

PROPERTY NSW

# HUNTERS HILL REMEDIATION CONSTRUCTION TRANSPORT AND TRAFFIC MANAGEMENT PLAN

CONFIDENTIAL



# Question today Imagine tomorrow Create for the future

## Hunters Hill Remediation Construction Transport and Traffic Management Plan

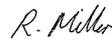
Property NSW

WSP

Level 27, 680 George Street  
Sydney NSW 2000  
GPO Box 5394  
Sydney NSW 2001

Tel: +61 2 9272 5100  
Fax: +61 2 9272 5101  
wsp.com

REV	DATE	DETAILS
A	18/3/2021	Draft CTMP
B	27/5/2021	Final CTMP
C	11/8/2021	Final CTMP

	NAME	DATE	SIGNATURE
Prepared by:	Ody Murlianto Vincent Oliveri	11/8/2021	
Reviewed by:	Ryan Miller	11/8/2021	
Approved by:	Ryan Miller	11/8/2021	

This document may contain confidential and legally privileged information, neither of which are intended to be waived, and must be used only for its intended purpose. Any unauthorised copying, dissemination or use in any form or by any means other than by the addressee, is strictly prohibited. If you have received this document in error or by any means other than as authorised addressee, please notify us immediately and we will arrange for its return to us.



# TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION</b> .....	<b>1</b>
1.1	BACKGROUND.....	1
1.2	PURPOSE OF REMEDIATION WORKS.....	1
1.3	OBJECTIVES.....	2
1.4	STAKEHOLDERS.....	2
1.5	REPORT ASSUMPTIONS AND EXCLUSIONS.....	3
1.6	REPORT STRUCTURE.....	3
<b>2</b>	<b>EXISTING CONDITIONS</b> .....	<b>4</b>
<b>2.1</b>	<b>ROAD NETWORK</b> .....	<b>4</b>
2.1.1	BURNS BAY ROAD.....	4
2.1.2	CHURCH STREET, ALEXANDRA STREET, FERRY STREET, AND WOOLWICH ROAD.....	4
2.1.3	GLADSTONE AVENUE.....	4
2.1.4	PRINCE GEORGE PARADE.....	4
2.1.5	NELSON PARADE.....	4
<b>2.2</b>	<b>TRAFFIC VOLUME DATA</b> .....	<b>4</b>
2.2.1	INTERSECTION PERFORMANCE.....	5
<b>2.3</b>	<b>PUBLIC TRANSPORT SERVICES</b> .....	<b>5</b>
<b>2.4</b>	<b>ACTIVE TRANSPORT</b> .....	<b>6</b>
<b>2.5</b>	<b>ON STREET PARKING</b> .....	<b>7</b>
2.5.1	NELSON PARADE.....	7
2.5.2	PRINCE GEORGE PARADE.....	7
2.5.3	GLADSTONE AVENUE.....	7
<b>3</b>	<b>PROPOSED CONSTRUCTION WORKS</b> .....	<b>8</b>
<b>3.1</b>	<b>REMEDIATION PLAN</b> .....	<b>8</b>
3.1.1	PHASE 1A – SURVEY AND SITE ESTABLISHMENT.....	8
3.1.2	PHASE 1 – CONSTRUCTION OF CLEAN SITE ACCESS.....	8
3.1.3	PHASE 2 – REMEDIATION WORKS – COMISSIONING CRANE, PREPARATION OF BAG STORE AND TREE REMOVAL.....	9
3.1.4	PHASE 3 – STORMWATER WORKS AND SITE INFRASTRUCTURE INSTALL.....	10
3.1.5	PHASE 4A – REMEDIATION OF MID-TERRACE.....	10
3.1.6	PHASE 4B REMEDIATION WORKS – REMOVAL OF POOL AND OUTDOOR PATIO AREA.....	11
3.1.7	PHASE 4C REMEDIATION WORKS – FORESHORE EXCAVATION, SEA WALL SUPPORT, VALIDATION AND FORESHORE BACKFILLING.....	11
3.1.8	PHASE 5 REMEDIATION WORKS – COMPLETION OF EXCAVATION AND DEMOBILISATION.....	12



3.2	CONSTRUCTION SCHEDULE .....	13
3.3	SITE COMPOUND.....	13
3.4	WORK HOURS.....	13
3.5	CONSTRUCTION VEHICLES.....	13
3.6	HAULAGE ROUTE.....	15
3.7	SWEPT PATH ANALYSIS.....	16
4	PROPOSED CONSTRUCTION IMPACT .....	17
4.1	ROAD NETWORK CAPACITY .....	17
4.2	ACCESS.....	17
4.3	PARKING .....	17
4.4	PUBLIC TRANSPORT.....	18
4.5	ACTIVE TRANSPORT .....	18
4.6	RISK ASSESSMENT .....	19
5	MITIGATION MEASURES AND SITE MANAGEMENT .....	22
5.1	PERMIT REQUIREMENT .....	22
5.2	TRAFFIC CONTROL PLAN.....	22
5.3	STAKEHOLDER MANAGEMENT .....	23
5.4	EMERGENCY ACCESS MANAGEMENT .....	23
5.5	COMMUNITY RESPONSE LINE.....	24
5.6	WASTE TRACKING REQUIREMENTS .....	24
5.7	DRIVERS CODE OF CONDUCT.....	24
5.8	CLEAN ZONE .....	24
5.9	COUNCIL WASTE COLLECTION .....	25
5.10	PROJECT PERSONNEL .....	26
5.10.1	PROPERTY NSW PROJECT MANAGER.....	26
5.10.2	CONTRACTOR'S PROJECT MANAGER.....	26
5.10.3	SUPERINTENDENT .....	26
5.10.4	EMPLOYEES.....	27
6	CONCLUSIONS .....	28

# 1 INTRODUCTION

---

## 1.1 BACKGROUND

Property New South Wales (PNSW) commissioned WSP Australia to prepare a Construction Traffic Management Plan (CTMP) to support the Remediation Environmental Management Plan (REMP) for the proposed remediation works at property numbers 7, 9 and 11 Nelson Parade, Hunters Hill (the Project). The project site is located in a residential area of Hunters Hill and is bounded to the north by Nelson Parade and to the south by the Parramatta River. The locality of the site is depicted in Figure 1.1 and the location of the properties on Nelson Parade are depicted in Figure 1.2.



Figure 1.1 Locality map – Hunters Hill



Source: <http://maps.au.nearmap.com/>

Figure 1.2 Site location – Nelson Parade, Hunters Hill

---

## 1.2 PURPOSE OF REMEDIATION WORKS

PNSW is responsible for the development and delivery of the remediation of the former Radium Hill Company site at Nelson Parade, Hunters Hill. The refinery was in operation from 1911 until 1915 and had the primary function of processing uranium ore for the extraction of radium. As part of the process, uranium, radium and lead were extracted from the ore.

Following the closure of the refinery, residential dwellings were constructed on sections of the site. Since the 1960s, testing and further assessment has improved the understanding of site contaminants, which includes localised materials with elevated radiological levels and impacts from heavy metals and hydrocarbons.

In 2020, due to local opposition to onsite encapsulation an alternative remediation option was identified by PNSW. The new remediation option complies with the earlier commitment not to dispose of material to the SITA EDL and identifies an option for the complete removal of all RSW from the site, removing the requirement for onsite containment of materials. In May 2020 Property NSW undertook further community consultation with residents of Nelson Parade to discuss this remediation option as outlined in an updated Remediation Action Plan (2020 RAP) (WSP, 2020). General feedback on the updated proposal has been positive, with strong support for offsite disposal.

---

## 1.3 OBJECTIVES

This Construction Traffic Management Plan (CTMP) seeks to outline the following:

- A description of the existing conditions of the road network which are likely to be affected by the CTMP.
- A description of the proposed construction works including works areas, traffic generation and haulage routes.
- Traffic management measures, such as the implementation of traffic controls, to provide safe passage and minimise traffic delays and traffic impacts, including queuing.
- The provision of example Traffic Control Plans (TCPs) to provide a safe work site and safe working conditions during the project.
- Preparation of a Vehicle Movement Plan (VMP) to indicate possible haul routes to construction area on Nelson Parade from the nearby arterial road network.
- A description of the roles and responsibilities of various personnel involved with the project, relating to both project and traffic management.

This CTMP has been developed for PNSW for the project to meet the Conditions of Consent as stated in **C2(c) (SSD 08\_008)**

---

## 1.4 STAKEHOLDERS

Several key stakeholders have been identified and have been consulted or considered during the development of the CTMP. These stakeholders include:

- Project Sponsor: Property NSW
- Hunter's Hill Council
- Transport for NSW
- Emergency Services including:
  - NSW Ambulance
  - Fire and Rescue NSW
  - NSW Police
  - State Emergency Services (SES)
- Residents and businesses
- Road users
- Sydney Buses (Route 505 and 538).

---

## 1.5 REPORT ASSUMPTIONS AND EXCLUSIONS

The following tasks are outside of the scope of this CTMP:

- Sight distance checks at intersections along haulage route
- Construction vehicle impact on road pavement, and
- The design of access intersections including site entrances.

---

## 1.6 REPORT STRUCTURE

This CTMP report consists of the following sections:

- Section 2 examines existing road conditions and traffic volumes.
- Section 3 describes the proposed construction works, site compound locations, working hours and haulage routes.
- Section 4 assesses the likely impacts of the works, including on the road network, access, on-street parking, public transport and active transport.
- Section 5 identifies the mitigation traffic management measures considered for the proposed works during construction, and
- Section 6 provides concluding remarks on the CTMP.

## 2 EXISTING CONDITIONS

---

### 2.1 ROAD NETWORK

As shown in Figure 1.1, the site will be accessible from Burns Bay Road via the collector roads within Hunters Hill. Several key roads near the project site are described below.

#### 2.1.1 BURNS BAY ROAD

Burns Bay Road is an arterial road connecting the suburbs of Lane Cove and Drummoyne. This road is generally a four-lane two-way divided road with a narrow median. The road has an annual average daily traffic (AADT) of approximately 41,000 vehicles per day (*source: Roads and Maritime Traffic Volume Viewer 2020*) with speed limits varying between 60 km/h and 70 km/h.

#### 2.1.2 CHURCH STREET, ALEXANDRA STREET, FERRY STREET, AND WOOLWICH ROAD

These roads are major local roads and together form a local collector route connecting the suburbs of Woolwich and Hunters Hill with Burns Bay Road. These roads are approximately 12 metres wide and are generally undivided two-lane, two-way roads with parking permitted on both sides. The approximate AADT on Church Street is 16,700 vehicles per day while on Woolwich Road it is lower at approximately 7,200 vehicles per day. These roads have a posted speed limit of 50 km/h.

#### 2.1.3 GLADSTONE AVENUE

Gladstone Avenue is a local road with a width of approximately 10 metres. This road has unrestricted parking on both sides. This road serves residential properties and has a posted speed limit of 50 km/h.

#### 2.1.4 PRINCE GEORGE PARADE

Prince George Parade is a local road with a width of approximately 6 metres. This road has unrestricted parking on one side of the loop road, serves residential properties and has a posted speed limit of 50 km/h.

#### 2.1.5 NELSON PARADE

Nelson Parade is a local road with a width ranging from 5–8 metres. The section opposite the project site is approximately 5 metres wide, with unrestricted parking provided on both sides of the road. However, any parking within this street effectively reduces the road to a single lane. This road has a posted speed limit of 50 km/h and is signed as a no through road. No turning facility is provided at the end of the road. This road serves 29 residential properties.

---

### 2.2 TRAFFIC VOLUME DATA

The traffic volume data for this study has been obtained from the Traffic Impact Assessment (TIA) prepared by WSP for this site. It identified traffic surveys which were carried out on Thursday 29 April 2010 at two give-way priority-controlled intersections located on the transport route to Nelson Parade comprising the:

- Woolwich Road/Gladstone Avenue intersection
- Gladstone Avenue/Prince George Parade intersection.

From this survey, it was determined that the AM and PM peak were recorded at 8-9am and 3-4pm respectively.

The TIA noted that more recent traffic counts have not been undertaken as traffic volumes are likely to remain at similar levels. This is due to the road network being located on a peninsula and there being minimal land use change or development since the initial traffic survey. However, to be conservative, a two per cent yearly background traffic growth rate was applied to the 2010 volumes to estimate 2020 volumes for intersection traffic assessment purposes.

### 2.2.1 INTERSECTION PERFORMANCE

Intersection performance was assessed using the intersection traffic modelling software package SIDRA. An annual traffic growth rate of two per cent was applied to the 2010 count data to reflect likely 2020 background traffic volumes.

Table 2.1 summarises the intersection performance of the two surveyed intersections under existing conditions with the projected 2020 background traffic volumes.

Table 2.1 Intersection performance – 2020

Intersection	2020 AM peak hour				2020 PM peak hour			
	DoS <sup>1</sup>	Delay <sup>2</sup> (sec)	LoS <sup>3</sup>	Queue <sup>4</sup> (m)	DoS <sup>1</sup>	Delay <sup>2</sup> (sec)	LoS <sup>3</sup>	Queue <sup>4</sup> (m)
Woolwich Road/ Gladstone Avenue	0.194	9.6	A	2.1 (W)	0.146	8.3	A	1.4 (W)
Gladstone Avenue/ Prince George Parade	0.029	5.7	A	0.8 (E)	0.030	5.7	A	0.8 (E)

- (1) DoS: Degree of Saturation
- (2) Delay: Average delay (seconds)
- (3) LoS: Level of Service
- (4) Queue: 95<sup>th</sup> percentile queue (metres) and approach

The traffic performance at both intersections is good with Level of Service (LOS) A. Whilst the traffic volumes generated due to the project have not been included, given the peak hours of these intersections, their actual peak traffic is likely to occur outside of work shift start and end times for the project. Hence there will be negligible change in the intersections’ performance due to the vehicle trips generated by the project over the course of the day during remediation. Both these intersections have ample spare capacity to comfortably accommodate project related traffic.

## 2.3 PUBLIC TRANSPORT SERVICES

Figure 2.1 shows the two bus routes in the Woolwich and Hunters Hill area, Route 505 and Route 538. Both services use the local collector roads Church Street, Mount Street, Alexandra Street and Woolwich Road. These services terminate at the Woolwich ferry wharf and serve the destinations of Gladesville and the Sydney CBD. Table 2.2 summarises bus routes and service times and number of services.



Source: <https://transportnsw.info/>

Figure 2.1 Bus routes within Hunters Hill

Table 2.2 Public bus services within Hunters Hill

Route	AM			PM		
	First Bus	Last Bus	No. Of Services	First Bus	Last Bus	No. Of Services
505: Woolwich ferry wharf to Sydney CBD (Monday to Friday peak hours' service)	6.51 am	9.03 am	5	-	-	-
505: Sydney CBD to Woolwich ferry wharf (Monday to Friday peak hours' service)	-	-	-	3.35 pm	7.18 pm	8
538: Woolwich ferry wharf to Gladesville (Monday to Friday)	8.26 am	11.20 am	5	12.20 pm	8.15 pm	12
538: Gladesville to Woolwich ferry wharf (Monday to Friday)	6.29 am	11.52 am	9	12.52 pm	14.51 pm	3

Source: <https://transportnsw.info/> viewed June 2020

In addition to the public bus services, school buses also operate along Church Street, Mount Street, Alexandra Street and Woolwich Road serving the Marist Sisters College, Hunters Hill Public School and the Hunters Hill High School. The school bus services are summarised in Table 2.3. Table 2.3 identifies that school bus hours occur between 8.15 am and 8.40 am and 3.15 pm and 3.50 pm on school days only.

Table 2.3 School bus services within Hunters Hill

School	AM			PM		
	First Bus	Last Bus	No. Of Services	First Bus	Last Bus	No. Of Services
Marist Sisters College Woolwich	8.15 am	8.36 am	11	3.25 pm	3.45 pm	14
Hunters Hill High School	8.37 am	8.40 am	2	3.17 pm	3.20 pm	6

Source: <https://transportnsw.info/> viewed February 2019

## 2.4 ACTIVE TRANSPORT

Most of the roads within Hunters Hill and Woolwich have footpaths on both sides so pedestrians are generally well catered for. A significant walking track shown in Figure 2.2, The Great North Walk passes through Hunters Hill, using several roads near the project site including Prince George Parade, Gladstone Avenue and Woolwich Road. This is a recreational route which attracts large groups of walkers who pass the end of Nelson Parade.

There is no dedicated cycling facility provided on the road network near the project site.



Source: WildWalks (viewed in February 2021)

Figure 2.2 Great North Walk through Hunters Hill

## 2.5 ON STREET PARKING

### 2.5.1 NELSON PARADE

Nelson Parade does not have posted parking restrictions. Kerbside yellow linemarking exists along the road section opposite to Kellys Bush Park and along the bend near Prince George Parade to deter on-street parking. The widths of this street allow parking to one side of the road only. In some locations, illegal parking occurs on the footpaths. Based on the site observation, on-street parking capacity is ample for the existing parking demand for residents.

### 2.5.2 PRINCE GEORGE PARADE

Prince George Parade does not have posted parking restrictions. Kerbside yellow linemarking exists around the intersections with Gladstone Avenue and Nelson Parade to deter on-street parking. The road is sufficiently wide to allow for parking on one side of the road and for one truck to pass parked vehicles.

### 2.5.3 GLADSTONE AVENUE

Gladstone Avenue has some posted parking restrictions near intersections with Woolwich Road. As mentioned above, kerbside yellow linemarking exists near the intersection with Prince George Parade to deter on-street parking. The road is approximately 10-metre-wide and has sufficient road width for parking on both sides and for two trucks to pass each other simultaneously. The exception to this is when two trucks turn simultaneously at the intersections with Prince George Parade. Additional car parking can be provided along sections of Gladstone Avenue on both sides of the road away from the transport route intersections.

# 3 PROPOSED CONSTRUCTION WORKS

## 3.1 REMEDIATION PLAN

The remediation works will be divided into five primary phases. The details of the remediation plan can be found in the 2020 *Remediation Action Plan Report*, WSP. The report is summarised below with relation to the traffic and transport needs during construction.

### 3.1.1 PHASE 1A – SURVEY AND SITE ESTABLISHMENT

The key activities from phase 1A include:

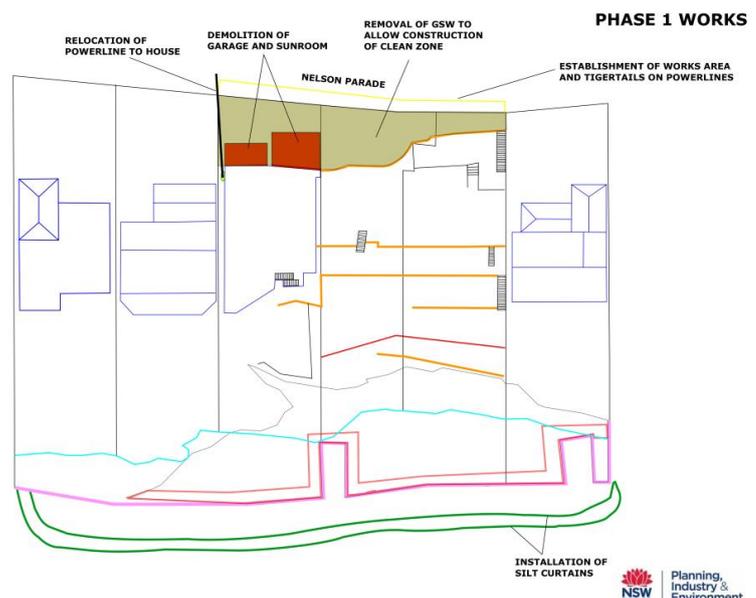
- security fencing,
- establishment of environmental controls and safety barriers,
- improving stair access to the rear of the property, and
- demolition of the front of No. 11 house and associated gardens to create a new entrance to the premises.

### 3.1.2 PHASE 1 – CONSTRUCTION OF CLEAN SITE ACCESS

Establishment of clean ‘remediated’ hardstand is essential to create a clean entry / exit at the site which will eliminate any risk associated of cross contamination. An engineered slab on the remediated upper terrace will remain a clean zone throughout works (subject to ongoing ANSTO assessment). A screened crane landing zone will be established, where loads can be assessed and cleaned if required before being moved into clean zone. The area is proposed to be located at the Nelson Parade entrances to No’s 7, 9 and 11.

Phase 1 works will generally include:

- removal of concrete,
- demolition waste and impacted soil/fill material,
- dust control,
- validation of excavated areas,
- install hardstand (concrete) area, and
- vehicle and edge protection along southern edge of slab.



Source: NSW Department of Industry and Environment

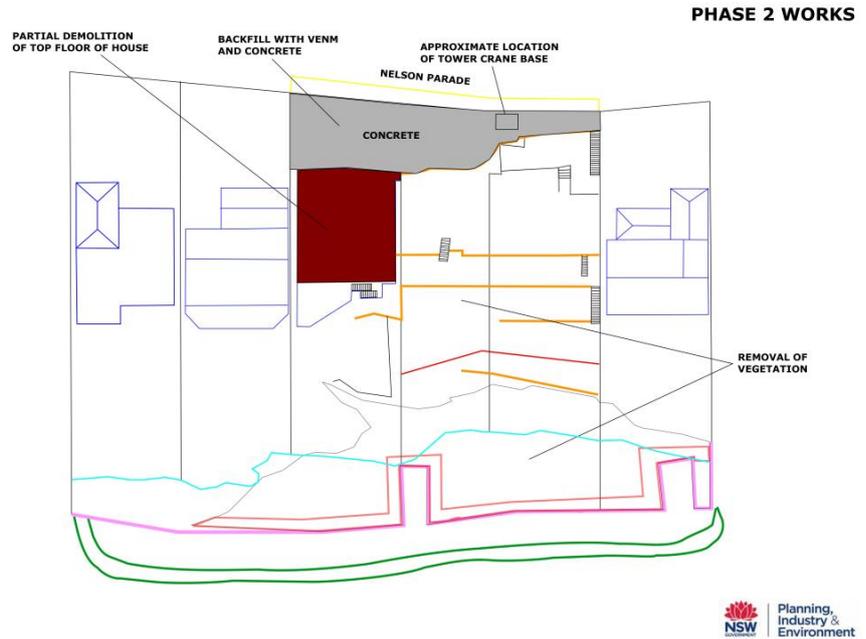
Figure 3.1 Phase 1 Works Indicative Plan

### 3.1.3 PHASE 2 – REMEDIATION WORKS – COMMISSIONING CRANE, PREPARATION OF BAG STORE AND TREE REMOVAL

Following the construction of the remediated hardstand access area and establishment of the remediation site entrance / exit gates in Phase 1, the remediation contractor will commence full establishment and commissioning of the tower crane proposed for the remedial works (refer to Figure 3.2)

Phase 2 works include:

- the establishment of crane base on street level terrace,
- establish tower crane, removal of trees,
- place an excavator on-site,
- excavation of soil,
- validation of excavated works,
- placement of geofabric across the excavation,
- realignment of seawall,
- prepare site for Water Treatment Plant (WTP) installation, and
- partial demolition of the top floor of the house.



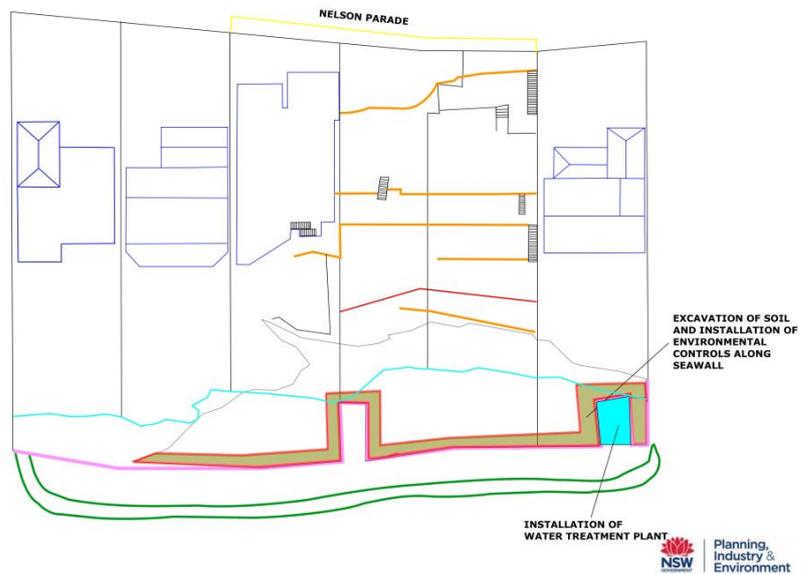
Source: NSW Department of Industry and Environment  
 Figure 3.2 Phase 2 Works Indicative Plan

### 3.1.4 PHASE 3 – STORMWATER WORKS AND SITE INFRASTRUCTURE INSTALL

The Phase 3 works will involve:

- installing the WTP,
- relining sewer main and establishing site wide storm water management controls,
- removal of tree root balls,
- removal of solid coal tar pitch from the foreshore area,
- excavate load and dispose off-site of contaminated material,
- installation of trench or bunding to capture stormwater and protect Parramatta River,
- placement of geofabric across the collection trench and basin, and
- importation of approved clay.

#### PHASE 3 WORKS



Source: NSW Department of Industry and Environment

Figure 3.3 Phase 3 Works Indicative Plan

### 3.1.5 PHASE 4A – REMEDIATION OF MID-TERRACE

Phase 4A works will typically involve:

- excavation of soil/fill,
- remediation of private properties if required,
- bedrock cleaning,
- prepare and bag materials to be transported with shipping containers,
- establishment of sandstone block storage area and cleaning pad, and
- works on retaining walls.

#### PHASE 4A WORKS



Source: NSW Department of Industry and Environment

Figure 3.4 Phase 4A Works Indicative Plan

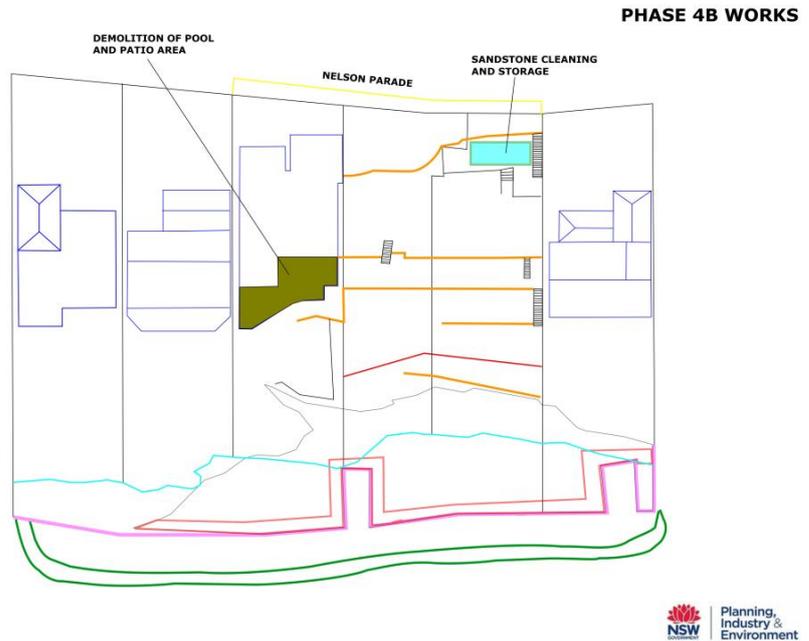
Waste generated at the site during the demolition of the retaining walls shall be assessed, classified and managed in accordance with the NSW EPA’s Waste Classification Guidelines.

The transfer of contaminated soil will be done using sealed shipping containers and transported using semi-trailers.

### 3.1.6 PHASE 4B REMEDIATION WORKS – REMOVAL OF POOL AND OUTDOOR PATIO AREA

Phase 4B Works will include:

- structural inspections,
- removal of asbestos,
- removal of pool and outdoor patio area,
- excavate impacted materials to bedrock within the pool and patio area, and
- validation of excavation area.



Source: NSW Department of Industry and Environment

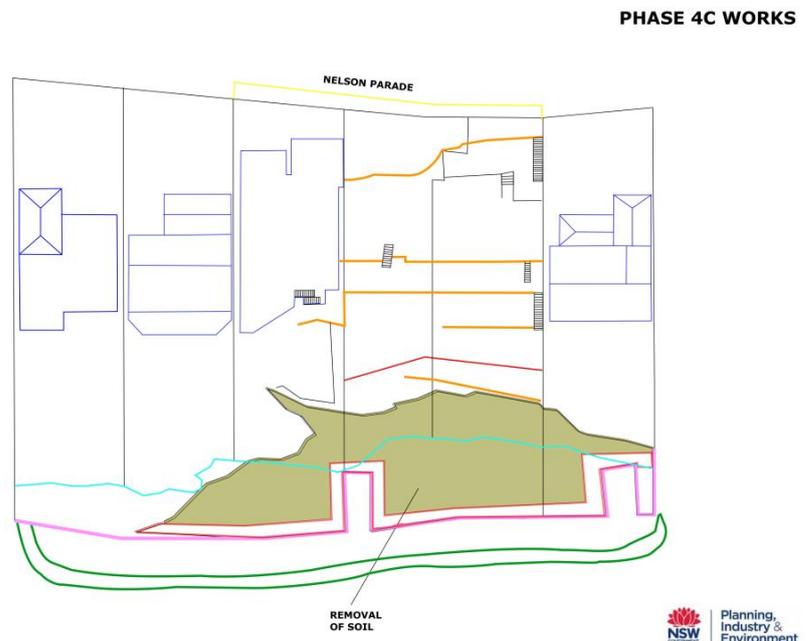
Figure 3.5 Phase 4B Works Indicative Plan



### 3.1.7 PHASE 4C REMEDIATION WORKS – FORESHORE EXCAVATION, SEA WALL SUPPORT, VALIDATION AND FORESHORE BACKFILLING

Phase 4C Works will include:

- excavation of foreshore outside of tidally influenced zone,
- demolition and removal of stone wall returns,
- excavation of remaining spoil behind the sea wall,
- repointing and refurbishment of western face of wall,
- installation of heavy geofabric layer,
- complete remediation works, and
- backfill foreshore terrace with approved underlay and install turf.



Source: NSW Department of Industry and Environment

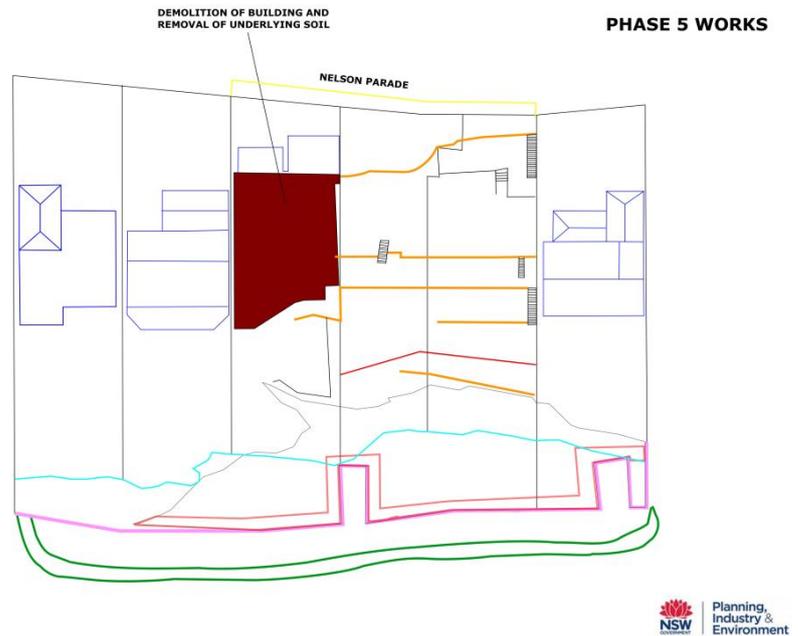
Figure 3.6 Phase 4C Works Indicative Plan



### 3.1.8 PHASE 5 REMEDIATION WORKS – COMPLETION OF EXCAVATION AND DEMOBILISATION

Phase 5 Remediation Works have been identified as the closing phase of the Project. Phase 5 will include:

- disconnect services and undertake demolition to property number 11 Nelson Parade,
- establish new temporary site sheds,
- remove asbestos building materials,
- remove any underlying soil at number 11 Nelson Parade and foreshore area,
- treatment of residual water through the WTP and remove WTP,
- dismantle tower crane,
- remove dust controls,
- decommission power and terminate affected power pole,
- resinate and repair any damaged footpath sustained during works,
- removal of traffic management controls and complete a site hand-over.



Source: NSW Department of Industry and Environment

Figure 3.7 Phase 5 Works Indicative Plan

---

## 3.2 CONSTRUCTION SCHEDULE

It is expected that works will take approximately thirteen months, including site establishment, excavation, validation, reinstatement and demobilisation.

---

## 3.3 SITE COMPOUND

A site compound and site office will be provided within the proposed project site to which day-to-day operations and administration will take place.

---

## 3.4 WORK HOURS

Working hours should be undertaken between 7 am and 6 pm Mon-Fri and 8 am and 1pm on Saturday or hours specified in the planning approval. Any works to be conducted outside the normal working hours needs to have prior agreement.

Contact details of the project manager should be displayed in a prominent location at the site (such as on Nelson Parade hoarding at front entrance and site office). Any incidents should be initially reported to the site supervisor, who will prepare an incident report for the project manager as soon as practicable.

---

## 3.5 CONSTRUCTION VEHICLES

The types of plant and vehicles used for this project will include:

- Delivery trucks
- Waste removal trucks
- Tower cranes and mobile cranes
- Tipper trucks
- Container trucks
- Forklifts, excavators, rollers
- Concrete trucks
- Tree chipper trucks
- Labourers' vehicles
- Machine operators' vehicles.

Some of the work types and associated vehicle types are detailed by stage below:

- **Site establishment Stage 1** – including material deliveries, skip bin delivery/drop off, tiger tail installation and electrical and plumbing works.
- **Site establishment Stage 2** – including materials delivery, clean concrete removal, plant delivery, steel delivery, concrete delivery, DGB delivery.
- **Tree removal and tower crane install** – including chipper and trailer and crane components, city crane and tower crane components, mobile crane and tower crane jib.
- **Soil removal** – articulated vehicles.
- **Backfilling** – tipper trucks.

- **Demolition** – including concrete disposal, plant delivery and pickup.
- **Demobilisation** – including WTP, plant removal, site amenities and tower crane, mobile crane and tower crane jib, remaining materials and waste, tools and service works.

The anticipated plant, construction vehicles and construction staff light vehicle trips for this project are shown in Table 3.1.

Table 3.1 Generated truck trips during each of the relevant phases (red text reflects additional vehicles allocated to associated task in stage column)

Stage	Duration of Stage (Days/Weeks/ Months)	Duration of Stage		Max Daily		Max Hourly	
		Vehicle Type	Vehicle Trips	Vehicle Type	Vehicle Trips	Vehicle Type	Vehicle Trips
General staff	310 days (length of project)	LV	6 (up to 12)	LV	6 (up to 12)	LV	6 (up to 12)
Phase 1 - Site Establishment	32 days	MRV	15	MRV	15	MRV	2
Stage 1 – removal of GSW		SRV (same as LRV)	10	SRV (same as LRV)	10	SRV (same as LRV)	1
		HRV	12	HRV	12	HRV	2
Phase 2 - Tree Removal and demolition	41 days	HRV	3	HRV	3	HRV	1
Tower crane installation		Small HRV	8	Small HRV	8	Small HRV	1
		MRV	9	MRV	9	MRV	1
		HRV	6	SRV	6	HRV	2
Phase 3 - Site Establishment	33 days	Small HRV	2	Small HRV	2	Small HRV	1
Stage 2		MRV	15	MRV	15	MRV	2
		SRV	5	SRV	3	SRV	1
Phase 4 – Soil Excavation Works	140 days	AV	120	AV	3	AV	1
Phase 4 – Backfilling	In conjunction with soil works	MRV	80	MRV	6	MRV	1
Phase 5 - Demolition	In conjunction with soil works	MRV	28	MRV	6	MRV	1
Demobilisation	64 days but includes many days of no work activity	HRV	3	HRV	3	HRV	1
		Small HRV	10	Small HRV	10	Small HRV	1
		MRV	10	MRV	10	MRV	1
		SRV	10	SRV	10	SRV	1

## 3.6 HAULAGE ROUTE

There are only limited route options from the project site to Sydney's highway network. Although not specified by the RAP, the following roads would form the preferred transport route to the site from Burns Bay Road which takes a more direct connection to minimise impact to local roads. Transport of waste to major transport links would be via the following route:

- Nelson Parade
- Prince George Parade
- Gladstone Avenue
- Woolwich Road
- Ferry Street
- Alexandra Street
- Mount Street
- Church Street
- Burns Bay Road.

The proposed local transport route is shown in Figure 3.8 below.



Figure 3.8 Proposed transport route for materials and waste within Hunters Hill

---

## 3.7 SWEPT PATH ANALYSIS

The swept path analyses undertaken for the project works, using specified design vehicles indicate the following:

- Small Rigid Vehicle (SRV) can access the site using the specified transport route on Woolwich Road, Gladstone Avenue, Prince George Parade (south) and Nelson Parade. The SRV can easily manoeuvre at all intersections and when accessing the site (concrete slab area) by reversing in and exiting in a forward manner.
- Medium Rigid Vehicle (MRV) can access the site using the specified transport route on Woolwich Road, Gladstone Avenue, Prince George Parade (south) and Nelson Parade. The MRV can easily manoeuvre at all intersections and when accessing the site (concrete slab area) by reversing in and exiting in a forward manner.
- Heavy Rigid Vehicle (HRV) of 12.5-metre-length would have difficulty accessing the site using the specified transport route on Woolwich Road, Gladstone Avenue, Prince George Parade (south) and Nelson Parade. At the intersection of Prince George Parade and Nelson Parade, the vehicle would need to occupy the full width of the road when negotiating the turns. This is also the case when the vehicle traverses through the road bends on Nelson Parade.

At 11 Nelson Parade, HRV can turn around without impacting the blueprint of the existing structure of the house, making this vehicle suitable to transport materials/machineries until the partial demolition (i.e. garage and sunroom) of 11 Nelson Parade.

- Articulated Vehicle (AV) of 19-metre-length would have significant difficulty accessing the site. It was assessed that the vehicle would need to occupy the full width of the road when negotiating the intersection of Woolwich Road–Gladstone Avenue, Gladstone Avenue–Prince George Parade, Prince George Parade–Nelson parade and through the road bends on Nelson Parade.

At 11 Nelson Parade, AV's can turn around however after the partial demolition (i.e. garage and sunroom) of the structure of the property.

The turning path assessment is attached in Appendix B which depicts the inbound and outbound movements for heavy rigid vehicles and articulated vehicles. These vehicles are considered to be the largest type likely to access the site which would need traffic management consideration.

It is to be noted however that all vehicles are unable to enter and exit the construction site in a forward direction; this is due to the constrained size of the site. However, the construction trucks are to reverse into the site, using part of Nelson Parade as a manoeuvring/turn-around area. All vehicles however are able to be contained wholly within the site in a parked position, which ensures accessibility of Nelson Parade.

# 4 PROPOSED CONSTRUCTION IMPACT

---

## 4.1 ROAD NETWORK CAPACITY

The proposed project is not likely to result in adverse road network capacity. As discussed in Section 2.2.1, the intersections of Woolwich Road/Gladstone Avenue and Gladstone Avenue/Prince George Parade currently perform at LOS A with minimal delay observed. Both intersections have ample spare capacity able to accommodate additional truck movements proposed during the remediation works.

---

## 4.2 ACCESS

Access to all properties along the haulage route are to be maintained during the project works. However, traffic controls would be required to manage the truck access into and out of the site, and to ensure safety at locations where trucks are to occupy the full width of the road when negotiating intersections and road bends. This is likely to occur on Nelson Parade between its intersection with Prince George Parade and the access gate to the site.

Traffic controllers will be located:

- At the entrance to the site on Nelson Parade for the duration of works to communicate inbound and outbound movements and to manage pedestrian accesses around the site
- At the intersection of Nelson Parade and Prince George Parade, and
- At the intersection of Woolwich Road and Gladstone Avenue to manage all articulated vehicle movements.

Drivers will be informed of the risks along the route to ensure that impacts are minimal. This will include ensuring familiarity with the location of crossings, school zones and the geometry of difficult intersections along the route.

---

## 4.3 PARKING

It is a requirement during the project that site access is kept clear for vehicle and construction related movements. A “Works Zone” will be implemented adjacent to the project site which restricts parking to construction vehicles only. The “Works Zone” will be implemented on both sides of Nelson Parade adjacent to No.’s 5, 7, 9, 11, 13 and 15. This will provide a 90-metre works zone on either side of the street (75 metres on both sides when driveways are considered). Practically this will result in the loss of approximately 12 spaces during the construction period. Given the generally low on-street parking occupancy in Nelson Parade, the impact is considered acceptable.

As shown on Figure 4.1, there is a potential for additional parking to be provided at Weil Park. Consultation with Hunters Hill Council would be required should the additional parking areas be required.

Temporary removal of on-street parking will be required at select locations on Nelson Parade, Prince George Parade and Gladstone Avenue, to allow heavy vehicle access to and from the site. During the recent site inspection, it was found that yellow line markings are implemented at intersections and corners to prohibit kerbside stopping for vehicles. These yellow line markings are used to depict “No Stopping” restrictions. As yellow kerbside line markings are already implemented near intersections and some curves, there are only limited kerb sections that require to be cleared from on-street parking, primarily along the north-south section of Nelson Parade as indicated in Figure 4.1.



Figure 4.1 Parking arrangement during remediation works

## 4.4 PUBLIC TRANSPORT

During the project, construction related traffic is unlikely to impose any adverse impacts on public transport services that are currently available in the Hunters Hill area.

## 4.5 ACTIVE TRANSPORT

During the project, construction related traffic is unlikely to impose any adverse impacts on pedestrian and cyclist facilities along most of the transport route. However, it is expected that there will be a minor pedestrian diversion on Nelson Parade at the site access with the erection of the tower crane and installation of the hardstand area likely to require the occupation of the footpath adjacent to the site.

Traffic controls and pedestrian diversion signs (T8-2) as shown in Figure 4.2 will be used to indicate and assist pedestrians to walk along an alternative route around the site (i.e. north side of the footpath or road on Nelson Parade). Although the footpath on the northern side of Nelson Parade is incomplete, there will be minimal impact due to the low numbers of pedestrians. The traffic controller on site will also manage conflicts associated with pedestrians, general traffic and construction traffic to reduce the risk of a collision.



Figure 4.2 Pedestrian diversion signage

## 4.6 RISK ASSESSMENT

A risk assessment has been undertaken to determine the controls required for the protection of the road workers and the road users. Table 4.1 lists the qualitative measures of consequence or impact of a risk event. Table 4.2 lists the qualitative measures of likelihood of a risk event.

Table 4.1 Qualitative measures of consequence or impact

Level	Consequence	Description
6	Insignificant	No property damage.
5	Minor	Minor property damage or first aid treatment required
4	Moderate	Moderate property damage or medical treatment required
3	Major	Major property damage, 1-10 major injuries or severe permanent disablement
2	Severe	Single fatality or 11-20 injuries
1	Catastrophic	Total property damage, multiple fatalities or over 20 injuries.

Table 4.2 Qualitative measures of likelihood

Level	Likelihood	Description
1	Almost certain	The event or hazard: is expected to occur in most circumstances, will probably occur with a frequency in excess of 10 times per year.
2	Very likely	The event or hazard: Will probably occur in most circumstances, will probably occur with a frequency of between 1 and 10 times per year.
3	Likely	The event or hazard: might occur at some time, will probably occur with a frequency of around 1 time per year
4	Unlikely	The event or hazard: could occur at some time, will probably occur with a frequency of 0.1 to 1 times per year (i.e. once in 1 to 10 years).
5	Very unlikely	The event or hazard: May only occur in unusual events will probably occur with a frequency of 0.01 to 0.1 times per year (i.e. once in 10 to 100 years).
6	Almost Unprecedented	The event or hazard: may occur only in exceptional circumstances, will probably occur with a frequency of less than 0.01 times per year (i.e. less than once in 100 years).

The risk evaluation matrix from the *Transport for New South Wales – Traffic Control at Work Sites* manual is shown in Table 4.3.

Table 4.3 Risk evaluation matrix

Risk evaluation matrix								
Risk ratings: Very high <b>VH</b> High <b>H</b> Medium <b>M</b> Low <b>L</b>		Consequence						
		Insignificant C6	Minor C5	Moderate C4	Major C3	Severe C2	Catastrophic C1	
Likelihood	Almost certain	L1	<b>M</b>	<b>H</b>	<b>H</b>	<b>VH</b>	<b>VH</b>	<b>VH</b>
	Very likely	L2	<b>M</b>	<b>M</b>	<b>H</b>	<b>H</b>	<b>VH</b>	<b>VH</b>
	Likely	L3	<b>L</b>	<b>M</b>	<b>M</b>	<b>H</b>	<b>H</b>	<b>VH</b>
	Unlikely	L4	<b>L</b>	<b>L</b>	<b>M</b>	<b>M</b>	<b>H</b>	<b>H</b>
	Very unlikely	L5	<b>L</b>	<b>L</b>	<b>L</b>	<b>M</b>	<b>M</b>	<b>H</b>
	Almost unprecedented	L6	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>M</b>	<b>M</b>

An assessment of the proposed construction works has identified risks that could be encountered are shown in Table 4.4.

Table 4.4 Risk Register

Item	Risk Event	Consequence	Pre-treatment Risk			Treatment	Residual Risk		
			C	L	RR		C	L	RR
1	Cars parked on street whilst construction vehicles are travelling to and from site.	Potential for trucks to either damage parked cars or be unable to travel to construction site.	5	3	M	Temporary no stopping/no parking restrictions will be implemented at required locations.	5	5	L
2	Pedestrian footpath is directly adjacent to construction site.	Pedestrian-vehicle collision.	2	4	H	Traffic control at site to manage pedestrian, construction and general traffic.	2	5	M
3	Construction vehicles will need to take wide turns and use the opposing lane at certain intersections.	A vehicle-vehicle collision.	2	4	H	Traffic controllers on site during peak periods	2	5	M
4	Construction debris or hazardous waste could be left behind by trucks leaving the site.	Vehicles, pedestrians or cyclists could impact or trip on debris left behind on the road.	4	2	H	A wash down facility (or equivalent control) will be constructed by the remediation contractor on site.	4	4	M
5	Construction vehicles making noise within residential areas could lead to complaints about the projects.	Delay of project.	5	2	M	Drivers will be instructed to avoid the use of compression braking in built-up areas.	5	4	L
6	Children will be crossing roads to access the school on Woolwich Road.	Large trucks that are not usually in the area will be an unfamiliar hazard for children. Potential pedestrian-vehicle collision.	2	4	H	Drivers will be trained on the route and any potential hazards. Traffic controllers will be present during potential times of conflict	2	5	M
7	Opposition by residents about project	Delay of project.	5	3	M	Active communication with local community.	5	4	L
8	Risk of council not approving plan	Delay of project.	5	3	M	Ensure plan thoroughly outlines a method to reduce construction traffic impacts.	5	4	L
9	Not supplying adequate offset parking	Leads to complaints and possible delay of project.	5	3	M	Clear signage of restricted parking areas and active communication with local residents.	5	4	L

# 5 MITIGATION MEASURES AND SITE MANAGEMENT

---

## 5.1 PERMIT REQUIREMENT

The project site is located within the Hunter's Hill Local Government area with access via the local roads.

A Road occupancy permit has been approved by Hunters Hill Council. The permit application included the assessment of Traffic Management Plans and Works Zone application, and temporary removal of on-street parking, as discussed in Section 4.3, to ensure safe access by large trucks to enter/exit the site.

Consultation with Hunters Hill Council regarding the use of Weil park is ongoing and an agreement would be established before use of Weil park is required.

---

## 5.2 TRAFFIC CONTROL PLAN

The Roads and Maritime's *Guide to Traffic Control at Work Sites* describes a Traffic Control Plan (TCP) as a diagram showing signs and devices arranged to warn traffic and guide it around, past or, if necessary, through a work site or temporary hazard. The TCP is to detail:

- the location,
- spacing and sizes of all signs and devices,
- the location and lengths of tapers,
- all pavement markings and delineators,
- any containment or safety fencing,
- flashing arrow signs,
- portable traffic signals,
- variable message signs,
- roadwork speed zones and,
- pedestrian routes.

The TCP is to be developed in line with the principles and objectives of this CTMP, Roads and Maritime's guideline, AS1742 Part 3 – Traffic control devices for works on roads, and the NSW Road Rules, 2014.

All activities associated with the project are to be undertaken wholly within its boundaries accessible from Nelson Parade. To ensure compliance with Transport for NSW's guidelines, it is recommended that the traffic control plan be developed as per TCP 195 as shown in Appendix A attached. The proposed signs at the entry are listed in Table 5.1 below.

Table 5.1 Proposed traffic signs at approaches to the site entry

Sign Graphic	Sign Name And Number	Quantity
	Trucks (crossing or entering) symbolic W5-22 <i>W5-22 is to be used to replace the superseded Trucks Turning warning sign (W5-205) shown in TCP 195.</i>	4
	XX m on left (proposed to be located 100 metres at the approach to the site entry) W8-207(L)	1
	XX m on right (proposed to be located 100 metres at the approach to the site entry) W8-207(R)	1

Additionally, as discussed in section 4.5, pedestrian management at the site access will be implemented during some short-term temporary occupation of the footpath to install the tower crane and hardstand area. Appropriate signage to be installed as appropriate to direct and assist pedestrians around the work site.

## 5.3 STAKEHOLDER MANAGEMENT

The stakeholders identified in section 1.4 of this report will be kept informed or consulted (where necessary) of the commencement date of the project and any traffic impact that may occur in addition to those noted in this report.

This responsibility will be assigned to the Project Manager. Any consultation or notification of the proposed works shall utilise the most suitable communication materials including letters, brochures, e-mails, newspaper advertisement or using temporary Variable Message Signs (VMS) where necessary.

The Project Manager shall include in the communication materials to the stakeholders' relevant information including, however not limited to:

- The location of the proposed works that may impact the traffic operations on public roads
- Expected duration of works
- The estimated delays to traffic
- Provide contact details of the responsible personnel.

## 5.4 EMERGENCY ACCESS MANAGEMENT

During project activities, a right-of-way will be provided for emergency vehicle access and thoroughfare. The NSW Police, Ambulance, NSW Fire and Emergency Services, and State Emergency Service (SES) will be informed of the commencement of the proposed project, and any implementation of short/long term temporary road closure.

---

## 5.5 COMMUNITY RESPONSE LINE

A community response line will be maintained to receive, report and respond to any community concerns received during the duration of the project. The Project Manager shall ensure all traffic-related concerns associated with traffic management of the project site be addressed as soon as possible to ensure the safety of the public and workers.

---

## 5.6 WASTE TRACKING REQUIREMENTS

Materials excavated from the site and disposed of off-site must be tracked to provide detailed and accurate information about the location and quantity of all materials, both on and off site from the time of their excavation, until their disposal. Asbestos waste must be tracked using the NSW EPA's WasteLocate system from pickup to disposal.

All vehicle movements are to be entered into a material tracking register showing the registration number, time, material type, quantity, stockpile origin and destination. The register will be kept on site and copies submitted to PNSW on request. To minimise the impact of the project all trucks will have loads covered, be inspected prior to departure and washed if required. The procedures for material handling will be reviewed by PNSW.

---

## 5.7 DRIVERS CODE OF CONDUCT

To minimise the impact of construction works associated with truck activities on-road, all truck drivers will be informed, trained and instructed to undertake the following:

- Compression braking noise – avoid the use of compression braking in built-up areas.
- NSW Road Rules – ensure compliance with NSW Road Rules, 2014 always, including operating to the posted speed limit on all roads.
- Haulage Route – all drivers are to follow the haulage route adopted in this report.
- Queuing – no queuing shall occur on the public road by construction vehicles.
- Traversing through narrow roads – truck drivers must be made aware of the narrow road widths to/from the site. At a number of intersections, heavy rigid trucks or larger would have to occupy the full width of the road, thus likely to result in conflict/access issue with the opposing traffic. Truck drivers are to be considerate to other road users when accessing these narrow roads and abide by directions made by traffic controllers/spotters which may be present at the intersections.
- Covering of loads – all trucks delivering to the site shall consist of the appropriate load covering system.
- Clean Zone – Trucks will be loaded in a clean zone to ensure no dirt gets on the wheels or exterior of the vehicles.

The responsibilities to inform, train, coordinate and instruct truck drivers of the above will be assigned to the Contractor's Project Manager or suitably qualified delegates.

---

## 5.8 CLEAN ZONE

A sealed clean zone adjacent to Nelson Parade will be implemented. Restrictions that bags, pallets and shipping containers cannot have any outside dirt will be implemented to prevent any dirt getting on the wheels or outside of the truck.

---

## 5.9 COUNCIL WASTE COLLECTION

Council collects garbage and recycling on Fridays, usually before midday. Construction traffic will be managed as to not interfere with waste collection.

---

## 5.10 PROJECT PERSONNEL

### 5.10.1 *PROPERTY NSW PROJECT MANAGER*

The role and responsibility of the PNSW Project Manager is to:

- Review and approve this Construction Traffic Management Plan, including the associated Vehicle Movement Plan and Traffic Control Plan proposed to be implemented to address the traffic conflict identified resulting from the remediation works.
- Understand all traffic management arrangements and control measures. This includes an understanding of the requirements for traffic control measures in Traffic Control at Work Sites (TCWS).
- Report all observed deficiencies in traffic management measures to relevant staff for action.
- Be a point of contact on behalf of the site management team dealing with Transport for NSW, Hunter's Hill Council and all stakeholders identified in this plan.
- Initiate necessary community engagement with affected stakeholders for the undertaking of works associated with the project prior to the works commencing, including the establishment of all access protocols.
- Respond as needed to all concerns received through the community response phone line.

### 5.10.2 *CONTRACTOR'S PROJECT MANAGER*

The role of the Contractor's Project Manager has the following responsibilities:

- Engages, and is responsible for the appropriate Transport for NSW qualified personnel to verify Traffic Control Plans (TCP) prepared by others, inspect the installation of TCPs as shown in approved plans and to modify TCPs where required in compliance with the latest publication of Transport for NSW Traffic Control at Work Sites.
- Where necessary, manage and keep a record of any required approvals or permits prior to works commencing. This includes:
  - Road Occupancy Licence from Transport for NSW.
  - All necessary permits from Hunters Hill Council
  - Roadwork Speed Zone Authorisation (SZA) from Transport for NSW
  - Approval from the relevant road authority for the installation of Variable Message Signs (if required).
  - Approval for the use of oversize vehicles where required.
- Coordinate all aspects of traffic management, including the instruction of all relevant site employees and sub-contractors on the CTMP requirements.
- Ensure that all Traffic Controllers hold the appropriate Transport for NSW qualification(s). Records are to be kept of certification numbers and expiry dates. Any certifications that expire during the works are to be renewed prior to the work commencing.
- Report any deficiencies relating to traffic management to the Property NSW's Project Manager.
- Inform, train and instruct responsible parties of the Drivers Code of Conduct detailed in section 5.7.

### 5.10.3 *SUPERINTENDENT*

The role and responsibility of the Construction Contractor Superintendent is to:

- Check traffic control equipment daily to ensure that control measures comply with the approved TCP. This includes the coordination of maintenance as required.
- Ensure that traffic control equipment is installed and removed as per requirements of the TCWS manual.
- Report any deficiencies relating to traffic management to the Project Manager.
- Hold toolbox meetings on traffic control.
- Observe traffic conditions including delay to vehicles.
- Ensure that delivery vehicle drivers are familiar with arrangements for traffic control.
- Instruct drivers how to enter and exit work sites safely.

#### **5.10.4 EMPLOYEES**

The role and responsibility of Employees is to:

- Hold the appropriate Transport for NSW qualification(s) to perform required duties on-site.
- Adhere to CTMP and TCPs developed for the site.
- Report any deficiencies to the Superintendent, including suggested improvements to management procedures.

# 6 CONCLUSIONS

The CTMP has outlined the likely impacts on the road, public transport and active transport network as a result of the proposed remediation. Although the performance of the road network is unlikely to be significantly impacted by the presence of project traffic, notable safety issues have been identified. Key locations include:

- The entrance to the site on Nelson Parade
- The intersection of Prince George Parade and Nelson Parade
- The intersection of Gladstone Avenue and Woolwich Road.

Traffic controllers located at each location as well as driver training covering the likely risks will mitigate the chances of an incident. The Traffic Control Plan in Appendix A displays the appropriate location of the controllers and signage.

The swept paths analysis has highlighted that an Articulated Vehicle of 19 metre length will have significant difficulty accessing the site. It was assessed that the vehicle would need to occupy the full width of the road when negotiating the intersection of Woolwich Road–Gladstone Avenue, Gladstone Avenue–Prince George Parade, Prince George Parade–Nelson parade and through the road bends on Nelson Parade. At 11 Nelson Parade, AV's can turn around after the partial demolition (i.e. garage and sunroom) of the structure of the property. Traffic controllers will be required to be on the haulage route when AV's are passing through the study area.

To ensure that the project is not delayed all key project personnel will need to be familiar with the risk assessment and the mitigations identified in section 4.6. Many of the risks highlight the need to maintain communication with the local community in this residential area.

# APPENDIX A

## TRAFFIC CONTROL PLAN

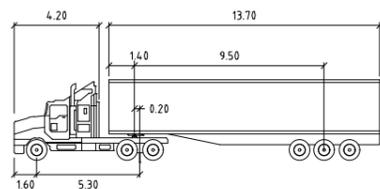
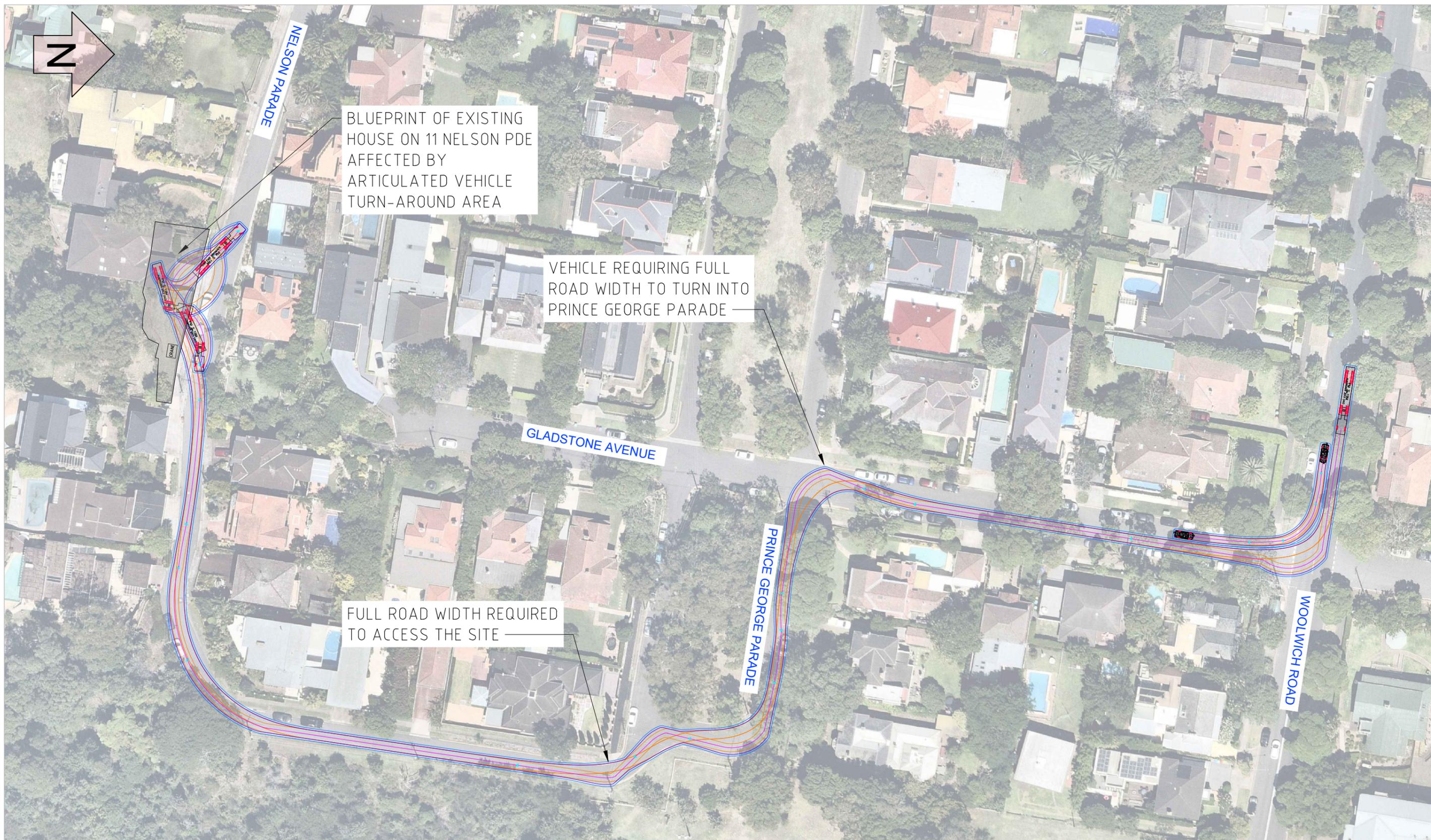




# APPENDIX B

## TURNING PATH ASSESSMENT





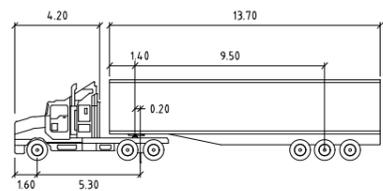
PM S 19M

meters	
Tractor Width	: 4.20
Tractor Track	: 1.60
Tractor Wheelbase	: 5.30
Trailer Length	: 13.70
Trailer Track	: 0.20
Lock to Lock Time	: 6.0
Steering Angle	: 27.8
Articulating Angle	: 70.0

ARTICULATED VEHICLE INBOUND  
TURNING PATH ASSESSMENT

Scale: 1:1000 on A3





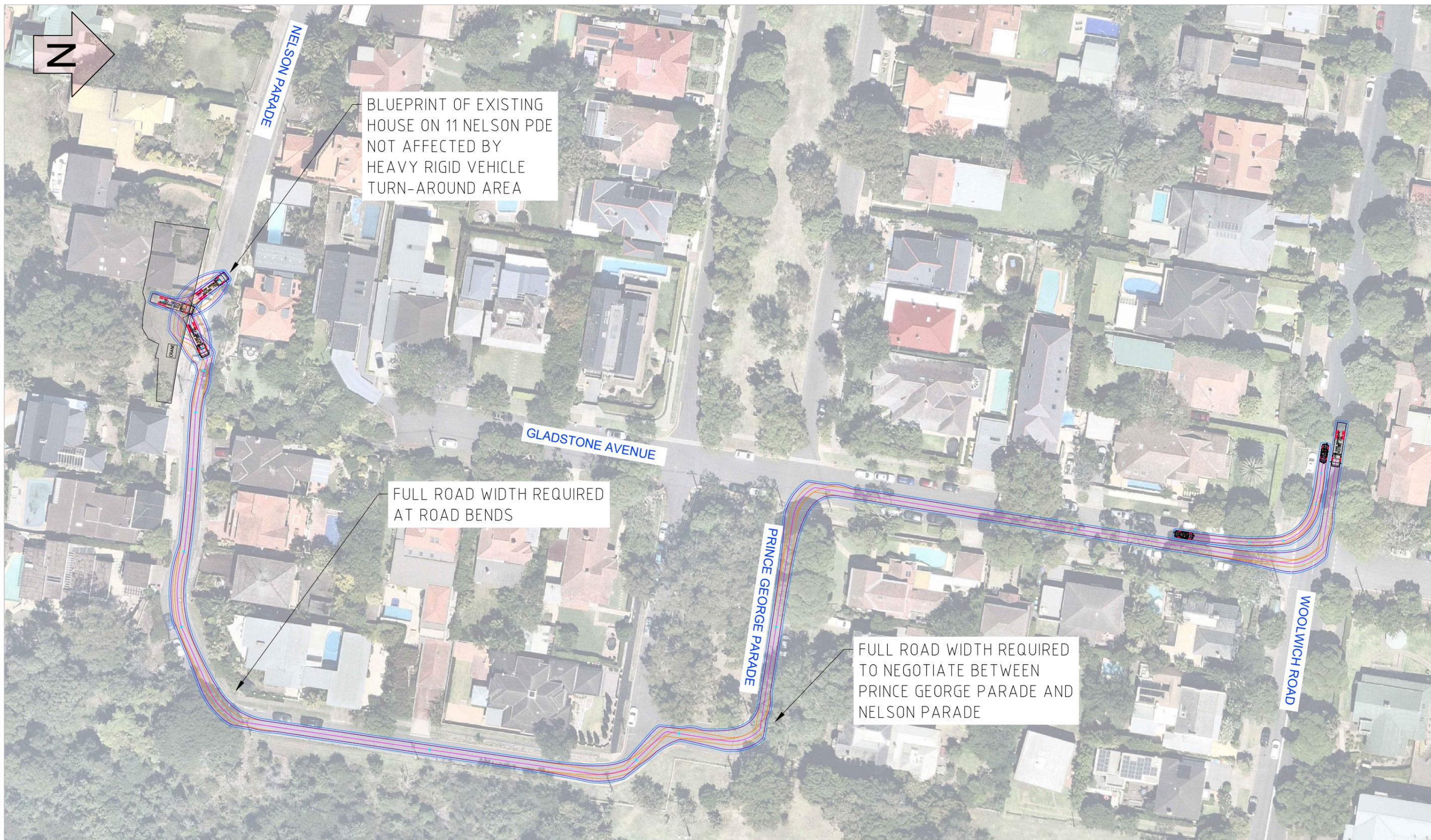
PM S 19M

meters	
Tractor Width	: 4.20
Tractor Track	: 1.60
Tractor Wheelbase	: 5.30
Trailer Length	: 13.70
Trailer Track	: 2.50
Trailer Wheelbase	: 9.50
Trailer Overlap	: 0.20
Lock to Lock Time	: 6.0
Steering Angle	: 27.8
Articulating Angle	: 70.0

ARTICULATED VEHICLE OUTBOUND TURNING PATH ASSESSMENT

Scale: 1:1000 on A3

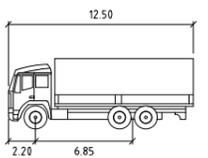




BLUEPRINT OF EXISTING HOUSE ON 11 NELSON PDE NOT AFFECTED BY HEAVY RIGID VEHICLE TURN-AROUND AREA

FULL ROAD WIDTH REQUIRED AT ROAD BENDS

FULL ROAD WIDTH REQUIRED TO NEGOTIATE BETWEEN PRINCE GEORGE PARADE AND NELSON PARADE



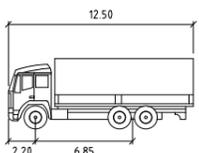
SU TRUCK

	metres
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

HEAVY RIGID VEHICLE INBOUND TURNING PATH ASSESSMENT

Scale: 1:1000 on A3





SU TRUCK

	parameters	values
Width	: meters	2.50
Track	: meters	2.50
Lock to Lock Time	: seconds	6.0
Steering Angle	: degrees	36.6

HEAVY RIGID VEHICLE OUTBOUND  
TURNING PATH ASSESSMENT

Scale: 1:1000 on A3

