Intended for
Workman LLP

On behalf of
Threadneedle UKPEC6 Hayes Jersey LP

Date
October 2020

Project Number
R1620010949_01_PhI

HYDE PARK HAYES BUILDING 3

PHASE I ENVIRONMENTAL ASSESSMENT

RAMBOLL

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Project No.	**R1620010949_01_PhI**
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Date	**22nd October 2020**
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EXECUTIVE SUMMARY

Ramboll UK Limited ("Ramboll") was instructed by Workman LLP on behalf of Threadneedle UKPEC6 Hayes Jersey LP (the "Client"), to provide consultancy services along with the preparation of a Phase I Environmental Assessment of Hyde Park Hayes Building 3 (the "site").

The report is submitted as part of a notification application for prior approval for the change of use of building HPH3 from office to residential.

The application is submitted pursuant to Class O of the Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2016, for the conversion of the existing building from office (Use Class B1a) to residential (Use Class C3). As per the legislation outlines under Class O, there is a requirement to assess the potential for the contamination of soil and groundwater to have occurred at the subject site – this report provides such assessment.

A previous application was approved in 2018 for change of use of the site into residential usage, with no issues raised by the Planning Authority in relation to environmental matters considered by this report. A standard Condition was imposed relating to identification of unexpected contamination (see Section 3.4.1 below for full details).

The review was undertaken by desk-based research, review of previous reports, regulatory enquiries, and a site inspection (undertaken in 2014). The site forms the north-western portion of the larger Hyde Park Hayes site, which is located in the London Borough of Hillingdon, approximately 2.4km north of Heathrow Airport, and occupies an area of approximately 0.46 hectares. The site is currently an office campus in occupation as office accommodation (use Class B1).

The findings of the Phase I Environmental Review may be summarised as follows:-

- The potential for significant ground contamination to exist at the site due to current and historic uses is considered to be ***low to moderate***.
- The potential for significant ground contamination to exist at the site as a result of off-site activities is considered to be ***low***.
- The hydrogeological sensitivity of the site is considered to be ***moderate to high*** (due to the underlying Principal Aquifer), though the vulnerability of groundwater resources is considered to be ***low to moderate*** (due to the extensive building/hardstanding coverage of the site).
- The hydrological sensitivity of the site is considered to be ***low to moderate*** (as the nearest assessed watercourse is man-made and has been classified as having 'Moderate' Ecological Potential by the EA under the WFD). The vulnerability is considered to be ***low*** (since the nearest surface watercourse is located approximately 490m north-east).
- The site is situated outside a currently designated floodplain; in general terms this means that the annual probability of the site flooding from rivers or seas is less than 1 in 1000 (<0.1%).
- The sensitivity of the site in relation to land use is considered to be ***low to moderate*** (since the nearest residential properties are located 60m north). Under the proposed usage the nearest sensitive land use would be residential properties on-site.

In the UK, a risk-based approach is used to assess the potential impact associated with ground contamination. Overall the current and former use of the site indicates that there is a ***low to moderate*** potential for significant or widespread soil and groundwater contamination.

Based on the available information the site is not considered likely to be classified as Contaminated Land under Part 2A of the Environmental Protection Act 1990. Given that the proposals do not involve groundworks / demolition, there is considered to be a ***low to moderate***

risk of new contaminant pathways being created by the proposed change of use. The internal refurbishment works are not considered to pose a significant environmental risk.

1. INTRODUCTION

1.1 Background

Ramboll UK Limited ("Ramboll") was instructed by Workman LLP on behalf of Threadneedle UKPEC6 Hayes Jersey LP (the "Client"), to provide consultancy services along with the preparation of a Phase I Environmental Assessment of Hyde Park Hayes Building 3 (the "site").

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A previous application was approved in 2018 for change of use of the site into residential usage, with no issues raised by the Planning Authority in relation to environmental matters considered by this report. A standard Condition was imposed relating to identification of unexpected contamination (see Section 3.4.1 below for full details).

This report has been prepared for the use of the Client and any person or entity in connection with the consideration and determination of the above application and may not be relied upon by any other person or entity without Ramboll's prior express written permission.

1.2 Objectives

The objectives of the Phase I Environmental Assessment are to assess the potential for ground contamination and its likely implications. Specifically the assessment considers the potential for soil and groundwater contamination, from current and historical uses on and off-site in order to assess potential risks to sensitive receptors such as:-

- occupants;
- controlled waters; and
- building fabric and underground infrastructure (e.g. water supply pipeline).

Then, on the basis of the above, to provide an opinion on whether the site would be classified as Contaminated Land under Part 2A of the Environmental Protection Act 1990.

The assessment does not constitute an environmental compliance assessment of tenant activities at the site.

This assessment has been undertaken with the assumption that the site is to be internally converted from office (Use Class B1a) to residential (Use Class C3).

Under The Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2016, which enables the change of use from offices (Class B1a) to residential (Class C3) subject to prior approval, there is a requirement to consider contamination risks on the site.

1.3 Scope and Limitation

The scope of the Phase I Environmental Assessment has included the following:-

- examination of historic, recent and current Ordnance Survey plans to identify activities which might have led to contamination of soil or groundwater (for example, from manufacturing processes, from storage activities or waste disposal practices) both on the subject site and on adjacent sites;

- examination of published records and plans on the shallow and deep geology and hydrogeology of the site to assess the vulnerability and sensitivity of groundwater and surface water resources to contamination, if present, and the possible direction of movement off site, if mobile;
- search of a proprietary database of environmental permits, records and incidents at the site and surrounding area;
- a review of existing reports and environmental assessment data for the site and near vicinity obtained by Ramboll; and
- a walkover site inspection carried out by Ramboll on 13th November 2014 as part of an Environmental Assessment of the wider Hyde Park Hayes site area.

1.3.1 Scope of Works Notable Exceptions and Restrictions

No sampling or analysis of soils, waters or other materials has been carried out as part of the Phase I Environmental Assessment.

The assessment did not include an audit of operational environmental compliance issues or environmental compliance requirements associated with close-down of operations and site exit.

The assessment specifically excluded a detailed assessment as to the presence and condition of asbestos or asbestiform containing materials at the site.

1.4 General Limitations and Reliance

This report has been prepared by Ramboll exclusively for the intended use by the client in accordance with the agreement (email dated 27th February 2020) between Ramboll and the Client defining, among others, the purpose, the scope and the terms and conditions for the services. No other warranty, expressed or implied, is made as to the professional advice included in this report or in respect of any matters outside the agreed scope of the services or the purpose for which the report and the associated agreed scope were intended or any other services provided by Ramboll.

In preparation of the report and performance of any other services, Ramboll has relied upon publicly available information, information provided by the Client and information provided by third parties. Accordingly, the conclusions in this report are valid only to the extent that the information provided to Ramboll was accurate, complete and available to Ramboll within the reporting schedule.

Ramboll's services are not intended as legal advice, nor an exhaustive review of site conditions and/or compliance. This report and accompanying documents are initial and intended solely for the use and benefit of the Client for this purpose only and may not be used by or disclosed to, in whole or in part, any other person without the express written consent of Ramboll. Ramboll neither owes nor accepts any duty to any third party, unless formally agreed by Ramboll through that party entering into, at Ramboll's sole discretion, a written reliance agreement.

Unless otherwise stated in this report, the scope of services, assessment and conclusions made assume that the site will continue to be used for its current purpose and end-use without significant changes either on-site or off-site.

Ramboll's scope of services for this assignment did not include collecting samples of any environmental media. Ramboll cannot rule out the existence of conditions, including, but not limited to, contamination not identified and defined by the data and information available to and/or obtained by Ramboll. Specifically, this assessment must not be considered as an asbestos survey (whether in built structures, waste, soils, etc.), even though the subject of asbestos-containing materials may have been discussed in the report.

2. SITE INSPECTION

The following information was derived from a site inspection undertaken by Tom Hasler of Ramboll (formerly Ramboll Environ) on 13th November 2014. An interview was conducted with Ian Maguire, a Maintenance Manager, of Rackspace, Hayes.

Figures showing the location of the site, site boundary and key features on-site are presented in Appendix 1. Photographs taken during the site inspection are presented in Appendix 2.

2.1 Site Setting

The site forms the north-western portion of the larger Hyde Park Hayes Business Park. The Park is located in the London Borough of Hillingdon, approximately 2.4km north of Heathrow Airport at National Grid Reference 509130, 179330. Access to the site is from Millington Road on the eastern site boundary (see Figure 1, Appendix 1).

The full address of site is:-

Hyde Park Hayes Building 3
11 Millington Road
Hayes
UB3 4AZ

The total site area is approximately 0.46 hectares. The site is located at an elevation of approximately 33m above Ordnance Datum (AOD), and is flat and level with no apparent significant variance in site topography. Land adjacent to the north/north-west, is located up to approximately 2m higher than the site (separated by a brick retaining wall).

The site is located within an area of mixed land use, with commercial and residential properties in close proximity to the site. The surrounding land uses are detailed in Table 2.1 below.

Table 2.1: Adjacent and Surrounding Land Uses

Direction	Occupant	Activities	Distance
North	North Hyde Road	N/A	Adjacent
	Yodel	Delivery and distribution depot	20m
	Residential Properties	Residential	60m
	Mainline Railway Line	N/A	80m
South	Millington Road	N/A	Adjacent
	Currently undeveloped plot	N/A	20m
East	Millington Road	N/A	Adjacent
	Hyde Park Hayes 2	Offices	10m
West	North Hyde Road / Roundabout	N/A	Adjacent
	Residential building	Residential	70m

2.2 Site Description

The site is irregular in shape and occupied by a seven-storey, inverted L-shaped office building (in the south of the site) of concrete frame construction. The building was completed in the mid-

1970s and comprehensively refurbished internally and externally in 1996 and in 2006. The building is currently let to a range of office occupiers.

A small single storey building housing engineering and maintenance stores and plant equipment (including a back-up power generator), is located in the south-western corner of the site.

Buildings on-site occupy approximately 40% of the site area. Asphalt surfaced car parking is present in the centre, north and south-east of the site, and block-paved hardstanding is present around the southern and eastern edges of the main building. Areas of hardstanding occupy approximately 50% of the site area. Small areas of soft-landscaping are present around the northern and western site boundaries and along the western edge of the building; these areas occupy approximately 10% of the site area.

The hardstanding was observed to be in good condition, with no significant signs of stress, strain or discolouration. A layout of the site is included as Figure 2 (Appendix 1).

2.3 Site Operations

Current (October 2020) site occupants are detailed in Table 2.2.

Table 2.2: HPH3 Occupiers

Unit	Tenant Occupant	Nature of Activity
Ground Floor	Rackspace Ltd	Office Activities & Gymnasium
1st Floor North	Rackspace Ltd	Office Activities
1st Floor West	Vacant	N/A
2nd Floor North	Vacant	N/A
2nd Floor West	WNS Global Services (UK) Ltd	Office Activities
3rd Floor	Vacant	N/A
4th Floor North	Fujitsu Laboratories of Europe Limited	Office Activities
4th Floor West	Greenbrook Healthcare (Hounslow) Limited	Office Activities
5th Floor	Hayes Hyde Park Centre Limited	Office Activities
6th Floor	Hayes Hyde Park Centre Limited	Office Activities

Ramboll did not access all floors within the building, although the site representative assured Ramboll that activities within the building are all typical 'office type' activities, and no manufacturing or processing occurs within Building 3.

Access to the building is via the main lobby located in the east of the building on the ground floor.

Refuelling of an underground storage tank (UST) associated with diesel back-up power generators is thought to have taken place on-site; however, this is not thought to have been conducted for some time (further details provided in Section 2.5).

2.4 Building Construction and Asbestos Containing Materials

HPH3 was constructed in 1976 according to the site contact. The building is a concrete framed structure with a combination of facing brickwork, glazing and stone cladding to the six (6) upper floors. The roof is covered in asphalt providing access to heating, ventilation and air conditioning (HVAC) plant.

Ramboll did not undertake a detailed asbestos survey (in accordance with HSG264, Asbestos - The Survey Guide, HSE 2010) as part of its scope; however, the site representative confirmed that asbestos is known to exist within HPH3, in the form of gaskets within the boiler room and walkway tiles in communal stairwells. The site contact reported that identified asbestos containing materials (ACMs) are monitored and maintained annually, details of which are included in the building asbestos register. No labelled ACMs were observed by Ramboll during the inspection.

2.5 Storage of Chemicals and Hazardous Substances

There is one (1) reported current UST on-site which is associated with the back-up emergency power generator for HPH3. The tank is understood to contain red diesel, although the site representative could not confirm the capacity of the tank, and could only confirm that it was between quarter and half full at the time of inspection. The site representative stated that the tank is manually dipped, and there is reportedly no gauge to confirm the capacity. The site representative stated that there had not been a delivery of fuel for the tank in over fifteen (15) years and that the back-up generator to which it supplies is very rarely run (Photo 1, Appendix 2)

The tank is filled from an off-set fill point located approximately 5m from the tank; access to the fill point is from the main access road for the site (Photo 2, Appendix 2). The fill point was observed to be freshly painted and in good condition with no signs of spills. Some of the connecting pipework between the tank and the generator was observed to be slightly deteriorated as it emerged from below ground to enter the generator room; however, the site representative informed Ramboll that they have not had reports of leaks or an unexplained loss of fuel in the past 15 years.

In addition, there is a network of redundant vent pipes in close proximity to the UST (Photo 3, Appendix 2). These are associated with two (2) former petrol UST's that are present under the car park in the north of the site; no details of their capacity and construction was known. The tanks formerly supplied fuel to petrol pumps (unknown number) to refuel company cars when the site was previously occupied by Safeway. It was reported by the site contact that the tanks had been foam filled and the pumps removed in 1996. There was no visual evidence at the surface as to where the tanks are located, as the car park has been relatively recently re-laid with asphalt (Photo 4, Appendix 2).

In addition to the operational UST noted above, a 650 litre day tank is attached to the generator located in the single storey building in the south-western corner of the site, which is fed from the UST outlined above (Photo 5, Appendix 2). This was observed to be approximately 80% full during the site inspection and was noted to be a single-skin steel construction with external capillary gauge. The ground surrounding the generator and day tank was observed to be of good condition concrete with no signs of spills, leaks or fatigue. The site representative reported that there have been no fuel leaks associated with this tank. Ramboll understands that as part of the proposed change of use the back-up generator will no longer be required. The proposed refurbishment works would include the removal of the generator and day tank and decommissioning of the UST.

A small lockable COSSH cupboard is located in the maintenance workshop adjacent to HPH3 which was observed to contain approximately 20 paint tins (1-5 litre containers), a small tin of varnish and a 1 litre bottle of white spirit. The ground surrounding the cupboard was observed to be clean with no signs of spills or leaks.

Small quantities of domestic cleaning chemicals (1-5 litre containers) are stored within cleaner's store rooms; however, the general housekeeping within the site buildings was observed to be good and no staining was observed within the vicinity of chemical storage.

2.6 Emissions to Air

No significant sources of air emissions are present on-site and it is considered unlikely that the site would require authorisation from the Regulatory Authorities in relation to air emissions.

Heating is provided by a pair of 650kw mains supplied electric boilers located in the plant room to provide heating to the air handling systems; these exhaust through flue systems to atmosphere.

The site contact reported that with the exception of kitchen exhaust and the running of the generators, there are no other activities on site that would generate an emission to air.

Those observed are considered not to contribute significant emissions to air and are not considered to present a significant environmental contamination risk.

2.7 Water, Wastewater and Drainage

A drainage plan for the site was not available for review by Ramboll during the site inspection. The site is reportedly provided with a mains potable water supply and mains drainage to the municipal foul sewer system.

The site representative stated that there are no interceptors on-site and there were no historical interceptors associated with the former fuelling operations on-site. No oil-water interceptors were observed by Ramboll during the site visit, although their presence or absence cannot be fully confirmed without review of a comprehensive drainage plan.

It is unlikely that the current (and proposed future) activities on-site would require a wastewater discharge consent.

2.8 Waste Disposal

Wastes generated on-site comprise predominately general waste, food waste and recyclables (including paper, cardboard, plastic packaging and glass bottles). Designated external waste storage areas for the buildings are located on the ground floor to the north of HPH3. The waste is separated into general and recyclable materials and is stored within wheeled bins (capacity of 1,100 litres each).

The site representative reported that both general and mixed waste is collected by SITA on a daily basis.

General housekeeping of the waste storage areas was observed to be reasonable with some minor staining observed to the concrete flooring. The site contact reported that spent fluorescent lighting tubes (hazardous waste) are stored in a coffin before being collected by a specialist contractor as required. It is understood that Waste Electrical and Electronic Equipment (WEEE) is collected and disposed of by an external contractor when required.

2.9 PCBs

One (1) electricity sub-station is present on-site (reference Dawley Road Roundabout), located adjacent to the generator for HPH3, which is the responsibility of SSE Power Distribution. The age of the sub-station is not known, and as such it is possible that polychlorinated biphenyl's (PCBs) could be present within transformer coolant oils. SSE Power Distribution would have primary responsibility for assessing and maintaining the equipment, including the coolant oils.

2.10 Ozone Depleting Substances

A number of air conditioning inverter units are located on the roof of the site buildings and around the periphery of HPH3. The type of refrigerant used could not be confirmed for all air conditioning units present in these areas however, a number of the units were observed to contain varying quantities of R410A, a non-ozone depleting substance. The larger chiller units

located on the roof of the building used to provide cooled air to the air handling units were observed to make use of R137A, also a non-ozone depleting substance.

The site representative confirmed to Ramboll that there is no R22 refrigerant used on-site.

Refrigerant gases are not generally considered to pose a ground contamination risk.

2.11 Other Issues

According to the site representative, there is no known history of complaints, enforcements or other regulatory actions regarding the site or immediate surrounding properties in relation to environmental conditions.

A programme of environmental monitoring of groundwater across the Hyde Park Hayes site has been undertaken by Ramboll in support of discharge of Planning Conditions associated with the redevelopment of HPH5. Two (2) monitoring wells included within the monitoring programme lie within the boundary of HPH3 (BH02 and BH30). Further details are provided in Section 5 below.

3. HISTORICAL & REGULATORY INFORMATION

3.1 Map History

Ramboll has undertaken a review of historical mapping and aerial imagery (where available) obtained from a proprietary environmental database which is summarised below. Selected historical maps are presented in Appendix 3.

The historical development of the site and surrounding area is detailed in Table 3.1 below.

Table 3.1: Site History

Date & Scale	Features On-Site	Features Off-Site
1864-66 1:2,500	The site is undeveloped and likely in agricultural use, with a foot path passing north-east/south-west through the west of the site.	The surrounds are predominantly undeveloped and likely in agricultural use. Roadways are present to the north on embankments (from 30m), a railway is located 70m north, a pond/lake is indicated 80m north-west, and Woolpack Farm is 150m north-west (comprising a number of small farm buildings).
1895-97 1:2,500 & 1:10,560	No significant changes noted on-site.	Brickfields are annotated 200m west.
1914 1:2,500	No significant changes noted on-site.	Residential buildings have been constructed 90m north-west and 110m south. Industrial development has occurred to the north-east; this comprises a large Gramaphone Works 120m north-east (including a number of Tanks), and Goss Works (210m north-east). A further pond/lake is indicated 70m north-east. The pond/lake 80m north-west is no longer evident, and the Brickfields 200m west are no longer annotated.
1920 1:10,560	No significant changes noted on-site.	Further industrial land use can be seen in the wider area to the north-east, including a Partition Works (370m north-east) and an Engineering Works (400m north-east).
1934-35 1:2,500 & 1:10,560	A feature (likely to be a fence-line) passes north-east/south-west through the western area of the site.	A large Aviation Works has been constructed 70m east; this comprises three (3) large buildings, a number of smaller structures, and Tanks (110m east). Further Gramaphone Factories have been constructed 120m north (adjoined to the existing Gramaphone Works), these include two (2) large circular Tanks 210m north. Land to the west (from 70m) has been developed with residential buildings, and the pond/lake 70m north-east is no longer present.
1938 1:10,560	No significant changes noted on-site.	No significant changes in the vicinity noted.
1947-48 Arial Photography at	Land east of the fence-line (approximately 70% of the site area) appears	The Aviation Works has undergone expansion, with the two (2) main buildings having been extended to the south. Land adjacent to the

Date & Scale	Features On-Site	Features Off-Site
1:1,250 & 1:10,560	unsurfaced and in use for storage activities. This is likely associated with the Aviation Works off-site to the east. The nature of land use west of the fence line is unconfirmed, the appearance is potentially indicative of allotment gardens.	east, north-east, and south (extending on-site) appears to be in use for storage associated with the Aviation Works.
1960 & 1965 1:10,000 Maps appears partially out-dated	No significant changes noted on-site. Mapping appears not to have been updated in the vicinity of the site.	A large Factory has been constructed 240m north-west.
1965-66 1:1,250	Six (6) rectangular buildings are located in the north-east of the site, depicted with dotted outlines, potentially indicating canopied areas. Areas in the centre and south of the site are depicted with dotted outlines; likely relating to areas of hardstanding for storage activities. The fence-line and footpath are no longer present.	The Aviation Works to the east is now annotated as an Aeronautical Engineering Works and has undergone extension with small square structures (now adjacent to the south-east of the site), an unidentified mound (adjacent to the north-east), and larger buildings present (from 20m east). The Tanks (110m east) are no longer annotated. North Hyde Road had been constructed along the north-western site boundary. A Transport Depot has been constructed 140m north-west (replacing Woolpack Farm), this included two (2) Tanks (210m north-west). Two (2) small Engineering Works are 230m and 260m north-west. Buildings formerly part of the Gramaphone Factories are now annotated as Warehousing (from 150m north-east), a Printing and Engineering Works (270m north-east), and a Rope Works (290m north-east). The near parts of the Gramaphone Factories (120m north) remain present (now annotated as a Gramaphone and Electronics Works).
1967 1:2,500	No significant changes noted on-site.	No significant changes noted in the vicinity.
1970 1:10,000	No significant changes noted on-site.	No significant changes noted in the vicinity.
1974 1:1,250	The site has undergone redevelopment, with the current inverted L-shaped building present in the south of the site. The previous structures are no longer present.	A large Warehouse building has been constructed 20m south of the site. The Aeronautical Engineering Works to the east is no longer annotated and the associated buildings have undergone re-organisations. This includes removal of the mound adjacent to the north-east; removal of the small structures adjacent to the south-east; demolition of a building 20m east; replacement

Date & Scale	Features On-Site	Features Off-Site
		of the main building (150m east) with a large building (subsequently annotated as a Warehouse); and redevelopment of an area 150m south-east with adjoined units (annotated as Works, Warehouses, Laboratories, and Offices).
1978 1:1,250 Partial Coverage	The building is annotated as Cavenham House, and a further small building is located in the western corner.	One (1) of the large circular tanks 210m north (at the site of the Gramaphone and Electronics Works) has been removed. The building 20m east is now indicated to comprising a number of Warehouses.
1989 1:10,000	No significant changes noted on-site.	A building of commercial/industrial appearance has been constructed 20m north-west. The Partition Works 370m north-east (recently annotated only as a Factory) has been demolished.
1992 1:1,250	No significant changes noted on-site.	A portion of the Warehousing 20m east has undergone redevelopment with the current commercial building. Warehousing remains present in the area from 50m south-east. A portion of the Gramaphone and Electronics Works (recently annotated only as Factories) 120m north-east has been demolished.
1993 1:1,250 Partial Coverage	No site coverage.	The Factory 240m north-west has been demolished.
1996 1:1,250	No significant changes noted on-site.	Further Warehousing (70m east) has undergone redevelopment with the current commercial buildings.
1999 1:10,000	The building in the south of the site appears to have undergone a slight extension.	No significant changes in the vicinity noted.
2006 1:10,000	No significant changes noted on-site.	No significant changes in the vicinity noted.
2008 Google Earth Aerial Photography	No significant changes noted on-site.	Further buildings associated with the former Aeronautical Engineering Works (120m east) have been demolished.
2010 Google Earth Aerial Photography	No significant changes noted on-site.	The two (2) Warehouses and 20m south and 50m south-east have been demolished.
2016 1:10,000	No significant changes noted on-site.	No significant changes in the vicinity noted.
2020 1:10,000	No significant changes noted on-site.	No significant changes in the vicinity noted.

3.2 Anecdotal Information

Online anecdotal information indicates that the Aviation Factory to the east (which is identified on mapping adjacent to the east/potentially carrying out storage activities at the site by the 1940s), was operated by Fairey Aviation Co and was present at North Hyde Road (off-site) from 1915. Information indicates the company initially carried out testing of aircraft within an adjacent field. The factory underwent expansion and employed approximately 4,000 people by 1959[1]. Fairey Aviation was taken over by Westland Aircraft (Westland Helicopters) in 1960[2].

The current building (noted on historical mapping from at least 1974) was known as Cavenham House from at least 1976[3]. It is possible that the site was at this time in use as an office building for Cavenham Foods (a food processing business), or its subsidiary Allied Suppliers (a supermarket chain)[4]. The Allied Suppliers subsidiary was acquired by Argyll Foods in 1982. Argyll merged with Safeway in 1987 and was renamed Safeway plc by 1996[5]. Safeway was then acquired by Morrisons in 2004[6] and the site became surplus to requirements.

3.3 Environmental Database Records

The following information has been obtained from a search of a publicly available third-party environmental database (dated 20th October 2020):-

- There are no contaminated land register entries/notices within a 1km radius of the site.
- There are no current or former landfill sites recorded within a 250m radius of the site (i.e. the "planning consultation zone").
- There are records of four (4) former landfills within 1km of the subject site. The nearest of these (located 840m south-west at its nearest point) is the Frogsditch Farm landfill site, operated by Hall Aggregates Limited. According to information contained within the database, the landfill was authorised to receive inert construction and demolition waste; the first input date was given as July 1982 and the last input date August 1989.
- There are two (2) current Environmental Permits for waste management activities[7] within 1km of the site. The nearest of these (approximately 780m north-west) is for a household, commercial and industrial waste transfer station, operated by Shukco 350 Ltd. The licence was issued in July 1993 and last modified in June 2016.
- There are four (4) Environmental Permits to operate Part A(1) Installations[8] within 1km of the site. The nearest of these (260m north-east) is held by Owen Coyle Anodising Limited for the following three (3) activities: surface treatment of metals and plastics, using electrolytic/chemical techniques; surface treatment of metals & plastics, with the release of oxides of nitrogen to air; and the disposal of greater than 50 tonnes per day of non-hazardous waste by physico-chemical treatment.
- There are no Environmental Permits to operate Part A(2) Installations[9], within 1km of the site.
- There are eight (8) Environmental Permits to operate Part B processes[10] within 1km of the site. The closest (360m north-east) is licensed to Owen Coyle (Anodising) Limited, for surface

[1] British History Website. Accessed 20th October 2020. Available at: http://www.british-history.ac.uk/vch/middx/vol3/pp267-268
[2] Wikipedia Website. Accessed 20th October 2020. Available at: https://en.wikipedia.org/wiki/Fairey_Aviation_Company
[3] The Gazette. Accessed 20th October 2020. Available at: https://www.thegazette.co.uk/London/issue/47068/page/15448/data.pdf
[4] The Gazette. Accessed 20th October 2020. Available at: https://www.thegazette.co.uk/London/issue/47790/page/3291/data.pdf
[5] Wikipedia Website. Accessed 20th October 2020. Available at: https://en.wikipedia.org/wiki/Argyll_Foods
[6] Wikipedia Website. Accessed 20th October 2020. Available at: https://en.wikipedia.org/wiki/Safeway_(UK)
[7] Excluding Part A(1) and Part B permitted waste installations.
[8] Formerly referred to as Integrated Pollution Prevention and Control (IPPC) Authorisations, or Pollution Prevention and Control (PPC) Authorisations.
[9] Formerly referred to as Local Authority IPPC Authorisations.
[10] Formerly referred to as Local Air Pollution Prevention and Control Authorisations

treatment of metals. Although positioned in a different location, this entry likely relates to the same site as the abovementioned PPC Part A(1) Permit.

- There are no Radioactive Consents registered within 1km of the site. *NB Due to public security restrictions, certain information on closed or mobile radioactive substance authorisations has been removed from the public register and is not available to Ramboll.*
- There is one (1) Control of Major Accident Hazard (COMAH) site within a 1km radius of the site, this is the Lufthansa Technik Landing Gear Services UK Limited site (located 470m north-west). There are no explosive sites, or Planning Hazardous Substance consents within 1km of the site.
- There have been no prosecutions relating to authorised processes within 1km of the site.
- There are no Environmental Permits held with the Environment Agency for water discharge activities (formerly referred to as Discharge Consents) associated with the site; or within a 500m radius of the site.
- There are no Environmental Permits held with the Environment Agency for Groundwater Activities (previously referred to as Discharge Consents) within 1km of the site.
- There have been thirty-five (35) pollution incidents recorded within 1km of the site. The nearest of these (220m east) related to oils impacting an unknown waterbody. The incident occurred in December 1993 and was classified by the Environment Agency as a Category 3 - Minor Incident.
- The site is located in an area where less than 1% of residential properties are above the action level for Radon set by the Health Protection Agency No radon protection measures are considered necessary by the British Geological Survey.
- There are three (3) fuel station entries within a 1km radius. The nearest is an active petrol filling station located 230m south-east at the site of an ASDA hypermarket.
- There are no ecologically sensitive sites within a 1km radius of the subject site.

The LinesearchbeforeUdig database lists pipelines and transmission assets owned and/or operated by a number of major operators. According to the database there are records of gas and electricity distribution assets belonging to National Grid Gas and National Grid Electricity Transmission, and Fulcrum Pipelines Limited within 250m of the subject site. These are not considered to pose a contamination risk to the subject site.

3.4 Regulatory Authority Enquiries

3.4.1 Local Authority Planning Department

Recent planning history information is provided on London Borough of Hillingdon's planning portal website, accessed 20th October 2020. A summary of relevant applications is provided in Table 3.2 below.

Table 3.2: Summary of Relevant Planning Applications at the Site and Surroundings

Applicant	Application ref.	Details of Application	Status
Not available	27896/B/81/1723	Office development – 129m^2.	Granted on 2nd November 1981; no information on the presence or nature of any Conditions.
Not available	27896/D/85/0137	Alterations to elevation (P)	Granted on 1st March 1985; no information on the presence or nature of any Conditions.

Applicant	Application ref.	Details of Application	Status
Not available	27896/H/88/0807	Installation of a standby generator.	Granted on 19th May 1988; no information on the presence or nature of any Conditions.
PJ Edwards Debenham Tewson & Chinnocks Ltd	27896/S/92/0772	Overcladding of existing seven-storey office building.	Granted on 7th August 1992; no information on the presence or nature of any Conditions.
PJ Edwards Debenham Tewson & Chinnocks Ltd	27896/R/92/0770	Erection of a single storey extension to existing reception area.	Granted on 14th July 1992; no information on the presence or nature of any Conditions.
Brian Coles	27896/X/95/1155	Details of materials, colours and finishes to be used on external surfaces in compliance with Condition 2 of planning permission ref. 27896S/92/772 dated 07/08/92; Overcladding of existing seven-storey office building.	Granted on 7th August 1995; no information on the presence or nature of any Conditions.
Safeway Stores PLC	27896/Z/97/0179	Refurbishment of the ground floor car park area to provide additional offices.	Granted on 9th April 1997; no information on the presence or nature of any Conditions.
The Hyde Park Partnership	40652/APP/2006/1703	Remodelling of part of the car parking/external area to include the creation and removal of existing spaces, new roadway and other associated works. Application relates to the site and wider Hyde Park Hayes Site.	Granted Conditionally on 4th August 2006; no Conditions of relevance.
Threadneedle UKPEC6 Hayes Jersey LP	67702/APP/2018/920	Prior approval change of use from office (Class B1(A)) to residential (Class C3) to provide 157 units	Granted Conditionally on 23rd May 2018; one Condition relating to land contamination as detailed below.

Ramboll's 2017 Phase I Environmental Assessment and Flood Risk Assessment were submitted with **Application 67702/APP/2018/920**. The Decision Notice included four (4) Conditions, including the following relating to land contamination:-

Condition 1. The development hereby permitted shall be carried out in accordance with the Phase 1 Environmental Assessment and in accordance with the following criteria:-

- *If during development works contamination not addressed in the submitted land contamination report is identified, an updated brief shall be submitted and an*

addendum to the remediation scheme shall be agreed with the Council prior to implementation; and

- *All works which form part of the remediation scheme shall be completed and a comprehensive verification report shall be submitted to the Council's Environmental Protection Unit before any part of the development is occupied or brought into use unless the Council dispenses with any such requirement specifically and in writing, and*
- *If during development works asbestos is identified, an updated brief shall be submitted and an addendum to the remediation scheme shall be agreed with the Council prior to implementation.*

Reason: To ensure that the development complies with Policy OE11 of the Hillingdon Local Plan: Saved UDP Policies (November 2012).

3.4.2 Petroleum Enforcement Authority

An enquiry was submitted to the Petroleum Officer at London Fire and Emergency Planning Authority in order to establish if the site has previously been licensed for the bulk storage of petroleum products. The response (dated 22nd September 2016) is summarised below:-

- The Authority has no records of any tanks relating to Hyde Park Hayes Building 3, 11 Millington Road, Hayes UB3 4AZ, or any further address on Millington Road (which was constructed in the early 1970s).
- The Authority has the following records in relation to the site occupied by Westland Aircraft Ltd (Fairy Aviation Division) located at the address North Hyde Road, Hayes, Hillingdon. The site was licensed between 31st December 1965 and 31st October 1972 for a total of 36,368 litres of fuel. The Authority has records of the following tanks:-
  - 1 x 9092 litre petrol tank (solid filled in 1972).
  - 2 x 4546 litres double compartment petrol tanks (solid filled in 1972).
  - 1 x 4546 litre petrol tank (current status and fuel type unknown).
  - 1x 2273 litres – paraffin (current status unknown).

  The Authority has no records of any leaks or spills associated with the license. The Authority has no information regarding the specific locations of the tanks.

Ramboll notes that at the time of licensing the eastern portion of the subject site is indicated by historical mapping to have formed part of the Westland site. The vast majority of buildings and infrastructure associated with Westlands were located off the subject site to the east.

3.5 Historical Potential for Ground Contamination

3.5.1 The Site

The following potentially contaminative activities have been identified as having taken place on-site:-

- Refuelling activities carried out by Safeway (and previously acquired companies: Argyll Foods, Allied Suppliers, and Cavenham Foods), from potentially the 1970s until the mid-1990s, including two (2) petrol USTs which are understood to have been decommissioned by foam filling in 1996. Potential contaminants from these activities relate to hydrocarbons.
- Storage associated with off-site Westland Aircraft Ltd (Fairy Aviation Division) Aeronautical Engineering Works from the 1940s, potentially up to site redevelopment in the early 1970s. Historical Aerial Photography appears to show the eastern part of the site occupied by unsurfaced ground with unidentified material storage, and further infrastructure is indicated

by mid-1960. The Westlands site is indicated to have included fuel storage in underground storage tanks, and the specific location of these tanks is unconfirmed. Potential contaminants would depend on the nature of materials stored.

3.5.2 The Surrounding Area

The following potentially contaminative activities have been identified as having taken place in the surrounding area:-

- Westland Aircraft Ltd (Fairy Aviation Division) Aeronautical Engineering Works from the 1940s, potentially up to site redevelopment in the early 1970s. The Westlands site is indicated to have included fuel storage in underground storage tanks, and the specific location of these tanks is unconfirmed. Potential contaminants would depend on the nature of materials stored and utilised, but would include hydrocarbon fuels and oils, solvents, metals, and PCBs.
- Gramophone Factories located up to 120m north, from at least the 1910s to the 1990s approximately 110m north of the site. Production of Vinyl Records as well as Record Players was undertaken at the site. The buildings that remain are now empty. Potential contaminants from the Gramophone Factory could include solvents, hydrocarbons, metals and asbestos.
- Further industrial and commercial land use in the area, including Warehouse buildings from 20m south (1970s to the 2010s); a large unidentified Factory 240m north-west (1960s to 1990s); and a Transport Depot 140m north-west (from 1960s).

The above activities represent potential off-site sources of contamination that (if present) could potentially migrate beneath the site.

The potential for off-site contamination (if present) to migrate beneath the site would be dependent on the underlying geological conditions, which are discussed in Section 4.

4. ENVIRONMENTAL SETTING

Desk-based research of the local geology, hydrogeology and hydrology was carried out in order to establish the potential for migration of contamination onto or away from the site, and to assess the sensitivity and vulnerability of the site's setting with respect to surface water, groundwater and ecological resources.

Information was obtained from a number of sources, including:-

- examination of published geological maps produced by the British Geological Survey (BGS Sheet 269, Windsor);
- a proprietary environmental database procured by Ramboll; and
- Regulatory Authority websites, including the Environment Agency (EA).

4.1 Geology and Hydrogeology

According to the BGS map of the area, the site is situated on worked ground; the area of worked ground (which extends off-site over a wide area) is consistent with the edge of the (off-site Langley Silt superficial deposits suggesting that this material may have been removed/reworked. The superficial deposits beneath the site area recorded as the Lynch Hill Gravel Member (comprising sands and gravels). The bedrock geology in the vicinity of the site is recorded as the London Clay Formation.

According to the BGS website (accessed 15th September 2016) the nearest available-to-view borehole logs are located approximately 20m south-east of the site (outside the extent of the area recorded as worked ground), and date from the late-1980s. Made Ground was identified in the southernmost of the two (2) boreholes of 4.10m thickness (comprising sandy clay with soil gravel, bricks, concrete and clinker). Superficial deposits were recorded in the northern borehole comprising 1.9m of sandy silty clay (likely the Langley Silt), over 1.9m of sandy gravel (likely the Lynch Hill Gravel); and in the southern borehole as 0.7m of sandy gravel (likely the Lynch Hill Gravel). This was underlain by silty clay (likely the London Clay Formation) of at least 24.8m thickness (down to the maximum depth of the deepest borehole of 30m).

On-site intrusive investigations have confirmed the published geological information described above. Shallow Made Ground deposits were encountered across the site; however no direct evidence of shallow workings have been identified. The Lynch Hill Gravel Member was encountered across the site, with Langley Silt overlying this in the HPH3 area. The top of the London Clay exhibits a variable undulating surface contour with a shallow depression centred on HPH5 and the thickness of the London Clay was not proven by any of the intrusive investigations undertaken on-site to date

A summary of the geological and hydrogeological setting of the site is provided in Table 4.1.

Table 4.1: Summary of Geology and Hydrogeology

Formation	Description	Thickness	EA Aquifer Designation	Hydrogeological Significance
Lynch Hill Gravel Member	Sand and Gravel.	Variable Thickness	Principal	Highly permeable, with significant water storage. Able to support large abstractions.
London Clay Formation	Clay, Silt and Sand	Up to 45m thick	Unproductive Strata	Low permeability formations with negligible significance for water supply.

Formation	Description	Thickness	EA Aquifer Designation	Hydrogeological Significance
Lambeth Group	Clay, mottled in part with beds of sand	Up to 30m	Secondary A	Permeable formations with potential to support localised abstractions.
Thanet Sand	Fine-grained sand	Up to 18m	Secondary A	Permeable formations with potential to support localised abstractions.
White Chalk Sub-Group	White nodular chalk with flints	Up to 200m	Principal	Highly permeable, with significant water storage. Able to support large abstractions.

According to the independent third-party environmental database, there are thirteen (13) records of mineral extraction within 1km of the site, the nearest being Dawley Brickfield (located 310m west of the site). Common clay and shale was abstracted from the Langley Silt Formation via opencast methods.

According to the EA website, the underlying groundwater (in relation to the groundwater in the Lower Thames Gravel) was classified in 2019, using the Water Framework Directive (WFD), as having 'Poor' Quantitative Status and 'Good' Chemical Status. The objectives for this waterbody (set in 2015) were to maintain 'Good' Quantitative and Chemical Statuses (which it held in 2015).

According to EA information presented in the Landmark Envirocheck database, there are fifteen (15) groundwater abstraction licences within a 2km radius of the site, as detailed in Table 4.2.

Table 4.2: Licensed Groundwater Abstractions within 2km of the Site

Licence Holder	Distance from Site	Abstraction source	Purpose of Abstraction
Thorn EMI Electronics Ltd	170m NE	Chalk (Undifferentiated)	Manufacturer (boiler)
Nestle UK Limited	1.05km E	Not stated	Other industrial / commercial / public services: evaporative cooling
Nestle UK Limited	1.05km E	Not stated	Other industrial / commercial / public services: evaporative cooling and boiler feed
Stockley Park Estate Management Ltd	1.16km NW	Not stated	Business parks: spray irrigation – direct
Stockley Park Estate Management Ltd	1.17km NW	Chalk (Undifferentiated)	Lake reservoir filling for spray irrigation
Harleyford Aggregates Limited	1.32km S	Not stated	Mineral products: mineral washing
Virus Hayes Limited	1.80km E	Not stated	Business parks: evaporative cooling
USC Europe UK Ltd	1.81km E	Not stated	Other industrial / commercial / public services: non-evaporative cooling
Prologis UK CCCIX Sarl	1.83km NW	Not stated	Business Parks: Make-Up or Top Up Water

Licence Holder	Distance from Site	Abstraction source	Purpose of Abstraction
Stockley Park Golf Club Ltd	1.85km NW	Not stated	Golf courses: general washing / process washing and spray irrigation - direct
Prologis UK CCCIX Sarl	1.85km NW	Not stated	Business Parks: Make-Up or Top Up Water
Horton Road Limited	1.85km NW	Not stated	Business parks: spray irrigation – storage
Stockley Park Club Ltd	1.89km NW	Not stated	Golf courses: spray irrigation - direct
Harleyford Aggregated Limited	1.91km SW	Not stated	Mineral products: mineral washing
Chancerygate Group Limited	1.96km E	Not stated	Other Industrial/Commercial/Public Services: Non-Evaporative Cooling

There may also be private (unlicensed) abstractions (that are generally of smaller scale). The site is not situated within an EA designated groundwater Source Protection Zone.

4.2 Hydrology

The nearest identified surface water body is a man-made pond located 200m north of the site. The nearest identified watercourse is the Grand Union Canal, located 490m north-east at its nearest point, flowing from north-west to the south-east.

According to the EA website, the Grand Union Canal (between Uxbridge and Hanwell Locks, also including the Slough and Paddington Arms) was classified, using the Water Framework Directive (WFD), as having a 'Moderate' Ecological Potential and 'Fail' Chemical Status in 2015. The objectives for this watercourse (set in 2015) were to maintain the 'Moderate' Ecological Potential and 'Good' Chemical Status which it held in 2015.

According to an independent, third-party environmental database, there are two (2) licensed surface water abstractions within a 2km radius of the site, as detailed in Table 4.3 below.

Table 4.3: Licensed Surface Water Abstractions within 2km of the Site

Licence Holder	Distance from Site	Abstraction source	Purpose of Abstraction
Canal and River Trust	520m N	Grand Union Canal	Other industrial / commercial / public services: non-evaporative cooling
Canal and River Trust	1.42km W	Grand Union Canal	Mineral products: process water

According to the EA, the site is located in Flood Zone 1 (Low Probability). This zone comprises land assessed as having a less than 1 in 1000 (<0.1%) annual probability of river or sea flooding. The closest area of land recorded as having an elevated probability of flooding is located approximately 990m south-east.

In relation to surface water flooding (i.e. flooding caused by rainwater exceeding capacity of drainage systems), according to the EA website the majority of site (approximately 90% of total site area) is located within an area considered at very low probability of flooding from surface water. This means the annual probability of flooding is this less than 1 in 1000 (0.1%). Areas of car parking in the north and west of the site (approximately 8% of total site area) is located

within an area considered at low probability of flooding from surface water. This means the annual probability of flooding is between 1 in 1000 (0.1%) and 1 in 100 (1%). A small area of car parking on the north-western site board (approximately 2% of total site area) is located within an area considered at medium probability of flooding from surface water. This means the annual probability of flooding is between 1 in 100 (1%) and 1 in 30 (3.3%).

Surface water drainage networks are typically designed to accommodate only a 1 in 30 (3.3%) annual probability rainfall event. Older drainage networks may have a lower capacity, especially if they have not been maintained adequately. Although not true of every situation, surface water flooding is typically relatively shallow and would be expected to subside following the storm event assuming drainage assets are maintained in an appropriate condition.

Regulatory flood maps have been developed to be used in strategic planning and are not intended to provide site-specific information. However, the mapping can provide a useful indication of whether further consideration or assessment of flood risks to a site may be required.

Ramboll has undertaken a Flood Risk Assessment (FRA) for the site, assessing the risks of flooding from river (fluvial), surface water, groundwater and sewer sources. The FRA provides details of the management of surface water run-off. This is being reported under separate cover (ref. 1620010949_01_HPH3 Hayes_FRA, dated October 2020).

4.3 Ecology

According to the Landmark Envirocheck Database, there are no potentially significant ecological receptors, i.e. those that are statutorily designated, e.g. SSSIs, SPAs, SACs, RAMSAR sites within a 1km radius of the site. However, a surface water nitrate vulnerable zone is recorded 180m north-west, and there are seven (7) areas of adopted green belt within a 1km radius (the nearest 520m north).

4.4 Environmental Sensitivity and Vulnerability

The site is considered to be situated in an area of ***moderate to high*** sensitivity with respect to groundwater resources due to the underlying Principal Aquifer (in relation to the Lynch Hill Gravel Member). However, Unproductive Strata in relation to the London Clay Formation is present underneath to protect the deeper Chalk Aquifers further at depth. There are fifteen (15) licensed groundwater abstractions within 2km of the site, including uses for spray irrigation (from 1.16km north-west); the EA classified the groundwater Chemical Status as 'Good' under the Water Framework Directive.

The vulnerability of the groundwater receptor in the vicinity of the site is considered to be ***low to moderate*** as the majority of site (over 95% of total site area) is covered by buildings/hardstanding. A UST (planned to be decommissioned as part of the proposed change of use), and further decommissioned USTs are indicated to be present beneath the hardstanding.

The sensitivity of the hydrological receptor can be considered as ***low to moderate*** as the Grand Union (the nearest surface watercourse), is man-made and has been classified as having a 'Moderate' Ecological Potential and 'Fail' for Chemical Status by the EA under the WFD. There are two (2) licensed surface water abstractions within 2km of the site and none are for sensitive use.

The site is considered to be in an area of ***low*** vulnerability with respect to surface water resources as the nearest surface watercourse is 490m distant.

The site is situated outside a currently designated floodplain; in general terms this means that the annual probability of the site flooding from rivers or seas is less than 1 in 1000 (<0.1%). Ramboll is carrying out further assessment of flood risks posed to the site is, which is being reported under separate cover.

Under the proposed usage the nearest sensitive land use would be residential properties on-site. Currently the nearest sensitive land use are residential properties located 60m north of the site.

5. EXISTING ENVIRONMENTAL ASSESSMENTS

5.1 Background

Environmental assessments of the wider Hyde Park Hayes site and remediation verification reporting for HPH5 was undertaken by Jacobs on behalf of the former owner of the site (Melfords) in conjunction with the Planning process for the construction of HPH5. Long term monitoring of groundwater conditions was requested by the EA in conjunction with the discharge of Planning Condition 14 relating to groundwater contamination.

The following reports have been provided to Ramboll for review at the time of Columbia Threadneedle's acquisition:

- Delta-Simons Phase II Environmental Assessment, October 2005, ref: 05-3230.02 (wider HPH area);
- SKM Enviros Phase I Environmental Assessment, HPH4-6, March 2012, ref: JL30529.21.3.12 (wider HPH5 area with resampling of DS wells);
- SKM Enviros Phase II Site Investigation, Hyde Park, Hayes, HPH4-6, October 2012, ref: JL30529.002.16.10.12 (wider HPH area);
- SKM Enviros Additional Phase II Site Investigation, Hyde Park, Hayes, HPH5, February 2013, ref: JL30666.002.21.02.13 (wider HPH area);
- Halcrow Hyde Park Hayes Geotechnical Interpretative Report, March 2013, ref GIB016-GEO-RPT-001;
- SKM Enviros Remediation Statement, Hyde Park, Hayes HPH5, April 2013, ref: JL30666.002.30.04.13;
- Jacobs Detailed Quantitative Risk Assessment, Hyde Park, Hayes, HPH5, October 2014, ref: KU032300.DQRA.Interim.29.10.14;
- Celtic Hyde Park HPH5 Hayes, Validation Report (Final), January 2014, ref: R1588/14/4467;
- Paragon Building Consultancy Ltd, Vendors Survey Report Rackspace City, August 2014, ref: 14.0365/ADH/SH;
- Jacobs Contamination Remediation Verification Report, HPH5, ref: KU033000.HPH5 Verification Rev. 05, dated 1st October 2015.

Following acquisition of the site by the Client in 2015, Ramboll Environ UK Ltd (now part of Ramboll) was commissioned by in 2016 to conduct a groundwater monitoring and sampling survey programme over a 12-month period commencing March 2016 with a view to discharging Planning Condition 14.

The principal objective of the monitoring programme is to provide evidence that concentrations of target contaminants in groundwater are exhibiting a downward trend over time in order to satisfy the EA (as statutory consulted the need the planning regime) that no ongoing risk to groundwater resources is presented by the HPH site. The survey programme involves the regular monitoring of groundwater elevations, field measurement of groundwater physio-chemical parameters and collection of groundwater samples for laboratory analysis for target contaminants and other compounds indicative of the activity of natural attenuation.

The Groundwater Assessment programme comprised eight (8) groundwater monitoring and sampling surveys over the period March 2016 to March 2017, reported and submitted to the Local Planning Authority (ref: RUK16-20878_GWA_2, dated 10th October 2017).

The findings of the Groundwater Assessment can be summarised as follows:

- Overall, groundwater flow direction is consistently towards the east/north-east across the wider HPH area, which is broadly consistent with the findings of Jacobs' previous assessments;
- The groundwater system within the Lynch Hill Gravels aquifer has been demonstrated by 12 months of field monitoring surveys to be moderately dynamic, with seasonal fluctuations in groundwater levels and physio-chemical parameters observed; and
- Hydrocarbons and chlorinated hydrocarbons were not detected in either of the two (2) monitoring wells in the HPH3 area in any of the eight (8) sampling surveys conducted to March 2017.

5.2 Ramboll Comments

Ramboll considers that the HPH3 site area and wider Hyde Park Hayes site benefit from a significant level of environmental assessment which serves to reduce the uncertainty associated with the assessment of the potential for contaminated land to affect future users of HPH3.

Ground conditions encountered by intrusive investigations broadly confirm the published geological information:-

- a shallow depth of variable Made Ground was encountered across the site
- the Lynch Hill Gravel Member is in part overlain by the Langley Silt at HPH3;
- The top of the London Clay exhibits a variable undulating surface contour with a shallow depression centred on HPH5; and
- the thickness of the London Clay was not proven by any of the intrusive investigations undertaken on-site to date.

No impacts to monitoring wells installed within the HPH3 area have been observed by past investigations.

Further to remedial activities undertaken as part of the construction of HPH5 (considered by Jacobs to represent the primary source area for observed chlorinated solvent impacts to groundwater), long term monitoring and sampling of groundwater undertaken by Ramboll over the course of 2016 has confirmed the absence of impacts from both hydrocarbons (fuel related compounds likely to be associated with current and former UST's at HPH3) and chlorinated solvents (degreasing chemicals thought likely to be associated with the former Aerospace Engineering site uses) in the monitoring wells at HPH3.

Groundwater impacts extant across the wider HPH area are not considered to represent a risk to HPH3 given that groundwater flow direction has been characterised as generally being towards the east/north-east across the wider HPH area; therefore, HPH3 lies up-gradient from impacted areas of the site with respect to groundwater flow.

Based on the extensive environmental assessment data available for both HPH3 the wider HPH area, no sources of soil or groundwater impacts are thought to be present within the boundary of HPH3.

Ramboll understands that as part of the proposed change of use the back-up generator will no longer be required. The proposed refurbishment works would include the removal of the generator and day tank and decommissioning of the UST.

6. QUALITATIVE RISK ASSESSMENT

The regime for contaminated land was set out in Part 2A of the Environmental Protection Act 1990 (EPA). Under Part 2A, contaminated land is defined as land which appears to be in such a condition, by reason of substances in, on or under the land, that:

a) Significant harm is being caused or there is a significant possibility of such harm being caused; or

b) Significant pollution of controlled waters is being caused, or there is a significant possibility of such pollution being caused"[11].

Revised statutory guidance ('the Guidance') entered into force in England on 11th April 2012. "significant harm" is defined in the Guidance on risk-based criteria and must be the result of one or more relevant 'contaminant linkages' relating to the land. The presence of a contaminant linkage relies on the Contaminant-Pathway-Receptor concept, where all three factors must be present and potentially or actually linked for a potential risk to exist.

A "contaminant linkage" requires the following:

i) A "contaminant" is a substance which is in, on or under the land and which has the potential to cause significant harm to a relevant receptor, or to cause significant pollution of controlled waters;

ii) A "receptor" is something that could be adversely affected by a contaminant, for example a person, an organism, an ecosystem, property, or controlled waters;

iii) A "pathway" is a route by which a receptor is or might be affected by a contaminant.

Under the Guidance, a 'significant contaminant linkage' is one which gives rise to a level of risk sufficient to justify a piece of land being determined as contaminated land.

The Guidance provides a four category test to help decide when land is and is not contaminated. Land in Category 1 and Category 2 would be capable of being determined as contaminated land under Part 2A on the grounds of significant possibility of significant harm to human health, or a significant possibility of significant pollution of controlled waters. Land in Category 3 and Category 4 comprises cases where there is not considered to be a significant possibility of significant harm, or the level of risk posed is low.

Based on the above factors, an initial assessment of the presence of a potential contaminant linkage can be made qualitatively. A conceptual model is an essential element of any site-specific environmental risk assessment, providing a simple representation of the hypothesised relationships between contaminants, pathways and receptors. For the purpose of this report, a basic conceptual model has been developed based on the presentation and interpretation of information regarding the site gathered during the Phase I Review process. This allows the identification of potential contaminant linkages and, therefore, an interpretation of the potential for significant harm and/or significant pollution of controlled waters in relation to a site. Based on this interpretation, the implications for potential liability associated with soil or water contamination at the site can be evaluated.

It has been assumed that the site would be converted from office (Class B1a) to residential use (Class C3).

[11] As Amended by the Water Act 2003 (commencement No. 11) Order 2012

Table 6.1: Conceptual Site Model

Source	**Pathway**[12]	**Receptor**[13]	**Risk of Contaminant Linkage**[14]
Current use of site as commercial offices with associated car parking, with a diesel UST associated with a back-up power generator. Known ACM within building fabric. Refurbishment works (to include decommissioning of the UST) and future residential use.	Leaching to Groundwater & Groundwater Flow.	Groundwater in the Lynch Hill Gravel and the deeper Chalk (Principal) Aquifers. Deeper Chalk protected by London Clay Formation.	*Low to Moderate*. Potential for contamination from UST; however no known occurrences of leaks, or unexplained fuel losses.
	Surface water run-off.	Surface water as controlled water.	*Low*. Potential for contamination from current use. Nearest receptor is at distance.
	Dermal contact / ingestion.	Site buildings, users, neighbours and construction workers.	*Low.* No breaking of ground to be undertaken; standard precautions to be employed as part of refurbishment works.
	Inhalation of asbestos fibres	Site users & construction workers	*Low.* Provided that suitable remedial activity and control measures are in place at the time of refurbishment, the potential for fibre generation is considered to be negligible.
Potential sources of contamination relating to historic use include; • refuelling activities carried out by Safeway (and former companies acquired), (unconfirmed date to c.1990s), including two (2) petrol USTs reported to have been decommissioned in 1996; and • storage associated with the off-site Aeronautical Engineering Works (c.1940s to c.1970s).	Leaching to Groundwater & Groundwater Flow.	Groundwater in the Lynch Hill Gravel and the deeper Chalk (Principal) Aquifers. London Clay formation protects Chalk.	*Low to Moderate*. Potential contamination from historical activities. Intrusive investigations at the HPH3 site did not identify any hydrocarbon impacts to soil or groundwater.
		Surface water as controlled water via connectivity with groundwater flow.	*Low*. Potential for contamination, however nearest receptor is at distance and of limited sensitivity.
	Dermal contact / ingestion.	Site buildings, users, neighbours and construction workers.	*Low*. Site is predominantly covered by buildings/hardstanding, and no breaking of ground to be conduction in relation to proposed works.

[12] Pathway: mechanism or route by which a contaminant comes into contact with, or otherwise effects, a receptor.
[13] Receptor: persons, living organisms, ecological systems and controlled waters that could be adversely affected by the contaminants.
[14] Risk: probability of the occurrence of, and magnitude or the consequences of, an unwanted adverse effect on a receptor.

Source	**Pathway**[12]	**Receptor**[13]	**Risk of Contaminant Linkage**[14]
	Vapours.		*Low to Moderate*. Potential for vapours from historic use of site; however site is understood to be predominantly covered by buildings/hardstanding.
Potential current and historical off-site contamination sources in the vicinity of the site include: • Aeronautical Engineering Works adjacent to east (1910s to c.1970s); • Large Gramophone Factories located up to 120m north (1910s to 1990s); and • Further industrial and commercial land use in the area, including Warehouses from 20m, and large industrial site to the north (from 140m).	Leaching onto site in Groundwater & Groundwater Flow.	Groundwater in the Lynch Hill Gravel and the deeper Chalk Aquifers.	*Moderate*. Potential that contamination sources from off-site activities, underlying Lynch Hill Gravel extends beneath Aeronautical Engineering Works.
	Vapours.	Site buildings, users and neighbours.	*Low*. Potential for vapours from historic use of surroundings. However site is understood to be predominantly covered by buildings/hardstanding and intrusive investigation and remedial works carried out in relation to chlorinated solvent impacted groundwater at off-site former Aeronautical Engineering Works confirms absence of contamination at HPH3.

7. CONCLUSIONS

The findings of the Phase I Environmental Review may be summarised as follows:-

- The earliest maps show the site as undeveloped land (likely in agricultural use). By the 1940s the eastern part of the site was potentially used as storage by the adjacent Fairey Aviation Company (subsequently Westland Aircraft Ltd) Aeronautical Engineering Works, and the western part of the site appeared to comprise allotment gardens. Further infrastructure associated with the Westlands site is present by the mid-1960; the Westlands site is indicated to have included fuel storage in underground storage tanks, however the specific location of these tanks is unconfirmed. The site was redeveloped with the current building in the early 1970s, which is understood to have been an office building for Safeway (and former companies acquired), however included refuelling of staff cars from dispensing pumps (number and location unknown) supplied by two (2) petrol USTs to the north of the HPH3 building. The tanks were decommissioned in 1996.

  The building has undergone multiple refurbishment works (including over-cladding), and is currently in use as an office building, which includes a diesel UST for storage of fuel for a back-up power generator (the change of use is to include the decommissioning of this UST). The asbestos register held by the site indicates that ACM are present in communal areas and the back-up generator; provided a suitable Management Plan is in place during the refurbishment process including suitable control measures the risk to future site users and construction workers is considered to be negligible. Intrusive investigations conducted at the site have confirmed the absence of impacts to soil and groundwater from key contaminants in the HPH3 area.

  Based on current information available, the potential for significant ground contamination to exist at the site due to current and historic uses is considered to be ***low to moderate.***
- The site is currently surrounded by commercial buildings; with residential and light industrial land use present in the area. Historical potentially contaminative activities present in the vicinity include the Aeronautical Engineering Works which extended to be adjacent to east (1910s to c.1970s); a number of large industrial sites to the north, including Large Gramophone Factories located up to 120m north (1910s to 1990s); and further industrial and commercial land use in the area, including Warehouses from 20m.

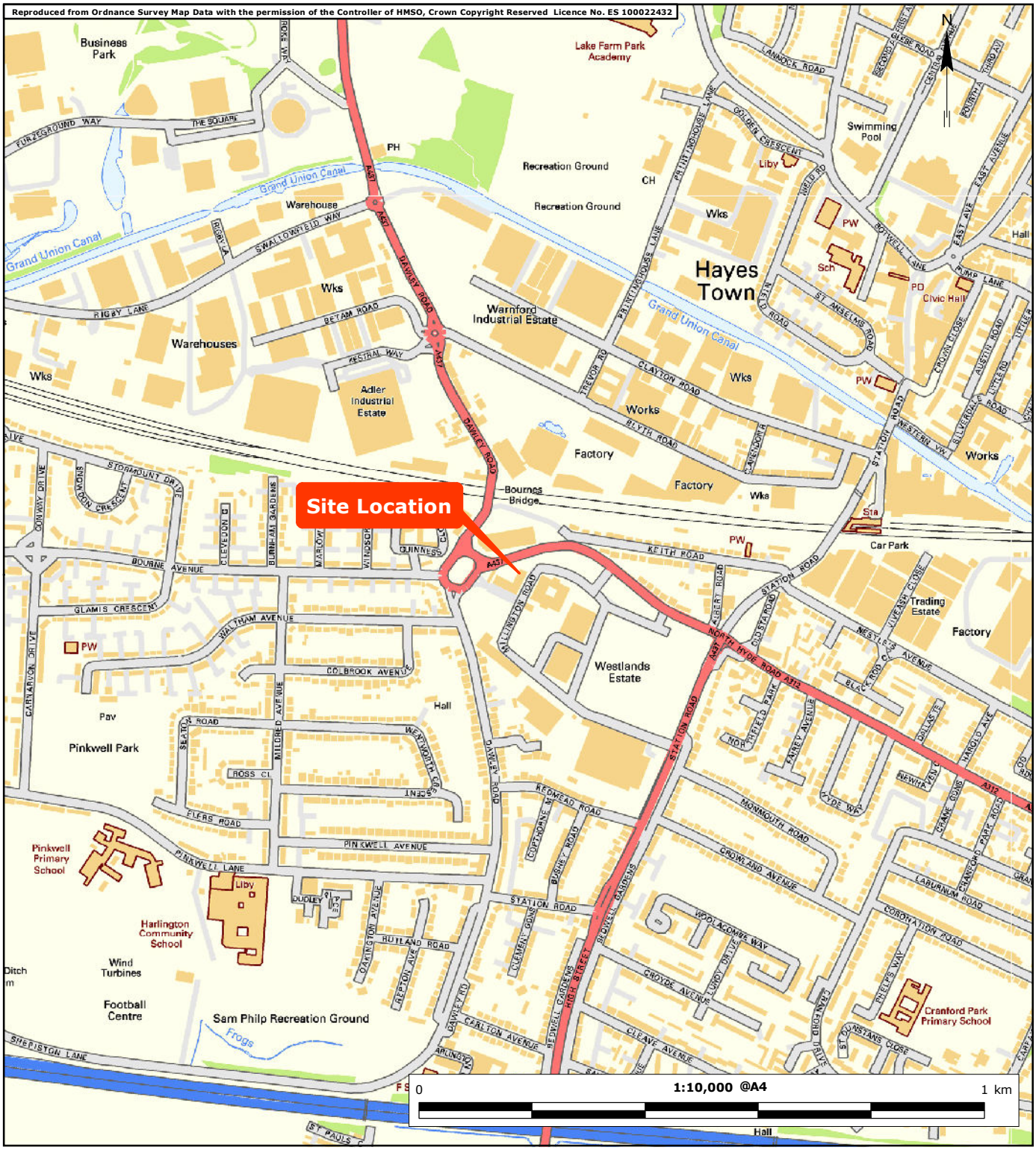
  Based on topography and hydrology features, the predicted groundwater flow is generally eastwards/south-eastwards, and therefore the potential for significant ground contamination to exist at the site as a result of off-site activities is considered to be ***low.***
- The site is located on Principal Aquifer (in relation to the superficial geology); there are fifteen (15) licensed groundwater abstractions within 2km of the site, including uses for spray irrigation; and the site is not within an EA designated Groundwater Source Protection Zone. Overall, the hydrogeological sensitivity in the vicinity of the site is considered to be ***moderate to high***. The vulnerability of the groundwater resources is considered to be ***low to moderate*** due to the extensive building/hardstanding coverage of the site. The presence of a UST (planned to be decommissioned as part of the proposed change of use), and historic decommissioned USTs at the site present potential residual sources of impact with respect to historic losses or spillages (though no impacts have been observed to date from site investigations).
- The hydrological sensitivity of the site is considered to be ***low to moderate*** (as the nearest assessed watercourse is man-made and has been classified as having 'Moderate' Ecological Potential by the EA under the WFD). The vulnerability is considered to be ***low*** (since the nearest surface watercourse is located approximately 490m north-east).

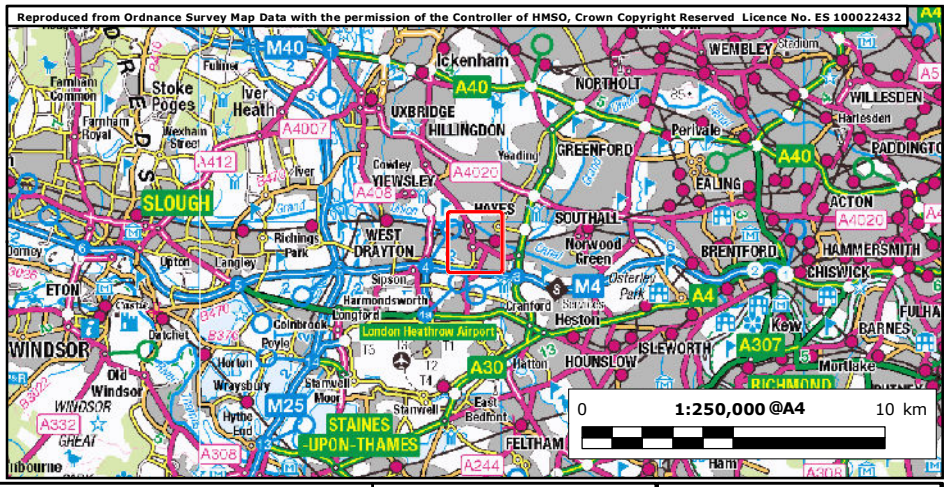
- The site is situated outside a currently designated floodplain; in general terms this means that the annual risk of the site flooding from rivers or seas is less than 1 in 1000 (<0.1%).
- There are no designated ecologically sensitive sites within a 1km radius of the subject site.

In the UK, a risk-based approach is used to assess the potential impact associated with ground contamination, as summarised in the CSM. The current and former uses of the site indicate a ***low*** potential for significant or widespread soil and groundwater contamination.

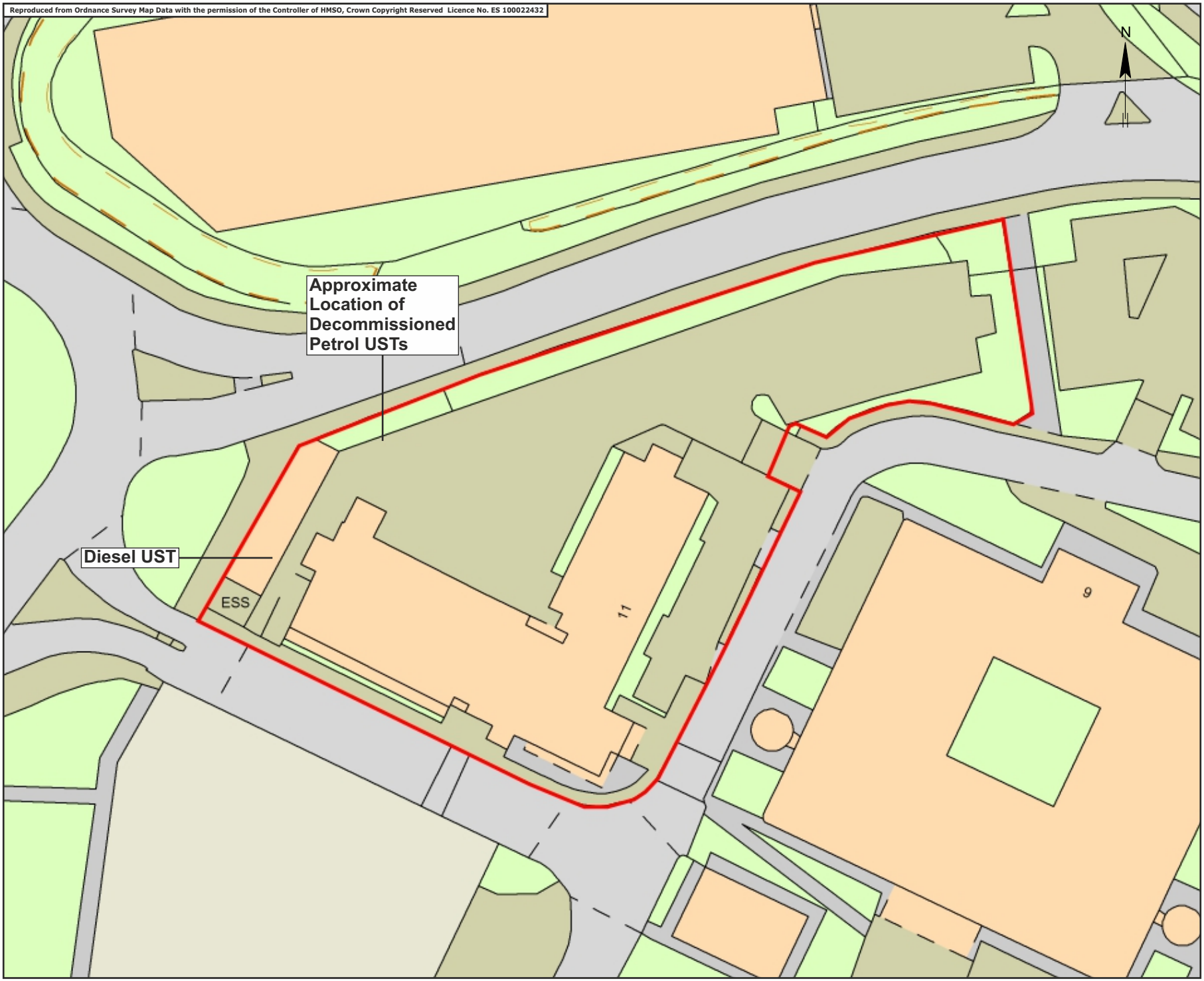
Based on the available information the site is not considered likely to be classified as Contaminated Land under Part 2A of the Environmental Protection Act 1990. Given that the proposals do not involve groundworks / demolition, there is considered to be a ***low*** risk of new contaminant pathways being created by the proposed change of use. The internal refurbishment works for residential usage are not considered to pose a significant environmental risk.

APPENDIX 1
FIGURES





Title: Figure 1: Site Location	Site: Hyde Park Hayes Building 3, 11 Millington Road, Hayes, UB3 4AZ	Date: October 2020	RAMBOLL
		Scale: As shown	
Project No. 1620010949	Client: Threadneedle	Issue: 1 Drawn by: MD	



Key

Site Boundary

Title	Figure 2: Site Layout
Project No.	1620010949
Site	Hyde Park Hayes Building 3, 11 Millington Road, Hayes, UB3 4AZ
Client	Threadneedle
Date	October 2020
Scale	Not to scale
Issue	1
Drawn by	MD

RAMBOLL

APPENDIX 2
PHOTODOC

Photo 1. Location of UST and Associated Monitoring Well

Photo 2. UST Offset Fill Point

Title:	Photographic Log	**Client:**	Threadneedle
Site:	Hyde Park Hayes Building 3	**Date:**	November 2014

Photo 3. Former Vent Pipes Associated with Former Fuel Filling Operations

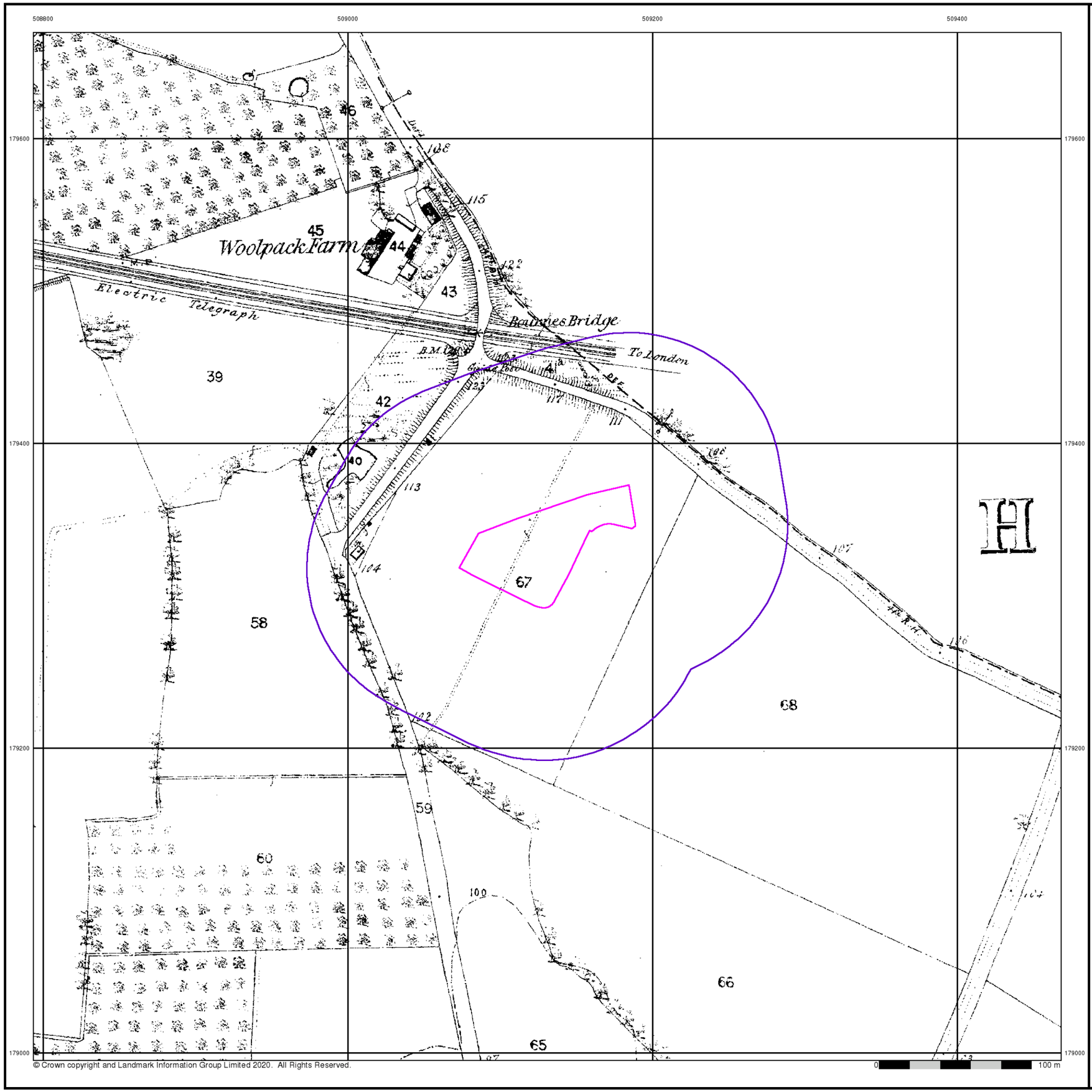
Photo 4. Location of Foam Filled USTs

Title:	Photographic Log	**Client:**	Threadneedle
Site:	Hyde Park Hayes Building 3	**Date:**	November 2014

Photo 5. 650 Litre Day Tank for Building 3 Generator (fed from UST)

Title:	Photographic Log	**Client:**	Threadneedle
Site:	Hyde Park Hayes Building 3	**Date:**	November 2014

APPENDIX 3
HISTORICAL MAPS



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Middlesex

Published 1866

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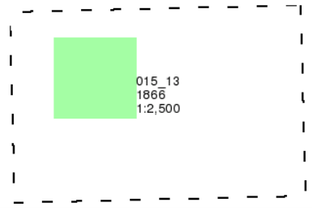
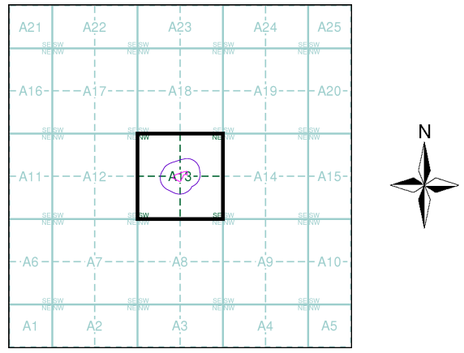
Map Name(s) and Date(s)



Historical Map - Segment A13



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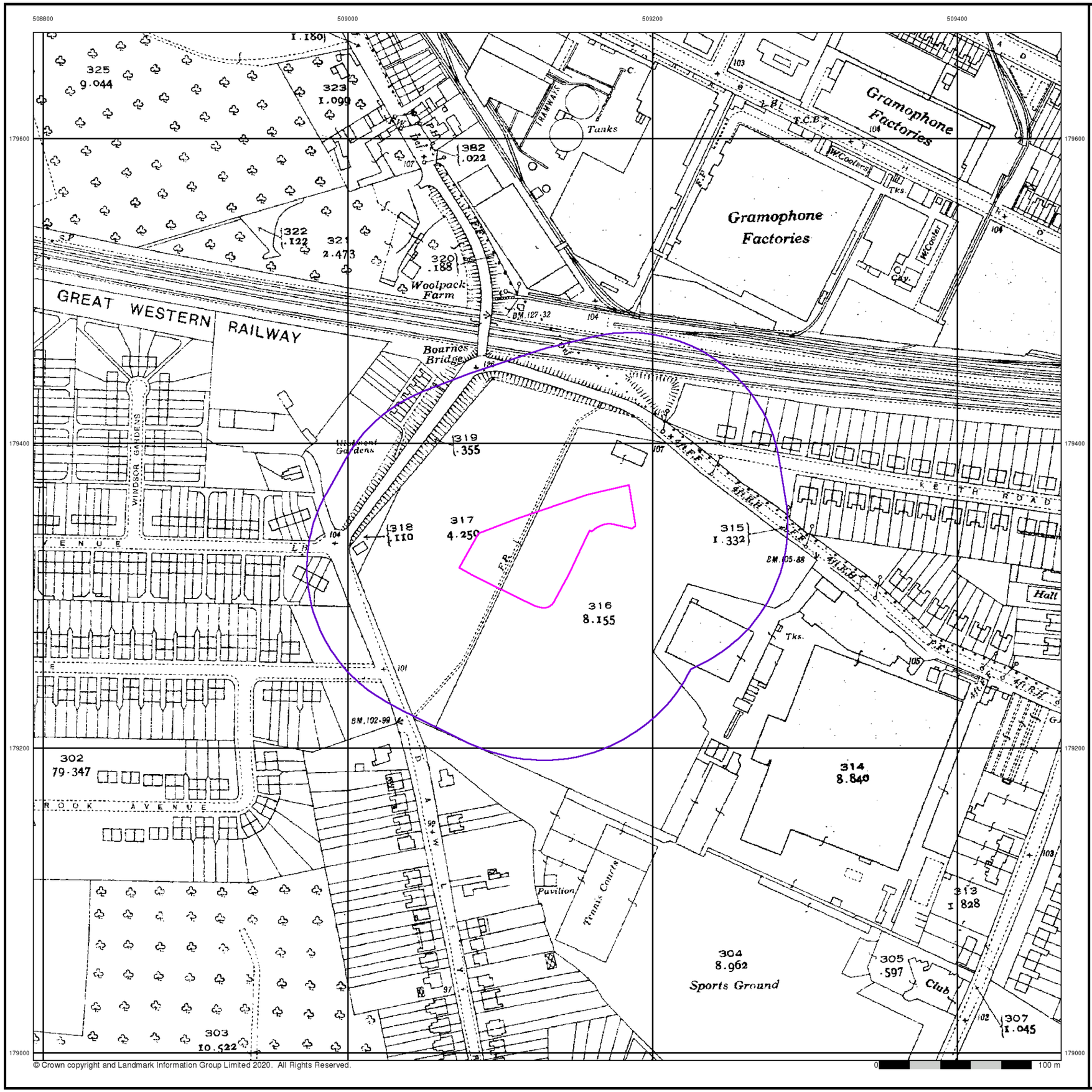

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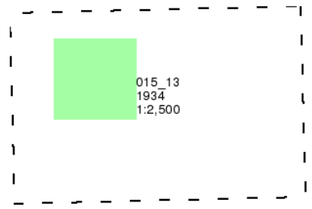

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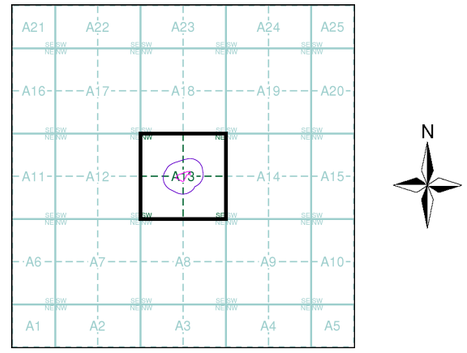

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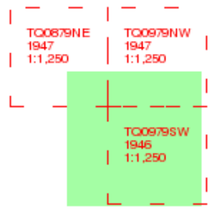

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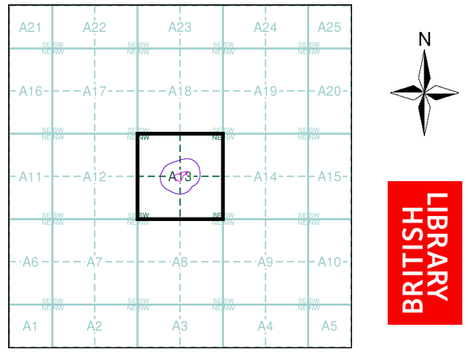

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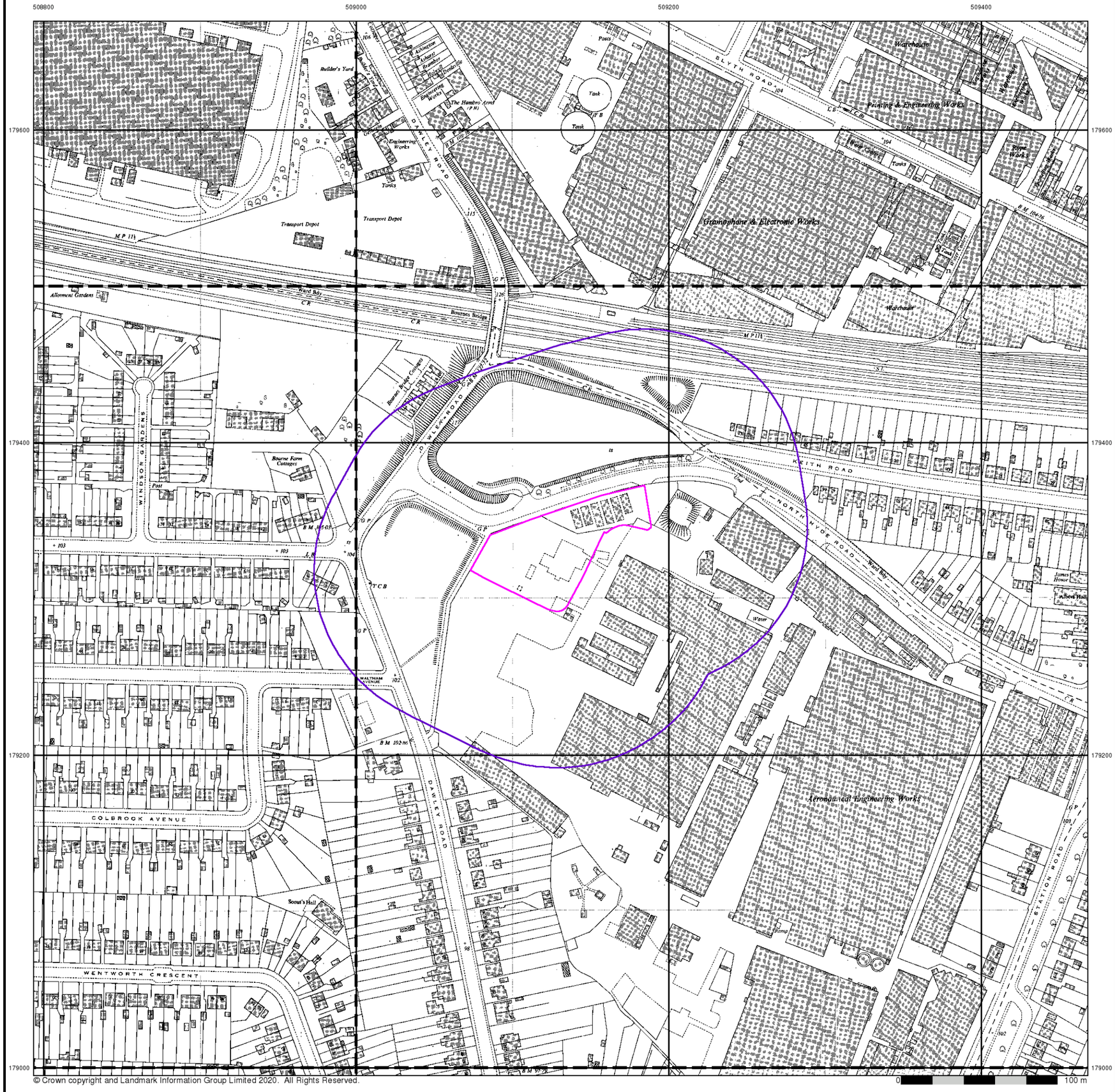

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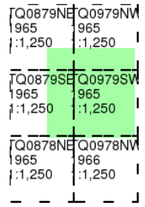

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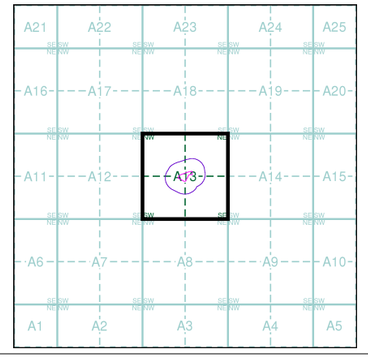

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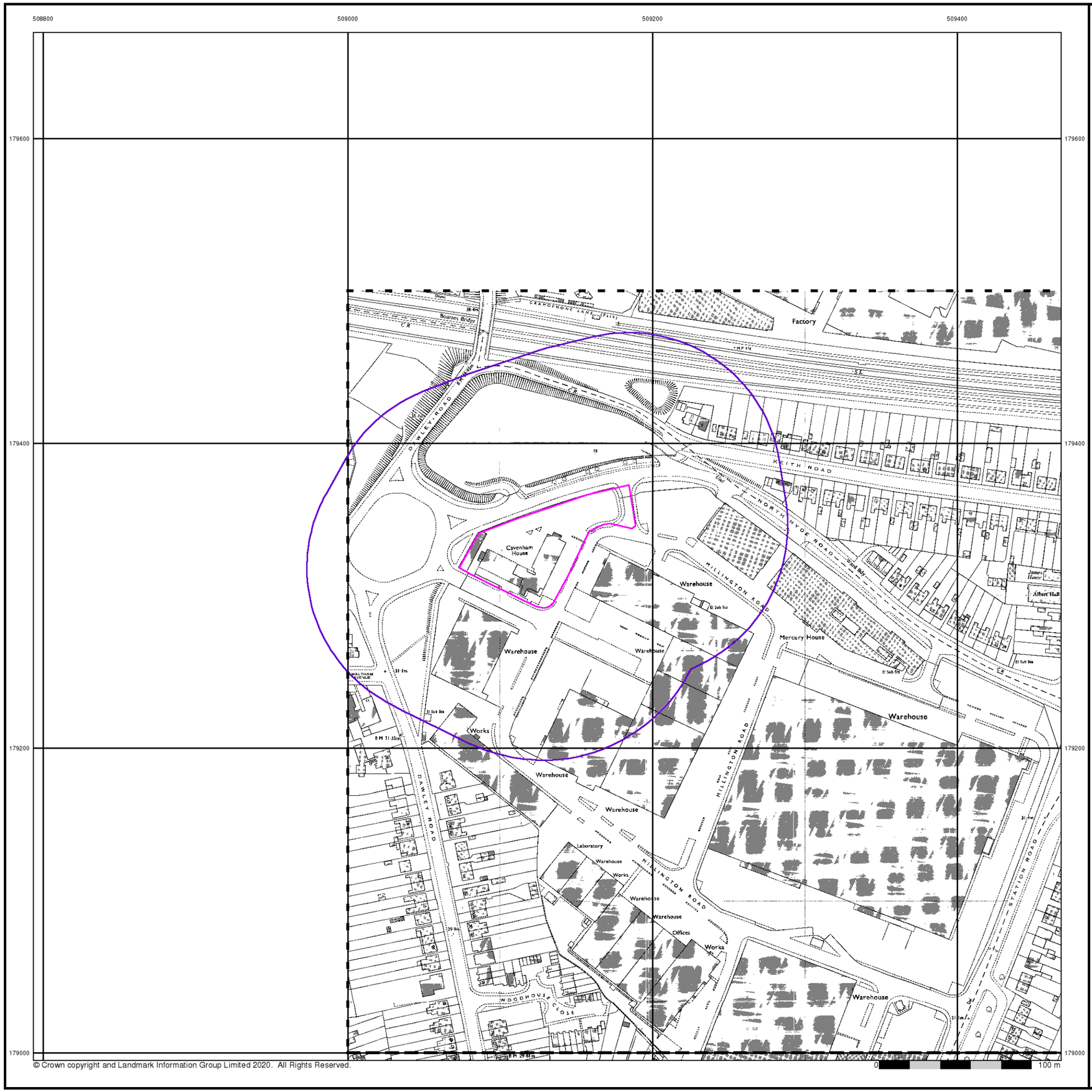

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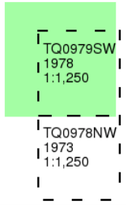

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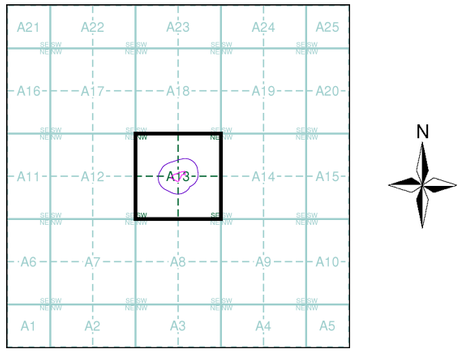

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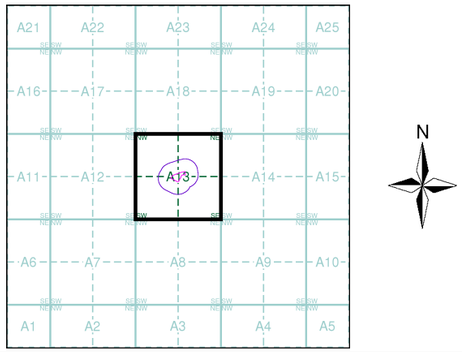

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