

# **HERTS & ESSEX SITE INVESTIGATIONS**

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**GEOTECHNICAL ASSESSMENTS - ENVIRONMENTAL ASSESSMENTS - DESKTOP STUDY - CONTAMINATED LAND**

17<sup>th</sup> December 2019

Our Ref : CSG/15629

Higgins Homes PLC  
One Langston Road,  
Loughton,  
Essex,  
IG10 3SD

**For the attention of L.Mcweeney Esq.,**

Dear Sir,

**Re : Site at Former Cherry Tree Gardens, Cherry Tree Road, Bermondsey, London. SE16 3XU**  
**Geotechnical Investigation Report.**

## **SECTION 1 INTRODUCTION**

- 1.01 In accordance with your instructions, we visited the above site during November 2018.
- 1.02 The purpose of our visit was to carry out an investigation into the subsoil conditions in order to assess the suitability of the site for development of residential dwellings within the site area, in the form of terraced dwellings and flats, forming between two and six stories. Private gardens as well as communal landscaping are also proposed.
- 1.03 The comments and opinions expressed are based purely on the conditions encountered and the subsequent laboratory testing. The location of the investigative works is based on the proposed layout of the site and location of the construction works solely.
- 1.04 Some special condition may be present on site that, to date, has not been encountered within the scope of the site investigation works and therefore will not have been taken into account within this report.
- 1.05 All ground water recordings or their absence relate to short term observations and do not allow for fluctuations due to seasonal or other effects.

## **SECTION 2 DESCRIPTION OF SITE**

- 2.01 Within the east of the site area there is a tarmac parking area in place, this area is accessed from Mark Road to the west and Alexis Street to the north. Limited features are in place within this area, some surface drainage gullies were seen in place. The main building is accessed from the car park area within the east. The building forms a partly single storey and some parts two storey buildings within the center and south of the site area. Limited access was possible at the time of the walk over although it is recorded that classrooms, and amenities are in place although is no longer in use. There is potential for a boiler room to be in place, housing the heating system for the site. Within the east and south east of the site area hard landscaped recreational areas are in place, with various play equipment, seating area as well as smaller fenced off area. Some small plant beds are in place.
- 2.02 To the north of the site area a recreational area in place, forming a treed and grassed area as well as enclosed grassed area to the north east of the site area. To the east of the site area there are commercial units in place off of Southwark Road, with residential unit above and also to the north east of the site area. To the south of the site area on the opposite side of the road residential units area in place, also to the west of the site area residential flats are in place.

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## **SECTION 3    FIELDWORK**

3.01 The scope of the works completed is detailed as follows :-

- 7 No Competitor Rig Windowless Sampler borehole sunk to depths of approximately 3.00 meters - Date of Works – Nov 2018 ( Access to the location of WS3 & WS5 was not possible)
- 2 No Shell and Auger Drilling Rig Boreholes were completed to a depth of 25 meters; - Date of Work – Nov 2019
- Installation of 2 No standpipes to a depth of 6.00 meters for the purpose of ground water assessments;
- Chemical Sampling and Testing recovered from samples and sent to analytical chemist, (26 November 2019).

3.02 The location of these works is indicated on the site plan-forming appendix one.

3.03 The various strata encountered were noted and are recorded on the borehole logs forming appendix two.

3.04 Full ranges of samples were recovered as noted and retained for subsequent laboratory testing.

## **SECTION 4    LABORATORY TESTING**

4.01 All samples were tested in accordance with BS:1377:1990, methods for test for civil engineering purposes.

4.02 Selected samples were recovered to determine their Atterberg Limits, Undrained Triaxial Tests, Particle Size Distribution Testing, Soluble Sulphate value and pH.

4.03 The results of this laboratory testing are enclosed and form appendix three

## **SECTION 5    RESULTS**

5.01 By inspection of the borehole logs and from a visual assessment of the samples recovered, a scheme of laboratory testing has been undertaken. The results are enclosed within appendix three and prove the following:

5.02 Laboratory testing has been undertaken in accordance with BS 1377:1990, (Methods for Tests for Soils for Civil Engineering Purposes), the results of which are enclosed.

5.03 Included within the laboratory testing was sulphate analysis, which can determine the use of sulphate resisting cement within the foundation design for the development. The results are enclosed and prove the classification in accordance with ACEC to be **DS-1/AC-1<sup>S</sup>**.

5.04 Laboratory testing has been undertaken on undisturbed samples recovered from the site works. From the information gathered, it is recorded that cohesion values of between **25-104kN/m<sup>2</sup>** were achieved.

5.05 Atterberg Limits tests proved the Clay to be of Intermediate to high plasticity, (PI=20-34%), which indicates a MODERATE susceptibility to movement associated with moisture content change.

5.06 Particle size distribution testing has been undertaken on the samples recovered from the site works. The results of the testing are enclosed and show the samples tested to contain less than 35% fines and as such, can be considered non-shrinkable due to any change in moisture content.

## **SECTION 6    CONCLUSIONS**

6.01 Any new foundations should be seated at a depth of as a minimum, 0.90 meters below the site level to overcome the impact of weathering. In order for foundations to be seated in materials suitable for the proposed foundations, factors will influence the design which are as follows, (although, this list is not exhaustive) :-

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- Any new foundations should be seated in a uniform geotechnical material with regards possible volume change, future movements and differential settlements based on variable soils;
- Allowable bearing capacity;
- The proposed development;
- Groundwater;
- Trees;
- Topography, and
- Solution Features.

6.02 No groundwater has been identified at the site based on short term observations made.

## Geological Profile

| <b>Stratum</b>                    | <b>Description</b>  | <b>Depth, Range</b> | <b>Thickness, Range</b> |
|-----------------------------------|---|---------------------|-------------------------|
| <b>Made Ground</b>                | Tarmac  | 0.05 – 0.20 meters  | 0.05-0.20 meters        |
|                                   | clayey brick, Concrete and gravel FILL  | 0.50 - 1.70 meters  | 0.40 – 1.59 meters      |
|                                   | brown sand FILL<br>brown silty clay FILL  |                     |                         |
| <b>Kempton Park Gravel Member</b> | Medium dense brown slightly claybound SAND  | 1.30 – 1.80 meters  | 0.60 – 1.30 meters      |
|                                   | Firm brown mottled grey sandy CLAY increasing in silt and sand content with depth | 1.20 - 1.60 meters  | 1.00 meter              |
|                                   | Dense brown SAND & GRAVEL   | 5.00 - 5.40 meters  | 3.35 – 3.60 meters      |
| <b>Lambeth Group</b>              | Very stiff grey sandy slightly silty CLAY with shell fragments                    | 7.00 meters         | 1.40m+ meters           |
|                                   | Very stiff grey sandy slightly silty CLAY with pockets of increase silt           | 8.60 – 7.00 meters  | 1.60 meters             |
|                                   | CLAY with rounded black gravel over SAND with black gravel                        | 9.00 – 9.70 meters  | 1.00 - 1.10 meters      |
|                                   | Dense grey SAND   | 25.00m + meters     | 14.50+ meters           |

**Ground Water** : Groundwater has been identified within the scope of the site works within the Deeper Shell and auger boreholes at 6.00 and 6.20 meters. No long term monitoring has been completed to date.

6.03 The upper geology has identified as a SAND & GRAVEL which is present from a depth of between 1.20-1.80 metres and as such, a primary assessment of the site would suggest that a system of conventional concrete foundations could be utilized for the site founding a reasonable depth into the underlying SAND & GRAVEL geology at a depth of approximately 2.00 metres.

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6.04 Factors which will influence the use of a conventional foundation approach forms one of the following elements :-

- The proposed loadings of the proposed structure should be calculated and an assessment of the bearing capacity values completed to confirm that the loadings do not exceed the allowable bearing capacity of the soils in place;
  - Where granular materials are identified, SPT N-Values have been recorded as part of the site investigation process and from in-situ tests to confirm the allowable bearing capacity of the geology over depth and to consider whether the granular soils are suitable to support any new structures. The SPT N-Values have been recorded on the borehole logs at the depths at which the tests were completed. This should be used as a guide to confirm the allowable bearing capacity of the granular material.
  - The SPT N-Value should be multiplied by 10 as a rule of thumb to dictate the allowable bearing capacity, however;
- If groundwater is recorded within the excavation at a depth which is equal to the foundation width below the foundation depth, the allowable bearing capacity should be halved to take into account buoyancy of fine particles within the groundwater.

6.05 Where Clay soils are in place to depths in excess of 1.50 metres as a result of the influence of surrounding trees and vegetation, we can confirm that any new conventional style foundations should include protection against heave and shrinkage. This should be designed in accordance with NHBC Chapter 4.2, (Building Near Trees).

6.06 It should be noted that granular soils have also been identified within the site and as such, may be unstable upon excavation and collapse of excavations is possible if left open for longer periods of time or if the weather conditions are poor, (rainfall will significantly affect the integrity of any foundation trenches or below ground excavation works). It is possible that if deeper excavations are required as part of the groundworks package, temporary shoring may be required.

6.07 All foundations should be designed by a suitably qualified engineer with regard loading for the proposed structure. This should also take into account the variation in ground level across the site.

6.08 Should the design of the detail above cause foundations to be excessive, we would suggest that a system of piles and ground beams should be utilized for which the information in this report is suitable for design purposes.

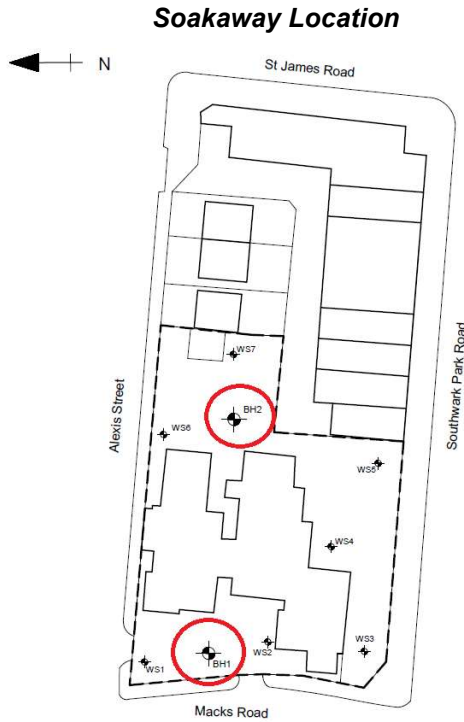
6.09 We would suggest that a suspended floor should be incorporated in the design where foundation depths exceed 1.50m due to the influence of surrounding trees or vegetation or where a FILL material is encountered/present on completion of the development to depths in excess of 0.60m.

## **Soakaway Testing**

6.10 Further to your recent instructions, we have undertaken soakaway tests at the above site to determine the permeability rates for the site soils at locations around the site such that a drainage design may be enabled.

6.11 The test was completed by the design of BS5930 to confirm the permeability of the underlying geology for potential use of the soils a drainage medium for the site. In order to complete these tests, two standpipes were installed within deeper boreholes at the site where two 6.00 meter standpipes installed within the site. This is as follows :-

Figure 1



The results of this testing are enclosed and confirm the following permeability rates

| Location | Test Depth    | Groundwater Depth | Geology             | Permeability Rate (m/sec)     |
|----------|---------------|-------------------|---------------------|-------------------------------|
| BH1      | Over 6 metres | 4.24m             | Dense SAND & GRAVEL | 1.21 X 10 <sup>-6</sup> m/sec |
| BH2      |               | 4.33m             |                     | 1.24 X 10 <sup>-6</sup> m/sec |

6.12 Based on the information gained, we would suggest that the geological profile of the site would be suitable for drainage and soakaway design, although, the existing groundwater elevation is identified at around 4.24-4.33 metres and as such, the will form the maximum depth of the soakaway design. The upper soils from this depth are unsaturated.

**CBR Testing**

6.13 CBR testing has been completed on samples recovered from the boreholes at the site in order to determine road design parameters for the site. This was completed via laboratory CBR Testing and in a laboratory environment.

6.14 From a review of the CBR data, it can be seen that the CBR results are approximately 3% which would suggest that ground improvement techniques are unlikely to be required.

I hope the foregoing is sufficient for your requirements, although please do not hesitate to contact us should require any further information regarding the above.

Yours Faithfully

**C.S.Gray M.Sc**  
Contract Engineer

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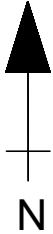
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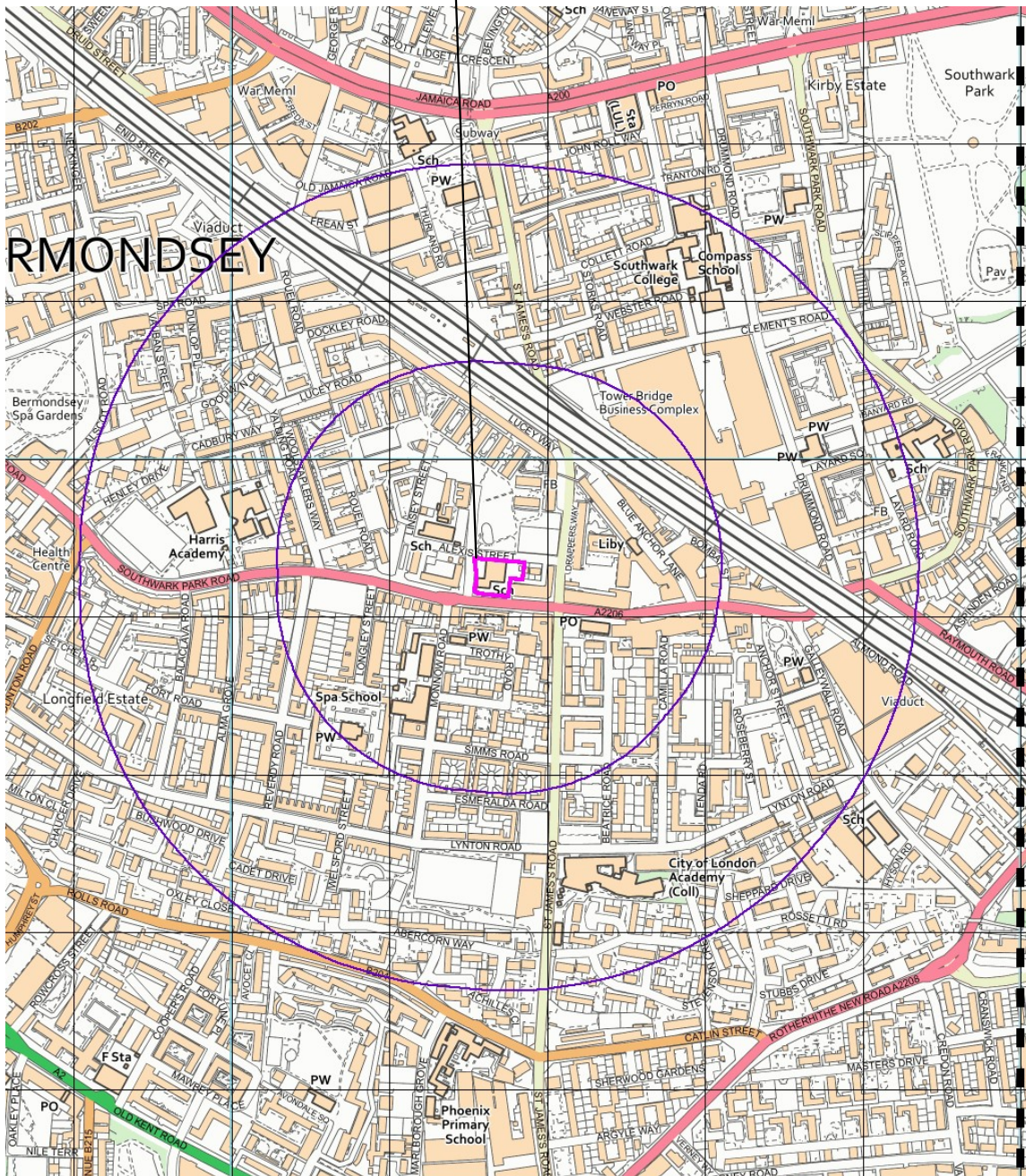
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Job No 15629  
Date Oct 2019

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## Location Plan



The Site



Not to Scale  
Sketch No. : GEO/ 15629 / 01 / 01

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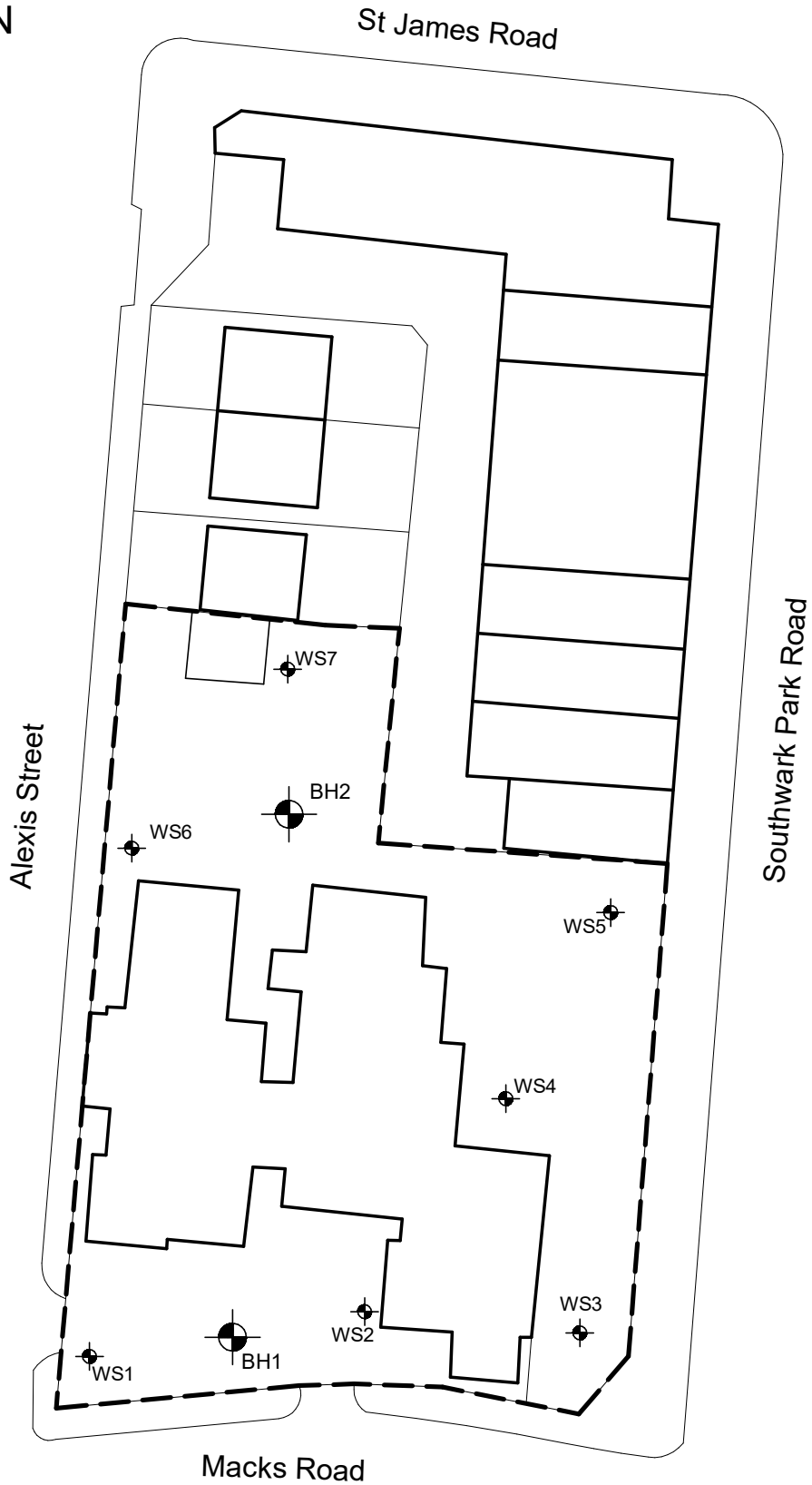
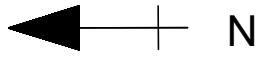
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Existing Site Plan with Sample Locations



Not to Scale  
Sketch No. : GEO / 15629 / 01 / 02

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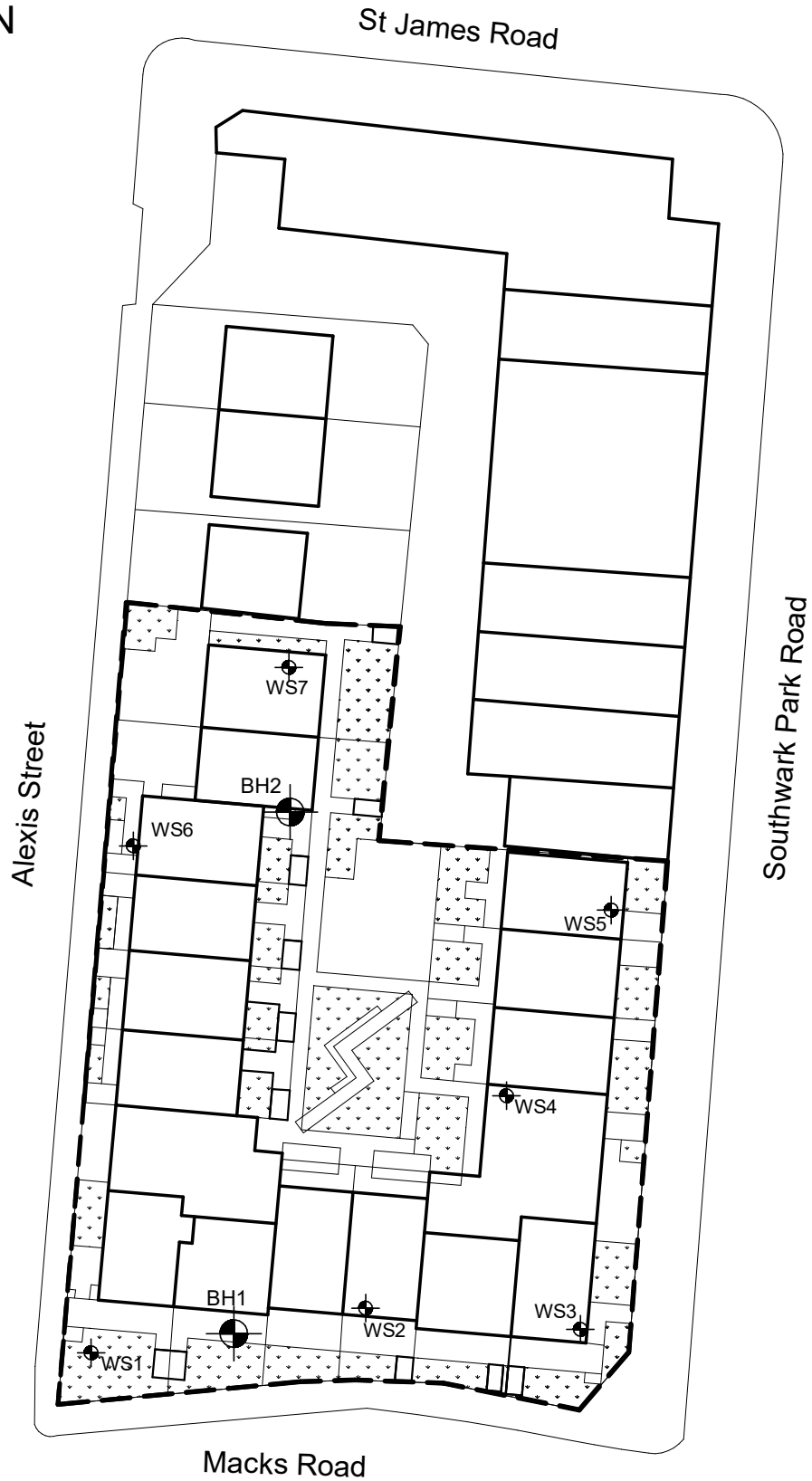
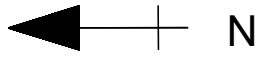
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Proposed Site Plan with Sample Locations



Not to Scale  
Sketch No. : GEO / 15629 / 01 / 03



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Window Sample One

| Description Of Stratum                     | Legend | Depth | Thickness (m) | Water Level | Samples |      |             | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|--|--------|-------|---------------|-------------|---------|------|-------------|--------------------------------|-------------|---------------|-------------------|
|  |        |       |               |             | No      | Type | Depth (m)   |                                |             |               |                   |
| Tarmac                                     |        | 0.10  | 0.10          |             | 1       | U    | GL - 1.00   |                                |             |               |                   |
| MADE GROUND : clayey brick and gravel FILL |        |       | 0.60          |             |         |      |             |                                |             |               |                   |
|  |        | 0.70  |               |             |         |      |             |                                |             |               |                   |
| Medium dense brown slightly claybound SAND |        |       | 0.60          |             | 2       | U    | 1.00-2.00   | N=11                           |             |               | 1.00              |
|  |        | 1.30  |               |             |         |      |             |                                |             |               |                   |
| Dense brown SAND & GRAVEL                  |        |       | 1.70          |             | 3       | U    | 2.00 - 3.00 | N=31                           |             |               |                   |
|  |        | 3.00  |               |             |         |      | 3.00        | N=47                           |             |               |                   |
| Borehole Complete at 3.00 metres           |        |       |               |             |         |      |             |                                |             |               |                   |

Remarks

Scale 1 : 25

Key : U - Undisturbed Sample  
(100mm diameter)

B - Bulk Sample  
▼ - Water Struck

D - Disturbed Sample  
▽ - Water Standing

W - Water Sample  
T - Chemical Tub

N - SPT N-Value  
V - Vane Test, (kN.m<sup>2</sup>)

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Window Sample Two

| Description Of Stratum  | Legend | Depth | Thickness (m) | Water Level | Samples |      |             | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|---|--------|-------|---------------|-------------|---------|------|-------------|--------------------------------|-------------|---------------|-------------------|
|   |        |       |               |             | No      | Type | Depth (m)   |                                |             |               |                   |
| Tarmac  |        | 0.10  | 0.10          |             | 1       | U    | GL - 1.00   |                                |             |               |                   |
| MADE GROUND : brown sand FILL   |        | 0.60  | 0.50          |             |         |      |             |                                |             |               |                   |
| Firm brown mottled grey sandy CLAY increasing in silt and sand content with depth |        | 1.60  | 1.00          |             | 2       | U    | 1.00-2.00   |                                |             |               | 1.00              |
| Dense orange brown SAND & GRAVEL  |        | 3.00  | 1.40          |             | 3       | U    | 2.00 - 3.00 | N=29                           |             |               |                   |
| Borehole Complete at 3.00 metres  |        |       |               |             |         |      | 3.00        | N=33                           |             |               |                   |

Remarks

Scale 1 : 25

Key : U - Undisturbed Sample  
(100mm diameter)

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▽ - Water Standing

W - Water Sample  
T - Chemical Tub

N - SPT N-Value  
V - Vane Test, (kN.m<sup>2</sup>)

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Window Sample Three

| Description Of Stratum                  | Legend | Depth | Thickness (m) | Water Level | Samples |      |           | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|---|--------|-------|---------------|-------------|---------|------|-----------|--------------------------------|-------------|---------------|-------------------|
|   |        |       |               |             | No      | Type | Depth (m) |                                |             |               |                   |
| No Access at the time of the site works |        |       |               |             |         |      |           |                                |             |               |                   |

1.0  
2.0  
3.0  
4.0  
5.0

Remarks

Scale 1 : 25

Key : U - Undisturbed Sample (100mm diameter)    B - Bulk Sample    D - Disturbed Sample    W - Water Sample    N - SPT N-Value  
 ▼ - Water Struck    ∇ - Water Standing    T - Chemical Tub    V - Vane Test, (kN.m<sup>2</sup>)

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Window Sample Four

| Description Of Stratum                             | Legend | Depth | Thickness (m) | Water Level | Samples |      |             | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|--|--------|-------|---------------|-------------|---------|------|-------------|--------------------------------|-------------|---------------|-------------------|
|  |        |       |               |             | No      | Type | Depth (m)   |                                |             |               |                   |
| Tarmac over concrete                               |        | 0.20  | 0.20          |             | 1       | U    | GL - 1.00   |                                |             |               |                   |
| Firm brown silty CLAY with occasional flint gravel |        |       | 1.00          |             |         |      |             |                                |             |               | 1.00              |
|  |        | 1.20  |               |             | 2       | U    | 1.00-2.00   | N=17                           |             |               |                   |
| Firm brown slightly claybound SAND & GRAVEL        |        |       | 0.60          |             |         |      |             |                                |             |               |                   |
|  |        | 1.80  |               |             |         |      |             |                                |             |               |                   |
| Dense orange brown SAND & GRAVEL                   |        |       |               |             | 3       | U    | 2.00 - 3.00 | N=26                           |             |               |                   |
|  |        |       | 1.20          |             |         |      |             |                                |             |               |                   |
|  |        | 3.00  |               |             |         |      | 3.00        | N=39                           |             |               |                   |
| Borehole Complete at 3.00 metres                   |        |       |               |             |         |      |             |                                |             |               |                   |

Remarks

Scale 1 : 25

Key : U - Undisturbed Sample  
(100mm diameter)

B - Bulk Sample  
▼ - Water Struck

D - Disturbed Sample  
◊ - Water Standing

W - Water Sample  
T - Chemical Tub

N - SPT N-Value  
V - Vane Test, (kN.m<sup>2</sup>)



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Window Sample Six

| Description Of Stratum  | Legend | Depth | Thickness (m) | Water Level | Samples |      |             | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|---|--------|-------|---------------|-------------|---------|------|-------------|--------------------------------|-------------|---------------|-------------------|
|   |        |       |               |             | No      | Type | Depth (m)   |                                |             |               |                   |
| Tarmac  |        | 0.10  | 0.10          |             | 1       | U    | GL - 1.00   |                                |             |               |                   |
| MADE GROUND : Brick and concrete hardcore                         |        |       | 0.40          |             |         |      |             |                                |             |               |                   |
|   |        | 0.50  |               |             |         |      |             |                                |             |               |                   |
| MADE GROUND : Brown silty clay FILL                               |        |       | 0.60          |             |         |      |             |                                |             |               |                   |
|   |        | 1.10  |               |             | 2       | U    | 1.00-2.00   | N=16                           |             |               | 1.00              |
| Firm brown silty claybound fine SAND with occasional flint gravel |        |       | 0.40          |             |         |      |             |                                |             |               |                   |
|   |        | 1.50  |               |             |         |      |             |                                |             |               |                   |
| Dense orange brown SAND & GRAVEL                                  |        |       | 1.50          |             | 3       | U    | 2.00 - 3.00 | N=41                           |             |               |                   |
|   |        | 3.00  |               |             |         |      | 3.00        | N=48                           |             |               |                   |
| Borehole Complete at 3.00 metres                                  |        |       |               |             |         |      |             |                                |             |               |                   |

Remarks

Scale 1 : 25

Key : U - Undisturbed Sample (100mm diameter)      B - Bulk Sample      D - Disturbed Sample      W - Water Sample      N - SPT N-Value  
   ▼ - Water Struck      ∇ - Water Standing      T - Chemical Tub      V - Vane Test, (kN.m²)

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Window Sample Seven

| Description Of Stratum                     | Legend | Depth | Thickness (m) | Water Level | Samples |      |             | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|--|--------|-------|---------------|-------------|---------|------|-------------|--------------------------------|-------------|---------------|-------------------|
|  |        |       |               |             | No      | Type | Depth (m)   |                                |             |               |                   |
| Tarmac                                     |        | 0.11  | 0.11          |             | 1       | U    | GL - 1.00   |                                |             |               |                   |
| MADE GROUND : clayey brick and gravel FILL |        |       | 1.59          |             | 2       | U    | 1.00-2.00   | N=16                           |             |               | 1.00              |
| Dense brown SAND & GRAVEL                  |        | 1.70  | 1.30          |             | 3       | U    | 2.00 - 3.00 | N=38                           |             |               |                   |
| Borehole Complete at 3.00 metres           |        | 3.00  |               |             |         |      | 3.00        | N=42                           |             |               |                   |

Remarks

Scale 1 : 25

Key : U - Undisturbed Sample (100mm diameter)    B - Bulk Sample    D - Disturbed Sample    W - Water Sample    N - SPT N-Value  
 ▼ - Water Struck    ∇ - Water Standing    T - Chemical Tub    V - Vane Test, (kN.m<sup>2</sup>)

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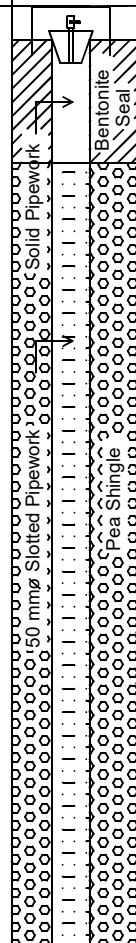
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## Borehole One

| Description Of Stratum  | Legend | Depth | Thickness (m) | Water Level | Samples |      |           | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|---|--------|-------|---------------|-------------|---------|------|-----------|--------------------------------|-------------|---------------|-------------------|
|   |        |       |               |             | No      | Type | Depth (m) |                                |             |               |                   |
| Tarmac (0.10m) over Loose to compact brown sandy gravelly sandy FILL  |        | 0.50  | 0.50          |             |         |      |           |                                |             |               |                   |
| Firm brown sandy slightly silty CLAY  |        | 1.65  | 1.15          |             | 1       | U    | 1.20      |                                |             |               |                   |
| Dense brown SAND & GRAVEL   |        | 5.00  | 3.35          |             | 1       | B    | 2.00      | N=46                           |             |               |                   |
|   |        |       |               | 2           | B       | 3.00 | N=45      |                                |             |               |                   |
|   |        |       |               | 3           | B       | 4.00 | N=45      |                                |             |               |                   |
| Very stiff grey sandy slightly silty CLAY with shell fragments  |        | 7.00  | 2.00          |             | 2       | U    | 5.20      |                                |             |               |                   |
|   |        |       |               | 3           | U       | 6.40 |           |                                |             |               |                   |
| Very stiff grey sandy slightly silty CLAY with pockets of increase silt   |        | 8.60  | 1.60          |             |         |      | 7.10      | N=48                           |             |               |                   |
|   |        |       |               | 4           | B       | 8.60 | N=50+     |                                |             |               |                   |
| Stiff grey mottled brown CLAY with rounded black gravel   |        | 9.00  | 0.40          |             | 5       | B    | 9.00      |                                |             |               |                   |
| Dense yellow SAND with black rounded gravel   |        | 9.70  | 0.70          |             | 6       | B    | 9.70      |                                |             |               |                   |
| Very stiff grey brown mottled grey and brown slightly silty sand CLAY   |        |       | 0.80          |             |         |      |           |                                |             |               |                   |
| <div style="display: flex; justify-content: space-between;"> <span>Remarks</span> <span>Scale 1 : 50</span> </div>  |        |       |               |             |         |      |           |                                |             |               |                   |
| <p>Key : U - Undisturbed Sample (100mm diameter)    B - Bulk Sample    D - Disturbed Sample    W - Water Sample    N - SPT N-Value<br/> <span style="display: inline-block; width: 10px; height: 10px; border: 1px solid black; background-color: white;"></span> - Water Struck    <span style="display: inline-block; width: 10px; height: 10px; border: 1px solid black; background-color: white; border-style: dashed;"></span> - Water Standing    T - Chemical Tub    V - Vane Test, (kN.m<sup>2</sup>)</p> |        |       |               |             |         |      |           |                                |             |               |                   |





# HERTS & ESSEX SITE INVESTIGATIONS

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Appendix No 2  
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Former Cherry Garden School, Cherry House Road, Bermondsey, London SE16 3XU

Borehole One .... continued

| Description Of Stratum  | Legend       | Depth | Thickness (m) | Water Level | Samples |      |           | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|---|--------------|-------|---------------|-------------|---------|------|-----------|--------------------------------|-------------|---------------|-------------------|
|   |              |       |               |             | No      | Type | Depth (m) |                                |             |               |                   |
| As above  |              | 10.5  | 0.50          |             |         |      |           |                                |             |               |                   |
| Dense dark greenish blue brown clayey SAND  |              |       | 1.50          |             | 7       | B    | 10.60     | N=48                           |             |               |                   |
| Dense dark grey SAND  |              | 12.0  |               |             |         |      | 12.00     | N=50+                          |             |               |                   |
|   |              |       |               |             |         |      | 13.50     | N=50+                          |             |               | 3.00 -            |
|   |              |       |               |             |         |      | 15.00     | N=50+                          |             |               |                   |
|   |              |       | 13.00         |             |         |      | 16.50     | N=50+                          |             |               |                   |
|   |              |       |               |             |         |      | 18.00     | N=50+                          |             |               |                   |
|   |              |       |               |             |         |      | 19.50     | N=50+                          |             |               |                   |
| Remarks   | Scale 1 : 50 |       |               |             |         |      |           |                                |             |               |                   |
| <p>Key : U - Undisturbed Sample (100mm diameter)    B - Bulk Sample    D - Disturbed Sample    W - Water Sample    N - SPT N-Value<br/>           ▼ - Water Struck    Δ - Water Standing    T - Chemical Tub    V - Vane Test, (kN.m<sup>2</sup>)</p> |              |       |               |             |         |      |           |                                |             |               |                   |

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Appendix No 2  
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Job No 15629  
Date Nov 2019

Former Cherry Garden School, Cherry House Road, Bermondsey, London SE16 3XU

Borehole One .... continued

| Description Of Stratum  | Legend       | Depth | Thickness (m) | Water Level | Samples |      |           | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|---|--------------|-------|---------------|-------------|---------|------|-----------|--------------------------------|-------------|---------------|-------------------|
|   |              |       |               |             | No      | Type | Depth (m) |                                |             |               |                   |
| As above  |              |       | 13.00         |             |         |      | 21.00     | N=50+                          |             |               | 23.00             |
|   |              |       |               |             |         |      | 22.50     | N=50+                          |             |               |                   |
|   |              |       |               |             |         |      | 24.50     | N=50+                          |             |               |                   |
| Borehole closed at 25.00 meters   |              | 25.0  |               |             |         |      |           |                                |             |               |                   |
| Remarks   | Scale 1 : 50 |       |               |             |         |      |           |                                |             |               |                   |
| <p>Key : U - Undisturbed Sample (100mm diameter)    B - Bulk Sample    D - Disturbed Sample    W - Water Sample    N - SPT N-Value<br/>           ▼ - Water Struck    Δ - Water Standing    T - Chemical Tub    V - Vane Test, (kN.m<sup>2</sup>)</p> |              |       |               |             |         |      |           |                                |             |               |                   |

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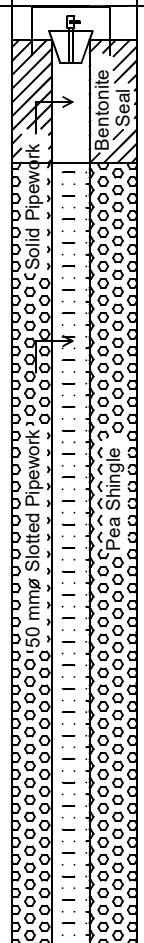
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Sheet No 11  
Job No 15629  
Date Nov 2019

Former Cherry Garden School, Cherry House Road, Bermondsey, London SE16 3XU

## Borehole Two

| Description Of Stratum  | Legend       | Depth | Thickness (m) | Water Level                             | Samples |      |           | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|---|--------------|-------|---------------|---|---------|------|-----------|--------------------------------|-------------|---------------|-------------------|
|   |              |       |               |   | No      | Type | Depth (m) |                                |             |               |                   |
| Tarmac (0.05m) over Loose to compact brown sandy gravelly sandy FILL with fine roots  |              | 0.50  | 0.50          | Water level at finish of boring<br>6.00 |         |      |           |                                |             |               |                   |
| Firm brown clayey SAND  |              | 1.80  | 1.30          |   | 1       | B    | 1.00      | N=10                           |             |               |                   |
| Dense brown SAND & GRAVEL   |              | 5.40  | 3.60          |   | 2       | B    | 1.80      | N=43                           |             |               |                   |
|   |              |       |               |   | 3       | B    | 3.00      | N=46                           |             |               |                   |
|   |              |       |               |   | 4       | B    | 4.00      | N=49                           |             |               |                   |
|   |              |       |               |   | 5       | B    | 5.00      | N=43                           |             |               |                   |
| Very stiff grey sandy slightly silty CLAY   |              | 7.00  | 1.60          |   | 6       | B    | 5.50      | N=25                           |             |               |                   |
| Dense brown clayey SAND with rounded black GRAVEL   |              | 8.00  | 1.00          |   | 7       | B    | 6.50      | N=50+                          |             |               |                   |
| Stiff grey mottled brown CLAY with rounded black gravel   |              | 9.00  | 1.00          |   | 8       | B    | 7.10      | N=50+                          |             |               |                   |
| Stiff greenish blue brown slightly silty sandy CLAY   |              |       | 1.80          |   | 9       | B    | 9.00      | N=50+                          |             |               |                   |
| Remarks   | Scale 1 : 50 |       |               |   |         |      |           |                                |             |               |                   |
| <p>Key : U - Undisturbed Sample (100mm diameter)    B - Bulk Sample    D - Disturbed Sample    W - Water Sample    N - SPT N-Value<br/>           ▼ - Water Struck    ▲ - Water Standing    T - Chemical Tub    V - Vane Test, (kN.m<sup>2</sup>)</p> |              |       |               |   |         |      |           |                                |             |               |                   |



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Appendix No 2  
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Former Cherry Garden School, Cherry House Road, Bermondsey, London SE16 3XU

Borehole Two .... continued

| Description Of Stratum                     | Legend | Depth | Thickness (m) | Water Level | Samples |      |           | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|--|--------|-------|---------------|-------------|---------|------|-----------|--------------------------------|-------------|---------------|-------------------|
|  |        |       |               |             | No      | Type | Depth (m) |                                |             |               |                   |
| As above                                   |        | 11.1  | 1.80          |             |         |      | 10.60     | N=48                           |             |               |                   |
| Dense dark greenish blue brown clayey SAND |        | 11.8  |               |             |         |      | 12.00     | N=50+                          |             |               |                   |
|  |        | 13.0  | 3.20          |             |         |      | 13.50     | N=50+                          |             |               | 3.00 -            |
|  |        | 15.0  |               |             |         |      | 15.00     | N=50+                          |             |               |                   |
| Dense dark grey SAND                       |        | 16.0  |               |             |         |      | 16.50     | N=50+                          |             |               |                   |
|  |        | 17.0  | 10.0          |             |         |      | 18.00     | N=50+                          |             |               |                   |
|  |        | 19.0  |               |             |         |      | 19.50     | N=50+                          |             |               |                   |

Remarks

Scale 1 : 50

Key : U - Undisturbed Sample (100mm diameter)    B - Bulk Sample    D - Disturbed Sample    W - Water Sample    N - SPT N-Value  
                ▼ - Water Struck    Δ - Water Standing    T - Chemical Tub    V - Vane Test, (kN.m<sup>2</sup>)

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Former Cherry Garden School, Cherry House Road, Bermondsey, London SE16 3XU

Borehole One .... continued

| Description Of Stratum  | Legend       | Depth | Thickness (m) | Water Level | Samples |      |           | S.P.T N-Value or Vane Strength | VOC's (ppm) | Installations | Casing Depth, (m) |
|---|--------------|-------|---------------|-------------|---------|------|-----------|--------------------------------|-------------|---------------|-------------------|
|   |              |       |               |             | No      | Type | Depth (m) |                                |             |               |                   |
| As above  |              |       | 10.0          |             |         |      | 21.00     | N=50+                          |             |               | 23.00             |
|   |              |       |               |             |         |      | 22.50     | N=50+                          |             |               |                   |
|   |              |       |               |             |         |      | 24.50     | N=50+                          |             |               |                   |
| Borehole closed at 25.00 meters   |              | 25.0  |               |             |         |      |           |                                |             |               |                   |
| Remarks   | Scale 1 : 50 |       |               |             |         |      |           |                                |             |               |                   |
| <p>Key : U - Undisturbed Sample (100mm diameter)    B - Bulk Sample    D - Disturbed Sample    W - Water Sample    N - SPT N-Value<br/>           ▼ - Water Struck    Δ - Water Standing    T - Chemical Tub    V - Vane Test, (kN.m<sup>2</sup>)</p> |              |       |               |             |         |      |           |                                |             |               |                   |

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Appendix No 3  
 Sheet No 1  
 Job No 15629  
 Date 14 11 19

**LOCATION** *Former Cherry Garden School Bermondsey London SE16 3XU*

## TRIAXIAL TEST RESULTS

| Window Sampler No | Depth (m) | Sample | Natural Moisture Content (%) | Bulk Density (Mg/m <sup>3</sup> ) | Lateral Pressure (kN/m <sup>2</sup> ) | Deviator Stress (kN/m <sup>2</sup> ) | Apparent Cohesion (kN/m <sup>2</sup> ) | Angle of Shearing resistance (degrees) | Remarks |
|-------------------|-----------|--------|------------------------------|-----------------------------------|---------------------------------------|--------------------------------------|--|--|---------|
| WS4               | 1.00      | U      | 22                           | 1.87                              | 20                                    | 74                                   | 37                                     | -                                      |         |
| BH1               | 1.20      | U1     | 27                           | 1.92                              | 24                                    | 49                                   | 25                                     | -                                      |         |
|                   | 5.20      | U2     | 24                           | 1.97                              | 104                                   | 207                                  | 104                                    | -                                      |         |
|                   | 6.40      | U3     | 23                           | 1.95                              | 128                                   | 163                                  | 81                                     | -                                      |         |

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Appendix No 3  
Sheet No 2  
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Date 14 11 19

**LOCATION** *Former Cherry Garden School Bermondsey London SE16 3XU*

## ATTERBERG LIMITS TEST

| Window Sampler | Depth (m) | Sample | Natural Moisture Content (%) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Group Symbol | Ammended Plasticity Index (%) | Roots Present | Desiccation Profile | Percentage Retained on 425 Micron Sieve (%) |
|----------------|-----------|--------|------------------------------|------------------|-------------------|----------------------|--------------|-------------------------------|---------------|---------------------|---|
| WS4            | 1.00      | U      | 22                           | 37               | 17                | 20                   | CI           | 20                            |               |                     | 0   |
| BH1            | 1.20      | U1     | 27                           | 35               | 15                | 20                   | CI           | 20                            |               |                     | 0   |
|                | 5.20      | U2     | 24                           | 59               | 25                | 34                   | CH           | 34                            |               |                     | 0   |
|                | 6.40      | U3     | 23                           | 53               | 23                | 30                   | CH           | 30                            |               |                     | 0   |

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Appendix No 3  
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**LOCATION** *Former Cherry Garden School Bermondsey London SE16 3XU*

## SULPHATE ANALYSIS TEST RESULTS

| Window Sampler | Depth (m) | Sample | Concentrations of Soluble Sulphate |   |             | Classification | pH  |
|----------------|-----------|--------|------------------------------------|---|-------------|----------------|-----|
|                |           |        | Soil                               |   | Groundwater |                |     |
|                |           |        | Total SO <sub>4</sub> (%)          | SO <sub>4</sub> in 2:1 Water:soil (g/l) |             |                |     |
| WS1            | 1.00      | U      |                                    | 0.15                                    |             | DS-1 / AC-1s   | 7.9 |
| WS6            | 1.00      | U      |                                    | 0.23                                    |             | DS-1 / AC-1s   | 7.9 |
| BH1            | 5.20      | U2     |                                    | 0.21                                    |             | DS-1 / AC-1s   | 8.0 |



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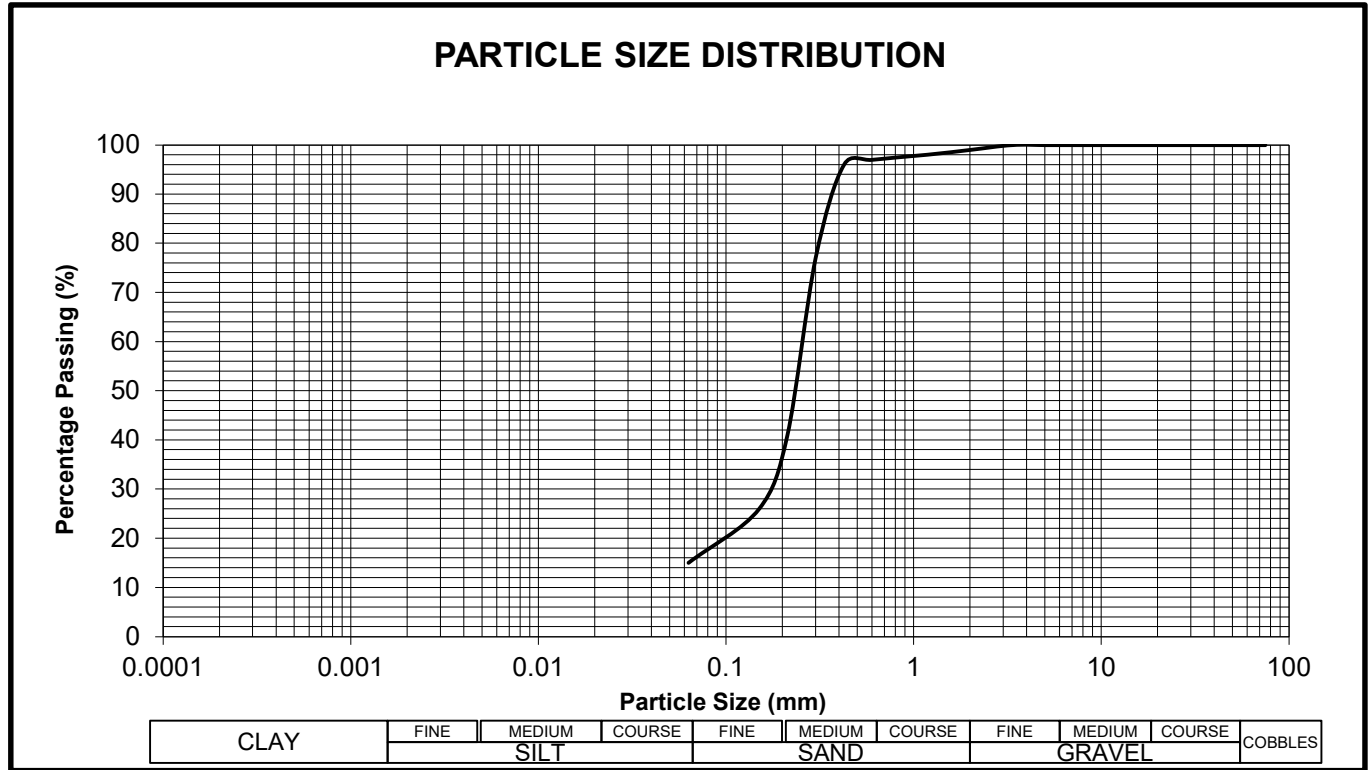
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 Job No. 15629  
 Date 14 11 19

Site Address: **Former Cherry Garden School Bermondsey London SE16 3XU**

Borehole **WS1** Depth : **1** Sampe No: **B**

Initial Mass: 100 g

| Sieve Size (mm) | Weight Retained (g) | Percent Retained (%) | Total Passing (%) |
|-----------------|---------------------|----------------------|-------------------|
| 75              |                     | 0                    | 100               |
| 63              |                     | 0                    | 100               |
| 50              |                     | 0                    | 100               |
| 37.50           |                     | 0                    | 100               |
| 28.00           |                     | 0                    | 100               |
| 20.00           |                     | 0                    | 100               |
| 14.00           |                     | 0                    | 100               |
| 10.00           |                     | 0                    | 100               |
| 6.30            |                     | 0                    | 100               |
| 5.00            |                     | 0                    | 100               |
| 3.35            |                     | 0                    | 100               |
| 2.00            | 1                   | 1                    | 99                |
| 1.180           | 1                   | 1                    | 98                |
| 0.600           | 1                   | 1                    | 97                |
| 0.425           | 1                   | 1                    | 96                |
| 0.300           | 19                  | 19                   | 77                |
| 0.212           | 36                  | 36                   | 41                |
| 0.150           | 15                  | 15                   | 26                |
| 0.063           | 11                  | 11                   | 15                |



Fines (%) = **15** Sands (%) = **84** Gravels = **1**

British Standard Sieve Test 5930:1990 as Per Test 7a

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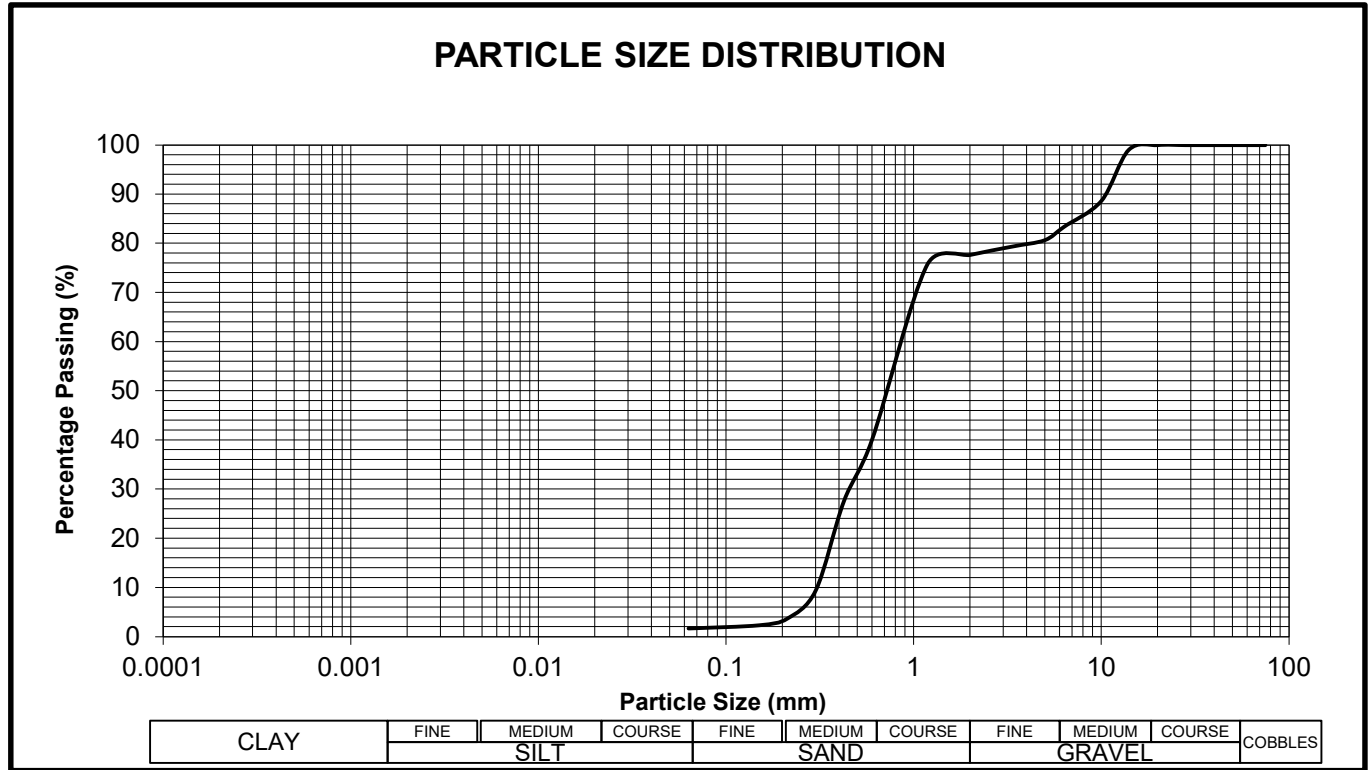
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Site Address: **Former Cherry Garden School Bermondsey London SE16 3XU**

Borehole **WS1** Depth : **2** Sampe No: **B**

Initial Mass: 300 g

| Sieve Size (mm) | Weight Retained (g) | Percent Retained (%) | Total Passing (%) |
|-----------------|---------------------|----------------------|-------------------|
| 75              |                     | 0                    | 100               |
| 63              |                     | 0                    | 100               |
| 50              |                     | 0                    | 100               |
| 37.50           |                     | 0                    | 100               |
| 28.00           |                     | 0                    | 100               |
| 20.00           |                     | 0                    | 100               |
| 14.00           | 3                   | 1                    | 99                |
| 10.00           | 31                  | 10                   | 89                |
| 6.30            | 16                  | 5                    | 83                |
| 5.00            | 8                   | 3                    | 81                |
| 3.35            | 4                   | 1                    | 79                |
| 2.00            | 5                   | 2                    | 78                |
| 1.180           | 6                   | 2                    | 76                |
| 0.600           | 107                 | 36                   | 40                |
| 0.425           | 37                  | 12                   | 28                |
| 0.300           | 55                  | 18                   | 9                 |
| 0.212           | 17                  | 6                    | 4                 |
| 0.150           | 4                   | 1                    | 2                 |
| 0.063           | 2                   | 1                    | 2                 |



295

Fines (%) = **2** Sands (%) = **76** Gravels = **22**

British Standard Sieve Test 5930:1990 as Per Test 7a

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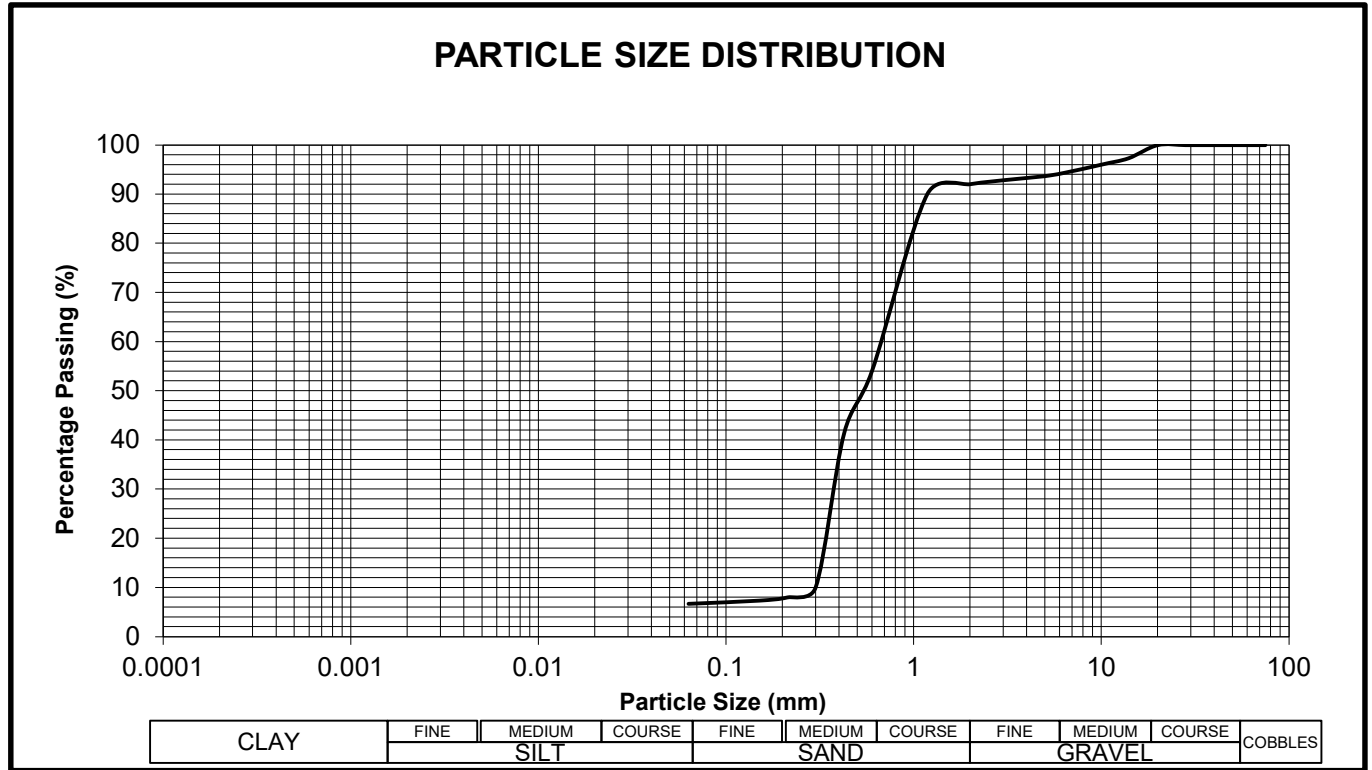
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Site Address: **Former Cherry Garden School Bermondsey London SE16 3XU**

Borehole **WS2** Depth : **1.5** Sampe No: **B**

Initial Mass: 300 g

| Sieve Size (mm) | Weight Retained (g) | Percent Retained (%) | Total Passing (%) |
|-----------------|---------------------|----------------------|-------------------|
| 75              |                     | 0                    | 100               |
| 63              |                     | 0                    | 100               |
| 50              |                     | 0                    | 100               |
| 37.50           |                     | 0                    | 100               |
| 28.00           |                     | 0                    | 100               |
| 20.00           |                     | 0                    | 100               |
| 14.00           | 8                   | 3                    | 97                |
| 10.00           | 4                   | 1                    | 96                |
| 6.30            | 5                   | 2                    | 94                |
| 5.00            | 2                   | 1                    | 94                |
| 3.35            | 2                   | 1                    | 93                |
| 2.00            | 3                   | 1                    | 92                |
| 1.180           | 6                   | 2                    | 90                |
| 0.600           | 108                 | 36                   | 54                |
| 0.425           | 38                  | 13                   | 41                |
| 0.300           | 94                  | 31                   | 10                |
| 0.212           | 6                   | 2                    | 8                 |
| 0.150           | 2                   | 1                    | 7                 |
| 0.063           | 2                   | 1                    | 7                 |



280

Fines (%) = **7** Sands (%) = **85** Gravels = **8**

British Standard Sieve Test 5930:1990 as Per Test 7a

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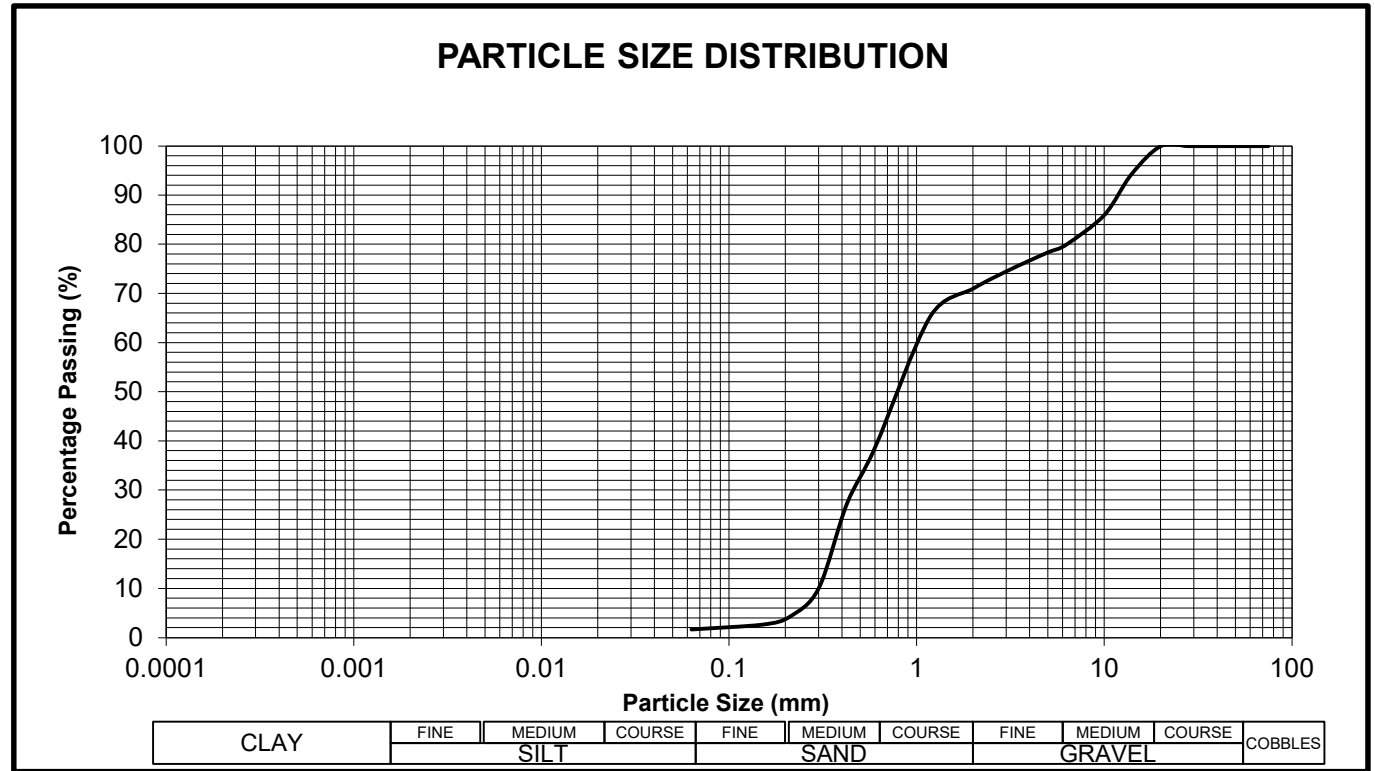
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Site Address: **Former Cherry Garden School Bermondsey London SE16 3XU**

Borehole **WS2** Depth : **3** Sampe No: **B**

Initial Mass: 300 g

| Sieve Size (mm) | Weight Retained (g) | Percent Retained (%) | Total Passing (%) |
|-----------------|---------------------|----------------------|-------------------|
| 75              |                     | 0                    | 100               |
| 63              |                     | 0                    | 100               |
| 50              |                     | 0                    | 100               |
| 37.50           |                     | 0                    | 100               |
| 28.00           |                     | 0                    | 100               |
| 20.00           |                     | 0                    | 100               |
| 14.00           | 17                  | 6                    | 94                |
| 10.00           | 25                  | 8                    | 86                |
| 6.30            | 18                  | 6                    | 80                |
| 5.00            | 5                   | 2                    | 78                |
| 3.35            | 9                   | 3                    | 75                |
| 2.00            | 13                  | 4                    | 71                |
| 1.180           | 17                  | 6                    | 65                |
| 0.600           | 80                  | 27                   | 39                |
| 0.425           | 34                  | 11                   | 27                |
| 0.300           | 52                  | 17                   | 10                |
| 0.212           | 17                  | 6                    | 4                 |
| 0.150           | 5                   | 2                    | 3                 |
| 0.063           | 3                   | 1                    | 2                 |



295

Fines (%) = **2** Sands (%) = **69** Gravels = **29**

British Standard Sieve Test 5930:1990 as Per Test 7a

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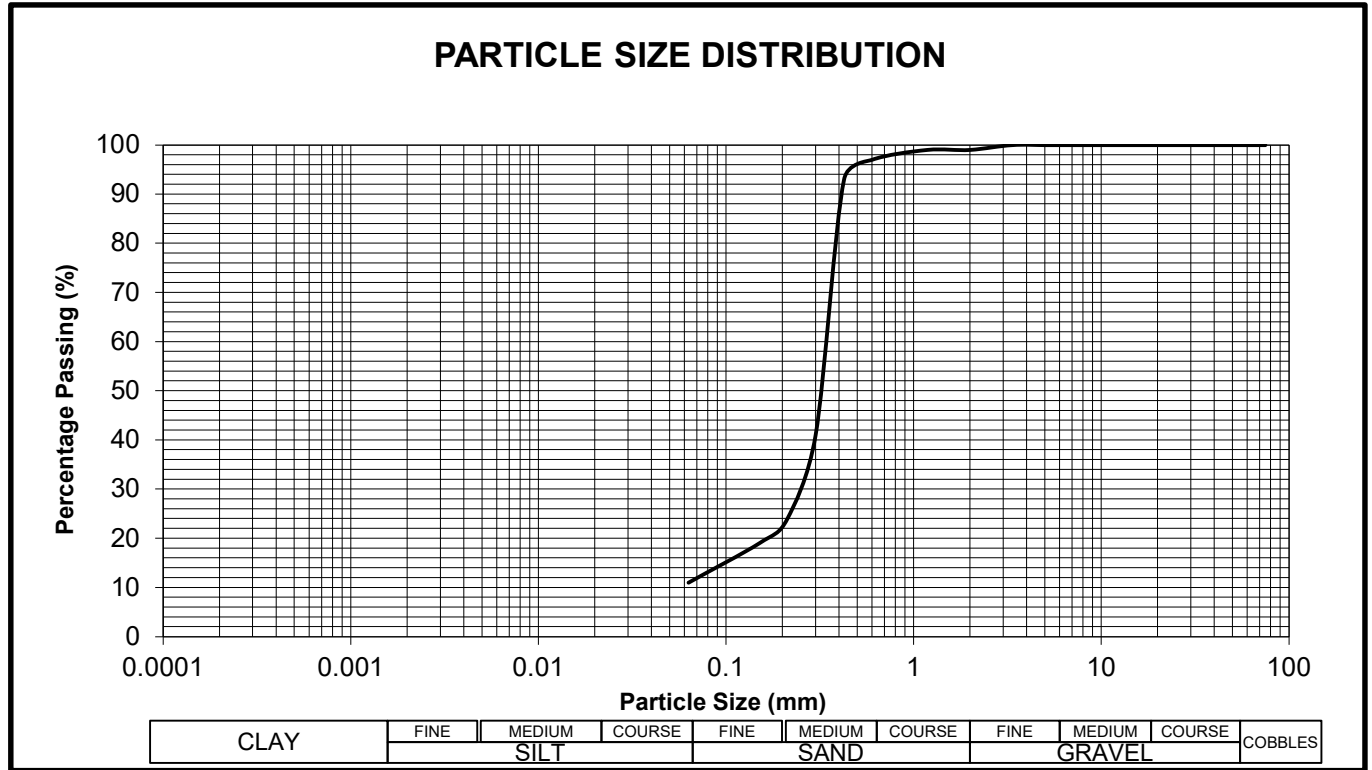
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 Job No. 15629  
 Date 14 11 19

Site Address: **Former Cherry Garden School Bermondsey London SE16 3XU**

Borehole **WS4** Depth : **1.5** Sampe No: **B**

Initial Mass: 100 g

| Sieve Size (mm) | Weight Retained (g) | Percent Retained (%) | Total Passing (%) |
|-----------------|---------------------|----------------------|-------------------|
| 75              |                     | 0                    | 100               |
| 63              |                     | 0                    | 100               |
| 50              |                     | 0                    | 100               |
| 37.50           |                     | 0                    | 100               |
| 28.00           |                     | 0                    | 100               |
| 20.00           |                     | 0                    | 100               |
| 14.00           |                     | 0                    | 100               |
| 10.00           |                     | 0                    | 100               |
| 6.30            |                     | 0                    | 100               |
| 5.00            |                     | 0                    | 100               |
| 3.35            |                     | 0                    | 100               |
| 2.00            | 1                   | 1                    | 99                |
| 1.180           | 0                   | 0                    | 99                |
| 0.600           | 2                   | 2                    | 97                |
| 0.425           | 4                   | 4                    | 93                |
| 0.300           | 52                  | 52                   | 41                |
| 0.212           | 17                  | 17                   | 24                |
| 0.150           | 5                   | 5                    | 19                |
| 0.063           | 8                   | 8                    | 11                |



89

Fines (%) = **11** Sands (%) = **88** Gravels = **1**

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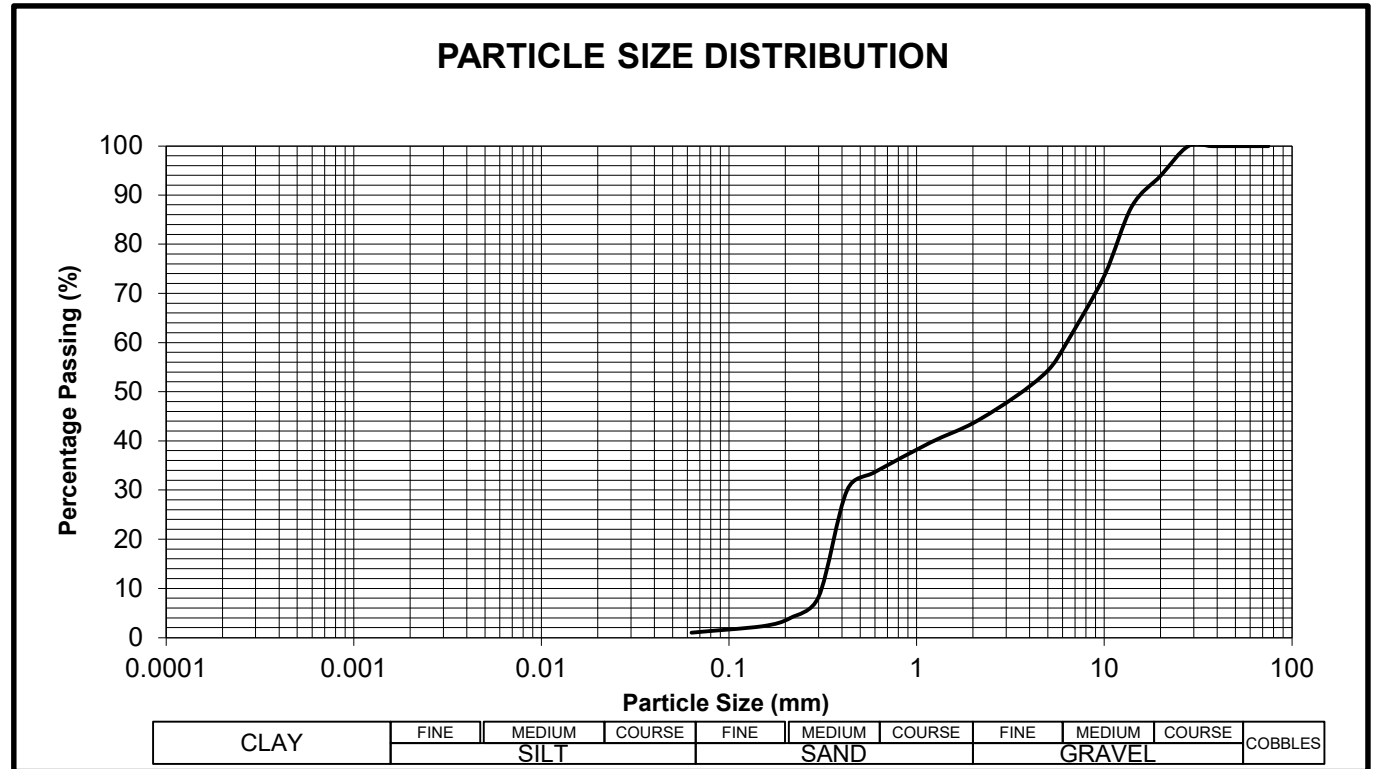
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 Job No. 15629  
 Date 14 11 19

Site Address: **Former Cherry Garden School Bermondsey London SE16 3XU**

Borehole **WS4** Depth : **2.5** Sampe No: **B**

Initial Mass: 300 g

| Sieve Size (mm) | Weight Retained (g) | Percent Retained (%) | Total Passing (%) |
|-----------------|---------------------|----------------------|-------------------|
| 75              |                     | 0                    | 100               |
| 63              |                     | 0                    | 100               |
| 50              |                     | 0                    | 100               |
| 37.50           |                     | 0                    | 100               |
| 28.00           |                     | 0                    | 100               |
| 20.00           | 18                  | 6                    | 94                |
| 14.00           | 19                  | 6                    | 88                |
| 10.00           | 42                  | 14                   | 74                |
| 6.30            | 41                  | 14                   | 60                |
| 5.00            | 17                  | 6                    | 54                |
| 3.35            | 16                  | 5                    | 49                |
| 2.00            | 16                  | 5                    | 44                |
| 1.180           | 12                  | 4                    | 40                |
| 0.600           | 18                  | 6                    | 34                |
| 0.425           | 11                  | 4                    | 30                |
| 0.300           | 65                  | 22                   | 8                 |
| 0.212           | 13                  | 4                    | 4                 |
| 0.150           | 5                   | 2                    | 2                 |
| 0.063           | 4                   | 1                    | 1                 |



297

Fines (%) = **1** Sands (%) = **43** Gravels = **56**

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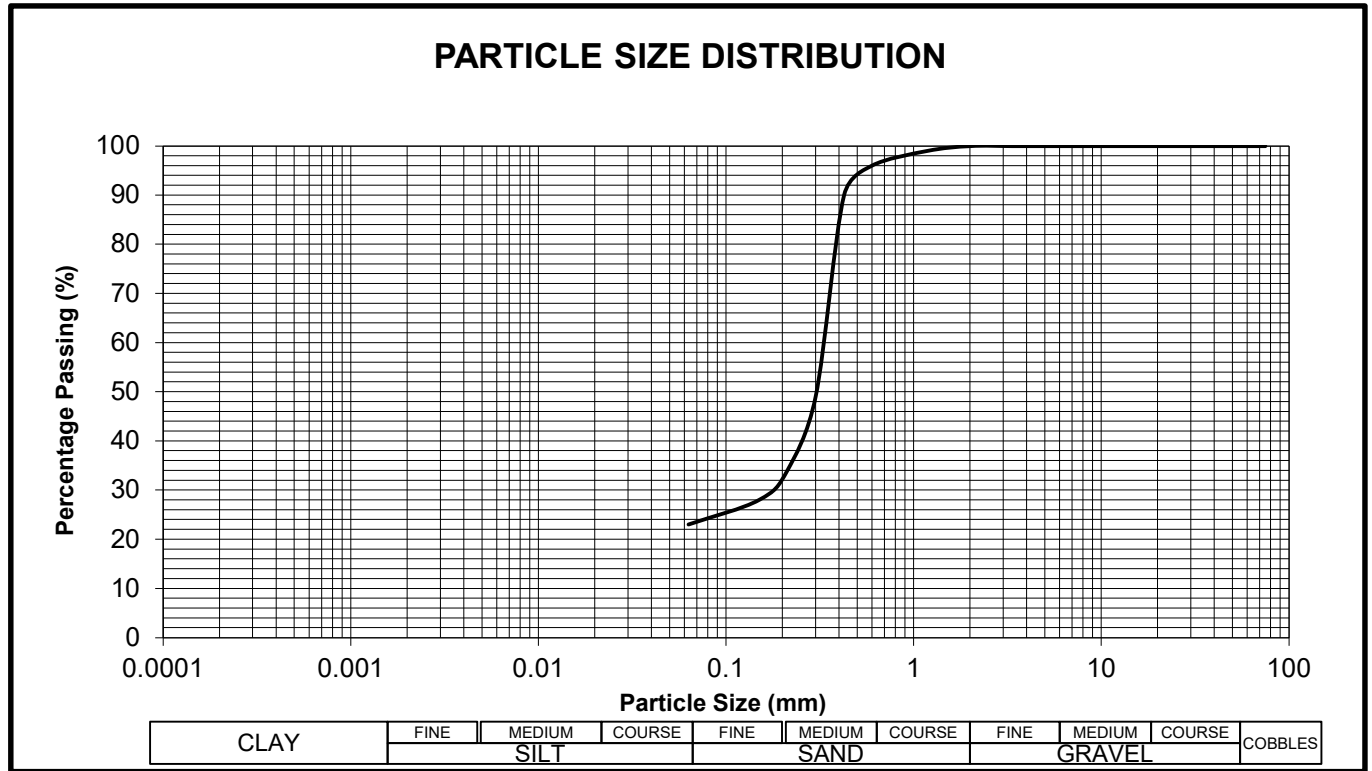
Appendix No. 3  
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 Job No. 15629  
 Date 14 11 19

Site Address: **Former Cherry Garden School Bermondsey London SE16 3XU**

Borehole **WS6** Depth : **1** Sampe No: **B**

Initial Mass: 100 g

| Sieve Size (mm) | Weight Retained (g) | Percent Retained (%) | Total Passing (%) |
|-----------------|---------------------|----------------------|-------------------|
| 75              |                     | 0                    | 100               |
| 63              |                     | 0                    | 100               |
| 50              |                     | 0                    | 100               |
| 37.50           |                     | 0                    | 100               |
| 28.00           |                     | 0                    | 100               |
| 20.00           |                     | 0                    | 100               |
| 14.00           |                     | 0                    | 100               |
| 10.00           |                     | 0                    | 100               |
| 6.30            |                     | 0                    | 100               |
| 5.00            |                     | 0                    | 100               |
| 3.35            |                     | 0                    | 100               |
| 2.00            |                     | 0                    | 100               |
| 1.180           | 1                   | 1                    | 99                |
| 0.600           | 3                   | 3                    | 96                |
| 0.425           | 6                   | 6                    | 90                |
| 0.300           | 41                  | 41                   | 49                |
| 0.212           | 15                  | 15                   | 34                |
| 0.150           | 6                   | 6                    | 28                |
| 0.063           | 5                   | 5                    | 23                |



77

Fines (%) = **23** Sands (%) = **77** Gravels = **0**

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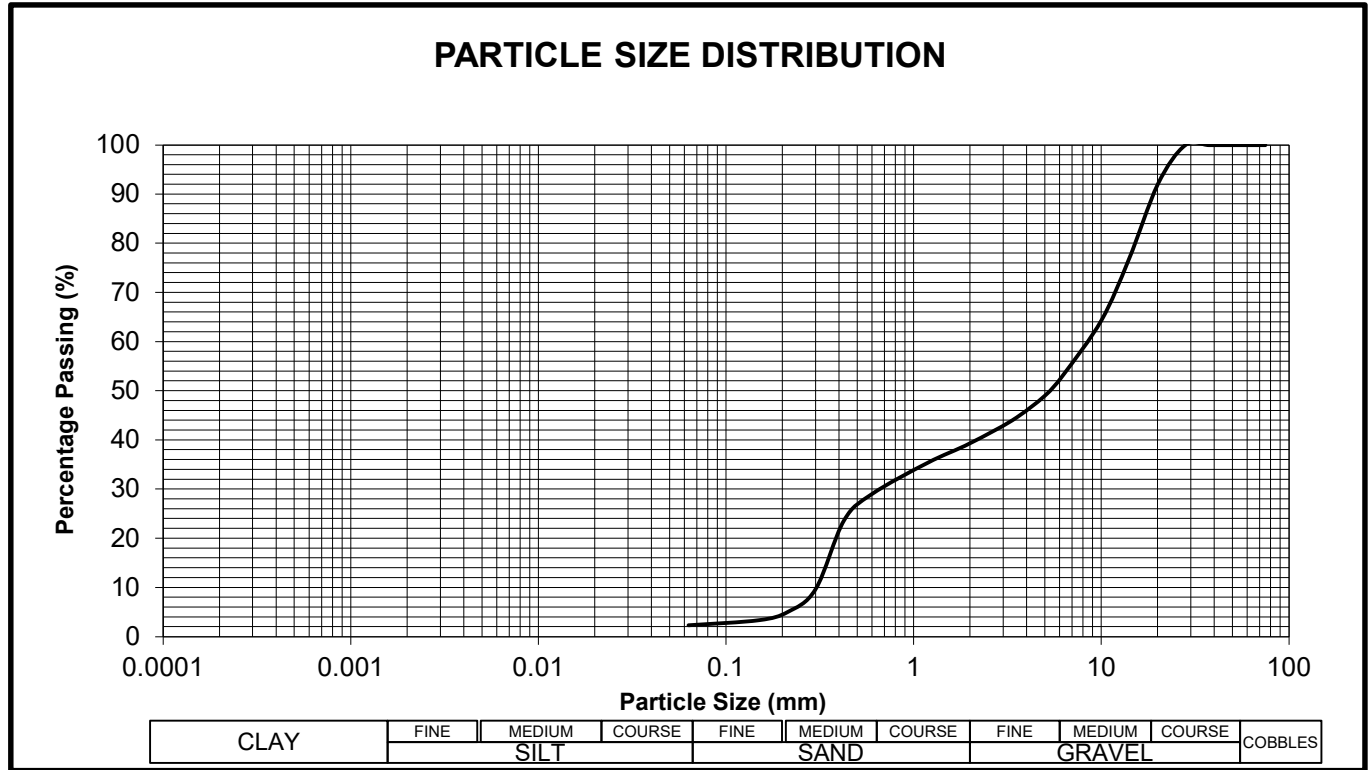
Appendix No. 3  
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 Job No. 15629  
 Date 14 11 19

Site Address: **Former Cherry Garden School Bermondsey London SE16 3XU**

Borehole **WS6** Depth : **2** Sampe No: **B**

Initial Mass: 300 g

| Sieve Size (mm) | Weight Retained (g) | Percent Retained (%) | Total Passing (%) |
|-----------------|---------------------|----------------------|-------------------|
| 75              |                     | 0                    | 100               |
| 63              |                     | 0                    | 100               |
| 50              |                     | 0                    | 100               |
| 37.50           |                     | 0                    | 100               |
| 28.00           |                     | 0                    | 100               |
| 20.00           | 24                  | 8                    | 92                |
| 14.00           | 46                  | 15                   | 77                |
| 10.00           | 37                  | 12                   | 64                |
| 6.30            | 33                  | 11                   | 53                |
| 5.00            | 13                  | 4                    | 49                |
| 3.35            | 15                  | 5                    | 44                |
| 2.00            | 14                  | 5                    | 39                |
| 1.180           | 12                  | 4                    | 35                |
| 0.600           | 19                  | 6                    | 29                |
| 0.425           | 16                  | 5                    | 24                |
| 0.300           | 42                  | 14                   | 10                |
| 0.212           | 14                  | 5                    | 5                 |
| 0.150           | 5                   | 2                    | 3                 |
| 0.063           | 3                   | 1                    | 2                 |



293

Fines (%) = **2** Sands (%) = **37** Gravels = **61**

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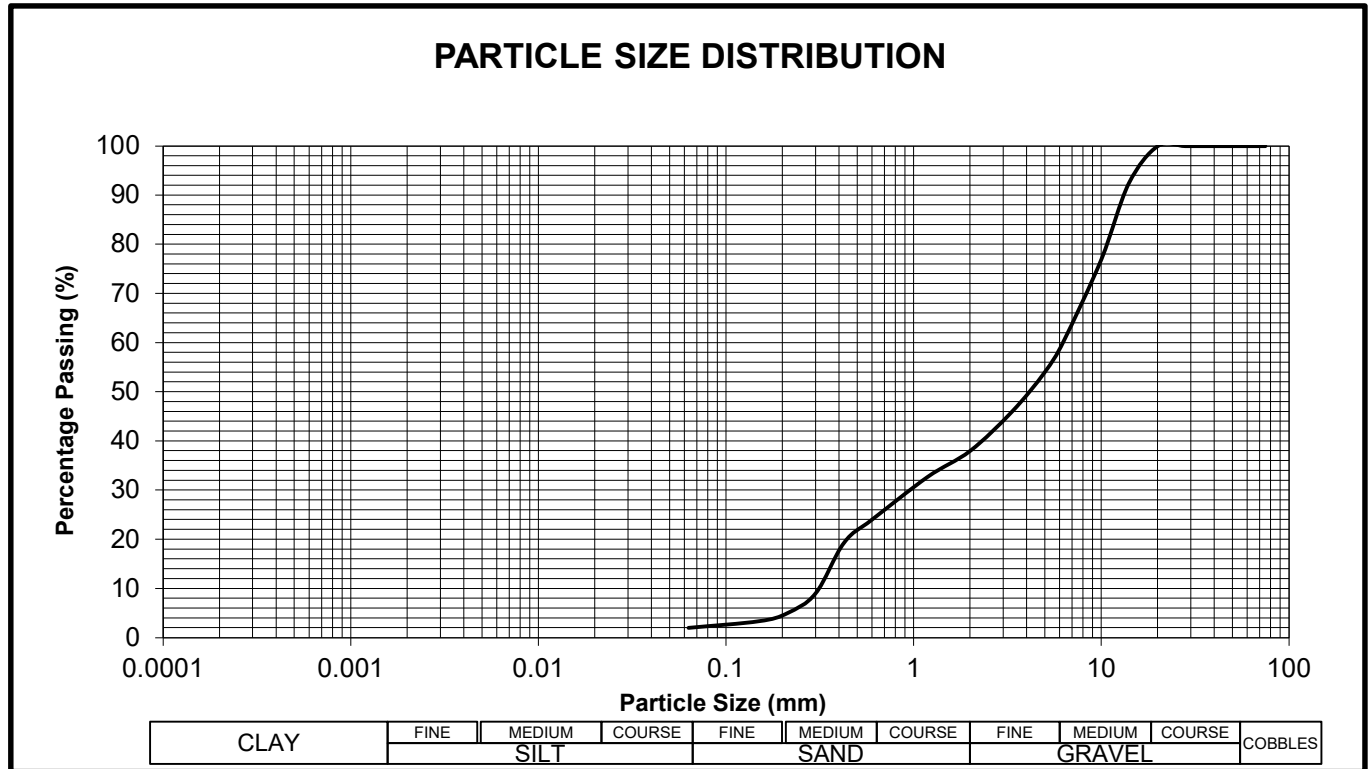
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 Date 14 11 19

Site Address: **Former Cherry Garden School Bermondsey London SE16 3XU**

Borehole **WS7** Depth : **2.5** Sampe No: **B**

Initial Mass: 300 g

| Sieve Size (mm) | Weight Retained (g) | Percent Retained (%) | Total Passing (%) |
|-----------------|---------------------|----------------------|-------------------|
| 75              |                     | 0                    | 100               |
| 63              |                     | 0                    | 100               |
| 50              |                     | 0                    | 100               |
| 37.50           |                     | 0                    | 100               |
| 28.00           |                     | 0                    | 100               |
| 20.00           |                     | 0                    | 100               |
| 14.00           | 23                  | 8                    | 92                |
| 10.00           | 46                  | 15                   | 77                |
| 6.30            | 50                  | 17                   | 60                |
| 5.00            | 19                  | 6                    | 54                |
| 3.35            | 24                  | 8                    | 46                |
| 2.00            | 24                  | 8                    | 38                |
| 1.180           | 16                  | 5                    | 33                |
| 0.600           | 26                  | 9                    | 24                |
| 0.425           | 14                  | 5                    | 19                |
| 0.300           | 31                  | 10                   | 9                 |
| 0.212           | 12                  | 4                    | 5                 |
| 0.150           | 5                   | 2                    | 3                 |
| 0.063           | 4                   | 1                    | 2                 |



294

Fines (%) = **2** Sands (%) = **36** Gravels = **62**

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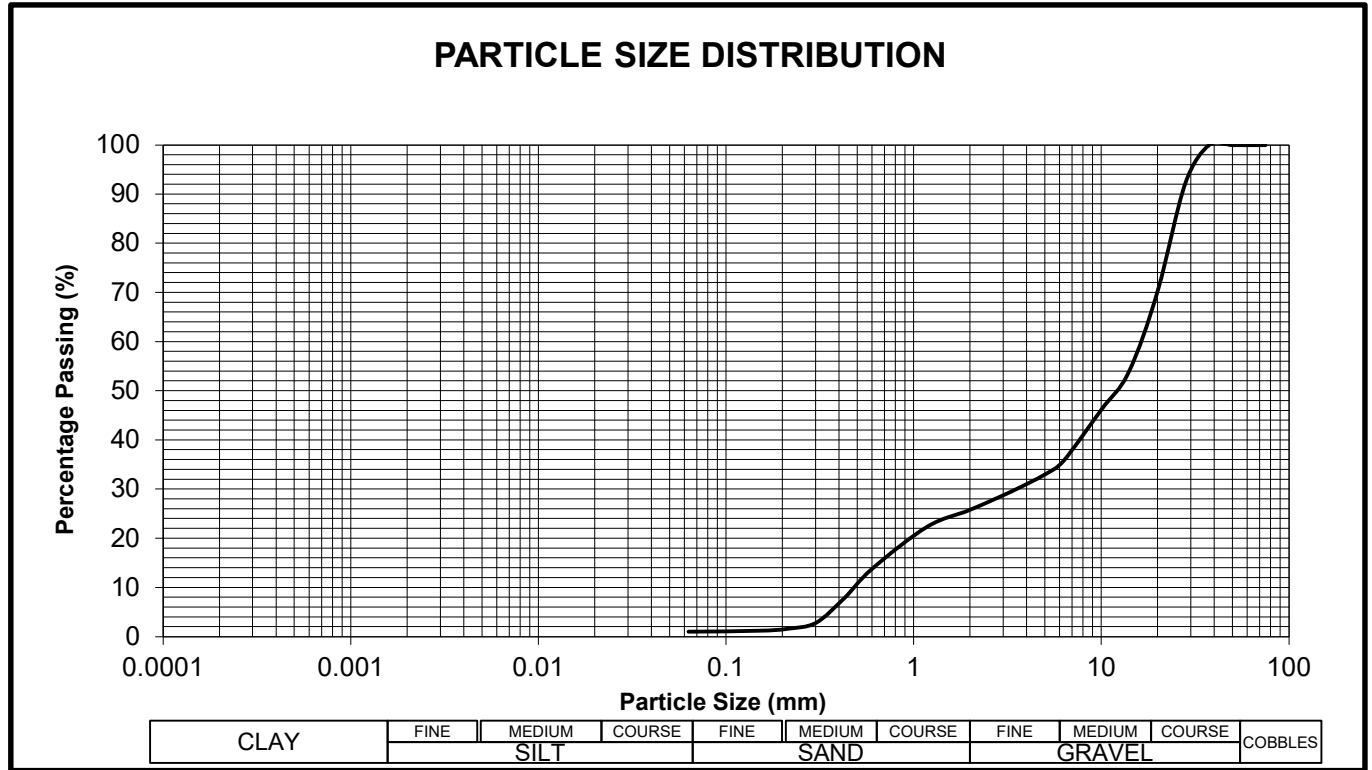
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 Job No. 15629  
 Date 26 11 19

Site Address: **Former Cherry Garden School Bermondsey London SE16 3XU**

Borehole **BH1** Depth : **4** Sampe No: **B**

Initial Mass: 500 g

| Sieve Size (mm) | Weight Retained (g) | Percent Retained (%) | Total Passing (%) |
|-----------------|---------------------|----------------------|-------------------|
| 75              |                     | 0                    | 100               |
| 63              |                     | 0                    | 100               |
| 50              |                     | 0                    | 100               |
| 37.50           |                     | 0                    | 100               |
| 28.00           | 39                  | 8                    | 92                |
| 20.00           | 109                 | 22                   | 70                |
| 14.00           | 83                  | 17                   | 54                |
| 10.00           | 38                  | 8                    | 46                |
| 6.30            | 52                  | 10                   | 36                |
| 5.00            | 14                  | 3                    | 33                |
| 3.35            | 17                  | 3                    | 30                |
| 2.00            | 19                  | 4                    | 26                |
| 1.180           | 17                  | 3                    | 22                |
| 0.600           | 43                  | 9                    | 14                |
| 0.425           | 30                  | 6                    | 8                 |
| 0.300           | 25                  | 5                    | 3                 |
| 0.212           | 6                   | 1                    | 2                 |
| 0.150           | 2                   | 0                    | 1                 |
| 0.063           | 1                   | 0                    | 1                 |



Fines (%) = **1** Sands (%) = **25** Gravels = **74**

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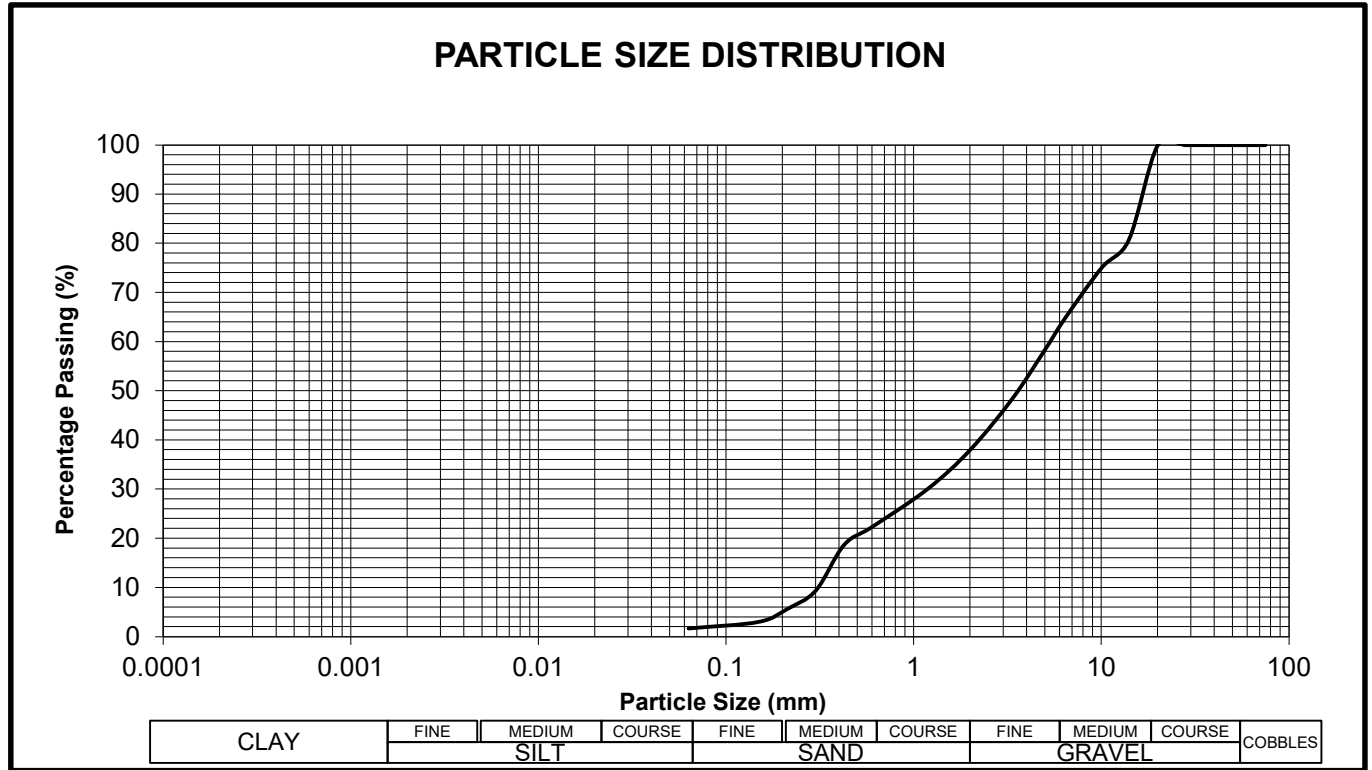
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 Job No. 15629  
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Site Address: **Former Cherry Garden School Bermondsey London SE16 3XU**

Borehole **BH2** Depth : **1.8** Sampe No: **B**

Initial Mass: 300 g

| Sieve Size (mm) | Weight Retained (g) | Percent Retained (%) | Total Passing (%) |
|-----------------|---------------------|----------------------|-------------------|
| 75              |                     | 0                    | 100               |
| 63              |                     | 0                    | 100               |
| 50              |                     | 0                    | 100               |
| 37.50           |                     | 0                    | 100               |
| 28.00           |                     | 0                    | 100               |
| 20.00           |                     | 0                    | 100               |
| 14.00           | 58                  | 19                   | 81                |
| 10.00           | 17                  | 6                    | 75                |
| 6.30            | 32                  | 11                   | 64                |
| 5.00            | 18                  | 6                    | 58                |
| 3.35            | 30                  | 10                   | 48                |
| 2.00            | 31                  | 10                   | 38                |
| 1.180           | 24                  | 8                    | 30                |
| 0.600           | 23                  | 8                    | 22                |
| 0.425           | 11                  | 4                    | 19                |
| 0.300           | 28                  | 9                    | 9                 |
| 0.212           | 11                  | 4                    | 6                 |
| 0.150           | 8                   | 3                    | 3                 |
| 0.063           | 4                   | 1                    | 2                 |



295

Fines (%) = **2** Sands (%) = **36** Gravels = **62**

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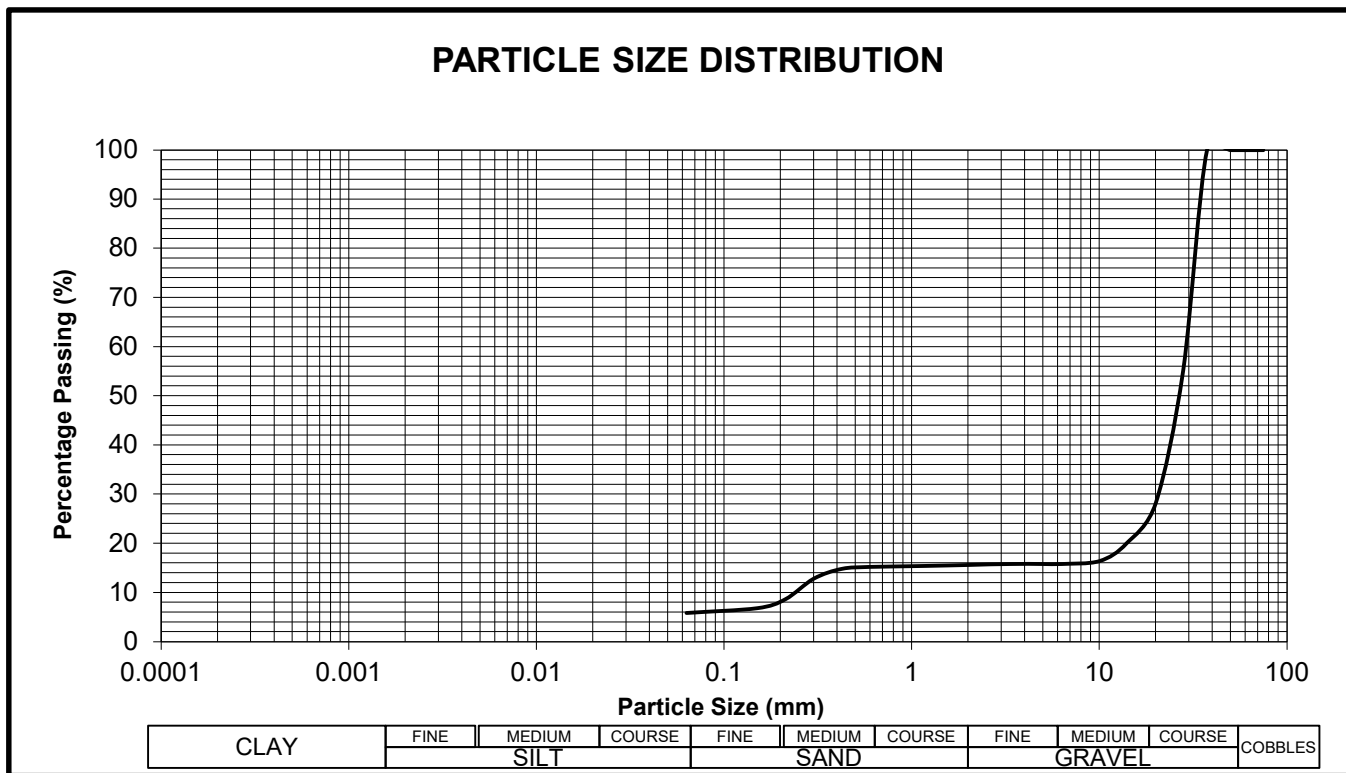
Appendix No. 3  
 Sheet No. 15  
 Job No. 15629  
 Date 26 11 19

Site Address: **Former Cherry Garden School Bermondsey London SE16 3XU**

Borehole **BH2** Depth : **8** Sampe No: **B**

Initial Mass: 500 g

| Sieve Size (mm) | Weight Retained (g) | Percent Retained (%) | Total Passing (%) |
|-----------------|---------------------|----------------------|-------------------|
| 75              |                     | 0                    | 100               |
| 63              |                     | 0                    | 100               |
| 50              |                     | 0                    | 100               |
| 37.50           |                     | 0                    | 100               |
| 28.00           | 223                 | 45                   | 55                |
| 20.00           | 136                 | 27                   | 28                |
| 14.00           | 41                  | 8                    | 20                |
| 10.00           | 18                  | 4                    | 16                |
| 6.30            | 3                   | 1                    | 16                |
| 5.00            | 0                   | 0                    | 16                |
| 3.35            | 0                   | 0                    | 16                |
| 2.00            | 1                   | 0                    | 16                |
| 1.180           | 1                   | 0                    | 15                |
| 0.600           | 1                   | 0                    | 15                |
| 0.425           | 2                   | 0                    | 15                |
| 0.300           | 10                  | 2                    | 13                |
| 0.212           | 21                  | 4                    | 9                 |
| 0.150           | 9                   | 2                    | 7                 |
| 0.063           | 5                   | 1                    | 6                 |



471

Fines (%) = **6** Sands (%) = **10** Gravels = **84**

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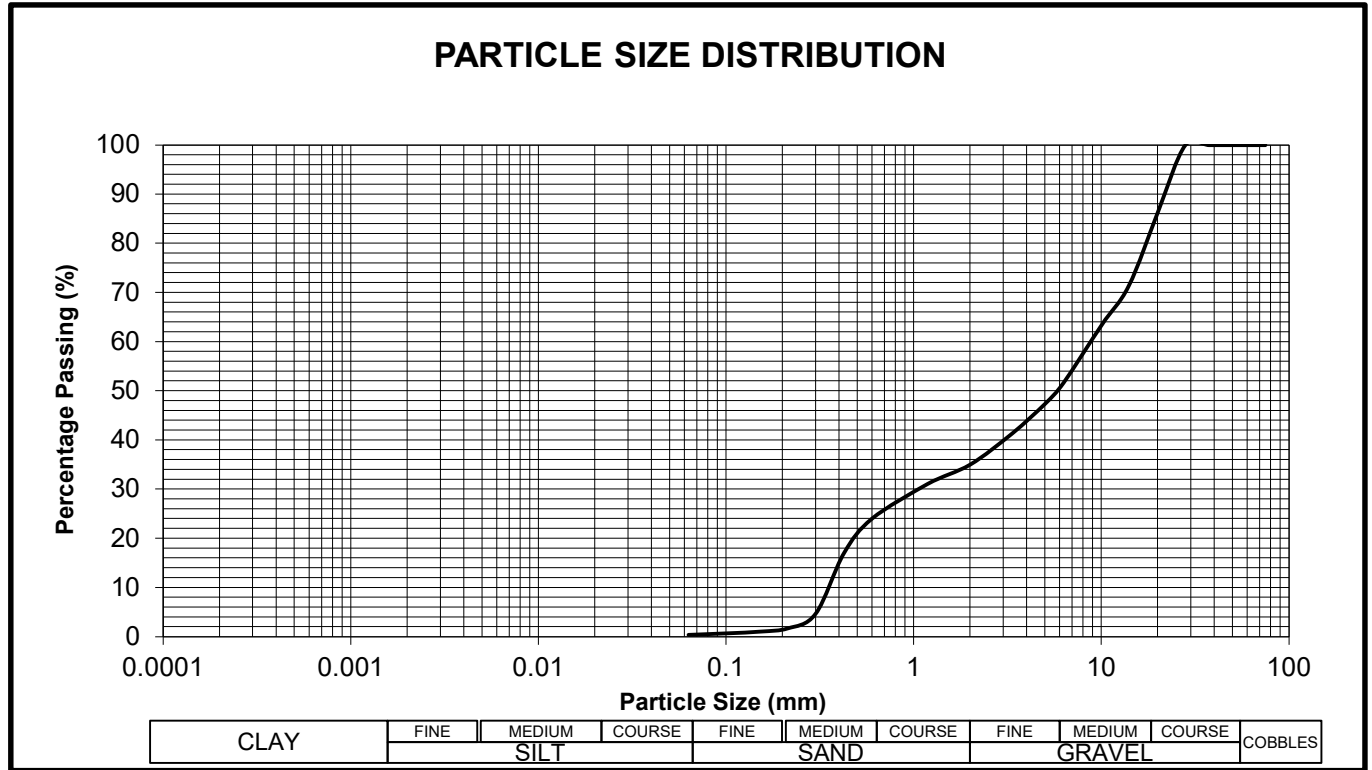
Appendix No. 3  
 Sheet No. 16  
 Job No. 15629  
 Date 26 11 19

Site Address: **Former Cherry Garden School Bermondsey London SE16 3XU**

Borehole **BH2** Depth : **5** Sampe No: **B**

Initial Mass: 300 g

| Sieve Size (mm) | Weight Retained (g) | Percent Retained (%) | Total Passing (%) |
|-----------------|---------------------|----------------------|-------------------|
| 75              |                     | 0                    | 100               |
| 63              |                     | 0                    | 100               |
| 50              |                     | 0                    | 100               |
| 37.50           |                     | 0                    | 100               |
| 28.00           |                     | 0                    | 100               |
| 20.00           | 41                  | 14                   | 86                |
| 14.00           | 45                  | 15                   | 71                |
| 10.00           | 24                  | 8                    | 63                |
| 6.30            | 35                  | 12                   | 52                |
| 5.00            | 13                  | 4                    | 47                |
| 3.35            | 18                  | 6                    | 41                |
| 2.00            | 19                  | 6                    | 35                |
| 1.180           | 12                  | 4                    | 31                |
| 0.600           | 21                  | 7                    | 24                |
| 0.425           | 21                  | 7                    | 17                |
| 0.300           | 37                  | 12                   | 5                 |
| 0.212           | 9                   | 3                    | 2                 |
| 0.150           | 2                   | 1                    | 1                 |
| 0.063           | 2                   | 1                    | 0                 |



299

Fines (%) = **0** Sands (%) = **35** Gravels = **65**

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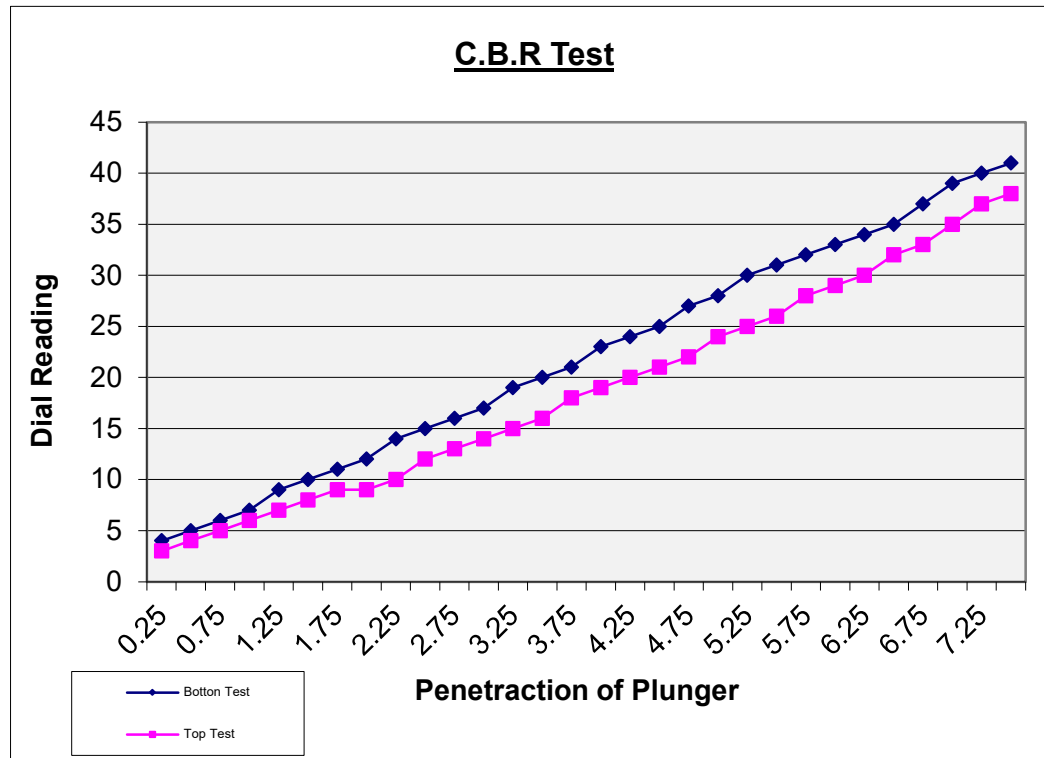
Appendix No 3  
 Sheet No 17  
 Job No 15629  
 Date 12/12/2019

## CALIFORNIA BEARING RATIO

Site Address Former Cherry Garden School Bermondsey London SE16 3XU  
 Ring Factor (n/div) 25.61 Sample Preparation  
 C.B.R No. BH1 Moisture Content (%) 27 2.50kG Yes  
 Depth (m) 0.6 Weight of Sample (g) 6142 4.50kG  
 Sample No. U Weight of Container (g) 4314 Surcharge Weights 4  
 Description : Retention of 20mm Diameter Sieve 16%

| Test         | Top  | Bottom            |
|--------------|------|-------------------|
| C.B.R%       | 2.70 | 3.25              |
| Bulk Density | 1.83 | Mg/m <sup>3</sup> |
| Dry Density  | 1.44 | Mg/m <sup>3</sup> |

| Penetration mm | Top Test 1 Dial Reading | C.B.R Value (%) | Bottom Test 2 Dial Reading | C.B.R Value (%) |
|----------------|-------------------------|-----------------|----------------------------|-----------------|
| 0.25           | 3                       |                 | 4                          |                 |
| 0.50           | 4                       |                 | 5                          |                 |
| 0.75           | 5                       |                 | 6                          |                 |
| 1.00           | 6                       |                 | 7                          |                 |
| 1.25           | 7                       |                 | 9                          |                 |
| 1.50           | 8                       |                 | 10                         |                 |
| 1.75           | 9                       |                 | 11                         |                 |
| 2.00           | 9                       |                 | 12                         |                 |
| 2.25           | 10                      |                 | 14                         |                 |
| 2.50           | 12                      | 2.32            | 15                         | 2.90            |
| 2.75           | 13                      |                 | 16                         |                 |
| 3.00           | 14                      |                 | 17                         |                 |
| 3.25           | 15                      |                 | 19                         |                 |
| 3.50           | 16                      |                 | 20                         |                 |
| 3.75           | 18                      |                 | 21                         |                 |
| 4.00           | 19                      |                 | 23                         |                 |
| 4.25           | 20                      |                 | 24                         |                 |
| 4.50           | 21                      |                 | 25                         |                 |
| 4.75           | 22                      |                 | 27                         |                 |
| 5.00           | 24                      | 3.08            | 28                         | 3.59            |
| 5.25           | 25                      |                 | 30                         |                 |
| 5.50           | 26                      |                 | 31                         |                 |
| 5.75           | 28                      |                 | 32                         |                 |
| 6.00           | 29                      |                 | 33                         |                 |
| 6.25           | 30                      |                 | 34                         |                 |
| 6.50           | 32                      |                 | 35                         |                 |
| 6.75           | 33                      |                 | 37                         |                 |
| 7.00           | 35                      |                 | 39                         |                 |
| 7.25           | 37                      |                 | 40                         |                 |
| 7.50           | 38                      |                 | 41                         |                 |



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Appendix No 3  
Sheet No 18  
Job No 15629  
Date 12/12/2019

## CALIFORNIA BEARING RATIO

Site Address Former Cherry Garden School Bermondsey London SE16 3XU  
Ring Factor (n/div) 25.61 Sample Preparation  
C.B.R No. BH2 Moisture Content (%) 28 2.50kG Yes  
Depth (m) 0.6 Weight of Sample (g) 6174 4.50kG  
Sample No. U Weight of Container (g) 4314 Surcharge Weights 4  
Description : Retention of 20mm Diameter Sieve 16%

| Test         | Top  | Bottom            |
|--------------|------|-------------------|
| C.B.R%       | 3.05 | 3.92              |
| Bulk Density | 1.86 | Mg/m <sup>3</sup> |
| Dry Density  | 1.45 | Mg/m <sup>3</sup> |

| Penetration mm | Top Test 1 Dial Reading | C.B.R Value (%) | Bottom Test 2 Dial Reading | C.B.R Value (%) |
|----------------|-------------------------|-----------------|----------------------------|-----------------|
| 0.25           | 2                       |                 | 4                          |                 |
| 0.50           | 3                       |                 | 5                          |                 |
| 0.75           | 4                       |                 | 7                          |                 |
| 1.00           | 5                       |                 | 8                          |                 |
| 1.25           | 7                       |                 | 11                         |                 |
| 1.50           | 8                       |                 | 12                         |                 |
| 1.75           | 9                       |                 | 14                         |                 |
| 2.00           | 11                      |                 | 15                         |                 |
| 2.25           | 12                      |                 | 17                         |                 |
| 2.50           | 13                      | 2.51            | 18                         | 3.48            |
| 2.75           | 15                      |                 | 20                         |                 |
| 3.00           | 16                      |                 | 22                         |                 |
| 3.25           | 18                      |                 | 23                         |                 |
| 3.50           | 19                      |                 | 25                         |                 |
| 3.75           | 21                      |                 | 27                         |                 |
| 4.00           | 22                      |                 | 28                         |                 |
| 4.25           | 24                      |                 | 30                         |                 |
| 4.50           | 25                      |                 | 31                         |                 |
| 4.75           | 27                      |                 | 33                         |                 |
| 5.00           | 28                      | 3.59            | 34                         | 4.36            |
| 5.25           | 29                      |                 | 36                         |                 |
| 5.50           | 30                      |                 | 37                         |                 |
| 5.75           | 32                      |                 | 39                         |                 |
| 6.00           | 33                      |                 | 40                         |                 |
| 6.25           | 35                      |                 | 41                         |                 |
| 6.50           | 36                      |                 | 43                         |                 |
| 6.75           | 38                      |                 | 45                         |                 |
| 7.00           | 40                      |                 | 47                         |                 |
| 7.25           | 41                      |                 | 49                         |                 |
| 7.50           | 43                      |                 | 51                         |                 |

