

Ref: J18-078-R01

Date: 26<sup>th</sup> November 2018

**FAO: Luke Heathcote**  
**BAM Construct Ltd.**  
Dunsbury Park,  
Fitzwygram Way,  
Havant,  
PO9 4EE

Dear Luke,

**Re: Dunsbury Park Plot 3a – Contamination Assessment**

GCC was commissioned by BAM Construct Ltd to provide a statement to address comments from the Havant Borough Council Environmental Control Officer (ECO), Mr Jonathan Driver, with regard to planning condition A14 – *Contamination*. The comments were presented in a Memorandum from the Environmental Health Department to the Development Control Department, dated 2 July 2018 (Ref: CONS/18/01122).

With regard to the trial pits identified in Plot 3a on the Intrusive Investigation Location plan presented as Figure 2 in the Ridge Ground Condition Assessment, these trial pits were excavated as part of an earthworks assessment to determine the geotechnical properties of a stockpile of soil, the results of which were reported separately. The logs for these trial pits were therefore not included in the Ridge Ground Condition Assessment report. These trial pits did not form part of the contamination assessment for the site.

It is noted that the ECO raised some concerns about elevated copper and zinc concentrations and indications of biological degradation processes on Plot 3. It is also noted that the ECO considers it reasonable to rely upon visual inspection of soils as construction works progress, rather than requiring a proactive pre-commencement investigation of this apparent outlier due to the low sensitivity of the site to these phytotoxic metals, the low gas flow rate at BH517, and robustness of the contamination discovery strategy (reinforced by the provisions of the CEMP).

No additional ground gas monitoring is understood to have taken place on the site since the Ridge monitoring round in April 2017. The monitoring results from the this initial round only identified methane and carbon dioxide concentrations to exceed the CIRIA C665 additional factor concentrations in BH512 and BH513, both of which are located within Plot 1, some 250m to the west of the Plot 3 development, with the gas screening value (GSV) for both these gasses in both of these locations falling below the boundary between a Characteristic Situation 1 and 2 gas regime. The concentrations of methane and carbon dioxide in the monitoring wells within BH515, BH516 and BH517, in Plot 3 were recorded to be significantly below the CIRIA C665 additional factor concentrations (1% v/v methane and 5% v/v carbon dioxide) with a maximum recorded methane concentration of <0.1% v/v and a maximum carbon dioxide concentration of 0.8% v/v.

It is noted that the ECO could not locate the groundwater level monitoring data or how it related to the well response zones following the comment in the Ridge Ground Condition Assessment about several wells being completely flooded during monitoring. This data is presented on the ground as monitoring record sheets presented in Appendix 6 of the Ridge report, wherein the ground gas monitoring data is present in the left section of the upper table, the response zone for each boreholes in presented in the right section of the upper table and the groundwater level data is presented in the lower table. From this data it can be seen that the three monitoring wells in Plot 3 contained some unsaturated response zone and ground gas flow rates of <0.1l/hr. It should also be noted that the only notable elevated ground gas flow rates recorded during the monitoring round, including the 2.0l/hr rate mentioned by the ECO, were associated with wells (BH508 and BH514) where the response zone was flooded.

The ECO makes reference to '13/3 FHA17', which is a reference number given to an inert waste landfill identified on plans in the Groundsure report presented in the Ridge Ground Condition Assessment and noted to be from Environment Agency records, as a possible source of ground gas on site. The Ridge Ground Condition Assessment identified this as a possible source of ground gas but no recorded ground gas concentrations on the site could be attributed to it as the records indicate it to be to the northeast of the site at the top of Dunsbury Hill and on the opposite side of the site to Plot 1 where the only notable ground gas concentrations on the site were recorded. Since the issue of the Ridge Ground Condition Assessment report, GCC has undertaken investigation work on Phase 2, where the inert waste landfill was indicated to be. It is understood that the report on this investigation has not been issued to Havant Borough Council to date so this will be new information to the ECO. However, the investigation found that ground conditions encountered during the investigation confirm the absence of clearly identifiable waste associated with the reported landfill and an initial review of the analysis results against the generic assessment criteria confirmed that there was no significant contamination encountered in the soil.

Consideration has also been given to the total organic carbon (TOC) content of the soil samples analysed from Plot 3. It is noted that nine of the ten samples tested from this area contained TOC contents of less than 1% w/w and the tenth sample only marginally exceeded this level at 1.1% w/w. With reference to CL:AIRE Research Bulletin RB17, the ground conditions in Plot 3 are indicative of a Characteristic Situation 1 gas regime.

It is therefore considered that the lines of evidence of the initial Ridge ground gas monitoring round, the absence of an identified or suspected source of ground gas in the vicinity of Plot 3 and the recorded low organic content of the soils beneath the site, further ground gas monitoring is not considered to be warranted for Plot 3 and the plot should be considered to have a Characteristic Situation 1 gas regime, not requiring ground gas protection measures.

We trust that the comments and explanations presented in this letter will address the concerns raised by the ECO and that sufficient information is available to allow condition A14 to be discharged.

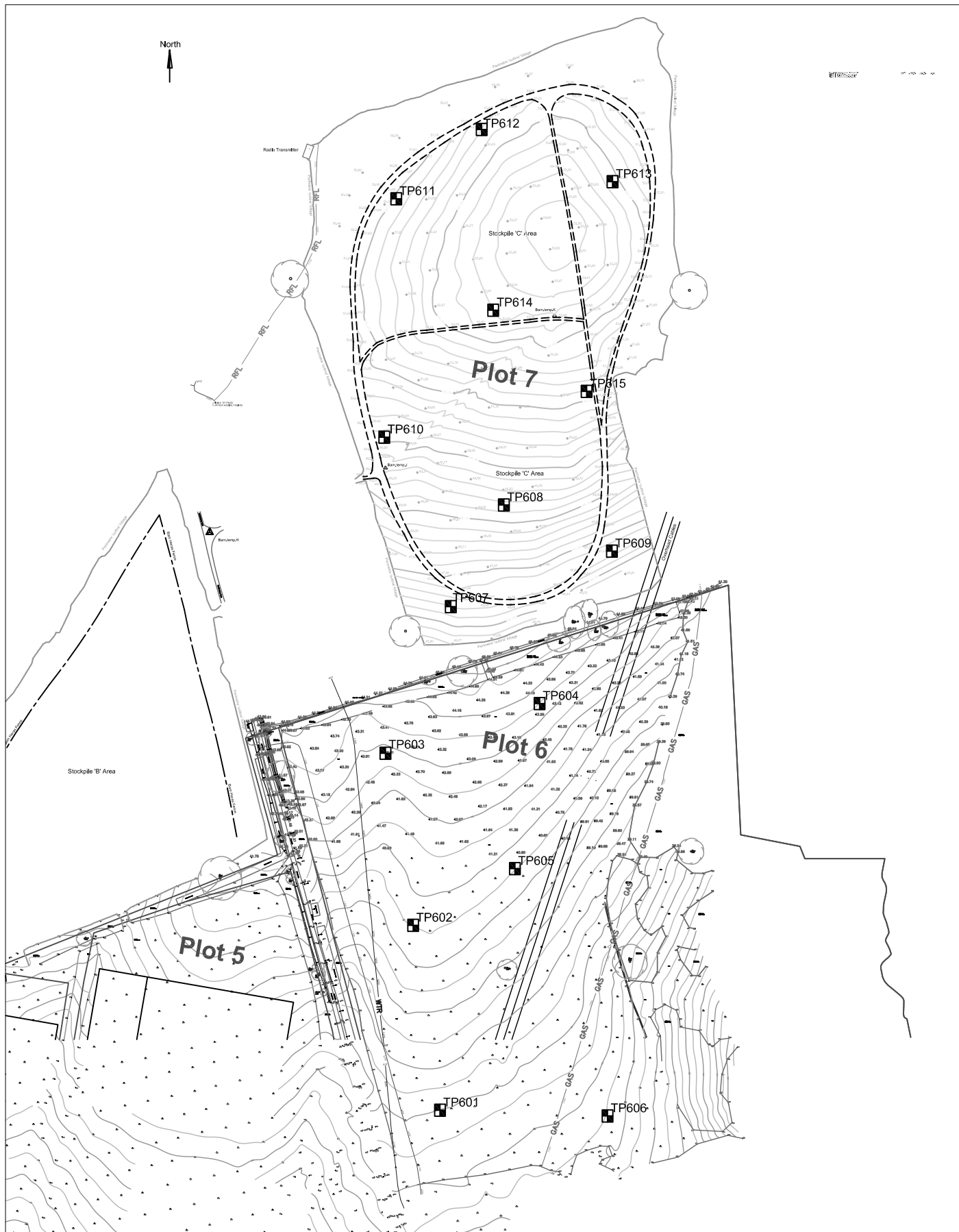
Yours sincerely

A handwritten signature in black ink, appearing to read 'Antony Platt', with a stylized, cursive script.

**ANTONY PLATT**  
Director  
For Ground Condition Consultants Ltd

A handwritten signature in black ink, appearing to read 'Rasmus Palmgren', with a stylized, cursive script.

**RASMUS PALMGREN**  
Director  
For Ground Condition Consultants Ltd



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Telephone 07971 450113  
ask@groundcc.co.uk www.groundcc.co.uk

client  
BAM

site  
DUNSURY PARK PLOTS 6 & 7

title  
INVESTIGATION LOCATION PLAN

scale NTS | drawn by AP | checked by RP

date 17 JAN 2018

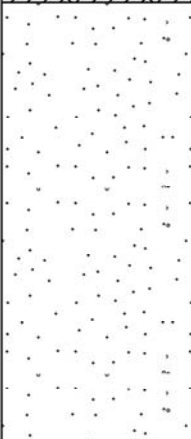
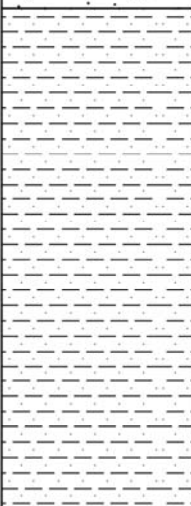
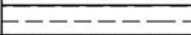
drawing number FIGURE 1 | rev. 0

# TRIAL PIT LOG TP601

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 15/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

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| <b>COMMENTS</b> |
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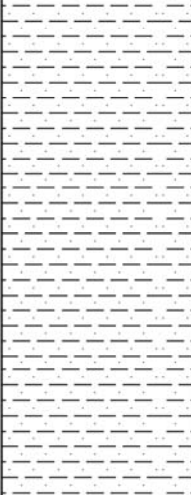
| Depth (m) | Samples       | Water | Graphic Log                                                                         | Material Description                                                                      |
|-----------|---------------|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 0.2       |               |       |    | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)                            |
| 0.4       |               |       |   | Orange brown mottled yellow and grey slightly clayey silty fine SAND (Bognor Sand Member) |
| 0.6       | ES1 - 0.6-1.0 |       |                                                                                     |                                                                                           |
| 0.8       |               |       |                                                                                     |                                                                                           |
| 1.0       |               |       |                                                                                     |                                                                                           |
| 1.2       |               |       |  | Soft to firm orange brown mottled yellow and grey silty sandy CLAY (Bognor Sand Member)   |
| 1.4       |               |       |                                                                                     |                                                                                           |
| 1.6       |               |       |                                                                                     |                                                                                           |
| 1.8       |               |       |                                                                                     |                                                                                           |
| 2.0       |               |       |                                                                                     |                                                                                           |
| 2.2       |               |       |                                                                                     |                                                                                           |
| 2.4       |               |       |                                                                                     |                                                                                           |
| 2.6       |               |       |                                                                                     |                                                                                           |
| 2.8       |               |       |                                                                                     |                                                                                           |
| 3.0       |               |       |                                                                                     |                                                                                           |
| 3.2       |               |       |                                                                                     |                                                                                           |
| 3.4       |               |       |                                                                                     |                                                                                           |
| 3.6       |               |       |  | Firm to stiff grey slightly sandy CLAY (London Clay Formation)                            |
| 3.8       |               |       |                                                                                     | Termination Depth at: 3.6m                                                                |
| 4.0       |               |       |                                                                                     |                                                                                           |
| 4.2       |               |       |                                                                                     |                                                                                           |
| 4.4       |               |       |                                                                                     |                                                                                           |

## TRIAL PIT LOG TP602

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 15/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

|                 |
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| <b>COMMENTS</b> |
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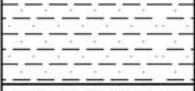
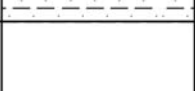
| Depth (m) | Samples       | Water | Graphic Log                                                                         | Material Description                                                                      |
|-----------|---------------|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 0.2       |               |       |    | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)                            |
| 0.4       |               |       |   | Orange brown mottled yellow and grey slightly clayey silty fine SAND (Bognor Sand Member) |
| 0.6       | ES1 - 0.6-1.0 |       |                                                                                     |                                                                                           |
| 0.8       |               |       |                                                                                     |                                                                                           |
| 1.0       |               |       |                                                                                     |                                                                                           |
| 1.2       |               |       |  | Soft to firm orange brown mottled yellow and grey silty sandy CLAY (Bognor Sand Member)   |
| 1.4       |               |       |                                                                                     |                                                                                           |
| 1.6       |               |       |                                                                                     |                                                                                           |
| 1.8       |               |       |                                                                                     |                                                                                           |
| 2.0       |               |       |                                                                                     |                                                                                           |
| 2.2       |               |       |                                                                                     |                                                                                           |
| 2.4       |               |       |                                                                                     |                                                                                           |
| 2.6       |               |       |                                                                                     |                                                                                           |
| 2.8       |               |       |                                                                                     |                                                                                           |
| 3.0       |               |       |                                                                                     |                                                                                           |
| 3.2       |               |       |                                                                                     |                                                                                           |
| 3.2       |               |       |                                                                                     | Termination Depth at: 3.2m                                                                |
| 3.4       |               |       |                                                                                     |                                                                                           |
| 3.6       |               |       |                                                                                     |                                                                                           |
| 3.8       |               |       |                                                                                     |                                                                                           |
| 4.0       |               |       |                                                                                     |                                                                                           |
| 4.2       |               |       |                                                                                     |                                                                                           |
| 4.4       |               |       |                                                                                     |                                                                                           |

# TRIAL PIT LOG TP603

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 15/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

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| <b>COMMENTS</b> |
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| Depth (m) | Samples       | Water | Graphic Log                                                                         | Material Description                                                                                                                                                |
|-----------|---------------|-------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.2       |               |       |    | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)                                                                                                      |
| 0.4       |               |       |    | Soft to firm orange brown mottled yellow and grey silty sandy CLAY with occasional fine to coarse rounded to sub rounded flint gravel to 1.0m. (Bognor Sand Member) |
| 0.6       | ES1 - 0.6-1.0 |       |    |                                                                                                                                                                     |
| 0.8       |               |       |   |                                                                                                                                                                     |
| 1.0       |               |       |  |                                                                                                                                                                     |
| 1.2       |               |       |  | Firm to stiff grey sandy CLAY with occasional shell fragments (London Clay Formation)                                                                               |
| 1.4       |               |       |  |                                                                                                                                                                     |
| 1.6       |               |       |  |                                                                                                                                                                     |
| 1.8       |               |       |  |                                                                                                                                                                     |
| 2.0       |               |       |  |                                                                                                                                                                     |
| 2.2       |               |       |  |                                                                                                                                                                     |
| 2.4       |               |       |  |                                                                                                                                                                     |
| 2.6       |               |       |  |                                                                                                                                                                     |
| 2.8       |               |       |  |                                                                                                                                                                     |
| 3.0       |               |       |  |                                                                                                                                                                     |
| 3.2       |               |       |  |                                                                                                                                                                     |
| 3.4       |               |       |                                                                                     | Termination Depth at: 3.4m                                                                                                                                          |
| 3.6       |               |       |                                                                                     |                                                                                                                                                                     |
| 3.8       |               |       |                                                                                     |                                                                                                                                                                     |
| 4.0       |               |       |                                                                                     |                                                                                                                                                                     |
| 4.2       |               |       |                                                                                     |                                                                                                                                                                     |
| 4.4       |               |       |                                                                                     |                                                                                                                                                                     |

# TRIAL PIT LOG TP604

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 15/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

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| <b>COMMENTS</b> |
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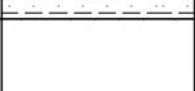
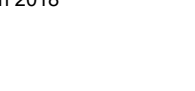
| Depth (m) | Samples       | Water | Graphic Log                                                                         | Material Description                                                                                                         |
|-----------|---------------|-------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| 0.2       |               |       |    | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)                                                               |
| 0.4       |               |       |    | Soft to firm orange brown mottled yellow and grey silty sandy CLAY with clayey silty fine SAND pockets. (Bognor Sand Member) |
| 0.6       | ES1 - 0.6-1.0 |       |    |                                                                                                                              |
| 0.8       |               |       |   |                                                                                                                              |
| 1         |               |       |  |                                                                                                                              |
| 1.2       |               |       |  |                                                                                                                              |
| 1.4       |               |       |  |                                                                                                                              |
| 1.6       |               |       |  |                                                                                                                              |
| 1.8       |               |       |  |                                                                                                                              |
| 2         |               |       |  |                                                                                                                              |
| 2.2       |               |       |  |                                                                                                                              |
| 2.4       |               |       |  |                                                                                                                              |
| 2.6       |               |       |  |                                                                                                                              |
| 2.8       |               |       |  |                                                                                                                              |
| 3         |               |       |  |                                                                                                                              |
| 3.2       |               |       |  |                                                                                                                              |
| 3.4       |               |       |                                                                                     | Termination Depth at: 3.3m                                                                                                   |
| 3.6       |               |       |                                                                                     |                                                                                                                              |
| 3.8       |               |       |                                                                                     |                                                                                                                              |
| 4         |               |       |                                                                                     |                                                                                                                              |
| 4.2       |               |       |                                                                                     |                                                                                                                              |
| 4.4       |               |       |                                                                                     |                                                                                                                              |

# TRIAL PIT LOG TP605

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 15/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

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| <b>COMMENTS</b> |
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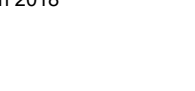
| Depth (m) | Samples       | Water | Graphic Log                                                                         | Material Description                                                                                                |
|-----------|---------------|-------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| 0.2       |               |       |    | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)                                                      |
| 0.4       |               |       |    | Soft to firm orange brown mottled yellow and grey silty sandy CLAY and clayey silty fine SAND. (Bognor Sand Member) |
| 0.6       | ES1 - 0.6-1.0 |       |    |                                                                                                                     |
| 0.8       |               |       |   |                                                                                                                     |
| 1         |               |       |  |                                                                                                                     |
| 1.2       |               |       |  |                                                                                                                     |
| 1.4       |               |       |  |                                                                                                                     |
| 1.6       |               |       |  |                                                                                                                     |
| 1.8       |               |       |  |                                                                                                                     |
| 2         |               |       |  |                                                                                                                     |
| 2.2       |               |       |  |                                                                                                                     |
| 2.4       |               |       |  |                                                                                                                     |
| 2.6       |               |       |  |                                                                                                                     |
| 2.8       |               |       |  |                                                                                                                     |
| 3         |               |       |  |                                                                                                                     |
| 3.2       |               |       |  |                                                                                                                     |
| 3.4       |               |       |  |                                                                                                                     |
| 3.6       |               |       |  | Firm to stiff grey sandy CLAY (London Clay Formation)                                                               |
| 3.8       |               |       |                                                                                     | Termination Depth at: 3.7m                                                                                          |
| 4         |               |       |                                                                                     |                                                                                                                     |
| 4.2       |               |       |                                                                                     |                                                                                                                     |
| 4.4       |               |       |                                                                                     |                                                                                                                     |

# TRIAL PIT LOG TP606

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 15/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

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| <b>COMMENTS</b> |
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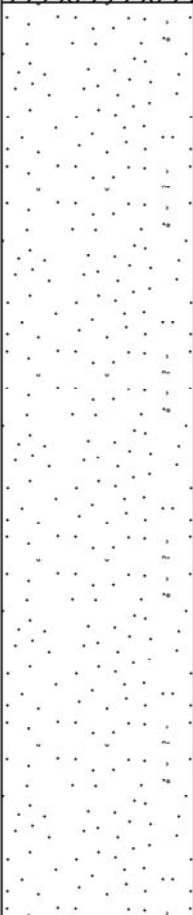
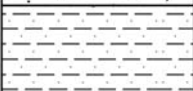
| Depth (m) | Samples       | Water | Graphic Log                                                                         | Material Description                                                                                                |
|-----------|---------------|-------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| 0.2       |               |       |    | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)                                                      |
| 0.4       |               |       |    | Soft to firm orange brown mottled yellow and grey silty sandy CLAY and clayey silty fine SAND. (Bognor Sand Member) |
| 0.6       | ES1 - 0.6-1.0 |       |    |                                                                                                                     |
| 0.8       |               |       |   |                                                                                                                     |
| 1         |               |       |  |                                                                                                                     |
| 1.2       |               |       |  |                                                                                                                     |
| 1.4       |               |       |  |                                                                                                                     |
| 1.6       |               |       |  |                                                                                                                     |
| 1.8       |               |       |  |                                                                                                                     |
| 2         |               |       |  |                                                                                                                     |
| 2.2       |               |       |  |                                                                                                                     |
| 2.4       |               |       |  |                                                                                                                     |
| 2.6       |               |       |  |                                                                                                                     |
| 2.8       |               |       |  |                                                                                                                     |
| 3         |               |       |  |                                                                                                                     |
| 3.2       |               |       |  |                                                                                                                     |
| 3.4       |               |       |  |                                                                                                                     |
| 3.6       |               |       |                                                                                     | Termination Depth at: 3.6m                                                                                          |
| 3.8       |               |       |                                                                                     |                                                                                                                     |
| 4         |               |       |                                                                                     |                                                                                                                     |
| 4.2       |               |       |                                                                                     |                                                                                                                     |
| 4.4       |               |       |                                                                                     |                                                                                                                     |

# TRIAL PIT LOG TP607

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 15/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

|                 |
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| <b>COMMENTS</b> |
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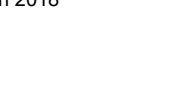
| Depth (m) | Samples       | Water | Graphic Log                                                                         | Material Description                                                                      |
|-----------|---------------|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 0.2       |               |       |    | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)                            |
| 0.4       |               |       |   | Orange brown mottled yellow and grey slightly clayey silty fine SAND (Bognor Sand Member) |
| 0.6       | ES1 - 0.6-1.0 |       |                                                                                     |                                                                                           |
| 0.8       |               |       |                                                                                     |                                                                                           |
| 1         |               |       |                                                                                     |                                                                                           |
| 1.2       |               |       |                                                                                     |                                                                                           |
| 1.4       |               |       |                                                                                     |                                                                                           |
| 1.6       |               |       |                                                                                     |                                                                                           |
| 1.8       |               |       |                                                                                     |                                                                                           |
| 2         |               |       |                                                                                     |                                                                                           |
| 2.2       |               |       |                                                                                     |                                                                                           |
| 2.4       |               |       |                                                                                     |                                                                                           |
| 2.6       |               |       |                                                                                     |                                                                                           |
| 2.8       |               |       |                                                                                     |                                                                                           |
| 3         |               |       |                                                                                     |                                                                                           |
| 3.2       |               |       |                                                                                     |                                                                                           |
| 3.4       |               |       |  | Firm to stiff grey sandy CLAY (London Clay Formation)                                     |
| 3.6       |               |       |                                                                                     |                                                                                           |
| 3.8       |               |       |                                                                                     | Termination Depth at: 3.7m                                                                |
| 4         |               |       |                                                                                     |                                                                                           |
| 4.2       |               |       |                                                                                     |                                                                                           |
| 4.4       |               |       |                                                                                     |                                                                                           |

# TRIAL PIT LOG TP608

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 15/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

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| <b>COMMENTS</b> |
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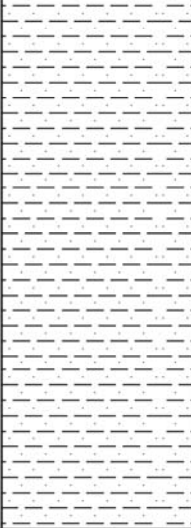
| Depth (m) | Samples       | Water | Graphic Log                                                                         | Material Description                                                                                                                                      |
|-----------|---------------|-------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.2       |               |       |    | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)                                                                                            |
| 0.4       |               |       |    | Orange brown mottled yellow and grey clayey silty SAND becoming increasingly clayey with depth with a terracotta land drain at 1.0m. (Bognor Sand Member) |
| 0.6       | ES1 - 0.6-1.0 |       |    |                                                                                                                                                           |
| 0.8       |               |       |   |                                                                                                                                                           |
| 1         |               |       |  |                                                                                                                                                           |
| 1.2       |               |       |  |                                                                                                                                                           |
| 1.4       |               |       |  |                                                                                                                                                           |
| 1.6       |               |       |  |                                                                                                                                                           |
| 1.8       |               |       |  |                                                                                                                                                           |
| 2         |               |       |  |                                                                                                                                                           |
| 2.2       |               |       |  |                                                                                                                                                           |
| 2.4       |               |       |  |                                                                                                                                                           |
| 2.6       |               |       |  |                                                                                                                                                           |
| 2.8       |               |       |  |                                                                                                                                                           |
| 3         |               |       |  |                                                                                                                                                           |
| 3.2       |               |       |  |                                                                                                                                                           |
| 3.4       |               |       |  |                                                                                                                                                           |
| 3.6       |               |       |  |                                                                                                                                                           |
| 3.8       |               |       |  | Termination Depth at: 3.8m                                                                                                                                |
| 4         |               |       |                                                                                     |                                                                                                                                                           |
| 4.2       |               |       |                                                                                     |                                                                                                                                                           |
| 4.4       |               |       |                                                                                     |                                                                                                                                                           |

# TRIAL PIT LOG TP609

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 15/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

|                 |
|-----------------|
| <b>COMMENTS</b> |
|-----------------|

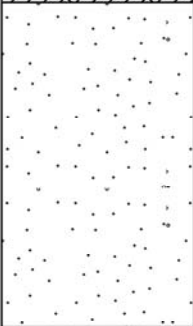
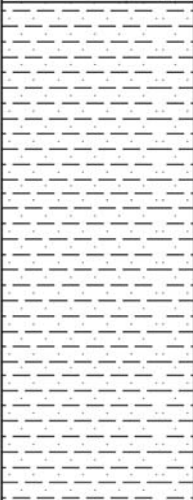
| Depth (m) | Samples       | Water | Graphic Log                                                                         | Material Description                                                                      |
|-----------|---------------|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 0.2       |               |       |    | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)                            |
| 0.4       |               |       |   | Orange brown mottled yellow and grey slightly clayey silty fine SAND (Bognor Sand Member) |
| 0.6       | ES1 - 0.6-1.0 |       |                                                                                     |                                                                                           |
| 0.8       |               |       |                                                                                     |                                                                                           |
| 1.0       |               |       |                                                                                     |                                                                                           |
| 1.2       |               |       |  | Soft to firm orange brown mottled yellow and grey silty sandy CLAY (Bognor Sand Member)   |
| 1.4       |               |       |                                                                                     |                                                                                           |
| 1.6       |               |       |                                                                                     |                                                                                           |
| 1.8       |               |       |                                                                                     |                                                                                           |
| 2.0       |               |       |                                                                                     |                                                                                           |
| 2.2       |               |       |                                                                                     |                                                                                           |
| 2.4       |               |       |                                                                                     |                                                                                           |
| 2.6       |               |       |                                                                                     |                                                                                           |
| 2.8       |               |       |                                                                                     |                                                                                           |
| 3.0       |               |       |                                                                                     |                                                                                           |
| 3.2       |               |       |                                                                                     |                                                                                           |
| 3.4       |               |       |                                                                                     | Termination Depth at: 3.3m                                                                |
| 3.6       |               |       |                                                                                     |                                                                                           |
| 3.8       |               |       |                                                                                     |                                                                                           |
| 4.0       |               |       |                                                                                     |                                                                                           |
| 4.2       |               |       |                                                                                     |                                                                                           |
| 4.4       |               |       |                                                                                     |                                                                                           |

# TRIAL PIT LOG TP610

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 16/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

|                 |
|-----------------|
| <b>COMMENTS</b> |
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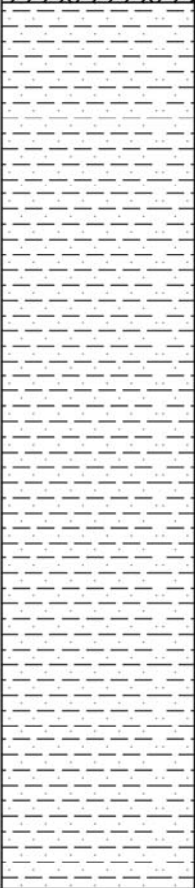
| Depth (m) | Samples       | Water | Graphic Log                                                                         | Material Description                                                                      |
|-----------|---------------|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 0.2       |               |       |    | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)                            |
| 0.4       |               |       |   | Orange brown mottled yellow and grey slightly clayey silty fine SAND (Bognor Sand Member) |
| 0.6       | ES1 - 0.6-1.0 |       |                                                                                     |                                                                                           |
| 0.8       |               |       |                                                                                     |                                                                                           |
| 1         |               |       |                                                                                     |                                                                                           |
| 1.2       |               |       |  | Soft to firm orange brown mottled yellow and grey silty sandy CLAY (Bognor Sand Member)   |
| 1.4       |               |       |                                                                                     |                                                                                           |
| 1.6       |               |       |                                                                                     |                                                                                           |
| 1.8       |               |       |                                                                                     |                                                                                           |
| 2         |               |       |                                                                                     |                                                                                           |
| 2.2       |               |       |                                                                                     |                                                                                           |
| 2.4       |               |       |                                                                                     |                                                                                           |
| 2.6       |               |       |                                                                                     |                                                                                           |
| 2.8       |               |       |                                                                                     |                                                                                           |
| 3         |               |       |                                                                                     |                                                                                           |
| 3.2       |               |       |                                                                                     | Termination Depth at: 3.1m                                                                |
| 3.4       |               |       |                                                                                     |                                                                                           |
| 3.6       |               |       |                                                                                     |                                                                                           |
| 3.8       |               |       |                                                                                     |                                                                                           |
| 4         |               |       |                                                                                     |                                                                                           |
| 4.2       |               |       |                                                                                     |                                                                                           |
| 4.4       |               |       |                                                                                     |                                                                                           |

# TRIAL PIT LOG TP611

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 16/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

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|-----------------|
| <b>COMMENTS</b> |
|-----------------|

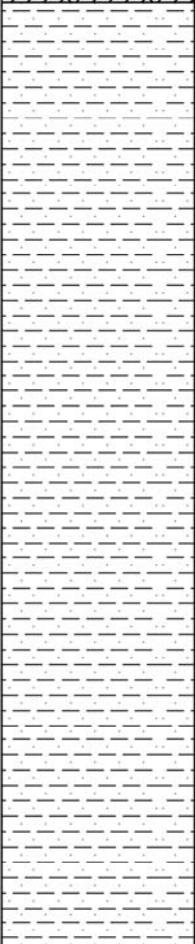
| Depth (m) | Samples       | Water | Graphic Log                                                                        | Material Description                                                                          |
|-----------|---------------|-------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 0.2       |               |       |   | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)                                |
| 0.4       |               |       |                                                                                    |                                                                                               |
| 0.6       | ES1 - 0.6-1.0 |       |  | Soft to firm orange brown mottled yellow and grey silty very sandy CLAY. (Bognor Sand Member) |
| 0.8       |               |       |                                                                                    |                                                                                               |
| 1         |               |       |                                                                                    |                                                                                               |
| 1.2       |               |       |                                                                                    |                                                                                               |
| 1.4       |               |       |                                                                                    |                                                                                               |
| 1.6       |               |       |                                                                                    |                                                                                               |
| 1.8       |               |       |                                                                                    |                                                                                               |
| 2         |               |       |                                                                                    |                                                                                               |
| 2.2       |               |       |                                                                                    |                                                                                               |
| 2.4       |               |       |                                                                                    |                                                                                               |
| 2.6       |               |       |                                                                                    |                                                                                               |
| 2.8       |               |       |                                                                                    |                                                                                               |
| 3         |               |       |                                                                                    |                                                                                               |
| 3.2       |               |       |                                                                                    |                                                                                               |
| 3.4       |               |       |                                                                                    | Termination Depth at: 3.3m                                                                    |
| 3.6       |               |       |                                                                                    |                                                                                               |
| 3.8       |               |       |                                                                                    |                                                                                               |
| 4         |               |       |                                                                                    |                                                                                               |
| 4.2       |               |       |                                                                                    |                                                                                               |
| 4.4       |               |       |                                                                                    |                                                                                               |

# TRIAL PIT LOG TP612

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 16/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

|                 |
|-----------------|
| <b>COMMENTS</b> |
|-----------------|

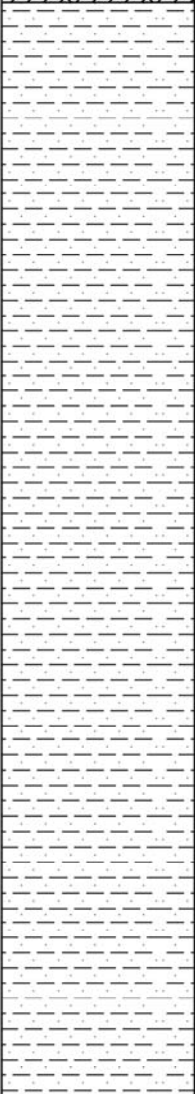
| Depth (m) | Samples       | Water | Graphic Log                                                                        | Material Description                                                         |
|-----------|---------------|-------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 0.2       |               |       |   | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)               |
| 0.4       |               |       |                                                                                    |                                                                              |
| 0.6       | ES1 - 0.6-1.0 |       |  | Orange brown mottled yellow and grey clayey silty SAND. (Bognor Sand Member) |
| 0.8       |               |       |                                                                                    |                                                                              |
| 1         |               |       |                                                                                    |                                                                              |
| 1.2       |               |       |                                                                                    |                                                                              |
| 1.4       |               |       |                                                                                    |                                                                              |
| 1.6       |               |       |                                                                                    |                                                                              |
| 1.8       |               |       |                                                                                    |                                                                              |
| 2         |               |       |                                                                                    |                                                                              |
| 2.2       |               |       |                                                                                    |                                                                              |
| 2.4       |               |       |                                                                                    |                                                                              |
| 2.6       |               |       |                                                                                    |                                                                              |
| 2.8       |               |       |                                                                                    |                                                                              |
| 3         |               |       |                                                                                    |                                                                              |
| 3.2       |               |       |                                                                                    |                                                                              |
| 3.4       |               |       |                                                                                    |                                                                              |
| 3.6       |               |       |                                                                                    | Termination Depth at: 3.5m                                                   |
| 3.8       |               |       |                                                                                    |                                                                              |
| 4         |               |       |                                                                                    |                                                                              |
| 4.2       |               |       |                                                                                    |                                                                              |
| 4.4       |               |       |                                                                                    |                                                                              |

# TRIAL PIT LOG TP613

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 16/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

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|-----------------|
| <b>COMMENTS</b> |
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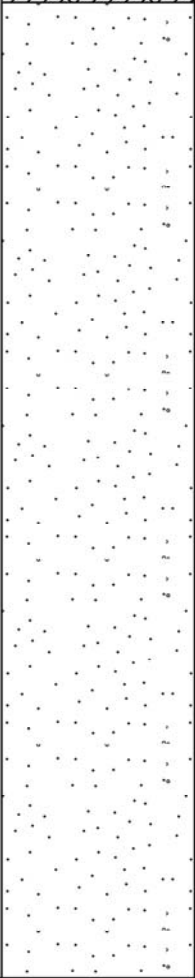
| Depth (m) | Samples       | Water | Graphic Log                                                                        | Material Description                                                         |
|-----------|---------------|-------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 0.2       |               |       |   | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)               |
| 0.4       |               |       |                                                                                    |                                                                              |
| 0.6       | ES1 - 0.6-1.0 |       |  | Orange brown mottled yellow and grey clayey silty SAND. (Bognor Sand Member) |
| 0.8       |               |       |                                                                                    |                                                                              |
| 1         |               |       |                                                                                    |                                                                              |
| 1.2       |               |       |                                                                                    |                                                                              |
| 1.4       |               |       |                                                                                    |                                                                              |
| 1.6       |               |       |                                                                                    |                                                                              |
| 1.8       |               |       |                                                                                    |                                                                              |
| 2         |               |       |                                                                                    |                                                                              |
| 2.2       |               |       |                                                                                    |                                                                              |
| 2.4       |               |       |                                                                                    |                                                                              |
| 2.6       |               |       |                                                                                    |                                                                              |
| 2.8       |               |       |                                                                                    |                                                                              |
| 3         |               |       |                                                                                    |                                                                              |
| 3.2       |               |       |                                                                                    |                                                                              |
| 3.4       |               |       |                                                                                    |                                                                              |
| 3.6       |               |       |                                                                                    |                                                                              |
| 3.8       |               |       |                                                                                    |                                                                              |
| 4         |               |       |                                                                                    | Termination Depth at: 4.0m                                                   |
| 4.2       |               |       |                                                                                    |                                                                              |
| 4.4       |               |       |                                                                                    |                                                                              |

# TRIAL PIT LOG TP614

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 16/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

|                 |
|-----------------|
| <b>COMMENTS</b> |
|-----------------|

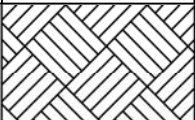
| Depth (m) | Samples       | Water | Graphic Log                                                                        | Material Description                                                                  |
|-----------|---------------|-------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 0.2       |               |       |   | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)                        |
| 0.4       |               |       |  | Orange brown mottled yellow and grey slightly clayey silty SAND. (Bognor Sand Member) |
| 0.6       | ES1 - 0.6-1.0 |       |                                                                                    |                                                                                       |
| 0.8       |               |       |                                                                                    |                                                                                       |
| 1         |               |       |                                                                                    |                                                                                       |
| 1.2       |               |       |                                                                                    |                                                                                       |
| 1.4       |               |       |                                                                                    |                                                                                       |
| 1.6       |               |       |                                                                                    |                                                                                       |
| 1.8       |               |       |                                                                                    |                                                                                       |
| 2         |               |       |                                                                                    |                                                                                       |
| 2.2       |               |       |                                                                                    |                                                                                       |
| 2.4       |               |       |                                                                                    |                                                                                       |
| 2.6       |               |       |                                                                                    |                                                                                       |
| 2.8       |               |       |                                                                                    |                                                                                       |
| 3         |               |       |                                                                                    |                                                                                       |
| 3.2       |               |       |                                                                                    |                                                                                       |
| 3.4       |               |       |                                                                                    |                                                                                       |
| 3.6       |               |       |                                                                                    | Termination Depth at: 3.6m                                                            |
| 3.8       |               |       |                                                                                    |                                                                                       |
| 4         |               |       |                                                                                    |                                                                                       |
| 4.2       |               |       |                                                                                    |                                                                                       |
| 4.4       |               |       |                                                                                    |                                                                                       |

# TRIAL PIT LOG TP615

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| <b>PROJECT NUMBER</b> J17-019     | <b>EXCAVATION COMPANY</b> Gold Max          |
| <b>PROJECT NAME</b> Dunsbury Park | <b>SI METHOD</b> Mechanical Excavation (8T) |
| <b>CLIENT</b> BAM                 | <b>LOGGED BY</b> AP                         |
| <b>ADDRESS</b> Havant             |                                             |
| <b>SI DATE</b> 16/01/18           |                                             |

|                   |                    |
|-------------------|--------------------|
| <b>COMPLETION</b> | <b>CASING</b> None |
|-------------------|--------------------|

|                 |
|-----------------|
| <b>COMMENTS</b> |
|-----------------|

| Depth (m) | Samples       | Water | Graphic Log                                                                       | Material Description                                                                  |
|-----------|---------------|-------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 0.2       |               |       |  | Brown slightly clayey silty fine SAND with rootlets. (Topsoil)                        |
| 0.4       |               |       |                                                                                   |                                                                                       |
| 0.6       | ES1 - 0.6-1.0 |       |                                                                                   | Orange brown mottled yellow and grey slightly clayey silty SAND. (Bognor Sand Member) |
| 0.8       |               |       |                                                                                   |                                                                                       |
| 1         |               |       |                                                                                   |                                                                                       |
| 1.2       |               |       |                                                                                   |                                                                                       |
| 1.4       |               |       |                                                                                   |                                                                                       |
| 1.6       |               |       |                                                                                   |                                                                                       |
| 1.8       |               |       |                                                                                   |                                                                                       |
| 2         |               |       |                                                                                   |                                                                                       |
| 2.2       |               |       |                                                                                   |                                                                                       |
| 2.4       |               |       |                                                                                   |                                                                                       |
| 2.6       |               |       |                                                                                   |                                                                                       |
| 2.8       |               |       |                                                                                   |                                                                                       |
| 3         |               |       |                                                                                   |                                                                                       |
| 3.2       |               |       |                                                                                   |                                                                                       |
| 3.4       |               |       |                                                                                   |                                                                                       |
| 3.6       |               |       |                                                                                   |                                                                                       |
| 3.8       |               |       |                                                                                   |                                                                                       |
| 4         |               |       |                                                                                   |                                                                                       |
| 4.2       |               |       |                                                                                   | Termination Depth at: 4.1m                                                            |
| 4.4       |               |       |                                                                                   |                                                                                       |