

Geo-Historic Ground Investigations Ltd.

Desk Studies. Contaminated Land Phase 1 & 2 Risk Assessments.

Site Investigation. Consultancy. Construction Materials Testing.



Desk Study & Phase I Risk Assessment.

Dolphin Street, Ardwick,
Manchester, M12 6BG.



Date: April 2017
Report No: 1718-0019-DS

3 Manor Cottages, Badby, Northants, NN11 3DR. 60 Station Road, Chingford, London, E4 7BE.
Telephone: 07976 229438 e-mail: mail@geo-historic.co.uk www.geo-historic.co.uk
Directors: S.J. Brooks BEng.(Hons) S.J. Hudson BSc.

EXECUTIVE SUMMARY

The client site appears to have first been developed as residential properties 3, 5 & 7 Dolphin Place, later renamed Dolphin Street, between 1873 and 1883, having formerly lain within the grounds of Ardwick Hall which lay to the south-east.

There is no evidence that the properties of the client site have been used for any potentially contaminative purposes. 5 and 7 Dolphin Street have been identified as both a hotel and as apartments in their history.

The properties on the client site were demolished between 1980 and 1986 and the site has remained vacant since.

Aerial photographs from 2000 show the site clear of buildings but with a covering of vegetation. A number of trees can be seen to be present along the western boundary with others on the southern boundary and towards the rear north-eastern corner. By 2003 the site has been cleared of the vegetation and is vacant. A higher resolution and better lit photograph later in the same year shows a covering of low vegetation with some small bushes along the boundary. The 2005 image shows only a small amount of vegetation remaining in the north-west corner of the site with the majority of the site bare. There are no significant changes on the 2009 photograph and by 2013 the north-western corner of the site has also been cleared of vegetation. The last image of 2016 shows some low level vegetation returning along the western boundary of the site and this was confirmed during the walkover survey of the site.

No vehicles have been identified on the site from the aerial photographs, however there is a distinct possibility that the site has been used for parking, evident in the lack of vegetation regrowth within the centre of the site.

There is considered to be a low risk of contamination on the site due to the current or previous site usage. However; the unknown provenance of the surface covering of recycled stone, possibility of use as a car parking area and lack of vegetation regrowth within the central area of the site calls for some investigation of the surface materials.

Within 100m of the site the following potentially contaminative operations have been identified; Smithy, Works (Engraving, Waterproof Garments, Clothing, Paint & Varnish, Engineering (Automobile), Unspecified, Knitwear), Laundries, Garages, Warehouses, Vehicle Parts & Accessories, Vehicle Hire, Containers & Storage.

Within 500m of the site, additional potentially contaminative operations have included; In-filled Pond, Railway (Station, Sidings, Goods Shed and Goods & Minerals Yard), Saw Mills, Timber Yard, Tramway Depot, Electricity Sub-Station & Stores, Corporation Yard, Cooperage, Works (Tyres, Ink, Paint & Varnish, Methylated Spirits), Factories, Mills, Breweries, Depots, Garage and Fuel Filling Stations.

The site does not lie within a Flood Risk Area.

The site lies upon strata of Glacial Till - Diamicton. The strata are considered to be a Secondary Undifferentiated Aquifer by the Environment Agency due to their potential permeability. The Undifferentiated designation is attributed to strata that has previously been classified as minor and

non-aquifer at different locations due to variability in the strata. There is therefore some potential for the movement of contaminants to and from the site.

The site does not lie within a Groundwater Protection Zone.

Overall the site is regarded as being of low to moderate risk in terms of some contamination being present.

There have been no potentially contaminative operations identified within the site, with the exception of possible vehicle parking. However, it is concluded that it would be prudent to investigate the chemical composition of the Made Ground across the site due to the unknown provenance of the crushed aggregate surface covering, and lack of plant growth within the central area.

The adjoining property to the west was originally residential in nature before operating as a small Laundry during the early 20th Century. By 1948 the building had been demolished and the site lay vacant until the 1960s when the current office building was constructed. There is considered to be a low risk of any contamination from the site migrating onto the client site.

The adjoining building to the east was constructed around 1905 and was occupied by David Moseley & Son, Waterproof Garment Manufacturers until 1961. More recently the site has operated as a knitwear supplier. The footprint of building covers the complete site and as such would limit the potential for any spillages of materials to contaminate the underlying strata. There is considered a low to moderate risk of contamination from the adjoining site migrating onto the client site.

An off-set grid of approximately 5 sample locations is considered suitable for the site to allow sampling of the Made Ground materials and underlying Natural Strata.

Sampling should include but not be limited to; a Metal Suite (As,B,Cd,Cr,Cu,Ni,Pb,Hg,Se,Zn), Total Petroleum Hydrocarbons (EC Banded with Aliphatic/Aromatic Split), Polycyclic Aromatic Hydrocarbons, BTEX, Phenols, Asbestos, pH and SO₄.

Uncertainties always exist as to the *actual* presence of contamination in the vicinity of the site. This report highlights only the *potential* for contamination to be present, based on the data available at the time of research.

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1. INTRODUCTION.

1.1 Client Site Details.

The client site is located on the northern side of Dolphin Street, approximately 2km to the south of Romford town-centre.

The site is approximately rectangular in shape and covers an area of around 0.08ha.

The site is currently vacant and lies between a four storey office building to the west and a five storey Knitwear Factory / Warehouse to the east.

The site is bounded by the streets of Dolphin Place to the north and Dolphin Street to the south with the buildings, as detailed above, to the east and west respectively.

1.2 Site Location.

The site is situated at an elevation of approximately 41m above Ordnance Datum at;

Landranger Reference: SJ 85429714.

National Grid Reference: 385417 E, 397135 N.

1.3 Proposed Development.

A two storey community centre with associated parking is proposed for the site.

1.4 Client Commission.

This report was commissioned by: ABACUS UK Ltd
325 Birch Lane
Dukinfield
Greater Manchester
M34 7SP.

Report produced by:



Steven Brooks BEng.(Hons)
Geo-Historic Ground Investigations Limited
Date: April 2017.

Figures 1 & 2. Site Location Plans.



Figure 3. Aerial Photograph.



1.5 Scope and Objectives.

The objective of the report is to determine whether contaminative uses are/have potentially been present on or near to the client site. It is also to identify potential receptors and pathways and to determine if any significant pollutant linkages exist. This information is then used to prepare a conceptual model for the site which in turn may be used to set the objectives for a physical site investigation.

A schedule of contaminative uses can be found in Appendix B.

“Contaminative use” is defined as “any use of land which may cause it to be contaminated with noxious substances.”

“Land”, is defined as “any ground, soil or earth, houses or other buildings, or air space above it; but excludes all mines or minerals beneath it. It also includes land used for integral, partial or ancillary

processes which form part of the primary use". (See Annex C of the Department of the Environment (DoE) Consultation Paper - "Public Registers of Land which may be Contaminated").

The information sources referenced in the compilation of this report are those outlined by the DoE in the consultation paper entitled: "The Public Registers of Land which may be Contaminated", published in May 1991.

The report outlines potentially contaminative uses which have been registered in publicly available records.

This search covers a period from 1835 to date. The date of this report reflects the date that the research was completed and is therefore as up to date as the records accessed.

The desk study report cannot guarantee to uncover every potentially contaminative use on the client site. There may be contaminative uses that the search has failed to uncover and it should not therefore be relied upon as indicative of the actual state of the land and a physical investigation of the site is recommended.

2. HISTORICAL RECORD.

2.1 Historical Map Extracts.

The following list of Historical Map extracts are contained within Appendix A of this report;

Map Extract A	–	1848	–	OS Scale 1:10,560	–	County Series.
Map Extract B	–	1851	–	OS Scale 1:1,056	–	Town Plan.
Map Extract C	–	1889	–	OS Scale 1:2,500	–	County Series.
Map Extract D	–	1890-94	–	OS Scale 1:10,560	–	County Series.
Map Extract E	–	1891	–	OS Scale 1:500	–	Town Plan.
Map Extract F	–	1905-06	–	OS Scale 1:10,560	–	County Series.
Map Extract G	–	1908	–	OS Scale 1:2,500	–	County Series.
Map Extract H	–	1922	–	OS Scale 1:2,500	–	County Series.
Map Extract I	–	1923	–	OS Scale 1:10,560	–	County Series.
Map Extract J	–	1931-34	–	OS Scale 1:10,560	–	County Series.
Map Extract K	–	1932	–	OS Scale 1:2,500	–	County Series.
Map Extract L	–	1938	–	OS Scale 1:10,560	–	County Series.
Map Extract M	–	1948-49	–	OS Scale 1:2,500	–	National Grid.
Map Extract N	–	1948-49	–	OS Scale 1:1,250	–	National Grid.
Map Extract O	–	1950-54	–	OS Scale 1:1,250	–	National Grid.
Map Extract P	–	1956	–	OS Scale 1:10,560	–	Provisional.
Map Extract Q	–	1960	–	OS Scale 1:1,250	–	National Grid.
Map Extract R	–	1961-65	–	OS Scale 1:2,500	–	National Grid.
Map Extract S	–	1968	–	OS Scale 1:10,560	–	Provisional.
Map Extract T	–	1968	–	OS Scale 1:2,500	–	National Grid.
Map Extract U	–	1969-74	–	OS Scale 1:1,250	–	National Grid.
Map Extract V	–	1977-78	–	OS Scale 1:1,250	–	National Grid.
Map Extract W	–	1980-81	–	OS Scale 1:10,000	–	National Grid.
Map Extract X	–	1984-89	–	OS Scale 1:1,250	–	National Grid.
Map Extract Y	–	1988-91	–	OS Scale 1:10,000	–	National Grid.
Map Extract Z	–	1991-92	–	OS Scale 1:1,250	–	National Grid.
Map Extract AA	–	1993-95	–	OS Scale 1:1,250	–	National Grid.
Map Extract BB	–	2002	–	OS Scale 1:10,000	–	Raster.
Map Extract CC	–	2010	–	OS Scale 1:10,000	–	National Grid.
Map Extract DD	–	2014	–	OS Scale 1:10,000	–	National Grid.

Please note that within the electronic copy of this report the maps of Appendix A are reproduced at A4 size for ease of viewing on a computer screen. The disc copy of the report includes pdfs of the maps suitable for printing at A3 should that be required.

2.2 Historical Map Evidence.

The first detailed Ordnance Survey map of the area was published, at 1:10,560 Scale, in 1848. A search for maps earlier than this date has located earlier surveys which are described below but not reproduced in this report.

Various historical maps have been consulted during the examination of the client sites history and extracts of the County Series and later Ordnance Survey sheets are included in Appendix A of this report. Descriptions of the information recovered from each reference are detailed in the following pages;

Robert Creighton's 1835 Map of Manchester for Lewis' Topographical Dictionary identifies the area of Ardwick to the south-east of Manchester and the road to Hyde is identified to the south of the site whilst the un-named Higher Ardwick road can be identified to the west and north.

A large pond or lake is shown on the opposite side of Higher Ardwick, to the west of the site, and a building is shown to the south along with some smaller buildings further north-east and south-east.

The Corn Brook is shown to the south of the site, whilst the River Medlock is shown to the north.

The area appears sparsely populated and developed at the time of the survey.

The First Series Ordnance Survey of 1843, Sheet 88, at 1:63,360 Scale is the earliest detailed plan to show the area of the site. The area of Ardwick is identified on the south-eastern edge of Manchester.

The scale is insufficient to show fine detail of the client site but the road of Higher Ardwick can be identified and buildings are shown on the southern side of the road, to the north-east of the client site.

Approximately 300m to the north-east the London & North-Western Railway line is shown.

The 1848 Ordnance Survey at 1:10,560 Scale is the first to show fine detail in the area of the site. The site can be seen to lie undeveloped within an area of parkland, approximately 50m to the north-west of Ardwick Hall, which lies to the north of Hyde Road.

Park Street is shown to the north of the site and two large residential properties are shown on the north side of the street. A further building is shown on the southern side of Park Street at the junction with Higher Ardwick, approximately 20m to the north-west.

To the west of the site, lies Ardwick Green which also contains a large elongated lake.

The area of Ardwick appears to be a wealthy residential suburb containing large properties and areas of formal gardens.

Ardwick Cemetery lies approximately 150m to the east of the site, whilst the Railway Line and Ardwick Station are shown to the north-east.

The 1:1,056 Scale Town Plan of 1851 shows the immediate area of the site in more detail. The site can be seen to lie undeveloped within an area of parkland, which appears to be related to Ardwick Hall which lies approximately 50m to the south-east. The property to the north-east of the site, at the junction of Park Street and Higher Ardwick may be a Lodge / Gate House for Ardwick Hall.

The majority of the surrounding area appears residential in nature, although a small yard area, Town's Yard, is shown approximately 75m to the north-west of the site.

The Ordnance Survey of 1889 at 1:2,500 Scale shows a change in the nature of the area of Ardwick, with increased urbanization of the suburb evident.

Dolphin Street (Place) has been constructed at this time and the client site has been developed as three residential properties, with a further building lying directly to the west. Dolphin Place to the

north has also been constructed and is known as Back Dolphin Place and provides access to the rear of the properties of the client site.

Ardwick Hall to the south-east of the site is now identified as a Home, and the area to the east of the site appears to remain as park land.

Ardwick Green remains to the west of the site, although the lake has been infilled with fountains marking each end of the former feature.

Approximately 125m to the south-west of the site an area of ground workings is shown although their purpose is not identified.

Town's Yard remains evident to the north-west of the site, although some small buildings have also been constructed on the site. To the west of the yard lies an Industrial School.

The Ordnance Survey of 1890-94 at 1:10,560 Scale shows no significant changes in the vicinity of the site. 450m to the east of the site, Goods Sheds and Railway Sidings associated with Ardwick Station have been created since the previous survey at the same scale. Saw Mills are also present to the south of the Station and are served by Railway Sidings. A Hospital is shown to the south of Ardwick Cemetery, 300m to the south-east of the site.

The Town Plan of 1891 at 1:500 Scale shows a similar layout in the vicinity of the site, with A Smithy shown 50m to the north-west of the site, on the edge of the former Town's Yard, and a Timber Yard 120m to the north-west on the opposite side of the Industrial School.

The 1905-06 Ordnance Survey at 1:10,560 Scale shows no significant changes within the curtilage of the site. A new building has been constructed directly to the east of the site as well as a further building 50m to the south-west, at the junction of Hyde Road and Higher Ardwick.

Dolphin Street has been extended further east of the site, and has now been re-named from Dolphin Place. Buildings to the east in Dolphin Street include a School. On the southern side of Dolphin Street Ardwick Hall has been extended.

A Goods & Mineral Yard has replaced the Saw Mills to the south of Ardwick Station, and a new Tramway Depot lies to the south of the yard.

The 1:2,500 Scale Ordnance Survey of 1908 identifies no notable changes within the site boundary. The new building directly to the east of the site remains unidentified, although further to the east an Engraving Works is shown 50m from the site on the southern side of Park Street.

On the northern side of Park Street, a Laundry is shown to the east of Park Place.

The new building to the south-west of the site is identified as the Empire Music Hall, and further south-west an Electricity Sub-Station and Electricity Stores are shown 300m from the site.

A Corporation Yard can be seen 130m to the north-west of the site.

The 1:2,500 Scale Ordnance Survey of 1922 shows no changes within the site boundary. A new building has been constructed to the south of the Engraving Works, 30m to the east.

A Picture Theatre and Billiard Hall have been constructed opposite the site on the southern side of Dolphin Street.

The 1:10,560 Scale, Ordnance Survey of 1923 shows a similar layout in the vicinity of the client site with few detailed changes.

While few significant changes are evident in the immediate vicinity of the site, a Saw Mill and Cooperage are identified 300m to the south and a Tyre Works is shown 400m to the west. Additional Works and a Brewery are shown to the south-east of Mayfield Station 450m to the north-west of the site, whilst additional Mills, Factories and Breweries are shown a similar distance to the north.

The 1:10,560 Scale, Ordnance Survey of 1931-34 shows a similar layout in the vicinity of the site.

The 1:2,500 Scale Ordnance Survey of 1932 shows no changes to the layout within the client site.

The buildings directly to the east of the site are now identified as Waterproof Garment Works, whilst a Laundry lies to the west. The Engraving Works continues to be shown to the northeast. At the far end of Dolphin Street, Atlas Ink Works lies 110m from the site.

The Laundry continues to be shown opposite the Engraving Works and to the north of this a Creamery is identified. Opposite the creamery on the western side of Park Place, lies Mildens Works (Clothing). Further Clothing Works are shown 100m to the north-west and 120m to the north-east.

To the south-west a new building has been constructed on the former Electricity Sub-Station and Stores site.

The 1938 Ordnance Survey at 1:10,560 Scale shows no significant changes in the vicinity of the site.

The 1:2,500 & 1:1,250 Scale Ordnance Surveys of 1948-49 show no changes to the layout within the client site. The properties within the curtilage are identified as 3, 5 & 7 Dolphin Street.

The Laundry building which lay to the west is no longer shown, whilst the Dolphin Street Works (Waterproof Garments) continues to operate to the east. The Engraving Works continues to be shown to the northeast along with the Atlas Ink Works to the east. Between the Waterproof Garment and Ink Works lie a School and a Paint & Varnish Works. On the southern side of Dolphin Street, a Methylated Spirit is now shown.

Further to the east, a Clothing, Paint & Varnish and Welding Works are all shown within 250m of the site.

The 1:1,250 Scale Ordnance Survey of 1950-54 shows no changes within the boundary of the client site.

The former Billiard Hall building to the south of the site is now identified as an Engineering Works (Automobile), whilst a Warehouse is shown within the Ardwick Hall complex of buildings. Other buildings in Dolphin Street remain unchanged.

The 1938 Ordnance Survey at 1:10,560 Scale shows no significant changes in the vicinity of the site.

The 1:1,250 Scale Ordnance Survey of 1960 & 1:2,500 Scale of 1961-65 show no changes within the curtilage or immediate vicinity of the site.

The former Laundry site, directly to the west, remains vacant whilst the adjoining site to the east is now identified as an unspecified Works. This is the trend throughout the survey and provides less detailed information on the operations in the vicinity.

A Garage is shown 150m to the west of the site.

The 1968 Ordnance Survey at 1:10,560 Scale shows no significant changes within the immediate vicinity of the site.

Much of the area to the south-west of Ardwick Green is in the process of being cleared for redevelopment.

The 1:2,500 Scale Ordnance Survey of 1968 & 1:1,250 Scale of 1969-74 show a new building on the former Laundry site to the immediate west of the site, whilst the former Music Hall and Picture Theatre have been demolished and cleared. The former Engineering Works, opposite the site, in Dolphin Street is now identified as a Clothing Works along with the adjoining site to the east. Elsewhere in Dolphin Street, the Paint & Varnish, Ink and Methylated Spirit Works continue to be identified.

The 1:1,250 Scale Ordnance Survey of 1977-78 shows no detail in the immediate area of the site but does show the continued redevelopment of the area to the south-west.

The Ordnance Survey of 1980-81 at 1:10,000 Scale shows no changes within the client site, but does show the continued redevelopment of the area surrounding the site.

The 1:1,250 Scale Ordnance Survey of 1984-89 shows the client site to be vacant of buildings at the time of the survey. To the north of the site the houses on the opposite side of Dolphin Place appear to have been extended but remain in situ. The Works continues to lie to the east of the site and the newer building to the west remains unchanged.

A number of Works and Warehouses continue to occupy the other buildings in Dolphin Street, including the former school sites.

The Ordnance Survey of 1988-91 at 1:10,000 Scale shows no changes within the client site, but does show the continued redevelopment of the area surrounding the site.

The 1:1,250 Scale Ordnance Surveys of 1991-92 & 1993-95 show no significant changes within the vicinity of the client site.

The 2002 Ordnance Survey at 1:10,000 Scale shows no significant changes in the vicinity of the client site.

The 2010 Ordnance Survey at 1:10,000 Scale shows no significant new information in the area of the client site.

The 2014 Ordnance Survey at 1:10,000 Scale shows no significant new information in the area of the client site.

2.3 Historical Map Summary.

The earliest located map of the area, from 1835, shows Ardwick Hall to the south-east of the site, which appears to lie undeveloped.

The more detailed Ordnance Survey of 1848 shows the site lying within an area of parkland associated with Ardwick Hall. The surrounding area is mostly comprised of large residential properties with areas of formal gardens.

By 1889 three residential properties (3, 5 & 7 Dolphin Place) have been constructed within the site boundary. The nature of the surrounding area appears to be changing with areas of terraced housing being constructed particularly to the north and south. The roadway to the north of the site is named Back Dolphin Place and provides access to the rear of the client site properties and those on the south side of Park Street to the north.

Between 1891 and 1905 Dolphin Place is extended eastwards and renamed Dolphin Street. At the same time a new building adjoining the eastern boundary of the site was constructed. The use of the adjoining site is not identified on the Ordnance Survey of 1908, but by 1922 a further building had been constructed to the east and by 1932 the buildings had been combined and were producing Waterproof Garments. The site directly to the west at this time is identified as a Laundry.

By 1948 the Laundry site to the west had been cleared of buildings and lay vacant, whilst the Dolphin Street Works (Waterproof Garments) continued to operate to the east of the residential properties of the client site.

The 1968 Ordnance Survey shows a new building to the west of the site, whilst the Clothing Works continues to operate to the east.

Between 1981 and 1986 the client site is cleared of buildings and continues to lie vacant to the present day.

Within 100m of the site the following potentially contaminative operations have been identified; Smithy, Works (Engraving, Waterproof Garments, Clothing, Paint & Varnish, Engineering (Automobile), Unspecified), Laundries and Warehouses.

Within 500m of the site, additional potentially contaminative operations have included; In-filled Pond, Railway (Station, Sidings, Goods Shed and Goods & Minerals Yard), Saw Mills, Timber Yard, Tramway Depot, Electricity Sub-Station & Stores, Corporation Yard, Cooperage, Works (Tyres, Ink, Paint & Varnish, Methylated Spirits), Factories, Mills, Breweries, Depots and a Garage.

2.4 Historical Directories.

Searches of Historic Trade Directories for the area have located some entries for the area of the site and the surrounding area. The entries are summarised below.

2.4.1 1873 Post Office Directory of Manchester.

The 1873 Post Office Directory of Manchester includes individual street listings for the area of the client site. No individual listing is included for Dolphin Place, but entries for Higher Ardwick are included and are detailed below;

Higher Ardwick, Ardwick Green;

North Side;

- | | | |
|----|-------------------------|-------------------|
| 1 | Carrington William, | Bootmaker. |
| 3 | Crawford John, | Butcher. |
| 5 | Clayton Robert, | Coach Proprietor. |
| 7 | Wilson John. | |
| 9 | Guest Mrs. | |
| 15 | Wood Frederick, | Joiner. |
| 17 | Brownhill Robert Henry, | Shopkeeper. |
| 19 | Ingham Thomas, | Chimney Sweeper. |
| 23 | Arnold John, | Beer Retailer. |

Here is Union Street...

South Side;

- 4 Tisdale Thomas.
6 Hillawell John.

Here is Smith Street...

Hyde Road, from Ardwick Green to Gorton;

North Side;

- Kennedy John Lawson JP. *Ardwick Hall.*
3 Mellor William.
7 Mackie William.
11 Harris Edwin.
13 Eadson Richard.
15 Boden Mrs.
Lennon Landon Thomas, *2 Darley Street.*

Park Street, Higher Ardwick;

- 1 Mayall Edward.
2 Armstrong Mrs.
3 Bousfield Edward.
4 Offer Edwin.

The directory indicates that Dolphin Place has not been constructed at the time of publication, although the four properties of Park Street which lay to the north of the site are listed.

2.4.2 Slater's 1883 Directory of Manchester.

The 1883 Directory of Manchester includes individual street listings for Manchester and those related to the area of the site are detailed below;

Dolphin Place, Higher Ardwick;

- | | | |
|---|---------------------------|----------------------|
| 1 | Cunliffe Thomas, | Tanner. |
| 2 | Midwood George H. | Manufacturer. |
| 3 | Blousfield Thomas, | Merchant. |

Park Street, Higher Ardwick;

- | | | |
|---|-----------------------|----------------|
| 1 | Wilson James Alfred, | Coal Merchant. |
| 3 | Craig Rev. John Kerr. | |
| 4 | Offer Edwin, | Cashier. |

Higher Ardwick, Top of Ardwick Green;

Left Hand Side;

- | | | |
|----------------------------|----------------------|------------------|
| 1 | Barlow James, | Labourer. |
| <i>Grimes Buildings...</i> | | |
| 3 | Sowden Thomas, | Blacksmith. |
| 7 | Kirby Walker, | Saddler. |
| 9 | Harrison Emma, | Fruiterer. |
| 11 | Dillon Bernard, | Bootmaker. |
| <i>Vine Place...</i> | | |
| 13 | Wand George E. | Butcher. |
| 15 | Bell John, | Labourer. |
| 17 | Pinkerton David, | Traveller. |
| 19 | Guest Miss. | |
| 21 | Holder Emily, | French Polisher. |
| 23 | Wood Hannah, | Housekeeper. |
| 25 | Heathcote William E. | Plumber. |
| <i>Mayor's Court...</i> | | |
| 27 | Brownhill Robert H. | Shopkeeper. |
| 29 | Poulton George, | Chimney Sweep. |
| 31 | Loftus Robert, | Maker Up. |
| 33 | Arnold Jane, | Beer Retailer. |
| <i>Green Lane...</i> | | |
| <i>Union Street...</i> | | |

Right Hand Side;

- | | | |
|-------------------------|-----------------------------|--------------------------------|
| | Kennedy John L. | Calico Printer (Ardwick Hall). |
| <i>Dolphin Place...</i> | | |
| 2 | Madeley George S. | Surgeon. |
| 2 | Clow William Fraser, | Surgeon. |
| <i>Park Street...</i> | | |
| | Primitive Methodist Chapel. | |
| | Norris Rev. Levi. | |
| | Ardwick Conservative Club. | |
| <i>Park Place...</i> | | |
| | Welsh Methodist Chapel. | |
| 54 | Evans Edward, | Chapel Keeper. |
| 60 | Simpson Wm. Jun. | Bottle Dealer. |

62 McCallum David,
Smith Street... Draper.

Hyde Road, from Ardwick Green;

North Side;

1 Kennedy John L. <i>Hyde Place...</i>	Calico Printer (<i>Ardwick Hall</i>).
5 Hodgson Thomas John,	Grocer.
7 Bolton Major William.	
9 Bennett Thomas A.	Timber Merchant.
11 Harris Edwin,	Linen Agent.
13 Birley Mr Frederick Hornby.	
17 Atkins John,	Moulder.
Craven John,	Hatter.
Summers Charles,	Confectioner.
Hill Joseph,	Tripe Dresser.

Darley Street...

The directory indicates that Dolphin Place had been constructed between 1873 and 1883 and contains residential properties.

2.4.3 Slater's 1886 Directory of Manchester.

The 1886 Directory of Manchester includes individual street listings for Manchester and those related to the area of the site are detailed below;

Dolphin Place, Higher Ardwick;

1 Cunliffe Thomas L.	Tanner.
2 Duncan Rev. Walter.	
4 Pierce Edward,	Manager.

Park Street, Higher Ardwick;

1 Wilson Joseph Alfred,	Coal Merchant.
2 Powell Phillip,	Jeweller.
3 Hughes William Henry,	Draper.
4 Stuart Rev. John Cuthbert.	

Higher Ardwick, Top of Ardwick Green;

Left Hand Side;

Grimes Buildings...

3 Franklin William A.	Whitesmith.
5 Craig John F.	Photographic Material Dealer.
9 Harrison Emma,	Greengrocer.
11 Dillon Bernard,	Bootmaker.

Vine Place...

13 Wand George E.	Butcher.
15 Franklin William,	Whitesmith.
17 Pinkerton David,	Traveller.
19 Guest Elizabeth Ann,	Householder.
21 Power James,	Policeman.
23 Wood Hannah,	Householder.
25 Heathcote William E.	Plumber.

Mayor's Court...

27	Brownhill Robert H.	Shopkeeper.
29	Gaskill Albert,	Joiner.
31	Bradley John,	Compositor.
33	Arnold Jane,	Beer Retailer.

*Green Lane...**Union Street...***Right Hand Side;**

Kennedy John L.	Calico Printer (Ardwick Hall).
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Dolphin Place...

2	Gilmour Alfred John,	Surgeon.
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Park Street...

Primitive Methodist Chapel.
Austin Rev. George R.D.
Ardwick Public Hall & Conservative Club.

Park Place...

Welsh Methodist Chapel.

54	Evans Edward,	Chapel Keeper.
60	Dibnah Mary,	Householder.
62	Burns Alice,	Householder.

*Smith Street...***Hyde Road, from Ardwick Green;****Left Hand Side;**

1	Kennedy John L.	Calico Printer (Ardwick Hall).
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Hyde Place...

3	Marsden Henry,	Tailor.
5	Crabtree Allen,	Dyer.
7	Smith John,	Coal Merchant.
9	Bennett Thomas A.	Timber Merchant.
11	Maglione Mr Raymond.	
13	Birley Mr Frederick Hornby,	Merchant.
19a	Hill Joseph,	Tripe Dresser.
19b	Suminers Charles,	Confectioner.

*Darley Street...***2.4.4 Slater's Directory of Manchester 1895.**

Slater's 1895 Directory provides street listings for the area and those relevant to the area of the client site are listed below.

Dolphin Place, Higher Ardwick;

1	Hood Robert,	Householder.
3	McWilliams George,	Provision Merchant.
4	Pierce Mrs.	Householder.

Park Street, Higher Ardwick;

2	Wilson Joseph Alfred,	Coal Merchant.
3	Powell Phillip G.	Jeweller.
3	Hughes William Henry,	Draper.
4	Stuart rev. John Cuthbert.	

Higher Ardwick, Top of Ardwick Green;**Left Hand Side;**

- 1 Barlow James, Shopkeeper.
Here is Grimes Buildings...
 3 Franklin William A. Whitesmith.
 7 Faint John Andrew, Plumber.
 9 Wheldon Joseph, Hairdresser.
 11 Dillon Bernard, Bootmaker.
Here is Vine Place...
 13 Wand George Edwin, Butcher.
 15 Aldred Mrs Elizabeth, Householder.
 17 Lomas Mrs Eliza Alice, Householder.
 19 Wand George E. Householder.
 21 Power James, Policeman.
 23 Wood Mrs Hannah, Householder.
Here is Mayor's Court...
 27 Pearce James, Shopkeeper.
 29 Poulton Geo. & Son, Chimney Sweepers.
 31 Bradley John, Compositor.
 33 Burgess Mrs Martha Jane, Beer Retailer.
Here is Green Lane...
Here is Union Street...

Right Hand Side;

- Here is Hyde Road...*
Here is Dolphin Place...
Here is Back Dolphin Place...
 2 Gilmour Alfred John, Surgeon.
Here is Park Street...
 Primitive Methodist Chapel.
 Davies Rev. William Jones, *The Parsonage*.
 Ardwick Public Hall & Conservative Club.
Here is Park Place...
 Welsh Calvinistic Methodist Chapel.
 54 Parry Thomas, Chapel Keeper.
 60 Hyde Frederick, Butcher.
 62 Barber James, Householder.
Here is Smith Street...

Hyde Road, from Ardwick Green;**Left Hand Side;**

- Hyde Place.*
 1-3 Affleck & Brown's Boarding House.
 7 Smith John, Coal Merchant.
 9 Bennett Thomas A. Timber Merchant.
 13 Birley Frederick Hornby JP.
 19a Woodall Charles, Bootmaker.
 19b Cottier Joseph, Furniture Dealer.
 19c Summers Charles, Confectioner.
 19d Woodhead John, Tobacconist.
Here is Darley Street...

The directory includes entries for Dolphin Place and the Ordnance Survey of the period shows four properties in the road. The client site can be assumed to be occupied by properties 2, 3 & 4.

2.4.5 Slater's Directory of Manchester 1909.

Slater's 1909 Directory provides street listings for the area and those relevant to the area of the client site are listed below.

Dolphin Street, Higher Ardwick to Darley Street;

2	Hartley Richard,	Manufacturer.
3	Mapleton's Nut Foods.	
4	Monk Joseph Hugh,	Hotel Proprietor.
	Wolstencroft W. & Co.	Manufacturers.
	Alliance Manufacturing Co.	Children's Costumiers.
	Moseley David & Sons Ltd.	Waterproof Garment Manufacturers.
	Macnair A. & Co.	Drysalts.
	Warburton W. & Sons,	Oil Merchants.
	Moss Side Chemical Co.	
	Brown John & Co.	Wine & Spirit Merchants (Stores).
	Normanton C.H. & Son,	Builders & Contractors.
	McNair A. & Co.	Wine & Spirit Merchants.

Park Street, Higher Ardwick to Darley Street;

North Side;

Shaw C. & Co.	Laundry.
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Pershore Terrace;

1	McKiernan Patrick,	Potato Salesman.
3	McWilliams Geo.	Provision Merchant.
5	Fox Rev. Albert George.	
7	Patten Joseph,	Schoolmaster.
9	Rhodes Samuel Arth.	Oven Builder.
11	Thomas John,	Manager.

South Side;

1	Schofield Mrs Emily,	Householder.
2	Keogh Frederick,	Commercial traveller.
3	Nuttall Albert John,	Householder.
4	Nuttall Mrs Annie Elizh.	Apartments.
	Hyslop & Wyatt,	Engravers to Calico Printers.
	St Aloysius's Roman Catholic Schools.	
	McNair A. & Co.	Varnish Works.

Here is Darley Street...

Higher Ardwick, Top of Ardwick Green;

North Side;

1	Hall Miss Agnes,	Confectioner.
	<i>Here is Grimes Buildings...</i>	
2	Leigh John,	General Dealer.
3	Barber George,	Blacksmith.
4	Naylor Francis,	Firewood Dealer.
5-7	Preston John Charles,	Plumber.
9	Owens Alfred,	Shopkeeper.

Here is Vine Place...

- | | | |
|----|-------------------------|-----------------------------|
| 13 | Wand George Edward, | Butcher. |
| 15 | Badrock Joseph, | Butchers' Foreman. |
| 17 | Caldwell John Willie, | Fent Dealer. |
| 19 | Hartley William Arthur, | Underclothing Manufacturer. |
| 21 | Cahill Stephen, | Railway Servant. |
| 23 | Wood Mrs Hannah, | Householder. |
| 25 | Ampson Samuel, | Householder. |

Here is Mayor's Court...

- | | | |
|----|--------------------------|----------------|
| 27 | Armstrong Mrs Annie, | Shopkeeper. |
| 29 | Chapman Robert, | Householder. |
| 31 | Burgess Mrs Martha Jane, | Beer Retailer. |

*Here is Green Lane...**Here is Union Street...***South Side;***Here is Hyde Road...*

Ardwick Empire.

Here is Dolphin Street...

- | | | |
|---|----------------------|----------|
| 2 | Gilmour Alfred John, | Surgeon. |
|---|----------------------|----------|

Here is Park Street...

Primitive Methodist Chapel.
 Challice Rev. F. Claude, *The Parsonage.*
 Ardwick Public Hall & Conservative Club.
 Wignall Henry, Steward.

Here is Park Place...

Welsh Calvinistic Methodist Chapel.

- | | | |
|----|----------------------|----------------|
| 54 | Parry Thomas, | Chapel Keeper. |
| 60 | Eadson Mrs Margt. E. | Householder. |
| 62 | Watson Job T. | Stamp Maker. |

*Here is Smith Street...***Hyde Road, from Ardwick Green;****North Side;**

Empire Theatre, Ardwick Green.

- | | | |
|-----|-----------------------------------|--------------------------|
| 53 | Affleck & Brown's Boarding House. | |
| 55 | Phelan James, | Decorator. |
| 57 | Tench Matthew Parker, | Householder. |
| 61 | Bold Miss Eliza, | School of Dress Cutting. |
| 63 | Lee Mrs Bertha, | Householder. |
| 65 | Caldwell Fred, | Householder. |
| 67 | Rosenthal Harry L. | Commission Agent. |
| 69 | Neapolitan College of Music. | |
| 71 | Fraser William, | Householder. |
| 73 | Bagshaw Mrs Mary, | Householder. |
| 77 | Fitzroy Frederick, | Householder. |
| 77a | Long Mrs Annie, | Fried Fish dealer. |
| 79 | Musgrave Mrs Kate, | Licensed Bro. |
| 81 | Darbyshire Thomas, | Newsagent. |
| 83 | Ingham William, | Bootmaker. |
| 85 | Thompson Mrs Harriet, | Confectioner. |

87 McRoberts Matthew, Tobacconist.
Here is Darley Street...

The directory includes entries for Dolphin Street and indicates that the extension eastwards to Darley Street has taken place at this time. Indications are that the client site continues to be occupied by properties 2, 3 & 4.

2.4.6 Slater's Directory of Manchester 1911.

Slater's 1911 Directory provides street listings for the area and those relevant to the area of the client site are listed below.

Dolphin Street, Higher Ardwick to Darley Street;

- | | | |
|---|------------------------------|-----------------------------------|
| 1 | Stead Fleetwood, | Launderer. |
| 2 | Southwold David, | Householder. |
| 3 | Schofield Miss Emily, | Householder. |
| 4 | Monk Joseph Hugh, | Hotel Proprietor. |
| | Moseley David & Sons Ltd. | Waterproof Garment Manufacturers. |
| | Wolstencroft W. & Co. | Manufacturers. |
| | Alliance Manufacturing Co. | Children's Costumiers. |
| | Macnair A. & Co. | Drysalters. |
| | Warburton W. & Sons, | Oil Merchants. |
| | Moss Side Chemical Co. | |
| | Brown John & Co. | Wine & Spirit Merchants (Stores). |
| | Normanton C.H. & Son, | Builders & Contractors. |
| | McNair A. & Co. | Wine & Spirit Merchants. |

Park Street, Higher Ardwick to Darley Street;

North Side;

Shaw C. & Co. Laundry.

Pershore Terrace;

- | | | |
|----|---------------------|---------------------|
| 1 | McKiernan Patrick, | Potato Salesman. |
| 3 | McWilliams Geo. | Provision Merchant. |
| 7 | Patten Joseph, | Schoolmaster. |
| 9 | Rhodes Samuel Arth. | Oven Builder. |
| 11 | Hall Mrs Emily, | Householder. |

South Side;

- | | | |
|---|---------------------------------------|-------------------------------|
| 1 | Schofield Mrs Emily, | Householder. |
| 2 | Keogh Frederick, | Commercial traveller. |
| 3 | Nuttall Albert John, | Householder. |
| 4 | Nuttall Mrs Annie Elizh. | Apartments. |
| | Hyslop & Wyatt, | Engravers to Calico Printers. |
| | St Aloysius's Roman Catholic Schools. | |
| | McNair A. & Co. | Varnish Works. |

Here is Darley Street...

Higher Ardwick, Top of Ardwick Green;

North Side;

- | | | |
|---|---------------------|---------------|
| 1 | Hutchinson William, | Tripe Dealer. |
|---|---------------------|---------------|

Grimes Buildings;

- | | | |
|---|-------------------|----------------------------|
| 2 | Leigh John, | General Dealer. |
| 4 | Empire Rubber Co. | Rubber Heal Manufacturers. |

5 Peate William Thos. Firewood Dealer.
 3 Jarrauld Benjamin, Blacksmith.
 5-7 Preston John Charles, Plumber.
 9 Owens Alfred, Shopkeeper.
 11 Garside James, Property Repairer.
Here is Vine Place...
 13 Wand George Edward, Butcher.
 15 Badrock Joseph, Butchers' Foreman.
 17 Hulme Joseph, Insurance Agent.
 19 Hartley Mrs Harriet, Householder.
 21 Cahill Stephen, Railway Servant.
 23 Wood Mrs Annie, Householder.
 25 Quinn Patrick, Householder.
Here is Mayor's Court...
 27 Dinsdale Miss Susannah, Shopkeeper.
 29 Chapman Robert, Householder.
 31 Burgess Mrs Martha Jane, Beer Retailer.
Here is Green Lane...
Here is Union Street...

South Side;

Here is Hyde Road...

Ardwick Empire.

Ardwick Imperial Skating Rink Ltd.

Here is Dolphin Street...

2 Gilmour Alfred John, Surgeon.

Here is Park Street...

Primitive Methodist Chapel.

Jefferson William, Caretaker (*The Parsonage*).

42 Denton William, Carriage Proprietor

Ardwick Public Hall & Conservative Club.

Thorp Warren, Steward.

Here is Park Place...

Welsh Calvinistic Methodist Chapel.

54 Parry Thomas, Chapel Keeper.

60 Webb John, Clerk.

62 Watson Job T. Stamp Maker.

Here is Smith Street...

Hyde Road, from Ardwick Green;

North Side;

Empire Theatre, Ardwick Green.

53 Affleck & Brown's Boarding House.

55 Phelan James, Decorator.

57 Tench Matthew Parker, Householder.

61 Bold Miss Eliza, School of Dress Cutting.

63 Lee Mrs Bertha, Householder.

65 Caldwell Fred, Householder.

67 Rosenthal Harry L. Commission Agent.

69 Neapolitan College of Music.

71 Fraser William, Householder.

73	Bagshaw Mrs Mary,	Householder.
77	Fitzroy Frederick,	Householder.
77a	Long Mrs Annie,	Fried Fish dealer.
79	Musgrave Mrs Kate,	Licensed Bro.
81	Darbyshire Thomas,	Newsagent.
83	Ingham William,	Bootmaker.
85	Thompson Mrs Harriet,	Confectioner.
87	McRoberts Matthew,	Tobacconist.

Here is Darley Street...

The directory includes entries for Dolphin Street and indicates that the extension eastwards to Darley Street has taken place at this time. Indications are that the client site continues to be occupied by properties 2, 3 & 4.

2.4.7 Kelly's 1929 Directory of Manchester.

Kelly's Directory of 1929 provides street listings for the area and those relevant to the area of the client site are listed below.

Dolphin Street, Higher Ardwick to Darley Street;

1	Stead Mrs Margaret,	Launderer.
3	Southworth David,	Householder.
5-7	Schofield Mrs Emily.	Apartments.
11	Moseley David & Sons Ltd.	Waterproof Garment Manufacturers.
23	Macnair A. & Co. Ltd.	Varnish Manufacturers.
	Methylating Co. Ltd.	Methylated Spirit Makers.
	Holts' & Pennington,	Timber Importers & Merchants.

Higher Ardwick, Ardwick Green North;

North Side;

1	Jackson William,	Shopkeeper.
	<i>Grimes Buildings;</i>	
1	Knowles James,	Bamboo Furniture Market.
3	Stevenson Arthur,	Saw Maker.
4	Merrick Mrs Elsie Maud,	Upholstress.
3-5	Jarrald Benj. J.	Blacksmith.
9	Rostron Jn.	Confectioner.
11	Capstick Frederick,	Greengrocer.
	<i>Here is Vine Place...</i>	
13	Wand George Edward,	Butcher.
15	Hunter John Thos.	Butchers mgr.
17	Greaves Thomas,	Turner.
19	Shaw Jn. Edwd.	Decorator.
21	Cahill Stephen.	
23	Jackson Mrs Ellen.	
25	Quinn Mrs Mary,	Householder.
27	Ardwick Florists Co.	
29	Papa Vincenzo,	Ice Cream Maker.
	<i>Here is Mayor's Court...</i>	
31-33	Burgess Chas. Hy.	Beer Retailer.
	<i>Here is Green Lane...</i>	
	<i>Here is Union Street...</i>	

South Side;*Here is Hyde Road...*

Ardwick Empire	(Manchester Hippodrome & Ardwick Empire Ltd).
Coliseum	(Coliseum Manchester Ltd)

*Here is Dolphin Street...**Here is Dolphin Place...*

2-4 Ford Herbert Roycroft,	Physician & Surgeon.
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Here is Park Street...

Primitive Methodist Chapel.

Wilkinson Ernest,	Caretaker (<i>The Parsonage</i>).
Webber A. & Son,	Juvenile Clothing Manufacturers.

Here is Park Place...

Welsh Calvinistic Methodist Chapel.

54 Manchester Dairy Co. Ltd.	Dairymen.
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60 Caldwell Rugby,	Jobbing Fent Merchant.
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62 Denton Mrs Harriet,	Householder.
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Here is Smith Street...

64 O'Neil John,	Pavior.
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66 Pembleton Herbert,	Railwayman.
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68 Essex Miss Beatrice,	Householder.
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70 Jeffery George,	Householder.
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72 Booth William,	Dentist.
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Here is Brierley Avenue...

The directory includes entries for Dolphin Street and the Ordnance Survey of 1905 shows the extension of Dolphin Street to the east. Later maps indicate that the properties of the client site were numbered 3, 5 & 7 and renumbering of the street appears to have taken place since the publication of the previous directory.

2.5 Historical Directory Summary.

The Historic Trade Directories suggest that Dolphin Street and the client site were first developed between the publication of the 1873 and 1883 directories. Prior to this, evidence from the Ordnance Surveys suggest that the site formed part of the Ardwick Hall estate.

Between 1895 and 1911 Dolphin Street was extended eastwards to join with Darley Street and at this time the area directly to the east of the client site became industrial in nature. Indications are that the properties of the client site remained residential in nature with some being converted to a hotel and later apartments. This is comparable with the Ordnance Surveys of the area which show the extension of Dolphin Street between 1891 and 1905.

According to the Ordnance Survey data, the site was cleared of buildings between 1980 and 1986 and has remained as such to the present day.

2.6 Aerial Photographs.

Photographs of the Atlas Ink Works and Environs, Ardwick, dated 1932, show the rooflines of the buildings of the client site, with gardens to the front. The properties can be seen to be larger in scale than those to the north of Dolphin Place, which remain in-situ to the present day. The two separate, but adjoining, buildings of the Waterproof Garment Works, David Moseley & Son Ltd, can be seen, along with the Engraving Works to the east. Further east the school and playground are shown with the Ink Works adjacent to Darley Street.

An aerial photograph from 2000 shows the site clear of buildings but with a covering of vegetation. A number of trees can be seen to be present along the western boundary with others on the southern boundary and towards the rear north-eastern corner.

By 2003 the site has been cleared of the vegetation and is vacant. A higher resolution and better lit photograph later in the same year shows a covering of low vegetation with some small bushes along the boundary.

The 2005 image shows only a small amount of vegetation remaining in the north-west corner of the site with the majority of the site bare.

There are no significant changes on the 2009 photograph and by 2013 the north-western corner of the site has also been cleared of vegetation.

The last image of 2016 shows some low level vegetation returning along the western boundary of the site.

2.7 Groundsure EnviroInsight Report.

Historical Industrial Sites.

The Groundsure EnviroInsight Report is included in Appendix C of this report and identifies 46 records of sites with a potentially contaminative past land use within 500m of the site.

Distance	Land Use
0-50m	Unspecified (Works, Commercial/Industrial), Industrial School.
50-250m	Unspecified (Works, Depot, Warehouse), Drill Shed, Cemetery.
250-500m	Cooperage, Electricity Sub-Station, Hospital, Railway (Sidings, Stores, Goods Depot & Mineral Yard, Station, Goods Shed, Engine Shed, Buildings), Unspecified (Stores, Commercial/Industrial, Depot, Mills, Factories, Tank), Sawmills, Tramway & Bus Depot, Works (Tyres, Unspecified, Dye, Car), Brewery, Timber Yard, Car Building & Repair Shed.

Historical Tanks.

Fifty-eight records of Historical Tanks are recorded within 500m of the client site. It should be noted that the same tank can be identified a number of times on different editions of the historical maps. The entries relate to 15 tanks at distances between 66m and 498m from the site.

Historical Energy Features.

There are 60 records of Historical Energy Features are identified at distances between 188m and 475m from the site. The data relates to 12 separate Electricity Sub-Station, an Electricity Stores and an Electricity Transformer.

Historical Garage & Motor Vehicle Repair Sites.

The report, in section 1.5, identifies 51 records of Historical Garages between 12m and 498m from the site. These records appear to relate to 16 sites.

Potentially Infilled Land.

Section 1.6 identifies 10 records of Potentially Infilled Land between 53m and 402m from the site. The records relate to 2 ponds and Ardwick Cemetery.

2.8 Historical Document Summary.

The earliest located map of the area, from 1835, shows Ardwick Hall to the south-east of the site, which appears to lie undeveloped.

The more detailed Ordnance Survey of 1848 shows the site lying within an area of parkland associated with Ardwick Hall. The surrounding area is mostly comprised of large residential properties with areas of formal gardens.

The Historic Trade Directories suggest that Dolphin Street (originally Dolphin Place) and the client site were first developed between the publication of the 1873 and 1883 directories.

By 1889 three residential properties (3, 5 & 7 Dolphin Place) have been constructed within the site boundary. The nature of the surrounding area appears to be changing with areas of terraced housing being constructed particularly to the north and south. The roadway to the north of the site is named Back Dolphin Place and provides access to the rear of the client site properties and those on the south side of Park Street to the north.

Between 1895 and 1905 Dolphin Place is extended eastwards and renamed Dolphin Street. At the same time a new building adjoining the eastern boundary of the site was constructed. The use of the adjoining site is not identified on the Ordnance Survey of 1908, but by 1922 a further building had been constructed to the east and by 1932 the buildings had been combined and were producing Waterproof Garments. Grace's Guide to British Industrial History indicates that David Moseley and Sons operated from the Dolphin Street Works between 1906 and 1961. The site directly to the west at this time is identified as a Laundry.

Photographs of the Atlas Ink Works and Environs, Ardwick, dated 1932, show the rooflines of the buildings of the client site, with gardens to the front. The properties can be seen to be larger in scale than those to the north of Dolphin Place, which remain in-situ to the present day. The two buildings of the Waterproof Garment Works, David Moseley & Son Ltd, can be seen, along with the Engraving Works to the east.

By 1948 the Laundry site to the west had been cleared of buildings and lay vacant, whilst the Dolphin Street Works (Waterproof Garments) continued to operate to the east of the residential properties of the client site.

The 1968 Ordnance Survey shows a new building to the west of the site, whilst the Clothing Works continues to operate to the east.

Between 1981 and 1986 the client site is cleared of buildings and continues to lie vacant to the present day.

An aerial photograph from 2000 shows the site clear of buildings but with a covering of vegetation. A number of trees can be seen to be present along the western boundary with others on the southern boundary and towards the rear north-eastern corner.

By 2003 the site has been cleared of the vegetation and is vacant. A higher resolution and better lit photograph later in the same year shows a covering of low vegetation with some small bushes along the boundary.

The 2005 image shows only a small amount of vegetation remaining in the north-west corner of the site with the majority of the site bare.

There are no significant changes on the 2009 photograph and by 2013 the north-western corner of the site has also been cleared of vegetation.

The last image of 2016 shows some low level vegetation returning along the western boundary of the site.

Within 100m of the site the following potentially contaminative operations have been identified; Smithy, Works (Engraving, Waterproof Garments, Clothing, Paint & Varnish, Engineering (Automobile), Unspecified), Laundries, Garages and Warehouses.

Within 500m of the site, additional potentially contaminative operations have included; In-filled Pond, Railway (Station, Sidings, Goods Shed and Goods & Minerals Yard), Saw Mills, Timber Yard, Tramway Depot, Electricity Sub-Station & Stores, Corporation Yard, Cooperage, Works (Tyres, Ink, Paint & Varnish, Methylated Spirits), Factories, Mills, Breweries, Depots and a Garage.

3. ENVIRONMENTAL SETTING.

3.1 Geology.

The British Geological Survey map of the area shows the client site to be located on Superficial Deposits of Glacial Till (Devensian) – Diamicton, which in turn overlie Bedrock Deposits of the Chester Pebble Beds Formation.

No Artificial or Made Ground is identified within 50m of the site.

The Geological, Artificial Ground and Ground Workings Maps are included in the Groundsure GeoInsight Report included in Appendix D of this report.

Superficial Deposits.

The Superficial Deposits of Glacial Till are unsorted to poorly sorted deposits which contain particles ranging in size from clay to boulders suspended in a matrix of clay or sand. The deposits vary in thickness particularly where infilling hollows in the bedrock deposits.

These rocks were formed during cold periods with Ice Age glaciers scouring the landscape and depositing moraines of till with outwash sand and gravel deposits from seasonal and post glacial meltwaters.

The sediments were deposited during the Devensian Stage of the Quaternary Period (110,000 – 12,000 years ago).

Bedrock Deposits.

The Bedrock Deposits of the Chester Pebble Beds Formation are typically described as ‘Sandstone, fine- to coarse-grained, commonly pebbly, with conglomerates and sporadic siltstones; cross-stratified.’ (BGS Lexicon of Named Rock Units). The deposits are between 90m and 220m thick.

The strata were formed by rivers depositing mainly sand and gravel detrital material in channels to form river terrace deposits during the Early Triassic Epoch (247-252 million years ago).

Artificial Ground.

No Artificial Ground is identified within 50m of the client site.

An area of Infilled Ground is identified 56m to the west of the site, which relates to the infilled pond within Ardwick Green Park, a further area is shown 441m to the east of the site.

Five areas of Made Ground are identified within 500m of the site, with the closest areas being identified 123m and 329m to the north.

Ground Workings.

Areas of Historic Ground Workings have been identified 132m to the east of the client site and relate to the area of Ardwick Cemetery.

3.2 Hydrogeology.

Aquifers.

The Superficial Deposits of the Glacial Till are classified by the Environment Agency as a Secondary Undifferentiated Aquifer. These are deposits where it is not possible to attribute either Category A or B to a rock type due to variability in the strata in different locations.

The Bedrock Deposits of the Chester Pebble Beds Formation are classified by the Environment Agency as a Principal Aquifer. These are strata exhibiting high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply or river base flow on a strategic scale.

The Aquifer Designation maps for the area are shown in Figures 6a & 6b of the Groundsure EnviroInsight Report included in Appendix C of this report.

Source Protection Zones.

According to Environment Agency data, the client site does not lie within the Catchment of a Groundwater Source Protection Zone for a Potable Water Abstraction point in the area.

Groundwater Abstraction Points.

Two Historical and One Current Groundwater Abstraction Licenses have been identified for locations within 500m of the client site. The sites lie between 422m and 454m of the site and are detailed in section 6.3 of the Groundsure EnviroInsight Report included in Appendix C of this report.

Groundwater Vulnerability.

The Groundwater Vulnerability Map of the Environment Agency identifies the client site to lie within a 'Major Aquifer – High Leaching Potential' area.

3.3 Hydrology.

Surface Water Features.

There are no surface water features present within 250m of the site.

River Networks.

Four Detailed River Network records are identified within 500m of the client site;

River Name: Corn Brook
River Type: Underground River (Inferred).
Status: Currently Undefined.
Distance: 102m South.

River Name: Medlock.
River Type: Primary River & Culvert.
Status: Currently Undefined.
Distance: 434m, 438m & 468m North.

Flood Risk.

According to Environmental Agency data, the client site lies outside of areas identified as Flood Zone 2 or 3.

The Flood Maps are contained within Figures 7a & 7b of the Groundsure EnviroInsight Report included in Appendix C.

The Risk of Flooding from Rivers and the Sea is rated as Very Low.

According to British Geological Survey data the site does lie within 50m of an area potentially susceptible to Groundwater Flooding.

3.4 Mining, Extraction & Natural Cavities.

Section 5 of the Groundsure GeoInsight Report indicates that areas of Mining or Extraction Activities have been identified within 1km of the client site.

Although Groundsure's Historical Land-Use Database has not identified Mining or Abstraction Activities within 1km of the site, information from the Coal Authority indicate that the site is located within 1km of a Coal Mining Area.

There are also records of Non-Coal Mining activities within 1km of the site, with records of Limestone being mined 866m to the north-east.

There are no records of Natural Cavities within 1km of the site boundary.

The Report indicates that the site does not lie within a Brine Compensation District.

There are no records of Gypsum extraction in the area.

3.5 Ground Stability.

Information supplied by the British Geological Survey regarding Natural Hazards is included in Section 6 of the Groundsure GeoInsight Report and are summarised below;

Hazard	Risk
Shrink – Swell	Very Low
Landslides	Very Low
Soluble Rocks	Negligible
Compressible Ground	Negligible
Collapsible Rocks	Very Low
Running Sand	Very Low

3.6 Radon Risk.

BR 211 'RADON: Guidance on Protective Measures for New Buildings' shows the site to lie within an area where the Level of Protection Required is classed as 'None'.

Radon Protection Measures are therefore not deemed necessary.

3.7 Designated Environmentally Sensitive Sites.

The site does not lie within 500m of a Site of Special Scientific Interest.

There are no National Nature Reserves within 500m of the site.

There are no Special Areas of Conservation within 500m of the site.

There are no records of Special Protection Areas within 500m of the site.

There are no Ramsar designated sites within 500m of the site.

There are no records of Ancient Woodland within 500m of the site.

There are no Local Nature Reserves within 500m of the client site.

There are no World Heritage Sites within 500m of the site.

There are no areas identified as Environmentally Sensitive within 500m of the site.

There are no areas of Outstanding Natural Beauty within 500m of the client site.

The site does not lie within a National Park.

The site is not identified as lying within an area of Green Belt.

The site does lie in a Nitrate Vulnerable Area.

4. REGULATORY AUTHORITIES.

4.1 Landfill Sites.

According to Environment Agency data, there are no Active Landfill Sites within 500m of the client site.

There are no records of Historic Landfill Sites within 500m of the site.

Figure 3 of Groundsure EnviroInsight Report (Appendix C) identifies the location of any recorded Historic and Authorised Landfill Sites in the vicinity of the client site.

4.2 Other Waste Sites.

There are three records of Waste Treatment, Transfer or Disposal sites, relating to a Scrap Yard 438m to the north of the client site and a Waste Transfer Station 498m to the east.

Four records of Environment Agency licensed waste sites are recorded within 500m of the client site with the nearest record relating to a Metal Recycling site 374m to the north, in Temperance Street.

The records are detailed in Section 3.2 of the Groundsure EnviroInsight Report contained in Appendix C of this report.

4.3 Industrial Pollution.

There are no records of Historic IPC Authorisations within 500m of the client site.

There are no records of Part A (1) or IPPC Authorised Activities within 500m of the client site.

There are no records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the client site.

There are no records of List 1 Dangerous Substances Inventory Sites within 500m of the client site.

There are no records of List 2 Dangerous Substances Inventory Sites within 500m of the client site.

There are 6 records of a Part A (2) and Part B Activity and/or Enforcement within 500m of the client site;

Name: Ardwick Green Service Station, Ardwick Green, M13 9XF.
 Process: Petrol Vapour Recovery Process.
 Status: Historical Permit
 Permit Type: Part B
 Distance: 101m West

Name: Chartrange Ltd, 33 Harkness Street, Ardwick, M12 6BT.
 Process: Other Mineral Processes.
 Status: Historical Permit
 Permit Type: Part B
 Distance: 102m East

Name: Tesco Express Ardwick, Ardwick Green South, M13 9XF.
 Process: Unloading of Petrol into Storage at Service Station.
 Status: Current Permit
 Permit Type: Part B
 Distance: 156m West

Name: Ardwick Spares, 2 Hoyle Street, Ardwick, M12 6HG.
 Process: Non-Ferrous Metal Foundry Processes.
 Status: Historical Permit
 Permit Type: Part B
 Distance: 351m West

Name: TJ Stafford Ltd, Hoyle Street, Ardwick, M12 6HG.
 Process: Other Mineral Processes.
 Status: Historical Permit
 Permit Type: Part B
 Distance: 399m North

Name: Ardwick Service Station, Chancellor Lane, Ardwick, M12 6JZ.
 Process: Unloading of Petrol into Storage at Service Station.
 Status: Current Permit
 Permit Type: Part B
 Distance: 454m North-East

No Enforcements have been notified at the above sites.

4.4 Sites Licensed for Radioactive Substances.

According to Environment Agency data there are no sites licensed by the Environment Agency for the storage and use of Radioactive Substances within 500m of the client site.

4.5 Licensed Discharge Consents.

There are five records of Licensed Discharge Consents within 500m of the site;

Address: Cariocca Development SWO, Hyde Road / Devonshire Street.
 Effluent: Miscellaneous Discharges – Surface Water.
 Permit No. 016991353
 Receiving Water: Cornbrook Culvert.
 Status: Revoked.
 Effective Date: 1 November 1994
 Revocation Date: 1 November 1994
 Distance: 268m South-East

Address: Mancunian Way, Manchester.
 Effluent: Sewage Discharges – Sewer Storm Overflow – Water Company.
 Permit No. 01MAN0192
 Receiving Water: River Medlock.
 Status: Revoked.
 Effective Date: 1 January 1995
 Revocation Date: 18 July 1995
 Distance: 469m North

Address: Fairfield Street, Manchester.
 Effluent: Sewage Discharges – Sewer Storm Overflow – Water Company.
 Permit No. 01MAN0309
 Receiving Water: River Medlock.
 Status: Revoked.
 Effective Date: 1 January 1995
 Revocation Date: 1 January 1995
 Distance: 479m North

Address: Fairfield Street, Manchester.
 Effluent: Sewage Discharges – Sewer Storm Overflow – Water Company.
 Permit No. 016982730
 Receiving Water: River Medlock.
 Status: Post NRA Legislation where Issue Date > 31 August 1989.
 Effective Date: 30 September 1994
 Revocation Date:
 Distance: 479m North

Address: Fairfield Street / Crane Street, Manchester.
 Effluent: Sewage Discharges – Sewer Storm Overflow – Water Company.
 Permit No. 016982727
 Receiving Water: River Medlock.
 Status: Revoked.
 Effective Date: 28 November 1994
 Revocation Date: 31 March 1998
 Distance: 489m North

There are no records of Water Industry Referrals (Potentially harmful discharges to the public sewer) within 500m of the site.

4.6 Recorded Pollution Incidents.

According to Environment Agency records, there have been 7 records of Pollution Incidents within 500m of the client site (4 of which relate to the same incident on 11th September 2001);

Date	Distance/ Direction	Incident No & Description	Impact
13 October 2001	379m N	36400 Pollutant Not identified.	Water – Category 3 (Minor) Land – Category 4 (No Impact) Air – Category 3 (Minor)
11 September 2001	427m E	30107 Commercial Waste, Containers, Household Waste.	Water – Category 4 (No Impact) Land – Category 3 (Minor) Air – Category 4 (No Impact)
31 July 2001	469m NW	20628 Not Identified.	Water – Category 4 (No Impact) Land – Category 3 (Minor) Air – Category 3 (Minor)
30 May 2001	493m N	7029 Oils & Fuels (Diesel)	Water – Category 4 (No Impact) Land – Category 4 (No Impact) Air – Category 4 (No Impact)

4.7 Current Industrial Sites.

Section 4.1 of the Groundsure EnviroInsight Report lists 43 current potentially contaminative sites within 250m of the site. The data is summarised below.

Distance	Potentially Contaminative Activity
0-100m	Container & Storage, Clothing, Components & Accessories, Textiles, Fabrics, Silk & Machinery, Vehicle Parts & Accessories, Vehicle Hire & Rental, Unspecified Works or Factories.
100-250m	Clothing, Components & Accessories, Vehicle Repair, Testing & Servicing, Container & Storage, Textiles, fabrics, Silk & Machinery, Tanks (Generic), Petrol & Fuel Stations, Electricity Sub-Station, Business Park & Industrial Estate, Baking & Confectionery.

Full details are listed in Section 4 of the Groundsure EnviroInsight Report (Appendix C).

4.8 Fuel Sites.

There are two fuel filling stations located within 500m of the client site;

Address: Ardwick Green Express, Ardwick Green South, M13 9XF.
Company: Esso
Status: Open
Distance: 148m West

Address: Ardwick Service Station, Chancellor Lane, M12 6JZ.
Company: BP
Status: Open
Distance: 449m North-East

5. WALKOVER SURVEY.

5.1 General Site Description.

The site is rectangular in shape and is a vacant area between four storey building fronting on to Higher Ardwick, which lies to the west, and a five storey knitwear factory / warehouse which lies to the east.

The site is bounded by Dolphin Street to the south and Dolphin Place to the north.

5.2 Topography.

The site is approximately level and there are no obvious valley bottoms or depressions within the site that may have been filled during the past. It should be noted that the original buildings of the site may have had cellars.

There is a slightly raised area towards the north-western boundary of the site, where some rough grass vegetation is present.

There are no indications of any excavations at the base of any sloping ground.

There are no signs of landslip on site.

There are no signs of significant subsidence or ground movements in the area of the site.

5.3 Soils and Rocks.

There are no natural soils exposed on site. A covering of crushed recycled stone provides a hard standing over the site.

There is no evidence of peat or other highly compressible material at or immediately below the surface.

There is no evidence of changes in soil type evident on site.

5.4 Visible Evidence of Contamination.

There is no evidence of visible contamination on site. A skip and some small amounts of fly-tipped material are present within the cobbled street of Dolphin Place, however this lies outside of the site boundary.

The site is covered by crushed stone hardstanding with small areas of rough grass evident along the eastern and western boundaries.

There are no bodies of surface water on the site.

Gas Protection Measures are not evident in or around the site.

An asbestos survey has not been carried out as part of the desk study, however no buildings are present on site and no potential asbestos products were noted in the crushed stone hardstanding.

5.5 Vegetation.

There is little vegetation within the curtilage of the site due to the nature of the site surface. Some grass and low scrub has established along the boundaries of the site, particularly in the north-west corner.

The areas of growth appear healthy with no obvious die back. The sparseness of the central area could be due to the area being trafficked or the lack/quality of growing medium in the surface material.

There are no trees on site.

5.6 Surface Water Bodies.

There are no water courses/bodies of water within the site.

There are no signs of flooding on site.

There is no evidence of reeds or other water loving plants.

There is no evidence of dis-coloured water within the site.

5.7 Groundwater.

There are no wells evident on site.

There are no groundwater seepages/springs evident on site.

There are no signs of water-logged topsoil on site.

Groundwater abstraction is not carried out on site.

5.8 Presence of Wildlife.

The site does not lie within an area of ecological importance e.g. SSSI or National Park.

There are no obvious animal burrows present within the site.

5.9 Services.

A full survey of services has not been carried out as part of the walkover survey.

No services were noted on site as part of the walkover survey.

5.10 History of Use.

There is no visible evidence of the previous usage of the site, however it is believed to have originally contained residential properties.

5.11 Surrounding Area.

The surrounding area comprises residential properties to the north and industrial / commercial buildings to the east, south and west.

Approximate distance to nearest properties.	Industrial:	Adjacent to east.
	Commercial:	Adjacent to west.
	Residential:	Adjoining to north.

6. CONCEPTUAL MODEL.

6.1 Site Summary.

According to the historical documents, the client site originally lay within the grounds of Ardwick Hall before being developed between 1873 and 1883 as three residential properties (3, 5 & 7 Dolphin Place).

Between 1895 and 1905 Dolphin Place was extended eastwards and renamed Dolphin Street. At the same time a new building adjoining the eastern boundary of the site was constructed. The use of the adjoining site is not identified on the Ordnance Survey of 1908, but by 1922 a further building had been constructed to the east and by 1932 the buildings had been combined and were producing Waterproof Garments. Grace's Guide to British Industrial History indicates that David Moseley and Sons operated from the Dolphin Street Works between 1906 and 1961. The site directly to the west at this time is identified as a Laundry.

Photographs of the Atlas Ink Works and Environs, Ardwick, dated 1932, show the rooflines of the buildings of the client site, with gardens to the front. The properties can be seen to be larger in scale than those to the north of Dolphin Place, which remain in-situ to the present day. The two buildings of the Waterproof Garment Works, David Moseley & Son Ltd, can be seen, along with the Engraving Works to the east.

By 1948 the Laundry site to the west had been cleared of buildings and lay vacant, whilst the Dolphin Street Works (Waterproof Garments) continued to operate to the east of the residential properties of the client site.

The 1968 Ordnance Survey shows a new building to the west of the site, whilst the Clothing Works continues to operate to the east.

Between 1981 and 1986 the client site is cleared of buildings and continues to lie vacant to the present day.

An aerial photograph from 2000 shows the site clear of buildings but with a covering of vegetation. A number of trees can be seen to be present along the western boundary with others on the southern boundary and towards the rear north-eastern corner.

By 2003 the site has been cleared of the vegetation and is vacant. A higher resolution and better lit photograph later in the same year shows a covering of low vegetation with some small bushes along the boundary.

The 2005 image shows only a small amount of vegetation remaining in the north-west corner of the site with the majority of the site bare.

There are no significant changes on the 2009 photograph and by 2013 the north-western corner of the site has also been cleared of vegetation.

The last image of 2016 shows some low level vegetation returning along the western boundary of the site and this was confirmed during the walkover survey of the site.

Within 100m of the site the following potentially contaminative operations have been identified; Smithy, Works (Engraving, Waterproof Garments, Clothing, Paint & Varnish, Engineering (Automobile), Unspecified, Knitwear), Laundries, Garages, Warehouses, Vehicle Parts & Accessories, Vehicle Hire, Containers & Storage.

Within 500m of the site, additional potentially contaminative operations have included; In-filled Pond, Railway (Station, Sidings, Goods Shed and Goods & Minerals Yard), Saw Mills, Timber Yard, Tramway Depot, Electricity Sub-Station & Stores, Corporation Yard, Cooperage, Works (Tyres, Ink, Paint & Varnish, Methylated Spirits), Factories, Mills, Breweries, Depots, Garage and Fuel Filling Stations.

The site does not lie within a Flood Risk Area.

The site lies upon strata of Glacial Till - Diamicton. The strata are considered to be a Secondary Undifferentiated Aquifer by the Environment Agency due to their potential permeability. The Undifferentiated designation is attributed to strata that has previously been classified as minor and non-aquifer at different locations due to variability in the strata. There is therefore some potential for the movement of contaminants to and from the site.

The site does not lie within a Groundwater Protection Zone.

6.2 Surrounding Area.

The surrounding area comprises residential properties to the north but Industrial and Commercial buildings on all other sides.

6.3 Geology.

The geological map of the area shows the client site to be located upon Superficial Strata of Glacial Till - Diamicton, which in turn overlie Bedrock Strata of the Chester Pebble Beds Formation.

6.4 Hydrogeology.

The Superficial Strata of the Glacial Till may be permeable and as such are classified by the Environment Agency as a Secondary Undifferentiated Aquifer.

The site does not lie within a Groundwater Source Protection Zone, however two Groundwater Abstraction Licences for industrial purposes have been identified within 500m of the site.

The Groundwater Vulnerability in the area is identified as a Major Aquifer – High Leaching Potential.

The potential permeability of the underlying strata makes it possible that contamination could migrate either onto or away from the site.

6.5 Potential Sources of Contamination.

The following is based on information from the desk study:

Potential sources of contamination which are/have been located in the vicinity of the site (0-500m) include; Smithy, Works (Engraving, Waterproof Garments, Clothing, Paint & Varnish, Engineering (Automobile), Unspecified, Knitwear), Laundries, Warehouses, Vehicle Parts & Accessories, Vehicle Hire, Containers & Storage, In-filled Pond, Railway (Station, Sidings, Goods Shed and Goods &

Minerals Yard), Saw Mills, Timber Yard, Tramway Depot, Electricity Sub-Station & Stores, Corporation Yard, Cooperage, Works (Tyres, Ink, Paint & Varnish, Methylated Spirits), Factories, Mills, Breweries, Depots, Garages and Fuel Filling Stations.

The potential permeability of the underlying Glacial Till deposits could allow the migration of contaminants to and from the site.

6.6 Ground Gases.

The Environment Agency has no records of Active or Historic Landfill within 500m of the client site.

According to BR211 'RADON : Guidance on Protective Measures for New Buildings' the site lies in an area where the Level of Protection Required is assessed as 'None'.

6.7 Potential Receptors.

The following list of potential receptors are identified for the site

- Future users of site.
- Groundworkers
- Adjacent Properties & Land (Residential & Industrial)
- Vegetation
- Buildings and Materials
- Underlying Strata
- Secondary Undifferentiated Aquifer

6.8 Potential Pathways.

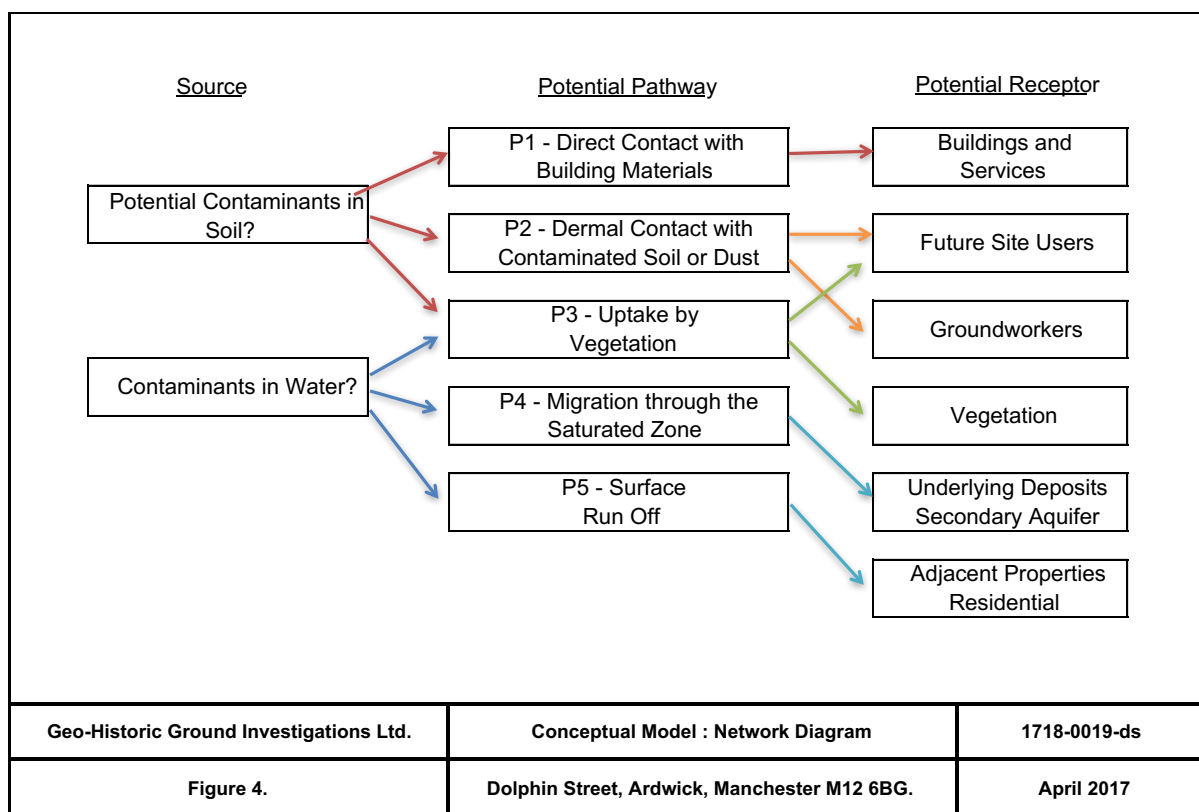
The following potential pathways are identified for the site,

- Direct contact (P1) – contaminant effect to building materials.
- Contact with soil or dust on the site (P2) – contaminants may be absorbed by dermal contact, or by inhalation of dust particles, by future site users and ground-workers.
- Uptake by Vegetation (P3)
- Migration through the Saturated Zone (P4) – the site is located upon deposits identified as a Secondary Undifferentiated Aquifer, migration through the saturated zone is therefore possible.
- Surface Run Off (P5) – surface run-off of storm water containing potential soluble or mobile contaminants could affect adjacent sites and watercourses.

6.9 Limitations and Uncertainties.

The following limits and uncertainties apply to the conceptual model of the site,

- Actual presence, nature and extent of any contamination.
- Presence, thickness and permeability of any Made Ground.



7. RISK ASSESSMENT.

7.1 Contamination from 'On Site Sources'.

The client site appears to have first been developed as residential properties 3, 5 & 7 Dolphin Place, later renamed Dolphin Street, between 1873 and 1883, having formerly lain within the grounds of Ardwick Hall which lay to the south-east.

There is no evidence that the properties of the client site have been used for any potentially contaminative purposes. 5 and 7 Dolphin Street have been identified as both a hotel and as apartments in their history.

The properties on the client site were demolished between 1980 and 1986 and the site appears to have remained vacant since.

Aerial photographs from 2000 show the site clear of buildings but with a covering of vegetation. A number of trees can be seen to be present along the western boundary with others on the southern boundary and towards the rear north-eastern corner.

By 2003 the site has been cleared of the vegetation and is vacant. A higher resolution and better lit photograph later in the same year shows a covering of low vegetation with some small bushes along the boundary.

The 2005 image shows only a small amount of vegetation remaining in the north-west corner of the site with the majority of the site bare.

There are no significant changes on the 2009 photograph and by 2013 the north-western corner of the site has also been cleared of vegetation.

The last image of 2016 shows some low level vegetation returning along the western boundary of the site and this was confirmed during the walkover survey of the site.

No vehicles have been identified on the site from the aerial photographs, however there is a distinct possibility that the site has been used for parking, evident in the lack of vegetation regrowth within the centre of the site.

There is considered to be a low risk of contamination on the site due to the current or previous site usage. However; the unknown provenance of the surface covering of recycled stone, possibility of use as a car parking area and lack of vegetation regrowth within the central area of the site calls for some investigation of the surface materials.

7.2 Contamination from Adjoining Sites.

The client site is rectangular in shape and adjoined to the north and south by the roads of Dolphin Place and Dolphin Street.

To the west a four storey office building is present; this was constructed between 1963 and 1968. Previous to this the site had lain vacant since at least 1948. The original residential property which occupied the site had been recorded as a Laundry between 1911 and 1929.

To the east the five storey Factory building was constructed between 1895 and 1905 when Dolphin Street was extended to the east and renamed from Dolphin Place. The earliest listing for the site was David Moseley & Son Ltd, Waterproof Garment Manufacturers who operated from the site between 1906 and 1961. More recently the site has operated as a Knitwear Supplier. It should be noted that the adjoining building footprint covers the whole of the site and would limit the potential for any spilt product to enter the underlying strata.

The underlying Glacial Till strata are potentially permeable and the migration of contaminants on to the site is therefore possible.

The site is considered to be at low to moderate risk of contamination migrating on to the site from adjoining properties.

7.3 Contamination from the Surrounding Area.

The area surrounding the site is predominantly light industrial in nature with some residential buildings directly to the north of the site, on the opposite side of Dolphin Place.

Historically the area has housed, Ink Works, Varnish & Paint Works, Methylated Spirit Works and more recently has been associated with storage and warehousing and garages.

The geological map for the area indicates that the site is underlain by potentially permeable Glacial Till strata which could potentially allow the migration of contaminants on to site.

Potentially contaminative operations within 500m of the site include; Smithy, Works (Engraving, Waterproof Garments, Clothing, Paint & Varnish, Engineering (Automobile), Unspecified, Knitwear), Laundries, Warehouses, Vehicle Parts & Accessories, Vehicle Hire, Containers & Storage, In-filled Pond, Railway (Station, Sidings, Goods Shed and Goods & Minerals Yard), Saw Mills, Timber Yard, Tramway Depot, Electricity Sub-Station & Stores, Corporation Yard, Cooperage, Works (Tyres, Ink, Paint & Varnish, Methylated Spirits), Factories, Mills, Breweries, Depots, Garages and Fuel Filling Stations.

The site is considered to be at low risk of contamination migrating on to the site from the surrounding area.

7.4 Conclusions.

Overall the site is regarded as being of low to moderate risk in terms of some contamination being present.

There have been no potentially contaminative operations identified within the site, with the exception of possible vehicle parking. However, it is concluded that it would be prudent to investigate the chemical composition of the Made Ground across the site due to the unknown provenance of the crushed aggregate surface covering, and lack of plant growth within the central area.

The adjoining property to the west was originally residential in nature before operating as a small Laundry during the early 20th Century. By 1948 the building had been demolished and the site lay vacant until the 1960s when the current office building was constructed. There is considered to be a low risk of any contamination from the site migrating onto the client site.

The adjoining building to the east was constructed around 1905 and was occupied by David Moseley & Son, Waterproof Garment Manufacturers until 1961. More recently the site has operated as a knitwear supplier. The footprint of building covers the complete site and as such would limit the potential for any spillages of materials to contaminate the underlying strata. There is considered a low to moderate risk of contamination from the adjoining site migrating onto the client site.

An off-set grid of approximately 5 sample locations is considered suitable for the site to allow sampling of the Made Ground materials and underlying Natural Strata.

Sampling should include but not be limited to; a Metal Suite (As,B,Cd,Cr,Cu,Ni,Pb,Hg,Se,Zn), Total Petroleum Hydrocarbons (EC Banded with Aliphatic/Aromatic Split), Polycyclic Aromatic Hydrocarbons, BTEX, Phenols, Asbestos, pH and SO₄.

Uncertainties always exist as to the *actual* presence of contamination in the vicinity of the site. This report highlights only the *potential* for contamination to be present, based on the data available at the time of research.

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