

Date 2/11/2018
To Steve Ryan (Tactical Group)
From Westley Owers (Arcadis)/ Richard Johnson (Aspect)
Copy to Nathan Cairney (Tactical Group)
Subject MPW Stage 2 – DP&E assessment matrix – SIMTA summary response

Table 1 provides a summary of the comments raised by DP&E on 25 October 2018 in the MPW Stage 2 “Assessment Matrix”. The following classification (based on DP&E’s response) has been given to comments raised by DP&E:

- Outstanding items to be addressed (i.e. not covered by the provided content) preventing progression of the assessment - Outstanding item
- Items that have not been addressed adequately to enable progression of the assessment - item not considered adequate
- Supplementary items (information) to further support provided content from that provided to enable progression of the assessment - supplementary item.

This memorandum has been prepared based on discussions in the meeting with DP&E and SIMTA on 29/10/2018.

This memorandum makes reference to previous submissions in particular the response in relation to DP&E’s January 2018 submission (dated 27/03/2018) (referred to as ‘January 2018 DP&E response submission’) and response in relation to DP&E’s August 2018 submission (dated 11/10/2018) (referred to as ‘August 2018 DP&E response’). Based on the commentary provided this memorandum identifies questions for further discussion with DP&E and items, in SIMTA’s opinion, that are believed to be closed and resolved.

Excerpts of information (previously submitted and additional information) has been provided at the following locations:

- Review of noise assessment and mitigation measures for the noise wall consideration – [Appendix A](#)
- Civil Design Drawings and further earthworks plans– [Appendix B](#)
- Top of bank and riparian corridor measurements - [Appendix C](#)
- Final Compilation of Mitigation Measures (FCMMs) - [Appendix D](#)
- Endeavour Energy meeting minutes - [Appendix E](#)
- Alluvium stormwater response (dated 27/03/2018) - [Appendix F](#)
- Landscape Plans (identifying upstream treatment) - [Appendix G](#)
- Architectural Plans - [Appendix H](#)
- Government Architect response (dated 3/7/2017) - [Appendix I](#)
- Staging information (including earthworks quantities) - [Appendix J](#)
- JBS&G contamination management advice - [Appendix K](#)

- Fencing descriptions - [Appendix L](#)
- Employee Outdoor Meal Break areas - [Appendix M](#)
- Batching plant information - [Appendix N](#)

An overview (for further discussion) to DP&E's comments is provided within Table 1.

Table 1 Summary of DP&E comments

Issues for Assessment – Assessment Report unable to be Finalised	DP&E previous Classification	Initial response	Discussion notes
Key issues			
1. unable to assess operational noise impacts	Item not considered adequate	<ul style="list-style-type: none"> A review of noise assessment and mitigation measures for the noise wall consideration has been prepared and provided within Appendix A. 	Considered addressed.
2. unable to assess impacts of fill importation and filling the site including impacts on adjoining sites and conservation area at edge of proposed fill	Outstanding item	<ul style="list-style-type: none"> Further information in relation to fill importation and filling (particularly at the edge of the fill and the conservation area) is provided within the Civil Design Drawings (MPW2-ARC-CV-DWG-0121) – Refer to Appendix B. 	Considered addressed.
3. unable to determine whether site layout complies with concept condition E16 – All future Development Applications shall include the following riparian corridor widths (measured from the top of bank): <ul style="list-style-type: none"> a minimum of 50 metres wide associated with the rail corridor; and a minimum of 40 metres wide along the terminal site 	Item not considered adequate	<ul style="list-style-type: none"> Refer to Appendix C. Top of bank has been measured from the low flow water mark based on GIS imagery only. Survey is not able to be undertaken in this area due to topographical and dense bushland constraints. Note that there has no change from MPW Concept Approval (i.e. no encroachment). No construction works would be included within these identified setbacks (with the exception of drainage channels). 	Considered addressed.
4. landowner’s consent for works on Crown lands	Item not considered adequate	<ul style="list-style-type: none"> FCMM OE has been included should works be undertaken within the Georges River. Refer to Appendix D. 	Considered addressed.

Issues for Assessment – Assessment Report unable to be Finalised	DP&E previous Classification	Initial response	Discussion notes
5. RMS landowner's consent	N/A	<ul style="list-style-type: none"> It is understood that the VPA would be on exhibition in early November 2018. 	
6. agreement of Endeavour Energy for stormwater works in electricity line easement	Item not considered adequate	<ul style="list-style-type: none"> Meeting minutes in relation to Endeavour Energy discussions has are provided within Appendix E. Information no relevant to the MPW Stage 2 Proposal has been redacted. 	Considered addressed.
7. elements of stormwater design still inconsistent with WSUD principles, Council DCP, Policies, Guidelines and Specifications, current practice and Alluvium recommendations/ relevant MPE Stage 2 conditions	Item not considered adequate	<ul style="list-style-type: none"> Stormwater approach is consistent with all of the principles mentioned. A full response to Alluvium's comments (which remains concurrent) has been provided in the January 2018 DP&E response submission (dated 27/03/2018) within Appendix F. Note that batters are included in all basins, with Basin 6 comprising batters on all four sides, and Basins 5 and 8 comprising a mixture of batters and walls. Upstream treatment (within landscaped areas – adjacent to car parking) has also been provided – refer to Appendix G. 	Considered addressed. For discussion with DP&E.
8. integration of MPW and MPE stormwater drainage - unable to determine how stormwater from MPE Stage 1 is managed (OSD and treatment)	Item not considered adequate	<ul style="list-style-type: none"> Refer to Civil Design Drawings (MPW2-ARC-CV-DWG-0201) – Refer to Appendix B. Note that the stormwater design includes an integrated solution and as a result part of MPE Stage 1 and 2 would be treated in OSD 10 (approved under MPE Stage 2 Approval), which has been sized appropriately to cater for these catchments as outlined in the stormwater impact assessment. 	Considered addressed.
9. unable to determine if adequate landscape area has been provided or landscape areas are consistent with relevant MPE Stage 2 conditions	Item not considered adequate	<ul style="list-style-type: none"> Revised Architectural Plans (showing landscape measurements) would be provided subsequent to this submission. Strip planting within car parking has been accommodated by realignment of car parking and relocation of landscaping (i.e. adjacent landscaping has been relocated to within car parking areas). This allows for a greater integration of landscaping. 	For discussion with DP&E. Information to be provided subsequent to this submission.

Issues for Assessment – Assessment Report unable to be Finalised	DP&E previous Classification	Initial response	Discussion notes
		<ul style="list-style-type: none"> A response to the GA comments was provided to DP&E in July 2017 – refer to Appendix I. The updates included within the August 2018 DP&E response submission further respond to these comments by emphasizing green space and committing to a reduction in the potential urban heat island effect. 	
10. unable to assess how site fill importation and earthworks will be managed	Outstanding item	<ul style="list-style-type: none"> Further earthworks information has been provided – refer to Appendix B. Detailed staging information, in particular, separating fill importation stages across the site, has been provided in the most recent submission and has been updated to include earthworks quantities– refer to Appendix J. FCMM 1H further restricts the importation of fill (and thereby truck movements) limiting a maximum of 22,000m³ of fill material each day – refer to Appendix D. Entire site (inc. southern area) needs to be filled to achieve a suitable stormwater approach. 	Considered addressed.
11. no specialist information to assess whether permanent contamination management infrastructure is required	Item not considered adequate	<ul style="list-style-type: none"> It is noted that the site auditor is not the appropriate entity to provide this advice. The site auditor performs auditing services of the environmental/contamination consultant’s work, and therefore the environmental/contamination consultant is the most suitable specialist to provide the advice. JBS&G have prepared a response to confirm the approach to contamination management for the MPW site (MPW Stage 1 and MPW Stage 2) – refer to Appendix K. An additional response from EP Risk would also be provided subsequent to this submission. 	Further information to be provided subsequent to this submission.
12. insufficient detail on staging for assessment, particularly with regard to fill importation and earthworks	Item not considered adequate	<ul style="list-style-type: none"> Further earthworks information has been provided – refer to Appendix B. 	Considered addressed.

Issues for Assessment – Assessment Report unable to be Finalised	DP&E previous Classification	Initial response	Discussion notes
no information provided on interaction of stages across the precinct (MPE and MPW including road works)		<ul style="list-style-type: none"> Detailed staging information, in particular, separating fill importation stages across the site, has been provided in the most recent submission (and previously) – refer to Appendix J. Mitigation measures (FCMMs) have been identified as relevant to each stage and component of the development and therefore would be implemented throughout both construction and operation. A detailed cumulative assessment (MPW Stage 2 + MPW Stage 1/2) has been provided within the EIS/RtS to consider impacts of all project aspects. 	
13. width of road reserve for Moorebank Avenue upgrade not delineated on civil design drawings	supplementary items	<ul style="list-style-type: none"> The OSD (10 or 3) are not located within the road reserve as identified in the Civil Design Drawings (MPW2-ARC-CV-DWG-0002) – Refer to Appendix B. Note that OSD 10 has been approved in MPE Stage 2. Approval for this basin is not sought in the MPW Stage 2 Approval. Additional plans to nominate the road reserve dedication would be part of MPE Stage 2 Approval (as required by condition of consent B17). 	For discussion with DP&E.
Review Comments			
P.2. - OSD basins servicing warehousing, terminals freight villages etc within the MPE and MPW sites are to be accommodated within the operational area of these sites. RMS's approval relates only to road drainage associated with the upgrading of Moorebank Avenue.	Item not considered adequate	<ul style="list-style-type: none"> All OSDs are accommodated within the operational area of the MPW Stage 2 Proposal site - refer to updated Architectural Plans (115123_A_SSD_0001 – Appendix H. Note that OSD 10 has been approved in MPE Stage 2. Approval for this basin is not sought in the MPW Stage 2 Approval. 	Considered addressed.

Issues for Assessment – Assessment Report unable to be Finalised	DP&E previous Classification	Initial response	Discussion notes
P.2. - Please clarify, assume flows diverted from ABB site to Basin 5 compared to existing conditions.	Outstanding item	<ul style="list-style-type: none"> Flows diverted from the ABB site drain to Basin 5 as shown in the Civil Design Drawings (MPW2-ARC-CV-DWG-0201) – Refer to Appendix B. 	Considered addressed.
P.3. - No alternative internal road or warehouse layouts provided which would facilitate a basin location further to the east. 215 m2 GFA of the approved 300 m2 GFA for the entire site is proposed on less than half the site. Sufficient site area exists to accommodate a larger basin footprint.	Item not considered adequate	<ul style="list-style-type: none"> As discussed in the Basin Assessment Technical Memorandum (provided in the January 2018 DP&E response submission) basins can accommodate predominately batters while maintaining storage requirements and not impacting on the proposed built form. 	Considered addressed.
P.6. - What proportion of the existing Anzac Creek catchment has rediverted to Basin 8.	supplementary items	<ul style="list-style-type: none"> Existing Anzac Ck catchment – 25ha Proposed Anzac Ck catchment (diverted to Basin 8) – 8ha. 	Considered addressed.
P.6. - The footprint of basin 8 should be extended to the east to provide sufficient volume, eliminating the need for a wall steeper banks.	Item not considered adequate	<ul style="list-style-type: none"> As discussed in the Basin Assessment Technical Memorandum (provided in the January 2018 DP&E response submission) basins can accommodate predominately batters while maintaining storage requirements and not impacting on the proposed built form. 	Considered addressed.
Review of Applicants response (includes all of the ‘no’ in the ‘request information provided’ column)			
1. Revised Overall Stormwater Drainage Plan (at approximately 1:3500 @A1), showing similar detail to PREC-ARC-CV-SKC-0156, extending to M5 Motorway and showing:			
1.5 OSD Basin 3 details still to be provided	Outstanding item	<ul style="list-style-type: none"> This information has now been provided within the Civil Design Drawings (MPW2-ARC-CV-DWG-0302) – Refer to Appendix B. 	Considered addressed.
1.6 insufficient detail (it is noted that MPE Stage 2 post approvals stormwater drawings were submitted on 23/10/2018	Item not considered adequate	<ul style="list-style-type: none"> This information has now been provided within the Civil Design Drawings (MPW2-ARC-CV-DWG-0201/0202)) – Refer to Appendix B. 	For discussion with DP&E.

Issues for Assessment – Assessment Report unable to be Finalised	DP&E previous Classification	Initial response	Discussion notes
after revised MPW Stage 2 drawings provided) scale is now 1:5000 making it more difficult to identify detail			
1.8 earthworks plan and cross-sections still to be provided	Outstanding item	<ul style="list-style-type: none"> This information has now been provided within the Civil Design Drawings (MPW2-ARC-CV-DWG- 0111-0122)) – Refer to Appendix B. 	Considered addressed.
2. Revised Stormwater Design Plans at 1:1000 @ A1 (similar to SKC-MIC2-035 to 043 Detailed Proposed Catchment Plans) showing			
2.2 site boundary- previously shown, now removed	Item not considered adequate	<ul style="list-style-type: none"> This information has now been provided within the Civil Design Drawings (MPW2-ARC-CV-DWG-0121-0122) – Refer to Appendix B. 	Considered addressed.
2.4 location of top of bank of the Georges River	Outstanding item	<ul style="list-style-type: none"> Refer to Figure Appendix C. 	Considered addressed.
2.5 riparian corridor boundary (i.e. 40 m from top of Georges River bank)	Outstanding item	<ul style="list-style-type: none"> Refer to Figure Appendix C. 	Considered addressed.
2.14(i) no design contours provided either side of outlet channels, existing contours simply cut-off at line indicating construction area – not possible to determine if this will be extent of conservation zone disturbance	Outstanding item	<ul style="list-style-type: none"> Available contours are provided within the Civil Design Drawings (MPW2-ARC-CV-DWG-0121-0306, 0308 and 0310) – Refer to Appendix B. Survey is not able to be undertaken at this stage due to topographical and dense bushland constraints. 	For discussion with DP&E.
2.14(iii) fill batters removed from plan, no information provided	Item not considered adequate	<ul style="list-style-type: none"> Fill batters have been provided on plans, as identified in the Civil Design Drawings (MPW2-ARC-CV-DWG- 0002) – Refer to Appendix B. 	For discussion with DP&E.

Issues for Assessment – Assessment Report unable to be Finalised	DP&E previous Classification	Initial response	Discussion notes
3. Revised C-MIC2-SSD-116/117 (Earthworks Sections Sheet 1 and 2) Cross-Sections including noise wall showing tie in to existing adjacent surface levels, location of top of bank to the Georges River and extension of cross-sections/ additional cross-section as follows:			
3.1 extension of Section 2 to the north to show tie in with existing levels (also to show location of boundary between Lot 1 DP 1197707 and Lot 3 DP 32998 (ABB site))	Outstanding item	<ul style="list-style-type: none"> Civil Design Drawings (MPW2-ARC-CV-DWG- 0121) – Refer to Appendix B. 	Considered addressed.
3.3 extension of Section 3 to the south to show tie in with the railway embankment	Outstanding item	<ul style="list-style-type: none"> Civil Design Drawings (MPW2-ARC-CV-DWG- 0121) – Refer to Appendix B. 	Considered addressed.
3.4 additional Section through basin 8 and end of basin 10 extending east to Moorebank Avenue and west to the top of the Georges River bank.	Outstanding item	<ul style="list-style-type: none"> Based on the location of Basin 8 and Basin 10 this cannot be achieved. 	For discussion with DP&E.
5. Revised LPMW-ARC-CV-DWG-2501/ 2521/ 2541 (OSD Outlet Drawings) and associated sections showing:			
5.1 no design contours provided either side of outlet channels, existing contours simply cut-off at line indicating construction area – not possible to determine if this will be extent of conservation zone disturbance/ construction boundary	Item not considered adequate	<ul style="list-style-type: none"> Available contours are provided within the Civil Design Drawings (MPW2-ARC-CV-DWG-0121-0306, 0308 and 0310) – Refer to Appendix B. Survey is not able to be undertaken at this stage due to topographical and dense bushland constraints. 	For discussion with DP&E.
5.5 additional plan and section for outlet from basin 3 to Boot Land	Outstanding item	<ul style="list-style-type: none"> Civil Design Drawings (MPW2-ARC-CV-DWG- 0302) – Refer to Appendix B. 	Considered addressed.
8. Revised landscape plans at 1:1000 @ A1 extending to M5 Motorway including			

Issues for Assessment – Assessment Report unable to be Finalised	DP&E previous Classification	Initial response	Discussion notes
8.2 retention of existing trees along section of Moorebank Avenue where existing road levels are to be maintained	supplementary items	<ul style="list-style-type: none"> Refer to Landscape Plans provided within the August 2018 DP&E response. 	For discussion with DP&E.
8.3 setbacks not shown on landscape plans, i.e. 10m landscaping within 18m setback from Moorebank Avenue, 5m setback from internal roads some setbacks shown on architectural plan 115123_A_SSD_6000. 1 to 5000 scale @ A1 unsuitable to show this detail. Legend does not indicate what these numbers refer to, plan name does not indicate that it shows setbacks	Item not considered adequate	<ul style="list-style-type: none"> Revised Architectural Plans (showing landscape measurements) would be provided subsequent to this submission. 	Further information to be provided subsequent to this submission.
8.4 need confirmation that only site fencing is around terminal area at entrance to site and Moorebank Avenue	Item not considered adequate	<ul style="list-style-type: none"> Detailed information in relation to fencing has been provided within the January 2018 DP&E response submission – refer to Appendix L. In summary perimeter fencing and warehouse fencing (along with bin enclosures) is proposed. Any additional fencing would be subject to detailed design. 	Considered addressed.
8.5 screen planting in front of bin areas	Item not considered adequate	<ul style="list-style-type: none"> Detailed information in relation to fencing has been provided within the January 2018 DP&E response submission – refer to Appendix L. It is not feasible to have (green) landscaping in this location as a result of operational and maintenance requirements. 	Considered addressed.
8.7 densities not provided, deferred to post approval	Item not considered adequate	<ul style="list-style-type: none"> Noted. 	For discussion with DP&E.

Issues for Assessment – Assessment Report unable to be Finalised	DP&E previous Classification	Initial response	Discussion notes
<p>8.8 plan views indicate trees in landscaped strips (approx. 2-2.5 m wide) along length of carparks rather than landscaped bays (no planting along warehouse walls where parking abuts)</p> <p>it does not appear that overall carpark area widths have increased to accommodation this and sections indicate landscape strip width approximately 1m wide</p> <p>need dimensioned plan detail at 1: 200 to determine if alternative strip planting is wide enough to support shade tree and can be accommodated within layout.</p>	Item not considered adequate	<ul style="list-style-type: none"> Strip planting within car parking has been accommodated by realignment of car parking and relocation of landscaping (i.e. adjacent landscaping has been relocated to within car parking areas). This allows for a greater integration of landscaping throughout the Proposal site. 	For discussion with DP&E.
<p>8.9 no additional areas shown – note states “..paving and small turf area with opportunity for feature tree planting...” but no commitment</p>	Item not considered adequate	<ul style="list-style-type: none"> Further information in relation to employee outdoor meal break areas was provided in the January 2018 DP&E response submission – refer to Appendix M. 	For discussion with DP&E.
<p>8.10 revised plan now includes large area south-east of rail link. plan included in architectural/signage drawing set and does not separate out soft landscaping and OSD basins unable to determine if MPE soft landscaping condition is met</p>	Item not considered adequate	<ul style="list-style-type: none"> Revised Architectural Plans (showing landscape measurements) would be provided subsequent to this submission. 	Further information to be provided subsequent to this submission.

Issues for Assessment – Assessment Report unable to be Finalised	DP&E previous Classification	Initial response	Discussion notes
8.12 screen tree planting around perimeter of southern part of site.	Item not considered adequate	<ul style="list-style-type: none"> As identified landscaping would be provided at the southern permitter of the Proposal site (refer to the August 2018 DP&E response submission). No screen planting is proposed as only intermittent views from the East Hills Rail Line are anticipated at this location. 	For discussion with DP&E.
9. Urban Heat Island Effect (refer to additional GANSW requirements communicated through MPE post-approvals review of Urban Heat Island Mitigation Strategy documentation)			
9.2 (i) commitment made in documentation submitted to DPE in March, now “final compilation of mitigation and management measures (FCMMs) do not indicate size of system and stage that solar panels would only be installed where “feasible and reasonable”.	Item not considered adequate	<ul style="list-style-type: none"> The commitment to the capacity of solar panels is related to an agreement with the Clean Energy Finance Corporation (CEFC). SIMTA has committed to solar panels (FCMM 15A) however cannot confirm the capacity at this stage. 	For discussion with DP&E.
9.2 (ii) collection of roof water for operational activities - not included in FCMMs	Outstanding item	<ul style="list-style-type: none"> Based on a similar approach undertaken for MPE Stage 2, it is proposed that the MPW Stage 2 Proposal would reuse 4.5% of site rainfall, namely approximately 9% of roof rainwater capture. The FCMMs would be updated and submitted subsequent to this submission. 	Further information to be provided subsequent to this submission.
10. Contamination Management			
10.1 states “at this stage no temporary or permanent remediation infrastructure is proposed on the MPW Stage 2 site” - deferred to post approval	Item not considered adequate	<ul style="list-style-type: none"> JBS&G have prepared a response to confirm the approach to contamination management for the MPW site (MPW Stage 1 and MPW Stage 2) – refer to Appendix K. An additional response from EP Risk would also be provided subsequent to this submission. 	Further information to be provided subsequent to this submission.
10.2 states” investigations and associated remediation would be undertaken subsequent to	Item not considered adequate	<ul style="list-style-type: none"> This comment relates to areas of EEC that are to be cleared as part of MPW Stage 2, i.e. within the construction boundary. An 	Further information to be provided

Issues for Assessment – Assessment Report unable to be Finalised	DP&E previous Classification	Initial response	Discussion notes
the MPW Stage 2 being granted approval, in that this approval would allow for identified EEC areas (within the MPW Stage 2 Proposal site) being cleared.” - deferred to post approval		<ul style="list-style-type: none"> additional response from EP Risk would also be provided subsequent to this submission. 	subsequent to this submission.
11. Batching Plants			
11.1 Detail is required for assessment of batching plants potentially discharging to the Georges River. Deferring this to post approval is not acceptable to DPE.	Item not considered adequate	<ul style="list-style-type: none"> A batching plant may or may not be included within the Proposal. All assessment has considered the batching plant. Detailed information in relation to the batching plant was provided in the January 2018 DP&E response submission – refer to Appendix N. 	For discussion with DP&E.
12. Detailed Staging Strategy for Development Scenarios			
12.1 overall staged construction program and operational program- insufficient information provided	Item not considered adequate	<ul style="list-style-type: none"> Detailed staging information, in particular, separating fill importation stages across the site, has been provided in the most recent submission – refer to Appendix J. 	Considered addressed.
12.2 warehouses and infrastructure to be delivered in each sub-stage, e.g. internal roads and parking, drainage/ OSD basins/ offsite discharge structures, landscaping and connection to intermodal	Item not considered adequate	<ul style="list-style-type: none"> Comment unclear. 	For discussion with DP&E.
12.3 environmental controls for each sub-stage including those relating to noise and bushfire - not provided	Item not considered adequate	<ul style="list-style-type: none"> Mitigation measures (FCMMs) have been identified as relevant to each stage and component of the development and therefore would be implemented throughout both construction and operation. 	Considered addressed.

Issues for Assessment – Assessment Report unable to be Finalised	DP&E previous Classification	Initial response	Discussion notes
		<ul style="list-style-type: none"> A detailed cumulative assessment (MPW Stage 2 + MPW Stage 1/2) provided within the EIS/RtS to consider impacts of all project aspects. 	
12.4 demonstrating how each sub-stage and the overall development would be consistent with modelled impacts.	Item not considered adequate	<ul style="list-style-type: none"> The construction impact provided within the EIS/RtS has consistently referred to a worst-case scenario which considered all construction stages within the MPW Stage 2 On this basis potential impacts for a worst-case scenario, and less intensive interim stages has been assessed for the proposal. 	Considered addressed.
15. Plans, architectural drawings and diagrams			
15.2 drawings to include consistent numbering of, for example, OSD basin number and warehouse number - civil plan warehouse numbers are not consistent with architectural and landscape plans OSD basin numbers should be shown on landscape plans	Item not considered adequate	<ul style="list-style-type: none"> Civil Design Drawings (MPW2-ARC-CV-DWG- 0002) – Refer to Appendix B. 	Considered addressed.

APPENDIX A: REVIEW OF NOISE ASSESSMENT AND MITIGATION MEASURES FOR THE NOISE WALL CONSIDERATION

Review of Noise Assessment and Mitigations for Noise Wall Consideration

Noise mitigation provisions in the MPW Stage 2 RtS and Amended Proposal:

- Mitigation Measures for construction and operation identify that the mitigation measures outlined in sections 8.5.1 and 8.5.2 of the EIS are considered adequate to address impacts associated with the amended proposal and additional measures are not proposed. (reference page 426).
- The Revised mitigation measure 2D identifies inclusion of a noise wall, referencing Figure 7-1 of Appendix N of the EIS. The RMM includes:

The height, extent, and staged implementation of the noise wall would be confirmed, based on further noise modelling undertaken during detailed design

The amended proposal, as exhibited, for 24/7 operation of the warehousing components referenced noise mitigations already considered within the MPW Stage 2 EIS and supporting technical document and included consideration of further noise modelling during detailed design.

Noise mitigation provisions in the MPW Stage 2 EIS:

EIS Section 8.2.3 identifies under “Shielding” at page 231 “The need for a noise wall along the western site boundary has been identified in Section 8.4.2.1 and used in modelling assumptions in Section 8.4.2.3. However, 8.4.2 Noise Barriers (p 244) enumerates the buildings used in the operational noise model, excluding the noise wall, but considering it separately “in addition to shielding from buildings”.

EIS Section 8.5 identifies mitigation measures for construction (8.5.1) and operation (8.5.2). The commitment to continuing noise monitoring to inform appropriate mitigation measures to reduce and control noise during construction and operation is provided at 8.5.

Section 8.5.2 identifies establishment of a noise wall along a portion of the western boundary of the proposal site and states “the need for this noise wall was identified in the MPW Concept EIS, and subsequent modelling has confirmed the need for such a barrier The actual height and extent of the noise wall would be confirmed, based on noise modelling undertaken during detailed design”.

Noise mitigation provisions in MPW Stage 2 EIS Appendix N NVIA:

Section 7.1.3 identifies, verbatim, the consideration of noise barriers and buildings included in the operational noise model as referenced above in section 8.4.2 of the EIS. The noise wall being additional to the buildings included in the operational noise modelling.

At section 7.3 it is identified in review of the predicted intrusive Operational Noise Levels presented in Table 7-4 (emphasis added):

Exceedances of up to 1 dB are considered negligible. Notwithstanding, modelling indicates that these predicted exceedances can be effectively

mitigated by establishing a noise wall between the two northernmost warehouses. It is noted that establishing a noise wall in this location is not preferred, as it could interfere with efficient site operations. Other mitigation options, such as modifying the warehouse footprints, are expected to achieve appropriate levels of noise reduction, and would be investigated during detailed design.

The noise wall is identified as being used to mitigate the 1 dB exceedance modelled, and only between the two northernmost warehouses. Consideration of alternatives and future design of the noise wall is subsequently provided:

“Other mitigation options, such as modifying the warehouse footprints, are expected to achieve appropriate levels of noise reduction, and would be investigated during detailed design.

*It should be noted that the modelling of the additional noise wall near the two northernmost warehouses indicated that the height of the main noise wall, running along the western boundary of the Proposal site, **could be significantly reduced.***

*Therefore, in addition to achieving compliance with the established noise criteria, **optimal design of noise barriers as well as further optimising the efficiency of operations to reduce the peak equipment used on the site will be investigated further during detailed design.***”

Section 11 Mitigation of Appendix N states (emphasis added):

*“As outlined in Section 7.1.3, a large noise wall would be established along a portion of the western boundary of the Proposal site. **The need for this noise wall was identified in the MPW Concept Plan EIS, and subsequent modelling in this assessment has confirmed the need for such a barrier.** The indicative height and extent of the noise wall was presented in Section 7.1.3. **The actual height and extent of the noise wall, and any other required noise walls, would be confirmed during detailed design. It should be noted that the height and/or extent of the noise wall could differ from that presented in this assessment.**”*

Noise Mitigation in the MPW Concept Plan EIS

Both the EIS document Section 8.5.2 and Appendix N NVIA reference the need for the noise wall being established within the MPW Concept Plan EIS. This referenced “need” is required to be read in appropriate context of the MPW Concept Plan and project layout.

Firstly, the inclusion of the noise wall was presented in “modelling of a **conceptual and hypothetical noise mitigation scenario**, incorporating noise barriers and acoustic enclosures for the **northern rail access option**” to confirm the noise level reduction able to be achieved from noise mitigation. In this instance identifying up to an 11 dB(A) reduction. The assessment goes on to conclude:

“Based on the predicted mitigated noise levels, where the Project adopts reasonable and practical noise control measures during the detailed design phase, the northern, central and southern rail access options would be expected to comply with the relevant NSW noise assessment criteria at the majority of the assessed residences.”

“Specific requirements for noise mitigation would be confirmed during the detailed design phase. As such, the conceptual measures outlined in this EIS are only intended to demonstrate the likely performance of onsite noise mitigation measures.”

(reference EIS Summary and Chapter 12)

The second consideration relates to the design layout at Concept stage. The northern and southern rail access options both had a design layout with rail operations on the western boundary of the MPW site with no noise attenuation from building shielding between rail operations and Casula residents. Noting rail operations were intended to be 24/7.

Under the southern rail access option predicted exceedances were between 5 and 11 dB(A) for daytime and evening noise criteria respectively, in a full build unmitigated state. Road traffic exceedances were identified as being between 0.2 and 0.8 dB(A) for daytime and night-time respectively, which are considered “negligible and would not trigger any requirements for noise mitigation” (reference p12-28).

The MPW Stage 2 design layout has the rail activities on the eastern side of the site with shielding provided by warehouse buildings, hence achieving the identified reduction in modelled exceedances at Casula.

Outcome:

- SIMTA is proposing to progress MPW Stage 2 in accordance with the noise assessments exhibited and approved from Concept Plan through to MPW Stage 2 SSD and RtS.
- As indicated in the exhibited assessments, the actual height and extent of the noise wall, and any other required noise walls or mitigations, would be confirmed during detailed design.
- SIMTA intends to optimise design of noise barriers as well as further optimising the efficiency of operations to reduce the peak equipment used on the site during detailed design
- SIMTA affirms the commitment to continuing noise monitoring to inform appropriate mitigation measures to reduce and control noise during construction and operation.

- appropriate commitment (either contractual or operational) that rail operators accessing the site would be required to undertake regular maintenance of all rail freight to address wheel flat spots and locomotive exhausts.

12.4.4 Assessment of conceptual noise mitigation scenario

To demonstrate that the implementation of noise mitigation measures is likely to achieve a reasonable and practical reduction in noise levels, a hypothetical and conceptual noise mitigation scenario was assessed, using the northern rail access option. The northern rail access option was selected as it generally demonstrated the greatest adverse noise effects without mitigation. Noise levels with the conceptual noise mitigation were predicted for the Full Build operation of the Project.

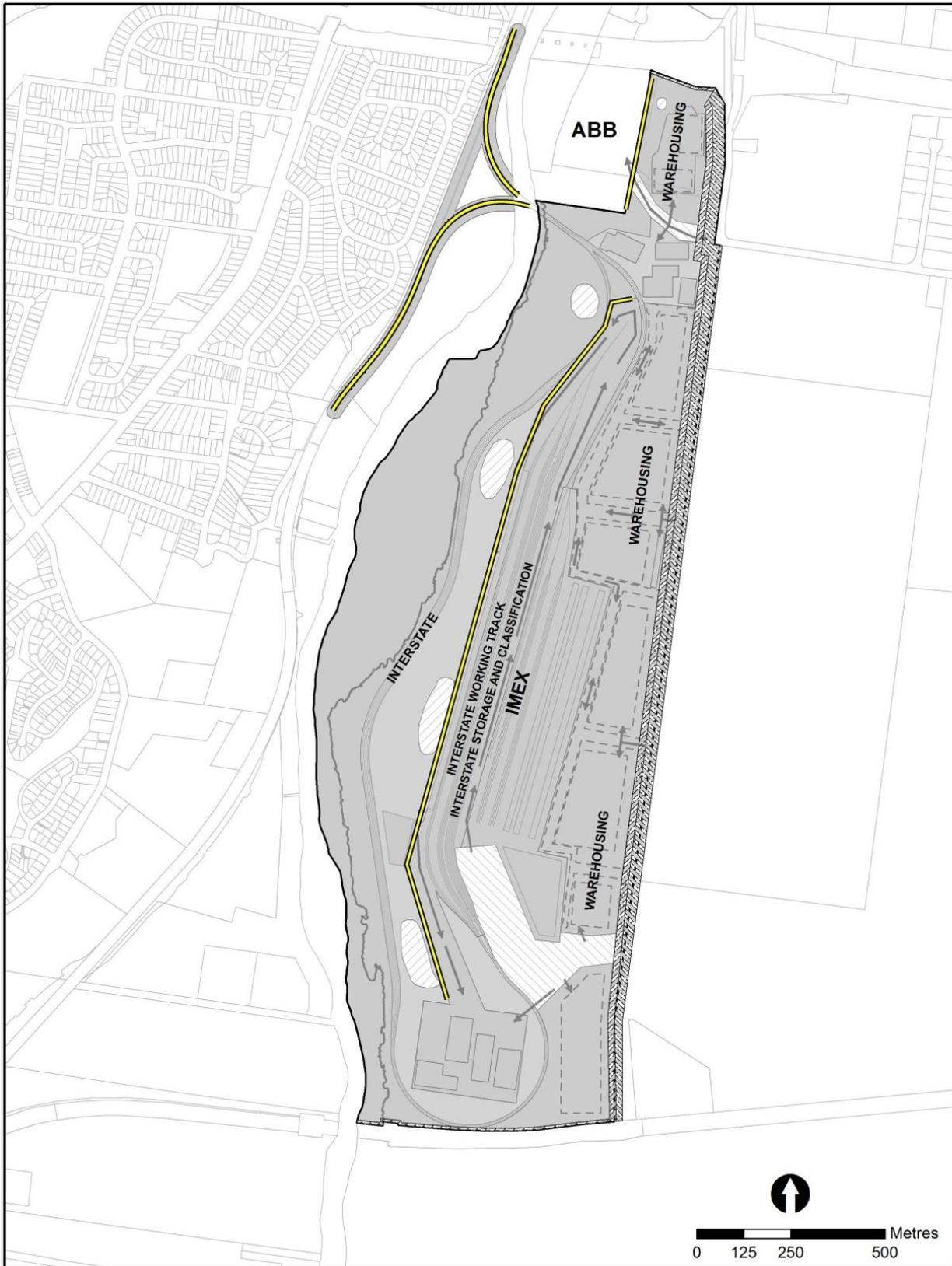
Specific requirements for noise mitigation would be confirmed during the detailed design phase. As such, the conceptual measures outlined below are only intended to demonstrate the likely performance of onsite noise mitigation measures.

Noise mitigation scenario

Figure 12.5 shows the location of the conceptual noise mitigation measures assumed across the Project site. These noise mitigation measures are commonly applied approaches to noise control for industrial facilities, including intermodal terminals, and include the following:

- A reduction in the individual source noise emission of each RMG crane to a sound power level of 100 dB(A) (which represents an 8 dB reduction in source noise emissions) to account for further noise reductions typical of those achieved with standard enhanced acoustic treatment of the machinery housing. This would help to control noise from the electrical drives, motors, gearboxes and air handling machinery. While bespoke acoustic enclosures may achieve lower noise emissions from the machinery house, the sound power level of 100 dB(A) is considered a low noise emission for an RMG crane, accounting for additional noise contribution from the RMG crane trolley rails and the hoist.
- Noise barriers or walls within the main IMT site at a height to impede the propagation of noise from all ground level equipment, specifically the ITVs and road trucks.
- Noise barriers or walls adjacent to the interstate and IMEX rail access connections to impede the propagation of noise from the locomotives and assist in mitigating discrete noise emissions such as wheel squeal.

The noise barriers could be a combination of acoustic barriers, solid walls, earth mounding or warehouse buildings. To provide effective noise control, the primary requirement of the structures is to fully impede the line of sight to the noise emission sources.



— Conceptual noise protection wall

Figure 12.5 Conceptual noise protection wall for the northern rail access option

\\apeydf03\proj\K\K\PMG_Australia\2103829A_Moorebank_Intermodal_Terminal\10_GIS\Projects\ESR\2103829A_GIS_F383_A3.mxd // MitchellEm // 15/08/2014

Figure 7-1 Noise Wall and Buildings included in Noise Model

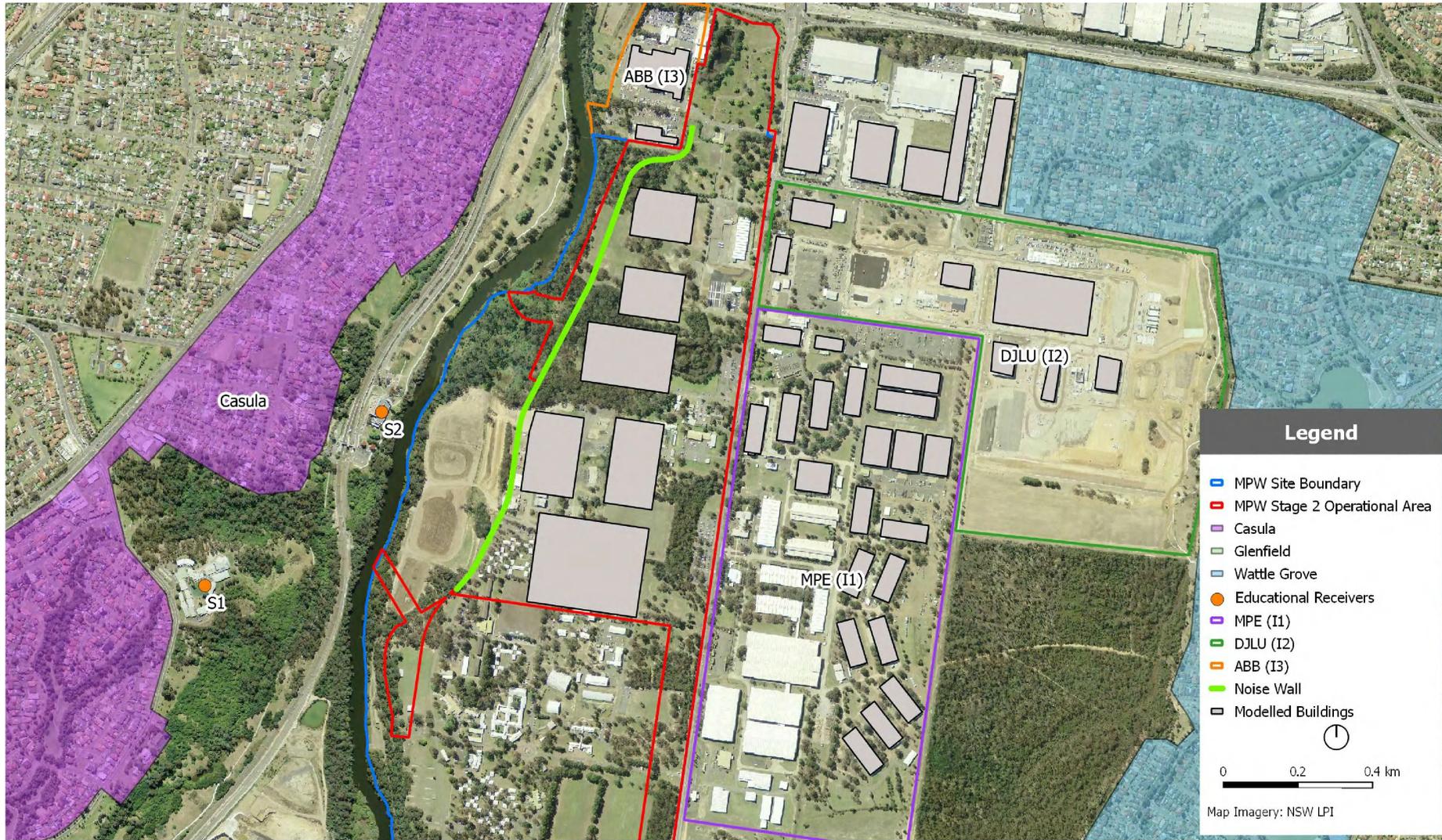


Figure A-2 Night Time $L_{Aeq, 15min}$ Operational Noise Levels – Calm Meteorological Conditions

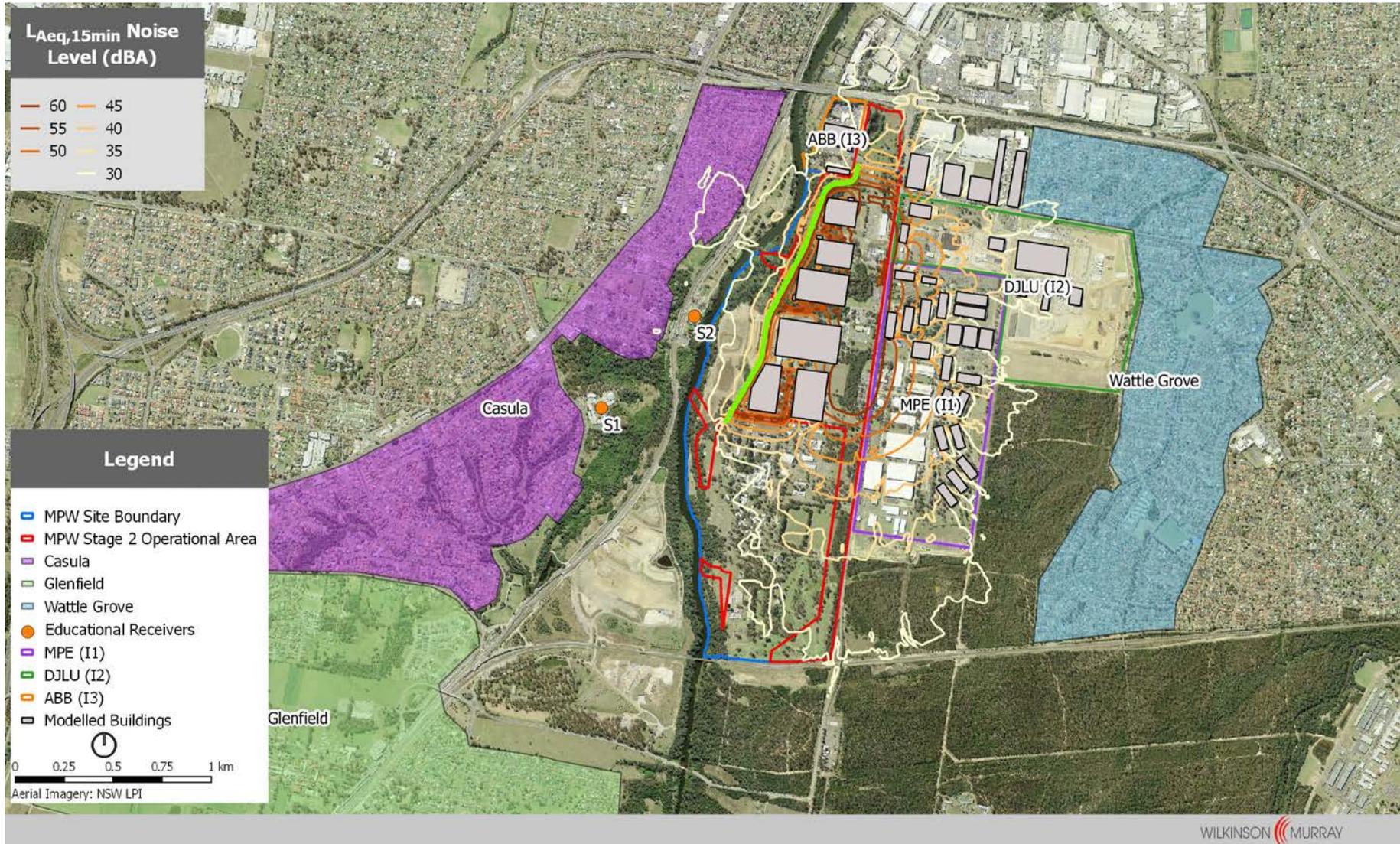
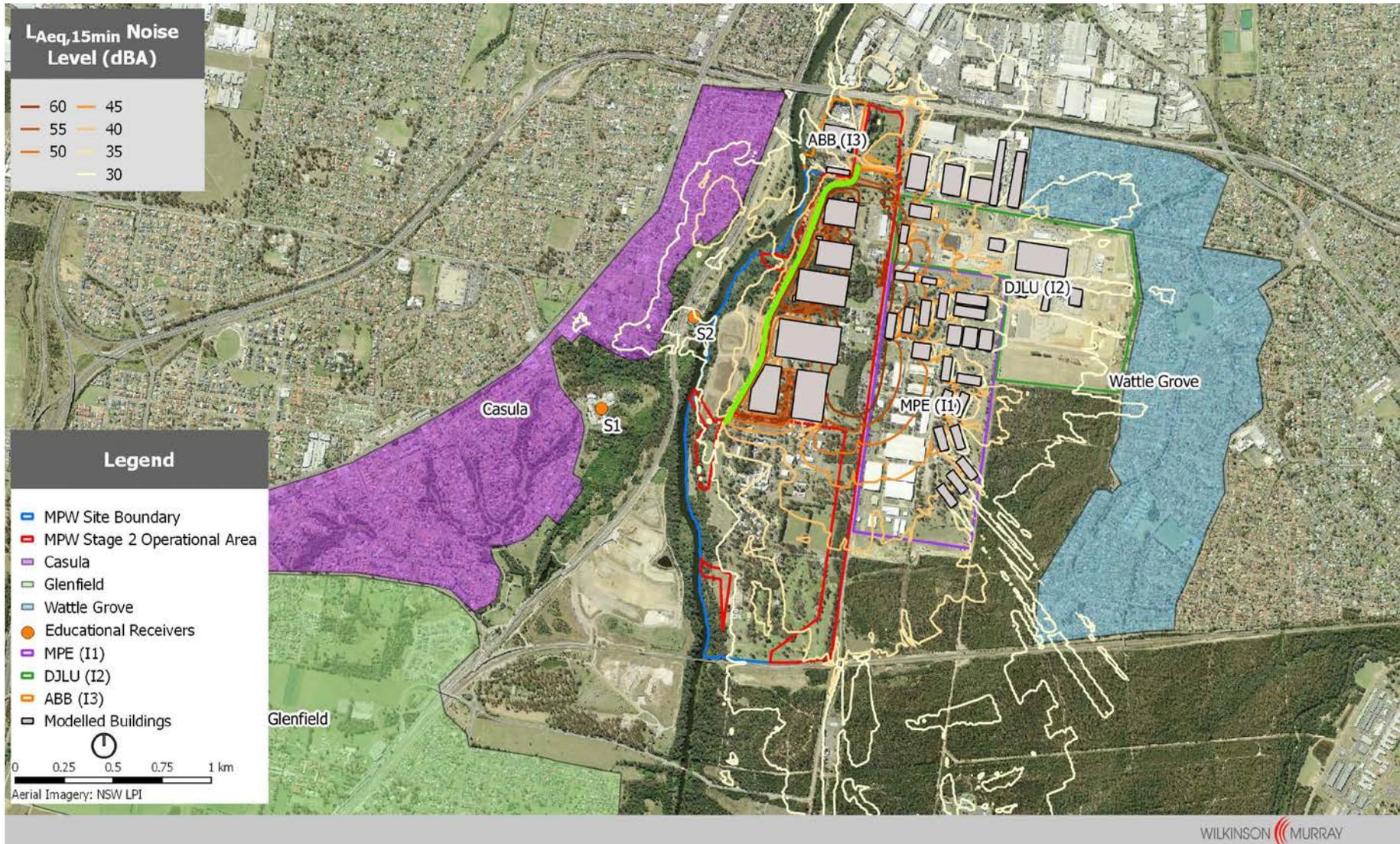
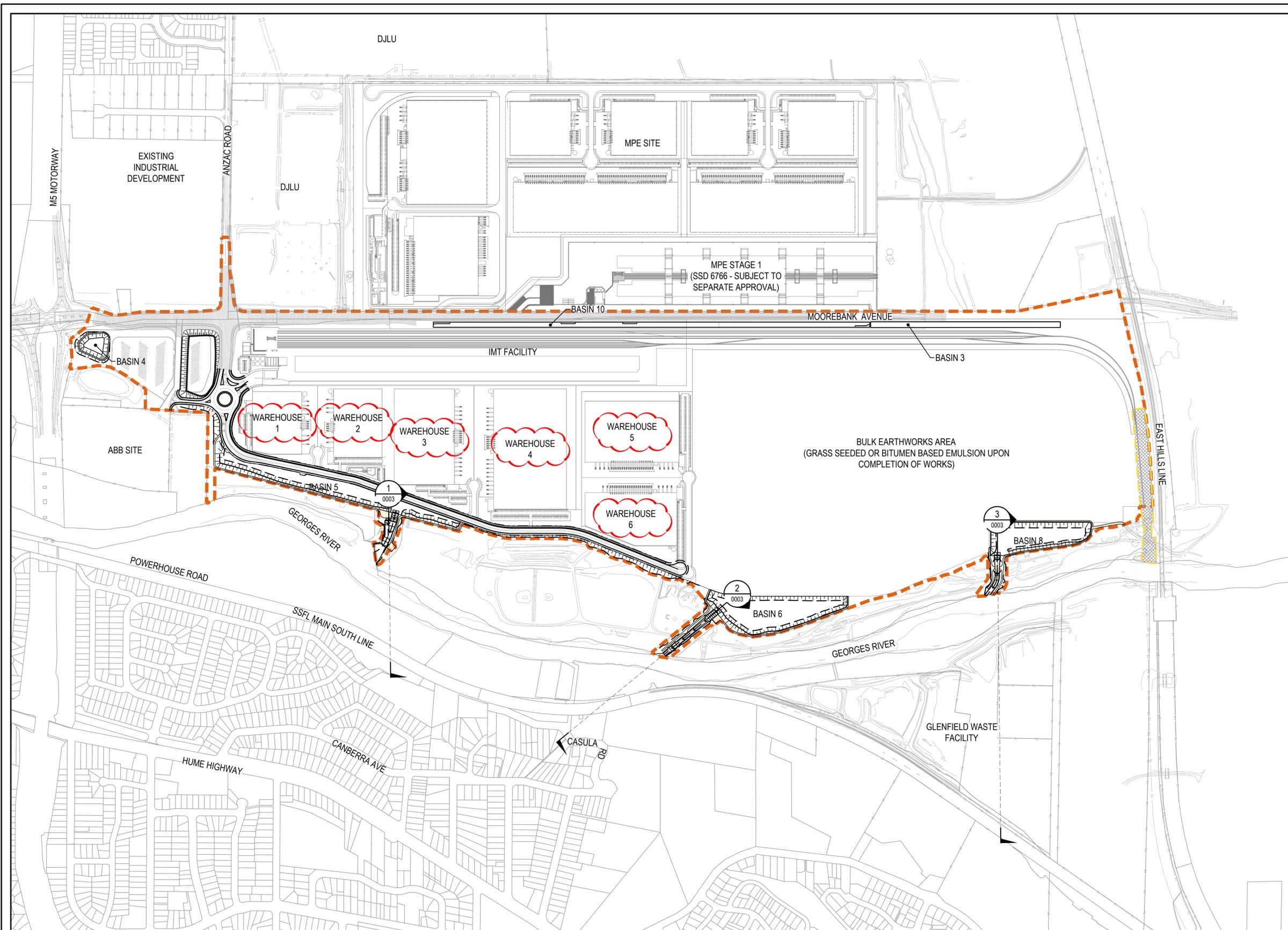


Figure A-2 Night Time $L_{Aeq, 15min}$ Operational Noise Levels – Adverse Meteorological Conditions



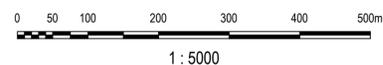
APPENDIX B: CIVIL DESIGN DRAWINGS AND FURTHER EARTHWORKS PLANS



LEGEND

- MPW STAGE 2 CONSTRUCTION AREA
- PROPOSED AREA OF WORKS BY OTHERS
- SUBJECT TO MPE STAGE 1 PROPOSAL (SSD 14 - 6766)
- STATE SURVEY MARK

Issue	Description	Date
02	ISSUED FOR INFORMATION - NUMBERING UPDATED	01/11/2018
01	SUPERSEDES DRAWING C-MIC2-SSD-002	11/10/2018



Client

SIMTA

SYDNEY
 INTERMODAL
 TERMINAL
 ALLIANCE

TACTICAL

GROUP

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Grid	MGA										
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Approved W.OWERS											
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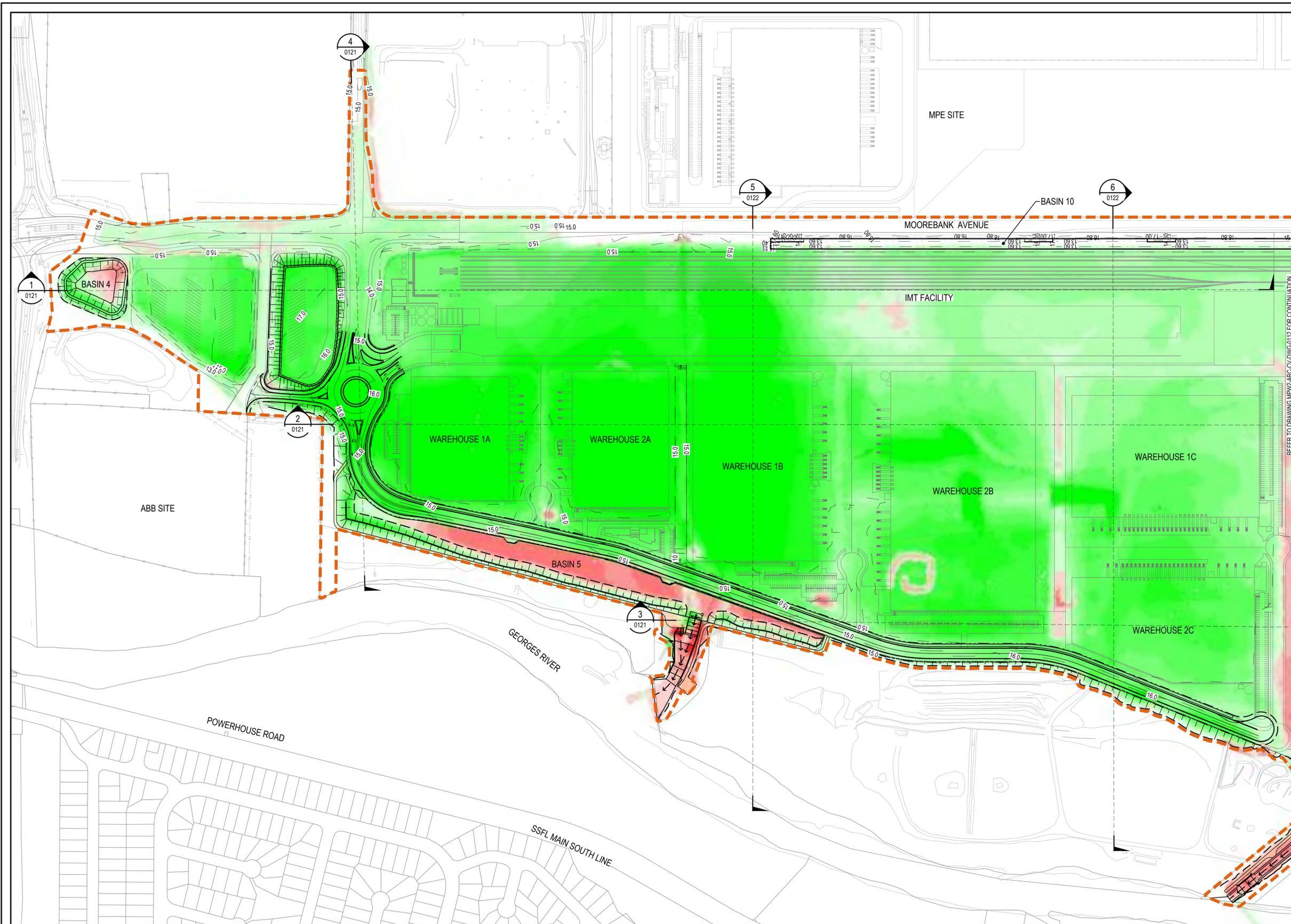
Project	
MOOREBANK PRECINCT WEST - STAGE 2	
Title	
GENERAL ARRANGEMENT PLAN	

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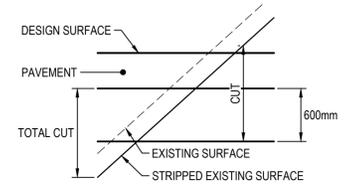
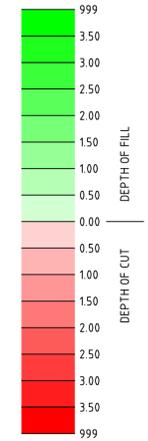
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Project No. AA009335



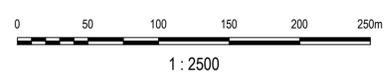
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- MPW STAGE 2 CONSTRUCTION AREA
 - PROPOSED CONTOURS
 - SUBJECT TO MPE STAGE 1 PROPOSAL (SSD 14 - 6766)
- NOTES**
- STRIPPED EXISTING SURFACE CREATED BY STRIPPING OFF THE TOPSOIL FROM THE EXISTING SURFACE IN ACCORDANCE WITH GOLDERS TOPSOIL DEPTH CONTOURS.
- ASSUMPTIONS AND NOTES**
1. HATCHING SHOWN REPRESENTS THE DEPTH RANGE BETWEEN THE STRIPPED EXISTING SURFACE AND THE UNDERSIDE OF PAVEMENT (REFER TYPICAL PAVEMENT SECTION).
 2. NO ALLOWANCE HAS BEEN MADE FOR:
 - BULKING OR COMPACTION FACTORS
 - TRENCHING FOR UTILITIES (INC. STORMWATER, WATER, SEWER, ELECTRICAL AND COMMUNICATIONS).
 3. VOLUMES HAVE BEEN PREPARED BASED ON CONCEPT GRADING AND ARE SUBJECT TO ARCHITECT'S DRAWINGS FOR FINISHED LEVELS.
 4. LEVELS SHOWN REPRESENT THE BULK EARTHWORKS SURFACE LEVELS (+/- 500mm).
 5. THE CUT/FILL VOLUMES DO NOT INCLUDE THE ACTUAL PAVEMENT MATERIALS REQUIRED. THE FOLLOWING PAVEMENT MATERIAL THICKNESS HAVE BEEN ASSUMED AS:
 - ANZAC ROAD INTERSECTION:
 - ROAD PAVEMENT - 659mm
 - INTERNAL ROAD:
 - ROAD PAVEMENT - 659mm
 - IMT FACILITY:
 - ROAD/RAIL PAVEMENT - 659mm
 - NORTHERN WAREHOUSE AREA:
 - PAVEMENT - 525mm
 - SOUTHERN EARTHWORKS AREA:
 - PAVEMENT AREA - 150mm

DEPTH RANGE LEGEND



TYPICAL PAVEMENT SECTION

Issue	Description	Date
01	SUPERSEDES DRAWING C-MIC2-SSD-111	26/10/2018



Client

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TACTICAL GROUP

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		Approved	W.OWERS
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Project

MOOREBANK PRECINCT WEST - STAGE 2

Title

BULK EARTHWORKS CUT AND FILL PLAN SHEET 1

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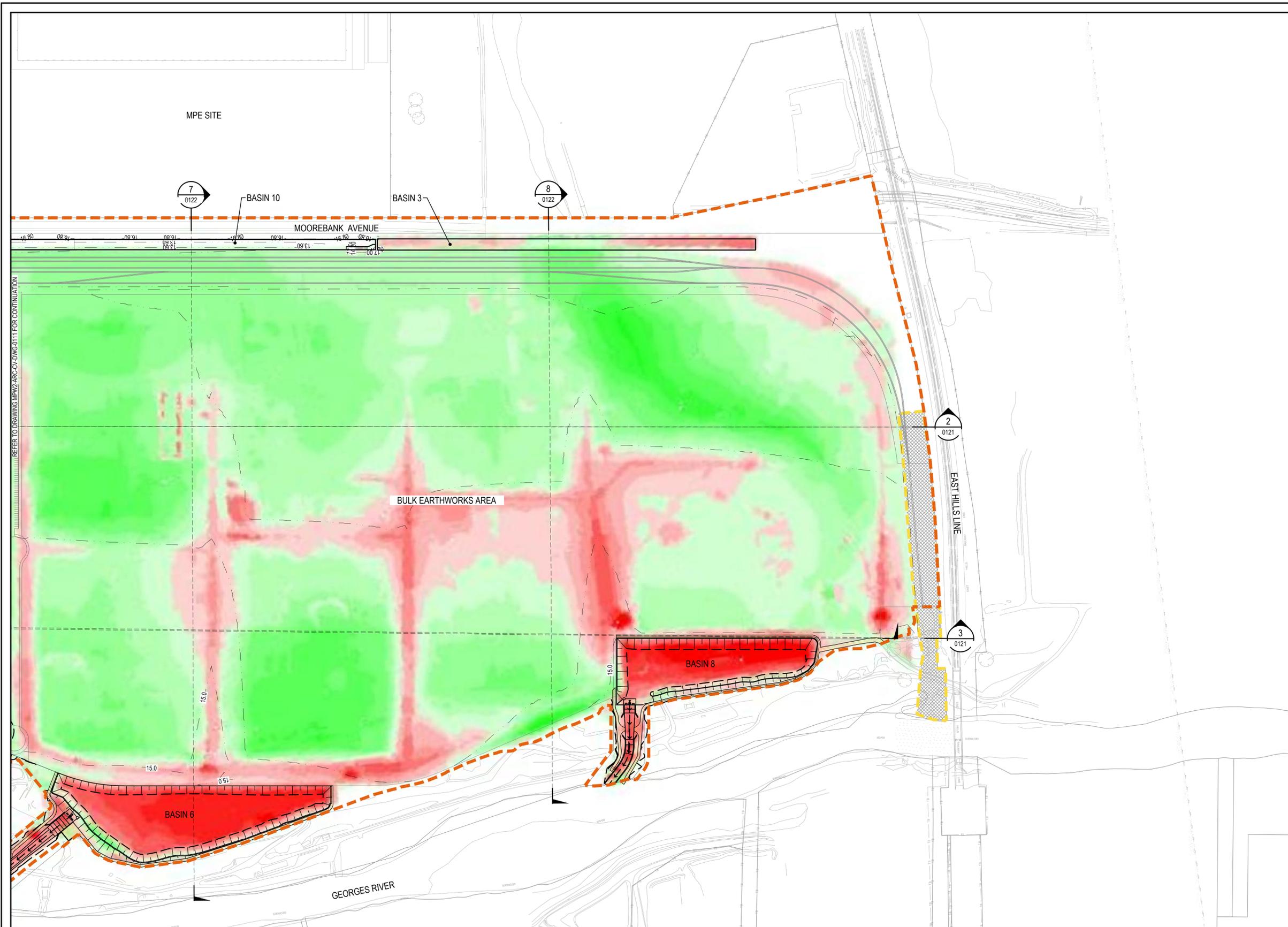
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arcadis.com

Project No. **AA009335**

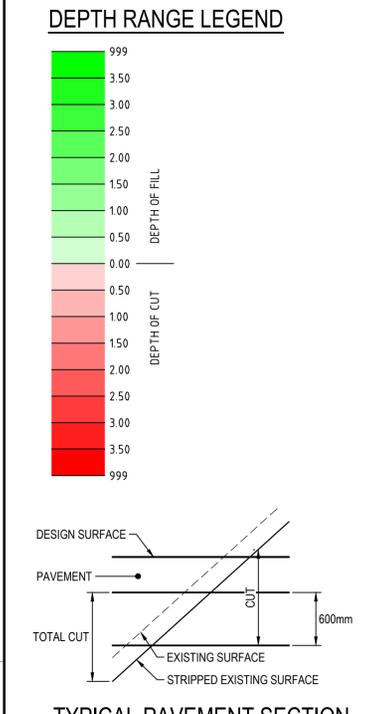
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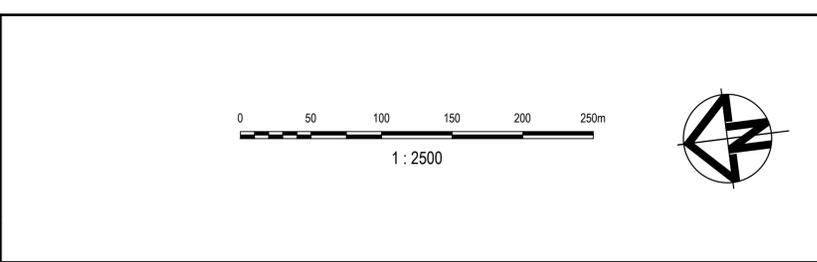


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 - 14.7 PROPOSED CONTOURS
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- NOTES**
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- ASSUMPTIONS AND NOTES**
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 4. LEVELS SHOWN REPRESENT THE BULK EARTHWORKS SURFACE LEVELS (+/- 500mm).
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 - INTERNAL ROAD:
 - ROAD PAVEMENT - 659mm
 - IMT FACILITY:
 - ROAD/RAIL PAVEMENT - 659mm
 - NORTHERN WAREHOUSE AREA:
 - PAVEMENT - 525mm
 - SOUTHERN EARTHWORKS AREA:
 - PAVEMENT AREA - 150mm

- DEPTH RANGE LEGEND**
- | | |
|------|---------------|
| 999 | DEPTH OF FILL |
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| 3.00 | |
| 2.50 | |
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Client

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TACTICAL GROUP

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Project: **MOOREBANK PRECINCT WEST - STAGE 2**

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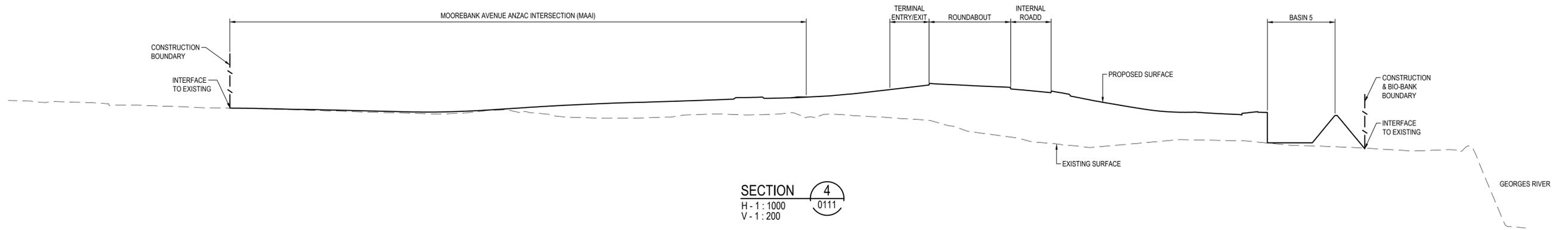
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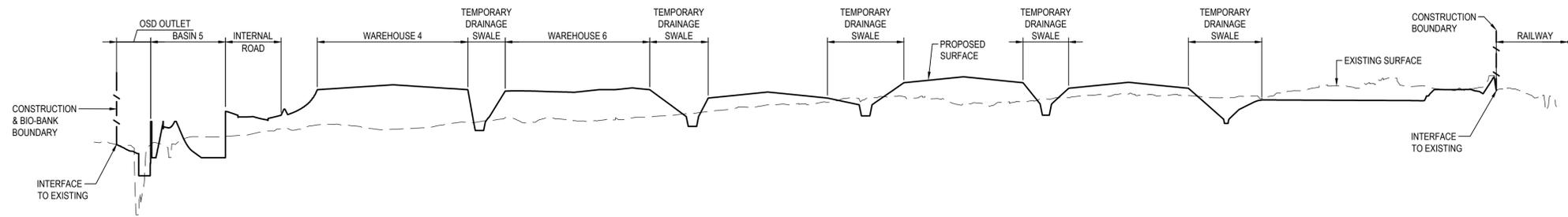
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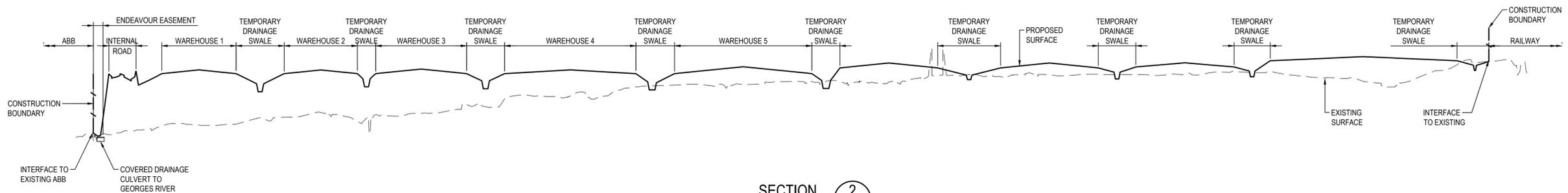
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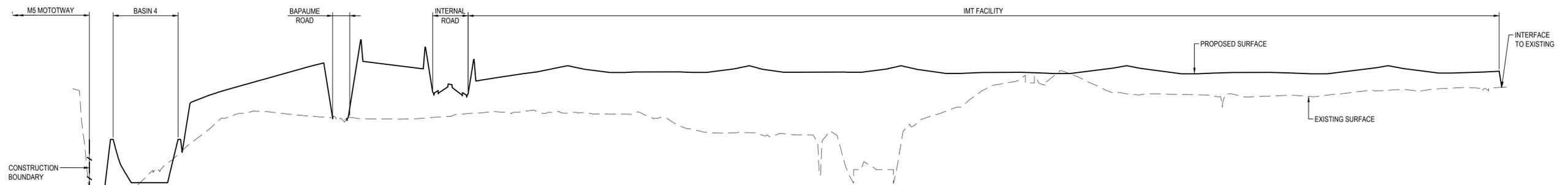
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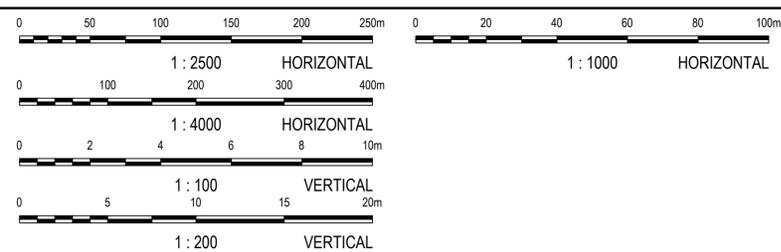


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SECTION 1
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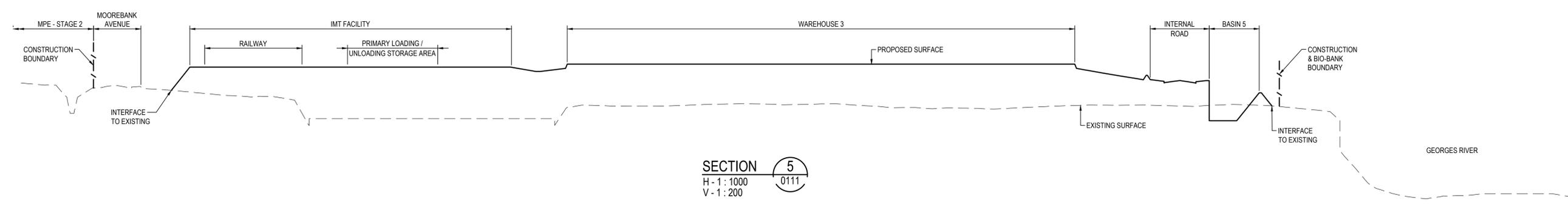
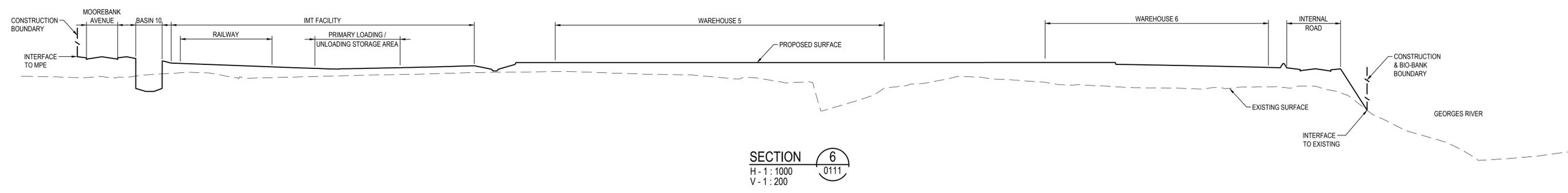
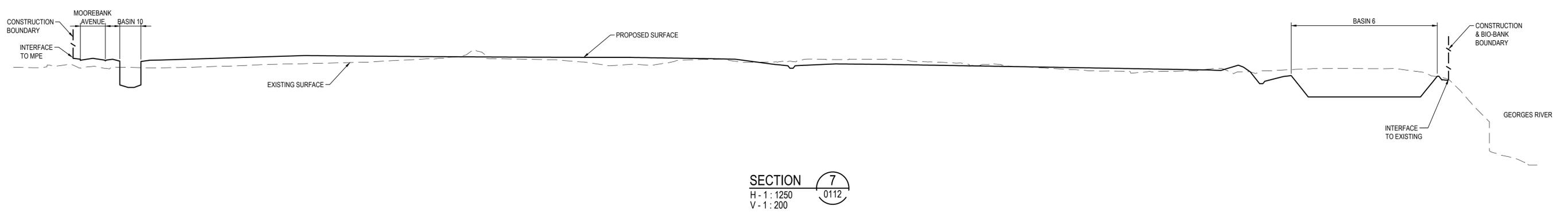
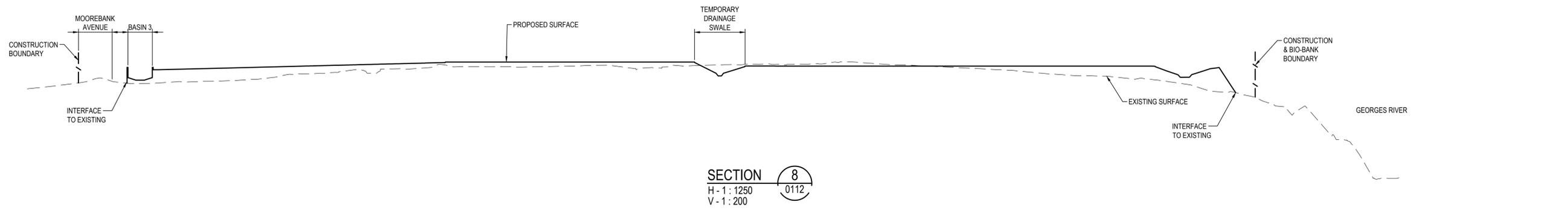
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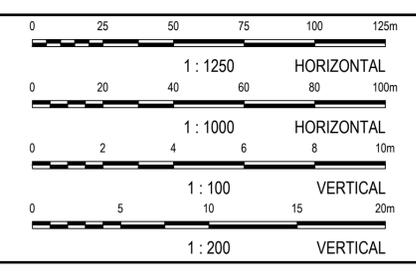
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Project No.	AA009335
Drawing No.	MPW2-ARC-CV-DWG-0121- 02
Issue	02



Issue	Description	Date
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Project
MOOREBANK PRECINCT WEST - STAGE 2

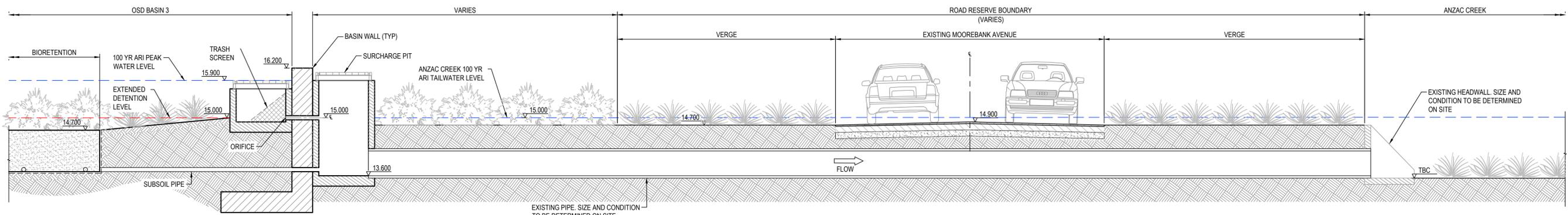
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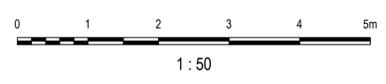
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SECTION 1
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Client

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Filename:		Approved	W.OWERS

Project		MOOREBANK PRECINCT WEST - STAGE 2	
Title		OSD BASIN 3 (MB03) SECTION	

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Project No. AA009335

Drawing No. MPW2-ARC-CV-DWG-0302-01 Issue

APPENDIX C: TOP OF BANK AND RIPARIAN CORRIDOR MEASUREMENTS



LEGEND

-  Cadastre (NSW DFSI, 2017)
-  MPW Stage 2 construction area (proposed)

Note:

- Not based on survey
- Based on publicly available mapping

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 Coordinate System: GDA 1994 MGA Zone 56
 Date issued: November 2, 2018



1:2,500 at A4



APPENDIX D: FCMMS

FINAL COMPILATION OF MITIGATION MEASURES

The MPW Stage 2 Environmental Impact Statement ((MPW Stage 2 EIS) Arcadis, 2016) identified a range of environmental impacts and recommended management and mitigation measures to avoid, remedy or mitigate these impacts (refer to Section 22 of the MPW Stage 2 EIS).

These mitigation measures were revised as part of the MPW Stage 2 Response to Submissions Report ((MPW Stage 2 RtS), Arcadis, 2017) in response to the following:

- Submissions received during the public exhibition period
- To address the amendments to the Proposal
- To incorporate additional mitigation measures from the MPW Concept RtS where necessary.

Subsequent to the submission of the MPW Stage 2 RtS to the NSW Department of Planning and the Environment (DP&E), DP&E have requested that we provide a consolidated list of mitigation measures, including measures in the response to DP&E issues (as requested in the *Moorebank Precinct West – Response to Submissions and outstanding information* letter (DP&E request), issued on 28 August 2017). In response to the DP&E request, a review of the following documentation has been undertaken:

- *Preliminary Construction Environmental Management Plan* (Arcadis, 2016), provided as Appendix I of the MPW Stage 2 EIS
- *Preliminary Construction Traffic Management Plan* (Arcadis, 2016), provided at Appendix M of the MPW Stage 2 EIS
- *Preliminary Operational Traffic Management Plan* (Arcadis, 2016), provided at Appendix M of the MPW Stage 2 EIS
- *Noise and Vibration Impact Assessment* (Wilkinson Murray, 2016), provided at Appendix N of the MPW Stage 2 EIS
- *Preliminary Construction Air Quality Management Plan* (Ramboll Environ, 2016), provided at Appendix O of the MPW Stage 2 EIS
- Revised mitigation measures provided in Section 8 of the MPW Stage 2 RtS
- *Stockpile Management Protocol*, provided at Appendix L of the MPW Stage 2 RtS
- *Environmental Works Method Statement*, provided at Appendix M of the MPW Stage 2
- *Moorebank Precinct West (MPW) Stage 2 (SSD 7709) Response to Submissions* letter, issued to NSW DP&E (dated 31 August 2017).

As part of this review, the mitigation measures have been updated to include information that was previously presented within these management plans, appended to both the MPW Stage 2 EIS and RtS. No additional information, that was not previously submitted to DP&E, has been included in these mitigation measures.

This cumulative presentation of mitigation measures supersede those previously provided in Section 8 of the MPW Stage 2 RtS.

For ease of reference, words deleted as part of this review are shown in ~~*italic strike through*~~ and words inserted are shown in *underlined italics*.

The revised mitigation measures represent the Final Compilation of Mitigation Measures (FCMM) for the MPW Stage 2 Proposal and are provided in Table 1 below.

Pre-construction activities for the Amended Proposal would be undertaken in the areas shown in Figure 1 and is relevant to mitigation measure No. 0A only (refer to Table 1).

The construction and operational activities included within the Amended Proposal have been separated into components based on their functional relationship and include the following:

- IMT – IMT and associated development including, but not limited to, container handling and storage, truck access, processing and holding areas, rail sidings and associated infrastructure, administration area and ancillary components (container washdown and de-gassing area and main site road and roundabout).
- Rail link connection – including, but not limited to, the rail sidings and access tracks.
- Warehousing – including, but not limited to, warehousing and attached offices, container storage areas, car parking, truck loading/unloading areas and vehicle manoeuvring, access roads and the freight village.
- Moorebank Avenue intersection -including, but not limited to, Moorebank Avenue/Anzac Road and Moorebank Avenue/Bapaume Road intersection works.
- Site infrastructure – including but not limited to, construction works such as tree clearing, earthworks, construction and operation of the perimeter road, east west channel, OSDs, utilities.

Figure 2 and Figure 3 outlines these components of the Amended Proposal provided in Table 1.

The 'implementation stage' column of Table 1 indicates the timing as to when the specific mitigation measures would be implemented. For example, a CEMP might be prepared prior to construction, but would not be 'implemented' until the construction phase.

For this Final Compilation of Mitigations Measures, the following definitions apply to the terms used in the implementation phase column:

- Detailed design - works and design progression prior to construction of the associated permanent physical works for the Amended Proposal
- Pre-construction phase – initial stage of physical works for the Amended Proposal, which are not included within the definition of construction and within Works period A
- Construction phase – during construction of all permanent physical works for the Proposal (Works periods B - G)
- Operation phase - either prior to, or during, operation of the Amended Proposal.



- LEGEND**
- Amended construction area
 - Revised vegetation exclusion zones
 - Construction site access
 - Materials crushing and batch plant (Option 2)
 - Earthworks compound
 - Pre-construction & bulk earthworks stockpiling
 - Existing railway
 - Watercourses

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ARCADIS

SIMTA SAFETY INTEGRATED MANAGEMENT TOOLKIT



Figure 1 Pre-construction activities



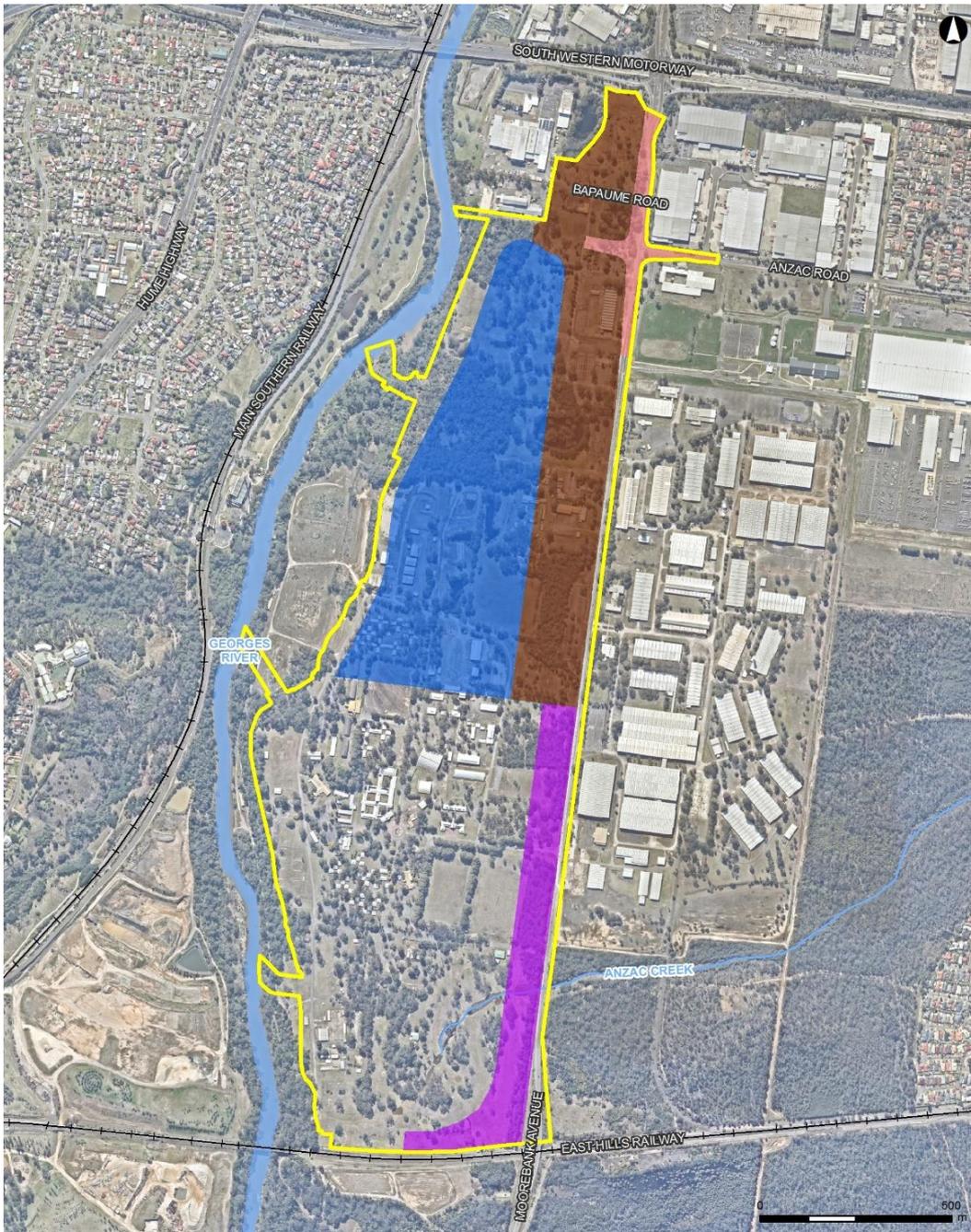
- LEGEND**
-  Site infrastructure
 -  Existing railway
 -  Watercourses

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Scale: 1:15,000 @ A4



Figure 2 Site infrastructure



- LEGEND**
- Amended construction area
 - Warehousing
 - Anzac Road Intersection
 - Existing railway
 - Intermodal Terminal (IT)
 - Watercourses
 - Rail Link Connection

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Scale: 1:15,000 @ A4



Figure 3 Key operational components

Table 1 Final Compilation of Mitigation Measures – MPW Stage 2 Proposal

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
0.	General environmental management						
0A	<p>Pre-construction works would be undertaken subject to the preparation of an Environmental Work Method Statement (EWMS) or equivalent. Pre-construction works include the following:</p> <ul style="list-style-type: none"> ▪ survey; acquisitions; or building/ road dilapidation surveys; fencing; investigative drilling, excavation or salvage ▪ minor clearing or translocation of native vegetation that does not comprise any EECs ▪ establishment of site compounds and construction facilities ▪ installation of environmental mitigation measures ▪ utilities adjustment and relocation that do not present a significant risk to the environment, as determined by the Environmental Representative ▪ other activities determined by the Environmental Representative to have minimal environmental impact ▪ All works as described in Works period A in section 4 of this EIS ▪ Stockpiling within the areas denoted for pre-construction stockpiling within Figure 1 of this document, in accordance with the stockpile management protocol. 	Pre-Construction	Y	Y	Y	Y	Y
0B	<p>The Construction Environmental Management Plan (CEMP), or equivalent, for the Proposal would be based on the PCEMP (Appendix I of this EIS), and include the following preliminary management plans:</p> <ul style="list-style-type: none"> ▪ Preliminary Construction Traffic Management Plan (PCTMP) (Appendix M of the EIS) 	Construction	Y	Y	Y	Y	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> ▪ Air Quality Management Plan (Appendix O of the EIS) ▪ Erosion and Sediment Control Plans (ESCPs) and Bulk Earthworks Plans, within the Stormwater Drainage Design Drawings (Appendix R of the EIS) <p>As a minimum, the CEMP would include the following sub-plans:</p> <ul style="list-style-type: none"> ▪ Construction Traffic Management Plan (CTMP) ▪ Construction Noise and Vibration Management Plan (CNVMP), prepared in accordance with the Interim Construction Noise Guideline ▪ Cultural Heritage Assessment Report/Management Plan ▪ Construction Air Quality Management Plan ▪ Construction Soil and Water Management Plan (SWMP), prepared in accordance with Managing Urban Stormwater, 4th Edition, Volume 1, (2004). ▪ Erosion and Sediment Control Plan ▪ Flood Emergency Response and Evacuation Plan ▪ UXO, EO, and EOW Management Plan ▪ Acid Sulfate Soils Management Plan ▪ Bushfire Management Strategy ▪ Community Information and Awareness Strategy. ▪ Flora and Fauna Management Plan (FFMP) ▪ Groundwater Monitoring Program (GMP) ▪ Stockpile Management Protocol 						
0C	The Operational Environmental Management Plan (OEMP), or equivalent, for the Proposal would be based on the following preliminary management plans	Operation	Y	Y	Y	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> ▪ Preliminary Operational Traffic Management Plan (POTMP) (Appendix M of the EIS) ▪ Air Quality Management Plan (Appendix O of the EIS) ▪ Erosion and Sediment Control Plans (ESCPs) and Bulk Earthworks Plans, within the Stormwater Drainage Design Drawings (Appendix R of the EIS) <p>As a minimum, the OEMP would include the following sub-plans</p> <ul style="list-style-type: none"> ▪ Operational Traffic Management Plan (OTMP) ▪ Operational Noise and Vibration Management plan (ONVMP) ▪ Air Quality Management Plan ▪ Flooding and Emergency Response Plan (FERP) ▪ Groundwater Monitoring Program ▪ Long term Environmental Management Plan (LTEMP) ▪ Pollution Incident Response Management Plan (PIRMP), including Spill Management Procedure, prepared under the EPA's Environmental Guidelines: Preparation of Pollution Incident Response Management Plans (EPA, 2012) ▪ Fire Safety and Evacuation Plan ▪ Community Information and Awareness Strategy. ▪ Flora and Fauna Management Plan ▪ Emergency Vehicle Response Plan 						
0D	The construction and/or operation of the Proposal may be delivered in a number of stages. If construction and/or operation is to be delivered in stages a Staging Report would be provided to the Secretary prior to commencement of the initial stage of construction and updated prior to the commencement of each stage as that stage is identified. The Staging Report would identify the progressive installation of site	Construction and operation	Y	Y	Y	Y	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	infrastructure and services, as appropriate to the progressive development of the Proposal.						
<i>0E</i>	<i>The Proposal is not anticipated to include any works within the Georges River. Should works be required within the Georges River consultation with the Department of Primary Industries (Crown Lands) would be undertaken.</i>	<i>Construction</i>	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>	<i>Y</i>
1.	Traffic and Transport						
1A	<p>A Construction Traffic Management Plan (CTMP) would be prepared based on the Preliminary Construction Traffic Management Plan (Appendix M of the EIS), detailing management controls to be implemented to avoid or minimise impacts to traffic, pedestrian and cyclist access, and the amenity of the surrounding environment. The following key initiatives would be included in the CTMP:</p> <ul style="list-style-type: none"> ▪ Review of speed restrictions along Moorebank Avenue and additional signposting of speed limitations ▪ Restriction of haulage routes through signage and education to ensure, where possible, that construction vehicles do not travel through nearby residential areas to access the Proposal site, in particular Moorebank (Anzac Road) or the Wattle Grove residential areas ▪ Inform local residents (in conjunction with the Community Information and Awareness Strategy) of the proposed construction activities and road access restrictions that the construction traffic must adhere to and establish communication protocols for community feedback on issues relating to construction vehicle driver behaviour and construction related matters ▪ Installation of specific warning signs at entrances to the construction area to warn existing road users of entering and exiting construction traffic 	Construction	Y	Y	Y	Y	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> ▪ Establishing pedestrian walking routes and crossing points ▪ Distribution of day warning notices to advise local road users of scheduled construction activities ▪ Installation of appropriate traffic control and warning signs for areas identified where potential safety risk issues exist ▪ The promotion of car-pooling for construction staff and other shared transport initiatives during the pre-construction phase ▪ <u>Facilitating emergency vehicle access to the site</u> ▪ Management of the transportation of materials to maximise vehicle loads and therefore minimise vehicle movements ▪ Minimising the volumes of construction vehicles travelling during peak periods ▪ Maintaining access to neighbouring properties, in particular the ABB site ▪ Monitoring of traffic on Moorebank Avenue during peak construction periods to ensure that queuing at intersections does not unreasonably impact on other road users. 						
1B	A Road Safety Audit would be undertaken on Cambridge Avenue to identify potential traffic safety risks from the Proposal (in consideration of background traffic) and determine appropriate mitigation.	Construction	N	N	N	N	Y
1C	Moorebank Avenue/Anzac Road/Proposal site intersection would be upgraded to include a four-leg intersection as shown in Appendix G of the EIS. The funding of this intersection upgrade would be clarified through discussions with SIMTA and Roads and Maritime.	Operation	Y	Y	Y	Y	<u>N</u>
1D	<p>The Operational Traffic Management Plan would be prepared based on the Preliminary Operational Traffic Management Plan (Appendix M of the EIS) and include the following key initiatives:</p> <ul style="list-style-type: none"> ▪ Heavy vehicle route management 	Operation	Y	Y	Y	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> ▪ Safety and amenity of road users and public ▪ Congestion management on Moorebank Avenue ▪ Road user delay management ▪ Information signage, distance information and advance warning systems ▪ Driver code of conduct ▪ Incident management ▪ Traffic monitoring. 						
1E	Consultation with TfNSW would be conducted regarding the provision for active transport to/from the Proposal site and along the internal perimeter road, as part of detailed design for the Proposal.	Operation	N	N	N	Y	<u>N</u>
1F	Bicycle and end of trip facilities would be provided in accordance with the City of Sydney Section 3 – General Provisions.	Operation	Y	N	Y	N	N
1G	Consultation would be undertaken with relevant bus provider(s) regarding the potential to extend the 901 bus service (or equivalent) and additional bus stops with the aim of maximising public transport accessibility to and within the Proposal site.	Operation	Y	Y	Y	N	<u>N</u>
1H	Importation of fill to site during construction of the Proposal is to not exceed a total of 22,000 m ³ of material per day. This limit is to be further reduced by an amount equivalent to any fill being imported to the MPE Stage 2 Proposal (SSD 7628) on the same day such that the combined importation of fill to the Proposal site and MPE site does not exceed 22,000 m ³ on any given day.	Construction	N	N	N	N	Y
1I	During operation, emergency vehicle access would be managed through an Emergency Vehicle Response Plan developed for the Proposal in consultation with the NSW Police Force, NSW Fire Brigade, NSW Rural Fire Service and the Ambulance Service of NSW, where appropriate.	Operation	Y	Y	Y	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
2.	Noise and Vibration						
2A	A Construction Noise and Vibration Management Plan (CNVMP), or equivalent, would be prepared for the Proposal in accordance with the Interim Construction Noise Guideline (or equivalent), and would give consideration to Revised Environmental Mitigation Measures (REMMs) 5A – 5B (of the MPW Concept Plan Approval (SSD 5066)).	Construction	Y	Y	Y	Y	Y
2B	The ambient noise monitoring surveys undertaken within Casula, Wattle Grove and Glenfield would be continued throughout the construction and operation of the Proposal (with annual reporting of noise results up to two years beyond the completion of the Proposal).	Construction and operation	Y	Y	Y	Y	Y
2C	In the event of any noise or vibration related complaint or adverse comment from the community, noise and ground vibration levels would be investigated. Remedial action would be implemented where feasible and reasonable.	Construction and operation	Y	Y	Y	Y	Y
2D	A noise wall would be installed along a portion of the western boundary of the Proposal site in the general location identified in Figure 7-1 of the Noise Impact Assessment (Appendix N of the EIS). The height, extent, and staged implementation of the noise wall would be confirmed, based on further noise modelling undertaken during detailed design. Should the detailed design solution require a staggered noise wall, the final noise wall would be designed to provide the appropriate level of noise attenuation to minimise operational noise impacts on nearby noise-sensitive receivers, where practicable. Noise mitigation measures would be implemented to affected residential receivers at Casula which are subject to noise impacts above the established noise criteria. These mitigation measures could include (but are not limited to) attenuation at the receiver (i.e. treatment of dwellings) and/or attenuation at the source (i.e. installation	<u>Construction and operation</u>	Y	N	Y	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<i>of a noise wall on the Proposal site). The need for the selection of noise mitigation measures, and timing for implementation, would be subject to noise monitoring during operations and further modelling to be undertaken following the commencement of operations. Provision has been made for a noise wall in the event that it is deemed necessary during operations.</i>						
2E	<p>Best practice noise mitigation measures would be implemented for the operational phase of the Proposal including:</p> <ul style="list-style-type: none"> ▪ Noise monitoring (refer to mitigation measures 2B and 2C above) ▪ A gate appointment system would be implemented to minimise truck loading/unloading wait times and resultant queueing. Trucks would be turned away from facility if arriving too early ▪ Truck marshalling lanes would be included to minimise congestion and queueing ▪ The provision of information signs and communication of MPW idle reduction policy. 	Operation	Y	Y	Y	N	N
2F	<p>Management of vibration impacts to Kitchener House.</p> <p>In the event that plant items to be used for construction identified in Table 12 of the Noise Technical Memorandum (refer to Appendix D of this RtS) are proposed to be operated within their respective "Cosmetic Damage" safe working distances from Kitchener House, then attended vibration monitoring would be conducted at Kitchener House to verify that the 'safe' vibration level is not exceeded. If exceedances are approached, the work should cease immediately, and alternative construction methods should be used.</p>	Construction	Y	N	N	Y	Y
<u>2G</u>	<i>SIMTA would restrict port shuttle locomotives that do not meet the noise requirements of Environment Protection Licences (EPLs) 3142 and 12208 from entering the MPW Stage 2 rail link.</i>	<u>Operation</u>	<u>N</u>	<u>Y</u>	<u>N</u>	<u>N</u>	<u>N</u>

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
3.	Air Quality						
3A	<p>A Construction Air Quality Management Plan would be prepared based on the Air Quality Management Plan (Appendix O of the EIS) and include the following key initiatives:</p> <p>Procedures for controlling/managing dust:</p> <ul style="list-style-type: none"> ▪ Clearing, site preparation and excavation: <ul style="list-style-type: none"> – Deploy water carts periodically during construction to ensure exposure areas and topsoils/subsoil are kept moist. – Work practices would be modified to manage/control dust by limiting clearing, stripping and spoil handling during periods of adverse weather (hot, dry and windy conditions) and when dust is seen leaving the site. – The extent of clearing of vegetation and topsoil would be limited to the designated footprint required for construction and appropriate staging of any clearing. ▪ Demolition of existing structures <ul style="list-style-type: none"> – Where possible, materials and structures would be dampened using water sprays prior to demolition. During adverse weather (hot, dry and windy conditions), consideration would be given to modify demolition activities when dust is seen leaving the site. Special consideration, including boundary monitoring would need to be given to the demolition of buildings containing asbestos in accordance with relevant guidelines and legislation. ▪ Haulage and heavy plant and equipment movements <ul style="list-style-type: none"> – Water carts would be operated on all unsealed internal roadways and travel routes. – All vehicles on-site would be confined to a designated route with a speed limit of 30km/hr enforced. 	Construction	Y	Y	Y	Y	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> – Trips and trip distances should be controlled and reduced where possible, for example by coordinating delivery and removal of materials to avoid unnecessary trips. – Dirt track-out should be managed using shaker grids and / or wheel cleaning. Dirt that has been tracked onto public roads would be cleaned as soon as practicable. – All trucks delivering fill or leaving the site with spoil material would have their load covered. <ul style="list-style-type: none"> ▪ Wind erosion <ul style="list-style-type: none"> – Wind erosion from exposed ground would be limited by avoiding unnecessary vegetation and topsoil clearing and limiting to the minimum footprint required. – Wind erosion from temporary stockpiles would be limited by minimising the number of work faces on stockpiles and through temporary stabilisation (compaction of surface, water sprays, seeding, veneering). <p>Roles, responsibilities and reporting requirements:</p> <ul style="list-style-type: none"> ▪ During construction, environmental management would be the responsibility of the construction contractor. The Construction Manager (CM) would be responsible for the day to day construction activities of the Proposal site, including the implementation of dust controls. <p>Construction dust monitoring:</p> <ul style="list-style-type: none"> ▪ Visual checks would be made daily and reported on an environmental inspection report. The visual checks would: <ul style="list-style-type: none"> – Inspect and report on excessive dust being generated at source (wheel generated dust, scrapers/graders, dozers, excavators, wind erosion). – Inspect and report on water cart activity and effectiveness. – Inspect and report on dust leaving the site. 						

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> – Non-conformance (dust leaving the site) would be reported immediately to the CM or management. ▪ Contingency measures for dust control where standard measures are deemed ineffective. 						
3B	Vehicle movements would be limited to designated entries and exits, haulage routes and parking areas.	Construction	Y	Y	Y	Y	Y
3C	<p>Best practice air quality mitigation measures would be implemented for the operational phase of the Proposal including:</p> <p>Locomotives</p> <ul style="list-style-type: none"> ▪ Ensure locomotives are well maintained in accordance with the manufacturer's specification or relevant operational plan. Update maintenance plans to include a requirement to consider air emissions and where possible improve air emission performance at next overhaul/upgrade (for SIMTA operational fleet) ▪ Ultra Low Emitting Switch Locomotives would be considered during the procurement process, having regard to technical, logistical and financial considerations ▪ Anti-idle policy and communication / training for locomotive operators ▪ Unnecessary idling avoided through driver training and site anti-idle policy ▪ Driver training for fuel efficiency. <p>Container Handling</p> <ul style="list-style-type: none"> ▪ New reach stackers to achieve emissions performance equivalent to US EPA Tier 3 / Euro Stage IIIA standards ▪ Unnecessary idling avoided through driver training and site anti-idle policy 	Operation	Y	Y	N	N	N
			Y	N	N	N	N

No.	Mitigation measures	Implementation stage	Applicability												
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure								
	<ul style="list-style-type: none"> Equipment with smoky exhausts (more than 10 seconds) should be stood down for maintenance. 														
	<p>Trucks</p> <ul style="list-style-type: none"> Gate appointment system, truck marshalling lanes and rejection of trucks that arrive early to minimise wait times and queuing Development of an anti-idle policy and communication through the provision of information signs Unnecessary idling avoided through driver training and site anti-idle policy Loading and unloading coordinated to minimise truck trip distances as they travel through site. 		Y	Y	Y	N	N								
3F	<p>The Air Quality Management Plan (Appendix O of the EIS), would be further progressed and incorporated into the OEMP for the Proposal. In accordance with the AQMP the following key aspects would be addressed in the OEMP:</p> <ul style="list-style-type: none"> Implementation and communication of anti-idling policy for trucks and locomotives Complaints line for the community to report on excessive idling and smoky vehicles Procedures to reject excessively smoky trucks visiting the site based on visual inspection. 	Operation	Y	Y	Y	N	N								
<u>3G</u>	<p><u>SIMTA would restrict port shuttle locomotives from entering the MPW Stage 2 rail link, that do not meet the following air emissions standards:</u></p> <table border="1"> <thead> <tr> <th><u>Locomotive Type</u></th> <th><u>Standard</u></th> <th><u>Periodic Improvements</u></th> <th><u>Ultimate Outcome</u></th> </tr> </thead> <tbody> <tr> <td><u>Existing locomotives</u></td> <td><u>Operated with diesel particulate emissions less</u></td> <td><u>Any overhauls of existing locomotives after the</u></td> <td><u>All existing locomotives to comply with 7</u></td> </tr> </tbody> </table>	<u>Locomotive Type</u>	<u>Standard</u>	<u>Periodic Improvements</u>	<u>Ultimate Outcome</u>	<u>Existing locomotives</u>	<u>Operated with diesel particulate emissions less</u>	<u>Any overhauls of existing locomotives after the</u>	<u>All existing locomotives to comply with 7</u>	<u>Operations</u>	<u>Y</u>	<u>Y</u>	<u>N</u>	<u>N</u>	<u>N</u>
<u>Locomotive Type</u>	<u>Standard</u>	<u>Periodic Improvements</u>	<u>Ultimate Outcome</u>												
<u>Existing locomotives</u>	<u>Operated with diesel particulate emissions less</u>	<u>Any overhauls of existing locomotives after the</u>	<u>All existing locomotives to comply with 7</u>												

No.	Mitigation measures				Implementation stage	Applicability				
						IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
		<i>than 0.30 grams per kilowatt hour</i>	<i>commencement of operations</i>	<i>years of operation</i>						
	<i>New locomotives</i>	<i>Operated with diesel particulate emissions less than 0.27 and NOx emissions of less than 7.37 grams per kilowatt hour.</i>	<i>Any new locomotives ordered after the commencement of operations</i>	<i>N/A</i>						
		<i>Operated with diesel particulate emissions less than 0.13 and NOx emissions of less than 7.37 grams per kilowatt hour.</i>	<i>Any new locomotives ordered after 5 years of the commencement of operations</i>	<i>N/A</i>						
4.	Biodiversity									
4A	<p>Following detailed design and before construction, detailed flora and fauna mitigation measures would be developed and presented as part of the CEMP. These detailed measures would incorporate the measures listed below.</p> <p>The CEMP would address:</p> <ul style="list-style-type: none"> ▪ general impact mitigation ▪ staff/contractor inductions ▪ vegetation clearing protocols including identification of exclusion zones ▪ pre-clearing surveys and fauna salvage/translocation ▪ rehabilitation and restitution of adjoining habitat ▪ weed control ▪ pest management 				Construction	Y	Y	Y	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> ▪ monitoring. <p>The CEMP would include clear objectives and actions for the Proposal including how to:</p> <ul style="list-style-type: none"> ▪ minimise human interferences to flora and fauna ▪ minimise vegetation clearing/disturbance ▪ minimise impact to threatened species and communities ▪ minimise impacts to aquatic habitats and species ▪ undertake flora and fauna monitoring at regular intervals. 						
4B	Vegetation clearing would be restricted to the construction footprint with sensitive areas, outside of this footprint, clearly identified as vegetation exclusion zones.	Pre-construction and Construction	Y	Y	Y	Y	Y
4C	The vegetation exclusion zones would be marked on maps, which would be prepared by the contractor/s, and would also be marked on the ground using high visibility fencing (such as barrier mesh).	Pre-construction and Construction	Y	Y	Y	Y	Y
4D	A suitably qualified ecologist would accompany clearing crews to ensure disturbance is minimised and to assist in relocating any native fauna to adjacent habitat.	Construction	Y	Y	Y	N	Y
4E	<p>The following procedures would be implemented to minimise fauna impacts from vegetation clearance:</p> <ul style="list-style-type: none"> ▪ A staged habitat removal process would be developed and would include the identification and marking of all habitat trees in the area ▪ Where reasonable and feasible, clearing of hollow-bearing trees would be undertaken in March and April when most microbats are likely to be active (not in torpor) but are unlikely to be breeding or caring for young, and when threatened hollow-bearing tree dependent birds in the locality are also unlikely to be breeding 	Construction	Y	Y	Y	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> ▪ Pre-clearing surveys would be conducted 12 to 48 hours before vegetation clearing to search for native wildlife (e.g. reptiles, frogs, Cumberland Land Snail) that can be captured and relocated to the retained riparian vegetation of the Georges River corridor ▪ Vegetation would be cleared from a 10 m radius around habitat trees to encourage animals roosting in hollows to leave the tree. A minimum 48 hour waiting period would allow animals to leave ▪ After the waiting period, standing habitat trees would be shaken (where safe and practicable) under the supervision of an ecologist to encourage animals roosting in hollows to leave the trees, which may then be felled, commencing with the most distant trees from secure habitat ▪ Felled habitat trees would either be immediately moved to the edge of retained vegetation, or left on the ground for a further 24 hours before being removed from the construction area, at the discretion of the supervising ecologist ▪ All contractors would have the contact numbers of wildlife rescue groups and would be instructed to coordinate with these groups in relation to any animal injured or orphaned during clearing. 						
4F	<p>Within areas of high quality intact native vegetation proposed to be removed:</p> <ul style="list-style-type: none"> ▪ Topsoil (and seedbank) would be collected from native vegetation that are to be permanently cleared and used in the revegetation of riparian areas ▪ Where feasible and reasonable native plants in areas that are to be permanently cleared would be relocated and transplanted in riparian areas identified for rehabilitation 	Construction	Y	Y	Y	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
4G	Relocation of fauna to adjacent retained habitat would be undertaken by a suitably qualified ecologist during the supervision of vegetation removal.	Construction	Y	Y	Y	Y	Y
4H	An ecologist would supervise the drainage of any waterbodies on the Proposal site and would relocate tortoises and frogs to the edge of the Georges River and/or the existing pond at the northern end of the Proposal site. Native fish (e.g. eels) that are endemic to the Sydney area would be translocated from drained ponds/dams on the site to natural waterways and pest fish would be euthanised on ice. If non-endemic native species are encountered on site, DPI Fisheries would be consulted to determine the best location to translocate this species.	Construction	Y	Y	Y	N	Y
4I	The design of temporary site fencing and any overhead powerlines would consider the potential for collision by birds and bats and minimise this risk where practicable.	Detailed design & Pre-construction, construction	Y	Y	Y	Y	Y
4J	The potential for translocation of threatened plant species as individuals or as part of a soil translocation process would be considered during the detailed development of the EWMS and CEMP.	Detailed design, construction and construction	Y	Y	Y	N	Y
4K	Important habitat elements (e.g. large woody debris) would be moved from the construction area to locations within the conservation area which would not be cleared during the Proposal, or to stockpiles for later use in vegetation/habitat restoration.	Pre-construction and Construction	Y	Y	Y	N	Y
4L	Winter-flowering trees would be preferentially planted in landscaped areas of the Proposal site to provide a winter foraging resource for migratory and nomadic nectar-feeding birds and the Grey-headed Flying-fox.	Detailed design, Pre-construction and Construction	Y	Y	Y	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
4M	Erosion and sediment control measures such as silt fencing and hay bales would be used to minimise sedimentation of streams and resultant impacts on aquatic habitats and water quality. The erosion and sediment controls to be included to avoid, minimise and mitigate against the potential for construction of the Proposal to result in erosion and sedimentation impacts will be determined in consideration of the erosive potential of locally occurring soils, and the characteristics of the clean general fill to be imported as part of construction of the Proposal.	Pre-construction and Construction	Y	Y	Y	Y	Y
4N	Opportunities for planting of detention basins with native aquatic emergent plants and fringing trees would be explored in the detailed design of the Proposal and, if practicable, implemented so that they would provide similar habitat in the medium term to that lost through the removal of existing basins.	Detailed design and construction	Y	Y	N	N	Y
4O	The CEMP (or equivalent) would include detailed measures for minimising the risk of introducing weeds and pathogens for construction related vehicles and equipment.	Construction	Y	Y	Y	Y	Y
4P	The CEMP and OEMP for the Proposal would consider and have reference to the weed removal and riparian vegetation restoration undertaken within parts of the Georges River corridor under the MPW Concept Approval (identified within the Biodiversity Offset Package for the MPW Project).	Construction and operation	N	N	N	N	Y
4Q	The detailed design process would consider the potential groundwater impacts on groundwater-dependent ecosystems. In most cases, these impacts, if evident, would be mitigated at the design phase.	Detailed design and construction	Y	Y	Y	N	Y
4R	The OEMP would include a biodiversity monitoring program designed to detect operational impacts of the Georges River riparian corridor (within the offset site).	Operation	Y	Y	Y	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
4S	Ongoing monitoring of macroinvertebrate communities would be undertaken prior to, during and following construction upstream and downstream of the potential impacts at the proposed basin outlets in the Georges River and reference locations to assist in identifying any changes in aquatic communities.	Pre-construction, construction and operation	Y	Y	Y	N	Y
4T	The proposed stormwater basin outlets would be designed to minimise biodiversity impacts by incorporating native revegetation and fauna habitat features as far as possible.	Detailed design	Y	Y	Y	N	Y
4U	The native vegetation and connectivity values in the proposed basin outlets would be monitored to ensure that fauna passage is maintained.	Construction and operation	Y	Y	Y	N	Y
4V	During operation, both threatened and non-threatened species of frogs and reptiles may be at risk of injury or mortality. Controls such as fencing would be put in place to keep land-based fauna away from the operating terminals.	Operation	Y	Y	Y	N	Y
4W	A monitoring program would be developed and implemented to measure the performance of revegetation activities in the Georges River riparian zone and associated conservation area.	Construction and operation	Y	Y	Y	N	Y
5.	Stormwater and Flooding						
5A	A Soil and Water Management Plan (SWMP) and Erosion and Sediment Control Plan (ESCP), or equivalent, would be prepared for the Proposal. The SWMP and ESCPs would be prepared in accordance with the principles and requirements of the Blue Book and based on the Preliminary ESCPs provided in the Stormwater and Flooding Assessment Report (refer to Appendix R of the EIS). The following aspects would be addressed within the SWMP and ESCPs: <ul style="list-style-type: none"> Minimise the area of soil disturbed and exposed to erosion 	Construction	Y	Y	Y	Y	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> ▪ Priority should be given to management practices that minimise erosion, rather than to those that capture sediment downslope or at the catchment outlet ▪ Divert clean water around the construction site or control the flow of clean water at non-erodible velocities through the construction area ▪ Provision of boundary treatments around the perimeter of construction areas to minimise the migration of sediment offsite ▪ Permanent or temporary drainage works (in particular OSDs) would be installed as early as practical in the construction program to minimise uncontrolled drainage and associated erosion ▪ Stockpiles would be located away from flow paths on appropriate impermeable surfaces, to minimise potential sediment transportation. Where practicable, stockpiles would be stabilised if the exposed face of the stockpile is inactive more than ten days, and would be formed with sediment filters in place immediately downslope ▪ Disturbed land would be rehabilitated as soon practicable ▪ The wheels of all vehicles would be cleaned prior to exiting the construction site where excavation occurs to prevent the tracking of mud. Where this is not practical, or excessive soil transfer occurs onto paved areas, street cleaning would be undertaken when necessary. ▪ A requirement to inspect all permanent and temporary erosion and sedimentation control works prior to and post rainfall events and prior to closure of the construction area. Erosion and sediment control structures must be cleaned, repaired and augmented as required. ▪ Where required, sediment basins and their outlets would be designed to be stable in the peak flow from at least the 10-year 						

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<p>ARI time of concentration event. Sediment basins should be sized to accommodate the 5 day, 80th percentile storm event, with sufficient size and capacity to manage Type F soils. Sediment basins must be regularly cleaned to maintain the design capacity. Prior to discharge from sediment basins, water would be tested for the following parameters to identify construction impacts:</p> <ul style="list-style-type: none"> – pH – Turbidity / TSS – Oil and grease. <ul style="list-style-type: none"> ▪ Sediment fences are to be provided around the perimeter of the site to ensure no untreated runoff leaves the site, and around the existing and proposed drainage channels to minimise sediment migration into waterways and sediment basins ▪ The following management measures would be implemented during works in and adjacent to Georges River to mitigate potential impacts on water quality during OSD channel construction: <ul style="list-style-type: none"> – All reasonable efforts would be taken to program construction activities during periods when flood flows are not likely to occur – The construction site, on completion of construction works, would be left in a condition that promotes native revegetation – The management principles outlined in Managing Urban Stormwater (Landcom 2004) for sites with high erosion potential would be implemented. 						
5B	Proposal site exits would be fitted with hardstand material, rumble grids or other appropriate measures to limit the amount of material transported offsite.	Construction	Y	Y	Y	Y	Y
5C	The following measures would be considered during the development of construction methodology for the Proposal to mitigate flooding impacts:	Construction	N	N	Y	Y	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> For all site works, provide temporary diversion channels around temporary work obstructions to allow low and normal flows to safely bypass the work areas Locate site compounds, stockpiling areas and storage areas for sensitive plant, equipment and hazardous materials above an appropriate design flood level, outside of the PMF extent at the northern section of the construction area, to be determined based on the duration of the construction work. 						
5D	<p>To minimise potential flood impacts during construction of the Proposal, the following measures would be implemented and documented in the SWMP:</p> <ul style="list-style-type: none"> The existing site catchment and sub-catchment boundaries would be maintained as far as practicable To the extent practicable, site imperviousness and grades should be limited to the extent of existing imperviousness and grades under existing development conditions Smaller detention storages that provide adequate rainfall runoff mitigation during partial construction/site development would be considered. Temporary structures used to convey on site run-off during construction would be designed to accommodate flows during prolonged or intense rainfalls. The existing stormwater conduit conveying flows from Moorebank Avenue to the Georges River would be assessed to ensure it is adequate to accommodate run-off from the construction area. 	Construction	N	N	Y	Y	Y
5E	A Flood Emergency Response and Evacuation Plan, or equivalent, would be prepared and implemented for the construction phase of the Proposal to allow work sites to be safely evacuated and secured in	Construction	N	N	Y	Y	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	advance of flooding occurring at the Proposal site. The plan would be prepared in consultation with the State Emergency Service.						
5F	Stormwater quality improvement devices would be designed to meet the performance targets identified in the Stormwater and Flooding Environmental Assessment (Appendix R of the EIS), and civil design drawings. Maintenance of the bio-retention structures would be in accordance with the maintenance requirements set out in Gold Coast City Council's Water Sensitive Urban Design Guidelines 2007 and would be included in the OEMP.	Operation	Y	Y	Y	N	Y
5G	Operational water quality monitoring is to be carried out and included in the OEMP with the objective of maintaining or improving existing water quality.	Operation	Y	Y	Y	N	Y
5H	A Flood Emergency Response Plan (FERP) would be prepared and implemented for the operational phase of the Proposal. The FERP would take into consideration, site flooding and broader flood emergency response plans for the Georges River floodplains and Moorebank area. The FERP would also include the identification of an area of safe refuge within the Proposal site that would allow people to wait until hazardous flows have receded and safe evacuation is possible. The FERP would be prepared in consultation with the State Emergency Service.	Operation	Y	Y	Y	Y	Y
5I	Stockpile sites established during construction are to be managed in accordance with stockpile management principles set out in Appendix L of this RtS. Mitigation measures within the Stockpile Management Protocol include: <ul style="list-style-type: none"> ▪ In order to accept fill material onto site, material characterisation reports/certification showing that the material being supplied is VENM/ENM must be provided. 	Construction	Y	Y	Y	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> ▪ Each truck entering the MPE Stage 2 Proposal site will be visually checked and documented to confirm that only approved materials that are consistent with the environmental approvals are allowed to enter the site. ▪ Only fully tarped loads are to be accepted by the gatekeeper. ▪ Environmental Assurance of imported fill material will be conducted to confirm that the materials comply with the NSW EPA Waste Classification Guidelines and the Earthworks Specification for the MPW site. The frequency of assurance testing will be as nominated by the Environmental assesor/auditor. ▪ All trucks accessing the site for the purpose of clean general fill importation would enter and exit via the existing main MPE Stage 2 site access located in the North-west of the MPE site from Moorebank Avenue. ▪ Ingress and egress to the stockpiling areas would be arranged so that the reversing of trucks within the site is minimised. ▪ Stockpiles would not exceed ten-metres in height from the final site levels, with battered walls at gradients of 1V:3H □ For any stockpile heights greater than 4 m, benching would be implemented. ▪ For any stockpile heights greater than 4 m, benching would be implemented. ▪ Where reasonable and feasible, and to minimise the potential for erosion and sedimentation of stockpile(s), stockpile profiles would typically be at angle of repose (the steepest angle at which a sloping surface formed of loose material is stable) with a slight concave slope to limit the loss of sediments off the slope, or through the profile and the formation of a toe drain. ▪ The top surface of the stockpile(s) would be slightly sloped to avoid ponding and increase run off. 						

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> ▪ Topsoil stockpiles would be vegetated to minimise erosion. ▪ Stockpiles would be protected from upslope stormwater surface flow through the use of catch drains, berms, or similar feature(s) to divert water around the stockpile(s). ▪ A sediment control device, such as a sediment fence, berm, or similar, would be positioned downslope of the stockpile to minimise sediment migration. ▪ Any water seepage from stockpiles would be directed by toe drains at the base of the stockpiles toward the sediment basins or check dams and away from the emplacement or extraction working face. ▪ Newly formed stockpiles would be compacted (sealed off) using a smooth drum roller at the end of each working day to minimise water infiltration. ▪ Haul roads would be located alongside the stockpile to the work/tipping area. As per best practice, the catchment area of haul roads for surface water runoff would be approximately 2530 m lengths, facilitated by the provision of spine drains which would convey water from the haul road to toe drains at the base of the stockpile, and then to sediment basins. ▪ Temporary sediment basins would be established in accordance with the ESCP prepared for the site. ▪ Stockpiling of clean fill material is to be carried out during Works Period A (pre-construction) and Works Period D (bulk earthworks). ▪ Any imported clean general fill material that would be subject to stockpiling within the Proposal site for more than a 10-day period without being worked on, would be subject to stabilisation works, to minimise the potential for erosion. ▪ Where the material being stockpiled is less coarse or has a significant component of fines then surface and slope stabilisation 						

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<p>would be undertaken. Methods for slope stabilisation may include one or a combination of the following:</p> <ul style="list-style-type: none"> – Application of a polymer to bind material together – Application of hydro-seed or hydromulch – Covering batters with mulch to provide ground cover. – Covering batters with geofabric – Use of a simple sprinkler system for temporary stockpiles, including use of radiating sprinkler nozzles to maintain fine spray over exposes surfaces. – Other options identified by the Contractor. <ul style="list-style-type: none"> ▪ Topsoil stockpiles would be seeded with a grass/legume or nitrogen fixing species (such as acacia) to assist in erosion control and reduce loss of beneficial soil nutrients and micro-organisms. 						
5J	Gross pollutant traps would be provided at basin inlets for all permanent basins during operation.	Construction	N	N	N	N	Y
5K	Hydraulic modelling of OSD outlet channels (using HEC-RAS software) would be undertaken during detailed design, to facilitate the design of the channels and demonstrate their effectiveness with respect to energy dissipation and scour protection elements	Detailed Design	N	N	N	N	Y
6.	Geology, Soils and Land Contamination						
6A	The CEMP would identify the actions to be taken should additional contamination be identified during the development of the site (i.e. an unexpected finds protocol), and will address REMM items 8H, 8T, 8U, 8V and 8W (of the MPW Concept Plan Approval (SSD 5066)).	Construction	N	N	N	Y	Y
6B	A site specific Remediation Action Plan (RAP) is not considered to be required for the Proposal. The following documentation would be utilised for the purposes of remediating the site:	Construction	N	N	N	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> ▪ The Preliminary Remediation Action Plan (PB, 2014a) ▪ The Validation Plan – Principles (Golder, 2015b) ▪ The Demolition and Remediation Specification (Golder 2015c) ▪ Any other contamination documentation prepared for the remediation activities undertaken for MPW Early Works (Stage 1). 						
6C	The CEMP would include the preparation of a site-wide UXO, EO, and EOW management plan (or equivalent) based on the UXO Risk Review and Management Plan (G-Tek, 2016). This plan would be implemented to address the discovery of UXO or EOW during construction, to ensure a safe environment for all staff, visitors and contractors.	Construction	N	N	N	N	Y
6D	<p>An Asbestos in Soils Management Plan (AMP) is to be implemented as part of the CEMP in accordance with the Safe Work NSW requirements, including but not limited to:</p> <ul style="list-style-type: none"> ▪ 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). 	Construction	N	N	N	Y	Y
6E	<p>An Acid Sulfate Soils Management Plan (or equivalent) would be prepared as part of the CEMP in accordance with the ASSMAC Assessment Guidelines (1998), for areas identified as being of low or high risk i.e. works within close vicinity of the Georges River (Figure 13-2 of this EIS).</p> <p>In addition, a risk assessment quantifying the risks associated with the volumes of soil to be disturbed, the laboratory results from ASS testing undertaken, the end use of the materials and the proximity to sensitive environments is to be undertaken.</p> <p>All offsite disposal would be in accordance with the NSW Waste Classification Guidelines Part 4: Acid Sulfate Soils (2009).</p>	Construction	N	N	N	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
6F	<p>The existing groundwater monitoring undertaken for the Proposal would continue. A groundwater monitoring program (GMP) would be developed at the conclusion of remediation activities for the Proposal and included as part a Long Term Environmental Management Plan (LTEMP) (to be prepared for approval by the Accredited Site Auditor and in association with the OEMP). The main purpose of the GMP would be to assist in the management of groundwater contamination (particularly PFAS impacts) at the site, and to minimise potential harm to human health and the environment. The GMP would achieve the following objectives:</p> <ul style="list-style-type: none"> ▪ 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 groundwater investigation levels (GILs) for groundwater contaminants, in accordance with the National Environment Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM). Should exceedances be identified, contingency plans for further investigations or remediation would be prepared. ▪ Provide appropriate trigger levels for key contaminants (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) ▪ 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 	Pre-construction, construction and operation	Y	Y	Y	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> 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. <p>The monitoring program is to be undertaken for two years post operation of the Proposal to ensure a range of seasonal and river flow variations is assessed. At the completion of the two year period, subject to analysis of results, consideration would be given to whether this monitoring is required to continue.</p> <p><i>The approach to PFAS management will be confirmed following further monitoring in consultation with, and the approval of, the NSW EPA Accredited Site Auditor.</i></p>						
6G	Findings within the Geotechnical Interpretive Report (Golder, 2016 – Appendix S of the EIS) regarding excavations, earthworks, pavements and structural footings are to be considered during detailed design.	Detailed design	N	N	N	N	Y
6H	<p>At the conclusion of remediation works, a Remediation and Validation Report (RVR) is to be prepared for the Proposal to facilitate the Auditor's review of remediation and validation activities. The RVR is to document the remediation and validation activities completed within specific areas of the Proposal, including:</p> <ul style="list-style-type: none"> Information relating to the materials used in the separation layers such as the soil types, geotextile materials, and sealant types etc. (if required) An as-constructed plan of the site showing the locations, depths and materials of the separation layers installed at the site. 	Operation	N	N	N	N	Y
6I	The existing site-wide Long-Term Environmental Management Plan (LTEMP), such as the one established at the completion of Early Works, is to be revised at the completion of the Proposal remediation activities to include protocols for ongoing maintenance and/or	Operation	N	N	N	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	monitoring or any long term remedial/mitigation measures to be implemented following completion of the Site Audit Statement.						
6J	<p>In order to accept fill material onto site, the following will be undertaken:</p> <ul style="list-style-type: none"> Material characterisation reports/certification showing that the material being supplied is VENM/ENM must be provided. Each truck entry will be visually checked and documented to confirm that only approved materials that are consistent with the environmental approvals are allowed to enter the site. Only fully tarped loads are to be accepted by the gatekeeper. Environmental Assurance of imported fill material will be conducted to confirm that the materials comply with the NSW EPA Waste Classification Guidelines and the Earthworks Specification for the MPW site. The frequency of assurance testing will be as nominated by the Environmental assessor/auditor. 	Construction	N	N	N	N	Y
6K	The CEMP would include an Earthworks Specification, which would include details on earthworks material criteria, handling and placement requirements, embankment and cutting formation (including foundation, batter and benching requirements), unsuitable material and bridging layer requirements, conformance testing methods and acceptance criteria (e.g. for material acceptance and compaction control).	Construction	N	N	N	N	Y
6L	In areas where placement of fill would occur to final site levels, but hardstand and warehousing is not currently proposed, exposed surfaces would be stabilised using hydroseeding, or the application of a bitumen emulsion or a similar stabilisation method.	Construction	N	N	N	N	Y
7.	Hazard and risk						
7A	<p>The following measures would be included in the CEMP (or equivalent) to minimise hazards and risks:</p> <ul style="list-style-type: none"> Procedures for safe removal of asbestos 	Construction	Y	Y	Y	Y	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> Provision for safe operational access and egress for emergency service personnel and workers would be provided at all times An Incident Response Plan that would include a Spill Management Procedure. 						
7B	<p>To minimise the risk of leakages involving natural gas, LNG and flammable and combustible liquids to the atmosphere:</p> <ul style="list-style-type: none"> Appropriate standards for a gas reticulation network, including AS 2944-1 (2007) and AS 2944-2 (2007), would be applied Correct schedule pipes would be used Fire protection systems would be installed as required Access to the Proposal site would be restricted to authorised personnel. 	Operation	Y	Y	Y	N	N
7C	<p>To minimise the risks of leakage of LNG and flammable liquids during transport:</p> <ul style="list-style-type: none"> The transport of dangerous goods by road would comply with the Dangerous Goods (Road and Rail Transport) Act 2008 and the Dangerous Goods (Road and Rail Transport) Regulation 2014 Contractors delivering the gas would be trained, competent and certified by the relevant authorities. 	Operation	Y	Y	Y	N	N
7D	<p>To minimise hazards associated with venting of LNG:</p> <ul style="list-style-type: none"> LNG storage would be designed to AS/NZS 1596-2008 standards Access to the Proposal site would be restricted to authorised personnel Adequate separation distances to residencies and other assets would be maintained. 	Operation	Y	Y	Y	N	N

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
7E	Storage of flammable/combustible liquids would be undertaken in accordance with AS 1940, with secondary containment in place in a location away from drainage paths.	Operation	Y	Y	Y	N	N
7F	Intermodal terminal facility and warehousing staff involved in the transport and handling of dangerous goods would receive training in the contents of the dangerous goods provisions commensurate with their roles and responsibilities. Training is to be provided and records maintained in accordance with the appropriate competent authority (WorkCover NSW).	Operation	Y	Y	Y	N	N
7G	The 190 KL of diesel fuel (combustible liquids of class C) would be stored on site in a separate 97 KL self-bunded container and would be stored away from other flammable materials of class 3PGI, II or III. The manifest threshold quantity under this circumstance is 100 KL for each tank. Refuelling of locomotives is likely to occur on the locomotive shifter, which would catch any spills during the refuelling process. Spill kits would be located in the vicinity of the refuelling location and staff would be trained in the use.	Operation	Y	N	N	N	N
7H	A preliminary risk screening assessment would be undertaken prior to any refuelling activities being undertaken onsite using LPG to ensure compliance with storage requirements (location, tank size and separation distances) under SEPP 33 (specific to the type of fuel to be stored) to maintain acceptable risk levels associated with refuelling procedures.	Operation	Y	N	Y	N	N
7I	The storage and handling of any LPG or LNG stored within warehouses onsite as part of the Proposal must demonstrate compliance with storage requirements in accordance with the Applying SEPP 33 guideline.	Operation	N	N	Y	N	N
8.	Visual Amenity, urban design and landscape						

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
8A	<p>The following mitigation measures would be implemented, where reasonable and feasible, to minimise the visual impacts of the Proposal:</p> <ul style="list-style-type: none"> ▪ Existing vegetation around the perimeter of construction sites would be retained where feasible and reasonable ▪ The early implementation of landscape planting would be considered in order to provide visual screening during the construction of the Proposal ▪ Elements within construction sites would be located to minimise visual impacts as far as feasible and reasonable, e.g. setting back large equipment from site boundaries ▪ Construction lighting, on both ancillary facilities and plant and equipment, would be designed and located to minimise the effects of light spill on surrounding sensitive receivers, including residential areas and the proposed conservation area ▪ Design of site hoardings would consider the use of artwork or project information ▪ Regular maintenance would be undertaken of site hoardings and perimeter areas including the prompt removal of graffiti ▪ Re-vegetation/landscaping would be undertaken progressively ▪ Where required for construction works, cut-off and directed lighting would be used and lighting location considered to ensure glare and light spill are minimised. 	Construction	Y	Y	Y	Y	Y
8B	<p>The following mitigation measures would be implemented, where reasonable and feasible, for the landscaping of the Proposal:</p> <ul style="list-style-type: none"> ▪ Use of species that are local to the area ▪ Use of trees to provide a uniform canopy cover within vegetated areas 	Operation	Y	Y	Y	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> Use of local species as understory planting to support and enhance local habitat values Use of seeds collected within the local area for planting to reinforce the genetic integrity of the region, where possible. 						
8C	<p>The following initiatives would be implemented for mitigation of light spill:</p> <ul style="list-style-type: none"> Lighting would be designed to minimise impacts on surrounding existing and future residents and the proposed conservation zone The use of shields on luminaire lighting to minimise brightness effects would be considered Asymmetric light distribution-type floodlights would be selected as part of the proposed lighting design (i.e. the light is directed specifically to the task with minimal direct light spill to the surrounding area) Low reflection pavement surfaces would be considered to reduce brightness The quantity of light and energy consumption in parts of the Proposal site that are not active would be minimised, while retaining safe operation. 	Detailed design and operation	Y	Y	Y	N	Y
9. Indigenous Heritage							
9A	The scar portions of MA6 & MA7 would be removed by a qualified arborist and relocated to the TLALC property at Thirlmere, or a suitable area identified in consultation with Registered Aboriginal Parties (RAPs). The trees should be mounted and housed in a weather protected structure. All costs associated with the removal, relocation and housing of the trees would be covered by the Proponent. The relevant RAP would be responsible for the maintenance of the housing once established.	Construction	N	N	N	N	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
9B	<p>Staged salvage excavation of selected areas should be conducted as part of the Proposal, in consultation with RAPs. These stages include:</p> <ul style="list-style-type: none"> ▪ Part 1 would involve dispersed pits placed along transects within the Terrace PAD and the tertiary terrace (between MA10 and MA14 – refer to Figure 16-2 of this EIS). ▪ Part 2 would involve open area salvage excavation, targeting the artefact concentrations identified by NOHC at MA10 and MA14, as well as any additional artefact concentrations identified during Part 1. 	Construction	N	N	N	N	Y
9C	Where changes are made to the Proposal and areas not assessed by this report or previous reports (NOHC 2014, NOHC Sept 2014, AHMS 2015) are to be impacted, further Aboriginal heritage investigation and consultation should take place.	Construction	Y	Y	Y	Y	Y
9D	An Aboriginal Cultural Heritage Assessment Report (ACHAR) (also known as a Cultural Heritage Management Plan) would be prepared as part of the CEMP for the Proposal and would outline ongoing management/ mitigation measures relating to MA6 and MA7.	Construction	N	N	N	N	Y
9E	An unexpected finds procedure would be included in the ACHAR and in place for the construction phase of the Proposal.	Construction	N	N	N	Y	Y
9F	If suspected human remains are located during any stage of the construction works, work would stop immediately and the NSW Police and the Coroner's Office should be notified. The Office of Environment and Heritage, RAPs and an archaeologist would be contacted if the remains are found to be Aboriginal.	Construction	N	N	N	Y	Y
9G	Consultation with RAPs would continue throughout the life of the Proposal, as necessary. Ongoing consultation with RAPs would take place throughout the reburial of retrieved artefacts and in the event of the discovery of any unexpected Aboriginal objects.	Pre-Construction, construction and operation	N	N	N	Y	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
10.	Non-Indigenous Heritage						
10A	Naming of roads would consider previous School of Military Engineering (SME) street names.	Detailed Design	Y	Y	Y	N	Y
10B	Naming of buildings and roads (in addition to above) would consider commemoration of significant events and individuals related to the Moorebank Cultural Landscape.	Detailed Design	Y	Y	Y	N	Y
10C	An unexpected finds protocol (or equivalent), including a stop works procedure, would be included within the CEMP. If unexpected finds are identified during works, the stop works procedure would be followed and a suitably qualified archaeological consultant would be engaged to assess the significance of the finds and the NSW Heritage Council notified. In this instance, further archaeological work or recording may be required.	Construction	Y	Y	Y	Y	Y
11.	Greenhouse Gas						
11A	<p>The following mitigation measures would be implemented, where reasonable and feasible, for management of GHG emissions as part the operation of the Proposal:</p> <ul style="list-style-type: none"> ▪ Energy efficiency design aspects would be incorporated wherever practicable to reduce energy demand ▪ Fuel efficiency of the operation plant/equipment would be assessed prior to selection, and where practical, equipment with the highest fuel efficiency and which uses lower GHG intensive fuel (e.g. biodiesel) would be used ▪ Energy-efficient guidelines for operational work would be considered and implemented where appropriate and regular maintenance of equipment would be undertaken to maintain fuel efficiency 	Detailed design	Y	Y	Y	N	N

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> Methods to reduce losses from industrial processes (refrigerants and SF6) would be investigated during detailed design Consideration would be given to undertake further investigation and implementation of cost negative abatement opportunities Investigate and, where possible, implement key performance indicators (KPIs) for plant efficiency and GHG intensity. <p>The mitigation measures, management strategies and abatement opportunities presented in this report would be reviewed and considered where appropriate for incorporation into the OEMP.</p>						
11B	<p>The following initiatives would be implemented, where reasonable and feasible, for mitigation of GHG emissions during construction:</p> <ul style="list-style-type: none"> Construction works would be planned to minimise double handling of materials Construction/transport plans would be incorporated within the CEMP to minimise the use of fuel during construction Fuel efficiency of the construction plant/equipment would be assessed prior to selection, and where practical, equipment with the highest fuel efficiency and which uses lower GHG intensive fuel (e.g. biodiesel) would be used On-site vehicles would be fitted with exhaust controls in accordance with the Protection of the Environment Operations (Clean Air) Regulation 2010, as required and appropriate. Regular maintenance of equipment would be undertaken to maintain good operations and fuel efficiency Where practicable, trucks removing waste from the site or bringing materials to the site would be filled to the maximum amount allowable, depending on the truck size and load weight, to reduce the number of traffic movements required 	Construction	Y	Y	Y	Y	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> The mitigation measures, management strategies and abatement opportunities (Section 18 of this EIS) would be reviewed and considered where appropriate for incorporation into the CEMP. 						
12.	Waste						
12A	<p>The following mitigation measures would be implemented as part of the CEMP (or equivalent) for waste management:</p> <ul style="list-style-type: none"> Characterisation of construction waste streams in accordance with the NSW Waste Classification Guidelines Management of any identified hazardous waste streams Procedures to manage construction waste streams, including handling, storage, classification, quantification, identification and tracking Mitigation measures for avoidance and minimisation of waste materials Procedures and targets for re-use and recycling of waste materials. 	Construction	Y	Y	Y	Y	Y
12B	<p>The following mitigation measures would be implemented as part of the OEMP (or equivalent) for waste management:</p> <ul style="list-style-type: none"> Addressing waste management requirements and goals in staff inductions Providing staff access to documentation outlining the facility's waste management requirements Locating recycling bins in kitchen areas beside general waste bins to prevent contamination of recycling Positioning paper recycling bins close to printer / photocopying equipment 	Detailed design and operation	Y	Y	Y	N	N

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> ▪ Establishing bays or containers for recyclable waste generated through de-stuffing ▪ Minimising general waste bins at desks but providing adequate container and paper recycling to encourage sorting of recyclables ▪ Providing adequate bin storage for the expected quantity of waste. ▪ Waste management planning incorporating principles of the waste hierarchy ▪ Selection of materials used in operations with recycled content, low embodied energy and durability ▪ Appropriate areas shall be provided for the storage of waste and recyclable material ▪ Standard signage on how to use the waste management system and what materials are acceptable in the recycling would be posted in all waste collection and storage areas ▪ All waste shall be collected regularly and disposed of at licensed facilities ▪ An education programme and on-going monitoring for training personnel to properly sort and transport waste into the right components and destinations. 						
12C	Container disposal units would be provided in the area around the diesel re-fuelling station to dispose of used spills kits. These containers would be taken for disposal at an appropriately licensed facility.	Operation	Y	N	Y	N	N
13.	Bushfire						
13A	The following actions would be considered for implementation, where reasonable and feasible, for mitigation of bushfire risk during construction:	Construction	Y	Y	Y	Y	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
	<ul style="list-style-type: none"> ▪ A bushfire management strategy, or equivalent, would be prepared as part of the CEMP for the construction phase. The strategy would include: <ul style="list-style-type: none"> – Emergency response plans and procedures – All site offices and temporary buildings would have a minimum setback of 10 m to bushfire prone areas – All site offices would be accessible via access roads suitable for firefighting appliances similar to NSW Rural Fire Service category 1 tankers. 						
13B	<p>The following mitigation measures would be implemented during the operation of the Proposal:</p> <ul style="list-style-type: none"> ▪ A bushfire management strategy, (including a fire safety and evacuation plan) or equivalent, would be prepared as part of the OEMP ▪ Management of the landscaped areas within the Proposal site would be undertaken to maintain minimum dry fuels loads ▪ The width, as required, of the Rail link connection would be maintained in a low fuel state ▪ Protocols would be developed for the monitoring of train access/egress during high – catastrophic fire weather days, if required and in accordance with the bushfire management strategy. 	Operation	Y	Y	Y	N	Y
14.	Socio-economic						
14A	A community information and awareness strategy would be included in the CEMP and would outline measures to maintain communication with the community and all relevant stakeholders throughout the construction process of the Proposal.	Construction	Y	Y	Y	Y	Y

No.	Mitigation measures	Implementation stage	Applicability				
			IMT	Rail link connection	Warehousing	Moorebank Ave intersection	Site infrastructure
14B	The Operational Environmental Management Plan (OEMP) would include measures to engage with stakeholders and to manage and respond to feedback received during the operation of the Proposal.	Operation	Y	Y	Y	N	Y
14C	Security at the Proposal site would include: <ul style="list-style-type: none"> Fencing around the perimeter of the Proposal site, and potentially the Rail link connection, which is envisaged to include palisade fencing and chain-link fencing along the Moorebank Avenue boundary and chain-link at other location A controlled site access system including electronic truck processing A controlled circuit television (CCTV) security system at key locations including site entrances and along boundaries An integrated telecommunications system which involves connection to all main buildings and structures. 	Operation	Y	Y	Y	N	N
14D	Written notification would be provided to potentially affected and adjoining land owners prior to commencement of site operations. The manner of notification would be confirmed in the final OEMP for the Proposal.	Operation	Y	Y	Y	N	Y
14E	Measures to engage with stakeholders and to manage and respond to feedback received during operation of the Proposal, including via a complaints register would be provided in the OEMP for the Proposal	Operation	Y	Y	Y	N	Y
15.	<u>Urban Heat Island Effect</u>						
<u>15A</u>	<u>In addition to features included in the current design, the following mitigation measures (where feasible and reasonable) would be implemented to reduce the potential for urban heat island effects:</u> <ul style="list-style-type: none"> <u>Solar panels on roofs of warehousing.</u> <u>Cool roofs (selection of materials higher albedo ratings (ratio of irradiance reflected to the irradiance received)).</u> 	<u>Operation</u>	<u>N</u>	<u>N</u>	<u>Y</u>	<u>N</u>	<u>Y</u>

APPENDIX E: ENDEAVOUR ENERGY MEETING MINUTES

MEETING

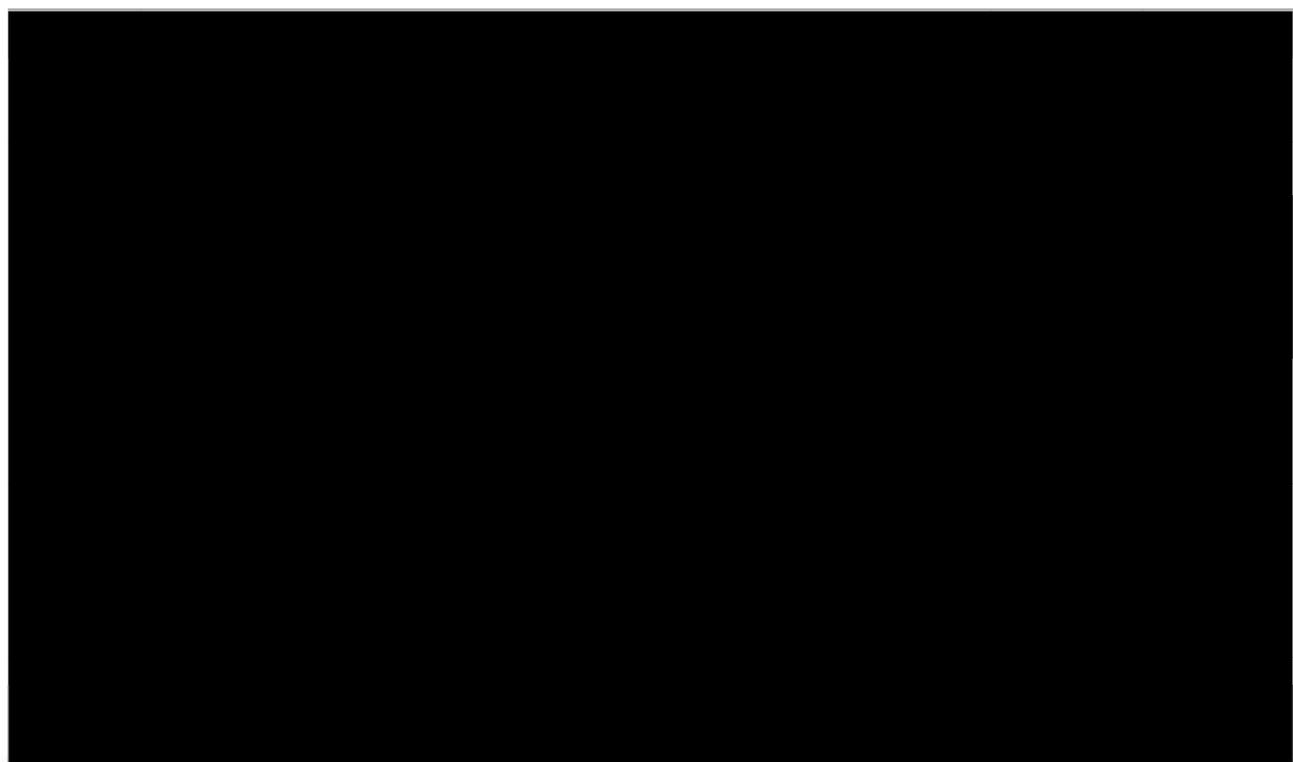
Precinct Electrical Supply



PROJECT Moorebank Logistics Park
TIME & DATE 01/08/18 - 2:30pm to 4pm
LOCATION Endeavour Offices, Huntingwood

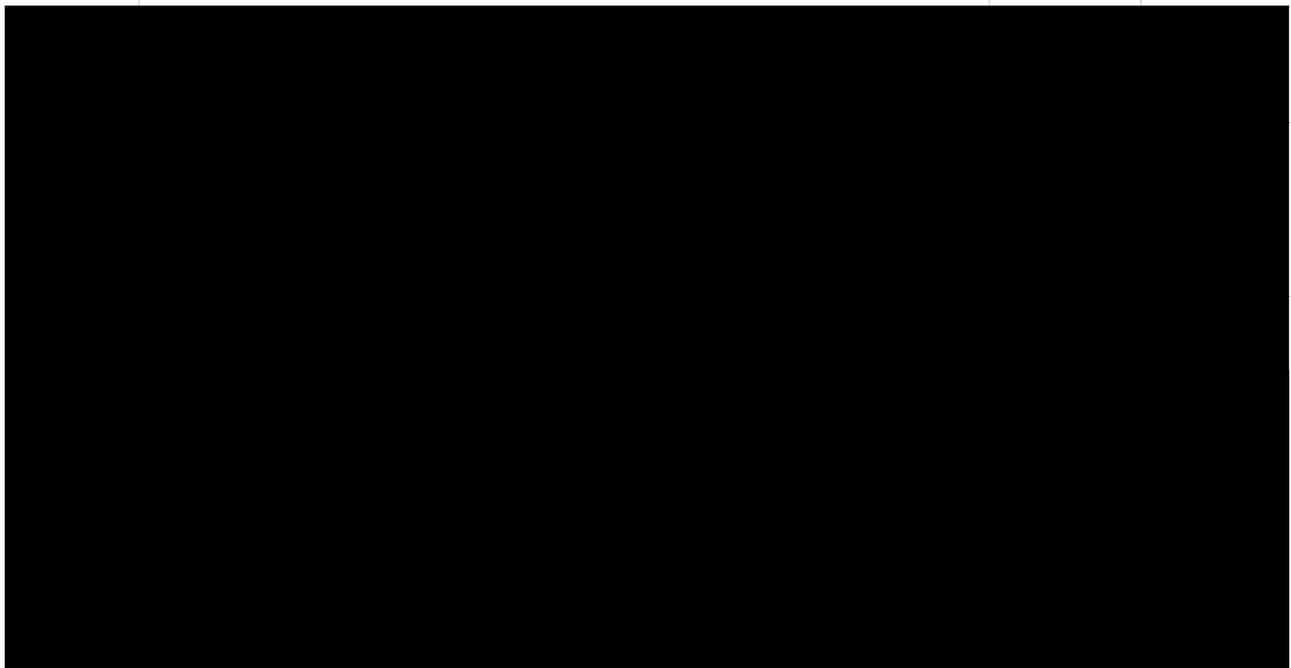
PRESENT	NAME	ORGANISATION	INITIAL	EMAIL ADDRESS	
YES	APOLOGIES				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Kevin Nuner	Endeavour	KN	Kevin.Nuner@endeavourenergy.com.au
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Jonathan Lei	Endeavour	JL	Jonathan.Lei@endeavourenergy.com.au
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Joe DeGabriel	Endeavour	JdG	Via Kevin
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Jason Lu	Endeavour	JLu	Via Kevin
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Greg Saunders	Connect	GS	GSaunders@connecteng.com.au
<input checked="" type="checkbox"/>	<input type="checkbox"/>	David Tombling	Connect	DT	dtombling@connecteng.com.au
<input checked="" type="checkbox"/>	<input type="checkbox"/>	John Mettam	Qube	JM	John.Mettam@qube.com.au
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mark Griffiths	Qube	MG	Mark.Griffiths@qube.com.au
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Michael Hall	Advisian	MH	michael.hall@advisian.com
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Nathan Cairney	Tactical Group	NC	ncairney@tacticalgroup.com.au
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Loshika Yogarajah	Tactical Group	LY	lyogarajah@tacticalgroup.com.au

DISTRIBUTION AS ABOVE AND



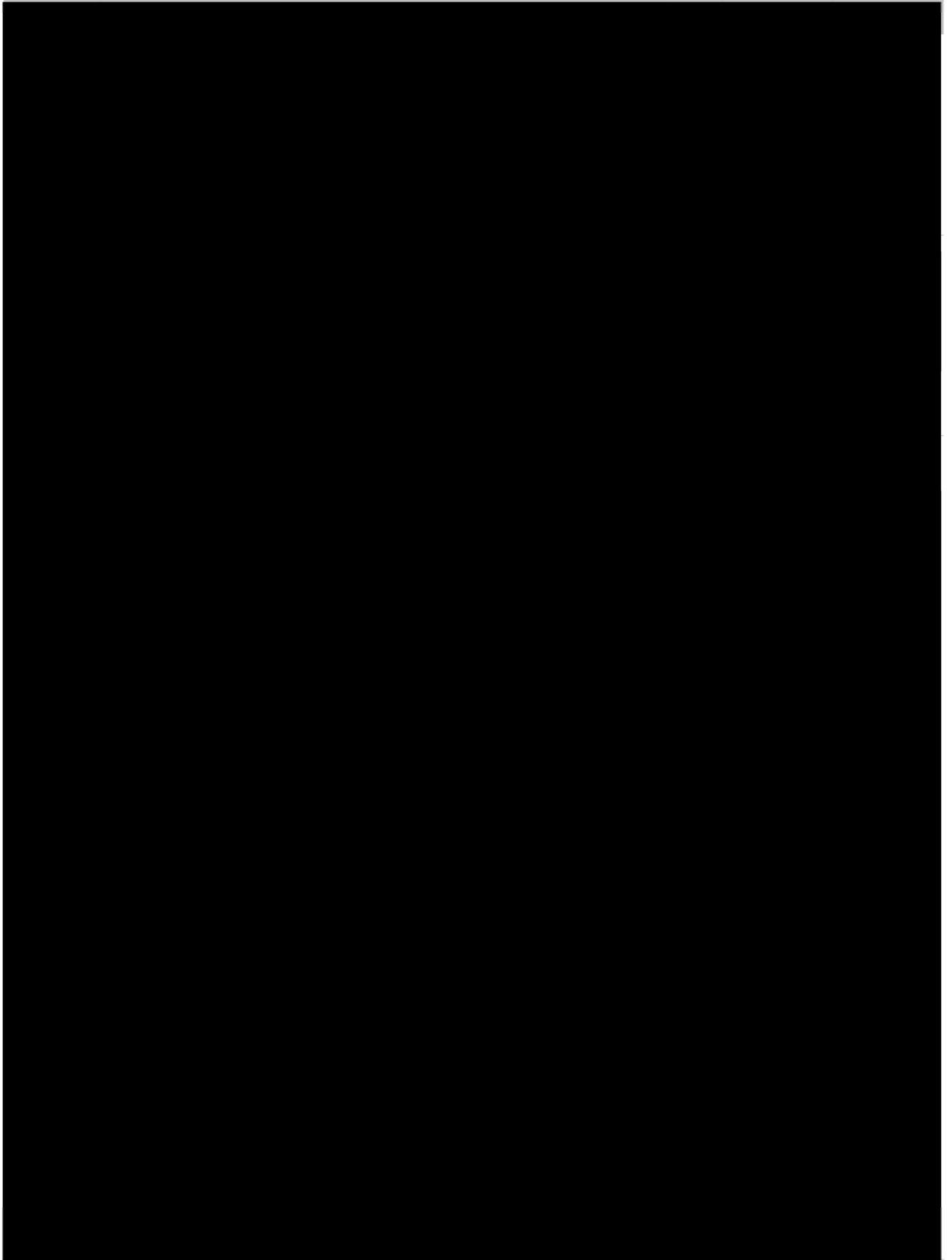


2.	BUILDING WITHIN EASEMENT AND RELOCATIONS		
2.1.	Project background and expected need/timing: <ul style="list-style-type: none">- Project requires the alignment to drain stormwater from the north as alternative routes have proven to be unsuitable.- Construction timing would be approximately 6 months.- Certainty on the use of the easement would be 1 month.	NOTE	
2.2.	Endeavour initial comments and response, likelihood of approval and timing: <ul style="list-style-type: none">- KN/JdG noted that we should revise our drawing to show the culvert being constructed in the extremity of the easement, providing the greatest room for EE to utilize the remainder of the easement.- The info should then be re-submitted to Phil Wilson noting that we had discussed with Joe de Gabriel and the contestable works team and they said this would be achievable while still allowing space to run in additional future below ground feeders	NOTE DT/LY	12/8/18



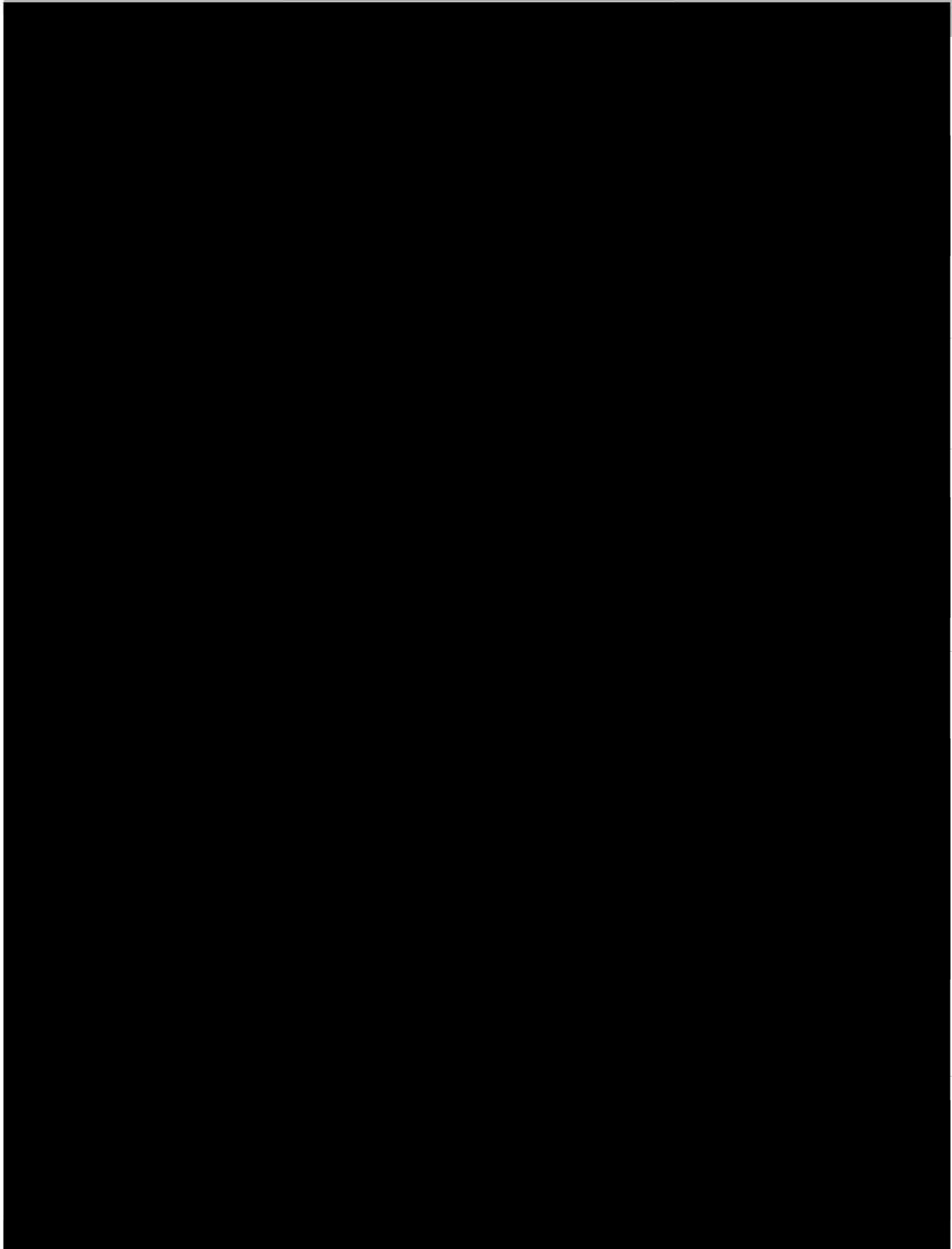
MEETING

Precinct Electrical Supply



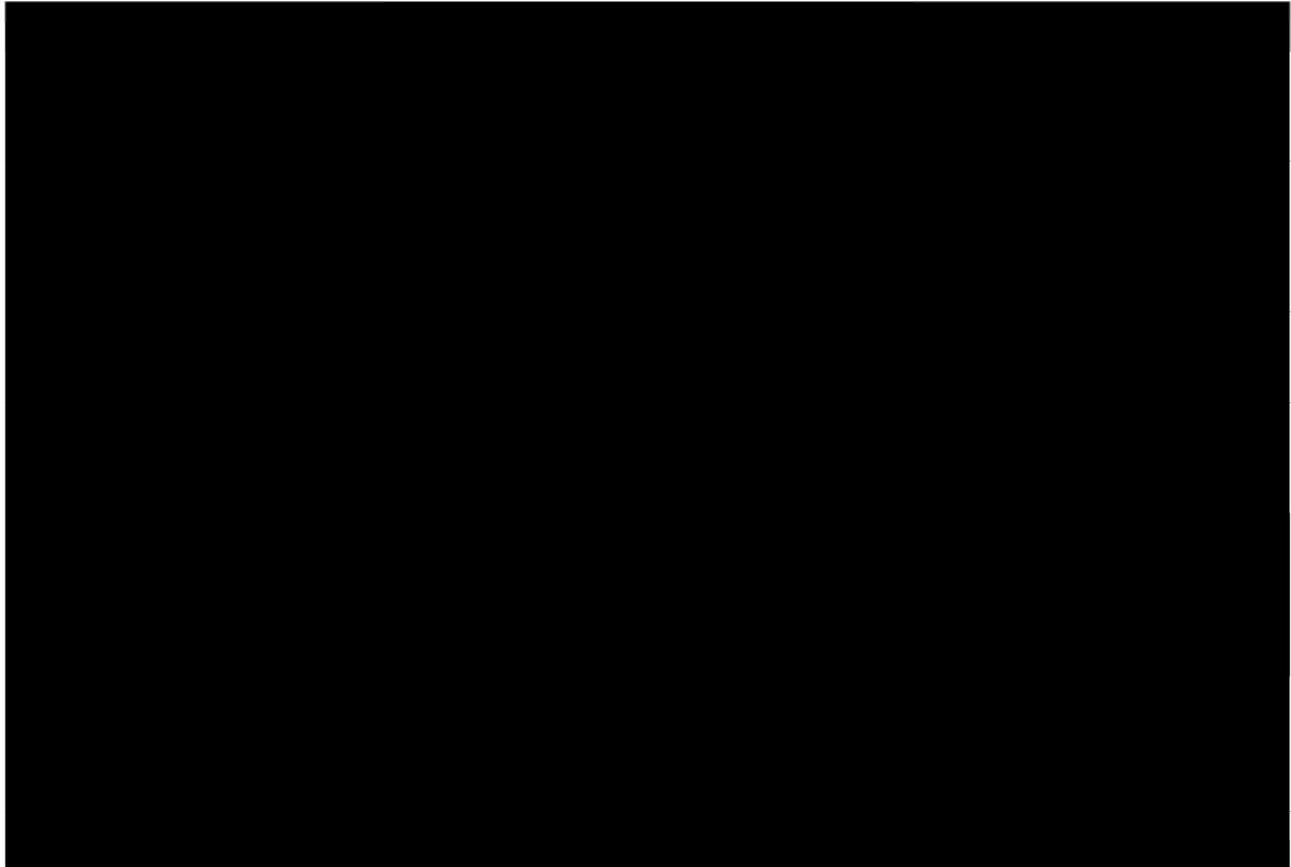
MEETING

Precinct Electrical Supply



MEETING

Precinct Electrical Supply



ISSUED BY
TACTICAL GROUP

NATHAN CAIRNEY
DIRECTOR

APPENDIX F: ALLUVIUM STORMWATER RESPONSE (DATED 27/03/2018)

Date 27/03/2018
To Nathan Cairney (Tactical Group)
From George Dunstan (Arcadis), Stuart Hill (Arcadis)
Copy to Andrew Wiltshire (Tactical Group), Richard Johnson (Aspect), Westley Owers (Arcadis), Melanie Gostelow (Arcadis), Shannon Blackmore (Arcadis), Ketan Patel (Arcadis)
Subject Moorebank Precinct West (MPW) – response to Alluvium Review Report

The Department of Planning and Environment (DP&E) has issued a ‘Request for further information’ (letter dated 16/01/2018¹ from Karen Harragon - DP&E) regarding both the MPW Stage 2 (SSD 7709) and MPW Concept Modification (SSD 5066 MOD 1). In addition to other matters, the request raises a number of issues in relation to stormwater and water sensitive urban design (WSUD) and indicates that the technical basis for the issues raised are set out in the memorandum from Alluvium (DP&E’s independent reviewer for stormwater/WSUD) to DP&E dated 16 November 2017 (“the Alluvium Review Report”). The request for further information indicates that the detailed comments in the Alluvium Review Report require consideration and response.

The purpose of this technical memorandum is to respond to the issues raised in the Alluvium Review Report and to provide supporting information to assist DP&E’s continuing assessment in relation to stormwater and WSUD issues.

Other matters identified in the request for further information have been addressed in a separate submission.

¹ This letter was received in early January 2018 and therefore we believe that “2017” is to read “2018”.

SIMTA RESPONSE TO ALLUVIUM REVIEW REPORT

SIMTA response to Alluvium Review Report (dated 16 November 2017) – MPW Stage 2 Proposal

Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
Revised Environmental Management Measures (REMMs) and Secretary’s Environmental Assessment Requirements (SEARs) Compliance (Section 3)			
SEARs (Section 3.1) REMMs (Section 3.2)	<p>The report states a number of the SEARs and REMMs have not been addressed or met as part of the stormwater reporting provided with the MPW Stage 2 SSD Application.</p>	<p>Appendix A of the MPW Stage 2 Environmental Impact Statement (EIS) provides reference to where all MPW Stage 2 SEARs, MPW Concept Approval Conditions of Consent (CoC) and REMMs have been addressed throughout the EIS and supporting documentation.</p> <p>Having regard to the SEARs, the Alluvium Review Report does not seem to recognise that the Stormwater and Flooding Environmental Assessment (Appendix R of the EIS) includes information relating to stormwater and flooding impacts primarily. Where SEARs require biodiversity impacts to be considered they have been addressed within the Biodiversity Assessment Report (submitted to DP&E during the assessment period). On this basis, the “Soil and Water” SEARs have been suitably addressed within the following sections of the EIS:</p> <ul style="list-style-type: none"> • 11 – Biodiversity • 12 – Stormwater and flooding • 13 – Geology, soil and contamination. <p>These sections have also been updated as part of the MPW Stage 2 Response to Submissions (RtS) to respond to proposal amendments. The updated environmental assessment included in the RtS addresses the SEARs and proposes updates to mitigation measures where necessary (refer to Chapter 8 of the RtS).</p>	<p>Sections, 11 – 13 and Appendix A and R of the EIS</p> <p>Updated BAR (submitted to DP&E during the assessment period, following the submission of the RtS)</p>

Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
		<p>In summary, the EIS (and associated environmental assessment documentation including the RtS) addresses the SEARs for the MPW Stage 2 Proposal.</p> <p>Further assessment of the MPW Stage 2 Proposal in consideration of the MPW Concept Approval Conditions of Consent (CoC) and REMMs is provided below.</p>	
Stormwater quantity management systems (Section 4)			
Table 1	Refer to comments below.	N/A	N/A
OSD objectives and targets	<p>The report provides no clear statement on the adopted objectives or targets for the OSD basins. Whilst a range of flooding events have been modelled, the report does not clearly outline what the critical flooding events are for the downstream areas that may be impacted by increased flows from the development. For example, it is unclear if the OSD basins are being sized to focus on flood mitigation in the local catchments or the Georges River.</p> <p>The Georges River Flood Study (DLWC and LCC, 2000) identified that the critical duration event for the Georges River is the 36-hour event. It is considered likely that design flows during short duration events for the MPW site would not be as critical for downstream flooding. As the basins are primarily located adjacent to the Georges River with no development planned between the basin outlets and the river, the benefits of detaining short duration events that do not influence flooding behaviour in the Georges River would be of limited benefit. Focusing on mitigation of longer duration events could potentially assist with reducing the required detention storage and enable a more integrated and improved design for the basins.</p>	<p>OSD basins have been sized in accordance with REMM 9U, which requires the site <i>'to control the rate of stormwater runoff so that it does not exceed the pre-developed rate of runoff.'</i></p> <p>The Stormwater and Flooding Environmental Assessment Report (Appendix R of the EIS, and Appendix H of the RtS) assesses a range of short and long duration storms (15-1080mins) and a range of Average Recurrence Intervals (2, 5, 10, 20, 50, 100 year ARI) to ensure post development runoff is attenuated to pre-development levels for all storm events up to the 100 year ARI.</p> <p>The 36hr event on the Georges River has been used to determine downstream flood levels. Focusing on longer duration events is how the basins have been designed as shown by the flow comparisons provided in Appendix H of the RtS. Use of these longer duration storms increases rather than decreases the required storage.</p> <p>The objective for on-site detention is articulated in REMM 9U as cited above, but also REMM 9W which requires the onsite detention system to <i>'detain flow and control discharge rates to the Georges River equal to predevelopment discharge rates'</i>.</p> <p>Liverpool City Council was consulted during the preparation of the MPW Stage 2 EIS. This included a meeting on 1</p>	<p>Refer to flow comparison results in Attachments A and C in the Stormwater and Flooding Environmental Assessment (Appendix R of the EIS) and Stormwater and Flooding Environmental Assessment (Appendix H of the RtS).</p>

Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
	<ul style="list-style-type: none"> The MPW and MPE reports should clearly state the adopted OSD objectives and targets. Discussions should be held with Liverpool City Council to define requirements for all aspects of the Stormwater and Flooding Reports. 	September 2016 at which a range of issues, including stormwater management were addressed. Stormwater management and flooding issues raised by Liverpool City Council in their submission on the MPW Stage 2 EIS are addressed in Section 4.6 of the MPW Stage 2 RtS.	
Pre-development sub-catchments	The contours shown on the catchment plan for MPW are unclear for the purposes of confirming the pre-development sub-catchment areas adopted by the applicant. Confirmation of the adopted sub-catchment extents would require clearer catchment plans to be provided by the applicant. Our comments assume that the pre-development sub-catchments provided by the applicants have been defined appropriately.	Catchments have been delineated appropriately. More detailed catchment plans are included in Appendix A.	
Post-development sub-catchments	Similar to the pre-development sub-catchments, a clear catchment plan showing the proposed finished surface grading was not provided by the applicant for the MPW site. Our comments assume that the post development sub-catchments draining to each basin have been defined appropriately by the applicant.	Catchments have been delineated appropriately and catchment plans were included in Appendix R of the EIS and Appendix H of the RtS. More detailed catchment plans are included in Appendix A of this memorandum.	
OSD modelling software	The modelling software applied to evaluate flood detention requirements for the site is considered appropriate for this application.	Noted.	
Model input parameters	<p>It is considered that the report should include a summary of the adopted catchment gradients and impervious fractions for each sub-catchment in the main report. The DRAINS models should also be provided for review.</p> <p>It was identified in the report for MPE that significant floodplain storage exists within that site. It is envisaged that existing local floodplain storage would also exist in the MPW site, although it is</p>	DRAINS input and results data have been included within the appendices of the Stormwater and Flooding Environmental Assessment reports. This includes a summary of catchment properties (including gradients, % impervious, etc.) for all catchments within the study area. The input data and results provides all data which would be included with the model file.	

Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
	<p>unclear if these areas have been accounted for in the pre-development model (as was indicated for MPE).</p> <ul style="list-style-type: none"> The report should include a summary of the adopted catchment gradients and impervious fractions for each sub-catchment in the main report. The DRAINS models should also be provided for review. The approach adopted for considering existing flood storage in the pre-development MPW site should be explained by the applicant. 	<p>Information regarding the adopted flood storage and stage-discharge relationships are also included in the appendices of Stormwater and Flooding Environmental Assessment reports.</p> <p>Existing flood storage characteristics within the MPW site is significantly different from MPE, occurring only within three man made dams. A plan showing extents of existing flood storage can be provided if required.</p>	
Modelled design events	<p>The range of design storm durations and frequencies assessed in evaluating OSD requirements is considered appropriate for managing local and regional flooding. Whilst design intensities for ARI's up to 100 years are summarised in Appendix B, the report should outline where the PMP intensities were derived from and what range of PMP events were considered.</p> <ul style="list-style-type: none"> The MPW report should outline how the PMP intensities were derived and what range of PMP events were considered for the hydrologic modelling. 	<p>The PMP was calculated using Generalised Short-Duration Method (GSDM). Calculations are included in Appendix B of this memorandum.</p>	
OSD peak discharge modelling results	<p>The results summarised in Table 5-2 of the report (and summarised in Table 4-2 above) suggest that the proposed OSD basins would reduce peak discharges by approximately 80 to 90% at each basin site. Although, it is unclear from the report if the corresponding peak inflows and outflows presented are for the same design storm duration (which is typically how flows would be reported) or</p>	<p>Table 5-2 provides the basin performance within the developed design. The purpose of Table 5-2 is not to compare with existing, as that is the role of Table 5-1. The information in Table 5-2 is intended to inform the design of the OSD basins and shows the tail water levels for the proposed drainage systems as well as the volume of storage required in each basin. This design will only work if the contributing developed</p>	

Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
	<p>for different storm durations. It is also unclear how the results in Appendix B correspond with the results presented in Table 5-2 as it appears the same basins have been assigned different basin names/IDs.</p> <p>Table 5-2 does not include estimates of pre-development peak flows that could be compared with the indicated detention basin performance. The magnitude of the estimated flow mitigation would typically significantly exceed that required by individual basins to demonstrate the development would not increase peak discharges from pre-development conditions (if flows presented are for the same event). Although, without pre-development flow estimates at each basin this is not possible to confirm.</p> <p>It also appears that the existing and proposed flows at specific flow comparison locations within the site summarised in Table 5-1 of the report differ to those presented in Appendix B for the same location.</p> <ul style="list-style-type: none"> • It is considered that the peak flow comparison in the report is currently confusing and should be clarified by the applicant by providing a response to the following key issues: <ul style="list-style-type: none"> – if the corresponding tabulated peak inflows and outflows presented are for the same or different design storm durations. – how the results in Appendix B correspond with the results presented in Table 5-2 as it appears the same basins have been assigned different basin names/IDs. • pre-development and post development flows at specific flow comparison locations within the site 	<p>catchments and flows are taken into consideration hence their inclusion in this table.</p> <p>The comparison with existing conditions requested is provided in Table 5-1. This is the table which is used to discuss the impacts of the development on peak flows leaving the site and address REMM 9U. In order to ensure compliance with REMM 9U, the cumulative impacts of OSDs 4,5,6 and, 8 need to be addressed. OSDs function by reducing peak flow rate while extending peak flow duration and it is considered that reporting on only single OSD, as is recommended in this comment, would obscure the cumulative impacts on the Georges River. The individual comparison between existing and proposed for each basin was included in Appendix B.</p> <p>As is noted under Table 5-1, that table compares peak flow to peak flow irrespective of duration. Like to like duration comparisons were included in Appendix B.</p> <p>The DRAINS model labels are included in Table 5-1 and in the Appendix B Flow Comparisons. Comparing Table 5-1 to Appendix B, it is noted that the label for OSD 8 was mislabelled PR F Outlet 8 and that the flow for F EX Georges should have read 38.3 not 34.8. An updated table is included in Appendix C of this memorandum.</p>	

Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
	summarised in Table 5-1 of the MPW report differ to those presented in Appendix B for the same location.		
OSD proposed storage volume	<p>It is our experience that the OSD storage requirement for development in similar parts of western and south-western Sydney is typically less than 500 m³/ha. The proposed OSD storages are therefore more than double the typical volume. It is considered that this may be a reason the estimated magnitude of the flow mitigation achieved for each basin is so high.</p> <p>Whilst the provision of oversized OSD detention basins may provide additional mitigation for downstream flooding above that typically applying to new development in this area, there will also be significantly higher costs associated with future operation and maintenance of oversized OSD basins. It will be important that the organisation ultimately responsible for maintenance of the OSD basins is aware of the likely additional costs, and would be able to allocate on-going sustainable funding for maintenance of these facilities into the future.</p> <ul style="list-style-type: none"> The applicant should outline the reasons why the proposed OSD basin sizes appear to have more than double the volume of storage compared to basins in similar council areas. 	<p>The performance and sizing of the OSD basins has been appraised for a range of storm events and storm durations. The proposed basins attenuate post development flows below pre-development levels for all durations assessed (i.e. 15-1080mins) rather than a single critical duration pre and post-development.</p> <p>It is considered that the adopted approach is the most appropriate method of sizing detention basin infrastructure for the site as it ensures appropriate attenuation and objectives are achieved for long and short duration storm events. The approach is consistent with REMM 9U, <i>Australian Rainfall and Runoff: A Guide to Flood Estimation</i>², Liverpool City Council Development Design Specification D5 – Stormwater Drainage Design and standard industry practice.</p> <p>As shown in the flow comparison information (refer Appendix B of this memorandum), the post development flow rates are slightly lower than pre-development flow thresholds for longer duration storms, indicating the adopted approach ensures the basin size has been optimised whilst ensuring conformance with flow objectives. The REMM 9U requirement to control the rate of stormwater runoff so that it does not exceed the pre-developed rate of runoff cannot be met with smaller basins.</p> <p>The OSD storage rate of 500 m³/ha which is cited in the Alluvium Review Report appears to be derived from the Upper Parramatta River Catchment Trust (UPRCT) <i>On-site Stormwater Detention Handbook</i>. Other developments in western and south-western Sydney may adopt a 500 m³/ha storage rate and associated Site Storage Requirements (SSR)</p>	Refer to flow comparison results in Attachments A and C in the Stormwater and Flooding Environmental Assessment (Appendix R of the EIS) and Stormwater and Flooding Environmental Assessment (Appendix H of the RtS).

² Institution of Engineers, Australia (1987) *Australian Rainfall and Runoff: A Guide to Flood Estimation*, Vol. 1, Editor-in-chief D.H. Pilgrim, Revised Edition 1987

Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
		<p>for basin sizing, however this rate is typically more appropriate for residential developments with lower levels of imperviousness.</p> <p>The MPW site is not located within the UPRCT catchment and hence different catchment characteristics apply. Further, the existing MPW site is mostly un-developed and comprises a high proportion of pervious area, which would be redeveloped to incorporate approximately 90% impervious area. This transformation of the catchment is the primary reason attenuation requirements are significantly higher than standard UPRCT and equivalent SSRs, which typically apply to developments of lower imperviousness.</p>	
OSD performance during extreme events	<p>OSD basins should be designed to mitigate flows for a range of flooding events up to Council's flood planning event that we understand is the 1% AEP (or 100-year ARI) design event. During events exceeding Council's flood planning event, the OSD basins should function primarily to safely manage flows without increasing risks to the community or damage/failure of the basin structures.</p> <p>The NSW Dam Safety Committee recommendations on flood retarding basins should be addressed for all proposed basins to ensure that any consequence of failure of individual or combined basins on the downstream community is considered closely during initial planning and design. It is unclear from our review if these requirements have been considered.</p> <ul style="list-style-type: none"> The applicant should confirm that the NSW Dam Safety Committee recommendations on flood retarding basins have been considered in determining the required footprint for the basins in the development layout. 	<p>OSD basins have been designed to meet the REMM 9U requirement to control the rate of stormwater runoff so that it does not exceed the pre-developed rate of runoff. The design caters for events up to the 100yr ARI (Council's flood planning level). During events larger than the 100yr ARI, basins would help safely manage flows without increasing risks to the community or damage/failure of the basin structures. Refer to Section 5.2.2 of the Stormwater and Flooding Environmental Assessment (Appendix R of the EIS and Appendix H of the RtS).</p> <p>Applications have been made to the NSW Dam Safety Committee (DSC) and discussions are ongoing as to whether or not OSD storages will be nominated as 'prescribed dams.'</p> <p>Evidence of correspondence with DSC can be provided if required.</p>	<p>Stormwater and Flooding Environmental Assessment (Appendix R of the EIS)</p> <p>Stormwater and Flooding Environmental Assessment (Appendix H of the RtS).</p>

Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
General community safety	<p>The basins as proposed would need to be surrounded by acceptable barriers (e.g. secure fencing) to prevent access by to the community (since the basins are currently proposed with vertical walls up to 3m high).</p> <p>The basins would also require an unobstructed inlet to enable overland flows to drain to the basins during events up to the 100-year ARI. It is unclear how this would be achieved whilst also preventing community access to the basins.</p> <p>It is considered that this would not be a desirable outcome from urban design or community safety perspectives.</p> <ul style="list-style-type: none"> The applicant should confirm how OSD basins that are over 3m high would be surrounded by acceptable barriers to prevent access by to the community. 	<p>Safety in design has been considered. Appropriate fencing and barriers will be provided for all basins to restrict public access and manage risks to public safety.</p> <p>Examples of OSD fencing are provided in Appendix D.</p>	
Maintenance	<p>It is unclear how the raingardens in the base of the OSD basins will be accessed for maintenance considering the perimeter basin walls will be vertical and up to 3m high with a 1(v):6(h) embankment slope at the overflow weir.</p>	<p>Vehicular access ramps and maintenance access tracks will be provided in all basins to enable ease of access for maintenance of raingardens and basin inlets and outlet infrastructure. A typical basin access ramp is shown in Appendix D.</p> <p>Reinforced turf (which typically combines a UV stable high-density polyethylene mesh with turf) or similar will be provided in the invert of basins. This will provide a continuous stabilised access track for vehicle movement within the basin invert.</p>	
Existing major stormwater drainage system	<p>The report indicates that the existing major drainage outlets from the MPW site have insufficient capacity to convey major flows from the existing site due to existing blockages or capacity constraints. Current flood storage available upstream of the existing</p>	<p>Noted.</p>	

Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
	<p>major drainage outlets within the MPE site also appears to provide significant local flood attenuation.</p> <p>The inlet to the existing culvert under Moorebank Avenue is covered by square steel mesh grates. Downstream overland flowpaths are also partially blocked by existing security fencing. It is envisaged that these measures were in place for security reasons, but would also be highly prone to blockage with potential for significant flooding impacts on upstream land. Removal of these barriers is likely to improve upstream overland flows.</p>		
Proposed major stormwater drainage system	<p>It is considered that the planned modified channel through the MPW site is not appropriate in its current proposed configuration. It is considered that introducing a concrete lined drainage channel in an urban area with vertical sides up to 5.1m high is not consistent with current practice. Whilst fencing is proposed along the sides of the channel, it is unclear how the inlet to the channel downstream of Moorebank Avenue would be managed to prevent community access. It is also unclear how the proposed 155m wide floodway across Moorebank Avenue would transition to the proposed deep vertical side channel without creating an elevated risk to the community.</p> <p>It is considered that concentration of all future west draining runoff from the MPE site (and a significant proportion of the MPW site) along this one major drainage pathway creates an elevated risk to the community. It is considered that a more appropriate design outcome would be to distribute the flow through the MPW site between several parallel major drainage channels or modify the proposed channel to be wider with battered embankments, vegetation and a more natural creek form that is more</p>	<p>The design has been updated to include two (3.1m x 3.1m) underground box culverts in lieu of a single concrete lined open channel with vertical walls. The new design is shown by the drawings included in Appendix E.</p> <p>The previously proposed concrete lined open channel was designed to cater for all flows up to the PMF from the catchments upstream of Moorebank Avenue (that is the Defence Logistic Unit and part of Moorebank Precinct East). This was because the original design did not consider the raising of Moorebank Avenue as part of the MPE Stage 2 Project and flows from a PMF needed to flow along Moorebank Ave before leaving the site through this channel. The raising of Moorebank Avenue allows PMF flows to leave the site as overland flow.</p> <p>The new design caters for events up to the 100yr ARI for these catchments with flows greater than the 100yr from MPE distributed evenly across Moorebank Avenue and flowing through MPW. A fenced upstream inlet apron with associated vegetation serves to transition floodwaters to the proposed culverts.</p> <p>TUFLOW modelling has been conducted to assess flood levels and depths at key locations in relation to the main culvert. Full</p>	

Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
	<p>representative of current practice. The current proposed highly engineered channel is considered a poor design outcome for this site considering the potential that exists for providing a functioning urban stream in this area that appropriately considers hydrology, hydraulics, geomorphology, habitat and community safety. The current proposal for this waterway appears to focus on providing an efficient engineered hydraulic solution.</p> <ul style="list-style-type: none"> The MPW site will feature a single concrete lined drainage channel in an urban area with vertical sides up to 5.1m high, which is not consistent with current practice. The applicant should consider distributing the flow through the MPW site between several parallel major drainage channels or modifying the proposed channel to be wider with battered embankments, vegetation and a more natural creek form that is more representative of current practice. Furthermore, the proposed edge treatment of the channel of the OSD provides no softened green edge through vegetation growth. This edge condition of the detention bank sits adjacent to the proposed 5 metre noise wall, adjacent to the internal roadway. TUFLOW modelling should be completed to assess potential drainage impacts on neighbouring properties. 	<p>modelling results can be provided if required. In summary, the results indicate:</p> <ul style="list-style-type: none"> In the Moorebank Avenue sag (approximately 35 m north of the culvert crossing) flood levels and depths would be no greater than under existing conditions, and generally reduced. In the raised (southern) length of Moorebank Avenue maximum flood depths in the street sags would be significantly less under the proposed development (compared with existing conditions). At the proposed culvert entrance (to the west of the Moorebank Avenue corridor) the 13.12 m AHD 100 year water level would adequately accommodate free flowing discharge from the upstream (concept) on-site detention storage (with an invert level of 13.5 m AHD). <p>It should be noted that direct flows from MPW would not utilise the main culverts. Drainage from MPW is catered for in a separate internal system with overland flows proceeding west. This approach is continued with the newly designed channel. A 10.1 hectare portion of the MPW site does however flow east to OSD 10 before flowing west to the Georges River via the main culverts. This arrangement is illustrated by Figure 3 in the Stormwater and Flooding Environmental Assessment (Appendix H of the RtS) and was adopted to minimise the extent of imported fill.</p> <p>It is considered that this design for MPW does distribute flows evenly across the MPW site to its component OSD basins.</p>	
Minor stormwater drainage system	Whilst details on these existing minor drainage systems are unclear, it is expected that regrading of the MPE and MPW sites and Moorebank Avenue will render many of these systems redundant. Although, it will be important for the applicant to demonstrate	Further information regarding existing drainage systems is included in Appendix F. It is noted that existing minor drainage systems will generally be decommissioned as part of the proposed development of the site.	

Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
	<p>that all site areas can be graded to the proposed major drainage pathways to ensure that no trapped low points or unplanned major overland flowpaths are formed as development proceeds.</p> <ul style="list-style-type: none"> Confirmation of any significant existing minor drainage systems in the MPW site should be provided. 		
Stormwater Quality Systems (Section 5)			
Stormwater Quality / Performance Targets (Section 5.1)	Both the MPE and MPW reports suggest that the SEARs require the adoption of NorBE (Neutral of Beneficial Effect) as required by the SEARS. This is a misunderstanding by the consultant, of the SEARs requirements, which calls for “stormwater quality and management..... with the objective of maintaining or improving existing water quality taking into account the Water Quality Objectives” (MPW SEAR 8h / MPE SEAR 7i). NorBE is not required or appropriate for this site.	Noted and agreed that NorBE not specifically required.	
MUSIC Modelling (Section 5.2)	The MUSIC model uses a range of assumptions, which the consultants have based on the SCA (Sydney Catchment Authority’s) Using MUSIC in Sydney’s Drinking Water Catchment. It is not clear why the consultant did not use the NSW MUSIC modelling Guidelines. While most of the parameters and assumptions are consistent with guidance provided by NSW, the main inconsistency in the approach for both the MPE and MPW sites is the parameters for orthophosphate.	<p>MUSIC modelling has now been updated in accordance with latest version of NSW MUSIC Modelling Guidelines (BMT WBM, 2015). The MUSIC files are included with this submission.</p> <p>The recommended value of orthophosphate of 40 mg/kg in the NSW MUSIC Modelling Guidelines is a default value to be applied in modelling of bioretention systems in absence of actual orthophosphate concentrations in available engineered filter media. Samples and lab testing results indicate supplied media provided by the main local NSW supplier of filter media (Benedicts) has orthophosphate concentrations consistently less than 10 mg/kg. As such a value of 10 mg/kg has been</p>	

Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
		adopted in modelling which is accordance with NSW MUSIC Modelling Guidelines.	
Table 5-1	It is recommended that a minimum size of 1% of the catchment draining to the bioretention systems is applied.	Raingardens have been designed to meet adopted water quality improvement targets set by Georges River Estuary Coastal Zone Management Plan (Georges River Estuary CZMP) (2013). Raingardens also achieve a minimum filter area equivalent to approximately 1% of the upstream catchment area.	
Location of Stormwater Quality Treatment Systems (Section 5.3)	<p>Both the MPE and MPW reports states that “Rain gardens are proposed in the base of the stormwater basins” (Section 6.2). This is further detailed in the drawings, which show a typical stormwater basin in the base of an Onsite Detention system (a cross-section is shown in the following image). This is contrary to the MPW REMMs which require “A stormwater treatment system would be implemented, incorporating sedimentation and biofiltration basins upstream of the stormwater detention basins” (MPW REMM 9X).</p> <p>It is not recommended, nor is it good practice, for stormwater treatment systems to be in the base of large OSD systems, due to:</p> <ul style="list-style-type: none"> • potential for these systems to be scoured with all the flows from the upstream catchment, and unusually large volumes of sediment settling on top of the systems. • potential for these systems to be smothered with sediment. • the fact that these systems will be the lowest point of the OSD basin, as well as the lowest 	<p>The design has incorporated treatment devices upstream of the detention basin where possible (i.e. GPTs).</p> <p>Raingardens in the base of detention basins are feasible assuming scour potential, sedimentation, period of inundation and flow depths are considered and risks addressed in the design.</p> <p>Scour Potential –The design will ensure all peak flow velocities are below critical scour thresholds for raingardens (i.e. <0.5 m/s in minor event and <1m/s in major storm event).</p> <p>As the basins are designed with 0% longitudinal gradient and wide basin invert (i.e. minimum 10m wide) high levels of scour potential are not anticipated.</p> <p>Sedimentation – GPTs are proposed upstream of basin inlets to control sediment loads from the catchment. This is standard practice for managing the risks of sedimentation in the context of a developed catchment.</p> <p>Design Flows – High and infrequent flows associated with storm events >1year ARI are an issue for raingardens if runoff associated with these events increase the risk of scour due to high velocities or they subject raingardens to extended periods of deep inundation and hence drown or adversely affect vegetation.</p>	

Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
	<p>outlet for water means that they will receive greater flows than they can be designed for.</p>	<p>Flow velocities in minor and major events are addressed above.</p> <p>Flow depths greater than 300 mm will typically occur very infrequently and will last for <24hour period or as long as it takes for the detention basin to drain empty. Raingarden vegetation is naturally resilient to extended periods of complete inundation in slow moving waters. As such in this context the risk of damage from flow depths to vegetation is considered negligible.</p>	
<p>Required Water Quality Approach (Section 5.4)</p>	<p>The REMMs and SEARS for Moorebank require water quality treatment systems to be integrated across the development site, as defined by the following provisions:</p> <ul style="list-style-type: none"> • A stormwater treatment system would be implemented, incorporating sedimentation and bio-filtration basins upstream of the stormwater detention basins (MPW REMM 9X) • Use of onsite infiltration would be incorporated into the design through the distribution of swale drains and rain gardens across the Project site (MPW REMM 9Y) • Stormwater management opportunities would be considered (consistent with) Liverpool City Council's Development Control Plan, including (MPW REMM 9Z): <ul style="list-style-type: none"> – polishing water runoff using dry creek gravel beds with macrophyte plants; – using drainage swales to slow down stormwater runoff and increase onsite infiltration; – collecting roof rainwater for re-use onsite; 	<p>Appendix A of the MPW Stage 2 Environmental Impact Statement (EIS) provides reference to where all MPW Stage 2 SEARs, MPW Concept Approval Conditions of Consent (CoC) and REMMs have been addressed throughout the EIS and supporting documentation.</p> <p>It is noted that REMMs are identified by MPW Concept Supplementary Response to Submissions Report as either being mandatory or subject to review (as part of the approval process and/or detailed design). The status of each REMM considered in this response is identified below.</p> <p>A summary of our response to compliance with these REMMs and SEARs raised is as follows:</p> <ul style="list-style-type: none"> • REMM 9X (mandatory) – The placement of biofiltration upstream of the stormwater detention basins is not consistent with the current design. As noted above, placement of biofiltration in the base of detention basins is considered appropriate because scour potential, sedimentation, period of inundation and flow depths are considered and addressed in the design. • REMM 9Y (mandatory) – Groundwater constraints (high water table) and dispersive soils are significant constraints to engineered infiltration of stormwater into site soils. As per 	<p>Appendix A and R of the EIS</p>

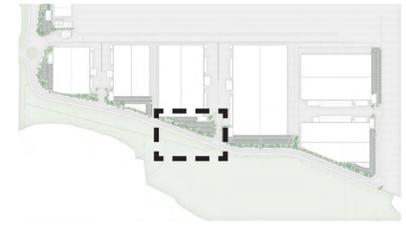
Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
	<ul style="list-style-type: none"> – installing gross pollutant traps (GPTs) at the outlets of the pipe system before discharge into the sedimentation basins; and – incorporating pervious surfaces and vegetated areas into the design to increase sub-surface water flow during rain events and to reduce the discharge of stormwater pollutants. • consideration of stormwater quality and management (including monitoring) during operation of the site with the objective of maintaining or improving existing water quality taking into account the Water Quality Objectives (MPW SEAR 8h / MPE SEAR 7i) 	<p>standard industry practice, on site infiltration is not proposed due to these limiting constraints.</p> <ul style="list-style-type: none"> • REMM 9Z (subject to review) – the Amended Proposal has integrated all of these design features to provide consistency with the requirements of the Liverpool DCP 2008. In particular: <ul style="list-style-type: none"> – Roof rainwater would be collected on-site and re-used for the purposes of operational activities and non-potable end-uses such as toilet flushing washdown (vehicles and containers) and landscape irrigation. – Landscaped areas are provided around the boundaries (east, west and north) of the Amended Proposal site to increase sub-surface water flow during rain events. OSDs include vegetated biofiltration areas and landscaped batters to reduce pollutants that would otherwise be discharged to the Georges River. <p>SEAR 8h and SEAR 7i - Stormwater quality improvement devices would be designed to meet the performance targets identified in the Stormwater and Flooding Environmental Assessment (Appendix R of the EIS), and civil design drawings. Maintenance of the bio-retention structures would be in accordance with the maintenance requirements set out in Gold Coast City Council's Water Sensitive Urban Design Guidelines 2007 and would be included in the OEMP. The mitigation measures (Section 8 of the RtS) indicate that water quality monitoring is proposed during both construction and operation of the Amended Proposal, with the objective of maintaining or improving existing water quality. The results of the monitoring would show whether performance targets are being met and identify the need or otherwise for further management actions.</p> <p>The adopted water quality improvement targets are set by the Georges River Estuary CZMP and the Alluvium Review Report acknowledges that the water quality improvement targets set</p>	

Topic (Alluvium Review Report reference)	Alluvium comment	SIMTA response	Reference
		<p>by Georges River Estuary CZMP are appropriate. It is noted that the adoption of a 65% reduction target for the annual load of total phosphorous in MPE Stage 2 Consent is not consistent with the 60% reduction target included in the Georges River Estuary CZMP.</p>	
Consistency with NSW Government Plans (Section 6)			
<p>Case Studies of Water Quality Management Elements Integrated Across Industrial Sites (Section 6.1.1)</p>	<p>Two case studies of stormwater treatment systems integrated into industrial sites is presented as examples of how stormwater treatment systems can be integrated into large sites. The examples include:</p> <ul style="list-style-type: none"> • Woolworths Distribution Centre, Warnervale (Constructed ~2007). • West Huntingwood, Industrial Estate (Constructed ~2011). 	<p>Similar to the Amended Proposal, these sites mainly incorporate stormwater treatment measures as end of line elements (i.e. wetlands and bioretention systems) as well as some tanks and swales distributed within the site.</p> <p>Every site is different and presents opportunities and constraints. The preferred treatment train for MPW relies more on proprietary devices (i.e. GPTs, rainwater tanks) as well as vegetated bioretention systems sited in an end of line configuration to optimise performance and maintenance.</p> <p>It is considered acceptable practice for industrial estates to incorporate underground proprietary systems to maximise hardstand areas for their operations, while still meeting applicable water quality objectives and performance targets.</p>	

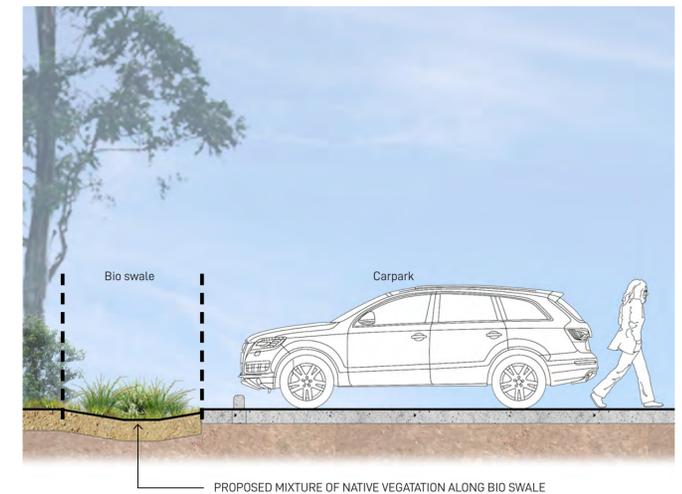
APPENDIX G: LANDSCAPE PLANS (IDENTIFYING UPSTREAM TREATMENT)



KEY PLAN



- Proposed drainage bioswales on downstream side of carpark
- Proposed rain garden



BIO SWALE TYPICAL SECTION 1:50@A1

BIO SWALE PLANT PALETTE



Carex appressa (Tall Sedge) *Isoplepis inundata* (Water Club-rush) *Lamandra longifolia* (Spiny-head Mat-rush) *Microlaena stipoides* (Weeping Grass)

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Architect
REID CAMPBELL

Project Manager
TACTICAL GROUP

Issue	Date	Description	Drawn	Checked
A	10.10.18	FOR DEVELOPMENT APPLICATION	MC	RL

Landscape Architect
GROUND INK LANDSCAPE ARCHITECTS
 ABN 55 163 025 45 ACN 163 025 456
 Suite 201, 75 Archer St, Chatswood NSW 2067
 Ph (02) 9411 3279 www.groundink.com.au

Project
MOOREBANK PRECINCT WEST STAGE 2
 Project Address
 Moorebank Avenue, Moorebank, NSW

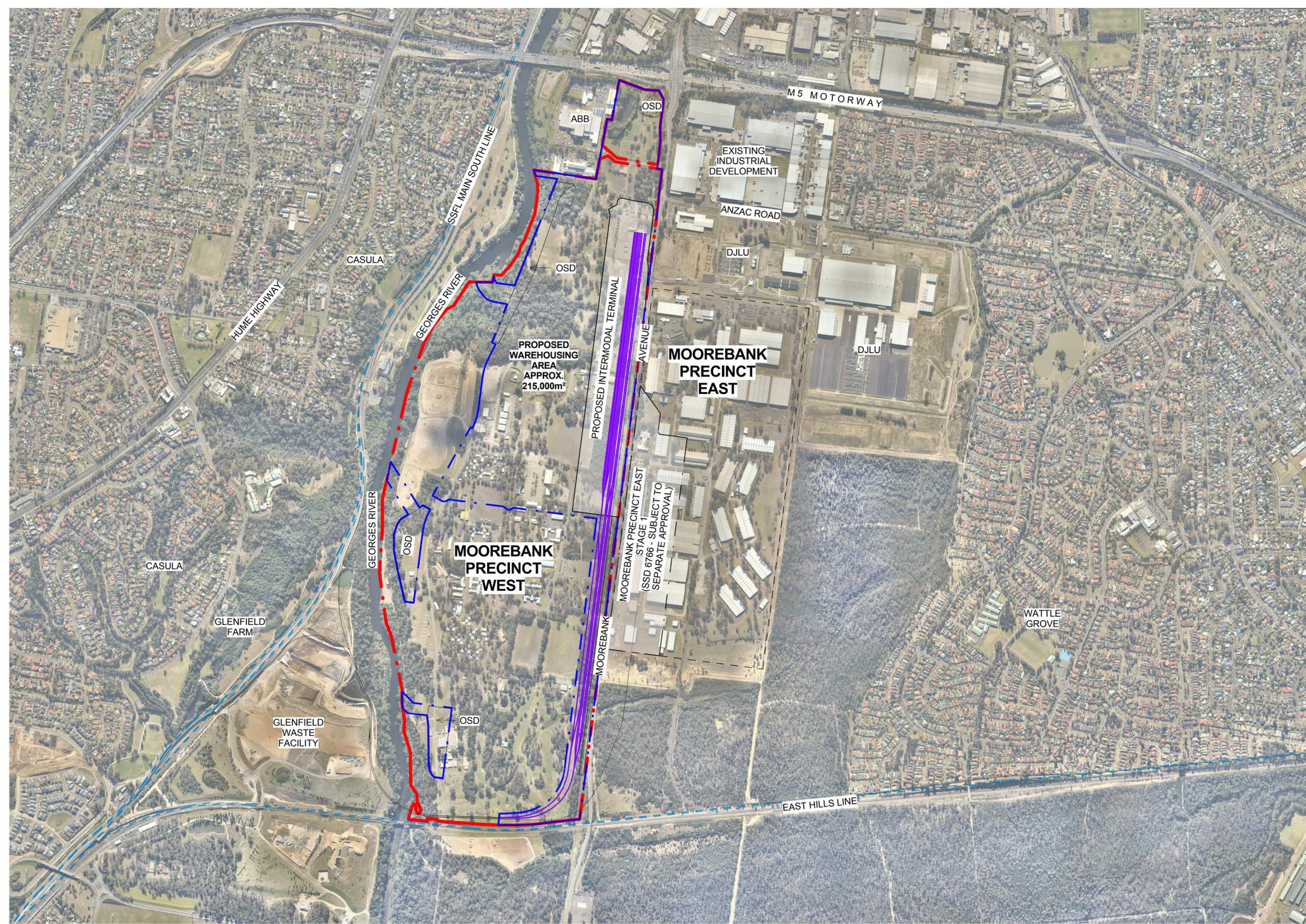
Date **10.10.2018** Revision **A** Job Number **20150728** Drawing Number **LDA-030**
 Scale **1:1000 @ A1 (1:2000 @ A3)**
 0 10 20 30 40 50m
 Drawing Name
CARPARK TYPICAL LANDSCAPE LAYOUT

North

APPENDIX H: ARCHITECTURAL PLANS

LOCATION PLAN - STAGE 2 PROPOSAL

STATE SIGNIFICANT DEVELOPMENT



01 LOCATION PLAN
0001 NTS

LEGEND:

- MOOREBANK PRECINCT WEST SITE BOUNDARY
- MOOREBANK PRECINCT WEST STAGE 2 OPERATIONAL BOUNDARY (SSD 5067)
- MOOREBANK PRECINCT EAST SITE BOUNDARY
- MOOREBANK PRECINCT EAST STAGE 1 (SSD 6766 - SUBJECT TO SEPARATE APPROVAL)
- PROPOSED INTERMODAL RAIL LINK

NOTES:

- ALL LEVELS ARE INDICATIVE & SHOULD BE READ IN CONJUNCTION WITH CIVIL ENG. DWGS FOR FINAL LEVELS OF ALL EARTH WORKS
- ALL SERVICES RELOCATION TO BE CONFIRMED BY ENG.

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Issue	Description	Date	Ver	Auth	Notes
A	PRELIMINARY ISSUE	17/12/2015			
B	PRELIMINARY ISSUE	23/12/2015			
C	PRELIMINARY ISSUE	10/02/2016			
D	PRELIMINARY ISSUE	21/03/2016			
E	PRELIMINARY ISSUE	08/04/2016			
F	PRELIMINARY ISSUE	27/05/2016			
G	DEVELOPMENT APPLICATION	28/05/2016			
H	DEVELOPMENT APPLICATION	18/07/2016			
I	PRELIMINARY ISSUE	22/02/2017			
J	RESPONSE TO SUBMISSIONS	28/02/2017			
K	RESPONSE TO SUBMISSIONS	09/06/2017			
L	RESPONSE TO SUBMISSIONS	20/09/2017			

Notes
ALL DIMENSIONS ARE APPROXIMATE AND ARE TO BE VERIFIED BY A REGISTERED LAND SURVEYOR.

Project
MOOREBANK PRECINCT WEST STAGE 2
Project Address
MOOREBANK AVENUE, MOOREBANK, NSW

Owner / Developer
SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE

Project Manager
TACTICAL GROUP

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Drawing Title
LOCATION PLAN - STAGE 2 PROPOSAL

Drawn	Checked	Print Date	Scale
MF	SK	20/09/17 11:34:05 AM	As Indicated
Project Number		Issue	
115123		L	
Drawing Number			
115123_A_SSD_0001			

APPENDIX I: GOVERNMENT ARCHITECT RESPONSE (DATED 3/7/2017)

Barbara Schaffer
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3/07/2017

Moorebank Precinct West (MPW) Stage 2 (SSD 7709) Response to Submissions – issues raised by Government Architect NSW

SSD-16_7709

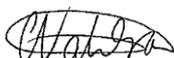
Dear Barbara,

This letter and its attachment responds to the issues identified by Government Architect NSW during their assessment of the MPW Stage 2 Environmental Impact Statement (EIS) (herein referred to as the MPW Stage 2 EIS).

Specifically, **Attachment A** of this letter provides a tabulated response to the issues identified by Government Architect NSW as included in the letter titled '*Moorebank Precinct West Stage 2 (SSD 7709) Comment on the Environmental Impact Statement*', dated 22 May 2017.

We would welcome the opportunity to discuss these responses with you further. Do not hesitate to contact Steve Ryan from Tactical Group (0406 995 822) with any questions.

Yours sincerely



Claire Vahtra
Environmental Consultant
+61 2 8907 9018

Enc. 1
CC. Nathan Cairney, Steve Ryan, Andrew Wiltshire, Westley
Owers

ATTACHMENT A – RESPONSE TO ISSUES RAISED BY GOVERNMENT ARCHITECT NSW

Aspect	Comment	Response	Reference
Visual Impacts			
Viewpoint 2	<p>This vantage point from Leacock Regional Park looks east towards development site. The current view provides a long distance view over uninterrupted bushland. The proposed view results in the roof of the Proposal being visible, breaking the bushland horizon line. This resulting visual impact is considered as being moderate within the assessment in the EIS. As this is currently a significant distant bushland view from the public domain, this impact is not considered acceptable.</p>	<p>The Visual Impact Assessment (VIA) (Refer to Section 15 and Appendix T of the EIS) has been undertaken in accordance with the Conditions of Approval (CoA – MP10-0193) and SEARs for the Proposal (refer to Table 15-1 of the EIS).</p> <p>As outlined in Section 3.1 of the VIA, the visual impact of the selected viewpoints in this study have been evaluated on a qualitative basis. The visual impact of the Proposal has been assessed using a range of criteria against which the relative importance of each observer location can be described including; context, setting, site elements, site character, adjacent development, distance to view (foreground, middle ground and background), land use, visual prominence of the development, and potential changes to the view setting.</p> <p>For each observer location, these criteria have been addressed under three category headings; ‘visual adaptation’, ‘visual sensitivity’ and the resulting ‘visual impact’.</p> <p>As outlined in Table 15-11 of the EIS and Table 6 of the VIA (refer to Appendix T of the EIS), the overall visual impact</p>	<p>Section 22 of the MPW Concept EIS Section 15 and Appendix T of the EIS</p>

Aspect	Comment	Response	Reference
		<p>assessment finding of moderate from Viewpoint 02 is comprised of a low/moderate adaptation impact and a moderate sensitivity impact. As shown in figure 15-5 of the EIS, the proposed view would not break the bushland horizon line. The introduction of building roofs, as shown in Figure 15-5 of the EIS, is considered in this case to be acceptable given the presence of screening vegetation in both the foreground and background, softening the prominence of the Proposal from the viewpoint site.</p> <p>Visual impact mitigation would be implemented through adaptive and considered design. Harmonious colour pallets and high quality finishes/materials of visible warehouse components implemented, would allow for limited contrast, attractive design and longevity of amenity.</p> <p>It is therefore considered that given the rigorous methodology presented, the impact assessment and mitigation proposed, that the level of impact at this viewpoint is considered acceptable.</p>	
Viewpoint 3	<p>This vantage point is located within Carroll Park and neighboring residential properties and provides existing distant views across bushland. Whilst the view has been identified as moderately sensitive, the impact itself by the Proposal is identified as moderate to high. As a view that is currently landscape in character, this impact is not considered acceptable.</p>	<p>The Visual Impact Assessment (VIA) (Refer to Section 15 and Appendix T of the EIS) has been undertaken in accordance with the Conditions of Approval (CoA – MP10-0193) and SEARs for the Proposal (refer to Table 15-1 of the EIS). Visual impact assessment criteria and methodology undertaken is outlined within the above submission response.</p> <p>As outlined in Table 15-11 of the EIS and Table 6 of the VIA (refer to Appendix T of the EIS), the overall visual impact assessment finding of moderate from Viewpoint 03 (representative of view from Carrol Park and associated residential properties) is comprised of a moderate adaptation impact and a moderate sensitivity impact.</p> <p>Viewpoint sensitivity was assessed based on the likely duration of views and number of observers from a given viewpoint and is</p>	<p>Section 22 of the MPW Concept EIS Section 15 of the EIS</p>

Aspect	Comment	Response	Reference
		<p>independent of the 'prominence' of the Proposal. It is acknowledged through Table 15-11 and Figure 15-7 of the EIS that the existing landscape amenity would change as a result of the Proposal. The proposed view from this site would be encountered by residents and users of the park, with the Proposal being moderately prominent. However, the view is assessed as being of moderate visual sensitivity as the views of the site would be temporary contributing to an overall assessment rating of moderate and is considered acceptable on this basis.</p>	
Viewpoint 7	<p>This vantage point is located along Moorebank Road from the public road. The current view provides good screening by mature trees along the road interface into the site. The proposal does not provide sufficient landscape screening of the proposed warehouse buildings, and is considered unacceptable.</p>	<p>The Visual Impact Assessment (VIA) (Refer to Section 15 and Appendix T of the EIS) has been undertaken in accordance with the Conditions of Approval (CoA – MP10-0193) and SEARs for the Proposal (refer to Table 15-1 of the EIS). Visual impact assessment criteria and methodology undertaken is outlined within the above submission response.</p> <p>As stated in Table 15-11 of the EIS, for Viewpoint 07 the addition of warehouse buildings to the existing landscape would be compatible with the existing industrial nature of the area, and views would generally be temporary as most users would be travelling through in vehicles, which indicates low visual sensitivity. Furthermore, as outlined within the Landscape Plans for the Proposal (refer to Appendix B of this RtS), landscape planting along the western side of Moorebank Avenue frontage (refer to Figure 15-15 of the EIS) would consist of a variety of tree and shrub heights and serve to provide a natural visual screen of warehouse buildings within the Proposal site from the roadway. This level of screening is considered acceptable based on the low visual sensitivity of the area.</p> <p>Further visual impact mitigation would be implemented through adaptive and considered design of warehouse buildings. This</p>	<p>Section 22 of the MPW Concept EIS Section 15 of the EIS Appendix B of this RtS</p>

Aspect	Comment	Response	Reference
		<p>would be implemented through harmonious colour pallets and high quality finishes/materials of visible warehouse components allow for limited contrast, attractive design and longevity of amenity.</p>	
Conclusion	<p>From the assessment of the view analysis, it is considered that the proposal results in adverse impacts to views 02, 03 and 07 in particular and the visual quality of the natural bushland landscape, both along the river edge and from Moorebank Road. The proposals as viewed from these vantage points described above are not sensitive to the surrounding predominant character and the context, and do not protect the beauty of the is part of the Georges River region's natural visual landscape. Overall, these view impacts do not meet the objectives of the draft District Plan (South West), the Green Grid, Better Placed and the Regional Environment Plan no 2. Georges River Catchment. It is recommended that the scheme is reviewed and amended to reduce the visual impacts from the public domain.</p>	<p>As discussed from the responses above, and more broadly in Table 15-11 of the EIS, the assessment findings for views 02, 03 and 07 (i.e. Moorebank Avenue) of moderate are considered acceptable and comply with the requirements of the SEARs. The visual character and quality of the bushland along the Georges River would be maintained through the retention of the riparian corridor (i.e. conservation area), which would also form a proposed biodiversity offset site.</p> <p>Although it is acknowledged the Proposal would have a degree of visual impact ranging from negligible to moderate depending on the location, the Proposal is considered overall to be sensitive to surrounding land uses and additional mitigation measures would be implemented to reduce this impact further, where possible.</p> <p>The extensive native bushland areas, Department of Defence facilities on neighbouring lands, the adjacent MPE site and the general pattern of industrial type development surrounding the Proposal site screens the Proposal from much of the greater sensitive surrounding areas, which are primarily residential. Landscaping and urban design features, described in Section 15 of the EIS, would screen the Proposal as well as further integrate the Proposal with surrounding land uses, minimising the visual impact. An additional commitment (refer to Section 22 of the EIS) to implement harmonious colour pallets and high quality finishes/materials of visible warehouse components would further generate limited contrast, attractive design and longevity of amenity with respect to the built Proposal components.</p>	Section 3.1 and 15 of the EIS

Aspect	Comment	Response	Reference
		<p>As outlined in Section 7.1 of this RtS, the Amended Proposal would not change the assessment findings outlined in the EIS.</p> <p>Strategic Documentation Consideration</p> <p>Section 3 of the MPW Concept EIS includes a consistency assessment of the MPW Project in relation to key strategic planning documents, and establishes the strategic need and justification for the MPW Project. The MPW Concept EIS (SSD 5066) was granted approval by the PAC on 3 June 2016. This approval identifies that the NSW Government supports, subject to satisfying conditions of approval, the operation of the MPW Project on the western side of Moorebank Avenue, Moorebank.</p> <p>Section 3.1 of the EIS outlines the strategic justification for the Proposal from a State and Commonwealth perspective. This section was prepared based on the requirements of the SEARs which stipulated that the EIS is to address the following documents:</p> <ul style="list-style-type: none"> • NSW State Priorities • A Plan for Growing Sydney 2014 • State Infrastructure Strategy 2012-2032 • NSW Freight and Ports Strategy 2013 • NSW Long Term Transport Masterplan • National Land Freight Strategy. <p>The majority of following documents were not directly considered in the preparation of the EIS as they were not identified in the</p>	

Aspect	Comment	Response	Reference
		<p>SEARs, however a consistency assessment for the Proposal with each of these plans is provided below.</p> <p>Draft South West District Plan</p> <p>The objectives of the Greater Sydney Commission’s (GSC) Draft South West District Plan (November 2016) raised by Government Architect (GA) include overall priorities of liveability, productivity and sustainability and attributing principles. The address of the strategic planning and visual objectives are a singular facet of the broader social, economic and environmental considerations, within which the Proposal is supported. Specific reference within the submission to constraints of the Proposal that require addressing include:</p> <ul style="list-style-type: none"> • Limited access points across the Georges River and the railway line; and • Environmental issues on the riverbank. <p>Pedestrian and cycle connections across the Georges River are outside the scope of the proposal. Notwithstanding, Architectural Drawings provided in Appendix D of the EIS indicate that the site layout does not preclude a possible future pedestrian connection to Casula Railway Station from the northern section of the site. Secondly, the riparian corridor along the Georges River adjacent to the Amended Proposal site would be preserved and maintained for conservation purposes, and thereby would not exacerbate any existing environmental issues along the river bank.</p> <p>The Proposal supports the Plan’s vision that by 2056, Western City will be transformed into “a trade, logistics, advanced manufacturing, tourism, health and science hub”. The benefits of integrated planning inclusive of staged infrastructure</p>	

Aspect	Comment	Response	Reference
		<p>development and identification of the Proposal within the Liverpool Strategic Centre are present across the productivity, liveability and sustainability priorities within the District Plan aspects of the framework.</p> <p>Sydney Green Grid</p> <p>Consideration of the Sydney Green Grid objectives with reference to the Proposal is identified in <i>A Plan for Growing Sydney</i>, which is considered in Section 3.1 of the EIS. The Proposal is considered to align with or, at worst, not compromise any of the key objectives identified within the submission document, including those concerned with environmental conservation, environmental quality of waterways, access to open space, encouraging sustainable transport connections and adaptation to climate extremes and urban greening.</p> <p>Greater Metropolitan Regional Environmental Plan No 2—Georges River Catchment</p> <p>Section 5.3.6 of the EIS considers the matters relevant of this plan to the Proposal, including key objectives raised by GA in its submission to maintain or improve the water quality and river flows of the Georges River and its catchment, and to establish a consistent and coordinated approach to environmental planning and assessment for land along the George River and its tributaries.</p> <p>Further detail providing reference for how the Proposal satisfies specific relevant planning controls is provided in Table 5-6 of the EIS.</p> <p>Better Placed - NSW Government Architect's Office</p>	

Aspect	Comment	Response	Reference
		<p>The first draft of this document was exhibited following the exhibition of the MPW Stage 2 EIS. Notwithstanding, the Proposal supports the key objective of this strategic document of “making people’s lives better” through its function in improving the operational capacity of the freight distribution network throughout Western Sydney, for years to come.</p> <p>Greener Spaces – NSW Government Architect’s Office</p> <p>The key objectives of the Greener Places as identified by GA in their submission, are:</p> <ul style="list-style-type: none"> • To guide the planning, design and delivery of green infrastructure in urban areas across NSW • To create a healthier, more liveable and sustainable urban environment by improving community access to recreation and exercise, supporting walking and cycling connections and improving the resilience of urban areas. <p>The Proposal does not directly affect any existing open space or community access to recreation and exercise. The Proposal is situated within an industrial area and includes the preservation of a large area of connected riparian corridor adjacent to the Georges River for conservation purposes. The Proposal would assist in the promotion of a more liveable and sustainable urban environment, as discussed in detail in Section 3.1 of the EIS.</p> <p>Overall, the objectives within the Strategic Plans identified would not be compromised by the Proposal, for reasons outlined above and throughout this document. Further information about how the Proposal align with both National and NSW strategic planning and policy framework is provided in Section 3.1 of the EIS.</p>	
<p>Impacts to open space and bushland connectivity</p>			

Aspect	Comment	Response	Reference
Connections to riparian corridor and across the Georges River from the Proposal site	<p>The Proposal does not show evidence of providing the opportunity to connect to significant open space and bushland along the river bank within the site, along the riverbank and surrounding areas of open space such as Leacock Regional Park. This is important in the context that the bushland and open space is a key asset of this area and connections to this amenity and green infrastructure network provide significant health and well-being benefits to both residents of the area and employees of the site.</p>	<p>The nature of the proposed use of the Proposal site as an intermodal freight processing facility does not intend to provide public connectivity to bushland adjacent to the Georges River, as this area forms a proposed biodiversity offset area which is to be retained for conservation purposes. It should also be noted that that the MPW site, and riparian corridor along this side of the Georges River, was previously not publicly accessible due to the military use of the site. Leacock Regional Park is located on the opposite side of the Georges River to the Proposal site.</p> <p>Notwithstanding, Architectural Drawings provided in Appendix D of the EIS show the site layout does not preclude a possible future pedestrian connection to Casula Railway Station from the northern section of the site.</p>	Section 4 and Appendix D of the EIS
Conclusion	<p>The ability to provide connections for users of this area to significant open space amenity is important in responding to peoples' needs for services and amenity and allowing access to existing open spaces which people can enjoy. This does not meet the objectives of the draft District Plan (South West), the Regional Environment Plan Georges River Catchment, Better Placed and the Green Grid.</p> <p>It is recommended that investigations of potential to provide connections to open space and bushland should be undertaken and incorporated.</p>	<p>The Proposal has been designed in accordance with the relevant CoAs and SEARs.</p> <p>The Proposal is located upon Commonwealth Land, previously occupied by Department of Defence for training purposes, and is not accessible to the public for site security reasons. The Proposal does not directly affect any existing open space and bushland, and does not preclude future connections to existing public open space and bushland.</p>	Section 20.5 and Appendix E of the EIS Appendix B of this RtS

Aspect	Comment	Response	Reference
Vegetation loss			
Urban heat island effect exacerbated by the Proposal	The Proposal site is located to the south-west of Sydney where temperatures are hotter and the effect of trees to act as an important cooling mechanism is needed;	<p>Urban Heat Islands (UHI) refer to the phenomena whereby urban regions experience warmer temperatures than their rural surroundings. UHI comprise two key forms; namely surface UHI and atmospheric UHI.</p> <p>The Amended Proposal would result in an increase in impervious areas and would, therefore, have the potential to result in surface UHI. A landscape plan has been prepared for the Proposal and is presented in Appendix E of the EIS, which outlines the proposed strategy for retaining vegetation and revegetating areas to the greatest extent possible. Further, a conservation area will be retained to the west of the MPW Stage 2 site minimising the resulting surface UHI effect of the Proposal site, however some surface UHI effects may be experienced (particularly during summer months).</p> <p>Atmospheric UHI is typically a result of high density urban development (with buildings located closely to one another), as well as from waste heat from energy consumption. The warehouse layout provided for the Proposal allows for a low-moderate density industrial use. Further, warehouses have a substantially lower energy demand per square metre than residential or commercial buildings. Machinery and equipment would have a power requirement; however, this would be substantially lower than that of the building power demand. The potential for the Proposal to contribute to atmospheric UHI is, therefore, considered to be low.</p> <p>The extent of UHI is largely dependent of weather conditions and geographic location. The average wind speed and infrequency of calm wind conditions at the Proposal site - occurring</p>	Section 4, Appendix O of the EIS Appendix B of this RtS

Aspect	Comment	Response	Reference
		<p>approximately 12% of the time (refer to Appendix O of the EIS) - would enhance wind dissipation of UHI effects. Further, the proximity of Georges River and large vegetated areas (to the south and east of the Proposal site) will ameliorate UHI occurring within the area. The potential UHI effects from the Proposal are therefore considered to be minor.</p> <p>In addition, a variety of both large and small tree forms is proposed to both reduce the heat island effect and create a naturally appearing landscape treatment (refer to Appendix B of this RtS).</p>	
<p>Preservation of trees within the Proposal site</p>	<p>The Proposal site is industrial in nature, requiring existing landscaping to soften impacts to the environment</p>	<p>The development of the Proposal site for the purposes of an IMT is consistent with the Liverpool LEP land zoning of IN1 (General Industrial). As outlined within Section 7 of this RtS, all remaining vegetation within the Amended Proposal site would be cleared, and offset as part of the Biodiversity Offset Strategy (BOS), which is being prepared as part of the MPW Concept Approval (SSD 5066). The visual character and quality of the bushland along the Georges River would be maintained to promote public health through the retention of the riparian corridor (i.e. conservation area), which represents one of the most environmentally sensitive areas of the MPW site, and would also form a proposed biodiversity offset site.</p> <p>The Landscape plans for the Amended Proposal, provided in Appendix E of this RtS, are proposed to integrate the development with the surrounding environment using tree, shrub and groundcover species that are local to the area to create habitat opportunities and links to surrounding habitat. The focus of the landscape works includes:</p> <ul style="list-style-type: none"> • The integration of the Moorebank Avenue frontage 	<p>Section 4 of the EIS Section 7 of this RtS Appendix B of this RtS</p>

Aspect	Comment	Response	Reference
		<ul style="list-style-type: none"> • Landscape works associated with internal roads and warehouses • Landscape interface with the vegetation conservation areas <p>Further detail regarding landscape design is provided in Landscape design plans for the Amended Proposal (refer to Appendix B of this RtS).</p>	
Maintaining habitat connectivity	The Proposal site sits adjacent to an important riparian corridor of the Georges River and the loss of existing trees would adversely impact this area	<p>As outlined in Section 2.3.4 of the EIS, the Georges River runs directly west of the Proposal site, with disturbed native and other vegetation forming the riparian corridor which continues to both the north and south of the Proposal site. The areas west of the Georges River are generally characterized as low-density residential development with commercial developments and community facilities in the suburbs of Casula, directly west, and Liverpool, north-west. The majority of existing vegetation within the MPW site is native and representative of threatened ecological communities listed in Schedules 1 and 2 of the TSC Act.</p> <p>The visual character and quality of the bushland along the Georges River would be maintained to promote public health through the retention of the riparian corridor (i.e. conservation area). The riparian corridor represents one of the most environmentally sensitive areas of the MPW site, and is a proposed biodiversity offset site. Vegetation clearing as part of the Amended Proposal would involve the removal of all remaining vegetation within the Amended Proposal site, totalling approximately 42.7 hectares of threatened ecological communities (refer to Section 8.2 of the Revised Biodiversity Assessment Report [BAR], Appendix G of this RtS). All vegetation removal as part of the Proposal would be included in</p>	Section 2, 11 and 22 of the EIS Section 7 and Appendix G of this RtS

Aspect	Comment	Response	Reference
		<p>the Biodiversity Offset Strategy (BOS), which is being prepared as part of the MPW Concept Approval (SSD 5066).</p> <p>As outlined in Section 7 of this RtS, The Amended Proposal includes construction of three stormwater basin outlets within the Georges River riparian zone as well as a covered drain in the north of the riparian zone, within the Endeavour Energy easement. The approximate widths of the basin outlet impact areas during construction and operation (following revegetation), and consequent gaps in the riparian corridor vegetation, are as follows (refer to Figure 8.1 of the Revised BAR, Appendix G of this RtS):</p> <ul style="list-style-type: none"> • Basin 5: 40 to 72 metres during construction, and 25 to 72 metres during operation • Basin 6: 41 metres during construction, and 22 metres during operation • Basin 8: 52 metres during construction, and 30 to 50 metres during operation. <p>These areas to be disturbed would be re-contoured and partially revegetated upon completion of the basin outlets to restore habitat connectivity. While there would be a temporary and short-term impact during construction of the outlets, the permanent impacts would be unlikely to significantly impede fauna movement.</p> <p>Furthermore, several mitigation measures (No. 4R, 4S and 4U) have been included as part of the EIS to monitor the health of the riparian corridor and Georges River during both construction and operation of the Proposal (refer to Section 22 of the EIS), by a suitably qualified bush regenerator or ecologist.</p>	

Aspect	Comment	Response	Reference
Conclusion and recommendations	<p>A review of the existing banks of mature trees on the site which may be lost due to new buildings should be undertaken, and adjustments made to the building footprints to ensure retention of trees of high value;</p> <p>As it is proposed to fill the site, the proposed landform should be reviewed to maintain existing ground levels around the perimeter of the site, particularly adjacent to the conservation zone and to the north of the site where there are stands of mature trees. To ensure the survival of mature trees, existing surface levels should be maintained within the drip zone of the tree trunks, with a maximum upslope fill level to be determined at an appropriate distance from the trunk. An arborist should be appointed to provide specialist advice in relation to this;</p> <p>A tree replacement strategy should be implemented to ensure that for every tree removed there is a minimum number of replacement trees. Specialist arborist advice should be provided to guide principles for tree replacement;</p>	<p>The adjusted building formation levels proposed vary across the Proposal site and are driven by site drainage, and flood modelling requirements. As a result, the removal of vegetation would occur in areas where clean general fill would be placed. As outlined within Section 7 of this RtS, due to the requirement to adjust building formation levels, all remaining vegetation within the Amended Proposal site would need to be cleared, and offset as part of the Biodiversity Offset Strategy (BOS), which is being prepared as a requirement of the MPW Concept Approval (SSD 5066).</p> <p>Bulk Earthworks Plans provided as part of Appendix R of the EIS indicate the intended depth of cut/fill along the perimeter of the MPW site.</p> <p>As per mitigation measure 4C (refer to Section 8 of the RtS), vegetation clearing would be restricted to the Amended Proposal construction footprint. Sensitive areas outside of this footprint would be clearly identified as exclusion zones to prevent removal of trees outside the construction boundary. This exclusion area would extend to the drip zone for trees along the site perimeter of the Amended Proposal site.</p> <p>As stated in Section 10.2 of the Biodiversity Assessment Report (refer to Appendix G of this RtS), A comprehensive Biodiversity Offset Package (BOP) for the MPW Project is to be prepared and implemented under condition D17 of the MPW Concept Approval (SSD 5066).</p> <p>This document will be prepared in accordance with the NSW Biodiversity Offsets Policy for Major Projects, and will be prepared with the objective of offsetting all biodiversity impacts within the Moorebank Precinct (comprising the MPW site and the</p>	Section 7, 8 and Appendix G of this RtS

Aspect	Comment	Response	Reference
		Moorebank Precinct East (MPE) site). The BOP will consider all relevant biodiversity impacts of the Amended Proposal including tree removal and replacement.	
Water Sensitive Urban Design			
Onsite detention	<p>The location of the three proposed on-site detention facilities, directly adjacent to the bushland conservation area will have a detrimental effect on the sensitive natural landscape.</p> <p>Furthermore, the proposed edge treatment of the channel of the OSD provides no softened green edge through vegetation growth. This edge condition of the detention bank sits adjacent to the proposed 5 metre noise wall, adjacent to the internal roadway.</p>	<p>The inclusion of the three OSDs adjacent to the conservation area does not result in any increase to the site footprint when compared to the area approved as part of the MPW Concept Approval (SSD 5066).</p> <p>Furthermore, the inclusion of the site drainage system, inclusive of OSDs, would serve to benefit the surrounding sensitive natural landscape by controlling the quantity and quality of surface runoff passing through the MPW site during both construction and operation, to a neutral or beneficial effect (i.e. maintain or improve existing water quality) as required by the SEARs.</p> <p>As outlined in Section 7 of this RtS, the Amended Proposal includes construction of three stormwater basin outlets within the Georges River riparian zone, as well as a covered drain within the Endeavour Energy easement in the north of the riparian zone. The riparian corridor would be impacted by the removal of vegetation for construction of sediment basin outlets in three locations. Vegetation would be removed to the water's edge, creating a temporary barrier to habitat connectivity along the riparian corridor; the resulting gaps in the vegetation would range from 50 metres to 70 metres during construction. The areas to be disturbed would be recontoured and partially revegetated upon completion of the basin outlets to restore habitat connectivity</p> <p>Furthermore, several mitigation measures (No. 4R, 4S and 4U) have been included as part of the EIS to monitor the health of the riparian corridor and Georges River during both construction and</p>	Section 12 of the EIS Appendix B of this RtS

Aspect	Comment	Response	Reference
		<p>operation of the Proposal (refer to Section 22 of the EIS), by a suitably qualified bush regenerator or ecologist.</p> <p>As outlined in the Landscape Plans for the Amended Proposal (refer to Appendix B), native grasses are proposed to be planted along the embankment of the OSD channel to integrate with the surrounding natural landscape.</p>	
Other areas for WSUD	<p>Within the operational areas of the site, and the context of the proposed building and associated parking, there are insufficient details of the proposals to incorporate a sustainable drainage network which will drain water in a sensitive way, and provide added landscaped visual amenity within the development area.</p>	<p>As discussed within Section 12.2 of the EIS, the stormwater and drainage design for the Proposal incorporates a water sensitive urban design (WSUD) approach to achieve the adopted performance targets, in accordance to the SEARs. This would involve the integration of the following:</p> <ul style="list-style-type: none"> • Gross Pollutant Traps (GPTs): these are primary stormwater treatment measures used as the first measure in a stormwater treatment train. • Rain gardens: these act as bio-retention systems and comprise of a combination of vegetation and filter substrate and treat stormwater through the processes of settling, filtration and biological uptake of nutrients. For the Proposal site, it is proposed that rain gardens would form the base of the OSD basins. <p>The inclusion of the above components into the Proposed drainage system would control flows in a sensitive way to achieve water quality targets, while adding visual amenity to the OSDs.</p>	Section 12.2 of the EIS
Conclusion	<p>Any stormwater discharge into the Georges River should meet stringent water quality controls. There should be minimal disturbance to the river bank.</p>	<p>As stated in the above responses, water quality controls required by the SEARs, are outlined in Section 12 of the EIS and would be achieved through implementation of the proposal drainage system, which would utilize water sensitive urban components</p>	Section 12 and 3.1 of the EIS

Aspect	Comment	Response	Reference
	<p>Stormwater treatment should utilize bioremediation techniques.</p> <p>The current proposals do not meet the objectives of REP Georges River Catchment, the District Plans (South West) and Greener Spaces.</p>	<p>(that include bioremediation). The inclusion of OSDs and drainage channels adjacent to, and through, the conservation area have been assessed in Section 7 and Appendix G of this RtS, and would result in minimal disturbance to the Georges River bank.</p> <p>The objectives of the mentioned Strategic Planning documents relating to water quality are consistent with those associated with the Proposal as demonstrated above. Further information about how the Proposal align with both National and NSW strategic planning and policy framework is provided in Section 3.1 of the EIS.</p>	<p>Section 7 and Appendix G of this RtS</p>
Health and active living			
<p>Pedestrian access and employee welfare</p>	<p>Key elements which are absent from the proposal in relation to this include any integration of pedestrian connections across the Georges River to Casula Station or to Leacock Regional Park and cycle connections which have the opportunity to link to Liverpool CBD.</p> <p>The Proposal does not provide any meaningful open space for employees for passive (space for lunch or to sit) or active recreation (physical exercise) during breaks whilst on the site.</p> <p>The proximity of the Proposal to established residential areas, and the impacts which will result from the industrial nature of the scheme raises</p>	<p>As mentioned in the responses above, the Proposal is located upon Commonwealth Land, previously occupied by Department of Defence for training purposes, and is not accessible to the public for site security reasons.</p> <p>Pedestrian and cycle connections across the Georges River are outside the scope of the proposal. Notwithstanding, Architectural Drawings provided in Appendix D of the EIS indicate that the site layout does not preclude a possible future pedestrian connection to Casula Railway Station from the northern section of the site.</p> <p>The Proposal includes the following features for the benefit of site employees:</p> <ul style="list-style-type: none"> • Freight village – construction and operation of approximately 800 m² of retail premises, which would provide services to support employees on the Proposal site, including lunch and breakout areas. 	<p>Sections 10, 20.5 and Appendix D of the EIS</p>

Aspect	Comment	Response	Reference
	<p>questions about the ability to sustain good health to these areas.</p>	<ul style="list-style-type: none"> • Each warehouse would contain site amenities, office and break out areas • End of service facilities, including bike racks, lockers and showers would be provided for each warehouse, relative to the anticipated number of employees. <p>The general location of these areas is shown in (insert figure/drawing references).</p> <p>The specialist studies undertaken and included within the EIS, including those regarding human health (refer to Section 10), and socio-economic impacts (refer to Section 20.5) indicate that the Proposal would not impact the ability of people nearby to maintain good health. Furthermore, the studies also provide mitigation measures to manage any residual environmental impacts arising from the Proposal.</p>	
Conclusion	<p>Limited end of trip facilities, in the form of a shower are provided within the proposals for cyclists. This is not sufficient for the potential number of employees who will be based in each warehouse.</p> <p>The Georges River riparian corridor is a significant natural asset to form a strong framework to promote and encourage good health active living. This does not meet the objectives of the draft District Plan (South West), REP Georges River Catchment, Better Placed and the Green Grid.</p>	<p>As mentioned in the responses above, end of trip facilities, including bike racks and showers, relative to each warehouse and the number of employees in reference to guidelines adopted from <i>The City of Sydney Section 3 – General</i> are discussed in Section 7.4 of the EIS.</p> <p>Despite being outside scope of the Proposal, Architectural Drawings provided in Appendix D of the EIS indicate that the site layout does not preclude a possible future pedestrian connection to Casula Railway Station from the northern section of the site.</p> <p>The visual character and quality of the bushland along the Georges River would be maintained to promote public health through the retention of the riparian corridor (i.e. conservation area), which would also form a proposed biodiversity offset site.</p> <p>For these reasons, the Proposal is considered to meet the objectives of the draft District Plan (South West), REP Georges</p>	Section 7.4 and 3.1 of the EIS

Aspect	Comment	Response	Reference
	<p>It is recommended that plans are reviewed to ensure that:</p> <ul style="list-style-type: none"> adequate end of trip facilities for cyclists are incorporated within the proposal, including sufficient number of showers and cycle parking; and pedestrian connections are provided and prioritised within the scheme and to adjoining amenity including Casula Station and Leabrook Regional Park. 	<p>River Catchment, Better Placed and the Green Grid. Further information about how the Proposal align with both National and NSW strategic planning and policy framework is provided in Section 3.1 of the EIS.</p>	
Employee amenity			
<p>Provision of open space to operational employees</p>	<p>The Proposal does not incorporate any clear opportunities for employees to connect to meaningful open spaces, either existing or proposed.</p> <p>A small open area of approximately 3 metres x 3 metres is proposed, located adjacent to the office of each warehouse. These are generally located directly adjacent to the loading docks. This appears to be the only open space for employees and as proposed is not considered to provide a space of high quality for employees to be able to relax during break times whilst on site.</p>	<p>As mentioned in the responses above, The Proposal includes the following features for the benefit of site employees:</p> <ul style="list-style-type: none"> Freight village – construction and operation of approximately 800 m2 of retail premises, which would provide services to support employees on the Proposal site, including lunch and breakout areas. Each warehouse would contain site amenities, office and break out areas End of service facilities, including bike racks, lockers and showers would be provided for each warehouse, relative to the anticipated number of employees. <p>The general location of these areas is shown in Section 4.2 of the EIS.</p>	<p>Section 7.4 of the EIS</p>

Aspect	Comment	Response	Reference
		The extent and type of open spaces and amenities for employees is considered appropriate, and to a standard consistent with an IMT and associated warehousing facilities.	
Conclusion	<p>The proposal does not meet the objectives of the draft District Plan, Better Placed, the Green Grid and the Greener Spaces.</p> <p>It is recommended that plans are reviewed to integrate sufficient and meaningful green landscaped open space within the scheme for employees to be able to enjoy.</p>	For the reasons outlined in responses above regarding employee amenity, the objectives of the District Plan, Better Placed, the Green Grid and the Greener Spaces are considered to be satisfied by the Proposal. Further information about how the Proposal align with both National and NSW strategic planning and policy framework is provided in Section 3.1 of the EIS.	Section 3.1 of the EIS
Public space			
Lack of high quality landscaped space within the Proposal site	<p>The public areas of the scheme include internal roads and carparking areas, with a limited landscape treatment. This framework of operational roads and carparking areas occupies the entire of the open space within the development area of the site and provides no opportunity for the creation of high quality streets and open spaces. A small open area of approximately 3 metres x 3 metres is located adjacent to the office of each warehouse. These are located directly adjacent to the loading docks.</p> <p>The resulting experience for employees working within the facility will be poor.</p>	<p>As mentioned in the responses above, the Proposal is located upon Commonwealth Land, previously occupied by Department of Defence for training purposes, and is not accessible to the public for site security reasons.</p> <p>Landscaping treatment, as detailed within the Landscape Plans for the Amended Proposal (refer to Appendix B of this RtS) would focus on the following:</p> <ul style="list-style-type: none"> • The integration of the Moorebank Avenue frontage • Landscape works associated with internal roads and warehouses • Landscape interface with the vegetation conservation areas <p>Further detail regarding landscape design is provided in Landscape design plans for the Amended Proposal (refer to Appendix B of this RtS).</p>	Appendix B of this RtS

Aspect	Comment	Response	Reference
		<p>The Proposal is for approval to construct and operate an IMT facility with associated warehousing, internal transportation network and drainage infrastructure. The site layout and associated planning controls are designed to maximise the operational efficiency and safety of the site, and are consistent with Part 7 of the Liverpool Development Control Plan 2008 for industrial development.</p> <p>The extent and type of open spaces and amenities for employees is considered appropriate and to a standard consistent with an IMT and associated warehousing facilities.</p>	
Conclusion	<p>The site planning has not allowed for integration of any open space and compromised the potential for creating quality open space through maximising the building footprints and associated carparking. This is not consistent with the objectives of the draft District Plan (South West), Better Placed, Greener Places, and the Green Grid.</p> <p>It is recommended that landscape proposals are reviewed and amended to provide higher quality open spaces and a movement network for pedestrians within the development</p>	<p>The Proposal is for approval to construct and operate an IMT facility with associated warehousing, internal transportation network and drainage infrastructure. The site layout and associated planning controls are designed to maximise the operational efficiency and safety of the site, and are consistent with Part 7 of the Liverpool Development Control Plan 2008 for industrial development.</p> <p>Open spaces have been retained where possible for the benefits of both employees and visitors, and to retain the existing natural character of the surrounding environment. Proposed pedestrian and cyclist connectivity within the Proposal site is outlined in Section 5 of the Operational Traffic and Transport Impact Assessment (refer to Appendix M of the EIS). Due to the operational site safety and security, pedestrian access to the Proposal site is restricted to the internal perimeter road.</p> <p>The extent and type of open spaces and amenities for employees is considered appropriate and to a standard consistent with an IMT and associated warehousing facilities, and no further review is considered appropriate.</p>	Appendix M of the EIS Appendix B of this RtS

Green spaces

Aspect	Comment	Response	Reference
Integrating existing green spaces within the Proposal site	<p>The nature of the Proposal is industrial in nature, and any opportunity for increasing the green elements of the site should be integrated. Current Proposals indicate large box-format warehouses and carparking which dominate the site and compromised the ability to provide a meaningful green environment.</p> <p>Further, the proposals along the internal road provide no landscape to the western side of the roadway, which will result in a poor environment.</p>	<p>A maximum Floor Space Ratio (FSR) has been established for the warehousing precinct to control the density, intensity and massing of warehouses on the Project site, to minimise environmental impacts and maintain an appropriate visual connection with adjoining properties. These planning controls are consistent with Part 7 of the Liverpool Development Control Plan 2008 for industrial development. Carparking and the internal road network are necessary to facilitate the core function of the site. These areas and functionality of the site for its core purpose as an intermodal facility cannot be compromised with green space for the sole benefit of employees.</p> <p>As demonstrated within the Landscape Plans for the Amended Proposal (refer to Appendix B of this RtS), landscaping and screen planting is proposed along the western side of the internal road, allowing for maximum visual amenity to the visual receptors to the west.</p>	Appendix B of this RtS
Enhancement of green spaces	<p>There is no evidence to indicate that existing green spaces within the site have been enhanced. There are significant bushland areas which have been designated as conservation zone. There is no supporting information about how these spaces will be preserved in the context of infrastructure and building works.</p>	<p>As outlined within Section 11.1 of the EIS, retention and enhancement of substantial areas of vegetation within the Georges River riparian corridor (i.e. the conservation area) within the MPW site would be undertaken through design principles and mitigation measures outlined in Section 22 of the EIS (most notably mitigation measures 0B, 0C, 4A, 4B, 4C, 4N, 4O, 4P, 4R, 4S, 4T and 4U).</p> <p>As outlined within Section 7 of this RtS, all remaining vegetation within the Amended Proposal site would be removed, and offset as part of the Biodiversity Offset Strategy (BOS), which is being prepared as part of the MPW Concept Approval (SSD 5066).</p> <p>A landscape plan has been prepared for the Proposal and is presented in Appendix B of this RtS, which outlines the proposed strategy for revegetating areas to the greatest extent possible.</p>	Section 7 and Appendix B of this RtS

Aspect	Comment	Response	Reference
Conclusion	<p>The proposals do not create a greener environment and enhance or protect the natural beauty of the District's visual landscape and riparian corridor. This is not consistent with the objectives of the Regional Environment Plan for the Georges River, the Green Grid, the draft District Plans (South West) and Better Placed.</p> <p>It is recommended that plans are reviewed and amended to improve the capacity of the scheme to provide a greener environment.</p>	<p>As outlined within the Landscape Plans prepared for the Amended Proposal (Refer to Appendix B of this RtS), the landscape design serves to integrate the development with the surrounding environment, using tree, shrub and groundcover species that are local to the area. The site layout has allowed for maximum planting opportunities on the western side of the site for sensitive receivers to the west.</p> <p>The retention of the large conservation area, as discussed in earlier responses above, along with other design aspects including implementation of recommended site drainage systems, would maintain the biodiversity values of the Georges River riparian corridor at areas relative to the Amended Proposal site.</p>	Appendix B of this RtS
Building design			
Warehouse size and appearance	<p>The proposed buildings on the site include 7 warehouse buildings which provide a mass storage function. The footprints range in size, with the largest being Warehouse 1C with dimensions of 29.6 metres x 26 metres, and average heights of 13 metres. These result in a excessively large footprint and bulk. There is no articulation to the buildings to break up the massing and allow a softening with the landscape.</p> <p>Finished materials to the buildings includes coloured metal cladding to walls and roofs, with a proposed colour palette which is not complementary or</p>	<p>The warehousing layout selected for the Proposal was based on consultation with DP&E following the original Concept Approval, which considered three potential warehousing layout options. The selected layout is designed to allow efficient access to the IMT and Moorebank Avenue. As discussed in the responses above, a maximum FSR has been established for the warehousing precinct to control the density, intensity and massing on the Project site, to minimise environmental impacts and maintain an appropriate visual connection with adjoining properties. These planning controls are consistent with Part 7 of the Liverpool Development Control Plan 2008 for industrial development.</p> <p>As outlined within the Landscape Plans for the Amended Proposal (refer to Appendix B of this RtS), warehousing buildings have been located to provide opportunities for landscaping and</p>	Table 15-9 and Appendix D of the EIS

Aspect	Comment	Response	Reference
	sensitive to the natural predominant bushland setting.	<p>screen planting, to provide optimal softening to the sensitive receptors to the west.</p> <p>The buildings and structures included in the Proposal would be of a high design quality. The building colours and finishes would be compatible and blend with the surrounding land uses, including the natural bushland setting, including non-reflective colours. A schedule of the indicative colour palette for proposed office buildings and other structures is provided in the Architectural Drawings (Appendix D of the EIS) and summarised in Table 15-9 of the EIS. The design is in accordance with the relevant CoAs and SEARs regarding landscaping, and are considered suitable for the development application.</p>	
Conclusion	<p>The warehouse buildings as currently proposed do not sit sensitively with their natural setting and the interface along the Georges River, and the established residential areas which are located within the vicinity. The footprint of the buildings and their lack of articulation does not allow the opportunity to create any areas of quality and meaningful public open space for employees of the facility to enjoy.</p> <p>The proposals for the buildings do not align with the objectives of the draft District Plans (South West) or Better Placed.</p> <p>It is recommended that plans are reviewed to reduce the footprints of the</p>	<p>The warehousing buildings, as discussed in the earlier responses would be compatible and blend with the surrounding land uses, including non-reflective colours. A schedule of the indicative colour palette for proposed office buildings and other structures is provided in the Architectural Drawings (Appendix D of the EIS) and summarised in Table 15-9 of the EIS.</p> <p>The warehousing layout as discussed are designed to maximise the operational efficiency of the site with respect to the future tenants. Consideration of recreation space for employees is included within the design, through the inclusion of the freight village, end of trip facilities and other amenities associated with each warehouse. Changes to the warehousing layout of the site is not considered necessary.</p> <p>For the reasons identified above within this table, the Proposal is considered to align with the objectives of the draft District Plans (South West) and Better Placed. Further information about how the Proposal align with both National and NSW strategic planning and policy framework is provided in Section 3.1 of the EIS.</p>	Section 3.1 and 15 of the EIS

Aspect	Comment	Response	Reference
	warehouse buildings and break up with articulation. It is also recommended that the materials palette be reviewed		
Light spill impacts			
Light spill assessment	<p>The Proposal is to operate 24 hours a day, 7 days a week. The warehouse facility is to run 18 hours a day from 7am to 1am. A detailed assessment of the light spill impacts has not been undertaken, however whilst the assessment within the EIA concludes that:</p> <p><i>“The light spill assessment concludes that minimal effect on adjacent properties and on the environment can be achieved, through appropriate selection of light source, luminaire make and aiming as well as pole positions and height from static site lighting well within the limits stated in AS 4282 - 1997 Control of the obtrusive effects of outdoor lighting“.</i></p>	<p>As outlined in Section 15 of the EIS, a light spill assessment, undertaken by AECOM, was prepared to inform the MPW Concept EIS. The assessment involved measurement of the existing environmental conditions with respect to light spill, calculation of the potential light spill from the indicative proposed lighting design for the Project, and assessment of the potential light spill impact in specific sensitive receptor areas.</p> <p>An additional light spill assessment for operation of the Proposal, undertaken by Reid Campbell, is provided in Section 15.4.2 of the EIS (refer to Appendix T of the EIS). The assessment involved light spill modelling at relevant boundaries, as indicated in Figure 15-18 of the EIS. In addition to the assessment finding that the overall anticipated light spill impacts would be minor, a number of mitigation measures with respect to operational light spill during operation are included to mitigate residual impacts. These findings are considered representative of the Amended Proposal.</p>	Section 15 and Appendix T of the EIS
Conclusion	The light required after daylight hours to coincide with the operation of the warehouse facilities is considered to have a cumulative detrimental impact on the urban environment and the proximity to existing residential areas and the overall sky glow which will be created.	<p>As identified in the response above, light spill assessment undertaken for the proposal concluded that the overall light spill impacts would be minor.</p> <p>As discussed in Section 15 of the EIS, various mitigation measures (refer to Section 15.5 and 22 of the EIS) would be adopted during operation to mitigate the cumulative impacts generated by proposal.</p>	Sections 15 and 22 of the EIS

APPENDIX J: STAGING INFORMATION (INCLUDING EARTHWORKS QUANTITIES)

MPW Stage 2 Proposal – additional staging information

Table 2 and Table 3 provide further information in relation to the staging that is proposed during the construction of the MPW Stage 2 Proposal. This information is consistent with, and builds upon, information previously submitted as part of the approvals documentation. Table 1 includes an indicative outline of the timing of the phases and included works periods for the MPW Stage 2 Proposal construction schedule. Table 2 provides further information relating to the permanent (operational) infrastructure that is to be included within each phase.

The information provided within these tables is indicative only and subject to change after the commissioning of a contractor/s for the construction of the MPW Stage 2 Proposal. It is envisaged that a Staging Report (consistent with 0B of the FCMMs) would be submitted to further highlight these stages prior to construction of the proposal.

Table 2 Indicative construction program (by Phase)

Construction Phase	2019				2020				2021				2022		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Intermodal and Rail Link Phase (inc. Moorebank Avenue/Anzac Road intersection)															
Construction															
Works period A – Pre-construction stockpiling															
Works period B - Site Preparation Activities															
Works period C – Bulk earthworks, drainage and utilities															
Works period D - Moorebank Avenue intersection works and internal road network															

Construction Phase	2019				2020				2021				2022		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Works period E – IMT facility and Rail link connection construction															
Works period G – Miscellaneous structural construction and finishing works															
Operation															
Warehousing North area Phase															
Construction															
Works period A – Pre-construction stockpiling															
Works period B - Site Preparation Activities															
Works period C – Bulk earthworks, drainage and utilities															
Works period F – Construction and fit-out of warehousing and freight village															

Construction Phase	2019				2020				2021				2022		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Works period G – Miscellaneous structural construction and finishing works															
Operation															

Central Warehousing and Earthworks Phase

Construction															
Works period A – Pre-construction stockpiling															
Works period B - Site Preparation Activities - Construction of permitter road															
Works period C – Bulk earthworks, drainage and utilities															
Works period F – Construction and fit-out of warehousing															

Construction Phase	2019				2020				2021				2022		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Works period G – Miscellaneous structural construction and finishing works															
Operation															
Southern Earthworks and OSD Phase															
Construction															
Works period A – Pre-construction stockpiling															
Works period B - Site Preparation Activities Construction of permitter road															
Works period C – Bulk earthworks, drainage and utilities															
Works period G – Miscellaneous structural construction and finishing works															
Operation	N/A														

Table 3 indicative permanent (operational) infrastructure by phase²

Construction elements	Phase			
	Intermodal and Rail Link Phase (inc. Moorebank Avenue/Anzac Road intersection)	Warehousing North area Phase	Central Warehousing and Earthworks Phase	Southern Earthworks and OSD Phase
Cut and fill earthworks	Approximately Cut 33,000 m ³ Fill 559,000 m ³	Approximately Cut 44,000 m ³ Fill 790,000 m ³	Approximately Cut 97,000 m ³ Fill 497,000 m ³	Approximately Cut 117,500 m ³ Fill 82,500 m ³
Importation and stockpiling of fill	Approximately 526,000 m ³ (Import)	Approximately 746,000 m ³ (Import)	Approximately 400,000 m ³ (Import)	Approximately -35,000 m ³ (Stockpile)
Retaining walls	<ul style="list-style-type: none"> Basin 10 (west of Moorebank Avenue) Basin 3 (west of Moorebank Avenue) 	Basin 5	Basin 6	Basin 8
Stormwater infrastructure	Construction of the following: <ul style="list-style-type: none"> Basin 4 (north) East- west drainage channel and associated northern outlet (central) Basin 10 (west of Moorebank Avenue) Basin 3 (west of Moorebank Avenue) 	Construction of the following: <ul style="list-style-type: none"> Basin 5 (north-west) Upstream treatment integrated into landscaped areas 	Construction of the following: <ul style="list-style-type: none"> Basin 6 (central) 	Construction of the following: <ul style="list-style-type: none"> Basin 8 (southern)
Intersections and internal roads	Construction of the following: <ul style="list-style-type: none"> Moorebank Avenue/Anzac Road intersection (inc. Bapaume Road and 	Construction of the following: <ul style="list-style-type: none"> Permitter road (northern section) 	Construction of the following: <ul style="list-style-type: none"> Permitter road (central section) Warehouse 5 and 6 access road 	No permanent roads to be construction. Temporary access roads connecting to the Permitter road proposed.

² This list provides a general description, however for a complete description refer to the consolidated proposal description included at Appendix O of the RTS.

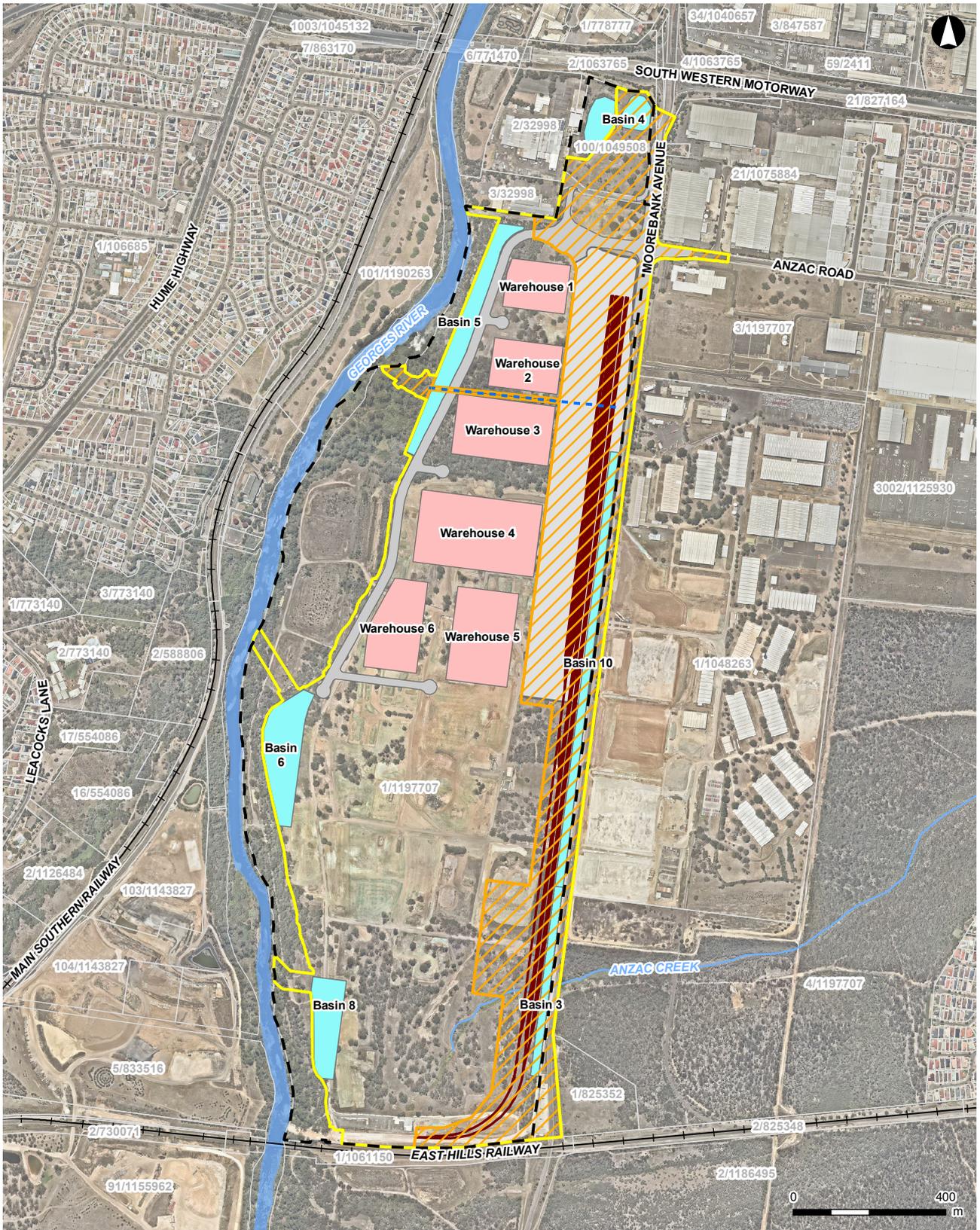
Construction elements	Phase			
	Intermodal and Rail Link Phase (inc. Moorebank Avenue/Anzac Road intersection)	Warehousing North area Phase	Central Warehousing and Earthworks Phase	Southern Earthworks and OSD Phase
	<ul style="list-style-type: none"> Moorebank Avenue intersection) Access road to the intermodal terminal Access road (through the MPW Stage 2 site) to ABB Intermodal processing gates and loading areas (refer also to below) 	<ul style="list-style-type: none"> Warehouse 1 and 2 access road Warehouse 3 and 4 access road. 		
Terminal and rail line	<p>Construction of the following:</p> <ul style="list-style-type: none"> Intermodal terminal and all sidings and locomotive shifter Connection of sidings to the Rail link Primary loading and unloading container storage areas Secondary loading and unloading container storage areas Ancillary facilities, including (but not limited to), office, workshop/wash bay, fumigation and degassing area, car parking services. 	Not proposed within this stage.	Not proposed within this stage.	Not proposed within this stage.
Hard stands (including truck	Construction of the following:	Construction of the following:	Construction of the following:	Not proposed within this stage.

Construction elements	Phase			
	Intermodal and Rail Link Phase (inc. Moorebank Avenue/Anzac Road intersection)	Warehousing North area Phase	Central Warehousing and Earthworks Phase	Southern Earthworks and OSD Phase
queue and holding areas)	<ul style="list-style-type: none"> • Intermodal terminal <ul style="list-style-type: none"> – Primary loading and unloading container storage areas – Secondary loading and unloading container storage areas. • Truck loading areas (northern part of the MPW Stage 2 site): <ul style="list-style-type: none"> – Emergency truck holding area – Truck queuing area. 	<ul style="list-style-type: none"> • Warehouse 1, 2, 3 and 4 loading areas. 	<ul style="list-style-type: none"> • Warehouse 5 and 6 loading areas. 	
Lead in services – water, sewer, power, communications	Connection to the terminal to the existing external networks.	Extension of trunk infrastructure and connection to the warehouses	Extension of trunk infrastructure and connection to the warehouses	Nil
Terminal office, workshop, warehouse number (i.e. warehouse 1A), freight village	<p>Construction of the following:</p> <ul style="list-style-type: none"> • Intermodal terminal ancillary facilities, including (but not limited to), office, workshop/wash bay, fumigation and degassing area, car parking services. 	<p>Construction of the following:</p> <ul style="list-style-type: none"> • Warehouse 1, 2, 3 and 4 (and associated offices) • Freight village. 	<p>Construction of the following:</p> <ul style="list-style-type: none"> • Warehouse 5 and 6 (and associated offices). 	Not proposed within this stage.

Construction elements	Phase			
	Intermodal and Rail Link Phase (inc. Moorebank Avenue/Anzac Road intersection)	Warehousing North area Phase	Central Warehousing and Earthworks Phase	Southern Earthworks and OSD Phase
Landscaping ³ , paths, lighting, signage	<p>Installation of all ancillary infrastructure associated with the intermodal terminal including:</p> <ul style="list-style-type: none"> • Landscaping, paths and lighting (key areas): <ul style="list-style-type: none"> – Moorebank Avenue landscaped setback – Main entrance – Emergency truck holding area – Truck queuing area. – Area adjacent to ABB. • Signage <ul style="list-style-type: none"> – Main entrance - estate sign – Intermodal terminal - variable signage panel, tenant identification signage and directional signage – Emergency truck holding area – Signage panel 	<p>Installation of all ancillary infrastructure associated with the following including:</p> <ul style="list-style-type: none"> • Landscaping, paths and lighting (key areas): <ul style="list-style-type: none"> – Warehouse 1 <ul style="list-style-type: none"> ▪ Northern and western areas – Warehouse 2 <ul style="list-style-type: none"> ▪ North-western and western areas – Warehouse 3 <ul style="list-style-type: none"> ▪ Western area – Warehouse 4 <ul style="list-style-type: none"> ▪ North-western and western areas • Signage <ul style="list-style-type: none"> – Warehouse 1 and 2 truck entrance – Identification signage (x 2), street signage and directional signage (x 2). 	<p>Installation of all ancillary infrastructure associated with the following including:</p> <ul style="list-style-type: none"> • Landscaping, paths and lighting (key areas): <ul style="list-style-type: none"> – Warehouse 5 <ul style="list-style-type: none"> ▪ North-western and western areas ▪ Adjacent to car parking ▪ South of access road. – Warehouse 5 <ul style="list-style-type: none"> ▪ North-western and western areas ▪ Adjacent to car parking ▪ South of access road. • Signage <ul style="list-style-type: none"> – Warehouse 5 and 6 truck entrance – Identification signage (x 2) and directional signage (x 2). – Warehouse 5 light vehicle entrances - directional signage. 	<p>Not proposed within this stage. Note that temporary stabilisation works would be undertaken.</p>

³ This does not include any biodiversity works that are to be undertaken to the conservation area. These works would be undertaken subject to the timing identified in the Biodiversity Offset Package for the Moorebank Precinct.

Construction elements	Phase			
	Intermodal and Rail Link Phase (inc. Moorebank Avenue/Anzac Road intersection)	Warehousing North area Phase	Central Warehousing and Earthworks Phase	Southern Earthworks and OSD Phase
	<ul style="list-style-type: none"> - Main roundabout – Street signage (x 2). 	<ul style="list-style-type: none"> - Warehouse 1 and 2 light vehicle entrances - directional signage (x 2). - Freight village entrance and car park – directional signage (x 3) and identification signage. - Warehouse 3 and 4 truck entrance – Identification signage, street signage and directional signage (x 3). - Warehouse 3 light vehicle entrances - directional signage. - Warehouse 4 light vehicle entrances - Identification signage, directional signage. 		



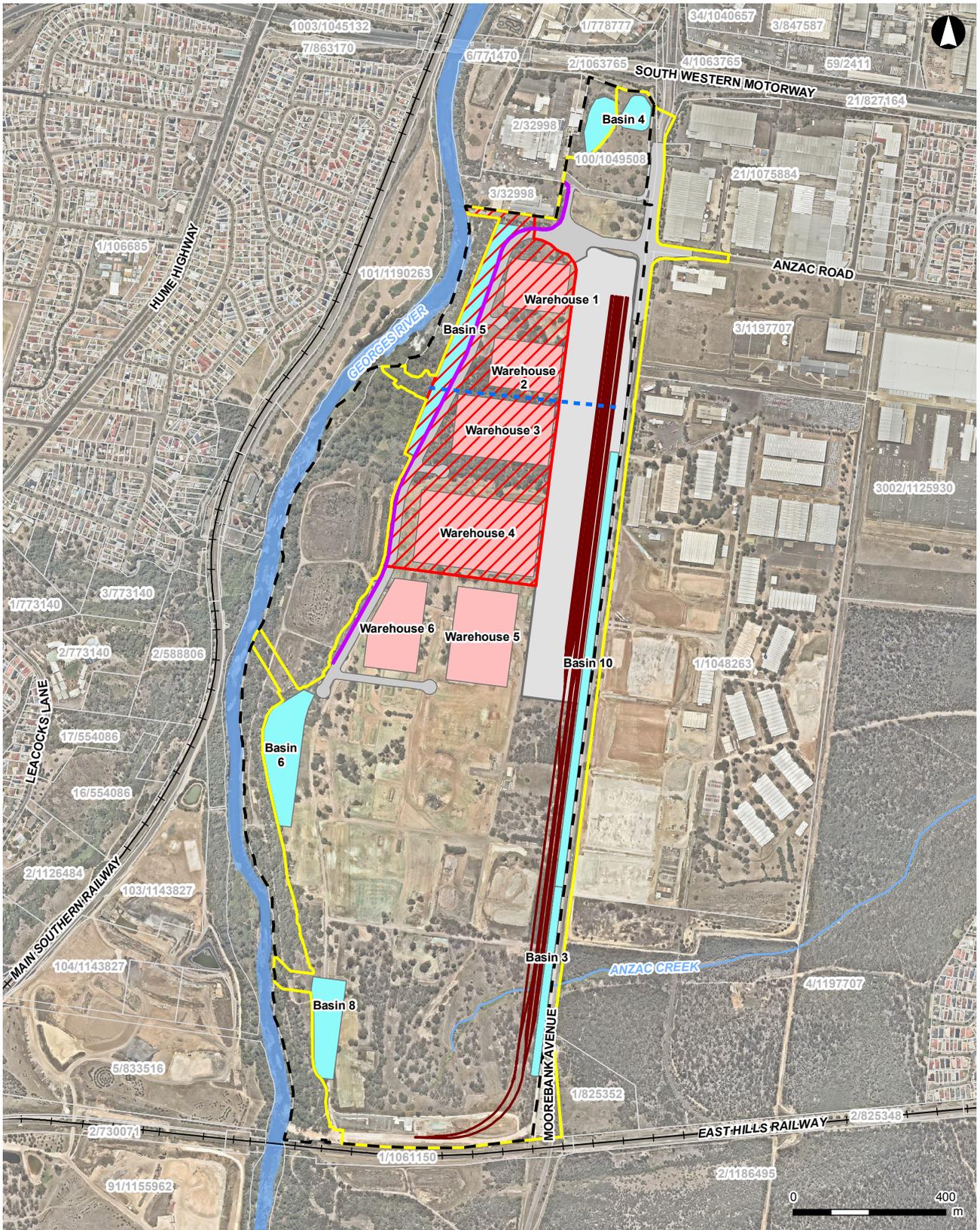
LEGEND

- Intermodal and Rail Link Phase
- MPW site
- MPW Stage 2 construction area
- Cadastre (NSW DFSI, 2017)
- IMT facility area
- OSD
- Road
- Warehouse
- Rail link connection
- East-West drainage channel
- Watercourse
- Existing railway

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 Aerial imagery supplied by nearmap (January, 2018)



MPW Stage 2 SSD-7709 - Intermodal and Rail Link Phase



LEGEND

- | | | | | | |
|--|-------------------------------|--|----------------------|--|------------------|
| | Warehousing North area | | IMT facility area | | Noise wall |
| | MPW site | | OSD | | Watercourse |
| | MPW Stage 2 construction area | | Road | | Existing railway |
| | Cadastre (NSW DFSI, 2017) | | Warehouse | | |
| | East-West drainage channel | | Rail link connection | | |

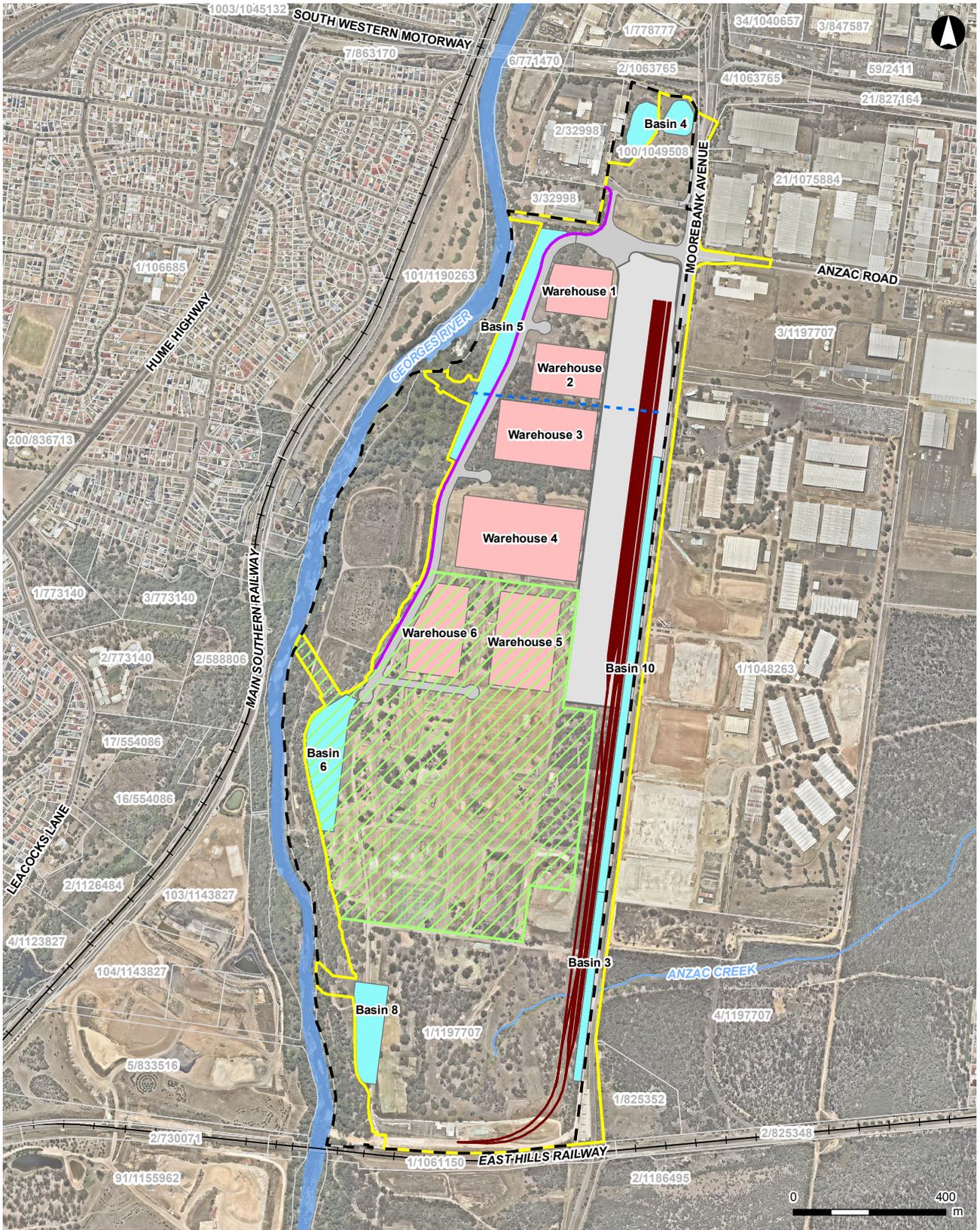
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MPW Stage 2 SSD-7709 - Warehousing North area*

*East-West drainage channel is not included in this phase.



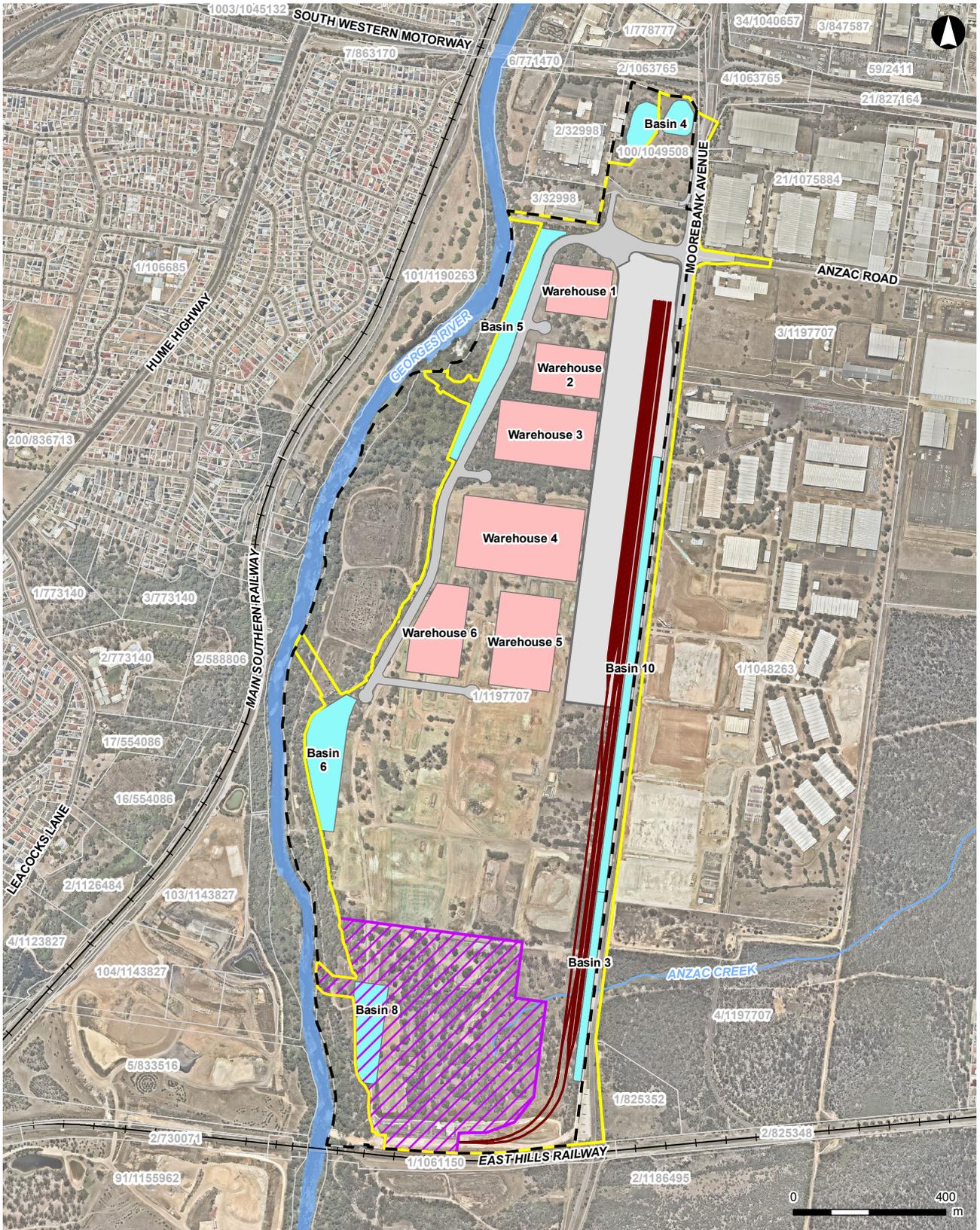
LEGEND

- | | | |
|--|----------------------|------------------|
| Central Warehousing and Earthworks Phase | IMT facility area | MPW site |
| East-West drainage channel | OSD | Noise wall |
| Cadastre (NSW DFSI, 2017) | Road | Watercourse |
| MPW Stage 2 construction area | Warehouse | Existing railway |
| | Rail link connection | |

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MPW Stage 2 SSD-7709 - Central Warehousing and Earthworks Phase



LEGEND

-  Southern Earthworks and OSD phase
-  MPW Stage 2 construction area
-  Rail link connection
-  IMT facility area
-  OSD
-  Road
-  Warehouse
-  Watercourse
-  Existing railway
-  Cadastre (NSW DFSI, 2017)

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MPW Stage 2 SSD-7709 - Southern Earthworks and OSD Phase

ATTACHMENT A

Aspect	Issue	Response	Reference
Truck-to-truck/warehouse movements	<p>The Department seeks to confirm whether any truck-to-truck/warehouse movements have been included in:</p> <ul style="list-style-type: none"> the modelling provided for traffic assessments for the Stage 2 approvals the modelling provided to Transport for NSW to support the ongoing establishment of satisfactory arrangements for MPW Stage 2. <p>The Department would like to establish compliance with:</p> <ul style="list-style-type: none"> the strategic justification for the proposals the requirements of the concept approvals are with (see eg. MP10_0193, condition 1.12), which establish a direct nexus between warehousing and terminal operations. <p>The response should encompass how these rail-to-rail/warehouse movements would be maintained throughout future operations of the warehousing, eg. where warehousing is operated by other entities.</p>	<p>The traffic modelling for the MPW Stage 2 and MPE Stage 2 Proposals assumed the two following key traffic movement sequences, relating to truck-to-warehouse movements, which have been included in the operational traffic modelling for the both proposals:</p> <p><u>Import movement</u></p> <ol style="list-style-type: none"> Freight is received at rail terminal (IMEX or interstate) and transported to warehouses via the internal road network where the freight is unpacked from the container and stored in the warehouse. An empty heavy vehicle enters the MPW Stage 2 or MPE Stage 2 site from the external road network to access a warehouse to receive freight. This freight is then packed into the heavy vehicle and transported off-site. <p><u>Export movement</u></p> <ol style="list-style-type: none"> A heavy vehicle accesses the MPW Stage 2 or MPE Stage 2 site from the external road network, and unloads freight to a warehouse. This freight is then transferred into an empty container (this container becomes loaded). The loaded container is transported to the IMEX terminal via the internal road network on the MPE site, or via Moorebank Avenue from the MPW site (until such time that the MPW Stage 2 Intermodal terminal is constructed and operational, as included in the MPW Concept Modification 1), loaded onto a train and transferred to Port Botany for export. <p>Truck to truck movements have not been accounted for as part of the traffic modelling for the MPW Stage 2 and MPE Stage 2 Proposals Traffic modelling relevant to the environmental assessment of the MPW Stage 2 and MPE Stage 2 Proposals (EIS) was been provided to Roads and Maritime in mid-March 2017 Additional operational traffic modelling was also discussed in the MPW Stage 2 and MPE Stage 2 RtS, with modelling provided to Roads and Maritime in early September 2017.</p> <p>With regards to satisfactory arrangements for the MPW Stage 2 Proposal, it is acknowledged that discussions between the Proponent, Transport for NSW and NSW Roads and Maritime Services, relating to whole-of-precinct traffic modelling and an agreed mitigation framework relating to broader road network impacts are ongoing.</p> <p>The staged development of the MPW Project may result in a scenario whereby an operating warehouse on the MPW Project is supported by the operating IMEX Terminal on neighbouring land (i.e. the MPE Stage 1 Proposal) in an interim</p>	<p>MPW Concept Modification 1 MPW Concept Conditions of Approval MPE Concept Plan Conditions of Approval</p>

Aspect	Issue	Response	Reference
		<p>arrangement until such time that the MPW Stage 2 Intermodal terminal is constructed and operational.</p> <p>MPW Concept Modification 1 proposes to modify the MPW Concept Condition of Approval E12 to allow (in principle) interaction between the MPW and MPE sites, enabling vehicle movement between two sites via Moorebank Avenue to limit traffic impacts on the wider regional road network.</p> <p>The original MPW Condition of Approval E12 (prevention of movements using Moorebank Avenue south) was originally prepared to limit heavy vehicles accessing Cambridge Avenue, due to the condition of the Cambridge Avenue causeway, rather than limiting right turns out of the MPW site by A and B-doubles to access the MPE site and vice versa. The proposed modified condition is worded such that it would permit right turn movements out of the MPW site onto Moorebank Avenue to continue south only until the MPE Stage 1 IMEX site entrance. No movements further south onto Cambridge Avenue would be undertaken or permitted. Therefore, the proposed modification, is considered to be consistent with the purpose of the original MPW CoA E12. This modification is currently with DP&E for assessment and determination.</p> <p>The proposed amendment to MPW CoA 15, to enable warehousing on the MPW site to be used for activities associated with freight using the IMEX and Interstate terminals within the MPW site or the MPE site, would enable and encourage operational efficiencies across both sites. In addition, traffic that would otherwise enter the local road network, resulting in external traffic network impacts, would be reduced as the vehicle movements would instead remain within the local proximity of the MPW Project on the stretch of Moorebank Avenue that links the MPE and MPW sites.</p> <p>Compliance with the strategic justification of the Proposal</p> <p>Based on the above information relating to truck movements, the MPE Sage 2 and MPW Stage 2 Proposals would continue to be consistent with both National and State strategic planning and policy, as detailed in section 3 of the MPE stage 2 EIS and Section 3 of the MPW Stage 2 EIS.</p> <p>Compliance with the concept approvals</p> <p><u>MPE Stage 2</u></p> <p>Based on the above information relating to the flow of traffic movements adopted in the traffic modelling, the MPE Stage 2 Proposal is considered to be consistent with the MPE Concept Plan Approval, particularly condition 1.12, which states that ‘<i>The warehousing and distribution facilities must only be used for activities associated with freight using the rail intermodal.</i>’</p> <p><u>MPW Stage 2</u></p> <p>Based on the above information relating to truck movements, and further supported by the proposed MPW Concept modifications to enable the neighbouring MPE intermodal terminal to deliver freight to and from the MPW warehousing, the MPW</p>	

Aspect	Issue	Response	Reference
		<p>Stage 2 Proposal is considered to be consistent with the MPW Concept Approval conditions which relate to container movements, specifically:</p> <ul style="list-style-type: none"> • Concept Approval condition 13, which states that ‘<i>Containers must be transferred from Port Botany to the site and from the site to Port Botany by rail, unless there is planned track maintenance or where unforeseen circumstances have occurred...</i>’ • Concept Approval condition 15 (as proposed to be amended by the MPW Concept Modification) which states that ‘<i>The warehousing must only be used for activities associated with freight using the IMEX and interstate terminals <u>within the site, or on the neighbouring MPE site, unless otherwise approved in a subsequent Development Application</u></i>’ 	
Staging	<p>The Department seeks indicative arrangements for the staging of the MPW Stage 2 and MPE Stage 2 (should it be intended to be staged) applications.</p> <p>It is understood that you may seek to construct and operate the Stage 2 warehouses in stages, for example based on commercial arrangements.</p> <p>It is therefore important that sufficient information is provided to the Planning Assessment Commission to support any staging requests to be made post-determination.</p> <p>The Department requests that you provide an indicative scheme for staging buildings and infrastructure to illustrate how staging could be implemented in the Stage 2 applications.</p> <p>This scheme should outline:</p> <ol style="list-style-type: none"> 3. an indicative program for what project elements would be constructed and staged in what order 4. how the environmental, social and economic impacts of staging would be the same as assessed in the development application and supporting documentation 5. which of the proposed mitigation measures would be implemented at what stage of the program. 	<p><u>Indicative construction phasing</u></p> <p>Indicative phasing plans for the MPW Stage 2 (SSD 7709) and 628) MPE Stage 2 (SSD 7628) Proposal have been prepared, and are provided in Attachment B of this letter. The phasing plans provide indicative phases of development for construction of the key permanent, built infrastructure across the MPW Stage 2 and MPE Stage 2 sites, as detailed below.</p> <p>All construction phases of the MPE Stage 2 and MPW Stage 2 Proposals include progressive establishment of operational services connections, landscaping and all stormwater drainage necessary to support these elements.</p> <p>It should be noted that these phases are subject to change, based on the preferred construction contractors preferred construction methodology, and the market demands for warehouses within the Moorebank Precinct. Warehouse construction within phases may be constructed in sub-phases, if individual warehouse tenants are signed earlier. The final staging plan for both MPE Stage 2 and MPW Stage 2 will be provided for the Secretary’s Approval prior to commencement of construction of any given stage as proposed by the mitigation measure 0D in the MPE Stage 2 and MPW Stage 2 Final compilation of mitigation measures.</p> <p>The construction program, included in Table 4-5 of the MPW Stage 2 consolidated project description (Appendix O of the MPW Stage 2 RtS), and Table 4-8 of the MPE Stage 2 consolidated project (Appendix I of the MPE Stage 2 RtS) includes pre-construction activities (construction works period A) and site preparation activities (construction works period B). These works would be considered phase 0 (pre-construction) of the indicative phasing, and would require works across the entire site footprint of the MPW Stage 2 and MPE Stage 2 sites in line with the Environmental Work Method Statements as included in Appendix M of the MPW Stage 2 Response to Submissions Report, and Appendix H of the MPE Stage 2 RtS.</p>	<p>Attachment B <i>Response to Transport for NSW Submissions on Moorebank Precinct West (MPW) Stage 2 (SSD 7099), MPW Concept Plan Mod 1 (SSD 5066_MOD 1), Moorebank Precinct East (MPE) Stage 2 (SSD 16_7628) and MPE Concept Plan Mod 2 (MP 10_0193 MOD 2)</i>’ letter</p> <p>Table 4-5 of the MPW Stage 2 consolidated project description, and Table 4-8 of the MPE Stage 2 consolidated project description</p>

Aspect	Issue	Response	Reference
		<p>As the works to be undertaken in phase 0 are for the purpose of facilitating construction of the permanent built operational infrastructure, would be across the entire site footprint and are largely enabling works, these are not included in the phasing below; however, for completeness have been shown in the matrices provided at Attachment B of this letter to detail how this phase of works would align with the works periods included in the MPW Stage 2 and MPE Stage 2 consolidated project descriptions.</p> <p><u>MPE Stage 2</u></p> <ul style="list-style-type: none"> Phase 1: construction works relating to the Moorebank Avenue upgrade, basin 10 part of basin 1, warehouses 1, 3, 4 and 5, internal roads and drainage channels. More detailed indicative staging specific to the Moorebank Avenue Upgrade within this phase of construction of the MPE Stage 2 Proposal has been provided to DP&E previously as Attachment C of the 'Response to Transport for NSW Submissions on Moorebank Precinct West (MPW) Stage 2 (SSD 7099), MPW Concept Plan Mod 1 (SSD 5066_MOD 1), Moorebank Precinct East (MPE) Stage 2 (SSD 16_7628) and MPE Concept Plan Mod 2 (MP 10_0193 MOD 2)' letter, issued to DP&E from SIMTA on 29 August 2017. Phase 2: construction works relating to warehouses 6, 7 and 8, basin 2, internal roads and drainage channels. Phase 3: construction works relating to warehouse 2, part of basin 1, basin 2, and the northern internal access road. <p><u>MPW Stage 2</u></p> <ul style="list-style-type: none"> Phase 1: construction works relating to the Moorebank Avenue/ Anzac Road intersection upgrade, basin 3, basin 4 and basin 10, truck emergency parking north of the main entry,, upgrade to part of the east-west drainage channel (including the works immediately north of basin 10), intermodal terminal and rail access. More detailed indicative staging specific to the Moorebank Avenue/ Anzac Road intersection upgrade within this stage of construction of the MPW Stage 2 Proposal has been provided to DP&E previously as Attachment D of the 'Response to Transport for NSW Submissions on Moorebank Precinct West (MPW) Stage 2 (SSD 7099), MPW Concept Plan Mod 1 (SSD 5066_MOD 1), Moorebank Precinct East (MPE) Stage 2 (SSD 16_7628) and MPE Concept Plan Mod 2 (MP 10_0193 MOD 2)' letter, issued to DP&E from SIMTA on 29 August 2017. Phase 2: construction works relating to the remainder of the east-west drainage channel upgrade, warehousing, basin 5 and internal roadworks. Phase 3: construction works relating to warehousing, basin 6 and internal roadworks. 	

Aspect	Issue	Response	Reference
		<ul style="list-style-type: none"> Phase 4: construction works relating to warehousing and basin 8. <p>Environmental impacts during construction</p> <p>Attachment B also includes a matrix, which describes how the indicative phasing aligns with the construction works periods included in the consolidated project descriptions, issued to DP&E on 18/09/2017. As evidenced by Attachment B, the construction phases include a combination of simultaneous construction works across works periods C to F for MPW Stage 2 and C to F for MPE Stage 2.</p> <p>The MPW Stage 2 construction impact assessment considered a worst case construction scenario, whereby construction works periods C to G would be undertaken simultaneously.</p> <p>Similarly, the MPE Stage 2 construction impact assessment considered a worst case construction scenario, whereby construction works periods B to E would be undertaken simultaneously.</p> <p>For both MPW Stage 2 and MPE Stage 2, all phases for the progressive construction of permanent operational infrastructure would represent construction works across less construction works periods than considered in the worst case construction scenarios presented in the MPE Stage 2 EIS and MPW Stage 2 EIS; therefore, the environmental, social and economic impacts of the abovementioned indicative phases would be consistent with, or less than the predicted construction impacts presented in the MPW Stage 2 and MPE Stage 2 EIS's and RtS's. As discussed below mitigation measures would also be implemented relevant to each stage to ensure that construction impacts are appropriately managed.</p> <p>Implementation of mitigation measures throughout construction stages</p> <p>The construction program included as Table 4-5 of the MPW Stage 2 consolidated project description (Appendix O of the MPW Stage 2 RtS), and Table 4-8 of the MPE Stage 2 consolidated project (Appendix I of the MPE Stage 2 RtS) description include pre-construction (Works period A) and site preparation works (Works period B) periods. These works periods would include works across the entire construction area of the respective MPW Stage 2 and MPE Stage 2 sites, and would be completed prior to the abovementioned indicative phasing for the construction of permanent, built operational infrastructure (i.e. Stage 0).</p> <p>Phase 0 works would be completed in accordance with the relevant Environmental Work Method Statement as included in Appendix M of the MPW Stage 2 Response to Submissions Report, and Appendix H of the MPE Stage 2 RtS. Construction mitigation measures would be implemented in accordance with the final compilation of mitigation measures and reflected in the Construction Environmental Management Plan, which would be approved by DP&E prior to the commencement of construction.</p>	

Aspect	Issue	Response	Reference
		<p>Implementation of mitigation measures to support operation</p> <p>As the construction of permanent, built infrastructure on the site is completed, temporary construction mitigation measures would be removed, and operational mitigation measures implemented, where possible and in accordance with the completion of the above-mentioned stages.</p> <p>As included as mitigation measures 0C in the MPW Stage 2 and MPE Stage 2 final compilation of mitigation measures, an Operational Environmental Management Plan (OEMP) would be prepared to provide the overarching framework for the management of all potential environmental impacts resulting from the operation of the MPE Stage 2 and MPW Stage 2 Proposal.</p>	
Stormwater/ water sensitive urban design	<p>Can you confirm the availability of your team to meet the Department's stormwater consultants this week (Wed - Fri) to discuss:</p> <ul style="list-style-type: none"> information needed to complete this assessment general principles for detailed design? <p>At that meeting, we can update you on the outcomes of the Department's meeting with Council (tomorrow).</p>	<p>A meeting between DP&E's stormwater consultant and Arcadis stormwater consultants was held on 19 October 2017. The items included in the 'WSUD Discussion Points_' document attached to the 'Discussion items for Moorebank stormwater/ WSUD meeting' email, issued by DP&E to Nathan Cairney (Tactical Group) were discussed as part of this meeting.</p> <p>A number of items discussed are to be responded to in a separate document in response to this meeting.</p>	'Discussion items for Moorebank stormwater/ WSUD meeting' email
Noise	<p>The Department seeks an update on the timing for your response to the MPE Stage 2 noise queries forwarded by email on 22 September 2017.</p> <p>This response is required as soon as possible to inform the final independent noise</p>	<p>A response to the issues raised by the independent noise consultant, as included in the 'MPE Stage 2 - Noise assessment - reviewer comments' email, issued from DP&E to Nathan Cairney (Tactical Group), have been responded to in the 'Moorebank Precinct East (MPE) Stage 2 (SSD 7628) - response to independent noise review comments' letter, issued to DP&E from SIMTA on 17 October 2017.</p>	Moorebank Precinct East (MPE) Stage 2 (SSD 7628) - response to independent noise review comments' letter
Biodiversity	<p>The Department seeks specific advice from a qualified ecologist that bushfire mitigation would not affect biodiversity values to be protected/not to be impacted under the MPW Stage 2 and MPE Stage 2 applications.</p> <p>This response is required for the Department to finalise its assessment of bushfire and biodiversity matters.</p>	<p>MPE Stage 2 Proposal</p> <p>Section 3.4 of the MPE Stage 2 Bushfire Assessment (ABPP, 2016) (refer to Appendix U of the MPE Stage 2 EIS) stated that</p> <p><i>'the continued management of the 60m defendable space within the Proposal site and the 50m cleared area to the south of the site boundary being maintained (refer to Attachment A). This area south of the Proposal boundary includes overhead powerlines and a fire trail, indicating that clearing practices in this area are likely to continue. However, should this activity cease, the hazard will increase to high. It is noted there are no EECs or threatened species within the defendable space to the east or south of the Proposal.'</i></p>	<p>Section 3.4 of the MPE Stage 2 Bushfire Assessment at Appendix U of the MPE Stage 2 EIS</p> <p>Section 3.4 of the MPW Stage 2 Bushfire Assessment at Appendix W of the MPW Stage 2 EIS</p>

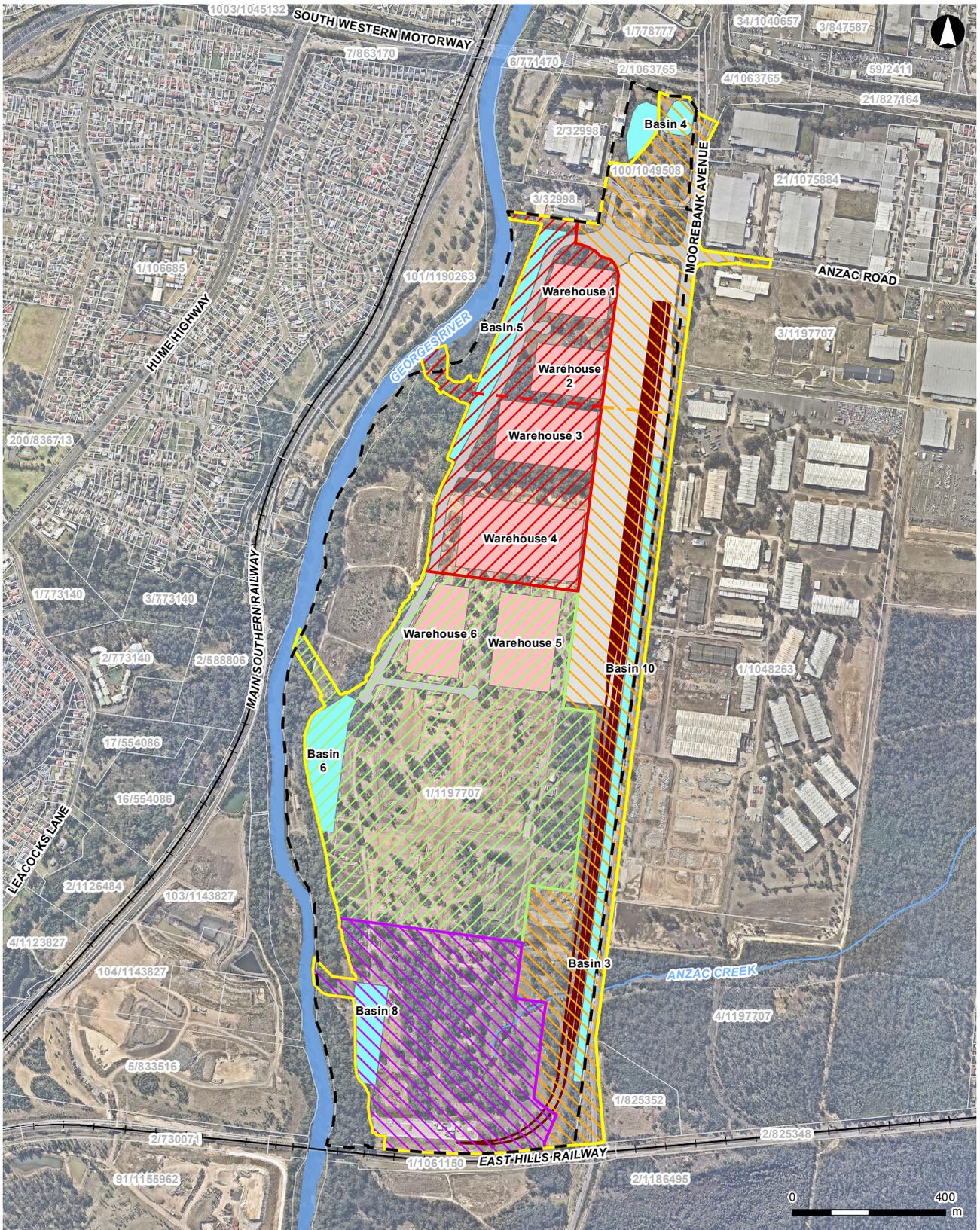
Aspect	Issue	Response	Reference
		<p>Since the preparation of this report in December 2016, further surveys of the area to the south of the MPE Stage 2 site detected plants of the endangered species <i>Persoonia nutans</i> and <i>Hibbertia puberula</i> subsp. <i>puberula</i> adjoining the northern side of the fire trail referred to above, within the area identified as defensible space in Appendix A of ABPP (2016). <i>Persoonia nutans</i> is a shrub and <i>Hibbertia puberula</i> subsp. <i>puberula</i> is a subshrub; it is anticipated that maintenance of these areas to reduce bushfire risk can be done without harming the recorded individuals, provided that they are considered when planning maintenance and that appropriate protection measures are implemented. Measures to protect these plants should be included in management plans for the area.</p> <p>Defendable space to be managed in the east of the MPE Stage 2 site is within the Proposal site; no threatened flora or TECs have been recorded within this area, and all management would be undertaken within the MPE site. No areas of mapped native vegetation within the Boot land would be subject to management for bushfire mitigation.</p> <p>MPW Stage 2 Proposal</p> <p>Section 3.4 of the MPW Stage 2 Bushfire Assessment (ABPP, 2016) (refer to Appendix W of the MPW Stage 2 EIS) assessed the bushfire threat to the MPW site as high, based on the presence of vegetation within the proposed conservation zone. The bushfire threat to the proposed warehouses is reduced by the location of warehousing approximately 25 metres from the eastern edge of the proposed Conservation Area. The defensible space located between the warehousing area and the Conservation Area will be managed as an Inner Protection Area, and the remainder of the Proposal site will be maintained as an Outer Protection Area.</p> <p>All bushfire management measures would be undertaken within the MPW Stage 2 Proposal site. No areas of mapped native vegetation within the proposed Conservation Area would be subject to management for bushfire mitigation as part of the MPW Stage 2 Proposal.</p>	

Aspect	Issue	Response	Reference
Land Owner's Consent	<p>The Department seeks an update on your timing for obtaining land owner's consent for all proposals. A recommendation to the Commission on these proposals cannot be made until all relevant land owners' consent is granted.</p>	<p>SIMTA has consulted with all relevant landowners to obtain consent for the MPW Stage 2 Proposal and the MPE Stage 2 Proposal respectively. A summary of the status of these discussions is as follows:</p> <ul style="list-style-type: none"> • MPE Stage 2 Proposal: <ul style="list-style-type: none"> – MIC/Defence – Received and issued to DPE – All remaining land owner consents expected to be available by 30 October.2017. • MPW Stage 2: <ul style="list-style-type: none"> – MIC/Defence - Received and issued to DPE – All remaining land owner consents expected to be available by 30 October.2017. 	N/A
Developer contributions	<p>The Department seeks an update about your ongoing consultation with Council regarding contributions.</p> <p>It is understood Qube met with Council on 25 September.</p> <p>The Department would appreciate your advice on any outcomes, and any outstanding follow up actions.</p>	<p>SIMTA intends to meet with Liverpool City Council on 26 October, following the postponement of an earlier meeting in September, and a further postponement of a meeting that was scheduled for 19 October.</p> <p>SIMTA has prepared a letter to Liverpool Council outlining our proposed approach to contributions and is seeking to discuss and confirm the contributions when we meet on 26 October.</p> <p>SIMTA has previously prepared and issued requests for land owner's consent and has been informed verbally that these are progressing within Liverpool Council. If not received before we meet on 26 October SIMTA will be seeking to confirm the exact timing during the 26 October meeting.</p>	N/A

ATTACHMENT B

Moorebank Precinct West Stage 2

Phase	Phase Description	Works period A – Pre-construction stockpiling	Works period B - Site Preparation Activities	Works period C – Bulk earthworks, drainage and utilities	Works period D - Moorebank Avenue intersection works and internal road network	Works period E – IMT facility and Rail link connection construction	Works period F –Construction and fit-out of warehousing and freight village	Works period G – Miscellaneous structural construction and finishing works
0	<ul style="list-style-type: none"> Pre-construction activities, including: establishment of temporary erosion and sediment controls, minor clearing and grubbing of temporary stockpiling area, establishment of a temporary stockpiling pad and associated temporary access roads, installation of temporary construction compound, including amenities and office for bulk earthworks and the importation and placement of approximately 400,000 cubic metres (m³) of clean fill. Site preparation activities, including: establishment of construction compound fencing and hoardings, installation of temporary sediment and erosion control measures, vegetation clearance, installation of temporary site offices and amenities, construction of hardstands for staff parking and laydown areas, establishment of temporary batch plant sites and installation of batch plant, construction of access roads, site entry and exit points and security, set up of construction monitoring equipment 	✓	✓	x	x	x	x	x
1	Construction works relating to the Moorebank Avenue/ Anzac Road intersection upgrade, basin 3, basin 4 and basin 10, truck emergency parking north of the main entry,, upgrade to part of the east-west drainage channel (including the works immediately north of basin 10), intermodal terminal and rail access.	x	x	✓	✓	✓	✓	✓
2	Construction works relating to the remainder of the east-west drainage channel upgrade, warehousing, basin 5 and internal roadworks.	x	x	✓	x	x	✓	✓
3	Construction works relating to warehousing, basin 6 and internal roadworks	x	x	✓	x	x	✓	✓
4	Construction works relating to warehousing and basin 8.	x	x	✓	x	x	✓	✓



LEGEND

- Watercourse
- Existing railway
- Rail link connection
- East-west drainage channel
- Phase 1
- Phase 2
- MPW site
- MPW Stage 2 construction area
- IMT facility area
- Cadastre (NSW DFSI, 2017)
- OSD
- Road
- Warehouse
- Phase 1
- Phase 2
- Phase 3
- Phase 4

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 Coordinate System: GDA 1994 MGA Zone 56
 Aerial imagery supplied by nearmap (Aug, 2017)



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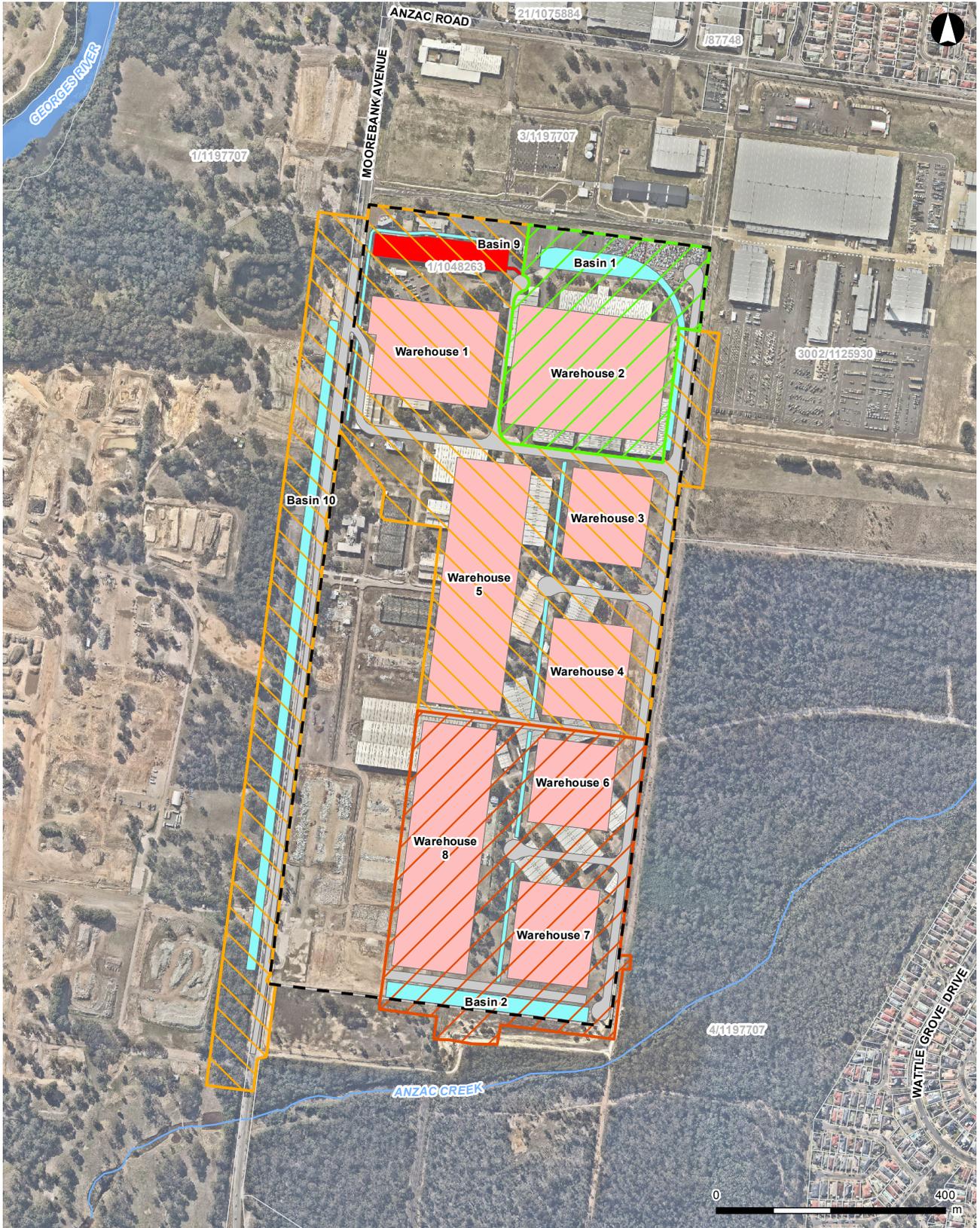
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SIMTA

MPW Stage 2 indicative phasing plan (SSD-7709)

Moorebank Precinct East Stage 2

Phase	Phase Description	Works period A – Pre-construction activities	Works period B – Site preparation activities	Works period C – Construction of the Moorebank Avenue diversion road	Works period D – Bulk earthworks, drainage and utilities	Works period E – Pavement works along Moorebank Avenue	Works period F – Warehouse construction and internal fit-out
0	<ul style="list-style-type: none"> Pre-construction activities; including but not limited to Importation, stockpiling and placement of clean general fill for site preparation activities, installation of site fencing and remediation, where required, including unexploded ordnance (UXO), exploded ordnance (EO) and exploded ordnance waste (EOW) management. Site preparation activities, including demolition of structures, vegetation clearance, adjusting the building formation of the site, temporary works including installation of construction environmental management measures, establishment of construction compound fencing and hoardings, installation of site offices and amenities, construction of hardstand for staff parking and laydown areas, establishment of the temporary batch plant and materials crushing plant, construction of access roads site entry and exit points and security, establishment of site construction haulage roads and construction compound(s). 	✓	✓	x	x	x	x
1	Construction works relating to the Moorebank Avenue upgrade, basin 10 part of basin 1, warehouses 1, 3, 4 and 5, internal roads and drainage channels.	x	x	✓	✓	✓	✓
2	Construction works relating to warehouses 6, 7 and 8, basin 2, internal roads and drainage channels.	x	x	x	✓	x	✓
3	Construction works relating to warehouse 2, part of basin 1, basin 2, and the majority of the northern internal access road	x	x	x	✓	x	✓



LEGEND

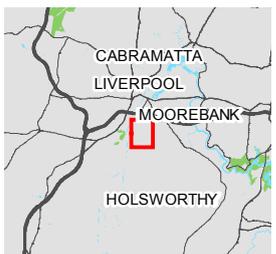
- Watercourse
- MPE Site
- Cadastre (NSW DFSI, 2017)
- Phase 1
- Phase 2
- Phase 3
- Freight Village
- OSD
- Road
- Warehouse

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131 365 016
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MPE Stage 2 indicative phasing plan (SSD-7628)

APPENDIX K: JBS&G CONTAMINATION MANAGEMENT ADVICE

2 November 2018

Nathan Cairney
Director
Tactical Group
Via email: ncairney@tacticalgroup.com.au

MPW Stage 2 SSD Application – Containment Advice

Dear Nathan,

1. Introduction

JBS&G Australia Pty Ltd (JBS&G) has been engaged by Qube Property Management Services (QPMS, the Client) to provide environmental remediation consulting services for the Land Preparation Work – Demolition and Remediation (LPWDR) at the Moorebank Intermodal Company Property West (MPW), Moorebank, NSW.

It is understood that the Department of Planning and Environment (DP&E) has requested details of containment cells on the MPW site in relation to the MPW Stage 2 State Significant Development Application, and QPMS has requested advice in relation to the request.

2. Background

The Remediation Action Plan RAP (Golder 2016a)¹ for the remediation works carried out under MPW Stage 1 Early Works (SSD-5066) across the site includes the option of on-site containment for asbestos impacted materials. However, the Asbestos in Soils Management Plan for the site (Golder, 2016b)² states that off-site disposal “should be considered if significant contamination, which inhibits on-site treatment is encountered or where capping and internment presents a significant imposition to the future development of the site.”

An on-site containment cell would require, among other matters, that it is:

- Located within the designated commercial/industrial area of the site (excluding conservation area);
- Compatible with geotechnical requirements;
- Unlikely to be disturbed during future development and/or operations; and
- Situated at a location topographically favourable to placing materials at depth.

JBS&G’s as the environmental remediation consultant has completed assessment of remediated materials and the remaining in-situ materials to verify and validate that the requirements of the RAP and associated sub-plans have been satisfied, and the site is suitable for its intended use; in this case industrial under IN1 zoning. This role extends to consideration of long term measures such as containment cells and internment, however, none have been required on the project.

¹ Golder Associates (2016a). Land Preparation Works Stage 1 and Stage 2 – Remediation Action Plan.

² Golder Associates (2016b). Asbestos in Soils Management Plan. Moorebank Intermodal Terminal. Ref. 1416224-035-R-Rev1.

At the completion of the remediation works it is anticipated that a validation report will be prepared that confirms the site's suitability and that the remediation activities have been completed in accordance with the RAP. This report will be provided to the NSW EPA Accredited Site Auditor to undertake an independent audit of the validation assessment of the remediation works. If satisfied with the validation report and that the remediation has been completed, the Auditor will issue a Section A Site Audit Statement and an accompanying Site Audit Report.

3. Advice

The remediation activities for the MPW Stage 1 Early Works have progressed to a point of completion such that preparation of the validation report for the commercial industrial land is in progress. This validation report will confirm that the site does not include any internment and on-site containment of residual contamination above the adopted site validation criteria.

Due to the nature of the site and its former Defence uses, it is possible that further contamination may be encountered during future stages of development (i.e. MPW Stage 2). Should contamination be encountered, and remediation be required, the method (and associated works) would be undertaken in continued consultation with the relevant management plans and the Site Auditor. It is understood that permanent internment and on-site containment infrastructure is not proposed on the MPW Stage 2 site in the event that unexpected contamination finds are encountered.

In relation to PFAS impacts in soils, the approach to management of PFAS across the MPW site is currently being developed, and it is understood this will include the isolation of impacted soils from surface water infiltration. Supplementary advice should be sought from EP Risk as to whether the proposed management of PFAS in soils may constitute containment.

Should you require clarification, please contact the undersigned on 02 8245 0300.

Yours sincerely:



Seth Molinari
Environmental Consultant
JBS&G Australia Pty Ltd

Reviewed/Approved by:



Joanne Rosner
NSW State Manager and Principal Contaminated
Land
JBS&G Australia Pty Ltd

Attachments:

- 1) Limitations

Attachment 1 – Limitations

This report has been prepared for use by the client who commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties. The report has been prepared specifically for the client for the purposes of the commission, including use by the Site Auditor acting as an agent of the client in this respect. No warranties, express or implied, are offered to any third parties and no liability will be accepted for use or interpretation of this report by any third party.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose. This report should not be amended in any way without prior approval by JBS&G, or reproduced other than in-full including all attachments as originally provided to the client by JBS&G.

Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the stockpile or subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site or material investigated, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

APPENDIX L: FENCING DESCRIPTIONS



Figure 1 Example of OSD security fencing – mesh fencing (or similar)



Figure 2 Example of screening – slat fencing colourbond (or similar)



Figure 3 Example of waste bin screening – slat fencing colourbond (or similar)

The landscape design for the Proposal site would integrate with other key plans and key aspects of the Proposal as discussed in Table 3.

APPENDIX M: EMPLOYEE OUTDOOR MEAL BREAK AREAS

LEGEND

- ① Proposed deep soil planting
- ② Proposed raised planter boxes
- ③ Proposed table and seating arrangement
- ④ Unit tiles to future selection

INDICATIVE PLANT PALETTE



Banksia 'Birthday Candles'
Native shrub to 0.5m
Installation size: 150mm pot



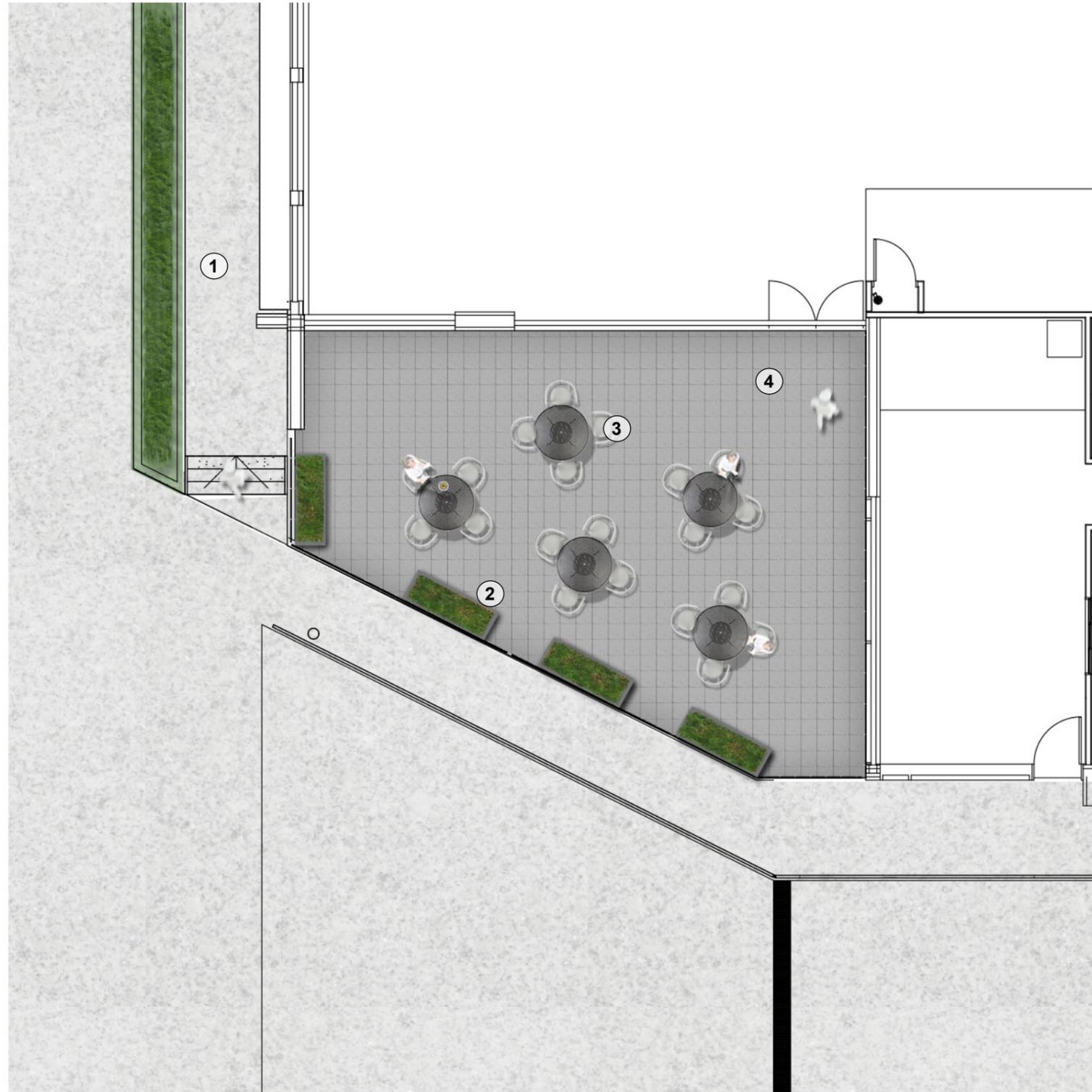
Mat-Rush Lomandra 'Little Con'
Native perennial grass to 0.6m
Installation size: 150mm pot



Dichondra 'Silver falls'
Native groundcover to 0.1m
Installation size: 150mm pot



Myoporum 'Yareena'
Native groundcover to 0.1m
Installation size: 150mm pot



APPENDIX N: BATCHING PLANT INFORMATION

MPW Stage 2 Concrete batching operations – supplementary information

1. Description

A temporary batch plant for construction of the Intermodal Terminal (IMT) facility is proposed. Two locations for the plant have been identified, one at the northern extent of the IMT facility and the other at the southern extent. The sites for the plant would be cleared and levelled and hardstand established. The silos for the plant would be up to 25 metres in height from final site levels and it is estimated that the plant would be operational on site for a period of about 18 months.

1.1. Plant location

The two location options for the temporary batching plant are shown by Figure 1.

Option 1 would be located in the northern portion of the site, directly south of the new site access off Moorebank Avenue. The plant would have an area of approximately 8,000 m² and would support the construction works on the Proposal site. The plant (Option 1) would be accessed and egressed via the new site access off Moorebank Avenue. Following construction, this site would provide parking for the IMT facility.

Option 2 is located in the southern portion of the site, near the site entrance off Moorebank Avenue onto Chatham Avenue. Option 2 would have an area of approximately 8,000 m² and would be accessed and egressed via the existing site access off Moorebank Avenue onto Chatham Avenue.

The Option 1 and Option 2 locations would not support batching operations concurrently (i.e. they would operate at separate times and are likely to be operating within separate works periods of the construction phase).



Figure 1 Location options for concrete batch plant

1.2. Plant layout and key features

The specific layout of the temporary batching plant would be determined during detailed construction planning.

The plant would indicatively include the following elements:

- Aggregate storage bins — to store aggregate for use as part of the batching process. The storage bins would have concrete dividing barriers and would be open to one side to allow a loader to access the materials.
- Cement silos (elevated and water tight) with a filter bag system — to store cement powder for use as part of the batching process. The plant would include up to six cement silos each up to 25 metres high (to the top of the structure). Each silo will be fitted with an overflow protection system including a high-level alarm and automatic cut-off to prevent over-filling.
- Drum mixer — to mix raw materials to create concrete.
- Aggregate weigh bins — to accurately measure quantities of sand and aggregates reducing wastage.
- Dust extraction system — to extract airborne cement powder around the inlet to the drum mixer.
- Water settlement and storage pits— to manage the cementitious water runoff around the cement loading point and mixer areas.
- Water holding tanks — to provide a buffer of required water and to manage recycled water for use within the batching of concrete.
- Silo ladders and platform — for access to service cement filters and operate the plant.
- Aggregate conveyor with cover — to transport aggregate to the drum mixer with a cover to reduce windblown dust from conveyor.
- Batch office — to operate the plant and ensure appropriate supervision of plant and stockpile areas.
- Electrical switchboard container — to house electrical components as per legislative requirements.
- Admixture tanks and bunds (steel) — to ensure any leaks are contained.
- Areas for the delivery of aggregates and cement
- Areas for manoeuvring and loading of concrete trucks.

The batching plant site(s) may also include provision for the production of asphaltic concrete. The asphalt plant would include the following elements

Aggregate hoppers

- Up to four bitumen tanks
- Conveyer
- Mixer / batcher
- Silo containing filler (e.g. lime)
- Dryer drum
- Filters (baghouse)
- Boiler (to heat bitumen)

1.3. Concrete batching process

The basic function of the concrete batching plant is to mix water, cement, fine and coarse aggregates, and admixtures to form wet mix concrete for exclusive supply to MPW Stage 2. The plant would have the capacity to produce approximately 500 m³ of pre-mixed concrete per day, although actual production would be variable, and will depend on the on-site demand for pre-mixed concrete.

The batching process involves loading the aggregates, cement, water and admixtures at a pre-determined rate into a batch mixer before mixing and direct pumping to the construction site. In some cases, vehicle transport within the site may be required and the mixing would occur within the concrete mixing truck. Additional water would be added to the mixer after a final inspection of the concrete at the slump stand before the concrete truck leaves the loading area to deliver the concrete to the designated construction area within the site.

Asphalt production would involve mixing bitumen, aggregate, sand and other material, together and loading the asphalt into trucks for transport to the areas of the site where the asphalt is required.

1.4. Water management

For the purposes of water management, it is expected that the concrete batching site would be divided into three main areas:

- Cementitious material catchment area
- Aggregate/sediment catchment area
- First flush system

1.4.1. Cementitious material catchment area

There would be three sources of cementitious water generated within the cementitious material catchment area:

- Concrete agitator washout
- Concrete mixer washout
- Pavement surface water draining from areas of exposed contamination

Concrete agitator washout would be discharged into the above ground washout pits where solids are then allowed to settle and surface water spills into the adjacent sediment basin for reuse within the batching process.

Concrete mixer washout would be generated as a result of cleaning the mixer with high pressure water at the end of each day. Water from this process contains concrete residue and would be directed into the sediment pit for later re-use within the batching process.

The pavements within cementitious material catchment area potentially contain cement residues, causing an increase in the water's pH. These areas include the batch plant loading bay, cement tanker delivery area and around the concrete hoppers and pumps. Water from this area would be directed into the sediment pit for harvesting back into the batching process.

In addition to the above, the bunded admixture storage area is located within the cementitious material catchment area and includes poly tanks containing admixture liquids. In the event of tanks failure, liquids from the poly tanks would be contained within the bund prior to clean up using the on-site spill kits.

1.4.2. Aggregate/sediment catchment area

The main source of turbid or sediment laden water generated on site is the aggregate stockpile area. During rainfall events, all water within the aggregate/sediment catchment area drains to a sediment pit, then to an adjacent water storage pit. When the capacity of the storage tank is exceeded, flows would be directed to the adjacent MPW Stage 2 construction site and managed in accordance with the Soil and Water Management Plan.

1.4.3. First flush system

A first flush system would operate to capture the first 20 mm of a rainfall event. During the first flush, all pavements in the cementitious material catchment area would be directed to sediment pits to capture suspended solids, water then flows into a storage pit which has a dual role as a first flush pit. A pump float switch system would maintain the level in the pit such that a suitable first flush capacity is always maintained ready for a rainfall event. Flows exceeding the first flush capacity would be directed to the adjacent MPW Stage 2 construction site and managed in accordance with the Soil and Water Management Plan.

For asphalt batching operations, a triple interceptor or similar pollution control device would be utilised as a "first flush" for the potential hydrocarbon contaminated areas on the site.

1.5. Water sources

The main source of water for the concrete batching plant is mains water. A mains water tank would be filled via trickle top-up determined by high/low level float switches. Additional tanks would be used to store recycled water pumped from the water storage basins. The recycled water tanks would allow for immediate reinstatement of the first flush capacity following a rain event.

The production of concrete is expected to require all recycled water generated on the batching plant site being used for the production of concrete and related purposes (washout, pavement hose down, dust control). Only in the event of sustained rainfall and minimal or no production would the recycled water holding capacity of the batch plant be reached. If this occurs, excess water would be directed to the adjacent MPW Stage 2 construction site and managed in accordance with the MPW Stage 2 Soil and Water Management Plan.

1.6. Waste management

The following waste streams have been identified for the operation of the temporary concrete batching plant:

- Rejected (non-compliant) concrete
- Alkaline cementitious water
- Silt from water settlement basins
- Domestic wastes.

Rejected concrete would be transferred directly into plastic lined skip bins and periodically removed by an appropriately licensed contractor to a concrete recycling facility. The dried concrete is then crushed, screened and re-sold as recycled concrete aggregate.

Cementitious waste water would be recycled within the batching process.

Silt from settlement basins would be extracted using a vacuum truck and dewatered onsite in an above ground 'washout' basin. The material would be periodically removed by an appropriately licensed contractor to a recycling facility where it is blended with other materials to create road base and other resalable products.

Domestic wastes would be collected for off-site reuse, recycling or disposal consistent with the MPW Stage 2 Construction Waste and Resources Management Plan.

1.7. Traffic and access

Delivery of materials to the concrete batching plant would occur consistent with the requirements Section 4.3.6 of the MPW Stage 2 EIS and post-approval MPW Stage 2 Construction Traffic and Access Management Plan.

2. Objectives and targets

The following high level objectives and targets are set for the management of concrete batching operations.

Table 1 Objectives and performance indicators

Objectives	Performance indicators
Minimise impacts to offsite water quality	Ensure discharges are in accordance with appropriate discharge requirements (pH 6.5-8.5, TSS 50 mg/L, no visible oil and grease)

Minimise the use of potable water	Provide 100kL recycled water storage capacity (which equates to 100% of typical daily plant water usage demand)
Maximise recycling and use of recycled concrete materials	Use of minimum 35% Portland cement replacement (such as pulverised fuel ash (PFA) and ground granulated blast furnace slag (GGBS)) in concrete. Send all rejected concrete and cementitious for recycling.
Minimise dust impacts from the plant for the nearest sensitive receptors	No community complaints, written warnings or infringement notices regarding excessive dust arising from batch plant operation Compliance with dust deposition criteria (increase of 2g/m ² /month and maximum 4g/m ² /month)
Minimise construction noise and vibration impacts on community, commercial stakeholders and structures	100% compliance with approved hours of work and out of hours work protocol. No exceedances of noise or vibration criteria No structural or cosmetic damage to nearby buildings or structures due to vibration relating to works. No validated complaints from the community regarding noise or vibration

3. Environmental impacts

The main potential impacts directly related to establishment and operation of the temporary concrete batching plant are described in Table 2. Management measures to address these identified risks are included in Section **Error! Reference source not found.**

Table 2 Potential construction impacts - concrete batching plant establishment and operation

Construction Activity	Description of Potential Impact
Concrete batch plant establishment	Noise associated with site preparation and plant establishment. These activities were included in the NVIA conducted for the MPW Stage 2 EIS. Noise levels are predicted to comply with NMLs at the nearest sensitive receivers.
Concrete batch plant establishment	Mobilisation of dust prior to the placement of hardstand. Consistent with the assessment conducted for the MPW Stage 2 EIS, potential impacts on nearby receivers would be minor when compared against existing background conditions.
Concrete batch plant establishment	Increased mobilisation and transport of sediment prior to the placement of hardstand, potentially resulting in: <ul style="list-style-type: none"> • Sedimentation of waterways and degradation of water quality • Soil loss • Damage to surrounding flora and fauna habitat. These potential impacts would be managed by the construction site by controls implemented in accordance with the Soil and Water Management Plan.

Construction Activity	Description of Potential Impact
Concrete batching operations	<p>Noise associated with batching operations including the operation of the mixer, the movement of loaders and concrete agitator trucks.</p> <p>These activities were included in the NVIA conducted for the MPE Stage 2 EIS and a sound power level of 113 dBA was assumed for the concrete batching plant. Noise levels are predicted to comply with NMLs at the nearest sensitive receivers during construction stages in which the concrete batching would be operating.</p>
Concrete batching operations	<p>Potential air pollutants associated with concrete batching operations are particulate matter (PM10), total suspended particulates (TSP), and oxides of nitrogen – as nitrogen dioxide (NO₂).</p> <p>Emissions potentially arise from vehicle emissions and handling of materials such as sand, aggregates and cement. The primary sources of emissions relate to dust from the storage and handling of material.</p> <p>The development of the construction stage emissions inventory for the MPW Stage 2 EIS included material handling. This adequately covers batching operations because with the implementation of filters on the cement silos and covers for aggregate conveyors, the aggregate storage areas are expected to be the only source of discernible dust.</p> <p>As noted in the Air Quality Impact Assessment conducted for the MPW Stage 2 EIS, predicted construction phase emissions will comply with all relevant impact assessment criteria. The maximum predicted increase in annual average PM10 (1.5 µg/m³), PM2.5 (0.5 µg/m³), TSP (2.0 µg/m³) and dust deposition (0.5 g/m²/month) were identified as minor when compared against existing background conditions.</p>
Concrete batching operations	<p>Potential impacts on water quality associated with the discharge of sediment laden water and/or alkaline cementitious water from the batching plant site.</p> <p>With the implementation of the proposed management measures, impacts would be minor. It is expected that the first flush capacity for the cementitious material catchment area would be exceeded on an infrequent basis and that there would be stormwater discharges from the concrete batching plant site during a limited number of rain events.</p> <p>Runoff from the aggregate/sediment catchment area would be diverted via a sediment basins and on being discharged from the concrete batching plant site would be managed by the construction site by controls implemented in accordance with the Soil and Water Management Plan.</p>

4. Management measures

Management measures identified for the MPW Stage 2 proposal would apply to concrete batching plant establishment and operation as relevant. Management measures specific to the operation of the temporary concrete batching plant have been identified as follows:

- The stockpiles within the concrete batching plant site will be actively maintained at a height of less than 3m height at all times to reduce the potential generation of windblown dust.
- Each individual stockpile for the concrete batching plant will be fitted with a dust suppression system to prevent windblown dust affecting the local environment and sensitive receivers. The system will incorporate individual water sprays to wet down the stockpiles as needed.
- Cement powder will be transferred from tankers to plant silos via pneumatic methods to minimise the potential for cement dust release.
- The concrete batching plant will be fitted with a dust extraction system and filter bag system to minimise release of dust associated with the transfer of cement and aggregates. The filter system will be regularly serviced in accordance with manufacturer's recommendations.
- Cement silos will be fitted with high level sensor alarms and visible beacon to prevent overfilling. The alarm point would be set having regard to silo profile, maximum fill rate, response time of the shut down system and volume of delivery vehicles.
- The aggregate conveyor will be covered to prevent windblown dust.
- Bitumen products are to be maintained at the minimum temperature possible to minimise odorous emissions.
- Maximise the separation of 'clean' (offsite) run-on water from 'dirty' (onsite) early works area runoff as much as possible to prevent offsite water from migrating onto concrete batching plant catchments. Implement site boundary controls (e.g. sediment fencing, earth banks, swales and table/diversion drains) around the perimeter of the concrete batching plant site, as early in the works process as possible.
- The cementitious material and aggregate/sediment catchment areas will be clearly delineated on site and runoff from these areas will be managed as part of the water management system
- Captured water within the concrete batching plant site will be recycled in the concrete batching process.
- Concrete waste will be reused on-site or sent off site for recycling as building and demolition waste.