Statement of Advice

610.30882.00002-SoW01-APS Shed Expansion.docx

Response to Council RFI – Traffic Engineering Matters

CLIENT: Harry Egan	**DATE:** 22 July 2024
SLR PROJECT No: 610.30882.00002	**REVISION:** v1.0
AUTHOR: Charlie Seventekin	**REVIEWER:** Kris Stone

1.0 Introduction

SLR Consulting Australia was engaged by Aurizon Port Services (The Applicant, Aurizon or APS) to prepare a Traffic Impact Assessment (TIA) report in 2023 for their proposed expanded operations at their Port of Newcastle facility.

The State Significant Application was lodged in 2023 and accompanied by SLR's TIA report dated 02/11/2023 ref: *"610.30882.00000-R01-v2.3 APS Shed Expansion TIA"*.

2.0 Council Request for Information (RFI)

It is understood that the Department of Planning, Housing, and Infrastructure (DPHI) invited the City of Newcastle (CN) to comment on the development application.

This letter refers to the traffic and transport-specific comments outlined in Council's RFI dated 13/05/2024 ref: SDC2023/0007, which is enclosed in **Appendix A**.

3.0 Relevant Conditions of the RFI

Clause 2 of the Council's RFI letter is replicated in **Table 1** below.

Table 1 Relevant Items in Council's RFI Letter

RFI Item	City of Newcastle RFI Text
2. Traffic Impacts	The additional information submitted included an updated Traffic Impact Assessment which according to the covering letter prepared by Ethos Urban provides "… more accurate estimate of potential daily peak vehicle distribution of 20 inbound trucks and 20 outbound trucks a day (total of 40 days a day), which represents the maximum handling and processing capacity of the facility." The key figures of the truck movement information appear to contradict each other. Table 4-Forecast Truck Movements of the updated TIA indicates 3,400 return trips a year based on seven-day operation over 50 weeks, hence 68 return trips a week. This means that over a year a total of 6,800 road trips will occur. This rate equates to 9.7 (approximately 10) return trips per day (i.e. 10 inbound and 10 outbound). However, based on peak daily of 20 return trips (i.e. 40 trips per day), as

RFI Item	City of Newcastle RFI Text
	indicated in the TIA, the annual return trips equate to 7,000 return trips - (20 x7 (days) x 50 (weeks)), thus 14,000 road trips overall per year. On a daily truck movement basis, the TIA indicates a substantially higher (i.e. double the number of truck movements) when compared to the informed yearly truck movements. Further, during the peak hours (assumed to be at least two hours) there will be 16 vehicles/hour (8 in and 8 out). These figures are a significant increase in the number of truck movements from the approximately four trucks per hour (2 in and 2 out) stated in the original TIA. Concern is raised that based on the daily 20 return trips (40 truck movement per day), the overall increase may impact on-road traffic and intersection operations. It is recommended that additional traffic modelling is undertaken of the likely impacts of the above additional movements on key intersections. It is considered that the peak traffic generated by this development must be approached with a conservative approach and cumulative traffic impacts (existing and proposed plus future projections) must be addressed. Overall, the development must provide justification for the increase in truck movements. It is recommended the applicant is required respond to the above concerns.

4.0 SLR Response to Council's Comment

4.1 Daily Trip Generation Potential of the Proposed Development

4.1.1 Average Daily Traffic

Based on the proposed 85,000 tonnes of cement per annum and the conservatively assumed 25 tonnes of cement per ISO bulk powder tank, it has been identified that a total of 3,400 return trips would be required per annum. This would mean 6,800 single truck movements will occur between East Coast Cement and the Port of Newcastle (i.e. 3.400 inbound movements and 3,400 outbound movements).

As also acknowledged by the Council in their RFI text, based on 50 weeks of operation per year and 7 days of operation per week, this would equate to 136 trips per week and 19.42 (approximately 20) trips per day. As stated in SLR's TIA report, this is consistent with ten inbound and ten outbound trips (i.e. 20 trips) across a typical day.

However, SLR is of the view that the Council did not appreciate that these are average traffic volumes across the year and that the truck movements may not be perfectly consistent (non-linear) on a daily basis.

4.1.2 Peak Daily Traffic

Consistent with the relevant Transport for New South Wales (TfNSW) guidelines, it is not uncommon to also identify peak daily and/ or hourly traffic volumes for development applications. TfNSW requires the identification of peak movements as part of SSD applications, which has recently become a more-or-less standard process.

For completeness in the traffic assessment, SLR liaised with the Applicant to understand the MAXIMUM traffic this development could generate in addition to the AVERAGE traffic documented in **Section 4.1.1**.

Based on this, the Applicant informed SLR that there may be days when the truck movements could double the average values. This equates to 40 trips (20 inbound and 20 outbound). Although this will not be a frequent occurrence, it is possible that some days may result in greater traffic than the average days. Similarly, there will be days when the truck movements will be less than the average values.

Additional discussions were also undertaken with the Applicant to clarify the proportion of trips made during peak hours. Based on very conservative assumptions, the Applicant has indicated that it is less likely but possible to observe eight inbound and eight outbound truck movements during the peak hour of operations on a peak day. Based on this, TABLE 4 in SLR's TIA report indicated that peak-hour trips could possibly be as high as 16 truck movements in one hour of the day.

Based on the above, SLR confirms that the statement above is consistent with SLR's TIA report that accompanied the SSD application. Furthermore, the TIA already adopts a conservative estimate of truck movements in the peak hour; hence, additional conservatism is not warranted.

Table 2 below provides a summary of this discussion. Please note that decimal values have been rounded up.

Table 2 Summary of Anticipated Heavy Vehicle Movements

Scenario	Annual	Weekly (50 a year)	Daily (7 a week)	Hourly (9 a day)
Average	3,400 inbound + 3,400 outbound	68 inbound + 68 outbound	10 inbound + 10 outbound	2 inbound + 2 outbound
Peak	3,400 inbound + 3,400 outbound	68 inbound + 68 outbound	20 inbound + 20 outbound	8 inbound + 8 outbound

4.2 Request for Traffic Modelling

As above in **Section 4.1.2**, it has been identified that, in the worst-case scenario, there could be eight inbound and eight outbound truck movements during the peak hour. Given that inbound and outbound movements will take place on different sides of the carriageway (in terms of direction), this equates to one truck movement every 7.5 minutes per direction.

The average cycle time in Australia is approximately 90 seconds (1.5 minutes) for medium-sized intersections and approximately 150 seconds (2.5 minutes) for large intersections. In the most conservative scenario (at a medium-sized intersection), this would equate to one additional truck movement every three signal cycles.

Based on our professional judgment, one additional truck movement every three cycles is very low and would not give rise to a material impact on existing or future traffic operations. The preparation of additional traffic modelling and analysis for a development of this scale would therefore yield no material benefit from a traffic engineering perspective.

Appendix A Council's RFI Letter

Planning, Transport & Regulation. ARyan/GMansfield
Reference: SDC2023/0007
Phone: 02 49742492

13 May 2024

Tom Bertwistle
Senior Environmental Assessment Officer
Industry Assessments
Department of Planning Housing and Infrastructure
12 Darcy Street
PARRAMATTA NSW 2150

Submission via email: thomas.bertwistle@planning.nsw.gov.au

Dear Tom Bertwistle

AURIZON PORT FACILITY STORAGE CHANGES AND INCREASES (DA-339886) 7 BULLOCK ROAD CARRINGTON

I refer to the Department of Planning, Housing, and Infrastructure (DPHI) email of 24 April 2024 advising Ethos Urban, on behalf of Aurizon Port Services (the applicant), has submitted additional information responding to the issues raised in City of Newcastle's (CN) letter of 3 August 2023. The DPHI has invited CN to provide comment on the additional information provided.

The additional information comprises the following:

- Letter dated 23 April 2024 prepared by Ethos Urban.
- Table 1 -Responses to submissions and comments made by public agencies and CN.
- Attachment A -Noise Impact Assessment Addendum (NIAA).
- Attachment B -Updated Traffic Impact Assessment (UTIA).

The above information has been reviewed, and the following advice is provided for your consideration:

1. **Designated Development**

It has not been adequately demonstrated that the proposal does not constitute a '*shipping facilities'* and designated development under Schedule 3 of the *Environmental Planning and Assessment Regulation 2021 (EP&AR).*

The applicants detail in Table 1 that the land use purpose of the development has been characterised as a 'Port Facility' and it is argued that such a facility does not trigger any of the designated development types listed in Schedule 3. The applicant submits that the proposal, as *'port facilities',* cannot be a *designated development* as *'shipping facility'* because the definition of *'wharf or boating facilities'* excludes 'port facilities' as discussed below.

Under the standard instrument, *'wharf and boating facilities'* and '*port facilities'* are defined as follows:

wharf or boating facilities *means a wharf or any of the following facilities associated with a wharf or boating that are not port facilities—*

(a) facilities for the embarkation or disembarkation of passengers onto or from any vessels, including public ferry wharves,
(b) facilities for the loading or unloading of freight onto or from vessels and associated receival, land transport and storage facilities,
(c) wharves for commercial fishing operations,
(d) refuelling, launching, berthing, mooring, storage or maintenance facilities for any vessel,
(e) sea walls or training walls,
(f) administration buildings, communication, security and power supply facilities, roads, rail lines, pipelines, fencing, lighting or car parks.

port facilities *means any of the following facilities at or in the vicinity of a designated port within the meaning of section 47 of the Ports and Maritime Administration Act 1995—*

(a) facilities for the embarkation or disembarkation of passengers onto or from any vessels, including public ferry wharves,
(b) facilities for the loading or unloading of freight onto or from vessels and associated receival, land transport and storage facilities,
(c) wharves for commercial fishing operations,
(d) refuelling, launching, berthing, mooring, storage or maintenance facilities for any vessel,
(e) sea walls or training walls,
(f) administration buildings, communication, security and power supply facilities, roads, rail lines, pipelines, fencing, lighting or car parks.

Further, there is a slightly different definition of *'port facilities*' under Clause 5.2 -Definitions of Chapter 5 Three Ports of State Environmental Planning Policy (Transport and Infrastructure) 2021, on which the applicant intends to rely, as follows:

port facilities *means facilities on land in the Lease Area, or the Intertrade Industrial Park, used in connection with the carrying of freight and persons by water from one port to another for business or commercial purposes, and includes any of the following—*

(a) facilities for the embarkation or disembarkation of passengers onto or from any vessels, including public ferry wharves,
(b) facilities for the loading or unloading of freight onto or from vessels and freight receival, processing, land transport and storage facilities,
(c) wharves for commercial fishing operations,
(d) refuelling, launching, berthing, mooring, storage or maintenance facilities for any vessel,
(e) sea walls or training walls,
(f) administration and port operations buildings and facilities,
(g) communication, security and safety facilities,
(h) utilities and services, road and rail infrastructure, pipelines and car parks.

freight *is defined as means any item, goods or produce being transported and includes containers (whether empty or otherwise), gases, livestock, liquids, minerals, plant and equipment, raw materials, vehicles and vessels.*

The exclusion of port facilities from the definition of *'wharf or boating facilities'* may solely be related to the provisions of the *Ports and Maritime Administration Act 1995,* as the two definitions are otherwise very similar. It is noted that none of these definitions excludes *'shipping facilities'*. Such facilities are defined under schedule 3 of the EP&AR as follows:

Shipping facilities

Development for the purposes of a wharf or wharf-side facility is designated development if cargo is loaded onto or unloaded from vessels, or temporarily stored, at the wharf or facility at a rate of more than—

(a) for a wharf or facility handling goods classified in the ADG Code—
i) 150 tonnes per day, or,
(ii) 5,000 tonnes per year, or
(b) otherwise—
(i) 500 tonnes per day, or
(ii) 50,000 tonnes per year.

Based on the above definitions, it is CN's view that the proposal still potentially triggers *designated development.* That these definitions do not provide any exclusions as a basis to avoid triggering *designated development.* Conversely, a development that is defined as *'port facilities'* could also trigger the definition of 'shipping facilities' if its throughput capacity meets or exceeds the above criteria. It is suggested that the applicant consider cl48 of

Sch3 of the EP&A Regulations 2021 in terms of additions and alterations in terms of *designated development*.

It is recommended that the applicant be required to provide a response to the above comments.

2. Traffic Impacts

The additional information submitted included an updated Traffic Impact Assessment which according to the covering letter prepared by Ethos Urban provides *"… more accurate estimate of potential daily peak vehicle distribution of 20 inbound trucks and 20 outbound trucks a day (total of 40 days a day), which represents the maximum handling and processing capacity of the facility.'*

The key figures of the truck movement information appear to contradict each other. Table 4 -Forecast Truck Movements of the updated TIA indicates 3,400 return trips a year based on seven-day operation over 50 weeks, hence 68 return trips a week. This means that over a year a total of 6,800 road trips will occur. This rate equates to 9.7 (approximately 10) return trips per day (i.e. 10 inbound and 10 outbound). However, based on peak daily of 20 return trips (i.e. 40 trips per day), as indicated in the TIA, the annual return trips equate to 7,000 return trips - (20 x7 (days) x 50 (weeks)), thus 14,000 road trips overall per year. On a daily truck movement basis, the TIA indicates a substantially higher (i.e. double the number of truck movements) when compared to the informed yearly truck movements. Further, during the peak hours (assumed to be at least two hours) there will be 16 vehicles/hour (8 in and 8 out). These figures are a significant increase in the number of truck movements from the approximately four trucks per hour (2 in and 2 out) stated in the original TIA.

Concern is raised that based on the daily 20 return trips (40 truck movement per day), the overall increase may impact on-road traffic and intersection operations. It is recommended that additional traffic modelling is undertaken of the likely impacts of the above additional movements on key intersections.

It is considered that the peak traffic generated by this development must be approached with a conservative approach and cumulative traffic impacts (existing and proposed plus future projections) must be addressed. Overall, the development must provide justification for the increase in truck movements.

It is recommended the applicant is required respond to the above concerns.

3. Amenity and health impacts

It is noted that the concerns raised by local residents were also raised by the DPHI in the Request for Information. Accordingly, the adequacy of the applicant's response to these impacts are matters for consideration by the DPHI.

4. Section 7.12 Development Contributions

Contrary to the statement made in applicant's the Table 1, section 6.9 of CN's Section 7.12 Development Contribution Plan does not prevent contributions being imposed on development in the Port of Newcastle Lease Area.

The 2014 Minister for Planning's Direction restricts the Council (i.e. CN) from imposing a condition on any application for which Council is the consent authority. In the lease area Council is the consent authority only for Complying Development Certificates. Therefore, the Minister as the consent authority for development on land in the Lease Area, is still able to impose a contribution under s7.12 on local and State developments proposed on land in the lease area. This interpretation of the direction has been accepted by DPHI previously as is evident from the following extract from the Assessment Report (DA 10689) dated

December 2021 for a proposed commercial building at Carrington located on land in the Lease Area:

> *'The Department is satisfied that the contributions plan applies to both the development and site and has included Council's recommended condition of consent requiring the Applicant to pay contributions prior to the commencement of construction.'*

Similarly, the Independent Planning Commission's granted consent on 4 November 2021 to a development application (DA-110646) on land within the lease area subject to a condition requiring the payment of a S 7.12 monetary contribution to Council.

Therefore, it is confirmed that CN's advice is that a cost report remains required to be submitted and a contribution of 1% of the cost of development be levied as contribution under the Section 7.12 Development Contribution Plan to the proposal.

Conclusion

If you have any questions in relation to the various matters raised in this letter, please contact Geof Mansfield City Significant Development Section Manager on 4974 2767 or by email on gmansfield@ncc.nsw.gov.au .

Yours faithfully

Amy Ryan
CITY SIGNIFICANT & STRATEGIC PLANNING MANAGER

Appendix B SLR's TIA Report

AURIZON PORT SERVICES SHED EXPANSION

Port of Newcastle, Bourke Street, Carrington NSW
Traffic Impact Assessment

Prepared for:

Aurizon Operations Limited
900 Ann Street, Fortitude Valley
QLD 4006 Australia

SLR Ref: 610.30882.00000-R01
Version No: -v2.3
November 2023

PREPARED BY

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Aurizon Operations Limited (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
610.30882.00000-R01-v2.3	2 November 2023	Charlie Seventekin	Anthony Kay	Jeffrey Baczynski

EXECUTIVE SUMMARY

SLR has been engaged by Aurizon to prepare a TIA to support their expanding operations at the Port of Newcastle. The proposed expansion will result in the transportation of approximately 85,000 tonnes of cement per year (350 days) from East Coast Cement located at 21 Heron Road in Kooragang, NSW to Aurizon's existing facility at the Port of Newcastle in Carrington, NSW.

The Proposal is to be undertaken as a DA in accordance with the Section 4.15 of the EP&A Act.

Based on the analysis and discussion documented herein, the following is concluded:

- Approximately 85,000 tonnes of cement per annum will be transported via 20-foot ISO bulk powder tanks, where:
  - Tare weight is 4,080kg.
  - Maximum gross weight up to 30,000kg.
  - Maximum payload per tank is 25,920kg; however, for a conservative traffic assessment, it has been assumed that each ISO bulk powder tank will contain 25,000kg of cement on average.
- The quantum of cement will therefore be transported by 3,400 bulk powder tanks per annum, to be delivered by a prime mover truck with a step-down trailer, or 20m Articulated Vehicle (AV). The AV movements will occur 24 hours a day, 7 days a week, however, most of the deliveries will be undertaken during the Port's peak traffic hours (from 7am to 4pm, Monday to Friday).
- Annual movements: The proposed development will generate no more than 3,400 inbound and 3,400 outbound trips. Each incoming truck will pick up an empty cement tank back to the supplier so there will be no heavy vehicle trips need to be considered to pick up/ drop off empty tanks.
- Weekly movements: On average, the development will generate 68 inbound and 68 outbound trips per week (Assumed 50 weeks a year).
- Peak daily movements: The proposed development will generate a peak of 20 inbound and 20 outbound additional truck movements per day during the Port's ordinary business hours, from 7 am to 4 pm Monday to Friday.
- Peak hourly movements: It has been identified that the facility can accommodate a peak of eight inbound and eight outbound truck movements in one hour. However, as stated above, the daily traffic will not exceed 20 inbound and 20 outbound movements.
- No additional staff will be employed for the expanded operations and therefore the existing site access and car parking arrangements are retained and considered satisfactory.
- The incremental changes in the development's traffic generation potential are considered low and insignificant (up to 16 truck movements in the peak hour) and unlikely to result in a material impact on the wider road network.
- Based on a review of the historic crash data along the haulage route and consideration of the anticipated low traffic generation potential of the proposed expansion work, the proposal is unlikely to cause safety deficiencies on the wider road network.

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1 Introduction

1.1 Context

Aurizon is seeking approval from the Department of Planning and Environment (DPE) for the expansion of their existing operations at the Port of Newcastle, NSW (the Proposal). The Proposal is to be lodged as a development application (DA) in accordance with the Section 4.15 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This Traffic Impact Assessment (TIA) has been prepared by SLR Consulting Australia Pty Ltd (SLR) on behalf of Aurizon (the applicant) to support the Proposal. The Proposal includes increasing the capacity of zinc, copper and lead concentrate and adding mineral sands and cement to the types of materials loaded, unloaded, and stored on site.

This report has been prepared to address the traffic and transport requirements set out within the DPE's letter concerning the Aurizon Port Services Capacity Increase and Mineral Sands Project Development Application, dated 17 November 2020 (see **Section 1.2** for further detail). The findings of this assessment will form an appendix to the proposed Statement of Environmental Effects (SEE) to be submitted to the DPE.

1.2 Assessment Scope

Table 1 sets out the traffic and transport matters raised by the DPE, including reference to sections of this report where such matters have been addressed.

Table 1 Matters to be Addressed (DPE Comments/ Requirements)

No	Comments / Requirements	SLR Response
1	Details of all daily and peak traffic volumes likely to be generated during operation, including a description of key access, vehicle types and potential queuing impacts.	See **Section 3** and **Section 5**.
2	Plans demonstrating how all vehicles likely to be generated during operation can be accommodated on the site to avoid queuing in the street network.	See **Section 5** and **Appendix C**.

In addressing the above matters, the following should be noted:

- Materials such as zinc, copper and mineral sands have not been considered as these materials will be delivered by rail before being loaded onto ships. The only material to be delivered by road will be cement, and therefore this TIA only considers the quantum of trucks associated with the deliveries of cement.
- Approximately 85,000 tonnes of cement per annum will be transported via 20-foot ISO bulk powder tanks, where:
  - Tare weight is 4,080kg.
  - Maximum gross weight up to 30,000kg.
  - Maximum payload per tank is 25,920kg; however, for a conservative traffic assessment, it has been assumed that each ISO bulk powder tank will contain 25,000kg of cement on average.

- The quantum of cement will therefore be transported by 3,400 bulk powder tanks per annum, to be delivered by a prime mover truck with a step-down trailer, or 20m Articulated Vehicle (AV). The AV movements will occur 24 hours a day, 7 days a week, however, most of the deliveries will be undertaken during the Port's peak traffic hours (from 7am to 4pm, Monday to Friday – more information provided in **Section 5**).
- No additional light vehicle movements are anticipated as the existing employee numbers at the site will remain the same.
- No upgrades are considered necessary or proposed to the existing road network as a result of the anticipated increase in the traffic in the vicinity of the site.
- No significant changes are proposed to the existing site layout. All vehicles will continue to enter and exit the site via the existing access road and in a forward direction.

2 Existing Conditions

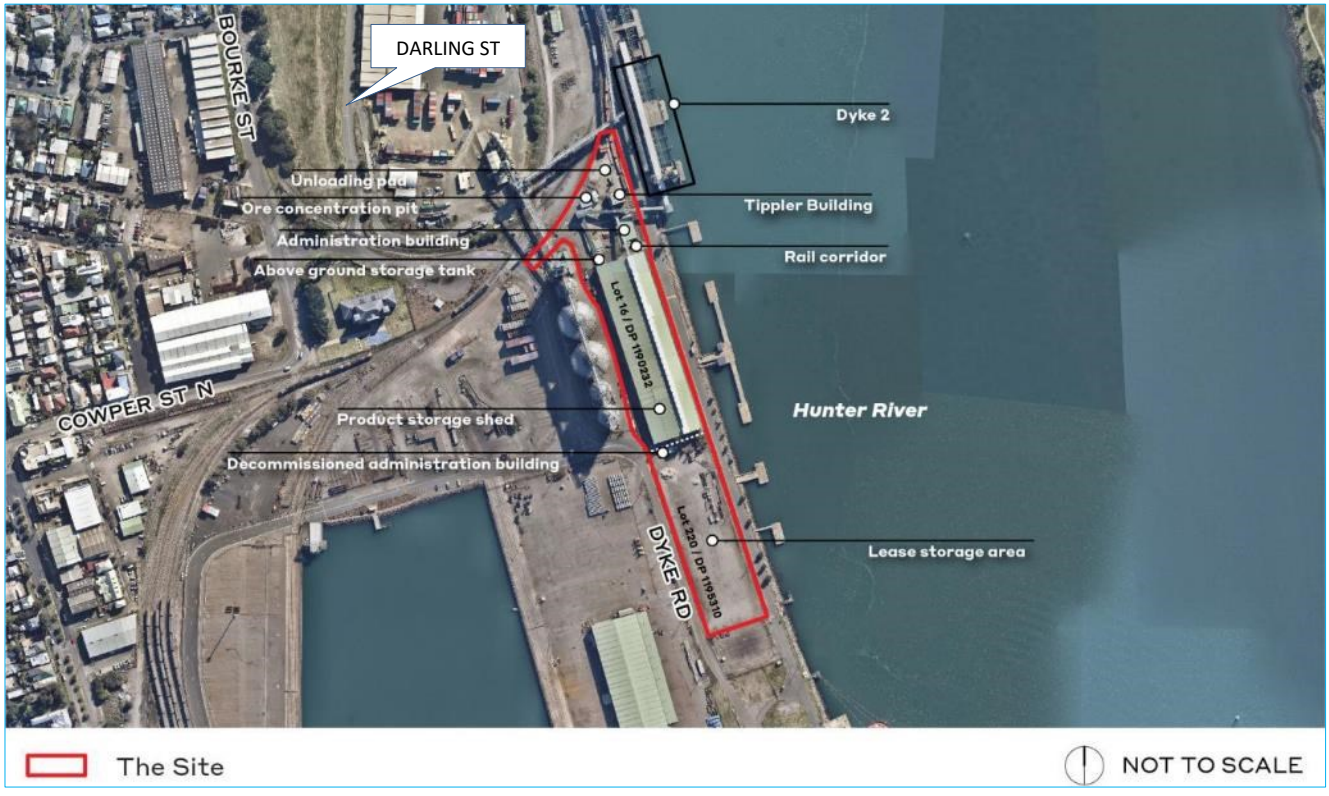
2.1 Subject Site

The site is located within the Port of Newcastle lease area in Carrington, NSW. The site is bound by other industrial and logistics operators within the Port of Newcastle to the north, west and south. The site is further bounded by the Hunter River and Aurizon's dedicated berth to the east. The site is legally described as Lot 16, DP 1190232 (northern lot) and Lot 220, DP1195310 (southern lot) and leased by Aurizon Port Services NSW (APSN) from the Port of Newcastle.

A high-resolution aerial image for the site is provided in **Appendix A**. The property report generated by NSW Planning Portal[1] is provided in **Appendix B**.

The subject site is also illustrated in **Figure 1**.

Figure 1 Site Location



2.1.1 Site Description

The subject site is accessible to light vehicles via Bourke Street from the north and Cowper Street from the south. Heavy vehicles are only able to access the subject site via Darling Street.

[1] https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address

The site is located within Zone 'SP1 Special Activities' under City of Newcastle Council's (CNC or Council) Development Control Plan (DCP), which includes objectives to maintain and strengthen the port, freight and bulk storage, industrial and maritime industrial land uses to support the ongoing efficiency of operations at the Port of Newcastle (under the Three Ports SEPP).

The site includes a shed (inc. bays and a hopper), used for the storage of zinc, copper and lead concentrates, enclosed conveyor to transfer these concentrates to the berths, an administration building, rail corridor, storage yard and other ancillary development.

The current operations for the storage and transfer of concentrates (to and from the site) are as follows:

- Concentrate is transported to the site by rail (in sealed containers).
- Containers are unloaded from rail (via a forklift) at the Tippler Pad (unloading pad) into the Tippler building.
- Concentrate containers are 'tipped' (while inside the fully enclosed Tippler building) to allow transportation of concentrate to the shed via enclosed conveyors, empty containers are placed back on the train wagon.
- The Tippler building is fully enclosed with dust emission from tipping activities mitigated by a retractable curtain.
- Concentrates are placed in specific bays (stockpiles) via the conveyor system within the shed.
- Concentrates are removed from bays (via front end loaders) and placed within the hopper (within the shed).
- The hopper transfers concentrate to the conveyor which is transferred to the ship loader (via three conveyors and two transfer stations).
- The ship is loaded and leaves the berth.

2.2 Road Network

Cement will be transported from East Coast Cement located at 21 Heron Road, Kooragang to Aurizon's existing facility at the Port of Newcastle. Details of the key roads and proposed haulage route are illustrated in **Figure 2** and detailed **Table 2.**

Figure 2 Key Road Network

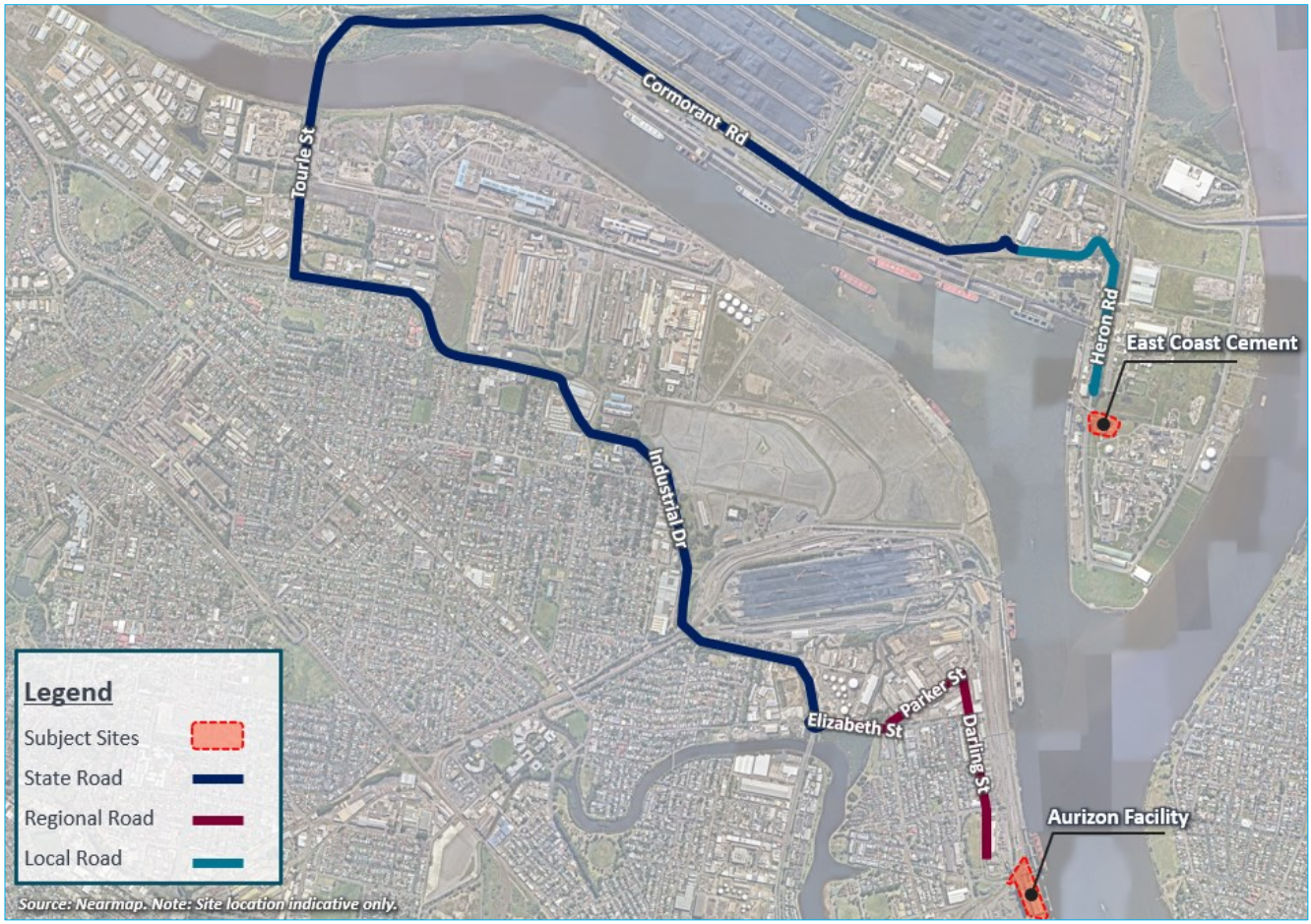


Table 2 Key Road Network

Road Name	Classification	Authority	Existing Form	Posted Speed
Heron Road	Local Road	Council	One traffic lane in each direction, median-divided at the northern side the road and undivided at the southern side of the road, industrial cross-section.	60 km/h
Cormorant Road	State Road (Road Number 108) / Local Road*	State / Council	Two traffic lanes in each direction, median-divided, industrial cross-section (State Road) One traffic lane in each direction, median-divided, industrial cross-section (Local Road)	80 km/h (State Road) 60 km/h (Local Road)
Tourle Street	State Road (Road Number 108)	State	Two traffic lanes in each direction, median-divided, industrial cross-section	60 km/h
Industrial Drive	State Road (Road Number 316)	State	Two traffic lanes in each direction, median-divided, industrial cross-section	60 km/h
Elizabeth Street	Regional Road	Council	One traffic lane in each direction, undivided, industrial cross-section	50 km/h

Road Name	Classification	Authority	Existing Form	Posted Speed
Parker Street	Regional Road	Council	One traffic lane in each direction, undivided, industrial cross-section	Unposted (Default 50 km/h)
Darling Street	Regional Road	Council	One traffic lane in each direction, undivided, urban cross-section	50 km/h

*Cormorant Road is a state road between Tourle Street and Teal Street, and a local road between Teal Street and Heron Road.

2.3 Road Network Planning

2.3.1 State-controlled Road Network Planning

The TfNSW project website[2] has been reviewed to identify the location and nature of any planned road upgrades for State-controlled roads identified in **Table 2**. The review indicates that there are no future upgrades for the state-controlled roads within the area defined.

2.3.2 Council-controlled Road Network Planning

A review of the most recent CNC *Delivery and Operational Plan* and their project website[3] indicates that there are no planned future upgrades for the regional and council-controlled road network defined in **Table 2**.

2.4 Crash History

Crash data was reviewed along the proposed cement delivery route from East Coast Cement to Aurizon's facility at Port of Newcastle with a view to identify any safety deficiencies, including:

- Heron Road between Cormorant Road and East Coast Cement access road.
- Cormorant Road between Tourle Street and Heron Road.
- Tourle Street between Industrial Drive and Cormorant Road.
- Industrial Drive between Elizabeth Street and Tourle Street.
- Elizabeth Street between Industrial Drive and Parker Street.
- Parker Street between Darling Street and Elizabeth Street.
- Darling Road between the site access and Parker Street.

Crash data has been extracted from TfNSW Centre for Road Safety website[4]. Crashes are reported for the latest five-year period between 2016 and 2020. The locations of the reported crashes are illustrated in **Figure 3**.

[2] Projects - Roads and Waterways – Transport for NSW
[3] Projects and Works - City of Newcastle (nsw.gov.au)
[4] https://roadsafety.transport.nsw.gov.au/statistics/interactivecrashstats/lga_stats.html?tablga=4

Figure 3 Crash Locations (Dataset queried on 07/06/2022)

Details of the crashes illustrated in **Figure 3** above are further detailed in **Table 3**.

Table 3 Crash Data Details

Location	Crash ID	Year	Severity	Rum Code	Description
Heron Road	1194675	2019	Fatal	60	Parked
Cormorant Road	1164398	2018	Serious injury	88	Out of control on carriageway
Cormorant Road	1170027	2018	Moderate injury	74	Out of control on carriageway
Cormorant Road	1112943	2016	Minor/other injury	30	Rear end
Cormorant Road	1238511	2020	Serious injury	74	Out of control on carriageway
Cormorant Road	1214486	2019	Moderate injury	73	Right off carriageway into object/parked vehicle
Cormorant Road	1119573	2016	Non-casualty (towaway)	30	Rear-end
Cormorant Road	1111907	2016	Non-casualty (towaway)	20	Head on

Location	Crash ID	Year	Severity	Rum Code	Description
Cormorant Road	1128795	2017	Minor/other injury	39	Other same direction
Cormorant Road	1134481	2017	Minor/other injury	87	Off carriageway left on left bend into object/parked vehicle
Cormorant Road	1221825	2019	Serious injury	86	Off carriageway left on left bend
Tourle Street	1160541	2017	Minor/other injury	30	Rear end
Industrial Drive	1112437	2016	Non-casualty (towaway)	39	Other same direction
Industrial Drive	1247824	2020	Moderate injury	87	Off carriageway left on left bend into object/parked vehicle
Industrial Drive	1166387	2018	Moderate injury	34	Lane change right
Industrial Drive	1162508	2017	Moderate injury	48	From footpath
Industrial Drive/Woodstock Street	1235355	2020	Non-casualty (towaway)	13	Right near
Industrial Drive	1219180	2019	Moderate injury	30	Rear end
Industrial Drive	1227204	2020	Non-casualty (towaway)	87	Off carriageway left on left bend into object/parked vehicle
Industrial Drive	1134480	2017	Serious injury	81	Off carriageway left on right bend into object/parked vehicle
Industrial Drive	1213603	2019	Non-casualty (towaway)	89	Other curve
Industrial Drive	1132085	2017	Non-casualty (towaway)	83	Off carriageway right on right vend into object/parked vehicle
Industrial Drive	1207005	2019	Non-casualty (towaway)	83	Off carriageway right on right vend into object/parked vehicle
Industrial Drive	1131560	2017	Moderate injury	83	Off carriageway right on right vend into object/parked vehicle
Industrial Drive	1222175	2019	Moderate injury	71	Left off carriageway into object/parked vehicle
Industrial Drive	1188288	2018	Moderate injury	70	Off carriageway to left
Industrial Drive	1094863	2016	Non-casualty (towaway)	73	Right off carriageway into object/parked vehicle
Industrial Drive	1115187	2016	Serious injury	85	Off carriageway right on left bend into object/parked vehicle
Elizabeth	1108228	2016	Non-casualty (towaway)	37	Left turn sideswipe
Parker Street/Darling Street	1125763	2016	Serious injury	84	Off carriageway right on left bend

As shown in **Figure 3** and listed in **Table 3**, there were a total of 30 reported crashes along the proposed haulage route within the five year review period. Of these 30 crashes, one resulted in a fatality, six resulted in serious injuries, nine resulted in moderate injuries, four resulted in minor injuries, and ten crashes were tow-away only (non-casualty).

Based on the desktop evaluation of the crash records and low daily traffic generation potential of the proposal (further detailed in **Section 3.2**) it is considered that there are no singular or recurring road safety issue that would preclude the development or be materially exacerbated by the development.

3 Development Overview

3.1 Proposed Development

Aurizon is seeking approval from the DPE for the expansion of operations at the site. The Proposal is to be undertaken via a DA in accordance with Section 4.15 of the EP&A Act.

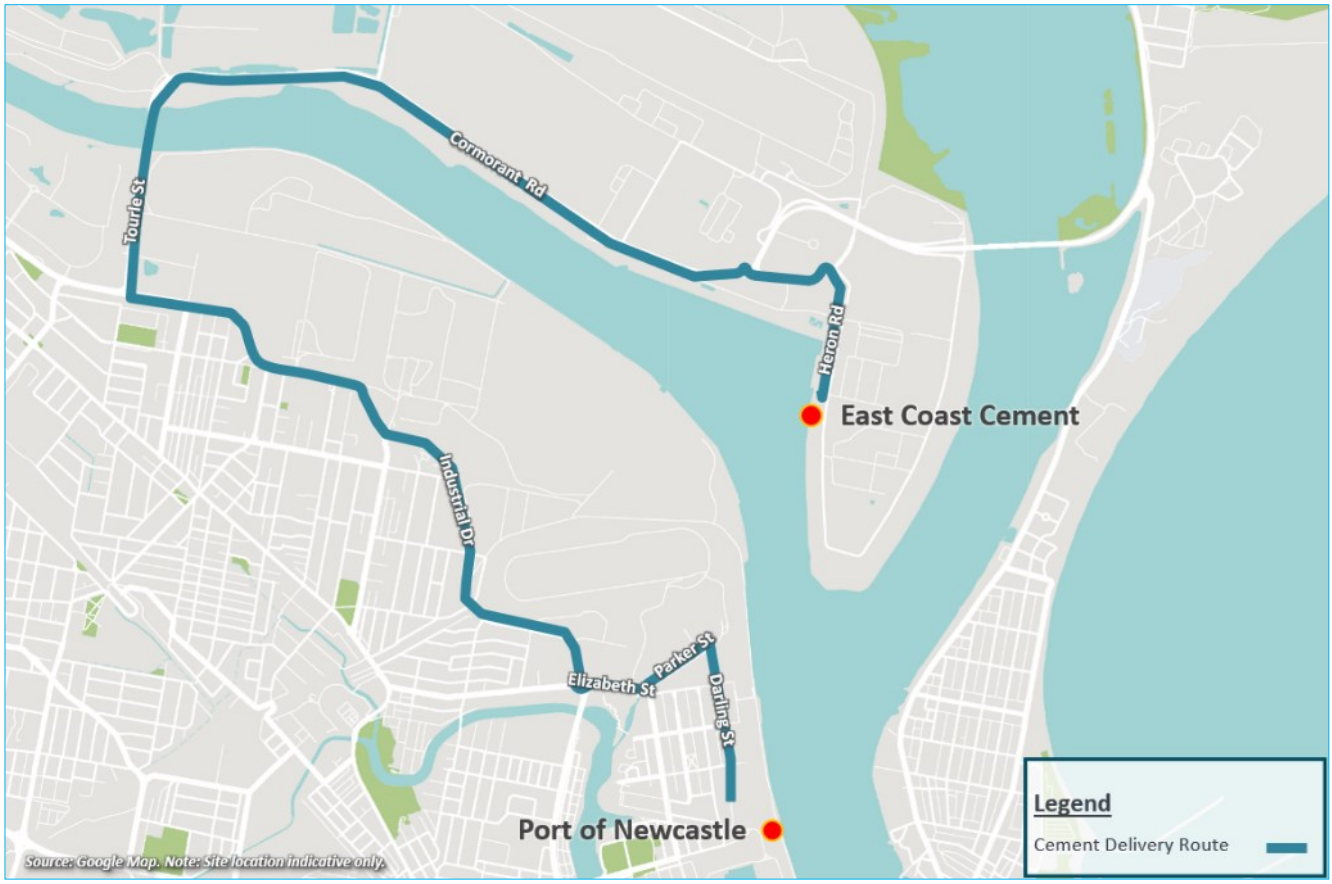
The proposed development will increase the storage, loading and unloading capacity for zinc, copper, and minerals sands at the existing facility, where these materials are delivered to the facility by rail before being transferred onto ships.

The development also proposes to allow cement to be handled at the facility; up to 85,000 tonnes per annum. Cement will be transported from East Coast Cement (21 Heron Rd, Kooragang NSW 2304) to the Port within 30 tonne ISO containers on 20m long AVs. 85,000 tonnes will result in potential truck movements of 3,400 per year and 68 per week, on average. Existing heavy vehicle access to the Port is via Elizabeth Street, Parker Street and Darling Street. It is proposed that the existing route will be taken for the proposed transportation of cement.

The cement will either be delivered directly to the northern lot where it will be loaded on to ships, or alternatively it will be delivered to the southern lot for storing within the proposed storage shed until it is required to be loaded onto a ship, via the northern lot, at a later date. It should be noted that these short inter-lot trips will occur on the Port's internal road network, and therefore these short movements will not occur on the public road network.

Figure 4 demonstrates the cement delivery route from East Coast Cement to Aurizon facility.

Figure 4 Road Haulage Route



The concentrate and mineral sands would be stored within separate bays within the existing and extended shed, which will be constructed as part of this application. To facilitate the increase in storage and throughput, the existing shed will be extended by up to approximately 100 meters to the south.

Increased capacity of other materials including zinc, copper, lead concentrate and adding mineral sands will be delivered by rail. As such, no new traffic will be generated on the road network by these materials.

The Port will maintain the current operational hours, twenty-four (24) hours a day and seven (7) days a week. Delivery of cement is expected to be concentrated during the daytime hours (7am to 4pm). There will be no additional staff required to facilitate the increased onsite storage, loading and unloading activities.

3.2 Vehicular Impacts

An increase in truck movements from/ to the site will occur across a 24-hour day to support cement deliveries however for a conservative traffic assessment, it is assumed that the operations will be limited to 7am to 4pm and 50 weeks a year.

This means that there will be an increase of 68 inbound and 68 outbound trucks a week with a daily peak of 20 inbound trucks and 20 outbound trucks a day. It is also understood that the peak hour movements will be limited to eight inbound trucks and eight outbound trucks due to the processing capacity of the development.

The estimated truck movements in regard to increased cement capacity are also tabulated in **Table 4**.

Table 4 Forecast Truck Movements

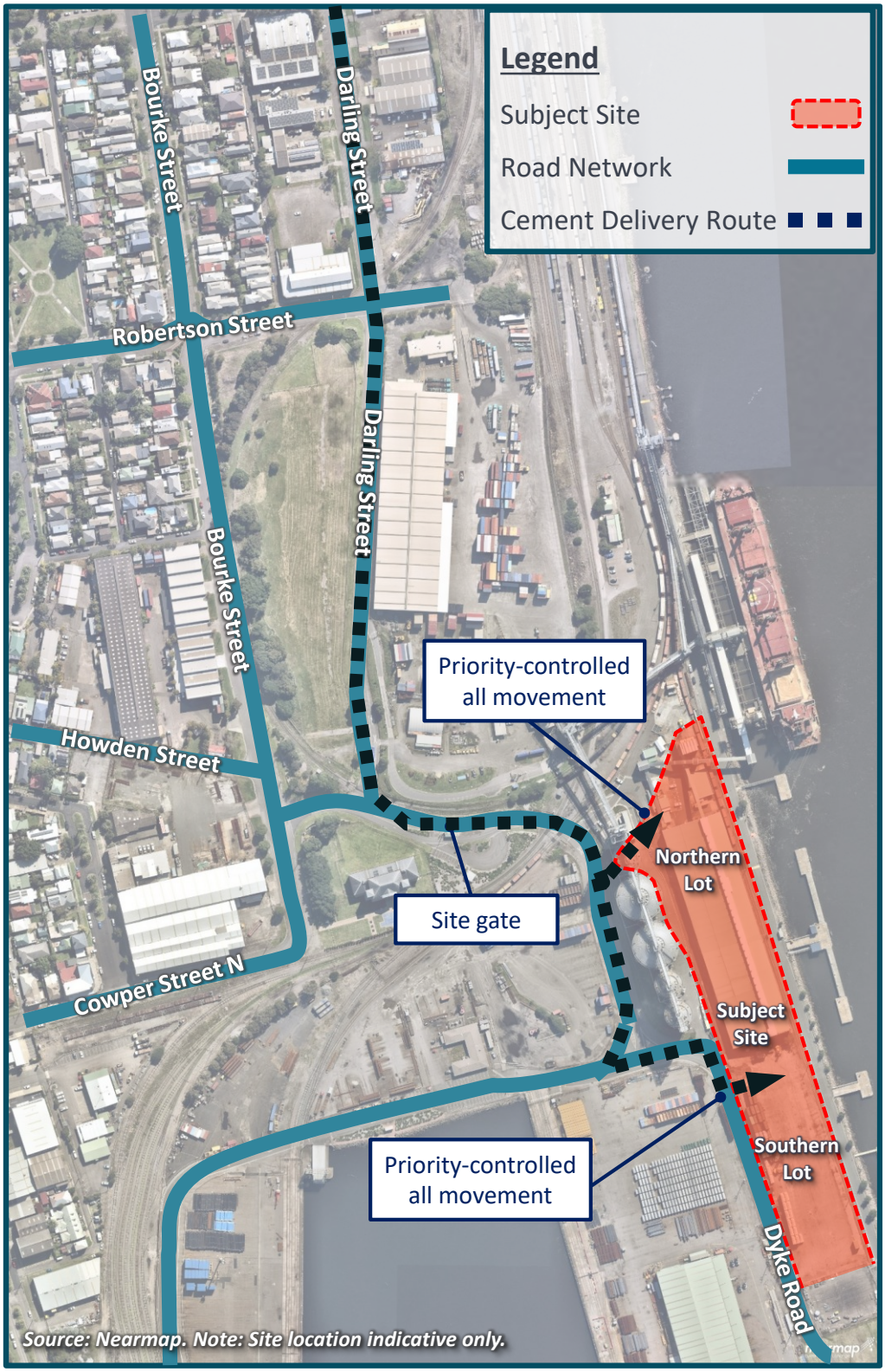
Purpose	Trips	Peak Hour Vehicle Trip Rate	Peak Hour Trips
Cement Delivery (Heavy Vehicle)	3,400 return trips a year 68 return trips a week Peak of 20 return trips a day.	With conservativeness and based on facility's maximum practical processing capacity, it was identified that a maximum eight inbound and eight outbound trucks are anticipated.	Up to 16 vph (8 in + 8 out)

3.3 Site Access and Car Parking

No changes are proposed to the existing site access arrangement and car parking spaces. As detailed in **Figure 2** and **Table 2**, the haulage of cement will occur via Darling Street.

Current site access arrangement via Darling Street is shown in **Figure 5**.

Figure 5 Existing Site Access



4 Design Considerations

4.1 Overview

A review of the proposed internal traffic arrangements, as shown on the existing site plan included in **Appendix A**, was undertaken against the following relevant documents:

- Newcastle Development Control Plan (DCP) Section 3.13.
- Australian Standards for Parking facilities Part 2: Off-Street Commercial Vehicle Facilities (AS2890.2).
- Austroads Guidelines.

4.2 Development Control Plan Requirements

4.2.1 Site Access and Internal Traffic Arrangements

Vehicular access to the northern lot is currently provided with a left-turn ingress and right-turn egress movement via a priority-controlled access driveway from/ to Port's internal road[5] as shown in **Figure 5**. The width of the site access driveway is approximately 9.5m wide and therefore only one-way travel is undertaken.

Cement will also be transported to the southern lot and Aurizon will transport the cement between the two lots as needed. As illustrated in **Figure 5**, it is proposed that cement transporting heavy vehicles will enter the site from the gates located to the north of Dyke Road. It is important to note that Aurizon is proposing to construct the proposed shed as an extension to the southern shed and extending it into the southern lot. If required, Aurizon will install gates at the southern boundary of their land to enable cement deliveries being undertaken at this location. Swept path assessments illustrated in **Appendix C – Sheet SK05** provides an overview of the investigated access locations.

Based on the swept path assessments provided in **Appendix C**, no changes to the access road are proposed nor considered necessary as part of this application.

Reflecting the above, the proposed vehicular access arrangements satisfy the relevant design criteria (AS2890.2) and are therefore considered appropriate.

4.2.2 Car Parking and Circulation

The minimum car parking provisions for land within a port is not specified in the DCP or *Chapter 5 of State Environmental Planning Policy (Transport and Infrastructure) 2021*. It is noted that this proposal does not include additional staff on site, thus the existing parking arrangements will be retained. As such, the subject site is considered compliant with the relevant applicable planning instruments.

[5] Engine House Road, according to https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address

5 Assessed Traffic Demands

5.1 Existing Traffic Demands

In order to ascertain the existing traffic demands, speed environment and vehicle composition for the road network surrounding the site access, a seven-day automated tube count (ATC) surveys were undertaken between 28 May 2022 and 04 June 2022. Tube count surveys were installed at the following location:

- Darling Street between Hargrave Street and Robertson Street, approximately 130m north from Robertson Street.

A review of the ATC survey data indicated that the average bi-directional traffic volume was 1,570 vehicles on weekdays and 574 vehicles per day on weekend days. It was also observed that bi-directional traffic peaked at 142 vehicles per hour between 9:00am and 10:00am on Monday 30 May 2022.

It was also identified that 69% of the total weekday traffic (7,854 vehicles) at the surveyed location took place from 7:00am to 4:00pm (nine-hour window), Monday to Friday.

The traffic survey data is provided at **Appendix D**.

5.2 Development Traffic Demands

As detailed in **Section 3.1** and **Section 3.2**, the proposed development will generate approximately 3,400 inbound and 3,400 outbound AV movements per annum to deliver cement from East Coast Cement to the Port of Newcastle. This equates to 68 inbound and 68 outbound trips per week and therefore approximately 1.7% of the existing weekly traffic (7,854 vehicles).

On the busiest day of the week, it will be possible to observe a maximum of 20 inbound and 20 outbound trips a day, which would approximate 2.5% of the existing daily traffic (1,570 vehicles).

In the busiest hour of the day, it will be possible to observe a maximum of 8 inbound and 8 outbound truck movements. This would equate to 11% of the existing peak-hour traffic; however, it is critical to note that this can only take place for one or two hours a day due to the daily processing capacity of 20 inbound and 20 outbound trucks.

Based on the low traffic impacts of the proposed development on the wider road network, no additional analysis was considered necessary.

6 Summary and Conclusions

SLR has been engaged by Aurizon to prepare a TIA to support their expanding operations at the Port of Newcastle. The proposed expansion will result in the transportation of approximately 85,000 tonnes of cement per year (350 days) from East Coast Cement located at 21 Heron Road in Kooragang, NSW to Aurizon's existing facility at the Port of Newcastle in Carrington, NSW.

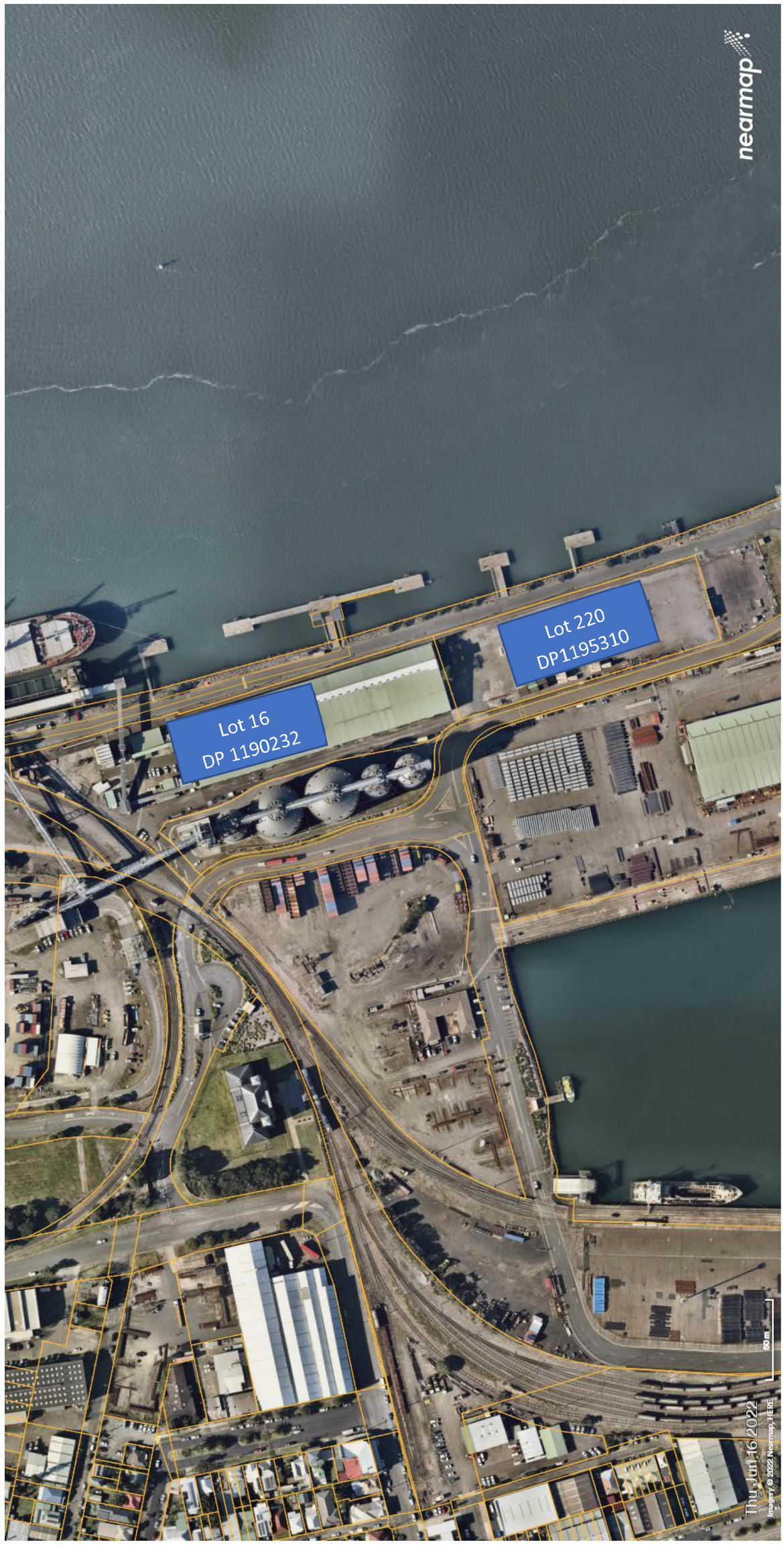
The Proposal is to be undertaken as a DA in accordance with the Section 4.15 of the EP&A Act.

Based on the analysis and discussion documented herein, the following is concluded:

- Approximately 85,000 tonnes of cement per annum will be transported via 20-foot ISO bulk powder tanks, where:
  - Tare weight is 4,080kg.
  - Maximum gross weight up to 30,000kg.
  - Maximum payload per tank is 25,920kg; however, for a conservative traffic assessment, it has been assumed that each ISO bulk powder tank will contain 25,000kg of cement on average.
- The quantum of cement will therefore be transported by 3,400 bulk powder tanks per annum, to be delivered by a prime mover truck with a step-down trailer, or 20m Articulated Vehicle (AV). The AV movements will occur 24 hours a day, 7 days a week, however, most of the deliveries will be undertaken during the Port's peak traffic hours (from 7am to 4pm, Monday to Friday).
- Annual movements: The proposed development will generate no more than 3,400 inbound and 3,400 outbound trips. Each incoming truck will pick up an empty cement tank back to the supplier so there will be no heavy vehicle trips need to be considered to pick up/ drop off empty tanks.
- Weekly movements: On average, the development will generate 68 inbound and 68 outbound trips per week (Assumed 50 weeks a year).
- Peak daily movements: The proposed development will generate a peak of 20 inbound and 20 outbound additional truck movements per day during the Port's ordinary business hours, from 7 am to 4 pm Monday to Friday.
- Peak hourly movements: It has been identified that the facility can accommodate a peak of eight inbound and eight outbound truck movements in one hour. However, as stated above, the daily traffic will not exceed 20 inbound and 20 outbound movements.
- No additional staff will be employed for the expanded operations and therefore the existing site access and car parking arrangements are retained and considered satisfactory.
- The incremental changes in the development's traffic generation potential are considered low and insignificant (up to 16 truck movements in the peak hour) and unlikely to result in a material impact on the wider road network.
- Based on a review of the historic crash data along the haulage route and consideration of the anticipated low traffic generation potential of the proposed expansion work, the proposal is unlikely to cause safety deficiencies on the wider road network.

APPENDIX A

Existing Site Imagery


nearmap
Lot 220
DP1195310
Lot 16
DP 1190232
50 m
Thu Jan 16 2022
Imagery © 2022 Nearmap, HERE

APPENDIX B

Property Report

Property Report

106 BOURKE STREET CARRINGTON 2294

Property Details

Address:	106 BOURKE STREET CARRINGTON 2294		
Lot/Section /Plan No:	1/-/DP1187068	1/-/DP1195231	1/-/DP1218150
	11/-/DP1190231	110/-/DP1191911	111/-/DP1191911
	113/-/DP1191911	13/-/DP1190232	14/-/DP1190232
	15/-/DP1190232	16/-/DP1190232	2/-/DP1187068
	2/-/DP1195231	2/-/DP1218150	219/-/DP1195310
	220/-/DP1195310	3/-/DP1104199	3/-/DP1187068
	3/-/DP1195231	3/-/DP1218150	30/-/DP1190075
	4/-/DP1104199	8/-/DP1190231	91/-/DP1193181
	92/-/DP1193181	93/-/DP1193181	
Council:	NEWCASTLE CITY COUNCIL		

Summary of planning controls

Planning controls held within the Planning Database are summarised below. The property may be affected by additional planning controls not outlined in this report. Please contact your council for more information.

Land Zoning	SP1 - Special Activities: (pub. 2-12-2021)
Height Of Building	NA
Floor Space Ratio	NA
Minimum Lot Size	NA
Heritage	NA
Land Reservation Acquisition	NA
Foreshore Building Line	NA

Detailed planning information

State Environmental Planning Policies which apply to this property

State Environmental Planning Policies can specify planning controls for certain areas and/or types of development. They can also identify the development assessment system that applies and the type of environmental assessment that is required.

- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Excluded (pub. 2-12-2021)
- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Subject Land (pub. 2-12-2021)
- State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004: Land Application (pub. 25-6-2004)
- State Environmental Planning Policy (Exempt and Complying Development Codes) 2008: Land Application (pub. 12-12-2008)
- State Environmental Planning Policy (Housing) 2021: Land Application (pub. 26-11-2021)
- State Environmental Planning Policy (Industry and Employment) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Planning Systems) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Primary Production) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Resilience and Hazards) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Resilience and Hazards) 2021: Subject Land (pub. 2-12-2021)
- State Environmental Planning Policy (Resources and Energy) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Transport and Infrastructure) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Transport and Infrastructure) 2021: Subject Land (pub. 2-12-2021)
- State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development: Land Application (pub. 26-7-2002)

Property Report

106 BOURKE STREET CARRINGTON 2294

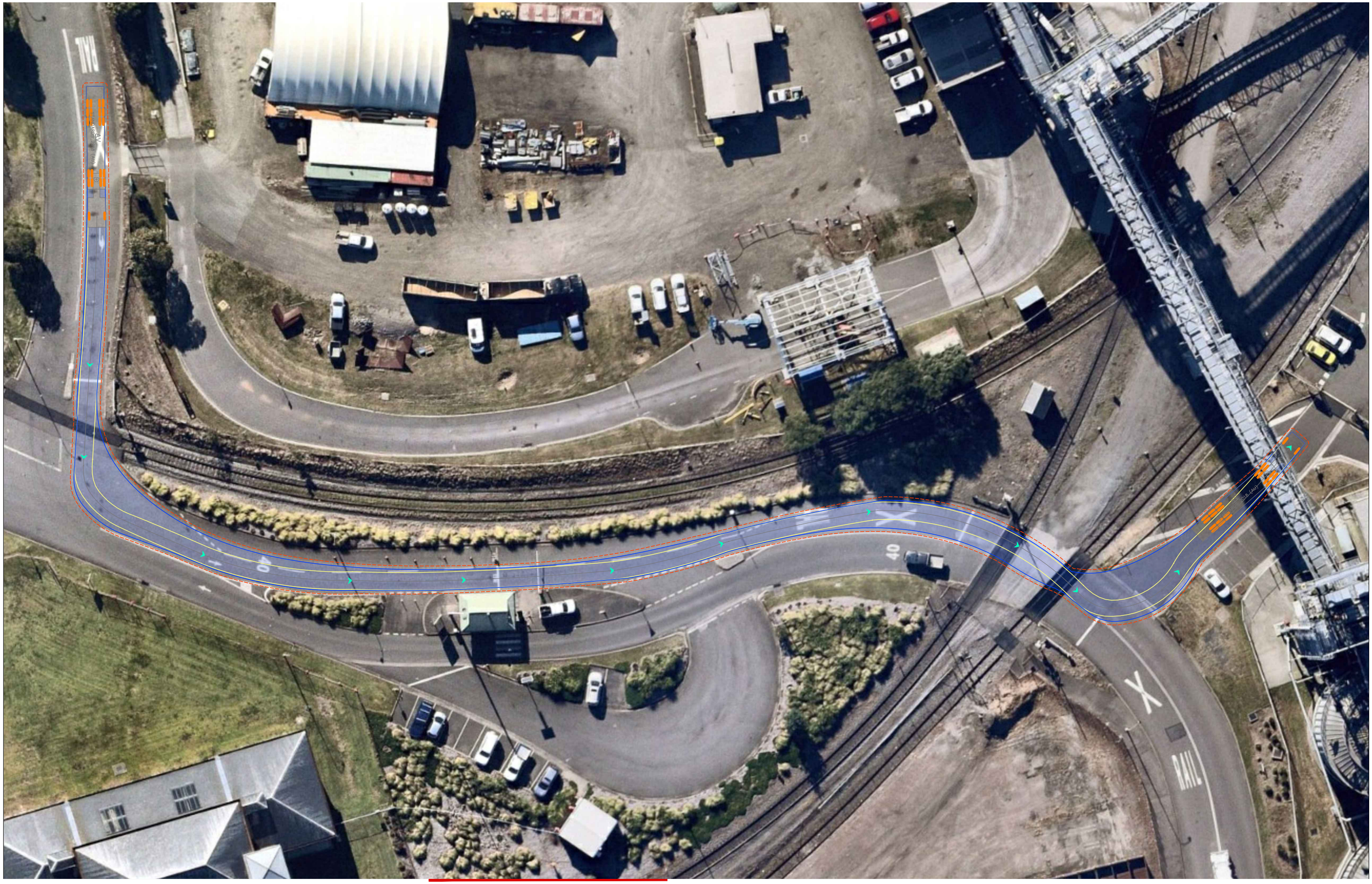
Other matters affecting the property

Information held in the Planning Database about other matters affecting the property appears below. The property may also be affected by additional planning controls not outlined in this report. Please speak to your council for more information

1.5 m Buffer around Classified Roads	Classified Road Adjacent
Government Property Index:Lot Area	10301 sqm
Land near High Pressure Pipelines	This property may be located near High Pressure Pipelines and could be subject to requirements listed under ISEPP Clause 66C. Please contact the relevant consent authority for more information.
Local Aboriginal Land Council	AWABAKAL
Mine Subsidence Development	Guideline: 2 Full Guideline Development guidelines Note Development guidelines are subject to change. Guideline: 3 Full Guideline Development guidelines Note Development guidelines are subject to change. Guideline: 7 Full Guideline Development guidelines Note Development guidelines are subject to change. Guideline: 8 Full Guideline Development guidelines Note Development guidelines are subject to change.
Mine Subsidence District	NEWCASTLE
Regional Plan Boundary	Hunter
State Heritage Register Curtilage	Hydraulic Engine House and Crane Bases Nos 7, 8, 9 and 10
Sydney Trains Infrastructure Protection Zone	Clause 45/Referral

APPENDIX C

Swept Path Assessment



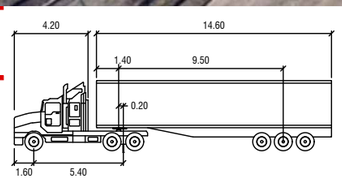
SLR
L16 175 EAGLE STREET
BRISBANE CITY 4000
AUSTRALIA
T: 61 7 3858 4800
www.slrconsulting.com

Project No:	610.30882
Date:	10/08/2022
Drawn by:	Charlie Seventekin
Scale:	AS SHOWN
Sheet Size:	A3
Projection:	GDA2020 Zone 56

CONCEPT ONLY

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels



AV

meters

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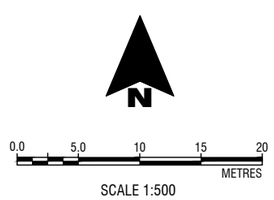
Tractor Track	: 2.50	Articulating Angle	: 72.0
Trailer Track	: 2.50		



SCALE 1:500

Aurizon Port Services

Aurizon Facility - Port of Newcastle

20m long Articulated Vehicle

FIGURE SK-01

SLR
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CONCEPT ONLY

SWEPT PATH LEGEND

- Vehicle Path
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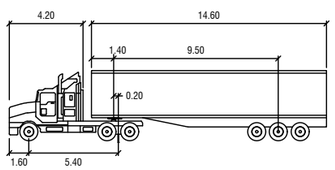
- Body Clearance
- Front Wheels



AV

meters

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Trailer Width	: 2.50	Steering Angle	: 28.3
Tractor Track	: 2.50	Articulating Angle	: 72.0
Trailer Track	: 2.50		

N

0.0 4 8 12 16
METERS

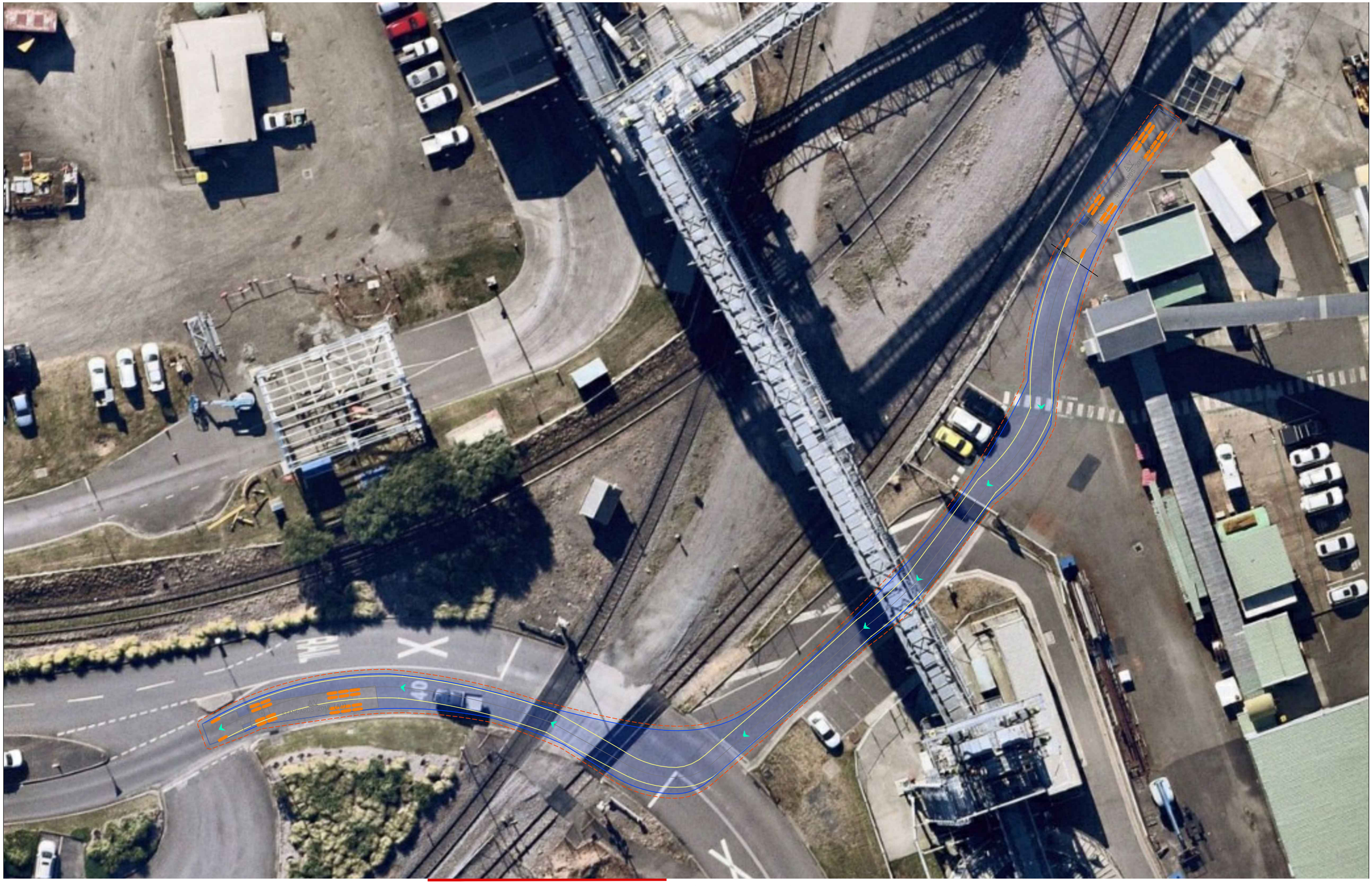
SCALE 1:400

Aurizon Port Services

Aurizon Facility - Port of Newcastle

20m long Articulated Vehicle On-Site Reversing

FIGURE SK-02



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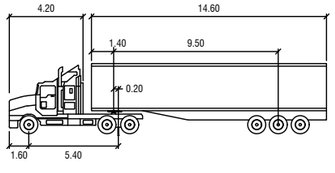
Sheet Size:	A3
Projection:	GDA2020 Zone 56

CONCEPT ONLY

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels



AV

meters

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Trailer Width	: 2.50	Steering Angle	: 28.3
Tractor Track	: 2.50	Articulating Angle	: 72.0
Trailer Track	: 2.50		

N

0.0 4 8 12 16
METERS

SCALE 1:400

Aurizon Port Services

Aurizon Facility - Port of Newcastle

20m long Articulated Vehicle Forward Exit Movement

FIGURE SK-03

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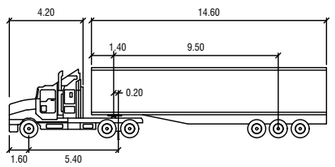
Scale:	AS SHOWN
Sheet Size:	A3
Projection:	GDA2020 Zone 56

CONCEPT ONLY

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels



AV

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 28.3
Tractor Track	: 2.50	Articulating Angle	: 72.0
Trailer Track	: 2.50		

N

0.0 5.0 10 15 20
METRES

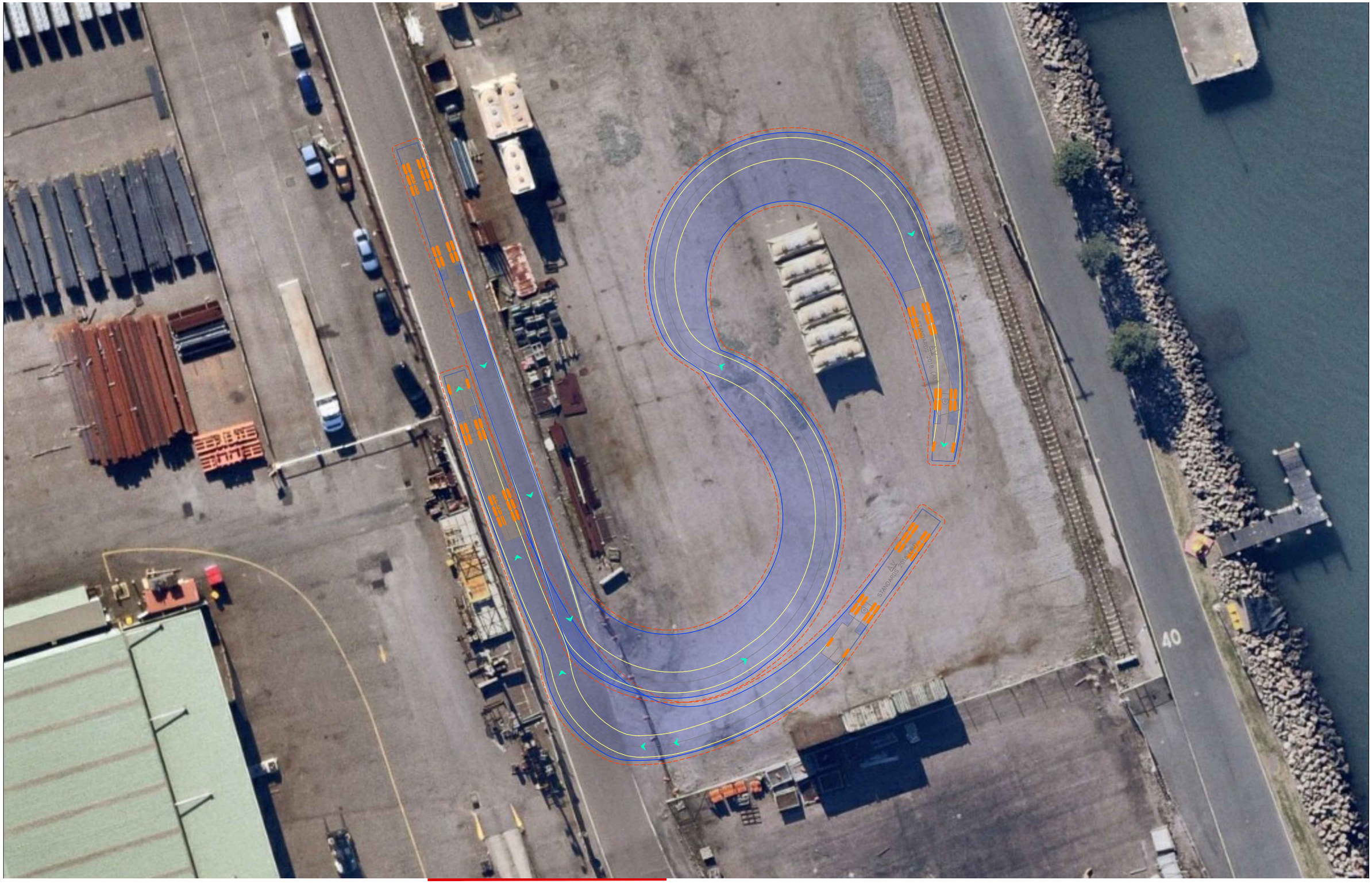
SCALE 1:500

Aurizon Port Services

Aurizon Facility - Port of Newcastle

20m long Articulated Vehicle Extended Shed Access

FIGURE SK-04



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CONCEPT ONLY

SWEPT PATH LEGEND

- Vehicle Path
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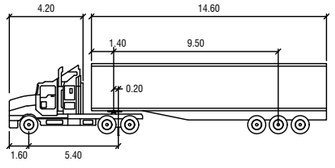
- Front Wheels



AV

meters

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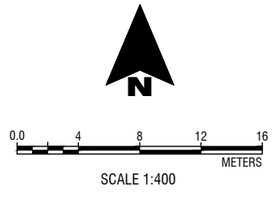
Trailer Track	: 2.50		



SCALE 1:400

Aurizon Port Services

Aurizon Facility - Port of Newcastle

20m long Articulated Vehicle Extended Shed Access

FIGURE SK-05

APPENDIX D

Traffic Survey Data

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

Site Darling St

Direction Northbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	30-05-2022	31-05-2022	01-06-2022	02-06-2022	03-06-2022	28-05-2022	29-05-2022	Total	Average	Total	Average	Total	Average
AM Peak	08:00	09:00	09:00	09:00	09:00	11:00	11:00	N/A	09:00	N/A	09:00	N/A	11:00
PM Peak	15:00	13:00	12:00	12:00	14:00	12:00	12:00	N/A	12:00	N/A	12:00	N/A	12:00
00:00	1	5	4	4	1	1	6	22	3	15	3	7	4
01:00	1	3	6	1	3	2	0	16	2	14	3	2	1
02:00	0	2	3	2	2	4	0	13	2	9	2	4	2
03:00	1	2	2	6	3	0	0	14	2	14	3	0	0
04:00	6	7	9	11	12	3	0	48	7	45	9	3	2
05:00	28	27	30	19	21	9	0	134	19	125	25	9	5
06:00	48	54	47	51	50	25	4	279	40	250	50	29	15
07:00	59	66	64	49	48	26	9	321	46	286	57	35	18
08:00	76	64	73	69	56	17	9	364	52	338	68	26	13
09:00	76	68	80	71	66	21	21	403	58	361	72	42	21
10:00	58	46	62	53	53	34	15	321	46	272	54	49	25
11:00	52	51	58	55	49	43	23	331	47	265	53	66	33
12:00	59	59	58	71	59	33	34	373	53	306	61	67	34
13:00	63	62	56	61	54	33	22	351	50	296	59	55	28
14:00	56	60	52	71	65	29	21	354	51	304	61	50	25
15:00	64	48	52	52	52	29	18	315	45	268	54	47	24
16:00	46	42	38	46	42	17	23	254	36	214	43	40	20
17:00	52	39	36	38	31	20	10	226	32	196	39	30	15
18:00	21	16	23	28	42	11	8	149	21	130	26	19	10
19:00	17	11	14	10	21	4	8	85	12	73	15	12	6
20:00	10	6	10	10	14	4	19	73	10	50	10	23	12
21:00	16	15	13	14	17	5	2	82	12	75	15	7	4
22:00	14	7	4	6	14	5	0	50	7	45	9	5	3
23:00	12	1	2	2	8	1	3	29	4	25	5	4	2
Total	836	761	796	800	783	376	255	4607	657	3976	796	631	322
% Heavy	36.96%	37.19%	34.67%	33.88%	31.55%	25.27%	4.71%	32.41%		34.86%		16.96%	

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

Site Darling St

Direction Southbound

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Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	30-05-2022	31-05-2022	01-06-2022	02-06-2022	03-06-2022	28-05-2022	29-05-2022	Total	Average	Total	Average	Total	Average
AM Peak	09:00	08:00	10:00	10:00	10:00	11:00	09:00	N/A	10:00	N/A	10:00	N/A	10:00
PM Peak	12:00	12:00	15:00	15:00	14:00	13:00	16:00	N/A	12:00	N/A	12:00	N/A	13:00
00:00	1	3	1	1	1	4	0	11	2	7	1	4	2
01:00	2	0	1	1	3	0	1	8	1	7	1	1	1
02:00	0	2	1	1	1	3	0	8	1	5	1	3	2
03:00	3	0	0	3	2	1	2	11	2	8	2	3	2
04:00	6	5	4	8	6	2	1	32	5	29	6	3	2
05:00	30	35	30	30	31	9	1	166	24	156	31	10	5
06:00	40	38	34	34	33	8	1	188	27	179	36	9	5
07:00	62	50	59	51	49	24	5	300	43	271	54	29	15
08:00	60	71	63	56	46	23	5	324	46	296	59	28	14
09:00	66	49	61	45	58	20	14	313	45	279	56	34	17
10:00	61	59	64	72	59	29	14	358	51	315	63	43	22
11:00	51	62	52	64	56	32	8	325	46	285	57	40	20
12:00	79	63	70	59	61	28	18	378	54	332	66	46	23
13:00	73	55	58	53	43	32	22	336	48	282	56	54	27
14:00	65	59	49	64	65	24	16	342	49	302	60	40	20
15:00	76	44	71	75	54	23	16	359	51	320	64	39	20
16:00	46	57	50	48	33	10	26	270	39	234	47	36	18
17:00	39	36	36	36	37	16	12	212	30	184	37	28	14
18:00	25	19	21	18	27	7	8	125	18	110	22	15	8
19:00	22	16	16	21	17	6	7	105	15	92	18	13	7
20:00	16	6	15	16	10	9	7	79	11	63	13	16	8
21:00	14	12	12	10	16	7	2	73	10	64	13	9	5
22:00	0	4	3	9	16	9	0	41	6	32	6	9	5
23:00	5	6	0	2	13	5	1	32	5	26	5	6	3
Total	842	751	771	777	737	331	187	4396	629	3878	774	518	265
% Heavy	38.36%	35.69%	33.98%	33.46%	28.90%	28.40%	6.95%	32.60%		34.19%		20.66%	

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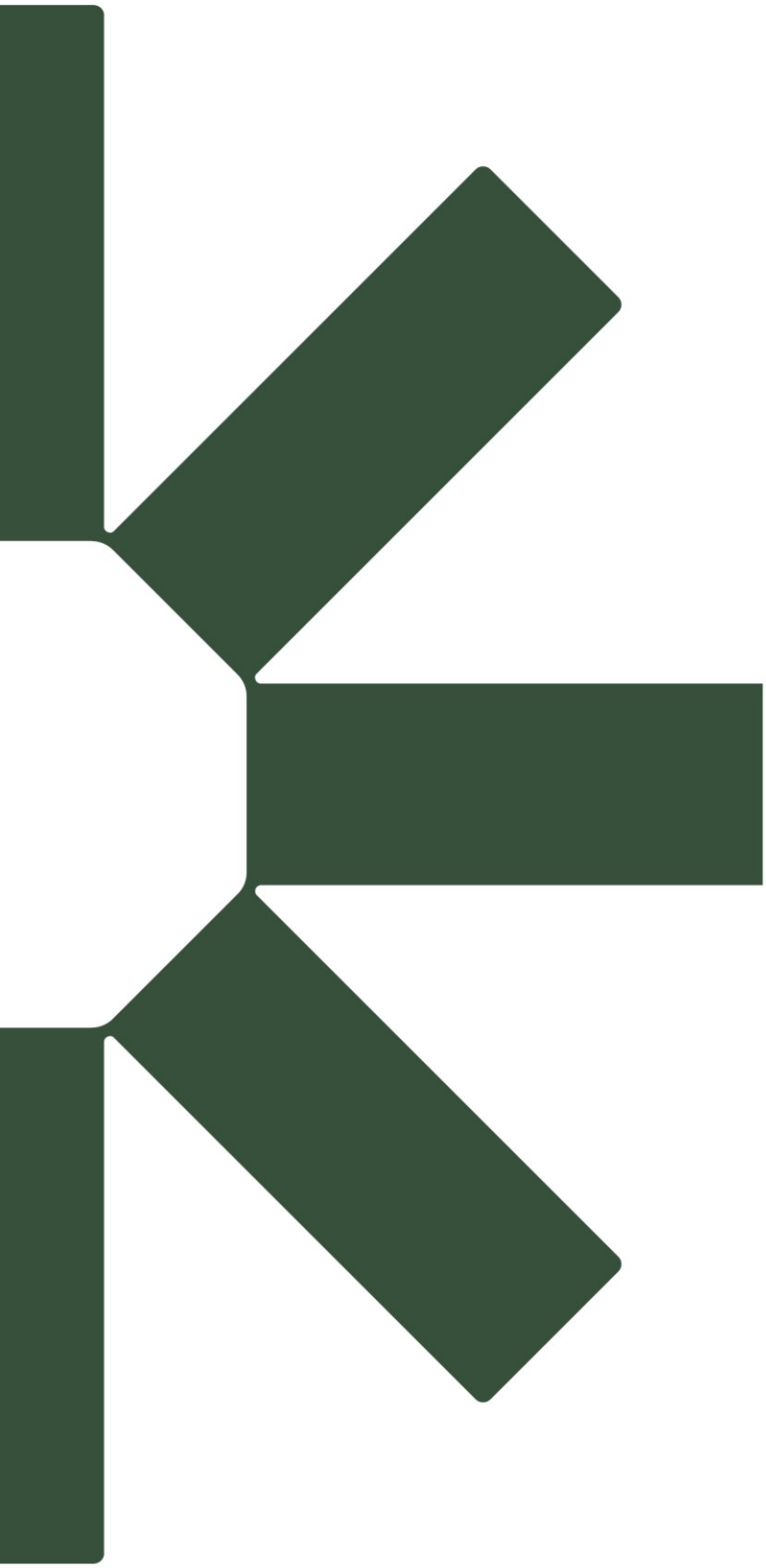

Making Sustainability Happen