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# Traffic and Transport Management Plan

## Mount Piper to Wallerawang Transmission Line Upgrade

October 2026

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# Traffic and Transport Management Plan
# Mount Piper to Wallerawang Transmission Line Upgrade

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WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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# Abbreviations

| | |
|---|---|
| CCS | Community Communication Strategy |
| CEMP | Construction Environmental Management Plan |
| CNVMP | Construction Noise and Vibration Management Plan |
| DPHI | Department of Planning, Housing and Infrastructure |
| EIS | Environmental Impact Statement |
| kV | kilovolt |
| LGA | Local Government Area |
| NHVR | National Heavy Vehicle Regulator |
| NPWS | NSW National Parks and Wildlife Service |
| NSW | New South Wales |
| OPGW | optical ground wire |
| OPLINC | Online Planned Incident System |
| OSOM | Oversize Overmass |
| RAV | Restricted Access Vehicles |
| ROL | Road Occupancy Licences |
| SEARs | Secretary's Environmental Assessment Requirements |
| TfNSW | Transport for NSW |
| TGS | Traffic Guidance Schemes |
| TTA | Traffic and Transport Assessment |
| TTMP | Traffic and Transport Management Plan |
| VMP | Vehicle Movement Plan |
| VMS | Variable Message Sign |

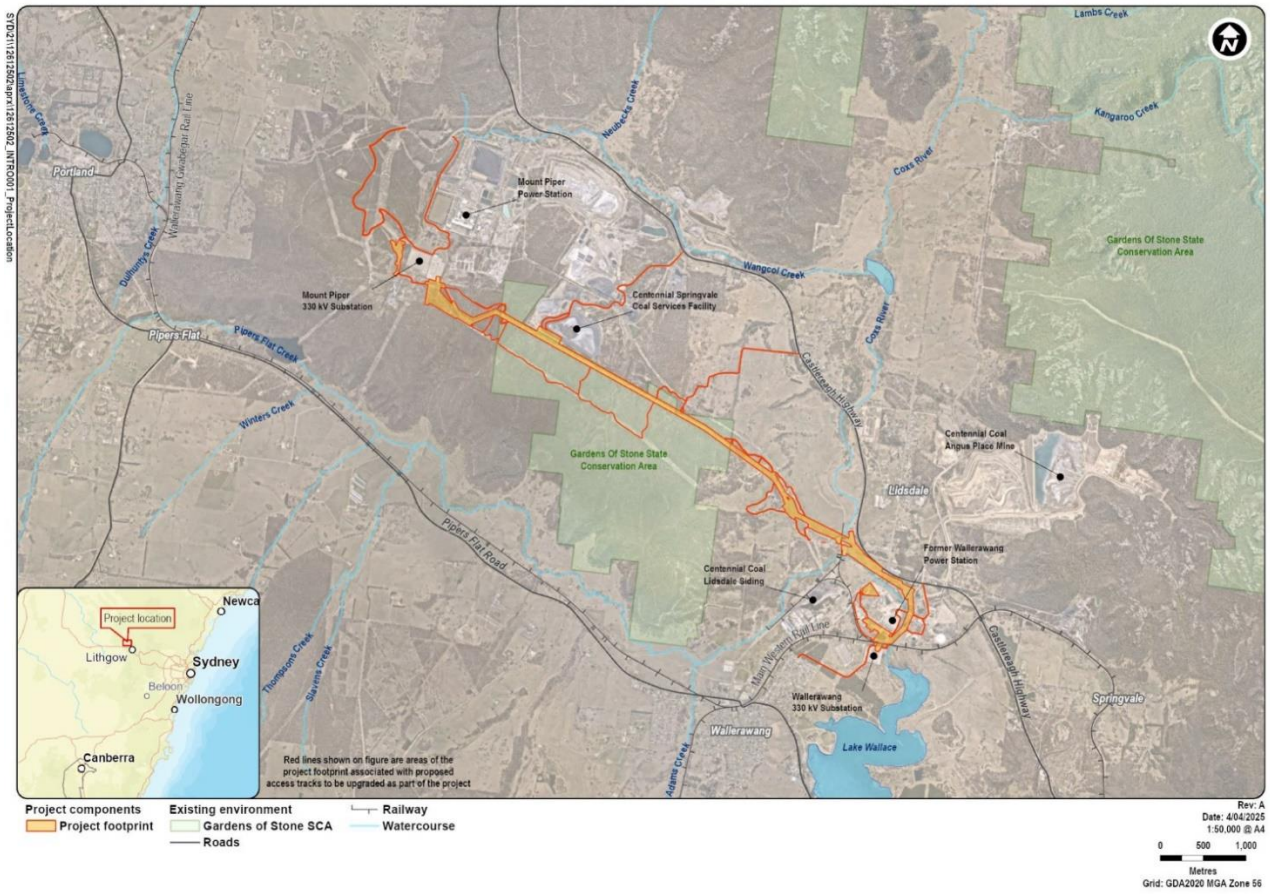
# 1 Introduction

## 1.1 Project background

Transgrid proposes to deliver approximately eight kilometres of new 330 kilovolt transmission line and double circuit transmission structures located between the Mount Piper and Wallerawang 330 kV substations (the Project). The Project would incorporate sections of an existing, single-circuit 132 kV transmission line, where the two transmission lines would share a widened easement and transmission structures. The project is located within the Lithgow Local Government Area (LGA), which is part of the Central West region of NSW, as illustrated in Figure 1.1.The Project would provide the additional capacity required to reliably transmit power to the Greater Sydney region.

In accordance with the Secretary's Environmental Assessment Requirements (SEARs) a traffic and transport assessment (Mount Piper to Wallerawang Transmission Line Upgrade Technical Report 8 –Traffic and Transport Assessment [GHD, August 2025]) (TTA) was conducted and later superseded by the Mount Piper to Wallerawang Transmission Line Upgrade Technical Report 8 – Revised Traffic and Transport Assessment (GHD, December 2025) (Revised TTA) as part of the Infrastructure Approval process.

The Revised TTA assessed the potential traffic and transport impacts from the construction and operation of the project, and recommended mitigation measures to minimise any impacts (provided in Table 1.2). This includes implementing a Traffic and Transport Management Plan (TTMP), which is this Plan. This Plan also fulfills the requirements of Condition B35 of the Conditions of Approval for the Project under SSI-70279722.




*Source:* *Mount Piper to Wallerawang Transmission Line Upgrade - Technical Report 8 – Revised Traffic and Transport Assessment (GHD, December 2025)*

Figure 1.1 Project footprint and surrounding environment

## 1.2 Purpose and scope

The purpose of this Traffic and Transport Management Plan is to outline the strategies, controls and processes required to safely and efficiently manage traffic, transport and access arrangements during the construction of the Mount Piper to Wallerawang Transmission Line Upgrade. It defines the scope of traffic and transport considerations relevant to the project, including construction traffic generation, heavy vehicle and oversize-overmass (OSOM) movements, access point management, active and public transport interfaces, road safety risks, mitigation measures, and required approvals. This plan translates the findings of the Traffic and Transport Impact Assessment into actionable construction-phase requirements, ensuring compliance with relevant TfNSW, NHVR and Austroads guidelines, while supporting the contractor in minimising disruption to the community, road users and surrounding infrastructure throughout delivery.

The Conditions of Approval relating to this Plan are listed in Table 1.2 and the mitigations measures outlined in the Revised TTA are provided in Table 1.1.

Table 1.1 Conditions of Approval items relating to Traffic and Transport Management Plan

| ID | Condition of Approval | Where addressed | How addressed |
|---|---|---|---|
| **B28** | All heavy vehicles requiring escort associated with the development must only travel to and from the site via the construction routes described in the EIS, as identified in Figure 4-1 and Figure 4-2 in Appendix 4, unless the Planning Secretary agrees otherwise.<br>*Note: The Proponent is required to obtain relevant permits under the Heavy Vehicle National Law (NSW) for the use of over-dimensional vehicles on the road network.* | Sections 3.4 and 4.3.2; Figure 4.2 | Approved OSOM routes are identified in Section 3.4 and mapped in Figure 4.7. Section 4.3.3 confirms all OSOM movements will comply with the Heavy Vehicle National Law, including obtaining relevant permits. Figure 4.2 provides a regional overview of the construction routes. |
| **B29** | All heavy and light vehicles associated with construction, upgrading and decommissioning of the development must travel to and from the site via the construction routes as described in the EIS and identified in the Figure 4-1 and Figure 4-2 in Appendix 4 unless the Planning Secretary agrees otherwise. | Sections 3.4 and 4.3.2 | Approved construction vehicle routes are detailed in Section 4.3.2 and mapped in Figures 4.2 and 4.6. Route compliance is reinforced through driver induction (Section 6.4.1.1) and monitored via vehicle tracking cameras (Section 6.4.1.2). |
| **B30** | Unless the Planning Secretary agrees otherwise, heavy vehicles (excluding heavy vehicles requiring escort) used for the development must not exceed 19 m in length. | Sections 3.4 and 4.3.2 | Section 3.4 confirms the largest proposed heavy vehicle (excluding OSOM) is a 19 m semi-trailer, classed as a General Access Vehicle within General Mass Limits. The restriction is communicated at induction and pre-start briefings (Section 6.4.1.1). |
| **B31** | Unless the Planning Secretary agrees otherwise, development vehicles (excluding heavy vehicles requiring escort) are not permitted: | | |

| ID | Condition of Approval | Where addressed | How addressed |
|---|---|---|---|
| **B31(a)** | to turn right turn into Karawatha Drive from Castlereagh Highway; | Sections 3.4, 4.3.2 and 6.3.4.2 | A Left-in/Left-out arrangement for construction vehicles is provided in Section 6.3.3.2, with signage shown in Figures 6.8 and 6.9 and a turnaround facility at Springvale Coal (Site Access 2). The ban is reinforced at induction and pre-start briefings. |
| **B31(b)** | to turn right turn into Brays Lane from Castlereagh Highway; and | Sections 3.4, 4.3.2 and 6.3.4.2 | The right turn ban is addressed in Section 6.3.3.2, with the signage arrangement shown in Figure 6.10 and the directive communicated at induction and daily toolbox briefings. |
| **B31(c)** | to turn right turn right into Access Point 10 from Castlereagh Highway. | Sections 3.4, 4.3.2 and 6.3.4.2 | The right turn ban is addressed in Section 6.3.3.2, with the signage arrangement shown in Figure 6.11 and the directive communicated at induction and pre-start briefings. |
| **B32** | Prior to use of the alternative route (shown on Figure 4-2 in Appendix 4), the Applicant must prepare a Transport Strategy to the satisfaction of the Planning Secretary. The Transport Strategy must: | Sections 5.1.3 and 6.6.2 | Section 6.6.2 confirms the alternative route via Brays Lane is no longer proposed for OSOM vehicles, and that a Transport Strategy under Condition B32 is therefore not required. |
| **B32(a)** | be prepared by a suitably qualified and experienced person; | Sections 5.1.3 and 6.6.2 | Not triggered, as the alternative route is no longer proposed for OSOM use (Section 6.6.2). The Main Street bridge structural assessment was undertaken by Integrity Testing, nominated by Lithgow City Council (Appendix D). |
| **B32(b)** | be prepared in consultation with Lithgow City Council; | Sections 5.1.3 and 6.6.2 | Not triggered, as the alternative route is no longer proposed for OSOM use. Consultation with Lithgow City Council on the revised route and structural assessment requirements is recorded in Sections 6.6.4 and 6.7 and Appendices C and G. |
| **B32(c)** | include an assessment of potential impacts associated with the use of the route by heavy vehicles requiring escort, including in relation to the capacity and condition of the roads, road safety and intersection performance; | Sections 5.1.3 and 6.6.2 | Not triggered, as the alternative route is no longer proposed for OSOM use. OSOM impacts on the adopted route are assessed in Section 5.1.3, including the Main Street bridge assessment at Appendix D. |

| ID | Condition of Approval | Where addressed | How addressed |
|---|---|---|---|
| **B32(d)** | identify appropriate mitigation measures to minimise traffic safety impacts and disruptions to local road users along the route; and | Sections 5.1.3 and 6.6.2 | Not triggered, as the alternative route is no longer proposed for OSOM use. Mitigation for the adopted OSOM route is provided in Section 6.6.2, including an OSOM Transport Management Plan, ROLs and a Temporary Traffic Management Plan. |
| **B32(e)** | demonstrate that the use of the route by heavy vehicles requiring escort, and measures identified in (d), can be accommodated without the need for a road upgrade and would have no more than a minimal impact on the environment and the community. | Sections 5.1.3 and 6.6.2 | Not triggered, as the alternative route is no longer proposed for OSOM use. Section 5.1.3 concludes that, with up to four OSOM movements per day, impacts on surrounding public traffic will be minimal. |
| **B32** | Proposed mitigation measures must be included in the Traffic and Transport Management Plan. | Sections 5.1.3 and 6.6.2 | Not triggered, as the alternative route is no longer proposed for OSOM use. OSOM management measures for the adopted route are included in Sections 5.1.3, 6.2.1 and 6.6.2. |
| **B33** | Unless the Planning Secretary agrees otherwise, the Proponent must implement the road upgrades identified in Table 4-1 in Appendix 4 in accordance with the relevant standard and timing requirements in Table 4-1 in Appendix 4, and to the satisfaction of the relevant roads authority.<br>If there is a dispute about the road upgrade works, or the implementation of these works, then either party may refer the matter to the Planning Secretary for resolution. | Sections 4.4, and 5.1.1 | Sections 4.4 and 5.1.1 confirm that the Brays Lane passing bay and Site Access 6 will be constructed prior to use by construction vehicles, in accordance with the relevant requirements and to the satisfaction of Lithgow City Council. |
| **B34** | The Proponent must: | | |
| **B34(a)** | undertake an independent dilapidation survey of all local or regional roads on the transport route shown in Figure 4-1 and Figure 4-2 in Appendix 4 (including local road crossings): | Section 6.4.4 | Independent road dilapidation surveys of the local and regional roads shown in Figure 3.1 are provided for in Section 6.4.4, supplemented by weekly internal site audits under Section 6.4.3. |
| **B34(a)(i)** | assessing the existing condition prior to use of the relevant road by development related heavy vehicles for the purposes of construction, upgrade or decommissioning works; and | Section 6.4.4 | Section 6.4.4 requires a survey before use of the relevant road by development-related heavy vehicles, or within a timeframe agreed with the relevant roads authority. |

| ID | Condition of Approval | Where addressed | How addressed |
|---|---|---|---|
| **B34(a)(ii)** | assessing the condition;<br>— within 1 month of all the completion of construction, upgrading or decommissioning works, or within a timeframe agreed to by the relevant roads authority/manager;<br>— on an annual basis during construction, or within a timeframe agreed to by the relevant authority/manager; | Section 6.4.4 | Section 6.4.4 requires surveys within one month of completion of works and on an annual basis during construction, or within timeframes agreed with the relevant roads authority. |
| **B34(b)** | repair (or pay the full costs associated with repairing) any damage to local roads on the transport route (including local road crossings) that are as a result of development related road traffic: | Section 6.4.4 | Section 6.4.4 requires the Construction Manager to organise rectification of any damage attributable to development-related traffic, informed by the surveys, weekly audits and reports from personnel, Council, TfNSW or the public. |
| **B34(b)(i)** | as soon as possible after the damage is identified but within 7 days at the latest if it could endanger road safety; or | Section 6.4.4 | The seven-day rectification timeframe for damage that could endanger road safety is specified in Section 6.4.4. |
| **B34(b)(ii)** | within 2 months of the completion of the survey; or | Section 6.4.4 | The two-month rectification timeframe following completion of the survey is specified in Section 6.4.4. |
| **B34(b)(iii)** | within a timeframe agreed to by the relevant roads authority/manager. | Section 6.4.4 | Section 6.4.4 provides for alternative timeframes where agreed with the relevant roads authority or manager. |
| **B34(c)** | prepare a report on the road repairs completed in consultation with the relevant roads authority. | Section 6.4.4 | Section 6.4.4 requires a report to be completed in consultation with the relevant roads authority following completion of any repairs. |
| **B34** | If there is a dispute about the road maintenance works, or the implementation of these works, then either party may refer the matter to the Planning Secretary for resolution. | Section 6.4.4 | Section 6.4.4 confirms that any dispute about road maintenance works or their implementation will be referred to the Planning Secretary for resolution. |
| **B35** | Prior to commencing construction or road upgrades identified in condition B33 (whichever comes first), the Proponent must prepare a Traffic and Transport Management Plan for the development in consultation with TfNSW, Lithgow City Council, NPWS and to the satisfaction of the Planning Secretary. The plan must include: | Wholistically through this document. | This Plan is the TTMP. Consultation with TfNSW (26 June 2026), Lithgow City Council (27 May 2026) and NPWS (9 June 2026) is recorded in Section 6.7 and Table 6.2, with responses at Appendices C and E. |

| ID | Condition of Approval | Where addressed | How addressed |
|---|---|---|---|
| **B35(a)** | details of the transport route to be used for all development-related traffic; | Section 4.3 | Transport routes for light, heavy and OSOM vehicles are detailed in Sections 4.3.2 and 4.3.3 and mapped in Figures 4.2, 4.6 and 4.7. |
| **B35(b)** | details of the road upgrade works required by condition B33; | Sections 4.4, 5.1.1, 6.3, 6.6.1 and 6.6.4 | Sections 4.4 and 5.1.1 detail the road upgrades required by Condition B33, comprising the Brays Lane passing bay and Site Access 6. Traffic control and approval requirements for these works are addressed in Sections 6.3 and 6.6. |
| **B35(c)** | details of the measures that would be implemented to comply with the transport management requirements in conditions B28 to B34; | Sections 3.4, 4.3.1, 0, 6.3.3.2, 6.6.1 and 6.6.2 | Compliance measures are provided across Section 3.4 (vehicle restrictions), Section 4.3 (routes and access), Section 6.3.3.2 (turn ban signage), Section 6.4 (monitoring and dilapidation surveys) and Section 6.6 (ROL and OSOM permits). |
| **B35(d)** | details of measures as stated within the EIS; | Wholistically through this document. | The Revised TTA mitigation measures are reproduced in Table 1.2, with the section of this Plan addressing each measure identified. |
| **B35(e)** | a structural assessment, undertaken by a suitably qualified structural engineer and agreed to by Lithgow Council, of the bridges on Brays Lane along the transport route (Figure 4-2, Appendix 4) to confirm the bridges can accommodate all construction vehicles; | Sections 4.3.2, 5.1.3, 6.6.2, and 6.7 | Section 4.3.2 confirms Lithgow City Council has waived the requirement for structural assessment of the Brays Lane structures. Lithgow City Council have provided correspondence stating that the bridge and culvert (on Brays Lane) between Castlereagh Highway and the Project site are suitable to take traffic up to 43 tonnes. As all construction vehicles using that road are General Access Vehicles under 43 t the requirement for a structural assessment was deemed unnecessary by Council. Council's correspondence is provided at Appendix G. |
| **B35(f)** | details of the measures that would be implemented to: | | |
| **B35(f)(i)** | minimise traffic safety impacts of the development and disruptions to local road users during construction, upgrading or decommissioning works, including: | | |

| ID | Condition of Approval | Where addressed | How addressed |
|---|---|---|---|
| **B35(f)(i)1** | • measures for restricting concurrent heavy vehicle movements at the Karawatha Drive and Castlereagh Highway intersection such as staggering heavy vehicle arrivals and departures; | Section 6.3.4.2 and 6.4 | Section 6.3.3.2 requires site vehicle dispatch staff to ensure only one heavy vehicle arrives or departs Karawatha Drive at a time. Section 6.2.1 allocates designated access days to suppliers, with a traffic controller and dedicated radio channel where more than one vehicle is scheduled. |
| **B35(f)(i)2** | • measures to minimise traffic impacts in the event of an emergency outage recall including staggering heavy vehicles arrivals outside of the network peak where possible; | Section 6.4.1.1, 6.4.1.4 and 6.2.4 | Section 6.4.1.4 provides for two-way radio coordination to hold or stagger truck departures outside network peak, including during an emergency outage recall. Emergency outage recall restrictions are included in driver induction content (Section 6.4.1.1). |
| **B35(f)(i)3** | • consultation with Centennial Coal prior to the usage of Access Point 2 to minimise disruption to site operations; | Section 6.7 | Section 6.7.1 records that use of Access Point 2 has been agreed with Centennial Coal through the EIS process, with monthly ongoing consultation led by the Project Engagement Lead to manage access arrangements. |
| **B35(f)(i)4** | • a description of the proposed timeframe and schedule of construction works; | Section 4.2 | Section 4.2.2 confirms construction is expected to commence in late 2026 and be completed by mid 2028 over approximately 20 months, with the indicative program at Figure 4.1 and working hours at Section 4.2.3. |
| **B35(f)(i)5** | • a description of the proposed dilapidation surveys required by condition B33; | Section 6.4.4 | Independent road dilapidation surveys, their timing, supplementary weekly audits and rectification timeframes are described in Section 6.4.4. |
| **B35(f)(i)6** | • a description of the proposed measures for managing traffic flow around the work sites, construction compounds and accommodation camps; | Section 6.3 | Traffic Guidance Schemes, road and lane closure arrangements and site access management are provided in Sections 6.3.1 to 6.3.3, illustrated in Figures 6.1 to 6.6 and detailed in Appendix B. No accommodation camps are proposed. |

| ID | Condition of Approval | Where addressed | How addressed |
|---|---|---|---|
| **B35(f)(i)7** | • procedures for stringing cables and transmission lines across roads to ensure compliance with Austroads Guide to Traffic Management; | Sections 5.1.2, 6.3.1 and Appendix A | Section 5.1.2 describes the stringing methodology and temporary road closures undertaken in accordance with the Austroads Guide to Traffic Management, with traffic control arrangements at Section 6.3.1 and Figures 6.1 and 6.2. |
| **B35(f)(i)8** | • procedures for notifying NPWS of proposed traffic impacts on NPWS estate; | Sections 5.1.5 and 6.6.5 | Section 5.1.5 requires the Project Engagement Lead to keep NPWS appraised of construction traffic movement plans on an as-needs basis, with event-based consultation on access issues provided for in Section 6.6.5. |
| **B35(f)(i)9** | • scheduling all development traffic to avoid peak periods where reasonable and feasible; | Sections 6.2.3 and 6.4.1 | Section 6.2.4 requires the Construction Manager to develop a schedule for all development traffic to avoid peak periods where reasonable and feasible, communicated at daily pre-start meetings. |
| **B35(f)(i)10** | • reducing the speeds of development-related traffic at key intersections (excluding on the State road network); | Section 6.3.2 | Section 6.3.2 provides for signage indicating reduced speed limits and permitted construction traffic movements along Brays Lane and Main Street, as shown in Figure 6.6. |
| **B35(f)(i)11** | • temporary traffic controls, including detours and signage; | Section 6.3 | Temporary traffic controls, detour routes and signage arrangements are provided in Sections 6.3.1 to 6.3.3, with detours illustrated in Figures 6.12 and 6.13 and Traffic Guidance Schemes at Appendix B. |
| **B35(f)(i)12** | • notifying the local community about development-related traffic impacts; | Section 6.7.6 | Section 6.7.6 provides for community notification through temporary signposting, variable message signs, community sessions, letterbox drops and direct notification of the nearby preschool and fire station. |
| **B35(f)(i)13** | • procedures for receiving and addressing complaints from the community about development-related traffic; | Section 6.7.6 | Section 6.7.6 directs traffic-related complaints to the Construction Manager and applies the complaints response procedure from the Community Communication Strategy, reproduced at Figure 6.15. |

| ID | Condition of Approval | Where addressed | How addressed |
|---|---|---|---|
| **B35(f)(i)14** | • minimising potential cumulative traffic impacts with other projects in the area; | Section 6.7.7 | Section 6.7.7 provides for monthly communication by the Project Engagement Lead with proponents of overlapping projects, with mitigation such as staggered start times or delivery scheduling implemented where overlaps are identified. |
| **B35(f)(i)15** | • minimising potential conflict between development-related traffic and rail services, including preventing queueing on the public road network; | Sections 6.4 and 6.6.3 | Section 6.6.3 records consultation with UGL Regional Linx on rail possession timetables, with stringing over the Main Western Rail Line to occur during a planned rail shutdown. Section 6.4 prohibits queuing on Castlereagh Highway. |
| **B35(f)(i)16** | • implementing measures to minimise development-related traffic on the public road network outside standard construction hours; | Section 4.2.3 and 6.4.1 | Section 4.2.3 requires the Construction Manager to maintain a schedule of out-of-hours works and to reschedule traffic-generating activities to within standard construction hours where practicable. |
| **B35(f)(i)17** | • minimising dirt and debris tracked on to the public road network from development-related traffic; | Section 6.2.5 and 6.4.1 | Section 6.2.5 applies the Soil and Water Management Plan requirements for preventing and cleaning up tracked material, together with the Biodiversity Management Plan vehicle and machinery hygiene procedure, including wheel-wash systems at site entry and exit points. |
| **B35(f)(i)18** | • details of the employee shuttle bus service, including pick-up and drop-off points and associated parking arrangements for construction workers, and measures to encourage employee use of this service; | Sections 4.3.5, 6.2.1, and 6.4.1 | Sections 4.3.5 and 6.2.1 confirm a shuttle bus is not proposed at commencement of construction due to dispersed worker accommodation, and that this Plan would be updated, consulted on and approved by the Planning Secretary before any shuttle bus is introduced. |
| **B35(f)(i)19** | • measures for managing light vehicle peak numbers, such as car-pooling or ride sharing by employees; | Sections 4.3.5, 6.2.1, and 6.4.1 | Carpooling is encouraged through the Vehicle Movement Plan (Section 6.2.1). Section 6.4.1.3 provides for redistribution of work crews, alternative access points or mini buses where movements approach the estimated peak. |

| ID | Condition of Approval | Where addressed | How addressed |
|---|---|---|---|
| **B35(f)(i)20** | • scheduling the haulage vehicle movements to minimise convoy lengths or platoons; | Sections 6.4, 6.4.1.3 and 0 | Section 6.2.4 requires development traffic to be scheduled to minimise convoy lengths and platoons through Vehicle Movement Plans, delivery scheduling, access point allocation, dispatch oversight and two-way radio coordination. |
| **B35(f)(i)21** | • responding to local climate conditions that may affect road safety, such as fog, dust, wet weather and flooding; | Sections 6.4. 2, 7.1.1, 6.2.3 and 6.1 | Section 6.4.2 requires the Construction Manager to check weather conditions and road closures daily using LiveTraffic and BOM, identify alternative routes and communicate conditions at the morning briefing. Flood response is provided in Section 6.5.1 and Appendix F. |
| **B35(f)(i)22** | • ensuring loaded vehicles entering or leaving the site have their loads covered or contained and leave site in a forward direction; | Section 6.4.1 | Load covering and forward-direction egress are included as safety procedures in the driver induction and training content at Section 6.4.1.1 and Table 6.1. |
| **B35(f)(i)23** | • a schedule for the periodic inspection and maintenance of the condition of all local roads used by development-related traffic; | Sections 6.4.3 and 6.4.4 | Section 6.4.3 requires weekly internal site audits during active works, including inspection of road dilapidation, road shoulders, drainage assets and traffic control devices. Section 6.4.4 sets the independent dilapidation survey schedule. |
| **B35(f)(i)24** | • responding to any emergency repair or maintenance requirements; | Section 6.4.5 | Section 6.4.5 requires the Construction Manager to assess identified emergency repair or maintenance issues, implement interim traffic management measures, and undertake repairs as soon as practicable in consultation with the relevant road authority. |
| **B35(f)(i)25** | • provisions for maintaining emergency vehicle access to the site at all times; | Section 6.5 | Section 6.5 requires emergency services to be notified at least five days before any lane closure and consulted on proposed changes to traffic conditions. Section 6.3.3.1 requires access for residents and emergency vehicles to be maintained where possible. |

| ID | Condition of Approval | Where addressed | How addressed |
|---|---|---|---|
| **B35(f)(i)26** | • a traffic management system for managing over-dimensional vehicles; and | Sections 0, 5.1.3, 6.2.1, and 6.6.2 | Section 6.6.2 requires an OSOM Transport Management Plan, ROLs and a Temporary Traffic Management Plan with Traffic Guidance Schemes. OSOM movements are recorded and managed by the Construction Manager or delegate (Section 6.4.1.3). |
| **B35(f)(i)27** | • fatigue management; | Section 6.1 | Section 6.1.1 applies Zinfra's Fatigue Management Plan, requiring fatigue awareness training at induction, fitness for duty before travel, hazard reporting, and controls such as adjusted schedules, additional rest breaks or alternative drivers, with records maintained. |
| **B35(f)(ii)** | minimise the impacts of the road and intersection upgrades of the development; | Sections 4.4, 5.1.1, 6.3 and 6.6. | Section 6.3 provides traffic control measures to minimise impacts during construction of the Brays Lane passing bay and site accesses, including Traffic Guidance Schemes, lane controls, signage and maintenance of traffic flow. |
| **B35(f)(iii)** | minimises parking on the public road network; | Sections 4.3.5 and 5.4 | Sections 4.3.5 and 5.4 confirm all construction vehicles will be accommodated within the project site and will not encroach on public kerbside parking, with temporary shoulder restrictions on Brays Lane and Main Street discussed with Council. |
| **B35(f)(iv)** | maintain all roads and water-related infrastructure on site in a safe and serviceable condition; | Sections 6.4.3, 6.4.4 and 6.4.5 | Section 6.4.3 requires weekly audits of roads, road shoulders, drainage assets, signs and traffic control devices to confirm they remain safe and serviceable, with drain inspections under the Erosion and Sediment Control Plan and corrective actions tracked to close-out. |
| **B35(f)(v)** | restrict travel underneath Wallerawang Rail Bridge to light vehicles only; | Section 5.1.4 | Section 5.1.4 restricts travel beneath the Wallerawang Rail Bridges to light vehicles, with heavy and OSOM vehicles prohibited, no track upgrades within the curtilage, and the restriction included in site induction content (Section 6.1). |

| ID | Condition of Approval | Where addressed | How addressed |
|---|---|---|---|
| **B35(f)(vi)** | minimise the traffic noise impacts of the development; | Section 6.2.3 | Section 6.2.3 requires implementation of traffic noise and vibration controls including designated routes, daytime movements, full loads, avoidance of peak hours and speed restrictions, consistent with the Construction Noise and Vibration Management Plan. |
| **B35(g)** | include a drivers' code of conduct that addresses: | Section 6.1 and Appendix A | A Drivers Code of Conduct is provided at Appendix A and applied through the training requirements in Section 6.1. |
| **B35(g)(i)** | travelling speeds; | Section 6.1 and Appendix A | Speed limits are covered in site induction training and the Drivers Code of Conduct (Section 6.1 and Appendix A), with vehicle speed reductions on unpaved access tracks required under Section 6.2.3. |
| **B35(g)(ii)** | procedures to ensure that drivers to and from the development adhere to the designated heavy vehicles requiring escort and heavy vehicle routes; | Section 6.1 and Appendix A | Approved light, heavy and OSOM routes are covered at induction and in the Drivers Code of Conduct (Section 6.1), with adherence monitored through vehicle tracking cameras and dispatch controls (Sections 6.4.1.2 and 6.4.1.3). |
| **B35(g)(iii)** | procedures to ensure that drivers to and from the development implement safe driving practices; and | Section 6.1 and Appendix A | Safe driving practices are addressed through site induction, toolbox talks, daily pre-start meetings and the Drivers Code of Conduct (Section 6.1 and Appendix A). |
| **B35(g)(iv)** | including a detailed program to monitor and report on the effectiveness of these measures and the code of conduct. | Section 2 and 6.4 and Appendix A | Section 2 requires the Construction Manager to monitor driver adherence to the Drivers Code of Conduct. Monitoring, audits and reporting are provided in Sections 6.4, with results summarised in the monthly site report. |
| **B35(h)** | include a program to: | | |
| **B35(h)(i)** | ensure drivers working on the development receive suitable training on the code of conduct and any other relevant obligations under the Traffic and Transport Management Plan; | Section 6.1 and Appendix A | Section 6.1 requires all site workers to complete induction training covering traffic and transport requirements, supported by targeted toolbox talks and daily pre-start meetings, with records kept of all inductions and briefings. |

| ID | Condition of Approval | Where addressed | How addressed |
|---|---|---|---|
| **B35(h)(ii)** | record and track vehicle movements; and | Sections 6.4.1.2, 0, and 6.4.3 and Appendix A | Section 6.4.1.2 requires vehicle tracking camera systems with Automatic Number Plate Recognition at the site office and all site access points, with movements reviewed weekly against forecast volumes (Section 6.4.1.3). |
| **B35(h)(iii)** | monitor and publicly report on the effectiveness of these measures. | Sections 6.4.1 and 6.7 and Appendix A | Section 6.4.1 confirms effectiveness will be assessed through the Project's Independent Environmental Audits, with reports published to the Project website in accordance with Sections 6.4.7 and 7.2. |
| **B35(i)** | a flood response plan detailing procedures and options for safe access to and from the site in the event of flooding. | Section 7.1.1 and Appendix F | Section 6.5.1 confirms flood emergency response is covered by the Project's Flood Risk Management Plan, provided at Appendix F. |
| **B46(i)** | An emergency plan must be prepared for the development. The plan must;<br>(i) include emergency management and evacuation procedures and identification of specific emergency exit routes to be used in the case of flood and include evidence of access agreements with relevant landowners (e.g. right of carriageway); | Section 7.1.1 and Appendix F | Section 6.5 confirms emergencies will be managed under the Project's Emergency Management Plan and sub-plans, with flood emergency procedures and exit routes provided in the Flood Risk Management Plan at Appendix F. |

Table 1.2 Traffic mitigation and management measures

| ID | Mitigation Measure | Where addressed | How Addressed |
|---|---|---|---|
| **Traffic management and road network performance** | | | |
| **T1** | A Traffic and Transport Management Plan (TTMP) will be developed and implemented as part of the CEMP, in consultation with relevant stakeholders. The plan will detail processes and responsibilities to minimise traffic disruptions and delays, to identify and to respond to changes to road access. The TTMP will include; | This Plan. | This Plan is the TTMP and forms part of the CEMP. Roles and responsibilities are provided in Section 2 and stakeholder consultation in Section 6.7 and Table 6.2. |
| **T1(a)** | Consultation and approval of road designs from Lithgow City Council for any proposed minor road work, such as a passing bay on the shoulder of Brays Lane. The need for a passing bay will be determined in consultation with relevant road authorities. | Sections 4.4, 5.1.1, 6.3, 6.6.1, 6.6.4 and 6.7.3 | Sections 4.4 and 5.1.1 confirm that the Brays Lane passing bay will be designed and constructed in consultation with and to the satisfaction of Lithgow City Council. Council approval |

| ID | Mitigation Measure | Where addressed | How Addressed |
|---|---|---|---|
| | | | requirements are addressed in Sections 6.6.4 and 6.7.3. |
| **T1(b)** | Maps of designated and approved heavy vehicle routes for heavy vehicles and oversize and overmass movements. | Sections 4.3.2 and 0 | Approved heavy vehicle routes are mapped in Figures 4.2 and 4.6 and OSOM routes in Figures 4.7 and 6.14, with approval status identified. |
| **T1(c)** | Traffic and transport permitting requirements, including oversize and overmass movements permits and road occupancy licences. | Section 6.6 | Section 6.6.1 sets out ROL requirements under Section 138 of the Roads Act 1993, applied for through OPLINC. Section 6.6.2 sets out OSOM permit requirements through the NHVR portal, including an OSOM Transport Management Plan and Temporary Traffic Management Plan. |
| **T1(d)** | Planning for heavy vehicle routes to access point 12 via Heel Street, as well as the alternate heavy vehicle route for access points 4 and 5, which are to be confirmed through consultation with Lithgow City Council. | Sections 4.3.2 and 6.7 (noting that Access Point 5 is no longer proposed for use) | Section 4.3.2 confirms travel to Site Access 12 is via Great Western Highway, Barton Avenue and Cripps Avenue. Routes for the Brays Lane access points were confirmed through consultation with Lithgow City Council (Sections 6.6.4 and 6.7 and Appendix G). |
| **T1(e)** | Transmission line stringing across the Main Western Rail Line to be undertaken within scheduled rail shutdown period (i.e. planned rail maintenance) or as agreed with the appropriate rail authority. | Sections 5.2, 6.6.3 and 6.7 | Section 6.6.3 records consultation with UGL Regional Linx on 29 June 2026 regarding rail possession timetables, with forms to be completed closer to the possession date. Section 5.1.2 confirms stringing will occur during a planned rail shutdown. |
| **T1(f)** | Road closures (partial or full) will be planned during the road network off-peak periods, where possible. | Sections 5.1.2 and 6.3.1 | Section 5.1.2 confirms temporary closures of 30 to 60 minutes will take place outside morning and afternoon peak periods unless otherwise agreed by Lithgow City Council, with traffic control arrangements at Section 6.3.1. |
| **T1(g)** | A drivers' code of conduct for heavy vehicle safety. | Section 6.1 and Appendix A | A Drivers Code of Conduct is provided at Appendix A, covered in site induction and targeted training under Section 6.1, with adherence |

| ID | Mitigation Measure | Where addressed | How Addressed |
|---|---|---|---|
| | | | monitored by the Construction Manager (Section 2.2.2). |
| **T1(h)** | Requirements for drivers operating heavy vehicles on public roads. | Section 6.1 and Appendix A | Section 6.1 confirms training will include the requirements for drivers operating heavy vehicles on public roads, covered in Section 1.4 of the Vehicle Movement Plan and the Drivers Code of Conduct. |
| **T1(i)** | Measures to ensure the efficient delivery of equipment and construction materials. | Sections 4.3, 6.2.1 and 6.3 | Section 6.4.1.3 requires third-party suppliers to confirm delivery schedules with the Construction Manager, with heavy vehicle numbers allocated per entrance daily accounting for turnaround times. Vehicle Movement Plans set haul routes and access arrangements (Section 6.2.1). |
| **T1(j)** | Traffic control measures at construction access points and intersections, including | Sections 5.1, 6.2, 6.3, and 6.4 | Traffic control measures are provided through Traffic Guidance Schemes (Section 6.3 and Appendix B), Vehicle Movement Plans (Section 6.2.1) and the monitoring program (Section 6.4). |
| **T1(j)(i)** | left-in/ left-out turn movements at the Karawatha Drive/Castlereagh Highway intersection, including details of required signage for this arrangement to construction vehicles only | Section 6.3.4.2 | Section 6.3.3.2 provides the Left-in/Left-out arrangement for construction vehicles, with signage at appropriate approach distances, traffic controllers present, and a turnaround facility at Springvale Coal. Illustrated in Figures 6.8 and 6.9. |
| **T1(j)(ii)** | signage to prohibit the use of the unsealed track located south of the Karawatha Drive/Castlereagh Highway intersection | Section 6.3.4.2 (Figure 6.9) | The signage arrangement banning construction vehicles from the unsealed track is shown at Figure 6.9, with the prohibition included in driver induction content (Section 6.4.1.1). |
| **T1(j)(iii)** | internal site traffic management to ensure only one 19 metre articulated vehicle arrives and departs at any one time on Karawatha Drive | Section 6.3.4.2 and 6.4.1.1 | Section 6.3.3.2 requires site vehicle dispatch staff to stagger heavy vehicle arrivals and departures. Section 6.2.1 allocates designated access days to suppliers, with a traffic controller and dedicated radio channel where more than one vehicle is scheduled. |

| ID | Mitigation Measure | Where addressed | How Addressed |
|---|---|---|---|
| **T1(j)(iv)** | traffic control at the Frankfort Road/Boulder Road intersection, including the requirements for obtaining a road occupancy licence | Sections 5.1.1 and 6.6.1 (noting site access 1A is not recommended) | Section 5.1.1 confirms a substantial sight distance deficiency on the west approach to Site Access 1A and recommends Site Access 1 be used instead, removing the need for traffic control at this intersection. |
| **T1(j)(v)** | traffic management at Brays Lane and Main Street during stringing works, including the requirements for obtaining a road occupancy licence. | Sections 5.1.2, 6.3.1, 6.3.4.2 and 6.6.4 | Section 6.3.1 provides the traffic control arrangements for temporary closures during stringing (Figures 6.1 and 6.2), with detour routes at Figures 6.12 and 6.13. ROL requirements are set out in Section 6.6.1. |
| **T1(k)** | Measures to reduce construction traffic movements at Brays Lane/Castlereagh Highway. This will include reducing trips taken by personnel and contractors, such as carpooling and shuttle bus services. | Sections 6.2.1, 6.3.4.2 and 6.4 | Section 6.4 sets vehicle volume restrictions on Brays Lane of 27 light vehicles per hour and 18 heavy vehicles per hour. Carpooling is encouraged through the Vehicle Movement Plan (Section 6.2.1), with a shuttle bus to be considered if required. |
| **T1(l)** | Measures to monitor construction traffic movements occurring to and from the project footprint and between work areas, including the consideration of | Section 6.4 | A monitoring program is provided in Section 6.4.1 and summarised in Table 6.1, comprising driver training, vehicle tracking cameras, two-way radio coordination and route compliance checks. |
| **T1(l)(i)** | recording of vehicle entry and exit movements to ensure they are within the project's worst case peak traffic generation estimates | Section 6.4 | Section 6.4.1.2 requires camera systems with Automatic Number Plate Recognition at the site office and all access points. Section 6.4.1.3 requires weekly comparison against the Revised TTA peak estimates, with action triggered within 25% of the estimated peak. |
| **T1(l)(ii)** | undertaking visual traffic inspection during peak hours to identify any unacceptable queuing | Section 6.4.2 | Section 6.4.2 includes visual traffic inspection during peak hours to identify unacceptable queuing as an item on the daily traffic control checklist, recorded on the following day's checklist. |
| **T1(m)** | Measures for the protection of underground and above ground services and utilities, which may include speed restrictions to reduce dynamic | Section 6.2.3 | Section 6.2.3 requires speed restrictions to reduce dynamic loading and vibration and designated crossing points for |

| ID | Mitigation Measure | Where addressed | How Addressed |
|---|---|---|---|
| | loading and vibration and establishing designated crossing points for access tracks | | access tracks, to control vibration and protect underground and above ground services and utilities. |
| **T1(n)** | Consultation with other relevant project proponents to consider cumulative traffic impacts and identify the need for project-specific mitigation measures. | Section 6.7.7 | Section 6.7.7 confirms consultation has been undertaken with the identified proponents and no cumulative traffic impacts have been flagged, with monthly communication to continue where construction periods are expected to overlap. |
| **T1(o)** | Visual monitoring of the road shoulder condition will be undertaken at the intersection of Karawatha Drive / Castlereagh Highway intersection during the construction period to ensure surface degradation does not occur, should vehicles inadvertently track off the sealed carriageway. | Section 6.4.3 | Section 6.4.3 includes inspection of Karawatha Drive / Castlereagh Highway to identify road dilapidation conditions as a specified item in the weekly internal site audits, with corrective actions assigned and tracked. |
| **Potential access impacts** | | | |
| **T2** | Where temporary disruption to access cannot be avoided, consultation will be undertaken with the owners, occupants and managers of affected properties and road infrastructure to confirm their access requirements and determine any alternative arrangements required. | Section 6.7.6 | Section 6.7.4 requires access to adjoining properties to be maintained at all times unless otherwise agreed, identifies the potentially affected landowners, and provides for consultation meetings arranged by the Project Engagement Lead to agree alternative arrangements. |
| **Impacts on local roads** | | | |
| **T3** | Road dilapidation surveys will be undertaken of Brays Lane and Karawatha Drive, prior to and following the completion of construction, and provided to the relevant road authority.<br>Condition monitoring will be carried out during construction.<br>Rectification measures will be implemented to the satisfaction of the road owner, during and/or following completion of construction, to address any damage caused by the project. | Sections 6.4.3 and 6.4.4 | Section 6.4.4 provides for independent dilapidation surveys before, annually during and within one month of completing works, with rectification timeframes and a repair report prepared in consultation with the relevant roads authority. Weekly condition monitoring is undertaken under Section 6.4.3. |
| **Intersection sight distance** | | | |
| **T4(a)** | Confirmation of safe sight distances for all proposed access points' will be undertaken when preparing the TTMP in consultation with the relevant road authority. | Section 5.1.1 | Section 5.1.1 records the site visit observations confirming the sight distance deficiencies identified by desktop analysis in the Revised |

| ID | Mitigation Measure | Where addressed | How Addressed |
|---|---|---|---|
| | | | TTA at Site Accesses 1A, 1 and 3, illustrated in Figures 5.1 to 5.3. |
| **T4(b)(i)** | Mitigation measures to meet safe sight distances at proposed access points and intersections will be adopted for intersection of Boulder Road/Frankfort Road requiring traffic control | Section 5.1.1 (noting site access 1A is not recommended) | Section 5.1.1 confirms a substantial sight distance deficiency on the west approach due to change in elevation, and recommends Site Access 1 be used in place of Site Access 1A. |
| **T4(b)(ii)** | Mitigation measures to meet safe sight distances at proposed access points and intersections will be adopted for: intersection of Boulder Road/Mount Piper Power Station access road requiring vegetation trimming | Section 5.1.1 | Section 5.1.1 confirms vegetation obstruction on the east approach at Site Access 1 requiring trimming to remove branches. Council has concurred with the trimming, noting it occurs on Energy Australia land (Section 6.6.4). |
| **T4(b)(iii)** | Mitigation measures to meet safe sight distances at proposed access points and intersections will be adopted for intersection of Castlereagh Highway/Karawatha Drive requiring Left-in/Left-out access arrangement. | Section 5.1.1 | Section 5.1.1 confirms the sight distance deficiency on the north approach at Site Access 3, mitigated by the Left-in/Left-out arrangement for construction vehicles detailed in Section 6.3.3.2 and shown in Figures 6.8 and 6.9. |
| **T4(c)** | All mitigation measures will be developed in consultation with the relevant road authority. | Section 6.6 and 6.7 | Consultation with Lithgow City Council, TfNSW, NPWS and UGL Regional Linx is recorded in Section 6.7 and Table 6.2, with Council and TfNSW responses provided at Appendices C and E. |
| **T4(d)** | Ongoing consultation with Transport for NSW will occur for improving the existing road sign on the southern approach to the Boulder Road / Castlereagh Highway intersection. | Section 6.3.4.2 | Section 6.3.3.2 confirms further consultation with TfNSW is required to improve the existing sign, with the proposed sign change identified in Figure 6.7. |
| **Brays Lane bridge crossings** | | | |
| **T5** | Prior to using Brays Lane by proposed heavy vehicles and OSOM equipment, a suitably qualified structural engineer will assess the structural integrity of two bridge culvert crossings. Where structural load restrictions are identified, alternative routes for heavy vehicles and equipment, including the use of Access Points 1, 1a or 2, will be identified and discussed with the relevant road authority. | Sections 4.3.2, 5.1.3, 6.6.2, and 6.7 | Section 4.3.2 confirms the Revised TTA revoked OSOM use of Brays Lane and that all construction vehicles using the road will be under 43 t, on which basis Lithgow City Council waived the structural assessment requirement. Council's correspondence is at Appendix G. |
| **Construction Traffic Noise** | | | |

| ID | Mitigation Measure | Where addressed | How Addressed |
|---|---|---|---|
| **NV7** | Management of construction traffic noise on local roads will be included in the CNVMP. The CNVMP will consider the following controls:<br>– scheduling and routing of construction traffic to minimise impacts using the following principles:<br>– more even distribution of traffic movements across the various access roads during the daytime period to reduce the peak 1-hr period traffic noise levels<br>– scheduling of movements at less-sensitive times for impacted receivers.<br>– implementing temporary construction traffic speed limits on access roads in the vicinity of potentially impacted noise sensitive receivers | Sections 6.2.3 | Section 6.2.3 applies construction traffic noise controls in line with the CNVMP. These include spreading traffic movements more evenly across access roads, limiting movements to daytime as the less-sensitive period for impacted receivers, and temporary speed limits on access roads near potentially impacted noise sensitive receivers. |
| **Wallerawang Rail Bridges over Coxs River** | | | |
| **HH2** | Use of the existing access road within the heritage curtilage for Wallerawang rail bridges over Coxs River (SHR #01064) will be limited to light vehicles to avoid impact on the bridge heritage fabric or values of the bridges. Signage will be erected and maintained during construction advising of the height limitations. No upgrades to this track are to occur within the curtilage area of the item. | Section 5.1.4 | Section 5.1.4 restricts travel beneath the bridges to light vehicles, prohibits heavy and OSOM vehicles, and confirms no track upgrades within the curtilage. The ban is included in site induction content (Section 6.1). Signage requirements are managed under the HHMP (Section 5.1.1.1). |
| **Impacts on Centennial Coal Springvale operations** | | | |
| **LU3** | Confirmation of requirements for use of internal roads within Centennial Coal's Springvale site will be sought through ongoing consultation prior to and during construction.<br>Details of any specific requirements would be included in the Traffic and Transport Management Plan. | Section 6.7 | Section 6.7.1 confirms use of Access Point 2 was agreed with Centennial Coal during the EIS process, with monthly ongoing consultation led by the Project Engagement Lead focused on managing access so heavy vehicles enter one at a time. |
| **Impacts on the SCA** | | | |
| **LU4** | Access for NPWS personnel will be maintained, where required, and will be determined in consultation with NPWS. Details of any specific requirements would be included in the TTMP. | Section 5.1.5 | Section 5.1.5 confirms access for NPWS will be maintained where required, with the Project Engagement Lead keeping NPWS appraised of construction traffic movement plans. NPWS consultation is recorded in Sections 6.6.5 and 6.7 and Table 6.2. |

| ID | Mitigation Measure | Where addressed | How Addressed |
|---|---|---|---|
| **Cumulative Impacts** | | | |
| **C1** | Coordination and engagement with proponents and/or construction contractors of relevant future projects will occur during detailed design and prior to construction to confirm timing of construction.<br>Coordination and engagement will include:<br>• providing regular construction program updates<br>• identifying potential conflict and constraints points with other relevant future projects, e.g. proximity of work sites, or shared construction access routes and traffic management requirements, accommodation requirements<br>• developing mitigation strategies in order to manage conflicts and constraints that may arise. | Section 6.7 | Section 6.7.7 lists the eleven projects contacted and confirms no cumulative traffic impacts have been identified. Monthly communication by the Project Engagement Lead will confirm start dates and identify overlapping elements, with mitigation such as staggered start times or delivery scheduling implemented where required. |

## 1.3 Legislation and regulatory requirements

Legislation relevant to traffic and transport include:

- Roads Act 1993
- Road Transport Act 2013
- Transport Administration Act 1988
- Local Government Act 2013
- Heavy Vehicle National Law (including the NSW Heavy Vehicle (Adoption of National Law) Act 2013 and Heavy Vehicle (Adoption of National Law) Regulation 2022).

Identified regulatory requirements are:

- Approved and valid Road Occupancy Licences (ROL)
- Approved relevant Speed Zone Authorisations (SZA)
- Australian Road Rules
- Heavy Vehicle (Fatigue Management) National Regulation
- National Transport Commission (2018) Australian Code for the Transport of Dangerous Goods by Road and Rail.

Legislation relevant to traffic management also includes the Environmental Planning and Assessment Act 1979 (EP&A Act), under which the project approval was granted. Relevant provisions of the EP&A Act are explained in the register of legal and other requirements included in the CEMP.

Relevant provisions of the above legislation are identified in the register of legal requirements included the CEMP.

## 1.4 Staging Report

A Staging Report has been developed in accordance with Condition C4-C6. Revision 2.1 of the Staging Report was endorsed by the Environmental Representative (ER) on 8 September 2026.

The Staging Report identified 3 stages. These Stages have the same meaning as the terms defined in the Infrastructure Approval. The Stages are;

- Pre-Construction
- Construction
- Operation

Future stages, including upgrading and decommissioning will be addressed through future revisions of the Staging Report, as required. Following endorsement of the Staging Report, Transgrid submitted a Staging Request to the Planning Secretary for staging specific to the TTMP in accordance with Condition C7 which was approved by DPHI on 28 August 2026.

In accordance with the Staging Request, this Management Plan addresses the construction stage only. As such, operational impacts to traffic and transport, and operational mitigation measures and monitoring do not fall within the scope of this TTMP and are not addressed within the processes contained within this plan. Requirements applicable to the remaining stages, including operation, upgrading and decommissioning, will be addressed in a separate document prior to commencement of the relevant stage.

The Staging Report and Staging Request are subject to update where the project staging arrangements are revised or further stages are progressed.

# 2 Roles, responsibilities and communication

Traffic and transport-related issues will be coordinated by the site superintendent, and the construction site managers as required. The construction site manager or their delegate will be responsible for the review and update of this Plan in accordance with Condition C3 of the Conditions of Approval as well as for ensuring that all of the requirements of the plan are being met. Regular communication between the construction site manager, the project delivery team and contractors are also required to coordinate major deliveries.

A specific monitoring program will be implemented by the construction site manager to determine actual vehicle movements throughout various stages of the project and make comparisons with the initial estimates and subsequently review the control measures and safeguards. The details of this monitoring program are detailed in Section 6.4.1.

Specific responsibilities for the implementation of traffic and transport controls are detailed in Table 2.1 below.

Table 2.1 Roles and Responsibilities

| Role | Responsibilities |
|---|---|
| **Project Manager** | • Ensure all works are completed safely, efficiently and in compliance with the Conditions of Approval and mitigation measures.<br>• Provide the resources required to develop, implement and monitor traffic management plans and strategies.<br>• Ensure employees and subcontractors have the skills and training required for worksite traffic management and understand their responsibilities.<br>• Ensure identified traffic and transport hazards are controlled.<br>• Ensure incidents and non-compliances are recorded, closed out and addressed within appropriate timeframes.<br>• Ensure relevant approvals, permits and agreements are obtained for works and vehicle movements affecting public roads, including OSOM movements.<br>• Ensure repairs to road and infrastructure damage caused by construction activities are completed.<br>• Determine whether additional monitoring or notifications to Police, road authorities or asset owners are required following an incident, in consultation with the Project Engagement Lead.<br>• Consult emergency services about proposed changes to traffic conditions and ensure they are notified at least five days before any lane closure.<br>• Initiate incident investigations promptly and determine the investigation scope, team composition and reporting requirements.<br>• Ensure implementation and review of this Plan and associated traffic controls. |
| **Construction Manager** | • Implement this Plan and ensure approved traffic management measures are implemented and maintained on site.<br>• Coordinate the design, approval, construction, inspection and maintenance of the Brays Lane passing bay, including implementation of the approved Traffic Guidance Scheme and verification that the passing bay is operational before heavy construction vehicles commence using Brays Lane.<br>• Carry out regular inspections of traffic control measures and identify congestion or unsafe conditions requiring improvement. |

| Role | Responsibilities |
|---|---|
| | • Monitor weather conditions and road closures, advise drivers and workers of changed conditions, and identify alternative routes where possible.<br>• Review and update this Plan and Vehicle Movement Plans as required to keep them current and effective.<br>• Facilitate traffic awareness training, daily pre-start meetings, toolbox talks and refresher briefings.<br>• Arrange traffic control audits, document findings and implement audit close-outs.<br>• Monitor driver compliance with the Drivers Code of Conduct and Zinfra Fatigue Management Plan.<br>• Maintain the schedule of out-of-hours work and reschedule traffic-generating activities to standard construction hours where practicable.<br>• Develop and communicate schedules for development traffic and heavy vehicle movements to avoid peak periods, minimise convoys and coordinate access-point use.<br>• Implement and administer the traffic monitoring program before construction and throughout active works.<br>• Review vehicle tracking data and actual vehicle movements weekly against forecast limits; investigate deviations and implement additional controls where required.<br>• Administer weekly monitoring activities and summarise results in the monthly site report.<br>• Complete, or delegate completion of, daily traffic control checklists before construction activities and rectify or escalate deficiencies.<br>• Undertake, or appoint a traffic management delegate to undertake, weekly internal site audits during active works.<br>• Verify reports of road or infrastructure damage and organise rectification within the required timeframes.<br>• Coordinate road dilapidation surveys, road repairs and reporting to relevant roads authorities.<br>• Assess emergency repair or maintenance issues, implement interim traffic controls and coordinate repairs with the relevant road authority.<br>• Assess deficiencies identified through monitoring, inspections, audits, incidents, complaints or non-compliances; assign corrective actions and timeframes and verify close-out.<br>• Receive traffic-related community issues and feedback and implement the monitoring and compliance processes in this Plan.<br>• Coordinate with UGL Regional Linx so construction trips can be scheduled to avoid freight train movements where practicable.<br>• Implement construction traffic noise and vibration controls, including route, timing, loading, speed and access requirements. |
| **Project Engagement Lead** | • Consult Lithgow City Council and monitor social media monthly for planned events, and advise the Project Manager so traffic movements and road closures can be planned accordingly.<br>• Coordinate consultation with Lithgow City Council regarding the design, construction timing, traffic controls, inspection and acceptance of the Brays Lane passing bay.<br>• Keep NPWS appraised of construction traffic movement plans throughout construction on an as-needs basis.<br>• Lead consultation with road authorities, councils, emergency services, adjoining landowners and other stakeholders on significant traffic and transport matters.<br>• Manage and respond to complaints in accordance with the Community Communication Strategy and CEMP. |

| Role | Responsibilities |
|---|---|
| | • Lead monthly consultation with Centennial Coal on access arrangements and management of heavy vehicle movements at Access Point 2.<br>• Organise consultation with adjoining landowners where required and arrange alternative access where property access is disrupted or required by Project personnel.<br>• Continue consultation with Buslines Group regarding expected traffic disruptions, delays and other relevant matters.<br>• Lead event-based consultation with NPWS regarding traffic conditions and access issues, including emergency access.<br>• Communicate monthly with other project proponents where construction periods may overlap and coordinate mitigation measures for cumulative traffic impacts.<br>• Consult with the Project Manager on additional stakeholder or regulator notifications following incidents. |
| **Transgrid Project Manager** | • Receive immediate notification of incidents from Zinfra.<br>• Support incident notification and reporting undertaken by Zinfra through Transgrid. |
| **Zinfra Environmental Business Partner** | • Notify the Department and NPWS through Transgrid within 24 hours of becoming aware of an incident.<br>• Provide the subsequent incident report to the Department and NPWS through Transgrid within seven days of the incident notification, unless otherwise agreed by the Planning Secretary.<br>• Submit any further incident reports directed by the Planning Secretary through Transgrid.<br>• Ensure Zinfra provides the information required to support Transgrid non-compliance notifications. |
| **Transgrid Environmental Business Partner** | • Notify the Department through the Major Projects website within seven days of becoming aware of a non-compliance that is not classified as an incident.<br>• Use information provided by Zinfra to identify the non-compliance, reasons, corrective actions and expected completion timing. |
| **Transgrid** | • Implement road upgrades required by the Infrastructure Approval in accordance with the relevant standards and timing requirements.<br>• Make the approved Plan available on the Project website as soon as practicable after Planning Secretary approval and keep it up to date.<br>• Publicly report on environmental performance by uploading Independent Environmental Audit reports to the Project website.<br>• Review the Plan during the operation stage and ensure it remains consistent with approved operations. |
| **Site Supervisor / Zinfra Supervisor** | • Implement the signage monitoring and maintenance program.<br>• Develop and maintain the database of installed signage and conduct monthly signage audits.<br>• Inspect signage for legibility, reflectivity, damage or removal and arrange cleaning or replacement as soon as feasibly practicable.<br>• Track third-party supplier delivery schedules and allocate daily heavy vehicle numbers for each site entrance.<br>• Undertake day-to-day management of heavy vehicle and OSOM movements where delegated by the Construction Manager. |

| Role | Responsibilities |
|---|---|
| | • Observe driver and traffic-control compliance and record issues and corrective actions. |
| **Traffic Management Delegate** | • Undertake daily traffic control checks, weekly internal site audits, monitoring, inspections and corrective-action verification when delegated by the Construction Manager.<br>• Assist with review of traffic controls, site access conditions, surrounding roads, queuing and public infrastructure condition.<br>• Escalate deficiencies and safety issues to the Construction Manager. |
| **Traffic Controller** | • Implement traffic controls, road and lane closures, detours and intersection controls in accordance with approved Traffic Guidance Schemes.<br>• Manage heavy vehicle movements on Karawatha Drive when 19 m heavy vehicles are scheduled to use the access.<br>• Use the designated radio channel to coordinate vehicle movements and stagger arrivals and departures.<br>• Direct cyclists, motorists and other road users during temporary closures where required.<br>• Observe driver compliance and report congestion, unsafe movements or non-conformances to site management. |
| **Vehicle Dispatcher / Site Vehicle Dispatch Staff** | • Monitor and release heavy vehicles at active site entrances.<br>• At Access Point 3, release trucks to avoid simultaneous use of the Castlereagh Highway and Karawatha Drive intersection.<br>• Allocate timeslots for third-party delivery vehicles travelling from the Main Street site office to Karawatha Drive.<br>• Coordinate movements by radio and ensure only one articulated heavy vehicle up to 19 m arrives or departs Karawatha Drive at a time. |
| **Construction Contractor / Zinfra** | • Develop Vehicle Movement Plans progressively for each work site before construction commences at that site and review them throughout construction.<br>• Construct the temporary passing bay on the southern shoulder of Brays Lane in accordance with the design and materials approved by Lithgow City Council. Complete the passing bay before heavy construction vehicles commence using Brays Lane and maintain it in a safe and serviceable condition throughout construction.Establish Site Access 6 before it is used by construction vehicles.<br>• Enter incidents into OMNIA within 24 hours.<br>• Provide information to Transgrid for incident and non-compliance notifications and reports.<br>• Complete rail possession forms closer to the proposed rail possession date.<br>• Implement required road, access, signage, traffic-control and repair works. |
| **Suitably Qualified Structural Engineer / Specialist** | • Undertake structural assessments required for bridges or crossings proposed to carry construction or OSOM vehicles.<br>• Confirm structural capacity and identify any load restrictions or alternative route requirements.<br>• Provide appropriately qualified input to transport strategies, assessments and OSOM planning where required. |
| **Project Ecologist** | • Identify additional high-risk locations where wheel-wash systems are required. |

| Role | Responsibilities |
|---|---|
| **All Project Personnel, Contractors and Visitors** | • Complete site induction and relevant traffic and transport training before commencing work.<br>• Comply with approved routes, access restrictions, speed limits, traffic controls, communication protocols and the Drivers Code of Conduct.<br>• Participate in pre-start meetings, toolbox talks and refresher training as required.<br>• Report incidents, non-compliances, fatigue hazards and observed road or infrastructure damage.<br>• Use designated parking areas and avoid parking on the public road network.<br>• Follow directions issued by the Construction Manager, supervisors, traffic controllers and vehicle dispatch staff. |
| **Drivers and Vehicle Operators** | • Be fit for duty before commencing travel and report actual or potential fatigue hazards to their supervisor.<br>• Use approved haulage routes and travel times and comply with vehicle size, weight, turning and access restrictions.<br>• Comply with radio communication protocols and carry, or be accompanied by a person carrying, a radio where required.<br>• Ensure loads are covered or contained and vehicles leave the site in a forward direction.<br>• Comply with the prohibition on heavy vehicle travel beneath the Wallerawang Rail Bridges and other site-specific restrictions.<br>• Avoid queuing on Castlereagh Highway and follow directions to continue to another access point when required.<br>• Use safe driving practices and comply with the Drivers Code of Conduct and fatigue controls. |
| **Third-Party Suppliers and Delivery Drivers** | • Confirm delivery schedules with the Construction Manager or delegate for the relevant workday.<br>• Attend site induction before entering the site, including for OSOM deliveries.<br>• Travel to the Main Street site office when directed and use allocated delivery timeslots and approved routes.<br>• Comply with access-point allocations, radio controls, signage, traffic directions and vehicle movement restrictions.<br>• Provide a completed Hygiene Inspection Form before site entry and ensure vehicles and machinery meet hygiene requirements. |
| **Spotter** | • Coordinate vehicle movements in areas with restricted sight distance using two-way communication. |

# 3 Existing conditions

## 3.1 Project site

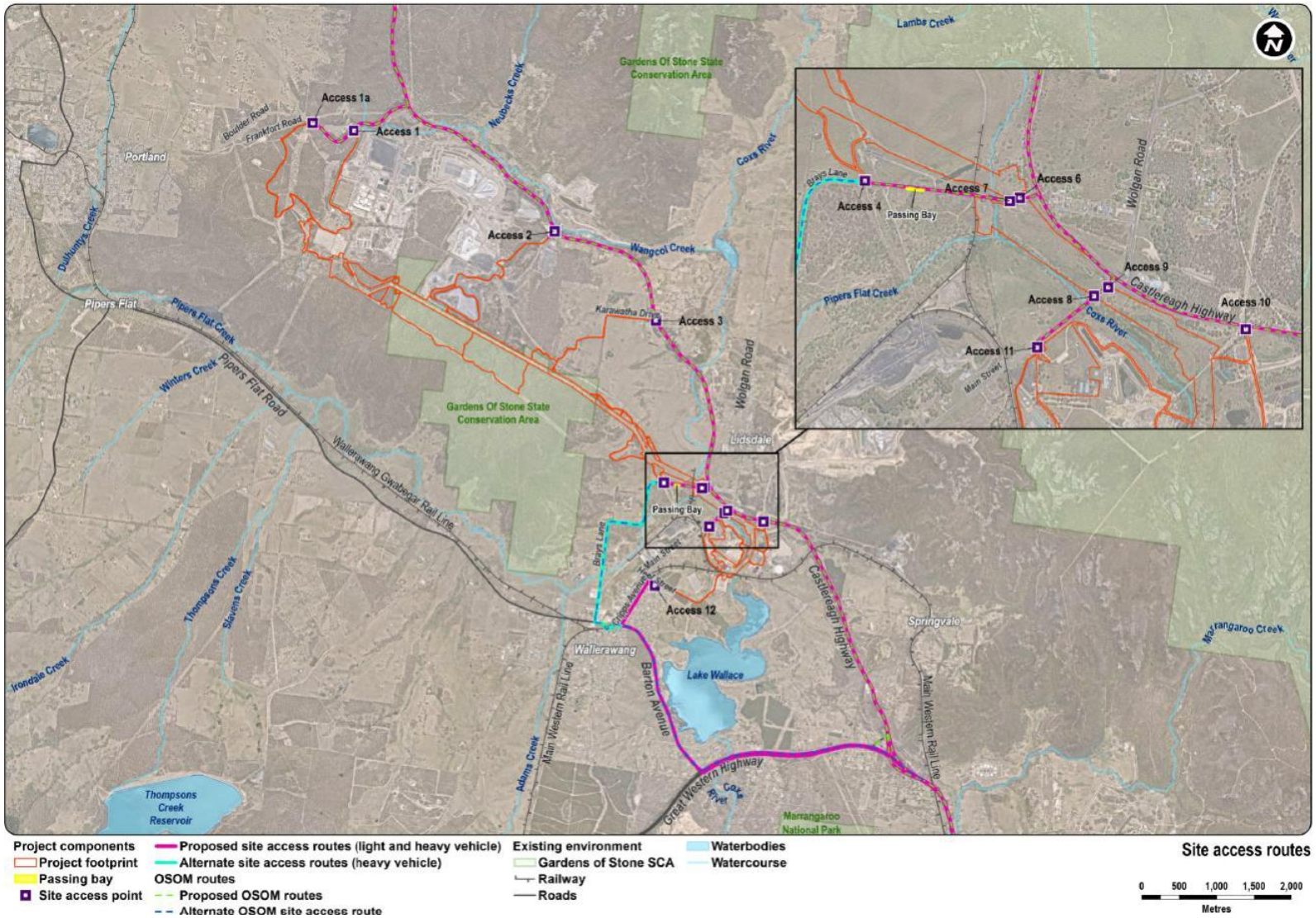
The project is located within the Lithgow Local Government Area (LGA) in the Central West region of NSW, between Mount Piper and Wallerawang, approximately 14 kilometres (km) north-west of Lithgow.

The project area covers the public roads that are affected by the construction of the project and is shown in Figure 3.1. The project's construction traffic routes are comprised of the following public roads and extents:

- Castlereagh Highway between Great Western Highway and Boulder Road
- Boulder Road between Castlereagh Highway and Frankfort Road
- Brays Lane between Castlereagh Highway and Pipers Flat Road
- Main Street between Castlereagh Highway and Pipers Flat Road

The following roads would be used by Oversize Overmass (OSOM) vehicles:

- Great Western Highway between Castlereagh Highway (Lithgow) and Barton Avenue
- Cripps Avenue between Barton Avenue and Heel Street
- Heel Street between Cripps Avenue and James Parade/Blaxland Street
- Barton Avenue between Great Western Highway and Pipers Flat Road
- Pipers Flat Road between Main Street and Barton Avenue




*Source: Mount Piper to Wallerawang Transmission Line Upgrade (from Figure 4-2 of Appendix 4 of the Infrustructure Approval document)*

Figure 3.1 Key roads, intersections and access points

## 3.2 Road network

The locations and the characteristics of the construction traffic routes are detailed below. These are public roads that would provide access to vehicles performing construction activities and are comprised of state roads and regional roads connected with a network of sealed local roads.

### *3.2.1 Castlereagh Highway*

Castlereagh Highway is a State Highway that runs broadly north-south between the Great Western Highway, Lithgow to the south and the Queensland border to the north. Within the proximity of the project area, Castlereagh Highway is generally a bidirectional single carriageway with one lane in each direction and additional turning and overtaking lanes at some sections. The posted speed limit on this section is generally 100 km/h, reducing to 80 km/h surrounding the intersections with Main Street and Brays Lane. Castlereagh Highway is an approved B-double route.

### *3.2.2 Great Western Highway*

Great Western Highway is a State Highway that runs east-west between Sydney to the east and Bathurst to the west. It is a major freight route between Sydney and Central Western New South Wales. The section of Great Western Highway near the project area is a bidirectional dual carriageway with two through lanes in each direction and turning lanes at intersections, particularly at its unsignalized at-grade intersection with Barton Avenue. This section has a posted speed limit of 110 km/h, apart from the flyover intersection with Castlereagh Highway where it reduces to 100 km/h. The section of Great Western Highway between Castlereagh Highway and Barton Avenue is an approved B-double route.

### *3.2.3 Brays Lane*

Brays Lane is a local road that runs broadly northeast-southwest between Castlereagh Highway and Pipers Flat Road, acting as local town bypass and alternative route to Main Street. It is a bidirectional single carriageway with one travel lane in each direction intersecting with both Castlereagh Highway and Pipers Flat Road at unsignalized intersections. The posted speed limit is 80 km/h until the intersection with Blackberry Lane where it reduces to 50 km/h.

### *3.2.4 Main Street*

Main Street is a local road that runs northeast-southwest between Castlereagh Highway and Pipers Flat Road, running parallel to the Main Western Railway Line in Wallerawang. It acts as a local-collector road providing local access to Wallerawang from Castlereagh Highway at an unsignalized at-grade intersection. Main street is a bidirectional single carriageway with provisions for kerbside parking on both sides. It has a posted speed limit of 50 km/h for its entire length. Main Street intersects with a spur of the Main Western Railway at a level crossing approximately 490 m south of Castlereagh Highway. This route is approved for B-double access only in emergency situations when directed by RMS personnel or NSW Police.

### *3.2.5 Boulder Road*

Boulder Road is a local road that runs east-west between Castlereagh Highway to the east and Frankfort Road in Portland to the west. Boulder road primarily provides vehicle access to the Mount Piper Power Station and supporting facilities, as well as acting as a collector connecting local streets in Portland to the Castlereagh Highway. The eastern portion near the power station is posted at 60km/h approaching the unsignalized at-grade intersection with Castlereagh Highway, while its western portion is posted at 80km/h.

### *3.2.6 Pipers Flat Road*

Pipers Flat Road is a Regional Road that runs northwest to southeast between Wallerawang Road in Portland and Barton Avenue in Wallerawang, parallel to the Gwabegar railway line. Pipers Flat Road primarily provides access between Portland and Wallerawang while also acting as a collector connecting local streets between these two locations. The

majority of the road is posted at 100 km/h, except for the sections in Portland (north of Bell Street) and Wallerawang (east of Old Pipers Flat Road) that are posted at 50 km/h. It is approved for B-double access only in emergency situations when directed by RMS personnel or NSW Police.

### 3.2.7 Cripps Avenue and Heel Street

Cripps Avenue is a local road that runs between Barton Avenue to the south and Heel Street to the north, paralleling south to the Main Western Railway Line. Cripps Avenue intersects with Barton Avenue at an unsignalized at-grade intersection. Heel Street is also a local road that acts as a continuation to Cripps Avenue, east towards the intersection with James Parade and Blaxland Street. Both streets provide connection to local residences as well as vehicle access to the Wallerawang Substation and are posted at 50 km/h for their entireties.

### 3.2.8 Barton Avenue

Barton Avenue is a Regional Road that runs north-south between Great Western Highway to the south and Pipers Flat Road to the north. It acts primarily as a regional collector road connecting the Wallerawang town centre to the Great Western Highway and surrounding towns. Barton Avenue is a bidirectional single carriageway with one through lane in each direction, widening to have slip lanes at the unsignalized at-grade intersection with Great Western Highway. Posted at 80 km/h at its southern portion, the speed limit reduces to 50 km/h when entering the built-up residential area at Wallerawang. It is approved for B-double access only in emergency situations when directed by RMS personnel or NSW Police.

## 3.3 Land use

The project area is located between the town of Wallerawang and the Mount Piper Power Station. The land use is comprised mainly of the Wallerawang residential settlement as well as industrial energy infrastructure and surrounding rural uses.

The small township of Wallerawang has 2,019 residents according to the 2021 Australian Bureau of Statistics data, where it is adjacent to the Great Western Highway, Castlereagh Highway as well as two freight railway lines (the Main Western rail line and the Wallerawang Gwabegar Rail Line). There are also community and heritage buildings in the township, such as churches and schools.

There are significant energy and industrial infrastructure, in the form of the former Wallerawang Power Station (which is being decommissioned, demolished and rehabilitated by Greenspot into future mixed land uses which may include industrial and commercial uses) and other electrical transmission infrastructure such as substations and transmission easements. Nearby, the Mount Piper Power Station is an existing coal-fired power station that comprises of major power generation infrastructure land uses such as industrial facilities, water supply, management areas and other transmission infrastructure.

In addition, the project footprint passes through the Gardens of Stone State Conservation Area, which is a protected national park with the NSW National Parks and Wildlife Service (NPWS) as the governing body.

## 3.4 Vehicle load, height, length and turn restrictions

The construction activities of the project will involve the use of heavy vehicles of various dimensions, mass and combinations. According to the National Heavy Vehicle Regulator (NHVR), which is responsible for administering the Heavy Vehicle National Law across Australia, heavy vehicles may have unrestricted access on the road network (unless signposted otherwise) until it exceeds dimensional and mass limits, at which point access restrictions will be assigned. This is assuming that these heavy vehicles already possess a current registration appropriate to the vehicle configuration and no specific access restrictions or additional permits are required.

These heavy vehicle restrictions are assigned based on the heavy vehicle classification, which includes the following:

- Restricted Access Vehicle (RAV) is defined as any single motor vehicle or combination with a combined load that exceeds the general access overall dimensions as defined in the Heavy Vehicle National Regulation. This includes articulated vehicles longer than 19 m.
- Oversize and/or overmass (OSOM) vehicles are defined by Transport for NSW as a heavy vehicle or combination that alone or together with its load, exceeds prescribed mass or dimension requirements. All OSOM vehicles need to be escorted.

Each of these heavy vehicle classifications are restricted from accessing certain parts of the road network unless additional permits are acquired. The approved heavy vehicle routes, based on the Transport for NSW Interactive Restricted Access Vehicle Map (which includes vehicles up to the size of a 26-metre-long B-double truck) and Transport for NSW Oversize Overmass Load Carrying Vehicles Network Map, are identified as the following:

- Castlereagh Highway
  - Currently approved for both RAV vehicles (26-metre-long B-double truck) and OSOM vehicles
- Great Western Highway
  - Currently approved for RAV vehicles (26-metre-long B-double truck) with travel of
  - OSOM vehicles restricted during peak periods on weekdays
  - Vehicles over 4.5 m wide not permitted during daylight
- Brays Lane
  - Currently not approved for both RAV vehicles (26-metre-long B-double truck) or OSOM vehicles
- Main Street
  - Currently approved with conditions for RAV vehicles (26-metre-long B-double truck)
  - Not currently approved for OSOM vehicles
- Boulder Road
  - Currently not approved for both RAV vehicles (26-metre-long B-double truck) and OSOM vehicles
- Pipers Flat Road
  - Currently approved with conditions for RAV vehicles (26-metre-long B-double truck)
  - Not currently approved for OSOM vehicles
- Cripps Avenue
  - Currently not approved for both RAV vehicles (26-metre-long B-double truck) and OSOM vehicles
- Heel Street
  - Currently not approved for both RAV vehicles (26-metre-long B-double truck) and OSOM vehicles
- Barton Avenue
  - Currently approved with conditions for RAV vehicles (26-metre-long B-double truck)
  - Not currently approved for OSOM vehicles

Notwithstanding the above (excluding OSOM vehicles), all construction vehicles (including light vehicles and heavy vehicles) associated with the project are proposed to be classed as General Access Vehicles (GAV) within the General Mass Limit (GML) according to the NHVR. The largest proposed heavy vehicle (excluding OSOM vehicles) will be 19-metre-long semitrailers and shorter concrete agitators, both of which are classed as GAVs that are within GML.

Therefore, based upon NHVR guidance, all construction vehicles (excluding OSOM vehicles) are suitable to traverse the public road network in Wallerawang without additional permits or assessments.

The conditions of approval impose additional requirements, such that unless the Planning Secretary agrees otherwise:

- In accordance with Condition B30, heavy vehicles (excluding heavy vehicles requiring escort such as OSOM vehicles) used for the development must not exceed 19 m in length.
- In accordance with Condition B31, development vehicles (excluding heavy vehicles requiring escort such as OSOM vehicles) are not permitted to turn right from Castlereagh Highway into:
  - Karawatha Drive
  - Brays Lane
  - Access Point 10 (described in Section 4.3.1)

## 3.5 Public Transport

### *3.5.1 Public bus routes*

In the project area, there are two bus routes that primarily run in the town of Wallerawang – Route 600 (Lithgow to Portland via Wallerawang) and Route 636 (Lithgow to Bathurst via Wallerawang & Portland). There are bus stops in Wallerawang, along Main Street, Pipers Flat Road and Barton Avenue. These bus routes also operate along the Great Western Highway. No public bus services operate along Castlereagh Highway.

Route 600 has a frequency of one service during the morning peak (7 am to 10 am and no services during afternoon peak (3 pm to 6 pm) as well as on weekend.

Route 636 has a frequency of one service during the morning peak (7 am to 10 am), one service during afternoon peak (3 pm to 6 pm) and one service on Saturday.

### *3.5.2 School bus routes*

There are a number of school bus services in the Project area that are operated by Lithgow Bus lines, such as:

- S369 Giraffe Bus - Lithgow to Wallerawang Public via Wallerawang, arriving at Wallerawang Public School at 8.53 am and departing Wallerawang Public School at 3.05 pm, using Barton Avenue, Main Street, Castlereagh Highway and Great Western Highway
- S361 Rhino Bus - Lidsdale to Wallerawang Public: arriving at Wallerawang Public School at 9.05 am and departing Wallerawang Public School at 3.05 pm using Pipers Flat Road, Boulder Road, Barton Avenue, Main Street, Castlereagh Highway and Great Western Highway
- S374 Butterfly Bus - Lithgow to Lithgow Schools via Wallerawang, passing through Barton Avenue, Wallerawang at 8.00 am and 4.25 pm, using Barton Avenue and Great Western Highway
- S364 Panda Bus - Portland to Lithgow Schools & Wallerawang Schools, parring through Barton Avenue, Wallerawang at 9.00 am and Vale Street Portland at 4.10 pm, using Pipers Flat Road, Barton Avenue, Main Street, Castlereagh Highway and Great Western Highway
- S366 Hippo Bus - Capertee to Lithgow Schools via Lidsdale, using the Castlereagh Highway at around 8.00 am and 4.10 pm.

### *3.5.3 Rail freight*

Within the project area, two freight rail lines are present: the Main Western rail line and the Wallerawang–Gwabegar Rail Line. The Main Western line includes a shared passenger section south of the project footprint. There is also a passive

level crossing at Brays Lane, as well as flashing lights level crossings at Pipers Flat Road and at Main Street that intersect active freight rail lines, where services are infrequent. Level crossing locations are shown in Figure 3.2.

## 3.6 Active Transport

Active transport infrastructure is defined as allocated off-road or on-road facilities for pedestrians and cyclists to travel. These can be provided in a mix of forms including visually separated, physically separated or segregated from the main traffic lanes or public transport corridor.

Based on the Transport for NSW cycleway finder, there are minimal dedicated active transport facilities in the project area, other than in the town of Wallerawang. The identified active transport facilities comprise of the following:

- Along the Castlereagh Highway Great Western Highway, there is available road shoulder for use by cyclists, although there are no dedicated facilities provided.
- General road cycling (where cyclists are in mixed traffic conditions) routes along Main Street, Barton Avenue and Pipers Flat Road.
- Shared paths (off-road paths for shared use by pedestrians and cyclists) are provided along a short section of Main Street and Barton Avenue within Wallerawang.
- Footpaths are generally not provided along most roads within the project area.

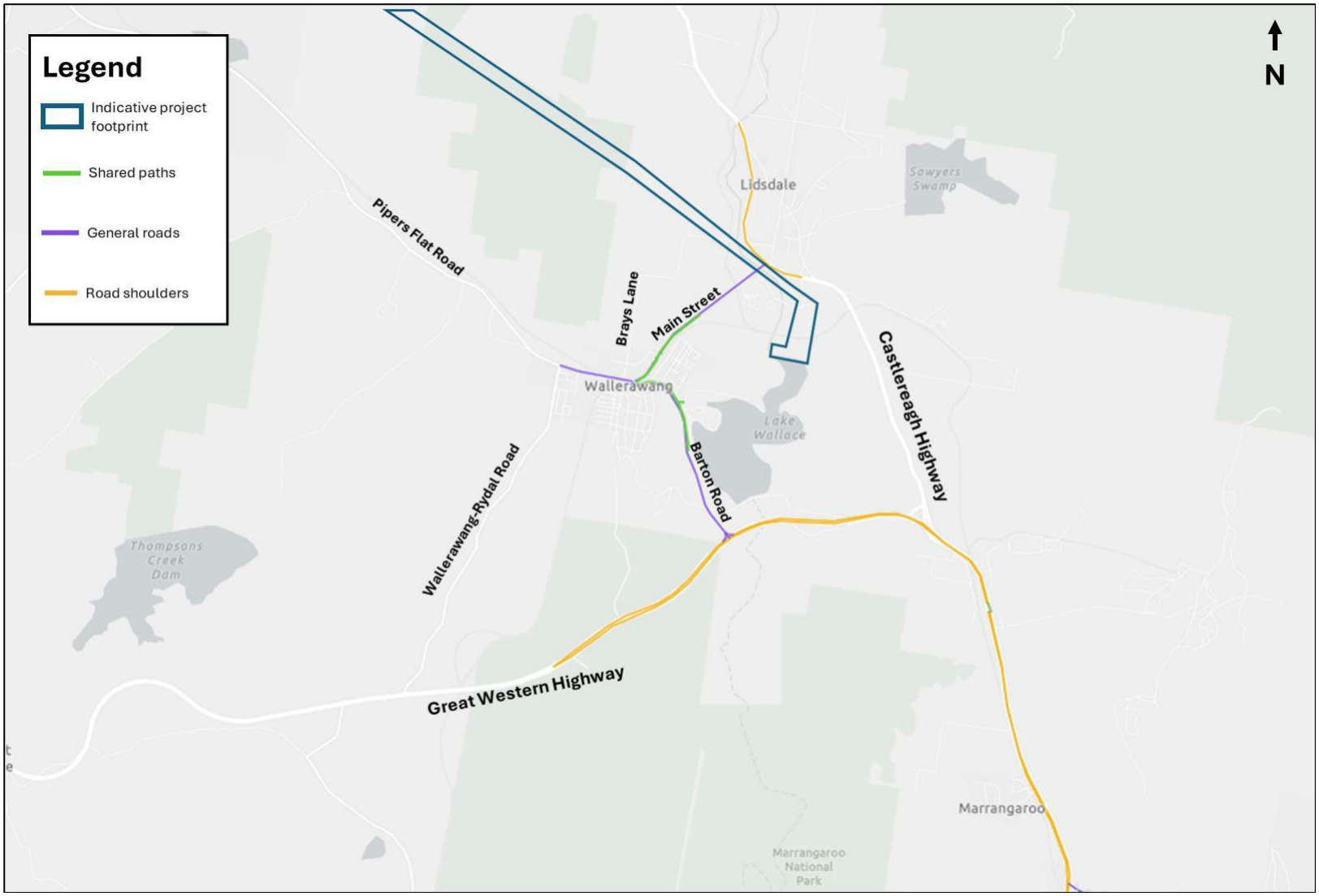
## 3.7 Planned events

The Project Engagement Lead will continue to consult with Lithgow City Council and monitor social media on a monthly basis to ensure that the Project Manager is aware of planned events occurring in the vicinity of the Project to enable appropriate planning of Project related traffic movements and road closures to reduce traffic related impacts on these events. It is noted that the Portland Art exhibition is held annually in the Crystal Theatre in Portland on the first weekend of March.




*Source: Mount Piper to Wallerawang Transmission Line Upgrade - Technical Report 8 – Traffic and Transport Assessment (GHD, August 2025)*

Figure 3.2 Level crossings at Brays Lane and Main Street in relation to project footprint




*Source:* Mount Piper to Wallerawang Transmission Line Upgrade - Technical Report 8 – Traffic and Transport Assessment (GHD, August 2025)

Figure 3.3 Existing walking and cycling network in relation to project footprint

# 4 Construction works overview

## 4.1 Description of the proposed works

The proposed works of the project would comprise of the following construction activities:

- site establishment including vegetation removal, construction compound establishment, access track construction and upgrade
- assembly and erection of new transmission structures
  - Transmission structures for the project include approximately 28 new steel lattice towers and four steel and/or concrete pole structures. Transmission structures would range in height from approximately 14 to up to 60 m.
  - The steel transmission structures would generally be spaced between 100 m to 550 m apart and the pole structures about 30 m to 50 m apart.
- civil works involving earthworks and establishment of construction benches for each transmission structure, and establishment of brake and winch sites
- construction of footings and foundation work for the new transmission structures
- removal of existing transmission structures where required
  - This includes redundant transmission structures, including the gantry immediately north of the Main Western Rail Line, would be removed and recycled, where possible
- stringing of conductors
  - New conductors, earth wires and optical ground wire (OPGW) would be installed on the new transmission structures for the new 330 kV and existing 132 kV lines.

## 4.2 Construction overview

### *4.2.1 Construction compounds and laydown areas*

There will be three construction compounds would support the construction of the project. One would be located at the western end of the project near the Mount Piper 330 kV substation and two located at the eastern end of the project within the former Wallerawang Power Station site. The locations of these compounds are shown in Figure 4.4.

Laydown of materials (e.g. poles, cable drums, other large equipment, etc.) would also occur at specified locations along the easement within the project footprint, particularly at transmission structure locations.

### *4.2.2 Program of construction works*

Construction is expected to commence in late 2026 and be completed by mid 2028, pending the acquisition of necessary approvals. Construction would be undertaken in stages over a period of approximately 20 months. An indicative schedule is provided below noting that any changes to this schedule will not result in a revision of the TTMP.

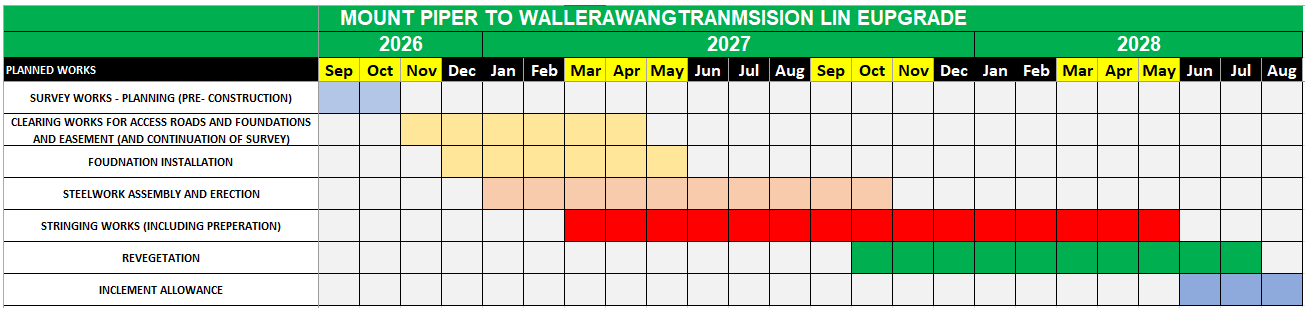



Figure 4.1 Indicative construction program

### 4.2.3 *Timing of construction works*

The normal site working hours are from 7 am to 6 pm Monday to Friday and 8 am to 1pm Saturday.

Any out-of-hours work (OOHW) (i.e. Sundays, Public Holidays and nightworks) will be undertaken in accordance with the arrangement detailed in the relevant section of the Construction Noise and Vibration Management Plan.

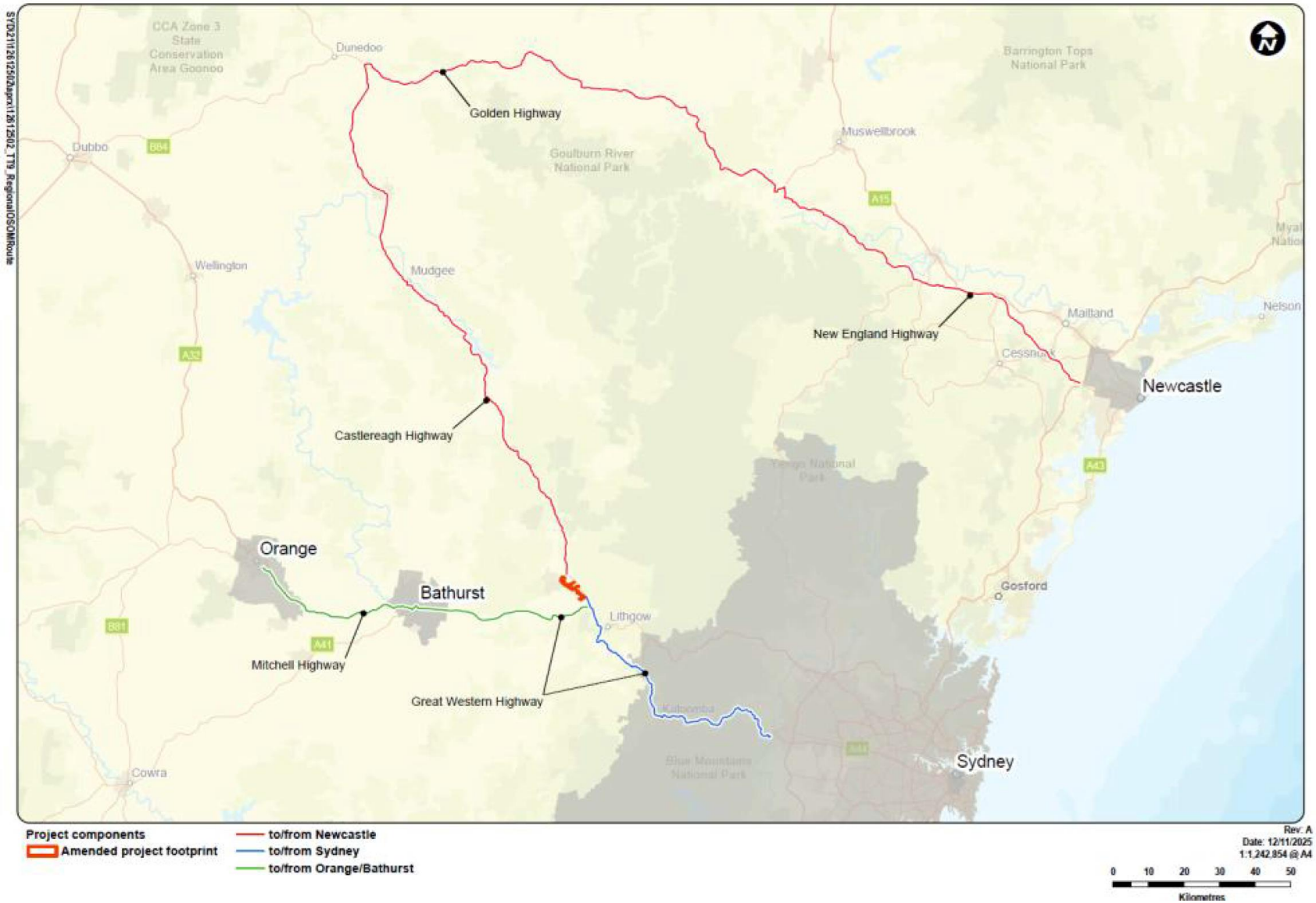
The Construction Manager will maintain a schedule of OOHW. OOHW activities that generate traffic, including concrete pouring, deliveries and plant movements such as elevating work platforms (EWP), are to be reviewed and traffic movements rescheduled to inside standard construction hours where practical and possible to minimise traffic impacts outside standard construction hours.

## 4.3 Construction traffic

### 4.3.1 *Site access*

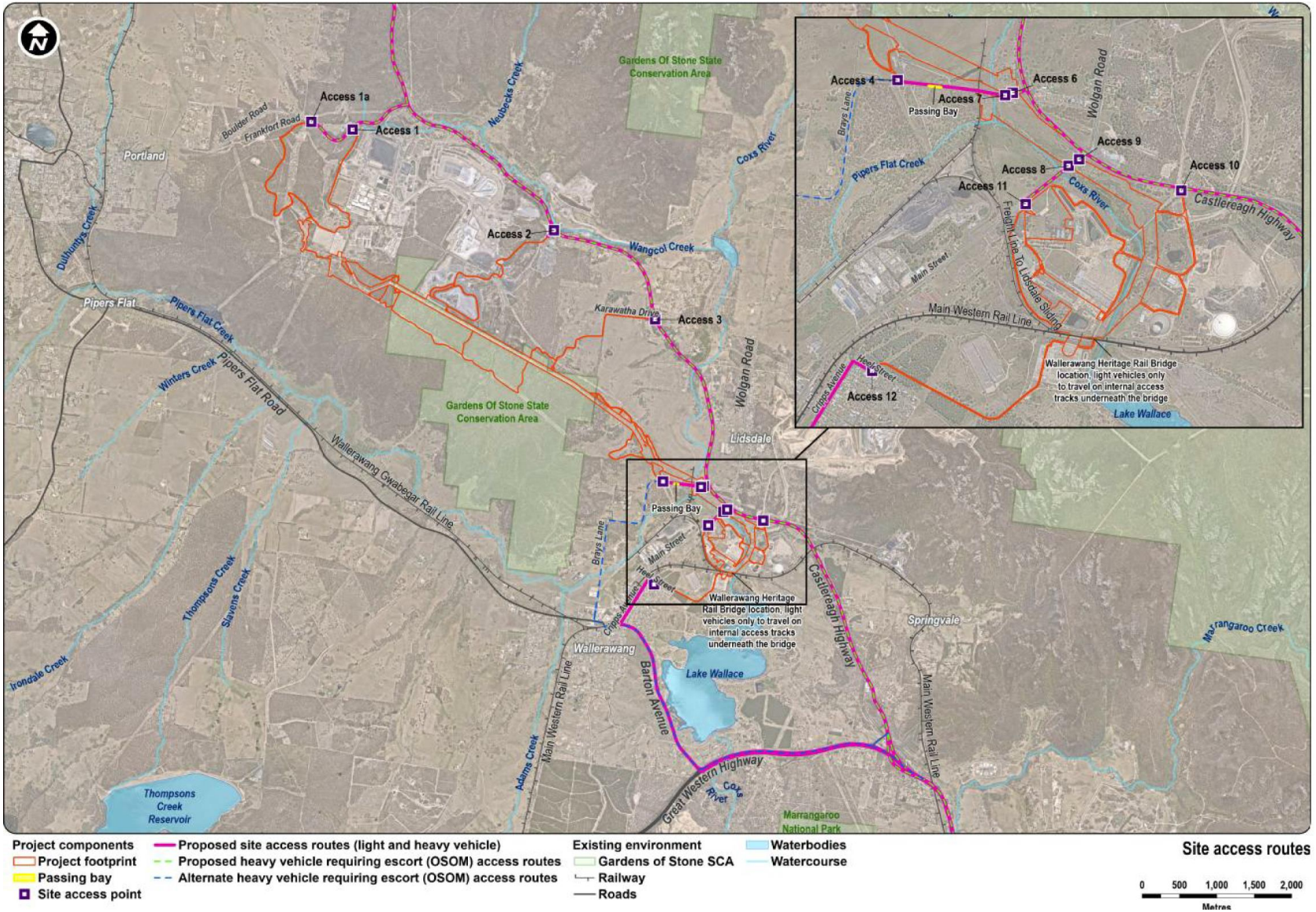
Site Accesses are used by both light vehicles and heavy vehicles for access to each transmission structure and construction compound that would be required during construction works. Most of these site accesses are existing public road intersections, where site accesses (such as those on Brays Lane and Main Street) are proposed to be built during the construction period.

These access points will connect construction vehicles to the internal arrangement of access tracks, that are not part of the public road network. Most of these access tracks are primarily existing tracks, although it is expected that widening and upgrade works will be done as a part of the construction works. New access tracks will be constructed where necessary and as approved within the Infrastructure Approval. All heavy and light vehicles associated with construction, upgrading and decommissioning of the development must travel to and from the site via the construction routes as described in the Appendix 4 of the Infrastructure Approval and shown in Figure 4.2 below, unless agreed by the Planning Secretary.




*Source: Instrument of Approval*

Figure 4.2 Approved transport routes

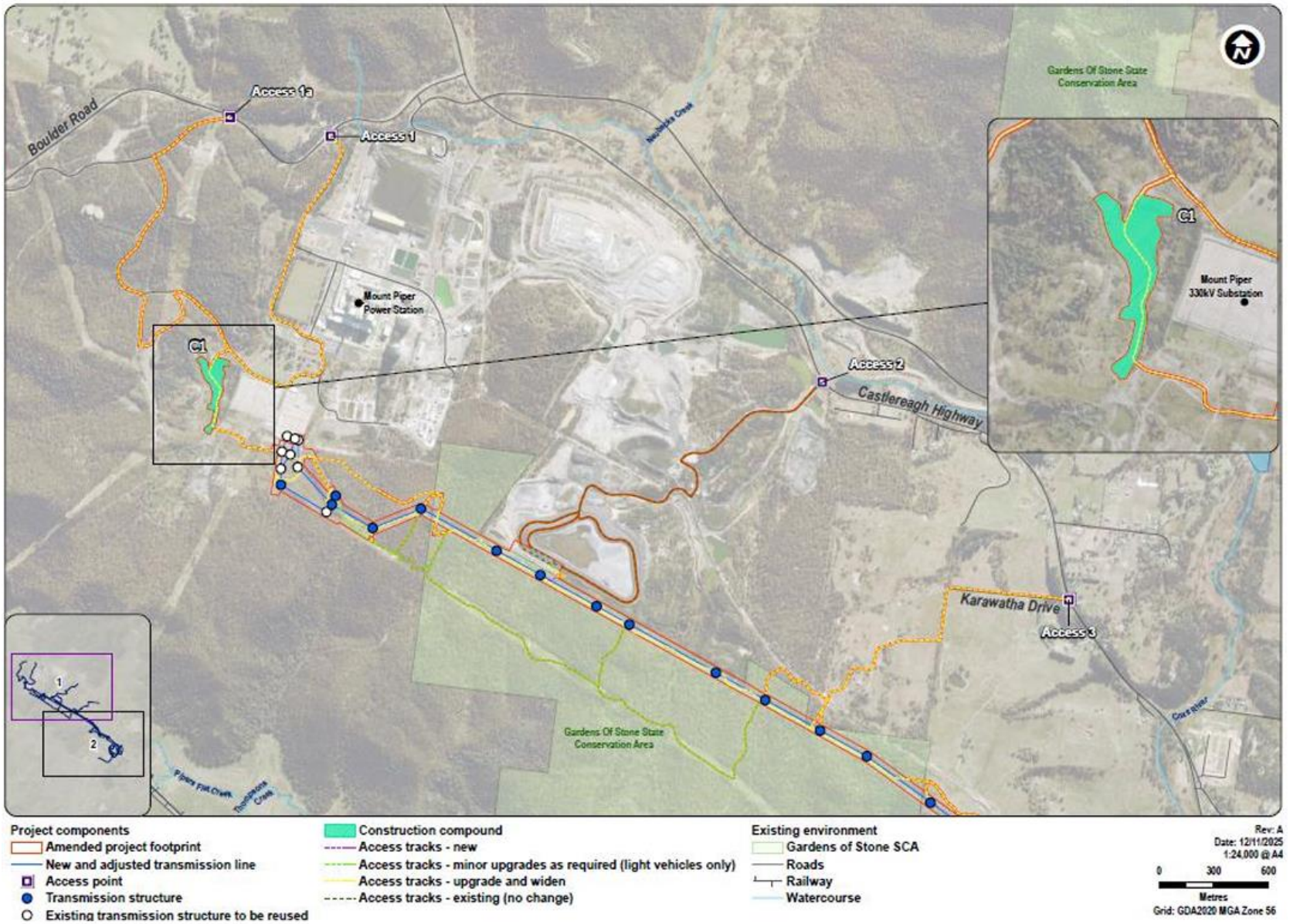



*Source* *Mount Piper to Wallerawang Transmission Line Upgrade - Technical Report 8 – Revised Traffic and Transport Assessment (GHD, December 2025)*

Figure 4.3 Approved site accesses

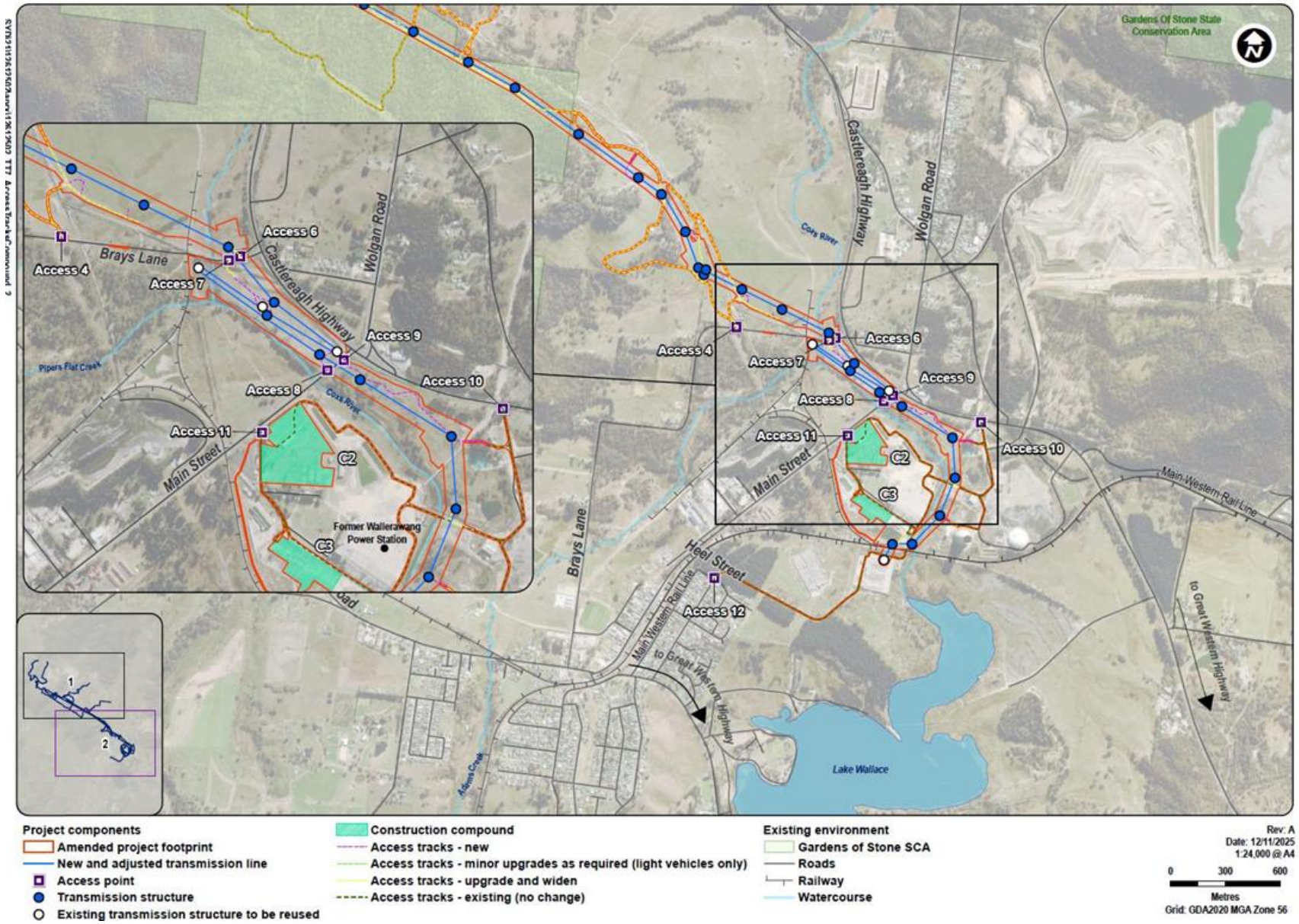
During construction works, there are thirteen site access locations (both existing and proposed) that are used, which are illustrated in Figure 4.4 and listed below;

- Site Access 1 (existing): Located at the intersection of Boulder Road and the access road to Energy Australia Mount Piper Power Station.
- Site Access 1a (existing): Located at the intersection of Boulder Road and Frankfort Road.
- Site Access 2 (existing): Located at the intersection of Castlereagh Highway and access road to Springvale Coal Services.
- Site Access 3 (existing): Located at the intersection of Castlereagh Highway and Karawatha Drive.
- Site Access 4 (proposed): Located on the northern side of Brays Lane.
- Site Access 6 (proposed): Located on the northern side of Brays Lane.
- Site Access 7 (proposed): Located on the southern side of Brays Lane.
- Site Access 8 (proposed): Located on the western side of Main Street.
- Site Access 9 (proposed): Located on the eastern side of Main Street.
- Site Access 10 (existing): Located at the intersection of Castlereagh Highway and Greenspot Gate 1.
- Site Access 11 (existing): Located at the intersection of Main Street and Greenspot building main entrance.
- Site Access 12 (existing): Located on Heel Street and access road to Transgrid Wallerawang Substation.




*Source Mount Piper to Wallerawang Transmission Line Upgrade - Technical Report 8 – Revised Traffic and Transport Assessment (GHD, December 2025)*

Figure 4.4 Location of site access points 1 to 3 and construction compound 1




*Source Mount Piper to Wallerawang Transmission Line Upgrade - Technical Report 8 – Revised Traffic and Transport Assessment (GHD, December 2025)*

Figure 4.5 Location of site access points 4 to 12 and construction compounds 2 and 3

### 4.3.2 Construction vehicle routes

The primary travel routes to most site access points, with the exception of Heel Street (Site Access 12), are expected to be via the state road network from the Castlereagh Highway and the Great Western Highway. Travel routes to Heel Street (Site Access 12) are expected to be via the Great Western Highway, Barton Avenue and Cripps Avenue.

All construction vehicles (including light vehicles and heavy vehicles) associated with the project are proposed to be classed as General Access Vehicles (GAV) within the General Mass Limit (GML) according to the National Heavy Vehicle Regulator (NHVR). The largest proposed heavy vehicle (excluding OSOM vehicles) will be 19-metre-long semitrailers and shorter concrete agitators, both of which are classed as GAVs that are within GML. These routes for all construction vehicles (excluding OSOM) are shown in Figure 4.6.

Therefore, based upon NHVR guidance, all construction vehicles (excluding OSOM vehicles) are suitable to traverse the public road network in Wallerawang without additional permits or assessments. This includes along Brays Lane, noting that the Revised TTA revoked the proposal for OSOM vehicles to travel along this road and that all construction vehicles traversing Brays Lane will have a gross vehicle mass of less than 43 t. As a result of this change, Lithgow City Council have provided advice that they no longer require structural assessment of the structures along Bray's Lane to be undertaken. The email correspondence received from Council on this subject is included in Appendix G.

There are no structural load restrictions for all construction vehicles identified along Boulder Road or Castlereagh Highway (within Wallerawang) to access Site Access 1, Site Access 1A (which is no longer proposed to be used as mentioned in Section 5.1.1) and Site Access 2.

Site access routes are expected to originate primarily from Sydney and Newcastle, with some vehicles from Orange or Bathurst as required. All heavy vehicle access routes will operate on the NSW state road network and in accordance with NHVR law and regulations. The expected site access routes for the project, are as follows:

- To/from Sydney: along the Castlereagh Highway (B55) and Great Western Highway (A32) before connecting to the extensive approved/approved with conditions networks within the Sydney Basin to reach the port or commercial district where movements would originate or be travelling to.
- To/from Newcastle: via the Castlereagh Highway (B55), Golden Highway (B84) and New England Highway (A16) before connecting to the extensive approved/approved with conditions networks within the Newcastle Urban Area to reach the port or commercial district where movements would originate or be travelling to.
- To/from Orange and Bathurst: via the Great Western Highway (A32) and Mitchell Highway (A32), for Orange only.

The details of approved and unapproved construction traffic routes are discussed in Section 6.6.

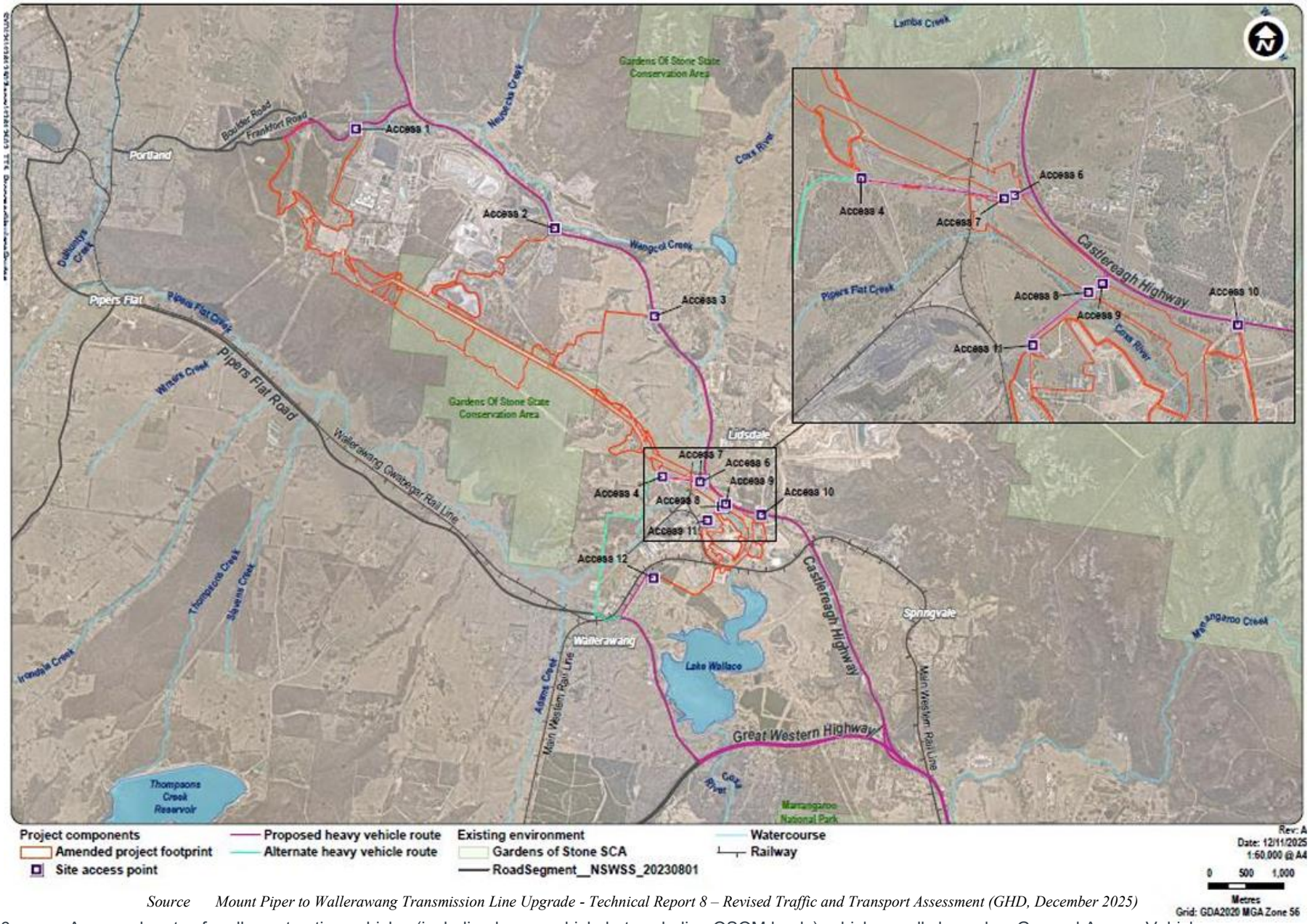
### 4.3.3 Oversize and overmass vehicle routes

OSOM movements would be required for the mobilisation of construction equipment and machinery to and from the project footprint. OSOM movements, would only be for mobilisation and demobilisation of the piling rigs (for foundations) and mobile cranes to each transmission structure location. It is noted that no more than two OSOM vehicles (four one-way movements) would access the project footprint per day.

OSOM deliveries would arrive at the site via the NSW state road network and site access routes, according to the routes detailed in Section 3.4. The current approval status for usage of the site access routes for OSOM deliveries is also included in Section 3.4. The OSOM vehicle load carrying approved road network as it relates to site access points is illustrated in Figure 4.7.

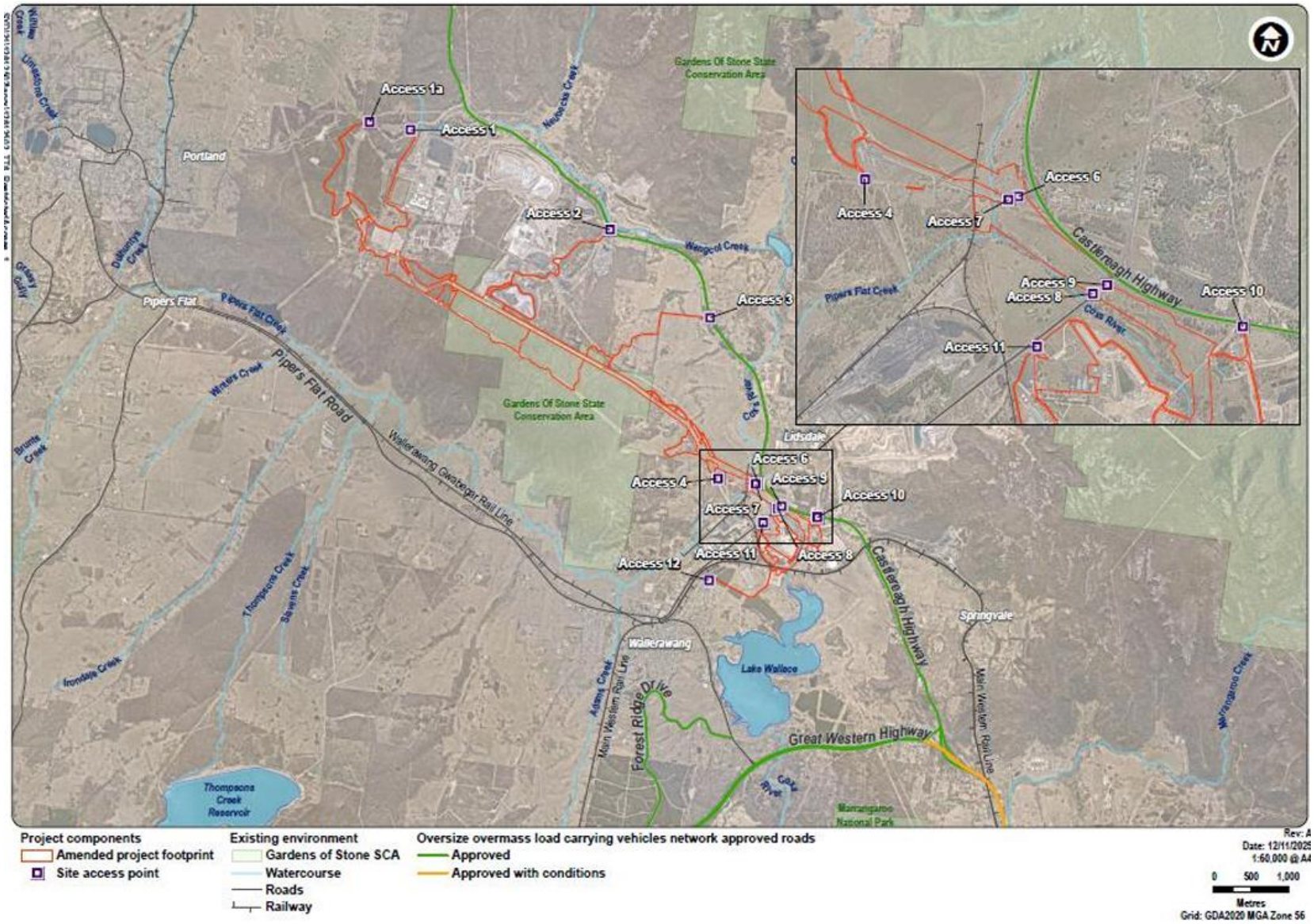
OSOM loads will also need to access the locations of the two southern-most proposed transmission structures, which are north of the Main Western Railway Line near the existing Transgrid Wallerawang substation. A detailed structural assessment of the Main Street bridge over Cox River (coordinates at -33.398231, 150.081207) has been completed to ensure it is suitable for the OSOM. This is further discussed in Section 5.1.3, with the reports included in Appendix D.

All OSOM vehicle movements would be in accordance with the Heavy Vehicle National Law and Regulations, including obtaining relevant permits.




*Source* *Mount Piper to Wallerawang Transmission Line Upgrade - Technical Report 8 – Revised Traffic and Transport Assessment (GHD, December 2025)*

Figure 4.6 Approved routes for all construction vehicles (including heavy vehicle but excluding OSOM loads), which are all classed as General Access Vehicles




*Source Mount Piper to Wallerawang Transmission Line Upgrade - Technical Report 8 – Revised Traffic and Transport Assessment (GHD, December 2025)*

Figure 4.7 Approved Oversize and Overmass (OSOM) routes

Notes Vehicles or combinations exceeding 2.5 metres wide or 22 metres long are not permitted to travel between 8:30am and sunset on weekends or state-wide public holidays on the Great Western Highway between the Nepean River at Emu Plains and the Castlereagh Highway at Marangaroo.

### 4.3.4 Workforce movements and trip generation

The construction workforce is expected to peak at about 150 personnel, with an average workforce of about 60 personnel.

Construction traffic, comprised of light vehicles and heavy vehicles, would transport the personnel (including via. carpools and, subject to future consultation and update to this plan, shuttle bus services), goods, plant and equipment to the work sites. It is likely that traffic volumes associated with construction will constantly shift over the course of the project, as different stages are implemented and construction activities are conducted.

The following light vehicle and heavy vehicle numbers are expected to be generated by the project:

- Average construction traffic generation would result in around:
  - 90 light vehicles accessing the project footprint in a day (equating to 180 light vehicle movements)
  - 10 heavy vehicles accessing the project footprint in a day (equating to 20 heavy vehicle movements)
- Peak construction traffic generation is expected to generate up to:
  - 175 light vehicles accessing the project footprint in a day
  - 75 heavy vehicles accessing the project footprint in an hour.

For OSOM vehicle movements, there is expected to be up to four OSOM vehicle movements per day.

### 4.3.5 Worker parking

All construction vehicles associated with the project are expected to be accommodated entirely within the project site and will not encroach upon or impact the availability of public kerbside parking on surrounding streets surrounding the project work area.

Workers will be encouraged to carpool to reduce traffic and parking. A shuttle bus can be implemented at a later date, if required. Prior to any shuttle bus use on the project, this plan would be updated to cover details such as pick-up and drop-off points, parking arrangements for construction workers, timing and frequency of shuttle bus movements and the proposed route. Any update to this plan relating to the inclusion of shuttle bus operations would be subject to consultation with TfNSW, Lithgow City Council and NPWS and approval by the Planning Secretary.

## 4.4 Construction road upgrades

In accordance with Condition B33, unless the Planning Secretary agrees otherwise, Transgrid will implement the road upgrades identified in Table 4-1 in Appendix 4 of the Infrastructure Approval in accordance with the relevant standard and timing requirements, and to the satisfaction of the relevant roads authority.

The required upgrades comprise a temporary passing bay on the southern shoulder of Brays Lane and establishment of Site Access 6. The passing bay will be designed and constructed in consultation with and to the satisfaction of Lithgow City Council. The final design, pavement treatment, drainage arrangements and traffic-management requirements will be confirmed through the applicable Council approval process. The passing bay will be completed and available for use before heavy construction vehicles commence using Brays Lane. Zinfra will maintain the passing bay in a safe and serviceable condition throughout the period for which it is required.

In accordance with Condition B33 and the upgrades identified in Appendix 4, the Contractor will establish Site Access 6 off Brays Lane for safe entry and exit for the largest vehicles accessing the site at this location. This will occur prior to use of the site access point.

If there is a dispute about the road upgrade works, or the implementation of these works, then either party may refer the matter to the Planning Secretary for resolution.

# 5 Impacts of the proposed works

As assessed in the Revised TTA, there is sufficient intersection performance capacity and geometric space on the road network to accommodate the additional traffic movements associated with the development. The additional traffic generated by the construction works is not expected to adversely impact the capacity of the surrounding road network. As outlined in Section 4.3.4, the works are anticipated to generate up to 350 light vehicle and 150 heavy vehicle movements per day during peak construction periods, including up to four OSOM vehicle movements per day which equate to 175 light vehicles, 75 heavy vehicles and 2 OSOM vehicles accessing the site on any given day.

## 5.1 Traffic and access impacts

Construction activities associated with the project are expected to have varying impacts on the surrounding road network. These impacts include safety considerations for vehicles traversing access tracks via site accesses and temporary road/lane closures for the implementation of line stringing works and pre-construction activities, such as site access construction. The construction works of any upgrades are expected to be completed before use by construction vehicles.

### *5.1.1 Site access points*

The site access points, which provide a link between the public road network and the internal access tracks of the project footprint, had been assessed in the Revised TTA for safety risks (including sight distance) and need for potential road works. In addition, road widening upgrades or intersection upgrades were determined to be not required for construction vehicles, including for OSOM traffic movements, to gain access to the proposed access points.

In accordance with Condition B33, unless the Planning Secretary agrees otherwise, Transgrid must implement the road upgrades identified in Table 4-1 in Appendix 4 of the Infrastructure Approval in accordance with the relevant standard and timing requirements in Table 4-1 in Appendix 4, and to the satisfaction of the relevant roads authority. These upgrades include a temporary passing bay on the southern shoulder of Brays Lane and establishment of Site Access 6.

The passing bay will be designed and constructed in consultation with and to the satisfaction of Lithgow City Council. It will be completed and available for use before heavy construction vehicles commence using Brays Lane. Zinfra will maintain the passing bay in a safe and serviceable condition throughout construction. The final design, pavement treatment, drainage arrangements and construction traffic controls will be confirmed through the applicable Council approval process.

Site Access 6 will be established off Brays Lane for safe entry and exit by the largest vehicles accessing the site at this location. It will be completed before it is used by construction vehicles.

No sight distance deficiencies at site access points 2, 4 and 6 to 12 have been identified by the Revised TTA or subsequent inspections of the access points. The following subsections detail the constraints identified at site access points 1A, 1 and 3 from site visit observations, including impacts to the public road network. Further details of the mitigations for these site access points are discussed in Section 6.

#### *Site Access 1A*

This is an existing site access located at the intersection of Boulder Road and Frankfort Road. The Revised TTA had identified a sight distance deficiency (through a desktop analysis) on both approaches.

After conducting the site visit, it has been confirmed that there is a substantial sight distance deficiency on the west approach due to the change in elevation, as illustrated in Figure 5.1.

Given that this site access is an alternative, it is recommended to instead use Site Access 1, located at the intersection of Boulder Road and the access road to Energy Australia Mount Piper Power Station.




Figure 5.1 Site visit observations, confirming the sight distance deficiencies at Site Access 1A

*Site Access 1*

This is an existing site access located at the intersection of Boulder Road and the access road to Energy Australia Mount Piper Power Station. The Revised TTA had identified a sight distance deficiency, based on a desktop analysis, on the north-east approach due to visual obstruction caused by vegetation.

Following the site inspection, it was confirmed that there is visual obstruction, in the form of vegetation, on the east approach, as illustrated in Figure 5.2. This will need trimming to remove branches causing the sight distance deficiency.




Figure 5.2 Site visit observations, confirming the sight distance deficiencies at Site Access 1

*Site Access 3*

This is an existing site access located at the intersection of Castlereagh Highway and Karawatha Drive. The Revised TTA had identified a sight distance deficiency (through a desktop analysis) on the north approach, which will be mitigated with a proposed Left-in/Left-out access arrangement.

After conducting the site visit, it has been confirmed that there is a substantial sight distance deficiency on the north approach due to the change in elevation as well as the road's approach angle, as illustrated in Figure 5.3.




Figure 5.3 Site visit observations, confirming the sight distance deficiencies at Site Access 3

## 5.1.2 Road Closures

*Line stringing*

As identified in the Revised TTA, the stringing of transmission lines will occur at the following locations:

- On Brays Lane, approximately 80 metres west of the intersection of Brays Lane and Castlereagh Highway.
- On Main Street, approximately 50 metres southwest of the intersection of Main Street and Castlereagh Highway.
- Over the Main Western Rail Line.

The project will require temporary road closures, of Brays Lane and Main Street, to facilitate the stringing process as per Austroads Guide to Traffic Management. Both roads are local roads, and the specific closure arrangements will be confirmed in consultation with Lithgow City Council. The line stringing would occur using a ground-based draw wire which is raised to position using a brake and winch to pull the conductor into place.

The proposed line stringing methodology would comprise a temporary partial road closure, with appropriate detours for public traffic, given the comparatively low traffic volumes of local roads. During the line stringing process, the set-up of stringing activities will primarily occur on the road shoulder and surrounding lands, which include the storage of winches and transmission lines. After the road closure, the draw wire would be laid over the road and the stringing process would occur. It is expected that a thirty to sixty minute road closure would be required, which would take place outside of the morning and afternoon peak period, unless otherwise agreed by Lithgow City Council, where a Road Occupancy Licence is required. This is because construction activities, in the form of road works, is taking place on a local road which will impact traffic flow. Further details of acquiring the Road Occupancy Licence are detailed in Section 6.6.1.

During the road closure, all vehicular movements will be restricted with traffic barriers and signage indicating road works and detours. The traffic management protocols and detour routes are detailed in Section 6.3.4.

The stringing works over the Main Western Rail Line is expected to be undertaken during a planned rail shutdown period and would be coordinated with rail operators.

Based on provided traffic survey data conducted in 2024, Brays Lane (at its intersection with Castlereagh Highway) experienced less than three vehicles per hour during the morning AM peaks (6AM – 7AM) and afternoon PM peaks (3:30PM – 4:30PM) identified in the Revised TTA.

On the other hand, Main Street (at its intersection with Castlereagh Highway) experienced a total of 172 vehicles per hour (in both directions) during the morning AM peak and of 147 vehicles per hour (in both directions) during the afternoon PM peak.

Given the relatively low traffic volumes on Brays Lane, it is expected that temporary road closures undertaken during off-peak periods would results in minimal delays and queuing. While Main Street is likely to experience some delays and queuing during temporary closures the assessment findings of the Revised TTA indicated there is sufficient available capacity, especially if the temporary road closures are conducted during off-peak hours.

#### *Site Access construction*

As identified in Technical Report 8, there are six locations across Main Street and Brays Lane, with proposed site accesses that will be constructed to facilitate construction vehicles:

- Site Access 4 (proposed): Located on the northern side of Brays Lane.
- Site Access 5 (proposed): Located on the northern side of Brays Lane.
- Site Access 6 (proposed): Located on the northern side of Brays Lane.
- Site Access 7 (proposed): Located on the southern side of Brays Lane.
- Site Access 8 (proposed): Located on the western side of Main Street.
- Site Access 9 (proposed): Located on the eastern side of Main Street.

This would require the temporary closure of one traffic lane (on the side that is directly adjacent to the site access) to facilitate construction of the site access. It is expected to reduce overall roadway capacity (two-way traffic flow on a small length of a one-laned road) and may result in some congestion, particularly during peak travel periods. With traffic merging into a single lane, motorists may experience slower travel speeds, longer queue lengths, and some delays as vehicles adjust to the changed conditions. These impacts may be more pronounced closer to the works zone, where reduced lane widths and construction vehicle movements can contribute to intermittent disruption.

It is expected that traffic on Brays Lane would experience minimal impacts whilst Main Street would experience some delays and queuing. Both roads have ample road capacity to accommodate these impacts.

### *5.1.3 OSOM movements*

As discussed in Section 0, a detailed structural assessment of the Main Street bridge over Cox River, has been conducted by qualified suitably qualified and experienced professionals (Integrity Testing structural testing consultants, who were nominated by Lithgow City Council). The report has been attached as Appendix D, where the bridge has been determined to be adequate for the proposed OSOM load provided it does not exceed 16 tons per axle. Brays Lane will not be used to facilitate OSOM movements from the project.

The outcomes from these detailed structural assessments will inform the OSOM route to access the locations of the two southernmost proposed transmission structures (discussed in Section 0).

Given that the typical daily movements of OSOM vehicles are very low (up to four vehicles per day), it is expected that the traffic volume of additional OSOM vehicles will have a minimal impact of surrounding public traffic. Permits for

OSOM vehicle movements on these roads will need to be acquired, including an OSOM Transport Management Plan in accordance with NSW guidelines, as described in Section 6.6.2.

### 5.1.4 Wallerawang Rail Bridges over Coxs River

The Wallerawang Rail Bridges over Coxs River are heritage-listed railway bridges. Project-related light vehicles will travel under the bridges along the route running along the western side of Coxs River. Heavy vehicles (including OSOM vehicles) will not be allowed to cross under these bridges. This arrangement is illustrated in Figure 5.4. Given that this route is not part of the public road network, as it is part of the internal site access tracks, there will be no impact to the surrounding public roads. No upgrades to this track are to occur within the curtilage area of the bridge.

The bridge crossing the Coxs River north of the rail bridges is not heritage listed will be used as a crossing for project-related light and heavy vehicles (also illustrated in Figure 5.4). The structural viability of this bridge to support these vehicle types will need to be assessed.

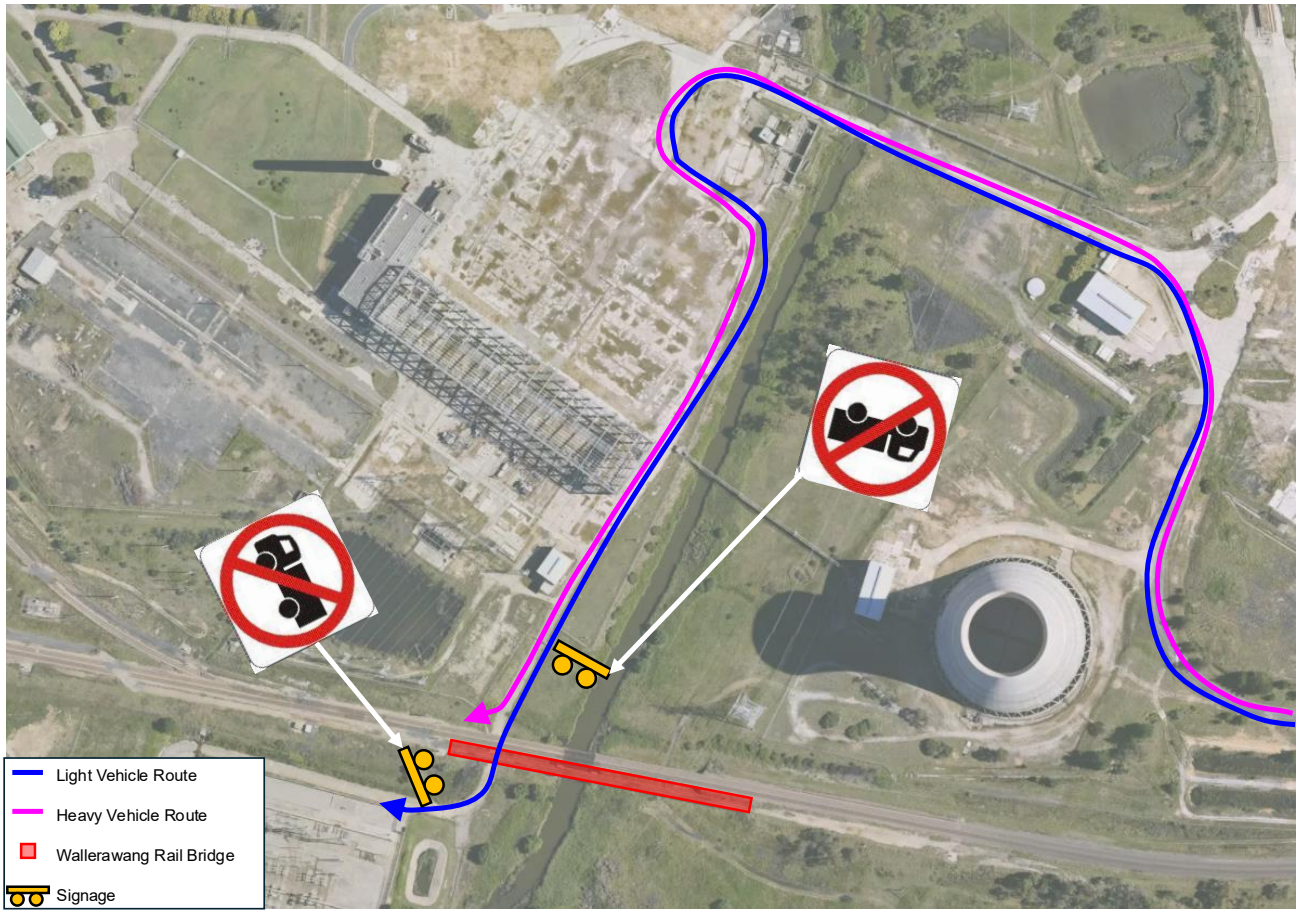



Figure 5.4 Arrangement for vehicle movement under Wallerawang Rail Bridge

### 5.1.5 NSW National Parks and Wildlife Service

As mentioned in Section 3.3, the project footprint passes through the Gardens of Stone State Conservation Area. It is expected that construction vehicles traversing the internal site access tracks adjacent to the transmission line would travel through this area. As the governing body, NSW National Parks and Wildlife Service (NPWS) will be kept appraised of construction traffic movement plans throughout the construction please of the Project by the Project Engagement Lead on an as needs basis. Access for NPWS will be maintained, where required, and has been discussed in consultation with NPWS as mentioned in Section 6.6.5 and Section 6.7.

## 5.2 Impacts to public transport

There are two public bus routes (600 and 636) and one school bus route (Bus 2 to Portland Central School) that travel along Main Street. It is expected that these bus services will experience minor impacts due to the temporary road closures from the line stringing process and site access construction works on Main Street (for Site Access 8 and 9).

During the line stringing works, where a full road closure is expected for a short period, it is envisaged that this will not impact the two public and school bus routes since the infrequent services (as mentioned in Section 3.5) allow these works to be conducted around those times – for example, on a Sunday (subject to ROL and OOHW approvals). Stringing works will also happen over the Main Western Rail Line during the construction phase. However, this is expected to take place during a planned rail shutdown period and would be coordinated with rail operators and therefore have little to no impact on public rail transport.

During the site access construction, it is expected that partial lane closures on Main Street will occur, corresponding to the side of Main Street where site access construction works will take place. Only minor impacts to these bus services are anticipated due to the proposed speed reductions and potential additional delays while passing through the construction zone. Regular two-way, two-lane traffic flow will be restored outside of construction hours.

The additional traffic generated by the project over the construction period is not expected to significantly affect the public transport network.

## 5.3 Impacts to active transport

During the stringing works, the following impacts to pedestrian and cyclist movements along Brays Lane and Main Street near Castlereagh Highway, are expected:

- Line stringing works on Brays Lane near Castlereagh Highway: Road shoulder access for cyclists on both sides of Brays Lane will be temporarily restricted. Cyclists will be directed by traffic controllers or detour signage to use Main Street during the temporary road closure. There are no existing pedestrian facilities. Therefore, it is expected to be no significant impact to active transport access.
- Line stringing works on Main Street near Castlereagh Highway: Road shoulder access for cyclists on both sides of Main Street will be temporarily restricted. Cyclists will be directed by traffic controllers or detour signage to use Brays Lane during the temporary road closure. There are no existing pedestrian facilities. Therefore, it is expected to be no significant impact to active transport access.

## 5.4 Impacts to parking

There is no impact expected to public parking supply in streets surrounding the project work area, as any construction vehicle traffic generated by the project site will park solely within the boundary of the project work area.

When construction works are underway on Brays Lane and Main Street, the informal road shoulder that may be used for parking on both sides of these roads will need to be temporarily restricted to facilitate the setup of the work zone and to maintain two-way traffic flow. Since these locations have low demand for public parking, the impact of construction activities and related parking demand on the surrounding road network is expected to be minimal.

Temporary parking restrictions should be discussed with the Lithgow City Council, and nearby residents should be informed of the construction schedule and any associated impacts in advance.

## 5.5 Impacts to emergency vehicles

Prior to commencement of construction activities, advanced notice and detailed advice will be provided to emergency services regarding the proposed partial lane closures and full road closures of the overbridge, as well as the associated traffic management measures on Brays Lane and Main Street. This information will include specifics on upcoming lane closures, expected traffic disruptions, anticipated delays, extended work periods, potential detour routes, and the locations of any road possessions to ensure effective coordination and uninterrupted emergency response.

An Emergency Response Plan has been developed to give guidance on how to respond to an emergency on site. It:

- Provides overall response and systems for emergencies.
- Provides the roles and responsibilities for emergencies and how they are to be managed.
- Provides different scenarios and their responses.

Sub-plans have also been developed to deal with certain types of emergencies, such as the Flood Management Plan.

## 5.6 Impacts at rail level crossings

Figure 3.2 shows the location of rail level crossings. The corridor passes over the freight rail line near its crossing of Brays Lane. Consultation with UGL Regional Linx has commenced to minimise the impact of the works on rail freight operations. There is also a level crossing on Main Street, which will be traversed by construction vehicles. As rail freight services are infrequent, the impacts of the additional construction traffic are expected to be minor (small increase in queuing on Main Street if construction vehicles arrive while a train is passing). Communication between the Construction Manager and UGL Regional Linx can reduce the impact by allowing construction trips to be scheduled to avoid the freight train times.

## 5.7 Impacts in relation to cumulative traffic

The following projects were identified in the Revised TTA for consideration in the cumulative traffic impact assessment:

- Wallerawang Battery Energy Storage System
- Mount Piper Battery Energy Storage System
- Great Western Battery Energy Storage System
- Pinecrest Battery Energy Storage System
- Lake Lyell Pumped Hydro Energy Storage
- Ben Bullen Wind Farm
- Sunny Corner Wind Farm
- Wallerawang Power Station Ash Dam
- Wallerawang residential subdivision (DA226/22)
- Wallerawang Station upgrades
- Mount Lambie Wind Farm

In terms of the potential cumulative impacts for the above individual projects, it is not expected any of the above projects will use a shared access point or intersection accessed by the project (as outlined in section 4.1.3 of the Revised TTA). As such, intersections were assessed in the Revised TTA to be able to accommodate the cumulative increase in traffic as outlined in Table 6.1 of the Revised TTA. Additionally, it identified that Castlereagh Highway operates with ample spare mid-block capacity and would be able to accommodate the cumulative increase in traffic generated by the project and the above projects.

Consultation undertaken to the proponents of the above projects are discussed in Section 6.7.7.

# 6 Mitigation measures

The following mitigation measures are recommended to minimise impacts during the construction activities at the site:

- Employee training
- Vehicle movement controls and monitoring
- Traffic guidance schemes and signage
- Access point management
- Monitoring and compliance
- Emergency and incident management
- Permits and approvals
- Consultation

## 6.1 Employee training

All site workers will undergo a site induction training containing relevant information relating to traffic and transport management. As a minimum, this training will cover:

- site familiarisation prior to unrestricted operation to ensure worker is competent
- existence and requirements of Traffic and Transport Management Plans
- light and heavy vehicle routes to and from site including a ban on the use of heavy vehicles under the Wallerawang rail bridges over Coxs River
- communication requirements
- on-site and between site radio protocols
- exclusion zones, separation distances
- speed limits
- temporary and interim traffic arrangements
- road safety
- procedures to be implemented in the event of an incident (e.g. traffic accidents).

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in traffic and transport management. Examples of training topics include:

- vehicle movement plans – approved light and heavy vehicle haulage routes, safe entry and exit and other access restrictions, minimising convoy lengths and platoons
- driver behaviour and the drivers code of conduct for heavy vehicles which is covered in detail within the Workforce Management Plan and included in Appendix A of this Plan
- driver fatigue awareness training based on Zinfra's Fatigue Management Plan. This considers what the planned daily work hours are and the protocols in place if working beyond these hours.
- weather conditions such as wet weather, fog and strong winds (which can cause dusty conditions)

Daily pre-start meetings conducted by the Construction Manager will inform the site workforce of any changes to vehicle routes, environmental issues relevant to traffic and transport that could potentially impact on the daily activities.

Training will include the requirements for drivers operating heavy vehicles on public roads covered in Section 1.4 of the Vehicle Movement Plan (see Section 6.2.1) and Drivers Code of Conduct (Appendix A).

Records will be kept of all site inductions, toolbox talks and daily pre-start meetings.

### 6.1.1 Fatigue management

Driver fatigue will be managed in accordance with Zinfra's Fatigue Management Plan and applicable road transport legislation. All personnel required to operate vehicles as part of the Project will receive fatigue awareness training during site induction and refresher training as required. Drivers must be fit for duty prior to commencing travel and are required to report actual or potential fatigue hazards to their supervisor. Where fatigue risks are identified, appropriate controls will be implemented, including adjustment of work schedules, provision of additional rest breaks, use of alternative drivers, rescheduling of deliveries or transport activities, and suspension of driving activities where necessary. Out-of-hours work and extended work shifts will be planned and managed to minimise fatigue-related risks associated with project traffic movements. Records of fatigue training, fitness-for-work assessments and fatigue-related incidents will be maintained.

## 6.2 Vehicle movement controls

### 6.2.1 Vehicle Movement Plans

Whilst this TTMP remains the overarching Plan for the management of the traffic and transport impacts of the Project, Vehicle Movement Plans (VMP) will be used to provide more specific detail of vehicle movements at each work front. The purpose of a VMP is to outline the designated operation and traffic rules for all personnel (employees, contractors and visitors) accessing the construction workplace. Zinfra will develop VMPs progressively for each work site during construction and prior to construction (commencing in each site as applicable) to demonstrate the travel route, priority control at intersections, speed limit and radio channel etc. These will operate in conjunction with the Traffic Guidance Schemes outlined in Section 6.3 and further detailed in Appendix B. VMPs are live documents and therefore should be reviewed regularly and revised as required throughout the construction phase to ensure it is effective and considers changes at the workplace. The plan may include details of:

- designated travel paths for vehicles including entry and exit points, haul routes for plant and materials
- traffic routes and project boundary
- no-go areas (such as ecological or archaeological sites)
- traffic control measures at intersections
- appropriate speed limits
- communication radio channel
- travel paths on routes remote from the workplace including places to turn around, access ramps and side roads

The VMPs will include information on minimising convoy lengths and reducing vehicle platooning. It will also explain traffic volume restrictions and conditions including the timing of vehicles through the intersection of the Castlereagh Highway and Karawatha Drive.

To minimise the risk of more than one heavy vehicle up to 19m-long on Karawatha Drive, the companies who will use such vehicles, e.g. reinforcement deliveries, steel deliveries, will be allocated a day on which they can use this access point. On days when the Construction Manager or delegate allocates more than 1 vehicle to access Karawatha Drive, a traffic control person will be allocated to manage the vehicles. A radio channel will be allocated to the person, with the same channel being communicated to any heavy vehicle using this route.

### 6.2.2 Communication protocol

Radios should be used as a communication aid where appropriate but should not be regarded as the primary means of communication. Eye to eye contact between drivers, operators and/or pedestrians and effective hand signals remain the primary means of communication and should be used before proceeding to work or operate near each other. The following radio communication measures should be undertaken for all workers within the site:

- Drivers/operators should have a radio in their possession or be accompanied at all times by a person carrying a radio.
- Site radios should be switched on at all times and tuned to the channel for site communications. Other channels should be used for specific works or emergencies as appropriate.
- Radio users must identify themselves and name the driver of the vehicle or personnel they wish to communicate with.
- All radio communication should be acknowledged before carrying out the instruction, requirement or request.
- Radios should only be used when it is safe to do so and not when carrying out a complex vehicle movement or other tasks where the use of radio might present a risk to safety, for example, a reversing/overtaking manoeuvre.
- Vehicle movements in areas with restricted sight distance should be coordinated by a spotter communicating to all vehicles by two-way communication.
- Radios should be used to communicate for operational purposes only.
- Vehicle operators should not interrupt another person's communication except in an emergency.

### 6.2.3 Construction traffic noise and vibration controls

As detailed in the Construction Noise and Vibration Management Plan, the assessment of traffic noise generated by construction road traffic is considered conservative. As detailed in Section 7.6 of the Construction Noise and Vibration Management Plan, local roads of Boulder Road, Karawatha Drive, Main Street and Brays Lane are predicted to experienced increased traffic noise levels during the construction phase of the Project. As such, with the aim of achieving the road traffic noise assessment criteria in the NSW Road Noise Policy and to control vibration and protect underground and above ground services and utilities, the Construction Manager will implement mitigation measures, including:

- Compliance of construction drivers to travel on designated traffic routes only, in line with the measures detailed in Section 6.4.
- Limiting traffic movements to daytime periods, being the less-sensitive times for potentially impacted noise sensitive receivers, as identified in the CNVMP, as far as reasonable and feasible, including the more even distribution of traffic movements across various access roads
- Minimising traffic movements by ensuring full loads
- Schedule noisy activities during daytime when background noise levels are higher.
- Avoid peak traffic hours to reduce cumulative noise impacts.
- Temporary construction traffic speed limits on access roads in the vicinity of potentially impacted noise sensitive receivers, and speed restrictions to reduce dynamic loading and vibration.
- Designated crossing points for access tracks.

Noting most of the site access routes will be off-road access tracks (which may be unpaved), vehicle speed reductions will be in place for safety and environmental management (for example, dust generation). This will also result in reduced vehicle noise emissions.

Further detailed information is located within the Construction Noise and Vibration Management Plan.

### 6.2.4 Construction traffic scheduling

The Construction Manager will develop a schedule for all development traffic to avoid peak periods where reasonable and feasible. This schedule will be communicated at daily pre-start meetings. The Construction Manager will implement a radio communication protocol to enable accurate coordination of development traffic.

Development traffic will be scheduled to avoid peak periods where reasonable and feasible in accordance with the development traffic estimated in the Revised TTA (Section 4.1.6 – Construction traffic generation). This includes the scheduling of deliveries at times after the main morning peak period (6.00 am to 7.00 am) on the Castlereagh Highway, however it is not reasonable and feasible to change this period for workers. The afternoon peak period will not be impacted (3.30pm to 4.30pm). Personnel travelling to and from site in light vehicles will be encouraged to carpool. The details of how this will be implemented is discussed in Section 6.4.1 and 0.

Development traffic will also be scheduled to minimise convoy lengths and platoons. This will be achieved through the implementation of Vehicle Movement Plans (Section 6.2.1), which include traffic volume restrictions, designated haulage routes and measures to minimise convoy lengths and vehicle platooning. Heavy vehicle movements will be coordinated through delivery scheduling and allocation of site access points (Section 6.4.1.3), with vehicle dispatch, traffic controller oversight and two-way radio communication used to stagger arrivals and departures where required (Section 6.4.1.4). For access via Karawatha Drive, suppliers using heavy vehicles up to 19 m in length will be allocated designated access days and managed in accordance with the requirements of the Vehicle Movement Plan to minimise the likelihood of multiple heavy vehicles travelling together (Section 6.2.1). This approach will assist in reducing queueing, maintaining safe intersection operations and minimising disruption to other road users.

### 6.2.5 Dirt, debris, dangerous goods and biodiversity inspections

Condition B35(f)(i) 17 - requires "minimising dirt and debris tracked on to the public road network from development-related traffic". A Soil and Water Management Plan (SWMP) has been produced that covers the procedures to manage dirt and debris on the public road system. The SWMP requires that:

- Access and egress from the Site must not track soil onto roads or cause erosion and sediment issues
- Any dirt tracked onto adjacent roads is to be swept and cleaned up, not swept down drains or washed off.
- Hazardous waste and dangerous goods (compressed gas, flammable, corrosive, toxic) to be tracked and stored if there are more than 5 tonnes of waste generated off-site

The vehicle and machinery hygiene procedure contained in the Biodiversity Management Plan requires that:

- All vehicles and machinery must arrive on site clean and free of soil and plant material.
- A completed Hygiene Inspection Form must be provided by the supplier prior to site entry and verified on arrival.
- All vehicles and machinery will be inspected at the construction compound prior to commencing work.
- Vehicles or machinery that do not meet hygiene standards must be washed down at a designated wash-down facility or removed from site and cleaned at an approved external facility, then re-inspected prior to use.
- Wheel-wash systems will be installed at site entry and exit points and at additional high-risk locations identified by the Project Ecologist.
- Machinery involved in excavation or soil handling will undergo a wash-down prior to movement between land holdings (e.g. entry to and exit from the Gardens of Stone SCA) and prior to re-entry to the Project footprint from off-site locations.

## 6.3 Traffic control measures

This section discusses how the impacts of the road and intersection upgrades of the development will be minimised and mitigated. Indicative Traffic Guidance Schemes (TGSs) have been prepared to illustrate the signs and other traffic control measures to be implemented during the construction period to advise the change in traffic conditions throughout the project site, mainly at the access intersection. TGSs have been developed for the relevant construction stages based on the TfNSW Traffic Control at Work Site manual (Issue No.6.1, February 2022) and AS1742.3 Manual of uniform traffic control devices Part 3. These TGS are indicative and are subject to change and refinement depending on the works and potential continuous improvement. Future updates to TGS will be undertaken separately to the development of this TTMP.

The following work activities and stages would have a TGS:

- Road / lane closures at Main Street and Brays Lane
- Site access construction and management
- Road upgrades, including construction of temporary passing bay on Brays Lane
- Road maintenance and repairs (if needed as the result of a road dilapidation survey or report of damage.

### *6.3.1 Road / lane closures*

As detailed in Section 5.1.1 and 5.1.2, there will be traffic control (including signage and barriers) to facilitate line stringing and site access construction. These are illustrated in greater detail in B.

Figure 6.1 and Figure 6.2 illustrate the traffic control arrangements associated with line stringing on Main Street and Brays Lane, via temporary full road closure for around 30 to 60 minutes.




Figure 6.1 Indicative signage arrangement for temporary road closure on Main Street

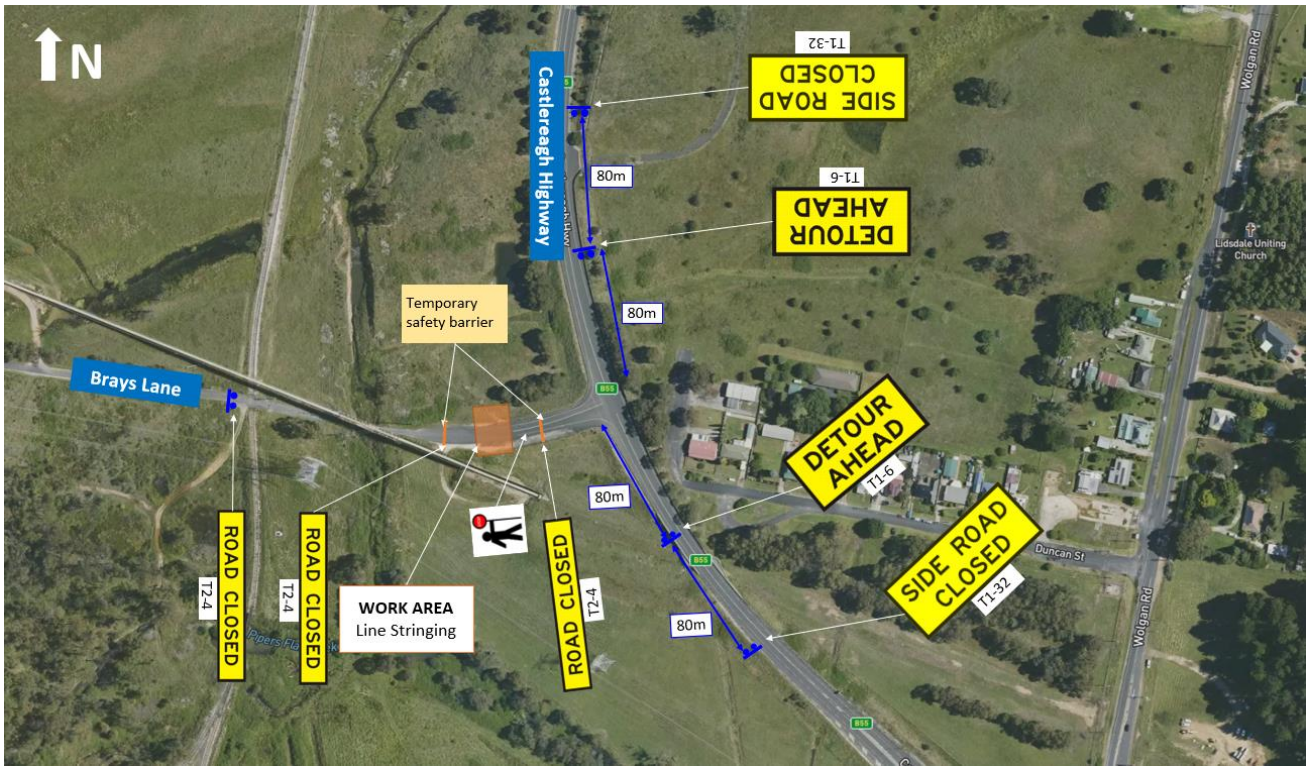



Figure 6.2 Indicative signage arrangement for temporary road closure on Brays Lane

### 6.3.2 Site access construction on Main Street and Brays Lane

Six new site accesses will be constructed on Brays Lane (for Site Accesses 4, 5, 6 and 7) and Main Street (for Site Accesses 8 and 9). These works will require the temporary closure of one traffic lane adjacent to each site access during construction. As a minimum, one-way traffic flow will be maintained on these roads during construction of site accesses.

The details of the lane closure arrangement are illustrated in Figure 6.3 to Figure 6.5 and depicted in the TGSs provided in Appendix B.

The construction of site access 8 and site access 9 on Main Street will occur in a staggered approach, since they occur directly opposite each other. Figure 6.4 shows the construction arrangement on the northern side of Main Street and Figure 6.5 shows the southern side of Main Street. This will allow traffic to still flow along Main Street, as one-way traffic.

Following completion of the site access works, ongoing access management would be facilitated through appropriate signage to indicate reduced speed limits and permitted construction traffic movements along Brays Lane and Main Street, as depicted in Figure 6.6.

### 6.3.3 Brays Lane passing bay construction

A temporary passing bay will be constructed on the southern shoulder of Brays Lane at the location identified in the approved design. Construction will be undertaken in accordance with the design and conditions approved by Lithgow City Council and the applicable Traffic Guidance Scheme.

Construction may require temporary occupation of the adjoining shoulder or traffic lane. Traffic controls will include advance warning signage, delineation of the work area, barriers or traffic cones, traffic controllers where required, and controlled traffic movements past the work area. Access for residents and emergency vehicles will be maintained where safe and practicable.

Following construction, the passing bay will be inspected and confirmed as suitable for use before heavy construction vehicles commence using Brays Lane. The indicative Traffic Guidance Scheme is provided in Appendix B and will be updated, where necessary, to reflect the final approved design and Council approval conditions.

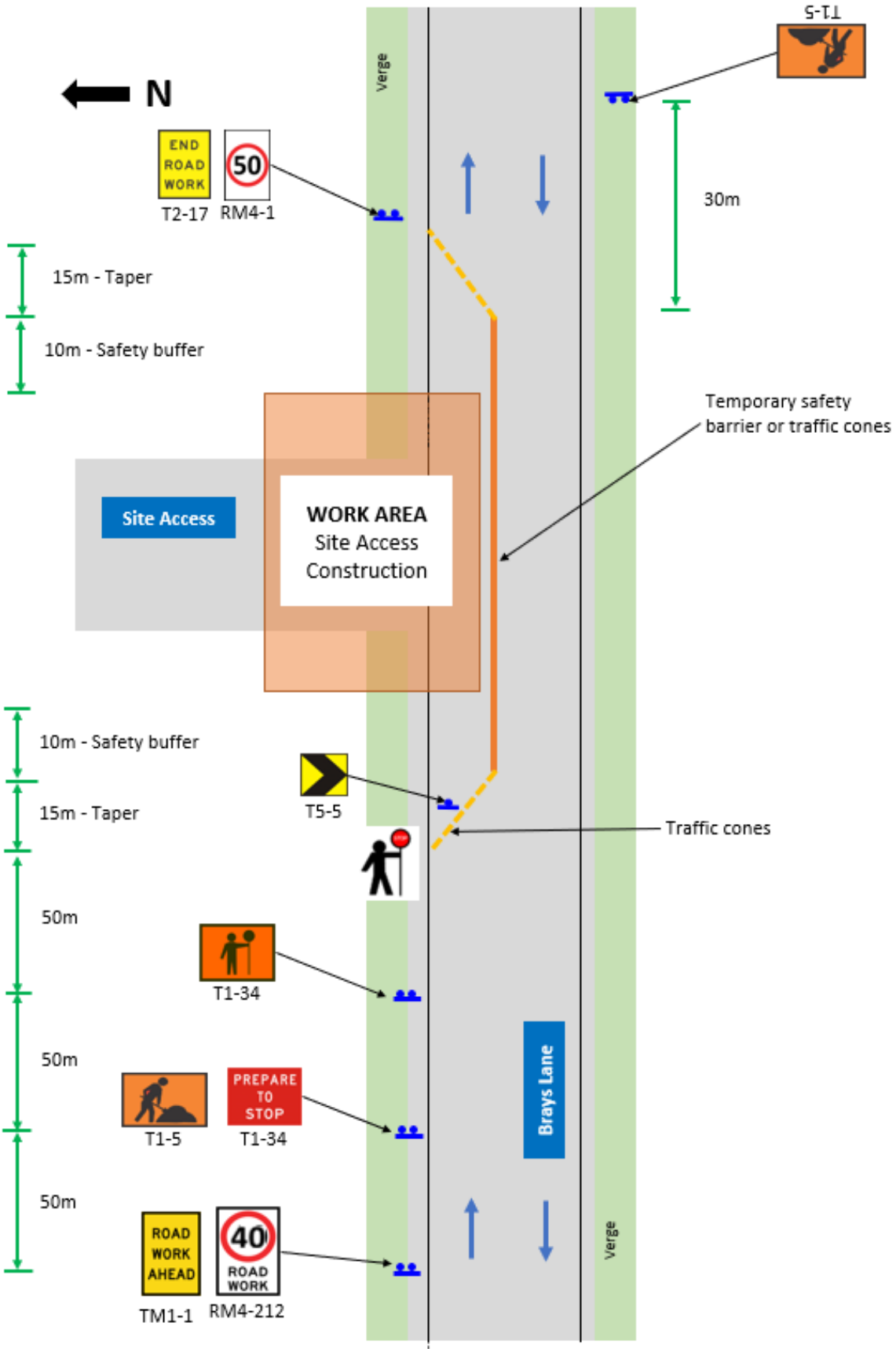



Figure 6.3 Indicative lane closure arrangement to allow for site access construction on Brays Lane

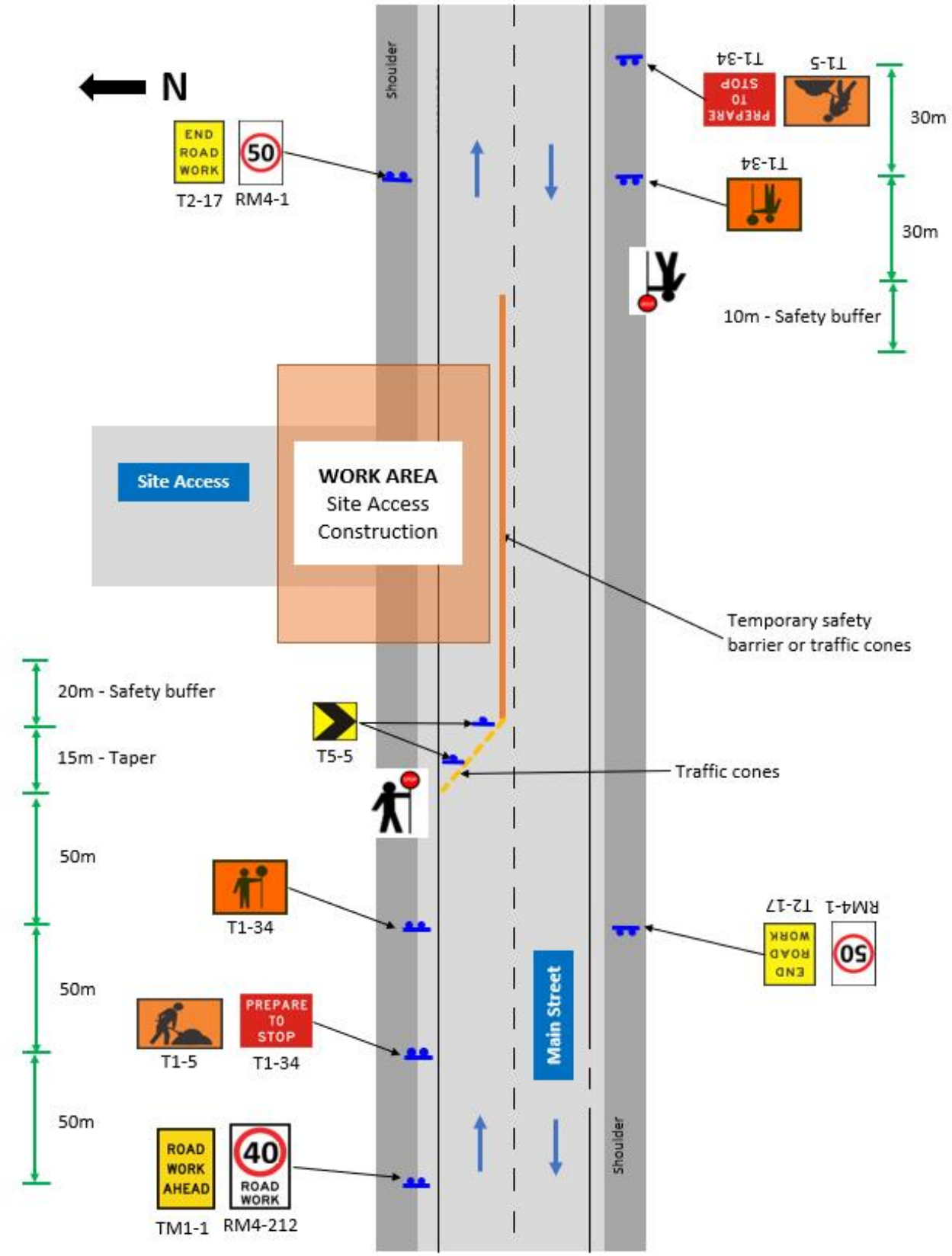



Figure 6.4 Indicative lane closure arrangement to allow for site access construction on northern side of Main Street

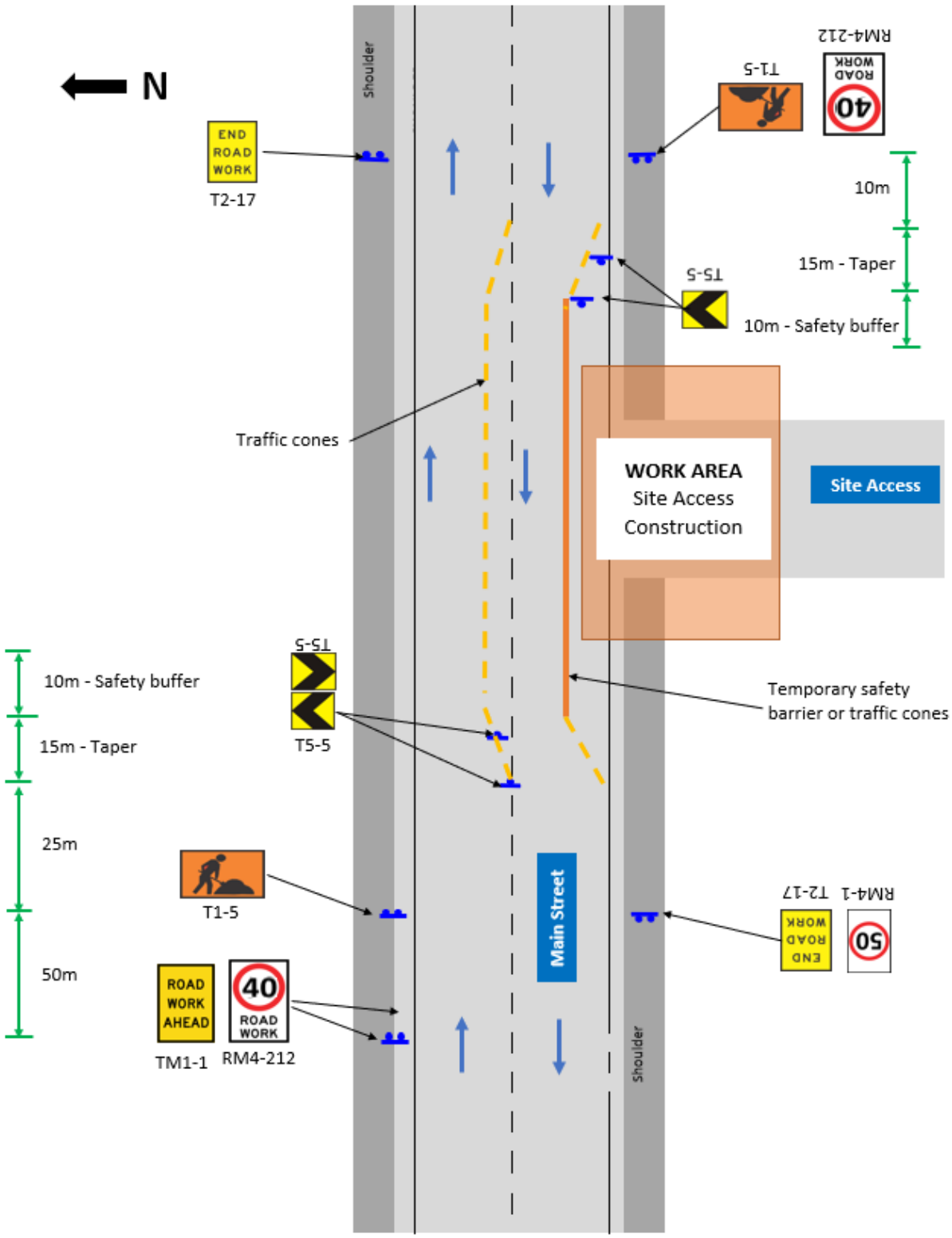



Figure 6.5 Indicative lane closure arrangement to allow for site access construction on southern side of Main Street

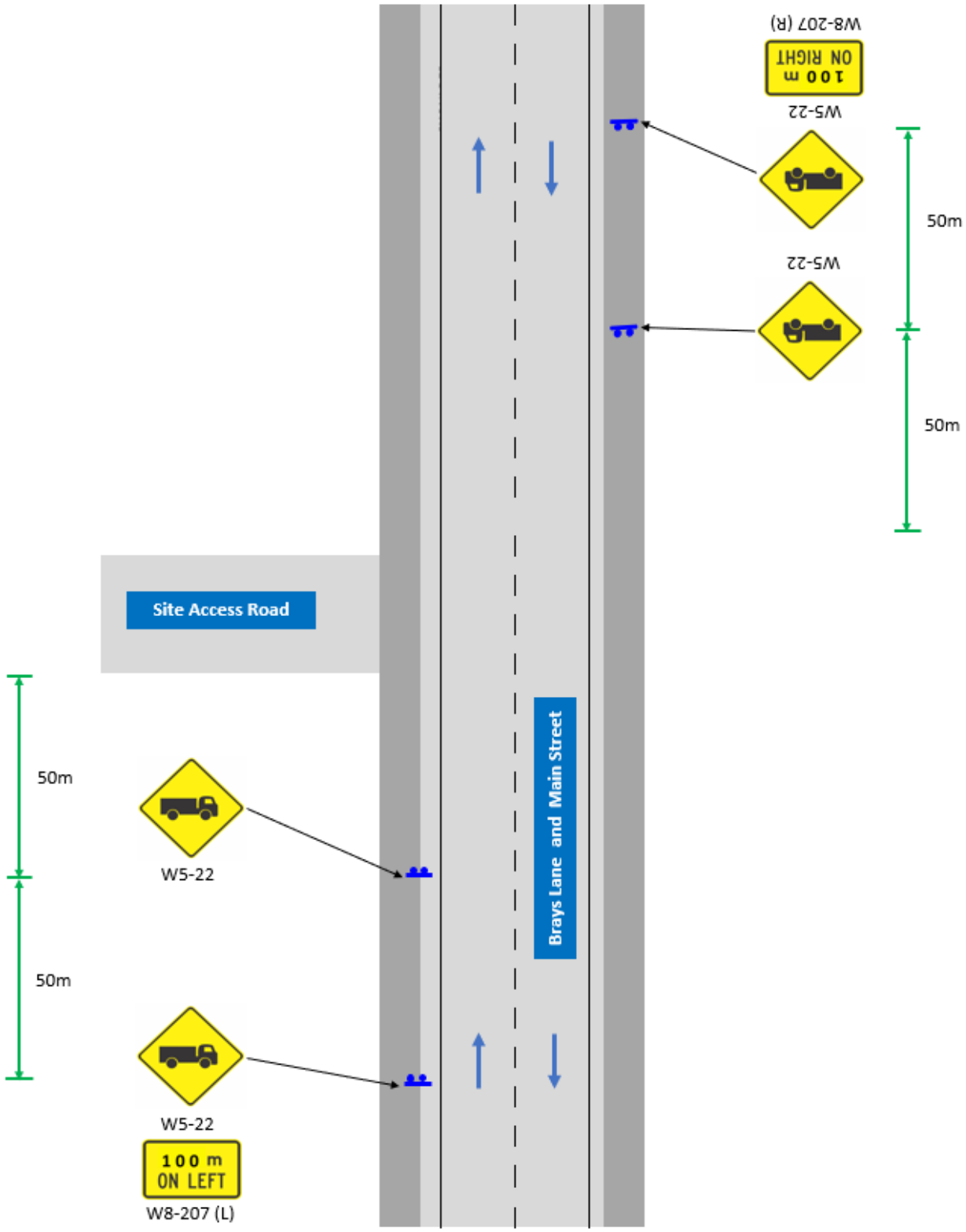



Figure 6.6 Indicative traffic signage for site access management on Brays Lane and Main Street

### 6.3.4 Signage and wayfinding

The proposed TGS and Variable Message Sign (VMS) will include the following considerations:

- Signage will be erected to pre-warn and advise road users of the temporary road closures and partial road closures (lane only)
- For detour routes, signage will help provide clear directions of alternative routes
- Road closure signage and works area barriers will be installed adjacent to the project site
- Temporary road/lane closure and detour information will be displayed on portable and permanent variable message signs (VMS) at key decision points on the wider road network to provide users with real time updates.
- Vehicle drivers (including third-party delivery drivers) to be given direction on how to get to and from destination, including indications of which roads not to use

#### 6.3.4.1 Signage protocols

Detour signage and traffic control measures will be implemented in advance of and during road closures to ensure safe and efficient traffic flow. Access for residents and emergency vehicles will be maintained where possible. Advance notification will be provided to affected stakeholders, and the proposed detour routes will be confirmed in consultation with the relevant road authorities.

Section 6.3.4.2 details the signage and detour arrangements that are planned to address the impacts that arise from the construction activities.

*Signage installation*

Signage must be installed in accordance with Traffic Control at Work Sites Technical Manual (Transport for NSW, Issue 2022). Signs will be placed so that road users have time to interpret and react to their messages. The following will be considered when placing signs:

- That signs be located and placed at a height that is within the driver's line of sight. Regulatory and warning signs should be placed such that the base of the sign is a minimum of 1.5m above the road surface.
- That signs be placed on the left-hand side of the roadway, and when in place, on median/centre safety berms at intersections.
- That regulatory signs (e.g. stop signs) be placed at the point at which a specific regulation commences.
- That signs stand out and be placed so that the background does not make them unnoticeable.
- That signs be appropriately placed. Inappropriately positioned signs or too many signs would deliver a false direction to drivers or miss the required information.
- That signs be removed as soon as they are no longer required.

*Monitoring and maintenance*

Signs shall be regularly maintained so that their purpose of providing clear and concise information to road users is not compromised. A monitoring and maintenance program for signage will be implemented by the Site Supervisor to ensure signs are effective and remain fit for purpose including:

- development and maintenance of a database of installed signage, including sign location, type and installation date
- monthly audit program of signage installed to assess its effectiveness
- confirmation that all signs are legible and reflective to ensure readability in low-lighting conditions
- inspections to check for damage or removal of signage installed
- a process for cleaning or replacement of signage as soon as feasibly practicable where damage or removal occurs.

#### 6.3.4.2 Signage at intersections

Signs will be used to alert workers to potential hazards from vehicles entering and exiting the construction workplace and other requirements, such as any upcoming vehicle conflict area, changes in travel conditions and pedestrian exclusion zones. This includes the intersections of Castlereagh Highway with roads such as Brays Lane, Main Street and Karawatha Drive, where there will be specific directions for both public traffic and construction traffic.

Traffic routes will be clearly signed to indicate speed limits, vehicle movement, directional information, key site area, radio communication information and other route hazards. Standard regulatory and warning signs will be used where possible.

*Signage at intersection of Boulder Road and Castlereagh Highway*

Further consultation will be required with Transport for NSW to improve the existing road sign on the southern approach to the Boulder Road / Castlereagh Highway intersection. Figure 4.22 from the TTA has been reproduced to identify the proposed sign change.




*Source: Mount Piper to Wallerawang Transmission Line Upgrade - Technical Report 8 – Traffic and Transport Assessment (GHD, August 2025)*

Figure 6.7 Boulder Road / Castlereagh Highway (southern approach) proposed sign change

*Signage and detours at intersection of Karawatha Drive and Castlereagh Highway (Site Access 3)*

As mentioned in Section 5.1.1, Site Access 3 has a sight distance deficiency on the north approach of Castlereagh Highway (looking left from Karawatha Drive). This can be alleviated by the implementation of a Left In / Left Out only arrangement for construction vehicles only. Signage, indicating that no right turns are allowed for construction vehicles at this intersection, will be placed at appropriate approach distances to the intersection, providing ample warning for construction vehicles. Traffic controllers will be present, to ensure the appropriate vehicle movements are conducted by construction vehicles. This arrangement is illustrated Figure 6.8 and Figure 6.9.

For construction vehicles that need to travel south along Castlereagh Highway, the facility at Springvale Coal (accessed via the existing Site Access 2) will be used as a turnaround facility. This would require the construction vehicles (proposed for light and heavy vehicles up to 19 metres length) to travel north towards Springvale Coal and perform a turnaround at the facility, before travelling back south. Site vehicle dispatch staff will be implemented to ensure there is only one heavy vehicle (up to 19 metre articulated) vehicle arriving or departing Karawatha Drive at any one time, so that heavy vehicle arrivals or departures are staggered.

The Construction Manager will develop a schedule to plan the movements of project-related heavy vehicles (specifically heavy vehicles up to a 19-metre articulated vehicle). This schedule will be communicated at daily tool-box meetings. The Construction Manager will implement a radio communication protocol to enable accurate coordination of project-related traffic. The details of how this will be implemented is discussed in Section 6.4.1 and 0.

### *Signage for right turn restrictions from Castlereagh Highway onto Site Access 10 for project-related vehicles*

As discussed in Section 3.4, this intersection of Castlereagh Highway and Site Access 10 (where the Greenspot Gate 1 is located) will have right turns restricted for project-related vehicles. Specifically, the right turn movement from Castlereagh Highway into Site Access 10 is banned – this directive will be communicated and reinforced with drivers at induction and regularly during pre-start briefings as described in Section 6.4.

Signage, indicating that no right turns are allowed for construction vehicles at this intersection, will be placed at appropriate approach distances to the intersection, providing ample warning for construction vehicles. This signage arrangement is illustrated in

Figure 6.10.

### *Signage for right turn restrictions from Castlereagh Highway onto Brays Lane for project-related vehicles*

As discussed in Section 3.4, this intersection of Castlereagh Highway and Brays Lane will have right turns restricted for project-related vehicles. Specifically, the right turn movement from Castlereagh Highway into Brays Lane is banned – this directive will be communicated and reinforced with drivers at induction and daily toolbox briefings as described in Section 6.4.

Signage, indicating that no right turns are allowed for construction vehicles at this intersection, will be placed at appropriate approach distances to the intersection, providing ample warning for construction vehicles. This signage arrangement is illustrated in Figure 6.11

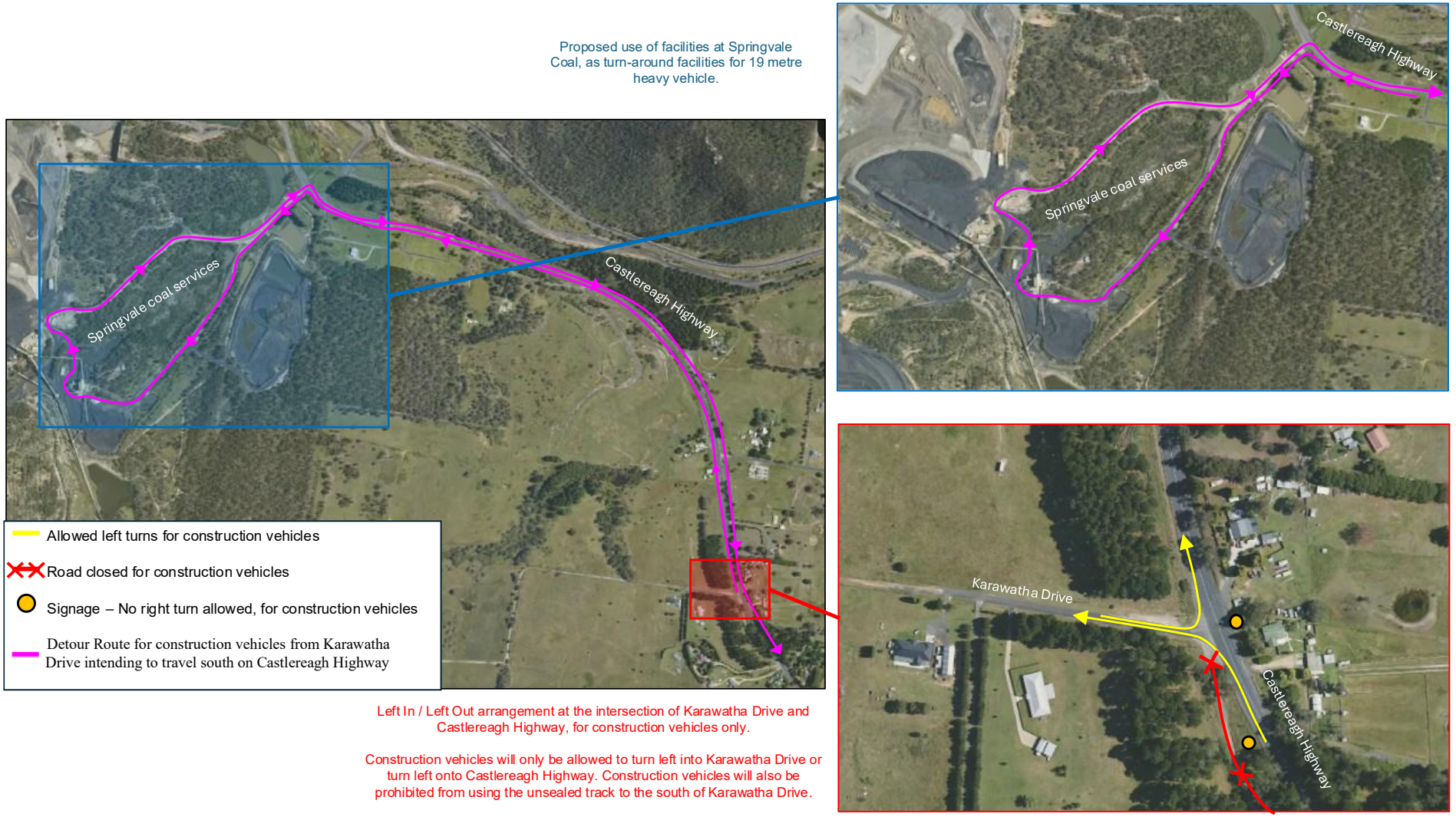



Figure 6.8 Indicative Left In / Left Out arrangement at Karawatha Drive, for construction vehicles only

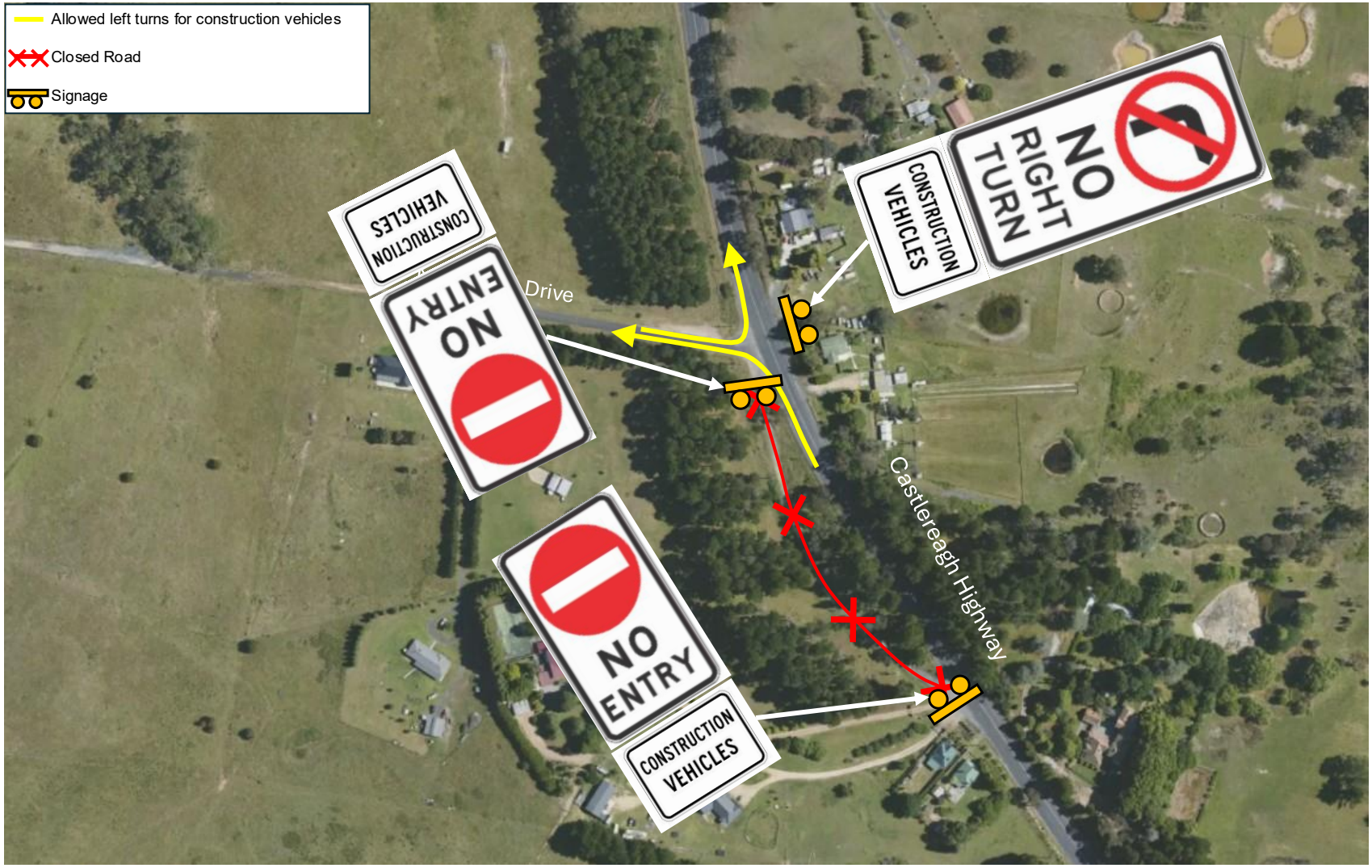



Figure 6.9 Indicative arrangement to ban construction vehicles from using unsealed track to south of Karawatha Drive and from turning right, from Castlereagh Highway to Karawatha Drive

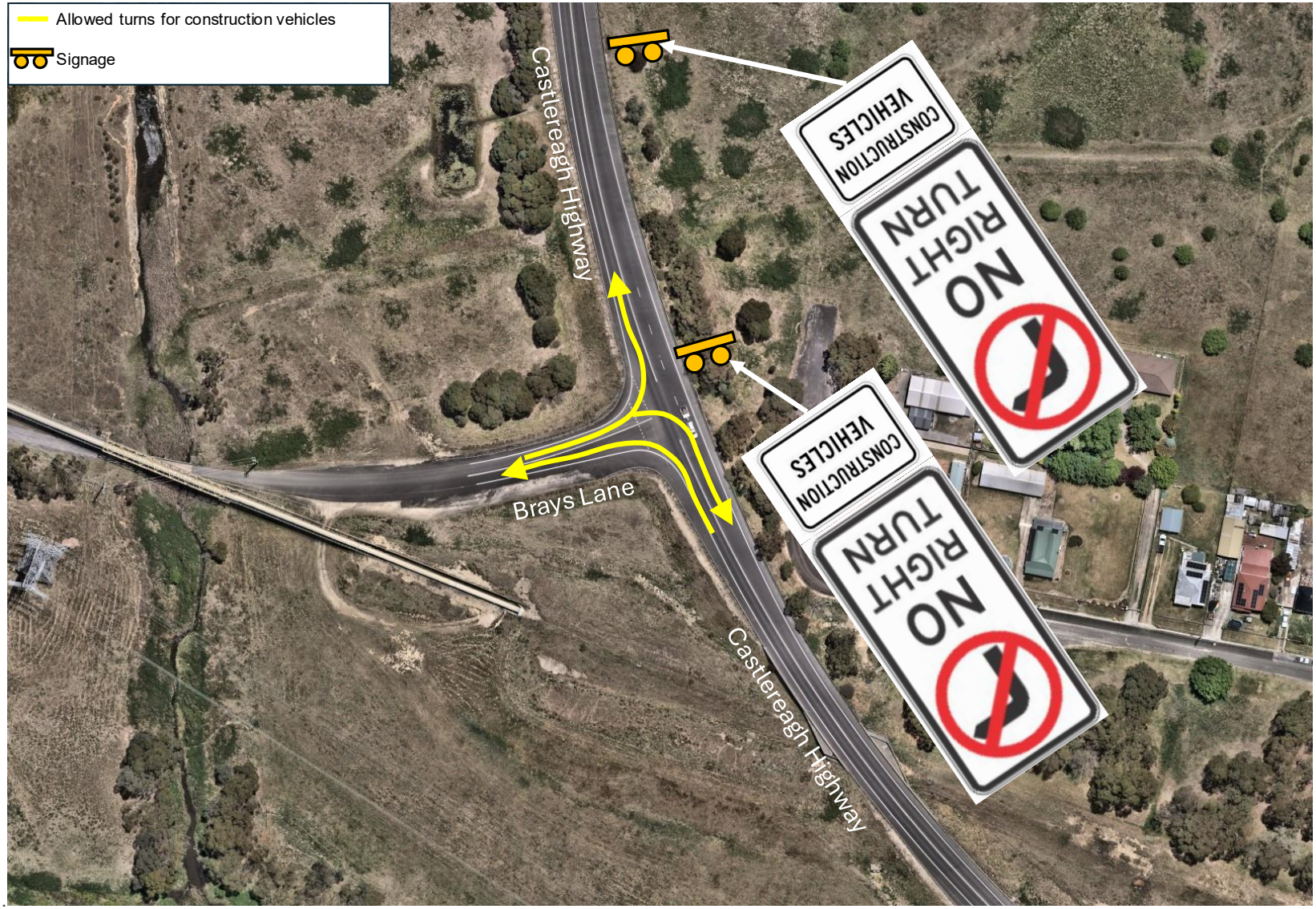



Figure 6.10 Indicative arrangement to ban construction vehicles from turning right, from Castlereagh Highway to Brays Lane

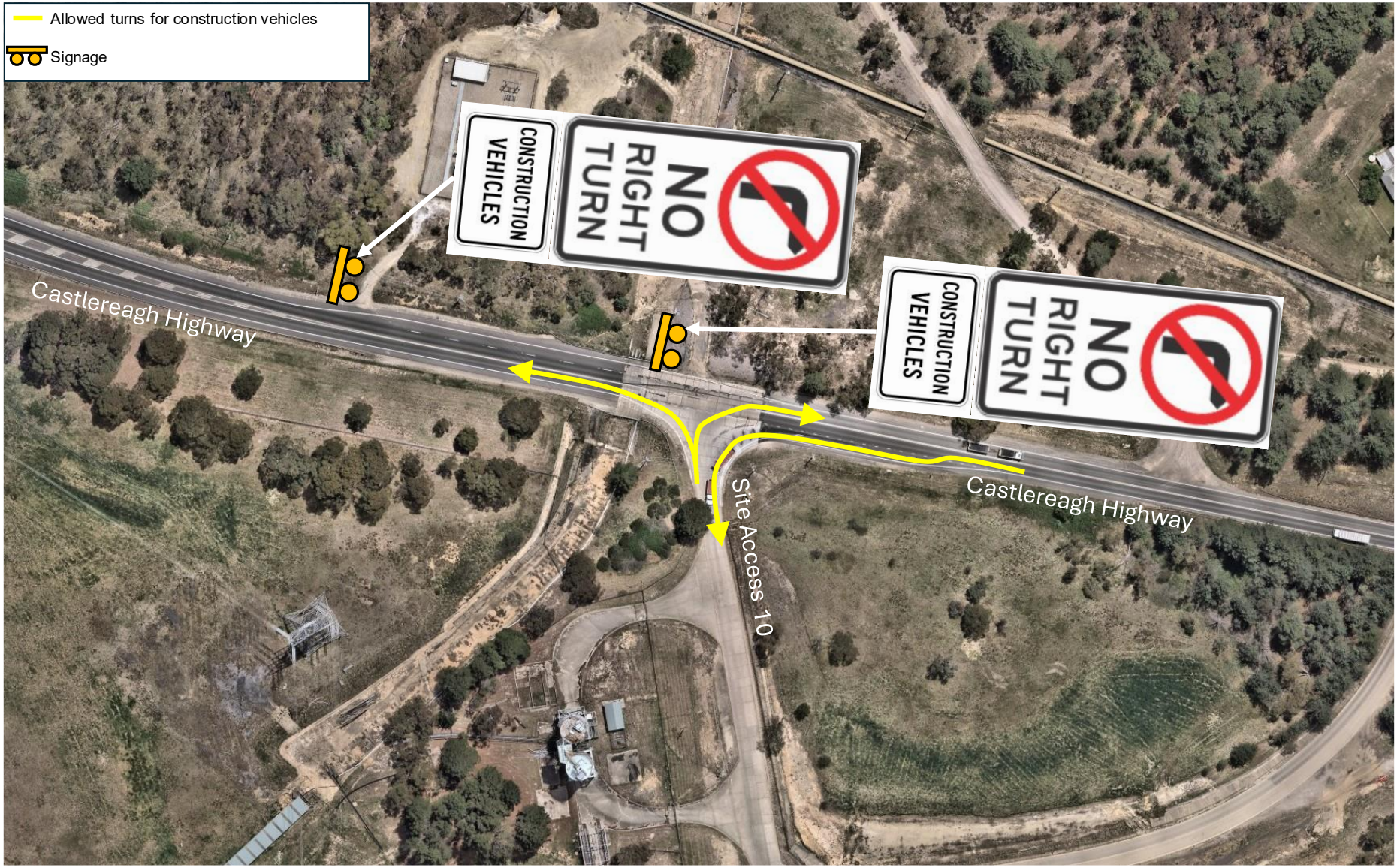



Figure 6.11 Indicative arrangement to ban construction vehicles from turning right, from Castlereagh Highway to Site Access 10

*Signage and detours at intersections of Brays Lane and Main Street, with Castlereagh Highway*

As discussed in Section 5.1.2, there will be road closures due to line stringing (where temporary road closures for around 30 to 60 minutes, during off-peak periods are anticipated) and site access constructions (where lane closures, lasting up to the construction period of the site access) during pre-construction works.

The line stringing locations are illustrated in Section 6.3.1 and also illustrated in greater detail in Appendix B.

Further discussion of the site access construction is discussed in Section 4.3.1.

Detour signs on Main Street and Brays Lane, will be placed at key decision points (see Appendix B for Traffic Guidance Scheme) advising motorists, public transport users, pedestrians, and cyclists of the alternative travel routes.

The alternative travel routes for each road closure location (at Main Street and at Brays Lane), are illustrated in Figure 6.12 and Figure 6.13 respectively. The details are as follow:

- For the closure of Main Street: traffic would be diverted from the intersections with Pipers Flat Road and the Castlereagh Highway. Vehicles would use Brays Lane as an alternative to Main Street, which can be accessed via Pipers Flat Road and the Castlereagh Highway. This diversion would be around 2 km longer than the current route along Main Street (around two minutes additional travel time). In addition, an early warning system would be implemented, by using Variable Message Sign to warn public traffic about the closure of Main Street. Drivers will be notified of the closure on Great Western Highway before the ramp with Castlereagh Highway.
- For the closure of Brays Lane: traffic using Brays Lane would be diverted from the intersections with Pipers Flat Road and the Castlereagh Highway. Diverted vehicles would use Main Street as an alternative to Brays Lane, which can be accessed via Pipers Flat Road and the Castlereagh Highway. This would result in a maximum increase in travel time of around seven minutes to access the destinations on Brays Lane to/from the Castlereagh Highway.

The Construction Manager will develop a schedule to plan the movements of project-related vehicles. This schedule will be communicated at daily tool-box meetings. The Construction Manager will implement a radio communication protocol to enable accurate coordination of project-related traffic. The details of how this will be implemented is discussed in Section 6.4.1 and 0.

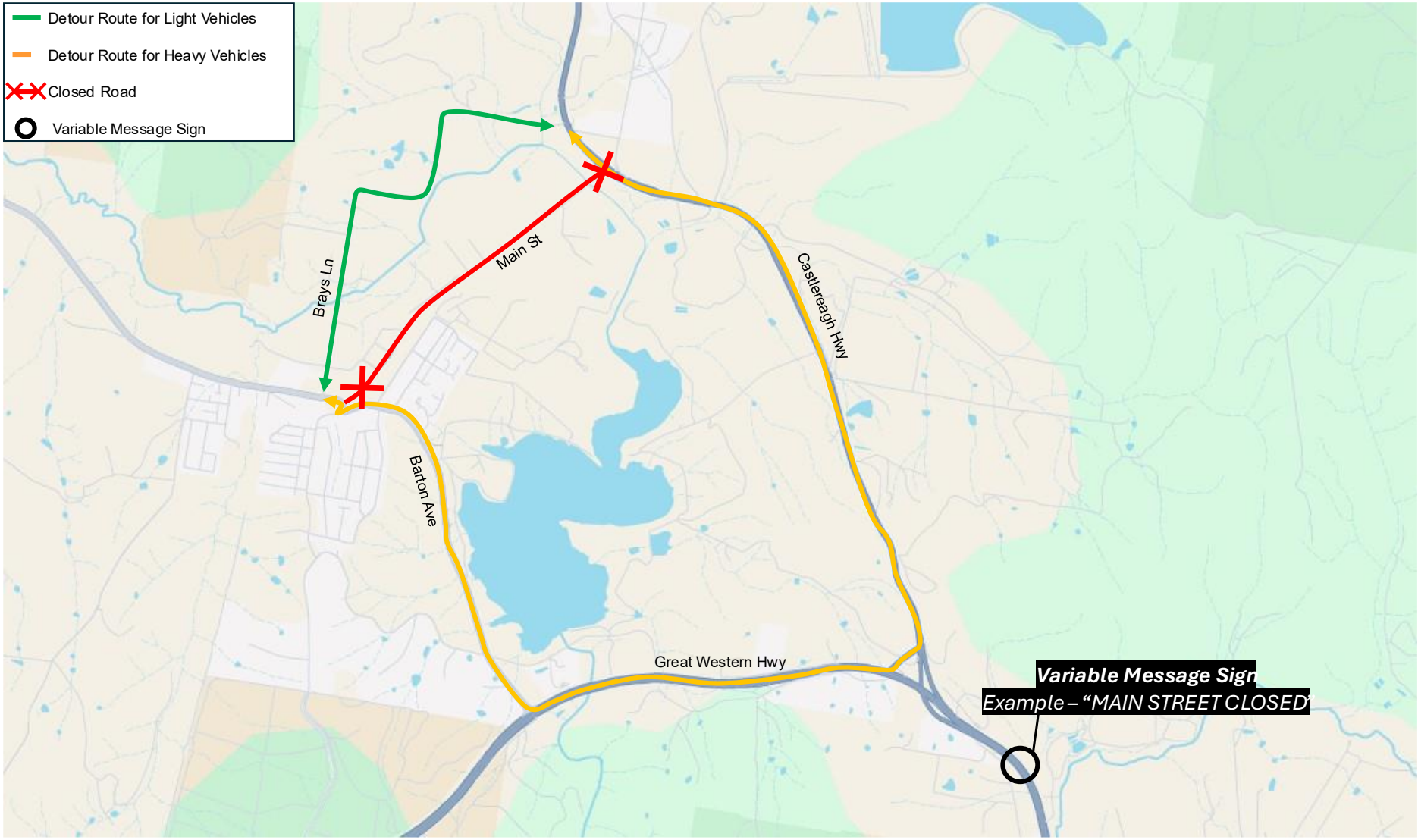



Figure 6.12 Detour routes for public traffic, during temporary road closures (approximately 30 to 60 minutes, off-peak period) on Main Street for line stringing, including Variable Messaging Signage to advise drivers of closure period and alternative route

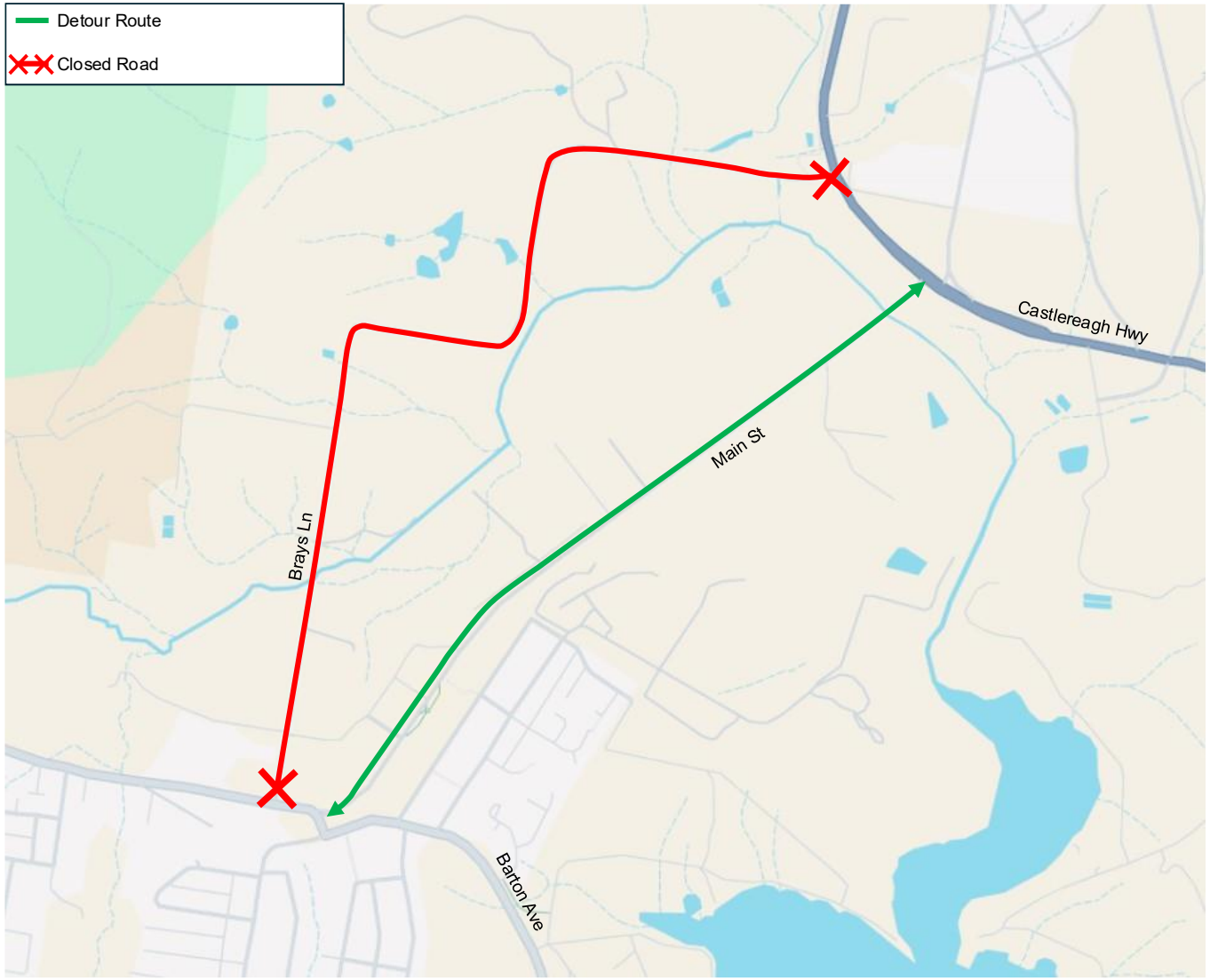



Figure 6.13 Detour routes for public traffic, during temporary road closures (approximately 30 to 60 minutes, off-peak period) on Brays Lane for line stringing

## 6.4 Monitoring, compliance and reporting

Prior to the commencement of Construction, the Construction Manager will implement a robust monitoring program to track construction traffic and ensure all traffic management measures are effectively maintained throughout the project. This program will rely on automated data collection (from camera tracking technology) and regular on-site observations so that actual vehicle movements can be compared against initial estimates, and any necessary adjustments to traffic controls or safeguards can be made promptly such that drivers are advised as required during pre-start meetings. From this, the Construction Manager will develop a schedule to plan the movements of heavy vehicles (up to a 19-metre articulated vehicle) as well as for all development traffic to avoid peak periods where reasonable and feasible in accordance with the project-related traffic estimated in the Revised TTA (Section 4.1.6 – Construction traffic generation).

Construction traffic movements on Brays Lane will be managed through a combination of the temporary passing bay, vehicle-volume controls, delivery scheduling, vehicle dispatch and two-way radio communication. These controls will minimise conflicts between opposing vehicles, maintain safe traffic flow and prevent queuing on Castlereagh Highway.. The vehicle volume restrictions are as follows:

- 27 light vehicles (including utility vehicles) per hour. These maximum vehicle movements would occur at the start of the day (6:30 am – 7:30 am) and at the end of the day (4:30 pm – 5:30 pm).
- Restricted heavy vehicle movements at a time along Brays Lane, which will be controlled via radio communication as described in Section 6.4.1.4. This will allow heavy vehicles to utilise the temporary passing bay on the southern side of Brays Lane, thereby maintaining safe two-way traffic flow. Heavy vehicle movements will be limited to 18 heavy vehicles (in total) per hour and are as follows:
  - 3 heavy vehicles (up to 19-metre-long semi-trailers) at a time.
  - 15 heavy vehicles (up to 10 metre in length) per hour.

It will be communicated to personnel through the induction with regular reminders at pre-start briefings that under no circumstances can vehicles queue on Castlereagh Highway. If this is possible then the vehicles will be required to continue along Castlereagh Highway and enter site through another approved access point.

### *6.4.1 Monitoring program*

Key components of the monitoring program are described in this section with a summary of monitoring activities provided in Table 6.1. The effectiveness of these measures will be assessed during the Project's regular Independent Environmental Audits, the reports from which will be published to the Project's website.

#### 6.4.1.1 Implementing driver training and induction

All construction-related vehicle drivers and site staff involved in traffic management will undergo comprehensive induction and training on traffic management protocols, including the Drivers Code of Conduct, prior to commencing work. This training will cover:

- the approved haulage routes
- key restrictions, such as:
  - designated travel times
  - speed limits
  - vehicle volume restrictions (vehicle staggering) at the intersection of Brays Lane and Castlereagh Highway
  - weight restriction on Brays Lane
  - the location and safe use of the Brays Lane passing bay, including any applicable priority arrangements and the prohibition on stopping or parking within the passing bay.

- left-in/left-out access and staggered arrival/departure (for 19-metre-long articulated vehicles) requirements at Site Access 3 – Karawatha Drive and Castlereagh Highway
- prohibition of project-related use of the unsealed track near Karawatha Drive to minimise dirt on public roads in accordance with the Soil and Water Plan Section 6.2 (Erosion and Sediment Controls Measures)
- only one project related heavy vehicle (up to 19 metre articulated) vehicle arrives and departs at any one time on Karawatha Drive
- right turn bans from Castlereagh Highway into Karawatha Drive, Brays Lane and Site Access 10
- safety procedures (such as ensuring loaded vehicles entering or leaving the site have their loads covered or contained and leave site in a forward direction)
- communication protocols
- available carpooling and shuttle bus services (if required)

- including the event of an emergency outage recall, where vehicle restrictions may include the above key restrictions.

Emphasis will be placed on safe driving practices, community safety, and compliance with the Management Plan requirements. Regular toolbox talks and refresher briefings will be held to reinforce these expectations and address any issues identified during monitoring (for instance, if unsafe manoeuvres or non-conformance with route restrictions are observed, they will be raised in daily pre-start meetings and corrected through re-training or disciplinary measures as appropriate).

#### 6.4.1.2 Vehicle tracking camera systems

Every construction vehicle entering or exiting the site office on Main Street as well as each site access point will be recorded using vehicle tracking camera systems. This provides up-to-date data as well as live records comprising a continuous log of the number of trips, vehicle types, and timing of movements.

These systems will have license plate capability which uses Automatic Number Plate Recognition (ANPR) technology. This technology will identify, record, and log vehicle registration details in real time. This would track contractor vehicles (light vehicles and heavy vehicles) as well as third party delivery vehicles.

By regularly reviewing the tracking data, the Construction Manager can verify that actual project related vehicle movements remain within the forecasted limits. Any deviation will prompt a review and investigation, where updates to traffic management strategies or implementation of additional safeguards will be done as necessary.

#### 6.4.1.3 Comparison against projected construction-related traffic

The projected construction-related traffic from the development are illustrated and tabulated in the Revised TTA (Section 4.1.6 – Construction traffic generation). This is found within the following locations of that document:

- Table 4.4 (which contains maximum construction movements during peak periods, at mid-block locations)
- Figure 4.5 (AM Peak Period project traffic movement distributions across road network)
- Figure 4.6 (PM Peak Period project traffic movement distributions across road network)

As mentioned in Section 6.4.1.2, the project will deploy camera tracking systems on entry and exit to the site access points and the site office, to verify the construction traffic movements abide by the Management Plan. This outputs real-time traffic counts, classified by vehicle type and contractor or third-party origins, through number plate tracking. This information will help the Construction Manager determine any exceedances. The actual number and type of project-related vehicle movements will be compared to initial traffic estimates.
The actual project-related vehicle numbers will be monitored and checked on a weekly basis, while works are occurring, by the Construction Manager. Where the numbers to an access point or the site office are within 25% of the estimated peak, then the Construction Manager would be alerted. The Construction Manager will then take further action as appropriate to limit the number, which comprise measures such as:

- the re-distribution of the work crew
- instruction to use an alternative access point (if there is sufficient traffic capacity)
- use of mini buses from the office compound.

*Contractor heavy vehicles and third-party delivery vehicles*

Heavy vehicle movements comprise:

- concrete agitators
- third-party delivery vehicles to the laydown areas or site office area on Main Street
- third-party deliveries taken directly to the tower location via site access point
- third-party deliveries of rock material (quarried) for access points

Some of the heavy vehicles will travel from the office compound on Main Street to the tower sites via site access points. Other movements such as concrete and quarried products travel directly from the batching plant or quarry to the site access points.

Each third-party supplier will be required to confirm delivery schedules to a Construction Manager or have the planned deliveries for delegated for the workday. The Zinfra Supervisor will keep track of this to allocate the number of heavy vehicles that are allowed to use each entrance daily, from each vendor. This shall be made in consideration of the turnaround time for repeat loads for concrete, quarried materials and other repeat deliveries. This planning will ensure vehicle numbers are not exceeded.

The actual numbers of heavy vehicles will be compared to the estimated peak project-related vehicle numbers (derived from the projected construction-related traffic from the development in the Revised TTA. Any exceedance would be considered a non-compliance with consideration of measures to rescheduling heavy vehicle movements, to keep the actual numbers within the estimated peak. This will be overseen by the Zinfra Construction Manager, but the day-to-day management may be delegated to a Supervisor.

Similarly, the Construction Manager or delegate (Supervisor) would manage and record the OSOM movements to ensure compliance. Site induction will be undertaken for each third-party delivery vehicle (including OSOM movements), and any exceedance will be triggered for review by the Construction Manager.

#### 6.4.1.4 Communication and coordination via two-way radio

Real-time communication measures will be implemented in the form of two-way radios tuned to a dedicated channel for construction traffic management & drivers. This will help coordinate traffic and rapidly address any issues on the road. All heavy vehicle drivers, traffic controllers, and key site personnel will be equipped with two-way radio and the appropriate channel. Radio communication protocols will be in place, where drivers would confirm instructions & movements. Radio communication between drivers and the Construction Manager, or their delegate, will facilitate immediate updates about changing traffic conditions, queuing at access points, or safety incidents. This enables the site team to, for example, hold or stagger truck departures to avoid network peak where possible or emergency situations such as an emergency outage recall, or to dispatch additional traffic control resources to an area if unexpected delays occur.

In addition, a traffic controller will be allocated to manage traffic on Karawatha Drive, on a scheduled day that is to have heavy vehicles up to 19 m accessing this location. A radio channel will be allocated to the person, with the same channel being communicated to any heavy vehicle using this route.

To minimise the risk of more than one 19m vehicle on Karawatha Drive, the works will be planned to minimise the third party delivery suppliers who will use these heavy vehicles, such as in the case of reinforcement deliveries and steel deliveries, will be allocated a day on which they can use this access point.

This description of monitoring programs is summarised in Table 6.1. These programs will be administered by the Construction Manager or delegate on a weekly basis and the results will be summarised in the monthly site report.

Table 6.1 Summary of monitoring programs

| Monitoring program | Description | How is this tracked? | Outcome |
|---|---|---|---|
| Implementing driver training and induction | Driver training and induction covering:<br>— approved haulage routes<br>— key restrictions, such as:<br>  — designated travel times<br>  — speed limits<br>  — vehicle volume restrictions (vehicle staggering) at the intersection of Brays Lane and Castlereagh Highway<br>  — vehicle weight restriction on Brays Lane<br>  — location and safe use of the Brays Lane passing bay, including applicable priority arrangements and the prohibition on stopping or parking within the passing bay<br>  — left-in/left-out access and staggered arrival/departure (for 19-metre-long articulated vehicles) requirements at Site Access 3 – Karawatha Drive and Castlereagh Highway, maintained via a traffic controller at the location<br>  — prohibition of project-related use of the unsealed track near Karawatha Drive to minimise dirt on public roads) in accordance with Soil and Water Plan Section 6.2 (Erosion and Sediment Controls Measures) and Appendix B (Erosion and Sediment Control Plan)<br>  — only one heavy vehicle arrives and departs at any one time on Karawatha Drive, maintained via a traffic controller at the location<br>  — right turn bans from Castlereagh Highway into Karawatha Drive, Brays Lane and Site Access 10<br>  — project-related vehicle volume restrictions, as described in Section 6.4<br>— safety procedures (such as ensuring loaded vehicles entering or leaving the site have their loads covered or contained and leave site in a forward direction)<br>— communication protocols<br>— available carpooling and shuttle bus services (if required) | — Induction and toolbox attendance records<br>— observations from supervisors and traffic controllers<br>— issues raised in pre-start meetings and corrective actions recorded. | Improved driver conformance with requirements and reduced safety and community impacts. |

| Monitoring program | Description | How is this tracked? | Outcome |
|---|---|---|---|
| Vehicle tracking camera system | Camera system recording details of every construction vehicle entry and exit from the site office on Main Street and all other site access points. | — Weekly review of project related vehicle numbers<br>— Tracking actual vehicle movements against the forecasted vehicle movements. | Verification that vehicle movements remain within approved limits and timings. |
| Communication and coordination via two-way radio | Real-time communication measures in the form of two-way radios tuned to a dedicated channel for construction traffic management & drivers. | — Radio protocols monitored by site management<br>— Any identified congestion, delays and incidents logged and reviewed. | — Immediate response to emerging traffic issues<br>— improved coordination<br>— reduced queuing or safety risks at access points. |
| Vehicle use of approved routes and times | Drivers will be given instructions on which route to take.<br>A vehicle dispatcher at each active site entrance will monitor and release heavy vehicles. The dispatcher at Access 3 will release trucks to avoid simultaneous use of the intersection of the Castlereagh Highway and Karawatha Drive. | — Contracted construction vehicles will be tracked with camera tracking system | — The movement of vehicles will be planned to comply with the conditions of approval. |

Third party vehicles delivering goods vehicles will be directed to travel to the site office on Main Street. From there, a timeslot will be allocated for when they can go to Karawatha Drive. There will be radio control and signage, where they will radio the site office. There will also be site induction for each delivery vehicle driver at the site office.

### 6.4.2 Daily traffic control checklists

Daily traffic control checklists will be completed by the Construction Manager or their delegates, prior to the commencement of construction activities, at the daily pre-start meeting. The checklists will be used to confirm that all traffic management measures are in place and functioning as intended, including:

- Arrangements are understood for placement of signage, barriers and any other controls
- Access arrangements are understood
- traffic controller positioning (at Karawatha Drive, on a day that is determined by the Construction Manager to have heavy vehicles accessing this location)
- verifying site access points are operating correctly through visual inspection (This would be monitored through the day and recorded on the following days checklist)
- confirming that the Brays Lane passing bay is unobstructed, serviceable and available for its intended traffic-management function.
- compliance of construction vehicles with approved entry and egress procedures, designated travel routes and speed limits (This would be monitored through the day and recorded on the following days checklist)
- visual traffic inspection during peak hours to identify unacceptable queuing (This would be monitored through the day and recorded on the following days checklist)

Any deficiencies identified through the daily checks will be rectified immediately, or where this is not practicable, escalated to the Construction Manager for action. Completed checklists will be saved for project records and used to demonstrate ongoing compliance.

The Construction Manager or delegate will check local weather conditions that may affect road safety (such as fog, dust, wet weather and flooding) and road closures (using Transport for NSW's LiveTraffic and the Bureau of Meteorology (BOM) websites). Suitable alternative routes will be identified if possible. These would be communicated at the morning briefing. If adverse conditions or closures occur during the day, notification will be provided to appropriate construction workers, normally by radio or phone discussion. The Construction Manager would monitor conditions throughout the day.

### 6.4.3 Internal Site audits

Formal site audits will be undertaken by the Construction Manager or traffic management delegate on a weekly basis during active works in accordance with this Plan to verify the effectiveness and ongoing suitability of the traffic management measures. Site audits will include a review of the daily traffic control checklists detailed in Section 0.

Audits will also include inspections of surrounding roads, including

- Karawatha Drive / Castlereagh Highway (Site Access 3), to identify road dilapidation conditions
- Brays Lane / Castlereagh Highway, to identify any congestion issues
- roadside safety issues, road dilapidation and damage to public roads, site access points and associated infrastructure (including Brays Lane passing bay, road shoulders, drainage assets, signs, guideposts and traffic control devices) to confirm they remain in a safe and serviceable condition and to identify any maintenance, repair or corrective actions required as a result of Project activities.
- congestion/queueing associated with construction traffic

Findings from site audits will be documented, with any required corrective actions assigned, tracked and addressed in a timely manner. Further details of site audits, such as frequency and corrective actions, will be in accordance with the relevant section of the Project CEMP.

Water-related infrastructure associated with Project roads and access tracks, including culverts, drains, drainage outlets and erosion and sediment controls, will be inspected as part of the weekly site audits to confirm that it remains safe, serviceable and free from damage, sediment or debris that may reduce its capacity or effectiveness. Where maintenance is required, the Construction Manager or delegate will arrange for affected infrastructure to be cleared, repaired or otherwise maintained as soon as practicable. Additional inspections will be undertaken following significant rainfall or severe weather where required. Detailed inspection, maintenance and corrective action requirements for drainage, erosion and sediment controls are provided in Sections 9.2, 9.6.1, 9.6.3 and 9.7.8 of the Soil and Water Management Plan.

### 6.4.4 Road dilapidation surveys

Independent road dilapidation surveys will assess the condition of the local and regional roads (including local road crossings) shown in Figure 3.1, prior to use of the relevant road by development related heavy vehicles for the purposes of construction, upgrade or decommissioning works. These will occur at the following stages (unless agreed to by the relevant roads authority/manager):

- Before the use of the relevant road by development-related heavy vehicles or within a timeframe agreed to by the relevant roads authority/manager;
- Within one month of completion of all construction, upgrading or decommissioning works or within a timeframe agreed to by the relevant roads authority/manager;
- On an annual basis during construction or within a timeframe agreed to by the relevant roads authority/manager.

The surveys will be supplemented by internal site audits performed on a weekly basis during works by the Construction Manager or delegate in accordance with Section 6.4.3. Project personnel will be encouraged to report any worsening damage they see. Damage may also be reported by Council, TfNSW or the public. These reports will be verified by the Construction Manager or delegate.

Where the surveys identify any damage to local roads on the transport route that are a result of development-related traffic, the Construction Manager will organise for it to be rectified within the following timeframes (unless agreed to by the relevant roads authority/manager):

- As soon as possible if it could endanger road safety, and no longer than 7 days after the survey
- Two months of the completion of the survey

Following completion of any repairs, a report will be completed in consultation with the relevant roads authority.

If there is a dispute about the road maintenance works, or the implementation of these works, then the matter will be referred to the Planning Secretary for resolution.

### 6.4.5 Incident management

In accordance with the Infrastructure Approval, an incident is an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance. Material Harm is harm that

- involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or
- results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $50,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).

This definition excludes “harm” that is authorised under either the Approval or any other statutory approval.

All incidents will be reported immediately to the Transgrid Project Manager and must be entered by Zinfra into OMNIA within 24 hours, Zinfra's Risk and Compliance Management System, which serves as the project's incident management database to ensure that actions are tracked and completed within the required timeframes.

OMNIA supports the management of:

- Enterprise- and Business Unit-level risks, including associated controls, causes, and actions
- Compliance obligations and related documentation

Where an incident has occurred, additional monitoring or notifications to Police or asset owners such as TfNSW or Lithgow City Council may be required. These requirements will be determined by the Project Manager in consultation with the Project Engagement Lead.

Where emergency repair or maintenance requirements are identified through inspections, road dilapidation surveys, incident investigations or reports from road authorities or the community, the Construction Manager will assess the issue and implement appropriate interim traffic management measures to maintain road safety. These measures may include speed restrictions, traffic control, temporary lane closures, detours, restrictions on heavy vehicle movements or the use of alternative access routes. Emergency repairs will be undertaken as soon as practicable in consultation with the relevant road authority, with any required permits and traffic control measures implemented in accordance with this Plan. Records of the issue, response actions and completed repairs will be maintained.

#### 6.4.5.1 Incident Notification

In accordance with Condition C16, the Zinfra Environmental Business Partner (through Transgrid) will notify the Department and NPWS within 24 hours of becoming aware of an incident. The notification to the Department must be made via the NSW planning portal (Major Projects) and address details of the incident, including:

a. date, time and location;
b. a brief description of what occurred and why it has been classified as an incident;
c. a description of what immediate steps were taken in relation to the incident; and
d. identifying a contact person for further communication regarding the incident.

#### 6.4.5.2 Incident Report

In accordance with Condition C17, the Zinfra Environmental Business Partner (through Transgrid) will provide the Department and NPWS with a subsequent incident report via the NSW planning portal (Major Projects) within 7 days (or as otherwise agreed by the Planning Secretary) of the incident notification (in accordance with Condition C16). The incident report shall

a. identify how the incident was detected;
b. identify when the Proponent became aware of the incident;
c. identify any actual or potential non-compliance with conditions of consent;
d. identify further action(s) that will be taken in relation to the incident; and
e. provide a summary of the incident;
f. provide outcomes of an incident investigation, including identification of the cause of the incident;
g. detail corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence, including the period for implementing any corrective and/or preventative actions; and
h. detail any communication with other stakeholders regarding the incident.

Zinfra's Environmental Business Partner (through Transgrid) shall also submit any further reports as directed by the Planning Secretary.

#### 6.4.5.3 Incident Investigation

An investigation will be initiated by the Zinfra Project Manager promptly following any reported incident. The scope and depth of the investigation will depend on the severity and potential impact of the incident. Key elements may include:

- Determining the cause, extent, and responsibility of the incident.
- Additional monitoring (where appropriate)
- Identifying and implementing corrective actions to prevent recurrence.
- Assigning responsibility for carrying out corrective measures.
- Reviewing and updating controls and procedures as needed.
- Notifying relevant stakeholders, including regulatory authorities, if significant traffic and transport impacts have occurred.

Investigations will follow the ICAM (Incident Causation Analysis Method), in alignment with Transgrid's investigation requirements. The level of investigation, team composition, and reporting obligations will be determined based on the actual and potential severity of the incident.

### *6.4.6 Non-Compliances*

An environmental non-compliance occurs when a condition of approval, licence condition, or any other statutory requirement relevant to a Project activity or location is breached.

Non-compliances may include incident-related significant non-compliances, which may result from construction activities.

For any non-compliances that are not classified as incidents and are identified through inspections, audits, or observations, in accordance with Condition C15, Transgrid's Environmental Business Partner will notify the Department via the Major Projects website within seven (7) days of becoming aware of the non-compliance. Zinfra will provide all necessary information to assist Transgrid in preparing this notification.

The written notification will include the following details:

- The development, including the development application number and Project name.
- The specific Condition of Approval that has not been met.
- The reasons for the non-compliance, if known; and
- Actions that have been undertaken, or are planned, to address the non-compliance, including expected timing for completion.

### *6.4.7 Access to this Plan and external reporting*

Transgrid will make a copy of this Plan available on its website (https://www.transgrid.com.au/projects-innovation/mount-piper-to-wallerawang/) as soon as practicable after it is approved by the Planning Secretary and will ensure that this is kept up to date as per Condition C18 of the Infrastructure Approval.

Transgrid must provide regular reporting on the environmental performance of the Project on its website, in accordance with the reporting arrangements of this Plan. This will be done through the upload of Independent Environmental Audit reports for the project in accordance with Section 7.2 of the Plan which will include an assessment the effectiveness of the measures within the code of conduct.

### *6.4.8 Corrective actions*

Where monitoring, inspections, audits, incidents, complaints or non-compliances identify deficiencies in traffic and transport management measures, corrective actions will be implemented to address the issue and prevent recurrence. The Construction Manager or delegate will assess the issue, implement any immediate controls required to maintain safety

and compliance, and determine appropriate corrective actions and timeframes. Corrective actions may include additional training, revised traffic controls, amendments to vehicle movements, scheduling changes, additional monitoring or updates to relevant traffic management documentation. The effectiveness of corrective actions will be verified through inspections, audits or monitoring activities, and records of actions and close-out will be maintained. Where corrective actions result in changes to approved traffic management measures, this Plan and associated Vehicle Movement Plans will be updated in accordance with Section 7 of this Plan.

## 6.5 Emergency Management

Emergencies will be managed in accordance with the project's Emergency Management Plan and associated sub-plans.

Emergency services need to have up-to-date information about changed traffic conditions and potential delays they may experience when travelling around the construction work areas. Emergency services should be regularly consulted by the Project Manager about proposed changes to traffic conditions.

Emergency services will be notified at least five days before implementing any lane closure. Consultation with the following emergency service organisations will be undertaken:

- NSW Police – Local Area Command
- Ambulance Service of New South Wales – District Manager
- State Emergency Service
- NSW Fire Brigade
- Rural Fire Service

## 6.6 Permits and approvals

### *6.6.1 Road Occupancy Licence requirements*

In accordance with Section 138 of the *Roads Act (1993)*, Road Occupancy Licences (ROL) will be required for all areas on Brays Lane and Main Street that are impacted by work zones (from construction of site access and the temporary passing bay) as well as the stringing of transmission lines, as detailed in Section 5.1.2. They will also be required for any repair roadworks resulting from the dilapidation surveys or where damage attributable to the project has occurred.

In addition, ROLs will be submitted for the overall OSOM route within NSW, based upon the OSOM Transport Management Plan, due to expected changes for the public road network to facilitate these movements such as changes in speed environment which will inform live traffic information. This will include development of a VMS Plan to provide advance notice of upcoming road closures and changed traffic conditions. VMS messages will be limited to a maximum of two display screens.

ROLs will be applied for through the Online Planned Incident System (OPLINC):
https://myrta.com/oplinc2/pages/security/oplincLogin.jsf

### *6.6.2 Oversize Overmass vehicle permit requirements*

The proposed OSOM routes are shown in Figure 6.14. There are a number of roads in the vicinity of the project, including Main Street, which are not approved for OSOM use and thus would be subject to further approval. This OSOM route is discussed in Section 5.1.3 and will require application for OSOM permit.

The proposed alternative route that uses Brays Lane (via the south) is no longer intended for use for OSOM vehicles, so a Transport Strategy as per condition B32 will not be required. In response to this change, Council has also waived the requirement for a structural assessment, for all construction vehicles (light vehicles and heavy vehicles, since they are all General Access Vehicles), for the structures along Brays Lane.

As discussed in consultation with Lithgow City Council, a detailed structural assessment of the Main Street bridge over Cox River, has been conducted by qualified suitably qualified and experienced professionals (Integrity Testing structural testing consultants, who were nominated by Lithgow City Council). The report has been attached as Appendix D, where the bridge has been determined to be adequate for the proposed OSOM load provided it does not exceed 16 tons per axle

The outcomes from these detailed structural assessments will inform the OSOM route to access the locations of the two southernmost proposed transmission structures (discussed in Section 0).

As discussed in consultation with TfNSW, the following documents (separate to the Traffic and Transport Management Plan) will be prepared to facilitate OSOM vehicle movement along the NSW road network:

- OSOM Transport Management Plan, in accordance with NSW guidelines, will be developed as part of permit requirements for it to traverse through NSW roads to reach site.
- the ROL requirements mentioned in Section 6.6.1
- Temporary Traffic Management Plan, which details the setting up of speed zone reductions and signage
  - Including Traffic Guidance Schemes, in accordance with Traffic Control at Work Sites Standard by Transport for NSW

The process requires an application via the NHVR portal: https://www.nhvr.gov.au/road-access/access-management/applications/oversize-overmass.

The application will require information on:

- Vehicle configuration data
- Load dimensions and mass
- Proposed travel route (including OSOM and non-approved sections)
- Travel dates/times (note weekend & holiday restrictions for Great Western Highway)

### 6.6.3 Rail possession requirements

UGL Regional Linx were contacted on 29th June 2026 as part of stakeholder consultation and notification processes and to understand their rail possession timetables and any other processes.

UGL Regional Linx responded with further forms to complete on 2nd July 2026. These will be completed by construction contractor closer to date of rail possession. This will minimise potential conflict between development-related traffic and rail services, including preventing queueing on the road network.

### 6.6.4 Lithgow City Council approvals

Consultations with Lithgow City Council were conducted on 27th May 2026, where discussion comprised the following:

- When lodging approval for the temporary road closure (see Section 6.3.1) with Council, the Road Occupancy License will need to be provided. This is relevant to Main Street and Brays Lane.
- Council concurs with the vegetation trimming described in Section 5.1.1, although this would occur on Energy Australia's land.
- Council has waived the requirement for a structural assessment, for all construction vehicles (light vehicles and heavy vehicles, since they are all General Access Vehicles), for the structures along Brays Lane (which is no longer proposed for OSOM vehicles)

### 6.6.5 NSW National Parks and Wildlife Service consultations

NSW National Parks and Wildlife Service were consulted as part of the stakeholder consultation process, to understand their communication needs. An overview of the project and the proposed traffic routes were provided, including where transmission lines and proposed access tracks intersect with managed land.

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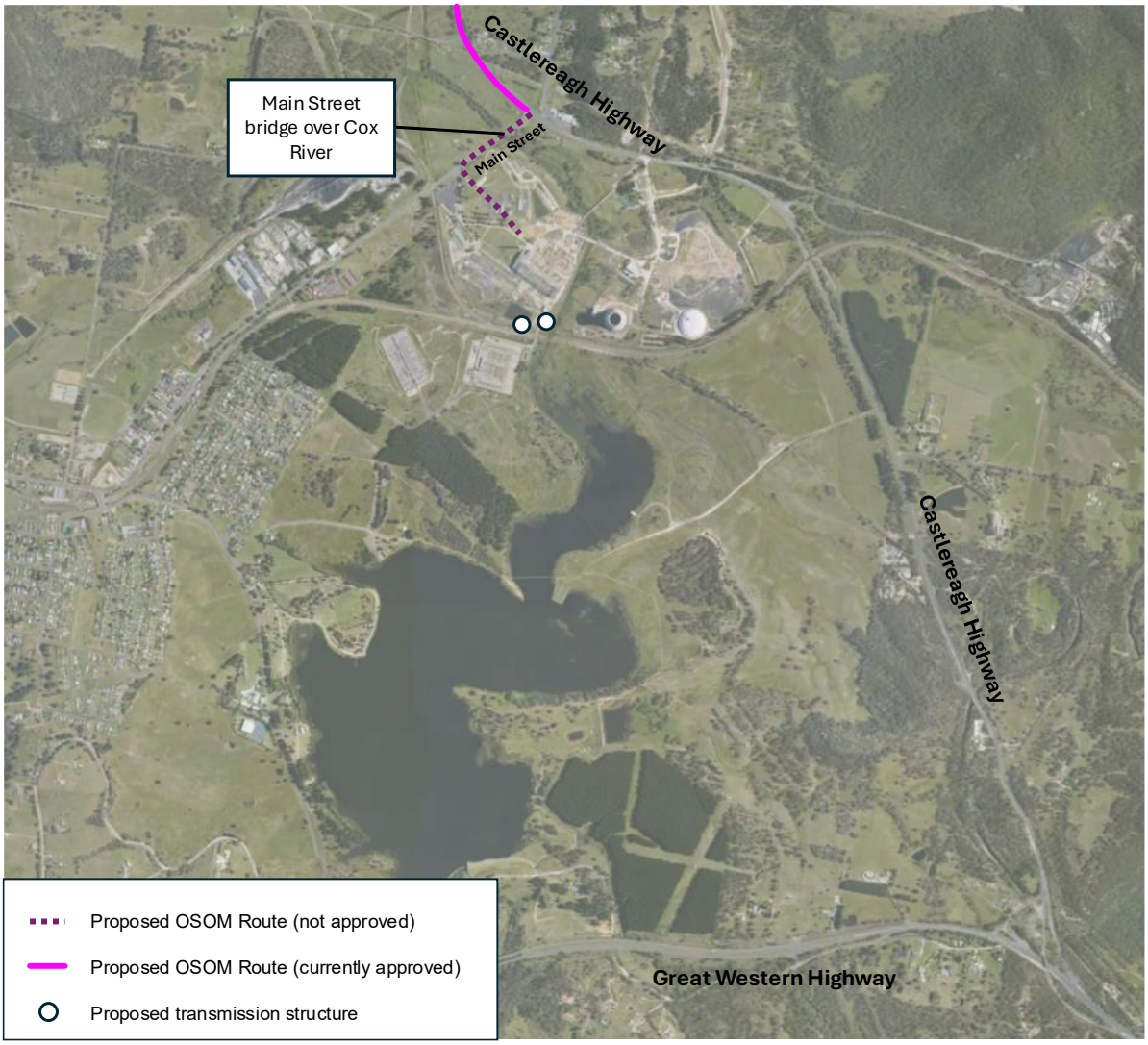



Figure 6.14 Proposed OSOM route via Barton Avenue and Main Street, including approval status

## 6.7 Consultation

Stakeholder consultation with the following agencies has been performed, the outcome of the consultation is below. The consultation will be ongoing through the construction to keep stakeholders informed of the construction activities including the temporary and partial road closures of Main Street & Brays Lane as appropriate. The approved version and subsequent updates of this Management Plan will be provided to the stakeholders mentioned. Any changes that may impact the stakeholders shall be the subject of consultation prior to updating of this plan.

Table 6.2 Stakeholder consultation details

| Stakeholder | Date of consultation | Discussion point | Outcome |
|---|---|---|---|
| Lithgow City Council | 27th May 2026 | Overview of project and the proposed traffic routes within Council's Local Government Area. Also discussed impacts and proposed mitigations.<br>Council has waived the requirement for a structural assessment, for all construction vehicles (light vehicles and heavy vehicles, since they are all General Access Vehicles), for the structures along Brays Lane (which is no longer proposed for OSOM vehicles).<br>See Section 6.6.4 | A draft copy of this Traffic & Transport Management Plan was provided to Council. Council responded with queries on 1st July 2026. A detailed response was provided on 3rd July 2026.<br>See Appendix C. |
| Transport for NSW | 26th June 2026 | Overview of project and the proposed traffic routes in relation to State Roads or locations near them. Also discussed impacts and proposed mitigations.<br>See Section 6.7.2 | A draft copy of this Traffic & Transport Management Plan was provided. Feedback received on 6th August 2026 and addressed on 7th August 2026.<br>See Appendix E. |
| NSW National Parks and Wildlife Service | 9th June 2026 | Overview of project and the proposed traffic routes that intersect with managed land.<br>See Section 6.6.5 | A draft copy of this Traffic & Transport Management Plan was provided. No further comments were provided. |
| UGL Rail (UGL Regional Linx) | 29th June 2026 | See Section 6.6.3 | UGL Regional Linx responded with further forms to complete on 2nd July 2026.<br>These will be completed by construction contractor closer to date of rail possession. |

Consultation activities to be led by the Project Engagement Lead include:

- liaise with relevant road authorities, councils, emergency services, adjoining landowners and other stakeholders regarding significant transport and traffic matters
- management/responding to complaints
- liaise with other project proponents/council regarding cumulative impacts.

### 6.7.1 Centennial Coal

Consultation has been undertaken by others, during the EIS process, around the Centennial Coal Springvale Coal Services facility at Access Point 2, the Project's use of which has been agreed to by Centennial Coal as part of consultation.

Ongoing consultation with Centennial Coal will be held on a monthly basis, led and undertaken by the Project Engagement Lead. This will be focused on the managing the access arrangements to ensure that heavy vehicles (up to

19m articulated truck) access their facilities one at a time, due to the restricted turns at the intersection of Karawatha Drive and the Castlereagh Highway.

### 6.7.2 Transport for New South Wales

Consultation with TfNSW was conducted on 26 June 2026 and feedback was received on 6 August 2026, see Appendix E, to discuss the following matters:

- lane closures
- the need for a Road Occupancy Licence (ROL)
- necessary documentation for emergency services
- route approval for OSOM travel
- any works involving state roads or near them
- development of a Variable Message Sign (VMS) Plan to provide advance notice of upcoming road closures and changed traffic conditions.

### 6.7.3 Lithgow City Council

Any works on public roads under Section 139 of the *Roads Act 1993* may require the local road authority consent. The following applications may be required by Council prior to approval:

- temporary lane closures and opening;
- traffic detours;
- establishment of work zones;
- Construction of site accesses on local roads;
- construction of the temporary passing bay on Brays Lane; and
- works to achieve safe sight distances.

Additional queries from Council were responded to, as shown in Appendix C.

### 6.7.4 Adjoining properties and property access

Construction will maintain access to adjoining properties at all times, unless otherwise agreed with the property owner (for short-term temporary closures). Zinfra have identified the following landowners that could be impacted by the works. These are:

- Energy Australia;
- Ivanhoe/Centennial Coal (These are in the same Group and the same contract person);
- National Parks and Wildlife Services NPWS;
- Mr and Mrs Hunt; and
- Greenspot.

Consultation meetings with the landowners will be organised by the Project Engagement Lead , where required and in response to construction activities, to address access requirements and any specific requests. Access, including access for emergency services, will be one point of discussion in these meetings with any restrictions highlighted and agreed. If a landowner's access to their property is disrupted at any stage or in the event that Project personnel require access to a landowner's property, the landowner will be contacted by the Project Engagement Lead and alternate arrangements will be made.

### 6.7.5 Bus operator

Buslines Group is the bus operator responsible for public bus routes 600, 636, and school bus routes Bus 2 to Portland Central School. They have been contacted to inform them about the planned work periods.The Project Engagement Lead will continue to consult with Buslines Group about expected traffic disruptions, any anticipated traffic delays resulting from the construction activities or any other relevant matters that may arise.

### 6.7.6 Public consultation

An important aspect of this TTMP will be the consultation and community strategies to be applied for managing traffic.

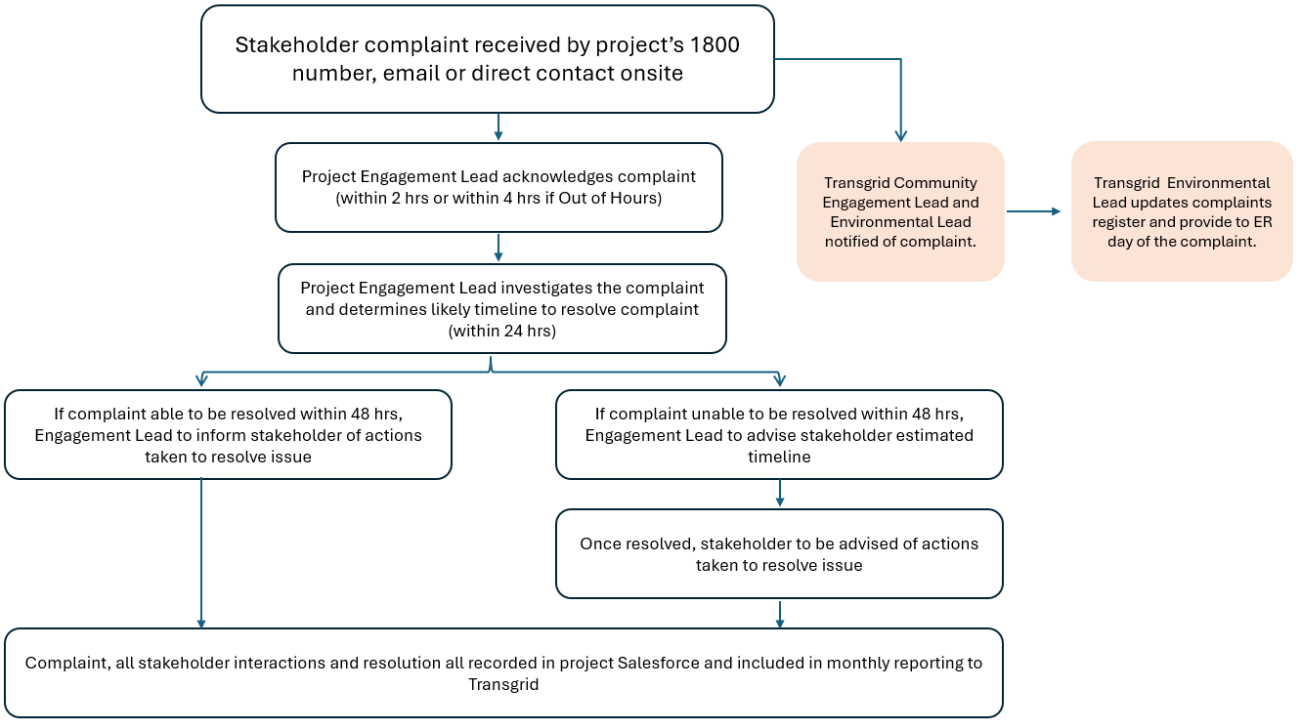
The main objectives of the public consultation will be to:

- provide timely, accurate and comprehensive traffic and transport information to potentially affected road users
- inform the potential detour routes and expected delays during the temporary road/ lane closures
- allow and accommodate community feedback regarding traffic and transport management issues
- minimise and manage traffic impacts to protect residents and business amenities.

The public consultation will include the following traffic management related consultation:

- temporary signposting to warn motorists, pedestrians and cyclists of proposed work, temporary traffic diversions and other temporary traffic arrangements
- variable message signs
- community session
- letterbox drops to residents and businesses
- notification of nearby school (Pied Piper Preschool) and fire station (Wallerawang Fire Station, part of Fire and Rescue NSW)
- event-based consultation with NPWS to be led and undertaken by the Project Engagement Lead. They will discuss with NPWS about any Project Traffic conditions that could lead to access issues (such as coordinating emergency access in an emergency event).

In accordance with Condition B35(f)(i), the TTMP would include procedures for receiving and addressing complaints from the community about development related traffic Any issues and feedback raised through public consultation and relations will be managed in accordance with the project's Community Communication Strategy (CCS) and in accordance with the complaints management requirements of the CEMP. In relation to traffic issues and feedback, such as those raised by motorists on the public road network or other community members, these will be directed to the Construction Manager who will implement monitoring and compliance protocols detailed in Section 6.4. The procedures for receiving and addressing complaints from the community about development-related traffic will follow the procedure from the Community Communication Strategy in Figure 6.15.




*Source: Mount Piper to Wallerawang Transmission Upgrade Project Community Communication Strategy (7 September 2026)*

Figure 6.15 Complaints response procedure

### 6.7.7 Other project proponents

Consultation with other relevant project proponents to consider cumulative traffic impacts has been undertaken to identify the need for project-specific mitigation measures, which is detailed in the Project's CCS. No identifiable cumulative traffic-related impacts have been flagged.

Monthly communication will be completed by the Project Engagement Lead to each of the other project proponents, where there is an expected overlap in the construction periods between this Project and their project. This communication will confirm their project start dates and identify project elements that may overlap. If project elements are found to overlap, then mitigation measures will be discussed and implemented (which include staggering start times or scheduling pauses or delivery truck scheduling).

The following projects have been identified and contacted;

- Wallerawang Battery Energy Storage System
- Mount Piper Battery Energy Storage System
- Great Western Battery Energy Storage System
- Pinecrest Battery Energy Storage System
- Lake Lyell Pumped Hydro Energy Storage
- Ben Bullen Wind Farm
- Sunny Corner Wind Farm
- Wallerawang Power Station Ash Dam
- Wallerawang residential subdivision (DA226/22)

- Wallerawang Station upgrades
- Mount Lambie Wind Farm.

As of the writing of this TTMP, consultation has been undertaken with the proponents listed above. Many of these projects are now deemed to be outside of the construction period of this Project, reducing any potential cumulative impact. Whilst some of the above projects are due to start prior to the completion of this Project their commencement date is still not confirmed.

## 6.8 Management measures

Table 6.3 summarises the management measures required to manage traffic and transport impacts during the construction of the Project.

Table 6.3 Management measures

| ID | Measure/requirement | Timing | Responsibility | Source | Evidence |
|---|---|---|---|---|---|
| Training and awareness | | | | | |
| TT-01 | Deliver a site induction to all site workers containing traffic and transport management information, covering as a minimum: site familiarisation prior to unrestricted operation to ensure the worker is competent; the existence and requirements of the Traffic and Transport Management Plans; light and heavy vehicle routes to and from site including a ban on the use of heavy vehicles under the Wallerawang rail bridges over Coxs River; communication requirements; on-site and between-site radio protocols; exclusion zones and separation distances; speed limits; temporary and interim traffic arrangements; road safety; and procedures to be implemented in the event of an incident such as a traffic accident. Induction is also to cover the key restrictions applying to the Project, including designated travel times, vehicle volume restrictions and staggering at Brays Lane / Castlereagh Highway, the weight restriction on Brays Lane, left-in/left-out access and staggered arrival and departure requirements at Site Access 3, prohibition of Project-related use of the unsealed track near Karawatha Drive, the limit of one heavy vehicle arriving and departing at any one time on Karawatha Drive, right turn bans from Castlereagh Highway into Karawatha Drive / Brays Lane / Site Access 10, load covering and forward-direction egress, communication protocols, and available carpooling and shuttle bus services. | Pre-construction; Construction | Construction Manager; Project Manager | TTMP s6.1; s6.4.1.1; Table 6.1 (elaborates CoA B35(h)(i) / REMM T1(h)) | • Induction materials<br>• Induction attendance register<br>• Induction records |
| TT-02 | Provide targeted training in the form of toolbox talks or specific training to personnel with a key role in traffic and transport management, covering vehicle movement plans (approved light and heavy vehicle haulage routes, safe entry and exit, other access restrictions, and minimising convoy lengths and platoons); driver behaviour and the drivers code of conduct for heavy vehicles; driver fatigue awareness training based on Zinfra's Fatigue Management Plan, including planned daily work hours and protocols for working beyond these hours; and weather conditions such as wet weather, fog and strong winds. Conduct daily pre-start meetings by the Construction Manager to inform the site workforce of any changes to vehicle routes and environmental issues relevant to traffic and transport that could impact daily activities. Hold regular toolbox talks and refresher briefings to reinforce expectations and address issues identified during monitoring, with unsafe manoeuvres or non-conformance with route restrictions raised in daily pre-start meetings and corrected through re-training or disciplinary measures as appropriate. Keep records of all site inductions, toolbox talks and daily pre-start meetings. | Construction | Construction Manager; Supervisor | TTMP s6.1; s6.4.1.1 (elaborates REMM T1(g), T1(h)) | • Toolbox talk records<br>• Daily pre-start meeting records<br>• Refresher briefing records<br>• Training records |
| TT-03 | Manage driver fatigue in accordance with Zinfra's Fatigue Management Plan and applicable road transport legislation. All personnel required to operate vehicles will receive fatigue awareness training during site induction and refresher training as required. Drivers must be fit for duty prior to commencing travel and are required to report actual or potential fatigue hazards to their supervisor. Where fatigue risks are identified, implement appropriate controls including adjustment of work schedules, provision of additional rest breaks, use of alternative drivers, rescheduling of deliveries or transport activities, and suspension of driving activities where necessary. Plan and manage out-of-hours work and extended work shifts to minimise fatigue-related risks associated with Project traffic movements. Maintain records of fatigue training, fitness-for-work assessments and fatigue-related incidents. | Construction | Construction Manager; Supervisor | TTMP s6.1.1 (elaborates CoA B35(f)(i)27) | • Induction materials<br>• Induction records<br>• Fitness-for-work assessment records<br>• Fatigue hazard reports from drivers<br>• Fatigue-related incident records |

| ID | Measure/requirement | Timing | Responsibility | Source | Evidence |
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| Vehicle movement controls | | | | | |
| TT-04 | Develop Vehicle Movement Plans (VMPs) progressively for each work site during construction and prior to construction commencing at each site, outlining the designated operation and traffic rules for all personnel accessing the construction workplace. VMPs may include designated travel paths including entry and exit points and haul routes for plant and materials; traffic routes and project boundary; no-go areas such as ecological or archaeological sites; traffic control measures at intersections; appropriate speed limits; communication radio channel; and travel paths on routes remote from the workplace including places to turn around, access ramps and side roads. VMPs will include information on minimising convoy lengths and reducing vehicle platooning, and will explain traffic volume restrictions and conditions including the timing of vehicles through the intersection of Castlereagh Highway and Karawatha Drive. VMPs are live documents to be reviewed regularly and revised as required throughout the construction phase to ensure they remain effective and account for changes at the workplace. | Pre-construction; Construction | Zinfra; Construction Manager | TTMP s6.2.1 (elaborates REMM T1(i) / CoA B35(f)(i)26) | • VMP for each work site<br>• VMP register tracking sites covered and revision status<br>• VMP revision history<br>• Evidence of VMP communication to site personnel" |
| TT-05 | Allocate each company using heavy vehicles up to 19 m in length (e.g. reinforcement deliveries, steel deliveries) a designated day on which they can use the Karawatha Drive access point, to minimise the risk of more than one such vehicle being present. On days when the Construction Manager or delegate allocates more than one vehicle to access Karawatha Drive, allocate a traffic control person to manage the vehicles, with a radio channel allocated to that person and the same channel communicated to any heavy vehicle using the route. Implement site vehicle dispatch staff to ensure only one heavy vehicle (up to 19 m articulated) arrives or departs Karawatha Drive at any one time, so that heavy vehicle arrivals and departures are staggered. For construction vehicles needing to travel south along Castlereagh Highway, use the Springvale Coal facility (accessed via Site Access 2) as a turnaround facility, travelling north to Springvale Coal and performing a turnaround before travelling back south. | Construction | Construction Manager or delegate; Supervisor; traffic controller | TTMP s6.2.1; s6.3.3.2; s6.4.1.4 (elaborates CoA B35(f)(i)1 / REMM T1(j)(iii)) | • Supplier day-allocation schedule for Karawatha Drive<br>• Traffic controller deployment records for allocated days<br>• Vehicle dispatch logs<br>• Camera records at Site Access 3 |
| TT-06 | Use radios as a communication aid where appropriate, but not as the primary means of communication, with eye-to-eye contact between drivers, operators and pedestrians and effective hand signals remaining primary. Apply the following radio measures for all workers within the site: drivers and operators are to have a radio in their possession or be accompanied at all times by a person carrying a radio; site radios are to be switched on at all times and tuned to the site communications channel, with other channels used for specific works or emergencies; radio users must identify themselves and name the driver or personnel they wish to communicate with; all radio communication must be acknowledged before carrying out the instruction; radios are only to be used when safe to do so and not during complex vehicle movements such as reversing or overtaking; vehicle movements in areas with restricted sight distance are to be coordinated by a spotter communicating to all vehicles by two-way communication; radios are to be used for operational purposes only; and operators are not to interrupt another person's communication except in an emergency. | Construction | Construction Manager; Supervisor; all drivers and operators | TTMP s6.2.2 | • Radio communication protocol document<br>• Toolbox talk records<br>• Spotter deployment records for restricted sight distance areas |
| TT-07 | Implement construction traffic noise and vibration mitigation measures to achieve the road traffic noise assessment criteria in the NSW Road Noise Policy and to control vibration and protect underground and above ground services and utilities, including: compliance of construction drivers with designated traffic routes only; limiting traffic movements to daytime periods as far as reasonable and feasible, including more even distribution of traffic movements across various access roads; minimising traffic | Construction | Construction Manager | TTMP s6.2.3 (elaborates CoA B35(f)(vi) / REMM T1(m)) | • Designated traffic route plans issued to drivers<br>• Speed restrictions and signage photographs |

| ID | Measure/requirement | Timing | Responsibility | Source | Evidence |
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| | movements by ensuring full loads; scheduling noisy activities during daytime when background noise levels are higher; avoiding peak traffic hours to reduce cumulative noise impacts; speed restrictions to reduce dynamic loading and vibration; and designated crossing points for access tracks. Apply vehicle speed reductions on off-road access tracks (which may be unpaved) for safety and environmental management, which will also reduce vehicle noise emissions. | | | | • Designated access track crossing point locations<br>• Heavy vehicle movement logs |
| TT-08 | Develop a schedule for all development traffic to avoid peak periods where reasonable and feasible, communicated at daily pre-start meetings, and implement a radio communication protocol to enable accurate coordination of development traffic. Schedule deliveries at times after the main morning peak period (6.00 am to 7.00 am) on the Castlereagh Highway, noting it is not reasonable and feasible to change this period for workers and the afternoon peak period (3.30 pm to 4.30 pm) will not be impacted. Also schedule development traffic to minimise convoy lengths and platoons, achieved through implementation of Vehicle Movement Plans (traffic volume restrictions, designated haulage routes and measures to minimise convoy lengths and platooning), coordination of heavy vehicle movements through delivery scheduling and allocation of site access points, and use of vehicle dispatch, traffic controller oversight and two-way radio communication to stagger arrivals and departures where required. | Construction | Construction Manager | TTMP s6.2.4 (elaborates CoA B35(f)(i)9, B35(f)(i)20) | • Development traffic schedule<br>• Daily pre-start records<br>• Delivery booking / timeslot records<br>• Vehicle dispatch logs<br>• Camera data showing arrival time distribution" |
| TT-09 | Manage dirt, debris and dangerous goods in accordance with the Soil and Water Management Plan, which requires that access and egress from the site must not track soil onto roads or cause erosion and sediment issues; that any dirt tracked onto adjacent roads is to be swept and cleaned up rather than swept down drains or washed off; and that hazardous waste and dangerous goods (compressed gas, flammable, corrosive, toxic) are tracked and stored where more than 5 tonnes of waste is generated off-site. Apply the vehicle and machinery hygiene procedure contained in the Biodiversity Management Plan, requiring all vehicles and machinery to arrive on site clean and free of soil and plant material with a completed Hygiene Inspection Form provided by the supplier prior to site entry and verified on arrival; inspection of all vehicles and machinery at the construction compound prior to commencing work; wash-down at a designated facility or removal from site for non-compliant plant with re-inspection prior to use; wheel-wash systems at site entry and exit points and additional high-risk locations identified by the Project Ecologist; and wash-down of excavation and soil-handling machinery prior to movement between land holdings and prior to re-entry from off-site locations. | Construction | Construction Manager; Environmental Business Partner | TTMP s6.2.5 (addresses CoA B35(f)(i)17; cross-references SWMP and BMP) | • Completed Inspection Forms<br>• Road sweeping / clean-up records where tracking occurs<br>• Wheel-wash installation photographs and locations<br>• Weekly site audit records<br>• Dangerous goods register |
| Traffic Control | | | | | |
| TT-10 | Prepare Traffic Guidance Schemes (TGSs) to illustrate the signs and other traffic control measures to be implemented during construction to advise of changed traffic conditions throughout the project site, developed for the relevant construction stages based on the TfNSW Traffic Control at Work Sites manual (Issue No. 6.1, February 2022) and AS1742.3. Prepare a TGS for the following work activities and stages: road and lane closures at Main Street and Brays Lane; construction of temporary passing bay on Brays Lane; site access construction and management; and road maintenance and repairs where needed as a result of a road dilapidation survey or report of damage. TGSs are indicative and subject to change and refinement depending on the works and potential continuous improvement, with future updates undertaken separately to the development of the TTMP. | Pre-construction; Construction | Construction Manager; traffic management delegate | TTMP s6.3; Appendix B (elaborates CoA B35(f)(i)11) | • Approved TGS<br>• TGS register<br>• Evidence TGS prepared to TfNSW manual and AS1742.3<br>• Site photographs of TGS implementation |

| ID | Measure/requirement | Timing | Responsibility | Source | Evidence |
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| TT-11 | Implement temporary full road closures of Brays Lane and Main Street to facilitate line stringing as per the Austroads Guide to Traffic Management, with closure arrangements confirmed in consultation with Lithgow City Council. Closures are expected to last 30 to 60 minutes and are to take place outside the morning and afternoon peak periods unless otherwise agreed by Lithgow City Council, with a Road Occupancy Licence required. During the road closure, restrict all vehicular movements with traffic barriers and signage indicating road works and detours. Undertake stringing works over the Main Western Rail Line during a planned rail shutdown period, coordinated with rail operators. | Construction | Construction Manager; Project Engagement Lead | TTMP s5.1.2; s6.3.1; s6.6.3 (elaborates CoA B35(f)(i)7 / REMM T1(e), T1(f)) | • Approved Road Occupancy Licence for each closure<br>• Council correspondence<br>• Closure records<br>• Site photographs<br>• Rail possession approval and UGL Regional Linx correspondence |
| TT-12 | Construct six new site accesses on Brays Lane (Site Accesses 4, 5, 6 and 7) and Main Street (Site Accesses 8 and 9), requiring temporary closure of one traffic lane adjacent to each site access during construction. As a minimum, maintain one-way traffic flow on these roads during construction of site accesses. Undertake construction of Site Access 8 and Site Access 9 on Main Street in a staggered approach, since they are located directly opposite each other, allowing traffic to continue to flow along Main Street as one-way traffic. Following completion of the site access works, facilitate ongoing access management through appropriate signage indicating reduced speed limits and permitted construction traffic movements along Brays Lane and Main Street. | Pre-construction; Construction | Construction Manager | TTMP s5.1.2; s6.3.2 (elaborates CoA B35(f)(i)10) | • Approved TGS and ROL for each lane closure<br>• Construction program<br>• Site photographs |
| TT-13 | Install signage in accordance with the Traffic Control at Work Sites Technical Manual (Transport for NSW, Issue 2022), placed so that road users have time to interpret and react to their messages. Apply the following when placing signs: locate and place signs at a height within the driver's line of sight, with regulatory and warning signs placed such that the base of the sign is a minimum of 1.5 m above the road surface; place signs on the left-hand side of the roadway, and when in place, on median or centre safety berms at intersections; place regulatory signs (e.g. stop signs) at the point at which the specific regulation commences; ensure signs stand out and that the background does not make them unnoticeable; ensure signs are appropriately placed, as inappropriately positioned signs or too many signs would deliver false direction or cause drivers to miss required information; and remove signs as soon as they are no longer required. | Construction | Site Supervisor; Construction Manager | TTMP s6.3.3.1 (elaborates CoA B35(f)(i)11) | • Signage installation records<br>• Photographs<br>• TGS showing approved sign positions<br>• Sign removal records |
| TT-14 | Implement a monitoring and maintenance program for signage by the Site Supervisor so that signs continue to provide clear and concise information to road users, including: development and maintenance of a database of installed signage recording sign location, type and installation date; a monthly audit program of installed signage to assess its effectiveness; confirmation that all signs are legible and reflective to ensure readability in low-lighting conditions; inspections to check for damage or removal of installed signage; and a process for cleaning or replacement of signage as soon as feasibly practicable where damage or removal occurs. | Construction | Site Supervisor | TTMP s6.3.3.1 | • Signage database<br>• Monthly signage audit records<br>• Damage / removal reports and replacement records |
| TT-15 | Implement a Left In / Left Out only arrangement for construction vehicles at Site Access 3 (Castlereagh Highway / Karawatha Drive) to alleviate the confirmed sight distance deficiency on the north approach, with signage indicating no right turns for construction vehicles placed at appropriate approach distances providing ample warning, and traffic controllers present to ensure appropriate vehicle movements are conducted. Install signage at appropriate approach distances indicating right turn bans for Project-related vehicles from Castlereagh Highway into Site Access 10 (Greenspot Gate 1) and into Brays Lane, with these directives communicated and reinforced with drivers at induction and regularly during pre-start and daily toolbox briefings. Install signage prohibiting the | Pre-construction; Construction | Construction Manager; Site Supervisor | TTMP s5.1.1; s6.3.3.2 (elaborates CoA B31 / REMM T1(j)(i), T1(j)(ii), T4(b)(iii)) | • Photographs<br>• TGS showing approach distances for signage<br>• Traffic controller deployment records at Site Access 3<br>• Induction and pre-start records |

| ID | Measure/requirement | Timing | Responsibility | Source | Evidence |
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| | use of the unsealed track located south of the Karawatha Drive / Castlereagh Highway intersection. | | | | • Camera records evidencing compliance |
| TT-16 | Place detour signs on Main Street and Brays Lane at key decision points advising motorists, public transport users, pedestrians and cyclists of alternative travel routes during road closures. For closure of Main Street, divert traffic from the intersections with Pipers Flat Road and the Castlereagh Highway, with vehicles using Brays Lane as an alternative (around 2 km longer, approximately two minutes additional travel time), and implement an early warning system using Variable Message Signs to warn public traffic of the closure, with drivers notified on the Great Western Highway before the ramp with Castlereagh Highway. For closure of Brays Lane, divert traffic from the intersections with Pipers Flat Road and the Castlereagh Highway, with vehicles using Main Street as an alternative (maximum increase in travel time of around seven minutes). Display temporary road and lane closure and detour information on portable and permanent variable message signs at key decision points on the wider road network to provide real-time updates, and direct vehicle drivers including third-party delivery drivers on how to get to and from destinations including indications of which roads not to use. Maintain access for residents and emergency vehicles where possible and confirm proposed detour routes in consultation with the relevant road authorities. | Construction | Construction Manager; Project Engagement Lead | TTMP s6.3.3; s6.3.3.1; s6.3.3.2 (elaborates CoA B35(f)(i)11) | • Photographs of detour signage<br>• VMS deployment records<br>• Road authority correspondence<br>• Advance notification records to affected stakeholders |
| TT-17 | Undertake vegetation trimming on the east approach at Site Access 1 (Boulder Road / Mount Piper Power Station access road) to remove branches causing the confirmed sight distance deficiency, noting Council concurrence and that the work would occur on Energy Australia's land. Use Site Access 1 in preference to Site Access 1A (Boulder Road / Frankfort Road), which is not recommended for use following confirmation of a substantial sight distance deficiency on the west approach due to the change in elevation. | Pre-construction | Construction Manager; Project Engagement Lead | TTMP s5.1.1; s6.6.4 (elaborates REMM T4(b)(ii)) | • Pre- and post-trimming sight distance photographs<br>• Landowner (Energy Australia) access agreement or approval<br>• Lithgow City Council correspondence<br>• VMP and route plans |
| Road Upgrades | | | | | |
| TT-18 | Establish Site Access 6 off Brays Lane for safe entry and exit for the largest vehicles accessing the site at this location, prior to use of the site access point. Construct a temporary road shoulder (passing bay) on Brays Lane using gravel (approximately 60 m by 4 m on the southern shoulder) as determined in consultation with Lithgow City Council, prior to heavy vehicle use of Brays Lane, and maintain it as the construction contractor. | Pre-construction; before heavy vehicle use of Brays Lane; construction | Zinfra (construction contractor); Construction Manager | CoA B33; CoA B35(b); REMM T1(a); TTMP s 4.4, 5.1.1, 6.3 and 6.6. | • Site Access 6 as-built records dated prior to first use<br>• Lithgow City Council consultation records<br>• Passing bay as-built dimensions & specifications<br>• Passing bay maintenance records |
| Vehicle volume restrictions | | | | | |
| TT-19 | Apply restricted vehicle volumes on Brays Lane for each vehicle classification, given the minimal existing public traffic: 27 light vehicles (including utility vehicles) per hour, with these maximum movements occurring at the start of the day (6:30 am to 7:30 am) and end of the day (4:30 pm to 5:30 pm); and restricted heavy vehicle movements controlled via radio communication, limited to 18 heavy vehicles in total per hour comprising 3 heavy vehicles (up to 19 m semi-trailers) at a time and 15 heavy vehicles (up to 10 m in length) | Construction | Construction Manager; Supervisor | TTMP s6.4 (elaborates REMM T1(l)(i) / CoA B35(f)(i)15) | • Hourly vehicle count data by classification for Brays Lane<br>• Camera / ANPR records at Brays Lane access points |

| ID | Measure/requirement | Timing | Responsibility | Source | Evidence |
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| | per hour. Heavy vehicle movements will be coordinated by radio and managed using the constructed passing bay, delivery scheduling, vehicle dispatch and suitable holding locations so that opposing heavy vehicles do not conflict on constrained sections of Brays Lane. Communicate to personnel through induction with regular reminders at pre-start briefings that under no circumstances can vehicles queue on Castlereagh Highway, and that where queuing is possible vehicles are required to continue along Castlereagh Highway and enter site through another access point. | | | | • Radio control logs for heavy vehicle movements<br>• Induction and pre-start records covering the no-queuing directive<br>• Exceedance records and corrective actions |
| Monitoring | | | | | |
| TT-20 | Record every construction vehicle entering or exiting the site office on Main Street and each site access point using vehicle tracking camera systems with licence plate capability using Automatic Number Plate Recognition (ANPR) technology, identifying, recording and logging vehicle registration details in real time and tracking contractor light and heavy vehicles as well as third-party delivery vehicles. This provides up-to-date data and live records comprising a continuous log of the number of trips, vehicle types and timing of movements. Regularly review the tracking data so the Construction Manager can verify that actual Project-related vehicle movements remain within forecasted limits, with any deviation prompting a review and investigation and updates to traffic management strategies or implementation of additional safeguards as necessary. | Pre-construction; Construction | Construction Manager | TTMP s6.4.1.2; Table 6.1 (elaborates CoA B35(h)(ii) / REMM T1(l)(i)) | • Camera system installation records at each access point and site office<br>• Continuous vehicle movement log<br>• Weekly review records by the Construction Manager<br>• Deviation investigation records and resulting strategy updates |
| TT-21 | Compare the actual number and type of Project-related vehicle movements against the initial traffic estimates in the Revised TTA (Section 4.1.6), monitored and checked on a weekly basis by the Construction Manager while works are occurring. Where numbers to an access point or the site office are within 25% of the estimated peak, alert the Construction Manager, who will take further action as appropriate to limit the number through measures such as re-distribution of the work crew, instruction to use an alternative access point where there is sufficient traffic capacity, or use of mini buses from the office compound. Treat any exceedance of the estimated peak Project-related vehicle numbers as a non-compliance, with consideration of measures to reschedule heavy vehicle movements to keep actual numbers within the estimated peak. | Construction | Construction Manager; Supervisor (delegated day-to-day) | TTMP s6.4.1.3 (elaborates REMM T1(l)(i)) | • Weekly comparison records<br>• 25% threshold alert records<br>• Records of action taken<br>• Non-compliance records<br>• Rescheduling records for heavy vehicle movements |
| TT-22 | Require each third-party supplier to confirm delivery schedules to a Construction Manager or have planned deliveries delegated for the workday, with the Zinfra Supervisor keeping track to allocate the number of heavy vehicles allowed to use each entrance daily from each vendor, made in consideration of the turnaround time for repeat loads for concrete, quarried materials and other repeat deliveries, to ensure vehicle numbers are not exceeded. Direct third-party goods delivery vehicles to travel to the site office on Main Street, from where a timeslot will be allocated for when they can go to Karawatha Drive, with radio control and signage in place and drivers required to radio the site office. Undertake site induction for each third-party delivery vehicle driver at the site office, including for OSOM movements, with the Construction Manager or delegate managing and recording OSOM movements to ensure compliance and any exceedance triggered for review. | Construction | Construction Manager or delegate; Zinfra Supervisor | TTMP s6.4.1.3; Table 6.1 | • Daily delivery allocation schedule<br>• Timeslot allocation records for Karawatha Drive<br>• Third-party driver induction register<br>• OSOM movement log• Exceedance review records |
| TT-23 | Implement real-time communication measures in the form of two-way radios tuned to a dedicated channel for construction traffic management and drivers, to help coordinate traffic and rapidly address any issues on the road. Equip all heavy vehicle drivers, traffic controllers and key site personnel with a two-way radio and the appropriate channel, with | Construction | Construction Manager or delegate | TTMP s6.4.1.4; Table 6.1 | • Dedicated channel protocol document<br>• Records of staggered or held departures, including |

| ID | Measure/requirement | Timing | Responsibility | Source | Evidence |
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| | radio communication protocols in place requiring drivers to confirm instructions and movements. Radio communication between drivers and the Construction Manager or delegate will facilitate immediate updates about changing traffic conditions, queuing at access points or safety incidents, enabling the site team to hold or stagger truck departures to avoid the network peak where possible or in emergency situations such as an emergency outage recall, or to dispatch additional traffic control resources to an area if unexpected delays occur. | | | (elaborates CoA B35(f)(i)2) | emergency outage recall events |
| TT-24 | Complete daily traffic control checklists by the Construction Manager or delegates prior to the commencement of construction activities at the daily pre-start meeting, confirming all traffic management measures are in place and functioning as intended, including: arrangements are understood for placement of signage, barriers and any other controls; access arrangements are understood; traffic controller positioning at Karawatha Drive on days determined to have heavy vehicles accessing this location; verifying site access points are operating correctly through visual inspection; compliance of construction vehicles with approved entry and egress procedures, designated travel routes and speed limits; and visual traffic inspection during peak hours to identify unacceptable queuing (with the last three items monitored through the day and recorded on the following day's checklist). Rectify any deficiencies identified through the daily checks immediately, or where not practicable escalate to the Construction Manager for action. Save completed checklists for project records and to demonstrate ongoing compliance. | Construction | Construction Manager or delegate | TTMP s6.4.2 (elaborates REMM T1(l)(ii)) | • Completed daily traffic control checklists<br>• Inspection records<br>• Deficiency rectification records<br>• Escalation records |
| TT-25 | Check local weather conditions that may affect road safety (such as fog, dust, wet weather and flooding) and road closures by the Construction Manager or delegate, using Transport for NSW's LiveTraffic and the Bureau of Meteorology websites. Identify suitable alternative routes where possible and communicate these at the morning briefing. Where adverse conditions or closures occur during the day, provide notification to appropriate construction workers, normally by radio or phone discussion, with the Construction Manager monitoring conditions throughout the day. | Construction | Construction Manager or delegate | TTMP s6.4.2 (elaborates CoA B35(f)(i)21) | • Records of daily weather and road closure check<br>• Pre-start briefing records<br>• Alternative route determinations |
| TT-26 | Undertake formal site audits by the Construction Manager or traffic management delegate on a weekly basis during active works to verify the effectiveness and ongoing suitability of traffic management measures, including a review of the daily traffic control checklists. Audits are to include inspections of surrounding roads covering: Karawatha Drive / Castlereagh Highway (Site Access 3) to identify road dilapidation conditions; Brays Lane / Castlereagh Highway to identify any congestion issues; roadside safety issues, road dilapidation and damage to public roads, site access points and associated infrastructure (including passing bay, road shoulders, drainage assets, signs, guideposts and traffic control devices) to confirm they remain in a safe and serviceable condition and to identify any maintenance, repair or corrective actions required as a result of Project activities; and congestion or queueing associated with construction traffic. Document findings from site audits with any required corrective actions assigned, tracked and addressed in a timely manner. Complete inspection of drains in accordance with the Erosion and Sediment Control Plan, including weekly inspections during active works, prior to or after any weather events that generate runoff or excessive winds, or prior to extended shutdowns. Weekly inspections will also include dust, mud tracking and any observed damage to public roads and infrastructure. | Construction | Construction Manager or traffic management delegate | TTMP s6.4.3 (elaborates CoA B35(f)(i)23, B35(f)(iv) / REMM T1(o), T3) | • Weekly site audit records<br>• Corrective action register<br>• Road shoulder condition monitoring records at Site Access 3<br>• Drainage inspection records<br>• Dust and mud tracking observation records |
| Road condition | | | | | |

| ID | Measure/requirement | Timing | Responsibility | Source | Evidence |
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| TT-27 | Undertake independent road dilapidation surveys assessing the condition of local and regional roads (including local road crossings) shown in Figure 3.1, at the following stages unless agreed to by the relevant roads authority or manager: before the use of the relevant road by development-related heavy vehicles; within one month of completion of all construction, upgrading or decommissioning works; and on an annual basis during construction. Supplement the surveys by internal site audits performed weekly during works by the Construction Manager or delegate. Encourage Project personnel to report any worsening damage they observe, and verify damage reported by Council, TfNSW or the public by the Construction Manager or delegate. Where surveys identify damage to local roads on the transport route resulting from development-related traffic, the Construction Manager is to organise rectification as soon as possible if it could endanger road safety and no longer than 7 days after the survey, or within two months of completion of the survey, unless agreed otherwise by the relevant roads authority or manager. Following completion of any repairs, complete a report in consultation with the relevant roads authority. | Pre-construction; Construction; Post-construction | Construction Manager; independent surveyor | TTMP s6.4.4 (elaborates CoA B34 / REMM T3) | • Pre-use independent dilapidation survey reports<br>• Annual dilapidation survey reports<br>• Post-construction survey reports<br>• Evidence of surveyor independence<br>• Damage reports from personnel, Council, TfNSW or public<br>• Repair records<br>• Road repair report |
| Incident and emergency | | | | | |
| TT-28 | Where emergency repair or maintenance requirements are identified through inspections, road dilapidation surveys, incident investigations or reports from road authorities or the community, assess the issue by the Construction Manager and implement appropriate interim traffic management measures to maintain road safety. These measures may include speed restrictions, traffic control, temporary lane closures, detours, restrictions on heavy vehicle movements or the use of alternative access routes. Undertake emergency repairs as soon as practicable in consultation with the relevant road authority, with any required permits and traffic control measures implemented in accordance with the Plan. Maintain records of the issue, response actions and completed repairs. | Construction | Construction Manager | TTMP s6.4.5 (addresses CoA B35(f)(i)24, B35(f)(iv)) | • Emergency repair issue records<br>• Photographs<br>• Road authority consultation<br>• Permits and TGS for emergency works<br>• Completed repair records and close-out" |
| TT-29 | Report all incidents immediately to the Transgrid Project Manager and enter them into OMNIA (Zinfra's Risk and Compliance Management System) within 24 hours to ensure actions are tracked and completed within required timeframes. Where an incident has occurred, additional monitoring or notifications to Police or asset owners such as TfNSW or Lithgow City Council may be required, as determined by the Project Manager in consultation with the Project Engagement Lead. Notify the Department and NPWS within 24 hours of becoming aware of an incident via the NSW planning portal (Major Projects), addressing date, time and location; a brief description of what occurred and why it has been classified as an incident; a description of immediate steps taken; and a contact person for further communication. Provide a subsequent incident report within 7 days addressing all matters required by Condition C17. Initiate an investigation promptly by the Zinfra Project Manager following any reported incident, with scope and depth dependent on severity and potential impact, following the ICAM (Incident Causation Analysis Method) in alignment with Transgrid's investigation requirements and including determination of cause, extent and responsibility; additional monitoring where appropriate; identification and implementation of corrective actions to prevent recurrence; assignment of responsibility for corrective measures; review and update of controls and procedures; and notification of relevant stakeholders including regulatory authorities. | Construction | Zinfra Project Manager; Environmental Business Partner; Transgrid | TTMP s6.4.5; s6.4.5.1-6.4.5.3 (elaborates CoA C16, C17) | • OMNIA entry<br>• Portal incident notification<br>• Incident report<br>• ICAM investigation report<br>• Corrective action register<br>• Notifications to Police, TfNSW, Lithgow City Council or NPWS<br>• Additional monitoring records |
| TT-30 | Manage emergencies in accordance with the Project's Emergency Management Plan and associated sub-plans, including the Flood Risk Management Plan which covers the flood | Pre-construction; Construction | Project Manager; Project Engagement Lead | TTMP s5.5; s6.5; s6.5.1; Appendix F | • Emergency services correspondence |

| ID | Measure/requirement | Timing | Responsibility | Source | Evidence |
|---|---|---|---|---|---|
| | emergency response and maintaining safe access to and from all Project locations as much as possible during a flood emergency. Provide emergency services with up-to-date information about changed traffic conditions and potential delays when travelling around construction work areas, with regular consultation by the Project Manager about proposed changes to traffic conditions. Notify emergency services at least five days before implementing any lane closure, undertaking consultation with NSW Police (Local Area Command), Ambulance Service of New South Wales (District Manager), State Emergency Service, NSW Fire Brigade and Rural Fire Service. Provide advance notice and detailed advice to emergency services prior to commencement of construction regarding proposed partial lane closures and full road closures and associated traffic management measures on Brays Lane and Main Street, including specifics on upcoming lane closures, expected traffic disruptions, anticipated delays, extended work periods, potential detour routes and locations of any road possessions. | | | (elaborates CoA B35(f)(i)25, B35(i), B46(i)) | • Consultation records<br>• Flood Risk Management Plan<br>• Emergency Management Plan and sub-plans |
| Compliance | | | | | |
| TT-31 | Implement corrective actions where monitoring, inspections, audits, incidents, complaints or non-compliances identify deficiencies in traffic and transport management measures. The Construction Manager or delegate will assess the issue, implement any immediate controls required to maintain safety and compliance, and determine appropriate corrective actions and timeframes. Corrective actions may include additional training, revised traffic controls, amendments to vehicle movements, scheduling changes, additional monitoring or updates to relevant traffic management documentation. Verify the effectiveness of corrective actions through inspections, audits or monitoring activities, and maintain records of actions and close-out. Where corrective actions result in changes to approved traffic management measures, update the Plan and associated Vehicle Movement Plans in accordance with Section 7. | Construction | Construction Manager or delegate | TTMP s6.4.8 | • Corrective action register<br>• Immediate control records where safety affected<br>• Effectiveness verification records<br>• Close-out records<br>• TTMP and VMP revision records |
| TT-32 | Notify the Department via the Major Projects website within seven days of becoming aware of any non-compliance that is not classified as an incident and is identified through inspections, audits or observations, with Zinfra providing all necessary information to assist Transgrid in preparing the notification. The written notification will include the development, including the development application number and Project name; the specific Condition of Approval that has not been met; the reasons for the non-compliance, if known; and actions that have been undertaken or are planned to address the non-compliance, including expected timing for completion. | Construction | Transgrid Environmental Business Partner; Zinfra | TTMP s6.4.6 (elaborates CoA C15) | • Non-compliance notifications |
| Permits | | | | | |
| TT-33 | Obtain Road Occupancy Licences (ROLs) in accordance with Section 138 of the Roads Act 1993 for all areas on Brays Lane and Main Street impacted by work zones (from construction of site access and passing bay) and for the stringing of transmission lines, and for any repair roadworks resulting from dilapidation surveys or where damage attributable to the Project has occurred. Submit ROLs for the overall OSOM route within NSW based upon the OSOM Transport Management Plan, due to expected changes to the public road network to facilitate these movements such as changes in speed environment which will inform live traffic information. This will include development of a VMS Plan to provide advance notice of upcoming road closures and changed traffic conditions, with VMS messages limited to a maximum of two display screens. Apply for ROLs through the Online Planned Incident System (OPLINC). | Pre-construction; Construction | Construction Manager; Project Manager | TTMP s6.6.1 (elaborates REMM T1(c), T1(j)(v)) | • Approved ROLs<br>• OPLINC application records<br>• VMS Plan |

| ID | Measure/requirement | Timing | Responsibility | Source | Evidence |
|---|---|---|---|---|---|
| TT-34 | Obtain OSOM permits for movements on roads not approved for OSOM use, applied for via the NHVR portal with information on vehicle configuration data, load dimensions and mass, proposed travel route (including OSOM and non-approved sections) and travel dates and times (noting weekend and holiday restrictions for the Great Western Highway). Prepare the following documents separate to the TTMP to facilitate OSOM vehicle movement along the NSW road network, as discussed in consultation with TfNSW: an OSOM Transport Management Plan in accordance with NSW guidelines; the ROL requirements; and a Temporary Traffic Management Plan detailing the setting up of speed zone reductions and signage, including Traffic Guidance Schemes in accordance with the TfNSW Traffic Control at Work Sites standard. Limit OSOM loads on the Main Street bridge over Cox River to no more than 16 tons per axle, in accordance with the detailed structural assessment conducted by Integrity Testing (nominated by Lithgow City Council). Do not use Brays Lane to facilitate OSOM movements. Limit OSOM access to no more than two OSOM vehicles (four one-way movements) per day. | Pre-construction; Construction | Construction Manager; Project Manager | TTMP s4.3.3; s5.1.3; s6.6.2 (elaborates CoA B28 / REMM T1(c), T5) | • Approved NHVR OSOM permits<br>• OSOM Transport Management Plan<br>• Temporary Traffic Management Plan with TGS<br>• Main Street bridge structural assessment report<br>• OSOM movement log<br>• Route records |
| TT-35 | Complete the rail possession forms provided by UGL Regional Linx (received 2 July 2026) closer to the date of rail possession, to understand rail possession timetables and processes and to minimise potential conflict between development-related traffic and rail services including preventing queueing on the road network. Undertake stringing works over the Main Western Rail Line during a planned rail shutdown period coordinated with rail operators. Maintain communication between the Construction Manager and UGL Regional Linx to allow construction trips to be scheduled to avoid freight train times at the Main Street level crossing. | Pre-construction; Construction | Construction contractor; Construction Manager | TTMP s5.6; s6.6.3 (elaborates CoA B35(f)(i)15 / REMM T1(e)) | • Completed UGL Regional Linx rail possession forms<br>• Rail possession approval / confirmation<br>• Stringing works records<br>• Communications with UGL Regional Linx |
| TT-36 | Obtain Lithgow City Council consent for works on public roads under Section 139 of the Roads Act 1993, with required for temporary lane closures and opening, traffic detours, work zones, road upgrades, and safe sight distances. When lodging approval for temporary road closures with Council, provide the Road Occupancy Licence, relevant to Main Street and Brays Lane. | Pre-construction; Construction | Construction Manager; Project Engagement Lead | TTMP s6.6.4; s6.7.3 | • Council applications and approvals<br>• ROL provided to Council<br>• Council correspondence |
| Consultation | | | | | |
| TT-37 | Continue stakeholder consultation through construction to keep stakeholders informed of construction activities including temporary and partial road closures of Main Street and Brays Lane as appropriate. Provide the approved version and subsequent updates of the Plan to Lithgow City Council, Transport for NSW, NSW National Parks and Wildlife Service and UGL Regional Linx, and make any changes that may impact stakeholders the subject of consultation prior to updating the Plan. Consultation activities led by the Project Engagement Lead include liaising with relevant road authorities, councils, emergency services, adjoining landowners and other stakeholders regarding significant transport and traffic matters; management and responding to complaints; and liaising with other project proponents and council regarding cumulative impacts. | Pre-construction; Construction | Project Engagement Lead | TTMP s6.7; Table 6.2 (elaborates CoA B35 / REMM T1) | • Stakeholder consultation register<br>• Records of Plan and updates issued to each stakeholder<br>• Pre-update consultation records<br>• Correspondence files for Council, TfNSW, NPWS and UGL Regional Linx" |
| TT-38 | Hold ongoing consultation with Centennial Coal on a monthly basis, led and undertaken by the Project Engagement Lead, focused on managing access arrangements to ensure that heavy vehicles (up to 19 m articulated truck) access their Springvale Coal Services facilities one at a time, due to the restricted turns at the intersection of Karawatha Drive and the Castlereagh Highway. Seek confirmation of requirements for use of internal | Pre-construction; Construction | Project Engagement Lead | TTMP s6.7.1 (addresses CoA B35(f)(i)3 / REMM LU3) | • Monthly Centennial Coal meeting records<br>• Agreed access arrangements for Access Point 2 |

| ID | Measure/requirement | Timing | Responsibility | Source | Evidence |
|---|---|---|---|---|---|
| | roads within Centennial Coal's Springvale site through ongoing consultation prior to and during construction. | | | | • Records of internal road use requirements<br>• Vehicle scheduling records |
| TT-39 | Keep NSW National Parks and Wildlife Service appraised of construction traffic movement plans throughout the construction phase of the Project by the Project Engagement Lead on an as-needs basis, and maintain access for NPWS personnel where required as determined in consultation with NPWS. Undertake event-based consultation with NPWS led by the Project Engagement Lead to discuss any Project traffic conditions that could lead to access issues, such as coordinating emergency access in an emergency event. | Pre-construction; Construction | Project Engagement Lead | TTMP s5.1.5; s6.6.5; s6.7.6 (addresses CoA B35(f)(i)8 / REMM LU4) | • NPWS notification records of traffic movement plans<br>• Event-based consultation records with trigger noted<br>• Agreed NPWS access arrangements<br>• Emergency access coordination records |
| TT-40 | Maintain access to adjoining properties at all times during construction, unless otherwise agreed with the property owner for short-term temporary closures, for the identified landowners: Energy Australia, Ivanhoe / Centennial Coal, NSW National Parks and Wildlife Service, Mr and Mrs Hunt, and Greenspot. Organise consultation meetings with landowners through the Project Engagement Lead where required and in response to construction activities, to address access requirements and any specific requests, with access including emergency services access a point of discussion and any restrictions highlighted and agreed. Where a landowner's access to their property is disrupted at any stage, or where Project personnel require access to a landowner's property, contact the landowner through the Project Engagement Lead and make alternate arrangements. | Pre-construction; Construction | Project Engagement Lead | TTMP s6.7.4 (elaborates REMM T2) | • Landowner consultation records<br>• Agreed access arrangements<br>• Records of alternate arrangements where required<br>• Property access request records |
| TT-41 | Continue consultation with Buslines Group, the bus operator responsible for public bus routes 600 and 636 and school bus routes, through the Project Engagement Lead about expected traffic disruptions, any anticipated traffic delays resulting from construction activities, and any other relevant matters that may arise. Schedule line stringing full road closures around infrequent bus services, for example on a Sunday subject to ROL and out-of-hours work approvals, so that public and school bus routes are not impacted. | Pre-construction; Construction | Project Engagement Lead; Construction Manager | TTMP s5.2; s6.7.5 | • Buslines Group correspondence<br>• Closure scheduling records demonstrating avoidance of bus service times<br>• ROL and OOHW approvals where Sunday works undertaken" |
| TT-42 | Undertake public consultation to provide timely, accurate and comprehensive traffic and transport information to potentially affected road users; inform on potential detour routes and expected delays during temporary road and lane closures; allow and accommodate community feedback regarding traffic and transport management issues; and minimise and manage traffic impacts to protect resident and business amenity. Traffic management related consultation will include temporary signposting to warn motorists, pedestrians and cyclists of proposed work, temporary traffic diversions and other temporary traffic arrangements; variable message signs; community sessions; letterbox drops to residents and businesses; and notification of the nearby school (Pied Piper Preschool) and fire station (Wallerawang Fire Station). Manage issues and feedback raised through public consultation in accordance with the Project's Community Communication Strategy and the complaints management requirements of the CEMP, directing traffic issues and feedback to the Construction Manager who will implement the monitoring and compliance protocols in Section 6.4, and following the complaints response procedure from the Community Communication Strategy. | Construction | Project Engagement Lead; Construction Manager | TTMP s6.7.6 (addresses CoA B35(f)(i)12, B35(f)(i)13) | • Copies of issued community notifications and letterbox drops<br>• Distribution records<br>• Community session records and attendance<br>• Pied Piper Preschool and Wallerawang Fire Station notification records<br>• Complaints register |

| ID | Measure/requirement | Timing | Responsibility | Source | Evidence |
|---|---|---|---|---|---|
| TT-43 | Complete monthly communication by the Project Engagement Lead with each of the other identified project proponents where there is an expected overlap in construction periods, confirming their project start dates and identifying project elements that may overlap. Where project elements are found to overlap, discuss and implement mitigation measures including staggering start times, scheduling pauses or delivery truck scheduling. Coordination and engagement will include providing regular construction program updates; identifying potential conflict and constraint points with other relevant future projects such as proximity of work sites, shared construction access routes and traffic management requirements; and developing mitigation strategies to manage conflicts and constraints that may arise. | Pre-construction; Construction | Project Engagement Lead | TTMP s5.7; s6.7.7 (addresses CoA B35(f)(i)14 / REMM T1(n), C1) | • Communication records<br>• Construction program updates provided and received<br>• Mitigation measures agreed and implemented where overlap identified<br>• Cumulative impacts assessment records |
| TT-44 | Continue to consult with Lithgow City Council and monitor social media on a monthly basis by the Project Engagement Lead to ensure the Project Manager is aware of planned events occurring in the vicinity of the Project, enabling appropriate planning of Project-related traffic movements and road closures to reduce traffic related impacts on these events. Note the Portland Art exhibition is held annually in the Crystal Theatre in Portland on the first weekend of March. | Pre-construction; Construction | Project Engagement Lead; Project Manager | TTMP s3.7 | • Monthly planned events check records<br>• Planned events register<br>• Records of traffic movements or closures rescheduled to avoid events |
| Out of hours works | | | | | |
| TT-45 | Maintain a schedule of out-of-hours work (OOHW) by the Construction Manager, with any OOHW (Sundays, public holidays and night works) undertaken in accordance with the arrangements detailed in the relevant section of the Construction Noise and Vibration Management Plan. Review OOHW activities that generate traffic, including concrete pouring, deliveries and plant movements such as elevating work platforms, and reschedule traffic movements to inside standard construction hours where practical and possible to minimise traffic impacts outside standard construction hours. | Construction | Construction Manager | TTMP s4.2.3 (addresses CoA B35(f)(i)16) | • OOHW schedule<br>• Records for traffic-generating OOHW activities<br>• Records of traffic movements rescheduled into standard hours |
| Parking and workforce | | | | | |
| TT-46 | Accommodate all construction vehicles entirely within the project site so they do not encroach upon or impact the availability of public kerbside parking on surrounding streets. Encourage workers to carpool to reduce traffic and parking, with this encouragement included in the Vehicle Movement Plan. A shuttle bus may be implemented at a later date if required; prior to any shuttle bus use, update this Plan to cover pick-up and drop-off points, parking arrangements for construction workers, timing and frequency of shuttle bus movements and the proposed route, with any such update subject to consultation with TfNSW, Lithgow City Council and NPWS and approval by the Planning Secretary. Where construction works are underway on Brays Lane and Main Street, temporarily restrict the informal road shoulder that may be used for parking on both sides of these roads to facilitate setup of the work zone and maintain two-way traffic flow, discussing temporary parking restrictions with Lithgow City Council and informing nearby residents of the construction schedule and associated impacts in advance. | Construction | Construction Manager; Project Engagement Lead | TTMP s4.3.5; s5.4; s6.2.1 (addresses CoA B35(f)(iii), B35(f)(i)18, B35(f)(i)19 / REMM T1(k)) | • VMPs<br>• Site parking layout<br>• Council consultation records<br>• Resident notification records<br>• If shuttle bus introduced: updated approved TTMP |
| Heritage interface | | | | | |
| TT-47 | Restrict travel underneath the Wallerawang Rail Bridges over Coxs River to light vehicles only, with heavy vehicles including OSOM vehicles not permitted to cross under these bridges. Do not undertake any upgrades to this track within the curtilage area of the bridge. Assess the structural viability of the non-heritage-listed bridge crossing the Coxs | Pre-construction; Construction | Construction Manager; structural engineer | TTMP s5.1.4; s6.1 (addresses CoA B35(f)(v) / REMM HH2) | • Structural assessment report for the northern Coxs River bridge |

| ID | Measure/requirement | Timing | Responsibility | Source | Evidence |
|---|---|---|---|---|---|
| | River north of the rail bridges to support Project-related light and heavy vehicles before it is used as a crossing. Include a ban on the use of heavy vehicles under the Wallerawang rail bridges in site induction content. | | | | • Induction records<br>• Photographs<br>• VMP and route plans |
| Active transport | | | | | |
| TT-48 | Direct cyclists by traffic controllers or detour signage to use the alternative road during temporary road closures for line stringing: cyclists on Brays Lane near Castlereagh Highway to be directed to use Main Street, and cyclists on Main Street near Castlereagh Highway to be directed to use Brays Lane, noting road shoulder access will be temporarily restricted on both sides and there are no existing pedestrian facilities at these locations. | Construction | Construction Manager; traffic controllers | TTMP s5.3 | • TGS<br>• Traffic controller deployment records<br>• Photographs |
| Review and audit | | | | | |
| TT-49 | Undertake ongoing monitoring and review of the performance and implementation of the Plan in accordance with Condition C3. Where updates are required to include new information or changes to the development resulting from a modification of Project approval or a change in the phase of development; to update risk controls or mitigation measures in response to a change in risk level identified by the annual environmental risk assessment review; to address the findings of an Independent Environmental Audit; to implement the findings of an incident report; or to comply with a directive by the Planning Secretary, revise the relevant document and submit to the Planning Secretary for approval within three months unless otherwise agreed. The review will be undertaken by Zinfra during construction and by Transgrid during operation, ensuring the Plan remains consistent with approved operations, with any revision undertaken by a suitably qualified person whose appointment has been approved by the Planning Secretary. | Construction | Zinfra; Construction Manager or delegate; Transgrid | TTMP s7.1 (elaborates CoA C3) | • Plan review records with dates and reviewer<br>• Revision history and version control<br>• Planning Secretary approvals for Plan revisions<br>• Evidence of reviewer qualification approval<br>• Records linking revisions to their trigger |
| TT-50 | Assess the effectiveness of the traffic monitoring measures during the Project's regular Independent Environmental Audits, carried out in accordance with Condition C14 and the current Independent Audit Post Approval Requirements. Implement the recommendations of the Independent Environmental Audit to the satisfaction of the Planning Secretary as relevant to the Plan. Make a copy of the Plan available on the Transgrid website as soon as practicable after it is approved by the Planning Secretary and keep it up to date, and provide regular reporting on the environmental performance of the Project on the website through the upload of Independent Environmental Audit reports. | Construction | Transgrid; Zinfra | TTMP s6.4.1; s6.4.7; s7.2 (elaborates CoA C14, C18 / addresses B35(h)(iii)) | • Independent Environmental Audit reports<br>• Audit response<br>• Website screenshots<br>• Records of Plan updates published following revision |

# 7 Review and improvement

### 7.1.1 Flood Response Plan

Safe access to and from all locations that are part of the project will need to be maintained as much as possible during a flood emergency. The flood emergency response will be covered in the project's Flood Risk Management Plan which is provided in Appendix F.

## 7.2 Revision of strategies, plans and programs

Ongoing monitoring and review of the performance and implementation of this Plan will be undertaken in accordance with Condition C3 of the Infrastructure Approval.

If updates to an environmental management document are required:

a. to include new information or changes to the development as a result of:
    i. a modification of Project approval; or
    ii. a change in the phase of development as notified under condition C10;
b. to update risk controls or mitigation measures in response to a change in risk level identified by the annual review of the environmental risk assessment required by condition C1(f);
c. to address the findings of an Independent Environmental Audit under condition C14;
d. to implement the findings of an incident report required by condition C16;
e. to comply with a directive by the Planning Secretary;

the relevant environmental management document(s) must be revised and submitted to the Planning Secretary for approval within three months unless otherwise agreed by the Planning Secretary.

It is noted that the review of this Plan as detailed in the Infrastructure Approval will be undertaken by Zinfra during the construction phase and by Transgrid during the operation of the Project. The review must ensure that the Plan remains consistent with the approved operations. If a revision to this Plan is determined to be required, the review of the Plan will be undertaken by a suitably qualified person whose appointment has been approved by the Planning Secretary in accordance with the Infrastructure Approval.

Any revision of this Plan must be approved by the Planning Secretary, unless the revision is purely administrative in nature, in which case, with the agreement of the Planning Secretary and/or the Environmental Representative (per condition A12), a revised strategy, plan or program may be prepared without undertaking consultation with all the parties referred to under the relevant condition of this consent.

## 7.3 Independent environmental audit

As per Condition C14 of the Infrastructure Approval, an Independent Audit will be carried out for the Project

The audit will be conducted in accordance with the current Independent Audit Post Approval Requirements.

The recommendations of the Independent Environmental Audit will be implemented to the satisfaction of the Planning Secretary, as relevant to this Plan.

# Appendix A

Drivers Code of Conduct

# Drivers Code of Conduct

All drivers on the Project are required to comply with the following Code of Conduct. The requirements apply to persons who operate vehicles associated with the Project, this includes all employees, contractors, subcontractors, delivery drivers, and visitors.

## Driving Requirements

- Hold a current and appropriate driver's licence for the class of vehicle being operated.
- Comply with all applicable Australian road rules, road laws, site rules and Project requirements. (Project requirements are provided via the project induction, and as sign posted on site).
- Obey all posted speed limits and project-specific speed restrictions.
- Drive to the prevailing conditions, including weather, traffic, road, visibility and site conditions.
- Maintain a safe following distance from other vehicles.
- Give way to pedestrians and heavy plant and other road users as required.
- Follow all traffic signs, signals, directions from traffic controllers and site personnel. Including call up points.
- Do not engage in aggressive, reckless or dangerous driving behaviour.
- Ensure all loads are appropriately secured and do not exceed the vehicle's legal or rated capacity.
- Ensure vehicle doors, gates, tailgates and covers are properly secured before travelling.
- Use seatbelts at all times.
- Exercise particular caution when entering or exiting work sites, residential areas, intersections and other high-risk locations.
- Maintain a professional and courteous manner when interacting with members of the public and other road users.
- Report any traffic incident, collision, near miss, unsafe driving behaviour or road hazard as soon as practicable.

## Vehicle Safety and Maintenance – Pre-Drive Inspection

- Only operate vehicles that are safe, roadworthy, registered and fit for purpose.
- Complete a vehicle pre-start inspection before commencing driving activities on a daily basis. This would include
- Perform a 360 walk around the vehicle prior to each use. For haulage vehicles this would include a check that loads, plant, equipment and materials are appropriately restrained and secured.
- All vehicles to carry a fire extinguisher, and a UHF radio, and yellow flashing beacon.
- All light vehicles to be 4 wheel drive.
- Immediately report identified defects to the relevant supervisor or responsible person.
- Ensure defective vehicles are removed from service where the defect may compromise safety.

## Fitness to Drive

- Only drive when physically and mentally fit to do so.
- Do not drive while affected by alcohol, prescription drugs, illegal drugs or any substance that may impair driving ability.
- Do not drive when experiencing fatigue, illness, injury, any other condition that may impair safe driving.
- Take appropriate breaks during extended driving activities.
- Do not continue driving if experiencing signs of fatigue, including drowsiness, reduced concentration, blurred vision or difficulty maintaining alertness.
- Notify the supervisor if you are not fit to drive safely.

## Designated Haulage Routes – Vehicle Movement Plan

- Follow the designated routes identified in the approved **Vehicle Movement Plan (VMP)**.
- Comply with all route-specific speed limits, traffic controls and restrictions.
- Follow instructions provided by traffic controllers, spotters, supervisors and authorised site personnel.
- Exercise additional care when travelling through or near to the tower sites where active works may be occurring.

- Do not enter any no go area including aboriginal artefact areas, or protected vegetation.

## Noise Compliance

- Avoid unnecessary engine idling, particularly near residential properties and other noise-sensitive locations.
- Do not unnecessarily sound vehicle horns.
- Avoid excessive acceleration.
- Avoid excessive harsh braking unless for a safety or emergency requirement.
- Maintain vehicles and equipment to prevent excessive engine, exhaust, brake or mechanical noise.
- Use reversing alarms and other safety warning devices as required; do not disable or tamper with required safety devices.
- Where practicable, minimise noise during early morning, evening and night-time activities.
- Follow any project-specific restrictions on operating hours and vehicle movements.
- Be considerate of nearby residents, businesses and other sensitive receivers.
- Immediately report noise complaints or concerns to the relevant supervisor or project representative.

## Compliance and Monitoring

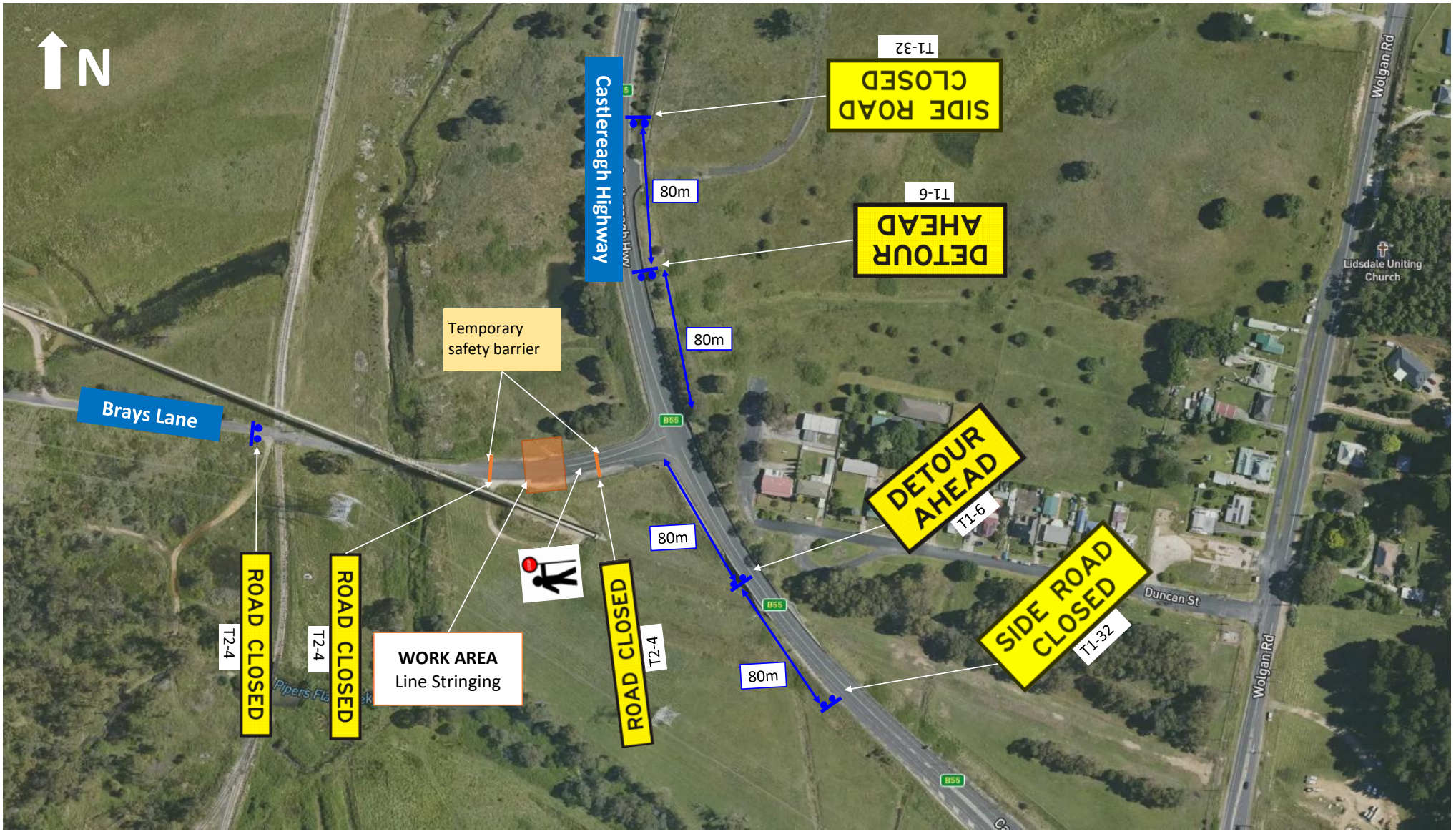
- Compliance with the Code of Conduct is mandatory.
- Regular inspections will be performed by the site management team. As part of this inspection you will be asked to provide evidence of daily prestart or other compliance documentation, e.g. servicing.
- Persons found to not be compliant to this Code of Conduct may face disciplinary action following investigation.

# Appendix B

Traffic Guidance Scheme

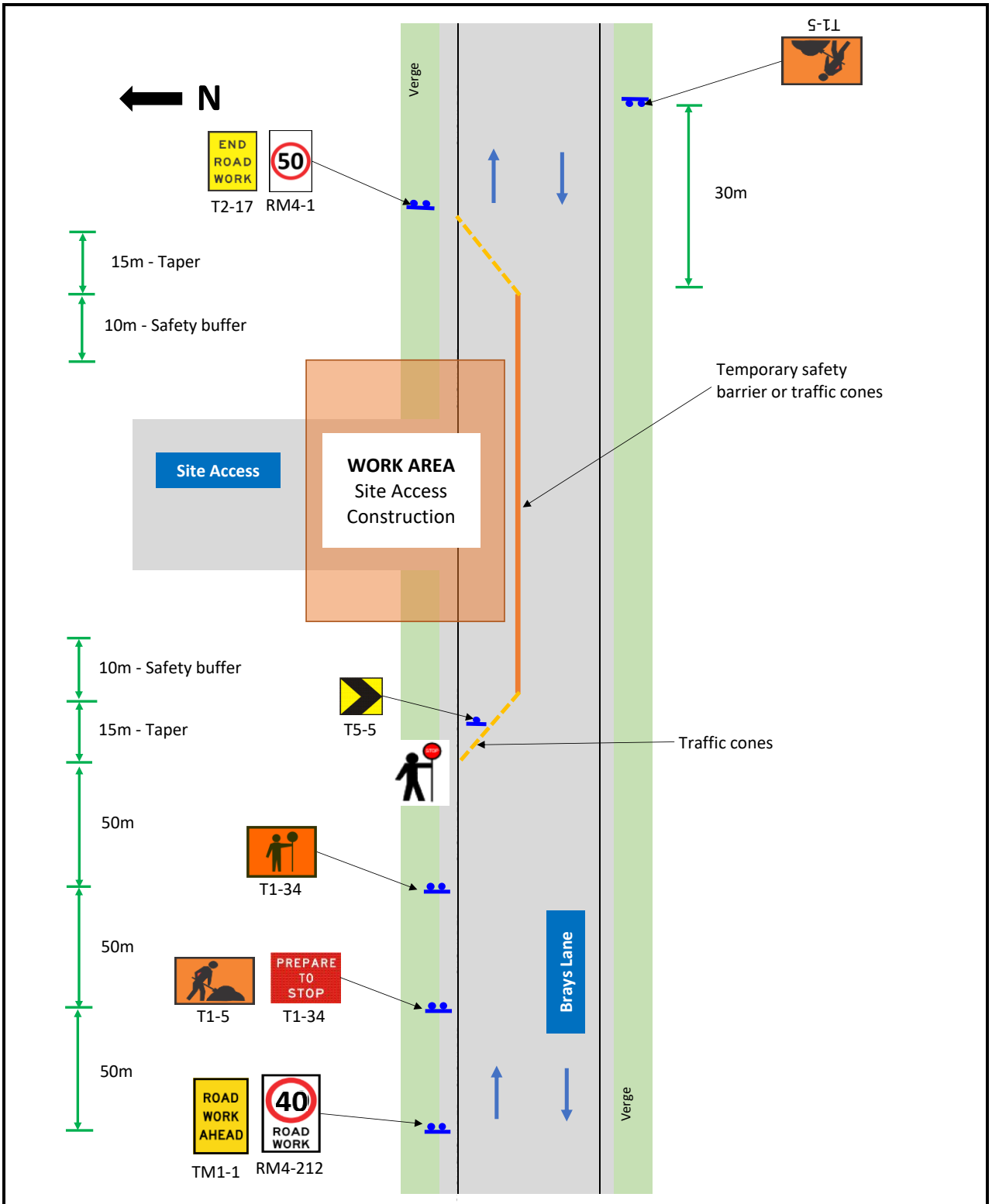



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|---|---|---|---|---|---|
| Project: | Mount Piper to Wallerawang Transmission Line Upgrade<br>**Traffic Guidance Scheme: Full Road Closure for Line Stringing works on Main Street, Wallerawang** | | | | |
| | | | | | |
| **Designed by:** | Chris Chun | **Rev** | **Description** | **Client:** | Zinfra |
| **PWZTMP Card No:** | 52212567 | 01 | Draft | **Location of Works:** | Main Street, 50m Southwest of Castlereagh Highway, Wallerawang |
| **Date:** | 19/03/2026 | | | **LGA:** | Lithgow City Council |
| **TGS No:** | PS227860-TGS-LS01 | | | **Road configuration:** | Temporary full road closure |
| | | | | **Speed limit:** | 50km/h |

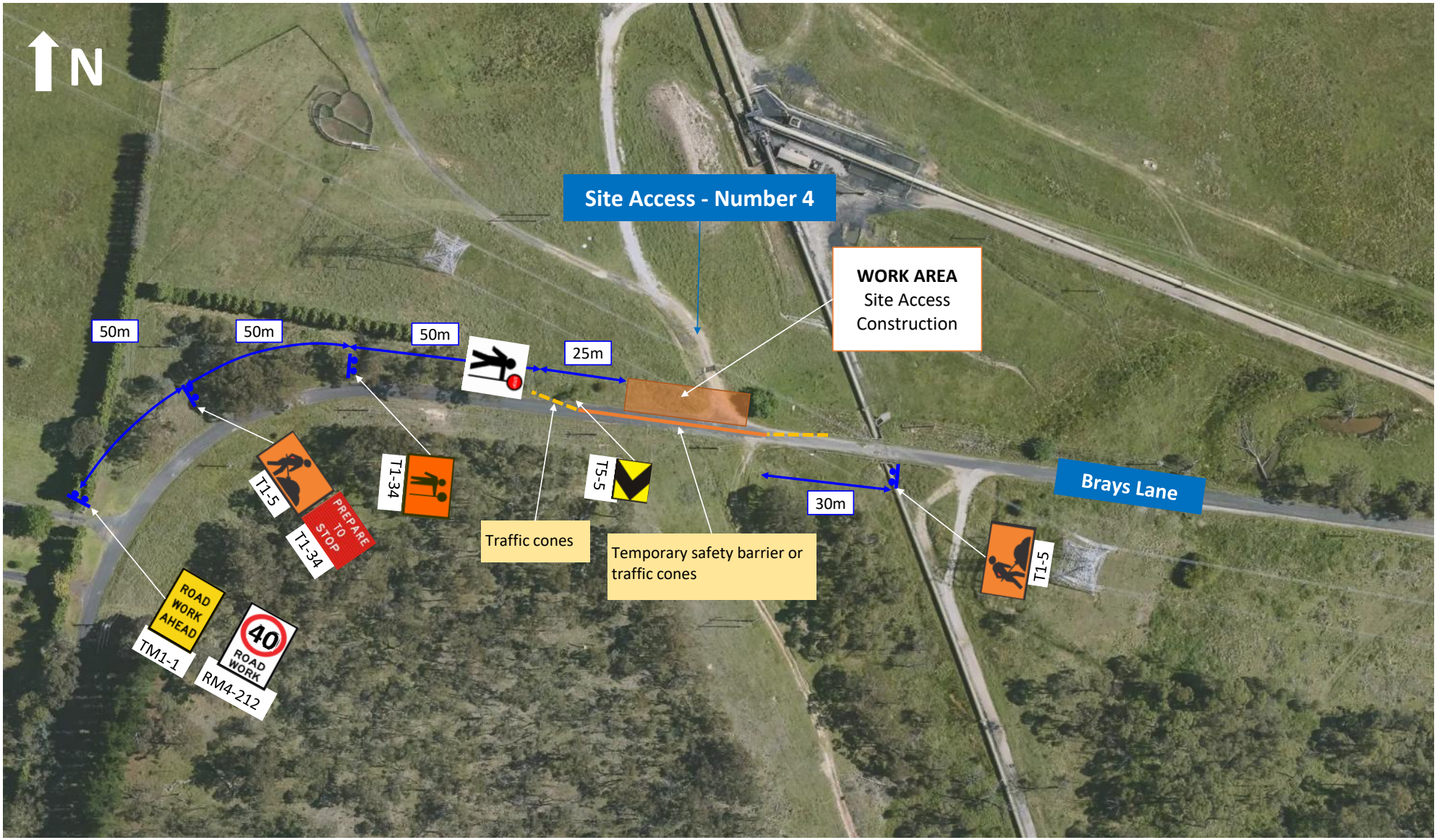



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|---|---|
| Project: | Mount Piper to Wallerawang Transmission Line Upgrade<br>**Traffic Guidance Scheme: Full Road Closure for Line Stringing works on Brays Lane, Wallerawang** |

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|---|---|---|---|---|---|
| **Designed by:** | Chris Chun | **Rev** | **Description** | **Client:** | Zinfra |
| **PWZTMP Card No:** | 52212567 | 01 | Draft | **Location of Works:** | Brays Lane, 80m west of Castlereagh Highway, Wallerawang |
| **Date:** | 19/03/2026 | | | **LGA:** | Lithgow City Council |
| **TGS No:** | PS227860-TGS-LS02 | | | **Road configuration:** | Temporary full road closure |
| | | | | **Speed limit:** | 50km/h |

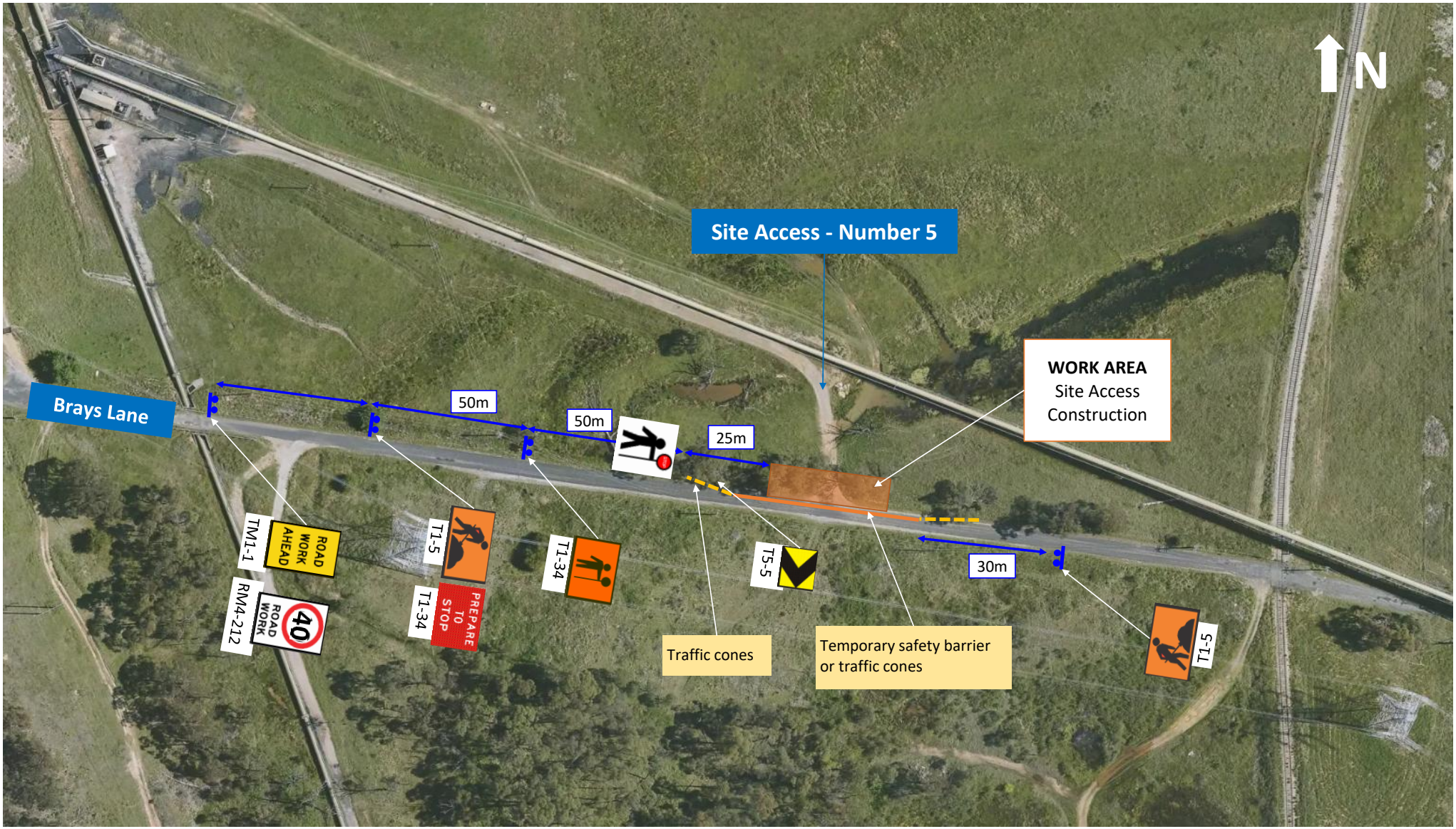



| Project: | Mount Piper to Wallerawang Transmission Line Upgrade<br>**Traffic Guidance Scheme: Partial Road Closure for Site Access Construction works on Brays Lane, Wallerawang** | | | | |
|---|---|---|---|---|---|
| **Designed by:** | Chris Chun | **Rev** | **Description** | **Client:** | Zinfra |
| **PWZTMP Card No:** | 52212567 | 01 | Draft | **Location of Works:** | Proposed Construction Access Road 4, 5, 6 and 7 on Brays Lane, Wallerawang |
| **Date:** | 19/03/2026 | | | **LGA:** | Lithgow City Council |
| **TGS No:** | PS227860-TGS-SABL | | | **Road configuration:** | Eastbound carriageway of Brays Lane |
| | | | | **Speed limit:** | 50km/h |




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| Project: | Mount Piper to Wallerawang Transmission Line Upgrade<br>**Traffic Guidance Scheme: Partial Road Closure for Site Access Construction works on Brays Lane, Wallerawang** |

| | | | | | |
|---|---|---|---|---|---|
| **Designed by:** | Chris Chun | **Rev** | **Description** | **Client:** | Zinfra |
| **PWZTMP Card No:** | 52212567 | 01 | Draft | **Location of Works:** | Proposed Construction Access Road 4 on Brays Lane, Wallerawang |
| **Date:** | 19/03/2026 | | | **LGA:** | Lithgow City Council |
| **TGS No:** | PS227860-TGS-SABL-S4 | | | **Road configuration:** | Eastbound carriageway of Brays Lane |
| | | | | **Speed limit:** | 50km/h |

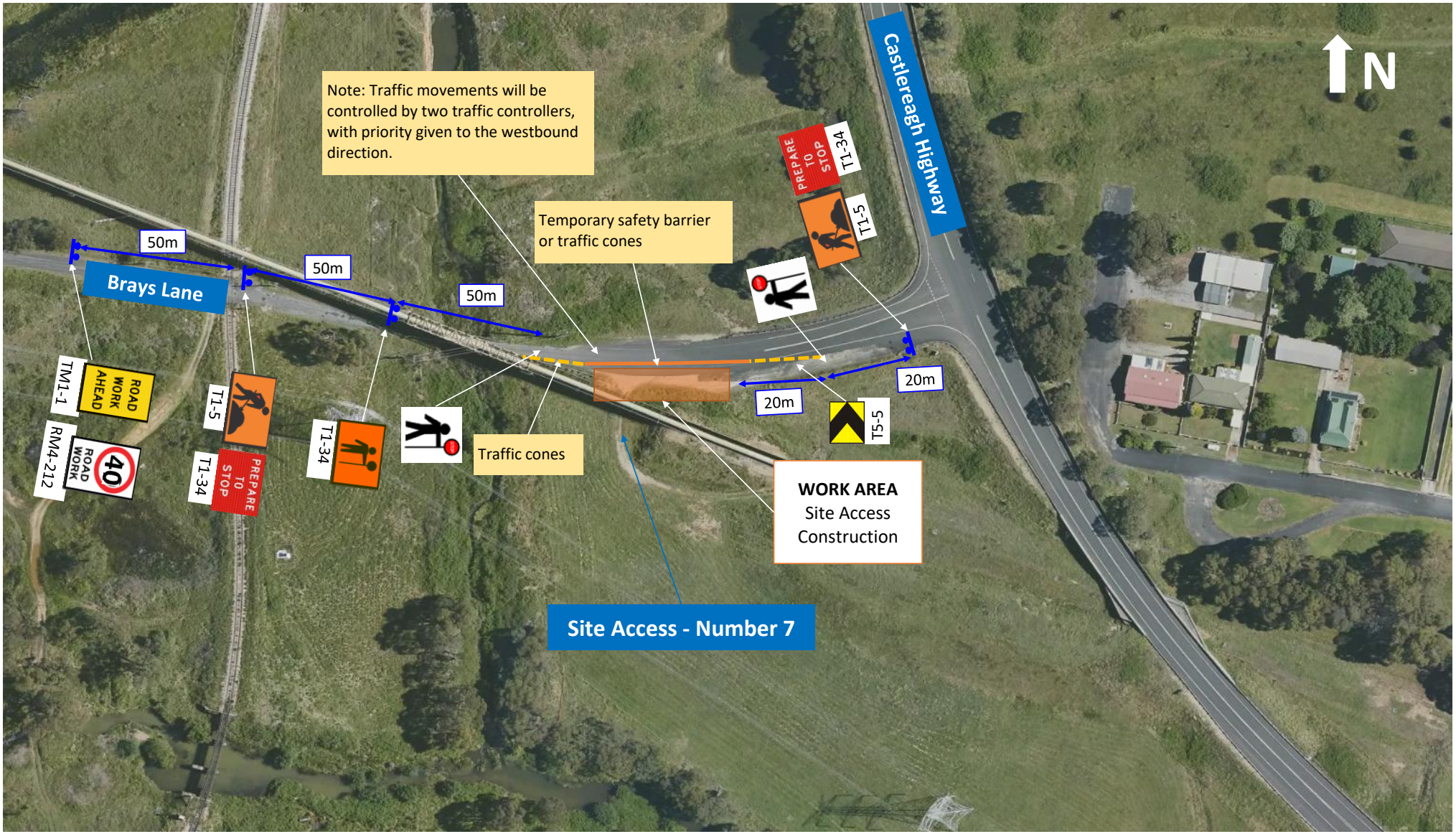



| | |
|---|---|
| Project: | Mount Piper to Wallerawang Transmission Line Upgrade<br>**Traffic Guidance Scheme: Partial Road Closure for Site Access Construction works on Brays Lane, Wallerawang** |

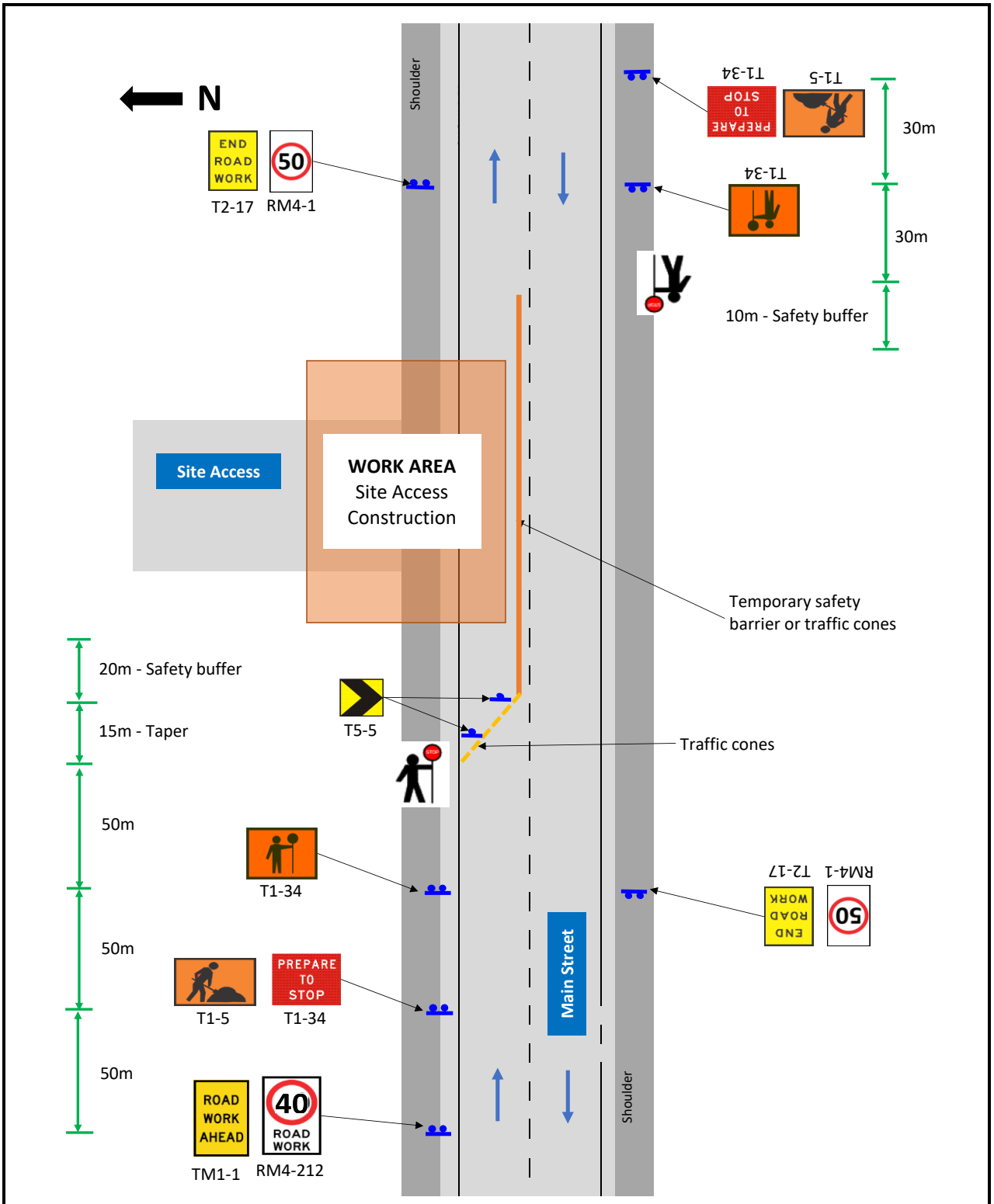
| | | | | | |
|---|---|---|---|---|---|
| **Designed by:** | Chris Chun | **Rev** | **Description** | **Client:** | Zinfra |
| **PWZTMP Card No:** | 52212567 | 01 | Draft | **Location of Works:** | Proposed Construction Access Road 5 on Brays Lane, Wallerawang |
| **Date:** | 19/03/2026 | | | **LGA:** | Lithgow City Council |
| **TGS No:** | PS227860-TGS-SABL-S5 | | | **Road configuration:** | Eastbound carriageway of Brays Lane |
| | | | | **Speed limit:** | 50km/h |



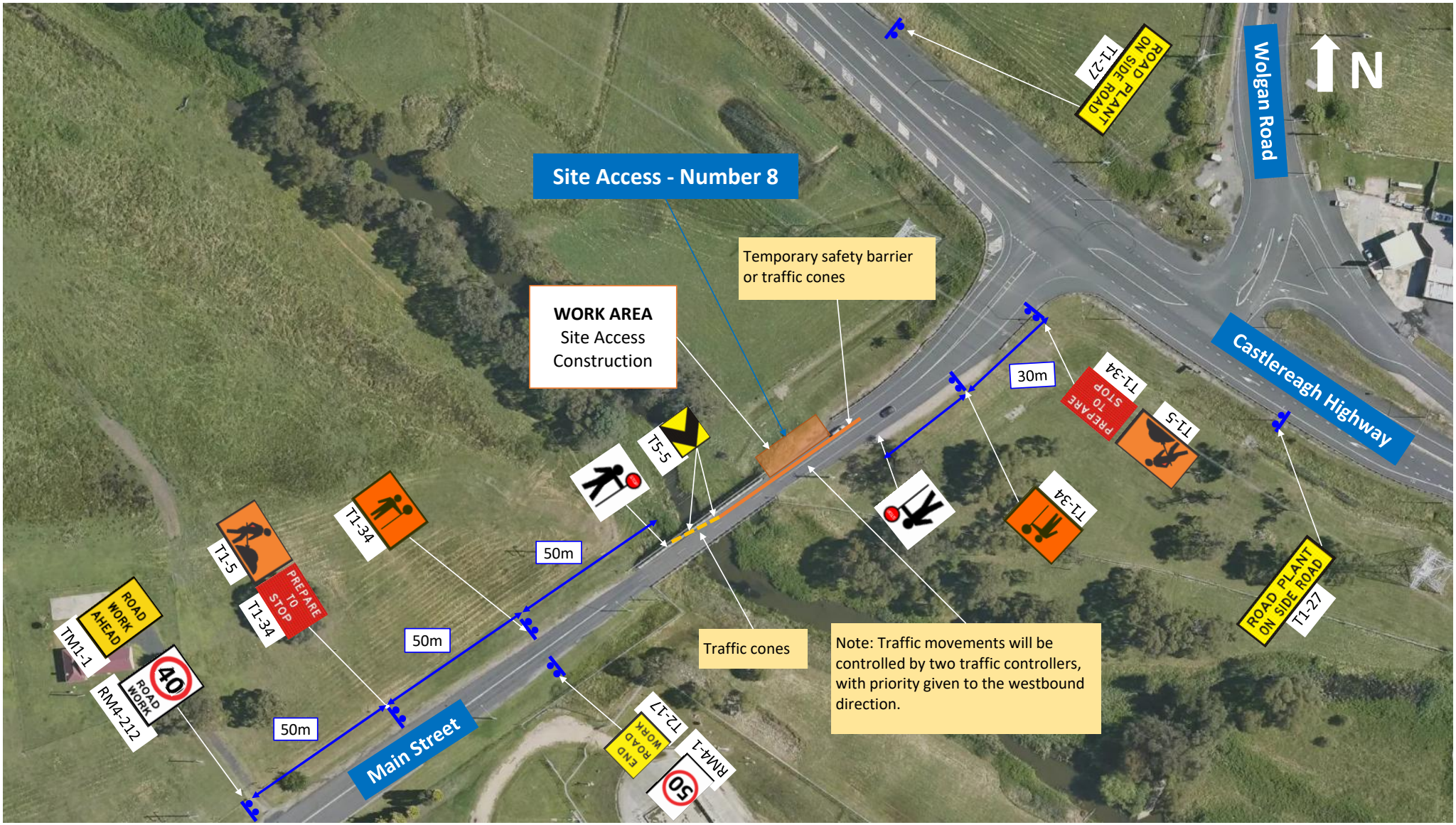

| Project: | Mount Piper to Wallerawang Transmission Line Upgrade<br>**Traffic Guidance Scheme: Partial Road Closure for Site Access Construction works on Brays Lane, Wallerawang** | | | | |
|---|---|---|---|---|---|
| **Designed by:** | Chris Chun | **Rev** | **Description** | **Client:** | Zinfra |
| **PWZTMP Card No:** | 52212567 | 01 | Draft | **Location of Works:** | Proposed Construction Access Road 6 on Brays Lane, Wallerawang |
| **Date:** | 19/03/2026 | | | **LGA:** | Lithgow City Council |
| **TGS No:** | PS227860-TGS-SABL-S6 | | | **Road configuration:** | Eastbound carriageway of Brays Lane |
| | | | | **Speed limit:** | 50km/h |



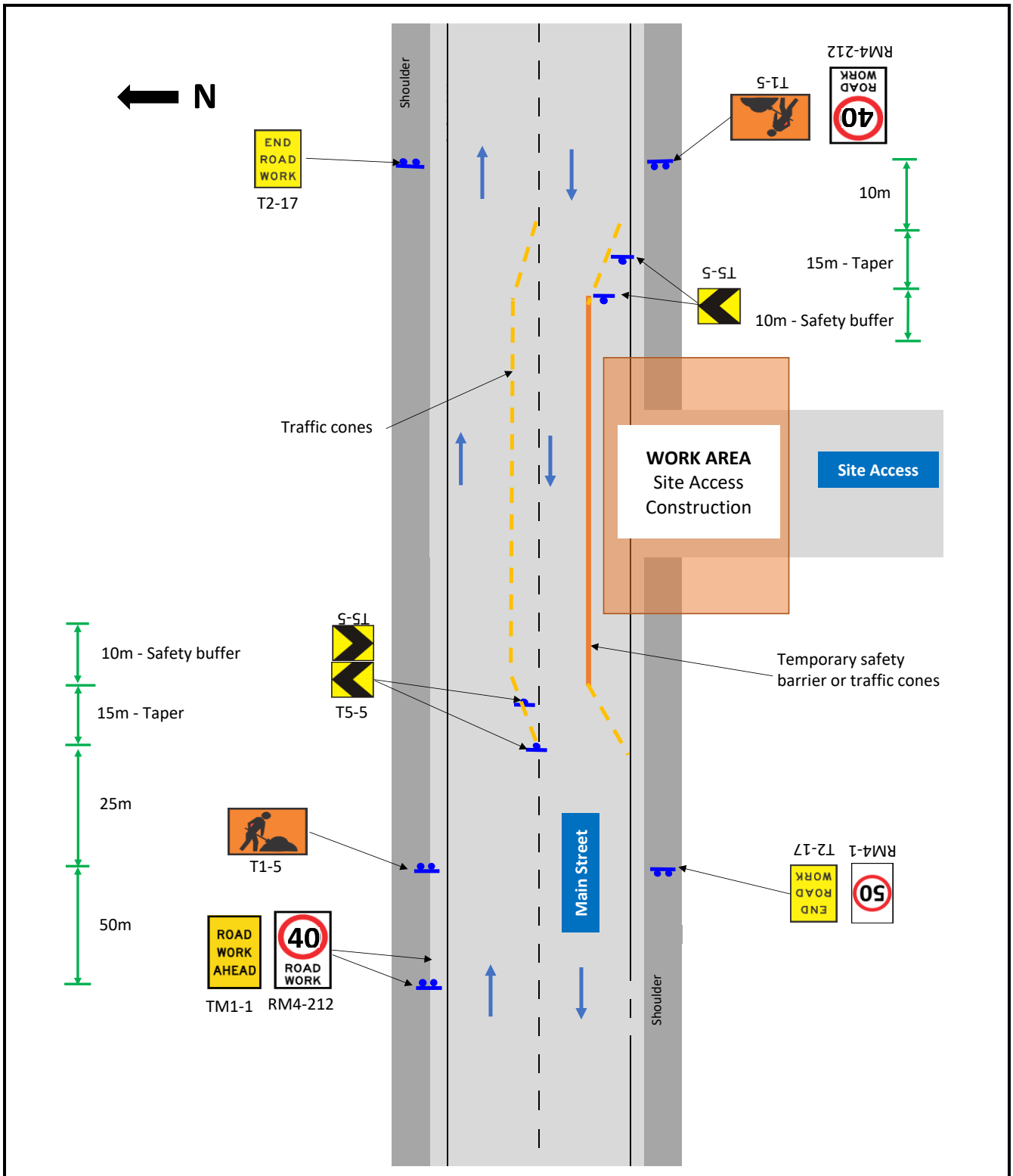

| Project: | Mount Piper to Wallerawang Transmission Line Upgrade<br>**Traffic Guidance Scheme: Partial Road Closure for Site Access Construction works on Brays Lane, Wallerawang** | | | | |
|---|---|---|---|---|---|
| **Designed by:** | Chris Chun | **Rev** | **Description** | **Client:** | Zinfra |
| **PWZTMP Card No:** | 52212567 | 01 | Draft | **Location of Works:** | Proposed Construction Access Road 7 on Brays Lane, Wallerawang |
| **Date:** | 19/03/2026 | | | **LGA:** | Lithgow City Council |
| **TGS No:** | PS227860-TGS-SABL-S7 | | | **Road configuration:** | Westbound carriageway of Brays Lane |
| | | | | **Speed limit:** | 50km/h |



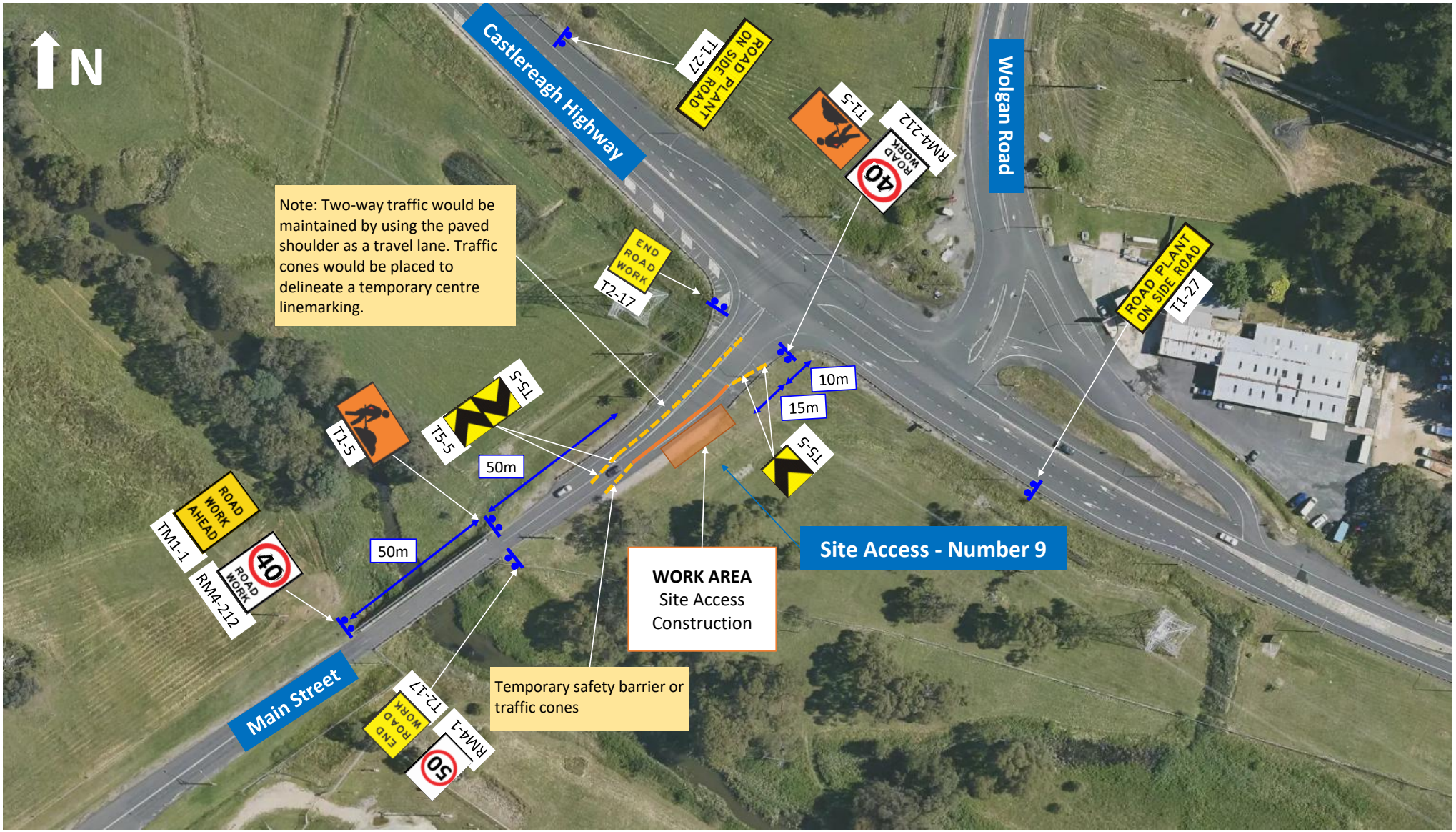

| Project: | Mount Piper to Wallerawang Transmission Line Upgrade<br>**Traffic Guidance Scheme: Partial Road Closure for Site Access Construction works on Main Street, Wallerawang** | | | | |
|---|---|---|---|---|---|
| **Designed by:** | Chris Chun | **Rev** | **Description** | **Client:** | Zinfra |
| **PWZTMP Card No:** | 52212567 | 01 | Draft | **Location of Works:** | Proposed Construction Access Road 8 on Main Street, Wallerawang |
| **Date:** | 19/03/2026 | | | **LGA:** | Lithgow City Council |
| **TGS No:** | PS227860-TGS-SAMS | | | **Road configuration:** | Eastbound carriageway of Main Street |
| | | | | **Speed limit:** | 50km/h |



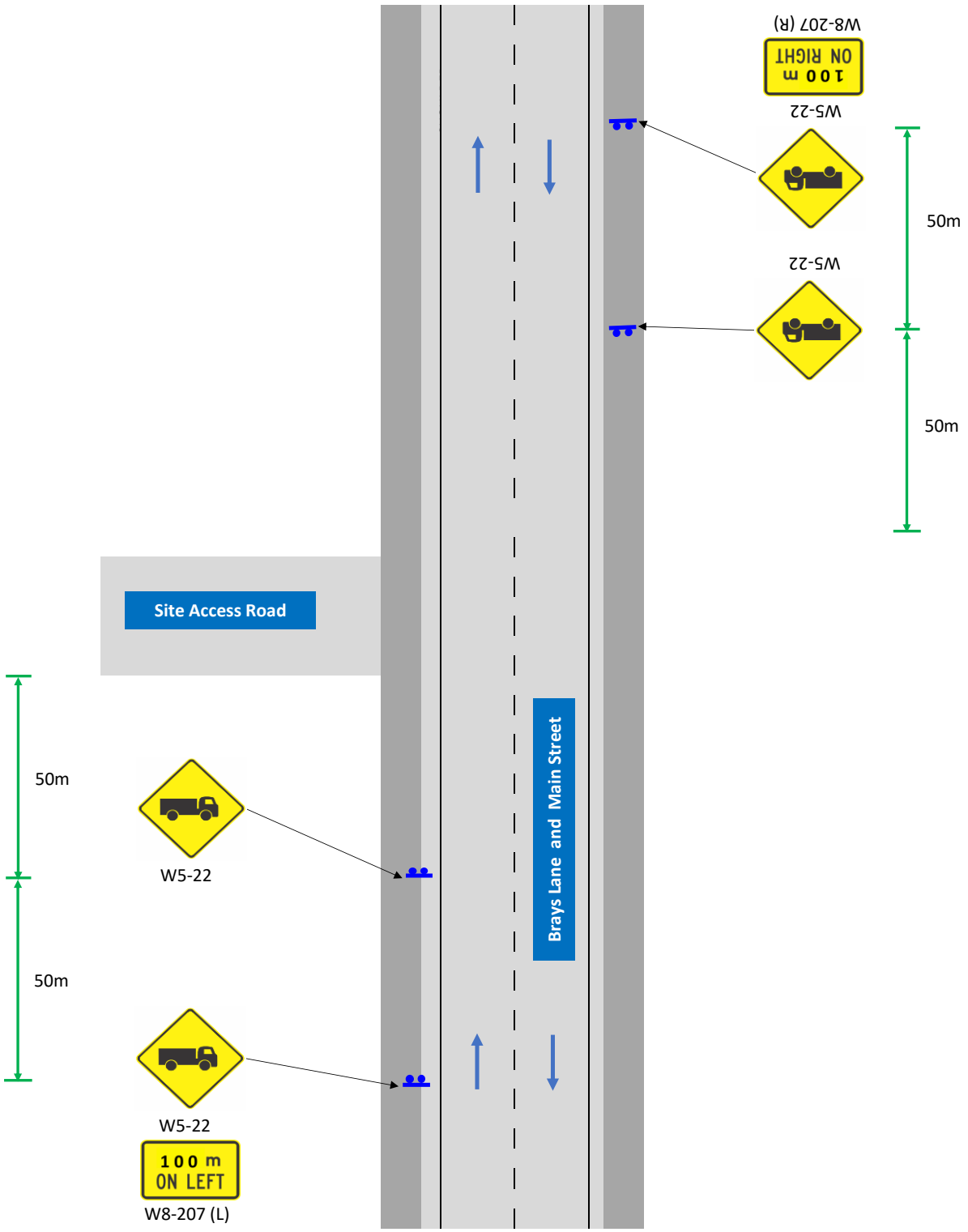

| Project: | Mount Piper to Wallerawang Transmission Line Upgrade<br>**Traffic Guidance Scheme: Partial Road Closure for Site Access Construction works on Main Street, Wallerawang** | | | | |
|---|---|---|---|---|---|
| **Designed by:** | Chris Chun | **Rev** | **Description** | **Client:** | Zinfra |
| **PWZTMP Card No:** | 52212567 | 01 | Draft | **Location of Works:** | Proposed Construction Access Road 8 on Main Street, Wallerawang |
| **Date:** | 19/03/2026 | | | **LGA:** | Lithgow City Council |
| **TGS No:** | PS227860-TGS-SAMS-S8 | | | **Road configuration:** | Eastbound carriageway of Main Street |
| | | | | **Speed limit:** | 50km/h |



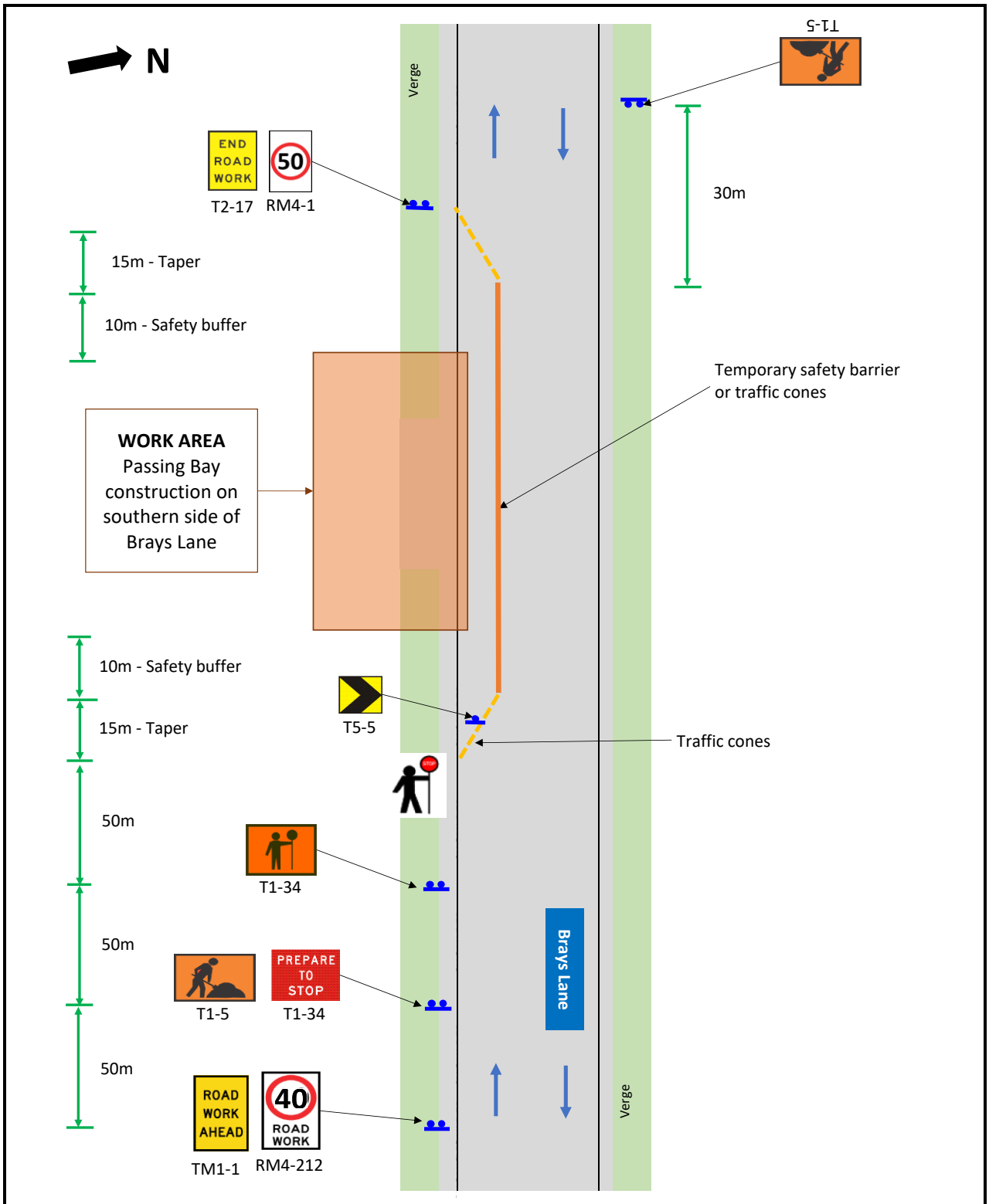

| Project: | Mount Piper to Wallerawang Transmission Line Upgrade<br>**Traffic Guidance Scheme: Two-way movements maintained during site-access construction works on Main Street, Wallerawang** | | | | |
|---|---|---|---|---|---|
| **Designed by:** | Chris Chun | **Rev** | **Description** | **Client:** | Zinfra |
| **PWZTMP Card No:** | 52212567 | 01 | Draft | **Location of Works:** | Proposed Construction Access Road 9 on Main Street, Wallerawang |
| **Date:** | 19/03/2026 | | | **LGA:** | Lithgow City Council |
| **TGS No:** | PS227860-TGS-SAMS | | | **Road configuration:** | Two-way movements on Main Street |
| | | | | **Speed limit:** | 50km/h |




| Project: | Mount Piper to Wallerawang Transmission Line Upgrade<br>**Traffic Guidance Scheme: Two-way movements maintained during site-access construction works on Main Street, Wallerawang** | | | | |
|---|---|---|---|---|---|
| **Designed by:** | Chris Chun | **Rev** | **Description** | **Client:** | Zinfra |
| **PWZTMP Card No:** | 52212567 | 01 | Draft | **Location of Works:** | Proposed Construction Access Road 9 on Main Street, Wallerawang |
| **Date:** | 19/03/2026 | | | **LGA:** | Lithgow City Council |
| **TGS No:** | PS227860-TGS-SAMS-S9 | | | **Road configuration:** | Two-way movements on Main Street |
| | | | | **Speed limit:** | 50km/h |

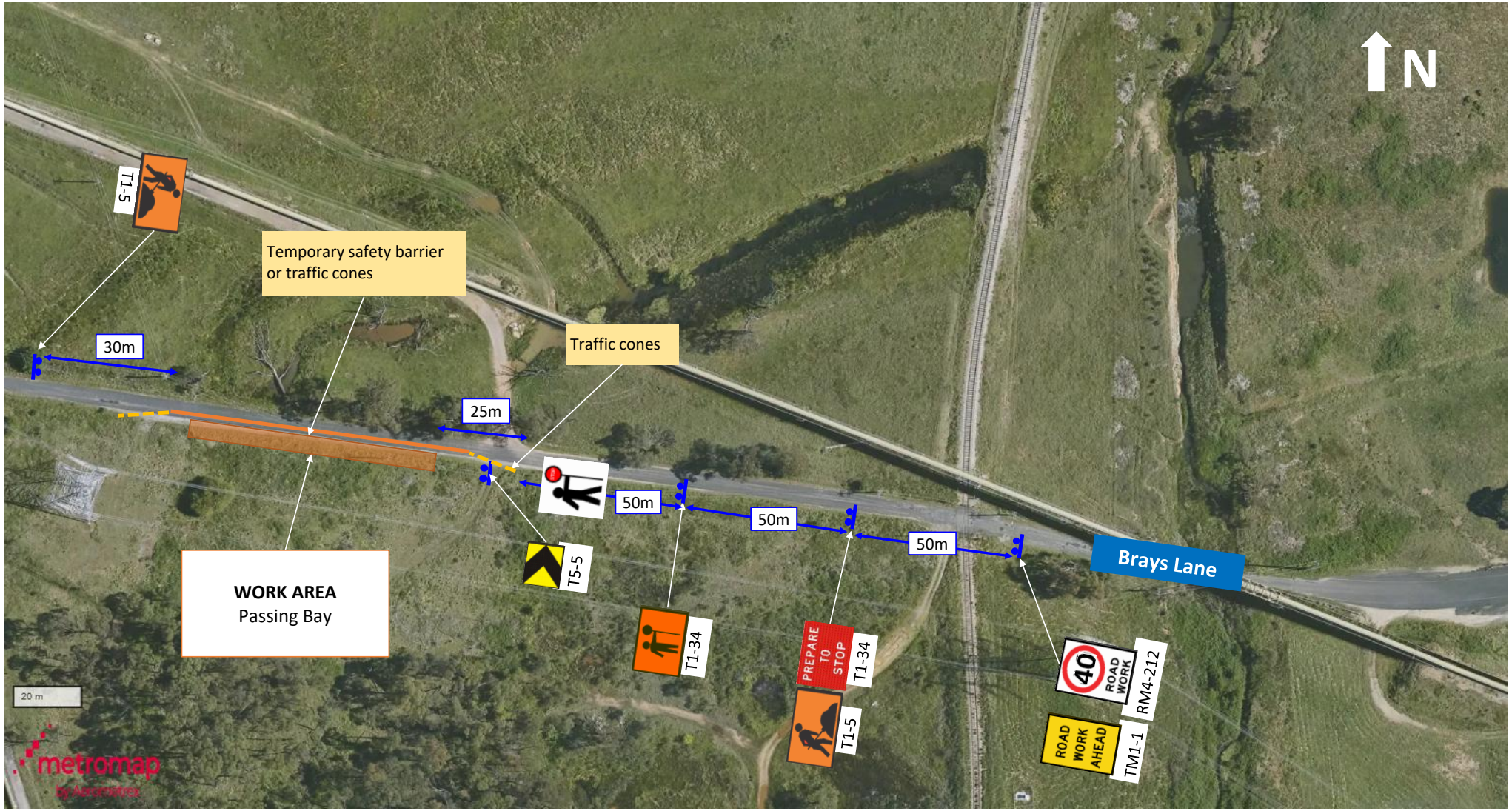



| Project: | Mount Piper to Wallerawang Transmission Line Upgrade<br>**Traffic Guidance Scheme: Site Access management on Brays Lane and Main Street, During Construction** | | | | |
|---|---|---|---|---|---|
| **Designed by:** | Chris Chun | **Rev** | **Description** | **Client:** | Zinfra |
| **PWZTMP Card No:** | 52212567 | 01 | Draft | **Location of Works:** | Proposed Construction Access Road 9 on Brays Lane and Main Street, Wallerawang |
| **Date:** | 19/03/2026 | | | **LGA:** | Lithgow City Council |
| **TGS No:** | PS227860-TGS-MGT | | | **Road configuration:** | Two-Lane , Two-Way |
| | | | | **Speed limit:** | 50km/h |




| | |
|---|---|
| Project: | Mount Piper to Wallerawang Transmission Line Upgrade<br>**Traffic Guidance Scheme: Partial Road Closure for construction of a passing bay on Brays Lane, Wallerawang** |

| | | | | | |
|---|---|---|---|---|---|
| **Designed by:** | Chris Chun | **Rev** | **Description** | **Client:** | Zinfra |
| **PWZTMP Card No:** | 52212567 | 01 | Draft | **Location of Works:** | Temporary passing bay on the southern shoulder of Brays Lane, Wallerawang |
| **Date:** | 11/06/2026 | | | **LGA:** | Lithgow City Council |
| **TGS No:** | PS227860-TGS-PBBL | | | **Road configuration:** | Eastbound carriageway of Brays Lane |
| | | | | **Speed limit:** | 50km/h |




| | |
|---|---|
| Project: | Mount Piper to Wallerawang Transmission Line Upgrade<br>**Traffic Guidance Scheme: Partial Road Closure for construction of a passing bay on Brays Lane, Wallerawang** |

| | | | | | |
|---|---|---|---|---|---|
| **Designed by:** | Chris Chun | **Rev** | **Description** | **Client:** | Zinfra |
| **PWZTMP Card No:** | 52212567 | 01 | Draft | **Location of Works:** | Temporary passing bay on the southern shoulder of Brays Lane, Wallerawang |
| **Date:** | 11/06/2026 | | | **LGA:** | Lithgow City Council |
| **TGS No:** | PS227860-TGS-PBBL | | | **Road configuration:** | Eastbound carriageway of Brays Lane |
| | | | | **Speed limit:** | 50km/h |

# Appendix C

Response to Lithgow City Council

Figure C.1 – Response to Lithgow City Council

| | |
|---|---|
| **From:** | Clare Moore <Clare.Moore@zinfra.com.au> |
| **Sent on:** | Thursday, July 2, 2026 4:23:28 AM |
| **To:** | Shaun Elwood <shaun.elwood@lithgow.nsw.gov.au>; Galip Kartop <Galip.Kartop@lithgow.nsw.gov.au>; Leanne Kearney <leanne.kearney@lithgow.nsw.gov.au>; Paul Creelman <Paul.Creelman@lithgow.nsw.gov.au> |
| **CC:** | Erin Mamo <erin.mamo@transgrid.com.au>; Karl Littlemore <karl.littlemore@zinfra.com.au>; Zhou, William <william.zhou@wsp.com>; Rahul Dorairaj <Rahul.Dorairaj@jemena.com.au>; Dan Owens <dan.owens@transgrid.com.au> |
| **Subject:** | Lithgow Feedback Session |
| **Attachments:** | 1 July - Lithgow City Council Feedback Workshop.docx (29.6 KB), 20260702 Lithgow Council - Soil & Water Management Plan.pptx (10.39 MB) |
| **Follow up:** | Follow up |
| **Start date:** | Friday, July 3, 2026 12:00:00 AM |
| **Due date:** | Friday, July 3, 2026 12:00:00 AM |

Hi everyone,

Thank you for your time yesterday at our feedback session.

Please find attached the minutes from the session and the Soil and Water Management Plan briefing pack.

Summary of status/feedback on each plan:

- Workforce Management Plan:
  - Feedback received: Council's preference remains for utilising existing commercial accommodation within Lithgow where available.
- Historic Heritage
  - Feedback received: no comment.
- Traffic and Transport
  - Feedback received: Paul sent through feedback 1 July 2026. We will work through this and be in contact if we have any clarifying questions.
- Soil and Water
  - Feedback received: Galip requested clearer references to the applicable guidelines used to establish the water quality criteria.
  - Perrin completing review focusing on Water.
- Noise and Vibration
  - Galip & Perrin finalising review.

We are hoping to close our consultation tomorrow Friday 3 July. Galip and Perrin if you could please advise if your review of the Noise and Vibration plan will be completed by then?

Kind Regards,

**Clare Moore**

# Appendix D

Detailed structural assessment of Main Street Bridge over Cox River, for OSOM vehicle

# Level 3 Investigation – Main St Wallerawang

## Integrity Testing (Intl) Pty Ltd

Client: Zinfra/Lithgow Shire

Report Number: ITInt026-030

Revision: 01 ● 14 July 2026




Structural & Civil Engineering Consultants

# Document History

## Document Location

This is an on-line document. Paper copies are valid only on the day they are printed. Refer to the author if you are in any doubt about the accuracy of this document.

## Revision History

| | |
|---|---|
| Date of last revision: 02/07/2026 | Date of current revision: - 14/07/2026 |

| Report Number | Rev No. | Revision Date | Summary of Changes | Author |
|---|---|---|---|---|
| ITInt026-030 | 01 | 14-Jul-26 | Updated OSOM references | RT, JIH |
| ITInt026-030 | 00 | 02-Jul-26 | Original | RT, JIH |
| | | | | |
| | | | | |

## Approval/Authors

Report was produced by the following. This document requires the following approvals:

| Name | Title |
|---|---|
| John S Higgs | ITPL Snr. Director, Principal, Structural Engineer |
| John I Higgs | ITPL Director, Operations Manager |
| Rikki A Tongue | ITPL Director, Civil Engineer |

## Distribution

This document has been distributed to:

| Name | Title |
|---|---|
| Karl Littlemore | Project Director, Zinfra |

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# Executive Summary

1. Integrity Testing carried out a level 3 investigation of the Main St, Wallerawang structure to determine the structural condition and capacity of the structure for external parties in consultation with Lithgow City Council. The investigation was required to understand the capacity of the structure to accommodate planned OSOM loads. This bridge was previously investigated by us in 2024.

2. Visual inspections of the bridge found minimal decreases in present condition with the exception of some further degradation in the wearing course over the structure. The trishore props supporting the bridge were also noted to be partially loose. Some maintenance issues also were present on the structure, including vegetation growth on the bridge deck causing blocked bridge drainage scuppers, defective or sealed over expansion joints, and worn bitumen seal over the footpath on the side of the structure.

3. Both axial compression and lateral bending moment Mod-shock® testing results were deemed sufficient for all HML loaded vehicles. The Mod-shock® testing of the pier and abutment piles found serviceable safe additional load (SAL) capacities totalling over 250 tonnes for each pier and abutment. Lateral bending moment values were also serviceable, with results averaging around 2000 kN.m per pile. Both sets of results are unchanged from 2024.

4. The bridge deck capacity was deemed generally serviceable for legally loaded HML loaded vehicles up to B-double classification, and for most common road trains up to B-triple configuration. There is minimal change in capacity from our investigation in 2024. The rating of the bridge at its higher mass loads (HML) capacity as indicated in *AS 5100.7 Bridge Design* (2017) was 1.5 for T-44, 1.3 for B-doubles, and 1.6 for rigid axle trucks. Its rating for Federal Highway bridge design was approximately 1.0. The deflections seen in the structural mode shapes is similar to our earlier 2024 investigation, and there is minimal change in capacity recorded.

5. **OSOM Usage:** The bridge deck can acceptably accommodate the proposed OSOM vehicle usage as proposed under the ‘BG28’ load diagram with some provisions. A strict max. dolly/trailer axle weight of 16 tons per axle is required, and the present trishore propping will need to be utilized in order to effectively reduce the applied moments of the OSOM trailer loads on to the bridge deck. The props will need to be retightened and their tension checked and confirmed prior to the OSOM travel.

6. The bridge’s condition and capacity can otherwise currently accommodate all legally loaded HML vehicles up to B-double classification and common road train vehicles up to B-triple classification. Recommendations to maintain the current rating for the bridge therefore remain the same as per our 2024 report.

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# 1. Introduction

## 1.1 Brief

Integrity Testing (Int'l) Pty. Ltd. (Integrity) was engaged by external parties in consultation with Lithgow City Council to determine the present-day condition and capacity of the Main St, Wallerawang bridge spanning Cox's River. The bridge had been previously investigated by us in 2024 as part of the CNSWJO works. Reinvestigation of the bridge was required to understand whether any degradation in the structure had occurred which would then affect its ability to accommodate exceptional oversized/overmass (OSOM) traffic (the load configuration of which is described later within this document).

For their Level 3 investigation, Integrity proposed to test the bridge supports with their Mod-Shock® test system (in its respective compression, equivalent penetrometer, and bending moment modes) to determine the capacity of the supports, and the respective bridge decks with their Dynamic Bridge Testing System (DBTS®) and beams where necessary. This report contains the results of the tests carried out for the Main St Bridge on the 24th of June 2026.

## 1.2 Deliverables

The following deliverables form the basis of reporting of this document.

- Present day condition and capacity of the supports to the bridge(s).
- Depth of supports and their serviceability.
- Bending moment and axial capacities of the supports.
- Deck testing - dynamic bridge testing system (DBTS®) to determine deck condition and capacity in tonnes per specific vehicle requirements consistent with Structural Health Monitoring (SHM) requirements under AS5100.7
- Sketches of the bridge including support layouts and test positions.
- Outline sketches of repairs to the various structural members if any required.

## 1.3 Site Description

The bridge nominated in this report is located on Main St in Wallerawang, NSW and crosses Cox's River. The bridge is a four-span structure consisting of a reinforced concrete slab deck for the deck spans, with a bitumen wearing course over the bridge. The bridge deck is supported by

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5x number steel I-beam girders with steel cross bracing. Substructure elements of the bridge consist of concrete abutments and piers, which consist of concrete columns running into concrete caissons and integral crossheads. The mid-spans of each span are also supported by an arrangement of trishore props with steel beams.



1: General view over bridge



2: General view underside, trishore props visible

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# 2. Visual Survey

In addition to the testing mentioned earlier in this document, a visual inspection was performed. Any visual defects or noteworthy items are noted prior to the analysis stage and included within the summary tables as a remark. See Appendix B for full visual page.

Any general or outstanding comments are detailed below.



3: Wearing course over expansion joints damaged

The wearing course over the bridge structure was found to be worn, with noticeable damage over the abutment expansion gaps and crack lines forming in the bitumen at the piers. The wearing course is recommended to be replaced with a new reinforced bitumen overlay with allowances for drainage and new joints installed across the bridge, with approaches profiled to ensure a smooth transition over the deck.

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4: Typical spalling on underside

The spalling and cracking first noted in our 2024 investigation has not progressed in any noticeable manner, but treatment will be required in the near future to ensure that the steel reinforcement does not corrode further and degrade. Patch repair with a suitable concrete mortar mix and/or epoxy with a rust prevention application to the steel elements prior will be required.

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5: Typical spalling underside of bridge deck at outer edges



6: Typical spalling continued

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7: Some trishore props noted to be loose

Some of the trishore propping on the underside of the bridge deck was found to be not hard up against the steel beam crosshead that spans the width of the structure. As a matter of precaution, periodic inspection of the props and checks to their tightness is recommended, with any loose propping currently present to be rectified.

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8: Typical degradation in bridge barriers

Some maintenance issues and defects were still present from 2024, including degraded and cracked bridge barriers and kerbs. These are recommended to be replaced with a suitable steel Armco (or equivalent) barrier designed to suit present highway codes, or rectified with patch repair techniques during Council's regular maintenance procedures for the structure. The bridge deck similarly will require periodic inspection and cleaning to ensure no vegetation growth is present.

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9: Bridge edges showing vegetation and debris, and typical cracks in kerbs

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# 3. Mod-Shock® Results – Support Structural Capacity

For a more detailed explanation of the Mod-Shock® methodology, see Appendix C. All these parameters are derived from in depth analysis of wave forms measured in response to a small impact from a hammer.

Analysis of the test output enables derivation of safe additional bending moment and axial force parameters. These are summarised in the section below and shown for individual piles in tables contained in the appendices. The locations for these tests can also be found within the appendices to this report.

## 3.1 Findings – Pier/Abutment Capacity

The tests were carried out in accordance with the methods described in Appendix C. Locations of the tests are detailed in Appendix A of this report. For full individual Mod-Shock Results, see Appendix H. Below is a summary table of the Safe Additional Load (SAL) capacity in compression for each of the supports, along with the recorded bending moment values, and a comparison to the results calculated in the earlier investigation performed for the bridge (where applicable).

A category 1 or 2 pile is considered serviceable; a blue category 3 pile is serviceable but overstressed/over-stiff state with unevenly higher load being applied; a yellow category 3 piles serviceable but defective with reduced capacity; and **category 4** an unserviceable pile with severely reduced capacity in need of immediate remediation actions.

**Abutment & Pier Piles**

| Model No. | Pile No | Category | Pile Length (m) | Pile Head Stiffness (t/mm) | "E" max (t/mm) | "E" min (t/mm) | SAL @ 3 mm | Loss of Section Depth (m) | Remarks | Diameter mm | Min. Dia mm | Bending Moment kN.m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PILES_A01X | A01 | 2.0 | 11.9 | 43.1 | 76.5 | 33.5 | 134.7 | 3.5 | Serviceable | 950 | 500.0 | 2491.1 |
| PILES_A02X | A02 | 2.0 | 11.5 | 39.9 | 75.4 | 43.9 | 142.3 | 8.3 | Serviceable | 950 | 490.0 | 1738.6 |
| PILES_B01X | B01 | 2.0 | 13.6 | 32.3 | 86.2 | 26.2 | 92.6 | 6.8 | Serviceable | 950 | 490.0 | 2696.4 |
| PILES_B02Y | B02 | 3.0 | 10.7 | 78.0 | 65.6 | 42.3 | 195.2 | 1.6 | Stressed | 950 | 550.0 | 3067.3 |
| PILES_P11Y | P11 | 2.0 | 11.5 | 35.0 | 60.9 | 31.2 | 114.0 | 7.9 | Serviceable | 950 | 450.0 | 1730.1 |
| PILES_P12Y | P12 | 3.0 | 12.5 | 25.7 | 81.2 | 49.0 | 126.6 | 3.8 | Reduced | 950 | 480.0 | 1079.1 |
| PILES_P21X | P21 | 2.0 | 10.7 | 33.2 | 82.8 | 28.6 | 101.4 | 6.8 | Serviceable | 950 | 500.0 | 2436.9 |
| PILES_P22Y | P22 | 2.0 | 12.6 | 52.2 | 75.1 | 37.5 | 157.4 | 4.1 | Serviceable | 950 | 490.0 | 2646.9 |

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| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PILES_P31X | P31 | 2.0 | 10.7 | 51.5 | 63.8 | 40.9 | 151.9 | 4.5 | Serviceable | 950 | 500.0 | 2031.9 |
| PILES_P32X | P32 | 2.0 | 13.5 | 34.6 | 76.4 | 39.2 | 124.9 | 5.6 | Serviceable | 950 | 430.0 | 1705.7 |

Table 1: Compression safe additional load results and equivalent diameter

The measured pile lengths for the abutment and pier piles averaged approximately 12m across all piles.

In terms of capacity, all pile results were deemed generally serviceable and averaged around 130 tonnes safe additional load capacity per pile. Each pier and abutment recorded safe additional load capacities of around 250 tonnes each. Lateral bending moment values were found to be similarly serviceable, with capacities averaging around 2000 kN.m per pile.

The measured capacities for the existing pile system are more than sufficient to support the super structure and present general traffic load presently. The results are also considered sufficient for HML vehicle loads. There is no noticeable reduction in capacities for the piers/abutments between the present day and 2024.

The capacities above are also considered sufficient as they presently stand to accommodate the proposed OSOM (BG28) load (detailed further in this document).

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# 4. DBTS® Results – Deck Structural Capacity

The method employed to determine the bridge deck capacity (which is applicable to building floor slabs, marine jetty decks and other similar structures) is our Dynamic Bridge Testing System (DBTS). The method involves the direct measurement of the structural stiffness of the deck/slab. During the dynamic testing we are able to detect the principal and significant deflection mode shapes of the floor slab/deck.

The DBTS results are modelled utilizing mode deflection shapes in order to provide a visual aid in determining the current condition of the slab/bridge (which will also display any defects within the slab/deck). A simple table is also provided in the calculations section with the Safe Additional Load (SAL) capacity given in a clear and concise manner. Any noteworthy items are mentioned within the commentary of each relevant section as well. For a more detailed explanation of the DBTS® methodology, see Appendix C.

The tests undertaken determine the following:

- Condition and the presence of any visual defects within the bridge deck.
- Models of the bridge deck tested displaying the primary and major secondary deflection modes.
- Any defects were noted that may affect the serviceability of the deck.
- Load/deflection values of the deck within their elastic range, and the Safe Allowable Load (SAL) capacity of the deck in tonnes, and;
- Any comments relating to the conditions noted on site.

The layout used for the DBTS® system is typical for all tests and involves the laying of cables on parallel sides of the bridge deck tested. A series of sensors are placed, spaced equally along the cables lain, and then connected to a computer which then records the sensor data recorded from the dynamic test.

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## 4.1 Findings – Bridge Deck Capacity

The measured capacity of the bridge in its present condition was as detailed in the following table. The load capacities given are those for an equivalent uniform distributed load to the load applied by the vehicles indicated. It does not imply that the bridges could be used by those vehicles in an overloaded state. The natural frequency plots and deflected mode shape diagrams recorded for the floors/spans tested are included in the appendices of this document.

| Coxs Bridge<br>Safe Additional Load (SAL) Bridge Deck Capacity | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Span** | **EI**<br>**N.m2** | **Total Load**<br>**kN** | **Moment Capacity**<br>**kN. m** | **B-Doubles GVM**<br>**(T)** | **T-44 GVM**<br>**(T)** | **Rigid Axle Trucks**<br>**(T)** | **Federal**<br>**Road Ratio** | **Dynamic and Live**<br>**Load Factor** |
| Span 1 | 1.32E+09 | 9.40E+02 | 1.36E+03 | 68 | 46 | 23 | 1.1 | 1.37 |
| Span 2 | 1.19E+09 | 8.12E+02 | 1.18E+03 | 68 | 46 | 23 | 0.9 | 1.37 |
| Span 3 | 1.41E+09 | 1.03E+03 | 1.49E+03 | 68 | 46 | 23 | 1.2 | 1.37 |
| Span 4 | 1.18E+09 | 8.03E+02 | 1.16E+03 | 68 | 46 | 23 | 0.9 | 1.37 |

Table 2: DBTS deck capacity summary table

The rating of the bridge at its higher mass loads (HML) capacity as indicated in *AS 5100.7 Bridge Design* (2017) was 1.5 for T-44, 1.3 for B-doubles, and 1.6 for rigid axle trucks. Its rating for Federal Highway bridge design was approximately 1.0.

The mode shapes recorded were considered reflective of the present condition of the bridge, with smooth and uniform primary deflection mode shapes, and some rotational or twisting tendencies. The results were broadly similar to the investigation undertaken in 2024, further visual degradation in road wearing course condition notwithstanding.

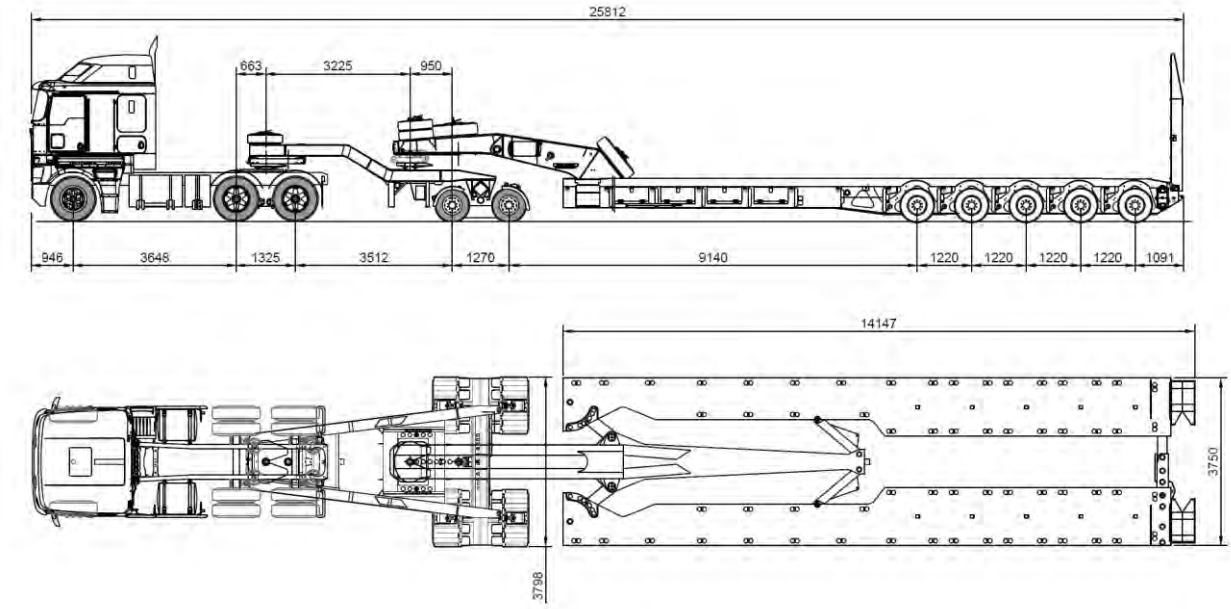
The bridge can presently accommodate all legally loaded HML loads up to B-double configuration without detriment, and common road train configurations with some reservations up to B-triple classification (not including AB-triple classification vehicles).

As determined in 2024, the efficacy of the mid-span propping is somewhat marginal. Should the additional load capacity afforded by the props be consistently required, it is advisable to strengthen up the cross-span stiffness with new diaphragm beams, with all new elements sufficiently tied to each other. The exceptional OSOM loading (as described in the load diagrams & plots in the appendices of this document) is considered in the following sections.

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## 4.2 Proposed OSOM Usage – BG28

The suitability of the bridge to accommodate OSOM traffic was considered according to the following load diagram (fig. 10) and mass per axle (table 3) provided to us by external parties.




10: Proposed OSOM vehicle configuration

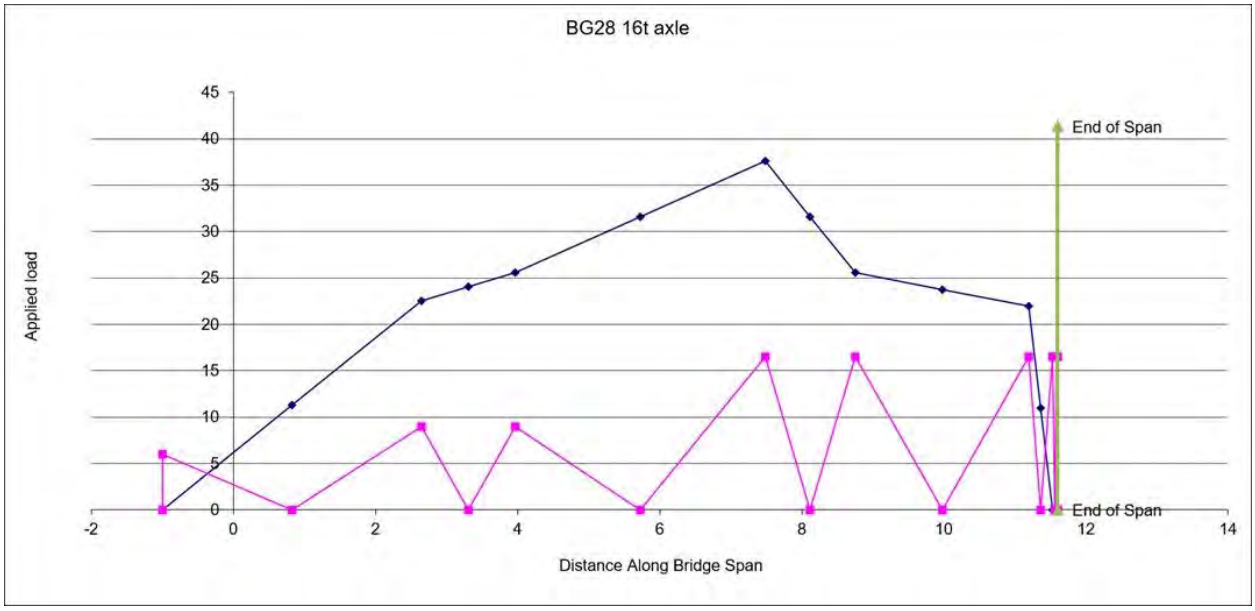
| | Weight Drill Rig with Counter-weights | Total Weight Drill Rig incl. counterweights + Total Truck (11t) + Dolly (6.3t) + trailer (21t) = | Approx weight per axle on trailer and dolly with Dolly (7 axles) | Weight Drill Rig without Counter weights | Total Weight Drill Rig incl. counter weights + Total Truck (11t) + Dolly (6.3t) + trailer (21t) = | Approx weight per axle on trailer and dolly with Dolly (7 axles) |
|---|---|---|---|---|---|---|
| **BG28** | 76.1t | Total weight of all items = 114.4t GVM = 125.5t | 15t average but not to exceed 31.5t | 63.8t | 102.1t | 15t average but not to exceed 31.5t |

| | | | | | | |
|---|---|---|---|---|---|---|
| **BG24** | 70t | 109.2t<br>GVM = 125.5t in<br>NSW | 15t average but<br>not to exceed<br>31.5t | 60.1 | 99.3t | 15t average but<br>not to exceed<br>31.5t |

Table 3: Total loads of proposed OSOM configurations

The ‘worst case’ scenario (or the configuration deemed to be most impactful, highlighted in orange in table 3 above) was chosen in order to be assessed against the bridge’s available capacity. Two modes of travel (onto the span and off the span) were considered, with an additional 10% contingency applied to the 15 ton per axle average (equating to 16.5 tons per axle from the dolly axle onwards) in order to provide an additional buffer allowing for potentially uneven loading of the dolly/trailer. The additional support of the propping is excluded from the load plots due to their present efficacy being deemed marginal (found loose or only partially engaged at time of testing).

The vehicle diagram and full load plots of the following can be found within the appendices of this document.

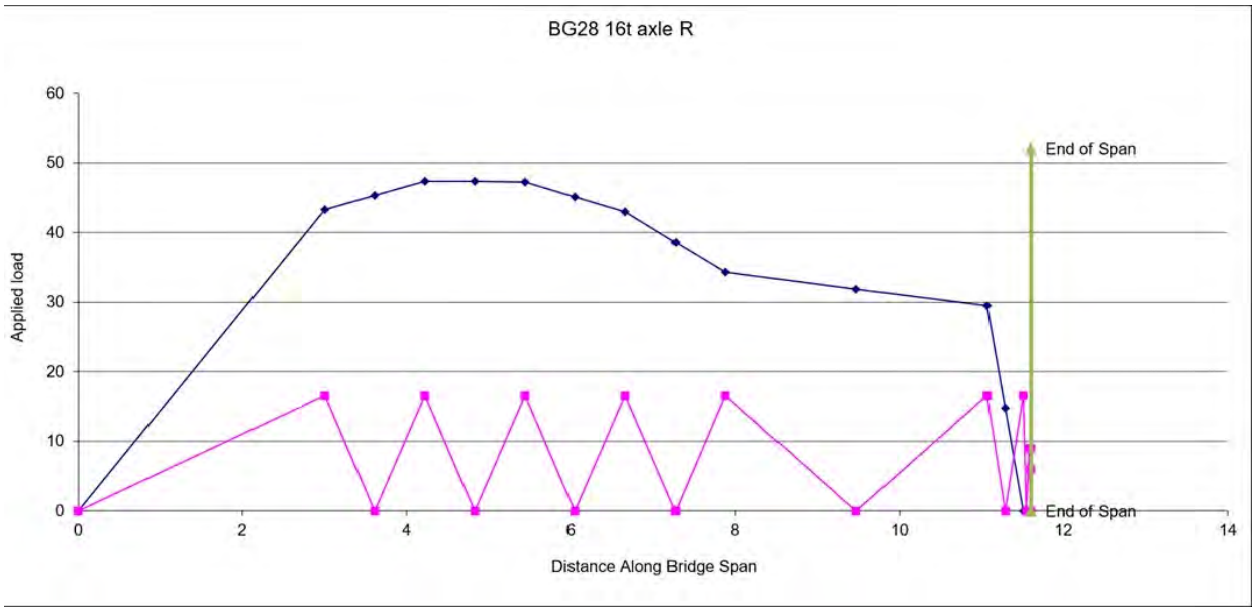



11: Load plot of OSOM BG28 vehicle moving onto bridge spans

Figure 11 denotes the load plot of the BG28 vehicle configuration moving onto the bridge spans. The applied moment of the prime mover moving onto the bridge is accommodated sufficiently, with the largest moment applied to the bridge by the dolly and trailer axles between the rearmost axle of the dolly and the first trailer axle at approximately 8.0m along the span.

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The total applied moment of the OSOM load moving onto the span and distances along the span where applied equate to approximately 2% over the current available capacity, which is deemed acceptable and within margins of safety.




12: Load plot of OSOM BG28 vehicle moving off bridge spans

As the prime mover moves off the bridge span onto the next (or off the bridge), the trailer begins to impart a significant force on to the spans themselves. Given the span lengths of the bridge and the number of trailer axles, the full effect of the OSOM trailer's load can be imparted to the individual span and temporarily exceeds the available capacity of the bridge deck spans.

In this instance, for the last ~4.0m length of travel over the span the total applied moment of the OSOM load moving off the span and distances along the span where applied results in a temporary overload of approx. 50% over and above the present available bending moment capacity. This is assumed to be the maximum load per axle the bridge can safely accommodate, and therefore consideration must be made to maintaining a strict axle load limit of no more than 16 tons per axle. At the maximum allowable per axle weights (in the state of NSW) of 31.5 tons, the bridge could be significantly overloaded which can result in structural damage and/or partial failure.

Due to the proposed load exceeding the current available capacity, the additional support of the trishore propping will be required as a matter of precaution. The propping also has the additional benefit of effectively shortening the current bridge spans, reducing the applied moments as the vehicle travels over the structure. The trishore props will need to be tightened to ensure their engagement to the bridge deck prior to the passage of the OSOM vehicle proposed above.

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# 5. Conclusions

Integrity Testing carried out a level 3 investigation of the Main St, Wallerawang bridge structure to determine the structural condition and capacity of the structure to understand the bridge's present ability to accommodate OSOM loads.

Visual inspections of the bridge found that the overall visual condition has remained largely similar to that in 2024, with some further deterioration of the wearing course over the bridge deck. The spalling visible on the underside of the structure remains unchanged, and the bridge barriers were still considered somewhat degraded. Some of the bridge's trishore propping was found to be partially loose, which will need to be re-tensioned. The majority of these defects can be rectified under a considered maintenance programme for the structure.

Mod-shock® testing of abutment piles and pier columns resulted in compression and axial results that were more than sufficient for HML loaded vehicles. The Mod-shock® testing of the pier and abutment piles found serviceable safe additional load (SAL) capacities averaging around 130 tonnes additionally per pile. Since our investigation in 2024, there has been no noticeable change in capacity for the bridge supports.

The DBTS® testing of the bridge deck found capacities serviceable for HML vehicles up to B-double configuration, and most common road train configurations up to B-triple class. The rating of the bridge at its higher mass loads (HML) capacity as indicated in *AS 5100.7 Bridge Design* (2017) was 1.5 for T-44, 1.3 for B-doubles, and 1.6 for rigid axle trucks. Its rating for Federal Highway bridge design was approximately 1.0.

The mode shapes recorded were reflective of the present condition of the bridge, with smooth and uniform primary deflection mode shapes but with occasional sway or twist modes. The bridge deck capacity and performance once again is similar to that found in 2024.

The ability of the bridge to accommodate oversized/over-mass (OSOM) traffic as proposed under the 'BG28' load diagram (with an additional 10% dolly/trailer axle weight contingency) is acceptable with some provisions. Due to the applied load of the trailer axles temporarily exceeding the safe available capacity of the bridge deck spans as they move off, the present trishore propping will need to be utilized to further support the bridge deck. The props will need to be retensioned and engagement with the bridge deck checked and confirmed prior to the OSOM travel to ensure support to the bridge deck. The trailer and dolly axle weights will also need to be checked and confirmed prior to passage to ensure that they do not exceed 16 tons per axle to avoid overloading of the bridge deck spans.

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Some maintenance and minor augmentations are envisaged for continued long-term HML vehicle usage for this bridge, such as a new reinforced bitumen overlay sealing the approaches and over the bridge deck. These recommendations follow those proposed in 2024 and are detailed within report number '*IT024-034E-2*'.

Should you have any queries, or you need further information please contact the undersigned.

This report was produced by R A Tongue & J I Higgs.

On behalf of Integrity Testing Intl Pty. Ltd

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# 6. Audit

All works performed supervised by John S Higgs.

Report Audited by John S Higgs.

Report Number: ITInt026-030 Level 3 Investigation – Main St Wallerawang was compiled with information obtained from the testing in June 2026 and we carried out the tests as per the instructions from our client Zinfra/Lithgow Shire. The information was obtained using the Mod-shock® and DBTS® test systems and scanning measurements, which gave measurements of certain properties, but also required interpretation. We have used our experience in our interpretation and have to the best of our ability produced a report which gives the information required by the client Zinfra/Lithgow Shire as ITInt026-030 Revision: 01. This report, either in part or whole is not to be used for any contractual or legal action to any other body or party without the specific approval of Integrity Testing (Intl) Pty. Ltd. This report gives the information required in the scope of work directed by other parties. We shall not be liable for any error of judgment or mistake of law or for any loss suffered by the external parties in connection with the use of the information included in this report, due to not being privy to how the information is being used.

Signed for and on Behalf of Integrity Testing Int'l Pty. Ltd

John S Higgs.

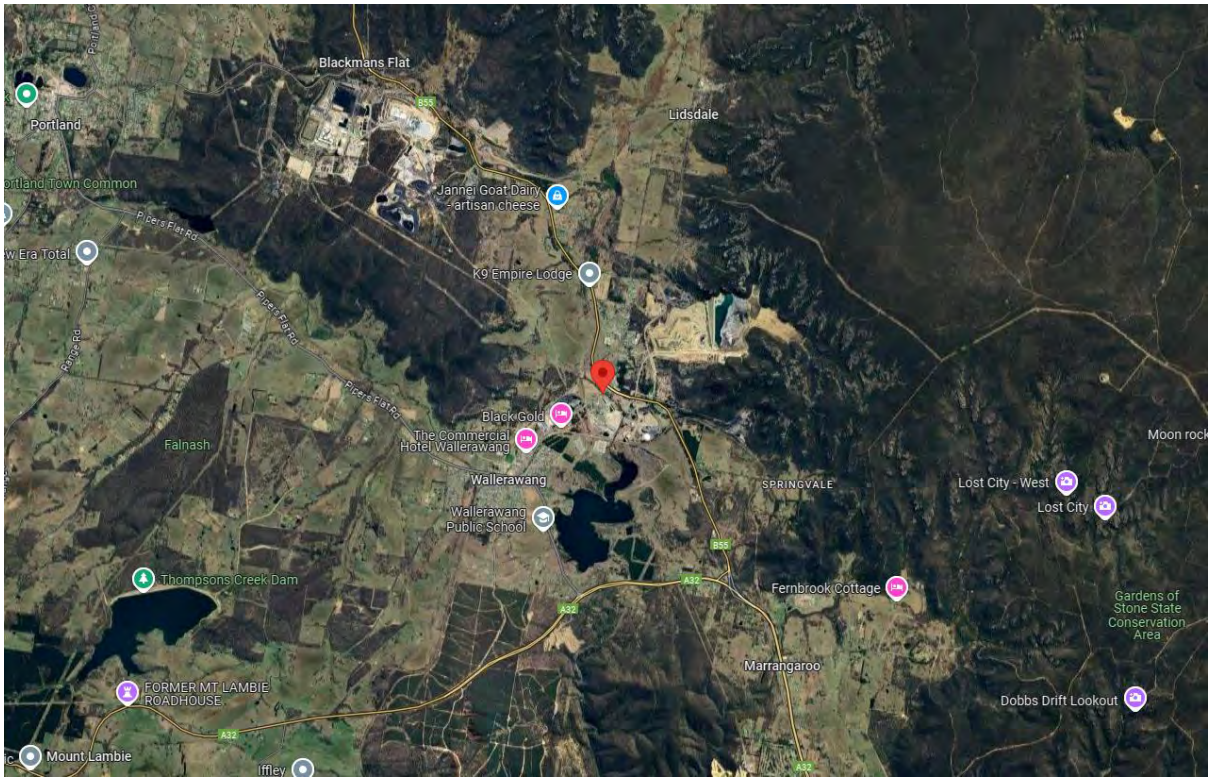


*J. S. Higgs.*

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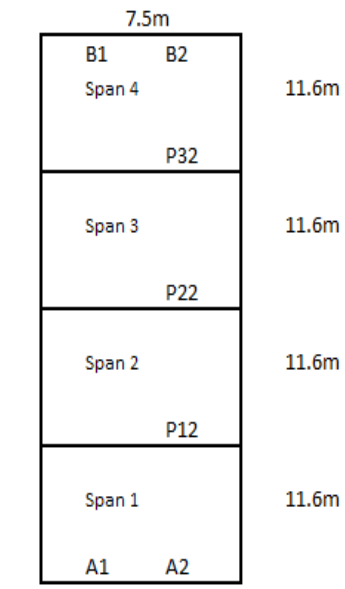
# 7. Appendices

## 7.1 Appendix A – Site Location and Location Plans



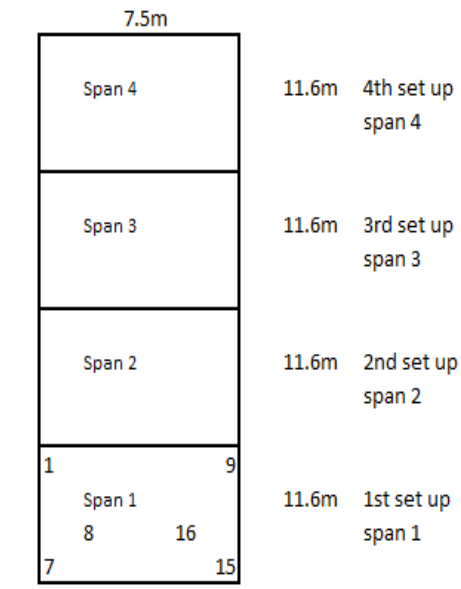

GPS co-ordinates: -33.3981, 150.0813

MAIN ST BRIDGE- MOD SHOCK LOCATION




Railings- 0.95m high
Kerb 300 wide by 200 deep
Footpath 850mm wide- cantilevered off bridge
Height to water level 3.8m

MAIN ST BRIDGE- DBTS LOCATION




5 nos Steel I-beams 24 x 7
Concrete piers 950 by 950 with circular footing-base(1.5m diameeter) and 2.75m high
Headstock 900 deep by 700 wide
X-beam between main steel beam 600 deep by 200 wide x 5 nos
Spacer X-beams 250 by 150 between beams
Tri-Shore props 15 nos 380mm triangle on 5 no bases in cluster of 3-Tri props

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## 7.2 Appendix B – Visual Inspection & Photographs

**Integrity Testing Int'l Pty Ltd**
**Level 2 Inspection Form**
**Structure Information Sheet**

| Inspection Details | |
|---|---|
| **Inspection Date** | 24/06/2026 |
| **Inspector** | BM/MM |
| **Notes (inspection related)** | 4 span concrete structure with steel beams and canitelevered footway. Overall condition fair with multiple defects including deck surface and expansion joints degraded spalling on barriers underside and abutments. |

| Bridge Details | | | |
|---|---|---|---|
| **Bridge Name** | Main Street Bridge | **GPS Coordinates** | -33.3981, 150.0813 |
| **Road Name** | Main Street | **Structure ID No** | |
| **Crossing /General Location (Creek/River)** | Cox's River | | |

| Orientation | | |
|---|---|---|
| | **Direction** | **Road Approach** |
| **Ref A** | North-East | Castlereagh Hwy |
| **Ref B** | South-West | Wallerawang |

| Bridge Attributes | |
|---|---|
| **Length (total)** | 46.6m |
| **Width (kerb-to-kerb)** | 6.55m |
| **Load Restriction** | |
| **Posted Speed Limit** | |
| **Notes (attributes related)** | Barrier height .95m, Kerb 300mm x 200mm, Footway 850mm, Water level 3.8m, 5x Steel beams 24 x 7, Columns 950mm x 950mm with circular footings at 1.5m diameter, Crossheads 900mm x 700mm, Crossbeams 600mm x 200mm, Spacer X-beams 250mm x 150mm, Tri-shore props 15x 380mm. |

| Bridge Dimensions | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Span/Cell No.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| **Span Length (m)** | 11.60 | 11.60 | 11.60 | 11.60 | | | | | | |
| **Span Width (m)** | 6.55 | 6.55 | 6.55 | 6.55 | | | | | | |

| Material Type & General Condition | | | | | |
|---|---|---|---|---|---|
| | **Material** | **Rating (Category)** | | **Material** | **Rating (Category)** |
| **Abutment A** | Concrete | 2 - Minor/Cosmetic | **Abutment B** | Concrete | 2 - Minor/Cosmetic |
| **Main Beams** | Steel | 2 - Minor/Cosmetic | **Crossbeams** | Steel | 2 - Minor/Cosmetic |
| **Piers/Piles** | Concrete | 2 - Minor/Cosmetic | **Crossheads & Corbels** | Concrete | 2 - Minor/Cosmetic |
| **Deck** | Concrete | 2 - Minor/Cosmetic | **Safety/Guard Rail** | Concrete/Steel | 3 - Moderate/To Monitor |
| **Wingwall** | N/A | | **Walkway** | Other | 3 - Moderate/To Monitor |

**Structure General Views**

**Approach View/ Deck**



**Side View/ Underside**



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| Integrity Testing Int'l Pty Ltd<br>Level 2 Inspection Form<br>Condition Rating Sheet | | | | | | |
|---|---|---|---|---|---|---|
| **Approaches** | | | | | | |
| | **Component Code** | **Total Component Amount** | **Affected Amount** | **Exposure Class** | **Rating** | **Percentage** |
| Approaches | 52O - Bridge Approaches Other | 2 | 2 | 2 - Mild | 2 - Minor/Cosmetic | 100.00% |
| **Deck** | | | | | | |
| | **Component Code** | **Total Component Amount** | **Affected Amount** | **Exposure Class** | **Rating** | **Percentage** |
| Deck | 8C - Deck In-situ | 1 | 0.1 | 2 - Mild | 3 - Moderate/To Monitor | 10.00% |
| | 8C - Deck In-situ | 1 | 0.9 | 2 - Mild | 2 - Minor/Cosmetic | 90.00% |
| Expansion Jo | 33S - Open Expansion Joint | 5 | 5 | 2 - Mild | 3 - Moderate/To Monitor | 100.00% |
| **Guard Rails** | | | | | | |
| | **Component Code** | **Total Component Amount** | **Affected Amount** | **Exposure Class** | **Rating** | **Percentage** |
| Bridge Barrie | 51C - Railing/Barriers In-situ | 2 | 2 | 2 - Mild | 3 - Moderate/To Monitor | 100.00% |
| Walkway Bai | 51S - Railing/Barriers Steel | 1 | 1 | 2 - Mild | 2 - Minor/Cosmetic | 100.00% |
| **Abutments** | | | | | | |
| | **Component Code** | **Total Component Amount** | **Affected Amount** | **Exposure Class** | **Rating** | **Percentage** |
| Abutments | 24C - Abutment In-situ | 2 | 2 | 2 - Mild | 2 - Minor/Cosmetic | 100.00% |
| **Wingwalls/Retaining Walls** | | | | | | |
| | **Component Code** | **Total Component Amount** | **Affected Amount** | **Exposure Class** | **Rating** | **Percentage** |
| **Underside/Below Deck** | | | | | | |
| | **Component Code** | **Total Component Amount** | **Affected Amount** | **Exposure Class** | **Rating** | **Percentage** |
| Underside | 8C - Deck In-situ | 1 | 0.1 | 2 - Mild | 3 - Moderate/To Monitor | 10.00% |
| | 8C - Deck In-situ | 1 | 0.9 | 2 - Mild | 2 - Minor/Cosmetic | 90.00% |
| **Piles/Column/Culvert Cell Number** | | | | | | |
| | **Component Code** | **Total Component Amount** | **Affected Amount** | **Exposure Class** | **Rating** | **Percentage** |
| Columns | 22C - Column/Pile In-situ | 10 | 10 | 2 - Mild | 2 - Minor/Cosmetic | 100.00% |
| Crossheads | 21C - Crossheads/integral In-situ | 5 | 5 | 2 - Mild | 2 - Minor/Cosmetic | 100.00% |
| **Beams** | | | | | | |
| | **Component Code** | **Total Component Amount** | **Affected Amount** | **Exposure Class** | **Rating** | **Percentage** |
| Beams | 2S - Open Girders/Stringer Steel | 20 | 20 | 2 - Mild | 2 - Minor/Cosmetic | 100.00% |
| Crossbeams | 2S - Open Girders/Stringer Steel | 28 | 28 | 2 - Mild | 2 - Minor/Cosmetic | 100.00% |
| Diapragm | 12S - Diaphragm/Bracing Steel | 16 | 16 | 2 - Mild | 2 - Minor/Cosmetic | 100.00% |
| **Bearings** | | | | | | |
| | **Component Code** | **Total Component Amount** | **Affected Amount** | **Exposure Class** | **Rating** | **Percentage** |
| Bearings | 40O - Fixed Bearing | 40 | 40 | 2 - Mild | 2 - Minor/Cosmetic | 100.00% |
| **Other** | | | | | | |
| | **Component Code** | **Total Component Amount** | **Affected Amount** | **Exposure Class** | **Rating** | **Percentage** |

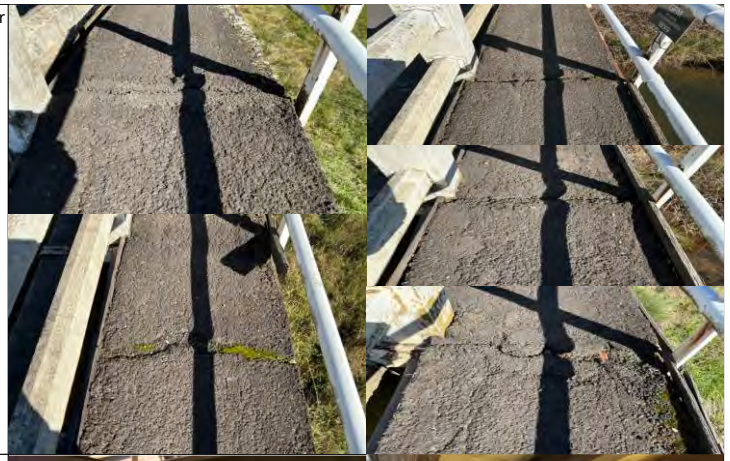
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**Integrity Testing Int'l Pty Ltd**
**Level 2 Inspection Form**
**Structure Defects Sheet**

| Component Name | Component Description | Location | Quantity | Description (incl. quantities, causes, and likely deterioration rates) | Urgency (1-4) | Photo |
|---|---|---|---|---|---|---|
| 52O - Bridge Approaches Other | Approach surface expansion joint 1 | Approach A | 1x | Settlement at approach A creating an uneven surface transition, Expansion joint 1 sealed over and heavily degraded with road surface failing over sealed expansion joint. Remove road surface overlay on approach repack approach base material and re seal overlay with expansion joint intalled. 32.75sqm x1 expansion joint. Approximate cost of $8000. | 3 - Moderate |  |
| 52O - Bridge Approaches Other | Approach surface expansion joint 5 | Approach B | 1x | Approach B expansion joint 5 sealed over and heavily degraded, Creating an uneven surface transition to bridge deck. Remove seal overlay from bridge expansion and install expansion joint at 6.55Lm. Approximate cost of $4500. | 3 - Moderate |  |

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| | | | | | | |
|---|---|---|---|---|---|---|
| 33S - Open Expansion Joint | Expansion joint | Deck | 3x | Deck expansion joints 2,3 and 4 over piers 1,2 and 3 are sealed over with bitumen overlay, Creating uneven surface and cracking throughout expansion area. Remove bridge overlay seal at expansion and install expansion joints x3 at 6.55Lm. Approximate cost of $13.500. | 4 - Minor |  |
| 14O - Other | Deck surface | Span 1 | 1x | Span 1 deck surface LHS pot hole (erosion). Patch repair pot hole in deck surface .5msq. Approximate cost of $1000. | 3 - Moderate |  |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14O - Other | Footway surface | Footway | 1x | Footway bridge surface uneven and potential trip hazards. Grind flat and patch repair. Total 1sqm. Approximate cost of $1500. | 4 - Minor |  |
| 13S - Load Bearing Diaphragm Steel | Load bearing props | All spans | 4x | Trishore props loose throughout all spans. Requiring retentioning. Approximate cost of $1500. | 3 - Moderate |  |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8C - Deck In-situ | Deck underside | All spans | 4x | Deck underside spalling on both LHS and RHS of spans throughout bridge underside exposing rebar to environmental weathering. Remove all loose spalled concrete and pressure clean, apply anti corrosion to exposed rebar and patch repair concrete. 50sqm. Approximate cost of $10000. | 3 - Moderate |  |
| 51C - Railing/Barriers In-situ | Concrete barriers | LHS and RHS | 2x | Concrete barriers degrading/ spalling throughout. Pressure clean and patch repair spalling and re paint. Approximate cost of $6500. | 4 - Minor |  |

| | | | | | | |
|---|---|---|---|---|---|---|
| 24C - Abutment In-situ | Concrete abutments | Abutment A | 1x | Abutment A spalling and bearing shelf debris build up. Pressure clean spalling and bearing shelf, patch repair spalling. 2sqm. Approximate cost of $2000. | 4 - Minor |  |
| 24C - Abutment In-situ | Concrete abutments | Abutment B | 1x | Abutment B spalling and bearing shelf debris build up. Pressure clean spalling and bearing shelf, patch repair spalling. 1sqm. Approximate cost of $1500. | 4 - Minor |  |

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| | | | | | | |
|---|---|---|---|---|---|---|
| 21C - Crossheads/integral In-situ | Concrete crosshead | Pier 2 | 1x | Pier 2 concrete crosshead spalling. Patch repair and monitor at future inspections. .5sqm. Approximate cost of $500. | 4 - Minor |  |
| 21C - Crossheads/integral In-situ | Concrete crosshead | Pier 3 | 1x | Pier 3 concrete crosshead spalling. Patch repair and monitor at future inspections. .5sqm. Approximate cost of $500. | 4 - Minor |  |

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| | | | | | | |
|---|---|---|---|---|---|---|
| 22C - Column/Pile In-situ | Concrete column | P22 | 1x | Pier 2 pile 2 concrete impact damage from waterway debris. Pressure clean and use anti corrosion on exposed rebar and patch repair. .5sqm. Approximate cost of $500 | 4 - Minor |  |

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### *7.2.1 Full Photographs*

01 Approach A



02 Approach A close up



03 Approach A settlement



04 Expansion joint 1



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05 Expansion joint 1 degraded



06 Expansion joint 1 degraded



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07 Span 1 LHS barrier



08 span 1 LHS barrier degraded



09 Span 1 deck



10 Span 1 LHS kerb spalling



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11 Span 1 deck surface pot hole



12 Span 1 deck surface pot hole



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13 Span 1 RHS barrier



14 Span 1 RHS barrier degraded



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15 Expansion joint 2



16 Span 2 LHS barrier



17 Span 2 deck



18 Span 2 RHS barrier



19 Expansion joint 3



20 Span 3 LHS barrier



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21 Span 3 LHS barrier degrading



22 Span 3 deck

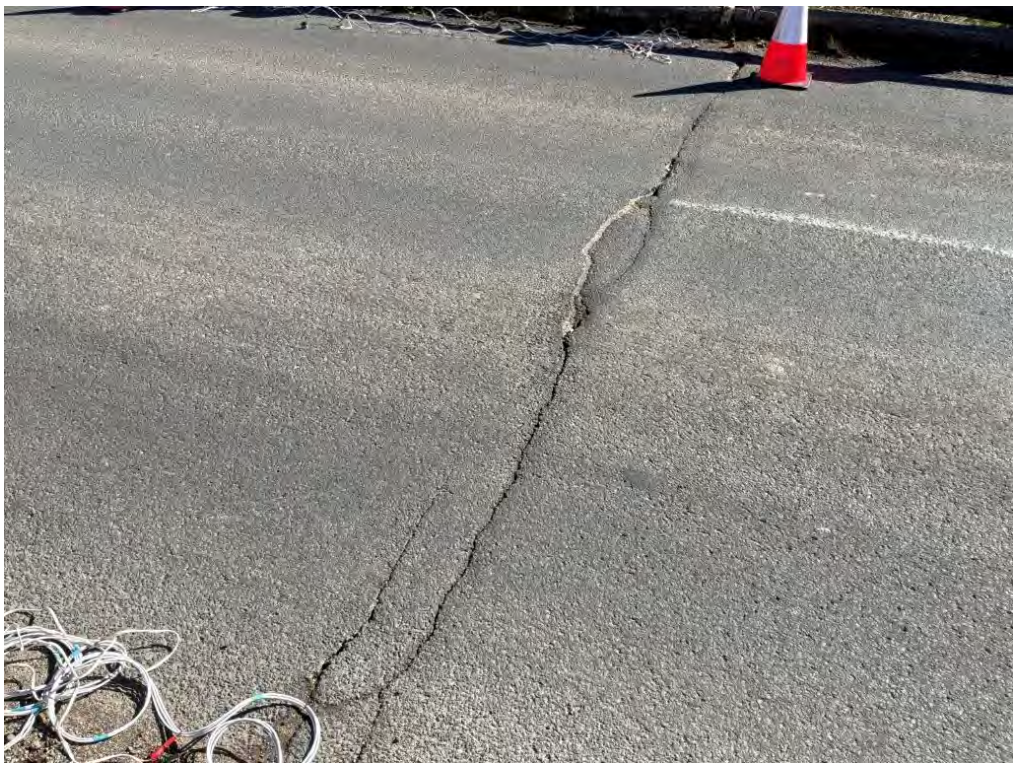


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23 Span 3 RHS barrier




24 Expansion joint 4



25 Expansion joint 4 RHS kerb crack



26 Span 4 LHS barrier



27 Span 4 deck



28 Span 4 RHS barrier



29 Span 4 RHS barrier degrading



30 Expansion joint 5



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31 Expansion joint 5 degraded



32 Expansion joint 5 degraded



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33 Approach B close up




34 Approach B



35 Approach A pathway



36 Expansion joint 1 pathway



37 Span 1 pathway



38 Expansion joint 2 pathway



39 Span 2 pathway



40 Pathway timber edging degraded



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41 Expansion joint 3 pathway




42 Span 3 pathway



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43 Expansion joint 4 pathway



44 Span 4 pathway



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45 Expansion joint 5 pathway



46 Approach B pathway



47 Side view LHS



48 Side view RHS



49 Abutment A spall between beam 3 and 4



50 Abutment A spalling between beam 3 and 4 underside



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51 Abutment A shelf debris build up



52 Abutment A spalling between means 1 and 2 underside



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53 Abutment A



54 A01



55 A02



56 Underside span 1



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57 Span 1 props



58 Pier 1



59 P11



60 P12



61 Underside span 2



62 Span 2 props



63 Underside span 2 LHS spalling



64 Pier 2




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65 P21




66 P22



67 Pier 2 crosshead underside spalling



68 P22 RHS spalling



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69 Underside span 3



70 Span 3 props



71 Waterway



72 Pier 3



73 P31




74 P32



75 Pier 3 crosshead spalling



76 Pier 3 crosshead spalling



77 Underside span 4



78 Span 4 props



79 Abutment B



80 B01



81 B02



82 Abutment B spalling



83 Bearing general



84 Bearing general



85 Underside span 4 LHS spalling



86 Underside span 4 LHS spalling



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87 Underside span 4 RHS spalling

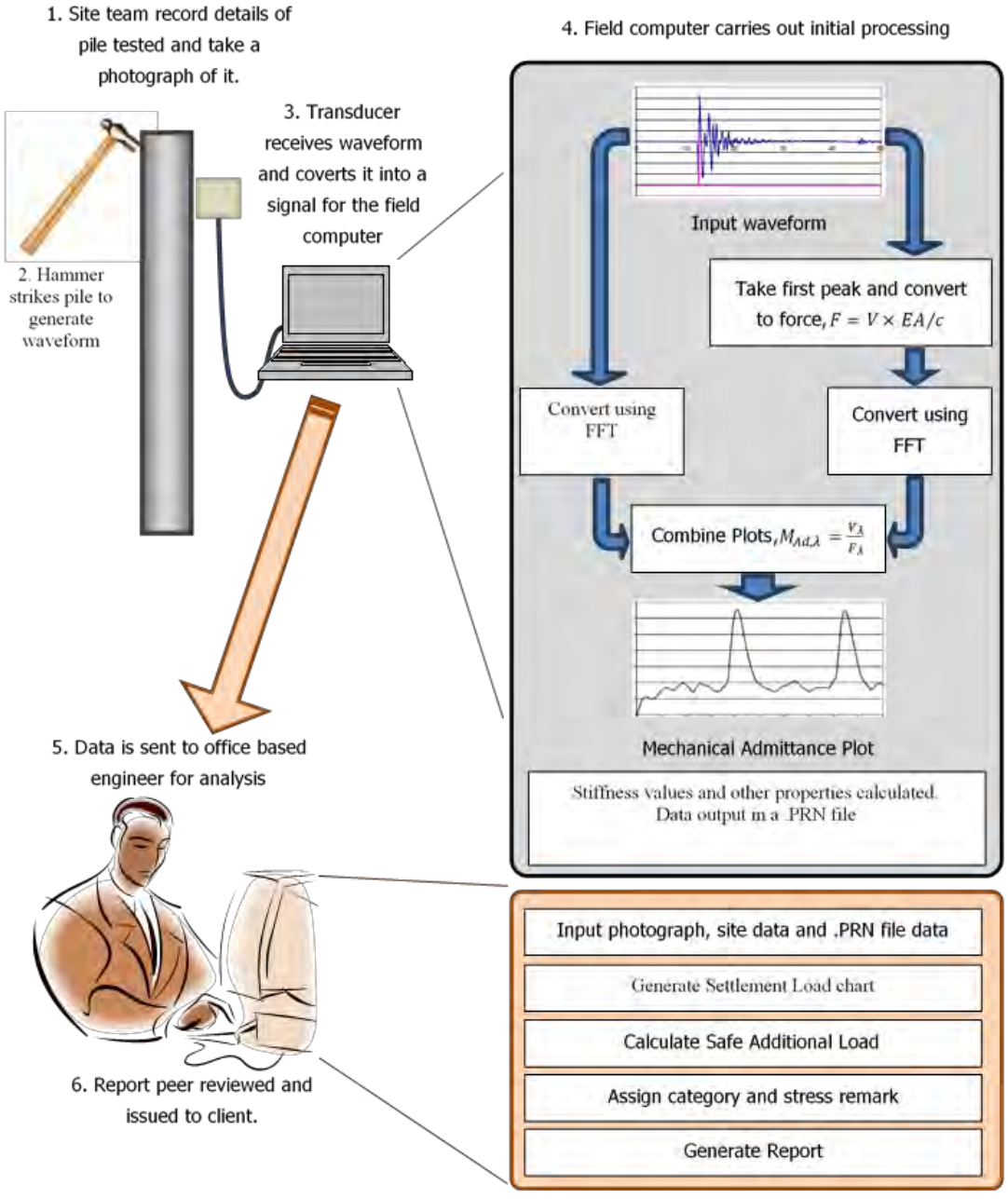


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## 7.3 Appendix C – Mod-Shock® and DBTS®

### *7.3.1 Mod-shock® Method & Testing*

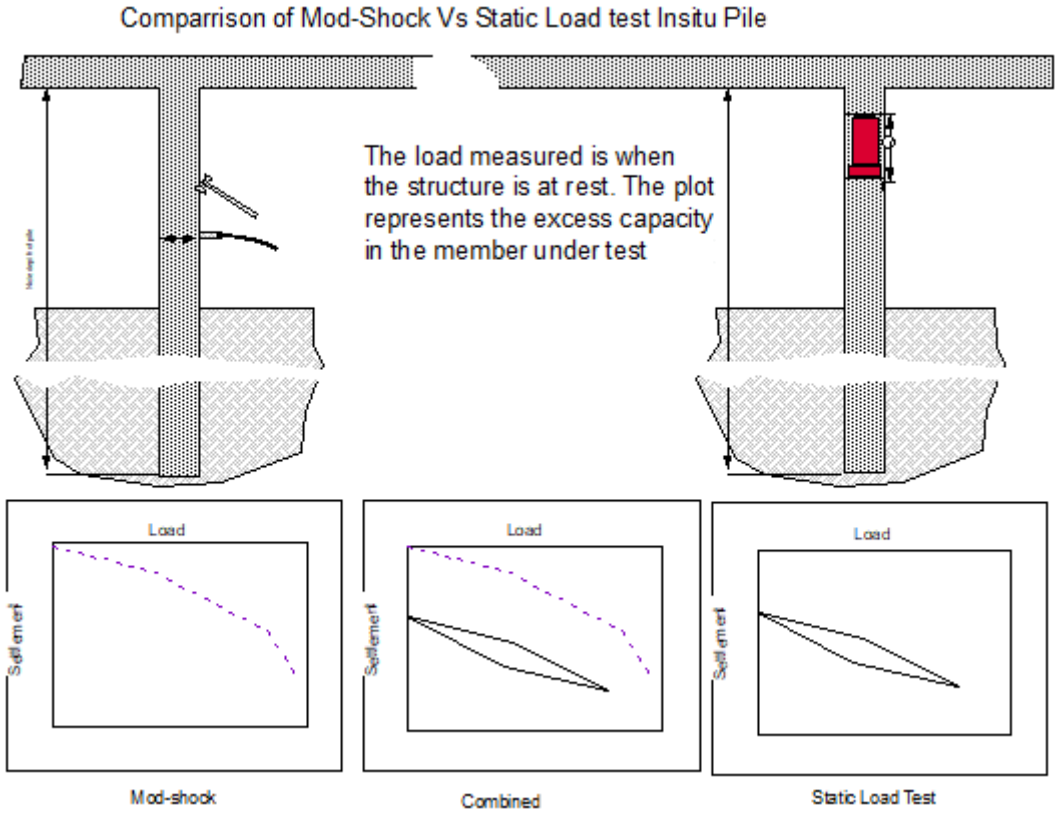
We used our exclusive MOD-SHOCK® test program to determine the condition of the columns. MOD-SHOCK® methodology is fully described in the paper available on request and/or as appended to this report but may be briefly summarized as below and indicated in the diagrammatic description of the test. Mod-Shock has been in use for over thirty years and is a hybrid test. It uses an equivalent “Capwap” method to determine the applied force of the hammer blow (drop weight or whatever is determined as a suitable impact force as the standard allows) and subsequently the modelled pile load test. It also provides in addition an equivalent dimension 2D model (shape) of the pile and pile elements i.e. it will determine the condition of the support piles. Mod-Shock satisfies Sections 8.7, 8.8 of *AS 2159-2009*, Rapid Load Testing and Integrity Testing respectively.



**Please note, any references to piles/poles in this section and further in the document can be considered to be interchangeable with columns, with some minor differences that will be noted.*

The columns are tested using our Mod-Shock™ system; where a seismic wave is imparted to the column/pile/joist etc at a convenient point on the column/pile, which can be from the top of the pile/column or if access is not available to the column/pile directly. The columns/piles will have a transducer placed on the side of the column/pile and then the column/pile will be struck in the same horizontal direction with a hammer, such as very little damage will occur to the column/pile under test. The resulting seismic response is captured via the transducer and by a cable sent to a Notebook computer for later analysis.

The analysis yields the column head stiffness, modelled load test response of the (column/piles ) under load, the column/pile length, and significant column/pile diameter variations (enlargements or defects). We use a sketch as below to indicate how the “Reverse Engineering” works in relation to the determining the “Safe Additional Loading for the columns and piles”:




The test is a simplified forced vibration test of the pile, the forced vibration test being developed by Davis and Dunn in the early 70s. The forced vibration test was a good NDT method of testing piles, but due to the large volume of equipment required for the test it was essentially an unpractical method of testing piles.

John Higgs in association with others embarked on a way to copy the vibration test without the need for the forced vibration. Over a number of years, the Modified Shock test was developed

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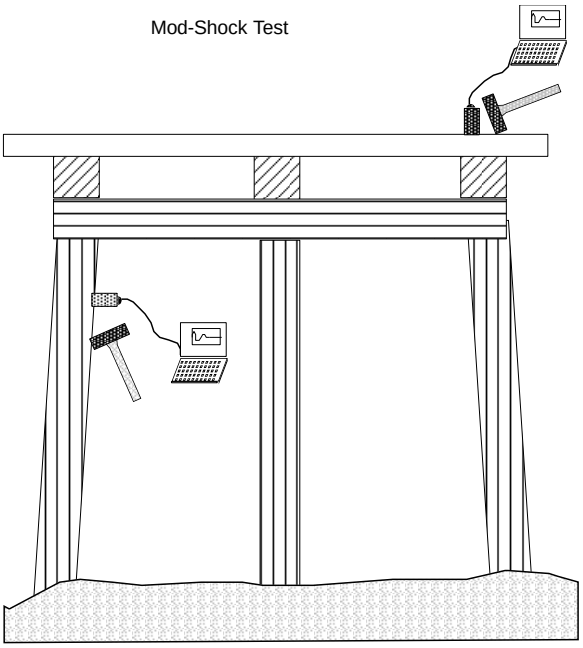
and the latest version of this is the MOD-SHOCK®, exclusively developed by Integrity Testing Pty. Ltd.

In essence the test uses the broad-spectrum frequency response from a hammer blow to the element under test, as the substitute to the forced vibration. The operator places a transducer on the element under test and then imparts sufficient vibrations into the element with hammer blows. The reflected signals are captured by the transducer and via a cable stored in a Notebook computer for later analysis.

The analogue signal is converted into a digital format and the signal under goes Fourier transform. The main components of this transform being a Mechanical Admittance plot and a frequency look up table, these being the main parameters obtained in a forced vibration test.

From the mechanical admittance plot the load/deflection values can be obtained as the plot is the solution of the Wave equation of motion and measures the resistance to the hammer blow. From the frequency look up tables the parameters of the pile model can be obtained in both directions, giving the two points to be able to plot a 2D model.

If piles are present at the abutments and piers, then a Mod-Shock® Test will be carried out to determine the integrity of the piles.




**a)** The test involves the use of a geophone or sensor which is placed on the side of the pile.
**b)** An impact source is then generated by the use of a small hammer.
**c)** The sound wave that is generated is then captured through an interface and filters whereby the data is then stored in a computer.
**d)** The test is then repeated on the next pile.
**e)** Depending on accessibility and the condition of the pile the test can be as fast as approximately five minutes or more per pile.

If the piles are directly connected to the road deck it is possible to sound the piles through the deck.

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### 7.3.2 DBTS® Method & Testing

In the late 80's and early 90's the then Materials Consultants Ltd commenced development on a multi-point modal analysis system for the testing of bridges (DBTS). After a successful project where 110 railway bridges were tested on a World Bank project in Indonesia the system became fully operational and now over 1000 bridge, jetties and buildings have been successfully tested using the system.

The Dynamic Bridge Testing (DBTS®) system involves the measurement directly of the structural stiffness of the deck of the bridge. In a test a load is applied to the deck and the resulting deflection is measured. An estimate is then made of the fixing conditions and then the Structural Stiffness (EI) is calculated by formulation, typically:

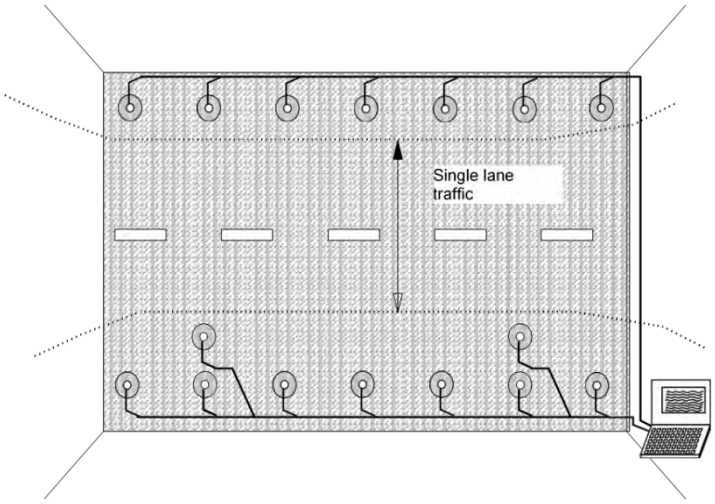
$$Deflection = \frac{K \times Load \times length \times n}{EI}$$

where k and n depend on the fixing conditions and type of load applied. Similarly, the slab is excited dynamically by a large drop weight and a known weighted vehicle if available with the resulting vibrations being recorded.

The analysis finds the frequency:

$$Frequency = \frac{k}{length^2} * \sqrt{EI}/M$$

where k depends on the fixing condition and M is the mass per unit length of the decks. The fixing condition of the decks can be accurately determined from the frequency spectra recorded. See the paper and the PDF attached to this report for the technical details relating to the technique applied to bridges, but which are still valid for buildings and floor slabs. During the dynamic testing we will be able to detect the principal and significant deflection mode shapes of the decks. Defects in the deck show up in deflection modes and as we will be testing over a number of decks at one time, we can study how the decks transfer any loadings to the adjacent decks and can fine tune the model for the correct fixing of the decks.



After the data from the foundations i.e. the abutments and piles/piers the deck is then tested using Integrity's DBTS® method of test:

1. The test involves the laying of cables on both sides of the bridge.
2. A series of sensors are then placed, usually eight on each side as not to restrict the passage of traffic.
3. The sensors are then connect to an A to D card through the cables which would then simultaneously record all the sixteen sensor data to a computer
4. An impact source is then generated either by the use of s drop weight or hammer. It is preferred if a vehicle or a loaded vehicle is available thought if the road is busy they not required. There is some disruption to road traffic, as there is usually single lane operation. There will be complete road closure for approximately 10 minutes to allow the setup of the transducers.
5. If the bridge is of multi spans then the sensors might have to be moved over the different spans and the tests repeated.
6. Depending on the length of each span and the number of spans the duration of the test will vary. The deck work normally takes ½ hour per span(s)

### *7.3.3 Glossary of Terms*

Visual Inspection

A visual inspection is performed in addition to the testing, any visual defects or noteworthy items were noted prior to the analysis stage and included within the summary tables as a remark.

Test No

This is the number as assigned by ITPL. Pile No

This is the column number as given by ITPL as the pile numbers and referred to in the location sketch in appendices of the report.

Category

To assist with possible repair programs, we have devised a simple category system for the piles, described below:

1. Category 1 - Good pile, minor defects,
2. Category 2 - Good pile, but with some defects, but not structurally reducing the design load of the piles.
3. Category 3 - Defective pile, with major defects but still capable of design loads as indicated in the "total load" results.
4. Category 4 - Either structurally redundant or with sufficient defects to the piles to be repaired immediately.

Embedment length (m)

For the concrete elements we have used a velocity of 2,500 m/sec in both directions and the embedment length was measured by manual means from the top of the bridge to the ground line.

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Pile Head Stiffness

This technology was developed by Davis and Dunn for bored concrete piles but having adopted and developed the theories over the past 3 to 4 decades, the theory is similar and applicable to the concrete supports we tested on this project.

This is the “E” prime of the column/pile measured as a direct measurement of the first part of the “mechanical admittance plot”, and is similar to a load/deflection graph for a dead weight load test. The “pile head stiffness (t/mm)” is compared to the two model stiffness values “E” min and “E” max. “E” min is a pile model with the pile pinned at its toe but with no clamping along its length. “E” max is a pile model with an infinite rigid base and clamped along its length. These models are based on the work carried out by Davis & Dunn (refer paper, on our website). In this instance the pile head stiffness for a good or even minor defective pile should be above the “E” min, but closer to the “E” min than the “E” max. For medium to defective piles the “pile head stiffness” would always be less than the “E” min model. The reduction in stiffness being due to the defects in the shaft of the pile effecting large reductions in the diameter or load bearing potential of the pile. This system has been in use for many years, although the original theories were based on piles they apply in this instance to piles and crossheads.

Min Diameter (min Dia)

The measured diameter is the equivalent diameter of the section either actual area or that contained in the loci of the section. The minimum diameter is calculated back from the change in cross section area. The change in rigid section is linear, hence diameter and not square function as in area.

Bending Moments

By using the data from the compression test it is possible to produce a 2D model of the columns as would be a column in a building, with details of the Bending Moment Safe additional loadings (SAL) per metre for the columns in Bending. We take two tests per column in opposite directions and combine them to give the model and for design purposes we use the lowest Bending Moment in the columns indicated as BMkN.m. Though we haven’t been able to verify these BM tests in large buildings or bridges our results for Bending Moment results from concrete poles do indicate the accuracy of our results. The additions to the summary table are as below:

C_High and C Low

C_High and C_low are the unit of force at the reflected locations from the element under tests, so C_High is the tip load based on a free length of the pile with the remaining encased. The C_Low is the tip capacity of the pile with its full length free and fixed at the toe. They are seen as upper and lower limits. The BM is derived from wave form analysis; the test measures a solution to the normalised wave equation of motion of the pile as is. From this model the various constants and parameters are read off as EI, Z modulus and the lever arm derived from the distance of the test location from the end of the pile, automatically determined from the test results. This information is used to generate the max additional moment available concurrently with the current axial force at time of testing and is shown in the last column.

BM.KNm.

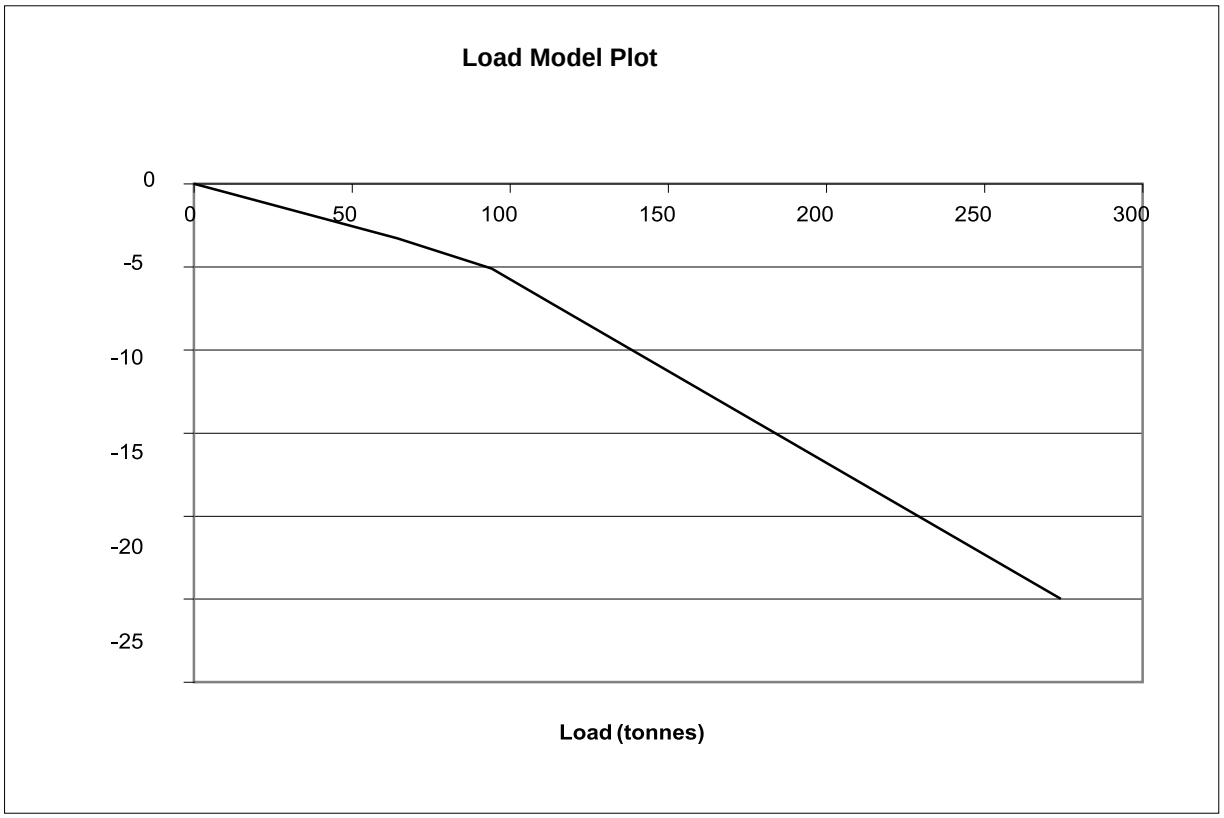
The bending moment "BM' as indicated in the summary tables is the force required to bend the

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element and is within the elastic limit of the element under test concurrent with the existing axial force/load. The BM is derived from wave form analysis; the test measures a solution to the normalised wave equation of motion of the pile as is. From this model the various constants and parameters are read off as EI, Z modulus and the lever arm derived from the distance of the test location from the end of the pile, automatically determined from the test results. This information is used to generate the max additional moment available concurrently with the current axial force at time of testing and is shown in the last column. It is usually a multiple of between 6 and 10 times the C high, e.g. lever arm is typically between 6 and 10m. For establishing pile fixity we work in the elastic range with small displacements and we convert all displacement/ time responses through fourier transforms to normalised displacement/ frequency. Within this spectrum there will exist a number of fixing conditions which will include a free and fixed top.

Safe Additional Load (SAL) / Load Deflection Selection

The use of 4mm as a deflection for the calculation of the pile load capacity is defined by our estimate of a deflection value in the pure elastic allowable deflection for the pile can take. We chose 3mm or 4mm for consistency and be below the elastic limit expressed in tonne or kN as a Safe Additional Load (SAL). This value includes all dead and live load applied to the element at the time of testing. In other words, it is the remaining *reserve* capacity of the element under test. SAL can be made analogous to a serVICe limit state (SL or SLS).



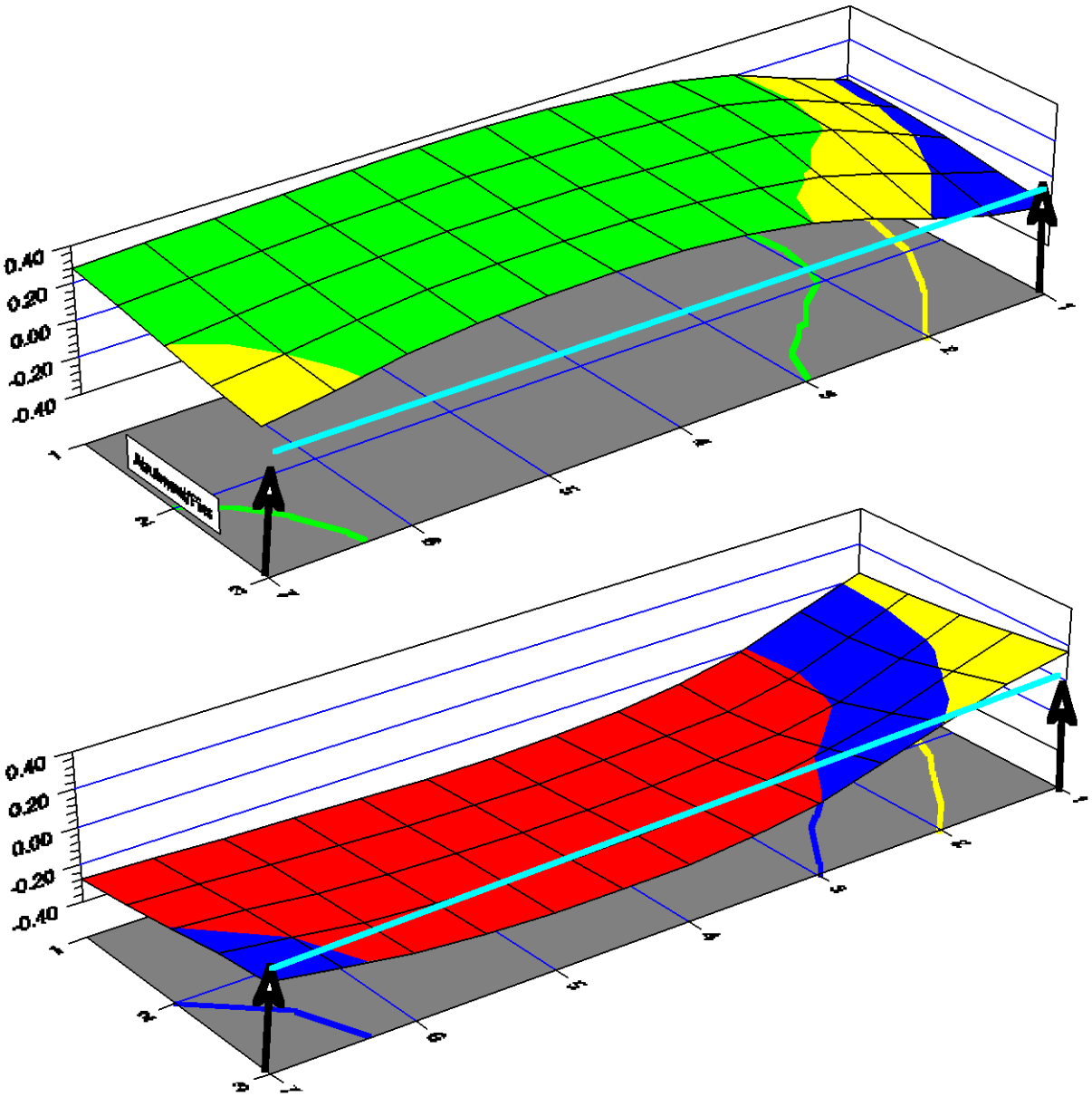

In the above model plot the pure elastic load is approximately 100t with a deflection of 5mm approximately. Within the elastic range the measured loads can either be tension of compression. We can model the deflection further, but we then get into the elastic – plastic range.

**Reference Papers:** http://www.integritytesting.com.au/papers/Mod-Shock.pdf
http://www.integritytesting.com.au/papers/Dbts_Paper.pdf

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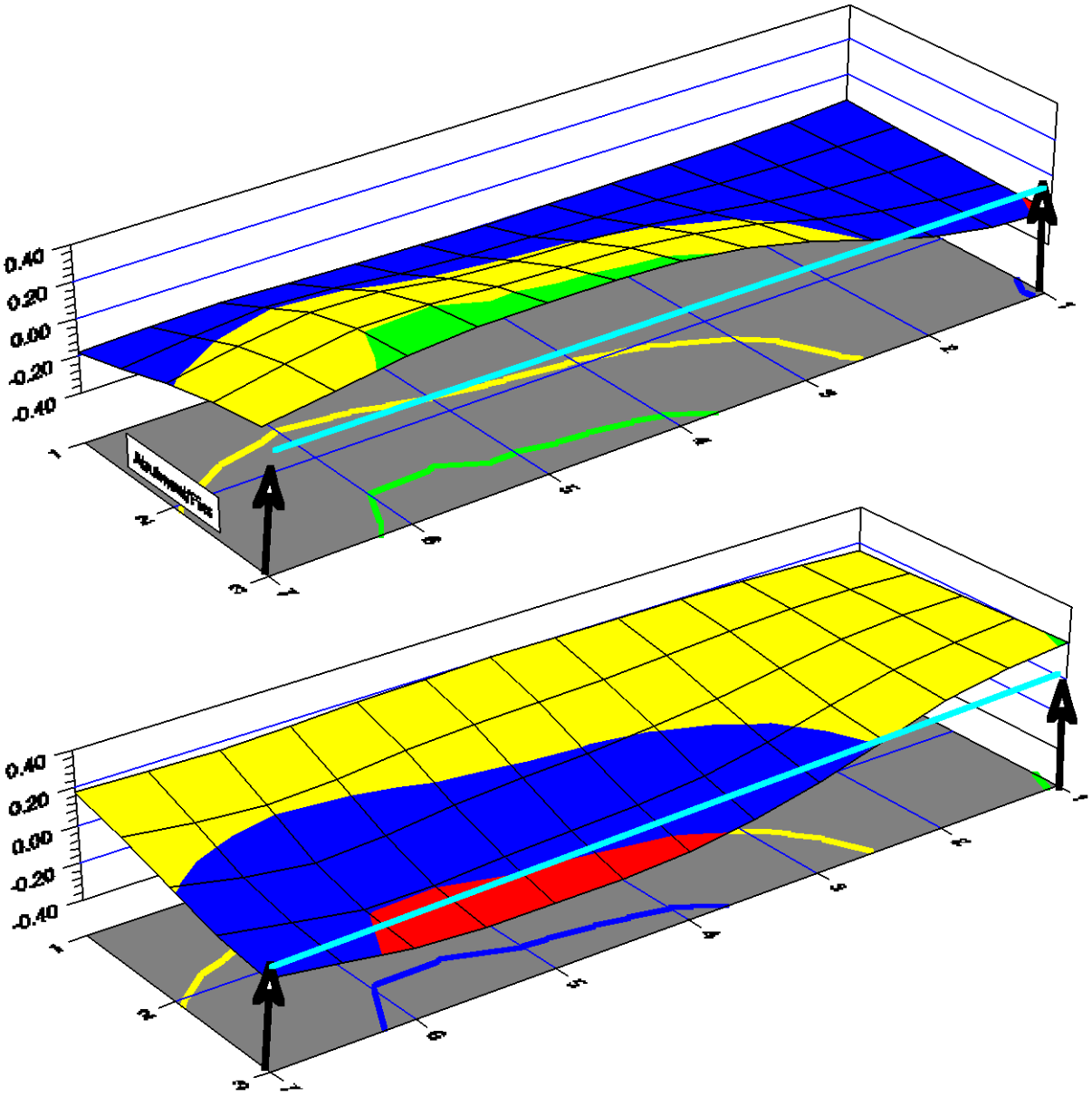
## 7.4 Appendix D – DBTS® Results

### *7.4.1 Span 1*



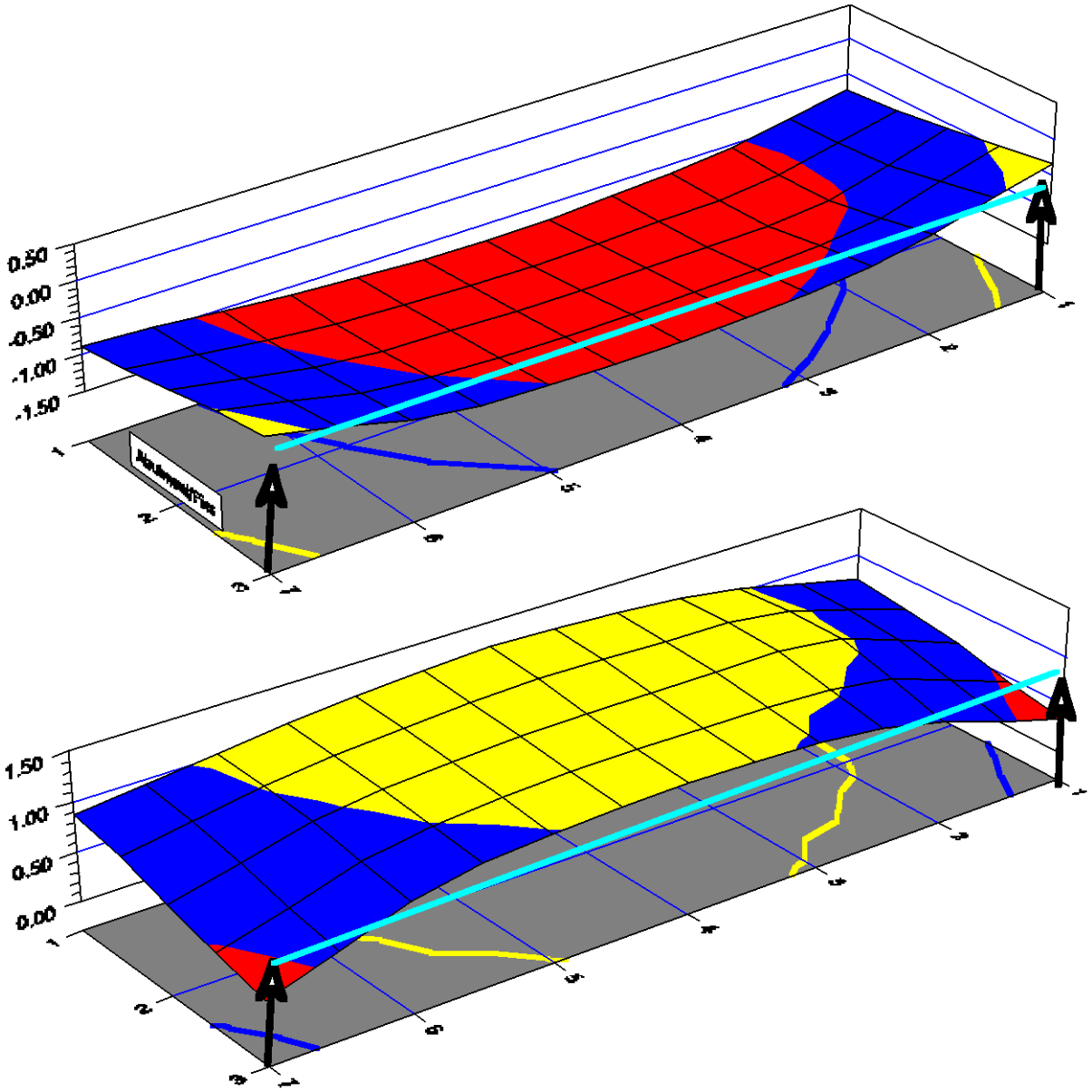

The primary deflection mode of span one is fixed ends and free sides, and is smooth and uniform with a small rotation. The deflection mode is similar to that seen in the investigation undertaken in 2024, indicating minimal change to this span's structural condition.

### 7.4.2 Span 1 – Half Mode




The mode shape is for the deflection mode for span 1 supported in the middle of the span. This secondary mode shape shows a very slight degradation to the investigation done in 2024, with the rotational twist slightly more pronounced.

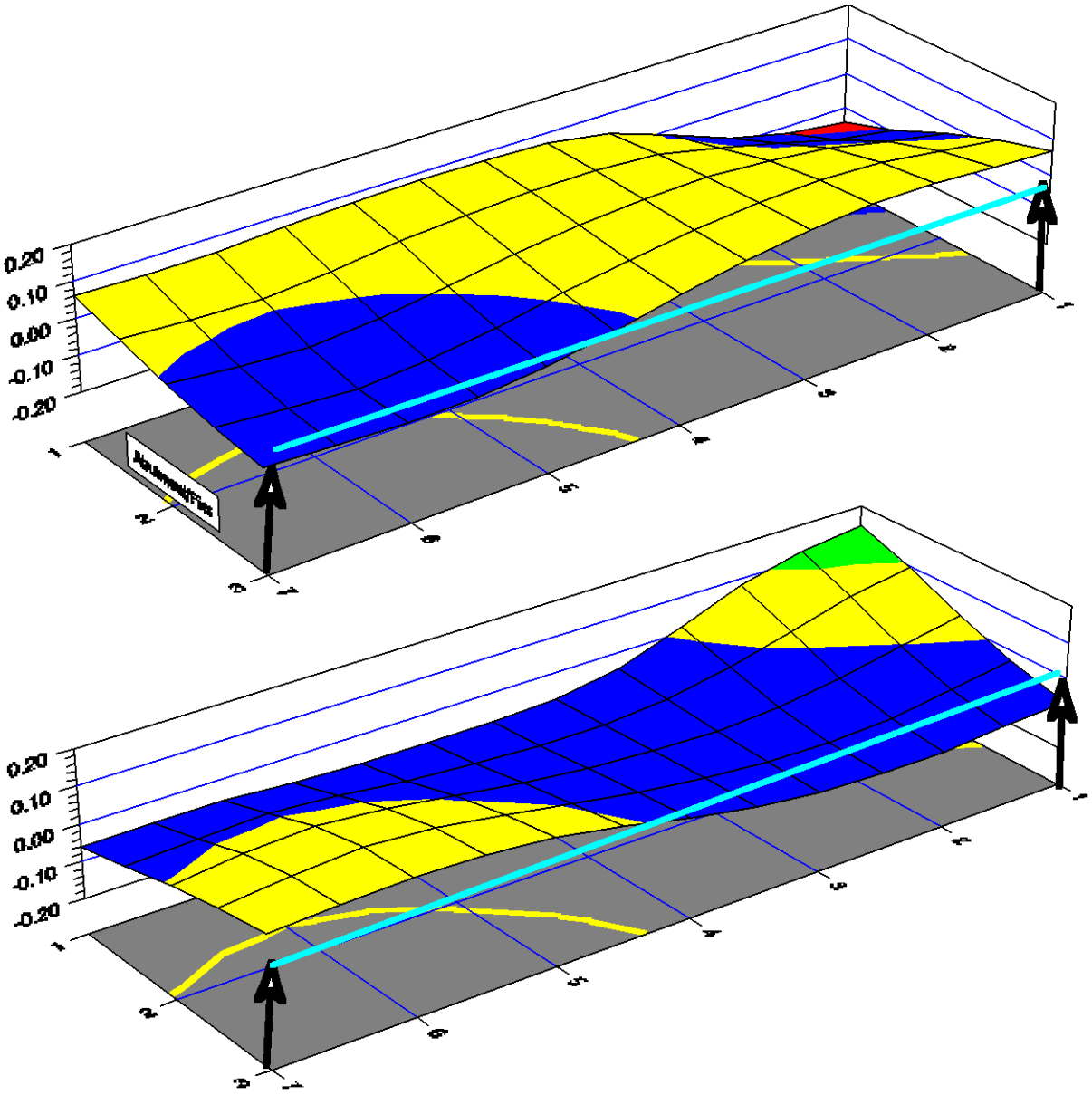
### 7.4.3 Span 2




This is the mode shape for the complete span 2 at its working load given. The deflection mode is one of fixed ends and free sides and is smooth, uniform with a small plate mode overlying. Similar to 2024 but plate mode is slightly more visible.

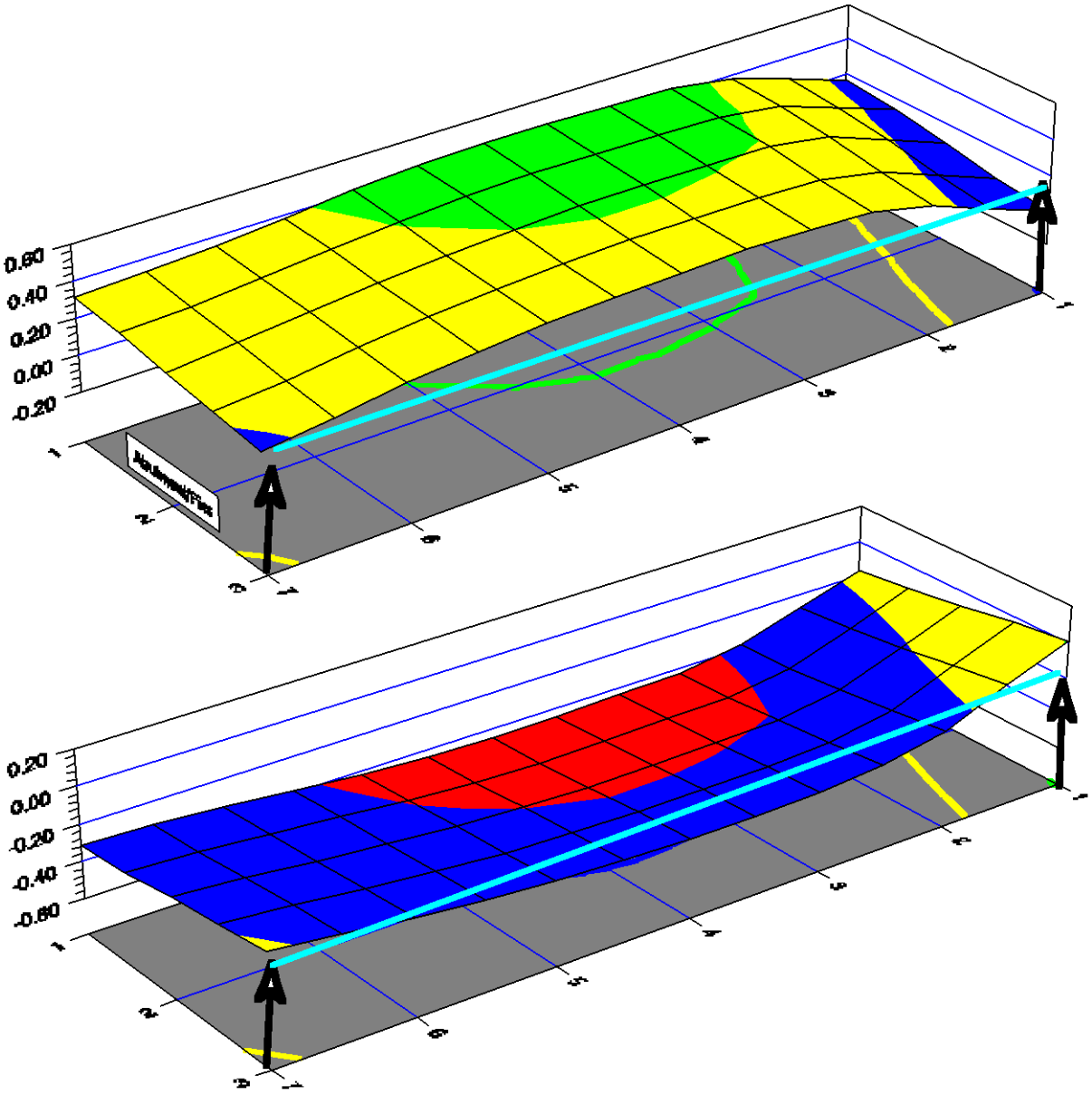
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### 7.4.4 Span 2 – Half Mode



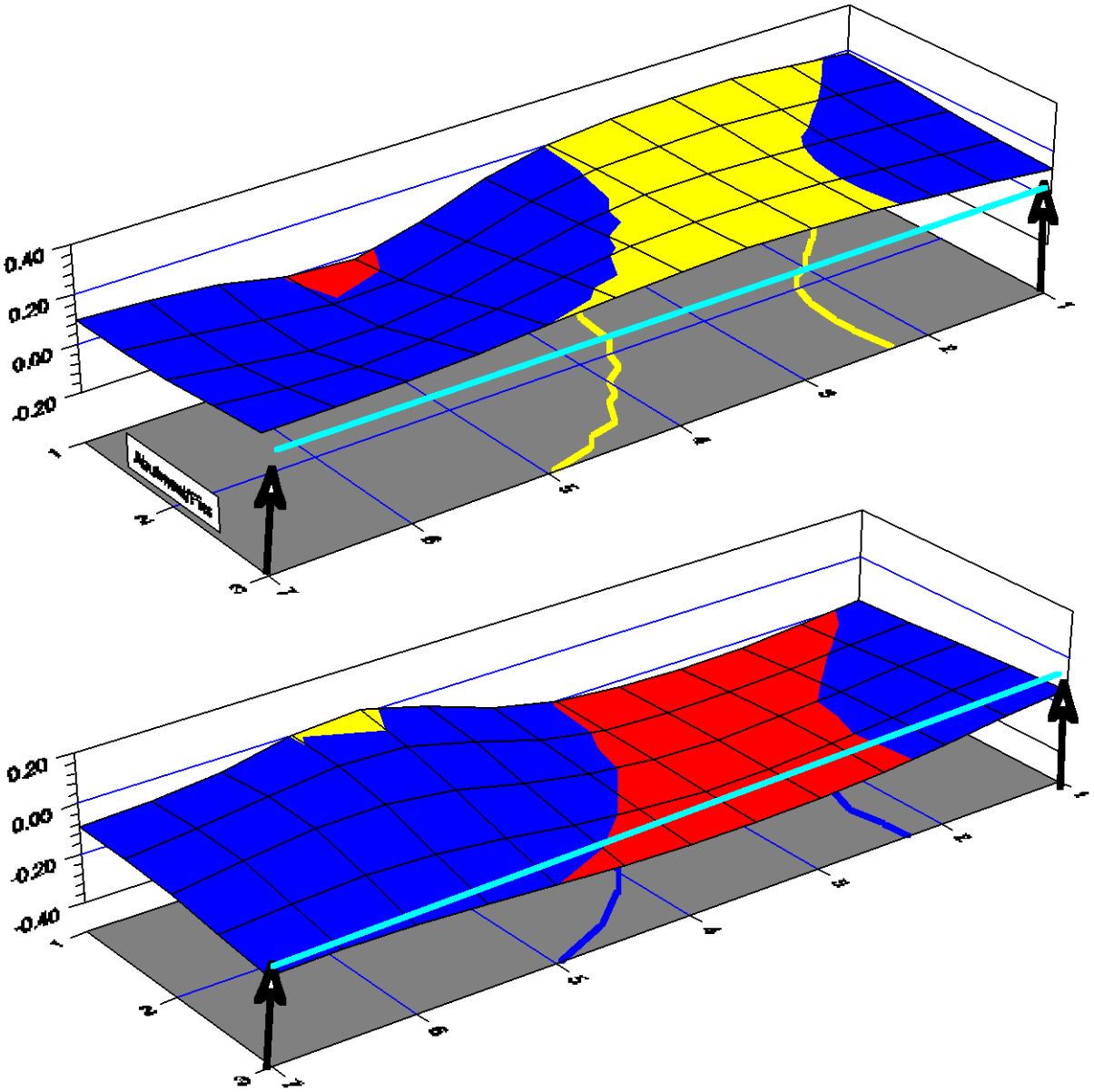

The rotational twist tendency is slightly increased on Span 2's secondary deflection mode compared to 2024.

### *7.4.5 Span 3*



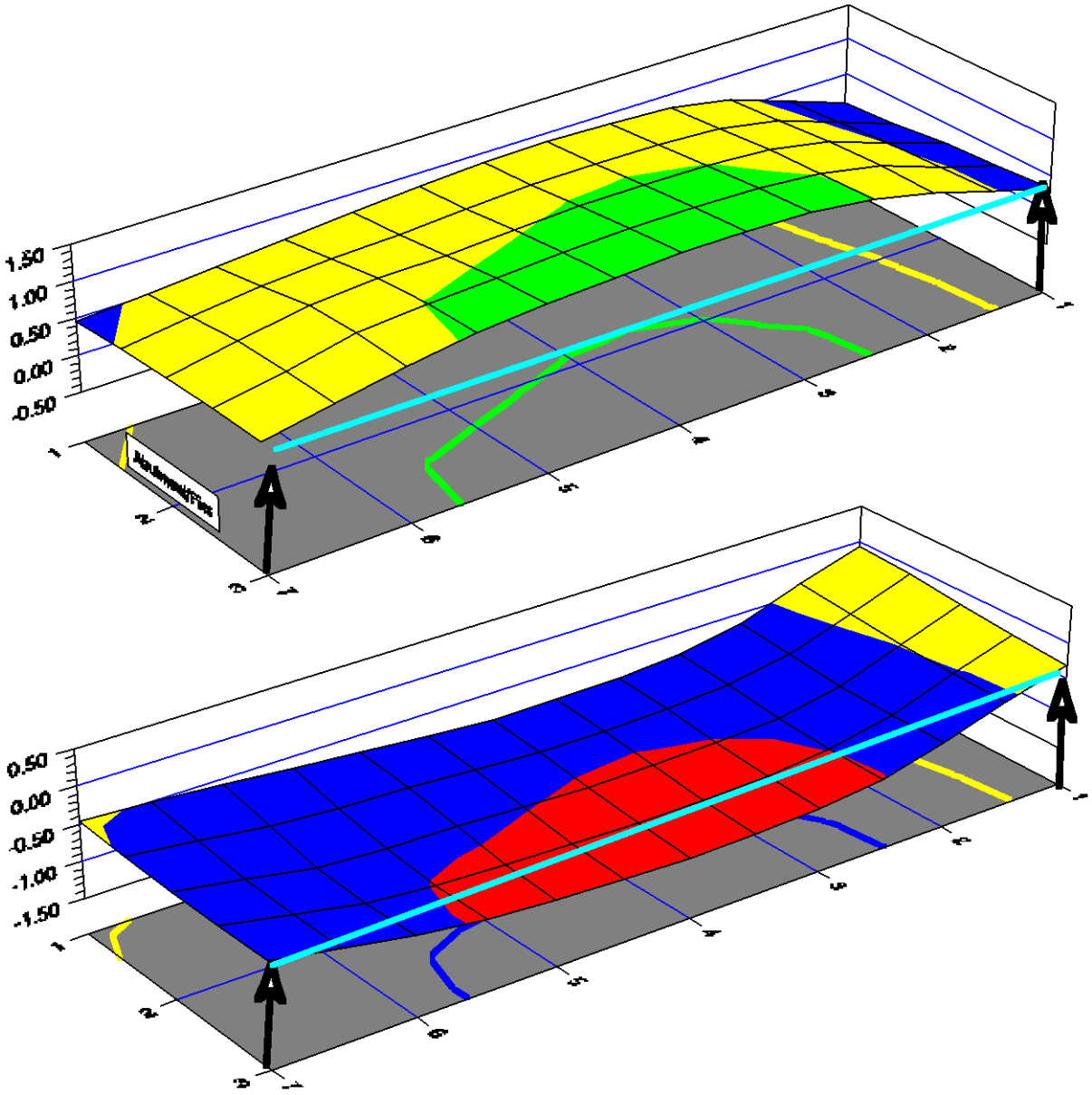

The mode shape for the complete span 3 at its working load given is fixed ends and free sides. It is similar to 2024, with a smooth, uniform mode with a small rotation tendency at the centre of the span. A slight plate mode is present.

### *7.4.6 Span 3 – Half Mode*



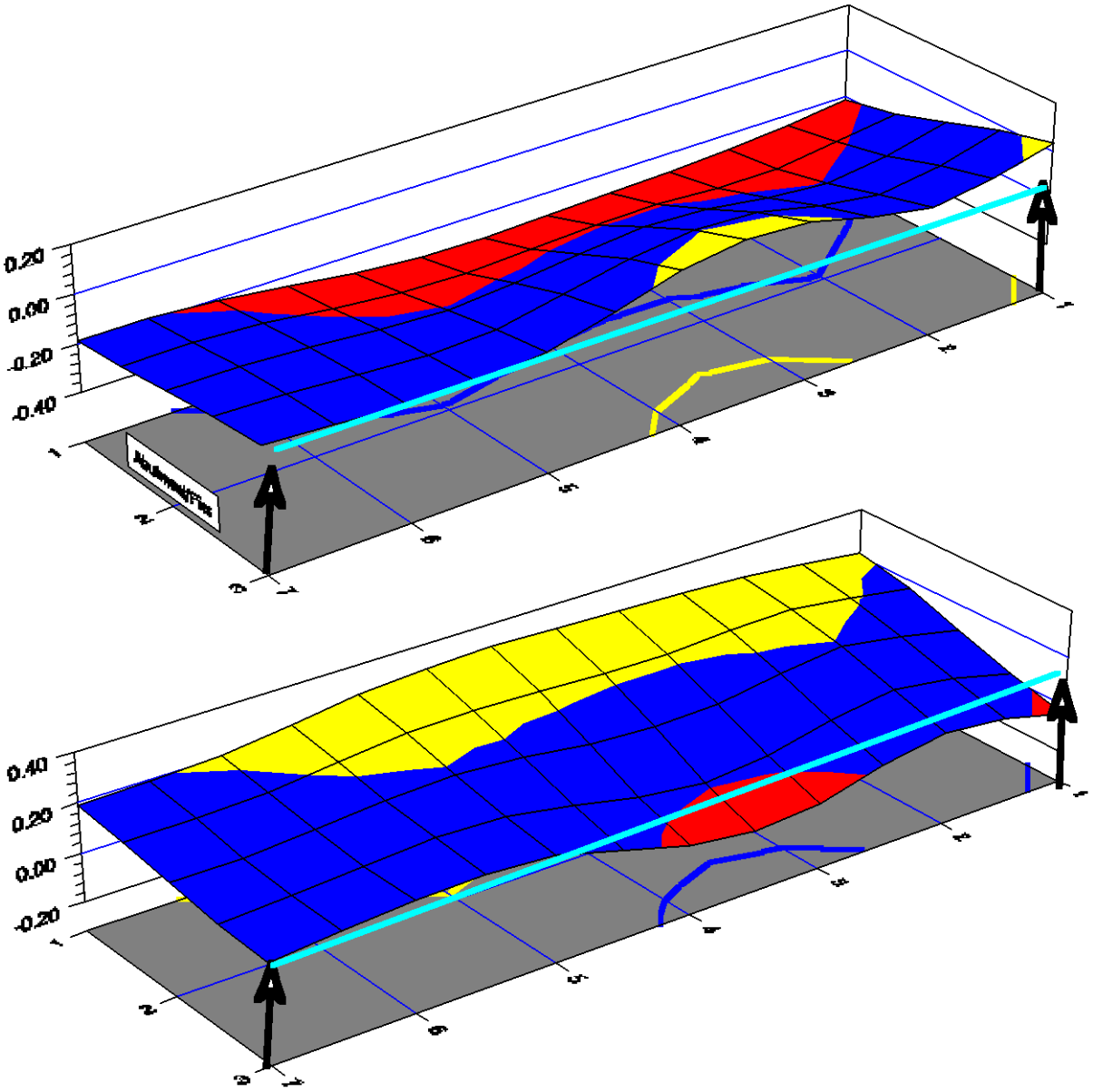

Span 3's secondary mode retains the visible plate mode and slight twist, but an outward rotational tendency is also visible.

### *7.4.7 Span 4*




The deflection mode shape for span four is fixed ends and free sides, and is similar to 2024. The rotational tendency at the middle of the span is slightly more pronounced.

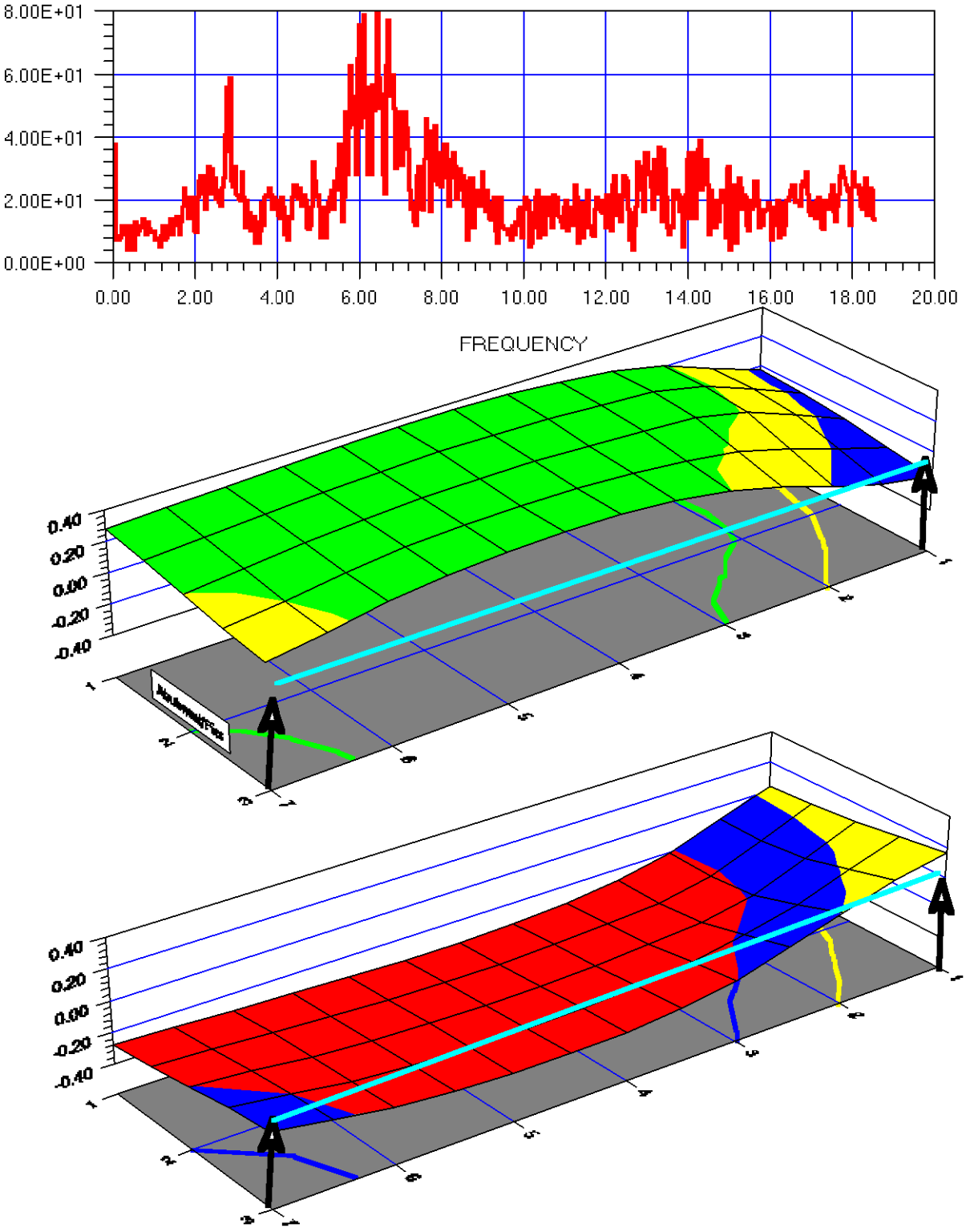
### *7.4.8 Span 4 – Half Mode*



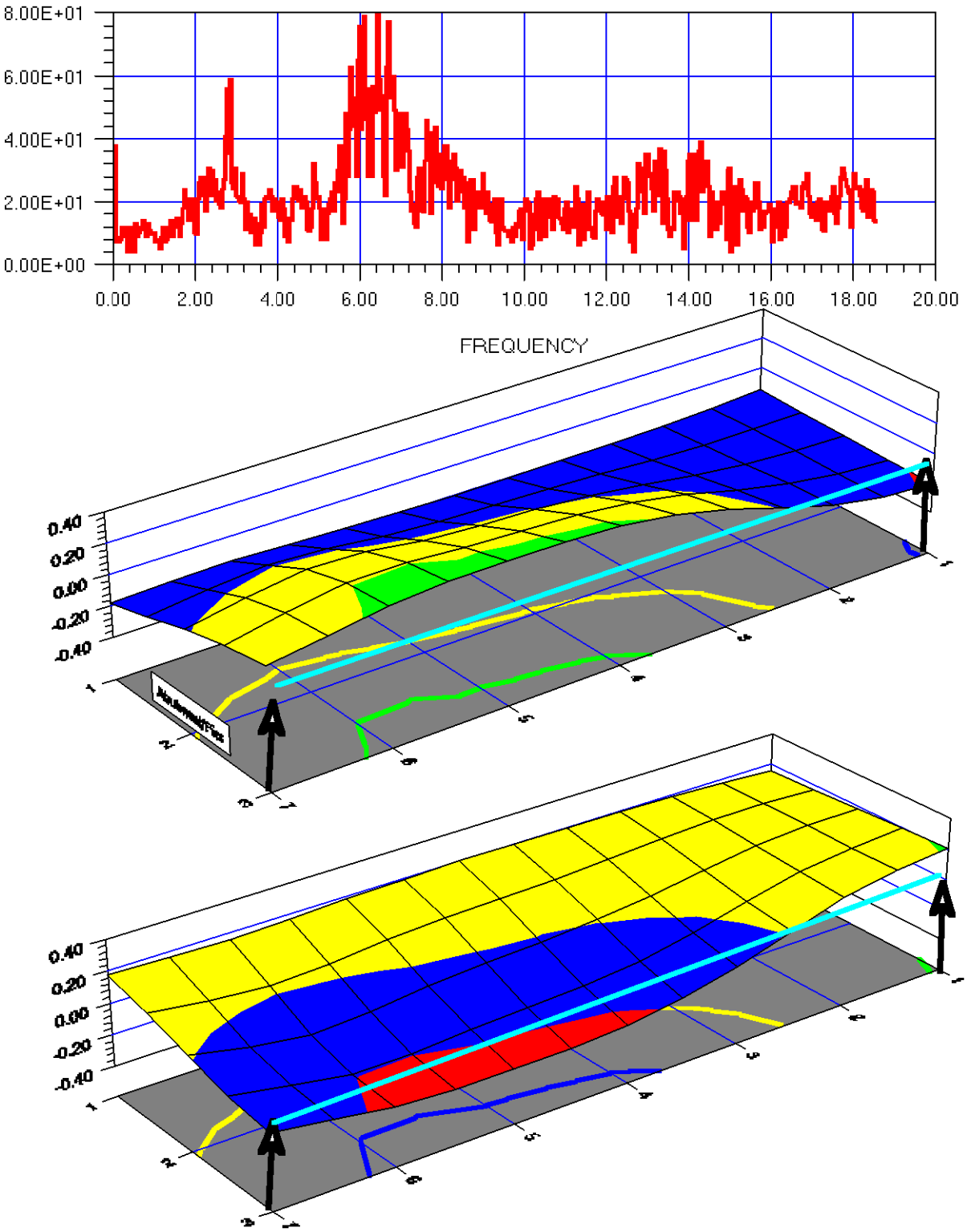

Span 4's secondary deflection remains a torsion mode. The intermediate support does not support the span uniformly.

## *7.4.9 Full Mode Shapes*

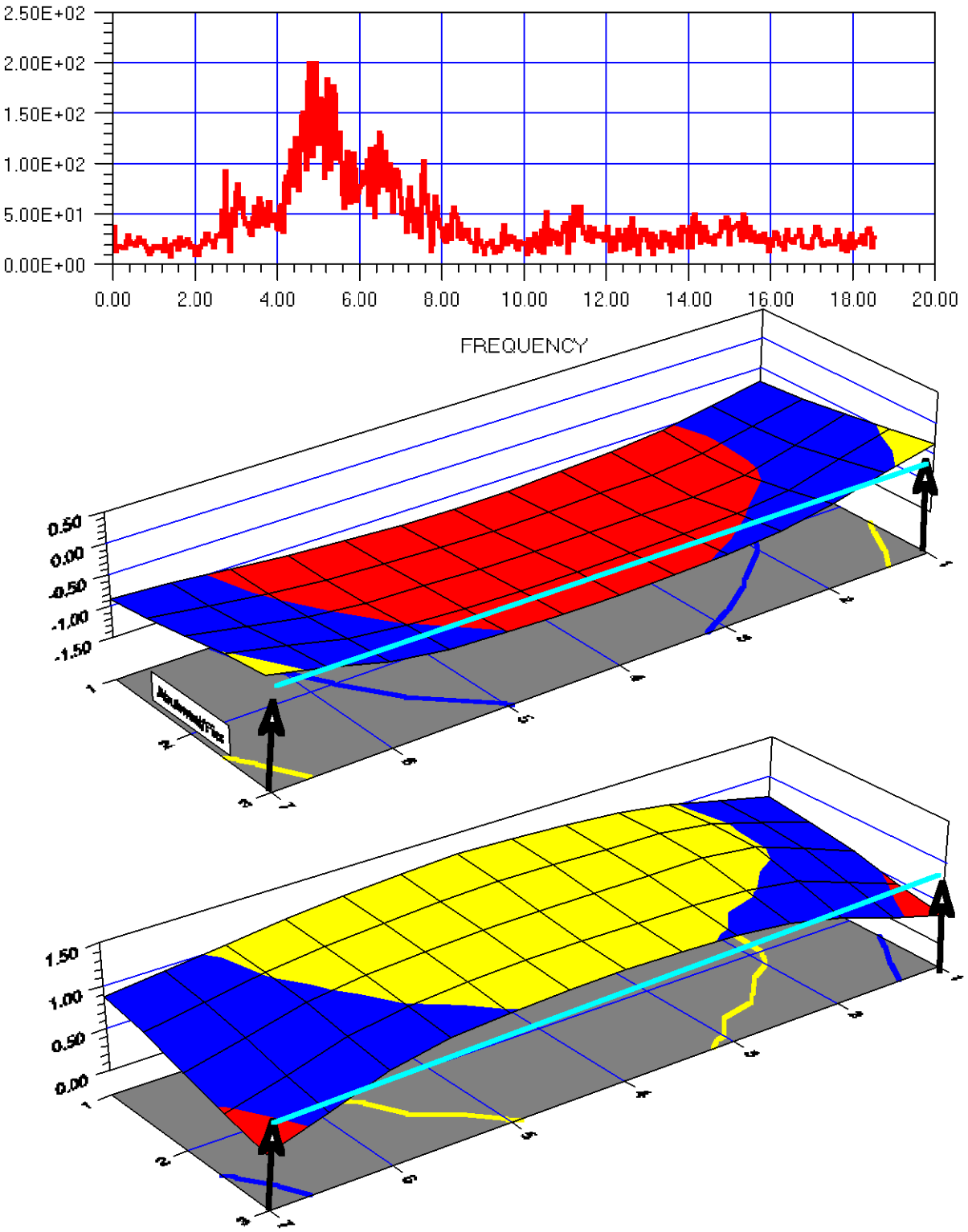
**Record 1 – Span 1 Primary Deflection**



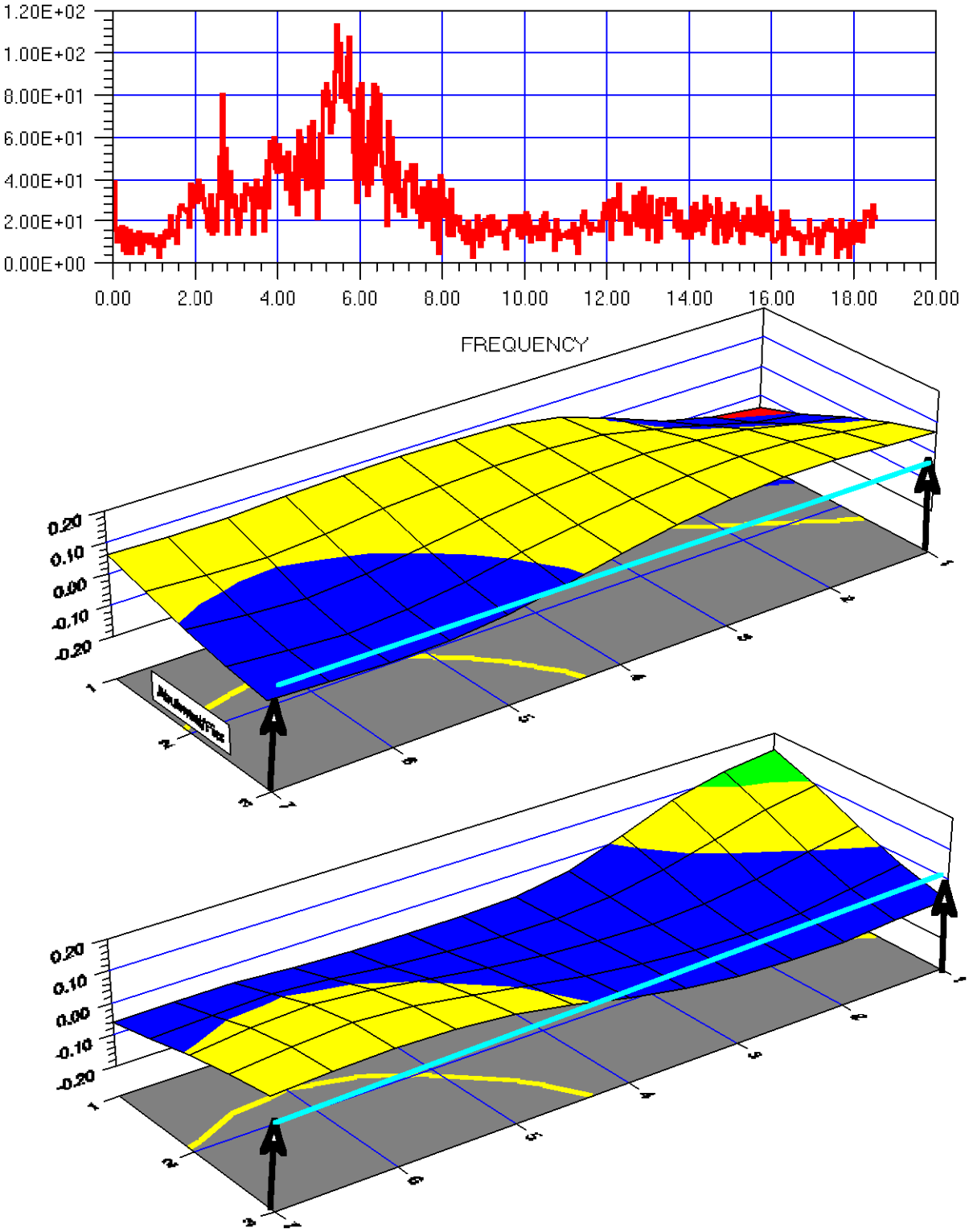
**Record 2 – Span 1 Secondary Deflection**



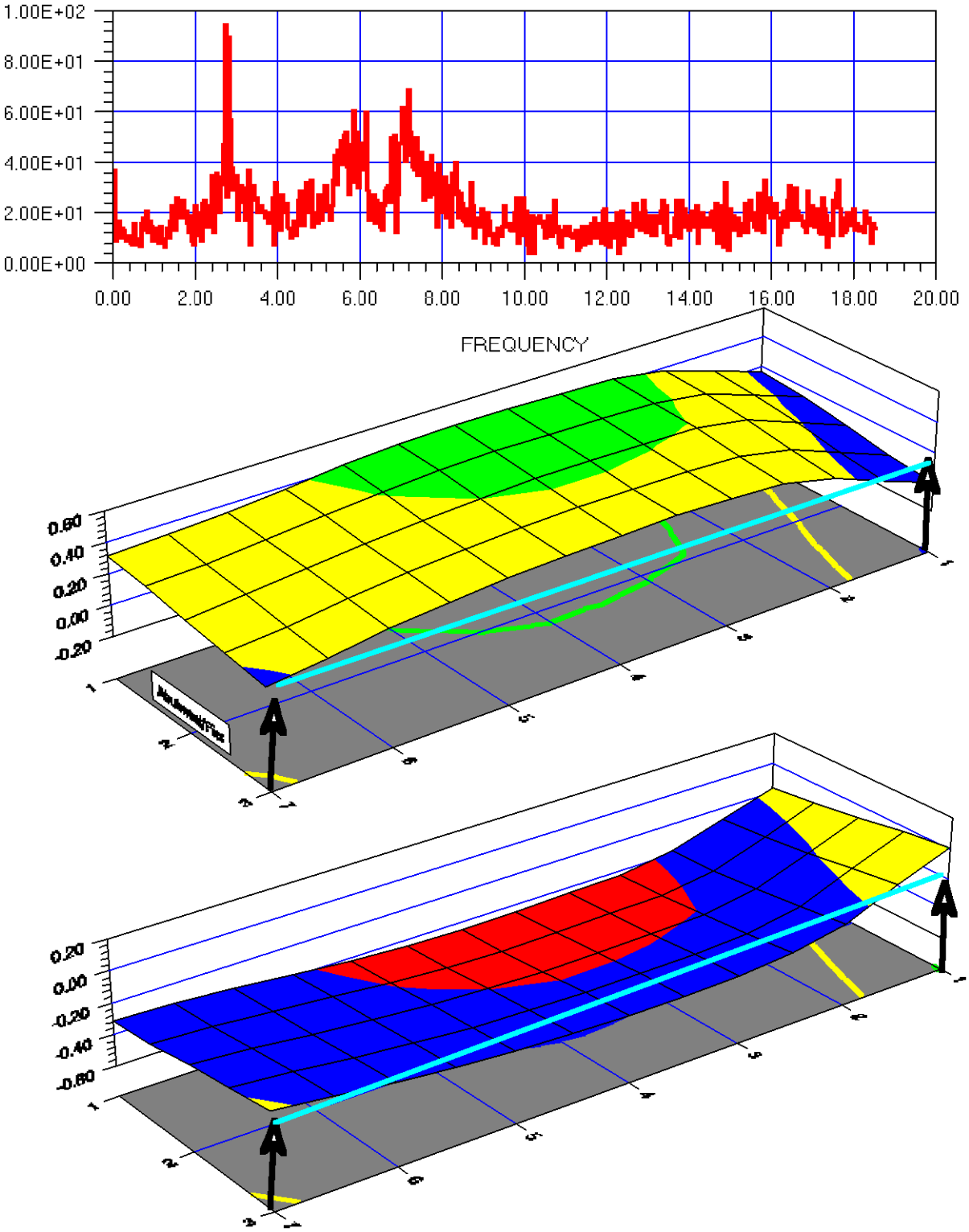
**Record 3 – Span 2 Primary Deflection**



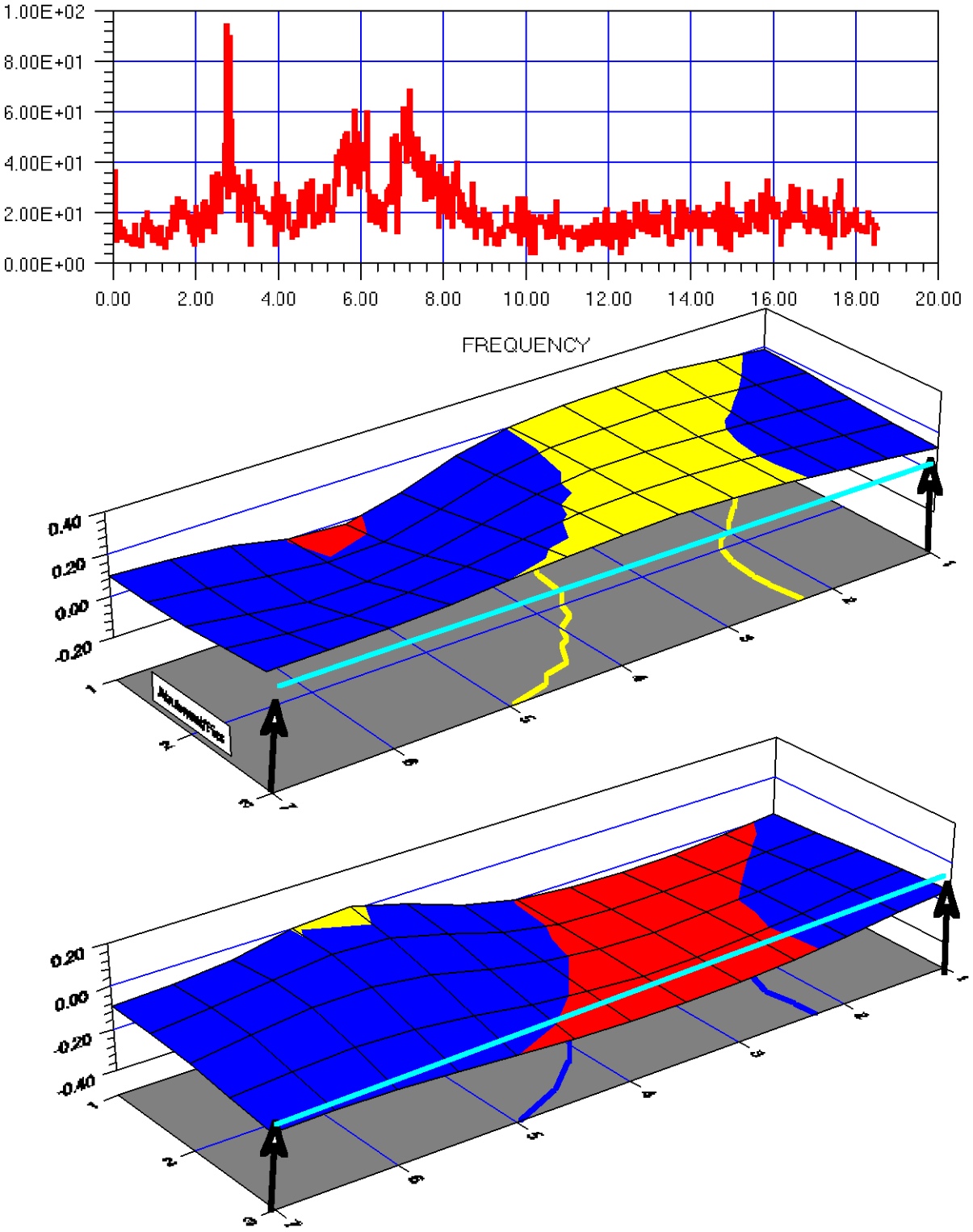
**Record 4 – Span 2 Secondary Deflection**



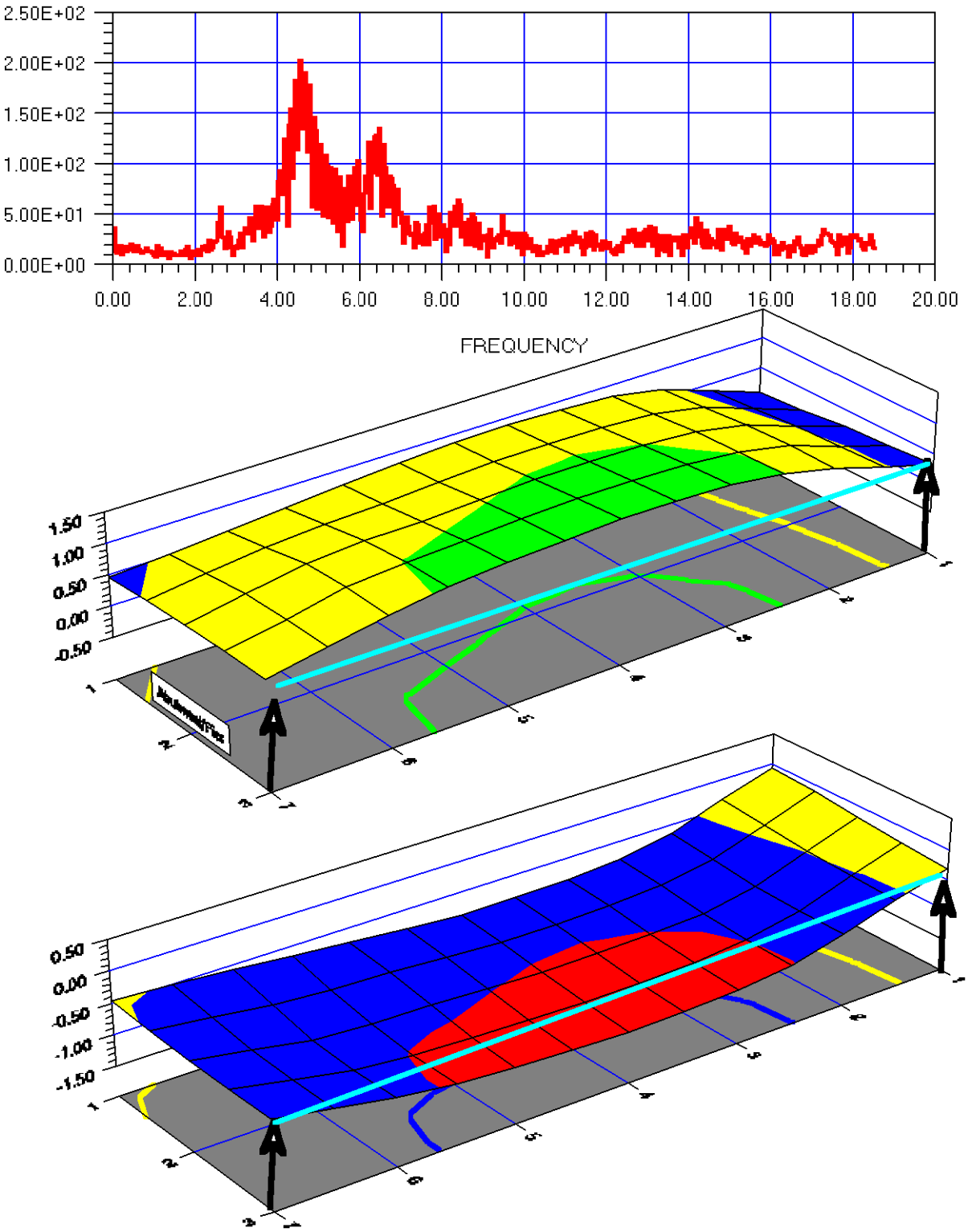
**Record 5 – Span 3 Primary Deflection**



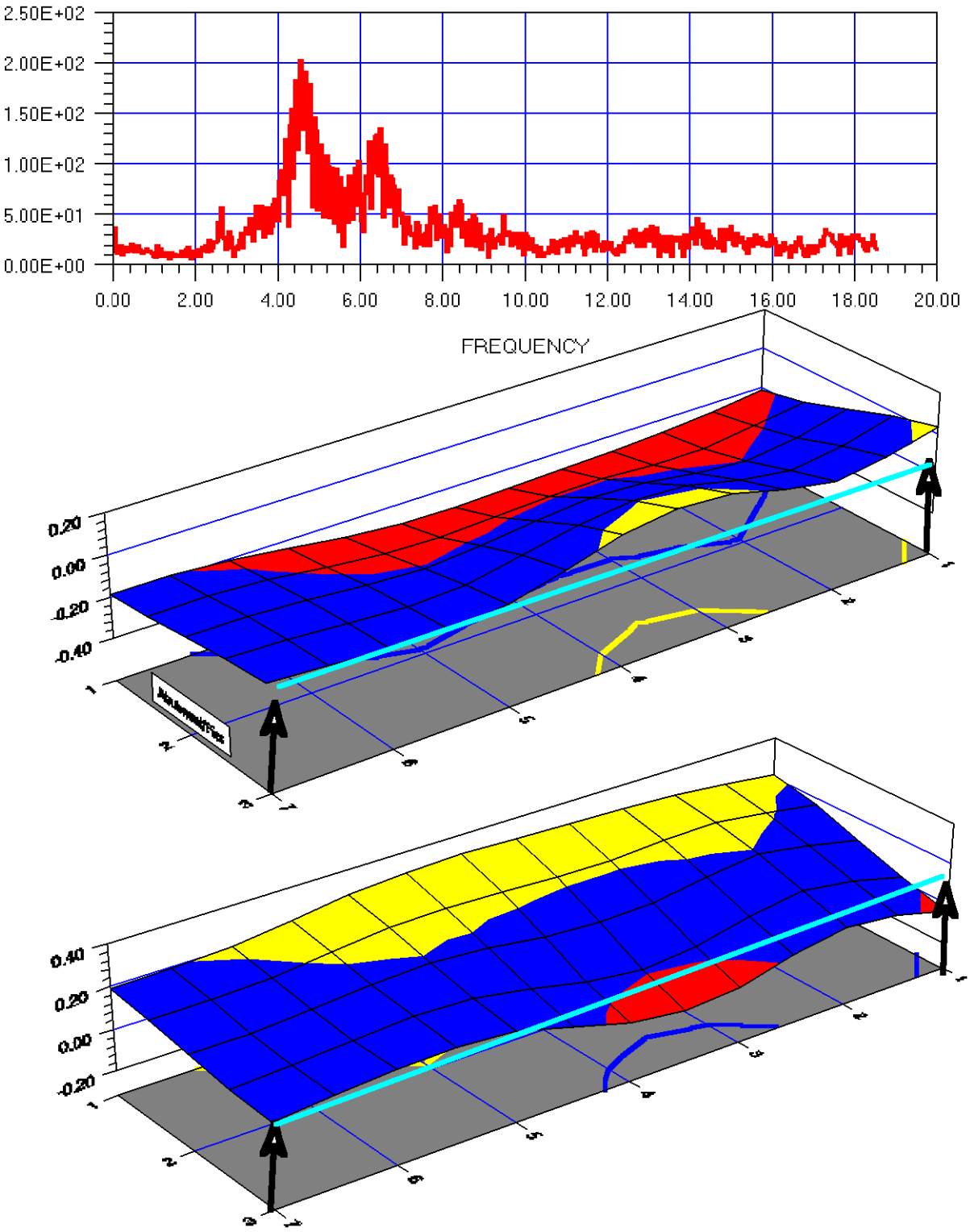
## Record 6 – Span 3 Secondary Deflection



## Record 7 – Span 4 Primary Deflection



## Record 8 – Span 4 Secondary Deflection



## *7.4.10 Calculations Table*

| Test No. | Frequency Hz. | Mass Kg/m | Length m | A-Value | rate-Def | Fix | Deflection mm | Span Name | EI N.m2 | Total Load kN | Moment Capacity kN. m | B-double GVM Triple or Quad Axles | T-44 GVM Tandem Axles | Rigid Truck GVM Single axle | Federal Roads | udl kN/m | Stress kPa |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.66 | 4050 | 11.6 | 8.37 | 860 | 2.5 | 13.5 | Span 1 | 1.32E+09 | 9.40E+02 | 1.36E+03 | 68 | 46 | 23 | 1.1 | 81.0 | 10.8 |
| 2 | 12.59 | 4050 | 11.6 | 15.82 | 860 | 2.5 | 13.5 | Span 1-H | 1.83E+09 | 1.43E+03 | 2.08E+03 | 68 | 46 | 23 | 1.6 | 123.6 | 16.5 |
| 3 | 5.37 | 4050 | 11.6 | 8.37 | 860 | 2.5 | 13.5 | Span 2 | 1.19E+09 | 8.12E+02 | 1.18E+03 | 68 | 46 | 23 | 0.9 | 70.0 | 9.3 |
| 4 | 11.37 | 4050 | 11.6 | 15.82 | 860 | 2.5 | 13.5 | Span 2-H | 1.50E+09 | 1.11E+03 | 1.60E+03 | 68 | 46 | 23 | 1.3 | 95.4 | 12.7 |
| 5 | 5.85 | 4050 | 11.6 | 8.37 | 860 | 2.5 | 13.5 | Span 3 | 1.41E+09 | 1.03E+03 | 1.49E+03 | 68 | 46 | 23 | 1.2 | 88.6 | 11.8 |
| 6 | 8.15 | 4050 | 11.6 | 15.82 | 860 | 2.5 | 13.5 | Span 3-H | 7.68E+08 | 4.02E+02 | 5.82E+02 | 46 | 34 | 19 | 0.5 | 34.6 | 4.6 |
| 7 | 5.35 | 4050 | 11.6 | 8.37 | 860 | 2.5 | 13.5 | Span 4 | 1.18E+09 | 8.03E+02 | 1.16E+03 | 68 | 46 | 23 | 0.9 | 69.2 | 9.2 |
| 8 | 13.59 | 4050 | 11.6 | 15.82 | 860 | 2.5 | 13.5 | Span 4-H | 2.14E+09 | 1.73E+03 | 2.50E+03 | 68 | 46 | 23 | 2.0 | 148.9 | 19.9 |
| | | | Span 1 | ;A=8.37; P2C2S | | width | 7.5 | No truck | 1.08E+03 | 1.37 | 231% | 160% | 174% | 198% | 107% | | |
| | | | Span 2 | ;A=15.82; P2C2S 2nd | | width | 7.5 | No truck | 1.65E+03 | 1.37 | 352% | 244% | 265% | 302% | 163% | Avg | 12 |
| | | | Span 3 | ;A=8.37; P2C2S | | width | 7.5 | No truck | 9.33E+02 | 1.37 | 199% | 138% | 150% | 171% | 93% | Min | 5 |
| | | | Span 4 | ;A=15.82; P2C2S 2nd | | width | 7.5 | No truck | 1.27E+03 | 1.37 | 272% | 188% | 204% | 233% | 126% | Max | 20 |
| | | | Span 5 | ;A=8.37; P2C2S | | width | 7.5 | No truck | 1.18E+03 | 1.37 | 253% | 175% | 190% | 217% | 117% | | |
| | | | Span 6 | ;A=15.82; P2C2S 2nd | | width | 7.5 | No truck | 4.62E+02 | 1.37 | 99% | 68% | 74% | 85% | 46% | | |
| | | | Span 7 | ;A=8.37; P2C2S | | width | 7.5 | No truck | 9.23E+02 | 1.37 | 197% | 137% | 148% | 169% | 92% | | |
| | | | Span 8 | ;A=15.82; P2C2S 2nd | | width | 7.5 | No truck | 1.99E+03 | 1.37 | 424% | 294% | 319% | 364% | 197% | | |

| Span Name | EI N.m2 | Total Load kN | Moment Capacity kN. m | udl kN/m | Stress kPa | Knife kN |
|---|---|---|---|---|---|---|
| Span 1 | 1.32E+09 | 9.40E+02 | 1.36E+03 | 81.0 | 10.8 | 48.6 |
| Span 1-H | 1.83E+09 | 1.43E+03 | 2.08E+03 | 123.6 | 16.5 | 74.2 |
| Span 2 | 1.19E+09 | 8.12E+02 | 1.18E+03 | 70.0 | 9.3 | 42.0 |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Span 2-H | 1.50E+09 | 1.11E+03 | 1.60E+03 | 95.4 | 12.7 | 57.2 |
| Span 3 | 1.41E+09 | 1.03E+03 | 1.49E+03 | 88.6 | 11.8 | 53.1 |
| Span 3-H | 7.68E+08 | 4.02E+02 | 5.82E+02 | 34.6 | 4.6 | 20.8 |
| Span 4 | 1.18E+09 | 8.03E+02 | 1.16E+03 | 69.2 | 9.2 | 41.5 |
| Span 4-H | 2.14E+09 | 1.73E+03 | 2.50E+03 | 148.9 | 19.9 | 89.3 |

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## *7.4.11 Details Table*

**B-Doubles**

| Span | EI<br><br>Nm2 | Total<br>Load<br>kN | Moment<br>Capacity<br>kNm | B-Double Axle Configuration<br>Total Load Capacity<br>(T) | B-Double GML Loading<br>of 62.5T | B-Double Grain Harvest Scheme Loading<br>of 65.63T<br>(GML + 5%) | B-Double HML Scheme<br>Loading of 68T |
|---|---|---|---|---|---|---|---|
| 1 | 1.32E+09 | 9.40E+02 | 1.36E+03 | 108.6<br>Factor | Yes<br>1.74 | OK<br>1.66 | OK<br>1.6 |
| 2 | 1.19E+09 | 8.12E+02 | 1.18E+03 | 93.8<br>Factor | Yes<br>1.5 | OK<br>1.43 | OK<br>1.38 |
| 3 | 1.41E+09 | 1.03E+03 | 1.49E+03 | 118.8<br>Factor | Yes<br>1.9 | OK<br>1.81 | OK<br>1.75 |
| 4 | 1.18E+09 | 8.03E+02 | 1.16E+03 | 92.8<br>Factor | Yes<br>1.49 | OK<br>1.41 | OK<br>1.37 |

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**T-44's**

| Span | EI | Total Load | Moment Capacity | T44 Axle Configuration Total Load Capacity | Semi Trailer Axle Configuration Total Load Capacity | Semi Trailer GML Loading | Semi Trailer Grain Harvest Scheme Loading of 44.63T | Semi Trailer HML Scheme Loading of 45.5T |
|---|---|---|---|---|---|---|---|---|
| | Nm2 | kN | kNm | (T) | (T) | of 42.5T | (GML + 5%) | (T-44) |
| 1 | 1.32E+09 | 9.40E+02 | 1.36E+03 | 79.9 | Yes | OK | OK | OK |
| | | | | Factor | 1.81 | 1.88 | 1.79 | 1.76 |
| 2 | 1.19E+09 | 8.12E+02 | 1.18E+03 | 69.0 | Yes | OK | OK | OK |
| | | | | Factor | 1.57 | 1.62 | 1.55 | 1.52 |
| 3 | 1.41E+09 | 1.03E+03 | 1.49E+03 | 87.3 | Yes | OK | OK | OK |
| | | | | Factor | 1.98 | 2.05 | 1.96 | 1.92 |
| 4 | 1.18E+09 | 8.03E+02 | 1.16E+03 | 68.2 | Yes | OK | OK | OK |
| | | | | Factor | 1.55 | 1.61 | 1.53 | 1.5 |

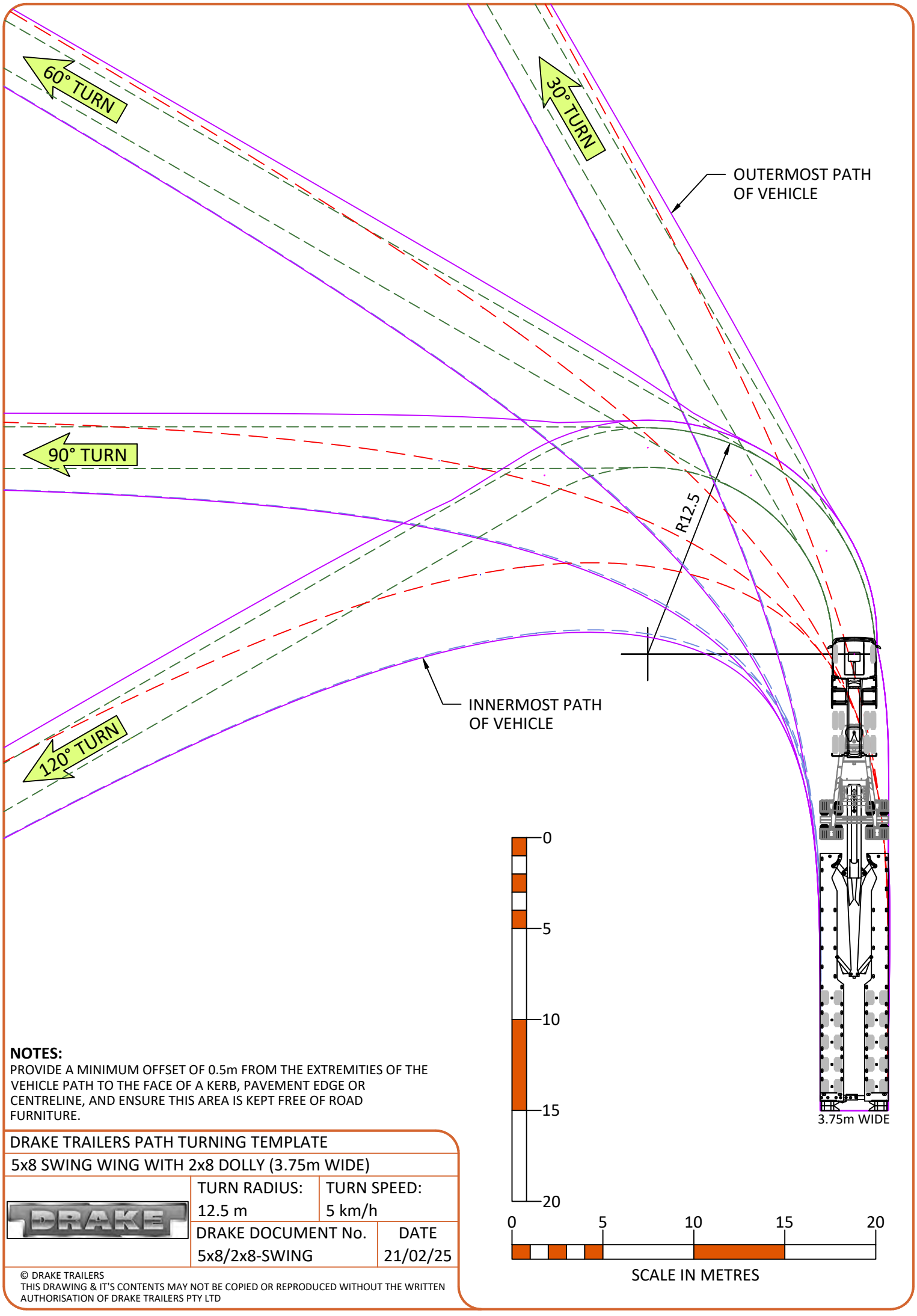
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**Rigids and Trailers**

| Span | EI<br>Nm2 | Total Load<br>kN | Moment Capacity<br>kNm | Rigid Axle Total Load Capacity<br>(T) | Rigid Axle 2 x 4<br>(T) | Rigid Axle 4 x 6 | Trailer Loading of 33T 4 x 4 | Trailer Loading 20T Pig x 4 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1.32E+09 | 9.40E+02 | 1.36E+03 | 45.6 | Yes | Yes | Yes | Yes |
| | | | | Factor | 1.98 | 1.47 | 1.38 | 2.28 |
| 2 | 1.19E+09 | 8.12E+02 | 1.18E+03 | 39.4 | Yes | Yes | Yes | Yes |
| | | | | Factor | 1.71 | 1.27 | 1.19 | 1.97 |
| 3 | 1.41E+09 | 1.03E+03 | 1.49E+03 | 49.8 | Yes | Yes | Yes | Yes |
| | | | | Factor | 2.17 | 1.61 | 1.51 | 2.49 |
| 4 | 1.18E+09 | 8.03E+02 | 1.16E+03 | 39.0 | Yes | Yes | Yes | Yes |
| | | | | Factor | 1.69 | 1.26 | 1.18 | 1.95 |

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## 7.5 Appendix E – Proposed Oversized/Over-mass (OSOM) Load Diagram & Load Plot

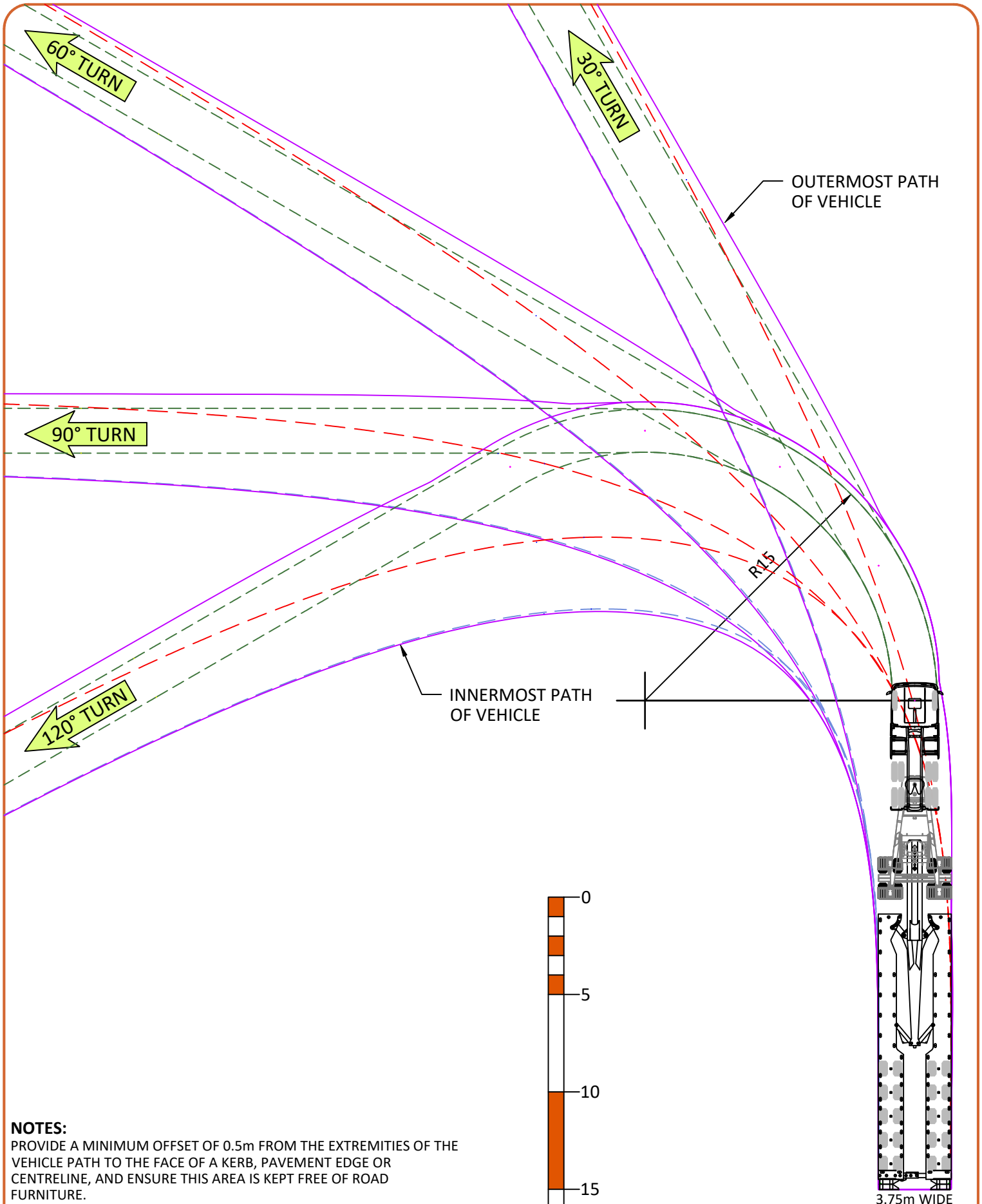



**NOTES:**
PROVIDE A MINIMUM OFFSET OF 0.5m FROM THE EXTREMITIES OF THE VEHICLE PATH TO THE FACE OF A KERB, PAVEMENT EDGE OR CENTRELINE, AND ENSURE THIS AREA IS KEPT FREE OF ROAD FURNITURE.

| DRAKE TRAILERS PATH TURNING TEMPLATE | | |
|---|---|---|
| 5x8 SWING WING WITH 2x8 DOLLY (3.75m WIDE) | | |
| DRAKE | TURN RADIUS: 12.5 m | TURN SPEED: 5 km/h |
| | DRAKE DOCUMENT No. 5x8/2x8-SWING | DATE 21/02/25 |

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SCALE 1:250 @ A4

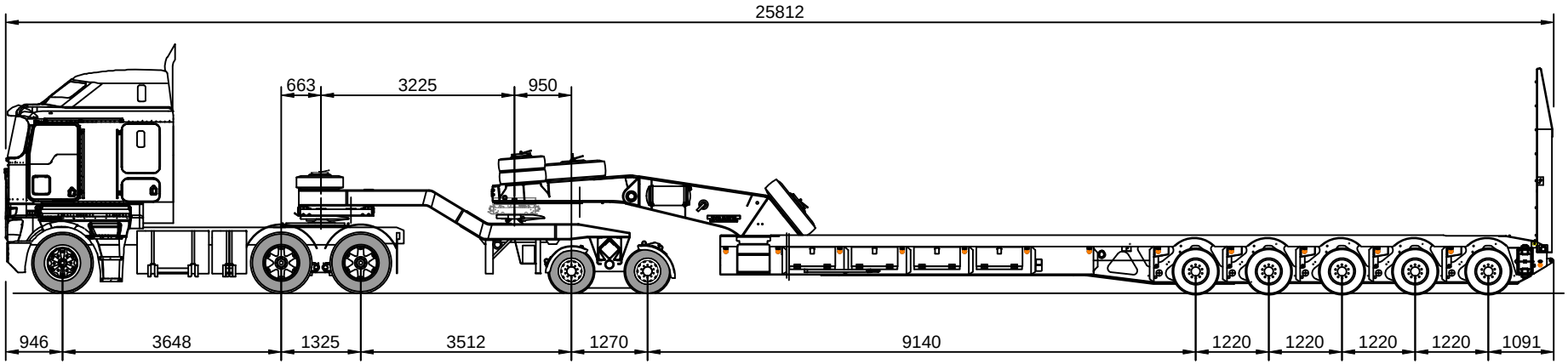


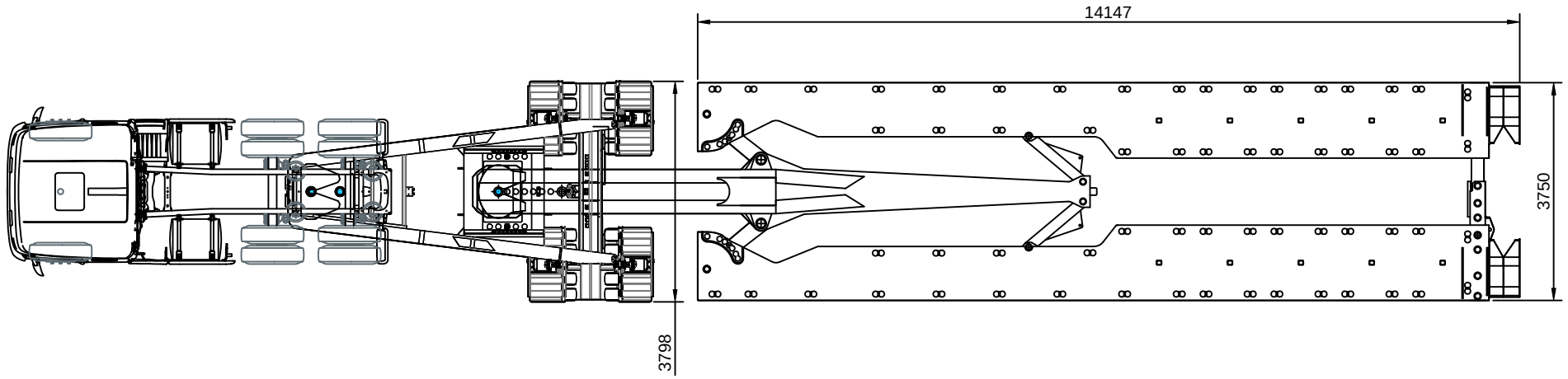

**NOTES:**
PROVIDE A MINIMUM OFFSET OF 0.5m FROM THE EXTREMITIES OF THE VEHICLE PATH TO THE FACE OF A KERB, PAVEMENT EDGE OR CENTRELINE, AND ENSURE THIS AREA IS KEPT FREE OF ROAD FURNITURE.

| DRAKE TRAILERS PATH TURNING TEMPLATE | | |
|---|---|---|
| 5x8 SWING WING WITH 2x8 DOLLY (3.75m WIDE) | | |
| DRAKE | TURN RADIUS: 15.0m | TURN SPEED: 5 - 15 km/h |
| | DRAKE DOCUMENT No. 5x8/2x8-SWING | DATE 21/02/25 |

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SCALE 1:250 @ A4




## TRAILER GENERAL ARRANGEMENT

5x8 SWING WING

.

TRAILER WIDTH: 3.75m

DRAKE

DRAKE TRAILERS Pty Ltd A.C.N. 009761031

| | Weight Drill Rig with Counter weights | Total Weight<br>Drill Rig inc counter weights +<br>Total Truck (11t) + Dolly (6.3t) + trailer (21t) = | Approx weight per axel on trailer and dolly with Dolly (7 Axels) | Weight Drill Rig without Counter weights | Total Weight<br>Drill Rig inc counter weights +<br>Total Truck (11t) + Dolly (6.3t) + trailer (21t) = | Approx weight per axel on trailer and dolly with Dolly (7 Axels) |
|---|---|---|---|---|---|---|
| BG28 | 76.1t | Total weight of all items = 114.4t<br>GVM = 125.5t | 15t average but not to exceed 31.5t | 63.8 | 102.1 | 15t average but not to exceed 31.5t |
| BG24 | 70t | 109.2t<br>GVM = 125.5t in NSW | 15t average but not to exceed 31.5t | 60.1 | 99.3t | 15t average but not to exceed 31.5t |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Type** | **BG28 16t axle** | **38.057** | **FT** | **BM** | **829** | **Ft.kips** | **38** | **FT** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Bridge Length** | **11.6** m | **MaxApplied Bm** | **114.63** | t.m | or | **1124** | **Kn.m** |
| **Measured BM** | **1.15E+03** | **Truck At** | **-1** | **m on the bridge** | | | |

38.06
-3.28

**Type**
**5**

type **1** to **5** in **A7** for vehicle type given in **A12**. Bridge span in **I3** measured BM is put in **I4** applied BM by vehicle is given in **S3** in Kn.m and **Y2** in Ft.kips. **%** is given in **Z6** lines **11** and **12** give configuration GoTo line **72** and adjust the special load the con fig start at **C73** axle load then **D72** dist to next axle then load and so on Note total length is in **B72** don't over write this

| |
|---|
| **% -age** |
| **102%** |
| **GVM** |
| **142.9** |

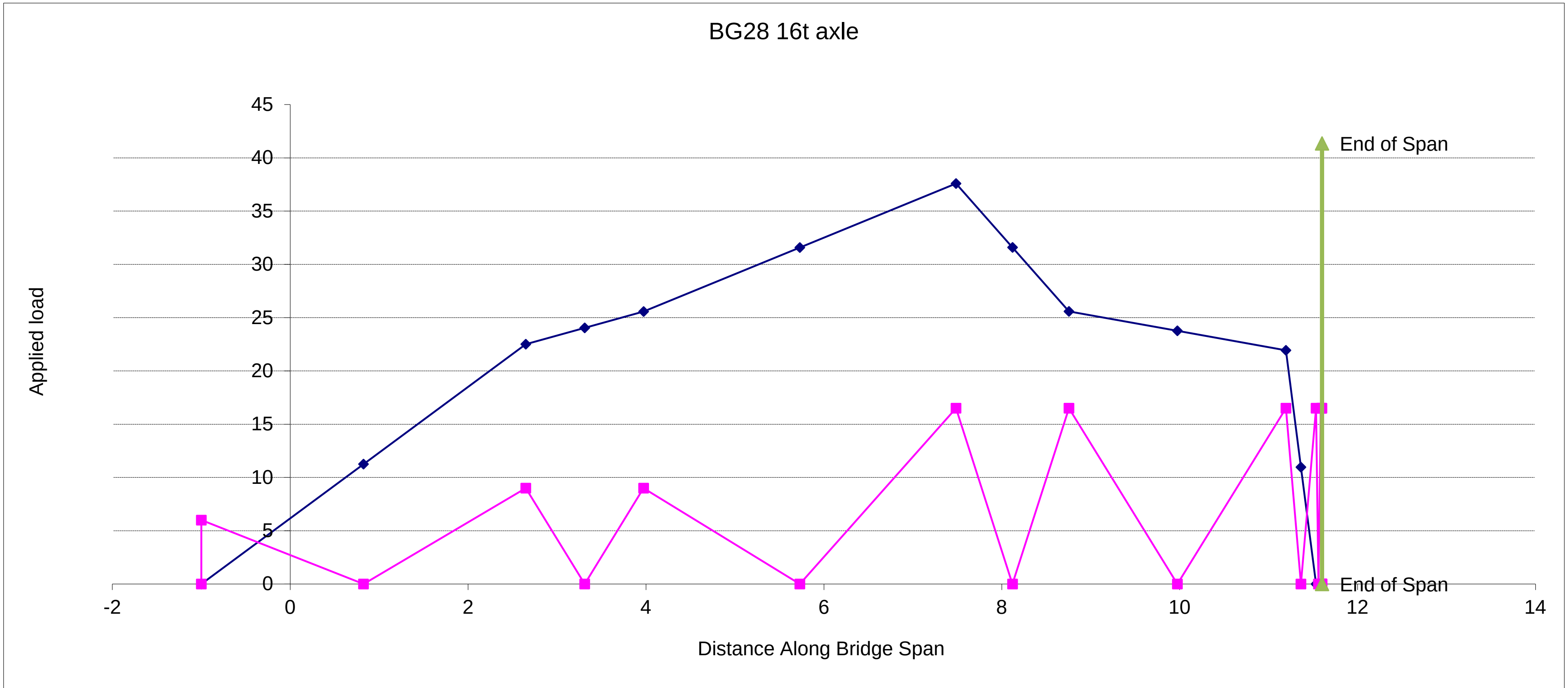
**How fa**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | -1.0 | 2.6 | 4.0 | 7.5 | 8.8 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 |
| **BG28 16t axle** | 23.8 | 3.65 | 1.33 | 3.512 | 1.27 | 9.1 | 1.2 | 1.22 | 1.2 | 1.22 | 0 | |
| | | 6 | 9 | 9 | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 | 0 |

**2**

**ULL BM**
**0**

Location




| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |

| Type | BG28 16t axle R | 38.057 | FT | BM | 1571 | Ft.kips | 38 | FT |
|---|---|---|---|---|---|---|---|---|

| Bridge Length | 11.6 | m | MaxApplied Bm | 217.16 | t.m | or | 2130 | Kn.m | 38.06 |
|---|---|---|---|---|---|---|---|---|---|
| Measured BM | 1.15E+03 | | Truck At | 3 | m on the bridge | | | | 9.85 |

| Type |
|---|
| 5 |

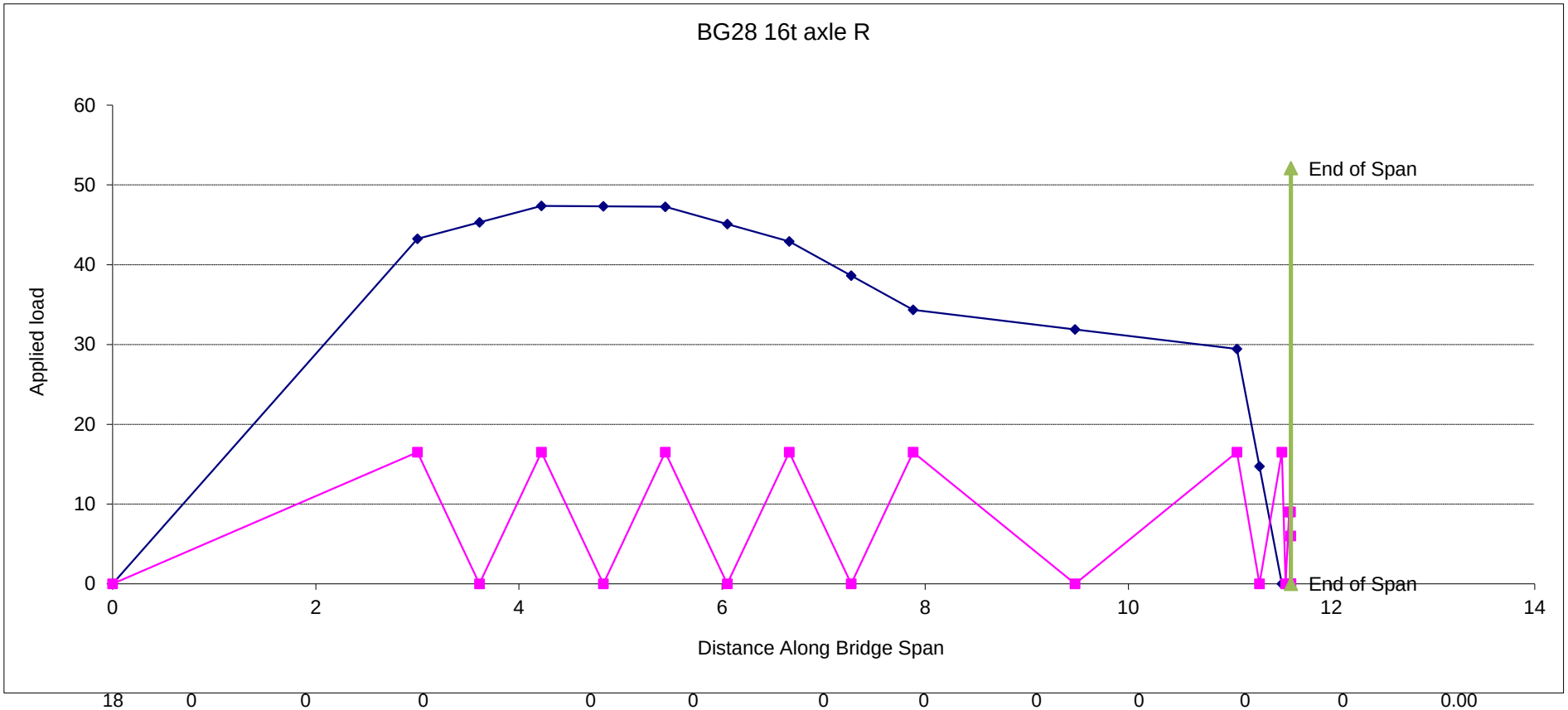
type **1** to **5** in **A7** for vehicle type given in **A12**. Bridge span in **I3** measured BM is put in **I4** applied BM by vehicle is given in **S3** in Kn.m and **Y2** in Ft.kips. **%** is given in **Z6** lines **11** and **12** give configuration GoTo line **72** and adjust the special load the con fig start at **C73** axle load then **D72** dist to next axle then load and so on Note total length is in **B72** don't over write this

| % -age |
|---|
| 54% |
| GVM |
| 75.4 |

How fa

| | 3.0 | 4.2 | 5.4 | 6.7 | 7.9 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | 13.6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BG28 16t axle R | 23.8 | 1.22 | 1.22 | 1.22 | 1.22 | 9.1 | 1.3 | 3.51 | 1.3 | 3.65 | 0 | ULL BM | 2 |
| | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 | 9 | 9 | 6 | 0 | 0 | |

Location




| 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

## 7.6 Appendix F – Complete Mod-shock Test Results

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| Model No. | Pile Test Location | Category | Pile (m) | Pile Head (t/mm) | "E" max (t/mm) | "E" min (t/mm) | Elastic @ 3 mm | Load @ 6.0 | Loss of Depth (m) | Remarks | Diameter mm | Min. Dia mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PILES_A01X | P102 | 2.0 | 11.9 | 43.1 | 76.5 | 33.5 | 134.7 | 248.7 | 3.5 | Serviceable | 950 | 500.0 |
| PILES_A02X | P103 | 2.5 | 11.5 | 39.9 | 75.4 | 43.9 | 142.3 | 274.3 | 8.3 | Serviceable | 950 | 490.0 |
| PILES_B01X | P105 | 2.0 | 13.6 | 32.3 | 86.2 | 26.2 | 92.6 | 216.1 | 6.8 | Serviceable | 950 | 490.0 |
| PILES_B02Y | P108 | 3.0 | 10.7 | 78.0 | 65.6 | 42.3 | 195.2 | 322.1 | 1.6 | Stressed | 950 | 550.0 |
| PILES_P11Y | P110 | 2.0 | 11.5 | 35.0 | 60.9 | 31.2 | 114.0 | 212.0 | 7.9 | Serviceable | 950 | 450.0 |
| PILES_P12Y | P112 | 3.5 | 12.5 | 25.7 | 81.2 | 49.0 | 126.6 | 273.6 | 3.8 | Reduced | 950 | 480.0 |
| PILES_P21X | P113 | 2.0 | 10.7 | 33.2 | 82.8 | 28.6 | 101.4 | 219.2 | 6.8 | Serviceable | 950 | 500.0 |
| PILES_P22Y | P116 | 2.0 | 12.6 | 52.2 | 75.1 | 37.5 | 157.4 | 276.3 | 4.1 | Serviceable | 950 | 490.0 |
| PILES_P31X | P117 | 2.0 | 10.7 | 51.5 | 63.8 | 40.9 | 151.9 | 274.8 | 4.5 | Serviceable | 950 | 500.0 |
| PILES_P32X | P119 | 2.5 | 13.5 | 34.6 | 76.4 | 39.2 | 124.9 | 247.9 | 5.6 | Serviceable | 950 | 430.0 |

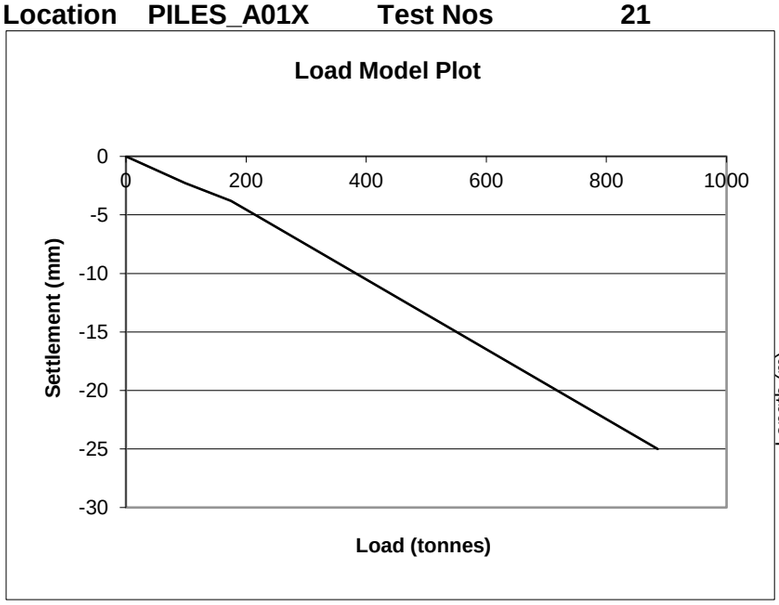
| Bending kN.m | Load @ 12.0 |
|---|---|
| 2491.1 | 449.8 |
| 1738.6 | 537.5 |
| 2696.4 | 373.2 |
| 3067.3 | 575.7 |
| 1730.1 | 399.2 |
| 1079.1 | 567.6 |
| 2436.9 | 390.8 |
| 2646.9 | 501.2 |
| 2031.9 | 520.5 |
| 1705.7 | 483.2 |

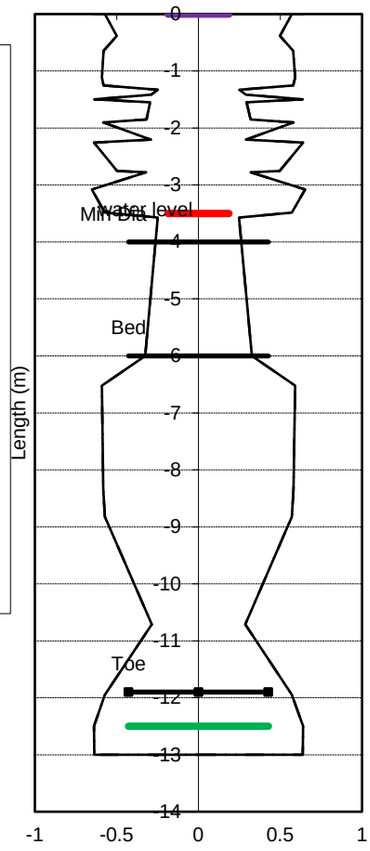
Photo

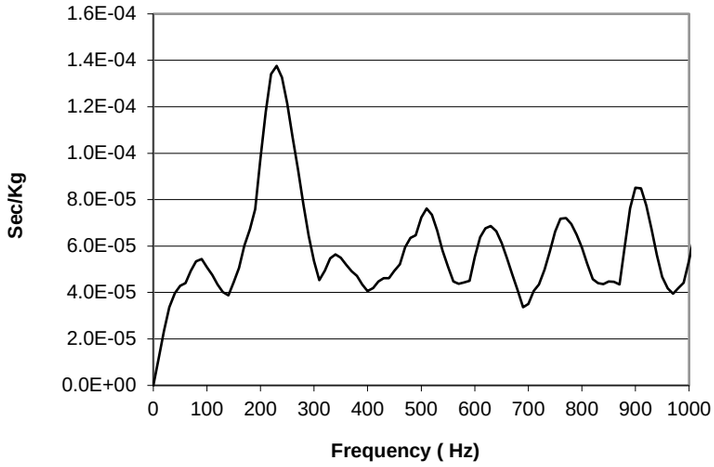
# Integrity Testing Pty. Ltd.
## ModShockPile

Table
Model

**Location** **PILES_A01X** **Test Nos** **21**

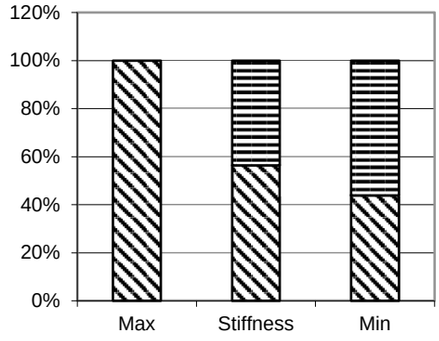


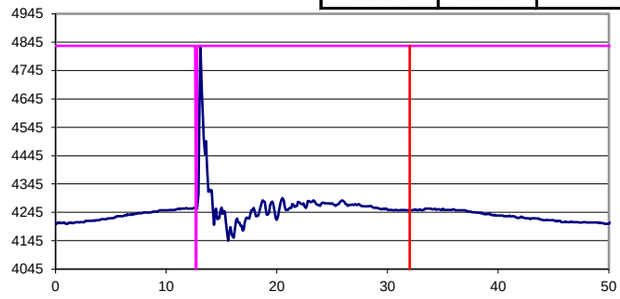




| Deflectior | Load |
|---|---|
| 0.0 | 0.0 |
| 2.3 | 98.3 |
| 3.8 | 174.8 |
| 5.1 | 217.9 |
| 25.0 | 885.3 |

| | | |
|---|---|---|
| Deflection | 3 | mm |
| Load | 134.7 | tonne |




1650 Speed

**Results from Analysis of Modified Shock Test:** 1650

| | | | | | |
|---|---|---|---|---|---|
| **Length** | **11.9 m.** | | **Pile Diameter** | **950** | Seismic |
| **Depth to Reductions:** | | **3.6 m.** | **Water line** | | **19.3** |
| **Stiffness** | | **43.1 t/mm.** | **Min Diameter** | **497** | **15.9** |
| **max** | | **76.5 t/mm.** | **Remarks:** | **Serviceable** | |
| **Min** | | **33.5 t/mm.** | **Category:** | **3.0** | |
| **Load Capacity @** | **3** | **134.7 tonnes** | | **PILES_A01X** | |


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# VISUAL INSPECTION OF PILES

**Client:** Lithgow **Location** Main Street

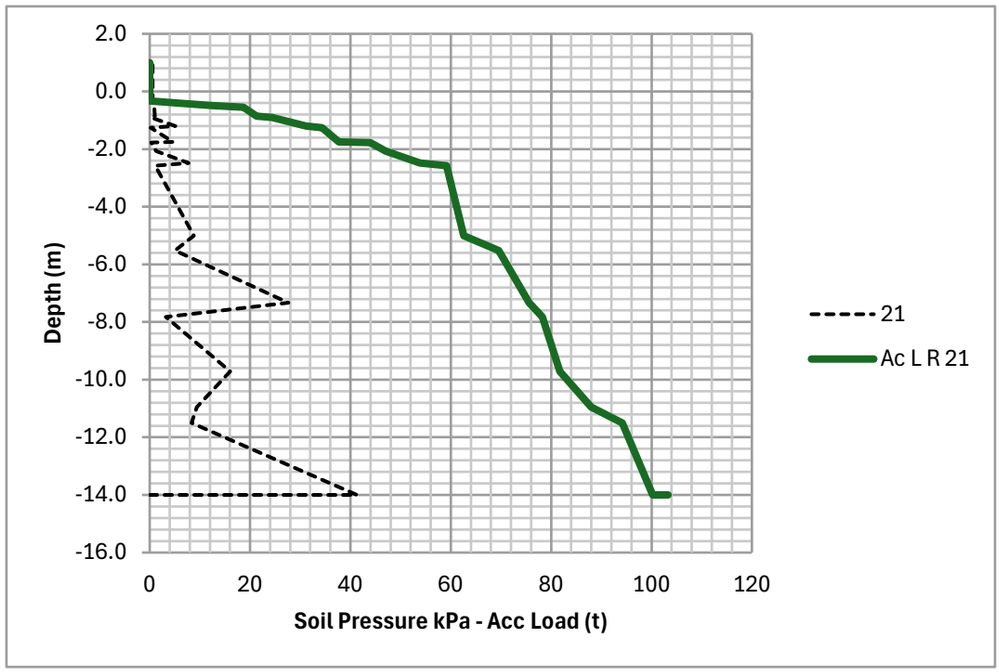
**Pile test No.** PILES_A01X P102 **RawFile** PILES.21



Model

Table

Ajust Level




Integrity Testing Pty. Ltd. 64-bit-mod-Shock-Analysis-piles-rev33-BAE-ALL.xlsm Pole-04-Bali.EXE-22-04-21

Http://www.integritytestingservices.com Email: info@integritytestingservices.com

DUMP 1500 1000 30 0.6 3 0 1

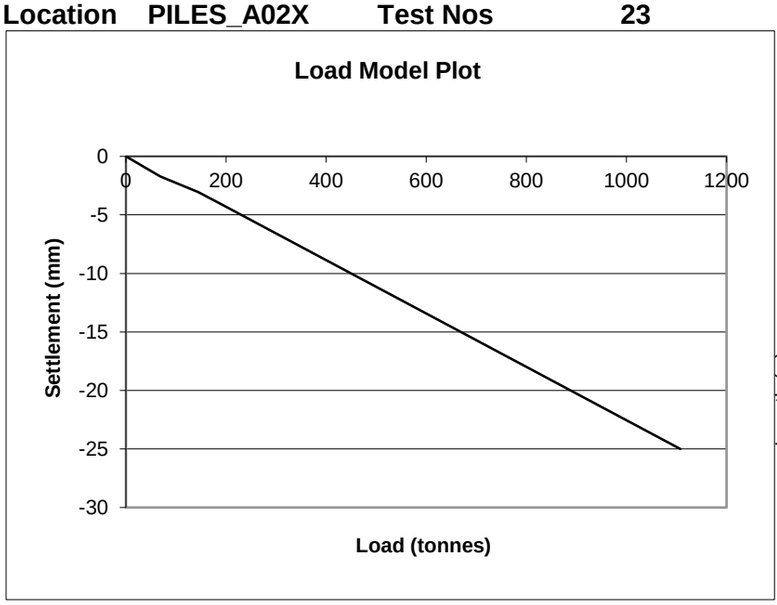
410.2 kN 11.0 Complies ISO 22477-10

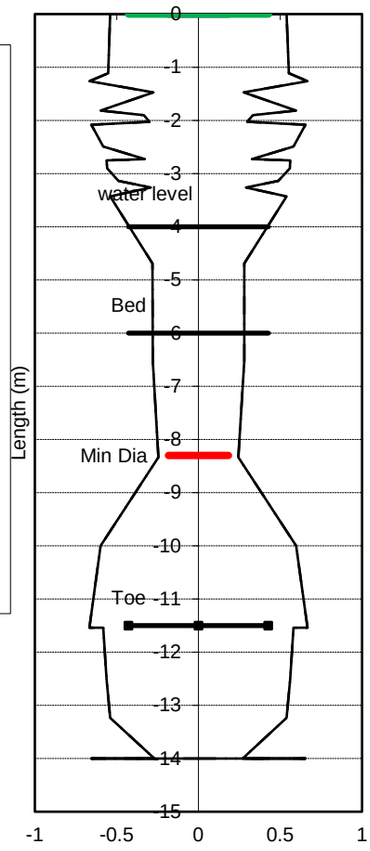
Photo

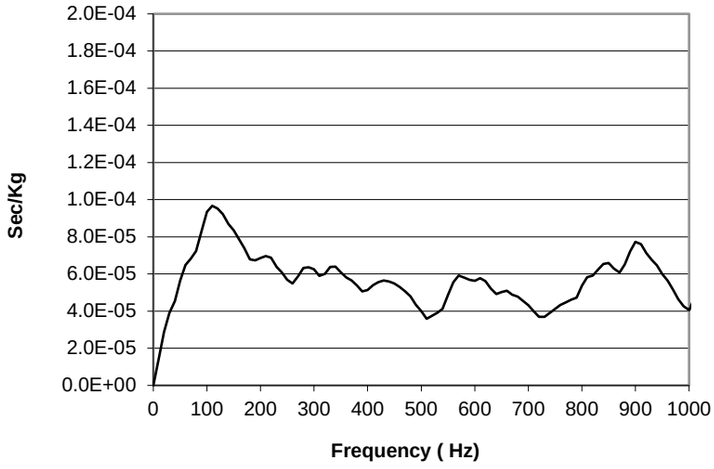
# Integrity Testing Pty. Ltd.
## ModShockPile

Table
Model

**Location** PILES_A02X **Test Nos** 23

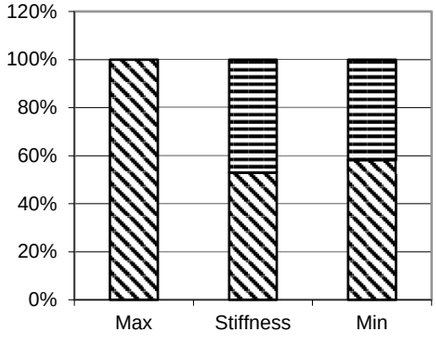


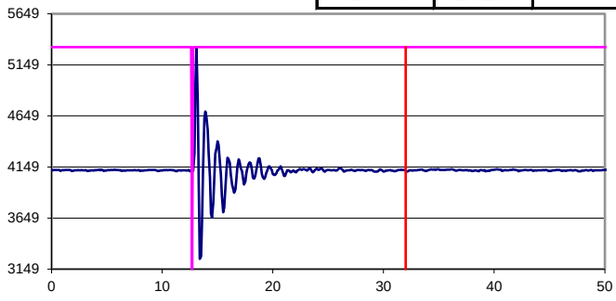




| Deflection | Load |
|---|---|
| 0.0 | 0.0 |
| 1.7 | 68.6 |
| 3.0 | 144.1 |
| 3.9 | 184.0 |
| 25.0 | 1107.7 |

| | | |
|---|---|---|
| Deflection | 3 | mm |
| Load | 142.3 | tonne |




1650 Speed

1650

**Results from Analysis of Modified Shock Test:**

| | | | | | |
|---|---|---|---|---|---|
| **Length** | **11.5 m.** | | **Pile Diameter** | **950** | Seismic |
| **Depth to Reductions:** | | **8.3 m.** | **Water line** | | **19.3** |
| **Stiffness** | | **39.9 t/mm.** | **Min Diameter** | **489** | **15.9** |
| **max** | | **75.4 t/mm.** | **Remarks:** | **Serviceable** | |
| **Min** | | **43.9 t/mm.** | **Category:** | **3.0** | |
| **Load Capacity @** | **3** | **142.3 tonnes** | | **PILES_A02X** | |


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# VISUAL INSPECTION OF PILES

**Client:** Lithgow **Location** Main Street

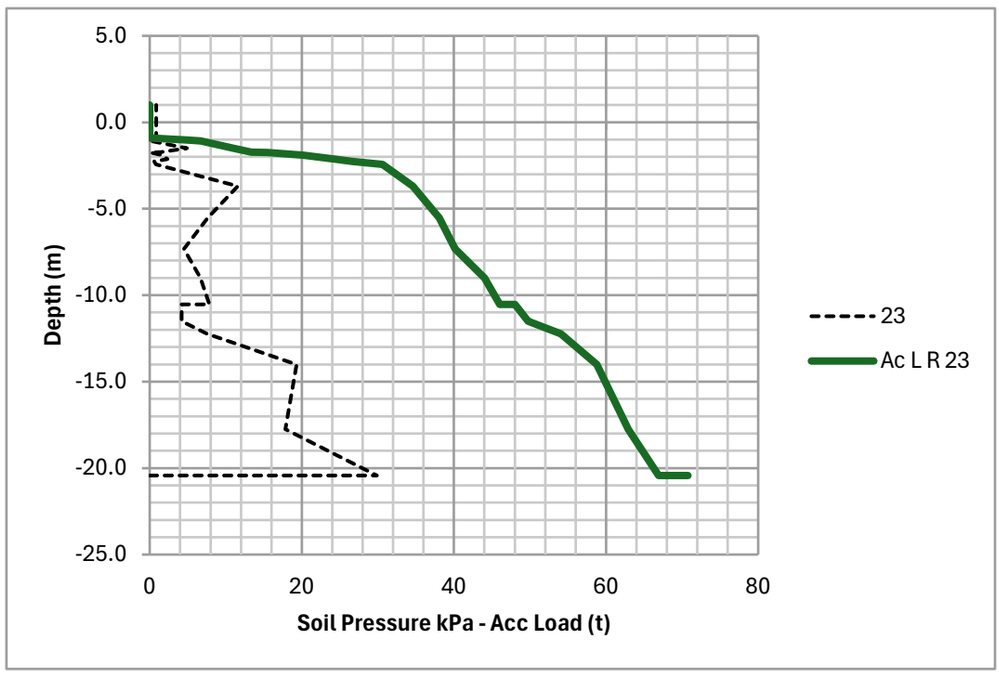
**Pile test No.** PILES_A02X P103 **RawFile** PILES.23



Model

Table

Ajust Level




Integrity Testing Pty. Ltd. 64-bit-mod-Shock-Analysis-piles-rev33-BAE-ALL.xlsm Pole-04-Bali.EXE-22-04-21

Http://www.integritytestingservices.com Email: info@integritytestingservices.com

DUMP 1500 1000 30 0.6 3 0 1

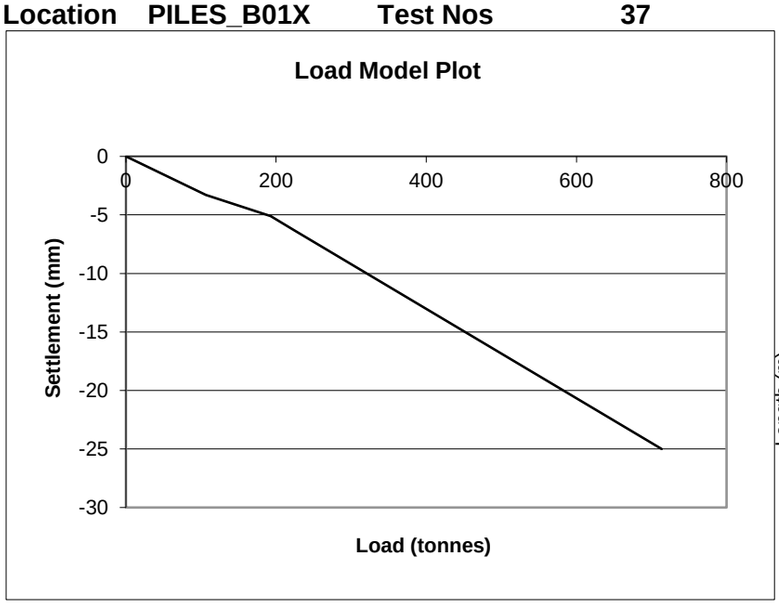
410.2 kN 7.7 Fail ISO 22477-10

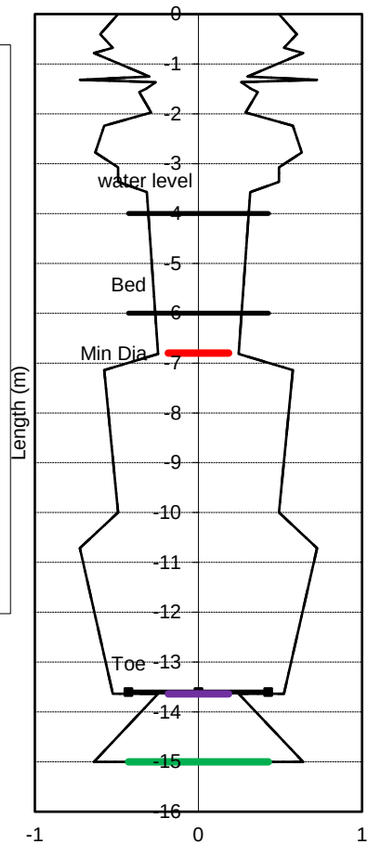
Photo

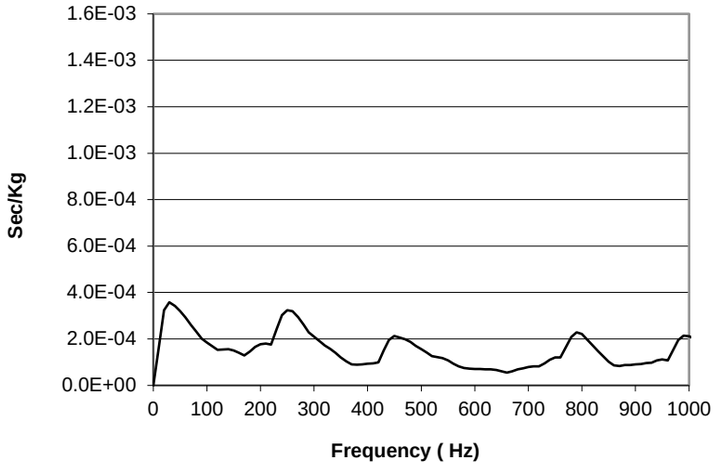
# Integrity Testing Pty. Ltd.
## ModShockPile

Table
Model

**Location** **PILES_B01X** **Test Nos** **37**

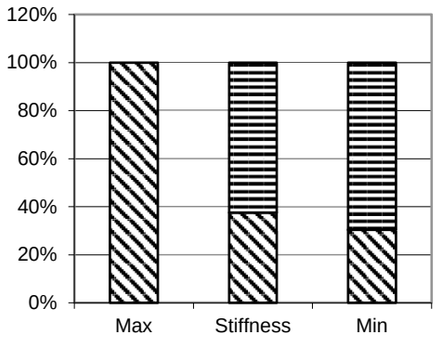


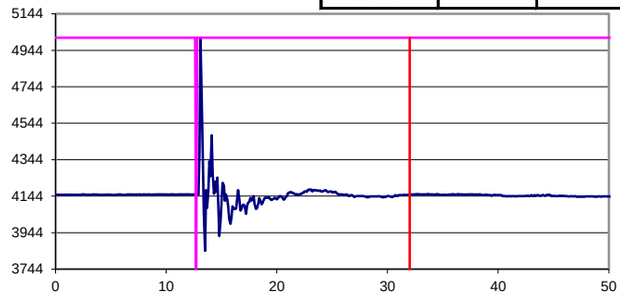




| Deflection | Load |
|---|---|
| 0.0 | 0.0 |
| 3.3 | 106.4 |
| 5.1 | 192.6 |
| 6.3 | 225.0 |
| 25.0 | 713.6 |

| | | |
|---|---|---|
| Deflection | 3 | mm |
| Load | 97.0 | tonne |




1650 Speed

**Results from Analysis of Modified Shock Test:** 1650

| | | | | | |
|---|---|---|---|---|---|
| **Length** | **13.6 m.** | | **Pile Diameter** | **950** | Seismic |
| **Depth to Reductions:** | | **6.8 m.** | **Water line** | | **19.3** |
| **Stiffness** | | **32.3 t/mm.** | **Min Diameter** | **492** | **15.9** |
| **max** | | **86.2 t/mm.** | **Remarks:** | **Reduced** | |
| **Min** | | **26.2 t/mm.** | **Category:** | **3.5** | |
| **Load Capacity @** | **3** | **97.0 tonnes** | | **PILES_B01X** | |


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# VISUAL INSPECTION OF PILES

**Client:** Lithgow **Location** Main Street

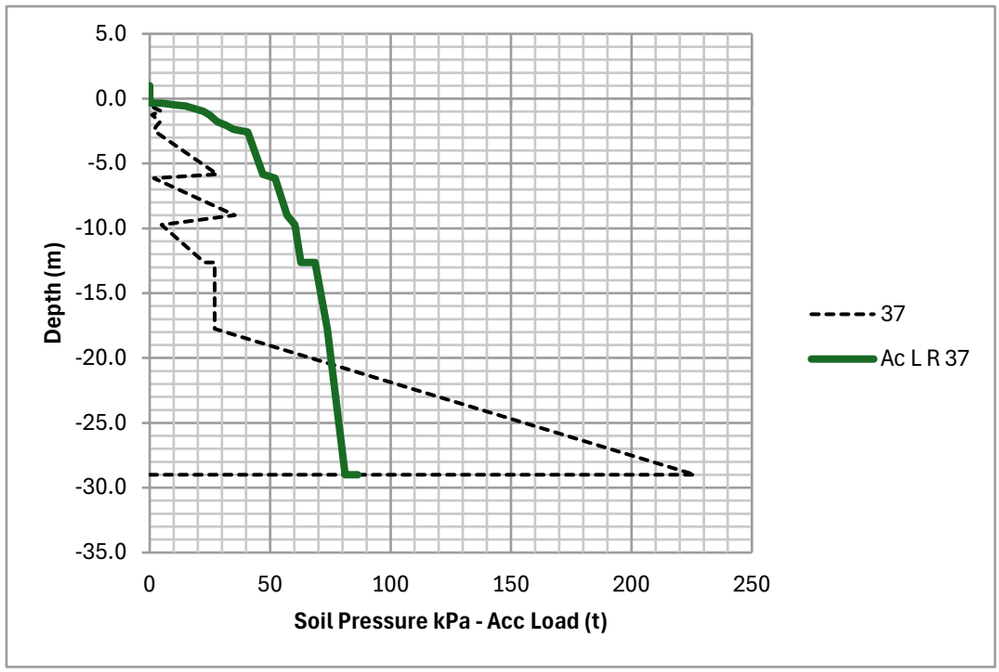
**Pile test No.** PILES_B01X P105 **RawFile** PILES.37




Model

Table

Ajust Level




Integrity Testing Pty. Ltd. 64-bit-mod-Shock-Analysis-piles-rev33-BAE-ALL.xlsm Pole-04-Bali.EXE-22-04-21

Http://www.integritytestingservices.com Email: info@integritytestingservices.com

DUMP 1500 1000 30 0.6 3 0 1

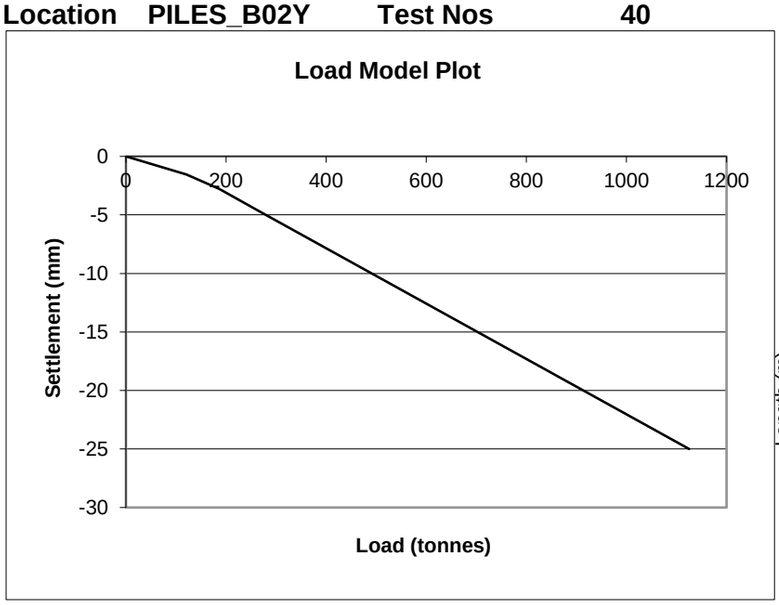
410.2 kN 5.5 Fail ISO 22477-10

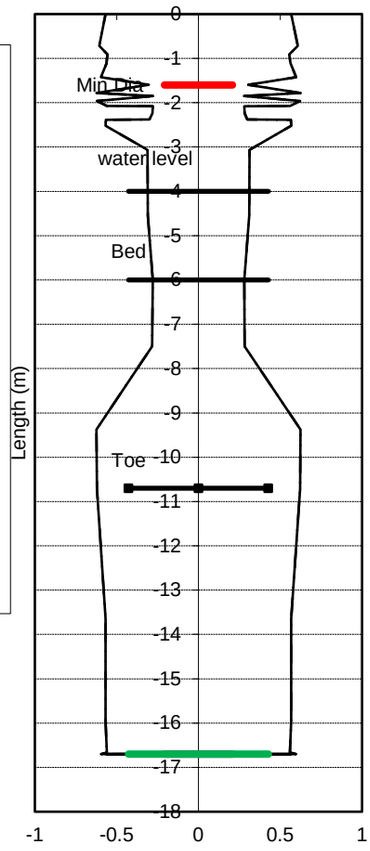
Photo

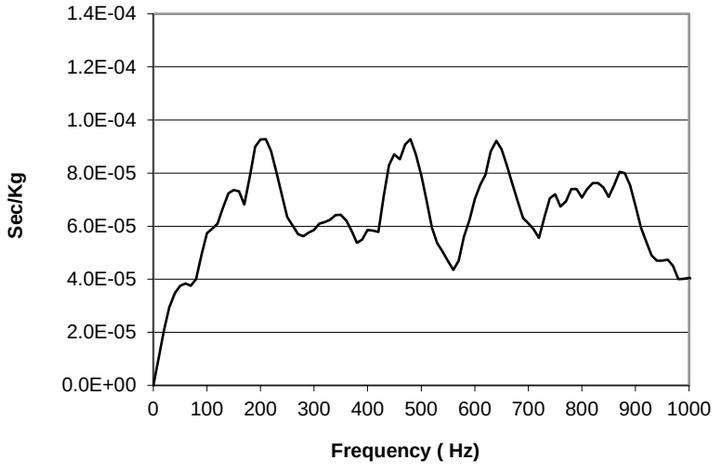
# Integrity Testing Pty. Ltd.
## ModShockPile

Table
Model

**Location** PILES_B02Y **Test Nos** 40

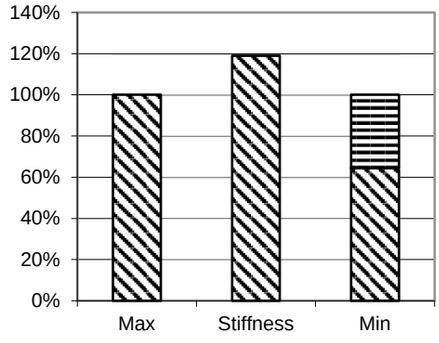


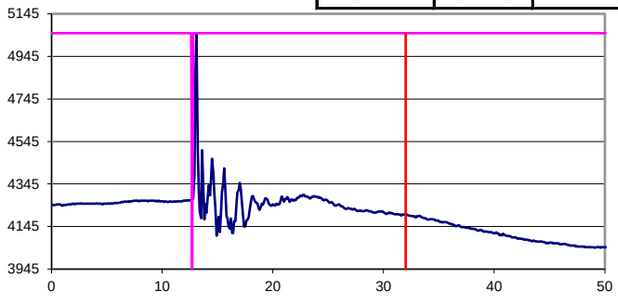




| Deflection | Load |
|---|---|
| 0.0 | 0.0 |
| 1.6 | 121.1 |
| 2.8 | 186.7 |
| 4.6 | 264.7 |
| 25.0 | 1125.2 |

| | | |
|---|---|---|
| Deflection | 3 | mm |
| Load | 195.2 | tonne |




1650 Speed

**Results from Analysis of Modified Shock Test:** 1650

| | | | | | |
|---|---|---|---|---|---|
| **Length** | **10.7 m.** | | **Pile Diameter** | **950** | Seismic |
| **Depth to Reductions:** | | **1.9 m.** | **Water line** | | **19.3** |
| **Stiffness** | | **78.0 t/mm.** | **Min Diameter** | **555** | **15.9** |
| **max** | | **65.6 t/mm.** | **Remarks:** | **Serviceable** | |
| **Min** | | **42.3 t/mm.** | **Category:** | **3.0** | |
| **Load Capacity @** | **3** | **195.2 tonnes** | | **PILES_B02Y** | |


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# VISUAL INSPECTION OF PILES

**Client:** Lithgow **Location** Main Street

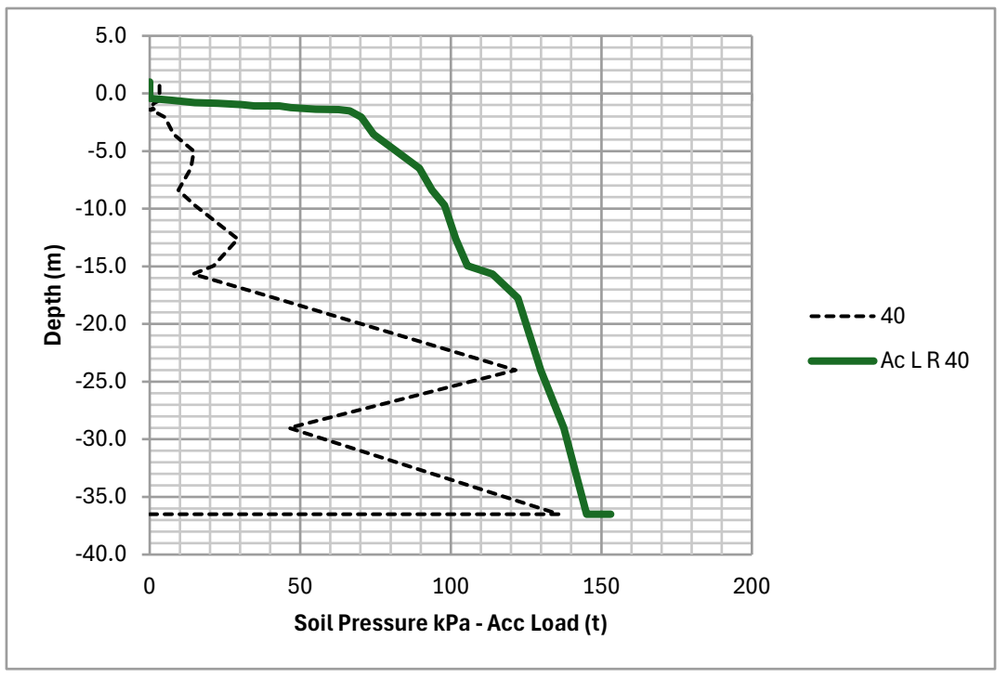
**Pile test No.** PILES_B02Y P108 **RawFile** PILES.40



Model

Table

Ajust Level




Integrity Testing Pty. Ltd. 64-bit-mod-Shock-Analysis-piles-rev33-BAE-ALL.xlsm Pole-04-Bali.EXE-22-04-21

Http://www.integritytestingservices.com Email: info@integritytestingservices.com

DUMP 1500 1000 30 0.6 3 0 1

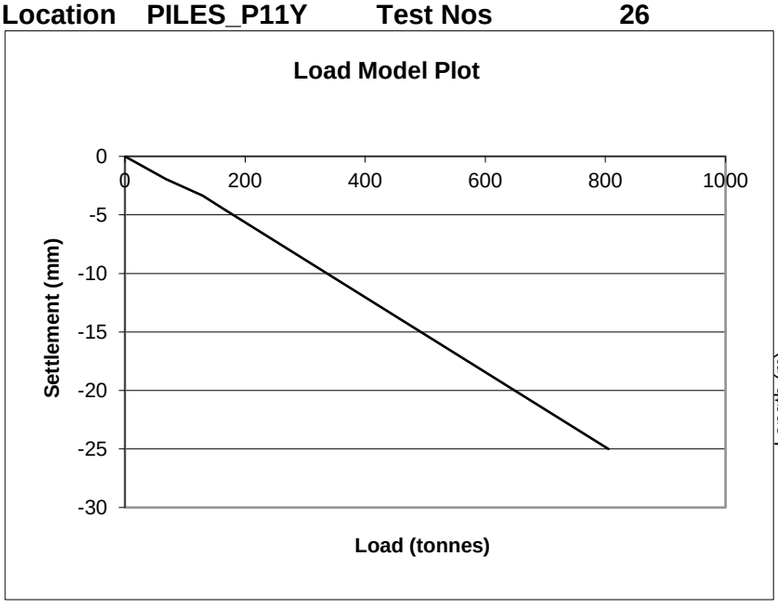
410.2 kN 4.4 Fail ISO 22477-10

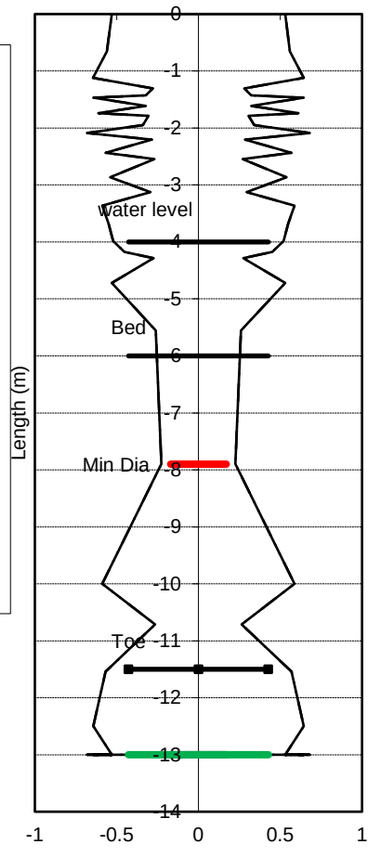
Photo

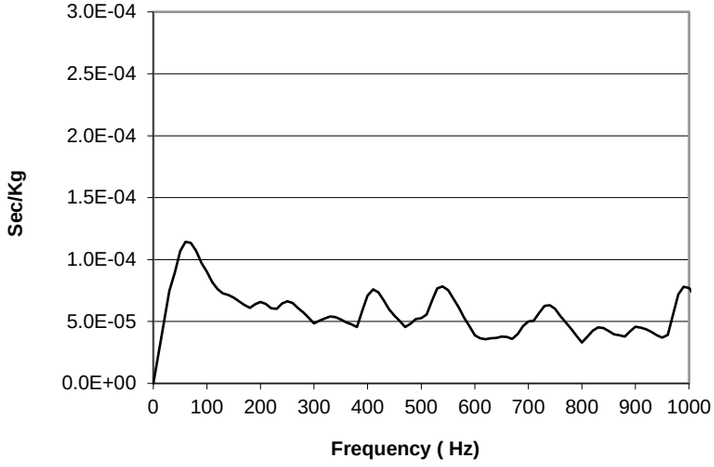
# Integrity Testing Pty. Ltd.
## ModShockPile

Table
Model

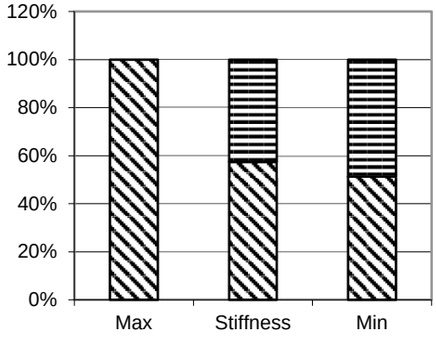
**Location** PILES_P11Y **Test Nos** 26

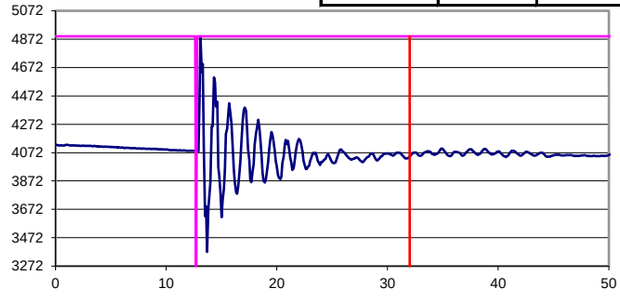



| Deflection | Load |
|---|---|
| 0.0 | 0.0 |
| 2.0 | 68.3 |
| 3.3 | 129.2 |
| 4.5 | 164.2 |
| 25.0 | 805.0 |
| Deflection 3 | mm |
| Load 114.0 | tonne |




1650 Speed

**Results from Analysis of Modified Shock Test:** 1650

| | | | | | |
|---|---|---|---|---|---|
| **Length** | **11.5 m.** | | **Pile Diameter** | **950** | Seismic |
| **Depth to Reductions:** | | **7.9 m.** | **Water line** | | **19.3** |
| **Stiffness** | | **35.0 t/mm.** | **Min Diameter** | **453** | **15.9** |
| **max** | | **60.9 t/mm.** | **Remarks:** | **Reduced** | |
| **Min** | | **31.2 t/mm.** | **Category:** | **3.5** | |
| **Load Capacity @** | **3** | **114.0 tonnes** | | **PILES_P11Y** | |


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# VISUAL INSPECTION OF PILES

**Client:** Lithgow **Location** Main Street

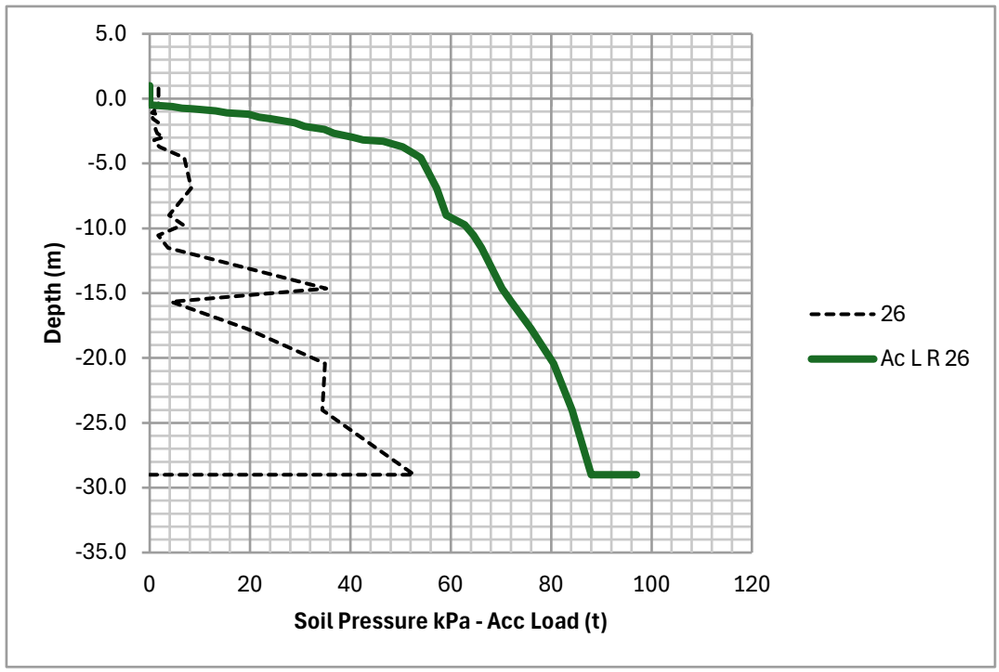
**Pile test No.** PILES_P11Y P110 **RawFile** PILES.26



Model

Table

Ajust Level




Integrity Testing Pty. Ltd. 64-bit-mod-Shock-Analysis-piles-rev33-BAE-ALL.xlsm Pole-04-Bali.EXE-22-04-21

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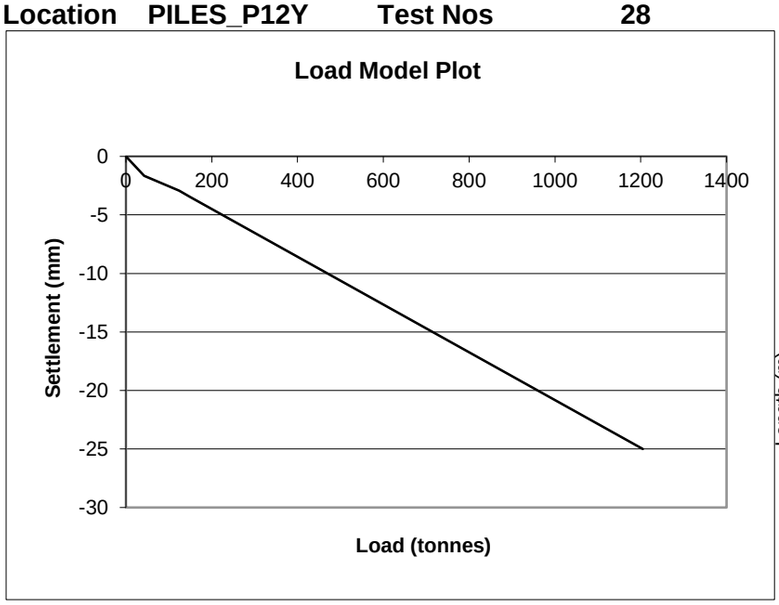
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| DUMP | 1500 | 1000 | 4.95 | 0.6 | | 3 | 0 | 1 |
| 410.2 | kN | 5.5 | Fail | | | | ISO | 22477-10 |

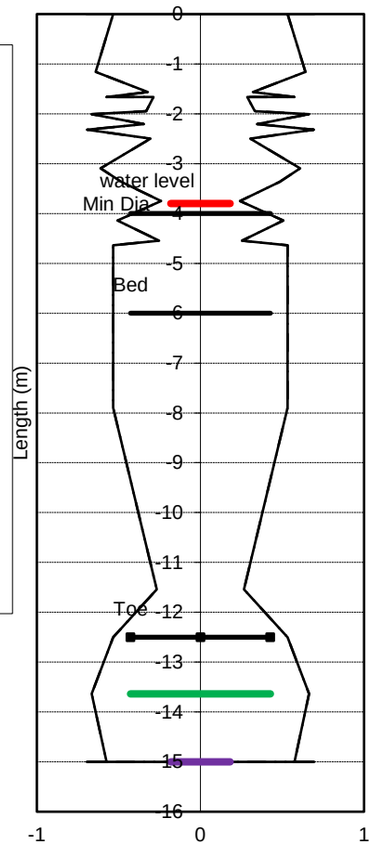
Photo

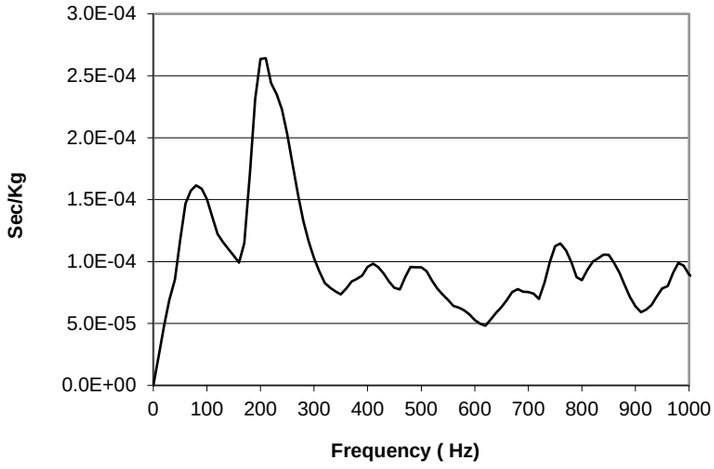
# Integrity Testing Pty. Ltd.
## ModShockPile

Table
Model

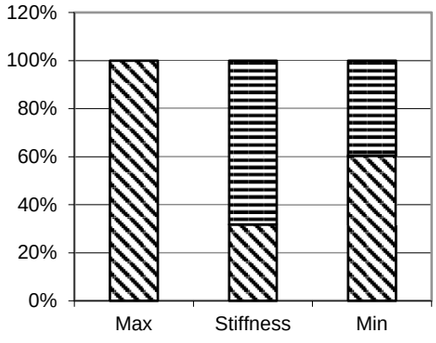
**Location** PILES_P12Y **Test Nos** 28

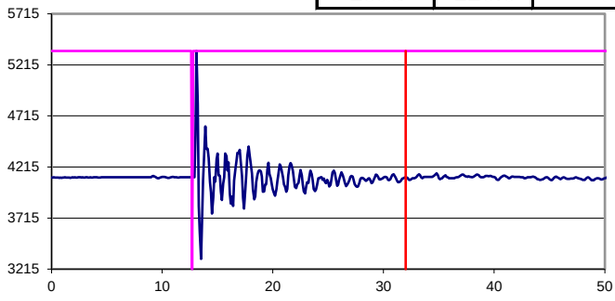



| | Deflection | Load |
|---|---|---|
| | 0.0 | 0.0 |
| | 1.7 | 42.6 |
| | 2.9 | 123.8 |
| | 3.5 | 149.5 |
| | 25.0 | 1204.8 |
| Deflection | 3 | mm |
| Load | 126.6 | tonne |




1650 Speed

**Results from Analysis of Modified Shock Test:** 1650

| | | | | | |
|---|---|---|---|---|---|
| **Length** | **12.5 m.** | | **Pile Diameter** | **950** | Seismic |
| **Depth to Reductions:** | | **3.8 m.** | **Water line** | | **19.3** |
| **Stiffness** | | **25.7 t/mm.** | **Min Diameter** | **483** | **15.9** |
| **max** | | **81.2 t/mm.** | **Remarks:** | **Reduced** | |
| **Min** | | **49.0 t/mm.** | **Category:** | **3.5** | |
| **Load Capacity @** | **3** | **126.6 tonnes** | | **PILES_P12Y** | |


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# VISUAL INSPECTION OF PILES

**Client:** Lithgow **Location** Main Street

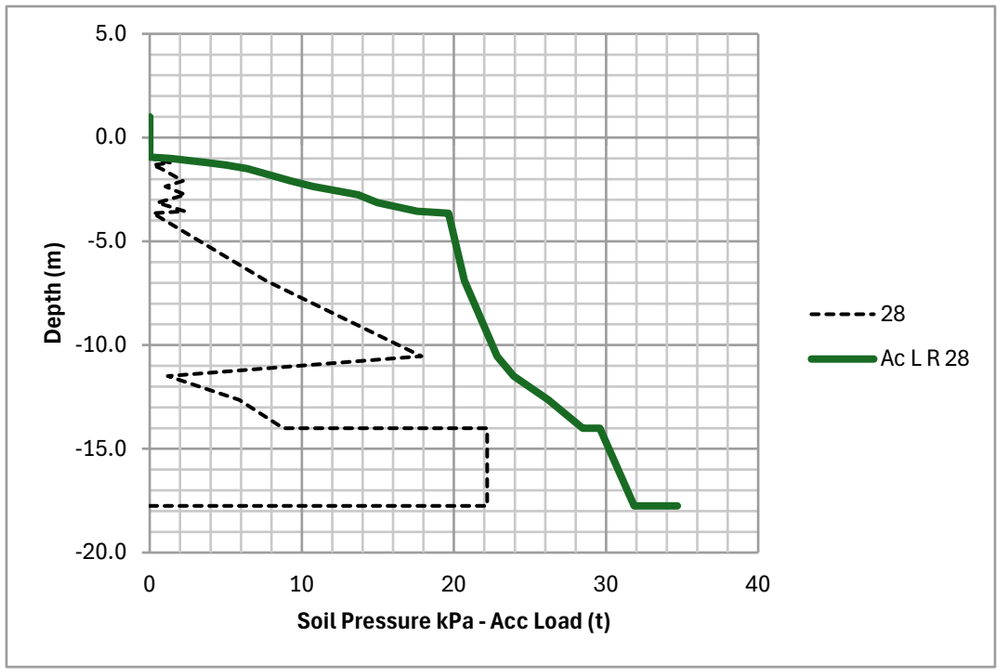
**Pile test No.** PILES_P12Y P112 **RawFile** PILES.28




Model

Table

Ajust Level




Integrity Testing Pty. Ltd. 64-bit-mod-Shock-Analysis-piles-rev33-BAE-ALL.xlsm Pole-04-Bali.EXE-22-04-21

Http://www.integritytestingservices.com Email: info@integritytestingservices.com

DUMP 1500 1000 30 0.6 3 0 1

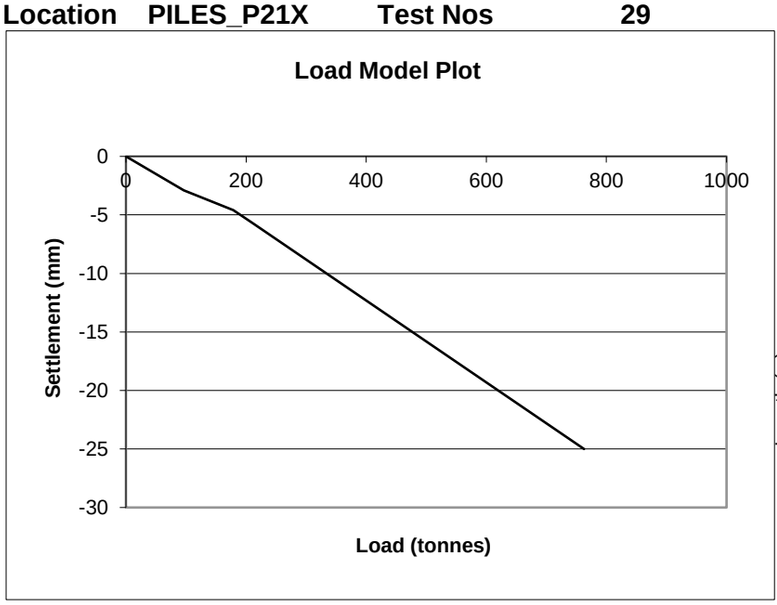
410.2 kN 8.8 Fail ISO 22477-10

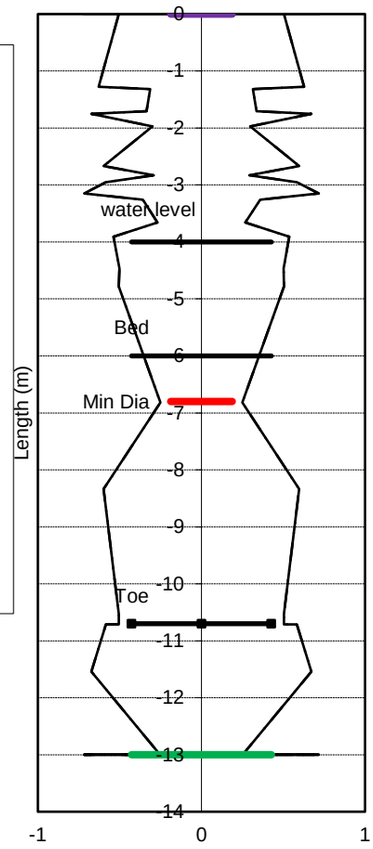
Photo

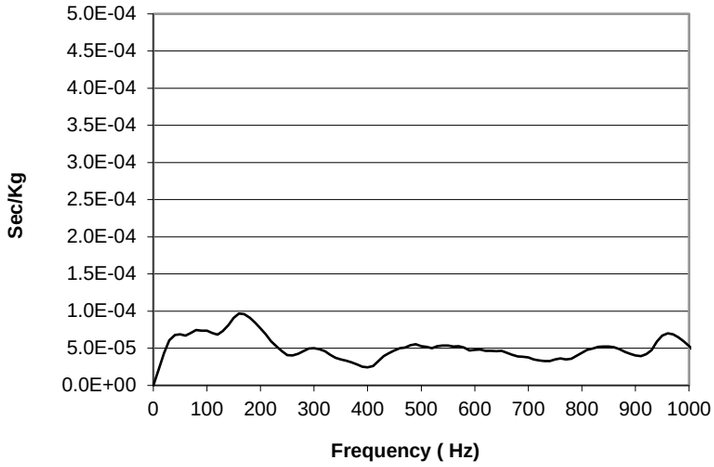
# Integrity Testing Pty. Ltd.
## ModShockPile

Table
Model

**Location** PILES_P21X **Test Nos** 29

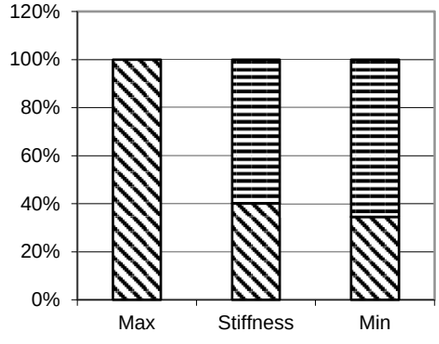


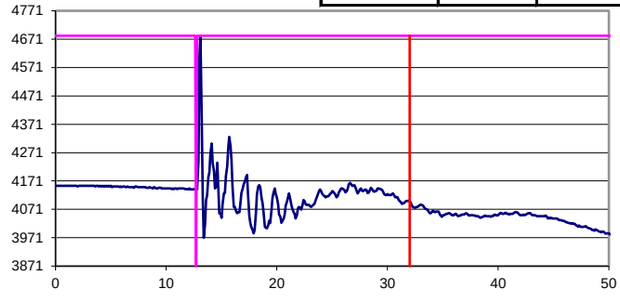




| Deflection | Load |
|---|---|
| 0.0 | 0.0 |
| 2.9 | 96.2 |
| 4.6 | 179.0 |
| 5.8 | 212.2 |
| 25.0 | 762.7 |

| | | |
|---|---|---|
| Deflection | 3 | mm |
| Load | 101.4 | tonne |




1650 Speed

**Results from Analysis of Modified Shock Test:** 1650

| | | | | | |
|---|---|---|---|---|---|
| **Length** | **10.7 m.** | | **Pile Diameter** | **950** | Seismic |
| **Depth to Reductions:** | | **6.8 m.** | **Water line** | | **19.3** |
| **Stiffness** | | **33.2 t/mm.** | **Min Diameter** | **501** | **15.9** |
| **max** | | **82.8 t/mm.** | **Remarks:** | **Reduced** | |
| **Min** | | **28.6 t/mm.** | **Category:** | **3.5** | |
| **Load Capacity @** | **3** | **101.4 tonnes** | | **PILES_P21X** | |


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# VISUAL INSPECTION OF PILES

**Client:** Lithgow **Location** Main Street

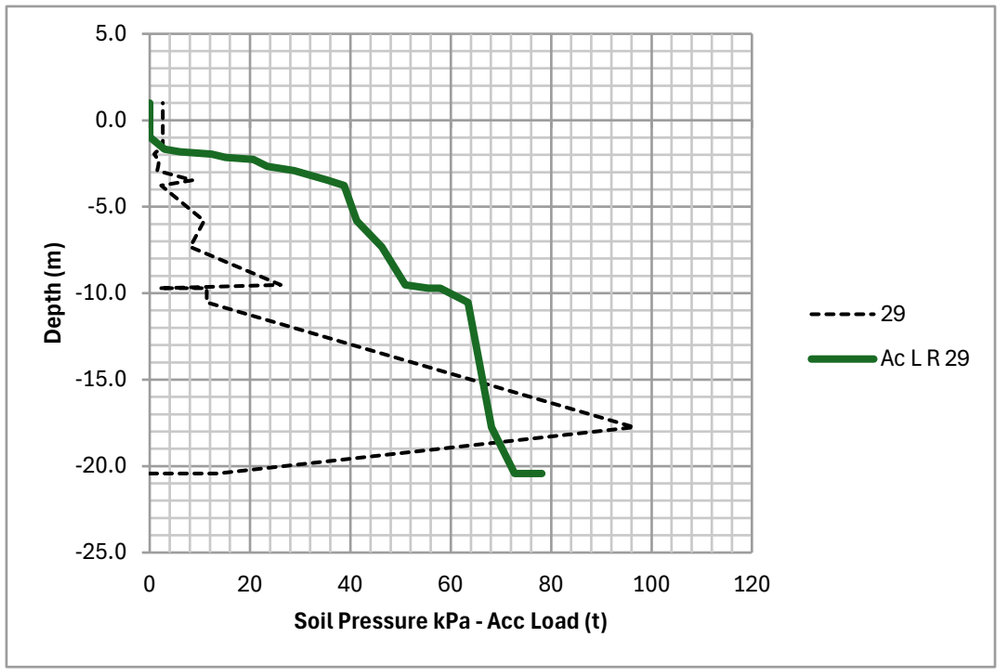
**Pile test No.** PILES_P21X P113 **RawFile** PILES.29




Model

Table

Ajust Level




Integrity Testing Pty. Ltd. 64-bit-mod-Shock-Analysis-piles-rev33-BAE-ALL.xlsm Pole-04-Bali.EXE-22-04-21

Http://www.integritytestingservices.com Email: info@integritytestingservices.com

DUMP 1500 1000 30 0.6 3 0 1

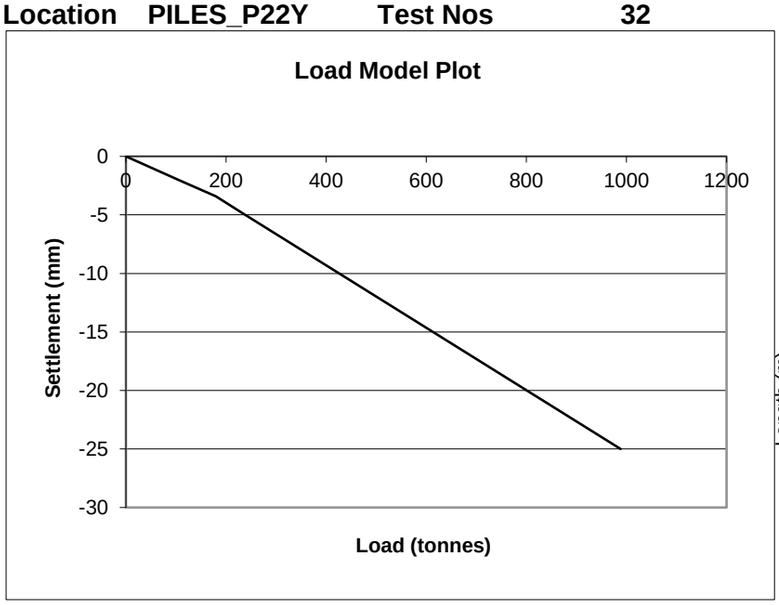
410.2 kN 7.7 Fail ISO 22477-10

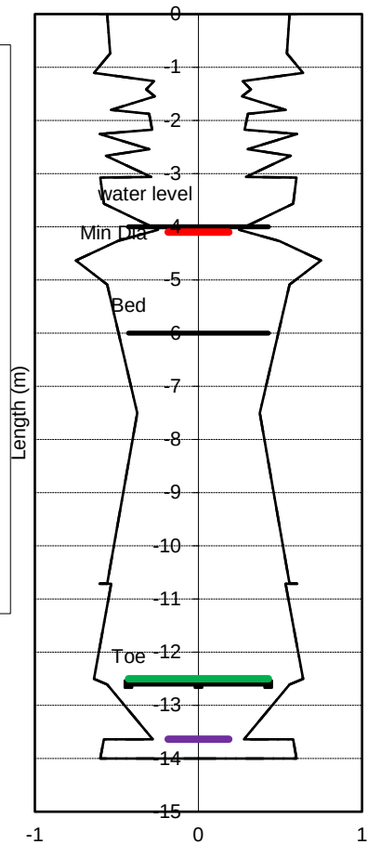
Photo

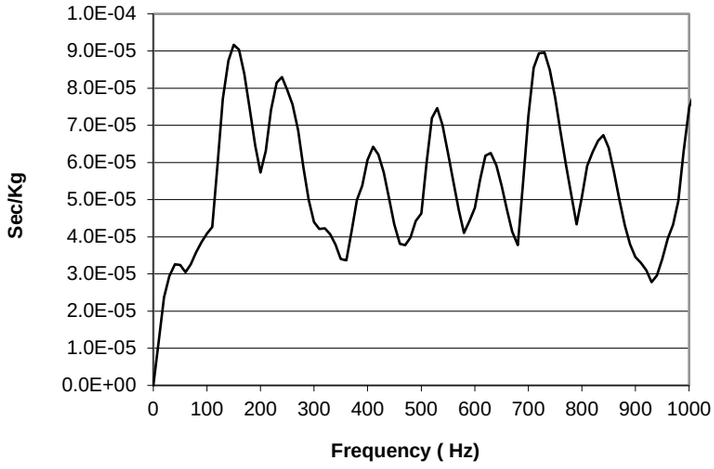
# Integrity Testing Pty. Ltd.
## ModShockPile

Table
Model

**Location** PILES_P22Y **Test Nos** 32

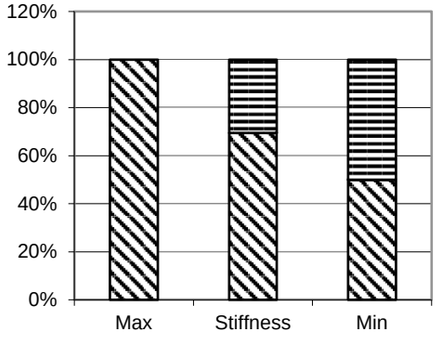


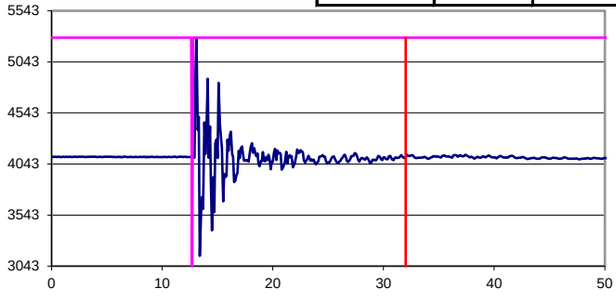




| Deflection | Load |
|---|---|
| 0.0 | 0.0 |
| 2.0 | 104.5 |
| 3.4 | 179.6 |
| 4.8 | 231.7 |
| 25.0 | 988.4 |

| | | |
|---|---|---|
| Deflection | 3 | mm |
| Load | 157.4 | tonne |




1650 Speed

**Results from Analysis of Modified Shock Test:** 1650

| | | | | | |
|---|---|---|---|---|---|
| **Length** | **12.6 m.** | | **Pile Diameter** | **950** | Seismic |
| **Depth to Reductions:** | | **4.1 m.** | **Water line** | | **19.3** |
| **Stiffness** | | **52.2 t/mm.** | **Min Diameter** | **494** | **15.9** |
| **max** | | **75.1 t/mm.** | **Remarks:** | **Serviceable** | |
| **Min** | | **37.5 t/mm.** | **Category:** | **3.0** | |
| **Load Capacity @** | **3** | **157.4 tonnes** | | **PILES_P22Y** | |


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# VISUAL INSPECTION OF PILES

**Client:** Lithgow **Location** Main Street

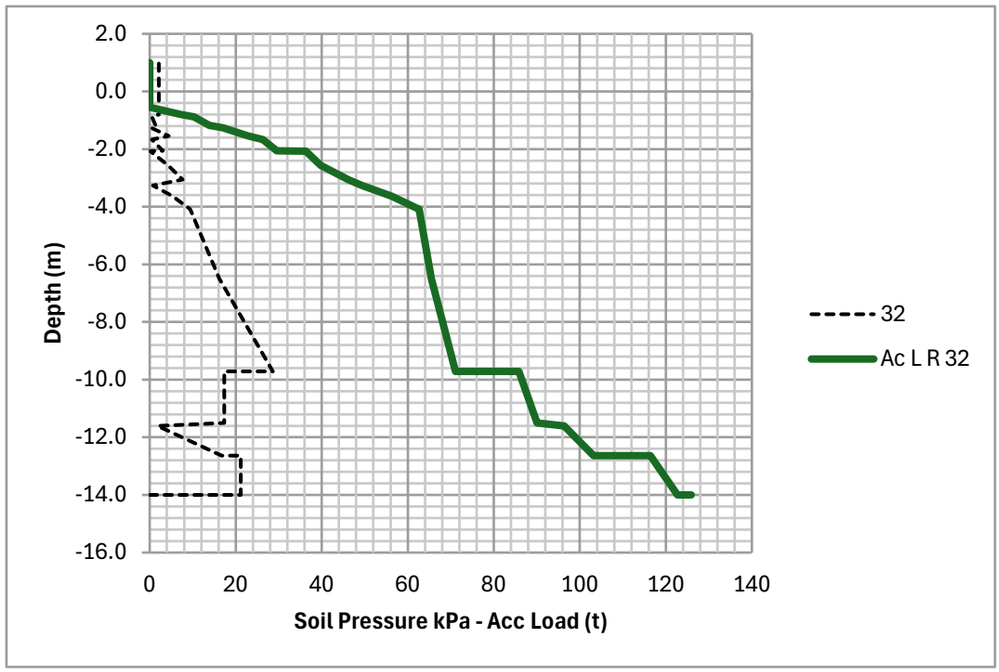
**Pile test No.** PILES_P22Y P116 **RawFile** PILES.32




Model

Table

Ajust Level




Integrity Testing Pty. Ltd. 64-bit-mod-Shock-Analysis-piles-rev33-BAE-ALL.xlsm Pole-04-Bali.EXE-22-04-21

Http://www.integritytestingservices.com Email: info@integritytestingservices.com

DUMP 1500 1000 30 0.6 3 0 1

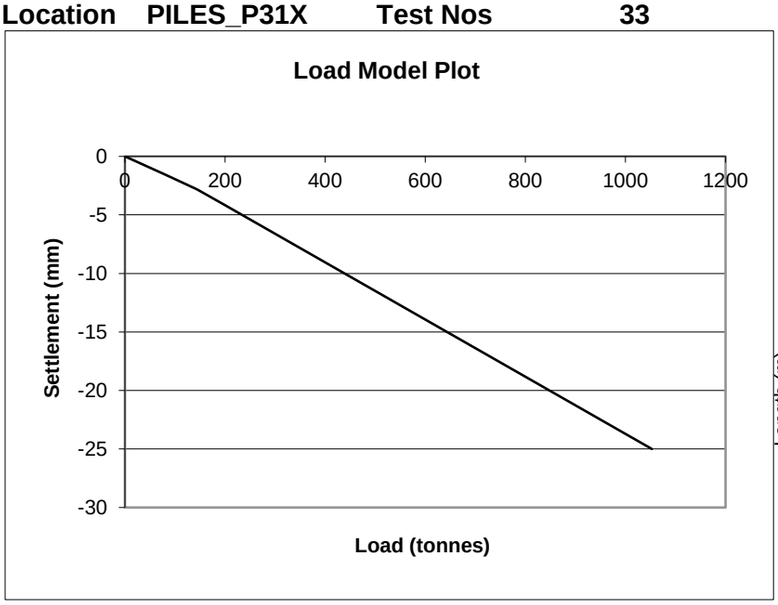
410.2 kN 11.0 Complies ISO 22477-10

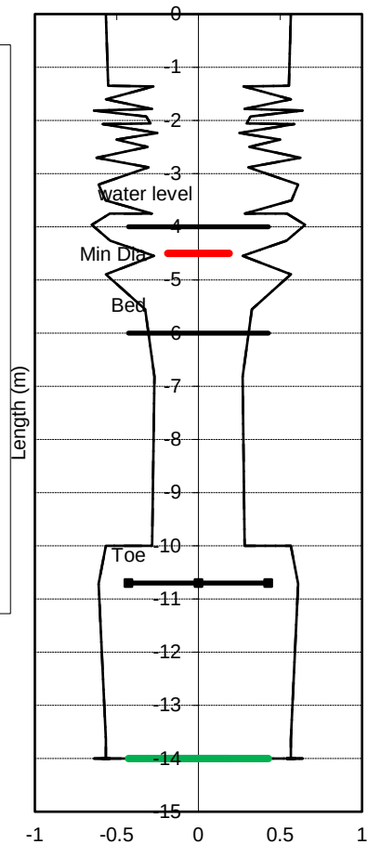
Photo

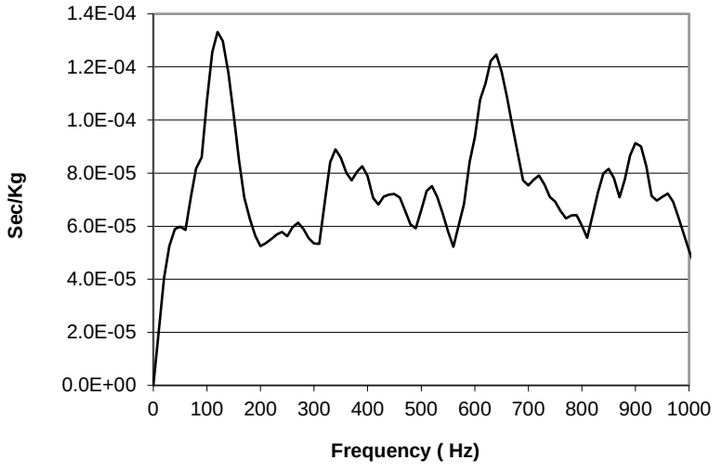
# Integrity Testing Pty. Ltd.
## ModShockPile

Table
Model

**Location** PILES_P31X **Test Nos** 33

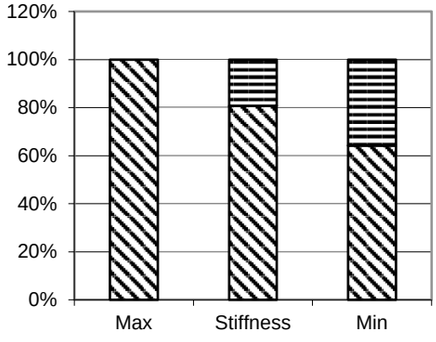


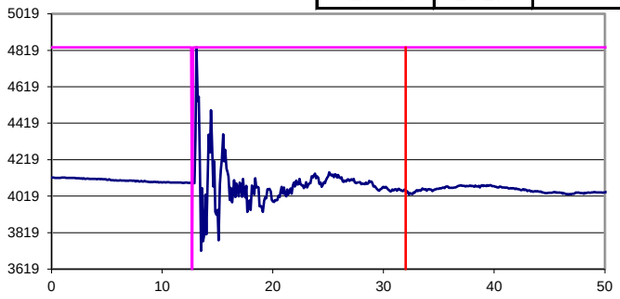




| Deflection | Load |
|---|---|
| 0.0 | 0.0 |
| 1.6 | 80.2 |
| 2.8 | 144.0 |
| 4.1 | 195.5 |
| 25.0 | 1052.8 |

| | | |
|---|---|---|
| Deflection | 3 | mm |
| Load | 151.9 | tonne |




1650 Speed

1650

**Results from Analysis of Modified Shock Test:**

| | | | | | |
|---|---|---|---|---|---|
| **Length** | **10.7 m.** | | **Pile Diameter** | **950** | Seismic |
| **Depth to Reductions:** | | **2.2 m.** | **Water line** | | **19.3** |
| **Stiffness** | | **51.5 t/mm.** | **Min Diameter** | **501** | **15.9** |
| **max** | | **63.8 t/mm.** | **Remarks:** | **Serviceable** | |
| **Min** | | **40.9 t/mm.** | **Category:** | **3.0** | |
| **Load Capacity @** | **3** | **151.9 tonnes** | | **PILES_P31X** | |


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# VISUAL INSPECTION OF PILES

**Client:** Lithgow **Location** Main Street

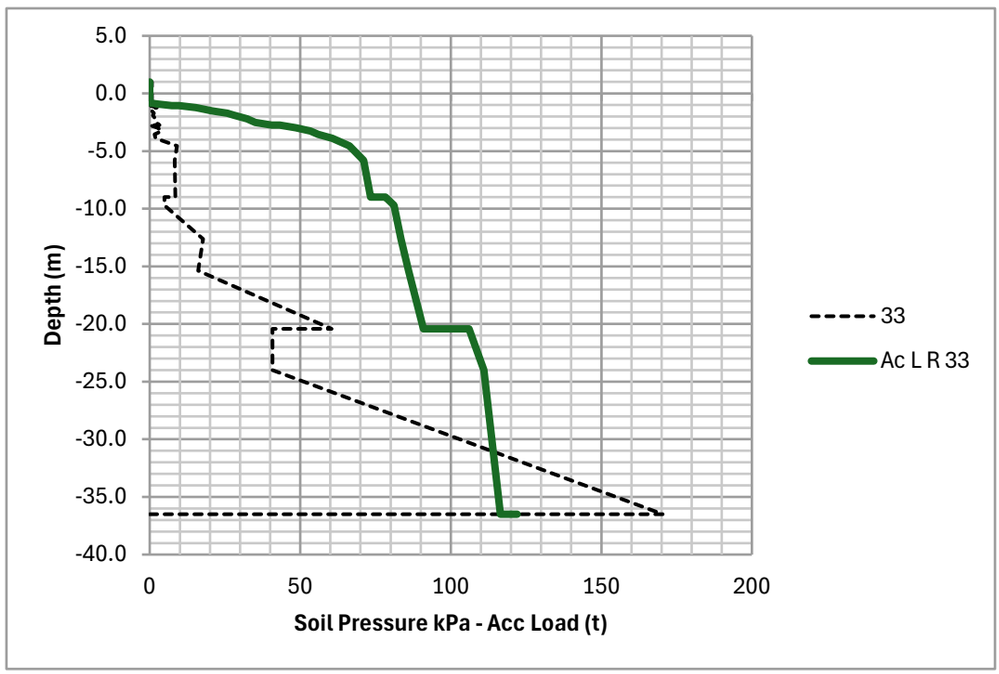
**Pile test No.** PILES_P31X P117 **RawFile** PILES.33




Model

Table

Ajust Level




Integrity Testing Pty. Ltd. 64-bit-mod-Shock-Analysis-piles-rev33-BAE-ALL.xlsm Pole-04-Bali.EXE-22-04-21

Http://www.integritytestingservices.com Email: info@integritytestingservices.com

DUMP 1500 1000 30 0.6 3 0 1

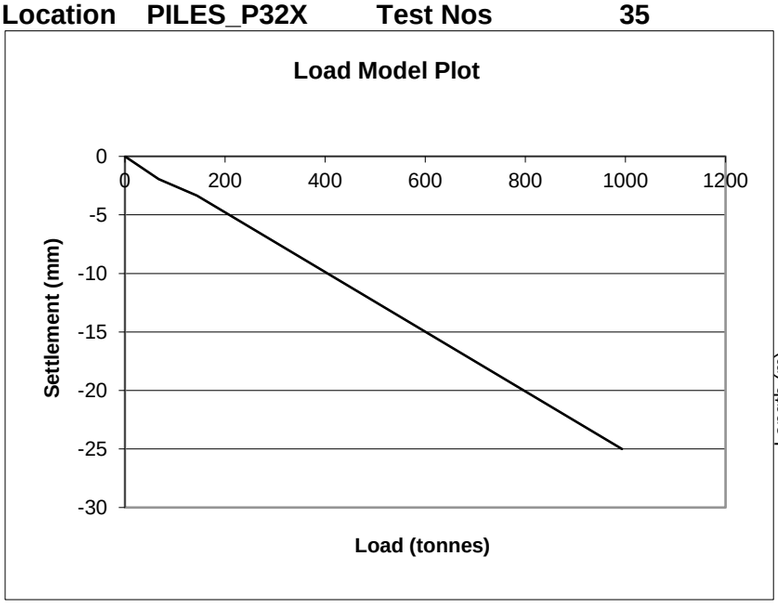
410.2 kN 4.4 Fail ISO 22477-10

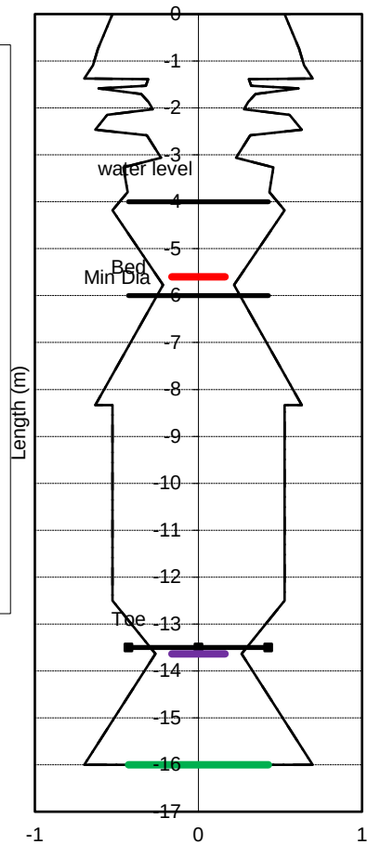
Photo

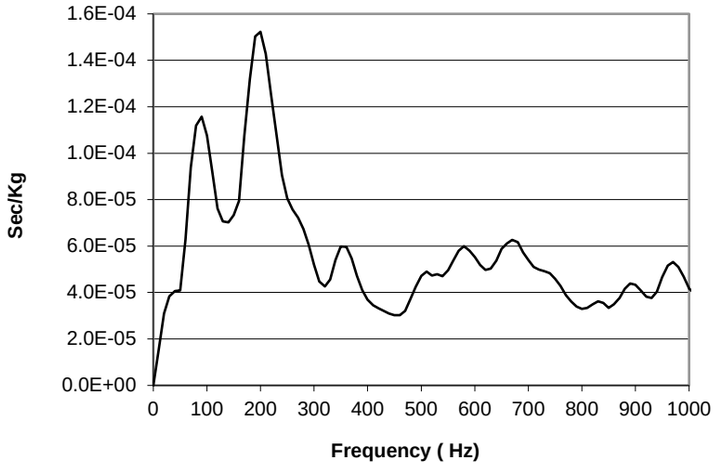
# Integrity Testing Pty. Ltd.
## ModShockPile

Table
Model

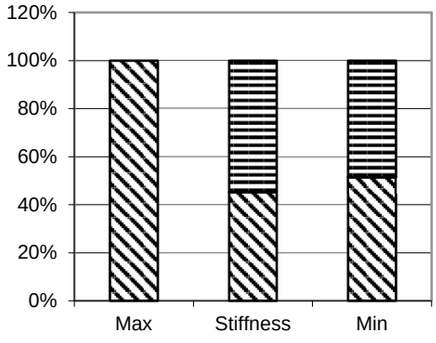
**Location** PILES_P32X **Test Nos** 35

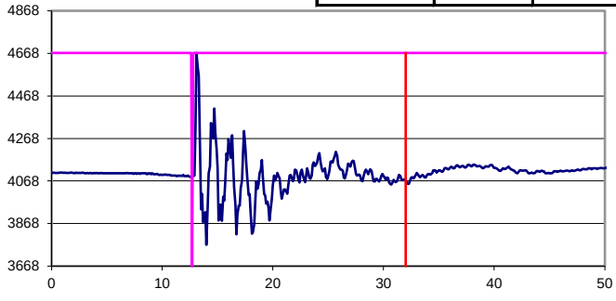



| | Deflection | Load |
|---|---|---|
| | 0.0 | 0.0 |
| | 1.9 | 67.3 |
| | 3.3 | 143.7 |
| | 4.2 | 178.3 |
| | 25.0 | 993.0 |
| Deflection | 3 | mm |
| Load | 124.9 | tonne |




1650 Speed

**Results from Analysis of Modified Shock Test:** 1650

| | | | | | |
|---|---|---|---|---|---|
| **Length** | **13.5 m.** | | **Pile Diameter** | **950** | Seismic |
| **Depth to Reductions:** | | **5.8 m.** | **Water line** | | **19.3** |
| **Stiffness** | | **34.6 t/mm.** | **Min Diameter** | **433** | **15.9** |
| **max** | | **76.4 t/mm.** | **Remarks:** | **Reduced** | |
| **Min** | | **39.2 t/mm.** | **Category:** | **3.5** | |
| **Load Capacity @** | **3** | **124.9 tonnes** | | **PILES_P32X** | |


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# VISUAL INSPECTION OF PILES

**Client:** Lithgow **Location** Main Street

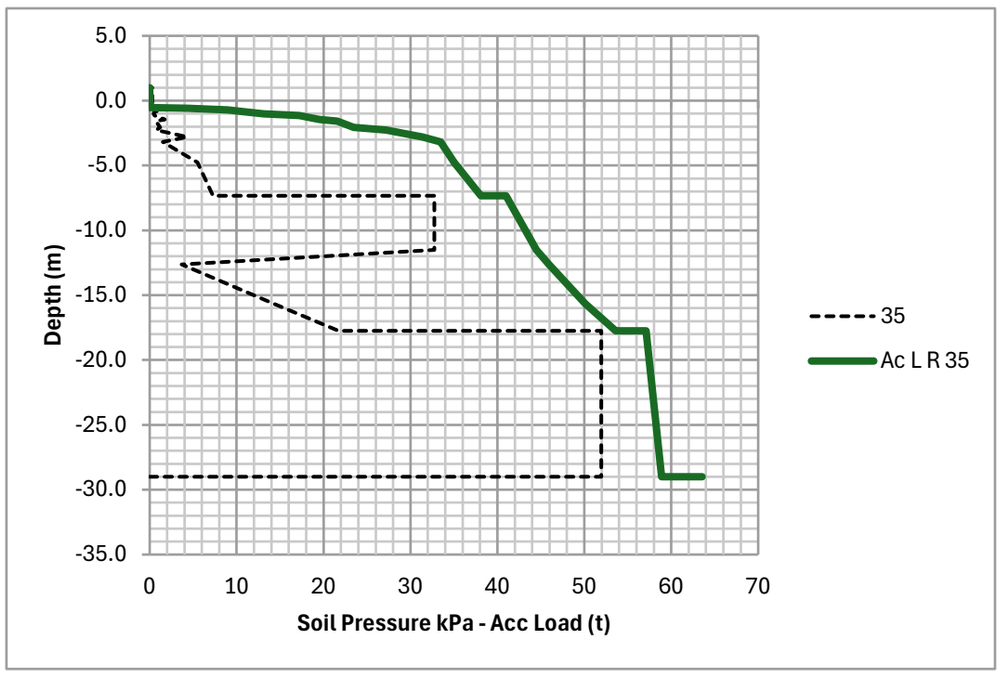
**Pile test No.** PILES_P32X P119 **RawFile** PILES.35



Model

Table

Ajust Level




Integrity Testing Pty. Ltd. 64-bit-mod-Shock-Analysis-piles-rev33-BAE-ALL.xlsm Pole-04-Bali.EXE-22-04-21

Http://www.integritytestingservices.com Email: info@integritytestingservices.com

DUMP 1500 1000 30 0.6 3 0 1

410.2 kN 5.5 Fail ISO 22477-10

# Appendix E

Response to Transport for NSW

Figure E.1 - Feedback received from TfNSW

**From:** Nav Prasad (TRAFFIC SAFETY) <Nav.Prasad2@transport.nsw.gov.au>
**Sent:** Thursday, 6 August 2026 2:36 PM
**To:** Clare Moore <Clare.Moore@zinfra.com.au>
**Cc:** Aleks Tancevski <Aleks.Tancevski@transport.nsw.gov.au>; Brendan Pegg <brendan.j.pegg@transport.nsw.gov.au>; Development Renewables <development.renewables@transport.nsw.gov.au>; James Hall <James.HALL@transport.nsw.gov.au>; Alexandra Long <Alexandra.Long@transport.nsw.gov.au>; Rachel Cumming <rachel.cumming@transport.nsw.gov.au>
**Subject:** FW: Mt Piper to Wallerawang: TTMP

Hi Clare,

Thank you for submitting the Traffic and Transport Management Plan (**TTMP**) for the Mount Piper to Wallerawang Transmission Line Upgrade for TfNSW review.

TfNSW has completed its review and provides the following comments for your consideration:

- For any activities that impact the state road network, Road Occupancy Licences (**ROL**) must be obtained through the Transport Management Centre (**TMC**). As part of the ROL application process, site-specific Traffic Guidance Schemes (**TGS**) will be required for TfNSW review and endorsement. All Traffic Guidance Schemes must be prepared in accordance with the TfNSW Traffic Control at Work Sites (TCAWS) Manual.
- Relevant local councils must be consulted regarding impacts to regional and local roads, including any proposed Oversize Overmass (**OSOM**) vehicle movements on these roads, and to provide comments on site access locations within the non-classified road network.
- Appropriate notification should be provided to the freight industry to ensure stakeholders are aware of any impacts, restrictions, or changes to operating conditions.
- In relation to access directly from Castlereagh Highway (Site Access 3 and Site Access 10 - Greenspot Gate 1), TfNSW notes that sight distance constraints restrict these access points to left-in/left-out movements only for construction vehicles. This restriction is proposed to be enforced through the installation of No Right Turn signage with a supplementary Construction Vehicles plates. Whilst TfNSW is supportive of this arrangement, TfNSW recommends that:
  - The signs be included within the site-specific TGS plans, and
  - Communication of approved construction traffic routes and access arrangements through site inductions and toolbox talks for all construction personnel and subcontractors.
- As part of the TGS required for ROLs associated with road closures, TfNSW recommends development of a Variable Message Sign (VMS) Plan to provide advance notice of upcoming road closures and changed traffic conditions. VMS messages should be limited to a maximum of two display screens.
- TfNSW notes that the proposed OSOM route remains under investigation. Following completion of the detailed structural assessments and finalisation of the OSOM arrangements, the final OSOM Traffic Management Plan should be submitted to TfNSW for review and endorsement.

Should you have any questions regarding these comments, please contact me via email at development.renewables@transport.nsw.gov.au.

Regards

**Nav Prasad**
Land Use Planner
Transport Planning
Planning, Integration and Passenger
**Transport for NSW**

Figure E.2 - Summary of updates made to plan sent to TfNSW

Zhou, William<William.Zhou@wsp.com>

Reply Reply all Forward

To: Nav.Prasad2@transport.nsw.gov.au; development.renewables@transport.nsw.gov.au

Fri 7/08/2026 6:05 PM

Cc: Prudence Inwood; Jade Cerfontyne; Rahul Dorairaj <Rahul.Dorairaj@jemena.com.au>; Karl Littlemore <karl.littlemore@zinfra.com.au>

**[External email]** This email was sent from outside Aurecon. Do not click links or open attachments unless you were expecting the email and know that the content is safe.

Hi Nav,

Thanks for the feedback.

Please see response in table below, noting where we've addressed it in our updated TTMP.

| TfNSW advice from 6th August | Response | Where addressed in updated TTMP |
|---|---|---|
| For any activities that impact the state road network, Road Occupancy Licences (ROL) must be obtained through the Transport Management Centre (TMC). As part of the ROL application process, site-specific Traffic Guidance Schemes (TGS) will be required for TfNSW review and endorsement. All Traffic Guidance Schemes must be prepared in accordance with the TfNSW Traffic Control at Work Sites (TCAWS) Manual. | As discussed, on 26th June with TfNSW, a ROL will be submitted at a later date (detailing any changes in speed environment and live traffic info), and will follow the notification process.<br><br>As part of this, Temporary Traffic Management Plan (set up of the speed zone reductions and signage for the locations, if needed) will be produced accompanied by relevant Traffic Guidance Schemes, according to TCAWS (Traffic control at work sites). | Section 6.6.2 Oversize Overmass vehicle permit requirements |
| Relevant local councils must be consulted regarding impacts to regional and local roads, including any proposed Oversize Overmass (OSOM) vehicle movements on these roads, and to provide comments on site access locations within the non-classified road network. | Lithgow City Council is the relevant local council. They were consulted on 27th May 2026, regarding impacts to regional & local roads, including OSOM movements and access tracks (non public road network) and our proposed mitigations. Council sent a consolidated query list on 1st July 2026 regarding any further questions, which we have answered back on 3rd July 2026. | Section 6.6.4 Lithgow City Council approvals<br>Section 6.7 Consultation<br>Section 6.7.2 Lithgow City Council<br>Appendix B Response to Lithgow City Council |
| Appropriate notification should be provided to the freight industry to ensure stakeholders are aware of any impacts, restrictions, or changes to operating conditions. | Live traffic information and changes in speed environment will be provided, as part of applying for ROL. | Section 6.6.1 Road Occupancy Licence requirements<br>Section 6.6.2 Oversize Overmass vehicle permit requirements |
| In relation to access directly from Castlereagh Highway (Site Access 3 and Site Access 10 - Greenspot Gate 1), TfNSW notes that sight distance constraints restrict these access points to left-in/left-out movements only for construction vehicles. This restriction is proposed to be enforced through the installation of No Right Turn signage with a supplementary Construction Vehicles plates. Whilst TfNSW is supportive of this arrangement, TfNSW recommends that:<br>• The signs be included within the site-specific TGS plans, and<br>• Communication of approved construction traffic routes and access arrangements through site inductions and toolbox talks for all construction personnel and subcontractors | Signage arrangements for No Right Turns (for construction vehicles) have been illustrated at these locations:<br>• Site Access 3 (Castlereagh Highway & Karawatha Drive)<br>• Site Access 10 - Greenspot Gate 1<br>Since there is nothing being constructed at these two intersections, there are no relevant TGS plans at these two intersections.<br><br>Communication via inductions and toolbox talks are discussed in Section 6.4.1 (Monitoring program). | Section 6.4.1 Monitoring program |
| As part of the TGS required for ROLs associated with road closures, TfNSW recommends development of a Variable Message Sign (VMS) Plan to provide advance notice of upcoming road closures and changed traffic conditions. VMS messages should be limited to a maximum of two display screens. | As mentioned above, the ROL will be submitted at a later date, and that it will contain this information.<br><br>These have been mentioned in the updated Traffic & Transport Management Plan. | Section 6.6.1 Road Occupancy Licence requirements |
| TfNSW notes that the proposed OSOM route remains under investigation. Following completion of the detailed structural assessments and finalisation of the OSOM arrangements, the final OSOM Traffic Management Plan should be submitted to TfNSW for review and endorsement. | The only road structure (that is not currently approved for the proposed OSOM load) that needs further detailed structural assessment for OSOM vehicles will be the Main Street bridge over Cox River.<br><br>An assessment has been undertaken by structural assessors, who were nominated by Lithgow City Council, which has determined the structure suitable provided the proposed OSOM vehicle stays within the proposed axle limits.<br><br>The OSOM Transport Management Plan (separate to this Traffic & Transport Management Plan, as discussed in Section 6.6.2) will include this detailed structural assessment when it is provided to TfNSW. | Appendix C Detailed structural assessment of Main Street Bridge over Cox River, for OSOM vehicle |

Regards,

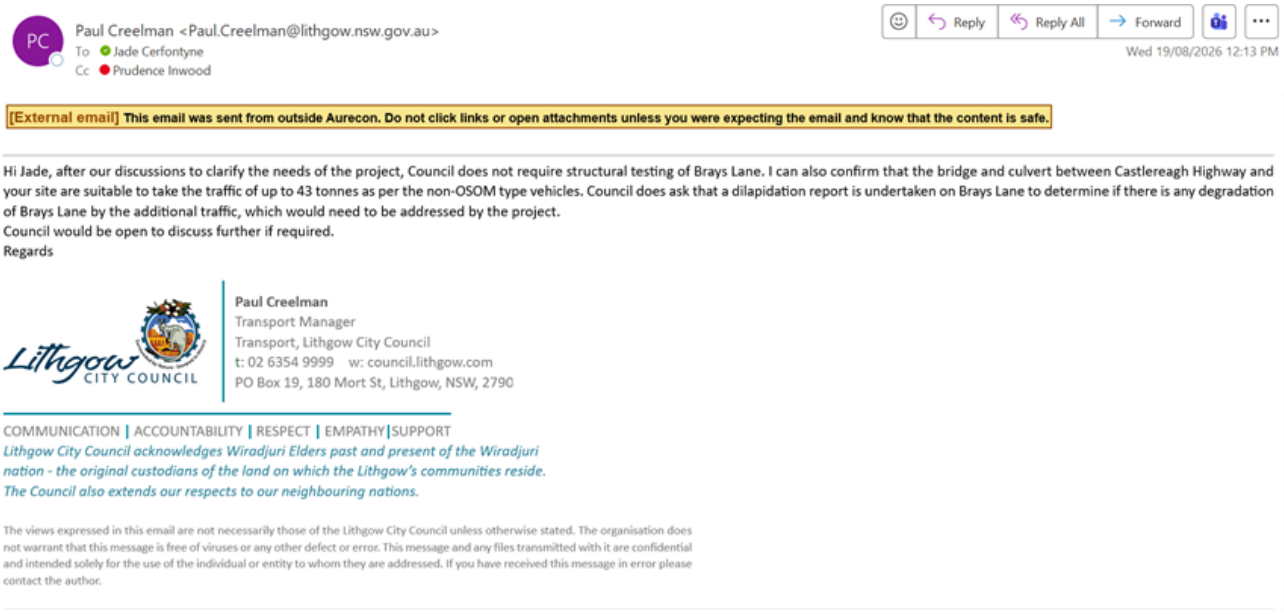
**William Zhou**
Senior Transport Engineer

# Appendix F

Flood Emergency Response Plan

# Appendix G

Council correspondence regarding Brays Lane Structures



Paul Creelman <Paul.Creelman@lithgow.nsw.gov.au>
To Jade Cerfontyne
Cc Prudence Inwood

Reply | Reply All | Forward
Wed 19/08/2026 12:13 PM

[External email] This email was sent from outside Aurecon. Do not click links or open attachments unless you were expecting the email and know that the content is safe.

Hi Jade, after our discussions to clarify the needs of the project, Council does not require structural testing of Brays Lane. I can also confirm that the bridge and culvert between Castlereagh Highway and your site are suitable to take the traffic of up to 43 tonnes as per the non-OSOM type vehicles. Council does ask that a dilapidation report is undertaken on Brays Lane to determine if there is any degradation of Brays Lane by the additional traffic, which would need to be addressed by the project.
Council would be open to discuss further if required.
Regards

Lithgow CITY COUNCIL

**Paul Creelman**
Transport Manager
Transport, Lithgow City Council
t: 02 6354 9999 w: council.lithgow.com
PO Box 19, 180 Mort St, Lithgow, NSW, 2790

COMMUNICATION | ACCOUNTABILITY | RESPECT | EMPATHY | SUPPORT
*Lithgow City Council acknowledges Wiradjuri Elders past and present of the Wiradjuri nation - the original custodians of the land on which the Lithgow's communities reside. The Council also extends our respects to our neighbouring nations.*

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