



Appendix B4

Soil and Surface Water Management Procedure

M6 Stage 1: Preliminary construction including commencement activities

October 2021

M6S1-CGU-NWW-ENPE-PRO-000421

Rev 02







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Contents

Contents	3
1 Introduction	6
1.1 Context	6
1.2 Impacts and Risks	6
Appendix A – Erosion and Sediment Control Procedure.....	16
Appendix B – Water Reuse and Discharge Management Procedure	18
Appendix C - Stockpile Management Procedure	20
Appendix D – Spill Management Procedure	22
Appendix E – Groundwater Monitoring Procedure.....	24

Document control

Approval and authorisation

Title	M6 Stage 1 Soil and Surface Water Management Procedure
Endorsed by Environment Representative	
Signed	
Dated	26/10/2021
Approved on behalf of TfNSW by	
Signed	
Dated	27/10/2021
Approved on behalf of CGU by	
Signed	
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Document status

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A.01	12/07/2021	Initial TfNSW review	
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01	20/10/2021	Updated to address DPIE comments	
02	26/10/2021	Updated to address DPIE comments	

Distribution of controlled copies

This Procedure as part of the CEMP for preliminary construction including commencement activities is available to all personnel and sub-contractors via the Project document control management system. An electronic copy can be found on the Project website.

The document is uncontrolled when printed. One controlled hard copy of the Procedure as part of the CEMP and supporting documentation will be maintained by the Quality Manager at the Project Office.

Copy number	Issued to	Version

1 Introduction

1.1 Context

This Soil and Surface Water Management Procedure (the Procedure) forms part of the Construction Environmental Management Plan for preliminary construction including commencement activities (Stage 1 CEMP) of the M6 Stage 1 Motorway (the Project). The Procedure addresses soil and surface water impacts to the extent of Stage 1, only. The full scope of activities which will occur under the CEMP for preliminary construction are outlined in Section 1.1 of the CEMP, Staging Report and below:

- Installation of environmental controls at construction compounds such as fencing, hoarding and noise walls
- Removal of existing structures where required
- Establishment of site facilities such as offices, amenities and storage, including installation and connection of services such as water, sewer and electricity
- Delivery of plant and other construction equipment
- Construction commencement activities including site clearing, construction of haul roads and hardstands
- Delivery and installation of construction facilities such as water treatment plants
- The repair, refurbishment and replacement of existing construction facilities and services.

CGU notes the Project must be designed, constructed and operated so as to maintain the NSW Water Quality Objectives where they are being achieved as at the date of Project approval, and contribute towards achievement of the NSW Water Quality Objectives over time where they are not being achieved as at the date of Project approval, unless an EPL in force in respect of the Project contains different requirements in relation to the NSW Water Quality Objectives, in which case those requirements must be complied with. Discharge criteria for construction water treatment plant discharges will be included in the EPL for the project.

An Aspect and Impacts Register was developed (refer to Appendix A2 of the Preliminary CEMP) and identified minor residual soil and surface water risks and impacts associated with preliminary construction including commencement activities. This Procedure has been developed to address and manage the minor residual risks and impacts.

1.2 Impacts and Risks

Table 1, Table 2 and Table 3 contains an extract from the CEMP Appendix A2 Aspects and Impacts Register, related to soil and water during preliminary construction including commencement activities.

Table 1 Extract from Appendix A2 Aspect and Impacts Register for C1 Arncliffe construction ancillary facility

Issue	Construction activity/aspect	Potential impact	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
Soil and Surface Water	<ul style="list-style-type: none"> Operation of the existing construction water treatment plant (WTP) including water discharge Maintenance of WTP pond Cleaning and where required, upgrade of internal stormwater drains and sumps Installation of environmental control including erosion and sediment controls and hoarding in Lot 2E Stockpiling of material generated from activities listed above Ongoing management of pre-existing stockpile Use of plant and equipment, including refuelling Concrete works (including washout of agitators) Vehicles and trucks exiting C1 ancillary facility 	Impact to surface waters from inappropriate discharge	12 (moderate)	<p>Direct:</p> <ul style="list-style-type: none"> Existing water collection and treatment systems to be maintained. Water for discharge from C1 ancillary facility will only be from the licenced discharge point (pre-existing construction WTP) Engineering controls at WTP maintained to prevent non-compliant water from being discharged Sampling and monitoring of treated water carried out in accordance with Project EPL All discharge activities to occur in accordance with the Water Reuse and Discharge Procedure. This includes implementation of a Permit to Dewater for all discharge events. The WTP will only be operated by personnel trained to operate the WTP including what to in the event of an emergency Ongoing monthly pre-construction groundwater and surface water monitoring to continue <p>Indirect:</p> <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure Operate and maintain construction WTP in accordance with construction WTP operating manual Implementing the TfNSW incident procedure in the event of a non-compliance 	6 (minor)	<p>Appendix B4 Soil and Surface Water Procedure:</p> <ul style="list-style-type: none"> Water Reuse and Discharge Procedure Permit to Dewater Appendix E Groundwater Monitoring Procedure <p>Project EPL</p> <ul style="list-style-type: none"> CEMP preliminary construction including commencement activities: <ul style="list-style-type: none"> Section 3.2.1 Environmental Risk Assessment Workshop including the use of Work Packs (Table 6) Section 3.2.3 Regulatory requirements and compliance Section 3.8 Emergency and Incident Planning Appendix A7 TfNSW Incident Procedure Appendix A4 Site Establishment Management Plan: Site Environment Plan for C1
		Sediment laden water leaving C1 boundary during rainfall event	12 (moderate)	<p>Direct:</p> <ul style="list-style-type: none"> Erosion and Sediment Control Plans (ESCP) would be prepared and implemented for all work areas and stages All on site personnel would undergo a site induction and ongoing toolbox talks that will detail erosion and sediment control management measures Regular inspection and maintenance of ESCP controls (as per Erosion and Sediment Control Procedure) Targeted training for key on site personnel who are involved in the installation and maintenance of erosion and sediment controls An experienced soil conservation specialist (CPESC) would be engaged to provide advice regarding erosion and sediment control Hardstand areas and surrounding public roads would be cleaned as required using methods such as brooms, bobcat attachments or street sweepers <p>Indirect:</p> <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure 	6 (minor)	<p>Appendix B4 Soil and Surface Water Procedure:</p> <ul style="list-style-type: none"> Erosion and Sediment Control Procedure Stockpile Management Procedure <ul style="list-style-type: none"> CEMP preliminary construction including commencement activities: <ul style="list-style-type: none"> Section 3.2.1 Environmental Risk Assessment Workshop including the use of Work Packs (Table 6) Section 3.4 Resources, responsibility and authority Section 3.6 Competence, training and awareness

Issue	Construction activity/aspect	Potential impact	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
				<ul style="list-style-type: none"> ESCP to be included in Work Packs which detail activities working in close proximity to the site boundary (e.g. construction of hoarding in Lot 2E) 		<ul style="list-style-type: none"> Section 3.9 Monitoring, inspections and auditing Appendix A4 Site Establishment Management Plan: Site Environment Plan for C1
		Mismanagement of sludge produced from cleaning stormwater drains, leading to escape of material beyond boundary	12 (moderate)	<p>Direct:</p> <ul style="list-style-type: none"> Slurry to be collected in vacuum truck from internal stormwater drains Works to only occur within C1 construction ancillary facility (no live stormwater drainage connected to external systems) Erosion and Sediment Controls as per the ESCP will be implemented and maintained <p>Indirect:</p> <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure 	6 (minor)	<p>Appendix B4 Soil and Surface Water Procedure:</p> <ul style="list-style-type: none"> Erosion and Sediment Control Procedure
		ASS/PASS encountered during hoarding installation works in Lot 2E	8 (minor)	<p>Direct:</p> <ul style="list-style-type: none"> No bulk excavation occurring during Stage 1 preliminary construction Completion of Site Contamination Report/s prior to ground disturbance activities (E112) Implementation of specific management measures identified in Site Contamination Report/s (E112) and Contamination CEMP Sub-plan Material from footings of noise wall to be stockpiled in a bunded area within an acoustic shed. Material to be classified (SPOCAS testing to be undertaken to determine liming rates if required) Material to be neutralised using lime in accordance (where required) Material to be removed to a licenced facility <p>Indirect:</p> <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure Implement management measures outlined in the Appendix B9 Waste CEMP Sub-plan Control measures to be included in Work Pack for construction of hoarding in Lot 2E 	4 (minor)	<p>Appendix B4 Soil and Surface Water Procedure:</p> <ul style="list-style-type: none"> Stockpile Management Procedure CEMP preliminary construction including commencement activities: <ul style="list-style-type: none"> Appendix A4 Site Establishment Management Plan: Site Environment Plan for C1 <p>Appendix B9 Waste CEMP Sub-plan:</p> <ul style="list-style-type: none"> Section 6 Environmental control measures
		<p>Contamination of soil or water due to spills of oils and chemicals related to:</p> <ul style="list-style-type: none"> Mechanical failures Refuelling activities WTP operation 	8 (minor)	<p>Direct:</p> <ul style="list-style-type: none"> Spill kits available at locations within the C1 ancillary facility at all times The use of any hazardous substances that could result in a spill will be undertaken away from drainage or stormwater lines and, wherever possible, within defined bunds Any refuelling on site must follow a refuelling procedure which includes details on where this activity is permitted, management measures and emergency equipment requirements. All spills or leakages will be immediately contained and cleaned up 	4 (minor)	<p>Appendix B4 Soil and Surface Water Procedure:</p> <ul style="list-style-type: none"> Spill Management Procedure <p>CEMP preliminary construction including commencement activities:</p> <ul style="list-style-type: none"> Section 3.2.1 Environmental Risk Assessment Workshop including the use of Work Packs (Table 6)

Issue	Construction activity/aspect	Potential impact	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
				<ul style="list-style-type: none"> Spill containment kits will be placed at locations where chemicals are stored or used and where refuelling is permitted Inspection regime for chemical storage facilities Indirect: <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure Handling and storage of chemicals to follow Safe Work Method Statement and SDS Implement the TfNSW incident procedure 		<ul style="list-style-type: none"> Appendix A4 Site Establishment Management Plan: Site Environment Plan for C1 Appendix A7 TfNSW Incident Procedure
		Concrete Washout water escaping beyond C1 boundary	8 (minor)	Direct: <ul style="list-style-type: none"> Any washout areas will be adequately sized, regularly maintained (emptied), and located in a designated area Concrete Agitator truck drivers will be directed to the designated washout area Indirect: <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure Ongoing monthly pre-construction groundwater and surface water monitoring to continue 	4 (minor)	Appendix B4 Soil and Surface Water Procedure: <ul style="list-style-type: none"> Water Reuse and Discharge Procedure Appendix E Groundwater Monitoring Procedure • CEMP preliminary construction including commencement activities: <ul style="list-style-type: none"> Section 3.9 Monitoring, inspections and auditing Appendix A4 Site Establishment Management Plan: Site Environment Plan for C1
		Tracking of material onto Marsh Street	12 (moderate)	Direct: <ul style="list-style-type: none"> Wheel wash to be installed at C1 ancillary facility Vehicles exiting site (excluding vehicles using car park) to travel through wheel wash Street sweeper to be used to maintain internal haul roads and Marsh Street Indirect: <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure Vehicle Management Plan to direct exiting vehicles through wheel wash 	6 (minor)	Appendix B4 Soil and Surface Water Procedure: <ul style="list-style-type: none"> Erosion and Sediment Control Procedure • CEMP preliminary construction including commencement activities: <ul style="list-style-type: none"> Section 3.9 Monitoring, inspections and auditing Appendix A4 Site Establishment Management Plan: Site Environment Plan for C1
		Increase use of resources (potable water)	8 (minor)	Direct: <ul style="list-style-type: none"> Treated water from WTP will be readily available from a designated refilling area for water trucks, street sweepers etc. Treated water usage to be tracked Indirect: <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure Implementation of Water Reuse Strategy 	4 (minor)	Appendix B4 Soil and Surface Water Procedure: <ul style="list-style-type: none"> Water Reuse and Discharge Procedure Water Reuse Strategy

Table 2 Extract from Appendix A2 Aspect and Impacts Register for C2 Rockdale Depot construction ancillary facility

Issue	Construction activity/aspect	Potential impact	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
Soil and Surface Water	<ul style="list-style-type: none"> Vegetation removal: soil caught in root systems of trees Construction of noise walls and chain link fencing Where design mandates, minor piling works for footings of construction WTP, noise wall and bentonite plant Site leveling for haul roads, piling pads and hardstand areas which involves: <ul style="list-style-type: none"> Importing clean material Spreading and compaction to design levels (on top of existing pavement) Stabilisation Property adjustments including: <ul style="list-style-type: none"> Disconnection of services to existing buildings Connection of potable water, power and sewer to facilities Removal of redundant services for safety purposes Installation of erosion and sediment controls ASS/PASS management 	Impact to surface waters from inappropriate discharge	12 (moderate)	Direct: <ul style="list-style-type: none"> No water to be discharged from C2 ancillary facility Excavations to be protected to divert surface water around excavations (clean water diversion) Existing stormwater drains to be isolated from construction impacts or live network. Indirect: <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure Implementing the TfNSW incident procedure in the event of a non-compliance 	6 (minor)	Appendix B4 Soil and Surface Water Procedure: <ul style="list-style-type: none"> Water Reuse and Discharge Procedure Erosion and Sediment Control Management Procedure Project EPL <ul style="list-style-type: none"> CEMP preliminary construction including commencement activities: <ul style="list-style-type: none"> Section 3.2.1 Environmental Risk Assessment Workshop including the use of Work Packs (Table 6) Section 3.2.3 Regulatory requirements and compliance Section 3.8 Emergency and Incident Planning Appendix A4 Site Establishment Management Plan: Site Environment Plan for C2 Appendix A7 TfNSW Incident Procedure
		Sediment laden water leaving C2 boundary during rainfall event (including from hardstands, stockpiles, site leveling activities)	12 (moderate)	Direct: <ul style="list-style-type: none"> Erosion and Sediment Control Plans (ESCP) would be prepared and implemented Stockpiles to be managed in accordance with Stockpile Management Procedure Regular inspection and maintenance of ESCP controls (as per Erosion and Sediment Control Procedure) Targeted training for key on site personnel who are involved in the installation and maintenance of erosion and sediment controls An experienced soil conservation specialist (CPESC) would be engaged to provide advice regarding erosion and sediment control Hardstand areas and surrounding public roads would be cleaned as required using methods such as brooms, bobcat attachments or street sweepers Monitoring program All on site personnel would undergo a site induction and ongoing toolbox talks that will detail erosion and sediment control management measures Indirect:	6 (minor)	Appendix B4 Soil and Surface Water Procedure: <ul style="list-style-type: none"> Erosion and Sediment Control Procedure Stockpile Management Procedure CEMP preliminary construction including commencement activities: <ul style="list-style-type: none"> Section 3.2.1 Environmental Risk Assessment Workshop including the use of Work Packs (Table 6) Section 3.4 Resources, responsibility and authority Section 3.6 Competence, training and awareness

Issue	Construction activity/aspect	Potential impact	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
				<ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure ESCP to be included in Work Packs 		<ul style="list-style-type: none"> Section 3.9 Monitoring, inspections and auditing Appendix A4 Site Establishment Management Plan: Site Environment Plan for C2
		<p>Mishandling, treatment or disposal of ASS/PASS encountered during:</p> <ul style="list-style-type: none"> Where design requires piled footing for noise wall installation works Where design requires piled footings for grout/bentonite plant and construction WTP Property adjustment activities 	8 (minor)	<p>Direct:</p> <ul style="list-style-type: none"> No bulk excavation would occur Completion of Site Contamination Report/s (including investigation of groundwater) prior to ground disturbance activities (E112) Implementation of specific management measures identified in Site Contamination Report/s (E112) and Contamination CEMP Sub-plan Material from minor works (fencing etc) to be stockpiled in a bunded area with guard layer Material to be classified by contamination consultant (with CRS/SPOCAS testing to determine liming rates if required) Material to be neutralised with lime in accordance with CRS/SPOCAS results, if required Material to be removed to a licenced facility <p>Indirect:</p> <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure Implement management measures outlined in the Appendix B9 Waste CEMP Sub-plan Control measures to be included in Work Pack/s 	4 (minor)	<p>Appendix B4 Soil and Surface Water Procedure:</p> <ul style="list-style-type: none"> Stockpile Management Procedure Appendix E Groundwater Monitoring Procedure <p>CEMP preliminary construction including commencement activities:</p> <ul style="list-style-type: none"> Appendix A4 Site Establishment Management Plan: Site Environment Plan for C2 <p>Appendix B9 Waste CEMP Sub-plan:</p> <ul style="list-style-type: none"> Section 6 Environmental control measures
		<p>Contamination of soil or water due to spills of hydrocarbons and chemicals related to:</p> <ul style="list-style-type: none"> Mechanical failures Refuelling activities 	8 (minor)	<p>Direct:</p> <ul style="list-style-type: none"> Spill kits are to be readily available within the C2 construction ancillary facility at all times The use of any hazardous substances that could result in a spill will be undertaken away from drainage or stormwater lines and, wherever possible, within defined bunds Any refuelling on site must follow a refuelling procedure which includes details on where this activity is permitted, management measures and emergency equipment requirements. All spills or leakages will be immediately contained and cleaned up Spill containment kits will be placed at locations where chemicals are stored or used and where refuelling is permitted Inspection regime for chemical storage facilities and spill kits <p>Indirect:</p> <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure When handling chemicals it will be done in accordance with Safe Work Method Statement and SDS Implementing the TfNSW incident procedure in the event of a non-compliance 	4 (minor)	<p>Appendix B4 Soil and Surface Water Procedure:</p> <ul style="list-style-type: none"> Spill Management Procedure <p>CEMP preliminary construction including commencement activities:</p> <ul style="list-style-type: none"> Section 3.2.1 Environmental Risk Assessment Workshop including the use of Work Packs (Table 6) Appendix A4 Site Establishment Management Plan: Site Environment Plan for C2 Appendix A7 TfNSW Incident Procedure <p>Appendix B9 Waste CEMP Sub-plan:</p> <ul style="list-style-type: none"> Section 6 Environmental control measures

Issue	Construction activity/aspect	Potential impact	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
		Concrete works (including concrete washout water) escaping containment	8 (minor)	<ul style="list-style-type: none"> Direct: <ul style="list-style-type: none"> Any washout areas will be adequately sized, regularly maintained, and located in a designated area Concrete agitator truck drivers will be directed to the designated washout area Indirect: <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure 	4 (minor)	Appendix B4 Soil and Surface Water Procedure: <ul style="list-style-type: none"> Water Reuse and Discharge Procedure CEMP preliminary construction including commencement activities: <ul style="list-style-type: none"> Section 3.9 Monitoring, inspections and auditing Appendix A4 Site Establishment Management Plan: Site Environment Plan for C2
		Tracking of material onto West Botany Street	12 (moderate)	<ul style="list-style-type: none"> Direct: <ul style="list-style-type: none"> Wheel wash to be installed at C2 construction ancillary facility Vehicles exiting site to travel through wheel wash Street sweeper to be used to maintain internal haul roads and West Botany Street Indirect: <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure Vehicle Management Plan to direct exiting vehicles through wheel wash 	6 (minor)	Appendix B4 Soil and Surface Water Procedure: <ul style="list-style-type: none"> Erosion and Sediment Control Procedure CEMP preliminary construction including commencement activities: <ul style="list-style-type: none"> Section 3.9 Monitoring, inspections and auditing Appendix A4 Site Establishment Management Plan: Site Environment Plan for C2

Table 3 Extract from Appendix A2 Aspect and Impacts Register for C3 Bicentennial Park (including MOC3) construction ancillary facility

Issue	Construction activity/aspect	Potential impact	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
Soil and Surface Water	<ul style="list-style-type: none"> Vegetation removal: soil caught in root systems of trees Construction of footings for noise walls and chain link fencing Site levelling for haul roads, piling pads and hardstand areas which involves: <ul style="list-style-type: none"> Importing clean material Spreading and compaction to design levels (on top of existing pavement) Stabilisation Property adjustments: <ul style="list-style-type: none"> Disconnection of existing services to buildings Connection of potable water, power and sewer to facilities Removal of redundant services for safety purposes Installation of erosion and sediment controls Construction of pedestrian footpath from West Botany Street through to Brighton-Le-Sands Public School 	Impact to surface waters from inappropriate discharge	12 (moderate)	Direct: <ul style="list-style-type: none"> No water to be discharged from C3 during preliminary construction Divert surface water around disturbed areas (clean water diversion) Existing stormwater drains to be isolated No activities to occur within wetland during Stage 1 preliminary construction Indirect: <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure Implementing the TfNSW incident procedure in the event of a non-compliance 	6 (minor)	Appendix B4 Soil and Surface Water Procedure: <ul style="list-style-type: none"> Water Reuse and Discharge Procedure Erosion and Sediment Control Management Procedure Project EPL CEMP preliminary construction including commencement activities: <ul style="list-style-type: none"> Section 3.2.1 Environmental Risk Assessment Workshop including the use of Work Packs (Table 6) Section 3.2.3 Regulatory requirements and compliance Section 3.8 Emergency and Incident Planning Appendix A7 TfNSW Incident Procedure Appendix A4 Site Establishment Management Plan: Site Environment Plan for C3
		Sediment laden water leaving C3 boundary during rainfall event (including from hardstands, stockpiles, site leveling activities)	12 (moderate)	Direct: <ul style="list-style-type: none"> Erosion and Sediment Control Plans (ESCP) would be prepared and implemented Stockpiles to be managed in accordance with Stockpile Management Procedure Regular inspection and maintenance of ESCP controls (as per Erosion and Sediment Control Procedure) Targeted training for key on site personnel All on site personnel would undergo a site induction and ongoing toolbox talks that will detail erosion and sediment control management measures An experienced soil conservation specialist (CPESC) would be engaged to provide advice regarding erosion and sediment control Hardstand areas and surrounding public roads would be cleaned as required using methods such as brooms, bobcat attachments or street sweepers Indirect:	6 (minor)	Appendix B4 Soil and Surface Water Procedure: <ul style="list-style-type: none"> Erosion and Sediment Control Procedure Stockpile Management Procedure CEMP preliminary construction including commencement activities: <ul style="list-style-type: none"> Section 3.2.1 Environmental Risk Assessment Workshop including the use of Work Packs (Table 6) Section 3.4 Resources, responsibility and authority Section 3.6 Competence, training and awareness Section 3.9 Monitoring, inspections and auditing

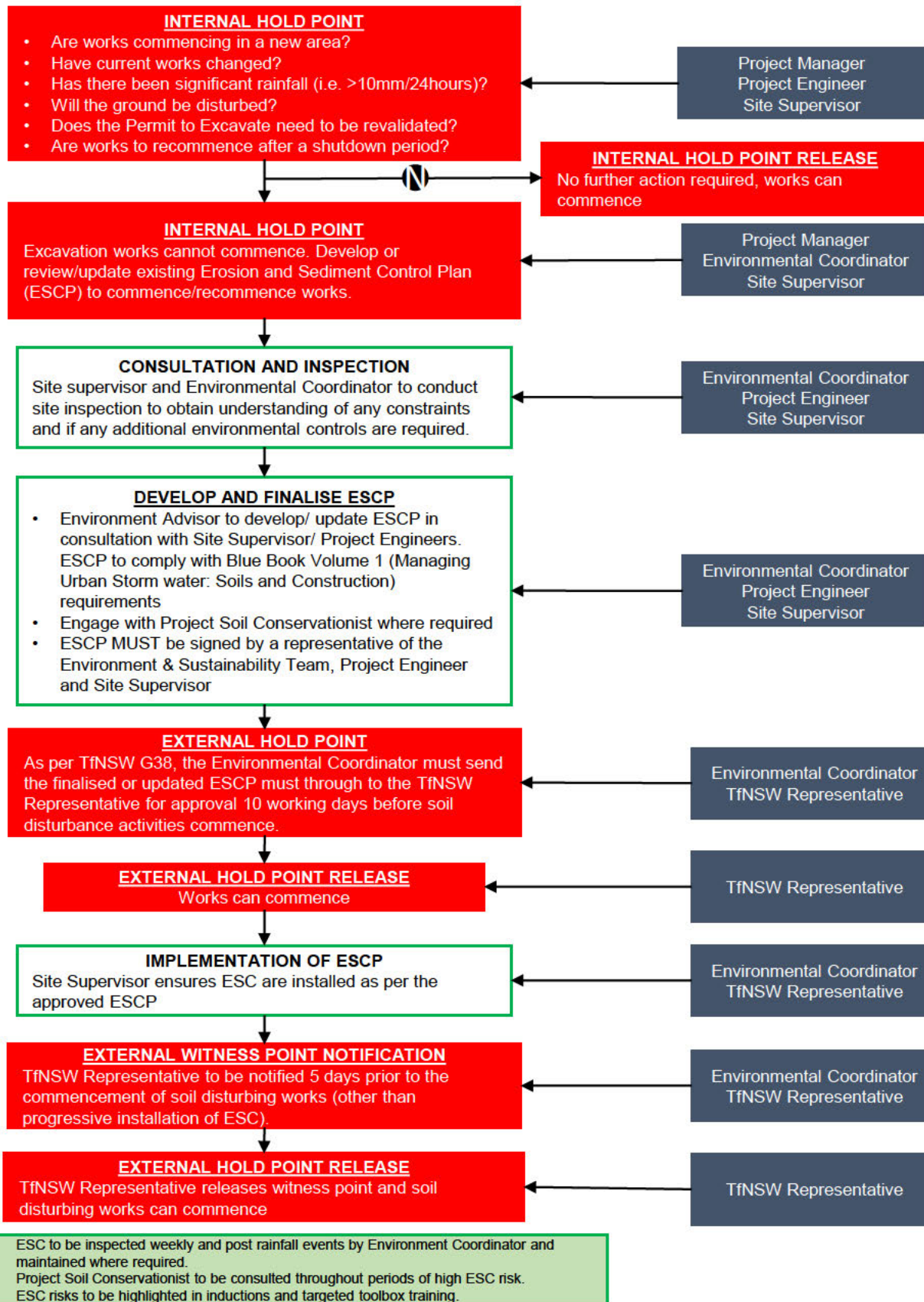
Issue	Construction activity/aspect	Potential impact	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
				<ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure ESCP to be included in Work Packs 		<ul style="list-style-type: none"> Appendix A4 Site Establishment Management Plan: Site Environment Plan for C3
		Contamination of soil or water due to spills of hydrocarbon, oils and chemicals related to: <ul style="list-style-type: none"> Mechanical failures Refuelling activities 	8 (minor)	Direct: <ul style="list-style-type: none"> Spill kits would be readily available within the C3 (including MOC3) construction ancillary facility The use of any hazardous substances that could result in a spill would be undertaken away from drainage or stormwater lines and, wherever possible, within defined bunds Any refuelling on site would follow a refuelling procedure which includes details on where this activity is permitted, management measures and emergency equipment requirements. All spills or leakages would be immediately contained and cleaned up Spill containment kits would be placed at locations where chemicals are stored or used and where refuelling is permitted Inspection regime for chemical storage facilities Indirect: <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure Storage and handling chemicals would be done in accordance with Safe Work Method Statement and SDS Implementing the TfNSW incident procedure in the event of a non-compliance 	4 (minor)	Appendix B4 Soil and Surface Water Procedure: <ul style="list-style-type: none"> Spill Management Procedure Appendix A of CLMP Unexpected Contaminated Land and Asbestos Finds Procedure CEMP preliminary construction including commencement activities: <ul style="list-style-type: none"> Section 3.2.1 Environmental Risk Assessment Workshop including the use of Work Packs (Table 6) Appendix A4 Site Establishment Management Plan: Site Environment Plan for C3 Appendix A7 TfNSW Incident Procedure
		Washout water from concrete agitator travelling beyond C3 boundary	8 (minor)	Direct: <ul style="list-style-type: none"> Washout areas will be adequately sized, regularly maintained, and located in a designated area Concrete agitator truck drivers will be directed to the designated washout area Indirect: <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure 	4 (minor)	Appendix B4 Soil and Surface Water Procedure: <ul style="list-style-type: none"> Water Reuse and Discharge Procedure CEMP preliminary construction including commencement activities: <ul style="list-style-type: none"> Section 3.9 Monitoring, inspections and auditing Appendix A4 Site Establishment Management Plan: Site Environment Plan for C3
		Tracking of material onto West Botany Street	12 (moderate)	Direct: <ul style="list-style-type: none"> Wheel wash to be installed at C3 construction ancillary facility Vehicles exiting site will be directed through wheel wash, once installed Street sweeper to be used to maintain internal haul roads and West Botany Street Indirect: <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure Vehicle Management Plan to direct exiting vehicles through wheel wash 	6 (minor)	Appendix B4 Soil and Surface Water Procedure: <ul style="list-style-type: none"> Erosion and Sediment Control Procedure CEMP preliminary construction including commencement activities: <ul style="list-style-type: none"> Section 3.9 Monitoring, inspections and auditing Appendix A4 Site Establishment

Issue	Construction activity/aspect	Potential impact	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level following mitigation	Management Documents / Training Required
						Management Plan: Site Environment Plan for C3
		Sediment escaping from pedestrian footpath works into Kings Wetland	12 (moderate)	<p>Direct:</p> <ul style="list-style-type: none"> Erosion and Sediment Control Plans (ESCP) would be prepared and implemented Regular inspection and maintenance of ESCP controls (as per Erosion and Sediment Control Procedure) An experienced soil conservation specialist (CPESC) would be engaged to provide advice regarding erosion and sediment control All on site personnel would undergo a site induction and ongoing toolbox talks that will detail erosion and sediment control management measures <p>Indirect:</p> <ul style="list-style-type: none"> Implement management measures outlined in the Appendix B4 Soil and Surface Water Procedure Control measures to be included in Work Pack/s 	6 (minor)	<p>Appendix B4 Soil and Surface Water Procedure:</p> <ul style="list-style-type: none"> Erosion and Sediment Control Procedure Stockpile Management Procedure <p>CEMP preliminary construction including commencement activities:</p> <ul style="list-style-type: none"> Section 3.2.1 Environmental Risk Assessment Workshop including the use of Work Packs (Table 6) Section 3.4 Resources, responsibility and authority Section 3.6 Competence, training and awareness Section 3.9 Monitoring, inspections and auditing Appendix A4 Site Establishment <p>Management Plan: Site Environment Plan for C3</p>

Appendix A – Erosion and Sediment Control Procedure

EROSION AND SEDIMENT CONTROL PROCEDURE

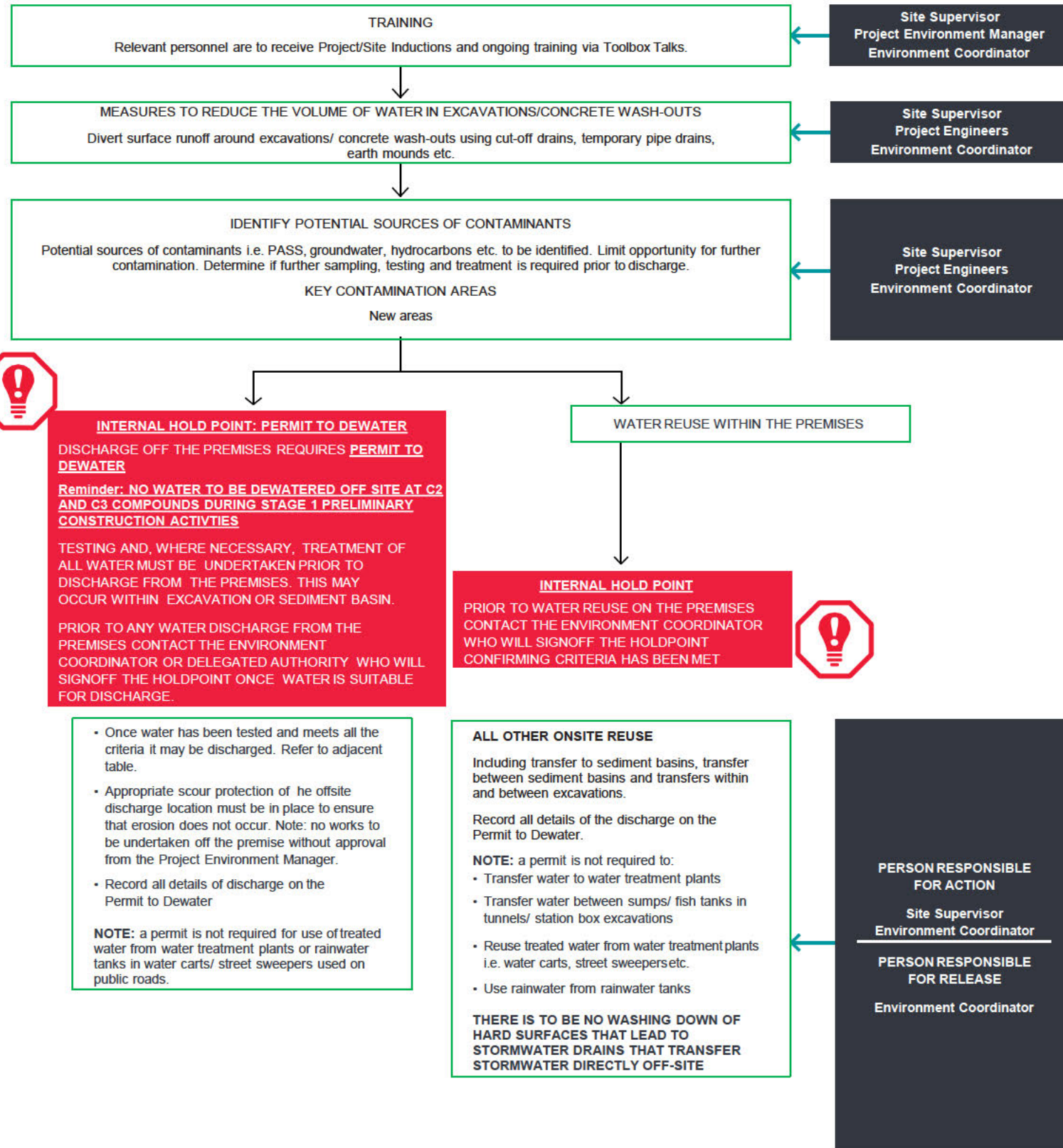
MANAGEMENT AND RESPONSIBILITY



Appendix B – Water Reuse and Discharge Management Procedure

WATER REUSE AND DISCHARGE MANAGEMENT PROCEDURE

MANAGEMENT AND RESPONSIBILITY



MONITORING

Use of calibrated water monitoring equipment and/ or visual assessment will be undertaken for the below parameters during all discharges and reuse to ensure water criteria is met.

DISCHARGE OFF THE PREMISES

Parameter and Criteria	Sampling method
TSS (<50mg/L)*	Sampling and laboratory testing and/or probe/ turbidity tube
pH (6.5 -8.5)*	Probe
Oil and Grease (none visible)*	Visual Inspection

*Subject to Project EPL

REUSE WITH THE PREMISES

Parameter and Criteria	Sampling method
Oil and Grease (none visible)	Visual Inspection
No potential for water to leave the premises	Visual Inspection
No surface runoff will be generated from the reuse (reuse includes dust suppression, watering retained vegetation etc.)	Visual Inspection
No potential for water to reach any watercourse	Visual Inspection
Concrete Washout Water only no visible fines (in addition to criteria above)	Visual Inspection
If transporting water to sediment basins, the sediment basin must not be overfilled	Visual Inspection

Environmental Protection Licence

All dewatering activities are to be carried out in accordance with the discharge concentrations featured in the Project Environmental Protection Licence. Prior to sediment basins or water treatment plants becoming active the Discharge Point Register must be updated and sent through to the EPA by the Environmental and Sustainability Manager. The EPA must approve the updated Discharge Point Register prior to any discharges occurring.

Further Guidance

- Environment Coordinator to complete the Permit to Dewater prior to discharge for all discharges within the Premises and off the Premises.
- Visual inspection is required for the duration of the discharge operation** to ensure sediment from the bottom is not discharged. Pump Inlet hoses are too fixed in place to restrict movement to stop mud being sucked in. Pumps must be monitored at all times while running. Syphons/ water release valves may be used to dewater sediment basins to minimise reliance on pumps. Prior to release sediment levels to be inspected to ensure the level is below the syphon/ valve inlet. Visual inspection of receiving area to ensure the criteria for reuse within the Premises is also required.
- Environmental Inspection Checklist to be completed following significant rainfall events (i.e. >10 mm/24 hours) by the Environment Coordinator and/or Site Supervisor.
- Weekly inspections are to be conducted by the environment team to monitor erosion and sediment controls in active worksites. Weekly inspections will be documented on the Environmental Inspection Checklist.
- Monitoring of rainfall will be carried out as described in the Construction Air Quality and Odour Management Plan.
- Based on a 5-day rainfall depth (mm) for 85th percentile, should rainfall received within a 5 day period exceed 38.8 mm, it is expected that sediment basins may discharge naturally over their spillway without an opportunity to flocculate and test basins for TSS, pH or the presence of oil and grease. It should also be noted that other types of erosion controls may also fail during such an event and that repair work will be undertaken when it has been determined by the Site Supervisor that it is safe to do so.
- Erosion and Sediment Control Plans (ERSED) must be reviewed prior to commencing work if there has been significant rain (i.e. >10 mm/24hr) and if a sediment basin is at or near capacity works that direct water towards the basin cannot be undertaken (see Erosion and Sediment Control Procedure).
- Discharge permits for water treatment plants will be issued in accordance with the Project EPL.
- No dewatering off site to occur at C2 and C3 compounds during Stage 1 Preliminary Construction.

Safety and Sampling

- Always wear appropriate PPE (refer to SWMS)
- Always ensure personal safety when sampling (refer to SWMS).
- DO NOT** inhale gases or aerosols formed from sampled material or associated preservatives in sample bottles.
- Maintain high standards of personal hygiene when sampling, **DO NOT** eat or smoke when sampling and **ALWAYS** wash hands prior to and following sampling.
- DO NOT** enter sediment basins during sampling.

Treatment of Water

pH Levels

- If pH of water is outside the range 6.5-8.5 it needs to be neutralised. If the water is above 8.5, acid is used to lower the pH. If the water is below 6.5 a base is used to raise the pH.
- To treat water, safety requirements must be followed.

Treatment to Lower pH

- Acid is used to lower pH. As a guide, a dosage rate of approx. 500ml of acid lowers 7000L of water by approx. 1.5 pH.
- Good mixing of the acid in the water is to occur otherwise it is not as effective.

Treatment to Raise pH

- Caustic e.g. Builders Lime is used to raise the pH.
- Good mixing of the base in the water is to occur otherwise it is not as effective.

Turbidity

- If the water is greater than 50mg/L then it needs to have the sediment settled out.
- Water must be treated using Gypsum, unless another flocculant/s have been approved by TfNSW under *G38 3.3.2 Using Flocculants or Coagulants Other Than Gypsum*
- When treating in sediment basins or excavations even chemical application across the water surface is to be undertaken to increase effectiveness of sediment drop out. Application rates should be based upon the Blue Book and/or manufacture's specifications. Note that even application over the captured water is essential for effective flocculation.



Appendix C - Stockpile Management Procedure

STOCKPILE MANAGEMENT PROCEDURE

Material identified to be stockpiled

Segregation and Protection

Keep material separate if it needs to be classified in accordance with EPA Waste Classification Guidelines.

Where material has been classified, keep segregated and easily identifiable to workforce (signage or identified on a map/drawing). This is to prevent material being cross contaminated and more material being added to the stockpile.

If PASS/ASS is encountered, material is to be contained in a bunded stockpile area with base guard layer. SPOCAS lab testing must be undertaken to determine the dosage of lime required to neutralise the material. Contact Environmental Coordinator for further information.

Cover stockpile if material contains properties which are hazardous or can emit odours e.g. asbestos contaminated material, PASS. Contact the Safety Advisor and/or Environmental Coordinator for further information and consult the Site Environment Plan.

Location of stockpile

Consult Site Environment Plan for location of stockpile areas.

Stockpile to be located outside of drip line of trees and within Project Boundary.

Locate stockpiles at least 5m away from waterways.

Locate stockpiles at least 5m away from areas where there are high velocity and concentrated flows e.g. drains, streams, driveways.

Erosion and Sediment Control

Stockpiles to have erosion and sediment controls downstream of stockpile location.

Surface flows are to be diverted around stockpiles.

Stockpiles to be stabilised during shutdown periods.

Where non-active stockpiles are greater than 2m high, additional controls to be applied can include; benching of batters, stabilised batter shoots, application of stabilisation agents.

Material excavated during invert repair at C1 to be stored within acoustic sheds.

Where stockpiled material is susceptible to wind or water erosion, stabilisation will occur within 10 days of establishing the stockpile.

After stockpile area is demobilised, undertake clean-up of the area.

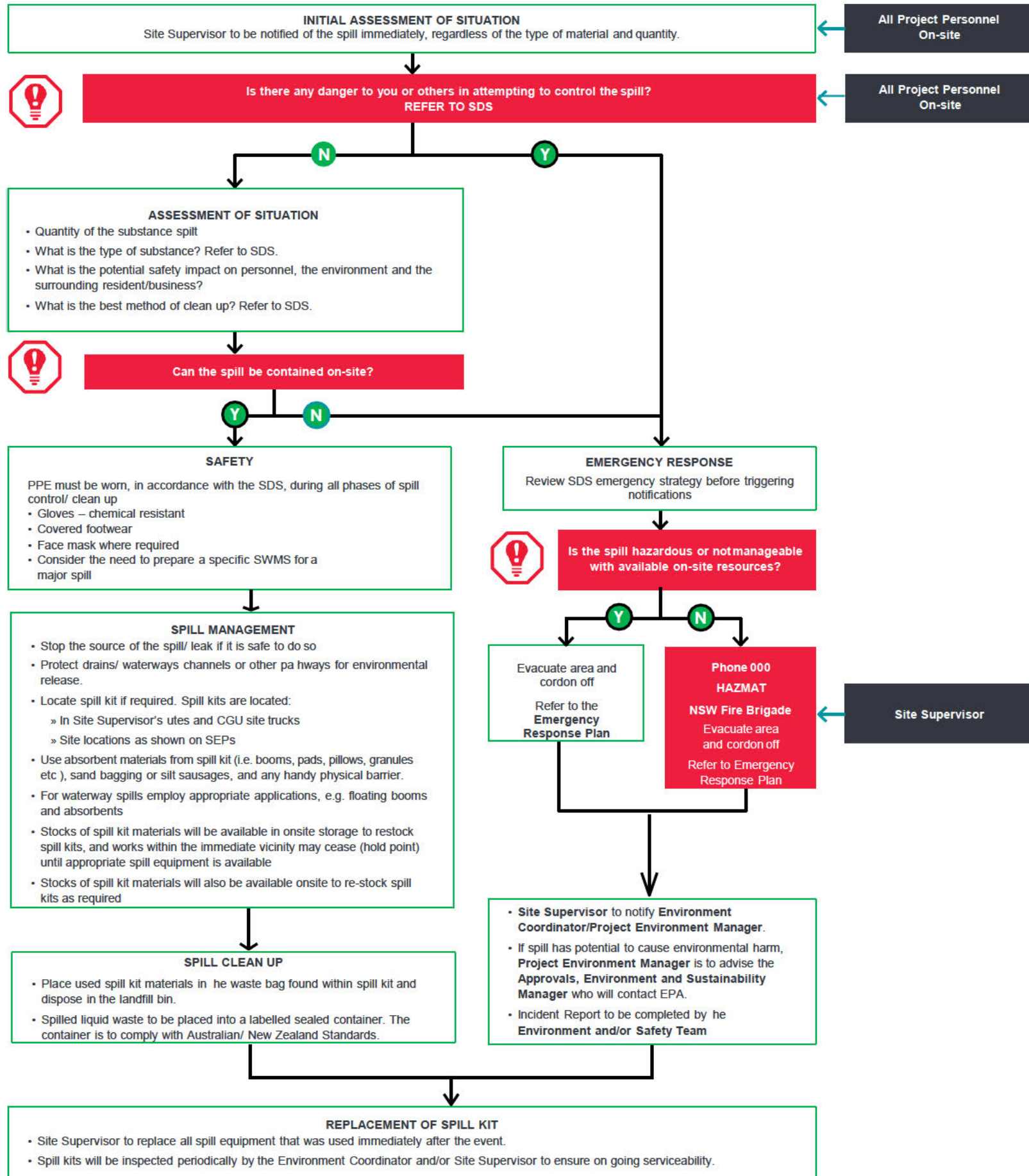
All of the above measures will be inspected weekly during the Environmental Inspection
Risk based inspections will also be undertaken during adverse weather conditions where safe to do so.
Actions will assigned a risk profile, recorded on the Environmental Inspection Checklist and closed out by responsible Supervisor and Engineer.
Ensure all erosion and sediment controls on site have been installed as per the Site Specific Erosion and Sediment Control Plan.

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Reviewer: MM

Appendix D – Spill Management Procedure

SPILL MANAGEMENT PROCEDURE

MANAGEMENT AND RESPONSIBILITY



SPILL CLEAN UP/SPILL KIT APPLICATION

MATERIAL	APPLICATION
Booms	Deploy booms first to contain spill. Floating booms (hydrophobic) to be used for spills in waterways to minimise spreading. Consider the need to install floating booms before starting works if there is potential for contamination of waterways
Granules/ Particulate	If the booms alone cannot absorb the spill/ leak, then use absorbent granules to soak up spilled liquid. Absorbent granules are best for small spills/ leaks.
Pads and Pillows	Thin absorbent mats place over spills. Cushion shaped products containing absorbent fibres, used directly under a leak or drip.
Drain Covers	Covers placed over stormwater inlets to block drains and stop spills entering stormwater drains.
Sorbents	Sorbents are materials that soak up the spill. Once the absorbent material has been applied to the spill material, the mixture is recovered with the aid of nets, rakes, forks or pike poles.
Manual Recovery	Manual recovery is another common method especially for areas with a high concentration of oil.
Vacuum Truck	Used to remove liquid and sludge wastes.

Transport of dangerous goods and hazardous substances

Where Subcontractors and supplies are required to transport dangerous goods and hazard substances to the Project, they must do so in accordance with the National Transport Commission Australian Code for the Transport of Dangerous Goods by Road and Rail Code (Ed 7.7 2020), *Dangerous Goods (Road and Rail Transport) Regulation 2014* and *Dangerous Goods (Road and Rail Transport) Act 2008*.

EMERGENCY CONTACTS

- SUPERINTENDENT
- PROJECT ENVIRONMENT MANAGER
- ENVIRONMENT COORDINATORS
- LEAD SAFETY MANAGER
- SENIOR STAKEHOLDER AND COMMUNITY MANAGER



Oil Spill Boom



General Spill Kit



Chemical Lay Down Pad



Use granular absorbents

Appendix E – Groundwater Monitoring Procedure

GROUNDWATER MONITORING PROCEDURE

Map of Groundwater Monitoring Locations



Monitoring Procedure

Scope and Objectives

On a monthly basis:

- Measure standing water levels where applicable
- Determine presence of light non-aqueous phase liquids and measure thickness where present in monitoring well
- Purge groundwater in specified wells, monitor and record field parameters
- Collect and submit samples to NATA accredited laboratory for analytical testing
- Download groundwater data loggers recording standing water levels
- Review of analytical and field data
- Preparation of monitoring reports

Summary of Field Activities

Well Inspection

The general site condition is observed prior to commencement of field works for signs of any site activities that may have altered the groundwater contamination status or require modifications to the field or laboratory works program.

Each bore specified in the monitoring program is individually inspected for integrity and signs of damage or tampering.

Well Gauging

Standing water levels and total depths are measured using an oil/water interface probe prior to purging and sampling. This interface probe is decontaminated between each monitoring well, and rinsed with tap and deionised water. Standing water level is measured from a specified mark on top of the casing on each well, with the standing water levels presented as metres below top of casing.

Well Purging and Sampling

Field parameters and visual/olfactory observations are recorded prior to sampling at each location. Physico-chemical parameters including pH, electrical conductivity, redox potential, dissolved oxygen and temperature are measured using a calibrated water quality meter. Groundwater samples are collected once field parameters stabilize directly from the dedicated tubing used to purge the monitoring well. Groundwater samples are transferred to appropriately preserved sample containers provided by the laboratories. Samples are placed into a cooler containing ice and maintained at approximately 4°C whilst onsite and in transit to the laboratory.

Groundwater Analysis

Groundwater samples from each monitoring event are submitted under standard chain-of-custody procedures to a NATA-accredited laboratory for analysis.

Note: The Groundwater CEMP Sub-plan will be utilized for Stage 2 construction works monitoring.