

Chapter 6

Further clarifications and technical investigations



6. Further clarifications and technical investigations

This chapter provides details of technical investigations that have been undertaken since the exhibition of the Response to Submissions report.

6.1 Revised development phasing and staging

6.1.1 New Rail Access Alignment

The Response to Submissions report confirmed that the southern rail access into the Moorebank Terminal was the preferred rail access option. Due to the precinct development approach now adopted for the intermodal terminal at Moorebank, this southern rail alignment is the same alignment as SIMTA rail access. As discussed in section 1.3 of this report, only one rail access will be constructed, and SIMTA will be responsible for this.

The detailed design for the rail bridge over Georges River is further advanced for the SIMTA project (SSD 6766) compared to the Moorebank Intermodal Terminal Project which is currently at concept approval stage.

The SIMTA EIS prepared for the Stage 1 SSD application (SSD 6766) describes the proposed works for the southern rail access and then addresses the environmental impacts associated with the southern rail access. The environmental impacts assessed by SIMTA as part of its Stage 1 SSD application will also be applicable to the Moorebank Intermodal Terminal Project.

A summary of the specific impacts relating to the southern rail access include:

- Noise:
 - > Construction: Noise levels due to the construction of the southern rail access are predicted to be up to 9 dB(A) above the noise management levels. Accordingly, this could be managed in accordance with the Interim Construction Noise Management Guidelines and the preparation of a construction noise management plan to identify and apply all reasonable and feasible construction noise mitigation measures to manage the short-term noise impacts associated with construction.
 - > Operation: The modelling undertaken by SIMTA has predicted that noise generated by operation of the southern rail access would exceed the applicable rail noise criteria at one receiver when rail curve squeal is taken into consideration without mitigation. Friction modifiers would be applied where rail curve squeal is likely to occur.
- Surface water: Stormwater management structures associated with the southern rail access would seek to maintain the existing hydrological regime and swales are proposed to manage stormwater within the rail access to minimise pollutant loads.
- Biodiversity: Chapter 14 of the SIMTA EIS describes the impacts on Biodiversity. The southern rail access includes the some removal of Hard-leaved Scribbly Gum - Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin/Castlereagh Scribbly Gum Woodland and the Forest Red Gum – Rough-barked apple, grassy woodland on alluvial flats of the Cumberland Plain Sydney Basin.

- Contamination: The southern rail access would disturb or compromise the integrity of the lining or barrier systems that currently exist within the Glenfield Waste site. Augmentation and/or relocation and the facility's leachate pond may also require relocation, subject to further geotechnical investigations. Once the need for augmentation and/or relocation has been determined further sampling would be undertaken for any contaminants of potential concern (COPC) and Remediation Action Plans developed, if required.
- Indigenous heritage: The construction of the southern rail access would directly impact one Aboriginal site, MA14 (artefact scatter and deposit) on the eastern bank of Georges River. The rail alignment traverses through the southern portion of MA14 impacting approximately 20 percent, or 2,000 m², of total site area.
- Non-indigenous heritage:
 - > Construction of the rail access has the potential to result in temporary impacts (visual, noise and air) on the listed Glenfield Farm Group heritage items, due to the location and operation of plant and equipment and vehicle movements during construction.
 - > The rail access would traverse through a small part, alongside the southern boundary, of the MIC site. Impacts would be limited to a small portion of the MIC site (which is subject to previous disturbance), and would not have any impact on the heritage significance of the item(s) located on this site.
 - > The southern rail access on the Glenfield Waste site is assessed as having no archaeological potential.
- Visual amenity: the southern rail access would be visible from some viewpoints, however these are in locations where the viewing period is very short (i.e. from a transportation corridors including immediately adjacent road and rail infrastructure). The southern rail access is also located within or adjacent to existing rail infrastructure which is characteristic of the existing surrounds.

The management and mitigation measures described in Table 7.1 of this report have been reviewed by SIMTA to ensure they are consistent with their EIS for the southern rail access.

6.1.2 New Phasing plans

Now that the Commonwealth Government has approved the agreement with SIMTA, the master planning for the Moorebank precinct can commence.

Under the agreement between MIC and SIMTA, SIMTA is responsible for obtaining the planning approvals to build each stage of the combined precinct. SIMTA is currently seeking the first of these approvals – approval to build the first stage of the IMEX terminal and warehousing on SIMTA land in the precinct. At the same time, MIC is completing the process already underway to obtain a concept approval for the MIC land in the precinct. After the concept approval is granted, SIMTA will be responsible for all subsequent planning approvals in the precinct. The approach of seeking concept approval for the Moorebank site has not changed. However, due to the agreement with SIMTA, the development phasing has changed since the exhibition of the Response to Submissions report. The change is relatively minor and reflects different priorities for construction of the IMEX and Interstate terminals. Each stage of development (with the exception of Early Works) will be subject to its own detailed EIS (Stage 2 SSD approval applications) which will provide an opportunity for the Project stages and timing to be determined in detail. A summary of the alternative phasing (referred to as the 'Option 2' phasing – see Figure 6.1) comprises:

1. Early Works (2015), including Rehabilitation Works – subject to the current concept approval application.

2. Phase A (2016–2017) – construction of 250,000 TEU Interstate terminal, 100,000 sq. m of warehousing and construction of the southern rail link.
3. Phase B (2018–2020) – the phase would commence with the operation of a 250,000 TEU interstate terminal and 100,000 sq. m of warehousing, as well as the construction of a 500,000 TEU IMEX rail terminal, which would become operational in mid-2019.
4. Phase C (2021–2029) – the phase would commence with operation of a 500,000 TEU IMEX terminal, 100,000 sq. m of warehousing and a 250,000 TEU interstate terminal. Additional construction activities during Phase C (which would become operational once completed) comprise the construction of 150,000 sq. m of warehousing and a 250,000 TEU IMEX (mid 2022 to end 2023 approx.), construction of an additional 300,000 TEU IMEX (in 2027); and construction of an additional 250,000 TEU interstate capacity and 50,000 sq. m of warehousing (in 2029).
5. Full Build (from 2030) – operation of a 1.05 million TEU IMEX terminal, a 500,000 TEU interstate terminal and 300,000 sq. m of warehousing.

Figure 6.1 below shows the comparison between the phasing presented in the Response to Submissions report and the revised phasing presented in this report.

From an impact assessment perspective, the impact associated with the revised development phasing do not change, because the construction and operational activities associated with IMEX and interstate activities are relatively similar and the predicted timing of these works has not changed.

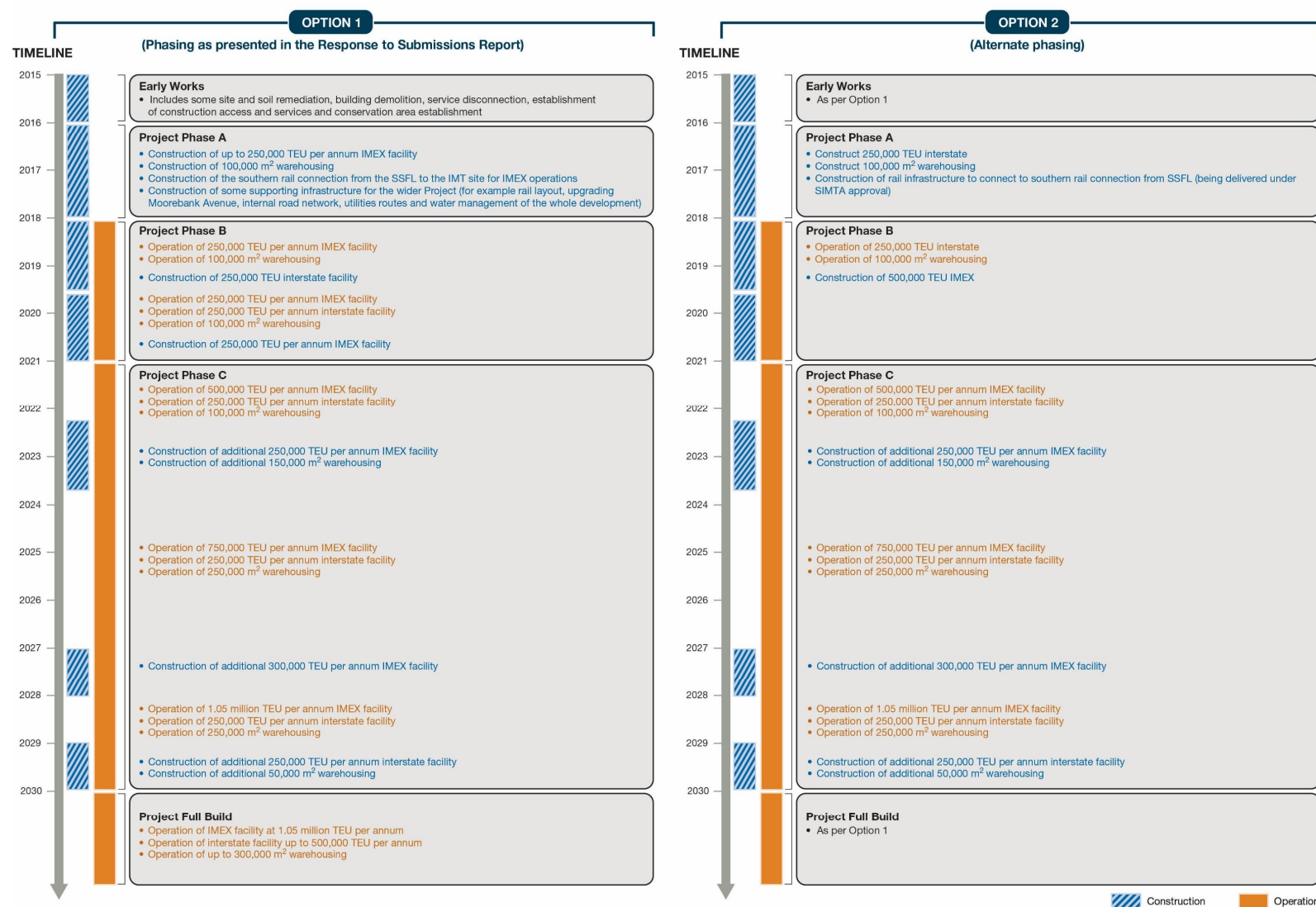


Figure 6.1 Project development phasing

6.1.3 Revised summary of Early works

Section 7.5 of Chapter 7 – *Proposed amendments to the development* of the Response to Submissions Report described the Early Works component of the Project which comprised Early Works as presented in the EIS and Rehabilitation Works, which was previously excluded from the EIS. The purpose of including the Rehabilitation Works into the EIS approval is that it will enable SIMTA as the future site developer and operator, if the agreement conditions are met, to undertake these works as part of the Early Works package. The Rehabilitation Works were shown on Figure 7.4 of the Response to Submissions report.

The Early Works will include all of the activities listed as part of the proposed Rehabilitation Works but will also include broader remediation activities as described in the Early Works activities. Therefore Figure 7.4 is not a representation of the remediation works proposed for the site and will be superseded by the *site remediation specification and validation plan principles* currently being prepared by MIC.

6.2 Biodiversity Offset Strategy

The proposed biodiversity offset strategy (BOS) (Appendix A) has been revised to incorporate changes made as a result of submissions received during the EIS exhibition process and to reflect the results of additional targeted threatened flora surveys conducted within the proposed offset lands.

MIC is committed to providing appropriate biodiversity offsets in accordance with requirements set out under the Framework for Biodiversity Assessment (FBA). Achieving compliance with this framework is continuing to be explored through the establishment of a BioBanking agreement. In achieving this outcome, biodiversity offset calculations have now been completed using Version 4.0 of the BioBanking credit calculator and incorporate strategic landscape assessment as required under the FBA. (Refer to Appendix B – Biodiversity Assessment Report, of the BOS in Appendix A of this report). Updates to species credits have been based on additional detailed targeted threatened flora surveys that were carried out over the proposed offset lands.

The proposed biodiversity offset strategy consists of a dual direct offset approach including offsets both within and outside the Project site to achieve an improved conservation outcome combining the long-term protection and/or enhancement of existing habitat in moderate to good condition with the restoration, rehabilitation and re-establishment of habitat in moderate condition.

Three offset sites have been identified which provide 119.6 ha of land suitable for use as offsets for the EPBC Act and TSC Act listed Threatened species and endangered ecological communities.

The offsets are proportionate to the impact in both size and scale, providing between 108% and 236% of the offset requirements for impacted biodiversity under the EPBC Act, through which a ratio (offset: clearing) of approximately 2.5:1 has been secured under the currently proposed offsets.

The proposed offsets meet some of the Projects ecosystem credit requirements in accordance with the FBA and NSW Offset Policy 2014. A residual offset of 656 ecosystem credits (approximately 64.5 ha) of Alluvial woodland is required. MIC is committed to providing an offset that adequately meets quantum of the offset requirements under the FBA and Offset Policy 2014, including any residual offsets for Alluvial Woodland and Castlereagh Scribbly Gum Woodland.

The proposed offsets strategy is underpinned by sound ecological principles to improve or maintain the existing biodiversity values of the local area.

The BOS is an ongoing evolving document that will continue to be developed in conjunction with OEH to ensure all impacts are proportionally offset in accordance with FBA.

6.3 Post Phase 2 Environmental Site Assessment

A Post Phase 2 Environmental Site Assessment (PP2 ESA) was completed by Golder Associates to further delineate and characterise the site contamination identified during the EIS (Technical Paper 5 – Environmental Site Assessment (Phase 2) in EIS Volume 5). The PP2 ESA was completed as part of a larger Geotechnical investigation program at the site. These investigations were undertaken in accordance with the Sampling and Analysis and Quality Plan (SAQP) (Golder Associates 2014a).

6.3.1 Methodology

The objectives of the assessment were to:

- Investigate data gaps identified in the preliminary Remediation Action Plan (Parsons Brinckerhoff 2014); and
- Gather supporting information required to develop a remediation specification and validation plan – principles (Refer to section 6.4 for more information).

A summary of the geotechnical investigation works and the specific geochemical investigation scope is provided in Table 6.1 below.

Table 6.1 Summary of Geotechnical/Geochemical scope

Investigation technique	Total completed
Geotechnical Scope	
Boreholes	17
Cone Penetration Tests (CPTs)	55
Test pits	<ul style="list-style-type: none"> • 3 in the former training village • 3 on shallow refusal of CPTs • 1 in Boot Toe area (located on the eastern side of Moorebank Avenue) • 15 in the Moorebank Avenue Relocation Corridor.
Specific Geochemical Scope	
Membrane Interface Probing (MIP)	13 MIP locations 14 hand auger locations
Test pits	17
Hand augers	3
Soil vapour wells	2
Concrete Cores	4
Surface samples	8

The details of the geotechnical investigations are presented in the Geotechnical Data Report (Golder 2014b) and the Geotechnical Interpretive Report (Golder 2014c). The geochemical investigation works included:

- Investigation of acid sulfate soils present in the site.
- Assessment of chlorinated solvent impacted groundwater.
- Investigation of potential anthropogenic fill materials in the former training village area, in suspected tip sites and in general fill materials across the Project site.

- An audit of potential and current underground storage tanks (USTs).
- Assessment of hot spots identified during previous investigations.
- Investigation of potential organochlorine pesticides (OCPs) beneath buildings.
- Investigation of potential polychlorinated biyhenyls (PCBs) in sub-stations.
- Investigation of potential underground services either containing or made of hazardous material.
- Assessment of the volume of sediment in drainage lines and dams.
- Preparation of this report, a Validation Plan (see section 6.4 of this report) and a Remediation Specification.

6.3.2 Discussion

The following conclusions were made base based upon the PP2 ESA investigations undertaken:

- Acid Sulfate Soils (ASS) – Acidic soils were identified on the Project site particularly near BH 104 and 106 in the southern portion of the Moorebank Intermodal site, however these do not appear to be associated with the oxidisation of sulfides. The source of the acidity is not known, however, the soils will require management during construction. A liming rate of 2.7–3.3 kg/m³ was calculated as a treatment strategy.
- Trichloroethane (TCE) Investigations – investigations in the north western portion of the site identified chlorinated compounds (predominately in the form of TCE) in shallow soils and groundwater. The source of the TCE impacts are not known, however are thought to be associated with direct release of TCE from the adjoining property to the soil, infiltration of TCE impacted surface waters or migration of TCE impacted groundwater and subsequent adsorption TCE vapour into the overlying soil profile.

Groundwater concentrations in MWBHB1 remain above the adopted ecological trigger value however based on the decreasing trend at this location, it is considered unlikely that the chlorinated hydrocarbons will adversely impacts the Georges River.

The soil vapour assessment completed in the TCE impacted areas identified soil vapour concentrations significantly exceeding the adopted human health criteria. A tier 2 quantitative human health risk assessment (QHHRA) is proposed to assess the identified TCE risk and to assist with determining an appropriate management response to the identified vapour concentrations.

- Underground Storage Tank (UST) Audit – the UST audit identified 2 steel USTs, 10 in-ground concrete tanks and 2 concrete septic tanks.
- Former Plant, Road and Airfield (PRA) Yard Investigation – No USTs were identified during the associated Ground Penetrating Radar (GPR) survey and intrusive investigations undertaken in the vicinity of the Former PRA Yard did not identify significant hydrocarbon contamination in soil.
- Former village training area – No significant volumes of anthropogenic fill materials, or contaminated materials were encountered during the intrusive investigations. However, it is likely that the materials used to construct the training tunnels remain in-situ.
- Anthropogenic Fill – There were no reported exceedances of the adopted soil assessment criteria from the additional anthropogenic fill investigation area, namely the former drainage trench, the 'Dry Gap' training area or behind the retaining walls along the Georges River.

- General fill: The investigations identified no exceedances of the adopted soil assessment criteria with the exception of benzo(a)pyrene (B(a)P) in four surface samples which exceeded the adopted commercial/industrial ecological screening levels (ESL). The detected concentrations of B(a)P will require management during the future development of the Moorebank Intermodal Terminal to ensure materials are not placed in the shallow soil profile.

Friable asbestos was detected in three surface samples. The concentration of one of these samples (CPT134) located in the north western portion of the site, exceeded the adopted assessment criteria for friable asbestos. It is likely to be restricted to shallow fill materials and is unlikely to have impacted on the underlying natural materials.

- Hot spots – Elevated metal concentrations were detected near the Grit Blast Facility. The material will require remediation or management during the development of the site.
- Stockpiles – Approximately 4,700 m³ of stockpiled materials was encountered during the investigation.
- Organochlorine Pesticides (OCP) Investigations – During the assessment of selected buildings, OCP impacted materials were detected beneath Building 51 and will require specific remediation or management during the development of the site.
- Polychlorinated Biphenyls (PCB) Investigations – Six electrical substations were identified during the investigation. Within the Remediation Specification each known substation will be identified and the footprint of the potential contamination included as an area requiring limited action or management.
- Sediment Investigation – Within the surface drains and ponds, the total estimated volume of sediment was approximately 12,500 m³. Based on the previous sampling events (EIS Technical Paper 5 – *Environmental Site Assessment*) the sediments could be reused onsite subject to the sediment being geotechnically suitable or disposed offsite as General Solid Waste.
- Groundwater Monitoring – based on the results of the groundwater monitoring, no significant groundwater impacts were identified and the results are generally similar to results reported during previous investigations.

The following recommendations are made based on the PP2 ESA investigations described in this report, these recommendations are also included in Chapter 7 – *Revised environmental management measures* of this report:

- Tier 2 Quantitative Human Health Risk Assessment (QRA) is recommended to be undertaken subject to the results of the second round of vapour sampling scheduled for June 2015 to quantitatively assess the potential risks to possible future open space and/or commercial/industrial land use receptors posed by the identified TCE concentrations in the north west portion of the Project site. The Tier 2 QRA can also be used to assist with determining an appropriate management response to the identified vapour concentrations.
- Consider undertaking further investigations to determine whether other buildings have OCP impacts subgrade materials, and to quantify the volume of OCP impacted materials across the Moorebank Intermodal Terminal site.
- Consider undertaking further assessment of AFFF chemicals (including perfluorinated chemical), with the objective of developing a monitoring and management program.

- Consider implementing a routine groundwater monitoring program as part of the long term EMP, this groundwater monitoring should include the assessment of formaldehyde concentrations in the vicinity of Parsons Brinckerhoff Area 16, and the zinc concentrations observed in the centre of the site.

6.4 Site validation plan – principles

The Moorebank Intermodal Terminal site has been subject to numerous investigations and limited contamination has been identified. It is therefore not considered warranted to undertake a broad area, grid-based validation sampling program. The purpose of the site validation plan (Golder Associates, 2015b) was to set out the principles for validating the successful completion of remediation works appropriate to specific staged developments.

Remediation will be undertaken at each phase of the Moorebank Intermodal Terminal project and therefore the site validation will also be implemented in several stages, commencing with the early works.

