

In-situ Hand Shear Vane (HSV) tests were also carried out in the near surface cohesive deposits between depths of 0.90m and 2.40m bgl which ranged between 50 kPa and 105 kPa (site average of ~65kPa at a depth of 1m) which indicates the cohesive deposits to range between medium to high strength.

Figure 3 - HSV with depth

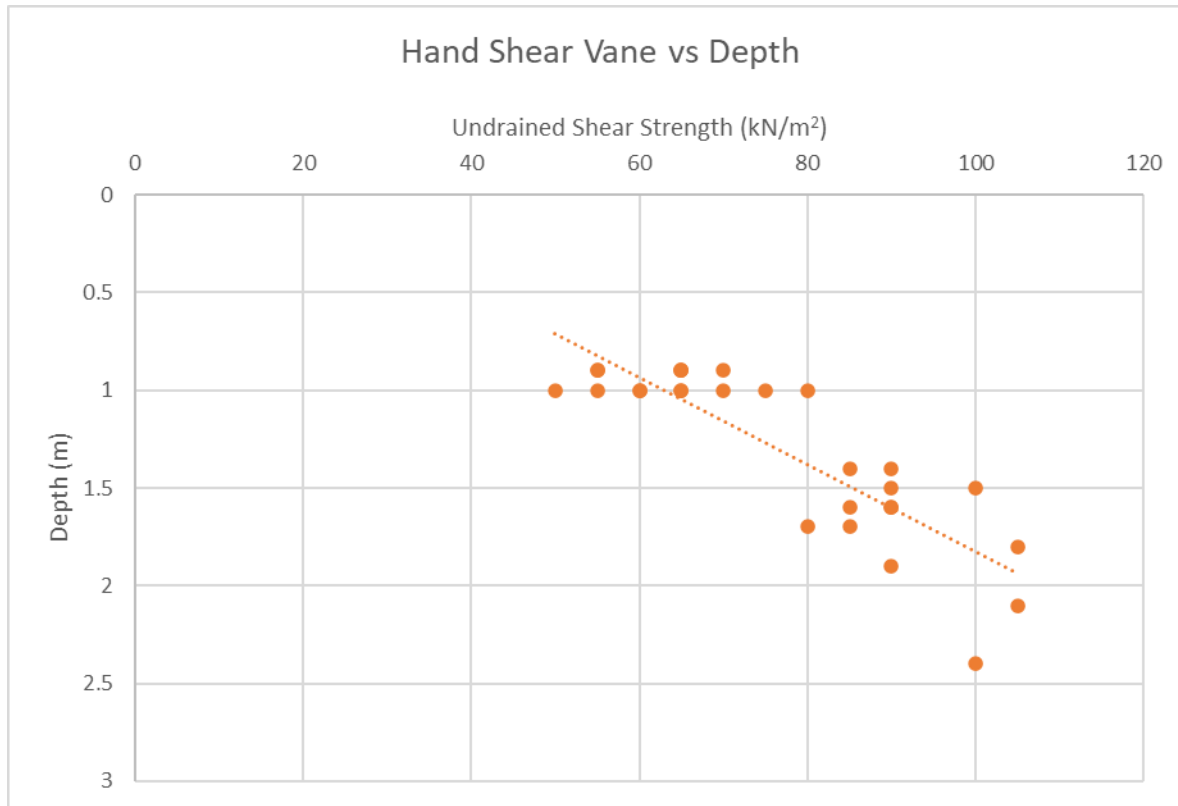


Figure 3 presents a plot of the in-situ HSV test results in relation to the recorded undrained shear strength with depth of cohesive materials beneath the site. The results show a clear trend of increasing shear strength with depth.

7.7 Material Properties Summary

A summary of the material properties / strength characteristics for the cohesive deposits underlying the site is presented below in Table 7-4.

Table 7-4 Material Properties Summary

Strata	Depth (m)	Average N60 Value	Average Undrained Shear Strength (kPa) from N60.	Recommended Allowable Bearing Pressure (kPa)
Cohesive	1.00	9	46	100
Cohesive	2.00 +	14	76	125
Granular	2.00	20	-	125



7.8 Foundation Assessment.

The following section presents recommendations for foundations for the proposed development taking into consideration the ground conditions encountered and the material properties.

Traditional Foundations

Traditional strip / trenchfill foundations are generally considered appropriate for the proposed development bearing within firm to stiff cohesive and medium dense to dense granular deposits encountered beneath the site, subject to consideration of the loads imposed.

An allowable design bearing pressure of 100kN/m² is recommended for trenchfill foundations (up to 1m wide), bearing uniformly in the firm cohesive deposits at a depth of 1m. An allowable design bearing pressure of 125kN/m² is recommended for trenchfill foundations (up to 1m wide), bearing uniformly in the firm to stiff cohesive deposits and/or the medium dense to dense granular deposits at a depth of 2m. These values include a factor of safety of 3.0 against general shear failure and should result in total settlements of not more than 25mm for foundations up to 1m wide, keeping differential settlements within acceptable limits. Foundations should extend through any soft cohesive / loose granular deposits.

Foundations should be placed at a minimum depth of 0.9m, based on medium VCP clays. Where plots are underlain by cohesive strata and within the influence of existing trees / hedges, foundations will require deepening in accordance with the NHBC guidelines. Foundations may also need to be stepped in the base of the foundations; any steps should be in accordance with the NHBC guidelines.

Where strip / trenchfill foundations are adopted and plots are affected by tree influence and within cohesive deposits, heave precautions to include for the provision of a 250mm void beneath beam and block floor slabs will be required. Further heave precautions include a requirement for a 25mm void on the inside face of all external foundations should foundation depths exceed 1.5m due to tree influence.

Several exploratory holes encountered unsuitable ground conditions at shallow depth, however are still deemed to be potentially suitable for traditional foundations (subject to proposed levels). The potential options at these locations are displayed in the below table:

Table 7-5 Unsuitable Ground Conditions

Exploratory Hole Ref.	Constraint	Solution/s
WS02	Soft clay @ 1m	Localised deepening of foundations to ~2m.
WS04	Loose sand @ 1m	Localised deepening of foundations to ~2m.
WS05	Loose sand @ 1m	Localised deepening of foundations to ~2m.
WS06	Loose sand @ 1m	Localised deepening of foundations to ~2m.
TP15 / WS18	Loose / unstable sands	Further plot specific investigation. Engineer supervision and plots cast on a dig and pour basis to limit trench instability issues.

Alternative foundation solutions may be required at the above locations should the unsuitable ground conditions be more widespread and / or at depths exceeding 2m.



Where any contrasting ground / localised soft spots are encountered at founding level, steel mesh reinforcement (B785 or similar) may be required in the base of foundations to span the different strata types / low strength material and counter any potential differential settlement. Should steel be required, RC35 concrete should be adopted.

Care should be taken to avoid softening of the base of the foundation excavation during construction. Where necessary, a 100mm blinding of concrete should be constructed to protect the foundation level during bad weather. The excavation should not be left open for any extended period.

Foundation widths should be designed as part of detailed design by a Structural Engineer, appropriate to the loads being imposed, however 0.60m wide foundations are likely to be appropriate for external walls and 0.75m wide for party walls and gable ends.

Foundations will need to be deepened through any made ground, it should be noted that no made ground was encountered within the site investigation.

Topsoil should be removed from beneath plot footprints.

It is recommended that foundation trenches should be inspected by an Engineer prior to pouring concrete to confirm that foundations are placed uniformly within firm to stiff cohesive clay deposits or medium dense granular deposits where appropriate. It is recommended that confirmation of the shear strength of the in-situ cohesive soils in the base of foundation excavations (using a HSV or similar) is also carried out to ensure that the allowable bearing pressure is achieved. A minimum shear strength of 50kPa should be determined before casting foundations.

It is recommended that detailed foundation design is undertaken prior to construction to confirm compliance with appropriate guidance and the most cost-effective foundation solution. A tree survey shall be required in order to facilitate foundation design.

Alternative Foundation Options

Unstable granular deposits and / or low strength cohesive strata have been encountered within the southeast of the site, within TP19, TP20, WS16, WS17 and WS20 at depths ranging from 1.00 to 5.00m. It is considered that shallow soils in these areas of the site may not be suitable for traditional foundations and may require alternative foundation solutions.

Based on the proposed site layout issued to PJS, exploratory holes TP20, WS16 and WS17 are all located within areas of the site where no plots are not proposed.

Where unstable and /or low strength strata has been encountered within the southeast of the site (TP19 and WS20), site levels are due to be raised significantly or foundations depths exceed 2.5m due to tree influence then alternative foundations (such as piled or ground improvement) may be required.

The choice of any alternative foundation solution/s will be based on a number of factors including the developer's preference along with economic, social and environmental factors. At this stage the following options are considered to be most appropriate:

Piled Foundations

At this stage, based on the illustrative site layout a significant number of plots are situated in close proximity to the site boundaries / on-site hedgerows and therefore foundation depths are likely to exceed 2.5m due to tree influence.



In addition, unstable and /or low strength strata have been encountered within the southeast of the site. It is considered likely that plots coinciding with these areas will likely require a piled foundation solution.

Any piled plots will require reinforced ground beams, which can be either pre-cast or cast in-situ depending on developer preference, and should be designed by a specialist contractor or Structural Engineer.

Where plots to be piled are within the influence of existing or removed trees heave precautions shall be required comprising compressible material on the inside face (25mm) and underside of ground-beams (100mm). The piling contractor should consider the risk of heave on the actual pile shaft or column.

An allowance should be made for a working platform to support a piling rig.

Based on the available ground information, concrete driven piles are likely to be suitable. Steel piles may be required if driving resistance is high or a reduction in ground vibration is required. Bored piles may be required if ground conditions are not conducive to driven piles or if detailed design demonstrates bored piles could be founded at shallower depths. A specialist piling contractor should be consulted for site specific pile type and design.

Further site investigation consisting of deeper boreholes may be required to determine pile depths should this foundation option be desired. It is recommended that advice is obtained from specialist piling contractors to ascertain the most economical solution for the ground conditions encountered.

Ground Improvement

Vibro ground improvement may be feasible as a foundation solution subject to a full assessment and detailed foundation design. However, given the cohesive materials and numerous mature trees and / or hedgerows are present on-site, any vibro treated foundations will require deepening in accordance with the NHBC guidelines. Based on this it is considered unlikely that vibro ground improvement will prove to be an economical foundation solution.

7.9 Floor Slab Construction

At this stage it is anticipated that both ground bearing and suspended floor slabs may be suitable for the site, subject to developer preference and further assessment of proposed ground levels / tree influence.

For plots where depths of fill exceed 600mm below the floor slab or are founded within cohesive deposits and tree influence exceeds 1.5m, ground bearing slabs will not be suitable and suspended floor slabs should be adopted.

The final specification of ground floor slabs will be subject to detailed design, taking into account existing and proposed levels and the impact of trees/vegetation.

7.10 Excavations

Excavations using conventional plant are expected to be suitable in the natural strata across the site. Mechanical breaking equipment is unlikely be required given the type of material encountered below the site and observations made during the investigation works.

Instability of trenches was noted within several excavations predominately within the southeast of the site. If possible, excavations should avoid extending into the water table where possible. Support of excavations and a suitable de-watering plan should be present during construction works.

Excavations that remain open for long periods, particularly during inclement weather are expected to be prone to instability. Where personnel entry is required for inspection, excavations should be sufficiently enlarged and an assessment of safe temporary angles should be assessed; alternatively, temporary shoring should be provided.



No excavations should be entered until a full risk assessment is completed to assess the stability requirements and safety issues.

7.11 Earthworks

In the event that any significant site re-profiling is required, it is recommended that a site-specific Earthworks Specification is produced to control the re-use and placement of materials. Additional geotechnical testing should be undertaken prior to and during the earthworks exercise in order to classify materials appropriately. The Earthworks Specification should consider the chosen foundation and floor slab design.

A Materials Management Plan (MMP) should be created for the site in the event that site-won materials are proposed to be re-used during the development, in order to ensure compliance with the current waste legislation.

7.12 Slope Stability

The previous Desk Study undertaken made the following recommendation, '*Consideration should be given to the stability of the slope down to the M69 motorway that forms part of the site's southern boundary. At this stage the risk to the slope is considered very low to low as there is at least a 2m gap between the site boundary and the crest of the approximately 2m high slope. Any works which may influence the M69 slope will probably require an Approval in Principle (AIP).*'

It is considered that the following actions may cause instability and potential failure of the slope:

- any significant re-grading of the site in close proximity to the southern boundary,
- removal of trees / vegetation from the existing slope,
- interference with drainage around the existing slope,
- surcharging of the crest of the existing slope.

During the site walkover, a visual inspection was undertaken by PJS from the crest of the slope, it should be appreciated that access to the slope and visibility of the slope from the crest was restricted by the presence of dense vegetation.

The slope forms part of a cutting which runs along the southern boundary of the site, associated with the M69 motorway; and comprises a cut-slope with the existing northbound carriageway and hard shoulder of the motorway at its base. The surface of the slope is heavily vegetated with a combination of mature and semimature trees, shrubs and ground cover.

The slope itself is not used, nor accessible, by motorway users or site users; and is separated from both the motorway and the current study site by a series of fences and barriers.

Based on historical mapping, the M69 appears to have been constructed in the 1970's and therefore the cutting slope has been in-situ for ~40 years without any apparent slope failures noted in this area.

Visible distress to the existing trees / vegetation, or other evidence of significant ground movement at the crest of the slope was not observed.



The proposed development comprises the construction of traditional low-rise residential dwellings and associated access roads. The preliminary site layout indicates that the nearest residential property / road infrastructure is ~75m to the north of the slope. A detention basin is currently proposed within the southeast field.

It is understood that there are currently no plans to make any alterations to the slope profile and that the current vegetation is to remain in-situ, albeit it is likely that Highways England will undertake maintenance works from time to time.

TP21 was excavated within the PJS investigation and was located within the footprint of the proposed basin. Ground conditions comprised firm brown sandy gravelly clay to a depth of 1.60m overlying stiff grey / brown gravelly clay to a depth of 2.60m. No instability of the trial pit sides or groundwater was encountered during the excavation.

Based on current information available and the distance to proposed residential properties it is considered that the proposed development will have a negligible impact on the slope adjacent to the southern site boundary. However, any future design must carefully plan any proposed drainage and SUDS features to ensure that any such features are suitably designed and located to avoid discharge into the slope area, either over the surface or via any granular subsurface beds (unlikely based on ground conditions in TP21). Any proposed construction works near to the crest of the slope should be carefully planned as part of detailed design and supervised to ensure that the stability of the slope is not compromised in the short-term by the use of plant and equipment.

7.13 Obstructions

No significant obstructions are anticipated based on observations made during the ground investigation works.

7.14 Drainage

The cohesive geology encountered across the majority of the site would suggest that soakaway drainage is not considered feasible; an alternative drainage solution is therefore likely to be required. The advice of a Drainage Engineer should however be sought to confirm this preliminary assessment prior to construction.

7.15 Roads & Hardstanding

Ground conditions suggest that a minimum CBR value of 2 - 5% within the natural ground should be appropriate for road design across the site.

Further in-situ CBR testing is recommended at formation level once development proposals have been established to confirm CBR values and required road construction.

7.16 Concrete Classification

The laboratory results have been assessed against the BRE Special Digest 1 2005: 3rd Edition Aggressive Chemical Environment for Concrete (ACEC) Site classification. The Site has been designated as Greenfield ground with mobile groundwater.

Water soluble sulphate concentrations in soils varied from 13 mg/l to 35 mg/l with soil pH values ranging from 8.3 to 8.9. Total sulphur concentration ranged from 0.01% to 0.06%.

Soil results indicate Design Sulphate Class DS-1 and Aggressive Chemical Environment for Concrete Class AC-1 should be used for design purposes on all shallow foundations across the site. Full chemical test results are available within Appendix C.



8. Generic Quantitative Risk Assessment

In accordance with Land Contamination Risk Management (LCRM EA, 2020), a Generic Quantitative Risk Assessment (GQRA) has been undertaken to determine the significance of the measured concentrations of contaminants identified during the ground investigation.

This involves undertaking an assessment of each potential contaminant linkage identified within the ICSM by comparing the contaminant concentrations against appropriate Generic Assessment Criteria (GAC).

GACs are screening criteria which are derived using a standard set of generic assumptions. They are designed to be broadly applicable to a wide range of site conditions and exposure scenarios. They must be appropriate and suitable for your site. The GACs used in this assessment represent “trigger values” that, if exceeded, could indicate a possibility of significant harm. However, these criteria do not represent the threshold at which there is a significant possibility of significant harm; this determination will normally require further investigation and / or Detailed Quantitative Risk Assessment (DQRA) is required and evaluation of risk to human health and controlled waters.

8.1 Human Health Risk Assessment

8.2.1 Assessment Criteria

Contaminant data has been compared to the Land Quality Management (LQM) / Chartered Institute of Environmental Health (CIEH) values published within ‘The LQM/CIEH Suitable for Use Levels (S4ULs) for Human Health Risk Assessment’ 2015. In brief, the document provides assessment criteria which have been derived in accordance with UK legislation, national as well as EA policy and using a modified version of the CLEA software and available guidance.

The S4ULs are considered appropriate for use in this assessment for organic contaminants and the Soil Organic Matter (SOM) content has been taken into consideration where appropriate.

Criteria for a limited number of contaminants have been derived by the Department for Environment, Food and Rural Affairs (DEFRA; UK government) in their document entitled SP1010: Development of Category 4 Screening Levels (C4SL) for Assessment of Land Affected by Contamination, April 2014. The National Planning Policy Framework states that ‘after development, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990’. Therefore, by inference, the C4SLs are appropriate for use in the planning context. It is generally accepted that assessment criteria for metals are not sensitive to changes in soil organic content (SOM). The C4SLs have therefore been adopted as assessment criteria in this report for the listed metals within the SP1010.

8.1.2 Soil Chemical Data in Comparison to GACs

The soil samples recovered from the site have been compared to appropriate GACs for a residential end use with plant uptake. When in comparison, none of the samples of topsoil or natural subsoils identified any exceedances of the GAC and will therefore not be considered further.

8.1.2 Asbestos

A total of 9 No. samples recovered from the topsoil on site were screened for the presence of asbestos. Although CC’s are not available for asbestos, the results indicate that no trace of asbestos was identified in any samples tested and will therefore not be considered further.



8.2 Controlled Waters Risk Assessment

The controlled waters risk assessment considers the potential impact of on-site contamination to the relevant controlled water receptors identified within the ICSM. These are summarised as follows:

- Secondary A Aquifer – Wolston Sand and Gravel
- Secondary Undifferentiated Aquifer – Oadby Member
- Secondary B Aquifer – Gunthorpe Member
- Field boundary drainage ditch.

8.2.1 Assessment Criteria

The approach adopted to assessing risks to Controlled Waters is based principally on considering the concentrations of contaminants identified within groundwater / leachate samples obtained in comparison to relevant GAC.

Several Water Quality Standards (WQS) have been applied as Generic Assessment Criteria (GAC), these include Water Framework Directive standards and thresholds (WFD), the Freshwater Environmental Quality Standards (EQS), the UK Drinking Water Quality Standards (DWQS) and WHO Guidelines for Drinking Water Quality values which have been used as initial conservative GAC to assess whether further assessment or discussion in terms of the risks to controlled waters is required.

Contaminant concentrations that exceed the applied GAC are then considered in the context of the site's environmental setting as to whether further qualitative or quantitative assessment is required.

8.2.1 Evaluation of Risk to Controlled Waters

During the investigation, no significant evidence of contamination was identified below the site and no evidence of Made Ground was identified.

Based on the above, no specific leachate testing, groundwater analysis or risk assessment has been included as part of this assessment. The risk to groundwater associated with the site is considered very low and no further risk assessment or discussion is considered to be warranted in that regard.

As a measure of good practice, any materials excavated and stockpiled on site should be positioned to take into consideration the potential for surface water / leachate run-off to impact the pond on site / surface water drains. Control measures should comprise keeping the sides of stockpiles at a low gradient to minimise surface water run-off and appropriate measures to prevent the ingress of suspended solids into surface waters.

8.3 Property and Infrastructure Risk Assessment

8.3.1 Building Materials

Risks to building materials associated with aggressive ground conditions is addressed in Section 7.15 of this report.

Soil results indicate Design Sulphate Class DS-1 and Aggressive Chemical Environment for Concrete Class AC-1 should be used for design purposes on all shallow foundations across the site.



8.3.2 Potable Water Supply Pipes

Contamination testing has not identified chemical contaminant concentrations within soils on the site in terms of a residential end use.

The investigation requirements for the selection of potable water pipe material are set out in UKWIR Report 10/WM/03/21 "Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites (UKWIR, 2010)".

This report has specific investigation requirements and as such detailed investigation of proposed utility routes was not within the scope of this investigation. However, based on current information conventional plastic water supply pipes are likely to be suitable

It is however, recommended that the contamination test results are made available to the relevant water company to allow design of any required potable water supply pipe work to be undertaken and to confirm requirements for any further assessment.

8.3.1 Ecological Risk Assessment

Soil results were compared to phytotoxic guideline values as outlined in Table 1 within BS3882:2007. No elevated contaminants were identified therefore the probability of phytotoxic contaminants affecting vegetation is considered unlikely.

The risk to ecological receptors is anticipated to be negligible given the concentrations encountered in the soils. However, the impact to ecological receptors from proposed construction activities should always be considered.



9. Ground Gas & Vapour Risk Assessment

9.1 Ground Gas Monitoring

Gas and groundwater monitoring has been carried out on 6 No. monitoring visits to date between 23rd December 2021 and 23rd March 2022 at atmospheric pressures ranging between 983mb to 1025mb, the results of which are summarised in Section 6-5.

The monitoring data is presented in Appendix E. The ground gas risk assessment and recommendations are presented below.

9.2 Ground Gas Risk Assessment Methodology

The risk to end users from ground gas has been assessed in accordance with the methodology presented in the following referenced documents:

- British Standard BS8576:2013 – Guidance on investigations for ground gas – permanent gases and Volatile Organic Compounds (VOCs).
- British Standards BS8485+A1:2019 – Code of practise for the design of protective measures for methane and carbon dioxide ground gases for new buildings.
- CIRIA C665: Assessing risks posed by hazardous ground gas to buildings, 2007.

9.3 Gas Screening Value (GSV)

Both the CIRIA Report and the British Standard require the calculation of a Gas Screening Value (GSV). This is calculated as the maximum recorded percentage gas concentrations multiplied by the maximum gas flow rate. Where concentrations or flow rates less than the limit of detection on the analyser have been recorded, the limit of detection has been used (0.1% for gas concentration, 0.1 l/hr for gas flow rates).

The main method of characterising a site is using the method proposed by Wilson and Card (1999) and can be used for all types of development except for conventional low-rise housing with a ventilated underfloor void. The method uses both gas concentrations and borehole flow rates to define a characteristic situation for a site based on the limiting borehole gas volume flow for methane and carbon dioxide.

The GSVs and corresponding characteristic situation is summarised below in Table 9-1 which has been reproduced from Table 8.5 presented within CIRIA C665 and Table 2 within BS8485.

Table 9-1 Gas Screening Value Thresholds – Modified Wilson & Card Classification

CIRIA – No Sub-floor Void		Risk Classification		Additional Factors
Characteristic Situation	GSV (CH ₄ & CO ₂)			
CS1	<0.07	Very low risk		Typically, methane <1 % and / or carbon dioxide <5 %. Otherwise consider increase to CS2.
CS2	<0.7	Low risk		Borehole air flow rate not to exceed 70l/hr. Otherwise consider increase to CS3.



CIRIA – No Sub-floor Void		Risk Classification	Additional Factors
Characteristic Situation	GSV (CH ₄ & CO ₂)		
CS3	<3.5	Moderate risk	
CS4	<15	Moderate to high risk	Quantitative risk assessment required to evaluate scope of protective measures.
CS5	<70	High risk	
CS6	>70	Very high risk	

The NHBC have also developed a characterisation system that is similar to the Wilson and Card system, but is specific to low-rise housing with a clear ventilated underfloor void. This is a risk-based approach that is designed to allow an identification of gas protection for a low-rise housing development by comparing the measured gas emission rates to generic “traffic lights” scenarios. The traffic light system also includes “typical maximum concentrations” and are provided for initial screening purposes and risk-based gas screening values (GSVs) for consideration in situations where the typical maximum concentrations are exceeded. The “typical maximum concentrations” can be exceeded in certain circumstances should the conceptual site model indicate it is safe to do so. This is where professional judgement will be required, based on a thorough understanding of the gas-regime identified at the site where monitoring in the worst temporal conditions has occurred.

The CIRIA 665 report author (Steve Wilson) since provided further clarification regarding which guidance should be adopted for residential houses that have suspended cast in-situ concrete floor slab; for the avoidance of doubt, it was confirmed that the NHBC GSVs within the CIRIA 665 guidance should be adopted. The NHBC GSVs and typical maximum concentrations are summarised below in Table 9-2 reproduced from Table 8.7 presented within CIRIA C665.

Table 9-2 Gas Screening Value Thresholds - NHBC Traffic Light System

NHBC – Sub-floor Void			Methane Typical Maximum Concentrations (% v/v)	Carbon Dioxide Typical Maximum Concentrations (% v/v)
Classification	GSV (CH ₄)	GSV (CO ₂)		
Green	<0.16	<0.78	1	5
Amber 1	<0.63	<1.56	5	10
Amber 2	<1.56	<3.13	20	30
Red	>1.56	>3.13	-	-

However, it should also be recognised that the GSV thresholds in the above tables, are guideline values and not an absolute threshold and that the guideline GSV can be exceeded in certain circumstances should the CSM indicate it

is safe to do so and should not generally be exceeded without completion of a detailed gas risk assessment taking into account site-specific conditions.

For the purpose of this assessment, gas screening values have been calculated using only the worst-case hazardous gas concentrations and flow rates from the entire gas monitoring data set obtained to date.

During monitoring, numerous boreholes have displayed flooded response zones. Gas standpipes with flooded response zones can exhibit measurements of elevated gasses or display unrepresentative peak flow rates due to a build-up of pressure caused by rising water trapping the gas within the solid section of pipe. As such, some of the flow rates recorded on the first monitoring visit are likely attributable to a build-up of pressure in flooded response zones and are not considered to present a continued source of ground gas flow at surface. The gas monitoring data obtained from boreholes which had flooded response zones on the first monitoring visit has therefore been discounted for the purpose of this assessment, as the data is not considered representative of the actual conditions.

On the remainder of the visits, flooded response zones were noted in WS07, WS08, WS10 and WS16. However, to facilitate ground gas monitoring, each of these boreholes was bailed dry and was left to stabilise for a period prior to gas monitoring as the response zones were no longer flooded. The data is therefore considered valid and has been used within the dataset.

The calculated GSVs are presented in the table below.

Table 9-3 Calculated GSV

Max. Methane (% v/v)	Max. Carbon Dioxide (% v/v)	Max. Gas Flow Rate (l/hr)	Methane GSV (l/hr)	Carbon Dioxide GSV (l/hr)	NHBC Traffic Light System	Characteristic Situation
0.3	2.6	2.5	0.0075	0.065	Green	CS1

9.4 Ground Gas Protection Recommendations

Based on the gas monitoring undertaken to date, the calculated gas screening values for the site would indicate a 'Green' classification under the NHBC Traffic Light System and CS-1 in accordance with BS8485:2015+A1:2019. Therefore at this stage, based on the available monitoring data, it is considered that gas protection measures will not be required for the site.

Based on the gas monitoring results obtained, the concentrations of ground gases are not considered to be at a level which would pose any tangible risk to the health of construction workers working in an external environment at surface level.

Working within confined spaces should however be avoided wherever possible, however if this work is unavoidable then the works should be carried out in strict accordance with the confined spaces regulations to include gas monitoring during the works.

9.5 Radon Protection Measures

Radon protection measures are not required.

9.6 Vapour Risk and Membranes

No evidence of vapours has been noted during the intrusive investigation, as such the risk associated with vapours arising from the site is considered negligible. No further assessment is considered warranted in that regard.

