



Appendix No. 12

Phase 1 Environmental Site Assessment



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KMSJ Pty Ltd & Lanox Pty Ltd

370 Old Northern Road
Castle Hill, NSW

April 2010
JBS 41112-14809
JBS Environmental Pty Ltd



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Table of Contents

List of Abbreviations	IV
Executive Summary	v
1 Introduction	1
1.1 Background and Objectives	1
1.2 Scope of Work	1
2 Site Condition & Surrounding Environment	2
2.1 Site Identification	2
2.2 Site Description	2
2.3 Surrounding Landuse	3
2.4 Previous Environmental Investigations	3
2.4.1 Geotechnical Investigation and Stability Assessment, 370 Old Northern Road, Castle Hill – Pells Sullivan Meynink Pty. Ltd., April 2006 (PSM 2006)	3
2.5 Topography	4
2.6 Hydrology	4
2.7 Geology	4
2.7 Hydrogeology	4
3 Site History	5
3.1 Aerial Photographs	5
3.2 DECC Records	5
3.3 Title Details	6
3.4 Council Records	6
3.4.1 Section 149 Certificate	6
3.4.2 Development Application / Building Application (DA/BA) records	6
3.5 Australian and NSW Heritage Register	7
3.6 WorkCover Dangerous Goods Licenses	7
3.7 Site History Summary	7
3.8 Integrity Assessment	7
4 Potential Contamination Issues	8
4.1 Potential Areas of Environmental Concern	8
4.2 Potentially Contaminated Media	8
4.3 Potential for Migration	9
5 Sampling and Analysis Plan	10
5.1 Data Quality Objectives	10
5.1.1 State the Problem	10

5.1.2	Identify the Decision.....	10
5.1.3	Identify Inputs to the Decision	10
5.1.4	Define the Study Boundaries.....	10
5.1.5	Develop a Decision Rule	11
5.1.6	Specify Limits of Decision Error.....	11
5.1.7	Optimise the Design for Obtaining Data.....	11
5.2	Soil Sampling Methodology.....	12
5.3	Stockpile management methodology	12
5.4	Laboratory Analyses	13
5.5	Assessment QA/QC	13
6	Assessment Criteria	16
6.1	Regulatory Guidelines	16
6.2	Soil Criteria	17
7	Quality Assurance / Quality Control	18
7.1	Soil QA/QC Results	18
7.2	Soil QA/QC Discussion and Conclusion	18
8	Discussion of Soil Results	19
8.1	Field Observations.....	19
8.2	Soil Analytical Results.....	19
8.2.1	Asbestos – Broader Site Area.....	19
8.2.2	Asbestos – Stockpiled Material Characterisation	19
9	Site Characterisation.....	20
9.1	Potential Risks to Future Onsite Receptors.....	20
9.2	Aesthetics	20
9.3	Background Soil Concentrations	20
9.4	Chemical Mixtures	20
9.5	Odours	20
9.6	Potential Migration of Contaminants	20
9.7	Site Management Strategy	20
10	Conclusions	21
10.1	Conclusions.....	21
11	Limitations	22

Figures

Figure 1 - Site Location

Figure 2 -Site Layout and Sample Locations

Figure 3 - Proposed subdivision of 370 Old Northern Road, Castle Hill (provided by KMSJ Pty Ltd and Lanox Pty Ltd)

Appendices

Appendix A - Summary Tables

Appendix B - Groundwater Bore Search

Appendix C - Aerial Photos

Appendix D - DECC Records

Appendix E - Title Records

Appendix F - Section 149 Certificate

Appendix G - Heritage Records

Appendix H - WorkCover Records

Appendix I - Hand Auger Logs

Appendix J - Laboratory Reports and Chain of Custody Documentation

Appendix K - Stockpiled Material Classification

Appendix L - Waste documentation

List of Abbreviations

A list of the common abbreviations used throughout this report is provided below.

AHD	Australian Height Datum
As	Arsenic
bgs	below ground surface
Cd	Cadmium
COPC	Contaminants Of Potential Concern
CSM	Conceptual site model
Cr	Chromium
Cu	Copper
BTEX	Benzene, toluene, ethylbenzene and xylenes
B(a)P	Benzo(a)pyrene
DECCW	NSW Department of Environment and Climate Change and Water
DQOs	Data Quality Objectives
DWE	NSW Department of Water and Energy
EMP	Environmental Management Plan
ESA	Environmental Site Assessment
EPA	NSW Environment Protection Authority
GILs	Groundwater investigation levels
Ha	Hectare
Hg	Mercury
HIL	Health based investigation level
JBS	JBS Environmental
LOR	Limit of Reporting
Mn	Manganese
Ni	Nickel
PAHs	Polycyclic aromatic hydrocarbons
Pb	Lead
PIL	Phytotoxicity based investigation level
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RAP	Remedial Action Plan
RPD	Relative Percentage Difference
SAQP	Sampling, Analysis and Quality Plan
SPLP	Synthetic Precipitation Leaching Procedure
TCLP	Toxic Characteristic Leaching Potential
TPH	Total Petroleum Hydrocarbons
WQOs	Water Quality Objectives
Zn	Zinc

Executive Summary

Introduction and Objectives

JBS Environmental Pty Ltd was engaged by the KMSJ Pty Ltd and Lanox Pty Ltd (KMSJ) to conduct a Phase 1 Environmental Site Assessment (ESA) at a privately owned property located at 370 Old Northern Road, Castle Hill NSW (the site). The site was identified as Lot 2 in DP 135804 and has a total area of approximately 29,000m² (**Figure 1**).

It is understood that KMSJ requires the environmental condition of the site to be characterised prior to the subdivision and development of the property into low density housing.

The investigation was conducted in general accordance with relevant NSW Department of Environment and Climate Change and Water (DECCW) guidelines.

Scope of Work

The scope of the work comprised: review of previous reports provided for review and other historical documentation to identify potential areas of environmental concern and chemicals of concern; a site inspection, a program of soil sampling and analysis; an assessment of soil contamination; and preparation of an Environmental Site Assessment (ESA) report.

Site Description

The site is comprised mainly of an open grassed block with scattered trees and an abandoned single storey brick dwelling. A stockpile of approximately 200m³ of silty clay materials with shale was observed in the central western portion of the site (**Figure 2**). The stockpiled material was noted to be heterogeneous with inclusions of concrete, wire, plastic, PVC piping, glass and suspected asbestos containing material (ACM).

Site History and Potential for Contamination

The site was vacant open land since at least 1930 and up until 1947. A dwelling has been present on the site since at least 1961. There is evidence of agricultural activities in 1970 however the duration of these activities is unknown. The site has been owned by various private land holders and companies until 2004, when it was transferred to Lanox Pty Ltd and KMSJ Pty Ltd, the current owners.

Areas of potential concern identified at the site are identified in **Table 1** below.

Table 1 Areas of Environmental Concern and Associated Contaminants of Potential Concern

Area of Environmental Concern (AEC)	Contaminants of Potential Concern (COPC)
Fill material across the site	Asbestos
Stockpiled material	Asbestos

Summary of Investigation Results

Soil samples were collected across the broader site area from 16 targeted sampling locations and one sample from the stockpiled material. Two samples of suspected ACM were collected from the stockpiled material. All samples were analysed for asbestos at a NATA accredited laboratory. No asbestos was detected at the reporting limit of 0.1mg/kg and no respirable fibres were detected in any of the soil samples analysed. Chrysotile asbestos was detected in fragment sample SP01-F1. The remaining fragment sample SP01-F2 was reported as not containing asbestos.

Fill material was not identified below the immediate ground surface and natural silty clays were identified at all sampling locations across the broader site area. These findings were consistent with those in PSM 2006.

Apart from the observed ACM there was no visual or olfactory indications of contamination identified during the field investigation.

The stockpiled material was divided into thirteen sub-stockpiles to delineate the amount of asbestos contamination and limit the amount of material being disposed off site. A total of approximately 30m³ from three sub-stockpiles (SP1, SP3 and SP13), was identified as impacted with asbestos contamination and was disposed off site. Soil samples were collected from the remaining ten sub-stockpiles and screened for asbestos. No asbestos was detected at the reporting limit of 0.1mg/kg and no respirable fibres were detected in any of the soil samples analysed.

Conclusions

Based on the results of the investigation undertaken at the site, and subject to the limitations stated in **Section 11**, the following conclusions are made:

- Approximately 30m³ of stockpiled material was contaminated with bonded asbestos. This material was removed from the site and disposed of at an accredited waste facility. The remaining stockpiled material is considered suitable to be reused on site;
- There was no other evidence of contamination at the site; and
- Based on the observations made during the site inspection and the results from the soils sampling investigation and stockpile material characterisation, the site is considered suitable for the proposed land use.

1 Introduction

1.1 Background and Objectives

JBS Environmental Pty Ltd was engaged by the KMSJ Pty Ltd and Lanox Pty Ltd (KMSJ) to conduct a Phase 1 Environmental Site Assessment (ESA) at a privately owned property located at 370 Old Northern Road, Castle Hill NSW (herein referred to as the site). The site was identified as Lot 2 in DP 135804 and has a total area of approximately 29,000m² (**Figure 1**).

It is understood that KMSJ requires the environmental condition of the site to be characterised prior to the subdivision and development of the property into low density housing.

The investigation was conducted in general accordance with relevant NSW Department of Environment and Climate Change and Water (DECCW) guidelines (**Section 6**).

1.2 Scope of Work

The scope of work comprised:

- Review of any previous environmental investigation reports;
- Review of topography, geology and hydrogeology of the site and surrounding areas;
- Review of relevant historical information to identify areas of environmental concern and associated contaminants of potential concern (COPCs);
- A site inspection of all accessible areas to identify any additional visible areas of concern and associated potential COPCs;
- A limited program of soil sampling and analysis including samples from 16 onsite locations targeting identified areas of concern and associated COPCs;
- Analysis of selected soil samples at a NATA accredited laboratory for asbestos; and
- Preparation of an ESA report in general accordance with relevant DECC Guidelines.

2 Site Condition & Surrounding Environment

2.1 Site Identification

The site is located at 370 Old Northern Road, Castle Hill NSW (**Figure 1**). Castle Hill is located approximately 25 kilometres north-west of Sydney's central business district. The site details are summarised in **Table 2.1** and described in detail in the following sections.

Table 2.1 Summary Site Details

Lot/DP	Lot 2 DP 135804
Address	370 Old Northern Road, Castle Hill NSW
Property description	Rural / Residential Land
Local Government Authority	The Hills Shire Council
Site Zoning	Rural 1 (a) Zone
Current Use	Rural / Residential Land
Previous Use	Rural / Residential land since 1930
Site Area	Approximately 29,000m ²
Site Coordinates	56H 316178 E UTM 6267152 N

2.2 Site Description

The site was approximately rectangular in shape and was comprised of an open grassed block with an abandoned single storey brick dwelling and brick garage located in the central eastern portion of the site (**Figure 2**). Secured steel gates were observed on the eastern most boundary along Old Northern Road. A newly constructed paved concrete driveway extended approximately 100m west, from Old Northern Road to the main body of the site, sloping down at approximately 40°. The northern boundary along the driveway was lined with a steel chain link fence. The remainder of the site had a thick grass cover with a number of large trees (approximately 10m - 15m in height) scattered across the central and south eastern portions of the site. There was an area of dense vegetation in the south eastern corner of the site. A stockpile of silty clay materials with shale was located in the central western portion of the site, with inclusions of concrete, wire, plastic, PVC piping, glass and suspected asbestos containing material (ACM) observed across the surface. The stockpile volume was estimated at approximately 200m³. It is understood that the stockpiled material was removed from the area of the concrete driveway during works to construct the driveway (personal communication from KMSJ). A suspected groundwater monitoring feature was observed in the central western portion of the site, appearing as a monument with a padlocked cap.

There were no obvious signs of stress on vegetation and no visible signs of staining or corrosion.



Photo 1 – The site and surrounding areas in 2007.

2.3 Surrounding Landuse

The current landuse of adjacent properties or properties across adjacent roads is summarised below:

- North – unused land with dense vegetation extending further north to low density housing;
- East – Large residential block of land with areas of dense vegetation cover, extending east to Old Northern Road with low density housing beyond this;
- South – Vacant grassed land with scattered vegetation extending to low density housing. Oakhill College is located across Old Northern Road to the south; and
- West – Heritage Park, areas of open grassed land with scattered vegetation, extending west to low density housing.

There does not appear to be any significant potential offsite contamination sources located in the properties around the site.

2.4 Previous Environmental Investigations

2.4.1 Geotechnical Investigation and Stability Assessment, 370 Old Northern Road, Castle Hill – Pells Sullivan Meynink Pty. Ltd., April 2006 (PSM 2006)

Pells Sullivan Meynink Pty Ltd (PSM) completed a geotechnical investigation and stability assessment at the site in 2006. The investigation was completed at the request of KMSJ prior to development of the site into low density housing.

From the investigations completed it was concluded by PSM that there was a very small likelihood of the groundwater conditions required to remobilise a detected ancient landslide on the site developing in the next 100 years. It was further concluded that the site does not require any special works to be undertaken for the proposed development to proceed.

2.5 Topography

The topography of the site is detailed in PSM 2006 with a detailed topographic map (scale 1:5000). The topography of the site can be summarised as follows:

- The overall topography of the site lies within a range of 136 to 170m Australian Height Datum (AHD) and generally falls to the south west;
- The Old Northern Road boundary of the site is at an approximate elevation of 170m AHD;
- The site slopes steeply away from Old Northern Road to approximately 154m AHD at the bottom of the concrete paved driveway;
- The main portion of the site slopes gently to the south west away from the north eastern corner of the site from a height of 160m AHD to a height of 150m AHD in the central portion of the site, where it then slopes steeply to the south west to a height of 136m AHD in the south western corner of the site.

The immediate surrounding areas are generally sloped in all directions, with a ridge running in a general north south direction consistent with Old Northern Road.

2.6 Hydrology

Castle Hill Creek is located approximately 300 metres south of the site, which runs east-west and feeds into Cattai Creek.

Precipitation and any surface water runoff that does not infiltrate into the ground surface is expected to flow toward the south-west and into Castle Hill Creek.

2.7 Geology

A review of the Sydney 1:100,000 Soil Landscape Series Sheet (9130 – 2nd Edition) indicates that the geology in the area of the site is within the Wianamatta Group. It is further identified as consisting of shale, carbonaceous claystone, laminate, fine to medium grained lithic sandstone and rare coal.

2.7 Hydrogeology

One licensed groundwater bore was located within a one kilometre radius of the site (**Appendix B**). The standing water level was identified at 60.0m depth.

It is suspected that this groundwater bore may be the groundwater feature identified in the central western portion of the site during the site inspection and which is understood and which is understood to have been installed as part of the investigations detailed in PSM 2006.

Given the varying ground levels of the site and its immediate surrounds, and the sites close proximity to a ridge, it is considered unlikely that shallow groundwater would be present at the site.

3 Site History

3.1 Aerial Photographs

Aerial photographs from 1930, 1947, 1961, 1970, 1978, 1986, 1994 and 2005 were obtained from the Department of Lands. Copies of the aerial photographs are included in **Appendix C**.

The aerial photograph review identified the following features in relation to the history of the site:

- Between 1930 and 1947 the site appears to be a vacant grassed block with scattered trees across its area.
- In 1961 a house and an adjacent building had been constructed in the same location and of approximately the same size as the abandoned brick house and garage observed during the field works during March 2010. There appears to be fewer trees located on the site and the grassed areas appear to be prepared for agricultural activities. A feature in the south west corner of the site is suspected of being a small dam.
- In 1970 the structures on the site do not appear to have been altered from the previous photograph. Agricultural activities are evident in the northern portion of the site and a new line of trees is evident running east-west through the centre of the site. The suspected dam is evident in the south west corner of the site.
- In 1978 the site appears to be similar in appearance to that in 1970, however there are no obvious signs of agricultural activities on the site.
- From 1986 to 2005 the structures on the site do not change and appear to be of a similar make up to the features observed during the field works. There is no evidence of agricultural activities on the site and there are a number of trees across the site. There is no evidence of a dam within these photos.
- In 2005 there is evidence of scarring across the site. This is expected to be attributed to the geotechnical investigations carried out in 2004 detailed within PSM 2006¹.
- In 2005, the site and surrounding areas remain similar to the previous photo.

3.2 DECC Records

A search of the DECC's public register under the *Protection of the Environment Operations Act 1997* was undertaken, and results are included in **Appendix D**. The search identified that, for the site, there were:

- No prevention, clean-up or prohibition notices;
- No transfer, variation, suspension, surrender or revocation of an environment protection licence.

A search was also undertaken through the DECC's public contaminated land register (**Appendix D**). This database recognises the council area as Baulkham Hills Shire Council.

¹ *Geotechnical Investigation and Stability Assessment - 370 Old Northern Road, Castle Hill*. Pellis Sullivan Meynink Pty. Ltd. April 2006 (PSM 2006)

The search identified that there have been no notices issued under the *Contaminated Land Management Act 1997* for the site.

3.3 Title Details

A historic title search was conducted for the site and results dating from 1933 to present day are included in **Appendix E**.

In summary, the land has been owned by various private land owners and companies up to 2004 when the site was transferred to Lanox Pty Ltd and KMSJ Pty Ltd (the current owners).

3.4 Council Records

3.4.1 Section 149 Certificate

The planning certificate for the site (Lot 2 DP135804) from The Hills Shire Council is included in **Appendix F**, and includes the following information regarding the site:

- The site is zoned Rural 1(a);
- The site does not include or comprise critical habitat. The land is not in a conservation area and there is no item of environmental heritage situated on the land;
- The site has not been identified on the maps prepared by the former Department of Urban Affairs and Planning as being potentially affected by acid sulphate soils;
- The site is identified on The Hills Shire Council's certified Bush Fire Prone Land map as being partly or wholly bush fire prone land;
- The site is not affected by a policy adopted by Council or any other public authority that restricts development of the land because of the likelihood of landslip, bushfire, tidal inundation, subsidence, acid sulphate or any other risk;
- The land is not subject to an investigation order or a remediation order within the meaning of the Contaminated Land Management Act 1997;
- The land is not subject to a voluntary investigation proposal (or voluntary remediation proposal) that is the subject of the Environment Protection Authority's agreement under Section 19 or 26 of the Contaminated Land Management Act 1997; and
- The land is not the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997.

3.4.2 Development Application / Building Application (DA/BA) records

Email correspondence from a Hills Shire Council Representative indicated that there was a single Development Application (DA) available from the council records for the site (DA 1941/06/HA). The DA was for the re-construction of a driveway on the site.

It is assumed that other DA and BA records exist concerning the site, as there are known applications with council pertaining to the current proposed development. These documents and any other applications relating to the construction of the structures currently on site were not made available.

3.5 Australian and NSW Heritage Register

A search of the Australian Heritage Trust database and the NSW Heritage Inventory was undertaken, and results are included in **Appendix G**. The search identified that there are no registered heritage items at the site.

3.6 WorkCover Dangerous Goods Licenses

A WorkCover search of the Stored Chemical Information Database (SCID) and the microfiche records held by WorkCover did not uncover any records pertaining to the site (**Appendix H**).

3.7 Site History Summary

A summary of the site history is provided in **Table 3.1**.

Table 3.1 Summary Site History

Period	Activity	Source
Early 1930's	Vacant land	Aerial Photo (1930)
1933	Privately owned, rural / residential land	Title documentation
1947	Privately owned, rural / residential land	Aerial Photo (1947)
1961	Privately owned, rural / residential land	Aerial Photo (1961)
1970	Privately owned, rural / residential land	Aerial Photo (1970)
1978	Privately owned, rural / residential land	Aerial Photo (1978)
1986	Privately owned, rural / residential land	Aerial Photo (1986)
1994	Privately owned, rural / residential land	Aerial Photo (1994)
2005	Privately owned, rural / residential land	Aerial Photo (2005)
2010	Privately owned, rural / residential land, stockpiled material observed in centre of site	Site Inspection (2010)

3.8 Integrity Assessment

The information obtained from sources noted above has been found to be in general agreement regarding the history of the site.

During the historical assessment potential sources of contamination were not identified on the site or its immediate surrounding areas.

Based on the range of sources and the general consistency of the historical and background information, it is considered that the historical and background assessment has an acceptable level of accuracy.