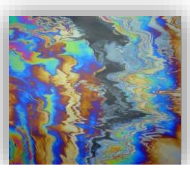


INVESTIGATE



REMEDIATE



REGENERATE

TECHNICAL REPORT

GROUND INVESTIGATION
AT
THE BIRDS PUBLIC HOUSE,
HALMER GATE, SPALDING,
LINCOLNSHIRE
FOR
LIFE PROPERTY CONSTRUCTION LIMITED
(THE GLENHOLME HEALTHCARE GROUP LIMITED)

REPORT NO. NE3769B
JUNE 2019

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GROUND INVESTIGATION AT THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE

CLIENT: LIFE PROPERTY CONSTRUCTION LIMITED (THE GLENHOLME HEALTHCARE GROUP LIMITED)

ENGINEER: W A CONSULTING ENGINEERS

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1. INTRODUCTION

This report has been prepared in accordance with an email, dated 25 April 2019, from the Architect, DWA Architects (London) Limited, on behalf of the Client.

The brief was set out in our estimate, ref. E5974C and dated 26 March 2019, with amendments as the investigation proceeded and includes:

- 8 No. trial pits
- Contamination analysis
- Provision of an interpretative report on the above.

We have previously issued a Phase I Walkover Survey and Desk Study Report, ref. NE3769 and dated November 2018, and a Phase II Ground Investigation Report, ref. NE3769A and dated March 2019, for this site which should be read in conjunction with this report.

1.1 Site Location and Description

The site (The Birds Public House) is located to the south south east of the junction of Halmer Gate, Albert Street, Queens Road and Low Road in the eastern part of Spalding, Lincolnshire, as shown on Figure 1. The approximate National Grid Reference of the centre of the site is TF. 2580 2290.

As shown on Figure 2, the near trapezoidal shaped about 0.47 hectare site is bounded to the north west by Halmer Gate with houses beyond, to the north by the road junction with houses and commercial/ industrial premises beyond, to the east by houses and commercial/ industrial premises and to the south and west south west by houses off of Avebury Gardens.

At the time of the ground investigation, in May 2019, the irregular shaped Public House building occupied the central northern two thirds of the site, with bituminous macadam surfaced car parks to the north, west and south and with a small square building about 16 metres to the south with a grassed beer garden beyond.

This additional Phase II Ground Investigation was undertaken in the area to the east of the building; the area being covered by paving slabs adjoining the building and grass adjoining the site boundary with a bituminous macadam surfaced footpath passing from north to south between the above. The ground was found to undulate at or about 3.40 mOD.

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1.2 Proposed Development and Purpose of the Ground Investigation

We understand that it is proposed to demolish the existing buildings and to construct a three storey nursing home building with surrounding gardens and a car park in the northern part adjoining Halmer Gate, as shown on Figure 3.

The purpose of this investigation was to determine whether the potential "hot spot" of contamination with a vapour phase found in BH2 was present and to delineate the area affected. To this end exploratory holes were taken out around the position of BH2, representative samples were taken and selected samples were subjected to a suite of analysis which would enable an assessment to be made. Extracts from our previous report, pertaining to BH2, are appended for ease of reference.

2. INVESTIGATION

2.1 Investigation Details

Eight hand dug trial pits were taken out at the positions determined by Sub Surface North East Limited, as shown on Figure 4, and were excavated to between 0.32 and 0.60 metres depth. The pits were logged in accordance with BS EN ISO 14688-1: 2002 and BS EN ISO 14689-1: 2003, and representative samples were taken and the above details are given on the appended Hand Dug Trial Pit Records. On completion the hand dug trial pits were backfilled with arisings and loose or soft pockets may still be present.

Ground levels at the exploratory hole positions have been interpolated from spot heights and contours given on the topographical survey base plan to Figure 4. The reduced levels are apparently related to Ordnance Datum.

2.2 Sub Surface Detail

Details of the strata encountered in the ground investigation are given on the appended Hand Dug Trial Pit Records. The exploratory holes found a number of layers of Made Ground, as tabulated below:

TABLE 1 THICKNESS OF LAYERS OF MADE GROUND

Expl. Hole No.	Ground Level (mOD)	Sandy Silt (m)	Paving Slab (m)	Gravelly Sand (m)	Bituminous Macadam (m)	Limestone Gravel (m)	Hole Depth (m)
HD A	3.39	-	0.05	0.17	0.06	0.25	0.60
HD B	3.47	-	0.05	0.14	0.10	> 0.13	0.42
HD C	3.41	-	0.05	0.31	#		0.36
HD D	3.33	-	0.05	0.21	0.06	> 0.08	0.40
HD E	3.46	-	0.05	0.15	0.18	#	0.38
HD F	3.49	-	0.05	0.05	0.00	> 0.48	0.58
HD G	3.42	-	0.05	0.27	#		0.32
HD H	3.35	0.30	-	-	-	> 0.10	0.40

HD = Hand Dug Trial Pit, # = terminated on encountering

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The 0.05 metre thick paving slabs were generally underlain by brown silty sands and in parts slightly gravelly silty sands, the gravel sized fragments comprising bituminous macadam. A 0.06 to 0.18 metre thick bituminous macadam layer was then found, this apparently being a buried former car park surface, but was absent in HDF, adjacent to the building. The bituminous macadam was underlain, where penetrated, by a sub-base layer of compact light cream brown gravel sized fragments of limestone and in HAD light brown silty sand.

HDH was taken out beyond the paving slabs and footpath and initially found 0.30 metres of slightly gravelly sandy silt, the gravel sized fragments comprising plastic. This layer was underlain by compact light cream brown gravel sized fragments of limestone (as found elsewhere) to 0.40 metres depth.

No groundwater was encountered in the exploratory holes although it should be noted that they were only left open for a short period of time and groundwater levels may be subject to seasonal and/ or climatic variations.

3. SAMPLING AND TESTING

3.1 Sampling

Representative small disturbed and bulk disturbed soil samples were taken for the various layered of Made Ground found.

The remaining samples following contamination analysis will be retained for a period of one month after the issue of this report, for reference purposes, and then disposed of unless otherwise instructed.

3.2 Laboratory Testing

Contamination analyses have been performed on eight soil samples to determine: pH and concentrations of sulphate, sulphide, cyanide, arsenic, boron (soluble), cadmium, chromium, hexavalent chromium, copper, lead, mercury, nickel, selenium, zinc, speciated aliphatic and aromatic total petroleum hydrocarbons (TPHs), the speciated polynuclear aromatic hydrocarbons (PAHs) suite, the benzene/ ethylbenzene/ toluene/ xylene (BTEX) suite and phenols.

In addition two samples have been subjected to Waste Acceptance Criteria (WAC) analysis.

The results of the above analyses are appended.

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4. APPRAISAL AND RECOMMENDATIONS

4.1 Comments on the Profile

At the outset it should be appreciated that only a small proportion of the area to be developed has been investigated and consequently the recommendations made and opinions expressed in this report can only be applied to such conditions as were encountered in the exploratory holes.

The layers of Made Ground were found to vary across the area investigated and to some extent reflected the undulating surface. It was noted that the thickness of the buried bituminous madam surfacing varied significantly and may be due to hollows formed by localised settlement having been filled to maintain a level car park surface. Due to the nature of Made Ground localised variations in thickness and composition should be anticipated and hence interpolation or extrapolation from the exploratory holes to adjoining areas should only be undertaken with caution.

Details of the findings of the investigation are given on the appended Hand Dug Trial Pit Records and a summary of the ground conditions is given in Section 2.2.

4.2 Contamination Considerations

Sampling and contamination analyses have previously been undertaken as part of a Phase II Ground Investigation, analyses having been undertaken in accordance with the Conceptual Ground given in our Phase I Report.

In our Phase II Report, ref. NE3769A, the near surface sample from BH2 was found to have elevated levels of speciated PAHs and raised levels of TPHs in the C10-C21 range (2000 mg/kg) and the C21-C40 range (2700 mg/kg). Given that speciated aliphatic and aromatic TPHs in these ranges would be considered to be elevated, and have a potential vapour phase, additional sampling and analysis was recommended.

4.2.1 Assessment (Soil)

In order to provide an assessment of the presence of contamination eight soil samples have been analysed for an extended suite of determinants, including speciated aliphatic and aromatic total petroleum hydrocarbons, and the results are appended.

Levels of the determinants has been compared against published guideline values. The Department for Environment, Food and Rural Affairs (DEFRA) and the Environment Agency published soil guideline values (SGVs) for mercury, selenium, benzene, toluene, ethylbenzene and xylene on 31 March 2009, arsenic and nickel on 12 May 2009 and cadmium and phenols in June 2009. In July 2009 Generic Assessment Criteria (GACs) were published by Land Quality Management Limited (LQM) in conjunction with the Chartered Institute of Environmental Health (CIEH). Contaminated Land: Applications in Real Environments (CL:AIRE) guideline values were also published in December 2009 to supplement the above. DEFRA published in March 2014 Category 4 Screening Levels (C4SLs) for arsenic, cadmium, lead, hexavalent chromium, benzo(a)pyrene and benzene. In November 2014 Suitable for Use Levels (S4ULs) were then published by LQM/ CIEH which superseded the GACs. Updated S4ULs values for cadmium and phenols were published in July 2015 and for nickel in August 2015. The guideline values (SGVs, S4ULs, CL:AIRE and C4SLs) vary dependent upon the land use; allotment and residential use being the most sensitive and commercial/ industrial use being the least sensitive.

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For the purposes of assessment, as the proposed development is a residential care home, contamination analyses have been compared with the guideline values for a standard land use of residential without plant uptake (without homegrown produce).

When compared with published guideline values for a standard land use of residential without plant uptake the contamination analysis (both ground investigations) determined only elevated levels of speciated PAHs, as tabulated below:

TABLE 1 ASSESSMENT OF SOIL CONTAMINATION

Determinant	Expl. Hole No.	Depth (m)	Recorded Level (mg/kg)	Published Guideline Value (mg/kg)
benzo(a)anthracene	BH 2	0.10-0.50	89	15
	HD A	0.25	150	
	HD B	0.10-0.19	40	
	HD C	0.20-0.35	120	
	HD D	0.10-0.25	93	
	HD G	0.10-0.30	72	
chrysene	BH2	0.10-0.50	77	32
	HD A	0.25	130	
	HD B	0.10-0.19	34	
	HD C	0.20-0.35	93	
	HD D	0.10-0.25	78	
	HD G	0.10-0.30	64	
benzo(b)fluoranthene	BH2	0.10-0.50	74	4.0
	HD A	0.25	140	
	HD B	0.10-0.19	37	
	HD C	0.20-0.35	92	
	HD D	0.10-0.25	83	
	HD G	0.10-0.30	65	
benzo(a)pyrene	BH2	0.10-0.50	64	3.2
	HD A	0.25	100	
	HD B	0.10-0.19	29	
	HD C	0.20-0.35	79	
	HD D	0.10-0.25	71	
	HD G	0.10-0.30	54	
indeno (1,2,3-c,d) pyrene	HD A	0.25	59	46
dibenzo(ah)anthracene	BH2	0.10-0.50	7.6	0.32
	HD A	0.25	11	
	HD B	0.10-0.19	2.9	
	HD C	0.20-0.35	7.1	
	HD D	0.10-0.25	10	
	HD G	0.10-0.30	6.1	

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Guideline values for the assessment can be supplied directly to the Regulator, if requested.

Speciated aliphatic and aromatic TPHs were not found to be elevated by this ground investigation and hence the potential “hot spot“ of contamination with a vapour phase was not found to be present around BH2.

The results of the Waste Acceptance Criteria (WAC) analysis is also appended.

In addition to the above, an assessment of risk to personnel who will come into contact with on-site materials throughout the site has been undertaken.

4.2.2 Conclusions and Recommendations

Section 78a(2) of the Environmental Protection Act: 1990 as amended by the Contaminated Land (England) (Amendment) regulations 2012, and Section 86 of the Water Act 2003, defines CONTAMINATED LAND for the purposes of Part IIA as:

“any land which appears to the LOCAL AUTHORITY in whose area it is situated 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, or is likely to be, caused”

Before a LOCAL AUTHORITY can make the judgement that land appears to be CONTAMINATED LAND on the basis that SIGNIFICANT HARM is being caused, or that there is a SIGNIFICANT POSSIBILITY of such harm being caused, the LOCAL AUTHORITY must identify a SIGNIFICANT POLLUTANT LINKAGE. This means that each of the following has to be identified:

(a) a CONTAMINANT;
(b) a relevant RECEPTOR (defined as living organisms, ecological systems, controlled waters or property); and
(c) a PATHWAY by means of which either:
  (i) the CONTAMINANT is causing SIGNIFICANT HARM to that RECEPTOR, or
  (ii) there is a SIGNIFICANT POSSIBILITY of such harm being caused by that CONTAMINANT to that RECEPTOR

It should be noted that the words in capitals have a legal definition within the legislation.

Without a clear identification of all three elements of the pollutant linkage, land cannot be identified as contaminated under the regime.

The National Planning Policy Framework states that, “after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990”. Therefore, the general principles detailed above apply to this assessment.

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Our assessment, based on the analysis of all of the soil samples indicates fairly widespread elevated levels of benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(ah)anthracene and a localised elevated level of indeno (1,2,3-c,d) pyrene in the area to the east of the building (source). The pathway from the source to site operatives during earthworks, the end users of the development and any proposed planting (receptors) will need to be removed by precautions and/ or remedial measures.

Where the contaminated materials are covered by buildings or a hard surface cover of concrete or bituminous macadam no clean cover will be required. However, in gardens, vegetated borders and/or open space areas the end users should be protected from the contaminated materials and plants should be provided with a medium in which they can safely grow.

We recommend that a 450mm blanket of imported clean topsoil/ subsoil is provided in gardens, vegetated borders and/or open space areas where contaminated materials are present. If there is a potential for fruit and/or vegetables to be grown in the gardens the thickness of topsoil/ subsoil should be increased to 600mm. In addition deeper rooted bushes and trees should be pit planted on and in clean topsoil.

If a vegetable garden area is to be provided we would recommend that the blanket of imported clean topsoil/ subsoil is increased to a thickness of 600mm.

Contaminated materials should, where possible, be retained on site. However, it should be appreciated that contaminated material left on site is the legal responsibility of the landowner, unless the person who created the contamination can be identified.

If waste materials are to be removed from the site, classification of the waste should be undertaken to determine the most appropriate tip to use and the associated costs. It should be noted that significant cost savings can sometimes be made on waste disposal by correct classification of the waste, a service that we can provide.

It should be noted that all vehicles carrying contaminated material should be securely sheeted and the wheels and undercarriages cleaned before leaving site to ensure that hazardous materials are not dropped onto public roads.

S4ULs, C4SLs and CL:AIRE assume long term contact with contamination and assess chronic health risk. The risk of short term acute exposure to site personnel is dealt with in the remit of the Health and Safety Executive under the Health and Safety at Work Act: 1974 and Regulations made under the Act, including the Control of Substances Hazardous to Health (COSHH) Regulations. The levels of contamination and risk to site personnel should be considered under the Construction Design and Management (CDM) Regulations at the planning stage and in the development of the designers and contractors Health and Safety Plans and Method Statements. The risk of contact with on-site soils should be minimised and the following precautions should be taken as a minimum requirement.

Site personnel involved in earthworks and excavations should be made aware of the hazards of working with contaminated materials found on site. Strict personal hygiene should be observed and gloves, overalls and boots should be worn. Washing and messing facilitates should be made available on site and smoking should be prohibited to minimise the potential for transfer of contaminants from hand to mouth.

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Contaminants have been identified in the groundwater samples. The Phase I report indicates that clay and silt drift deposits and underlying mudstone bedrock are aquicludes (unproductive aquifers), the nearest licensed surface water abstraction point is about 923 metres to the south and there are no licensed groundwater or potable water abstraction points within 1km of the site boundary. The nearest watercourse to the site is the drain which runs along the eastern site boundary, an inland river within the Welland Catchment. Given the above there are no identified sensitive targets but care will need to be taken during development to prevent surface water runoff discharging in the drain.

Should it be necessary for groundwater to be pumped from on-site excavations the groundwater analysis should be submitted to the appropriate waste water authority with a request for a discharge consent. Following receipt of a discharge consent groundwater is likely to be discharged to a sewer or to an off-site licensed discharge point.

4.3 General

Consultation should be undertaken with the Local Authority Environmental Health Officer and the Local Authority Building Control Officer prior to development

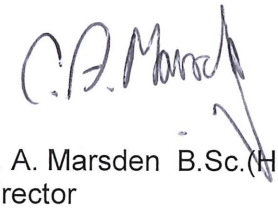
As instructed, it is our intention to prepare a Phase III Remediation Statement based on all of the reports for this site. On receipt the Phase III Remediation Statement should be submitted to the Regulator for approval prior to development.

We trust that this report fulfils your present requirements but if you have any queries or we can be of further assistance please contact the undersigned or Mr David Simpson at our Ossett office.

SUB SURFACE CONSULTANTS LIMITED
REPORT No. NE3769B
JUNE 2019



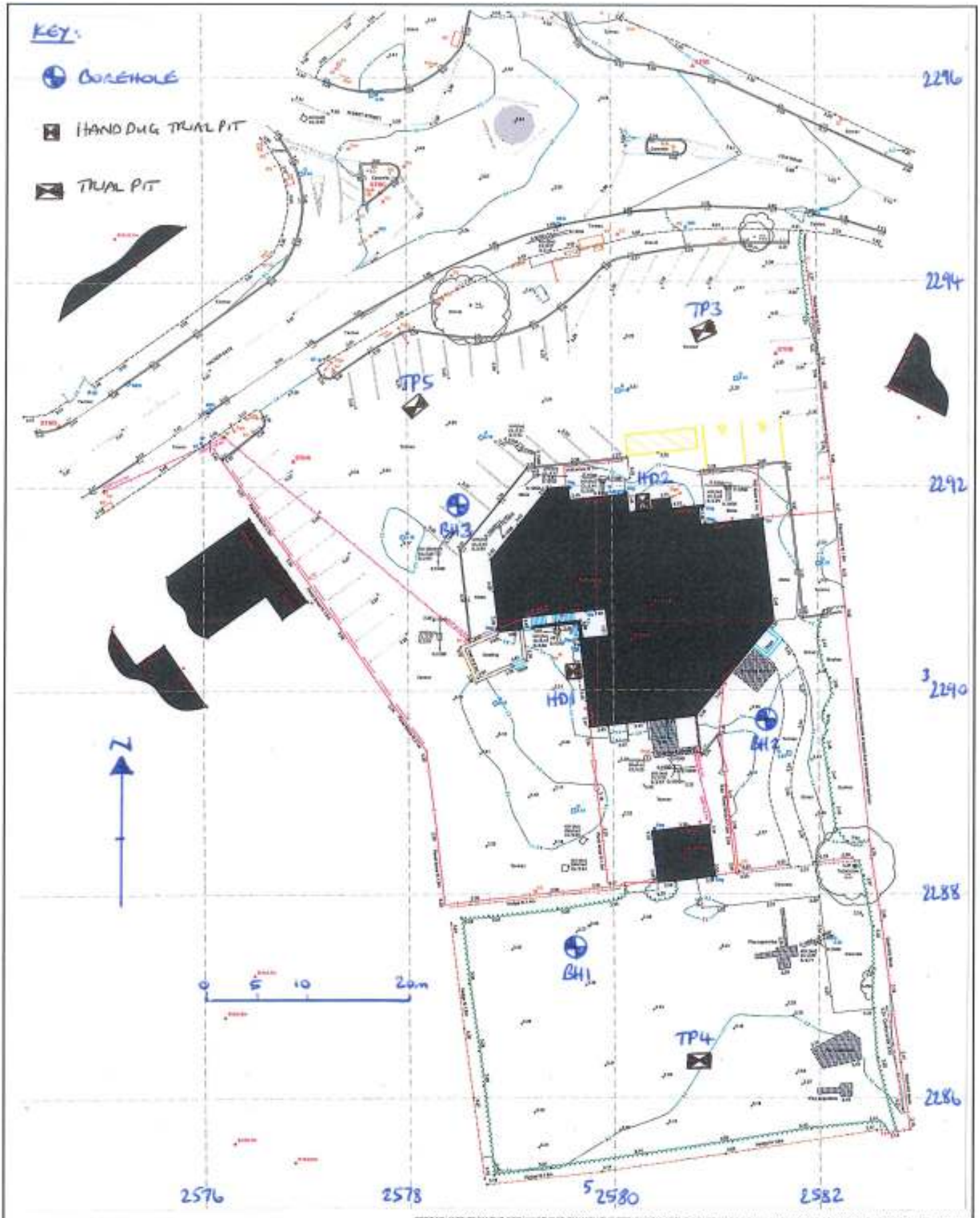
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EXTRACTS OF PREVIOUS REPORT



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SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS
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Topographical & Exploratory Hole Location Plan

Site	Date Drawn	Date Checked	Sheet	Job No.
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE	27-Feb-19		1 / 1	NE3769A
Client	**Drawn By**	**Checked By**	**Scale**	**Figure No.**
LIFE PROPERTY CONSTRUCTION LIMITED	AJP		1:500	4

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SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

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Site	Borehole Number
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE	BH2

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
LIGHT CABLE PERCUSSIVE	150mm to 16.50m	3.40	LIFE PROPERTY CONSTRUCTION LIMITED	NE3769A
	Location	**Dates**	**Engineer**	**Sheet**
	AS PLAN	11/01/2019-14/01/2019	W A CONSULTING ENGINEERS	1/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					3.30	0.10	MADE GROUND: concrete slab bedded on sand (drillers description).		
0.10-0.50	B					(0.40)			
					2.90	0.50	MADE GROUND: brown and dark grey mottled slightly silty very sandy fine to coarse gravel sized fragments of bituminous macadam and slag.		
0.50-1.00	B				2.80	0.60			
						(0.60)	MADE GROUND: dense cream gravel sized fragments of limestone (drillers description).		
					2.20	1.20	MADE GROUND: brown slightly gravelly slightly sandy clayey silt. Gravel sized fragments are fine to coarse stone and brick.		
1.20-1.65	SPT N=1			1,0/0,0,0,1					
1.20-1.65	D					(0.70)			
1.20-2.00	B						MADE GROUND: extremely low strength brown slightly gravelly clayey silt. Gravel sized fragments are fine to medium slag and stone (organic odour).		
					1.50	1.90			
2.00-2.45	SPT N=1			0,1/0,0,0,1			Very soft extremely low strength brown slightly sandy clayey SILT.		
2.00-2.45	D								
2.00-3.00	B					(1.00)			▼2
				Slow Inflow(1) at 2.90m, no rise after 20 mins, not sealed.	0.50	2.90	Very loose brown sandy SILT.		▼1
3.00-3.45	D								
3.00-4.00	B					(0.60)			
3.00-3.45	SPT N=1			1,0/0,1,0,0	-0.10	3.50	Very loose brown silty fine SAND.		
4.00-7.00	B			From 4.00m to 7.20m piezometric pressure causing boreholes to blow resulting in no insitu testing and little recovery.		(3.70)			
					-3.80	7.20	Very soft to soft extremely low strength dark grey clayey SILT with occasional black carbonaceous pockets and with shell fragments (organic odour).		
7.50-7.95	U c=9kPa								
8.00	D								
9.00-9.45	SPT N=0			0,0/0,0,0,0					
9.00-9.45	D								
						(5.30)			

Remarks

Hand dug inspection pit from GL to 1.20m to check for services - 30mins
On completion backfilled with arisings.

Scale (approx)	Logged By
1:50	TDC/SJ

Figure No. NE3769A.BH2

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SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

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Site	Borehole Number
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE	BH2

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
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	Location	**Dates**	**Engineer**	**Sheet**
	AS PLAN	11/01/2019-14/01/2019	W A CONSULTING ENGINEERS	2/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							Very soft to soft extremely low strength dark grey clayey SILT with occasional black carbonaceous pockets and with shell fragments (organic odour).		
10.50-10.95	U c=9kPa								
10.95-11.00	D								
12.00-12.45	SPT N=2			1,1/1,0,1,0					
12.00-12.45	D								
12.50	W			Fast Inflow(2) at 12.50m, rose to 2.50m in 20 mins, sealed at 16.50m.	-9.10	12.50	Very dense brown slightly silty sandy subrounded fine to coarse quartz, flint and chalk GRAVEL.		▽2
13.50-13.95	SPT N=102			7,9/15,22,25,40					
13.50-13.95	D					(2.50)			
13.50-15.00	B								
15.00-15.45	SPT N=18			4,5/5,4,4,5	-11.60	15.00	Firm medium strength brown slightly gravelly silty CLAY. Gravel is subrounded fine to medium chalk.		
15.00-15.45	D								
15.00-16.00	B					(1.50)			
				11/01/2019:2.50m					
				14/01/2019:2.50m					
16.50-16.95	SPT N=47			5,7/8,11,13,15	-13.10	16.50	Stiff very high strength dark brown slightly gravelly silty CLAY. Gravel is subrounded fine to coarse chalk.		
16.50-16.95	D								
18.00-18.45	SPT N=51			7,7/9,12,15,15					
18.00-18.45	D								
19.50-19.95	SPT N=54			8,7/11,12,15,16		(5.95)			
19.50-19.95	D								

Remarks

Scale (approx)	Logged By
1:50	TDC/SJ

Figure No. NE3769A.BH2

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SUB SURFACE

SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Site	Borehole Number
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE	BH2

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
LIGHT CABLE PERCUSSIVE	150mm to 16.50m	3.40	LIFE PROPERTY CONSTRUCTION LIMITED	NE3769A
	Location	**Dates**	**Engineer**	**Sheet**
	AS PLAN	11/01/2019-14/01/2019	W A CONSULTING ENGINEERS	3/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							Stiff very high strength dark brown slightly gravelly silty CLAY. Gravel is subrounded fine to coarse chalk.		
21.00-21.45 21.00-21.45	SPT N=63 D			6,11/13,14,16,20					
22.00-22.45 22.00-22.45	SPT N=60 D			7,8/11,13,17,19					
				14/01/2019:DRY	-19.05	22.45	Complete at 22.45m		

Remarks

Scale (approx)	Logged By
1:50	TDC/SJ

Figure No. NE3769A.BH2

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Results - Soil

(NE3769A) The Birds Public House, Halmer Gate, Spalding, Lincs

Client: Sub Surface			Chemtest Job No.:		19-03226	19-03226	19-03226	19-03226	19-03226
Quotation No.:			Chemtest Sample ID.:		763384	763387	763381	763382	763383
			Client Sample ID.:		150	126	146	152	159
			Sample Location:		BH1	BH2	TP3	TP4	TP5
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.00	0.10	0.30	0.25	0.35
			Bottom Depth (m):		1.00	0.50			
			Date Sampled:		18/01/19	18/01/19	18/01/19	18/01/19	18/01/19
			Asbestos Lab:		Coventry	Coventry	Coventry	Coventry	Coventry
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
ACM Type	U	2192		N/A	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-
Moisture	N	2030	%	0.020	21	7.3	29	19	20
pH	U	2010		N/A	9.5	10.7	8.1	8.0	8.4
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010					
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40	1.3	0.64	1.6	< 0.40
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	0.91	180	6.4	1.4	2.1
Sulphate (Total)	U	2430	%	0.010	0.14	0.77	0.14	0.084	0.072
Arsenic	U	2450	mg/kg	1.0	13	28	15	10	8.5
Cadmium	U	2450	mg/kg	0.10	< 0.10	< 0.10	0.10	0.15	< 0.10
Chromium	U	2450	mg/kg	1.0	16	30	15	16	14
Molybdenum	U	2450	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Copper	U	2450	mg/kg	0.50	12	3.3	12	15	12
Mercury	U	2450	mg/kg	0.10	0.21	< 0.10	0.16	0.23	0.16
Nickel	U	2450	mg/kg	0.50	17	9.9	15	17	15
Lead	U	2450	mg/kg	0.50	28	3.0	24	40	27
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Zinc	U	2450	mg/kg	0.50	42	25	38	57	43
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TPH >C6-C10	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C10-C21	N	2670	mg/kg	1.0	< 1.0	2000	10	5.3	20
TPH >C21-C40	N	2670	mg/kg	1.0	< 1.0	2700	22	17	41
Total TPH >C6-C40	U	2670	mg/kg	10	< 10	4700	32	22	62
Naphthalene	U	2700	mg/kg	0.10	< 0.10	1.1	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	2.5	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	18	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	24	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	380	0.60	0.60	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	65	0.12	0.15	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	380	1.3	1.0	1.2
Pyrene	U	2700	mg/kg	0.10	< 0.10	340	1.5	0.92	1.3
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	89	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	77	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	74	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	37	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	64	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	41	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	7.6	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	36	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	1600	3.5	2.7	2.5
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols	U	2920	mg/kg	0.30	< 0.30	0.42	< 0.30	< 0.30	< 0.30

CONTAMINATION ANALYSIS RESULTS

Chemtest
The right chemistry to deliver results
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UKAS TESTING
2183

Final Report

Report No.:	19-18353-1
Initial Date of Issue:	12-Jun-2019
Client	Sub Surface
Client Address:	3 Peel Street Preston Lancashire PR2 2QS
Contact(s):	Simon Gabbatt
Project	(NE3769B) The Birds Public House, Halmergate, Spalding, Lincolnshire

Quotation No.:		**Date Received:**	31-May-2019
Order No.:		**Date Instructed:**	31-May-2019
No. of Samples:	8		
Turnaround (Wkdays):	7	**Results Due:**	10-Jun-2019
Date Approved:	12-Jun-2019		

Approved By:



Details: Martin Dyer, Laboratory Manager

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Results - Soil

(NE3769B) The Birds PH, Halmergate, Spalding, Lincs.

Client: Sub Surface					Chemtest Job No.:	19-18353	19-18353	19-18353	19-18353	19-18353
Quotation No.:					Chemtest Sample ID.:	835161	835162	835163	835164	835165
					Client Sample ID.:	086	089	093	094	097
					Sample Location:	HD A	HD B	HD C	HD D	HD E
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.25	0.10	0.20	0.10	0.10
					Bottom Depth (m):		0.19	0.35	0.25	0.20
					Date Sampled:	24/05/19	24/05/19	24/05/19	24/05/19	24/05/19
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Moisture	N	2030	%	0.020		4.4	8.7	9.2	9.5	8.2
pH	U	2010		N/A		11.3	10.2	10.6	11.1	10.3
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40		1.2	0.46	0.49	0.74	0.47
Cyanide (Total)	U	2300	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50		450	86	130	140	44
Sulphate (Total)	U	2430	%	0.010		0.73	0.17	0.18	0.40	0.080
Arsenic	U	2450	mg/kg	1.0		19	22	33	35	34
Cadmium	U	2450	mg/kg	0.10		0.11	< 0.10	< 0.10	0.15	0.19
Chromium	U	2450	mg/kg	1.0		43	11	17	40	15
Copper	U	2450	mg/kg	0.50		8.9	3.2	5.8	13	7.4
Mercury	U	2450	mg/kg	0.10		0.40	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50		18	7.9	14	20	16
Lead	U	2450	mg/kg	0.50		11	3.1	5.9	9.5	7.5
Selenium	U	2450	mg/kg	0.20		0.27	< 0.20	< 0.20	< 0.20	< 0.20
Zinc	U	2450	mg/kg	0.50		32	14	24	54	33
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0		3.3	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0		6.1	1.5	5.7	5.7	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0		7.2	8.3	5.9	6.0	1.4
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0		28	35	22	23	13
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		17	< 1.0	< 1.0	8.8	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		61	44	33	44	14
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		2.5	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		31	< 1.0	3.3	9.9	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		270	18	39	110	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		640	120	240	310	39
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		28	< 1.0	< 1.0	1.2	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		980	140	280	430	39
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		1000	190	310	480	53
Naphthalene	U	2700	mg/kg	0.10		1.1	0.14	2.3	0.46	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10		5.1	1.4	4.3	3.6	0.11
Acenaphthene	U	2700	mg/kg	0.10		33	7.2	37	18	0.51
Fluorene	U	2700	mg/kg	0.10		39	7.5	45	20	0.51
Phenanthrene	U	2700	mg/kg	0.10		410	75	400	230	4.4
Anthracene	U	2700	mg/kg	0.10		110	20	88	56	1.2
Fluoranthene	U	2700	mg/kg	0.10		390	91	340	260	5.9
Pyrene	U	2700	mg/kg	0.10		340	87	300	230	5.3
Benzo[a]anthracene	U	2700	mg/kg	0.10		150	40	120	93	2.3
Chrysene	U	2700	mg/kg	0.10		130	34	93	78	2.3
Benzo[b]fluoranthene	U	2700	mg/kg	0.10		140	37	92	83	2.4
Benzo[k]fluoranthene	U	2700	mg/kg	0.10		56	17	42	39	1.2
Benzo[a]pyrene	U	2700	mg/kg	0.10		100	29	79	71	1.9
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10		59	18	45	44	1.1
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10		11	2.9	7.1	10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10		54	17	44	46	1.2
Total Of 16 PAH's	U	2700	mg/kg	2.0		2000	480	1700	1300	30
Benzene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols	U	2920	mg/kg	0.30		0.60	< 0.30	1.1	< 0.30	< 0.30

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Results - Soil

(NE3769B) The Birds PH, Halmergate, Spalding, Lincs.

Client: Sub Surface					Chemtest Job No.:	19-18353	19-18353	19-18353
Quotation No.:					Chemtest Sample ID.:	835166	835167	835168
					Client Sample ID.:	099	100	101
					Sample Location:	HD F	HD G	HD H
					Sample Type:	SOIL	SOIL	SOIL
					Top Depth (m):	0.10	0.10	0.10
					Bottom Depth (m):	0.55	0.30	0.30
					Date Sampled:	24/05/19	24/05/19	24/05/19
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Moisture	N	2030	%	0.020		9.7	7.6	13
pH	U	2010		N/A		9.6	11.3	8.6
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40		< 0.40	0.52	1.5
Cyanide (Total)	U	2300	mg/kg	0.50		< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50		21	140	6.4
Sulphate (Total)	U	2430	%	0.010		0.011	0.31	0.077
Arsenic	U	2450	mg/kg	1.0		10	27	12
Cadmium	U	2450	mg/kg	0.10		< 0.10	0.16	0.19
Chromium	U	2450	mg/kg	1.0		3.0	16	22
Copper	U	2450	mg/kg	0.50		0.79	5.6	17
Mercury	U	2450	mg/kg	0.10		< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50		2.3	12	18
Lead	U	2450	mg/kg	0.50		1.2	6.7	41
Selenium	U	2450	mg/kg	0.20		< 0.20	< 0.20	0.39
Zinc	U	2450	mg/kg	0.50		8.9	24	60
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50	< 0.50
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0		4.2	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0		12	4.4	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0		21	5.2	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0		21	22	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		58	32	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		< 1.0	7.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		< 1.0	100	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		23	260	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		24	370	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		82	400	< 10
Naphthalene	U	2700	mg/kg	0.10		< 0.10	0.70	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10		< 0.10	2.9	< 0.10
Acenaphthene	U	2700	mg/kg	0.10		< 0.10	18	< 0.10
Fluorene	U	2700	mg/kg	0.10		< 0.10	20	< 0.10
Phenanthrene	U	2700	mg/kg	0.10		1.0	300	1.6
Anthracene	U	2700	mg/kg	0.10		0.22	48	0.39
Fluoranthene	U	2700	mg/kg	0.10		1.6	290	2.3
Pyrene	U	2700	mg/kg	0.10		1.6	270	2.3
Benzo[a]anthracene	U	2700	mg/kg	0.10		0.83	72	1.1
Chrysene	U	2700	mg/kg	0.10		0.76	64	1.1
Benzo[b]fluoranthene	U	2700	mg/kg	0.10		< 0.10	65	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10		< 0.10	30	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10		< 0.10	54	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10		< 0.10	32	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10		< 0.10	6.1	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10		< 0.10	32	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0		6.0	1300	8.8
Benzene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0
Total Phenols	U	2920	mg/kg	0.30		< 0.30	< 0.30	< 0.30

Chemtest
The right chemistry to deliver results

Results - 2 Stage WAC

Project: (NE3769B) The Birds Public House, Halmergate, Spalding, Lincolnshire

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	19-18353								
Chemtest Sample ID:	835162								
Sample Ref:									
Sample ID:	89								
Sample Location:	HD B								
Top Depth(m):	0.10								
Bottom Depth(m):	0.19								
Sampling Date:	24-May-2019								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%			1.2	3	5	6
Loss On Ignition	2610	U	%			1.4	--	--	10
Total BTEX	2760	U	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg			190	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			480	100	--	--
pH	2010	U				10.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.30	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.0083	0.0039	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0019	< 0.0010	< 0.050	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	0.0012	< 0.0010	< 0.50	< 0.50	4	50	200
Chloride	1220	U	2.3	1.6	< 10	17	800	15000	25000
Fluoride	1220	U	0.68	0.28	1.4	3.5	10	150	500
Sulphate	1220	U	25	4.1	50	76	1000	20000	50000
Total Dissolved Solids	1020	N	100	45	210	550	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	10	12	< 50	120	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	8.7

Leachate Test Information	
Leachant volume 1st extract/l	0.333
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.294

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Chemtest
The right chemistry to deliver results

Results - 2 Stage WAC

Project: (NE3769B) The Birds Public House, Halmergate, Spalding, Lincolnshire

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	19-18353								
Chemtest Sample ID:	835166								
Sample Ref:									
Sample ID:	99								
Sample Location:	HD F								
Top Depth(m):	0.10								
Bottom Depth(m):	0.55								
Sampling Date:	24-May-2019								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%			< 0.20	3	5	6
Loss On Ignition	2610	U	%			0.90	--	--	10
Total BTEX	2760	U	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg			< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg			82	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			6.0	100	--	--
pH	2010	U				9.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.56	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	2	25
Barium	1450	U	0.015	0.0082	< 0.50	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.00010	< 0.010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.00050	< 0.0010	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0010	< 0.0010	< 0.050	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.0010	< 0.050	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.0010	< 0.010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.0010	< 0.50	< 0.50	4	50	200
Chloride	1220	U	2.1	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.20	0.15	< 1.0	1.6	10	150	500
Sulphate	1220	U	16	2.0	32	39	1000	20000	50000
Total Dissolved Solids	1020	N	85	43	170	490	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	9.5	9.9	< 50	98	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	9.7

Leachate Test Information	
Leachant volume 1st extract/l	0.331
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.240

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

HAND DUG TRIAL PIT RECORD SHEETS

SUB SURFACE

SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Site	Trial Pit Number
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE.	HD A

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
HAND DUG	0.3m x 0.3m (approx)	3.39	LIFE PROPERTY CONSTRUCTION LIMITED	NE3769B
	Location	**Dates**	**Engineer**	**Sheet**
	AS PLAN	24/05/2019	W.A. CONSULTING ENGINEERS.	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.05)	MADE GROUND: paving slab.		
				3.34	0.05	MADE GROUND: slightly gravelly silty sand. Gravel sized fragments are bituminous macadam.		
0.15	D				(0.17)			
				3.17	0.22	MADE GROUND: bituminous macadam surfacing.		
0.25	B				(0.06)			
0.30-0.50	B			3.11	0.28	MADE GROUND: compact light cream brown gravel sized fragments of limestone.		
					(0.25)			
				2.86	0.53	MADE GROUND: light brown silty sand (possible natural ground).		
0.55	D				(0.07)			
			24/05/2019:DRY	2.79	0.60	Complete at 0.60m		

Plan

Remarks

No groundwater encountered.
Pit sides remained vertical and stable.
On completion backfilled with arisings.

Scale (approx)	Logged By	Figure No.
1:10	DS/MJE	NE3769B.HD A

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SUB SURFACE

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Site	Trial Pit Number
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE.	HD B

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
HAND DUG	0.3m x 0.3m (approx)	3.47	LIFE PROPERTY CONSTRUCTION LIMITED	NE3769B
	Location	**Dates**	**Engineer**	**Sheet**
	AS PLAN	24/05/2019	W.A. CONSULTING ENGINEERS.	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.05)	MADE GROUND: paving slab.		
				3.42	0.05			
0.10-0.19	B				(0.14)	MADE GROUND: brown silty sand.		
				3.28	0.19			
0.19-0.29	B				(0.10)	MADE GROUND: bituminous macadam surfacing.		
				3.18	0.29			
0.35	D				(0.13)	MADE GROUND: compact light cream brown gravel sized fragments of limestone.		
			24/05/2019:DRY	3.05	0.42	Complete at 0.42m		

Plan

Remarks

No groundwater encountered.
Pit sides remained vertical and stable.
On completion backfilled with arisings.

Scale (approx)	Logged By	Figure No.
1:10	DS/MJE	NE3769B.HD B

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Site	Trial Pit Number
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE.	HD C

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
HAND DUG	0.3m x 0.3m (approx)	3.41	LIFE PROPERTY CONSTRUCTION LIMITED	NE3769B
	Location	**Dates**	**Engineer**	**Sheet**
	AS PLAN	24/05/2019	W.A. CONSULTING ENGINEERS.	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.05)	MADE GROUND: paving slab.		
				3.36	0.05			
0.10-0.17	B				(0.12)	MADE GROUND: brown silty sand.		
				3.24	0.17			
0.20-0.35	B					MADE GROUND: dark brown gravelly silty sand. Gravel sized fragments are stone and occasional bituminous macadam.		
					(0.19)			
						.... at 0.36m : bituminous macadam surfacing		
			24/05/2019:DRY	3.05	0.36	Complete at 0.36m		

Plan

Remarks

No groundwater encountered.
Pit sides remained vertical and stable.
On completion backfilled with arisings.

Scale (approx)	Logged By	Figure No.
1:10	DS/MJE	NE3769B.HD C

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SUB SURFACE

SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

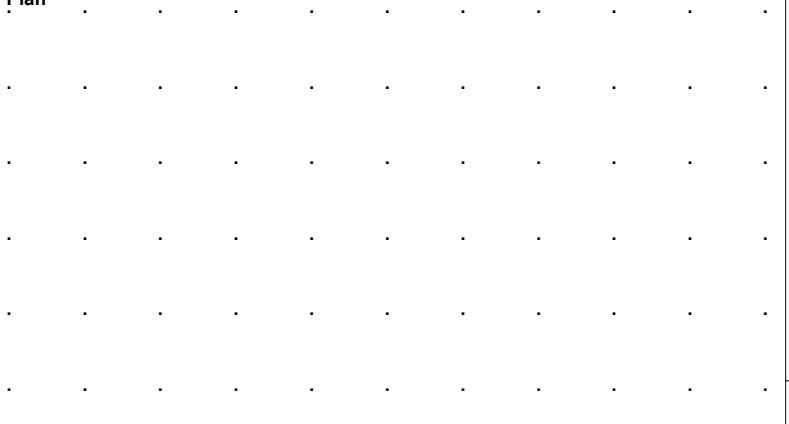
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Site	Trial Pit Number
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE.	HD D

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
HAND DUG	0.3m x 0.3m (approx)	3.33	LIFE PROPERTY CONSTRUCTION LIMITED	NE3769B
	Location	**Dates**	**Engineer**	**Sheet**
	AS PLAN	24/05/2019	W.A. CONSULTING ENGINEERS.	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.05)	MADE GROUND: paving slab.		
				3.28	0.05			
0.10-0.25	B					MADE GROUND: brown slightly gravelly silty sand. Gravel sized fragments are bituminous macadam.		
					(0.21)			
0.26-0.32	B			3.07	0.26			
					(0.06)	MADE GROUND: bituminous macadam surfacing.		
				3.01	0.32			
					(0.08)	MADE GROUND: compact light cream brown gravel sized fragments of limestone.		
0.38	D		24/05/2019:DRY	2.93	0.40			
						Complete at 0.40m		

Plan



Remarks

No groundwater encountered.
Pit sides remained vertical and stable.
On completion backfilled with arisings.

Scale (approx)	Logged By	Figure No.
1:10	DS/MJE	NE3769B.HD D

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Site	Trial Pit Number
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE.	HD E

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
HAND DUG	0,3m x 0.3m (approx)	3.46	LIFE PROPERTY CONSTRUCTION LIMITED	NE3769B
	Location	**Dates**	**Engineer**	**Sheet**
	AS PLAN	24/05/2019	W.A. CONSULTING ENGINEERS.	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.05)	MADE GROUND: paving slab.		
				3.41	0.05			
0.10-0.20	B				(0.15)	MADE GROUND: brown silty sand.		
0.20-0.30	B			3.26	0.20			
					(0.18)	MADE GROUND: bituminous macadam surfacing.		
						.... at 0.38m : breeze block and concrete		
			24/05/2019:DRY	3.08	0.38	Complete at 0.38m		

Plan

Remarks

No groundwater encountered.
Pit sides remained vertical and stable.
On completion backfilled with arisings.

Scale (approx)	Logged By	Figure No.
1:10	DS/MJE	NE3769B.HD E

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Site	Trial Pit Number
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE.	HD F

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
HAND DUG	0.3m x 0.3m (approx)	3.49	LIFE PROPERTY CONSTRUCTION LIMITED	NE3769B
	Location	**Dates**	**Engineer**	**Sheet**
	AS PLAN	24/05/2019	W.A. CONSULTING ENGINEERS.	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.05)	MADE GROUND: paving slab.		
				3.44	0.05			
					(0.05)	MADE GROUND: brown silty sand.		
0.10-0.55	B			3.39	0.10	MADE GROUND: compact light cream brown gravel sized fragments of limestone.		
					(0.48)			
			24/05/2019:DRY	2.91	0.58	Complete at 0.58m		

Plan

Remarks

No groundwater encountered.
Pit sides remained vertical and stable.
On completion backfilled with arisings.

Scale (approx)	Logged By	Figure No.
1:10	DS/MJE	NE3769B.HD F

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Site	Trial Pit Number
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE.	HD G

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
HAND DUG	0.3m x 0.3m (approx)	3.42	LIFE PROPERTY CONSTRUCTION LIMITED	NE3769B
	Location	**Dates**	**Engineer**	**Sheet**
	AS PLAN	24/05/2019	W.A. CONSULTING ENGINEERS.	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.05)	MADE GROUND: paving slab.		
				3.37	0.05			
					(0.04)	MADE GROUND: brown weakly cemented silty sand.		
				3.33	0.09			
0.10-0.30	B					MADE GROUND: brown silty sand.		
					(0.23)			
						.... at 0.32m : bituminous macadam surfacing		
			24/05/2019:DRY	3.10	0.32	Complete at 0.32m		

Plan

Remarks

No groundwater encountered.
Pit sides remained vertical and stable.
On completion backfilled with arisings.

Scale (approx)	Logged By	Figure No.
1:10	DS/MJE	NE3769B.HD G

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Site	Trial Pit Number
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE.	HD H

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
HAND DUG	0.3m x 0.3m (approx)	3.35	LIFE PROPERTY CONSTRUCTION LIMITED	NE3769B
	Location	**Dates**	**Engineer**	**Sheet**
	AS PLAN	24/05/2019	W.A. CONSULTING ENGINEERS.	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10-0.30	B				(0.30)	MADE GROUND: brown slightly gravelly sandy silt. Gravel sized fragments are plastic.		
0.30-0.40	B			3.05	0.30			
					(0.10)	MADE GROUND: compact light cream brown gravel sized fragments of limestone.		
			24/05/2019:DRY	2.95	0.40	Complete at 0.40m		

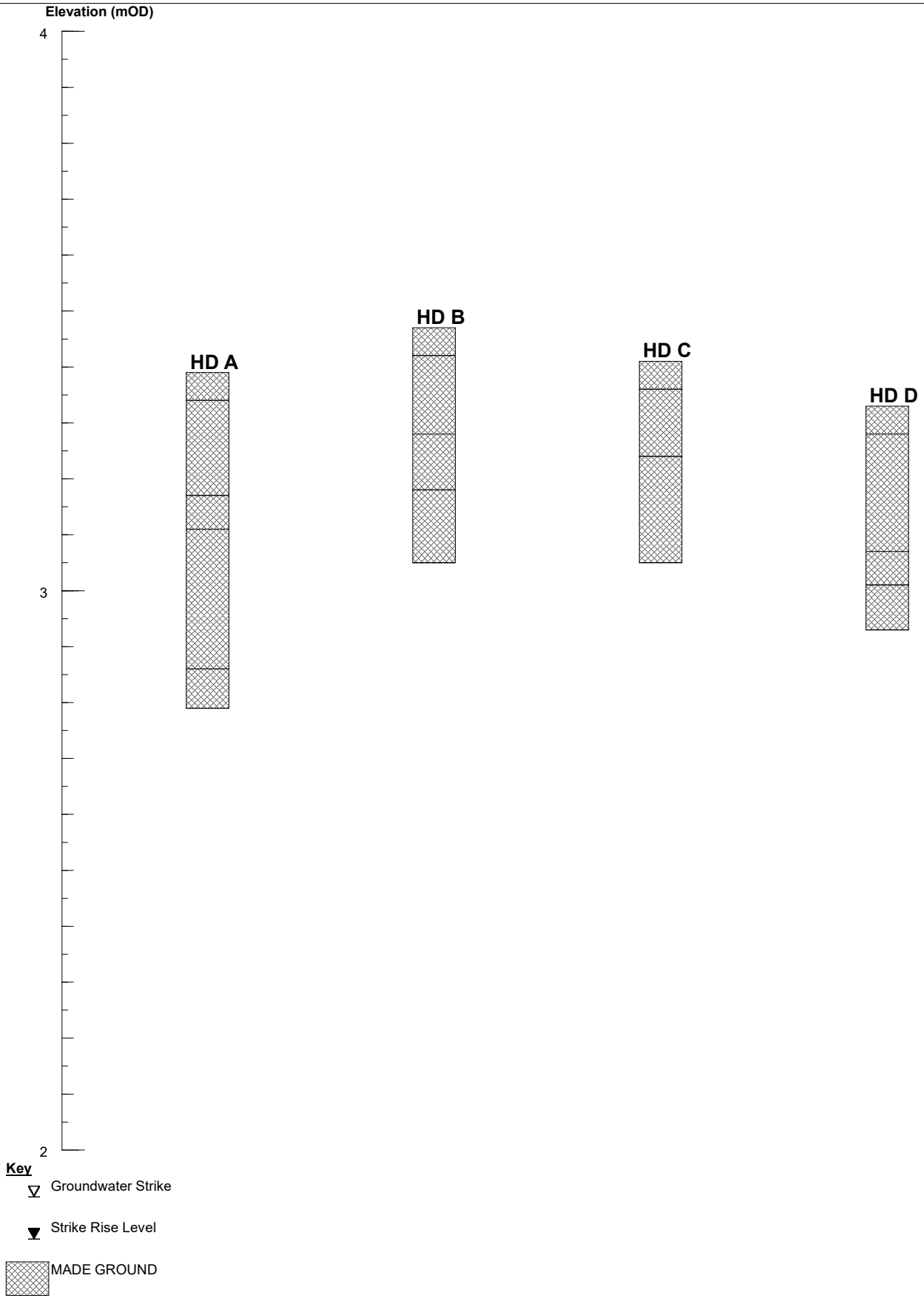
Plan

Remarks

No groundwater encountered.
Pit sides remained vertical and stable.
On completion backfilled with arisings.

Scale (approx)	Logged By	Figure No.
1:10	DS/MJE	NE3769B.HD H

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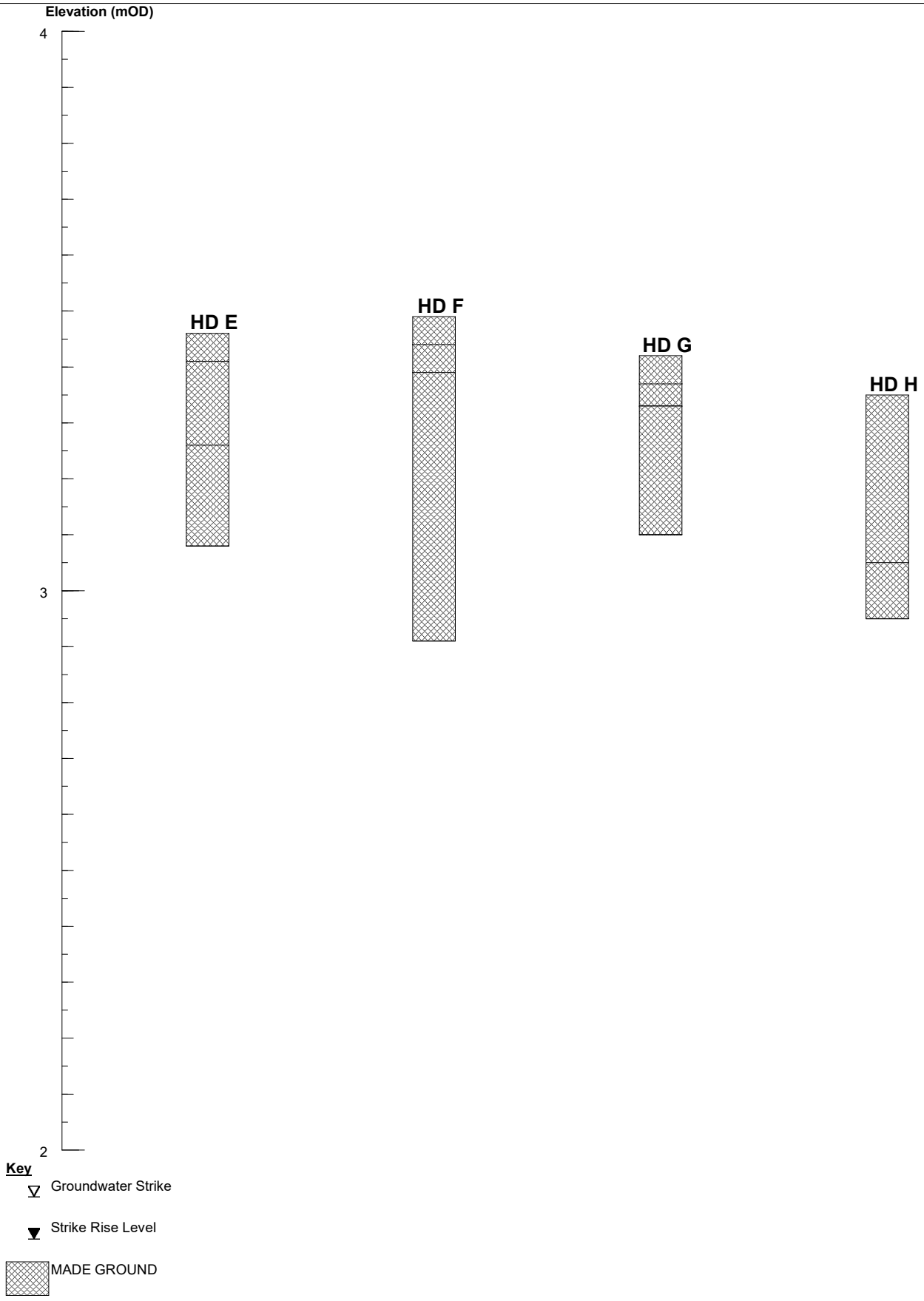


SUB SURFACE
SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Nominal Section

Site	Date Drawn	Date Checked	Sheet	Job Number
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE.	21/06/2019		1/2	NE3769B
Client	**Drawn By**	**Checked By**	**Scale**	**Figure No.**
LIFE PROPERTY CONSTRUCTION LIMITED			1:10[V]	NE3769B.1

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SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
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Nominal Section

Site	Date Drawn	Date Checked	Sheet	Job Number
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE.	21/06/2019		2/2	NE3769B
Client	**Drawn By**	**Checked By**	**Scale**	**Figure No.**
LIFE PROPERTY CONSTRUCTION LIMITED			1:10[V]	NE3769B.1

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PHOTOGRAPH

SUB SURFACE
SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Photographs

Site: THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE

Client: LIFE PROPERTY CONSTRUCTION LIMITED

Engineer: W A CONSULTING ENGINEERS

Job No. NE3769B

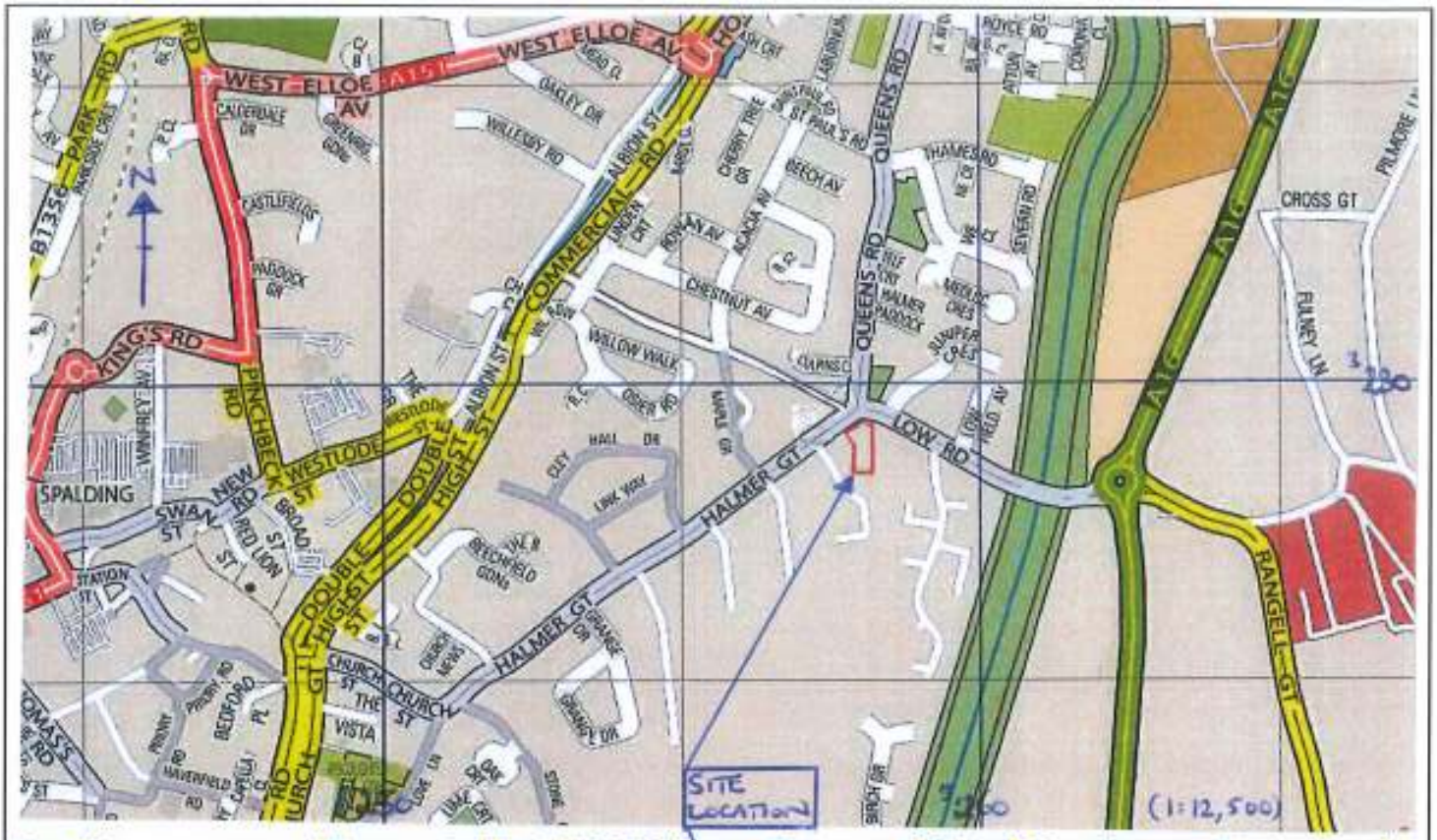
Sheet 1 / 1

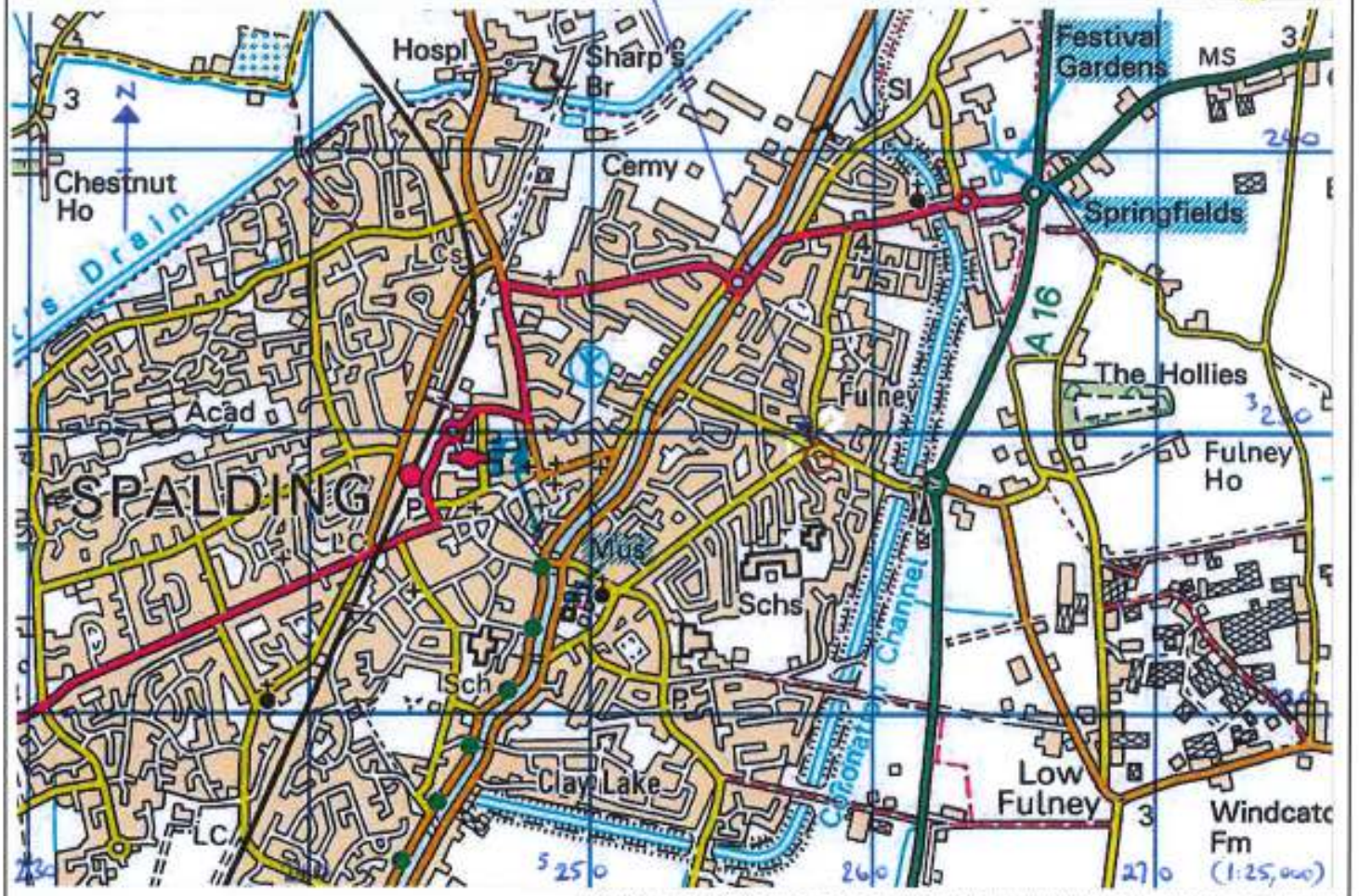
Survey Date 24/05/19

HAND DUG TRIAL PIT LOCATIONS PHOTOGRAPH



FIGURES





REPRODUCED FROM THE ORDNANCE SURVEY WITH THE PERMISSION OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE LICENCE NO. 100035484

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3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Site Location Plan

Site	Date Drawn	Date Checked	Sheet	Job No.
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE	27-Feb-19		1 / 1	NE3769A
Client	**Drawn By**	**Checked By**	**Scale**	**Figure No.**
LIFE PROPERTY CONSTRUCTION LIMITED	AJP		As shown (at A4)	1

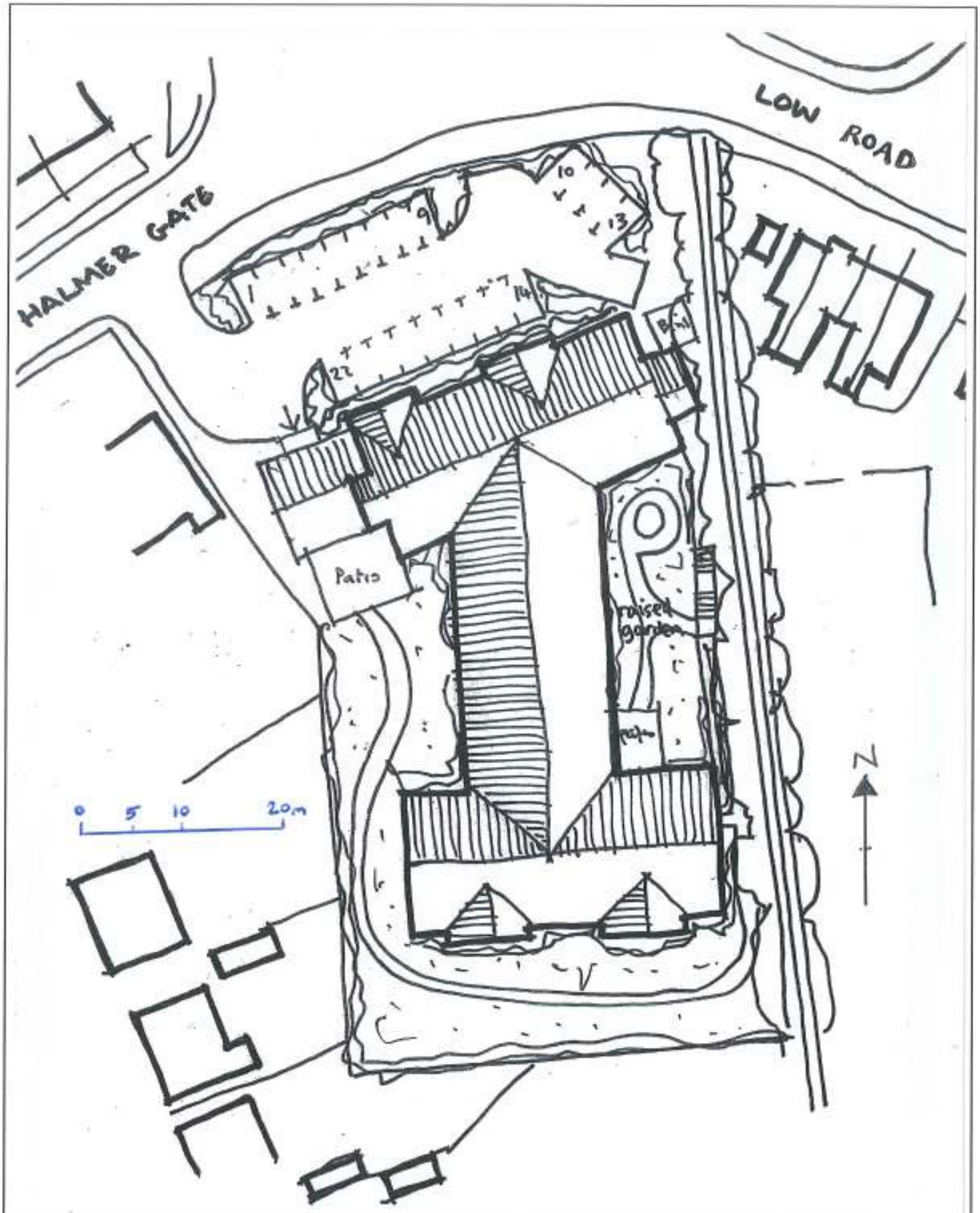


REPRODUCED FROM THE ORDNANCE SURVEY WITH THE PERMISSION OF THE CONTROLLER OF HER MAJESTY'S STATIONARY OFFICE (LICENCE NO. 100033464)

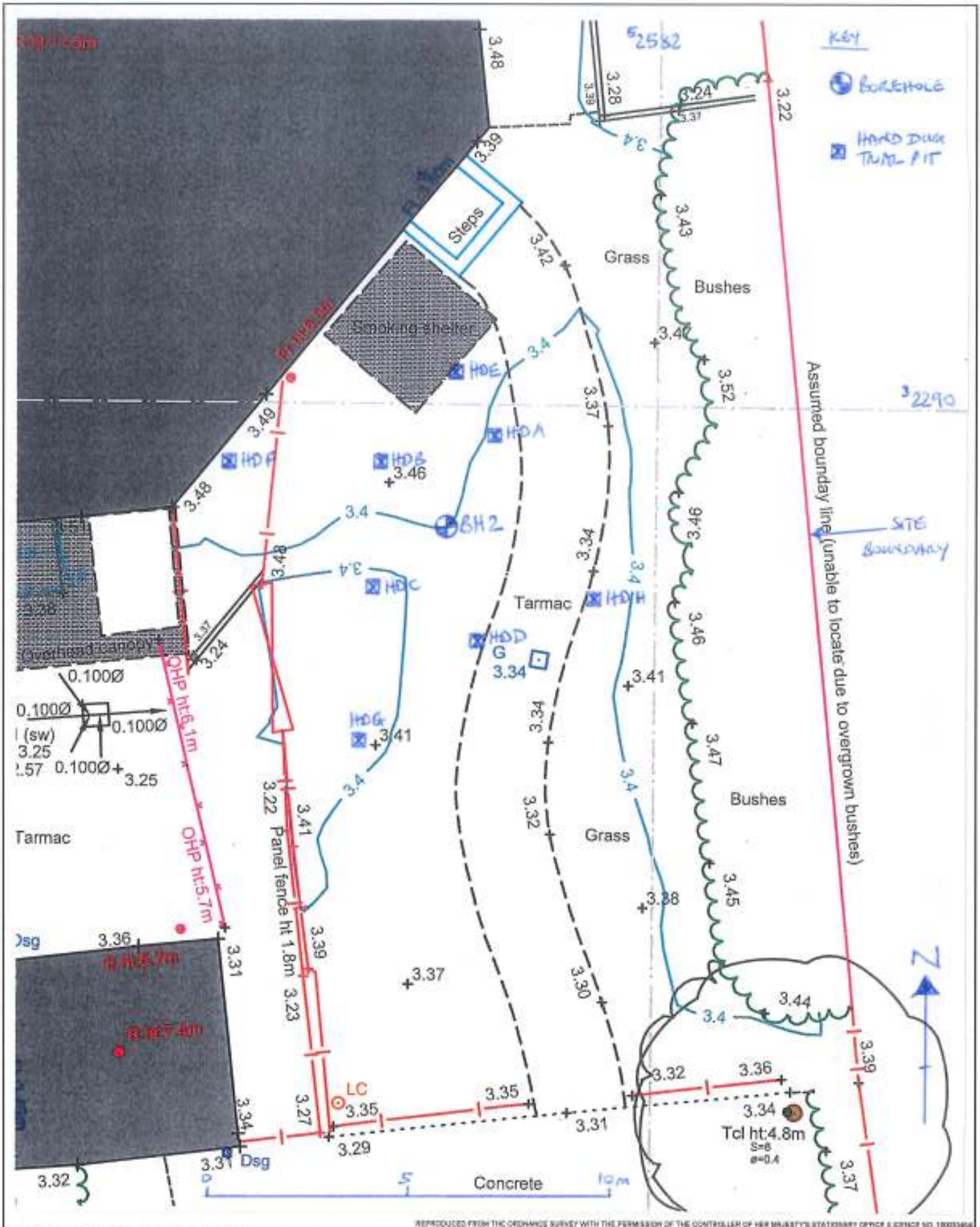
SUB SURFACE
SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Site Boundary Plan

Site	Date Drawn	Date Checked	Sheet	Job No.
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE	27-Feb-19		1 / 1	NE3769A
Client	**Drawn By**	**Checked By**	**Scale**	**Figure No.**
LIFE PROPERTY CONSTRUCTION LIMITED	AJP		1:2,500	2



SUB SURFACE SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907	Proposed Development Layout Plan			
Site THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE	Date Drawn 27-Feb-19	Date Checked	Sheet 1 / 1	Job No. NE3769A
Client LIFE PROPERTY CONSTRUCTION LIMITED	Drawn By AJP	Checked By	Scale 1:500	Figure No. 3



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SUB SURFACE

SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS

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Topographical & Exploratory Hole Location Plan

Site	Date Drawn	Date Checked	Sheet	Job No.
THE BIRDS PUBLIC HOUSE, HALMER GATE, SPALDING, LINCOLNSHIRE	21-Jun-19		1 / 1	NE3769B
Client	**Drawn By**	**Checked By**	**Scale**	**Figure No.**
LIFE PROPERTY CONSTRUCTION LIMITED	AJP		1:125	4