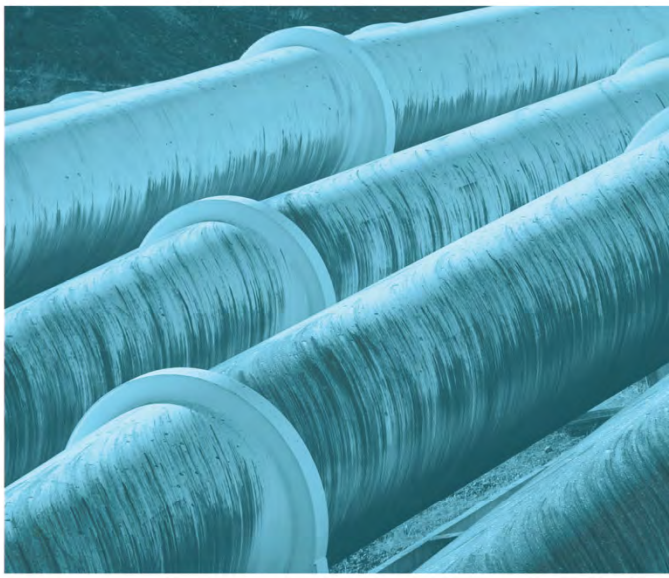



St Peters Concrete Batching Plant and Materials Handling Facility

Environmental Management and Monitoring Plan

Prepared for Boral Resources (NSW) Pty Ltd
May 2019

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St Peters Concrete Batching Plant and Materials Handling Facility

Environmental Management and Monitoring Plan

Report Number

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Client

Boral Resources (NSW) Pty Ltd

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17 May 2019

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1 Introduction

1.1 Background

Boral operates the St Peters Concrete Batching Plant (CBP) and Materials Handling Facility (the handling facility) at 25 Burrows Road South, St Peters (the site). On 31 January 2019, the NSW Department of Planning and Environment (DPE) approved a modification (Modification 11) to Development Consent No. DA 14/96 pertaining to the site operations.

This Environmental Management and Monitoring Plan (EMMP) satisfies Conditions C1 and C5, Part C, Schedule 2 of Development Consent No. DA 14/96. The objective of the EMMP is to establish a framework for environmental management in accordance with Development Consent No. DA 14/96, as well as to meet the requirements of Boral's Health, Safety, Environment and Quality (HSEQ) management system.

1.2 Description of CBP and handling facility

The site is located approximately 7 kilometres (km) south-west of the Sydney Central Business District, in the recently formed Inner West local government area (LGA). Access to the site for both heavy and light vehicles is via a driveway off Burrows Road South with a second driveway for site egress (refer Figure 1.1).

The site receives bulk construction materials (aggregate, sand, and cement) predominantly by rail from Boral's Peppertree and Dunmore quarries and Berrima Cement Works. These construction materials are used to make concrete at the CBP or are temporarily stored at the handling facility for further distribution to other CBPs and asphalt plants within the Sydney metropolitan area. All concrete and construction materials are despatched from the site by road.

The CBP is currently approved to produce 280,000 cubic metres (m^3) of concrete per annum. The handling facility is currently approved to receive, handle and despatch 759,000 tonnes per annum (tpa) of construction materials via road or rail.

1.3 Modification 11

The approved scope of Modification 11 includes:

- an increase to the concrete production limit from 280,0000 m^3 to 750,000 m^3; and
- an increase to the throughput of the handling facility from 760,000 tpa to 1 million tonnes per annum (Mtpa).

The existing CBP will be upgraded to include an additional two alleys, with an additional six silos for cement storage and widening of existing raw material storage (refer Figure 1.1 and Section 1.3.2). Changes to the layout and function of the handling facility will also occur as part of Modification 11 (refer Section 1.3.1).

In addition to the above, a new concrete reclaiming machine and second weighbridge will be installed as part of Modification 11 (refer Figure 1.1). The site's existing surface water management system will also be updated.

Details of the Modification 11 are provided below.

1.3.1 Increased throughput of the handling facility

Modification to the existing layout of the handling facility will provide room for the construction of the concrete plant upgrades (refer Section 1.3.2). This will include (refer Figure 1.1):

- a new dump station and conveyor that leads up to the existing elevated storage bins;
- new aggregate storage walls made of concrete in the north of the handling facility;
- new open aggregate storage bins in the south of the handling facility, which will be filled by trucks delivering aggregates and sand;
- new larger open aggregate storage bins on the northern side of the handling facility, which will be filled by a new overhead conveyer with a tripper car. The conveyer will be connected to the existing conveyer from the train unloading area;
- a new second weighbridge; and
- tipper and drive over dump station.

Refer to Figure 1.1 for the site layout and components associated with the handling facility. Refer to Figure 1.2 for the operational flow diagram of the handling facility.

1.3.2 Increase concrete production

To achieve a production limit of 750,000 m^3 per annum, the existing aggregate storage bins will be widened and new silos and load bays will be installed.

The operation will involve the same process as the existing CBP. That is, it will involve the dry and wet batching of aggregates, sand, cement, fly ash and admixtures with water. To increase the concrete production limit to 750,000 m^3, Modification 11 includes the following components:

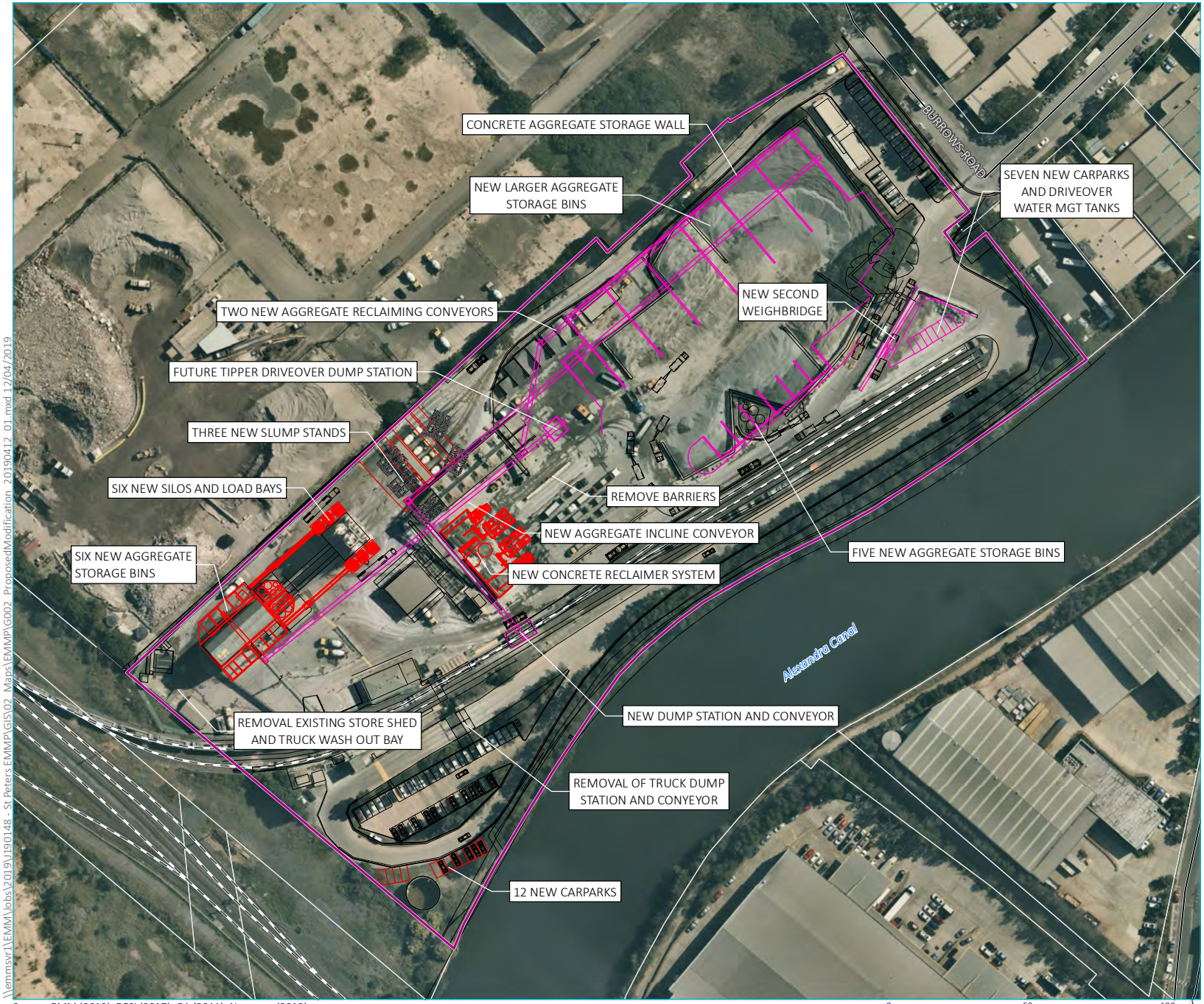
- aggregates, sand and cement will continue to be received at the site (primarily by rail) and stored at the existing elevated aggregate storage bins. Modification 11 includes widening the aggregate storage bins at their existing locations;
- cement will be transferred pneumatically from the train to the elevated silos located above the batching plant. Aggregates and sand will be transferred to the aggregate storage bins via a new aggregate incline conveyor from the handling facility's training unloading area (the existing redundant conveyor will be removed);
- aggregates and sand will be dispensed via two new conveyors to new additional load bays that will be located directly north and south of the existing CBP;
- fly ash will be received via truck and stored in new and existing silos at the existing CBP. These will be gravity dispensed to the CBP below;
- admixtures will continue to be delivered by road tanker and stored in tanks prior to discharge as required by the CBP;
- similar to the current operations, the concrete agitators are filled with dry materials and water at the load bay and mixed. The agitators then proceed to the slump stands where an additional two double position slump stands will be built; and

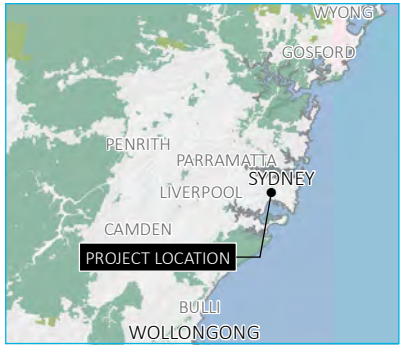
- a new concrete reclaimer with dewatering plate-press to substantially improve the management of returned/waste concrete and the cement slurry water generated through cleaning agitator barrels.

Refer to Figure 1.1 for the site layout and components associated with the CBP. Refer to Figure 1.2 for the operational flow diagram of the CBP.

Modification 11 will include an additional 336 daily truck deliveries (672 truck movements) on an average production day and an additional 533 daily truck deliveries (1,066 truck movements) on a future maximum production day.

Majority of additional daily truck deliveries will be from use of the concrete agitators, but also from an increase to delivery of constituent ingredients to the site (ie cement/fly ash and admixtures).





KEY

- Project site
- Site layout
- Concrete plant feature
- Material handling plant feature
- Rail line
- Local road
- Cadastral boundary

Source: EMM (2019); DFSI (2017); GA (2011); Nearmap (2019)

0 50 100 m

GDA 1994 MGA Zone 56

N

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Modification 11

Boral - St Peters
Environmental management and monitoring plan
Figure 1.1

EMM creating opportunities

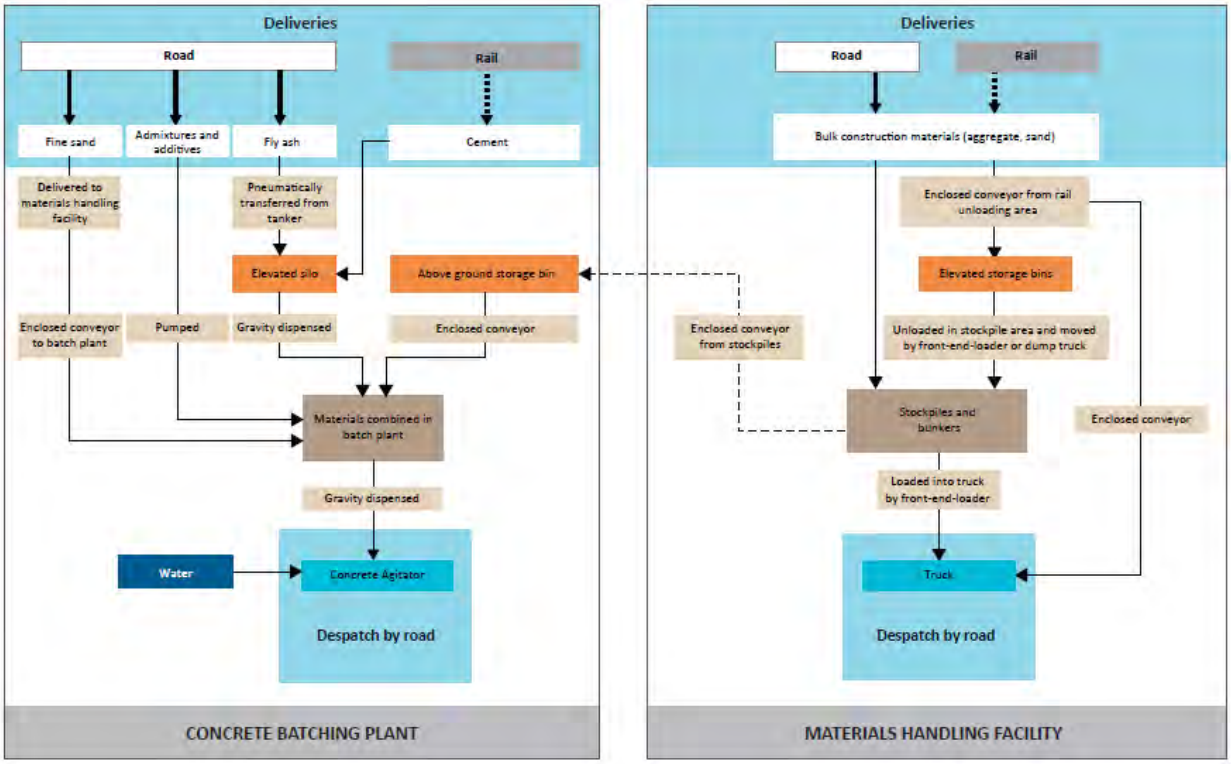


Figure 1.2 Operational flow diagram

1.3.3 Office, amenities and car parking

There are no proposed changes to the existing office and amenity facilities as part of Modification 11.

Modification 11 includes 19 new car park spaces, comprising of (refer Figure 1.1):

- seven new car parks in the south-east corner of the site; and
- 12 new car parks south of the existing 40 car parks in the south-west corner of the site.

1.3.4 Site access

Access to the site is from Burrows Road South and will remain unchanged (refer Figure 1.1). The Traffic Management Plan addresses all arrangements in place for access and vehicular movements to and from site (refer Appendix A).

1.3.5 Power facilities

Modification 11 will incrementally increase the peak power demand and power usage, as the utilisation of equipment will increase. The site's existing power facilities are adequate for the operation of Modification 11. The site formerly accommodated an asphalt plant and hence the power facilities were designed for this additional load. In addition, the energy provider has been consulted to confirm the adequacy of the site's power facilities.

1.4 Purpose and objectives

Boral's St Peters CBP and handling facility has been in operation since 1997.

As noted in Chapter 1, this EMMP has been developed to meet the requirements of Condition C1 and C5, Part C, Schedule 2 of Development Consent No. DA 14/96.

The objective of the EMMP is to establish a framework for environmental management in accordance with Development Consent No. DA 14/96, as well as to meet the requirements of Boral's HSEQ management system.

The objectives of this EMMP are to:

- align Boral's environmental management measures with the new operations and infrastructure as a result of Modification 11;
- ensure dust, water quality and noise parameters resulting from Modification 11 changes are managed to meet the requirements of the development; and
- provide processes and procedures to identify and manage exceedances or pollution events as a result of operation.

1.5 Availability of EMMP

The site managers of the CBP and handling facility are responsible for the distribution of the EMMP to relevant personnel. Copies of the EMMP are issued to the personnel listed in Table 1.1 below.

Table 1.1 Distribution of the EMMP

Position	Issue date
Site manager - CBP	TBC
Site manager - handling facility	TBC
HSE advisor NSW/ACT	TBC
Environmental manger NSW/ACT	TBC

Copies of the EMMP are available in the site offices. A copy of the EMMP will also be made available on Boral's internal online management system website so as to be available to all Boral employees and Boral's company website, as per requirement under Condition C14 of Development Consent No. DA 14/96.

1.6 EMMP structure

The EMMP is structured as follows:

- Introduction (refer Chapter 1);
- Regulatory requirements (refer Chapter 2);
- Strategic framework for environmental management (refer Chapter 3);
- Roles and responsibilities (refer Chapter 4);
- Air quality management plan (refer Chapter 5);

- Noise management plan (refer Chapter 6);
- Communications (refer Chapter 7);
- Incident and non-conformance response (refer Chapter 9);
- Training and review (refer Chapter 10);
- Traffic management plan (Appendix A);
- Surface water management plan (Appendix B); and
- Flood emergency response plan (Appendix B).

1.7 Other relevant policies, documents and guidelines

Other Boral HSEQ policies, documents and guidelines which are referenced in the EMMP include:

- GRP-HSEQ-1-01 Management System Framework and Operational Control;
- GRP-HSEQ-1-02 HSEQ Policy;
- GRP-HSEQ-1-03, Hazard Identification and Risk Management Standard;
- GRP-HSEQ-1-04 Legal and Other Requirements;
- GRP-HSEQ-1-05 Objective Targets and Improvement Plans;
- GRP-HSEQ-2-01 Organisational Roles, and Responsibilities and Resources;
- GRP-HSEQ-2-02 Communication and Consultation;
- GRP-HSEQ-2-02-F02 HSE Alert Template;
- GRP-HSEQ-2-02-F03 Quality Alert Template;
- GRP-HSEQ-2-03 Training Competency and Awareness;
- GRP-HSEQ-2-09 Emergency Preparedness and Response Standard;
- GRP-HSEQ-2-10 Crisis Management Standard;
- GRP-HSEQ-3-01 Monitoring and Review Standard;
- GP-HSEQ-3-02 Incident Reporting Investigation and Action Management;
- GRP-HSEQ-3-03 Performance Assessments and Audits Procedure;
- GRP-HSEQ-4-05 First Aid Standard;
- GRP-HSEQ-8-01 Environmental Aspects and Impacts Procedure;

- GRP-HSEQ-8-02 Water Management Element;
- GRP-HSEQ-8-03 Land Management Procedure;
- GRP-HSEQ-8-04 Waste Management Element;
- GRP-HSEQ-8-05 Noise Management Element;
- GRP-HSEQ-8-06 Air Management Element;
- STPSOP-210 HME Refuelling; and
- DIPNR (2004) Guideline for the Preparation of Environmental Management Plans.

2 Regulatory requirements

2.1 Development consent

Condition C1 and C5 of Part C, Schedule 2 of Development Consent No. DA 14/96 are relevant to the preparation and implementation of this EMMP. Compliance of this EMMP with the relevant requirements is provided in Table 2.1.

Table 2.1 EMMP requirements under Condition C1 and C5, Part C, Schedule 2 of DA 14/96

Condition	Detail required	Location in EMMP
C1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:		
(a) details of:		
(i)	the relevant statutory requirements (including any relevant approval, licence or lease Conditions);	Refer Chapter 2 and 3.
(ii)	any relevant limits or performance measures and criteria; and	Refer Section 5.4. Refer Section 6.3. Refer Appendix A. Refer Appendix B.
(iii)	the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	See above.
(b)	a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Refer Section 5.3.3 and 5.3.4. Refer Section 6.4 and 6.5. Refer Appendix A. Refer Appendix B.
(c) a program to monitor and report on the:		
(i)	impacts and environmental performance of the development; and	Refer Section 5.3. Refer Section 6.4 and 6.5. Refer Appendix A. Refer Appendix B.
(ii)	effectiveness of the management measures set out pursuant to paragraph (c) above;	See above.
(d)	a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Refer Section 5.3.4. Refer Section 6.6. Refer Chapter 9. Refer Appendix A. Refer Appendix B.

Table 2.1 EMMP requirements under Condition C1 and C5, Part C, Schedule 2 of DA 14/96

Condition	Detail required	Location in EMMP
(e)	a program to investigate and implement ways to improve the environmental performance of the development over time;	Refer Section 10.2.1 and 10.3.
(f) a protocol for managing and reporting any:		
(i)	incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);	Refer Section 5.3.4. Refer Section 6.6. Refer Chapter 9.
(ii)	complaint;	Refer Section 5.5. Refer Section 8.3.
(iii)	failure to comply with statutory requirements; and	Refer Section 10.2.1.
(g)	a protocol for periodic review of the plan.	Refer Section 10.2.
C5. Prior to the commencement of operation of any infrastructure works approved under MOD 11, the Applicant must update the existing Environmental Management and Monitoring Plan (EMMP) for the site. The updated Plan must show how dust, noise, vibration, traffic and water quality impacts will be measured, monitored, managed and mitigated. The Plan is to include, but not be limited to, the following:		
(a)	a description of the role, responsibility, authority and accountability of key personnel involved in the environmental management of the development;	Refer Chapter 4.
(b) a description of the procedures that would be implemented to:		
(i)	keep the local community and relevant agencies informed about the operation and environmental performance of the development;	Refer Chapter 8.
(ii)	receive, handle, respond to, and record complaints;	Refer Section 8.3.
(iii)	resolve any disputes that may arise;	Refer Section 8.3.
(iv)	respond to any non-compliance;	Refer Section 5.3.4. Refer Section 6.6. Refer Chapter 9.
(v)	respond to emergencies; and	Refer Chapter 9.
(c)	baseline background dust, noise and water quality data;	Refer Section 5.3.2. Refer Section 6.2. Refer Appendix B.
(d)	a contingency plan to manage any unpredicted impacts and their consequences	Refer Section 5.3.4. Refer Section 6.6. Refer Chapter 9.
(e)	refuelling procedures for site-based mobile plant; and	Refer Chapter 7.

Table 2.1 EMMP requirements under Condition C1 and C5, Part C, Schedule 2 of DA 14/96

Condition	Detail required	Location in EMMP
(f) the following management plans:		
(i)	Traffic Management Plan (see Condition B6);	Refer Appendix A.
(ii)	Air Quality Management Plan (see Condition B13);	Refer Chapter 5.
(iii)	Surface Water Management Plan (see Condition B30); and	Refer Appendix B.
(iv)	Flood Emergency Response Plan (see Condition B31).	Refer Appendix B.

2.2 Environmental protection licence

Under the NSW *Protection of the Environment Operations Act 1997* (POEO Act) the site is not a scheduled premise and does not require an Environment protection licence (EPL). The site previously held EPL 1183, however this EPL is no longer in force.

3 Strategic framework for environmental management

3.1 Statutory requirements

The site's environmental performance criteria are defined in the Development Consent No. DA 14/96. All environmental monitoring and management will be carried out in accordance with the requirements of the development consent.

3.2 Boral HSEQ management system

Boral's has adopted a standardised approach to documenting its HSEQ Management System (HSEQ MS) to ensure best practice in its core operating activities is in place and measured.

The HSEQ MS aims to:

- assist company employees and contractors to identify and understand their responsibilities in meeting their HSEQ obligations;
- provide the primary requirements for implementation of a common HSEQ MS;
- establish the implementation guidelines that sit between relevant legislative, regulatory and industry standard requirements, and the businesses functional and/or line of business operating procedures; and
- provide a single point of reference for company compliance to Australian standards, and to various accreditation bodies.

A full description of the Boral HSEQ can be found in GRP-HSEQ-1-01 Management System Framework and Operational Control.

Boral is committed to the protection and minimisation of impact upon the environment and the communities in which it operates. In order to achieve this, Boral's activities will be executed according to HSEQ policies.

Objective requirements for operations can be found in GRP-HSEQ-1-05 Objective Targets and Improvement Plans procedure. Environmental objectives are communicated to Boral personnel, who are required to assist with the achievement of environmental compliance on-site.

The environment elements within the HSEQ define the minimum standard required for environment management and provide operational controls required to manage environmental risk. The elements are discussed in the following HSEQ documents:

- GRP-HSEQ-8-02 Water Management;
- GRP-HSEQ-8-03 Land Management;
- GRP-HSEQ-8-04 Waste Management;
- GRP-HSEQ-8-05 Noise Management; and
- GRP-HSEQ-8-06 Air Management.

4 Roles and responsibilities

4.1 Environmental roles and responsibilities

The site has established roles and responsibilities for personnel to implement the requirements of this EMMP. Personnel are supported by an organisational structure that provides appropriate levels of support and authority for the effective execution of roles, including environmental management. GRP-HSEQ-2-01 Organisational Roles, and Responsibilities and Resources provides the framework for identifying and developing HSEQ roles and responsibilities. Key roles and responsibilities for the site are summarised in Table 4.1.

Table 4.1 Environmental roles and responsibilities

Role	Responsibility
Site manager - CBP and handling facility	• implement the EMMP on-site including the implementation of relevant resources, and developing site specific components (such as the aspects and impacts register); • undertake the required environmental reporting including the environment permit planner (EPP), regulatory reporting, compliance declaration, filling incidents forms and maintaining records; • lead continuous environmental improvement including providing training, managing incidents and issues as required; • issue clearances for work where required; • co-ordinate with personnel on matters in relation to site operations; and • ensure all personnel possess the required skills and are appropriately trained for the type of work that they are undertaking.
Regional environmental manager/advisor	• support the site manager and site personnel with development and implementation of the EMMP; • assist the site manager with environmental training, managing environmental incidents and issues; • undertake audits as required; • review the site environmental documentation as required; and • assist with developing site EPP and environment limits poster.
All site personnel	• reporting all incidents, near misses and hazards; and • comply with all environmental policies, procedures and instructions; and participate in environmental training, meetings and toolboxes.

Contact details for personnel responsible for implementing this EMMP are provided in Table 4.2 below.

Table 4.2 Site environmental personnel

Position	Person/contact	Mobile number	Phone number
Site manager - CBP	Mark Pizzol	0481 002 734	9517 2498
Site manager - handling facility	Cameron Madeira	0401 893 012	N/A
HSE advisor NSW/ACT	Peter Sciosa	0401 895 380	N/A
Environment manager NSW/ACT	Rod Wallace	0411 659 271	9033 5056

5 Air quality

5.1 Introduction

This chapter has been prepared to satisfy the requirements of Condition B14 of Development Consent No. DA 14/96 for the site. Specifically, the conditions relevant to air quality including providing details on:

- the management of dust impacts, including the impacts of operation of the development;
- baseline background dust data; and
- a contingency plan to manage any unpredicted impacts and their consequences.

5.2 Emission sources and mitigation measures

5.2.1 Particulate matter emission sources

In support of the application for Modification 11, an air quality impact assessment (AQIA) was prepared for the site (Ramboll, 2018). Sources of particulate matter emissions were identified as the following:

- delivery of aggregate and sand material to site by train and truck;
- transfer and handling of aggregate and sand at storage bins, handling facility and within the CBP;
- transferring cement and cement supplement into silos from delivery trucks;
- CBP conveying and loading to agitator trucks;
- wheel-generated dust from trucks movements across paved surfaces;
- transport of returned concrete and concrete washout using the front end loader;
- wind erosion from material storage bins and adjacent paved surfaces; and
- diesel combustion by trucks, mobile plant and locomotive engines.

In the AQIA, particulate matter emissions from these sources were quantified for three size fractions, namely:

- total suspended particulates (TSP);
- particulate matter with an equivalent aerodynamic diameter of 10 microns (PM_{10}); and
- particulate matter with an equivalent aerodynamic diameter of 2.5 microns ($PM_{2.5}$).

Individual emissions sources at the facility were grouped into the following primary source categories:

- CBP processes – conveying, transfers, weigh hopper and mixer loading;
- wheel generated dust on paved roads and surfaces;

- material handling – truck unloading, handling by mobile plant and loading to trucks;
- material processing – crushing, screening and conveying; and
- wind erosion of stockpiles and exposed surfaces.

The total TSP, PM_{10} and $PM_{2.5}$ emissions from each category are ranked in Table 5.1. From the source category ranking presented, the handling and transfer of aggregate and sand material is the primary particulate matter emission source at the facility for TSP and PM_{10}. Diesel combustion emissions are the primary contributing source to emissions of $PM_{2.5}$.

Table 5.1 Emission source ranking for Mod 11

Monitoring location	Rank of emission source by particulate matter size fraction		
	TSP	PM_{10}	$PM_{2.5}$
CBP processes – conveying, transfers, weigh hopper and mixer loading	3	3	4
Diesel Combustion – locomotives and on-site plant	4	2	1
Material handling – truck unloading, handling by mobile plant and loading to trucks	1	1	2
Wheel generated dust on paved roads and surfaces	2	4	3
Wind erosion of stockpiles and exposed surfaces	5	5	5

5.2.2 Particulate matter mitigation measures

The mitigation measures for each of the primary fugitive dust source categories are presented in Table 5.2. To ensure the ongoing effectiveness of these measures, the performance of all on-site mitigation measure technology are routinely checked and serviced to maintain ongoing performance to original specifications.

Table 5.2 Fugitive dust mitigation measures

Emission source category	Mitigation measures
Wheel generated dust on paved roads and surfaces	• all paved/sealed surfaces are swept by a street sweeper on a daily basis; • wet suppression of paved roads is undertaken by water cart on a regular basis; • travel speeds along all unpaved roads within the facility are limited to 30 km/hr. While this is a site safety measure, reduced vehicle travel speed minimises dust generation; • all agitator trucks leaving site must pass through a slump stand prior to exiting; • a purpose built wheel wash is currently being designed for all vehicles exiting the site via the eastern gates; and • all loaded vehicles entering or leaving site must have their loads covered.

Table 5.2 Fugitive dust mitigation measures

Emission source category	Mitigation measures
Material handling – truck unloading, handling by mobile plant and loading to trucks	• train wagon unloading hopper is underground with water sprays fitted; • the use of water sprays in the material storage area to increase the moisture content of stockpiled material; • minimise the fall distance of material from plant (excavator, FEL, etc) to load point (truck, stockpile, etc); • Bunker walls and enclosed, roofed storage; and • cessation of material handling activities under dry, windy conditions with excessive visual dust generation.
CBP processes – conveying, transfers, weigh hopper and mixer loading	• all conveyors are enclosed; • dust extraction system is fitted to the CPB; • loading to sand and aggregate storage silos is an enclosed process; • agitator truck loading point is fitted with automatic doors to enclose loading process; • cement transfer to silos is under vacuum; and • conveyor belts and transfer points are routinely cleaned of overspill.
Wind erosion of stockpiles and exposed surfaces	• entire site is concreted/sealed; • aggregates used in the concrete batching process are loaded from the train onto conveyors via underground storage bins; • water sprays are fitted to the material storage area to increase material moisture content; and • 12 m concrete storage bunker walls provide wind breaks to the material storage area.

5.3 Dust monitoring

5.3.1 Existing dust deposition gauges

Boral currently record monthly dust deposition levels at three locations at the site:

- Site 1 – near site entrance on the left;
- Site 2 – rear corner of property; and
- Site 4 – along Road near exit.

There are also directional dust gauges installed at Site 1 and 2.

Dust deposition monitoring is conducted in accordance with method AM-19 (NSW EPA, 2007). Method AM-19 relates to the sampling of dust deposition rates on a monthly basis, in accordance with AS/NZS 3580.10.1:2003 - Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method.

This method prescribes that samples are collected every 30 ± 2 days and sent to an appropriate laboratory for analysis of the following parameters:

- insoluble solids – relates to the total filterable material within each sample;
- ash content – relates to the residue remaining following sample combustion by the laboratory (eg non-combustible crustal material, aggregate and cement dust); and
- combustible material – sample content that is lost during sample combustion (eg biological material and coal).

For the purpose of monitoring data interpretation, a sample with a high ash content relative to the insoluble solids may be indicative of the influence of emissions from the site.

Sample notes should be made at the time of collection each month, detailing the amount of water in the sample, presence of any insect/leaf matter/bird droppings, colour of the sample, clear evidence of sample contamination and anything else that may be of use for the interpretation of sample laboratory results.

For assessment against regulatory compliance, insoluble solids are compared to the criteria of 4 g/m^2/month as an annual average. A complete 12-months of dust deposition monitoring is therefore required to assess compliance.

Monitoring results from the on-site dust deposition are posted on the Boral website for public display, in a relevant location for the facility, within one month of receipt of sample analysis.

Monthly results are collated into a spreadsheet for ongoing calculation of annual average for compliance with the assessment criteria of 4 g/m^2/month. Sample observation notes are added to the results spreadsheet.

A yearly report showing the annual average and 12-month rolling average of deposited dust results will be prepared for the annual review report. Compromised samples are noted and excluded from annual average calculations.

5.3.2 Historical dust deposition monitoring

In order to review existing dust deposition levels at site, Boral provided monthly dust deposition levels recorded during 2016 for analysis. Annual average dust deposition levels recorded at the site during 2016 are presented in Table 5.3.

Table 5.3 Annual average dust deposition levels – 2016

Monitoring location	Dust deposition (g/m^2/month)
Site 1	7.2
Site 2	9.1
Site 4	10.4

Notes: 1. NSW EPA Criteria – 4g/m^2/month

All dust deposition gauges were located at or within site boundary in close proximity to operational emission sources. As a result, dust deposition results are above the NSW Environmental Protection Authority (EPA) assessment criterion of 4 g/m^2/month and are not informative for analysis of off-site impacts from Boral emissions. The historic dust deposition monitoring locations will be decommissioned as new real time monitoring system is installed.

As part of Modification 10 for the site, Boral staff undertook a search of Burrows Road and adjacent sites but could not find a suitable location to establish an additional offsite dust gauge that would satisfy the criteria set out by the Australian Standards. Focus will instead be given to the real-time PM_{10} monitoring detailed in Section 5.3.3.

5.3.3 Real-time monitoring network

In order to assess the ongoing performance of the dust mitigation measures at site, Boral will rely on the development and implementation of a real time particulate matter monitoring network. Condition B19 of Development Consent No. DA 14/96 Modification 11 states:

> *Prior to the operation of any new infrastructure approved under MOD 11 the Applicant must establish up to three off-site real-time dust monitors in the vicinity of sensitive receptors R3 and R4 (as identified in Figure 7.1 of the Environmental Assessment for MOD 11). The monitors must:*
>
> *(a) allow for upwind and downwind measurements;*
>
> *(b) monitor real-time particulate matter concentrations; and*
>
> *(c) be sited in a suitable location agreed to by the Planning Secretary.*
>
> *Monitoring requirements, response trigger criteria and response procedures must be incorporated into the AQMP required by Condition B13.*

In order to satisfy this condition, Boral will establish three real-time particulate monitoring units, configured to record PM_{10} concentrations, along the site boundary as follows:

- Site 1 – southern boundary at the back of the CBP;
- Site 2 – western boundary at the agitator parking area; and
- Site 3 – northern boundary at the rear of the neighbouring bus parking area.

The proposed locations of these PM_{10} monitoring units in relation to site boundary is illustrated in Figure 5.1.

As much as practicable taking the constraints of site into consideration, the PM_{10} monitoring units will be installed in accordance with the following criteria specified in Australian Standard AS/NZS 3580.1.1:2016 Methods for Sampling and Analysis of Ambient Air: Part 1.1 Guide to Siting Air Monitoring Equipment (herein referrred to as AS/NZS 3580.1.1):

- a clear sky angle of 120°;
- unrestricted airflow of 360° around the sample inlet;
- >10 m from nearest object or tree dripline;
- >5 m from nearest road; and
- no boiler or incinerator flues nearby.

As highlighted in the AQIA (Ramboll, 2018), the annual wind pattern from measurements at the nearby Bureau of Meteorology (BoM) Sydney Airport weather station is dominated by southerly, north-easterly and north-westerly airflow. The placement of these monitoring locations will therefore provide Boral with upwind/downwind PM_{10} concentrations under the dominant wind conditions. The analysis of upwind and downwind monitoring data will highlight the contribution of Boral operational emissions from background PM_{10} concentrations.

At the time of reporting, the specific make and model for the PM_{10} monitoring is still to be selected. The constraints of the three proposed monitoring locations, specifically with regards to mains power availability, existing and future land uses and access permissions, represent key factors for consideration in the selection of monitoring methods.

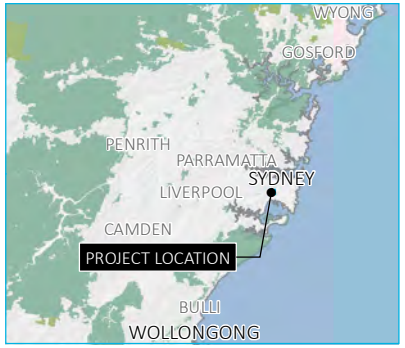
5.3.4 Trigger action response plan

The real-time particulate monitoring network will be used to inform Boral of PM_{10} concentrations which have potential to leave the site boundary and assist with reactive management of particulate matter emissions from site. To support the reactive management, a Trigger Action Response Plan (TARP) will be developed as a stand-alone document once the air quality monitoring units are confirmed.

The TARP will specify tiered, escalating action responses based on measured PM_{10} concentrations and meteorological conditions. Upwind and downwind concentrations will be critical to the determination of impacts from the site. Realtime meteorological monitoring data will be sourced from the BoM Sydney Airport weather station, located 2.5 km south of the site.

The TARP document will serve the following purposes:

- specify PM_{10} concentration levels and meteorological conditions that could lead to an adverse impact at neighbouring receptors;
- provide specific mitigation and management measures to be implemented in the event of elevated PM_{10} concentrations associated with site operations; and
- detail the roles and responsibilities of site personnel in the event of trigger conditions being reached.



KEY

- Proposed monitoring location
- Project site
- Rail line
- Main road
- Local road
- Vehicular track
- Watercourse/drainage line
- Waterbody
- Cadastral boundary

Source: EMM (2019); DFSI (2017); GA (2011)

0 50 100 m

GDA 1994 MGA Zone 56

N

\\Emmsvr1\emm\Jobs\2019\J190148 - St Peters EMMP\GIS\02 Maps\AQIA\G001 MonitoringLocations 20190408 01.mxd 30/04/2019

Proposed real-time PM_{10} monitoring locations

Boral - St Peters
Air quality management plan
Figure 5.1

EMM
creating opportunities

5.4 Key performance indicators

Key performance indicators (KPI) relating to the management of dust emissions from the facility are a specified in Table 5.4.

Table 5.4 Key performance indicators – air quality

Key performance indicator	Measure
Well controlled operational emission sources	No site-generated PM_{10} trigger level exceedances, confirmed through data analysis
Minimisation of dust and silt loading on paved surfaces	Regular deployment of street sweeper and water cart to paved surfaces, in particular transport routes about site
No track out of material to public roads	Any observed spillage or tracking onto public roads will be removed within 24 hours
Stockpiles maintained to minimise wind blown dust generation	All stockpiles to be kept below the height of the enclosed bunker walls
No dust complaints made without analysis and response	Detailed response to all complaints listed in complaints register

5.5 Complaints reporting

Any complaint received by Boral regarding dust impacts from the site will be acted on within 24-hours in the following manner:

- details of the complaint (eg date, time, specifics and complainants contact details) will be noted;
- activities occurring during the complaint period to be investigated. Coincident PM_{10} monitoring and meteorological conditions (eg wind speed and direction, air temperature and recent rainfall) to be analysed;
- log findings of operations and PM_{10}/meteorological condition review during the complaint period in the complaints register. Review management practices as necessary; and
- respond to complainant with findings of the review.

The details of any dust-related complaint will be logged in an appropriate register, with investigation findings and actions noted. All complaints received will be logged in Boral's incident management system (SIMS) and incident register and listed in the annual review report.

5.6 References

EPA 2007, Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales, NSW Environmental Protection Authority.

Ramboll 2018, Air Quality Impact Assessment Boral St Peters Terminal - Modification 11, prepared for Boral Resources (NSW) Pty Ltd.

AS/NZS 3580.10.1:2003 - Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method.

AS/NZS 3580.1.1:2016 Methods for Sampling and Analysis of Ambient Air: Part 1.1 Guide to Siting Air Monitoring Equipment

6 Noise

6.1 Introduction

This chapter has been prepared to satisfy the noise and vibration requirements of conditions B23 to B25 of Development Consent No. DA 14/96 for the site. Specifically, the conditions relevant to noise and vibration including providing details on:

- the management of construction noise and vibration impacts in consideration of the *Interim Construction Noise Guideline* (DECC, 2009), DIN 4150-3 (1992-02) Structural Vibration – Effects of Vibration on Structures (German Institute of Standardisation 1999) and *Environmental Noise Management Assessing Vibration: a Technical Guide* (DEC 2006); and

- implementation of operational noise in consideration of noise limits presented in Table 3 of Development Consent No. DA 14/96.

6.2 Existing environment

The site and the nearest sensitive receptors are located in an acoustic environment with relatively high ambient noise levels.

Noise and Vibration Impact Assessment, Modification 11, Boral St Peters (EMM 2018) was prepared for the environmental assessment of Modification 11. It references noise monitoring methodology and results reported in *Noise assessment - Modification of development consent, Boral St Peters* (EMM 2016), which was prepared for the environmental assessment of Modification 10. The noise monitoring data remains valid and representative of existing noise levels. The nearest representative noise sensitive locations to the site are displayed in Table 6.1. These locations were utilised for noise modelling.

Table 6.1 Assessment locations

ID	Receiver type[1]	Address
R1	Residential	10 Terry Street, Tempe
R2	Residential	383 Princes Highway, Sydenham (Corner of Yelverton Street and Princes Highway)
R3	Residential	Bellevue Street, Tempe

Note: 1. as defined in the Noise Policy for Industry (EPA 2017) (NPFI).

Ambient noise monitoring was undertaken by EMM during March 2016 at 11 Yelverton Street, Sydenham. Results of the ambient noise survey are summarised in Table 6.2.

Table 6.2 Summary of existing and ambient background noise levels (EMM 2018 referencing EMM 2016)

Monitoring location	Period[1]	RBL[2] dB(A)	Ambient $L_{Aeq\ period}$ noise level [3], dB
NM1 – 11 Yelverton Street, Sydenham	Day	54	69
	Evening	52	66
	Night	45	62

Notes: 1.day: 7 am - 6 pm Monday - Saturday; 8 am - 6 pm Sundays and public holidays; Evening: 6 pm - 10 pm; Night: all remaining periods;
2. RBL is the overall single figure background level representing each assessment period (day/evening/night) over the whole monitoring period; and
3. represents the energy average noise level over the relevant period.

Operator-attended noise surveys were also conducted at 84 Terry Street, Tempe and 11 Yelverton, Sydenham to qualify the existing acoustic environment and to quantify existing levels of industrial noise at the nearest potentially affected residential areas to the site.

Results of the operator-attended noise survey are displayed in Table 6.3, and identified mostly road traffic noise from the Princess Highway. Aircraft noise and natural sounds such as birds and insects were also identified. Transient industrial-type noise was occasionally audible.

Table 6.3 Attended noise measurements (EMM 2018 referencing EMM 2016)

Monitoring location	Time (hours)	Period[1]	Total 15-minute noise levels, dB			Comments and typical maximum levels
			L_{Aeq}	L_{A90}	L_{Amax}	
84 Terry Street, Tempe	12:30	Day	58	46	78	Road traffic noise from the Princes Highway was the dominant source (45-50 dB). No industrial noise contribution observed. Occasional aircraft over flight noise (71-78 dB). Intermittent bird and foliage noise (45-46 dB).
	22:47	Night	42	39	70	Road traffic noise from the Princes Highway was the dominant source (40 dB). Occasional train noise from south of monitoring location (44-48 dB). Occasional car pass by noise in Terry Street (50- 55 dB).
11 Yelverton Street, Sydenham	11:45	Day	67	60	84	Road traffic noise from the Princes Highway was the dominant noise source (55-65 dB). Occasional transient noise from nearby industrial site audible between breaks in road traffic. Occasional aircraft over flight noise (80-85 dB).
	13:42	Day	74	67	87	Road traffic noise from the Princes Highway was the dominant noise source (65-70 dB). No industrial noise contribution observed. Occasional aircraft over flight noise (80-84 dB).
	22:25	Night	77	54	94	Road traffic noise from the Princes Highway was the dominant noise source (55-65 dB). Very occasional transient noise audible from an industrial site (40-45 dB per noise event). Occasional aircraft over flight noise (85-94 dB). Insect noise constant (approx. 50 dB).

Notes: 1. day: 7 am - 6 pm Monday - Saturday; 8 am - 6 pm Sundays and public holidays; Evening: 6 pm - 10 pm; Night: all remaining periods; and
2. this location is approximately 260 m north-west of the Princes Highway and hence the lower LA90 noise levels.

Existing vibration levels in the area were not quantified. Vibration generating activities at the site result from rail and road transport and the use of mobile plant. It is unlikely that Modification 11 will generate vibration levels that would cause disturbance or risk of damage to neighbouring buildings.

No noise and/or vibration complaints have been received in relation to site operations in the last 12-months.

6.3 Criteria

6.3.1 Construction

Construction noise management levels (NMLs) for each assessment location are provided in Table 6.4.

Table 6.4 Construction NMLs (EMM 2018 referencing EMM 2016)

Assessment location	Day[1] RBL, dB	Standard hours[2] NML, $L_{Aeq, 15min}$, dB
R1 – 10 Terry Street, Tempe	54	64
R2 – 383 Princess Highway, Sydenham	54	64
R2 – Bellevue Street, Tempe	N/A	70

Notes: 1. Monday to Saturday 7 am to 6 pm, Sundays or Public Holidays 8 am to 6 pm; and
2. Monday to Friday 7 am to 6 pm, Saturday 8 am to 1 pm and no work on Sundays or Public Holidays.

6.3.2 Operation

Existing and predicted future noise levels for each assessment location are displayed in Table 6.5.

Table 6.5 Predicted noise levels for approved and proposed operations during NPfI standard meteorological conditions (EMM 2018 referencing EMM 2016)

Assessment location	Existing operations, $L_{Aeq,15min}$, dB			Proposed operations, $LA_{eq,15min}$, dB			Predicted change in noise level, dB			Project noise trigger level, $L_{Aeq,15min}$, dB		
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night
R1	41	41	41	42	42	42	+1	+1	+1	58	48	42
R2	<44	<44	<44	44	44	44	+1	+1	+1	58	48	42
R3	47	47	47	48	48	48	+1	+1	+1	63	63	63

i Operation noise criteria in DA 14/96

The noise assessment criteria for the site is stipulated in Condition B24 of Development Consent No. DA 14/96:

> *B24 The Applicant must ensure that operational noise from the development does not exceed the noise limits presented in Table 3.*
>
> *Table 3: Development Noise Limits (dBA)*

Day and night	***Location***
$LA_{eq\ (16\ minute)}$	
42	*Bellevue Street*
44	*Yelverton Street*

> *Noise generated by the development is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological Conditions), of the NPFI.*

6.3.3 Vibration criteria

Noise assessment criteria for the site are stipulated in the Development Consent No. DA 14/96. The condition regarding noise limits (Condition B25) is reproduced as follows:

> *B25 Vibration caused by construction at any residence or structure outside the site must be limited to:*
>
> *a) for structural damage, the latest version of DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures (German Institute for Standardisation, 1999); and*
>
> *b) for human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: a technical guideline (DEC, 2006) (as may be updated or replaced from time to time).*

6.4 Noise monitoring

The requirement for noise monitoring is not specified in Development Consent No. DA 14/96. Notwithstanding this, noise monitoring shall occur on at least an annual basis as well as in response to any complaints regarding noise. All noise data shall be reported in the annual review report as required in Condition C9 of Development Consent No. DA 14/96.

Operator-attended noise monitoring shall occur at a location representative of the nearest potentially affected noise-sensitive receptor or complainant's location for a minimum of 15 minutes duration. Monitoring shall occur during the night-time period or the period relevant to the nature of the complaint. Attended noise monitoring shall be scheduled with consideration given to the occurrence of typical operations and forecast appropriate meteorological conditions.

Noise monitoring methodology shall be guided by the following standards and guidelines:

- AS 1055.1-1997 Acoustics - Description and measurement of environmental noise - General procedures;
- AS IEC 61672.1-2004 Electroacoustics - Sound level meters – Specifications; and
- *Noise Policy for Industry* (EPA 2017) (NPfI).

All acoustic instrumentation used for monitoring will have current National Association of Testing Authorities (NATA) or manufacturer calibration certificates.

For each 15-minute attended noise monitoring period, the following information will be recorded:

- name of monitoring personnel;
- monitoring location including coordinates and display on map;
- dates and times that monitoring began and ended at each location;
- height of the microphone above the ground and, if relevant, distances to building facades or property boundaries;
- quantitative meteorological data such as temperature, wind speed including the measurement height above ground, wind direction and humidity;
- qualitative meteorological information including cloud cover, fog, rainfall and presence of temperature inversions;
- instrument type and calibration details before and after the monitoring period;
- the $L_{Aeq,15\ minute}$ noise level including total and site contributions;
- statistical noise level descriptors over the 15-minute interval: L_{Amin}, L_{A90}, L_{A10}, L_{A1} and L_{Amax};
- $L_{AF,max}$ noise levels to allow comparison with the relevant sleep disturbance criteria;
- notes identifying the noise sources that contribute to the maximum noise levels and the overall noise environment or for periods of time when a specific noise source is audible;
- an estimate of the noise contribution from site operations or from other identifiable noise sources including other industrial noise;
- measurement of C-weighted and A-weighted level to assess low frequency noise in accordance the NPfI (a 5 dB correction is applicable if the difference between is 15 dB or more); and
- recommendations or comments were considered appropriate.

Further, consideration would be given to the applicability of the modification factors in Section 4 of the NPfI.

6.5 Vibration monitoring

The requirement for vibration monitoring is not specified in Development Consent No. DA 14/96. Notwithstanding this, vibration monitoring may occur in response to complaints received in relation to vibration at neighbouring developments.

Vibration levels will be monitored and assessed in accordance with the methodology provided in *Environmental Noise Management Assessing Vibration: a Technical Guide* (DEC 2006). All vibration data shall be reported in the annual review report as required in Condition C9 of Development Consent No. DA 14/96.

6.6 Corrective action

The following measures shall be implemented as soon as practicable after receipt of a complaint in relation to noise or vibration, or determination of an exceedance of the relevant noise and vibration criteria:

- identify the source that is the cause of the complaint and/or exceedance. This would be done by consultation with the complainant or observations made by the person undertaking noise monitoring;
- consider additional mitigation measures which may include the following:
  - scheduling of noisy or vibration-generating activities;
  - siting of equipment used on-site;
  - use of broadband/non-acoustic reversing alarms; and
  - use of alternative plant and equipment.

Following the adoption of additional mitigation measures, noise and/or vibration monitoring would be undertaken in accordance with the methodology provided in Section 6.4 and Section 6.5 at the relevant location to determine the success of the mitigation measure. Results of the noise and/or vibration monitoring shall be reported in the annual review report.

6.7 References

AS 1055.1-1997 Acoustics - Description and measurement of environmental noise - General procedures.

AS IEC 61672.1-2004 Electroacoustics - Sound level meters – Specifications.

DECC 2009, *Interim Construction Noise Guideline*, NSW Department of Environment and Climate Change.

DEC 2006, *Environmental Noise Management Assessing Vibration: a Technical Guide*, NSW Department of Environment and Conservation.

EMM 2016, *Noise assessment - Modification of development consent, Boral St Peters*, prepared for Boral Resources (NSW) Pty Ltd.

EMM 2018, *Noise and Vibration Impact Assessment, Modification 11, Boral St Peters*, prepared for Boral Resources (NSW) Pty Ltd.

EPA 2017, *Noise Policy for Industry*, NSW Environmental Protection Authority.

German Institute of Standardisation 1999, DIN 4150-3 (1992-02) Structural Vibration – Effects of Vibration on Structures.

7 Refuelling Procedure

The refuelling process is covered in the site training and induction provided to personnel and contractors and described in STPSOP-210 HME Refuelling.

Prior to completing refuelling procedures on-site, all involved personnel must read and sign the designated safe work method statement (SWMS) for refuelling. The SWMS provides detail on the correct and safe method for the refuelling of above ground bunded fuel tanks, refuelling of plant by mobile fuel tankers and refuelling of vehicles at on-site fuel depots.

Prior to the refuelling of above ground bunded tanks, an exclusion zone must be implemented and no entry signage erected. Spill kits are present at the above ground bunded tanks. The fuel tanker driver must inspect that the tank is able to accept the confirmed fuel order and that appropriate venting is available. Visual contact of the lines and pumping equipment must be maintained whilst filling the tank. The tank must be inspected for leaks or over-fill once refuelling is completed.

The refuelling of plant by mobile fuel tankers must only take place in a designated refuelling point. Spill kits are present at these refuelling spots. Prior to entering the refuelling area, the fuel tanker driver must seek approval from the site manager and follow the prescribed safe route. Plant operators must ensure that machinery is parked parallel to the fuel tanker on reasonably level ground. The parking brake and all relevant machinery locks and isolations must be applied to the plant and an exclusion zone must be implemented. Before refuelling commences, the fuel tanker driver must erect no entry signage. All paperwork must be completed by the fuel tanker driver once re-fulling of machinery is completed.

When refuelling vehicles at on-site fuel depots, only one vehicle is permitted at the fuel bay at any time. The engine must be switched off and brakes applied. Static energy should be discharged prior to refuelling by contacting metal components of the vehicle to be refuelled. Any spills must be immediately cleaned utilising the spill kit.

8 Communications

8.1 Communication and consultations

Communication both internally and externally allows Boral to provide and obtain information relevant to environmental compliance, including information related to its significant environmental aspects, environmental performance, compliance obligations and recommendations for continual improvement. Regarding complaints or negative information received from external sources it is imperative that a prompt and clear answer is provided by the site. Communication shall be conducted in accordance with GRP-HSEQ-2-02 Communication and Consultation with an emphasis that all communication adheres to the following points:

- transparent;
- appropriate;
- truthful;
- factual;
- include all relevant information; and
- effectively communicated to external stakeholders.

8.2 Reporting

The site reports on its environmental performance annually in accordance with Development Consent No. DA 14/96.

In accordance with Condition C9, Schedule 2 of Development Consent No. DA 14/96., an annual review report of environmental performance will be prepared for the site. The annual review will:

- describe the development that was carried out in the previous calendar year, and the development that is proposed to be carried out over the next year;
- include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the:
    - relevant statutory requirements, limits or performance measures/criteria;
    - requirements of any plan or program required under this consent;
    - the monitoring results of previous years;
    - the relevant predictions in the EIS and/or subsequent modifications;
- identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
- identify any trends in the monitoring data over the life of the development;

- identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
- describe what measures will be implemented over the next year to improve the environmental performance of the development.

8.3 Complaints handling procedure

It is the responsibility of the site managers to document and act upon complaints received in relation to operation of the CBP and handling facility. A complaints register shall be maintained to enable:

- complaints/concerns received regarding the facility to be documented; and
- an appropriate response to complaints is initiated, which may include changing management practices and/or monitoring procedures or adopting new practices and/or monitoring procedures.

Complaints must be reported to the site managers as soon as is reasonably practicable and ideally within 24 hours of receipt. The site managers will log the complaint within the Safety Information Management System (SIMS) and retain a copy on-site within the on-site environment management system (EMS) folder.

The person recording the complaint should provide the manager with the following information:

- date of the complaint;
- name of the person making the complaint;
- telephone number of the person making the complaint;
- reason for the complaint; and
- actions taken in response to the complaint.

Upon being informed of a complaint the site manager must:

- determine whether any further response actions are required;
- determine whether changes to site management procedures and/or monitoring programs are required; and
- report the complaint in the EPA Annual Return.

8.4 Dispute resolution

Where a complaint cannot be resolved by the community and staff, it will be referred through the dispute resolution process described below.

If the dispute cannot be resolved to the satisfaction of the parties involved, the complaint will be referred to Boral's site manager and operations manager for further resolution.

If the dispute cannot be resolved, Boral Corporate staff and an independent facilitator may become involved to assist the parties to reach a mutually agreeable solution.

9 Incident and non-compliance response

Incidents and non-compliances are managed in accordance with GP-HSEQ-3-02 Incident Reporting Investigation and Action Management procedure. This section summarises the key sections of the HSEQ procedure.

9.1 Definition of incident

HSEQ incidents include, but are not limited to:

- injury to workers;
- damage to plant or property;
- near miss events including dangerous incidents;
- quality (product or service) issues; and
- environmental non-compliances.

All incidents that cause or threaten to cause environmental harm under the POEO Act must be reported immediately to the site manager of the area where the incident occurred.

9.2 Procedure

These minimum mandatory requirements shall be implemented for all incident responses:

- all incidents shall be reported immediately to a site manager, and shall be recorded as defined;
- defined actions shall be taken to respond to any incident (ie manage the incident);
- all internal and external reporting and notification requirements shall be met (eg via PIRMP); and
- all HSEQ incidents shall be investigated to the defined risk level and actions identified, communicated and implemented to prevent recurrence.

During the induction process, visitors, contractors or other personnel will be advised of who to contact if an incident (near miss or non-compliance) occurs or is suspected while they are visiting or engaged in work directed by Boral. Boral follow a detailed incident management chart.

9.3 Initial response to incidents

In the event of an incident, the first priority of present personnel is to attend to any person(s) requiring first aid or medical treatment and to ensure treatment is provided as soon as possible.

Any first aid injuries shall be managed in accordance with GRP-HSEQ-4-05 First Aid Standard.

Areas subject to an incident investigation must be made safe and barricaded off (eg tape or other barrier) to preserve material relevant to any investigation.

The need to secure the scene may be under the direction of WHS or environmental authorities for serious incidents, with various conditions applied.

9.4 Incident reporting

The site managers must ensure that all relevant persons are informed of an incident within any prescribed or defined timeframes. All personnel (including contractors) are responsible for ensuring timely and effective initial internal reporting of incidents that they are involved with or witness. Information provided must be facts only, not statements of opinions or assumptions.

9.4.1 Incident reporting in accordance with the POEO Act

Boral will notify EPA and other relevant authorities included in the site PIRMP, of pollution incidents on or around the site via the EPA Environment Line (telephone 131 555) in accordance with Part 5.7 of the POEO Act. The circumstances where this will take place include:

a) if the actual or potential harm to the health or safety of human beings or ecosystems is not trivial; and

b) if actual or potential loss or property damage (including clean-up costs) associated with an environmental incident exceeds $10,000.

9.4.2 Internal

Contact details for personnel with site safety and environmental responsibilities are provided in Table 4.2. Internal incident notification is incident specific. Detailed incident notification details are provided in Boral's GRP-HSEQ-3-02-A02 Incident Management Chart.

9.4.3 External

The relevant site managers, in consultation with the relevant HSE Advisor, must notify the business unit or regional general manager of Boral if the regulator or other external agenda is to be notified of an incident. Table 4.2 of the PIRMP provides contact details for relevant external authorities that may require notification.

Refer to the GRP-HSEQ-2-09 Emergency Preparedness and Response Standard and the associated forms for any additional contact and procedural information.

9.5 Reporting in accordance with the Development Consent No. DA 14/96

In accordance with condition C10 of Part C, Schedule 2 of the Infrastructure Approval, the DPE must be notified in writing to compliance@planning.nsw.gov.au immediately after becoming aware of an incident and within 7 days of becoming aware of a non-compliance.

9.5.1 Non-compliance notification

The non-compliance notification must identify:

- the development;
- the application number;
- set out the condition of approval that the project is non-compliant with;
- the way in which it does not comply;
- the reasons for the non-compliance (if known); and

- what actions have been taken, or will be taken, to address the non-compliance.

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

9.5.2 Incident notification

The incident notification must identify:

- the development;
- the application number and name; and
- set out the location and nature of the incident.

In accordance with Appendix 2 of the Infrastructure Approval, the following must be followed in the case of an incident on site.

A written incident notification addressing the requirements set out below must be emailed to the Department at the following address: compliance@planning.nsw.gov.au within seven days after the applicant becomes aware of an incident. Notification is required to be given even if the applicant fails to give the notification required under Condition C10 or, having given such notification, subsequently forms the view that an incident has not occurred.

Written notification of an incident must:

- identify the development and application number;
- provide details of the incident including date, time, location, a brief description of what occurred and why it is classified as an incident;
- identify how the incident was detected;
- identify when the applicant became aware of the incident;
- identify any actual or potential non-compliance with conditions of consent;
- describe what immediate steps were taken in relation to the incident;
- identify further action(s) that will be taken in relation to the incident; and
- identify a project contact for further communication regarding the incident.

9.5.3 Incident repot requirements

Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, the applicant must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested.

The incident report must include:

- a summary of the incident;
- outcomes of an incident investigation, including identification of the cause of the incident;
- details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
- details of any communication with other stakeholders regarding the incident.

9.6 Incident investigation

All incidents shall be investigated to a level commensurate with the risk. The purpose of all investigations is to identify:

- the cause or causes of an incident or non-conformance; and
- any preventive and/or corrective actions that, once implemented are to eliminate recurrence of the incident or reduce the likelihood of a recurrence as far as reasonably practicable.

Responsibility for investigating incidents rests with the relevant site manager. The level of investigation depends on the type and severity of the incident or non-conformance. In general, higher risk incidents attract greater resources and formality in the investigation process, which includes specialist skills and methods. An investigation is to be carried out by a competent person or persons as soon as reasonably practicable after a notice of an incident or non-conformance has been received.

The findings of an investigation are to be recorded in SIMS.

9.7 Corrective actions

Following an investigation, the incident investigator should consider corrective actions. Corrective actions deal with responding to the result of an incident. Preventive actions aim to prevent recurrences of similar events. Once the root cause(s) and contributory factors of an incident or non-conformance are established, corrective and/or preventive actions should be identified and implemented in response and to stop the incident or non-conformance from happening again.

Controls are to be selected from the hierarchy of controls in accordance with GRP-HSEQ-1-03 Hazard Identification and Risk Management Standard. An investigator must consult with employees and other workers before finalising any corrective or preventive actions that may impact on operational controls in the workplace.

Furthermore, corrective and preventive actions must be assigned and prioritised (in order of most to least important) with an agreed time set to close them out. All corrective and preventive actions are to be recorded in SIMS.

9.8 Closing incidents

Any nominated corrective or preventive action is to be verified for completion and effectiveness by the site manager before an issue can be closed out.

Boral's incident reporting database system allows actions to be assigned and verified as completed as part of the reporting process.

Once an action is complete, the nominated employee is to send the issue to a nominated management representative to be verified and signed off. This will be defined in the database or through the assigned action in a corresponding incident spreadsheet.

When a non-conforming product is corrected, it must be re-verified to show that it conforms to the requirements. After action verification has completed, the issue can be closed out by a nominated or required management representative.

Closed out issues are tracked in accordance with the GRP-HSEQ-3-01 Monitoring and Review Standard and by the Business Unit's HSE manager and/or quality manager. Any follow up requirements are initiated as they are identified.

9.9 Incident alerts

Incidents that may have broader consequences across Boral should be communicated utilising the HSEQ-2-02-F02 HSE Alert template or the HSEQ-2-02-F03 Quality Alert template, as appropriate.

Before distributing HSE and quality alerts, the appropriate HSE manager or quality manager must approve them. All personal details of any injured person or party directly involved in a serious non-conformance must be kept confidential.

9.10 Incident response roles and responsibilities

The roles and responsibilities for Boral personnel responsible for implementing the incident response procedure are displayed in Table 9.1.

Table 9.1 Incident and non-compliance roles and responsibilities

Role	Personnel	Responsibility
Business unit executive	N/A	• ensure all incidents are investigated and apply resources as needed; and • notify external regulatory agencies when an incident occurs and when required.
Environmental manager NSW/ACT	Rod Wallace	• assist in the HSE and quality incident response and investigation process, as required; and • communicate any necessary changes from corrective and preventive actions to the relevant authorising manager responsible for the procedures within the Boral's HSEQ Management System.
HSE advisor NSW/ACT	Peter Sciosa	• take part in the incident response and investigation process, as appropriate; and • recommend action based on incident data and trends, as relevant.
Person identifying incident	N/A	• take immediate action and immediately notify one-up manager (notify site manager as a minimum).

Table 9.1 Incident and non-compliance roles and responsibilities

Role	Personnel	Responsibility
Incident scene/senior manager	N/A	• contact emergency services (ie ambulance, fire brigade or police), when required; • preserve the incident scene; and • co-ordinate help where needed at the incident scene.
Incident team leader	HSE advisor for the site	• assess the risk and set up a structured approach to link data and activities to non-conformances; • initiate formal incident investigation; • recommend final remedial, corrective and preventive actions to the regional general manager; and • communicate critical issue and findings to other businesses (as appropriate).
All personnel		• report all incidents to the site manager as soon as they occur; and • complete the relevant sections in the incident and investigation form as soon as possible.

10 Training and review

10.1 Training and competency awareness

Training and inductions provided to personnel and contractors are displayed in Table 10.1 below. Training records will be maintained as verification that personnel have received the appropriate training and are competent to fulfil their respective roles.

GRP-HSEQ-2-03 Training Competency and Awareness outlines the procedures and minimum mandatory requirements to ensure an effective system in place to manage training and competency of personnel.

Table 10.1 Training requirements

Requirement	Who	When	Facilitated
Boral Group online induction (includes basic environmental awareness)	Self-facilitated online by personnel and embedded contractors	At commencement of employment and three yearly thereafter	Online
Regional facilitated induction	Regional HSE team	At commencement of employment with some components three yearly thereafter	Regional based induction
Site/business unit induction	All personnel, including contractors and visitors	Before commencement of employment and three yearly thereafter	By site personnel
Environmental awareness training	Supervisors and managers	At commencement of employment in a supervisor role and three yearly thereafter	Online

All levels of induction incorporate basic environmental awareness and all site inductions include an over view of site specific environmental aspects and legal obligations.

10.2 Monitoring and review

GRP-HSEQ-3-01 Monitoring and Review describes the obligations of all Boral sites to monitor and record the key performance characteristics of their operations, which have or may have a significant impact on the environment.

A review of this EMMP will be undertaken, at a minimum of every three years, or where there are significant changes to legislation. Reviews are to be conducted by the environmental manager in consultation with the site managers to ensure suitability and adequacy of the EMMP and associated compliances tools.

10.2.1 Continuous improvement

Continuous improvement of this EMMP will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- identify areas of opportunity for improvement of environmental management and performance;
- determine the cause or causes of non-conformances and deficiencies;

- develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies;
- verify the effectiveness of the corrective and preventative actions;
- document any changes in procedures resulting from process improvement; and
- make comparisons with objectives and targets.

10.3 Performance assessments and audits

In accordance with Condition C9 of Part C, Schedule 2 of Development Consent No. DA 14/96, an annual review of the site's environmental performance will be prepared and submitted to DPE annually.

The site inspection and audit program will be implemented in accordance with GRP-HSEQ-3-03 Performance Assessments and Audits. All records of inspections and audits will be maintained electronically and/or in hard copy on-site. The inspection, self-assurance and audit program for the site is provided in Table 10.2.

Table 10.2 Inspection, self-assurance and audit program

Type	Frequency	Responsibility	Criteria
EPP checklist	Monthly	Site managers	Ensuring implementation of activity based environment actions from compliance obligations
Environment inspection	Monthly	Site managers	Ensuring implementation of compliance requirements from legislations, HSEQ-MS minimum standards and identifying areas of improvement
Site environment assessment tool (SEAT)	Yearly	Site managers and HSE advisor	Conducting self-assurance assessments against environmental compliance and identifying areas of improvement
Compliance and EMS audit	Three yearly	Regional environmental manager and HSE advisor	Conducting environmental compliance audits against regulatory documents and Boral HSEQ policies

Appendix A

Traffic management plan

Traffic Management Plan

St Peters Concrete Batching Plant and Materials

Prepared for Boral Resources (NSW) Pty Limited
May 2019

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Adelaide SA 5000
T 08 8232 2253

MELBOURNE
187 Coventry Street
South Melbourne VIC 3205

PERTH
PO Box 8155
Fremantle WA 6160

CANBERRA
PO Box 9148
Deakin ACT 2600

Traffic Management Plan

St Peters Concrete Plant and Materials Handling Facility

Report Number

J190148 RP1

Client

Boral Resources (NSW) Pty Limited

Date

8 May 2019

Version

v1 Final

Prepared by

Tim Brooker
Associate Transport Planner
8 May 2019

Approved by

Jeremy Slattery
Associate
8 May 2019

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Appendices

Tables

Figures

1 Introduction

1.1 Modification background

Modification 11 to Development Consent No. DA 14/96, which was approved on 31 January 2019, is for an expansion of the St Peters Concrete Batching Plant (CBP) and Materials Handling Facility (the handling facility) at 25 Burrows Road South, St Peters (the site). This will allow for an increase in the annual concrete production from 280,000 cubic metres (m^3) to 750,000 m^3 and an increase in the annual throughput of the handling facility, from 759,000 tonnes per annum (tpa) to 1,000,000 million tonnes per annum (Mtpa). There are also associated increases in the site employee car parking facilities. The additional truck parking demand at the site (eg for the overnight parking of an expanded agitator truck fleet) will be accommodated at other Boral owned or leased sites in the St Peters local area. The proponent for Modification 11 is Boral Resources (NSW) Pty Ltd (Boral).

1.2 Scope and objectives

This Traffic Management Plan (TMP) has been prepared to manage traffic safety on the road network as a result of Modification 11. The purpose of the TMP is to maximise traffic safety for all road users and site personnel and minimise disruption to local road users during the operation of the CBP and handling facility. It identifies management practices, mitigation measures, monitoring procedures and protocols that will be implemented to:

- manage and control the risks associated with traffic management; and
- address the requirements of applicable legislation and Conditions of Consent (CoC) for the modification.

1.2.1 Conditions of Consent

Schedule 2, Condition B6 of the CoC requires an update of the existing TMP prior to commencement of operation. Table 1.1 details the relevant requirements of the CoC and where they are addressed in this TMP.

Table 1.1 Conditions of Consent

No.	Condition	Section in TMP where addressed
B6.	Prior to the commencement of operation of any of the new infrastructure approved under MOD 11 the Applicant must update the existing Traffic Management Plan for the development. The plan must be incorporated into the updated EMMP required by Condition C5 of this consent and must:	
(a)	be prepared by a suitably qualified and experienced person(s);	Section 1.2.4
(b)	be prepared in consultation with Council and the RMS;	Section 1.2.2
(c)	detail vehicle routes, access and parking arrangements;	Chapter 2
(d)	include details of driver training awareness to minimise noise, in particular from reversing alarms and compression braking;	Appendix C
(e)	include a Driver Code of Conduct to:	Appendix C
(i)	minimise conflicts with other road users;	Appendix C
(ii)	minimise road traffic noise;	Appendix C
(iii)	ensure truck drivers use specified routes;	Appendix C

Table 1.1 Conditions of Consent

No.	Condition	Section in TMP where addressed
(iv)	ensure no queuing or parking on the local road or footpaths;	Appendix C
(v)	ensure adherence to all on-site and off-site speed limits;	Appendix C
(vi)	require all loading and unloading to be undertaken on site; and	Appendix C
(vii)	require all vehicles to enter and exit the site in a forward direction;	Appendix C
(f)	include a Heavy Vehicle Management Plan to the satisfaction of Council; and	Section 3.4
(g)	include a program to monitor the effectiveness of these measures.	Section 4.2

1.2.2 Stakeholder consultation

Inner West Council (the Council) and Roads and Maritime Services (RMS) were consulted extensively by the NSW Department of Planning (DPE) during the assessment of the application.

Also, during the preparation of this TMP, further consultation was undertaken in April 2019 with the Council and RMS through the review of draft versions of this report. Copies of the Council and RMS responses to the draft report are included as Appendix B.

1.2.3 Guidelines and standards

External site traffic routes for truck traffic will primarily utilise the classified main road network, wherever this is feasible and a map of approved truck routes has been determined for the Modification 11 following consultation between the DPE, RMS, the Council and Boral.

The internal site road network, traffic circulation roadway widths and internal site car and truck parking areas have been designed to meet the requirements of the Australian Standards AS 2890.1 and AS 2890.2.

1.2.4 Author of this TMP

This TMP is prepared by Dr Tim Brooker, Associate Transport Planner of EMM Consulting Pty Limited (EMM). Tim is a qualified Civil Engineer MIEAust, CPEng and has over 30 years professional experience in transport planning and traffic engineering for a wide range of Government, Transport Infrastructure, Commercial, Industrial and Residential development projects throughout NSW and most of the other states of Australia.

2 Traffic generation, site access and parking

2.1 Heavy vehicles

2.1.1 Transport routes

The major proportion of the Modification 11 generated truck traffic movements will be travelling via the following key access routes:

- Burrows Road South;
- Canal Road;
- The Princes Highway either north or south of Canal Road;
- Burrows Road, north of Canal Road; and
- Ricketty Street.

The approved transport routes for all trucks travelling to and from the site, within the suburb of St Peters and other adjoining suburbs, have been determined by DPE following consultation with the project proponent, the Council and after consideration of community submissions to the project Environmental Impact Statement (EIS).

The approved map of access routes for truck traffic, including major roads and other routes, is shown on Figure 2.1. Mary Street, west of the Princes Highway, is currently subject to a load limit restriction and will not be used by any Modification 11 generated truck traffic.

2.1.2 Hours of operation

The approved hours of operation for the site are 24 hours per day, seven days per week. For general construction industry projects most additional concrete production from the expanded CBP will probably be produced during normal construction working hours which are generally between 7 am to 6 pm on weekdays and between 8 am to 5 pm on Saturdays in most of the local government areas in Inner Sydney. However, where concrete is being supplied to major NSW Government Road and Rail infrastructure projects, this work is more likely to be undertaken on a 24 hours per day, seven days per week basis.

2.1.3 Traffic volumes and frequency

The average and maximum daily numbers of heavy vehicle movements for the site operations were specified in the EIS (TIA) and have not subsequently been modified during the project approvals stage by DPE. These volumes are as follows:

- for the CBP (as specified in the EIS):
  - 524 daily truck loads (1,048 daily truck movements) on an average production day;
  - 667 daily truck loads (1,334 daily truck movements) on a maximum production day;

Source: EMM (2019); DFSI (2017)

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N

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KEY

- Project site
- Rail line
- Main road
- Local road
- Watercourse
- Waterbody
- Approved truck route

Westconnex roads and tunnels

- St Peters interchange surface road (Stage 2)
- St Peters interchange tunnel (Stage 2)
- M4-M5 link mainline tunnel (Stage 3)
- Future Sydney Airport Gateway

Approved truck routes

Boral - St Peters
Traffic management plan
Figure 2.1

EMM creating opportunities

- for the handling facility (as specified in the EIS):
    - 92 daily truck loads (184 daily truck movements) on an average production day; and
    - 145 daily truck loads (290 daily truck movements) on a maximum production day.

The average and maximum peak hourly numbers of heavy vehicle movements for the site operations were also specified in the EIS (TIA) but were subsequently modified during the project approval by DPE, to minimise the future local area peak hour intersection traffic impacts, during the period prior to the completion of Westconnex Stage 3, The approved maximum peak hourly volumes during this period will be effectively as follows:

- for the CBP (as modified by DPE):
    - 44 peak hourly truck loads (88 peak hourly truck movements) during the morning peak period 7 am-9 am on any weekday;
    - 44 peak hourly truck loads (88 peak hourly truck movements) during the afternoon peak period 4 pm-6 pm on any weekday;
- for the handling facility (as specified in the project EIS):
    - 9 peak hourly truck loads (18 peak hourly truck movements) on an average production day; and
    - 15 peak hourly truck loads (30 peak hourly truck movements) on a maximum production day.

2.1.4 Loads, weights and lengths of heavy vehicles

The maximum size of any truck which is approved to visit the site at either the CBP or the handling facility will be seven-axles, which is typically a 3-axle rigid truck plus a 4-axle “quad-dog” trailer.

All trucks of whatever size, either 2,3,4,5,6 or 7 axles will operate up to their normal legal maximum axle loading limits (GML) or to approved higher vehicle mass limits (HML) where individual vehicles are authorised to do so.

2.1.5 Parking arrangement

The approved truck parking areas within the site have not generally been modified for the project. Overnight parking areas for the agitator truck fleet based at the site, will still provide capacity for approximately 40 vehicles to be parked within the site and any other agitator trucks which are based at the site will be parked at other Boral owned or leased sites within the St Peters area.

2.2 Light vehicles

2.2.1 Transport routes

The existing and approved additional workforce and site visitor car traffic which will be visiting the site will not be subject to any limits on access routes as this traffic will not include any heavy vehicles, subject to load limits. The additional light vehicle traffic will primarily use the following routes:

- Burrows Road South;
- Canal Road;

- The Princes Highway either north or south of Canal Road;
- Burrows Road, north of Canal Road; and
- Ricketty Street.

2.2.2 Origin and destination of workforce vehicles

The origins and destinations of the additional workforce light vehicle traffic will be potentially from any locations within the Sydney Metropolitan Region.

2.2.3 Traffic volumes and frequency

The existing site daily light vehicle traffic movements are approximately 150 daily vehicle movements (75 actual vehicles) and the additional daily light vehicle traffic movements from the CBP will be a future 50 daily vehicle movements (25 actual vehicles). These additional workforce traffic movements are anticipated to occur either earlier than or later than the current normal commuter traffic peak periods (on the Canal Road, Burrows Road, Burrows Road South and Ricketty Street routes) and there would generally be no increases in the site employee or visitor car traffic during these peak periods.

2.2.4 Parking arrangement

The existing site car parking capacity is 67 parking spaces, which is sufficient for the typical existing site car parking demand (which is 52 actual vehicles). The additional site peak car parking demand at the site from the CBP and agitator truck workforce will be up to 20 additional vehicles. This additional workforce car parking demand will comfortably be accommodated within the site car parking areas, where an additional 19 car parking spaces will be provided, given that there are typical up to 15 vacant car parking spaces in the site car parks on a normal weekday currently.

3 Traffic management and control

3.1 Traffic safety management

General measures that would be implemented to manage internal site traffic safety issues and safety on the external road network are detailed in Table 3.1.

A range of detailed site traffic flow diagrams have been prepared to address each traffic safety management measure. These plans are included as Appendix A.

Additional internal site traffic safety and traffic management provisions which will be utilised within the site include:

- onsite radio channels;
- all vehicles must adhere to the Australian Road Rules;
- use of flashing beacons and reverse parking beepers for all vehicles including company light vehicles; and
- emergency site access plans.

Table 3.1 Site traffic management plans

Plan Reference	Activity	Responsibility
A1	Traffic Circulation Plan for Agitator Truck	Site Manager
A2	Traffic Circulation Plan for Tankers	Site Manager
A3	Traffic Circulation Plan for Tipper Trucks	Site Manager
A4	Traffic Circulation Plan for Light Vehicles	Site Manager
A5	Emergency Vehicle Access	Site Manager

3.2 Inspection and monitoring

Additional inspection and monitoring programs which will be implemented for Modification 11 include the measures detailed in Table 3.2.

Table 3.2 Inspection and monitoring

Requirement	Responsibility	Frequency
Check traffic speed limit and other traffic control signage installed for the EIS (TMP) and replace any damaged or removed signs.	Site Manager	Weekly
Maintain a daily record of the number of loads of concrete supplied by the concrete batching plant including hourly records for the periods between 7 am-9 am and 4 pm-6 pm on weekdays.	Site Manager	Daily
Quarterly reporting to DPE as per Condition A6 (b) of the concrete plant generated heavy vehicle traffic movements each weekday, between 7 am-9 am and 4 pm-6 pm.	Site Manager	Quarterly
Review this TMP in accordance with Section 4.2 of the TMP.	Site Manager	Biannually

3.3 Driver's code of conduct

A Driver's Code of Conduct has been prepared for construction. The Driver's Code of Conduct is included as Appendix C.

3.4 Heavy vehicle management plan

All site heavy vehicle traffic movements will be constrained to use the approved heavy vehicle routes shown on Figure 2.1.

Internally within the site all light and heavy vehicle movements will be limited by traffic speed control signage to either 10 kilometres per hour (km/hr) or 20 km/hr and will be constrained to use the approved internal site traffic circulation routes as shown on the site plans in Appendix A.

4 Implementation of the TMP

4.1 Roles and responsibilities

The Site Manager is responsible for implementation of this TMP, including undertaking all consultation with key stakeholders and subcontractors. Site personnel (ie truck drivers) are also responsible for the implementation of this TMP. The roles and responsibilities for all personnel are presented in Table 4.1.

Table 4.1 Roles and responsibilities

Role	Responsibility
Site Manager	• ensure that truck drivers training regarding driving routes and Driver's Code of Conduct is included in the induction (and re-induction) of relevant personnel; and • lead the investigation of any traffic-related incidents, issues or complaints.
Truck drivers	• adhere to the designated transport routes at all times; • adhere to rules outlined in the Driver's Code of Conduct; and • report traffic-related incidents or issues to the Site Manager.
All site personnel	• report any incidents or non-observances to the Site Manager.

4.2 Review and continuous improvement

This TMP will be reviewed biannually (every 24-months) to:

- assess the continuing suitability of this TMP in relation to changing site operations, changing traffic conditions in the local St Peters area and other potential changes such as:
  - a potential need to utilise larger heavy vehicles exceeding the weights or dimensions for the largest heavy vehicles currently approved to visit the site;
  - any potential amendments to either internal or external traffic control measures, such as traffic circulation changes within the site or externally at major road traffic signal controlled intersections in the St Peters area; and
- incorporate feedback from external stakeholders, including the Council, RMS and DPE.

In accordance with Schedule 4 Condition 2 of the CoC, the Project Manager will review and update this TMP:

- prior to carrying out any upgrading or decommissioning activities on site;
- within one month of the submission of an incident report under Schedule 4 Condition 3; or
- within one month of any modification to the CoC.

Where changes are required to this TMP, approval from DPE and relevant stakeholders will be consulted prior to changes being made and finalised, and the TMP will be resubmitted to DPE for approval. Relevant stakeholders will be consulted prior to submitting the TMP to DPE.

Regular review of the TMP will allow opportunities for improvement to be identified and implemented, achieving the overall aim of continual improvement.

4.3 Complaints handling

As per section 8.3 of the Environmental Management and Monitoring Plan (EMMP), it is the responsibility of the site managers to document and act upon complaints received in relation to operation of the CBP and materials handling facility. A complaints register shall be maintained to enable:

- complaints/concerns received regarding the facility to be documented; and
- an appropriate response to complaints is initiated (this may include changing management practices/monitoring procedures or adopting new practices/monitoring procedures).

Complaints must be reported to the site managers as soon as is reasonably practicable and ideally within 24 hours of receipt. The site managers will log the complaint within the Safety Information Management System (SIMS) and retain a copy on-site within the on-site environment management system (EMS) folder.

The person recording the complaint should provide the manager with the following information:

- date of the complaint;
- name of the person making the complaint;
- telephone number of the person making the complaint;
- reason for the complaint; and
- actions taken in response to the complaint.

Upon being informed of a complaint the site manager must:

- determine whether any further response actions are required;
- determine whether changes to site management procedures/monitoring programs are required; and
- report the complaint in the EPA Annual Return.

4.4 Incident management

The Site Manager will be notified immediately of all traffic-related incidents. Vehicles will not be moved and/or removed from the scene until the incident has been investigated. Drivers of any vehicle involved in a traffic-related incident will undertake a standard drug and alcohol testing.

All traffic-related incidents on the public road network will be recorded and investigated in consultation with the relevant road authority and emergency services.

4.4.1 Incident notification and duty to notify

If any traffic related incident presents an immediate threat to human health or property, the emergency services will be contacted immediately. Other agencies will be contacted afterwards to satisfy notification obligations.

The contact details for relevant authorities/organisations that may be relevant in the event of an incident or emergency area listed in Table 4.2.

Table 4.2 Relevant authorities contact details

Authorities/Organisation	Contact
DPE incident/non-compliance notifications	compliance@planning.nsw.gov.au
Emergency services	000
Fire and Rescue NSW	1300 729 579
Environment Protection Authority (EPA)	13 15 55
SafeWork NSW	13 10 15
Roads and Maritime Services NSW	13 22 13
The Council	9392 5000

4.4.2 Incident investigation

All traffic related incidents will be investigated by the Site Manager. Vehicles will not be moved and/or removed from the scene until the incident has been investigated. Drivers of any vehicle involved in a traffic-related incident on the public road network will undertake standard drug and alcohol testing as required by emergency services. All traffic-related incidents that occur on the public road network will be investigated in consultation with the relevant road authority and emergency services.

Abbreviations

Boral	Boral Resources (NSW) Pty Ltd
CBP	Concrete Batching Plant
CoC	Conditions of Consent
DCOC	Driver's Code of Conduct
DPE	NSW Department of Planning and Environment
EPA	NSW Environment Protection Authority
EMM	EMM Consulting Pty Limited
EMS	Environmental Management Strategy
EIS	Environmental Impact Statement
GML	maximum axle loading limits
HML	higher mass limits
km/hr	kilometres per hour
the Council	Inner West Council
LGA	Local Government Area
the handling facility	Materials Handling Facility
m^3	cubic metres
Mtpa	million tonnes per annum
NSW	New South Wales
RMS	Roads and Maritime Services
SIMS	Safety Information Management System
TMP	Traffic Management Plan
tpa	tonnes per annum

References

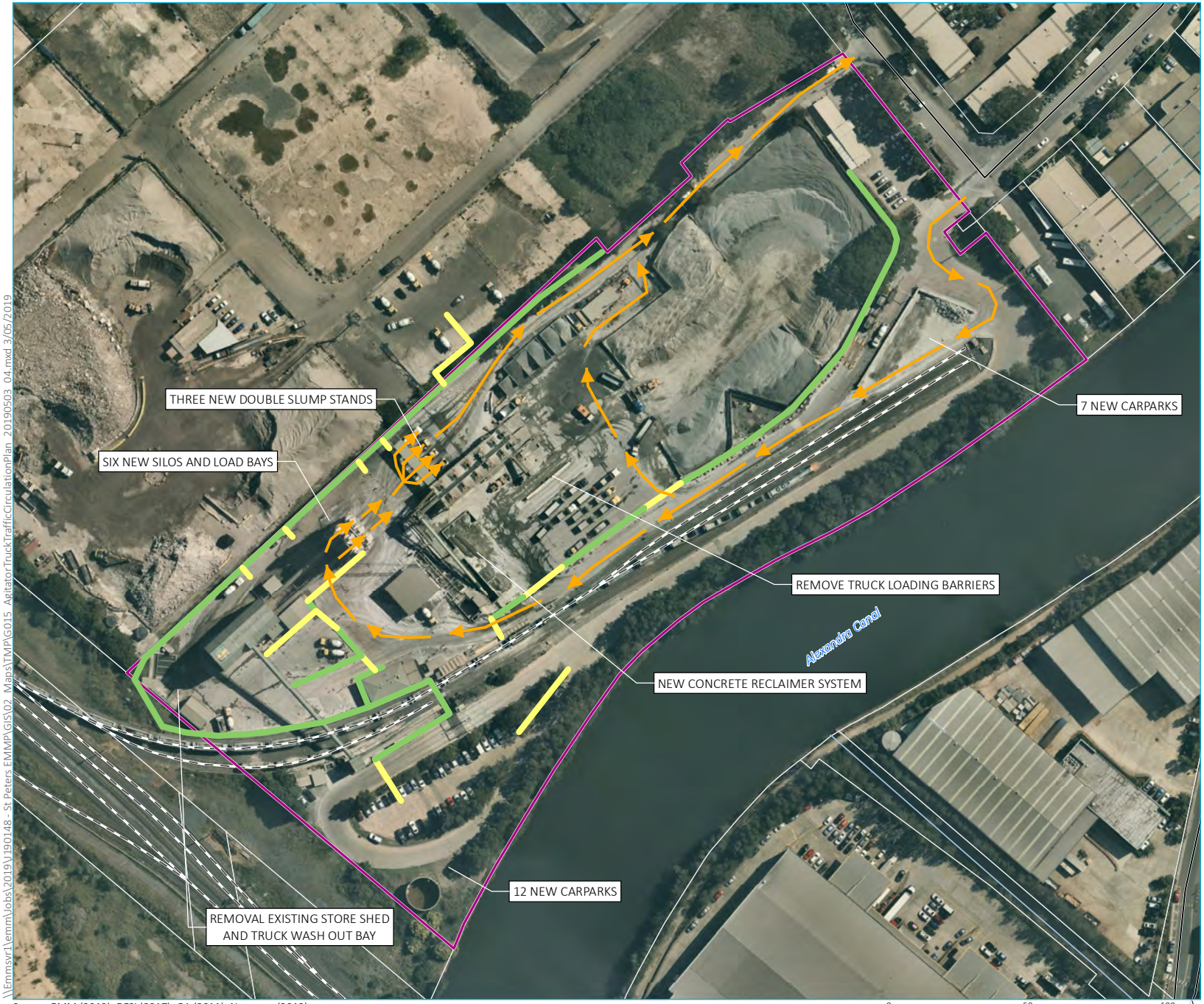
Relevant environmental standards, policies and guidelines relating to traffic and access are provided below:

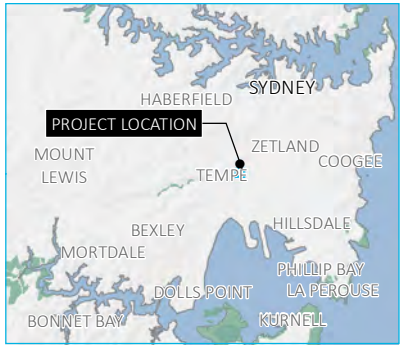
- AS 1742.1 2003, Manual of uniform traffic control devices, General introduction index of signs;
- AS 1742.3 2009, Manual of uniform traffic control devices, Traffic control for works in roads;
- Australian Code for the Transport of Dangerous Goods by Road and Rail, edition 7.6 (2018);
- Austroads Guide to Road Design (2015);
- National Heavy Vehicle Mass and Dimension Limits, NVHR July 2016;
- RMS Traffic Control at worksite manual (2018); and
- Road Transport (Vehicle Registration) Regulation 2017.


Appendix A

Site maps





KEY

- Project site
- Rail line
- Local road
- Watercourse/drainage line
- Cadastral boundary
- Agitator truck traffic circulation

Pedestrian walkway

- Designated walkway
- Protected walkway

Source: EMM (2019); DFSI (2017); GA (2011); Nearmap (2019)

0 50 100 m

GDA 1994 MGA Zone 56

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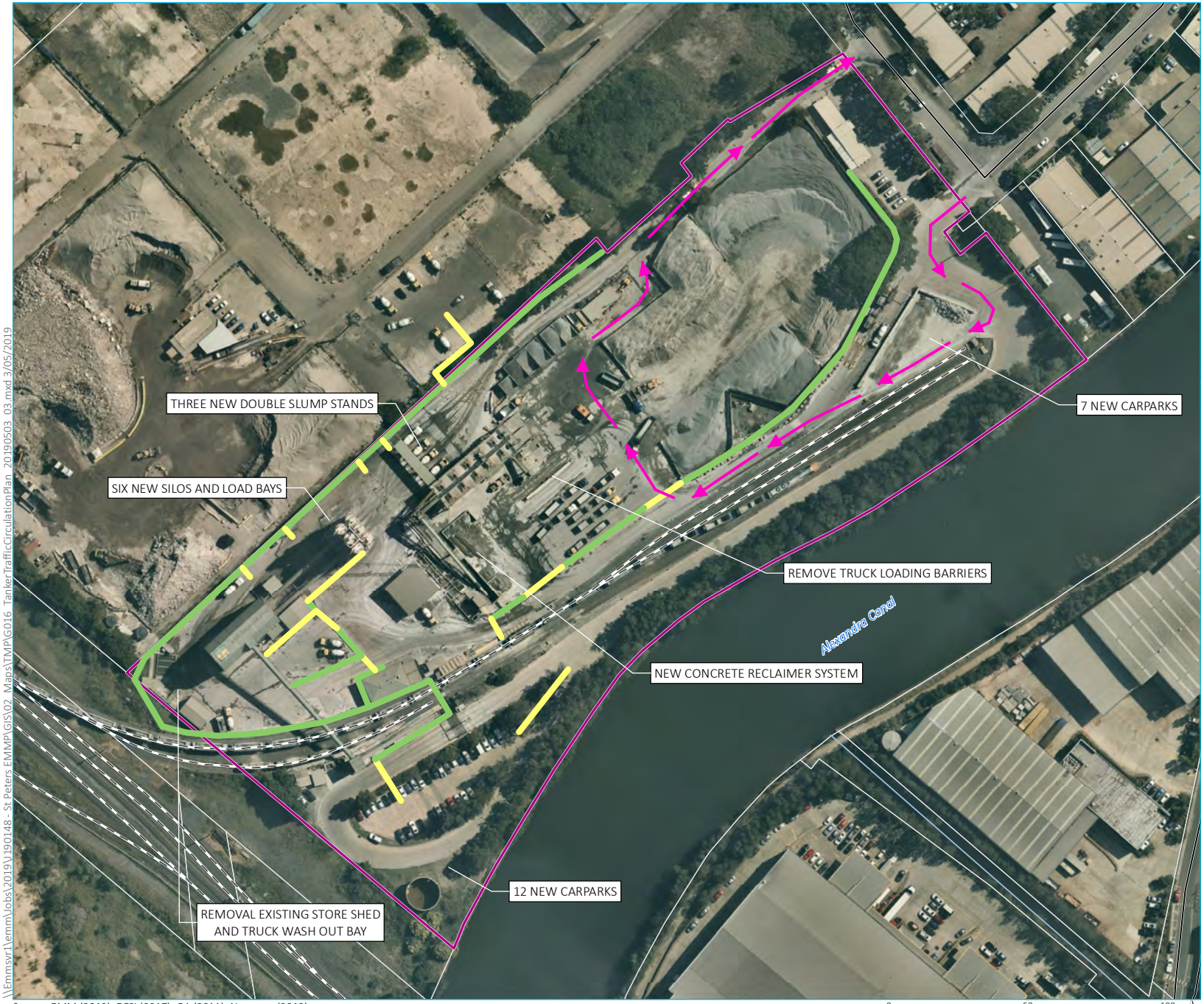
Agitator truck traffic circulation plan

Boral - St Peters
Traffic management plan
Appendix A.1

EMM creating opportunities



KEY

- Project site
- Rail line
- Local road
- Watercourse/drainage line
- Cadastral boundary
- Tanker traffic circulation

Pedestrian walkway

- Designated walkway
- Protected walkway

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Source: EMM (2019); DFSI (2017); GA (2011); Nearmap (2019)

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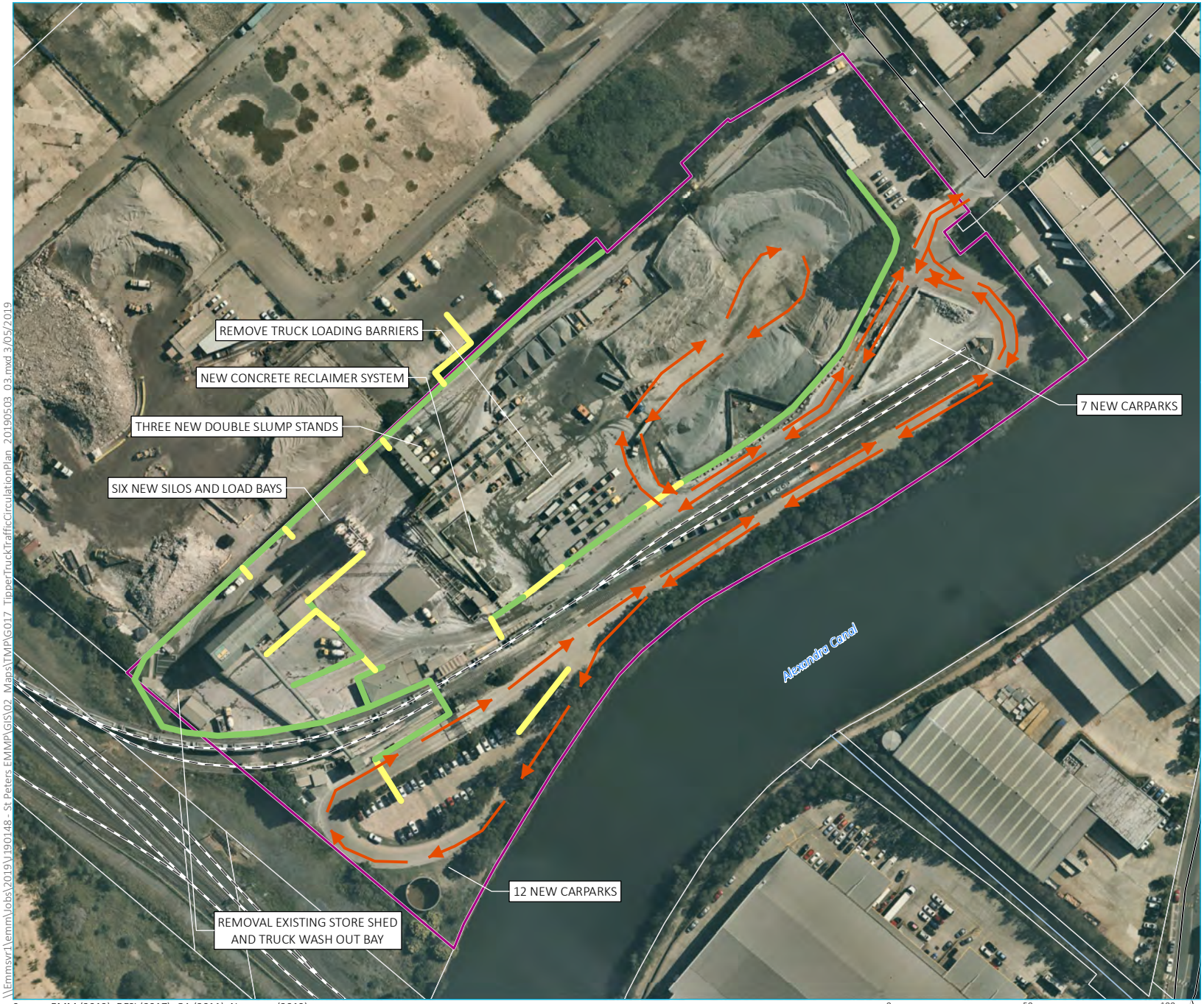
GDA 1994 MGA Zone 56

N

Tanker traffic circulation plan

Boral - St Peters
Traffic management plan
Appendix A.2

EMM creating opportunities



KEY

- Project site
- Rail line
- Local road
- Watercourse/drainage line
- Cadastral boundary
- Tipper truck traffic circulation

Pedestrian walkway

- Designated walkway
- Protected walkway

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Source: EMM (2019); DFSI (2017); GA (2011); Nearmap (2019)

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GDA 1994 MGA Zone 56

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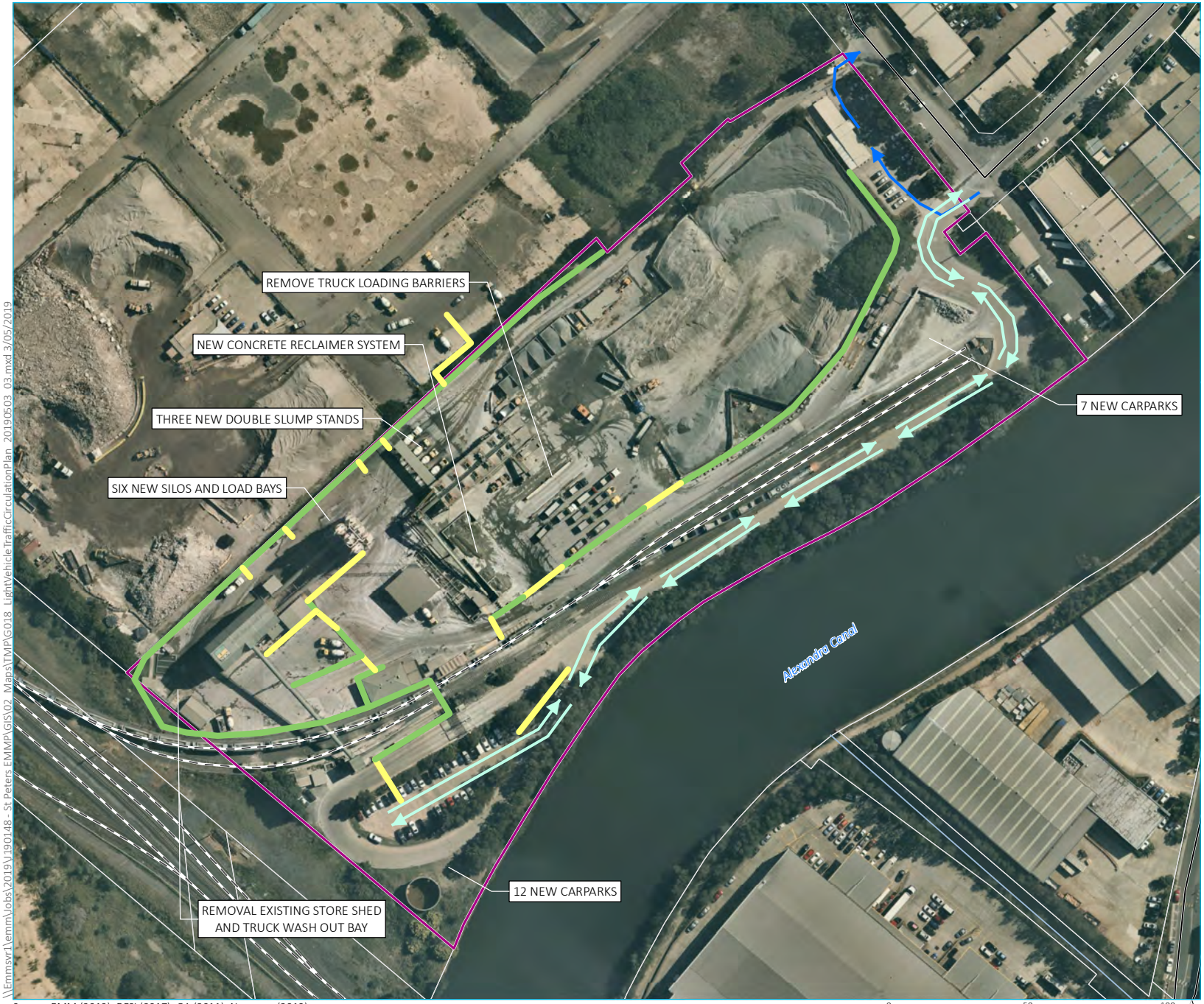
Tipper truck traffic circulation plan

Boral - St Peters
Traffic management plan
Appendix A.3

EMM creating opportunities



KEY

- Project site
- Rail line
- Local road
- Watercourse/drainage line
- Cadastral boundary
- Light vehicle traffic circulation
- Visitor light vehicle traffic circulation

Pedestrian walkway

- Designated walkway
- Protected walkway

\\Emmsvr1\emm\Jobs\2019\J190148 - St Peters EMMP\GIS\02_Maps\TMP\G018_LightVehicleTrafficCirculationPlan_20190503_03.mxd 3/05/2019

Source: EMM (2019); DFSI (2017); GA (2011); Nearmap (2019)

0 50 100 m

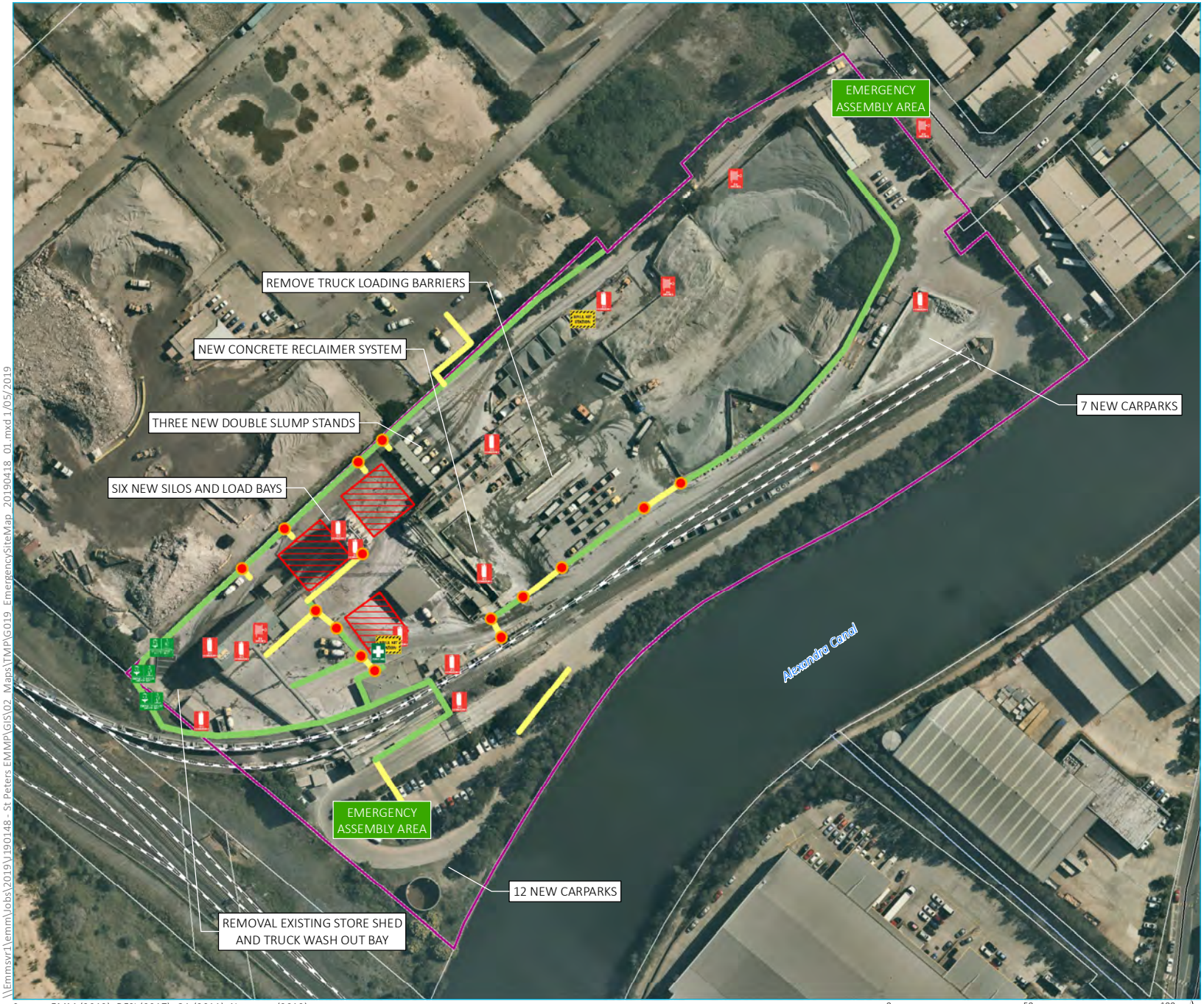
GDA 1994 MGA Zone 56

N

Light vehicle and visitor traffic circulation plan

Boral - St Peters
Traffic management plan
Appendix A.4

EMM creating opportunities



KEY

- Project site
- Rail line
- Local road
- Watercourse/drainage line
- Cadastral boundary

Pedestrian walkway

- Designated walkway
- Protected walkway
- Pedestrian exclusion zone

Emergency stations

- Fire extinguisher
- Fire hose reel
- First aid
- Shower and eye wash
- Spill kit
- Warning light *

* All pedestrian traffic must stop at this point when warning light is flashing here

Source: EMM (2019); DFSI (2017); GA (2011); Nearmap (2019)

0 50 100 m

GDA 1994 MGA Zone 56

N

\\Emmsvr1\emm\Jobs\2019\190148 - St Peters EMMP\GIS\02 Maps\TMP\G019 EmergencySiteMap 20190418 01.mxd 1/05/2019

Site emergency details

Boral - St Peters
Traffic management plan
Appendix A.5

EMM creating opportunities


Appendix B

Stakeholder correspondence




Scioscia, Peter <peter.scioscia@boral.com.au>

RE: DA 14/96 MOD 11 - Upgrade and Expansion of Boral, St Peters - Construction Traffic Management Plan Consultation

Development Sydney <Development.Sydney@rms.nsw.gov.au> 23 April 2019 at 15:16
To: "Scioscia, Peter" <peter.scioscia@boral.com.au>

Thanks Peter

I will forward your email to Nic Kocoski from the Network Safety Sec on.

Kind regards

Sharon

From: Scioscia, Peter [mailto:peter.scioscia@boral.com.au]
Sent: Tuesday, 23 April 2019 1:19 PM
To: Development Sydney
Subject: Re: DA 14/96 MOD 11 - Upgrade and Expansion of Boral, St Peters - Construction Traffic Management Plan Consultation

Hi,

As stated in the email, we have not received the finalised plans yet. This is just a courtesy email (as per our requirement in the DA modification), to consult with the RMS on any matters regarding our Traffic Management Plans, and if you would like to have any input on it.

I am able to send you the finalised plans once they are completed though.

Regards,

Peter

On Thu, 18 Apr 2019 at 15:53, Development Sydney <Development.Sydney@rms.nsw.gov.au> wrote:

> Hi Peter
>
> Do you have the plans?
>
> **From:** Scioscia, Peter [mailto:peter.scioscia@boral.com.au]
> **Sent:** Thursday, 18 April 2019 9:38 AM
> **To:** council@innerwest.nsw.gov.au; Development Sydney
> **Cc:** Rod Wallace

Scioscia, Peter <peter.scioscia@boral.com.au>

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Subject: DA 14/96 MOD 11 - Upgrade and Expansion of Boral, St Peters - Construction Traffic Management Plan Consultation

Dear Sir/Madam,

Boral Resource's notice of determination of Development Application 14/96 MOD 11 for the Boral St Peters site was granted on the 31st of January 2019. As per B1 of the specific environmental conditions for the modification, a Construction Traffic Management Plan must be prepared with consultation with the Inner West Council and the RMS.

EMM Consulting Pty Limited (EMM) has been engaged by Boral Resources to develop the Construction Traffic Management Plan and update the current Traffic Management Plan with the estimated completion date to be the 30th of April 2019.

In accordance with condition of consent B1, we seek your consultation on the Construction Traffic Management plan relevant to your agency and ask for any comments you have on what you advise to be in the Construction Traffic Management Plan. As the Construction Traffic Management Plan has not been finalised yet, we ask for general comments you may have on the final plan.

We also seek general consultation for condition of consent B6, which is regarding Operational Conditions and the update of the current Traffic Management Plan for the Boral St Peters site. This plan will be updated prior to the commencement of operations of any of the new infrastructure installed on site.

We would appreciate any written comments by the 26th of April to allow the Boral and EMM teams to address your response in the Construction Traffic Management Plan.

I am also available to discuss any matters that you believe are relevant to the Construction Traffic Management Plan. My contact details are provided below.

Should you have any questions, please do not hesitate to contact me.

--

Regards,

PETER SCIOSCIA
HSE Advisor

Telephone: 0401 895 380
Email: Peter.Scioscia@boral.com.au

Boral
39 Dehli Road, North Ryde NSW 2113
www.boral.com.au

Transport Roads & Maritime Services

Before printing, please consider the environment

--

Regards,

PETER SCIOSCIA
HSE Advisor

Telephone: 0401 895 380
Email: Peter.Scioscia@boral.com.au

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39 Dehli Road, North Ryde NSW 2113
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Subject: DA 14/96 MOD 11 - Upgrade and Expansion of Boral, St Peters - Construction Traffic Management Plan Consultation

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Wallace, Rod <rod.wallace@boral.com.au>

Re: FW: Boral St Peters - Letter of offer for resurfacing of Burrows Road South

Jackson, Kate <kate.jackson@boral.com.au> 16 May 2019 at 12:58
To: Jarrad Sheather <jarrad.sheather@innerwest.nsw.gov.au>
Cc: Colette Goodwin <colette.goodwin@innerwest.nsw.gov.au>, Richard FitzGibbon <richard.fitzgibbon@boral.com.au>, Rod Wallace <rod.wallace@boral.com.au>

Hi Jarrad

Are you able to follow up on my email from February this year with the appropriate contacts within InnerWest Council? I'm keen to progress this with Council ASAP.

Let me know if you have any questions.

Thanks

KATE JACKSON
Regional Manager NSW/ACT

Telephone: 02 9033 5546
Mobile: 0418 748 070
Fax: 02 9033 5305
Email: Kate.Jackson@boral.com.au

Build something great

Boral Land & Property Group
PO Box 6041
North Ryde NSW 2113
www.boral.com.au

https://ebc.boral.com.au/images/emailsignature/Linked-In-Follow-Us.jpg

On Tue, 26 Feb 2019 at 14:10, Jackson, Kate <kate.jackson@boral.com.au> wrote:

> Hi Jarrad
>
> I'm following up on my email response below - have you had a chance to discuss this with your traffic team?
>
> Also, following approval of Modification 11, Boral is required under condition B11 to consult with Council regarding extending the 'No Stopping' zone along Burrows Road South. To this end, could you please advise who is best for Boral to speak with at Council regarding this?
>
> See condition B11 below
>
> *B11. Within three months of the determination of MOD 11, the Applicant must investigate and submit a proposal to the Bayside Traffic Committee that recommends the extension of the 'No Stopping' zone along Burrows Road South from the intersection of Burrows Road South and Canal Road toward the development. Evidence of this must be provided to the Planning Secretary within four months of the determination of MOD 11.*
>
> [NOTE CONDITION INCORRECTLY IDENTIFIES BAYSIDE AS THE RELEVANT COUNCIL]
>
> Many thanks
>
> **KATE JACKSON**
> Regional Manager NSW/ACT
>
> Telephone: 02 9033 5546
> Mobile: 0418 748 070
> Fax: 02 9033 5305
> Email: Kate.Jackson@boral.com.au

Boral Land & Property Group
PO Box 6041
North Ryde NSW 2113
www.boral.com.au

On Thu, 24 Jan 2019 at 08:05, Jackson, Kate <kate.jackson@boral.com.au> wrote:

Hi Jarrad

Thanks for the email. My responses to your email in red below:

Point 2 and Attachment A

Plan *shall be amended to include the full length of Burrows Road South from the cul-de-sac to the intersection with Canal Road* Boral's costing was based on 4,550m2 of pavement. This was taken from Council's own calculations provided to me by Ken Welsh via email on 8 November 2018 (you were also copied in on this email). This area, when calculated on Nearmap, corresponds to the area shown in the map attached to the letter of offer. If Council would like an increase in area, the costs will need to be recalculated to reflect this. Please advise.

Point 3

- Letter box *notification should begin 14 days before commencement of works* Noted

- *Items in last 3 dots points are not agreed to as these items should be absorbed in the 10% contingency allowed for by Boral* Not agreed.

I assume the last 3 dot points referred to are as follows:

- "as there is no confirmed date for the works to be undertaken, any bitumen products will be covered through rise and fall method of evaluation.
- obtaining the road occupancy licence, which will be provided by Council, allowing 8 working hours per night for 3 nights; and
- the cost to remove heavy and light vehicles that have not been removed prior to works commencing. Note if there are parked vehicles along Burrows Road South, the Developer will pave around them, and there will be an extra charge if a return visit is required to fill those areas. "

dot point 1 - this is a standard clause in re-surfacing contracts.

dot point 2 - Road occupancy licenses are provided by the Council and TMC within RMS. Any program of asphalt works would need to be agreed and approved by both Council and TMC if the works adjoins or is on the RMS road network.

dot point 3 - Boral has previously raised the issue of illegally parked trucks with both Council and the police. This continues to be an issue for all businesses along Burrows Road South. There are some trucks and trailers that have been parked in the same location for over 6 months, in some instances very close to Boral's entry and exit points, obscuring line of site. Given Boral has no control over the removal of parked vehicles (particularly trucks), and our approaches to both Council and police, we should not be liable for the cost to have these vehicles removed.

- *Council has budgeted for this expenditure for the 2019/2020 financial year. Therefore Council will prefer that the works be carried out and the $145,000 paid during the 2019/2020 financial year when the funds are available"* Boral has not budgeted for these works this financial year, hence any costs incurred by Boral will need to occur post-July 1 2019.

Let me know if you have any questions regarding the above.

Thanks

KATE JACKSON

Regional Manager NSW/ACT

Telephone: 02 9033 5546
Mobile: 0418 748 070
Fax: 02 9033 5305
Email: Kate.Jackson@boral.com.au

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https://ebc.boral.com.au/images/emailsignature/Linked-In-Follow-Us.jpg

On Wed, 16 Jan 2019 at 16:21, Jarrad Sheather <jarrad.sheather@innerwest.nsw.gov.au> wrote:

> Hi Kate,
>
> Please see the comments below which I received yesterday from Council's development engineers. Could the le er of offer made by Boral please be updated in accordance with their requests?
>
> *"Hi Jarrad*
>
> *Comments below on Letter from Boral*
>
> ***Point 2 and Attachment A***
>
> *Plan shall be amended to include the full length of Burrows Road South from the cul-de-sac to the intersection with Canal Road*
>
> ***Point 3***
>
> - *Letter box notification should begin 14 days before commencement of works*
> - *Items in last 3 dots points are not agreed to as these items should be absorbed in the 10% contingency allowed for by Boral*
> - *Council has budgeted for this expenditure for the 2019/2020 financial year. Therefore Council will prefer that the works be carried out and the $145,000 paid during the 2019/2020 financial year when the funds are available"*

If there are issues, please let me know and we can discuss.

Regards,

Jarrad Sheather

Jarrad Sheather | Strategic Planner Strategy & Policy
Inner West Council

P: +61 2 9392 5210 | **E:** jarrad.sheather@innerwest.nsw.gov.au

Ashfield Service Centre: 260 Liverpool Road, Ashfield NSW 2131

Leichhardt Service Centre: 7-15 Wetherill Street, Leichhardt NSW 2040

Petersham Service Centre: 2-14 Fisher Street, Petersham NSW 2049
PO Box 14, Petersham NSW 2049

INNER WEST COUNCIL

Council acknowledges the Traditional Custodians of these lands, the Gadigal-Wangal people of the Eora Nation.

Follow us **image002.jpg**
2K

Lia Zwolinski

From: Jeremy Slattery
Sent: Tuesday, 14 May 2019 4:38 PM
To: george. tsaprounis (george.tsaprounis@innerwest.nsw.gov.au)
Cc: 'joe.bertacco@innerwest.nsw.gov.au'
Subject: Boral St Peters CBP and MHF MOD11 TMP
Attachments: J190148 St Peters Mod 11 Traffic Management Plan_final.pdf

Hi George,

Thanks very much for your time and assistance over the phone today.

As discussed, I've attached the TMP for the Boral St Peters Concrete Batch plant and materials handling facility as a consequence of the conditions of MOD 11.

Under condition B6 (b) of the consent conditions, the Operations TMP is to be prepared in consultation with council and hence I am sending to you. The conditions directly applicable to the TMP are also listed.

B6. Prior to the commencement of operation of any of the new infrastructure approved under MOD 11 the Applicant must update the existing Traffic Management Plan for the development. The plan must be incorporated into the updated EMMP required by Condition C5 of this consent and must:
(a) be prepared by a suitably qualified and experienced person(s);
(b) be prepared in consultation with Council and the RMS.
(c) detail vehicle routes, access and parking arrangements;
(d) include details of driver training awareness to minimise noise, in particular from reversing alarms and compression braking;
(e) include as Driver Code of Conduct to:
(i) minimise conflicts with other road users;
(ii) minimise road traffic noise;
(iii) ensure truck drivers use specified routes;
(iv) ensure no queuing or parking on the local road or footpaths;
(v) ensure adherence to all on-site and off-site speed limits;
(vi) require all loading and unloading to be undertaken on site; and
(vii) require all vehicles to enter and exit the site in a forward direction;
(f) include a Heavy Vehicle Management Plan to the satisfaction of Council; and
(g) include a program to monitor the effectiveness of these measures.

Under your suggestion, I've copied in Joe Bertacco. I rang Arouba but only got a voicemail of a different person.

The plan is going in to DPE on Friday and we will inform DPE that we have made contact with you and you are currently reviewing the plan.

I'll call you again next week.

Once again, thanks for your time today

Regards

Jeremy

Jeremy Slattery
Associate

EMM
creating opportunities

T 02 9493 9500
M 0421 827 231

Connect with us

SYDNEY | Ground floor, 20 Chandos Street, St Leonards 2065


Appendix C

Site Driver's Code of Conduct




C.1 Driver's Code of Conduct

This Driver's Code of Conduct (DCOC) will be read, understood and signed by all truck drivers associated with the St Peters Concrete Batching Plant (CBP) and Materials Handling Facility (handling facility). The DCOC address the conditions required in the Conditions of Consent (CoC) (Schedule 2 Condition B6):

- minimise conflicts with other road users;
- minimise road traffic noise;
- ensure truck drivers use specified routes;
- ensure no parking or queuing on the local road or footpaths;
- ensure adherence to all on-site and off-site speed limits;
- require all loading and unloading to be undertaken on site; and
- require all vehicles to enter and exit the site in a forwards direction.

All truck drivers associated with this site will complete induction/training, including reading a copy of this TMP prior to working driving trucks either to or from the site.

C.1.1 Travelling speeds

While travelling on a road, vehicles must not exceed the maximum default speed limit in an area. Driving above the speed limit is illegal and creates unacceptable safety risks to the driver and other road users.

Heavy vehicles must strictly travel within the speed limit, or sometimes in a lower speed than the speed limit in tough road conditions for safety purposes.

C.1.2 Driver fatigue

Drivers should recognise the early warning signs when driving and know what to do to avoid driving tired. Transport for NSW's website provide free online test and some tips to help test how tired you are and avoid driving tired. All drivers are encouraged to conduct the online test and share results with the Site Manager. All drivers must be made aware of driver fatigue and rest at least every 2 hours when required to avoid fatigue.

C.1.3 Designated transport routes

Drivers must adhere to the designated transport routes. If the designated transport routes change, the Site Manager will inform the driver of alternate transport route(s). Should the designated transport routes change under any circumstances (eg road closure, give way to emergency vehicles and etc), driver must report to the Site Manager immediately.

Drivers must not park their vehicles on street in Burrows Road South, either before or after visiting the site.

C.1.4 Safe driving practice

Safe driving practices for this TMP have been determined from a review of two existing Boral Driver Induction and Code of Conduct Documents for the City Concrete Plant and St Peters Rail Terminal as follows.

1. all truck drivers must abide by sign posted traffic speed limits and other site traffic control signs at all times;
2. if involved in any vehicle breakdown or other vehicle emergency, other than a fire, stay in or with your vehicle at all times, unless you can access a designated walkway area safely;
3. yellow and green pedestrian walkway areas are defined within the site. Green areas are protected walkways for pedestrians. On yellow areas, vehicles have priority over pedestrians using the walkway;
4. always wear appropriate PPE;
5. no children or pets are allowed onto the site;
6. ensure no littering occurs on-site;
7. use UHF 58 communications channel for vehicle to vehicle and emergency contact messages and minimise use for other general purposes. Do not use mobile phones or other mobile electronic devices in site operating areas;
8. follow all emergency calls and directions when on-site;
9. refer to the site map for emergency assembly points;
10. be aware that Boral may conduct drug and alcohol testing on any person within the site;
11. be aware you may be observed by CCTV surveillance equipment when on-site;
12. report all traffic safety incidents within the site to Boral personnel immediately, including identified hazards or near misses;
13. co-operate with Boral site and emergency personnel if you have been involved in any incident on-site;
14. only go to your designated delivery location as shown by the site traffic circulation plans;
15. be aware of front-end loaders operating in most operational areas of the site (front-end loaders have priority over other vehicle traffic within the site at all times);
16. do not drive past another vehicle on the site without first receiving positive radio communication from the other vehicle. If in doubt hold your position;

17. ensure all loads are covered and vehicles free of loose material before leaving the site;

18. vehicles must comply with Boral chain of responsibility recording requirements at weighbridges;

19. if found to be overloaded at the weighbridge when leaving the site, vehicles are required to return to the stockpile area for reloading;

20. do not adjust loads or load covers on the weighbridges; and

21. no truck driver or other person is permitted to stand within 20 m of a truck tailgate area when tipping.


Turbot St
Exit


40

Appendix B

Surface water management plan

St Peters Concrete Batching Plant and Materials Handling Facility

Water Management Plan

Boral Resources (NSW) Pty Ltd
May 2019

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Level 10, 87 Wickham Terrace
Spring Hill QLD 4000
T 07 3648 1200

ADELAIDE
Level 1, 70 Pirie Street
Adelaide SA 5000
T 08 8232 2253

MELBOURNE
187 Coventry Street
South Melbourne VIC 3205

PERTH
PO Box 8155
Fremantle WA 6160

CANBERRA
PO Box 9148
Deakin ACT 2600

St Peters Concrete Batching Plant and Materials Handling Facility

Water Management Plan

Report Number

J190148 RP1

Client

Boral Resources (NSW) Pty Ltd

Date

17 May 2019

Version

v2 Final

Prepared by

Sally Callander
Senior Water Resource Engineer
17 May 2019

Approved by

Jeremy Slattery
Associate
17 May 2019

This report has been prepared in accordance with the brief provided by the client and has relied upon the information collected at the time and under the conditions specified in the report. All findings, conclusions or recommendations contained in the report are based on the aforementioned circumstances. The report is for the use of the client and no responsibility will be taken for its use by other parties. The client may, at its discretion, use the report to inform regulators and the public.

Table of Contents

Appendices

Tables

Figures

1 Introduction

1.1 Background

Boral Resources (NSW) Pty Ltd (Boral) owns and operates a concrete batching plant (concrete plant) and construction materials handling facility (the handling facility) at 25 Burrows Road South, St Peters (the site).

On 31 January 2019, the NSW Department of Planning and Environment (DPE) approved a modification (Modification 11) to Development Consent No. DA 14/96 that permits the site to:

- increase concrete production from 280,000 m^3/per annum (pa) to 750,000 m^3/pa; and
- increase the throughput of the handling facility from 760,000 tonnes per annum (tpa) to 1 million tpa.

To achieve this increase in concrete production, the existing concrete plant will be upgraded to include an additional two alleys, with an additional six silos for cement storage and widening of existing raw material storage. Some changes to the layout and function of the handling facility are proposed to facilitate the increase in throughput.

This Water Management Plan (WMP) forms part of the Environmental Management and Monitoring Plan (EMMP) and addresses the operational conditions (Part B, Schedule 2 of DA 14/96) that relate to water and flood management. These conditions require upgrades to the existing water management system and flood emergency protocols. Water management system upgrades are proposed to be constructed in a staged manner in line with the overall construction schedule.

1.2 Purpose and objectives

The purpose of this WMP is to describe the water management approach, proposed upgrades, procedures, controls and monitoring and response protocols. The objectives of this WMP include:

- address relevant consent conditions;
- describe the existing water management system;
- describe the proposed water management system, including proposed staging;
- provide a flood emergency response plan for the site;
- describe a surface water monitoring program; and
- describe proposed actions, operating protocols and response measures.

1.3 Staging of Modification 11 works

Boral proposes to construct the proposed works (Modification 11 works) in a staged manner. For the purposes of addressing water management related consent conditions, the Modification 11 works are presented in the following stages in this WMP:

- Stage 1 works – initial expansion of the concrete plant.
- Stage 2 works – all other Modification 11 works.

The proposed water management improvements (described in Section 6) do not include any works in the Stage 1 area aside from source controls for cementitious areas. Hence, it is proposed to address consent conditions that require engineering design of the proposed water management improvements prior to the commencement of Stage 2 works.

This WMP will be updated when the engineering design of Stage 2 works has been completed.

1.4 Document structure

The WMP is structured as follows:

- Section 2 describes the existing and proposed facilities;
- Section 3 discusses the statutory context and relevant guidelines;
- Section 4 describes aspects of the existing environment relevant to water and flood management;
- Section 5 describes the existing water management system;
- Section 6 describes the upgraded water management system;
- Section 7 describes flood management and emergency response;
- Section 8 describes the monitoring and inspection plan;
- Section 9 summarises the water licensing for the project; and
- Section 10 sets out a site action plan and reporting and review requirements

2 Existing and proposed facilities

2.1 Existing concrete plant and handling facility

The site is located approximately 7 kilometres (km) south-west of the Sydney Central Business District, in the recently formed Inner West local government area (LGA). Access to the site for both heavy and light vehicles is via a driveway off Burrows Road South.

The site receives bulk construction materials (aggregate, sand, and cement) predominantly by rail from Boral's Peppertree and Dunmore quarries and Berrima Cement Works. These construction materials are either used onsite for concrete production or are temporarily stored for further distribution to other concrete and asphalt plants within the Sydney metropolitan area. All concrete and construction materials are despatched from the site by road.

Figure 2.1 shows the existing site layout.

2.2 Modification 11

The approved scope of Modification 11 includes:

- an increase to the concrete production limit from 280,0000 to 750,000 m^3/pa; and
- an increase to the throughput of the materials handling facility from 760,000 to 1 million tpa.

Additional infrastructure and modifications to the site layout are proposed to facilitate the increase in concrete production and material throughput. Figure 2.2 shows the proposed layout presented in the Modification 11 Environmental Assessment. This layout is being further developed as part of engineering design for Stage 2 and subsequent works. Section 2.2.1 provides an overview of Modification 11 works and Section 2.2.2 describes the proposed staging.

2.2.1 Overview of upgrade works

i Concrete plant

The existing concrete plant will be upgraded to include:

- an additional two alleys, with an additional six silos for cement storage;
- three new slump stands;
- widening of existing raw material storage;
- a new concrete reclaiming machine;
- a second weighbridge; and
- other ancillary infrastructure.

ii Handling facility

The existing handling facility will be upgraded to include:

- a new dump station and conveyor that leads up to the existing elevated storage bins;
- new aggregate storage walls made of concrete in the north of the handling facility;
- new open aggregate storage bins in the south of the handling facility, which will be filled by trucks delivering aggregates and sand;
- new larger open aggregate storage bins on the northern side of the handling facility, which will be filled by a new overhead conveyer with a tripper car. The conveyer will be connected to the existing conveyer from the train unloading area;
- a new second weighbridge; and
- tipper and drive over dump station.

iii Car parking

Modification 11 includes 19 new car park spaces, comprising:

- 7 new car parks in the south-east corner of the site; and
- 12 new car parks south of the existing 40 car parks in the south-west corner of the site.

iv Water management system upgrades

Modification 11 includes upgrades to the existing water management system (discussed in Section 6).

2.2.2 Staging of Modification 11 works

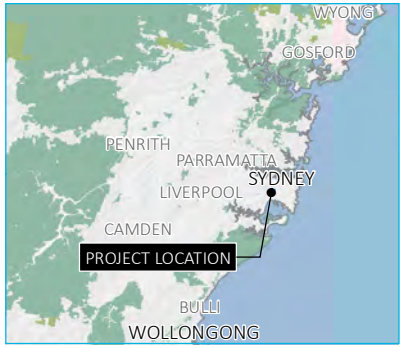
Boral proposes to construct Modification 11 works in a staged manner. For the purposes of addressing water management related consent conditions, the Modification 11 works are presented in the following stages:

- Stage 1 works – initial expansion of the concrete plant, including:
  - a new support structure adjacent to the northern side of existing dual alley plant;
  - six cement storage silos with a capacity of 840 tonnes;
  - a 9 m^3 horizontal reversing mixer; and
  - aggregate, cement, water storage and weigh equipment

The location of Stage 1 works is shown in Figure 2.2.

- Stage 2 – all other Modification 11 works.

The water management improvements proposed as part of Modification 11 (described in Section 6) do not include any works in the Stage 1 area aside from source controls for cementitious areas. Hence, it is proposed to address consent conditions that require engineering design of the proposed water management upgrades in a revised WMP that will be issued prior to the commencement of Stage 2 works. This is discussed further in Section 3.



KEY

- Project site
- Concrete batching plant feature
- Handling facility feature
- Rail line
- Local road
- Waterbody

Existing site layout

Boral - St Peters
Water management plan
Figure 2.1

Source: EMM (2019); DFSI (2017); Boral (2019)

0 50 100 m

GDA 1994 MGA Zone 56

N

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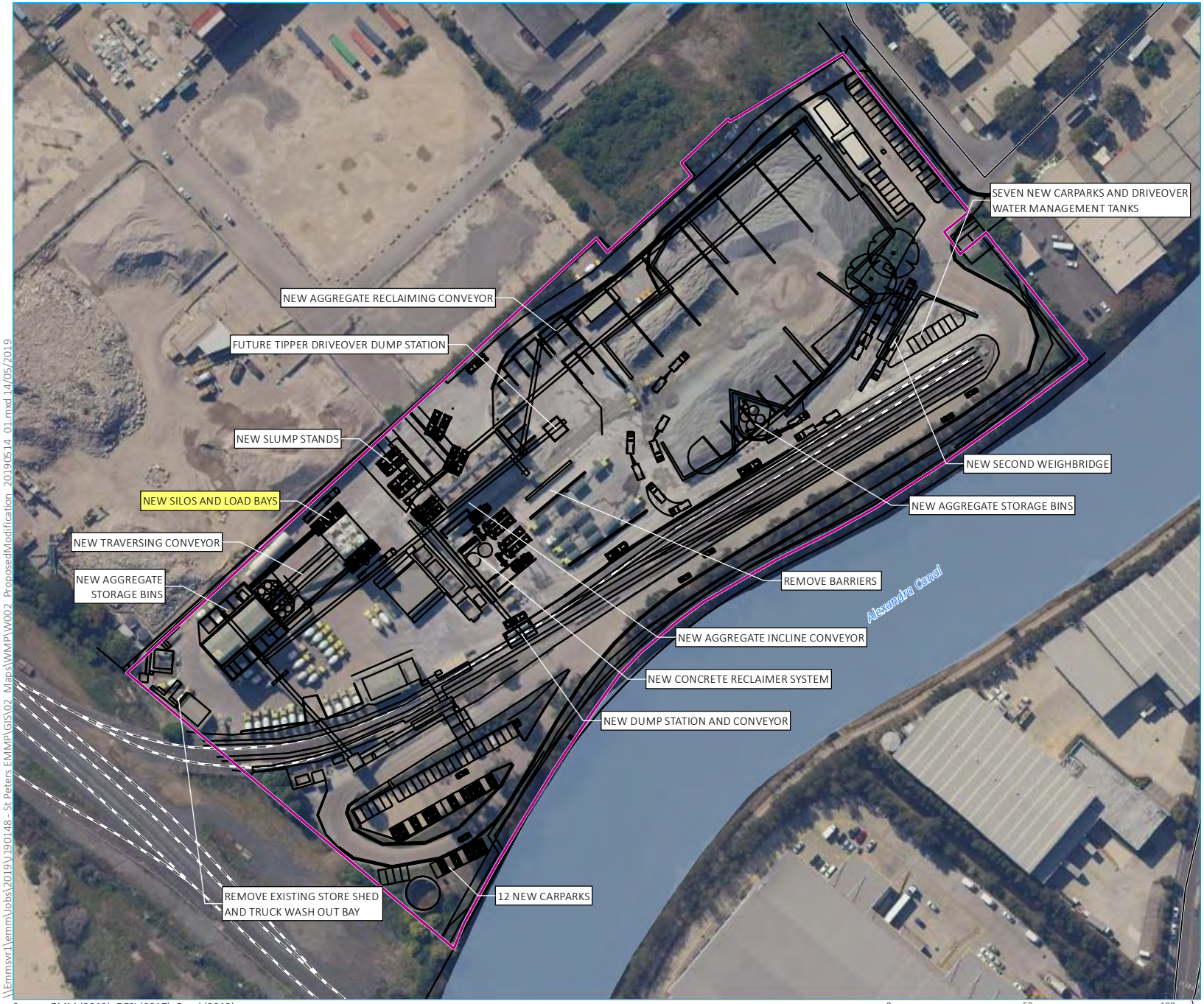

KEY

- Project site
- Proposed modification
- Rail line
- Local road
- Waterbody
- LABEL Stage 1 works
- LABEL Future works

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Source: EMM (2019); DFSI (2017); Boral (2019)

0 50 100 m

GDA 1994 MGA Zone 56

N

Modification 11 site layout

Boral - St Peters
Water management plan
Figure 2.2

EMM creating opportunities

3 Statutory context

3.1 Development consent

On 31 January 2019, DPE approved a modification (Modification 11) to Development Consent No. DA 14/96. This WMP addresses consent conditions that relate to water and flood management. Table 3.1 reproduces the relevant conditions and describes when and how each condition will be addressed. The development consent (Modification 11) is provided in Appendix A.

Table 3.1 Summary of water and flood related consent conditions

Consent Condition	Requirement	WMP reference
Erosion and Sediment Control		
B29	Prior to the commencement of any construction or other surface disturbance the Applicant must install and maintain suitable erosion and sediment control measures on-site, in accordance with the relevant requirements of the Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book (Landcom, 2004) guideline and the Erosion and Sediment Control Plan included in the CEMP required by Condition C2.	An Erosion and Sediment Control Plan will be prepared as part of the civil design for the Stage 2 works. Hence, this condition will be addressed when the WMP is updated for Stage 2 works.
Stormwater Management		
B30	The Applicant must ensure all roof and surface stormwater from the site and any catchment external to the site that presently drains into the site is collected in a system of pits and pipelines/channels and major storm event surface flow paths and discharged to a Sydney Water controlled stormwater drainage system.	A civil design of the proposed water management system is required to address this condition. Hence, this condition will be addressed when the WMP is updated for Stage 2 works.
B31	Prior to the commencement of operation of MOD 11 works the Applicant must design, install and operate the upgraded stormwater management system for the development. The system must: (a) be designed by a suitably qualified and experienced person(s); (b) be generally in accordance with the conceptual design in the MOD 11 EA; (c) be in accordance with applicable Australian Standards; and (d) ensure that the system capacity has been designed in accordance with Australian Rainfall and Runoff (Engineers Australia, 2016).	A civil design of the proposed water management system is required to address this condition. Hence, this condition will be addressed when the WMP is updated for Stage 2 works.

Table 3.1 Summary of water and flood related consent conditions

Consent Condition	Requirement	WMP reference
Surface Water Management Plan		
B32	Prior to the commencement of operation of infrastructure works approved under MOD 11, the Applicant must prepare a Surface Water Management Plan to the satisfaction of the Planning Secretary. The Plan must form part of the updated EMMP required by Condition C5 and must: (a) be prepared by a suitably qualified and experienced person(s); (b) describe the surface water management system; (c) be consistent with the surface water management system described in the 'Surface Water Assessment' prepared by EMM on behalf of Boral Resources (NSW) Pty Ltd dated 28 June 2018 (Appendix G of the MOD 11 Environmental Assessment). (d) include a program to monitor: (i) surface water flows and quality; (ii) surface water storage and use; and (iii) sediment basin and bioretention system operation; (e) surface water impact assessment criteria, including trigger levels for investigating and potential adverse surface water impacts; (f) a protocol for the investigation and mitigation of identified exceedances of the surface water impact assessment criteria; and (g) a maintenance program for all surface water management infrastructure.	Section 6 of this WMP describes the proposed water management system based on the concept presented in the Modification 11 Environmental Assessment. This description will be updated as required when the WMP is updated for Stage 2 works. Section 8 provides a monitoring and inspection plan. This plan will be updated as required when the WMP is updated for Stage 2 works.
Flood Management		
B33	Prior to the commencement of operation of infrastructure works approved under MOD 11, the Applicant must update the Flood Emergency Response Plan to the satisfaction of the Planning Secretary. The Plan must form part of the updated EMMP required by Condition C5 and must: (a) be prepared by a suitably qualified and experienced person(s); (b) address the provisions of the Floodplain Risk Management Guideline (OEH, 2007); (c) include details of: (i) the flood emergency responses for both construction and operation phases of the development; (ii) predicted flood levels; (iii) flood warning time and flood notification; (iv) assembly points and evacuation routes; (v) evacuation and refuge protocols; and (vi) awareness training for employees and contractors.	A Flood Emergency Response Plan is provided in Section 7 and Appendix B

Table 3.1 Summary of water and flood related consent conditions

Consent Condition	Requirement	WMP reference
B34	The Applicant must: (a) not commence operation until the Flood Emergency Response Plan required by Condition B31 is approved by the Planning Secretary; and (b) implement the most recent version of the Flood Emergency Response Plan approved by the Planning Secretary for the duration of the development.	Following approval of the Flood Emergency Response Plan, Boral will implement the plan for the duration of the development.
B35	Buildings, plant and equipment including material storage areas must be set at a minimum height of 500mm above the 1 % Annual Exceedance Probability (AEP) flood event for Alexandra Canal. Details of existing and proposed site levels and means of providing 500mm freeboard above the 1% AEP flood event must be submitted to Council. Variations below 500mm must only be with the written agreement of Council's Director, Technical Services	Engineering design of proposed site levels and structures is required to address this condition. Hence, this condition will be addressed when the WMP is updated for Stage 2 works.
Groundwater Management		
B36	Within one month of the completion of construction of MOD 11 works the Applicant must prepare a Dewatering Report for the development. The plan must detail the volume of groundwater taken and include details of any impacts (and associated mitigation measures) that have occurred as a result of groundwater take. The report must be submitted to the DoI Lands and Water Division.	This plan will be provided within the required timeframe following the completion of construction.
Impacts on Alexandra Canal		
B37	Any new works, including additional car parks, within 40 metres of the top of the bank of Alexandra Canal, must consider the requirements of the Guidelines for Controlled Activities on Waterfront Land – Riparian Corridor (DoI, 2018).	The requirements of the Guidelines for Controlled Activities on Waterfront Land – Riparian Corridors (DoI, 2018) will be considered during the detailed design of any works within 40 metres of the top of the bank of Alexandra Canal.
Contamination		
B42	All wash down areas, the truck washing facility and all other areas likely to be contaminated must be isolated from the stormwater drainage system in accordance with the 'Surface Water Assessment' prepared by EMM for Boral Resources (NSW) Pty Ltd dated 28 June 2018 (Appendix G of the MOD 11 Environmental Assessment).	A civil design of the proposed water management system is required to address this condition. Hence, this condition will be addressed when the WMP is updated for Stage 2 works.
Management Plan Requirements		
C1	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include: (a) details of: (i) the relevant statutory requirements (including any relevant approval, licence or lease Conditions); (ii) any relevant limits or performance measures and criteria; and NSW Government (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	This WMP has been structured to provide the information required in this condition, as relevant to water management.

Table 3.1 Summary of water and flood related consent conditions

Consent Condition	Requirement	WMP reference
	(b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria; (c) a program to monitor and report on the: (i) impacts and environmental performance of the development; and (ii) effectiveness of the management measures set out pursuant to paragraph (c) above; (d) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible; (e) a program to investigate and implement ways to improve the environmental performance of the development over time; (f) a protocol for managing and reporting any: (i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria); (ii) complaint; (iii) failure to comply with statutory requirements; and (g) a protocol for periodic review of the plan.	

3.2 Relevant guidelines

Table 3.2 provides a summary of guidelines referenced in this WMP.

Table 3.2 Relevant guidelines

Guideline name	Reference	Description
Australian Rainfall and Runoff: A guide to flood estimation	Ball J et al., 2016	This document provides practitioners with the best available information on design flood estimation and is widely accepted as a design guideline for all flood and stormwater related investigation and design in Australia.
Guidelines for controlled activities on waterfront land – riparian corridors	DoI, 2018	Refers to a series of guidelines that provide information on the design and construction of a controlled activity, and other ways to protect waterfront land.
Liquid Chemical Storage, Handling and Spill Management: Review of Best Practice Regulation	DECC, 2005	Details best practice storage, handling and spill management procedures for liquid chemicals.
Managing Urban Stormwater: Soils and Construction, Volume 1	Landcom, 2004	Describes best practice erosion and sediment control measures, including the calculation methodologies for sizing sedimentation basins.
Storing and Handling Liquids: Environmental Protection: Participant's Manual	DECC, 2007	Details best practice storage, handling and spill management procedures for liquid chemicals.

4 Existing environment

4.1 Climate data

4.1.1 Rainfall records

There are a number of Bureau of Meteorology (BoM) operated rainfall gauges that provide representative records for the St Peters area. Table 4.1 presents key information and statistical data from three local gauges that have long term records.

Table 4.1 Rainfall statistics

Rainfall Statistics (annualised)		Sydney Airport AMO (66037)	Randwick Racecourse (66073)	Ashfield Bowling Club (66000)
Rainfall Record		1929 - present	1937 - present	1894 - present
Distance from the site	(km)	2 km to the south	6 km to the east	5 km to the north-west
Elevation (m AHD)	(m AHD)	6	25	25
Average Rainfall	(mm/year)	1083	1324	1070
Lowest Rainfall	(mm/year)	523	627	453
5th Percentile Rainfall	(mm/year)	663	812	641
10th Percentile rainfall	(mm/year)	745	871	734
Median rainfall	(mm/year)	1046	1290	1049
90th Percentile rainfall	(mm/year)	1483	1842	1455
95th Percentile rainfall	(mm/year)	1721	2106	1656
Highest rainfall	(mm/year)	2025	2361	2102

Source: BoM website (climate data online)

The Sydney Airport AMO gauge is the closest to the site and is considered to be representative of site conditions. Figure 4.1 plots the 10th, 50th and 90th percentile monthly rainfall totals that have been calculated from the Sydney Airport AMO gauge record. The chart clearly demonstrates the high variability in monthly rainfall across all seasons.

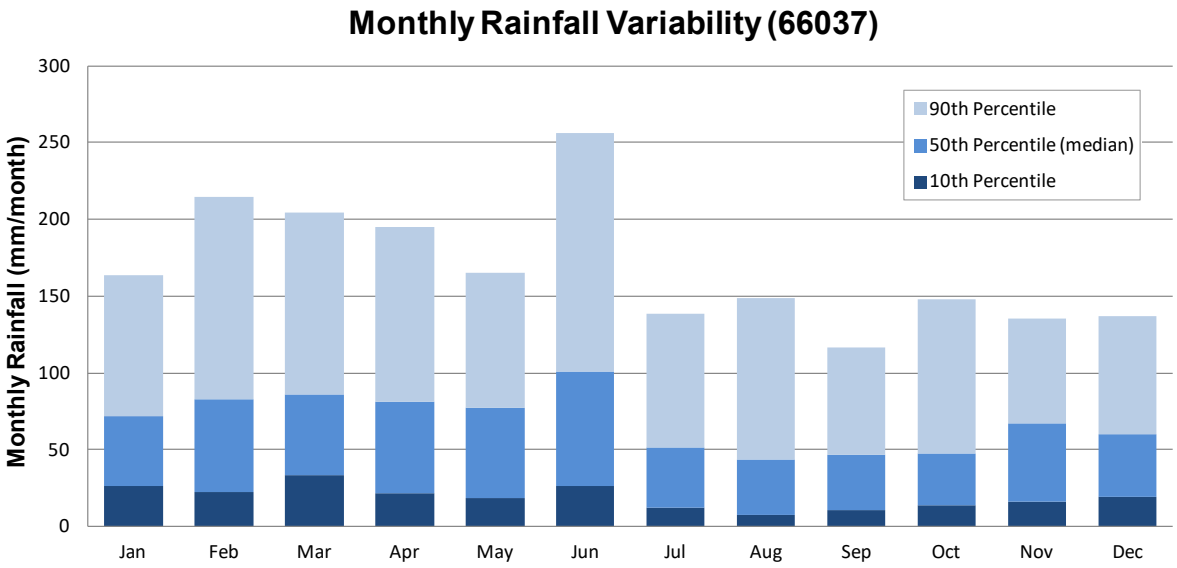

Figure 4.1 Monthly rainfall statistics at Sydney Airport AMO – 66037 (Source: BoM)

4.1.2 Design rainfall data

Design rainfall information is used to calculate aspects of the water management system. The following design rainfall information has been established for the St Peters area:

- Table 4.2 provides design rainfall depths for a range of Annual Exceedance Probability (AEP) events of varying durations. This information was sourced from the ARR2016 data portal; and
- Table 4.3 presents rainfall depths for 2, 5, 10 and 20 day rainfall events. This information was sourced from Managing Urban Stormwater: Soils and Construction – Volume 1 (Landcom 2004).

Table 4.2 Design rainfall depths from Australian Rainfall and Runoff 2016

	Annual Exceedance Probability (AEP) – rainfall depths (mm)						
	63.2%	**50%**	**20%**	**10%**	**5%**	**2%**	**1%**
15 min	16.0	17.9	23.7	27.7	31.5	36.4	40.1
30 min	21.9	24.5	32.4	37.7	42.9	49.6	54.8
1 hour	28.5	31.7	41.8	48.7	55.4	64.4	71.4
2 hour	36.4	40.5	53.4	62.3	71.2	83.3	92.7
3 hour	42.1	46.8	62.0	72.6	83.3	97.9	109
6 hour	54.8	61.2	82.0	96.9	112	133	149
12 hour	72.5	81.5	111	133	155	185	209
24 hour	95.8	109	151	182	214	257	291
48 hour	123	141	199	240	282	339	383
72 hour	139	160	226	272	319	381	429

Source: Data sourced from Australian Rainfall Runoff Data Portal.

Table 4.3 Design rainfall depths for frequent events

	Rainfall duration			
	2 day	**5 day**	**10 day**	**20 day**
80th percentile event	16.6	29.7	54.5	105.0
85th percentile event	22.4	38.8	68.8	125.9
90th percentile event	31.6	55.2	89.5	158.1
95th percentile event	52.1	84.3	132.3	211.2

Source: (Landcom 2004) Table 6.3 – values for Sydney

4.2 External drainage

This section describes existing drainage infrastructure near the site.

i Alexandra Canal

Alexandra Canal is located to the south of the site and is a concrete lined channel that receives tidal flows as well as surface runoff. The contributing catchment has an area of approximately 1,565 ha which includes the suburbs of Alexandria, Rosebery, Erskineville, Beaconsfield, Zetland, Waterloo, Redfern, Newtown, Surry Hills and Moore Park (WMAwater, 2017). The catchment is characterised by predominantly high density urban and industrial land uses. The canal joins the Cooks River approximately 1.8 km to the west of the site. Cooks River flows into Botany Bay.

All runoff from the site drains either directly into the canal or into piped drainage systems that drain into the canal. Hence, the Alexandra Canal is the primary receiving water.

ii Burrows road drainage

Burrows Road is located to the east of the site. Information provided by a Dial before you Dig inquiry indicates that Burrows Road drains into the Alexandra Canal via a piped drainage system. The alignment of this drainage system is indicated in Figure 5.1.

iii Other drainage

A large culvert is located under the south-western portion of the site. The culvert receives runoff from the industrial area that is located to the north of the site. The alignment of this culvert is indicated in Figure 5.1. Survey commissioned by Boral indicates that this culvert has a diameter of 1300 mm.

4.3 Flooding

Flooding conditions for the site are provided in Section 7.

5 Existing water management system

The existing water management system comprises the following key components:

- Process water system - receives all concrete washout water and any other water produced from cementitious areas. The system is bunded to prevent stormwater ingress and comprises several continuously stirred tanks that hold process water prior to use in concrete production. The process water system is topped up by stormwater (when available) and mains water.

- Stormwater system –includes two first flush capture pits and stormwater drainage. Water captured in the first flush pits is used to top up the process water system, reducing discharge volumes and frequency.

Figure 5.1 shows existing catchment areas, first flush pits, piped drainage systems and offsite discharge locations. Table 5.1 provides additional information on the drainage functionality and water management controls in each catchment.

Section 6 describes water management system upgrades that will be undertaken as part of Modification 11 works (Stage 2).

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Source: EMM (2019); DFSI (2017)

Existing water management system

Boral - St Peters
Water management plan
Figure 5.1

EMM
creating opportunities

Table 5.1 Description of existing water management system

Catchment	Area	Current Use	Stormwater system
EC1	0.37 ha	• Truck parking • Aggregate storage bins	• Aggregate storage bins are covered to prevent rainfall ingress. • The catchment drains to a first flush pit which has a volume of 62 KL, equivalent to 17mm of runoff from the contributing catchment area. Captured water is used for concrete production. • Bypass flow is discharged offsite into an external drainage system.
EC2	0.48 ha	• Cement silos and batching plant • Slump stands • Concrete washout pits • Aggregate storage bins • Water management system	• Slump stands are partially covered to prevent rainfall ingress. • Concrete washout pits are covered to prevent rainfall ingress. • The catchment drains to a first flush storage which has a volume of 74 KL, equivalent to 15mm of runoff from the contributing catchment area. Captured water is used for concrete production. • Bypass flow is discharged into the Alexandra Canal via a piped drainage system.
EC3	0.28 ha	• Aggregate and sand stockpiles • Access roads	• Runoff from the aggregate and sand stockpiles seeps through the barrier wall. • All runoff from the catchment discharges to external drainage on Burrows Road as either piped or overland flows. No water quality treatment is provided.
EC4	0.37 ha	• Aggregate and sand stockpiles • Access roads	• Runoff from the aggregate and sand stockpiles seeps through the barrier wall. • All runoff from the catchment discharges to drainage on Burrows Road as overland flows. No water quality treatment is provided.
EC5	0.12 ha	• Access roads	• All runoff from the catchment discharges into the Alexandra Canal via a piped drainage system. No water quality treatment is provided.
EC6	0.39 ha	• Access roads • Staff parking	• All runoff from the catchment discharges into the Alexandra Canal via a piped drainage system. No water quality treatment is provided.
EC7	0.09 ha	• Secondary return concrete area	• Runoff from this catchment is retained behind a bund (indicated in Figure 5.1). Captured water is pumped into the process water system and is used for concrete production.
EC8	1.22 ha	• Aggregate and sand stockpiles • Truck standing area	• The majority of runoff from the catchment discharges into the Alexandra Canal via a piped drainage system. During and following intense rainfall, some overland flows may spill into the property to the north (as indicated in Figure 5.1). No water quality treatment is provided.
EC9	0.13 ha	• Administration buildings • Staff parking	• Runoff from this catchment drains to a sump which is pumped into the process water system for use in concrete production.
EC10	0.46 ha	• Rail sidings	• All stormwater is expected to infiltrate into the underlying Botany Sands aquifer.

6 Upgraded water management system

The water management system will be upgraded as part of Modification 11 works (Stage 2). The upgraded water management system will generally be in accordance with the concepts presented in the Modification 11 Surface Water Assessment (EMM 2018). Some source controls will be installed as part of Stage 1 works.

This section describes the upgraded water management system based on the concept presented in the Modification 11 Surface Water Assessment (EMM 2018). Design objectives are discussed in Section 6.1 and the Modification 11 upgrades and system functionality are described in Section 6.2. Section 6.3 describes water management controls that will be constructed as part of Stage 1 works.

6.1 Objectives

Table 6.1 summarises the water management objectives and approach that were applied to developing the water management system upgrade concepts presented in the Modification 11 Surface Water Assessment (EMM 2018).

Table 6.1 Water management objectives and approach

Water Management Objectives		Approach
1.	Where practical, separate stormwater and cementitious areas of the site	• Cementitious areas will be covered and bunded (where possible) to isolate them from the stormwater system.
2.	Improve the management of return concrete	• A concrete reclaim machine will be constructed to manage return concrete and washout water. The reclaim machine will separate the slurry from the sand and aggregates. Slurry will be recycled into the process water system. Sand and aggregates will be transported to a Boral waste management facility where they will be used to produce road base material. • The secondary concrete return area (as indicated in Figure 5.1) will be decommissioned.
3.	Improve site drainage	• The aggregate storage area will be regraded to avoid runoff from this area draining to the east, onto Burrows Road. • The piped drainage system will be upgraded to improve general site drainage and prevent the discharge of untreated stormwater during frequently occurring events.
4.	Provide water quality treatment of all site runoff to meet the pollutant load reductions recommended in the Botany Bay & Catchment Water Quality Improvement Plan (SMCMA, 2011)	The water quality controls and stormwater harvesting system will be designed to collectively achieve the following pollutant load reductions: • 85% reduction in total suspended solids; • 60% reduction in total phosphorous; and • 45% reduction in total nitrogen.
5.	Increase the stormwater harvesting to reduce stormwater discharge and potable water consumption	• The existing stormwater harvesting system will be significantly expanded to increase the capture of stormwater runoff and the use of captured stormwater in concrete production.

6.2 Modification 11 upgrades

6.2.1 Overview

Modification 11 includes a commitment to upgrade the existing water management system. Key changes include:

- **Drainage modifications** – including:
  - The aggregate storage and handling area will be regraded to prevent runoff from this area draining to the west and onto Burrows Road.
  - Additional stormwater drainage will be constructed to improve stormwater capture and prevent the discharge of untreated stormwater flows from the site during frequently occurring rainfall events.
- **Water quality control modifications** – including:
  - Cementitious areas will be covered and bunded (where possible) to isolate them from the stormwater system.
  - The secondary return concrete area will be decommissioned and replaced with a reclaim facility.
  - Sedimentation basins will be established to treat runoff from the aggregate storage and handling area.
  - Bioretention systems will be established to treat runoff from access roads and car parking areas.
- **Stormwater harvesting modifications** – including:
  - The existing stormwater harvesting system will be expanded to capture runoff from 72% of the site area.
  - The large steel tank that is located in the southern corner of the site will be modified to provide 500 KL of storage.
  - Collectively, the stormwater harvesting system will provide 1,106 KL of storage, equivalent to 53 mm of runoff from the harvesting area. The storage volume will provide water for 3 to 4 days of concrete production.

The functionality of the upgraded water management system is diagrammatically described in Figure 6.1. Figure 6.2 presents a stormwater concept which shows indicative locations of surface water infrastructure. Table 6.2 provides information on the proposed use and water management controls in each catchment that is indicated in Figure 6.2.

Further details on the proposed upgrades are provided following the table and figures.

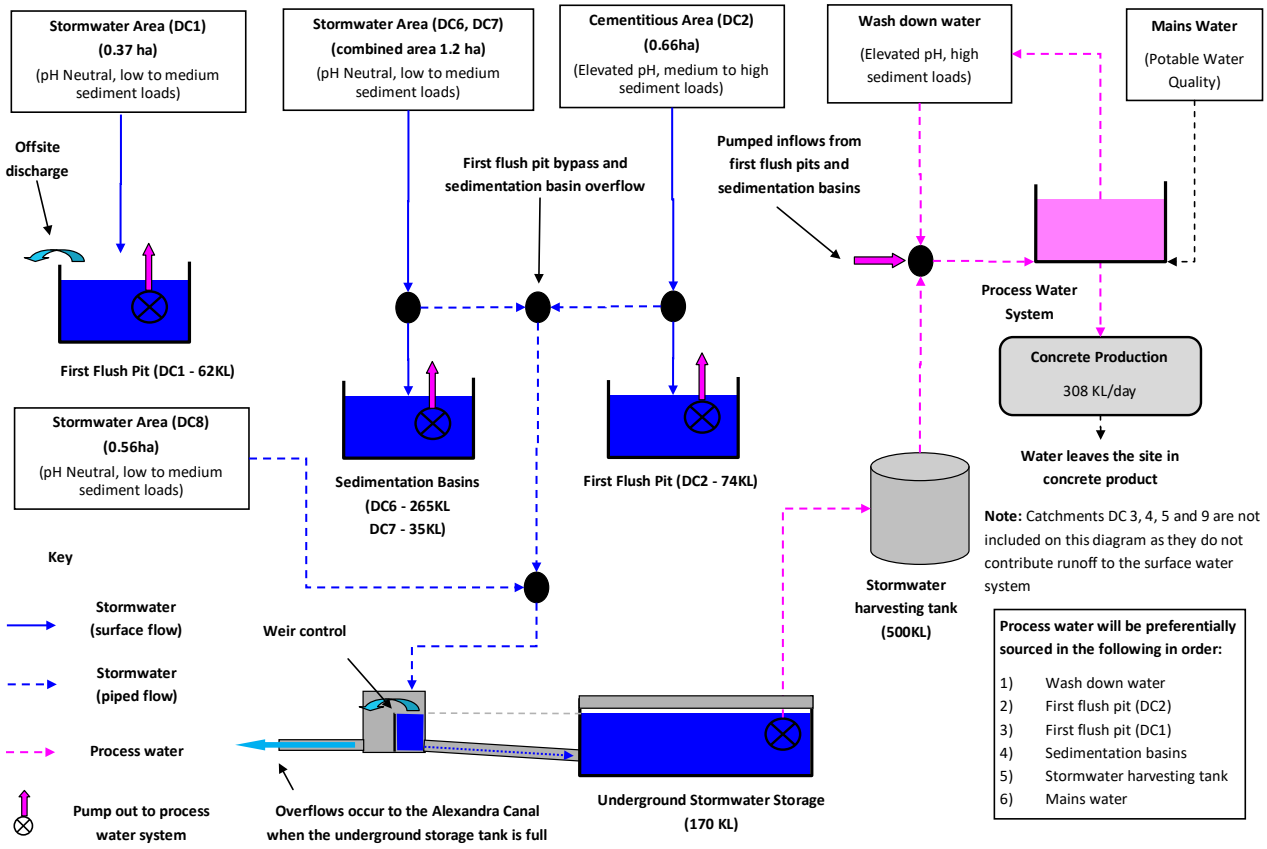
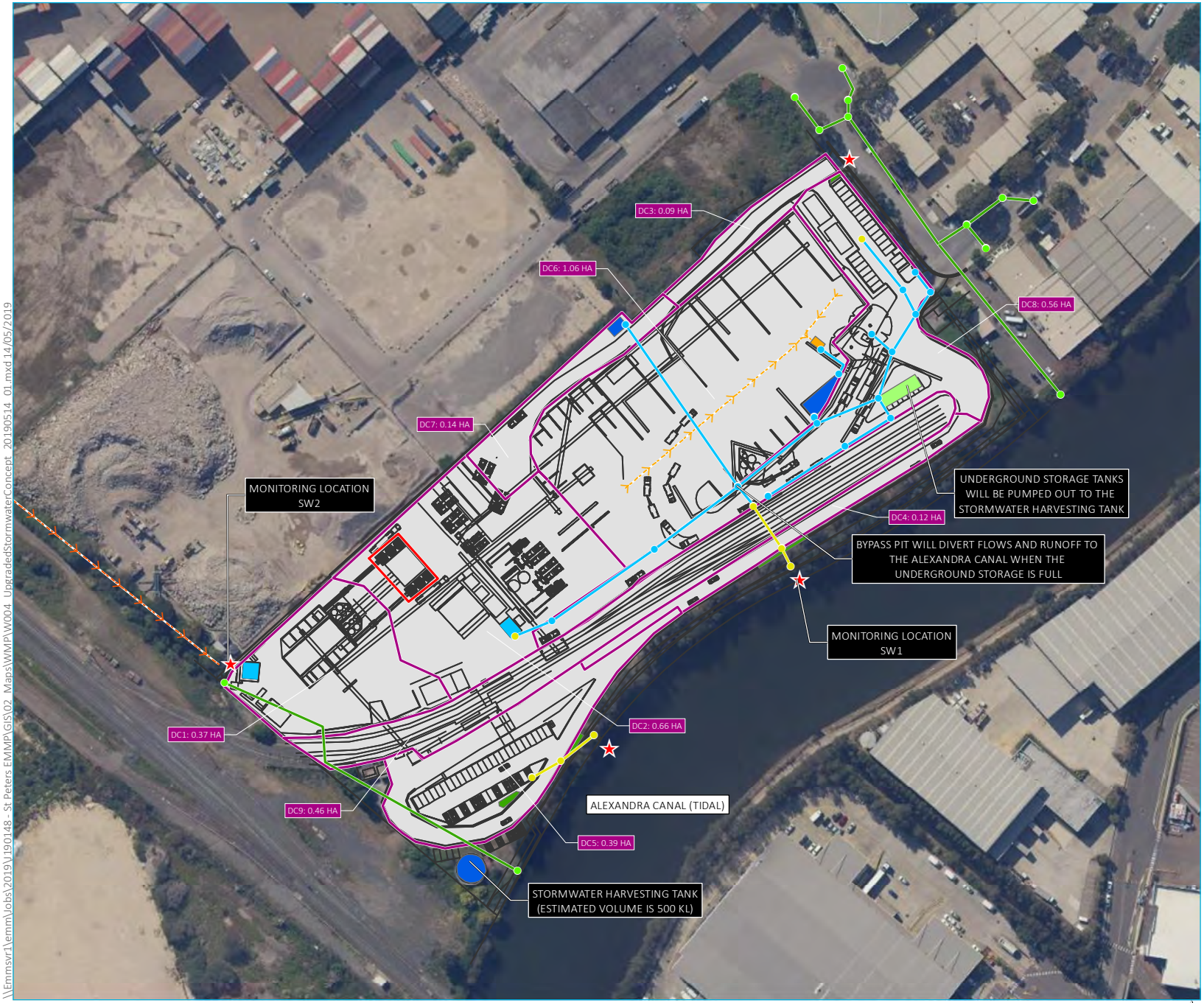


Figure 6.1 Upgraded water management system functionality (EMM, 2018)



KEY

- Discharge locations
- Surface drainage (internal)
- Surface drainage (external)
- Existing piped drainage (to be maintained)
- Proposed pipe drainage
- External piped drainage
- Proposed Layout
- Catchment area
- Stage 1 works extent
- Proposed bioretention system
- Proposed sedimentation basin
- Proposed underground stormwater storage
- Proposed sediment wedge pits
- First flush pit

Source: EMM (2019); DFSI (2017)

0 50 100 m

GDA 1994 MGA Zone 56

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Upgraded stormwater concept

Boral - St Peters
Water management plan
Figure 6.2

EMM
creating opportunities

Table 6.2 Proposed changes to catchment areas and the stormwater system

Catchment	Area	Proposed use	Proposed changes
DC1	0.37 ha	• Truck parking • Aggregate storage bins	The existing stormwater management system will be maintained and includes the following controls: • Aggregate storage bins are covered to prevent rainfall ingress. • The catchment will continue to drain the existing first flush pit which has a volume of 62 KL. Captured water will be used for concrete production. • Bypass flow is discharged offsite (the discharge location is indicated in Figure 6.2).
DC2	0.66 ha	• Cement silos and batching plant (increased footprint) • Slump stands (increased footprint) • Concrete washout and reclaim facility • Aggregate conveyors • Process water system	• The catchment area is expected to increase from 0.48 to 0.66 ha due to site regrading. • Slump stands will be fully covered to prevent rainfall ingress. • Concrete washout and reclaim area will be fully covered to prevent rainfall ingress. • Where possible, all runoff from roofed areas will drain directly into the piped drainage to reduce clean water inflows into the first flush pit. • The catchment will continue to drain to the existing first flush pit which has a volume of 74 KL. Captured water will be used for concrete production. • Bypass flow will drain to the underground stormwater storage that will be dewatered via pumping to the stormwater harvesting tank.
DC3	0.09 ha	• Access roads	• Regrading the aggregate storage area will reduce the catchment area from 0.28 to 0.09 ha. • All runoff from this catchment will be treated in a bio-retention area. Treated runoff will be discharged into the existing drainage on Burrows Road. Bioretention systems are discussed further in Section 6.2.4.
DC4	0.12 ha	• Access roads	• All runoff from this catchment will be treated in a bio-retention system. Bioretention systems are discussed further in Section 6.2.4. • Treated runoff will be discharged into the Alexandra Canal via a piped drainage system.
DC5	0.39 ha	• Access roads • Staff parking	• All runoff from this catchment will be treated in a bio-retention system. Bioretention systems are discussed further in Section 6.2.4. • Treated runoff will be discharged into the Alexandra Canal via a piped drainage system.

Table 6.2 Proposed changes to catchment areas and the stormwater system

Catchment	Area	Proposed use	Proposed changes
DC6	1.06 ha	• Aggregate storage and handling	• The aggregate storage and handling area will be regraded to drain to a sedimentation basin that will be located in the south-eastern portion of the catchment. All drainage will be via surface drains. • The surface drains will drain into a sediment wedge pit that will overflow into a sedimentation basin. Sedimentation basins are discussed further in Section 6.2.3. • All basin overflows will drain to the underground stormwater storage that will be dewatered via pumping to the stormwater harvesting tank.
DC7	0.14 ha	• Access roads	• All runoff from this catchment will drain into a sedimentation basin. Sedimentation basins are discussed further in Section 6.2.3. • All basin overflows will drain to the underground stormwater storage that will be dewatered via pumping to the stormwater harvesting tank.
DC8	0.56 ha	• Access roads • Administration buildings • Staff parking	• A new piped stormwater drainage system will be constructed in south-eastern portion of the site. This drainage system will capture runoff this portion of the site that currently flows onto Burrows Road as overland flow. • The piped drainage system will drain the underground stormwater storage that will be dewatered via pumping to the stormwater harvesting tank.
DC9	0.46 ha	• Rail sidings	• All stormwater from the rail siding is expected to infiltrate into the underlying Botany Sands aquifer.

Notes: The values presented are conceptual and subject to detailed design

6.2.2 Drainage modifications

The drainage system will be modified to improve general site drainage and prevent the discharge of untreated stormwater from the site during frequently occurring rainfall events. The proposed modifications are described in the following sections.

i Site regrading

The aggregate storage and handling area (catchment DC6) will be regraded so that it drains centrally to a sediment wedge pit. The sediment wedge pit will overflow to sedimentation basin DC6.

ii Piped drainage

A piped drainage system will be constructed in the south-eastern portion of the site (catchment DC8). This drainage system will collect stormwater runoff from catchment DC8 and receive overflows from the sedimentation basins in catchments DC6 and DC7 and bypass flows from catchment DC2. All runoff will drain to an underground stormwater storage, the location of which is shown in Figure 6.2. This underground stormwater storage will be progressively dewatered via pumping to the 500 KL stormwater harvesting tank that is located as shown in Figure 6.2.

The piped drainage system will overflow into the Alexandra Canal when the underground stormwater storage is full. Overflows will be controlled by a bypass pit (shown in Figure 6.2) that will comprise an internal weir set at the full storage level of the underground storage. Overflows will only occur when the underground stormwater storage is full, which will occur when:

- the 500 KL stormwater harvesting tank is full and cannot receive any additional water; or
- the collective capacity of the underground stormwater storage and pump-out system is exceeded during intense rainfall.

The capacity of the overflow drainage will be constrained by the existing drainage system that is located under the rail sidings (shown in Figure 6.2). The existing pipe under the rail siding is a 600 mm diameter conduit. It is expected that this pipe will have a 20% AEP capacity (based on the contributing catchment area and assuming all upstream storages are full). When the pipe capacity is exceeded it is expected that:

- all surplus runoff in catchments DC2, DC6, DC7 and the western portion of DC8 will be retained on site; and
- surplus runoff from the eastern portion of catchment DC8 will drain to Burrows Road as overland flows.

6.2.3 Stormwater basins

The upgraded water management system will include the following stormwater basins:

- The existing first flush pits located in catchments DC 1 and DC 2 will be maintained. These first flush pits are configured to capture initial runoff. Once full, all additional runoff bypasses the pit.
- Sedimentation basins will be constructed in catchments DC6 and DC7. The sedimentation basins will receive all runoff from the catchment and will overflow into the piped drainage system.
- The underground stormwater storage will be located in catchment DC8. The functionality of this storage is described in Section 6.2.2.

Table 6.3 provides the contributing catchment area, basin volume and capacity (in terms of mm of runoff) and overflow arrangements for each of the basins. The volumes of the sedimentation basins and underground stormwater storage have been established using water quality modelling that was undertaken for the Surface Water Assessment for Modification 11 (EMM 2018). This modelling demonstrated that the basin size combined with stormwater harvesting will achieve the pollutant load reductions recommended in the Botany Bay & Catchment Water Quality Improvement Plan (SMCMA, 2011).

Table 6.3 Stormwater basins

Storage ID	Catchment area	Volume	Capacity	Overflow arrangement
First flush pits				
DC1	0.37 ha	62 KL	17 mm of runoff	Bypass flows are discharged offsite
DC2	0.66 ha	74 KL	14 mm of runoff[1]	Bypass flows drain to the underground storage
Sedimentation basins				
DC6	1.06 ha	265 KL	25 mm of runoff	Overflows to the underground storage
DC7	0.14 ha	35 KL	25 mm of runoff	Overflows to the underground storage
Underground stormwater storage				
DC8	Direct – 0.56 ha Overflows – 1.86 ha Total – 2.42 ha	170 KL	Capacity is a function of the storage and pump out capacity.	Overflows to Alexandra Canal

Notes: 1. Runoff from roofed areas, approximately 20% of the catchment area will be diverted around the first flush pit.

6.2.4 Bioretention systems

Bioretention systems will be established to treat runoff from catchments DC3, DC4 and DC5 which comprise access roads and car parking areas. In each catchment, the existing drainage system will be modified so that gutter flows drain into the bio-retention systems. The bioretention systems will be unlined allowing for infiltration into the underlying sand aquifer. Bioretention systems will be sized to meet the pollutant load reductions recommended in SMCMA, 2011. Table 6.4 provides the required filter area in each catchment.

Table 6.4 Bioretention areas

Catchment	Catchment Area	Filter Area
DC3	0.09 ha	12 m^2
DC4	0.12 ha	16 m^2
DC5	0.39 ha	52 m^2

6.2.5 Stormwater harvesting system

i Overview

Concrete production requires approximately 150 litres of water per cubic metre of concrete. Hence, a concrete plant capacity of 750,000 m^3/pa will require 112,500 KL/pa of water. This equates to an average daily water use of 308 KL/day. Accordingly, there is an opportunity to harvest stormwater to supply water for concrete production. This will reduce mains water demands and the volume and frequency of stormwater discharge from the site.

ii Proposed system

The existing stormwater harvesting system will be expanded to capture runoff from 72% of the site area (catchments DC1, DC2, DC6, DC7 and DC8). Water will be harvested directly from the first flush pits and the sedimentation basins. As described in Section 6.2.2, the underground stormwater storage will receive stormwater runoff from catchment DC8 and overflows from the sedimentation basins in catchments DC6 and DC7 and bypass flows from catchment DC2. Water in the underground storage will be pumped to the stormwater harvesting tank, which will supply water top-up water to the process water system. The functionality of the stormwater harvesting system is described diagrammatically in Figure 6.1.

Collectively, the stormwater harvesting system will provide 1,106 KL of storage, equivalent to 53 mm of runoff from the harvesting area. The storage volume will provide water for 3 to 4 days of concrete production.

6.2.6 Process water system

The process water system will receive water from the concrete reclaim facility and any other wash out and wash down water. The system will supply water for concrete production and will therefore require constant top-up. Top-up water will be preferentially sourced from storages that are more likely to have poorer water quality and/or have lower storage capacity. Top-up water will preferentially be sourced as follows:

1. water from the reclaim facility;
2. first flush pit (DC2);
3. first flush pit (DC1);
4. sedimentation basins;
5. stormwater harvesting tank; then
6. mains water.

6.2.7 Potable water supply

The site will continue to be connected to mains water supply. Mains water will be used to top-up the process water system when stormwater storages are empty.

6.2.8 Wastewater management

The existing wastewater management system will continue to be operated.

6.3 Stage 1 works

As indicated in Figure 6.2, the water management improvements proposed do not include any drainage works in the Stage 1 area.

It is noted that all Stage 1 works will be located in Catchment EC2 (Figure 5.1), which currently drains to a first flush capture basin. The Stage 1 works will not alter any catchment boundaries and will therefore not impact the functionality of the existing stormwater controls.

7 Flood management

7.1 Flooding characteristics

The Alexandra Canal Flood Study (WMAwater, 2017) was adopted by Council in 2017. Council provided the flood model and results to EMM for use in the Modification 11 Surface Water Assessment (EMM 2018). Model results indicate that the Alexandra Canal, Burrows Road and low-lying land to the north of the site are prone to flooding in the 1% AEP and lower magnitude events. Alexandra Canal is also affected by backwater flooding from the Cooks River. Table 7.1 provides a summary of peak flood levels in the Alexandra Canal and land adjoining the site.

Table 7.1 Peak flood levels on land adjoining the site

	Flood levels from the Alexandra Canal Flood Study (WMAwater, 2017)[1]			Cooks River Flood Levels[2] (backwater flooding)
	Alexandra Canal	Area to the north of the site	Burrows Road	
20% AEP	1.68 m AHD	2.22 m AHD	2.51 m AHD	2.00 m AHD
5% AEP	1.93 m AHD	2.34 m AHD	2.56 m AHD	2.15 m AHD
1% AEP	2.02 m AHD	2.46 m AHD	2.59 m AHD	2.50 m AHD
PMF	3.27 m AHD	3.42 m AHD	3.43 m AHD	3.95 m AHD

Notes: *1. Peak flood levels were extracted from Alexandra Canal Flood Study (WMAwater, 2017) model results provided by Council at locations adjacent to the site*
2. Flood levels sourced from Table 4.14 from the Alexandra Canal Catchment Flood Study (Cardno, 2014), which referenced the Cooks River Flood Study (MWH+PB 2009)

The majority of the site is established above 2.7 m AHD, with the only exception being the northern and southern driveways that have levels between 2.3 and 2.4 m AHD at the interface with Burrows Road South. With reference to Table 7.1, the 1% AEP flood levels on land adjacent to the site range from 2.02 to 2.59 m AHD. Hence, the site (except for the entrance driveways) is not prone to flooding during 1% AEP and lower magnitude flood events.

Council's model results indicate that the site is prone to flooding during a PMF event. With reference to Table 7.1:

- PMF levels from local catchment flooding are approximately 3.4 m AHD, indicating that flood depths of up to 0.7 m would occur within low lying portions of the site. Flood hazard maps provided in WMAwater, 2017 identify the majority of the site as having low hydraulic hazard during PMF conditions.
- PMF levels from back water flooding from the Cooks River would be 3.95 m AHD and will result in flood depths of up to 1.25 m, indicating a high hydraulic hazard based on depth for most of the site.

7.1.1 Warning time

Flood behaviour can be characterised as flash flooding, with little available warning time between high intensity rainfall occurring and the onset of flooding. For flood events up to about 1% AEP, the critical duration for flooding is in the order of 1-2 hours (WMAwater, 2017). Therefore there will be limited warning time available to prepare the site and personnel for flooding once a significant storm event has commenced.

7.1.2 Velocity

The velocity of flood water at the site will be low (typically in the range 0 – 0.5 m/s based on mapping contained in WMAwater, 2017) as it is resulting from water backing up through drainage infrastructure from the Alexandra Canal.

7.1.3 Access

Access to and from the site is likely to be restricted in events greater than the 1% AEP due to the inundation of Burrows Road South.

7.2 Flood planning levels

Based on the information from local flood studies (provided in Table 7.1) the flood planning level across the site based on the 1% AEP and 500 mm freeboard is between 2.5 m AHD and 3.1 m AHD, depending on the location within the site.

Buildings, plant and equipment including material storage areas that will be designed as part of Stage 2 of the Modification 11 works will be set at a minimum height of the relevant flood planning level.

7.2.1 Stage 1 works

Ground levels where the Stage 1 works are located vary between 2.8 m AHD to 3.0 m AHD and the derived planning level at this location is 3.1 m AHD. The plant and equipment associated with the Stage 1 works will be set at or above this level.

7.3 Emergency response

At the time of an emergency, a Flood Emergency Response Plan (FERP) provides practical information to site personnel to assist a safe and structured response to a flooding event. This practical information has been summarised in a FERP provided in Appendix B.

The FERP contains critical information during a flood event, including:

- Assembly points;
- Evacuation routes;
- Flood trigger levels; and
- Evacuation and refuge protocols

7.4 Awareness training

Site personnel will be made aware of the site's risk to flooding during the site's standard induction process. This will also include the assembly points, and evacuation and refuge protocols as outlined by the FERP.

7.5 Roles and responsibilities

The site manager is responsible for:

- ensuring that site personnel undertake adequate flood awareness training before commencing work at the site;
- being aware of predicted flood levels in the Alexandra Canal following heavy rainfall events (detailed further in Appendix B);
- monitoring local flooding conditions whilst any personnel are attending the site; and
- informing site personnel of the emergency protocol (as described in Appendix B).

Site personnel are responsible for:

- being aware of their surroundings and exercising caution during flood; and
- following the instructions as directed by the site manager during a flood event at the site.

8 Monitoring and inspection plan

8.1 Overview

This section describes a surface water monitoring program that will be implemented by Boral. The objectives of the monitoring program are to collect sufficient data to:

- enable the effectiveness of water quality controls to be assessed;
- identify and quantify water quality impacts; and
- enable compliance with relevant consent and licence conditions to be assessed.

The following sections describe the monitoring locations, monitoring plan and methods.

8.2 Monitoring locations

Monitoring will be undertaken from the following site discharge locations once water management upgrade works are completed for the relevant catchment(s):

- SW 1 – will monitor the combined discharge from the catchments DC2, DC4, DC6, DC7 and DC8. Discharge will only occur when the underground stormwater storage is full and bypass flows occur.
- SW 2 – will monitor discharge from catchment DC1. Discharge will occur when the first flush pit is full and bypass flows occur.

Monitoring locations are indicated in Figure 6.2.

8.3 Monitoring plan

The monitoring program will comprise:

- inspection of the condition and functionality of stormwater infrastructure;
- daily monitoring of pH during discharge; and
- biannual monitoring of a range of analytes during discharge conditions.

Table 8.1 describes the monitoring plan further.

Table 8.1 Monitoring plan

Aspect	Objective	Description
Inspection	To inspect the condition and functionality of stormwater infrastructure	To be undertaken informally on an ongoing basis and formally on a quarterly basis. Visual inspection to identify whether cementitious material is conveyed by stormwater outside of catchment EC2 and whether stormwater storages regular exceed capacity following rainfall events. Outcomes of these are to inform the TARPs (Appendix C).
Daily monitoring	To progressively monitor the pH of site discharge.	Analysis of pH during discharge. Monitoring will be undertaken from two monitoring locations (SW1 and SW2) on a daily basis when discharge is occurring.
Biannual comprehensive monitoring.	To monitor the water quality of site discharge.	Comprehensive monitoring will be undertaken from two monitoring locations (SW1 and SW2) on two occasions every year when discharge is occurring. Refer to Table 8.2 for a description of the proposed analytes and monitoring methods.

Table 8.2 details the proposed comprehensive analytes and monitoring methods. Boral will keep a record of all monitoring results.

Table 8.2 Comprehensive monitoring analytes

Category	Proposed sampling analytes	Analysis method
Physiochemical Properties	pH, electrical conductivity (EC) and turbidity.	To be measured using a portable water quality meter in the field
	total suspended solids, total dissolved solids, total hardness, total hydrocarbons	Analysis to be undertaken by a NATA certified laboratory
Nutrients	total nitrogen, ammonia, nitrate, nitrite, total Kjeldahl nitrogen, total phosphorus and reactive phosphorous	Analysis to be undertaken by a NATA certified laboratory

8.4 Response plan

Monitoring will be undertaken as identified in Table 8.1. Exceedances relevant to key design objectives for the proposed water management system will be identified and addressed as described in Table 8.3.

Trigger Action Response Plans (TARPs) have been prepared to establish methods to identify inadequacies of the water management system and if necessary, establish actions to either improve water management or further investigate the exceedance.

Table 8.3 Overview of surface water operating protocols and Trigger Action Response Plans

Monitoring type	Trigger	Action	Objective
Visual inspection	If cementitious material is identified outside of catchment EC2	• TARP 1 – Runoff from cementitious areas entering the stormwater system	• To identify (where possible) if the exceedance is due to exceedance of water management system capacity or functioning failure
Visual inspection	If runoff is regularly exceeding capacity of the stormwater system, i.e. regular discharges to the stormwater system	• TARP 2 – Inadequate capacity of stormwater controls	• To identify (where possible) if the exceedance is due to exceedance of water management system capacity or functioning failure

9 Water licensing and approvals

9.1 Surface water

9.1.1 Water take

Stormwater will be extracted from the existing first flush pits, proposed sedimentation basins and underground stormwater storage. Extracted water will be either directly reticulated into the process water system or reticulated to the stormwater harvesting tank.

Water extraction (or water take) from the existing first flush pits, proposed sedimentation basins and underground stormwater storage is excluded works under Water Management (General) Regulation 2011, Schedule 1, item 3 (dams solely for the capture, containment or recirculation of drainage). Accordingly, there is no requirement for water licensing for stormwater harvesting.

9.1.2 Impacts to waterfront land

The proposed works will be undertaken with the existing site area. Works within 40 m of the Alexandra Canal will be limited to:

- construction of bioretention systems in Catchment DC4 and DC 5; and
- modifications to the car park in catchment DC 5.

From an approvals perspective, it is noted that Section 4.41 of the *Environmental Planning and Assessment Act 1997* removes the need for a controlled activity approval under the *Water Management Act 2000* when development consent has been granted for state significant development (which includes this project). However, Consent Condition B37 will still require consideration of the requirements of DoI (2018) when design of Stage 2 works is undertaken.

9.2 Groundwater

Consent Condition B36 requires Boral to prepare a Dewatering Report for the development. The plan must detail the volume of groundwater taken and include details of any impacts (and associated mitigation measures) that have occurred as a result of groundwater take. The report must be submitted to the DoI Lands and Water Division within one month of the completion of the construction of Modification 11 works.

10 Action plan

10.1 Water management summary of actions

Table 10.1 summarises the actions to be undertaken in accordance with this WMP.

Table 10.1 WMP action plan

WMP actions	Trigger/timing	Outcome
Modifications		
Complete the upgrades to the surface water infrastructure as per Table 6.2	When construction of works for Modification 11 are undertaken for the subject catchment	Improved water management outcomes
Compliance		
Update the WMP to include design information of upgraded surface water infrastructure.	Before commencing the relevant construction works for Modification 11	Address consent condition B29, B30 and B31
Prepare a groundwater dewatering report and submit to DoI Lands and Water Division	Within 1 month of completing construction of the Modification 11 works	Address consent condition B36
Monitoring		
Monitor surface water discharges from the site	Following approval of this WMP, and subsequently as described in Section 8.	Establish site discharge and water quality characteristics to assess compliance with consent conditions and design objectives.

10.2 Reporting and review

10.2.1 Reporting

Reporting relating to water management at the site will comply with the requirements outlined in the EMMP.

10.2.2 Review

Boral will review the appropriateness of this WMP annually. Each review will consider:

- monitoring results;
- amendments to the WMP (if applicable); and
- details of the measures undertaken to address any identified issues (if applicable).

References

Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M & Testoni I, (Editors) 2016, *Australian Rainfall and Runoff: A Guide to Flood Estimation*, Commonwealth of Australia (Geoscience Australia).

BoM 2018, *Climate Data Online*, viewed during December 2018 http://wj180462ww.bom.gov.au/climate/data/.

Cardno 2014, *Alexandra Canal Catchment Flood Study*, report prepared for City of Sydney.

CCAA 2013, First Flush and Water Management Systems: Guide and Principles, Cement Concrete & Aggregates Australia.

DECC 2005, *Liquid Chemical Storage, Handling and Spill Management: Review of Best Practice Regulation*, Department of Environment, Climate Change.

- 2007, *Storing and Handling Liquids: Environmental Protection: Participant's Manual*.
- 2008, *Managing Urban Stormwater: Soils and Construction, Volume 2E – Mines and Quarries*.

DoI 2018, *Guidelines for controlled activities on waterfront land – riparian corridors*. NSW Department of Industry, Natural Resources Access Regulator.

EMM 2018, *Boral St Peters concrete plant and materials handling facility – Modification 11: Surface water assessment*, prepared for Boral Resources (NSW) Pty Ltd.

Landcom 2004, *Managing Urban Stormwater: Soils and Construction Volume 1*, 4th Edition.

SMCMA 2011, *Botany Bay & Catchment Water Quality Improvement Plan*.

WMAwater 2017*, Alexandra Canal Draft Flood Study*, prepared for Inner West Council.

Terminology

The following terminology is used to describe the existing and proposed water management system in this report:

- Stormwater harvesting area – refers to the contributing catchment to the stormwater harvesting system.
- Cementitious areas – refers to areas of the concrete plant where stormwater and yard cleaning/hosing runoff may become contaminated with admixtures or cementitious materials, which can result in high pH levels. Cementitious areas normally include cement and silo filling areas, loading bays, slump stands, truck washout areas and wastewater collection areas (CCAA, 2013).
- Stormwater – refers to runoff from all areas of the site that are not cementitious areas. Runoff from the stormwater areas may be laden with suspended sediments such as sand and aggregate materials that are used to produce concrete (CCAA, 2013).
- Process water - refers to water that is used by or produced by the concrete batching process.
- Potable or mains water – refers to water suitable for drinking.
- Return concrete – refers to unsold concrete that is returned to the concrete plant. Return concrete is discharged from the concrete agitators into a return concrete management system.
- Washout water – refers to water produced from washing out concrete agitators.
- Wastewater – refers to wastewater generated from the onsite amenities.

Abbreviations

Abbreviation	Meaning
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
BoM	Bureau of Meteorology
DECC	NSW Department of Environment and Climate Change
DPE	NSW Department of Planning and Environment
DoI	NSW Department of Industry
FERP	Flood Emergency Response Plan
ha	Hectare
kL	Kilolitre
km	Kilometre
L	Litre
LGA	Local Government Area
m	Metre
mm	Millimetre
NSW	New South Wales
pa	Per annum
TARP	Trigger Action Response Plan
tpa	Tonnes per annum
WMP	Water Management Plan

Appendix A

Development Consent

Modification of Minister's Approval

Section 75W of the *Environmental Planning and Assessment Act 1979*

As delegate for the Minister for Planning, under the Instrument of Delegation executed on 11 October 2017, I approve the modification of the development consent referred to in Schedule 1, subject to the Conditions outlined in Schedule 2.

Sargeant

Anthea Sargeant
Executive Director
Key Sites and Industry Assessments

Sydney 31 January, 2019

SCHEDULE 1

Development Consent (DA 14/96), granted by the former Minister for Planning on 10 September 1996 for the development of a concrete batching plant, an asphalt plant and associated materials handling facility at Burrows Road South, St Peters in the Inner West local government area.

SCHEDULE 2

1) Delete the heading "Schedule A" and replace it with the heading "Schedule 1"

2) Delete all references to 'WorkCover Authority' and replace with "SafeWork NSW"

3) Delete the definitions for "Act", "construction", "Regulation" and "Secretary" in the definitions in the new Schedule 1

4) Insert the following definitions in the new Schedule 1 in alphabetical order:

CEMP	Construction Environmental Management Plan
construction	the demolition and removal of buildings or works, the carrying out of works for the purpose of the development, including bulk earthworks, and erection of buildings and other infrastructure permitted by this consent.
DoI	Department of Industry
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
MOD 11	Modification 11 to this consent, as described in Condition 2o)
PA	Means a planning agreement within the meaning of the term in section 7.4 of the EP&A Act.
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
waste	has the same meaning as the definition of the term in the Dictionary to the POEO Act
year	a period of 12 consecutive months

5) Insert a new heading immediately after the definitions as follows:

SCHEDULE 2
PART A: ADMINISTRATIVE CONDITIONS

6) Insert the letter "A" in front of Condition numbers 1 to 5.

7) Delete the words "Environmental Planning and Assessment Act, 1979" in Condition A1 and replace with "EP&A Act".

8) Insert the following clauses immediately after clause n) in Condition A2:

   o) modification request DA 14/96 Mod 11, and supporting documents, including the reports titled '*Boral St Peters concrete plant and materials handling facility, Environmental Assessment, Modification 11*' dated 13 July 2018, prepared by EMM, and '*Response to Submissions, St Peters concrete plant and materials handling facility – Modification 11'*, dated 11 September 2018, prepared by EMM and a letter dated 12 October 2018 from EMM;
   p) the development layout in Appendix 1.

9) Delete the numbers "280,000" and "750,000" in Condition A5 and replace with "750,000" and "one million", respectively.

10) Immediately after Condition A5 insert new Conditions A6 to A15 as follows:

A6. The Applicant must:

(a) ensure the maximum hourly truck movements during the morning peak (7 am to 9 am) and afternoon peak (4 pm to 6 pm) do not exceed the limits outlined in Table 1 below; and

Table 1: *Maximum hourly heavy vehicle movements from concrete batching plant*

Period	Hourly Two-way Movements
7 am – 9 am	88
4 pm – 6 pm	88

(b) prepare and submit a quarterly report on heavy vehicle truck movements during the morning and afternoon peak periods to Council and the Planning Secretary until the completion of WestConnex Stage 3, unless otherwise agreed to by the Planning Secretary.

EASEMENTS

Maintenance of Water Management System

A7. Within 12 months after the determination of MOD 11, a positive covenant under section 88E of the *Conveyancing Act 1919* must be registered on the title of the site that provides for the ongoing management and maintenance of the on-site water management system. The covenant must name Council as the prescribed authority, and can only be revoked, varied or modified with the consent of the Council.

PLANNING AGREEMENT

A8. Within six months after the date of commencement of construction of MOD 11 works, or other timeframe agreed by the Planning Secretary, the Applicant must enter into a PA with the Council in accordance with:

(a) Division 7.1 of Part 7 of the EP&A Act; and

(b) the terms of the offer in the letter dated 18 December 2018 from Boral Resources (NSW) Pty Limited to the Council, which has been accepted by the Council.

EVIDENCE OF CONSULTATION

A9. Where Conditions of this consent require consultation with an identified party, the Applicant must:

(a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and

(b) provide details of the consultation undertaken including:

(i) the outcome of that consultation, matters resolved and unresolved; and

(ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.

DEMOLITION

A10. All demolition must be carried out in accordance with *Australian Standard AS 2601-2001 The Demolition of Structures* (Standards Australia, 2001).

STRUCTURAL ADEQUACY

A11. All new buildings and structures, and any new alterations or additions to existing buildings and structures, that are part of the development, must be constructed in accordance with the relevant requirements of the BCA.

COMPLIANCE

A12. The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the Conditions of this consent relevant to activities they carry out in respect of the development.

OPERATION OF PLANT AND EQUIPMENT

A13. All plant and equipment used on site, or to monitor the performance of the development, must be:
(a) maintained in a proper and efficient Condition; and
(b) operated in a proper and efficient manner.

APPLICABILITY OF GUIDELINES

A14. References in the Conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent.

A15. However, consistent with the Conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.

11) Immediately after new Condition A15 insert new Advisory Note AN1 as follows:

ADVISORY NOTES

AN1. All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No Condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.

12) Insert a new heading immediately after new Advisory Note AN1 as follows:

PART B: SPECIFIC ENVIRONMENTAL CONDITIONS

13) Delete all Conditions and Condition headings from Condition 6 to Condition 48 and insert new Conditions B1 to Condition C14 as follows:

ROADS, TRAFFIC AND PARKING

Construction Traffic Management Plan

B1. Prior to the commencement of construction of MOD 11 works, the Applicant must prepare a Construction Traffic Management Plan for the development to the satisfaction of the Planning Secretary. The plan must form part of the CEMP required by Condition C2 and must:
(a) be prepared by a suitably qualified and experienced person(s)
(b) be prepared in consultation with Council
(c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction;
(d) detail heavy vehicle routes, access and parking arrangements;
(e) include a Driver Code of Conduct to:
(i) minimise the impacts of earthworks and construction on the local and regional road network;
(ii) minimise conflicts with other road users;
(iii) minimise road traffic noise; and
(iv) ensure truck drivers use specified routes;
(f) include a program to monitor the effectiveness of these measures; and
(g) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.

B2. The Applicant must:

(a) not commence construction until the Construction Traffic Management Plan required by Condition B1 is approved by the Planning Secretary; and

(b) implement the most recent version of the Construction Traffic Management Plan approved by the Planning Secretary for the duration of construction.

Roadworks and Access

B3. Heavy vehicles travelling inbound or outbound from the site must not utilise Mary Street, St Peters.

B4. The Applicant must comply with the requirements of the RMS and Council regarding the use and any routes of 'B-Double' trucks.

B5. The Applicant must meet the full cost of any works required to be carried out by Council, DPI, Sydney Water or the RMS in connection with drainage, crossing, alterations to kerb and guttering, footpaths and roads that may be needed as a result of the development in addition to any such works specified in other Conditions.

Operational Conditions

B6. Prior to the commencement of operation of any of the new infrastructure approved under MOD 11 the Applicant must update the existing Traffic Management Plan for the development. The plan must be incorporated into the updated EMMP required by Condition C5 of this consent and must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) be prepared in consultation with Council and the RMS;

(c) detail vehicle routes, access and parking arrangements;

(d) include details of driver training awareness to minimise noise, in particular from reversing alarms and compression braking;

(e) include as Driver Code of Conduct to:

(i) minimise conflicts with other road users;

(ii) minimise road traffic noise;

(iii) ensure truck drivers use specified routes;

(iv) ensure no queuing or parking on the local road or footpaths;

(v) ensure adherence to all on-site and off-site speed limits;

(vi) require all loading and unloading to be undertaken on site; and

(vii) require all vehicles to enter and exit the site in a forward direction;

(f) include a Heavy Vehicle Management Plan to the satisfaction of Council; and

(g) include a program to monitor the effectiveness of these measures.

B7. The Applicant must:

(a) not commence operation of any new infrastructure approved under MOD 11 until the operational Traffic Management Plan required by Condition B6 is approved by the Planning Secretary; and

(b) implement the most recent version of the operational Traffic Management Plan approved by the Planning Secretary for the duration of the development.

B8. The Applicant must provide sufficient parking facilities on-site, including for heavy vehicles and for site personnel, to ensure that traffic associated with the development does not utilise public and residential streets or public parking facilities.

B9. For all new works approved under MOD 11, the Applicant must ensure:

(a) internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) associated with the development are constructed and maintained in accordance with the latest version of AS 2890.1:2004 Parking facilities Off-street car parking (Standards Australia, 2004) and AS 2890.2:2002 Parking facilities Off-street commercial vehicle facilities (Standards Australia, 2002);

(b) the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, is in accordance with the relevant AUSTROADS guidelines;

(c) the development does not result in any vehicles queuing on the public road network;

(d) heavy vehicles associated with the development are not parked on local roads or footpaths in the vicinity of the site;

(e) all vehicles are wholly contained on site before being required to stop;

(f) all loading and unloading of materials is carried out on-site;

(g) all trucks entering or leaving the site with loads have their loads covered and do not track dirt onto the public road network

B10. All vehicles exiting the site must pass through an operational and efficient wheel wash and/or vibration grid.

B11. Within three months of the determination of MOD 11, the Applicant must investigate and submit a proposal to the Bayside Traffic Committee that recommends the extension of the 'No Stopping' zone along Burrows Road South from the intersection of Burrows Road South and Canal Road toward the development. Evidence of this must be provided to the Planning Secretary within four months of the determination of MOD 11.

AIR QUALITY

Dust Minimisation

B12. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.

B13. During construction, the Applicant must ensure that:

(a) exposed surfaces and stockpiles are suppressed by regular watering;

(b) all trucks entering or leaving the site with loads have their loads covered;

(c) trucks associated with the development do not track dirt onto the public road network;

(d) public roads used by these trucks are kept clean; and

(e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.

Air Quality Management Plan

B14. Within three months of the determination of MOD 11, the Applicant must prepare an Air Quality Management Plan (AQMP) to the satisfaction of the Planning Secretary. The AQMP must form part of the updated EMMP required by Condition C5. The AQMP must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) detail and rank all emissions from all sources of the development, including particulate emissions;

(c) identify the control measures that that will be implemented for each emission source;

(d) describe a program that can evaluate the performance of the operation and determine compliance with key performance indicators;

(e) identify trigger levels for particulates for the real-time off-site dust monitors and response procedures;

(f) include all existing dust deposition monitoring and criteria as described in the 'Environmental Management and Monitoring Plan' prepared by EMM dated 28 November 2017 for the site;

(g) include historical data from existing dust monitoring gauges;

(h) nominate the following for each of the proposed control measures for each emission source:
  (i) key performance indicator;
  (ii) monitoring method;
  (iii) location, frequency and duration of monitoring;
  (iv) record keeping;
  (v) complaints register;
  (vi) response procedures;
  (vii) compliance monitoring; and

(i) describe a program for reviewing dust management practices on site to ensure continual improvement in dust management practices and implementation of best practice dust management measures.

B15. The Applicant must:

(a) not commence operation of any of the new infrastructure approved under MOD 11 until the Air Quality Management Plan required by Condition B13 is approved by the Planning Secretary; and

(b) implement the most recent version of the Air Quality Management Plan approved by the Planning Secretary for the duration of the development.

Dust management

B16. Prior to any increase in production at the concrete batching plant (as approved under MOD 11 to this consent) the Applicant must review and improve existing dust control measures on the site to ensure:

(a) the premises is maintained in a condition that minimizes the emission of dust and silt loading on paved surfaces; and

(b) all reasonable and feasible best practice measures are implemented to minimise dust generated during operations.

Evidence of this review and details of any improvements must be submitted to the Secretary for approval prior to any increase in production at the concrete batching plant (as approved under MOD 10 to this consent).

B17. No stockpile on site should exceed a height of 4m above ground level or the combined height of the concrete barrier and green mesh fencing, whichever is the lesser.

B18. Within six months of the determination of MOD 11, unless otherwise agreed to by the Planning Secretary, the Applicant must install a wheel wash system at the eastern site entrance.

Dust Monitoring

B19. Prior to the operation of any new infrastructure approved under MOD 11 the Applicant must establish up to three off-site real-time dust monitors in the vicinity of sensitive receptors R3 and R4 (as identified in Figure 7.1 of the Environmental Assessment for MOD 11). The monitors must:

(a) allow for upwind and downwind measurements;

(b) monitor real-time particulate matter concentrations; and

(c) be sited in a suitable location agreed to by the Planning Secretary.

Monitoring requirements, response trigger criteria and response procedures must be incorporated into the AQMP required by Condition B13.

B20. Within two months of the determination of MOD 11, the Applicant must submit all historical data from the existing depositional dust gauges to the EPA.

NOISE AND VIBRATION

Hours of Work

B21. The Applicant must comply with the hours detailed in Table 2, unless otherwise agreed in writing by the Planning Secretary.

Table 2: *Hours of Work*

Activity	Day	Time
Earthworks and construction	Monday – Friday Saturday	7 am to 6 pm 8 am to 1 pm
Operation	Monday – Sunday	24 hours

B22. Works outside of the hours identified in Condition B20 may be undertaken in the following circumstances:

(a) works that are inaudible at the nearest sensitive receivers;

(b) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or

(c) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

Noise Limits

B23. The development must be constructed to achieve the construction noise management levels detailed in the *Interim Construction Noise Guideline* (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented throughout construction.

B24. The Applicant must ensure that operational noise from the development does not exceed the noise limits presented in Table 3.

Table 3: *Development Noise Limits (dBA)*

Day and Night $LA_{eq\ (15\ minute)}$	**Location**
42	Bellevue Street
44	Yelverton Street

Notes:
Noise generated by the development is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological Conditions), of the NSW Noise Policy for Industry (2017).

Vibration Criteria

B25. Vibration caused by construction at any residence or structure outside the site must be limited to:

(a) for structural damage, the latest version of DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures (German Institute for Standardisation, 1999); and

(b) for human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: a technical guideline (DEC, 2006) (as may be updated or replaced from time to time).

RAIL QUARRY PRODUCT DELIVERY

B26. The Applicant must maximise the use of rail freight for quarry product delivery wherever reasonably practicable.

B27. The Department may require, at the Applicant's expense, an independent audit of rail use for quarry product delivery if it considers that rail use has not been used wherever reasonably practicable.

B28. The Applicant must ensure that the rail siding and ancillary works are maintained to a standard which facilitates their use for materials handling and transport at all times.

SOILS, WATER QUALITY AND HYDROLOGY

Erosion and Sediment Control

B29. Prior to the commencement of any construction or other surface disturbance the Applicant must install and maintain suitable erosion and sediment control measures on-site, in accordance with the relevant requirements of the *Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book* (Landcom, 2004) guideline and the Erosion and Sediment Control Plan included in the CEMP required by Condition C2.

Stormwater Management

B30. The Applicant must ensure all roof and surface stormwater from the site and any catchment external to the site that presently drains into the site is collected in a system of pits and pipelines/channels and major storm event surface flow paths and discharged to a Sydney Water controlled stormwater drainage system.

B31. Prior to the commencement of operation of MOD 11 works the Applicant must design, install and operate the upgraded stormwater management system for the development. The system must:

(a) be designed by a suitably qualified and experienced person(s);

(b) be generally in accordance with the conceptual design in the MOD 11 EA;

(c) be in accordance with applicable Australian Standards; and

(d) ensure that the system capacity has been designed in accordance with Australian Rainfall and Runoff (Engineers Australia, 2016).

Surface Water Management Plan

B32. Prior to the commencement of operation of infrastructure works approved under MOD 11, the Applicant must prepare a Surface Water Management Plan to the satisfaction of the Planning Secretary. The Plan must form part of the updated EMMP required by Condition C5 and must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) describe the surface water management system;

(c) be consistent with the surface water management system described in the 'Surface Water Assessment' prepared by EMM on behalf of Boral Resources (NSW) Pty Ltd dated 28 June 2018 (Appendix G of the MOD 11 Environmental Assessment)..

(d) include a program to monitor:

(i) surface water flows and quality;

(ii) surface water storage and use; and

(iii) sediment basin and bioretention system operation;

(e) surface water impact assessment criteria, including trigger levels for investigating and potential adverse surface water impacts; and

(f) a protocol for the investigation and mitigation of identified exceedances of the surface water impact assessment criteria; and

(g) a maintenance program for all surface water management infrastructure.

Flood Management

B33. Prior to the commencement of operation of infrastructure works approved under MOD 11, the Applicant must update the Flood Emergency Response Plan to the satisfaction of the Planning Secretary. The Plan must form part of the updated EMMP required by Condition C5 and must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) address the provisions of the Floodplain Risk Management Guideline (OEH, 2007);

(c) include details of:

(i) the flood emergency responses for both construction and operation phases of the development;

(ii) predicted flood levels;

(iii) flood warning time and flood notification;

(iv) assembly points and evacuation routes;

(v) evacuation and refuge protocols; and

(vi) awareness training for employees and contractors.

B34. The Applicant must:

(a) not commence operation until the Flood Emergency Response Plan required by Condition B31 is approved by the Planning Secretary; and

(b) implement the most recent version of the Flood Emergency Response Plan approved by the Planning Secretary for the duration of the development.

B35. Buildings, plant and equipment including material storage areas must be set at a minimum height of 500mm above the 1 % Annual Exceedance Probability (AEP) flood event for Alexandra Canal. Details of existing and proposed site levels and means of providing 500mm freeboard above the 1% AEP flood event must be submitted to Council. Variations below 500mm must only be with the written agreement of Council's Director, Technical Services.

Groundwater Management

B36. Within one month of the completion of construction of MOD 11 works the Applicant must prepare a Dewatering Report for the development. The plan must detail the volume of groundwater taken and include details of any impacts (and associated mitigation measures) that have occurred as a result of groundwater take. The report must be submitted to the DoI Lands and Water Division.

Impacts on Alexandra Canal

B37. Any new works, including additional car parks, within 40 metres of the top of the bank of Alexandra Canal, must consider the requirements of the *Guidelines for Riparian Corridors on Waterfront Land* (DPI, 2018).

WASTE MANAGEMENT

B38. Garbage must be stored in a location approved by the Council and be disposed of in an approved manner. All liquid wastes, (other than stormwater) must be discharged to the sewer in accordance with the requirements of the Sydney Water Corporation.

B39. All waste materials associated with the operation of the proposal must be stored in suitably constructed and enclosed containers or similar facilities on the premises in a neat and tidy manner and at all times.

Construction and Demolition Waste Management

B40. Prior to the commencement of construction, the Applicant must prepare a Construction and Demolition Waste Management Plan for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with Condition C2 and must:

(a) detail the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations; and

(b) be implemented for the duration of construction works.

B41. The Applicant must:

(a) not commence construction until the Construction and Demolition Waste Management Plan is approved by the Planning Secretary.

(b) implement the most recent version of the Construction and Demolition Waste Management Plan approved by the Planning Secretary.

CONTAMINATION

B42. All wash down areas, the truck washing facility and all other areas likely to be contaminated must be isolated from the stormwater drainage system in accordance with the 'Surface Water Assessment' prepared by EMM for Boral Resources (NSW) Pty Ltd dated 28 June 2018 (Appendix G of the MOD 11 Environmental Assessment)..

B43. Prior to any increase in production at the concrete batching plant (as approved under MOD 10 to this consent) the Applicant must submit to the Secretary for approval evidence of best practice refuelling procedures for the refuelling of site-based mobile plant to ensure appropriate containment and management of spills.

HAZARD AND RISK

B44. The Applicant must ensure that the quantities of Dangerous Goods present on-site or transported to and from the development are below the screening threshold quantities listed in the Department of Planning's *Applying SEPP 33 Guidelines* (2011) at all times.

B45. The Applicant must store all chemicals, fuels and oils used on-site in accordance with:

(a) the requirements of all relevant Australian Standards; and

(b) the NSW EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Handbook* if the chemicals are liquids.

In the event of an inconsistency between the requirements listed from (a) to (b) above, the most stringent requirement prevails to the extent of the inconsistency.

LANDSCAPING

B46. The landscaping of the site must be maintained at all times, to the satisfaction of Council. This includes suitable perimeter landscaping adjacent to Burrows Road South and a 10 metre wide landscaped buffer strip adjacent to the Alexandra Canal.

LIGHTING

B47. Lighting at the site must not cause hazard to aircraft using Sydney Kingsford Smith airport. Any change in lighting at the site must be undertaken in consultation with and to the approval of Sydney Airport Corporation Limited.

PART C: ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Management Plan Requirements

C1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:

(a) details of:

(i) the relevant statutory requirements (including any relevant approval, licence or lease Conditions);

(ii) any relevant limits or performance measures and criteria; and

(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;

(b) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;

(c) a program to monitor and report on the:

(i) impacts and environmental performance of the development; and

(ii) effectiveness of the management measures set out pursuant to paragraph (c) above;

(d) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;

(e) a program to investigate and implement ways to improve the environmental performance of the development over time;

(f) a protocol for managing and reporting any:

(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);

(ii) complaint;

(iii) failure to comply with statutory requirements; and

(g) a protocol for periodic review of the plan.

Note: *The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans*

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

C2. The Applicant must prepare a Construction Environmental Management Plan (CEMP) in accordance with the requirements of Condition C1 and to the satisfaction of the Planning Secretary.

C3. As part of the CEMP required under Condition C2 of this consent, the Applicant must include the following:

(a) Construction Traffic Management Plan (see Condition B1);

(b) Erosion and Sediment Control Plan;

(c) the 'Vibration Monitoring Plan, Modification 11, Boral St Peters', prepared by EMM, dated 27 November 2018;

(d) Construction and Demolition Waste Management Plan (see Condition B38);

(e) Noise Management;

(f) Dewatering Management; and

(g) Community Consultation and Complaints Handling.

C4. The Applicant must:

(a) not commence construction of the new infrastructure approved under MOD 11 until the CEMP is approved by the Planning Secretary; and

(b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.

Environmental Management and Monitoring Plan

C5. Prior to the commencement of operation of any infrastructure works approved under MOD 11, the Applicant must update the existing Environmental Management and Monitoring Plan (EMMP) for the site. The updated Plan must show how dust, noise, vibration, traffic and water quality impacts will be measured, monitored, managed and mitigated. The Plan is to include, but not be limited to, the following:

(a) a description of the role, responsibility, authority and accountability of key personnel involved in the environmental management of the development;

(b) a description of the procedures that would be implemented to:

(i) keep the local community and relevant agencies informed about the operation and environmental performance of the development;

(ii) receive, handle, respond to, and record complaints;

(iii) resolve any disputes that may arise;

(iv) respond to any non-compliance;

(v) respond to emergencies; and

(c) baseline background dust, noise and water quality data;

(d) a contingency plan to manage any unpredicted impacts and their consequences
(e) refuelling procedures for site-based mobile plant; and
(f) the following management plans:
    (i) Traffic Management Plan (see Condition B6);
    (ii) Air Quality Management Plan (see Condition B13);
    (iii) Surface Water Management Plan (see Condition B30); and
    (iv) Flood Emergency Response Plan (see Condition B31).

C6. The Applicant must:
(a) not commence operation of any MOD 11 infrastructure works until the updated EMMP is approved by the Planning Secretary; and
(b) operate the development in accordance with the updated EMMP approved by the Planning Secretary (and as revised and approved by the Planning Secretary from time to time).

REVISION OF STRATEGIES, PLANS AND PROGRAMS

C7. Within three months of:
(a) the submission of an Annual Review under Condition xx;
(b) the submission of an incident report under Condition xx;
(c) the approval of any modification of the conditions of this consent; or
(d) the issue of a direction of the Planning Secretary,

the strategies, plans and programs required under this consent must be reviewed.

C8. If necessary to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review.

Note: *This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.:*

ANNUAL REVIEW

C9. Within 12 months of the approval of MOD 10, and each subsequent year, the Applicant must review the environmental performance of the development to the satisfaction of the Planning Secretary. This review must:
(a) describe the development that was carried out in the previous calendar year, and the development that is proposed to be carried out over the next year;
(b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the:
    (i) the relevant statutory requirements, limits or performance measures/criteria;
    (ii) requirements of any plan or program required under this consent;
    (iii) the monitoring results of previous years; and
    (iv) the relevant predictions in the EIS and/or subsequent modifications;
(c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
(d) identify any trends in the monitoring data over the life of the development;
(e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
(f) describe what measures will be implemented over the next year to improve the environmental performance of the development.

REPORTING AND AUDITING

Incident Notification, Reporting and Response

C10. The Department must be notified in writing to compliance@planning.nsw.gov.au immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one), and set out the location and nature of the incident. Subsequent notification requirements must be given and reports submitted in accordance with the requirements set out in Appendix 2.

Non-Compliance Notification

C11. The Department must be notified in writing to compliance@planning.nsw.gov.au within seven days after the Applicant becomes aware of any non-compliance.

C12. A non-compliance notification must identify the development and the application number for it, set out the Condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

C13. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

ACCESS TO INFORMATION

C14. At least 48 hours before the commencement of construction until the completion of all works under this consent the Applicant must:

(a) make the following information and documents (as they are obtained or approved) publicly available on its website:

(i) all current statutory approvals for the development;

(ii) all approved strategies, plans and programs required under the Conditions of this consent;

(iii) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the Conditions of this consent;

(iv) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any Conditions of this consent, or any approved plans and programs;

(v) contact details to enquire about the development or to make a complaint;

(vi) a complaints register, updated monthly;

(vii) the Compliance Report of the development;

(viii) audit reports prepared as part of any Independent Audit of the development and the Applicant's response to the recommendations in any audit report;

(ix) any other matter required by the Planning Secretary; and

(b) keep such information up to date, to the satisfaction of the Planning Secretary.

14) Delete the advisory notes on the final page of the consent.

15) Immediately after Condition C14 insert new Appendices 1 and 2 as follows:

APPENDIX 1: DEVELOPMENT LAYOUT

KEY

- Site location
- Concrete plant feature
- Structure to be removed
- Direction of traffic circulation

Proposed concrete plant modification

Response to submissions
Modification 11
Boral St Peters
Figure 3.1 A

EMM
creating opportunities

KEY

- Site location
- Material handling plant
- Structure to be removed
- Direction of traffic circulation

Proposed material handling facility modifications

Response to submissions
Modification 11
Boral St Peters
Figure 3.1 B

EMM

APPENDIX 2: INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS

WRITTEN INCIDENT NOTIFICATION REQUIREMENTS

1. A written incident notification addressing the requirements set out below must be emailed to the Department at the following address: compliance@planning.nsw.gov.au within seven days after the Applicant becomes aware of an incident. Notification is required to be given under this Condition even if the Applicant fails to give the notification required under Condition C10 or, having given such notification, subsequently forms the view that an incident has not occurred.

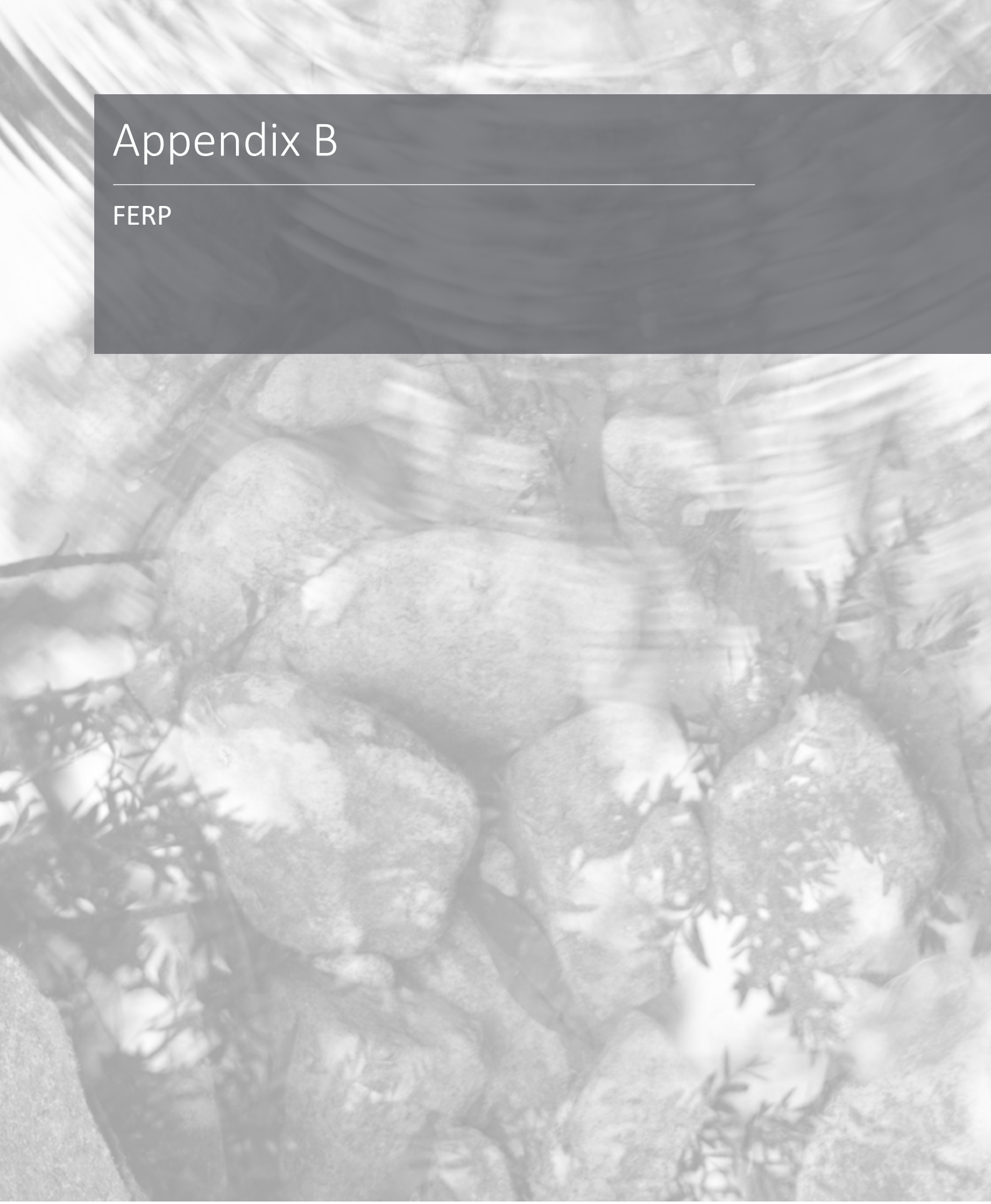
2. Written notification of an incident must:
   a) identify the development and application number;
   b) provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
   c) identify how the incident was detected;
   d) identify when the applicant became aware of the incident;
   e) identify any actual or potential non-compliance with Conditions of consent;
   f) describe what immediate steps were taken in relation to the incident;
   g) identify further action(s) that will be taken in relation to the incident; and
   h) identify a project contact for further communication regarding the incident.

INCIDENT REPORT REQUIREMENTS

3. Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, the Applicant must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested.

4. The Incident Report must include:
   a) a summary of the incident;
   b) outcomes of an incident investigation, including identification of the cause of the incident;
   c) details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
   d) details of any communication with other stakeholders regarding the incident.

END OF DA 14/96 MOD 11



Appendix B

FERP

Flood Emergency Response Plan

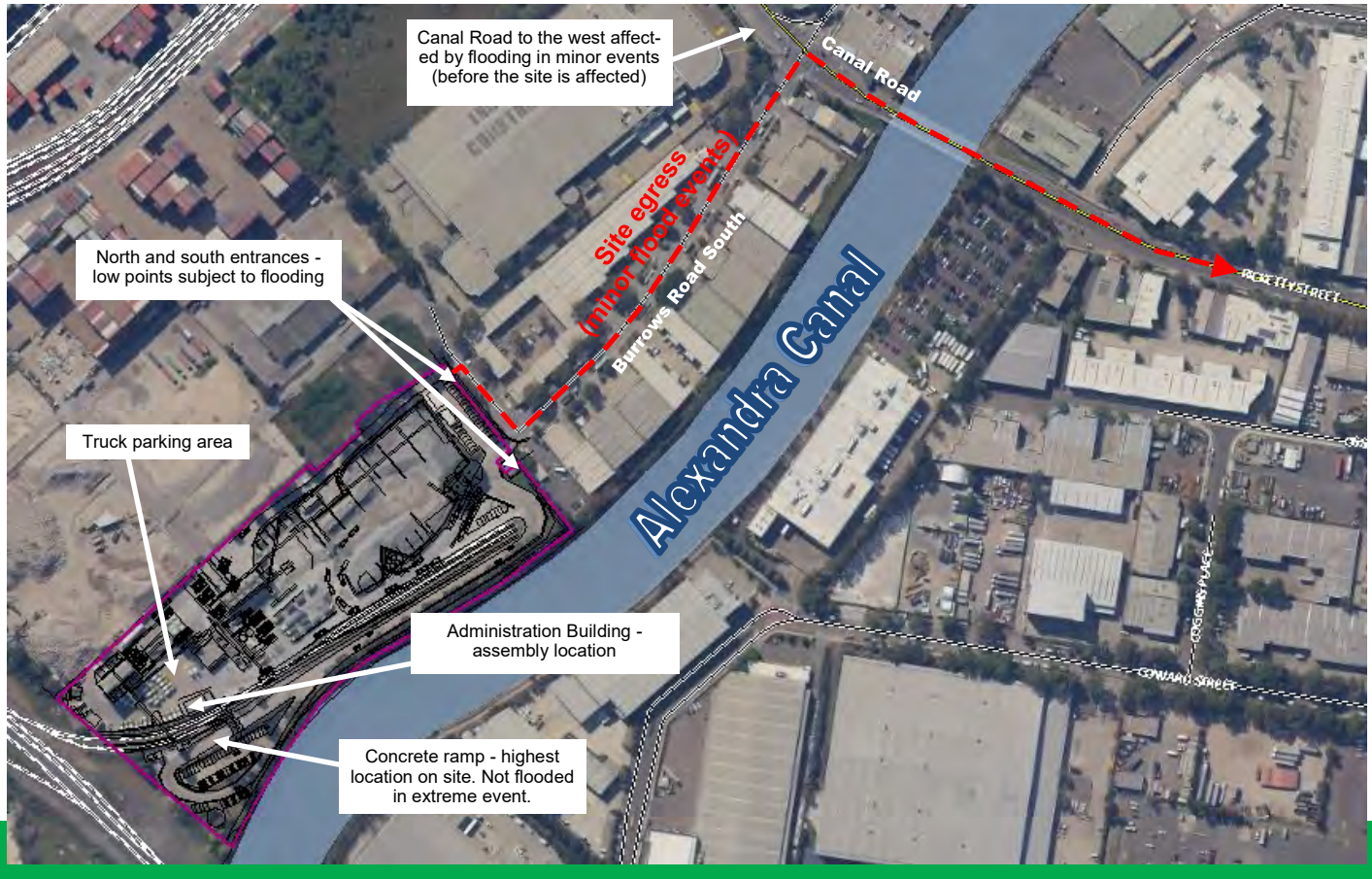
BORAL — ST PETERS FACILITY

FLOOD LEVELS

The lowest ground levels at the site are at the **northern and southern driveway entrances onto Burrows Street South**. Water from the Alexandra Canal may back up from drainage pipes once flood levels in the canal reach approx. **2.5m AHD** (in approximately the 1 in 100 year flood event).

Access from the site may become restricted and areas of the site may become inundated in extreme flooding events (larger than the 100 year event) up to a predicted **3.95m AHD**.

The concrete ramp will be the only location on the site that will not be inundated during an extreme event. This is located on the figure below.



Flood Emergency Response Plan

BORAL — ST PETERS FACILITY

SITE ACCESS

The western section of Canal Road (left turn from Burrows Street South) is prone to flooding in minor flood events when the **site is not flooded**.

During **minor flood events** egress from the can be sought by driving eastwards **along Canal Road (i.e. right turn from Burrows Road South).**

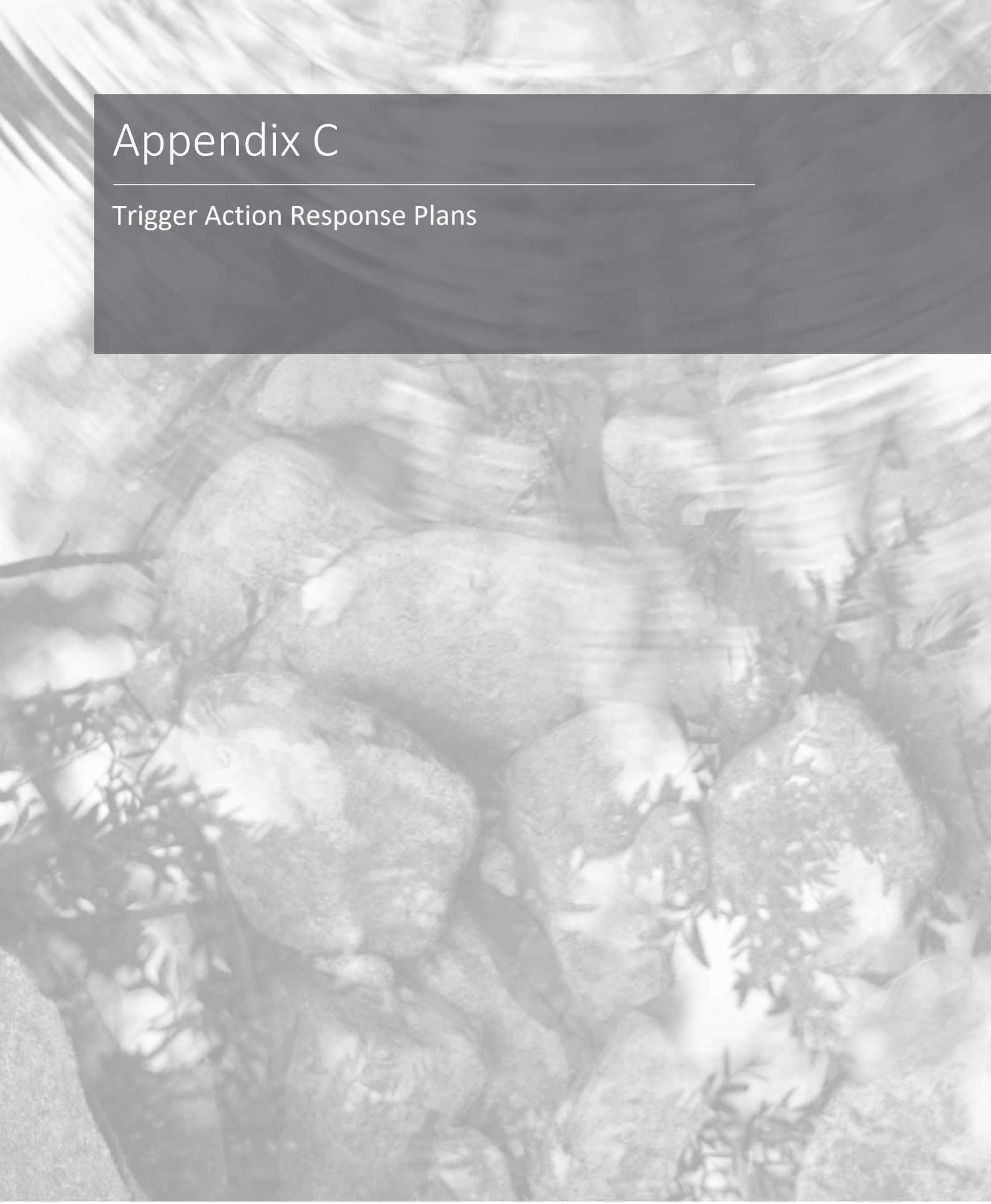
Do not drive in floodwaters

EVACUATION / REFUGE PROTOCOL

1. **Site Manager** - Following heavy rainfall events, monitor advice and flood levels from the following sources:
    - Bureau of Meteorology website (http://www.bom.gov.au/australia/warnings/)
    - Local ABC radio (AM702)
    - NSW SES website (https://www.ses.nsw.gov.au/)
2. **Site Manager - I**n the event that:
    - flooding in Alexandra Canal is predicted above **2.8m AHD;** or
    - **flood water starts to inundate the site**; or
    - **access from the site is restricted by flood water**

    advise personnel to remain on site and assemble at the site office. Arrange for any loose materials and portable equipment to be relocated to the truck parking area in front of the Administration Building
3. **Site Manager - I**n the unlikely event that
    - flood waters in Alexandra Canal are predicted to exceed **3.2m AHD**; or
    - flood waters are rising and may restrict access to higher ground (i.e. the concrete ramp adjacent to the carpark)

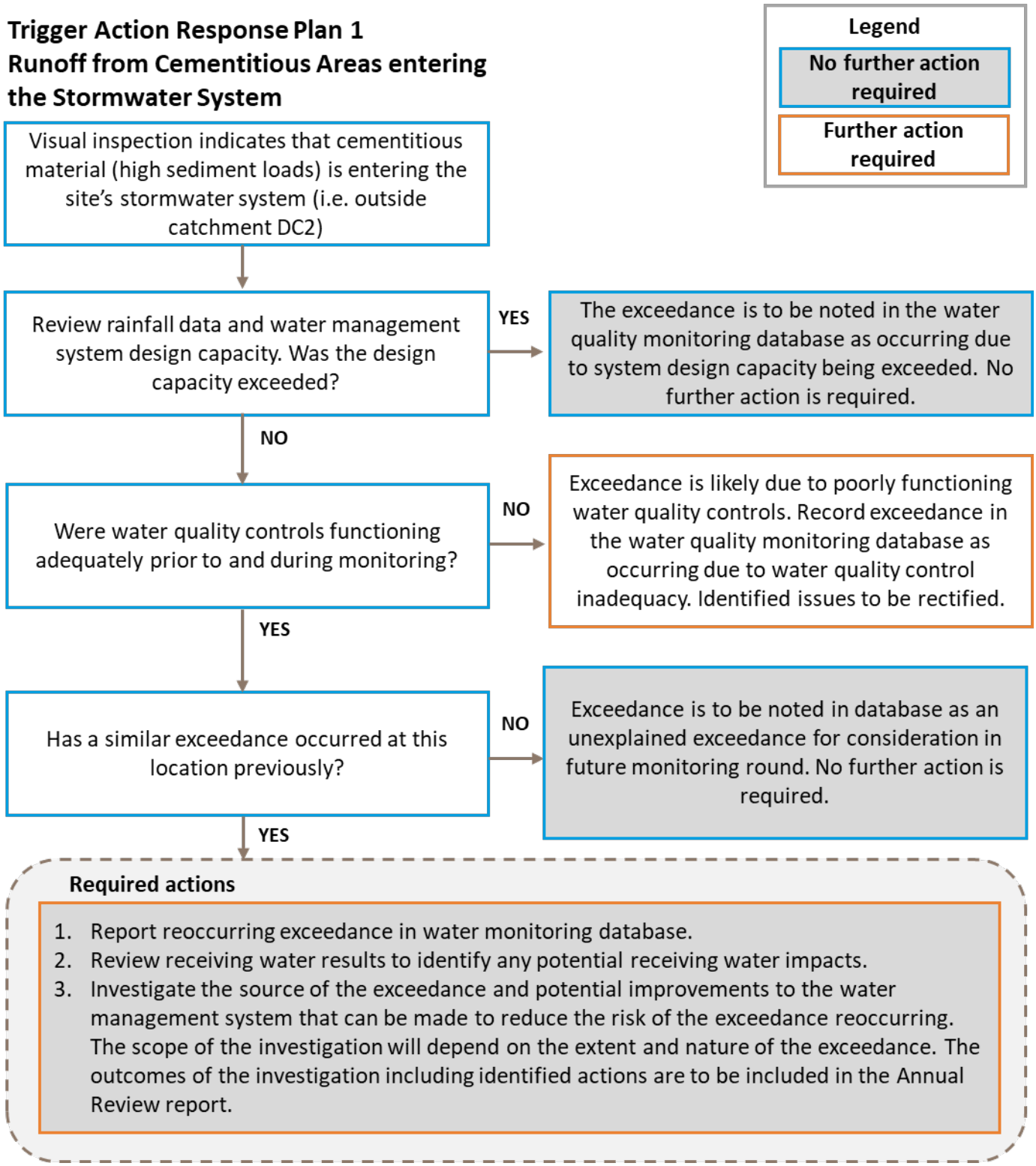
    personnel should be escorted by the site manager to the elevated concrete ramp. Contact the local **SES** to advise your movements **(132 500)**
4. **Personnel** - Liaise and follow instructions provided by the Site Manager



Appendix C

Trigger Action Response Plans

Trigger Action Response Plan 1
Runoff from Cementitious Areas entering the Stormwater System



Trigger Action Response Plan 2
Inadequate capacity of stormwater controls