensure integrity of devices including cleanliness, performance output in daytime and nighttime, degradation, safety, placement attachment/connection of installed traffic control devices in accordance with approved TGSs.	Once daily	Checklist and/or annotated TGS drawings
Periodically drive through the work site to check that all signs, markings and	During hours of work	Supervisor diary

delineating devices are satisfactory and in their correct position.		
Periodically drive through the work site to check that maximum delay time is not exceeded, and that queuing does not extend back into the deceleration lanes or highway through lanes.	During hours of work	Supervisor diary and/or Traffic Control work sheets

The erection and removal of regulatory traffic control devices, work site signing will be recorded and retained.

11.1 Audits and reviews

Where required, UGL and CPB will employ an independent road safety auditor who will be responsible for:

- Undertaking a desktop audit (Austroads Stage 2), providing advice (in the form of report) and approving TGSs (including all re-submissions required by authorities for approval)
- Undertaking a day/night post implementation road safety audit (Austroads Stage 4) of the relevant part of the works during the first 24 hours following the initial implementation of a major TGS, not required for minor changes.
- Providing written confirmation of the outcome, including the results of the post implementation audit within 48 hours following the initial implementation of a TGS, for major only.

Audit results and traffic reports compiled by the UGL and CPB Traffic Coordinator/Engineer, including any actions undertaken by UGL and CPB Contractors, will be submitted to CuString within 48 hours of implementation of the TGS.

The following reporting requirements will be met and submitted weekly to the Principal:

1. Immediately report any emergency issue and a copy of any public inquiry
2. Key activities achieved from previous week
3. Key activities planned for the coming week
 - a. Summary of responses to complaints and inquiries, and;
 - b. Summary of outstanding responses.

On a monthly basis, anticipated issues for the coming month along with proposed actions in response to these issues will be submitted.

Key actions and achievements will be reported on quarterly.

12. Traffic Management Approval Processes

All physical traffic management activities will be put through a rigorous approval process. This process involves CuString, DTMR / Local Council as required and is as shown in Figure 7 below.

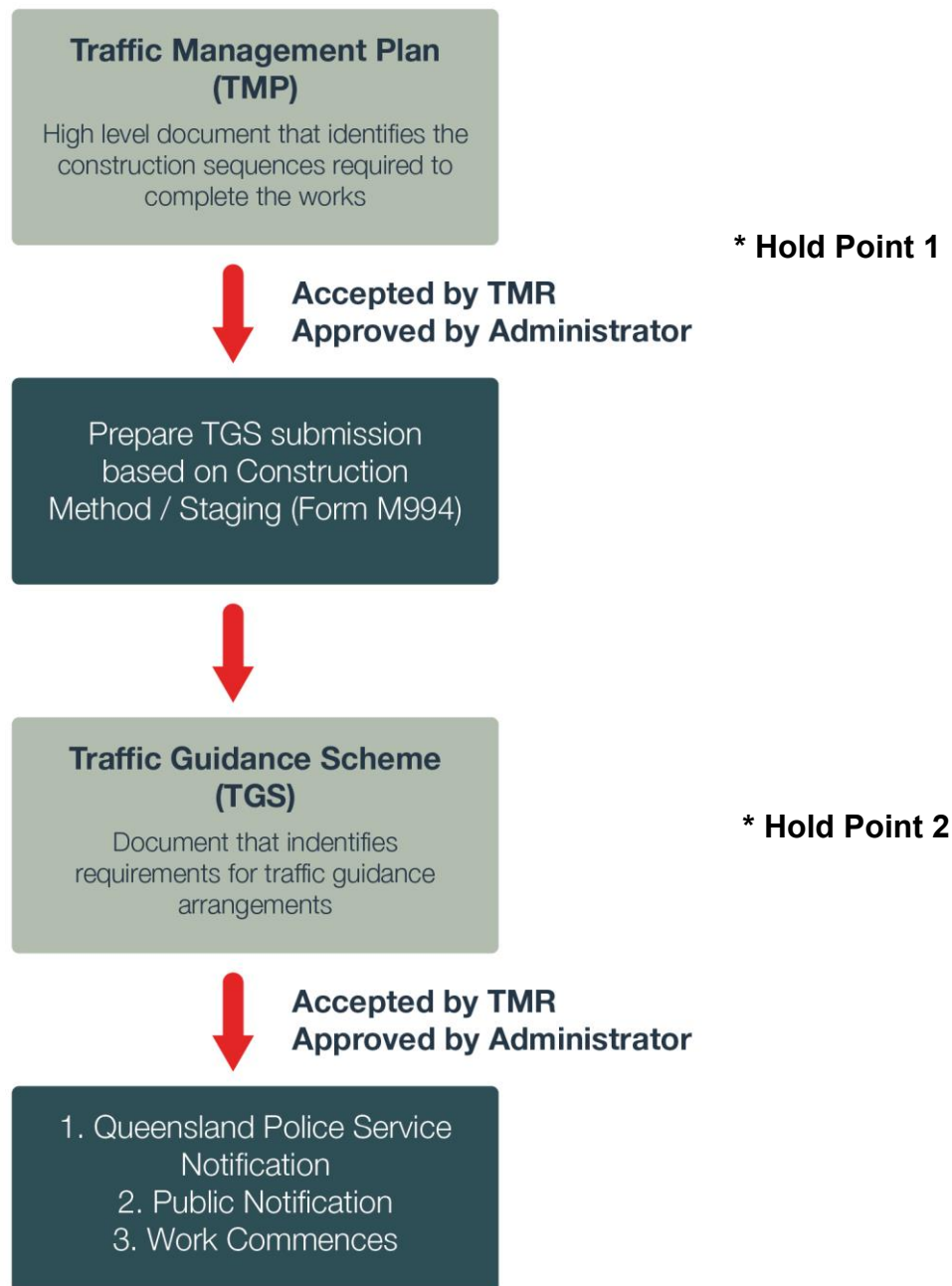


Figure 7: Traffic management approval process

- * TMP review period (Hold Point 1) – 21 days
- ** TGS review period (Hold Point 2) – 14 days

Appendix A CPB Contractors Certificate of Registration – Traffic Management Registration Scheme

Department of Transport and Main Roads

Certificate of Registration

Traffic Management Registration Scheme

This is to certify that

CPB Contractors Pty Ltd

ABN: 98 000 893 667

**is registered with the Department of Transport and Main Roads
Traffic Management Registration Scheme**

Registration Number: 0002
Issue Date: 4 December 2019
Expiry Date: 15 December 2022

[Note: Scope of registration is limited to "Design of traffic management plans and traffic guidance schemes".]


.....
Traffic Management Registration Scheme
Engineering & Technology

To confirm the currency of the registration status please visit
www.tmr.qld.gov.au/business-industry/Accreditations/Traffic-Management-Registration-Scheme.aspx

Great state. Great opportunity.

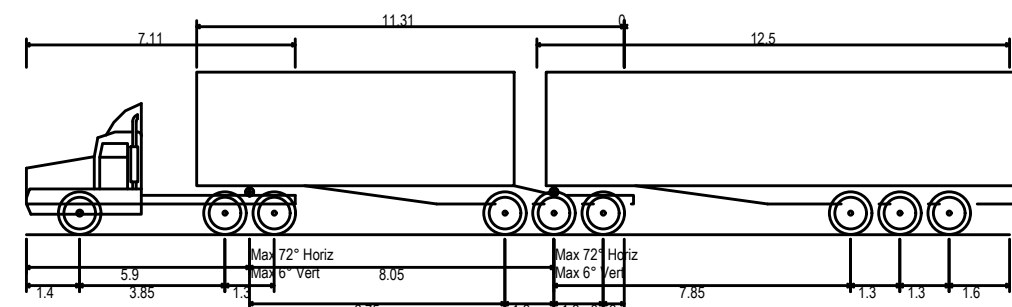

Queensland
Government

Appendix B Concept Intersection Plans

18 May 2021

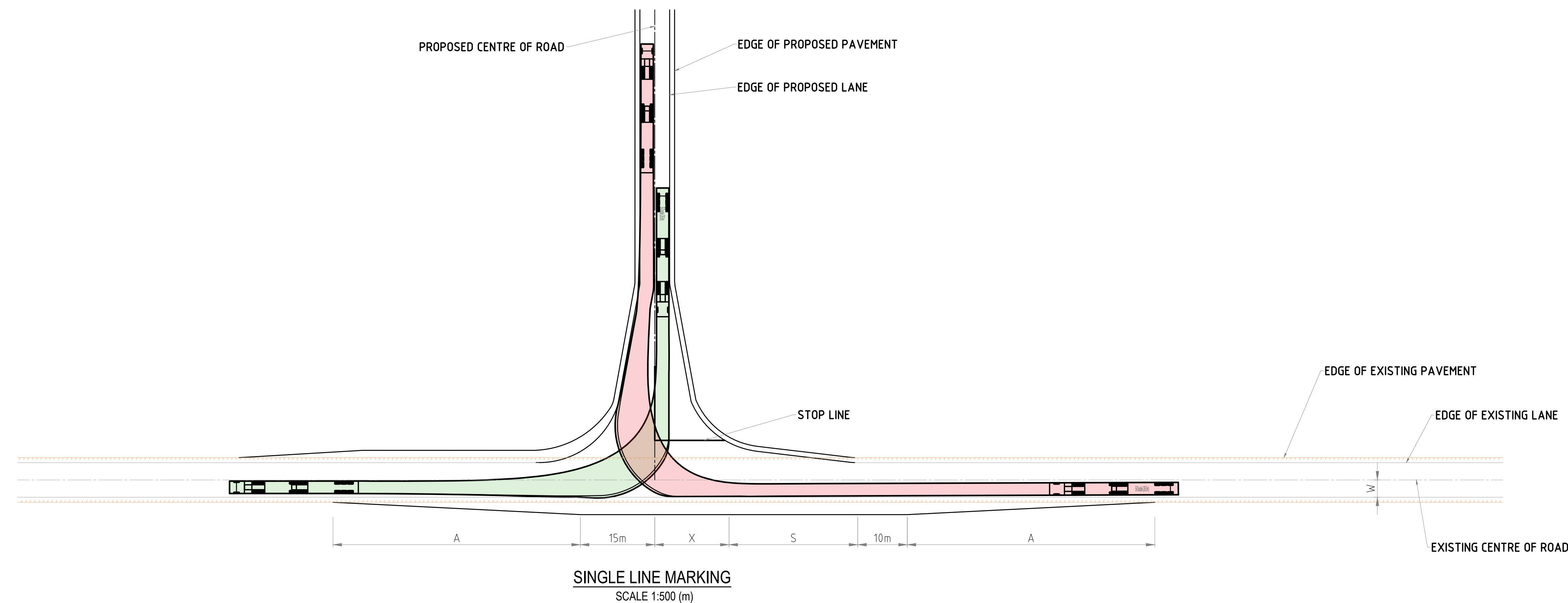
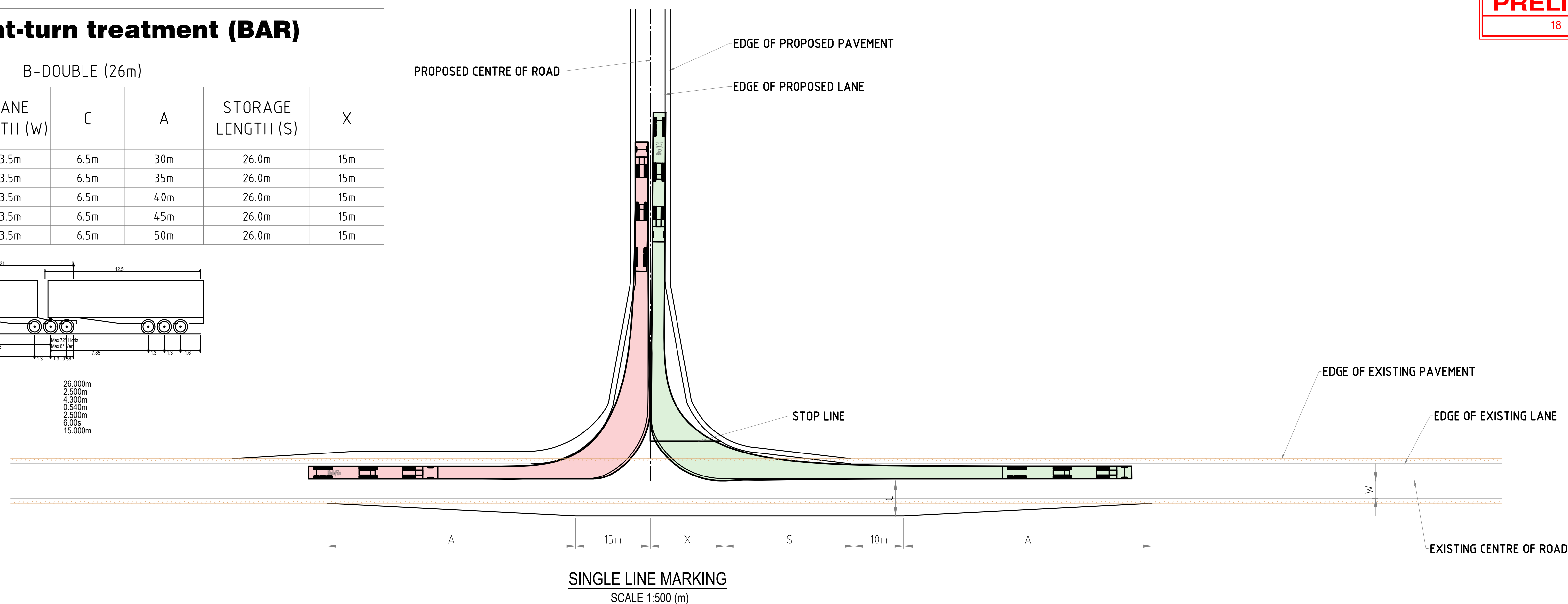
B-DOUBLE (26m)

POSTED SPEED	DESIGN SPEED (V)	LANE WIDTH (W)	C	A	STORAGE LENGTH (S)	X
60kph	70kph	3.5m	6.5m	30m	26.0m	15m
70kph	80kph	3.5m	6.5m	35m	26.0m	15m
80kph	90kph	3.5m	6.5m	40m	26.0m	15m
90kph	100kph	3.5m	6.5m	45m	26.0m	15m
100kph	110kph	3.5m	6.5m	50m	26.0m	15m




B-Double (26.0m)
Overall Length
Overall Width
Overall Body Height
Min Body Ground Clearance
Track Width
Lock-to-lock time
Curb to Curb Turning Radius

26.000m
2.500m
4.300m
0.540m
2.500m
6.00s
15.000m



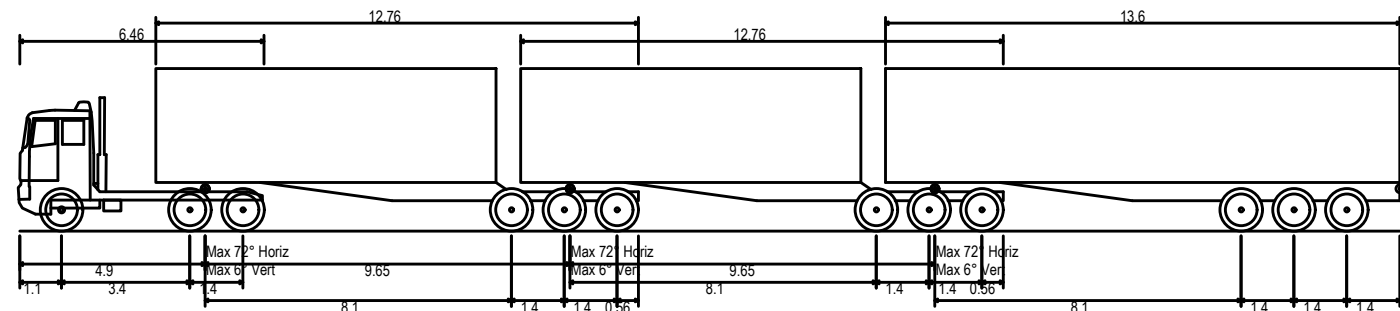
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							SCALE IN METRES - 1:500		COPPERSTRING 2.0		DATUMS:		
						SIGNED	pittsh.com.au Phone 1300 748 874 ABN 67 140 184 309		GENERIC INTERSECTIONS		CLIENT No.		
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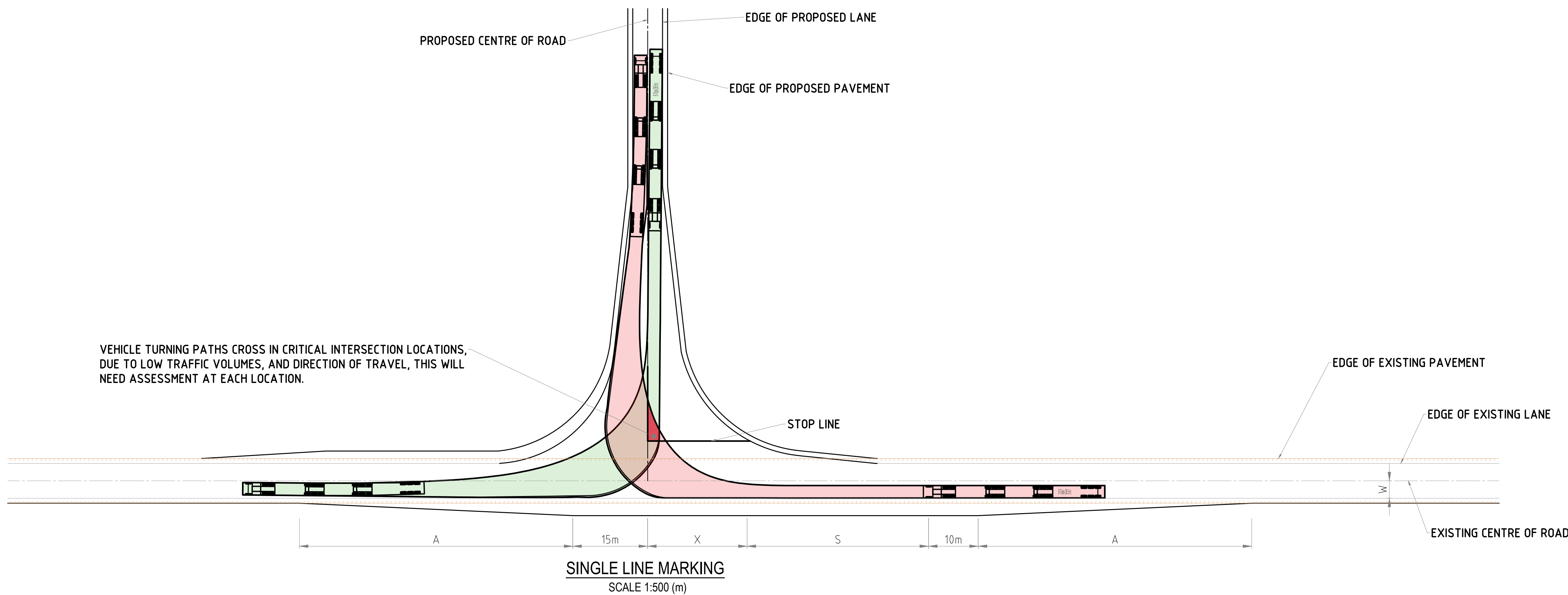
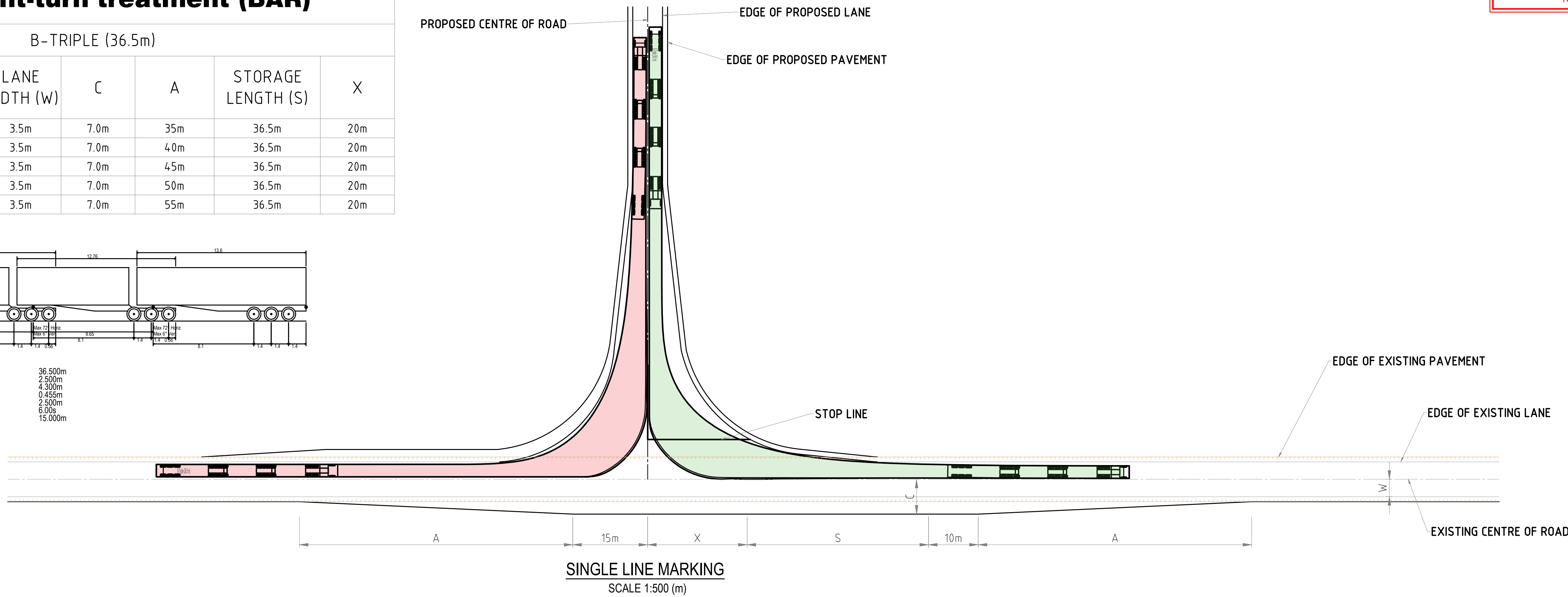
Basic Right-turn treatment (BAR)

B-TRIPLE (36.5m)

POSTED SPEED	DESIGN SPEED (V)	LANE WIDTH (W)	C	A	STORAGE LENGTH (S)	X
60kph	70kph	3.5m	7.0m	35m	36.5m	20m
70kph	80kph	3.5m	7.0m	40m	36.5m	20m
80kph	90kph	3.5m	7.0m	45m	36.5m	20m
90kph	100kph	3.5m	7.0m	50m	36.5m	20m
100kph	110kph	3.5m	7.0m	55m	36.5m	20m



B-Triple (36.5 m)
Overall Length 36.500m
Overall Width 2.500m
Overall Body Height 4.300m
Min Body Ground Clearance 0.455m
Track Width 2.500m
Lock-to-lock time 6.00s
Curb to Curb Turning Radius 15.000m



VEHICLE TURNING PATHS CROSS IN CRITICAL INTERSECTION LOCATIONS, DUE TO LOW TRAFFIC VOLUMES, AND DIRECTION OF TRAVEL, THIS WILL NEED ASSESSMENT AT EACH LOCATION.

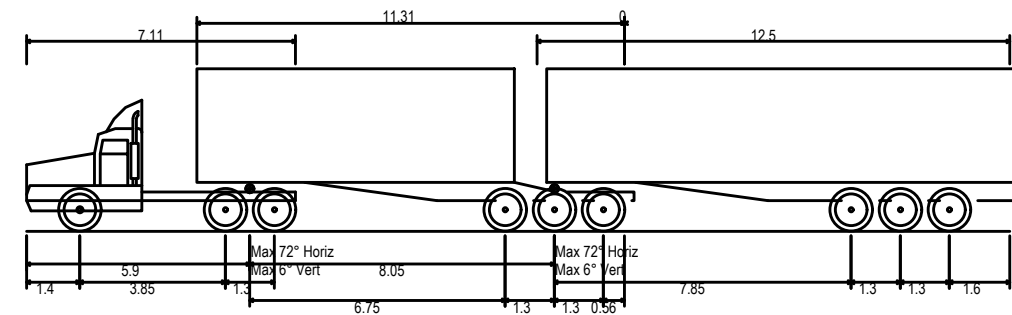
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No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE					DATUMS:	CLIENT No.
A	PRELIMINARY ISSUE	S. GAGO		S. GAGER	17/05/21					DRAWING No. P.21.0700-00-CIV-SKT-002	REVISION A
May. 18, 21 - 17:39:10 Name: P.21.0700-00-CIV-SKT-002.dwg Updated By: Shirley Gago Cjumo											

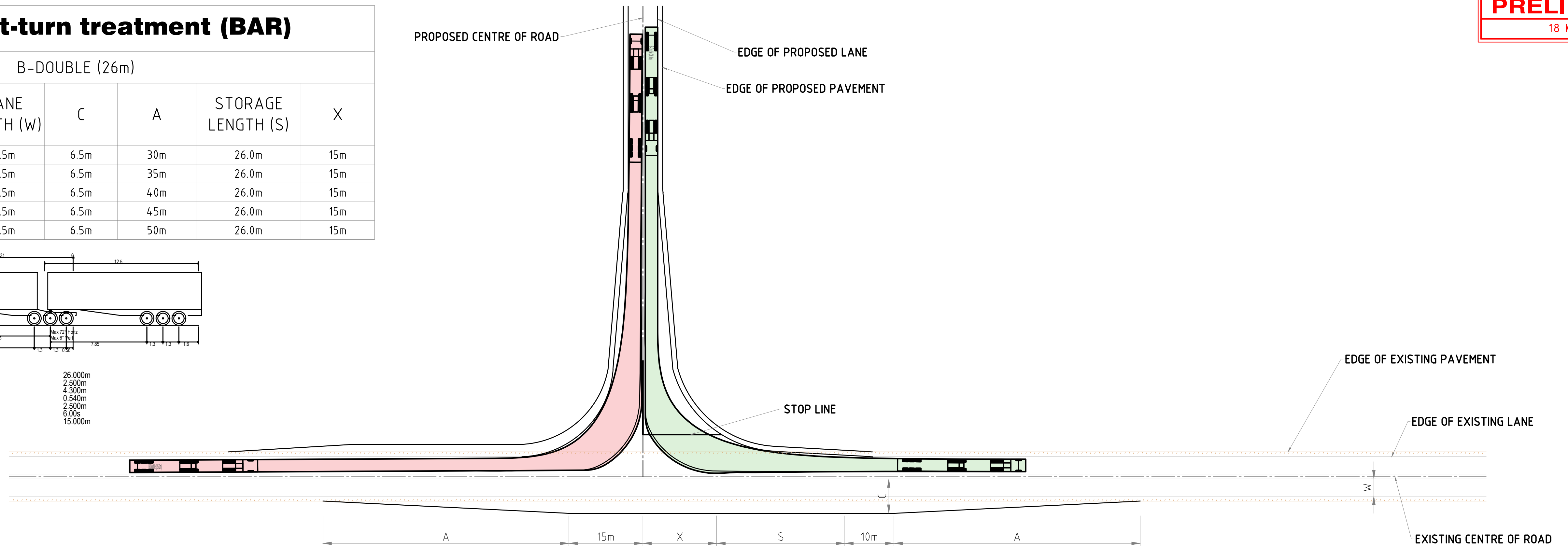
Basic Right-turn treatment (BAR)

B-DOUBLE (26m)

POSTED SPEED	DESIGN SPEED (V)	LANE WIDTH (W)	C	A	STORAGE LENGTH (S)	X
60kph	70kph	3.5m	6.5m	30m	26.0m	15m
70kph	80kph	3.5m	6.5m	35m	26.0m	15m
80kph	90kph	3.5m	6.5m	40m	26.0m	15m
90kph	100kph	3.5m	6.5m	45m	26.0m	15m
100kph	110kph	3.5m	6.5m	50m	26.0m	15m

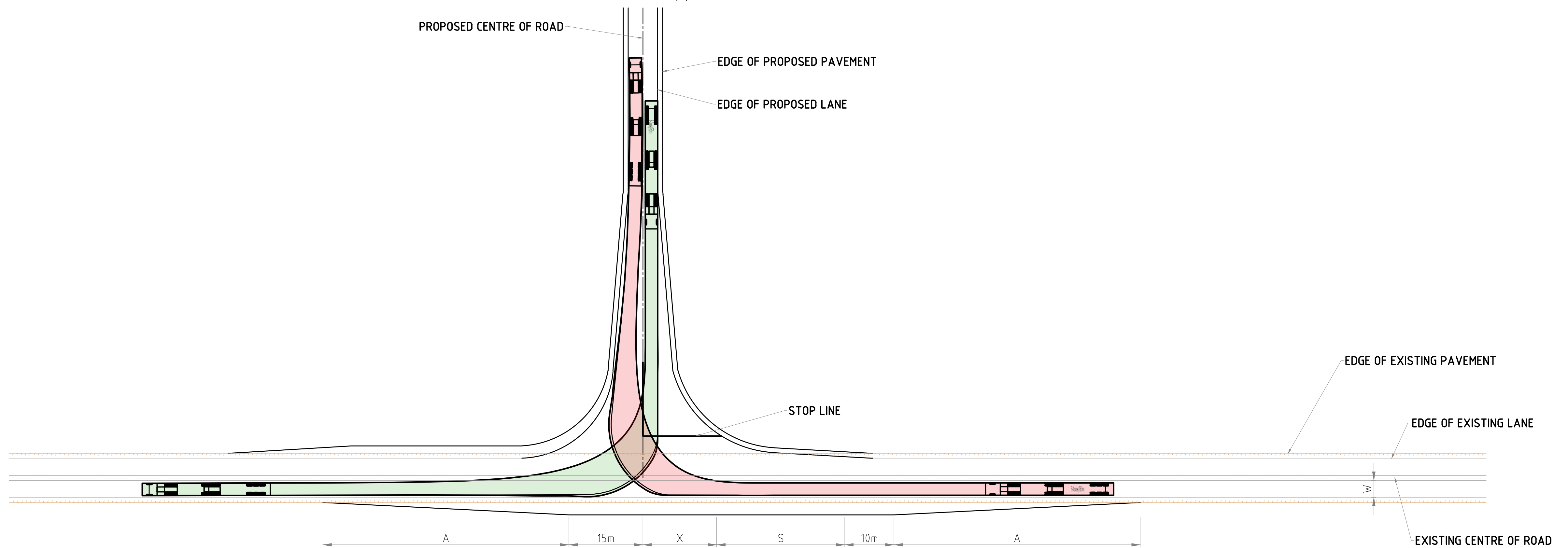


B-Double (26.0m)	
Overall Length	26.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m



WIDE CENTRE LINE TREATMENT

SCALE 1:500 (m)



WIDE CENTRE LINE TREATMENT

SCALE 1:500 (m)

REFERENCE FILES ATTACHED: P.21.0700-00-CIV-XRF-1111

DRAWING REVISION HISTORY						
No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE	APPROVED
						ORIGINAL COPY ON FILE "e" SIGNED BY
A	PRELIMINARY ISSUE	S. GAGO		S. GAGER	17/05/21	SIGNED
						DATE

SCALE
(PLOTTED FULL SIZE)

1:500

20

SHEET SIZE	A1
------------	----

10 0 10 20 30 40
SCALE IN METRES - 1:500

pitt&sherry

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CLIENT CPB CONTRACTORS PTY LTD

CONTRACT TITLE	COPPERSTRING 2.0 GENERIC INTERSECTIONS
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STATUS	PRELIMINARY
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DRAWING TITLE	SWEPT PATH ASSESSMENT LAYOUT
	B-DOUBLE BASIC RIGHT-TURN TREATMENT (BAR)

DATUMS:	CLIENT No.
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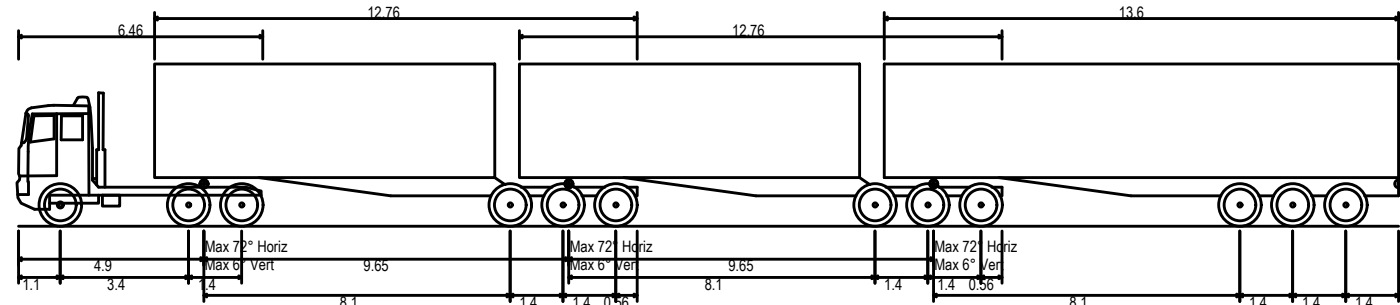
DRAWING No. D-01-0700-00-014-0KT-002	REVISION
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P.21.0700-00-CIV-SKT-003	A
May. 18. 21 - 17:41:35 Name: P.21.0700-00-CIV-SKT-003.dwg Updated By: Shirley Gago Cjumo	

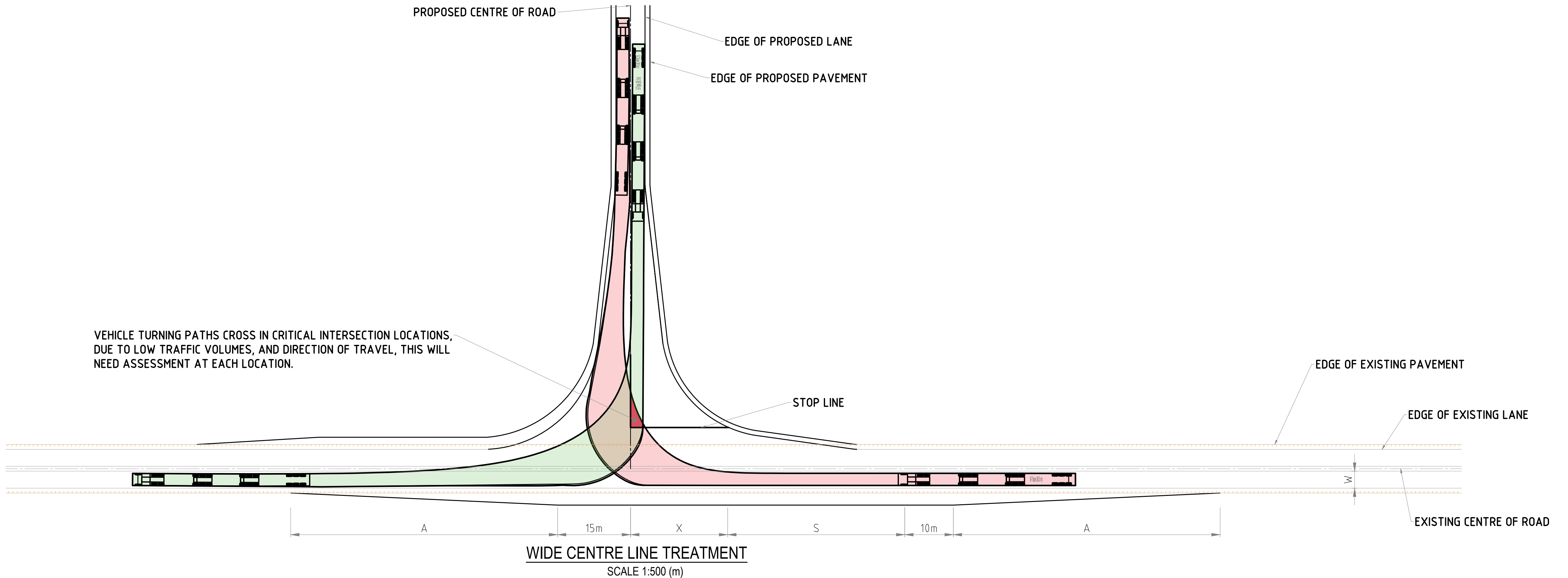
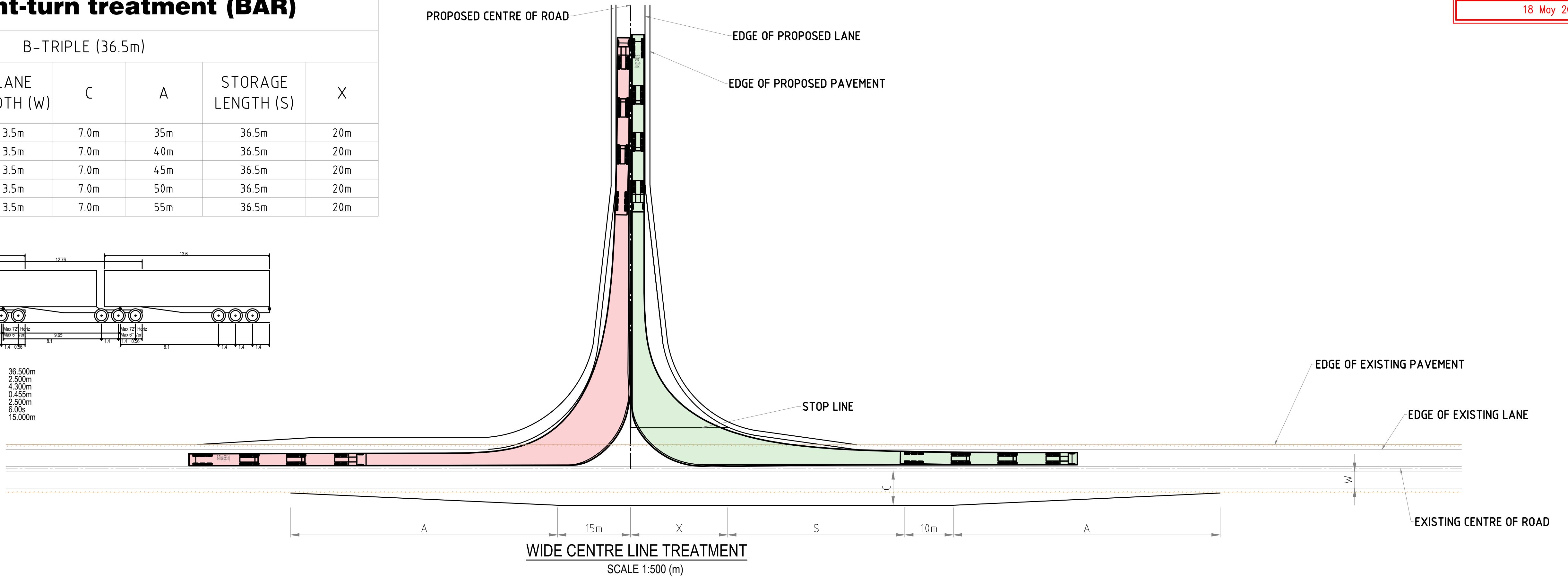
Basic Right-turn treatment (BAR)

B-TRIPLE (36.5m)

POSTED SPEED	DESIGN SPEED (V)	LANE WIDTH (W)	C	A	STORAGE LENGTH (S)	X
60kph	70kph	3.5m	7.0m	35m	36.5m	20m
70kph	80kph	3.5m	7.0m	40m	36.5m	20m
80kph	90kph	3.5m	7.0m	45m	36.5m	20m
90kph	100kph	3.5m	7.0m	50m	36.5m	20m
100kph	110kph	3.5m	7.0m	55m	36.5m	20m



B-Triple (36.5 m)
Overall Length 36.500m
Overall Width 2.500m
Overall Body Height 4.300m
Min Body Ground Clearance 0.455m
Track Width 2.500m
Lock-to-lock time 6.00s
Curb to Curb Turning Radius 15.000m



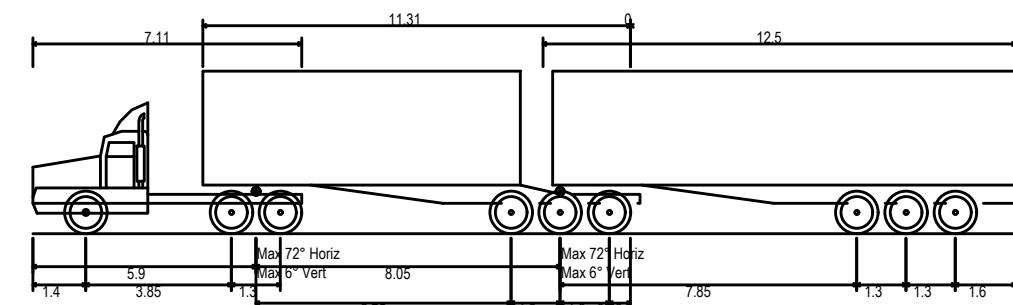
VEHICLE TURNING PATHS CROSS IN CRITICAL INTERSECTION LOCATIONS, DUE TO LOW TRAFFIC VOLUMES, AND DIRECTION OF TRAVEL, THIS WILL NEED ASSESSMENT AT EACH LOCATION.

REFERENCE FILES ATTACHED: P.21.0700-00-CIV-XRF-1111

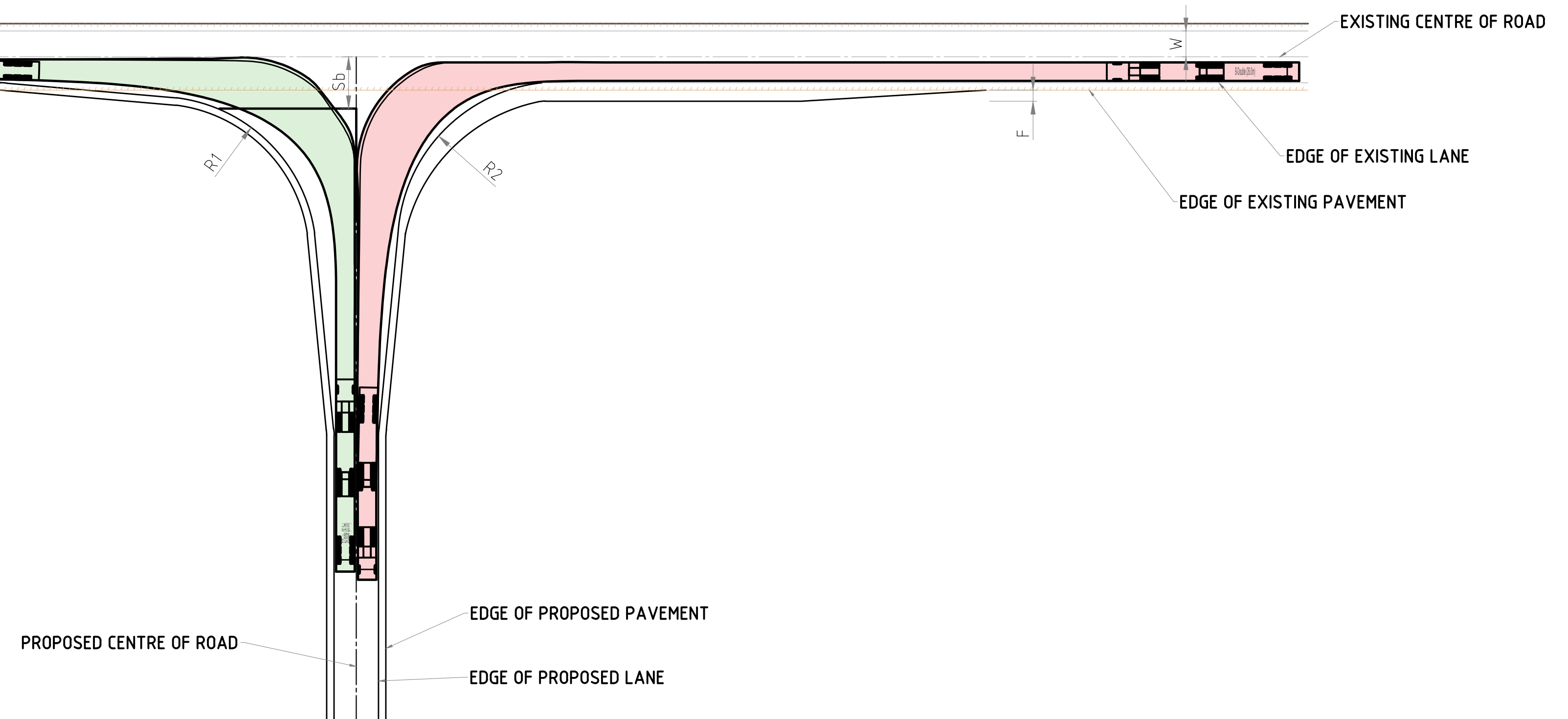
DRAWING REVISION HISTORY						SCALE (PLOTTED FULL SIZE) 1:500 10 0 10 20 30 40 SCALE IN METRES - 1:500	SHEET SIZE A1	CLIENT CPB CONTRACTORS PTY LTD	DRAWING TITLE SWEPT PATH ASSESSMENT LAYOUT B-TRIPLE BASIC RIGHT-TURN TREATMENT (BAR)
No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE				
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A	PRELIMINARY ISSUE	S. GAGO		S. GAGER	17/05/21				DRAWING No. P.21.0700-00-CIV-SKT-004
						May. 18, 21 - 17:38:32 Name: P.21.0700-00-CIV-SKT-004.dwg Updated By: Shirley Gago Cjumo			

B-DOUBLE (26m)

POSTED SPEED	DESIGN SPEED	WIDENED SHOULDER (P)	LANE WIDTH (W)	C	A	F	Sb (for R=13)
60kph	70kph	10m	3.5m	6m	15m	1.5m	7.0m
70kph	80kph	15m	3.5m	6m	20m	1.5m	7.0m
80kph	90kph	20m	3.5m	6m	20m	1.5m	7.0m
90kph	100kph	25m	3.5m	6m	25m	1.5m	7.0m
100kph	110kph	35m	3.5m	6m	25m	1.5m	7.0m

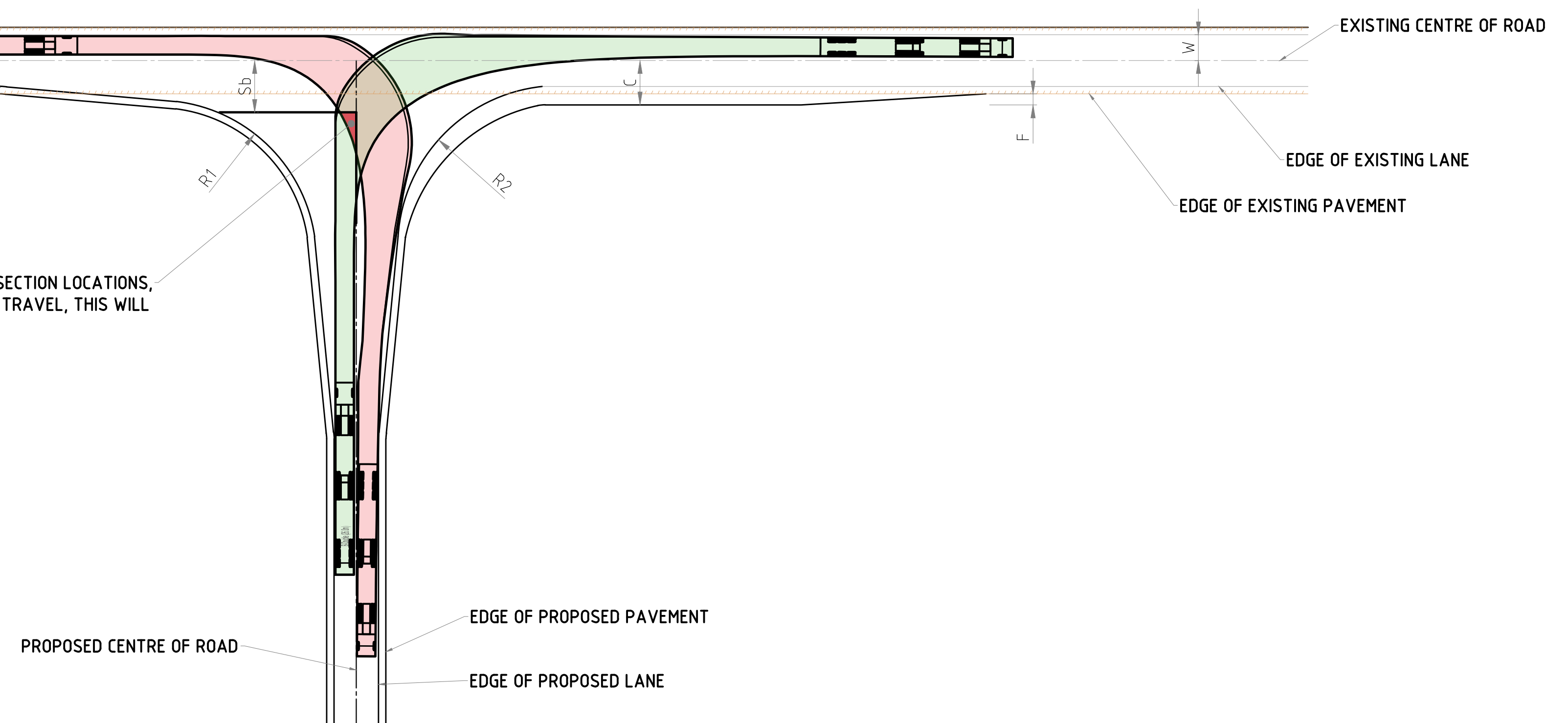


B-Double (26.0m)	
Overall Length	26.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m



SINGLE LINE MARKING

SCALE 1:500 (m)





VEHICLE TURNING PATHS CROSS IN CRITICAL INTERSECTION LOCATIONS, DUE TO LOW TRAFFIC VOLUMES, AND DIRECTION OF TRAVEL, THIS WILL NEED ASSESSMENT AT EACH LOCATION.

SINGLE LINE MARKING

SCALE 1:500 (m)

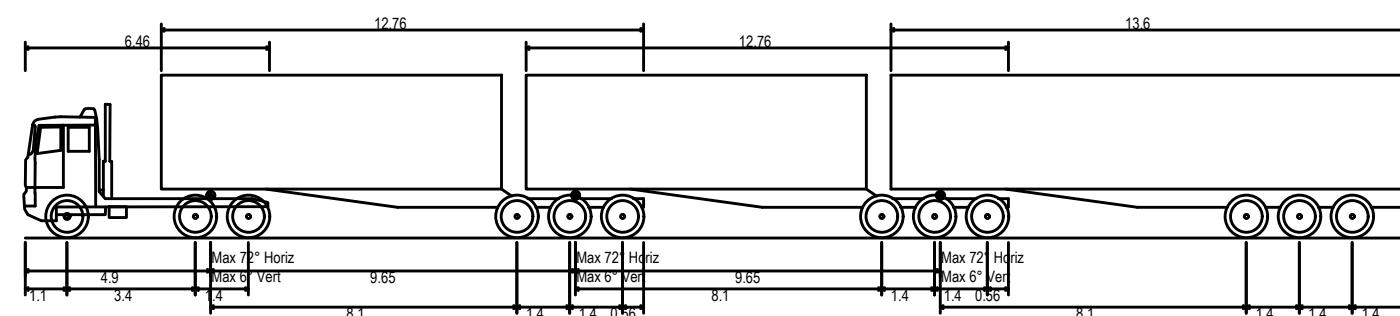
U.S. FORM DRG-A1 REV 29

DRAWING REVISION HISTORY						SCALE (PLOTTED FULL SIZE)		SHEET SIZE		CLIENT		DRAWING TITLE		
No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE	APPROVED	1:500		A1		CPB CONTRACTORS PTY LTD		SWEPT PATH ASSESSMENT LAYOUT	
						ORIGINAL COPY ON FILE "e" SIGNED BY					CONTRACT TITLE		B-DOUBLE BASIC LEFT-TURN TREATMENT (BAL)	
							SCALE IN METRES - 1:500		pittsh.com.au Phone 1300 748 874 ABN 67 140 184 309		COPPERSTRING 2.0			
						SIGNED			© 2021 PITT & SHERRY (OPERATIONS) PTY LTD. THE DOCUMENT MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED AND IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT.		GENERIC INTERSECTIONS			
A	PRELIMINARY ISSUE	S. GAGO		S. GAGER	17/05/21	DATE			STATUS		PRELIMINARY		DATUMS:	
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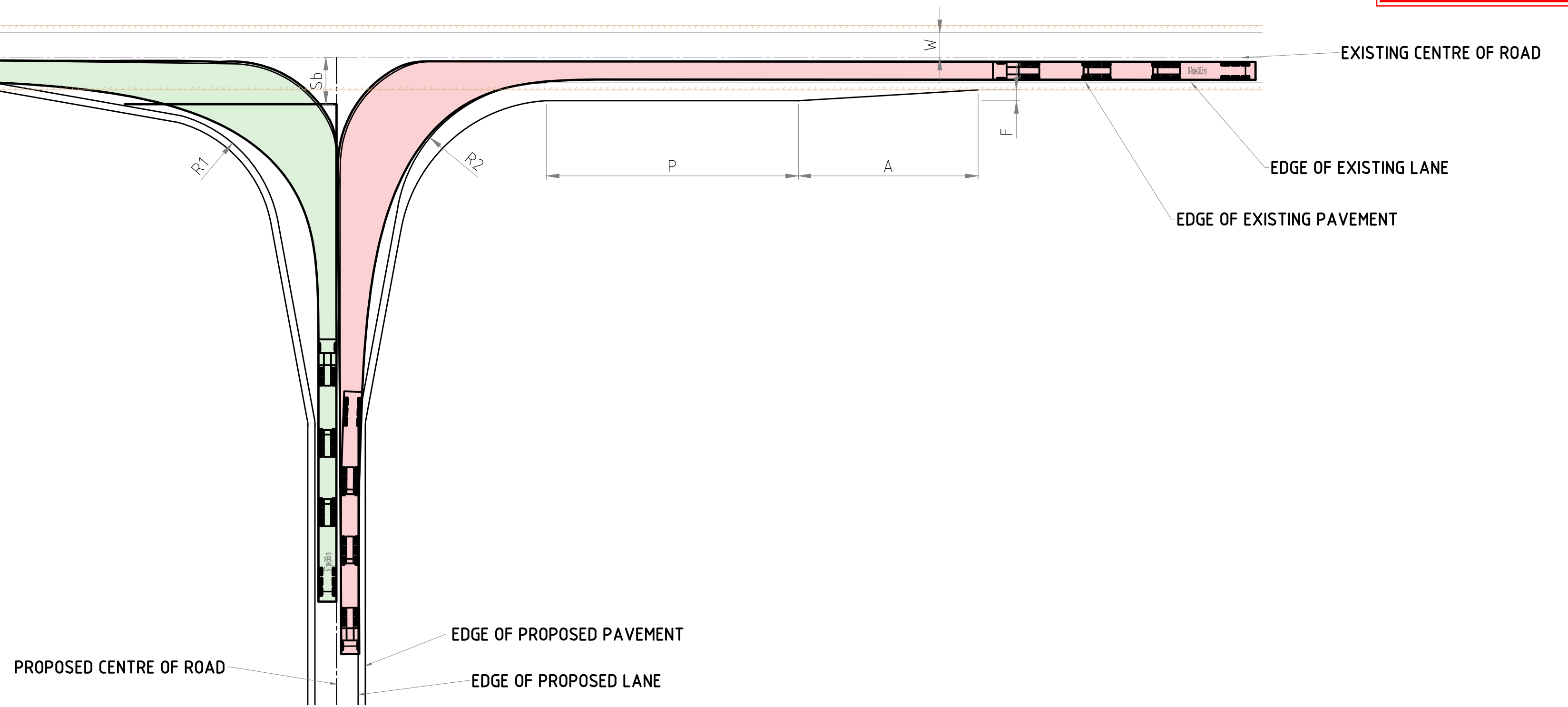
Basic Left-turn treatment (BAL)

B-TRIPLE (36.5m)

POSTED SPEED	DESIGN SPEED	WIDENED SHOULDER (P)	LANE WIDTH (W)	C	A	F	Sb (for R=13)
60kph	70kph	10m	3.5m	6m	15m	1.5m	7.0m
70kph	80kph	15m	3.5m	6m	20m	1.5m	7.0m
80kph	90kph	20m	3.5m	6m	20m	1.5m	7.0m
90kph	100kph	25m	3.5m	6m	25m	1.5m	7.0m
100kph	110kph	35m	3.5m	6m	25m	1.5m	7.0m

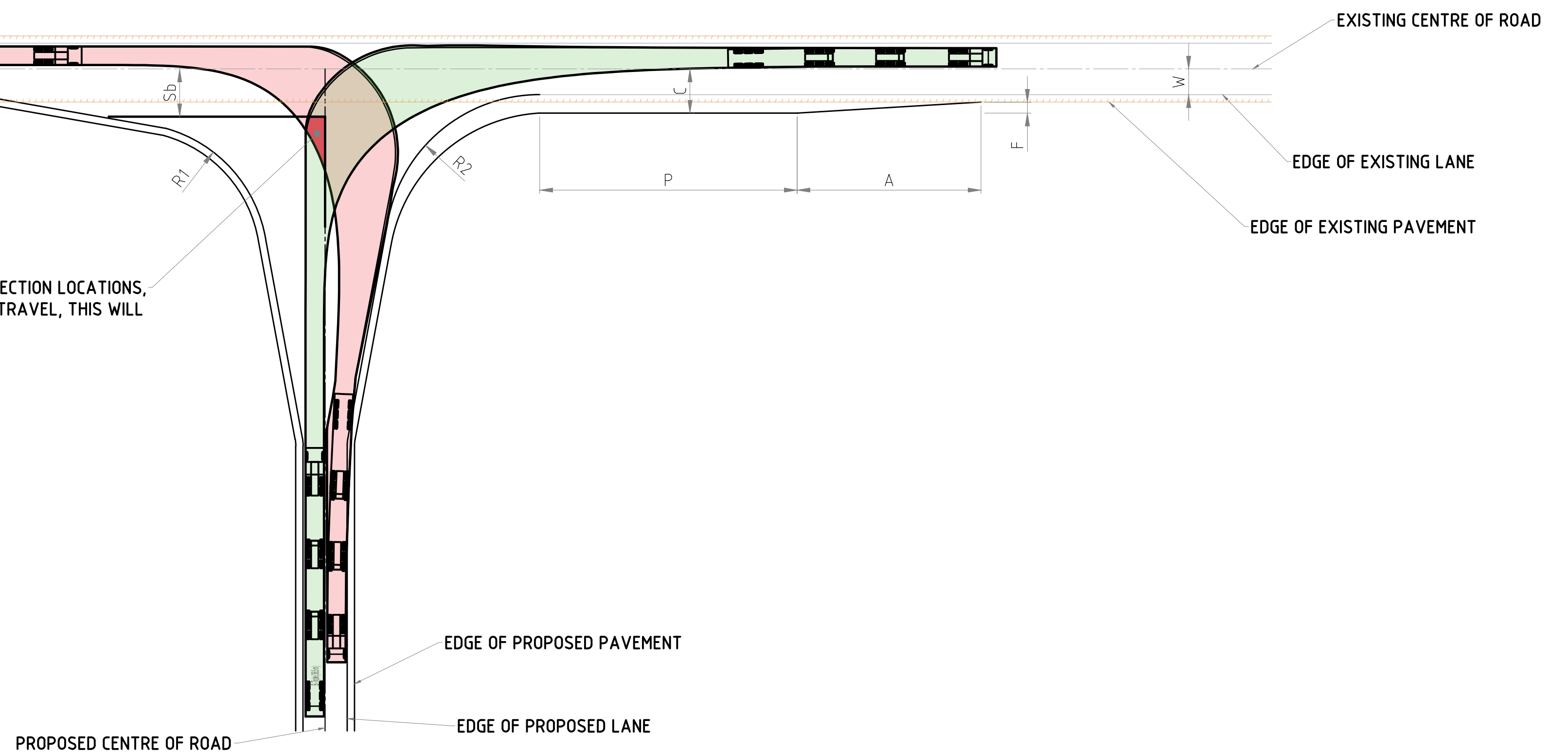


B-Triple (36.5 m)
Overall Length 36.500m
Overall Width 2.500m
Overall Body Height 4.300m
Min Body Ground Clearance 0.455m
Track Width 2.500m
Lock-to-lock time 6.00s
Curb to Curb Turning Radius 15.000m



SINGLE LINE MARKING
SCALE 1:500 (m)

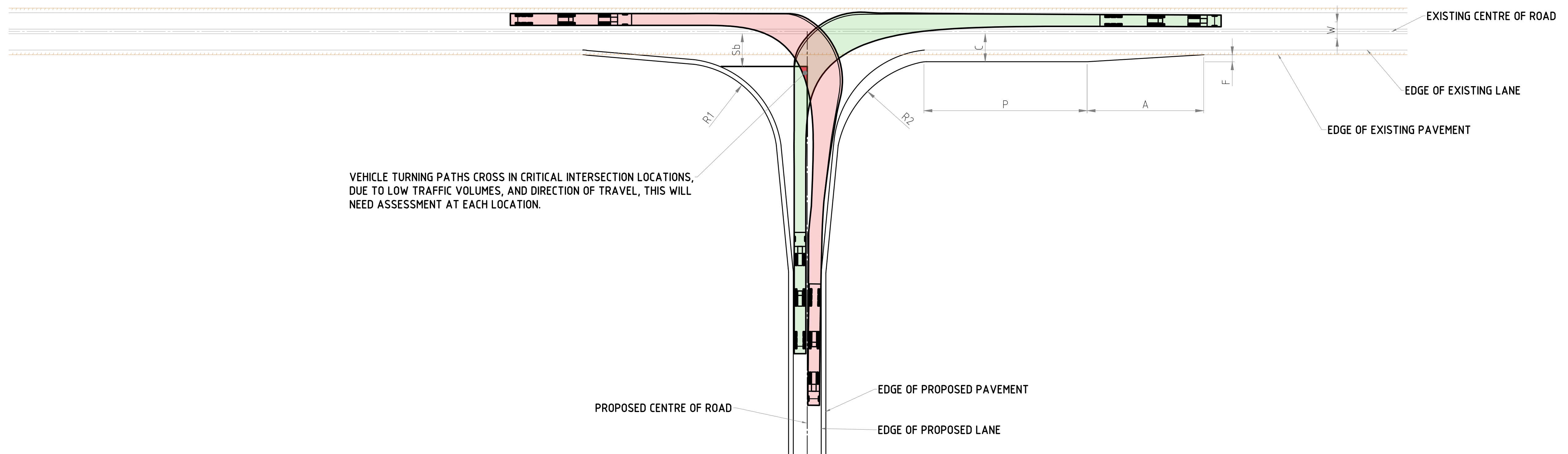
VEHICLE TURNING PATHS CROSS IN CRITICAL INTERSECTION LOCATIONS, DUE TO LOW TRAFFIC VOLUMES, AND DIRECTION OF TRAVEL, THIS WILL NEED ASSESSMENT AT EACH LOCATION.



SINGLE LINE MARKING
SCALE 1:500 (m)

REFERENCE FILES ATTACHED: P.21.0700-00-CIV-XRF-1111

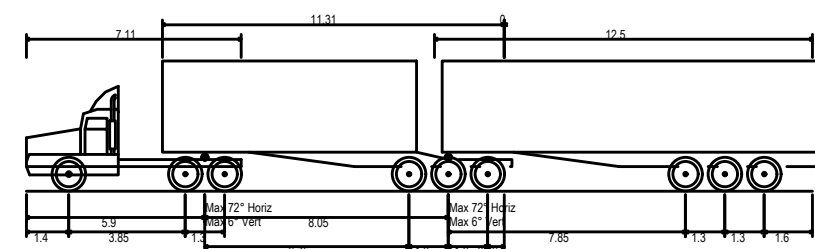
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No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE						
						ORIGINAL COPY ON FILE "e" SIGNED BY		pitt&sherry	CONTRACT TITLE COPPERSTRING 2.0 GENERIC INTERSECTIONS	DATUMS:	CLIENT No.
A	PRELIMINARY ISSUE	S. GAGO		S. GAGER	17/05/21	SIGNED		pittsh.com.au Phone 1300 748 874 ABN 67 140 184 309	STATUS PRELIMINARY	DRAWING No. P.21.0700-00-CIV-SKT-006	REVISION A
						DATE		© 2021 PITT & SHERRY (OPERATIONS) PTY LTD. THE DOCUMENT MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED AND IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT.			
										May 18, 21 - 14:59:48 Name: P.21.0700-00-CIV-SKT-006.dwg Updated By: Shirley Gago Cjumo	



VEHICLE TURNING PATHS CROSS IN CRITICAL INTERSECTION LOCATIONS, DUE TO LOW TRAFFIC VOLUMES, AND DIRECTION OF TRAVEL, THIS WILL NEED ASSESSMENT AT EACH LOCATION.

B-DOUBLE (26m)

POSTED SPEED	DESIGN SPEED	WIDENED SHOULDER (P)	LANE WIDTH (W)	C	A	F	Sb (for R=13)
60kph	70kph	10m	3.5m	6m	15m	1.5m	7.0m
70kph	80kph	15m	3.5m	6m	20m	1.5m	7.0m
80kph	90kph	20m	3.5m	6m	20m	1.5m	7.0m
90kph	100kph	25m	3.5m	6m	25m	1.5m	7.0m
100kph	110kph	35m	3.5m	6m	25m	1.5m	7.0m



B-Double (26.0m)	
Overall Length	26.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m



WIDE CENTRE LINE TREATMENT

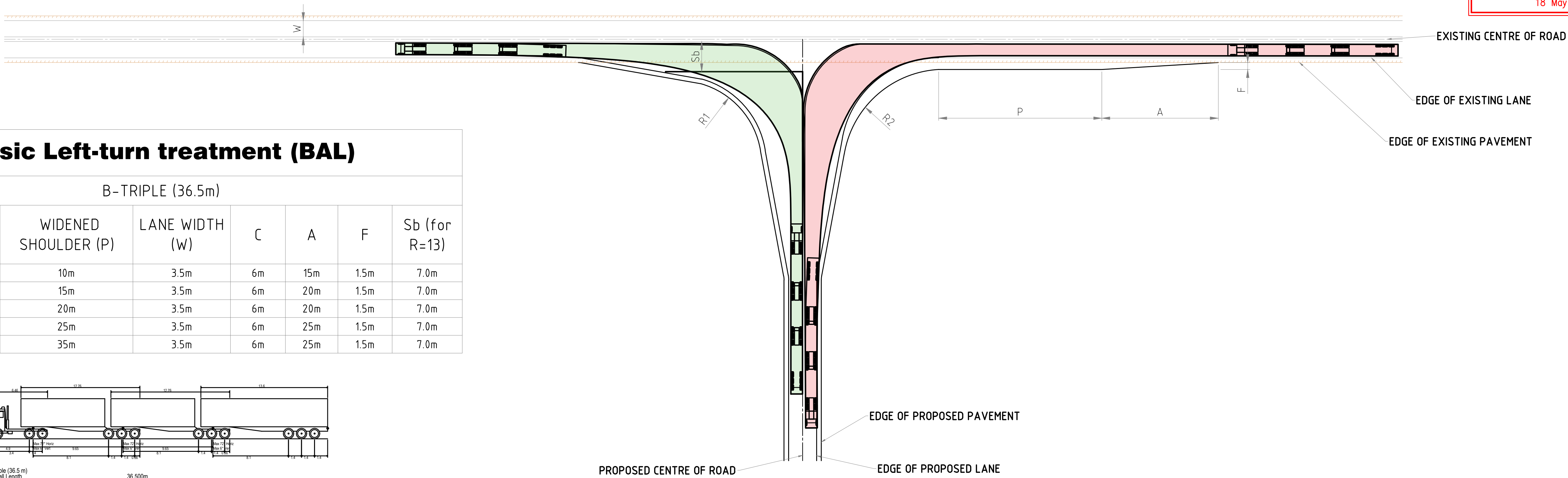
SCALE 1:500 (m)

WIDE CENTRE LINE TREATMENT

SCALE 1:500 (m)

REFERENCE FILES ATTACHED: P.21.0700-00-CIV-XRF-1111

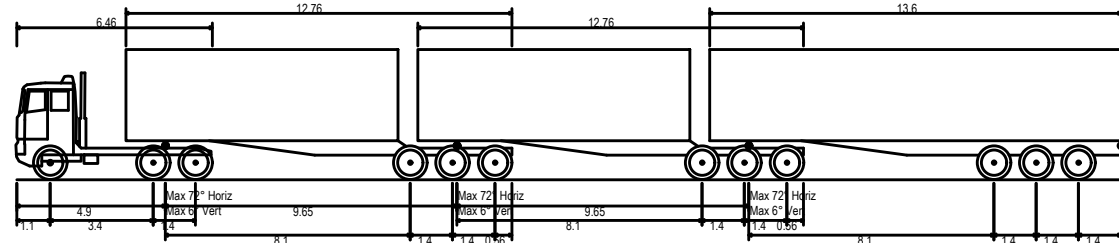
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No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE	APPROVED			 pittsh.com.au Phone 1300 748 874 ABN 67 140 184 309		CONTRACT TITLE		SWEPT PATH ASSESSMENT LAYOUT B-DOUBLE BASIC LEFT-TURN TREATMENT (BAL)			
						ORIGINAL COPY ON FILE "e" SIGNED BY	SCALE IN METRES - 1:500				COPPERSTRING 2.0 GENERIC INTERSECTIONS		DATUMS:		CLIENT No.	
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A	PRELIMINARY ISSUE	S. GAGO		S. GAGER	17/05/21	DATE			© 2021 PITT & SHERRY (OPERATIONS) PTY LTD. THE DOCUMENT MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED AND IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT.		STATUS PRELIMINARY		DRAWING No. P.21.0700-00-CIV-SKT-007 REVISION A			
														May 18, 21 - 16:09:21 Name: P:21.0700-00-CIV-SKT-007.dwg Updated By: Shirley Gago Climo		



Basic Left-turn treatment (BAL)

B-TRIPLE (36.5m)

POSTED SPEED	DESIGN SPEED	WIDENED SHOULDER (P)	LANE WIDTH (W)	C	A	F	Sb (for R=13)
60kph	70kph	10m	3.5m	6m	15m	1.5m	7.0m
70kph	80kph	15m	3.5m	6m	20m	1.5m	7.0m
80kph	90kph	20m	3.5m	6m	20m	1.5m	7.0m
90kph	100kph	25m	3.5m	6m	25m	1.5m	7.0m
100kph	110kph	35m	3.5m	6m	25m	1.5m	7.0m

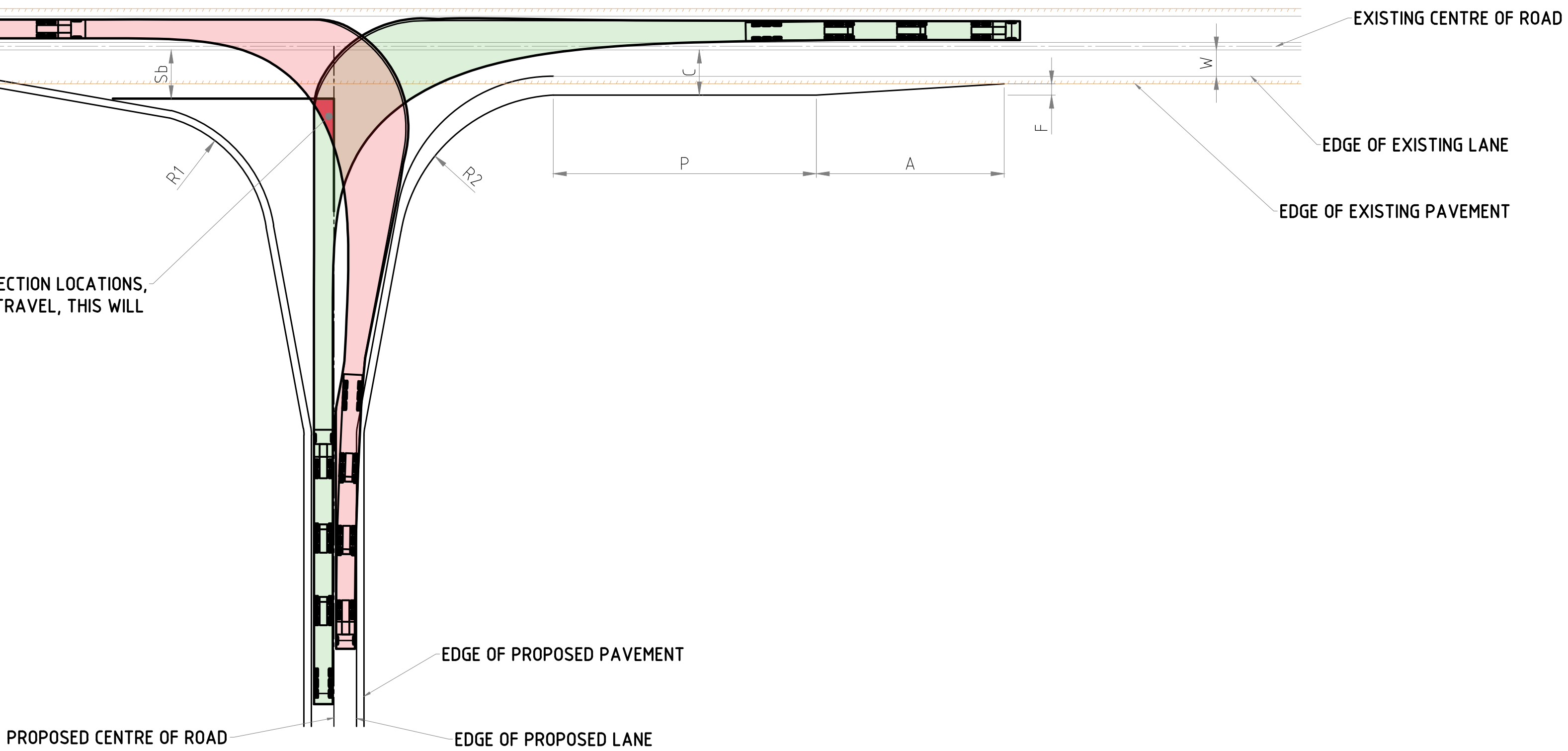


B-Triple (36.5 m)
Overall Length 26.500m
Overall Width 2.500m
Overall Body Height 4.300m
Min Body Ground Clearance 0.455m
Track Width 2.500m
Lock-to-lock time 6.00s
Curb to Curb Turning Radius 15.000m

VEHICLE TURNING PATHS CROSS IN CRITICAL INTERSECTION LOCATIONS, DUE TO LOW TRAFFIC VOLUMES, AND DIRECTION OF TRAVEL, THIS WILL NEED ASSESSMENT AT EACH LOCATION.

WIDE CENTRE LINE TREATMENT

SCALE 1:500 (m)

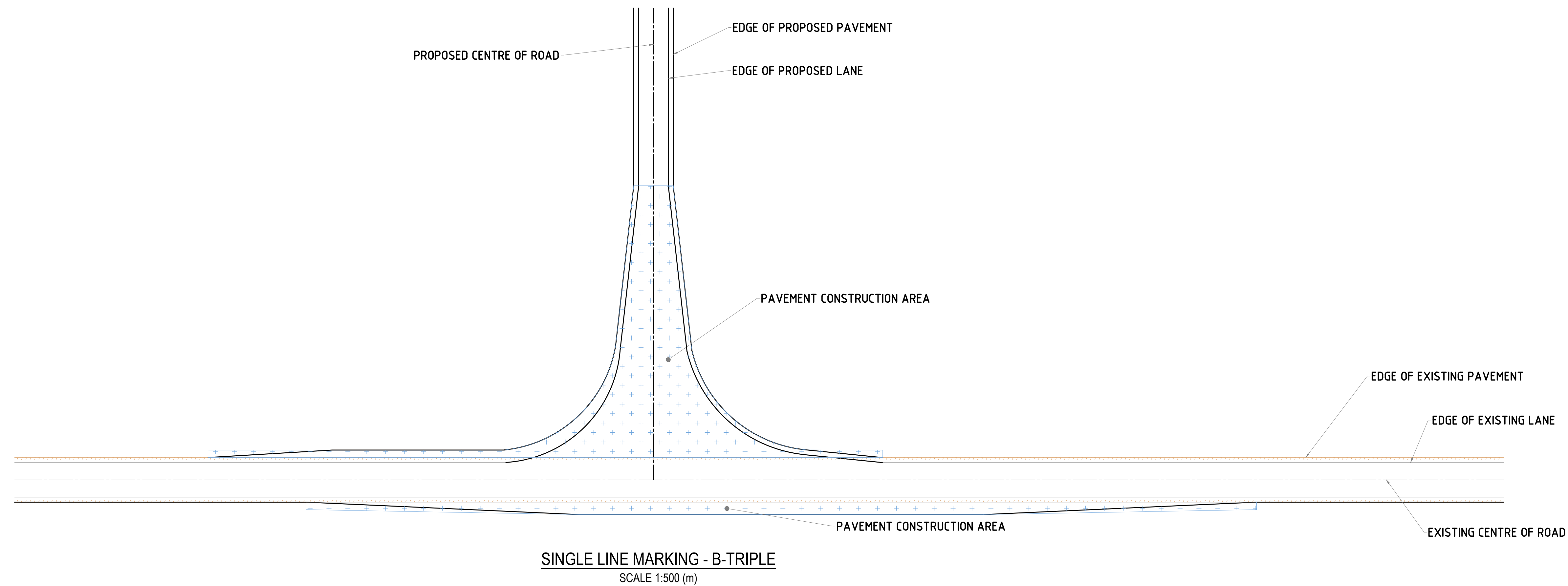
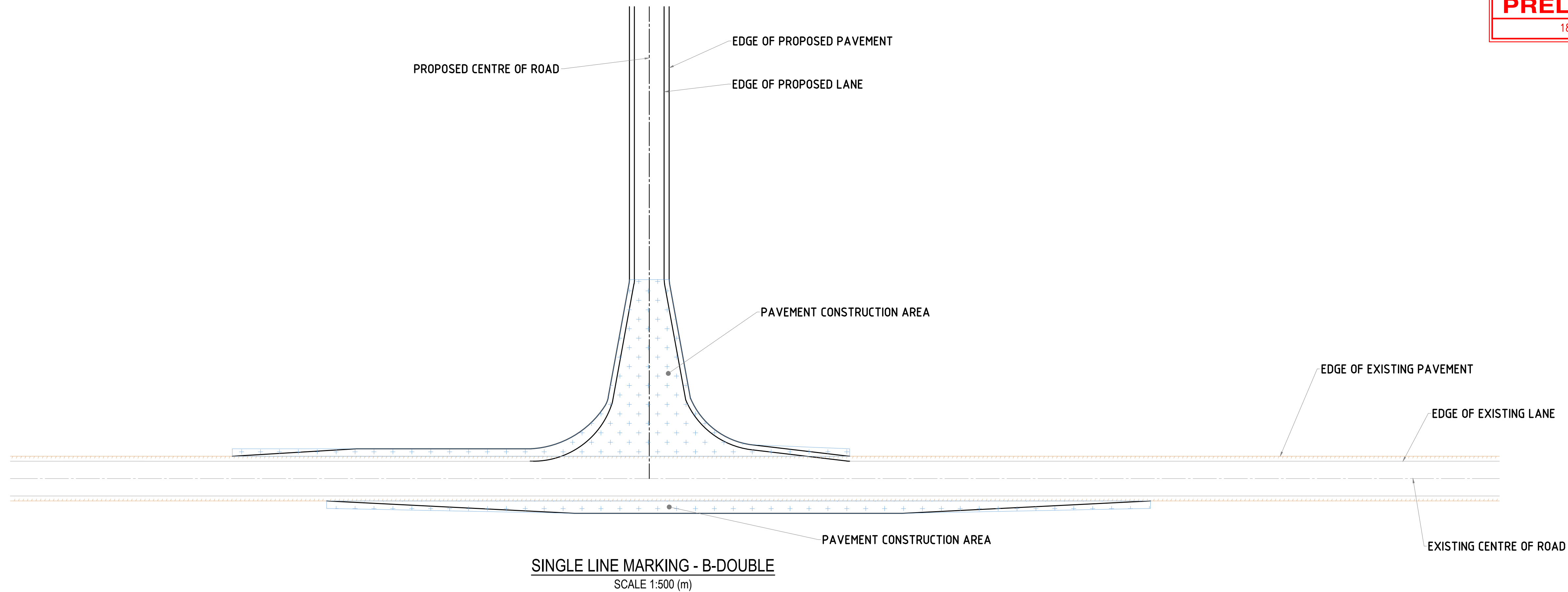


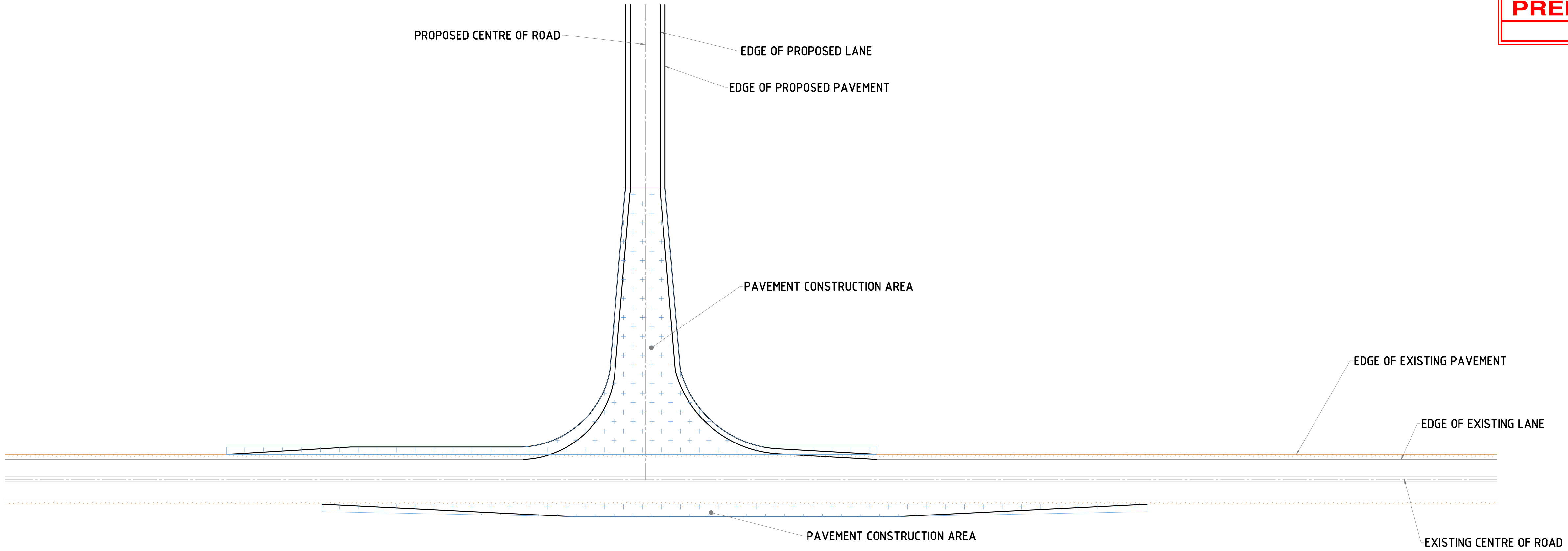
WIDE CENTRE LINE TREATMENT

SCALE 1:500 (m)

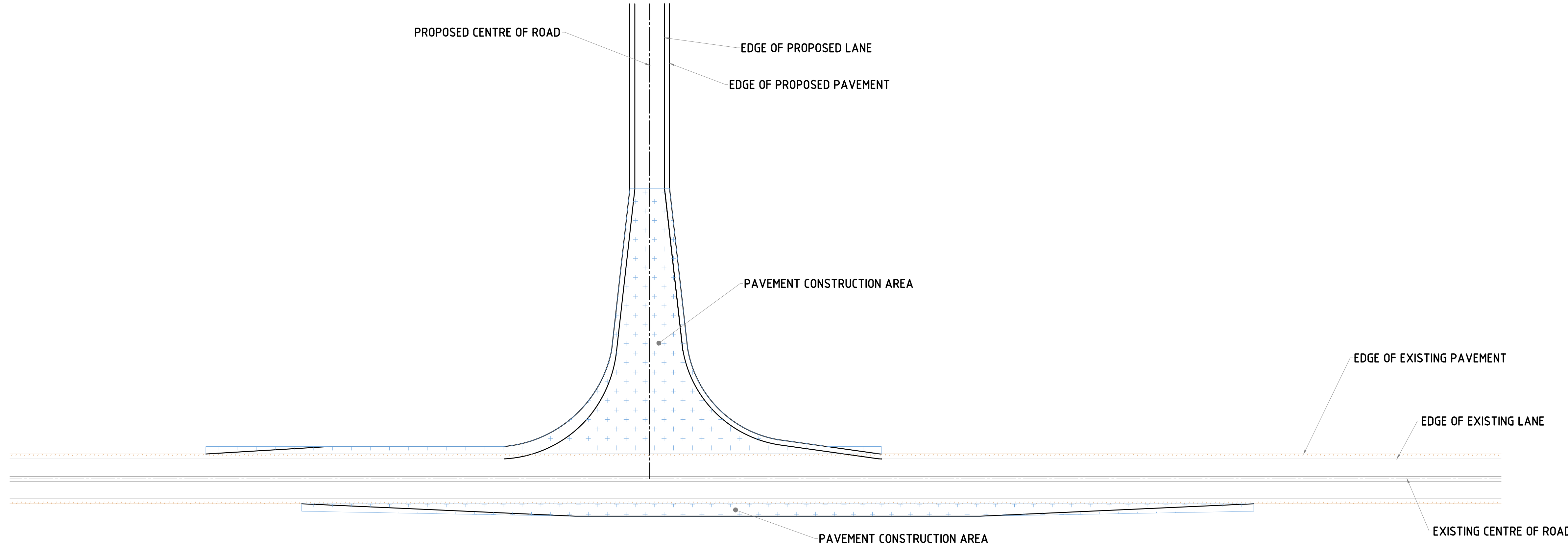
REFERENCE FILES ATTACHED: P.21.0700-00-CIV-XRF-1111

DRAWING REVISION HISTORY						APPROVED	SCALE (PLOTTED FULL SIZE)	SHEET SIZE A1	CLIENT CPB CONTRACTORS PTY LTD	DRAWING TITLE SWEEP PATH ASSESSMENT LAYOUT B-TRIPLE BASIC LEFT-TURN TREATMENT (BAL)
No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE					
						ORIGINAL COPY ON FILE "e" SIGNED BY	10 0 10 20 30 40 SCALE IN METRES - 1:500	pitt&sherry © 2021 PITT & SHERRY (OPERATIONS) PTY LTD. THE DOCUMENT MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED AND IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT.	CONTRACT TITLE COPPERSTRING 2.0 GENERIC INTERSECTIONS	REVISION A
A	PRELIMINARY ISSUE	S. GAGO		S. GAGER	17/05/21	SIGNED				
						DATE			STATUS PRELIMINARY	DATUMS: CLIENT No. DRAWING No. P.21.0700-00-CIV-SKT-008 May, 18, 21 - 14:58:57 Name: P.21.0700-00-CIV-SKT-008.dwg Updated By: Shirley Gago Cjumo





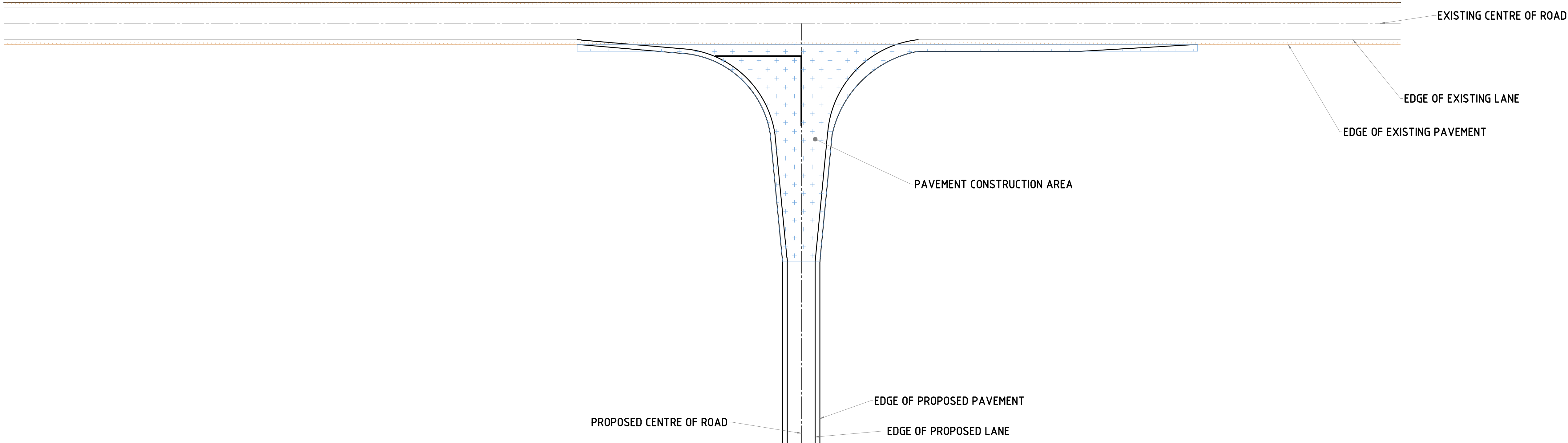
WIDE CENTRE LINE TREATMENT - B-DOUBLE
SCALE 1:500 (m)



WIDE CENTRE LINE TREATMENT - B-TRIPLE
SCALE 1:500 (m)

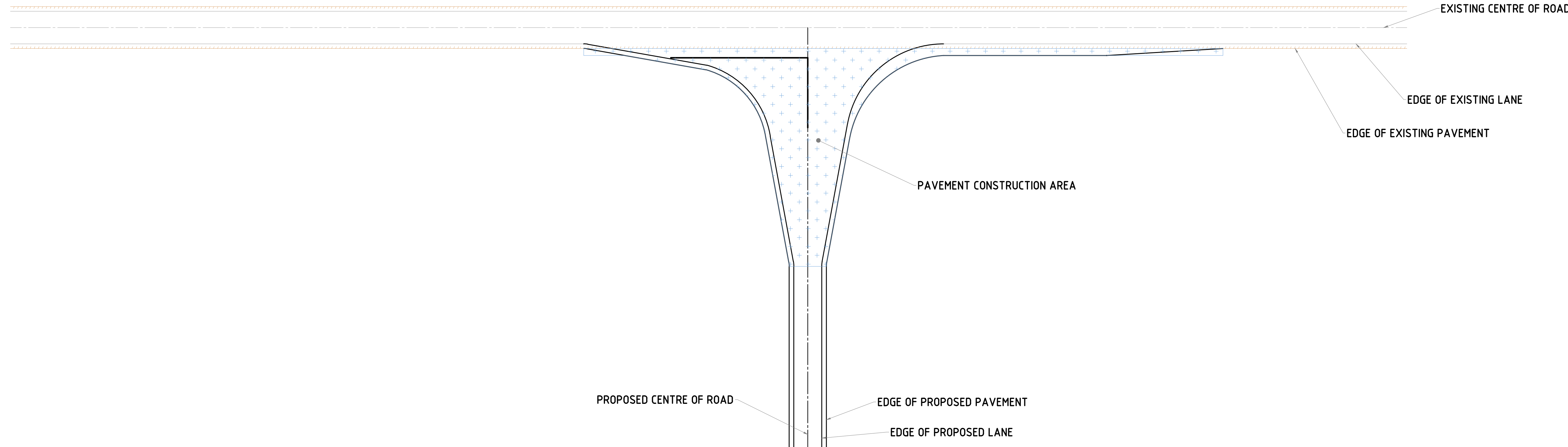
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DRAWING REVISION HISTORY						SCALE (PLOTTED FULL SIZE) 1:500 10 0 10 20 30 40 SCALE IN METRES - 1:500	SHEET SIZE A1	pitt&sherry pittsh.com.au Phone 1300 748 874 ABN 67 140 184 309 © 2021 PITT & SHERRY (OPERATIONS) PTY LTD. THE DOCUMENT MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED AND IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT.	CLIENT CPB CONTRACTORS PTY LTD	CONTRACT TITLE COPPERSTRING 2.0 GENERIC INTERSECTIONS	DRAWING TITLE SWEPT PATH ASSESSMENT LAYOUT PAVEMENT DESIGN	
No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE						DATUMS:	CLIENT No.
A	PRELIMINARY ISSUE	S. GAGO		S. GAGER	17/05/21						DRAWING No. P.21.0700-00-CIV-SKT-010	REVISION A
						DATE			STATUS	PRELIMINARY	May, 18, 21 - 15:47:30 Name: P.21.0700-00-CIV-SKT-010.dwg Updated By: Shirley Gago Cjumo	



SINGLE LINE MARKING - B-DOUBLE

SCALE 1:500 (m)

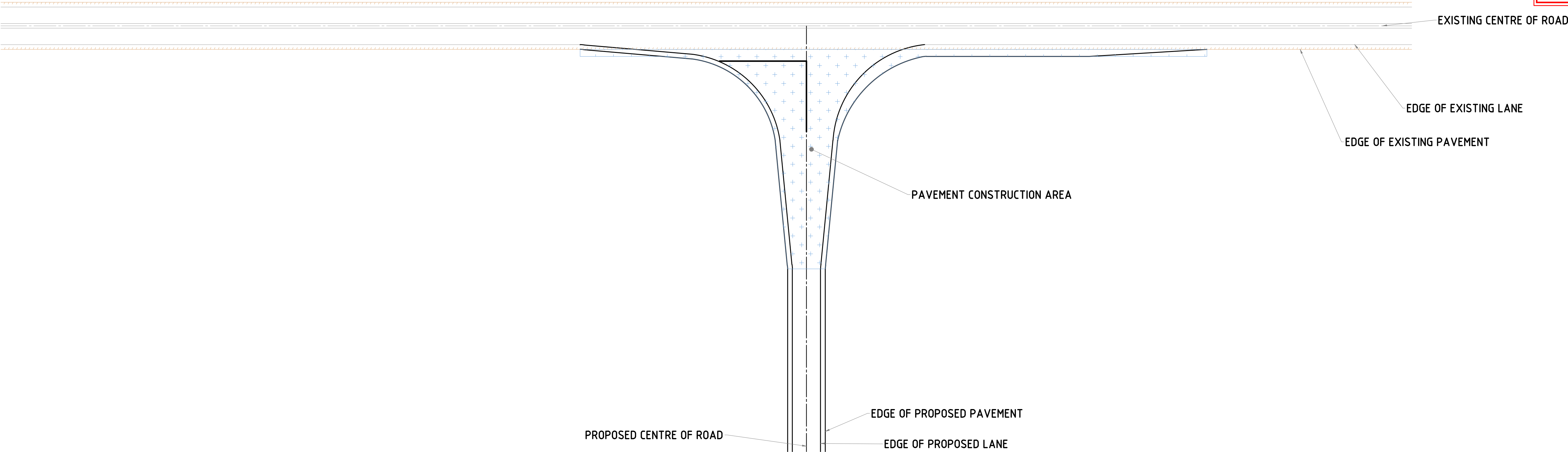


SINGLE LINE MARKING - B-TRIPLE

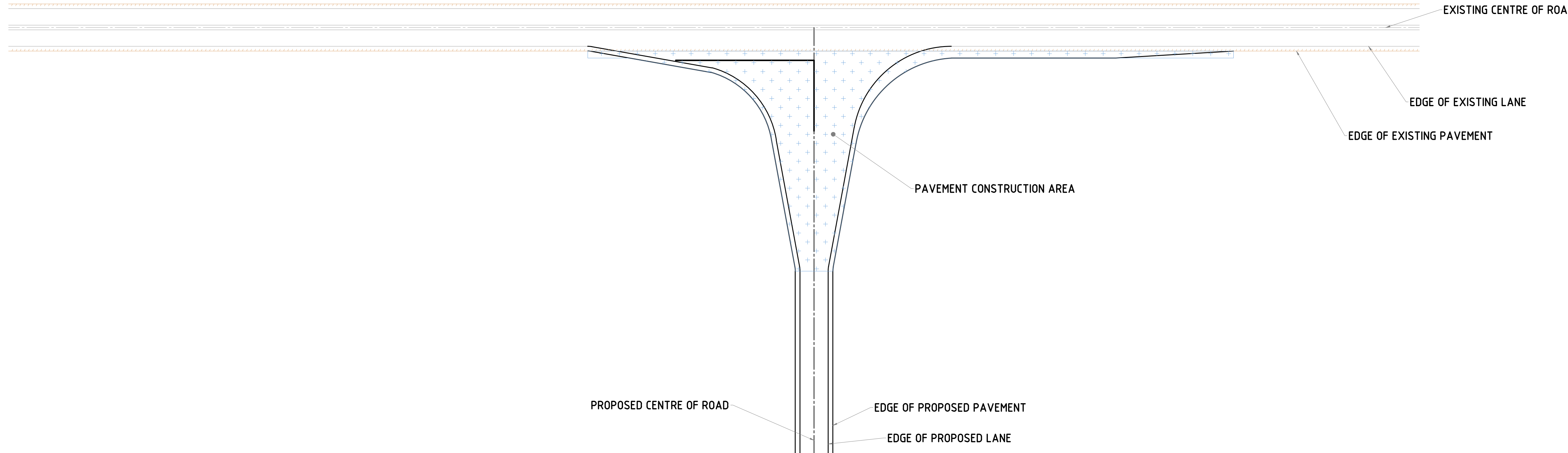
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REFERENCE FILES ATTACHED: P.21.0700-00-CIV-XRF-1111; P.21.0700-00-CIV-XRF-1112

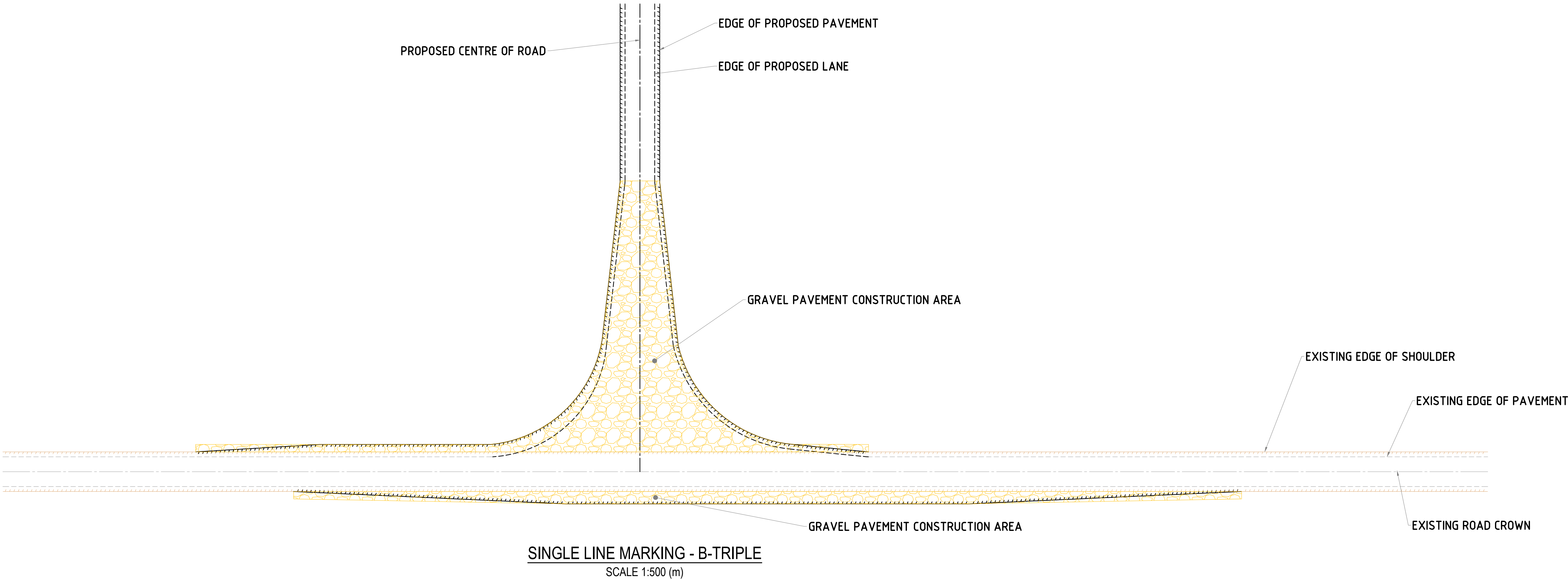
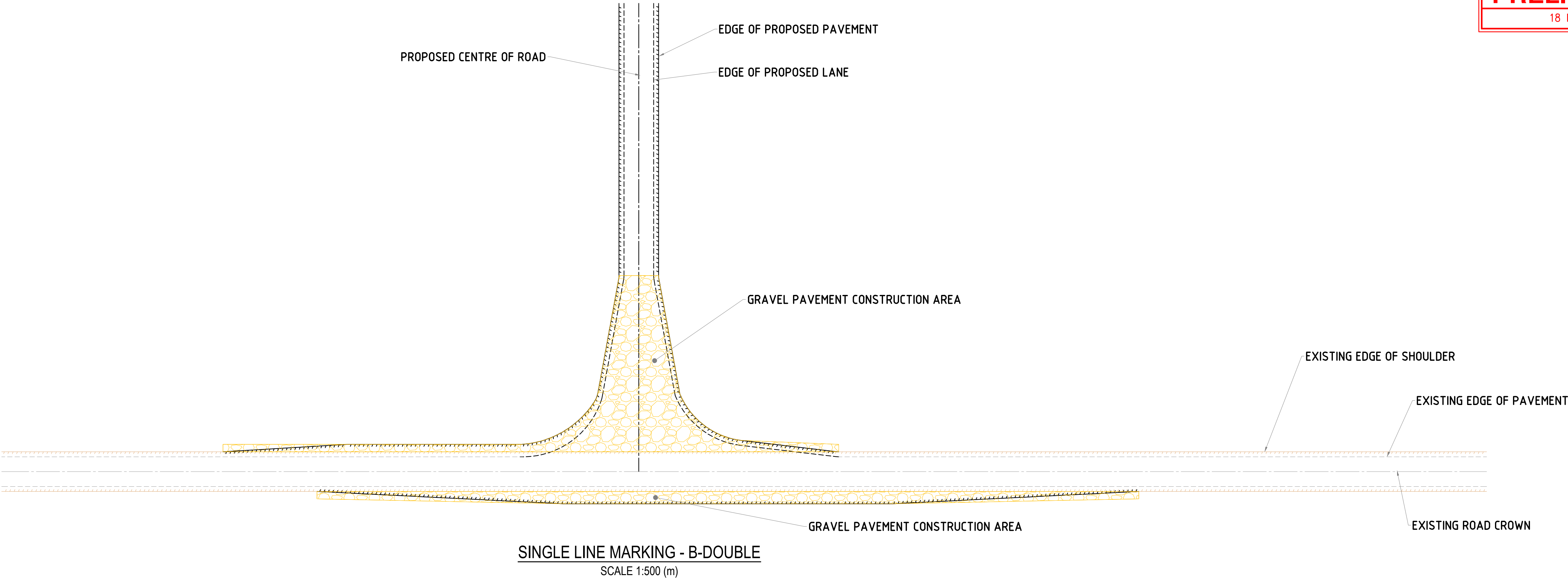
DRAWING REVISION HISTORY						SCALE (PLOTTED FULL SIZE) 1:500 10 0 10 20 30 40 SCALE IN METRES - 1:500	SHEET SIZE A1	pitt&sherry pittsh.com.au Phone 1300 748 874 ABN 67 140 184 309 © 2021 PITT & SHERRY (OPERATIONS) PTY LTD. THE DOCUMENT MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED AND IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT.	CLIENT CPB CONTRACTORS PTY LTD	CONTRACT TITLE COPPERSTRING 2.0 GENERIC INTERSECTIONS	DRAWING TITLE SWEPT PATH ASSESSMENT LAYOUT PAVEMENT DESIGN	
No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE						DATUMS:	CLIENT No.
A	PRELIMINARY ISSUE	S. GAGO		S. GAGER	17/05/21						DRAWING No. P.21.0700-00-CIV-SKT-011	REVISION A
						DATE			STATUS	PRELIMINARY	May 18, 21 - 15:48:13 Name: P.21.0700-00-CIV-SKT-011.dwg Updated By: Shirley Gago Cjumo	



WIDE CENTRE LINE TREATMENT - B-DOUBLE
SCALE 1:500 (m)



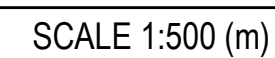
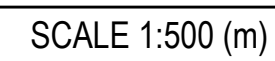
WIDE CENTRE LINE TREATMENT - B-TRIPLE
SCALE 1:500 (m)



REFERENCE FILES ATTACHED: P.21.0700-00-CIV-XRF-1114; P.21.0700-00-CIV-XRF-1113

DRAWING REVISION HISTORY						APPROVED ORIGINAL COPY ON FILE "e" SIGNED BY	SCALE (PLOTTED FULL SIZE) 1:500 <div><div>100</div><div>0</div><div>10</div><div>20</div><div>30</div><div>40</div></div> SCALE IN METRES - 1:500	SHEET SIZE A1 pitt&sherry <small>pittsh.com.au Phone 1300 748 874 ABN 67 140 184 309</small> <small>© 2021 PITT & SHERRY (OPERATIONS) PTY LTD. THE DOCUMENT MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED AND IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT.</small>	CLIENT	DRAWING TITLE	
No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE				CPB CONTRACTORS PTY LTD	SWEPT PATH ASSESSMENT LAYOUT GRAVEL PAVEMENT DESIGN	
									CONTRACT TITLE	DATUMS:	CLIENT No.
									GENERIC INTERSECTIONS	DRAWING No.	REVISION
A	PRELIMINARY ISSUE	S. GAGO		S. GAGER	17/05/21	SIGNED DATE			STATUS	P.21.0700-00-CIV-SKT-013	A
										May. 18, 21 - 15:49:42 Name: P.21.0700-00-CIV-SKT-013.dwg Updated By: Shirley Gago Cjumo	

P&S FORM DRG-A1 REV 29



DRAWING REVISION HISTORY						
No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE	APPROVED
						ORIGINAL COPY ON FILE "e" SIGNED BY
A	PRELIMINARY ISSUE	S. GAGO		S. GAGER	17/05/21	SIGNED
						DATE

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STATUS	PRELIMINARY
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DATUMS:	CLIENT No.
DRAWING No. P.21.0700-00-CIV-SKT-014	REVISION A
May. 18, 21 - 15:50:12 Name: P.21.0700-00-CIV-SKT-014.dwg Updated By: Shirley Gago Cjumo	

HIGHWAY				
TYPICAL PAVEMENT PROFILES				
SUBGRADE CBR (%)	3.5	4	5	7
THICKNESS OF GRANULAR MATERIAL	560	520	460	390
MIN. BASE COURSE (EG. TYPE 2.1)	150			
MIN. SUB-BASE (EG. TYPE 2.3)	410	370	310	240
SEAL				
SHOULDER / WIDENING:	TYPE HSS1 – PRIME & 14/7 PMB			
INTERSECTION:	TYPE XSS1 – PRIME & 14/7 PMB			

LOCAL ROAD				
TYPICAL PAVEMENT PROFILES				
SUBGRADE CBR (%)	3.5	4	5	7
THICKNESS OF GRANULAR MATERIAL	400	370	330	280
MIN. BASE COURSE (EG. TYPE 2.1)	110			
MIN. SUB-BASE (EG. TYPE 2.3)	290	260	220	170
SEAL				
SHOULDER / WIDENING:	PRIME & 14/7 C170 (S/S)			
INTERSECTION:	PRIME & 14/7 C170 (D/D)			

GRAVEL ROAD				
TYPICAL PAVEMENT PROFILES				
SUBGRADE CBR (%)	3.5	4	5	7
THICKNESS OF GRANULAR MATERIAL	400	370	330	280
MIN. BASE COURSE (EG. TYPE 2.1)	110			
MIN. SUB-BASE (EG. TYPE 2.3)	290	260	220	170

Appendix C Impacted Road Crossings

