



Client:

Storage World Self Storage & Workspace LLP
40 Ashton Old Rd
Manchester
M12 6LP

Consultant/Engineer:

Thomasons
3 Brewery Yard
Deva City Office Park
Trinity Way
Manchester
M3 7BB

Geotechnical Ground Investigation

Storage World Ambrose Street, Manchester

Sept 2022

Site Ref: 6101/VAJ-G

Unit 4
Sheffield Street
Heaton Norris
Stockport
Cheshire
SK4 1RU
Telephone : 0161 480 8885
e-mail : info@geoassist.co.uk

Storage World Ambrose Street, Manchester

Client:

Storage World Self Storage & Workspace LLP
40 Ashton Old Rd
Manchester
M12 6LP

Consultant:

Thomasons
3 Brewery Yard
Deva City Office Park
Trinity Way
Manchester
M3 7BB

Geotechnical Investigation

1. Introduction	4
2. Description of the Site	4
3. Geology	4
4. Intrusive Investigation	5
4.1 Exploratory Hole Programme	5
4.2 Field Sampling and Testing	5
4.3 Field Results	5
5. Laboratory Investigation	5
5.1 Geotechnical Testing	5
5.2 Test Results	6
6. Subsurface Stratigraphy	6
7. Groundwater	6
8. Concrete Floor Slab Assessment	6
8.1 Ground Bearing	6
8.2 Slab Loading	6

Appendices

- A1. Site Plan with Exploratory Hole Locations
- B1. Terminology used in Soil Descriptions
- B2. List of Abbreviations
- C1. Exploratory Hole Logs C1 to C7
- C2. Concrete Core Photographs
- D1. Unconfined Compressive Strength of Concrete Cores

Client:

Storage World Self Storage & Workspace LLP
40 Ashton Old Rd
Manchester
M12 6LP

Consultant:

Thomasons
3 Brewery Yard
Deva City Office Park
Trinity Way
Manchester
M3 7BB

Geotechnical Investigation

1. Introduction

This report is an account of a ground investigation carried out by GeoAssist Limited following the receipt of instruction to proceed issued by the Client, Storage World Self Storage & Workspace LLP dated 26th August 2022 and undertaken at the site of the existing Storage World Ambrose Street, Manchester.

The object of this investigation was to obtain information on the internal concrete floor slab and deposits immediately beneath to enable the appraisal of the adequacy of the ground bearing slab to support the method of operation of Storage World Self Storage & Workspace LLP.

Unconfined compressive strength of the concrete cores and geotechnical parameters including CBR values and assessed Modulus of Subgrade Reaction (k), of the material directly beneath the slab were to be obtained for the ground bearing slab.

The location of the area under investigation is indicated on the site plan in Appendix A along with the exploratory hole locations.

2. Description of the Site

The site is located to the northern side of Ambrose Street at the junction of Pottery Lane and is presently occupied by a large warehouse structure with associated exterior hardstanding areas. The building is subdivided into smaller commercial/light industrial and retail lettings. The site is roughly rectangular in shape and the general topography of the site is relatively level.

A railway line forms the northern boundary to the site. Commercial/industrial property is located along the eastern boundary of the site. The southern boundary to the site abuts Ambrose Street over which more commercial/industrial property is located. To the west the site abuts Pottery Lane across which more commercial /warehousing/light industrial units are located.

Where observed the condition of the concrete floor was not uniform or consistent.

3. Geology

The 1 in 10,560 scale geological map of the area SJ 89 NE published in 1976, shows the site to be located on Boulder Clay (Glacial Till) Drift deposits. The depth of the drift is not readily discernible from the plans. The

underlying solid geology is shown as being Westphalian C Undifferentiated red strata, mainly Mudstone of the Carboniferous Period.

No faults in the solid geology pass directly beneath the site, however, a fault is shown as passing 150m to the east of the site in a roughly north-south direction.

4. Intrusive Investigation

The limited shallow depth floor slab investigation was carried out in accordance with BS 5930:1999/2015 where relevant.

All fieldwork was supervised by suitably qualified GeoAssist Limited Geotechnical Engineers.

Geotechnical in situ testing, sampling and laboratory testing was carried out within the GeoAssist Laboratory.

The exploratory holes were located at positions that were accessible for the equipment used and in the time frame allotted for the investigation. The premises were being used by the current tenants which limited the location of the exploratory holes.

4.1 Exploratory Hole Programme

Exploratory holes C1 to C7 were undertaken using concrete coring followed by in situ TRL DCP probing in the made ground immediately beneath the concrete slab.

The locations of all the exploratory holes are shown on the site plan attached to this report in Appendix A.

The exploratory holes were completed on the 5th September 2022.

4.2 Field Sampling and Testing

Concrete core samples were recovered in the exploratory holes. In situ TRL DCP tests were undertaken at shallow depth in order that CBR values for the made ground deposits could be determined.

Observations of groundwater conditions were made throughout the fieldwork operations.

On completion to depth all the exploratory holes were backfilled with inert material and the concrete floor reinstated.

4.3 Field Results

Full details of the subsoil conditions in the limited depth exploratory holes are given in the exploratory hole log sheets, which form Appendix C1 to this report.

The results of interpreted CBR values are recorded on the exploratory hole logs along with assessed Modulus of Subgrade reaction (k) values.

5. Laboratory Investigation

5.1 Geotechnical Testing

The following geotechnical tests were performed in GeoAssist's laboratory on samples recovered from the exploratory holes.

Table 5.1 Geotechnical Testing

TEST	PURPOSE
Unconfined Compression Strength Test on Concrete Core	Determination of compressive strength of concrete.

5.2 Test Results

The interpreted CBR values from the TRL DCP tests along with the assessed k modulus values are given on the exploratory hole logs in Appendix C1. The results of the Concrete Core UCS tests are given in the laboratory test results summary sheets which form Appendices D1 to this report.

6. Subsurface Stratigraphy

The subsoil profile obtained from the limited depth exploratory holes consists of reinforced concrete floor slab over made ground.

Further details of the subsurface stratigraphy can be found in the exploratory hole log sheets which form Appendix C1 and the concrete test summary sheet in Appendix D1 to this report.

Table 6.0 Subsoil Profile Summary

Strata	Depth of Strata (m) below ground level	
	Top	Base
Concrete Floor Slab Reinforced with mesh in most areas and cast on a membrane in some areas	Ground Level	0.16 to 0.40
Made Ground Material type not confirmed	0.16 to 0.40	0.54 to 0.93

7. Groundwater

Seepage groundwater was not noted during the course of the fieldwork, although the use of water coolant used for the concrete coring may have impaired the recording of seepage groundwater by the drilling operatives. The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.

Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

8. Concrete Floor Slab Assessment

8.1 Ground Bearing

The results of this investigation indicate that the concrete floor slab is ground bearing across the site, and it may be reasonably assumed that this is the situation over the area of the of the building.

8.2 Slab Loading

The quality of the concrete slabs is assessed as being equivalent generally to aged C15 to C20 concrete and the presence of a mixed sub-base indicates that the construction of the ground bearing slab has been undertaken in

various sections and periods of time.

The Structural Engineer may assess the present available load capacity of the various floor slabs based on the concrete dimensions, compressive strength of the concrete and the modulus of subgrade reaction as summarised in Table 9.2 below.

Table 9.2 Summary of Concrete Slab, Subbase

Property	Number of Measurements	Range of Results
Concrete - Thickness	7	160 to 400mm
Concrete Compressive Strength - UCS	5	20 to 37 MPa
Concrete - Bulk Density	8	1.97 to 2.56 Mg/m ³
Sub-base - Thickness	7	Not proven due to limited depth of probe
Sub- base - CBR	7	4% to 16%
Sub- base - Modulus of Subgrade Reaction	7	32 to 72 MN/m ² /m



Matthew Benson MSc GMICE
Geotechnical/Environmental Engineer



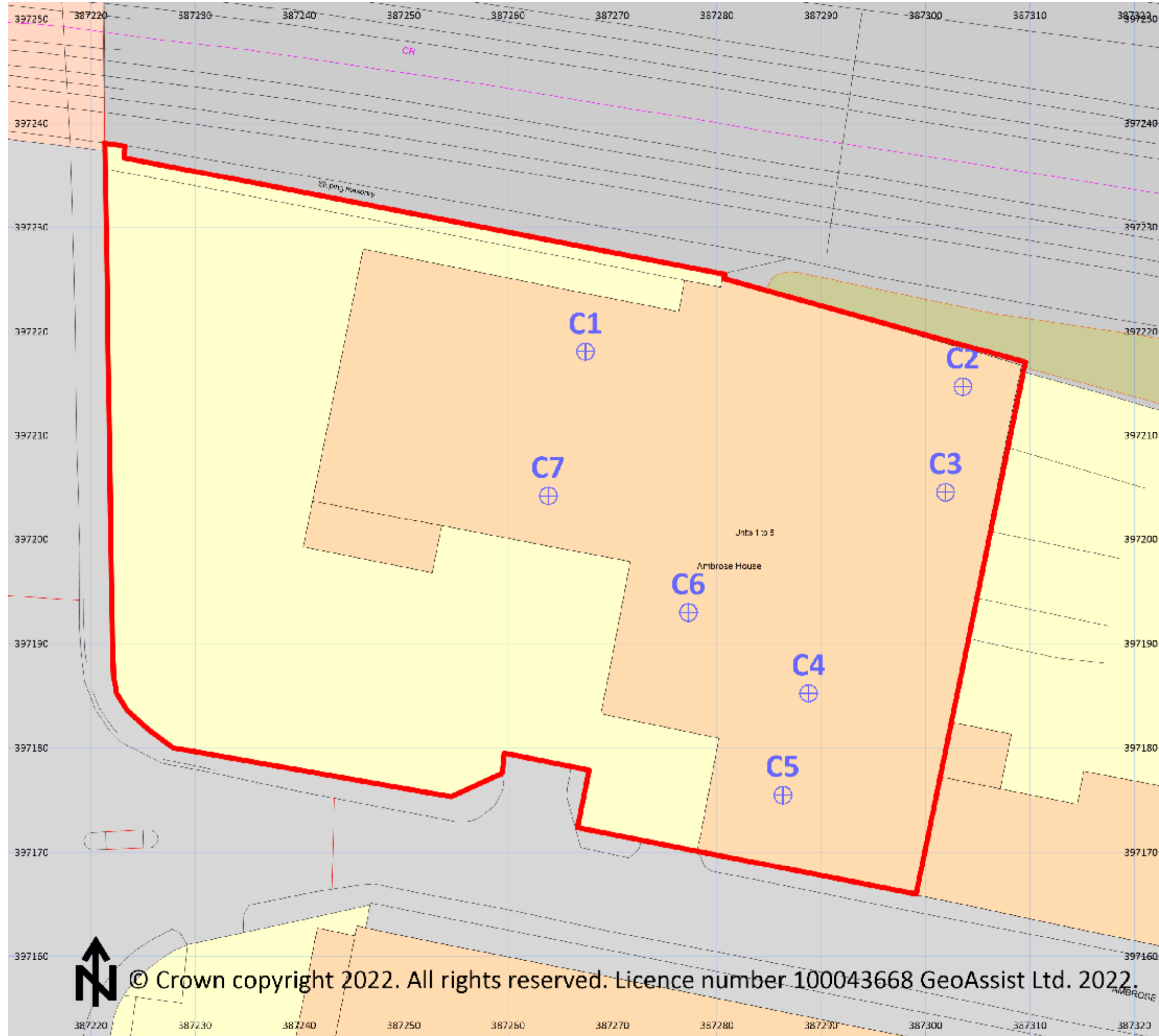
Mark Richardson MSc CEng MICE
Technical Director

Field investigations have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions are, and can be, variable and have only been tested at isolated locations across the site. Therefore, the potential exists for ground conditions to be encountered which are different to those considered in this report.

This report has been prepared by GeoAssist Limited with all reasonable professional skill, care and diligence within the terms of the contract with Storage World Self Storage & Workspace LLP. The report is confidential to Thomasons and Storage World Self Storage & Workspace LLP and GeoAssist Limited accepts no responsibility of whatever nature to third parties to whom this report may be divulged. GeoAssist Limited owns the copyright in this report. All rights are reserved, and unauthorised use is prohibited. Thomasons and Storage World Self Storage & Workspace LLP may use the report for their/her/his own purposes.

Appendix A

A1 Site Plan with Exploratory Hole Locations



A1 Site Plan

Site Name	Storage World Ambrose Street
Location	Manchester
GeoAssist Ref	6101VAJ
Client	Storage World Self Storage & Workspace LLP
	40 Ashton Old Rd Manchester M12 6LP
Planning Consultant	Thomasons
NGR (centre of site)	387260,397200
Production Date	Aug 2022
Survey Method	
Surveyor	Others
Status	Final v1.00
Base Survey	OSGB36

Do Not Scale

Appendix B

- B1 Terminology used in Soil Descriptions
- B2 List of Abbreviations

Terminology used in Soil Descriptions

The procedure and principles given in BS EN ISO 14688-1:2002 Part 1: 'Identification and description' have been adopted in producing the soil descriptions contained within this report.

The general identification and description of soils is based on a flexible system for immediate (field) use by experienced persons, covering both material and mass characteristics by visual and manual techniques.

Details are given of the individual characteristics for identifying soils and the descriptive terms in regular use, including those related to the results of tests from the field.

This part of ISO 14688 is applicable to natural soils *in situ*, similar man-made materials *in situ* and soils redeposited by man.

Particular sections of BS EN ISO 14688-1:2002 Part 1 are reproduced here in order to clarify the production of the soil descriptions contained within this report.

Identification of soil

General

Soil characteristics that generally permit soil to be identified with adequate accuracy for general (or preliminary) characterization are outlined below. A more accurate identification and classification based on grading, plasticity or organic content can be achieved by laboratory tests. In addition to identifying soils, the condition in which a soil is encountered, any particular secondary constituents, other features of a soil, such as carbonate content, particle shape, surface roughness of particles, odour, any common names and the geological classification are indicated.

The identification and description of soils generally follows the flow chart in Figure B1.1 attached.

Particle size

Particle size is the fundamental basis for designating mineral soils using particle fractions to distinguish the soil mechanical behaviour.

Table B1 shows the terms to be used for each soil fraction and its sub-fractions, together with the corresponding chosen range of particle sizes.

Basic soils are soils with uniform grading (i.e. they consist of particles of only one size range as specified in Table B1.1

Table B1.1 Particle Size Fractions

Soil fractions	Sub-fractions	Symbols	Particle sizes mm
Very coarse soil	Large boulder	LBo	> 630
	Boulder	Bo	> 200 to 630
	Cobble	Co	> 63 to 200
Coarse soil	Gravel	Gr	> 2,0 to 63
	Coarse gravel	CGr	> 20 to 63
	Medium gravel	MGr	> 6,3 to 20
	Fine gravel	FGr	> 2,0 to 6,3
	Sand	Sa	> 0,063 to 2,0
	Coarse sand	CSa	> 0,63 to 2,0
	Medium sand	MSa	> 0,2 to 0,63
	Fine sand	FSa	> 0,063 to 0,2
Fine soil	Silt	Si	> 0,002 to 0,063
	Coarse silt	CSi	> 0,02 to 0,063
	Medium silt	MSi	> 0,006 3 to 0,02
	Fine silt	FSi	> 0,002 to 0,006 3
	Clay	Cl	≤ 0,002

APPENDIX B1

Form No.: QF029AEN

Composite soils

General

Most soils are composite and consist of principal and secondary fractions. They are designated by a noun (main term) describing the principal fraction and by one or more adjectives (qualifying terms) describing the secondary fractions (e.g. sandy gravel saGr, gravelly clay grCl).

Principal fraction

The principal fraction in terms of mass determines the engineering properties of the soil and is given in capital letters for clarity.

In the case of very coarse soils, the principal fraction is the relevant very coarse soil fraction predominating in terms of mass. The very coarse fraction should be separated from the sample before identifying the fine and coarse fractions.

In the case of coarse soils, the principal fraction is the relevant coarse soil fraction predominating in terms of mass.

Composite coarse soils include a fines fraction (silt and/or clay) that does not determine the engineering properties of the soil.

In the case of fine soils, the principal fraction is the relevant fine soil type determining the engineering properties of the soil.

In the case of composite fine soils, the fines fraction determines the engineering properties of the soil. The fines fraction is regarded as determining the characteristics of a composite soil if this is of at least medium dry strength or exhibits a certain degree of plasticity.

In both cases, the soil is termed either "clay" or "silt", depending on the plasticity of the fines fraction and not on the grading.

Secondary fractions

Secondary and further fractions do not determine but will affect the engineering properties of the soil. The secondary fractions as adjectives are placed with the term describing the principal fraction in the order of their relevance.

If coarse secondary fractions are present in a particularly small or particularly large proportion, the term "slightly" or "very" shall precede the qualifying term.

If it is a fine soil, the properties of which are determined by fines fractions, a soil can be identified as "silt" or "clay" by checking for the presence of fine secondary constituents on the basis of its plasticity properties.

If, in the case of coarse soils, two soil fractions are present in approximately equal proportions, an oblique shall be placed between the relevant terms, e.g. gravel/sand (Gr/Sa) or fine/medium sand (FSa/MSa).

Plasticity

Assessment of the plasticity and identification of a soil as either silt or clay permits the soil to be qualified as being of low plasticity or high plasticity.

An exact determination can only be made by establishing the liquid limit and the plastic limit in laboratory tests.

Organic content

Small quantities of dispersed organic matter in a soil can produce a distinctive odour and colour. The intensity of odour and colour indicates the proportion of organic matter and should be described.

Determination of consistency

The consistency of a cohesive soil shall be determined in a manual test, permitting the following identification and description:

- a) a soil is to be identified as **very soft** if it exudes between the fingers when squeezed in the hand;
- b) a soil is to be identified as **soft** if it can be moulded by light finger pressure;
- c) a soil is to be identified as **firm** if it cannot be moulded by the fingers, but rolled in the hand to thick threads without breaking or crumbling;
- d) a soil is to be identified as **stiff** if it crumbles and breaks when rolled to thick threads but is still sufficiently moist to be moulded to a lump again;
- e) a soil is to be identified as **very stiff** if it has dried out and is mostly light coloured. It can no longer be moulded but crumbles under pressure. It can be indented by the thumbnail.

Preliminary descriptions are based on visual and manual identification only.

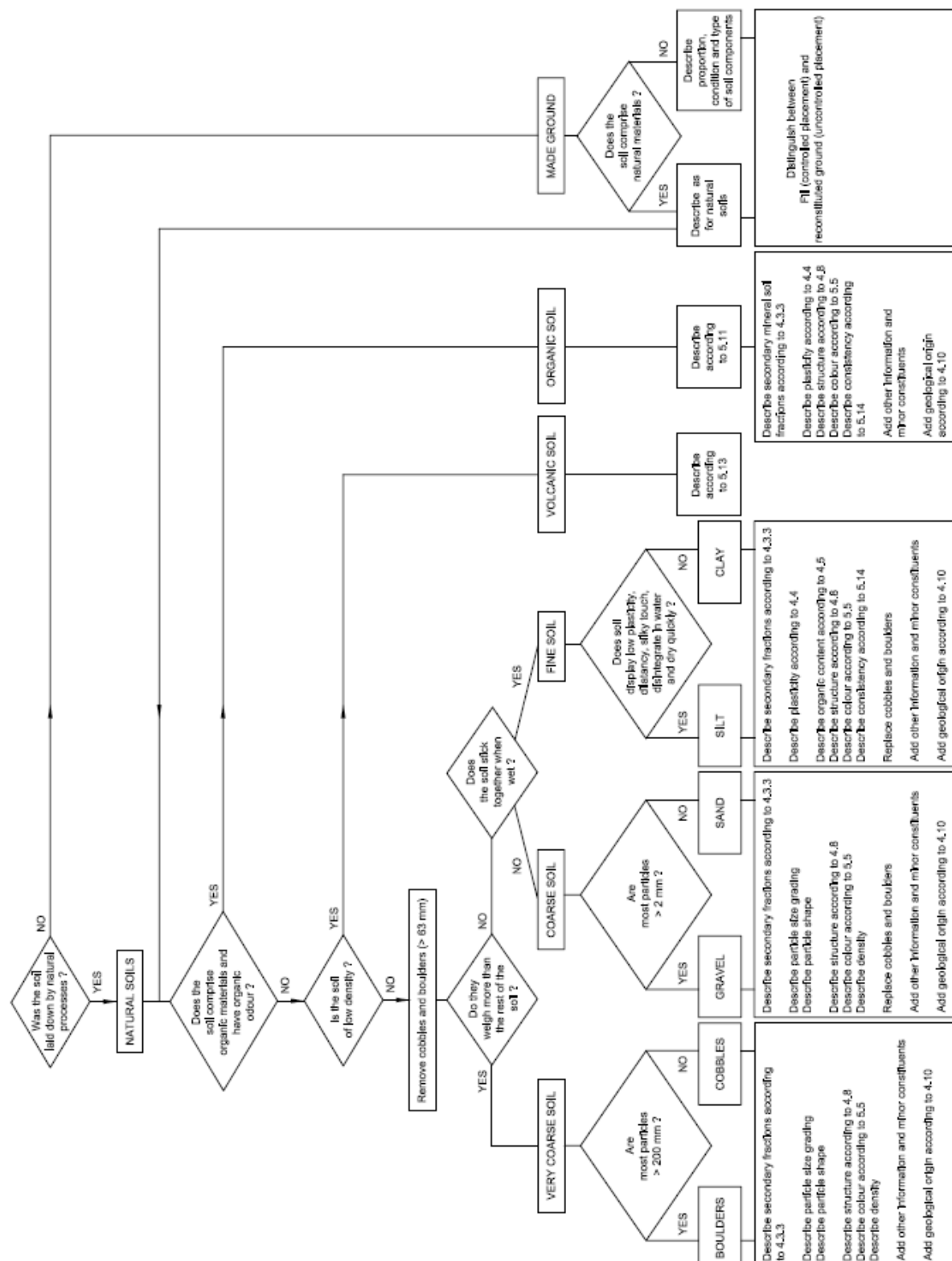


Figure B1.1 Flow chart for the identification and description of soils

APPENDIX B1

Form No.: QF029AEN

Terminology used in Soil Classification

The procedure and principles given in BS EN ISO 14688-2:2004 Part 2: 'Principles for a classification' have been adopted in producing the soil descriptions contained within this report where laboratory or in situ field tests have been carried out.

The classification principles established in this part of ISO 14688 permit soils to be grouped into classes of similar composition and geotechnical properties and, with respect to their suitability for geotechnical engineering purposes.

This part of ISO 14688 is applicable to natural soil and similar man-made material *in situ* and redeposited, but it is not a classification of soil by itself.

Particular sections of BS EN ISO 14688-1:2002 Part 2 are reproduced here in order to clarify the production of the soil descriptions contained within this report.

Principles of soil classifications

General

Soils shall be classified into soil groups on the basis of their nature, which is the composition only, irrespective of their water content or compactness, taking into account the particle size distribution (grading), plasticity, organic content, genesis as appropriate.

The most common approach to classification is to divide the soils on the basis of particle size grading and plasticity. The division is made on the relative size fractions present for the coarser soil fractions, determined on the whole sample, and on the plasticity of the finer fractions (Table B1.2).

Table B1.2 Principles of a classification of soils

Criterion	Soil group	Quantification	Denomination into groups of similiar properties			Further subdivision as appropriate by
Wet soil does not stick together	very coarse	most particles > 200 mm	Bo	xBo		Requires special consideration
				boCo	coBo	
	most particles > 63 mm	Co	saCo, grCo	sagrCo		
	coarse	most particles > 2 mm	Gr	coGr	cosaGr	Particle size (grading) Shape of grading curve Relative density Permeability
			saGr, grSa	sasiGr, grsiSa		
		most particles > 0,063 mm	Sa	siGr, clGr orSa	siSa, clSa, saclGr	(Mineralogy) (Particle shape)
Wet soils sticks together	fine	low plasticity dilatant	Si	saSi	sagrSi saclSi	Plasticity Water content Strength, sensitivity Compressibility, stiffness (Clay mineralogy)
				clSi, siCl		
		plastic non-dilatant	Cl	orSi, orCl	sagrCl	
Dark colour, low density	organic		Or	saOr, siOr	clOr	Requires special consideration
Not naturally	Made ground	deposited	Mg	xMg	Man-made material	Requires special consideration
					Relaid natural materials	As for natural soils
Key to symbols						Cases requiring special consideration should be classified according to national or project requirements
Soil	Principal	Secondary or tertiary component				
Boulders	Bo	bo				
Cobbles	Co	co				
Gravel	Gr	gr	Gr(gr) and Sa(sa) can be subdivided into fine F(f), medium M(m) or coarse C(c)			
Sand	Sa	sa				
Silt	Si	si				
Clay	Cl	cl				
Organic	Or	or				
Made ground	Mg	—				
		x	any combination of components			

APPENDIX B1

Form No.: QF029AEN

Fractions

Soil is a mixture of materials of different particle size, which are grouped into fractions as specified in BS EN ISO 14688-1.

Classification of coarse and very coarse soils is to be based on the particle size distribution alone (see Table B1.3)

Table B1.3 Classification of very coarse soils

Fraction	Percent by mass	Term
Boulders	< 5	low boulder content
	5 to 20	medium boulder content
	> 20	high boulder content
Cobbles	< 10	low cobble content
	10 to 20	medium cobble content
	> 20	high cobble content

In the case of soils composed of both fine and coarse material, classification is to be based on both plasticity and particle size distribution.

Particle size distribution (grading)

The particle sizes and their distribution in a soil are determined by mechanical analysis carried out by the separation of the coarser fractions by sieving on a series of standard sieves and the determination of the finer fractions by sedimentation.

The results of the sieving and sedimentation process are plotted as a grading curve.

Plasticity

The fine fractions of soil, represented by clay and silt and containing clay minerals (see also BS EN ISO 14688-1), both alone or in mixtures with coarser material, are usually classified according to their plasticity characteristics. This is carried out on the basis of laboratory tests to determine the liquid limit w_L and plastic limit w_P .

Organic content

When soils with organic constituents are classified according to their organic content (Table B1.4), a distinction is to be made between organic soils and mineral soils with an organic content.

Table B1.4 Classification of soils with organic constituents

Soil	Organic content (≤ 2 mm) % of dry mass
Low-organic	2 to 6
Medium-organic	6 to 20
High-organic	> 20

Classification of coarse and composite organic soils accumulated *in situ* is based on the type of organic matter and that of organic soils, on the genetic origin and the degree of decomposition of the organic constituents.

APPENDIX B1

Form No.: QF029AEN

Undrained shear strength of fine soils

The terms to be used for the designation of the undrained shear strength according to the results of laboratory and field tests are given in Table B1.5.

Table B1.5 Undrained shear strength of fine soils

Undrained shear strength of clays	Undrained shear strength c_u kPa
Extremely low	< 10
Very low	10 to 20
Low	20 to 40
Medium	40 to 75
High	75 to 150
Very high	150 to 300
Extremely high ^a	> 300
^a Materials with shear strength greater than 300 kPa may behave as weak rocks and should be described as rocks according to ISO 14689-1.	

Table B1.6 Guiding values for the division of mineral soils on a basis of the contents of various fractions

Fraction	Content of fraction in wt % of material ≤ 63 mm	Content of fraction in wt % of material ≤ 0,063 mm	Name of soil	
			Modifying term	Main term
Gravel	20 to 40 > 40		gravelly	gravel
Sand	20 to 40 > 40		sandy	sand
Silt + clay (fine soil)	5 to 15 15 to 40 > 40	< 20 ≥ 20 < 20 ≥ 20 < 10 10 to 20 20 to 40 > 40	slightly silty slightly clayey silty clayey clayey silty	 silt silt clay clay

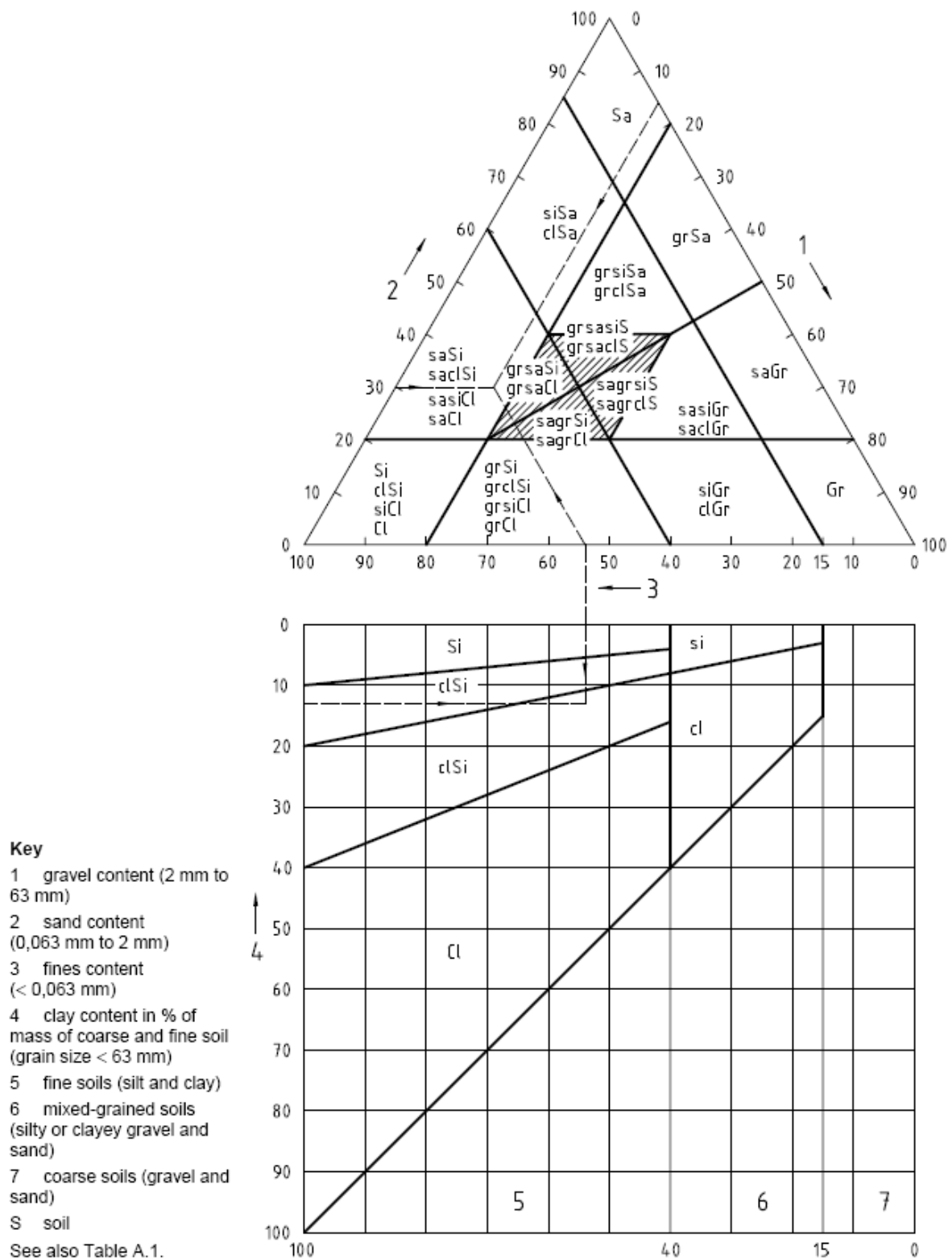


Figure B1.2 Classification of soils, based on grading alone

References

BS EN ISO 14688-1: 2002

Geotechnical investigation and testing — Identification and classification of soil — Part 1: Identification and description

BS EN ISO 14688-2: 2004

Geotechnical investigation and testing — Identification and classification of soil — Part 2: Principles for a classification

Abbreviations

Exploratory Hole log

Sample Type

AGS Code	Sample Type	AGS Code	Sample Type
B	Bulk Disturbed sample	SPT	Penetration Test – split spoon
CBR	CBR sample	U	Undisturbed sample – open drive
CPT	Penetration Test – cone	UF	Undisturbed sample failed recovery
D	Small disturbed sample	W	Water sample
PU	Piston sample	C - ES	Environmental sample

SPT and CPT – Standard Penetration Test

Blow Count (N) – If full penetration of 450mm then the total number of blows for the last 300mm is given.

If limited penetration following 150mm seating blows then the number of blows for the stated penetration is given.

If limited penetration then the total number of blows for the stated penetration is given.

The N values are actual blows recorded and uncorrected.

U - Undisturbed Sample

Blow Count – total number of blows for recovered length

Legend – As per British Standard – if blank then CAVITY/OPEN HOLE

Core Rec.:

T - Total Core Recovery as a percentage of the cored run

S – Solid Core Recovery as a percentage of the cored run

RQD – Rock Quality Designation as a percentage of the cored run

FI – Fracture index as number of fractures per metre

l_f – Fracture spacing as the average length of solid core pieces between natural fractures over core length of reasonable uniform characteristics

APPENDIX B2

Form No.: QF033AEN

Laboratory Test Summary Sheet

Tests on Soils

AGS Code	Test Name	AGS Code	Test Name
ASB	Asbestos	IDEN	In Situ Density
BDEN	Bulk Density	IGNIS	Loss on Ignition
CBR	California Bearing Ratio	IVAN	In Situ Vane
CD	Consolidated drained (single stage)	LS	Linear shrinkage
CDM	Consolidated drained (multi stage)	MCVG	Moisture Condition Value
CLSS	Atterberg Limits	NMC	Natural Moisture content
CMPG	Compaction	OMS	Organic Matter
CNMT	Contaminant and Chemical	PD	Particle density
CONG	Consolidation	PHS	pH
CU	Consolidated undrained with pwp measurement (single stage)	PTST	Laboratory permeability
CUM	Consolidated undrained with pwp measurement (multi stage)	RELD	Relative Density
DDEN	Dry Density	SHBG	Shear box
FRST	Frost Susceptibility	SLIM	Shrinkage Limit
GRAD HY	Particle Size (Hydrometer)	SULWS	Sulphate on 2:1 Water:Soil Extract
GRAD WS	Particle size (wet Sieve)	TNPC	Ten Per Cent Fines
HVP	Hand vane – peak	UU	Unconsolidated quick undrained (single stage)
ICBR	In situ CBR	UUM	Unconsolidated quick undrained (multi stage)

Tests on rocks and Aggregates

AGS Code	Test Name	AGS Code	Test Name
ACV	Aggregate crushing value	SHOR	Shore hardness
BRAZ	Tensile Strength by Brazilian method	SOUN	Aggregate Soundness Test
LOSA	Aggregate Los Angeles Abrasion	UCS	Uniaxial Compressive Strength
PLSI	Point Load Index – size corrected	WTAB	Aggregate Water Absorption

4. Reference AGS Format Edition 3

Appendix C

- C1 Exploratory Hole Logs C1 to C7
- C2 Concrete Core Photographs

GeoAssist Limited		Exploratory Hole Record Sheet					Ref: C1	
Consultant: Thomasons		Project: Storage World Ambrose Street Location: Manchester					Sheet: 1	
Client: Storage World Self Storage & Workspace LLP		Equipment: Concrete Core followed by TRL DCP probe					Ground Level: NR m.AOD Co-ordinates: Easting: 387267.4(m) Northing: 397218(m) Dates: 05/09/2022 to 05/09/2022	
Drilling Foreman: M Walton STRATUM DESCRIPTION Engineer/Geologist: M Benson		Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests Depth (m) from to		Sample Type/No	Blow Count N/(U)
0 CONCRETE		0.19						
MADE GROUND		(0.70)						
Exploratory Hole complete at 0.89m		0.89						
1								
2								
3								
4								
5								
Remarks: 05/09/2022: Concrete slab precored The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken. Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.							Logged: M Benson Date: 05/09/2022 Checked: M Richardson Date: 08/09/2022 Site Ref: 6101/VAJ Scale 1:25	

GeoAssist Limited		Exploratory Hole Record Sheet					Ref: C2	
Consultant: Thomasons		Project: Storage World Ambrose Street Location: Manchester					Sheet: 1	
Client: Storage World Self Storage & Workspace LLP		Equipment: Concrete Core followed by TRL DCP probe					Ground Level: NR m.AOD Co-ordinates: Easting: 387303.6(m) Northing: 397214.7(m) Dates: 05/09/2022 to 05/09/2022	
Drilling Foreman: M Walton STRATUM DESCRIPTION Engineer/Geologist: M Benson		Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests Depth (m) from to		Sample Type/No	Blow Count N/(U)
0 CONCRETE		0.25						
MADE GROUND		(0.68)						
		0.93						
1 Exploratory Hole complete at 0.93m								
2								
3								
4								
5								
Remarks: 05/09/2022: Concrete slab precored The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken. Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.							Logged: M Benson Date: 05/09/2022 Checked: M Richardson Date: 08/09/2022 Site Ref: 6101/VAJ Scale 1:25	

GeoAssist Limited		Exploratory Hole Record Sheet					Ref: C3	
Consultant: Thomasons		Project: Storage World Ambrose Street Location: Manchester					Sheet: 1	
Client: Storage World Self Storage & Workspace LLP		Equipment: Concrete Core followed by TRL DCP probe					Ground Level: NR m.AOD Co-ordinates: Easting: 387301.9(m) Northing: 397204.5(m) Dates: 05/09/2022 to 05/09/2022	
Drilling Foreman: M Walton STRATUM DESCRIPTION Engineer/Geologist: M Benson		Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests Depth (m) from to		Sample Type/No	Blow Count N/(U)
0 CONCRETE		0.22						
MADE GROUND		(0.48)						
Exploratory Hole complete at 0.70m		0.70						
1								
2								
3								
4								
5								
Remarks: 05/09/2022: Concrete slab precored The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken. Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.							Logged: M Benson Date: 05/09/2022 Checked: M Richardson Date: 08/09/2022 Site Ref: 6101/VAJ Scale 1:25	

GeoAssist Limited		Exploratory Hole Record Sheet					Ref: C4	
Consultant: Thomasons		Project: Storage World Ambrose Street Location: Manchester					Sheet: 1	
Client: Storage World Self Storage & Workspace LLP		Equipment: Concrete Core followed by TRL DCP probe					Ground Level: NR m.AOD Co-ordinates: Easting: 387288.8(m) Northing: 397185.2(m) Dates: 05/09/2022 to 05/09/2022	
Drilling Foreman: M Walton STRATUM DESCRIPTION Engineer/Geologist: M Benson		Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests Depth (m) from to		Sample Type/No	Blow Count N/(U)
0 CONCRETE		0.26						
MADE GROUND		(0.64)						
Exploratory Hole complete at 0.90m		0.90						
1								
2								
3								
4								
5								
Remarks: 05/09/2022: Concrete slab precored The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken. Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.							Logged: M Benson Date: 05/09/2022 Checked: M Richardson Date: 08/09/2022 Site Ref: 6101/VAJ Scale 1:25	

GeoAssist Limited		Exploratory Hole Record Sheet					Ref: C5	
Consultant: Thomasons		Project: Storage World Ambrose Street Location: Manchester					Sheet: 1	
Client: Storage World Self Storage & Workspace LLP		Equipment: Concrete Core followed by TRL DCP probe					Ground Level: NR m.AOD Co-ordinates: Easting: 387286.3(m) Northing: 397175.5(m) Dates: 05/09/2022 to 05/09/2022	
Drilling Foreman: M Walton STRATUM DESCRIPTION Engineer/Geologist: M Benson		Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests Depth (m) from to		Sample Type/No	Blow Count N/(U)
0 CONCRETE		(0.40)						
MADE GROUND		0.40						
Exploratory Hole complete at 0.54m		0.54						
1								
2								
3								
4								
5								
Remarks: 05/09/2022: Concrete slab precored The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken. Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.							Logged: M Benson Date: 05/09/2022 Checked: M Richardson Date: 08/09/2022 Site Ref: 6101/VAJ Scale 1:25	

GeoAssist Limited		Exploratory Hole Record Sheet				Ref: C6		
Consultant: Thomasons		Project: Storage World Ambrose Street Location: Manchester				Sheet: 1		
Client: Storage World Self Storage & Workspace LLP		Equipment: Concrete Core followed by TRL DCP probe				Ground Level: NR m.AOD Co-ordinates: Easting: 387277.3(m) Northing: 397193(m) Dates: 05/09/2022 to 05/09/2022		
Drilling Foreman: M Walton		STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests		Field Records
Engineer/Geologist: M Benson						Depth (m) from to	Sample Type/No	
TARMAC			0.03					
CONCRETE			0.16					
MADE GROUND								
			(0.90)					TRLDCP Test CBR at 0.50m- 4% k at 0.50m- 32 MN/m2/m from CBR
			0.93					05/09/2022: On completion of dynamic probe at 0.93m. Exploratory hole backfilled and concrete reinstated.
1 Exploratory Hole complete at 0.93m								
2								
3								
4								
5								
Remarks: 05/09/2022: Concrete slab precored						Logged: M Benson Date: 05/09/2022 Checked: M Richardson Date: 08/09/2022 Site Ref: 6101/VAJ Scale 1:25		
The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken. Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.								

GeoAssist Limited		Exploratory Hole Record Sheet					Ref: C7	
Consultant: Thomasons		Project: Storage World Ambrose Street Location: Manchester					Sheet: 1	
Client: Storage World Self Storage & Workspace LLP		Equipment: Concrete Core followed by TRL DCP probe					Ground Level: NR m.AOD Co-ordinates: Easting: 387263.8(m) Northing: 397204.2(m) Dates: 05/09/2022 to 05/09/2022	
Drilling Foreman: M Walton		STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests		Field Records
Engineer/Geologist: M Benson						Depth (m) from to	Sample Type/No	
0 CONCRETE			0.19					TRLDGP Test CBR at 0.50m- 6% k at 0.50m- 41 MN/m2/m from CBR 05/09/2022: On completion of dynamic probe at 0.89m. Exploratory hole backfilled and concrete reinstated.
MADE GROUND								
1 Exploratory Hole complete at 0.89m			0.89					
2								
3								
4								
5								
Remarks: 05/09/2022: Concrete slab precored The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken. Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.							Logged: M Benson Date: 05/09/2022 Checked: M Richardson Date: 08/09/2022 Site Ref: 6101/VAJ Scale 1:25	

			
			
C1	C2	C3	C4
C5	C6	C7	

Appendix D

D1 Unconfined Compressive Strength of Concrete Cores

GEO ASSIST LIMITED LABORATORY U.C.S. TEST SUMMARY SHEET	Project: Storage World Ambrose Street Location: Manchester Client: Storage World Self Storage & Workspace LLP Consultant: Thomasons	Site Ref: VAJ Site No : 6101
--	--	---

Hole Ref	Sample Ref	Description before test preparation	Length (mm)	Diameter (mm)	Load (kN)	Bulk Density (Mg/m3)	U.C.S (Mpa)	corrected U.C.S (Mpa)
C1	C1	CONCRETE - nominal 6mm mesh at 70mm and 110mm cover, membrane at base	Unsuitable for UCS test due to break in concrete Bulk density only					
C1	C1	CONCRETE - nominal 6mm mesh at 70mm	75	119	-	2.38		
C2	C2	CONCRETE - nominal 6mm mesh at 225mm cover	133	119	240	2.29	22	20
C3	C3	CONCRETE - nominal 6mm mesh at 200mm cover	133	119	279	2.31	25	23
C4	C4	CONCRETE - nominal 6mm mesh at 270mm cover	131	119	278	2.31	25	23
C5	C5	CONCRETE - mainly brick rubble aggregate with cavities	Unsuitable for UCS test due to cavities and breaks Bulk density only					
C5	C5	CONCRETE - mainly brick rubble aggregate TOP	83	119	-	1.97		
C5	C5	CONCRETE - mainly brick rubble aggregate BASE	100	119	-	1.98		
C6	C6	Tarmac (20mm) over CONCRETE - no gravel aggregate and appears to be ground rock (grano) aggregate - no reinforcement	132	119	455	2.56	41	37
C7	C6	CONCRETE - no reinforcement - membrane at base	135	119	279	2.38	25	23

GeoAssisdst Limited

Site Reference 6101 VAJ