JUBILEE WORKS, GORTON, MANCHESTER

DESK STUDY

FINAL

R1061/06/2911

APRIL 2006

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EXECUTIVE SUMMARY

Introduction	CELTIC Technologies Ltd (CELTIC) have been commissioned by Countryside Properties to provide an interpretative desk study report on the site at Jubilee Works, Gorton, Manchester.
Site Setting	The Jubilee Works site is roughly square in shape and consists of one large two-storey building located centrally in the site with several smaller out buildings adjoining and surrounding it. The site is surrounded by residential properties with a tower block to the south and a health clinic to the north east.
Geology, Hydrogeology and Hydrology	Information sources suggest the geology beneath the site is likely to comprise Made Ground underlain by low permeability drift deposits, with the Upper Permian sandstones beneath. The Upper Permian sandstones are classified as a major aquifer of high vulnerability.
Site History	The site was developed by 1908 and referred to as the Gorton Wadding Works. Over the following 98 years the main structure of the central building appears to have remained unchanged, with more adjoining and surrounding buildings being built on the site. The Ashton Canal adjacent to the site, and a reservoir and canal basin within the site, were in-filled during the 1960's/1970's and most of the surrounding area has been developed during the 1900's for residential use. There is evidence of two external fuel oil tanks associated with the site.
Qualitative Risk Assessment	The site has been occupied by potentially contaminative industries for over 100 years and has two areas of potentially thick Made Ground of unknown origin in the western and northern parts of the site, associated with an in-filled former reservoir and canal basin. The site is underlain by a major aquifer and until site investigation has been undertaken at the site the viability of pathways between any site contaminant sources and groundwater is not known. Should the site be redeveloped risks to future site occupants, buildings and services could exist via a number of pathways. Based on CELTIC's assessment the site is classed as 'moderate' risk and site investigation will be required to confirm the site conceptual model, delineate contaminant sources and determine the requirements for remediation prior to redevelopment. Some site buildings are clad in potentially asbestos containing materials and a Type 3 asbestos survey will be required prior to demolition.

1.0 INTRODUCTION

1.1 General

CELTIC Technologies Ltd (CELTIC) has been commissioned by Countryside Properties (Northern) Ltd to provide an interpretative desk study report on the site at Jubilee Works, Gorton, Manchester.

1.2 Report Format

This report contains information on the following items as appropriate:

Section 2 *Site Setting*

Section 3 *Geology, Hydrology and Geology*

Section 4 *Site History*

Section 5 *Statutory Authorities and Information Sources*

Section 6 *Draft Conceptual Site Model and Qualitative Risk Assessment*

Section 7 *Conclusions*

A site location plan and photographs of the site are presented in Appendix A with historical maps in Appendix B.

2.0 SITE SETTING

2.1 Site Location and Description

The site is situated at Grid Reference 389090, 396630 and is accessed from Constable Street to the east, as shown on drawing D1060/2911/A1 (Appendix A).

2.1.1 Site Description

The site is roughly square in shape and is currently occupied by one large two-storey building located centrally in the site, with several smaller out buildings adjoining and surrounding it. It is bordered by Western Street to the north, Constable Street to the east and south, and a footpath to the west.

The site is surrounded by residential properties with a tower block to the south and a health clinic to the north east.

The site is currently used for manufacturing various types of large commercial trailers such as fast food and show stands.

2.1.2 Services, Plant and Equipment

Services plans provided by the client indicate the positions of BT, electrical, water and sewer services on-site. It is likely that other services are present on site and investigation locations should be cleared prior to intrusive works.

3.0 GEOLOGY, HYDROGEOLOGY AND HYDROLOGY

3.1 Geology

The geology of the site is summarised in Table 1 below. The information is based on 1:50,000 British Geological Survey (BGS) Solid and Drift geological mapping sheets provided by the BGS together with an assessment of any other available geological information.

Table 1 - Summary of Site Geology

Geological Unit and Lithology
Made Ground fill material Likely to be highly variable in thickness and composition.
Drift Deposits Low permeability
Solid Geology Permian sandstones. High permeability formation.

The exact thickness of these units at the site location is unknown, as no previous site investigations have been conducted. The Envirocheck report indicates that there are no records of any issues associated with the artificial ground beneath the site, and no landslips have been reported within a 1km radius.

A coal mining report on the site from the Coal Authority states there is no potential for mining related ground stability hazards.

The Envirocheck report states that the potential for landslide ground stability hazards, running sand ground stability hazards and the potential for shrinking and swelling of clay ground stability hazards are very low. The Envirocheck report states that the site does not lie within a radon-affected area.

There are no sensitive land uses at the site.

3.2 Hydrogeology

The hydrogeology of the site is summarised in Table 2. The information presented is based on an assessment of the available BGS geological information and the EA Groundwater Vulnerability Sheet for the area.

Table 2 - Summary of Site Hydrogeology

Geological Unit	*Aquifer Classification*	*Aquifer Description and Characteristics*	*SPZ*	*Groundwater Abstractions*
Made Ground	Non - Aquifer	N/A	No	-
Drift Deposits	Not Recorded	Likely to be highly variable permeability with small yields	No	-
Upper Permian Sandstones	Major Aquifer	These are highly permeable formations usually with a known or probable presence of significant fracturing.. They may be highly productive and able to support large abstractions for public water supply and other purposes.	No	None within 1 km of the site.

Notes: SPZ = Source Protection Zone.

The Groundwater Vulnerability sheet shows the soils beneath the site are classified as having a high leaching potential (U). Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worse case vulnerability classification of (H) is therefore assumed for these areas, until proved otherwise.

There is no site-specific data on the quality or direction of groundwater flow at the site, however locally groundwater flow is likely to be towards the south.

No groundwater abstractions are recorded within 1 km of the site and the site is not recorded as being located within a Source Protection Zone.

3.3 Hydrology

A summary of the localised hydrology is presented in Table 3 below. The information provided is based on available information from the Environment Agency, Landmark Information Group and OS Mapping.

Table 3 - Summary of Localised Hydrology

Water Course	*Distance from site*	*Description**	*GQA Grade***	*Abstraction*	*Discharge*
Chorlton Brek	Approximately 641m south.	Flow < 0.31cumecs	B	There are no Licensed water abstractions within 1 km	No consents for process water discharges are recorded.

Notes: * Based on information obtained from the EA and Landmark Information Group. ** GQA – General Quality Assessment Scheme based on EA biological and chemical scheme. Watercourses are graded from A to F (A being 'Very Good' and F being 'Bad').

As well as Chorlton Brek, the Gorton Lower Reservoir 400m is located to the south east of the site and the Ashton Canal 600m to the northeast.

4.0 SITE HISTORY

4.1 Historical Development

The historical summary of the site and surrounding land is based on historic Ordnance Survey (OS) plans and is detailed below.

Table 4 - Summary of Land Use History

Date *	*Information Source*	*Kenyon Road Site*
1848	OS Map Scale 1:10,560	Site is undeveloped open land adjacent to Manchester and Ashton Canal and north of the Gorton Cotton Mill, the main feature of the area.
1892	OS Map Scale 1:2,500	There is a reservoir located within the western part of the site adjacent to the canal and a canal basin running off the canal in the northern part of the site. There is a small row of terraced mill houses on the south of the site, along Rylands Street.
1895	OS Map Scale 1:10,560	No significant changes to the site or to the surrounding land use.
1908	OS Map Scale 1:2,500	Gorton Wadding works is main building shown in the centre of the site and another row of terraced houses appears on the southeast of the site, along Constable Street. There is substantial residential development to the southwest and northeast of the site.
1922	OS Map Scale 1:2,500	No significant changes to the site but more residential development to the north and a school to the southeast
1950	OS Map Scale 1:2,500	The reservoir on the west of the site adjacent to the canal has been filled and Gorton Cotton Mill to the south of the site has been demolished. There is more residential development to the west and the northeast.
1968	OS Map Scale 1:2,500	No significant changes to the site. The Manchester and Ashton canal is beginning to be infilled in to the north.
1978	OS Map Scale 1:2,500	The canal basin, on the north of the site, and the adjacent length of the canal have been filled. The former position of the reservoir is now been overbuilt by the warehouse building that exists to present. The row of terrace house immediately to the south of Rylands Street has been demolished. A residential tower block is built adjacent to the south of the site and a community centre is built adjacent to the northeast.
1981	OS Map Scale 1:10,000	No significant changes to the site or to the surrounding land use.
1992	OS Map Scale 1:10,000	No significant changes to the site or to the surrounding land use.
1999	OS Map Scale 1,1,250	No significant changes to the site or to the surrounding land use.

The site buildings were constructed by 1908 and the review of historical maps shows that the structures and locations of buildings have remained mainly unchanged to this day with the addition of a few adjoining or surrounding smaller buildings. A reservoir and canal basin existed historically within the site boundaries and have been in-filled overtime with materials of unknown origin.

Envirocheck Report notes the existence of one registered landfill site and 3 licensed waste management facilities within 1000m of the site.

4.2 Contaminative Site and Surrounding land Uses

The site has been occupied for approximately 100 years by a works that was historically a wadding works but has more recently been used for light engineering purposes. A site visit revealed the presence of two large above ground fuel oil tanks. One of these tanks is located within a bunded area in the southwest corner of the site whilst the other is inside a small brick building, just south of the main site entrance. There is also a fuel oil dispensing pump for refuelling plant in the southwest corner area of the site. At several other locations on the site drums of oil, fuel and glue appeared to be being stored in non bunded areas. The site is currently used for manufacturing various types of large commercial trailers such as fast food and show stands. This involves metal fabricating, welding, fibreglass construction and paint spraying.

With the exception of the Gorton Cotton Mill to the south of the site, historical maps suggest that the area surrounding the site has not been heavily industrialised.

5.0 DRAFT CONCEPTUAL MODEL AND QUALITATIVE RISK ASSESSMENT

The site geology is characterised by Made Ground which is likely to be of variable thickness and composition as a result of in-filling of a former reservoir and canal basin on-site. The Made Ground is underlain in turn by low permeability drift and sandstones that are classed as a major aquifer.

The site was occupied by a wadding works and Department of the Environment publications suggests that for mill structures contamination investigations should examine concentrations of metals, surfactants, chloroform, fatty acids and greases, formaldehyde, phosphates, nitrates, sulphates and pentachlorophenol, a common wood preservative. Currently fuel oils as well as mobile materials (e.g. paints) used for light industrial manufacturing are stored on site.

Several buildings are clad by potentially asbestos containing materials.

Potentially active pathways from any contaminant sources at the site to the underlying aquifer could include migration of free phase hydrocarbons or leaching from the Made Ground. The extent to which the drift deposits might protect the aquifer from vertical migration of contaminants is currently unknown.

A number of pathways to human health would potentially be active depending on the nature of the proposed redevelopment and potential risks to buildings and services would also require assessment. A Type 3 asbestos survey would be required prior to demolition of the site buildings.

From an assessment of the desk study information, we would consider this site as representing a 'moderate' environmental risk.

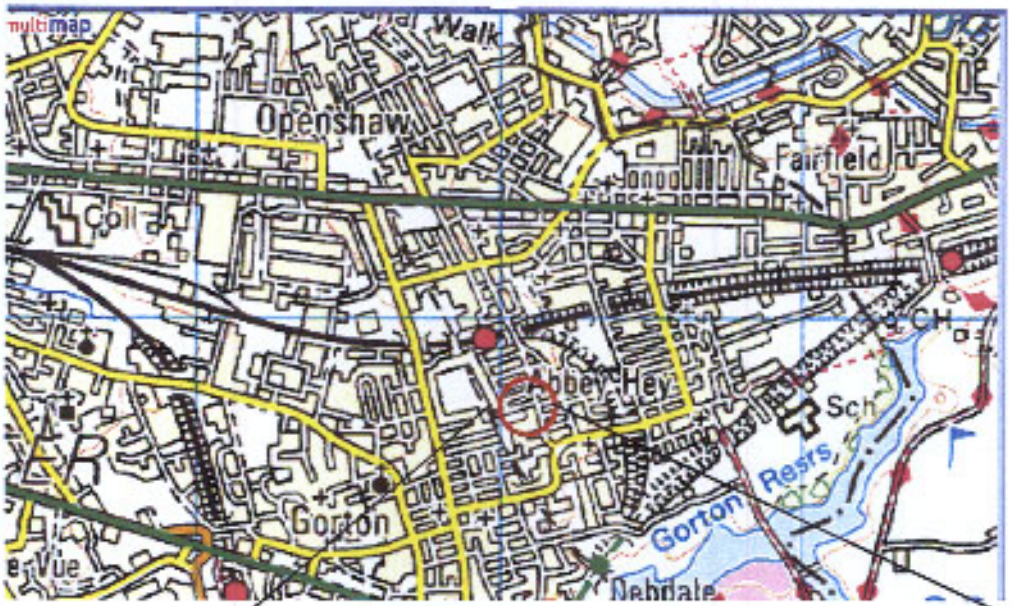
6.0 CONCLUSIONS

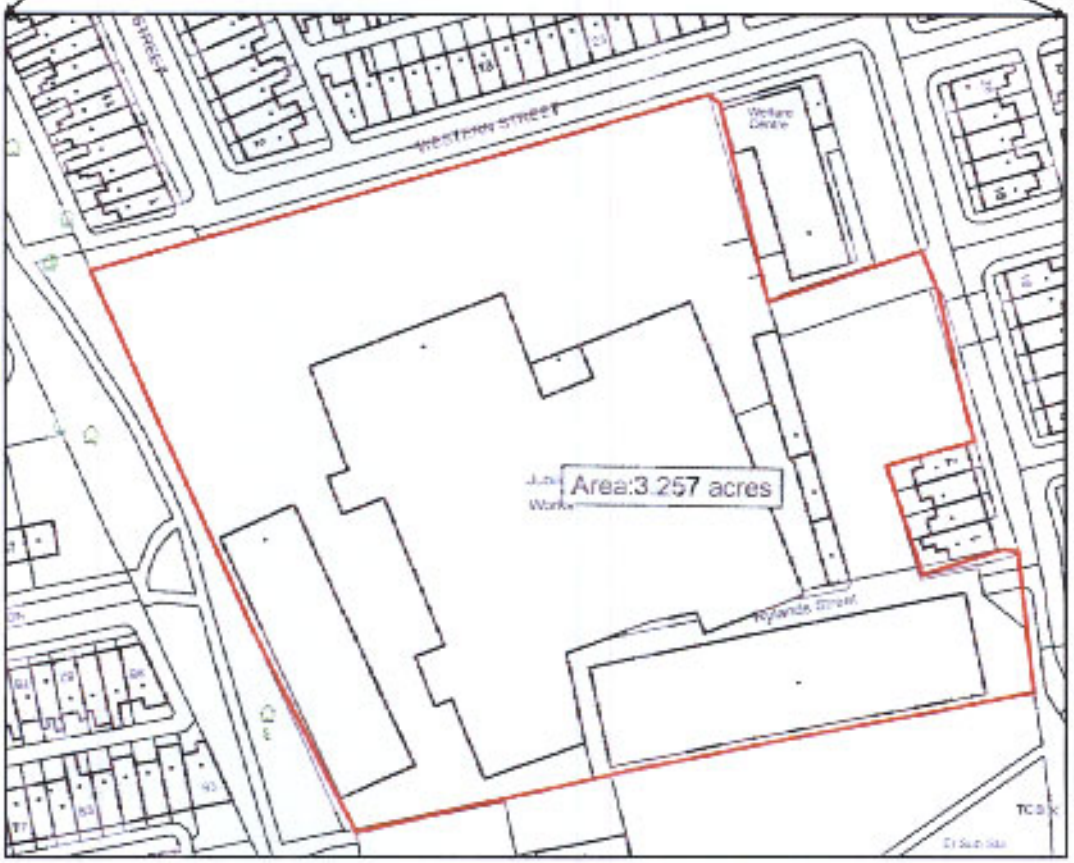
Within the current regulatory framework it will be necessary to demonstrate to the Planning Authority (and hence the Environment Agency) that the site does not present a risk to future site users or controlled waters.

Based on the desk study information the site is classed as 'moderate' risk due to the current and historical storage of hydrocarbons at the site, the presence of a former reservoir and canal basin that have been filled with materials of unknown origin and the location of a major aquifer beneath the site.

Intrusive site investigation will be required prior to redevelopment to determine the presence of contaminant sources, assess the viability of pathways to the underlying aquifer and assess risks to future site occupants. A Type 3 asbestos survey will be required prior to demolition of the site buildings.

APPENDIX A





Date: April 2006	Scale: NTS	Title: Site Location
CELTIC		Client: Countryside Properties
		Project: Jubilee Works — Job No.: C1061
		Figure : D1061/2911/A1



Date: April 2006	Title: Views of Site



Date: April 2006	Title: Site building
CELTIC	Client: Countryside Properties
	Project: Jubilee Works — Job No.: C1061
	Figure :



Date: April 2006	Title: Bunded Fuel Oil Tank



Date: April 2006	Title: Drum Storage	
CELTIC	Client: Countryside Properties	
	Project: Jubilee Works	Job No.: C1061
	Figure :	