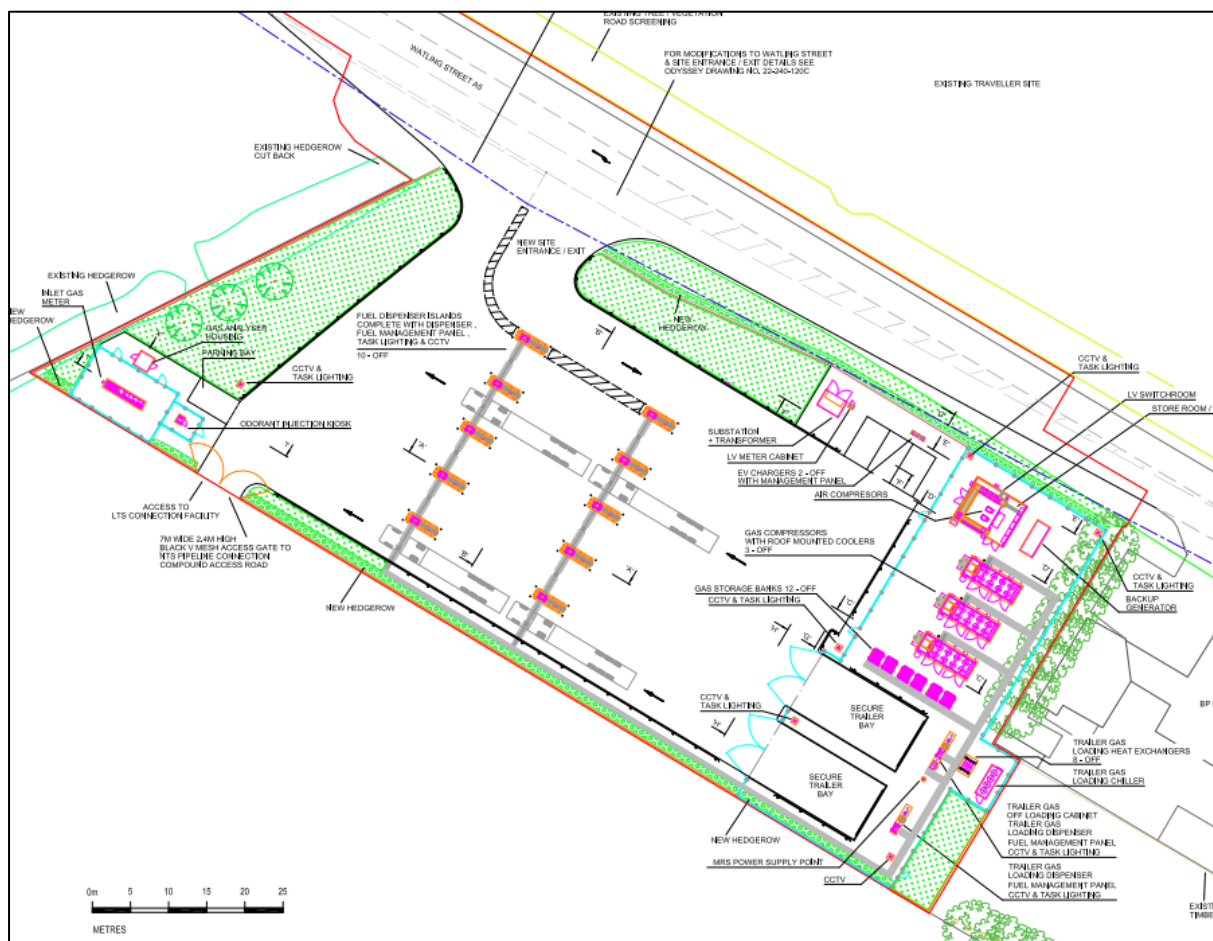


LAND SOUTH OF WATLING STREET, HINCKLEY

Site Investigation & Ground Assessment



Prepared for:

Report Ref: BEK-23005-1 (Rev E)

February 2026





GEO-ENVIRONMENTAL CONSULTING

BEK Geo-Environmental Consulting

No.2 Landwick Court, Metcalf Drive, Altham Business Park,
Lancashire BB5 5TU

mbuckley@bekenviro.co.uk

bekenviro.co.uk

01254 377622

Project Quality Assurance Information Sheet

Site	Land south of Watling Street, Hinckley
Report Title	Site Investigation & Ground Assessment
Report Status	Final
Report No	BEK-23005-1 (Rev E)
Date	February 2026
Prepared For	CNG FUELS 16 Berkeley Street London W1J 8DZ
Prepared By	BEK ENVIRO LIMITED Suite One No 3 Mitton Road Business Park Mitton Road Whalley Lancashire BB7 9YE
Author(s)	James Mashiter BSc (Hons) MSc
Checked	David Emmott BSc (Hons) MSc MEnvSci CEnv
Authorised	Michael Buckley BSc (Hons) MSc MEnvSci CEnv
Contact	mbuckley@bekenviro.co.uk www.bekenviro.co.uk Office: 01254 377622 Mobile: 07906753583

LAND SOUTH OF WATLING STREET, HINCKLEY

Site Investigation & Ground Assessment

PROJECT NO: 23005

REPORT REF: BEK-23005-1 (Rev E)

DATE: February 2026

REVISION STATUS / HISTORY

Rev	Date	Issue / Comment	Prepared	Checked
A	24/02/2023	Minor Mods	D Emmott	J Mashiter
B	12/04/2023	Minor Amendments	MLM	MB
C	01/05/2023	Mods to site boundary/layout figures	A Hope	MB
D	07/03/2024	Minor proposed layout changes	JM	MB
E	12/02/2026	Minor proposed layout changes	AB	JM

GENERAL REPORT LIMITATIONS

BEK Enviro Limited (BEK) has prepared this report for the sole use of the client, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. The report may not be relied upon by any other party without the express agreement of the client and BEK. No other warranty, expressed or implied, is made as to the professional advice included in this report.

Where any data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by BEK for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.

No part of this report may be copied or duplicated without the express permission of BEK and the party for whom it was prepared. Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

Unless explicitly agreed otherwise, in writing, this report has been prepared under BEK's limited standard Terms and Conditions as included within our proposal to the Client.

The report needs to be considered in the light of the BEK proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.



TABLE OF CONTENTS

1.	INTRODUCTION
1.1	Appointment
1.2	Proposed Development
1.3	Objective & Scope of Work
1.4	Limitations
2.	BACKGROUND INFORMATION
2.1	Site Location & History
2.2	Environmental Setting
2.3	Potentially Significant Pollutant Linkages
3.	SITE INVESTIGATION
3.1	General
3.2	Window Sample Boreholes
3.3	Soakaway Testing
3.4	Exploratory Locations Rationale
3.5	Laboratory Testing
3.6	Ground Conditions
3.7	In-Situ Strength Testing
4.	QUANTITATIVE RISK ASSESSMENT
4.1	Potentially Significant Pollutant Linkages
4.2	Risk Assessment: Human Health Risks from Exposure to Contaminated Soil
4.3	Risk Assessment: Controlled Waters
4.4	Risk Assessment: Buildings
4.5	Risk Assessment: Conclusions
5.	GEOTECHNICAL ASSESSMENT
6.	RECOMMENDATIONS

APPENDICES	
Appendix A	Exploratory Logs
Appendix B	Chemical Test Results
Appendix C	Geotechnical Test Results
Appendix D	Drawings

DRAWINGS	
BEK Drawing No 23005-1	Site Location
BEK Drawing No 23005-2	Site Layout
BEK Drawing No 23005-3	Borehole Location Plan
Proposed CNG Station Site Layout Plan	

1. INTRODUCTION

1.1 Appointment

1.1.1 BEK Enviro (BEK) has been commissioned by CNG Fuels to carry out a site investigation for land south of Watling Street, Hinckley (hereafter referred to as 'the site'). The investigation will inform a quantitative risk assessment with respect to contamination at the site to support the proposed commercial development, and provide recommendations for foundation design.

1.1.2 The site location and site layout are presented on BEK Drawing No 23005-1 and BEK Drawing No 23005-2, respectively. Copies of these drawings are presented in Appendix D.

1.2 Proposed Development

1.2.1 The report has been prepared to support a planning application for the construction of a biomethane gas vehicle fuelling facility. Infrastructure including gas storage banks, compressors and backup generator are proposed to be located on the eastern boundary. The site will be predominantly hard surfaced, however, landscaping will be present around the perimeter.

1.2.2 A sketch of the proposed site plan is provided on CNG Fuels drawing 'Proposed CNG Station Site Layout Plan', a copy of which is presented in Appendix D. An extract from that drawing is presented in Figure 1:

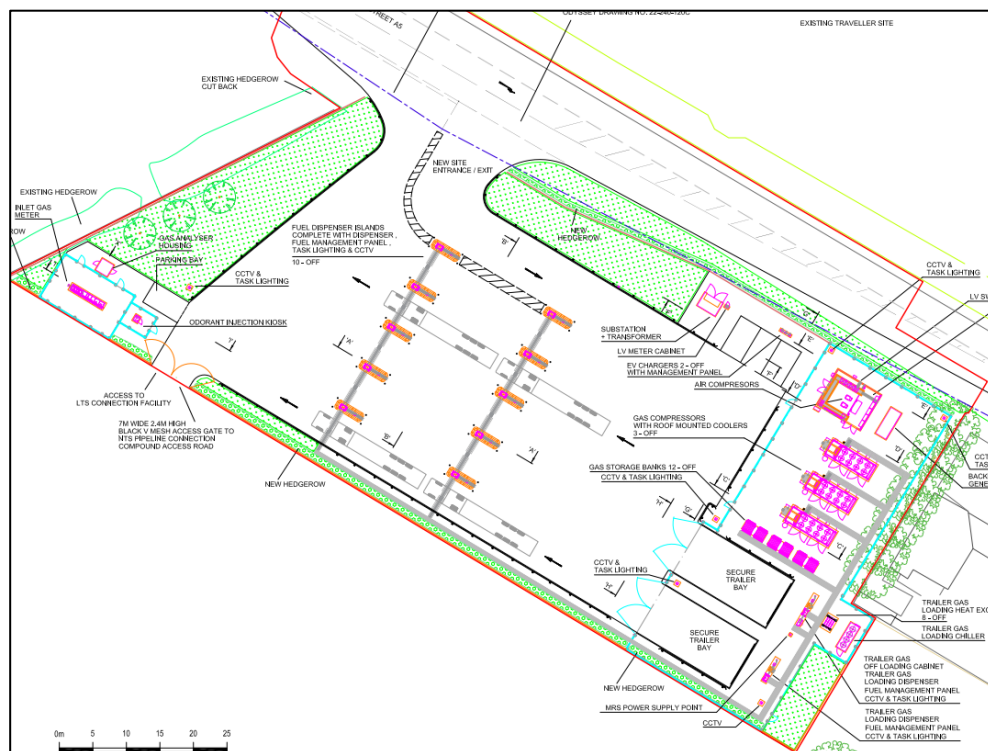


Figure 1: Site Layout Plan

1.3 Objective & Scope of Work

- 1.3.1 The site investigation was undertaken by BEK during January 2023 in accordance with the recommendations detailed in the Preliminary Risk Assessment (PRA) prepared by Thomas Consulting (Report Ref: TC/P9299/22/01, dated December 2022).
- 1.3.2 This report has been prepared to provide a summary of the site details and ground conditions encountered as well as a quantitative assessment of the potential pollutant linkages identified within the PRA. The PRA should be read in conjunction with this report.

1.4 Limitations

- 1.4.1 The conclusions and recommendations presented in this report are the result of our professional interpretation of the information currently available. BEK reserve the right to amend the conclusions and recommendations if further information becomes available.
- 1.4.2 However, it should be noted that much of the information has been derived from reports written by others and BEK takes no responsibility for the accuracy of that information. Notwithstanding the above, the reports reviewed have all been written by professional environmental consultants with a duty of care to provide relevant and accurate information.
- 1.4.3 The comments given in this report and the opinions expressed are based on review of reports provided to BEK, ground conditions encountered during site works and the results of tests made in the field and in the laboratory. However, there may be conditions pertaining to the site that have not been disclosed by the investigations and therefore could not be taken into account.
- 1.4.4 Issues associated with invasive plant species are outside the remit of this report.

2. BACKGROUND INFORMATION

2.0.1 This section provides an overview of the findings and recommendations presented in the PRA.

2.1 Site Location & History

2.1.1 The site is located on the A5 approximately 2.6 km south-west of Hinckley and 760 m south-west of the A5/A47 junction. The grid reference is 440080 292977. Surrounding the site is predominantly agricultural fields to the south and industrial/warehouses to the north. Immediately to the east is a petrol filling station, served by separate access from the A5. An industrial estate containing an electrical substation and infrastructure for the National Grid is located further east of the petrol station.

2.1.2 The site currently forms part of a wider greenfield plot currently comprising flat grassland that is understood to be used for grazing.

2.1.3 The site is shown within Figure 2 below.

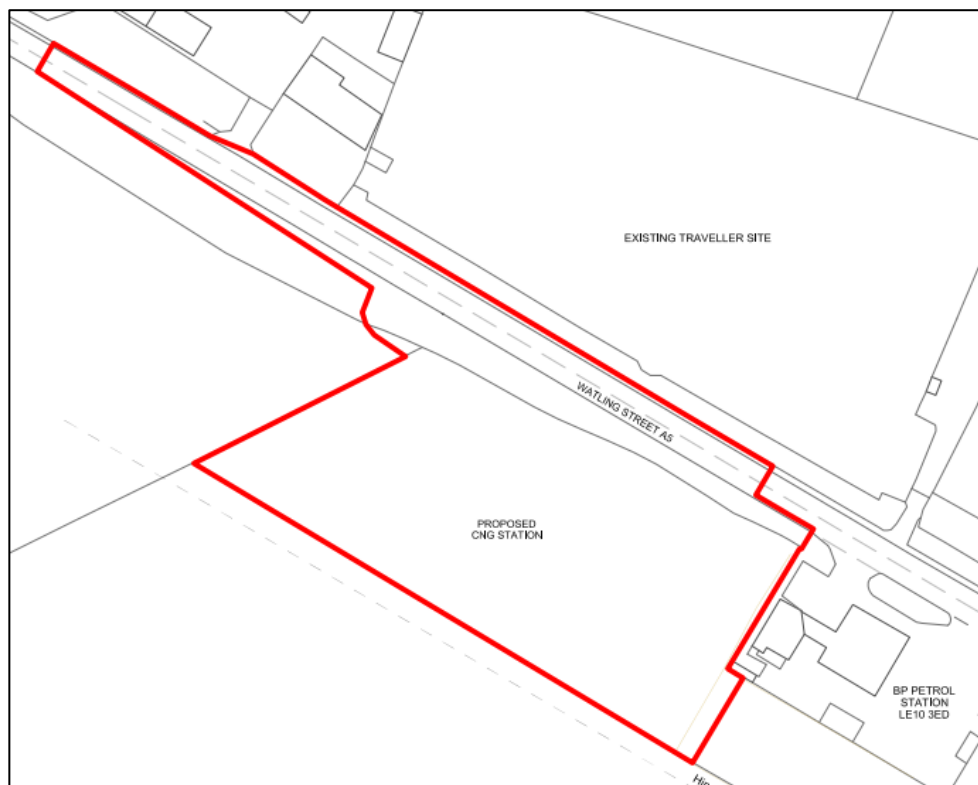


Figure 2: Site Boundary (Red) and Surrounding Area

Site History

2.1.4 Based on the available historical maps the site has been vacant from 1886 to present day with the garage located east of the site visible from circa 1958.

2.2 Environmental Setting

Geology

- 2.2.1 According to the Enviro+GeoInsight Report, there are no made ground deposits on site.
- 2.2.2 The Enviro+GeoInsight Report indicates that states that the site is overlain with alluvium comprised of sand with clay and gravel. The bedrock geology underlying the site is comprised of Mercia Mudstone – sandstones, mudstones and evaporites.
- 2.2.3 There are no faults or linear features located on site or within 250 m of the site.

Mining and Ground Stability

- 2.2.4 Information in the Enviro+GeoInsight Report states that the site is not located within a coal mining area.
- 2.2.5 The Enviro+GeoInsight Report provides hazard ratings associated with ground subsidence at the site, as summarised below:
- | | |
|--------------------------------------|------------|
| Shrink-Swell Clay: | Very Low |
| Landslides: | Very Low |
| Ground Dissolution of Soluble Rocks: | Negligible |
| Compressible Deposits: | Moderate |
| Collapsible Deposits: | Negligible |
| Running Sands: | Low |
- 2.2.6 It can be seen from the above that the site is unlikely to be affected by natural ground instability with the exception of compressibility and uneven settlement hazards present in the across the site.

Hydrogeology

- 2.2.7 The superficial strata is classified as a 'Secondary A' aquifer with the bedrock strata is classified as a 'Secondary B' aquifer.

Hydrology

- 2.2.8 The nearest surface water feature to the site is Sketchley Brook which is located some 160 m east and south of the proposed development and flows in a south-westerly direction.
- 2.2.9 There are no surface water abstractions located within 250 m of the site.



- 2.2.10 Three historic discharges are identified into Sketchley Brook, upstream of the proposed development. These consist of trade and sewage discharges. No existing consents are recorded.

Contaminated Land and Landfill Activities

- 2.2.11 There are no historic or recent landfills located within 250 m of the site.
- 2.2.12 Five historical waste sites within 250 m of the proposed development are identified using LPA records by the Enviro+GeoInsight Report consisting of scrap yards and waste transfer stations.
- 2.2.13 Two historical pollution incidents have been recorded within 250 m of the site located some 145 m south-east and 209 m north-west of the site dating from 2002 and 2003 respectively. Both were classified as Category 3 impact on water (Minor) and Category 4 (No impact) on land and air.
- 2.2.14 There have been no List 1 & 2 dangerous substance releases and no radioactive incidents occurring within 250 m of the site.
- 2.2.15 No records of Part A(1) installations are recorded within 250 m of the site. The petrol station immediately east of the proposed CNG site is recorded under Part B of the Environmental Permitting Regulations.

Sensitive Land Use

- 2.2.16 The site is a nitrate vulnerable zone designated across the site and borders the Birmingham Green Belt area. The proposed development is located within an SSSI Impact Risk Zone. However, it does not fall under the types of developments requiring consultation with respect to the associated SSSI.

Radon

- 2.2.17 It is estimated that less than 1% of dwellings in close proximity of the site are exceeding the Radon Action Level. As such no radon protection measures are required.

2.3 Potentially Significant Pollutant Linkages

- 2.3.1 A number of possible 'significant pollutant linkages' have been identified associated with the site:

Link 1 – Surface runoff of contaminants from HGV's from impermeable area, towards agricultural land. A potential source of contamination is identified for spillage of fuels and oils from HGV's. Surface runoff shall be contained by the drainage network during normal operation of the site. This is more likely to occur



during construction works, before the drainage is in place. Any exceedance off the site shall flow towards Grade 3 agricultural land southwest of the site.

This receptor has a low sensitivity and the impact of any linkage is likely to be low. Therefore, this linkage is considered insignificant and requires no further investigation.

Link 2 – Surface waters exceeding the impermeable site and infiltration to groundwater. A potential source of contamination is identified for spillage of fuels and oils from HGV's. Any exceedance from the site could enter the groundwater. This is more likely to occur during construction works, before the drainage is in place.

As stated in the section above, pollutant linkages transporting contamination offsite are not significant. The superficial strata is estimated to have very low to high permeability, so further investigation should be completed to assess this. Superficial strata and bedrock aquifers are deemed to have a low sensitivity. Very limited quantities of pollutant are expected to reach the aquifer and will have a low impact. Therefore, this potential linkage is considered insignificant and no further investigation is necessary.

Link 3 – Inhalation / Ingestion of contaminated soils and dusts by construction workers. The site currently consists of open pasture land, where potential pollution from past fertiliser is identified. Soils and dusts will be mobilised during construction works by excavations and vehicle movements. Contractors working on the site may inhale smaller particles or ingest larger particles after hand to mouth contact.

The quantity of contamination present in the ground, however minimal quantities are likely to reach the receptor. As a result, the sensitivity and impact on the receptor to any exposure is considered low, this linkage is also considered insignificant.

- 2.3.2 Notwithstanding the above, Thomas Consulting recommend that site investigation works are carried out to confirm shallow ground conditions are as expected and to recovery additional information to support a full geo-environmental assessment including soakaway testing to inform surface water drainage options.

3. SITE INVESTIGATION

3.1 General

3.1.1 This section provides a summary of the site investigation works undertaken by BEK during January 2023.

3.1.2 The site investigation has been designed to provide indicative information for the ground conditions across the site and to provide a quantitative assessment of potential risks associated with contamination and to provide recommendations with respect to foundation design.

3.1.3 All exploration locations were set out by the site engineer and the exploratory locations are illustrated on BEK Drawing No 23005-3 presented in Appendix D.

3.2 Window Sample Boreholes

3.2.1 Seven window sample boreholes were drilled using a window sample borehole rig to a maximum depth of 5.45 m. Borehole locations were set out by the site engineer in order to establish representative conditions at the site. In-situ testing (SPTs) were carried out in each of the boreholes.

3.2.2 Representative samples were recovered for chemical testing in accordance with the potential contaminants of concern highlighted within the PRA.

3.2.3 The ground conditions were recorded by an engineer from BEK and copies of the borehole records are presented in Appendix A.

3.3 Soakaway Testing

3.3.1 Soakaway testing (to BRE365) was carried out at 2 locations to determine percolation rate and the possible use of soakaways for surface water drainage.

3.3.2 BEK can confirm that the percolation rate of the shallow strata does not support the use of soakaways at this site. A separate Soakaway Letter report will be prepared detailing this work and the conclusions.

3.4 Exploratory Locations Rationale

3.4.1 The site investigation was designed by BEK to confirm general ground conditions across the site.

3.5 Laboratory Testing

Soil Chemical Testing

3.5.1 Chemical laboratory testing was undertaken by the UKAS accredited laboratory of Envirolab. All testing was undertaken to MCERTS standard (where available). The following samples were submitted for chemical analysis:

- Eight samples were tested for the standard BEK soil suite which includes: Arsenic (Total), Cadmium (Total), Copper (Total), Lead (Total), Nickel (Total), Zinc (Total), Chromium (Total), Selenium (Total), Mercury (Total), Boron (Soluble), Hexavalent Chromium, Cyanide (Total), pH, 16 EPA Poly-Aromatic Hydrocarbons (PAH), Total Phenols, Sulphate (acid soluble), Sulphate 2:1 extract and Soil Organic Matter
- Eight samples were tested for Speciated Total Petroleum Hydrocarbons (TPH-CWG)
- Three samples were subjected to BRE Sulphate Suite
- Three samples were subjected to WAC testing
- Eight samples were subjected to Asbestos ID testing.

3.5.2 Copies of the chemical test results are presented in Appendix B.

Geotechnical Testing

3.5.3 Following a review of ground conditions, three natural clay bulk samples were submitted to the UKAS accredited laboratory of Murray Rix and were tested for Plasticity Index and Moisture Content.

- Three samples were subjected to Plasticity index Moisture content.

3.5.4 Copies of the geotechnical test results are presented in Appendix C.

3.6 Ground Conditions

3.6.1 Topsoil was identified in every exploratory location at the site ranging in depth from 0.3 m (Window Sample Borehole WS6) to 0.4 m (Window Sample Borehole WS1, WS2, WS3, WS4, WS5 and WS7). The topsoil was generally homogenous across the site and could be identified as the following:

‘Soft dark brown very sandy silty organic clay with frequent rootlets and rare flint (Topsoil)’

- 3.6.2 Natural strata underlying the topsoil was generally comprised of 'Stiff becoming very stiff fine brown slightly silty clay.
- 3.6.3 The bedrock was not encountered during the site investigation.
- 3.6.4 Groundwater was not encountered during the site investigation works with the exception of Borehole Window Samples WS3 however it is noted that Window Sample Borehole WS7 was wet at ground level. The groundwater encountered at Window Sample Borehole WS3 was described as slight water strike at a depth of 2 m below ground level.
- 3.6.5 There was no visual/olfactory evidence for the presence of contamination identified during the intrusive site investigation.

3.7 In-situ Strength Testing

- 3.7.1 SPTs were carried out in all boreholes progressively as drilling was undertaken. The SPT results are presented on the drilling records (Appendix A) and are summarised below:

	SPT Readings (N)				
	1.0 – 1.45 m	2.0 – 2.45 m	3.0 – 3.45 m	4.0 – 4.45 m	5.0 – 5.45 m
WS1	13	15	20	22	-
WS2	14	19	21	20	-
WS3	14	16	19	21	-
WS4	14	16	19	21	22
WS5	13	18	18	20	22
WS6	8	12	15	20	23
WS7	9	14	16	16	20

Table 2: Summary of SPT Results for Window Sample Boreholes

4. QUANTITATIVE RISK ASSESSMENT

4.1 Potentially Significant Pollutant Linkages

4.1.1 Potentially significant pollutant linkages identified within the preliminary conceptual model include:

- (i) Human Health – risks associated with contamination in the made ground and/or natural strata: via direct contact, ingestion of contaminated soils or via inhalation (asbestos and/or vapours)
- (ii) Controlled Waters - risks associated with contamination in the made ground and/or natural strata affecting the quality of perched water. Risks are associated with dissolution of contamination into perched water and vertical/lateral migration to water receptors including the superficial and bedrock Aquifers.
- (iii) Property (including services, flora and concrete) – risks associated with contamination affecting agricultural land.

4.2 Risk Assessment: Human Health Risks from Exposure to Contaminated Soil

4.2.1 The risks to human health have been assessed by inspection of shallow soils for the presence of elevated contaminants based on the expected contaminant findings detailed in the conceptual model and completion of a quantitative risk assessment.

4.2.2 The soil contamination concentrations have initially been compared to a range of generic assessment criteria. These include the use of the Land Quality Management and Chartered Institute of Environmental Health assessment criteria (S4ULs), Category 4 Screening Levels (C4SLs) and the Contaminated Land: Applications in Real Environments assessment criteria (CL:AIRE).

4.2.3 These assessment criteria have been derived using the CLEA model and fully justified input parameters to be protective of risks to human health considering a commercial end use. The initial assessment assumes a soil organic matter (SOM) of 1 % as a conservative approach.

4.2.4 The following table summarises the chemical test results for the samples tested and lists the relevant assessment criteria and the samples with a concentration in excess of the assessment criteria. Note that only determinands with a concentration above the laboratory limit of detection are presented in the table below:

Determinand	Range of Concentrations (mg/kg)	Assessment Criteria (mg/kg)	Samples Fail
Arsenic	3 – 9	640 ¹	---
Boron	<1.0 – 2.7	240000 ¹	---
Cadmium	1.2 – 1.6	190 ¹	---
Chromium	45 – 105	68000 ¹	---
Copper	20 – 35	8600 ¹	---
Lead	15 – 57	6000 ²	---
Nickel	21 – 36	1100 ¹	---
Zinc	62 – 124	730000 ¹	---
Mercury	<0.17 – 1.46	1100 ¹	---
Nickel	21 – 36	980 ¹	---
Zinc	62 – 124	730000 ¹	---
Aliphatic Hydrocarbons >C21-C35	<1 – 18	1600000 ¹	---
Aromatic Hydrocarbons >C16-C21	<1 – 3	28000 ¹	---
Aromatic Hydrocarbons >C21-C35	<1 – 4	28000 ¹	---
Asbestos ID	0 of 8 samples	NAD	---

Table 3: Summary of Contamination Assessment

Notes from Table

1 CIEH/LQM Derived Assessment Criteria (S4ULs based on 1% SOM)

2 Category 4 Screening Level

NAD - No Asbestos Detected

4.2.5 It can be seen from the above table that there are no elevated contaminants of concern above the commercial assessment criteria within any of the samples tested.

4.2.6 Moreover, none of the samples tested proved positive with respect to the presence of asbestos.

4.3 Risk Assessment: Controlled Waters

4.3.1 Potential risks to the quality of surface water and groundwater have been identified in the ground conceptual model.

4.3.2 Risks are associated with contamination in the made ground and/or natural strata affecting the quality of perched water and surface waters in the vicinity of the site. Risks are also associated with the dissolution of contamination into perched water/lichgate and vertical migration to water receptors including the superficial and bedrock aquifer.

4.3.3 However, the site investigation encountered relatively impermeable superficial clay deposits across the site which will likely inhibit vertical migration of contamination to the underlying superficial and bedrock aquifers.

4.3.4 Furthermore, the soil contamination levels within all of the samples tested were generally below the limit of detection and below commercial development thresholds and often at natural background concentrations.

- 4.3.5 Given that very low to negligible levels of contamination were encountered within the soil overlying the site and considering the vast majority of the site will be covered with laterally continuous hardstanding post development (hardstanding reducing water infiltration and the potential for any leachate production), the potential risks to controlled waters are considered to be negligible and are not considered further.

4.4 Risk Assessment: Buildings

- 4.4.1 Risks to buildings include the assessment of the aggressive nature of the shallow ground with respect to concrete, the risks to the degradation of water pipes and flora due to contamination.

Risk to Concrete

- 4.4.2 To assess the potential risks to concrete, BEK has compared the site investigation data to assessment criteria presented in the BRE Special Digest 1: Concrete in Aggressive Ground.
- 4.4.3 Eight water soluble sulphate tests and pH tests were carried out on soil samples. The water soluble sulphate content ranged between <10 and 310 mg/l and the pH ranges from 6.96 to 8.56.
- 4.4.4 Three total sulphur tests and sulphate (acid soluble) tests were also completed on the soil samples. Oxidisable sulphate calculations confirmed that pyrite was likely present at the site.
- 4.4.5 A characteristic value for potential sulphate was calculated and determined to be 0.2%. Together, the results were utilised to determine a concrete classification of sulphate class DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) class of AC-1.
- 4.4.6 The classifications are made on the basis that the site is classified as a 'Natural Ground Location' and that mobile groundwater conditions may be present.

Risks to Services

- 4.4.7 Potable water supply pipes can be at risk from degradation if the shallow ground consists of specific organic contamination.
- 4.4.8 Guidance published by UKWIR includes a methodology for the site investigation and risk assessment to determine pipe specification.
- 4.4.9 Site investigation may be required along the intended route of the water pipeline and samples recovered from specific depths and tested for specific contaminants of concern.



4.4.10 On the basis of the ground conditions encountered, risks to water supply pipelines are considered to be very low, however it is recommended that consultation is undertaken with the water service supplier to confirm this.

4.5 Risk Assessment: Conclusions

4.5.1 Topsoil was identified in every exploratory location at the site ranging in depth from 0.3 m (Window Sample Borehole WS6) to 0.7 m (Window Sample Borehole WS1, WS2, WS3, WS4, WS5 and WS7).

4.5.2 Natural Strata underlying the made ground generally comprised of silty clay.

4.5.3 The samples recovered from site investigation have been tested for a wide range of contaminants in accordance with the recommendations outlined within the PRA and based on the observations made during the site investigation. The chemical test results have been compared to relevant generic assessment criteria to identify potential contaminants of concern.

4.5.4 Based on the contamination assessment herein and with respect to the redevelopment of the site for commercial use there are no contaminants of concern identified at the site.

4.5.5 Risks to controlled water are considered to be very low to negligible.

4.5.6 Risks to concrete are considered to be low and concrete classification of DS-1 AC-1 is likely to be suitable.

4.5.7 Potential risks to the service pipes are considered to be low, but advice should be sought from the water supply provider if new water pipes are to be installed.



5. GEOTECHNICAL ASSESSMENT

- 5.1 The proposed development is for the construction of a natural gas filling station. Should the development use change from this profile, re-assessment may be required to consider the likely geotechnical considerations imposed by the alternative development.
- 5.2 Site investigation has proven the presence of topsoil overlying the site, varying in thickness from 0.3m to 0.4m. The topsoil is formed from organic sandy silty clays with occasional rare flint. Underlying the topsoil is a band of firm to stiff sandy clay which extends to depths between 0.6 m and 2.5 m below the surface. Underlying the sandy clay is stiff to very stiff clay.
- 5.3 Groundwater was encountered at a depth of 2.0 m in the staff clay within Window Sample Borehole WS1. The remaining boreholes remained dry during the investigation works. Bedrock was not encountered within any of the boreholes.
- 5.4 Standard Penetration Tests (SPT) were conducted in the boreholes, starting at a depth of 1 m and repeated at 1 m levels from 2 m onwards. The SPT results are summarised in the table below.

	SPT Readings (N)				
	1.0 – 1.45 m	2.0 – 2.45 m	3.0 – 3.45 m	4.0 – 4.45 m	5.0 – 5.45 m
WS1	13	15	20	22	-
WS2	14	19	21	20	-
WS3	14	16	19	21	-
WS4	14	16	19	21	22
WS5	13	18	18	20	22
WS6	8	12	15	20	23
WS7	9	14	16	16	20

Table 4: Summary of SPT Results for Window Sample Boreholes

- 5.5 Clay samples were taken from borehole WS1, WS3 & WS7. Atterberg testing was undertaken in the laboratory conditions to determine the plasticity index of the clay. The result is presented in Appendix C. The modified plasticity index for the sample was calculated in accordance with NHBC guidance and summarised in Table 5 below.

Plastic Limit Test Results					
Location	Depth (m)	Plasticity Index (P.I.)	Retained 425 Sieve	Passing 425 Sieve	Modified P.I. (%)
WS1	1.5-2.0m	39	0%	100%	39
WS3	2.0-2.5m	41	0%	100%	41
WS7	1.0-1.5m	38	0%	100%	38
	Average	39.3		Average:	39.3

Table 5: Plasticity Results

- 5.6 The plasticity results indicate that the soil can be categorised to be of high volume change potential, requiring a minimum foundation formation depth of 1.05 m below existing or proposed ground level, whichever is the lower, in areas where clay soils are present. Adjustments to formation depths, to comply with LABC requirements and NHBC Ch.4.2 guidance, may be required where trees are within influence of new structures.

Assessment and Conclusions

- 5.7 The site is predominantly underlain with sandy clays, beneath the shallow topsoil materials. The SPT values in the upper clays indicate that minimum bearing capacities of 95 kN/m². The stiff clays beneath the sandy clays have bearing capacities in excess of at least 140 kN/m².
- 5.8 It is proposed to construct of a biomethane gas vehicle fuelling facility comprising 12 fuelling islands and infrastructure including gas storage banks, compressors and backup generator located on the eastern boundary. These structures are proposed to have raft type foundations. A review of the likely loading to the structures indicates that bearing pressures at formation will be of no greater than 45 kN/m². The underlying clays are therefore deemed suitable to sustain the loads associated with the proposed bases.
- 5.9 The hardstanding slabs should also be formed on the underlying clay layers. All topsoil must be removed, prior to the installation of the sub-base materials to the slabs.
- 5.10 All foundation designs must be reviewed and designed by a suitably qualified design engineer. The above advice is based upon the ground condition information obtained during the survey. The design engineer must satisfy themselves that the information meets with their design requirements.



6. RECOMMENDATIONS

- 6.1 This report provides an assessment of the ground conditions based on the assessment of available site investigation information and quantifies the potential risks associated with contamination and provides a geotechnical assessment with respect to foundation design.

Contamination Assessment

- 6.2 Based on the results of the contamination risk assessment undertaken at the site to the south of Watling Street, Hinckley and with consideration to the environmental setting and the proposed redevelopment of the site for commercial use no risks to human health have been identified.

- 6.3 Notwithstanding, BEK recommends the following:

- (i) All ground workers adopts suitable PPE when working on the site and consider the requirements of site specific risk assessments and working method statements.
- (ii) All groundworkers should remain vigilant during ground excavations for the presence (or suspected presence) of contamination. Should suspected contamination be identified then work should cease and specialist advice sought.
- (iii) Any material removed from the site should be disposed of in accordance with appropriate in accordance with appropriate legislation and regulations, including the Duty of Care Regulations.
- (vi) Consideration should be given to the requirements of the water supply provider. They are likely to require the UKWIR risk assessment to be completed to determine the specification for the water pipes. BEK recommends that the water supply provider is contacted and enquiries made.

Infiltration Rate

- 6.4 Infiltration testing to BRE365 indicates that the ground conditions appear to be relatively impermeable indicating infiltration is unlikely to be a viable means of disposing surface water at the proposed development site.

Geotechnical Assessment

- 6.5 The site is predominantly underlain with sandy clays, beneath the shallow topsoil materials. The SPT values in the upper clays indicate that minimum bearing capacities of 95 kN/m². The stiff clays beneath the sandy clays have bearing capacities in excess of at least 140 kN/m².
- 6.6 It is proposed to construct of a biomethane gas vehicle fuelling facility comprising 12 fuelling islands and infrastructure including gas storage banks, compressors and backup generator located on the eastern boundary. These structures are proposed to have raft type foundations. A review of the likely loading to the structures indicates that bearing pressures at formation will be of no greater than 45 kN/m². The underlying clays are therefore deemed suitable to sustain the loads associated with the proposed bases.
- 6.7 The hardstanding slabs should also be formed on the underlying clay layers. All topsoil must be removed, prior to the installation of the sub-base materials to the slabs.
- 6.8 All foundation designs must be reviewed and designed by a suitably qualified design engineer. The above advice is based upon the ground condition information obtained during the survey. The design engineer must satisfy themselves that the information meets with their design requirements.
- 6.9 A concrete classification of DS-1 AC-1 is likely to be suitable at the site.

Waste Soil Management

- 6.10 Careful management of soils during the excavation works will ensure optimum utilisation of soil resources. Excavated soils which require off-site disposal are anticipated to be classified in accordance with the following document: Guidance on the Disposal of "Contaminated Soils" Version 3 (April 2001); produced by the Environment Agency.
- 6.11 In all cases where excess soils require off-site disposal, the materials needs to be managed under the appropriate legislation and consideration given to any remedial techniques that could be used to improve the soil.
- 6.12 If waste soils are to be re-used on site then a suitable permit exemption should be put in place (if appropriate) or a Material Management Plan (MMP) should be prepared as part of compliance with the CL:AIRE Definition of Waste:Code of Practice.