PRELIMINARY RISK ASSESSMENT

FOR

NEW BASEMENT LEVEL BENEATH REAR SERVICE YARD

AT

No 10a Belmont Street
Camden
London NW1

Date: April 2015

Revision: -

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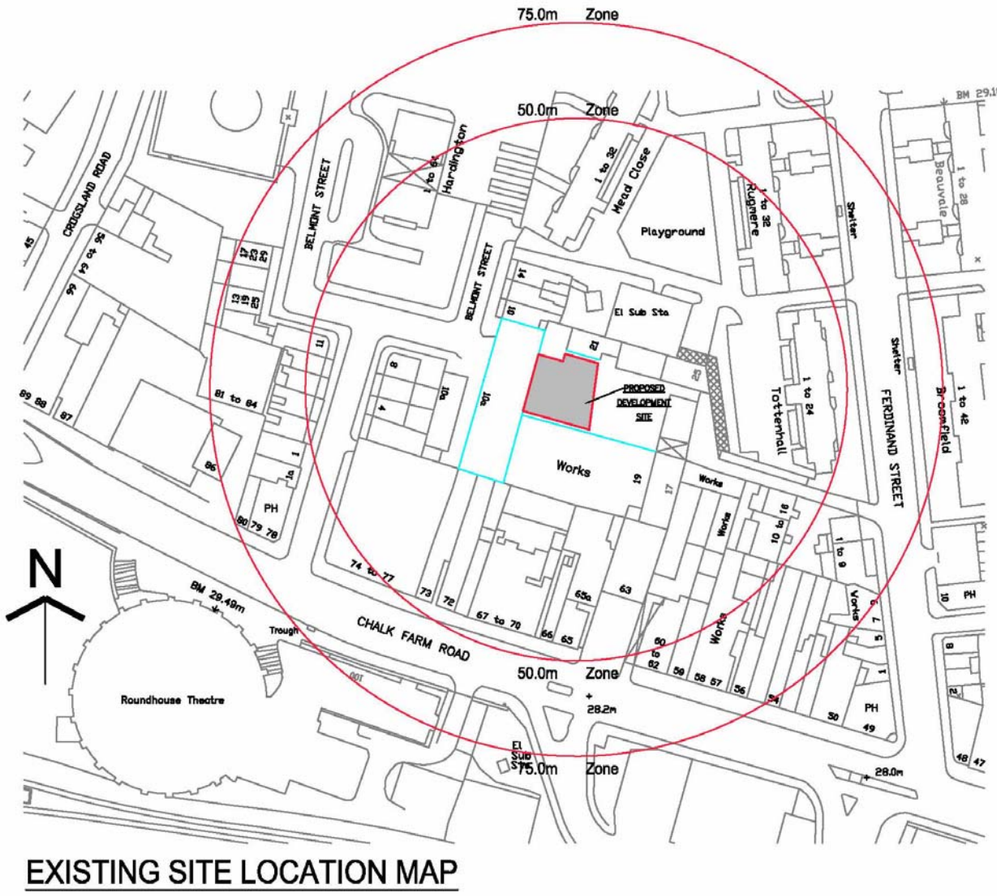

EXISTING SITE LOCATION MAP

Fig. 1: Proposed Site Location

1.0 INTRODUCTION & CONTEXT

Pringuer-James Consulting Engineers (PJCE) were appointed by Risetall Ltd. as the Structural/Civil Engineers for the proposed excavation for basement level beneath rear service yard at No.10a Belmont Street, Camden.

As part of the project brief PJCE are required to provide assistance on the structural and civil engineering aspects of the proposed project including the preparation of a Preliminary Risk Assessment (PRA) to be submitted in order to discharge the planning conditions specified by the planning authority.

The PRA has been prepared in accordance with the current guidelines set-out by London Borough of Camden Planning Department (LB Camden). These guidelines are based on a report prepared by the Environment Agency, *Model Procedures for the Management of Land Contamination, Contaminated Land Report 11*, which outlines the necessary format and requirements of a risk assessment for any development affected by contamination.

There are four critical steps identified in the CLR11 document which must be followed in each risk assessment carried out for a proposed development. The basic steps include:-

I) Hazard Identification
II) Hazard Assessment
III) Risk Estimation
IV) Risk Evaluation

The PRA prepared by PJCE is formatted on this basis with the development of a conceptual model which outlines the location, nature and extent of the site and its surroundings. The model is intended to determine any possible contaminants, pathways, and receptors which could form a “pollutant linkage”. In doing so, the conceptual model provides a tool with which the potential risk of any contamination can be evaluated and the need for further detailed assessment determined. Should the PRA findings conclude that there is a potential risk of contamination, an agreement will be required between all parties as to the nature and extent of further assessment and any remediation measures.

The proposed development at No.10a Belmont Street involves the excavation for a single storey basement part below an existing 5 storey extension and part below a service yard. Above ground floor level the main building to Belmont Street contains seven storeys of residential apartments.
The PRA has been undertaken for the development at No10a Belmont Street in order to establish the possibility of contaminated land and subsequently determine the associated hazards and the potential risks to existing and future users.

Contaminated land is defined in Part 2A Environmental Protection Act 1990 as follows:

> *“Contaminated land is any land which appears to the local authority in whose area it is situated to be in such a condition, by reasons of substances in, on or under the land, that*
> - *Significant harm is being caused or there is the significant possibility of harm being caused; or*
> - *Pollution of controlled waters is being caused, or is likely to be caused.”*

This definition refers to contamination caused by past uses of a site, including former factories, mines, steelworks, refineries and landfills.

INFORMATION OBTAINED AS PART OF PRELIMINARY ASSESSMENT		
HISTORY OF THE SITE, PREVIOUS BOUNDARIES, USES AND USERS:		
Past and current editions of Ordnance Survey Maps		
Past editions of town and local plans		
Various generations of aerial photographs		
Local planning authority and other statutory records		
Local historians and history societies		
Documentary evidence from existing or previous occupiers/owners (private and industrial archives)		
ACTIVITIES ADJACENT TO THE SITE:		
Landfills		
Contaminative processes		
NEARBY WATERCOURSES, WATER EXTRACTION & DISCHARGE		
Sites of special scientific interest, other designated sites and sensitive environmental features		
Geology, hydrogeology and surface water courses and rising groundwater		
Borehole records		

Table 1: Information Obtained

2.0 OBJECTIVES

The objectives of this report are

- to establish the history of the site and its environs, and what is its environmental setting?
- to check the likelihood of the presence of contamination that may affect the suitability of the site for the proposed use as office space and residential apartments.
- to indicate the nature and effect, pathways and receptors of any potential contamination
- to identify special precautions and procedures to be taken during operations on the site itself (such as site visits and investigations)
- to provide information from which an effective site investigation could be designed should this be required

3.0 INFORMATION COLLATION

Scope of work and study limitations
The desk study carried out as part of this preliminary risk assessment has been prepared primarily for the site at Belmont Street with additional information included where available to ascertain the extent of potential contamination in the surrounding area.

The study is limited to information available from the following sources:

- Environment agency http://www.environment-agency.gov.uk
- Camden council http://www.camden.gov.uk
- Old-maps http://www.old-maps.co.uk/index.html
- Britain from above http://www.britainfromabove.org.uk
- British Geological Society http://www.bgs.ac.uk/home.html
- Department of Environment, Food & Rural Affairs (DEFRA) https://www.gov.uk/
- CIRIA http://www.ciria.org
- Site Investigation undertaken by Soil Consultants Ltd.

Information relating to the potential contamination as a result of the processes and history of the site is based on typical industry profiles documented by the Department of the Environment and are subject to variation as a result of site specific procedures and historic procedures which have become outdated during the lifetime of the building.

4.0 INFORMATION ASSESSMENT

Characteristics & History of the Site

The site is located in Camden to the rear of number 10a Belmont Street and is beneath service yard for the neighbouring properties. The gross external area of the proposed basement is approximately 280 sq. metres. The extent of the current proposals site boundary is as indicated in Fig. 01.

The property at No.10a Belmont Street faces West onto Belmont Street and is bounded by Chalk Farm Road to the South, Ferdinand Street to the East and Mead Close to the North.

Beyond the immediate boundaries outlined above, the site is also bounded by a number of railway lines. To the north and east by a north-south running line which is approximately 270m from the nearest boundary. To the south by a second national railway line, approximately 95m from the site outline. The railway line to the south runs in an east-west direction, and the train line to the north runs from an intersection 310m due east in a north-westerly direction. Euston Railway Station is located approximately 1.75km to the south-east of the site.

The Northern tube line is located below Chalk Farm Road running from Chalk Farm Tube Station, 300m to the West of the site, to Camden Town tube station, found 1.3km to the south-east of the site. The underground line between the two stations is found approximately 50m to the south of the site.

The site is located in a predominantly residential setting offset from a main road leading down to Central Camden. Within the immediate vicinity of the site, the surrounding properties are comprised of a mix of terraced residential houses to the north and west, commercial/retail units to the south and office/administration space within the adjacent courtyard area on the eastern boundary. Further east beyond the courtyard, Ferdinand Street is found and again the road and general area consist of terraced housing and multi storey council owned apartment buildings and some small retail and commercial premises concentrated towards the Chalk Farm Road

The existing building of 10A Belmont Street is originally five storeys high, with a further two storeys and new basement added in recent times to the original building footprint. An additional five storey extension has been added to the eastern side of the original building which protrudes into the central courtyard area. With the new basement level proposed further into the courtyard and under the 5 storey extension.
The historical use of the site is clearly defined from review of the readily available sources of information including:

- Camden Council's historic Land Use Tool
  This tool has presented some of the more accurately documented information with the following uses identified for the site itself:

  Historical land uses found to have taken place at, or within 25 metres of:
  10 Belmont Street London NW1 8HH

  Historical land use

1894-1896:	Piano Works
1909-1922:	Piano Works
1934-1939:	Piano Works
1952-1954:	Piano Works
1952-1955:	Piano Works
1965-1971:	Piano Works

- Historical Aerial Photographs
  Examination of the photographic information available from the photographic archive website Britain From Above suggests that the original five storey building has existed as far back as 1920 and has been noted as "Chappells Piano Factory" throughout the 20th century. The area above the proposed new basement appears to be service access to the factory.

- Historical Ordnance Survey Information
  Review of the documented mapping information for the Camden Town area and specifically the site at No.10a Belmont Street reinforces the previously noted historical land use as a "Piano Works" and is identified as such as far back as 1873. The building and again the notation of a "Piano Works" is again identifiable on mapping data available for 1895, 1916, 1954-1955, 1972-1976 and finally 1990-1996. With each revision to the maps of the area it is noticeable that the area undergoes quite a substantial level of development over the previous 100 years.

  Beyond the extent of the site, the historic land use for the surrounding area is indicated on the historic maps reviewed as part of the preliminary risk assessment.

  (Belmont Street - 1873)
  As far back as 1873 the surrounding area contained:
  A racket court within the courtyard at the rear of the property
  A billiard saloon to the south of the courtyard, accessed from the courtyard and Chalk Farm Rd
  A public house along Chalk farm Rd
  A school to the west of the boundary.

  (Belmont Street - 1895)
  Moving forward approximately 23 years up to 1895, the existing piano works building is again identified on historic mapping information. The Chalk Farm Road/Adelaide Road junction has become more heavily developed with a noticeable development of the railway yard, coal depot and associated tracks to the south of Belmont Street. To the west, the previously noted school is found, and in addition a Salvation Army Barracks in amongst a series of terraced housing developments.

  To the north, the previously underdeveloped area now known as the Prince of Wales Road has seen large scale development of a factory and some additional residential units. The factory identified is known to be the Malden Factory, which was predominantly occupied by the company George Rowney & Co. among other small industrial units. The Rowney Company was mainly involved in the production and manufacturing of Oil & Water Colour Based Paintings, with a minor element of perfume and wig powder processes known to have been carried out by the company.

  Looking closer to the site, the central courtyard area has been developed with an indication that the piano works has assumed a greater scale and has extended around the courtyard to the south.

  (Belmont Street - 1916)
  At the early part of the 20th century, the Camden area is again noted to have experience a further amount of development, but this is deemed to be typically confined to the development of residential properties, with the previously noted, school, barracks, factory, railway and coal depot again identified on the Ordnance mapping for the era. Similarly the courtyard and site at Belmont Street is again noted as a "Piano Works"

  (Belmont Street – 1954-1955)
  The development of the Camden area between the early 1900's through to the mid 1950's appears to be limited to minor scheme development, the Malden Factory is again found to the north, school and barracks found to the west, railway and high street commercial units to the south and office, residential and commercial properties to the east. The courtyard area to the rear of the existing site again shows signs that the predominant use of the site and courtyard is for the "Piano Works".

  (Belmont Street – 1960's)
  Archive documentation relating to the Malden Factory located to the north of the site, indicates that during the early 1960's the factory was demolished and the site was subsequently redeveloped by the local council. The site was developed to cater for the increased demand for housing as a result of the thriving nature of the Camden area. The old factory was replaced with a large scheme of council apartment blocks named the "Denton Estate" containing something in the region of 13 large high rise apartment blocks and associated hard landscaping to the surrounding area.

(Belmont Street – 1972-1976)
Historical ordnance planning documentation for the Belmont street area during the early to mid 1970's shows evidence of much of the previous documented buildings, including the schools to the west, high rise council blocks to the north, high street commercial units along Chalk Farm Road to the south, and further south again, the goods warehouse and train depot with multiple railtracks. In addition to the historic building and their use, a synagogue is indicated to the south west of Belmont Street. Much of the residential properties are noted again, with the prevalence for terraced housing maintained alongside the local council high rise apartment blocks.

(Belmont Street – 1990-1996)
With the rate of development previously undergone in the Camden area, the accessibility to development sites and feasibility thereof appears to have slowed. This is evidenced by the similarity in the mapping data between the period of the mid 1970's and the early 1990's. In all likelihood the lack of availability would have seen a propensity to redevelop existing buildings and the extension upwards with additional storeys onto existing buildings, and possibly downwards with basements.

Environmental Setting of the Site
Given the size of the site, at just under o.15acres it is necessary to review the environmental characteristics of the site across a wider context in order to adequately determine the environmental setting of the site. In classifying the environmental setting of the site the following sources of information have been used:

Environment Agency
British Geological Society
Camden Council
Department of Environment (Induustry Profiles)

The environmental setting of the site is based on a number of contributory factors which when combined serve to provide a platform from which anticipated ground conditions can be assumed and their susceptibility to various external influences can be measured. In addition from these environmental characteristics, the potential for any possible pathways and thus receptors forming a pollutant linkage can be tentatively identified.

Landfill
At present the environment agency information indicates that there re are no readily identifiable landfill sites within the surrounding areas of the Belmont Street Site. The various historic landfill sites for the region are provided in appendix A with mapping data provided over a range of scales from 1:20,000 to 1:75,000. The landfill sites identified by the EA mapping are tabulated below and in appendix A also, with the relevant dates for the known dumping of material to the sites identified.

Site name	Site address	First waste received	Last waste received
Mitford Road	Finsbury Park	31 Dec 1993	31 Dec 1994
Rosoman St. / Skinner St.	Finsbury	31 Dec 1975	31 Dec 1978
Canfield Place	London NW6	-	-
Hendon Way	Tilling Road, Brent Cross, Barnet	31 Dec 1975	31 Dec 1984
Claremont Way	Templehof Avenue, Brent Cross, Barnet	31 Dec 1960	31 Dec 1980
Former Lea Bridge Aqueduct	Lea Bridge	01 Jan 1988	31 Mar 1989
Lea Bridge Depot Site	Lea Bridge	01 Jan 1986	30 Apr 1986
Lea Bridge Road Playing Fields	Lea Bridge Road	31 Dec 1940	
Albion Dock	Rotherhithe, Bermondsey, London	-	31 Dec 1975
Island Dock	Rotherhithe, Bermondsey, London	-	31 Dec 1975

The landfill sites identified as part of the initial information collation phase of this assessment would suggest that the sites are not within sufficient proximity to the development site at No.10a Belmont Street to represent a potential source of contamination and thus would not be deemed to form part of any potential pollutant linkage to be assessed further.

Pollution - Incidents & Processes (10a Belmont Street)
The various processes and materials which contribute to the contamination of land are well documented with a series of industry profiles prepared by the DoE. The relevant processes envisaged as part of the historic use of the property at No.10a Belmont Street are tabulated below. While the previous history of the property ("Piano Works") would suggest that the classification of the site as a Timber Products Manufacturing process is suitable, it is noted in the Industry Profile that the typical contaminants identified are more onerous than those encountered for a typical furniture manufacturing process.

Pollution - Incidents & Processes (Belmont Street - Camden Region)
The known sources of contamination within the Chalk farm Road area of the Camden borough are identified on Environment Agency mapping data and provided in Appendix B of this document. In addition to the processes identified, a more in depth tabulated version of the processes is provided which identifies the process type, discharge characteristics, and the permitted levels of discharge for each component. Any discharge levels beyond those permitted are then classified as notifiable.

The predominant industrial process identified in the surrounding area of Camden town and the Belmont Street area is that of the radioactive industry. This is primarily a result of the number of medical facilities (research and hospital) in the borough.

In addition to the relatively high volume of radioactive processes in the area, the lack of additional industrial processes based on the chemical or manufacturing industry evident in the area can likely be attributed to a combination of factors such as:

- the predominantly residential nature of the area and notably during the formative years from the 1890's to the 1920's which served to limit the availability for industrial development and gave rise to a more pressing need to provide a residential capacity in the area.
- the willingness of the planning departments throughout the years to accept the responsibility to maintain the environmental setting and protect the residents in the area from industrial process and its inevitable pollutant discharges.

MAIN GROUPS OF CONTAMINANTS AND THEIR PROBABLE LOCATIONS – INDUSTRY PROCESS #1

Timber Products Manufacturing Works

Main Groups Of Contaminants	LOCATION								
	Raw Materials/ Delivery/Storage/Transfer	Process Plant		Products Storage	DrainageSystem Including soakaways	Fuel Stroage/Boilers/ Power Generation	Waste Disposal/ Incineration	Water Treatment Areas	Electricity Transformer Areas
		Panel Products	Solid Timber						
Metals and Metalloids									
Inorganic Compounds									
Acids/Alkalis									
Asbestos		1	1			1			
Organic Solvents Eg: White Spirit, Kerosene									
Preservatives									
Polychlorinated biphenyls(PCBs)		2							
Dioxons & Furans									
Fuels									

1 In building materials cladding and pipe insulation for example
2 In Hydraulic presses (older plants only)

Shaded boxes indicate areas where contamination is most likely to occur

MAIN GROUPS OF CONTAMINANTS AND THEIR PROBABLE LOCATIONS – INDUSTRY PROCESS #2

Timber Treatment Works

Main Groups Of Contaminants	LOCATION										
	Raw Materials/ Delivery/Storage/Transfer	Process Buildings		Products Storage/ Transfer	Wastes Storage	Waste Disposal	Process Pipework/Pumps	Drainage System including Soakaways	Fuel Storage/ Pipework	Electricity Transformer Areas	Effluent treatment Areas
		Pressure/Vacuum	Immersion								
Copper-Chromium-Arsenic (CCA) Solutions											
Asbestos							3				
Creosotes											
Light Organic Solvent Solutions[1]											
Tars											
Polychlorinated Biphenyls (PCBs)											
Fuel Oil/Coal/Ash											
Effluent Ttreatment Chemicals/Sludge											

1 Including additives
2 Larger Plants Only
3 Steam Mains

Shaded boxes indicate areas where contamination is most likely to occur

MAIN GROUPS OF CONTAMINANTS AND THEIR PROBABLE LOCATIONS – INDUSTRY PROCESS #3

Chemical Works – Coatings (Paints & Printing Works) Manufacturing Works

Main Groups Of Contaminants	LOCATION									
	Raw Materials/ Delivery/Storage/Transfer	Process Buildings	Products Storage	Waste/rejects Storage	Waste Disposal	Process Pipework/Pumps	Drainage System/ Soakaways	Effluent Treatment Areas	Fuel Storage/ Pipework/ Plant	Electricity Transformer Areas
Metals & Metalloids	■	■	■	■	■	■	■	■		
Inorganic Compoounds	■	■	■	■	■	■	■	■		
Acids/Bases	■	■		■	■	■	■	■		
Asbestos		■			■	■				
Organic compounds Eg: Aliphatic/aromatic hydrocarbons, halogenated solvents	■	■	■	■	■	■	■	■		
Fuels	■				■	■	■		■	
Polychlorinated Biphenyls (PCBs)										■
Effluent Ttreatment Chemicals					■			■		

1 Building Fabvric
2 Steam Mains

Shaded boxes indicate areas where contamination is most likely to occur

Hydrogeology
The hydrogeological attributes of the Camden region are widely documented by a number of sources including the British Geological Society and the Environment Agency and as a result the anticipated hydrogeological characteristics of the site at No.10a Belmont Street can be tentatively defined from the mapping data available. The hydrogeological characteristics are separated into a number of key criteria which define the nature of the groundwater in an area and the environs in which it exists. These include:

- the presence of aquifers and their productivity
- the geological features of an area and their ability to act as a conduit for groundwater.

A series of mapping data has been collated as part of this preliminary risk assessment in order to understand the hydrogeological characteristics of the area and thus establish the potential for the groundwater in the area to act as a pathway and contribute to the formation of a potential pollutant linkage.

Groundwater – Aquifers	(Productivity, Source Protection Zones & Vulnerability Zones)	
Classification:	Unproductive Strata	
Source Protection Zones:	None identified	(min 200m from site)
Vulnerability Zones:	None identified	(min >500m from site)
Groundwater - Geology		
Superficial Deposits:	None identified	(no permeable layers identified)
Bedrock Designation:	None identified	(no permeable layers identified)

Interpretation of the mapping data obtained would suggest that the site is contained within an unproductive layer of impermeable material with no evidence of any groundwater sources or indeed layers of superficial deposits which would form a secondary source of groundwater. Given the nature of the soil and its inherent characteristic to act as a naturally occurring impermeable material it is likely that there is a negligible potential for the underlying soil to act as a conduit for locally occurring groundwater and any contamination which may be contained and transported within.

Hydrology
The hydrological characteristics of the area are defined by the naturally occurring water features across the wider borough of Camden and the North London Region. These are supplemented by the manmade watercourses constructed through the years some of which run south of the Belmont Street site through central Camden.
The existing watercourses flowing across the Greater London area and through the Borough of Camden are identified in Appendix D. The maps provided identify the extent to which the rivers of London extend into the borough of Camden, particularly the northern region of the borough (Eg: Hampstead Heath Ponds).
When the location and flowpaths of the surface water features are considered in relation to the site at No.10a Belmont Street it is reasonable to consider that the surface water features noted have a very limited, if indeed any, interaction with the existing site. A review of the flooding data available from reports prepared by Camden Council serves to show that the Belmont Street area is not prone to flooding.

The identifiable lack of interaction between the naturally occurring surface water features and the indication that the site is not prone to flooding historically or in recent times suggests that the hydrological characteristics of the site and surrounding area do not serve to enhance the potential formation of a pollutant linkage by means of surface water flooding or accidental discharge into local watercourses.

Water Extraction/Discharge
In addition to the limited connectivity between the site and the surrounding surface water features, an additional potential pathway and receptor to be considered is the extraction of water from the ground. The presence of viable waterwells in the immediate vicinity would require examination of the transmissivity of the groundwater in the vicinity of the extraction point and the potential pathway which this could provide. Beyond this the usage of the extracted water would also serve to provide a potential range of receptors.

Examination of the information available regarding the water extraction points suggests that the waterwells identified in the area would not be influenced by potential contamination arising from the site at No.10a Belmont Street due to the nature of the impermeable material which forms the underlying stratum of the site.

In addition the distance between the site and the waterwells identified on the British Geological society mapping data would suggest that any potential source of contamination would be diminished by the time it had reached the extraction point of the wells identified.

5.0 CONCEPTUAL MODEL

Contaminants & Sources
The history of the site itself as part of a “piano works” represents the only recognizable potential source of contamination for the site and its surrounding environs. The nature and extent of potential contamination is tabulated in the industry profile developed by the DoE and serves as a relatively conservative list of possible contamination types.

Within the immediate site itself, the nature of the building is traditional brickwork and timber, with no building materials identified which would represent a potential source of contamination.

The future use of the building is to provide office space with residential accommodation to the upper floors. Potential sources of contamination arising as a result of these uses is negligible for the purposes of this preliminary risk assessment and are not considered sufficient to conclude that there is a reasonable risk of potential contamination which would lead to a feasible pollutant linkage.

In eliminating the potential sources of contamination to those as a result of previous land use only it is possible to reduce the number of pollutant linkages to those which would be formed as part of the industrial processes which have occurred within the site itself and across the nearby surroundings.

Pathways
The location of the site, the extent of historic development on the site and the current state of the site as a fully developed brickwork building from the late 1800’s to present day serves to limit the possible number of potential pathways through which contamination sources may be come in contact with any potential receptors.
The nature of the underlying soil, the natural hydrogeological characteristics of the area and the limited potential of any hydrological pathway forming reduce further the number of pathways from which to develop a feasible pollutant linkage.

Receptors
The proposed use of the property at No10a Belmont Street as office space with residential apartment accommodation to the upper floors establishes the obvious possible receptors which could possibly form a pollutant linkage, the future occupants of the property and the workers involved in the construction of the basement. Beyond the extent of the site, the potential receptors in the surrounding properties would not be expected to be affected by a change of use from light industrial/office to office and multi-residential property.

Additional potential receptors such as the building itself, the ground and surface water, and the local environments flora and fauna are not considered as legitimate receptors since it has previously been established that the building itself has been subject to more onerous use during previous years of occupation, the hydrogeological and hydrological characteristics of the site are limited in scale and nature and have little or no impact on the wider environment, and the built up nature of the area since the early to mid 1900’s has led to the elimination of any previous ecosystems and their inhabitants.

Identified Pollutant Linkages
Pollutant linkages identified as part of this preliminary risk assessment would include

Contaminants	Pathways	Receptors
Volatile organic compounds contained within the impermeable soil below ground floor level	human contact during excavation	construction workers

RISK ESTIMATION & EVALUATION

The potential risk of the pollutant linkage identified would be considered minimal and analysis of the trial pit and borehole investigation carried out as part of preliminary site investigations would suggest that there level of risk to the contractor in carrying out the excavation would be considered low. Furthermore the potential risk to the contractor could be reduced further by a series of investigative trial pits within the site as part of any enabling works to be carried out.

6.0 CONCLUSIONS & RECOMMENDATIONS

Following a desk study and preliminary geotechnical site investigation carried out as part of a Preliminary Risk Assessment for the development at No. 10a Belmont Street, it is considered reasonable to conclude that the development of a pollutant linkage by means of a potential source of contamination, suitable pathway and subsequent receptor is not sufficient to require further assessment of the site at No.10a Belmont Street, London.

Whilst it is reasonable to conclude that no further assessment is required, it is recommended that the proposed works on site are carried out with the required due care and diligence with which a development on an existing site should be undertaken in order to ensure the safety and wellbeing of the users on site.

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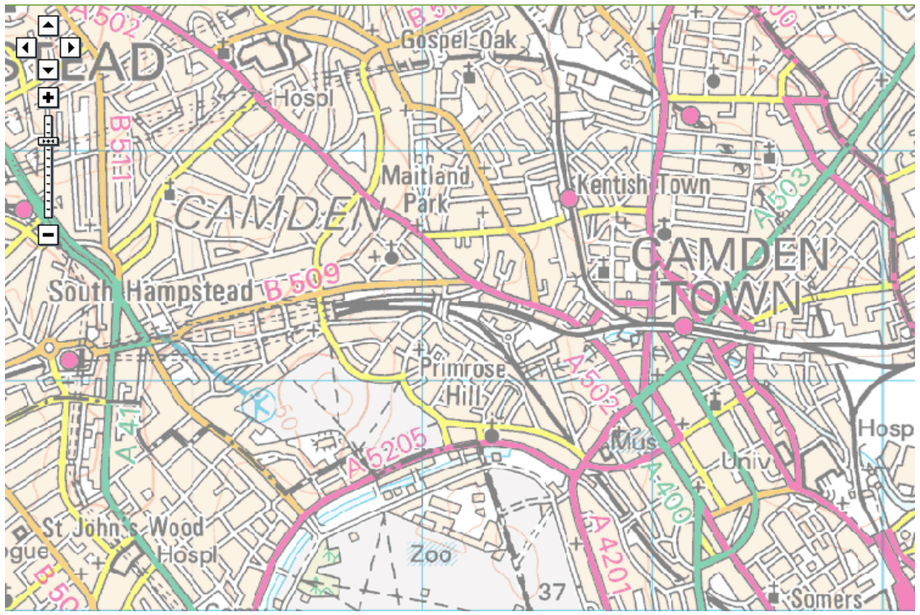
Date	:	02nd April 2015
Revision	:	-

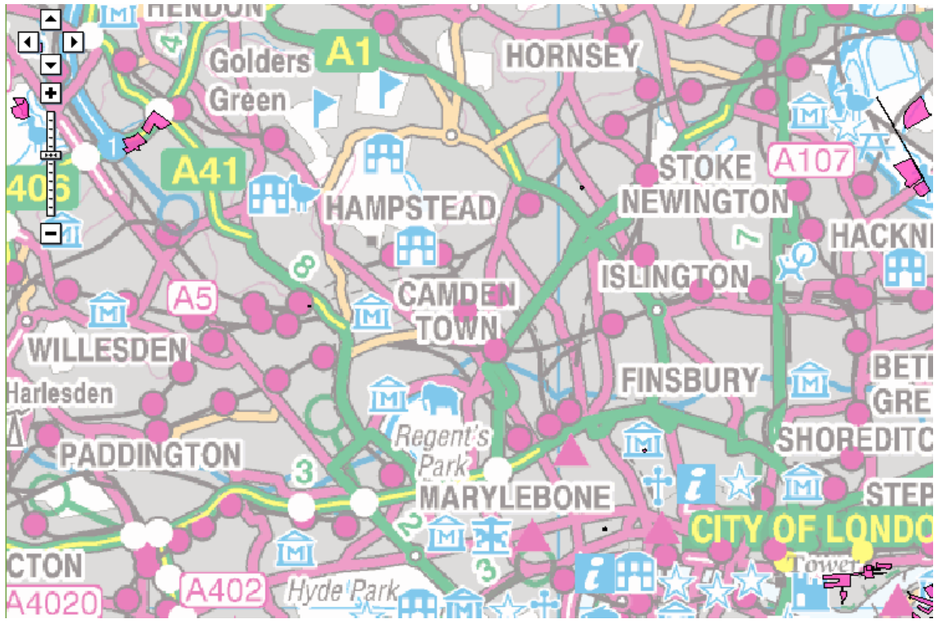
Pringuer-James Consulting Engineers
Preliminary Risk Assessment

APPENDIX A

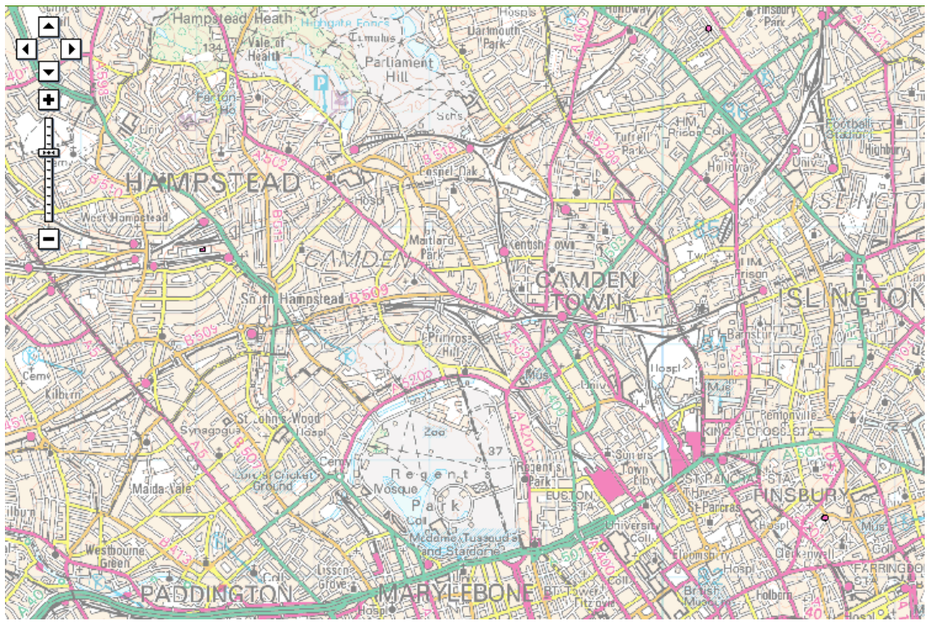
Environmental Data – Landfill



A.1 - LANDFILL 1:20,000



A.3 - LANDFILL 1:75,000



A.2 - LANDFILL 1:40,000

Site name	Site address	First waste received	Last waste received
Mitford Road	Finsbury Park	31 Dec 1993	31 Dec 1994
Rosoman St. / Skinner St.	Finsbury	31 Dec 1975	31 Dec 1978
Canfield Place	London NW6	-	-
Hendon Way	Tilling Road, Brent Cross, Barnet	31 Dec 1975	31 Dec 1984
Claremont Way	Templehof Avenue, Brent Cross, Barnet	31 Dec 1960	31 Dec 1980
Former Lea Bridge Aqueduct	Lea Bridge	01 Jan 1988	31 Mar 1989
Lea Bridge Depot Site	Lea Bridge	01 Jan 1986	30 Apr 1986
Lea Bridge Road Playing Fields	Lea Bridge Road	31 Dec 1940	
Albion Dock	Rotherhithe, Bermondsey, London	-	31 Dec 1975
Island Dock	Rotherhithe, Bermondsey, London	-	31 Dec 1975

A.4 - LANDFILL (tabulated sites within the extended Camden area)

LANDFILL – HISTORIC SITE #1

Site name Mitford Road
Site address Finsbury Park
Grid reference: X: 530,399.12; Y: 186,699.43
Site operator null
Licence no. null

Types of waste buried:

Inert:	
Waste which remains largely unaltered once buried such as glass, concrete, bricks, tiles, soil and stones.	Yes

A 'Yes' is shown in the right hand box where there is evidence that the type of waste may have been buried. If there is no evidence or no data currently available, then the box is left blank.

LANDFILL – HISTORIC SITE #2

Site name Canfield Place
Site address London NW6
Grid reference: X: 526,051.32; Y: 184,800.43
Site operator null
Licence no. null

LANDFILL – HISTORIC SITE #3

Site name Rosoman Street / Skinner Street
Site address Finsbury
Grid reference: X: 531,400.06; Y: 182,498.3
Site operator null
Licence no. null

Types of waste buried:

Inert:	
Waste which remains largely unaltered once buried such as glass, concrete, bricks, tiles, soil and stones.	Yes

A 'Yes' is shown in the right hand box where there is evidence that the type of waste may have been buried. If there is no evidence or no data currently available, then the box is left blank.

LANDFILL – HISTORIC SITE #4

Site name Hendon Way
Site address Tilling Road, Brent Cross, Barnet
Grid reference: X: 523,663.03; Y: 187,755.09
Site operator null
Licence no. null

Types of waste buried:

Liquids/sludge:	
Industrial wastewater, sewage sludge and chemical wastes mixed with municipal solid waste.	Yes

A 'Yes' is shown in the right hand box where there is evidence that the type of waste may have been buried. If there is no evidence or no data currently available, then the box is left blank.

Waste control measures:

Gas control:	
Landfill gas, which includes methane and carbon dioxide, is produced during the decomposition of waste organic material. Methane is flammable and an asphyxiant in confined spaces. It is also a greenhouse gas. Control measures may include venting the gas away or burning it off.	Yes

A 'Yes' is show in the right hand box where there is evidence that control measures may have been taken at some point during the site?s lifetime. If there is no evidence or no data currently available, then the box is left blank.

LANDFILL – HISTORIC SITE #5

Site name Claremont Way
Site address Templehof Avenue, Brent Cross, Barnet
Grid reference: X: 523,258.02; Y: 187,406.55
Site operator null
Licence no. null

Types of waste buried:

Inert:	
Waste which remains largely unaltered once buried such as glass, concrete, bricks, tiles, soil and stones	Yes
Household:	
Waste from dwellings of various types including houses, caravans, houseboats, campsites, prisons and wastes from schools, colleges and universities	Yes

A 'Yes' is shown in the right hand box where there is evidence that the type of waste may have been buried. If there is no evidence or no data currently available, then the box is left blank.

Waste control measures:

Gas control:	
Landfill gas, which includes methane and carbon dioxide, is produced during the decomposition of waste organic material. Methane is flammable and an asphyxiant in confined spaces. It is also a greenhouse gas. Control measures may include venting the gas away or burning it off.	Yes

A 'Yes' is shown in the right hand box where there is evidence that the type of waste may have been buried. If there is no evidence or no data currently available, then the box is left blank.

LANDFILL – HISTORIC SITE #6

Site name Former Lea Bridge Aqueduct
Site address Lea Bridge
Grid reference: X: 535,479.39; Y: 187,489.9
Site operator null
Licence no. null

Types of waste buried:

Inert:	
Waste which remains largely unaltered once buried such as glass, concrete, bricks, tiles, soil and stones.	Yes

A 'Yes' is shown in the right hand box where there is evidence that the type of waste may have been buried. If there is no evidence or no data currently available, then the box is left blank.

LANDFILL – HISTORIC SITE #7

Site name Lea Bridge Depot Site
Site address Lea Bridge
Grid reference: X: 535,821.18; Y: 186,689.46
Site operator null
Licence no. null

Types of waste buried:

Inert:	
Waste which remains largely unaltered once buried such as glass, concrete, bricks, tiles, soil and stones.	Yes

A 'Yes' is shown in the right hand box where there is evidence that the type of waste may have been buried. If there is no evidence or no data currently available, then the box is left blank.

LANDFILL – HISTORIC SITE #8

Site name Lea Bridge Road Playing Fields
Site address Lea Bridge Road
Grid reference: X: ---; Y: ---
Site operator null
Licence no. null

Types of waste buried:

Inert	
Waste which remains largely unaltered once buried such as glass, concrete, bricks, tiles, soil and stones.	Yes

A 'Yes' is shown in the right hand box where there is evidence that the type of waste may have been buried. If there is no evidence or no data currently available, then the box is left blank.

LANDFILL – HISTORIC SITE #9

Site name Albion Dock
Site address Rotherhithe, Bermondsey, London
Grid reference: X: 535,671.19; Y: 179,685.46
Site operator null
Licence no. null

Types of waste buried:

Inert:	
Waste which remains largely unaltered once buried such as glass, concrete, bricks, tiles, soil and stones.	Yes

A 'Yes' is shown in the right hand box where there is evidence that the type of waste may have been buried. If there is no evidence or no data currently available, then the box is left blank.

LANDFILL – HISTORIC SITE #10

Site name Island Dock
Site address Rotherhithe, Bermondsey, London
Grid reference: X: 535,890.67; Y: 180,117.18
Site operator null
Licence no. null

Types of waste buried:

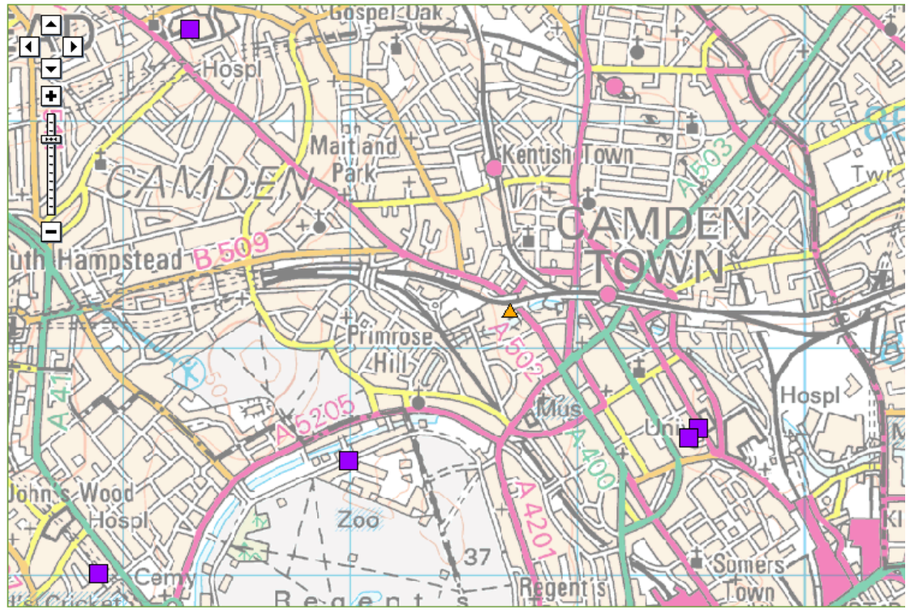
Inert:	
Waste which remains largely unaltered once buried such as glass, concrete, bricks, tiles, soil and stones.	Yes

A 'Yes' is shown in the right hand box where there is evidence that the type of waste may have been buried. If there is no evidence or no data currently available, then the box is left blank.

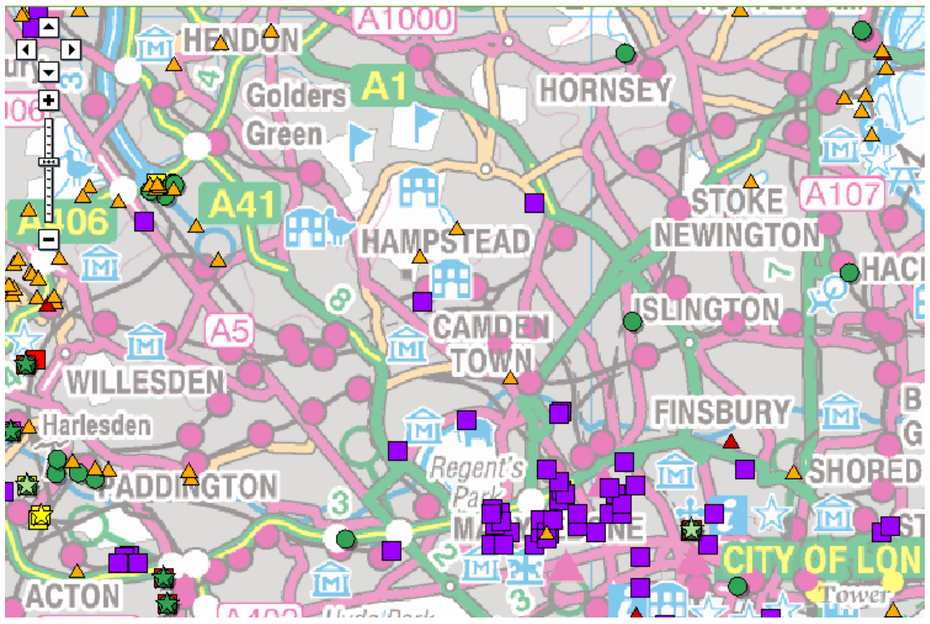
Pringuer-James Consulting Engineers
Preliminary Risk Assessment

APPENDIX B

Environmental Data - Pollution



B.1 - POLLUTION 1:20,000



B.2 - POLLUTION 1:75,000

Pollution Incidents
- Major
- Significant

Industrial Pollution Processes
- Fuel & Power
- Mineral
- Waste
- Radioactive
- Other
- Metal
- Chemical
- Water
- Associated
- Not Classified

POLLUTION - INCIDENTS

Site details	Grid reference: X: 528,713.17; Y: 184,158.58
Incident number	562771
Local Authority	Camden
Year	2008

Pollution incidents details				
Date	Impact to air	Impact to land	Impact to water	Pollutant
09-Feb-2008	Significant	No Impact	No Impact	Atmospheric Pollutants and Effects

Major impact - This may have persistant and extensive effects on the quality of the environment, there may be major damage to the ecosystem, agriculture and/or commerce, and it may have a serious impact upon man.

Significant impact - Whilst less severe than a major impact, there may still be significant damage to the ecosystem, agriculture and/or commerce, and a reduction in amenity value. It may also have an impact on man.

POLLUTION - INDUSTRIAL PROCESSES #1

Site details	Grid reference: X: 527,300; Y: 185,400
Operator	ANTHONY NOLAN TRUST (ANT)
Site Address	FLEET ROAD, LONDON
Industry:	RADIOACTIVE SUBSTANCE SITES
Licence:	BJ5716
Year:	2011
Process :	RADIOACTIVE SUBSTANCES

Releases to water

Substance	Release environment	Total released	Notifiable releases
Tritium	Sewer	<100GBq	-
Total beta/gamma excl tritium	Sewer	.11GBq	-
Chromium	Sewer	.11GBq	-

This shows the amount of a substance released by this process into one or more of the following environments: groundwater, sewer, river, estuary, sea.

Releases to land / Waste transfer

Substance / Method of disposal	Release environment	Total released	Notifiable releases
Tritium	Other radioactive waste transfer	4MBq	-
Total beta/gamma excl tritium	Other radioactive waste transfer	1MBq	-

Releases to land shows the amount of a particular substance that is disposed of by landfill, lagoon or deep injection to borehole. Waste transfer shows the amount of waste carried off-site for disposal or recovery elsewhere. This figure includes any releases to land.

POLLUTION - INDUSTRIAL PROCESSES #2

Site details Grid reference: X: 527,300; Y: 185,400
Operator POLYMASC PHARMACEUTICALS PLC
Site Address: ROYAL FREE HOSPITAL, POND STREET, HAMPSTEAD, LONDON
Industry: RADIOACTIVE SUBSTANCE SITES
Licence: BJ5678
Year: 2001
Process : RADIOACTIVE SUBSTANCES

Releases to water

Substance	Release environment	Total released	Notifiable releases
Tritium	Sewer	<1GBq	-

This shows the amount of a substance released by this process into one or more of the following environments: groundwater, sewer, river, estuary, sea.

POLLUTION - INDUSTRIAL PROCESSES #3

Site details Grid reference: X: 527,300; Y: 185,400
Operator: ROYAL FREE AND UNIVERSITY COLLEGE MEDICAL SCHOOL OF UNIVERSITY COLLEGE LONDON
Site Address: ROYAL FREE CAMPUS, ROWLAND HILL STREET, LONDON
Industry: RADIOACTIVE SUBSTANCE SITES
Licence: BJ5694
Year: 2011
Process : RADIOACTIVE SUBSTANCES

Releases to water

Substance	Release environment	Total released	Notifiable releases
Phosphorus 32	Sewer	93MBq	-
Tritium	Sewer	<100GBq	-
Sodium 22	Sewer	<100MBq	-
Other beta/gamma	Sewer	11MBq	-
Chromium 51	Sewer	.13GBq	-
Iodine 125	Sewer	<100MBq	-
Total beta/gamma excl tritium	Sewer	.26GBq	-
Carbon 14	Sewer	<100MBq	-

This shows the amount of a substance released by this process into one or more of the following environments: groundwater, sewer, river, estuary, sea.

Releases to land / Waste transfer

Substance / Method of disposal	Release environment	Total released	Notifiable releases
Tritium	Other radioactive waste transfer	2MBq	-
Total beta/gamma excl tritium	Other radioactive waste transfer	49MBq	-

Releases to land shows the amount of a particular substance that is disposed of by landfill, lagoon or deep injection to borehole. Waste transfer shows the amount of waste carried off-site for disposal or recovery elsewhere. This figure includes any releases to land.

POLLUTION - INDUSTRIAL PROCESSES #4

Site details Grid reference: X: 527,300; Y: 185,400
Operator: ROYAL FREE HAMPSTEAD NHS TRUST
Site Address: ROYAL FREE HOSPITAL, POND STREET, HAMPSTEAD, LONDON
Industry: RADIOACTIVE SUBSTANCE SITES
Licence: AB4095
Year: 2011
Process : RADIOACTIVE SUBSTANCES

Releases to water

Substance	Release environment	Total released	Notifiable releases
Tritium	Sewer	<100GBq	-
Phosphorus 32	Sewer	8MBq	-
Technetium 99m	Sewer	.7TBq	-
Cobalt 57	Sewer	<10MBq	-
Chromium 51	Sewer	2GBq	-
Iodine 125	Sewer	<100MBq	-
Iodine 131	Sewer	.12TBq	-
Strontium 89	Sewer	<1GBq	-
Gallium 67	Sewer	5.8GBq	-
Iodine 123	Sewer	.11TBq	-
Selenium 75	Sewer	9.3MBq	-
Thallium 201	Sewer	<1GBq	-
Samarium 153	Sewer	.15GBq	-
Fluorine 18	Sewer	<10GBq	-
Total beta/gamma excl tritium	Sewer	1.1TBq	-
Other beta/gamma	Sewer	2.8GBq	-
Indium 111	Sewer	19GBq	-
Yttrium 90	Sewer	.1TBq	-

This shows the amount of a substance released by this process into one or more of the following environments: groundwater, sewer, river, estuary, sea.

POLLUTION - INDUSTRIAL PROCESSES #5

Site details Grid reference: X: 528,000; Y: 183,500
Operator: INSTITUTE OF ZOOLOGY
Site Address: ZOOLOGICAL SOCIETY OF LONDON, REGENTS PARK, LONDON
Industry: RADIOACTIVE SUBSTANCE SITES
Licence: AC7588
Year: 2011
Process : RADIOACTIVE SUBSTANCES

Releases to water

Substance	Release environment	Total released	Notifiable releases
Tritium	Sewer	<100GBq	-

This shows the amount of a substance released by this process into one or more of the following environments: groundwater, sewer, river, estuary, sea.

Releases to land / Waste transfer

Substance / Method of disposal	Release environment	Total released	Notifiable releases
Tritium	Radioactive waste incineration	70.13MBq	-

Releases to land shows the amount of a particular substance that is disposed of by landfill, lagoon or deep injection to borehole. Waste transfer shows the amount of waste carried off-site for disposal or recovery elsewhere. This figure includes any releases to land.

POLLUTION - INDUSTRIAL PROCESSES #6

Site details Grid reference: X: 529,500; Y: 183,600
Operator: PROXIMA CONCEPTS
Site Address: ROYAL COLLEGE STREET, LONDON
Industry: RADIOACTIVE SUBSTANCE SITES
Licence: BR9618
Year: 2006
Process : RADIOACTIVE SUBSTANCES

Releases to water

Substance	Release environment	Total released	Notifiable releases
Total beta/gamma excl tritium	Sewer	<1MBq	-
Carbon 14	Sewer	<100MBq	-

This shows the amount of a substance released by this process into one or more of the following environments: groundwater, sewer, river, estuary, sea.

POLLUTION - INDUSTRIAL PROCESSES #7

Site details Grid reference: X: 529,540; Y: 183,640
Operator: ROYAL VETERINARY COLLEGE
Site Address: UNIVERSITY OF LONDON, ROYAL COLLEGE STREET, LONDON
Industry: RADIOACTIVE SUBSTANCE SITES
Licence: Licence: AQ1510
Year: 2011
Process : RADIOACTIVE SUBSTANCES

Releases to water

Substance	Release environment	Total released	Notifiable releases
Tritium	Sewer	<100GBq	-
Total beta/gamma excl tritium	Sewer	55.7MBq	-
Iodine 125	Sewer	<100MBq	-
Carbon 14	Sewer	<100MBq	-

This shows the amount of a substance released by this process into one or more of the following environments: groundwater, sewer, river, estuary, sea.

Releases to land / Waste transfer

Substance / Method of disposal	Release environment	Total released	Notifiable releases
Total beta/gamma excl tritium	Radioactive waste incineration	4.4MBq	-

Releases to land shows the amount of a particular substance that is disposed of by landfill, lagoon or deep injection to borehole. Waste transfer shows the amount of waste carried off-site for disposal or recovery elsewhere. This figure includes any releases to land.

POLLUTION - INDUSTRIAL PROCESSES #8

Site details Grid reference: X: 529,500; Y: 183,600
Operator: SPIROGEN LTD
Site Address: LONDON BIOSCIENCE INNOVATION CENTRE, 2 ROYAL COLLEGE STREET, LONDON
Industry: RADIOACTIVE SUBSTANCE SITES
Licence: CA5079
Year: 2007
Process : RADIOACTIVE SUBSTANCES

Releases to water

Substance	Release environment	Total released	Notifiable releases
Phosphorus 32	Sewer	1.3MBq	-

This shows the amount of a substance released by this process into one or more of the following environments: groundwater, sewer, river, estuary, sea.

Releases to land / Waste transfer

Substance / Method of disposal	Release environment	Total released	Notifiable releases
Total beta/gamma excl tritium	Other radioactive waste transfer	81.9MBq	-

Releases to land shows the amount of a particular substance that is disposed of by landfill, lagoon or deep injection to borehole. Waste transfer shows the amount of waste carried off-site for disposal or recovery elsewhere. This figure includes any releases to land.

Pringuer-James Consulting Engineers
Preliminary Risk Assessment

APPENDIX C

Environmental Data – Hydrogeology (Aquifers & Geology)