Appendix L

Contaminated Site Management Plan
(Main Volume)

Contaminated Site Management Plan

Intertrade Industrial Park,
Closure Area of Former Steelworks Site Mayfield

Hunter Development Corporation
September 2009

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1. Application of Plan

This Contaminated Site Management Plan (CSMP) applies to Lot 33 in Deposited Plan 1116571 (the Site).

This Plan must be complied with at all times by people by or on behalf of whom Works are carried out on the Site, including owners, lessees, licensees and their contractors and subtenants and by occupiers of the Site.

This Plan sets out the minimum required works. Additional works and precautions may be required.

2. Purpose of Plan

2.1 Purpose

The Purpose of this Plan is to provide a common framework to be applied across the whole of the Site for the design, implementation, completion, use and maintenance of Works so that:

(a) In respect of Remediation Works:

- Remediation Works are properly designed and implemented having regard to relevant risks presented by contamination at the Site;
- Remediation Works are consistent with the requirements of the VRA and other legal requirements;
- the efficacy of Remediation Works is maintained over time;
- there are appropriate controls to protect the health and safety of workers implementing Remediation Works;
- there are appropriate controls to protect Remediation Works previously constructed by HDC or others [note that not all of the remediation works are going to be completed by HDC]; and
- there are appropriate verification, certification and approval processes.

(b) In respect of Project Works:

- Project Works are properly designed and implemented having regard to relevant risks presented by contamination at the Site;
- Project Works include appropriate delivery methodologies to adequately mitigate the risks presented by contamination at the Site during construction;
- Project Works include appropriate design features to adequately mitigate the risks presented by contamination at the Site during the use of the Project Works; and
- There are appropriate verification certification and approval protocols.

Whilst this Plan draws a distinction between Remediation Works and Project Works this does not mean that such works must be carried out separately. They may be carried out concurrently with Remediation Works being integral to the delivery of a project.

This plan is not intended to provide disclosure of site conditions that may be encountered during Project or Remediation Works. Descriptions of the site and previous works are provided for contextual purposes only.

2.2 Requirements and Implementation

This Plan sets out requirements in respect of the design, delivery, completion, verification, use and maintenance of Works (including Remediation Works).

The requirements of this Plan will be given effect as to legally binding obligations or as procedural requirements for the redevelopment and use of the Site. The methods by which this may occur may vary for each requirement but may include:

- Being imposed as conditions of Planning Approval;
- Being imposed as a condition of another regulatory approval;
- Being imposed as registered covenants under s29 of the CLM Act;
- Being imposed as restrictive or public positive covenants under the Conveyancing Act;
- Being imposed as a requirement of a community title plan;
- Being imposed by contractual arrangements between the State and Purchasers or lessees of the Site or any part of it;
- Being communicated to a consent Authority as a relevant matter to be taken into consideration under s79C of the Environmental Planning and Assessment Act 1979;
- Being adopted as policy by relevant public authorities.

The primary method by which this plan will be enforced is as a fundamental consideration to inform decision makers when making decisions about the use of the Site. This is discussed further in part 6.

3. Interpretation of Plan

3.1 Glossary of Terms

A term or expression used in this plan has the meaning given to it as set out below:

Area	An area of the Site shown as the Site Plan
Area 1	The area bounded by the Barrier Wall on three sides and the harbour to the north as shown on the Site Plan
Area 2	The whole of the rest of the Site (excluding Area 1)
Area 1a	The area of the Site shown as such on the Site Plan
Area 1b	The area of the Site shown as such on the Site Plan
Area C	The area of the Site shown as such on the Site Plan
Area D	The area of the Site shown as such on the Site Plan
Area E	The area of the Site shown as such on the Site Plan
Area F	The area of the Site shown as such on the Site Plan
Area G	The area of the Site shown as such on the Site Plan
Area HA1	The area of the Site shown as such on the Site Plan
Area HA2	The area of the Site shown as such on the Site Plan
Area HB	The area of the Site shown as such on the Site Plan
Area I	The area of the Site shown as such on the Site Plan
Area J	The area of the Site shown as such on the Site Plan
Area K	The area of the Site shown as such on the Site Plan
Authority	An Authority agency, department, corporation or other public of the State and includes a Planning Authority and also including any certifying Authority or principal certifying Authority under Part 4A of the EP&A Act.
Barrier Wall	A subterranean groundwater cut-off wall primarily constructed from a mix of soil and bentonite
Cap	A multi-layered engineered material with specified level of permeability, strength and compaction that is placed over an area in order to contain contaminants
Cap Maintenance Inspection Date	For any part of the Site on which there is a Cap, the date which is specified in the RAP approved under part 9 of this plan or, if no such dates are specified, the date which is two years following the date on which the construction of the Cap

	commenced and every second anniversary of that date.
CLM Act	Contaminated Land Management Act (1997)
Closure Area	The Site – this was formerly referred to by the Closure Area of the former BHP Steelworks site, being Lot 3 in Deposited Plan 1032755.
CSMP	Contaminated Site Management Plan (*THIS DOCUMENT*)
DECCW	Department of Environment and Climate Change and Water (NSW), or successor organisation
Developer	Each person by whom or on whose behalf Works are carried out.
Development Consent	Development consent for Development Application No. DA 293-08-00, (File No. S99/00601) issued by the Minister for Planning on 6th April 2001 as modified by the following modifications: Modification Application DA 293-08-00 – M1, approved on 29th June 2001 Modification Application DA 293-08-00 – M2, approved on 13th August 2001 Modification Application DA 293-08-00 – M3, approved on 29th February 2002 Modification Application MOD-77-7-2003-i approved on 16th September 2003 Modification Application MOD-60-4-2005-i, approved on 15th September 2005 Modification Application MOD-64-7-2007-i, approved on 21st August 2007 Modification Application MOD-56-7-2008-i, approved on 21st August 2008 Modification Application MOD-06-2-2009, approved on 30th March 2009 Future Modifications
DoP	NSW Department of Planning
EMP	Environmental Management Plan
EP&A Act	The *Environmental Planning and Assessment Act* (1979).
Environmental Scientist	A qualified Environmental Scientist appointed to perform the functions of the "Environmental Scientist" under this Plan for a part of the Site with at least [***10 years***] practical experience.

EPA	Environment Protection Authority of NSW
Final Design	Remediation Works at Mayfield, Stage 1 – Contract No 3081 Detailed Design Documentation, Patterson Britton and Partners, 26th Feb 06, refer to Appendix C
Geotechnical Engineer	A qualified Geotechnical Engineer appointed to perform the functions of "Geotechnical Engineer" under this Plan for a part of the Site with at least 10 years practical experience.
HDC	Hunter Development Corporation or its successor organisation
Infrastructure Works	Works to deliver infrastructure or services on the Site.
Key Documents	Each of: • the Material Management Plan; • the Remediation Action Plan • the VRA; • the VOC Report; • the Preliminary Remediation Design; • the Final Design • The SPEMP
Level 1, Level 2, Level 3 materials	Classification of contaminated materials as defined by the Materials Management Plan.
M Areas	Areas referred to as M Areas in condition 5.18 of the Development Consent as shown in Figure 1.
Maintenance	Activities, preventative or corrective works required to repair or restore remediation works as a result of any action or event that causes a loss in performance or effectiveness
Materials Management Plan	Guidelines forming part of the VRA documents, for the classification and movement of contaminated materials within the Site, as detailed in *Mayfield Site Solid Waste (Soils) Materials Management Plan*, Maunsell, June 2005.
EP&A Act	The *Environmental Planning and Assessment Act 1979.*
Planning Approval	A Development Consent under part 4 of the EP&A Act or a project approval or concept plan approval under part 3A of the EP&A Act.
Planning Authority	An Authority that has power to grant a Planning Approval.
Preliminary Design	Remediation Works at Mayfield - Preliminary Design Documentation, Patterson Britton and Partners, August 2006 refer to Appendix K

RAP	The Remediation Action Plan, Former BHP Site Mayfield, September 2004, SKM, commissioned by RLMC.
Stormwater Strategy	Preliminary Design Stormwater Strategy, Issue No. 2, Patterson Britton and Partners, August 2006.
Project Works	Redevelopment Works and Infrastructure Works
Redevelopment Works	Works to redevelop or change the use of the Site or any part of it including the demolition or erection of buildings or other structures
Remediation (or Remediate)	Includes (but is not limited to): • removing, disposing, destroying, reducing, mitigating or containing contamination; • eliminating or reducing any hazard arising from the contamination; and • validating that Remediation Work has been successful.
Remediation FSL	For Area 2 these are the Finished Surface Levels documented in RLMC's Preliminary Design for site remediation. For Area 1 the Remediation FSL's are documented on drawings included in Appendix C.
Remediation Works	Works to Remediate or manage contamination or the risks from it.
Remediation Work Method Statement	A document prepared to illustrate remediation designs work method and demonstrate compliance to the RAP and VRA
Requirement	A requirement specified in the plan as a requirement.
RLMC	Regional Land Management Corporation or its successor organisation. If no successor exists, a relevant State Authority.
Site	The whole of the land in Lots 31-33 in DP 1116571.
Site Auditor	Mr Graeme Nyland Environ Level 5, 60 Miller St North Sydney or any alternative person accredited as a Site Auditor under the CLM Act and appointed to be the Site Auditor for the Site or part of it.
Site Auditor Confirmation	A Site Audit Statement or other written confirmation issued by the Site Auditor.
Site Audit Statement	A Site Audit Statement issued b the Site Auditor in accordance with the CLM Act.
Site Plan	The diagram attached to the CSMP which identifies site areas and locations to which location specific provisions of

	this CSMP apply. Denoted 'Plan of Proposed Lease Areas & Proposed Easements, Lot 33 DP1116571, Mayfield'
SPEMP	Closure Area Site Preparation Environmental Management Plan, RLMC, October 2006 (Appendix B).
Stage 1 Remediation Works	All works necessary to satisfy the requirements of the VRA including those set out in part 3.2 below as Stage 1 requirements.
Stage 2 Remediation Works	All works necessary to satisfy the requirements of the VRA including those set out in part 3.2 below as stage 2 requirements.
State	the State of New South Wales
VENM	Virgin Excavated Natural Material
VOC	Volatile Organic Compound
VOC Report	Volatile Organic Compound Reference Document, Closure Area Site Mayfield, RCA Australia, September 2009
VRA	Voluntary Remediation Agreement (see below)
Voluntary Remediation Agreement or VRA	Voluntary Remediation Agreement under the CLM Act, number 26025, dated 14th September 2005, for Lot 3 DP 1032755 Mayfield which is attached as Appendix G.
Works	Project Works and Remediation Works

3.2 Stage 1 and Stage 2 Remediation Works

Remediation works are to be implemented in two stages as allowed for in the VRA.

Stage 1 VRA Remediation requirements include:

- an up-gradient subterranean Barrier Wall around three sides of Area 1;
- construction of new major drains;
- re-contouring and filling of Area 1;
- management of excavated material in accordance with the Materials Management Plan developed for the site;
- capping of Area 1 to a permeability of 10^{-9}m/s and minimum thickness of 0.5m;
- temporary works to reduce infiltration across Area 2, including temporary drainage works to alleviate areas of ponding or high infiltration;
- environmental controls including appropriate management of surface waters;
- monitoring of groundwater quality and levels in accordance with EPA agreement prior to commencement of the Remediation Works;

- reassessment of the risk of harm to the environment posed by contaminants in the groundwater following the completion of the Stage 1 construction works and groundwater monitoring undertaken to verify the efficacy of the Stage 1 Remediation Works; and
- prior to the construction of any buildings in Area 1, assessment of the risk of harm to human health posed by the potential ingress of volatile vapours into buildings or confined spaces. An environmental site management or contingency plan will be developed to address any identified risk of harm.

Those Stage 1 works which have been completed by the State are described in Part 5.3.

Stage 2 VRA Remediation requirements include:

- contouring and capping of Area 2 (except parts of Area 2 exempted under the conditions of Planning Approval);
- management of excavated material in accordance with the Materials Management Plan developed for the Site;
- reassessment of the risk of harm to the environment posed by contaminants in the groundwater following the completion of the capping of Area 2 and groundwater monitoring to verify the efficacy of the Stage 1 and 2 Remediation Works; and
- prior to the commencement of construction of any buildings within Area 2 assessment of the risks to human health posed by potential ingress of volatile vapours into buildings and confined spaces. An environmental site management or contingency plan will be developed to address any identified risk of harm.

3.3 Interpretation

In this CSMP, unless the context requires otherwise, a reference to:

(a) any legislation or legislative provision includes any amendment or re-enactment of, or legislative provision substituted for, and any sub-ordinate legislation issued under, that legislation or legislative provision;

(b) any guideline or other document issued under or adopted by any legislation includes such guideline or document as amended from time to time and, where the guideline is substituted or replaced by another document, that other document;

(c) any agreement includes that agreement as amended from time to time and, where the agreement is substituted or replaced by another document, that other document.

4. Regulation

4.1 Relevant Instruments

The statutory and strategic planning instruments, which guide this plan, include:

i. Environmental Planning & Assessment (EP&A) Act 1979

ii. Contaminated Land Management (CLM) Act 1997

iii. Protection of the Environment Operations Act 1997

iv. Newcastle Local Environmental Plan 2003 (NLEP)

v. Newcastle Development Control Plan 2005 (NDCP)

vi. Hunter Regional Environmental Plan 1989 (Heritage) – made under the EP&A Act

vii. SEPP No. 55 - Remediation of Land

viii. Water Act 1912, Water Management Act 2001 and Rivers and Foreshores Improvement act 1948

ix. Conveyancing Act 1919

x. Occupational Health and Safety Act 2000

4.2 Environmental Planning and Assessment (EP&A) Act 1979

The Development Consent

The Development consent for Development Application No. DA 293-08-00, (File No. S99/00601) was issued by the Minister for Planning on 6th April 2001, for activities within the Site including a container terminal, demolition and remediation. Remediation activities completed by the State have been carried out under the Development Consent. Further Planning Approvals may be required for Works.

As of 21st August 2007 there have been 8 modifications to the original consent conditions as follows:

- Modification Application DA 293-08-00 – M1, approved on 29th June 2001 in relation to the timing of establishment of a Community Consultative Committee;
- Modification Application DA 293-08-00 – M2, approved on 13th August 2001 in relation to excision of heritage areas from the development area;
- Modification Application DA 293-08-00 – M3, approved on 29th February 2002 in relation to protection of fig trees and noise monitoring requirements;
- Modification Application MOD-77-7-2003-i approved on 16th September 2003 in relation to the burial of Blast Furnace No.1 slag stump;

- Modification Application MOD-60-4-2005-i, approved on 15th September 2005 in relation to land description, soil capping, hours of operation, groundwater management, stormwater, capping exemptions and transport infrastructure; and
- Modification Application MOD-64-7-2007-i, approved on 21st August 2007 in relation to alteration of the alignment of the railway lines and relocation of two major stormwater drainage lines on the site.
- Modification Application MOD – 56-7-2008, approved in August 2008 in relation to alteration and temporary relocation of, the general cargo handling facility, refurbishment of the existing wharf and a change in site access from Crebert St to Selwyn St
- Modification Application MOD – 06-02-2009, approved in March 2009 in relation to a minor change in rail alignment

Reference should be made to the current consent conditions which as of 30th March 2009 are included in the Consolidated Instrument (Modification 8) in Appendix A. Note that these may be changed again and enquiries should be made with relevant Authorities and the Site Auditor to identify the current consent conditions.

The 'M areas' identified in condition 5.18 are shown on **Figure 1 – M Areas.**

A 'Site Preparation Environmental Management Plan' (SPEMP) in accordance with consent condition 4.2 has been approved by the Department of Planning. The SPEMP should be supported by a 'Construction Environmental Management Plan' and an 'Operations Environmental Management Plan' to the extent required by the relevant planning consent.

The purpose of this Contaminated Site Management Plan is detailed in Section 2.1. In the context of the development consent, this CSMP is formulated to satisfy consent conditions 4.1 and 5.20 in relation to "cap maintenance" and ongoing integrity of the remediation.

Other Relevant Requirements of the Act

Planning Approval for works can be issued under Part 3A or Part 4 of the EP&A Act.

Part 3A of the EP&A Act is concerned with major projects. Pursuant to that Part, the Minister may declare development to be a project to which the Part applies if the Minister is of the opinion that the development is of "State or regional environmental planning significance", (section 75B(2)).

With relevance to licence and permit requirements discussed below, a project approved under Part 3A is exempt from any requirement to obtain certain approvals including:

- a permit under Part 3A of the Rivers and Foreshore Improvement Act 1948; and
- a water management works approval under section 90 or an activity approval under section 91 of the Water Management Act 2000.

Part 4 of the EP&A Act is concerned with the grant of Development Consent. Consent authorities can receive and determine development applications to grant Development Consent to permit the carrying out of development. Because Part 4 deals with Development Consents, the Authority granting a Development Consent is referred to as a consent Authority.

For all approvals, under Part 3A and Part 4, relating to the Site it is relevant to consider the contamination status of the Site.

Part 7A Liability in respect of contaminated land

Section 145B relevantly provides that a Planning Authority does not incur liability for anything that it does or omits to do in good faith, in duly exercising any planning function to which section 145B applies (which includes the processing and determination of a development application):

> …in so far as it relates to contaminated land (including the likelihood of land being contaminated land) or to the nature or extent of contamination on land.

Section 148(3) further provides that a Planning Authority is:

> …taken to have acted in good faith if the thing was done or omitted to be done substantially in accordance with the contaminated land planning guidelines in force at the time the thing was done or omitted to be done.

Accordingly, the Planning Authority will consider the contaminated land planning guidelines in determining an application for Planning Approval.

The Department of Planning has prepared Guidelines called "Management Land Contamination - Planning Guidelines SEPP55 – Remediation of Land". These refer to the role of Site Auditor and Site Audit Statements.

Approval Conditions

Approvals under Part 3A and Part 4 can be issued subject to conditions that could, relevantly, include requirements relating to site remediation.

In respect of Part 4, section 80(1) provides that a consent Authority may consent to a development application either unconditionally or subject to conditions.

Section 80A(1)(a) and (f) provide that conditions may be imposed if the conditions relate to, or require the carrying out of, works relating to any matter referred to in section 79C(1) that is relevant or applicable to the development that is the subject of the consent.

Matters referred to in section 79C(1) include:

(a) the provisions of:

(i) any environmental planning instrument, and

(ii) any draft environmental planning instrument that is or has been placed on public exhibition and details of which have been notified to the consent authority (unless the Director-General has notified the consent authority that the making of the draft instrument has been deferred indefinitely or has not been approved), and

(iii) any development control plan, and

(iii) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a Developer has offered to enter into under section 93F, and

(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),

that apply to the land to which the development application relates,

(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,

(c) the suitability of the site for the development,

(d) any submissions made in accordance with this Act or the regulations,

(e) the public interest.

In respect of Part 3A approval, pursuant to section 75(2) when a Part 3A application is made, the Director-General will prepare environmental assessment requirements or EARs for the project. The environmental assessment prepared by the proponent will need to comply with these EARs and such compliance is a condition precedent for the Minister's power to approve a Part 3A application under section 75J(1)(b).

Section 75J(4) provides that a project may be approved under Part 3A "with such modifications of the project or on such conditions as the Minister may determine."

Section 75J(5) further provides that:

> The conditions of approval for the carrying out of a project may require the proponent to comply with any obligations in a statement of commitments made by the proponent (including by entering into a planning agreement referred to in section 93F).

Accordingly, conditions can be imposed as conditions of Planning Approval under Part 4 and Part 3A. The conditions might include conditions relating to contamination, for example that there be a Site Audit Statement (see CLM Act below) issued:

- before works commence;
- before a construction certificate is issued; or
- before an occupation certificate is issued.

<u>Part 4A certification – construction and occupation certificates</u>

Section 109C of Part 4A sets out four kinds of certificates that are relevant to development conducted in accordance with Part 3A and Part 4 approvals. The certificates include: compliance certificate, construction certificate, occupation certificate and subdivision certificate.

Most relevantly, section 109C provides that:

- a *construction certificate* is a certificate issued prior to work being performed, to the effect that if the work is completed in accordance with specified plans and specifications, then it will comply with the requirements of the regulations; and
- an *occupation certificate* is a certificate issued once work is completed, that authorises the occupation and use or a change in use of a building.

The erection of a building (which includes any structure other than certain temporary structures[1]) in accordance with a Development Consent must not be commenced until a

[1] Temporary Structure is defined to mean:

construction certificate has been issued for the work by the consent Authority, council or accredited certifier, (section 81A(2)). A similar prohibition applies to commencing subdivision work without a construction certificate, (section 81A(4)).

In relation to an occupation certificate, a person must not commence occupation or use of a new building unless an occupation certificate has been issued, (section 109M).

For Part 3A approvals, section 75S provides that the provisions requiring construction and occupation certificates (sections 81A and 109M) only apply if they would have applied if Part 3A did not apply to the Project (that is, the project would have required Development Consent under Part 4), and only apply to a "critical infrastructure project" if the Minister makes compliance with section 81A or 109M a condition of the Part 3A approval.

Part 4A certification – enforcing approval conditions

S109F provides that a construction certificate is not to be issued unless the requirements of the regulations referred to in section 81A(5) have been complied with.

In this regard, clause 146 of the *Environmental, Planning and Assessment Regulation 2000* (**EPA Regs**) relevantly provides that a construction certificate must not be issued unless each condition of the Development Consent that must be complied with before a construction certificate may be issued has been complied with.

Similarly, section 109H(2) provides that:

> An occupation certificate must not be issued unless any preconditions to the issue of the certificate that are specified in a Development Consent or complying development certificate have been met.

In this way, Planning Approval conditions relating to contamination and remediation can be linked to the Part 4A certification process.

Planning Agreements

Planning Agreements may be entered into by a Planning Authority and people proposing to redevelop land. A Planning Agreement can, in some circumstances, be registered on the title to land and thereby bind successive owners of land.

4.3 State Environmental Planning Policy No 55 – Remediation of Land (SEPP 55)

SEPP 55 applies to the Site and requires a consent authority to consider the contamination status of land prior to granting consent for the carrying out of any development. If the land is contaminated, the consent authority must be satisfied that:

(a) the land is suitable in its contaminated state (or will be suitable subsequent to remediation) for the purpose for which the development is proposed to be carried out; and

(b) if remediation is required, the land will be remediated before the land is used for that purpose.

(a) a booth, tent or other temporary enclosure, whether or not a part of the booth, tent or enclosure is permanent; and

(b) a mobile structure (not defined).

SEPP 55 sets out the type of remediation work that is permissible with or without consent and various requirements in respect of each. It also provides that all remediation work must be carried out in accordance with:

(a) the contaminated land planning guidelines; and

(b) any guidelines in force under the CLM Act; and

(c) in the case of remediation work defined as category 1 remediation work under SEPP 55, a plan of remediation approved by the consent authority and prepared in accordance with the contaminated land planning guidelines.

Within 30 days of completion of remediation work, a notice of completion must be given to the relevant local council for the Site and the consent authority (if the consent authority is not the local council).

4.4 Contaminated Land Management (CLM) Act of 1997

The Site is regulated under the CLM Act. The most relevant sections include:

- Section 21 - The site has been declared a remediation site;
- Section 26 - Voluntary Remediation Agreement (VRA No. 26025 dated 14 September 2005) between the NSW EPA and the HDC;
- Section 28 - Maintenance of remediation: notice to owner or occupier – The EPA may by notice in writing served on a person who is an owner, or occupier, of land require the person to maintain remediation action in relation to the land, commencing within such reasonable time as is specified in the notice. In the event that in the site is undeclared, a Section 28 may also be imposed to allow access for the continuance of monitoring; and
- Section 29 - Covenants for maintenance of remediation can be registered on title.

The declaration under Section 21 identifies significant risk of harm issues to both the environment (principally via offsite migration of contaminated groundwater) and site occupants (principally via potential exposure to site soils and volatile gases).

The VRA requires Remediation Works that satisfactorily mitigate the risk of harm associated with:-

a) off-site migration of contaminated groundwater. These works include low permeability capping of the site surface in accordance with the conditions of planning consent, and construction of an up-gradient Barrier Wall to Area 1 (completed February 2007); and

b) human exposure to soils and volatile gases. These works include capping of the site surface in accordance with the conditions of Planning Approval, and appropriate measures to manage the risk of exposure to volatile gases. The VRA requires a Site Audit Statement that the site is suitable for the intended land-use.

The CLM Act also establishes the NSW Site Auditor Scheme. The requirements of this Plan include requirements for obtaining Site Auditor approval for various plans, proposals and Works.

A site audit has a particular statutory meaning under Part 4 of the CLM Act as follows: (section 47(1))

site audit means an independent review:

(a) that relates to investigation, or remediation, carried out (whether under this Act or otherwise) in respect of the actual or possible contamination of land, and
(b) that is conducted for the purpose of determining any one or more of the following matters:

(i) the nature and extent of any contamination of the land,

(ii) the nature and extent of the investigation or remediation,

(iia) whether the land is suitable for any specified use or range of uses,

(iii) what investigation or remediation remains necessary before the land is suitable for any specified use or range of uses,

(iv) the suitability and appropriateness of a plan of remediation, a long-term management plan, a voluntary investigation proposal or a remediation proposal.

Under the statutory definition, the purpose of a site audit is not restricted to determining whether land has been successfully remediated so as to be suitable for specified uses, but may also be for the purpose of determining the suitability and appropriateness of remediation plans and proposals to make the land suitable for specified uses.

Broadly, the certification that alternative forms of a site audit statement can provide include:

(a) prior to remediation, that a plan or design for remediation is suitable and appropriate ; or

(b) following completion of the remediation, the land is now suitable for a relevant use.

Other provisions relevant to the provision of site audit statements include that:

- a Site Auditor who performs a statutory site audit must be accredited to do so by the EPA; (section 48);
- when carrying out a site audit, the Site Auditor must prepare a written site audit report and provide that report to the person who commissioned the site audit; (section 53B(1));
- the site audit report must critique the information collected in the site audit and justify the findings proposed to be contained in the site audit statement; and (section 53B(2));
- after completing the site audit report, the Site Auditor must make a site audit statement in an EPA approved form, which contains the Site Auditor's findings in relation to the site audit, and provide that report to person who commissioned the site audit and the EPA and local Authority (if a statutory site audit), (section 53B(3) and (4)).

Where a Site Auditor carries out a "Statutory Site Audit" they must notify the EPA (section 53C).

4.5 Conveyancing Act 1919

The Conveyancing Act 1919 regulates the ability to register restrictive covenants, public positive covenants easements and other interests on title of land. Relevantly:

- a public positive covenant may be registered in specified circumstances. This includes covenants that impose obligations requiring the carrying out of development, the provision of services, the maintenance, repair or insurance of any structure or work;
- restructure covenants may be registered that prevent or limit the use of land;
- section 88A enables the creation of easements benefiting certain public authorities and corporations;
- section 88BA enables the registration of covenants to maintain and repair land that is the site of or burdened by an easement;
- section 88B enables easements, restrictive covenants and other interests to be created by registration of plans;
- section 88D enables land held by certain authorities to be burdened by restrictive covenants and public positive covenants;
- section 88E enables certain public authorities to burden land not held by those with restructure covenants and public positive covenants; and
- section 88F sets out certain powers in respect of the enforcement of public positive covenants.

Maintenance of remediation covenant – CLM Act

Under the CLM Act, where land is subject to:

- remediation under Part 3 of the CLM Act; or
- an EPA Agreement under section 26 of the CLM Act,

The EPA is permitted to impose positive covenants on land requiring the owner to maintain remediation in that land, (section 29).

Section 29 operates by allowing the EPA to impose the positive covenants pursuant to section 88E of the *Conveyancing Act 1919* (NSW).

Section 88E of the Conveyancing Act allows a prescribed Authority to impose restrictions on the use of or impose public positive covenants on land so as to be enforceable by the prescribed Authority (in this case the EPA). However, whereas section 88E requires the deed or memorandum by which the covenant is imposed to be executed by agreement, section 29 allows the EPA to impose the section 88E covenants unilaterally.

Where land is actually held by a "prescribed Authority" within the meaning of section 88E of the Conveyancing Act, the prescribed Authority would not need to rely upon section 29 or section 88E but could impose a public positive covenant requiring the maintenance of Remediation Work.

Other powers from public positive covenant – Conveyancing Act

Section 88F of the Conveyancing Act provides that a prescribed Authority having the benefit of a public positive covenant will have the following powers:

- To ensure covenant observance the Authority may enter and inspect the land twice in every year.

- Where a covenant requires a person to insure any structure or carry out development of any nature and that person fails to perform their obligation, the prescribed Authority may step in and perform the obligation on the person's behalf.
- Where the prescribed Authority steps in and performs an obligation that was required of another person, the Authority may recover its expenses in a court.

Further powers attach to a positive covenant as follows:

- Where a person has engaged or is planning to engage in conduct that would contravene a covenant, section 88H allows a Court to, on application by the prescribed Authority, injunct the person from doing so; and
- Where a person has contravened a public positive covenant imposed under section 88E, the prescribed Authority may apply to the Court under section 88I for an order that the land be conveyed or transferred to the Authority.

4.6 Protection of the Environment Operations Act 1993

The PEO Act contains a large number of offences including offences relating to land pollution, air pollution, waste disposal and leaks and spills.

Most relevantly, the PEO Act provides that it is an offence to cause or permit the pollution of any waters without an environmental protection licence, (section 120 and 122). For the purpose of this offence, the pollution of waters includes the pollution of groundwater, as water is defined to include any "underground or artesian water", (Dictionary to PEO Act).

In permitting environmental protection licences as a defence to water pollution, the PEO Act has empowered the EPA to regulate activities that may potentially pollute waters through the imposition of conditions within environmental protection licenses, (section 63).

The PEO Act also requires that environment protection licences be obtained for certain "scheduled activities".

4.7 Occupational Health and Safety Act 2000

The objects of the *Occupational Health and Safety Act 2000* (NSW) (**OHS Act**) include: (section 3)

- to protect people at a place of work from health or safety risks arising out of work activities;
- to ensure that health and safety risks at a place of work are identified, assessed and eliminated or controlled; and
- to deal with the impact of particular classes or types of dangerous goods at, and beyond, places of work.

General obligations of employers under the OHS Act are set out at section 8 as follows:

8 Duties of employers

(1) **Employees**
An employer must ensure the health, safety and welfare at work of all the employees of the employer.

That duty extends (without limitation) to the following:

(a) ensuring that any premises controlled by the employer where the employees work (and the means of access to or exit from the premises) are safe and without risks to health,

(b) ensuring that any plant or substance provided for use by the employees at work is safe and without risks to health when properly used,

(c) ensuring that systems of work and the working environment of the employees are safe and without risks to health,

(d) providing such information, instruction, training and supervision as may be necessary to ensure the employees' health and safety at work,

(e) providing adequate facilities for the welfare of the employees at work.

(2) **Others at workplace**
An employer must ensure that people (other than the employees of the employer) are not exposed to risks to their health or safety arising from the conduct of the employer's undertaking while they are at the employer's place of work.

Separate obligations for persons who have a degree of control over premises are set out at section 10 as follows:

10 Duties of controllers of work premises, plant or substances

(1) A person who has control of premises used by people as a place of work must ensure that the premises are safe and without risks to health.

(2) A person who has control of any plant or substance used by people at work must ensure that the plant or substance is safe and without risks to health when properly used.

(3) The duties of a person under this section:

(a) do not apply to premises, plant or substances used only by employees of the person, and

(b) do not apply to premises occupied only as a private dwelling or to plant or substances used in any such premises, and

(c) extend to the means of access to or exit from a place of work, and

(d) apply only if the premises, plant or substances are controlled in the course of a trade, business or other undertaking (whether for profit or not) of the person.

(4) In this section, a person who has control of premises, plant or substances includes:

(a) a person who has only limited control of the premises, plant or substances (in which case any duty under this section applies only to the matters over which the person has control), and

(b) a person who has, under any contract or lease, an obligation to maintain or repair the premises, plant or substances (in

which case any duty under this section applies only to the matters covered by the contract or lease).

There are numerous other specific requirements for the protection of health and safety in the workplace.

4.8 Water Act 1912, Water Management Act 2001 and Rivers and Foreshores Improvement act 1948

Certain authorisations discussed in this section, and the offences that arise from acting without those authorisations, will not apply to parts of the project that have been approved under Part 3A,. (section 75U of the EP&A Act).

Water Act 1912 (NSW) (**Water Act**)

Part 5 of the Water Act contains offences where the sinking or altering of a bore is not performed in accordance with a licence under that part, (sections 112 and 117I)

"Bore" is defined to relevantly include "…any excavation or other work connected or proposed to be connected with sources of sub-surface water and…capable of being used to obtain supplies of such water…"

The Water Administration Ministerial Corporation is able to regulate works connected with a bore as the conditions subject to which a Part 5 licence is issued, may include conditions relating to the protection of the environment, (section 116AA).

Water Management Act 2001 (**WM Act**)

Note: as at the date of this Plan the relevant provisions of the Water Management Act have not been declared to apply to the Site. Legal advice should be obtained to confirm if and how the Act applies at any time.

The WM Act makes it an offence to carry out a "controlled activity" in, on or under "waterfront land" other than in accordance with a controlled activity approval, or carry out an "aquifer interference activity" other than in accordance with an aquifer interference approval, (section 344).

As an example, the note to section 91 states that an aquifer interference approval may be needed to perform "road construction and any other large scale activity that involves excavation."

Definitions in the WM Act dictionary which are relevant to section 344 include:

- A **controlled activity** is relevantly defined to include the erection of a building or the carrying out of a work (as defined in the EP&A Act), the removal of material or the deposition of material.
- **Waterfront land** is relevantly defined as the bed of any river, together with any land lying between the bed and a line drawn parallel to, and 40m inland of, the highest bank of the river.
- An **aquifer interference activity** relevantly includes an activity involving the penetration of an aquifer, the interference with water in an aquifer or the obstruction of the flow in an aquifer.

Similarly, the WM Act requires water supply work approvals or drainage work approvals to carry out work such as: conveying water to the point at which it is used in a water pipe or draining water from land through pump, pipe or channel.

In issuing approvals, the Minister must be satisfied that adequate arrangements are in place to prevent the activity causing harm to water. For example, section 97(4) provides:

> A controlled activity approval is not to be granted unless the Minister is satisfied that adequate arrangements are in force to ensure that minimal harm will be done to any waterfront land as a consequence of the carrying out of the proposed controlled activity.

The WM Act enables the Minister to impose discretionary conditions on approvals relating to the protection of the environment, (section 100). In this way the Minister is able to regulate the relevant activities for the duration of the approval.

Section 344(4) provides that a person may also carry out a controlled activity pursuant to a permit in force under the *Rivers and Foreshores Improvement Act 1948* which is discussed below.

However, Part 3 of Chapter 3 of the WM Act, which sets out the relevant approval requirements, will only apply to a water source in accordance with section 88A of the WM Act, which provides as follows:

> **88A Application of Part**
>
> (1) This Part applies to:
>
> (a) each part of the State or each water source, and
>
> (b) each type or kind of approval that relates to that part of the State or that water source,
>
> that is declared by proclamation to be a part of the State or water source, and type or kind of approval, to which this Part applies.
>
> (2) Despite subsection (1), specified provisions of this Part may be declared by proclamation to apply to the whole of the State, and apply accordingly.

At different times, by proclamation in the NSW Government Gazette, it has been declared under section 88A that Part 3 of Chapter 3 of the WM Act applies to water sources to which specific water sharing plans apply.

The relevant water sharing plan for the Hunter River which was gazetted on 1 July 2004 is the Water Sharing Plan for the Hunter Regulated River Water Source (**the Plan**).

When viewing the applicable map for the Plan ("Map 10 – Hunter Regulated River Water Source") on the Department of Natural Resources website, it is evident that the potion of the Hunter River that adjoins the site is not yet subject to the Plan and the WM Act approvals will not apply.

Rivers and Foreshores Improvement Act 1948 (**RFI Act**)

Section 22B(1) of the RFI Act provides that:

> (1) A person must not:
>
> (a) make an excavation on, in or under protected land, or
>
> (b) remove material from protected land, or
>
> (c) do anything which obstructs, or detrimentally affects, the flow of protected waters, or which is likely to do so,

unless the person is either authorised to do so by a permit under this Part and does so in accordance with any conditions to which the permit is subject, or is authorised to do so by the regulations.

Similar to the definition of waterfront land under the WM Act, the definition of "protected land" in the RFI Act relevantly includes: land that is the bank, shore or bed of a river or land that is not more than 40 metres from the top of the bank or shore of a river, (section 22A).

Section 22H provides that the offence provisions do not apply to a public or local Authority. However, the relevant Authority may direct a public or local Authority to carry out specified works in a specified manner and time if the public or local Authority has damaged or detrimentally affected protected land or is likely to do so.

5. Remediation Strategy

5.1 VRA Remediation Strategy

The VRA remediation strategy includes the implementation of Remediation Works in two stages.

Stage 1 includes the following construction works:-

- Construction of a subterranean Barrier Wall (completed February 2008);
- Re-contouring and capping of the majority of Area 1 (completed in June 2008);
- Major drains – the 'Eastern Drain' and 'Western Drain'; and
- Interim environmental works to reduce groundwater recharge rates in Area 2 and control sediments in stormwater runoff

Details of the completed Stage 1 Remediation Works are described in Section 5.3 below.

(See further part 3.2 above)

Stage 2 works primarily involve the re-contouring and low permeability capping of Area 2. These works may be provided synergistically with Project Works, or as separate Remediation Works for undeveloped land. The timeline for completion of Stage 2 works is documented in the VRA. (See further part 3.2 above)

5.2 Key Documents

The strategy for the implementation of Remediation Works on the Closure Area is documented in the following Key Documents:

- The VRA;
- The RAP;
- Materials Management Plan;
- Preliminary Remediation Design;
- The Final Design;
- The VOC Report; and
- The SPEMP.

The VRA documents the agreed remedial goals, and the scope and timing of Remediation Works. This may be varied only with the agreement of the EPA.

The State RAP was formulated to provide a basis for the VRA and is designed to address contamination issues in relation to site soils and groundwater. The purpose of this document was to address the declaration of the Closure Area as a remediation site and form the basis of a VRA with DECC and comply with the conditions of consent for the approved remediation works.

The Materials Management Plan provides guidelines for the classification and fate of contaminated materials encountered during site works. The plan outlines specific controls

and procedures regarding the classification, segregation, movement and fate of materials. Requirements for the on-site fate of contaminated materials include restrictions in relation to depth of placement and location.

The Preliminary Remediation Design documents proposed earthworks levels and grades across the site, and the pattern of surface drainage. The Preliminary Remediation Design is generally consistent with the site stormwater strategy. During final design of the remainder of the remediation works, the Preliminary Remediation Design details may be revised to incorporate alternative designs for site civil works, provided they are compatible with adjacent site levels, infrastructure proposals, and the intent of the site stormwater strategy.

The Final Design – Area 1 was formulated on the basis of general concepts of the Preliminary Remediation Design (Whole Site) with specific detail for the following works:

- Landform and capping of Area 1;
- Major drainage eastern and western drains;
- Landforming in the area to the west of Area 1;
- The barrier wall; and
- Environmental works, including removal of some known hotspots outside of Area 1 and a range of interim environmental works to reduce sediment running off the site and reduce ponding in Area 2.

The Final Design is a refinement of the Preliminary Remediation Design for part of the Site and supersedes the Preliminary Remediation Design in those areas.

The VOC Report documents requirements for Remediation Works and Project Works to manage risks associated with the presence of volatile organic compounds at the Site.

The SPEMP sets out plans and procedures to ensure the remediation activities are completed in compliance with the development consent.

5.3 Implementation of Stage 1 Works by RLMC

5.3.1 Barrier wall

A deep subsurface low permeability Barrier Wall was constructed as part of the Stage 1 Remediation Works, extending from the ground surface to the bottom of the natural sand and alluvial deposits of the Hunter River (30 metres to 49 metres). The Barrier Wall has been constructed using soil-bentonite techniques which use bentonite slurry for trench support, with the Barrier Wall then formed by backfilling the trench with a high slump mixture of soil and bentonite slurry and clay additives.

The wall has a surface completion beam designed for SM1600 traffic loadings. Work-as-executed details on the alignment and elevation of the Barrier Wall and surface completion beam are attached as Appendix D.

Development restrictions apply to works or land-uses in the vicinity of the Barrier Wall. Refer to Part 15 of this Plan.

5.3.2 Contaminated Materials, Earthworks and Capping of Area 1a

The re-contouring and capping of Area 1 was completed by the State in 2008 as part of the Stage 1 Remediation Works. During the site earthworks contaminated materials were encountered, and these were excavated, classified and placed on site in accordance with the Materials Management Plan. Level 2 and Level 3 materials were placed within specific placement areas inside Area 1. The materials within the Level 2 and Level 3 placement areas within Area 1 are known to contain asbestos materials. The locations of these placement areas are shown on the Site Plan. Contaminated material not encountered during the Stage 1 Remediation Works has been left insitu.

Levels and grades were designed to be compatible with anticipated land-uses while also meeting remediation objectives. Two types of Cap have been provided:-

- **VENM Cap** – comprising 0.5m of Virgin Excavated Natural Material (VENM) constructed to finished surface levels for remediation; and
- **Paved Cap** – comprising 300mm of granular site material overlain by 100mm of 20mm size crushed concrete, and sealed with a bituminous two coat seal. This has been constructed to a level which is 400mm below the finished surface levels documented on the Preliminary Remediation Design drawings for Area 1. This allows 'air space' for the construction of additional pavement thickness as part of subsequent Project Works, as may be structurally required for heavy duty hardstands, and/or as may be required to meet Site Auditor requirements for the proposed land-use.

A Validation Report was prepared for the Stage 1 Remediation Works by Coffey Environment in June 2008 to verify that contractor requirements for the handling, tracking, and fate of contaminated materials. The validation report is appended to this Plan. The validation report identifies that, based on the sampling undertaken, the slag materials used for construction of the paved cap within Area 1 comply with the requirements of the Materials Management Plan for Level 1 materials. However, the sample test results indicate that some samples from the slag paved cap exceed National Environmental Protection Measure guidelines for industrial landuse.

Final Design drawings showing the extent of regrading and capping on Area 1 are included in Appendix C.

The State is to maintain the Cap over Area 1 until such time as the land is leased or sold, at which point the responsibility to maintain the remediation becomes the responsibility of the purchaser or Lessee. The mechanisms by which responsibilities are allocated are discussed in Section 6.3 *Control of Works and Enforcement of Plan.*

5.3.3 Major Drains

The western and eastern trunk stormwater drains have been constructed by HDC as part of the Stage 1 Remediation Works. The location of these drains is shown in Figure 2 of Appendix B and also detailed in the Final Design Appendix C. HDC has also constructed interim environmental drainage works in Area 2 to reduce infiltration and provide stormwater detention for sediment removal, to operate in the period prior to development. Future development of the site will require regulatory approval for the design of permanent stormwater quality improvement devices to service the development, including provisions of

NCC's DCP 50 for individual lots, grassed swales and sand filters, stormwater detention basins and gross pollutant traps, as outlined in the Stormwater Strategy. Interim environmental drains and detention basins may not be decommissioned until written authority has been obtained from the EPA on the design of permanent water quality improvement facilities.

5.3.4 Soil Contamination Hot Spots in Area 2

The results of site soil contamination tests available across Area 2 as compiled and reported in Soil and Fill Assessment, Selected Areas of the Closure Site RCA, June 2005 indicated the potential presence of five known soil contamination hotspots within Area 2. HDC's contractor for the Stage 1 Remediation Works have excavated soils at four locations identified as potential contamination hotspots within Area 2 and removed Level 2 and Level 3 soils in accordance with the Materials Management Plan. These contaminated soils were consolidated into the Level 3 Placement Area located beneath the Cap within Area 1a. These works were additional to VRA requirements.

The fifth Area 2 hotspot, which was not addressed during the Stage 1 remediation works is located as shown on the Site Plan.

There may be other hot spots which have been undetected by soil contamination sampling.

5.3.5 Former Benzol Plant

Site monitoring of volatile gases reported in Vapour Assessment Soil Vapour Investigation Area Former BHP Closure Site, Mayfield RCA, December 2005 indicated the presence of volatile hydrocarbons in the vicinity of the former Benzol Plant of the BHP Steelworks. To mitigate the potential build-up or migration of volatile gases under the surface Cap within Area 1, as part of the Stage 1 Remediation Works HDC has installed vents through the low permeability surface Cap within the area of the former Benzol Plant. The locations of these vents are shown in Appendix F. An expansion of vents and monitoring may be undertaken by HDC in future pending the outcome of the monitoring.

The Site Auditor has provided a letter of opinion that this is an appropriate management of risks associated with volatile gases in this area for the period prior to site development within this area. Requirements for ongoing management of risks associated with volatile gases are provided in Part 14 of this plan.

5.3.6 Demolition of Remnant Structures

Stage 1 Remediation Works included the demolition of many below ground concrete structures remnant from the former steelworks. Generally, the structures were demolished to levels which are 1.5m below the ultimate Cap level as documented on the design drawings for Area 1 earthworks but in some instances are less than 1.5m below the ultimate Cap levels.

Details of demolition levels are shown on Work-as-Executed drawings for the demolition works in Appendix N.

5.3.7 Documentation of Completed Stage 1 Works

Completed Stage 1 Remediation Works are identified on the documents listed below:-

- Final Design: Appendix C
- Work as Executed - Barrier Wall: Appendix D
- Placement areas for Level 3 contaminated materials: Appendix E
- Locations of groundwater monitoring wells : Appendix F
- Locations of VOC monitoring wells Appendix K
- Work as Executed – Demolition works Appendix N
- Remediation and Validation Report Appendix Q
- Site Auditor Interim Advice Letters Appendix R
- Stage 1 Work as Executed Details Appendix S

6. Control of Works and Enforcement of Plan

6.1 Overview

This Plan will be applied to control Works on the site through a number of mechanisms. In summary:

- The Plan documents issues for consideration by the Planning Authority when determining appropriate conditions of Planning Approval. These conditions may impose controls for compliance with requirements under this Plan.
- The Plan sets out matters that must be taken into consideration by the Site Auditor when issuing Site Audit Statements. The issue of those Site Audit Statements is expected to be to be a pre-condition to obtaining and relying on Planning Approvals and necessary construction and occupation certificates;
- The requirements for specific design elements and controls may be imposed as restrictive covenants, positive covenants or easements registered on title;
- The Plan may be incorporated into contractual arrangements between the State and site owners or users. These arrangements may include specific obligations to carry out (or not carry out) Works or as to the method of carrying out works, the design of works or obtaining Site Audit Statements or other controls.

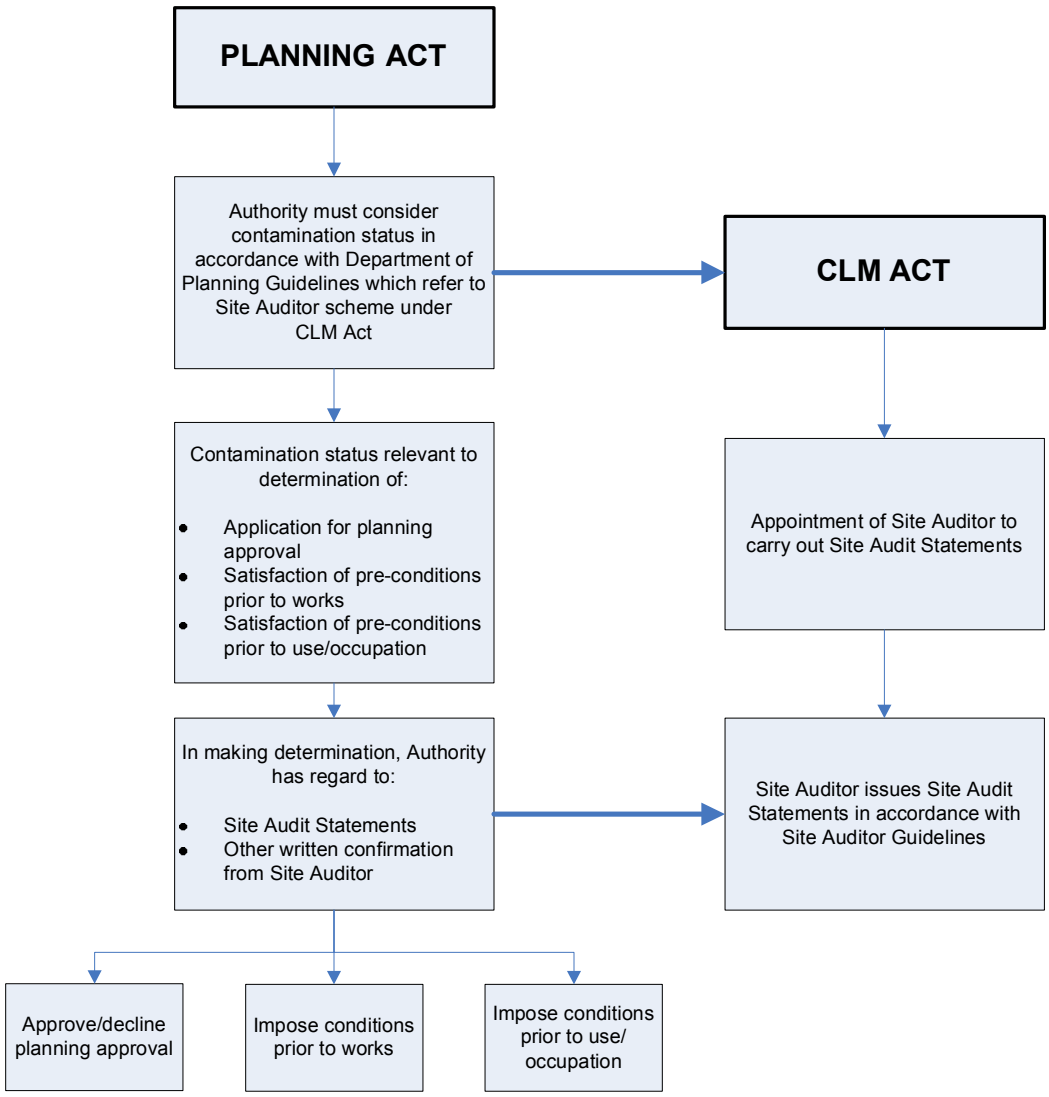
6.2 Site Auditor

The State has appointed the following EPA accredited Site Auditor as the ***Site Auditor.***

Mr Graeme Nyland Environ Level 5, 60 Miller St North Sydney

The State may appoint a successor to the Site Auditor subject to the CLM Act.

6.3 Overview of Site Audit Process and interaction with planning and approval process



Under the CLM Act a Site Auditor is appointed to carry out site audits. A site audit is defined as an independent review:

(a) that relates to investigation or remediation, carried out in respect of actual or possible contamination of land, and

(b) that is conducted for the purpose of determining any one or more of the following matters:

(i) the nature and extent of any contamination of the land,

(ii) the nature and extent of the investigation or remediation,

(iia) whether land is suitable for any specified use or range of uses;

(iii) what investigation or remediation remains necessary before the land is suitable for any specified use or range of uses,

(iv) the suitability and appropriateness of a plan of remediation, a long term management plan, a voluntary investigation proposal or a remediation proposal.

Accordingly, the role of the Site Auditor is not limited to independent review of the effectiveness of remediation but includes review of proposed remediation.

Under the CLM Act the concept of "remediation" includes:

(a) preparing a long-term management plan (if any) for the land, and

(b) removing, dispersing, destroying, reducing, mitigating or containing the contamination of the land, and

(c) eliminating or reducing any hazard arising from the contamination of the land (including by preventing the entry of persons or animals on the land.

Accordingly, the role of the Site Auditor can include review of proposed risk mitigation measures or risk mitigation measures that have been undertaken.

A Site Auditor may issue Site Audit Statements in accordance with the requirements of the Site Auditor Guidelines. The form of Site Audit Statement in those guidelines includes Site Audit Statements of proposed works and site audit statements of remediation actions taken.

Under the EP&A Act (see for example Part 7 of the Act) an Authority granting Planning Approval in respect of the Site must consider the contamination status of the Site in accordance with guidelines issued by the Department of Planning. Those guidelines in turn refer to the Site Auditor scheme under the CLM Act.

Three main and relevant decision points in the Planning Approval process are:

- Determination of an application for Planning Approval;
- The satisfaction of preconditions to the commencement of work; and
- The satisfaction of preconditions to the use or occupation of works.

A Planning Authority may (this is not an exclusive list):

- Decline to grant Planning Approval in the event that it is not satisfied that the Site is or can be made suitable for the proposed development or that the proposed development does not include design and other safeguards for the protection of human health and the environment;
- Impose conditions requiring that no Works proceed unless there is evidence that the Site is or can be made suitable for the proposed development or that the proposed development includes adequate design and other safeguards for the protection of human health and the environment (normally this requirement is tied to the issue of a construction certificate); or
- Impose conditions requiring that prior to the occupation or use of Works there is evidence that the Site is suitable for the proposed development or that the proposed development does include design and other safeguards for the protection of human health and the environment (normally this requirement is tied to the issue of an occupation certificate).

In making each of the determinations listed in the preceding paragraph regard can be had to the issue of a Site Audit Statement or some other written confirmation from the Site Auditor. In particular:

- If a Site Audit Statement has been issued confirming that in the opinion of the Site Auditor the Works as designed are appropriate;
- If at conclusion of Remediation Works a Site Audit Statement has been issued that the Site is in a condition that it suitable for the proposed development.

In issuing Site Audit Statements it is valid for the Site Auditor to have regard to the information that has been presented to the Site Auditor and, in particular, to have regard to whether Works have been carried out in accordance with designs or work plans that have previously been reviewed by the Site Auditor and any conditions imposed by the Site Auditor. For example, the Site Auditor might decline to issue the final Site Audit Statement until the Site Auditor is satisfied that a Materials Management Plan designed to prevent recontamination of the relevant part of the Site has been complied with. In this scenario it makes sense for the Site Auditor to progressively review designs and work plans before the commencement of works so that problems as to design and work method are flushed out prior to works commencing.

It is intended that this Plan will be made available to Authorities and persons intending to carry out Work on the Site so that they are familiar with its requirements and are aware that the Site Auditor will have regard to it before issuing relevant Site Audit Statements. It is intended that when determining applications for Planning Approvals or certificates under the EP&A Act, Planning Authorities and certifying authorities will have regard to the requirements of the plan and will impose appropriate conditions to require a Site Audit be carried out and Site Audit Statements issued either prior to the grant of Planning Approval or prior to the grant of relevant certificates.

6.4 Summary of Requirements to Obtain Site Auditor Sign Off

The following table summarises the involvement of the Site Auditor relative to the decision points discussed in the previous section. It is not intended to be comprehensive. People by or on whose behalf Works are carried out on the Site must comply with the requirements of law and the relevant Authority guidelines which will require other interactions with and involvement of the Site Auditor.

Stage	**Site Auditor involvement**	**Type of work**	**Site Auditor involvement includes:**
Prior to commencement of Works	Site Auditor when satisfied provides Site Audit Statement or other written confirmation of appropriateness of design, outcomes envisaged and	Remediation Works	appropriateness of plan of remediation generally including proposed design, implementation and maintenance. Receives information, access and reports as required by this Plan, existing agreements, approvals, certificates and site audit statements .
		Infrastructure Works	appropriateness of proposed management of risks relating to interaction of the works with contamination and other Remediation Works. Receives information, access and reports as

Stage	Site Auditor involvement	Type of work	Site Auditor involvement includes:
	associated management / work plans		required by this Plan, existing agreements, approvals, certificates and site audit statements.
		Redevelopment Works	appropriateness of management of risks relating to interaction of the works with contamination (including post-completion risks to users). Receives information, access and reports as required by this Plan, existing agreements, approvals, certificates and site audit statements.
During the conduct of Works	Reports to be provided to Site Auditor as required by Site Auditor or by law	Remediation Works	Validation reports and updates on risks and other relevant information to be provided to Site Auditor. Receives information, access and reports as required by this Plan, existing agreements, approvals, certificates and site audit statements.
		Infrastructure Works	updates on risks and other relevant information to be provided to Site Auditor. Receives information, access and reports as required by this Plan, existing agreements, approvals, certificates and site audit statements.
		Redevelopment Works	updates on risks and other relevant information to be provided to Site Auditor. Receives information, access and reports as required by this Plan, existing agreements, approvals, certificates and site audit statements.
Upon completion of works or relevant stages of Works	Site Auditor when satisfied provides Site Audit Statement or other written confirmation that works carried out as required and that site is suitable for specified uses subject to conditions	Remediation Works	Site Audit Statement as to completion of Remediation Works. Receives information, access and reports as required by this Plan, existing agreements, approvals, certificates and site audit statements.
		Infrastructure Works	Site audit statement as to implementation of appropriate risk management works. Receives information, access and reports as required by this Plan, existing agreements, approvals, certificates and site audit statements.
		Redevelopment Works	Site audit statement as to implementation of appropriate risk management works. Receives information, access and reports as required by this Plan, existing agreements, approvals, certificates and site audit statements.
Following completion of Works	Receives reports as required by site audit statements issued	Maintenance of remediation	Receives information, access and reports as required by existing agreements, approvals, certificates and site audit statements and complies with reporting obligations to Authorities.

6.5 Additional Site Auditor Requirements

It is possible that the Site Auditor may have requirements which are additional to or different from those documented in this Plan. This may occur, for example, because of:

- Site conditions which differ from those anticipated from the extant data; or
- Specific circumstances relating to the Works; or
- Changes in law or guidelines relating to exposure of humans to contaminants; or
- Combinations of the above;
- Other matters

Site Audit Statements must be obtained for Works as required by the relevant legislation, the VRA, any approval (including the Development Consent), the requirements of authorities or the requirements of this CSMP.

6.6 Site Auditor Discretions

The Site Auditor's discretions to respond in an appropriate manner are not removed by this Plan.

The Site Auditor is required to form an independent view about the design, delivery and performance of all Remediation Works on the Site, having regard to the CLM Act and all relevant guidelines made or approved under section 150 of the CLM Act. In forming such a view, the Site Auditor may consider that additional requirements to those set out in this Plan are necessary or that it is appropriate in the circumstances to depart from or relax the relevant standard or Requirement.

6.7 Additional controls in the Planning Approval Process

The requirement for Site Auditor sign off is not the only control that may be imposed in the Planning Approval process. For example, a Planning Approval may impose controls on the method of carrying out Works. This could include requirements that works plans be prepared in accordance with the requirements of this Plan or that other, additional plans be prepared. It could also include conditions as to testing, commissioning and proving outcomes prior to commencement and other controls.

It is expected that Planning Authorities will have regard to this plan when determining applications for Planning Approval and will impose appropriate conditions to give effect to it.

6.8 Other Control Mechanisms

It is expected that there will be other mechanisms controlling the conduct of Works on the Site. These may include:

- Registered instruments
- Agreements
- Other approvals (for example from the EPA)
- The VRA.

These mechanisms may incorporate relevant parts of this Plan and may also include requirements for Site Auditor sign off prior to particular key decisions, Works or processes being made or undertaken.

7. Guide to Requirements

Requirements:

- Part 8 sets out compliance Requirements in respect of environmental management plans applicable to the Site, requires the appointment of a geotechnical expert and environmental scientist to review and certify Works and management and reporting Requirements;
- Part 9 sets out design Requirements in respect of Remediation Works;
- Part 10 sets out Requirements for the delivery of Remediation Works;
- Part 11 sets out maintenance Requirements for Remediation Works;
- Part 12 sets out design Requirements for Project Works;
- Part 13 sets out Requirements for the delivery of Project Works;
- Part 14 sets out vapour management Requirements;
- Part 15 sets out other specific Requirements; and
- Part 16 sets out requirements relating to reporting and the provision of information.

The following table provides a list of requirements for Works under this Plan. This is provided as a guide only and the actual requirements detailed in subsequent sections take precedence.

Requirement	Description
Part 8 - Plans	
8.1	Environmental Management Plans
8.1.1	Comply with SPEMP (if applicable to current development consent)
8.1.2	Comply with CEMP (if applicable to current development consent)
8.1.3	Comply with OEMP (if applicable to current development consent)
8.2	Work Management Plan
8.3	Appoint Geotechnical Expert
8.4	Appoint Environmental Scientist
8.5	Environmental Management and Reporting
Part 9 – Remediation Works Design	
9.1.1	Prepare a Remediation Work Method Statement
9.2.1	Obligation to Cap

9.2.2	Cap performance/design Requirements
9.2.3	Geotechnical Engineer's report
9.2.4	Comply with Preliminary Design and other works
9 2.5	Plan for future management
9.3.1	Vapour Management
9.4.1	Area 1 – comply with Site Auditor requirements for supplementary capping
9.4.2	Area 1 – protect Barrier Wall
9.5.1	Construction of Emplacement Area
9.5.2	Management of Emplacement Area
9.6	Signage
9.7	Technical/Commercial Area – Relaxation of time for Cap placement
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10.1	Comply with plans, designs etc
10.2.1	Obtain report from Geotechnical Engineer
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10.3	Obtain Site Auditor Confirmation
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11.1.1	Ongoing obligation to maintain Cap
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11.2	Maintenance of other Remediation Works
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12.1.2	Other design obligations
12.1.3	Comply with Parts 11, 14 and 15
12.2	Obtain Site Auditor Confirmation
Part 13 – Project Work Delivery	
13.1.1	Comply with designs and plans

13.1.2	Obtain Geotechnical Engineer Certification
13.1.3	Obtain Environmental Scientist Certification
13.2.1	Obtain Site Auditor Certification
Part 14 – Vapour Management	
14.1.1	Assess VOC risks and incorporate into design
14.2.1	Additional Requirements Area
14.3.1	VOC Management in Area 1
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Part 15 – Other Specific Requirements	
15.1.1	Easement to access and maintain Barrier Wall
15.1.2	Restriction on surface development in vicinity of Barrier Wall
15.1.3	Work to be designed for differential settlement
15.1.4	Control of works affecting capping beam
15.1.5	Geotechnical Engineer Certification
15.1.6	Control of Piles and Footing
15.2.1	Right of access to Monitoring Wells
15.2.2	Right to expand Monitoring Wells
15.3.1	Control of Work in Level 3 Placement Area
15.3.2	Work Management Plans within areas of known Level 2 and Level 3 Contamination
15.3.3	Work Management Plans within Area 1
15.3.4	Site Auditor Requirements for future landuse
15.4	Control of excavation of Area I
15.5.1	Heritage Protection
15.6.1	Maintenance of Major Drains
15.7.2	Right to undertake Remediation Works
Part 16 Reporting and Information Requirements	
16.1.1	Keep records and information
16.1.2	Notify the EPA of material changes
16.1.13	Notify the EPA of any failure to comply with the VRA

8. Works Plans and Appointment of Experts

8.1 Environmental Management Plans

The Development Consent requires four levels of environmental management plans for the Site. They are:

- Contaminated Site Management Plan (CSMP, this document); refer to Condition of Consent 4.1;
- Site Preparation Environmental Management Plan (SPEMP); refer to Condition of Consent 4.2;
- Construction Environmental Management Plan(s) (CEMP); refer to Condition of Consent 4.3; and
- Operational Environmental Management Plan(s), (OEMP); refer to Condition of Consent 4.4.

Future Approvals may impose additional or different requirements.

8.1.1 SPEMP

Background

HDC has prepared a SPEMP to provide overarching principals of environmental management for demolition, remediation and site preparation activities for the Site. The SPEMP is included in Appendix B.

Application

The SPEMP has been approved by the DoP as a condition of Project Approval. The SPEMP remains applicable to site preparation activities to be completed in Stage 2 and also applies to the whole Site unless the Project Approval for any part of the Site is superseded with new conditions that do not require the application of the SPEMP.

Requirement

The SPEMP framework for site preparation activities must be followed at all times for all Works.

8.1.2 CEMP

Background

Environmental controls relevant to the detailed work practices of individual contractors, for site specific remediation, site preparation and subsequent project works must be prepared by those remediation contractor(s) performing the works. CEMP documents are to be presented for DoP approval prior to commencement of construction.

Whilst contractors are required to draw on overarching principals of the SPEMP, they will be required to independently seek DoP approval for CEMP procedures as outlined in Section 4.2.2 of the SPEMP that are specific to their works. Individual contractors will possess

CEMP's specific to their projects and activities at the same time adhering to the overarching principals of the SPEMP.

Future Planning Approvals are expected to impose similar requirements.

Application

The requirements of this part apply to the whole Site unless unless the Project Approval for any part of the Site is superseded with new Project Approval conditions that do not require the application of the CEMP.

Requirement

No construction work may occur before a contractor's CEMP has been prepared that complies with the requirements of relevant approvals and:

(a) been approved by the Site Auditor; and

(b) approved by other Authorities as required by applicable approvals.

A copy of the CEMP must also be provided to the Site Auditor and a written sign-off of the CEMP must be obtained from the Site Auditor prior to commencement of construction.

Note the Development Consent requires that the CEMP must:

- Describe the proposed construction works;
- Outline the proposed construction work program;
- Identify all the relevant statutory requirements and conditions of consent that apply to the construction phase of the development;
- Set standards and performance measures for each of the relevant environmental matters associated with the construction work;
- Describe what actions and measures will be implemented to mitigate the potential impacts of the construction works, and to ensure that these works will comply with the relevant standards and performance measures;
- Describe in detail what measures and procedures will be implemented to:
    - Manage construction traffic;
    - Mitigate any potential dust impacts;
    - Register and respond to complaints during the construction period;
    - Ensure the occupational health and safety of construction workers;
    - Respond to any emergencies; and
    - Respond to the discovery of any archaeological relics or sites during site works.
- Explain how the environmental performance of the construction works will be monitored, and what actions will be taken if any non-compliance is detected;
- Describe the role, responsibility, authority, accountability, and reporting of key personnel involved in the construction of the development; and
- Include the following plans:

- Soil and Water Management Plan (Condition 5.27)
- Site Preparation and Construction Noise Management Plan (Condition 5.8);
- Heavy Vehicle Route Plan (Condition 5.46)
- Landscape Management Plan (Condition 5.47)
- Contaminated Site Management Plan (Condition 4.1)
- Archaeological Management Plan (Condition 6.3).

8.1.3 OEMP

Background

The Development Consent requires preparation and implementation of an OEMP. Future approvals for other development may impose similar conditions.

Application

The requirements of this part apply to the whole Site unless superseded with new Project Approval conditions that do not require the application of the OEMP.

Requirement

The Developer must prepare and implement an OEMP for all future operations of the proposed development which has been prepared as required by relevant approvals and:

(a) approved by the Site Auditor; and

(b) approved by each other Authority as required by applicable approvals.

Note the Development Consent requires that this plan must:

- Describe the proposed operations;
- Identify all the relevant statutory requirements that apply to the operation of the development;
- Set standards and performance measures for each of the relevant environmental issues;
- Describe what actions and measures will be implemented to mitigate the potential impacts of the development, and to ensure that the development meets these standards and performance measures;
- Describe what measures and procedures will be implemented to:
- Register and respond to complaints;
- Ensure the operational health and safety of the workers;
- Respond to potential emergencies, such as plant failure;
- Describe the role, responsibility, authority, and accountability of all the key personnel involved in the operation of the development;
- Incorporate the detailed Environmental Monitoring Program (Condition 8.1);

- Incorporate a Stormwater Management Plan (Condition 5.30);
- Incorporate a Capping Maintenance Plan (Condition 5.20);
- Incorporate the Contaminated Site Environmental Management Plan (this document, Condition 4.1);
- Heavy Vehicle Route Plan (Condition 5.46);
- Provision of site inductions for new employees or contractors on site; and
- Use of physical markers, marker layer, notices or other suitable precautions to warn of the location of emplacement areas or potentially contaminated materials. The proposed precautions must be consistent with this Plan and the Key Documents and must be included in the information provided to the Site Auditor under Part 16.

The Developer must ensure that a copies of the OEMP are publicly available and review and update the OEMP regularly, or as directed by Director-General. The OEMP must be approved by the Director-General before operations can commence.

A copy of the OEMP must also be provided to the Site Auditor and a written sign-off of the OEMP must be obtained prior to

8.2 Work Management Plan

Background

Works may encounter contaminated soils, groundwater or gases associated with past land-uses or previously completed remediation works which included on-site placement of contaminated materials in the Level 2 and Level 3 placement areas within Area 1. Measures need to be taken to protect the health and safety of people and to protect the environment. Specific attention should be paid to Works that may penetrate below caps that have been put in place.

Application

The requirements of this Part 8.2.apply to the whole Site unless specifically identified otherwise, for works that penetrate below caps that have already been put in place.

Requirement 8.2.1 – Work Management Plan to be prepared and approved

(a) A Works Management Plan must be prepared for all Works and must be approved by the Site Auditor prior to the commencement of those Works.

(b) The works Management Plan must include:

(i) assessment of the nature and extent of contamination and the risks from it to the satisfaction of the Site Auditor;

(ii) a risk assessment carried out in accordance with AS 90001 by an appropriately qualified and experienced expert identifying the potential risks arising in connection with the proposed Works;

(iii) protocols for the safe conduct of the Works which have been prepared by an appropriately qualified and experienced expert and which specify precautions to be taken to mitigate risks identified in the risk assessment as requiring mitigation;

(iv) a safe work method for the proposed activities, which includes appropriate contingency plans for the possibility of encountering contaminated materials;

(v) a procedure to progressively classify and manage soils encountered during excavation in accordance with the Materials Management Plan including assessment by the Environmental Scientist as materials are excavated;

(vi) where there has been any excavation into or below a Cap – protocols for assessing and confirming that the Cap has been properly reinstated;

(vii) a validation procedure and quality assurance / quality control procedures to confirm classification of materials excavated and to confirm achievement of relevant standards of remediation; and

(viii) controls to ensure that no damage is caused to any remediation works and structures on the Site

[Note the requirements specified in Part 9 require design of the Remediation Works to be in accordance with the SPEMP and Parts 10 and 12 require Work to be carried out in accordance with the approved SPEMP and the specifics of the individual contractors CEMP's and other documents]

8.3 Geotechnical Expert

Background

This Plan requires that a Geotechnical Engineer provide certain certifications including in respect of the following:

- 10.2.1 Cap installation;
- 11.1.2 Cap inspection;
- 13.1.2 Cap integrity;
- 15.1.2 Excess loads;
- 15.1.5 Surface development; and
- 15.1.6 Foundations within the exclusion zone.

Application

This requirement applies to the whole Site.

Requirement 8.3.1

A person by (and on whose behalf) Work is to be carried out on Site must appoint an expert Geotechnical Engineer to review and provide certification of the Works as required by this Plan.

8.4 Environmental Scientist

Background

This Plan requires that an Environmental Scientist provide certain certifications including in respect of compliance with the Materials Management Plan.

Application

This requirement applies to the whole Site.

Requirement 8.3.1

A person by (and on whose behalf) Work is to be carried out on Site must appoint an expert Environmental Scientist to review and provide certification of the Works as required by this Plan.

8.5 Environmental Management and Reporting

Background

Section 9 of the Development Consent outlines environmental management and reporting requirements including:

(i) Appointment of an Environmental Officer (condition 9.1);

(ii) Annual Environmental Management Reporting (condition 9.2 and 9.3);

(iii) Independent Environmental Auditing (condition 9.4 and 9.5);

(iv) Community Consultative Committee (condition 9.6, 9.7 and 9.8); and

(v) Complaints Procedure (condition 9.9).

Future approvals may impose similar requirements.

Application

This requirement applies to the whole Site.

Requirement 8.5.1

Comply with the requirements of applicable approvals.

9. Remediation Works Design

9.1 Preparation of Remediation Work Method Statement

Background

Two key documents govern Remediation Works on the Site. They are the RAP and the VRA.

An approved RAP has been prepared for the Site. The RAP:

- illustrates remediation goals and objectives;
- provides an assessment and understanding of the soil and groundwater contamination affecting the Site;
- provides an approved and a remediation strategy for all parts of the Site

The Site is also subject to a VRA, which:

- sets out a performance schedule to complete works considered in the RAP
- establishes a program of works
- establishes monitoring requirements
- specifies requirements for risk assessment and contingency planning
- specifies requirements for site auditing and assessment of efficacy of works

Application

The requirements of this Part 9.1 apply to the whole of the Site

Requirement 9.1.1 Preparation of a Remediation Work Method Statement

For each part of the Site, prior to preparation of remediation detailed design documentation, a Remediation Work Method Statement is to be prepared to the satisfaction of the Site Auditor. The document is to demonstrate an understanding of the RAP and the VRA and outline how the Remediation Works are to comply with the performance schedule of the VRA and be compatible with the intent of the RAP.

The Remediation Works Method Statement is also to provide a schedule of any departures from the objectives and strategy of the RAP and the performance schedule in the VRA. In such case, a number of supporting documentation may be required to demonstrate that any alternative remediation approach is equivalent or better in addressing these requirements or justification for any departures. Supplementary documentation may be requested at the discretion of the Site Auditor, and may include, but not necessarily limited to:

- identification of likely areas affected by Contamination;
- identification and characterisation of likely contaminants;
- sampling and analysis program and methodology;

- sampling and analysis of contaminants;
- assessment of risks;
- demonstration of effectiveness of proposed works (which may include hydraulic, environmental or geotechnical assessments);
- contingency planning;
- QA/QC procedure;
- validation protocols;
- maintenance and inspection protocols including inspection schedule including for any caps, repair of defects or damage and plan of management for any proposed emplacement areas;
- includes proposed reporting protocols;
- complies with the Key Documents;

And must:

- as a minimum comply with DECCW requirements and guidelines;
- comply with the requirements of this Plan, including Parts 9, 10, 11 , 14 and 15;
- be of a scope satisfactory to and carried out to the satisfaction of the Site Auditor and the relevant Authorities; and
- include assessment of VOC risks as noted in Part 14 below

9.2 Design Requirement- Provision of Cap

Background

Various parts of the Site are known to contain materials that may give rise to potentially harmful to humans. There is also a risk that infiltration can cause off-site migration of contaminated groundwater. Therefore, the RAP and VRA requires that a low permeability cap is to be provided and maintained across the Site to prevent infiltration of surface waters and protect future occupants of the Site from being exposed to potentially contaminated soils and groundwater.

Application

This requirement applies to the whole of the Site.

Requirement 9.2.1 – Obligation to Cap

The whole of the Site must be capped except:

- those parts of the Site that are shown in Figure 2 as being exempt from this Requirement; and
- any part of the Site that the VRA provides does not require capping.

Capping may be carried out synergistically with redevelopment but each part of the Site to be capped must be completed on the earlier of:

- the date required by the VRA; or
- prior to the occupation or use of any Redevelopment Works on that part.

Requirement 9.2.2 - Cap Performance/ Design

The Cap must:

- prevent as far as practicable the ingress of water to any part of the Site that may be contaminated and, thereby in turn, prevent as far as practicable, the mobilisation and migration of contaminants in surface water or ground water; and
- be capable of performing without substantial maintenance or repair for at least 25 years under the conditions anticipated at the Site.

In addition, any Cap for any part of the Site must comply with the following:

(i) Permeability, thickness and materials of the surface Cap are to be provided in accordance with the conditions 5.18 and 5.18A of the Development Consent unless superseded by requirements for same in a latter applicable Planning Approval. The “M Areas” referred to in the development consent are shown in Figure 1.

(ii) Caps constructed from materials including clays and/or coal washery products are to be materials which are non-dispersive, resistant to erosion, low shrink swell potential, and be free of acidic leachates.

(iii) Areas of higher permeability may be included (such as landscaped zones) subject to analysis to the satisfaction of the Site Auditor that the overall site groundwater recharge rate is equivalent to or less than the VRA required permeability for 10%, 50% and 90% annual probability exceedance rainfalls.

(iv) All caps except building slabs should have a minimum slope of 1% and be constructed to be free of surface water ponding.

(v)Grade the surface and provide a drainage system so that no undrained ponding of surface water occurs.

(vi) Be constructed of highly stable materials to minimise degradation over time; and

(vii) Comply with the requirements of this Part 9 and also Parts 14 and 15

Requirement 9.2.3 - Geotechnical Engineer Report

Prior to the commencement of works, a Geotechnical Engineer's report must be provided to the Site Auditor describing the capping materials, thicknesses and jointing methods and certifying that the design complies with the cap performance requirements specified in this Part 9 and Parts 14 and 15. The Geotechnical Engineers report is also to prescribe an inspection and maintenance schedule. The people to whom the report is addressed must include the Site Auditor.

Requirement 9.2.4 - Preliminary Design and Compatibility with other Works

The design of Remedial Works must comply with the following:

(i) the requirements of the VRA and this CSMP and all legal requirements;

(ii) Planning Approval requirements;

(iii) levels at the boundary of the proposed development should match those documented on the Preliminary Design for site earthworks or those in the Final Design where applicable;

(iv) the drainage system is to accommodate the drainage pathways identified in the Preliminary Design or those in the Final Design where applicable, and to provide a similar pattern of drainage, and be compatible with the stormwater strategy for the site, unless otherwise dictated by design flood levels or instructed by the Hunter Development Corporation;

(v) stormwater systems and sewer systems (including subsoil drains, pumping stations, sumps and other infrastructure or equipment) are to be isolated from ingress of groundwater;

(vi) limiting exposure to site contamination during site regrading earthworks;

(vii) wharf heights agreed with the Newcastle Port Corporation;

(viii) railway gradings along the proposed alignment for the relocated Morandoo Sidings to One Steel railway line as documented in the Preliminary Design or subsequent design approved by the Hunter Development Corporation; and

(ix) levels at the perimeter of proposed works should be compatible with both the Preliminary Remediation Design for earthworks across the whole Closure Area and other Project Works, either proposed or constructed, unless otherwise dictated by design flood levels or instructed by the Hunter Development Corporation.

Requirement 9.2.5 – Plan for Future Management

The design of Remediation Works must include:

(i) a plan for the future management of the relevant part of the Site to inform people of the presence of the Remediation Works and the potential hazards of works in the area relating to the Remediation Works or contamination;

(ii) identification of any proposed physical markers, marker layer, notices or other precautions, to warn people if they are about to excavate within an emplacement area onto contaminated materials. The proposed plan and proposed precautions must be consistent with this Plan and the Key Documents and must be included in the information provided to the Site Auditor.

9.3 Design Requirement- Vapour Management

Background

Various parts of the Site are known to contain materials that may give rise to potentially harmful vapours – in particular where enclosed spaces are created. In Part 14 of this Plan there are specific controls relating to vapour mitigation and management which must be incorporated into the design.

Application

This requirement applies to the whole of the Site.

Requirement 9 3.1 – Vapour Management

The design of Remediation Works must be consistent with and give effect to the requirements of Part 14 below in respect of management of vapours.

9.4 Area 1 - Specific Requirements

Background

The HDC has provided a low permeability Cap across Area 1a, as described in Part 5.3.2 of this CSMP. Additional capping may be required to satisfy Site Auditor requirements for specific Project Works, or to meet engineering requirements for Project Work pavements or hardstands.

In addition, RLMC has installed a Barrier Wall around Area 1 and precautions must be taken to protect the Barrier Wall.

Application

This requirement applies to the **Area '1'.**

Requirement 9.4.1

Comply with any Site Auditor requirements for supplementary capping as required for the intended land-use including the Site Auditor's requirements for design approval.

Requirement 9.4.2 – protection of Barrier Wall

All Works must be designed and implemented in accordance with the requirements specified in Parts 14 and 15 below.

9.5 New Emplacement Areas

Background

The Materials Management Plan contains a classification of materials. If Level 3 materials (as defined in the Materials Management Plan) are identified, these materials may be able to be placed into and contained and isolated in emplacement areas within the area of the Works.

Application

This requirement applies to the whole of the Site.

Requirement 9.5.1 – Construction of Emplacement Area

Emplacement areas are to be designed and constructed to fully and safely contain material to be contained in them. The design must be approved by the Site Auditor and all relevant Authorities and must satisfy the requirements of the VRA including to prevent as far as possible further contamination of the Hunter River. The emplacement area must be covered by a distinctive physical marker layer such as a high density poly-ethylene mesh in a distinctive colour such as red, yellow or orange. The location of emplacement areas must be shown on a plan prepared by a Registered Surveyor, and provided to the Site Auditor.

Requirement 9.5.2 –Management of Emplacement Area

Prepare a Plan of Management for Emplacement areas in accordance with Site Auditor requirements.

9.6 Signage

For all parts of the site that are capped or on which there is an emplacement area, consideration should be given to the placement of signs in prominent, visible and accessible locations notifying of the presence of the cap or emplacement area and of the information that should be referred to prior to any work in that area.

9.7 Technical/Commercial Area - Relaxation of Time for Placement of Cap

Background

Part of the site in Area 2 is covered by existing structures and sealed pavements which are recognised to provide a low level of permeability and also provide some existing functional purpose as car parking, roads and buildings.

Application

This provision applies as a relaxation of requirement 9.2.1 for Area C**.**

Relaxation of Requirement 9.7.1 timing

The Technical / Commercial Precinct is to be provided with a low permeability Cap in accordance with part 9.1 of this plan, only when Redevelopment Works occur within this area. At such time, the area is required to be remediated in accordance with the RAP and VRA.

9.8 Exemption of Cap requirement for specific areas

Background

The Development Consent (as modified) excludes certain site areas from requiring low permeability capping. These areas are shown on Figure 2 include the landscaped areas adjacent to Industrial Drive.

The relaxation of capping requirements in these areas was based on heritage and landscape values and assessment of contamination risks. For information in relation to exempt areas may be found in *Application to Vary Development Consent Conditions for the Multi Purpose Terminal and remediation of the Former BHP Site, Mayfield (2001),* prepared by URS Australia, 19th April 2005 (Appendix O), which was a supporting document for modification application MOD-60-4-205-i.

Any redevelopment of exempted areas would mean that the exemption would no longer apply in the area of redevelopment.

Application

This provision applies to relax the requirement 9.2.1 to that part of Area D adjacent to Industrial Drive.

Any areas within the exempted area in which Redevelopment Works are carried out are to be provided with a cap in accordance with requirement 9.1.1.

Relaxation of Requirement 9.8.1 - timing

Requirement 9.2.1 does not apply to the part of Area D until this area is subject to Redevelopment Works.

9.9 Site Auditor Confirmation

Background

The Site Auditor has been appointed to carry out site audits in respect of the Site. Proponents should make commercial arrangements for provision of services by the Site Auditor.

Application

This requirement applies to the whole of the Site.

Requirement 9.9.1 – Site Auditor Confirmation

For each part of the Site, prior to the commencement of the Remediation Work for that part, Site Auditor Confirmation that the design of the Remediation Works is suitable and appropriate and complies with the Requirements of this Plan must be obtained.

10. Remediation Works - Delivery

10.1 Compliance with Remediation Work Method Statement, Environmental Management Plans and Approved Design

Background

This CSMP imposes obligations to have in place approved Remediation Work Method Statement (Requirement 9.1.1), Environmental Management Plans (Requirement 8.1, where applicable), future management of remediated areas (Requirement 9.2.5) and for the design of Remediation Works to meet certain standards and be approved by the Site Auditor. In addition other plans have been prepared. These include the Key Documents listed below in Requirement 10.1.1.

Application

This Requirement applies to the whole of the Site.

Requirement 10.1.1 – Comply with plans, designs etc

Remediation Works shall be carried out in accordance with:

(i) the Remediation Work Method Statement and remediation Design that has been approved by the Site Auditor (under Part 9 above)

(ii) the Key Documents;

(iii) the Works Management Plan that has been approved under Requirement 8.2.1;

(iv) the Geotechnical Engineers report provided under Requirement 9.2.3; and

(v) the plans prepared for future management under Requirement 9.2..5;

And in accordance with the requirements of the Site Auditor and all applicable laws

10.2 Obtain Geotechnical Engineers Report and Environmental Scientist Report

Background

Where Remediation Works are carried out on the Site it will be necessary to obtain a report from a properly qualified person confirming that they are properly carried out and installed and free of defects.

Application

This Requirement applies to the whole of the Site.

Requirement 10.2.1 – Geotechnical Engineer

At the completion of the Remediation Works certification must be obtained from the Geotechnical Engineer that the installed Cap will satisfy VRA requirements for Cap permeability for a design life of not less than 25 years, when exposed to the environment

and proposed land-use, and maintained in accordance with the Geotechnical Engineer's inspection and maintenance schedule. The people to whom the certificate is addressed and issued must include the Site Auditor and the EPA.

This certification must be provided prior to any occupation or use of Project Works on the relevant part of the Site.

Requirement 10.2.2 – Environmental Scientist

At the completion of Remediation Work a report must be obtained from an Environmental Scientist stating that the materials encountered during excavation have been managed in accordance with the Materials Management Plan, and if replaced on site do not pose an unacceptable exposure risk to human health. The people to whom the report is addressed must include the Site Auditor.

This report must be provided prior to any occupation or use of Project Works on the relevant part of the Site.

10.3 Site Auditor Confirmation

Background

The Site Auditor has been appointed to audit the conduct of Remediation Works in accordance with EPA guidelines and legislation.

Application

This Requirement applies to the whole of the Site.

Requirement 10.3.1 – Site Auditor Confirmation

Following completion of Remediation Work obtain a Site Audit Statement from the Site Auditor confirming that the Remediation Works have been carried out and that the Site is suitable for the proposed use.

This must be provided prior to any occupation or use of Project Works on the relevant part of the Site.

11. Remediation Works – Maintenance

11.1 Cap Integrity over time

Background

Once installed the integrity of caps must be maintained over time. Work has the potential to impact on Cap integrity. Materials may also break down in time and require future maintenance.

Application

The following Requirements apply to the whole of the Site.

Requirement 11.1.1 – Ongoing Obligation to Maintain Cap

The design parameters set out in Parts 9, 14 and 15 must be complied with on an ongoing basis and any Cap installed on the Site must be maintained in a manner and condition to continue to comply with /achieve those parameters and to comply with all applicable Planning Approvals and conditions of Site Audit Statements unless and until, in respect of any specific part of the Site:

a) the conditions of a Planning Approval applicable to that part of the Site allow a change in Cap permeability requirements in respect of that part, and;

b) written concurrence is provided by the Site Auditor and NSW EPA to the same change in Cap permeability requirements in respect of that part.

Requirement 11.1.2 –Regularly Inspect, Monitor and Repair Cap

For every part of the Site on which a Cap has been installed, the following requirements must be satisfied:

(i) on each Cap Maintenance Inspection Date ensure that a Geotechnical Engineer inspects the whole of the Cap and certifies that the design parameters set out in Part 9 continue to be complied with and provide a copy of that report to the Site Auditor. The people to whom the certificate is addressed must include the Site Auditor;

(ii) promptly repair any defects in the Cap and carry out any other works necessary to obtain that Geotechnical Engineer's certification; and

(iii) provide reports of inspection and confirmation that defects have been repaired to the EPA and the Site Auditor.

(*Note the Site Auditor or Planning Authority may require production of these reports prior to the issue of later Site Audit Statements or approvals).*

11.2 Maintenance of Other Remediation Works

Background

Once installed the integrity of other Remediation Works – in particular any structures - must be maintained over time.

Application

This Requirement applies to the whole of the Site**.**

Requirement 11.2.1

All Remediation Works and structures must be maintained in a proper and efficient condition and manner so that they continue to properly perform those functions for which they were delivered or installed, including compliance with:

(i) the maintenance protocol included in the relevant RWMS approved under Part 9;

(ii) any Site Auditor requirements;

(iii) all applicable legal requirements

11.3 Maintenance of VOC Management Works

Background

Measures to protect structures and people from VOCs may be required including as described in Part 14. These may include vents and other works or structures to allow VOCs to dissipate. These vents and other works or structures will need to be maintained over time.

Application

This Requirement applies to the whole of the Site.

Requirement 11 3.1

All vents or other works or structures for managing the risk from VOC's must be maintained in a proper and efficient manner and condition. There must be regular inspections of them and they must be repaired and kept free of defects.

12. Project Works - Design

12.1 Design Requirements

Background

Project Works have the potential to impact upon the effectiveness of Remediation Works and to impact Cap integrity. Project Works must be designed so that they are compatible with Remediation Works and requirements

Application

These Requirements apply to the whole of the Site.

Requirement 12.1.1 – General Design Obligations

Having regard to any contamination likely to be encountered, Project Works must be designed:

(i) to provide adequate protection of the health and safety of people;

(ii) to protect the environment;

(iii) to comply with the requirements of the Site Auditor an all applicable legal requirements;

(iv) to comply with the requirements of Parts 14 and 15 below;

(v) to be consistent with the Key Documents, any RAP or other plans for the delivery and maintenance of Remediation Works approved by the Site Auditor or relevant Authorities.

Requirement 12.1.2 – Other Design Obligations

Project Works must be designed to compatible with:

(i) the requirements of the VRA and this CSMP and all legal requirements;

(ii) Planning Approval requirements;

(iii) levels at the boundary of the proposed development should match those documented on the Preliminary Design for site earthworks or those superseded by the Final Design;

(iv) the drainage system is to accommodate the drainage pathways identified in the Preliminary Design or those superseded by the Final Design, and to provide a similar pattern of drainage, and be compatible with the stormwater strategy for the site; (Patterson Britton, 2007);

(v) stormwater systems and sewer systems (including subsoil drains, pumping stations, sumps and other infrastructure or equipment) are to be isolated from ingress of groundwater;

(vi) limiting exposure to site contamination during site regrading earthworks;

(vii) wharf heights agreed with the Newcastle Port Corporation;

(viii) railway gradings along the proposed alignment for the relocated Morandoo Sidings to One Steel railway line as documented in the Preliminary Design or subsequent design approved by the Hunter Development Corporation; and

(ix) levels at the perimeter of proposed works should be compatible with both the Preliminary Remediation Design for earthworks across the whole Closure Area and other Project Works, either proposed or constructed.

(x) landscaping to be compatible with remediation works with consideration to capping maintenance issues and long-term capping and drainage performance

Requirement 12.1.3 – Comply with Parts 11, 14 and 15

Project Works must be designed to ensure ongoing compliance with:

(i) Parts 11, 14 and 15 of this Plan; and

12.2 Site Auditor Confirmation

Background

The Site Auditor has been appointed

Application

This Requirement applies to the whole of the Site.

Requirement 12.2.1 – Site Auditor Confirmation

Prior to the commencement of Project Work obtain Site Auditor Confirmation that the design of proposed Project Works includes suitable and appropriate remediation and risk management controls and complies with the Requirements of this Plan.

13. Project Work - Delivery

13.1 Controls on delivery of Project Works

Background

Project Works have the potential to impact upon the effectiveness of Remediation Works and to impact Cap integrity. Project Works must be delivered in a manner so that they are compatible with Remediation Works and Requirements of this Plan.

Application

This Requirement applies to the whole of the Site.

Requirement 13.1.1 – Comply with Designs and Plans

Project Works shall be carried out in accordance with:

(i) the design that has been approved by the Site Auditor in accordance with Requirement 12.2.1;

(ii) the RAP and design for Remediation Works;

(iii) the Key Documents;

(iv) the Works Management Plan that has been approved under Requirement 8.2.1;

(v) the Geotechnical Engineers report provided under Requirement 9.1.2;

(vi) the plans prepared for future management under Requirement 9.1.5;

(vii) the requirements of Parts 14 and 15 of this Plan,

(viii) any requirements that limit the depth or location of excavations, drilling, piling or other subsurface works

And in accordance with the requirements of the Site auditor and all applicable laws

Requirement 13.1.2 – Geotechnical Engineer Certification

At the completion of the Project Works a report confirming that the Project Works have been carried out in such a manner that they have not adversely impacted upon the integrity of the Cap must be obtained from a Geotechnical Engineer. The people to whom this report is addressed and delivered must include the Site Auditor and the EPA.

This certification must be provided prior to the use of the Project Works.

Requirement 13.1.3 – Environmental Scientist Certification

At the completion of Project Works a report from an Environmental Scientist must be obtained stating that the materials encountered during any excavation have been managed in accordance with the Materials Management Plan, and if replaced on site do not pose an unacceptable exposure risk to human health. The people to whom this report is addressed and delivered must include the Site Auditor and the EPA.

This report must be provided prior to the use of the Project Works.

13.2 Site Auditor Confirmation

Background

The Site Auditor has been appointed.

Application

This Requirement applies to the whole of the Site.

Requirement 13.2.1

Prior to occupation or use of any Project Works obtain a Site Audit Statement from the Site Auditor confirming that the Project Works have been carried out in such a manner that the Site is suitable for the proposed use. Site Audit Statement must certify suitability for the proposed use, subject to a long term environmental management plan that is specific to the area that the Site Audit Statement applies to.

14. Vapour Management

14.1 Whole of Site

Background

Contamination within the site may generate VOCs. The VOC Report provides a preliminary indication of the management measures to be implemented to manage the risk from VOCs.

A document titled Volatile Organic Compound Reference Document in Appendix H may provide useful reference background material in relation to this issue.

Application

This Requirement applies to the whole of the Site.

Requirement 14.1.1 – Assess VOC risks and incorporate into design

(a) The risks associated with the potential presence of VOCs must be investigated, assessed and quantified in an appropriate and professional manner prior to the commencement of Works and at least in compliance with applicable legal requirements and the requirements of guidelines, standards or codes adopted or applied by relevant Authorities.

(b) In respect of risks identified or anticipated for VOCs having regard to the results of such investigations assessments or quantifications:

  (i) the design of Works must include adequate controls and protections to protect the health and safety of people using the Works or involved in the delivery of Works; and

  (ii) the Work plans (including plans prepared to comply with this Plan) must include necessary controls and work methods to protect the health and safety of people using the content of the Works.

14.2 Within 'Benzol Plant' area

Background

Presence of VOCs, principally benzene, in the subsurface in this area presents a potential risk to building occupants. Also, any structures including paving could influence movement of VOCs and create a risk elsewhere.

As part of the Stage 1 Remediation Works, RLMC / HDC have construct vents within this area following the completion of capping works in 2008, to alleviate the potential build-up and migration of volatile gases. This is an interim measure and not intended as a final solution for future development. Additional risk management and control measures may be necessary.

Application

This requirement applies to the Area HA1.

Requirement 14.2.1 – Additional Management in Area HA1

Works must be designed and carried out so that:

i. gas management system must be installed for any building structure in which people may work or gas may accumulate

ii. no building basements or other accessible voids below the final cap surface level

iii. no penetrations into buildings that could act as pathways for gas migration

iv. venting (existing or new) to be installed and maintained in areas not covered by structures

v. venting of VOCs must not present a hazard to this or adjoining parts of the site.

vi. either the existing vents are kept/left and maintained in their current location or in an alternative location that manages the risks associated with the presence of VOC or alternative methods for the management of risks associated with VOC are utilised;

vii. excavations are no deeper than 1.5m below the Area 1 finished Cap level;

viii. there are no building basements or other accessible voids below the Cap level; and

ix. for any part of the Site the method location and extent of management or of venting of VOCs does not limit or adversely affect the development of adjoining part of the Site. For example, venting must be set back from or elevated from lot boundaries or other techniques used to ensure that venting from one lot does not present hazards for another lot.

14.3 Within Area 1

Background

VOCs have been found in some places in the remainder of Area 1 at levels that may present a risk to site users. They may also exist in other areas that have not yet been located. Specific risks have been identified in respect of VOCs in Area 1 which require specific management precautions.

Application

For remediation or Project Works anywhere within Area 1 comply with additional requirements below.

Requirement 14.3 .1 – VOC Management in Area 1

i. gas management system must be installed for any structure in which people may work or gas may accumulate or sufficient investigation done to conclusively demonstrate (to the satisfaction of the Site Auditor) that no building-specific gas management system is required

ii. investigations for project works must include investigations into the presence of VOCs within the project Area, at depths below surface that correspond with the depth of proposed project works and associated utility services

iii. where VOCs are detected that may pose a risk, venting or suitable controls must be installed.

iv. Investigations for Project Works must include investigations into the presence of VOC's within the Project Area, at depths below the surface that correspond with the depth of proposed Project Works and associated utility services; and

14.4 Area 2

Background

No significant VOC have been detected in Area 2, but they may exist locally in concentrations that could present a risk to building occupants or maintenance workers.

Application

For remediation or Project Works anywhere within Area 1 comply with additional requirements below.

Requirement 14.4 .1 – VOC Management in Area 2

i. investigations for project works must include investigations into the presence of VOCs within the project Area, within proposed building footprints and at depths below surface that correspond with the depth of proposed project works and associated utility services

ii. where VOCs are detected that may pose a risk, venting or suitable controls must be installed.

15. Other specific Requirements

15.1 Barrier Wall

Background

A subsurface low permeability Barrier Wall was constructed as part of the Stage 1 Remediation Works, and is described in Part 5 of this Plan. The Barrier Wall is constructed from a soil-bentonite mix, which has a lesser load bearing capacity than the surrounding ground. The Barrier Wall construction includes a "surface completion beam" to distribute surface loadings across the wall. The completed wall has been designed to accommodate a sustained traffic load equivalent to SM1600 (as outlined in AS 5100) applied at any location(s) on the existing ground surface, including asymmetrical loadings. The SM1600 design loading is equivalent to a 3.2 metre wide sustained loading of 36kPa.

Due to the lower strength and consolidation properties of the completed soil-bentonite Barrier Wall structure, there is a risk of surface and subsurface displacement resulting from sustained future loadings of the site, both laterally and vertically. Restrictions on further Remediation Works and Project Works in the vicinity of the Barrier Wall are described below.

Loads in excess of the design load may be allowable, subject to:-

a) analysis and certification by a suitably qualified Geotechnical Engineer that there will not be any adverse affect on the Barrier Wall or surrounding ground; and

b) certification from a structural engineer that the design of the structures takes account of ground movements predicted by the certifying Geotechnical Engineer;

but only with written consent of the State of NSW.

Where higher design loads are required, it may be necessary to replace or reinforce the existing capping system to support the required loads. No guarantee on the performance of the existing capping system or Barrier Wall is given. For all Works, designers must make their own estimates on the capacity and potential for both total and differential settlements that may occur as a result of deformation of the wall under load and make such allowances in their designs to accommodate such conditions.

Application

Requirement 15.1.1 applies to the Area E.

Requirement 15.1.2 applies to the Area F.

Requirement 15.1.3 applies to Area F.

Requirement 15.1.4 applies to Area F.

Requirement 15.1.5 applies to Area F.

Requirement 15.1.6 applies to Area E.

Requirement 15.1.1 - Easement

Any plan of subdivision or lease is to maintain an easement for access and maintenance over Area E which as a minimum benefits the State Authorities and other public Authorities and their respective invitees. This easement is to have a total width of 15m, comprising 5m on that side of the barrier wall which is within the inside of the containment area and 10m on the other side (i.e. that side of the barrier wall which is exterior to the containment area).

Requirement 15.1.2 – Restriction on surface development

Work is not to include any activity that would result in a combination of dead and live loads that are in excess of the design load for the surface completion beam unless:

(a) a Geotechnical Engineer has provided written certification that there will be no adverse effect on the Barrier Wall or Cap or surrounding ground. The people to whom this certification is addressed must include the State and the Site Auditor;

(b) a structural engineer with appropriate qualifications and experience has certified that the design of the Work takes account of ground movements predicted by the Geotechnical Engineer and that the Works will not damage the Barrier Wall or beam. The people to whom the certificate is addressed must include the State and the Site Auditor;

(c) the Site Auditor is satisfied that the Work will not adversely effect the Barrier Wall or beam; or

(d) the State is satisfied that the Work will not adversely effect the Barrier Wall or beam.

Requirement 15.1.3 – Works to be designed for differential settlement

Works must be designed to allow for any differential settlement that may occur as a result of deformation of the Barrier Wall under load.

Requirement 15.1.4 – Control of Works affecting capping beam

Works that involve trenching or excavation through the capping beam must include:

(a) appropriate controls and work methods to minimise damage to the beam; and

(b) appropriate design to replace or reinstate the beam to ensure that the functionality of the beam, Barrier Wall and Cap is not adversely effected.

Requirement 15.1.5 – Geotechnical Engineer Certificate

A Geotechnical Engineers certificate must be obtained:

(a) certifying that the design of the Works comply with the requirements of this Part 15; and

(b) upon completion of the Works, certifying that the beam has been reinstated properly.

The people to whom each certificate is addressed must include the State and the Site Auditor.

Requirement 15.1.6 – Piles and footings

To protect the integrity of the Barrier Wall, no foundations are permitted (both pile and pad foundations) that penetrate into the surface completion beam or Barrier Wall. An exclusion

zone either side of the Barrier Wall has been established for both pad and pile foundations that exceed the above design load for the surface completion beam.

Foundations within the exclusion zone may be allowable, subject to analysis and certification by a suitably qualified Geotechnical Engineer that there will not be any adverse affect on the Barrier Wall or surrounding ground and with the written consent of HDC. Where foundations are required in this zone they must not be within 15 metres (or greater if required) of the Barrier Wall outside alignment. No guarantee on the performance of the existing surface completion beam or Barrier Wall is given. For all foundation design works, designers must make their own estimates on the bearing capacity and potential for both total and differential settlements that may occur as a result of deformation of the wall under load and make such allowances in their designs to accommodate such conditions.

Any plan of subdivision or lease is to create a restriction on use within Area F consistent with the above restrictions.

No work may be carried out that involves excavations or trenches at or below 2m AHD.

15.2 Monitoring Wells

Background

The VRA requirements include the monitoring of site groundwater levels and water quality and this is carried out at a number of groundwater monitoring wells. The State requires access to these wells for continued monitoring of groundwater conditions.

Application

This Requirement applies to the whole of the Site.

Requirement 15.2.1 – Right of Access to Monitoring Wells

Provide legal right of access for HDC and their consultants to monitor groundwater from groundwater wells identified in Appendix F.

Requirement 15.2.2 – Right to Expand Monitoring Well Network

Provide legal right of access for HDC and their consultants to install groundwater wells in access, road and utility corridors and easements or any community or common title lands and retain legal right of access for the purpose of monitoring these wells.

15.3 Contaminated Materials within Area 1

Background

Earthworks for the Stage 1 Remediation Works encountered contaminated materials that were beneficially used on site for bulk earthworks below the Area 1 cap. These contaminated materials were classified as either Level 1, Level 2 or Level 3 materials in accordance with the Materials Management Plan. The Materials Management Plan is part of the Voluntary Remediation Agreement and allows for these materials to be left insitu or relocated on site subject to certain conditions including depth below the finished surface levels. Broadly there are three types of contaminated soil:-

- Contaminated soils/solids were encountered during the Stage 1 Remediation Works within areas requiring excavation to achieve the final landform. These contaminated soils were classified in accordance with the Materials Management Plan. Level 1 soils were used for bulk formation earthworks across Area 1 below the cap. Level 2 and Level 3 materials were aggregated and placed into the fill profile within Area 1 in accordance with the requirements of the Materials Management Plan. These include Level 3 materials placed into the Level 3 Placement Area, and Level 2 materials placed into the Level 2 Placement Area.
- During the Stage 1 Remediation Works contaminated soils/solids were identified on the then existing surface levels within parts of Area 1, which did not require excavation to achieve the required landforming levels. Two areas containing Level 2 and Level 3 materials were left insitu as allowed for in the Materials Management Plan and consistent with the Voluntary Remediation Agreement. These are the Level 2 Insitu Area and the Level 3 Insitu Area as shown on the Site Plan. The areas containing the former Coke Ovens may also contain Level 2 and Level 3 materials.
- In addition to the materials identified during the Stage 1 Remediation Works and discussed above, it is likely that there are additional Level 2 and Level 3 materials left insitu within Area 1 which are associated with the past landuses.

Level 2 and Level 3 soils/solids do not pose an environmental or human health risk if they are not disturbed. Works involving disturbance of Level 2 or Level 3 soils needs to include precautions and methodologies that prevent unacceptable exposure to the contaminants.

Part of Area 1 was capped with a slag materials won from site. The Validation Report for Stage 1 Remediation Works (Coffey Environments, 2008) indicates that the sampled locations indicate compliance with the requirements for Level 1 material in the Materials Management Plan, but there are some exceedances of the NEPM guidelines for PAH levels on industrial land. This Plan includes requirements to ensure that future land uses and Works manage health risks associated with exposure to these elevated PAH levels,

Application

Requirement 15.3.1 applies to the Area G – Level 3 Placement Area

Requirements 15.3.2.applies to Area G – Level 3 Placement Area, Level 3 In-situ Area, Level 2 Placement Area and Level 2 In-situ area.

Requirement 15.3.3 applies to the whole of Area 1

Requirement 15.3.4 applies to those parts of Area 1 previously capped with a slag pavement as part of the Stage 1 remediation works.

Requirement 15.3.1 – Control of Work in Level 3 Placement Area

The construction of buildings is not permitted within the Placement Area for Level 3 Materials – Area G.

Excavation is not permitted at depths of more than 1.0m below the finished Cap level within the Level 3 Placement Area – Area G.

Requirement 15.3.2 – Work Management Plans within areas of known Level 2 and Level 3 Contamination

For Works within the following areas:-

- Area G - Level 3 Placement Area
- Level 2 Placement Area
- Level 3 In-situ area
- Level 2 In-situ area

the Work Management Plan prepared in accordance with Requirement 8.2 is to specifically address the following additional matters:

- Identify the fate of contaminated Level 2 or Level 3 materials encountered during the carrying out of the Works, the necessary approvals, and verification activities
- Specifically address the potential presence of Asbestos in the materials to be excavated
- Include controls to reduce, as far as practicable, the recharge of groundwater aquifers due to ingress of surface water during carrying our of the Works
- Include a program that shows the timeframes for carrying out the Works including cap reinstatement and verification requirements.
- For Works below groundwater level show that the Works will not disturb the integrity of the aquitard between the upper and lower water tables

Requirement 15.3.3 – Work Management Plans within Area 1

For any Works within Area 1, the Work Management Plans prepared in accordance with Section 8.2 of this Plan should specifically address the possibility of encountering previously unidentified contamination below the underside of cap and include contingency plans to manage exposure risks arising from such occurrences, and identify the planned fate of Level 2 or Level 3 contamination.

For Works within those parts of Area 1 previously provided with a paved cap constructed from site slag materials, the Work Management Plan is to specifically address health risks associated with worker exposure to PAH within the slag materials.

Requirement 15.3.4 – Site Auditor Requirements for future landuse

Project Works within parts of Area 1 previously provided with a paved cap constructed from site slag materials must satisfy Site Auditor requirements for site occupant health risks associated with exposure to elevated PAH levels that exceed NEPM guidleines within the slag materials. Management measures might include overlaying the existing cap with VENM material, placement of concrete slabs or hardstands, and site use restrictions and protocols.

15.4 Coke Ovens

Background

The former BHPB steelworks contained 5 coke oven batteries located within Area 1. All of these have been demolished by RLMC in 2007 to levels which are below the underside of the Cap constructed by RLMC and completed in 2008. Demolition levels on Coke Ovens 1, 4 and 5 are shown on Works as executed drawings in Appendix N. Restrictions on excavation are appropriate to minimise the risk of encountering contaminants associated with the former coke ovens, and to avoid demolition of remnant structures.

The excavation restrictions relate to the anticipated ultimate surface levels. For those parts of Area 1 which were capped with VENM material these are the same as the Remediation FSL's constructed by RLMC. For those parts of Area 1 which were capped with a pavement and bituminous seal it is anticipated that approximately 400mm thickness of additional pavement material will be added to the Cap levels constructed by RLMC.

Application

This Requirement applies to Area I.

Requirement 15.4.1

For areas identified as Area I on the CSMP Plan and which had a VENM Cap provided by RLMC, excavation is not permitted at levels which are more than 1.25m below the Remediation FSL.

For areas identified as Area I on the CSMP Plan and which had a Cap provided by RLMC which comprised of pavement and bituminous seal, excavation is not permitted at levels which more than 0.85m below the Remediation FSL.

15.5 Heritage Requirements

Background

The whole of the Closure Area has heritage requirements, and these are detailed in the Archaeological Management Plan for the Closure Area, included in Appendix P.

Some specific areas of the site with higher heritage significance are identified as Area J on the CSMP Plan. The Heritage Management Plan includes requirements for compliance with the Heritage Act 1977(NSW), obtaining an excavation permit from the NSW Heritage Office prior to excavation, modification or disturbance, and monitoring by an archaeologist in the following areas:-

- Hunter River Copper Smelting Works
- Coke Oven Battreies
- No 2 Blast Furnace
- 18 Inch Mill building
- Small Merchant Mills/Combination Mill
- Merchant Mill Boiler
- No 1 Pig Casting Machine

Some site buildings which are shown within Area J on Figure 2, have heritage listings including:-

- Pattern Store
- Master Mechanics Office
- Admistration Building
- Ship buried within Area 1

Application

This Requirement applies to specific areas of the site with higher heritage significance that are identified as Area J on the CSMP Plan.

Requirement 15.5.1 – Heritage Protection

At these areas, comply with the requirements of relevant legislation, the Planning Consent, and the Archaeological Management Plan for the Closure Area.

15.6 Major Drains

Background

HDC has constructed major surface water drains within the Site. Construction will be completed in 2008.

Application

This Requirement applies to Area K

Requirement 15.6.1 – Maintenance of Major Drains

Any plan of subdivision or lease is to create a drainage easement over the areas denoted Area K on the CSMP Plan, and have suitable terms for access to maintain the drains which are acceptable to the State and the road authority.

Prior to lodging for registration submit draft Plans of Subdivision with accompanying 88B Instruments to the State and receive written agreement.

15.7 Additional Remediation Works

Background

The VRA requirements includes a requirement for contingency planning to cover the unlikely event that remediation works specified in the RAP do not work as expected, or there are unexpected finds of contaminated materials that require additional Remediation Work.

Application

This Requirement applies to all forms of Common or Association Property, access, road, drainage or utility corridors and easements and lands held by the Crown, a Public Authority or Public Corporation.

Requirement 15.7.1 – Right to Undertake Remediation Works

Provide legal right of access for HDC, their consultants and or contractors to undertake unforseen Remediation Works as required, without recourse for any potential damages.

16. Reporting and Information Management

Background

The VRA requires certain records and information to be kept and provided to the EPA upon request. It also requires material changes in Site conditions and any failure to comply with the VRA requirements to be notified to the EPA.

Application

This Requirement applies to the whole of the Site.

Requirement 16.1.1 – Keep records and information

Until the EPA has given notification that it considers that the contamination no longer poses a significant risk of harm, records of all monitoring data and information regarding the investigation and remediation of the Site must be retained and provided to the EPA at any time upon the EPA's request.

Requirement 16.1.2 – Notify material changes

Written notification must be given to the EPA if information or data indicates a material change in conditions at the Site or its surrounding environment which could adversely affect the ability to investigate or remediate the Site or result in harm to the environment.

Requirement 16.1.3 – Notify failure to comply with VRA

Written notification is to be given to the EPA of any failure by any person to comply with any component or aspect of the VRA or any pollution incident at the Site within the meaning of the Protection of the Environment Operations Act 1997.

17. Modification and control of this Plan

This Plan is intended to be applied to the Site. It is not intended that this Plan itself will be modified once it is in final form. Rather the Plan will be finalised and then copies retained by Authorities such as the DoP, Newcastle City Council and the DECC/EPA. Copies will also be held by the Site Auditor. [In addition a copy may be available through the General Register of Deeds.]

However the Plan will be referenced and applied by other instruments such as:

- Conditions of development consent;
- Licence conditions;
- Conditions of Site Audit Statements;
- Contracts; and
- Registered instruments and agreements.

Those instruments will give legal effect to this Plan in accordance with the nature and terms of the instrument. For example a contract may require compliance with this Plan or a condition of planning approval may require compliance with this Plan.

However, in particular circumstances a modified approach to the management of contamination issues on the Site may be appropriate. If that is so then the relevant approvals, licences and contracts may apply this Plan with changes or modifications. Those changes or modifications would then apply to the relevant land or development in accordance with the approval, licence or contract.

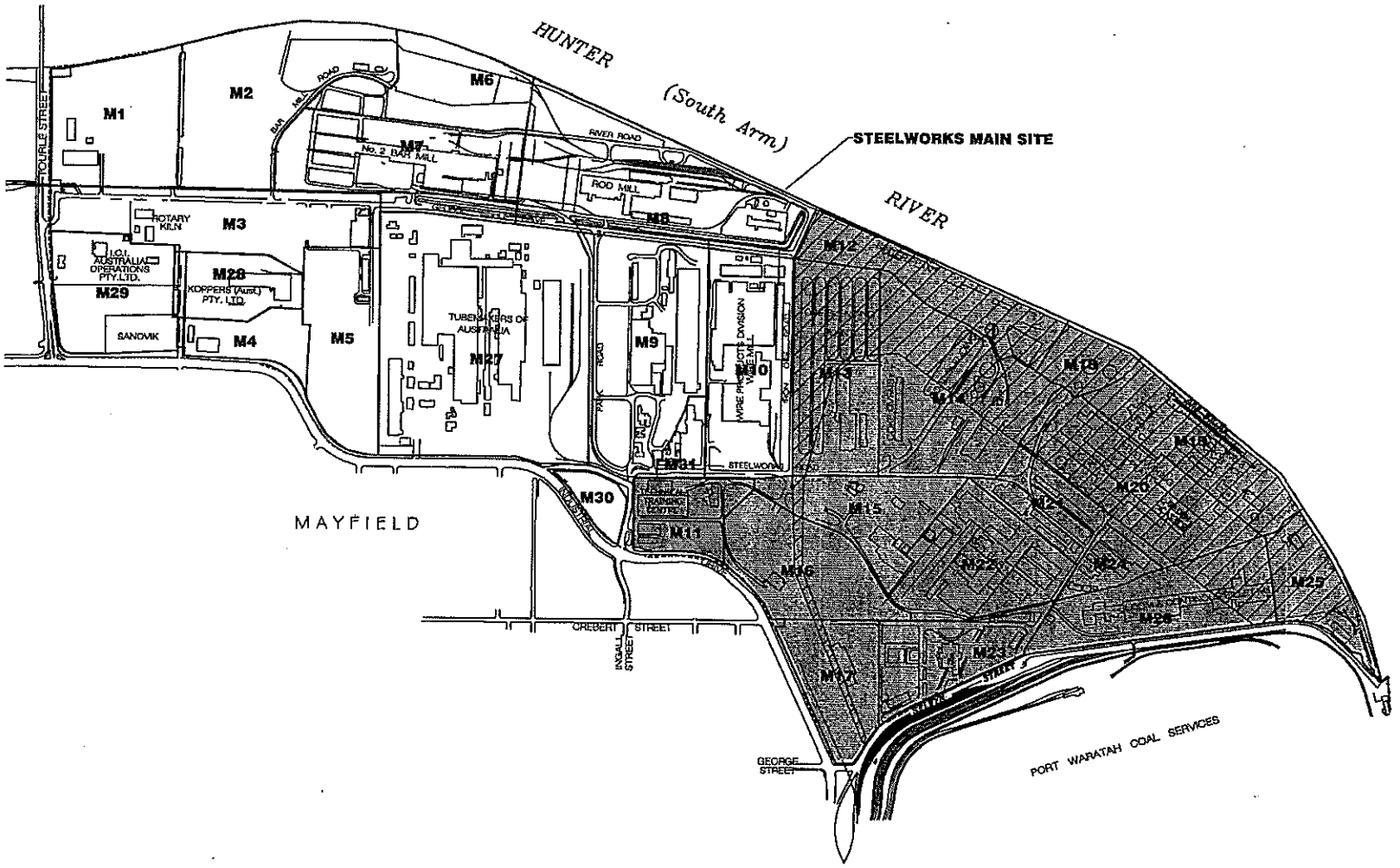
The Requirements of this Plan and of Key Documents as applicable to any particular part of the Site may, having regard to particular circumstances and knowledge of the contamination and risks found, need to be implemented in a modified manner. Such modification should only occur to the satisfaction of the Site Auditor and relevant Authorities and be fully justified by appropriate technical assessments.

Records of decisions to modify any requirement for any part of the Site should be kept. In particular, it is expected that such records will be kept by:

(a) the owner of the land who seeks the modification;

(b) the Authorities that authorise it; and

(c) the Site Auditor.



REVISION: A
SCALE: AS SHOWN
DRAWING No: 16937-016
CAD FILE NO: SYD022A
DATE: 10/8/00

DESIGNED: SKT
DRAWN: LJE/JT
CHECKED: SKT
APPROVED:
STATUS: FINAL

LEGEND

CLOSURE AREA

MPT FOOTPRINT

SOURCE: HATCH ASSOCIATES PROPRIETARY LTD

0 100 200 300 400 500 600
metres

CLIENT
BHP

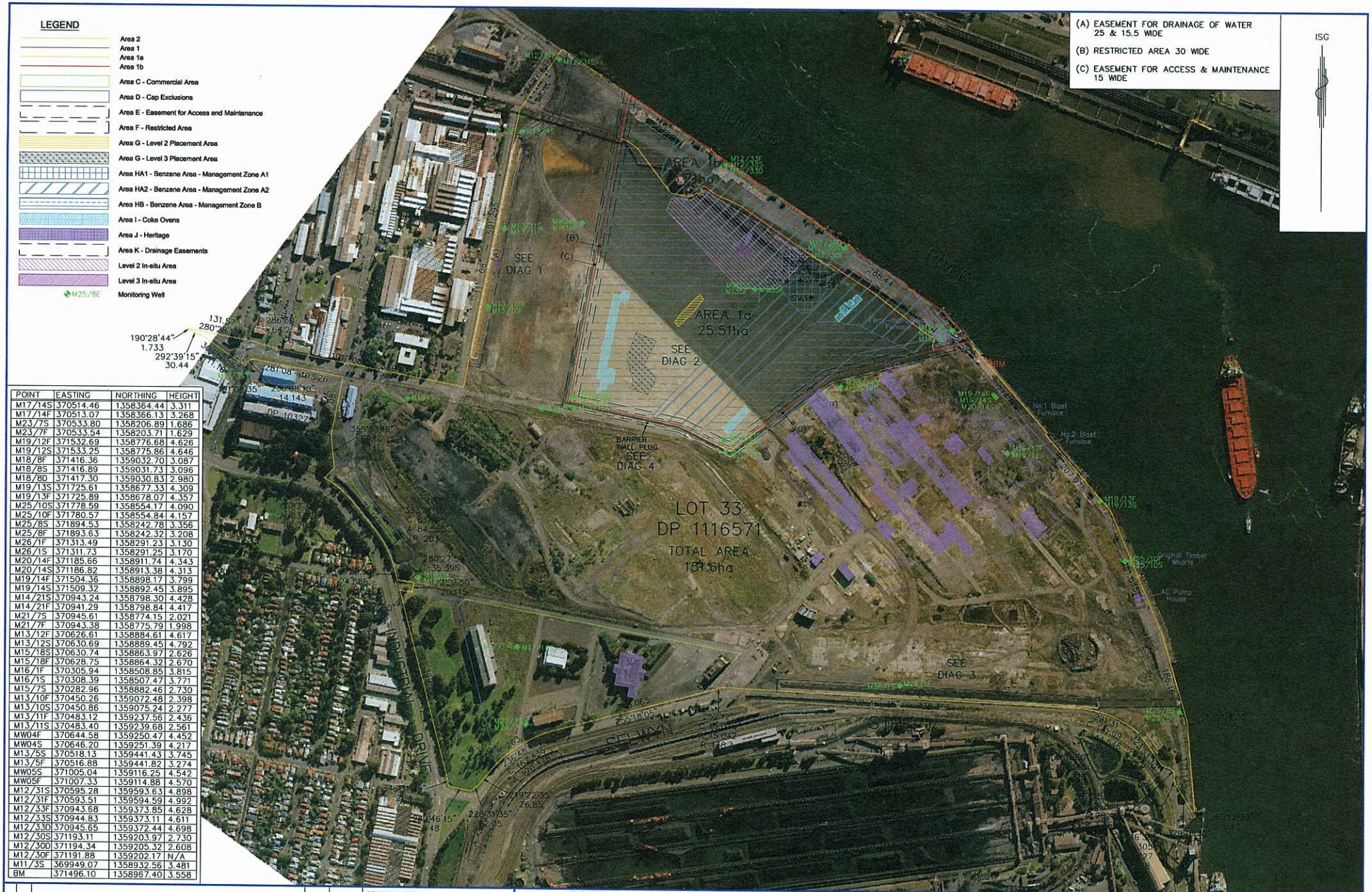
PROJECT
DEVELOPMENT OF A MULTI PURPOSE TERMINAL AND REMEDIATION OF THE CLOSURE AREA, BHP NEWCASTLE STEELWORKS EIS

TITLE
LAYOUT OF STEELWORKS SITE SHOWING THE CLOSURE AREA AND MPT

FIGURE
1.3

URS

A3



POINT	EASTING	NORTHING	HEIGHT
M17/14S	370514.46	1358364.44	3.311
M17/14F	370513.07	1358366.13	3.268
M23/7S	370533.80	1358206.89	1.686
M23/7F	370533.54	1358203.71	1.629
M19/12F	371532.69	1358776.68	4.626
M19/12S	371533.25	1358775.86	4.646
M18/8F	371416.36	1359032.70	3.087
M18/8S	371416.89	1359031.73	3.096
M18/8D	371417.30	1359030.83	2.980
M19/13S	371725.61	1358677.33	4.309
M19/13F	371725.89	1358678.07	4.357
M25/10S	371778.59	1358554.17	4.090
M25/10F	371780.57	1358554.84	4.157
M25/8S	371894.53	1358242.78	3.356
M25/8F	371893.63	1358242.32	3.208
M26/1F	371313.49	1358291.23	3.130
M26/1S	371311.73	1358291.25	3.170
M20/14F	371185.66	1358911.74	4.343
M20/14S	371186.82	1358913.38	4.313
M19/14F	371504.36	1358898.17	3.799
M19/14S	371509.32	1358892.45	3.895
M14/21S	370943.24	1358798.30	4.428
M14/21F	370941.29	1358798.84	4.417
M21/7S	370945.61	1358774.15	2.021
M21/7F	370943.38	1358775.79	1.998
M13/12F	370626.61	1358884.61	4.617
M13/12S	370630.69	1358889.45	4.792
M15/18S	370630.74	1358863.97	2.626
M15/18F	370628.75	1358864.32	2.670
M16/1F	370305.94	1358508.85	3.815
M16/1S	370308.39	1358507.47	3.771
M15/7S	370282.96	1358882.46	2.730
M13/10F	370450.26	1359072.48	2.398
M13/10S	370450.86	1359075.24	2.277
M13/11F	370483.12	1359237.56	2.436
M13/11S	370483.40	1359239.68	2.561
MW04F	370644.58	1359250.47	4.452
MW04S	370646.20	1359251.39	4.217
M13/5S	370518.13	1359441.43	3.745
M13/5F	370516.88	1359441.82	3.274
MW05S	371005.04	1359116.25	4.542
MW05F	371007.33	1359114.88	4.570
M12/31S	370595.28	1359593.63	4.898
M12/31F	370593.51	1359594.59	4.992
M12/33F	370943.68	1359373.85	4.628
M12/33S	370944.83	1359373.11	4.611
M12/33D	370945.65	1359372.44	4.698
M12/30S	371193.11	1359203.97	2.730
M12/30D	371194.34	1359205.32	2.608
M12/30F	371191.88	1359202.17	N/A
M11/3S	369949.07	1358932.56	3.481
BM	371496.10	1358967.40	3.558

REVISIONS	No	Revision	Drawn	Date
	5	Barrier wall plug coordinates added - Sheet 2	BJC	29/04/09
	4	VOC Bores SV7 & SV8 added, Barrier wall plug added	BJC	22/04/09
	3	Heritage Areas updated, Level 2 & 3 In-situ areas added.	BJC	10/03/09
	2	Update Monitoring Wells	BJC	29/09/08

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Surveyed		Drafted	BJC
Drawn	BJC	Checked	PJS
REGISTERED SURVEYOR			
Scale	@A2: 1:5000	Original Size	A2
DO NOT SCALE			

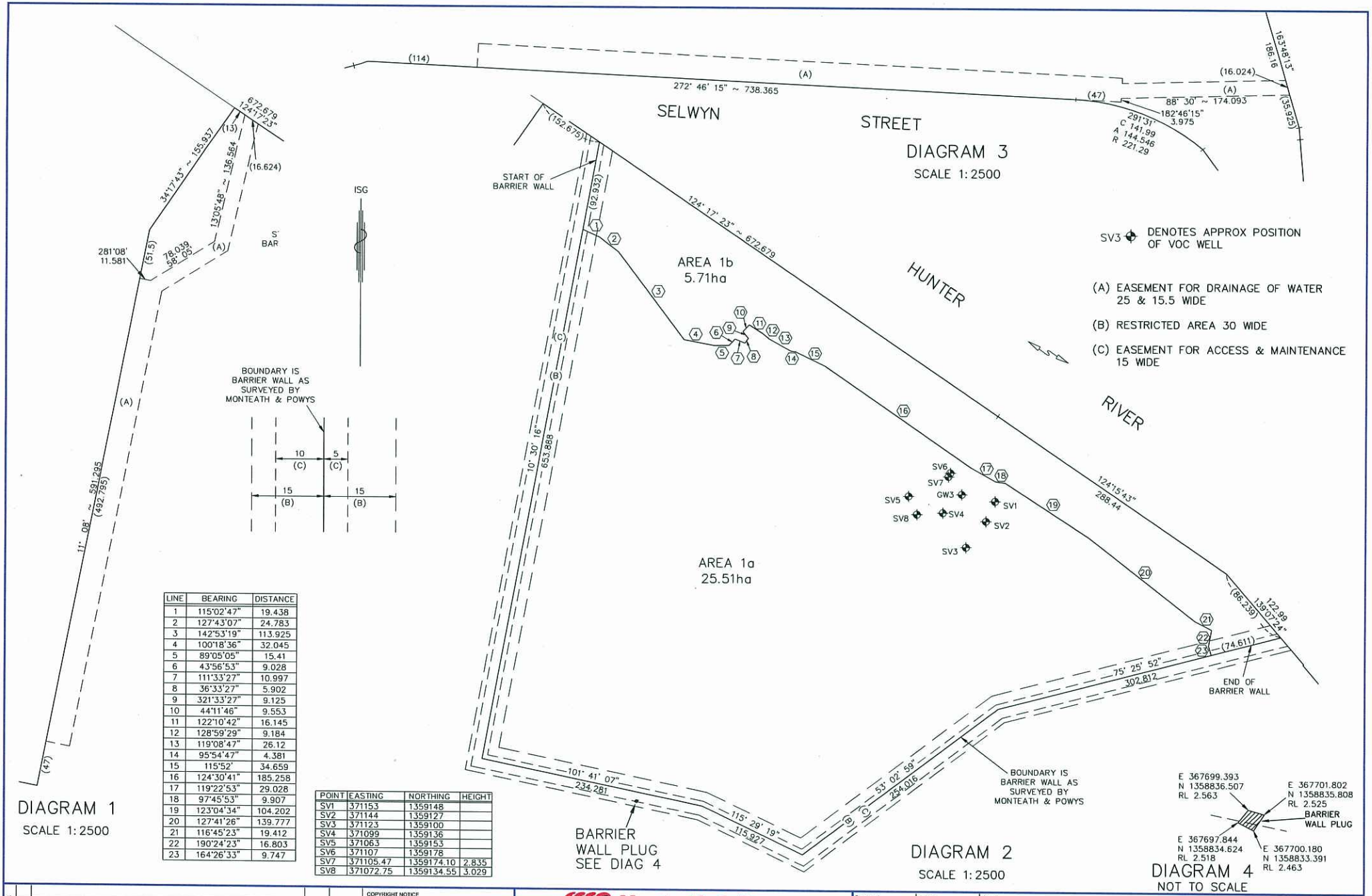
Client: HUNTER DEVELOPMENT CORPORATION

Title: FIGURE 2 - SHEET 1
CONTAMINATED SITE MANAGEMENT PLAN
LOT 33 DP 1116571 AT MAYFIELD

CAD File: 08045B.DWG | Ref No: 08/045 | Date: JUNE 2008

Sheet No. 1

Revision 5



LINE	BEARING	DISTANCE
1	115°02'47"	19.438
2	127°43'07"	24.783
3	142°53'19"	113.925
4	100°18'36"	32.045
5	89°05'05"	15.41
6	43°56'53"	9.028
7	111°33'27"	10.997
8	36°33'27"	5.902
9	321°33'27"	9.125
10	44°11'46"	9.553
11	122°10'42"	16.145
12	128°59'29"	9.184
13	119°08'47"	26.12
14	95°54'47"	4.381
15	115°52'	34.659
16	124°30'41"	185.258
17	119°22'53"	29.028
18	97°45'53"	9.907
19	123°04'34"	104.202
20	127°41'26"	139.777
21	116°45'23"	19.412
22	190°24'23"	16.803
23	164°26'33"	9.747

POINT	EASTING	NORTHING	HEIGHT
SV1	371153	1359148	
SV2	371144	1359127	
SV3	371123	1359100	
SV4	371099	1359136	
SV5	371063	1359153	
SV6	371107	1359178	
SV7	371105.47	1359174.10	2.835
SV8	371072.75	1359134.55	3.029

REVISIONS				
No	Revision	Drawn	Date	
5	Barrier wall plug coordinates added - Sheet 2	BJC	29/04/09	
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Surveyed		Drafted	BJC
Drawn	BJC	Checked	PJS
REGISTERED SURVEYOR			
Scale	@A2: 1:2500	Original Size	A2
DO NOT SCALE			

Client: **HUNTER DEVELOPMENT CORPORATION**

Title: **FIGURE 2 - SHEET 2**
CONTAMINATED SITE MANAGEMENT PLAN
LOT 33 DP 1116571 AT MAYFIELD

CAD File: **08045B.DWG** | Ref No: **08/045** | Date: **JUNE 2008**

Sheet No. **2**
Revision **5**