

Weathered chalk was encountered directly beneath the natural superficial deposits in all boreholes. These deposits were recorded to comprise soft to stiff white sandy gravelly clay and they were noted to be variable in consistency. The base of the weathered chalk was not encountered. However, these deposits were noted to extend to a minimum depth of 5.00mbgl.

Significant groundwater was not encountered in any of the exploratory holes during the investigation. However, the techniques used were rapid and may have masked small seepages.

#### **Soakaway Drainage**

Indicative soakaway testing targeted within the weathered chalk was undertaken in WS01. In summary, the testing has returned a tentative drainage value of  $6.67 \times 10^{-6}$  within the weathered chalk. Therefore, soakaway drainage may be viable for the site. However, it is recommended that this initial value is confirmed by undertaking further testing in accordance with BRE 365.

Soakaway drainage is not considered to be viable in the superficial cohesive deposits overlying the chalk.

#### **Contamination Assessment**

Tier 1 Assessment Criteria for human health with regard to contamination within soils have been produced with reference to values published in LQM/CIEH S4UL and DEFRA's C4SLs. The Tier 1 Assessment Criteria are contained in **Appendix D**. The laboratory analysis results were reviewed against the assessment criteria for a residential with produce end use (considered to be the most stringent scenario). A SOM of 1% has been adopted for the PAH analysis.

An assessment of the analysis results for metals and inorganics contained in **Appendix C**, revealed that the majority of samples do not exceed the respective GAC for a residential with produce end use. However, a marginally elevated concentration of Nickel (198mg/kg) was encountered in the deeper natural soils WS04. However, it is noted that elevated Nickel was not recorded in the shallower sample of topsoil in WS04. Therefore, it is considered that the elevated concentration is encapsulated beneath cleaner material. The risk to end users of the site from this marginally elevated concentration is considered to be negligible. Therefore, further remediation with regard to contaminated soils will not be required.

It is understood that the pitch will be outdoors, and no buildings associated with the pitch development are proposed. Therefore, the risk of ground gas is considered to be negligible. However, should any enclosed buildings be proposed in future, the potential risk of ground gas may need to be assessed.

#### **Waste Acceptance Criteria (WAC) Testing**

Two selected samples of the shallow soils were sent for WAC analysis at a UKAS/MCERTS accredited laboratory. Copies of the WAC test results are included in **Appendix C**, for reference.

In summary, the WAC analysis has revealed that the shallow soils should be classified as non-hazardous for disposal. It is recommended that this assessment is confirmed with the chosen waste handler/operator should off-site disposal of waste soils be required.

#### **Geotechnical Testing**

Geotechnical testing of the shallow soils has illustrated PI values of between 11% to 53% and moisture contents of between 21% to 32%, indicating the underlying deposits to be of a low to high volume change potential. It is recommended that a high-volume change potential is assumed for the shallow soils across the site as a maximum (worst case) classification.

Water Soluble Sulphate and pH analysis revealed results of 13-52mg/ISO4 and 7.8-8.5, respectively.


Geotechnical test results detailing all of the above are contained in **Appendix C**, for reference.

Furthermore, in situ Standard Penetration Testing (SPTs) within the natural strata returned N-values of between 2 to 17 indicating a soft to stiff consistency. SPT results are included on the exploratory hole logs contained in **Appendix B**.

#### **Foundation Design**

It is not considered that significant foundations will be required for the proposed artificial sports pitch. It is also understood that no buildings are proposed for the redevelopment of the site. However, associated structures such as floodlight columns etc., will likely be constructed. Due to the basic construction and anticipated light loadings, it is considered that a reinforced concrete raft will be sufficient for these structures.


A presumed bearing capacity of  $20\text{kN/m}^2$  is anticipated in the shallow natural deposits. Foundations should be deepened through any soft spots if they are encountered. A minimum foundation depth of 1.00mbgl shall apply for the site. It is possible that foundations terminating within the made ground may also be suitable for the proposed

 <b>CLIENT</b> Surfacing Standards Ltd.	Web: <a href="http://www.erda-ld.co.uk">www.erda-ld.co.uk</a> Email: <a href="mailto:p.devitt@erda-ld.co.uk">p.devitt@erda-ld.co.uk</a> Mob: 07531 051197	Date: 19th January 2022 Ground Level: Orientation: Coordinates: Plant: Window Sample Rig Dimensions:	<b>BOREHOLE NO.</b> <b>WS01</b> <hr/> Sheet No. 1 of 1 <hr/> Job No. <b>EAL.178.21</b>
<b>SITE LOCATION</b> Lord Wandsworth College			

Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			SPT Results						Test Sample Details		
				Depth	No	Type	Seating		Test Drive					N Value	Installation
							75mm	75mm	75mm	75mm	75mm	75mm			
MADE GROUND comprising dark brown slightly clayey slightly gravelly sand. Gravel is rounded to angular flint. Rare brick fragments.	0.10 0.20 0.30		0.30 (0.30)	0.20	1	ES									
MADE GROUND comprising light brown slightly gravelly clayey sand. Gravel is rounded to angular flint. Rare brick fragments.	0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10		1.10 (0.80)						2	1	2	3	2	3	10
Stiff orangish brown silty sandy CLAY. Rare rounded to angular chalk and flint.	1.20 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80 2.90		2.90 (1.80)	1.20	2	D			1	2	2	3	3	4	12
Soft white sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular chalk lithorelicts. Completely weathered chalk.	3.00 3.10 3.20 3.30 3.40 3.50 3.60 3.70 3.80 3.90 4.00 4.10 4.20 4.30 4.40 4.50 4.60 4.70 4.80 4.90 5.00		5.00 (2.10)						1	0	0	1	0	1	2
... becoming firm from 4.00mbgl.									2	2	2	2	2	3	9
									1	2	1	1	3	1	6


Borehole terminated at 5.00mbgl.

Casing record			Chiselling records								
Date	Diameter (mm)	Depth (m)	Time	From (m)	To (m)	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks
Remarks: 1. Borehole reinstated with arisings upon completion. 2. No groundwater encountered. 3. Borehole remained stable throughout drilling.								Logged By:	Checked By:	Date	Scale
								PD	PD	19.01.22	NTS

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<b>SITE LOCATION</b> Lord Wandsworth College			

Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			SPT Results						Test Sample Details		
				Depth	No	Type	Seating		Test Drive					N Value	Installation
							75mm	75mm	75mm	75mm	75mm	75mm			
MADE GROUND comprising dark brown slightly clayey slightly gravelly sand. Gravel is rounded to angular flint. Rare brick fragments.	0.10 0.20 0.30 0.40		0.40 (0.40)	0.30	1	ES									
MADE GROUND comprising white sandy gravelly clay. Gravel is fine to coarse sub-angular to angular chalk.	0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70 1.80		1.80 (1.40)	0.60	2	D			2	3	3	3	4	3	13
MADE GROUND comprising brown slightly sandy gravelly clay. Gravel is fine to coarse rounded to angular quartzite and flint.	1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80 2.90 3.00		3.00 (1.20)						1	1	2	2	2	2	8
Stiff orangish brown silty sandy CLAY. Rare rounded to angular chalk and flint.	3.10 3.20 3.30 3.40		3.40 (0.40)						4	3	3	3	3	4	13
Stiff white sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular chalk lithorelicts. Completely weathered chalk.	3.50 3.60 3.70 3.80 3.90 4.00 4.10 4.20 4.30 4.40 4.50 4.60 4.70 4.80 4.90 5.00		5.00 (1.60)						2	2	3	5	4	5	17
Borehole terminated at 5.00mbgl.															


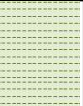


Casing record			Chiselling records								
Date	Diameter (mm)	Depth (m)	Time	From (m)	To (m)	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks
Remarks: 1. Borehole reinstated with arisings upon completion. 2. No groundwater encountered. 3. Borehole remained stable throughout drilling.								Logged By:	Checked By:	Date	Scale
								PD	PD	19.01.22	NTS

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<b>SITE LOCATION</b> Lord Wandsworth College			





Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			SPT Results						Test Sample Details	
				Depth	No	Type	Seating		Test Drive					N Value
							75mm	75mm	75mm	75mm	75mm	75mm		
MADE GROUND comprising dark brown slightly clayey slightly gravelly sand. Gravel is rounded to angular flint.	0.10 0.20 0.30		0.30 (0.30)	0.10	1	ES								
MADE GROUND comprising white sandy gravelly clay. Gravel is fine to coarse sub-angular to angular chalk.	0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70 1.80 1.90		1.90 (1.60)				0	1	2	0	1	3	6	
MADE GROUND comprising brown slightly sandy gravelly clay. Gravel is fine to coarse rounded to angular quartzite and flint.	2.00 2.10 2.20 2.30 2.40		2.40 (0.50)				1	1	2	2	2	3	9	
Firm orangish brown silty sandy CLAY. Rare rounded to angular chalk and flint.	2.50 2.60 2.70 2.80 2.90 3.00		3.00 (0.60)	2.50	2	D								
Stiff white sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular chalk lithorelicts. Completely weathered chalk.  ... becoming firm from 4.00mbgl.	3.10 3.20 3.30 3.40 3.50 3.60 3.70 3.80 3.90 4.00 4.10 4.20 4.30 4.40 4.50 4.60 4.70 4.80 4.90 5.00		5.00 (2.00)				3	4	4	4	3	3	14	
							1	2	1	2	1	3	7	

Borehole terminated at 5.00mbgl.

Casing record			Chiselling records								
Date	Diameter (mm)	Depth (m)	Time	From (m)	To (m)	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks
Remarks: 1. Borehole reinstated with arisings upon completion. 2. No groundwater encountered. 3. Borehole remained stable throughout drilling.							Logged By:	Checked By:	Date	Scale	
							PD	PD	19.01.22	NTS	

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<b>CLIENT</b>  Surfacing Standards Ltd.						<b>SITE LOCATION</b>  Lord Wandsworth College							
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			SPT Results					Test Sample Details	
				Depth	No	Type	Seating 75mm	Test Drive 75mm	75mm	75mm	75mm		N Value
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse rounded to angular flint.	0.10 0.20 0.30 0.40		0.40 (0.40)	0.30	1	ES							
Firm to stiff orangish brown silty sandy CLAY. Rare rounded to angular chalk and flint.	0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70		1.70 (1.30)	0.90	2	D	2	2	3	4	2	1	10
Soft white sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular chalk lithorelicts. Completely weathered chalk.	1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80 2.90 3.00 3.10 3.20 3.30 3.40 3.50 3.60 3.70 3.80 3.90 4.00 4.10 4.20 4.30 4.40 4.50 4.60 4.70 4.80 4.90 5.00			2.00	5	D	1	0	0	1	1	1	3
... becoming firm from 3.00mbgl.							1	3	2	2	3	3	9
... becoming stiff from 4.00mbgl.							1	3	1	2	3	6	12
Borehole terminated at 5.00mbgl.													

Casing record			Chiselling records									
Date	Diameter (mm)	Depth (m)	Time	From (m)	To (m)	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks	
Remarks:									Logged By:	Checked By:	Date	Scale
1. Borehole reinstated with arisings upon completion. 2. No groundwater encountered. 3. Borehole remained stable throughout drilling.									PD	PD	19.01.22	NTS

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			<b>SITE LOCATION</b> Lord Wandsworth College		Sheet No. 1 of 1  Job No. <b>EAL.178.21</b>								
Description of Strata	Reduced level (m)	Legend	Depth (Thickness) m	SAMPLES/TESTS			SPT Results						Test Sample Details
				Depth	No	Type	Seating 75mm	75mm	75mm	Test Drive 75mm	75mm	75mm	
Dark brown slightly gravelly sandy clayey TOPSOIL. Gravel is fine to coarse rounded to angular flint.	0.10 0.20 0.30		0.30 (0.30)										
Stiff orangish brown silty sandy CLAY. Rare rounded to angular chalk and flint.	0.40 0.50 0.60 0.70 0.80 0.90 1.00		1.00 (0.70)	0.90	1	ES	1	3	4	5	5	6	20
Stiff white sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular chalk lithorelicts. Completely weathered chalk.	1.10 1.20 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50 2.60 2.70 2.80 2.90 3.00		3.00 (2.00)	1.60	2	D	4	4	4	4	6	7	21
Borehole terminated at 3.00mbgl.	3.10 3.20 3.30 3.40 3.50 3.60 3.70 3.80 3.90 4.00 4.10 4.20 4.30 4.40 4.50 4.60 4.70 4.80 4.90 5.00			2.40	3	D	7	4	3	3	3	3	12

Casing record			Chiselling records									
Date	Diameter (mm)	Depth (m)	Time	From (m)	To (m)	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks	
Remarks: 1. Borehole reinstated with arisings upon completion. 2. No groundwater encountered. 3. Borehole remained stable throughout drilling.									Logged By: PD	Checked By: PD	Date: 19.01.22	Scale: NTS