

## Addendum - 2 February 2006

Previously this project was named 'Harbour Bridge to City' project and there may be references in this document referring to this name or its abbreviation: HBTC.

The name of this project has since changed and is now referred to as 'Vic Park Tunnel'. Therefore, any reference to 'Harbour Bridge to City' or HBTC should now be taken to refer to Vic Park Tunnel or VPT.

- Technical Report no 4A

## **Harbour Bridge to City Project – Preliminary Environmental Assessment (Addendum)**

▪ Technical Report

# Harbour Bridge to City Project – Preliminary Environmental Assessment (Addendum)

Prepared for  
Transit New Zealand

By  
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## Appendices

### Appendix A - Current Land Ownership Information

## Glossary

AEE	Assessment of Environmental Effects
ANZECC	Australian and New Zealand Environment and Conservation Council
ARC	Auckland Regional Council
BECA	Beca Infrastructure Ltd
BTEX	Benzene, toluene, ethylbenzene, xylene
CAE	Centre for Advanced Engineering
HASNO	Hazardous Substances and New Organisms Act 1996
HBTC	Harbour Bridge to City Project
LIM	Land Information Memorandum
LNAPLs	Light Non-Aqueous Phase Liquids
MfE	Ministry for the Environment
NEPC	National Environment Protection Council
NOAA	National Oceanic Atmospheric Administration
PAHs	Polynucleic aromatic hydrocarbons
PCBs	Polychlorinated biphenyls
PEA	Preliminary environmental assessment
PID	Photoionisation detector
RMA	Resource Management Act, 1991
SH1	State highway 1
TP153	Background Concentrations of Inorganic Elements in Soils from the Auckland Region, ARC, 2001

# 1 Introduction

Transit New Zealand (Transit) propose the improvement of State highway 1 (SH1) between the Auckland Harbour Bridge and the Wellington Street over bridge; known as the Harbour Bridge to City (HBTC) Project. The Project route passes through the Freemans Bay and Western Reclamation areas, which were progressively reclaimed during the latter part of the 19th Century, and the early stages of last century. The coastal margins were historically used for a variety of activities, including gas works; the waste products from which are known to have been placed within the reclamations. Ongoing land uses in the general area are also known to have resulted in widespread soil and groundwater contamination.

Accordingly, the following project risks have been identified:

- Environmental risks, which include the need to obtain specific consents to manage or remediate the affected areas, and to identify additional controls during the construction and operational phases of the project; and
- Commercial risks, which include the additional costs associated with the movement or excavation of such materials, even if material is not classified as an environmental issue in its current location. This arises when the contaminants, had they remained in situ, were suitable for the land use, but once excavated (such as during piling operations) cannot be disposed of as cleanfill, and require controlled disposal (i.e. to an approved landfill).

## 1.1 Purpose

A Preliminary Environmental Assessment (PEA) was originally prepared in 2001 (*Harbour Bridge to City Project – Preliminary Environmental Assessment, February 2001*). The PEA identified the likelihood of existing soil and groundwater contamination being encountered as part of the project works, and identified the scope and approach of the first phase of intrusive soil and groundwater investigations. This addendum to that document has been prepared to incorporate some more recent information. The purpose of the addendum to the PEA is to review new data and reports that have arisen since the original PEA was prepared, which relate to possible soil and groundwater contamination in the area of the project.

## 1.2 Scope

The scope of this report was the review of the following information:

- Review of current land ownership information (refer Appendix A); and
- Review of available Auckland Regional Council files for the following sites:
  - Beaumont Quarter
  - South-west corner of Victoria Park.

The review of the available ARC files included the following reports and monitoring letters:

- *Former Gasworks Site, 20 Beaumont Street, Auckland City, Assessment of Environmental Effects*; Tonkin & Taylor, January 2001 (for Melview Developments Ltd).
- *Former Gasworks Site, 20 Beaumont Street, Auckland City, Remediation Action Plan – Stage 1 Development*; Tonkin & Taylor, July 2001 (for Grange Projects Ltd).
- *Former Gasworks Site, 20 Beaumont Street, Auckland City, Remediation Action Plan – Stages 1, 2 and 3 Development*, Tonkin & Taylor, October 2001 (for Grange Projects Ltd).
- *Beaumont Quarter Development – Stage 1 and 2 Development, Site Validation Report*, Tonkin & Taylor, August 2002 (for Grange Projects Ltd).
- *Beaumont Quarter Development – Stage 3 Development, Interim Site Validation Report*, Tonkin & Taylor, October 2002 (for Grange Projects Ltd).
- *Beaumont Quarter Stage 2B Cliff Development, Site Validation Report (Addendum to Stage 1 and 2 Site Validation Report)*; Tonkin & Taylor, September 2003 (for Grange Projects Ltd).
- Beaumont Quarter Stage 3 – Quarterly Compliance Monitoring (August 2002), Tonkin & Taylor.
- Beaumont Quarter Stage 3 – Quarterly Compliance Monitoring Round 2 (December 2002), Tonkin & Taylor.
- Beaumont Quarter Stage 3 – Quarterly Compliance Monitoring Round 3 (Feb 2003), Tonkin & Taylor.
- Beaumont Quarter Stage 3 – Quarterly Compliance Monitoring Round 4 (May 2003); Tonkin & Taylor.
- Beaumont Quarter Stages 1 and 2 – Biannual Compliance Monitoring and Annual Review (August 2002); Tonkin & Taylor.
- Beaumont Quarter Stages 1 and 2 – Biannual Compliance Monitoring Report 4 (February 2003); Tonkin & Taylor.
- *Preliminary Soil Investigation: South Western Corner of Victoria Park*; URS, July 2004.

In addition, the current land ownership information (*Appendix A, Volume 2 of the Preliminary Environmental Assessment, February 2001*) has been updated from 2001 to reflect the current status.

### 1.3 Limitations

This PEA is conducted in general accordance with the Australian and New Zealand Environment and Conservation Council (ANZECC) Guidelines for the Assessment and Management of Potentially Contaminated Sites (1992), the Ministry for the Environment (MfE) Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (1999), and the MfE Contaminated Land Management Guidelines (2003). This addendum to the PEA has been prepared by Beca for Transit New Zealand. This report is based upon the scope and sources of information as set out within the previous sections of this report. Where possible, and within the time constraints of this project,

information was derived from publicly available records. These records are continually changing and are frequently incomplete.

This report is therefore based on the accuracy and completeness of the information provided at the time of the review. Beca cannot be held responsible for any misrepresentation, incompleteness or inaccuracies provided within that information. Should any other information become available, then this report should be reviewed accordingly.

Opinions and conclusions are based upon our understanding and interpretation of current standards and information, and should not be constituted as legal opinions. This report should not be copied or used for any purpose other than was originally intended, nor used by any other parties without the approval of a Director of Beca. Should this report be used by Third Parties, whether authorised or otherwise obtained, Beca accepts no liability for any reliance placed on this report nor its use by any party for any purpose other than as identified.

## 2 Auckland Regional Council Records

A total of four contaminated sites were identified previously from ACC files for the area under consideration. These sites were :

- 20 Beaumont St (now referred to as the Beaumont Quarter)
- 95-99 Beaumont St (Mobil Oil (NZ) Limited)
- 220 Victoria St
- Gaunt St

Described below are the details from the latest reports, which investigated two further sites within the HBTC project area.

### 2.1 Beaumont Quarter

ARC records show that the site has been the subject of several investigations. Previous site owners Enerco commissioned three investigations as follows:

- Woodward Clyde, Environmental Site Investigation, Former Gasworks Site, Beaumont Street, Auckland, for Enerco New Zealand Ltd, August 1996;
- Woodward Clyde, Environmental Investigation Beaumont Street, Auckland, Former Gasworks Site for Enerco Gas Company, January 1997; and,
- Woodward Clyde Ltd, Human Health and Environmental Risk Assessment, Former Gasworks Site, Beaumont Street, Auckland, for Enerco New Zealand Ltd, May 1997.

The investigations concluded that soil and groundwater contaminant concentrations exceeded guideline values for the land use. Woodward Clyde concluded that there was potential for offsite migration into Freeman's Bay and within the Viaduct Basin.

In November 2000 Tonkin and Taylor Ltd was contracted by Melview Developers Ltd to assess environmental effects to support resource consent applications for a consent to discharge contaminants to ground, in order to develop the site for commercial property. The investigation recommended that remedial works were required prior to residential development.

Soil contaminants encountered on the site during the investigation included the following:

- Petroleum hydrocarbons;
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Benzene, toluene, ethylbenzene and xylene (BTEX);
- Cyanide;
- Metals; and,
- Polychlorinated biphenyls (PCBs).

Groundwater contaminants included petroleum hydrocarbons, BTEX, phenols and PAHs. The ARC approved the consent, and Auckland City Council (ACC) approved a land use consent to remediate the site. Conditions of the consents required Remediation Action Plans (RAPs) to be prepared which needed to comply with conditions set out in the ACC

Stages 1 Land Use Consent (AO/01/06345), the ARC Consent to Discharge Contaminants to Ground (Permit 24751), and to support an application of a Landuse Consent for Stages 1, 2 and 3 (ACC).

Remedial works for Stages 1-3 were to ensure the site was suitable for residential development, to contain contamination onsite during development, and to ensure that during remedial works unacceptable discharges from site did not occur. The ARC files indicated that the works satisfied the site specific clean up criteria for Stages 1-3 of the Beaumont Quarter.

A monitoring and management programme was implemented which included ongoing groundwater monitoring as part of conditions of the consents (ARC and ACC). Chemical analysis of the groundwater indicated that there had been increases in the concentration of metals and PAHs during the 2003 monitoring rounds. Small quantities (<0.5 mm) of light non-aqueous phase liquids (LNAPLs) were also observed in three monitoring wells towards the south-west of the site.

## 2.2 South Western Corner of Victoria Park

The environmental report entitled *Preliminary Soil Investigation; South Western Corner of Victoria Park*, URS (July 2004) was an intrusive investigation to determine the nature and extent of potential soil contamination so that potential risk to human health in the context of the present recreational land use could be assessed. The report documented that historical industrial activities in the area could have potentially impacted soil and groundwater quality. These included a gasworks plant, galvanizing plant and two chemical industry sites.

Located in the immediate vicinity of the site used to be a Manufactured Gas Plant and the Auckland City waste incinerator. Operations at both sites reportedly produced soil waste material that was potentially used as fill for the Victoria Park Reclamation.

The site investigation included limited testing of soil obtained from nine shallow boreholes (approximate depth 0.5 m below ground level(bgl)). Borehole logging records showed the presence of brown silt to approximately 0.3m depth with demolition and gasworks waste (including clinker, tar residue, brick fragments, concrete, metal, ash, wood, and glass) to depths of 0.1m to 0.6m bgl. No groundwater sampling or deeper sampling was undertaken.

Chemical analysis results indicated that there were elevated concentrations of contaminants in the subsurface soil. Lead and PAHs in particular were considered by URS to be at concentrations high enough to potentially pose a risk to human health. Other concentrations detected above background concentrations (based on ARC TP153, 2001) included arsenic, cadmium, chromium, copper, mercury, nickel and zinc.

### 3 Current Land Ownership

The current list of land ownership is presented in Appendix A. Please note that this supersedes the list previously given in the PEA Volume 2 (*Harbour Bridge to City Project – Preliminary Environmental Assessment, Volume 2, February 2001*).

## 4 Summary and Conclusions

From the review of the recent site investigations, a summary of the findings can be compiled into the following points:

### Beaumont Quarter

- Intrusive investigations indicated that there were elevated concentrations of contaminants in soil and groundwater in the Beaumont Quarter.
- The site investigations concluded and recommended that remedial works were required prior to development. Consent conditions required the implementation of a Remedial Action Plan prior to development.
- Monitoring and management plans were implemented which included ongoing groundwater monitoring.
- Chemical analysis during monitoring rounds in 2003 identified that elevated concentrations of PAHs and metals were present in the groundwater. Small quantities of light non-aqueous phase liquids (LNAPLs) were observed in the groundwater sampled from the south-west of Beaumont Quarter.

### South-Western Corner of Victoria Park

- The limited intrusive investigation indicated that there were elevated concentrations of PAHs and metals in the soil subsurface (up to 0.6m bgl).
- In Victoria Park, concentrations were considered to be high enough to potentially pose a risk to human health. However, the investigation included shallow boreholes only (down to 500mm depth) and no information related to groundwater was available.

Overall, this does not change the overall approach or conclusions within the original PEA.

- APPENDIX A

- Current Land Ownership  
Information (updated  
Oct. 2005)**