APPENDIX B

Ground Model

Vertase FLI

Pre-Remediation Ground Model

Rev A

VertaseFLI for
Nuvu Investments Ltd
November 2023

REPORT TITLE:	**Pre-Remediation Ground Model**
REPORT NUMBER:	**Rev A**
CLIENT NAME:	**Nuvu Investments Ltd**

This report has been prepared by Vertase FLI Limited with all reasonable skill, care and diligence and is based on the resources devoted to it by agreement with the client. The report is confidential and for the sole use of the client and for the specific scheme as referred to herein. The copyright of the report is held by Vertase FLI Limited. Copies may be passed to third parties only with the express written permission of Vertase FLI Limited and then no professional liability or warranty will be extended to such parties without the express written confirmation of Vertase FLI Limited.

The report is only valid when used in its entirety.

The findings and opinions contained in this report are based on information from a variety of sources which Vertase FLI Limited believes to be reliable. Whilst this information has been accepted in good faith Vertase FLI Limited cannot guarantee its reliability or authenticity. All potential contamination, constraints or liabilities associated with the site may not necessarily have been revealed. The potential exists for variations in soil and groundwater conditions, including contaminant concentrations, between and beyond the specific locations investigated. No liability can be accepted for such variations.

Authors	Signed	Date
Jacob Loats		23/11/2023
Steve Edgar		23/11/2023
Project Manager	**Signed**	**Date**
Mike Allsobrook	PP 	23/11/2023
QA Approved	**Signed**	**Date**
Steve Edgar		23/11/2023

Issue 1	Revision A	23/11/2023

Table of Contents

1.0 Introduction 1

1.1 Appointments 1
1.2 Legal Context 1
1.3 Document Purpose 1
1.4 Relevant Previous Work. 2

2.0 Pre Remediation Ground Model 3

2.1 Data input and Modelling approach 3
2.2 Site Boundaries 5
2.3 Historical Uses 8
2.4 Site Topography and Vegetation. 13
2.5 Other Features of Note 14
2.6 General Ground Conditions 17
2.7 Made ground material types and classifications. 17 20
2.8 Groundwater and Leachate Levels 22
2.9 Invasive species 25
2.10 Volumes and Spatial Arrangement of Materials 26
2.11 Contaminant Sources 28
2.12 Historic Structures 29
2.13 Services and Utilities 29
2.14 Proposed Development Platform 30

3.0 Conclusion 32

3.1 Ground Model Conclusion 32
3.2 Post Remediation Ground Model. 32

4.0 References 33

Appendices

Appendix A Historical Reports References

Appendix B Drawings

1.0 Introduction

1.1 Appointments

1.1.1 Vertase FLI Ltd (VertaseFLI) was employed by Nuvu Investments Ltd ('the Client') to undertake pre-contract services to address the requirements of outstanding pre-commencement planning conditions associated with proposed land remediation works at the former Jackson's Brickworks, off Ten Acres Lane, Newton Heath, Manchester ('the Site'). Wardell Armstrong LLP (WA) has been retained by the Client as independent environmental consultant to oversee the land remediation works upon commencement.

1.2 Legal Context

1.2.1 Permission to undertake the proposed land remediation works was granted by Manchester City Council (MCC) (MCC application number 129197/FO/2021) subject to conditions.

1.2.2 The planning permission for the proposed land remediation works is intended to enable redevelopment of the site for a mixed residential and commercial end use, which has also been granted permission by MCC (MCC application number 133700/FO/2022).

1.3 Document Purpose

1.3.1 The purpose of this report is to build upon site investigations and previously submitted reports to better define the ground conditions and geological setting of the site, as well as provide further clarity on the deposited waste and other materials at the site.

1.3.2 This is required to inform the remediation scope and strategy of works and practical elements of the remediation as well as contributing to the understanding of the environmental setting and conceptual site model (CSM) for the site. The use of a detailed ground model, Pre-Remediation, will be followed post remediation with an updated "Post Remediation Ground Model". This updated ground model will contain, as well as historic information, a complete data set collected during the remediation in order to:

1) Confirm the CSM.

2) Present and assess PFAS related data collected to aid risk assessment.
3) Provide validation and verification data.
4) Provide details collected during execution of the "Dynamic Strategy".

1.3.3 The Post Remediation Ground model will utilise a bespoke designed database application that will collate and visualise all relevant data. This database will be related to the site-based grid system and data will be recorded on a 3-Dimensional basis. This database system is known as "VertaVerse" and will be a live application throughout the Remediation works. This will be available for review by the Remediation team and the regulators and will provide a full documented record of the works.

1.4 Relevant Previous Work.

1.4.1 The information contained within the reports prepared by Celtic and Wardell Armstrong has been used to inform the Pre remediation ground model. Where necessary, the information has been supplemented with primary data collected by VertaseFLI. See Appendix A for full report references.

2.0 Pre-Remediation Ground Model

2.1 Data input and Modelling approach

2.1.1 The site has been modelled using data from the various ground investigation reports, (Celtic 2007), (Wardell Armstrong 2019, 2020, (combined in 2022)). Data has been extracted from the site investigation locations to create a model that shows the meters above ordnance datum (mAOD) of the base of made ground across the site.

2.1.2 Analysis of the logs has allowed the determination and classification of the type of made ground based on this analysis. This in turn has led to the creation of a made ground model (Shown simply in Figure 1) using Surfer13 and LSS and has allowed for the volumetric assessment and definition of each material on site.

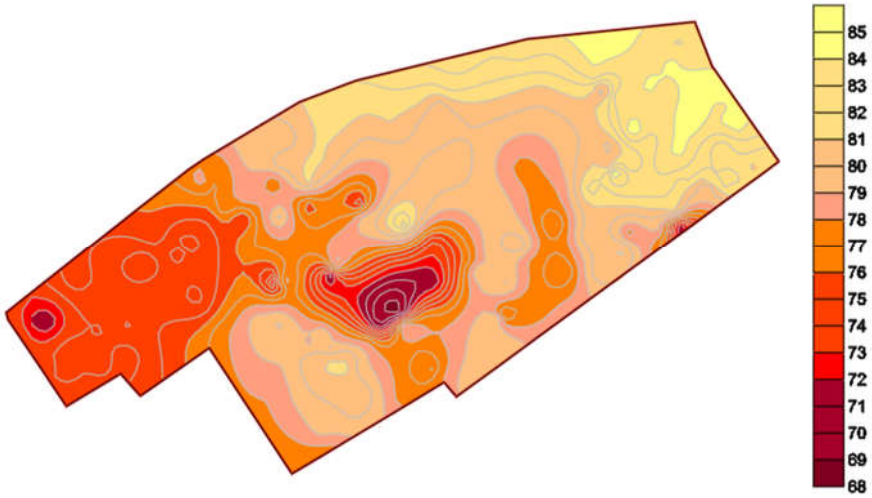


Figure 1 – Depth of Made Ground mAOD.

2.1.3 Figure 2 below and in Appendix B as D4744_16 shows the depth of made ground below current ground level. VertaseFLI have utilised this information to create a 'proposed dig model' (Figure 3, Figure 4, and Figure 5) which is a basis for the remediation platform or remediation formation level for the development.

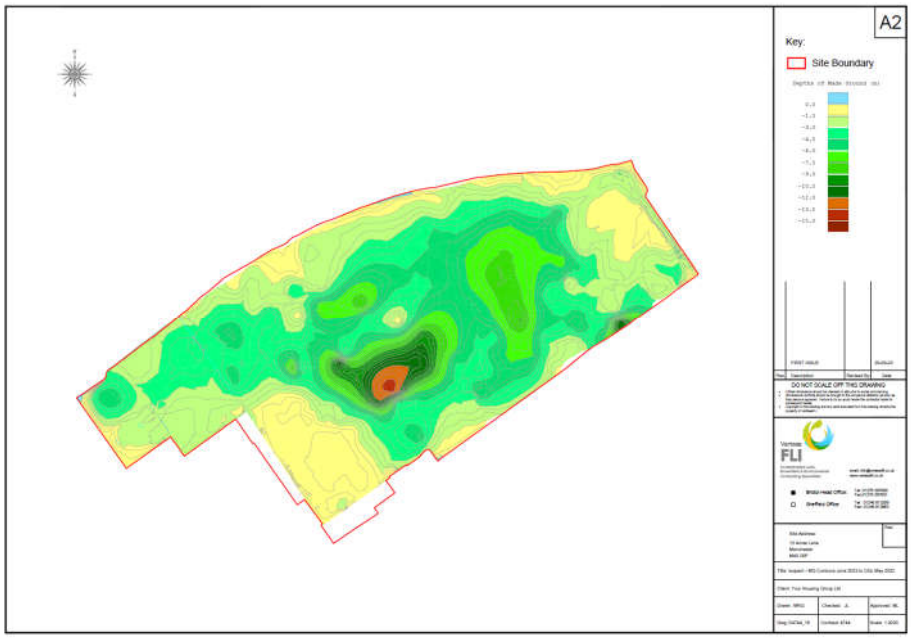


Figure 2 – Depth of Made Ground mBGL.

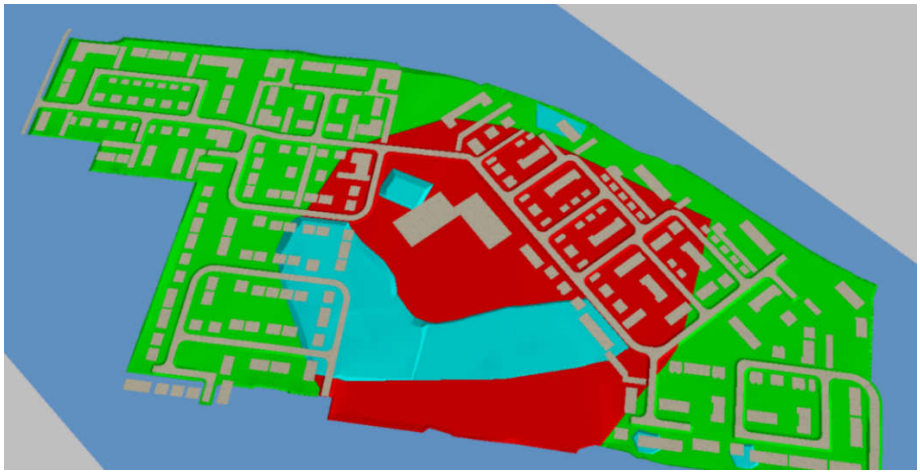


Figure 3 – Proposed Dig Model

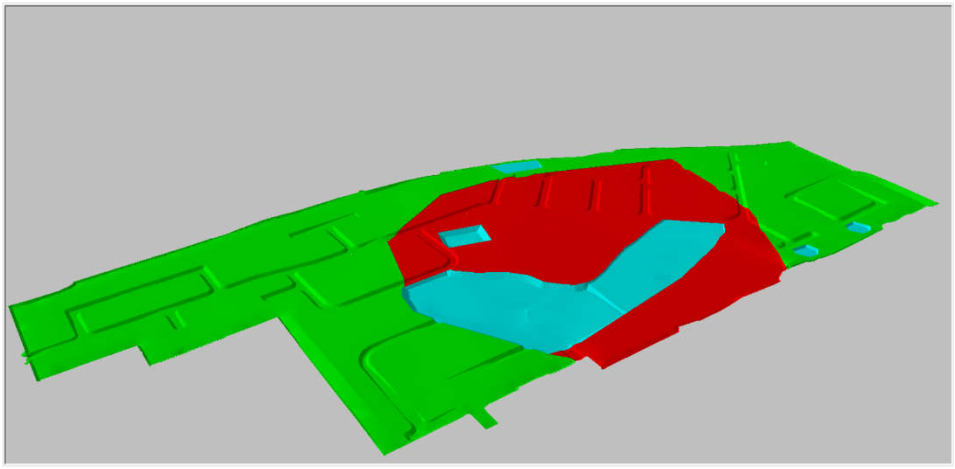


Figure 4 – Proposed Dig Model

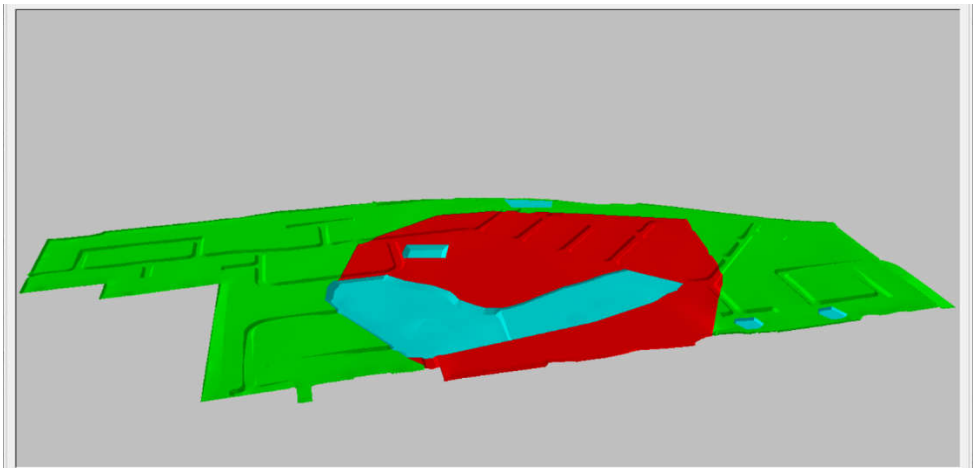


Figure 5 – Proposed Dig Model

2.1.4 The proposed dig model forms the basis for the excavation works and sets the areas for the implementation of the Dynamic Remediation Strategy with is detailed within the VertaseFLI Remediation Strategy.

2.2 Site Boundaries

2.2.1 The site is located west of the centre of Manchester in the Newton Heath area. The site is accessed via Ten Acres Lane on the Southwestern side of the boundary. The approximate grid reference for the centre of the site is SD 87556 00288.

2.2.2 Figure 6 below and in Appendix B as D1932_20 shows the fenced area of the site, which is approximately 19.3ha, situated by Ten Acres Lane to the Southwest, Rochdale canal to the North, Briscoe Lane and associated housing to the South and Mitchell Street to the Northeast. The site also shares a boundary with the Ten Acres Lane Sports complex to the Southwest. The area is a mix of residential, commercial, and industrial uses. On the boundary to the site in the north, east and west it is mainly residential, with commercial or derelict sites to the west.

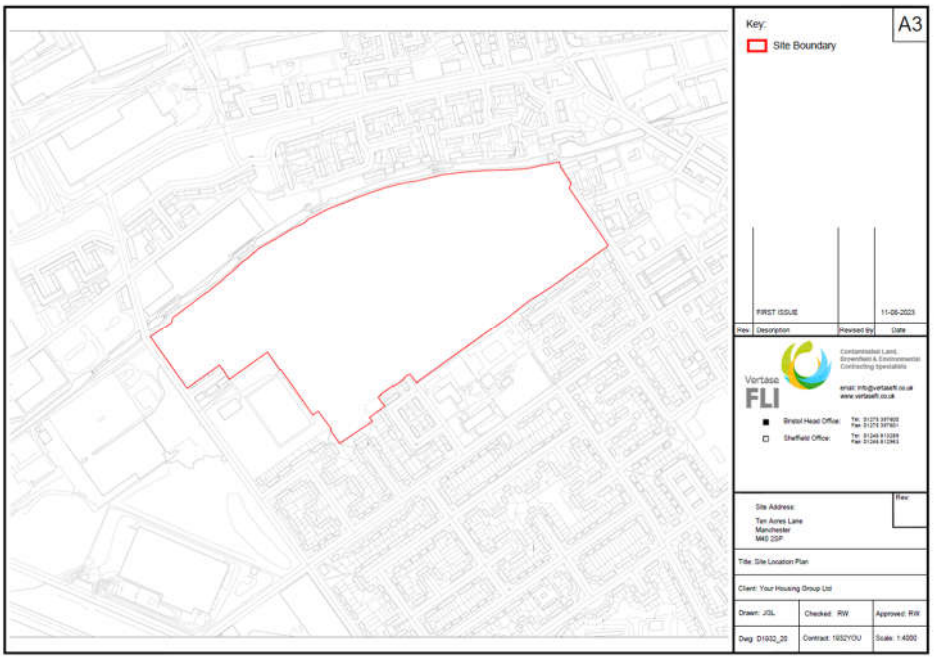


Figure 6– Site Boundary

2.2.3 The site has been left to become overgrown scrub land with former self set trees now removed. The aerial photos (figures 7-10) below show the site following the vegetation clearance in 2022.



Figure 7-View north – Rochdale Canal and housing dense housing and well as industrial and commercial buildings



Figure 8- View west – views of industrial and commercial in the foreground with central Manchester in the distance



Figure 9-View east – mainly housing in close proximity to site with some commercial use and the canal to the north of the site.



Figure 10-View southeast – views of housing in the immediate area with the primary school to the south of the site to the right of this photo

2.3 Historical Uses

2.3.1 The site has had many previous uses in the past century, including the site of two brickworks, sports pitches and most recently was used as a landfill. The history of the site, in particular the way the brick pits were progressed and filled and how this correlates with the trial pit and

borehole logs and natural strata is key to providing a full understanding of the site and hence the design of any Remediation.

2.3.2 The below figures (Figures 11-19) below give an overview as to how the site was excavated and filled and aids in the preparation of a final ground model and the interpretation of the site investigation data.



Figure 11 – 1848 OS Map – Shows Open Fields



Figure 12 – 1889 – Shows the introduction of reservoir in the north and Brickworks to the west and various waterbodies across the site.



Figure 13 – 1905 – Brickworks constructed to the east and the introduction of outlines of excavations.



Figure 14 – 1915 – Increased excavations shown.

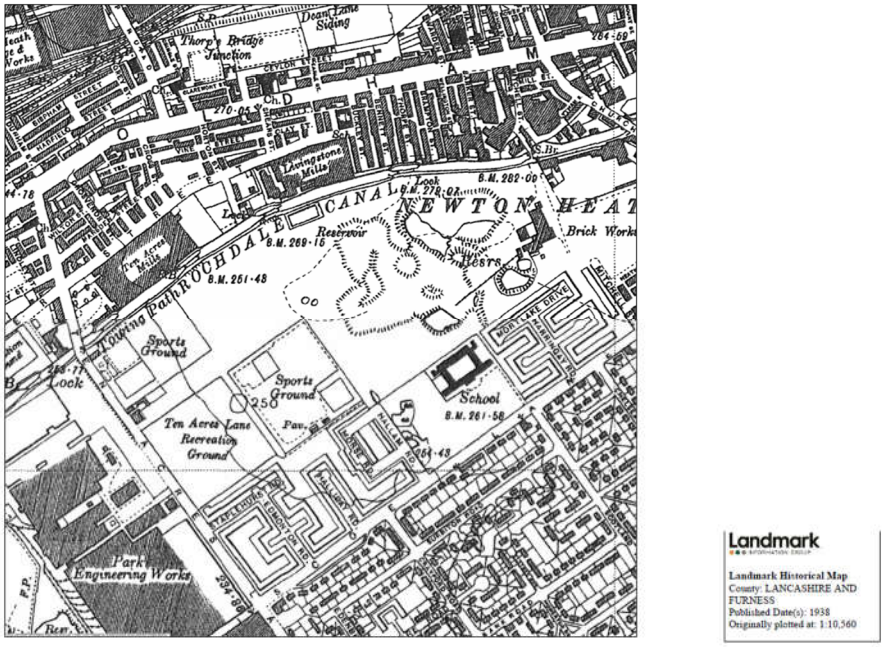


Figure 15 – 1938 – Brickworks to the west removed and replaced with sports ground, sports ground present in the southwest corner of the site.

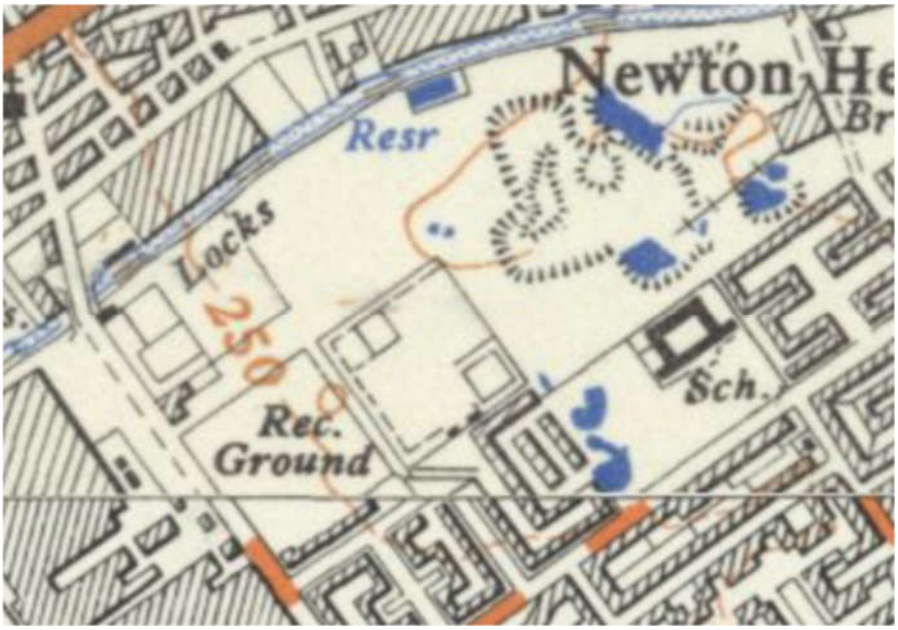


Figure 16 – 1947 – Site largely unchanged.

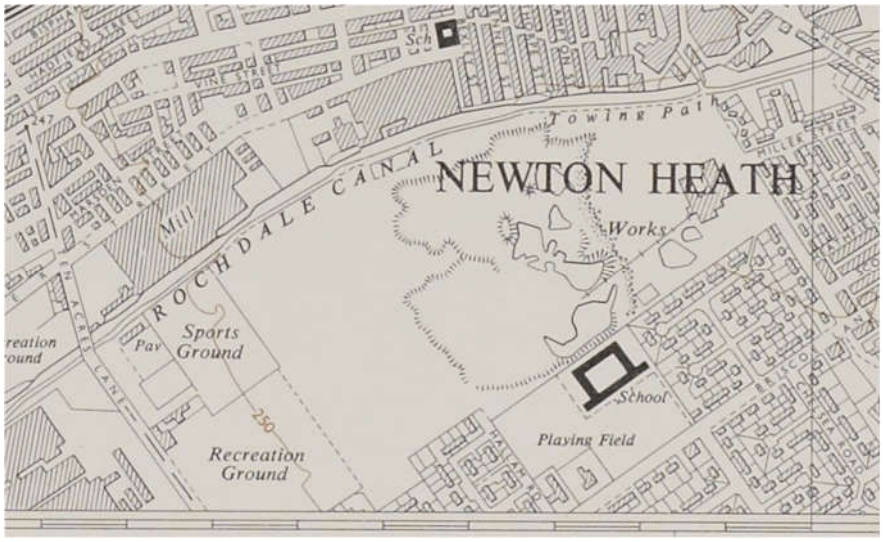


Figure 17 – 1956 – Removal of sports ground in the southwest.

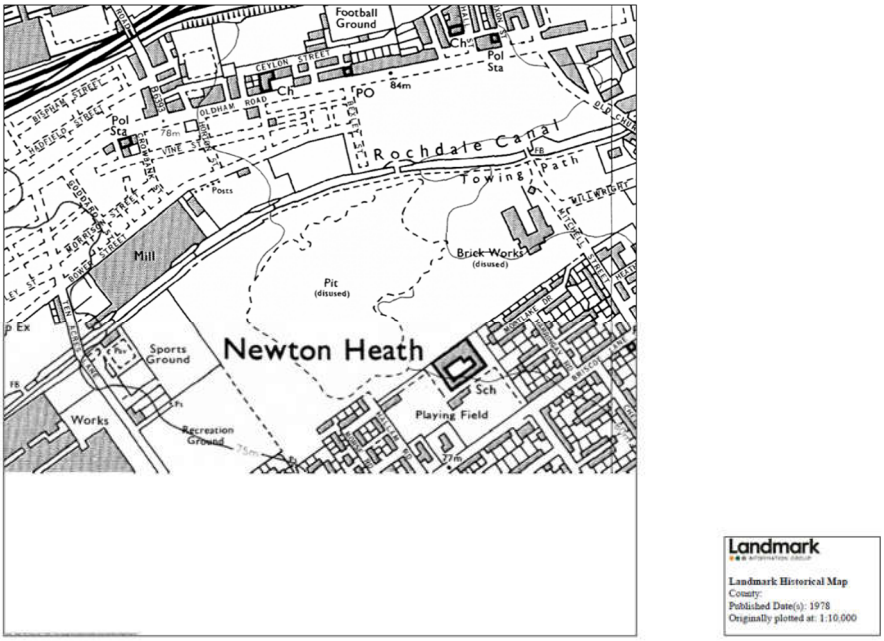


Figure 18 – 1978 - Shows brickworks and pit to the east as disused.

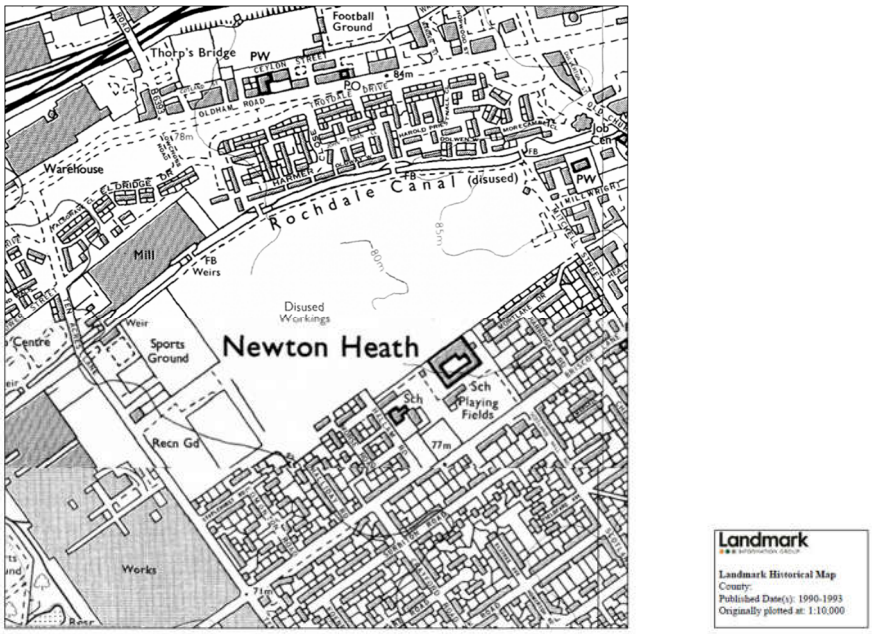


Figure 19 – 1993 – Shows the entire eastern part of the site as disused with the sports ground still present in the west.

2.4 Site Topography and Vegetation.

2.4.1 The site gently rises from west to east approximately 76mAOD to 85mAOD with a slight domed centre peaking at 86.5mAOD (Figure 20 below and in Appendix B as Drawing D1932_06)) an initial site clearance of mature trees has been completed and is shown on Figure 21 and in Appendix B as Drawing D1932_07.

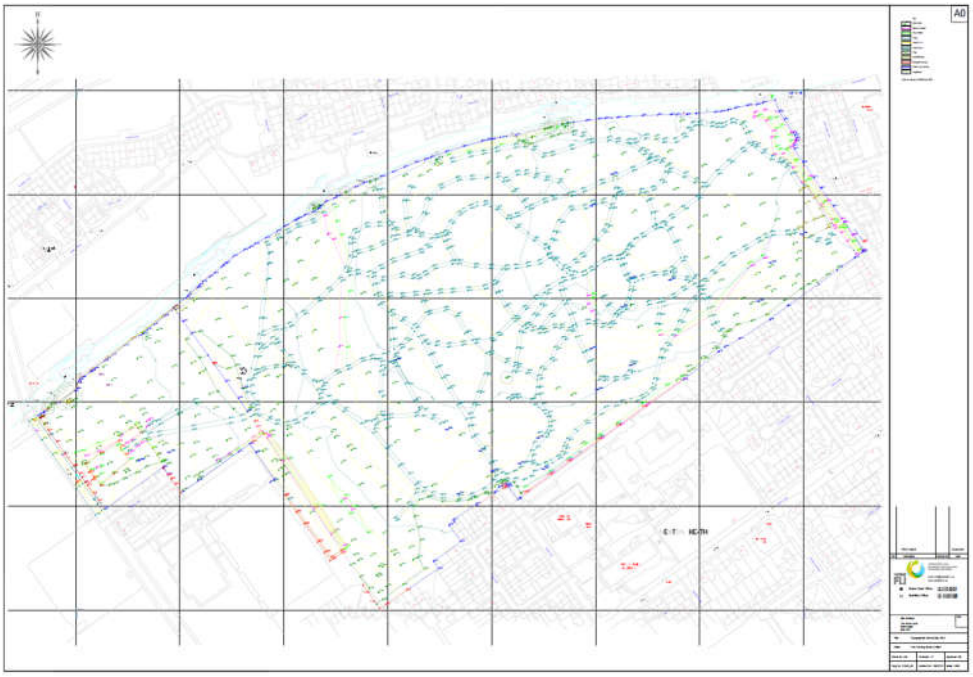


Figure 20 – Topographical Survey May 2022

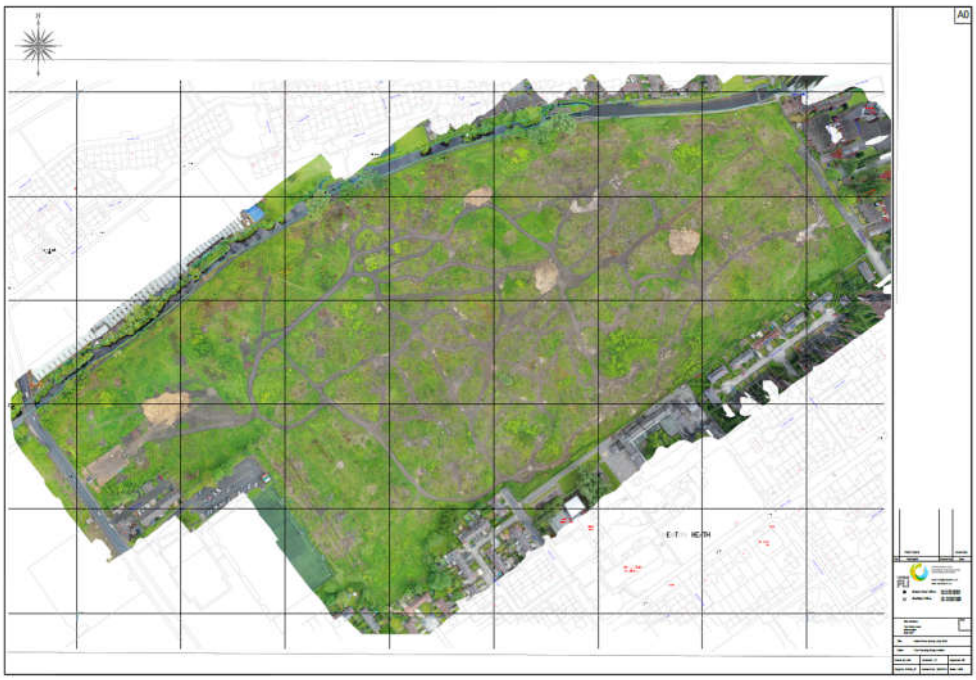


Figure 21 – Aerial Photograph showing initial site clearance June 2022

2.4.2 The site is currently derelict bounded by mature hedges to the north, west & south and a fence and Mitchell Street to the east.

2.5 Other Features of Note

2.5.1 A drainage ditch is present to the south of the site which has been installed to manage excess leachate which "overtops" the deeper fill area to this part of the site which was an historic brick pit. This is now managed and is currently pumped, treated and removed from site (Figure 22 below and in Appendix B as Drawing D1967_07).

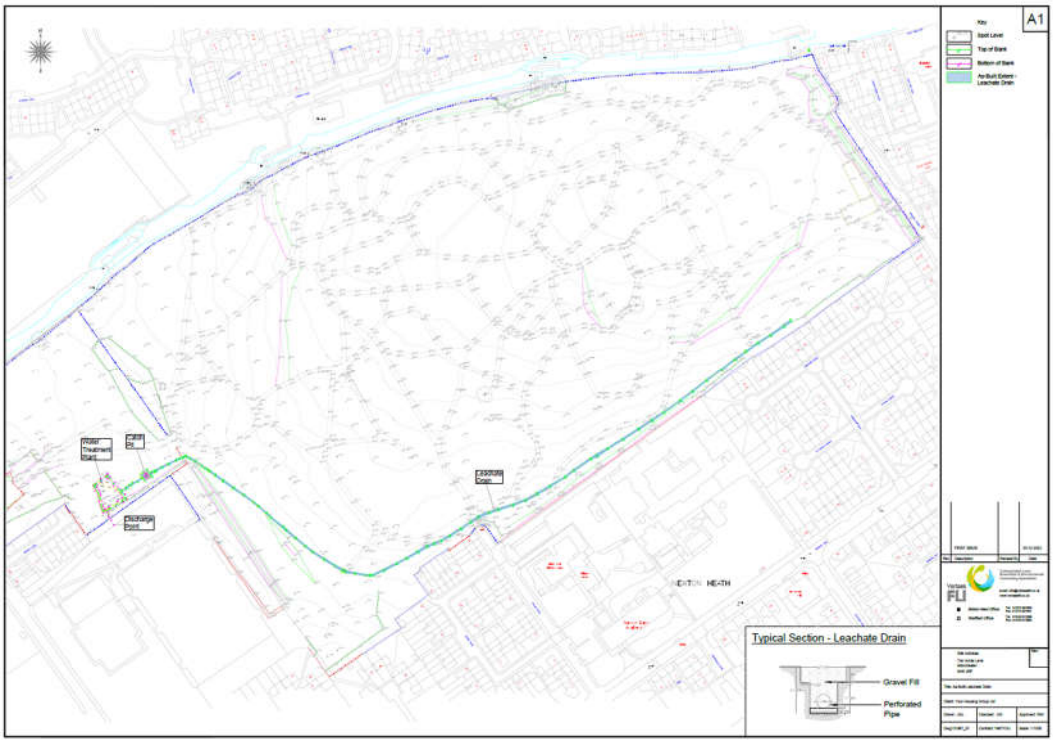


Figure 22 – Leachate Drain General Arrangement

2.5.2 The following figure (Figure 23 below and in Appendix B as Drawing D4744_15) summarises the preceding to show the site features presents an overview of historic features. It also highlights that now surrounded by mainly housing and commercial property and the Rochdale Canal. This general history of the site has then been cross referenced to trial hole and borehole logs along with the topographical data, photographs, and observations to construct the overall ground model.

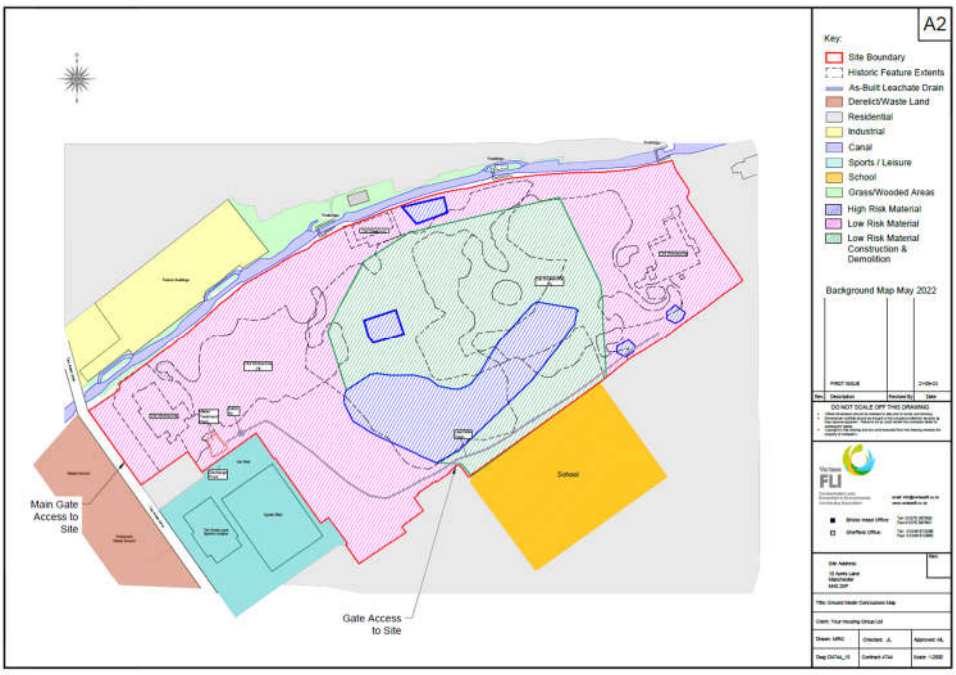


Figure 23 – Site Features

2.6 General Ground Conditions

2.6.1 Below is a summary of the current ground make up for the site for more detail refer to the historic site investigation reports, Conceptual Site model, DQRA and Options Appraisal/Remediation Strategy. References for which can be found at Appendix A.

2.6.2 Table 01 outlines a basic summary of the strata at the site.

Table 01: Summary of Strata

Strata	Description (taken from WA reports)
Made Ground	Comprises various types of Made Ground which include general granular soils, general cohesive soils, suspected combustion waste, suspected colliery spoil, construction and demolition waste and household waste.
Glacial Till	Firm to stiff, fissured, brown, slightly sandy to sandy, gravelly clay with occasional lenses of predominantly medium dense, brown/grey gravelly clayey sand. The Glacial Till is identified to be a Secondary (Undifferentiated) Aquifer based on the BGS Aquifer Designation Map (Superficial Drift).
Weathered Sandstone of the Collyhurst Sandstone Formation	Extremely weak to weak, laminated, reddish brown, fine to coarse grained sandstone with well-rounded "millet seed" grains. The sandstone is identified to be a Principal Aquifer based on the BGS Aquifer Designation Map (Bedrock).
Weathered Sandstone of the Chester Formation	Reddish brown, fine to medium sand with black, red, white, and green grains and rare angular, fine black gravel. The sandstone is identified to be a Principal Aquifer based on the BGS Aquifer Designation Map (Bedrock)

2.7 Made ground material types and classifications.

2.7.1 The next step in construction of the ground model was a review of all historical and recent site investigations. Logs, descriptions, and photographs were interrogated in order to allow the development of material type classifications. It is necessary to undertake this type of classification much in the way that natural geology is classified into

Strata. The evidence reviewed has allowed VertaseFLI to create three different material classifications of Made ground. All logs and supporting information can be found in the appendices of the relevant historical reports references for which can be found at Appendix A.

2.7.2 There are three main classifications of made ground materials which have been defined as follows:

- High Risk Materials or HRM
- Low Risk Materials-Construction and Demolition waste or LRM C&D
- Low Risk Materials or LRM

2.7.3 Further details and definitions of the above are set out in the following sections. A selection of photographs has also been included that typify each of the classifications to allow for future classification on site during the works and a greater understanding of the material types identified. Written descriptions alone can be complex and difficult to interpret.

2.7.4 High Risk Materials (HRM)

2.7.5 High Risk Materials are the materials we might reasonably and quickly identify traditionally as "waste". The sort of material we would expect not to be readily reuseable or contain significant proportions of concrete and other materials that could and are regularly recycled for re-use as aggregates within construction. HRM could comprise the following components or a mixture of the following components. We have also added a "type" code to each of these to aid in clarity and referencing.

Type H1: Putrescible waste i.e., waste that can de-compose quickly.

Type H2: Chemical waste/Contamination above risk-based thresholds i.e., hydrocarbons, solvents, etc.

Type H3: Drums, tanks, chemical containers.

Type H4: Clinical Waste.

Type H5: Licensed Asbestos graves

Type H6: Tires.

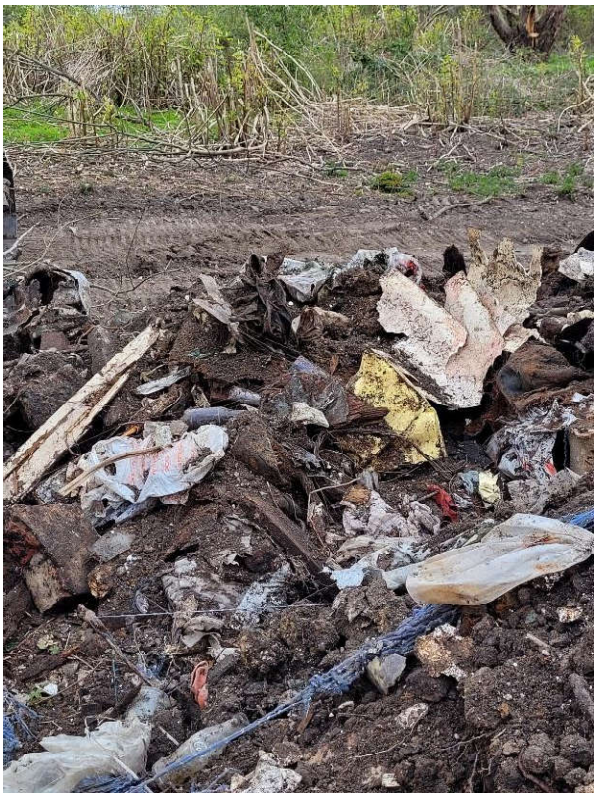
Type H7: Waste Electrical Items.

Type H8: Undesirable waste within a soil or rubble mass, within a grid square which is greater than 40% by volume and which may pose an ongoing risk of PFAS to controlled waters including.

i. Plastic,
ii. Carpets and other textiles,
iii. Metal including household items such as pans, etc.
iv. Rubber / PVC.

Typical Photos of HRM from the site investigation are below:





2.7.6 Low Risk Materials C&D (LRM C&D)

2.7.7 From a review of the data, it is also evident that there is a significant proportion of the waste, which is predominantly recoverable hard materials such as concrete, brick tile etc that can be segregated and crushed to reuse as engineered fill or aggregate. Whilst this material does contain some "waste" elements, the matrix is that which would be referred to as construction and demolition waste which is regularly recycled in the industry currently. This classification therefore could comprise the following components or a mixture of the following

components. We have also added a "type" code to each of these to aid in clarity and referencing.

Type L1: Made ground containing construction and demolition waste and not meeting the definition of high-risk material,

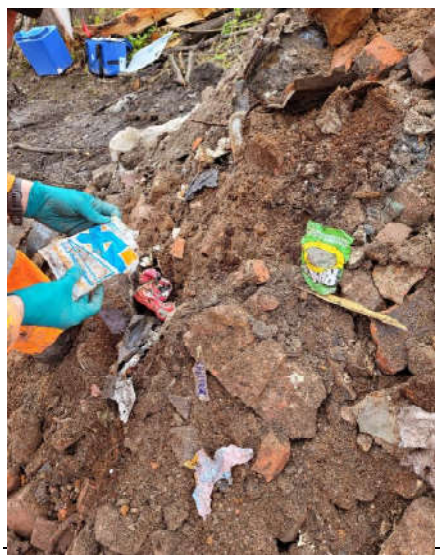
Type L2: Concrete, asphalt, bricks, ceramics, glass

Type L3: Ash / clinker with other incidental materials present in small proportion (20%-40%)

2.7.8 Typical Photos of LRM C&D from the site investigation are below:









2.7.9 Low Risk Materials (LRM)

2.7.10 Remaining materials that are not naturally occurring are what would often be referred to as "Made Ground" on Brownfield sites. This material is varied in nature but importantly contains only small proportions of waste or deleterious materials.

Type M1: Coal Measure Overburden with contamination concentrations not exceeding risk-based thresholds.

Type M2: Other natural geology with contamination concentrations not exceeding risk-based thresholds.

Type M3: Ash / clinker and other made ground materials (including Topsoil, subsoil etc.) with contamination not exceeding risk-based thresholds with other incidental materials present in small proportion (<20%)

2.7.11 Typical Photos of LRM from the site investigation are below:









2.8 Groundwater and Leachate Levels

2.8.1 Historically there has been a lack of clarity with respect to groundwater and leachate levels at the site and their interaction with the surrounding ground both on site and in adjacent water bodies. As part of more recent works as well as historically, a number of groundwater monitoring rounds have been completed, the results of which have been assessed and analysed. Boreholes have been screened across a variety of strata/horizons and it can be seen that once these are segregated correctly there a number of distinct water bodies at the site. We have reviewed the historic data as collected by Celtic in 2007 and more recently by VertaseFLI in 2023.

2.8.2 There is water body within the Sandstone Aquifer which is confined by the Glacial Till. This is not in continuity with the fill materials at the site. Data from the sandstone aquifer has been contoured separately from other horizons, and it is seen to not be in direct continuity with the fill materials.

2.8.3 There is also a water table within the shallow natural deposits at the site which can be seen to have a different flow pattern when contoured to both the Deeper Sandstone aquifer and also to the made ground or "leachate" contours.

2.8.4 The flow pattern within the made ground/leachate has changed significantly over time. From the data and the flow patterns and from examination of the resulting 3D ground model, we are confident that the leachate in the site has been slowly filling the "waste pits" over time and that the daylighting or springing of water observed (and now managed) is as a result of the filling of these pits. If one looks at the below-ground topography, the leachate level, and the ground level, this can be clearly seen.

2.8.5 Whilst flow patterns differ, as might be expected, each of the 3 horizons are distinct. However, it is recognised that with coincidental groundwater levels in the shallow natural aquifer and the leachate in places, it is possible that a link between the made ground aquifer and the shallow natural aquifer may be present in places but not in all areas of the site.

2.8.6 This data has also been added to the ground model as Figure 24 to 26 below and also in Appendix B and Drawings D1932_07, D1932_21B and D1932_21, to enable the assessment of the interaction between excavations, remediation and the management/remediation or groundwater/leachate. Remediation requirements will be set out in the Remediation Strategy.

Figure 24: GW data (Celtic)

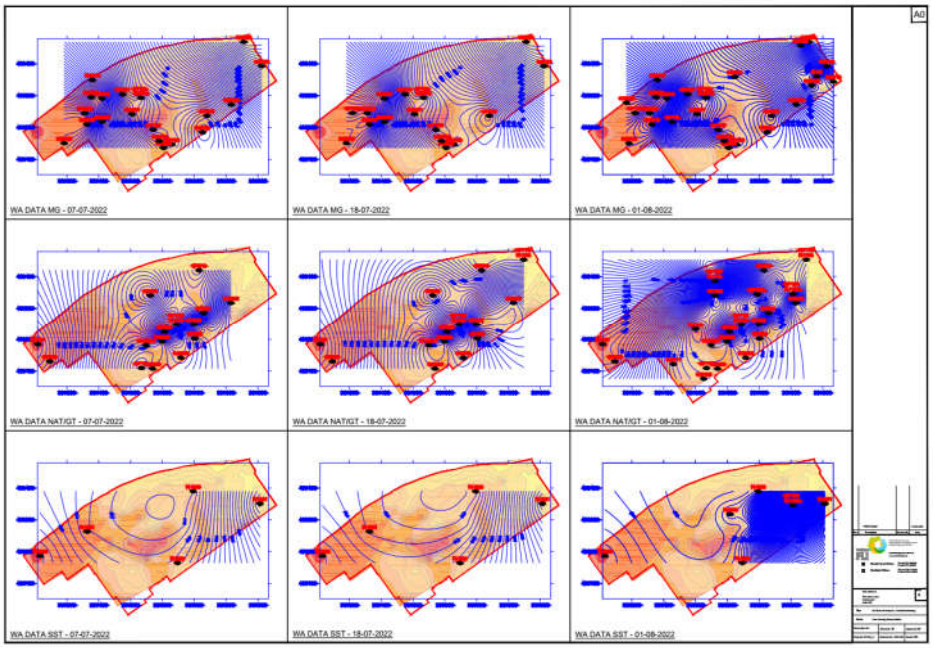


Figure 25: GW Data (WA)

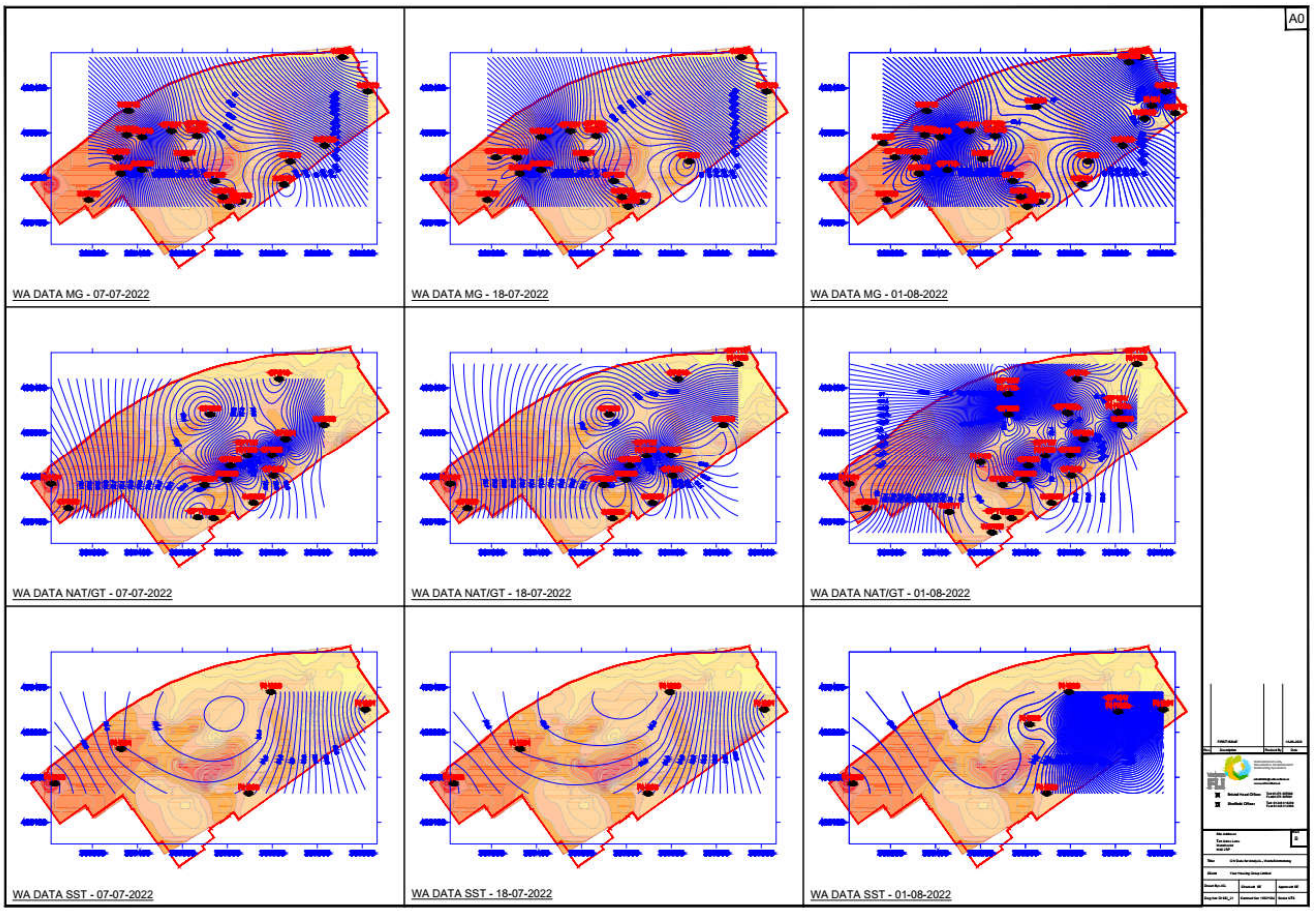
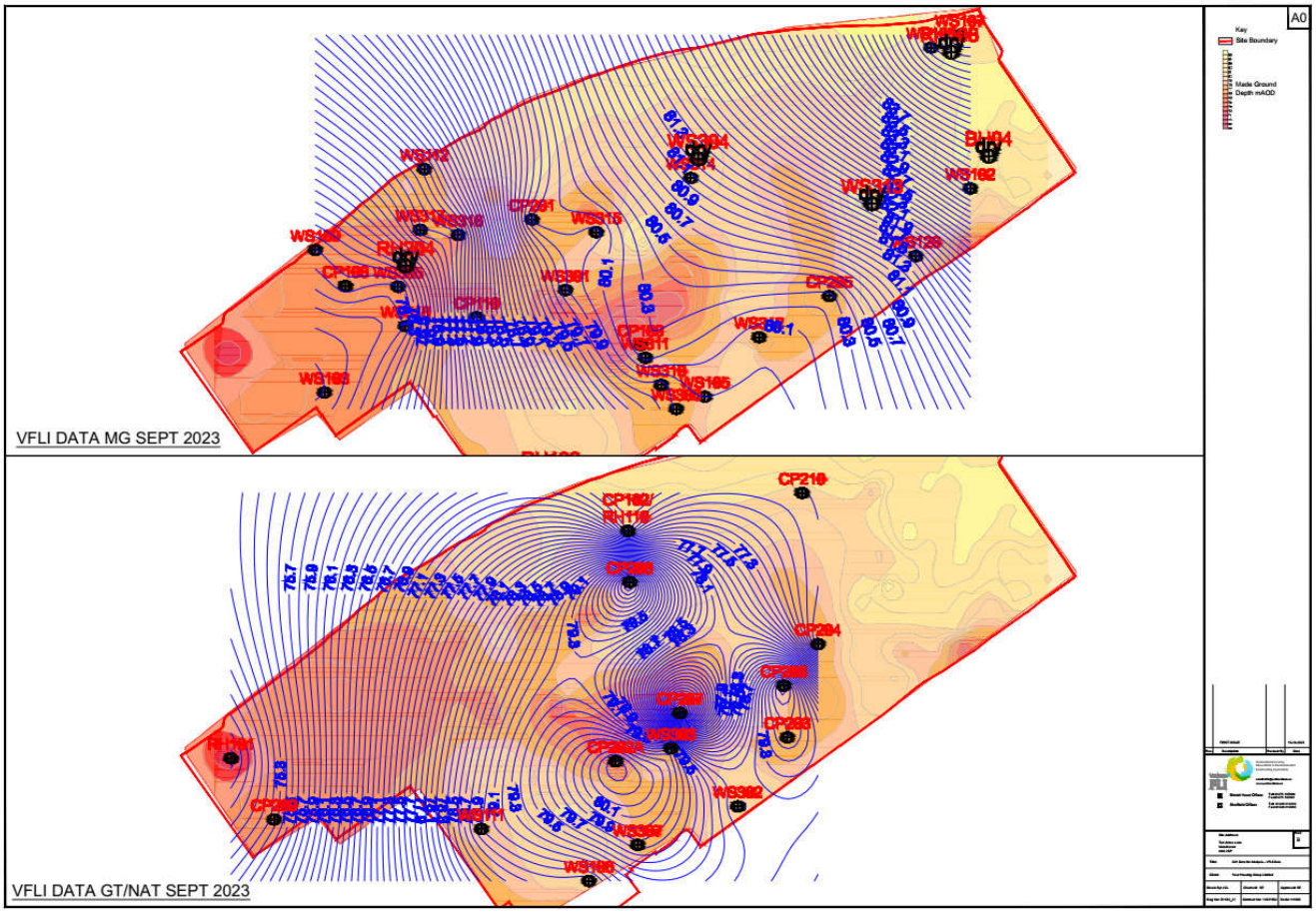


Figure 26: GW Data (VertaseFLI)



2.9 Invasive species

2.9.1 The site investigation works have identified non-native invasive species on site that include Japanese Knotweed. A separate invasive species management plan has been prepared and presented within the *VertaseFLI Options Appraisal and Remediation Strategy, November 2023*. and remedial works will be carried out prior to the main remediation works on site.

2.9.2 Figure 27 below and in Appendix B as Drawing D1932_08 shows the identified extent of invasive species on the site. It is important to note that the invasive species occur in areas of HRM, LRM C&D and LRM. Material containing Japanese Knotweed or other invasive species will be first segregated and managed for the Japanese Knotweed presence before other treatment or segregation is considered.

.

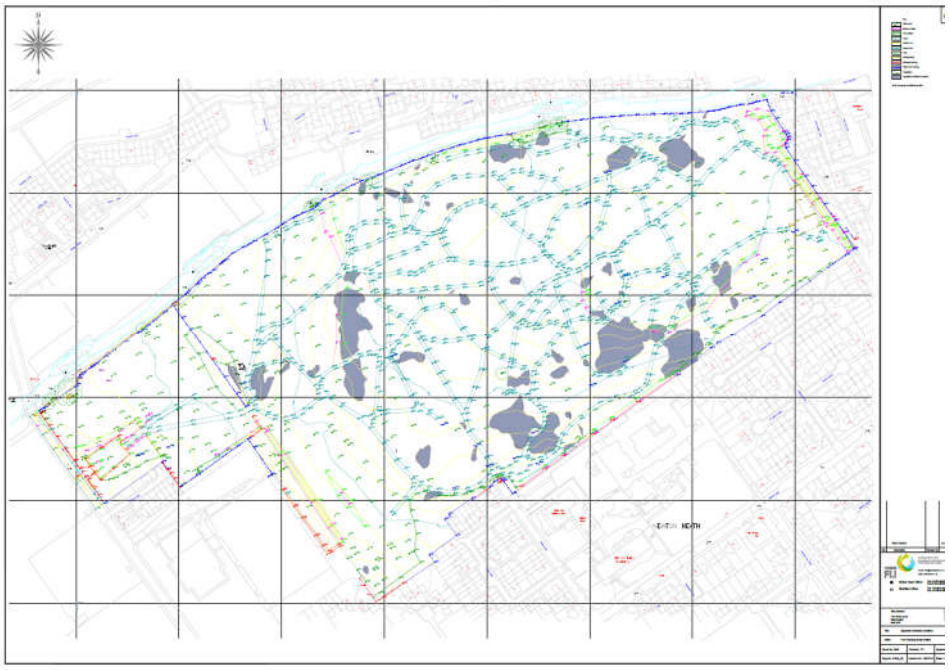


Figure 27 – Invasive Species Location Plan

2.10 Volumes and Spatial Arrangement of Materials

2.10.1 The ground model has been used to determine quantities for the main material types that are targeted for treatment. These Volumes are subject to change as the "Dynamic Remediation Strategy" is implemented but in broad terms the volumes for the basic excavation depth are as follows in Table 02 gives the volumes of material based on classification:

Table 02 – Material Volumes

Material Classification	Volume (m3)
High Risk Materials	83,778
Low Risk Materials C+D	96,110
Low Risk Materials	92,359
Total	272,247

2.10.2 Material boundaries have been defined using a combination of all the available data described in this report and utilising the 3D model constructed in LSS and Surfer. The delineation of the materials has

been done on the basis of the 3 main material types as set out above. LRM, LRM C+D and HRM. The Figure 28 below and in Appendix B as Drawing D4744_12 shows these areas in a simple diagrammatic output from the ground model.



Figure 28 – Material Locations (beneath topsoil).

2.10.3 Topsoil is widespread across the site as shown on Figure 29 and in Appendix B as Drawing D4744_25

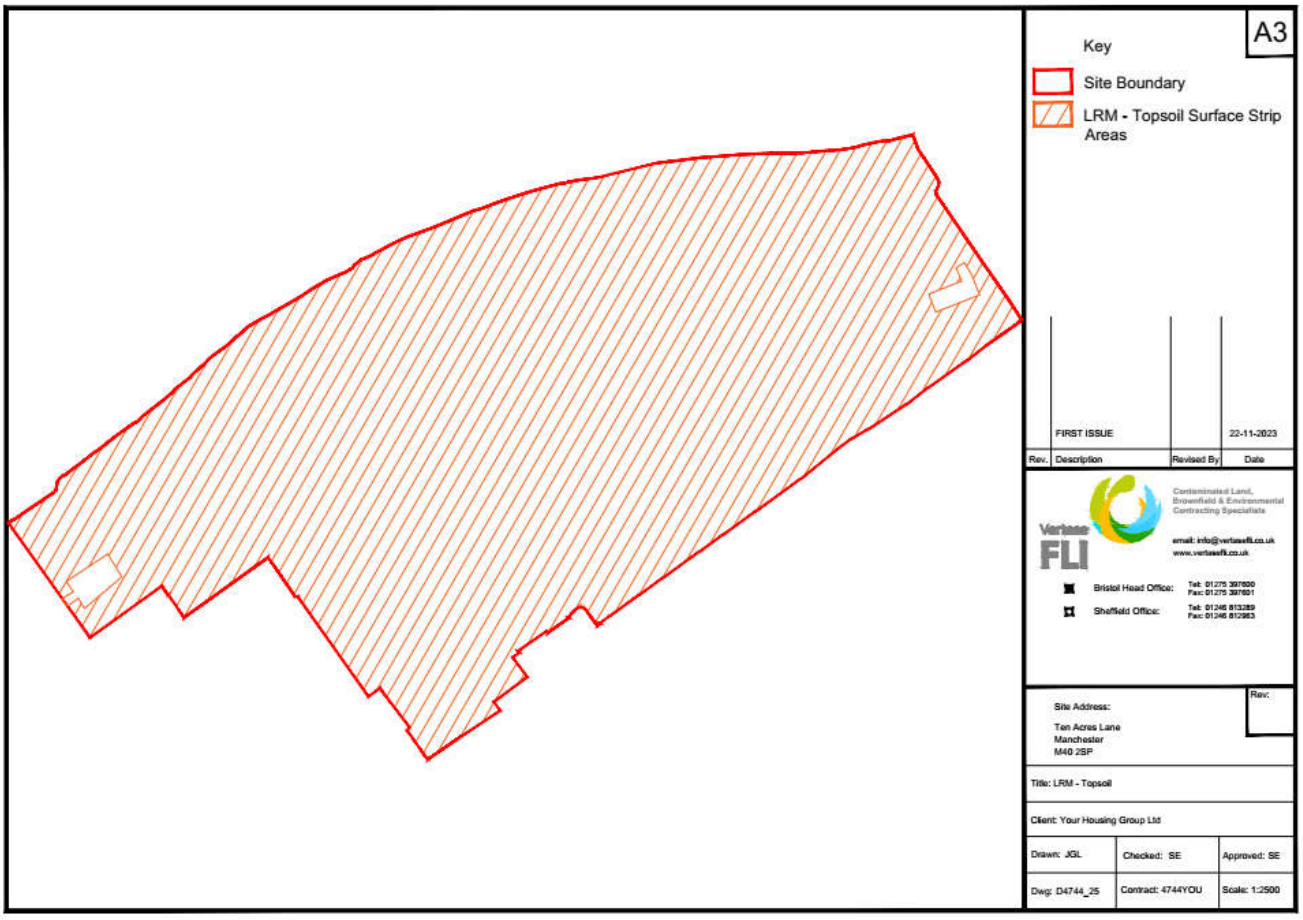


Figure 29 – Topsoil locations

2.11 Contaminant Sources

2.11.1 A full assessment of contaminant sources, pathways, and receptors (pollutant linkages) has been made in other reports and is not repeated here. (See References at Appendix A). Notwithstanding the "dynamic approach" to the remediation as part of the development of the ground model, an assessment has been undertaken to ensure that the currently defined hotspots that require remediation are within the stated excavation depths. The use of the VertaVerse database and the further collection of data will also ensure that any contamination hotspots that are found as part of the Dynamic Strategy or further investigation are recorded and added to the ground model.

2.12 Historic Structures

2.12.1 There is the potential for historic structures and foundations in the footprints of the historic brickwork boundaries as well as features associated with both historic sports pitch areas. Figure 30 below in in Appendix B as *Drawing D4744_14* gives an overview of areas where significant historic structures have been identified and again excavation depths have been set to ensure that these structures will be identified and removed during the remediation works.



Figure 30 – Historic Structures

2.13 Services and Utilities

2.13.1 There are several historical services connections to the site which may pose risk to both the future development and may also provide preferential pathways for contamination, vapours, and gas. These pathways are discussed in more detail in the historical reports references for which can be found at Appendix A. For the purposes of the ground model these have been incorporated to ensure that they are managed as part of the remediation works with the recording of work undertaken to these pathways added to the VertaVerse database of the site and ultimately the Post Remediation Ground Model. Figure

31 below and in Appendix B as Drawing D1967_01 shows the services and utilities currently identified on site.



Figure 31 – Services and utilities

2.14 Proposed Development Platform

2.14.1 The final piece of the Pre-Remediation Ground Model is the proposed topography of the site post remediation. A development platform has been designed to reflect the final site development landform. This can be seen in Figure 32 below and in Appendix B as Drawing D1932_13.

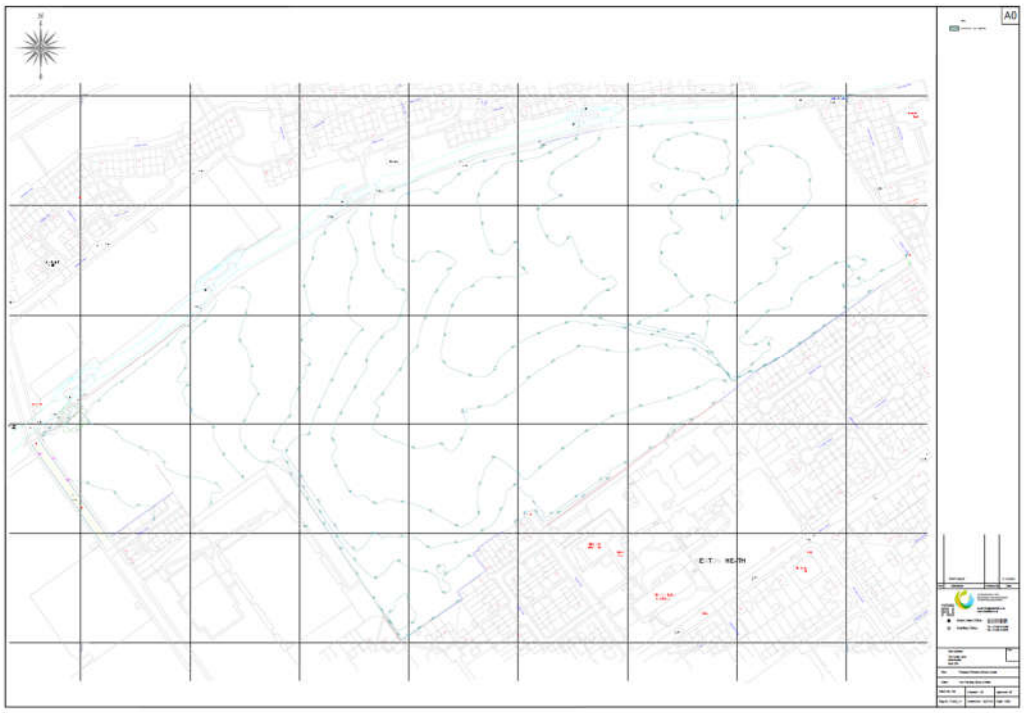


Figure 32 – Proposed Development Levels

3.0 Conclusion

3.1 Ground Model Conclusion

3.1.1 There is sufficient understanding of the environmental setting of the site and the ground model has inputted into the Conceptual Site Model (CSM) and understanding of the site source-pathway-receptor linkages and potential linkages. The site investigations and historical mapping for the site are extensive. When combined, they provide a robust understanding of the spatial arrangement and the 3-dimensional arrangement of the historical filling to the site. The compilation of this ground model has allowed us to understand and define the depths of filling, the spatial arrangement of the filling and the volumes of the same. This has allowed us to consider the practical elements of the scheme for both the soils remediation and leachate remediation which will now be set out in the remediation strategy. This ground model forms an essential part of this strategy development in allowing us to interrogate the various options for remediation and to assess and design the practical aspects. The use of the 3D model has also allowed us to classify the deposited materials at the site into 4 distinct categories. Topsoil's, LRM, LRM C&D and HRM each material requiring a different approach and consideration for excavation, remediation, and provision of development platform.

3.2 Post Remediation Ground Model.

3.2.1 It is proposed that following the agreement of the Remediation Strategy, the remediation works will be implemented. During the Remediation, the collection of additional data will take place. This will be added to existing data (where relevant) to provide a complete data set for the site, post remediation. This data will be managed through a bespoke application that has been designed specifically for this project. This is known as "VertaVerse". VertaVerse will allow for mobile data collection in the field, and it will enable coordination, sharing and publishing of the existing relevant data, laboratory and ground investigation data collected during the remediation, validation/inspection data, photographs, and other site records. This VertaVerse database will publish data to both the Remediation Project Team and other regulatory stakeholders.

APPENDIX A

Historic Report References

References

Celtic Technologies Ltd. Desk Study. R1077/06/2958. July 2006.

Celtic Technologies Ltd. Interpretative Report. R1077/08/3328. February 2008

VertaseFLI. Detailed Quantitative Assessment of Risk, Issue 1, Rev A, Prepared for Nuvu Investments Ltd. October 2023.

VertaseFLI. Remediation Options Appraisal and Remediation Strategy. Prepared for Nuvu Investments Ltd. November 2023.

Wardell Armstrong. Combined Phase I and Phase II Ground Investigation Report. May 2021. Version 1.1

Wardell Armstrong. Updated Combined Phase I and Phase II Ground Investigation Report. October 2022. Version 1.0

Wardell Armstrong. Technical Note. Deeper Ground Conditions and Laboratory Testing Clarifications. April 2023

Wardell Armstrong. Technical Note. Hydrogeological Conceptual Site Model Clarifications. March 2023

APPENDIX B

Drawings

A0

N

Key

- Spot Level
- Bottom of Bank
- Top of Bank
- Track
- Contour 1m
- Contour 5m
- Tree
- Hardstanding
- Palisade Fencing
- Chain Link Fencing
- Vegetation

Note: Surveyed via GNSS May 2022

NEWTON HEATH

Crowbank Walk

Briscoe Lane Academy

Holtom Road Children's Centre

Oldknow Nursery

Heathfield Church

Queen Anne Public House

The Phoenix (PH)

Shelter

Pylon

Electricity Sub Sta

Ford Bridge

Briscoe Lane Bridge

Rev	Description	Revised By	Date
	FIRST ISSUE		13-06-2022

Vertase FLI

Contaminated Land, Brownfield & Environmental Contracting Specialists

email: info@vertasefli.co.uk
www.vertasefli.co.uk

Bristol Head Office: Tel: 01275 397600 Fax:01275 397601

Sheffield Office: Tel: 01246 813289 Fax: 01246 812963

Site Address:

Ten Acres Lane
Manchester
M40 2SP

Rev:

Title: Topographical Survey May 2022

Client: Your Housing Group Limited

Drawn By: JGL	Checked: LF	Approved: SE
Dwg No: D1932_06	Contract No: 1932YOU	Scale: 1:800

A0



Rev.	Description	Revised By	Date
	FIRST ISSUE		13-06-2022

Vertase FLI

Contaminated Land, Brownfield & Environmental Contracting Specialists

email: info@vertasefli.co.uk
www.vertasefli.co.uk

■ Bristol Head Office: Tel: 01275 397600 Fax:01275 397601

□ Sheffield Office: Tel: 01246 813289 Fax: 01246 812963

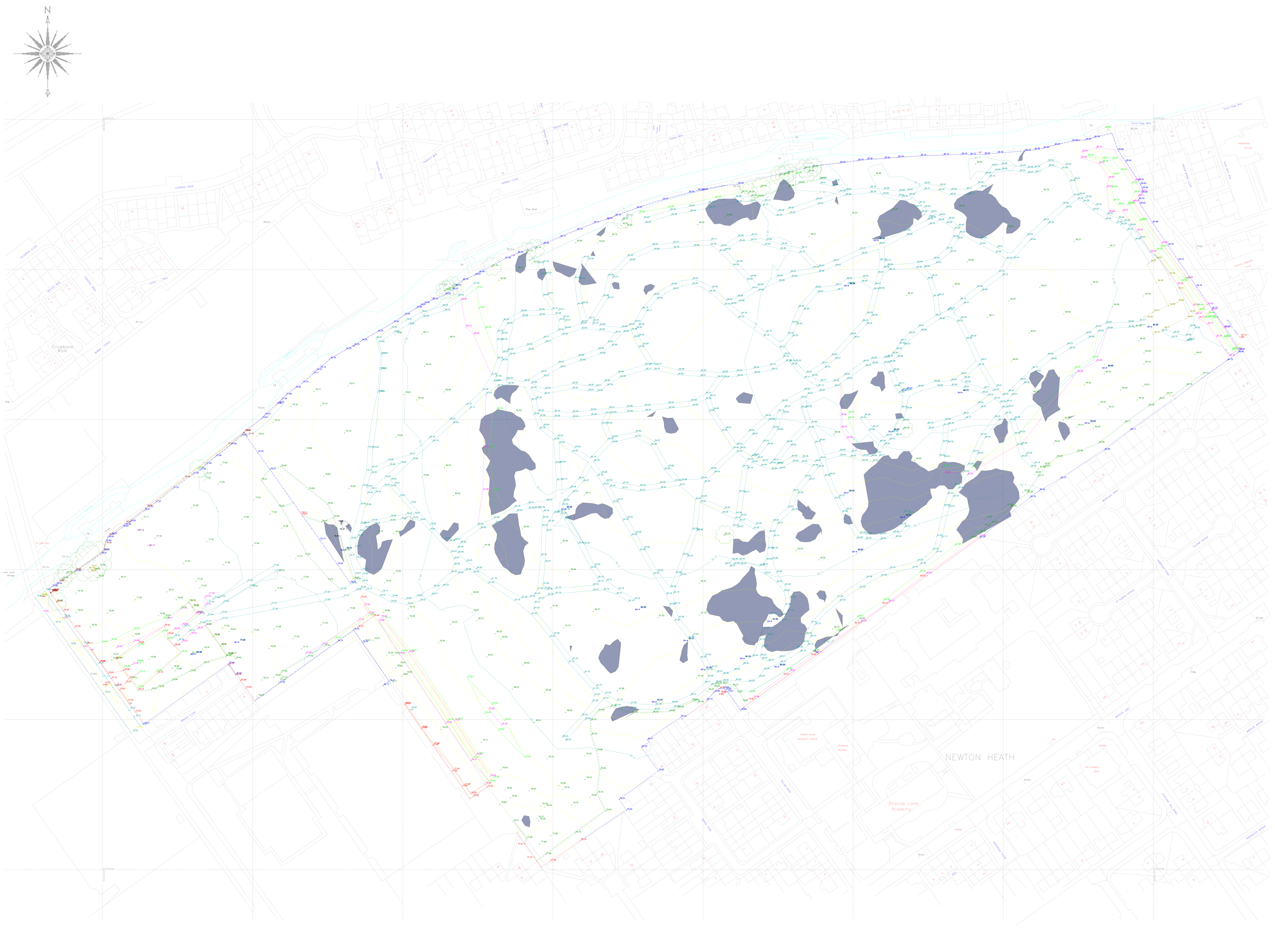
Site Address:
Ten Acres Lane
Manchester
M40 2SP

Rev:

Title: Aerial Drone Survey June 2022

Client: Your Housing Group Limited

Drawn By: JGL	Checked: LF	Approved: SE
Dwg No: D1932_07	Contract No: 1932YOU	Scale: 1:800



A0

Key

- Spot Level
- Bottom of Bank
- Top of Bank
- Track
- Contour 1m
- Contour 5m
- Tree
- Hardstanding
- Palisade Fencing
- Chain Link Fencing
- Vegetation
- Japanese Knotweed Locations

Note: Surveyed via GNSS May 2022

Rev.	Description	Revised By	Date
	FIRST ISSUE		21-06-2022

Vertase FLI

Contaminated Land, Brownfield & Environmental Contracting Specialists

email: info@vertasefli.co.uk
www.vertasefli.co.uk

■ Bristol Head Office: Tel: 01275 397600 Fax:01275 397601

□ Sheffield Office: Tel: 01246 813289 Fax: 01246 812963

Site Address:
Ten Acres Lane
Manchester
M40 2SP

Rev:

Title: Japanese Knotweed Locations

Client: Your Housing Group Limited

Drawn By: AMB	Checked: TH	Approved: MA
Dwg No: D1932_08	Contract No: 1932YOU	Scale: 1:800

A0

Key

Contour 1m (mAOD)

NEWTON HEATH

Crowbank Walk

Briscoe Lane Academy

Holborn Road Children's Centre

Childrens Nursery

Play Area

Shelter

The Phoenix (PH)

Healthfield Church

Quinton Edwards Court

Pylon

Elmhouse Close

Elmhouse Drive

Rowan Close

Rowan Drive

Hawthorn Walk

Hawthorn Drive

Hawthorn Close

Oldham Walk

Oldham Road

Oldham Close

David Twigg Walk

Ashton Drive

Ashton Close

Ashton Lane

Ashton Road

Briscoe Lane

Briscoe Lane Bridge

Briscoe Close

Briscoe Avenue

Briscoe Grove

Briscoe Road

Briscoe Crescent

Briscoe Terrace

Briscoe Court

Briscoe Mount

Briscoe Rise

Briscoe Way

Briscoe Gardens

Briscoe Place

Briscoe Square

Briscoe Walk

Briscoe Lane Bridge

Elmhouse Close

Elmhouse Drive

Rowan Close

Rowan Drive

Hawthorn Walk

Hawthorn Drive

Hawthorn Close

Oldham Walk

Oldham Road

Oldham Close

David Twigg Walk

Ashton Drive

Ashton Close

Ashton Lane

Ashton Road

Briscoe Lane

Briscoe Lane Bridge

Briscoe Close

Briscoe Avenue

Briscoe Grove

Briscoe Road

Briscoe Crescent

Briscoe Terrace

Briscoe Court

Briscoe Mount

Briscoe Rise

Briscoe Way

Briscoe Gardens

Briscoe Place

Briscoe Square

Briscoe Walk

Rev	Description	Revised By	Date
	FIRST ISSUE		11-10-2022

Vertase FLI

Contaminated Land, Brownfield & Environmental Contracting Specialists

email: info@vertasefli.co.uk
www.vertasefli.co.uk

Bristol Head Office: Tel: 01275 397600 Fax:01275 397601

Sheffield Office: Tel: 01246 512289 Fax: 01246 512963

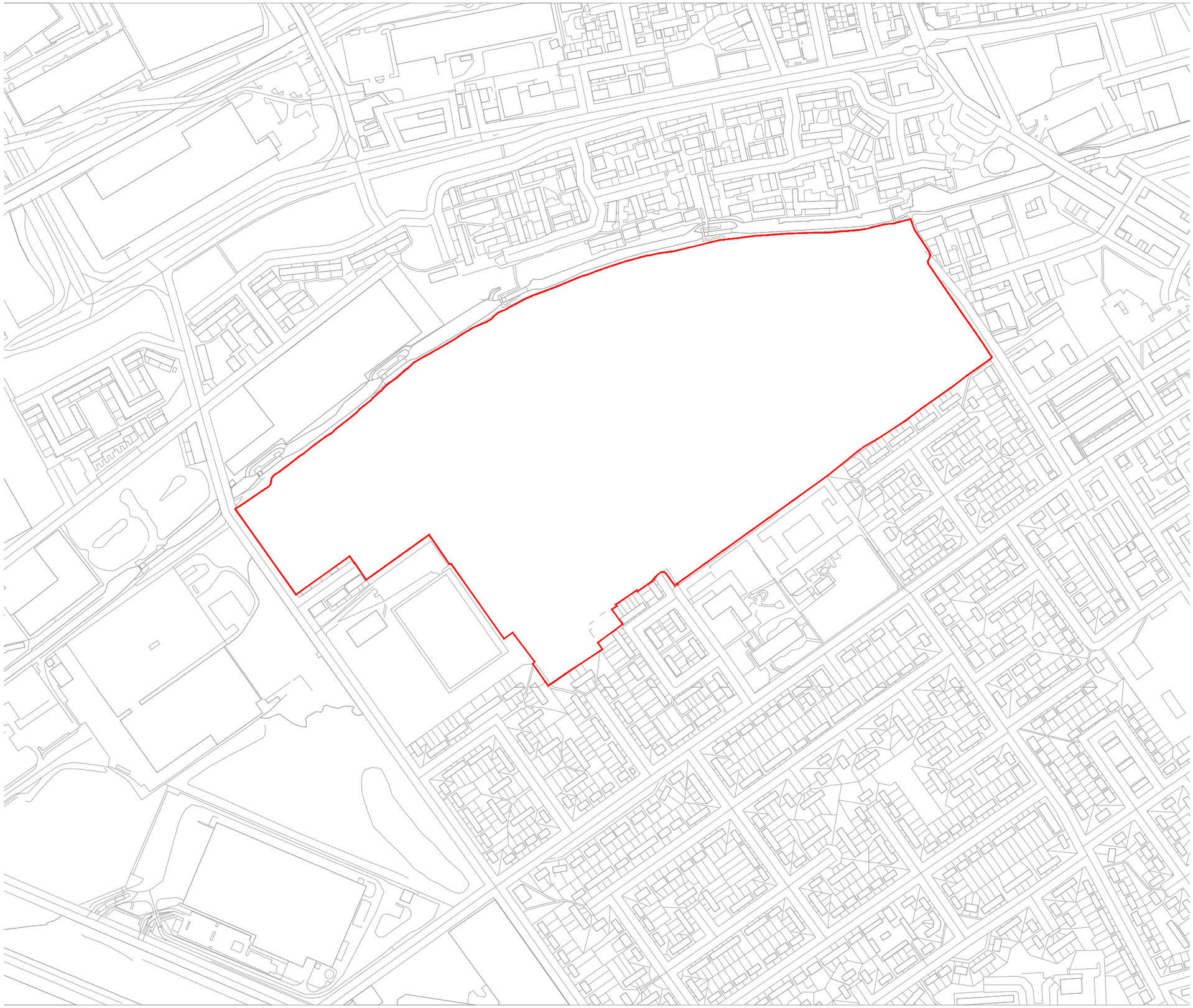
Site Address:
Ten Acres Lane
Manchester
M40 2SP

Rev:

Title: Proposed Finished Ground Levels

Client: Your Housing Group Limited

Drawn By: JGL	Checked: DS	Approved: SE
Dwg No: D1932_13	Contract No: 1932YOU	Scale: 1:800



Key:

Site Boundary

A3

Rev.	Description	Revised By	Date
	FIRST ISSUE		11-08-2023

Vertase FLI

Contaminated Land,
Brownfield & Environmental
Contracting Specialists

email: info@vertasefli.co.uk
www.vertasefli.co.uk

Bristol Head Office: Tel: 01275 397600 Fax: 01275 397601

Sheffield Office: Tel: 01246 813289 Fax: 01246 812963

Rev:

Site Address:

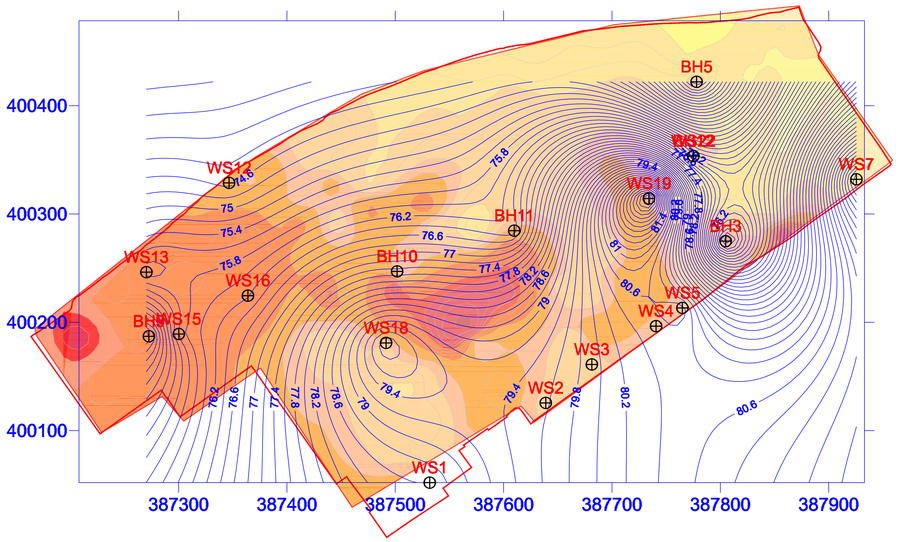
Ten Acres Lane
Manchester
M40 2SP

Title: Site Location Plan

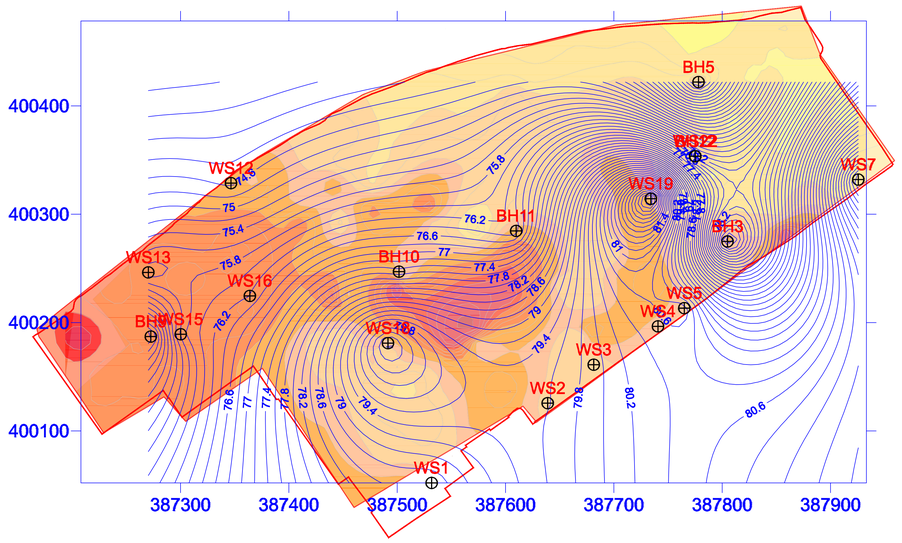
Client: Your Housing Group Ltd

Drawn: JGL	Checked: RW	Approved: RW
Dwg: D1932_20	Contract: 1932YOU	Scale: 1:4000

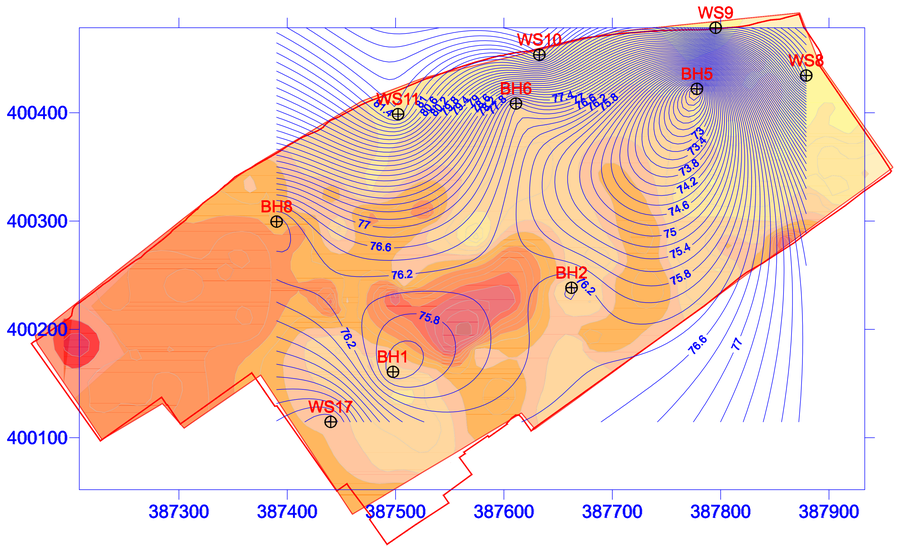
A0



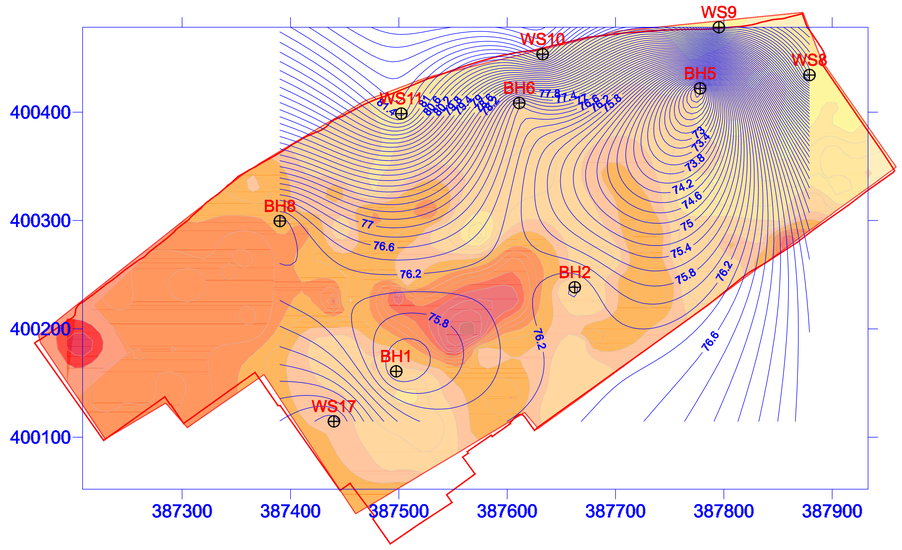
Celtic DATA MG - 11-07-2007



Celtic DATA MG - 23-07-2007



Celtic DATA NAT - 11-07-2007



Celtic DATA NAT - 23-07-2007

Rev.	Description	Revised By	Date
	FIRST ISSUE		18-09-2023

Vertase FLI

Contaminated Land, Brownfield & Environmental Contracting Specialists

email: info@vertasefli.co.uk
www.vertasefli.co.uk

Bristol Head Office: Tel: 01275 397600 Fax:01275 397601

Sheffield Office: Tel: 01246 813289 Fax: 01246 812963

Site Address:
Ten Acres Lane
Manchester
M40 2SP

Rev: B

Title: GW Data for Analysis - Celtic

Client: Your Housing Group Limited

Drawn By: JGL	Checked: SE	Approved: SE
Dwg No: D1932_21	Contract No: 1932YOU	Scale: NTS

A0

Key

Site Boundary

Made Ground Depth mAOD

VFLI DATA MG SEPT 2023

VFLI DATA GT/NAT SEPT 2023

Rev.	Description	Revised By	Date
	FIRST ISSUE		19-10-2023

Vertase FLI

Contaminated Land, Brownfield & Environmental Contracting Specialists

email: info@vertaseffi.co.uk
www.vertaseffi.co.uk

Bristol Head Office: Tel: 01275 397600 Fax:01275 397601

Sheffield Office: Tel: 01246 813289 Fax: 01246 812963

Site Address:
Ten Acres Lane
Manchester
M40 2SP

Rev: B

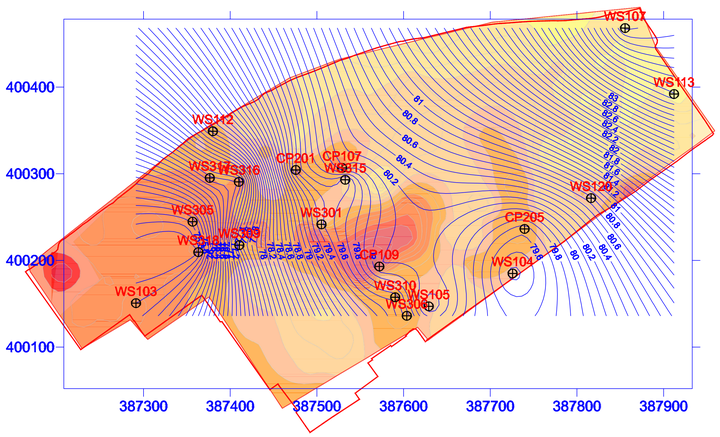
Title: GW Data for Analysis - VFLI Data

Client: Your Housing Group Limited

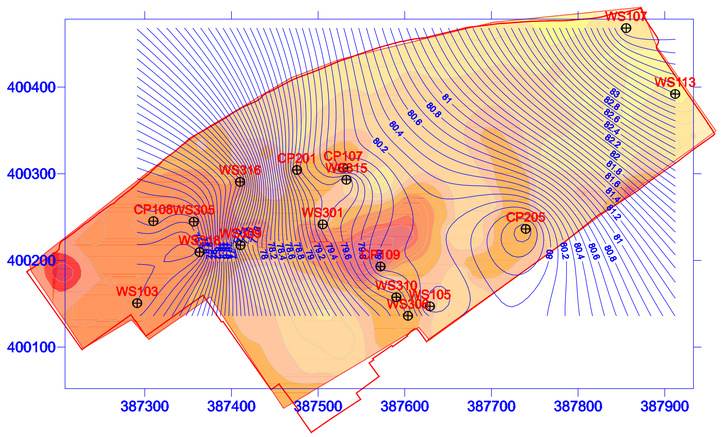
Drawn By: JGL | Checked: SE | Approved: SE

Dwg No: D1932_21 | Contract No: 1932YOU | Scale: 1:1000

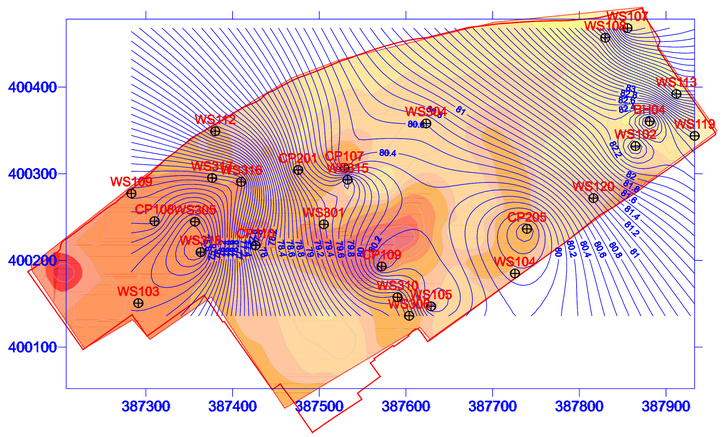
A0



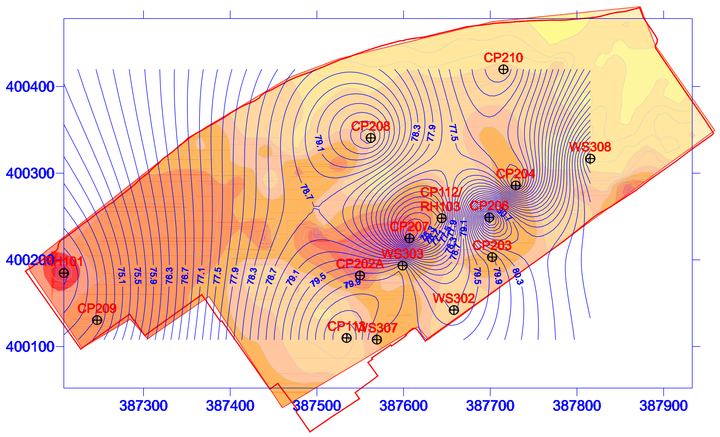
WA DATA MG - 07-07-2022



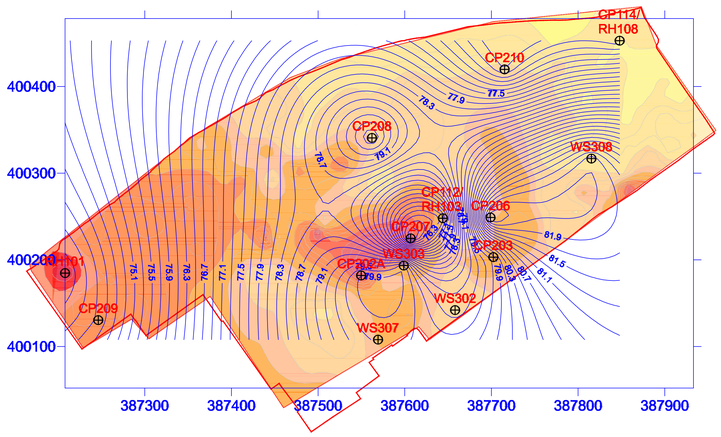
WA DATA MG - 18-07-2022



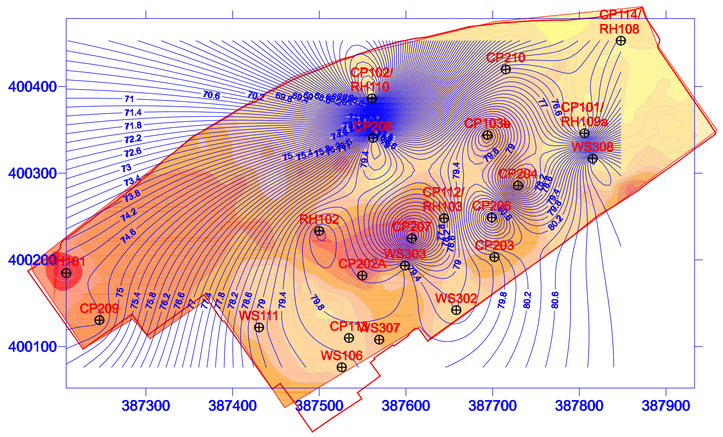
WA DATA MG - 01-08-2022



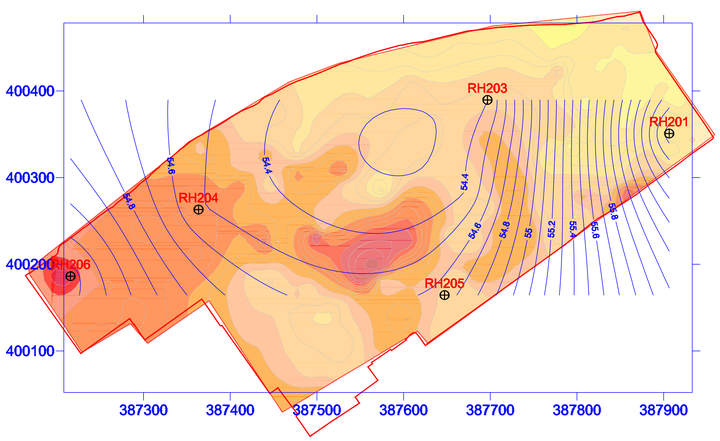
WA DATA NAT/GT - 07-07-2022



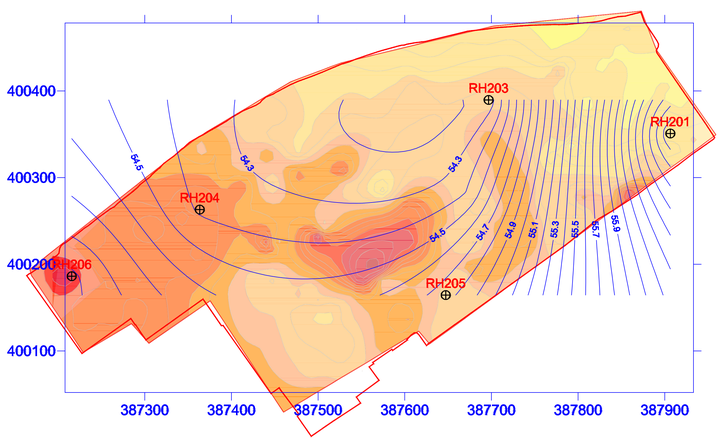
WA DATA NAT/GT - 18-07-2022



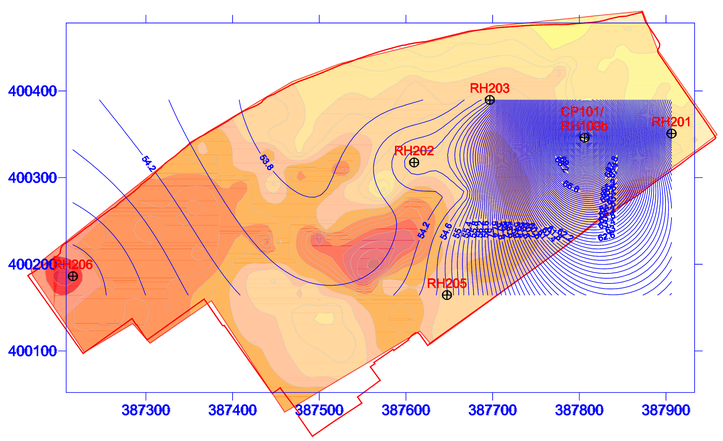
WA DATA NAT/GT - 01-08-2022



WA DATA SST - 07-07-2022



WA DATA SST - 18-07-2022



WA DATA SST - 01-08-2022

Rev.	Description	Revised By	Date
	FIRST ISSUE		18-09-2023

Vertase FLI
Contaminated Land, Brownfield & Environmental Contracting Specialists
email: info@vertasefli.co.uk
www.vertasefli.co.uk
Bristol Head Office: Tel: 01275 397600 Fax:01275 397601
Sheffield Office: Tel: 01246 813289 Fax: 01246 812963

Site Address:
Ten Acres Lane
Manchester
M40 2SP

Rev: B

Title: GW Data for Analysis - Wardell Armstrong

Client: Your Housing Group Limited

Drawn By: JGL	Checked: SE	Approved: SE
Dwg No: D1932_21	Contract No: 1932YOU	Scale: NTS

Notes

*Permit to dig only to be issued for green or orange hatch areas. **NO** excavations in red hatch areas

**All Areas must be CAT and Genny scanned prior to excavation.

***This drawing must be provided in colour at A1.

****Visually confirmed stage is only achieved once **all** the services have been identified and surveyed.

A1

Key

Spot Level

Leachate Drain

Legend

- Prohibited Work Areas (6 m Corridor)
- Restricted Work Areas (4 m Corridor)
- Permit to Dig Work Areas
- Site Boundary
- Low Pressure Gas Main
- Intermediate Pressure Gas Main
- High Pressure Gas Main
- Foul Water Sewer
- Storm Water Sewer
- High Pressure Water Main
- Low Pressure Water Main
- High Voltage Electricity Route
- Low Voltage Electricity Route
- Telecom Cable Route
- Overhead Telecom Cable Route

Ref. Point 1
GL 83.47mAOD
IL 82.47mAOD

Ref. Point 2
GL 82.90mAOD
IL 81.90mAOD

Ref. Point 3
GL 82.16mAOD
IL 81.16mAOD

Ref. Point 4
GL 81.29mAOD
IL 80.29mAOD

Ref. Point 5
GL 81.06mAOD
IL 80.06mAOD

Ref. Point 6
GL 80.81mAOD
IL 79.81mAOD

Ref. Point 7
GL 80.37mAOD
IL 79.37mAOD

Ref. Point 8
GL 80.24mAOD
IL 79.24mAOD

Ref. Point 9
GL 79.84mAOD
IL 78.84mAOD

Ref. Point 10
GL 79.53mAOD
IL 78.53mAOD

Ref. Point 11
GL 77.87mAOD
IL 76.87mAOD

Water Treatment Plant

Discharge Point

NEWTON HEATH

Briscoe Lane Academy

	FIRST ISSUE		18-11-2022
Rev.	Description	Revised By	Date

Vertase FLI

Contaminated Land, Brownfield & Environmental Contracting Specialists

email: info@vertasefli.co.uk
www.vertasefli.co.uk

Bristol Head Office: Tel: 01275 397600 Fax: 01275 397601

Sheffield Office: Tel: 01246 813289 Fax: 01246 812963

Site Address:

Ten Acres Lane
Manchester
M40 2SP

Rev:

Title: Service Avoidance Plan

Client: Your Housing Group Ltd

Drawn: JGL	Checked: PF	Approved: RW
Dwg:D1967_01	Contract: 1967YOU	Scale: 1:1000

A1

Water Treatment Plant

Catch Pit

Discharge Point

Leachate Drain

NEWTON HEATH

Briscoe Lane Academy

Holcorn Road Children's Centre

Childrens Nursery

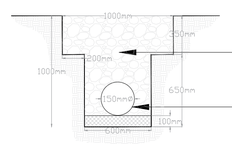
Shelter

The Phoenix (PH)

Key

- Spot Level
- Top of Bank
- Bottom of Bank
- As-Built Extent - Leachate Drain

Typical Section - Leachate Drain



Gravel Fill

Perforated Pipe

Rev.	Description	Revised By	Date
	FIRST ISSUE		20-12-2022

Vertase FLI

Contaminated Land, Brownfield & Environmental Contracting Specialists

email: info@vertasefli.co.uk
www.vertasefli.co.uk

Bristol Head Office: Tel: 01275 397600 Fax: 01275 397601

Sheffield Office: Tel: 01246 813289 Fax: 01246 812963

Site Address:

Ten Acres Lane
Manchester
M40 2SP

Rev:

Title: As-Built Leachate Drain

Client: Your Housing Group Ltd

Drawn: JGL	Checked: ON	Approved: RW
Dwg:D1967_07	Contract: 1967YOU	Scale: 1:1000

A3

Key:

- Site Boundary
- HRM
- LRM
- LRM C+D

Rev.	Description	Revised By	Date
	FIRST ISSUE		07-07-2023

Vertase FLI

Contaminated Land, Brownfield & Environmental Contracting Specialists

email: info@vertasefli.co.uk
www.vertasefli.co.uk

Bristol Head Office: Tel: 01275 397600 Fax: 01275 397601

Sheffield Office: Tel: 01246 813289 Fax: 01246 812963

Rev:

Site Address:

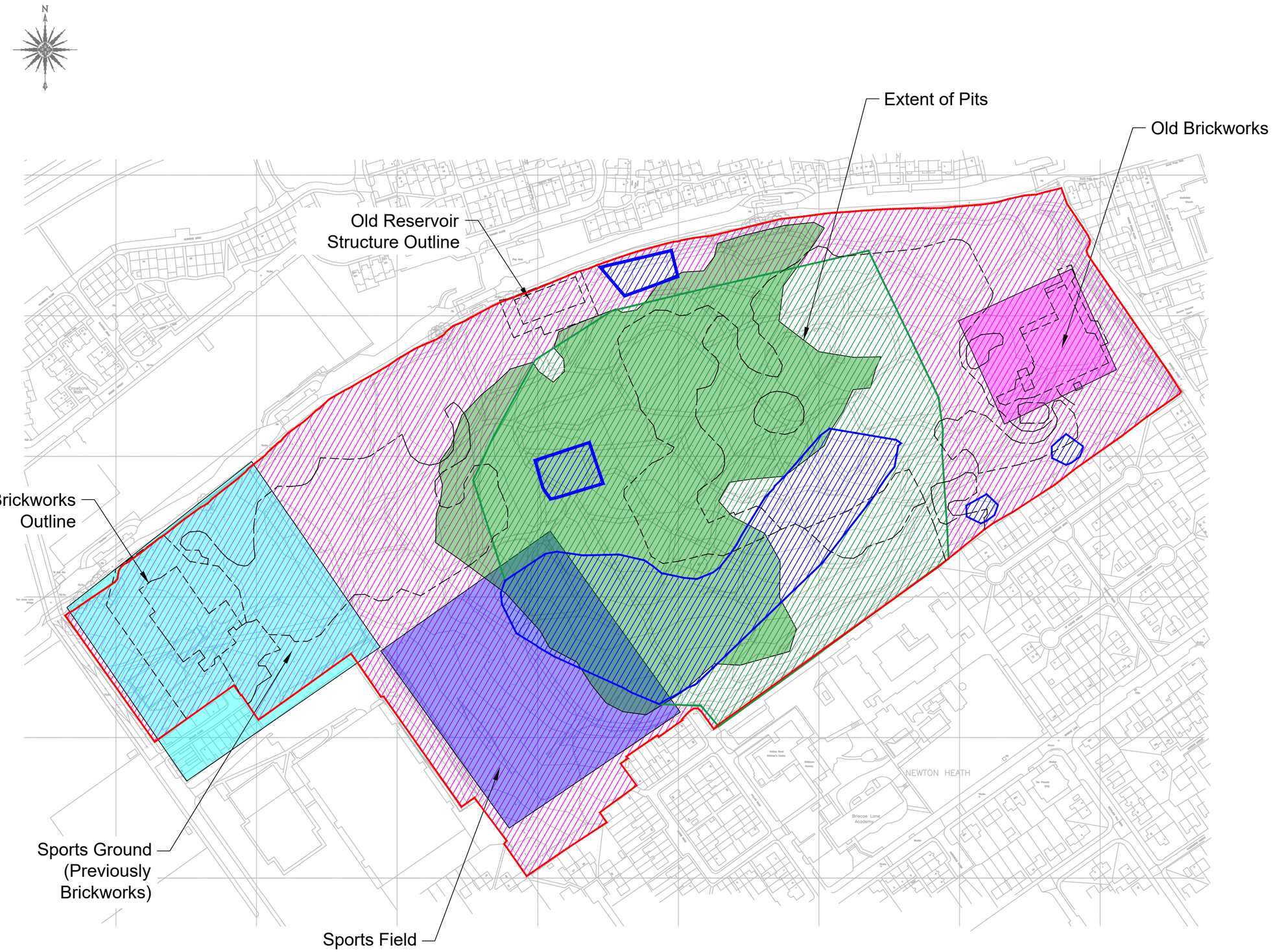
Ten Acres Lane
Manchester
M40 2SP

Title: Proposed Remediation Strategy v2

Client: Your Housing Group Ltd

Drawn: JGL	Checked: SE	Approved: ML
Dwg: D4744_12	Contract: 4744YOU	Scale: 1:2500

A2



Key:

- Site Boundary
- High Risk Material
- Low Risk Material
- Low Risk Material Construction & Demolition
- Sports Ground
- Sports Field
- Extent of Pits
- Brickworks

Background Map May 2022

Rev.	Description	Revised By	Date
	FIRST ISSUE		20-09-23

DO NOT SCALE OFF THIS DRAWING

- Critical dimensions should be checked on site prior to works commencing.
- Dimensional conflicts should be brought to the company's attention as soon as they become apparent. Failure to do so could render the contractor liable for subsequent losses.
- Copyright in this drawing and any work executed from this drawing remains the property of VertaseFLI

Vertase FLI
Contaminated Land, Brownfield & Environmental Contracting Specialists

email: info@vertasefli.co.uk
www.vertasefli.co.uk

Bristol Head Office: Tel: 01275 397600 Fax:01275 397601
Sheffield Office: Tel: 01246 813289 Fax: 01246 812963

Rev:

Site Address:

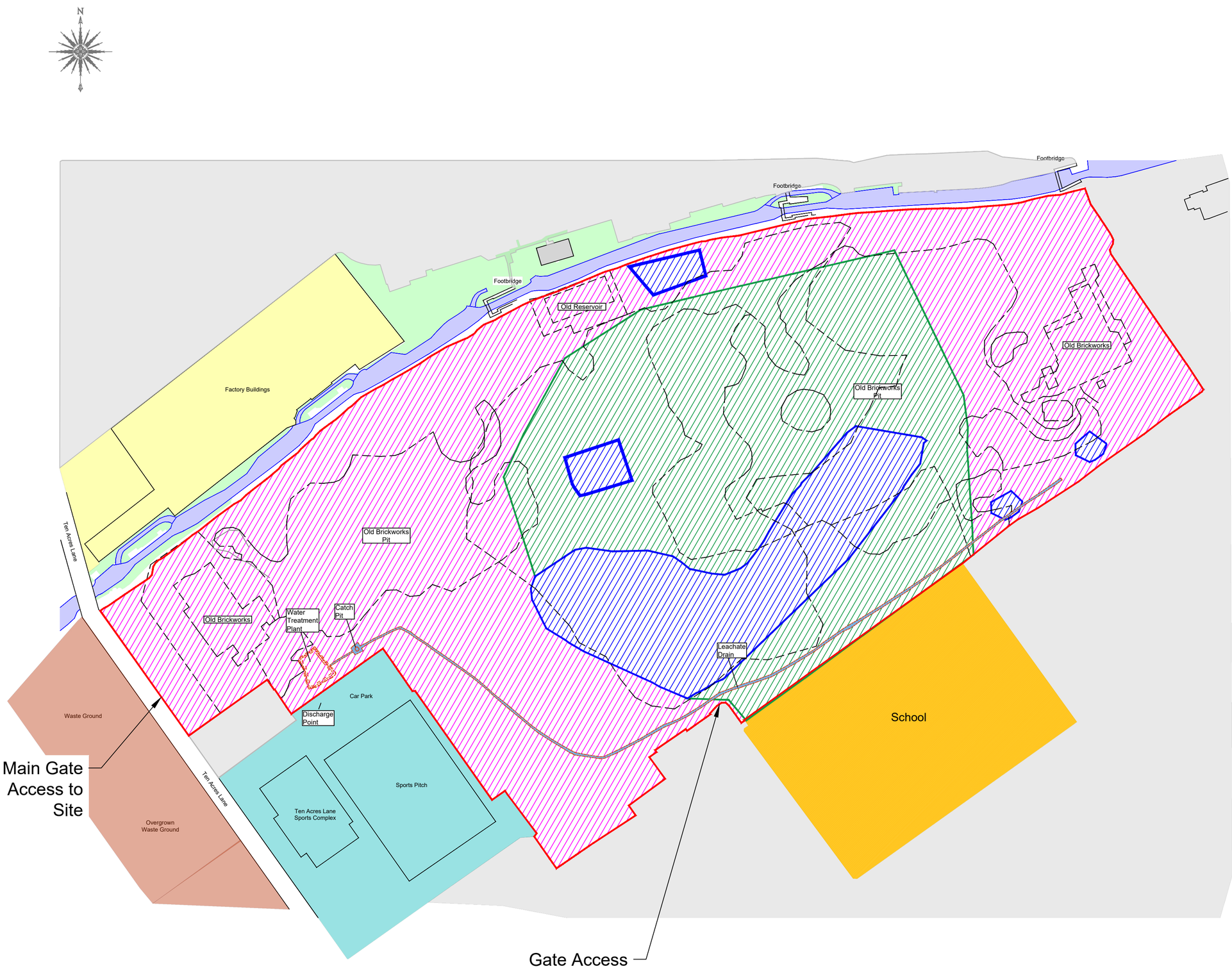
10 Acres Lane
Manchester
M40 2SP

Title: Historic Features Map

Client: Your Housing Group Ltd

Drawn: MRG	Checked: JL	Approved: ML
Dwg: D4744_14	Contract: 4744	Scale: 1:2000

A2



Key:

- Site Boundary
- Historic Feature Extents
- As-Built Leachate Drain
- Derelict/Waste Land
- Residential
- Industrial
- Canal
- Sports / Leisure
- School
- Grass/Wooded Areas
- High Risk Material
- Low Risk Material
- Low Risk Material Construction & Demolition

Background Map May 2022

Rev.	Description	Revised By	Date
	FIRST ISSUE		21-09-23

DO NOT SCALE OFF THIS DRAWING

- Critical dimensions should be checked on site prior to works commencing.
- Dimensional conflicts should be brought to the company's attention as soon as they become apparent. Failure to do so could render the contractor liable for subsequent losses.
- Copyright in this drawing and any work executed from this drawing remains the property of VertaseFLI

Vertase FLI

Contaminated Land, Brownfield & Environmental Contracting Specialists

email: info@vertasefli.co.uk
www.vertasefli.co.uk

Bristol Head Office: Tel: 01275 397600 Fax:01275 397601

Sheffield Office: Tel: 01246 813289 Fax: 01246 812963

Rev:

Site Address:

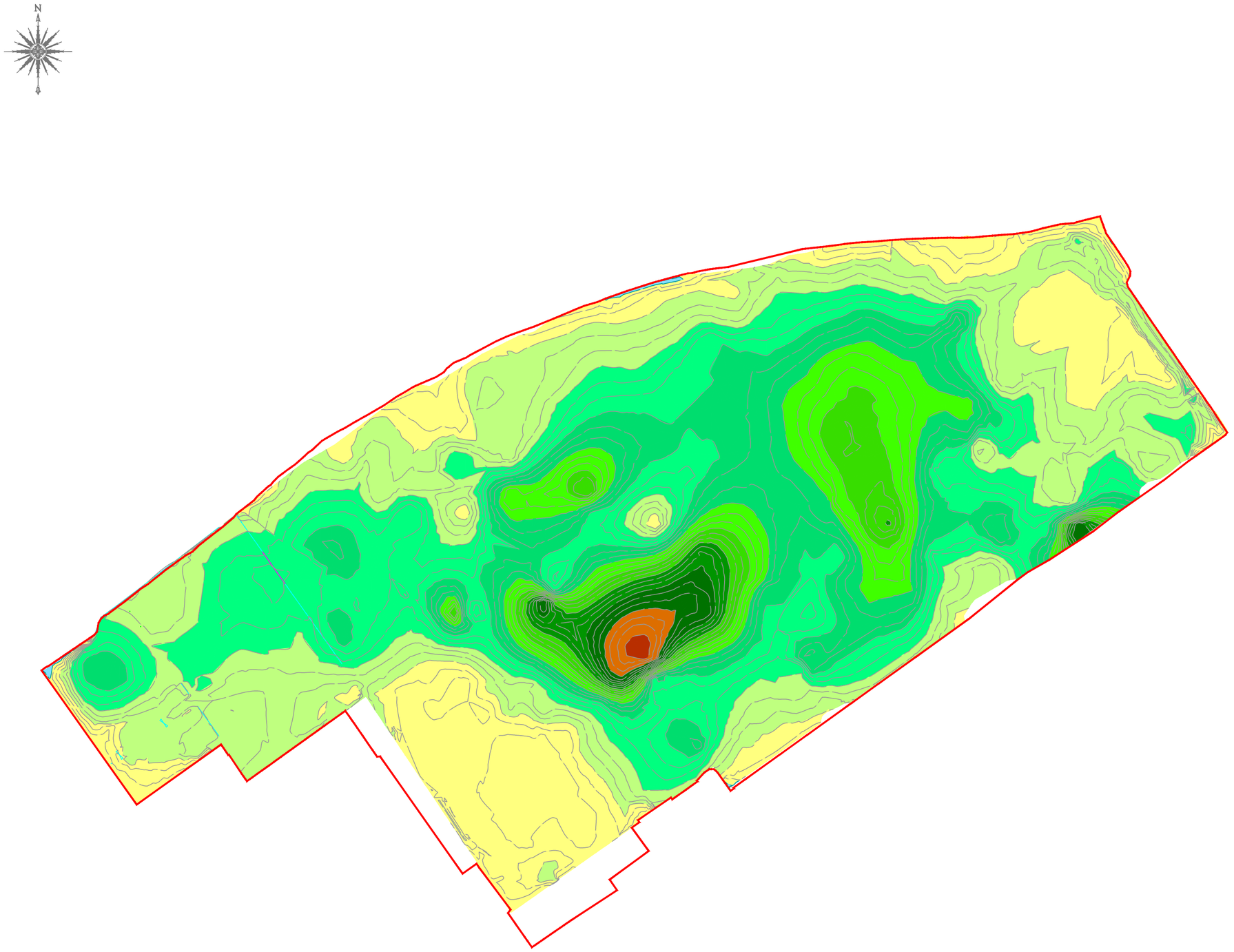
10 Acres Lane
Manchester
M40 2SP

Title: Ground Model Conclusions Map

Client: Your Housing Group Ltd

Drawn: MRG	Checked: JL	Approved: ML
Dwg: D4744_15	Contract: 4744	Scale: 1:2000

A2



Key:

Site Boundary

Depths of Made Ground (m)

0.0
-1.5
-3.0
-4.5
-6.0
-7.5
-9.0
-10.5
-12.0
-13.5
-15.0

Rev.	Description	Revised By	Date
	FIRST ISSUE		20-09-23

DO NOT SCALE OFF THIS DRAWING

- Critical dimensions should be checked on site prior to works commencing.
- Dimensional conflicts should be brought to the company's attention as soon as they become apparent. Failure to do so could render the contractor liable for subsequent losses.
- Copyright in this drawing and any work executed from this drawing remains the property of VertaseFLI

Vertase FLI

Contaminated Land,
Brownfield & Environmental
Contracting Specialists

email: info@vertasefli.co.uk
www.vertasefli.co.uk

Bristol Head Office: Tel: 01275 397600 Fax:01275 397601

Sheffield Office: Tel: 01246 813289 Fax: 01246 812963

Site Address:

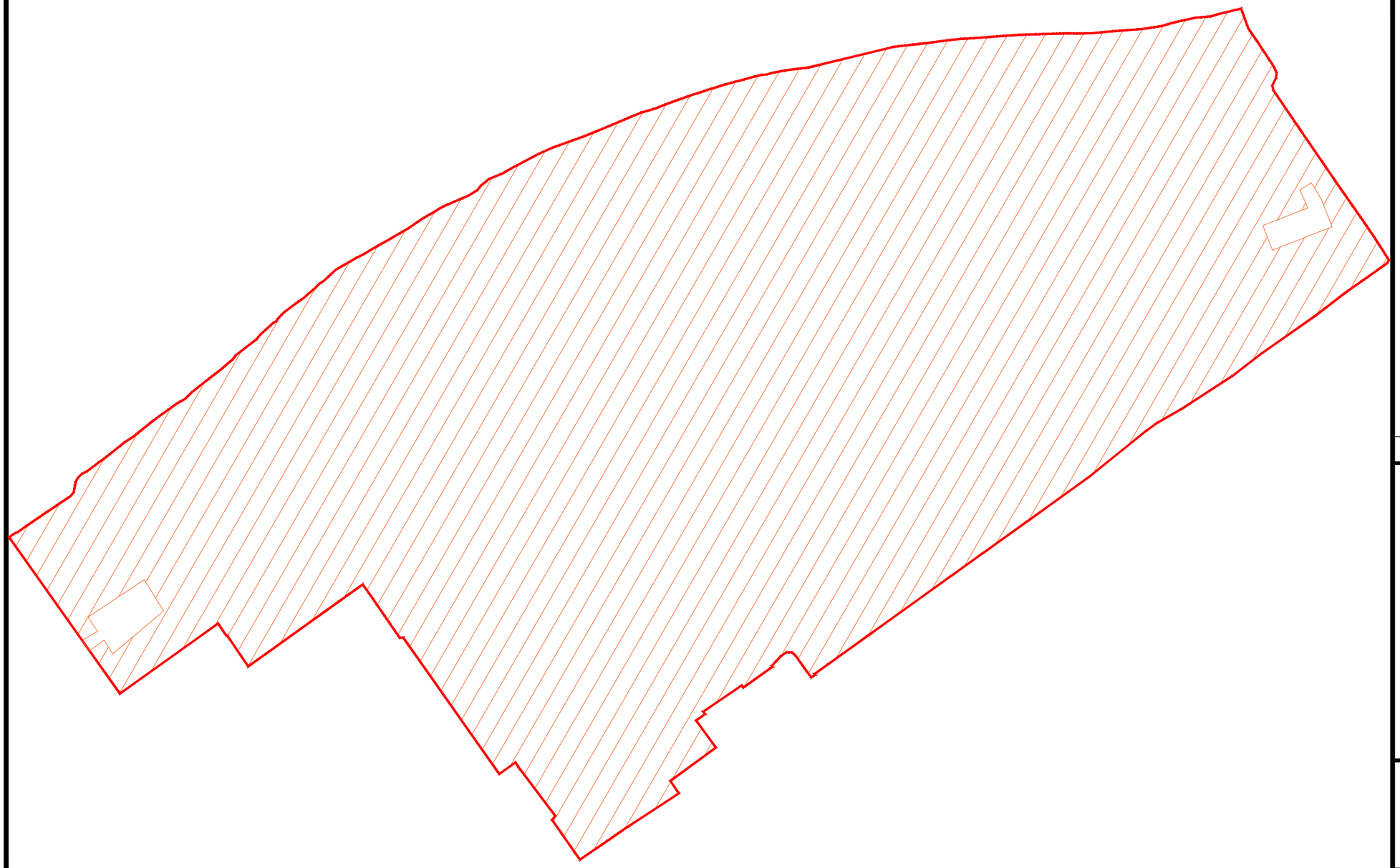
10 Acres Lane
Manchester
M40 2SP

Rev:

Title: Isopach - MG Contours June 2023 to OGL May 2022

Client: Your Housing Group Ltd

Drawn: MRG	Checked: JL	Approved: ML
Dwg: D4744_16	Contract: 4744	Scale: 1:2000



A3

Key

Site Boundary

LRM - Topsoil Surface Strip Areas

Rev.	Description	Revised By	Date
	FIRST ISSUE		22-11-2023

Vertase FLI

Contaminated Land, Brownfield & Environmental Contracting Specialists

email: info@vertasefli.co.uk
www.vertasefli.co.uk

Bristol Head Office: Tel: 01275 397600 Fax: 01275 397601

Sheffield Office: Tel: 01246 813289 Fax: 01246 812963

Rev:

Site Address:

Ten Acres Lane
Manchester
M40 2SP

Title: LRM - Topsoil

Client: Your Housing Group Ltd

Drawn: JGL	Checked: SE	Approved: SE
Dwg: D4744_25	Contract: 4744YOU	Scale: 1:2500


vertasefli.co.uk