CONSTRUCTION FLOOD EMERGENCY RESPONSE PLAN

Moorebank Precinct East Stage 2

18 AUGUST 2022

SYDNEY INTERMODAL TERMINAL ALLIANCE MOOREBANK PRECINCT EAST STAGE 2

Construction Flood Emergency Response Plan

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013	18/08/2022	Updates associated with: • SSD 7628-MOD1 • WH6&7 amended layout	[redacted]	[redacted]

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ACRONYMS AND DEFINITIONS

Acronym / Term	Meaning
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
BoM	Bureau of Meteorology
CBD	Central Business District
CDWMP	Construction Demolition and Waste Management Plan
CEMP	Construction Environmental Management Plan
CoC	Conditions of Consent
Contractor's CM	Contractor's Construction Manager
Contractor's EM	Contractor's Environmental Manager
Contractor's PM	Contractor's Project Manager
CSWMP	Construction Soil and Water Management Plan
DIPNR	Department of Infrastructure Planning and Natural Resources
DNSDC	Defence National Storage and Distribution Centre
DotEE	Commonwealth Department of the Environment and Energy (now Department of Agriculture, Water and Environment)
DP&E	Department of Planning and Environment (now DPIE)
DPIE	Department of Planning, Industry and Environment (formerly (DP&E)
EIS	Environmental Impact Statement
ENM	Excavated natural material
Environmental Emergency	Any event that causes or has the potential to cause material harm to the environment. An environmental emergency is a Class 3 incident.
Environmental Incident	A set of circumstances resulting in harm, or potential harm, to the environment. Environmental incidents include pollution incidents and environmental emergencies. Environmental incidents may arise from natural (e.g. storm, wind or bushfire) or human factors.
EO	Exploded ordnance
EOW	Exploded ordnance waste
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence

Acronym / Term	Meaning
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
ER	Environmental Representative
EW	Early Works
EWEMP	Early Works Environmental Management Plan
FCMMs	Final Compilation of Mitigation Measures
FERP	Flood Emergency Response Plan
GFA	Gross floor area
ICAM	Incident Cause Analysis Method
km	kilometre
LGA	Local Government Area
m	metre
Material harm	Material harm is harm that: Involves actual or potential harm to the health or safety of human beings or to Ecosystems that is not trivial, or Results in actual or potential loss or property damage of an amount, or amounts in Aggregate, exceeding $10,000, (such loss includes the reasonable costs and Expenses that would be incurred in taking all reasonable and practicable measures to Prevent, mitigate or make good harm to the environment).
Moorebank Precinct	Refers to the whole Moorebank intermodal precinct, i.e. the MPE site and the MPW site.
MPE	Moorebank Precinct East
MPE Concept EIS	The Environmental Impact Statement prepared to support the application for approval of the MPE Concept Plan under the *Environmental Planning and Assessment Act 1979*.
MPE Concept Plan Approval	MPE Concept Approval (MP 10_0193), granted by DP&E on 29 September 2014 for the development of an intermodal terminal facility including; a rail link connecting the site to the Southern Sydney Freight Line, an intermodal terminal, warehousing and distribution facilities and a freight village.
MPE EPBC Approval	Commonwealth Approval (No. 2011/6229) granted in March 2014 under the *Environment Protection and Biodiversity Conservation Act 1999*, for the impact of the MPE Project on listed threatened species and communities (sections 18 and 18A of the EPBC Act) and Commonwealth land (sections 26 and 27A of the EPBC Act).
MPE Project	The MPE Intermodal Terminal Facility as approved under the MPE Concept Approval (MP 10_0193) and the MPE EPBC Approval (2011/6229).

Acronym / Term	Meaning
MPE site	Including the former DSNDC site and the land owned by SIMTA which is subject to the MPE Concept Plan Approval (Lot 1 DP1048263). The MPE site does not include the rail corridor, which relates to the land on which the rail link is to be constructed.
MPE Stage 1 Project	MPE Stage 1 Project (SSD 14-6766) for the development of the Intermodal terminal facility at Moorebank. This reference also includes associated conditions of approval and environmental management measures which form part of the documentation for the approval.
MPE Stage 2 EIS	Moorebank Precinct East Stage 2 Proposal – Environmental Impact Statement publicly exhibited between 13 December 2016 and 24 February 2017.
MPE Stage 2 RtS	Moorebank Precinct East Stage 2 Proposal – Response to Submissions Report (July 2017), prepared in response to the submissions received regarding the MPE Stage 2 Proposal.
MPE Stage 2 Project (the Project)	The MPE Stage 2 Project, Stage 2 of the MPE Concept Approval (MP 10_0193), approved under SSD 7628, including the SSD 7628-Mod 2, SSD 7628-Mod 3 and SSD 7628-Mod 4 approvals. It involves the construction and operation of warehousing and distribution facilities on the MPE site and upgrades to approximately 2.1 kilometres of Moorebank Avenue.
MPW	Moorebank Precinct West
Non-compliance	An occurrence, set of circumstances, or development that results in a non-compliance or is non-compliant with Development Consent SSD 7628 Conditions of Consent or EPBC Act Approval or EPBC Act Approval (EPBC 2011/6229) Conditions of Approval but is not an incident
Non-conformance	Observations or actions that are not in strict accordance with the CEMP and the aspect specific sub-plan
OEH	Office of Environment and Heritage
OSD	On-site detention basin
PAC	Planning Assessment Commission
PMF	Probable Maximum Flood
POEO Act	*Protection of the Environment Operations Act, 1997*
Pollution Incident	A set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise (POEO Act).
Project site / Project footprint	The subject of the MPE Stage 2 EIS, the part of the MPE site which includes all areas to be disturbed by the Project (including the operational area and construction area).
RDO	Rostered day off
RL	Reduced levels
RtS	Response to Submissions

Acronym / Term	Meaning
SES	State Emergency Service
SHEMS	Safety Health and Environmental Management System
SIMTA	Sydney Intermodal Terminal Alliance
SIMTA Precinct Developer	Qube
SSD	State Significant Development
SSFL	Southern Sydney Freight Line
UXO	Unexploded ordnance
VENM	Virgin excavated natural material

BACKGROUND

The Sydney Intermodal Terminal Alliance (SIMTA) received approval for the construction and operation of Stage 2 of the Moorebank Precinct East (MPE) Project (SSD 7628), which comprises the second stage of development under the MPE Concept Consent (MP10_0193). SSD 7628 has been subject to the following modification applications:

- MPE Stage 2 Modification 2 (SSD 7628-Mod 2) application, which was approved on 31 January 2020;
- MPE Stage 2 Modification 3 (SSD 7628-Mod 3) application, which was approved on 18 December 2020; and
- MPE Stage 2 Modification 4 (SSD 7628-Mod 4) application, which was approved on 19 January 2021.
- MPE Stage 2 Modification 1 (SSD 7608-Mod 1) application, which was approved on 14 March 2022.

This Flood Emergency and Response Management Plan (FERP) has been developed to manage flood impacts during the construction phase of Stage 2 of the Moorebank Precinct East (MPE) Project (hereafter, 'the Project').

Within this plan, a strategy has been established to demonstrate the construction contractor's approach to the management of flooding impacts during construction of the Project. This FERP addresses the relevant requirements of the Project Approvals, including the Environmental Impact Statement (EIS), Response to Submissions (RtS) and Minister's Conditions of Consent (CoCs), and all applicable guidelines and standards specific to the management of flood and emergency response during construction phases of the Project.

1.1 Introduction

The MPE site, including the Project site, is located approximately 27 kilometres (km) south-west of the Sydney Central Business District (CBD) and approximately 26 km west of Port Botany and includes the former Defence National Storage and Distribution Centre (DNSDC) site.

Stage 2 of the MPE Project (the Project) involves the construction and operation of warehousing and distribution facilities on the MPE site and upgrades to approximately 2.1 km of Moorebank Avenue.

Key components of the Project include:

- Earthworks including the importation of 600,000m^3 of fill and vegetation clearing
- Importation, stockpiling and placement of up to 250,000 m^3 of suitable spoil (separate to the 600,000 m^3 of imported clean general fill permitted for bulk earthworks)
- Approximately 300,000m^2 GFA of warehousing and ancillary offices
- Warehouse fit-out
- Freight village, 8000m^2 GFA of ancillary retail, commercial and light industrial land uses
- Internal road network and hardstand across the site
- Ancillary supporting infrastructure within the site, including:
  - Stormwater, drainage and flooding infrastructure
  - Utilities relocation/installation
  - Fencing, signage, lighting, remediation and landscaping
- Moorebank Avenue upgrade including:
  - Raising by about two metres and some widening
  - Embankments and tie-ins to existing Moorebank Avenue road levels
  - Signalling and intersection works
- Intersection upgrades along Moorebank Avenue including:
  - Moorebank Avenue/MPE Stage 2 access

- Moorebank Avenue/MPE Stage 1 northern access
- Moorebank Avenue/MPE Stage 2 central access
- MPW Southern Access/MPE Stage 2 southern emergency access.

The location of the Project site is shown in Figure 1-1.

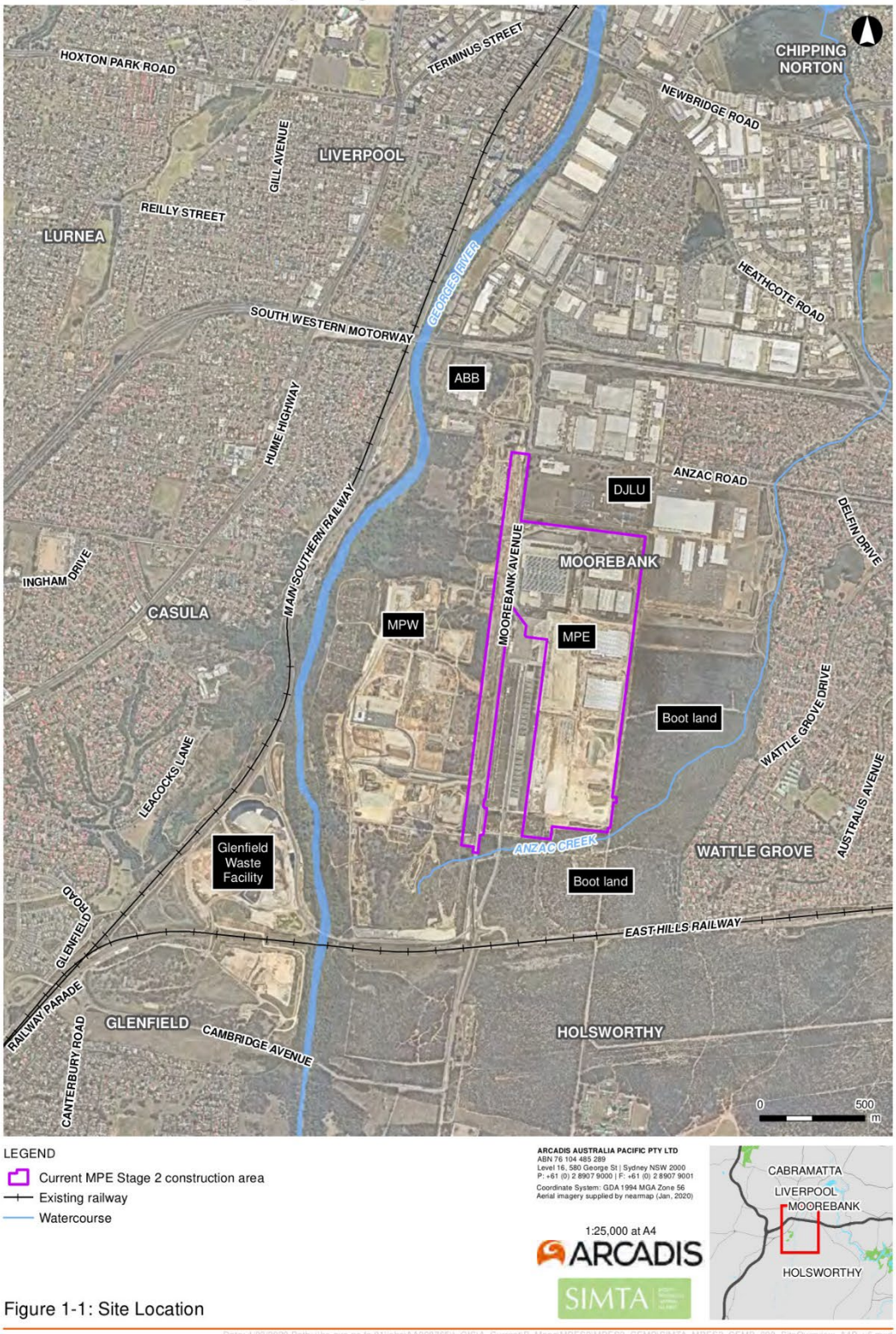

Figure 1-1: Site Location

Figure 1-1 Site Location

1.2 Development Consent

The MPE Stage 2 Project has been assessed by the DP&E under Part 4.1 (now Division 4.7 as of 1 March 2018) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as State significant development (SSD). The Planning Assessment Commission (PAC) granted approval for the MPE Stage 2 Project on 31 January 2018 and is subject to the CoCs (SSD 7628). The Project has been subsequently modified. The Project, including its potential impacts, consultation and proposed mitigation and management, is documented in the following suite of documents:

- State significant development (SSD) consent SSD 7628, as modified
- SSD partial consent (subdivision) SSD 7628, as modified
- Moorebank Precinct East – Stage 2 – Environmental Impact Statement (Arcadis Australia Pacific Pty Limited, December 2016)
- Moorebank Precinct East – Stage 2 – Response to Submissions (Arcadis Australia Pacific Pty Limited, July 2017)
- Consolidated assessment clarification responses issued on 10 November 2017
- Moorebank Precinct East – Stage 2 (Modification 2) – Response to Submissions SSD 7628-Mod 2 (Aspect Environmental Pty Limited, September 2019)
- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Approval (No. 2011/6229) granted on March 2014
- Moorebank Precinct East – Stage 2 (Modification 2) – Environmental Impact Statement SSD 7628-Mod 2 (Aspect Environmental Pty Limited, July 2019)
- Moorebank Precinct East – Stage 2 (Modification 2) – Response to Submissions (Aspect Environmental Pty Limited, September 2019)
- Moorebank Precinct East – Stage 2 (Modification 3) – Environmental Impact Statement SSD 7628-Mod 3 (Aspect Environmental Pty Limited, June 2020)
- Moorebank Precinct East – Stage 2 (Modification 3) – Response to Submissions SSD 7628-Mod 3 (Aspect Environmental Pty Limited, August 2020)
- Moorebank Precinct East – Stage 2 (Modification 4) – Environmental Impact Statement SSD 7628-Mod 4 (Aspect Environmental Pty Limited, October 2020)
    - Moorebank Precinct East – Stage 2 (Modification 1) – Environmental Impact Statement SSD 7628-Mod 1 (Aspect Environmental Pty Limited, September 2018)
    - Moorebank Precinct East – Stage 2 (Modification 1) – Response to Submissions SSD 7628-Mod 1 (Aspect Environmental Pty Limited, April 2019)

1.3 Project Delivery Phases

The Project construction period is anticipated to be up to five years, which will be generally divided into three works phases, as detailed in the following sections. Construction will not commence until the FERP has been submitted and is to the satisfaction of the Secretary.

The terminology for the project phases or periods has developed from the preparation of the EIS and RtS documentation in response to the language of the CoCs and the need to stage the delivery of the environmental management documentation required by the CoCs. Current terminology, and the equivalent terminology from the CoC and RtS are included in Table 1.

Table 1 Project Delivery Phase Terminology

Project Delivery Phase	CoC A18 Phase Equivalent	MPE Stage 2 RtS Works Period Equivalent
Early Works	Early works	Works Period A: Pre-construction
	Fill importation (to 60,000m^3)	Works Period B: Site preparation

Project Delivery Phase	CoC A18 Phase Equivalent	MPE Stage 2 RtS Works Period Equivalent
Northwest Priority Area	Early Works Fill importation (to 60,000m^3) Construction (to the extent described in Table 1 of the DP&E Approval Letter for Northwest Priority Works, dated 29 March 2018	Works Period A: Pre-construction Works Period B: Site preparation Works Period E: Bulk earthworks (to the extent described in Table 1 of the DP&E Approval Letter for Northwest Priority Works, dated 29 March 2018)
Construction Phase A	Fill importation Construction	Works Period B: Site preparation Works Period E: Bulk earthworks, drainage and utilities Works Period F: Construction and internal fit out of warehousing Works Period G: Miscellaneous construction works
Construction Phase B	Fill importation Construction	Works Period C: Construction of Moorebank Avenue Diversion Road Works Period D: Pavement and intersection works along Moorebank Avenue Works Period E: Bulk earthworks, drainage and utilities

1.3.1 Early Works

Early Works is generally described as site preparatory works including utilities adjustments and relocations, clearing and stripping of topsoil (top 100mm of topsoil), heritage salvage and fill importation (including VENM and ENM, up to 60,000 m^3), establishment of site access, temporary fencing and compound establishment, asbestos and hazardous material removal and the preparation for the demolition of buildings.

The Early Works includes but is not limited to:

- Geotechnical and utilities investigation works including potholing to confirm the location of existing services, disconnection of non-critical services (with retention in place), grout filling of disconnected draining lines, and adjustment and relocation where applicable
- Clearing of non-native vegetation, stripping of topsoil and stockpiling of topsoil on site for later re-use within site landscaping
- Stabilisation of areas where topsoil has been stripped with imported clean hard fill or by other methods determined by the Environmental Representative (ER) to have minimal environmental impact
- Removal of asbestos from heating equipment and fire-resistant building elements (e.g. fire doors) by a licenced asbestos removalist followed by clearance by a certified occupational hygienist
- Hazardous material cleaning and decontamination in Buildings 67, 69, 81 and 83
- Heritage salvage works in Buildings 37, 75 and 80 on the Project site to recover architectural elements for adaptive re-use
- Importation, stockpiling and placement of up to 60,000 m^3 (not exceeding a total of 22,000 m^3 of material per day) of imported clean general fill material by truck-and-dog and / or semi-trailer
- Establishment of a site access point at the existing MPE site northern access and construction of associated access road, utilising existing paved areas with minor pavement extensions required, to provide for access and manoeuvrability of vehicles into and through the site in accordance with CoC B10
- Establishment of temporary site fencing, a site compound(s) and temporary car parking areas to support Early Works and construction of the Project in accordance with CoC B10, B11 and B12
- Other activities determined by the ER to have minimal environmental impact.

Any of the activities defined in SSD Consent 7628 as 'Early Works' may be undertaken during the Early Works. All works during Early Works will be undertaken in accordance with the Early Works Management Plan (EWEMP) and required sub-plans.

Upon the commencement of construction, the Project's Construction Environmental Management Plan (CEMP) will supersede the EWEMP.

1.3.2 Northwest Priority Area Works

The work area is located in the north-western most portion of the Moorebank Precinct East (MPE) site, and is entirely within Lot 1 of DP1048263, adjoining Moorebank Avenue and serviced by an existing access point already in use for the construction activities for the MPE Stage 1 (SSD-6766). The work area covers approximately 14 hectares, which equates to approximately 15% of the total MPE site.

Northwest Priority Area works include the following work activities:

Site Establishment (including compounds)

Removal of vegetation

Demolition of superfluous pavement and structures

Preparation of temporary materials laydown/stockpile area

Installation of signage, lighting, waste skips and ERSED controls

Installation of temporary fencing and line marking for fencing

Installation of temporary amenity facilities and temporary communications

Application of all-weather gravels

Establishment of temporary parking area for workers' vehicles

Decommissioning of work site including:

- Waste disposal
- Removal of fencing, amenities, lighting and signage
- Removal of superfluous ERSED controls
- Removal of temporary materials laydown/stockpile area
- Site stabilisation activities (where required).

Remediation

Installation of monitoring equipment, as required

Removal of hazardous/contaminated materials

Cover any temporary stockpiles of hazardous material waste or contaminated waste materials identified for offsite treatment or disposal

Disposal of waste materials to an appropriately licensed facility.

Survey; Acquisitions; or Building / Road Dilapidation Surveys

Installation of Environmental Mitigation Measures / Controls

Clearing of Non-native Vegetation

Undertaking pre-clearing surveys

Establishment of stockpile area (including controls for segregation following characterisation)

Removal of vegetation (including segregation of reusable vegetation from weed matter/green waste and disposal of waste materials)

Recovery of topsoil

Surface stabilisation.

Importation, Stockpiling and Placement of Fill

Installation of haul roads (including weighbridge, rumble grids, wheel/undercarriage wash)

Installation of diversion road for rejected materials

Importation of spoil

Surface preparation, rolling and compacting to 95% MDD to accept placement of fill (including excavation where necessary of no greater than 600mm below existing, except where considered to be minimal environmental impact as determined by the ER)

Stockpiling of spoil

Placement of spoil.

Utilities Disconnections, Adjustment and Relocation

Excavation of existing utilities trench including:

- Characterisation of trench backfill materials
- Selective stockpiling of excavated materials based on characterisation
- Disposal of waste materials

Excavation of intended utilities trench including:

- Characterisation of excavated trench materials
- Selective stockpiling of excavated materials based on characterisation
- Disposal of waste materials

Removal and relocation of utilities.

Demolition of Buildings and Pavements

Installation of temporary lighting within the building

Installation of monitoring equipment, as required

Removal of adjoining vegetation

Clear internals of building of any loose items and debris and store in waste stockpiles or dispose offsite

Disconnection and removal of all services/utilities connections

Removal of hazardous/contaminated materials

Removal of roof and wall cladding

Demolish superstructure

Demolish substructure, foundations, ground slabs, pavements and roads

Stockpiling of demolition materials and sorting and segregating material by C&D waste characterisation.

Other Activities Determined by the ER to have Minimal Environmental Impact.

1.3.3 Construction Works Phase A (Excluding Moorebank Avenue Upgrade Works)

Construction Works Phase A will include all works described in Early Works in addition to bulk earthworks, drainage and utilities, construction and internal fit-out of warehousing and finishing works.

Construction Works Phase A excludes Moorebank Avenue works described in Section 1.3.4. Construction Works Phase A includes, but is not limited to:

Completion of Site Preparation Activities

- Demolition of existing structures
- Clearing of remaining vegetation
- Adjusting the building formation of the site (to final operational levels) within which the Warehousing Compound will be located
- Establishment of temporary batch plant and materials crushing plant

Bulk Earthworks, Drainage and Utilities

- Importation, stockpiling and placement of up to a total of 600,000 m^3 (including the volume imported during Early Works phase) of clean general fill for bulk earthworks
- Importation, stockpiling and placement of up to 250,000 m^3 of suitable spoil (separate to the 600,000 m^3 of imported clean general fill permitted for bulk earthworks)
- Installation of on-site detention (OSD) and drainage infrastructure within the MPE Stage 2 site
- Construction of retaining walls
- Creation of internal road formation by general earthworks (by constructing fill embankments)
- Bulk earthworks and adjusting the building formation of the Project site to final level, including the terminal hardstand
- Utilities relocation and installation
- Establishment of hardstand areas.

Construction and Internal Fit-out of Warehousing

- Foundation and floor slab installation
- Erection of framework and structural walls
- Installation of roof
- Internal fit-out of warehouses (racking and associated services).

Miscellaneous Construction and Finishing Works

- Pavement construction (internal transfer roads and perimeter road), including forming of new kerbs, gutters, medians (where required) and other structures
- Line marking, lighting and sign posting
- Installation of road furniture, including traffic signs and pavement markers
- Miscellaneous structural construction
- Finishing works, including landscaping and general site rehabilitation, where required
- Commissioning of the Project
- Decommissioning/demobilisation of the Project site, including removal of construction compound(s) and temporary construction environmental controls.

1.3.4 Construction Works Phase B (All Construction Activities)

Construction Works Phase B will include all works described in Early Works and Construction Works Phase A, in addition to the Moorebank Avenue upgrade works. Generally, the Moorebank Avenue upgrade works are described as construction of the Moorebank Avenue Diversion Road, bulk earthworks, drainage and utilities, and pavement works.

Construction Works Phase B includes, but is not limited to:

Construction of the Moorebank Avenue Diversion Road

- Stripping of topsoil within footprint of temporary diversion road
- Installation of temporary drainage
- Placement of fill and temporary road pavement (e.g. gravel)
- Construction of interface between temporary diversion road and existing Moorebank Avenue
- Installation of temporary road signage, street lighting and signalling

- Transfer of traffic onto temporary diversion road from Moorebank Avenue.

Bulk Earthworks, Drainage and Utilities

- Removal of existing pavement and stripping of topsoil within Moorebank Avenue
- Importation, stockpiling and placement of up to a total of 600,000 m^3 (including the volume imported during Early Works and Construction Phase B) of clean general fill for bulk earthworks
- Importation, stockpiling and placement of up to 250,000 m^3 of suitable spoil (separate to the 600,000 m^3 of imported clean general fill permitted for bulk earthworks)
- Creation of a road formation for Moorebank Ave and the Moorebank Ave Diversion Road by general earthworks (by constructing fill embankments)
- Utilities relocation and installation

Pavement works along Moorebank Avenue

- Placement of select layer of earthworks material on top of the road formation
- Placing and compacting the pavement later (concrete, or concrete and asphalt) over the select layer (consisting of a sub-base and base) and potential sealing with bitumen
- Traffic switching from diversion road onto final, upgraded Moorebank Avenue
- Removal of construction traffic management and progressive opening of the internal road and warehouse access roads to traffic
- Removal of road surface, road signage, street lighting and signalling from temporary diversion road
- Commissioning of Moorebank Avenue.

1.4 Purpose and Application

This FERP has been developed to address the CoCs and the FCMMs. This plan aims to demonstrate how impacts to flooding will be managed during construction of the Project.

This plan provides methods to measure and reduce the impact to soils, water quality, and water quantity by the contractor during construction, including all sub-contractor and consultant partners.

The specific requirements of the CoCs for compilation of the FERP, as identified in the CoCs and FCMMs are identified in the Compliance Matrices.

Construction will not commence until the FERP has been submitted and approved by the Secretary.

The most recent, approved version of this plan will be implemented to manage Project activities for the duration of construction. This FERP will be superseded by an operational FERP which will be implemented during operation of the Project.

1.5 Objectives and Targets

The following high level objectives and targets are set for the Project for the management of emergency flood response are outlined in Table 2. These objectives and targets were developed based on collective industry experience and best practice.

Table 2 Objectives and Targets

Objective	Target	Timeframe	Accountability
To effectively implement Flood Emergency Response Plan during flood event	No death or injury to personnel during flood event	Throughout construction	Contractor's PM
	Zero non-conformance against the requirements of the FERP	Throughout construction	Contractor's PM

ENVIRONMENTAL MANAGEMENT

2.1 Legal and Other Requirements

Table 3 below details the legislation, planning instruments and guidelines considered during development of this plan.

Table 3 Legislation, Planning Instruments and Guidelines

Legislation	Description	Relevance to this FERP
Environmental Planning and Assessment Act 1979	This Act establishes a system of environmental planning and assessment of development proposals for the State.	The Minister's conditions of approval and other obligations associated with approval documentation are incorporated into this plan.
Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)	The main purpose of this Act is to provide for the protection of the environment especially those aspects that are of national environmental importance and to promote ecological sustainable development. The Act binds the Crown. Do not take, use, keep or interfere with "nationally significant" cultural and natural resources, protected wildlife and protected plants without Approval.	The project as a whole is a controlled action under the EPBC Act with controlling provisions related mainly to the Rail connection.
Fisheries Management Act 1994	This Act is applicable to all waters within the state including private and public waters. The Act is most relevant in respect to maintaining water quality and ensuring no polluted water from site works enters streams, creeks and waterways	Water discharging from the Project site must not pollute the adjacent streams or watercourses
Protection of the Environment Operations Act 1997	The objectives of this Act relate to the protection of the environment through pollution prevention and cleaner production among others	Relevant requirements of the Act, including duties to report pollution incidents and have been incorporated into incident response procedures, included within the CEMP.

Guidelines that have specific requirements relating to Flood Emergency Response include:
NSW Government's Floodplain Development Manual, DIPNR 2005

Stormwater and Flooding Report, MPE Stage 2 EIS, Arcadis, 2017

Anzac Creek Floodplain Risk Management Study and Plan for Liverpool City Council, BMT WBM Pty Ltd, May 2008

New South Wales State Disaster Plan (DISPLAN 2010), State Emergency Management Committee, 2010

Flood Emergency Response Planning Classification of Communities, Floodplain Risk Management Guideline, OEH 2007

Australian Emergency Manuals Series, Manual 20: Flood Preparedness, Commonwealth of Australia 2009

Australian Emergency Manuals Series, Manual 21: Flood Warning,

Commonwealth of Australia 2009

Australian Emergency Manuals Series, Manual 22: Flood Response, Commonwealth of Australia 2009

NSW State Flood Plan (March 2018)

Anzac-Creek-Study-2009 Liverpool Council.

2.1.1 Environmental Obligations

The Project is being delivered under Part 4, Division 4.1 (now Division 4.7 as of 1 March 2018) of the EP&A Act. The CoCs include requirements to be addressed in this plan and delivered during the Project. These requirements and how they are addressed along with division of responsibilities is provided within Table 4.

Table 4 Conditions of Consent

CoC	Requirement	Plan Section	How Addressed
A1	In addition to meeting the specific performance measures and criteria established under this consent all reasonable measures must be implemented to prevent, and if prevention is not reasonable, minimise, any harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this consent.	This plan Aspect-specific sub-plans	Section 3 of this FERP identifies the management measures to be implemented to prevent and minimise environmental harm. Section 4 sets out the processes for monitoring and reviewing the effectiveness of these management measures. Opportunities to further minimise environmental harm will be identified through the ongoing evaluation of environmental management performance and effectiveness of this plan.
A2	The development may only be carried out: (a) in compliance with the conditions of this consent; (b) in accordance with all written directions of the Secretary in relation to this consent; (c) in accordance with the EIS, Submissions Report and MPE Stage 2 (SSD-7628) – Consolidated assessment clarification responses and updated Biodiversity Assessment Report; (d) in accordance with all Modification Assessments (if any); (e) in accordance with the amended development layout to be submitted for the Secretary's approval as part of this consent; and (f) in accordance with the management and mitigation measures at APPENDIX B of this consent.	This plan	This FERP has been developed to comply with the CoCs, written directions of the Secretary, amended development layout and management and mitigation measures included in the Response to Submissions Report.
A20	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 the obligation for the Applicant to obtain, renew or comply with such licences, permits, approvals and consents.	CEMP	All applicable licences, permits and approvals will be obtained as required. Approvals, permits and licences required for the Project are discussed in the CEMP. An Environmental Protection Licence (EPL) (No. 21054) was issued by the EPA on 4 June 2018 (variation issued on 18 April 2019). The licence applies to the Moorebank Precinct (excluding the MPE Stage 1 Rail Access Land Package (RALP) which has a separate EPL licence (No.

CoC	Requirement	Plan Section	How Addressed
			20966) and authorises > 100,000 – 500,000 tonnes crushing, grinding or separating processing capacity per annum and > 500,000 – 2,000,000 tonnes extraction, processing or storage capacity per annum. The licence applies to all other activities carried on at the premises, including road construction, bulk earthworks 'cut and fill' and importing fill.
B1	The Applicant must: (a) prepare each plan, program and other documents in consultation with the specified stakeholders; (b) not commence each phase of the project until the plans, programs and other documents required under this consent are approved by or, where not required to be approved, submitted to the Secretary specified within the timeframes; and (c) implement the most recent version of the required plans and programs approved by the Secretary for the duration of the development	N/A	No consultation requirements are required for the FERP. Section 1.3 confirms that construction will not commence until the FERP has been submitted and is to the satisfaction of the Secretary. Section 1.4 confirms that the most recent version of the FERP will be implemented for the duration of construction.
B52	Before the commencement of construction, the Applicant must prepare a **Flood Emergency Response Plan** to the satisfaction of the Secretary. The Plan must form part of the CEMP and OEMP required by conditions C1 and C3 and must:	Section 1.4	Section 1.4
	(a) be prepared by a suitably qualified and experienced person(s) whose appointment has been endorsed by the Secretary;	Cover page Appendix A	This FERP has been developed by Daniel Williams. See front page for qualifications and details and Appendix A for the Secretary's endorsement.
	(b) address the provisions of the *Floodplain Risk Management Guideline* (OEH, 2007) (as may be updated or replaced from time to time);	This plan	This plan has been developed in line with the principals detailed within the Floodplain Development Manual and Flood Emergency Response Planning Classification of Communities, Floodplain Risk Management Guideline, OEH 2007. See Section 3.1.1 for more details.
	(c) include details of: • the flood emergency responses for both construction and operation phases of the development;	Section 3.4	The management measures describe actions to be taken pre, during and post flood during construction. Operational requirements will be included within the Operational Environmental Management Plan and a Flood Emergency Response Plan, to be developed for operations
B52 *(cont…)*	• predicted flood levels	Section 3.1.1 Figure 3-6	The 1% AEP and PMF are described in Section 3.1.1 with 100% ARI shown in Figure 3-6.

CoC	Requirement	Plan Section	How Addressed
	• flood warning time and flood notification	Section 3.4.1.1	Flood warning response times are outlined in Section 3.4.1.1 Flood notification is detailed in Section 3.4.2.
	• assembly points and evacuation routes	Figure 3-5	Shows the emergency assembly points and evacuation route
	• evacuation and refuge protocols	Section 3.4.2	Describes the process to be undertaken during flood response, i.e. to mobilise all personnel to the emergency assembly point
	• awareness training for employees and contractors	Section 2.3	Describes the appropriate content for inclusion into the Project induction for to be attended by all staff.
B53	The Applicant must: (a) not commence construction until the Flood Emergency Response Plan required by condition B52 is approved by the Secretary; and	Section 1.4	Section 1.4 confirms that construction will not commence until the FERP has been approved by the Secretary.
	(b) implement the most recent version of the Flood Emergency Response Plan approved by the Secretary for the duration of the development.	Section 1.4	Section 1.4 indicates that the most recent version of the FERP as approved by the Secretary will be implemented.
C7	The Applicant must ensure that the environmental management plans required under this consent are prepared in accordance with any relevant guidelines, and include: (a) detailed baseline data;	Section 3	Section 3 details the existing environment
	(b) a description of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures/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;	Section 1.2 Section 2.1 Section 1.5	(i) Section 1.2 provides information on the approvals required for the Project. Section 2.1 lists the environmental obligations for the Project. (ii) (iii) Section 1.5 details the objectives and performance measures.
	(c) a description of the management measures to be implemented to comply with the relevant statutory requirements, limits or performance measures/criteria;	Section 3	Section 3 stipulates the management measures for flood emergency response.
	(d) a program to monitor and report on the: (i) impacts and environmental performance of the development; and	Section 4.1 Section 4.3	(i) Program on monitoring and reporting of impacts and environmental performance is discussed under Section 4.1. (ii) Section 4.3 states ongoing evaluation on performance and effectiveness will be

CoC	Requirement	Plan Section	How Addressed
	(ii) effectiveness of any management measures (see (c) above);		undertaken against policies, objectives and targets.
	(e) a contingency plan to manage any unpredicted impacts and their consequences	This plan	The flood assessment demonstrates that the site is unlikely to be exposed to long-term flooding and any flooding would be an abnormal situation. The measures outlined within this plan are therefore considered as to be used as contingency in the event of flooding.
	(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 4.3	Improvement measures are discussed under Section 4.3 through ongoing evaluation and effectiveness of the program.
	(g) a protocol for managing and reporting any: (i) incidents and non-compliances; (ii) complaints; (iii) non-compliances with statutory requirements; and	CEMP - Section 2.6.3, 2.8 and 4.4	Detailed within the CEMP Section 2.6.3, 2.8 and 4.4
	(h) a protocol for periodic review of the plan.	Section 4.3	Detailed within Section 4.3

The Final Compilation of Mitigation Measures (FCMMs) were prepared as part of the MPE Stage 2 Response to Submissions Report (Arcadis 2017). A list of the FCMMs as relevant to the Project and how they have been compiled within this plan are provided in Table 5.

Table 5 Final Compilation of Mitigation Measures (FCMMs)

FCMM	Requirement	Document Reference
0B	The Construction Environmental Management Plan (CEMP), or equivalent, for the Amended Proposal would be based on the PCEMP (Appendix G of the EIS), and include the following preliminary management plans: Flood Emergency Response and Evacuation Plan	This document
5C	A Flood Emergency Response and Evacuation Plan, or equivalent, would be prepared and implemented for the construction phase of the Amended Proposal to allow work sites to be safely evacuated and secured in advance of flooding occurring at the amended construction area.	This document

There are no Concept Plan Conditions of Approval (MP10_0193), Revised Statement of Commitments, Commonwealth Approvals or Commonwealth Mitigation Measures related to the Flood Emergency Response Plan (FERP).

It is noted that the Floodplain Development Manual and Flood Emergency Response Planning Classification of Communities, Floodplain Risk Management Guideline, OEH 2007 does not contain specific requirements for the preparation of flood emergency response plans.

2.2 Roles and Responsibilities

Key roles and responsibilities associated with this FERP are presented in Table 6.

Table 6 Roles and Responsibilities

Roles	Responsibilities
Contractor's Project Manager **(Contractor's PM)**	Include environmental considerations into all aspects of Project planning Ensure that Project responsibilities and authorities are defined and communicated Attend audit meetings and action results of any audit findings Allocate Project resources to handle environmental issues Oversee the implementation of the FERP Endorse the FERP Appoint / nominate and provide support for the Contractor's EM Report to senior management and the Principal's Representative on the performance of the system and environmental breaches Undergo induction and training in flood emergency response Take action to resolve environmental non-conformances and incidents Sign off on all environment and sustainability inspections Enforce environmental requirements for suppliers and sub-contractors Report environmental incidents to the Principal's Representative Authorise expenditure to implement environmental management requirements within limits of authority as defined in the Principal's Representatives Project requirements Undertake ICAM investigations Review audit corrective actions and take action as necessary to ensure close out of issues Be contactable 24 hours a day Direct works to be performed in a more environmentally responsible manner that reduces impacts or stop works if there is a risk of environmental harm.
Contractor's Construction Manger **(Contractor's CM)**	Communicating with all personnel and sub-contractors regarding compliance and conformance with the CEMP and site specific environmental issues / EWMS Undergo induction and training in flood emergency response as directed by management Identifying resources required for implementation of this FERP Organise and manage site plant, labour and temporary materials Coordinating the implementation and maintenance of site environmental controls and provide support for the Contractor's EM Report all environmental incidents in accordance with incident reporting protocol Undertake ICAM investigations Take actions to resolve non-conformances and incidents Be contactable 24 hours a day Direct works to be performed in a more environmentally responsible manner that reduces impacts or stop works if there is a risk of environmental harm Oversee the implementation of all flood management initiatives Monitor weather forecasts and conditions for potential flooding and notify relevant site personnel
Contractor's Environmental Manager **(Contractor's EM)**	Assist and guide the respective workers to meet their environmental responsibilities Check and monitor the implementation of this FERP, including completion of weekly inspection checklists

Roles	Responsibilities
	Monitor the rectification / reinstatement of site controls
	Direct works to be performed in a more environmentally responsible manner that reduces impacts or stop works if there is a risk of environmental harm
	Cooperate and participate in audits and action results of any audit findings
	Manage review and continual improvement of this FERP
	Inspecting and reporting on compliance and conformance
	Monitor weather forecasts and conditions for potential flooding
Site Supervisors	Implement environmental controls on-site
	Present and participate in toolbox talks and meetings relating to flood emergency response
	Train staff in their obligations under the EWMS
	Meet environmental reporting requirements of the Project
	Undergo induction and training for flood emergency response as directed by management
	Direct works to be performed in a more environmentally responsible manner that reduces impacts or stop works if there is a risk of environmental harm
	Assist the Contractor's CM in implementing this Plan
	Monitor weather forecasts and conditions for potential flooding
All Personnel	Understand and implement mitigation protocols as required in the FERP (as per Section 3) and any other required measures during construction
	Undertake relevant training to implement the requirements of this FERP
	Take all reasonable and feasible steps to comply with the requirements of this FERP.

2.3 Training

Training will be undertaken in accordance with Section 2.7 of the CEMP. The Construction Contractor will provide all employees with suitable environmental induction / training (relevant to this FERP) to ensure that they are aware of their responsibilities and are competent to carry out the work.

As a minimum the induction will include the following:

Location of the emergency access point and evacuation route

Location of the emergency assembly point

Existence and requirements of this FERP

Roles and responsibilities for flood emergency response, as listed in Section 2.2

Toolbox meetings will also be undertaken, as and when required (e.g. prior to predicted heavy rainfall, after flood events).

Competency training will be provided by the Contractor as required and may include a certification, vocational qualification or a competency assessment.

Records of all training are to be filed in accordance with the document control system outlined in Section 2.3 of the CEMP.

IMPLEMENTATION

State Emergency Service (SES) guidelines regarding flood emergency response for business operations are provided within the online Emergency Business Continuity Plan (http://www.sesemergencyplan.com.au/business/) and include:

- Description of local flood behaviour specific to the site;
- Description of triggers and actions to take in the event of a flood;
- Evacuation plan to be followed in the event of a flood (if required) (including evacuation point, triggers for evacuation and how to manage particular evacuees);
- List of actions to be completed to prepare for a flood event (including who is responsible for actioning each item and how often each action should be reviewed);
- List of actions to be followed when a flood event is imminent/occurring;
- List of emergency contacts in case of a flood emergency; and
- List of actions to be followed during the recovery phase of a flood event.

This section of the FERP seeks to address the above requirements relating to specific information regarding the nature of flooding at the site and includes:

- Description of local flood behaviour (including design flood event mapping);
- Evacuation considerations; and
- List of key flood safety measures.

3.1 Existing Environment

The Project is located within a small urbanised catchment. The topography is relatively flat, with reduced levels (RLs) typically ranging between 14 and 16 metres Australian Height Datum (m AHD). Along the eastern site boundary, the land rises from about RL 14 m AHD at each end to a localised peak of RL 22 m AHD about midway along the length. There are three internal catchments within the MPE site and a number of small external catchments that discharge into the site. The site catchments are shown in Figure 3-1.

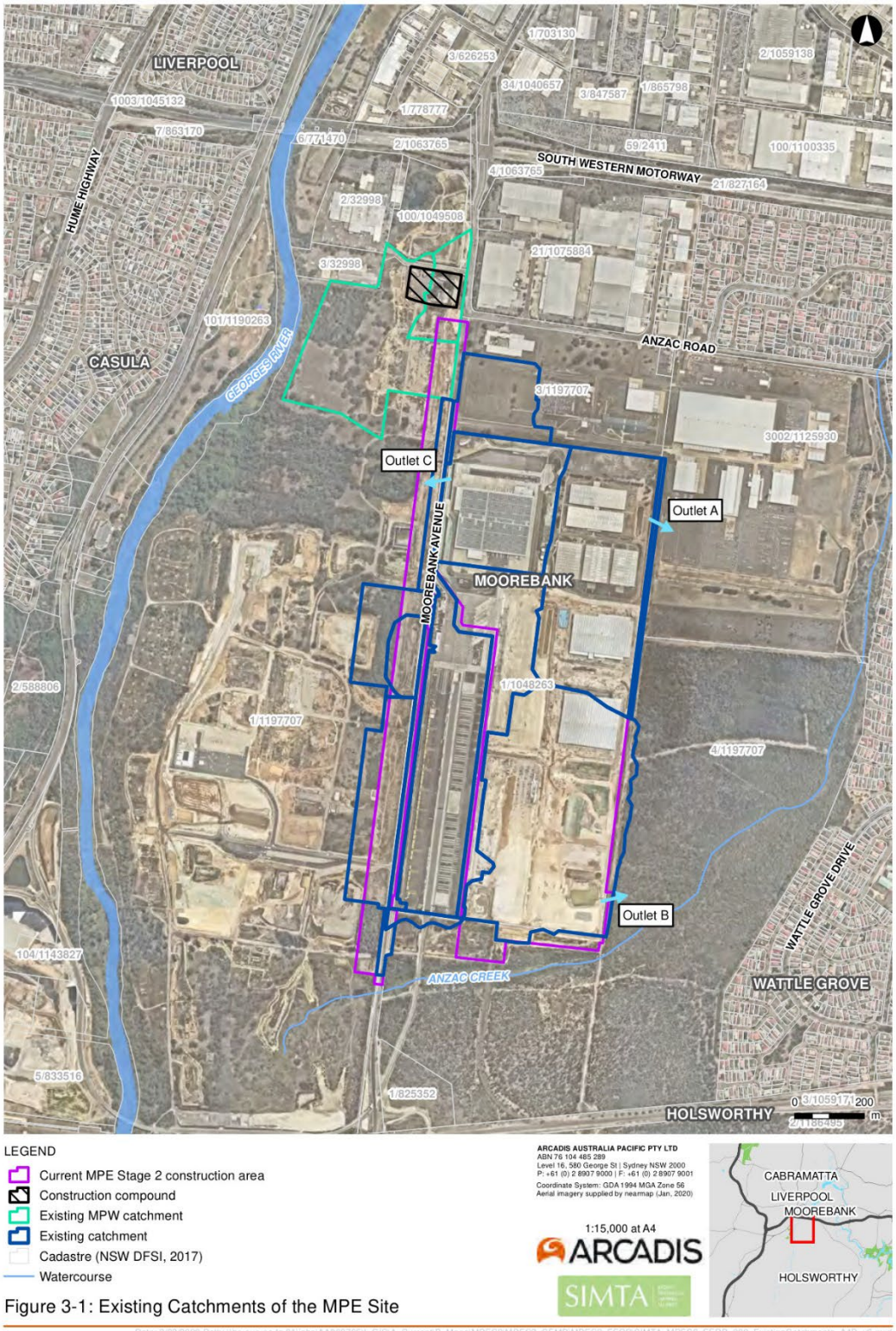

Figure 3-1: Existing Catchments of the MPE Site

Figure 3-1 Existing Catchments of the MPE Site

There are three existing stormwater culvert outlets from the site. Two outlets discharge eastward to Anzac Creek and cross under the Greenhills Road formation via pipes and headwalls (Outlets A and B). Stormwater to these two culvert outlets is conveyed through the site via formal open grass lined channels. From Greenhills Road to Anzac Creek the channels appear less formalised.

On the western portion of the site water from both the site and the eastern side of Moorebank Avenue is collected in a formal concrete lined channel which runs within the site parallel to Moorebank Avenue. These channel flows discharge via a culvert under Moorebank Avenue (Outlet C) into a channel which leads to the Georges River.

The following information is based on results from the flood model developed for the MPE Stage 2 Environmental Impact Statement (EIS) (Appendix P).

3.1.1 Predicted Flood Levels and Flood Risk

The Project site is located within upper catchment areas and, as recognised in the NSW Floodplain Management Manual (April 2005, Section L6.2) and there would be little if any available warning time for people to undertake action and/or evacuate the site prior to the site becoming isolated. The nature of flooding that would isolate the Project site is essentially overland flow or flash flooding; it is expected that a quick rate of floodwater rise will occur due to the small upstream catchment size. The peak flood level in both the modelled 1% Annual Exceedance Probability (AEP) and Probable Maximum Flood (PMF) events is reached in less than an hour of the onset of flood producing rainfall (based on the modelled critical flood conditions as presented in Appendix P of the EIS). The period of flood inundation to the site is also expected to be of a similar order. Overall, the level of flood risk at the MPE Stage 2 site is relatively minor, with potentially hazardous conditions principally confined to the minor gully alignment along the southern boundary.

The OEH Floodplain Risk Management Guideline – Flood Emergency Response Planning Classification of Communities (2007) was developed in conjunction with the SES to assist in the prioritisation and requirements of emergency response assistance of communities during a flood event. It details the requirements of each classification in terms of potential resupply, rescue and evacuation. According to the Guideline, the Project site is classified as a “High Flood Island” as the Project site will become temporarily isolated during flood events which cause flooding to Moorebank Avenue and the Project site includes enough land higher than the limit of flooding (i.e. above the PMF) to cope with the number of people in the area.

This classification implies that evacuation of the Project site is required, together with resupply and potential rescue operations and that it will not be possible to provide adequate support during the period of isolation. However, while this response is relevant to long duration mainstream flood conditions where isolation could be of a long duration, the urban nature of the Project site catchment means that flood levels leading to isolation of the Project site will occur and dissipate within a short period of time. Due to the short duration (i.e. approximately one hour), ‘flashy’ nature of flooding at the Project site and the extensive areas of flood-free land above the PMF, the most appropriate emergency response for the MPE Stage 2 site is in line with the “Not Flood Affected” classification. This is because required responses of the “High Flood Island” classification would not be possible within the expected timeframe of an extreme flood event and resupply of the site will not be required during the short period of isolation.

The Flood Hazard Guideline 7-3 of the Australian Disaster Resilience Handbook 7 Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia (AIDR, 2017) represents the current industry best practice with regards to defining flood hazard. It classifies the floodplain into six distinct hazard zones (H1 to H6) as shown in Figure 3-1, based on thresholds of flood depth, velocity and depth-velocity product. The adopted thresholds identify when modelled flood conditions would present a risk to people, vehicles and building constructions. A description of each hazard threshold is provided in Table 7.

Flood hazard mapping, undertaken for the MPE Stage 2 EIS (Appendix P), has been produced from the flood model outputs provided to BMT by Arcadis. The areas of inundation and flood hazard mapping during the construction are shown in Figure 3-3 (1% AEP) and Figure 3-4 (PMF).

It is noted from the flood hazard mapping that the majority of the Project is not affected by flooding during the 1% AEP design event. Additionally, the areas which are inundated are contained in specific areas on site

and have predominately low flood hazard categories. However, during the PMF event, higher flood hazard categories are experienced.

Under the modelled PMF condition the construction phase (or existing) flood behaviour affects a small area on the north-eastern corner of the MPE site and the length of Moorebank Avenue bordering the western boundary of the site. These are also affected during the 1% AEP. The southern section of the Project experiences flooding with flood hazard reaching category 3 under the PMF event. This indicates that the area is unsafe for vehicles, children and the elderly. It is noted that the only vehicle access to the Project is the main entrance on Moorebank Avenue. The 100% ARI flood is depicted in Figure 3-6.

Table 7 Flood Hazard Classification Thresholds

Hazard Classification	Description
H1	Relatively benign flow conditions. No vulnerability constraints.
H2	Unsafe for small vehicles.
H3	Unsafe for all vehicles, children and the elderly.
H4	Unsafe for all people and vehicles.
H5	Unsafe for all people and vehicles. Buildings require engineering design and construction.
H6	Unconditionally dangerous. Not suitable for any type of development or evacuation access. All building types considered vulnerable to failure.

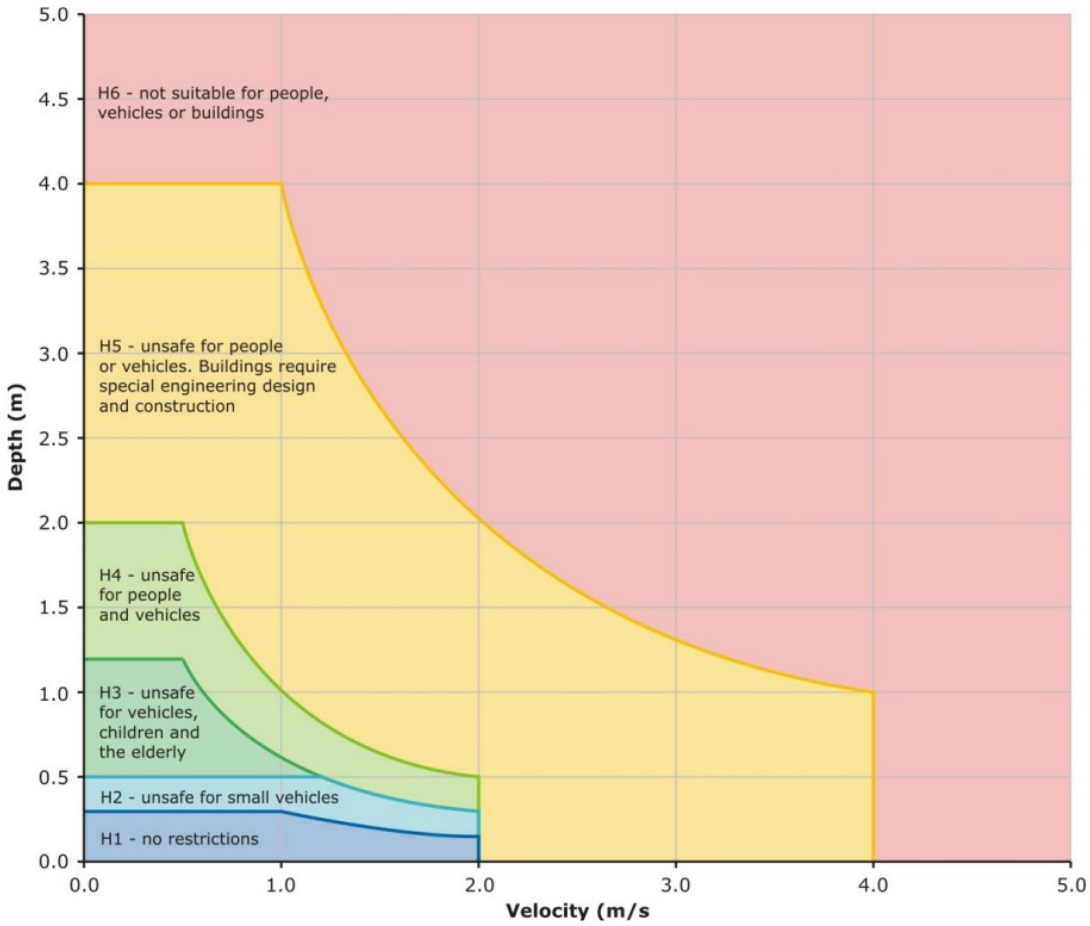

Figure 3-2 Flood Hazard Curves

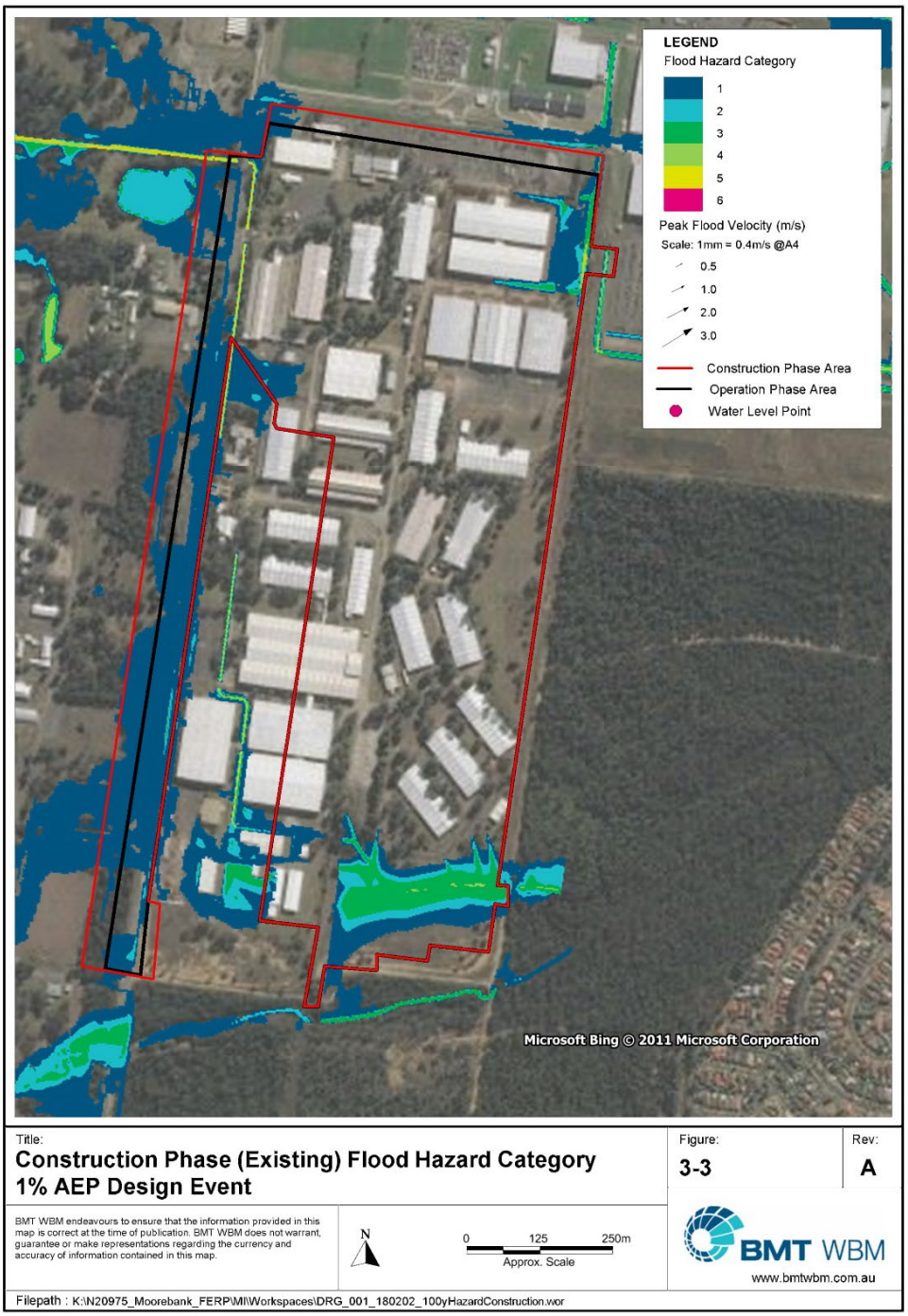

Figure 3-3 Construction Phase (Existing) Flood Hazard Category – 1% AEP Design Event

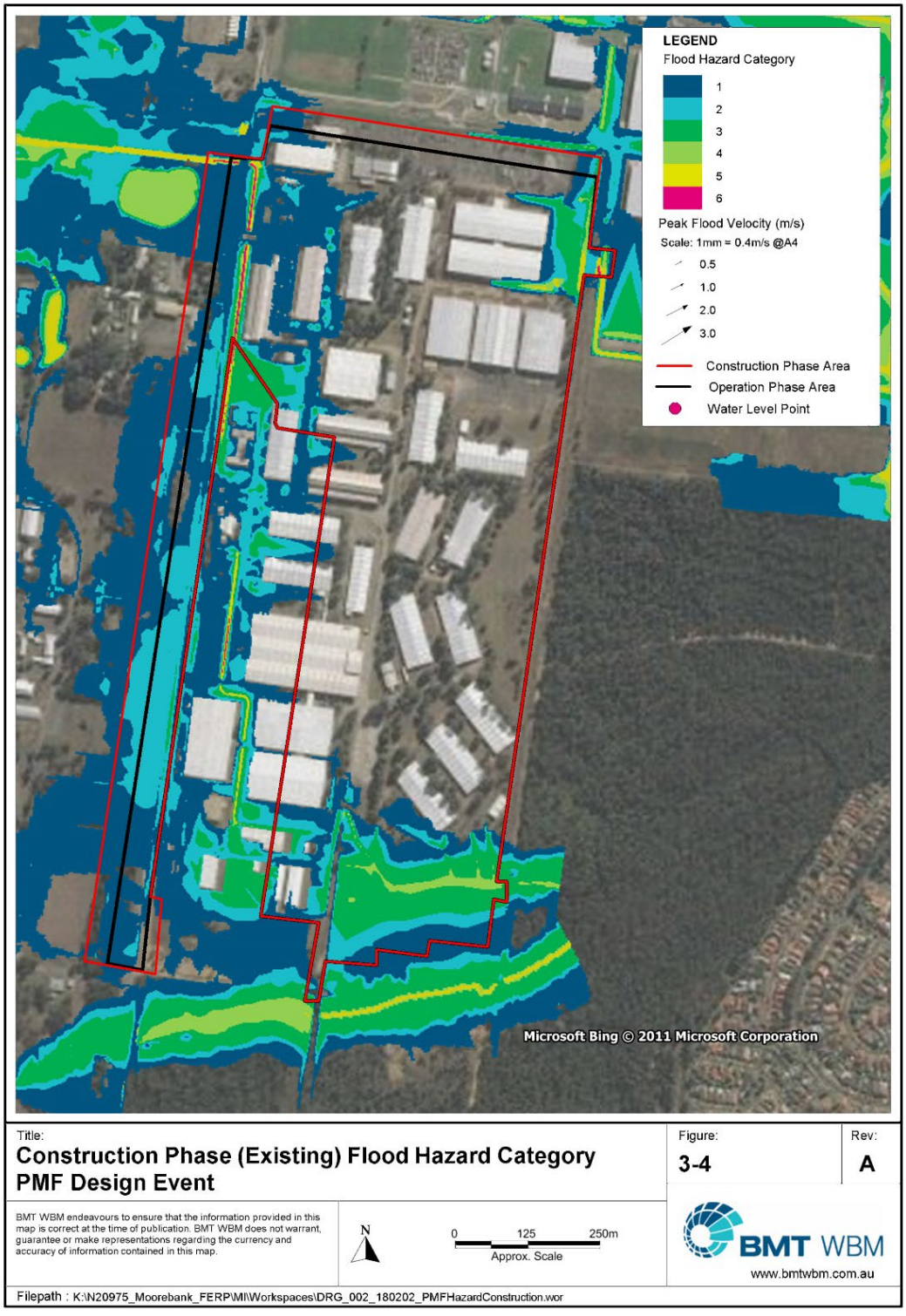

Figure 3-4 Construction Phase (Existing) Flood Hazard Category – PMF Design Event

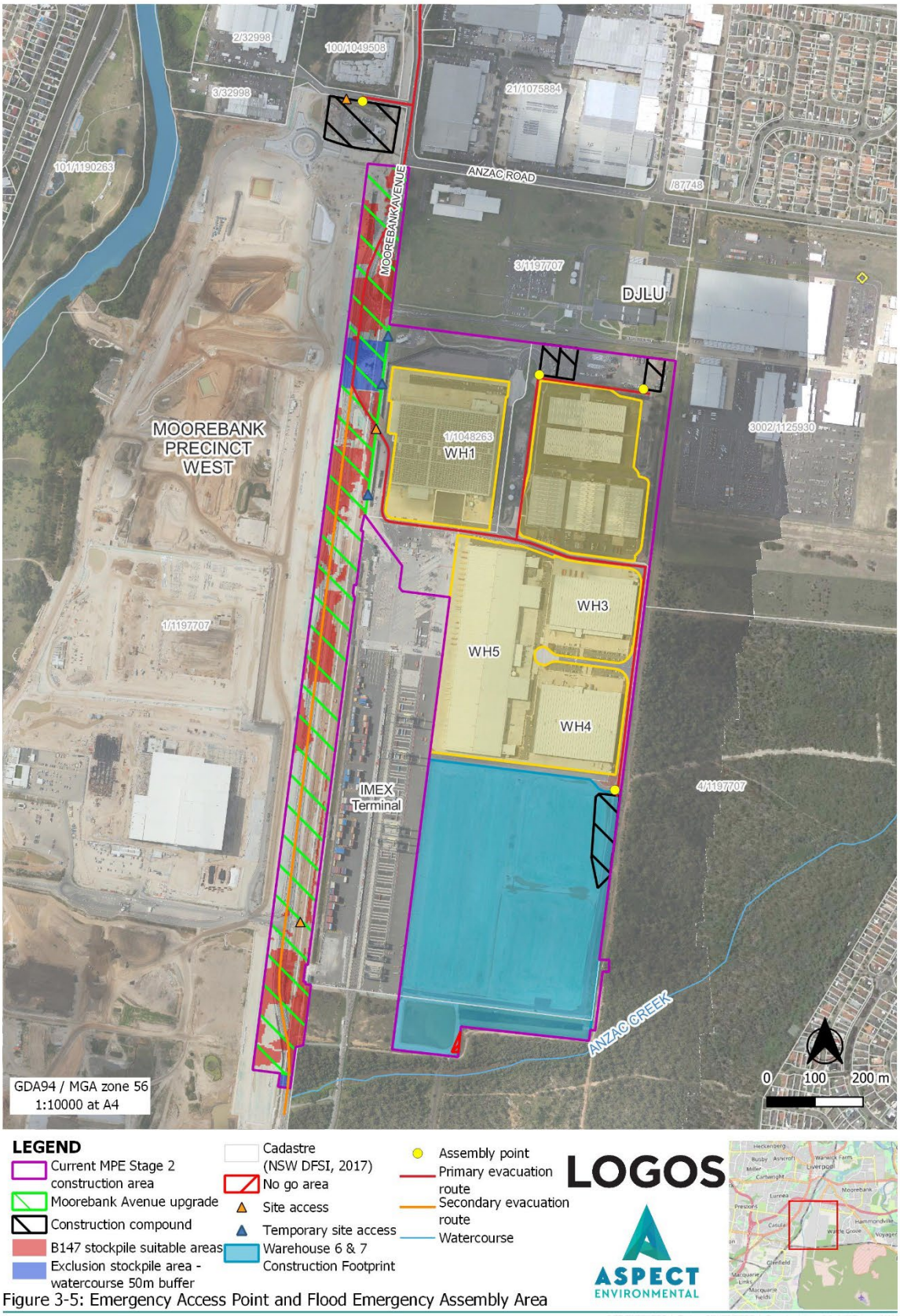

Figure 3-5: Emergency Access Point and Flood Emergency Assembly Area

Figure 3-5 Emergency Access Point and Flood Emergency Assembly Area

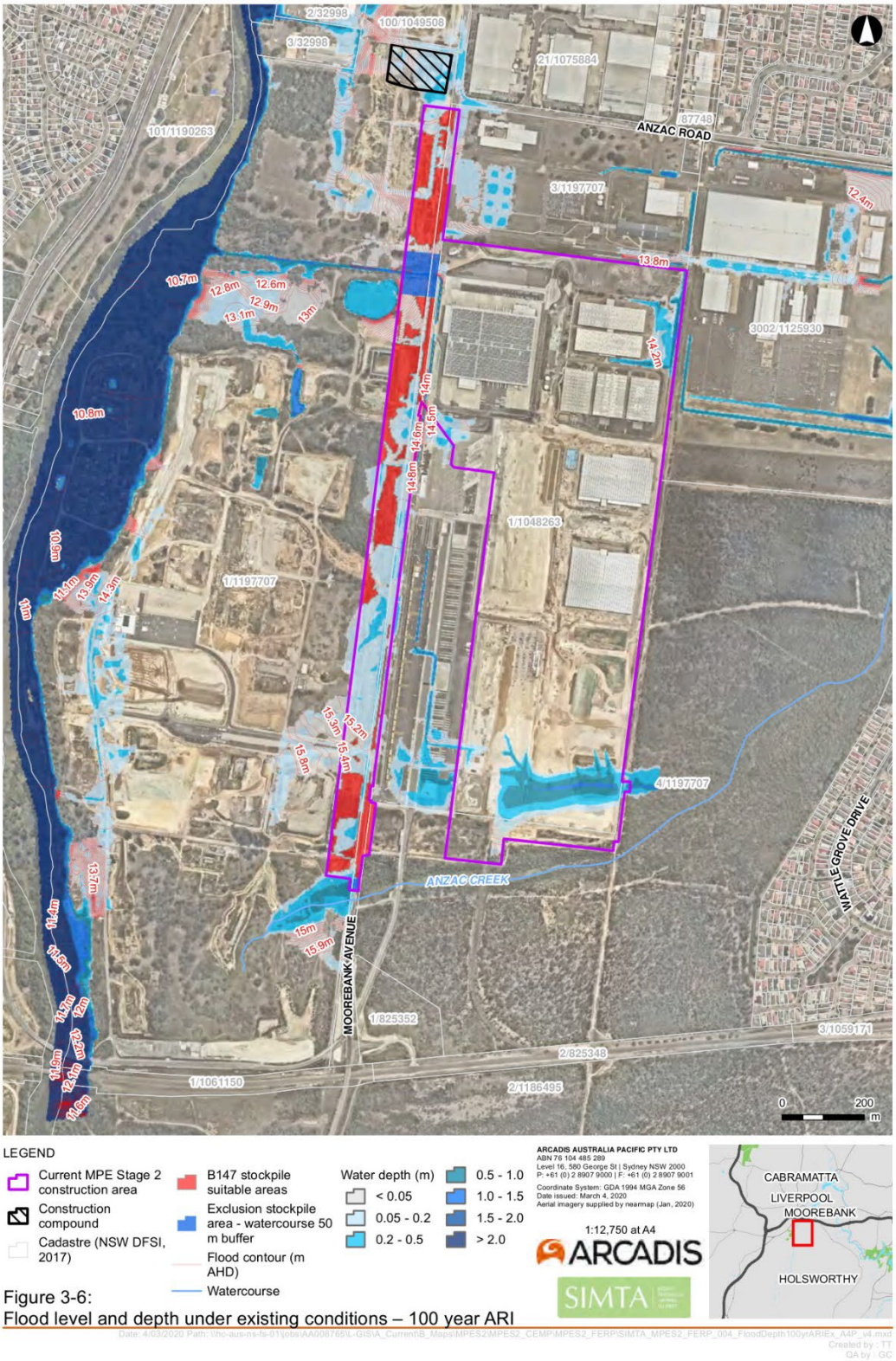

Figure 3-6:
Flood level and depth under existing conditions – 100 year ARI

Figure 3-6 Flood Level and Depth Under Existing Conditions – 100 year ARI

3.2 Aspects, Impacts and Risks

The key aspects and impacts for the Project are outlined in Table 9. Risk rankings for each aspect have been assigned in accordance with Table 8.

Table 8 Risk Analysis Categories

Likelihood	Consequence				
	1 – Not significant	2 – Minor	3 – Moderate	4 – Major	5 – Severe
A – Almost certain	Moderate	Moderate	High	Very High	Very High
B – Likely	Low	Moderate	High	Very High	Very High
C – Possible	Low	Low	Moderate	High	High
D – Improbable	Low	Low	Low	Moderate	Moderate
E - Rare	Low	Low	Low	Low	Moderate

Table 9 Aspects, Impacts and Risks Related to Flooding

Aspects	Impacts	Risk
Altered surface water flow conditions due to earthworks	Localised flooding of site including excavations Diversion of water flows into sediment controls Restricted access to work areas Safety issues related to standing water	Low (2C)
Extreme rainfall	Overland flows from the local catchment (potentially influenced by backwater flood condition of Anzac Creek) causing flooding of site	Low (2E)

3.3 Cumulative Impacts

Assessment of potential cumulative stormwater and flooding impacts was undertaken as part of the preparation of the EIS (Refer to Section 19 of the EIS).

The assessment concluded that the cumulative impacts to stormwater and flooding are negligible, as it is unlikely that the Project would significantly alter overall erosion and sedimentation, as the site is located on already developed land. The Project will also be required to maintain flooding and stormwater controls during construction and operation in accordance with local, State and Federal Regulations.

Management measures (see Section 3.4) will be implemented prior to, during and after construction to minimise any impacts to the safety and wellbeing of any personnel on the Project site. Appropriate implementation of these controls would reduce the risk of stormwater and flooding impacts during construction and operation phases of the Project.

3.4 Management Measures

3.4.1 Pre-flood Actions

The following actions must be undertaken as preventative measures to prepare for flooding on site:

Daily monitoring of weather forecasts, using the Bureau of Meteorology (BoM)

Training in flood emergency response will be provided to key personnel including Site Supervisors, Contractor's PM, and Contractor's CM

Siting of construction compounds and stockpile areas outside the PMF inundation extent, as shown in Figure 3-4 (note that this does not apply to PMF inundation extents where final site levels have been achieved as per detailed design).

Flood response operations will begin on receipt of BoM advice, or when other evidence leads to an expectation of flooding.

To minimise any potential impacts to construction staff, construction during periods of heavy rainfall can be stopped with staff to be located within flood-free areas of the site.

3.4.1.1 Flood Warning Time

Based on the DRAINS model in Appendix P of the EIS, for the existing conditions within the Project site, the design critical duration for 100 year average recurrence intervals (ARIs) are around 25 minutes and the PMF event is 15 to 30 minutes. Therefore, short duration, high intensity rainfall events could potentially produce significant flood flows in the area, resulting in a limited flood response time (approximately 10 minutes). As such, there would likely be an inadequate warning time to react before flooding of the Project site occurs.

3.4.2 Emergency Flood Response

The key principles of emergency flood response, according to the NSW State Flood Plan (March 2018) include the following:

1. Protection and preservation of human life (including the lives of responders and the community) is the highest priority
2. Evacuation is the primary response strategy for people impacted by flood.

Due to short response times, the most effective, realistic and safe emergency response option is:

1. Personnel to shelter in place at the emergency assembly point as depicted in Figure 3-5.
2. All personnel to remain on site until notified by the Contractor's PM and not attempt to enter or drive through any flood waters
3. Notification – Contractor's EM, CM or PM to notify the Principal's Representative. Regulator notification and incident management to be undertaken in accordance with the CEMP in Section 2.8.
4. Evacuate site from emergency assembly area once access roads are trafficable via the emergency access point depicted in Figure 3-5.

Flooding at the Project site is derived from small local catchments and as such, flooding would occur coincidentally with the flood-producing rainfall. Given the intensity of rainfall during an extreme event (>400 mm/h) it would not be possible to safely evacuate the Project site due to a severe restriction in visibility. Also, flood conditions within the local road network would be more hazardous than those on the Project site, which is predominantly flood free. Therefore, the shelter in place approach is the only practical response to flooding at the Project site and has been recommended as the appropriate emergency flood response.

It is expected that hazardous conditions would subside quickly in line with the short storm durations. There are no specific requirements for the on-site refuge facilities other than to be free from flooding at the PMF event. Standard provisions such as a first aid would be sufficient as it is not expected that the duration of flood inundation to the Project site would require prolonged periods of refuge.

Table 10 Flood Emergency Response Procedure outlines flood emergency response measures that will be instigated before, during and after flooding events occur to ensure the safety of site personnel.

Table 10 Flood Emergency Response Procedure

Response item	Action	Procedures	Responsibility	Timeframe
Monitor	Daily weather (intense heavy rainfall) / precipitation forecast monitoring	Monitor Bureau of Meteorology (BOM) on daily basis.	Contractor's EM Site Supervisor	Daily
BOM warning for flooding, or flash flooding)	Increase level of alert	Notify all Site Supervisors of warning. Monitor Bureau of Meteorology (BOM) website. Notify Principal's Representative	Contractor's EM	As required
ACTIVATION Occurrence of localised intense rainfall with associated observation of rising water levels on-site or adjacent waterways.	Mobilise site personnel to designated emergency assembly area or evacuation assembly area. Close site to external visitors Where it is safe to do so: • Mobile construction equipment, excess material, skips and hazardous substances will be removed from the flood prone area to areas of higher ground. • Power will be turned off until such a time that it is deemed safe to turn it back on • Site toilets and septic tanks to be pumped out into tankers • Loose materials to be moved out of flood prone area or secured • Emergency erosion and sediment controls will be implemented. This may include temporary bunds to divert water around key areas such as stockpiles and reduce risk to surrounding properties which might otherwise be affected Evacuate site once given the all clear from the Contractor's PM.	Immediately notify all personnel of the activation of flood emergency response plan. External notification in accordance with the CEMP Section 2.8.3	Site Supervisor Contractor's CM Contractor's PM	In less than 1 hour of localised intense rainfall with associated observation of rising water levels on-site or adjacent waterway
Post-storm	Conduct safety walk through to determine	Restore erosion and sediment control	Contractor's EM Contractor's CM	Following end of flood alert

Response item	Action	Procedures	Responsibility	Timeframe
	whether or not it is safe to return to work and restore / repair flood damage in accordance with Section 4.1 below.	devices as per the relevant Erosion and Sediment Control Plan.	Site Supervisor Contractor's PM Contractor's Safety Manager Electrician	

During flood emergency response, the following must also be undertaken by the Contractor's EM, Site Supervisors and Contractor's CM:

- Monitor the BoM website for warnings, ABC radio broadcasts, local emergency services social media pages, and local news outlets
- Follow all advice and instructions given by emergency services
- Ensure all occupants on-site are informed of the shelter in place approach and not to attempt evacuation from site until it is safe to do so.

3.4.3 Post-flood Response

Following flooding of the site, the initial response will be to determine whether or not it is safe to return to work. A safety walk through will be conducted by the Contractor's EM, Contractor's CM, Site Supervisor, Contractor's PM, Contractor's Safety Manager Contractor, and electrician. The team will assess the following:

Likelihood of flood damage to access roads

Determine whether flood waters have receded

The electrician must check any inundated or water affected power boxes and electrical equipment. The power is to remain off until assessed by the electrician.

Once it is deemed safe to return to work, the following will be undertaken:

Any equipment, materials or debris moved by the flood water should be returned to correct area, or disposed of in accordance with the Construction and Demolition Waste Management Plan (CDWMP) if damaged beyond repair/use

Check stockpiles for erosion or losses. Restore erosion and sediment control devices as per the Construction Soil and Water Management Plan (CSWMP)

Temporary onsite structures or partly constructed structures should be checked for erosion or other water damage prior to entering them or continuing work

Check portable waste water systems on site and schedule maintenance/servicing

Determine whether any water held in excavations can be pumped to sediment basins/holding tanks for treatment prior to discharge. Undertake water testing/sampling in line with the CSWMP.

If conditions on the Project site are deemed not to be safe to return to work then site personnel should remain within the shelter of the onsite refuge. However, in the event that conditions are expected to remain unsafe for an extended period of time, then the conditions of the road access into the Project site should be assessed. Once the road access can be safely used, then site personnel would be able to return to their homes if required.

MONITORING AND REVIEW

4.1 Monitoring

Daily site inspections will be undertaken by the Site Supervisor (or delegate) and documented. Any maintenance of controls will be recorded in site diaries during active site works. The Contractor's EM will monitor the BoM daily to determine any potential upcoming flood risk.

Monitoring under this plan will be undertaken by the Contractor's EM during weekly inspections of the Project activities to monitor compliance and conformance with the requirements of the CoCs and this plan. Weekly inspections will focus on the following key issues:

Storage of materials

Erosion and sediment controls.

Weekly inspections are also to occur prior to Rostered Day Off (RDO) weekends and other times where the site will be closed or inactive for an extended period.

In addition, the implementation and record keeping of monitoring initiatives listed in below will allow the Contractor's EM to determine compliance and conformance with the CoCs, and enable demonstration of good environmental best practice.

Environmental inspection checklists will be used to maintain compliance, conformance and effectiveness of controls. Items that require action will be documented during environmental inspection and notified to the Site Supervisor. The Site Supervisor will be responsible for providing appropriate resources in terms of labour, plant and equipment to enable the items to be rectified in the nominated timeframes.

4.2 Auditing and Reporting

Auditing and reporting will be undertaken in accordance with the CEMP in Section 4.3.

4.3 Review and Improvement

Review and improvement of this plan will be undertaken in accordance with the CoCs and Section 4 of the CEMP. Continuous improvement of flood emergency procedures will be achieved by the ongoing evaluation of environmental management performance and effectiveness of this plan.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure.

4.4 Notification

Relevant statutory and regulatory authorities (such as the EPA) will be notified in the event of a flood as necessary and in accordance with Section 2.8 of the CEMP.

Environmental emergencies and incidents will be handled by the Construction Contractor in accordance with the SIMTAs Environmental Management System (SHEMS) and Section 2.8 of the CEMP.

4.5 Non-compliances, Non-Conformance and Actions

It is the responsibility of all site personnel to report non-conformances and statutory non-compliances to the Site Supervisor and/or the Contractor's EM.

Non-compliances, non-conformances and corrective and preventative actions will be conducted in accordance with Section 4.4 of the CEMP.

4.6 Complaints Handling

Complaints handling will be undertaken in accordance with Section 2.6.3 of the CEMP and the Construction Community Communication Strategy (CCCS).

REFERENCES

AIDR (2017), Australian Disaster Resilience Handbook 7 Managing the Floodplain: A guide to Best Practice in Flood Risk Management in Australia, Guideline 7-3: Flood Hazard

Arcadis (2016), Moorebank Precinct East – Stage 2 – Environmental Impact Statement

Arcadis (2017), Moorebank Precinct East – Stage 2 – Response to Submissions

Hyder Consulting (2013), Transitional Part 3A Concept Plan Application: Flood Study: Impact Assessment Report, prepared for Sydney Intermodal Terminal Alliance

OEH (2007), Floodplain Risk Management Guideline – Flood Emergency Response Planning Classification of Communities

APPENDIX A EVIDENCE OF ENDORSEMENT OF AUTHOR OF FERP

NSW GOVERNMENT | Planning & Environment

Mr Michael Yiend
Development Director
Qube Property Management Services
Level 25, 45 Clarence Street
SYDNEY NSW 2000

Our ref: DOC18/67992

Dear Mr Yiend

Subject: Moorebank Intermodal Terminal Precinct East -Stage 2 (SSD 7628) – Endorsement of persons to prepare the Flood Emergency Response Plan under condition B52(a)

Thank you for your email of 6 March 2018, nominating Daniel Williams, Darren Lyons and Joshua Eggleton of BMT WBM Pty Ltd to prepare the Flood Emergency Response Plan (FERP), for endorsement of the Secretary as required under condition B52(a).

The Department notes the information in the Curriculum Vitae provided for the nominated persons, including details of qualifications and relevant projects undertaken such as flood studies, flood impact assessment and emergency response planning. I consider that the nominated persons are suitably qualified and have the collective experience required to prepare the FERP.

Therefore I endorse the appointment of Daniel Williams, Darren Lyons and Joshua Eggleton to prepare the FERP, in accordance with condition B52(a).

If you have any queries about this matter, please contact Jacqui McLeod, Team Leader – Infrastructure Management on Ph.9274 6454 or at jacqui.mcleod@planning.nsw.gov.au

Yours sincerely

8/3/18

Stacy Warren
Director – Infrastructure Management
As delegate of the Secretary