CONSTRUCTION EROSION AND SEDIMENT CONTROL PLAN

Moorebank Precinct East Stage 2

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SYDNEY INTERMODAL TERMINAL ALLIANCE

Moorebank Precinct East Stage 2

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REVISIONS

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001	23/03/2018	First draft for client review	JK/ SW/ KP	SB/ MG
002	28/03/2018	Update based on ER comments	KP	KP
003	5/02/2018	Update based on DP&E comments	SB/AK	KP
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005	30/08/2018	Updated to amend qualifications of the ErSed Specialist	KP	KP
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007	30/10/2020	Minor updates associated with: • RfMA-018 – MAUW boundary change • RfMA-028 – MAUW/MADR stockpile areas • SSD 7628-Mod 2 approval • Periodic review of management plans - Alignment of Environmental Representative approval authority to the CoC	ZQ AW	JC MW

CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

1 BACKGROUND

The Sydney Intermodal Terminal Alliance (SIMTA) received approval for the construction and operation of Stage 2 of the Moorebank Precinct East (MPE) Project (SSD 7628), which comprises the second stage of development under the MPE Concept Approval (MP10_0193) and approved under Development Consent SSD 7628. This was subsequently modified and approved under Modification 2 (SSD 7628-Mod 2).

This Construction Erosion and Sediment Control Plan (CESCP) has been developed to manage impacts to soils, water quality and water quantity, including soil erosion, sedimentation, and water diversion during Construction of Stage 2 of the Moorebank Precinct East (MPE) Project (hereafter, 'the Project').

Within this plan, a strategy has been established to demonstrate the Construction Contractor's approach to the management of erosion and sediment control. This CESCP addresses the relevant requirements of the Project Approvals, including the Environmental (EIS), Response to Submissions (RtS) and Minister's Conditions of Consent (CoCs), and all applicable guidelines and standards specific to the management of soils and water during Construction. This CESCP forms part of the Construction Soil and Water Management Plan (CSWMP), which is a sub-plan to the Construction Environmental Management Plan (CEMP).

1.1 Introduction

The MPE site, including the Site, is located approximately 27 kilometres (km) south-west of the Sydney Central Business District (CBD) and approximately 26 km west of Port Botany and includes the former Defence National Storage and Distribution Centre (DNSDC) site. The MPE site is situated within the Liverpool Local Government Area (LGA), in Sydney's South West subregion, approximately 2.5 km from the Liverpool City Centre.

The MPE Project involves the development of an intermodal facility including warehouse and distribution facilities, freight village (ancillary site and operational services), stormwater, landscaping, servicing and associated works on the eastern side of Moorebank Avenue, Moorebank.

Stage 2 of the MPE Project (the Project) involves the construction and operation of warehousing and distribution facilities on the MPE site and includes upgrades[1] to approximately 2.1 km of Moorebank Avenue. The Project has been assessed by the Department of Planning and Environment (DP&E) under Part 4, Division 4.1 (now Division 4.7 as of 1 March 2018) of the *Environmental Planning and Assessment Act* 1979 (EP&A Act) as State Significant Development (SSD).

Key components of the Project include:

- Earthworks including the importation of 600,000 m^3 of fill and vegetation clearing
- Importation, stockpiling and placement of up to 250,000 m^3 of suitable spoil (separate to the 600,000 m^3 of imported clean general fill permitted for bulk earthworks)
- Approximately 300,000 m^2 gross floor area (GFA) of warehousing and ancillary offices
- Freight village, 8,000 m^2 GFA of ancillary retail, commercial and light industrial land uses
- Warehouse fit-out
- Internal road network and hardstand across the site
- Ancillary supporting infrastructure within the site, including:
  - Stormwater, drainage and flooding infrastructure
  - Utilities relocation/installation
  - Fencing, signage, lighting, remediation, and landscaping
- An upgrade to Moorebank Avenue comprising the following key components:
  - Raising by about two metres and some widening

[1] Other road infrastructure upgrades are required under the MPE Stage 2 Approval however would be undertaken subject to future approval and a separate CEMP (as required).

  - Embankments and tie-ins to existing Moorebank Avenue road levels
  - Signalling and intersection works
- Upgrading existing intersections along Moorebank Avenue, including:
  - Moorebank Avenue / MPE Stage 2 access
  - Moorebank Avenue / MPE Stage 1 northern access
  - Moorebank Avenue / MPE Stage 2 central access
  - Moorebank Precinct West (MPW) Southern Access/ MPE Stage 2 southern emergency access.

1.2 Purpose and Application

This Construction Erosion and Sediment Control Plan (CESCP) has been developed to address the Conditions of Consent (CoCs) B39 and the Final Compilation of Mitigation Measures (FCMMs) 5A. The CESCP aims to prescribe and depict where controls should be located on site to provide adequate mitigation against erosion and sediment loss from the Project site during construction.

This CESCP has been prepared in accordance with:

- Volume 1 of Managing Urban Stormwater: Soils and Construction (Blue Book) (Landcom 2004)
- Managing Urban Stormwater: Soils and Construction − Installation of Services, Volume 2A (OEH 2008)
- Managing Urban Stormwater: Soils and Construction – Main Road Construction, Volume 2D (OEH 2008).

The CESCP is divided into this written document (this plan) and accompanying Primary Erosion and Sediment Control (ESC) drawing (Appendix A) and forms part of the Construction Soil and Water Management Plan (CSWMP). Progressive erosion and sediment control drawings, focussed on key work areas, will be developed by the Construction Contractor during construction. These progressive drawings will be managed separately to this CESCP, approved by a suitably qualified or Certified Professional in Erosion and Sediment Control and provided to the Environmental Representative (ER) for information prior to commencement of works. The progressive drawings will be reviewed weekly through the Weekly Inspection Checklist (Appendix B). This plan will be implemented prior to commencement of construction and will be updated as relevant to changing construction activities. Progressive ESC Drawings may deviate from the Primary ESC Drawing and are designed to accommodate the daily changes in site conditions.

This updated CESCP has been prepared for the construction phase of the Project and supersedes the EWESCP, previously submitted to the Secretary under the Early Works Soil and Water Management Plan (EWSWMP).

Construction will not commence until acknowledgement has been received from the Secretary that this CESCP has been prepared to their satisfaction. Construction will be undertaken in accordance with the most recent, approved version of the CESCP. Erosion and sediment controls will be installed progressively across site, but prior to the commencement of works in the area where works are due to be undertaken.

1.3 Staged Submission of this Plan

Subject to the approval of the Secretary (CoC A14), the Project has elected to stage the submission of a number of strategies, plans and programs that are required by the CoCs based on the Delivery Works Phases identified in Table 1.

In accordance with CoC A15, Table 1 identifies the stage of the development to which this CESCP applies, and the relationship to any future stage. The trigger for updating the document is also identified in Table 1. When a document is updated, the most recent version of the document will supersede the previous version(s). Progressive Erosion and Sediment Control drawings will be approved by a suitably qualified or Certified Professional in Erosion and Sediment Control and provided to the Environmental Representative (ER) for information prior to commencement of works.

Table 1 Staged Documentation and Triggers to Satisfy CoC A15

Delivery Works Phases	General Description of Works	Current Document	Trigger to Update Document
Early Works			
Early Works	Utilities adjustments and relocations, clearing and stripping of topsoil, heritage salvage, fill importation, establishment of site access, temporary fencing and compound establishment, and other activities determined by the ER to have minimal environmental impact	☐ Document prepared to address Early Works only	Prior to the commencement of construction works
Construction			
Construction Phase A	Early Works activities, bulk earth works, drainage and utilities, construction and internal fit-out of warehousing and finishing works	☒ Document prepared to address Construction Works Phase A only (does not address Moorebank Avenue upgrade works)	Prior to the commencement of Moorebank Avenue upgrade works
Construction Phase B	Construction Phase A activities, construction of the Moorebank Avenue Diversion Road, bulk earthworks, drainage and utilities and pavement works	☐ Document prepared to address all construction works (Phase A + Phase B)	

1.3.1 Document Structure

The methodology to satisfy CoC B39 was discussed and agreed with DP&E in a meeting held in DP&E offices on 6 February 2018. The structure of the document therefore includes the following:

- Introductory text (Section 1.1 to 1.3)
- Compliance Matrices (Section 1.4)
- Text describing how each requirement has been addressed (Section 2, Appendix A and Appendix B)
- Primary ESC Drawings (Appendix A).

The conditions required for management plans under CoC C7 are detailed within the CSWMP.

1.4 Compliance Matrices

The Project is being delivered under Part 4, Division 4.1 (now Division 4.7 as of 1 March 2018) of the EP&A Act. The CoCs include requirements to be addressed in this CESCP and delivered during the Project. These requirements and how they are addressed are provided within Table 2.

Table 2 Conditions of Consent (CoCs)

CoC	Requirement	Document Reference	How Addressed
A15	If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage of the	Section 1.3	This CESCP is relevant to Construction Phase A as identified in Section 1.3. The CESCP will be superseded by the CESCP relevant to Construction Phase B prior to

CoC	Requirement	Document Reference	How Addressed
	development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program		the commencement of Moorebank Avenue Upgrade Works (refer to Table 1). Construction Phase A and B are described in more detail in Section 1.2 of the CSWMP.
A32	All plant and equipment used at the site or to monitor the performance of the development must be: (a) maintained in a proper and efficient condition; and (b) operated in a proper and efficient manner.	Section 3.3 of the CSWMP	a) CSWMP Table 14 SW10 indicates that plant and equipment will be maintained in accordance with manufacturers requirements. b) All plant and equipment used on site will be operated in a proper and efficient manner per SIMTA Standard Operating Procedures.
B34	Prior to early works, fill importation or any other surface disturbance, the Applicant must prepare a Soil and Water Management Plan (SWMP) to the satisfaction of the Secretary. The plan must form part of the CEMP required by condition C1 and must include: (a) measures to verify the properties of fill imported to the site (see condition (b));	CSWMP	The CSWMP has been developed to meet the requirements of CoC B34.
	(b) plans showing limits of clearing, filling and other earthworks and vegetation to be retained and protected;	CSWMP – Section 1.2	Figure 1-1 and Figure 1-2 of the CSWMP show limits of fill and clearing.
	(c) plans showing temporary access points and haul roads within the site for fill stockpiling and placement;	CSWMP – Section 1.2	Figure 1-1 and Figure 1-2 of the CSWMP show temporary access points and haul roads.
	(d) plans showing the location of stockpiled fill and other materials and storage areas (see condition (c));	CSWMP – Section 1.2	Figure 1-1 and Figure 1-2 of the CSWMP show stockpile locations and material storage areas.
	(e) an Erosion and Sedimentation Control Plan (see condition B40);	This CESCP	This CESCP has been prepared to address the specific requirements of this condition.
	(f) measures to minimise dust, erosion and prevent migration of soil off site and migration into constructed and natural drainage lines (see condition B39);	CSWMP – Section 3.3 Construction Air Quality Management Plan (CAQMP)	Section 3.3 of the CSWMP includes management measures to minimise dust, erosion and offsite migration of sediment. Further detail on dust management measures is provided in the CAQMP.
	(g) details on design and maintenance of temporary stormwater drainage infrastructure including sediment basins and temporary diversion channels around temporary work obstructions to allow low and normal flows to safely bypass the work	Section 2.2.3 CSWMP – Section 3.3 CSWMP	Section 2.2.3 includes details on the design and maintenance of sediment basins and diversion channels. Erosion and sediment control management measures are also detailed in Table 15 of the CSWMP.

CoC	Requirement	Document Reference	How Addressed
	areas and to separate clean and dirty water flows (see condition B40);		
	(h) details of existing stormwater infrastructure to be retained, including upgrades to meet design criteria, and design and maintenance of proposed new infrastructure (see condition B40);	CSWMP – Section 3.1	Details of existing stormwater infrastructure are included in Section 3.1 and Figure 3-4 of the CSWMP
	(i) evidence that legal agreement has been obtained: (i) to discharge stormwater through adjacent sites; (ii) for any necessary upgrade works to be constructed; (iii) for undertaking maintenance activities; and (iv) use of OSD basins on other sites, such as the MPW site, for this development, and; (v) evidence that an easement has been obtained or is currently in place to discharge and detain water through adjacent sites;	CSWMP - Appendix C	Appendix C of the CSWMP includes Memorandum – CoC B34(I) for evidence that the legal agreements have been obtained.
	(j) evidence that a drainage easement is in place to discharge stormwater through the MPW site, and to provide OSD basins within the MPW site, for this development, and that drainage infrastructure within the MPW site to the Georges River has been repaired or upgraded to the satisfaction of the Secretary prior to completion of construction of the temporary MPE Stage 2 sediment basins.		Construction will not alter flows through the MPW site; hence no alteration to the MPW drainage infrastructure is proposed.
	(k) confirmation that the stormwater drainage systems in adjacent sites are designed, or can be upgraded to accept flows from the MPE site, including provision of scour protection at discharge points;	CSWMP – Section 3.2.1	Stormwater infrastructure on the adjacent DJLU has recently been upgraded and has been designed to accommodate flows from the MPE site.
	(l) demonstrate no impact on Anzac Creek flood levels or flood extents due to filling of the MPE site;	Appendix A – Primary ESC Drawings CSWMP - Section 3.1.8 Stormwater Management Plan	Construction site runoff would be temporarily detained in sediment basins (refer Appendix A) so as to mitigate impacts on Anzac Creek flood levels and extents during construction. Following construction, and the placement of fill, impacts on Anzac Creek flood levels and extents are expected to be limited to events larger than the 100-year Annual Recurrence Interval (ARI) and would be

CoC	Requirement	Document Reference	How Addressed
			consistent with the findings of the MPE Stage 2 EIS.
	(m) demonstrate no change to stormwater flows directly entering proposed biodiversity offset areas;	CSWMP - Section 3.2.1	Construction site runoff would be temporarily detained in sediment basins to maintain existing condition flow regimes and distributions leaving the construction area.
	(n) demonstrate no deterioration in the quality of stormwater discharged from the site into proposed biodiversity offset areas; and	Section 2.2.3 CSWMP - Section 3.2.1 and 3.3	Sediment basins have been sized and located to ensure sediment concentrations in site runoff are within acceptable limits as described in Section 2.2.3. Stormwater leaving the MPE site needs to meet the requirements set out and explained in the CSWMP.
	(o) demonstrate that stormwater leaving the site meets the design water flow and water quality criteria (see condition B44 water quality monitoring).	CSWMP - Section 3.3	Stormwater leaving the MPE site will meet the requirements set out and is explained in the CSWMP.
B39	(a) be prepared by a suitably qualified person;	Cover page Primary ESC Drawings signature section	The Primary ESC Drawings have been prepared to address the requirements of this condition (Appendix A). The plan has been prepared by a suitably qualified person as shown on the cover page and the Current Issue Signatures section on the Primary ESC Drawing.
	(b) be prepared in accordance with Volume 1 of Managing Urban Stormwater: Soils and Construction ('the Blue Book') (Landcom 2004), Managing Urban Stormwater: Soils and Construction − Installation of Services, Volume 2A (OEH 2008) and Managing Urban Stormwater: Soils and Construction – Main Road Construction, Volume 2D (OEH 2008). The plan must consider likely stages of the works and provide for appropriate control of sediment and erosion for each stage. The plan must show:	Section 1.2 Section 2.2 Appendix A - Primary ESC Drawings	This CESCP has been developed for the construction stage of the Project and was prepared in accordance with: • Volume 1 of Managing Urban Stormwater: Soils and Construction (Blue Book) (Landcom 2004) • Managing Urban Stormwater: Soils and Construction − Installation of Services, Volume 2A (OEH 2008) • Managing Urban Stormwater: Soils and Construction – Main Road Construction, Volume 2D (OEH 2008). The General Erosion and Sediment Control Notes included in Appendix A have been developed in accordance with the above listed documents.
	(i) location and extent of all necessary sediment and erosion control measures for the site;	Appendix A - Primary ESC Drawings	The location and extent of the necessary sediment and control measures are shown on the Primary ESC drawings (Appendix A) and include: - Sediment fence ( ) - Stabilised site access ( )

CoC	Requirement	Document Reference	How Addressed
			- Earth bank low flow and check dams () - Sediment basin ()
	(ii) catchment plan;	Section 2.2.2 Figure 2-1 Appendix A - Primary ESC Drawings	The proposed sediment basin catchment boundaries () are shown on the Primary ESC Drawings. The total catchment areas for each sediment basin are calculated and outlined in Table 7. Figure 3-1 in the CSWMP shows the existing catchments and drainage on the Project site.
	(iii) sediment basin(s) locations including details showing how runoff from the entire site will be directed to the sediment basin(s);	Section 2.2 Appendix A - Primary ESC Drawings	The nine proposed sediment basin locations are located on the Primary ESC Drawings within the MPE Stage 2 construction boundary. The red arrows () show the diversion of dirty water run-off for the sediment basins.
	(iv) all relevant details and calculations of the sediment basins including sizes, depths, flocculation, outlet design, all relevant sections, pump out systems, and depths;	Appendix A - Primary ESC Drawings Section 2.2.4	The sediment basin sizing calculations are shown in Table 7. The minimum depth for the sediment basin is 1500 mm, as shown in Note #4 of the Primary ESC Drawings. Each sediment basin has a designed emergency outlet as per SD6-4. The Dewatering Procedure outlines the dewatering technique that will be implemented throughout the Project, including the adjustment of pH and turbidity during flocculation.
	(v) all details of basement and other excavation pump out and dewatering treatment systems including flocculation and any proposed discharge from the site from dewatering and pump out systems;	Section 2.2.4	The Dewatering Procedure outlines the procedures for the discharge of water from the Project site, including the use of flocculation. The three proposed discharge locations (outlets) are shown in Figure 3-1 in the CSWMP. Discharge from the Project site from the sediment basins will occur to the nearest stormwater drain, as shown in the Primary ESC Drawings.
	(vi) identification and management of any stormwater run-on to the site from adjacent sites;	Section 2.2 Appendix A - Primary ESC Drawings	Stormwater run-on to the Project site from adjacent will be managed by sediment fences ( ) identified around the construction boundary in the ESC Drawings.

CoC	Requirement	Document Reference	How Addressed
			Diversion of external clean water will occur on the Project site, as identified with the grey arrows (→) in the Primary ESC Drawings. External clean water diversions will be discharged to existing swales and channels.
	(vii) location of any temporary stockpiles (soil, spoil, top soil or otherwise) and accompanying sediment and erosion control measures;	Section 2.2.5 Appendix A - Primary ESC Drawings	Temporary stockpile locations () are identified on the Primary ESC Drawings.
	(viii) location and details of all vehicle wash down bays and associated erosion and sediment control measures such as earthen bunds; and	Section 2.2.6 Appendix A - Primary ESC Drawings	Stabilised site access areas () include rumble grids, wheels washes and vehicle wash down areas, as identified in Note #5 of the Primary ESC Drawings.
	(ix) a daily and weekly site inspection checklist consistent with IECA Best Practice Erosion and Sediment Control documents.	Appendix B - Daily and Weekly Inspection Checklists	Weekly and daily checklists for the Project site are included in Appendix B.
	(c) be implemented prior to commencement of Early Works, fill importation and construction (and any substages of these phases) and be updated as relevant to changing Early Works; fill importation, stockpiling and placement, and construction activities.	N / A	The plan will be implemented prior to commencement of construction and will be updated as relevant to changing construction activities.
B40	Prior to commencement of early works and fill importation, an amended Stormwater Management Plan must be submitted and approved by the Secretary. The plans must be prepared by a suitably qualified person, and independently reviewed, to ensure it meets the following criteria for:	Stormwater Management Plan CSWMP	The Stormwater Management Plan and the CSWMP have been prepared by suitably qualified persons and reviewed by the Environmental Representative. The person preparing the written plans and drawings is identified on the cover page and Current Issue Signatures section in the CESCP (Appendix A - Primary ESC Drawings).
	(a) Drainage		
	(i) convey flows from low order events (up to and including the 10% AEP event from the main part of the site within the formal drainage system, with flows from rarer events (up to the 1% AEP event) conveyed in controlled overland flow paths;	Strormwater Management Plan Appendix A - Primary ESC Drawings	This condition is for the operational phase of the Project and is addressed in the Stormwater Management Plan. Low flow and high flow channel designs for conveyance of construction water will be in accordance with the Blue Book. Low flow earth banks and associated check dams have been located to divert water to sediment basins. Low flow banks will be constructed in accordance with the Blue

CoC	Requirement	Document Reference	How Addressed
			Book Standard Drawing (SD) 5-5 and high flow channels will be constructed in accordance with SD 5-6.
	(ii) show the location and width of controlled overland flow paths; and	Appendix A - Primary ESC Drawings	Refer to the Primary ESC Drawings (Appendix A in the CESCP) for the location and width of controlled overland flow paths.
	(iii) provide levels to AHD confirming building floor levels are a minimum of 150 mm above the maximum design flow path levels	Stormwater Management Plan	This condition is for the operational phase of the Project only and is addressed in the Stormwater Management Plan.
	(b) Water Sensitive Urban Design (i) incorporate water sensitive urban design principles, be generally in accordance with relevant Council policies, plans and specifications (ii) ensure that adequate overland flow paths have been provided in the event of stormwater system blockages and flows in excess of the 1% ARI rainfall event; (iii) ensure on site detention basins are visually unobtrusive and ensure public safety; (iv) ensure rainwater harvesting is provided for each warehouse; (v) ensure adequate site area has been provided for stormwater treatment; (vi) ensure design of stormwater treatment systems minimises the risk of failure; and (vii) develop concept options for how 20% of the average annual volume of stormwater from the site can be reused via rainwater capture and reuse for activities including but not limited to: • irrigation, • all internal non-potable uses, • washdown, • cooling towers, • heating, ventilation, and air conditioning, and • ground source heat exchange. The Applicant is to brief the Department on how these initiatives will be implemented prior to the completion of the Stormwater Management Plan.	Stormwater Management Plan	Water sensitive urban design (WSUD) elements are associated with the operational phase of the Project. These requirements are not applicable to the construction phase of the Project and have not been addressed in this plan.
	(c) Water Quantity		

CoC	Requirement	Document Reference	How Addressed
	(i) on site detention is to be provided to attenuate peak flows from the development such that both the: • 1 in 1 year ARI event post development peak discharge rate is equivalent to the pre-development (un-developed catchment) 1 in 1 year ARI event • 1 in 100 year ARI event post development peak discharge rate is equivalent to the pre- development (un-developed catchment) 1 in 100 year ARI event.	Stormwater Management Plan	Design, sizing and locations of the OSD basins is discussed within the Stormwater Management Plan Sediment basins have been designed and located in accordance with the Blue Book, as described in this plan.
	(ii) no new drainage infrastructure work within the Defence Joint Logistics Unit (DJLU) site	Table 14, CSWMP	No new drainage infrastructure work will occur within the DJLU site as addressed in Section 3.1.1.
	(iii) all on site detention basins to have maximum batter slopes of 1V:4H or, for works immediately adjacent to the Moorebank Avenue upgrade, an alternate slope gradient agreed to by RMS	Stormwater Management Plan	Design, sizing and locations of the OSD basins is discussed within the Stormwater Management Plan Sediment basins are proposed to manage stormwater flows during the construction phase and have been designed and located in accordance with the Blue Book, as described in this plan. Sediment basins will be constructed in accordance with SD 6-4.
	(iv) siting and design of on site detention basins to eliminate/ minimise excavation within the southern ordinance burial pits; and	Contamination Management Plan Section 11	Design, sizing and locations of the OSD basins is discussed within the Stormwater Management Plan It is noted that two sediment basins fall partially within the area identified as the 'southern ordinance burial pits'. This area, however, has been surveyed and a clearance certificate provided. Any Unexpected Ordinance identified during construction of the sediment basins will be managed in accordance with the Unexpected Finds Procedure detailed within Section 11 of the Contamination Management Plan prepared as part of the CEMP.
	(v) maintenance access to be provided to each on site detention basin	Stormwater Management Plan	The provision of maintenance access to the OSDs is discussed in the Stormwater Management Plan. Sediment basins have been designed and located in accordance with the Blue Book, as described in this plan.

CoC	Requirement	Document Reference	How Addressed
	(d) Connection to natural creeklines (i) on site detention basin outlets to natural drainage lines must be constructed of natural materials to facilitate natural geomorphic processes and to include vegetation as necessary (gabion baskets and gabion mattresses are not acceptable).	Appendix A - Primary ESC Drawings Stormwater Management Plan	The connection of OSDs to the natural creeklines is discussed in the Stormwater Management Plan. As per the Stormwater Management Plan, OSD basin outlets will be constructed with natural materials. No sediment basins proposed for construction connect directly to natural creeklines (Appendix A).
	(e) Stormwater Quality i) have a stormwater quality treatment train comprised of gross pollutant traps and biofiltration/ bioretention systems designed to meet the following criteria compared to a base case if there were no treatment systems in place: • reduce the average annual load of total nitrogen by 45%; • reduce the average annual load of total phosphorus by 65%; and • reduce the average annual load of total suspended solids by 85%. ii) all stormwater quality elements are to be modelled in MUSIC as per the NSW MUSIC Modelling Guide. iii) all stormwater quality elements are to be installed upstream of stormwater detention basins, unless it can be demonstrated that biofiltration/ bioretention systems within the OSD basins will not suffer damage from design flows and can be maintained to achieve the water quality criteria. iv) the area of biofiltration / bioretention systems is to be at least 1% of the catchment draining to the system, to ensure there is no short-circuiting of the system. v) bioretention systems which are greater than 1,000m2 in area, are to be divided into cells with no individual cell greater than1,000m2. vi) all filter media used in stormwater treatment measures must: • be loamy sand with an appropriately high permeability under compaction and must be free of rubbish, deleterious material, toxicants, declared plants and local weeds, and must not be hydrophobic;	N / A	These conditions are for the operational phase only and are not related to construction. Sediment basins for construction will be designed and located in accordance with the Blue Book, which is considered more appropriate for modelling the pollutant removal capacity of construction phase sediment basins. Appropriate construction discharge limits have been adopted and are included in Section 3.3 of the CSWMP. Construction stormwater management elements are described in this plan.

CoC	Requirement	Document Reference	How Addressed
	• have an hydraulic conductivity = 100-300 mm/hr, as measured using the ASTM F1815-06 method • have an organic matter content less than 5% (w/w) be provided adequate solar access, considering the design and orientation of OSD basins.		
	A copy of the independent review must be submitted with the Plan. A statement from the reviewer confirming their independence and declaring any actual, potential or perceived conflicts of interest must be provided as part of the reporting of the findings and recommendations of the review.	Stormwater Management Plan	A copy of the independent review is attached to the Stormwater Management Plan.
C7	The Applicant must ensure that the environmental management plans required under this consent are prepared in accordance with any relevant guidelines, and include: (a) detailed baseline data; Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for a particular management plan.	CSWMP	The CSWMP outlines the existing soils on the Project site.
	(b) a description of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures/criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	CSWMP	The CSWMP outlines the objectives and targets associated with soil and water management that are applicable to this plan.
	(c) a description of the management measures to be implemented to comply with the relevant statutory requirements, limits or performance measures/criteria;	Section 2.2 Appendix A - Primary ESC Drawings	Section 2.2 describes the management measures for erosion and sediment control that will be implemented during construction. Appendix A contains Primary ESC Drawings showing where these measures would be implemented.
	(d) a program to monitor and report on the: (i) impacts and environmental performance of the development; and (ii) effectiveness of any management measures (see (c) above);	Section 2.3 Appendix B - Daily and Weekly Inspection Checklists	Section 2.3 outlines the daily and weekly inspections that will be undertaken of erosion and sediment controls on site. Appendix B contains the inspection checklists that will be implemented.

CoC	Requirement	Document Reference	How Addressed
	(e) a contingency plan to manage any unpredicted impacts and their consequences;	CSWMP	Incidents will be notified and works within the vicinity will stop immediately in accordance with the Emergency Spill Response Procedure in Appendix B of the CSWMP.
	(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	CSWMP	Improvement measures are discussed in the CSWMP.
	(g) a protocol for managing and reporting any: (i) incidents and non-compliances; (ii) complaints; (iii) non-compliances with statutory requirements; and	CEMP	The CEMP outlines the protocol for managing and reporting complaints, incidents and non-compliances.
	(h) a protocol for periodic review of the plan.	CSWMP CEMP	A protocol for periodic review is outlined in the CSWMP and the CEMP. The protocol is applicable to this plan and Primary ESC Drawings. Progressive erosion and sediment control drawings, focussed on key work areas, will be developed by the Construction Contractor during construction and reviewed on a weekly basis as part of the weekly inspections. These progressive drawings will be managed separately to this plan and provided to a suitably qualified or Certified Professional in Erosion and Sediment Control for approval and provided to the Environmental Representative (ER) for information prior to commencement of works.

The FCMMs were prepared as part of the MPE Stage 2 Submissions Report (Arcadis 2017). A list of the FCMMs relevant to the Project and how they have been complied within this CESCP are provided in Table 3 and the Compliance Tracking Program.

Table 3 Final Compilation of Mitigation Measures (FCMMs)

FCMM	Requirement	Document Reference
5A	A Soil and Water Management Plan (SWMP) and Erosion and Sediment Control Plan (ESCP), or equivalent, would be incorporated into the CEMP for the construction of the Amended Proposal. The SWMP and ESCPs would be developed in accordance with the principles and requirements of Managing Urban Stormwater – Soils & Construction Volume 1 ('Blue Book') (Landcom, 2004) and Volume 2 (DECC 2008) and consider the Preliminary ESCPs (Appendix P of the EIS). The following aspects would be addressed within the SWMP and ESCPs:	• Appropriate sediment and erosion controls will be implemented as identified in this CESCP including: - Sediment fences ( ) - Stabilised site access () - Earth bank low flow and check dams () - Sediment basin ()

FCMM	Requirement	Document Reference
	• Construction traffic restricted to delineated access tracks, and maintained until construction complete • Appropriate sediment and erosion controls to be implemented prior to soil disturbance • Stormwater management to avoid flow over exposed soils which may result in erosion and impacts to water quality • Location of stockpiles outside of flow paths on appropriate impermeable surfaces as well as outside of riparian corridors • Inspection of all permanent and temporary erosion and sedimentation control works prior to and post rainfall events and prior to closure of the construction area • Wheel wash or rumble grid systems installed at exit points to minimise dirt on roads.	• Stormwater management is presented in this CESCP, including earth bank low flow construction details. For further detail on stormwater management, refer to the CSWMP. • Two material stockpile areas () are identified on the Primary ESC Drawing, outside of flow paths on appropriate impermeable surface and outside of riparian corridors. • Stabilised site access areas () will be located throughout the Project site and will include rumble grids, wheels washes and vehicle wash down areas, or a combination of the above as required (identified in Note #5 of the Primary ESC Drawings).

The Commonwealth mitigation measures which are relevant to this plan are detailed in Table 4.

Table 4 Commonwealth Mitigation Measures

CMM	Requirement	Reference
Hydrology	A Soil and Water Management Plan (SWMP) and Erosion and Sediment Control Plan (ESCP) will be implemented for the construction and operation phases of the development, with monitoring and review performance of sediment and water control structures during construction and operation phases. The SWMP and ESCPs will be developed in accordance with the principles and requirements of Managing Urban Stormwater (Landom, 2004).	Appendix A – Primary ESC Drawings: General Erosion and Sediment Control Notes CSWMP

2 EROSION AND SEDIMENT CONTROL PLAN

The following sections provide further detail as to how each element in CoC B39 has been addressed. This is supported by Appendix A which depicts where the erosion and sediment controls will be implemented on the site (Primary ESC Drawings). This plan is intended to be read in conjunction with the CSWMP which has been written to satisfy CoC C7, B34 and B40.

2.1 Suitably Qualified Person

A suitably qualified person is defined as having the following skills and qualifications:

- Tertiary qualifications in either a science, engineering, environmental management or an equivalent field
- Relevant industry association recognition (preferred, although not essential)
- A detailed understanding of the 'Blue Book' and other technical standards associated with the preparation and implementation of progressive construction erosion and sediment controls plans
- A minimum of 5 years' experience in the preparation and implementation of PESCP drawings on infrastructure projects within NSW

Melanie Gostelow has over 10 years' experience as a Water Resources Engineer and has a Bachelors of Environmental Engineering (Honours) and Master of Engineering Science in Water Resources.

2.2 Managing Urban Stormwater: Soils and Construction

This CESCP has been developed in accordance with the following guidelines:

- Volume 1 of Managing Urban Stormwater: Soils and Construction (Blue Book)
- Managing Urban Stormwater: Soils and Construction − Installation of Services, Volume 2A (OEH 2008)
- Managing Urban Stormwater: Soils and Construction – Main Road Construction, Volume 2D (OEH 2008).

The relevant principles and requirements of the above documents have been incorporated into this CESCP as required and detailed in the following sections.

This CESCP is divided into this written document (this plan) and accompanying Primary ESC Drawings (Appendix A) and forms part of the CSWMP. Progressive erosion and sediment control drawings, focussed on key work areas, will be developed by the Construction Contractor during construction. These progressive drawings will be managed separately to this CESCP, approved by a suitably qualified or Certified Professional in Erosion and Sediment Control and provided to the Environmental Representative (ER) for information prior to commencement of works. Compliance against the progressive ESC drawings will be undertaken through the Weekly Inspection Checklists (Appendix B).

2.2.1 Location and Extent of Control Measures

The location and extent of erosion and sediment controls required for the commencement of construction have been depicted in the Primary ESC Drawings (Appendix A). The identified measures to be implemented are detailed in Table 5.

Table 5 Types of Control Measures Proposed

Control Measure	Location	Purpose
Erosion Control		
Ground Cover	Stockpiles and exposed surfaces	Ground cover may include, but is not limited to, progressive landscaping, polymer, geofabric, plastic sheeting, mulch.

Control Measure	Location	Purpose
		These may be used to stabilise areas prior to a rainfall event or stabilise longer term stockpiles.
Low flow earth bank and check dams	Various locations as depicted in Appendix A	To slow the flow of dirty water within the site to minimise erosion.
Dust suppression	Site wide	To suppress dust and minimise potential for wind erosion, particularly on windy days. Water to be sprayed as a fine mist spray to dampen surfaces and minimise dust.
Sediment Control		
Sediment fence	Site boundary, at stockpile locations	To minimise the potential for dirty water to migrate from site
Stabilised site access	Site egress locations	To stabilise the egress points so that sediment is not tracked from site on to public roads. These areas will include rumble grids, wheel washes, and vehicle washdown areas.
Sediment basins	Nine (9) basins have been nominated. One basin within each catchment within the site.	Sediment basins act as the last point of control. All dirty water within a catchment will flow to a sediment basin and will be held within the basin until treated, tested and discharged by the Contractor's EM. The treatment and dewatering process is detailed within Section 2.2.4.
Inlet protection	Various locations around site	Inlets will be protected to minimise the potential for mobilised sediment to enter the drainage system. The Primary ESC Drawings contain standard drawings which identify how to install inlet protection.

2.2.2 Catchment Plan

A catchment plan is presented in Figure 2-1.

The Project site falls within the Georges River Estuary catchment with a receiving environment of Botany Bay. The Botany Bay catchment includes residential, industrial, commercial, recreational and bushland with the main sources of pollution coming from stormwater runoff. Hydrology in the local area surrounding the Project site is characterised by the Georges River approximately 800 m west of the Project site and Anzac Creek (a tributary to the Georges River) which act as receivers for the Project site surface water.

The topography of the MPE site is relatively flat, with reduced levels (RLs) ranging between 14 and 16 metres Australian Height Datum (mAHD). Along the eastern site boundary, the land rises from about RL14 mAHD at each end to a localised peak of RL22 mAHD about midway along the length. There are three internal catchments within the MPE site and a number of small external catchments that discharge into the site, from Moorebank Avenue.

Assessment of hydrology across the Project site under current conditions presented in the EIS identifies that the Project site is roughly divided north-south by a catchment boundary, with the eastern portion discharging to Anzac Creek (via outlets in the north-east and south-east corners of the Site, respectively) located approximately 50 m to the south east of the Project site.

There are currently eight catchments identified within the construction footprint, as shown on the Primary ESC Drawings (Appendix A). Each catchment has been designated with its own sediment basin.

Moorebank Avenue has a crest located just to the south of the MPE site southern boundary. To the south of the road crest, runoff discharges to Anzac Creek. To the north of this (Georges river/Anzac Creek) road crest, overland flows generally discharge northward along the road corridor to the culvert under Moorebank Avenue (located just south of the MPE northern site boundary). There are however a number of local pit and pipe systems on the western side of Moorebank Avenue including:

- A conduit system which discharges from Moorebank Avenue westward under the MPW site then into the Georges River (this is the same channel that Outlet C from the MPE site discharges to, see discussion in CSWMP)
- A conduit from the MPW carpark which discharges eastward under Moorebank Avenue into the MPE Stage 1 drainage system
- Several other stormwater pits which may also discharge eastward into the MPE site, northward to the culvert under Moorebank Avenue or westward under the MPW site before discharging to the Georges River.

Clean water flowing towards the Project site from west of Moorebank Avenue would be diverted to the existing stormwater system via diversion bunds to prevent clean stormwater flowing onto the disturbed areas of the Project site (see Appendix A). Currently water from the MPE Stage 1 site flows towards Moorebank Avenue. Clean water from the MPE Stage 1 site will be pumped overland around the Project site and discharged to the clean stormwater channel on the MPW site.

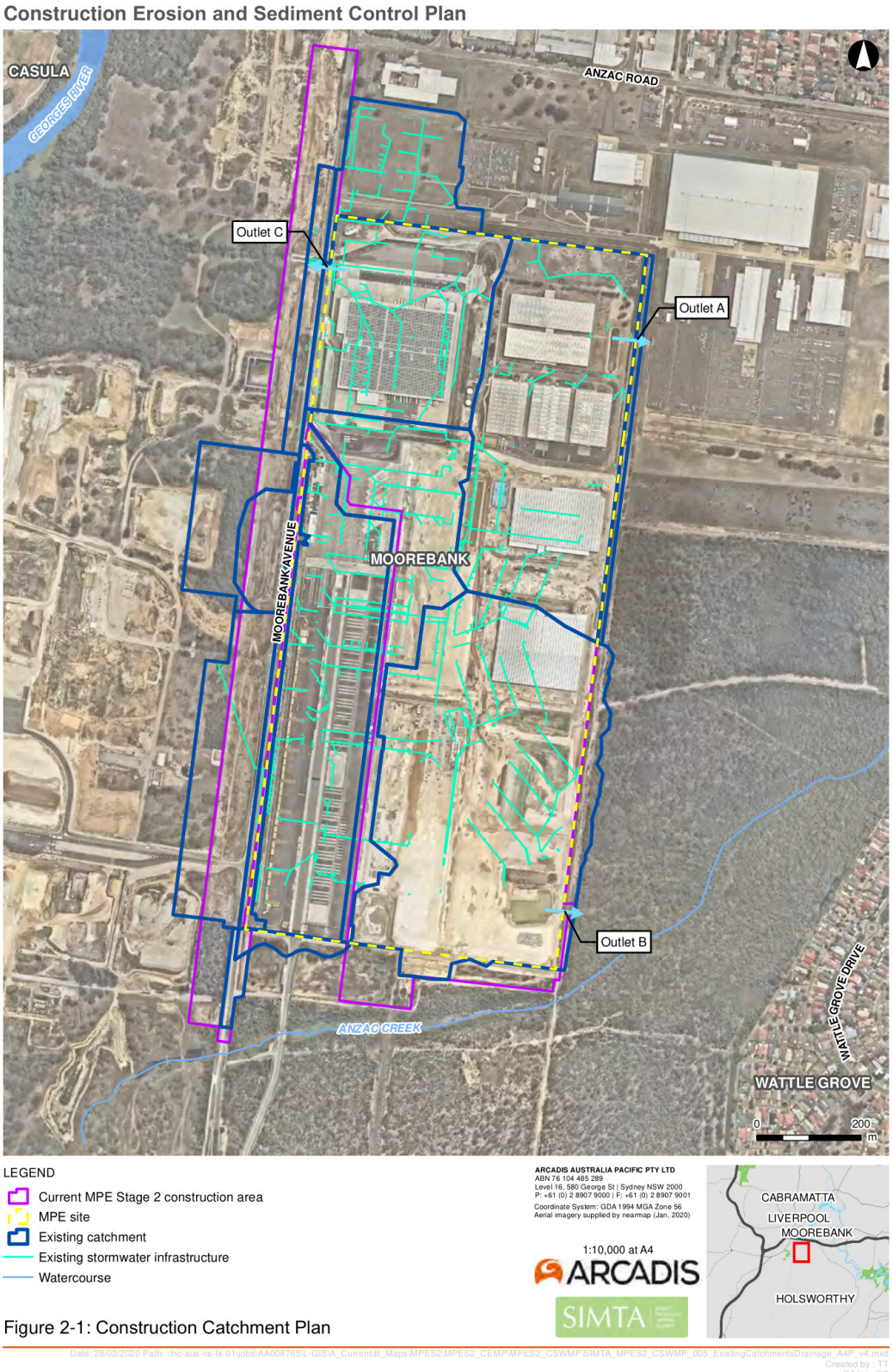


Figure 2-1 Construction Catchment Plan

2.2.3 Sediment Basins

Twelve sediment basins have been identified as being required for construction. Each sediment basin is located within a catchment boundary; the exact location of the basins within the catchment will be determined on site by the Contractor's EM to facilitate the use of the basins throughout the duration of construction. The Primary ESC Drawing has been developed as worst case scenario for the area of exposed ground; as a result, the Early Works sediment basins and construction basins differ in locations. However, the Construction Contractor will determine the best location for the basins based on site conditions. However, the sediment basins will be located at the lowest point of the catchment which will allow water to flow to the basin. Low flow earth banks and associated check dams have been located throughout the Project site to divert water to the sediment basin as shown in Appendix A. Details for the design of low flow and high flow earth banks and check dams are included in Appendix A (SD 5-5, 5-6 & 5-4). Rock check dams will be installed within the earth banks to reduce the velocity of water within the channels.

The sizes of the sediment basins have been calculated in accordance with the methodology detailed in Section 6.3 of the Blue Book. The sizes are based on soil loss calculations as presented in Table 6 against Soil Class F. Indicative basin sizings are shown below based on catchment sizes depicted, with a minimum depth of 1500 millimetres (mm) (Table 7). Where appropriate for construction staging, progressive erosion and sediment control drawings may require resizing of basins to account for changes in catchment area (e.g. where fill levels have changed); this will be undertaken by the Contractor's EM. The Construction Contractor will construct the basin in accordance with SD6-4 of the Blue Book, shown in Figure 2-2, with each basin having a length to width ratio of 3:1. The outlet (or spillway) will be 750 mm below the crest of the sediment basin to divert water out of the basin in high rainfall events.

Table 6 Soil Loss Calculations

Site area	SITE											
	SB01 A	SB01 B	SB01 C	SB02 A	SB02 B	SB02 C	SB09 A	SB09 B	SB10 A	SB10 B	SB10 C	SB10 D
Total catchment area (ha)	13.01	9.43	9.92	8.95	7.02	6.03	7.10	5.60	2.28	3.17	3.32	1.48
Disturbed catchment area (ha)	13.01	9.43	9.92	8.95	7.02	6.03	7.10	5.60	2.28	3.17	3.32	1.48
Soil analysis												
% sand (faction 0.02 to 2.00 mm	20	20	20	20	20	20	20	20	20	20	20	20
% silt (fraction 0.002 to 0.02 mm)	40	40	40	40	40	40	40	40	40	40	40	40
% clay (fraction finer than 0.002 mm)	40	40	40	40	40	40	40	40	40	40	40	40
Dispersion percentage												
% of whole soil dispersible	0	0	0	0	0	0	0	0	0	0	0	0
Soil Texture Group	F	F	F	F	F	F	F	F	F	F	F	F
Rainfall data												
Design rainfall depth (days)	5	5	5	5	5	5	5	5	5	5	5	5
Design rainfall depth (percentile)	80	80	80	80	80	80	80	80	80	80	80	80
x-day, y-percentile rainfall event	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4
Rainfall intensity: 2-year, 6-hour storm	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
RUSLE Factors												
Rainfall erosivity (R-factor)	2540	2540	2540	2540	2540	2540	2540	2540	2540	2540	2540	2540
Soil erodibility (K-factor)	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048
Slope length (m)	300	190	190	190	190	250	220	250	150	220	220	80
Slope gradient (%)	0.3	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.5	0.5	0.5	0.5
Length/gradient (LS-factor)	0.27	0.24	0.24	0.24	0.24	0.26	0.24	0.26	0.23	0.24	0.24	0.19
Erosion control practice (P-factor)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Ground cover (C-factor)	1	1	1	1	1	1	1	1	1	1	1	1
Calculations												
Soil loss (t/ha/yr)	43	38	38	38	38	41	38	41	36	38	38	30
Soil Loss Class	1	1	1	1	1	1	1	1	1	1	1	1
Soil loss (m3/ha/yr)	33	29	29	29	29	32	29	32	28	29	29	23
Sediment basin storage volume, m3	73	47	49	45	35	32	35	30	11	16	17	6

Table 7 Sediment Basin Sizing Calculations

Site	Cv	Rx-day, y-%ile	Total catchment area (ha)	Settling zone volume (m3)	Sediment storage volume (m3)	Total basin volume (m3)
SB01A	0.50	24.4	13.01	1587	73	1660
SB01B	0.50	24.4	9.43	1150	47	1197
SB01C	0.50	24.4	9.92	1210	49	1259
SB02A	0.50	24.4	8.95	1092	45	1137
SB02B	0.50	24.4	7.02	856	35	891
SB02C	0.50	24.4	6.03	736	32	768
SB09A	0.50	24.4	7.10	866	35	901
SB09B	0.50	24.4	5.60	683	30	713
SB10A	0.50	24.4	2.28	278	11	289
SB10B	0.50	24.4	3.17	387	16	403
SB10C	0.50	24.4	3.32	405	17	422
SB10D	0.50	24.4	1.48	181	6	187

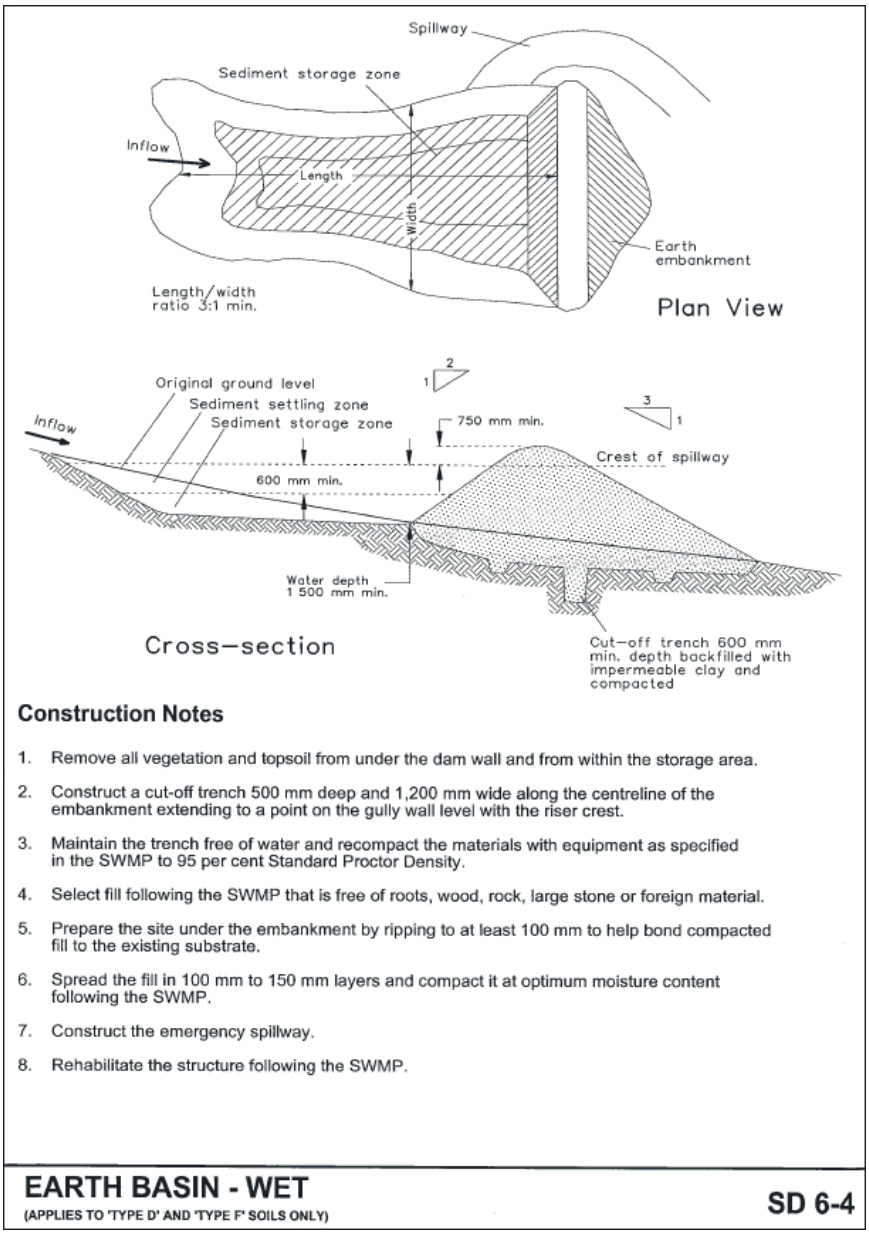


Figure 2-2 Cross Section of Typical Sediment Basin

Maintenance of the sediment basins shall be ongoing for the duration of the Project and shall comprise the following:

- A marker will be installed inside the basin to mark the sediment storage capacity limit. Once this marker is reached and/or where there is a large build up of sediment at the basin inlet, sediment will be removed.
- Sediment that is removed from basins shall be temporarily stockpiled until suitable for reuse on site at locations as at locations as approved by the Contractor's EM, where it will not flow off site without proceeding through appropriate ERSED controls.
- The results of maintenance inspections shall be recorded on the Weekly Inspection checklist.

2.2.4 Flocculation, Dewatering and Pump Out

The following (Table 8 and Figure 2-3) details the process for flocculation, dewatering and pumping of sediment basins.

Table 8 Dewatering Procedure

No.	Actions Required	Responsibility	When
General			
1	No discharge of water to be undertaken without a signed Permit to Discharge.	All Site Staff	During construction
Water Quality Analysis			
1	Water quality analysis must be undertaken by trained and competent personnel using only approved and calibrated equipment on all water required to be discharged offsite.	Contractor's EM	During construction
2	Water quality analysis to be assessed against the discharge criteria established within the CSWMP (as updated with the EPL requirements once the EPL has been issued) and the criteria outlined in the individual trade waste approvals (where applicable).	Contractor's EM	During construction
3	Flocculate using gypsum or similar and/or add acid/alkali to adjust turbidity and/or pH to bring levels to within discharge criteria and re-test, or reapply flocculation until discharge criteria met. Dosage rates for gypsum to be determined on site by the Contractor's EM based on local site conditions. Dosage rate to be followed once determined.	Contractor's EM Site Supervisor	During construction
4	Once discharge criteria have been met, a permit to discharge must be obtained and signed by the Contractor's EM and Site staff undertaking the dewatering process. The discharge permit must be kept on site during the dewatering process.	Contractor's EM	During construction
5	Water quality monitoring results to be logged on the discharge permit.	Contractor's EM	During construction
Discharge			
1	The discharge locations (as shown if Figure 3-1 and 3-2 of the CSWMP) is to be inspected to ensure that the location is stabilised and additional erosion will not occur as a result of the discharging activities. Additional controls to be put in place if required.	Contractor's EM Site Supervisor	During construction
2	The dewatering process to be attended at all times and discharge point to be monitored at least hourly.	Site Supervisor	During construction
3	Water discharged to a sediment basin or storage tank must not cause any overflow of the basin or tanks to the surrounding work site or environment.	Site Supervisor	During construction

No.	Actions Required	Responsibility	When
4	Water from dewatering activities may only be discharged to a waterway or trade waste if: • An approval has been given from a regulatory authority for discharge to trade waste (i.e. Local council or EPA) • Water quality analysis indicates that the water to be discharged meets the appropriate criteria • A Permit to Discharge has been fully completed and signed off.	Contractor's EM	During construction
5	The Site Supervisor shall ensure the correct dewatering, treatment and discharge of water occurs.	Site Supervisor	During and after dewatering
Dewatering Technique			
1	The Construction Contractor will develop an Environmental Work Method Statement (EWMS) for dewatering based on the requirements of the plan. Dewatering will be undertaken in accordance with the EWMS and this plan.	Contractor's EM	During construction
2	Those responsible for dewatering will be trained in the dewatering technique developed in the EWMS and this plan.	Contractor's EM	During construction
3	Dewatering shall be undertaken with an electric or fuel power pump (e.g. flex drive pump), syphon, or High Efficiency Sediment (HES) basin, provided an appropriate risk assessment has been undertaken as part of the Dewatering Environmental Work Method Statement.	Site Supervisor	During construction
4	Where fuel powered pumps are used, the pump must be placed on a drip tray and water must be visually monitored for any oily film or residue by the operator or controller of the pump.	Site Supervisor	During construction
5	Pump intakes shall be positioned (or suspended) above the floor of the excavation or sump to eliminate sediment pickup.	Site Supervisor	During construction
6	Where watery slurry material is to be removed, a 'sucker truck' or sludge pump shall be used.	Site Supervisor	During construction
7	Where a permanent dewatering sump is to be setup, additional filtration shall be installed at the pump intake, where required. Detail of the additional filtration would be provided to the Environmental Representative for information, as required.	Site Supervisor	During construction
* For dewatering activities associated with contaminated soils, refer to the Contamination Management Plan.			

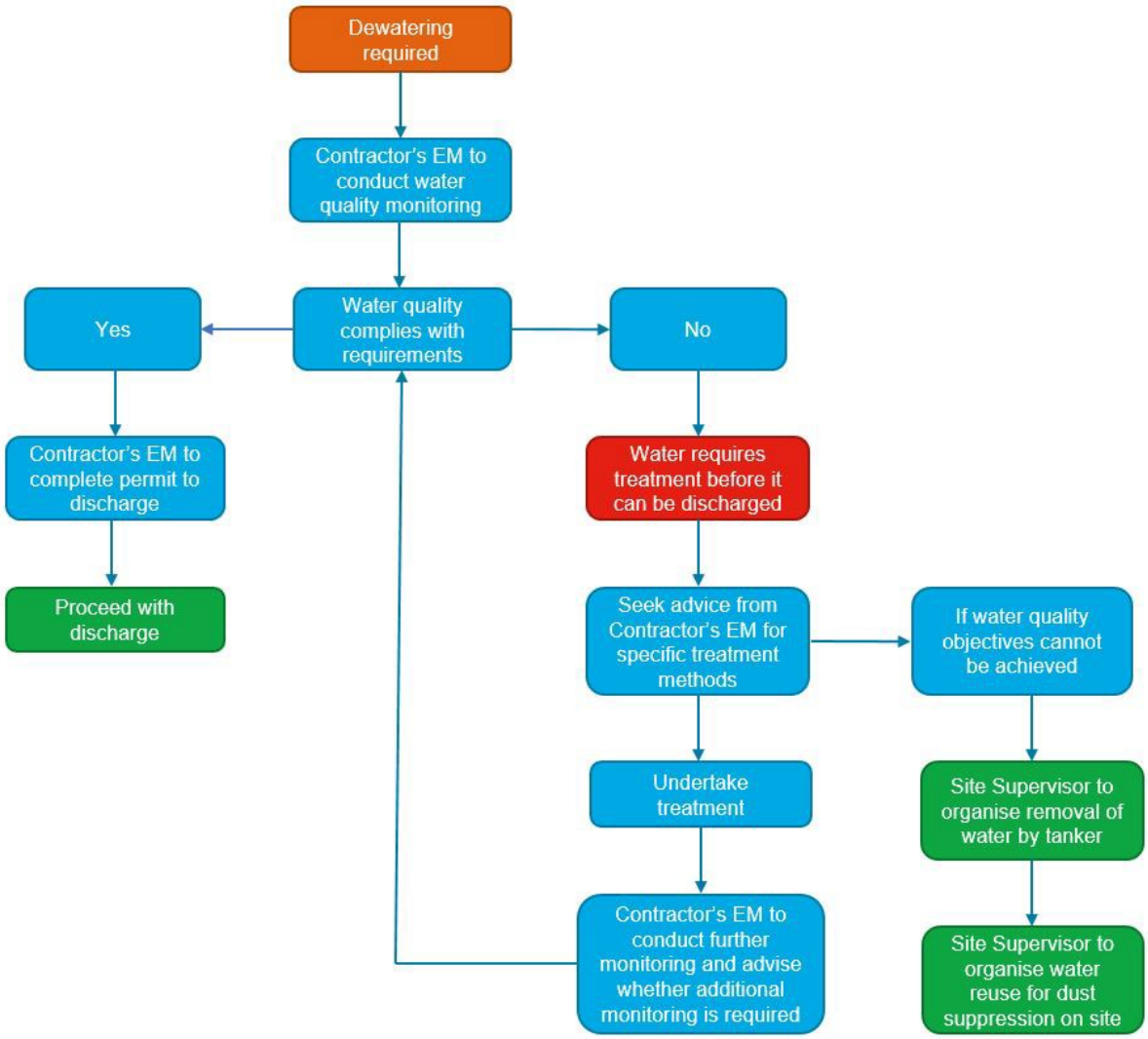


Figure 2-3 Dewatering Procedure Flowchart

2.2.5 Stockpiles

The approximate location of material stockpile areas are depicted in the Primary ESC Drawings (Appendix A). The stockpile locations have been selected to be centrally located to the Project site and will be located on impervious /compacted surfaces. Sediment fences have been nominated as the sediment control

measure located downstream of the stockpiles as per Blue Book Standard Drawing SD4-1 (Figure 2-4). For contaminated materials stockpiles refer to the Contamination Management Plan.

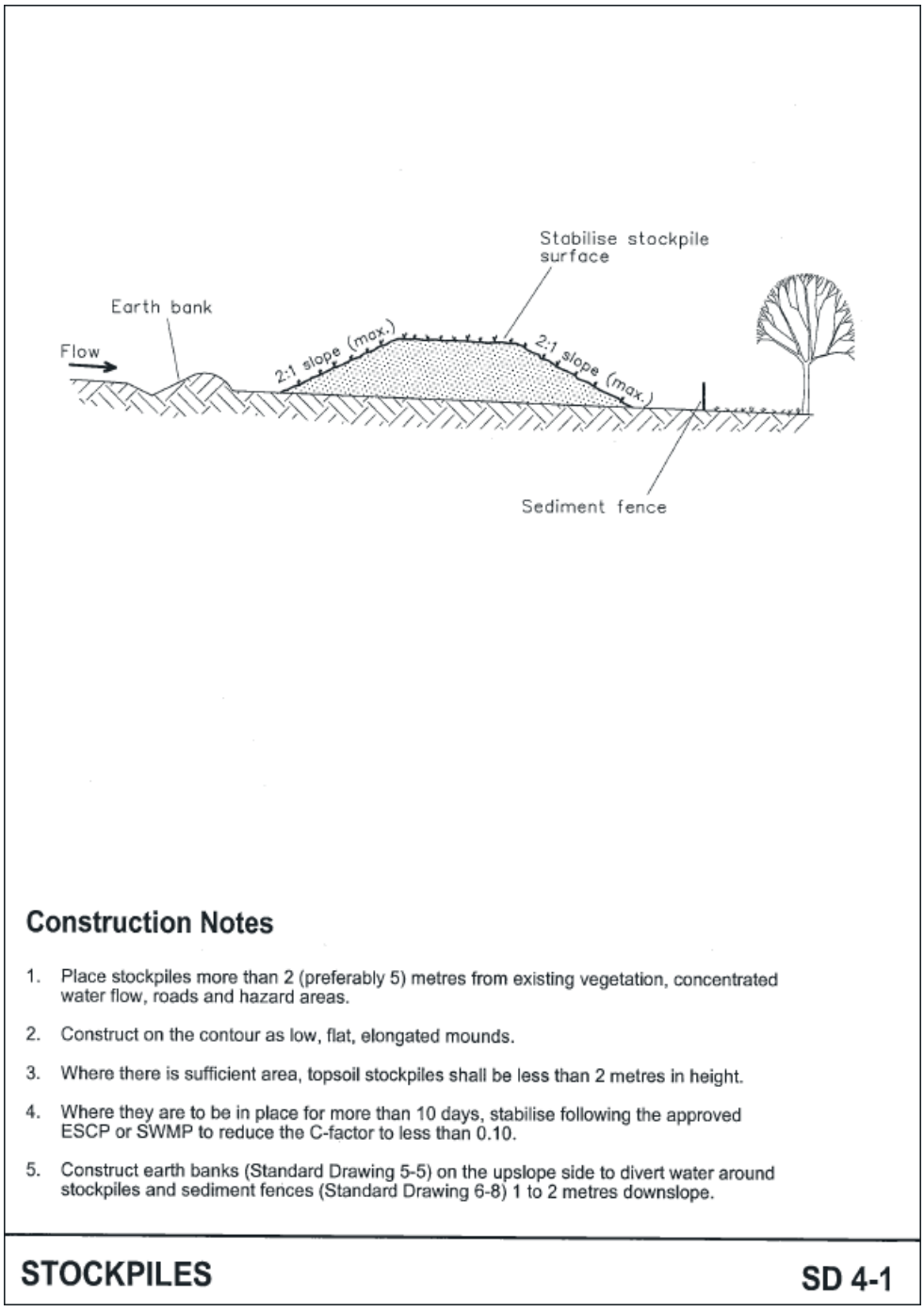


Figure 2-4 Standard Drawing for Stockpiles

2.2.6 Wash Down Bays and Stabilised Access

Stabilised access points are located in three locations within the construction footprint (Appendix A), located at the access point for the Project adjacent to Moorebank Avenue. Each stabilised access point with associated sediment controls will be constructed in accordance with Blue Book standard drawing SD6-14. The stabilised site access areas are to include rumble grids, wheel washes and vehicle washdown areas. Flows will be diverted to a sediment fence/earth bund (or similar) and ultimately flow to the nearest sediment basin.

2.3 Implementation

The installation of erosion and sediment control measures will be undertaken progressively prior to the commencement of construction and updated to reflect the Project's changing circumstances and requirements. All erosion and sediment control devices will be maintained in good working order. Repairs and maintenance will be undertaken as required, particularly following storm events.

The CESCP and Primary ESC Drawings will be submitted to DP&E for approval. Progressive ESC drawings will be submitted to the Environmental Representative for information.

2.3.1 Inspections

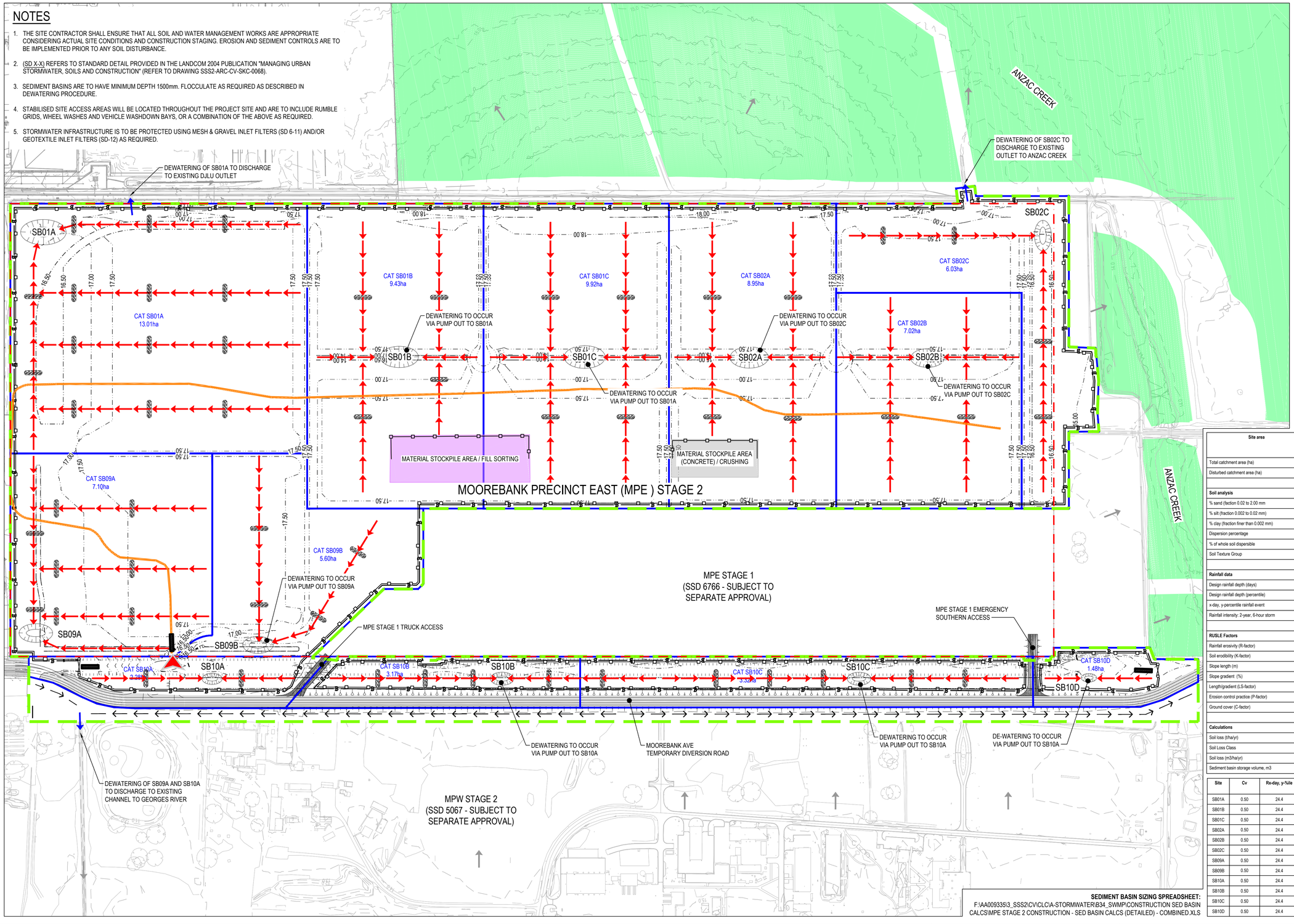
Daily and Weekly Inspection Checklists have been provided in Appendix B of this CESCP and is consistent with the International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control documents. Inspections will be undertaken in accordance with these documents and the requirements outlined in the CSWMP and also to check for compliance against the Progressive ESC drawings.

The Daily and Weekly Environmental Inspection Checklists (refer to Appendix B) will be used to maintain compliance and effectiveness of controls. Items that require action will be documented during environmental inspection and notified to the Site Supervisor. The Site Supervisor will be responsible for providing appropriate resources in terms of labour, plant and equipment to enable the items to be rectified in the nominated timeframes.

APPENDIX A - PRIMARY ESC DRAWINGS

NOTES

1. THE SITE CONTRACTOR SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE APPROPRIATE CONSIDERING ACTUAL SITE CONDITIONS AND CONSTRUCTION STAGING. EROSION AND SEDIMENT CONTROLS ARE TO BE IMPLEMENTED PRIOR TO ANY SOIL DISTURBANCE.
2. (SD X-X) REFERS TO STANDARD DETAIL PROVIDED IN THE LANDCOM 2004 PUBLICATION "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION" (REFER TO DRAWING SSS2-ARC-CV-SKC-0068).
3. SEDIMENT BASINS ARE TO HAVE MINIMUM DEPTH 1500mm. FLOCCULATE AS REQUIRED AS DESCRIBED IN DEWATERING PROCEDURE.
4. STABILISED SITE ACCESS AREAS WILL BE LOCATED THROUGHOUT THE PROJECT SITE AND ARE TO INCLUDE RUMBLE GRIDS, WHEEL WASHES AND VEHICLE WASHDOWN BAYS, OR A COMBINATION OF THE ABOVE AS REQUIRED.
5. STORMWATER INFRASTRUCTURE IS TO BE PROTECTED USING MESH & GRAVEL INLET FILTERS (SD 6-11) AND/OR GEOTEXTILE INLET FILTERS (SD-12) AS REQUIRED.



LEGEND

- MPE SITE BOUNDARY
- PROPOSED MOOREBANK PRECINCT EAST (MPE) STAGE 2 CONSTRUCTION BOUNDARY
- COMPOUND ACCESS ROAD
- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED SEDIMENT FENCE (SD 6-8)
- PROPOSED KERB SIDE TURF STRIP (SD 6-13)
- PROPOSED 1.8m HIGH CHAINWIRE BARRIER FENCE WITH DUST CLOTH LOCATION TO BE CONFIRMED ON SITE BY CONTRACTOR
- PROPOSED SEDIMENT BASIN (SD 6-4) (WITH EMERGENCY SPILLWAY OUTLET)
- PROPOSED SEDIMENT BASIN CATCHMENT BOUNDARIES
- CAT XX X.XXha — PROPOSED SEDIMENT BASIN CATCHMENT AREAS
- PROPOSED STABILISED SITE ACCESS (SD 6-14) WITH RUMBLE GRIDS, WHEEL WASHES, AND/OR VEHICLE WASHDOWN BAYS AS REQUIRED
- PROPOSED GATE
- PROPOSED EARTH BANK LOW FLOW (SD 5-5) & CHECK DAMS (SD 5-4) @ MAX. 100m SPACING
- INDICATIVE MATERIAL STOCKPILE / FILL SORTING AREA
- INDICATIVE MATERIAL STOCKPILE (CONCRETE) / CRUSHING AREA
- EXTERNAL FLOW DIRECTION
- PROPOSED SEDIMENT BASIN DISCHARGE LOCATION
- SITE ENTRY POINT
- PROPOSED EARTH BANK HIGH FLOW FOR DIVERSION OF EXTERNAL CLEAN WATER (SD 5-6)
- BIODIVERSITY OFFSET AREAS

Site area	SITE										
	SB01 A	SB01 B	SB01 C	SB02 A	SB02 B	SB02 C	SB09 A	SB09 B	SB10 A	SB10 B	SB10 C	SB10 D
Total catchment area (ha)	13.01	9.43	9.92	8.95	7.02	6.03	7.10	5.60	2.28	3.17	3.32	1.48
Disturbed catchment area (ha)	13.01	9.43	9.92	8.95	7.02	6.03	7.10	5.60	2.28	3.17	3.32	1.48
Soil analysis												
% sand (faction 0.02 to 2.00 mm	20	20	20	20	20	20	20	20	20	20	20	20
% silt (fraction 0.002 to 0.02 mm)	40	40	40	40	40	40	40	40	40	40	40	40
% clay (fraction finer than 0.002 mm)	40	40	40	40	40	40	40	40	40	40	40	40
Dispersion percentage												
% of whole soil dispersible	0	0	0	0	0	0	0	0	0	0	0	0
Soil Texture Group	F	F	F	F	F	F	F	F	F	F	F	F
Rainfall data												
Design rainfall depth (days)	5	5	5	5	5	5	5	5	5	5	5	5
Design rainfall depth (percentile)	80	80	80	80	80	80	80	80	80	80	80	80
x-day, y-percentile rainfall event	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4	24.4
Rainfall intensity: 2-year, 6-hour storm	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
RUSLE Factors												
Rainfall erosivity (R-factor)	2540	2540	2540	2540	2540	2540	2540	2540	2540	2540	2540	2540
Soil erodibility (K-factor)	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048
Slope length (m)	300	190	190	190	190	250	220	250	150	220	220	80
Slope gradient (%)	0.3	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.5	0.5	0.5	0.5
Length/gradient (LS-factor)	0.27	0.24	0.24	0.24	0.24	0.26	0.24	0.26	0.23	0.24	0.24	0.19
Erosion control practice (P-factor)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Ground cover (C-factor)	1	1	1	1	1	1	1	1	1	1	1	1
Calculations												
Soil loss (t/ha/yr)	43	38	38	38	38	41	38	41	36	38	38	30
Soil Loss Class	1	1	1	1	1	1	1	1	1	1	1	1
Soil loss (m3/ha/yr)	33	29	29	29	29	32	29	32	28	29	29	23
Sediment basin storage volume, m3	73	47	49	45	35	32	35	30	11	16	17	6

Site	Cv	Rx-day, y-%ile	Total catchment area (ha)	Settling zone volume (m3)	Sediment storage volume (m3)	Total basin volume (m3)
SB01A	0.50	24.4	13.01	1587	73	1660
SB01B	0.50	24.4	9.43	1150	47	1197
SB01C	0.50	24.4	9.92	1210	49	1259
SB02A	0.50	24.4	8.95	1092	45	1137
SB02B	0.50	24.4	7.02	856	35	891
SB02C	0.50	24.4	6.03	736	32	768
SB09A	0.50	24.4	7.10	866	35	901
SB09B	0.50	24.4	5.60	683	30	713
SB10A	0.50	24.4	2.28	278	11	289
SB10B	0.50	24.4	3.17	387	16	403
SB10C	0.50	24.4	3.32	405	17	422
SB10D	0.50	24.4	1.48	181	6	187

SEDIMENT BASIN SIZING SPREADSHEET:
F:\AA009335\3_SSS2\CV\CLC\A-STORMWATER\B34_SWMP\CONSTRUCTION SED BASIN CALCS\MPE STAGE 2 CONSTRUCTION - SED BASIN CALCS (DETAILED) - COMBINED.XLS

Issue	Description	Date
05	UPDATE TO INCORPORATE DPE COMMENTS	11/05/2018
04	UPDATE TO INCORPORATE DPE COMMENTS	26/04/2018
03	UPDATED TO INCORPORATE ER COMMENTS	28/03/2018
02	UPDATED TO INCORPORATE INTERNAL REVIEW COMMENTS	23/03/2018
01	ISSUE FOR INFORMATION	07/03/2018

100mm on Original

0 50 100 150 200 250m

1 : 2500

Client: SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE; TACTICAL GROUP

Status: PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

Scales	1:2500	Current Issue Signatures	
		Drawn M.OLAYA	
Original Size	A1	Designed J.KO	
Height Datum	AHD	Checked G.DUNSTAN	
Grid	MGA	Approved M.GOSTELOW	

Filename: SSS2-ARC-CV-SKC-0067-ConstructionErosionAndSedimentControlPlan.dwg

Project: MOOREBANK PRECINCT EAST (MPE) STAGE 2

Title: CONSTRUCTION EROSION AND SEDIMENT CONTROL PLAN

ARCADIS
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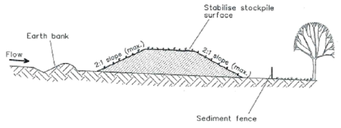
Project No. AA009335

Drawing No. SSS2 -ARC-CV- SKC - 0067- Issue 05

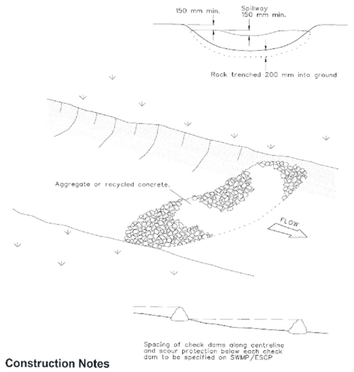
Date Plotted: 11 May 2018 - 02:46PM File Name: F:\AA009335\3_SSS2\CV\SKC\SSS2-ARC-CV-SKC-0067-ConstructionErosionAndSedimentControlPlan.dwg



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

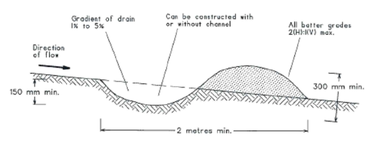
STOCKPILES (SD 4-1)



Construction Notes

1. Check dams can be built with various materials, including rocks, logs, sandbags and straw bales. The maintenance program should ensure their integrity is retained, especially where constructed with straw bales. In the case of bales, this might require their replacement each two to four months.
2. Trench the check dam 200 mm into the ground across its whole width. Where rock is used, fill the trenches to at least 100 mm above the ground surface to reduce the risk of undercutting.
3. Normally, their maximum height should not exceed 600 mm above the gully floor. The centre should act as a spillway, being at least 150 mm lower than the outer edges.
4. Space the dams so the toe of the upstream dam is level with the spillway of the next downstream dam.

ROCK CHECK DAM (SD 5-4)

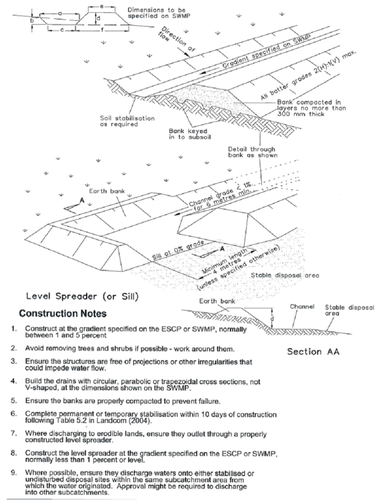


NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

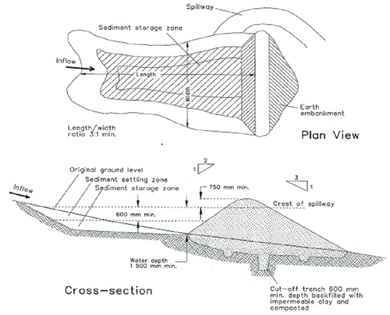
EARTH BANK LOW FLOW (SD 5-5)



Construction Notes

1. Construct at the gradient specified on the ESCP or SWMP, normally between 1 and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped, at the dimensions shown on the SWMP.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction following Table 5.2 in Landcom (2004).
7. Where discharging to erodible lands, ensure they outlet through a properly constructed level spreader.
8. Construct the level spreader at the gradient specified on the ESCP or SWMP, normally less than 1 percent or level.
9. Where possible, ensure they discharge waters onto either stabilised or undisturbed disposal sites within the same subcatchment area from which the water originated. Approval might be required to discharge into other subcatchments.

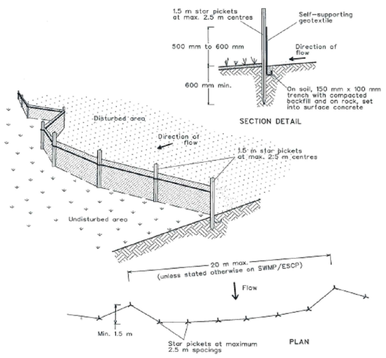
EARTH BANK HIGH FLOW (SD 5-6)



Construction Notes

1. Remove all vegetation and topsoil from under the dam wall and from within the storage area.
2. Construct a cut-off trench 500 mm deep and 1,200 mm wide along the centreline of the embankment extending to a point on the gully wall level with the riser crest.
3. Maintain the trench free of water and recompact the materials with equipment as specified in the SWMP to 95 per cent Standard Proctor Density.
4. Select fill following the SWMP that is free of roots, wood, rock, large stone or foreign material.
5. Prepare the site under the embankment by ripping to at least 100 mm to help bond compacted fill to the existing substrate.
6. Spread the fill in 100 mm to 150 mm layers and compact it at optimum moisture content following the SWMP.
7. Construct the emergency spillway.
8. Rehabilitate the structure following the SWMP.

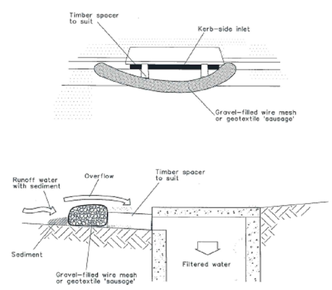
SEDIMENT BASIN (SD 6-4)



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE (SD 6-8)

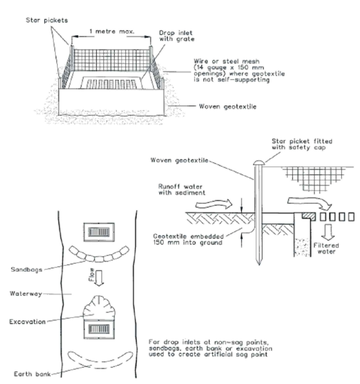


NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

Construction Notes

1. Install filters to kerb inlets only at sag points.
2. Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.
3. Form an elliptical cross-section about 150 mm high x 400 mm wide.
4. Place the filter at the opening leaving at least a 100-mm space between it and the kerb inlet. Maintain the opening with spacer blocks.
5. Form a seal with the kerb to prevent sediment bypassing the filter.
6. Sandbags filled with gravel can substitute for the mesh or geotextile providing they are placed so that they firmly abut each other and sediment-laden waters cannot pass between.

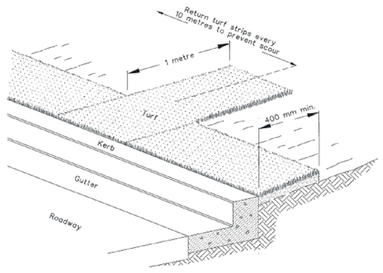
MESH AND GRAVEL INLET FILTER (SD 6-11)



Construction Notes

1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Follow Standard Drawing 6-7 and Standard Drawing 6-8 for installation procedures for the straw bales or geofabric. Reduce the picket spacing to 1 metre centres.
3. In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
4. Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

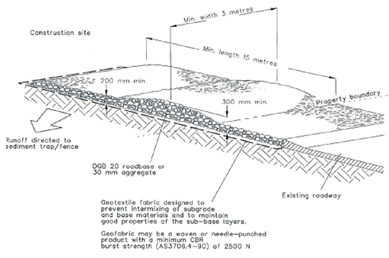
GEOTEXTILE INLET FILTER (SD 6-12)



Construction Notes

1. Install a 400-mm minimum wide roll of turf on the footpath next to the kerb and at the same level as the top of the kerb.
2. Lay 1,4 metre long turf strips normal to the kerb every 10 metres.
3. Rehabilitate disturbed soil behind the

KERBSIDE TURF STRIP (SD 6-13)



Construction Notes

1. Strip the topsoil, level the site and compact the subgrade.
2. Cover the area with needle-punched geotextile.
3. Construct a 200-mm thick pad over the geotextile using road base or 30-mm aggregate.
4. Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.
5. Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence

STABILISED SITE ACCESS (SD 6-14)

EROSION & SEDIMENT CONTROL NOTES

GENERAL INSTRUCTIONS

1. THE EROSION AND SEDIMENT CONTROL SHOWN IN THESE DRAWINGS IS INDICATIVE FOR THE CONSTRUCTION AREA ONLY. THE SITE CONTRACTOR SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE APPROPRIATE CONSIDERING ACTUAL SITE CONDITIONS AND CONSTRUCTION STAGING.

2. ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH
   a. LOCAL AUTHORITY REQUIREMENTS
   b. EPA REQUIREMENTS
   c. LANDCOM "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION", 4th EDITION, MARCH 2004 ("BLUE BOOK")
   d. RELEVANT CONSTRUCTION AND ENVIRONMENT MANAGEMENT PLAN (CEMP)
   e. RELEVANT SOIL AND WATER MANAGEMENT PLAN (SWMP)
   f. RELEVANT EROSION AND SEDIMENT CONTROL PLAN (ESCP)

3. CONTRACTOR TO MAINTAIN THE EROSION CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY.

4. THE WATER IN THE SEDIMENT BASIN(S) SHALL BE LOWERED PERIODICALLY TO MAINTAIN THE MINIMUM STORAGE VOLUME REQUIRED FOR FINE SOILS.

5. AT ALL TIMES A WATER CART(S) SHALL BE MAINTAINED ON SITE TO:
   a. WATER THE AREAS OF HYDROMULCH
   b. CONTROL DUST

6. WATERING OF MULCH, DUST OR VEGETATION MUST BE KEPT TO THE MINIMUM REQUIRED TO ACHIEVE SPECIFIED OUTCOMES. IN NO CASE SHALL AREAS BE OVER WATERED TO SATURATION OR TO THE POINT WHERE WATER PONDS ON THE SURFACE.

7. STORMWATER IN THE SETTLING ZONE SHALL BE DRAINED OR PUMPED OUT WITHIN 2 DAYS FOLLOWING RAINFALL EVENT IF THE NOMINATED WATER QUALITY TARGETS CAN BE MET. THE LOWER LEVEL OF THE SETTLING ZONE SHALL BE IDENTIFIED WITH A PEG THAT SHOWS CLEARLY THE LEVEL TO WHICH DESIGN CAPACITY IS AVAILABLE.

8. STORED SEDIMENT SHALL NOT ENCROACH INTO SETTLING ZONE. SEDIMENT REMOVED FROM SEDIMENT BASIN SHALL BE DISPOSED OF IN PLACES THAT WILL NOT RESULT IN A FUTURE EROSION OR POLLUTION HAZARD.
   TEMPORARY SEDIMENT BASIN OUTLET PIPE SHALL BE CAPPED DURING CONSTRUCTION. AFTER CONSTRUCTION BASIN SHOULD BE CLEARED OF SEDIMENTS BEFORE OUTLET PIPE CAP IS REMOVED.

9. WHEN STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SEDIMENT FENCES ARE ERECTED AROUND PITS.

10. CONTRACTOR IS TO ENSURE ALL EROSION & SEDIMENT CONTROL DEVICES ARE MAINTAINED IN GOOD WORKING ORDER AND OPERATE EFFECTIVELY. REPAIRS AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED, PARTICULARLY FOLLOWING STORM EVENTS.

LAND DISTURBANCE

11. WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE WILL BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:
   a. MAINTAIN EXISTING SECURITY / WIND FENCES INSTALLED AS PART OF THE ENABLING WORKS AND INSTALL NEW SECURITY / WIND FENCES AS SHOWN.
   b. MAINTAIN EXISTING SEDIMENT FENCES INSTALLED AS PART OF THE ENABLING WORKS AND INSTALL NEW SEDIMENT FENCES AS SHOWN.
   c. INSTALL SEDIMENT TRAPS AS SHOWN ON PLAN AND AS REQUIRED.
   d. UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. WHERE POSSIBLE, PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.
   e. DISTURBED AREAS TO BE STABILISED TO THE FOLLOWING STANDARDS:
      - EMBANKMENTS AND CREEKS - HYDRO MULCHED
      - SWALES - 100mm THICK MIN. TOPSOIL SEEDING.
      - VERGES - TURFED TO LANDSCAPE ARCHITECT'S SPECIFICATION.
      - DETENTION BASINS AND BATTERS - PROVIDE 100mm THICK MIN. TOPSOIL AND HYDRO MULCHED

12. SEED MIXTURES ARE TO BE APPROVED BY SUPERINTENDENT PRIOR TO SPRAYING. ALL GRASSED AREAS SHALL BE REGULARLY WATERED AND MAINTAINED UNTIL EXPIRATION OF THE MAINTENANCE PERIOD.

EROSION CONTROL

13. DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.

14. FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

SEDIMENT CONTROL

15. STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.

16. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.

17. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED/STABILISED.

18. ALL PROPOSED PITS TO HAVE GEOTEXTILE INLET FILTERS PRIOR TO PAVEMENT CONSTRUCTION. PROVIDE MESH AND GRAVEL INLET FILTER TO KERB INLET PITS ONCE PAVEMENT IS CONSTRUCTED.

OTHER MATERIALS

19. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.

20. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH LANDSCAPE ARCHITECTS DETAILS.

21. ALL AREAS OF PUBLIC THOROUGHFARE MUST BE KEPT CLEAN AND FREE OF WATER RUNOFF, SEDIMENT AND CONSTRUCTION MATERIALS AT ALL TIMES. THIS INCLUDES AREAS OUTSIDE OF THE SITE BOUNDARY.

22. SITE SECURITY AND EROSION AND SEDIMENT CONTROL MEASURES MUST BE CHECKED AND DEEMED SAFE BY THE CIVIL WORKS CONTRACTOR PRIOR TO LEAVING THE SITE EACH DAY.

Issue	Description	Date
02	UPDATED TO INCORPORATE ER COMMENTS	28/03/2018
01	ISSUE FOR INFORMATION	07/03/2018

Client: SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE; TACTICAL GROUP

Status: PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

Scales	N.T.S	Current Issue Signatures	
		Drawn M.OLAYA	
Original Size	A1	Designed J.KO	
Height Datum	AHD	Checked G.DUNSTAN	
Grid	MGA	Approved M.GOSTELOW	

Filename: SSS2-ARC-CV-SKC-0068-ConstructionErosionAndSedimentControlDetails.dwg

Project: MOOREBANK PRECINCT EAST (MPE) STAGE 2

Title: CONSTRUCTION EROSION AND SEDIMENT CONTROL DETAILS

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Project No. AA009335

Drawing No. SSS2-ARC-CV-SKC-0068- Issue 02

100mm on Original

Date Plotted: 28 Mar 2018 - 02:09PM File Name: F:\AA009335\3_SSS2\CV\SKC\SSS2-ARC-CV-SKC-0068-ConstructionErosionAndSedimentControlDetails.dwg

APPENDIX B - DAILY AND WEEKLY INSPECTION CHECKLISTS

DAILY SITE INSPECTION CHECKLIST

Location: _____

Site Supervisor: _____ Date: _____

Signature: _____ Weather: _____

Item	Requirement*	Action Required (Y/N)
1	All tradespeople working on the site have been informed of the erosion and sediment control requirements of the site.	
2	All required builder identification, safety notices, and pollution (e.g. litter and sediment control) management signs are visible.	
3	The work site and all erosion and sediment control measures do not represent a safety risk to tradespeople or the public.	
4	Public roadways are clear of sediment.	
5	Entry/exit pads are clear of excessive sediment deposition and have adequate available void spacing to trap sediment	
6	The construction site is clear of litter and unconfined rubbish	
7	Long-term (> 10 days soil/sand stockpiles) are stabilised	
8	No visible dust leaving the project boundary and dust suppression being used	
9	Clean water diversions in place, ground stabilised and free of sediment/debris	
10	Earth batters have appropriate controls such as clean/dirty water diversion, ground cover etc. which will minimise potential for erosion	
11	Sediment controls have been installed as per approved ESC drawings.	
12	All sediment traps are free of excessive sediment deposition	
13	The site is adequately prepared for potential storms	
14	Adequate supplies of ESC materials exist	

* Obtained and consistent with the International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control – Daily Site Inspection (Australasia November 2008)

WEEKLY SITE INSPECTION CHECKLIST

Location: _____

Site Supervisor: _____ Date: _____

Signature: _____ Weather: _____

Item	Requirement*	Action Required (Y/N)	Risk Rating
1	The erosion and sediment controls have been implemented as per the latest Progressive Erosion and Sediment Control drawings		
2	Clean water is being diverted away from disturbed areas		
3	Clean water diversion drains are stable		
4	Sediment fence is installed correctly as per blue book standard drawings		
5	Disturbed areas where no works are undertaken are properly covered or stabilised		
6	Areas of localised soil erosion have been identified and appropriate preventative measures implemented		
7	There are no areas of potential or actual concentrated flow that do not flow to sediment basins/traps or through sediment controls		
8	Slope lengths are maintained at appropriate lengths to slow flows down and minimise erosion		
9	Check dams are used within diversion drains where required to slow flows down and minimise erosion within the drains		
10	Surface protection (e.g. geofabric) is used in areas where appropriate (e.g. batter drains, culvert construction)		
11	Stockpiles are sited in low-hazard areas clear of watercourses and flood prone lands		
12	Cut-off drains on the upslope side and sediment fencing on the downslope side are in place for all stockpile areas within the site		
13	Topsoil stockpiles are 2 metres or less in height		
14	Sediment control measures are constructed as close to the potential source of sediment as possible		
15	Shakers, rubble pads or wash down areas have been installed		

Item	Requirement*	Action Required (Y/N)	Risk Rating
16	There is no mud on the roads outside of the project boundary		
17	Sediment fencing or equivalent is provided downslope of disturbed areas that can't be directed into a designated sediment basin		
18	Sediment basin volume markers intact and clearly visible		
19	Accumulated sediment is below 30 % of the sediment storage zone		
20	The basins have been emptied since the last rain event and restored to their design capacity (if not, explanation must be provided)		
21	All discharges are undertaken in accordance with the Dewatering Procedure		

* Obtained and consistent with the Roads and Maritime Service (RMS) Environmental inspection checklist and (IECA) Best Practice Erosion and Sediment Control – Daily Site Inspection (Australasia November 2008)

Weekly Inspection Action Risk Rating^

Action Risk Rating	Risk Level	Priority*	Examples
1	Extreme	Immediately – must be closed out on the day of inspection	Any actual or potential non-compliance with any EA conditions Adverse weather conditions are predicted that may result in above if controls are not adequate
2	High	Within 24 hours	Critical ERSED controls are damaged and need to be reinstated before a rain event
3	Medium	Within 3 working days	Dewatering of sediment basins required
4	Low	Within working 5 days	Stockpiles need to be stabilised
5	No Action Required	Not Applicable (N/A)	N/A

* Priority must be reviewed and revised particularly if adverse weather conditions are predicted

^ * Obtained from Roads and Maritime Service (RMS) Environmental inspection checklist