

Northern Territory Government,
Department of Planning and
Infrastructure

Darwin City Waterfront

Darwin Convention and Exhibition Centre
Environmental Audit Report

10 Stokes Hill Road, Darwin

April 2008

Statement of Environmental Audit

This Statement provides a summary of the findings of an Environmental Audit of the site located at **10 Stokes Hill Road, Darwin**, Northern Territory in accordance with Section 47d of the *Waste Management and Pollution Control Act (NT)*.

Name of Auditor	Dr Peter Nadebaum of GHD Pty Ltd
Term of appointment of Auditor	16 May 1990 to 29 November 2011
Date Audit requested	September 2003
Owners of the site	Northern Territory Government under the Administration of Department of Planning and Infrastructure.
Person requesting a Certificate	Terry O'Neill of the Northern Territory Government Department of Planning and Infrastructure.
Municipality	Town of Darwin
Title Information	Certificate of Title Volume 631 Folio 600, Volume 641, Folio 599 and Volume 664, Folio 576. The site is accurately defined by the <i>Lot 7578, Town of Darwin, Development Application Plan</i> .
Zoning	Central Business under the Northern Territory Planning Scheme

The audit has had regard to, amongst other things:

- ▶ The Waste Management and Pollution Control Act (NT),
- ▶ The National Environment Protection (Assessment of Site Contamination) Measure (NEPM 1999),
- ▶ Water Act (NT),
- ▶ Advice provided by the Northern Territory Environment Heritage & Arts Division, Department of Natural Resources Environment & the Arts (EHA/DNRETA), and
- ▶ Guidance provided by the Victorian Environment Protection Authority.

Summary of findings

The Site is historically a marine area reclaimed through uncontrolled and controlled filling and was previously utilised for industrial purposes. Remediation of the Site has been undertaken to make the Site suitable for its intended purpose, subject to certain conditions and a Site Management Plan (Environment) that is attached to this summary (Statement Attachment B), and the following information is relevant:

- ▶ Underlying fill can include concrete, bricks, plastic, metal and other building and demolition waste at some locations. For uses such as unsealed open space or garden areas, this material may be judged to be aesthetically objectionable if it were to be uncovered and may also adversely affect the growth of plants. Sampling and analysis has not detected any significant concentrations of asbestos in the fill at the Site; however, such material (particularly pieces of asbestos cement sheet) may be present in the fill material at some localised areas of the Site. If excavations take place in the future,

the work will need to be managed in accordance with the Site Management Plan (Environment) and material disposed of off Site in accordance with regulatory requirements.

- ▶ Heavy metal contamination is generally not present at concentrations that would be expected to adversely affect the growth of plants or the health of persons working at the Site.
- ▶ Hydrocarbon contamination can be present in the fill and natural soil and rock, particularly in the north-western area of the site beneath an on-grade carpark. The contamination is generally several metres beneath below the surface and in the vicinity of the groundwater, and can give rise to contamination of the groundwater. This contamination is odorous and may be judged to be objectionable particularly if exposed and may be hazardous to persons if they come into direct contact with the material, and if excavated will be required to be managed and disposed of off Site in accordance with regulatory requirements and the Site Management Plan (Environment).
- ▶ Groundwater at the Site is contaminated with petroleum hydrocarbons, and this may be evident by a thin film or sheen on the groundwater in some locations. This could adversely affect the lagoon if it were to drain into the lagoon. A drainage system is provided to avoid this occurring, and it is proposed that this system will remain in operation until monitoring shows that contamination has reduced to a level where the drainage system can safely cease operation. Groundwater should be managed in accordance with the Groundwater Management Plan attached to this summary (Statement Attachment C).
- ▶ Consideration has been given as to whether further clean up should take place. It has been determined that clean up has been carried out to the extent practicable, and EHA/DNRETA has been consulted to confirm that it is in agreement with the determination. Natural biodegradation of residual hydrocarbon contamination will continue to occur, and it can be expected that at some time in the future that controls such as the subsurface drain will no longer be required to operate. The assessor infers that this might occur within a decade; however, the audit concluded that there is considerable uncertainty in such an estimate.
- ▶ Acid Sulphate Soil (ASS) or Potential Acid Sulphate Soil (PASS), which occurs naturally in coastal areas, is present at the Site, particularly as natural marine sediments underlying the fill, generally at depths varying between 3 metres to 9 metres below the surface. In some locations on site low pH soils and fill are present. Any works undertaken that may aerate or otherwise disturb these soils (such as via excavation or dewatering) must be undertaken in accordance with a ASS management plan prepared by a qualified and experienced professional as specified in the attached Site Management Plan (Environment).
- ▶ There is potential for unexploded ordnance to be present, and for this to pose a risk if detonation should occur. This is outside the scope of the audit, and the risk associated with UXO is managed through other means.

The Site Management Plan (Environment) attached to this summary provides information on the requirements for management of materials that may be encountered if sub-surface works are carried out at the Site. The Groundwater Management Plan attached to this summary provides information on the requirements for ongoing monitoring of groundwater at the Site.

The audit considers only contamination of the soil and groundwater by potentially hazardous substances, and does not consider or advise on the geotechnical conditions, the requirements for management of UXO or other aspects of the suitability of the land for development.

Suitability of the Site

On the basis of the work undertaken, the auditor is of the opinion that the Site is suitable for the intended purpose, that being;

A Convention and Exhibition Centre including exhibition halls, a basement and carparking in accordance with the site development plan (Statement Attachment A). Outside of the Convention and Exhibition Centre building footprint the majority of the land will be covered by an on-grade carpark boardwalk/decking, with small areas of paving and some garden areas

and use subject to the following conditions:

1. In the area of the Site designated area A in Attachment A, the soil or fill shall be covered by a minimum of 0.4 metre of clean fill or a permanent barrier such as a building structure, concrete slab, paving or roadway unless the soil or fill has been validated, as specified in the Site Management Plan (Environment) (the "SMP-E") attached to this Statement, as being appropriate for its proposed use. The soil or fill or barrier shall be maintained at all times or otherwise replaced with equivalent material or a suitable barrier
2. All future development and maintenance works at the site involving excavation, and disposal of soil and fill shall be carried out in accordance with the Site Management Plan (Environment) attached to this summary.
3. Buildings shall be designed to prevent oily water from entering the basement, and other potentially occupied sub-surface structures, where there is a likelihood of oily water being present.
4. Groundwater at the site shall be managed in accordance with the Groundwater Management Plan (GMP) attached to this summary to avoid contaminated groundwater discharging to the lagoon, and from entering the convention centre basement and other potentially occupied sub-surface structures.
5. Groundwater at the site shall not be used for any beneficial purpose other than environmental monitoring and for site remediation.

The reader should note that the SMP and GMP are subject to review and will be updated as appropriate. The reader should contact the Darwin Waterfront Corporation to obtain the current version of these documents.

This statement should be read in conjunction with the full audit report "*Northern Territory Government, Department of Planning and Infrastructure, Darwin City Waterfront, Darwin Convention and Exhibition Centre, Environmental Audit Report, 10 Stokes Hill Road, April 2008*".

DATED: 2/4/08

SIGNED: 

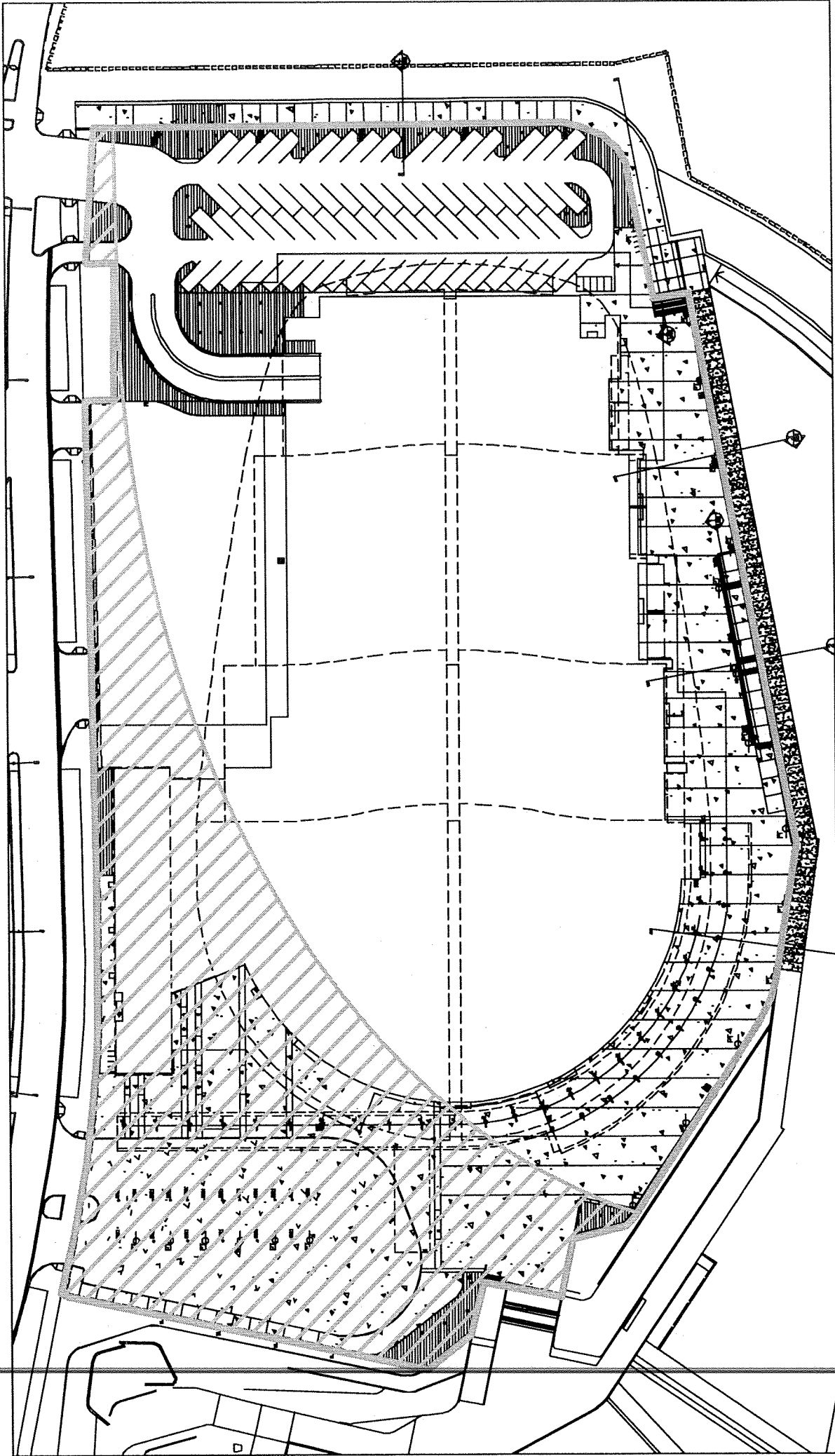
PETER NADEBAUM

Environmental Auditor (Appointed Pursuant to the Victorian *Environmental Protection Act 1970* and recognised in the Northern Territory under section 68 of the *Waste Management and Pollution Control Act Northern Territory*).

Statement Attachments



Statement Attachment A:	Site Development Plan
Statement Attachment B	Site Management Plan (Environment) – Current version as at 2/4/2008
Statement Attachment C	Groundwater Management Plan – Current version as at 2/4/2008

Statement Attachment A: Site Development Plan



Department of Planning and Infrastructure Job Number | 31-14369
 Darwin Waterfront Development Revision | RevA
 Site Development Plan Date | 2 April 2008
 10 Stokes Hill Road
 Darwin



LEGEND
 Site Boundary
 Area A



Attachment A

Statement Attachment B: Site Management Plan (Environment) – Current version as at 2/4/2008

Refer to attached CD

Statement Attachment C: Groundwater Management Plan – Current version as at 2/4/2008

Refer to attached CD