

# Moorebank Precinct West (MPW) – Stage 2 Proposal

## Site Contamination Summary Report



**SIMTA**

SYDNEY INTERMODAL TERMINAL ALLIANCE

Part 4, Division 4.1, State Significant  
Development





8 September 2016

## MOOREBANK PRECINCT WEST

# Site Contamination Summary Report - Stage 2 State Significant Development

**Submitted to:**

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REPORT



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**Distribution:**

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### Executive Summary

Golder Associates (Golders) have been engaged by Tactical Group on behalf of Sydney Intermodal Terminal Alliance (SIMTA), to prepare this Summary Contamination Report in support of the State Significant Development (SSD) application for the second stage of development at the Moorebank Intermodal Terminal Project (MIC Project) located on the western side of Moorebank Avenue, Moorebank in south-western Sydney (the MPW site, as shown in Figure 1).

This report has been prepared to support the Environmental Impact Statement (EIS) for approval of the Proposal.

This report has been prepared as part of a State Significant Development (SSD) Application for which approval is sought under Part 4, Division 4.1 of the EP&A Act. This report has been prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) (ref: SSD 16-7709 and dated 14 July 2016) and revised environmental mitigation measures (REMMs) identified in the MPW Concept Plan Approval (SSD\_5066).

To meet the objectives, this report presents the following:

- A summary of the known contamination risks, based on the currently available information (i.e. the information available at the time the MPW Stage 2 Proposal is lodged); and
- An overview of the remediation works scheduled for completion under the approved "*Early works (Stage 1)*" included within the Moorebank Intermodal Company (MIC) Concept Plan Approval ([SSD 5066](#)<sup>1</sup>) now known as Moorebank Precinct West Concept Plan Approval; and
- An assessment of the contamination risks which will require remediation and / or management during the MPW Stage 2 Proposal (i.e. contamination risks remaining on the development site at the completion of the approved "*Early works (Stage 1)*" remediation works).

Extensive information is available on the contamination risks on the MPW site and appropriate remediation and/or management actions have been defined within the existing documentation provided to the NSW DPE as part of the MPW Concept Plan Approval. The relevant existing documentation includes:

- The Preliminary Remediation Action Plan (PB, 2014a),
- The Validation Plan – Principles (Golder, 2015b); and
- The Demolition and Remediation Specification (Golder 2015c).

The majority of the contamination will have been remediated through the activities scheduled for completion as part of the Early Works (Stage 1). The expected outcomes of the Early Works (Stage 1) activities is an RVR which will be provided to an accredited NSW EPA Site Auditor for review. The Site Auditor, once satisfied, will provide a Section A - Site Audit Statement stating that the remediated portions of the site are suitable for commercial / industrial use. The RVR and the Site Audit Statement will be provided to the consent authority to satisfy the obligations under Clause 7(1) of SEPP 55.

The exception to this is areas where active remediation cannot occur due to the presence of Ecological Endangered Communities (i.e. the stockpile in the vicinity of the former STP and on the Golf Course) and as such, this remediation is delayed as it requires the vegetation to be cleared which is not permitted under the MPW Concept Plan Approval. Therefore, it is proposed that these remediation works be completed as part of the MPW Stage 2 works. At the conclusion of the remediation works a RVR will be prepared and provided to an Accredited NSW EPA Site Auditor for review. The Site Auditor, once satisfied, will provide a Section A – Site Audit Statement stating that these remaining portions of the site are suitable for commercial / industrial

<sup>1</sup> [http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view\\_job&job\\_id=5066](http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5066)



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use. The RVR and the Site Audit Statement will be provided to the consent authority to satisfy the obligations under Clause 7(1) of SEPP 55.

The remediation works proposed within the MPW Stage 2 Proposal have been previously assessed and approved as part of the MPW Concept Approval. Therefore, this report, in combination with the documentation previously submitted and approved by the DPE under MPW Concept Approval, is intended to be the full extent of information provided in regards to remediation of contamination for the MPW Stage 2 Proposal.

The remediation strategy proposed for the MPW Stage 2 works will include the application of remediation and / or management approaches to selected contaminants. There is also potential for un-identified contaminants to be encountered during the future development works. As such, it is recommended that the following documents be implemented to manage contamination risks during construction phases of the project:

- **Construction Environmental Management Plan (CEMP)**, for implementation during the remediation works; and
- **Remediation and Validation Reports (RVR)** to document the outcomes of the remediation activities and facilitate the preparation of the Site Audit Statement.

Furthermore, it is recommended that the **Long Term Environmental Management Plan (LTEMP)**, be revised at the completion of the MPW Stage 2 remediation works. It is expected that the LTEMP be developed at the completion of the Early Works (Stage 1) remediation activities and will prescribe the protocols for the ongoing maintenance and /or monitoring or any long term remedial or mitigation measures implemented during those remediation actions, including a GMP with details on the required ongoing PFAS monitoring and assessments. The LTEMP plan will have been reviewed and approved by the Site Auditor during the preparation of the Early Works (Stage 1) Site Audit Statement, and will include a condition that it be implemented during the future operations including during the Stage 2 works. The revisions to the LTEMP will be presented to the Site Auditor for consideration in the preparation of the Stage 2 Site Audit Statement. It is also expected that the certificate of title will include a note identifying the existence of the Long Term Environmental Management Plan and the obligation of the land owner to implement the plan for perpetuity.



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### 1.0 INTRODUCTION

Golder Associates (Golders) have been engaged by Tactical Group on behalf of Sydney Intermodal Terminal Alliance (SIMTA), to prepare this Summary Contamination Report in support of the State Significant Development (SSD) application for the second stage of development at the Moorebank Intermodal Terminal Project (MIC Project) located on the western side of Moorebank Avenue, Moorebank in south-western Sydney (the MPW site, as shown in Figure 1).

#### 1.1 Objectives

The objectives of this report are to:

1. Establish the extent of contamination requiring assessment, in accordance with the *Contaminated Lands Management Act* 1997 for the MPW Stage 2 Proposal;
2. Present the findings of the contamination assessment; and
3. Propose measures to mitigate residual risk associated with contaminated material.

To meet these objectives, this report presents the following:

- A summary of the known contamination risks, based on the currently available information (i.e. the information available at the time the MPW Stage 2 Proposal is lodged); and
- An overview of the remediation works scheduled for completion under the approved “*Early works (Stage 1)*” included within the Moorebank Intermodal Company (MIC) Concept Plan Approval ([SSD 5066](#)<sup>2</sup>) now known as Moorebank Precinct West Concept Plan Approval; and
- An assessment of the contamination risks which will require remediation and / or management during the MPW Stage 2 Proposal (i.e. contamination risks remaining on the development site at the completion of the approved “*Early works (Stage 1)*” remediation works).

#### 1.2 Background

On the 3 June 2016 Concept Plan Approval (SSD 5066) was granted, under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act* 1979 (EP&A Act), to develop the Moorebank Precinct West Project (MPW Project) on the western side of Moorebank Avenue, Moorebank, in south-western Sydney (the MPW site).

The MPW Project involves the development of intermodal freight terminal facilities (IMT), linked to Port Botany, the interstate and intrastate freight rail network. The MPW Project includes associated commercial infrastructure (i.e. warehousing), a rail link connecting the MPW site to the Southern Sydney Freight Line (SSFL), and a road entry and exit point from Moorebank Avenue.

Under the Concept Plan Approval, the MPW Project is to be developed in four phases, being:

- Early Works development phase, comprising:
  - The demolition of existing buildings and structures
  - Service utility terminations and diversion/relocation
  - Removal of existing hardstand/roads/pavements and infrastructure associated with existing buildings
  - Rehabilitation of the excavation/earthmoving training area (i.e. ‘dust bowl’)
  - Remediation of contaminated land and hotspots, including areas known to contain asbestos, and the removal of:

<sup>2</sup> [http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view\\_job&job\\_id=5066](http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5066)





- Underground storage tanks (USTs)
- Unexploded ordnance (UXO) and explosive ordnance waste (EOW) if found
- Asbestos contaminated buildings
- Archaeological salvage of Aboriginal and European sites
- Establishment of a conservation area along the Georges River
- Establishment of construction facilities (which may include a construction laydown area, site offices, hygiene units, kitchen facilities, wheel wash and staff parking) and access, including site security
- Vegetation removal, including the relocation of hollow-bearing trees, as required for remediation and demolition purposes
- Development of the intermodal terminal (IMT) facility and initial warehousing facilities
- ‘Ramp up’ of the IMT capacity and warehousing
- Development of further warehousing.

Approval for the Early Works phase (MPW Concept Plan Approval) was granted as the first stage of the MPW Project within the Concept Plan Approval. Works, approved as part of this stage are anticipated to commence in the third quarter of 2016. The MPW Concept Plan Approval conditions stipulates that the MPW site is to be remediated in accordance with:

- The Approved RAP,
- State Environmental Planning Policy No. 55 - Remediation of Land (SEPP 55),
- The guidelines in force under the *Contaminated Land Management Act* 1997; and
- Furthermore that the validation and/or monitoring report is to be independently audited by a NSW EPA accredited auditor and a Site Audit Statement issued.

As part of the Early Works Stage 1, the site will be remediated to the extent permissible under the MPW Concept Plan Approval (SSD - 5066), and a Site Audit Statement will be prepared by a NSW EPA accredited Contaminated Sites Auditor. The Site Audit Statement will be provided to the consent authority to satisfy the obligations under Clause 7(1) of SEPP 55.

Commonwealth Approval (No. 2011/6086), under the *Environmental Protection Biodiversity Conservation Act 1999* (EPBC Act), was also granted in mid-2016 (soon after the Concept Plan Approval) for the MPW Project. In addition to this, the Planning Proposal (PP\_2012\_LPOOL\_004\_00) which provided a rezoning of part of the MPW site, and surrounds, was gazetted on 24 June 2016 into the *Liverpool Local Environmental Plan 2008* (Amendment No. 62).

On 5 December 2014, Moorebank Intermodal Terminal Company (MIC) and SIMTA announced their in-principle agreement to develop the Moorebank IMT Precinct on a whole of precinct basis. This agreement is subject to satisfying several conditions which both parties are currently working towards. SIMTA is therefore seeking approval to build and operate the IMT facility and warehousing under the MPW Project Concept Approval, known as the MPW Stage 2 Proposal (the Proposal).

### 1.3 Report Purpose

This report has been prepared to support the Environmental Impact Statement (EIS) for approval of the Proposal. A summary of the works included in the Proposal is provided below.

This report has been prepared as part of a State Significant Development (SSD) Application for which approval is sought under Part 4, Division 4.1 of the EP&A Act. This report has been prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) (ref: SSD 16-7709 and dated 14 July 2016) and revised environmental mitigation measures (REMMs) identified in the MPW Concept Plan



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Approval (SSD\_5066). Table 1 provides a summary of the SEARs and mitigation measures from the MPW Concept Plan Approval and the section where they have been addressed in this report

**Table 1: REMMs assessment requirements**

REMM / SEAR	Requirement	Where addressed in this Report?
<b>SEARs</b>		
Geotechnical and Soil	An updated contamination assessment in accordance with the guidelines under the Contaminated Land Management Act 1997. The assessment shall include the potential environmental and human health risks of site contamination on the project site, a Remedial Action Plan (if required), and consideration of implications of proposed remediation actions on the project design and timing (if relevant); and	Whole report.
	include an assessment of potentially contaminated areas in accordance with the National Environmental Protection Measure 2013 in addition to an assessment of potential areas of Perfluorinated Compounds.	Whole report, and refer to Section 5.2.2.
Land Contamination	I) include a contamination assessment in accordance with the guidelines made under the Contaminated Land Management Act 1997 and in consultation with the EPA.	Whole report.
<b>REMMs</b>		
8B	Before construction, a remediation program would be implemented in accordance with the Moorebank Intermodal Terminal Preliminary Remediation Action Plan (RAP) (or equivalent). The program will have been formally reviewed and approved by the Site Auditor under Part 4 of the NSW Contaminated Land Management Act 1997 (CLM Act).	Whole report, and refer to Section 4.1.
8C	A CEMP would be prepared by the contractor for all excavation and remediation works and would include requirements for decontamination facilities at the Project site.	Section 5.3 and 6.1
8D	An unexploded ordnance (UXO) management plan (or equivalent) would be developed for the Project site. This plan would detail a framework for addressing the discovery of UXO or explosive ordnance waste (EOW) to ensure a safe environment for all Project staff, visitors and contractors.	Section 5.3 and 6.1
8E	An ASS management plan (or equivalent) would be developed in accordance with the ASSMAC Assessment Guidelines (1998), with active ongoing management through the construction phases. Offsite disposal would need to be in accordance with the NSW Waste Classification Guidelines Part 4 Acid Sulfate Soils (2009).	Section 5.3 and 6.1
8F	Further testing of residual sediments would be undertaken to gather data to inform the management of sediments likely to be disturbed/dewatered during construction.	Completed as part of Golder 2015a) <i>Post Phase 2 Environmental Site Assessment Moorebank Intermodal Terminal</i>



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REMM / SEAR	Requirement	Where addressed in this Report?
		(document reference: 147623070-019-Rev0)
8G	Ground penetrating radar (GPR) or similar techniques would be used to locate and document all existing and underground tank infrastructure across the Project site.	Completed as part of Golder (2015a) <i>Post Phase 2 Environmental Site Assessment Moorebank Intermodal Terminal</i> (document reference: 147623070-019-Rev0)
8H	A management tracking system for excavated materials would be developed to ensure the proper management of the material movements at the Project site, particularly during excavation works.	Refer to Section 5.0, within this report.  Refer to Golder (2015b) <i>Remediation and Demolition Specification Moorebank Intermodal Terminal</i> (document reference: 147623070-023-Rev0)
8I	Contaminated soil/fill material present will be 'chased out' during the excavation works based on visual, olfactory and preliminary field test results.	Refer to Section 5.0, within this report.  Refer to Golder (2015b) <i>Remediation and Demolition Specification Moorebank Intermodal Terminal</i> (document reference: 147623070-023-Rev0)
8J	Excavated soil would be temporarily stockpiled, sampled and analysed for waste classification processes. Subject to receipt of waste classification results, the material would be transported to a licensed offsite waste disposal facility as soon as practicable to minimise dust and odour issue through storage of materials on site.	Refer to Section 5.0, within this report.  Refer to Golder (2015b) <i>Remediation and Demolition Specification Moorebank Intermodal Terminal</i> (document reference: 147623070-023-Rev0)
8L	All excavation works associated with potential contaminated lands would be undertaken by licensed contractors, experienced in remediation projects and the handling of contaminated soils.	Refer to Section 5.0, within this report.
8M	All asbestos removal, transport and disposal would be performed in accordance with the Work Health and Safety Regulation 2011 (WHS Regulation).	Refer to Section 5.0, within this report.  Refer to Golder (2015b) <i>Remediation and Demolition Specification Moorebank Intermodal Terminal</i> (document reference: 147623070-023-Rev0)
8N	The removal works would be conducted in accordance with the National Occupational Health and Safety	Refer to Section 5.0, within this report.



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REMM / SEAR	Requirement	Where addressed in this Report?
	Commission Code of Practice for the Safe Removal of Asbestos, 2nd Edition [NOHSC 2002 (2005)] (NOHSC 2005a).	Refer to Golder (2015b) Remediation and Demolition Specification Moorebank Intermodal Terminal (document reference: 147623070-023-Rev0)
8O	An appropriate asbestos removal licence issued by WorkCover NSW would be required for the removal of asbestos contaminated soil.	Refer to Section 5.0, within this report.  Refer Golder (2015b) Remediation and Demolition Specification Moorebank Intermodal Terminal (document reference: 147623070-023-Rev0)
8P	Environmental management and WHS procedures would be put in place for the asbestos removal during excavation to protect workers, surrounding residents and the environment.	Refer to Section 5.0, within this report.  Refer to Golder (2015b) Remediation and Demolition Specification Moorebank Intermodal Terminal (document reference: 147623070-023-Rev0)
8Q	Temporary stockpiles of asbestos containing material (ACM) soils would be covered to minimise dust and potential asbestos release.	Refer to Section 5.0, within this report.  Refer to Golder (2015b) Remediation and Demolition Specification Moorebank Intermodal Terminal (document reference: 147623070-023-Rev0)
8R	An asbestos removal clearance certification would be prepared by an occupational hygienist at the completion of the removal work. This would follow the systematic removal of asbestos containing materials and any affected soils from the Project site, and validation of these areas (through visual inspection and laboratory analysis of selected soil samples).	Refer to Section 5.0, within this report.  Golder (2015c) Validation Plan - Principles Moorebank Intermodal Terminal (document reference: 147623070-022-Rev0)
8S	Asbestos fibre air monitoring would be undertaken during the removal of ACMs and in conjunction with the visual clearance inspection. The monitoring would be conducted in accordance with the National Occupational Health and Safety Commission Guidance Note on the Membrane Filter Method For the Estimating Airborne Asbestos Fibre, 2nd Edition [NOHSC 3003 (2005)] (NOHSC 2005b).	Refer to Section 5.0, within this report.  Refer to Golder (2015b) Remediation and Demolition Specification Moorebank Intermodal Terminal (document reference: 147623070-023-Rev0)



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REMM / SEAR	Requirement	Where addressed in this Report?
8T	All stockpiles would be maintained in an orderly and safe condition. Batters would be formed with sloped angles that are appropriate to prevent collapse or sliding of the stockpiled materials.	Refer to Section 5.0, within this report.  Refer to Golder (2015b) Remediation and Demolition Specification Moorebank Intermodal Terminal (document reference: 147623070-023-Rev0)
8U	Stockpiles would be placed at approved locations and would be strategically located to mitigate environmental impacts while facilitating material handling requirements. Contaminated or potentially contaminated materials would only be stockpiled in un-remediated areas of the Project site or at locations that did not pose any risk of environmental impairment of the stockpile area or surrounding areas (e.g. hardstand areas).	Refer to Section 5.0, within this report.  Refer to Golder (2015b) Remediation and Demolition Specification Moorebank Intermodal Terminal (document reference: 147623070-023-Rev0)
8V	Stockpiles would only be constructed in areas of the Project site that had been prepared in accordance with the requirements of the Project Preliminary RAP in Appendix F of Technical Paper 5 – Environmental Site Assessment (Phase 2), Volume 5A and 5B. All such preparatory works would be undertaken before material is placed in the stockpile. Stockpiles must be located on sealed surfaces such as sealed concrete, asphalt, high density polyethylene or a mixture of these, to appropriately mitigate potential cross contamination of underlying soil.	Refer to Section 5.0, within this report.  Refer to Golder (2015b) Remediation and Demolition Specification Moorebank Intermodal Terminal (document reference: 147623070-023-Rev0)
8W	Any stockpiles of contaminated material would be covered with a waterproof membrane (such as polyethylene sheeting) to prevent increased moisture from rainwater infiltration and to reduce windblown dust or odour emission.	Refer to Section 5.0, within this report.  Refer to Golder (2015b) Remediation and Demolition Specification Moorebank Intermodal Terminal (document reference: 147623070-023-Rev0)
8Y	Where required, contaminated materials and wastes generated from the Project remediation and construction works would be taken to suitable licensed offsite disposal facilities.	Refer to Section 5.0, within this report.  Refer to Golder (2015b) Remediation and Demolition Specification Moorebank Intermodal Terminal (document reference: 147623070-023-Rev0)



## 2.0 MPW STAGE 2 PROPOSAL OVERVIEW

The MPW Stage 2 Proposal (the Proposal) involves the construction and operation of an Intermodal terminal (IMT) facility and approximately 215,000 m<sup>3</sup> gross floor area (GFA) of warehousing.

The IMT facility would have the necessary infrastructure to support a container freight throughput volume of 500,000 twenty-foot equivalent units (TEUs) per annum. Specifically, the IMT facility within the Proposal site would include the following key components:

- Truck processing, holding and loading areas – with entrance and exit from Moorebank Avenue via an upgraded intersection and a round-about to distribute traffic between the warehousing precinct and the IMT
- Rail loading and container storage areas – installation of nine rail sidings, with an adjacent container storage area serviced by manual handling equipment
- Administration facility with associated car parking and light vehicle access from Moorebank Avenue
- The Rail link connection – linking the rail sidings within the IMT facility to the Rail link, constructed as part of the SIMTA Project.

Also included within the Proposal are the following key components:

- Warehousing area – construction and operation of approximately 215,000 m<sup>2</sup> GFA of warehousing, with warehouses ranging in size from 4,000 m<sup>2</sup> to 71,000 m<sup>2</sup>. Included within the warehousing area would be ancillary offices, truck and light vehicle parking, associated warehouse access roads.
- Freight village – construction and operation of approximately 800 m<sup>2</sup> of retail premises, with access from the internal road.
- Upgraded intersection on Moorebank Avenue and internal road – including works to Moorebank Avenue, Anzac Road to accommodate the proposed site entrance to Moorebank Avenue, and construction of an internal road.
- Ancillary works – including vegetation clearing, earth works, drainage and on-site detention, utilities installation/connection, signage and landscaping.

## 2.1 Proposal Components and Key Terms

Table 2 provides a summary of the key terms, in addition to the glossary provided above, which are included within this EIS. Figure 1 also provides an indication of the site areas discussed in Table 2.

**Table 2: Key Terms**

Term	Definition
Moorebank Precinct West (MPW) Concept Plan Approval  (Concept approval and Early Works)	MPW Concept Plan and Stage 1 Approval (SSD 5066) granted on 3 June 2016 for the development of the MPW Intermodal terminal facility at Moorebank and the undertaking of the Early Works. Granted under Part 4, Division 4.1 of the <i>Environmental Planning and Assessment Act 1979</i> . This reference also includes associated Conditions of Approval and Revised Environmental Management Measures, which form part of the documentation for the approval.  N.B. Previously the MIC Concept Plan Approval
Moorebank Precinct West (MPW) EPBC Approval	Commonwealth Approval (No. 2011/6086), granted in mid-2016 under the <i>Environmental Biodiversity Protection Conservation Act 1999</i> , for the impact of the MPW Project on listed threatened species and communities and impacts on the environment by a Commonwealth agency.
Moorebank Precinct West	The Environmental Impact Statement prepared to support the application for approval of the MPW Concept Plan and Early Works (Stage 1) under the <i>Environment</i>





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Term	Definition
(MPW) Concept Plan EIS	<i>Protection and Biodiversity Conservation Act 1999</i> and the <i>Environmental Planning and Assessment Act 1979</i> . N.B. Previously the MIC Concept Plan EIS
Revised Environmental Management Measures (REMMs)	The environmental management measures for the MPW Concept Plan Approval as presented within the MIC Supplementary Response to Submissions (SRtS) (PB, 2015) and approved under the MPW Concept Plan Approval.
Moorebank Precinct West (MPW) Planning Proposal	Planning Proposal (PP_2012_LPOOL_004_00) to rezone the MPW site from 'SP2- Defence to 'IN1- Light Industrial' and 'E3- Management', as part of an amendment to the <i>Liverpool Local Environmental Plan 2008</i> (as amended) gazetted on 24 June 2016.
Moorebank Precinct West (MPW) Project	The MPW Intermodal Terminal Facility as approved under the MPW Concept Plan Approval (5066) and the MPW EPBC Approval (2011/6086). N.B. Previously the MIC Project
Moorebank Precinct West (MPW) site	The site which is the subject of the MPW Concept Plan Approval, MPW EPBC Proposal and MPW Planning Proposal (comprising Lot 1 DP1197707 and Lots 100, 101 DP1049508 and Lot 2 DP 1197707). The MPW site does not include the rail link as referenced in the MPW Concept Plan Approval or MPE Concept Plan Approval. N.B. Previously the MIC site.
Early Works	Works approved under Stage 1 of the MPW Concept Plan Approval (SSD 5066), within the MPW site, including: establishment of construction compounds, building demolition, remediation, heritage impact mitigation works and establishment of the conservation area.
Early Works Approval	Approval for the Early Works (Stage 1) component of the MPW Project under the MPW Concept Plan Approval (SSD 5066) and the MPW EPBC Approval. Largely contained in Schedule 3 of the MPW Concept Plan Approval.
Early Works area	Includes the area of the MPW site subject to the Early works approved under the MPW Concept Plan Approval (SSD 5066).
Proposal	MPW Stage 2 Proposal (the subject of this EIS), namely Stage 2 of the MPW Concept Plan Approval (SSD 5066) including construction and operation of an IMT facility, warehouses, a Rail link connection and Moorebank Avenue/Anzac Road intersection works.
Proposal site	The subject of this EIS, the part of the MPW site which includes all areas to be disturbed by the MPW Stage 2 Proposal (including the operational area and construction area).
IMT facility	The Intermodal terminal facility on the Proposal site, including truck processing, holding and loading areas, rail loading and container storage areas, nine rail sidings, loco shifter and an administration facility and workshop.
internal road	Main internal road through the Proposal site which generally travels along the western perimeter of the site. Provides access between Moorebank Avenue and the IMT and warehouses.
Rail link connection	Rail connection located within the Proposal site which connects to the Rail link included in the MPE Stage 1 Proposal (SSD 14-6766).
Proposal operational rail line	The section of the Rail link connection and Rail link between the SSFL and the Rail link connection (included in the MPE Stage 1 Proposal) to be utilised for the operation of the Proposal.
construction area	Extent of construction works, namely areas to be disturbed during the construction of the Proposal.



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Term	Definition
operational area	Extent of operational activities for the operation of the Proposal.
Moorebank conservation area/conservation area	Vegetated area to remain to the west of the Georges River, to be subject to biodiversity offset, as part of the MPW Project.
Moorebank Precinct (MP)	Refers to the whole Moorebank intermodal precinct, i.e. the MPE site and the MPW site.
Moorebank Precinct East (MPE) Project	The Intermodal terminal facility on the MPE site as approved by the MPE Concept Plan Approval (MP 10_0913) and including the MPE Stage 1 Proposal (14-6766). N.B. Previously the SIMTA Concept Plan Approval
Moorebank Precinct East (MPE) site	The site which is the subject of the MPE Concept Plan Approval, and includes the site which is the subject of the MPE Stage 1 Approval. N.B. Previously the SIMTA site
Moorebank Precinct East (MPE) Stage 1 Proposal	MPE Stage 1 Proposal (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. N.B. Previously the SIMTA Stage 1 Proposal
Rail link	Part of the MPE Stage 1 Proposal (14-6766), connecting the MPE site to the SSFL. The Rail link (as discussed above) is to be utilised for the operation of the Proposal.

## 2.2 Site Description

The Proposal site is generally bounded by the Georges River to the west, Moorebank Avenue to the east, the East Hills Railway Line to the south and the M5 Motorway to the north. It is located on Moorebank Avenue, Moorebank and forms Lot 1 in Deposited Plan (DP) 1197707<sup>3</sup>. The Proposal site also contains Lots 100 and 101 DP1049508, which are located north of Bapaume Road and west of Moorebank Avenue. The Proposal site is located wholly within Commonwealth Land.

The Proposal would also require works to upgrade the intersection of the MPW site with Moorebank Avenue and would therefore be undertaken on the following parcels of land:

- Moorebank Avenue, owned by the Commonwealth Government, south of Anzac Road Lot 2, DP 1197707 (formerly part of Lot 3001, DP 1125930).
- Moorebank Avenue, owned by Roads and Maritime Services, north of Anzac Road.
- A portion of Bapaume Road, a public road that is the responsibility of Liverpool City Council.
- A portion of Anzac Road, owned by Roads and Maritime Services, to the east of Moorebank Avenue.

The key existing features of the site are:

- Relatively flat topography, with the western edge flowing down towards the Georges River, which forms the western boundary to the MPW site.
- A number of linked ponds in the south-west corner of the Proposal site, within the existing golf course, that link to Anzac Creek, which is an ephemeral tributary of the Georges River.

<sup>3</sup> Previously legally described as "Lot 3001, DP 1125930" in the MPW Concept Plan Approval (SSD 5066), however has since been subdivided.





- An existing stormwater system comprising pits, pipes and open channels.
- Direct frontage to Moorebank Avenue, which is a publicly used private road, south of Anzac Road and a publicly owned and used road north of Anzac Road.
- The majority of the site has been developed and comprises low-rise buildings (including warehouses, administrative offices, operative buildings and residential buildings), access roads, open areas and landscaped fields for the former School of Military Engineering (SME) and the Royal Australian Engineers (RAE) Golf Course and Club. Defence has since vacated and all buildings on the site are currently unoccupied and will be removed during the Early Works.
- Native and exotic vegetation is scattered across the Proposal site.
- The riparian area of the Georges River lies to the west of the Proposal site and contains a substantial corridor of native and introduced vegetation. The riparian vegetation corridor provides a wildlife corridor and a buffer for the protection of soil stability, water quality and aquatic habitats. This area has been defined as a conservation area as part of the MPW Concept Plan Approval.
- As stated above, the majority of the Proposal site has been developed, however heritage and biodiversity values still remain on the site.
- A strip of land (up to approximately 250 metres wide) along the western edge of the MPW site lies below the 1% annual exceedance probability (AEP) flood level.
- The site is privately owned by the Commonwealth and leased by SIMTA.

A number of residential suburbs are located in proximity to the Proposal site, including:

- Wattle Grove, located approximately 1,000 m from the Proposal site and 1,000 m from the Rail link connection to the east. The Rail link, which will be used during operation of the Proposal is 1,260 m to the west of Wattle Grove at its closest point
- Moorebank, located approximately 630 m from the Proposal site and more than 1,400 m from the Rail link connection to the north. The Rail link is 2,500 m to the south of Moorebank at its closest point
- Casula, located approximately 330 m from the Proposal site and 1,200 m from the Rail link connection to the west. The Rail link is approximately 290 m to the east of Casula at the closest point
- Glenfield, located approximately 820 metres from the Proposal site and 1,100 metres from the Rail link connection to the south-west. The Rail link is approximately 750 m to the east of Glenfield at its closest point.

## 2.3 Works Overview

Construction of the Proposal is planned to commence in the third quarter of 2017. The total period of construction works for the Proposal is anticipated to be approximately 36 months.

The construction works have been divided into seven 'works periods' which are interrelated and also may potentially overlap, however it is expected that the remediation works for the Proposal will occur during the first works period, Site Preparation Activities.

A summary of the indicative activities included in Site Preparation works period is provided in Table 3

**Table 3: Works periods and activities**

Works Period	Activities
Site preparation activities	<ul style="list-style-type: none"><li>■ Establishment of construction compound fencing and hoardings</li><li>■ Installation of temporary sediment and erosion control measures</li></ul>



Works Period	Activities
	<ul style="list-style-type: none"><li>▪ Vegetation clearance</li><li>▪ <u>Remediation and validation</u></li><li>▪ Installation of temporary site offices and amenities</li><li>▪ Construction of hardstands for staff parking and laydown areas</li><li>▪ Establishment of temporary batch plant sites and installation of batch plant</li><li>▪ Construction of access roads, site entry and exit points and security (N.B. preference is to use existing access where practicable)</li><li>▪ Set up of construction monitoring equipment</li><li>▪ Relocation of utilities</li></ul>

## 2.4 Plant and Equipment

A range of plant and equipment would be required for construction of the Proposal, and generally the equipment required during the remediation works include but not be limited to, excavators, backhoes, 20 – 40 tonne articulated tipper trucks and water trucks.

## 2.5 Ancillary Compounds

Temporary construction compounds, a batching plant and communal parking areas would be required to support construction works for the Proposal. The locations of these compounds and facilities are indicative and subject to confirmation by the construction contractor and are shown in Figure 2.

At this stage construction compounds identified for the Proposal include:

- Earthworks Compound
- IMT Facility Compound
- Rail Compound.

Access to the compound sites would be via existing access points to the MIC site from Moorebank Avenue, and the Earthworks Compound will be used during the Site preparation works period including during the remediation works.

## 2.6 Construction Hours

The remediation works would generally be undertaken during the standard daytime construction working hours, being:

- 7 am to 6 pm Monday to Friday.
- 8 am to 1 pm Saturday.
- No works on Sunday or Public Holidays.



## 3.0 HISTORICAL CONTAMINATION INVESTIGATIONS

### 3.1 Previous Investigations

A number of environmental investigations have been previously carried out at the MPW site (refer to Table 4). Earth Tech (2006) included a comprehensive review of investigations completed prior to its 2006 Stage 2 investigation, and PB (2014a) included a detailed review of the Earth Tech investigation and partial reviews of other selected investigations completed prior to the Earth Tech (2006) report.

**Table 4: Previous Investigations**

Author	Report Title
Groundwater Technology (1994)	Environmental Site Assessment
Dames and Moore (1996)	Environmental Management Plan and Environmental Audit
CMPS&F, July (1998)	School of Military Engineering (SME) and adjoining areas, Preliminary Environmental Investigation
Egis Consulting Australia (2000)	Stage 1 Preliminary Site Investigation, Moorebank Defence Site
HLA Envirosciences (2002)	Soil & Groundwater Investigation Precinct H (DNSDC) Moorebank Defence Land
HLA (2003)	Preliminary Groundwater Study, Moorebank Defence Land (2003)
URS (2003)	Investigation of Potential Sources of TCE, North West Precinct of Moorebank Defence Lands
GHD (2003)	Asbestos Report and Register for the Liverpool Military Area, Updated Registers
GHD (2004a)	Estimated Asbestos Removal and Reinstatement Costs, Liverpool Military Area
GHD (2004b)	Groundwater Investigation of the North Western Portion of the Moorebank Defence Land
GHD (2005)	Proposed Intermodal Freight Hub, Moorebank, Summary of Environmental Planning Reports
HLA Envirosciences (2005)	AST and UST Management Plan, Volume 10, Sydney West Defence Region
Earth Tech (2006)	Stage 2 Environmental Investigation
ERM (2006)	Technical Advice Document, related to Earth Tech (2006) Stage 2 Environmental Investigation
HLA Envirosciences (2006)	Defence Integrated Distribution System (DIDS) Baseline Investigation
GHD (2006)	Proposed Inter-modal Freight Hub Moorebank – Summary of Environmental Planning Reports
G-tek (2011)	Explosive Ordnance Assessment and Safeguarding, Moorebank Intermodal Terminal – Post Activity Report
Parsons Brinckerhoff (2011)	Moorebank Intermodal Terminal - Geotechnical Investigation Report (document no. 2103829A_PR_036)**
Parsons Brinckerhoff (2013)	Steele Barracks Moorebank – Dust Bowl Asbestos Management Plan
Parsons Brinckerhoff (2014a)	Phase 2 Environmental Site Assessment, Moorebank Intermodal Terminal (document no. 2103829A-CLM-REP-1 Rev B)
Parsons Brinckerhoff (2014b)	Preliminary Remedial Action Plan (RAP), Moorebank Intermodal Terminal (document no. 2189293C-CLM-REP-2 Rev C) – <i>included within PB 2014a</i>
Parsons Brinckerhoff (2014c)	Phase 1 Environmental Site Assessment, Moorebank Intermodal Terminal (document no. 2103829C-CLM-REP-3321 Rev C) – <i>included within PB 2014a</i>



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Author	Report Title
AECOM (2014)	Site Audit Report and Site Audit Statement, Moorebank Intermodal Terminal, Moorebank, NSW (document no. 60327260_SAR_10JUL2014)
Golder (2015a)	Post Phase 2 Environmental Site Assessment Moorebank Intermodal Terminal (document reference: 147623070-019-Rev0)
Golder (2015b)	Remediation and Demolition Specification Moorebank Intermodal Terminal (document reference: 147623070-023-Rev1)
Golder (2015c)	Validation Plan - Principles Moorebank Intermodal Terminal (document reference: 147623070-022-Rev0)
Golder (2015d)	Onsite Quantitative Human Health Risk Assessment Moorebank Intermodal Terminal (document reference: 147623070-043-R-Rev1)

\*\* - Includes soil data pertinent to geochemical assessment and contamination management.

### 3.2 Contaminants of Potential Concern Previously Investigated

The contaminants of potential concern assessed during the previous investigations have included:

- Total Recoverable Hydrocarbons (TRH) and Total Petroleum Hydrocarbons (TPH);
- Benzene, Toluene, Ethylbenzene and Xylene (BTEX compounds);
- Heavy metals / metalloids (including arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
- Polycyclic aromatic hydrocarbons (PAHs);
- Polychlorinated biphenyls (PCBs);
- Volatile organic compounds (VOCs);
- Semi volatile organic compounds (SVOCs);
- Asbestos in or on soils, including friable asbestos (FA), asbestos fines (AF) and asbestos containing materials (ACM);
- Aqueous film forming foams (AFFF) chemicals, including perfluoroalkyl and polyfluoroalkyl substances (PFAS);
- Organophosphate pesticides (OPPs) and organochlorine pesticides (OCPs);
- Explosives, including residues and un-exploded ordnance (UXO);
- Formaldehyde; and
- Acid Sulfate Soils.

Earth Tech (2006) completed intrusive investigations at 39 areas of interest, these areas were primarily based on the Egis (2000) Stage 1 Preliminary Site Investigations, however, also included information from the other reports reviewed and information gathered during the investigations. Based on the results of the intrusive investigations, Earth Tech (2006) qualitatively assessed the risks associated with each area of interest using the Defence Contamination Risk Assessment Tool (C-RAT), and remedial or management actions were recommended for 12 areas of interest.

The PB (2014c) Phase 1 investigation identified 28 areas of potential concern, most of which were areas of interest or an amalgamation of areas of interest identified by Earth Tech (2006). PB (2014c) identified several additional areas of interest, however, the majority of these were considered low risk. The PB Phase 2 (2014a) also included several additional areas not identified during the PB Phase 1 (2014c), where



additional investigation locations were completed to assess offsite sources, or improve site assessment coverage.

The Golder 2015 Post Phase 2 investigations were focused on the key data gaps identified in the PB Preliminary RAP (PB, 2014b), as well as the requirement to acquire additional information for the Remediation Specification (Golder, 2015b). As part of the investigations, several data gaps additional to those identified in the Preliminary RAP were identified and assessed. These included the Viet Cong training village, the former Plant Roads and Airfield (PRA) yard, potential fill areas in the northwest corner of the current parade ground, and a filled draining channel north of the museum storage area.

### 3.3 Site Contamination History

A summary of key contamination issues and their distribution in the various environmental media at the site is summarised in Table 5. The extent of remediation completed as part of the *Early Works* are discussed in Section 4.0, and the remediation works requiring assessment under the MPW Stage 2 Proposal are discussed in Section 5.0.

Based on the previous investigations, the following historic contamination risks were identified.

- **Underground Petroleum Infrastructure** - There were numerous underground storage tanks (USTs), with associated infrastructure present across the site, the historic investigations did not indicate significant contamination at these areas, however, there was potential for petroleum hydrocarbon impacted soils to be present in the immediate vicinity of the infrastructure, and the infrastructure required remediation. These areas are considered as being remediated during the *Early Works (Stage 1)*;
- **Contamination Hotspots** – The historic investigations identified two areas of the site where concentrations of lead and hydrocarbons presented an unacceptable risk to future site users, and warranted direct remediation. These areas are considered as being remediated during the *Early Works (Stage 1)*;
- **Anthropogenic fill materials** - Buried waste materials had been identified (referred to as anthropogenic fill materials) in selected areas of the site. The previous investigations concluded the materials within the pits generally presented a low, acceptable contamination risk for commercial / industrial land use. Where these areas were required to undergo geotechnical rectification, contaminated materials were to be identified and remediated during the process geotechnical rectification. All known anthropogenic fill areas are considered as being remediated during the *Early Works (Stage 1)*;
- **Asbestos in or on Soil** – Asbestos has been identified in the soil on the site, however, its' distribution is unable to be related to particular areas, or particular historical activities on the site. The asbestos identified was predominately ACM, and was detected in the shallow soils. The known high risk asbestos areas are considered as being remediated during the *Early Works (Stage 1)*. Any residual risks associated with asbestos in or on soils is to be managed in accordance with the Preliminary RAP (PB, 2014) and through the implementation of the Asbestos in Soils Management Plan (Golder, 2016).
- **Perfluoroalkyl and polyfluoroalkyl substances (PFAS)** – PFAS have been identified in the groundwater. There is growing public and regulator awareness of the issues associated with PFAS and the regulatory approach to PFAS is currently in development. The impacts may require future management, and further assessments are being completed to determine if the identified impacts warrant direct remediation or management. The overall objectives of the investigations are to develop a data set which supports a robust conceptual site model, which takes into consideration possible temporal variations in the receiving environment and also considers the changes likely to occur during the proposed redevelopment of the site. A staged investigation program has been implemented, and a monitoring program will be continued as part of the MPW Stage 2 Proposal works (refer to Section 5.2.2).
- **UXO / EOW** – the most likely item of UXO to be encountered within the Site is unfired blank small arms ammunition (SAA), particularly 5.56mm blank cartridges which have remnant propellant. These will



generally be on or near the surface, and the majority of SAA will be empty / fired items, however, individual unfired items (i.e. those with an actual UXO risk) may be interspersed with the fired items. The risks associated with UXO / EOW in or on soils is to be managed in accordance with the Preliminary RAP (PB, 2014) and through the implementation of the UXO Management Plan (G-tek, 2016).

- **VOCs** - Trichloroethylene (TCE) and cis-1,2-dichloroethene (cis DCE) were identified in soil and groundwater in the north western portion of the site. A Tier 2 quantitative risk assessment was completed and the overall risks associated with the VOCs were considered low and acceptable for the proposed open space land use which includes roads, road verges, stormwater infrastructure and woodland/riparian conservation areas. The Tier 2 QRA was based on the assumption that the impacted area is not going to become a permanent place of work (i.e. no buildings are to be constructed in the area). The residual contamination will need to be included within the Long Term Environmental Management plan for the site to ensure the risks are appropriately considered in the event that the site layout or use changes, and the area is re-considered for the construction of buildings or becomes a permanent workspace.



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**Table 5: Summary of Site Contamination History**

Media	UXO/ EOW	TRH, BTEXN	TCE <sup>4</sup>	PAH	OCPs / OPPs / PCBs	PFAS	Metals	Asbestos	Wastes / Aesthetics
<b>Fill and Natural Soil</b>	Explosive residues have not been detected in soil. For UXO - low potential for high explosive (HE) or other energetic material other than propellant/primers in small arms ammunition blank cartridge cases <sup>5</sup> .	Present around the site. Primarily associated with petroleum storage infrastructure, vehicle maintenance areas, and tip sites.	Chlorinated compounds have been detected in soil, and soil vapour in a localised area in the north western corner of the site.	Present around the site at concentrations exceeding the ecological screening levels. However, was not reported above the health screening criteria.	OPP / OCPs (dieldrin) was detected beneath a building built in 1970's. Concentrations were below the adopted health screening criteria. PCBs are potentially present near high voltage electrical equipment and cables, however have not been assessed.	Perflourinated chemicals have been detected in soils and sediments below the human health screening criteria.  The materiality of these impacts requires further assessment.	Metals above the adopted health screening criteria were detected in the vicinity of the former grit blasting facility.  Metals exceeding the EILs have been detected in the proposed riparian zone.	Present in many areas of the site. Mostly identified in surface soils. Also identified in fill/wastes at depths of up to 2m.  Redundant services made of ACM are expected to be present across the site.	Waste, odour, discolouration.  Aesthetics are unlikely to prevent the reuse of materials on a commercial / industrial site.  Anthropogenic wastes may require management for geotechnical purposes.
<b>Groundwater</b>	No concerns identified	No concerns identified	Chlorinated hydrocarbons have been identified in groundwater. Localised to the north west corner of the site.	No concerns identified	No concerns identified	Perflourinated chemicals have been detected in groundwater.  The materiality of these impacts requires further assessment.	Background concentrations of cadmium, copper, nickel and zinc. Localised concentrations of elevated zinc.	Not applicable	No concerns identified

<sup>4</sup> Risks associated with the TCE impacts identified in the north western corner of the site have been investigated through a Tier 2 Quantitative Human Health Risk Assessment (Golder, 2015), and direct remediation actions are not warranted.

<sup>5</sup> Conclusions are drawn from UXO investigations completed by G-tek (2011) presented in the PB Phase 2 Environmental Site Assessment Report (2014), refer to Section 6.10 for future management requirements.





### 4.0 MPW SITE HISTORIC REMEDIATION ACTIVITIES

Under the Early Works (Stage 1), the site will be remediated to the extent permissible under the MPW Concept Plan Approval (SSD - 5066). These remediation works are subject of an audit by an accredited contaminated land Auditor, and the Auditor will prepare a section A, Site Audit Statement. When complete the Site Audit Statement will be provided to the consent authority to satisfy the obligations under Clause 7(1) of State Environmental Planning Policy 55 and the MPW Concept Plan Approval Minister's Conditions of Approval (MCoA) B1 to B3.

Based on the previous investigations, and as discussed in Section 3.3, the following areas warranted direct remediation.

- the known underground storage tanks (USTs), petroleum infrastructure and associated petroleum hydrocarbon impacted soils;
- the known areas of soil contamination ('hotspots') including;
  - soils impacted with lead, and
  - soils impacted with petroleum hydrocarbons (in addition to those associated with USTs).
- the known areas containing asbestos in or on soils, including
  - stockpiles of ACM impacted soils;
  - stockpiles of building demolition wastes; and
  - areas where anthropogenic fill materials have been placed and the soils are known to (or suspected) of containing asbestos.

### 4.1 Early Works (Stage 1) Completed Remediation

A summary of remediation actions to be undertaken as part of the Early Works (Stage 1) is presented in Table 6.

The remediation and validation works are to be completed in accordance with the guidelines endorsed by the NSW Environmental Protection Authority (EPA) under Section 105 of the *Contamination Land Management Act 1997* (CLM Act).





## MIT STAGE 2 SSD CONTAMINATION SUMMARY REPORT

**Table 6: Summary of Early Works (Stage 1) Completed Remediation Activities**

Media	UXO/ EOW	TRH, BTEXN	TCE <sup>6</sup>	PAH	OCPs / OPPs / PCBs	PFAS	Metals	Asbestos	Wastes / Aesthetics
<b>Fill and Natural Soil</b>	Where required, UXO risks were remediated.  Ongoing management required – refer to section 5.3	Demolition, excavation and remediation of known underground storage infrastructure was completed and the areas validated.  Remediation of TRH Hot Spot was completed and the area validated.	No Direct Remediation Actions Required.  Area specific management requirements are to be incorporated into the LTEMP.	No Direct Remediation Actions Required.	OPP / OCPs – impacts were assessed and direct remediation actions were completed and validated where required.  PCBs – impacts were assessed and direct remediation actions were completed and validated where required.	Onsite and offsite delineation assessments were completed.  Perflourinated chemicals were been detected in soils and sediments below the human health screening criteria.  The materiality of these impacts requires further assessment.	Remediation of lead hotspot was completed and the area validated.	Remediation and validation of areas with asbestos in or on soil was completed in the accessible <sup>7</sup> areas.  Where required, redundant UG services containing ACM were removed and clearance certificates obtained.  Ongoing management required – refer to section 5.3	Remediation and validation was completed in the anthropogenic fill areas considered geotechnically unsuitable.
<b>Groundwater</b>	No Actions Required	No Actions Required.	Groundwater monitoring to be incorporated into LTEMP.	No Actions Required..	No Actions Required.	Perflourinated chemicals have been detected in groundwater.  The materiality of these impacts requires further assessment.	No Actions Required.	Not applicable	No Actions Required.

<sup>6</sup> Risks associated with the TCE impacts identified in the north western corner of the site have been investigated through a Tier 2 Quantitative Human Health Risk Assessment (Golder, 2015), and direct remediation actions are not warranted.

<sup>7</sup> Accessible areas were those not positioned within an Ecological Endangered Community (ECC) and would have required vegetation removal which was not permitted under the MPW Concept Plan Approval (5066).



### 5.0 MPW STAGE 2 PROPOSAL – REMEDIATION ACTIVITIES

Extensive information is available on the contamination risks on the MPW site and appropriate remediation and/or management actions have been defined within the existing documentation provided to the NSW DPE as part of the MPW Concept Plan Approval. The relevant existing documentation includes:

- The Preliminary Remediation Action Plan (PB, 2014a),
- The Validation Plan – Principles (Golder, 2015b); and
- The Demolition and Remediation Specification (Golder 2015c).

The majority of the contamination has been remediated through the activities scheduled for completion as part of the Early Works (Stage 1). The expected outcomes of the Early Works (Stage 1) activities is a Remediation and Validation Report (RVR) which will be provided to an accredited NSW EPA Site Auditor for review. The Site Auditor, once satisfied, will provide a Section A - Site Audit Statement stating that the remediated portions of the site are suitable for commercial / industrial use. The RVR and the Site Audit Statement will be provided to the consent authority to satisfy the obligations under Clause 7(1) of SEPP 55.

The exception to this is areas where active remediation cannot occur due to the presence of Ecological Endangered Communities (i.e. the stockpile in the vicinity of the former STP and on the Golf Course) and as such, this remediation is delayed as it requires the vegetation to be cleared which is not permitted under the MPW Concept Plan Approval. Therefore, it is proposed that these remediation works be completed as part of the MPW Stage 2 works. At the conclusion of the remediation works a RVR will be prepared and provided to an Accredited NSW EPA Site Auditor for review. The Site Auditor, once satisfied, will provide a Section A – Site Audit Statement stating that these remaining portions of the site are suitable for commercial / industrial use. The RVR and the Site Audit Statement will be provided to the consent authority to satisfy the obligations under Clause 7(1) of SEPP 55.

Based on the remediation works completed during the Stage 1 Early Works (Section 4.0), the following areas warranted direct remediation as part the MPW Stage 2 Proposal (refer to Figure 3, Appendix A).

- the known areas containing asbestos in or on soils positioned within the ECC portions of the site, including
  - stockpiles of building demolition wastes containing ACM; and
  - areas where anthropogenic fill materials have been placed and the soils are known to (or suspected) of containing asbestos.

There are also contamination risks where rather than adopting a direct remediation approach, a management approach is considered more effective and will be incorporated into the development (i.e. the MPW Stage 2 Proposal) and subsequent operation of the site (refer to discussion in Section 5.2).

A summary of remediation actions to be undertaken as part of the MPW Stage 2 Proposal is presented in Table 7.

The remediation and validation works will be completed in accordance with the guidelines endorsed by the NSW Environmental Protection Authority (EPA) under Section 105 of the *Contamination Land Management Act 1997* (CLM Act).



## MIT STAGE 2 SSD CONTAMINATION SUMMARY REPORT

**Table 7: Summary of MPW Stage 2 Remediation Activities**

Media	UXO/ EOW	TRH, BTEXN	TCE <sup>8</sup>	PAH	OCPs / OPPs / PCBs	PFAS	Metals	Asbestos	Wastes / Aesthetics
<b>Fill and Natural Soil</b>	Ongoing management required – refer to section 5.2	No direct remediation actions required	No Direct Remediation Actions Required.  Area specific management requirements to be incorporated into the LTEMP.	No direct remediation actions required	No direct remediation actions required.	Perflourinated chemicals were been detected in soils and sediments below the human health screening criteria.  The materiality of these impacts requires further assessment.  Refer to section 5.2	No direct remediation actions required.	Remediation and validation of areas with asbestos is required – refer to Section 5.1  Ongoing management required – refer to section 5.2	Remediation and validation required - refer to Section 5.1  Ongoing management required – refer to section 5.2
<b>Groundwater</b>	No Actions Required	No Actions Required.	Groundwater monitoring to be incorporated into LTEMP.	No Actions Required..	No Actions Required.	Perflourinated chemicals have been detected in groundwater.  The materiality of these impacts requires further assessment.  Refer to section 5.2	No Actions Required.	Not applicable	No Actions Required.

<sup>8</sup> Risks associated with the TCE impacts identified in the north western corner of the site have been investigated through a Tier 2 Quantitative Human Health Risk Assessment (Golder, 2015), and direct remediation actions are not warranted.



### 5.1 MPW Stage 2 Proposal – Direct Remediation Activities

The MPW Stage 2 Direct Remediation Activities are presented on Figure 3, Appendix A and summarised in Table 8.



## MIT STAGE 2 SSD CONTAMINATION SUMMARY REPORT

**Table 8: Summary of MPW Stage 2 Remediation Activities**

MPW Stage 2 Proposal – Remediation Activities	Reported Impacts	Discussion	Remediation / Validation Procedures
<p>Former Sewage Treatment Plant (STP) and Anthropogenic Fill Materials (Confirmed).</p> <p>Stockpiled demolition wastes placed on the surface and areas of anthropogenic fill materials buried in the vicinity of the former STP.</p>	<p><b><u>Asbestos on or in soils</u></b></p> <p>Asbestos pipe identified in SW0183 – TP010. The pipe was described as running north east towards the former STP.</p> <p>Asbestos sheeting was identified within stockpiles in SW0203-TP060 at 0.2m depth, SW0203 – TP061 at 0.1m depth. Asbestos fragments were observed in SW0203 – TP065 at 0.5m depth, and SW0203 – TP071 at 0.2m depth.</p>	<p>Demolition waste materials were described as including; ceramic pipe, concrete, copper pipe, electrical cable, bricks, golf ball, scrap metal, bitumen pieces, a steel beam.</p> <p>The stockpiles, demolition materials and asbestos materials were evident during the Golder (2015) inspections</p> <p>Surveyed stockpile foot prints:            SP1 – 3,300 m<sup>2</sup>            SP2 – 90 m<sup>2</sup>            SP3 – 340 m<sup>2</sup>            SP4 – 120 m<sup>2</sup>            SP5 – 190 m<sup>2</sup></p> <p>Estimated stockpile volume is 2,860 m<sup>3</sup>.</p>	<p>Works are to be completed in accordance with the RAP (PB, 2014), and AMP (Golder, 2016).</p> <p><b>Step 1</b> - Excavation of contaminated materials and classification for offsite disposal at an appropriately licensed facility, or classified for onsite containment;</p> <p><b>Step 2</b> - Chasing out of residual contaminated soils to the extent practicable;</p> <p><b>Step 3</b> - Validation soil sampling; and excavation backfilling, where required.</p> <p>Works are to be undertaken in accordance with the Safe Work NSW requirements, including but not limited to:</p> <ul style="list-style-type: none"> <li>- <i>the Guidelines for Managing asbestos in or on soil (2014)</i>, and</li> <li>- <i>Codes of Practice - How to Safely Remove Asbestos (2011) and How to Manage and Control Asbestos in the Workplace (2011)</i>.</li> </ul> <p>Asbestos works are to be undertaken by appropriately trained persons including those with Class A licences for the removal of friable asbestos and / or Class B licences for the removal of non-friable asbestos.</p>
<p>Golf Course Stockpile.</p> <p>Stockpiled demolition wastes placed on the surface potentially containing ACM.</p>	<p><b><u>Asbestos on or in soils</u></b></p> <p>Demolition materials and debris identified in stockpiled materials.</p>	<p>Estimated stockpile volume is 420 m<sup>3</sup> – excluded from remediation works subject to general materials management and geotechnical testing and unexpected finds protocol.</p>	



### 5.2 MPW Stage 2 Proposal - Contamination Management Approaches

A key strategy included within the Preliminary RAP (PB, 2014b) and being adopted across the site is the use of risk management principals to maximise reuse of resources and minimise offsite disposal of contaminated materials. As portions of the site will be raised to achieve the required final site levels by placing imported fill, a key aspect to minimising the requirement for offsite disposal of contaminated materials is to use the new fill materials to cap existing contamination insitu.

Contamination left in situ will require management into the future. It is expected that processes and controls for the contamination left in situ, will be included within the Construction Environmental Management Plan (CEMP) for implementation during the construction phase of the project. It is also expected that a LTEMP will also be prepared for implementation during the sites operation phase. Both the CEMP and LTEMP will be reviewed by the Site Auditor and a condition specifying they be implemented included within the Section A - Site Audit Statement. The adoption of the LTEMP will also require a notification be included on the property certificate of title, such that all future site owners are aware of the requirement to implement the LTEMP.

#### 5.2.1 Onsite containment

A capping strategy using general fill materials is only appropriate for contaminants which will not present a potential vapour risk to future site occupiers, and will not present a long term risk to offsite receptors through the migration of groundwater impacts. The following types of contamination identified on the site will be managed through a cap and manage approach.

- **Asbestos in or on soils** - Bonded ACM fragments have been identified in various areas across the site and are considered the primary asbestos impact across the shallow soils. There is also potential for redundant utilities constructed of ACM to be present across the site.  
The proposed development meets many of the In-Situ Management predisposing conditions as described under Section 5.2.1 of the Western Australia Department of Health (WA DOH, 2009) Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites (which are referred to in the ASC NEPM, 2013). These include:

- The distribution of asbestos across the site is difficult to determine;
- Asbestos in soils has the potential to cover large areas;
- Will largely be covered by hardstand at the completion of the development; and
- The site will be covered with imported clean fill for geotechnical or other purposes.

- **Remnant UXO, EO or EOW** - The future users of the site may encounter remnant UXO, EO or explosive ordnance waste (EOW) items such as fired, and unfired small arms ammunition (SAA) blank training items, and fired and unfired flares / smoke grenades (including grenade levers and other components).

Based on the investigations completed to date, the bulk of the UXO, EO and EOW identified on the site is expected to be small individual items (i.e. SAA blank cartridges and smoke grenade canisters) located within the surface soil across the entire site (i.e. <0.2 m depth). The investigations completed across the site have demonstrated that these items are not posing a significant risk to the environment (i.e. no detections of explosive residues or elevated heavy metals associated with UXO/ EOW waste), and if appropriately managed during the site's development and future occupation (i.e. by capping and applying a LTEMP) are unlikely to pose a significant risk to human health.

The CEMP and LTEMP will clearly indicate areas where contamination is left insitu and also provide details on the remaining contamination risks, such as the depth of the impacts, the nature of the contamination (i.e. asbestos in soils) and the placement of any barriers or covers that limit potential for the materials to be disturbed.



The nominal depth of cover for a commercial / industrial site should be at least 0.5 m depth for asbestos, UXO and EOW materials and 1.0 m depth for foreign materials. The capping materials should consist of fill materials proven to be free of contamination. The capping thickness may need to be increased to allow for the installation of future sub-surface utilities, or alternatively, future sub-surface utility corridors can be established by remediating all potential contamination within the proposed corridor such that future excavation activities can occur un-hindered.

Given the adopted approach will include the isolation (containment) of contaminated soils/foreign materials below a separation layer (i.e. capping) verification of the installation will need to be undertaken by the Environmental Consultant and presented to the Site Auditor within the validation report. The verification information will comprise:

- Survey of the surface of the site area prior to Separation Layer installation;
- Survey of the site area following Separation Layer installation to confirm the thickness of soil (or the placement of geotextiles etc);
- Information relating to the materials used in the Separation Layers such as the soil types, geotextile materials, and sealant types etc (if required);
- Observation (including photographic records) of the Separation Layer installation works;
- Liaison with the Auditor for inspection of the Separation Layer works;
- Compilation of an as-constructed plan of the site showing the locations, depths and materials of the Separation Layers installed at the site.

### 5.2.2 PFAS Assessments

Based on the PFAS concentrations identified in the groundwater on the site, and the evidence presented in the current literature on the bioaccumulation risks associated with PFAS, there is a risk that a complete exposure pathway exists between the PFAS source areas identified on the site and ecological receptors within the Georges River. In turn this presents a plausible pathway for human health exposure through the potential consumption of fish caught within the impacted area via recreational fishing.

Therefore, further assessments will be completed as part of the MPW Stage 2 Proposal. These assessments will include:

- **Monitoring** - limited information is available on the temporal variations of PFAS concentrations in the surface water, sediment and groundwater. Therefore, a routine quarterly groundwater, sediment and surface water monitoring program will be continued during the MPW Stage 2 Proposal works. The monitoring program will be undertaken for a period of two years to ensure a range of seasonal and river flow variations is assessed and to assess concentration trends. The monitoring program will allow the groundwater, surface water, and sediment concentrations to be assessed against the national standards and/or Australian assessment criteria as they become available, and prior to making final decisions with regards to undertaking direct remedial / and management actions; and
- **Risk Assessment** —an ecological and human health risk assessment process will be used to make a decision with regards to whether any direct remediation and /or management actions are warranted and what actions should be undertaken to minimise the potential risk to the Georges River aquatic ecology and human health. The risk assessment process will be completed in accordance with the guidelines endorsed by the NSW Environmental Protection Authority (EPA) under Section 105 of the *Contamination Land Management Act 1997* (CLM Act).





### 5.3 MPW Stage 2 Proposal - Remediation / Contamination Management Documentation

The MPW Stage 2 Proposal remediation works will include the implementation of a number of documents to facilitate the remediation works and ensure appropriate mitigation measures are implemented during the future development of the site. These include both site wide and stage specific documents.

- **Remediation Action Plan (RAP)** – The required remediation and/or management actions have been defined within the following documentation provided to the NSW DPE as part of the MPW Concept Plan Approval:
  - The Preliminary Remediation Action Plan (PB, 2014a),
  - The Validation Plan – Principles (Golder, 2015b); and
  - The Demolition and Remediation Specification (Golder 2015c).

These will be used as the guiding documentation for the MPW Stage 2 Proposal remediation activities. These include details on the mitigation measures appropriate for REMM items, 8I, 8J, 8L, 8V, 8W and 8Y (refer to Table 1).

- **Acid Sulfate Soil Management Plan (ASSMP)** – an ASSMP will be developed in accordance with the ASSMAC Assessment Guidelines (1998), with active ongoing management through the construction phases. Offsite disposal would need to be in accordance with the NSW Waste Classification Guidelines Part 4 Acid Sulfate Soils (2009).
- **Construction Environmental Management Plan (CEMP)** – a CEMP will be developed for the proposed MPW Stage 2 remediation works, and where required the CEMP will draw on the requirements of MCoA D19, the processes described in the Preliminary RAP (PB, 2014a), the Validation Plan - Principles and the Remediation Specification (Golder 2015c). The CEMP will also stipulate the actions to be taken should additional contamination be identified during the development of the site (i.e. an unexpected finds protocol).

The CEMP will include mitigation measures appropriate for REMM Items 8H, 8T, 8U, 8V and 8W (refer to (refer to Table 1).

- **Site Wide EOW and UXO Management Plan** – the site wide UXO Risk Review and Management Plan (G-tek, 2016) will be developed and implemented to ensure a safe working environment is established during earthworks.
- **Site Wide Asbestos in Soils Management Plan (AMP)** - the site-wide AMP (Golder, 2016) will be implemented to specifically address the management of asbestos in or on soils during the remediation and staged development of the site. The AMP defines the actions, roles and responsibilities associated with the management of asbestos in or on soils during the proposed development works.

The AMP stipulates that any management or remediation actions undertaken in relation to asbestos in soils is to be undertaken in accordance with the Safe Work NSW requirements, including but not limited to the *Guidelines for Managing asbestos in or on soil* (2014), and *Codes of Practice - How to Safely Remove Asbestos* (2011) and *How to Manage and Control Asbestos in the Workplace* (2011). The AMP also stipulates that asbestos works are to be undertaken by appropriately trained persons including those with Class A licences for the removal of friable asbestos and / or Class B licences for the removal of non-friable asbestos.

The remediation and/or management actions included within the AMP are:

- Onsite in-situ containment through the direct placement of cover fill materials to prevent future disturbance of the impacted materials and therefore minimise the potential for the materials to generate airborne fibres. The cover will be nominally minimum 0.5 metres (m) depth. However, in areas where the final design requires less than 0.5 m of cover, visible ACM fragments will be





removed and the area nominated for closer management within the Long Term Environmental Management Plan;

- Onsite excavation and containment through the excavation, possible treatment and replacement of asbestos impacted soils in a nominated containment area. The onsite containment areas will be nominated in consultation with the appointed Site Auditor, and will consider positions on the site which present minimal impact to the proposed development and minimise the potential for disturbance during the future operation of the site. The treatment of soils included hand picking, tilling and possible screening of asbestos impacted soils. Containment will include the placement of materials at depths generally greater than 1.5m to minimise the potential for the materials to generate air borne fibres, or where not possible for deep placement will include a minimum of 0.5 m cover and the placement of a geo-textile barrier to provide a warning of the presence of underlying soil contamination. Onsite containment locations will be mapped and noted for management within the Long Term Environmental Plan;
- Excavation and offsite *disposal* through the excavation, transport and offsite disposal of soils impacted with asbestos. Excavation works will be completed at areas where impacted soils are not considered suitable or onsite insitu containment, or are unsuitable for inclusion within an onsite containment area. Excavated materials will be disposed of in accordance with the requirements of the Protection of Environment (Waste) Regulations 2014, and will be disposed at a facility appropriately licenced by the NSW EPA for the receipt of friable asbestos wastes. Waste transporters will be licenced by the NSW EPA for the transport of asbestos wastes.

The AMP (Golder, 2015) includes general requirements for the management of asbestos works including consultation requirements, licencing requirements, health monitoring and air monitoring requirements. The AMP also includes protocols for un-expected finds of asbestos during future development earth works. It is expected that where warranted the AMP will be updated and reissued at the completion of the MPW Stage 2 Proposal remediation activities.

The AMP includes mitigation measures appropriate for REMMs, 8M, 8N, 8O, 8P, 8Q, 8R, 8P, 8Q, and 8S (refer to Table 1).

- *Remediation and Validation Reports (RVR)* – at the appropriate time and where required, a RVR will be prepared for the MPW Stage 2 Proposal remediation activities. This report(s) will document the remediation and validation activities completed within a specific area. These reports will facilitate the Auditor's review of the remediation and validation activities.

The RVR will include information relevant to the requirement of REMMs 8R, and 8Y (refer to Table 1).

- *Long Term Environmental Management Plan (LTEMP)*, - a site wide LTEMP will be developed at the completion of the MPW Stage 2 Proposal remediation activities and will prescribe the protocols for the ongoing maintenance and /or monitoring or any long term remedial or mitigation measures implemented during the remediation. LTEMP will need to be implemented following completion of the Site Audit Statement. The purpose of the LTEMP would be to:
  - Summarise the nature and known location of residual contamination for information of future occupiers;
  - Assign the responsibilities for management of all aspects of the contamination remaining insitu at the site;
  - Document the type and thickness of the isolation layers present above known contamination soils and foreign materials;
  - Document the location of validated utility corridors for future services, if incorporated into the site redeveloped;
  - Provide an unexpected finds protocol suitable for future redevelopment of the site;



- Address maintenance, monitoring and repair of any installed separation layers;
- Provide the monitoring and management framework for groundwater (i.e. post audit groundwater management plan) including monitoring requirements and reporting frequency; and
- Provide information to assess if contingency actions related to the management of residual contamination are required.

The LTEMP will also include the roles and responsibilities for implementation, the consultation requirements, and licencing requirements. Cessation of LTEMP is unlikely to occur due to the proposed use of separation layers as a remediation strategy, unless further clean-up is undertaken. However, dependent on the monitoring results, there is potential for reduction and/or cessation of groundwater monitoring activities is when the compliance targets have been met on and off the site, and that the remaining risks to groundwater on and off the site are acceptable.

### 5.4 MPW Stage 2 Proposal - Groundwater Monitoring and Management

Residual groundwater contamination, particularly PFAS impacts, are expected to exist on the site following the completion of the remediation and it is therefore expected that ongoing groundwater management will be implemented on the site at the conclusion of the MPW Stage 2 remediation activities. A groundwater monitoring plan (GMP) is expected to be developed at the conclusion of the MPW Stage 2 remediation activities and included within the LTEMP and be considered as part of the Audit for the site.

The areas requiring ongoing groundwater monitoring and the contaminants of concern relevant to each of those areas will be determined at the completion of the remediation works.

The purpose of the GMP is:

- To nominate responsible parties for the residual groundwater issues;
- To manage groundwater contamination at the site and to minimise potential harm to human health and the environment;
- To document the performance of the management of the contamination to allow periodic reassessment of the management approach into the future.

An appropriate GMP would attempt to accomplish the following:

- Establish whether the residual groundwater contamination plume is shrinking, stable, or increasing, and whether natural attenuation and/or migration is occurring according to expectations through line-of-evidence collection;
- Provide appropriate trigger levels (where available), based on the receptor of interest and identified contaminants;
- Serve as a compliance program, so that potential impacts to down-gradient receptors are identified before adverse effect occurs (relative to above objectives); and
- Detect changes in environmental conditions (e.g. hydrogeologic, geochemical or other changes) that may reduce the efficacy of any natural attenuation processes or that could lead to a change in the nature of impact.
- Establish groundwater conditions (i.e. concentrations and/or trends) which indicated that groundwater monitoring could be reduced or ceased and the requirements of the GMP absolved.

A contingency plan is likely to be required should the established trigger levels be attained. The contingency plan describes the framework of increased management efforts to be used or active remediation options to be considered, should the monitoring indicate that contamination is found to be increasing or having an adverse effect on human or environmental health.



As far as possible, the development of a GMP will be undertaken as a part of the LTEMP submission to the Auditor to allow all parties to be clear on the proposed management regime and responsibilities for the site.

## 6.0 CONCLUSIONS

Based on the information presented in this report the following conclusions are made:

- Extensive information is available on the contamination risks on the MPW site and appropriate remediation and/or management actions have been defined within the existing documentation provided to the NSW DPE as part of the MPW Concept Plan Approval. The relevant existing documentation includes:
  - The Preliminary Remediation Action Plan (PB, 2014a),
  - The Validation Plan – Principles (Golder, 2015b); and
  - The Demolition and Remediation Specification (Golder 2015c).
- The majority of the contamination will have been remediated through the activities scheduled for completion as part of the Early Works (Stage 1). The expected outcomes of the Early Works (Stage 1) activities is an RVR which will be provided to an accredited NSW EPA Site Auditor for review. The Site Auditor, once satisfied, will provide a Section A - Site Audit Statement stating that the remediated portions of the site are suitable for commercial / industrial use. The RVR and the Site Audit Statement will be provided to the consent authority to satisfy the obligations under Clause 7(1) of SEPP 55.
- The exception to this is areas where active remediation cannot occur due to the presence of Ecological Endangered Communities (i.e. the stockpile in the vicinity of the former STP and on the Golf Course) and as such, this remediation is delayed as it requires the vegetation to be cleared which is not permitted under the MPW Concept Plan Approval. Therefore, it is proposed that these remediation works be completed as part of the MPW Stage 2 works. At the conclusion of the remediation works a RVR will be prepared and provided to an Accredited NSW EPA Site Auditor for review. The Site Auditor, once satisfied, will provide a Section A – Site Audit Statement stating that these remaining portions of the site are suitable for commercial / industrial use. The RVR and the Site Audit Statement will be provided to the consent authority to satisfy the obligations under Clause 7(1) of SEPP 55.
- The remediation works proposed within the MPW Stage 2 Proposal have been previously assessed and approved as part of the MPW Concept Approval. Therefore, this report, in combination with the documentation previously submitted and approved by the DPE under MPW Concept Approval, is intended to be the full extent of information provided in regards to remediation of contamination for the MPW Stage 2 Proposal.

## 6.1 Recommendations

The remediation strategy proposed for the MPW Stage 2 works will include the application of remediation and / or management approaches to selected contaminants. There is also potential for un-identified contaminants to be encountered during the future development works. As such, it is recommended that the following documents be implemented to manage contamination risks during construction phases of the project:

- **Remediation Action Plan (RAP)** – The proposal contains the balance of the remediation works previously assessed and approved as part of the MPW Concept Approval. Therefore, the following are to be implemented during the works:
  - The Preliminary Remediation Action Plan (PB, 2014a),
  - The Validation Plan – Principles (Golder, 2015b); and



- The Demolition and Remediation Specification (Golder 2015c).

The Auditor may request that a stage specific RAP be prepared and implemented for the MPW Stage 2 Proposal, however, the above mentioned documents are considered appropriate for the assessment of the Proposal. Where required, the MPW Stage 2 remediation works will also draw on the requirements of the site wide *EOW and UXO Management Plan* (G-tek, 2016) and *Asbestos in Soils Management Plan (AMP)* (Golder, 2016).

- **Acid Sulfate Soil Management Plan (ASSMP)** – an ASSMP will be developed in accordance with the ASSMAC Assessment Guidelines (1998), with active ongoing management through the construction phases. Offsite disposal would need to be in accordance with the NSW Waste Classification Guidelines Part 4 Acid Sulfate Soils (2009).
- **Construction Environmental Management Plan (CEMP)** – a CEMP will be developed specific to the MPW Stage 2 proposal. The CEMP will stipulate the actions to be taken should additional contamination be identified during the development of the site (i.e. an unexpected finds protocol), and will include mitigation measures appropriate for the Concept Approval REMM items 8H, 8T, 8U, 8V and 8W (refer to Table 1). Where required the CEMP will also draw on the following requirements:
  - MIC Concept Approval, Ministers Condition of Approval D19;
  - The processes described in the Preliminary RAP (PB, 2014a), the Validation Plan - Principles and the Remediation Specification (Golder 2015c), as well as the above mentioned Stage Specific RAP;
  - The site wide *EOW and UXO Management Plan* which has been established to ensure a safe working environment is established during earthworks.
  - The site wide *Asbestos in Soils Management Plan (AMP)* which has been established to ensure the any management or remediation actions undertaken in relation to asbestos in soils will be undertaken accordance with the Safe Work NSW requirements, including but not limited to the *Guidelines for Managing asbestos in or on soil* (2014), and *Codes of Practice - How to Safely Remove Asbestos* (2011) and *How to Manage and Control Asbestos in the Workplace* (2011).
- **Remediation and Validation Reports (RVR)** – at the appropriate time a RVR is to be prepared for the remediation works completed as part of the Stage 2 works. The RVR will document the remediation and validation activities completed and will facilitate the Auditor's review of the remediation and validation activities. The MPW Stage 2 Proposal, RVR will also include information relevant to the requirement of the Conceptual Approval REMMs items 8R, and 8Y (refer to Table 1).

Furthermore, it is recommended that the **Long Term Environmental Management Plan (LTEMP)**, be revised at the completion of the MPW Stage 2 remediation works. It is expected that the LTEMP be developed at the completion of the Early Works (Stage 1) remediation activities and will prescribe the protocols for the ongoing maintenance and /or monitoring or any long term remedial or mitigation measures implemented during those remediation actions, including a GMP with details on the required ongoing PFAS monitoring and assessments. The LTEMP plan will have been reviewed and approved by the Site Auditor during the preparation of the Early Works (Stage 1) Site Audit Statement, and will include a condition that it be implemented during the future operations including during the Stage 2 works. The revisions to the LTEMP will be presented to the Site Auditor for consideration in the preparation of the Stage 2 Site Audit Statement. It is also expected that the certificate of title will include a note identifying the existence of the Long Term Environmental Management Plan and the obligation of the land owner to implement the plan for perpetuity.



### 7.0 IMPORTANT INFORMATION PERTAINING TO THIS REPORT

Your attention is drawn to the document titled - "Important Information Relating to this Report" (Appendix B), which is attached to this report. The statements presented in that document are intended to inform a reader of the report about its proper use. There are important limitations as to who can use the report and how it can be used. It is important that a reader of the report understands and has realistic expectations about those matters. The Important Information document does not alter the obligations Golder Associates has under the contract between it and its client.



### 8.0 REFERENCES

- |                       |   |
|-----------------------|---|
| DEC, NSW 2006         | <i>Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (2nd Edition).</i>  |
| DEC, NSW 2007         | <i>Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination.</i>   |
| NSW OEH 2011          | <i>Guidelines for Consultants Reporting on Contaminated Sites</i>   |
| NSW EPA, 2014         | <i>Waste Classification Guidelines: Part 1 Classifying Wastes</i> , NSW EPA November 2014.  |
| DUAP and NSW EPA 1998 | <i>Managing Land Contamination, Planning Guidelines, SEPP 55 – Remediation of Land</i> , Department of Urban Affairs and Planning and NSW Environment Protection Authority; |
| NEPC 2013             | <i>National Environment Protection (Assessment of Site Contamination) Measure 1999</i> , National Environment Protection Council, 2013.                                     |
| NSW EPA 2014          | <i>Best Practice Note: Landfarming</i>  |
| NSW EPA 1995          | <i>Contaminated Sites: Sampling Design Guidelines;</i>  |
| WA DoH, 2009          | Western Australia Department of Health, <i>Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia</i> , 2009.        |



## Report Signature Page

**GOLDER ASSOCIATES PTY LTD**

A handwritten signature in blue ink, appearing to be 'g' followed by a stylized flourish.

Greg Stratton  
Principal Environmental Scientist

GVS/gvs

A.B.N. 64 006 107 857

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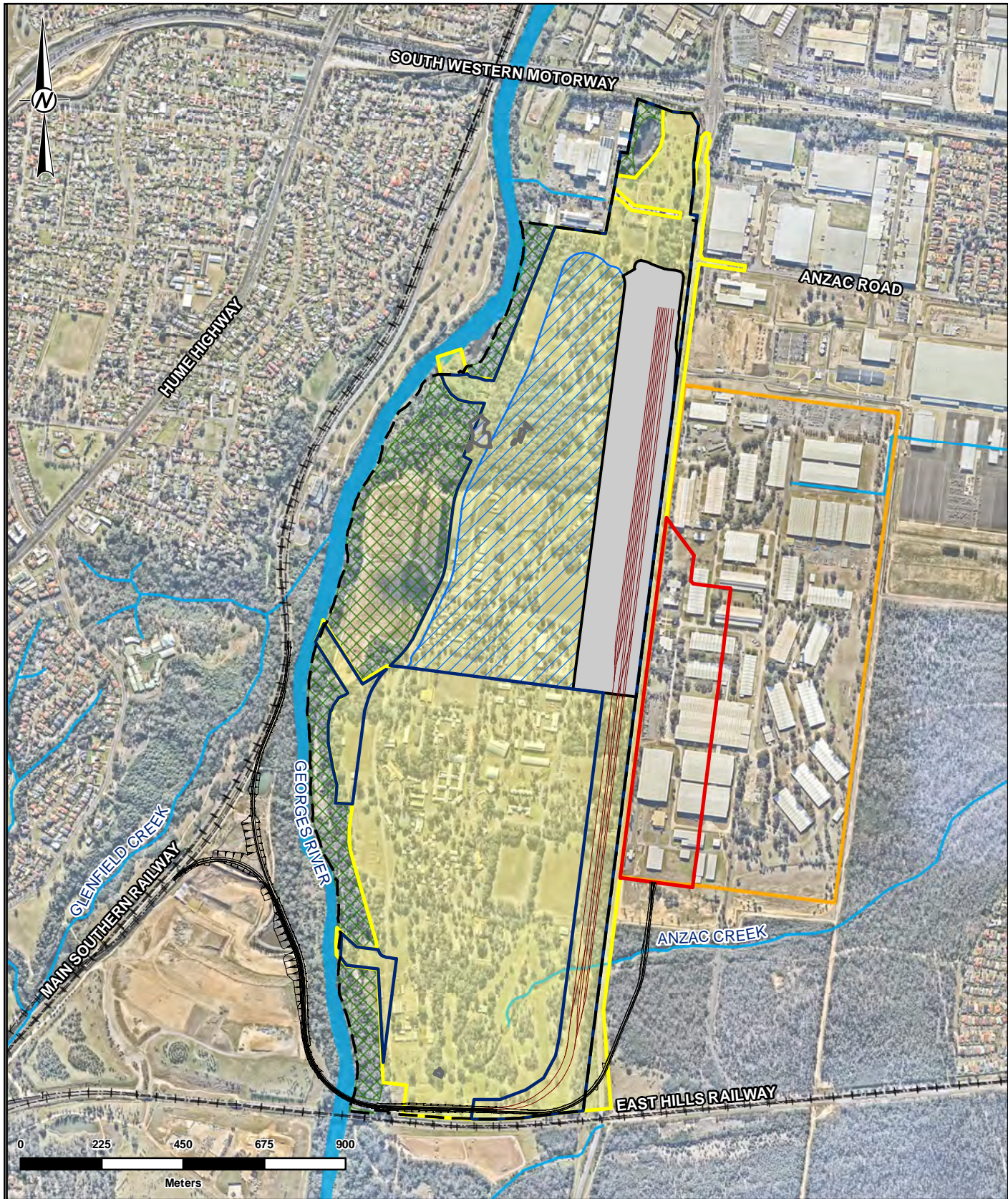
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# APPENDIX A

## Figures





#### LEGEND

- |                       |                           |                      |                  |
|-----------------------|---------------------------|----------------------|------------------|
| MPW site boundary     | SIMTA site                | Rail link connection | Watercourse      |
| Operational area      | SIMTA stage 1 site        | IMT facility area    | Existing railway |
| Construction area     | Remediation area: Stage 2 | MPW stage 2 site     |                  |
| Warehousing footprint | Rail link                 | Conservation area    |                  |

#### NOTES

1. The Approximate Site Boundary represents the spatial extent of the Golder investigation area on this project.

#### REFERENCE

1. Aerial Photography Copyright NearMap Pty Ltd.

REFERENCE SCALE: 1:15,000 (at A4)  
PROJECTION: GDA94 MGA zone 56

CLIENT  
SIMTA

PROJECT  
MPW STAGE 2 SSD APPLICATION

TITLE  
PROPOSED REMEDIATION STAGING PLAN: MPW.  
SITE OVERVIEW

CONSULTANT



PROJECT  
1651776

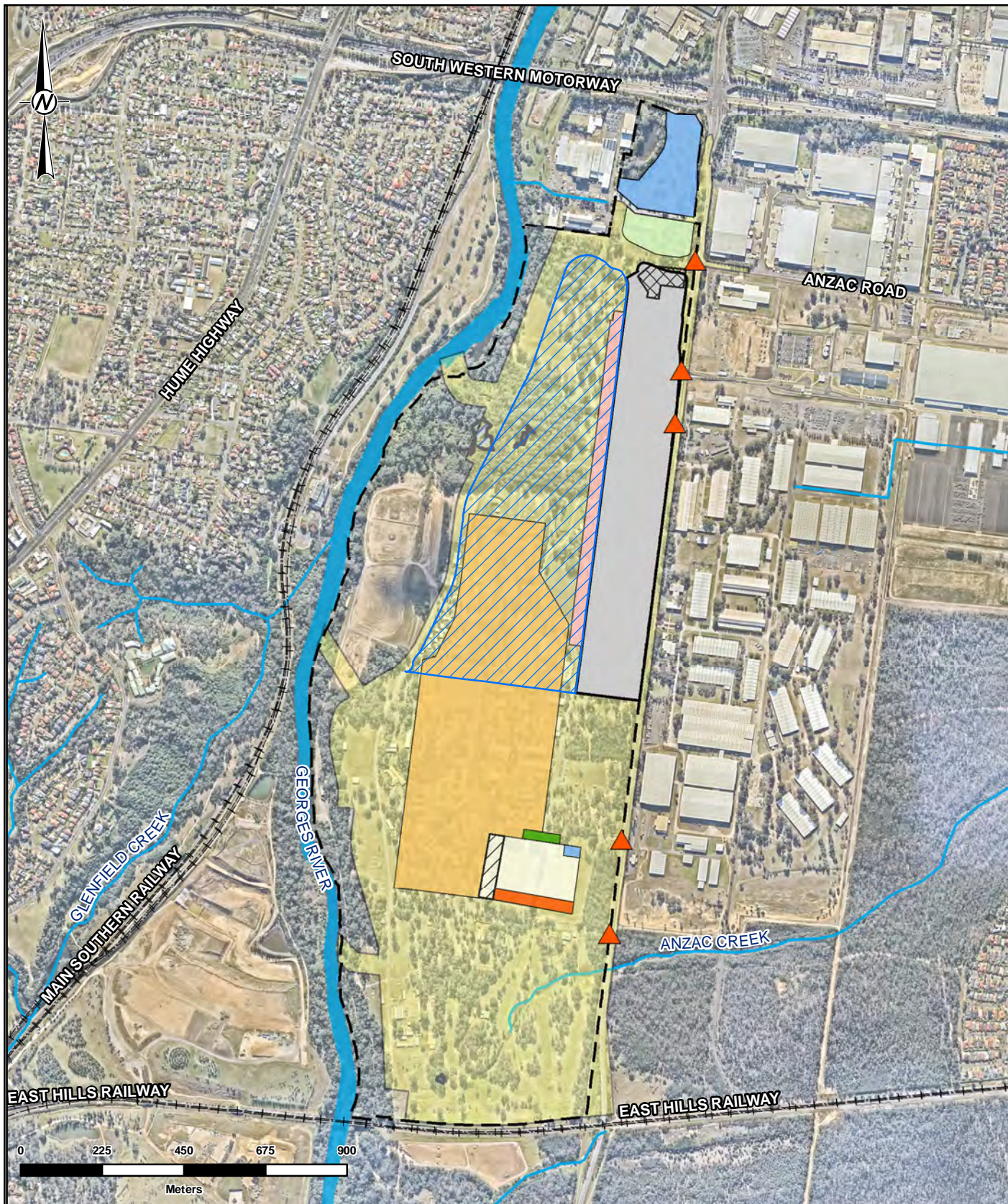
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PREPARED	KJS
DESIGN	-
REVIEW	GVS
APPROVED	GVS

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FIGURE  
001





#### LEGEND

- |                          |  |  |                           |
|--------------------------|--|--|---------------------------|
| MPW site                 | Materials crushing and batching plant (option 2) | Earthworks Compound                            | Remediation area: Stage 2 |
| IMT facility area        | Construction Parking Area                        | Pre-construction & bulk earthworks stockpiling | Watercourse               |
| Construction site access | IMT facility                                     | Truck marshalling area                         | Existing railway          |
| Construction             | Rail compound                                    | Warehousing                                    |                           |
| Batch Plant (option)     | Offices  |  |                           |

#### NOTES

1. The Approximate Site Boundary represents the spatial extent of the Golder investigation area on this project.

#### REFERENCE

1. Aerial Photography Copyright NearMap Pty Ltd.

REFERENCE SCALE: 1:15,000 (at A4)  
PROJECTION: GDA94 MGA zone 56

CLIENT  
SIMTA

PROJECT  
MPW STAGE2 SSD APPLICATION

TITLE  
PROPOSED REMEDIATION STAGING PLAN: MPW.  
CONSTRUCTION AREA

CONSULTANT



PROJECT  
1651776

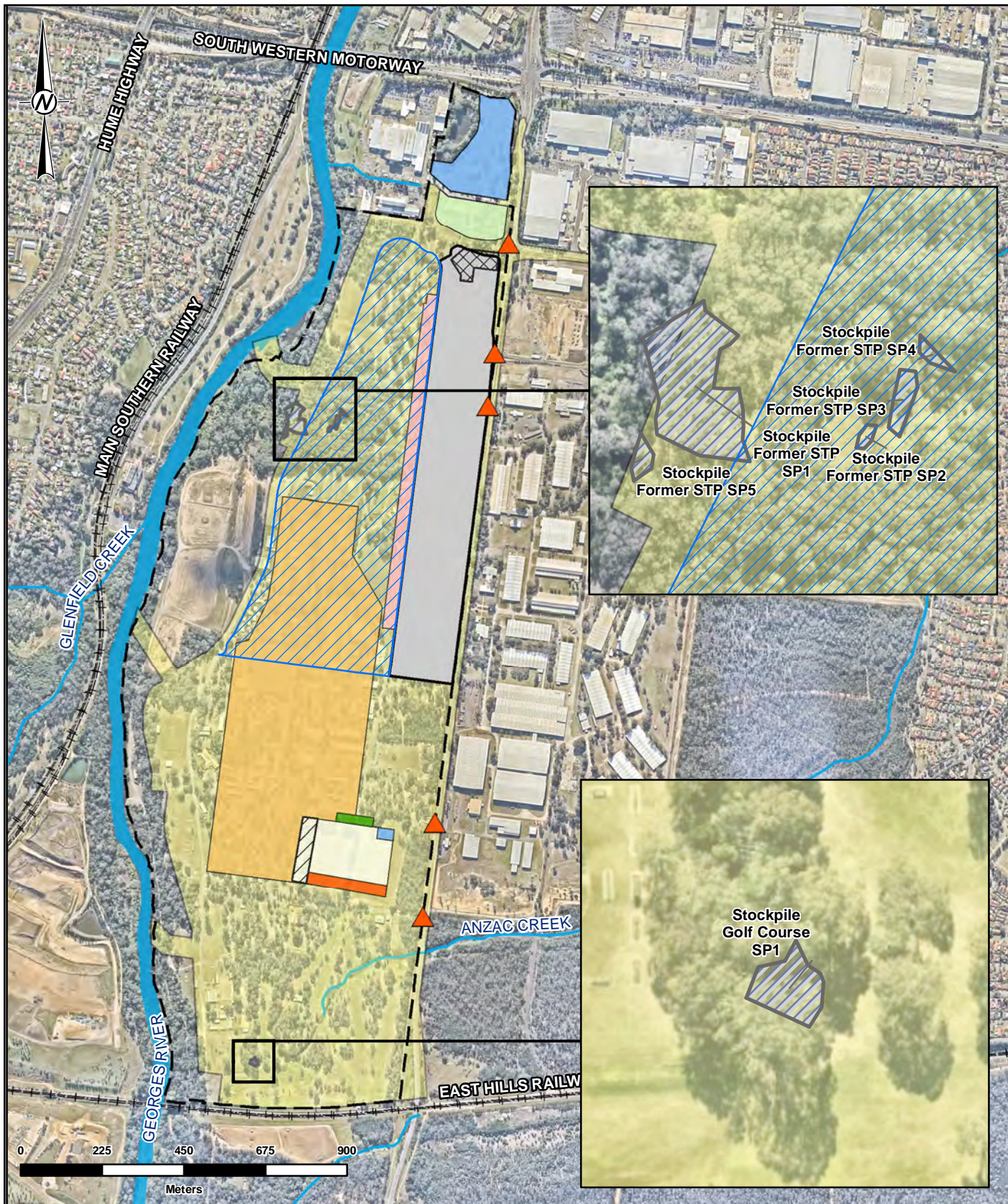
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YYYY-MM-DD	2016-07-29
PREPARED	KJS
DESIGN	-
REVIEW	GVS
APPROVED	GVS

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FIGURE  
002





#### LEGEND

- |                      |  |  |                         |
|----------------------|--|--|-------------------------|
| MIC site             | Materials crushing and batching plant (option 2) | Offices  | Warehousing             |
| IMT facility area    | Earthworks Compound                              | Pre-construction & bulk earthworks stockpiling | Remediation area: Stage |
| Construction         | Construction Parking Area                        | Truck marshalling area                         | Existing                |
| Construction site    | IMT facility                                     |  |                         |
| Batch Plant (option) | Rail compound                                    |  |                         |

#### NOTES

1. The Approximate Site Boundary represents the spatial extent of the Golder investigation area on this project.

#### REFERENCE

1. Aerial Photography Copyright NearMap Pty Ltd.

REFERENCE SCALE: 1:15,000 (at A4)  
PROJECTION: GDA94 MGA zone 56

CLIENT  
SIMTA

PROJECT  
MPW STAGE2 SSD APPLICATION

TITLE  
PROPOSED REMEDIATION STAGING PLAN: MPW.  
REMEDIATION AREA

CONSULTANT



PROJECT  
1651776

DOCUMENT  
001-P

YYYY-MM-DD	2016-07-29
PREPARED	KJS
DESIGN	-
REVIEW	GVS
APPROVED	GVS

Rev.  
1

FIGURE  
003





# APPENDIX B

## Important Information Related to this Report



## IMPORTANT INFORMATION RELATING TO THIS REPORT

The document ("Report") to which this page is attached and which this page forms a part of, has been issued by Golder Associates Pty Ltd ("Golder") subject to the important limitations and other qualifications set out below.

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The scope of Golder's Services and the period of time they relate to are determined by the Contract and are subject to restrictions and limitations set out in the Contract. If a service or other work is not expressly referred to in this Report, do not assume that it has been provided or performed. If a matter is not addressed in this Report, do not assume that any determination has been made by Golder in regards to it.

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Having regard to the matters referred to in the previous paragraphs on this page in particular, carrying out the Services has allowed Golder to form no more than an opinion as to the actual conditions at any relevant location. That opinion is necessarily constrained by the extent of the information collected by Golder or otherwise made available to Golder. Further, the passage of time may affect the accuracy, applicability or usefulness of the opinions, assessments or other information in this Report. This Report is based upon the information and other circumstances that existed and were known to Golder when the Services were performed and this Report was prepared. Golder has not considered the effect of any possible future developments including physical changes to any relevant location or changes to any laws or regulations relevant to such location.

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