

Hanson Construction Materials Pty Ltd



Stage 1 Contamination Assessment: Hanson's Bass Point Quarry Project

ENVIRONMENTAL



WATER



WASTEWATER



GEOTECHNICAL



CIVIL



PROJECT
MANAGEMENT



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June 2010

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All enquiries regarding this project are to be directed to the Project Manager.

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1 Overview

1.1 Background and Scope

This report describes the findings of a Stage 1 Contamination Assessment conducted in order to support the proposed development at Bass Point Quarry (BPQ), Bass Point Quarry Road, Shellharbour, NSW (hereafter known as the "site"). The report is written to support an Environmental Assessment (EA) to accompany an application for project approval under Part 3A of the *Environmental Planning and Assessment Act* (1979).

1.2 Proposed Development

Proposed development at the site is comprised of the following:

1. Decommissioning of the existing processing plant and replacement with a new processing plant.
2. Relocation of the existing concrete plant, office, workshop and amenities.
3. Deepening of the western extraction area from the approved level (DA79/81 am) of 0 mAHD to -40 mAHD.
4. Reconfiguration of a bund approved by Shellharbour City Council under D947/2002.
5. Deepening of the eastern extraction area from the approved level of – 50 feet (DA98/73) to -40 mAHD.

2 Site Description

2.1 Location

The site (Lot 22 DP1010797) is located at Bass Point Quarry Road, Shellharbour, NSW and is within the Shellharbour Local Government Area. The site is located approximately 8 km north north east of Kiama and 2 km south east of Shellharbour on Bass Point. The site is border by Bass Point Reserve to the east, Killalea State Park to the west, the ocean to the south and Shell Cove (residential subdivision and boat harbour precinct) to the north (Figure 1).



Figure 1: Aerial photograph of the site and surrounding environment (Google Earth, 2006).

2.2 Topography and Drainage

The site currently has two quarry pits (east pit and west pit). Stormwater either flows into these two quarry pits or flows off-site. Off-site flows ultimately discharge to either the ocean, Killalea Lagoon or land to the north west of the site. Based on review of the most recent site survey

(03.08.08) the site's elevation varies from approximately 53.5 mAHD on a knoll in the south of the site to 10.2 mAHD in the east pit.

2.3 Soils and Geology

Review of site borehole data indicates that the site is underlain by variable depth clays of the order of 2 to 13 m deep.

The Kiama 1: 250,000 geological series sheet SI 56-9 (NSW Dept Mines, 1966) indicates that the site is underlain by Bumbo Latite. Review of site borehole data confirms this.

2.4 Groundwater

Groundwater is present beneath the site. Analysis of average groundwater levels within the site's 17 monitoring bores indicates that groundwater levels at the site typically vary from approximately 1 to 19 mAHD.

3 Stage 1 Contamination Assessment

3.1 Overview

A review of development consent history and site use has been undertaken based on examination of Council Development Application (DA) records and site aerial photographs. This was done to assess the risk of past land use practices resulting in site contamination.

3.2 Development Consent History

An environmental study undertaken by D.J Dwyer and Associates (1977) indicates that quarrying commenced on the site in 1880 and continued up to the 1930's. Following this, quarrying was abandoned until after World War 2, when the site was purchased by Imperial Chemical Industries of Australia and New Zealand Limited for a munitions depot.

Development consent history from this point onward has been extracted from the PEA (Planning Workshop Australia, 2008) and is provided in Attachment A.

We note that there is a pistol club on the site. However, there is no reference to this in the consent history.

3.3 Historical Aerial Photograph Analysis

Historical aerial photographs taken of the site during 1949, 1963, 1970, 1979, 1990, 1997 and 2005 were reviewed in order to investigate the history of site land use.

The 1949 aerial photo shows a single visible extraction area to the south and north of a road/track that appears to follow a similar general alignment to the current Bass Point Quarry Road. The remainder of the site appears to be cleared. An area with three or four structures exists in the approximate area of the current concrete plant.

The 1963 aerial photo shows minor change when compared to the 1949 photo. Residential development near Shellharbour is not visible in this photograph (due to photo scale).

The 1970 aerial is similar to the 1963 aerial. However, stockpiles and possible quarry plant are noticeable. A new road becomes visible that resembles the current alignment of Bass Point Quarry Road. Extraction

operations appear to have extended south of the southern extraction cell.

The 1979 aerial shows the coal loader, quarry processing plant, increased extraction and structures which may represent site offices or storage areas.

The 1990, 1997 and 2005 aerials show increased extraction area/depth along with increased residential development. Interestingly, a cut that is filled with water and shaped like a backwards L is easily visible in the 1990 and 2005 photos but absent in the 1997 photo.

Refer to Table 1 for an aerial photograph summary description.

Table 1: Aerial photograph description summary for the site and surrounding area.

Year	Description
1949	Three to four visible structures on site. Two distinct extraction areas are visible. The majority of site land is cleared. Residential development is visible in the far west of photo.
1963	As above but no residential development is visible (1949 photo has different coverage to 1963 photo).
1970	Stockpiles and possible quarry plant becomes visible. Road appears that follows alignment of the current Bass Point Quarry Road. Extraction operations appear to have expanded to an area south of the south extraction area that is visible in the 1963 photo.
1979	Coal loader is visible. Quarry plant and stockpiles are visible. Structures in area of current site office and south west of current site office become visible.
1990	As above but with increased extraction areas/depth. Backwards L cut that is filled with water is visible.
1997	As above but backwards L cut that is filled with water is not visible.
2005	As above but with increased extraction areas/depth. Backwards L cut that is filled with water is visible.

3.4 NSW EPA/DECC Contaminated Land Record

Review of the NSW EPA/DECC contaminated land record shows that the subject site has not been regulated by the EPA in regards to contaminated land.

3.5 Areas of Environment Contaminant (AEC) Concern

1. Pistol range - soil in the area of the existing pistol range may have elevated levels of heavy metals such as lead, copper, zinc, antimony, arsenic and nickel (Tanskanen et al., 1991).

2. Workshop – an underground diesel fuel tank with a capacity of approximately 30 KL used to exist in this area. The tank has since been removed and replaced with two new 30 KL above ground diesel tanks. Prior to removal the tank may have leaked and therefore provided a source of contamination (heavy metals, PAHs, Phenols, BTEX and TPH).

3.6 Conclusion and Recommendations

Historical aerial photographs of the site, council DA records and the type of quarrying undertaken on the site suggest that the potential for site contamination is low. However, the presence of a pistol range on the site together with the fact that an underground fuel tank used to be located in the vicinity of the workshop and vehicle maintenance operation suggests the potential for contamination is moderate to high in these ABC's. On this basis we recommend a Preliminary Site Contamination Assessment (PSCA) be undertaken to screen the areas of potential contamination. Should this screening identify contamination then a Stage 2 contamination assessment is to be undertaken.

We recommend a sampling and testing regime for the PSCA generally as follows:

1. Pistol range – 2 surface samples (0 to 0.1 mBGL) and 2 sub-surface samples (0.15 to 0.2 mBGL). Analysis of samples by laboratory for heavy metals (number of samples to be analysed to be determined based on site observations).
2. Workshop – 4 samples extracted from a single borehole that proceeds to the depth of the fuel tank(s). Analysis of samples by laboratory for contaminants such as heavy metals, PAHs, Phenols, BTEX and TPH (number of samples and analyte to be analysed to be determined based on site observations).

3.7 Limitations Statement

The site Stage 1 contamination assessment was undertaken in accordance with current industry standards. However, no site history analysis can be considered to be a complete and exhaustive characterisation of a site and it cannot be guaranteed that any assessment shall identify and characterise all areas of potential contamination. No site sampling has been undertaken at this stage. Should material be exposed during the site development process which appears, due to visual indications or odours, to be contaminated, the material should be assessed by Martens & Associates to determine contamination and land use implications.

Martens & Associates Pty Ltd has undertaken this assessment for the purposes of forming a subdivision on the site. No reliance on this report should be made for any other investigation or proposal.

4 Attachment A – Development Consent History

2 CHRONOLOGY OF DEVELOPMENT CONSENTS AND EXISTING OPERATIONS

Table 2.1 Chronology of Development Consents/Approvals

Development Application Number	Site Details	Applicant	Description of Development and Site Details	Conditions of Consent	Date Consent was Granted
D42/67	Lots 14, 17, 18 Pt. 16, Pt. Por 19/20	Imperial Chemical Industries of Australia and New Zealand Ltd	<i>"Basalt quarry and ancillary and other purposes as set forth in the Company's application lodged with the Council on the 3rd November, 1967"</i>	Appendix 3	29 August 1968
DA103/71		South Coast Basalt Pty Ltd	Ship loading facilities		7 December 1971
DA98/73	Lot 2 of subdivision of land in Lot 4	South Coast Basalt Pty Ltd	<i>"Extension of quarrying operations below the 50 feet level within the bounds of the existing quarry at Bass Point"</i>	Appendix 3	16 August 1973
DA81/79	Lot 2 DP 570905	South Coast Basalt Pty Ltd	<i>"The varying of existing consents related to quarrying operations on the above-mentioned land to meet the recommendations as set out in the D.J. Dwyer Environmental Study of December, 1977."</i>	Appendix 3	23 April 1980
DA85/89		Pioneer Concrete (NSW)	Approval for relocation of existing bitumen sealed road		27 July 1989
DA85/89am		Pioneer Concrete (NSW)	Approval to amend Development Application DA85/89		2 March 1992
DA79/81am	Lot 2 DP 570905	Pioneer Concrete (NSW)	<i>"Pursuant to Section 102 of the Act, notice is hereby given of the determination by the consent authority of application to Amend Development Consent No. 79/81 relating to the land described as follows: Lot 2 DP 570905 Bass Point Quarry, Boollwarroo Parade, Shell Cove and being development described as follows: Extension of Quarrying Activities, as shown on the plans endorsed with Council's stamp and attached to Amended Development Consent No 79/81(am)."</i>	Appendix 3	16 June 1998
DA 415/2001	Lot 21 and 22 DP 1010797	Pioneer Construction Materials	Approval for Upgrade Concrete Plant and Replacement of Silos at Bass Point Quarry, Lot 21 and 22 DP 1010797, Boollwarroo Pde, Shell Cove		21 September 2001
DA 815/2001	Lots 3 and 22 DP 248002	Pioneer Construction Materials	Bund Wall Lots 3 and 22 DP 248002, 22 Boollwarroo Pde, Shell Cove		12 February 2002
DA 947/2002	Lot 22 DP 1010797 & Lot 206 DP 857030	Australand Holdings	Deferred Commencement– Placement of Clean Fill on-site to create a Landscape Mound Lot 22 DP 1010797 & Lot 206 DP 857030, Boollwarroo Pde, Shell Cove Letter Confirming Consent (DA 947/2002) is now operational (Note error in date of issue)	Appendix 3	14 May 2004 11 May 2004

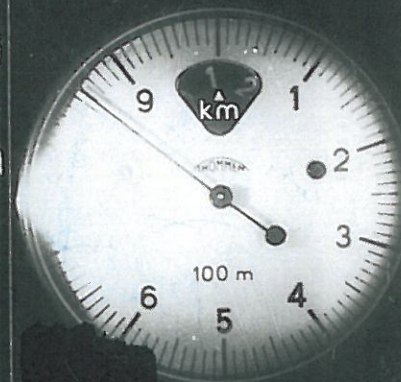
**5 Attachment B – Aerial Photographs (in order of sequence
– 1949, 1963, 1970, 1979, 1990, 1997 and 2005).**







RUN 4
23:5:70



AWA





Figure 2: 1990.



Figure 3: 1997.



Figure 4: 2005.