



GEO-LOGIX
Environmental Risk Management

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18 July 2012

Mr Matthew Twohill
Woolworths Limited
1 Woolworths Way
Bella Vista NSW 2153

SUBJECT: Limited Phase I Environmental Site Assessment Letter Report

**SITE: Properties including Proposed Master Home Improvement Store
120 - 188 Hawkesbury Valley Way, Clarendon, NSW**

Dear Matthew,

INTRODUCTION

Geo-Logix Pty Ltd (Geo-Logix) was engaged to conduct a limited Phase I Environmental Site Assessment (ESA) of the properties Lot 1, Lot 2, and Lot 3 DP 700263; Lot 2 DP 629053; Lot C DP 160847; and Lot F DP 164199 located at 120 - 188 Hawkesbury Valley Way, Clarendon, NSW. Geo-Logix has previously conducted a Phase I ESA for the site of a Proposed Master Home Improvement Store occupying the properties Lot 1 and a portion of Lot 2 DP 700263 (Geo-Logix 2012). Development plans are presented in Attachment A.

SITE IDENTIFICATION AND DESCRIPTION

The investigation area comprises the following properties:

Street Address	Lot and Deposited Plan (DP)	Approximate Area (m ²)
120 - 188 Hawkesbury Valley Way, Clarendon, NSW	Lot 1 DP 700263	19,100
	Lot 2 DP 700263	150,000
	Lot 3 DP 700263	38,000
	Lot 2 DP 629053	430,500
	Lot C DP 160847	36,000
	Lot F DP 164199	53,250

The site is zoned RU4 Rural Small Holdings under draft Hawkesbury Local Environmental Plan 2011.

The site is bordered to the north by Hawkesbury Valley Way with residential properties and the Richmond RAAF Base beyond. To the east and southeast the site is bordered by Rickabys Creek

with Windsor Country Golf Course beyond. The site is bisected into northern and southern portions by the Blacktown/Richmond Railway. North of the railway the site is bordered to the west by the Headstart Early Learning Centre. South of the railway the site is bordered to the west by the Hawkesbury Racecourse.

Site topography is undulating. The site generally slopes towards the southeast and Rickabys Creek. Total elevation change is 17m from 19m AHD to 2m AHD.

SITE HYDROLOGY

It is expected that groundwater would follow the natural topography and generally flow southeast towards Rickabys Creek.

The nearest surface water receptors are the small dam in the northern portion of the site; two dams in the southern portion of the site; and Rickabys Creek along the south eastern and eastern boundary of the site.

SITE GEOLOGY

Review of the NSW 1:100,000 Penrith Map (Geological Survey of NSW, 1991) indicates the site is underlain by Clarendon Formation Quaternary fluvial deposits of clay, clayey sand and silt. The Clarendon Formation is underlain by Londonderry Clay, matrix supported conglomerate and Ashfield Shale.

ACID SULPHATE SOILS

Review of the Hawkesbury City Council Acid Sulphate Soil Hazard Areas Map indicates that the eastern portion of the site along Rickabys Creek lie in Class 3 and 4 Acid Sulphate Soil Hazard Areas. Works beyond 1 metre below existing ground level, and works by which the water table is likely to be lowered beyond 1 metre below existing ground level may result in Acid Sulphate Soils in these areas. The Acid Sulphate Hazard map is presented in Attachment B.

SITE HISTORY

Title Search

As part of Geo-Logix's Phase I ESA dated May 2012, a title deeds search was conducted through the Land Titles Office for Lot 1 and Lot 2 DP 700263. No search has been performed for the remaining lots. A detailed summary and title documents are presented in Attachment C. Title documents indicate that Lot 1, Lot 2, and Lot 3 DP 700263 and Lot 2 DP 629053 comprised a single property in 1966; and Lot 1, Lot 2, and Lot 3 DP 700263 comprised a single property in 1984.

- Prior to 1986 Lot 1 and Lot 2 DP 700263 were owned by various private individuals (including Ernst Joseph Norman Tomkins, nurseryman, and Charles Herbert O'Brien, farmer).
- From 1986 to 2011 these lots were owned by Elf Farm Supplies Pty Ltd; and
- In 2011 they were acquired by the current owners RN & NR Tolsons Management Pty Ltd.

Aerial Photographs

Geo-Logix undertook a review of historical aerial photographs on record at the New South Wales Land and Property Management Authority. Photos were examined for the years 1947, 1961, 1970, 1982, and 1994. Google Earth images were examined for the years 2005 and 2010. Photos are presented in Attachment D.

Year of Photo	Site Description	Surrounding Area Description
1947	The site is divided into two portions (northern and southern) by a railway. Both portions of the site are primarily agricultural crop land. Several structures are located in the northern portion of the site, including a residence and two sheds in the northwest corner and a residence with 3 outlying buildings in the central northern portion of the site	The surrounding landuse is primarily agricultural cropland with residences and Hawkesbury Racecourse to the west.
1961	Four farm dams have been constructed on the site. Two are located centrally in the eastern half and western half of the northern portion of the site; a third is located in the south west corner of the northern portion of the site; the fourth farm dam is located in the southern portion of the site. A horseracing track is located on Lot 1 and Lot 2 DP 700263. The residence and outlying buildings in the central northern portion of the site have been expanded, a stable and large shed now appear south of the residence. Several small paddocks appear north of the residence. The eastern half of the northern portion and the southern portion of the site remain agricultural cropland.	A farm dam now appears to the west of the far southern portion of the site, south of the Hawkesbury Racecourse. An airfield is located north of the site. The surrounding landuse is otherwise unchanged.
1970	The farm dam in the southern portion of the site has been expanded. The residence and shed located in the northwest corner of the site no longer appear. The site is otherwise unchanged.	Several new buildings appear on the Hawkesbury Racecourse west of the site. The land east of the site has been developed as a golf course. The surrounding landuse is otherwise unchanged.
1982	Agricultural cropland on site appears to have been left fallow. The farm dam located in the southwest corner of the northern portion no longer appears, and there is an area of dark vegetation in the southwest corner of the northern portion of the site. A billboard sign appears north of the dam in the eastern half of the northern portion of the site.	The dam south of the Hawkesbury Racecourse has been expanded. Residential housing appears beyond the golf course east of the site. The surrounding landuse is otherwise unchanged.
1994	The horseracing track on the northern portion of the site no longer appears. The small paddocks north of the residence in the centre of the northern portion of the site also no longer appear. The dam on the southern portion of the site has been split into two dams, a smaller northern dam and a larger southern dam. The dam in the eastern half of the northern portion of the site no longer appears. No evidence of cropping remains on the site. The small paddocks north of the residence in the centre of the northern portion of the site no longer appear. The stable and four sheds central area of the northern portions of the site no longer appear. Four structures including the former residence and an L-shaped corrugated metal building to the south now appear in this area.	A second dam appears north of the dam south of the Hawkesbury Racecourse. The surrounding landuse is otherwise unchanged.

Year of Photo	Site Description	Surrounding Area Description
2005 (Google Image)	Site vegetation on the eastern half of the northern portion of the site includes sparse shrubs. The north eastern structure in the central area of the northern portion no longer appears. An addition has been made to the southernmost structure. The site is otherwise unchanged.	The two dams south of the Hawkesbury Racecourse have been joined to create a single larger dam.
2010 (Google Image)	The site appears largely unchanged.	The property west of the northern portion of the site is occupied by the Headstart Early Learning Centre. The surrounding landuse is otherwise unchanged.

Council Records

As part of Geo-Logix's Phase I ESA dated May 2012, a search of Hawkesbury City Council records was conducted for Lot 1 and Lot 2 DP 700263 and indicated the following approvals for the subject site:

- Farm Shed in 1986; an agricultural Shed in 1987; and resiting of the office, staff amenities and construction of an additional shed in 2000 on Lot 2 DP 700263;
- An aerated septic system in 2001 on Lot 2 DP 700263;
- A Sewage Management Facility License was issued in 2011; no evidence of a sewage management facility was observed during the site investigation; and
- Additionally, a letter was issued to the owner in 2010 requiring the removal of stockpiled waste including construction and demolition material stored onsite. Photographs taken by council indicate this waste to consist of wood, brick, soil and other construction debris. Based on Geo-Logix's review of council's photographs taken in 2010, the Google Earth Image from 2009, and site visit, it is likely that the waste storage has been confined to the eastern half of Lot 2 DP 700263.

A copy of the above mentioned letter and associated photographs, and email correspondence with Council are presented as Attachment E.

NSW WorkCover Dangerous Goods Licences

A search of the WorkCover Stored Chemical Information Database undertaken during Geo-Logix's Phase I ESA for Lot 1 and Lot 2 DP 700263 to identify any dangerous goods storage licences held for the subject site identified no licences for dangerous goods. No search has been performed for the remaining lots.

NSW OEH Contaminated Land Database

A review of the NSW OEH Contaminated Land Database established under Section 58 of the Contaminated Land Management Act 1997 found no records for the subject site. The search record is presented in Attachment F.

Protection of Environment Operations Act 1997 Public Register

A search of the public register established under Section 308 of the Protection of the Environment Operations Act 1997 (POEO Act) did not identify any records relating to Environmental Protection Licences, Licence Applications or Pollution Notices for the subject site. The search record is presented in Attachment G.

NSW Contaminated Sites Notified to NSW OEH

A search of the List of NSW Contaminated Sites Notified to NSW OEH as of 8 June 2012 found a record for a contaminated service station site 350m west of the subject site. No records were found for the subject site. The search record is presented in Attachment H.

SUMMARY OF SITE HISTORY

- The site was owned by private individuals prior to 1955 and was agricultural cropland;
- The eastern half of the northern portion of the site and the southern portion of the site continued to be agricultural cropland until approximately 1982;
- A farm dam was constructed on the southern portion of the site prior to 1961 and later expanded and split into two separate dams;
- A farm dam in the eastern half of the northern portion of the site existed between 1961 and 1994;
- The western half of the northern portion of site and the southern portion of the site are currently vacant (April 2012). A large farm dam exists in the southern portion of the site with a smaller dam immediately to its north;
- The central area of the northern portion of the site was occupied by a farm residence and outlying sheds in 1947. New construction replacing older structures is apparent in this area in historical photographs from 1961, 1994, and 2005;
- The central area of the northern portion of the site contains a farm office, corrugated metal building and associated structures. Plant heavy vehicles as well as several piles of construction debris are located south of the buildings;
- Title deeds and aerial photographs suggest the western half of the northern portion of the site was converted from cropland to grazing paddock between 1955 and 1961. Aerial photographs during this period appear to indicate the presence of a horse racing track circumscribing this area with a dam in the centre;
- A farm house and sheds in the northwest corner of the site appear to have been demolished prior to 1970;
- The track in the northern portion of the site appears to have become overgrown after this point. Land use likely continued to be grazing land; and
- The eastern half of the northern portion of the site is currently used as grazing paddock for cattle and horse stock (April 2012).

POTENTIAL SITE CONTAMINATION

Onsite Sources

Agricultural Use

- There is potential for pesticide and heavy metal contamination to shallow soils from historical cropping activities. Title deeds and aerial photographs suggest that portions of the land were cropland until the mid-1980s. Much of the surrounding land has also been cropland at various times. Past and present horticultural activities may result in chemical residues in the soil including:
 - Organochlorine Pesticides (OCPs);
 - Heavy Metals
- Due to the method of application of pesticides to the land (spraying), any contamination is likely to be widespread and concentrated in surface soils (top 150mm). Some localised concentrated areas of contamination can occur in areas of former farm sheds where chemicals were stored; and
- Potential exists for petroleum, Polycyclic Aromatic Hydrocarbons (PAHs), metals, and Volatile Organic Compounds (VOCs) contamination to soils in the vicinity of the farming sheds originating from machinery storage and maintenance activities.

Hazardous Building Materials

- Given the age of current and former structures observed in historical aerial photographs the potential for the presence of hazardous building materials (asbestos and lead based paint) exists in the northwest corner of the site and the northern central area of the site in the area of the former building structures;
- Farm dams have in the past been used for dumping of waste, in particular building materials. Potential exists for waste materials to exist in the former farm dams on site; and
- Unauthorized waste storage on Lot 2 DP 700263 has been documented by Hawkesbury City Council 2010. Potential contaminants are hazardous building materials including asbestos and lead based paint.

Offsite Sources

Airfield

- The Richmond RAAF Base has been located north of the site since prior to 1961. Groundwater below the airfield is expected to flow towards the east based on surface topography. Given the across gradient location of the airfield, the potential for groundwater contamination sourced from the airfield to impact upon the subject site is considered low.

Service Station

- The Shell Service Station 350m west of the site is listed as a contaminated site by the NSW EPA. Given the separation distance between the service station and the site, the risk of contamination from the service station is considered to be low.

CONCLUSIONS

The results of the Limited Phase I ESA indicate that the site has a history of agricultural land use.

Potential contamination issues include:

- Widespread application of pesticides;
- Localised pesticide, petroleum, metals, PAH and VOC impacts surrounding former farm sheds in the northwest corner of site;
- Hazardous building materials from demolition of former building structures in the northwest portion of the site; and
- Dumping of building wastes within the dam.

Given the site history, Geo-Logix concludes there have been activities occurring onsite which may have resulted in contamination of the land. Further investigation would be necessary to assess the presence or otherwise of such contamination.

Please do not hesitate to contact Geo-Logix directly (02) 9979 1722 should you require further information.


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ATTACHMENTS

Limitations
References
Attachment A: Development Plans
Attachment B: Acid Sulphate Soil Maps
Attachment C: Title Documents
Attachment D: Aerial Photographs
Attachment E: Hawkesbury City Council Records Search
Attachment F: NSW Office of Environment and Heritage Contaminated Land Database
Attachment G: Protection of Environment Operations Act 1997 Public Register
Attachment H: List of NSW Contaminated Sites Notified to NSW Office of Environment and Heritage

LIMITATIONS

This report sets out the findings of a preliminary site investigation by Geo-Logix. A detailed site assessment is required before any conclusions may be drawn as to the:

- presence, identity and extent of specific substances, or
- suitability of the Site for any specific use, or category of use, or
- approvals, if any, that may be needed in respect of any use or category of use, or
- level of remediation, if any, that is warranted to render the Site suitable for any specific use, or category of use.

This report should be read in full, and no executive summary, conclusion or other section of the report may be used or relied on in isolation, or taken as representative of the report as a whole. No responsibility is accepted by Geo-Logix, and any duty of care that would or may arise but for this statement is excluded, in relation to any use of any part of this report other than on this basis.

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The works undertaken by Geo-Logix are based solely on the scope of works, as agreed by the Client (**Scope of Works**). No other investigations, sampling, monitoring works or reporting will be carried out other than as expressly provided in the Scope of Works. **A COPY OF THE SCOPE OF WORKS IS AVAILABLE ON REQUEST.**

The conclusions stated in this report are based solely on the information, Scope of Works, analysis and data that are stated or expressly referred to in this report.

To the extent that the information and data relied upon to prepare this report has been conveyed to Geo-Logix by the Client or third parties orally or in the form of documents, Geo-Logix has assumed that the information and data are completely accurate and has not sought independently to verify the accuracy of the information or data. Geo-Logix assumes no responsibility or duty of care in respect of any errors or omissions in the information or data provided to it.

Geo-Logix assumes no responsibility in respect of any changes in the condition of the Site which have occurred since the time when Geo-Logix gathered data and/or took samples from the Site on its site inspections dated **2nd April 2012**.

Given the nature of asbestos, and the difficulties involved in identifying asbestos fibres, despite the exercise of all reasonable due care and diligence, thorough investigations may not always reveal its presence in either buildings or fill. Even if asbestos has been tested for and those tests' results do not reveal the presence of asbestos at those specific points of sampling, asbestos or asbestos



containing materials may still be present at the Site, particularly if fill has been imported at any time, buildings constructed prior to 1970 have been demolished on the Site or materials from such buildings have been disposed of on the Site.

Geo-Logix has not investigated any off site conditions, including the extent if any to which substances in the Site may be emanating off Site, and if so whether any adjoining sites have been or may be impacted by contamination originating from the Site.

Geo-Logix has prepared this report with the diligence, care and skill which a reasonable person would expect from a reputable environmental consultancy and in accordance with environmental regulatory authority and industry standards, guidelines and assessment criteria applicable as at the date of this report. Industry standards and environmental criteria change frequently, and may change at any time after the date of this report.

REFERENCES

Geo-Logix (2011) *Phase I Environmental Site Assessment Report – Proposed Masters Home Improvement Store – 120-188 Hawkesbury Valley Way, Clarendon NSW*, 4th May 2012 (Geo-Logix Report 1201022Rpt01FinalV01_04May12).

Geological Survey of New South Wales (1991), *Penrith 1:100,000 Geological Sheet 9030, 1st edition*. Geological Survey of New South Wales, Sydney.

Google (2012). *Google Earth interactive map*, Clarendon, NSW.

NSW Government (2012) *NSW Natural Resource Atlas*, <http://www.nratlas.nsw.gov.au>. Accessed 16/03/2012.

New South Wales Land and Property Management Authority *Aerial Photographs (Clarendon) 1947, 1961, 1970, 1982 and 1994*.

OEH (2012) *Contaminated Land Record search*, <http://www.environment.nsw.gov.au/prclmapp/searchregister.aspx>. NSW Government. Accessed 13/07/2012.

OEH (2012) *List of NSW Contaminated Sites Notified to OEH as at 13/07/12*. NSW Government.

OEH (2012) *POEO Public Register search*, <http://www.environment.nsw.gov.au/prpoeoapp/>. NSW Government. Accessed 13/07/2012.

ATTACHMENT A

ATTACHMENT B

ATTACHMENT C

ATTACHMENT D

ATTACHMENT E

ATTACHMENT F

ATTACHMENT G

ATTACHMENT H