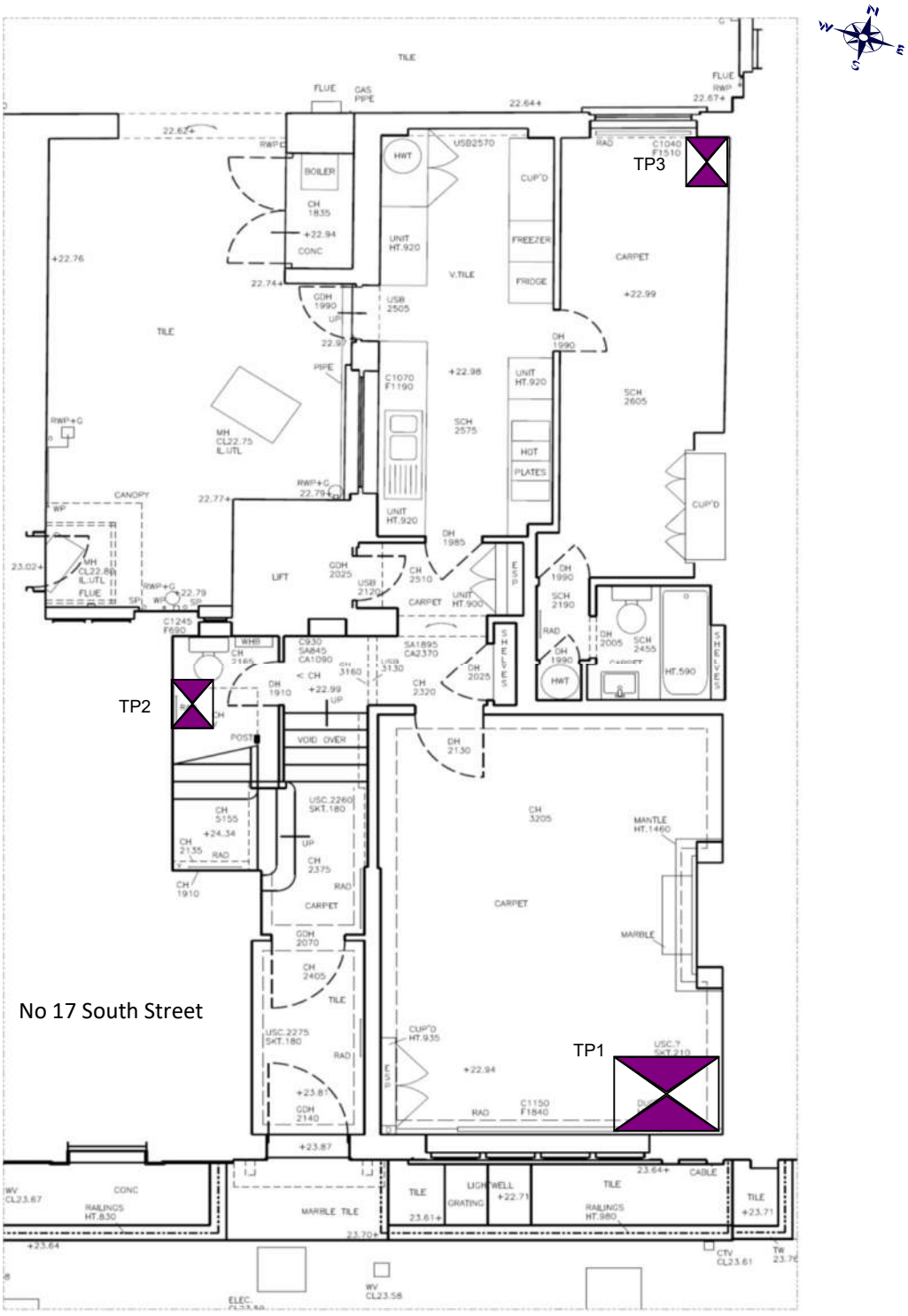
GEA	Geotechnical & Environmental Associates www.gea-ltd.co.uk	**Site Plan**

Site	19 South Street, London, W1K 2XB	**Job Number** J20230
Client	Sam Farmar	**Sheet** 1 / 1
Engineer	Soild Geometry	



Approximate Scale in metres

GEA Geotechnical & Environmental Associates Widbury Barn | Widbury Hill | Ware | SG12 7QE	Site 19 South Street, London, W1K 2XB	Trial Pit Number **TP1**

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Hand excavation with temporary shoring	1400 mm by 1200 mm by 4200 mm	22.94	Sam Farmar	J20230
	Location	**Dates** 04/11/2020- 13/11/2020	**Project Contractor** O'Sullivan Civil Engineering	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				22.92	0.02			
				22.87	(0.20)	Parquet Floor		
				22.67	0.27	Concrete (screed)		
						Concrete		
0.50	D1				(1.33)	Made Ground (brown silty clayey sand with gravel and variable amounts of brick and concrete fragments)		
1.50	D2			21.34	1.60	Brown clayey very sandy GRAVEL; gravel is fine to coarse and sub-angular to sub-rounded		
					(1.50)			
				19.84	3.10	Firm brownish grey silty CLAY with occasional gravel		
3.25	D3				(0.50)			
3.50	D4			19.34	3.60	Brown slightly clayey very sandy GRAVEL; gravel is fine to coarse and sub-angular to sub-rounded		
					(0.60)			▼1
			Moderate(1) at 4.20m, rose to 4.00m in 20 mins.	18.74	4.20	Complete at 4.20m		▽1

Plan

Remarks

Sides of trial pit supported by shoring
Main excavation stopped at 4.2 m due to presence of groundwater; hand-probing conducted in one corner of pit to confirm presence of London Clay beneath the site.
Foundation details logged by engineer from Solid Geomerty; refer to seprate sheets for details

Scale (approx)	Logged By	Figure No.
1:50	MP	J20230.TP1

SolidGeometry
STRUCTURAL ENGINEERS

Made by | Chd | Sheet no

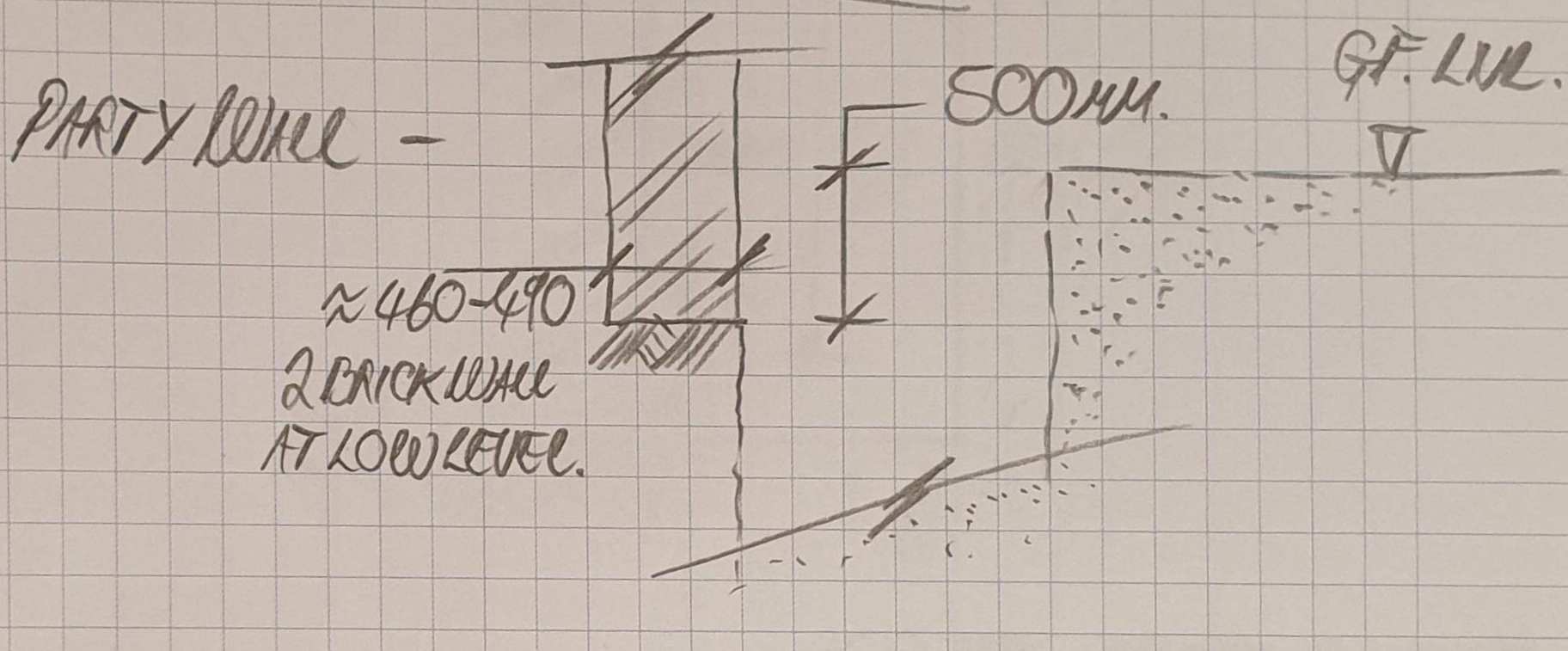
Sheet Title: TRIAL PITS - SHEET 1.

Project | Job no | Date | Rev

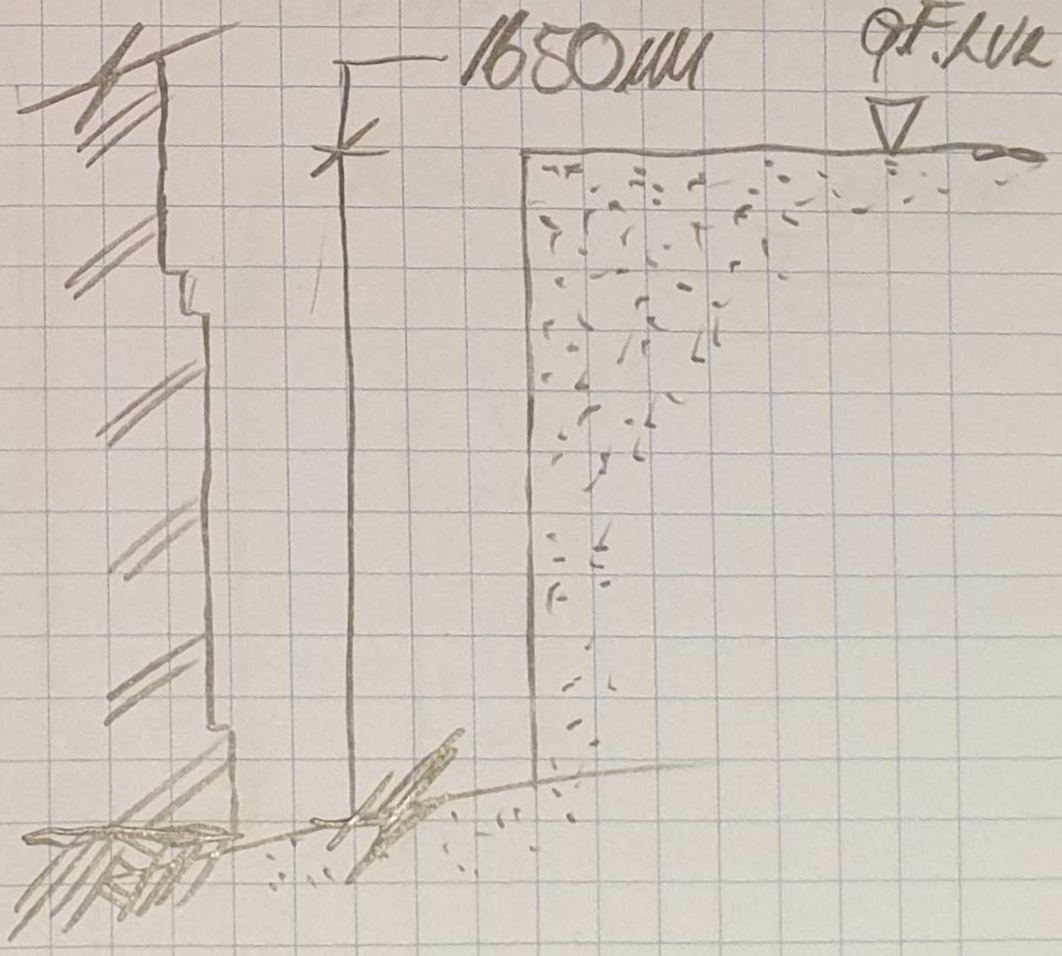
19 SOUTH STREET - TRIAL PIT INFO.

① LARGE SHAFT IN FRONT S.E. CORNER.

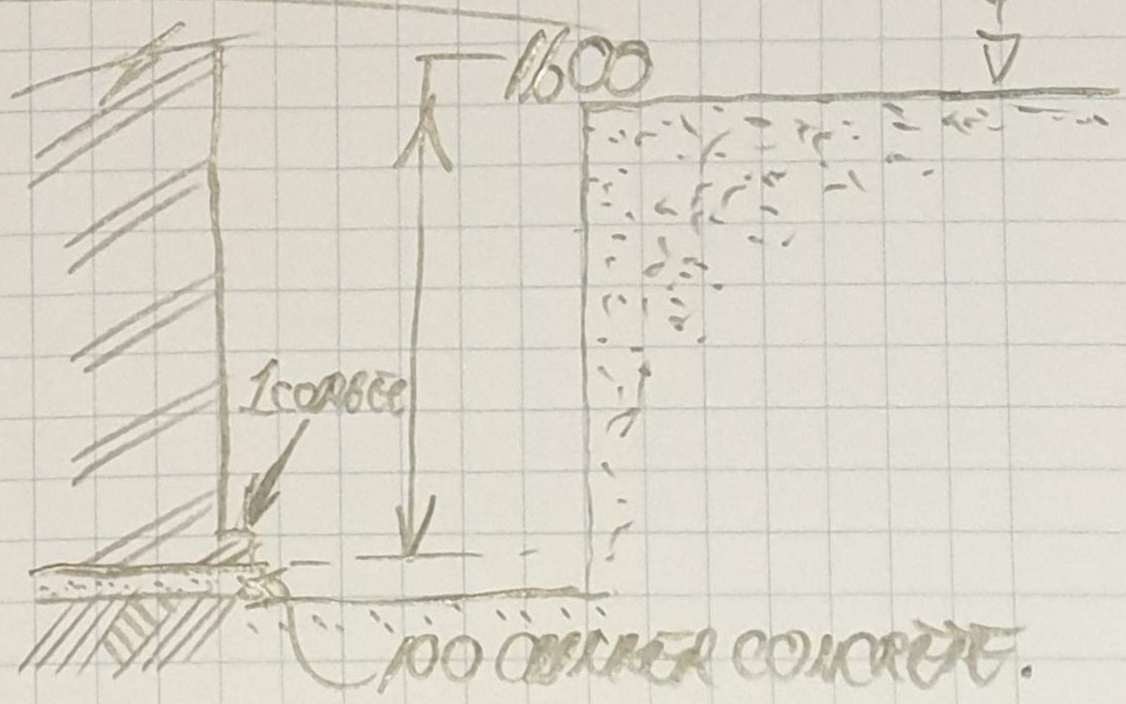
PARTY WALL -



FRONT WALL -



② PIT IN TOILET ON WEST PARTY WALL.



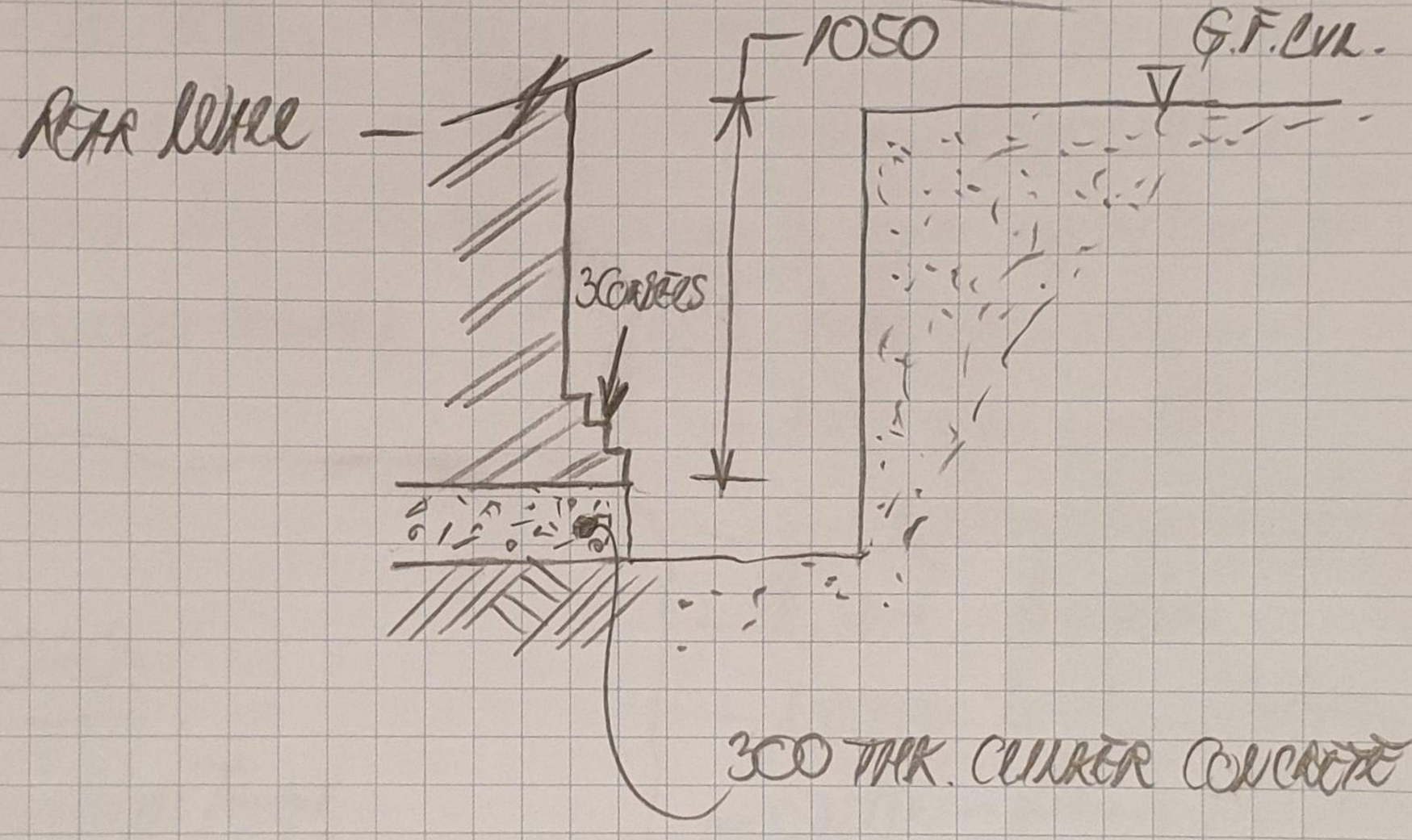
SolidGeometry
STRUCTURAL ENGINEERS

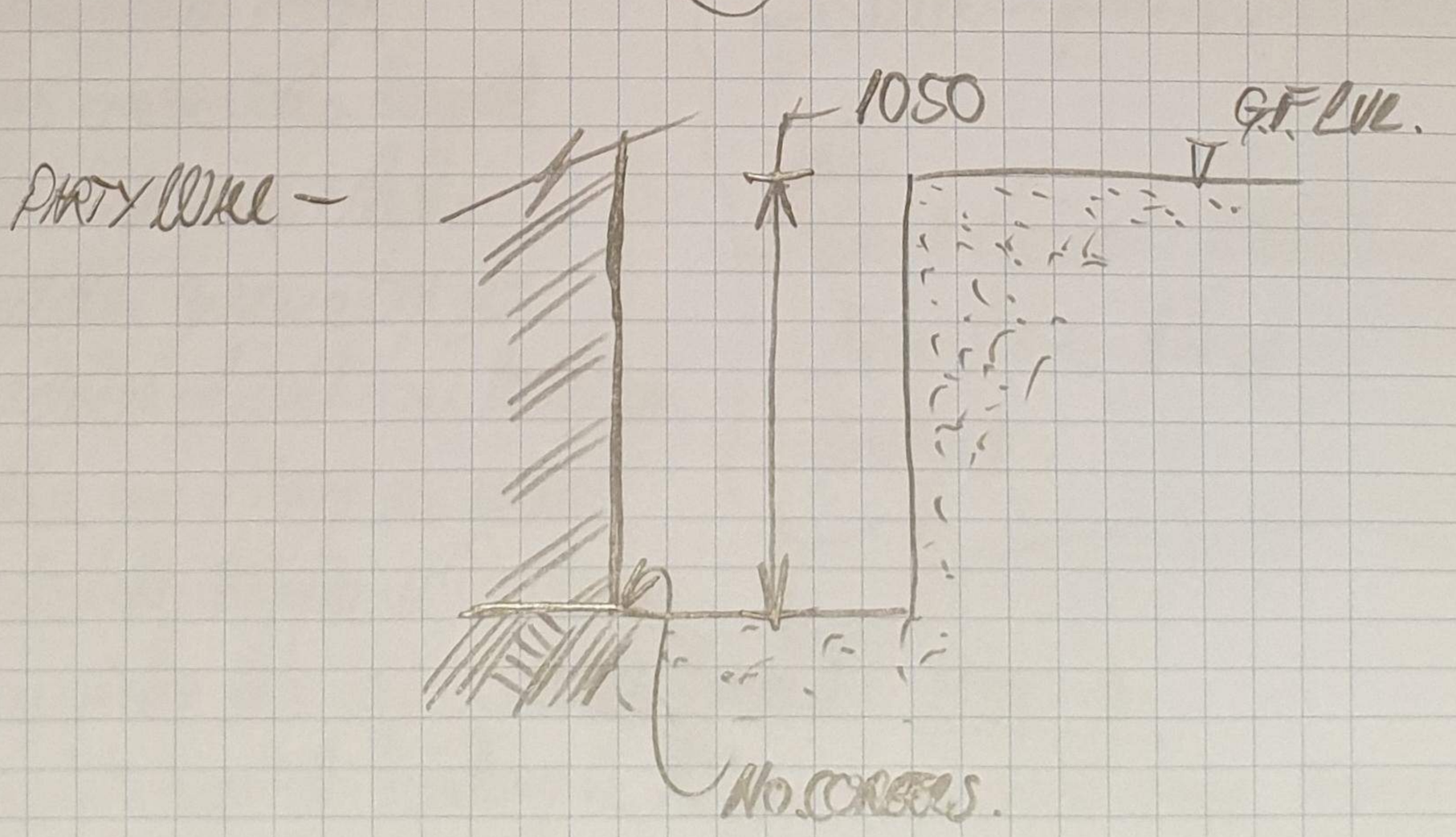
Made by | Chd | Sheet no.

Sheet Title: TRIAL PITS – SHEET 2.

Project | Job no. | Date | Rev.

(3) PIT IN REAR N.E. CORNER OF G.F.





Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
29070	19 South Street	Samples received	12/11/2020
		Schedule received	16/11/2020
Project No.	Client	Project started	16/11/2020
J20230	GEA	Testing Started	20/11/2020

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP1	3	3.25	-	D	Greyish brown silty CLAY with rare fine gravel	32	99	68	31	37	

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

Tel: 01923 711 288
Email: James@k4soils.com

Checked and Approved

Initials **J.P**

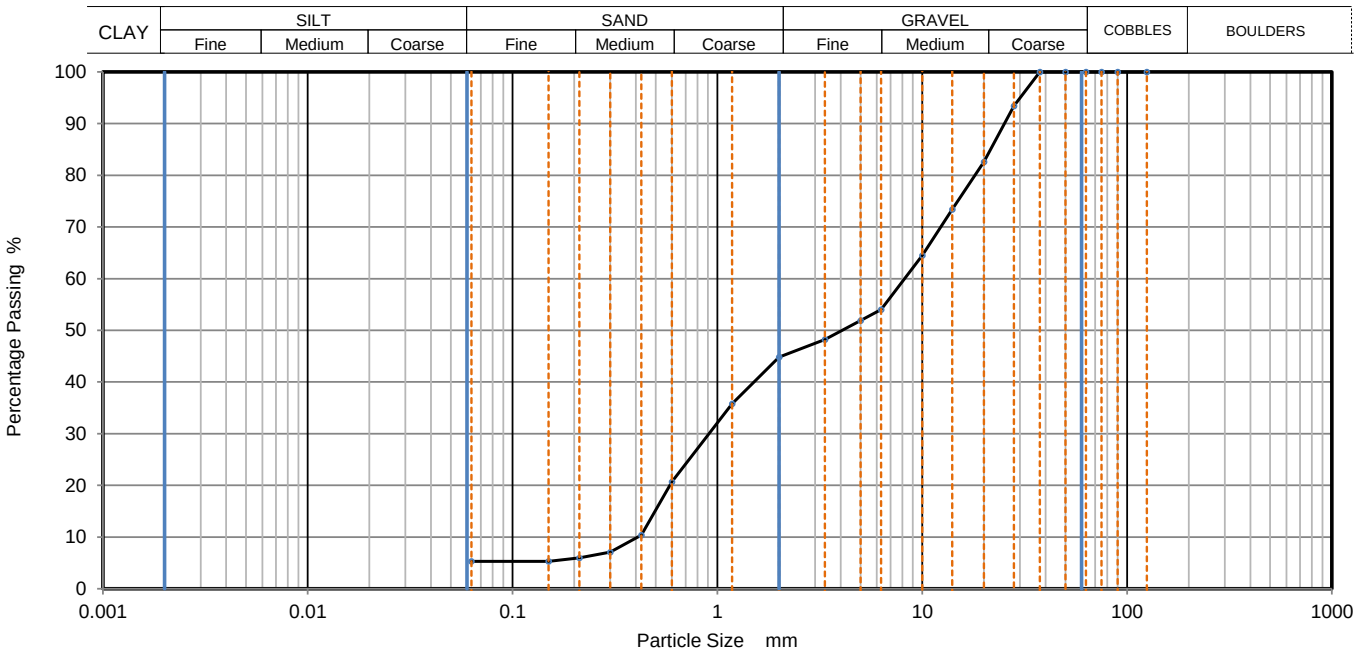
Date: 23/11/2020

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

PARTICLE SIZE DISTRIBUTION

Site Name	19 South Street			Job Ref	29070
				Borehole/Pit No.	TP1
Project No.	J20230	Client	GEA	Sample No.	2
				Depth Top	1.50 m
Soil Description	Brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	- m
				Sample Type	D
				Samples received	12/11/2020
				Schedules received	16/11/2020
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	16/11/2020
				Date tested	20/11/2020



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	83		
14	73		
10	65		
6.3	54		
5	52		
3.35	48		
2	45		
1.18	36		
0.6	21		
0.425	10		
0.3	7		
0.212	6		
0.15	5		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	55.2
Sand	39.5
Fines <0.063mm	5.3

Grading Analysis		
D100	mm	
D60	mm	8.2
D30	mm	0.909
D10	mm	0.408
Uniformity Coefficient		20
Curvature Coefficient		0.25

Remarks

Preparation and testing in accordance with BS1377 unless noted below

K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU

Email: james@k4soils.com

Tel: 01923 711288

Checked and Approved

Initials: **J.P**

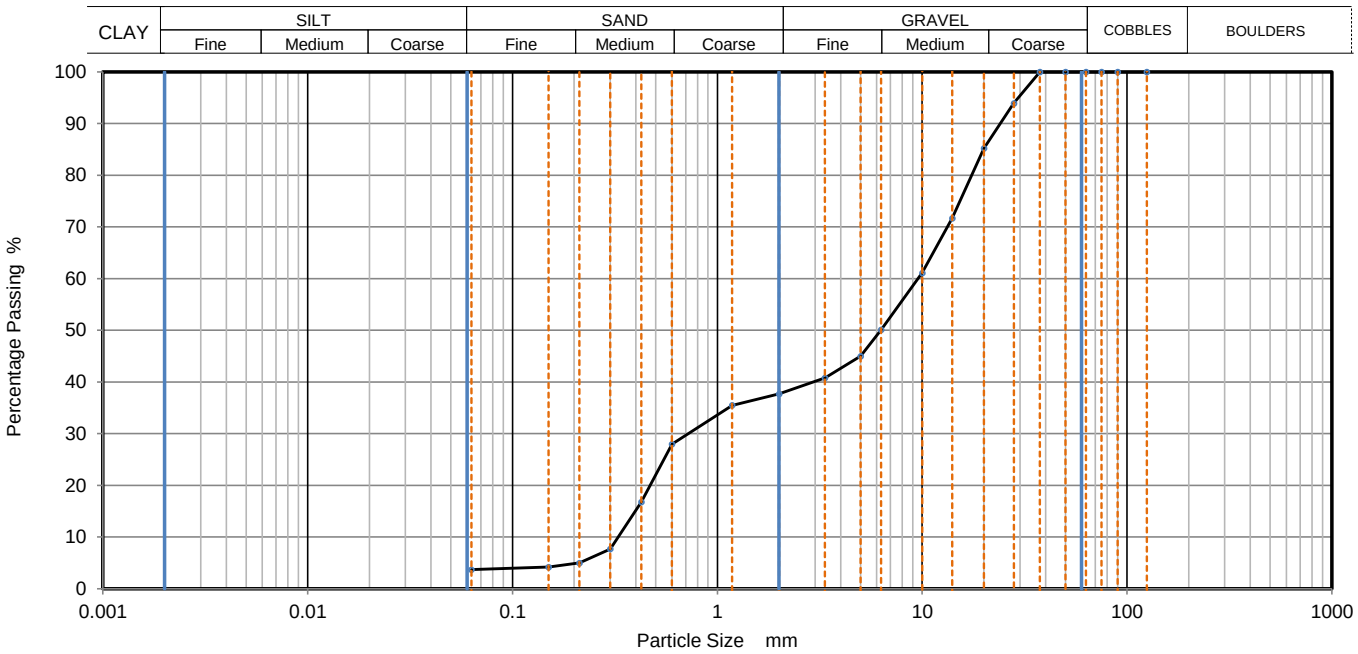
Date: 23/11/2020

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

PARTICLE SIZE DISTRIBUTION

Site Name	19 South Street			Job Ref	29070
				Borehole/Pit No.	TP1
Project No.	J20230	Client	GEA	Sample No.	4
				Depth Top	3.50 m
Soil Description	Brown slightly clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	- m
				Sample Type	D
				Samples received	12/11/2020
				Schedules received	16/11/2020
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	16/11/2020
				Date tested	20/11/2020



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	85		
14	72		
10	61		
6.3	50		
5	45		
3.35	41		
2	38		
1.18	36		
0.6	28		
0.425	17		
0.3	8		
0.212	5		
0.15	4		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	62.3
Sand	34.0
Fines <0.063mm	3.7

Grading Analysis		
D100	mm	
D60	mm	9.54
D30	mm	0.718
D10	mm	0.327
Uniformity Coefficient		29
Curvature Coefficient		0.17

Remarks

Preparation and testing in accordance with BS1377 unless noted below

K4 Soils Laboratory

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Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 23/11/2020

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

Sulphate Content (Gravimetric Method) for 2:1 Soil: Water Extract and pH Value - Summary of Results
Tested in accordance with BS1377 : Part 3 : 2018, Clause 7.6 & Clause 12

Job No.	Project Name	Programme	
29070	19 South Street	Samples received	12/11/2020
		Schedule received	16/11/2020
Project No.	Client	Project started	16/11/2020
J20230	GEA	Testing Started	19/11/2020

Hole No.	Sample				Soil description	Dry Mass passing 2mm	SO4 Content	pH	Remarks
	Ref	Top m	Base m	Type		%	mg/l		
TP1	3	3.25	-	D	Greyish brown silty CLAY with rare fine gravel	99	440	7.57	

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU
Tel: 01923 711 288
Email: James@k4soils.com

Checked and Approved
Initials J.P
Date: 23/11/2020

2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R29

Matthew Penfold
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Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 20-41891

Project / Site name:	19 South Street	**Samples received on:**	17/11/2020
Your job number:	J20230	**Samples instructed on/ Analysis started on:**	17/11/2020
Your order number:		**Analysis completed by:**	24/11/2020
Report Issue Number:	1	**Report issued on:**	24/11/2020
Samples Analysed:	2 soil samples		

Signed:

Rachel Bradley
Deputy Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-41891
Project / Site name: 19 South Street

Lab Sample Number				1687126	1687127
Sample Reference				TP1	TP2
Sample Number				None Supplied	None Supplied
Depth (m)				0.50	0.40
Date Sampled				11/11/2020	11/11/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	17
Total mass of sample received	kg	0.001	NONE	0.8	0.8
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
General Inorganics					
pH - Automated	pH Units	N/A	MCERTS	9.6	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	5400	3600
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	1.6	0.67
Sulphide	mg/kg	1	MCERTS	< 1.0	23
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	120	72
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.9	2
Total Phenols					
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	0.86	0.36
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.78	0.48
Fluorene	mg/kg	0.05	MCERTS	0.41	0.39
Phenanthrene	mg/kg	0.05	MCERTS	6.6	4.3
Anthracene	mg/kg	0.05	MCERTS	1.3	0.97
Fluoranthene	mg/kg	0.05	MCERTS	5.4	5.2
Pyrene	mg/kg	0.05	MCERTS	4.6	4.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.2	2.1
Chrysene	mg/kg	0.05	MCERTS	1.8	1.8
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.9	1.6
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.77	1.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.6	1.6
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.8	0.83
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.99	0.86
Total PAH					
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	30	25.9

Analytical Report Number: 20-41891
Project / Site name: 19 South Street

Lab Sample Number				1687126	1687127
Sample Reference				TP1	TP2
Sample Number				None Supplied	None Supplied
Depth (m)				0.50	0.40
Date Sampled				11/11/2020	11/11/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	14
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	13
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	290	490
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.8	1.8
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	50	40
Petroleum Hydrocarbons					
TPH C10 - C40	mg/kg	10	MCERTS	35	94
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	4.2	8.2
TPH (C16 - C21)	mg/kg	1	MCERTS	17	22
TPH (C21 - C35)	mg/kg	1	MCERTS	13	55

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 20-41891
Project / Site name: 19 South Street

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1687126	TP1	None Supplied	0.5	Brown loam and sand with gravel and vegetation.
1687127	TP2	None Supplied	0.4	Brown loam and sand with gravel and vegetation.

Analytical Report Number : 20-41891
Project / Site name: 19 South Street

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS

Analytical Report Number : 20-41891
Project / Site name: 19 South Street

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

GEA
Widbury Barn
Widbury Hill
Ware
SG12 7QE

Generic Risk-Based Soil Screening Values

Site	19 South Street, London, W1K 2XB	**Job Number** J20163A
Client	Sam Farmar	**Sheet** 1 / 2
Engineer	Soild Geometry	

Proposed End Use Residential without plant uptake

Soil Organic Matter content % 2.5

Contaminant	Screening Value mg/kg	Data Source
Metals		
Arsenic	40	C4SL
Cadmium	149	C4SL
Chromium (III)	910	S4UL
Chromium (VI)	21	C4SL
Copper	7,100	S4UL
Lead	310	C4SL
Elemental Mercury	1.2	S4UL
Inorganic Mercury	56	S4UL
Nickel	180	S4UL
Selenium	595	SGV
Zinc	40,000	S4UL
Anions		
Soluble Sulphate	500 mg/l	Structures
Sulphide	50	Structures
Chloride	400	Structures
Others		
Organic Carbon (%)	6	Methanogenic potential
Total Cyanide	140	WRAS
Total Mono Phenols	420	SGV
PAH		
Naphthalene	5.60	S4UL
Acenaphthylene	4,600	S4UL
Acenaphthene	4,700	S4UL
Fluorene	3,800	S4UL
Phenanthrene	1,500	S4UL
Anthracene	35,000	S4UL
Fluoranthene	1,600	S4UL
Pyrene	3,800	S4UL
Benzo(a)anthracene	14.0	S4UL
Chrysene	31	S4UL
Benzo(b)fluoranthene	4.0	S4UL
Benzo(k)fluoranthene	110.0	S4UL
Benzo(a)pyrene	4.70	C4SL
Indeno(1 2 3 cd)pyrene	46.0	S4UL
Dibenz(a h)anthracene	0.32	S4UL
Benzo (g h i)perylene	360	S4UL
Total PAH Screen	**67.1**	B(a)P / 0.15

Contaminant	Screening Value mg/kg	Data Source
Hydrocarbons		
Banded TPH (8-10)	169	Calc1
Banded TPH (10-12)	908	Calc1
Banded TPH (12-16)	3538	Calc1
Banded TPH (16-21)	2923	Calc1
Banded TPH (21-35)	2923	Calc1
Benzene	1.4	C4SL
Toluene	320	SGV
Ethyl Benzene	180	SGV
Xylene	120	SGV
Aliphatic C5-C6	78	S4UL
Aliphatic C6-C8	230	S4UL
Aliphatic C8-C10	65	S4UL
Aliphatic C10-C12	330	S4UL
Aliphatic C12-C16	2400	S4UL
Aliphatic C16-C35	92,000	S4UL
Aromatic C6-C7	See Benzene	S4UL
Aromatic C7-C8	See Toluene	S4UL
Aromatic C8-C10	110	S4UL
Aromatic C10-C12	590	S4UL
Aromatic C12-C16	2300	S4UL
Aromatic C16-C21	1900	S4UL
Aromatic C21-C35	1900	S4UL
PRO (C_5 –C_{10})	804	Calc2
DRO (C_{12} –C_{28})	98,600	Calc2
Lube Oil (C_{28} –C_{44})	93,900	Calc2
TPH	**500**	Trigger to consider speciated testing
Chlorinated Solvents		
1,1,1 trichloroethane (TCA)	18	S4UL
tetrachloroethane (PCA)	3.5	S4UL
tetrachloroethene (PCE)	0.4	S4UL
trichloroethene (TCE)	0.036	S4UL
1,2-dichloroethane (DCA)	0.013	S4UL
vinyl chloride (Chloroethene)	0.001	S4UL
tetrachloromethane (Carbon tetra	0.056	S4UL
trichloromethane (Chloroform)	2.1	S4UL

Notes

Concentrations measured below these screening values may be considered to represent 'uncontaminated conditions' which pose a 'LOW' risk to human health. Concentrations measured in excess of these values indicate a potential risk which require further, site specific risk assessment.

C4SL - Defra Category 4 Screening value based on Low Level of Toxicological Risk

SGV - Soil Guideline Value, derived from the CLEA model and published by Environment Agency 2009 - where not superseded by C4SL

S4UL - LQM/CIEH Suitable for use Level (2015) based on 'minimal' level of risk

Calc1 - sum of thresholds for Ali & Aro fractions - assuming a 35% Aro:65% Ali ratio as is commonly encountered in the soil

Calc2 - sum of nearest available carbon range specified including BTEX for PRO fraction

Total PAH based on B(a)P / 0.15 - GEA experience indicates that Benzo(a) pyrene rarely exceeds 15% of the total PAH concentration

Geotechnical & Environmental Associates
Widbury Barn
Widbury Hill
Ware
SG12 7QE

Generic Risk-Based Soil Screening Values

Site	19 South Street, London, W1K 2XB
Client	Sam Farmar
Engineer	Soild Geometry

Job Number J20163A

Sheet 2 / 2

Proposed End Use **Residential without plant uptake**

The key generic assumptions for this end use are as follows;

- ❑ that groundwater will not be a critical risk receptor;
- ❑ that the critical receptor for human health will be a young female aged 0 to 6 years old;
- ❑ that the exposure duration will be six years;
- ❑ that the building type equates to a terraced house.
- ❑ that the critical exposure pathways will be direct soil and indoor dust ingestion, skin contact with soils and dust, and inhalation of dust and vapours;

Where contaminant concentrations are measured at concentrations below the generic screening value it is considered that they pose an acceptable level of risk and thus further consideration of these contaminant concentrations is not required. However, where concentrations are measured in excess of the generic screening value there is considered to be a potential that they could pose an unacceptable risk and thus further action will be required which could include:

- ❑ additional testing to zone the extent of the contaminated material and thus reduce the uncertainty with regard to its potential risk;
- ❑ site specific risk assessment to refine the assessment criteria and allow an assessment to be made as to whether the concentration present would pose an unacceptable risk at this site; or
- ❑ soil remediation or risk management to mitigate the risk posed by the contaminant to a degree that it poses an acceptable risk.

Oasys

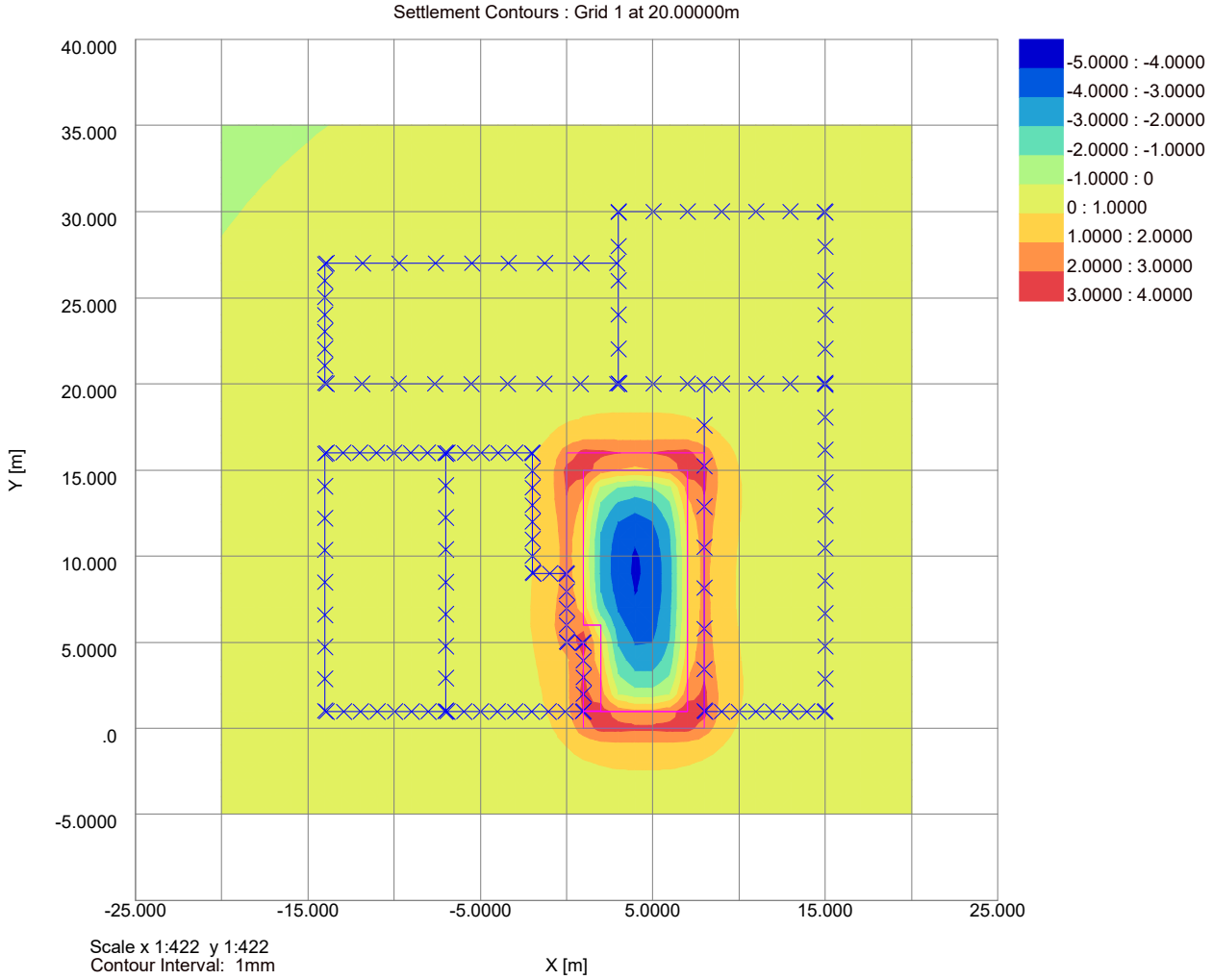
GEOTECHNICAL AND ENVIRONMENTALASSOCIATES LTD

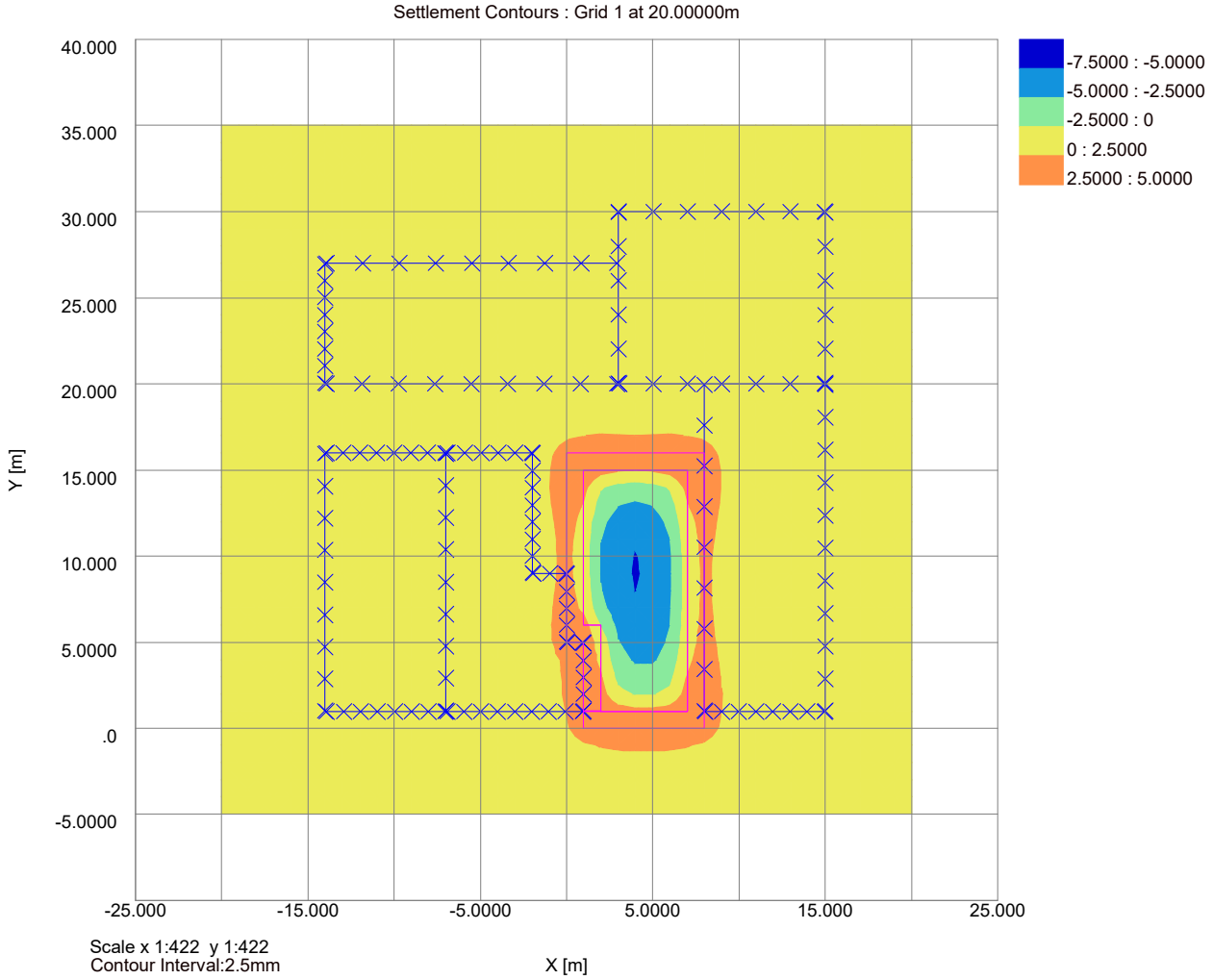
19 South Street, London, W1K
Ground Movement Assessment
Short-term Movement from underpinning and basement excavation

Job No.	Sheet No.	Rev.
J20230		

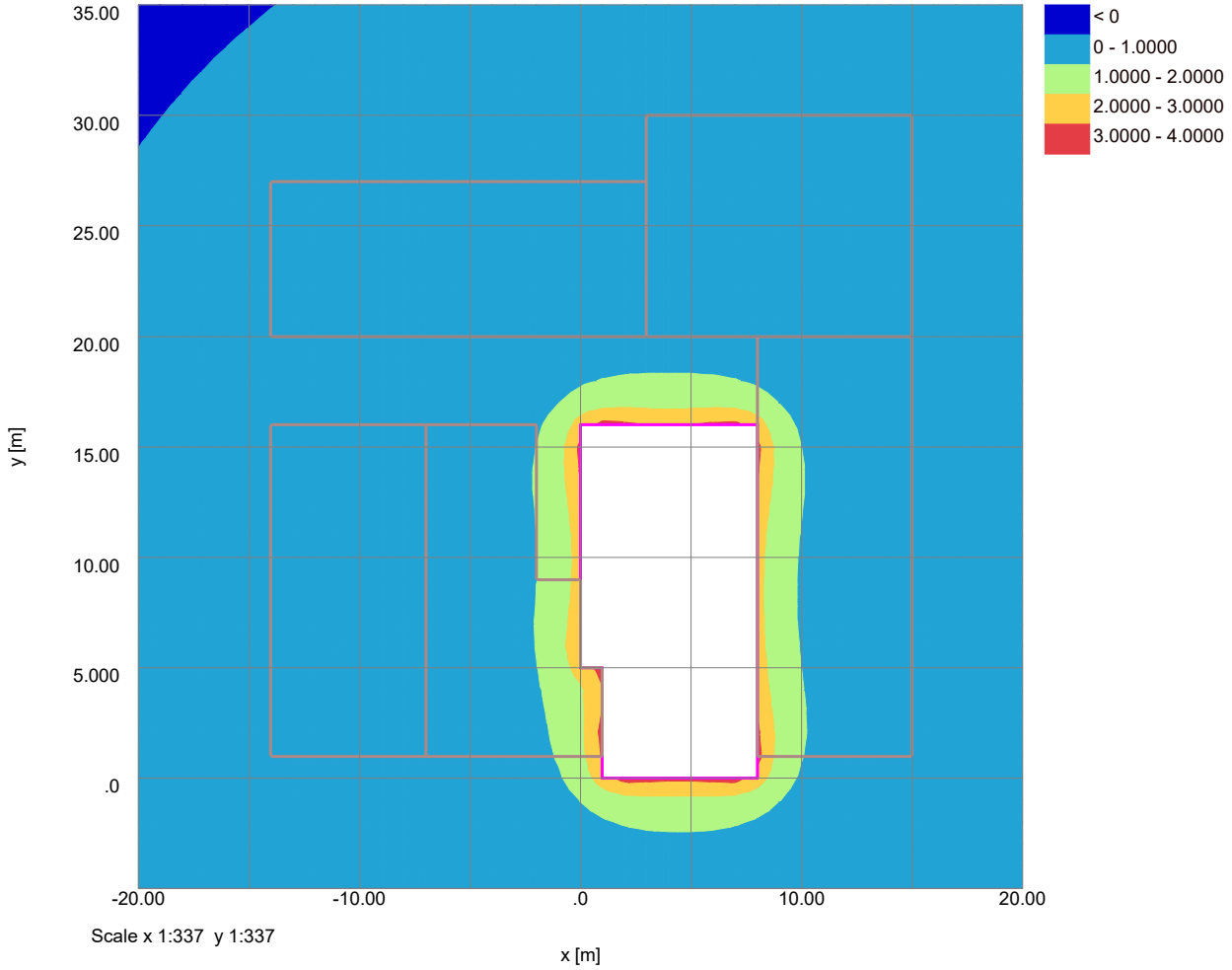
Drg. Ref.

Made by MP | Date | Checked

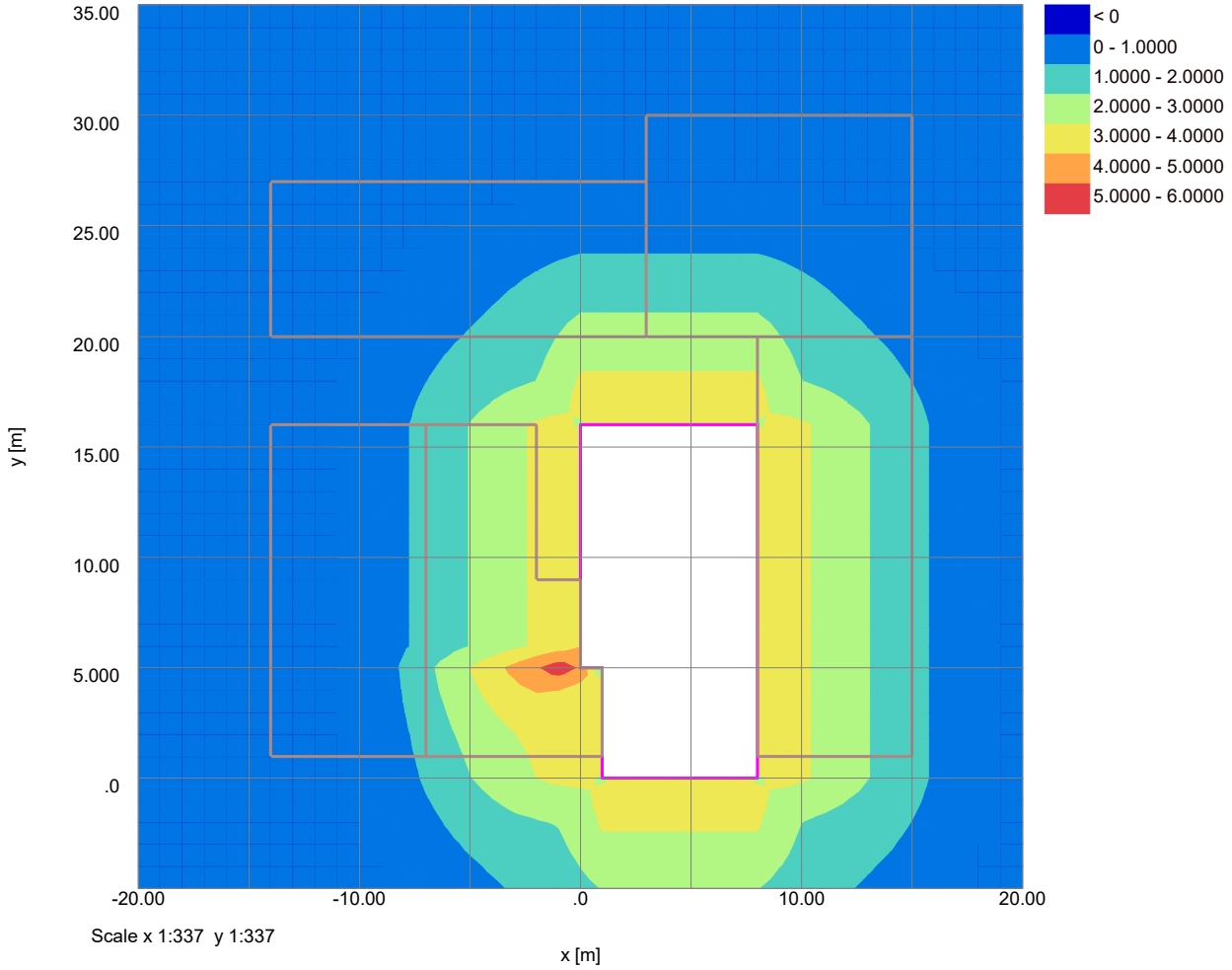



Settlement Contours : Grid 1 at 20.00000m
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.0000
.0
-5.0000
Y [m]
-25.000
-15.000
-5.0000
5.0000
15.000
25.000
X [m]
-7.5000 : -5.0000
-5.0000 : -2.5000
-2.5000 : 0
0 : 2.5000
2.5000 : 5.0000
Scale x 1:422 y 1:422
Contour Interval:2.5mm

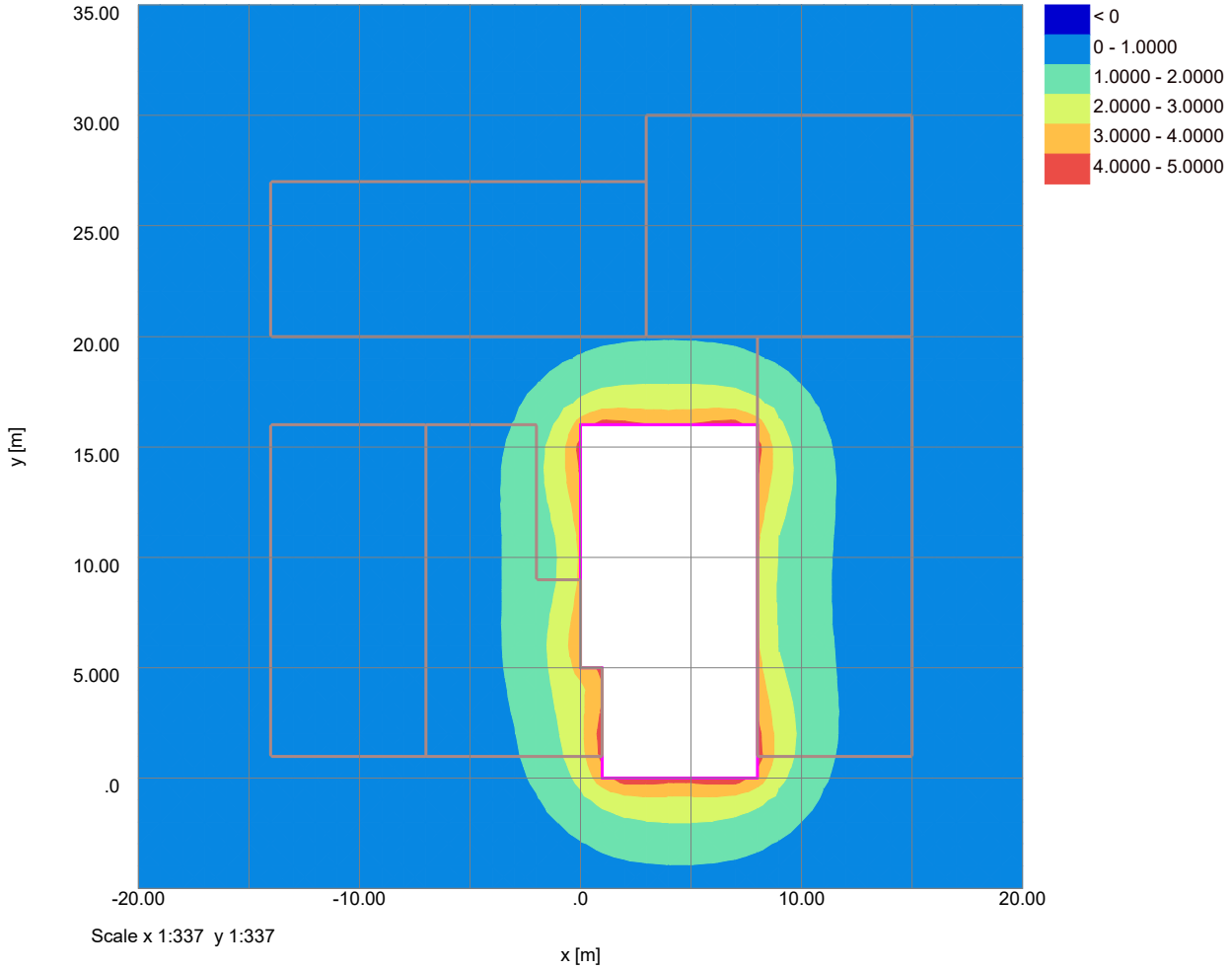
Vertical Settlement Contours: Grid 2 (level 22.000m) (Interval 1mm)



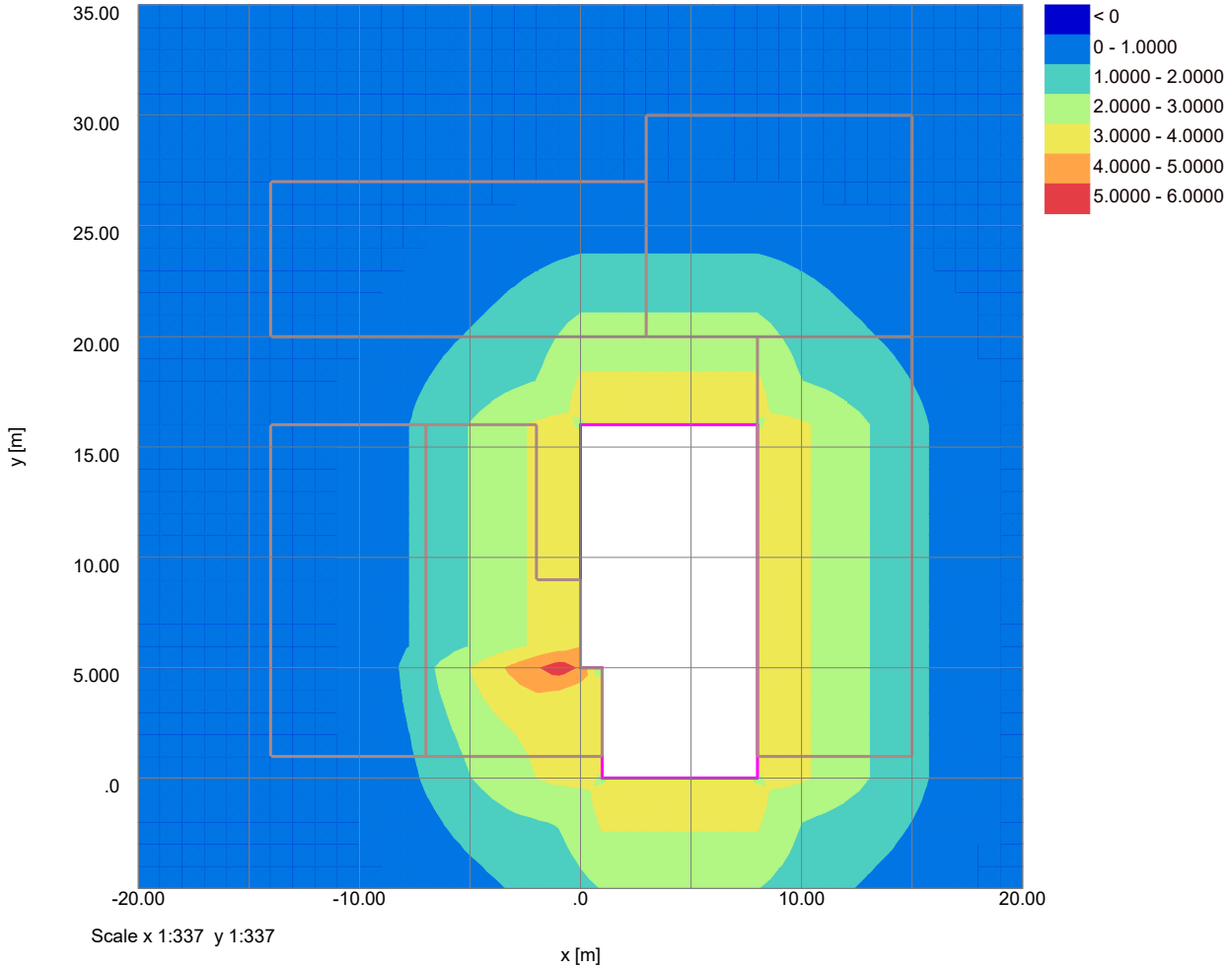
Horizontal Displacement Contours: Grid 2 (level 22.000m) Interval 1mm



Vertical Settlement Contours: Grid 2 (level 22.000m) (Interval 1mm)



Horizontal Displacement Contours: Grid 2 (level 22.000m) Interval 1mm



Specific Building Damage Results - Detail

Stage: Ref.	Stage: Name	Specific Building: Ref.	Specific Building: Name	Sub-building Name	Vertical Offset from Line for Vertical Movement Calculations [m]	Segment	Start [m]	Length [m]	Curvature	Deflection Ratio [%]	Average Horizontal Strain [%]	Max Tensile Strain [%]	Max Gradient of Horizontal Displacement Curve	Max Gradient of Vertical Displacement Curve	Min Radius of Curvature [m]	Damage Category
0	Base Model	1	No 17 South Street	Frontage	0.0	1	0.0	7.9000	Hogging	0.013791	0.033084	0.041142	-454.38E-6	-0.0011280	1475.9	0 (Negligible)
		2	No 17 / No 19 South Street	Party Wall	0.0	1	0.0	1.9067	None	0.0089148	0.0	0.0088324	0.0	185.00E-6	2130.6	0 (Negligible)
						2	1.9067	1.9933	None	0.0085280	0.0	0.0084420	0.0	-190.56E-6	2318.8	0 (Negligible)
		3	No 17 / No 19 South Street	Party Wall	0.0	1	0.0	0.89900	None	0.0	0.037500	0.037500	-374.86E-6	472.00E-6	-	0 (Negligible)
		4	No 17 / No 19 South Street	Party Wall	0.0	1	0.0	2.5923	None	0.011131	0.0	0.010942	0.0	-281.16E-6	1645.4	0 (Negligible)
						2	2.5923	1.3067	None	0.0013763	0.0	0.0013703	0.0	199.54E-6	10504.	0 (Negligible)
		5	No 17 South Street	Rear	0.0	1	0.0	1.9000	None	0.0079613	0.037500	0.039806	-374.86E-6	675.63E-6	2954.1	0 (Negligible)
		6	No 17 South Street	Rear	0.0	1	0.0	2.9316	None	605.44E-6	0.0	592.41E-6	0.0	-29.693E-6	49329.	0 (Negligible)
						2	2.9316	3.9674	None	0.0030326	0.0	0.0029150	0.0	143.69E-6	10744.	0 (Negligible)
		7	No 17 South Street	Rear	0.0	1	0.0	4.9000	None	0.0044949	0.037500	0.040692	-374.86E-6	324.67E-6	6731.6	0 (Negligible)
		8	No 17 / No 15 South Street	Party Wall	0.0	1	0.0	14.899	None	175.97E-6	0.0	214.61E-6	0.0	-7.6487E-6	470600.	0 (Negligible)
		9	No 15 South Street	Frontage	0.0	1	0.0	0.98571	None	0.0	0.048979	0.048979	-513.50E-6	23.874E-6	166370.	0 (Negligible)
		10	No 15 South Street	Side	0.0	All vertical displacements are less than the limit sensitivity.										
		11	No 15 South Street	Rear	0.0	1	5.9143	0.98471	None	0.0	0.037500	0.037500	-374.86E-6	-26.084E-6	132150.	0 (Negligible)
		12	No 21 South Street	Frontage	0.0	1	0.0	6.8990	None	0.014900	0.037500	0.051595	-374.86E-6	0.0012204	1277.4	1 (Very Slight)
		13	No 21 South Street	Side	0.0	1	0.0	7.3433	None	93.089E-6	0.0	92.375E-6	0.0	-4.5245E-6	444570.	0 (Negligible)
						2	7.3433	0.31456	None	8.4881E-6	0.0	8.4758E-6	0.0	965.76E-9	42.379E+6	0 (Negligible)
						3	7.6578	9.3522	None	171.49E-6	-0.0022672	460.66E-6	101.77E-6	11.023E-6	578800.	0 (Negligible)
		14	No 21 South Street / No 10 Balfour Mews	Party Wall	0.0	1	1.9833	3.6650	None	431.02E-6	-0.011467	0.0023063	232.27E-6	-50.923E-6	138210.	0 (Negligible)
						2	5.6483	6.2507	None	888.12E-6	-0.0069937	0.0014801	232.27E-6	-51.007E-6	80648.	0 (Negligible)
		15	No 21 / No 19 South Street	Party Wall	0.0	1	0.0	3.1387	None	0.011405	-0.0063650	0.0092149	0.0014008	-914.31E-6	2260.2	0 (Negligible)
						2	3.1387	5.6580	None	0.021876	-0.039218	0.015336	0.0014008	-914.31E-6	6067.7	0 (Negligible)
						3	8.7967	10.103	None	0.0050250	0.0	0.0061904	0.0	-208.56E-6	22438.	0 (Negligible)
		16	No 10 Balfour Mews	Frontage	0.0	All vertical displacements are less than the limit sensitivity.										
		17	No 10 / No 6 Balfour Mews	Party Wall	0.0	All vertical displacements are less than the limit sensitivity.										
		18	No 10 Balfour Mews / No 8 Rex Place	Party Wall	0.0	1	5.9400	3.9590	None	0.0017976	0.037500	0.038388	-374.86E-6	-115.55E-6	23182.	0 (Negligible)
		19	No 8 / No 12 Rex Place	Party Wall	0.0	All vertical displacements are less than the limit sensitivity.										
		20	No 8 Rex Place	Frontage	0.0	All vertical displacements are less than the limit sensitivity.										
		21	No 8 Rex Place	Side	0.0	1	8.4500	4.2188	None	458.93E-6	-0.0083287	0.0016855	193.39E-6	-48.183E-6	159350.	0 (Negligible)
						2	12.669	4.2312	None	659.38E-6	-0.010826	0.0021964	216.31E-6	-52.157E-6	61637.	0 (Negligible)

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Specific Building Damage Results - Detail

Stage: Ref.	Stage: Name	Specific Building: Ref.	Specific Building: Name	Sub-building Name	Vertical Offset from Line for Vertical Movement Calculations [m]	Segment	Start [m]	Length [m]	Curvature	Deflection Ratio [%]	Average Horizontal Strain [%]	Max Tensile Strain [%]	Max Gradient of Horizontal Displacement Curve	Max Gradient of Vertical Displacement Curve	Min Radius of Curvature [m]	Damage Category
0	Base Model	1	No 17 South Street	Frontage	0.0	1	0.0	7.9000	Hogging	0.016386	0.033084	0.042659	-454.38E-6	-0.0013447	1389.8	0 (Negligible)
		2	No 17 / No 19 South Street	Party Wall	0.0	1	0.0	1.9524	None	0.010593	0.0	0.010490	0.0	279.83E-6	1803.7	0 (Negligible)
						2	1.9524	1.9476	None	0.0093161	0.0	0.0092264	0.0	255.48E-6	2101.8	0 (Negligible)
		3	No 17 / No 19 South Street	Party Wall	0.0	1	0.0	0.89900	None	0.0	0.037500	0.037500	-374.86E-6	414.93E-6	-	0 (Negligible)
		4	No 17 / No 19 South Street	Party Wall	0.0	1	0.0	2.5074	None	0.012708	0.0	0.012506	0.0	283.03E-6	1441.3	0 (Negligible)
						2	2.5074	1.3916	None	0.0022102	0.0	0.0021993	0.0	279.65E-6	7425.3	0 (Negligible)
		5	No 17 South Street	Rear	0.0	1	0.0	1.9000	None	0.0064436	0.037500	0.039366	-374.86E-6	668.18E-6	3649.9	0 (Negligible)
		6	No 17 South Street	Rear	0.0	1	0.0	2.9618	None	994.44E-6	0.0	972.57E-6	0.0	-57.187E-6	29550.	0 (Negligible)
						2	2.9618	3.9372	None	0.0042711	0.0	0.0041077	0.0	193.20E-6	7641.7	0 (Negligible)
		7	No 17 South Street	Rear	0.0	1	0.0	4.9000	None	0.0059447	0.037500	0.041721	-374.86E-6	457.69E-6	5461.7	0 (Negligible)
		8	No 17 / No 15 South Street	Party Wall	0.0	1	0.0	14.899	None	387.39E-6	0.0	472.46E-6	0.0	-16.924E-6	220340.	0 (Negligible)
		9	No 15 South Street	Frontage	0.0	1	0.0	6.8990	None	512.14E-6	0.017687	0.018031	-513.50E-6	53.800E-6	82524.	0 (Negligible)
		10	No 15 South Street	Side	0.0	1	0.0	14.899	None	111.68E-6	0.0	136.22E-6	0.0	4.1068E-6	1.6464E+6	0 (Negligible)
		11	No 15 South Street	Rear	0.0	1	0.0	6.8990	None	557.67E-6	0.018204	0.018578	-374.86E-6	-57.031E-6	69527.	0 (Negligible)
		12	No 21 South Street	Frontage	0.0	1	0.0	6.8990	Hogging	0.017669	0.037500	0.046599	-374.86E-6	0.0014549	1190.7	0 (Negligible)
		13	No 21 South Street	Side	0.0	1	0.0	18.900	None	450.52E-6	-0.0015331	336.21E-6	101.77E-6	25.165E-6	206010.	0 (Negligible)
		14	No 21 South Street / No 10 Balfour Mews	Party Wall	0.0	1	0.0	5.3466	None	758.61E-6	-0.0016615	566.23E-6	232.27E-6	-91.401E-6	86417.	0 (Negligible)
						2	5.3466	6.5524	None	0.0015692	-0.0077409	0.0017716	232.27E-6	-91.401E-6	47332.	0 (Negligible)
		15	No 21 / No 19 South Street	Party Wall	0.0	1	0.0	2.9229	None	0.010161	0.0034924	0.011559	0.0014008	-0.0010784	2043.0	0 (Negligible)
						2	2.9229	5.7530	Sagging	0.028853	-0.043818	0.019870	0.0014008	-0.0010784	4653.0	0 (Negligible)
						3	8.6759	10.224	None	0.0077010	0.0	0.0095528	0.0	-303.93E-6	13940.	0 (Negligible)
		16	No 10 Balfour Mews	Frontage	0.0	1	0.0	7.9200	None	171.11E-6	0.0036567	0.0038129	-99.523E-6	23.282E-6	568080.	0 (Negligible)
		17	No 10 / No 6 Balfour Mews	Party Wall	0.0	1	1.9867	9.9333	None	84.987E-6	0.0	92.089E-6	0.0	-5.6487E-6	1.0435E+6	0 (Negligible)
		18	No 10 Balfour Mews / No 8 Rex Place	Party Wall	0.0	1	0.0	9.8990	None	0.0026089	0.024052	0.026871	-374.86E-6	-197.26E-6	15714.	0 (Negligible)
		19	No 8 / No 12 Rex Place	Party Wall	0.0	1	0.0	8.0641	None	99.641E-6	0.0	92.304E-6	0.0	9.9189E-6	591240.	0 (Negligible)
						2	8.0641	4.6109	None	22.560E-6	0.0	21.708E-6	0.0	9.9189E-6	2.0216E+6	0 (Negligible)
		20	No 8 Rex Place	Frontage	0.0	1	4.9286	0.38550	None	0.0	0.0	35.763E-9	0.0	-6.0385E-6	44.856E+6	0 (Negligible)
						2	5.3141	1.5849	None	1.2547E-6	0.0	1.2517E-6	0.0	-6.0385E-6	13.433E+6	0 (Negligible)
		21	No 8 Rex Place	Side	0.0	1	0.0	12.300	None	0.0010318	0.0043036	0.0055853	-221.13E-6	-87.832E-6	103050.	0 (Negligible)
						2	12.300	4.5999	None	0.0011016	-0.011508	0.0023827	216.31E-6	-88.558E-6	37503.	0 (Negligible)

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Geotechnical & Environmental Associates (GEA) is an engineer-led and client-focused independent specialist providing a complete range of geotechnical and contaminated land investigation, analytical and consultancy services to the property and construction industries.

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