SYDNEY PORTS

FIRST PORT, FUTURE PORT

Construction Environmental Management Plan

Stage 1A Enabling Works

Intermodal Logistics Centre at Enfield

February 2009

Revision 1

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Abbreviations

AS	Australian Standard
CAR	Corrective Action Requests
CCP	Community Consultation Plan
CEMP	Construction Environmental Management Plan
CLC	Community Liaison Committee
CNMP	Construction Noise Management Plan
CoA	The Minister for Planning's conditions of approval
CTMP	Construction Transport Management Plan
CTP	Compliance Tracking Program
DCP	Development Control Plan
DECC	Department of Environment and Climate Change
DEH	Department of Environment and Heritage
DIPNR	former Department of Infrastructure, Planning and Natural Resources (now DoP and DECC)
DMP	Dust Management Protocol
DNR	formerly Department of Natural Resources (now part of DECC and DWE)
DoP	Department of Planning.
D-G	Director-General of the Department of Planning
DUAP	former Department of Urban Affairs and Planning (now Department of Planning)
EA	*Environmental Assessment: Intermodal Logistics Centre at Enfield* (prepared by SKM for SPC, October 2005).
ECS	Empty Container Storage
EIS	Environmental Impact Statement
EPA	Environment Protection Authority as part of DECC
EP&A Act	*Environmental Planning and Assessment Act, 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act, 1999*
EPL	Environment Protection Licence issued under the *POEO Act, 1997*
EPS	Enviropacific Services
ERA	Environmental Risk Assessment
E&WMS	Energy and Water Management Strategies
FHCA	Frog Habitat Creation Area

Abbreviations

HIPS	Heritage Interpretation Plan and Strategy
IC	Industrial Commercial
ILC	Intermodal Logistics Centre at Enfield
IMT	Intermodal Terminal
LEAMP	Landscape & Ecological Area Management Plan
LEP	Local Environment Plan
MC	Main Contractor
MCS	Maritime Container Services
NESB	Non-English Speaking Background
NMP	Noise Management Plan
POEO Act	*Protection of the Environment Operations Act, 1997*
PPR	Preferred Project Report
PSO	Planning Scheme Ordinance
RAP	Remediation Action Plan
RTA	NSW Roads and Traffic Authority
RTCG	Road Transport Coordination Group
SEPP	State Environmental Planning Policy
SKM	Sinclair Knight Merz
SMC	Strathfield Municipal Council
SPC	Sydney Ports Corporation
SWMP	Soil and Water Management Plan
SWMS	Safe Work Method Statement
TMP	Traffic Management Protocol
TEU	Twenty foot equivalent unit. One TEU equals one twenty foot container.
WMP	Waste Management Plan

Definitions

Port	Refers to Port land and waters.
Site	Land to which Major Projects Application 05_0147 applies.

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1 Background

1.1 Introduction

This Construction Environmental Management Plan (CEMP) for the Stage 1A Enabling Works for the Intermodal Logistics Centre (ILC) at Enfield Project ("the Project") provides an environmental management system to ensure that Sydney Ports Corporation (SPC) establishes and maintains best practice controls to manage potential environmental impacts during the construction of the Stage 1A Enabling Works. The proponent of this CEMP is SPC.

The CEMP for the Stage 1A Enabling Works has been prepared in accordance with the relevant requirements of the overarching CEMP Framework Revision 8 (SPC, Nov 2008). The environmental management system for the Stage 1A Enabling Works includes requirements for implementation, monitoring and auditing which will be contained in the specific Environmental Management Sub-Plans prepared under this CEMP in accordance with the requirements of Condition of Approval (CoA) 6.2 of the Minister's for Planning's Project Approval.

This CEMP, and all Plans prepared under the CEMP, is consistent with:

- the Minister's for Planning's Conditions of Approval dated September 2007 and modified on 7 October 2008;
- The Statement of Commitments contained in the Environmental Assessment (EA) prepared for the development by SKM (October 2005) and in the Preferred Project Report (SKM, June 2006);
- Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004);
- the requirements of ISO 9001:2000 and ISO 14001:2004;
- the SPC's CEMP Framework Revision 8 (SPC, 2008).

The CEMP will be submitted to the Department of Planning (DoP) by SPC for approval. Construction of the Stage 1A works will not commence until the CEMP is approved by DoP and any remediation works required under CoA 2.43 and the Remedial Action Plan(s) (RAP) prepared under CoA 2.42, have been undertaken in accordance with CoA 2.42 and 2.43 (refer to Section 1.6).

Some of the Stage 1A works (eg. construction of wheel lathe rail corridor works) will be carried out concurrently with some of the Stage 1B Demolition and Remediation works at other parts of the site, which are covered under the Demolition and Remediation CEMP prepared by Enviropacific Services (EPS). The Demolition and Remediation CEMP (EPS, 8 December 2008) was approved by the Director-General of the DoP on 18 December 2008. EPS will be the controller of the majority of the site and SPC's contractors working within areas under EPS control must to comply with EPS's safety and OHS requirements.

This CEMP should be read in conjunction with SPC's CEMP Framework Revision 8 (SPC, 2008). Information presented in the Framework has not been reproduced in this current CEMP to ensure a concise document.

This Construction Environmental Plan will be made available for inspection by the public upon request, following its approval by the Director-General.

1.2 CEMP Objectives

The main objectives of this CEMP are to:

- meet the Minister for Planning's Conditions of Approval (CoA);
- meet the obligations and commitments identified in the Environmental Assessment (SKM, 2005) and Preferred Project Report (SKM, 2006);
- ensure compliance with relevant environmental legislation; and
- ensure that environmental risks associated with the Stage 1A works are properly managed.

1.3 CEMP Requirements

CoAs 6.2 and 6.3, which are summarised in the tables below, outline the Minister for Planning's requirements for the CEMP. The location in this CEMP or other supporting document where each requirement is addressed is included in the tables below.

CoA 6.2:

Prior to the commencement of site preparation works, SPC shall prepare and submit for the approval of the D-G a CEMP to detail an environmental management framework, practices and procedures to be followed during site preparation of the project. The Plan shall be prepared in accordance with Guideline for the Preparation of Environmental Management Plans (DIPNR 2004) and shall include:	This document
a) a framework consistent with that presented in the EA and PPR;	This document
b) a description of all activities to be undertaken including an indication of stages of construction;	Section 1.5
c) statutory and other obligations that the Proponent is required to fulfil during site establishment including all approvals, consultations and agreements required from authorities and other stakeholders, and key legislation and policies;	Sections 2.2-2.4, 2.7
d) specific consideration of measures to address any requirements of the DECC during site establishment and construction;	Section 2.7.1, App C of CEMP Framework Rev 8
e) a description of the roles and responsibilities for all relevant employees involved in the site establishment or construction of the project;	Section 2.1
f) details of how the environmental performance of the site preparation and construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts. In particular, the following environmental performance issues shall be addressed in the Plan:	Section 4 NMP: App B TMP: App C DMP: App D SWMP: App E
i) measures to monitor and manage dust emissions;	Section 4.1.3 App D: D4, D5
ii) measures to monitor and minimise soil erosion and the discharge of sediment and other pollutants to lands and/ or waters during construction activities; and	Section 4.1.4 App E: E4, E5
iii) measures to monitor and control noise emissions during construction works;	Section 4.1.1 App B: B5, B6

g) a description of the roles and responsibilities for all relevant employees involved in site preparation and construction of the project and a program for how these employees will be trained in responsibilities identified in the plan;	Sections 2.1 & 2.5
h) complaints handling procedures to be applied during operation of the project (Condition 5.2 and Condition 5.3 of the Project Approval);	Section 2.7.5 App C of CEMP Framework Rev 8
i) the issue-specific management plans listed under Condition 6.3 of the Project Approval.	Refer table below
The Construction Environmental Plan shall be made available for inspection by the public upon request following its approval by the Director-General.	Section 1.1

CoA 6.3:

As part of the Construction Environmental Management Plan for the project, SPC shall prepare and implement the following Management Plans:	
a) a **Construction Noise Management Plan** to outline construction noise mitigation, monitoring and management measures to be implemented to minimise noise impacts during construction of the project. The Plan shall include:	Appendix B
i) details of construction activities and a schedule for construction works;	Section 1.5
ii) identification of construction activities that have the potential to generate noise and/ or vibration impacts on surrounding land uses, particularly residential areas;	Section B4
iii) where the relevant construction noise goals contained in the Noise Management Guideline – Construction Noise are predicted to be exceeded at sensitive receivers, provision for the application of all practicable and reasonable noise mitigation measures to seek to achieve the relevant construction noise goals;	Section B3.2.1
iv) procedures for notifying residents of construction activities that are likely to effect their noise and vibration amenity, as well as procedures for dealing with and responding to noise complaints; and	Sections 2.7.3 & 2.7.5, B7 S2.7 of CEMP Framework R8
v) a description of how the effectiveness of these actions and measures would be monitored during the proposed works, clearly indicating how often this monitoring would be conducted, how the results of this monitoring would be recorded; and, if any non-compliance is detected.	Sections 4 & B6
b) a **Construction Traffic Management Protocol** to detail how heavy vehicle movements associated with the project will be managed during construction. The Protocol shall specifically address the movement of oversize loads to and from the site, the management of construction traffic, restrictions to the hours of heavy vehicle movements to avoid road use conflicts, and the transport of construction waste materials;	Appendix C

c)	a **Heritage Interpretation Plan and Strategy** to detail how heritage items to be retained on-site will be protected during site preparation and construction, and how relocated heritage items will be protected and maintained during those works. The Plan shall include a strategy for the on-going management and interpretation of heritage items and values on the site, and shall be prepared in accordance with NSW Heritage Office guidelines;	Section 3.3.1 App E of CEMP Framework R8 Separate standalone document to be provided to DoP.
d)	a **Landscape and Ecological Area Management Plan** to detail how the site will be landscaped and maintained. The Plan shall be generally consistent with the Landscape Masterplan presented in the EA and PPR and shall include: i) provision for the use of locally-endemic native species for landscaping the site; ii) consideration of landscaping locations and densities to maximise visual screening of the project from residential receptors and public open space; iii) measures to maximise the retention of locally-endemic native species existing on the site, and removal of weeds and non-indigenous vegetation; and iv) measures for the enhancement, revegetation and on-going management of the Ecological Area on the site, including measures to provide suitable habitat for *Litoria Aurea*;	Section 3.3.2 Appendix F of CEMP Framework R8
e)	a **Construction Dust Management Protocol** to detail how dust impacts will be mitigated, monitored and managed during construction of the project. The Plan shall include procedures for the identification of situations in which site preparation or construction works may contribute to an ambient PM_{10} concentration (24-hour) of greater than 50 μgm^{-3} at any off-site residential receptor, with details of measures to be implemented (including alteration or cessation of works, as may be relevant) to prevent or minimise exceedance of this criterion, in so far as the exceedance may relate to activities associated with the project.	Appendix D

1.4 Overall Project Description

The overall development approved by the Minister for Planning on the 5 September 2007 comprises a new Intermodal Logistics Centre, warehousing, empty container facilities, a light industrial and commercial area, road and rail infrastructure works, services and environmental enhancement works (for further details refer to SPC's CEMP Framework (rev 8) or to the EA (SKM, 2005) and associated approval documentation). The proposed ILC will be used for the transfer and storage of container freight to and from Port Botany, packing and unpacking of containers within the proposed warehouses and storage of empty containers for later re-use or for return to Port Botany.

The activities which are the subject of this CEMP are the Stage 1A Enabling Works, which are described further in Section 1.5 below.

1.4.1 Location

The ILC site is located at Strathfield South, approximately 15 km by road from the Sydney CBD. It covers an area of about 60 ha extending from the intersection of the Hume Highway and Roberts Road in the north, through to the intersection of Punchbowl Road and Cosgrove Road in the south.

The proposed Stage 1A Enabling Works will be undertaken on land owned by SPC which is located on Part Lot 2, DP1006861 and Lot 14, DP1007302.

The SPC owned land is contained within the site boundary ("the Site") identified in Figure 1.1.

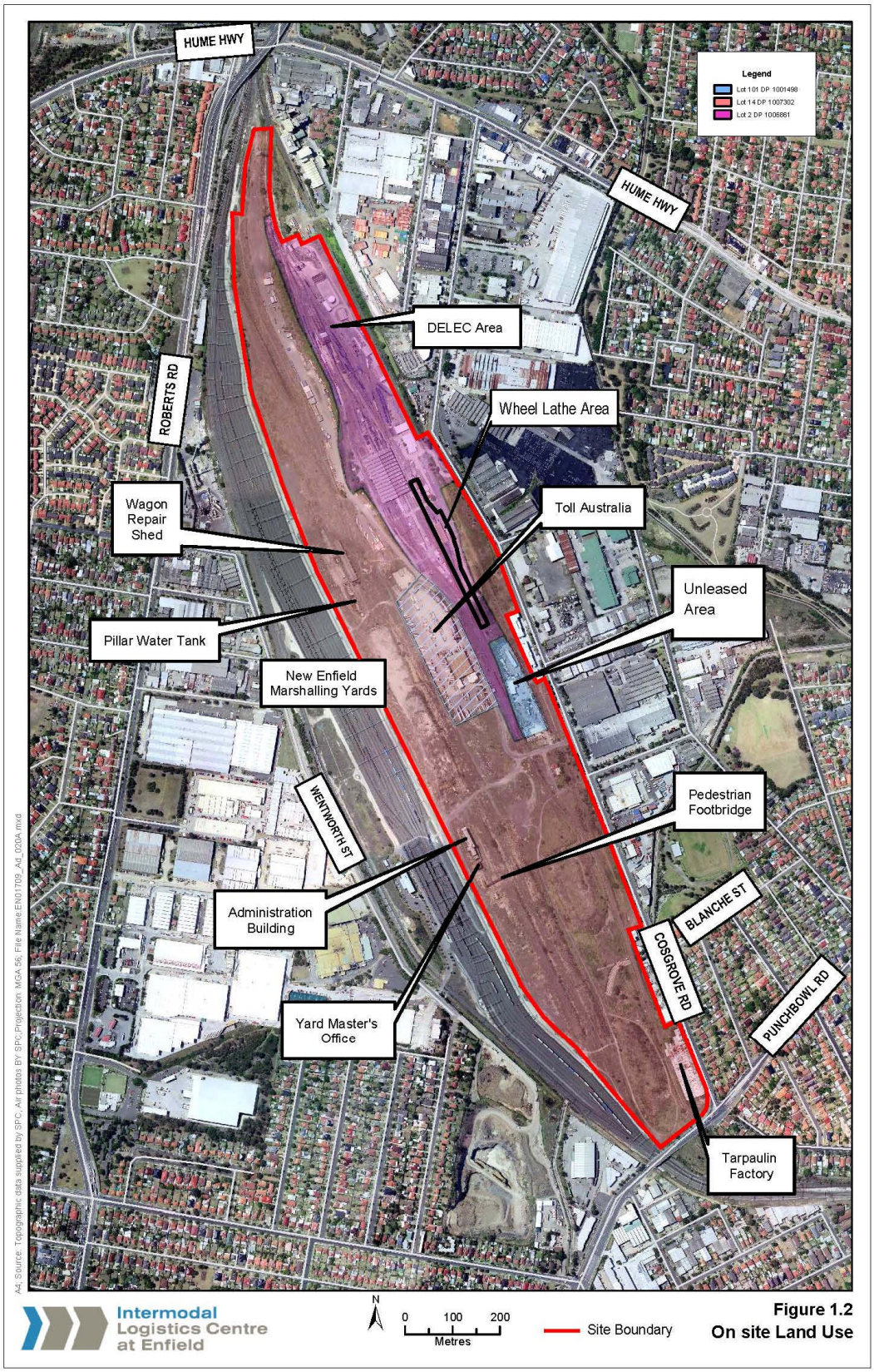


Figure 1.1: Aerial view of the site prior to development

1.4.2 Overall Project Construction Activities and Scheduling

The Project comprises the following stages:

- Stage 1 Enabling works
  - 1A SPC Enabling Works
  - 1B Demolition and Remediation works
  - 1C Pacific National Demolition Works
- Stage 2 Off site construction works
- Stage 3 Main construction of base infrastructure
- Stage 4 Tenant works (following main construction) – IMT, warehouses, ECS, Administration Building and Shared Services Area
- Stage 5 Light Industrial Commercial (IC) works.

Figure 1.2 shows the indicative timing of the main construction phases.

Figure 1.2: Project Construction Program

	Construction Activity	2009				2010				2011			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Enabling Works (1A, 1B and 1C)												
2	Off Site Construction Works												
3	Main Construction of base infrastructure												
4	Tenant Works												
5	Light IC works												

1.5 Stage 1A Project Construction Activities and Scheduling

The Stage 1A Enabling works comprise the following activities:

- construction of wheel lathe/DELEC north siding rail corridor works;
- removal of RailCorp's aerial 11 kV wiring and power poles;
- stabilisation and installation of heritage items within the site heritage precinct;
- construction of a Frog Habitat Creation Area (FHCA).

Figure 1.3 summarises the indicative scheduling for these works. The works will be carried out by different SPC sub-contractors, who will each be required to comply with this CEMP.

The Environmental Control Map (ECM) contained in Figure 3.1 of this CEMP shows the location of the works and key environmental controls.

Figure 1.3: Enabling Works Indicative Construction Program

	Construction Activity	2009											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Wheel lathe rail corridor works												
3	Removal of RailCorp's aerial 11 kV cable												
4	Heritage Works												
5	Construction of FHCA												

The following sections describe the construction activities, equipment required and durations associated with these works.

1.5.1 Wheel Lathe / DELEC North Siding Rail Corridor Works

Access to the existing wheel lathe from the north will be retained. However, the section of rail line north of the wheel lathe is currently located in the area proposed for warehousing and must be relocated. This will involve the construction of new trackwork and realignment, to the west, of the existing trackwork. The rail access will be via a siding from the existing junction to the north along a dedicated rail corridor to the existing wheel lathe building. The length of the new/relocated rail line is approximately 600 m and the width of the rail corridor is approximately 15 m, as shown on the ECM in Figure 3.1.

The works also include the construction of a level crossing to provide a heavy vehicle access road across the rail corridor in the future. Turnouts for access to future rail sidings facilities, adjacent to the rail corridor, will also be installed.

The civil works consists of the following main elements:

- supply of capping layer material and limited amount of structural fill;
- earthworks to support rail formation on new alignment (including parallel access path), across width of Rail Corridor;
- surface and sub surface drainage works;
- provision for a new level crossing with removable pre-fabricated concrete or rubber panels for use in the future;
- track-side signage;
- fence and electronic gate mechanism.

The trackwork consists of the following main elements:

- supply of track materials including ballast, sleepers, turnout bearers, plates and fasteners to complete the works (Note: the reuse of reclaimed sleepers, ballast, turnouts, rail and rail infrastructure will be maximised as much as possible);
- regrading (skim grade only) of section of existing track;
- slewing of existing track to design alignment;
- construction of new siding trackwork;
- install rail on sleepers through level crossing section of siding;

- refurbish and install up to three turnouts using reclaimed steelwork;
- removal of existing trackwork where required.

Other activities will include:

- installation and removal of temporary fencing along both boundaries of the construction site;
- installation of temporary wheel wash for construction vehicular access (not including passenger vehicles);
- maintenance and subsequent removal of a temporary wheel wash;
- adjustment, protection, termination, relocation and / or support of all utility services affected by the works
- installation of permanent boundary fencing along both boundaries of the rail corridor, connecting into the existing fencing at the northern and southern extent of the rail access. The fencing will be 1.8 m high, galvanised chain wire fencing with three strands of barb wire. The Contractor fencing will comply with the track safety requirements of the relevant Authority.
- Installation of electronic gate system across the alignment of the future road (one on each side of the level crossing) to close the fence along both longitudinal boundaries of the rail access.

The equipment used will include:

- Rollers;
- excavators/loaders;
- specialist gear;
- ballasting;
- track laying excavators;
- trucks;
- tamping machine; and
- welding.

The duration of this work is expected to be approximately 6-8 weeks.

1.5.2 Removal of RailCorp's 11 kV Aerial Wiring

This activity involves the dismantling and removal of approximately 1.7 km of existing aerial wiring and power poles which are located within the ILC site, as shown on the ECM in Figure 3.1.

The works will involve removal of the aerial wiring using elevated work platforms and trucks. The dismantled aerial wiring and power poles will be reused.

The duration of this work is expected to be approximately 4 weeks.

1.5.3 Heritage Works

A Heritage Interpretation Plan and Strategy (HIPS) has been prepared for the ILC site by SPC's Heritage Adviser, in accordance with the requirements of CoA 6.3 c). The HIPS will be provided separately to the Department of Planning for approval. The HIPS identifies how site heritage items will be protected during site preparation and construction and how relocated heritage items will be

protected and maintained during those works. These protection measures are reproduced in Section 3.3.1 of this CEMP.

The HIPS also includes a strategy for the on-going management and interpretation of the heritage items and values on the site. This strategy is based on the relocation of a number of site items, including the pedestrian footbridge, the pillar water tank, a set of signals and a turntable, to a "Heritage Precinct" located within the community and ecological area at the southern end of the site. The strategy also involves the retention of a section of track adjacent to the tarpaulin shed, the stabilisation of the tarpaulin shed and the erection of seven heritage interpretation panels within the heritage precinct. The HIPS provides a detailed methodology and design details for the relocation of the pedestrian footbridge and the pillar water tank and the stabilisation of the tarpaulin factory, as well as the ongoing maintenance of these items.

The installation and stabilisation of items in the heritage precinct, in accordance with the recommendations in the HIPS, forms the heritage works referred to in this CEMP. The required activities detailed in the HIPS are summarised below for each of the relevant items. The recommended location of the various items within the heritage precinct is shown on the ECM in Figure 3.1.

The final location of items within the ILC's Heritage Precinct and the final engineering methods for the relocation and stabilisation works will be subject to adjustments and optimisation during detail design. The installation of items may also require some cut and fill works to install items to required levels. These levels will be determined during detail design.

1.5.3.1 Relocation of Pedestrian Footbridge

1. Remove attached items and retain items to be refixed to the bridge structure.
2. Dismantle bridge trusses and stairs at supports.
3. Lift bridge and stairs in sections onto a transporter at identified lifting points.
4. Store footbridge for repairs and erection in new location.
5. Remove supporting towers and columns by dismantling at column bases, provide temporary restraints to stabilise the structure, transport, repair and store prior to erection in new location.
6. Record all dimensions of footbridge concrete slab before removal.
7. Remove pre-cast treads from stairs; identify and retain salvageable treads.
8. Cast new concrete slab to the footbridge to the same profile as the original.
9. Erect repaired tower and column supports on new foundations.
10. Erect repaired stairs and footbridge on the repaired supports.
11. Refix all salvaged items after treating.

1.5.3.2 Relocation of Pillar Water Tank

1. Remove attached items on the tank. Retain and store items for treatment and reattachment to the tank.
2. Survey structure for loose concrete by tapping survey. Remove loose concrete.
3. Test, investigate and survey the tank structure to identify cover to reinforcement and concrete carbonation depth. Repair reinforcement and concrete.
4. Clean concrete surfaces and apply anti-carbonation coating. Install waterproof membrane to the inside of the tank if necessary. Ensure membrane is sealed at the junctions with attached fixings.

5. Isolate the tank from the feed tank.
6. Prepare the tank for removal by securing it with a temporary structure. Lift tank from its existing location onto a transport vehicle and relocate either to temporary storage or onto new foundations in the designated new location within the heritage precinct.
7. Treat removed items to protect against corrosion and refix to the tank.

1.5.3.3 Stabilisation of Tarpaulin Factory

1. Clean out all gutters not being relaced.
2. Test stormwater system for blockages.
3. Install new drain at southern end of building.
4. Roof – replace roof sheets with new corrugated zincalume to match existing profile or, if hole in roof is not greater than 12 mm, apply a silicone resin.
5. South wall – reduce ground level along length of wall, cover openings and holes, connect downpipes, replace missing barge capping and cover windows with polycarbonate sheeting.
6. West wall – replace gutter and downpipes, cover windows with polycarbonate sheeting and re-fix sheeting.
7. North wall – replace barge capping, cover window capping, cover holes, cover barge capping, replace annex guttering, cover annex holes, flash annex windows, cover broken glass in annex windows, replace annex downpipes and fix new annex sheeting.
8. East wall – reconnect downpipes, replace rusted downpipes, clear blocked downpipes, remove beehive, replace rusted gutter and re-fix sheets.

1.5.3.4 Other items

Other items to be relocated to the heritage precinct include a turntable from the DELEC area, available old signals, some timber panels from the Wagon Repair Shed and a sand wagon (subject to acquisition by SPC). These items will be applied with a protective coating if required prior to installation.

The signals will be stored in the Tarpaulin Factory until they can be installed in the heritage precinct. Subject to detail design, the turntable will be installed for display in the area between the Tarpaulin Factory and the site's western boundary within the Heritage Precinct.

The relocation of the items will involve cranes and trucks. The repair and stabilisation works will require concrete supply, trucks, elevated platforms and hand tools.

The duration of the heritage works is expected to be approximately 20 weeks.

1.5.4 Frog Habitat Creation Works

SPC's Consulting Herpetologist has prepared a concept design for the Green and Golden Bell Frog (GGBF) Habitat Creation Area, which is contained in Appendix F of SPC's CEMP Framework (rev 8). Detailed design for the area is being prepared by SPC's designer.

The design components of the habitat area to be created comprise:

- Two frog ponds area located on the southern side of the Coxs Creek canal (as shown on the ECM).
- The combined pond water surface area must not be less than 400 m^2.

- The ponds will have a minimum depth of 1 metre and a maximum water depth when full of 1.5 metres.
- The banks and base of the pond will be earthen. The base of the pond will be clay-lined to a thickness of 30 cm. The batter of the banks will be 1:3 or 1:4.
- The ponds will be drainable so that they can be emptied when required.
- The ponds will have complete sun exposure from the north and west. No trees will be planted near the ponds.
- The ponds will have an open-water area in the centre. The ponds will be fringed by tall reeds around three quarters of the pond circumference, with the remaining quarter bare ground. The emergent fringing plants will consist of tall reeds: *Scheonoplectus* and *Eleocharis*.
- The area around the ponds will be the main foraging areas for the frogs and will be planted with grasses interspersed with clumps of Matt Rush *Lomandra longifolia* to create shelter sites.
- If sandstone boulders are available, boulders piles will also be established near the ponds as over-winter habitat.
- Each pond needs to have a separate water line so that one pond can be maintained with a water supply while the other pond is drained and being left empty. The water supply for the ponds may be supplied from:
    - Water cart, especially during the establishment of the ponds.
    - Roof runoff may be harvested from the Tarpaulin Shed and diverted into the ponds.
    - Surface water may be directed from the land at the southern end of the ILC Site, which slopes gently from south to north, towards the Coxs Creek Canal. Some minor earthworks, eg diversion swales, may be required to facilitate surface water flow to the ponds.
- Logs or long branches will be laid across the pond to provide basking sites for adult Bell frogs and as shelter sites for tadpoles to escape predatory birds.
- A frog movement corridor will be established leading west from the ponds to the boundary of the ILC Site to enable frogs to reach the Juno Parade Frog Habitat Area and FreightCorp Pond.
- The frog movement corridor will consist of a broad, grassed strip with a central swale. The central depression in the swale would be wet region, approximately 15-20 cm below ground level, running along the length of the corridor.
- Native tussock grasses or exotic grasses would be used to plant out the corridor. Rocks and tussock plants, such as *Lomandra longifolia,* will be established at 50 m intervals along the corridor to create shelter areas.

The equipment required for the construction of the frog conservation area will include backhoes, excavators and trucks.

The duration of this work is expected to be approximately 8 weeks.

1.6 Remediation Requirements prior to the Stage 1A Enabling Works

Remedial Action Plan (RAP) documentation is currently being prepared by SPC's environmental consultant. In accordance with CoA 2.43, Site Audit Statement (SAS) documentation will be prepared prior to Stage 1A works being carried out in areas where remediation is required under CoA 2.42 and the RAP documentation. No Stage 1A works will be undertaken in areas requiring remediation until a Site Audit Statement (or other Site Auditor's interim advice accepted by DoP) has been prepared for that area.

The interaction of the Stage 1A Works with the remediation activities/requirements are outlined below.

1.6.1 Wheel Lathe / DELEC North Siding Rail Corridor Works

A RAP and Site Audit Statement will be prepared for the remediation of this area. The wheel lathe corridor works will not commence until a Site Audit Statement (or other Site Auditor's interim advice accepted by DoP) for this area has been submitted to the Director-General.

1.6.2 Removal of RailCorp's Aerial 11 kV Wiring

The removal of the aerial 11 kV wiring does not involve excavation works and therefore does not require remediation activities. Removal of the aerial cable can therefore be undertaken prior to the preparation of any Site Audit Statement for the area where the removal works are required.

1.6.3 Construction of Frog Habitat Creation Area

Based on the investigations carried out for the EA (SKM, 2005), contamination is not anticipated in the Frog Habitat Creation area. Any remediation requirements for the Frog Habitat Creation Area will be identified in the RAP. If remediation is required in this area, then works that directly disturb areas to be remediated will not commence until a Site Audit Statement (or other Site Auditor's interim advice accepted by DoP) for this area has been prepared and submitted to the Director-General.

1.6.4 Heritage Works

There is no known contamination in the existing locations of the pedestrian footbridge and the pillar water tank and their removal will not involve soil excavation. The removal and stabilisation of the pedestrian footbridge, water tank and the stabilisation of the Tarpaulin Factory can therefore be undertaken prior to the preparation of any Site Audit Statements.

Based on the investigations carried out for the EA (SKM, 2005), contamination is not anticipated in the Heritage Precinct. If the RAP identifies that remediation is required in the Heritage Precinct, then works that directly disturb areas to be remediated will not commence until a Site Audit Statement (or other Site Auditor's interim advice accepted by DoP) for this area has been prepared and submitted to the Director-General.

2 Environmental Management

2.1 Environmental Management Structure and Responsibility

The responsibility and authority of key SPC personnel pertaining to environmental performance for the Stage 1A Enabling Works is described in Table 2.1 below.

Table 2.1: SPC Environmental Roles and Responsibilities

Role	Contact No	Responsibilities
Senior Development Manager **Stephen Zaczkiewicz**	1800 059 233	▪ Provides overall leadership and direction for the Project. ▪ Responsible for SPC corporate governance issues for the project. ▪ Manages external interfaces. ▪ Reports to SPC Executive Board.
Enabling Works Project Manager **Bruce Royds**	1800 059 233 0417 278 386	▪ Responsible for delivery of the Stage 1A works to ensure that environmental impacts are minimised and environmental obligations are met. ▪ Responsible for implementing the Community Consultation Plan (CCP) and the Community Complaints procedure. ▪ Emergency contact ▪ Authorised to stop or direct works.
Project Administrator **Virginia Mullins**	1800 059 233 0407 214 962	▪ Responsible for project administration including maintaining records, updating the website and answering enquiries. ▪ Assists in the implementation of the CCP. ▪ Receives community enquiries and complaints and directs them to appropriate person. ▪ Responsible for maintaining the Complaints Register.
Planning and Environmental Manager **Ricardo Prieto-Curiel**	1800 059 233 0488 220 642	▪ Provides advice to SPC on environmental management and compliance. ▪ Liaises with government agencies and relevant stakeholders in respect of environmental and planning matters.
Consultant Herpetologist **Dr Arthur White**	0427 021 059	▪ Specialist adviser regarding Green and Golden Bell Frogs ▪ To be contacted immediately if frogs are found during site inspections or during works activities
Heritage Adviser **Garry McDonald**	1800 059 233	▪ Specialist adviser regarding heritage items on the site
Demolition & Remediation Contractor Project Manager **Cameron Newling Enviropacific Services (EPS)**	0408 078 963	▪ Responsible for the EPS Project team and sub-contractors in respect of environmental performance ▪ Carries out demolition and remediation work in accordance with the requirements of the Stage 1B CEMP. ▪ Responsible for site safety and OHS for the portions of the site controlled by EPS.

Role	Contact No	Responsibilities
SPC's Contractor/s (various – TBA)		▪ Responsible for compliance with the requirements of the Stage 1A Enabling Works CEMP. ▪ Responsible for implementation of environmental mitigation and management measures.

2.2 Approval and Licensing Requirements

2.2.1 Relevant Legislation

Legislation relevant to the project is listed in the CEMP Framework.

2.2.2 Approvals/Licenses Required

The following approvals have been obtained or are specifically required for the Stage 1A Enabling Works:

- Project Approval under Part 3A of the EP&A Act granted by the Minister for Planning on 5 September 2007 and modification to the Project Approval on 2 October 2008 (contained in the CEMP Framework);

SPC has obtained the above approval. Contractors will be required to obtain any other approvals required for their specific works under any Act or law before construction.

2.3 Compliance Standards and Guidelines

Table 2.2 lists the compliance standards, policies and guidelines which are relevant to this CEMP.

Table 2.2: Relevant Environmental Compliance Standards, Policies & Guidelines

Management Area	Requirements
Traffic and Transport Impacts	• RTA Traffic Control at Worksites Manual • Relevant Australian Standards, RTA standards and guidelines
Noise Impacts	• Draft NSW Construction Noise Guideline (DECC, August 2008) • NSW Industrial Noise Policy
Air Quality Impacts	• AM-2 Guide for Horizontal Measurement of Wind for Air Quality Applications (AS 2923-1987) • AS 3580.9.8-2008 – Determination of suspended particulate matter – PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser • Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA, 2005)
Water Quality and Hydrological Impacts	• Managing Urban Stormwater: Soils and Construction (Landcom) • Bunding and Spill Management (DECC) Environment Protection Manual Technical Bulletin
Heritage Impacts and Management	• NSW Heritage Office Guidelines

Management Area	Requirements
Waste Generation and Management	• Waste Classification Guidelines (DECC, April 2008) • NSW Waste Reduction and Purchasing Policy (EPA, 1999)
Ecological Impacts	• Management Plan for the Green and Golden Bell Frog Key Population at Greenacre (DECC, May 2007)
Hazards, Risk and Land Use Safety	• Australian Dangerous Goods Code • All relevant Australian Standards
Compliance Monitoring and Tracking	• ISO 19011:2002 - Guidelines for Quality and/ or Environmental Management Systems Auditing
Environmental Management	• Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004)

2.4 Reporting

2.4.1 Compliance Tracking Program

2.4.1.1 Periodic Review of Compliance Status

CoA 4.1a) requires provisions for periodic review of the compliance status of the project against the requirements of the Project Approval.

Contractors carrying out the Enabling Works will be required to report to SPC on compliance with the relevant Conditions of the Project Approval, EA and PPR Statement of Commitments and compliance with the implementation of this CEMP. Reporting will be provided to SPC prior to the commencement and on completion of the Contractor's works on the site. Where works extend for more than 3 months in duration, additional compliance reporting is required on a 3 monthly basis following the initial report.

Contractors will be required to report immediately to SPC any non-compliance with the project approval, statement of commitments and CEMP as soon as practicable after they identify such non-compliance. In the first compliance report (prior to any works being carried out on site), contractors will be required to submit procedures for dealing with non-compliances (refer Section 4.3).

Based on this information, SPC will carry out a review of the compliance status of the project at least every 3 months during site preparation and construction phases. Evidence of compliance will be documented within the Compliance Tracking Program report which will be reported to DoP on an annual basis.

2.4.1.2 Periodic Reporting of Compliance Status

CoA 4.1b) requires provisions for periodic reporting of compliance status to the Director-General. The compliance reporting will include a Compliance Tracking Program report and an independent environmental audit (see Section 2.4.1.3).

During the site preparation and construction phases of the project, a copy of each of these reports will be provided to the Director-General annually. The initial Compliance Tracking Program report will be provided to the Director General following the commencement of demolition (during the first quarter of 2009). The initial independent environmental audit will follow approximately 6 months later.

The Compliance Tracking Program report will be provided as both a hard copy and an electronic document with hyperlinks to the documentation that provides evidence of compliance with each condition of the Project Approval.

2.4.1.3 Independent Environmental Auditing

In accordance with CoA 4.1c), SPC will implement an annual program for independent environmental auditing in accordance with ISO 19011:2002. Environmental audits will be undertaken annually during construction, with the first audit scheduled approximately 6 months after the submission of the first Compliance Tracking Program report to DoP. SPC will submit the environmental audit reports to DoP for information. Contractors working on site at the time of conducting the independent audit will be required to allow the auditor to inspect construction activities and to provide evidential information of compliance with relevant Conditions of the Project Approval, EA and PPR Statement of Commitments and compliance with the implementation of this CEMP as requested by the independent auditor.

2.4.2 Incident Reporting

Contractors will be required to notify incidents, with actual or potential significant off-site impacts on people or the biophysical environment, to SPC as soon as possible after the occurrence of the incident. Contractors will be required to submit to SPC details of the incident within four days of the date on which the incident occurred. Such details should include reasons for the incident based on an investigation, measures to avoid reoccurrence, measures implemented to mitigate the incident and other information that may be requested by SPC.

SPC will notify the Director-General of any incident with actual or potential significant off-site impacts on people or the biophysical environment as soon as practicable after the occurrence of the incident. SPC will provide written details of the incident to the Director-General within seven days of the date on which the incident occurred. Incidents will be reported and managed in accordance with CoA 7.1, 7.2 and 7.3.

SPC and all Contractors will meet the requirements of the Director-General to address the cause or impact of any incident within the period agreed by the Director-General.

Contractors will be required to maintain a register of accidents, incidents and potential incidents with actual or potential significant off-site impacts on people or the biophysical environment. SPC will maintain a centralised register of accidents, incidents and potential incidents with actual or potential significant off-site impacts on people or the biophysical environment for all contractors. The register will be made available for inspection at any time by the independent qualified person or team conducting the Environmental Audit and/or the Director-General.

2.5 Environmental Training

SPC will provide an environmental induction to all new Contractors to the Site. The induction will cover environmental awareness training and requirements of the Project Approval.

The inducted Contractor will then be responsible for implementing environmental training of its staff and sub-contractors. This training will include site induction (covering environmental management at the site, the CEMP and compliance with planning and environmental approvals) and “toolbox” training as required. Records of induction and training including the topic of the training carried out, dates, names and trainer details will be kept on the contractor’s database.

2.6 Emergency Contacts and Response

All Contractors will be required to provide an emergency contact who will be available 24 hours a day, 7 days a week. This person has the authority to stop or direct works for which they are responsible.

Each main Contractor carrying out the Enabling Works will be required to prepare an Emergency Response Procedure to be followed in the event of an environmental emergency. These will address:

- response personnel responsibilities;
- contact details for emergency services;
- the locations of on-site information on hazardous materials including Material Safety Data Sheets and spill containment materials;
- steps to follow to minimise damage and control and environmental emergency;
- instructions for notifying SPC and other relevant agencies in emergency situations.

SPC's emergency contact is Bruce Royds ☎1800 059 233 or 0417 278 386.

2.7 Communication and Consultation

2.7.1 Agency, Council and Organisation Consultation

The plans developed as part of this CEMP have been prepared in consultation with the relevant agencies and organisations. SPC have consulted with DECC regarding the Enabling Works (refer Appendix C of the CEMP Framework).

This CEMP has been prepared in accordance with advice provided by the DECC. In response to the DECC's letter dated 24 September 2008, the following issues have been addressed in the CEMP:

- The CEMP has been prepared in accordance with ISO14001 and the project will be independently audited on an annual basis, as discussed in Section 4.2.1.
- The CEMP will be approved by DoP prior to the Stage 1A works commencing.
- Frog management documentation has been prepared and is being implemented as discussed in Sections 3.3.2 and 4.1.5, and in Appendix F of the CEMP Framework.

SPC have consulted with DECC over the design, management and monitoring of the Frog Conservation Area. SPC currently reports quarterly to the DECC on project progress and implementation of the Part 3A conditions of approval.

SPC meets with Strathfield Council and Bankstown Council on a regular basis to provide project updates and discuss specific project matters. Meetings and discussions have also been held with NSW Heritage Office in relation to heritage documentation prepared as part of the Part 3A project approval. In correspondence dated 3 November 2008, the NSW Heritage Office advised that archival recording carried out for the Yard Master's Office, Administration Building, Wagon Repair Shed and other structures at the site adequately met the requirements of condition 2.38. In correspondence dated 20 and 26 November 2008, the NSW Heritage Office advised that the proposal to relocate items of State Significance to the southeast of the site was considered acceptable.

2.7.2 Community Consultation

As required in the EA Statement of Commitments, SPC prepared a Community Consultation Plan (CCP) for the project in July 2008 (contained in Appendix D of the CEMP Framework Rev 8).

Contractors will be required to comply with the CCP. Information relating to community consultation is contained in the CEMP Framework and is not repeated in detail in this CEMP.

In December 2008 SPC provided information regarding the Enabling Works to the residential neighbours of the site in the form of a letterbox drop and advertisements in the local newspapers. E-newsletters will be issued quarterly during enabling works and construction activities. Advertisements will be placed in local newspapers at the commencement of each major stage of work.

2.7.3 Electronic Information

In accordance with CoA 5.4, SPC has established dedicated pages within the SPC website for the provision of electronic information associated with the project. The URL of the website is: http://www.sydneyports.com.au/port_development/enfield

2.7.4 ILC Road Transport Coordination Group

In accordance with CoA 2.12, SPC has established and will maintain for the life of the project, unless otherwise agreed by the Director-General, a Road Transport Coordination Group (RTCG) to oversee and coordinate the management of traffic and road issues associated with and affected by the project. The RTCG includes representatives of SPC, DoP, RTA, Strathfield Municipal Council and Bankstown City Council. The terms of reference were agreed by RTCG members at the first meeting of the RTCG. The RTCG's Terms of Reference and meeting minutes are available on SPC's website: http://www.sydneyports.com.au/port_development/enfield

The RTCG will meet as required to address construction traffic issues and will continue to meet to address operational issues following completion of construction works.

2.7.5 Complaints Management

In accordance with CoAs 5.2 and 5.3, SPC has prepared a Complaints and Enquiries Procedure (contained in Appendix D of the CEMP Framework (rev 8)) to ensure complaints are dealt with adequately. SPC has established a Complaints Register to receive, log, track and monitor response to complaints within specified timeframes. The Complaints Register is part of an electronic web-based stakeholder data management system (Consultation Manager).

All Contractors are required to comply with the Complaints and Inquiries Procedure. Contractors will notify SPC's Project Administrator of any complaints as soon as possible. SPC's, Project Administrator is responsible for the overall maintenance of the Complaints Register and will enter the details of all complaints into Consultation Manager. SPC's Project Manager will then direct the complaint to the responsible party, who will implement the appropriate action (ie investigate the cause of the complaint, develop and implement mitigation measures and educate staff of procedural changes) and provide a response to be recorded in Consultation Manager.

The Complaints Register will be made available for inspection by the Director-General upon request.

SPC's 24 hour complaints contact number (1800 059 233) has been established, publicised, displayed on site to enable any member of the general public to reach a person who can arrange appropriate response action to a complaint.

SPC contact details for the public to make enquiries or lodge complaints about the project are:

- Telephone: 02 9296 4999 (SPC switchboard) or 1800 059 233
- Fax: 02 9296 4742
- Postal**:** PO Box 25, Millers Point, NSW 2000
- Email**:** ilcenfield.project@sydneyports.com.au.

3 Implementation

3.1 Environmental Risk Assessment

An environmental risk assessment (ERA) has been carried out as part of this CEMP to identify the possible environmental impacts associated with the Stage 1A Enabling Works. The ERA is contained in Appendix A of this CEMP.

The ERA:

- identifies the activities, aspects and possible environmental impacts associated with the Stage 1A works;
- considers these activities in isolation of any controls and determine a "raw risk" rating;
- identifies any controls required to mitigate or minimise the potential for environmental impacts in order to reduce the risk to the lowest level possible;
- provides the basis for the development of mitigation measures for inclusion in the Management Plans contained in this CEMP.

The findings of the ERA indicate that the risks associated with the Enabling Works can be mitigated using the measures proposed in this CEMP. Once mitigation measures have been applied, all of the identified impacts have a low risk ranking.

3.2 Environmental Activities and Controls

3.2.1 Construction Hours

Site preparation and construction activities associated with the Stage 1A - SPC Enabling Works that would generate an audible noise at any residential premises will only be undertaken during the following hours:

- 7:00 am to 6:00 pm, Mondays to Fridays, inclusive;
- 8:00 am to 1:00 pm on Saturdays;
- at no time on Sundays or public holidays.

This does not apply in the event of a direction from police or other relevant authority for safety reasons.

The hours of site preparation and construction activities will only be varied with the prior written approval of the Director-General. Any request to alter the hours of construction shall be:

- accompanied by details of the nature and need for activities to be conducted during the varied construction hours; and
- accompanied by sufficient information for the Director-General to reasonably determine that activities undertaken during the varied construction hours will not adversely impact on the acoustic amenity of receptors in the vicinity of the site.

3.3 Mitigation Measures

A range of environmental obligations and control measures have been identified in the EA, the PPR, Project Approval and through the risk assessment.

The Noise Management Plan, Construction Traffic Management Protocol and Dust Management Protocol as required under CoA 6.3, are contained in Appendices B, C and D of this CEMP respectively. A Soil and Water Management Plan is contained in Appendix E. The Management Plans document the mitigation measures and monitoring requirements for each key environmental element.

Mitigation measures for other environmental impact areas provided in the sections below.

An Environmental Control Map, showing the location of the proposed Stage 1A works and the main environmental controls, is contained in Figure 3.1.

3.3.1 Heritage Protection Measures

SPC's Heritage Adviser, Conybeare Morrison, has prepared a Heritage Protection Plan for the heritage items to be retained on site during the Stage 1A works (refer Appendix E of the CEMP Framework rev 8). A Heritage Interpretation Plan and Strategy (HIPS) has been prepared separately by SPC's Heritage Adviser and will be submitted as a stand alone document to DoP.

The heritage protection measures are summarised on the ECM and listed below:

1. Demarcation fencing will be installed by the Demolition and Remediation contractor, Enviropacific Services (EPS) to protect the Tarpaulin Factory in its existing location whilst works are occurring in the vicinity.
2. Fencing has been installed by EPS around the base of the Pillar Water Tank in its existing location and appropriate signage erected indicating that the structure is not to be impacted in any way.
3. 1.8m high fence panels have been installed by EPS at the base of the Pedestrian Footbridge steps to prevent entry to the bridge, and associated signage will be displayed by EPS
4. Contractors will provide all workers and subcontractors with a site induction that includes identification of heritage issues and requirements prior to the commencement of the Stage 1A Enabling Works.
5. In the unlikely event that artefacts of Aboriginal heritage significance are uncovered during the course of construction, works in the immediate area would cease, SPC is to be notified and expert advice sought from an appropriately qualified professional.

3.3.2 Landscape and Ecological Area Management Measures

As indicated in the SPC's CEMP Framework (rev 8), the Landscape Management Plan (CoA 6.3 d)) is not a document required for the Stage 1 Enabling Works. With the exception of the construction of the Frog Conservation Area, landscaping will be undertaken following the main construction earthworks (expected to be completed in 2011). A Landscape Management Plan is currently being prepared by SPC's designer and will be submitted to DoP as a separate document later in 2009.

CoA 6.3 d) iv) requires measures for the enhancement, revegetation, and on-going management of the Ecological Area on the site and measures to provide suitable habitat for GGBF. SPC's Consulting Herpetologist has prepared a Concept Design for the habitat area, a Frog Management Plan for the on-going management of the habitat area and a Frog Protection Plan for the protection of frogs during construction. These documents, prepared in accordance with the requirements of Condition 6.3d iv) and 2.48, are contained in Appendix F of the CEMP Framework (rev 8). The works required to construct the Frog Conservation Area, which are the subject of this CEMP, will be undertaken in accordance with the requirements of these documents.

The frog protection measures for the Enabling Works are summarised on the ECM in Figure 3.1 and listed below:

1. Frog exclusion/protection fences will be erected by the relevant Contractor in areas identified by SPC's Herpetologist as potential GGBF habitat prior to any works being carried out in these areas, in accordance with the Frog Protection Plan.
2. Frog surveys and frog clearances will be carried out by the SPC's Herpetologist within the fenced areas where work is proposed after the frog-exclusion fences have been erected and in other proposed work areas with no frog habitat prior to the commencement of any works.
3. Should dead GGBF be found, the Contractor should retain the carcass and immediately advise SPC on 9296 4752 and Dr Arthur White on 9599 1161 or 0427 021 059.
4. Should any live frogs be discovered while construction works are being undertaken, the Contractor should place the frogs into a holding container with some water and immediately advise SPC on 9296 4752 and Dr Arthur White on 9599 1161 or 0427 021 059.
5. **Herbicides**, particularly glyphosate products, are not to be used around the GGBF ponds and the movement corridor. If herbicides are required to be used in the Frog Conservation Area, approval must be given by the Consulting Herpetologist. Herbicides may be used on other parts of the site provided that spray drift cannot reach the Frog Conservation Area and that surface sprays cannot enter surface water runoff and enter the frog Conservation Area in solution. Signs will be erected around the GGBF Conservation Area indicating that herbicides, particularly glyphosate products, are not to be used around the ponds.

3.3.3 Waste Mitigation Measures

Waste mitigation measures for Stage 1A are summarised on the ECM and listed below:

1. Waste material will be reused or recycled where possible, or otherwise disposed of at a licensed waste facility in accordance with DECC requirements;
2. Excavated materials requiring off-site disposal will be classified and disposed from the site in accordance with the NSW DECC "*Waste Classification Guidelines*", 2008;
3. Placement of all excavated material in designated stockpile areas. Designated stockpile areas will incorporate water management controls designed to direct any stockpile water runoff to sediment control systems, and divert off-site stormwater around stockpiles and exposed areas;
4. Machinery will be checked daily to ensure there are no leakages of oil, fuel or other liquids.

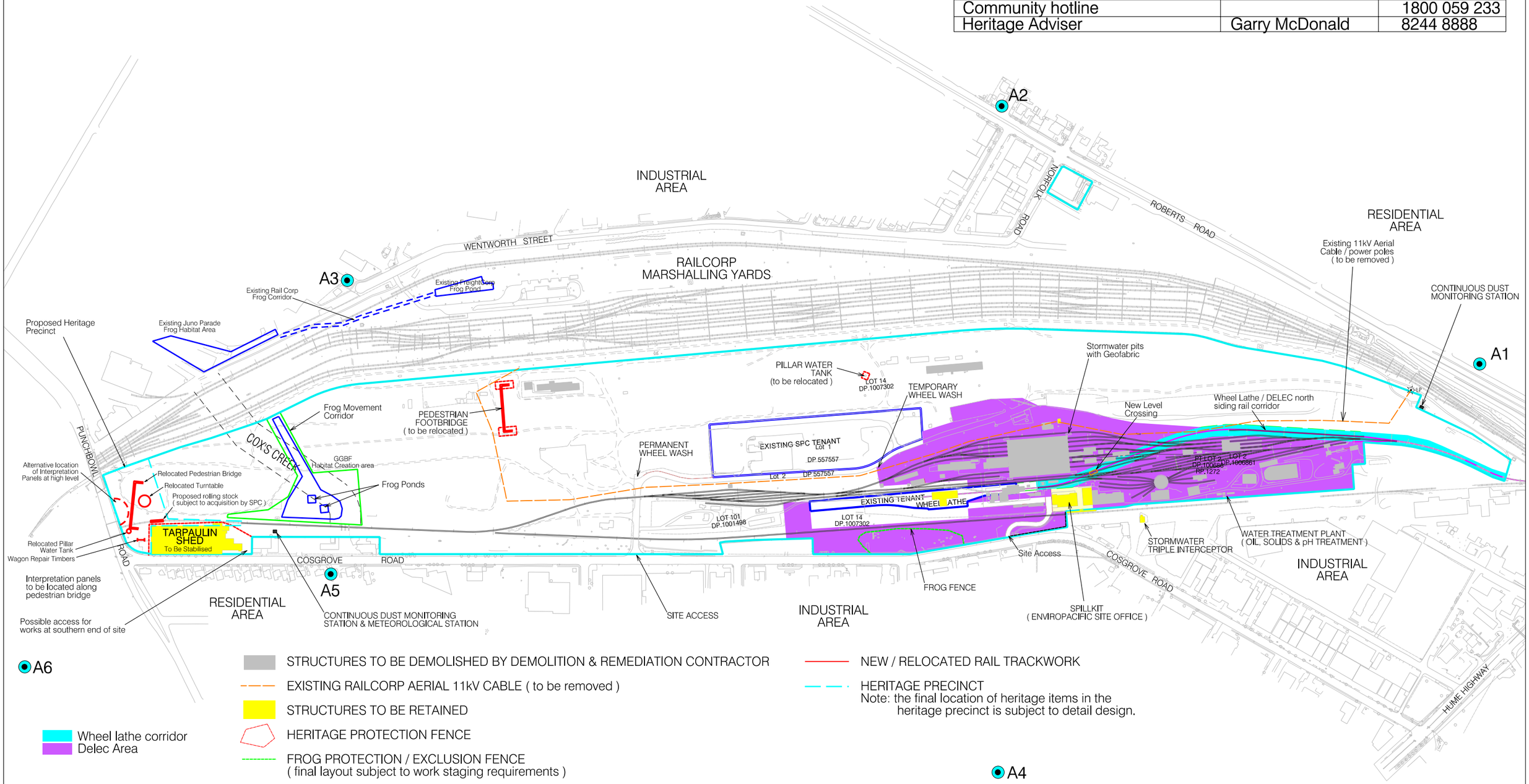
3.3.4 Energy and Water Management Measures

The following energy and water conservation measures will be implemented for the Stage 1A Enabling Works:

1. Throttling down and switching off construction equipment when not in use.
2. Switching off truck engines while they are waiting to be loaded and unloaded.
3. Switching off site office equipment and lights.
4. Regular maintenance of equipment to ensure optimum operations and fuel efficiency.
5. Reduce water consumption where possible.
6. Reuse water where practicable.

Construction Program (Indicative)	
Wheel lathe/DELEC north siding rail corridor works	April - June 2009
Removal of RailCorp's Aerial 11kV	October 2009
Heritage Works	June - October 2009
Construction of Frog Conservation Area	June - July 2009

KEY CONTACTS		
SPC Representative	Bruce Royds	0417 278 386
D & R Project Manager	Cameron Newling	0408 078 963
D & R Site Manager	Nat Stevens	0437 330 659
SPC's Herpetologist	Dr Arthur White	0427 021 059
Environmental Remediation Cnslt	Coffey	8083 1600
DECC Pollution Line		131 555
Community hotline		1800 059 233
Heritage Adviser	Garry McDonald	8244 8888



- STRUCTURES TO BE DEMOLISHED BY DEMOLITION & REMEDIATION CONTRACTOR
- EXISTING RAILCORP AERIAL 11kV CABLE (to be removed)
- STRUCTURES TO BE RETAINED
- HERITAGE PROTECTION FENCE
- FROG PROTECTION / EXCLUSION FENCE (final layout subject to work staging requirements)
- FROG HABTITAT CREATION AREA
- NEW / RELOCATED RAIL TRACKWORK
- HERITAGE PRECINCT
  Note: the final location of heritage items in the heritage precinct is subject to detail design.

Wheel lathe corridor
Delec Area

SPC Boundary

Noise Monitoring and Assessment Locations

50m 0 50 100 150 200 250 300 350 400 450 500m

Scale in Metres

SYDNEY PORTS
FIRST PORT, FUTURE PORT

PLAN PRODUCED ON MGA GRID

ENFIELD INTERMODAL LOGISTICS CENTRE
FIGURE 3.1 ENVIRONMENTAL CONTROL MAP
STAGE 1A - ENABLING WORKS

DRAFTED BY: J.T.	DATE: 16/02/2009
PLAN SCALE: AS PER SCALE BAR	DWG NO: SEDP111C

4 Monitoring and Review

4.1 Environmental Monitoring

Monitoring required for the Stage 1A works under the Project Approval, EA and PPR commitments is outlined in the Sections below.

4.1.1 Noise Monitoring

In accordance with CoA 6.2, measures to monitor and control noise emissions during construction works are required. Further details of the noise monitoring are provided in Appendix B of this CEMP.

4.1.2 Meteorological Monitoring (CoA 2.20 and 3.1)

A meteorological monitoring station has been installed on behalf of SPC and is operated and maintained by a specialist Contractor (Heggies Pty Ltd). The real-time data from the station is available to the responsible Contractors via a website to monitor weather conditions on the site. The meteorological station is located at the south-east of the site, as shown on the ECM.

Further details of the meteorological monitoring are provided in Appendix D of this CEMP.

4.1.3 Construction Dust Monitoring (modified CoA 3.2)

Dust monitoring stations have been installed at locations at the south-east (co-located with the meteorological monitoring station) and north-west of the site. These stations have been installed on behalf of SPC and are operated and maintained by a specialist Contractor (Heggies Pty Ltd). The station at the south east of the site is a PM_{10} Tapered Element Oscillating Microbalance (TEOM) continuous real-time air quality monitoring station. The station at the north-west of the site is a real time PM10 DustTrak monitor. The data from these stations is calibrated on a monthly basis in accordance with the requirements of DoP.

Ambient dust concentrations (PM_{10}) will be continuously monitored at these locations during enabling works and construction activities. The data from these stations are available to the responsible Contractors via the same website to monitor dust conditions on the site. The locations of the dust monitoring stations are shown on the ECM.

Further details of the dust monitoring are provided in Appendix D of this CEMP.

4.1.4 Water Quality Monitoring

In accordance with CoA 6.2, measures to monitor and minimise soil erosion and the discharge of sediment and other pollutants to lands and/ or waters during construction activities works are required. Further details of the required monitoring are provided in Appendix E of this CEMP.

4.1.5 Monitoring of Green and Golden Bell Frogs

Details of the proposed monitoring of Green and Golden Bell Frogs and the site Frog Habitat Creation Area (HCA) are contained in the Frog Management Plan (Biosphere, September 08) provided in Appendix F of the CEMP Framework. Frog monitoring within the GGBF HCA, including the Frog Movement Corridor, will be carried out by SPC's Consulting Herpetologist monthly between late August and April for three years after the completion of the CA, or until DECC is satisfied that the Frog Conservation Area has fulfilled its requirements.

The results of the monitoring will be provided to SPC and DECC in the form of an annual report to be prepared by the Consulting Herpetologist. Annual reports will be issued to the DECC and SPC after each frog season has concluded (i.e. in June or July of each year). Reporting will occur for the first three years after the establishment of the Frog Conservation Area.

Frog clearance surveys are discussed in Section 3.3.2.

4.1.6 Daily Checklists

Contractors will be required to carry out daily inspections of the works to ensure that construction activities comply with the requirements of this CEMP. A Daily Environmental Checklist is provided in Appendix F. The checklist is indicative and contractors will adapt it relevant to their scope of works.

4.2 Environmental Auditing

4.2.1 External Audits

In accordance with CoA 4.1, SPC will commission an independent environmental auditor to audit the project in accordance with *ISO 19011:2002 - Guidelines for Quality and/ or Environmental Management Systems Auditing*.

Environmental audits will be undertaken annually during construction, with the first audit scheduled approximately 6 months after the submission of the first Compliance Tracking Program report to DoP. This will be around the second half of 2009 to coincide with the commencement of the main earthworks. SPC will submit the environmental audit reports to DoP for information.

4.3 Corrective Action

CoA 4.1d) requires mechanisms for rectifying any non-compliance identified during environmental auditing or review of compliance.

If SPC or its enabling works contractors fail to:

- comply with the conditions of approval, project commitments or relevant legal environmental obligations; or
- comply with any environmental/planning requirements of the contract;

then SPC's Project Manager, in consultation with the Environmental and Planning Manager and the Contracts Manager, may direct the contractor or SPC's supervisor to modify or cease any or all of the work until SPC's supervisor or the contractor can satisfy SPC's Project Manager that the failure has been corrected and will not reoccur.

Recommendations provided in independent environmental audits for correcting compliance issues will be considered by SPC and implemented as necessary.

Enabling works contractors will be required to prepare procedures for dealing with non-compliances. These procedures will define who is responsible and has the authority for handling and investigating non-compliances, taking action and completing corrective and preventive action.

The contractors must report any incidents with actual or potential significant off-site impacts on people or the biophysical environment as soon as possible to SPC. Such incidents must be managed in accordance with SPC's CEMP Framework and CoAs 7.1 - 7.3.

4.4 CEMP Review

This CEMP will be reviewed as required to ensure the system is conforming to the environmental objectives and legal requirements. Reviews will be undertaken as necessary as a result of any of the following:

- when there is a change in the scope of the project that requires a change in environmental controls;
- when there is a need to improve performance in an area of environmental impact;
- at the completion of environmental audits as required;
- as a result of changes in environmental legislation applicable and relevant to the project.

Details of any significant changes made to the CEMP will be supplied to DoP.

5 References

Sinclair Knight Merz (October 2005). *Environmental Assessment: Intermodal Logistics Centre at Enfield*. Report prepared for SPC.

Sinclair Knight Merz (June 2006). *Intermodal Logistics Centre: Preferred Project Report.* Report prepared for SPC.

Sinclair Knight Merz (14 July 2007). *Project Changes – Enfield ILC*. Project Note prepared for SPC.

Sinclair Knight Merz (6 August 2007). *Light Industrial and Commercial Area – Enfield ILC*. Project Note prepared for SPC.

Sydney Ports Corporation (July 2008). *Intermodal Logistics Centre at Enfield. Stakeholder and Community Consultation Plan.*

Sydney Ports Corporation (July 2008). *Intermodal Logistics Centre at Enfield. Communications Strategy*.

Sydney Ports Corporation (18 September 2008). *Construction Environmental Management Plan Framework. Intermodal Logistics Centre at Enfield*. Revision 7.

SYDNEY PORTS

FIRST PORT, FUTURE PORT

Appendix A: Environmental Risk Assessment

Table of Contents

A1. Introduction

This appendix presents an Environmental Risk Assessment (ERA) and Risk Register for the Enabling Works. The appendix summarises the aims and objectives of the ERA, describes the methodology used throughout the ERA process, as well as detailing the various findings and presenting them as a Risk Register.

A2. Aims and Objectives

The ERA assesses the risk of various activities associated with the Stage 1A Enabling Works and suggests relevant management and mitigation measures for inclusion in the relevant Management Plans. The risk management process consists of four steps:

1. Establish the context for the risk assessment process;
2. Identify the environmental-related risks;
3. Analyse the risks;
4. Evaluate the risks to determine the significant issues.

The follow specific aims and objectives were established for the Stage 1A Enabling Works ERA:

- identify the activities, aspects and possible environmental impacts associated with the works;
- consider these activities in isolation of any controls and determine a raw risk rating;
- identify any controls required to mitigate or minimise the potential for environmental impacts in order to reduce the risk to the lowest level possible;
- provide the basis for the development of mitigation measures for inclusion in the Management Plans contained in this CEMP.

A3. Scope

The Stage 1A Enabling Works comprise:

- construction of wheel lathe/DELEC north siding rail corridor works;
- removal of RailCorp's aerial 11 kV wiring;
- stabilisation and installation of heritage items on the heritage interpretation area;
- construction of a Frog Habitat Creation Area (FHCA).

Further details of these works are provided in Section 1.2.3 of the Stage 1A CEMP.

A4. Methodology

This section describes the methodology used to assign a Risk Rating to environmental aspects of the proposed enabling works. Risk assessment is the formalised means by which hazards and associated dangers are systematically identified, assessed and ranked according to perceived risk and managed by means of appropriate and effective controls.

Environmental Risk is the chance of something happening that will have an adverse impact upon the environment. The impact will vary in consequence from Catastrophic (a major event which could cause severe damage to the environment) through to Insignificant (no detrimental impact on the environment is measured or envisaged). The Environmental Risk Rating is measured in terms of consequence (severity) and likelihood (probability) of the event happening.

The allocation of an Environmental Risk Rating was based on the following qualitative measures of impact:

1	**Catastrophic**	**A major event which could cause severe or irreversible damage to the natural and/or human environment.** **Involves death, toxic release off-site with detrimental effect, huge financial loss.** ▪ Major closure costs (i.e. estimated closure costs > $5M). ▪ Permanent premature closure of the mine. ▪ Severe or irreversible damage to natural environment. ▪ Could kill or permanently disable people. ▪ Actual or potential loss of credibility with key stakeholders (community /government). ▪ Long term environmental liability/legacy to the company. ▪ Loss of global reputation for the company. ▪ Regulatory intervention, prosecution would occur (i.e. fines). ▪ Negative publicity/complaints (national and global media exposure). ▪ Pollution event causes major downstream damage that is rectified by a long term remediation program over 12 months (eg failure of major tailings dam that pollutes international waters). ▪ Total destruction of cultural heritage sites and artefacts.
2	**Major**	**An event which could have a substantial and permanent consequence to the natural and / or human environment.** **Involves extensive injuries, loss of production capability, off-site release contained with outside assistance and little detrimental impact, major financial loss.** ▪ Major closure costs (i.e. estimated closure costs $1M - $5M). ▪ Could cause temporary or long term closure of mine. ▪ Substantial and permanent consequences to the natural environment. ▪ Could cause serious injury or disease to people. ▪ Potential loss of credibility with key stakeholders (community /government). ▪ Reported incident, regulatory intervention which would result in prosecution. ▪ Adverse publicity and community complaints (national media exposure). ▪ Pollution event which causes serious downstream damage that is rectified by a medium term remediation program over 1-12 months (e.g. failure of major tailings dam that pollutes regional/national waters). ▪ Major permanent unrepairable damage to cultural heritage sites and artefacts.
3	**Moderate**	**An event which could create substantial temporary or minor permanent damage to the natural and / or human environment.** **Medical treatment required, on-site release contained with outside assistance, high financial loss.** ▪ Moderate closure costs (i.e. estimated closure costs $500K - $1M). ▪ Could cause temporary closure of the mine or disruptions to the operation. ▪ Substantial temporary or minor permanent damage to the natural environment. ▪ A reportable incident not likely to result in prosecution.

		▪ Could cause typical lost time injury (LTI) to people. ▪ Potential loss of credibility with key stakeholders (community / government). ▪ Adverse local publicity and community complaints (local media exposure). ▪ Event which causes substantial temporary damage that is rectified by medium term remediation program over 3 – 6 months (i.e. earthworks to fix surface cracking under public roads or works required to stop water leaking from water storage structures). ▪ Substantial permanent unrepairable damage to cultural heritage sites and artefacts.
4	**Minor**	**An event which could have temporary and minor effects to the natural and / or human environment.** **First Aid treatment required, on-site release immediately contained, medium financial loss.** ▪ Minor closure costs (i.e. estimated closure costs $100K - $500K). ▪ Temporary minor damage to the natural environment. ▪ Could cause a first aid injury to people. ▪ Complaints received from near neighbours. ▪ Could result in government intervention but not likely to result in prosecution. ▪ Event which causes temporary minor damage which may require some minor rectification works (i.e. cracking on surface causing minor erosion in drainage lines). ▪ Minor repairable damage to cultural heritage sites and artefacts.
5	**Insignificant**	**No detrimental impact on the natural and / or human environment is measured or envisaged.** **No injuries, low financial loss, negligible environmental impact.** ▪ Minor closure costs (i.e. estimated closure costs <$100K) ▪ No detrimental impact to the natural environment. ▪ Couldn't cause injury or disease to people. ▪ No detrimental impacts to cultural heritage sites and artefacts.

The likelihood (or probability) of each impact occurring was also rated according to the qualitative measures.

Level	Descriptor	Description
A	Almost certain	Is expected to occur in most circumstances
B	Likely	Will probably occur in most circumstances
C	Possible	Could occur
D	Unlikely	Could occur but not expected
E	Rare	Occurs only in exceptional circumstances

A risk matrix based on these qualitative measures of consequence and likelihood was then used to measure risk and enable risk prioritisation.

Likelihood		**Consequence**				
		Catastrophic	Major	Moderate	Minor	Insignificant
		1	2	3	4	5
Almost Certain	A	**E**	**E**	**E**	**H**	**H**
Likely	B	**E**	**E**	**H**	**H**	**M**
Possible	C	**E**	**E**	**H**	**M**	**L**
Unlikely	D	**E**	**H**	**M**	**L**	**L**
Rare	E	**H**	**H**	**M**	**L**	**L**

These risks are prioritised such that:

Risk Ranking	Symbol	Description
Extreme Risk	E	Immediate action required
High Risk	H	Senior management attention needed
Moderate risk	M	Management responsibility must be specified
Low risk	L	Manage by routine procedures

Risk Rankings were allocated to the environmental aspects of the enabling works based on two separate scenarios. The first considered no controls, which is a measure of the raw risk associated with the activity. The second considered the risk rating with the proposed controls recommended as part of the various Management Plans and mitigation measures.

In the context of this Risk Assessment a control is considered to be either a hard engineering control (e.g. bunds, diversions, etc) or administrative control (e.g. work procedure(s) and/or management plan).

A5. Risk Register

The following Risk Register documents the environmental risk assessment outcomes for the Stage 1A Enabling Works.

A6. Results and Recommendations

The findings of the RA indicate that the risks associated with the enabling works can be mitigated using the measures proposed in this CEMP. Once mitigation measures have been applied, all of the identified impacts have a low risk ranking.

Appendix A - Environmental Risk Register

Item	Activity	Aspect	Impact	Potential Risk			Proposed Controls	Residual Risk		
				C^1	L^2	R^3	C^1 = Consequence, L^2= Likelihood, R^3 = Risk Rank	C^1	L^2	R^3
1	Wheel lathe access works	Construct new northern track & road level crossing	Dust generation from earthworks, laying of ballast, drainage works	4	C	M	- Implement Dust Management Protocol (App D) - Water active work areas to reduce wind blown dust - Rehabilitate exposed areas as soon as possible after construction	4	D	L
			Movement of sediments and other pollutants to local waterways due to soil erosion	4	C	M	- Implement SWMP (App E) - Install sediment and erosion controls (App E) - Stabilise stockpiled materials	4	D	L
			Dust, mud and other waste generation on local roads from truck movements	4	C	M	- Trucks to cover all dust generating loads (App D) - Check machinery daily to ensure no leakages of fuel (App E) - trucks/machinery to access/leave site via wheel wash	4	D	L
			Noise pollution in residential areas	4	C	M	- Implement Noise Management Plan (NMP) (App B) - Restrict construction hours according to Project Approval - SPC will carry out compliance noise monitoring in accordance with NMP	5	C	L
			Impacts on local traffic due to minimal increase in traffic to site.	4	C	M	- Implement Traffic Management Protocol (App C) - Construction truck traffic not allowed on residential streets	5	C	L
2	Removal of Railcorp's aerial 11kV	Removal and disposal of aerial electrical cables and poles	Minimal noise pollution in residential areas	4	C	M	- Implement Noise Management Plan (App B) - Restrict construction hours according to Project Approval - SPC will carry out compliance noise monitoring in accordance with NMP	5	C	L
			Waste generation	4	C	M	- Implement waste mitigation measures in CEMP - Timber power poles will be reused - Wiring will be reused	5	D	L
3	Heritage works	Dismantle, possible storage and relocation of pedestrian footbridge and pillar water tank	Physical damage to heritage items	4	C	M	- Implement methodologies in CEMP and HIPS - Implement mitigations measures provided in CEMP - Install temporary fencing around items	4	D	L
		Construction equipment damages heritage items in existing or new location	Physical damage to heritage items	4	C	M	- Implement Heritage Protection Plan in HIPS - Implement mitigations measures provided in CEMP - Install temporary fencing around items	4	D	L
		Earthworks for relocation of items	Noise, dust or water quality impacts or impacts on GGBF.	4	C	M	- Implement NMP (App B) - Implement Dust Management Protocol (App D) - Implement SWMP (App E) - Implement Protection Measures in CEMP (refer also App F of CEMP Framework).	4	D	L
		Installation of items in heritage precinct area	Noise, dust or water quality impacts or impacts on GGBF.	4	C	M	- Implement NMP (App B) - Implement Dust Management Protocol (App D) - Implement SWMP (App E) - Implement Protection Measures in CEMP (refer also App F of CEMP Framework).	4	D	L
4	Construction of Frog Habitat Creation Area	Earthworks for two ponds and frog movement corridor, planting, drainage works.	Movement of sediments and other pollutants to local waterways due to soil erosion	4	C	M	- Implement SWMP (App E) - Install sediment and erosion controls (App E) - Stabilise and cover stockpiled materials	4	D	L
			Possible noise pollution in residential areas	4	C	M	- Implement Noise Management Plan (App B) - Restrict construction hours according to Project Approval - SPC will carry out compliance noise monitoring in accordance with the NMP	4	D	L
			Impacts on local traffic due to minimal increase in traffic to site.	4	C	M	- Implement Traffic Management Protocol (App C) - Construction truck traffic not allowed on residential streets	5	C	L
			Waste generation	4	C	M	- Implement waste mitigation measures in CEMP	4	D	L
			Disturbance to Green and Golden Bell frogs	4	C	M	- Implement Frog Protection Measures in CEMP (refer also App F of CEMP Framework). - Erection of frog protection/exclusion fencing prior to commencement of works.	4	D	L

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Appendix B: Construction Noise Management Plan

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Figures

Tables

B1. Introduction

B1.1 Purpose and Scope

The purpose of this construction noise management protocol is to describe how Sydney Ports Corporation (SPC) proposes to manage and control noise risks during Stage 1A Enabling Works of the project.

The Stage 1A Enabling Works comprise:

- construction of wheel lathe/DELEC north siding rail corridor works;
- removal of RailCorp's aerial 11 kV wiring;
- stabilisation and installation of heritage items on the heritage interpretation area; and
- construction of a Frog Habitat Creation Area (FHCA).

Further details of these works are provided in Section 1.5 of the Stage 1A CEMP.

This Construction Noise Management Plan (NMP) has been prepared to address the relevant requirements of the Minister's conditions of approval and the commitments made in the Environmental Assessment (SKM, 2005) and Preferred Project Report (SKM, 2006).

This NMP outlines the noise management strategy for the Stage 1A SPC Enabling Works which are detailed in Section 1.5 of the CEMP. The NMP identifies:

- existing noise environment and sensitive receptors;
- NSW EPA construction noise criteria;
- potential noisy activities and noise impacts;
- construction noise management measures and contingency strategies;
- construction noise monitoring; and
- complaints and community management.

B1.2 Background

The Environmental Assessment (EA) for the Intermodal Logistics Centre (ILC) at Enfield (SKM, 2005) assessed the potential for noise quality impacts during site preparation, pre-construction and construction activities.

The noise impact assessment conducted for the EA concluded that activities such as earthworks were expected to produce the highest noise impacts and that construction noise emissions from the site could exceed the NSW DECC noise criteria at the nearest affected residences without appropriate mitigative measures. In line with a conservative assessment, the EA predictions were worst case scenario, with cumulative sound power levels calculated from all construction plant operating at once and no mitigation in place. The noise sources were also modelled at their closest likely point to residences. It is however noted that Stage 1A works do not involve significant earthworks (refer to Section 1.5 of the CEMP), the works would be staged and done intermittently and that most of the work activities would be located at distance and/or buffered from sensitive receivers (refer to Section B4).

The EA also noted that the types of activities carried out on site during the construction stage are unlikely to cause significant ground vibration beyond 25 m from the source. In this regard, the EA

concluded that since the nearest potentially affected residential premises to the ILC site are approximately 50m away, it was unlikely that ground vibration would be an issue on the site and consequently it was not considered further.

The Minister's approval of the ILC at Enfield included a number of conditions for noise management, including the requirement to prepare a Noise Management Plan as part of the CEMP. The requirements of the project approval are addressed in this plan.

B1.3 Environmental Management Plan Overview

The overall Environmental Management System for preconstruction and construction activities is described in the SPC's CEMP Framework (rev 8). This noise management plan is part of the Stage 1A enabling works CEMP prepared under of the SPC's CEMP Framework (rev 8). Under the CEMP Framework, Stage 1A CEMP is one of seven (7) CEMPs prepared for pre-construction and construction activities at the ILC site.

B2. Existing Noise Environment and Sensitive Receptors

The Enfield ILC site is situated in a predominantly industrial area. The site is bound by industrial land to the east and west and mixed industrial/residential to the north and south (refer to Figure B1). Existing noise levels in the area are dominated by traffic noise along the main arterial routes in addition to industrial uses, including the existing railway infrastructure of the new Enfield Marshalling Yards.

The noise impact assessment conducted for the EA assessed identified the nearest potentially affected residential locations as follows:

- Residences on Cosgrove Road, south of Cox's Creek Channel
- Residences on Punchbowl Road, adjacent to the rail line and opposite the site
- Residences on Wentworth Street (south), adjacent to the rail line at the southern end of site
- Residences on Norfolk Road and Roberts Road
- Residences on Rebecca Road and Roberts Road
- Residences on Margaret Street, backing onto Roberts Road
- Residences in Gregory Street, Therry Street and McEncroe Street, Strathfield South (adjacent to Cooks River Reserve).

Other sensitive land uses are Strathfield High School, Begnell and Matthews Park and the Greenacre Bowling Club. Strathfield High School is located approximately 200 m from the northern end of the site and in addition up to six other schools are located within 1 km of the ILC site. Figure B1 shows the location of surrounding landuses including nearby residences and Table 1 below presents the measured existing L_{90} background daytime noise levels at monitoring locations in the vicinity of these residences.

Table B2.1 Measured Existing Background (L_{90}) Noise Level, dB(A)

	Noise Monitoring Location	L_{90} Background Noise Levels Day (7 am-6 pm)
M1	6 Jean Street, Strathfield South (back yard facing Roberts Rd, noise environment predominantly dominated by existing traffic noise from Roberts Rd)	49
M2	42 Norfolk Street, Strathfield South (front yard facing North Rd, noise environment predominantly dominated by existing traffic noise from Roberts Rd)	48
M3	14 Wentworth Street (south), Greenacre (back yard facing ILC site, noise environment predominantly dominated by existing industrial noise from quarry to the east of residence)	44
M4	124A Dean Street, Strathfield South (back yard with noise environment predominantly dominated by existing light industrial noise and traffic from Dean St)	44
M5	43 Blanche Street, Strathfield South (Back yard facing Cosgrove Rd, noise environment predominantly dominated by existing traffic noise from Cosgrove Rd)	41
M6	40 Bazentin Street, Belfield (back yard with noise environment predominantly dominated by existing traffic noise from Punchbowl Rd with some rail noise)	41

Residences in Gregory Street, Therry Street and McEnroe Street, Strathfield South (adjacent to Cooks River Reserve) are represented as the eastern end of Gregory Street, Strathfield South assessment location. The nearest related noise monitoring location to the eastern end of Gregory and Ivy Streets were 124B Dean Street and 42 Norfolk Street respectively.

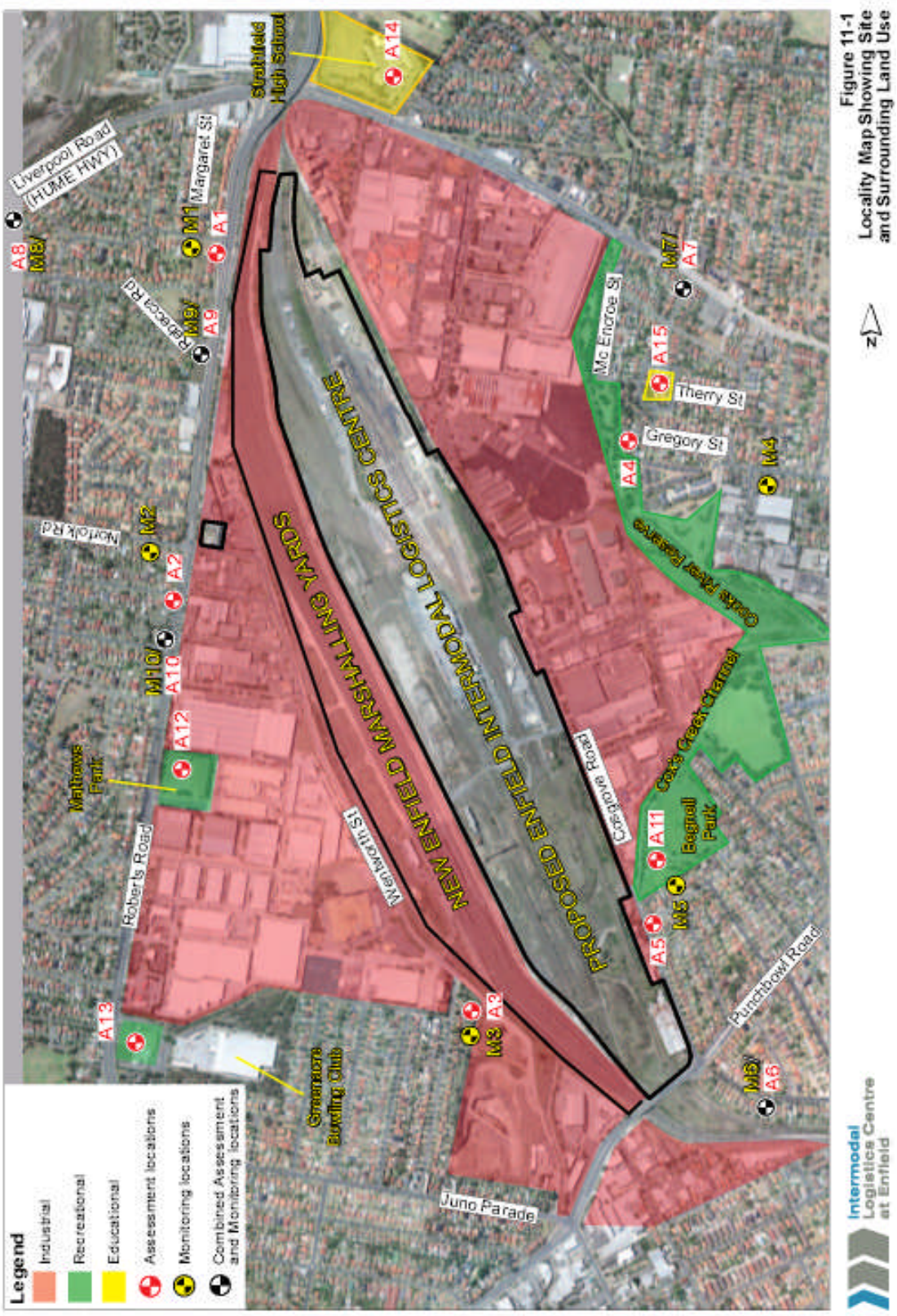

Figure B1: Surrounding Landuses, Noise Monitoring Locations and Nearby Residences

B3. Construction Noise Criteria and Objectives

B3.1 Project Approval and EA Statement of Commitments

The following CoAs apply to the area of noise:

2.13	SPC shall minimise noise emissions from plant and equipment operated on the site by installing and maintaining, wherever practicable, efficient silencers, low-noise mufflers (residential standard) and by replacing reversing alarms with alternative silent measures, such as flashing lights (subject to occupational health and safety requirements).
2.15	SPC shall only undertake site preparation and construction activities associated with the project that would generate an audible noise at any residential premises during the following hours: a) 7:00 am to 6:00 pm, Mondays to Fridays, inclusive; b) 8:00 am to 1:00 pm on Saturdays; and c) at no time on Sundays or public holidays. This condition does not apply in the event of a direction from police or other relevant authority for safety reasons.
2.16	The hours of site preparation and construction activities specified under condition 2.15 of this approval may be varied with the prior written approval of the Director-General. Any request to alter the hours of construction specified under condition 2.15 shall be: a) considered on a case-by-case basis; b) accompanied by details of the nature and need for activities to be conducted during the varied construction hours; and c) accompanied by sufficient information for the Director-General to reasonably determine that activities undertaken during the varied construction hours will not adversely impact on the acoustic amenity of receptors in the vicinity of the site.
6.2 f iii	SPC shall prepare a CEMP prior to the commencement of site preparation works. The CEMP must include measures to monitor and control noise emissions during construction works.

The EA listed the following commitments:

- Minimise construction noise impact on surrounding residences
- An Environmental Noise Management Plan (ENMP) would be prepared and implemented prior to the commencement of works to achieve compliance with DECC criteria where reasonable and feasible. This Plan would include:
  - Application of physical noise controls to construction equipment, equipment maintenance and utilising “best practice” technology to achieve low levels of construction noise emissions;
  - Noise compliance monitoring for all major equipment and activities on site;
  - Erection of temporary noise attenuation barriers where necessary and practicable;
  - Construction of noise barriers/acoustic mounds as appropriate for the location and type of construction activities as early as practicable in the program;

- The planning of noisy activities for parts of the day when they would have the least impact;
- Communication between the community and the construction management to be provided at the start of the works and maintained during the works. This will include a 24 hour complaints handling system and advice to the community prior to undertaking any out-of-hours work;
- Investigative monitoring of noise in response to specific complaints.

B3.2 Environmental Noise Control Manual

The NSW Environmental Noise Control Manual (ENCM, Environmental Protection Authority 1994) is used to assess noise generated during the construction phase. Chapter 171 of the ENCM states the following:

B3.2.1 Level Restrictions

i) Construction period of 4 weeks and under:

The L_{10} level measured over a period of not less than 15 minutes when the construction site is in operation must not exceed the background level by more than 20 dB(A).

ii) Construction period greater than 4 weeks and not exceeding 26 weeks:

The L_{10} level measured over a period of not less than 15 minutes when the construction site is in operation must not exceed the background level by more than 10 dB(A).

iii) Construction period greater than 26 weeks:

The L_{10} level measured over a period of not less than 15 minutes when the construction site is in operation must not exceed the background level by more than 5 dB(A).

For Stage 1A, individual work packages will comprise no more than 26 weeks duration. The different work activities will be undertaken at different locations and possibly not at the same time. Given that Stage 1A activities could possibly extend over a period longer than 26 weeks (intermittently), the more stringent criteria associated with construction periods greater than 26 weeks has been adopted for Stage 1A works.

B3.2.2 Time Restrictions

Construction work hours are restricted to 7am to 6pm Monday to Friday inclusive and 8am to 1pm Saturday. No works will take place on Sunday and Public Holidays. These times comply with the ENCM guidelines and are a requirement of the project approval (CoA 2.15) which also notes that these hours do not apply in the event of a direction from police or other relevant authority for safety reasons.

B3.2.3 Noise Criteria

Based on existing background noise levels (Section B2), the level of restriction (Section B3.2.1), and construction hours, the following construction noise criteria for the six assessment areas has been adopted as summarised in Table B3.1 below (ie. the criteria in the assessment area is based on noise levels measured at the nearest representative monitoring location, as described in the EA (SKM, 2005)).

Table B3.1 Summary of Construction Noise Criteria (dB(A))

Location		Construction Noise Criteria dB(A)*
A1	Eastern end of Jean Street, Strathfield South	54
A2	Eastern end of Ivy St, Strathfield South	53
A3	2 Wentworth Street (south), Greenacre	49
A4	Eastern end of Gregory St, Strathfield South	49
A5	Western end of Blanche Street, Strathfield South	46
A6	40 Bazentin Street	46

* The L10 level measured over a period of not less than 15 min when the construction site is in operation must not exceed L_{90} + 5 dB(A)

B4. Potential Noise Impacts

B4.1 Major Noise Sources

The primary noise sources associated with the Stage 1A SPC Enabling Works are from plant and equipment involved in the task.

Table B4.1 below lists the associated sound power levels for typical plant and equipment for the Stage 1A activities.

Table B4.1 Typical Construction Equipment and Sound Power Levels

Plant Description	Sound Power Levels, dB(A) re: 10^{-12} Watts	
	Range	Typical (Mid-Point), L_{A10}
Mobile Crane	110-115	113
Truck (20 t)	103-108	106
Loader (Wheeled)	115-120	118
Excavator	108-118	113
Water Cart	106-108	107

Note: The sound power data within the column marked "Typical (Mid-Point)" has been used in this plan to determine typical construction noise levels at the nominated assessment locations.

The sound pressure levels for the activities presented in the above table are based on maximum levels given in Table D2 of Australian Standard 2436 -1981 "*Guide to Noise Control on Construction, Maintenance and Demolition Sites*".

B4.2 Potential Noise Issues

Noise criteria are not predicted to be exceeded at sensitive receivers during the Stage 1A works. The majority of Stage 1A works are located within the ILC site at distance from sensitive areas and/or shielded by buildings or the natural landscape. Noise from construction machinery may be occasionally audible in certain residential areas, but this noise would be of a transient nature.

The Stage 1A works that pose the highest risk in terms of potential acoustic impacts in residential areas include excavation and earthworks associated with the construction of two ponds at the Frog Habitat Creation area and works at the heritage interpretation area.

Works associated with the construction of two ponds at the Frog Habitat Creation area are located in the southern part of the site (immediately south of Cox's Creek), with the nearest residential areas (A5) located about 100 m from the works. This area is however largely shielded by existing (and recently constructed) commercial buildings at Cosgrove Road and an existing earth embankment (for the existing rail corridor).

Works for the installation of heritage items will also be undertaken at the southern part of the site with residential areas (A5) as close as 50 m from the proposed location of some heritage items. These works are not significant in terms of machinery usage and earthworks. The site is also largely shielded by the existing Tarpaulin Factory.

Noise mitigation measures will be undertaken as detailed in Section B5 below and compliance noise monitoring will be carry out throughout the works as discussed in Section B6.

B5. Construction Noise Management Measures

To minimise construction noise the following mitigation and control measures will be implemented:

1. Construction activities that would generate an audible noise at any residential premises will be restricted to construction work hours 7 am to 6pm Monday to Friday inclusive and 8 am to 1 pm Saturday. No works will take place on Sunday and Public Holidays. (Note: This does not apply in the event of a direction from police or other relevant authority for safety reasons. (As per Condition 2.15 of the Project Approval). The hours of construction specified may be varied with the prior written approval of the Director-General. (As per Condition 2.16 of the Project Approval)
2. An awareness program for construction personnel on noise minimisation will be developed by all contractors as part of the site induction. The awareness program will include discussion of mitigation measures as outlined in this Construction Noise Management Plan.
3. Information will be provided to the local community by SPC prior to the commencement of works as per the Community Consultation Plan. The 1800 contact number is available to the public (on sign on ILC Site entrance and on ILC website) so that information can be received or complaints made in relation to noise. A centralised complaints register will be maintained by SPC and action will be taken by the Contactor as required by SPC. Contractors will be required to maintain their own complaints register.
4. Contractors will be required to comply with SPC's Complaints and Inquiries Procedure (included in SPC's CEMP Framework (rev 8);
5. Plant and equipment will be used appropriately. This includes reasonable work practices with no extended periods of 'revving', idling or 'warming up' within the proximity of existing residential receivers. Plant will be turned off when not being used.

6. Any anticipated noise activities will be planned, where possible, for parts of the day when they would have the least impact.
7. Where possible, noisy plant will be located away from potentially noise-affected neighbours or behind barriers, such as sheds or walls. Where reasonable, respite periods will be utilised for very noisy activities.
8. Residential class mufflers and engine shrouds (acoustic lining) will be used on all construction equipment wherever practicable.
9. All equipment will be maintained in good order including mufflers, enclosures and bearings to ensure unnecessary noise emissions are eliminated.

The Contractors' Project Manager for each of the major activities comprising the Stage 1A Enabling Works will be responsible for the implementation of these measures.

In the event that the construction noise levels exceed the criteria, the SPC's Project Manager will require contractors to investigate the exceedance and implementing additional mitigation measures, such as:

1. Modify work practices.
2. Re-inducting contractors of their responsibilities in controlling noise levels.
3. reducing works hours;
4. Stop work.

B6. Construction Noise Monitoring

Monitoring of construction noise emissions will be undertaken via:

1. Monthly noise monitoring by SPC's consultant during noisy works.
2. Noise monitoring in response to specific complaints, if considered necessary by SPC based on the results of investigations undertaken to determine the cause of the complaint.
3. Daily inspection of the works by contractors including audible inspection of the work site generally.
4. General noise checks of plant and equipment by contractors before starting works.

As discussed above, attended noise compliance monitoring will be undertaken monthly by SPC's consultant during noisy works at the site. If no noisy works are expected during a particular month, no compliance noise monitoring will be undertaken in that particular month.

Depending on the location of the works, the compliance noise monitoring will be undertaken at a minimum of 2 sites and a maximum of 6 sites (as per assessment/monitoring locations discussed above). Results will be reported as L_{10} and compared against the adopted criteria. Compliance noise monitoring reports will be lodged in the project's Project Centre web-based system and made available to contractors.

B7. Complaints and Community Management

The Contractor will be required to comply with the Complaints and Inquiries Procedure described in the SPC's CEMP Framework (rev 8) for recording all complaints received and actions taken in response to such complaints. Contractors will be required to notify all complaints to SPC as soon as possible. As may be required by SPC, the contractor's Project Manager will be required to implement appropriate action (i.e. investigate the cause of the complaint, develop mitigation measures, implement measures and educate contractors of procedural changes).

Information will be provided to the local community by SPC prior to the commencement of works and on a regular basis as per the Community Consultation Plan (attached in SPC's CEMP Framework Rev 8). If significant noise works are anticipated, additional notification to the community will be undertaken by SPC. Contractors will be required to advice SPC of any planned noise activities on a regular basis.

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Appendix C: Construction Traffic Management Protocol

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Tables

C1. Introduction

C1.1 Purpose and Scope

The purpose of this Traffic Management Protocol (TMP) is to describe how Sydney Ports Corporation (SPC) proposes to manage and control traffic during the Stage 1A Enabling Works for the project.

The Stage 1A Enabling Works comprise:

- construction of wheel lathe/DELEC north siding rail corridor works;
- removal of RailCorp's aerial 11 kV wiring;
- stabilisation and installation of heritage items on the heritage interpretation area;
- construction of a Frog Habitat Creation Area (FHCA).

Further details of these works are provided in Section 1.2.3 of the Stage 1A CEMP.

This TMP outlines the traffic management strategy for the Stage 1A Enabling Works to address the requirements of the CoA and statement of commitments. This TMP has been prepared to address the relevant requirements of the Minister's Conditions of Approval (CoA) and the commitments made in the Environmental Assessment (SKM, 2005) and Preferred Project Report (SKM, 2006).

The TMP outlines:

- traffic management criteria and objectives
- predicted construction traffic extent and impacts during the Enabling Works
- proposed traffic management measures
- SPC's Complaints managements system.

The TMP has been prepared in accordance with SPC's *Traffic Management Plan Guidelines*, December 2007.

C1.2 Background

The Environmental Assessment (EA) for the Intermodal Logistics Centre (ILC) at Enfield (SKM, 2005) assessed the potential impacts of construction traffic during site preparation, pre-construction and construction activities and proposed mitigation measures.

The EA predicted that the main road transport task during the Enabling Works would comprise trucks involved in materials delivery, and delivery or relocation of specialist plant such as cranes and excavators. Construction staff would use light four-wheel drive vehicles for survey and construction management purposes. Control of construction traffic should be in accordance with the requirements of the RTA's *Traffic Control at Worksites Manual*. The construction impact on road network and intersection performance was considered to be negligible.

The EA recommended that the main routes used for the movement of key materials from the site be via the Hume Highway or via Roberts Road. Heavy construction traffic should be restricted to arterial routes, with trucks prohibited from using local streets in residential areas.

The EA estimated a maximum generation traffic of 150 to 170 car vehicles per day and an average 29 truck vehicles per day to and from the site during the construction works. Stage 1A is however expected to generate a significant lower volume of traffic as discussed in Section C3.1.

The EA recommended that appropriate traffic management plans should be developed to manage construction traffic during the site construction period.

C1.3 Environmental Management Plan Overview

The Environmental Management System for the ILC construction activities is described in SPC's CEMP Framework (Revision 8). This TMP is a sub-plan of the Stage 1A Enabling Works CEMP, prepared under the overarching CEMP Framework. The Stage 1A CEMP is one of seven CEMPs to be prepared for the various ILC construction activities.

C2. Traffic Management Criteria and Objectives

CoA 6.3 b) of the Project Approval requires the preparation of a Construction Traffic Management Protocol to detail how heavy vehicle movements associated with the project will be managed during construction. The Protocol must address:

- the movement of oversize loads to and from the site;
- the management of construction traffic;
- restrictions to the hours of heavy vehicle movements to avoid road use conflicts; and
- the transport of construction waste materials.

CoA 2.12 requires SPC to establish and maintain for the life of the project a Road Transport Coordination Group (RTCG) to oversee and coordinate the management of traffic and road issues associated with and affected by the project. The RTCG must include representatives from SPC, DoP, RTA, Strathfield Municipal Council and Bankstown City Council, and shall operate in accordance with terms of reference agreed by those parties at the first meeting of the RTCG.

The statement of commitments in the EA requires the preparation and implementation of a Construction Traffic Management Protocol to:

- restrict heavy construction traffic to designated arterial routes using the mechanism of construction contracts;
- establish consultation procedures through the Traffic Working Group with the RTA and local councils for any proposed off site works

Control of construction traffic should be in accordance with the requirements of the RTA's *Traffic Control at Worksites Manual*.

C3. Construction Traffic

C3.1 Predicted Extent of Construction Traffic

Construction traffic associated with the Stage 1A Enabling Works will include a number of small to large truck movements for:

- the delivery and removal of mobile equipment (backhoes, excavators, elevated work platforms, cranes etc),
- delivery of materials (concrete, sleepers, ballasts, clay, etc)
- removal of waste (aerial wiring)

Traffic movements will occur intermittently throughout the duration of the works. The duration of the Stage 1A Enabling Works is expected to occur intermittently for approximately 8 months, with individual work packages mostly comprising no more than 3 months duration.

The individual activities are described further in Table C3.1 below.

Table C3.1 Enabling Works Construction Activities

Activity Description	Construction Activities	Equipment/ Materials/ Labour
Wheel lathe access works		
Construct and commission new northern track in WL Corridor	• Formation works • Slew track • Lay ballast • Lay sleepers • Fix rail	• Rollers • Excavators/loaders • Specialist gear • Ballasting • Track laying excavators
Construct permanent road level crossing	• Place & fix infill unit within tracks • Install signals/flashing lights, boom gate.	• Trucks • Tamping machine
Removal of Railcorp's 11 kV		
Removal of 11kV aerial wiring and power poles.	• Remove aerial wiring and power poles. • Reuse off site.	• Elevated work platforms (EWP) • Trucks
Heritage Works		
Dismantle and relocate pedestrian footbridge on site	Details in Section 1.5 of CEMP	• Trucks • Mobile crane • Manual tools
Dismantle and relocate pillar water tank on site	Details in Section 1.5 of CEMP	• Trucks • Mobile crane • Manual tools
Dismantle and relocate part of turntable and gravitational sanding points	Details in Section 1.5 of CEMP	• Trucks • Mobile crane • Manual tools
Stabilise tarpaulin shed	Details in Section 1.5 of CEMP	• EWP • Truck • Manual tools
Construction of FHCA		
Earthworks to construct 2 ponds and movement corridor Pond drainage works Planting and landscaping	• Earthworks for two ponds • Lay pipe/valve for dewatering • Place pond lining • Place boulder/sleeper piles • Planting in ponds and grassland around ponds • Construct frog movement corridor • Water supply to ponds	• Trucks • Earthmoving equipment

Estimated average traffic generated by Stage 1A works is provided in Table C3.2 below.

Table C3.2: Stage 1A Estimated Traffic Movements

Works	Estimated Traffic Movements
Wheel Lathe Access Works	4 truck vehicles per day 6 employee vehicles per day
Removal of RailCorp 11 kV OHW	2 truck vehicles per day 4 employee vehicles per day
Heritage Works	2 truck vehicles per day 4 employee vehicles per day
Construction of FHCA	2 truck vehicles per day 3 employee vehicles per day

C3.2 Predicted Construction Traffic Impacts

The duration of the Enabling Works is expected to be around 8 months, commencing in March 2009. The Enabling Works comprise a number of relatively minor tasks with short timelines (most of them no more than 3 months) and a limited number of vehicle movements. Traffic modelling carried out for the EA (SKM, 2005) indicated that the potential construction traffic impact would be minimal.

C4. Construction Traffic Management Measures

C4.1 Oversize/Overmass Loads

The Stage 1A works are not anticipated to generate oversize loads to/from the site. If oversize loads are required, the following measures will be implemented:

1. All contractors are required to comply with the *Road Transport (Mass, Loading and Access) Regulation 2005* and the *Road Transport (Vehicle Registration) Regulation 2007*.
2. Vehicles exceeding any of the Statutory Dimension Limits must carry the appropriate General Class 1 Oversize Notice when operating in NSW.
3. The Contractor must comply with the conditions for travel in NSW for that vehicle type provided in the General Class 1 Oversize Notice. The conditions relate to:
   - oversize vehicle operating requirements
   - warning devices
   - pilot vehicles
   - travel zones – time and route restrictions
   - restricted roads
   - critical locations.
4. If appropriate, the Contractor must also obtain from the RTA a specific permit, which may be an oversize permit (in addition to the General Class 1 Oversize Notice) and/or an above-mass permit. A specific permit:
   - prescribes the travel conditions that apply to a particular vehicle;
   - identifies the vehicle to which the permit applies; and
   - identifies the registered operator of the vehicle.

   The permit may also specify conditions to secure payment for:
   - damage caused to roads, bridges or other property by the vehicle;
   - road work that must be conducted before the vehicle can travel on a particular route; or
   - costs incurred by the RTA to evaluate the proposed route or provide any special escort services.

C4.2 Management of Construction Traffic

The following traffic control measures will be implemented during Stage 1A works:

1. All vehicles to enter the site via Cosgrove Road through either Gate 1, the DELEC access Gate or other gates previously agreed by SPC.
2. All vehicles to park within the site to minimise impact on Cosgrove Road.

3. The Contractor must ensure that no truck movements occur outside of the construction work hours (refer Section C4.3 below).
4. Heavy construction traffic is prohibited from travelling on streets in residential areas.
5. Heavy construction traffic must travel on the designated arterial routes. Regional road access for the site is from Centenary Drive from the north, Hume Highway from the north-east and north-west, Punchbowl, Canterbury Roads and King Georges Road from the south and Roberts Road from the west. Local entry is from Cosgrove Road. The main routes used for the movement of key materials from the site should be via the Hume Highway or Roberts Road.
6. Contractors will contribute to SPC's complaints management system (refer Appendix D of the CEMP Framework (rev 8)) for recording all complaints received and actions taken in response.
7. Contractors will be required to pass all construction vehicles (as distinct from passenger vehicles) through a wheel wash prior to leaving the site.
8. All vehicles will be restricted to a maximum speed limit on site of 25 km/hr.

C4.3 Working Hours

1. Construction work hours are restricted to 7 am to 6 pm Monday to Friday inclusive and 8 am to 1 pm Saturday. Where possible, heavy vehicle movements should be limited to these times. Any required oversize truck movements will not be undertaken during peak traffic curfews.
2. No works will take place on Sunday and Public Holidays.
3. The work hours can only be varied with the prior written approval of the Director-General. Any request to alter the hours of construction:
    - will be considered on a case-by-case basis;
    - must be accompanied by details of the nature and need for activities to be conducted during the varied construction hours; and
    - must be accompanied by sufficient information for the Director-General to reasonably determine that activities undertaken during the varied construction hours will not adversely impact on the acoustic amenity of receptors in the vicinity of the site.
4. The Contractor should discourage heavy vehicle movements between the hours of 8:00-9:30 am and 2:30-4:00 pm to restrict the interaction of such traffic with pedestrians and school traffic. Contractors to comply with any heavy traffic time restrictions that Council and/or RTA may have in place.

C4.4 Waste Material

1. All waste materials removed from the site shall be directed to a waste management facility lawfully permitted to accept the materials.
2. The Contractor will ensure that the transport of any hazardous and/ or industrial and/ or Group A waste from the site is conducted strictly in accordance with the requirements of the DECC.
3. The Contractor will manage any asbestos or asbestos-contaminated materials that may be uncovered during the Enabling Works strictly in accordance with the requirements under *Protection of the Environment Operations (Waste) Regulation 2005* and any requirements issued by the DECC and WorkCover for the transportation of such materials.
4. All loads of waste materials leaving the site will be covered..

C4.5 Road Transport Coordination Group

In accordance with CoA 2.12, SPC has established a Road Transport Coordination Group (RTCG) to oversee and coordinate the management of traffic and road issues associated with and affected by the project.

The RTCG includes representatives of SPC, DoP, RTA, Strathfield Municipal Council and Bankstown City Council. The terms of reference were agreed by RTCG members at the first meeting of the RTCG on 14 May 2008 and are available on SPC's website:
http://www.sydneyports.com.au/port_development/enfield

The RTCG meet bi-monthly to address construction traffic issues. SPC distribute a draft agenda two weeks prior to each meeting to allow members to input agenda items for discussion. The agenda is then finalised and sent out to all participants one week before the meeting as well as being posted on SPC's website. Any proposed off site-works would be discussed at the RTCG meeting.

C5. Complaints Management

All Contractors are required to comply with SPC's Complaints Procedure, which is contained in SPC's CEMP Framework (rev 8), for the recording of complaints received and actions taken in response. Contractors are required to notify SPC of any complaints received as soon as possible. The Contractor's Project Manager, as directed by SPC's Project Manager, is required to ensure that appropriate actions (i.e. investigate the cause of the complaint, develop mitigation measures, implement measures and educate workers of procedural changes) are taken to resolve all issues arising from complaints.

Information will be provided by SPC to the local community on a regular basis, as per the Community Consultation Plan (contained in SPC's CEMP Framework (revision 8)). Additional notification to the community will be undertaken by SPC if significant traffic impacts are anticipated. Contractors are required to advise SPC of any proposed activities which may impact on local traffic.

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Appendix D: Construction Dust Management Protocol

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Figures

Tables

D1. Introduction

D1.1 Purpose and Scope

The purpose of this dust management protocol is to describe how Sydney Ports Corporation (SPC) proposes to manage and control dust risks during Stage 1A Enabling Works of the project.

The Stage 1A Enabling Works comprise:

- construction of wheel lathe/DELEC north siding rail corridor works;
- removal of RailCorp's aerial 11 kV wiring;
- stabilisation and installation of heritage items on the heritage interpretation area;
- construction of a Frog Habitat Creation Area (FHCA).

Further details of these works are provided in Section 1.2.3 of the Stage 1A CEMP.

This protocol has been prepared to address the relevant requirements of the Minister's conditions of approval and the commitments made in the Environmental Assessment (SKM, 2005) and Preferred Project Report (SKM, 2006).

The Protocol:

- identifies potential sensitive receivers to dust from the Stage 1A works;
- identifies potential sources of dust and fine particulates (PM_{10}) during the works;
- details the NSW DECC air quality criteria for PM_{10} adopted under the project approval;
- specifies the mitigation measures to be adopted during works and abnormal climatic conditions;
- details dust monitoring requirements;
- details the complaints handling procedure.

D1.2 Background

The Environmental Assessment (EA) for the Intermodal Logistics Centre (ILC) at Enfield (SKM, 2005) assessed the potential for air quality impacts during site preparation, pre-construction and construction activities.

The air quality assessment conducted for the EA concluded that there is only a low risk of off-site impacts from PM_{10} due to earthworks, in residential areas to the south-east and far north-west of the site (refer to Figure D1, sites R1 and R5). With mitigation measures in place the air ambient quality criteria for PM_{10} would be met around the site boundary. It is also noted that Stage 1A works due not involve significant earthworks (refer to Section 1.5 of the CEMP).

The Minister's approval of the ILC at Enfield included a number of conditions for dust management, including the requirement to prepare a Dust Management Protocol as part of the CEMP.

D1.3 Environmental Management Plan Overview

The overall Environmental Management System for preconstruction and construction activities is described in the SPC's CEMP Framework (rev 8). This Dust Management Protocol is part of the Stage 1A enabling works CEMP prepared under of the SPC's CEMP Framework (rev 8). Under the CEMP Framework, Stage 1A CEMP is one of seven CEMPs prepared for pre-construction and construction activities at the ILC site.

D2. Potential Air Quality Impacts

D2.1 Potential Sensitive Receptors

The location of the potential discrete receptors around the ILC site is shown in Figure D-1 and includes:

- R1 Cosgrove Road
- R2 Punchbowl Road
- R3 Boronia Parade
- R4 Wentworth Street
- R5 Roberts Road.

As discussed above, the EA (SKM 2005) identified R1 and R5 as the most sensitive receptors around the site.

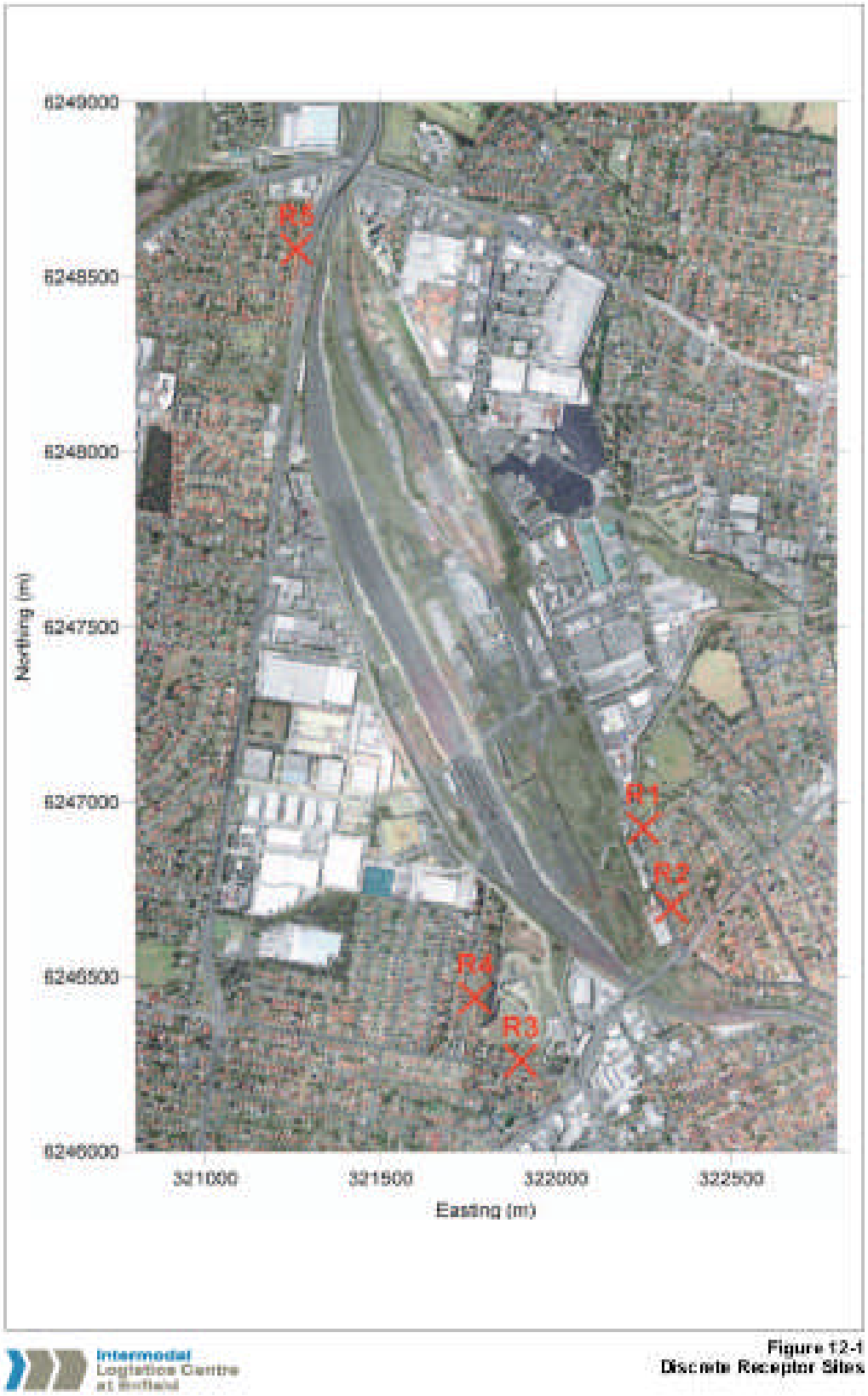

Figure D1 Dust Receptor Sites

D2.2 Sources of Dust

Ambient air quality surrounding the ILC site will be influenced by activities and operations being undertaken on site as well as those being undertaken by others outside the site. Meteorological conditions also have an effect on the existing air quality. The information provided below identifies the potential major dust sources both on and off site.

D2.2.1 Off Site Potential Dust

There is a large industrial area adjacent to the ILC site. The major dust emissions from the industrial area will be generated from properties involving the handling of construction/demolition materials, and properties under development (ie. construction). Off site construction activities during 2009 have identified in two commercial/industrial properties on Cosgrove Road.

D2.2.2 On Site Potential Dust Sources

Dust emissions during the Stage 1A Enabling Works from the ILC site are most likely from the following sources:

- excavation and earthworks; and
- materials handling.

D2.3 Meteorological Factors Influencing Potential Dust Impacts

Meteorological factors need to be considered when assessing the risk of dust generation and potential dust impacts. These factors include:

- wind direction, which will determine whether dust can be transported in the direction of sensitive receptors;
- wind speed which impacts on the drift distance of dust particles and the potential suspension of particles;
- soil moisture, with increase soil moisture reducing the potential for dust generation;
- rainfall which increases soil moisture and therefore reduces the risk of dust generation;
- solar radiation, which can reduce soil moisture and potentially increase the risk of dust generation.

These factors need to be considered during the Stage 1A works to ensure appropriate mitigation measures are implemented.

D2.4 Potential for off site Air Quality Impacts

As discussed above, the air quality assessment conducted for the EA concluded that there is only a low risk for off-site impacts from PM_{10} due to earthworks, in residential areas to the south-east (R1) and north-west of the site (R5). There are, however, no significant excavation and earthworks proposed for the Stage 1A works.

Stage 1A Enabling Work activities that have the potential to impact on residential areas include excavation and earthworks associated with the construction of two ponds at the Frog Habitat Creation area, and to a lesser extent the construction of the rail access to the wheel lathe and works at the heritage interpretation area.

These works may result in ambient PM_{10} concentrations (24-hour) exceeding the DEC (2005)'s criteria of 50 µg/m^3 (refer to Section D3) in the residential areas to the south-east and north-west of the ILC site if mitigation measures are not implemented and significantly adverse meteorological conditions (such as adverse wind speed and direction and soil moisture conditions) occur at the time of the dust generating activities. Real time monitoring of meteorological data and PM_{10} dust levels (see Section D5) will therefore be undertaken at all times during the works.

The proximity of potential dust generating works to sensitive receivers also increases the risk of off site impacts. The majority of the Stage 1A works are separated from residential areas. The nearest potential dust generating works to residential areas include the construction of the Frog Habitat Creation area and the works at the heritage interpretation area. These areas are generally more than 100 m away from residential area R1 in Cosgrove Road and separated by existing commercial buildings and the Tarpaulin Shed in Cosgrove Road, a rail line, Cosgrove Road itself and an earth mound. Although dust issues are unlikely from these works, dust management controls will need to be implemented particularly for construction activities located closer to residential areas.

D3. Air Quality Criteria and Objectives

The concentration based ambient PM_{10} dust criteria adopted in the Part 3A project approval (CoA 6.3e) is shown in Table 1. The PM_{10} ambient criteria is provided in the DECC (August 2005) *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* based on the criteria provided in the Ambient Air Quality National Environment Protection Measure (NEPC, 1998).

Table D3.1: Ambient PM_{10} air quality criteria for the ILC Project

Pollutant	Averaging Period	Ambient Air Quality Criteria	Number of Allowable Exceedances Days/Year
PM_{10}	24-hour	50 µg/m^3	5

In addition, the Project Approval (CoA 2.24) requires that "all activities on the site shall be undertaken with the objective of preventing visible emissions of dust beyond the site boundary. Should such visible dust emissions occur at any time, the Proponent shall identify and implement all practicable dust mitigation measures, including cessation of relevant works, as appropriate, such that emissions of visible dust cease".

D4. Mitigation Measures

The following mitigation measures and controls will be adopted to control dust and other emissions from the ILC at Enfield site for the Stage 1A Enabling Works. These measures and controls were incorporated into the water quality modelling.

D4.1 General

1. Undertake regular watering of active work areas, including stockpiles and any loads of soil being transported, to reduce wind blown dust emissions.
2. All trucks to cover dust generating loads.
3. Apply and enforce a 25 km/hr speed limit on the site.

4. All vehicles and equipment directly associated with site preparation and construction works (as distinct from passenger vehicles) pass through a wheel wash prior to leaving the site.
5. Assess construction works activity and modify as appropriate if off-site real-time dust monitoring data indicates ambient air quality criteria are likely to be exceeded due to project earthworks activity.
6. Minimise the area of disturbed / exposed land at any one time.
7. Stabilise and/or rehabilitate exposed areas as soon as practicable.
8. Material handling areas will be maintained in a condition that minimises wind blow or traffic generated dust.
9. Dust screens will be used at the perimeter fence of the site where applicable.
10. Educate staff on correct material handling procedures and dust management.
11. Any dirt tracked onto public roads resulting from construction vehicles leaving the worksite to be removed and appropriately disposed of using brooms or a street sweeper as required.
12. Weather forecasts will be checked daily to program works for the coming days.
13. Vehicle and machinery movements will be restricted to their designated construction areas.
14. Equipment will be operated in a proper, efficient and correct manner which includes proper maintenance in order to minimise exhaust emissions.
15. Stockpiles will be located as far away from public and residential areas as possible.
16. Stockpiles with dispersible materials to be stabilised and covered to prevent erosion and dispersal of the materials.

D4.2 Extreme Climatic Conditions

The following control strategies will be implemented to minimise the generation of dust during extreme adverse climatic conditions (dry conditions, wind speeds to the north-west or to the south-west and gale wind speeds (above 63 km/hr)):

1. Implement preventative measures in advance i.e. clean/dampen work areas, etc;
2. Stop all non essential activities as practicable;
3. Modify construction methods as necessary;
4. Re-schedule works as necessary; and
5. Identify primary dust sources and cease activity and/or commence wet suppression.

D4.3 Corrective Actions

If ambient PM_{10} dust concentrations (24 hour rolling average) at the real time PM_{10} continuous monitoring stations (see Section D5) exceed 50 $\mu g/m^3$ and the meteorological data and other site information suggest that the source of the dust causing the exceedance are works at the ILC site, then the SPC's Project Manager may direct the responsible contractor to modify or cease the works causing the dust until additional mitigation measures are implemented (eg. wetting stockpiles, covering exposed surfaces, etc) and dust concentrations directly related to the works fall below the criteria.

If site work activities cause visible emissions of dust beyond the site boundary, such activities will be stopped so that emissions of the visible dust cease and mitigation measures are implemented.

All exceedances of the criteria and objectives specified in Section D3 will be investigated

D5. Monitoring, Inspection and Auditing

D5.1 Continuous Real-time Monitoring

D5.1.1 Meteorological Monitoring

In accordance with CoA 2.20 and 3.1, a meteorological monitoring station has been installed by SPC at the ILC site prior to the commencement of site preparation works. The station allows the collection of data for input into the dust management of construction activities. The meteorological station is operated and maintained by SPC to monitor weather conditions representative of those on the site, in accordance with:

a) AM-1 Guide to Siting of Sampling Units (AS 3580.1.1-2007);

b) AM-2 Guide for Horizontal Measurement of Wind for Air Quality Applications (AS 2923-1987); and

c) AM-4 On-Site Meteorological Monitoring Program Guidance for Regulatory Modelling Applications.

The meteorological monitoring station continuously monitors the parameters listed in Table 2, utilising the sampling method indicated and recording data in units specified in Table 2. The data is reported remotely to a website where the real time monitoring information is available at all times.

Table D5.1: Meteorological Monitoring

Parameter	Units of Measure	Sampling Method*	Method
Temperature at 2 m	^{o}C	AM-4	USEPA (2000) EPA 454/ R-99-005
Temperature at 10 m	^{o}C	AM-4	USEPA (2000) EPA 454/ R-99-005
Wind speed at 10 m	ms^{-1}	AM-2 and AM-4	AS 2923-1987; USEPA (2000) EPA 454/R-99-005
Wind direction at 10 m	^{o}	AM-2 and AM-4	AS 2923-1987; USEPA (2000) EPA 454/R-99-005
Solar radiation	Wm^{-2}	AM-4	USEPA (2000) EPA 454/ R-99-005

*refer Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA, 2005)

D5.1.2 PM_{10} Continuous Real-time Monitoring

In accordance with CoA 3.2, two real time PM_{10} dust monitoring stations have been installed by SPC at the ILC prior to the commencement of site preparation works. A dust monitoring station has been installed at the south-eastern boundary of the site and the other one at the north-western boundary.

The two real time PM_{10} monitoring stations continuously monitor PM_{10}, and the data is reported remotely to a website where the real time monitoring information is available at all times. PM_{10} is reported as 24 hour rolling averages to allow comparison with the adopted DECC criteria (refer to

Section D3). Contractors will be required to continuously monitor the dust and weather results from these monitoring stations reporting to the website.

D5.2 Inspections

Daily site inspections of the site will be undertaken by contractors and these will cover the implementation of the dust management procedures. Contractors will be required to keep records of these inspections and the times of works undertaken.

D5.2.1 Auditing

In accordance with CoA 4.1, SPC will commission and undertake independent environmental audits on an annual basis in accordance with ISO 19011:2002 – *Guidelines for Quality and/or Environmental Management Systems Auditing*. If the timing of the annual independent audit coincides with any of the Stage 1A Enabling Works, these works will be subject to the independent audit.

D6. Complaints Management

SPC has developed a Complaints Handling Procedure for Pre-construction activities (refer to SPC's Construction Environmental Management Framework (rev 8).

In the event that a dust complaint is received, the details of the complaint will be recorded on SPC's complaint register. SPC's PM will then identify the relevant person to address the complaint (eg. contractor, etc) and an investigation will be undertaken to determine the cause of the complaint and identify necessary management actions. A verbal response on what action is proposed to be undertaken (eg. dust suppression, cease works, etc) will be provided to the complainant within 2 hours when construction is being undertaken and within 24 hours when during non-construction times. Contractors will be required to comply with these requirements as requested by SPC, which may include undertaken investigations of the complaint and identify and implement necessary management actions, including actions required by SPC.

D7. Project Responsibilities

Contractors will be responsible for the implementation of the mitigation measures detailed in Section D4 for activities and areas under their control and for checking real-time monitoring data at all times during construction works.

SPC is responsible for maintaining the real time monitoring equipment.

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Appendix E: Soil & Water Management Plan

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E1. Introduction

E1.1 Purpose and Scope

The purpose of this Soil and Water Management Plan (SWMP) is to describe how Sydney Ports Corporation (SPC) proposes to manage and control sediment and erosion during the Stage 1A Enabling Works for the project.

The Stage 1A Enabling Works comprise:

- construction of wheel lathe/DELEC north siding rail corridor works;
- removal of RailCorp's aerial 11 kV wiring;
- stabilisation and installation of heritage items on the heritage interpretation area;
- construction of a Frog Habitat Creation Area (FCA).

Further details of these works are provided in Section 1.2.3 of the Stage 1A CEMP.

This SWMP outlines the soil and water management strategy for the Stage 1A Enabling Works to address the relevant requirements of the Minister's Conditions of Approval (CoA) and the commitments made in the Environmental Assessment (SKM, 2005) and Preferred Project Report (SKM, 2006).

The SWMP outlines:

- soil and water management criteria and objectives
- predicted construction impacts during the Enabling Works
- proposed management measures
- SPC's Complaints managements system.

The SWMP has been prepared in accordance with Landcom's *Managing Urban Stormwater: Soils and Construction*.

E1.2 Background

The Environmental Assessment (EA) for the Intermodal Logistics Centre (ILC) at Enfield (SKM, 2005) provided information on the waterways in the study area, assessed the potential soil and water impacts during site preparation, pre-construction and construction activities and proposed mitigation measures. The background information in the following sections is derived from the EA.

E1.2.1 Stormwater Drainage

The ILC at Envfield site is located within the Upper Cooks River Catchment, which covers an area of approximately 2,200 ha. The Upper Cooks River Catchment extends from Rookwood Cemetery and the Chullora Railway Yards in the north, Potts Hill Reservoir in the west to the Roselands commercial district in the south. The Cooks River flows to the north and east of the ILC site and is joined by Coxs Creek west of Water Street in Strathfield South. The Cooks River then flows southeast to the receiving water of Botany Bay.

As shown on Figure 1, four drainage lines flow beneath the ILC site, including Coxs Creek in the southern part of the site and three unnamed drainage lines to the north of Coxs Creek. The two most northerly drainage lines meet on the downstream boundary of the DELEC site and are jointly referred to as "the DELEC Drain". The drainage line immediately north of Coxs Creek is referred to as "the

Central Drain". These three drainage lines drain to the east into the Cooks River via separate discharge points.

The three drainage lines drain catchments upstream of the site, which include the suburbs of Wiley Park, Greenacre, Punchbowl and Chullora. The upstream catchments general consist of heavily urbanised areas, comprising industrial and residential land uses.

As the upstream watercourses are piped/ channelled through the site, there is no/limited stormwater contribution to the ILC site from the upstream catchments. The existing (pre-development) ILC site consists of four internal sub-catchments, draining to the same three watercourses as the upstream catchments, as shown on Figure 2. The Coxs Creek channel at the southern end of the site drains site sub-catchments A and D. The Central and DELEC outlets drain sub-catchments B and C respectively.

E1.2.2 Water Quality

The EA presented a summary of water quality data collated from a review of existing data for the study area. The data are reproduced below in Tables E1.1 and E1.2.

Table E1.1 provides information for Cox's Creek, downstream of the ILC site. This table also includes the relevant Australian and New Zealand Environment and Conservation Council (ANZECC, 2000) criteria for aquatic ecosystem protection in lowland rivers in south-eastern Australia. For faecal coliforms, the ANZECC (2000) guideline for secondary contact recreation is presented.

The monitoring results in Table E1.1 indicate that the existing water quality in Cox's Creek is generally poor. Faecal coliform levels exceeded the ANZECC guideline for secondary contact recreation and nutrient concentrations were above guideline concentrations. The results show elevated concentrations for heavy metals downstream of the site, in particular lead and zinc, turbidity and suspended solids. However, pH, dissolved oxygen (DO) and turbidity levels were generally within the guideline limits for the protection of aquatic ecosystems.

Table E1.1: Mean Water Quality in Coxs Creek

Parameters	Guideline concentration (ANZECC 2000)*	Wet weather concentrations	
		Upstream of site	Downstream of site
Faecal coliforms (cfu/100mL)	1000	57000	54000
Total phosphorous (µg/L)	25	198	211
Total nitrogen (mg/L)	0.35	4.10	3.28
Suspended solids (mg/L)	-	14.0	50.0
Turbidity (NTU)	6-50	46	144
Dissolved oxygen (mg/L)	>6	10.6	8.9
BOD (mg/L)	-	4.0	5.0
pH	6.5-8.5	8.1	8.0
Grease (mg/L)	-	10.0	2.0
Copper (µg/L)	1.4	20	34
Lead (µg/L)	3.4	20	36
Zinc (µg/L)	8.0	130	240

Source: EA (SKM, 2005)

The data for the Central and DELEC drains is provided in Table E1.2. No ANZECC criteria are provided for this data as these drains are stormwater channels and not directly connected to a creek system (SKM, 2005).

Table E1.2: Mean Water Quality in Central and DELEC drains

Parameters	Upstream of site	Downstream of site
DELEC Drain		
Suspended solids (mg/L)	6	8.3
BOD (mg/L)	7.6	8.3
pH	7.8	7.6
Grease (mg/L)	2	2.3
Central Drain		
Suspended solids (mg/L)	11.3	11.3
BOD (mg/L)	9	9.3
pH	7.5	7.5
Grease (mg/L)	3.6	4

Source: EA (SKM, 2005)

The results in Table E1.2 indicate that there is a minor increase in grease and suspended solid concentrations downstream of the DELEC site.

It should be noted that the downstream data presented in the tables do not directly represent the water quality from the proposal site.

E1.3 Environmental Management Plan Overview

The Environmental Management System for the ILC construction activities is described in SPC's CEMP Framework (Revision 8). This SWMP is a sub-plan of the Stage 1A Enabling Works CEMP, prepared under the overarching CEMP Framework.

E2. Water Quality Criteria and Objectives

The following CoAs apply to the area of stormwater management, water quality and hydrological impacts.

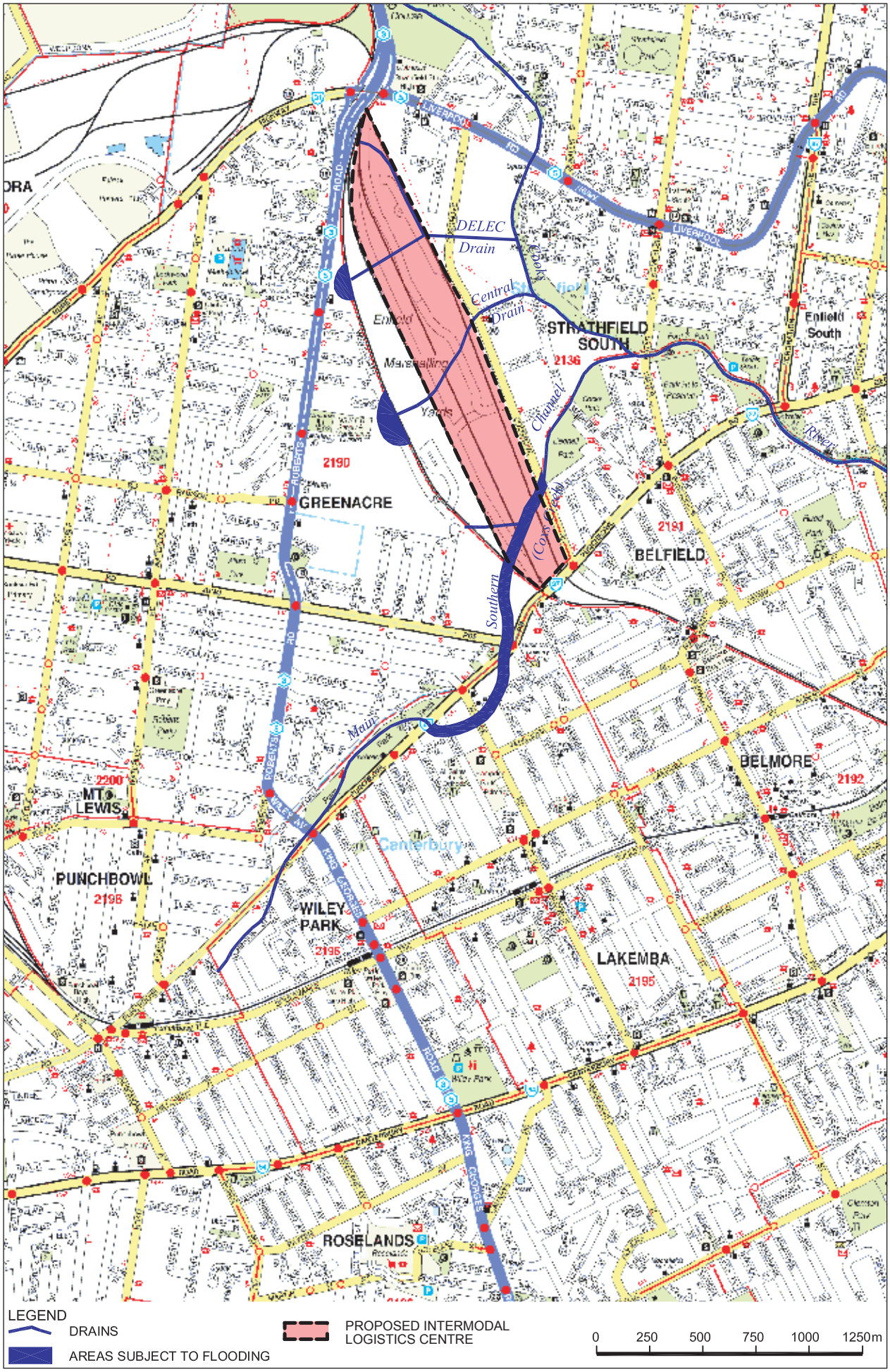
2.28	SPC shall comply with section 120 of the *Protection of the Environment Operations Act 1997* which prohibits the pollution of waters.
2.29	Soil and water management controls shall be employed to minimise soil erosion and the discharge of sediment and other pollutants to lands and/or waters during site preparation and construction activities, in accordance with Landcom's *Managing Urban Stormwater: Soils and Construction.*
2.30	All stockpiled construction materials shall be adequately stabilised and covered to prevent erosion or dispersal of the materials.

2.32	All quarantine and machinery wash down waters and amenities wastewater shall be directed to sewer (subject to Sydney Water Corporation approval), or to an appropriately licensed liquid waste disposal facility.
2.48c	Restrictions on the use of herbicides in potential frog habitat areas and attainment of water quality standards for water discharged from the site.
6.2 f ii	SPC shall prepare a CEMP prior to the commencement of site preparation works. The CEMP must include measures to monitor and minimise soil erosion and the discharge of sediment and other pollutants to lands and/ or waters during construction activities.

The EA recommended that erosion and sediment control structures and good site practices be implemented to minimise the potential for adverse impacts on local surface water quality during the construction phase. Appropriate soil erosion and sedimentation controls would need to be in place during the period of construction until all ground surfaces are stabilised and re-vegetated. The measures should be documented within a SWMP which should be prepared in accordance with the principles and practices in *Soils and Construction* (Landcom, 2004). The SWMP should include detail on all measures, including locations.

The EA listed the following commitments:

- no increased sedimentation of nearby waterways will occur.
- a SWMP will be prepared and implemented to reduce the potential water quality impacts from the site during construction.
- general measures to control erosion of soil and sedimentation would be implemented prior to construction works. These measures would be prepared in accordance with the principles and practices in *Soils and Construction* (Landcom, 2004) and would be maintained and monitored during the construction phase.



Intermodal Logistics Centre at Enfield

Figure 1
Drainage lines in the vicinity of the ILC Site

Source: EA (SKM, 2005)

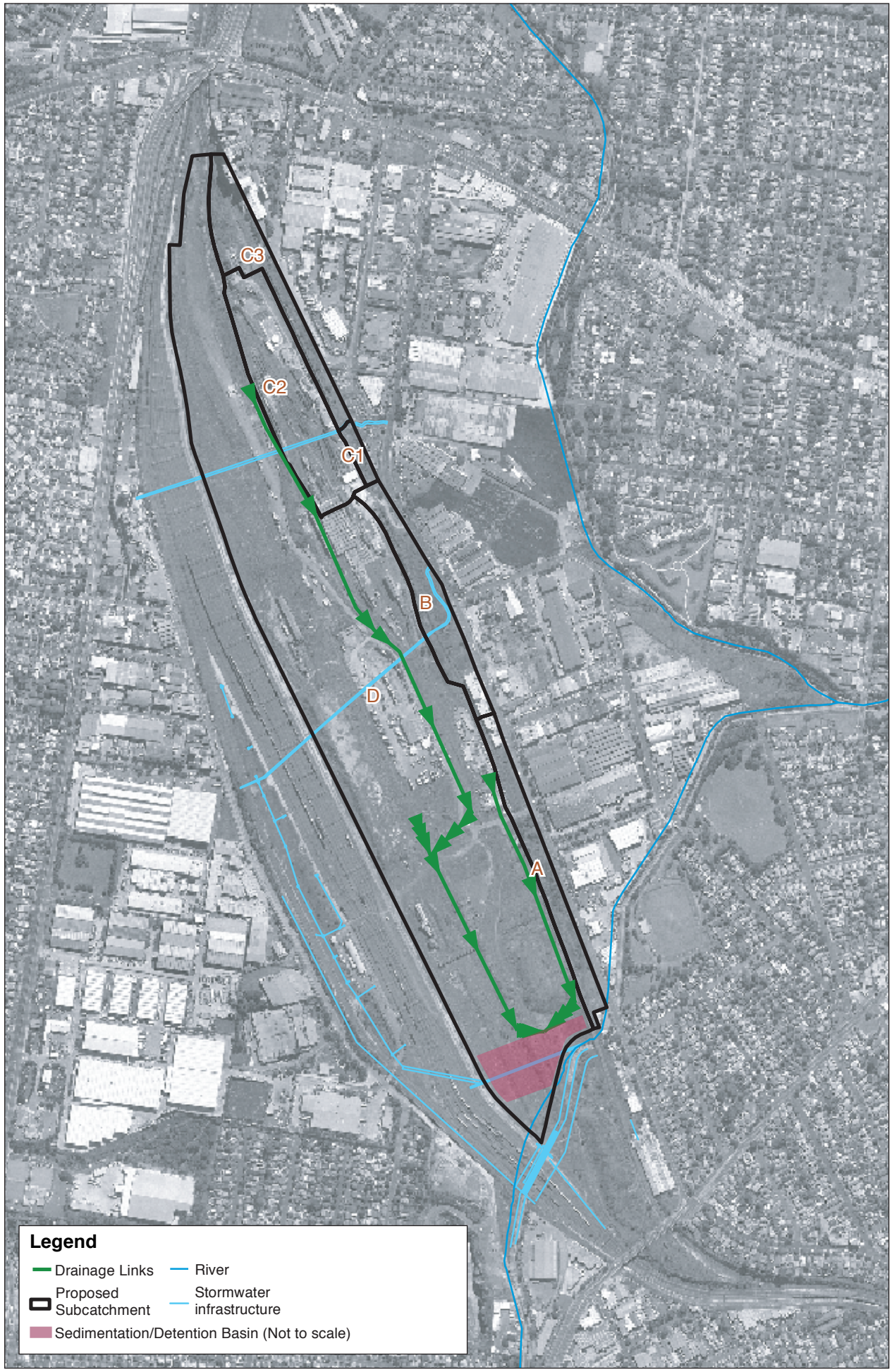


Figure 2
ILC site internal sub-catchments

Source: EA (SKM, 2005)

E3. Construction Water Quality Assessment

E3.1 Predicted Impacts

The EA found the main water quality impacts during construction would be the export of sediments and other pollutants, such as nutrients, to the local waterways due to the exposure of soils to erosion.

E4. Mitigation Measures

E4.1 General

A number of existing mitigation measures have already been installed as part of the demolition and remediation (D&R) works which can be utilised as part of the Stage 1A Enabling Works. D&R works are being carried out by the D&R contractor (Enviropacific) concurrently with the Stage 1A Enabling Works. The D&R Contractor has provided stormwater pits in the DELEC area with geofabric. In addition, a permanent triple interceptor is located downstream of the DELEC drain.

The additional soil and water mitigation measures required for the Stage 1A Enabling Works are listed below:

1. All vehicles and equipment (as distinct from passenger vehicles) will pass through a wheel wash prior to leaving the site. Contractors not using existing wheel wash facilities will be required to install a temporary wheel wash at the Contractor's site access.
2. Sediment control devices will be installed before works commence.
3. If not already implemented by the D&R Contractor, provide sedimentation traps and erosion controls to filter runoff from the small catchments being worked to adjoining drainage channels.
4. Stormwater runoff will be controlled by diverting stormwater from bare areas, and minimising slope gradients, lengths and runoff velocities.
5. Contractors must monitor Bureau of Meteorology forecasts and warnings daily to ensure that the daily work planning takes into account weather forecasts and adequate responses to the climatic conditions can be implemented.
6. Geotextile materials capable of covering exposed batter slopes and erodible stockpile areas to reduce wind and/or rain erosion effects during high wind or rainfall events will be kept on site by Contractors for rapid deployment should the need arise.
7. If not already implemented by the D&R Contractor, provide sediment controls at any grated pits and pits with broken lids.
8. Water diversion controls will be installed around the perimeter of construction areas and/or other areas as necessary to divert stormwater runoff around construction areas.
9. Offsite stormwater runoff from construction areas will be contained or directed to sediment controls. Dewatering of contained water at construction areas will only occur once the water has been visually checked for oils and tested for pH and turbidity (or TSS) and achieves compliance with ANZECC water quality criteria for protection of aquatic ecosystems for these parameters.
10. Sediment geotextiles/fences will be installed at stormwater channels and down gradient of stockpiles and disturbed areas as necessary.
11. The velocity of runoff will be reduced by the installation of sandbags, check banks or other devices in areas of high erosion risk.

12. Excavated material must be placed in stockpiles within the ILC site. Stockpiles must incorporate water management controls designed to direct any stockpile water runoff to sediment control systems, and divert upstream stormwater around stockpiles and exposed areas.
13. Stockpiled materials shall be adequately stabilised and covered to prevent erosion or dispersal of the materials.
14. Erodible materials should be stockpiled away from potential frog habitat areas and water courses (marked on ECM).
15. Areas of bare surfaces will be minimised during construction and stabilised as soon as practicable.
16. All vehicle loads will be covered to prevent release of materials.
17. Waste material will be reused on site or recycled where possible, or otherwise disposed of at a licensed waste facility in accordance with DECC requirements.
18. Machinery will be checked daily to ensure there are no leakages of oil, fuel or other liquids.
19. All machinery wash down waters and amenities wastewater will be directed to sewer (subject to Sydney Water Corporation approval), or to an appropriately licensed liquid waste disposal facility.
20. Heavy vehicles must use rumble grids and wheel wash facilities at each construction site exit (as shown on the ECM) to remove mud and dust from vehicles and minimise material being transferred onto a public road or footpath.
21. In the event of a spillage, spilled material will be removed as soon as practicable.
22. Contractors must comply with any requirements and conditions of any Site Audit Statements (or other interim advice provided by the Site Auditor on remediated sites) prepared for the areas where the contractor is working.
23. Concrete washout facilities will be installed as necessary during concreting works.

The Contractors' Project Manager for each of the major activities comprising the Stage 1A Enabling Works will be responsible for the implementation of these measures.

E4.2 Wheel lathe/DELEC north siding rail corridor works

In addition to the above, the contractor for the wheel lathe/DELEC north siding rail corridor works must implement the following measures:

1. Once SP1 has been remediated by the demolition and remediation contractor, ensure 'dirty' runoff from non-SP1 areas does not enter SP1 by bunding the SP1 works area or by using alternative methods.
2. Any material excavated from within SP1 must be stockpiled within SP1 or as otherwise required by the Site Auditor, the Site Auditor's statement or any interim advice from the Site Auditor.
3. Comply with all stormwater management and water quality requirements in the Site Auditor's Statement or any interim advice from the Site Auditor.

The wheel lathe corridor contractor's Project Manager will be responsible for the implementation of these measures.

E5. Monitoring and Maintenance

1. A program to ensure regular maintenance of all erosion and sediment controls will be implemented and monitored by the Contractor's personnel. This will include (but not necessarily be limited to) daily inspections of controls.
2. Stormwater and erosion control structures must be cleaned regularly and after large rain events.
3. Water quality monitoring should be undertaken if any off site discharge is made from any dewatering required for any works. Such dewatering of contained water at construction areas will only occur once the water has been visually checked for oils and tested for pH and turbidity (or TSS) and achieves compliance with ANZECC water quality criteria for protection of aquatic ecosystems for these parameters.

The Contractors' Project Manager for each of the major activities within the Stage 1A Enabling Works will be responsible for the monitoring and maintenance activities.

E6. Complaints Management

All Contractors are required to comply with SPC's Complaints Procedure, which is contained in SPC's CEMP Framework (rev 8), for the recording of complaints received and actions taken in response. Contractors are required to notify SPC of any complaints received as soon as possible. The Contractor's Project Manager, as directed by SPC's Project Manager, is required to ensure that appropriate actions (i.e. investigate the cause of the complaint, develop mitigation measures, implement measures and educate workers of procedural changes) are taken to resolve all issues arising from complaints.

Information will be provided by SPC to the local community on a regular basis, as per the Community Consultation Plan (contained in SPC's CEMP Framework (revision 8)). Additional notification to the community will be undertaken by SPC if significant traffic impacts are anticipated. Contractors are required to advise SPC of any proposed activities which may impact on local traffic.

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Appendix F: Daily Environmental Checklist

DRAFT DAILY ENVIRONMENTAL CHECKLIST

Project Name:	**Enfield ILC Stage 1 SPC Enabling Works**		
Project Location:	**Enfield ILC site**		
Date & Time of Inspection:			
Weather conditions:			
Environmental Controls	***Yes***	***No***	***Comment/ corrective action***
Construction Hours			
Are the works being carried out within the prescribed hours (ie. between 7am - 6pm Mon to Fri, 8am - 1pm Sat, with no work on Sundays and Public Holidays?			
Traffic			
Are the works being carried out in accordance with the Construction Traffic Management Protocol, that is:			
1. Are all vehicles parking within the site to minimise impact on Cosgrove Road?			
2. Are all heavy construction traffic using the designated arterial roads?			
3. There are no truck movements outside construction work hours?			
Air Quality			
Are the works being carried out in accordance with the Construction Dust Management Protocol, that is:			
1. Is regular watering of active work areas undertaken, including stockpiles and loads of soil being transported, to reduce wind blown dust emissions?			
2. Are dust generating loads covered?			
3. Is a 25 km/hr speed limit applied and enforced on the site during site preparation and construction works to minimise the potential for dust generation?			
4. Do all vehicles and equipment directly associated with site preparation and construction works (as distinct from passenger vehicles) pass through a wheel wash prior to leaving the site?			
5. Are wind breaks/dust screens constructed in appropriate zones to reduce wind erosion?			
6. Is construction works activity assessed and modified as appropriate if off-site real-time dust monitoring data indicates ambient air quality criteria are likely to be exceeded due to project earthworks activity?			
7. Is the area of disturbed or exposed land at any one time minimised?			
8. Are stockpiles stabilised and managed as to avoid dust generation?			

Project Name:	**Enfield ILC Stage 1 SPC Enabling Works**		
Project Location:	**Enfield ILC site**		
Date & Time of Inspection:			
Weather conditions:			
Environmental Controls	***Yes***	***No***	***Comment/ corrective action***
9. Are stockpiles located as far from public and residential areas as possible?			
10. Are material handling areas maintained in a condition that minimises wind blow or traffic generated dust?			
11. Is any site dirt tracked onto public roads by construction vehicles?			
12. Are staff educated on correct material handling procedures and dust management?			
During extreme climatic conditions:			
1. Are weather conditions monitored and are preventative measures implemented in advance i.e. clean/dampen work areas etc?			
2. Are all non essential activities stopped?			
3. Are primary dust sources identified, activity ceased and/or wet suppression commenced?			
Soil, Contamination and Water Quality			
Are the works being carried out in accordance with the Soil and Water Management Plan, that is:			
1. Are sediment controls installed? Are the controls being maintained?			
2. Is excavated material placed in stockpiles located with the ILC site?			
3. Are sediment and erosion controls installed around the stockpiles and are stockpiles covered where necessary?			
4. Are erodible materials stockpiled away from potential Frog Conservation Areas?			
5. Are sandbags or other sediment controls installed around stormwater pits?			
6. Are all vehicles loads covered?			
7. Is stormwater runoff being controlled through water diversion or sandbags?			
8. Is the Bureau of Meteorology being monitored so planning takes into account weather forecasts?			
9. Is machinery checked daily to ensure there are no leakages of oil, fuel or other liquids?			
10. Is machinery wash down water and amenities wastewater directed to			

Project Name:	**Enfield ILC Stage 1 SPC Enabling Works**		
Project Location:	**Enfield ILC site**		
Date & Time of Inspection:			
Weather conditions:			
Environmental Controls	***Yes***	***No***	***Comment/ corrective action***
sewer or appropriate licensed liquid water disposal facility?			
11. Are concreting washout facilities installed where necessary?			
Construction Noise			
Are the works being carried out in accordance with the Construction Noise Management Plan, that is:			
1. Are the works being carried out within the prescribed hours, that is 7am to 6pm Mon to Fri, 8am to 1pm Sat, with no work on Sun and Public Holidays?			
2. Are construction noise emissions monitored?			
3. Are noisy activities planned for parts of the day when they will have least impact?			
4. Is plant and equipment shut down when not in use?			
5. Are contractors inducted as to their responsibilities in reducing the level of noise generated from the site?			
6. Are drivers inducted to minimise noise from manoeuvring operations and exhaust breaking?			
7. Is noisy plant located away from potentially noise-affected neighbourhoods or behind barriers such as sheds or wall, where possible?			
8. Is equipment including mufflers, enclosures and bearings being maintained?			
9. Are excessively noisy plant / trucks banned?			
10. Is the community advised prior to undertaking any out-of-hours work?			
In the event that the operational noise levels exceed the goals are additional mitigation measures investigated, such as:			
1. Modifying work practices?			
2. Re-inducting contractors of their responsibilities in controlling noise levels?			
3. Reducing work hours?			
Flora and Fauna			
Has the Contractor inspect the construction area to check that no frogs or other fauna species are located in the immediate proximity of the works site?			

Project Name:	**Enfield ILC Stage 1 SPC Enabling Works**		
Project Location:	**Enfield ILC site**		
Date & Time of Inspection:			
Weather conditions:			
Environmental Controls	***Yes***	***No***	***Comment/ corrective action***
Should any frogs be discovered while the works are being undertaken, the frogs must be placed in a holding container with some water. The contractor must immediately advise both SPC (9296 4752) and Dr Arthur White (9599 1161 or 0427 021 059).			
Energy			
Are energy conservation measures implemented, that is:			
1. Is construction equipment throttled down and switched off when not in use?			
2. Are truck engines switched of while they are waiting to be loaded and unloaded?			
3. Are site office equipment and lights switched off when not in use?			
Contractor			
Do all Contractors use a complaints handling procedure (included in Appendix C) to address and respond to issues raised by the community, including investigative monitoring of construction traffic and noise in response to specific complaints?			
Have all workers attended a "toolbox" meeting (Appendix G) to be briefed on the mitigation measures to be undertaken as part of the works?			

Complete a non-compliance report/corrective action report for any "NO" answers.

Name of person inspecting site:	
Signature:	
Date and time of site inspection:	

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Appendix G: Environmental Toolbox Induction Records

ENVIRONMENTAL TOOLBOX INDUCTION RECORDS

Name of person trained	Signature of person trained	Date trained	Name of trainer

GENERAL DESCRIPTION OF SITE INDUCTION CONTENT

CEMP	**Outline of this document:** **Section 1. Background** ▪ Introduction ▪ Project Description ▪ CEMP Context ▪ CEMP Objectives ▪ CEMP Requirements ▪ CEMP Approval Process ▪ SPC's Environmental Management and Environmental Policy **Section 2. Environmental Management** ▪ Environmental Management Structure and Responsibility ▪ Approval and Licensing Requirements ▪ Compliance Standards and Guidelines ▪ Reporting ▪ Environmental Training ▪ Emergency Contacts and Response ▪ Communication and Consultation **Section 3. Implementation** ▪ Environmental Control Plans and Maps ▪ Construction Traffic Management Protocol ▪ Construction Dust Management Protocol ▪ Soil and Water Management Plan ▪ Construction Noise Management Plan ▪ Heritage Protection ▪ Frog Habitat Creation Area ▪ Frog Protection Plan ▪ Waste Management Plan ▪ Energy and Water Management Strategies ▪ Stakeholder and Community Consultation Plan **Section 4. Monitoring and Review** ▪ Environmental Monitoring ▪ Environmental Auditing ▪ Corrective Action ▪ CEMP Review
Conditions of approval	As relevant
Environmental / Environmental Checklist	Refer Appendix F of this CEMP