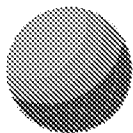


Appendix C Geotechnical Information



A series of 3-4no trial pits / window sample boreholes.	To provide sufficient coverage of site area. Collect representative soil samples. Assess visual / olfactory evidence of contamination.
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Further details of recommendations can be viewed within the previously issued report.

Actual fieldworks conducted, are detailed in Section 5.0 of this report.

5.0 FIELDWORKS

5.1 Site Management and Preparation

The following intrusive works were undertaken on 7th & 8th October 2020, supervised by an Engineer from IGL. Where applicable, the works were carried out in accordance with statutory guidance including BS5930:1999 *Code of Practice for Site Investigations (Amendment 3: 2015+A1: 2020)*, BS 10175:2011+A2:2017 *Investigation of Potentially Contaminated Sites: Code of Practice*, and BS ISO 5667-11 *Water Quality-Sampling-Guidance on Sampling of Groundwater*.

Available underground utility plans were consulted – if applicable and prior to any excavations taking place a Cable Avoidance Tool (CAT) was used to check for the position of any underlying electrical services. In addition, starter pits were excavated to 1.20 metres below ground level (mbgl) to clear test locations prior to any intrusive work, where possible.

A plan indicating intrusive locations can be viewed in **Appendix A**. Photographs taken during the investigation can be viewed in **Appendix C**.

5.2 Windowless Sample Boreholes

- Four Windowless Sample boreholes (WS1-WS4) were advanced to a maximum depth of 6.00mbgl using a dynamic sampling drilling rig. The boreholes were sited around the proposed location of the new youth centre.
- On completion, one of the boreholes (WS2) was installed as dual purpose gas and groundwater monitoring wells constructed with 35mm internal diameter HDPE plain and slotted pipe. The response zone of the wells was designed to target groundwater within the underlying chalk bedrock.
- A filter pack of washed gravel was placed in the well annulus to just above the screen sections, and the annulus was sealed to the surface with bentonite. The monitoring wells were finished with flush to ground level traffic-rated steel covers OR raised covers.
- The remaining window sample boreholes were backfilled with arising soils and the grassed surface reinstated.

5.3 Trial Pits

- Four hand excavated trial pits (TP1-TP4) were advanced to a maximum depth of 0.80mbgl. TP1 was located atop the existing soil mound. TP2 and TP4 were completed adjacent to the western boundary to assess any lateral migration of contamination. TP3 was completed within the former jungle gym area to assess the thickness and composition of Made Ground soils.

- One Mechanically excavated trial pit (SA1) was advanced to a maximum depth of 1.70mbgl using a 1.5t tracked excavator for the purpose of soil infiltration testing in accordance with BRE 365.

5.4 Soil Sample Collection

- All intrusive locations were logged, visual and/or olfactory evidence of contamination noted and representative soil sample removed in accordance with current protocol for geotechnical and geo-environmental parameters.
- Selected samples were placed in sealed glass jars or plastic tubs (dependent on the exact laboratory requirements and analysis to be undertaken) and stored in a temperature-controlled environment before transit. Samples were handled using a fresh pair of nitrile gloves.

The results of the analytical soil testing are discussed in Section 8.2.

6.0 GROUND CONDITIONS

6.1 Soils

The following table summarises the strata conditions encountered during the intrusive works:

Stratum	Depth Range Encountered
Made Ground / Topsoil	GL to 0.10-0.80m
Raised Beach Deposits	0.10-0.80m to 2.95-~4.00m
Lewes Nodular Chalk Formation (Assumed)	2.95-~4.00m to >6.00m

6.1.1 – Made Ground / Topsoil

Each exploratory hole location was found to be covered by grass. Within locations WS1, WS2 and SA1 the initial soils were described as topsoil comprised of brown slightly gravelly silty Sand.

Made Ground soils were encountered within the remaining exploratory holes, predominantly this is described as a reworked topsoil deposit of Clay / Silt / Sand composition with inclusions of materials such as glass, brick and concrete.

Within TP3 the upper soils were described as bark chippings to a depth of 0.20mbgl, which overlies a loose light brown medium to coarse sized flint gravel to 0.35mbgl.

6.1.2 – Raised Beach Deposits

With the exception of WS1, TP3 and TP4, the upper most material of this stratum was described as firm consistency brown slightly gravelly sandy Silt / Clay. This material extends to depths of 0.60-0.80mbgl.

Beneath the latter soils, and below the surficial material locally, the Raised Beach Deposits were encountered as a predominantly granular stratum. An upper layer of slightly gravelly to gravelly, fine to coarse grained Sand is recorded extending to depths of 1.60-2.60mbgl.

The upper granular horizon was found to be underlain by locally slightly gravelly light brown silty fine to medium grained Sand which extended to depths of 2.95-~4.00mbgl. It should be noted that the base of the Raised Beach Deposits was uncertain in WS2 where there was no recovery other than the 4.00m SPT split spoon sample over the depth range 3.50-5.50mbgl.

Within WS3 a thick bed of cohesive soils was encountered at 1.60-2.60mbgl, described as firm to stiff consistency brown very sandy silty Clay.

6.1.3 – Lewes Nodular Chalk Formation

The Chalk bedrock was encountered at the base of each window sample borehole. This was described as structureless Chalk composed of either silty Gravel, or gravelly Silt. The gravel portion was described as weak, low density white, stained brown and speckled black Chalk.

This material is considered to be representative of the Lewes Nodular Chalk Formation on the basis of the published geology, however the weathered condition means that determination of a definite parent formation is not possible.

Please refer to the stratigraphic logs contained within Appendix B for a more detailed description.

6.2 Groundwater

Groundwater was encountered within WS2 only at a depth of 4.70mbgl.

6.3 Visual and Olfactory Observations of Contamination

With the exception of anthropogenic materials encountered within the Made Ground soils, no visual or olfactory evidence of soil or groundwater contamination was noted during the investigation works.

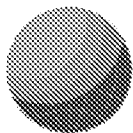
6.4 Insitu Testing

6.4.1 Dynamic Cone Penetrometer Testing

The Dynamic Cone Penetrometer (DCP) was used to complete 7no. tests to determine the equivalent insitu CBR % value.

The table below summarises the results of this testing

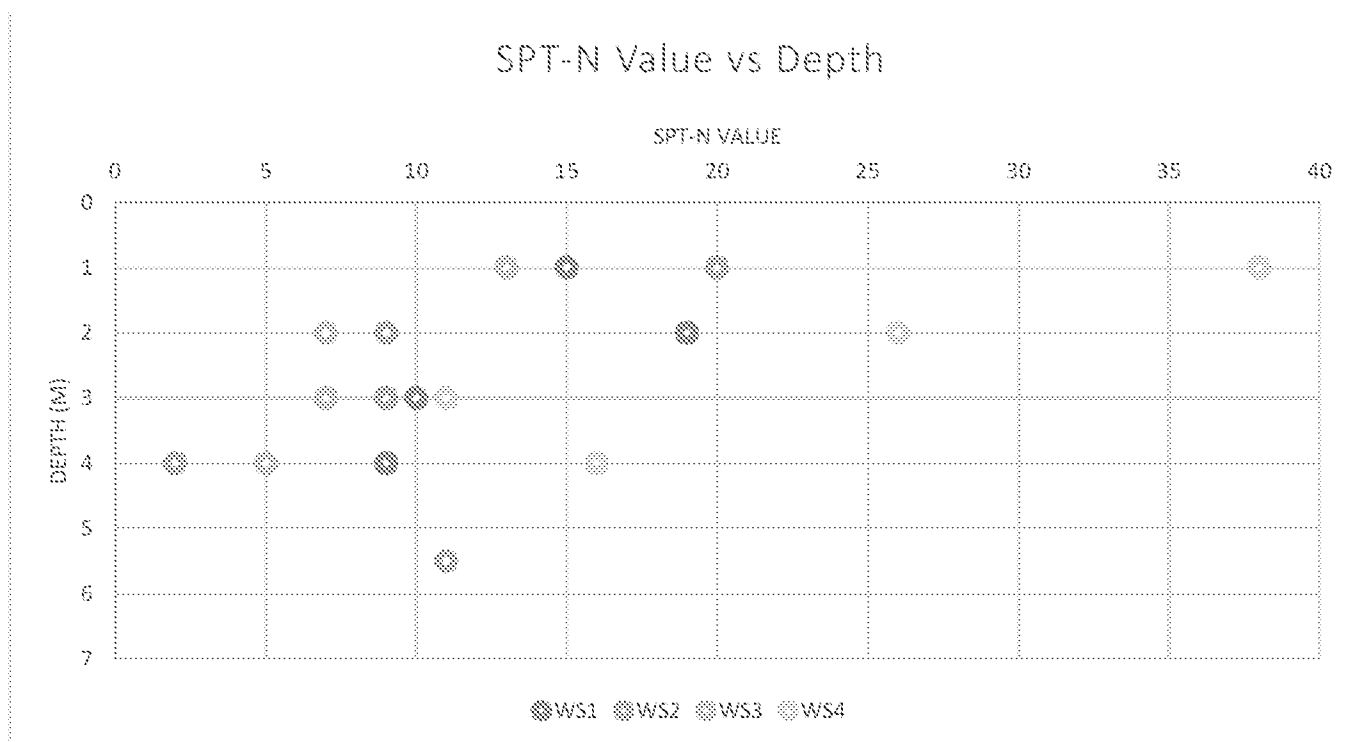
Depth	Equivalent insitu CBR value (%)						
	DCP1	DCP2	DCP3	DCP4	DCP5	DCP6	DCP7
0.30m	4	5	4	3	8	3	24
0.45m	13	4	3	3	4	5	15
0.60m	8	13	3	3	4	4	28



6.4.2 Standard Penetration Testing

Standard Penetration testing was completed throughout the drilling of WS1-WS4 at 1.00m centres. This form of testing is completed using a 63.5kg drop hammer weight, over a 750mm drop, measuring the blow counts for six, 75mm increments. The first two values are recorded as seating blows, with the remaining four values, added together to provide an 'N-value'.

The graph below summarises the results of this testing, by conversion to equivalent SPT-N values.



The upper granular Raised Beach Deposits returned SPT N-values which are reflective of medium dense to dense granular materials at 1.00m as well as at 2.00mbgl in WS1 and WS4.

Subsequent results in WS4 indicate medium dense soils to the base of the hole at 4.00mbgl with N-values of N=11-16. It should be noted that these results were recorded in structureless chalk described as silty Gravel.

Otherwise, however, the N-values below 2.00mbgl indicate loose consistency granular soils; results in the Chalk bedrock at 3.00-4.00mbgl and below indicate weak soils with N-values of N=2-11. Whilst the SPT test can be problematic as a definitive measure of intact strength, it is noted that these results are significantly the N=25 threshold, which is taken as an approximate indicator of intact, structured Chalk. Consequently these results would indicate that the Chalk bedrock is present in a weathered condition with approximate soil behaviour of soft consistency cohesive materials / loose granular soils.

6.4.3 Soil Infiltration Testing

Soil infiltration testing was completed within SA1 in accordance with the testing standards identified in BRE 365: 2016 'Soakaway Design'. The test included the squaring of the pit sides before filling with potable water, the subsequent decline in water level was measured to allow determination of the coefficient of permeability (k); using

this testing method, the rate of outflow between 75% and 25% effective depths are used to determine the infiltration rate.

The table below summarises the test results.

Test ref	Test Depth (m)	Initial fill level (mbgl)	Time at 75% fill depth (mins)	Time at 25% fill Depth (mins)	K (m/s)
SA1 – Test 1	1.70	0.67	25	200	1.24×10^{-5}
SA1 – Test 2	1.50	0.38	40	170 (Estimated)	1.71×10^{-5} (Estimated)
SA1 – Test 3	1.40	0.14	21	250	9.99×10^{-6}

These results indicate 'good to poor' drainage on the basis of table 14.1 'Soil Mechanics in Engineering Practice', Terzaghi, Peck and Mesri (after Casagrande and Fadum (1940)).

7.0 GROUND GAS/ SOIL VAPOUR MONITORING

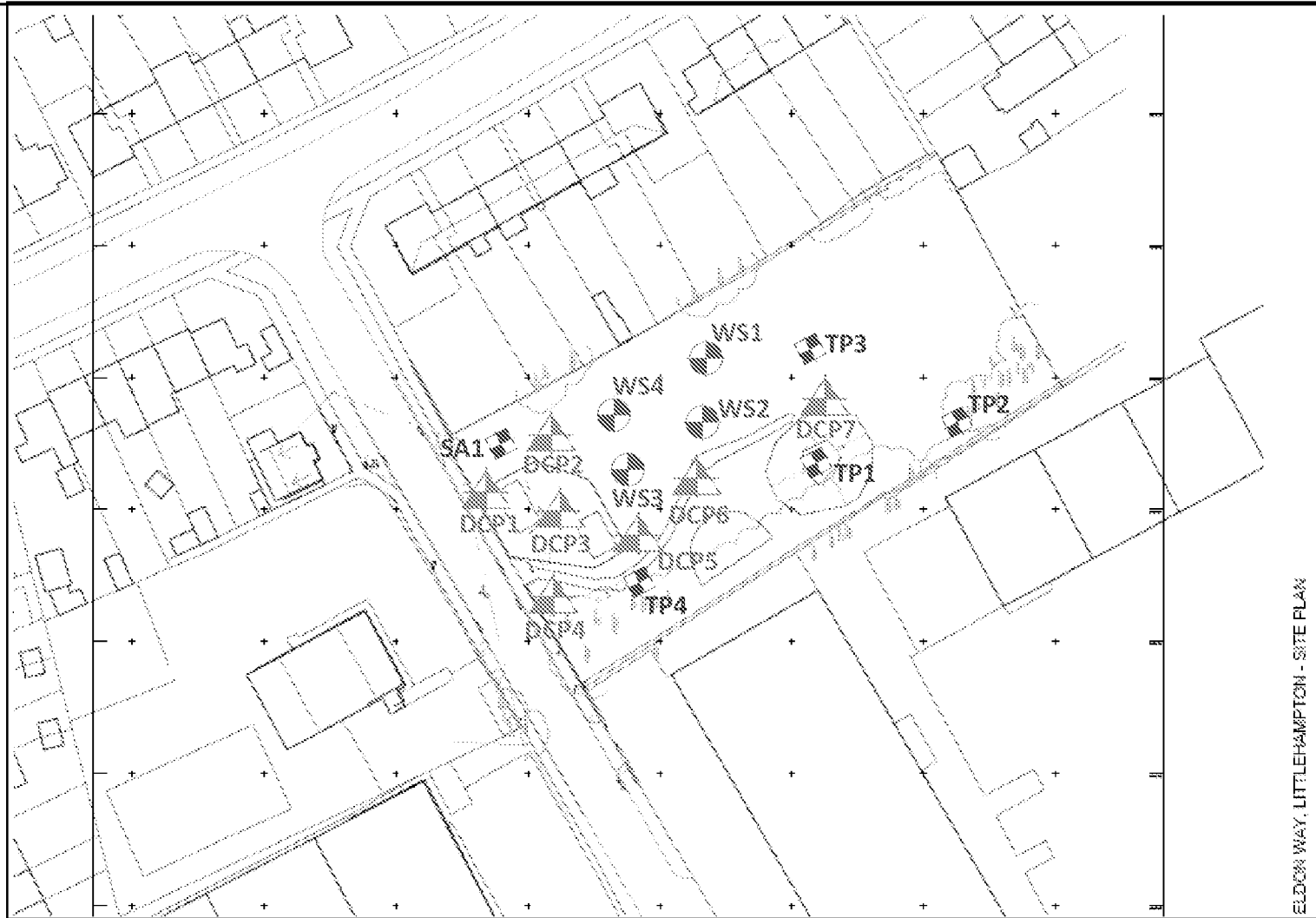
7.1 Design of Gas Monitoring Program

In accordance with BS8576:2013 *Guidance on investigations for ground gas – permanent gases and volatile organic compounds*, the extent of monitoring deemed necessary is based on the generation potential of the source, i.e. what is the risk that large volumes of gas can be generated and can plausibly migrate to pose a credible hazard to the identified receptors.

The risk of soil gas was considered to be sufficiently low that no further assessment was required.

The following points were pertinent in the design of the gas monitoring program: refer to British Standard and use as basis of justification.

- Following the logging of on site soils, soils can be classified as natural soil and strata, i.e. Raised beach deposits and chalk;
- On site soils contain a low organic content: 1.30 – 2.60%;
- Made Ground on site contained a low degradable organic content (i.e. no wood, paper, rags, food or other easily degradable waste); and
- No landfill sites have been identified within the immediate vicinity.



ELDON WAY, LITTLEHAMPTON - SITE PLAN

Notes:

1. Do not scale from this drawing.
2. All dimensions must be checked on site prior to commencement of work.
3. Where applicable this drawing is to be read in conjunction with other consultants drawings.
4. This drawing is the copyright of Impact Geotechnical Ltd.

AFUN DISTRICT COUNCIL LU/338/21/PL

Drawing Title:

Hole Location Plan

Project Reference:

TBC

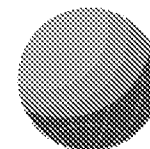
Site Name:

Eldon Way New Youth
Centre

Revision: 0

Drawn by: GC

Scale: Not to Scale



IMPACT
GEOTECHNICAL



Percussion Drilling Log

Project Name: Keystones Youth Centre, Wick		Client: Littlehampton Town Council		Date: 08/10/2020	
Location: Littlehampton		Contractor: IGL			
Project No. : P20.197		Crew Name: IGL		Drilling Equipment: Tracked WLS Rig	
Borehole Number WS1	Hole Type WLS	Level	Logged By GC	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES	N=15 (2,3/3,4,4,4)	0.30			Grass over brown slightly gravelly silty Sand TOPSOIL. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse sized flint. Loose to medium dense light brown slightly gravelly silty SAND. Gravel is subangular to rounded, fine to coarse sized flint and rarely sandstone and chalk. Sand is fine to coarse. (RAISED BEACH DEPOSITS)	1
		0.50	D						
		0.50	ES						
		1.00	D						
		1.00	SPT	N=19 (3,4/4,4,5,6)	1.90			Medium dense slightly gravelly fine to medium grained SAND. Gravel is subangular to rounded medium to coarse sized flint. (RAISED BEACH DEPOSITS)	2
		1.50	D						
		2.00	D						
		2.00	SPT						
		2.50	D						
		3.00	D	N=10 (1,1/1,2,3,4)	3.30			Recovered As: Structureless CHALK composed of: Off white light brown mottled very silty GRAVEL. Gravel is subangular to subrounded, fine to coarse sized weak low density white stained brown and speckled black chalk. (LEWES NODULAR CHALK FORMATION)	3
		3.00	SPT						
		3.50	D						
		4.00	D						
		4.00	SPT	N=9 (1,2/2,2,2,3)	4.00			End of Borehole at 4.000m	4
		4.00	SPT						
									5
									6
									7
									8
									9
									10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks										
Hand excavated starter pit to 1.00mbgl. No groundwater encountered.										
COUNCIL LU/338/21/PL										



Percussion Drilling Log

Project Name: Keystones Youth Centre, Wick		Client: Littlehampton Town Council		Date: 08/10/2020	
Location: Littlehampton		Contractor: IGL			
Project No. : P20.197		Crew Name: IGL		Drilling Equipment: Tracked WLS Rig	
Borehole Number WS2	Hole Type WLS	Level	Logged By GC	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.10			Grass over brown slightly gravelly silty Sand TOPSOIL. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse sized flint.	
		0.50	D					Firm consistency brown slightly gravelly Sandy SILT / CLAY. Sand is fine to medium. Gravel is subangular to subrounded, fine to coarse sized flint.	1
		0.60	ES		0.80			Loose to medium dense light brown slightly gravelly silty SAND. Gravel is subangular to rounded, fine to coarse sized flint and rarely sandstone and chalk. Sand is fine to coarse. (RAISED BEACH DEPOSITS)	
		1.00	D						
		1.00	SPT	N=20 (3,4/3,4,6,7)					
		1.50	D						
		2.00	D						
		2.00	SPT	N=9 (2,2/2,2,2,3)					2
		2.50	D						
		2.60			2.60			Loose slightly gravelly fine to medium grained SAND. Gravel is subangular to rounded medium to coarse sized flint. (RAISED BEACH DEPOSITS)	
		3.00	D						
		3.00	SPT	N=9 (3,3/2,2,2,3)					3
		3.50	D		3.50				
		4.00	D						
		4.00	SPT	N=2 (1,0/1,0,1,0)				NO RECOVERY - very loose material. Boundary with top of chalk estimated ~4.00mbgl due to Chlak in 4.00m SPT sample	4
		5.50	SPT	N=11 (1,2/1,2,4,4)	5.50			Recovered As: Structureless CHALK composed of: Soft consistency Off white light brown mottled slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse sized weak low density white stained brown and speckled black chalk. (LEWES NODULAR CHALK FORMATION) End of Borehole at 6.000m	5
		6.00			6.00				6
									7
									8
									9
									10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks Hand excavated starter pit to 1.00mbgl. Groundwater encountered at 4.70mbgl. Borehole installed with 35mm standpipe, with flush stopcock cover at the surface.										
---	--	--	--	--	--	--	--	--	--	--



Percussion Drilling Log

Project Name: Keystones Youth Centre, Wick		Client: Littlehampton Town Council		Date: 08/10/2020	
Location: Littlehampton		Contractor: IGL			
Project No. : P20.197		Crew Name: IGL		Drilling Equipment: Tracked WLS Rig	
Borehole Number WS3	Hole Type WLS	Level	Logged By GC	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.20	ES	N=13 (3,3/3,4,3,3)	0.30			MADE GROUND: Grass over dark brown slightly gravelly Sandy Clay / Silt. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse sized flint. Rare plastic and brick.	1	
		0.50	D		0.80			Firm consistency brown slightly gravelly Sandy SILT / CLAY. Sand is fine to medium. Gravel is subangular to subrounded, fine to coarse sized flint.		
		0.60	ES					Loose to medium dense light brown slightly gravelly very clayey silty SAND. Gravel is subangular to rounded, fine to coarse sized flint and rarely sandstone and chalk. Sand is fine to coarse. (RAISED BEACH DEPOSITS)		
		1.00	D		1.60			Firm to stiff brown brown very sandy silty CLAY. Scattered subangular to subrounded, fine to coarse sized flint. Sand is fine to coarse.		
		1.00	SPT	N=7 (1,2/1,2,2,2)				Loose slightly gravelly fine to medium grained SAND. Gravel is subangular to rounded medium to coarse sized flint. (RAISED BEACH DEPOSITS)	2	
		1.50	D	2.60			Recovered As: Structureless CHALK composed of: Soft consistency Off white brown mottled slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse sized weak low density white stained brown and speckled black chalk. (LEWES NODULAR CHALK FORMATION)			
		2.00	D				Recovered As: Structureless CHALK composed of: Soft consistency Off white brown mottled slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse sized weak low density white stained brown and speckled black chalk. (LEWES NODULAR CHALK FORMATION)	3		
		2.00	SPT	3.40			Recovered As: Structureless CHALK composed of: Soft consistency Off white brown mottled slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse sized weak low density white stained brown and speckled black chalk. (LEWES NODULAR CHALK FORMATION)			
		2.50	D		N=7 (2,2/3,1,1,2)				Recovered As: Structureless CHALK composed of: Soft consistency Off white brown mottled slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse sized weak low density white stained brown and speckled black chalk. (LEWES NODULAR CHALK FORMATION)	4
		3.00	D	4.00			Recovered As: Structureless CHALK composed of: Soft consistency Off white brown mottled slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse sized weak low density white stained brown and speckled black chalk. (LEWES NODULAR CHALK FORMATION)			
		3.00	SPT		N=5 (0,0/1,1,2,1)				Recovered As: Structureless CHALK composed of: Soft consistency Off white brown mottled slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse sized weak low density white stained brown and speckled black chalk. (LEWES NODULAR CHALK FORMATION)	
		3.50	D						Recovered As: Structureless CHALK composed of: Soft consistency Off white brown mottled slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse sized weak low density white stained brown and speckled black chalk. (LEWES NODULAR CHALK FORMATION)	
		4.00	D	N=5 (0,0/1,1,2,1)	4.00			Recovered As: Structureless CHALK composed of: Soft consistency Off white brown mottled slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse sized weak low density white stained brown and speckled black chalk. (LEWES NODULAR CHALK FORMATION)	4	
		4.00	SPT					Recovered As: Structureless CHALK composed of: Soft consistency Off white brown mottled slightly gravelly SILT. Gravel is subangular to subrounded, fine to coarse sized weak low density white stained brown and speckled black chalk. (LEWES NODULAR CHALK FORMATION)		
								End of Borehole at 4.000m		5
										6
										7
										8
								9		
								10		

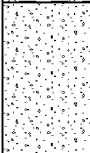
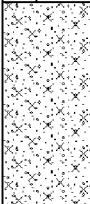
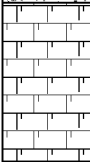
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks										
Hand excavated starter pit to 1.00mbgl. No groundwater encountered.										
COUNCIL LU/338/21/PL										



Percussion Drilling Log

Project Name: Keystones Youth Centre, Wick		Client: Littlehampton Town Council		Date: 08/10/2020	
Location: Littlehampton		Contractor: IGL			
Project No. : P20.197		Crew Name: IGL		Drilling Equipment: Tracked WLS Rig	
Borehole Number WS4	Hole Type WLS	Level	Logged By GC	Scale 1:50	Page Number Sheet 1 of 1

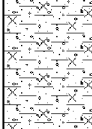
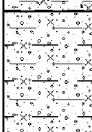
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES	N=38 (8,8/9,8,10,11)	0.40			MADE GROUND: Grass over dark brown slightly gravelly Sandy Clay / Silt. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse sized flint. Rare Glass.	1
		0.50	D						
		0.70	ES						
		1.00	D		1.60			Firm consistency brown slightly gravelly Sandy SILT / CLAY. Sand is fine to medium. Gravel is subangular to subrounded, fine to coarse sized flint.	2
		1.00	SPT						
		1.50	D						
		2.00	D	N=26 (3,5/6,6,7,7)	2.95			Dense light brown slightly gravelly silty SAND. Gravel is subangular to rounded, fine to coarse sized flint and rarely sandstone and chalk. Sand is fine to coarse. (RAISED BEACH DEPOSITS)	3
		2.00	SPT						
		2.50	D						
		3.00	D	N=11 (3,2/3,3,2,3)	4.00			Medium dense slightly gravelly fine to medium grained SAND. Gravel is subangular to rounded medium to coarse sized flint. (RAISED BEACH DEPOSITS)	4
		3.00	SPT						
		3.50	D						
		4.00	D	N=16 (3,2/3,5,4,4)				Recovered As: Structureless CHALK composed of: Off white light brown mottled very silty GRAVEL. Gravel is subangular to subrounded, fine to coarse sized weak low density white stained brown and speckled black chalk. (LEWES NODULAR CHALK FORMATION)	5
		4.00	SPT						
End of Borehole at 4.000m									6
									7
									8
									9
									10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks										
Hand excavated starter pit to 1.00mbgl. No groundwater encountered.										
COUNCIL LU/338/21/PL										

Trial Pit Log

Project Name: Keystones Youth Centre, Wick		Client: Littlehampton Town Council		Date: 07/10/2020 - 08/10/2020	
Location: Littlehampton		Contractor: IGL			
Project No. : P20.197		Crew Name: OSI		Equipment: Tracket Mini Excavator	
Location Number SA1	Location Type TP	Level	Logged By GC	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES		0.10			Grass over brown slightly gravelly silty Sand TOPSOIL. Sand is fine to coarse. Gravel is subangular to subrounded, fine to coarse sized flint.	1
								Firm to stiff consistency brown slightly gravelly sandy SILT / CLAY. Sand is fine to medium. Gravel is subangular to subrounded, fine to coarse sized flint.	
		0.80	ES		0.65			Firm to stiff consistency light brown slightly gravelly becoming gravelly very sandy silty CLAY. Sand is fine to coarse. Gravel is subangular to rounded, fine to coarse sized flint. (RAISED BEACH DEPOSITS)	
					1.10			(Medium Dense) Light brown slightly clayey / silty sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to rounded, medium to coarse sized flint. (RAISED BEACH DEPOSITS)	
					1.70			End of Borehole at 1.700m	2
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.60	0.45	Fair	None				

Remarks No Groundwater encountered. Soakage testing completed in accordance with BRE 365.							
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BRE 365 Soil Infiltration Testing

Project Ref P20.197

Hole Ref SA1

Site Name **Keystones**

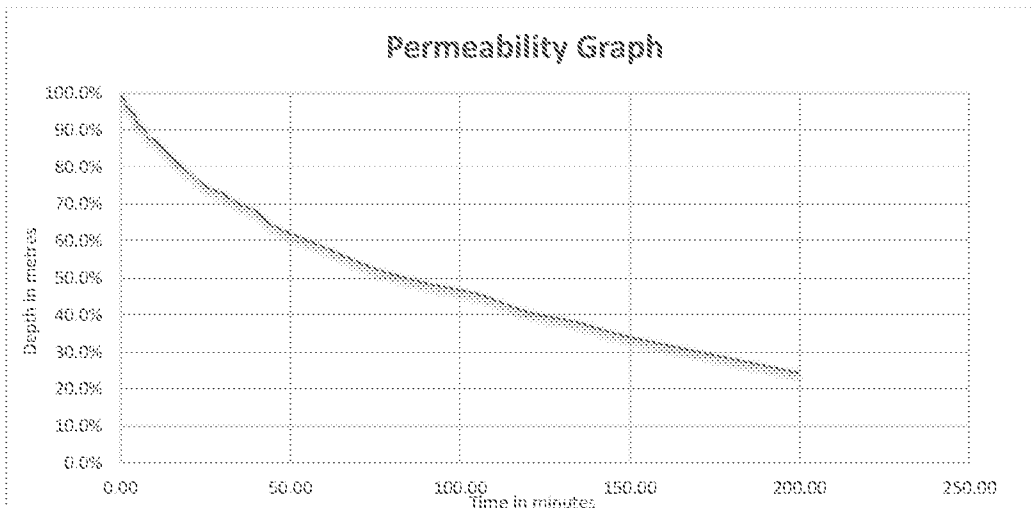
Test Number **1**



Time in minutes	Depth to water surface (m)	Depth of water (m)	Percentage of water depth at start
0.00	0.670	1.03	100.0%
0.50	0.680	1.02	99.0%
1.00	0.690	1.01	98.1%
1.50	0.700	1.00	97.1%
2.00	0.710	0.99	96.1%
2.50	0.710	0.99	96.1%
3.00	0.720	0.98	95.1%
3.50	0.730	0.97	94.2%
4.00	0.730	0.97	94.2%
4.50	0.740	0.96	93.2%
5.00	0.760	0.94	91.3%
6.00	0.760	0.94	91.3%
7.00	0.770	0.93	90.3%
8.00	0.790	0.91	88.3%
9.00	0.800	0.90	87.4%
10.00	0.800	0.90	87.4%
15.00	0.850	0.85	82.5%
20.00	0.890	0.81	78.6%
25.00	0.930	0.77	74.8%
30.00	0.950	0.75	72.8%
35.00	0.980	0.72	69.9%
40.00	1.000	0.70	68.0%
45.00	1.040	0.66	64.1%
60.00	1.100	0.60	58.3%
75.00	1.160	0.54	52.4%
90.00	1.200	0.50	48.5%
105.00	1.230	0.47	45.6%
120.00	1.280	0.42	40.8%
135.00	1.310	0.39	37.9%
150.00	1.350	0.35	34.0%
200.00	1.450	0.25	24.3%
200.00	1.450	0.25	24.3%

Pit Size		Time in mins	
Length	1.60	25	75%
Width	0.45	200	25%
Depth	1.70		

Infiltration Rate from 75%-25% **1.24719E-05**



BRE 365 Soil Infiltration Testing

Project Ref P20.197

Hole Ref SA1

Site Name **Keystones**

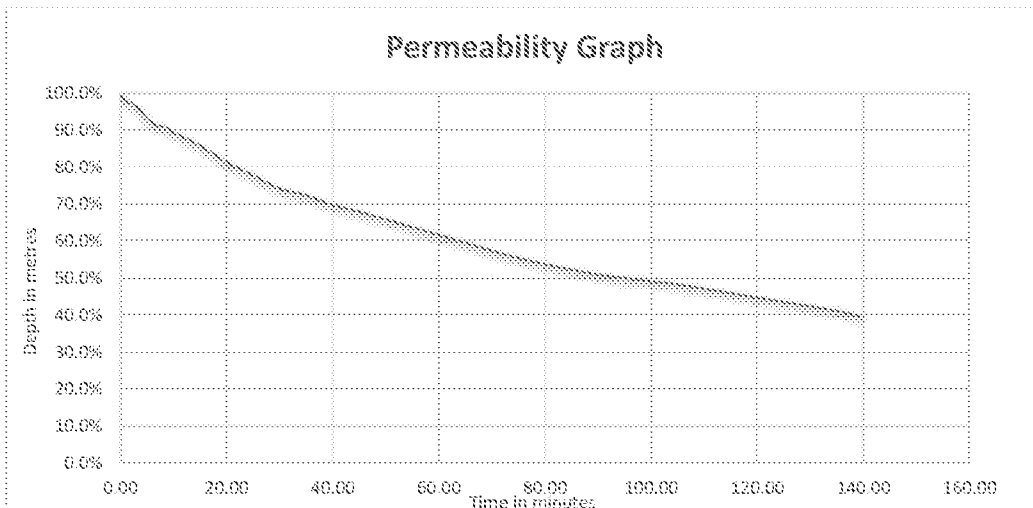
Test Number **2**



Time in minutes	Depth to water surface (m)	Depth of water (m)	Percentage of water depth at start
0.00	0.380	1.12	100.0%
0.50	0.400	1.10	98.2%
1.00	0.400	1.10	98.2%
1.50	0.410	1.09	97.3%
2.00	0.410	1.09	97.3%
2.50	0.420	1.08	96.4%
3.00	0.420	1.08	96.4%
3.50	0.430	1.07	95.5%
4.00	0.440	1.06	94.6%
4.50	0.450	1.05	93.8%
5.00	0.460	1.04	92.9%
6.00	0.470	1.03	92.0%
7.00	0.480	1.02	91.1%
8.00	0.480	1.02	91.1%
9.00	0.490	1.01	90.2%
10.00	0.500	1.00	89.3%
15.00	0.540	0.96	85.7%
20.00	0.590	0.91	81.3%
25.00	0.630	0.87	77.7%
30.00	0.670	0.83	74.1%
35.00	0.690	0.81	72.3%
40.00	0.720	0.78	69.6%
45.00	0.740	0.76	67.9%
60.00	0.810	0.69	61.6%
75.00	0.880	0.62	55.4%
90.00	0.930	0.57	50.9%
105.00	0.960	0.54	48.2%
120.00	1.000	0.50	44.6%
135.00	1.040	0.46	41.1%
140.00	1.060	0.44	39.3%
140.00	1.060	0.44	39.3%

Pit Size		Time in mins	
Length	1.60	40	75%
Width	0.45	170	25% (Estimated)
Depth	1.50		

Infiltration Rate from 75%-25% **1.71394E-05**



BRE 365 Soil Infiltration Testing

Project Ref P20.197

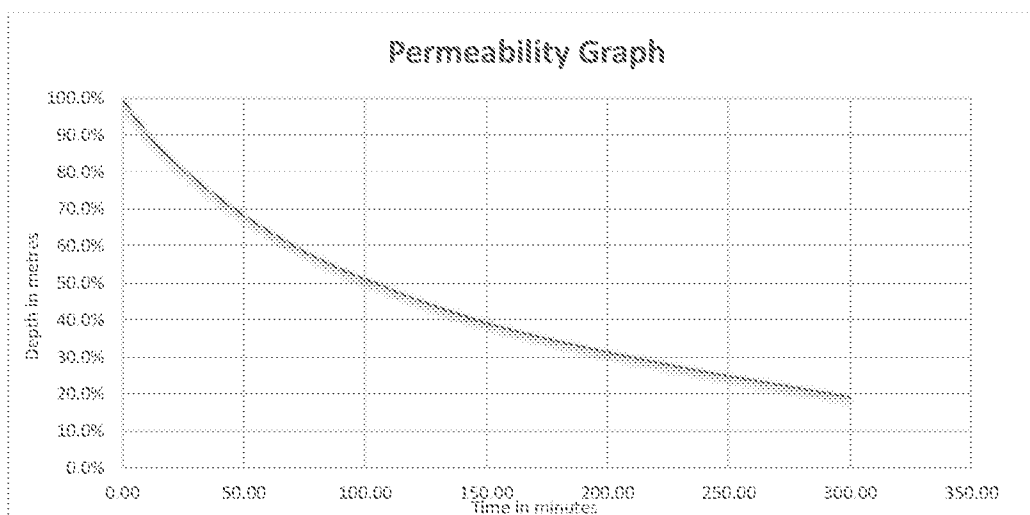
Hole Ref SA1

Site Name	Keystones
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Test Number **3**[illegible]

Pit Size		Time in mins	
Length	1.60	21	75%
Width	0.45	250	25%
Depth	1.40		

Infiltration Rate	from 75%-25%	9.99488E-06
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Appendix D LLFA & LPA Consultation and Extracts

From: Kevin Macknay <k[REDACTED]>
Sent: 07 June 2021 16:11
To: Dan Lytton
Subject: RE: D1985 Flood Information Request - New Keystone Centre, Eldon Way, Littlehampton BN17 7HE
Attachments: EA Flood Zones 1 and 2.pdf; Existing Highway Gullies.pdf; Groundwater Flood Risk Mapping.pdf; Surface water flood risk_1in30 and 1in100 Storm Events.pdf; Southern Water Sewers.pdf

Dan,

Further to your recent enquiry. Please see our replies below:

Flood Zones

- ¿ Please confirm the Flood Zones for this area.
See attached plan. The site is adjacent to, but not within, EA Flood Zones 2 and 3.
- ¿ Please confirm surface water, reservoir flooding, sewer flooding. Please provide plans and depth data from your GIS UFMSW for 30yr, 100yr & 1000yr as applicable (OS Datum).
Based on current mapping the proposed site is not at risk of surface water flooding.
- ¿ Please confirm mapping and records for any surface water assets owned or maintained.
Attached plan shows existing highway gullies. We are not aware of any other surface water assets in the area.
- ¿ Please confirm if there are any future drainage improvements proposed for this area.
None that we are aware of.
- ¿ Please confirm details of existing or planned flood alleviation and defences in this area.
EA's River Arun flood defences are the only ones we are aware of.
- ¿ Please confirm if you are aware of any historic flooding within the confines of the site.
None that we are aware of. That is not to say that the site has not flooded, just that it has not been reported to WSCC as the LLFA.
- ¿ Please confirm if you are aware of any historic flooding in close vicinity and/or on the public highway.
None that we are aware of. That is not to say that the site has not flooded, just that it has not been reported to WSCC as the LLFA.

Groundwater

- ¿ Please confirm details of any groundwater flooding issues in the area, including flood levels, flood extents and any available anecdotal information.
Based on the current JBA Groundwater Flood Risk mapping the site is shown to be at Moderate risk of groundwater flooding. Groundwater is shown to be between 0.025m and 0.5m below the ground surface.

Assets

- 2 Please confirm mapping and records for any surface water assets owned or maintained.
Attached plan shows existing highway gullies.
- 2 Please confirm if there are any historic culverted watercourses within or in close vicinity to the site. Please provide map records where available.
None that we are aware of.
- 2 Please can you provide any map records denoting the highway drainage network. Is this a piped system or soakaways?
Attached plan shows existing highway gullies. The highway gullies in this area are connected to the Southern Water surface water sewer.

Policy/Future

- 2 Please confirm the most recent Strategic Flood Risk Assessment (SFRA).
WSSC - January 2010.
- 2 Please confirm if there are any future drainage improvements proposed for this area.
None that we are aware of.
- 2 Please confirm if any drainage studies and/or SWMP have/are being assess for this
area.
None that we are aware of.

Regards,

Kevin Macknay
Flood Risk Management * Team Leader
Highways, Transport and Planning
Place Services
West Sussex County Council

[illegible]

I G. I ~~NO~~ 

vw 2012 Yr 3 IXP / r IXP 0% IXP L-4 0% DMI i IXL b 36/6 9

[illegible]





A259

GREENFIELDS

HIGHFIELD

CLUN

THORGATE ROAD

ELDON WAY

ELDON WAY

LATHAM CLOSE

EGAN WAY

OSBORN CLOSE

ARNDALE ROAD

ARNDALE ROAD

LINESIDE WAY